

Test Equipment Calibration Guidelines

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1. General

1.1
Purpose This practice describes recommended procedures for maintaining a Telco test equipment calibration program.

1.2
Filing Instructions File this practice in numerical order in **your practices set**.

1.3
Copyright and Responsibility **This practice was published by the GTE Telephone Operations Administrative Services Department.** For more information about this practice, contact the Supply Equipment Services Center.

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1.4
Disclaimer This practice has been prepared for GTE Telephone Operations employees, customers, and end users' employees who operate and maintain the equipment engineered and installed by GTE. The information in this practice is subject to change and may not be suitable in all situations. GTE Telephone Operations acknowledges that a customer's special requirements or practices may take precedence over those supplied in this practice if a conflict develops during installation or ongoing operation. GTE Telephone Operations hereby disclaims any responsibility or liability for any consequential or inconsequential damages that may result from the use of this practice.

2. Overview

2.1 Acronyms

The acronyms used in this practice **are** defined in the chart below:

Acronym	Definition
COE	Central Office Equipment
COEI	Central Office Equipment Installation
OSP	Outside Plant
ERM	Equipment Management Resource Engineer
ERO	Equipment Repair Order
EROMS	Equipment Repair Order Mechanized Systems
ESC	Equipment Service Center
FCC	Federal Communication Commission
ERS	Equipment Repair System
NIST	National Institute of Standards and Technology (formerly NBS)
CSR	Central Store Room (EROMS) Central Stock of Maintenance Spares

2.2 Introduction

This practice describes how to:

- Maintain test equipment in required operational specification.
- Schedule calibration intervals.
- Dispose of defective or obsolete items.
- Recommend documentation to support this program.

Test Equipment establishes, verifies, and maintains traceable accuracies within GTE.

2. Overview, continued

2.3
FCC
Regulations

This practice does not suspend, supersede, or change the Federal Communications Commissions regulations.

2.4
Calibration Intervals

The recommended calibration intervals are listed for fixed (rack-mounted) and portable test equipment.

2.5
Calibration Definition and Philosophy

Calibration ensures test traceability at all levels of Telco operation. Periodic verification of test instruments against a reference test standard from the National Institute of Standards and Technology (NIST, formerly NBS) is required. A scheduled calibration program for all levels of instrumentation ensures precise measurement and maintains a high-quality Telco network.

3. Introduction to Responsibilities

3.1
Responsibilities

The following chart describes the responsibilities for handling test equipment.

The...	Is Responsible for...
ESC	<ul style="list-style-type: none">• Recalling test equipment.• Calibrating and repairing test equipment.• Maintaining NIST traceability• Handling rack-mounted calibration.• Answering questions about the calibration of test equipment.• Shipping "Dropped Shipped" equipment to the original ShipTo-Address.• Handling "Dropped Shipped" equipment according to GTE Telephone Operations Practice 001-000-002, "Property Identification Accounting Procedures."• Determining what units ESC will do and what units other vendors will do.

(continued)

3. Introduction to Responsibilities, continued

3.1

Responsibilities, The... continued

The...	Is Responsible for...
EROM/ERS	<ul style="list-style-type: none">• Processing new test equipment (out-of-box failures).• Processing test equipment calibration status of units in CSR.• Receiving new equipment not calibrated from the factory and shipping to another vendor for calibration.• Answering all inquiries from the field concerning status of test equipment returned to the vendor.• Tracking and processing all test equipment to an authorized vendor.
Purchasing	<ul style="list-style-type: none">• Placing orders for new test equipment with calibration certification.• Processing new test equipment requiring calibration and calibration verification.• Recalling data base information to the ESC.• Negotiating prices from the vendor for initial calibration certification.• Making sure all test equipment identified by Engineering is "Drop Shipped" to the responsible ESC. Refer to GTE Telephone Operations Practice 001-000-002, "Property Identification Accounting Procedures."
END User(s)	<ul style="list-style-type: none">• Sending portable equipment through EROMS for calibration.• Scheduling new fixed equipment sites with the ESC.• Telling the Purchasing department to ship new equipment requiring calibration verification to ESC. (Individual requisitions.)• Updating Recall Data Base information.• Sending out-of-box failures of new test equipment through EROMS for handling.

(continued)

3. Introduction to Responsibilities, continued

3.1

Responsibilities, continued

The...	Is Responsible for...
Engineering	<ul style="list-style-type: none">Identifying all new test equipment provided on the work order.Forwarding this information to Purchasing to include all individual requisitions and lot orders.
Standardization Group	Purchasing new test equipment with calibration certification (traceable to NIST and Technical Support document to include all schematics and calibration documentation.

3.2

Documentation

The basis for a successful calibration program is reliable inventory records and historical maintenance documentation. Inventory records provide the schedule to reduce equipment downtime. Complete historical maintenance records provide benchmarks for:

- Trouble areas.
- Quality usable life expectancies.
- Equipment technology changes to make sure Telco network testing confidence remains.

3.3

Historical Records

A historical record for all test equipment establishes and maintains the operating areas Equipment Service Center department through EROMS or ERS. The record includes the following basic data:

- In-service or purchase date.
- Warranty period.
- Description.
- Manufacturer.
- Model number.
- Serial number.
- Material code.
- Original cost.
- Continuing property record.
- Recommended calibration interval.
- Repair history.
- Assigned location.
- Transfer information.

4. Calibration

- 4.1
Calibration Interval All test equipment must be calibrated within the time frame recommended by intervals established by ESC.
- 4.2
Calibration Schedule The Equipment Service Center calibration group publishes an annual calibration **schedule related to location and area. The schedule must maintain test equipment integrity and follow Telops administrative audit procedures.**
- 4.3
Adding a Schedule Location Tell the area ESC that a site or equipment requires calibration. Indicate if this is a new schedule or a one-time visit.
- 4.4
Callbration Tags or Labels Tag calibrated test equipment to indicate the:
- Month, date, and year the instrument was calibrated.
 - Calendar month and year the instrument is due.

5. Test Equipment Disposition

- 5.1
New Equipment All new equipment must be property identified following the ESC requirements listed in Section 3.3, "Historical Records" on page 6.
- 5.2
initial Calibration The ESC is responsible for repairing and calibrating of all test equipment within GTE Telops. Equipment Services initiates procedures to make sure all new test equipment is calibrated before the field distribution. These policies address both portable and rack-mounted test sets. The initial calibration date establishes the basis for future scheduling.
- 5.3
Vendor Contract Calibration Some specialized test sets require calibration by the vendor due to warranty requirements and cost analysis. The "specialized" vendor contract list is used to eliminate costly test reference standards needed for comparatively few test instruments. The ESC calibration group handles scheduling of these items on an annual contract basis.
- 5.4
Defective Equipment Any test equipment that does not meet original manufacturer specification is considered defective and is sent to ESC for repair and calibration.

5. Test Equipment Disposition, continued

**5.5
Equipment Out
of Calibration
Interval** Any test set out of the scheduled calibration interval is considered unusable or unreliable for testing. This test equipment must have a valid calibration tag attached before it can be used **by** the field forces. Contact the ESC calibration group for instructions on schedule, pickup **or routing** to a calibration facility. The site or location **supervisor's** responsibility is to make sure calibration schedules are met.

**5.6
Equipment
Beyond
Economical
Repair** Test equipment with excessive repair charges (cost of repair is more than half the replacement cost) must be **removed from inventory records** and a **replacement unit** ordered. Test equipment **replacement** requests are processed **by department** according to local accounting procedures.

**5.7
Lost or Missing
Test Equipment** Report lost or missing test equipment according to local security procedures. Items indicated in this category must have site inventory entries reflecting the time lost or missing and a permanent removal date if unrecovered. This record entry protects the site calibration points during a Telops audit.

6. Telops Procedures

**6.1
Service Audit** To prepare for Telops Service Audit, refer to GTE Telephone Operations Practice 004-200-003, "Central Office Quality Assurance Review Switch Operations."

**6.2
Obsolete or
Excess Test
Equipment** To remove obsolete or excess test equipment, refer to:

- GTE Telephone Operations Practice 992-000-015, "Disposition of Materials."
- Central Office Equipment Maintenance section with Telops guideline "Mature Test Equipment Reuse Policy", dated September 29, 1989.

The Equipment Resource Management Engineer in each operating area disposes of all mature test equipment. This guideline must be used until a **GTE** Practice is issued. See the attachments for area "ERM".

**6.3
Test Equipment
Standard
Products
Catalog** Standardization Management publishes a catalog of accepted test equipment by Product Classification Code for each area of Telco operations. Contact the local Standardization Management to get this publication.