



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

MACHINIST TOOL REPAIR INC.
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CALIBRATION

Valid To: December 31, 2020

Certificate Number: 3673.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1,5}:

I. Dimensional

| Parameter/Equipment | Range | CMC ^{2,3} (\pm) | Comments ⁴ |
|--------------------------------|---|--|--|
| Gage Blocks | Up to 6 in (6 to 12) in (12 to 20) in | (5.4 + 2.7L) μ in (5.4 + 2.7L) μ in (14 + 3.4L) μ in | Gage blocks Grade 1 Pratt & Whitney Labmaster Universal Gage blocks Grade 0 |
| Length Standards | Up to 60 in | (60 + 5.5L) μ in | Pratt & Whitney measuring machine, gage blocks |
| Disks, Plugs, Pins – XXX-XX | Up to 12 in | (5.5 + 5.7L) μ in | Pratt & Whitney Labmaster Universal, gage blocks Grade 1 |
| X-Y | Up to 12 in | (36 + 4.1L) μ in | Pratt & Whitney Labmaster Universal, gage blocks Grade 2 |

| Parameter/Equipment | Range | CMC ^{2,3} (\pm) | Comments ⁴ |
|-------------------------------------|----------------------------|--|--|
| Disks, Plugs, Pins – (cont) Z-ZZ | Up to 4 in | (86 + 2.6L) μ in | Gage blocks Grade 2, Mikematic bench micrometer |
| Ball Gages | Up to 6 in | (5.5 + 5.7L) μ in | Pratt & Whitney Labmaster Universal, gage blocks Grade 1 |
| Ring Gages | (0.04 to 6) in | (8.1 + 7.3L) μ in | Pratt & Whitney Labmaster Universal, master ring gage |
| Cal Master | Up to 12 in | (170 + 8.7L) μ in | Gage blocks Grade 2, micro-hite |
| Mic Masters – Survey Trees | Up to 12 in | (120 + 3L) μ in | Gage blocks Grade 2, bench micrometer |
| Depth | Up to 12 in | (370 + 2.4L) μ in | Micro-hite |
| Bench Micrometer | Up to 10 in | (36 + 4.5L) μ in | Gage blocks Grade 2, optical blocks |
| Thread Wires | Up to 0.5 in | (17 + 100L) μ in | LaserScan, master wires |
| Micrometer – Outside Diameter | Up to 12 in 13 to 60 in | (75 + 3.5L) μ in (75 + 5.8L) μ in | Gage blocks Grade 3, optical block |
| Inside Diameter | Up to 60 in | (250 + 19L) μ in | Pratt & Whitney measuring machine, ring gages |
| Depth | Up to 12 in | (160 + 1.1L) μ in | Gage blocks Grade 3, master step set |



| Parameter/Equipment | Range | CMC ^{2,3} (\pm) | Comments |
|---|--------------------------|--|---|
| Indicators | Up to 4 in | 51 μ in | Bench micrometer |
| Calipers | Up to 60 in | (750 + 2L) μ in | Gage blocks Grade 3, ring gage |
| Height Gages | Up to 48 in | (120 + 7.0L) μ in | Gage blocks Grade 2 |
| Bore Gages | (0.1 to 6) in | (77 + 18L) μ in | Ring gages |
| Thread Plug Gages – Major Diameter Pitch Diameter | Up to 4 in Up to 4 in | (39 + 5.0L) μ in (49 + 5.0L) μ in | Thread wires, Pratt & Whitney Standard measuring machine, gage blocks |
| Adjustable Thread Ring Gages – Minor Diameter | Up to 4 in | (100 + 3.4L) μ in | Thread set plugs, height gage |

II. Mechanical

| Parameter/Equipment | Range | CMC ^{2,3} (\pm) | Comments |
|---|---|--|----------------------|
| Durometer – (Types A and D) Indenter Extension and Shape – Spring Calibration – Force | Visual Inspection Only (10 to 100) Duros | (1.1 + 0.02D) Duros (1.1 + 0.01D) Duros | Shore durocalibrator |

| Parameter/Equipment | Range | CMC ^{2,3} (\pm) | Comments |
|------------------------|--|---|---------------------------------------|
| Torque Wrenches | (5 to 50) in·lbf (20 to 100) in·lbf (25 to 250) ft·lbf (100 to 1000) ft·lbf | (0.13 + 0.01T) in·lbf (0.89 + 0.006T) in·lbf (0.4 + 0.01T) ft·lbf (7.2 + 0.01T) ft·lbf | Torque and tension Tester |
| Surface Finish – RA | Up to 200 μ in | (0.03L + 3) μ in | Specimen & master profilometer SV-501 |

¹ This laboratory offers commercial calibration service.

² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

³ In the statement of CMC, D is the diameter of the device in inches, T is the applied torque, L is the numerical value of the nominal length of the device measured in inches.

⁴ "Labmaster" is a registered trade mark with a last listed owner of Pratt & Whitney Measurement Systems, Inc., Connecticut U.S.A.

⁵ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

MACHINIST TOOL REPAIR INC.

Valley City, OH

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCCL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26th day of April 2019.

A handwritten signature in blue ink, positioned above a horizontal line.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3673.01
Valid to December 31, 2020

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.