

Calibration Procedure

DeFelsko Corporation

PosiTest ATC

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1 Introduction and Performance Requirements

1.1 This procedure describes the calibration of PosiTest ATC with the following measurement range:

Table 1-1 Measurement Ranges

Range	Resolution
110 – 3500 psi* (0.7 – 24.2 MPa)	1 psi (0.01 MPa)

*Configured for 20mm dolly

2 Measurement Standards and Support Equipment Performance Requirements

2.1 The ATC accuracy requirements are based upon the published performance specifications.

2.2 The test uncertainty ratio applied in this calibration procedure is 4:1 unless otherwise stated.

2.3 Minimum-Use-Specifications are the minimum test equipment specifications required to meet all the ATC accuracy requirements and the test uncertainty ratio applied.

Table 2-1 Accuracy Requirements and Description

Range	Accuracy	Test Method
110 – 3500 psi (0.7 – 24.2 MPa)	± 5.6 psi (± 0.039 MPa)	Load cell calibrator

Table 2-2 Minimum Use Specifications

Range	Accuracy
110 – 3500 psi (53 – 1704 lbf*)	±1.4 psi (± 0.68lbf*)

*based on 20mm dolly

Table 2-3 Actual Equipment Specifications

Range	Accuracy	Manufacturer/Model #'s Applicable
50 - 2000 lbf (103 – 4107 psi*)	± 0.042 lbf (± 0.09 psi*)	Morehouse PRECISION w/ HADI

*based on 20mm dolly

Caution: The instructions in this Calibration Procedure relate specifically to the equipment and conditions listed in Section 2. If other equipment is substituted, the information and instructions must be interpreted accordingly.

Table 2-4 Calibration Environmental and Warm Up Requirements

Measurement Standards & Support Equipment Environmental Requirements:	Temperature: $23 \pm 1^{\circ}\text{C}$ Relative Humidity: Less Than 95%
Measurement Standards & Support Equipment Warm-up and Stabilization Requirements:	Not required

3 Preliminary Operations

Note: Review the entire document before starting the calibration process.

3.1 Visually inspect the ATC for:

- Damage
- Wear

3.2 For units returned for re-calibration, the load cell assembly must be removed from the frame in order to perform the calibration.

3.3 Install the load cell into the tester frame by:

3.3.1 Install the thread adapter into the top of the load cell.

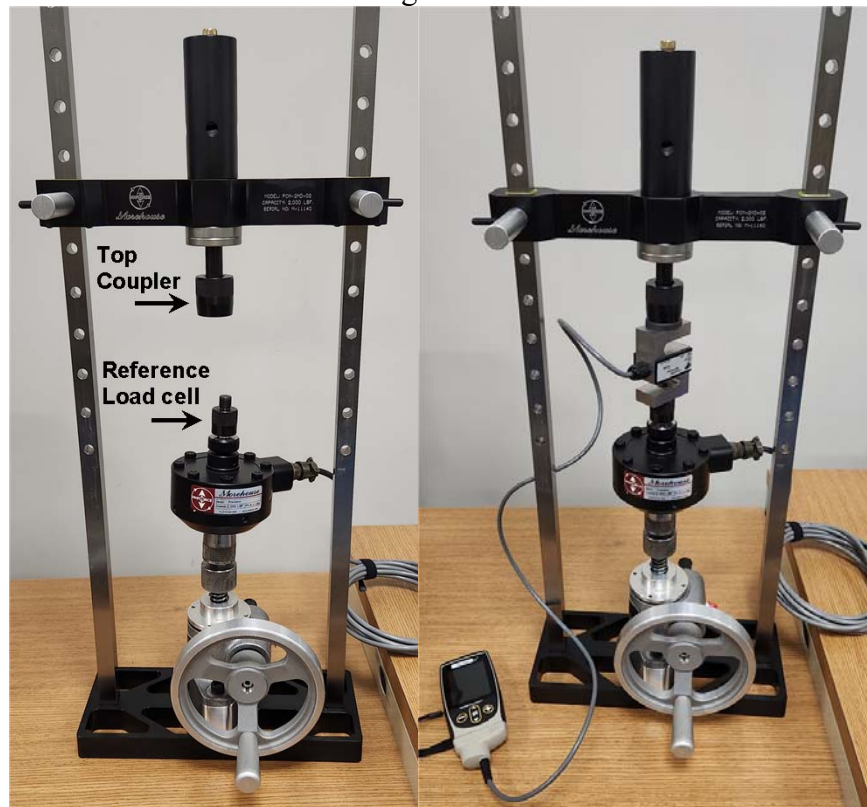
Figure 3-1



3.3.2 Thread the bottom of the load cell onto the reference load cell

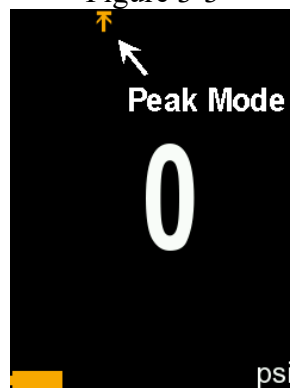
3.3.3 Raise the load cell assembly by using the hand crank until the top coupler can fully thread onto the thread adapter then thread it on.

Figure 3-2



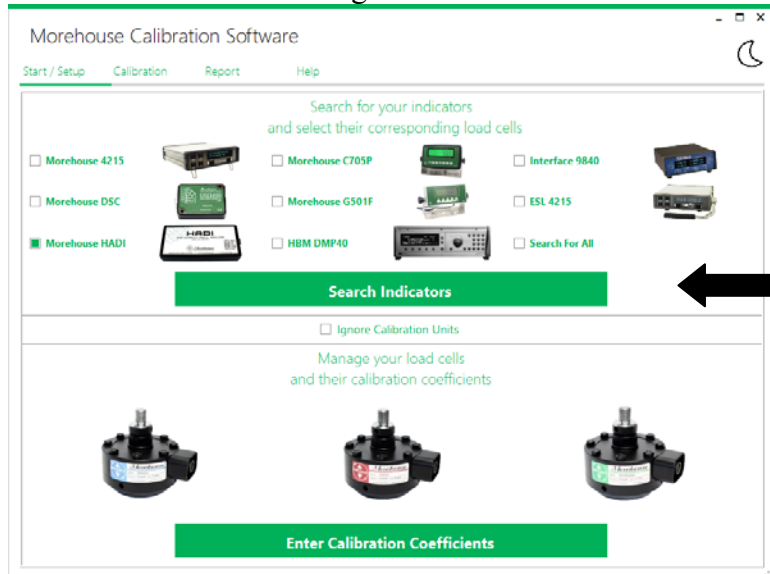
- 3.4 Turn the hand crank until all load is removed from the load cell. The top coupler should freely move side to side without resistance.
- 3.5 Connect a gage body to the ATC and turn on the gage. It is recommended to plug the gage into USB so it will not automatically power down after 5 minutes.
- 3.6 Verify the Peak Mode is on, the units are psi and the ATC reads zero. If the unit does not read zero, first verify there is no load on the load cell from the fixture. Then select the “Zero” function from the PosiTector menu. Finally, clear the peak reading by pressing the “+” button.

Figure 3-3



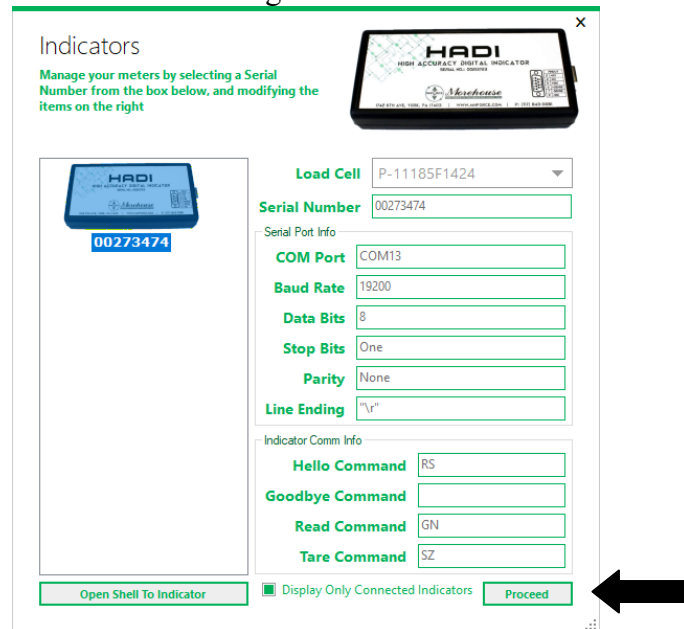
3.7 On the computer connected to the HADI unit, open Morehouse Calibration software and click ‘Search Indicators’.

Figure 3-4



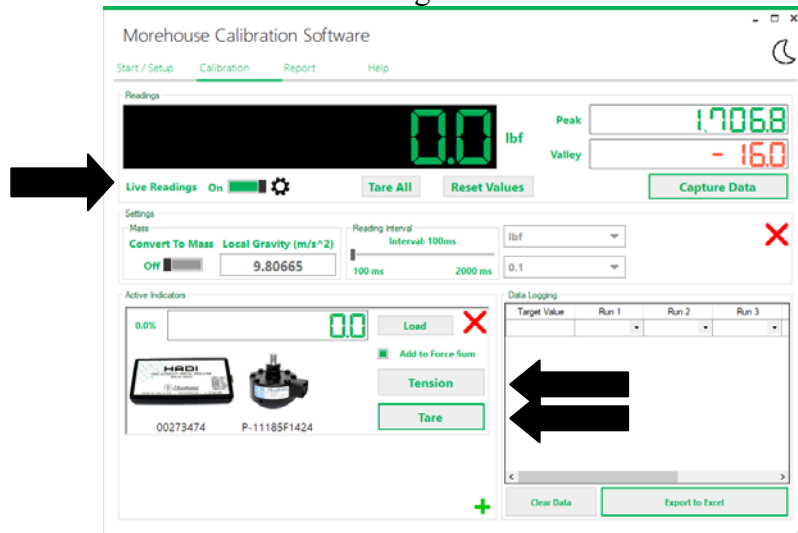
3.8 Once the load cell appears, select ‘Proceed’.

Figure 3-5



3.9 Select the ‘Calibration’ tab and on the following screen select the HADI unit. Change the force mode from Compression to Tension, select ‘Live Readings’ and lastly select ‘Tare’

Figure 3-6



4 Calibration Process

Note: Whenever the test requirement is not met, verify the results of each test and take corrective action before proceeding.

- 4.1 Review the Performance Requirements in Tables 5-1.
- 4.2 Turn the crank until the value on the Morehouse software interface indicates 73.0 lbf.

Note: During the calibration process, if you exceed the target value, you must reduce the load, reset the peak value on the PosiTector and then try again.

- 4.3 Record the reading on the PosiTector.
- 4.4 Repeat steps 4.2 and 4.3 for the 973.8 and 1704.2 lbf to complete set 1.
- 4.5 Turn the crank until all load is removed from the load cell. Rotate the ATC load cell 120° by unthreading it 1/3 of a turn. Make sure no load is being applied to the load cell, reset the gage peak reading and zero the PosiTector if necessary. Repeat steps 4.2 - 4.4 to complete set 2.
- 4.6 Repeat step 4.5 so the load cell will now be unthreaded 2/3 of a turn from its original position. Repeat steps 4.2 - 4.4 to complete set 3.

5 Performance Requirements

Note: The technician shall collect the data needed to complete the table below. Do not write in this procedure.

Table 5-1 Performance Requirements and Calibration Data)

Test Equipment Reading	73.0 (lbf) (150 psi)	973.8 (lbf) (2000 psi)	1704.2 (lbf) (3500 psi)
	A	B	C
ATC Reading Set 1			
ATC Reading Set 2			
ATC Reading Set 3			
Average ^①			
Error ^②			

- ① Calculate the average value for each of the three sets, rounding to the nearest 1psi
- ② Calculation: the average set value – test equipment reading in psi

