

Electro-Magnetic Compatibility (EMC)

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

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User Guide.

AXLOG 2000 Axle Overload Warning System

Calibration and Operation

Software Issue: UDJ 800-3

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The Axlog 2000 Axle Overload Warning System is primarily designed for 2-axle vehicles. The system measures and displays each gross axle weight and the gross vehicle weight.

NOTE: *All weight readings and calibration settings except the calibration factors, are in decimal tonnes.*

The head unit mounted in the drivers cab has an illuminated 4-digit LCD display, 3 active front panel switches for all functions and an internal audible alarm. An external alarm is optional. The instrument is normally installed so that it is powered on via the ignition switch. If an axle weight or the gross vehicle weight is exceeded, then the instrument will alarm. Weight limits are programmed in the calibration mode.

Principle of Operation

As a vehicle is loaded, the springs compress. The greater the load, the greater the deflection. On vehicles with leaf spring suspension, load cells (2 per axle) are mounted on the chassis and connected to the axle by extension springs. The load cell measures the spring resistance which will decrease as the vehicle is loaded. The output signals of the left and right load cells are combined to give the axle loading.

On vehicles with air spring suspension a pressure sensor measures the pressure, which will increase between the levelling valve and the suspension unit as the vehicle is loaded. If the axle (or axle set) has separate left and right side levelling valves, then two pressure sensors are required and the output signals are combined.

Accuracy

The weight distribution between the axles varies as the vehicle moves. The axle weights should be read with the vehicle stationary, on level ground, and with the vehicle brakes released. A weighing accuracy of $\pm 3\%$ is achievable but is dependent on the weighing conditions being met.

To ensure continued accuracy, the readings should be regularly checked against certified weighbridge readings, and the instrument re-calibrated as required.

IMPORTANT:

The Axlog 2000 is designed as an overload indicator. It is not intended as an on-board weighing device for the weighing of goods.

Operation

The gross axle weight is displayed in tonnes. The instrument will display the weight to the nearest 100 kg.

Axle/Gross Vehicle Weight Display


Simply press the  button to switch between the front axle weight display (fig. 1), rear axle weight display (fig. 2), or the gross vehicle weight display (fig. 3).



Fig. 1 - Front Axle Display

Overload Alarm

If any of the axle weights or the gross vehicle weight exceeds the alarm weight for more than 8 seconds, the instrument will sound 10 beeps. The channel indicator moves to the appropriate position and the display continues flashing.

The audible alarm will beep twice every 30 seconds while the alarm condition exists.



Fig. 2 - Rear Axle Display



Fig. 3 - G.V.W. Display

Set Tare

First of all, the "Gross Tare" is set for each axle when the system is commissioned (see "Set Gross Tare"). The gross tare is the unladen axle weight for each axle.

During normal operation, day to day discrepancies will occur and if left unchecked, a longer term drift in readings will become apparent, particularly on new vehicles where the suspension will bed in.

To compensate, an "Auto Tare" should be carried out daily. An auto tare ensures that the unladen axle weights and gross vehicle weight are correctly displayed.

Carry out the auto tare with the vehicle on level ground and the brakes released.

Press and hold the RESET button for 5 seconds to start the Auto Tare sequence. The instrument takes an average reading from each axle in turn and sets the tare to zero (i.e. to the unladen axle weight).

During auto tare, the channel indicator shows which axle is being tared. The display shows "tArE" then "0.0" when the tare has been set for that axle.

That's all there is to it for normal operation. The rest of the manual covers calibration which is normally only required on initial commissioning.

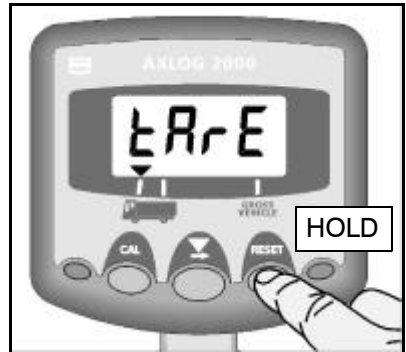


Fig. 4 - Start "Auto Tare"



Fig. 5 - Front axle tared



Fig. 6 - Rear axle tared

Calibration

Accurate results from the Axlog can only be achieved if the calibration procedure has been carried out carefully and in the correct sequence. There are three things to be programmed for each axle in calibration mode,


- Gross Tare (unladen axle weight)
- Calibration Weight (gross axle weight)
- Alarm Load

In addition you can programme the alarm load for the Gross Vehicle Weight.

After entering the gross tare and then the calibration weight, the instrument will re-calculate a calibration factor. This is a number which establishes the correct relationship between the axle loading and the load cell output, to enable an accurate weight display.

Each axle is calibrated separately.

Set the Gross Tare

1. Establish the unladen weight for each axle preferably on a weighbridge. This may not be possible if the weighbridge has access ramps because each axle must be weighed with the vehicle level. Alternatively, you will have to rely on the plated weights.
2. Press the  button in the normal operation mode to select the axle.
3. Press and hold the CAL button. The display will show "tArE" for 2 seconds, before changing to show the unladen weight for that axle (fig. 7).

The left hand digit will be flashing.

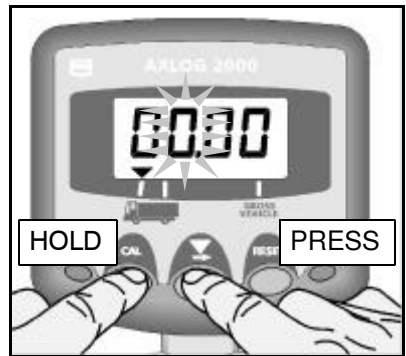












Fig. 7 - Selecting the digit


To change the figure :

4. While holding the CAL button, PRESS and RELEASE the  button to advance to the digit you want to change.

 00.00,  00.00,  00.00,  00.00

5. HOLD the  button to cycle the digit from 0 to 9 (fig. 8).

 01.00,  02.00,  03.00,  04.00

6. Release the  button and the next digit will flash.
7. Repeat step 5 for other digits (or if you need to correct a mistake).

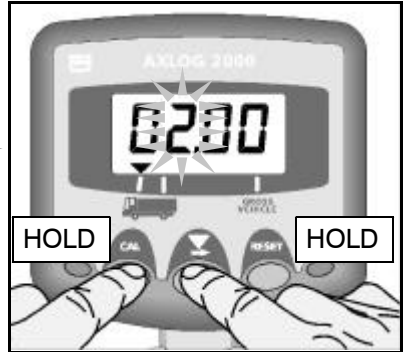



Fig. 8 - Change the digit

Initial Weight Calibration

1. Carry out an auto tare. The gross tare should already have been programmed prior to weight calibration.
2. Place a properly distributed load as near as possible to the maximum load capacity of the vehicle.
3. Determine the actual gross axle weight on the weighbridge.
4. Press the  button in the normal operation mode to select the axle.
5. From the normal mode, press the CAL button *three* times and hold to view the calibration weight. The display will show "LoAd", then the existing calibration weight for that axle.
6. Enter the actual gross weight as measured on the weighbridge (entering the figures is as described for gross tare).

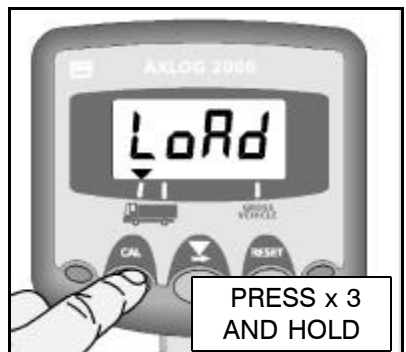


Fig. 9 - Set Calibration Weight

Calibration

7. Press and release the RESET button. The display will now flash the frequency (kHz) from the load cells.
8. Move the vehicle backwards and forwards to establish an average reading (this is more often necessary if the suspension has multi-leaf springs rather than single leaf springs).
9. Once you are satisfied with the reading, press the RESET button again to confirm the calibration weight. The display will then show "LoAd" again. The calibration factor will be automatically re-calculated and stored in memory.
10. Repeat for the next axle.
11. Check that the weights displayed in normal mode are correct. If there is still a discrepancy between the displayed weight and the actual weight, then you will need to nudge the calibration factor.

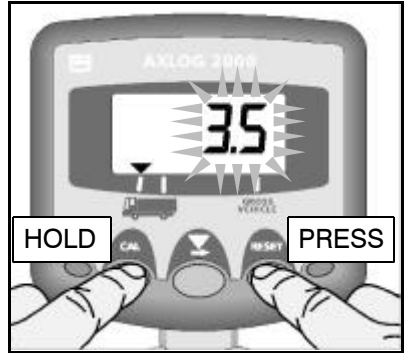


Fig. 10 - Load cell frequency display

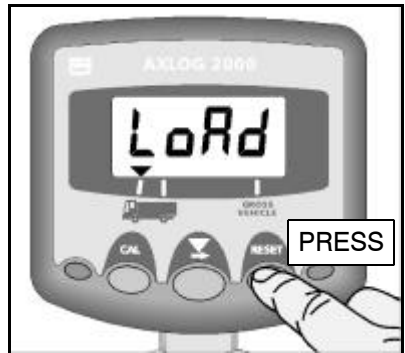


Fig. 11 - Confirm calibration weight

Adjusting the Calibration Factor

Where there is a difference between displayed weight and actual weight, you can determine the new cal factor by a simple calculation;

$$\text{New Factor} = \text{Old Factor} \times \frac{\text{Actual Weight}}{\text{Displayed Weight}}$$

For example,

Displayed weight = 1.7 tonnes
Actual axle weight = 1.5 tonnes
Old Factor = 1.200

$$\begin{aligned} \text{New Factor} &= 1.200 \times \frac{1.5}{1.7} \\ &= 1.059 \end{aligned}$$

To view the calibration factor, press the CAL button *twice* and hold it. The display will show "CAL.F", then the calibration factor.

Enter the new calibration factor (entering the figure is the same procedure as for entering the gross tare).

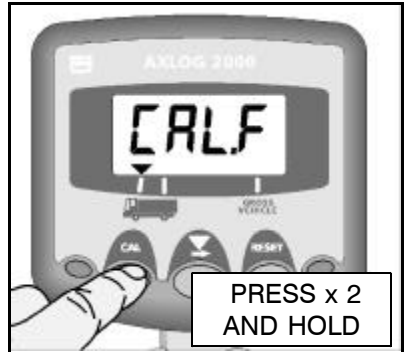



Fig. 12 - Select Calibration Factor

Setting the Overload Alarms

Axle Overload Alarms

1. Press the  button in the normal operation mode to select the axle.
2. From the normal mode, press the CAL button *four* times and hold to view the alarm weight for that axle. The display will show "ALAr", then the existing alarm weight.
3. Enter the required alarm weight (entering the figure is the same procedure as for entering the gross tare).

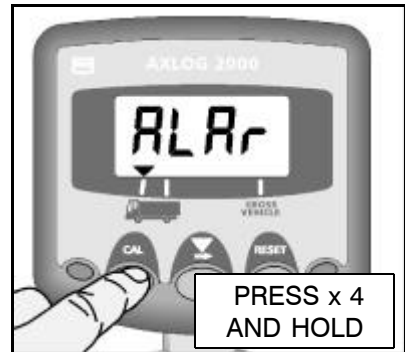



Fig. 13 - Set Axle Overload Alarm

Gross Vehicle Weight (G.V.W.) Alarm

1. Press the  button in the normal operation mode to select the GROSS VEHICLE channel.
2. From the normal mode, press and hold the CAL button to view the alarm weight. The display will show "ALAr", then the existing alarm weight.
3. Enter the required alarm weight (entering the figure is the same procedure as for entering the gross tare).

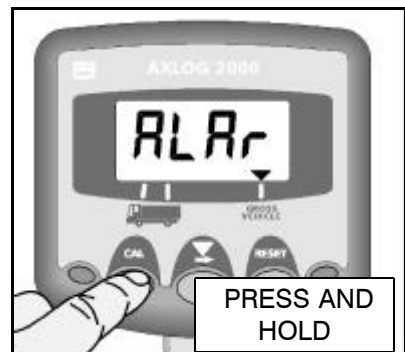


Fig. 14 - Set G.V.W. Overload Alarm

Notes

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