

### **Electro-Magnetic Compatibility (EMC)**

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



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# **User Guide**

## **Weighlog 200**

**On-Board**

**Weighing System**

**Calibration and Operation**

Software Reference WZ305-005 rev.07

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### 1. Overview

The Weighlog 200 is intended for use on industrial and agricultural loading shovels, fore-end loaders, back-hoe loaders, (loader side only), tipping trailers and tipping trucks.

It measures, displays and records the net weight lifted, normally based on sensing the lift system hydraulic pressure. Pressure sensing is problematic on certain types of equipment due to the design of the hydraulic system. In these instances strain sensing technology may be used instead. The Weighlog 200 also has lift speed compensation to improve accuracy when weighing dynamically.

The instrument has an illuminated 4-digit LCD display, 5 front panel switches, an external Load Enter Button, and an internal audible alarm. An external audible alarm is optional. The instrument is normally powered on via the ignition circuit and recalls the function selected when last used.

There are 5 individual display channels available. These can be calibrated for up to 5 different loader attachments, different trailers or different commodities. Each channel will display the net bucket weight lifted at any time. If required the bucket weight can be added to the total for the channel in use and will also be added to the TOTAL channel, which accumulates weight from all of the five channels.

The instrument has a Load Alarm function. If the load exceeds a preset figure, an audible alarm is triggered and the weight display will flash.

The instrument can be configured to automatically print each bucket weight entered, or individual load total when the instrument is zeroed for the next load. Also, you can at any time print out the accumulated total for channel 1 to 5, and the Grand Total (channel 6).

For each channel you can :

- Adjust the Weight Calibration Factor
- Set either Static or Dynamic Weighing Mode.
- Set the Zero Weight.
- Display and add the bucket weight to the sub-total.
- Receive audible alarm confirmation of the zero and load entering.
- Print the last bucket weight automatically
- Print an accumulated total
- Reset the accumulated total (and automatically print a summary)
- Compensation for variable lift speed (dynamic weighing only)

## Programming Modes

There are 3 programming modes with various calibration factors and default settings. Many of these settings are made on installation and do not normally need to be changed unless the instrument is moved on to a different loader. The operator does not normally need to access the programming modes.

**CAL Mode 1 is for weight calibration.** The instrument is calibrated independently for each channel 1 to 5 (e.g. each channel can be dedicated to suit a particular attachment or commodity). Channel 6 is used to programme the Overload Alarm.

**CAL Mode 2** covers Speed Compensation Factors, Static weight readout, Manual weighing (using the REF button), Time, Date, and Units selection.

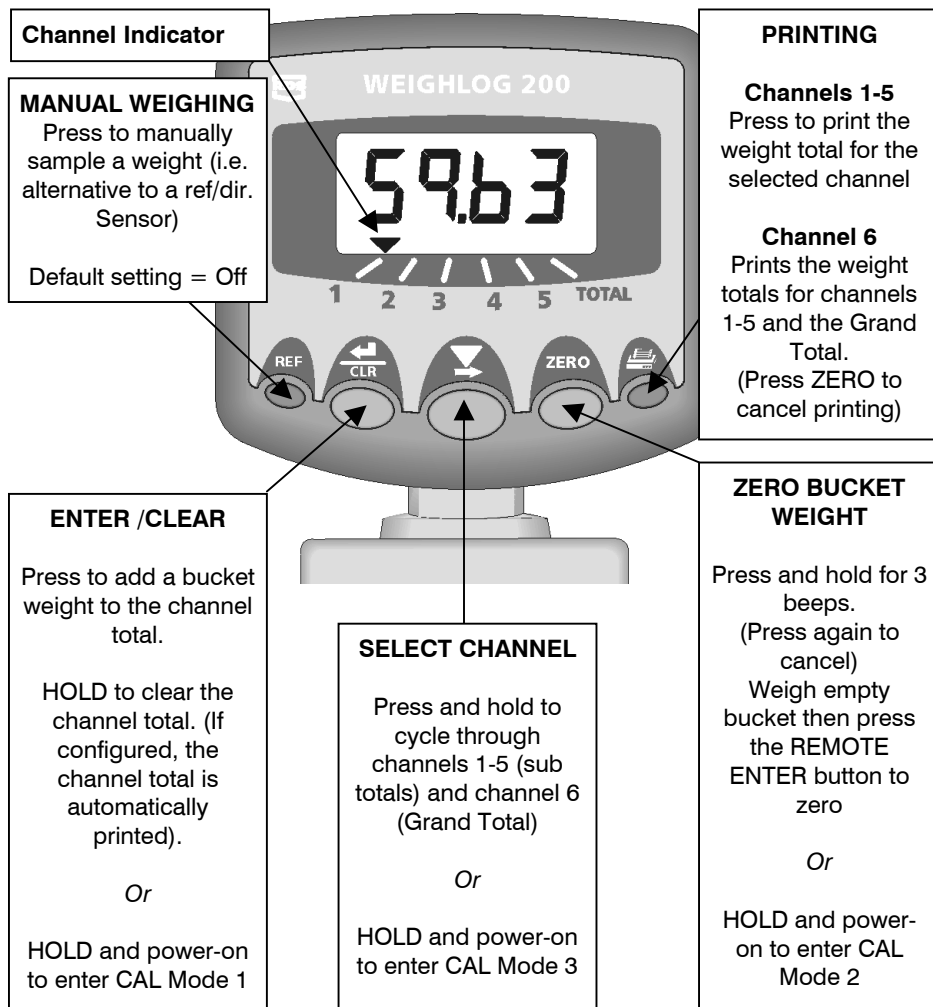
**CAL Mode 3 is for Printer Setup.**

*NOTE: With careful operation, system accuracy can be as good as  $\pm 1\%$  of lift capacity although  $\pm 2\%$  is more common in practice.*

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

## 2 The Control Switches

There are five switches on the front panel used individually or in combination to programme, set, reset or select a function.



## 2.1 Display Units

The instrument can be set to display units as tons (USA)/ tonnes, kgs or lbs.

When set to the "**kgs**" or "**lbs**" readout option, the display will read up to '9990' rounded to the nearest 10 units. Above this threshold (e.g. when displaying any of the totals) the display will alternate between "lbs x 1000" and any remainder. Therefore, the instrument can display up to 999,990 lbs

The table below gives examples of the readout.

Units – Channel Total Display				
Tons/tonnes	kgs		lbs	
'1.02'	'1020'		'2040'	
	kg x 1000	kgs	lb x 1000	lbs
'10.20'	'10' ↔ '-200' (10,200 kg)		'20' ↔ '-400' (20,400 lbs)	
'102.0'	'102' ↔ '-000' (102,000 kg)		'204' ↔ '-000' (204,000 lbs)	
MAX. = '9999'	'999' ↔ '-990' (999,990 kg)		'999' ↔ '-990' (999,990 lbs)	

## 2.2 Machine requirements

The Weighlog translates pressure (or strain) to weight by means of a calibration factor programmed into the instrument. 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** : Avoid weighing when on a slope or a side slope. Wherever possible weigh on a level area.
3. **Vehicle movement** : Best results are obtained when weighing while the vehicle is stationary. It is important that the load does not bounce or jerk as it is lifted.

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.

*NOTE: 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 which may have become trapped at the pressure sensor.*

### 2.3 **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. Ensure that you lift at the weighing speed as you pass through the reference position (dynamic weighing).

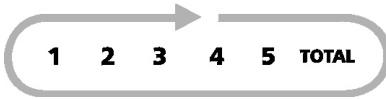
**If when lifting the bucket in dynamic weighing mode, the instrument displays 'FAST' or 'Slo' and beeps 3 times, then lower and lift again at an appropriate speed.**

**This also applies when checking the zero weight (section 3.3, 3.4).**



### 3. Before Weighing

#### 3.1 Select Channel



Ensure that the correct channel is selected for the attachment / commodity / trailer to be weighed.

Simply press the  button to cycle through the channels.



Figure 3 Select Channel

#### 3.2 Select the Weighing Mode

In the normal operating mode, you cannot switch between Static and Dynamic weighing mode on an individual channel.

Separate channels are set up for either Static weighing or Dynamic weighing, as part of the weight calibration routine (6.2.4). You then select the appropriate channel for the weighing mode you wish to use.



Figure 4 Enter CAL Mode 1

#### Checking the Weighing Mode.



1. HOLD the  button and power-on the instrument (Fig. 4). The display will show "dYn" for dynamic weighing mode or "StAt" for static weighing mode, for channel 1.
2. Press the  button to cycle through the other channels.



Figure 5 Select Weighing Mode

### 3.3 Check Zero Weight

You should check the zero weight regularly as part of the daily operating routine. ALWAYS check zero weight if the machine has been left idle for some time and has cooled down.

The lifting procedure is different for Dynamic and Static weighing modes. Note the weighing mode set on the channel you have selected and follow the appropriate procedure below.

1. Ensure that the bucket is completely empty. Crowd (roll) the bucket right back as far as it will go.
- 2.a **Dynamic weighing mode** : Lift the bucket through the reference position. Two beeps will be heard. The display will show a value.
- 2.b **Static weighing mode** : Lift the bucket up to the reference position and stop. A single beep will be heard. If you lift too high, the display will show 4 dashes (fig. 6). If so, lower the bucket back down to the reference position.
3. If the display reads within  $\pm 0.02t$ , or 20 kgs, or 40lbs (fig. 7 depending on the display units selected, this is within the repeatability of the Weighlog system and can be accepted without zeroing the weight. Simply continue loading as normal.
4. If the display reads more than  $\pm 0.02t$ , or 20 kgs, or 40lbs (fig. 8), then you should zero the weight (see 3.4).

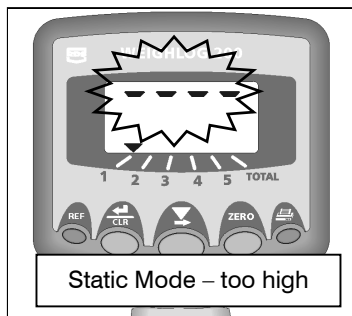


Figure 6



Figure 7



Figure 8

### 3.4 Zero Weight (Set Tare)

The weight should be zeroed if the weight reading for an empty bucket is more than  $\pm 0.02t$ , or 20 kgs, or 40lbs.

Ensure that the hydraulic system is up to it's normal operating temperature. It may be necessary to lift and lower a full bucket for a few minutes to exercise the hydraulics and warm the system up. Observe the correct lifting routine (section 2.2).

1. Ensure that the bucket is completely empty. Crowd (roll) the bucket right back as far as it will go.
2. **SELECT THE CHANNEL TO BE ZEROED.**
3. Press and hold the ZERO button (fig 9). The audible alarm will beep **THREE** times and the display will flash "**0.00**".
- 4.a **Dynamic weighing mode** : Lift the bucket through the reference position. Two beeps will be heard. The display will show a value.
- 4.b **Static weighing mode** : Lift the bucket up to the reference position and stop. A single beep will be heard. If you lift too high, the display will show 4 dashes (fig. 6). If so, lower the bucket back down to the reference position.
5. As the weight is registered, the display will continue to flash but may change to show a number (fig. 10). Press the REMOTE ENTER BUTTON to zero the weight (fig. 11). The alarm will sound one beep to confirm the weight is zeroed.

**NOTE:** Press ZERO button to cancel routine.

6. Repeat the routine several times to confirm the system is correctly zeroed.



Figure 9



Figure 10

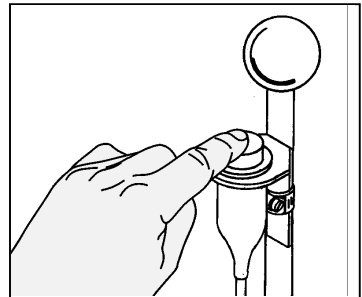



Figure 11

## 4 Weighing

There are two fundamentally different ways of weighing with the Weighlog - Dynamic weighing and Static weighing. You can select the weighing method for each of the five channels on the instrument.

### 4.1 Dynamic Weighing

Dynamic weighing means that the weight is measured without interrupting the lift. The load is lifted straight through the reference position. Dynamic weighing can give consistent results without significantly slowing down the loading cycle, but it does rely on a certain degree of care on the part of the operator (section 2.2).


1. Lift the load *through* the reference position. The alarm will sound two beeps. The display will then show the net weight in the bucket. The weight will remain displayed until you lower the bucket below the reference position.
2. Press either the  button or the Remote Enter Button to add the weight to the sub-total for the selected channel (and to the TOTAL channel).

**NOTE:** *If "Slo" or "FAST" is displayed instead of a calculated weight, you have lifted too slowly or too quickly for speed compensation to work. Try again (or recalibrate over a more suitable lift speed range – 6.2.4).*

### 4.2 Static weighing

Static weighing requires the load to be lifted or lowered to the reference position and held there. The display will show a "live reading" (see note) which will fluctuate as the machine settles. You can tip off excess material as required, therefore static weighing is ideal for the last bucket load if you are aiming to reach a target load.

**NOTE:** *The "live" readout is enabled via the "Live Static" setting in CAL Mode 2.*

1. Lift the load up to the weighing position. The alarm will sound one beep and the "live" weight will be displayed. If you go too high the display will show 4 bars (fig. 6).
2. It is a peculiarity of hydraulic systems that the pressure (and therefore the load reading) will diminish for some time after the load is stopped at the reference position, therefore you should allow a short delay for the weight reading to settle down.
3. Press either the  button or the Remote Enter Button to add the weight to the sub-total for the selected channel (and to the TOTAL channel).

### 4.3 Trailer Weighing

Specifically for weighing applications other than for front-end loaders, e.g. for trailer weighing, a special feature of the Weighlog 200 allows you to manually trigger a weighing sample using the REF button. In effect, the REF button performs the function of a Reference/Direction sensor.

The REF button is normally disabled. It is enabled via CAL Mode 2. It can also be enabled in addition to a Ref/Dir sensor ('AUTO' setting), in which case a weight reading is triggered by either the sensor or the REF button, whichever is triggered first.

**Procedure:**


1. Lift the tipper body slightly so that the lift ram becomes pressurised.

**NOTE: Always sample the trailer weight with the tipper body raised to the same position at which weight calibration was performed.**

**Sampling at a different position will adversely affect weighing accuracy.**

2. Press the REF button (Fig. 12a).

*With Static weighing*, when the REF Button is pressed, a live static reading is displayed. To cancel the weight reading and return to the sub-total display, press the REF button again.

3. While the weight is displayed, press either the  button or the Remote Enter button to add the weight to the sub-total for the selected channel (and to the TOTAL channel).

If the selected channel is set up, the weight will appear on the display for 5 seconds before it cancels to zero.



Figure 12a Trailer Weighing

**NOTE:** If the "ENT" print mode is enabled, an automatic printout (in the "REC" format) is made after the REF button is pressed.

### 4.4 *Incorrect Weight readings*

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.

If the Weighlog reading is more than the true weight, the factor is decreased and vice versa, if the Weighlog reading is less than the true weight, the factor is increased.

Therefore, if you find a consistent discrepancy between the Weighlog readings and the weighbridge readings, intuitively, you can then nudge the cal factor up or down as required

E.g. If the Weighlog reading is 10% high, then reduce the cal. factor by 10%.

The actual calibration factor can also be determined by a simple calculation using the true weight and the displayed weight as follows :

$$\text{Correct factor} = \text{existing factor} \times \frac{\text{true weight}}{\text{Weighlog reading}}$$

The calibration factor can be adjusted either in Cal Mode 1 or from the normal operating mode.

#### *Adjusting a Weight reading in normal operating mode*

With the instrument in the normal operating mode, lift a known weight. If the displayed weight differs, then you can easily correct it ('nudge') as follows.

Press and hold the REF button for 5 seconds until the display is as shown.

Continue holding the REF button and either adjust the weight up using the ZERO key, or down using the PRINT (outer right) key.

Release the REF key. The display shows 'DonE' and a new calibration factor is stored in memory.



*Figure 12b: Adjust Cal Factor*

4.5 Load Alarm


Default: - Alarm Off

The instrument has a Load Alarm function. If the load exceeds a preset figure set in CAL Mode 2 (6.2.6), an audible alarm is triggered and the weight display will flash.

The alarm will continue and weighing is not possible until the overload condition ceases. The load alarm is operative at any lift position.

4.6 Printing

Printing a Channel total (Channels 1 to 5)


Select the appropriate channel then press the  button to print the total weight that has been recorded to that channel since it was last reset.

If the printer mode is set to “REC”, a short “Job Record” will be printed. (Fig. 13).

If the printer total is set to “ROLL”, a “Job Record” will be printed with space for the customer name, address and signature (Fig. 14).

NOTE: Pressing the ZERO button will cancel routine.

Printing a Grand Total

Select channel 6 and press the  button to print a “Totals Summary” of the individual totals for channels 1 to 5, and the Grand Total recorded to channel 6 (Fig.15a).

NOTE: Pressing the ZERO button will cancel routine.

RDS WL200

Job Record

Job Number

24/06/2002

0

Date

16:37

Time

STORE

WEIGHT

3

3.66

Reference:

Figure 13 : A Job Record (“REC”)

RDS WL200

Job Record

Job Number

24/06/2002

0

Date

16:39

Time

STORE

WEIGHT

1

8.95

Reference:

Name:

Address:

Sign:

Figure 14 : A Job Record (“ROLL”)

Automatic Printing

NOTE: The print mode in CAL Mode 3 (6.4.2) must be set to either “REC” “ROLL” or “ENT” to enable automatic printing.

“REC” / “ROLL” Print Mode


The instrument will automatically generate a “REC” or “ROLL” type printout when you reset any channel to zero, for example, after completing a load.

The job number increments by one each time any channel total is reset.

-----	
RDS WL200	
TOTAL SUMMARY	
-----	
Date	24/06/2002
Time	16:38
-----	
STORE	WEIGHT
1	8.95
2	19.67
3	3.66
4	0.00
5	0.00
-----	
	32.29
-----	
Total	32.29
-----	

Figure 15a : Totals Summary

“ENT” Print Mode

If “ENT” print mode is set in CAL Mode 3, the instrument will automatically print the weight of the last bucket lift/trailer load (Fig. 15b), when you press the  button or the Remote Enter switch to add the bucket weight/trailer load to the channel total.

-----	
RDS WL200	
Job Record	
-----	
Job Number	1
Date	24/06/2002
Time	16:40
Weight	7.78
Reference:	
-----	

Figure 15b : “ENT” Printout

NOTE: Pressing the ZERO button will cancel routine.



## 5 Totals

### 5.1 Reset Individual Sub-totals / Grand Total

Channels 1 to 6 can be reset independently.

1. Select the appropriate channel.
2. Press and hold the  $\frac{\leftarrow}{\text{CLR}}$  button or the Remote Enter button for 5 seconds.

The display will flash 5 times and then go to zero.

If “REC” or “ROLL” print mode is enabled, the instrument will automatically generate a printout.



Figure 16: Reset Grand Total

### 5.2 Display Time

1. Select the TOTAL channel.
2. Press and hold the ZERO button (Fig. 17).  
The time displays in 24hr format (hh:mm)





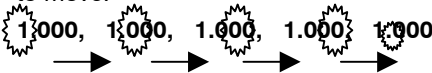
Figure 17: Display Time



## 6 Calibration

### 6.1 Programme a Numeric Setting

This applies to any numeric setting that needs changing. With the factor displayed, normally, the left-hand digit of the four-digit number will be flashing (Fig.18).

1. While holding the  button, PRESS and RELEASE the  button to SELECT the digit you want to change, or decimal point to move.



2. Keep holding the  button, HOLD the  button to cycle the digit from 0 to 9, or to move the decimal point.




3. Release the  button and the next digit will flash.
4. Repeat steps 1, 2 and 3 as necessary to change the other digits, or if you make a mistake.



Figure 18



Figure 19

### Entering a Negative Value

A negative value is indicated by the MIDDLE cursor on the left of the display (Fig.20).

To switch between positive and negative, perform step 1 above, to select the flashing cursors (Fig.19).


As in step 2 above, HOLD the  button until the middle cursor appears and then release the button. The value then becomes negative.



Figure 20

## 6.2 CAL Mode 1 – Weight Calibration

The calibration factor is an arbitrary number relating the hydraulic pressure (or strain measurement) in the lift system to the load in the bucket. Accurate results from the Weighlog can only be achieved if the calibration procedure has been carried out carefully and in the correct sequence. Decide which attachment/commodity applies to which channel and whether static weighing or dynamic weighing is appropriate. Make a note of this on the chart provided at the back of this manual.

**Perform the following calibration steps for each channel to be calibrated. Refer to the appropriate sections for additional information.**

**NOTE 1:**

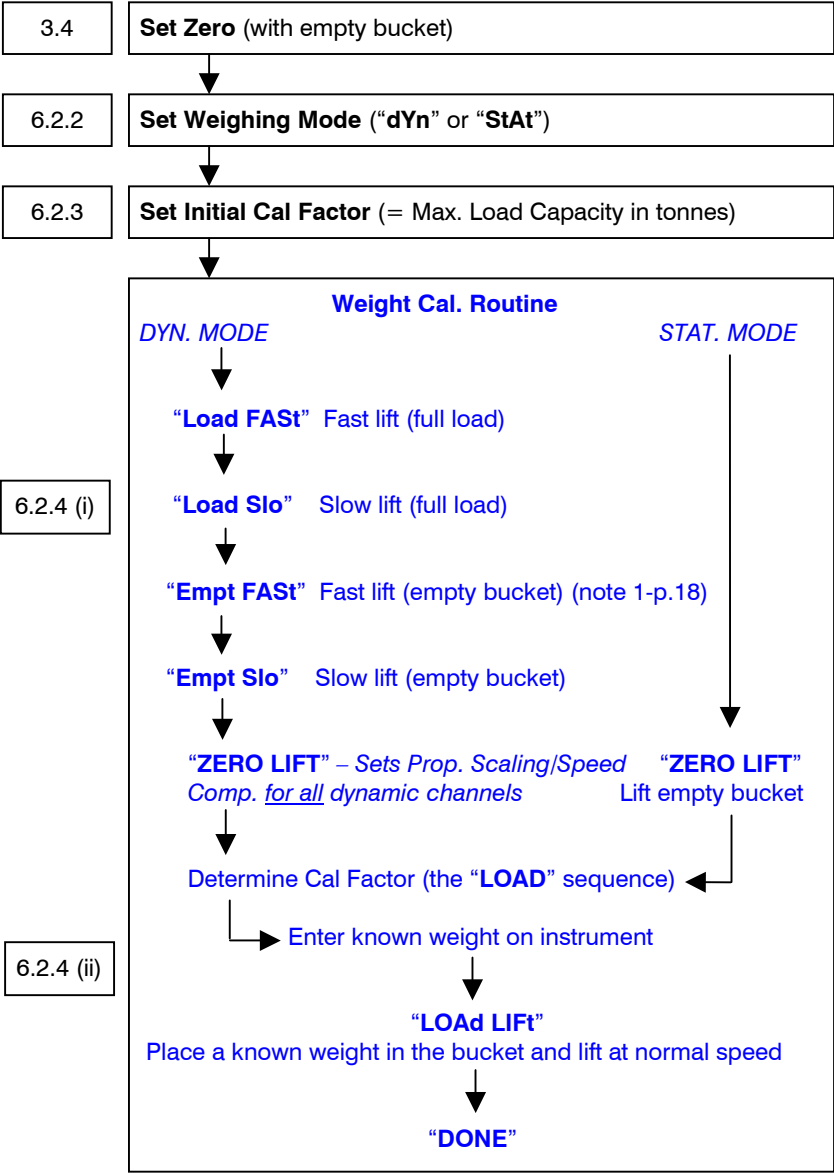
**Fast lifts are normally the fastest lift speed of the machine. If not, both the fast zero and fast load lifts should be carried out at exactly the same speeds for a successful Autocal.**

**NOTE 2:**

**A full bucket must be used so that the software can calculate the difference between an empty bucket and a full bucket. Using a few hundred kilos only as a test load will result in a poor Autocal.**

**NOTE 3:**



**When calibrating for dynamic weighing, ensure that the magnet has moved well above the reference and direction sensors, otherwise the speed compensation calibration routine may not be correctly implemented.**



### 6.2.1 Enter CAL Mode 1

1. Press the  button and power-on the instrument.
2. Press  to select the channel you want to calibrate (channels 1 to 5).

### 6.2.2 Set Weighing Mode

3. Hold the  button and press the  button to toggle between Static mode ("StAt") and Dynamic mode ("dYn").
4. Release both buttons.

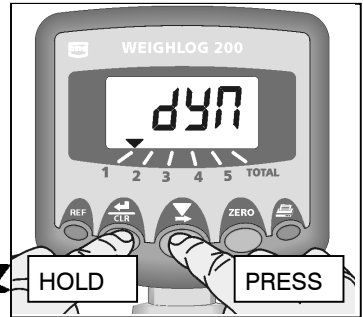



Figure 21 : Set Weigh Mode

### 6.2.3 Set Initial Cal. Factor

This continues from section 6.2.2.

5. Press  again to display the weight calibration factor "CALF". (Fig.19).

*Default Factor = 1.000*

Set the initial calibration factor to equal the lift capacity of the machine (e.g. if the lift capacity is 1.5 tonnes, then set the factor to 1.500).

**NOTE:** *The Cal Factor will normally have a value somewhere between 1 and 10.*

*If you are working in lbs units, regardless if the instrument is set for "USA" units, you must convert to decimal tons when entering the initial cal factor. E.g for 10,000 lb capacity, enter Cal Factor of 5.000.*



Figure 22 : Set Initial Cal Factor

### 6.2.4 Weight Calibration Routine

This continues from section 6.2.3.

#### (i) Proportional Scaling Factor/Speed Compensation

*NOTE: This appears only if dynamic weighing mode ("dYn") is set, otherwise, skip to section 6.2.4 (ii).*

"Proportional Scaling" compensates for efficiency losses in a dynamic lift, and is a scaling factor based on the maximum load of the machine. This factor is more significant for large capacity machines.

6. Press  $\frac{\leftarrow}{\text{CLR}}$  again to confirm the entry in step 5. The screen displays "**LoAd FAST**".
7. Lift the FULL bucket through the weighing position a number of times at MAXIMUM speed, each time noting the number displayed (the frequency signal from the load sensor).

*NOTE: If you maintain a constant lift speed and engine revs on the lifts, the frequency readings should not normally vary more than a few Hertz*

When an acceptable loaded, fast lift is made, press  $\frac{\leftarrow}{\text{CLR}}$  to confirm the entry. The screen then displays "**LoAd SLo**".

8. Lift the FULL bucket a number of times at MINIMUM speed, each time noting the number displayed (the frequency signal from the load sensor). When an acceptable slow lift is made, press  $\frac{\leftarrow}{\text{CLR}}$  to confirm the entry. The screen then displays "**EmPt FAST**".
9. Lift the EMPTY bucket a number of times at MAXIMUM speed, each time noting the number displayed (the frequency signal from the load sensor). When an acceptable fast lift is made, press  $\frac{\leftarrow}{\text{CLR}}$  to confirm the entry. The screen then displays "**EmPt SLo**".
10. Lift the EMPTY bucket a number of times at MINIMUM speed. Press the  $\frac{\leftarrow}{\text{CLR}}$  to confirm, as before. Speed compensation is calculated from the fast and slow lifts, and is automatically switched on. The screen then displays "**ZERO LIFT**".

If you want to weigh dynamically, you need only perform this routine for Channel 1. Speed compensation and Proportional Scaling then takes effect for any other channel set for dynamic weighing ("dYn").

For channels 2 to 5, you subsequently perform a simple Zero and Cal Load lift regardless if the channel is set for dynamic weighing or for Static weighing.

**NOTE:** Note down the average frequency reading (fast/slow lift) with the empty bucket. This figure is required to calculate the threshold value for the Load Alarm on the TOTAL channel (ref. 6.2.6).

11. **Dynamic weighing mode** : Lift the bucket AT NORMAL SPEED through the reference position. The display will show a value.

**Static weighing mode** : Lift the bucket up to the reference position and stop. A single beep will be heard. If you lift too high, the display will show 4 dashes. If so, lower the bucket back down to the reference position.

Press  or the REMOTE ENTER BUTTON to zero the weight.

## (ii) Set Cal. Factor (with a Test Load)

This continues from section 6.2.4 (i)

12. The screen briefly displays “**LoAd**” and then the current cal factor (default = “**1.000**”).
13. Fill the bucket with a typical load, the weight of which is already known from a weighbridge or portable weigh scales.

**NOTE:** If you are loading bags of known weight, ensure they are evenly distributed in the bucket (or on the pallet). (Also see note 1 - page 18)

14. Programme the known weight (section 6.1) and press  to confirm.

When “**tons**” units is selected, the test load weight is entered in **tons** / **tonnes**. A number of 1.000 denotes 1ton/tonne.

When “**kgs**” or “**lbs**” units is selected, the test load weight is entered in kg or lbs.

A number of 1000 denotes 1000 lbs. For example a test load of 4000 lbs must be entered as “**4000**”.

The screen then displays “**LOAD LIFT**”.

15. **Dynamic weighing mode** : Lift the bucket AT NORMAL SPEED through the reference position. The display will show a value.

**Static weighing mode** : Lift the bucket up to the reference position and stop. A single beep will be heard. If you lift too high, the display will show 4 dashes. If so, lower the bucket back down to the reference position.

Press  or the REMOTE ENTER BUTTON to enter the weight.

The instrument then displays “**DONE**” before displaying the weighing mode for that channel. The calibration factor is automatically calculated and stored in memory.

### 6.2.5 Overload Alarm Setup

*Cal 1 - Channel 6 : The default setting is **0000 Hz** (Alarm Off).*

If the load sensor frequency input exceeds the value set on this channel, an audible alarm is triggered and the display flashes.

Calculate the threshold frequency as follows,

**Threshold Hz = Hz for empty lift + (Alarm load (kg) x Cal Factor)**

Example: Empty lift = 3100Hz (noted when doing the weight calibration routine - ref. 6.2.4)

Cal Factor = 1.000

Alarm Load = 2000kg

Threshold Hz = 3100 + (2000 x 1.000) = 5100Hz

Programme the appropriate figure in the normal way (ref. 6.1)


Return to the normal operating mode and check the operation of the alarm. It may be necessary to adjust the threshold setting if the alarm sounds at the wrong load.

*NOTE: The required setting is essentially achieved through trial and error. A typical accuracy in the order of  $\pm 10\%$  should be expected for the load alarm function.*



### 6.3 CAL mode 2

#### 6.3.1 Enter CAL Mode 2

Press the ZERO button and power-on the instrument (fig. .24). Press  to select the channel.

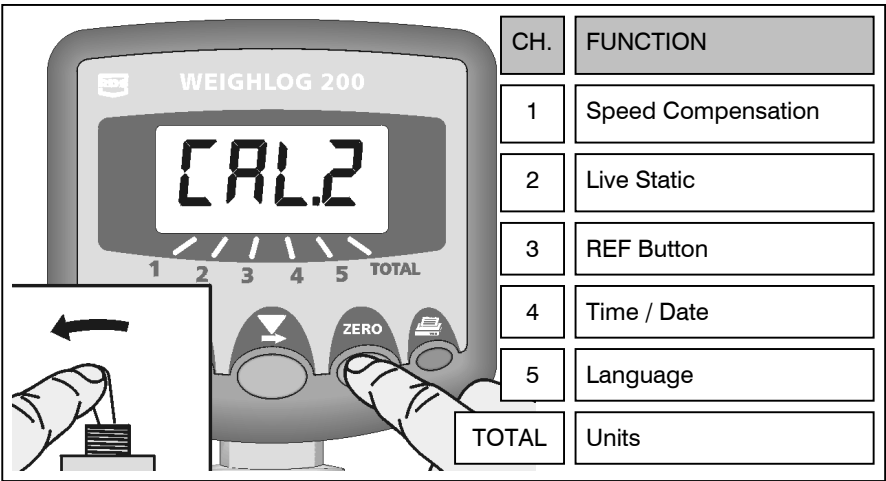


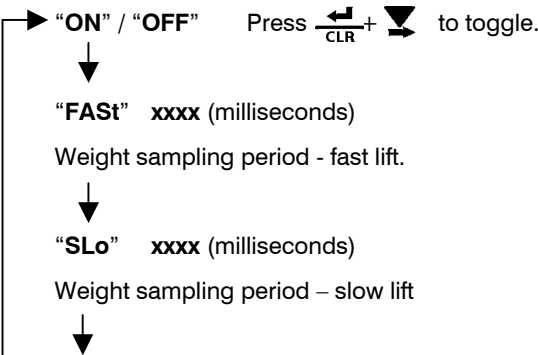


Figure 24 : Enter CAL Mode 2

#### 6.3.2 Speed Compensation (Channel 1)

Press the  button to toggle () through the settings. Speed Compensation is switched on automatically after weight calibration in dynamic weighing mode. The factors are displayed here.



↓  
“GrAd” xxxx (no units).

**Compensation Curve Factor:** This gives the correction for the change in lift speed. If a faster lift gives a lower weight reading, then decrease the “GrAd” figure.

↓  
“ProP” xxxx (%)

**Proportional Correction Factor:** This gives the reduction in speed compensation for an empty bucket, compared to a full bucket. Sometimes after an Autocal, it is found that the speed correction with a full bucket is OK, but with an empty bucket there is a larger error (e.g. 50 –60kg).

If with an empty bucket, the weight reading is lower at a slower lift speed than at a fast speed, then reduce the factor by 2 – 3% until the error is removed.

↓  
“FrEq” xxxx (Hertz)

**Frequency at full load (determined from Autocal):**


### 6.3.3 Live Static (Channel 2)

This sets how the weight reading is displayed in Static Weighing mode.

“OFF” The weight reading is “frozen” on the display after the weight has been sampled.

“ON” You get a “live” weight reading while the bucket is at the weighing position.

“AUTO” You get a live reading, but it will only change if there is a change of 5% or more in the calculated weight (default setting).

Press  to toggle.


### 6.3.4 “REF” Button (Channel 3)

Normally enabled for weighing applications other than front-end loaders, e.g. for trailer weighing. When switched on, pressing the REF button in the operating mode triggers a weighing sample. In effect, the REF button manually performs the function of a reference/direction sensor.

“OFF” REF button disabled. Weight reading triggered from Ref/Dir sensor only.



“ON” REF button enabled (where Ref/Dir sensor not fitted).

“AUTO” Ref/Dir sensor can be used in conjunction with REF button to take a weight measurement.

Press  to toggle.

### 6.3.5 Time / Date (Channel 4)

The display alternates between “Hr.Mn” and “00.00”.

1. Programme the hours (24 hr format) and minutes (section 6.1).
2. Press  to toggle to the Month/Date setting. The display alternates between “Mt.Dt” and “01.01”.
3. Programme the month (01-12) and the date.
4. Press  to toggle to the Year/Day setting. The display alternates between “Yr.Dy” and “01.01”.
5. Programme the year and the day of the week (01 = Monday – 07 = Sunday).

### 6.3.6 Language (Channel 5)

Sets the language for the printout and certain display prompts.

Press  to toggle.

### 6.3.7 Units (TOTAL Channel)

The display can be set to suit “tons”, “kgs” or “lbs” readout (ref section 2.1). The default units are tons /tonnes.

Press  to toggle.



When “**tons**” units is selected, the test load weight is entered in **tons / tonnes**. A number of 1.000 denotes 1ton/tonne.

When “**kgs**” or “**lbs**” units is selected, the test load weight is entered in kg or lbs.

A number of 1000 denotes 1000 lbs. For example a test load of 4000 lbs must be entered as “**4000**”.

## 6.4 CAL mode 3 (Print Setup)

### 6.4.1 Enter CAL Mode 3

Press the  button and power-on the instrument (Fig.24). Press  to select the channel.

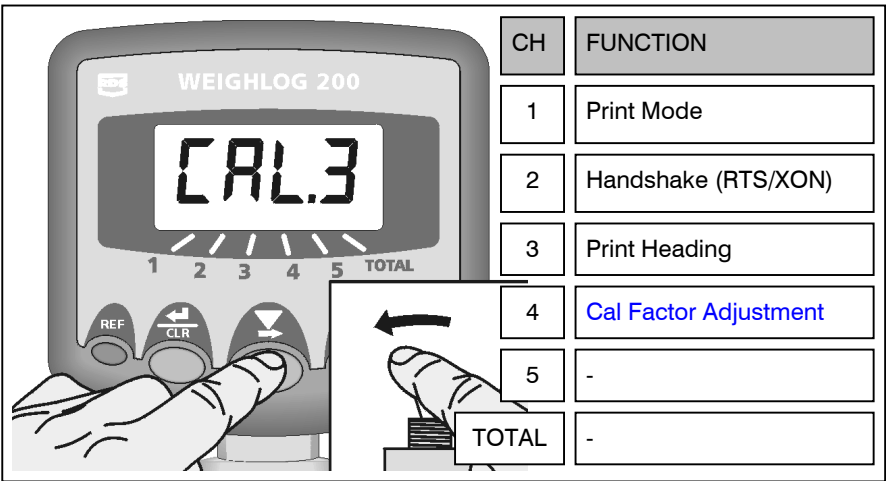
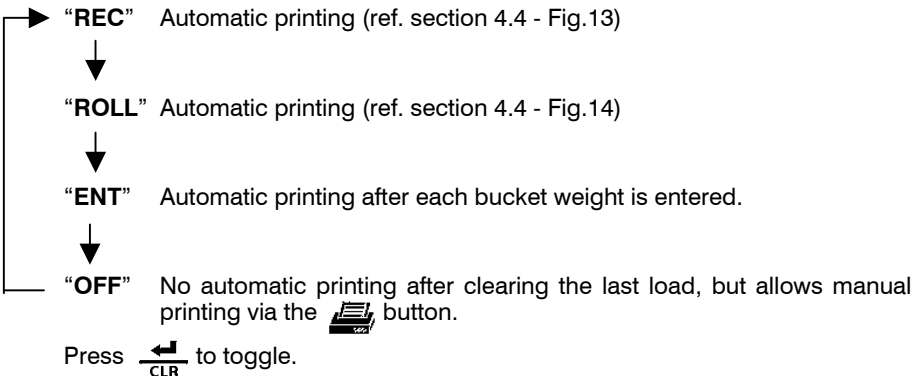


Figure 25 : Enter CAL Mode 3

### 6.4.2 Set Print Mode (channel 1)



### 6.4.3 Handshaking (Channel 2)

The default setting “RTS” suits the RDS ICP200 printer. You only need to change the setting if you wish to connect an alternative printer that requires “XON” handshaking.




Press  to toggle between “RTS” and “XON”.


The full protocol is :- 4800 Baud / Data bits / 1 Stop bit / No Parity. These settings cannot be changed.


### 6.4.4 Edit Print Heading (Channel 3)

You can edit a line of text that appears across the top of every printer ticket.

As you select channel 3, you will see the present text scrolling across the screen.

1. Press the  button and the text stops scrolling. The first 4 characters are displayed with the first character flashing. The display will resume scrolling after 15 seconds if no other button is pressed.
2. Enter each alpha-character in turn by HOLDING the  button and pressing the  button (as you would for a numeric setting - section 6.1).

As the  button is held, the character will scroll through A to Z then 0 to 9 (Fig.26).

3. Release the  button to select the next character and so on until the heading is complete.

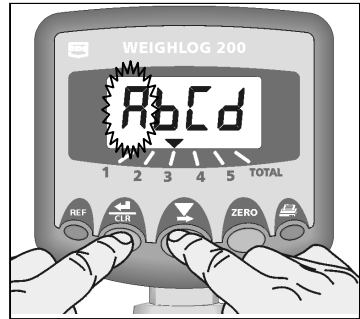


Figure 26 : Programming characters

### 6.4.5 Cal Factor Adjustment ('NUDGE')

ON/OFF (Default = ON)

This enables/disables the function in the normal operating mode, that allows you to correct a discrepancy ('nudge') between a weight reading and a known weight being lifted.

### **Error message: "Prog"**

The instrument memory has been corrupted.

*Please contact your local RDS distributor.*

### **Error message: "Err"**

If the display shows "Err" then there is no pressure signal being received, indicating either a poor connection in the sensor wiring or a faulty sensor.

Visually inspect the wiring loom and connections first, then if necessary, check continuity of the sensor lead wires between the "Terminator" screw terminals labelled "LOAD SENSOR" and the "Weatherpak" connector on the other end of the load sensor lead. If the wiring is OK then contact your local RDS distributor.

### **Error Message: "CAL" ↔ "Err"**

If the "Autocal" routine is not fully completed (i.e. the "Zero" lift and the "LOAD" lift), the display will flash "CAL" and "Err".

The full "Autocal" routine must be carried out again.

### **Changing loading attachments**

If after changing the loading attachment and zeroing the weight, you find that the weight readings are no longer correct, it is usually because the centre of gravity of the machine has been slightly altered by the different attachment. This will affect the load-pressure relationship and therefore the calibration factor must be adjusted to suit. Perform the weight calibration routine to re-establish the correct factor.

CALIBRATION

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Channel	Attachment/Trailer /Commodity	Weighing Mode	Cal. Factor
1			
2			
3			
4			
5			



## Diagnostic Mode

This allows fast and effective problem solving if any issues should occur.

Press and hold the “REF” (outer left) button on power-up to access the Diagnostics mode.

On entry the screen will display “diag” for 1 second followed by a display of the live frequency from the pressure sensor. The 3 chevrons indicate the following switches:

- Direction Sensor closing
- Reference Sensor closing
- Remote Enter Button closing



## *CALIBRATION*

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Issue 1b:	20/6/02	Original Issue para. 7, p.19 and para. 12a, p.20
Issue 2:	6/9/02	Amendments on p.17. Added p.18 (Note 2). Amendment p.21
Issue 3:	8/6/05	Amendments ref pages 4,6,11,13,14,15,21,23,26
Issue 4 :	14/10/08	Added Diagnostics
Issue 5:	10/11/08	Changes for latest software Section 2.1, p.7 - units Section 3.3, p.10 - units, + para. 2b - delete '..a second beep is heard and..' Section 3.4, p.11 - units, + para. 4b - delete '..a second beep is heard and..' Section 4.4, p.14 - add 'and weighing is not possible' Section 6.2.4, p.22 - units Section 6.3.7, p.26 – units
Issue 6:	5/1/10	p.4,5 p.7 - sect.2.1 p.8-sect.2.3 p.14 sect. 4.4 p.19,20 sect. 6.2 p.22,23 sect. 6.2.4 p.24 sect. 6.2.5 p.28 sect. 6.3.7 p.29 sect. 6.4.1 p.30 sect.6.4.5
Issue 6.02	14/1/10	Revised p.20
Issue 6.03	6/5/10	Minor corrections