

EATON Model 9TL Scale



OPERATORS MANUAL

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Technical Data

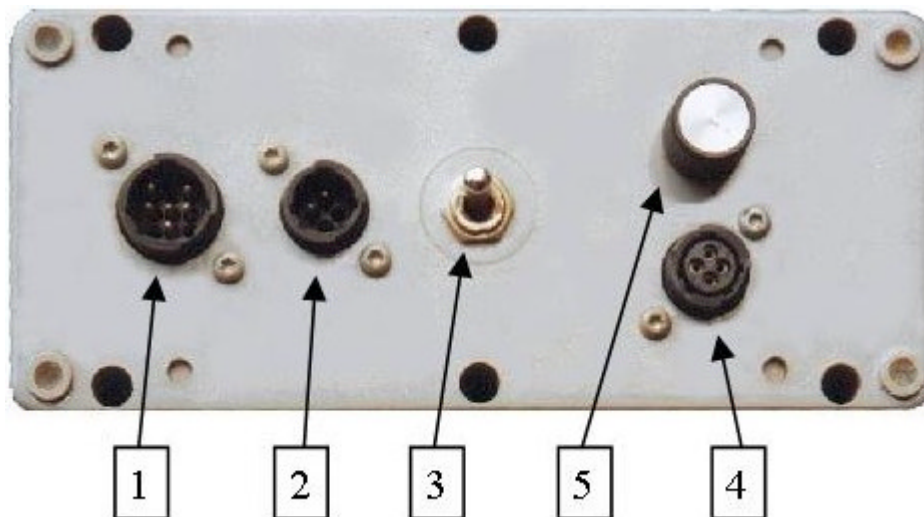
Full Scale Capacities	8,000 x 2 Pounds or Kilograms
	20,000 x 5 Pounds or Kilograms
	40,000 x 10 Pounds or Kilograms
	80,000 x 20 Pounds or Kilograms
Zero Adjustment	Coarse Adjustment via Potentiometer
	Fine Adjustment via ZERO switch
Operating Temperature	-20 to + 120 Degrees Fahrenheit
	-28 to +50 Degrees Celsius
Input Voltage	9 to 18 Volts DC
Current Draw	20 Amperes Maximum
Output Signals	Remote Display: 7 Segment Code for Optional Remote Display
Display	Type: Liquid Crystal Display- 6 Digit
	Size: 1.0 Inches high (25 mm)
Weight	2 Pounds
	0.9 Kilograms
Dimension	Height x Width x Depth
	5.5" 10" 5"
	139 mm 25 mm 125 mm

Front Panel



- 1.** ZERO button. Used to zero any weight shown on the display
- 2.** TOTAL button. Used to display the total load on the scale. When the total load is being displayed an "L" will appear on the left of the display.

Connections



- 1.** Remote Display Connector
- 2.** Power Connector 12 Volts DC
- 3.** Power switch (On/Off)
- 4.** Junction Box Connector
- 5.** Coarse Balance Control

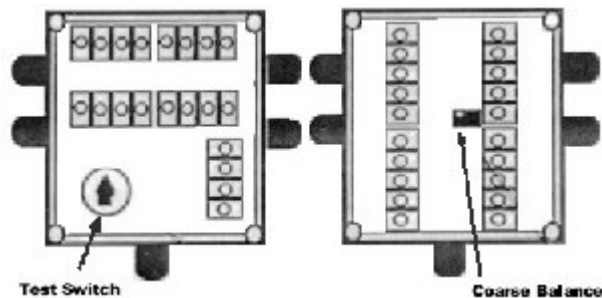
Initial Hook-Up Procedure

1. Connect the power cord to the battery . The BLACK wire is connected to negative (-) 12 Volts DC The WHITE wire is connected to positive (+) 12 Volts DC The scale will not be damaged if the power leads are reversed, but you will not be able to turn the scale ON.
2. Eaton has two different types of Junction Boxes, one for Scale Bars and one for Load Cell. A Scale Bar. looks like this and has four wires; BLACK, WHITE, RED, and GREEN. A Load Cell will have five wires; BLACK, WHITE, RED, GREEN, and BLUE.



Junction Box

Mount With This End Up



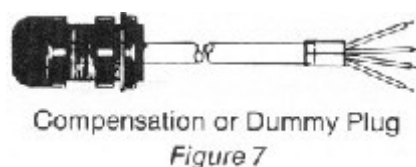
Scale Bar J-Box Load Cell J-Box

Eaton's Scale Bar junction-box will have screw terminals for the four different wires, and a Test Switch. The Load Cell junction box will have screw terminals for five wires, but will not have a Test Switch. Instead, a small screwdriver adjustment will be inside the Load Cell junction-box. The scale system will not work if you do not use the correct junction box with your Scale Bars or Load Cells.

3. Loosen the four screws holding the Junction Box cover and remove the cover. You will see four sets of terminal strips with colour designations for connecting the different wires from each Load Cell or Scale Bar. Insert a Load Cell or Scale Bar cable into the plastic strain relief near TS1 in the Junction Box. Connect each of the different coloured wires to the screw labelled for that colour on terminal strip TS1. Insert a second cable into the strain relief located near TS2 and connect the coloured wires from that cable to the screw labelled for that colour on terminal strip TS2. Continue to connect the coloured wires from each of the remaining Load Cell or Scale Bar cables in a similar fashion.

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4. If you only have three Scale Bars you should also have a Dummy Plug. The Dummy Plug is used to take the place of the fourth Scale Bar so that the Junction Box will have a complete circuit. You must use a Dummy Plug if you only have three Scale Bars.



To install the Dummy Plug, remove the unused plastic strain relief, and mount the Dummy Plug in its place. Connect the three different coloured wires from the Dummy Plug to the screw labelled for that wire on the remaining terminal strip. The Dummy Plug does not have a GREEN wire, so nothing needs to be connected to the screw labelled GREEN on that terminal strip.

5. Hand tighten each of the plastic strain reliefs and make sure that all of the individual terminal strip screws are tight. DO NOT over tighten the screws or the strain reliefs. Also, make sure that each of the screws are seated on the wire's conductor and not on the wire's insulation. After you have checked everything, place the cover back on the Junction Box and carefully tighten the cover's four screws.

6. If you have a Remote Display connect it to the Model 9TL scale by placing the Remote Display's plug into the Model 9TL's Remote Connector. The plug and connector are keyed so you may have to rotate them to get the key ways to align. After they are properly aligned turn the ring on the Remote Display's plug in a clockwise direction until the plug locks in place.

7. Connect the Junction Box's plug to the Junction Box Connector on the Model 9TL Scale. The plug and connector are keyed so you may have to rotate them to get the key ways to align. After they are properly aligned turn the ring on the Junction Box's plug in a clockwise direction until the plug locks in place.

8. Connect the Power Cord's plug to the Power Connector on the Model 9TL Scale. The plug aligns and locks into place just like the Junction Box plug.

Setting the Zero Balance

1. Before weighing with the Model 9TL Scale you will have to set the Zero Balance. This is to compensate for the weight of your mixer or platform, and to compensate for differences in the Load Cells or Scale Bars. Load Cells require a wider range of Zero Balance and have an additional Coarse Balance Control located inside of their Junction Box.

2. If you are using Load Cells, turn the Model 6TL's Coarse Balance Control, located at the back of the Model 6TL, to its centre position. The Coarse Balance Control will turn ten times, so turn the control all the way to one end, and then turn it back five turns. This will place the Coarse Balance Control at the centre of its travel.

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3. Whether you are using Scale Bars or Load Cells, turn the Model 9TL ON by using the Power Switch located at the back of the Model 9TL. The Model 9TL will first display [HELLO], and then a random number, or a flashing [888888] reading will appear on the display. This is normal.
4. If you are using Load Cells, open the load cell Junction Box, and adjust the 20 turn Coarse Balance screw inside the Junction Box so that the weight on the Model 9TL display is close to Zero. You will not need to bring the weight display all the way to Zero because you will use the Model 9TL's Balance Control for your final adjustment.
5. Whether you are using Scale Bars or Load Cells, turn the Model 9TL's Coarse Balance Control until the weight reading on the Model 9TL is as close to Zero as possible.
6. Press the ZERO and TOTL buttons at the same time. The scale should display [000000]. If the scale displays [CHEC] the zero balance weight is too far from zero. The scale will display [CHEC] and then the zero balance weight. Re-adjust the Coarse Balance Control to bring the zero balance weight closer to zero.
- 7 Once the Zero Balance is set it should not need to be adjusted again. The Zero Balance will however, change slightly with temperature, the amount of fuel in the mixer, the amount of grain dust on the mixer's frame, or any other changes in the mixer or platform's weight.

Batching Operation

The operation of the Model 9TL Scale allows the operator to weigh individual ingredients and zero the scale with the ZERO button after each ingredient is added. The optional radio control will perform the same function as the ZERO button so the operator can control the scale from a remote location like a front-end loader. The total load on the scale system is automatically displayed for a short period of time following each zeroing operation. The total load also called the inventory weight can be displayed at any time by pressing the TOTL button. The total load will remain displayed until the TOTL button or ZERO button is pressed. Here are some examples of a typical batching operation.

Loading

1. The mixer is empty and the Model 9TL Scale is turned on. The scale will display HELLO and then the zero balance number will be displayed.
2. Press the ZERO and TOTL buttons at the same time so that the scale displays [000000]. If the scale displays [CHEC] the zero balance is too far from zero. See the section On setting the zero balance.

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3. The scale is now displaying [0] and the first ingredient. 2000 Kgs, for this example, is loaded into the mixer.
4. When the operator has finished loading the first ingredient in the scale the scale will display [2000] and the operator presses the ZERO button .
5. Now the scale displays the total load [L2000] for three seconds and then returns to zero for the loading of the second ingredient. The "L" on the left side of the display tells the operator that the weight being displayed is the total load.
6. The second ingredient of 1500 Kgs is loaded into the mixer and the scale displays [1500].
7. The operator presses the ZERO button and the scale displays [L3500] for three seconds to tell the operator that the total load is now 3500 Kgs. After three seconds the display returns to zero so the next ingredient can be weighed.
8. If the Model 9TL Scale is turned off any weight zeroed with the ZERO button will be forgotten and the Model 9TL will display the actual weight plus any Zero Balance weight.

UNLOADING

1. With the 3500 Kgs in the mixer from the previous loading example the operator drives the mixer to the first feed bunk and presses the ZERO button. The scale displays [L3500] for three seconds and returns to zero.
2. The operator delivers the feed into the bunk and the scale displays a negative number starting at zero and becoming more negative as feed is removed from the mixer. When the operator has finished feeding, 200 Kgs for this example, the scale displays [- 200].
3. The operator drives the mixer to the second bunk and the operator presses the ZERO button. The scale displays [L 3300] for three seconds and returns to zero so that the operator can feed the second bunk.
4. The operator can press the TOTL button at anytime to display the total weight left in the mixer. Pressing the TOTL button a second time will return the scale to displaying the batching weight.
5. The operator continues delivering feed to all the bunks, pressing the ZERO button before delivering feed at each location. Each time the ZERO button is pressed the scale will display the total load for three seconds and then return to zero. At each bunk the scale will count down from zero to a negative number .

SPECIAL NOTES

The batching function operates exactly like the Model 625 scale.

The total load weight is the actual weight in the mixer and is not a figure that is calculated or accumulated by the scale.

On a mobile scale it is normal for the displayed weight to be a little different from one location to the next. This is caused by the ground having a different pitch from one location to the next and by the weight shifting inside of the mixer.

Always press the **ZERO** button just before you begin loading or unloading and not after you have finished loading or unloading. Since it's normal for the displayed weight to change when the mixer is moved you'll want to zero the scale after you have moved the mixer .

If you use the Model 90R remote display with your Model 9TL scale you'll be able to use the radio transmitter as the **ZERO** button.

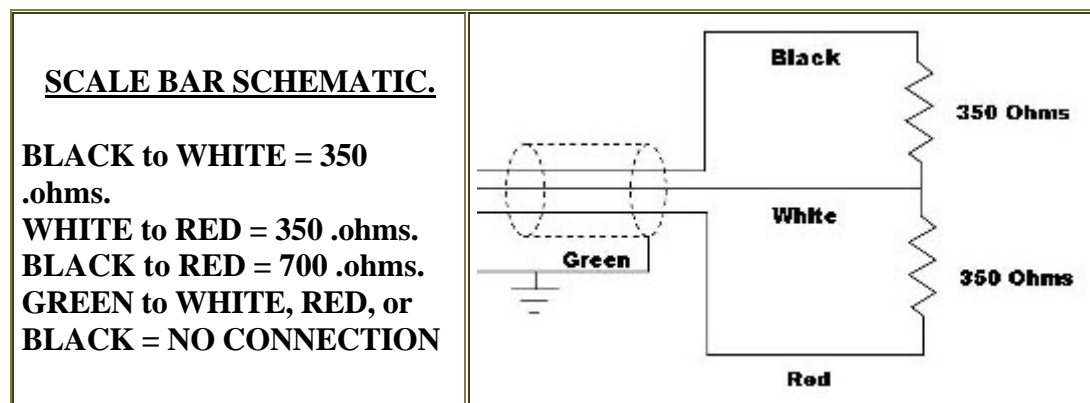
Display Messages

1. **[HELLO]** - When the unit is first turned on and the correct operating voltage is present.
2. **[888888]** - Flashing - indicates the scale is overloaded, or the ZERO BALANCE is not set properly. Refer to Setting The Zero Balance.
3. **[HELP]** - Anytime there is a low voltage condition, less than 9.0 Volts DC
4. **[CHEC]** - The weight on the scale system is too high to be cleared. Turn the Model 6TL off and set your Zero Balance .

Scale Bar Information



1% Strain Gage Bars & Axles



Trouble Shooting Guide

1. Scale will not turn on
 - A. Check the connection of the Power Cord. The White wire should be connected to +12 Volts and the Black wire should be connected to ground.
 - B. Check for poor electrical connections at the power cord, or a broken power Cord.
 - C. Check for a bad Scale Bar, Load Cell or Junction Box cable.

2. Display shows over-range **[888888]** all the time
 - A. Make sure the load on the scale system has not exceeded the scale's capacity.
 - B. Make sure the Zero Balance is set properly.
 - C. Check for a bad Scale Bar, Load Cell or Junction Box cable.

3. Weight readings are unstable (changing)
 - A. Make sure the Scale Bars or Load Cells are grounded properly.
 - B. Make sure all the screw terminals in the Junction Box are tight.
 - C. Check for mechanical binding in the mixer.
 - D. Check for a damaged Scale Bar, Load Cell or cable.
 - E. Make sure all of the Scale Bars are mounted with the TOP label in the right direction.

4. Weight readings are not accurate
 - A. Check the Scale Bar or Load Cell mounts for mechanical binding or interference.
 - B. Check for mechanical binding in the mixer.
 - C. Make sure all of the Scale Bars are mounted with the TOP label in the right direction.

System Test for Scale Bar Systems

The Junction Box for the Model 9TL Scale contains a test circuit that can be used to test the Computer (scale head) and the Scale Bars. The Computer Test must be performed before the Scale Bar Test for the Scale Bar Test to work properly.

1. Computer Test

- A. Turn the scale off.
- B. Disconnect all of the wires from Terminal Strips TS1, TS2, TS3, and TS4 inside the Junction Box.
- C. Rotate the Test Switch, located inside of the Junction Box, to the COMP TEST position.
- D. Turn the Model 9TL Scale ON.
- E. Rotate the Coarse Balance Control and make sure that rotating the Control makes the display sweep from a positive reading through Zero and to a negative reading. Using the Coarse Balance Control bring the display to a near Zero reading. This should be approximately five turns from either end of the Coarse Balance Control's travel.
- F. The reading on the scale should be stable (+1 count) and only change when the Coarse Balance Control is moved. It's normal for a 40,000 Kg scale to bounce plus or minus 10 kgs (one count) and a 20,000 Kg scale to bounce plus or minus 5 Kgs etc.

2. Scale Bar Test

- A. Turn the scale off.
- B. Disconnect all of the wires from Terminal Strips TS 1, TS 2, TS 3, and TS 4 inside the Junction Box.
- C. Rotate the Test Switch, located inside of the Junction Box, to the SENS TEST position.
- D. Connect one Scale Bar to TS 5 located in the bottom, left-hand corner of the Junction Box.
- E. Turn the Model 9TL Scale ON.
- F. Rotate the Coarse Balance Control and make sure that rotating the Control makes the display sweep from a Positive reading through Zero and to a Negative reading. Using the Coarse Balance Control bring the display to a near Zero reading. If you can not bring the scale to a near zero reading the Scale Bar or its cable may be damaged.
- G. The reading on the scale should be stable (plus or minus 1 count) and only change when the Coarse Balance Control is moved. It's normal for a 40,000 Kg scale to bounce plus or minus 10 Kgs (one count) and a 20,000 Kg scale to bounce plus or minus 5 Kgs, etc.

H. Press the Push button **ZERO** and place weight directly over the Scale Bar being tested. The reading should show the approximate weight being applied to that bar. If the weight reading goes negative the Scale Bar may be up side down.

I. Attempt to duplicate the same conditions that made you suspect a problem. For example, if the scale system only seems to have problems when there is 20,000 Kgs in the mixer then perform the test with 20,000 Kgs in the mixer .

J. On three point systems test the Dummy Plug the same way you would test a Scale Bar.

K. Test all of the Scale Bars even if you have already found a bad one, since lightning strikes and welding can damage more than one bar at a time.

Dip Switch Settings

Blue Dip switch settings on back board inside scales.

This sets the scales to the following:-	Kilograms Units
	5 Kilogram increments

1. **OFF**
2. **OFF**
3. **ON**
4. **ON**
5. **OFF**

Disclaimer:

Every attempt has been made to accurately describe and price components. However we reserve the right to alter prices and descriptions without notice as well as reserves the right to make changes in the design, or to add improvements to the products, without incurring an obligation on goods purchased.