

DROP AND BLOCK WIRING X MULTIPLE DROP WIRE

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1. GENERAL

1.01 This Section provides information on X Multiple Drop Wire and is reissued to revise Table 1.

1.02 X Multiple Drop Wire is designed for making multiple drop connections to: Multiple family dwellings, small PBXs, and multiple pay stations.

2. DESCRIPTION

2.01 X Multiple Drop Wire consists of six pairs of 22 gauge polyethylene insulated conductors which are spiralled and laid parallel to a 109H steel support wire. Both the conductors and support wire are jacketed with a black P.V.C. Compound. These two jackets are joined by a thin web so that the two units may be readily separated without damage to the jacket of either unit. A slitting cord is provided to facilitate the removal of the jacket covering the conductors.

NOTES:

1. P.V.C. JACKET
2. RIP CORD
3. 109H STEEL SUPPORT WIRE
4. COLOUR CODED PAIRS

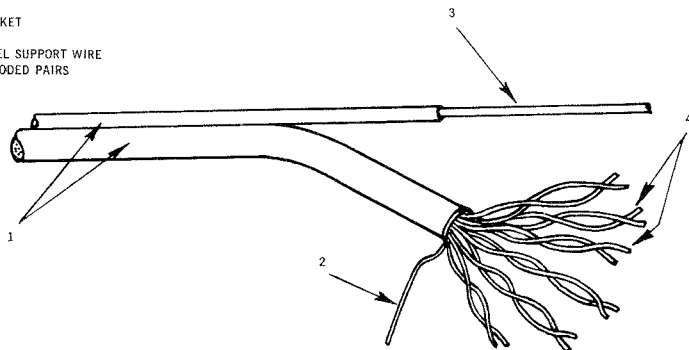


Fig. 1 — X Multiple Drop Wire

SECTION 462-500-900CA

- 2.02** The following table indicates the colour-coding of the X Multiple Drop Wire pairs.

X MULTIPLE DROP WIRE

<u>Pair No.</u>	<u>Tip</u>	<u>Ring</u>
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Slate
6	Red	Blue

- 2.03** The X Multiple Drop Wire is a self-supporting type of wire which can be supported by means of 109 Preformed Wire Grips in a span up to 150 feet in length. The minimum breaking strength of the X Multiple Drop Wire is 1200 lbs. The wire weighs 77 lbs. per 1000 feet.

3. ASSOCIATED MATERIALS AND APPARATUS

- 3.01** Materials and apparatus required in connection with the installation of Multiple Drop Wire as covered in this Section, are listed below:

<u>Material or Apparatus</u>	<u>Use</u>
Grip, Wire Preformed 109	For supporting the wire at deadends and span attachments.
Block Wire Light	For pulling the wire to proper tension and snubbing it.
116C Protector	A 6-pair fuseless station protector for outside mounting.
117B Protector	A 6-pair fuseless station protector for inside mounting.
104B Wire Terminal	A 6-pair wire terminal similar to the 116C Protector but without protectors.
B Drive Hook	Pole attachment
S Porcelain Knob; Angle Screw; House or Corner Bracket; Drop Wire Hook	First building attachment (See Section 462-350-213 for method of attachment).
No. 12 Cable Clamp	For second and last building attachments. May also be used as intermediate attachments.
5/8" Drive Ring	For intermediate building attachments.
No. 10 Ground Wire	For grounding the Protector.

4. STRINGING SAGS

- 4.01** Table 1 gives the minimum sags to which X Multiple Drop may be strung to obtain the necessary ground clearance.

TABLE 1

Minimum Stringing Sags for X Multiple Drop Wire Stringing (60°F.)

<u>Span Length</u>	<u>Sag</u>	<u>Tension</u>
100 ft.	1' 7"	60 lbs.
125 ft.	2' 6"	"
150 ft.	3' 7"	"

4.02 Pay out multiple drop wire in pole-to-pole, and pole-to-house spans, in the manner prescribed for drop wire.

4.03 Pull multiple drop wire to required sag at the pole using the Light Wire Block equipped with a Buffalo Grip and Swivel Hook. Proceed as follows:

- (a) Suspend the hook of the Light Wire Block on the drive hook placed in the pole. Pull the wire hand tight, and secure temporarily.
- (b) Remove the jacket from the support wire where the Buffalo Grip is to be placed.
- (c) After placing the Buffalo Grip, pull the wire up to the required sag, and hold by tripping the Light Wire Block.
- (d) Position the preformed wire grip on the support wire (after jacket has been removed) so that it may be placed on the drive hook.

(e) Remove the light wire blocks, and apply one half-looped layer of vinyl tape over exposed support wire and conductors.

5. REMOVAL OF P.V.C. JACKET

5.01 The P.V.C. Jacket may be removed from the support wire by using the Inside Wiring Cable Stripper. The cable stripper will remove a strip of the jacket enabling the support wire to be pulled out of its covering.

5.02 A slitting cord is provided to slit the P.V.C. Jacket so that it may be removed from the conductors.

5.03 To separate the support wire from the conductor at terminating locations or for making building runs, slit the web for approximately 2 inches using diagonal pliers. To complete the separation, pull the support wire and conductors in a slow, steady manner in opposite directions; at right angles to the major cross-sectional axis of the wire (See Figure 4).

The slow, steady pull is especially important, to avoid cracking the jacket, when the temperatures are below zero.

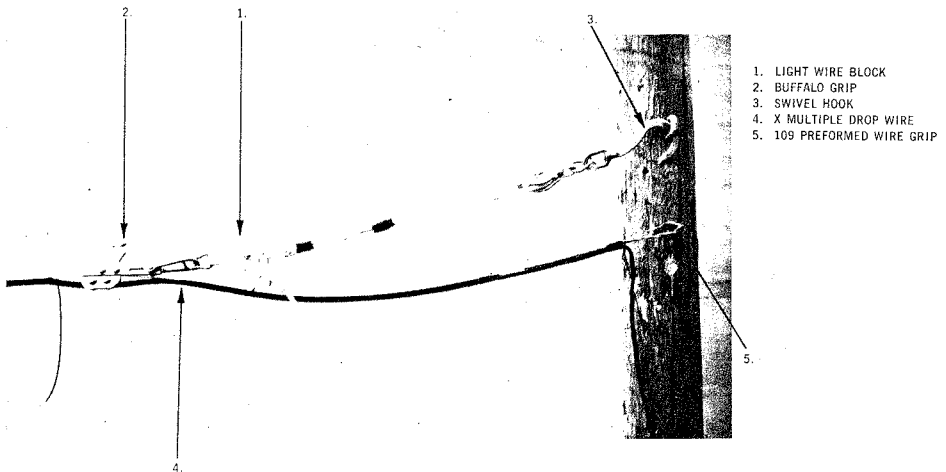


Fig. 2

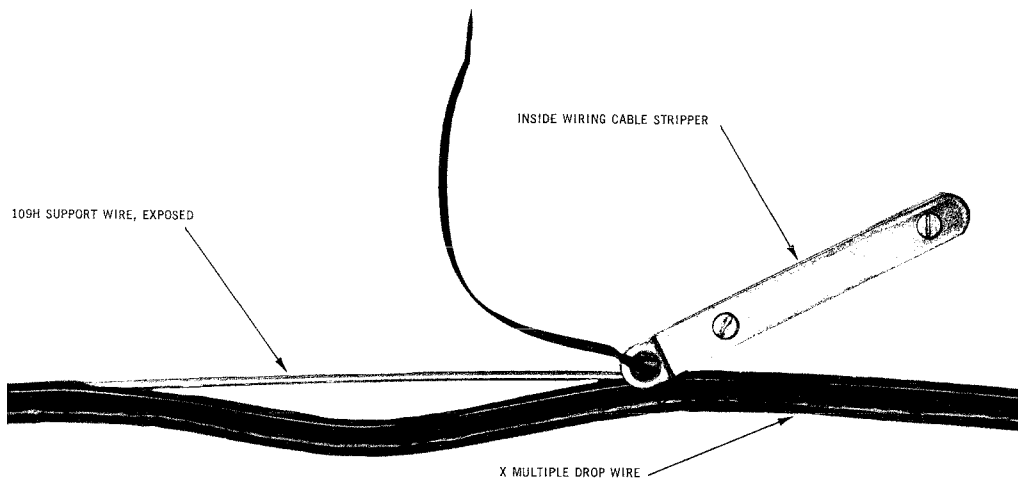


Fig. 3

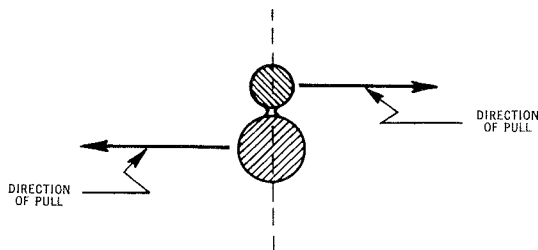


Fig. 4

6. PLANNING X MULTIPLE DROP WIRE RUNS

6.01 X MULTIPLE DROP WIRE MUST NOT BE USED TO SERVE SUBSCRIBERS PREMISES FROM OPEN LINE WIRE OR MULTIPLE LINE WIRE.

6.02 In planning Multiple Drop Wire Runs on building walls observe the rules outlined in Section 462-350-213. Particular attention should be given to the following suggestions:

(a) Select a location for the first attachment which will keep the drop wire clear of

trees. In some cases an adjacent building may be used for the first attachment as a means of avoiding trees.

(b) Locate ring runs with a view to permanency and accessibility. Avoid runs requiring the use of long ladders.

(c) Make all runs horizontal or vertical insofar as practical. Horizontal runs should be placed out of reach of the public, particularly children.

- (d) Locate wire runs with a minimum of obstructions.
- (e) Where necessary to cross or parallel electric wiring, rain spouts or other obstructions, the minimum separations covered in Section 620-220-011 for drop wiring should be observed.

6.03 Clearances over public and private swimming pools are not covered by Safety Codes or other practices. However, for reasons of safety, sanitation, and appearance, aerial drop wire crossing over swimming pools should be avoided.

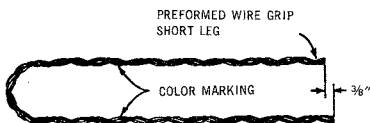
7. PLACING: BUILDING ATTACHMENTS

7.01 Place a building attachment, Drop Wire Hook, Angle Screw, House Bracket or Corner Bracket equipped with an S Porcelain Knob, (Section 462-350-213) — in a location that will keep the multiple drop clear of trees or other obstructions.

7.02 Separate the support wire from the conductors.

7.03 Use a 109 Preformed Wire Grip to terminate the support wire on the building attachment. The wire grip is composed of 3 preformed steel wires, assembled into a hairpin shape. The inner surface of the bore is coated with grit to increase the holding power. The legs are unequal in length to facilitate unwrapping. The crossover and starting point is identified by a yellow marking.

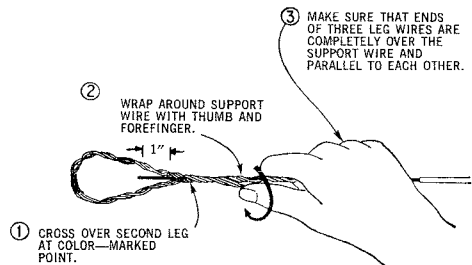
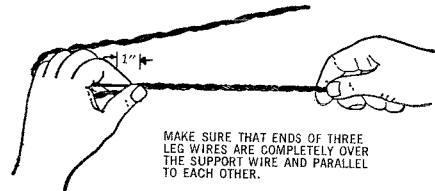
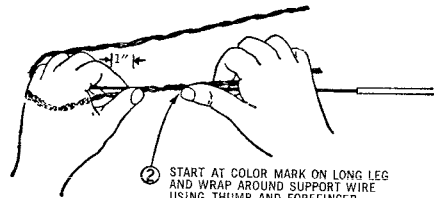
7.04 Place the 109 Preformed Wire Grip on the support wire as follows:



109 Preformed Wire Grip

- (a) Cut the support wire at the point of building attachment.
- (b) Remove 12 inches of jacket from the support wire and apply a 109 Preformed Wire Grip as shown in following illustrations.

Note: For the sake of clarity, the conductors have been omitted.



(c) Wrap 5 turns of Vinyl tape around the joined support wire and conductors at a point 2 inches beyond the end of the wire grip. The last turn should be laid on free from all tension so that the end of the tape will not start to curl back.

(d) Place the Preformed Wire Grip over the building attachment.

(e) Run the jacketed conductors to the building and secure them with a No. 12 cable clamp as shown in following:

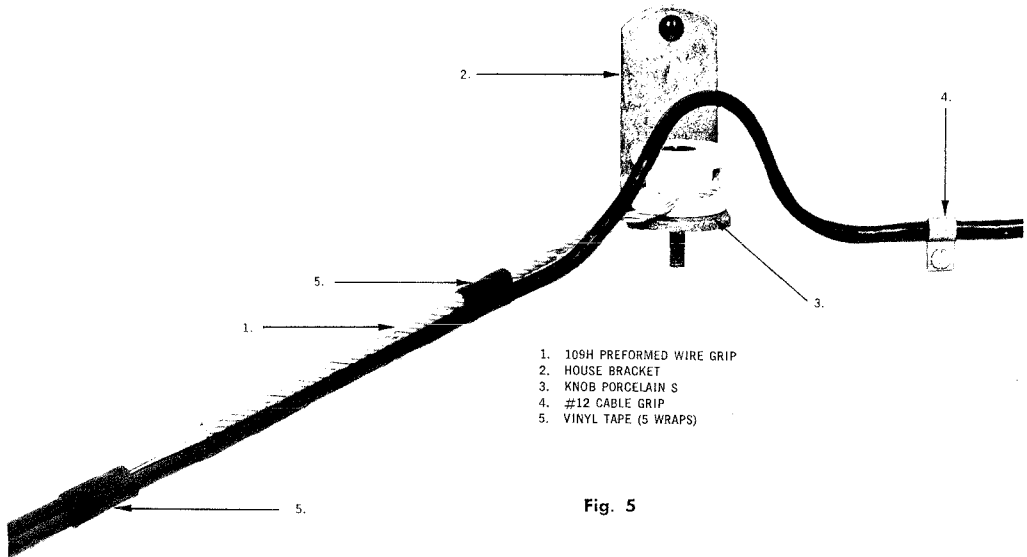


Fig. 5

7.05 Intermediate Building Attachments: Support wire with $\frac{5}{8}$ " Drive Rings spaced approximately 3 feet apart in horizontal runs, and approximately 6 feet apart in the vertical runs. Use larger size rings if more than one multiple drop wire is in building run or where individual wires parallel multiple drop wire run. Where a high level of appearance is of importance, attach wire runs along walls with No. 12 Cable Clamps spaced at reduced intervals when necessary.

7.06 Last Building Attachment: Place a No. 12 Cable Clamp on the multiple drop wire approximately 6 inches from point of entrance to protector, wire terminal or building after pulling the wire taut in the building run.

7.07 Building Entrance: Provide a $\frac{3}{8}$ -inch hole when entering building with multiple drop wire. Slope entrance hole upward from outside, wherever practical. Tape wire and wedge tightly into entrance hold to avoid seepage of water between wire and building wall. Where it is not practical to slope entrance hole upward from outside, provide a 3-inch drip loop at entrance and tape and wedge wire tightly into entrance hole.

7.08 Typical wire run on outside building wall is illustrated below:

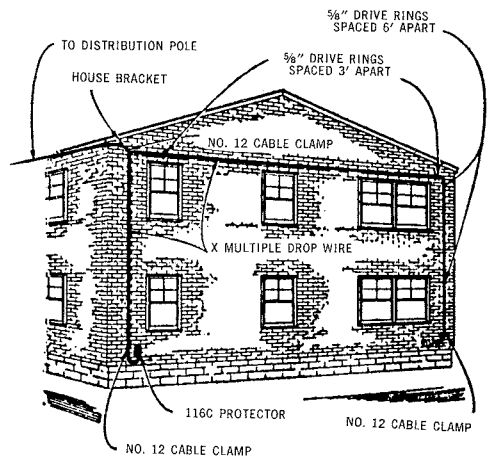


Fig. 6

Note: Use No. 12 Cable Clamps in place of rings where a high level of appearance is of importance.

7.09 Fasten multiple drop wire to building walls with a No. 12 Cable Clamp at the beginning and end of the run in order to maintain dress of wire in ring run.

8. PLACING: POLE AND SPAN ATTACHMENTS

8.01 Spans of X Multiple Drop Wire are supported at all dead ends and intermediate poles by the 109 Preformed Wire Grip. The grip is supported on poles by a Drive Hook and only one multiple drop wire shall be attached to a drive hook. Drive hooks shall be located and installed on poles in the same manner as prescribed for individual drop wires.

8.02 Where the placing of a multiple drop wire span interferes with climbing space on a jointly used pole, provide climbing space by distributing the drop wires from span clamps.

8.03 Pull the multiple drop wire up to its proper sag, cut the conductors and support wire, leaving enough slack in both so that the conductors may be terminated in the appropriate terminal and the support wire bonded to the strand.

8.04 Separate the jacketed support wire from the jacketed conductors to a point approximately 15 inches out from the pole attachment. Without cutting the support wire, remove the insulation and place a preformed wire grip. Attach the wire grip to the drive hook.

8.05 Wrap 5 turns of Vinyl tape around the joined support wire and conductors at a point two inches beyond the end of the wire grip. The last turn should be laid on free from all tension so that the end of the tape will not start to curl back.

8.06 Distribute the multiple drop wire in the manner described for individual drop wires. Bond the support wire to the suspension strand using a lashing wire clamp.

8.07 Where a span clamp is required, pull the multiple drop wire to the proper sag. Remove the jacket from the support wire for approximately 15 inches on either side of the point of attachment using the inside wiring cable stripper. Without cutting the support wire attach two preformed grips and hooks onto the clamp.

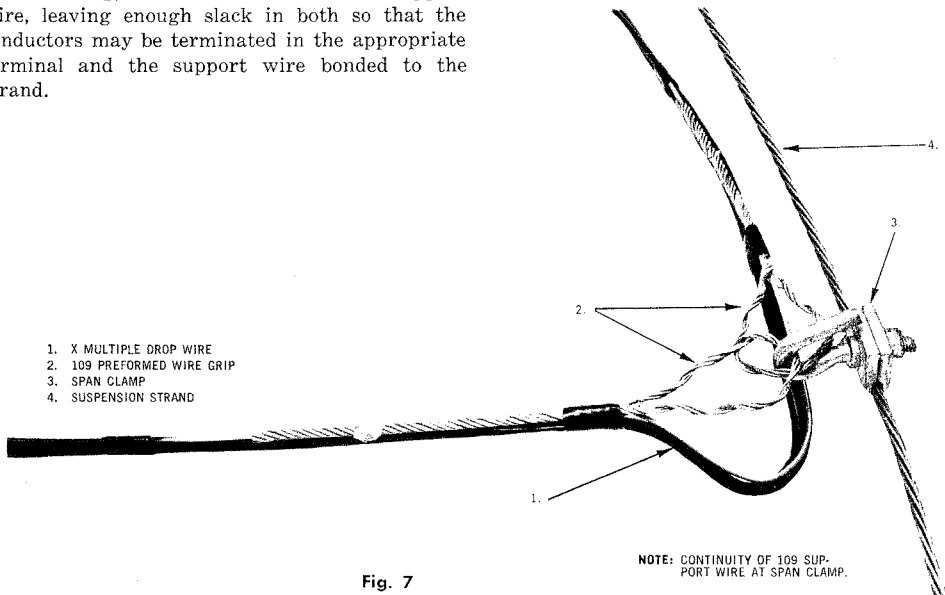


Fig. 7

8.08 Guards: To provide mechanical protection of wires on buildings or in the span, place the required lengths of P and B Wire Guards. The B Wire Guard will slide freely over the multiple drop wire and should be used where protection in a span is required. The B Wire Guard shall be held in place on X Multiple Drop Wire by taping each end of the guard to the wire, with one inch vinyl tape.

9. PROTECTION

9.01 The requirements for protection that apply to individual drop wires shall also be observed for X Multiple Drop Wire runs.

9.02 Where the cable requires 6 mil gap protection use the 116D Protector.

9.03 When a multiple drop wire extends into an exposed area the unexposed status of the feeder or distribution cable can be maintained provided the cable is effectively grounded and a 116C Protector (3 mil gap) is placed at the junction of the multiple drop wire and the unexposed cable. (See Section 638-200-200).

10. TERMINATING

10.01 X Multiple drop wire may be terminated at a building in a 6 pair wire terminal or in a 6 pair protector as follows:

(a) **No Station Protection Required:** Terminate wire on the outside wall or inside the building in a 104B Wire Terminal. Where appearance and wire would not be objectionable a 66Q3A50 Connecting Block may be used for terminations inside the building.

(b) **Station Protection Required:** Terminate wire on the inside of a building in a 117B Protector unless appearance of protector and wire would be objectionable; in which case terminate the wire on the outside of a building in a 116C Protector. *Terminate all pairs (working and non-working).*

Note: In addition to 116C or 117B Protectors, 60 type (sneak current) fuses are required on PBX trunks, tie lines and leased or special service lines, etc., as covered in the PBX Installation and Maintenance Practices.

10.02 When Wiring at a 116 Protector or 104 Wire Terminal proceed as follows:

(a) Where the protector or terminal is mounted horizontally insert the multiple drop wire into either end, leaving a 3 inch drip loop. (See Fig. 8).

(b) When the protector or terminal is mounted vertically insert the multiple drop wire through the bottom.

(c) Before placing the drop into the protector or terminal, remove the jacket from the conductors so that there will be 1 inch of jacket remaining on the conductors *inside* the housing. Use the Inside Wiring Cable Stripper to remove the jacket, taking care to avoid nicking the conductors.

(d) Dress the conductors of the X Multiple Drop Wire so that they will be close to the back of the housing. The individual pairs shall be terminated, (in accordance with the colour code outlined in Para. 2.02) under the bottom nut on each binding post.

10.03 Terminating at Cable Terminal.

(a) Run the jacketed conductors through the drive rings in the usual manner.

(b) Before placing the drop into the terminal, remove the jacket from the conductors so that there will be 1 inch of jacket remaining on the conductors *inside* the housing. Use the Inside Wiring Cable Stripper to remove the jacket, taking care to avoid nicking the conductors.

(c) Run the conductors along the back of the housing underneath any existing drops and against the terminal block.

(d) Run each pair of conductors through the appropriate hole in the fanning strip (if there is one) and terminate on the assigned binding posts by placing the conductor under the bottom nut on each binding post.

10.04 When a sufficient length of a pair in multiple drop wire is not available for retermination by shortening the run in the drive or terminal rings, the pair may be extended by using B Wire Connectors and a short length of X Multiple Drop Wire of the same colour code.

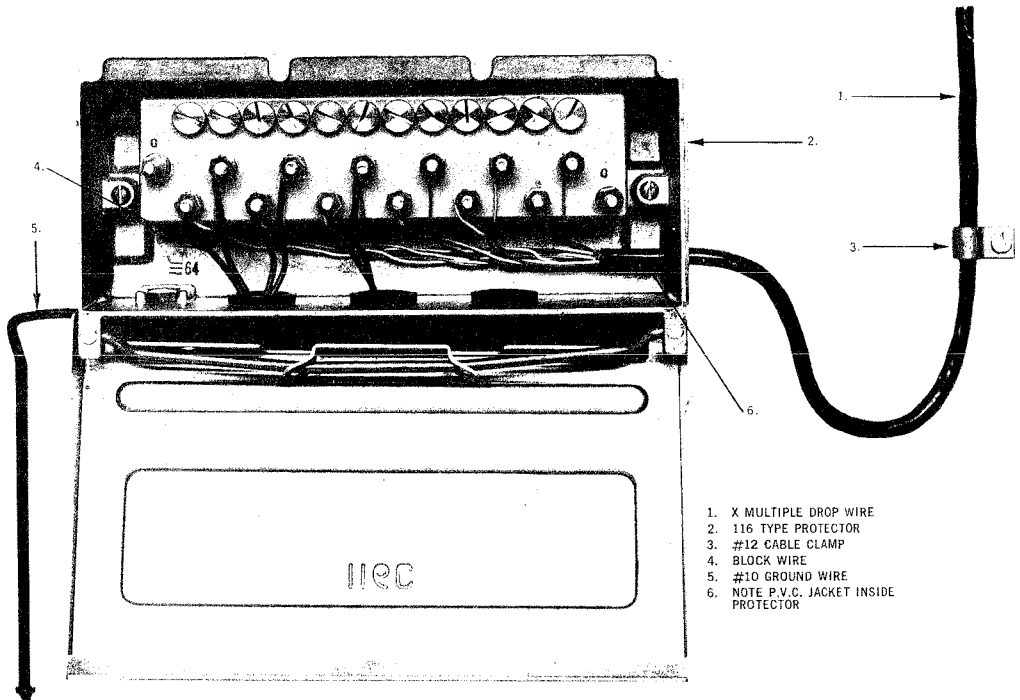


Fig. 8

10.05 Where a high rate of distributing cable pair changes is anticipated, such as in an apartment building, terminate the multiple drop wire in a 6 pair wire terminal and bridle between the wire and cable terminal.

11. SPlicing

11.01 Generally, because X Multiple Drop Wire installations are relatively short, it will be more economical to replace the section rather than make the splice, however, when splicing is necessary the procedure is as follows:

- Separate the jacket and support wire for a distance of 8 inches.
- Wrap 5 tight turns of F Vinyl tape around both the support wire and jacket at the end of the separation.
- Cut 2 inches off the end of the support wire. Remove sufficient covering from the end to allow placing an S-109H splice sleeve.

(d) Join the support wire using the S-109H splice sleeve pressed with the 31 Type Nicopress. Apply one-half lapped layer of F Vinyl tape over the sleeve, extending the tape 1 inch over the wire cover on each side.

(e) Remove 4 inches of the wire jacket. Care should be taken to avoid separating the tip and ring conductors.

(f) Join the conductors using NEB-Wire Connectors folding half the conductors to the left and half to the right. (See Fig 9).

(g) Complete the splice by placing 2 half-lapped layers of $\frac{3}{4}$ inch DR tape over the connectors, extending the tape 1 inch over the jacket. Cover the DR tape with one-half lapped layer of F Vinyl tape.

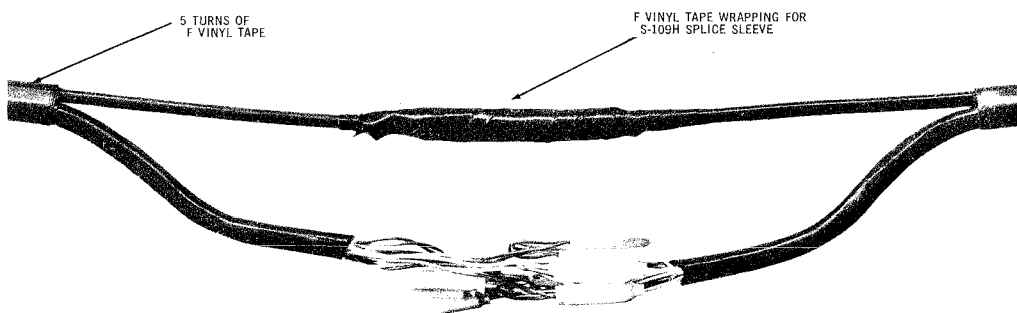


Fig. 9 — Spliced X Multiple Drop Wire