

QTC TYPE TERMINALS

SERVICE WIRE & TERMINAL BLOCK INSTALLATION & TERMINATION

CONTENTS	PAGE
1. GENERAL	575
2. SERVICE WIRE INSTALLATION	575
3. DISPOSITION OF UNTERMINATED PAIRS	577
A) AT THE TERMINAL END	
B) AT THE STATION END	
4. TERMINAL BLOCKS	577
NON-PROTECTED	577
PROTECTED	578
5. BRIDGING CONNECTORS	578
6. PREPARING AND CONNECTING TERMINAL BLOCK LEADS	579
7. PREPARING AND TERMINATING SERVICE WIRE CONDUCTORS	581
8. WIRE LEAD ASSEMBLY	582
9. REARRANGEMENTS	583
1. GENERAL	

1.01 This section is issued to describe service wire and terminal block installation in QTC type buried cable terminals, and the method of arranging and terminating the terminal block and service wire conductors.

1.02 Although the method and figures illustrated in this section are oriented towards the termination of service wires, underground wire that is used for service and terminated in QTC type terminals should be completed in a similar manner.

1.03 The number of pairs of binding posts that can be used in any QTC type terminal is restricted to a maximum of nine.

1.04 No maintenance work or cable pair testing except by cable repair will be performed, or any connections made to pairs not in the assignable count, unless authorized by the Outside Plant Engineering.

1.05 The placing of the terminals and the cable entrance into these terminals will be found in the appropriate section of the 631 series of Bell Canada Practices.

2. SERVICE WIRE INSTALLATION

2.01 The installation of the service wire into the QTC type terminals will require the excavation of a small entrance pit at the base of the terminal. This pit *must* be hand dug and extreme caution must be used to avoid damage to the existing cable or service wire during the digging operations.

2.02 The depth of the entrance pit will depend on the depth of the service wire being placed, but a minimum of 10 inches is required to enter under the terminal base to provide a small amount of slack and soil protection to the service wire against the bottom edge of the terminal base.

2.03 If crushed stone or pea gravel has been used as a protective measure against rodent damage to the cable or service wires, this should be carefully removed and replaced after the entrance of the service wire has been completed.

2.04 Two elongated holes 5/16 x 1/2 inches placed in the bottom cover of the terminal approximately 12 inches from the bottom and 5

inches apart will serve as an entrance for temporary service wires that are installed during the winter months for later trenching.

2.05 If service wires are placed at the same time as the cable and terminal a minimum length of 30 inches must be left in the terminal, above the ground clamp of the telephone bracket.



2.06 The armor of all service wires *must* be grounded to the ground clamp located on the ground bracket of the telephone sliding panel immediately upon placing.

2.07 The service wire can be attached to either one of the ground clamps. However, to assure good housekeeping, and to keep the terminal looking neat and clean, they should be attached (whenever possible) to the ground clamp located on the opposite side of the terminal to which the lead wires from the connecting block are attached to the cable conductors as illustrated throughout this practice.

2.08 To terminate the armor of the service wire, pull approximately 30 inches of service

wire above the desired ground clamp. Mark the outer sheath 2 inches below the ground clamp and remove the outer sheath in the usual manner.

2.09 Unwrap and prepare approximately 3 inches of armor wire as shown in Fig. 1.

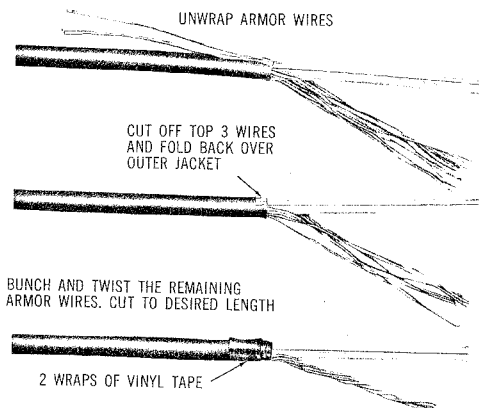
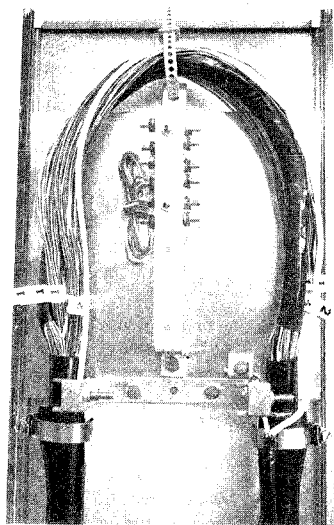
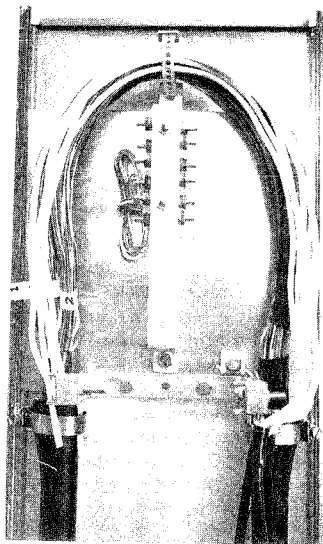


Fig. 1—Preparation of the Armor Wire



One Service Wire in place



Five Service Wires in place

Fig. 2

2.10 Insert the armor of the service wire flush to the top of the ground clamp and tighten securely as shown in Fig. 2.

2.11 A total of 5 service wires may be connected to either one of the service wire grounding clamps as shown in Fig. 2.

2.12 An additional B. Cable tie must be secured around the cable and service wire conductors on the same side of the telephone panel that the service wire shield has been terminated on and placed at the midway point between the existing B. Cable tie which is located at the top of the telephone panel and the connection point of the service wire as shown in Fig. 3.

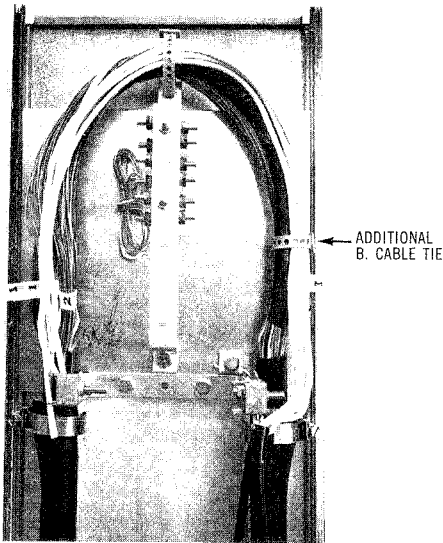


Fig. 3—Additional B. Cable Tie in place

3. DISPOSITION OF UNTERMINATED PAIRS

3.01 Buried wire placed into the terminal and not put immediately into service must be protected to avoid differences in potential between the conductors and the metal armor. Buried wire not in use must be protected as follows:

(A) At The Terminal End

Place service wire and terminate armor as indicated in para.'s 2.06 to 2.10 inclusive.

(B) At The Station End

- (1) Where the wire is being terminated on a station protector at the time of placing. Connect in the usual manner as shown in 460 Section of Bell Canada practices.
- (2) Where the wire is *not* being terminated on a station protector at the time of placing remove the outer insulation from the armor wire and conductors. Twist the bare conductors and armor wire together and wrap with vinyl tape. Place the service wire in a neat coil or loop and tape the service wire back on itself using vinyl tape.

4. TERMINAL BLOCKS

Non-Protected Type

4.01 The QTC type terminals are furnished with one QBN-1B (6 Pair NON-PROTECTED TYPE) Terminal Block. (Fig. 4). Each binding post has a single, replaceable, 24-gauge wire lead assembly attached. The top (tip) posts have white leads and the bottom (ring) posts have blue leads.

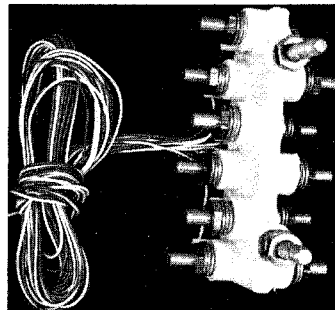


Fig. 4—QBN-1B Terminal Block

4.02 After the six binding post connections have been used an additional QBN-1C (3 Pair NON-PROTECTED TYPE) Terminal Block (see Fig. 5) may be placed in the second mounting position.

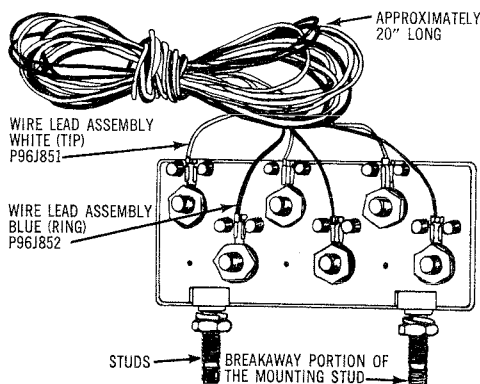


Fig. 5—QBN-1C Terminal

Protected Type

4.03 If cable pair protection is required the six pair block provided with the terminal is removed and a N3A1B-3 (3 pair, 6 Mil gap, protector unit) terminal block, Fig. 6, is installed.

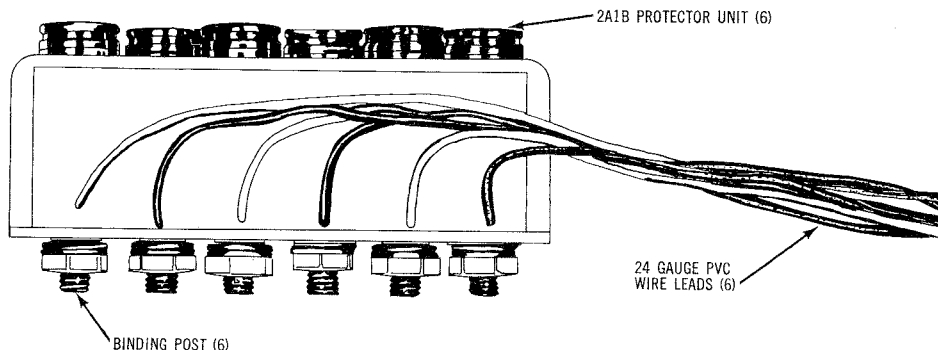


Fig. 6—N3A1B-3 Terminal Block

The 3 pair protector block is the same size as the 6 pair unprotected block and is installed in the same mounting holes.

4.04 When additional blocks are added to the terminal they must first be mounted on the telephone bracket and then the breakaway portion of the mounting stud removed to provide clearance for the placing of the terminal cover. The studs are designed with this break-off notch feature.

4.05 No more than two terminal blocks will be mounted in any QTC type terminal.

5. BRIDGING CONNECTORS

5.01 The preferred method of joining the terminal block leads to the cable pairs assigned is with the SCOTCHLOK UG Bridging Connector. The use of UG Bridging Connectors eliminates the need to cut the cable conductors, thereby reducing the possibility of open conductors beyond the terminal and also improving housekeeping in the terminal.

5.02 The UG connector, Fig. 7, uses the insulation piercing quick-connect principle to join wires. The assembly contains a silicone grease for corrosion-proofing the completed wire joint.

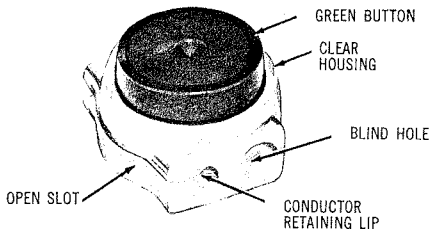


Fig. 7—Scotchlok UG Connector

5.03 The UG connector is distinguished from other connectors by a green compression button. The UG code is the manufacturers designation and has no relationship to underground plant.



5.04 Connectors are intended for use on PIC conductors ranging from 19 to 26 gauge and combinations of these gauges. *However, when the connector is used on 19 gauge conductors the insulation must be removed from the wire to ensure proper termination on the conductor.*

6. PREPARING AND CONNECTING TERMINAL BLOCK LEADS

6.01 The Terminal Block Wire leads are prepared and connected with SCOTCHLOK connectors as follows:

- (1) Separate the cable pair assigned from the assignable count binder group. Make certain that these conductors are not broken or damaged.
- (2) Take the terminal block leads which are connected to the binding posts and dress them through the two B Cable Tie retainers to a position in the straight portion of the cable run as shown in Fig. 8. This will provide the necessary length required for fusing protection and sufficient slack if rearrangement of the block lead should be required.
- (3) Bridge the tip and ring terminal block wire leads to the tip and ring conductors

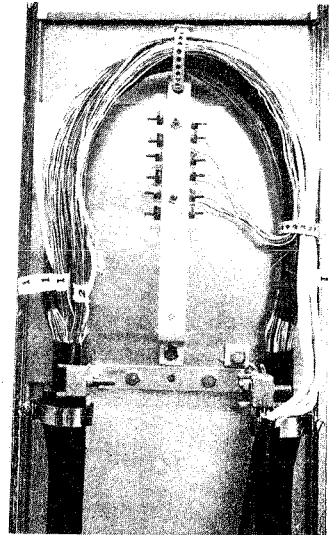


Fig. 8—Dressing Terminal Block Leads

of the assigned cable pair using UG SCOTCH-LOK connectors. Snap the type UG connector over the through wire selected, Fig. 9 and insert the terminal block wire into the connector part and squeeze the green button into the sleeve, using the "Z" Pressing Plier. When pressing the connector, make certain that the green button is pressed flush with the surface of the clear plastic connector housing Fig. 10.

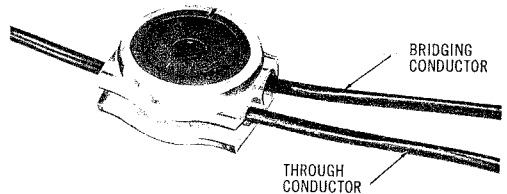


Fig. 9—Positioning Conductors into the Connector

- The C Pressing Pliers must be used. Long-nosed, side-cutting, and adjustable or non-adjustable gas-type pliers with similar non-parallel jaw closure **must not** be used. This non-parallel jaw closure results in an initial cocking or tilting of the green button. The slotted metal insert is firmly attached to the button, and tilting introduces the possibility of cutting or nicking a conductor or improper seating of the conductor.

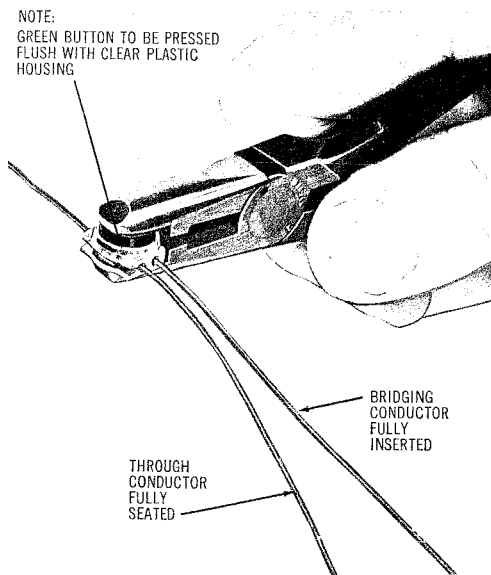


Fig. 10 — Pressing UG Schotchlok Connector with Z Pressing Pliers

(4) The UG connectors should not be located any closer than 8 inches to the cable sheath as shown in Fig. 11. **DO NOT CUT THE CABLE CONDUCTORS.**

(5) Stagger the positions of the UG connectors. Fig. 12 shows the terminal block wire leads from binding posts positions, staggered and bridged to the cable conductors.

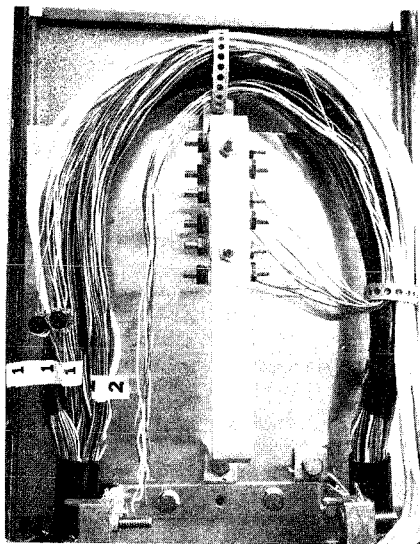


Fig. 11—Terminal Block Wire Leads connected to the Cable Conductors

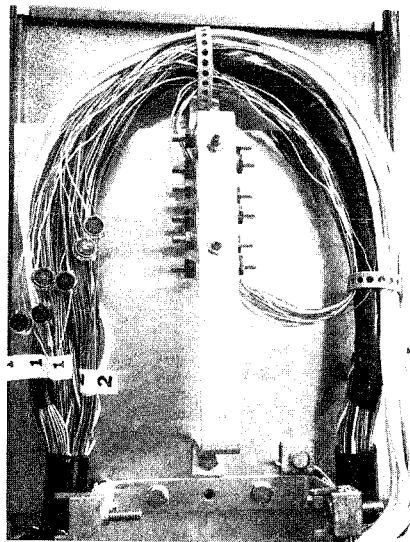


Fig. 12—Staggering the UG Connectors

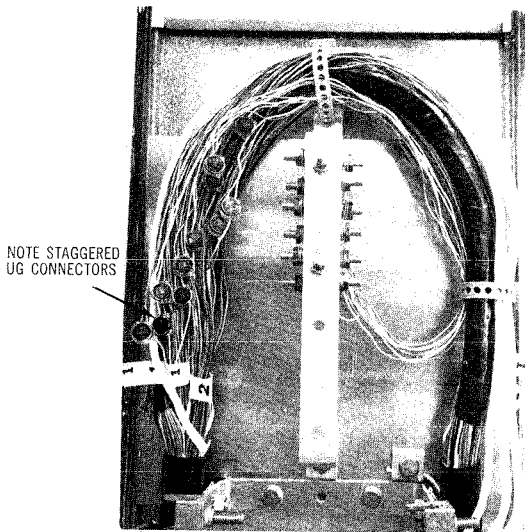


Fig. 13—First Terminal Block in place

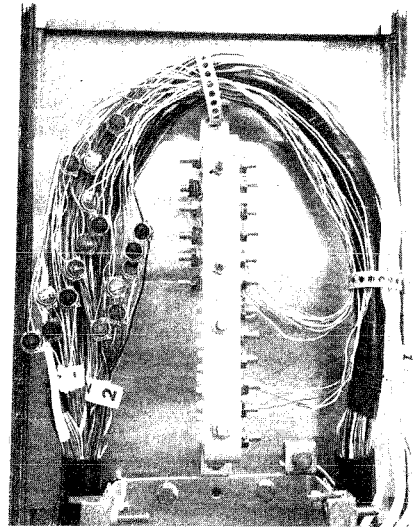


Fig. 14—Second Terminal Block in place

(6) Coil the unassigned Terminal Block wire lead assemblies in the vacant space behind the first terminal block.

(7) Fig. 13 shows the first terminal block in place with all terminal block wire lead assemblies connected to the cable conductors.

(8) Fig. 14 shows the second terminal block in place with all terminal block wire lead assemblies connected to the cable conductors.

(9) Protected type terminal blocks are installed on the telephone bracket and the wire leads connected to the cable conductors in a similar manner as that described for the non-protected type.

7. PREPARING AND TERMINATING SERVICE WIRE CONDUCTORS

7.01 The preferred method of preparing and terminating the conductors of buried service wire to the terminal blocks are as follows:

(1) Remove the inner jacket of the service wire using the white nylon slitting cord,

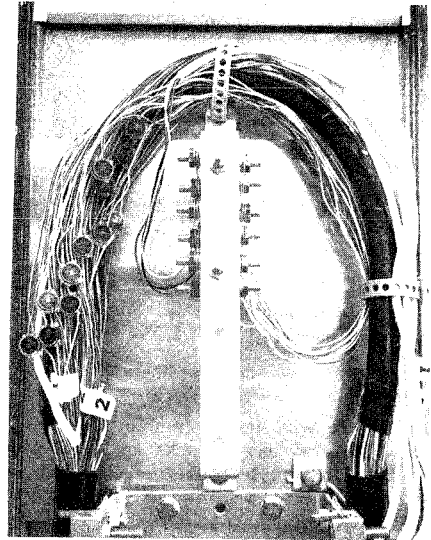


Fig. 15—Terminating Service Wire Conductors

to approximately 2 inches from the B Cable tie located on the top of the telephone panel as shown in Fig. 15.

(2) Dress the service wire conductors down past the binding posts to be connected, and then back up to the desired binding posts (forming a loop as shown in Fig. 15) using the entire length of service wire conductors.

(3) The red and green conductors of the service wire constitute the first pair and should be the initial pair terminated on the desired binding posts. The black and yellow constitute the second pair and should be terminated only after the red and green conductors have been assigned.

(4) The spare service wire conductors not immediately required should be neatly twisted or wrapped around the assigned pair of the service wire and left in an orderly fashion for future assignment.

(5) To ensure adequate slack in the service wire conductors in case of termination rearrangement remove only sufficient conductor insulation to permit termination.

(6) Form the bare conductor into a hairpin loop.

(7) Slacken the nut of the desired binding post and place the bare conductor loop around the binding post in a clockwise direction between the two binding post washers.

(8) Fig. 16 illustrates the first terminal block in place with all binding posts occupied and one spare service wire remaining.

(9) Fig. 17 illustrates the second terminal block in place with all binding posts occupied.

8. WIRE LEAD ASSEMBLY

8.01 Spare wire lead assemblies for the Non-Protected type blocks may be ordered separately to replace broken or defective leads. The ordering information is as follows:

Assembly Lead Wire PO96J851 — (White)

Assembly Lead Wire PO96J852 (Blue)

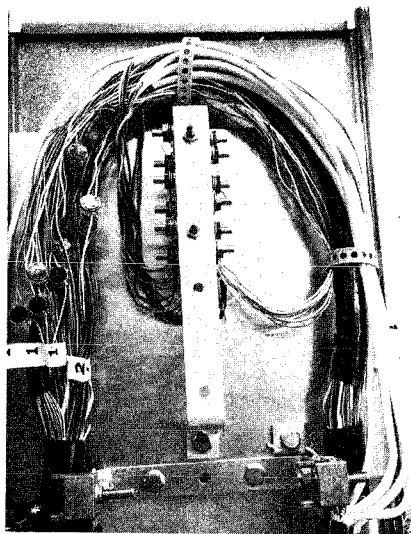


Fig. 16

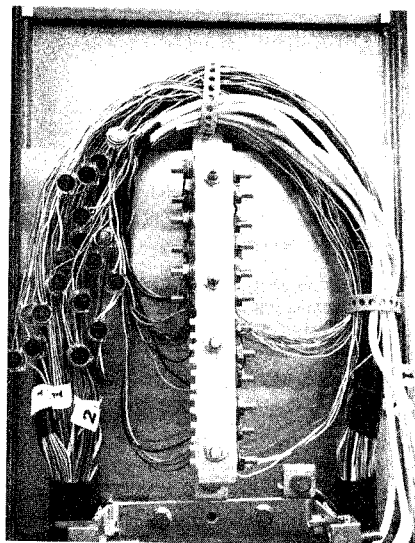


Fig. 17

The leads will be supplied in pkgs. of six as shown in Fig. 18.

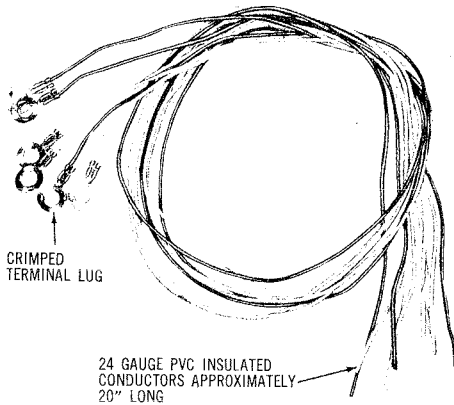
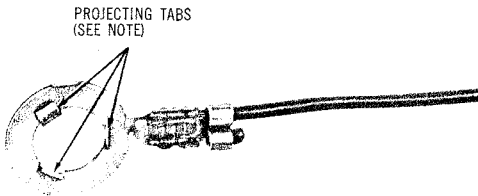


Fig. 18—Wire Lead Assembly

8.02 The conductors are 24-gauge PVC insulated wire equipped with a crimped terminal lug at one end (Fig. 19).



NOTE: PLACE LUG ON BINDING POST WITH FLAT SURFACE TOWARD TERMINAL BLOCK FACE-PLATE AND TABS PROJECTING OUTWARD.

Fig. 19—Wire Lead Lug

8.03 The lugs of the crimped wire tips are equipped with tabs which make the lugs captive to the binding posts when installed. The wire tips are installed on the binding posts as follows:

- (1) Remove the binding post nut and washers.
- (2) Remove the old lead as illustrated in Fig. 20.

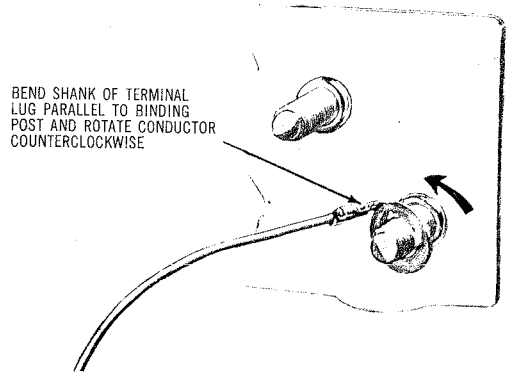


Fig. 20—Removing Binding Post Leads

- (3) Select the wire tip of the appropriate colour coding; white for tip, and blue for ring.
- (4) Place the wire tip lug on the binding post with the tabs projecting outward, away from the terminal block face plate.
- (5) Place the binding post washer over the wire tip lug and firmly tighten the binding post nut. The pressure of the washer squeezes the lug tabs inward to engage the binding post threads.

9. REARRANGEMENTS

Scotchlok UG Connectors

9.01 When binding post leads already bridged to a cable pair with UG Connectors are to be reassigned to another cable pair, proceed as follows:

- (1) Cut the binding post leads as near as possible to the UG connectors. Do not attempt to remove the UG connectors from the cable pair conductors.
- (2) Separate the newly assigned cable pairs from the assignable count binder group. Make certain these pairs are not damaged.
- (3) Reconnect the binding post leads to the newly assigned cable pair as described in Part of this Practice.
- (4) Fig. 21 illustrates the rearrangement of three pairs of assigned binding post leads.

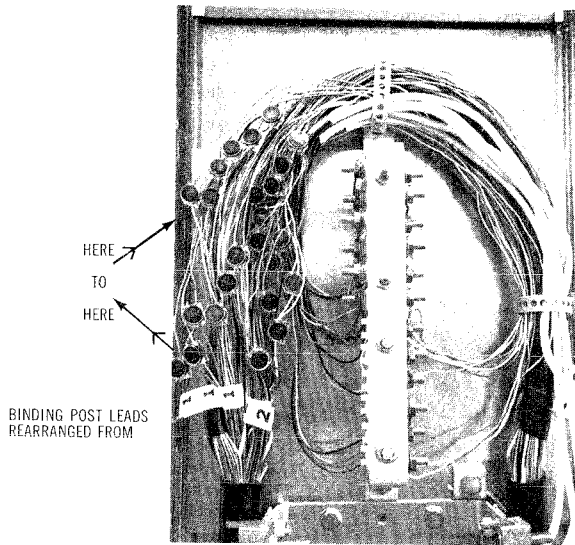


Fig. 21—Rearranging Binding Posts