



FIGURE 11
KNOWN LOAD TENSION SENSOR CALIBRATION

For the most accurate sensor calibration it is recommended that an actual field calibration be done. The tension sensor must be mounted in its operational position with the material contact element (roller, shaft, etc.) installed. A known accurate weight equal to between 50% - 100% of the rated full scale capacity of the sensor is required.

The following steps describe how to calibrate a TMI tension sensor with a digital strain gage signal conditioner/indicator. If you are using an indicator supplied by TMI specific instructions have been supplied. If you are using a signal conditioner/indicator supplied by others these steps will help relate the theory of calibration used by most digital strain gage calibration units available.

- 1.) Configure the indicator with the digital value in units such as grams, pounds etc. that will equate to the No Load Output Signal and the Full Scale Output Signal.
- 2.) Thread the calibration material through your material path and determine the output signal in mV with No Load. This value can typically be measured and stored in memory by the digital indicator.
- 3.) Hang the full scale calibration weight as shown in the illustration above. The output by the sensor is now the Full Scale Output Signal and should be measured and stored by the indicator.
- 4.) The 2 calibration signal output points are now used by the indicator to create a signal span that can be related to the corresponding digital display values for No Load and Full Scale. This calibration slope is used by the digital indicator to calculate the correct display value for a specific output signal created by a change in the material tension.
- 5.) The tension sensor has now been calibrated to measure the tension in your material with the variables of mounting orientation and material wrap angles taken into account.