

UTM Calibration Verification Spring Fixture

Procedure for Use

The UTM Calibration Verification Spring Fixture is an accessory for a Universal Test Machine (UTM) to quickly check if the sensors are functioning. By doing this, the operator can avoid damaging their machine, running an invalid test, or making a mistake in set-up. The test verifies the displacement and load cell sensors to see if they are operating in a reasonable range.

The UTM Calibration Verification Spring Fixture **DOES NOT** Test the UTM to see if it is calibrated. Calibration must be done by a technician using high resolution measurement instruments.

THEORY OF USE

The spring fixture has a fixed mechanical spring rate. The three (3) springs provide force that increases with compression. That force is repeatable. By reporting the force of the springs at a specific compression point, and comparing it to a known force taken after the most recent, certified calibration, the operator can tell if the system is operating at a nominal performance. The user may decide a reported force may be out of tolerance. If the reported force is outside the tolerance, the user may decide to not proceed with a test, and stop using the tester until calibration is inspected.

BASIC PROCEDURE

- 1) First time set-up
 - a) Install the spring fixture on your UTM table, centered under the load cell foot.
 - b) Operate the UTM to compress the spring to 25% compression.
 - c) Dwell 5 seconds,
 - d) Record the force.
 - e) Return to start position.
 - f) Repeat the test 9 more times. Record the forces.
 - g) Average the 10 forces.
 - h) Decide the acceptable tolerance from standard deviation of the 10 collected samples.
 - i) Affix a sticker on the UTM Calibration Verification Spring Fixture with the "reference force and std dev".
- 2) Daily, prior to operating the UTM
 - a) Install the spring fixture on your UTM table, centered under the load cell foot.
 - b) Operate the UTM to compress the spring to 25% compression.
 - c) Dwell 5 seconds.
 - d) Record the force.
 - e) Return to start position.
 - f) Recommended: Repeat the measurement 3 times.
 - g) Compare the reported force to the reference force.

SAMPLE PROGRAM

This program is available for download for the Schap Servo UTM at:
<https://schapmachine.com/product/accessories/utm-calibration-spring/>