

American Telephone and Telegraph Company

BELL SYSTEM PRACTICES  
Teletypewriter and Manual  
Telegraph Station and PBX  
Installation and Maintenance

SECTION P30.908  
Appendix 5  
Issue A, 2-1-52  
Long Lines Department  
Dist. Class. 600AC

PRIVATE LINE TELEGRAPH SERVICE

DEPARTMENT OF COMMERCE,

CIVIL AERONAUTICS ADMINISTRATION

RULES AND REGULATIONS GOVERNING THE TERMINATION OF CHANNELS AND THE INSTALLATION AND LOCATION OF EQUIPMENT IN CAA STATIONS USED FOR TELETYPEWRITER SERVICES AND THE EXTENSION SERVICES OPERATING THEREFROM

1. GENERAL

1.00 This Appendix is issued to include the latest information concerning the series of rules and regulations which have been established between the Long Lines Department and the Civil Aeronautics Administration pertaining to teletypewriter services furnished to the CAA as well as to the Receiving Only Extension Stations operating from this customer's circuits.

1.01 The CAA has adopted what they consider a "STANDARDIZED" Interstate Airways Communications Station (INSAC). Principally, this is a Station where all Serving Company Landline auxiliary apparatus used in connection with furnishing teletypewriter services, is installed in a location other than the Operating Room. This will apply to existing Stations where "MODERNIZATION" work discussed in Paragraph 1.02 below is not contemplated by the CAA Regional Office over the period of the next few years. It will also apply to any new Stations where the Regional Office does not plan to provide a "MODERN" installation initially and has no plans for "MODERNIZING" at a later date.

1.02 The CAA has also adopted what they consider as a "MODERNIZED" Interstate Airways Communications Station (INSAC). This type of station will consist of standard facility layouts, composed of the Air-Ground Operating Console and its associated 111-A Key or other Telephone equipment which is provided in connection with the "Service F" Interphone Network and discussed elsewhere in the "E" series practices. It will also consist of an equipment room, space for the Serving Company Landline terminating equipment and an Operating Room. This will apply, in general, to all Stations where major programs are contemplated to modify, relocate or install new facilities.

## 2. RULES AND REGULATIONS

2.01 All loose wiring at CAA Stations shall be dressed down and secured; unused wiring in terminal boxes shall be segregated and secured; unused wires in conduit shall be dressed down at each end and unused wiring not in conduits as well as any excess equipment shall be removed.

To avoid any momentary service interruptions due to accidental contacts, special 60D type fuse binding post insulators shall be placed on all conductor binding posts or other terminals, including bridged terminals, which are used to terminate CAA teletypewriter circuits.

These binding post insulators shall be provided in accordance with Bell System Practices Section C24.191 and A502.001.

All CAA teletypewriter circuits at Central Office Cross-Connection Frames shall be appropriately designated and the framemen appraised of the necessity for this designation to guard against service interruptions.

2.02 All wiring involving teletypewriter circuits shall be in accordance with the National Electric Code and any local rules and regulations that may apply. At installations where a single conduit is provided, power and signal circuit wiring must be separated by a metal barrier. If all wiring

contained in the conduit is lead sheathed, it is considered as fulfilling this metal barrier equipment.

2.03 Joint use shall be considered, whenever practicable, of the communications entrance cable and protection equipment cabinet by the Telephone Companies, i.e., Bell System or Connecting Companies, and the Western Union Telegraph Company, except where the latter company provides its own local facilities.

2.04 For the purpose of providing a dividing line between circuits and equipment of the Telephone Company and circuits and equipment of the CAA, the CAA will provide and install a terminal strip to be known as a "Demarcation Strip". This Demarcation Strip will be used for teletypewriter circuits as well as for control and leased line remote receiver services as covered elsewhere in the "E" Series Practices. The Demarcation Strip will consist of a terminal strip similar and equal to the Western Electric Company's 31-C Connecting Block with a 102C type Adapter mounted in a GA-16 cable Terminal Box and will be used for termination where this type of strip has sufficient connections. At locations requiring from 16 to 26 pair connections, a Terminal strip similar and equal to a Western Electric Company type 31-D Connecting Block with a 102D type Adapter mounted in a GA-26 cable Terminal Box will be provided by the CAA. At facilities requiring a larger number of circuit terminations, an appropriate strip or combination of strips similar and equal to Brach terminals in a sheet metal cabinet (distributed by the Graybar Electric Company in various sizes) will be provided by the CAA to accommodate all demarcation terminations in a single cabinet.

\*At installations where a single demarcation strip is furnished, the Telephone Company shall terminate their circuits starting from the top of the strip, if it is mounted vertically, or from the left end of the strip, if it is mounted horizontally. Control circuit terminations will start at the center of the strip and work toward the Telephone Company connections.

\*Indicates change

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\*Indicates change

\*Remote receiver leased circuits will start on the lower center section of the strip and work toward Western Union Connections.

Note: Where the Western Union Telegraph Company provide services, they will terminate their circuits starting at the bottom of the strip and progressing upward, if the strip is mounted vertically, or from the right end of the strip progressing toward the left, if it is mounted horizontally.

In the case of Multiple combinations of Demarcation Strips, the Telephone Company and the Western Union Telegraph Company shall terminate their teletypewriter circuits on one strip as outlined above. Remote Receiver leased circuits and other control circuits shall be terminated on the second Demarcation Strip if only two strips are provided or on individual strips if three strips are used.

Where Mechanical Interlock equipment is installed and/or leased lines are utilized with other CAA owned and maintained equipment, the CAA will provide a separate Demarcation Strip in either the Air Route Traffic Control Center, the CAA equipment room or the Air Traffic Control Tower Equipment room, or both, as may be applicable. These Demarcation Strips will be similar to those described heretofore and will be mounted and wired as outlined for the other strips discussed herein.

All Telephone Company and other Serving Company connections shall be made to the solder side of the Demarcation Strip. The CAA will make their connections to the Screw Terminal side of the strip. Changes or rearrangements of circuit wiring or equipment may therefore be made by the Serving Companies or the CAA on their respective sides of the Demarcation Strip without affecting the wiring or equipment on the other side of the strip. Each Serving Company shall indicate on a posted

record provided by the CAA and associated with the Demarcation Strip Box, the circuit identification for each pair terminated thereon.

The CAA will mount the Demarcation Strip in the INSAC Equipment Room and in those cases where an equipment room is not provided, it will be mounted in the Operating Room. In either location the Strip will be located at a preferable minimum of two feet above the floor level in a readily accessible position.

For Overseas Airways Communications Station (OFACS) terminations the demarcation strip will be mounted in the equipment room at the Control Station in the same manner as prescribed for the Interstate Airways Communications Stations (INSAC). At the transmitting and receiving stations the strips will be mounted in the most suitable location as agreed upon locally.

2.05 The Demarcation Strip shall be suitably marked by the CAA as "CAA Demarcation Strip." Likewise equipment manufactured by the Western Electric Company that is owned, installed and maintained by the CAA and of a type commonly used by the Telephone Company shall be marked "CAA Equipment."

2.06 The cabling and wiring up to the CAA Demarcation Strip, such as from the Cable Entrance Terminal Box to other Distribution Boxes, Equipment Cabinets, etc., and thence to the Demarcation Strip shall be provided by the Telephone Company and shall be lead-covered or other approved shielded wiring. Wiring in conduit is considered to meet the requirement of "other approved shielded wiring." This will apply to all new or relocated installations and at existing installations where it is necessary to install additional cabling in connection with growth or other rearrangements affecting the service, as well as where interference to the CAA Radio apparatus is encountered. At some existing installations non-shielded cabling is installed that is adequately furnishing interference free service without hazard.

This cabling shall be replaced only if required in accordance with the conditions previously stated.

2.07 The provision of conduit installations in CAA quarters is the responsibility of the CAA. In existing buildings, the CAA will not provide conduit from the point of TELCO distribution termination to CAA quarters and, therefore, the provision of shielded cable in accordance with the conditions previously stated in Paragraph 2.06 above will apply. For new building construction, the CAA will coordinate with the necessary authorities for providing conduit installations from the point of TELCO distribution termination to CAA quarters.

2.08 With the exception of the Protection Equipment cabinet and the CAA Demarcation Strip discussed in Paragraph 2.04, no flush mounted apparatus cabinets or other terminal apparatus shall be installed on the walls of the CAA quarters, including the walls of equipment rooms set aside by the CAA for the partial or exclusive use of the Telephone Serving Companies, regardless of whether the building is Government owned or leased. The mounting of such equipment on the walls of basements which are usually of substantial construction is permissible. The use of any flush mounted (built-in) cable terminals or distribution boxes in existing buildings is also permissible. Such cabinets are not planned for CAA quarters in newly constructed buildings.

2.09 It is the intention of the CAA to provide the Telephone Company with adequate space to permit the orderly installation of the required terminating equipment for Telephone and Teletypewriter services.

The amount of space required by the Telephone Company in Equipment Rooms furnished by the CAA shall be confined to the present and anticipated CAA service requirements as arranged by local agreement between the CAA and the Telephone Company. Telephone Company One Way Repeaters and associated equipment for furnishing receiving only extension service from the circuits of the CAA networks to interests other

than the CAA, may be installed in available space in an existing apparatus cabinet and/or open type relay rack, provided the CAA Regional Office does not anticipate a requirement for the use of such space for expansion in the foreseeable future.

At the existing larger Interstate Airways Communications Stations where an Air Traffic Control Center is also located, there is an equipment room set aside by the CAA for the Telephone Company. Terminating equipment furnished by that Company for the Control Center Telephone services and in some cases for Teletypewriter services, is installed in this equipment room. Such equipment shall remain in this room, at Centers existing as of March 16, 1949. However, the CAA desires that no additional equipment be installed in this room that will require additional floor space unless it is directly associated with the Control Center operations.

For Air Traffic Control Center facilities, established or relocated subsequent to March 16, 1949 all Telephone Company terminating equipment may be installed in a common "Landlines Equipment Room" provided by the CAA. At these locations there will be an additional Air Traffic Control Center equipment room which is to be reserved for CAA owned and maintained equipment directly associated with Control Center operations.

In some cases a room is provided for the joint use of the CAA and the Telephone Company for use as an equipment room to accommodate their radio apparatus and the Telephone Company terminating equipment. In other cases where an Airport Traffic Control Tower is operated by the CAA, an Equipment Room known as the "Tower Equipment Room" is provided and usually jointly used by the CAA and the Telephone Company for their respective equipments. This Equipment Room is provided in close proximity to the Tower and within the operating limits of the 102A Telephone Key Equipment as specified in other Bell System Practices. At times, it is feasible because of building layout considerations, to utilize a common Equipment Room for both the Interstate Airways Communication Station and the Traffic Control Tower CAA and Serving Companies Apparatus.

2.10 So far as practicable, no Telephone Company auxiliary apparatus, relay racks or cabinets are to be located in the CAA Operating Room, if other suitable quarters are available such as:

- (a) Landlines equipment room set aside by the CAA for the exclusive use of the Serving Companies.
- (b) INSAC, OFACS, Tower and Control Center equipment room jointly used by the CAA and the Serving Companies.
- (c) Basement locations.

2.11 In cases where it is necessary to install auxiliary apparatus in the INSAC Operating Room as an interim arrangement, because of space limitations and the fact that equipment rooms or basement space is not available, it shall be installed in floor mounted cabinets in accordance with the instructions outlined in Appendix 2 of this Section.

2.12 For locations where an equipment room is provided for the exclusive use of the Serving Companies as defined in Paragraph 2.09 above, it will be satisfactory to mount the apparatus on standard open type relay racks. Basement locations for Telephone Company equipment is also permissible utilizing either relay rack or cabinet type mountings as is deemed advisable, provided of course such locations are not subject to conditions detrimental to the equipment or to installation and maintenance personnel as covered in standard installation practices.

2.13 In selecting equipment room locations either rooms used exclusively by the Serving Companies or jointly used with the CAA for INSAC and/or Tower equipment, consideration must be given to both Telephone and Telegraph services and especially the former with respect to the operating limits of the 102-A, 109A and 111-A Telephone Key equipment as outlined in the practices covering these services.

In no case shall the distance between the equipment location and the operating location exceed these limits.

Note: The permissible distance between the equipment room and the key units is limited by the voltage drop which can be tolerated in the various wires between the two locations. Based on the use of 22 gauge wire, the distance from the circuit equipment to the key units should not be more than 186 feet for 102-A key equipment and 125 feet for 111-A key equipment. Where these limits result in undue hardship, it may be possible to extend these limits by making a special study of the particular installation. For example, by the use of 20 gauge wire, the distance can be increased to 295 feet for the 102-A key equipment and 195 feet for the 111-A key equipment.

2.14 At INSAC stations where a service telephone is provided in connection with the Service A, B or C Teletypewriter Networks, it shall be mounted on the right-hand side of the watch supervisor's desk. In connection with the provision of a service telephone at large INSAC stations, if an extension telephone is required at a secondary location for Plant maintenance reasons, its provision will not conflict with existing tariff regulations and arrangements may be accordingly made for its installation. If, however, the extension telephone is desired because of CAA requirements, it should only be provided upon receipt of a Private Line Service Order.

2.15 The CAA will provide the primary power supply for telegraph line terminal equipment such as the 128-B-2 subscribers set that is necessary to provide service as leased by the Government. This power supply shall be available from a suitable outlet conveniently located with respect to the equipment. The power supply required in connection with furnishing services contracted for by other than the CAA, however, must be derived from a source and in a manner that will involve no expense to the CAA.

2.16 The CAA has standardized a facility known as the "Combined Interstate Airways Communications Station - Air Traffic Control Tower Facility" which will require teletypewriter service on the Service "A" and "B" networks. This service will be on a receiving only (not extension service) or sending and receiving basis as ordered and will utilize customer owned and maintained teletypewriters installed in the Control Tower. As in the case of other CAA facility installations, a demarcation strip will be furnished by the CAA for the termination of theirs and the Serving Companies' wiring. These demarcation strips will be similar to those described heretofore in this appendix and will be mounted and wired as outlined for the other strips discussed herein.

2.17 In connection with installations in CAA Type "S" Watch Houses, the protection cabinet location and conduit runs as shown on the current issue of CAA Drawing D-21175 should be utilized. Reference to this drawing should be made by consulting the local CAA people.

2.18 In the event that the CAA or the Telephone Company shall with respect to its side of the Demarcation Strip plan the use of equipment which might be expected to cause a change in the functioning of the teletypewriter circuit or of the equipment connected to the other side of the strip, the planning party shall submit to the other party complete details regarding the planned equipment prior to placing it in service.

3. RECEIVING ONLY EXTENSION SERVICE TO INTERESTS OTHER THAN THE CAA

3.01 The Telephone Company will furnish receiving only extension service to applicants who have been approved by the CAA. Extension Service will be connected to any teletypewriter circuit furnished to the CAA under the Extension Service classification. Extension Service will be furnished by means of a one-way connecting arrangement and other equipment which will prevent extension circuit troubles from affecting the main CAA circuit. The connecting arrangement may be located either in the serving

testroom or at the CAA station. In the latter case the equipment location should be as mutually agreed between the CAA and the Telephone Company.

3.02 An application for Extension Service which is received by any office of the Telephone Company from an Aeronautical interest such as the Aeronautical Radio Incorporated (ARINC), shall be referred to the Washington Division Commercial Department Office of the Telephone Company and by it, to the CAA for authorization of the connection.

The application will indicate the name and address of the applicant and the circuit to which the connection is desired.

An application received by any office of the Telephone Company from other than aeronautical interest must be accompanied by evidence of written approval which the applicant will have obtained from the Chief of the Weather Bureau at Washington, D.C. The application will then be referred to the Washington Division Commercial Department Office of the Telephone Company for treatment as specified in the foregoing paragraph and will indicate similar data.