



MTS SYSTEMS CORPORATION



MTS Test – MTS Owned Measurement and Test Equipment (M&TE)-
Asset Control and Identification

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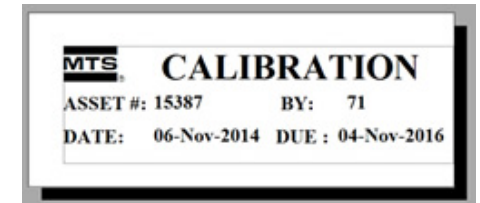
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Calibration of Measurement & Test Equipment (M&TE)



Why Calibrate Your Instruments?

- Calibration provides confidence and credibility in the measurement results.
- Calibration assures measurements are accurate and repeatable within the specification limits, as well as, traceable to National and International Standards.
- Calibration minimizes the risk of measurement error by placing appropriate calibration controls on M&TE.
- Establishes the reliability of the instrument (i.e., that it can be trusted).
- Confirms whether there has been any alteration or shift of the M&TE that could create doubt about the measurement results



Why is Calibration Required?

- Industry standards that MTS states compliance to require control and calibration of M&TE. These applicable standards includes ISO 9001, ISO 14001, ISO 17025, ASTM.
- MTS Corporate Quality Manuals align with applicable industry standards and require M&TE control and traceability:
 - MTS Test Division Quality Manual, Section 7.1.5, Monitoring and Measuring Resources
 - EH&S Quality Manual Section 9.1, Monitoring, Measurement, Analysis and Evaluation



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This training module summarizes the content of :
 QMS MFG 50, *Corporate Measurement and Test Equipment (M&TE)-Asset Control and Identification*, located at:
[\\mspdata1\Manufacturing\Masters\Metrology\Key Documents\Metrology Standard Procedures\MFG_50 Corporate Measurement and Test Equipment\QMS MFG 50 Corporate Measurement and Test Equipment- Asset Control and Identification.docx](#)

| | | | |
|--|--|---|--------------------|
| | QMS Procedure MTS Systems Corporation – MTS Test | Document Number: Mfg_050 | Rev.: 01 |
| Title: Corporate Measurement and Test Equipment (M&TE)- Asset Control and Identification | | Page #: 1 of 17 | |
| Procedure Owner(s) – list functions: Metrology and Calibration Laboratory | | Revision's Training Requirements – select one (per section #): Awareness <input type="checkbox"/> Formal <input checked="" type="checkbox"/> | |

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- 1 PURPOSE**
- 1.1 The purpose of this QMS procedure is to:
- 1.1.1 Define the policy and procedure for identifying, controlling, or using MTS owned Measurement and Test Equipment (M&TE) at MTS Systems Corporation
 - 1.1.2 To minimize the risk of measurement error by placing appropriate calibration controls on MTS M&TE and measurement standards.
- 2 SCOPE**
- 2.1 The scope of this QMS procedure applies to all MTS Test Employees that purchase, use or maintain MTS owned M&TE.



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The purpose of QMS procedure MFG 50 is to:

- Define the policy and procedure for identifying, controlling, or using MTS owned Measurement and Test Equipment (M&TE) at MTS Systems Corporation
- To minimize the risk of measurement error by placing appropriate calibration controls on MTS M&TE and measurement standards.

The scope of this QMS procedure applies to:

- All MTS Test Employees that purchase, use or maintain MTS owned M&TE.
- Personal M&TE used in the manufacturing or acceptance of MTS product.

The policy in this QMS procedure states:

- *All measuring and test equipment shall be placed under MTS Metrology Laboratory control and be identified with an MTS Metrology Laboratory asset tag, assigned by the Metrology Laboratory.*
- *The use of measuring and test equipment that is not calibrated, or properly identified with an MTS Metrology Laboratory asset tag, is not permitted.*



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Procedure Summary

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» M&TE Control and Traceability

- All M&TE used as monitoring and measuring devices that provide evidence of conformity of product to determined requirements (quality critical) shall be placed under necessary control and be calibrated before use. Calibration assures measurement credibility with valid relationships through recognized national or international metrological standards to the SI unit (International System Of Units).
- If calibration is deemed not necessary (not quality critical), an MTS Metrology asset tag identifying the assets condition will be placed on the unit and a record of the determination or assessment shall be recorded in the Metrology Database.



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Asset Identification

- » The method to identify M&TE is to affix one or more of a variety of labels to each individual M&TE. The respective labels contain information such as: MTS asset number, calibration date/due date and special instruction or limitations.

- » M&TE shall be identified with an MTS Metrology assigned asset number tag to enable the calibration status to be determined. The visual management asset tag is visibly placed on the M&TE, when applicable, to create calibration status or maintenance awareness and visibility by the user. The Metrology asset tags identify six conditions:



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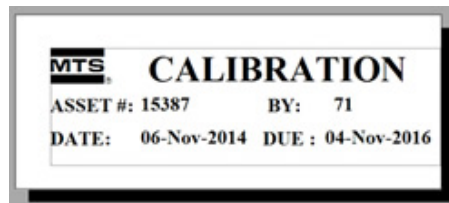
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- » **Calibration required.** Black lettering on white Metrology asset tag: Measurement accuracy is critical, and device is used to determine product acceptance or conformity. Applied to all MTS M&TE that is under calibration control. On equipment where the use of this label is not practical, other methods of identification will be used. Asset tag will have the unique asset number on it. Asset will be identified as an “Active” asset in the Metrology database.



- » The Metrology database containing all controlled M&TE information is organized by MTS asset number and is used to facilitate mandatory calibration recall and inventory of all active M&TE. The recall system is defined in the QMS 604A, Recalibration Process. This recall system assures M&TE is recalled, maintained, and calibrated in accordance with predetermined intervals per QMS 604B, Calibration Interval Procedure.



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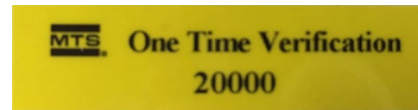
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Procedure Summary

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- » **One time verification or inspection required.** Black lettering on yellow Metrology asset tag: An example is a fixture that affects product acceptance or conformity but will not change significantly over time. Asset tag will have the unique asset number on it. Asset will be identified as an “Inactive” asset in the Metrology database.



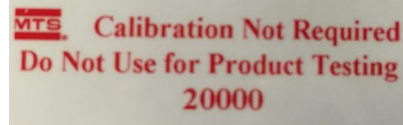
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Procedure Summary

- » **Calibration Not Required- Do Not Use for Product Testing or Acceptance.** Red lettering on white Metrology asset tag: Measurement accuracy is NOT critical and device is NOT used to determine product acceptance or conformity and does NOT affect final product quality. Asset tag will have the unique asset number on it. Asset will be identified as an “Inactive” asset in the Metrology database.



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Procedure Summary

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- » **Periodic Verification Required: Verify with Check Standard.** Alternative to Calibration Not Required. Red lettering on white Metrology asset tag: Measurement accuracy is frequently verified with user calibrated check standard. Asset tag will have the unique asset number on it. Asset will be identified as an “Inactive” asset in the Metrology database.
- » Example of this application is when a check standard is calibrated by the Metrology Laboratory and the Transducer Manufacturing area uses the check standard to frequently verify soldering iron temperature.

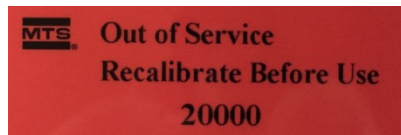




Procedure Summary

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- » **Out of Service Recalibrate Before Use.** Black lettering on red Metrology asset tag: Asset is not currently used or needed and is segregated from active M&TE. Asset tag will have the unique asset number on it. Asset will be identified as an “Inactive” or “Dead” asset in the Metrology database.



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Procedure Summary

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- » **Maintenance Required.** White lettering on blue Metrology asset tag. Recurring maintenance is required to ensure proper functionality or reduced wear, potentially extending the life of the asset.





FAQ's

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Q: Do I need to calibrate my asset if I drop it?

A: Yes, it probably should be recalibrated. At a minimum, have it quickly verified by a Metrology standard.

Q: If I buy M&TE when do I need to bring it to the Metrology Laboratory?

A: Immediately to ensure it is under control and allocated properly in the appropriate state.

Q: Is it easier if I buy M&TE myself or have the Metrology Laboratory buy it?

A: The Metrology Laboratory can provide assistance in the purchase and selection of the proper M&TE needed for the application.

Q: What is the typical turnaround time?

A: 2 weeks for In-house M&TE, 1-2 weeks for NA Service, or other special arrangements are possible upon request.

Q: What is the difference between a Calibration Plan and a Calibration Request Form?

A: Calibration Plan is specific to the calibration of customer and production type transducers. Calibration Request Form is specific to the calibration of MTS owned M&TE.

Q: Does my tape measure need calibration?

A: Typically no, but if you were attempting to calibrate the displacement of an actuator, yes it would; fortunately, displacement standards are commonly used in these applications.

Rulers are another example of a measurement tool that typically would not need to be calibrated, unless for some reason it is used to accept or assess conformance of product.



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Procedure Summary

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Procurement of M&TE (MTS Owned)

- » When procuring M&TE for MTS use, it is highly recommended that the MTS Metrology and Calibration Laboratory is contacted (x4208) before the procurement is initiated to assist in:
 - 1) Ensuring that the Laboratory has the capability, standards, procedures, and required uncertainty levels to support the calibration
 - 2) Requesting from the M&TE supplier the correct calibration documentation and certification (see QMS 606-1 Externally Provided Calibration Services.)
 - 3) Identifying the appropriate M&TE relative to your application, measurement specification or uncertainty considerations



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Procedure Summary

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Process for getting M&TE calibrated (MTS owned)

- » Complete the **Calibration Request Form** and deliver the completed form and M&TE asset(s) to the Metrology and Calibration Laboratory incoming shelf (PSA 230).



Calibration Request Form- Metrology Laboratory

Purpose: Calibration of MTS owned M&TE

Date: _____

Cost Center: _____

Delivered by: _____

Pick-up or call when completed?: _____

Expected completion Date: _____

List of items:

Serial #: _____ Description: _____

Assigned User: _____ Location: _____

Serial #: _____ Description: _____

Assigned User: _____ Location: _____

Serial #: _____ Description: _____

Assigned User: _____ Location: _____

Serial #: _____ Description: _____

Assigned User: _____ Location: _____

Serial #: _____ Description: _____

Assigned User: _____ Location: _____

Special Instructions: _____



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» **What are the Risks of using M&TE that is not calibrated?**

- Production: False acceptance or rejection of product causing inferior products, reputation risks, costly rework and safety concerns.
- Engineering and R&D: Unnecessary design flaws or false acceptance or rejection of new product.
- Commerce depends on globally agreed standards of measurement. Only traceable calibrations can ensure adherence to these global standards.
- Environmental Health and Safety: Calibration is a vital piece to EH&S. M&TE such as the portable gas monitor for the highbay pit and the carbon monoxide sensor system protect employees from unseen workplace hazards. Proper maintenance and calibration of the M&TE ensures their accuracy in detecting worker exposure to harmful gases in the workplace.
- Engineering controls, not identified in an EH&S Risk Assessment as needing calibration, may put MTS employee's safety at risk.
- Compliance: MTS compliance to quality, environmental, safety and calibration standards is necessary to be competitive in the testing industry.



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» **Your Responsibility:**

- MTS users of measuring and test equipment are responsible to ensure that all M&TE used by MTS employees is under MTS Metrology Laboratory control. Any instrument used for measurement or testing applications, shall be brought to the Metrology Laboratory to be placed under proper calibration control.
- Promptly return active assets for calibration on or before calibration due date.
- Do not use assets overdue for calibration or lost. Return either for calibration ASAP.

» **MTS Metrology Laboratory Responsibility:**

The MTS Metrology Laboratory is responsible for determining and implementing the appropriate calibration status, calibration interval, methods and procedures. The MTS Metrology Laboratory will keep historical information concerning calibration results, maintain necessary measurement standards, and provide evidence of quality compliance and measurement traceability.

» **Bottom Line:**

All M&TE shall be placed under MTS Metrology Laboratory control and be identified with an MTS Metrology Laboratory asset tag. The use of measuring and test equipment that is not calibrated, or properly identified with an MTS Metrology Laboratory asset tag, is not permitted.



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