

**10.00 INSTALLATION INSTRUCTIONS - MODEL 790-24-AD-RM (Ribbon Management)**

**10.10** This section provides instructions on the preparation of a new closure, cable installation into the closure and sealing the closure.

**10.11** The following tools and materials are required in addition to those used in normal splicing practices.

- \*Ratchet/socket or box/open end wrench, 1/2"
- \*Ratchet/socket or box/ open end wrench, 3/8"
- \*Screw driver, flat blade

**10.12** Loosen the compression bolts on the end plate. The bolt heads should be "backed off" approximately 1/8" from the washers. Remove the closure housing and set it aside.

**10.13 Instructions for 790-EM elastomer**

Refer to the cable measuring guide that comes with the 790-EM tear out seal elastomer.

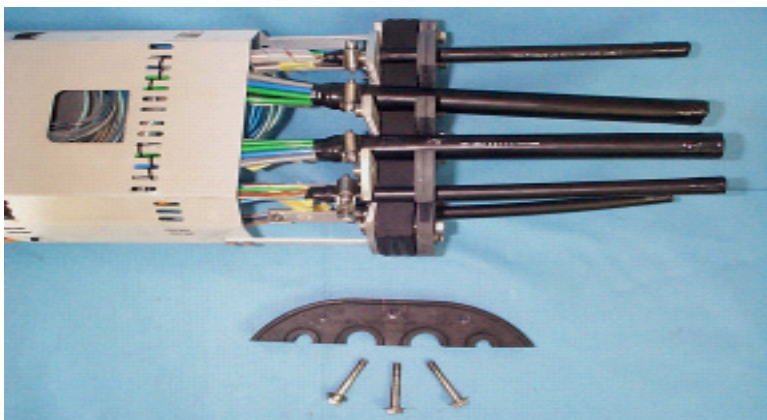
(See drawing 6 for elastomer detail.)

**Figure 1**



**10.14** Remove the 3 compression bolts around the cable entry ports to be used. Remove the freed section of the split compression seal and put it aside.

**Figure 2**



**10.15** Prepare cable per standard/local practice.

**NOTE:** No less than 48" of buffer tube from cable "butt" to splice tray should be exposed. Desired amount of fiber in splice tray dictates total length of buffer tube to be exposed.

**Example:** If 36" of fiber is desired in splice tray expose 36" + 48"= 84" of total buffer tube.

**10.16** Insert the cables in the slotted end plate. Use the provided tube of RTV silicone to run a small bead across the center of the split of the compression seal and prepared cable holes. Replace the section of the compression seal and the 3 bolts that secure it. Repeat this process on the opposing split even if cables are not being installed.

**Figure 3**

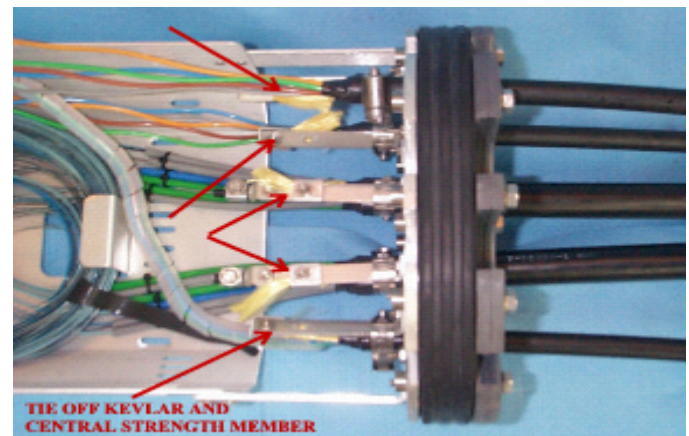


**10.17** **NOTE:** Removal of the termination stand off makes the following task easier.

Tie kevlar and insert central strength member under clamping plate at the end of cable tie stand off bracket. Secure cable clamp around cable tie stand off bracket and cable and then tighten.

There are modified standoff brackets for larger back bone cables. These have a lug to secure large central strength members of larger high fiber cables.

**Figure 4**



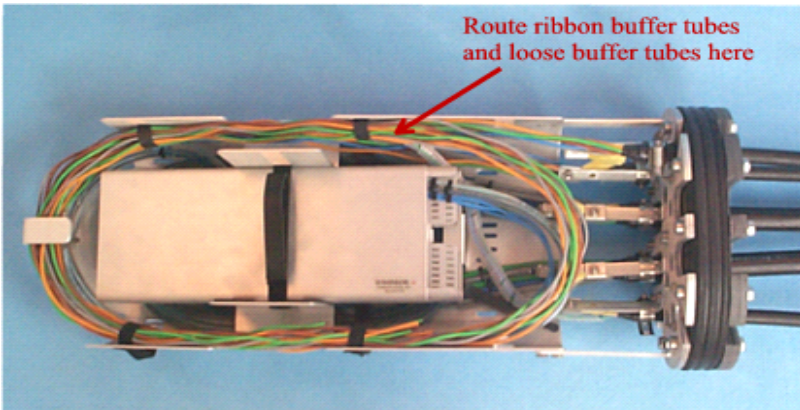
**NOTE:** The ribbon management platform allows flexibility for several applications. The following sections provide details for these variations that are dictated by different combinations of ribbon and loose tube splicing and expressed fiber storage.

**10.18 Butt splicing ribbon and loose-tube:**

If the bend radius of the ribbon buffer tube allows, tubes can be routed from cable butt around buffer tube storage area to splice trays. The buffer tube storage area maintains a 3.5" bend radius or 7" diameter. Cable manufactures have different bend radius' for buffer tubes and should be consulted to determine bend radius. If the ribbon buffer tube bend radius is limited, the tubes will have to be removed and ribbons stored in ribbon storage area.

Note: See Sec. 10.19

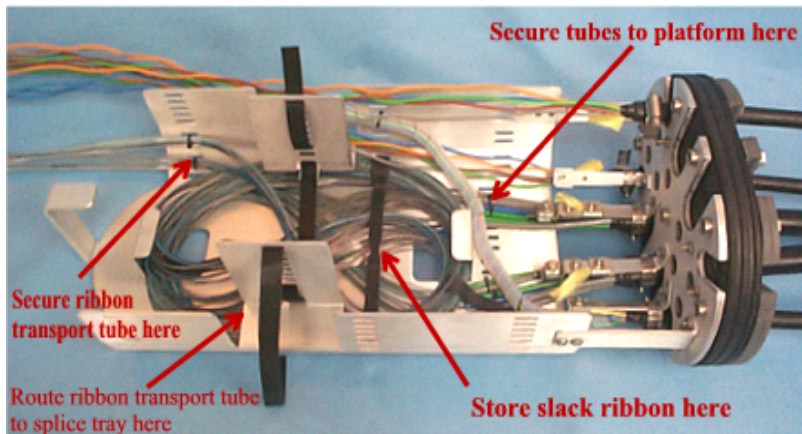
Figure 5



**10.19 Butt splicing using ribbon storage area:**

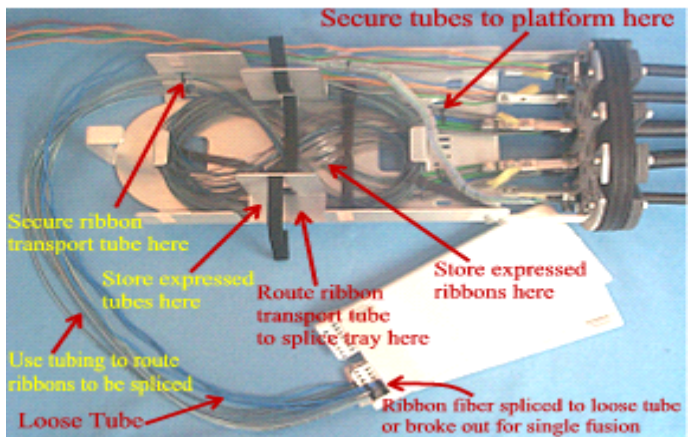
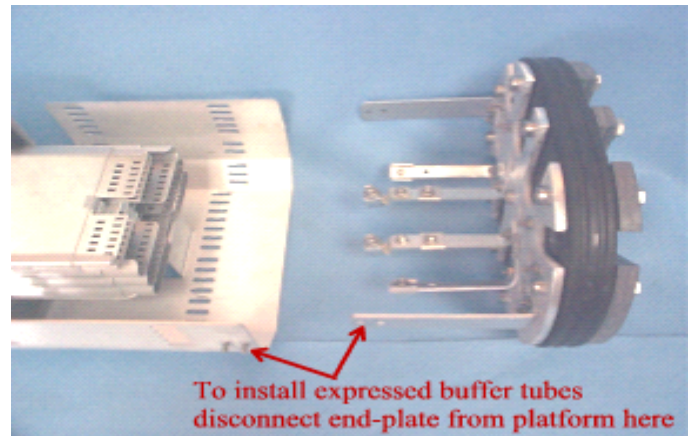
After cables are secured in end plate ribbon buffer tubes may be removed. 6" of buffer tube from cable butt should remain. Secure the buffer tubes to bottom of ribbon management platform. Slack fiber can be stored in ribbon fiber storage area. At this point, ribbons can be transported via tubing from ribbon storage area to splice tray for splicing.

Figure 6



**10.20 Mid-sheath splicing:** When performing a mid-sheath splice, expressed ribbon buffer tubes and expressed loose tube can be stored in the buffer storage area, if the bend radius of the ribbon buffer tube allows. If the bend radius of the buffer tube is limited, the buffer tube must be removed and the expressed ribbons can be stored in the ribbon storage area. The ribbons to be spliced can be routed from the ribbon storage area via tubing from ribbon storage area to splice tray. At this point ribbons may be separated in the splice tray and single fused to loose tube laterals.

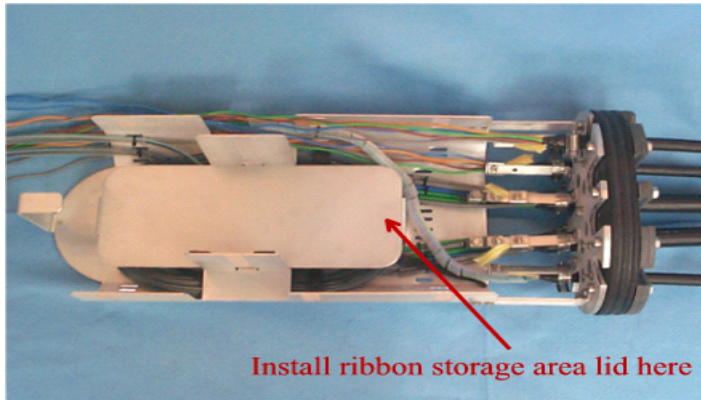
Figure 7



**10.21** Splice fibers in accordance with standard local practice. (See drawings 1, 2, 3 and 4 for recommended splice chip placement.)

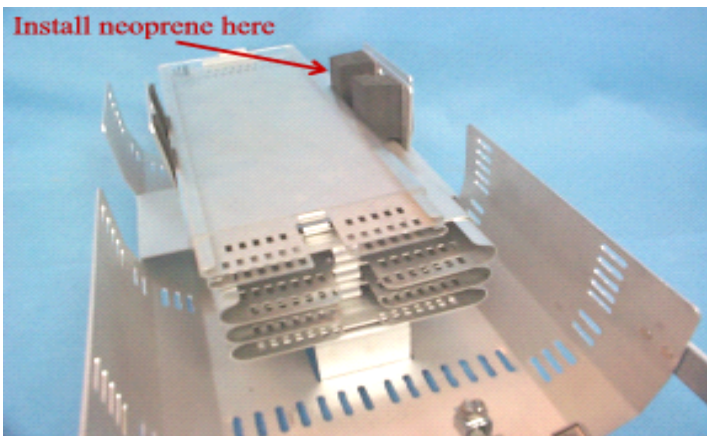
**10.22** When splicing is complete and expressed buffer tubes and/or expressed ribbon fiber are stored and secured with the Velcro ties, install the ribbon storage area lid.

**Figure 9**

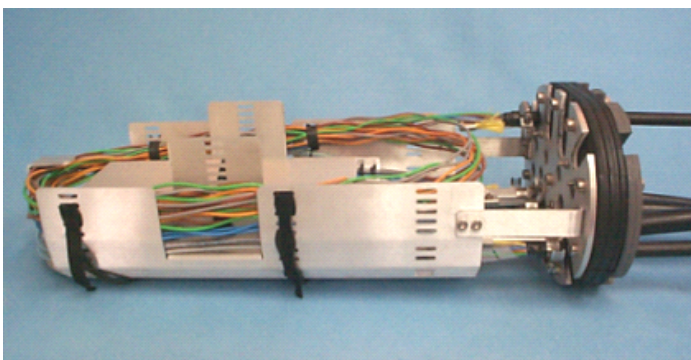


**10.23** Install the splice trays in splice tray holder and secure with Velcro. The built in tray holder is designed for the larger, high-fiber count splice trays. However, it may become necessary to install smaller trays in combination with wide trays. To install narrow trays, use the provided neoprene tape to create a spacer in the tray holder.

**Figure 10**



**Figure 11**



**10.24 VERY IMPORTANT:** It is very important to follow the bolt tightening sequence instructions to ensure proper seal. (See **Drawing 5** for bolt tightening sequence detail)

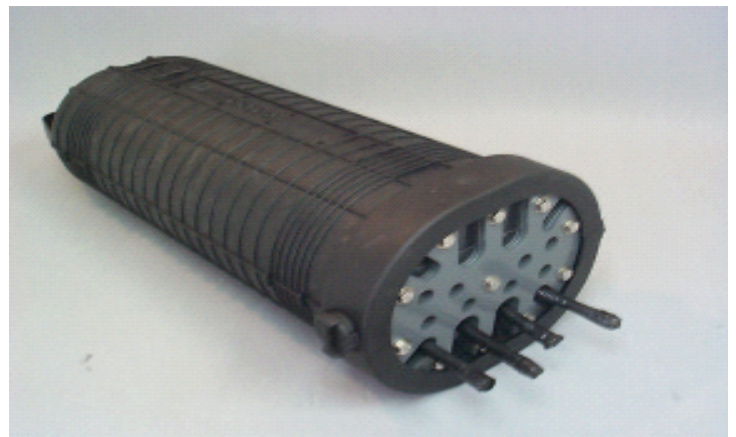
Slide closure into dome housing and tighten the compression bolts of the end plate. All 11 bolts should be tightened to the point where compression begins ("snug" against the end plate). Begin with the center bolt (1) and tighten one full turn. Move to bolts 2 through 11 and tighten one full turn. Be sure to follow numerical sequence. Return to the center bolt (1) and tighten one full turn. Move to the surrounding bolts (2 through 11) and tighten one full turn. Be sure to follow numerical sequence.

(See drawing 5 for bolt tightening sequence detail)

**10.25** Install the collar onto the base of the closure housing. The collar locking knob is a over center locking device. Turn knob clockwise and be certain the knob "snaps" into the over center locked position.

*NOTE:* This is a very important safety device which must be employed when flash testing closure under air pressure. When flash testing, never use more than 6 pounds psi. (See drawing 7 for collar locking detail.)

**Figure 12**



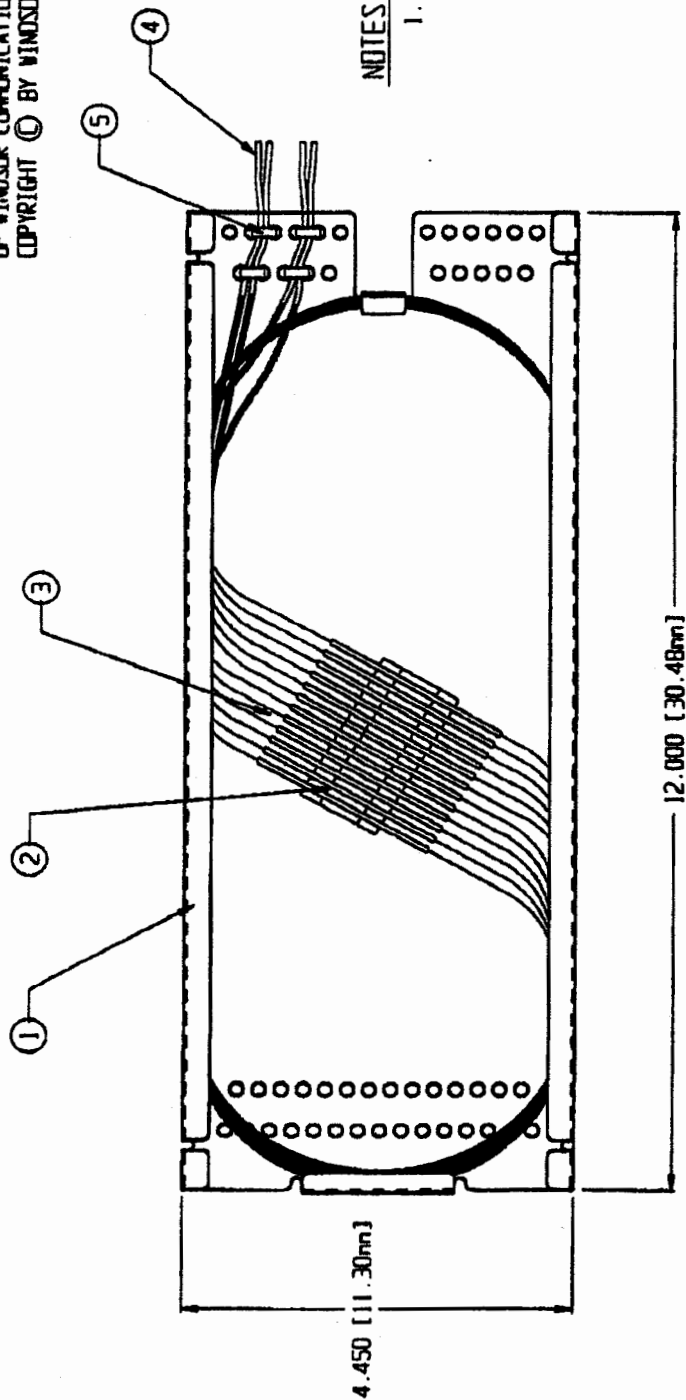
**10.26** Closure Re-entry.

Loosen all compression bolts of closure. All bolts must be loose to relieve compression of end plate. pull cables with a steady force to slide end seal out of closure. If cables are removed apply RTV per section 10.16.

**10.27** Seal closure and locking collar per section per sections 10.24 and 10.25

DRAWING 1

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN IS CONFIDENTIAL PROPERTY OF WINDSOR COMMUNICATIONS, INC. ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED. USE OR DISCLOSURE WITHOUT THE PRIOR WRITTEN CONSENT OF WINDSOR COMMUNICATIONS, INC. IS STRICTLY PROHIBITED. COPYRIGHT © BY WINDSOR COMMUNICATIONS, INC.



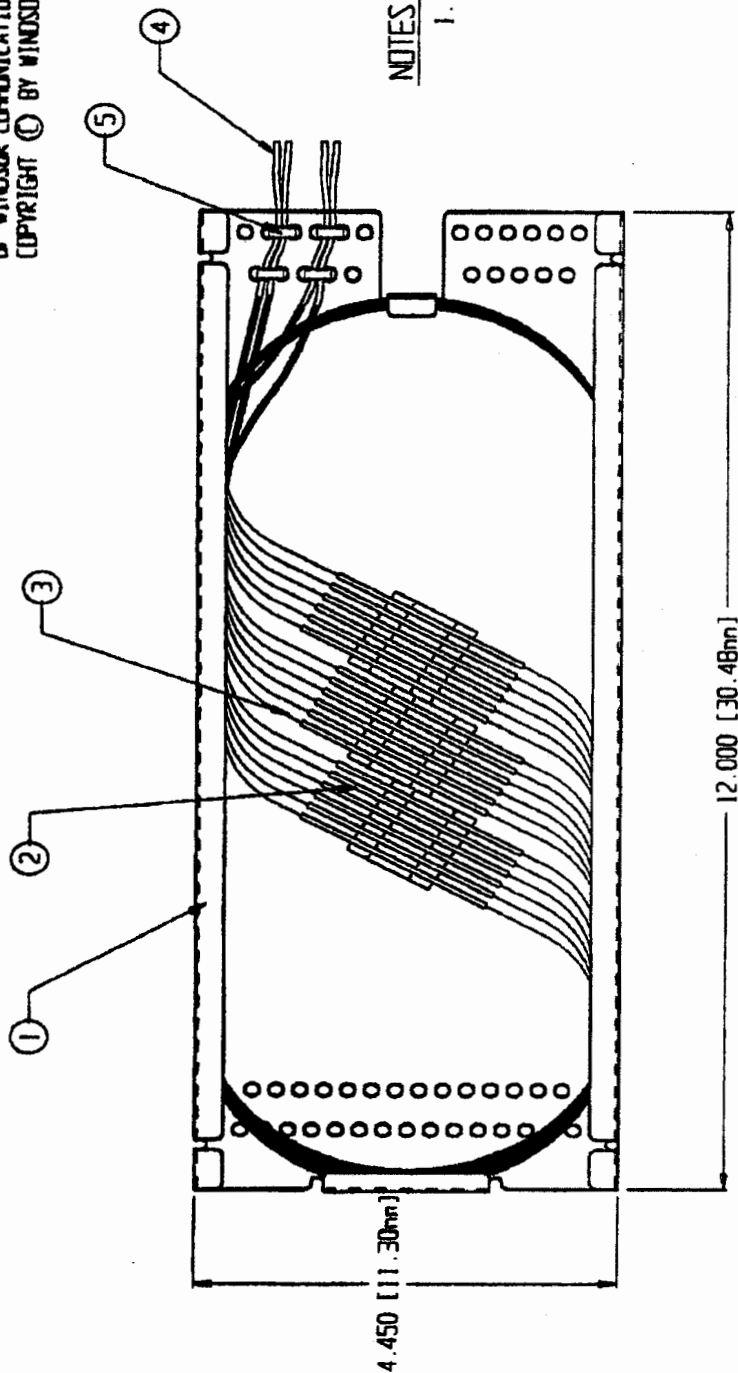
NOTES:

1. SPLICE TRAY TOP NOT SHOWN FOR CLARITY

5					TIE WRAP		
4					BUFFER TUBE		
3					FIBERS		
2	12	100-02			FUSION SLEEVE		
1	1	200-102			SPLICE TRAY BOTTOM	ALUMINUM MATERIAL	
ITEM#		QTY.	PART NUMBER	ITEM DESCRIPTION			
FINISH: NA							
ENGINEER:	DATE	FILE #	WINDSOR				
P. SWIDER	03/16/98	205-12	COMMUNICATIONS, INC. (660) 647-3191				
CHECKED BY:	J. ROBERTS		P. O. BOX 202 WINDSOR, MD. 65360				
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES							
TOLERANCE							
LINEAR +/- .4							
ANGULAR +/- 1 DEG							
HOLE DIAMETER +/- .13							
CUSTOMER NAME:			DESC. 205-12 SERIES SPLICE TRAY				
PROJECT NAME:			WITH 12 FIBER OPTICS				
P.N. 205-12			REV				

DRAWING 2

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN IS CONFIDENTIAL PROPERTY OF WINDSOR COMMUNICATIONS, INC. ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED. USE OR DISCLOSURE WITHOUT THE PRIOR WRITTEN CONSENT OF WINDSOR COMMUNICATIONS, INC. IS STRICTLY PROHIBITED. COPYRIGHT © BY WINDSOR COMMUNICATIONS, INC.



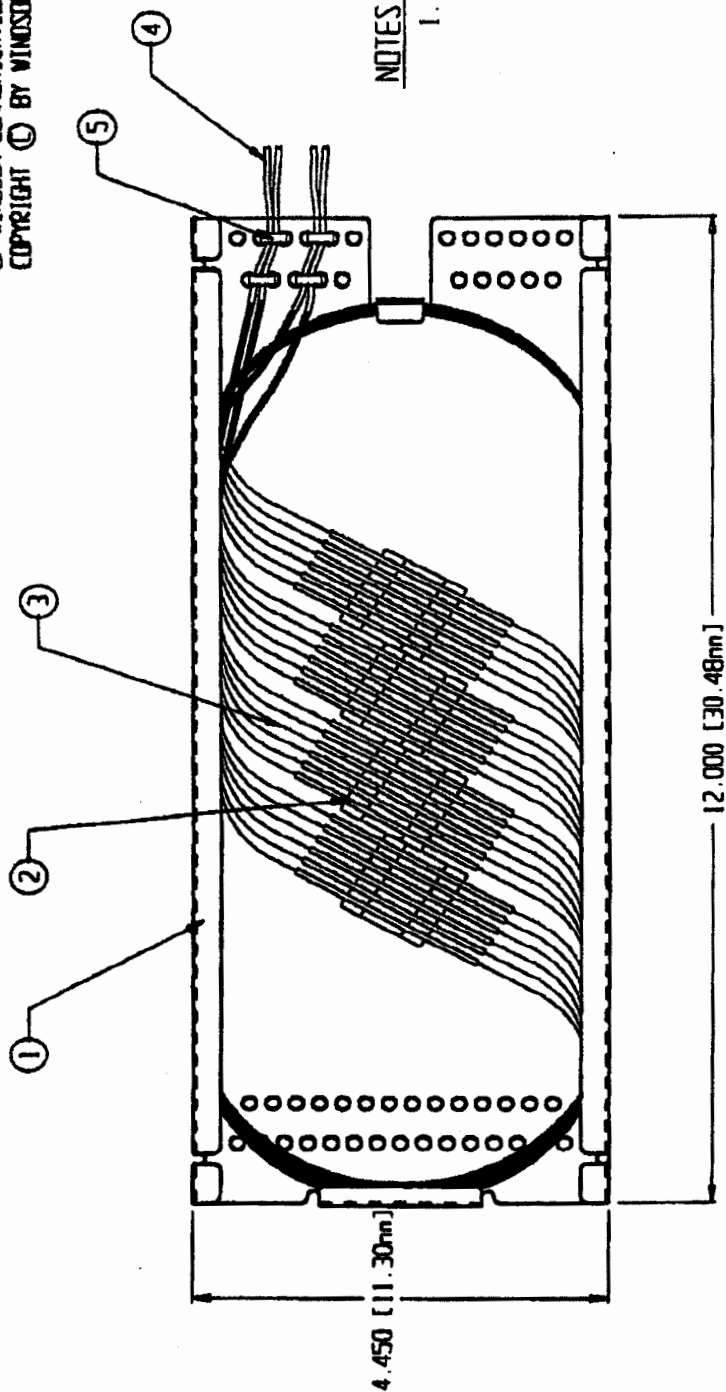
NOTES:

1. SPLICE TRAY TOP NOT SHOWN FOR CLARITY

5	TIE WRAP				
4	BUFFER TUBE				
3	FIBERS				
2	18	100-02			
1	1	200-102			
ITEM#	QTY.	PART NUMBER	ITEM DESCRIPTION	MATERIAL	
FINISH: NA					
ENGINEER:	DATE	WINDSOR			
P. SMIDER	03/16/98	COMMUNICATIONS, INC. (660) 647-3191			
CHECKED BY:	FILE #	P.O. BOX 202			
J. ROBERTS	205-18	WINDSOR, MD. 66360 FAX: (660) 647-3100			
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES					
TOLERANCE					
LINEAR +/- .4					
ANGULAR +/- 1 DEG.					
HOLE DIAMETER +/- .13					
CUSTOMER NAME:	DESC. 205-18 SERIES SPLICE TRAY				
PROJECT NAME:	WITH 18 FUSION SPLICES				
P.N. 205-18	REV.				

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREON IS CONFIDENTIAL PROPERTY OF WINDSOR COMMUNICATIONS, INC. ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED. USE OR DISCLOSURE WITHOUT THE PRIOR WRITTEN CONSENT OF WINDSOR COMMUNICATIONS, INC. IS STRICTLY PROHIBITED. COPYRIGHT © BY WINDSOR COMMUNICATIONS, INC.

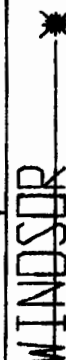
DRAWING 3



NOTES:

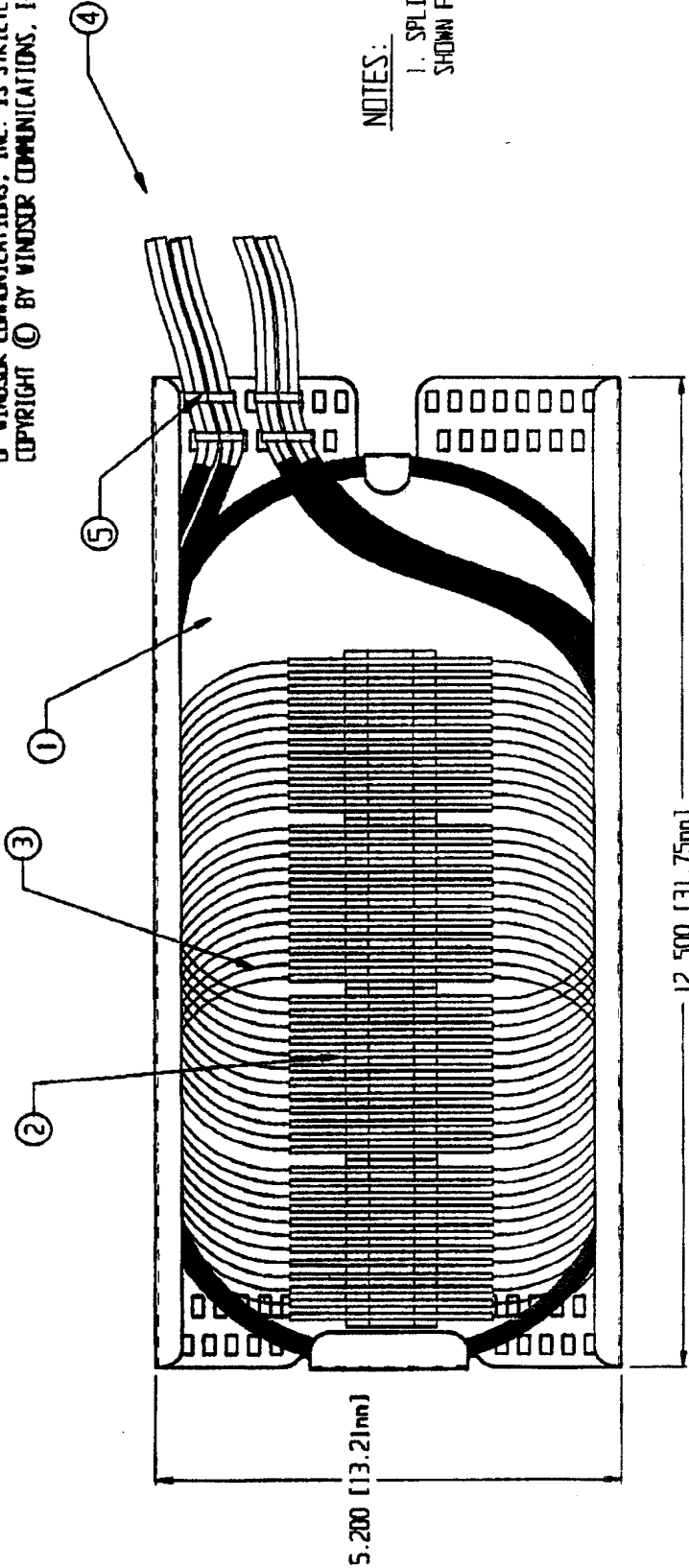
1. SPLICE TRAY TOP NOT SHOWN FOR CLARITY

5	TIE WRAP						
4	BUFFER TUBE						
3	FIBERS						
2	24	100-02					
1	1	200-102					
	ITEM#	QTY.	PART NUMBER	ITEM DESCRIPTION	MATERIAL		
FINISH: NA							
ENGINEER: P. SNIDER		DATE: 03/12/98	FILE #				
CHECKED BY: J. ROBERTS		205-24	UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES				
			TOLERANCE				
			LINEAR +/- .4				
			ANGULAR +/- 1 DEG.				
			HOLE DIAMETER +/- .13				
CUSTOMER NAME:		WINDSOR COMMUNICATIONS, INC. (650) 647-3191					
PROJECT NAME:		P.O. BOX 202 WINDSOR, MD. 65360 FAX: (650) 647-3100					
P.N. 205-24		DESC. 205-24 SERIES SPLICE TRAY WITH 24 FUSION SPLICES					
REV.							



THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREON IS CONFIDENTIAL PROPERTY OF WINDSOR COMMUNICATIONS, INC. ALL RIGHTS, PATENT AND OTHERWISE, ARE RESERVED. USE OR DISCLOSURE WITHOUT THE PRIOR WRITTEN CONSENT OF WINDSOR COMMUNICATIONS, INC. IS STRICTLY PROHIBITED. COPYRIGHT © BY WINDSOR COMMUNICATIONS, INC.

FIG. 4  
 36 OR 48 FIBER SPLICE TRAY



NOTES:  
 1. SPLICE TRAY TOP SHOWN FOR CLARITY

ITEM#	QTY.	PART NUMBER	ITEM DESCRIPTION	MATERIAL
5			TIE WRAP	
4			BUFFER TUBE	
3			FIBERS	
2	48	100-02	FUSION SLEEVE	
1	1	200-102	SPLICE TRAY BOTTOM	ALUMINIUM

FINISH: NA	ENGINEER: L. STONE	DATE: 10/26/00
CUSTOMER NAME:	CHECKED BY: J. ROBERTS	FILE #: 205-48
PROJECT NAME:	UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES	
P. N. 205-01/48	TOLERANCE: LINEAR +/- .4	
WITH 48 FUSION SPLICES	ANGULAR +/- 1 DEG.	
	HOLE DIAMETER +/- .13	

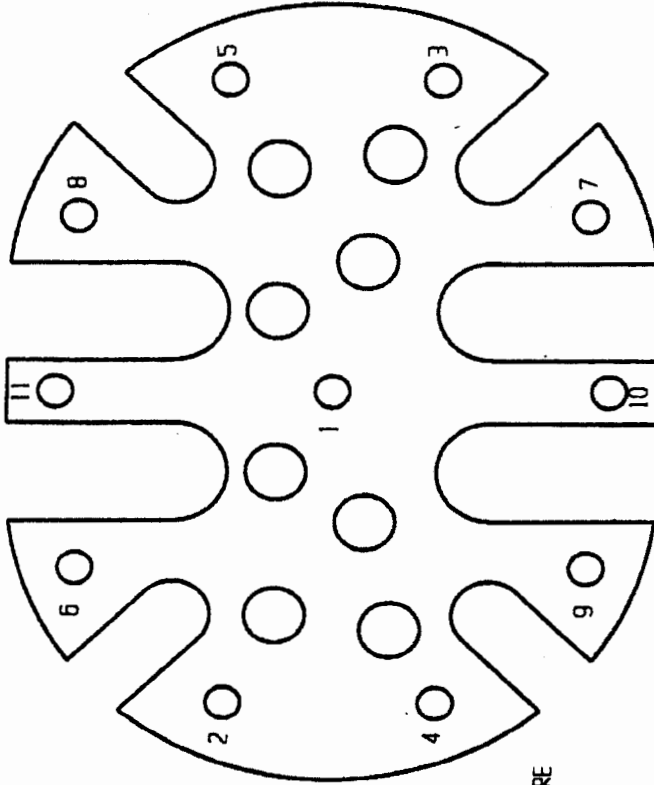
<b>WINDSOR</b>	
COMMUNICATIONS, INC. (660) 647-3191	
P. O. BOX 202 WINDSOR, MD. 65360 FAX: (660) 647-3100	
DESC. 205-01/48 SERIES SPLICE TRAY REV. WITH 48 FUSION SPLICES	

**NOTES:**

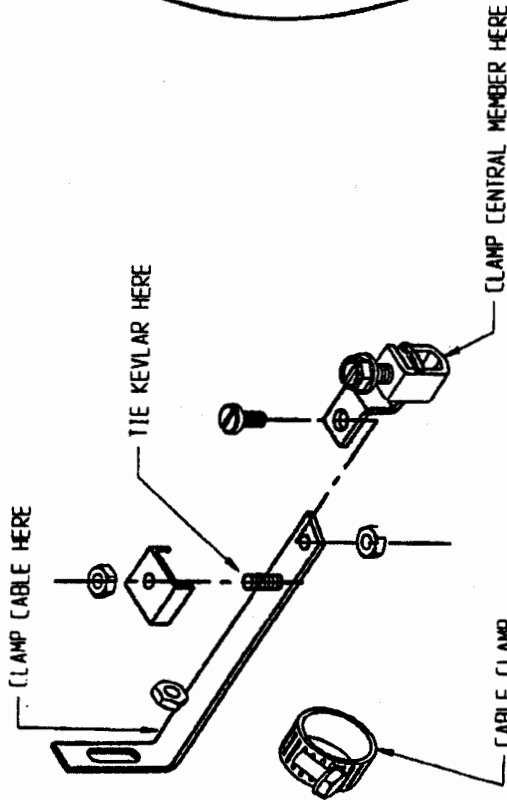
UNLESS OTHERWISE SPECIFIED

1. SURFACE FINISH  $\sqrt{32}$
2. DEBURR ALL SHARP CORNERS AND EDGES.

DRAWING 5



BOLT TIGHTEN SEQUENCE

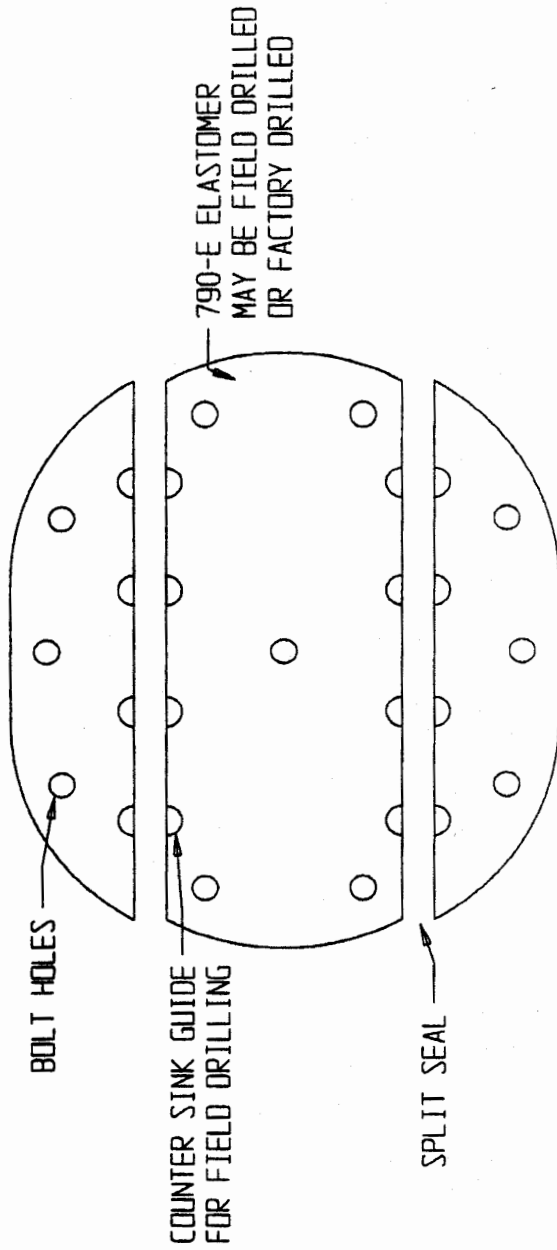


790-SO (MODIFIED STAND OFF BRACKET)

ITEM	QTY.	PART NUMBER	ITEM DESCRIPTION	INSIDE END PLATE	250 GREY PVC MATERIAL
1	1				
<p>ENGINEER: L. STONE DATE: 06/07/00</p> <p>CHECKED BY: J. ROBERTS FILE # 790-24-DSP-BOLT</p> <p>UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCE .XXX = +/- .015/.XX = +/- .03 FRACTIONS = 1/16 ANGULAR = +/- .5 DEG.</p>					
<p>WINDSOR COMMUNICATIONS, INC. (660) 647-3191 P.O. BOX 202 WINDSOR, MD. 65360 FAX: (660) 647-3100</p>					
<p>CUSTOMER NAME: PROJECT NAME: P.N. 790-24-DSP</p>					
<p>DESC. 790 DEGROUND OUTSIDE END PLATE</p>					
SYMBOL	REVISION	APPROVED	DATE	REV	

DRAWING 6

790-E



790-EM

