

89-TYPE CONNECTING BLOCKS

CONTENTS

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|--------------------|----------------------------|
| 1. GENERAL | 7. PROTECTION |
| 2. SUPPLIES | 8. STRAPPING |
| 3. CABLING | 9. JUMPER WIRE TERMINATION |
| 4. BUTT LOCATION | 10. CLOSURE |
| 5. FAN AND CONNECT | 11. VERIFICATION ITEMS |
| 6. LEAD FORMING | |

1. GENERAL

1.1 The 89-Type Connecting Blocks were designed to provide high density concentration on low profile and conventional type distributing frames. These blocks feature a 180° rotating terminal field which provides for the Solderless Wrap (SW) termination of cable leads on the rear side (closed position), and either the Solderless Wrap (SW) or Quick-Connect (QC) method of terminating jumper wire on the front side (closed position).

1.2 Refer to Table-A for a brief description and current listing of the available 89-Type Connecting Blocks. The cable lead terminals for these blocks are all single tang solderless wrap terminals, and the terminal types shown in Table-A are for the cross-connect side.

NOTE: Although some code numbers and their descriptions may appear to be identical, they are arranged for various stamping, strapping, and system usage.

1.3 22 through 26 gauge wire has been approved for termination on the cable lead side of the blocks. However, when a block completely uses 22 gauge cable or an excessive amount of 22 gauge "P" wire, there will be a congestion problem in the fanning strip slot area.

1.31 Where this type of congestion exists, it will be necessary to close off the openings (slots) of the fanning strip by lacing them closed with twine or by securing a band across the openings (slots) from the top to the bottom of the fanning strip, this will eliminate the possibility of the leads falling out of the slots and being damaged or broken when the terminal field is rotated into the close position.

2. SUPPLIES

RM-583101	Fiber, 1/64" Gray Sheet
R-4265	Ties, Nylon Cable
RM-552452	Tubing, 1-1/2" Gray Rigid PVC
RM-552448	Tubing, 1" Gray Rigid PVC
R-2916	Twine
R-756E2	Insertion Tool
R-756D	Insertion Tool
R-3795 (724A)	Wire Removal Tool

CODE NO.	TERM. FIELD	TERM. TYPE	DESCRIPTION OF USAGE	TYPE
89A1-50	4x25	SW, Bifurcated	Decimal Equipment	1
89A1-64	4x32	SW, Bifurcated	Octal Equipment	2
89A1-96	8x24	SW, Bifurcated	Octal Equipment	1
89A1-100	8x25	SW, Bifurcated	Decimal Equipment	1
89A2-100	8x25	SW, Bifurcated	#1 X-Bar Subscriber	1
89A3-100	8x25	SW, Bifurcated	#5 X-Bar Subscriber	1
89A4-96	8x24	SW, Bifurcated	#2 ESS Subscriber, #1 ESS Subscriber (2:1) Ferreed & Remreed	1
89A6-96	8x24	SW, Bifurcated	#1 ESS Subscriber (4:1) Ferreed & Remreed (1-Concentrator + $\frac{1}{2}$ Concentrator)	1
89A7-96	8x24	SW, Bifurcated	#1 ESS Subscriber (4:1) Ferreed & Remreed ($\frac{1}{2}$ -Concentrator + 1-Concentrator)	1
89A11-96	8x24	SW, Bifurcated	#3 ESS Subscriber (6:1) Switches (0-3)	1
89A12-96	8x24	SW, Bifurcated	#3 ESS Subscriber (6:1) Switches (4-7)	1
89B1-75	6x25	SW, Single	Toll & Special Services (Octal)	1
*89B1-100	8x25	SW, Single	Trunk & Special Services (Decimal)	1
89B1-128	8x32	SW, Single	Trunk & Special Services (Octal)	2
*89B2-100	8x25	SW, Single	Outside Plant Cable	1
89B1-64	8x32	SW, Single	#1 ESS Universal Trunk Strapped for Ring Tip Reversal (PLTS 01-08) When UT Frame is cabled directly to HMDF	2
89B2-64	8x32	SW, Single	#1 ESS Universal Trunk Strapped for Ring Tip Reversal (PLTS 09-16) When UT Frame is cabled directly to HMDF	2
89B3-64	8x32	SW, Single	#1 ESS Universal Trunk Strapped for Ring Tip Reversal (PLTS 01-08) When UT Frame is cabled via an IDF	2
89B4-64	8x32	SW, Single	#1 ESS Universal Trunk Strapped for Ring Tip Reversal (PLTS 09-16) When UT Frame is cabled via an IDF	2
89B3-100	8x25	SW, Single	Outside Plant Cable	2
89B4-100	8x25	SW, Single	Decimal Equipment	2
89B2-128	8x32	SW, Single	#1 ESS Universal Trunk (PLTS 01-16) When UT Frame is cabled via an IDF	2
89B3-128	8x32	SW, Single	#1 ESS Universal Trunk (PLTS 01-16) When UT Frame is cabled directly to HMDF	2
*89C1-100	8x25	Quick Clip, Single	Trunk & Special Services (Decimal)	1
*89C1-128	8x32	Quick Clip, Single	Trunk & Special Services (Octal)	1
*89D1-50	4x25	Quick Clip Bifurcated	Decimal Equipment - (Strapped 8x25 Terminal Field)	1
*89D1-64	4x32	Quick Clip- Bifurcated	Octal Equipment - (Strapped 8x32 Terminal Field)	2

*Indicates block has been rated A&M

NOTES:

1. 89A5-96 is rated MD and replaced by 89A4-96.
2. 89A2-64 is rated MD and replaced by 89A1-64.
3. Type I has the vertical fanning strip located on the left side of terminal field, Type II has a horizontal fanning strip located at the bottom of the terminal field.

TABLE-A
BRIEF DESCRIPTION AND USE OF BLOCKS
(PAR. 1.2)

3. CABLING

3.1 Cables shall enter into the distributing frame horizontal or vertical sides in accordance with the standard cable plan drawing for that particular type of distributing frame involved. For example, use ED-92879-11 drawing for a common System MDF. For a listing of other cable plan drawings for other type of distributing frames refer to Handbook 8, Section 340. For special applications, refer to the job specification, notes and drawings.

3.2 Any one cable may be spread across 120 inches (15-8" verticals) of a distributing frame horizontal shelf, therefore, any cable entering the horizontal side from the vertical side, either from above or below, should be butted at the approximate center of the group of connecting blocks being served, or in accordance with the applicable systems method of cabling drawing.

4. BUTT LOCATION

4.1 For ease of cable handling, it may be expedient to butt and strip the cable(s) prior to mounting the connecting blocks. The cable(s) should be butted, stripped, and secured to the transverse arm in a standard manner and at the location shown on the method of cabling drawing.

4.11 Be sure the end of the cable extends at least 22 inches (min.) beyond the bottom edge of the farthest 89-block being served. This 22 inches of slack is necessary to accommodate the fan, form, and connect operations.

5. FAN AND CONNECT

5.1 General

5.11 After the connecting blocks have been mounted on the D.F., feed the cable leads through the housing in the following manner:

A. When the blocks are mounted in a horizontal position, feed the cable leads into the lower left (facing D.F.) cable entry opening. Be sure the leads extend out at least 22 inches beyond the lower back edge of the housing. See Figure 1.

B. When the blocks are mounted in a vertical position, feed the cable leads into the top left (facing D.F.) cable entry opening. Be sure the leads extend out at least 22 inches beyond the left back edge of the housing.

5.12 There are two basic types of connecting blocks to be considered prior to fanning the cable leads. They are: Type I - When the block is open (rotated 180°) to the cable lead connecting position, the fanning strip is located on the left side of the terminal field when mounted in a horizontal position, or it is located at the top of the terminal field when mounted in a vertical position. Type II - When the block is open (rotated 180°) to the cable lead connecting position, the fanning strip is located at the bottom of the terminal field when mounted in a horizontal position, or it is located on the left of the terminal field when mounted in a vertical position.

5.2 TYPE I

5.21 Bring the cable leads into this type block in the manner described in Paragraph 5.11, being sure there is at least 22 inches of slack. Then separate and identify the cable binders prior to the skinning operation.

5.211 After the binders have been separated and identified, they should be measured and skinned for wire wrapping on a per binder basis; i.e., the leads from any given cable binder should not vary more than 5" after being terminated. This method will leave approximately 12" of slack to make the form within the connecting block housing. This slack is required to properly form the cable leads prior to block closure.

5.212 To further explain Paragraph 5.211, we will use as an example a 262A (100 pair, 24Ga) cable being terminated on 89A1-100 Connecting Block. The skinner length of each binder, measured from the bottom edge of the block (see Figure 2) should be as follows:

<u>Binder</u>	<u>Serving Rows</u>	<u>Skinner Length</u>
Blue	1-5	14" + Shinner
Orange	6-10	15-1/4" + Shinner
Green	11-15	16-1/2" + Shinner
Brown	16-20	17-3/4" + Shinner
Slate	21-25	19" + Shinner

5.22 After the first binder (blue) has been skinned to the proper length (refer to Paragraph 5.212), start terminating the cable leads per the connecting sheet information. Remember that when the block has been rotated 180°, the circuit numbering will be reversed top to bottom (horizontal side) or right to left (vertical side).

5.221 The 89B2-100 Connecting Block has created some confusion when mounted on the vertical side of the distributing frame. This Type I Block is used for outside plant cable termination, and the cable leads feed through the fanning strip located at the top of the terminal field and terminates pairs from the top down. Refer to Figure 3.

5.23 After the first pair of leads has been connected to their respective terminals, dress that pair of leads into the fanning strip slot. If the cable pair is either 24 or 26 gauge wire, fan the pair of wires between the two rows of terminals being utilized and connect and dress one lead up and the other lead of the pair down. See Figure 4. This method eliminates unnecessary pair splitting. However, this cannot be done with 22 gauge wire, because it will cause excessive congestion in the fanning strip slot area. Therefore, each pair of leads must be split beyond the fanning strip and fed into separate slots on a per row basis. See Figure 5.

5.231 Continue to terminate and dress all cable leads until the connecting block is completely wired, and then proceed with the cable lead forming and protection operation.

Note: When the fanning strip slots become congested due to the excessive use of 22 gauge cable leads, 22 gauge "P" wire or other heavy insulated wires, the fanning strip slots should be closed off by lacing or banding them closed with twine.

5.3 Type II

5.31 Bring the cable leads into this type of block in the same manner described in Paragraph 5.12, being sure that there is at least 22 inches of slack. Then separate and identify the cable binders prior to the skinning operation.

5.311 After the first pair of leads has been connected to their respective terminals, dress that pair of leads down through the proper fanning strip slot and then toward the left side (horizontally mounted). See Figure 6. Each two vertical terminal rows utilize one fanning strip slot. Proceed to connect and dress all leads down and to the left until the block is completely wired, (see Figure 7) and then proceed with the cable lead forming and protection operation.

6. LEAD FORMING

6.1 TYPE I - Be sure all leads are dressed through their respective fanning slots and are formed down tight between the fanning strip and the metal cable lead protection strip. Then using PVC tape, half-lap a two inch area of the cable form starting just below the bottom row of terminals and running down below the lower edge of the terminal field. Place an R-4265 L-1 Mini-Tie through the hole located just below the fanning strip, then wrap the tie around the taped portion of the form and cut-off using the R-4827 Cable Tie Fastening Tool.

6.11 Take up the excess slack below the taped area and form it into a tight "U" shaped form. See Figure 5. Then place two bands of twine or nylon cable ties around the form to retain the shape.

6.2 TYPE II - Be sure all leads are dressed down through their respective fanning slots and back toward the left side (horizontally mounted). Then using PVC tape, half-lap a two inch area of the cable form starting just below the bottom row of terminals and running down below the lower edge of the terminal field. Place a R-4256 L-1 Mini-Tie through the hole located on the far left side. Then wrap it around the taped portion of the form and cut-off using the R-4827 Cable Tie Fastening Tool.

6.21 Take up all the excess slack below the taped area and form it into a tight "U" shaped form (see Figure 8), and the two bands of twine or nylon cable ties around the form to retain this shape.

7. PROTECTION

7.1 After the Type I or II Connecting Block Forms have been shaped and banded per Paragraph 6.11 or 6.21, the form shall be protected from the terminal ends when in a closed position.

7.11 Depending upon the size of the form, cut a piece of EM-552452 (1-1/2" Dia.) or EM-552448 (1" Dia.) Tubing about 5-6 inches long and slip over the end of the banded form, being sure the tube fits snug. When the tubing does not fit snug, slit the tube lengthwise and secure in place with two bands of twine or cable ties, 1/64 inch sheet fiber (EM583101) may be cut and wrapped around the form in place of the tubing. It must be secured in place in the same manner. See Figures 9 and 10.

8. STRAPPING

8.1 The terminals of the 89-Type Blocks should be strapped in the following manner:

- A. Straps should run parallel to the incoming leads where feasible.
- B. Strap perpendicular to the incoming leads on non-adjacent terminals using either BU or BW insulated wire straps.

C. Strap perpendicular to the incoming leads on adjacent terminals using either BU or BW insulated straps or bare wire straps.

9. JUMPER WIRE TERMINATION

9.1 The DT22P (IPVC) Jumper Wire or other wire specified by the Operating Company, can be terminated on the solderless wrap terminals with the R-3278 Hand Wrap Tool or any other standard wrapping tool. However, to terminate this wire on the quick-connect terminals, a 756B2 or 756D Insertion Tool is required. To remove a jumper wire from the quick-connect terminal, a R-3795 (724A) Removal Tool should be used.

9.11 Do not terminate more than one wire in a single clip quick connect terminal. One connection will dislodge the other and cause an open.

10. CLOSURE

10.1 Release the rotation stop spring and carefully fold the protected form back into the block housing. Check to be sure the tubing protects the cable form from the ends of the terminals, and that it does not extend above the jumper wire entry openings at the back of the block housing. If it does, push it down so it does not interfere with the jumper running operation. Check the taped area that has been secured to the top (closed) flange of the terminal field and be sure it is pushed down as far as possible into the housing.

10.2 When the terminal field has been fully rotated into the closed position, the cable form will push out the rear of the housing 2-3 inches. Be sure this protrusion does not interfere with any jumper running operation. If it does, place a band or two of twine or cable ties around the form and secure out of the way.

11. VERIFICATION ITEMS

Verification Items and Brief Statement		Reference	
		Para. No.	Fig. No.
11.1	Lace fanning strip cable slots when congested with excessive 22 Ga. wire.	1.31	
11.2	Cable leads brought in through lower left opening when mounted horizontally.	5.11a	1
11.3	Cable leads brought in through top left opening when mounted vertically.	5.11b	
11.4	Slack is necessary to properly form the cable leads.	5.211	2
11.5	22 Ga. cable leads split and fanned into separate slots.	5.23	5
11.6	Leads formed down tight between the fanning strip and metal protection strip tape about 2 inches of form (Type I).	6.1	5
11.7	Tape about 2 inches of form (Type II).	6.2	8
11.8	Cable form protected before closure.	7.1	9,10
11.9	Protection snug or secured in place.	7.11	9,10
11.10	Strap in following manner: A. Run parallel to incoming leads where feasible. B. Strap perpendicular to incoming leads using BU or BW insulated wire (nonadjacent terminals). C. Strap perpendicular to incoming using BU or BW insulated wire or bare straps (adjacent terminals).	8.1	
11.11	Do not terminate more than one wire in a single clip quick-connect terminal.	9.11	
11.12	Be sure cable form does not interfere with jumper running - if so, band and secure out of the way.	10.2	

→ Indicates new or changed information
 [Bracket at side of paragraph indicated requirement

Engineering Planning Manager
 (Installation)

ATTACHMENT

Figures 1 through 10

Reason for Reissue:

Revise Paragraphs 6.1 and 6.2.
 Also revision of Fig. 3.

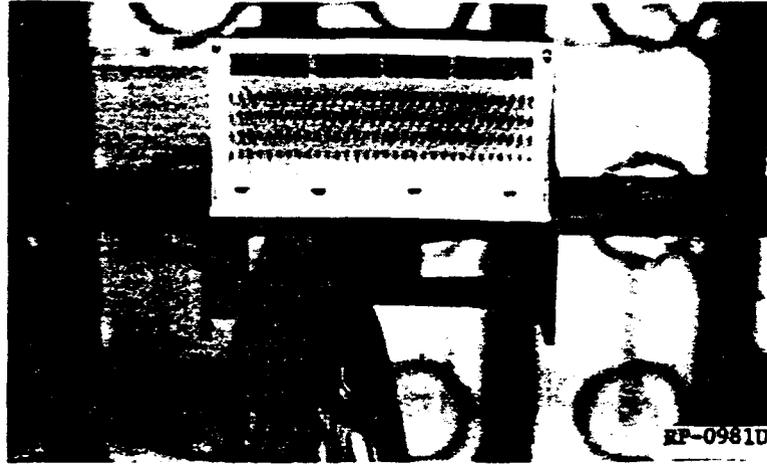


FIG. 1 LEADS ENTER LEFT OPENING
(PAR. 5.11a)

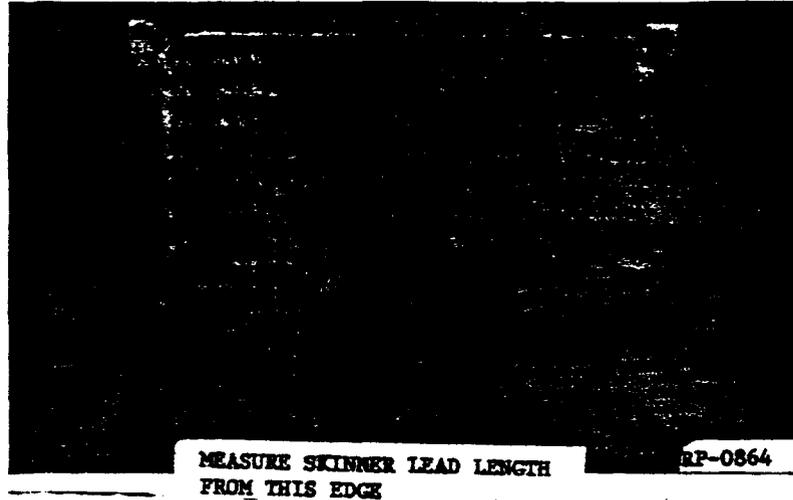
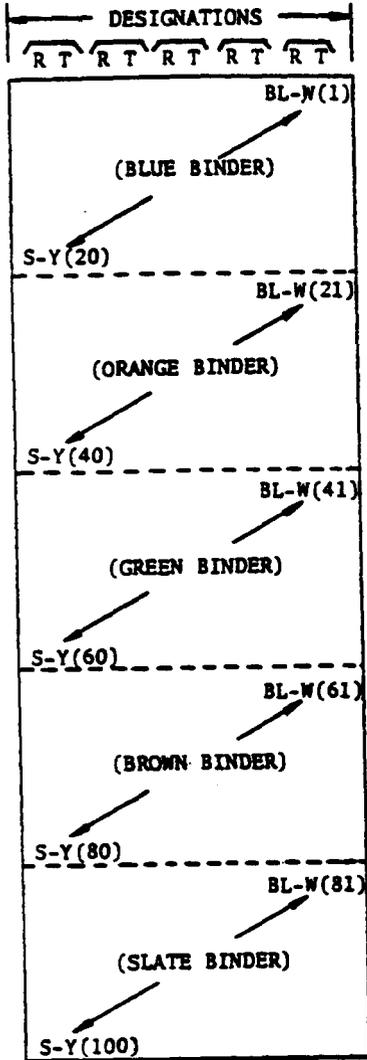
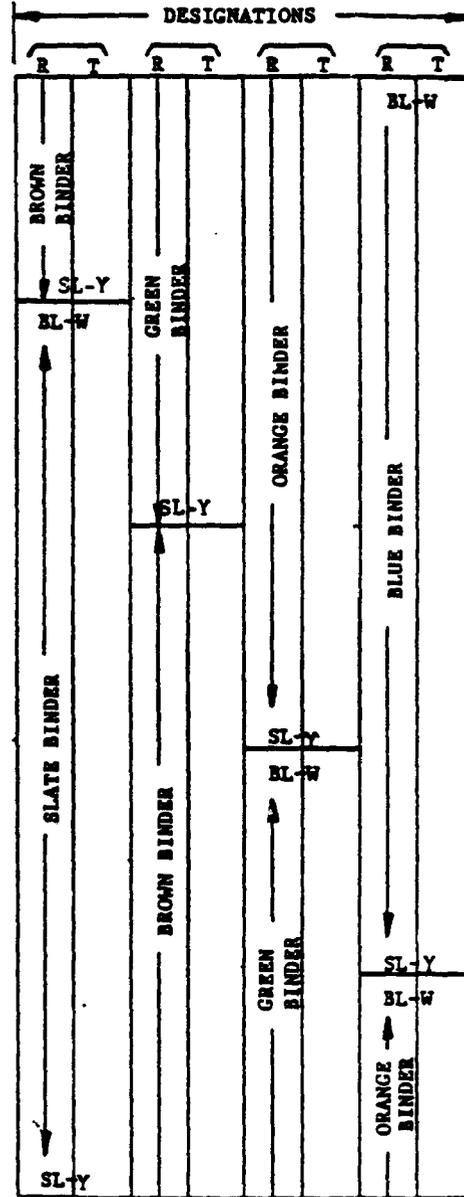


FIG. 2 POINT OF MEASURE
(PAR. 5.212)



(A)



(B)

RP-0981V

NOTE: THIS SHOWS A 89B2-100 BLOCK MOUNTED VERTICALLY IN AN OPEN (CABLE SIDE) POSITION AND A TYPICAL LAYOUT FOR A 100 PAIR (806A) CABLE. BOTH HORIZONTAL (A) AND VERTICAL (B) CABLE LAYOUT IS SHOWN. REMEMBER THESE ARE ONLY TYPICAL - REFER TO JOB CABLE CONNECTING DOCUMENTATION.

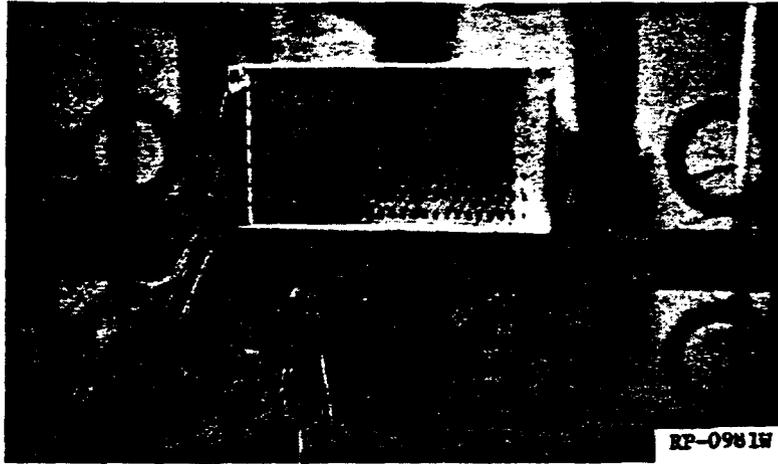


FIG. 4 CABLE LEADS DRESSED UP AND DOWN
(PAR. 5.23)

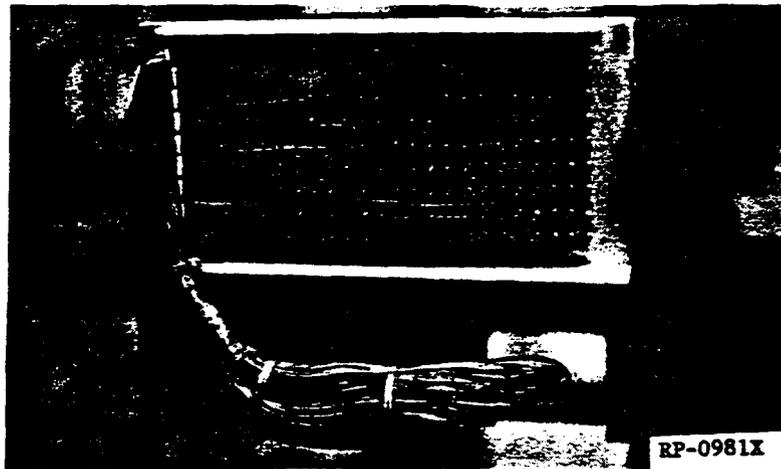


FIG. 5 CABLE LEADS SPLIT/ROW AND
PROPER CABLE LEAD FORMING
(PARS. 5.23 AND 6.11)

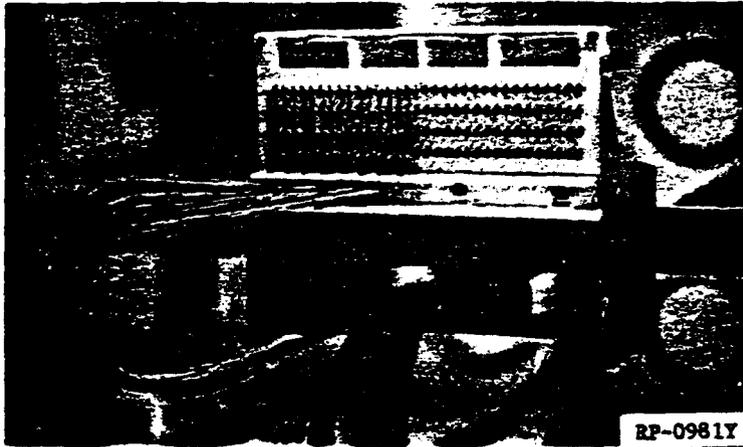


FIG. 6 CABLE LEADS DRESSED TO LEFT SIDE
(PAR. 5.311)

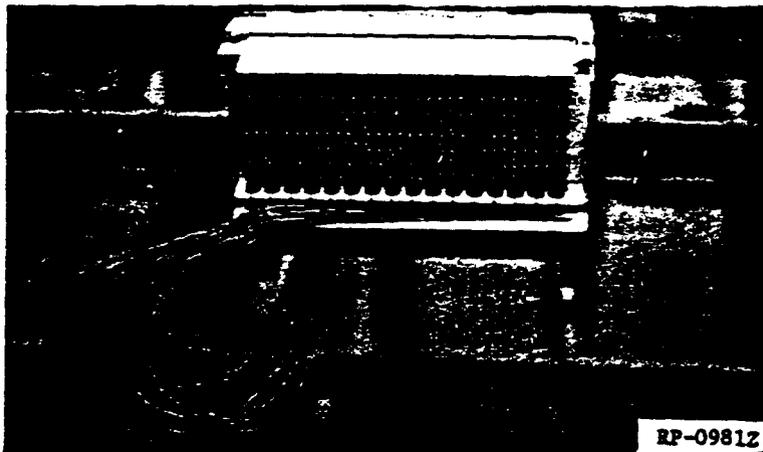


FIG. 7 TYPE II BLOCK COMPLETELY TERMINATED
(PAR 5.311)

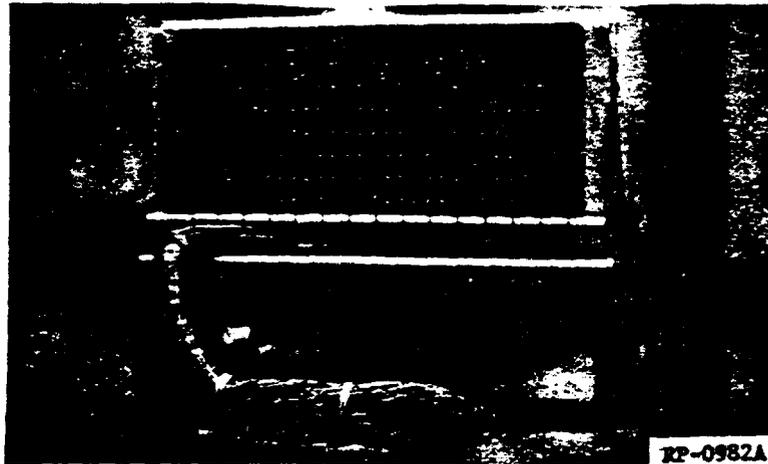


FIG. 8 CABLE FORM FOR TYPE II BLOCK
(PAR. 621)

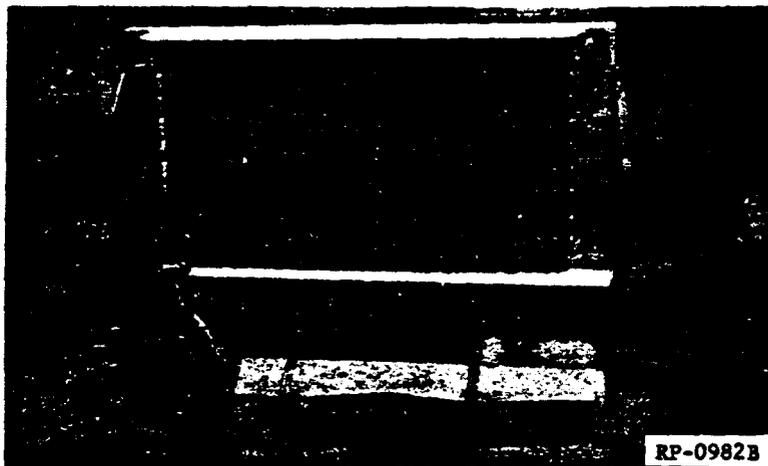


FIG. 9 FORM PROTECTED WITH CUT FIBER
(PAR. 7.11)

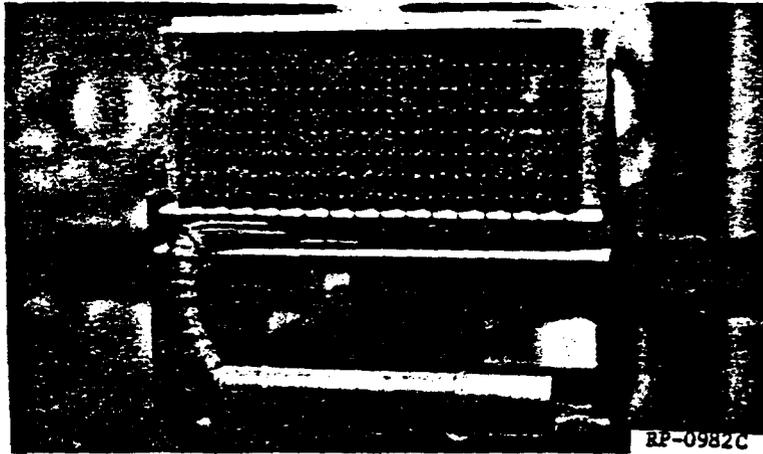


FIG. 10 FORM PROTECTED WITH SPLIT
PVC TUBE (PAR. 7.11)