

PREVENTION OF SERVICE INTERRUPTIONS
ATTACHMENT WECO HANDBOOK 0, SECTION 12

1. GENERAL

1.01 This section face sheet is issued to assign its 9-digit number and title in place of the previous 9-digit number, 201-112-012, which was assigned to the section entitled "Prevention of Service Interruptions — Attachment WECO Handbook 0, Section 12." The previous 9-digit assignment is canceled. Notice of cancellation and a cross reference to this section number will remain in the appropriate Division Index for a minimum of 12 months.

1.02 When this section is reissued, it will be issued in a standard format.

1.03 Recommendations for changes, additions, or deletions to this section should be forwarded as specified in Section 000-010-015.

1.04 The old section and any current addendum and attachments should be removed from their previous place in the file and attached behind this page and then filed by the new number.



NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

PREVENTION OF SERVICE INTERRUPTIONS

ATTACHMENT WECO HANDBOOK 0, SECTION 12

1. GENERAL

1.01 The purpose of this section is to make Western Electric Handbook 0, Section 12 dated 1-19-67 available to the central office maintenance force. This handbook section covers precautions to be taken before starting installation and may

be used as a guide during installation of equipment by the Western Electric Company.

1.02 This section replaces one of the attachments (Handbook 0, Section 12) to Section 201-112-001, Issue 4.

PREVENTING SERVICE INTERRUPTIONS

PRECAUTIONS BEFORE STARTING INSTALLING OPERATIONS

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1. SCOPE OF SECTION

1.1 This section covers the precautions to be taken (including those in conjunction with the telephone company) prior to the start of installing operations to prevent service interruptions.

2. METHOD OF PROCEDURE

NOTE: Where power transitions are concerned. Handbook 22 must be referred to. Requirements for a written method of procedure for power transitions are covered in Handbook 22.

2.1 The installer shall confer with the telephone company representative prior to starting installing operations on any live equipment (or on other than live equipment, such as on equipment near toll circuits, if required by local telephone company instructions) to review the job and to establish a detailed method of procedure. The method of procedure shall be prepared in writing in all cases. The verbal method of procedure is no longer to be employed. Concurrence in the procedure, by the Telephone Company representative, shall also be secured in writing in all cases. Signed copies (by both parties) of the written method of procedure will be distributed in accordance with the local agreement between the Area Office and the Telephone Company.

2.11 The following should be mutually understood and agreed upon in addition to any other considerations necessary for particular cases in establishing a method of procedure:

- (a) The hazards involved and degree of risk imposed by each.
- (b) The installing methods, tools and test sets to be used.
- (c) The experience of the personnel to be used.
- (d) Protection required on the equipment and tools.
- (e) The time of day or night during which the various steps of the work will be performed.
- (f) Which steps of the work will require notification of the telephone company representative before starting. Warning tags, ID-1270, shall be placed by the installer on the equipment involved in these operations.

(g) Procedures to be followed and the tests to be made before additional or modified equipment is connected to any working equipment, particularly equipment to be connected to a common grid supply, power supply lead or any other common lead such as may be encountered on senders, markers, etc.

(h) Steps to be taken by the installer before any alarm associated with the work is disconnected.

(i) Procedure to be followed where the removal of fuses, patch cords, plug in units, etc. is required on live equipment. A Telephone Company representative will perform the removal after the necessary identification has been established. When a Telephone Company representative is not available, removal of fuses, patch cords, plug in units, etc., may be delegated to the installer however, responsibility is assumed by the Telephone Company and will be stated as such in the method of procedure.

(j) Time of day or night the equipment removed from service is to be restored.

(k) Reports of progress required during the scheduled interval and in case of unforeseen delays, what additional measures can be taken to insure that the equipment will be restored to service on time.

(l) Which steps of the work will require the presence of telephone company employees.

(m) Review of alarms for those alarms involved which may require special action due to location or notification of the necessary personnel.

2.12 The operation of the equipment to be added should be checked before making additions to live equipment to determine that there will be no interference with the operation of the equipment in service. For example, before adding a new step-by-step switch to an existing shelf, its operation should be checked to determine if the new switch will cause any trouble to the other live equipment.

2.13 When the Telephone Company and Installation have decided that the installer should work in an office that is unattended, the installer should comply with the following procedures.

- (a) Arrival at and departure from the unattended office should be reported to the Telephone Company.
- (b) If the alarms are extended to the remote location, all alarms due to installation activity should be reported to the remote location. This will avoid the unnecessary dispatching of telephone company maintenance men.
- (c) If the alarms are not extended to the remote location, all alarms that are not due to installation activity should be reported to the location indicated by the Telephone Company.
- (d) When leaving the unattended office, the installer will assure himself that the alarm system is in the proper transfer position and that he has complied with telephone company instructions for leaving an office in normal unattended operation.

3. GENERAL PROTECTION OF WIRING ON LIVE EQUIPMENT

3.1 Live equipment must not be exposed to impact with new equipment or materials where it can be avoided when moving them into the building or to locations on the floor, or to movement of personnel going to or leaving their work locations.

3.2 Where live equipment will be exposed as covered in the preceding paragraph or by installing operations conducted nearby, due to congested conditions or otherwise, the bay, frame or fuse panel must be adequately protected by the use of sturdy material attached to the equipment framework so that it will remain clear of the apparatus or wiring if struck. The materials authorized for mechanical protection are listed in Section 20.

3.3 The equipment to be protected due to conditions described in the preceding paragraphs and the method of protecting it, should be agreed upon by the Telephone Company representative and installer. This protection should be placed before the start of installing operations.

3.31 In general, the protection should be restricted to bays, frames or switchboard positions adjacent to or in the immediate vicinity of the work location or those liable to be struck when equipment is being located or relocated.

3.32 Where the extent or nature of the protection requested by the Telephone Company representative is in excess of the standard Western Electric Company practice for similar conditions and as outlined above, the installer shall obtain the approval of the District Superintendent before incurring the additional expense.

3.4 The general condition of existing wiring should be checked before starting any operation on live equipment, by the Telephone Company representative and installer. The following conditions, if disclosed should be corrected, wherever practicable, before starting the operation.

- (a) Insulation damaged, frayed or pulled excessively back from the terminals.
- (b) Fatigued skinners which are liable to be broken off at or near the soldered connection.
- (c) Poorly soldered connections liable to become loose.
- (d) Forms not adequately supported, thereby permitting excessive movement of skinners.
- (e) Sagging forms causing strain on skinners.
- (f) Loose solder or wire ends in wiring.
- (g) Insufficient clearance of strap wires from terminals not strapped
- (h) Accumulations of dust on cable racks or other equipment.
- (i) Multiple jacks and other switch-board equipment in service not securely mounted. This applies in particular to cases where the multiple is to be raised or lowered.

3.41 If any of the conditions described in Paragraph 3.4 are to be corrected by the Western Electric Company instead of the Telephone Company, the installer shall obtain the approval of the District Superintendent before incurring the additional expense.

4. PRECAUTIONS TO AVOID IRREGULARITIES ON CENTRAL OFFICE AMA TAPES

4.1 When adding new or modifying existing equipment care must be taken to avoid irregularities on central office AMA tapes which would cause stoppages in No. 1 accounting centers. BSP Section A309.309, copies of which may be obtained from the Telephone Company, has been provided for use by the plant forces to limit stoppages in the accounting centers. The procedures included in BSP A309.309 should be referred to before starting any installation work involving equipment connected with AMA circuits.

5. CHECK OF ALARMS AND FUSES

5.1 The Telephone Company representative and the installer should check:

- (a) The location of all discharge fuses and any special information required when replacing them.
- (b) The location of all spare fuses and that spare fuses are satisfactory and have been tested for opens.

(c) To make sure that all discharge fuses are of the specified capacity. In connection with this check, consideration should be given to the additional load which will be placed on the fuse when new equipment is cut into service.

(d) The location and operation of all fuse and other power alarms.

(e) Those alarms which may be operated from installation operations and their location. In connection with this the installer and Telephone Company representative should know the procedures necessary for retiring alarms and advising any associated locations or personnel for early restoration of service should an interruption occur.

6. TOOLS

6.1 All tools used on live equipment must be insulated.

6.11 Tools such as wrenches and pinch-bars, liable to be forced against frameworks during the operation, should be insulated with a minimum of 3 wrappings of friction tape, each wrapping applied with a half lap.

6.12 Tools such as "L"-shaped allen wrenches, open-end wrenches, etc., which have more than one working end, must be taped so that only one working end is exposed during operations on live equipment.

NOTE: Where tools such as try squares which are not suitable for insulating with friction tape are required, tools made of wood or other insulating material shall be obtained locally.

6.2 Tools designed to minimize circuit interruptions such as the R-3435 Pliers, the R-3278 Wire Wrapping Tool and the R-3220-31 Wire Wrap Sleeve should be used where applicable.

→ Arrowed lines indicate new or changed information.

6.3 Unprotected metal tools should not be used when fanning or sewing forms on live equipment or dressing wires on fuse panels. Use a wire puller, if required, made of insulated wire. Where possible, dress wires on fuse panels with either the R-1102 Fiber Spudger or the KS-6320 Orange Stick.

6.31 The rubber insulation on the guard of R-2211 lamp lead should be checked to avoid service interruptions that may be caused by the use of guards with the insulation worn through.

6.4 Use No. 12 twine rather than metal clamps to secure form boards, and boards used for protection and to hold cables at butts when forming.

6.5 Store tools, movable scaffolding, equipment parts, etc., when not in use.

6.6 Under no circumstances should the R-3123 Electric Hammer (or other impact hammers of this type) be used for any operation on frames, floors or ceilings within approximately 25 feet (including the floor above and the ceiling of the floor below) of broad band carrier equipment having quartz crystals or transmitting equipment containing electron tubes. The vibration resulting from the use of these tools is liable to damage such equipment. Electric tools such as the R-3032-1/2" Capacity Electric Drill and the R-3438 Electric Impact Drill, should be used.

6.7 Soldering coppers having electrical leaks less than 1 megohm are an accident hazard and may cause damage to certain apparatus or cause blown fuses. Make frequent tests for leaks between element and shell of soldering copper, especially when they are to be used on direct battery leads. See Handbook 9, Section 321.

Manager, Engineering Practices

Reason for Reissue:
Revise Paragraph 2.1 to include information in T.I. 12 dated 11-18-66 and to revise 2.11(i), add 2.11(m), and add 5.1(e).

Replaces Section 12 dated 11-17-66 and T.I. 12 dated 11-18-66.