JUNCTIONING
SHEET METAL BOX, BULB ANGLE, AND CHANNEL FRAMES

CONTENTS

1. GENERAL
1.1 Scope
1.2 Associated Information
2. SHEET METAL BOX TYPE
3. BULB ANGLE AND CHANNEL-TYPE
4. VERIFICATION ITEMS

1. GENERAL

1.1 Scope

1.11 This section covers common requirements and information for junctioning sheet metal box, bulb, and channel frames. For information regarding duct type frames see Section 19E2.

1.2 Associated Information

1.21 Floor plan drawings and specification information furnished the job should be referred to. The following junctioning drawings should also be consulted.

H-249-140	Junctioning Details - Channel Relay Racks to Bulb Angle Frameworks-Sheet Metal Bases
ED-91839-70	Method of Joining Uprights for Different Types of Relay Racks
ED-25529-70	Guard Rail Junction Details Between Crossbar Frames and Frames of Other Systems
ED-92466-70	Bay Framework Junctions For Junctioning Cable Duct-Type Bays with "I" Beam, Channel and Bulb Angle Bays
ED-90266-70	Relay Racks - Method of Joining Relay Racks, Fuse Boards, and Dial Frames

2. SHEET METAL BOX TYPE

2.1 Adjacent frames are bolted together into one unit through the hoisting holes in the bottom of the upright, using a 1/2" - 13 x 3-1/4" bolt and nut, as shown in Figure 1. The R-3294 box wrench provided in the 48 kit should be used in junctioning the frames at the base of the upright where space limitations do not permit the use of wrenches of normal design. Hold down bolts are then installed in the bases of frames requiring them.

2.2 Attach the junction plates or brackets as shown in Figure 6H. It is preferable that while the frame is being pushed into place, an installer be on a ladder in the wiring aisle to steady the frame and attach the junction plate or bracket.

2.3 Raise and support junction plate or bracket temporarily with 2-3/4" x 3/4" x 2" LG wood before conveying the new frame in place. This will prevent the plate from interfering with new frame being added.

CAUTION: WHEN SPLICE PLATE IS LOOSENED AND RAISED TO PROVIDE CLEARANCE FOR THE NEW FRAME, MAKE A VISUAL CHECK THAT THE CABLE CLAMP ASSEMBLY DOES NOT SLIP BELOW THE PLATE. ALWAYS NOTE THE CONDITION OF THE INSULATION ON LIVE CABLES WHEN WORKING AROUND THEM.

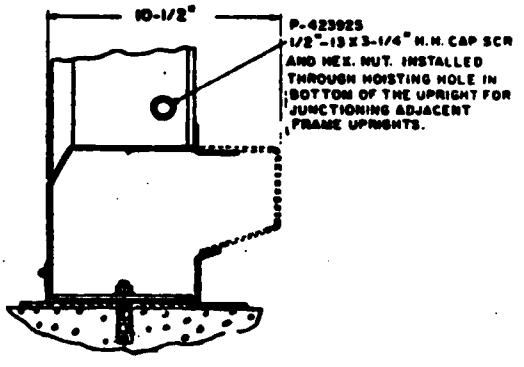

FIG. 1 JUNCTIONING SHEET METAL BOX TYPE FRAMES (PAR. 2.1)

This section includes material from BSP 800-614-155
Copyright, 1975, by American Telephone and Telegraph Company
Printed in U.S.A.

NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT

Printed in U.S.A.

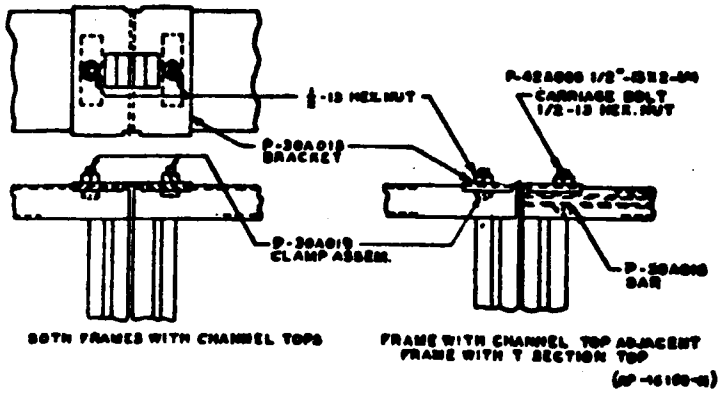

FIG. 6H JUNCTIONING TOPS OF ADJACENT NO. 5 CROSSBAR FRAMES - CHANNEL TOP MEMBERS TO CHANNEL TOP MEMBERS AND "T" SHAPED TOP MEMBERS TO CHANNEL TYPE TOP MEMBERS (PAR. 2.12) (BSP 800-614-155. Fig. 6H)

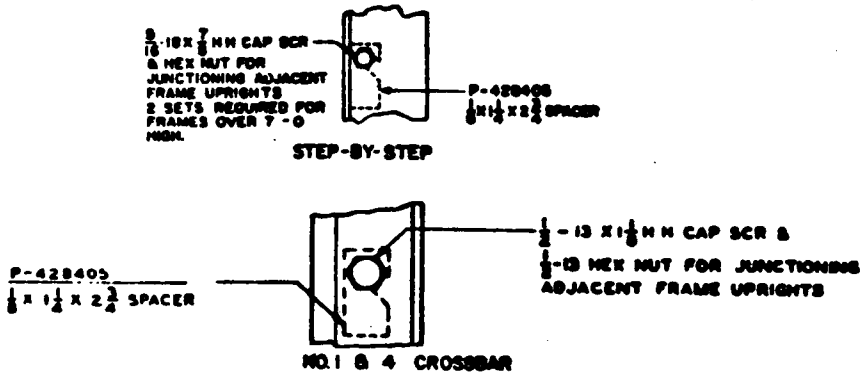

FIG. 7 JUNCTIONING BULB ANGLE TYPE FRAMES (PARS. 3.1, 3.31)

3. BULB ANGLE AND CHANNEL-TYPE

3.1 Bulb angle-type frameworks are bolted together through the uprights, just above the base, as shown in Figure 7 and at the top with junction plates and T-bolts, as shown in Figure 12B.

3.11 Step-by-Step bulb-angle or channel-type frames in line with bulb-angle type relay racks and fuse bays have adjacent uprights offset from each other to such an extent that they cannot be bolted together. Bracket details are usually furnished for junctioning the uprights.

3.2 In certain cases, frame base fillers are furnished in the base of bulb angle sheet metal base frames in order to provide space between the uprights of adjacent bays for cabling or maintenance reasons. This space varies from the 1" provided between crossbar interrupter bays for bearing adjustments to the 3-1/2" provided for heavy cabling at fuse bays. In any case the frame base filler makes it impossible to bolt adjacent uprights directly together. The frame bases will be joined together, however, by bolting the guard rail gusset plates of the frames involved to the frame base filler. Bent bracket details are usually furnished for junctioning the uprights. Where such

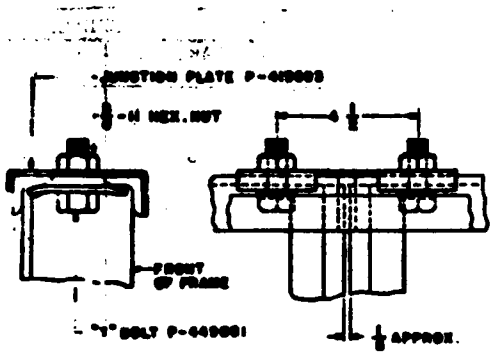

FIG. 12B JUNCTIONING TOP ANGLES OF BULB ANGLE-TYPE FRAMES
(PAR. 3.1)
(BSP 800-614-155, Fig. 12B)

details are not furnished, as for example between adjacent crossbar interrupter bays, additional auxiliary framing supports will be required at the tops of the frames as covered in the paragraphs on supporting frames.

3.3 In the case of bulb angle frameworks with sheet metal bases having the same guard rail widths but with different front guard rail projections, the uprights of adjacent frames will be offset from each other which may make it impossible to bolt them together in the usual manner. In these cases the frame junctions should be made as follows:

3.31 Where the amount of offset between the uprights is slight (as in the case of the 1-3/4" and 2" front guard rail frames) the uprights may be bolted together by enlarging the hole normally used for this purpose, as shown in Figure 7. Where the amount of offset makes it impossible to use the standard top-angle junction clips, an additional hole should be drilled in each of the adjacent uprights at a point approximately 10' 0" above the floor and the uprights bolted together at this point as well as at the holes just above the frame base.

3.32 Where the amount of offset between uprights is so great that it would be impossible to bolt adjacent uprights together (as in the case of message register racks in line with No. 1 crossbar frames), the adjacent frames should be bolted together at the base through the holes in the guard rail gusset plates, 3/8"-16 x 1" RHM screws, hexagonal nuts, and washers should be used for this purpose. Since the uprights cannot be bolted together, additional auxiliary framing supports will be required at the tops of these frames.

3.4 When junctioning bays having different types of uprights (bulb angle to channel, etc.) it will be necessary for the installer to drill holes in the bulb angle uprights to fasten the junctioning details. Refer to drawing ED-91839-70. It may also be necessary to drill the uprights of adjacent bulb angle bays having different front guard rail projections as indicated in the requirements on junctioning bulb angle-type frames. This work should be performed before the new bay is placed in position.

3.41 Information for junctioning bulb angle or channel type bays to universal cable duct-type bays is shown on drawing ED-92466-70.

4. VERIFICATION ITEMS

BRIEF STATEMENT OF REQUIREMENTS		REFERENCE PAR.NO.	REFERENCE FIG.NO.
4.1	Junctioning of Frames		
4.11	Tops of adjacent frames junctioned.	3.1	12B
4.12	Adjacent uprights bolted together.	3.11	7
4.13	Where adjacent uprights are offset slightly, upright bolted together.	3.31	
4.14	Where adjacent uprights cannot be bolted together frame properly supported.	3.2	

No arrows due to extensive changes.

Vertical line at side of paragraphs indicates requirements.

Engineering Planning Manager
(Installation)

Reason for Reissue:
(1) To delete Paragraph 4 and Figure 17
(2) Update BSP reference