

EX-1  
FIRST CLASS MAIL

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Temporary Memorandum  
Western Electric Company, Incorporated  
Kearny Works

T.M. 8.71 Issue 2  
4-24-69  
Replaces issue dated  
10-23-68

FRAME AND AISLE LIGHTING  
FRAME BASE RECEPTACLES AND WIRING - NO. 5 CROSSBAR  
ED-26528-71

1. GENERAL

1.1 The A.T. & T. Company has asked that all new No. 5 Crossbar frame-base appliance outlet receptacles be wired with two conductor cable with a separate grounding conductor for connection to the "U" grounding slot. (Two-conductor No. 12 with grounding wire). All frames shipped from Columbus, Omaha and Oklahoma City after July 1, 1968 have been changed from the two-conductor non-metallic type UF cable, to, two-conductor non-metallic type UF with a separate grounding conductor (RM-791896).

1.2 Essentially the change concerns the reliability of the grounding path connected to the "U" grounding slot on the receptacle. On the old two-wire arrangement the "U" grounding slot (framework or equipment ground) relied on an incidental grounding path back to the ac lighting cabinet via bay framework, superstructure and conduit. In order to insure a more reliable path from the "U" grounding slot back to the ac cabinet the new three-wire concept requires a UL approved intentional and deliberate grounding path. The following are all UL approved "framework" or "equipment" grounding paths traceable to the ac lighting cabinet; (1) Armor and bonding wire in BX cable, (2) Bare wire run in UF non-metallic sheathed cable, (3) Flexible or rigid conduit, or, (4) Green or predominately green insulated No. 14 or 12 gauge grounding wire.

1.3 Many reports have been received regarding errors and poor shop quality involved in preparing and installing the receptacle assemblies per ED-26528-71 G1 thru G4. This T.M. is directed only at correcting these shop quality items as required.

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1.4 The purpose of reissuing this instruction is to define more clearly, job operations that fall within the responsibility of this T.M. and to separate from this T.M. operations normally the responsibility of other instructions. CN-1970 should be used for obtaining the necessary procedures and materials when frames with receptacles per ED-26528-71 were installed per Issue 1 (3 conductor), and were added to existing line-ups with receptacles per ED-26528-70 (2 conductor); and where the interconnecting cable is too short to reach the adjacent frame receptacle.

1.5 The following quality checks and corrective action shall be made on all No. 5 Crossbar frames shipped between July 1, 1968 and December 31, 1968.

## 2. ACTION

2.1 Verify that the receptacle is mounted so the "U" grounding slot is always to the right whether facing the front receptacle or the rear receptacle.

2.2 Some of the piece part cables are installed backwards. The long free end of the cable should be connected to the front receptacle.

2.3 Determine that the free end of the piece part cable is long enough to connect the junction box, last adjacent working receptacle or to the new bay, depending on direction of growth. If it is not, refer to Paragraph 4 relative to application of CN-1970.

2.4 When the piece parts are long enough, inspect and correct the existing wiring for the following items:

2.41 At the rear receptacle the  $3\frac{1}{2}$ " stub end is intended for splicing within the box to the adjacent frame. When not connected, both the black and white ends shall be retained within the box and individually insulated with rubber and friction tape or capped individually with an R-3045 Wire Connector. In some instances the shop has brought these  $3\frac{1}{2}$ " stub ends out through a cable connector and clamped this unjacketed stub end so tightly that the insulation was ruptured and the conductors grounded. If insulation is ruptured it should be corrected with friction tape.

2.42 Inspect to make sure the insulation on the individual conductors is not slit or otherwise damaged as this may have occurred with the jacket removal tool. If damaged the insulation may be repaired with friction tape.

2.43 Make sure the bare loop of the conductor is not scored or otherwise damaged and is wrapped close to the body of the screw and well under the screw head.

2.44 When the long end of the piece part harness is not used both the black and white wire ends shall be individually insulated with rubber and friction tape or capped individually with an R-3045 Wire Connector within an appropriate box.

2.45 Be sure to dress the bare grounding wire toward the bottom of the box and away from the circuit connections on the receptacle.

### 3. DISPOSITION OF EXPENSE

3.1 If the work involved in the performance of the above operations is sufficient to meet the requirements of SDI 4-7326 it should be referred to the Area Planner on SD 4-1007 J.I.M. for issuance of a type X Supplementary Estimate in the X-40 Series.

### 4. ASSOCIATED INFORMATION

4.1 The information under this Paragraph 4 is furnished only to present a more complete picture of the changes in the overall receptacle arrangement. It identifies and explains the intent of CN-1970, CN-1970.1 and ED-26528-71 and what they will accomplish, in order to be able to recognize the need for application of these CN's. If these CN's are needed, see Paragraph 4.7 for further instructions. Authorization for ordering and installing the longer harnesses, green wire, ground terminating bushings, junction boxes, etc., necessary to satisfy these requirements is not within the scope of this T.M.

4.2 Some of the earlier frames with the three-wire concept were furnished with harnesses too short. The harnesses have been lengthened as follows;

| CABLE<br>PIECE PART NUMBER | OLD<br>"A" DIMENSION* | NEW<br>"A" DIMENSION* |
|----------------------------|-----------------------|-----------------------|
| P-45V551                   | 30"                   | 42"                   |
| P-45V552                   | 41½"                  | 51"                   |
| P-45V553                   | 56"                   | 66"                   |
| P-45V554                   | 75"                   | 85"                   |

\* "A" dimension, per the piece part drawing, is the length of the uncut outer jacket on the long free end.

4.3 In some instances when attempting to connect the new correct length frame harnesses to various old preceeding or succeeding frames the correct length harness will still be too short and an intermediate junctioning box may be required.

4.4 When installing new frame line-ups with the three-wire grounding concept, the grounding connection is obtained from a grounding lock nut connected to the BX armor and bonding wire or the metal conduit feeding the first frame.

4.5 When adding frames (three-wire grounding concept) in existing line-ups where the old two-wire concept frames are located between the new added frames and the head of the line-up, it will be necessary to provide a UL approved traceable grounding path back to the first frame in the line-up bypassing but running through all existing two-wire frames. This is usually accomplished with a green wire run along with the two-wire cable except where BX was previously used. As indicated in paragraph 1.2 BX armor is a satisfactory grounding path provided correct end terminations are made.

4.6 Always verify that the last live frame base appliance outlet has the bare ends of the black and white wire properly insulated. See paragraphs 2.41 and 2.44.

4.7 Since ED-26528-71 is a second generation drawing, it is impossible to locate jobs requiring materials and authorization through the CN procedure. Originate a JIM to Field Service requesting application of CN-1970. Indicate in the JIM the materials required such as length of green wire, harnesses, boxes, grounding lock nuts, frames (by name) affected, etc., so your Line Engineer may apply CN-1970 and CN-1970.1.

Manager, Product Engineering

Refer correspondence and inquiries to:

KY - Department Chief - 8126

Western Electric Company, Inc.

Installation Engineering

100 Central Avenue

Kearny, New Jersey 07032

CORNET: 223-2989 Commercial: 201-642-7700 (ask for Ext. 2989)

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