Load Cell EZ Test

The *Load Cell EZ Test* is designed to check the 4-pin load cells and load pins on the Rice Lake Weighing Systems Precision Loads onboard scale.

To test a load cell or load pin:

1. Plug the load cell tester cable into the load cell/pin connector or load cell connector cable. Use caution when connecting plastic and metal connector types to prevent cross-threading.
2. Connect the ground sense clip to the frame or chassis point where bare metal can be accessed.
3. Press the front panel **PUSH-ON/ISOLATION** key. The model, serial number and percentage of the battery life left displays.

If batteries are low, a low battery alert displays. Load Cell EZ Test will remain on for two minutes then automatically shut off. Change batteries before continuing.

Bridge Integrity

The *Load Cell EZ Test* will automatically check the integrity of the load cell bridge. It checks for opens and shorts and displays the measured bridge resistance.

- The allowable displayed resistance range is 100 to 1200 Ω, this covers most load cell resistance values.
- If one of the legs of the bridge is open, the displayed resistance would be about twice the actual known resistance.
- It compares the common mode voltage differential of the plus/minus output of the bridge.
- If the differential disparity is more than 20 mV this would indicate a bridge problem and displays:

  BRIDGE INTEGRITY

  OUT OF RANGE
- If the bridge appears to be intact, it displays:

  BRIDGE INTEGRITY

  IN RANGE

After checking the bridge integrity, the output offset in mV @ 5 V excitation is displayed and continually updates, so that an unstable output can be detected.

Ground Isolation

To perform a ground isolation test, which measures the leakage resistance between the internal load cell circuitry and the body ground, use the following steps:

1. Press and hold the **PUSH-ON/ISOLATION** key. The displayed isolation range is 0 to 9000 megohms. Most load cells will have a ground isolation of better than 2000 megohms. Anything less than 1000 megohms usually indicates moisture or other condition causing a poor isolation reading.
2. Release the **PUSH-ON/ISOLATION** key, the display returns to the mV offset reading.

Typical values displayed from these tests which show a properly operating load cell or load pin are:

- Bridge resistance readings, typically 350 Ω or 700 Ω and depending on the specific load cell/pin circuitry this value can vary up to 10%.
- The ground isolation resistance should be at least 2000 MΩ. New load cells can read 5000 MΩ or higher.

  Less than 1000 MΩ – indicates a potential problem.

  Less than 200-300 MΩ – indicate a definite problem.
- If a low reading is obtained, cleaning the signal connection with a non-conductive contact cleaner and re-test.
- Most onboard load cells/pins have a rated mV/V output of 0.25 mV/V to 0.75 mV/V at 12500 lb load (5670 kg). The tester reads out in mV at an excitation of 5 V.
- Rated output is provided for some Rice Lake Weighing Systems Precision Load models. See Table 1. Refer to the rated output of the load cell being tested. Estimate the correct reading seen based on the amount of load on the load cell and some degree of offset caused by the installation.

  Example:

  If there are load cells/pins installed which have a rated output of 0.75 mV/V, and the vehicle is empty, but there is an estimated empty weight dead load of 3000 lb on the load cell being tested, a test value in the range of +0.90 mV/V can be expected.

  However it is reasonable that the value could be +/- 0.20 of this number. A load cell that has a value of 2.00 mV/V would be far out of tolerance and would indicate a failed condition.

The reading obtained from the tester should be stable with a fluctuation of no more than 1 or 2 counts. A fluctuating mV reading shows a low ground isolation resistance indicating probable moisture in the load cell.

Important ***If bad load cell or load pin has been removed from a vehicle for possible moisture failure and allowed to dry out, may have its readings return to normal if tested again. In this case the load cell has failed even though test results of the dry cell are acceptable. The load cell has internal corrosion which will eventually cause its total failure, and re-exposure to moisture will render it unusable.***

Part No.	Model Number	Description	Rated Output @ 12 500 lb	Impedance (Ohms)
TBD	PL9000-08	Hutch Hanger Load Pin	0.75 mV/V	700
116435	PL9000-11	Agricultural Vehicle	0.7 mV/V	350
114322	PL9000-14	Low Profile, 13" Length	0.50 mV/V	350
115345	PL9000-14.4	Shear Beam, 14" Length	0.75 mV/V	350
TBD	PL9000-17	Low Profile, 17.50" Length	0.50 mV/V	350
111766	PL9000-22	Axle Scale Beam, 22.6" L	0.50 mV/V	350
114325	PL9000-26	Shear Beam, 26" Length	0.75 mV/V	350
114326	PL9000-50	5th Wheel Beam, 22.6" L	0.25 mV/V	350
TBD	PL9000-XX	Load Pin, Various Sizes	0.75 mV/V	700

Table 1. Rated Outputs of Precision Loads Load Cells/Load Pins

Note ***Values may have changed since this table was populated, consult the factory or a local dealer for the most up to date information.***

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