

# Test and Verification During Installation General Plan

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# **1. General**

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**1.1 Purpose** This practice provides the purpose and objectives for creating an installation and verification test plan, ensuring installation functionality and completeness of telecommunications equipment.

**1.2 Filing Instructions and Supersedures** Discard all previous issues and associated addenda of this practice and file this issue numerically in your GTE Telephone Operations practices set.

This practice supersedes and cancels:

- All policies, procedures, general instructions, letters, and memoranda which address this subject.
- Any document which provides information contrary to the information contained in this practice.

**1.3 Reason for Reissuing** This practice has been reissued to incorporate multiple changes in the content. Read this entire practice to ensure your familiarity with the new information.

- This practice has been reissued to:
- Assign accountability.
  - Identify responsibilities and accountability for verification and testing of Central Office equipment installations by Central Office Equipment (COE) Construction.
  - Improve quality.
  - Modify acceptance activities and insert verification activities.
  - Redefine the responsibility of Central Office Maintenance/Network Reliability/Customer Operations in the acceptance process.
  - Reduce cost.
  - Shorten intervals for delivery to customers.
  - Support the power of one.

**1.4 Responsibility** This practice was published by the GTE Telephone Operations Administrative Services Department. For more information about this practice, contact the GTE Telephone Operations Headquarters COE Construction Department.

## 1. General, continued

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### 1.5 Disclaimer

This practice was prepared solely for the use of GTE Telephone Operations. It must be used only by its employees, customers, and end users when installing, operating, maintaining, and repairing GTE Telephone Operations' equipment, facilities, and services. Any other use of this practice is forbidden. The information contained in this practice may not be applicable in all circumstances and is subject to change without notice. By using this practice the user agrees that GTE Telephone Operations will have no liability (to the extent permitted by applicable law) for any consequential, incidental, special, or punitive damages that may result.

## 2. Forms

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### 2.1 Introduction

Verification Test Forms and packages found in GTE Telephone Operations Practice 200-002-700 are general in nature and can be used for all product lines.

All other associated product line specific test verification forms can be found in the GTE Telephone Operations Practices (200 series) containing the test procedures for that system or equipment, in the manufacturers' documentation, and in the work order specifications. A list of GTE practices can be found in the master GTE Telephone Operations Practices index posted on the teletel bulletin board (TELOPS.PRACTICES).

A list of AG Communication Systems (AGCS) practices can be found in the master index posted on the teletel bulletin board (AG.PRACT.INDEX). Other known manufacturers' COE Construction specific documentation is included on teletel bulletin board (HQ,COEI.NEWS), entitled "OEM Handbooks Reference Index."

### 2.2 Definitions

The following chart provides definitions for the acronyms used in this practice.

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<b>Acronym or Term</b>	<b>Definition</b>
AGCS	AG Communication Systems
CO	Central Off ice
COE	Central Off ice Equipment
COE Construction	Central Off ice Equipment Construction
COEI	Central Office Equipment Installation
IC	Interexchange Carrier
JIM	Job Information Memorandum

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(continued)

## 2. Forms, continued

### 2.2 Definitions, continued

Acronym or Term	Definition
MOP	Method of Procedure
NOC	Network Operations Center
OEM	Other equipment Manufacturers
OLS	On-Line Support
PCN	Product Change Notice
PWC	Printed Wiring Card
TLS	Traffic Load Simulator
UCR	Unsatisfactory Condition Report

### 2.3 References

Refer to the GTE COEC "HQ.COEI.NEWS" electronic bulletin board for the latest:

- CH-110 Handbook Index of GTE Telephone Operations Practices.
- OEM Index which lists other manufacturer installation practices.
- COEC Alerts.

Refer to the electronic bulletin board "COEC.GTEP" for COEC:

- Draft GTE Telephone Operations Practices.
- COECxxx prefixed forms (see Section 2.4).

**NOTE: Contractors who do not have access to GTE electronic bulletin boards will need to get this information from their GTE counterpart, normally at the preconstruction meeting.**

The following chart provides sources of supplementary information relating to this practice. The documents could be required for performing certain tasks.

See...	For Information About...
004-200-001*	Installation Assessment Program (IAP) -Central Off ice Construction
007-009-001	Report Unsatisfactory Condition
007-009-012	Input Pro to the Product Standardization Process
007-780-001	Equipment Reuse Provisioning Guidelines
200-002-010*	Test and Verification During Installation General Plan

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## 2. Forms, continued

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### 2.3 References, continued

See...	For Information About...
200-002-700*	COE Construction Equipment Check/Verification and General Feature and Functional -Acceptance Test Forms
200-002-724*	Acceptance Test Procedures GTD-5 EAX
200-002-725*	Acceptance Testing – <b>DS-1</b> SPAN
200-002-730*	Acceptance Test Plan Carrier Multiplex Equipment
200-002-731*	Acceptance Test Plan Radio Microwave Equipment
200-004-701*	Acceptance Test – NTI/DMS
205-001-500*	Power Complex- Installation Test Procedure
220-001-001	Central Office Equipment Installation Activity Procedures
220-001-004	COE Construction Planning and Work Order implementation Requirements
220-014-007*	Quiescent Test Load Simulator (TLS) Test Criteria – GTD-5 EAX
274-I 00-700*	Stromberg – Carlson DCO Acceptance Test Plan
795-805-074*	Inspecting Central Off ice Grounding and Electrical Protection
AT&T 5ESS**	Manufacturers Documented Test Plan
CH - 110 (Handbook)?	Central Off ice Installation

\* Used for acceptance test programs.

\*\* Available from AT&T and used for acceptance test programs.

† Information on how to order this handbook is provided on electronic bulletin board HQ.COEI.NEWS.

### 2.4 Forms

The following forms are referenced in this practice:

- Inspection - CO Grounding & Electrical Protection, Form 90001528 (GTE Telephone Operations Practice 795--805-074).
- Acceptance – Formal Summary, Form 90002634 (GTE Telephone Operations Practice 200-002-700).
- COE Planning Worksheet, Form 90002637 (GTE Telephone Operations Practice 220-001-004).

## 2. Forms, continued

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### 2.4 Forms, continued

Order these forms through normal supply channels (see Section 2.3).

The following forms are also referenced in this practice:

- COE Planning Worksheet/Method of Procedure, Form COECA03 (GTE Telephone Operations Practice 220-001-004).
- COE Construction Work Completion Summary, Form COECV01A (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Equipment Check and Verification -Superstructure, Form COECV02A (GTE Telephone Operations Practice 200-002-700).
- Central Off ice Construction Equipment Check and Verification – Cable and Wiring, Form COECV02B (GTE Telephone Operations Practice 200-002-700).
- Central Off ice Construction Equipment Check and Verification – Power Installation, Form COECV02C (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Equipment Check and Verification – Safety and Housekeeping, Form COECV02D (GTE Telephone Operations Practice 200-002-700).
- Central Off ice Construction Equipment Check and Verification – Equipment Erecting, Form COECV02E (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Equipment Check and Verification -Administration, Form COECV02F (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Equipment Check and Verification-Grounding, Isolation, and Protection, Form COECV02G (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Generic Feature and Functional Acceptance Test Basic System and Billing, Form COECV03A (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Generic Feature and Functional Acceptance Test Line Test Verification, Form COECV03B (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Generic Feature and Functional Acceptance Test Trunk System, Form COECV03C (GTE Telephone Operations Practice 200-002-700).
- Central Office Construction Generic Feature and Functional Acceptance Test Trunk/Span Testing, Form COECV03D (GTE Telephone Operations Practice 200-002-700).

Order these forms via any of the following methods:

- Contact the Regional Network Construction Support Center.
- Access telemail bulletin board COEC.GTEP.
- Send an e-mail to COEI.Quality requesting a diskette containing the forms in ASCII or WordPerfect format.

## 2. Forms, continued

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### 2.4 Forms, continued

Other forms referenced in GTE Telephone Operations Practices can be obtained through:

- The Network Construction Support Centers.
- The normal supply channels.
- The printshop (PS suffixed forms) that serves your Region.
- Reproducing exhibits of forms (PS suffixed forms) if not available elsewhere.

**NOTE:** For other product line specific forms, refer to the appropriate acceptance practices listed in GTE Telephone Operations Practice 200-002-xxx and 200-400-xxx series of practices.

## 3. Purpose of a Universal Test Plan

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### 3.1 GTE Requirements

To ensure that the installation process is properly completed, GTE requires:

- Completed test plan and/or method of procedure.
- Compliance to GTE's High Risk Activity requirements.
- Review of "When-In-Doubt-Check-It-Out" program.
- Performance level and documentation of all operational and/or site-specific tests.
- List of all site-specific (physical and functional) performance tests completed.
- Copies of all verification check lists used (manufacturer and/or GTE).
- Compliance to the work order implementation process in GTE Telephone Operations Practice 220-001-004.

A universal test plan provides for control and monitoring of installation and test procedures by continually:

- Auditing the:
  - Design and feature functions.
  - Product change notice activity.
  - Installation.
- Routing and monitoring the system equipment after power up for:
  - Functions.
  - Operations.
  - Correct diagnostics.

### 3.2 Creating a Plan

To create a universal test plan, this practice realigns existing documentation for:

- System verification and operation.
- Equipment verification.

An open-ended plan allows adding or modifying verification test procedures for new systems as required. Verification test plans illustrate the procedural data and applicable practices used for acceptance test programs. (Refer to Section 2.3.)

### 3. Purpose of a Universal Test Plan, continued

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#### 3.3 Plan Identification

A universal test plan identifies (or provides the means for identifying) the practices and other documents used for testing, correcting faults, powering up and down, and having readily available backup procedures to minimize subscriber impact. The manufacturer's documents together with applicable GTE specifications are to be considered a must when testing.

### 4. Objectives of a Universal Test Plan

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#### 4.1 Introduction

The objectives of a universal test pan are to develop:

- A single generic GTE Telephone Operations practice that is applicable to all switching and transmission equipment for regenerating site specific MOPS describing:
  - Digital switching systems.
  - Electronic switching equipment.
  - Electromechanical switching systems.
  - Transmission equipment (including fiber optic terminals, etc.).
  - Remotely located equipment.
- GTE Telephone Operations Practice 200-002-700 contains the basic equipment verification forms and instructions used in verification testing (i.e., power, superstructure, distribution frames, etc.).

#### 4.2 Documentation Requirements

The philosophy of the verification test program ensures that GTE and manufacturer's practices, procedures, and other related documentation are correct and available on a timely basis.

COE Construction and its contractors are responsible for:

- Generating an individual verification test plan, (e.g., MOP) for each project:
  - Product line.
  - System
  - Equipment.
- Obtaining necessary technical data for test procedures from the manufacturer and/or appropriate GTE staff groups.
- Coordinating the respective GTE staff groups' activities necessary to obtain the required data.
- Forming a special task force to prepare and expedite the test documentation (if necessary) or generate a UCR (refer to GTE Telephone Operations Practice 007-009-012).

**NOTE: Most equipment installed has test specifications and forms to be used for installation. Documentation must be completed for all work locations to support test completion.**

# 5. Acceptance/Verification Test Procedures

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## 5.1 Introduction

For a particular test you must use:

- A general set of forms (provided by the Support Center, appropriate manufacturer's forms, or electronic mail).
- Detailed functional test procedures and forms.
- General planning information.
- Manufacturers' and/or GTE practices for standard test requirements.
- Manufacturer's instructions on how to proceed with the test.

**NOTE: This practice supplies the procedural information alone. Performance verification forms, with explanations on how to use them, are in separate GTE practices and in the manufacturer's documentation. Refer to Section 2.3 for practices related to testing.**

## 5.2 Verification and Testing Programs

Verification tests and checks on systems and equipment ensure that all required work on the project is completed in a high quality manner, and all equipment/systems are ready to be placed in-service.

Site verification tests are:

- Completed on a sequential basis determined during initial installation planning.
- Made before placing the equipment in-service.

The verification test procedure consists of:

- Documenting performed test and verification results.
- Feature checks and verifications.
- Functional checks and verifications.
- Grounding check and verification.
- Physical checks and verifications.

**NOTE: When contractors experience installation difficulties, they should seek assistance through their own support organization. If GTE's assistance is required, the request is directed through the GTE COE Construction Manager.**

## 5.3 Physical Checks

The following chart describes what physical checks provide.

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Physical Verification of...	Determines if...
Equipment on completion of the: <ul style="list-style-type: none"><li>• Installation.</li><li>• Modification.</li><li>• Rearrangement.</li></ul>	<ul style="list-style-type: none"><li>• The project was completed according to engineering documentation.</li><li>• GTE and the manufacturers' standard installation methods and procedures were used.</li><li>• The manufacturers' equipment was built to quality specifications and standards.</li></ul>

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## 5. Acceptance/Verification Test Procedures, continued

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5.4 The physical check and verification test forms are identified in:

### Physical Check and Verification Forms

- GTE Telephone Operations Practice 200-002-700 and the following forms:
  - Form COECV02A, Central Office Construction Equipment Check and Verification-Superstructure.
  - Form COECV02B, Central Office Construction Equipment Check and Verification-Cable and Wiring.
  - Form COECV02C, Central Office Construction Equipment Check and Verification – Power Installation.
  - Form COECV02D, Central Office Construction Equipment Check and Verification – Safety and Housekeeping.
  - Form COECV02E, Central Office Construction Equipment Check and Verification – Equipment Erecting.
  - Form COECV02F, Central Office Construction Equipment Check and Verification-Administration.
  - Form COECV02G, Central Office Construction Equipment Check and Verification-Grounding, Isolation, and Protection.
  - Form COECV03A, Central Office Construction Generic Feature and Functional Acceptance Test Basic System and Billing.
  - Form COECV03B, Central Office Construction Generic Feature and Functional Acceptance Test Line Test Verification.
  - Form COECV03C, Central Office Construction Generic Feature and Functional Acceptance Test Trunk System.
  - Form COECV03D, Central Office Construction Generic Feature and Functional Acceptance Test Trunk/Span Testing.
- The applicable product line practices and manuals.
- The manufacturers' test and turn-up procedures.

Forms COECV02A, COECV02B, COECV02C, COECV02D, COECV02E, COECV02F, COECV02G, COECV03A, COECV03B, COECV03C, and COECV03D are generic in nature and can be used for all product lines. Manufacturers' documentation covering the basics of these forms is acceptable documentation. The generic form consists of the following verification categories:

- Administration.
- AC and DC Power.
- Cabling and Wire.
- Equipment Erecting, including relay racks, truck boards, and distribution frames.
- Grounding, Isolation, and Protection.
- Safety and Housekeeping.
- Superstructure.

Form 90001528 is included in GTE Telephone Operations Practice 795-805-074. Protection Engineering, Support Assets, Outside Plant, and COE Construction must have their portion of this form completed when their respective work activities have been finished.

## 5. Acceptance/Verification Test Procedures, continued

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### 5.5

#### Physical Check and Verification Guidelines

Before starting the physical check and verification:

- Check the accuracy and calibration of:
  - Gages and meters.
  - Test equipment (portable and frame mounted).
  - Tools.
- Independently check and functionally test each type of equipment, using the required:
  - Functional test and verification procedures.
  - Test equipment.
- Ensure that the individual(s) performing the tests are completely familiar with the:
  - Functional test and verification procedures.
  - Test equipment.
  - Speciality tools (if applicable).

The person(s) performing the check and verification and the functional test work will enter dates on the forms. Initials of the individuals entering the dates must be included adjacent to the date entries.

On equipment not covered by an existing GTE or manufacturer's practice, the installation group performing equipment tests will prepare an outline on a generic MOP form 90002637 (COE Planning Worksheet) or a form COECA03 (COE Planning Worksheet/Method of Procedure). GTE Telephone Operations Practice 220-001-004 describes the:

- Features.
- Operating functions.
- Options.
- Values and test results.

# 5. Acceptance/Verification Test Procedures, continued

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## 5.6 Functional Testing

The following chart describes what functional testing provides.

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Functional Testing of...	Determines if...
Equipment on completion of the: <ul style="list-style-type: none"><li>● Installation.</li><li>● Modification.</li><li>● Rearrangement.</li></ul>	<ul style="list-style-type: none"><li>● Equipment will function per manufacturers' specifications and GTE practices.</li><li>● All hardware and software databases are correct and compatible, including associated systems and support systems.</li><li>● Features operate as described in the manufacture's documentation.</li><li>● Equipment will function without disruption to customers.</li><li>● Alarms are functional and cross connected.</li><li>● The site is ready for service.</li></ul>

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**NOTE:** Functional testing verification/acceptance forms are normally product line specific and can be found in the appropriate product line practices and manuals. (Refer to Section 2.3.)

## 5. Acceptance/Verification Test Procedures, continued

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### 5.7 Analyzing Verification and Test Results

COE Construction and/or contractors are responsible for:

- Analyzing the functional test and verification results.
- Determining what action, if any, is required to improve the quality of the:
  - Engineering.
  - Equipment installed.
  - Generic software and database.
  - Installation.

When the verification process identifies an excessive number of faults in an equipment group, determine if:

- The failures or defects:
  - Are common to each equipment unit.
  - Represent a variety of unrelated faults.
- The faults:
  - Are a result of the site hardware/software/database and/or work order engineering.
  - Are a result of the installation work.
  - Result from the manufacturers' quality problems.
  - Result from design problems.
- Circuit changes and PCNs were:
  - Applicable to the equipment units under test.
  - Completed as prescribed.

**NOTE: All major type circuit changes and/or product change notices must be made by the construction forces. Review the NOC OLS bulletin board, specific product line partition, when encountering trouble and before placing equipment in-service to ensure that all approved changes have been incorporated. Verification forms must be completed before placing in-service or indicating that construction is complete.**

## 5. Acceptance/Verification Test Procedures, continued

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### 5.8 Correcting Defects and Failures

The construction force (GTE or contractor) that performs the original work is responsible for correcting installation defects and failures. The accountability for all installation work is with GTE's COE Construction department. However, this can be a joint effort with other functional departments depending on the:

- Nature of the repair.
- Experience and qualifications of available individuals.
- Severity of defect and/or failure (e.g., degradation of service/outage).

Contractors will be notified in writing (electronically) or by telephone depending on the nature of the findings, via the Network Construction Support Center and/or COE Construction Manager, of all defects not meeting GTE or the manufacturer's standards and will within an agreed upon time frame correct all installation defects. Should the contractor fail to respond to GTE's needs, COE Construction and/or the responsible agent will make the repairs and the Network Construction Support Center will bill the contractor accordingly.

After defects and equipment faults are corrected, a repeat of functional testing might be required to ensure performance acceptability. The repetitiveness of the test is dependent on the original test criteria.

Functional testing only indicates that the equipment is functioning properly at the time of the test. If the equipment shows a tendency to fail during the warranty period, Network Reliability should determine if it is due to marginal quality of manufacturing. If so, Network Reliability should submit a UCR in accordance with GTE Telephone Operations Practices 007-009-001 and 007-009-012.

Should a GTE representative identify a discrepancy in installation after turnover/in-service requiring corrective action, the representative should contact the local COE Construction Manager.

### 5.9 Completion

All test verification forms listed in this practice and those used as part of the manufacturer's test and turn-up must be completed and turned over from COE Construction to the Network Reliability/Customer Operations Supervisor.

The Work Completion Summary Form (Form COECV01 A), is used to notify all parties of a successful test and verification process completion.

# 6. Responsibilities

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## 6.1

### Introduction

This section defines the major areas of verification test responsibilities for:

- COE Construction.
- Contractors.
- Network Reliability/Customer Operations.

**NOTE: COE Construction has direct responsibility, before in-service, for the completeness of the switch and equipment installation.**

## 6.2

### COE

### Construction

In this practice, instructions referring to COE Construction describes all personnel employed by:

- COE Construction contractors.
- COE Construction.
- Manufacturers' installation work force.
- Network Reliability/Customer Operations on first-of-a-kind projects where applicable.

## 6.3

### Network Reliability/ Customer Operations

Network Reliability/Customer Operations is responsible for:

- Attending preconstruction and post-construction meetings.
- Making the following available to the installation force, if needed:
  - Office documentation.
  - Test equipment (if available).

**NOTE: It is the responsibility of the installation force performing the work activity to provide test equipment for turn-up unless prior arrangements have been made. GTE will not provide test equipment or proprietary contractor/vendor documentation to contractors.**

- Notifying the construction force of unique office conditions requiring special attention (e.g., grounding conditions, special alarms, etc.).
- Assisting in correcting equipment failures when time is of the essence and customer service is questionable.

**NOTE: in cases where repair is extensive and time is of the essence, keep records of time and materials required to correct and retest the equipment to charge back to the construction work project.**

- Occasionally participating in a first-of-a-kind test and verification processes to gain knowledge and familiarity with the equipment. This requirement should be discussed and outlined during the preconstruction meeting.
- Notifying the COE Construction Manager of all installation discrepancies or problems encountered requiring corrective action.

## 6. Responsibilities, continued

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### 6.4 COE Construction Test and Verification

The test and verification process is the sole responsibility of COE Construction. All test and verification activities should be performed and documented to ensure compliance to the GTE and manufacturers' specifications.

Included with the test and verification installation work is:

- A one-year installation warranty of all work identified on the work order. COE Construction is responsible for correcting or having any installation-type discrepancy or items left incomplete.
  - Documentation discrepancies.
  - Engineering errors causing equipment performance failures.
  - Labeling.
  - Missing or broken equipment.
  - Wiring/cable errors and omissions.
- A commitment that COE Construction will remain involved after in-service to correct abnormalities that are not common to routine maintenance such as:
  - Malfunctioning equipment.
  - Manufacturers' defects.
  - Operational problems found during the early in-service period.

Any problem which has potential for immediate adverse customer service must be reacted to without delay or question. Questions (e.g., what to charge time to, whose problem is it, etc.) can be resolved after the integrity of customer service is protected.

Any installation related problems encountered by the Network Reliability/ Customer Operations must be communicated with COE Construction as quickly as possible by telephone or electronically, depending on the nature of the problem. The interface to contractors and vendors on installation issues should be done through the COE Construction Department.

### 6.5 COE Construction Supervisor and Contractors

The COE Construction Supervisor and/or contractors are responsible for:

- Following the instructions in GTE Telephone Operations 220-001-004 and 220-001-001 Practices.
- Providing the following to ensure correct verification and testing:
  - Engineering and installation documentation.
  - Installation hand tools.
  - Office drawings.
  - Required administrative materials.
  - Technical support.
  - Test equipment.
  - Testing criteria.

**NOTE: The Network Reliability/Customer Operations department might be asked to loan test equipment to COE Construction when such equipment is readily available.**

## 6. Responsibilities, continued

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### 6.5 COE Construction Supervisor and Contractors, continued

- Provide to Network Reliability/Customer Operations at job completion copies of:
    - All test results.
    - All verification checklists.
    - Updated office drawings.
    - Updated work order specifications.
  - Setting up the verification process for the job to include timely:
    - Completion dates.
    - High risk notices.
    - Schedule reporting.
  - Keeping Network Reliability/Customer Operations informed of all activities for preliminary planning.
  - Coordinating functional testing through the local Network Reliability/Customer Operations Department when more than one office is involved, such as:
    - Features.
    - Fiber systems.
    - Host-remote links.
    - IC trunking.
    - Inter office trunking.
    - Transmission equipment.
    - Trunks.
  - Correcting all errors found during the verification process, unless otherwise noted on an exception report.
  - Ensuring all physical check and verification forms and functional test forms show:
    - The equipment included in the verification process indicating that construction is complete.
    - A status of the progress of verification work.
  - Preparing and completing, as required, all applicable verification/acceptance test forms for verification of the physical installation:
    - Forms COECV02A, COECV02B, COECV02C, COECV02D, COECV02E, COECV02F, COECV02G and pertinent parts for basic equipment verification described in GTE Telephone Operations Practice 200-002-700.
    - Product line specific acceptance test and verification forms recommended as pan of the manufacturers' documentation and/or GTE references.
  - Preparing and completing Form COECV01 A, COE Construction Work Completion Summary, in accordance with GTE Telephone Operations Practice 200-002-700.
  - Ensuring completion of Form 90001528, Inspection Central Office Grounding & Electrical Protection, in accordance with GTE Telephone Operations Practice 795805074.
- NOTE: COE Construction and its contractors are responsible for documenting the placement of cables installed as part of their work function.**

## 6. Responsibilities, continued

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### 6.5 COE Construction Supervisor and Contractors, continued

- Resolving problems identified by Network Reliability/Customer Operations within five working days receiving notice on nonservice-affecting discrepancies and within 24 hours on service-affecting discrepancies.

**NOTE:** Due to limited resources or unrealistic added cost, the repair time for nonservice-affecting discrepancies may be extended to an agreed on time reached between Network Reliability/Customer Operations and COE Construction. If agreement cannot be reached, then the five working day requirement must be met. COE Construction can negotiate with Network Reliability/Customer Operations to perform the corrective activity and charge the work to the work order (if still open) or bill the contractor through the COE Construction Support Center.

**NOTE:** The recipient of the above listed documentation should be identified at the preconstruction meeting. Unless identified differently, this person will be the Network Reliability first line supervisor.

## 7. Verification Job Planning

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### 7.1 COE Construction Supervisors and Contractors

The COE Construction Supervisor and/or its contractors will plan the verification work for each installation.

The construction forces will conduct all physical verification checks and functional tests to determine if the job meets:

- GTE standards.
- Manufacturer's requirements.
- National and state codes.
- Equipment updates.
- Engineered specifications.
- Alerts.

**NOTE:** Installation alerts can be found in telemail under HQ.I.NEWS. Other equipment change notices are provided by NOC OLS.

### 7.2 Equipment Inventory

Inspect and test the quantity and type of equipment listed in the job documentation. This information is:

- Provided as pan of the work order.
- Recorded using the bar coding process.
- Verified at the job site.

## 7. verification Job Planning, continued

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### 7.3

#### Grouping New Equipment

Segregate equipment into groups by:

- Site.
- Specific circuit number.
- Type.
- Work order.

EXAMPLE: Providing they have the same circuit number or that prescribed functional tests are the same in one group, place together all:

- Common control equipment.
- Distribution frame equipment.
- Line and trunk equipment.
- Power equipment.
- Transmission equipment.

### 7.4

#### Grouping Reuse Equipment

On conversion projects, if equipment has been working in an office and does not require moving, do not perform functional tests. If maintained properly, the equipment should function properly (i.e., 4-Tel, transmission systems, etc.). If the reused equipment is not functioning correctly, notify Network Reliability/Customer Operations. Network Reliability/Customer Operations is responsible for:

- Correcting all noninstallation faults.
- Performing the work.

Functional tests must be performed by COE Construction in the same manner as for new equipment if reused equipment is:

- Moved from one location to another.
- Provided for installation.

**NOTE: Refer to GTE Telephone Operations Practice 007-780-001 for additional information on GTE's equipment reuse program.**

### 7.5

#### Testing Modified Equipment

Before performing modifications ensure that equipment is functioning correctly and no alarms are activated. Any out-of-service equipment or alarms must be repaired by Network Reliability/Customer Operations.

**NOTE: Work performed on or around working equipment must take place within the maintenance window and include a high risk activity notice.**

When testing modified equipment:

- Notify Network Reliability/Customer Operations and the NOC before testing and on completion.
- Perform functional tests as described in the manufacturer's or GTE documentation to ensure that the equipment operates as prescribed.
- Limit verification to those functions and features that could be affected by the modifications.

**NOTE: COE Construction or its contractors are responsible for resolving equipment failures. If the failure resulted from the modification or upgrade, COE Construction/contractor will repair.**

## 7. Verification Job Planning, continued

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### 7.6 Advance Turnover of Equipment

In a verification test plan, it might be necessary to include a provision for advanced turnover/in-service of equipment. Network Reliability/Customer Operations must be agreeable to advance turnover/in-service of the equipment.

The following chart describes advance turnover equipment.

If...	Then...
Network Reliability/Customer Operations requests a partial early turn-up.	COE Construction should consider special scheduling for the equipment needed before the total job completion.
The equipment has been: <ul style="list-style-type: none"><li>• Grouped.</li><li>• Inventoried.</li></ul>	COE Construction should subdivide the groups to perform physical verifications and functional test on equipment items scheduled for early turnover.

### 7.7 Records

COE Construction and its contractors are required to keep records of job verification and test activities on site (refer to GTE Telephone Operations Practice 200-002-700) to:

- Document the:
  - Equipment updated, verified and tested (i.e., PWC inventory and Repair/Return Logs).
  - Progress of the verification and test processes (i.e., physical and functional test forms, grounding forms, etc.).
- Document results of the verification checks and functional test (i.e., physical and functional test forms such as TLS logs (when preformed), manufacturer test logs, Quality and Discrepancy reports, UCRs, JIM's, etc.) for formal documentation of compliance, and for analysis and resolving problems with:
  - COE Construction.
  - Contractors.
  - Engineering.
  - Equipment manufacture.
  - Network Reliability/Customer Operations.
- Establish a quality history file (i.e., Daily Activity Log/History Sheet, Patch and Release Logs, etc.) on all equipment for continuance of maintainability once placed in-service. This history file should be turned over to Network Reliability/Operations at the completion of the project.
- Provide Network Reliability/Customer Operations with certifiable evidence (Work Completion Summary, Form 90002634 or equivalent) of the quality and compliance standards of the equipment including:
  - Manufacturer and operational test results.
  - Marked copy of work order specifications.
  - Marked copy of office drawings.
  - Turn-up/in-service.
  - Verification checks.