BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G33.107.3
Issue 2, April, 1958
AT&TCo standard

P1 CARRIER TELEPHONE SYSTEM
INSTALLATION AND WIRING OF NETWORKS

Contents **Page**

1. GENERAL

1.01 This section covers information on installation and wiring of the 482-type networks, sometimes referred to as filters, and the 562A filter. It has been rewritten to revise and expand the information in Issue 1 and cancels the addendum to Issue 1.

1.02 Parts 5 and 6 contain information on the F52441 autotransformer which has been temporarily substituted for the 482G network.

1.03 Detail plans or other instructions will specify the location and type of network to be installed.

1.04 In general, a bracket circuit on a joint use line should be transferred to a crossarm at network locations.

2. DESCRIPTION

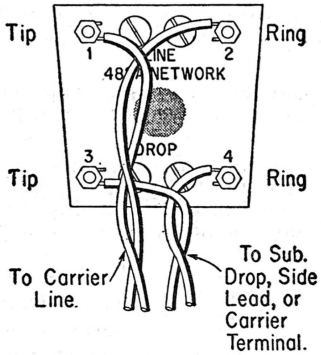
2.01 All networks and filters are furnished complete for crossarm mounting except for mounting screws or bolts. They are also equipped with 107B protectors. The 107B protectors should be replaced with 107D (dummy) protectors on the cable side of the voice-frequency branch through a 562A filter except where this branch is connected to open wire. Where the voice-frequency branch from a 482G network (or F52441 autotransformer) or a 562A filter connects to a pair in a

protected type cable terminal, replace the cable terminal protectors in this pair with 107D (dummy) protectors. This is illustrated in sketches in Part 4.

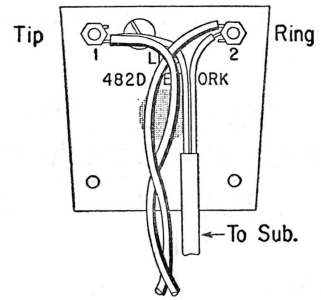
2.02 "Temp-Alarm" paint is applied to the face of each 482-type network and 562A filter. A color change from grey to red indicates the coils of the network have been damaged by foreign power on the telephone line wire.

2.03 The following networks and filters are used in the P1 carrier system when specified by detail plans or other instructions:

(a) 482A, B, or C, a low-pass network (carrier blocking), passes voice frequencies.



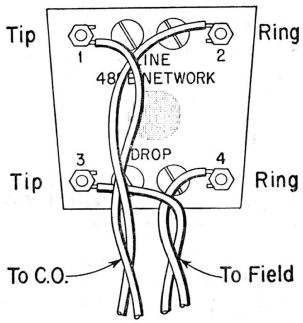
(b) 482D, a side lead terminating network, used in conjunction with a 482B network on long side leads.



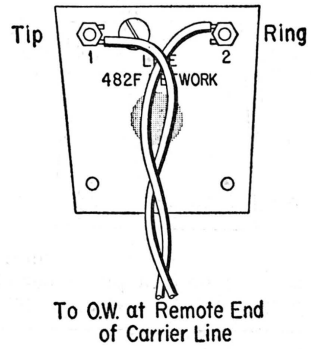
Install the 482A, B, C, or D network when specified in accordance with the following table:

Side Lead or Subscriber Drop Make-up	Network at Junction of Side Lead or Subscriber Drop and Main Line
Drop 0—250′ or combination of drop & OW not to exceed 0.01 uf	482A
Drop 250′—500′ or combination not to exceed 0.02 uf	482B
Drop 500′—1200′ or combination not to exceed 0.048 uf	482C
Drop over 1200′ or combination to exceed 0.048 uf	482B at jct. & 482D at end of side lead
Note: uf = microfarads.	

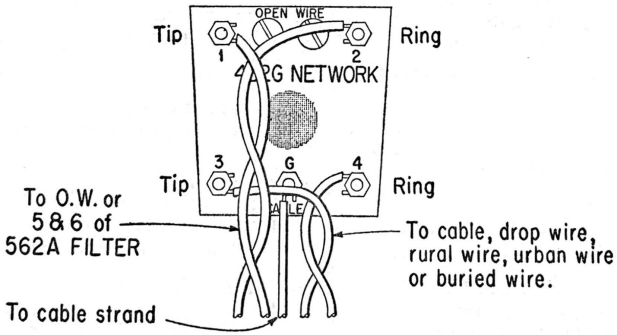
(c) 482E, a high-pass network (voice blocking), passes carrier frequencies and is used to sectionalize a line for filter distribution.



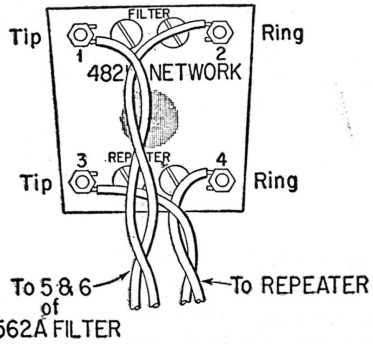
(d) 482F, a carrier line terminating network, is used at the last carrier terminal bridging point to terminate the line at carrier frequencies.



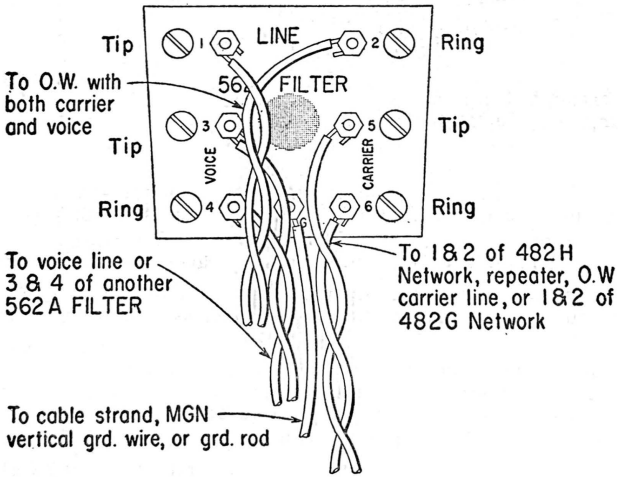
(e) 482G, an autotransformer, is used at the junction of cable, drop wire, rural wire, urban wire, or buried wire, and open wire facilities to match the impedances at carrier frequencies. Exceptions to this rule will be specified by the Plant Engineer.



(f) 482H, a phase shift equalizer, is used in conjunction with two 562A networks at a repeater location. In some cases, as specified by the Plant Engineer, these networks may be omitted.



(g) 562A, a junction filter, used at the junction of cable and open wire to combine a voice circuit on a loaded cable pair and a carrier circuit on a nonloaded cable pair. It may also be used at the junction of three open wire pairs to separate the voice and carrier circuits on one pair and place on separate open wire pairs. Two of these are used as a voice circuit bypass at a repeater location as illustrated in Part 4.



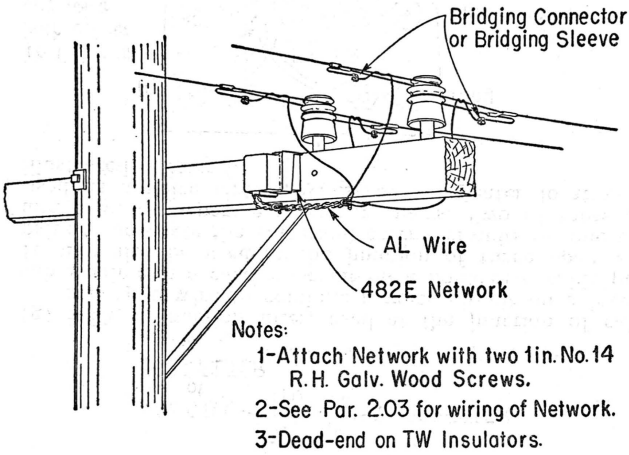
3. INSTALLATION

3.01 Locate networks or filters on the pole side of crossarm with lower edge about 1/4 inch above bottom of crossarm. Locate the first one to be placed between the first and second wires from the pole. Space additional ones about 3-1/2 inches apart.

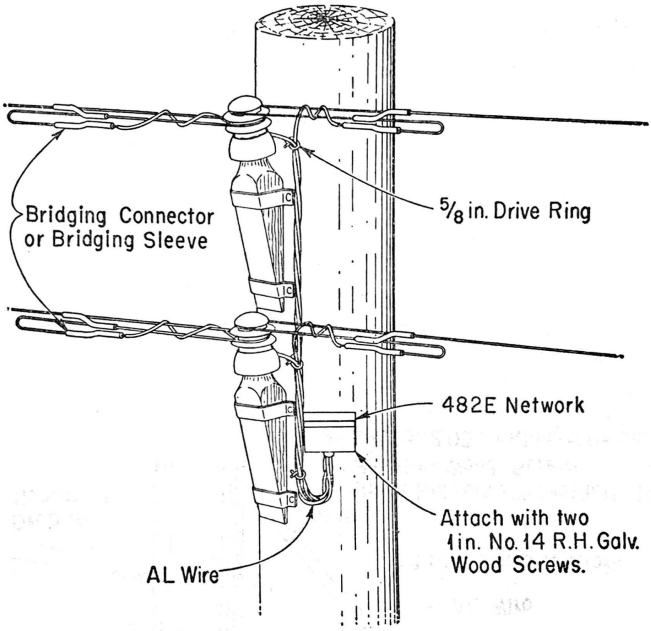
3.02 At high-pass (voice blocking) network locations, dead-end the line wire in both directions on TW insulators.

3.03 The following illustrations show typical mounting arrangements at network and filter locations:

(a) High-pass network located on crossarm and line wires dead-ended in both directions.



(b) High-pass network located on pole of bracket line and line wires dead-ended in both directions.

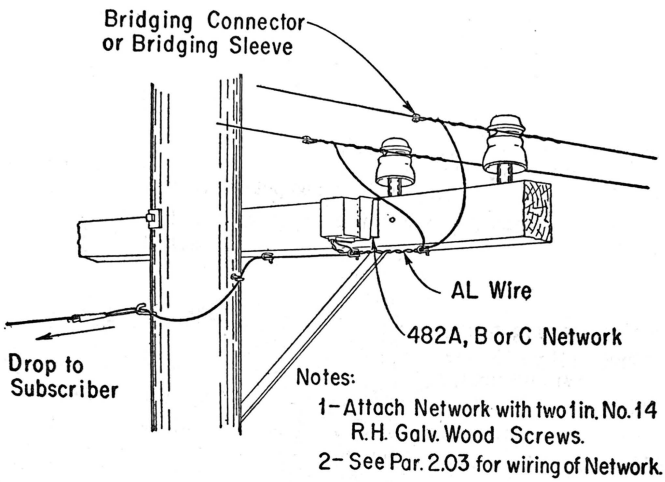


Notes:

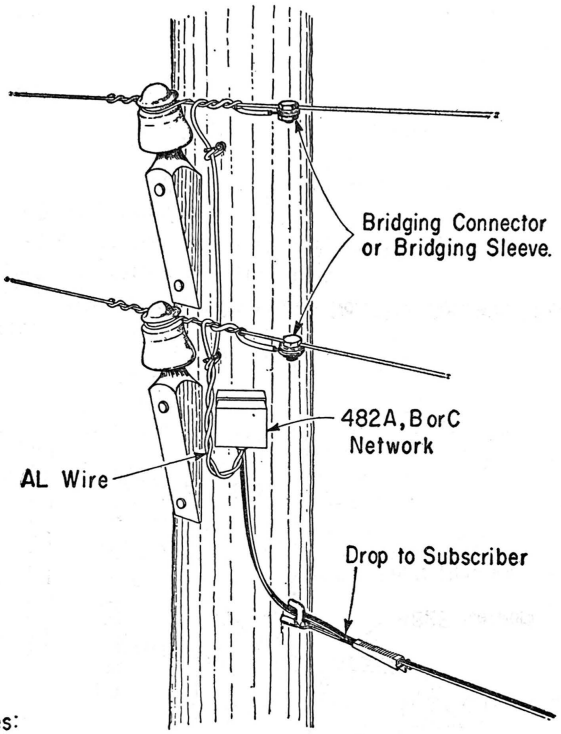
1- See Par. 2.03 for wiring of Network.

2- Dead-end on TW Insulators.

(c) Low-pass network located on a crossarm.

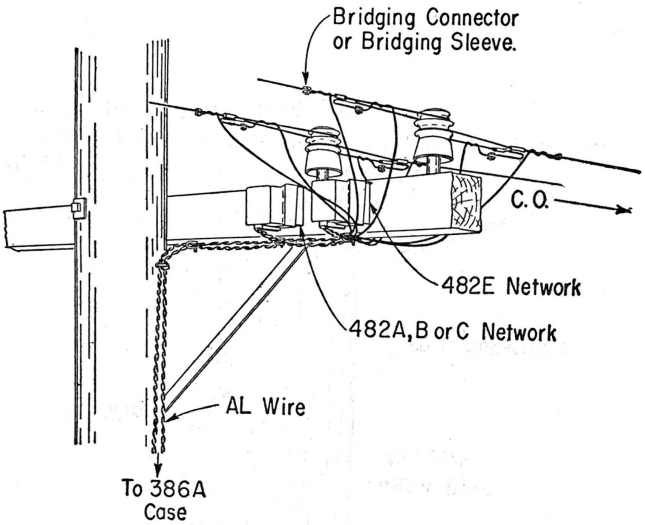


(d) Low-pass network located on pole of bracket line.



Notes:
1-Attach Network with two 1 in., No. 14 R.H. Galv. Wood Screws.
2-See Par. 2.03 for wiring of Network.

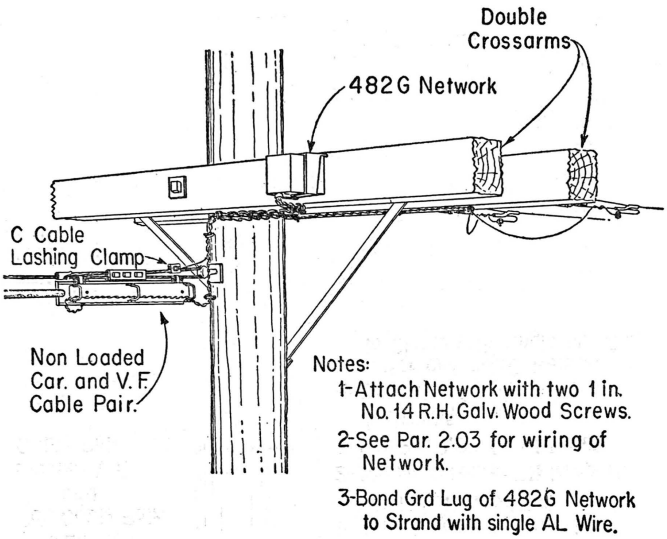
(e) High-pass and low-pass networks located on same crossarm.



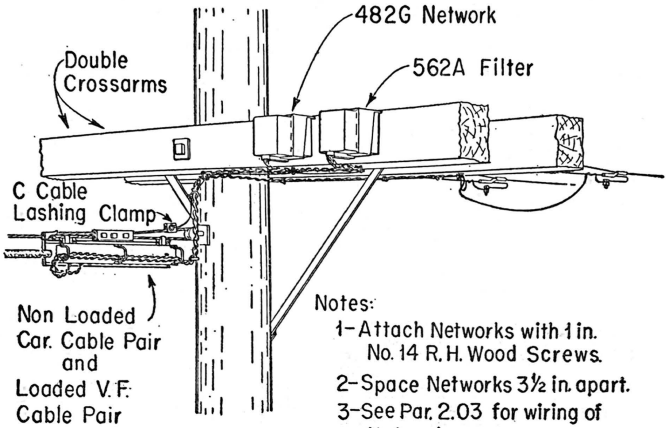
Notes:

1- Attach Networks with two 1 in. No. 14 R.H. Galv. Wood Screws.
2- Space Networks 3½ in. apart.
3- See Par. 2.03 for wiring of Network.
4- Dead-end on TW Insulators.

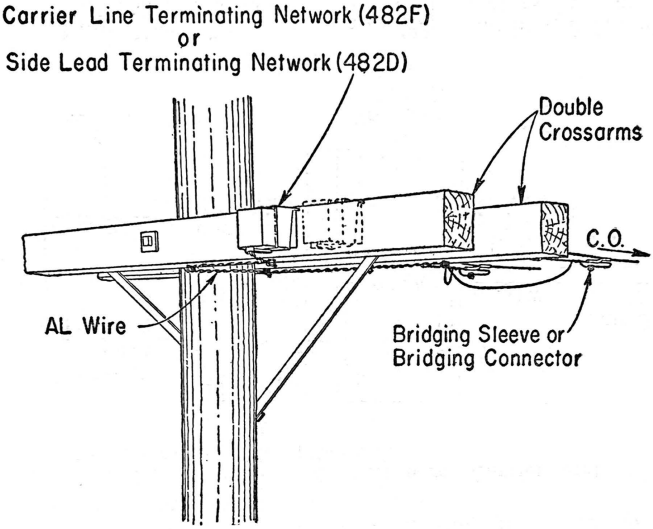
(f) 482G network (autotransformer) located on crossarm at junction of cable and open wire.



(g) 482G network (autotransformer) and 562A filter located on crossarm at junction of cable and open wire.



(h) 482D side lead terminating network or 482F carrier line terminating network located on crossarm.



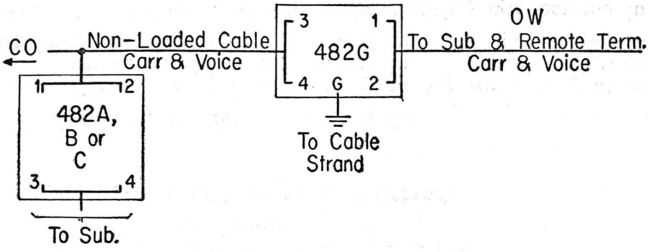
Notes:
1 – Additional Networks located 3½ in. apart.
2 – Network attached with two 1 in. No. 14 R.H. Galv. Wood Screws.
3 – See Par. 2.03 for wiring of Network.

4. WIRING, TYPICAL SITUATIONS

4.01 Use AL wire (single for grounds) for wiring at networks or filters. The single AL wire used for grounds may be run in rings with the circuit wires.

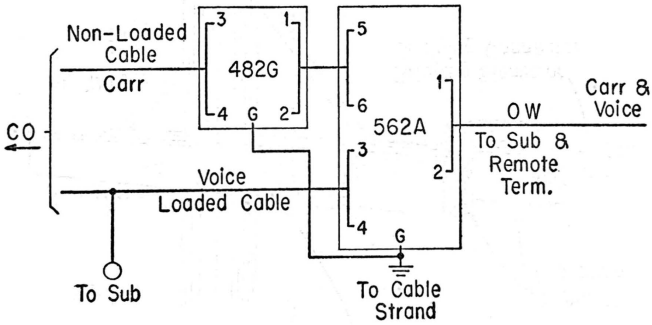
4.02 The following sketches show wiring connections in a schematic form for various uses:

(a) Junction of cable and open wire. Carrier and voice circuits on same cable pair.



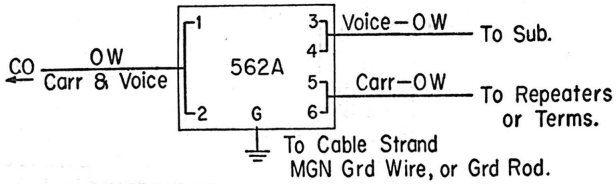
Note: Use 107B protectors in 482G. If 482G connects to a pair in a protected type cable terminal, replace cable terminal protectors in this pair with 107D (dummy) protectors.

(b) Junction of cable and open wire. Carrier and voice circuits on separate cable pairs.



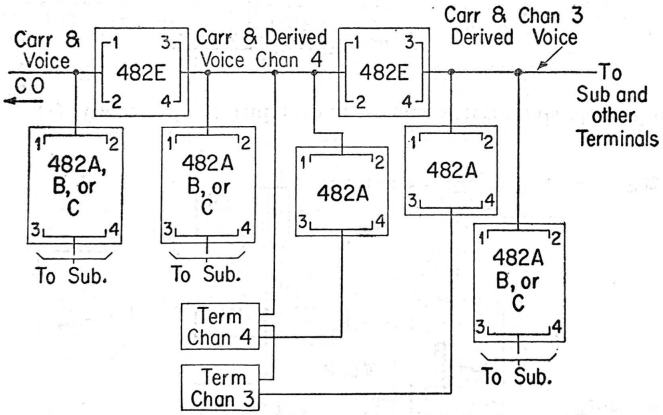
Note: Use 107B protectors in 482G, and in 1, 2, 5, and 6 of 562A. Use 107D (dummy) protectors in 3 and 4 of 562A. If 3 and 4 of 562A connect to a pair in a protected type cable terminal, replace cable terminal protectors in this pair with 107D (dummy) protectors.

(c) 562A filter used to separate carrier and voice circuits at open wire junction.

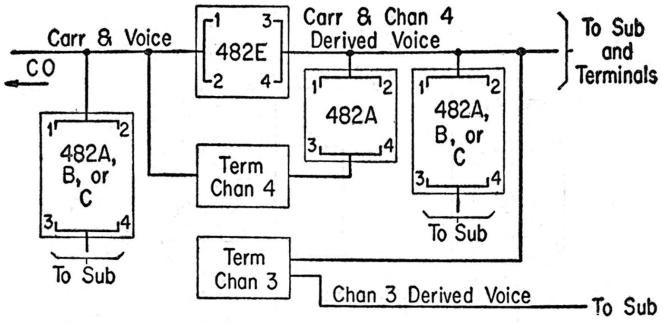


Note: Use 107B protectors in 562A.

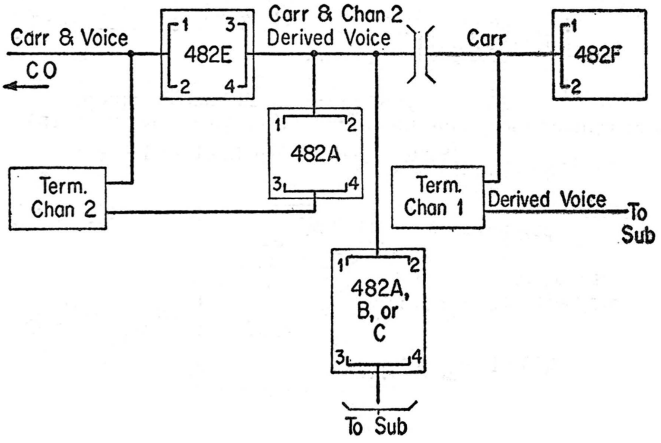
(d) Distribution of derived voice circuits from remote terminals on carrier lines.



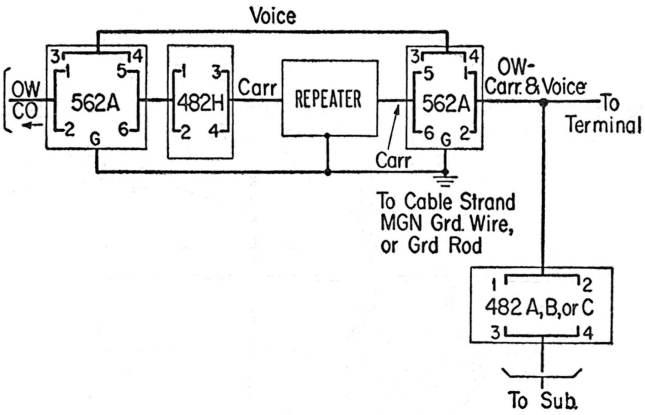
(e) Distribution of derived voice circuits from remote terminals on carrier lines and on other lines. (Channel terminals at different pole locations.)



(f) Carrier line termination for remote terminals along line.

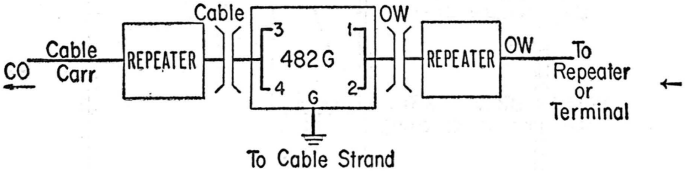


(g) Voice circuit bypass at repeater location.



Note. Use 107B protectors in 1, 2, 5, and 6 of 562A's. Use 107D (dummy) protectors in 3 and 4 of 562A's.

(h) Repeaters installed before and after junction of cable and open wire, no voice circuit.



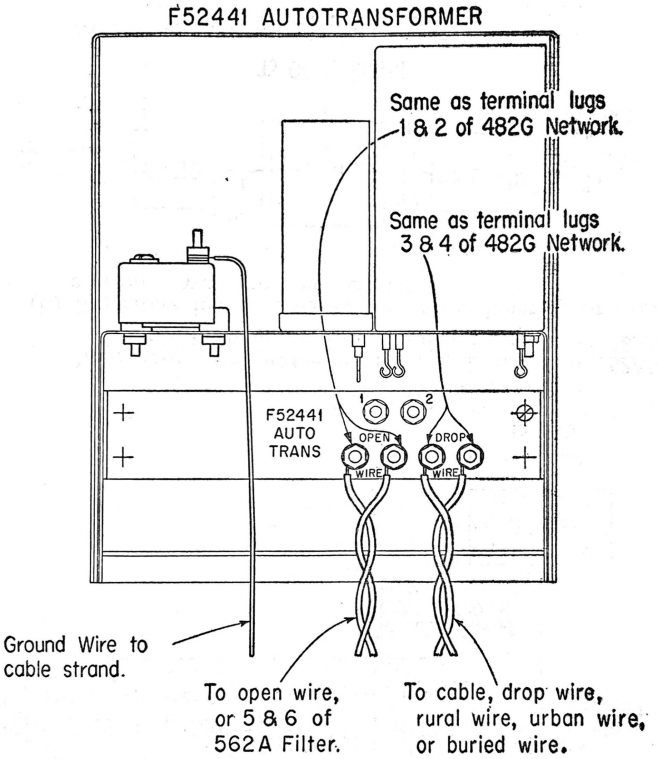
Note: Use 107B protectors in 482G.

5. F52441 AUTOTRANSFORMER

5.01 The F52441 autotransformer has been made available from existing components and may be used in place of the 482G network shown in Parts 3 and 4 until the 482G network becomes available.

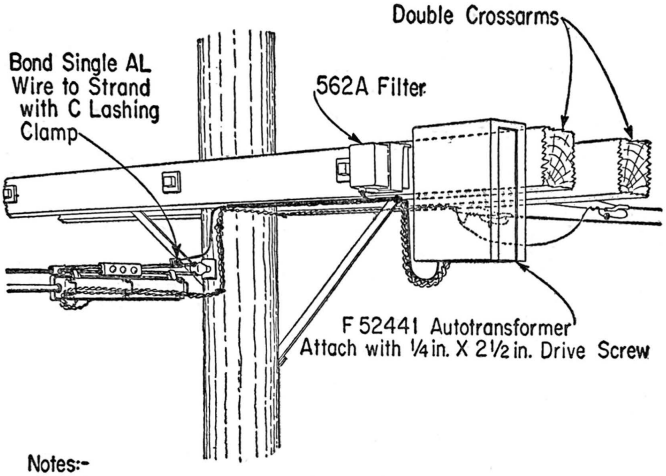
5.02 The weatherproof housing used with the F52441 autotransformer is the same as used with the 24A transformer.

5.03 The following sketch shows the wiring details:



6. MOUNTING ARRANGEMENTS, F52441 AUTOTRANSFORMER

6.01 Mount the F52441 autotransformer on a crossarm as shown.



Notes:-

1. Place networks approximately opposite to pair of open wires to which they are to be connected.
2. See Parts 2 and 5 for wiring of Network and Autotransformer.
3. Bond Ground Lugs of 562A Filter and F 52441 Autotransformer to strand with single AL Wire.