

TECHNICAL MANUAL  
CALIBRATION PROCEDURE  
FOR  
HEIGHT GAGES - VERNIER, DIAL AND DIGITAL  
GENERAL

This publication replaces T.O. 33K6-4-1626-1 dated 30 October 2007.

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**HEIGHT GAGES - VERNIER, DIAL AND DIGITAL****GENERAL****1 CALIBRATION DESCRIPTION:***Table 1.*

<b>Test Instrument (TI) Characteristics</b>	<b>Performance Specifications</b>	<b>Test Method</b>
Length	Range: 0 to 8 in Accuracy: $\pm 0.001$ in * Range: >8 to 24 in Accuracy: $\pm 0.002$ in * Range: >24 to 40 in Accuracy: $\pm 0.003$ in *	Compared to Gage Blocks

\* See step 3.6.

**2 EQUIPMENT REQUIREMENTS:**

<b>Noun</b>	<b>Minimum Use Specifications</b>	<b>Calibration Equipment</b>	<b>Sub- Item</b>
2.1 GAGE BLOCKS	Range: 0.05 to 4.0 in Accuracy: $\pm 20$ $\mu$ in from stated value	L.S. Starrett Co. 36	L.S. Starrett Co. 81
2.2 SURFACE PLATE	Range: 24 in X 36 in Accuracy: within 0.0002 in over the entire measurement area	Rahn GGG-P-463	
2.3 GAGE BLOCKS	Range: 5 to 20 in Accuracy: $\pm 5$ $\mu$ in/in from stated value	L.S. Starrett Co. 8	Height Transfer Standard DHG 49
2.4 REPEAT READING GAGE	Range: N/A Accuracy: $\pm 50$ $\mu$ in	L.S. Starrett Co. 779	

**3 PRELIMINARY OPERATIONS:**

- 3.1 Review and become familiar with entire procedure before beginning Calibration Process.
- 3.2 Check measuring surface and base of TI for nicks and burrs and remove as necessary.
- 3.3 The TI must be allowed to stabilize at room temperature for two hours prior to calibration.
- 3.4 For TIs which have multiple functions and a single scale: Scale linearity need only be checked on one function. A single point accuracy must be checked for any remaining functions.

3.5 For unanswered questions concerning the operating instructions of the TI, consult the operator manual for the TI.

3.6 If the TI is not listed in T.O 33K-1-100-2 or applicable CMS, use the accuracies listed in Table 1. Annotate Certification Label with the corresponding accuracy stated in T.O 33K-1-100-2, applicable CMS or Table 1, whichever is applicable.

3.7 Using the Repeat Reading Gage, locate an area on the Surface Plate where flatness is within 0.0002 inches.

3.8 Use only portions of the procedure applicable to the TI being calibrated.

**4 CALIBRATION PROCESS:**

**NOTE**

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met, before proceeding.

**4.1 LENGTH CALIBRATION:**

4.1.1 Select Gage Blocks equal to 25, 50, 75 and 95% of TI FS.

4.1.2 Place the TI on the Surface Plate and place a 0.250 inch (for P/N 903140 use 0.321 inch) Gage Block under the TI measuring face/stylus, whichever is applicable. Bring the TI measuring face/stylus into contact with the Gage Block.

4.1.3 Set the TI to read 0.250 inch (for P/N 903140 it will be 0.321 inch), if adjustments can be made to the TI. Otherwise, the TI must indicate the applied value within the corresponding values for the TI being calibrated as per Table 1 directive or Table 2, whichever is applicable.

4.1.4 Select the Gage Block size corresponding to 25% of TI FS. Raise the TI measuring face and install Gage Block.

4.1.5 Bring the TI measuring face into contact with the Gage Block.

4.1.6 The TI must indicate the applied value within the corresponding values for the TI being calibrated as per Table 1 directive or Table 2, whichever is applicable.

4.1.7 Repeat steps 4.1.4 through 4.1.6 for 50, 75 and 95% of TI FS.

4.1.8 If TI has a dial indicator, zero the dial indicator and check at 25, 50, 75 and 95% of the dial indicator range by applying the appropriate Gage Block sizes.

*Table 2.*

<b>Range (in)</b>	<b>Applied (%)</b>	<b>Limits (in)</b>
0 to 8	25, 50, 75 and 95	±0.001
>8 to 24	25, 50, 75 and 95	±0.002
>24 to 40	25, 50, 75 and 95	±0.003

4.1.9 Annotate the TI accuracy on the Certification Label as per step 3.6.

4.1.10 Calibration complete. Secure all equipment.

**CALIBRATION PERFORMANCE TABLE**

Not Required