

BELL SYSTEM PRACTICES
Teletypewriter and Manual
Telegraph Station and P.B.X.
Installation and Maintenance

SECTION P31.210
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AT&T Co Standard

TWX SUBSCRIBER STATIONS

INSTALLATION AND MAINTENANCE TESTS

1. GENERAL

- 1.01 This section covers installation and maintenance tests for TWX subscriber stations.
- 1.02 This section is reissued to add the break key test on the ringing test. This had been omitted from Issue 3.
- 1.03 Tests to determine that the teletypewriter apparatus is in the proper operating condition are specified in other sections for the particular teletypewriter apparatus involved.
- 1.04 It is assumed in this section that the teletypewriter station installation work has been completed and that previous tests have shown the subscriber line to be in good condition and ready for service.

2. INSTALLATION TESTS

- 2.01 After all local tests of the station apparatus have been completed, connect the loop to the teletypewriter and call the testboard attendant by telephone. Advise him that the station is ready for test.
- 2.02 The testboard attendant will direct the tests to be made and the installer shall cooperate in carrying them out.
- 2.03 The installation tests ordinarily made are described in the paragraphs following:

(A) Ringing Test

- 2.04 The testboard will ring on the circuit. During ringing period operate break key intermittently. This operation should not interfere with the ringing of the bell.

(B) Station Answering Test

2.05 Operate the subscriber set in the proper manner for answering a call. This should cause the bell to stop ringing.

(C) Communication Test

2.06 Meet the testboard on the circuit and type in both directions to determine that the circuit is in an operating condition.

(D) Ringer Adjustment

2.07 Request the testboard to ring several times. Disconnect and allow the bell to ring several times and observe that it is in proper adjustment. The adjustments are the same as those specified for a telephone subscriber station.

(E) Bell Tapping Adjustment (Stations Connected to Nos. 1, 1A and 3C Switchboards)

2.08 Request the testboard to type on the circuit. Disconnect and if bell tapping occurs while the testboard is typing check the polling of the ringer and if correct, adjust the biasing spring to overcome the tapping. Repeat the ringing test after any biasing spring adjustment.

(F) Line Current Measurement

2.09 The testboard will measure the line current and make such changes in the central office resistance or impedance modifying network as may be required. It may be necessary to change the station resistance or wave shaping network as directed by the testboard.

(G) Station Recall Test

2.10 Operate the subscriber set in the proper manner to recall the operator. The testboard should acknowledge the receipt of the recall signal.

(H) Disconnect Signal

2.11 Operate the subscriber set in the proper manner for a disconnect signal and after about 5 seconds return to the circuit. The testboard should acknowledge the receipt of the disconnect signal.

(J) Unattended Station Test

2.12 If the subscriber set is provided with the "unattended" feature, the testboard will transmit the proper signals to stop and to start the teletypewriter motor. Check to see that operation is satisfactory.

(K) Distortion Tolerance Tests

2.13 Make distortion tolerance tests as specified in Section P30.002. If the requirements are not met, it may be necessary to change the station resistance or wave-shaping network as directed by the testboard.

2.14 After the testboard reports satisfactory completion of the tests, wait for about 30 seconds while the testboard is releasing the circuit. Then signal the switchboard operator and receive an acknowledgment in order to determine that the circuit is available for normal service.

Note: If the circuit cannot be released immediately or if further tests are required, the testboard will notify the installer and he should await further notification before attempting to signal the switchboard operator.

3. MAINTENANCE INSPECTIONS AND TESTS

3.01 After obtaining the release of the machine from the station attendant, signal the TWX operator and advise her that the station is being routined. The station line will be made "out-of-order" and a record will be made that the station is being routined but may be called in case of an incoming call.

3.02 The maintenance inspections and tests of the teletypewriter apparatus should be carried out as covered in the section "Maintenance Inspections and Tests" for the type of teletypewriter involved.

3.03 Most TWX stations are arranged to permit the repairman to disconnect the TTY from the line and yet leave the subscriber set connected so that the bell will respond to a ring from the switchboard in case of a call for the station. This is generally done by removing the line plug from the RED jack and placing it in the BLACK jack. For certain types of station sets other arrangements are used and it will be necessary for the repairman to familiarize himself with the particular arrangements used in his area.

3.04 The teletypewriter should not be dismantled any more than is absolutely necessary and as far as practicable it should be kept in such condition that it can be made available on short notice for the receipt or transmission of a call, particularly during business hours. For example, on a No. 15 TTY when the type basket is removed for cleaning and lubrication it should be replaced in the typing unit before the typing unit is removed from the base.

3.05 When the maintenance inspections and tests on the teletypewriter apparatus have been completed call the testboard by telephone and report that the station is ready

for test. The same procedure should then be followed as that specified in Paragraphs 2.04 to 2.14 under Installation Tests.

4. HANDLING CALLS DURING INSPECTION VISIT

4.01 In the case of an incoming call, the switchboard operator encounters the "out-of-order" but the records will show the station is being routined. The "out-of-order" will be removed and the operator will ring the station in the usual manner. (In those areas where the station is signaled by means of the bell in the TTY the operator will report to the testboard that she has a call for the station and the repairman will then be called by telephone. Paragraphs 4.02, 4.03 and 4.04 will not apply in these areas.)

4.02 When the station bell rings operate the subscriber set in the regular manner as for signaling the operator when placing a call. This will stop the ringing and indicate to the operator that the station will be placed in condition for accepting the call as soon as possible. The teletypewriter should be quickly reassembled (not expected to take over two to three minutes) and when ready for operation, a RECALL signal should be sent to the switchboard.

4.03 If the teletypewriter has been disconnected from the line as per Paragraph 3.03, the line plug will have to be removed from the "BLACK" jack and replaced in the "RED" jack before the ANSWER signal can be sent to the switchboard. (The power cord may be disconnected if it is desired to remove power from the machine for further work.)

4.04 In case some unusual condition has been encountered and it is known the station cannot be restored to service within three minutes, the signal nevertheless should be sent to the operator. If the operator then does not receive the RECALL signal within the specified time, she will report to the testboard. The testboard will call the repairman by telephone for a report as to when the station will be in condition to accept the call.

4.05 In case the subscriber wishes to place a call while the machine is being inspected, the repairman should temporarily restore the machine to service as quickly as possible and call the testboard by telephone to have the line released for the call.