

## EQUIPMENT TEST LIST INSTRUCTIONS

### 1. GENERAL

- 1.01** This section describes the intent and use of Equipment Test Lists (ETLs).
- 1.02** This section is reissued to include instructions for the administration of ETLs associated with the Private Branch Exchange Controlled Maintenance Plan, and to include these ETLs in Tables A, B and C. Since this reissue constitutes a general revision, arrows generally used to indicate changes have been omitted.
- 1.03** ETLs provide a complete list of tests, inspections, and other requirements found throughout the Bell System Practices. The number of ETLs issued for each division of Bell System Practices depends upon the structure and content of the BSP division.
- 1.04** AT&TCo Standard ETLs have not been prepared for the following:
- (a) Equipment for which maintenance tests have not been defined by Bell System Practices.
  - (b) Power equipments (1) where performance is covered by application requirements, or (2) which have been obsolete for many years and very few, if any, are in existence. Power equipment practices for which ETLs have not been prepared are listed in Table C.
- 1.05** In those cases where an ETL is required and a standard ETL has not been prepared, the ETL should be prepared locally using a blank form E-5450.
- 1.06** Recommendations for changes, additions, or deletions to an ETL should be forwarded on Form E-3973 as described in Section 000-010-015.
- 1.07** ETLs have been written to complement the Controlled Maintenance program and should be used only in conjunction with the Controlled Maintenance Plans.

### 2. TEST CLASSIFICATIONS AND DEFINITIONS

- 2.01** All tests, inspections, or other requirements in the ETL are given one of four classifications. The use of these classifications is described below. For simplification, the word "test" is used to mean a test, inspection, or other work requirement.
- 2.02 *Mandatory Work (MW):*** MW tests are tests used to detect actual or potential failures which could **result in a severe service penalty** and for which **indications of failure are missing or obscure**.
- (a) MW tests **must be performed** at a frequency equal to or more frequent than that specified in the ETL.
  - (b) Some equipment is shown as MW because of its importance to the efficient operation of an office (eg, test equipment, ladders, inspection of rubber gloves, etc).
- 2.03 *Mandatory Review (MR):*** MR tests are tests used to detect actual or potential failures which **do not result in a severe service penalty** and for which **indications of a failure are missing or obscure**. This classification is not used in the PBX Controlled Maintenance Plan.
- (a) MR tests are assigned a frequency at which a review must be made to determine whether or not there is a need to perform the test at that time.
  - (b) At the time of review, the question must be asked: "Was this test (not a sample) applied to **all** units at, or since, the time of the previous review?" If the answer is "Yes", no work is required at this time unless review of corrective maintenance data indicates otherwise. If the answer is "No", the test **must be applied** to at least a sample of the units. (Sampling is explained in the Controlled Maintenance Plan.) The required review of MR tests at the ETL frequency is intended to protect customer service and prevent accumulated equipment deterioration.

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**2.04 Test Frame (TF):** TF tests make use of automatic or semiautomatic test frames or test sets. Some TF tests require manual operations, depending on the nature of the test and the features of the test frame or test set. For TF tests, an asterisk (\*) in the **FREQ.** column of Form E-5450, Equipment Test List, indicates that the test shall be programmed locally for that office. The frequency of a particular test will depend on: (1) the number of circuits to be tested, (2) the amount of trouble found by past tests, and (3) the availability of the test frame for scheduled testing. ***This frequency must be entered in the FREQ. column of the ETL used in this office.*** For transmission measurements made by the Automatic Transmission Measurement System (ATMS), minimum requirements are specified in other sections. The frequency at which these tests are performed must meet these minimum requirements.

**2.05 Trouble Tests (TT):** These tests are not performed at a specified frequency, but should be used when required to verify and isolate troubles revealed by other indications or analysis.

**2.06** For convenience in scheduling, MW, MR, and TF tests are grouped and the TT tests are listed separately at the end of each ETL section.

**2.07** As a practical guide, a severe service penalty means the loss of service of four or more trunks in a trunk group, or the loss of facilities or common control equipment affecting the equivalent service.

**2.08** Because of the relatively small number of power circuits or units involved in any one office, sampling review techniques of power equipment is not feasible. Accordingly, all tests in the power ETLs are shown as MW even though there are frequent instances where the only effort needed will be to review or check the requirement to determine whether or not there is a need to do work. For example, observation of a sight gauge will determine whether lubricant needs to be added to a bearing, or observation of a voltmeter will indicate any need for readjustment of voltage regulation control.

**3. FREQUENCY SYMBOLS**

**3.01** The frequencies at which tests are scheduled are indicated by the following symbols:

<b>SYMBOL</b>	<b>FREQUENCY</b>
D	Daily
W	Weekly
M	Monthly

Less frequent intervals are indicated by a number prefix, for example:

<b>SYMBOL</b>	<b>FREQUENCY</b>
3W	Once every 3 weeks
6M	Once every 6 months
12M	Once a year
36M	Once every 3 years

**3.02** For some tests there is an asterisk (\*) or a number symbol (#) entered in the **FREQ.** column.

(a) The asterisk (\*) indicates that the ***frequency must be determined locally and shown in the FREQ. column*** of the ETL. For example:

(1) An asterisk (\*) may be entered in the **FREQ.** column when a transmission test is required. The frequency for performing this test depends on the type of facility involved and can be determined from the appropriate Bell System Practice.

(2) An asterisk (\*) may be entered in the **FREQ.** column when the frequency of preventive maintenance depends upon office conditions and equipment usage. In this case, the maintenance BSP will generally specify a minimum interval and stipulate increasing the interval based on experience and application.

(3) An asterisk (\*) may be entered in the **FREQ.** column for test equipment to be sent to the Western Electric Company under the "Red Ball" plan.

(b) The number symbol (#) used in the **FREQ.** column indicates that frequency data is entered in the **EQUIPMENT AND WORK DESCRIPTION** column as a note following the test.

#### 4. UPDATING ETLs

**4.01** ETLs may be updated by a supplement or a complete reissue. As explained in the following paragraphs, the method used depends on the time of year the update is required and the volume of additions, deletions, or changes made during the year.

**4.02** All ETLs and supplements, including the latest authorized issue number, are listed in the appropriate division numerical index.

##### Supplements

**4.03** Supplements to ETLs will be issued quarterly, printed on green paper for easy identification, and distributed about the first of February, May, and August. A fourth supplement or a complete reissue of an ETL may be distributed about the first of November.

**4.04** Supplements are used to inform the field of additions, deletions, or changes to an existing ETL. If none of these have been authorized for an ETL by the release date of a quarterly supplement, no action will be taken until the next quarterly supplement. However, if one or more additions, deletions, or changes have been authorized, a supplement will be issued.

**4.05** ETL supplements will be numbered consecutively, starting with number 1, until the complete ETL is reissued. After a reissue of the ETL, supplement numbers will again start with number 1. The supplement will also be identified by the ETL BSP number and the month and year of issue.

**4.06** Each supplement will list in numerical order the BSP number, issue number, and title of any BSP affecting the ETL. Additions, deletions, and changes to the ETL will be indicated immediately following each BSP listed in the supplement.

**4.07** Each issue of an ETL supplement will retain all changes covered in prior supplements until the entire ETL is reissued. By using this procedure, only one supplement to an ETL should be in the BSP file at any time.

**4.08** *Shading will be used to highlight new information.* In some cases, an entire line of the ETL may have to be shaded, while another

entry may require only one column to be shaded. This technique directs attention to the individual piece of information pertinent to the addition, deletion, or change.

##### Reissues

**4.09** If the supplements contain sufficient volume to warrant a new issue of the ETL, the reissue will be distributed about the first of November.

**4.10** Any reissue of an ETL will include all information previously authorized by supplements, plus any additions, deletions, or changes authorized since the last supplement was issued.

**4.11** Information *previously* contained in a supplement will be incorporated in the reissue *without* any special marking. Additions, deletions, or changes which have been *authorized since the last supplement* was issued will be shaded to highlight new information.

#### 5. ETL SECTION ARRANGEMENT

**5.01** ETL sections are provided for each division of Bell System Practices containing maintenance tests which are made by central office and PBX maintenance personnel. Depending on the structure of the BSP division, there may be only one ETL for the entire BSP division or there may be several ETLs for one BSP division.

**5.02** When there is only one ETL provided for a BSP division, it will be numbered XXX-001-011. In this case the ETL is arranged in the same manner as the Division Numerical Index, including layer and sublayer headings. Generally, this ETL arrangement will apply to BSP divisions which are common to several types of offices or PBX types and to BSP divisions which are not structured for meaningful subject matter divisions.

**5.03** When several ETLs are provided for one BSP division, they will be numbered XXX-001-011, -012, -013, etc. Each ETL, in this case, will provide tests for a specified category of equipment, such as AMA, senders, markers, specific PBX type, etc. The ETL will be arranged in numerical order but index headings will not be used. This ETL arrangement is presently applied to switching and power systems, but will be

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expanded to other BSP divisions whenever it will facilitate the application of the ETL.

**5.04** Tables A and B provide a list of the ETLs which have been issued. Table C provides a list of power equipment BSP sections which have not been included in the ETL sections.

**5.05** An asterisk placed next to the section number in Tables A and B indicates applicability to the PBX Controlled Maintenance Plan.

**6. DESCRIPTION AND USE**

**6.01** The ETL is a list outlining the tests, inspections, and other requirements for proper maintenance of equipment.

**6.02** The ETL shows the recommended intervals for scheduling tests and inspections. The intervals shown in the ETLs supersede all other maintenance intervals in Bell System Practices. The tests must be performed at a frequency equal to or more frequent than that specified in the ETL. The purpose of doing recurring work at the ETL frequency is to prevent accumulated equipment deterioration which leads to customer service interruptions or to expensive repairs.

**6.03** The test intervals listed in the ETL are specified to meet the needs of most offices and PBXs, consistent with reasonable cost. They are intended to establish an effective preventive maintenance program as outlined in the Controlled Maintenance Plan.

**TABLE A  
ETLS WHERE SEVERAL ETLS HAVE BEEN ISSUED  
FOR ONE BSP DIVISION**

**SECTION NO.                      SUBJECT**

*Note:* Refer to 5.05

155-001-011	Associated Apparatus and Miscellaneous Equipment Associated With Alternators and Engine-Alternators
155-001-012	Alternators and Engine-Alternators
155-001-013	Gas Turbine Alternators
155-001-015	Tone Alternators, Tone Machines, Ringing and Coin Control Generators

155-001-016	Charging Generators and Motor Generators
157-001-013*	Batteries
159-001-012	Engine and Engine Sets
159-001-015*	Motors and Dynamotors
159-001-018	Drives
161-001-012	Speed Reduction Units
161-001-013	Converters and Inverters
161-001-014	Air Dryers, Compressors, Compressor-Dehydrators, Dehydrators, and Waveguides
161-001-015	Exhauster Sets, Fans, Tube Cooling Systems, and Ventilating Equipment
161-001-018	Call Announcer Machines
163-001-013*	Interruption and Ringing Machines—Located on Customer or Telephone Co. Premises
163-001-017	Interruption—Located on Telephone Co. Premises
163-001-018	Ringing Machines and Pole Changers—Located on Telephone Co. Premises
167-001-011	Apparatus and Miscellaneous Equipment Associated With Plants
167-001-013*	Power Plants—Located on Customer or Telephone Co. Premises
167-001-014*	Power Plants and Power Units—Located on Customer Premises
167-001-017	Power Plants and Power Supply—Located on Telephone Co. Premises
167-001-018	Power Plants and Power Supply—Located on Telephone Co. Premises
169-001-013*	Rectifiers—Located on Customer or Telephone Co. Premises

TABLE A (Cont)

169-001-014*	Rectifiers—Located on Customer Premises	215-001-021	Office Selectors
169-001-017	Rectifiers and Filament Supplies—Located on Telephone Co. Premises	215-001-022	Senders, Sender Links, Decoders, Decoder Connectors
169-001-018	Rectifiers and Filament Supplies—Located on Telephone Co. Premises	215-001-023	Switchboard Circuits
210-001-011	Service Observing Desks—No. 12 and Modified No. 7	215-001-024	Traffic Registers
210-001-012	Answering Time Recorders	215-001-025	Transmission
210-001-013	Information and Toll Directory Desks	215-001-026	Trunks
212-001-012	Decoders and Card Translators	216-001-012	Alarms
212-001-013	Links and Connectors	216-001-013	AMA
212-001-014	Link Controllers and Markers	216-001-014	ANI
212-001-015	Senders and MF Receivers	216-001-015	Code Compressors
212-001-016	Traffic Administrative Circuits	216-001-016	District Junctors; District Office, and Incoming Link and Connectors; Number Group Connectors
212-001-017	Trunks	216-001-017	Line Link and Controller. Line Choice Connector
212-001-018	Frames and Miscellaneous Circuits	216-001-018	Marker and Marker Connectors
212-001-019	CAMA Equipment	216-001-019	Miscellaneous
215-001-012	Alarms	216-001-020	Sender and Sender Links
215-001-013	ANI	216-001-021	Switchboard Circuits
215-001-014	Code Compressors—3-Digit Translators	216-001-022	Test Frames
215-001-015	Districts	216-001-023	Traffic and Plant Registers
215-001-016	Finals	216-001-024	Transmission
215-001-017	Incomings	216-001-025	Trunks
215-001-018	Line Finders, Trunk Finders	218-001-012	Connectors and Links
215-001-019	Links	218-001-013	Markers
215-001-020	Miscellaneous	218-001-014	Registers and Senders—2-Wire—Automatic Monitor Provided

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**TABLE A (Cont)**

218-001-015	Registers and Senders—2-Wire— Automatic Monitor Not Provided	225-001-017	35-E-97 Community Dial Offices
218-001-016	Registers and Senders—4-Wire	225-001-018	375A and 375B Community Dial Offices
218-001-017	Trunks—2-Wire	225-001-019	North Electric Company CX-Type Community Dial Offices
218-001-018	Trunks—4-Wire	226-001-012	Line Finders, Trunk Finders, and Associated Circuits
218-001-019	Miscellaneous Circuits	226-001-013	Selectors
218-001-020	LAMA-CAMA-ANI	226-001-014	Connectors
218-001-021	Centrex	226-001-015	Pulse Repeaters and Outtrunk Switches
218-001-022	Wideband	226-001-016	Trunks and Trunk Circuits
218-002-012	Connectors and Links	226-001-017	Alarms
218-002-013	Markers	226-001-018	Traffic Registers
218-002-014	Registers and Senders	226-001-019	Miscellaneous Equipment
218-002-015	Trunks	227-001-012	Intertoll Dialing Equipment
218-002-016	Miscellaneous Circuits	227-001-013	AMA Equipment
218-002-017	LAMA—CAMA—ANI	227-001-014	CAMA Equipment
220-001-012	Common Equipment	227-001-015	ANI Equipment
220-001-013	Senders	227-001-016	TOUCH-TONE® Calling Equip- ment—Not Adaptable for Common Control
220-001-014	Trunks	227-001-017	Common Control Equipment—for TOUCH-TONE® Calling and for Controlled Outpulsing
220-001-015	Testing Equipment	476-001-011*	No. 2A ACD
220-001-016	Miscellaneous Tests	476-001-013*	No. 3A ACD
220-001-017	CAMA Equipment	540-001-011	700 Series Step-By-Step and Crossbar Type PBX
220-001-018	No. 100A TSP	540-001-013*	Step-By-Step Centrex CU and Step-By-Step PBX TOUCH-TONE Equipment and Circuits
225-001-012	Line Switch and Plunger Type Out Trunk Switch Offices		
225-001-013	350A Step-By-Step Offices		
225-001-014	355A Community Dial Offices		
225-001-015	356A Community Dial Offices		
225-001-016	360A Community Dial Offices		

TABLE A (Cont)

551-001-011*	756A PBX	551-001-015*	758C PBX
551-001-012*	757A PBX	551-001-017*	761 and 770 PBX
551-001-014*	758A and 758B PBX		

**TABLE B**  
**ETLS WHERE ONLY ONE ETL HAS BEEN ISSUED**  
**FOR AN ENTIRE BSP DIVISION**

*Note:* Refer to 5.05.

024-001-011*	107-001-011	356-001-011	536-001-011*
026-001-011*	179-001-011	357-001-011	538-001-011*
028-001-011*	201-001-011	358-001-011	541-001-011*
030-001-011*	205-001-011	359-001-011	542-001-011*
032-001-011	250-001-011	360-001-011	543-001-011*
034-001-011	252-001-011	361-001-011	546-001-011*
040-001-011	310-001-011	362-001-011	548-001-011*
065-001-011	311-001-011*	365-001-011	550-001-011*
069-001-011*	312-001-011	371-001-011	660-001-011
075-001-011	314-001-011	402-001-011	664-001-011
076-001-011	318-001-011	408-001-011	666-001-011
100-001-011	320-001-011	409-001-011	668-001-011
102-001-011	332-001-011	410-001-011	770-001-011
103-001-011	352-001-011	411-001-011	
104-001-011	354-001-011	412-001-011	
106-001-011	355-001-011	534-001-011*	

**TABLE C**  
**BELL SYSTEM PRACTICES FOR POWER EQUIPMENT**  
**NOT INCLUDED IN ANY ETLs**

*Note:* Refer to 5.05.

155-120-701	157-620-701	163-604-701	167-783-301
155-122-701	157-900-701	163-608-701	167-790-811
155-190-701	159-108-701	167-275-301	169-250-301
155-307-701	159-110-701	167-275-302	169-431-301
155-415-701	159-110-711	167-275-303	169-432-301
155-420-701	159-150-701	167-285-301	169-433-301
155-508-701	159-151-701	167-491-301	169-445-301
155-510-701	159-155-701	167-493-301	169-466-301
155-514-701	159-730-701	167-495-301	169-621-301
155-516-701	161-208-701	167-496-301	169-633-301
155-520-701	161-245-301	167-498-301	169-660-301
155-522-701	161-260-301	167-604-301	169-660-302
155-525-701	161-286-301	167-605-306	169-660-306
155-605-701	163-530-701	167-730-301	169-660-311
155-608-701	163-600-701	167-769-301	169-692-301
155-609-701	163-601-701	167-780-301	
155-650-701	163-602-701	167-781-301	
155-651-701	163-603-701	167-782-301	