

CONNECTING BLOCKS AND WIRING BLOCKS—88-TYPE

1. GENERAL

1.01 This section covers the identification, installation, and maintenance of the 88-type wiring blocks and 88-type connecting blocks for terminating inside wiring cables.

1.02 This section is reissued to:

- Add information on the 188B1 backboard, D impact tool, 788J1 impact tool, 788K1 lead retention tool, and the AT-8700 B key equipment test block
- Show the 188A1 backboard and 788H1 impact tool rated MD
- Show C test cord available in 4- or 8-foot length.

1.03 The 88-type wiring and connecting blocks are compact connecting blocks designed for key telephone systems or similar installations. They may be used at any indoor locations now employing the 66-type blocks and associated backboards. The wiring blocks are modular, with terminations in a 25-pair, even-count, color-code basis. They reduce wall space requirements, installation time, improve pair identification, and permit easy expansion of cross-connect fields. Cables are terminated on the wiring block index strip on a permanent basis; rearrangements and changes are made with cross-connect wire on the top side of the connecting blocks.

1.04 Information for installing and wiring connecting blocks, using the 88-type connecting and wiring blocks in Outside Plant application, is not covered in this practice. Refer to Section 631-050-120.

1.05 For information about protective devices used on special service circuits requiring Special Service Protection or Special Safeguarding Measures, refer to Section 460-110-100.

1.06 Information on key telephone systems, wiring methods for 88-type wiring blocks, and typical running cable arrangements for key system installations, will be found in Section 518-010-101.

2. IDENTIFICATION

88-TYPE WIRING BLOCK

2.01 The 88-type wiring block (Fig. 1) is made of flame retardant plastic with molded index strips. Separate backboards are not required. Each index strip has 50 slots to accommodate a 25-pair cable or a color binder group for terminating PE or PVC 22-, 24-, 26-gauge wire without removing insulation. The index strips are color-coded white, red, black, yellow, violet, from left to right, in 5-pair segments to match the color coding of even-count cables. The various parts of the wiring block are shown in Fig. 1.

2.02 The letters and numbers (eg, 88AW1-100) of the complete code designation provide the following information:

- (1) 88—basic type of terminal block.
- (2) The first suffix letter indicates basic style as follows:

A—legs with feet - single connections

B—legs with feet - 5 connections (multiple).

The A and B styles are for wall mountings on customer premises.

- (3) The second suffix letter denotes color of the wiring block: W—indicating white.

Note: All codes of 88-type wiring blocks are supplied in white only. The application of

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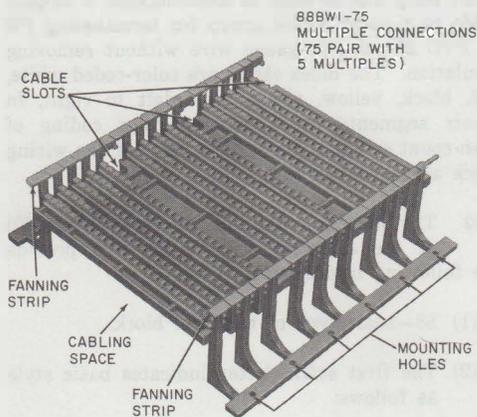
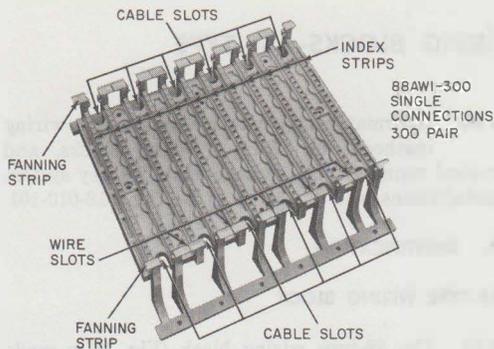


Fig. 1—88-Type Wiring Block

the block is indicated by the use of colored designation strips (separately ordered), which come in blue, red, yellow, green, and purple.

- (4) The third suffix numeral assignment is to identify minor design differences resulting from engineering or manufacturing improvement.
- (5) The number following the dash indicates number of pairs that can be terminated.
- (6) The letter C following the number of pairs indicates the block is supplied with a factory-wired connector-ended cable 5 feet long (Fig. 2). The blocks are factory-wired to give five multiples for each conductor. On prewired

blocks, extra multiples can be provided using the 3-way bridging adapter, KS-19252,L2 (PCP), for no more than ten multiples. Refer to Section 461-200-101 for information on adapters.

- 2.03 The wiring blocks used in key system applications are shown in Table A.

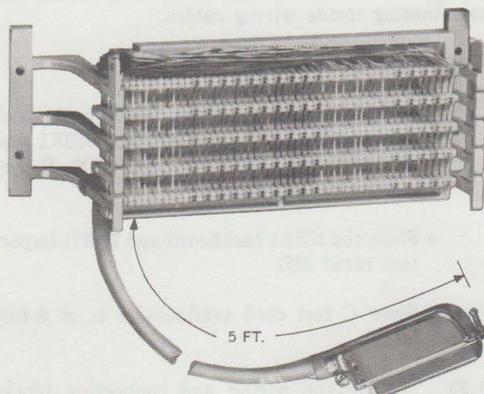


Fig. 2—88B-Type Wiring Block With Connector Cable

88-TYPE CONNECTING BLOCK

2.04 The 88-type connecting block (Fig. 3) consists of a flame retardant, plastic-molded strip equipped with double-ended, quick-clip metal connectors. When mounted on the wiring block, the bottom end makes connection with the cable conductors in the index strip, and the top end provides connections for cross-connect wires. They are available in 3- and 5-pair blocks. The clips for terminating the cables are designed to terminate PE or PVC 22-, 24-, or 26-gauge wire without the removal of insulation.

2.05 The following is the coding arrangement for the 88-type connecting block. The letters and numbers (eg, 88BSW1-5) of the complete code designation provide the following information.

- (1) 88—basic type connecting block.
- (2) The first suffix letter indicates basic style; ie, the letter B indicates that the clips are

TABLE A

WIRING BLOCKS AND CONNECTING BLOCKS

CODE (NOTE)	COLOR	CAPACITY (PAIRS)	TYPE	APPLICATION	SIZE (INCHES)
88AW1-100	White	100	Wiring Block	All Fields	10-3/4 X 3-1/2
88AW1-300		300			10-3/4 X 10-3/4
88BW1-25		25*		Red Field	10-3/4 X 3-1/2
88BW1-25C		25*			10-3/4 X 3-1/2
88BW1-75		75†			10-3/4 X 10-3/4
88BW1-75C		75†			10-3/4 X 10-3/4
88BSW1-3 88BSW1-5	Slate/White	3 5	Connecting Block	All Wiring Blocks	7/8 X 1-1/2

Note: Code ending in C indicates block is supplied with a 5-foot length of connector cable terminated.

* Five multiples of one 25-pair cable.

† Five multiples of three 25-pair cables.

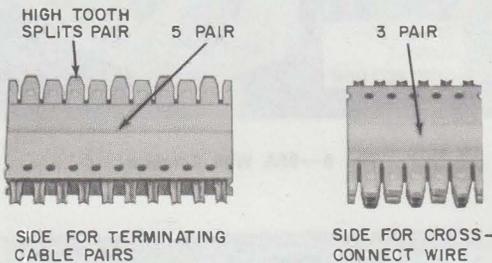


Fig. 3—88-Type Connecting Block

gold-plated and protrude from one side of the connecting block.

- (3) The second and third suffix letters denote color; this is a double letter for two color blocks. The codes presently assigned are SW (Slate White—one side slate, one side white).
 - (4) The third suffix numeral is assigned to identify minor design difference resulting from engineering or manufacturing improvement.
 - (5) The number following the dash indicates the number of pairs (three or five pairs).
- 2.06 The different colored sides of connecting blocks aid in pair identification when installed

on the wiring blocks as outlined in 3.17. Connecting blocks are shown in Table A.

ASSOCIATED APPARATUS

2.07 The 188B1-type backboard (Fig. 4) is used to provide a horizontal wiring channel for cross-connect wire in large installations. The backboard consists of two plastic distributing rings mounted on a white sheet metal panel 1/2-inch thick by 10-3/4 inches long by 6-1/2 inches wide. The 188B1 backboard replaces the 188A1 which is rated MD.

2.08 The AT-8660 F clip terminal insulator (Fig. 5) is used to mark special service circuits requiring Special Service Protection or Special Safeguarding Measures. The F clip terminal insulator mechanically protects one pair and may be located in adjacent pair positions without interference to protect any number of pairs.

2.09 The 88A wire retainer (Fig. 6) is used on top- or bottom-mounted blocks to form a fanning strip slot for the cross-connect wire.

2.10 The C test cord (Fig. 7) is attached to a wall-mounted 101B2 wire terminal, located so the cord plug will reach all 88-type blocks, and is left in place for testing purposes. The cord is now made in 4- and 8-foot lengths to facilitate reaching all terminations in large distributing fields.

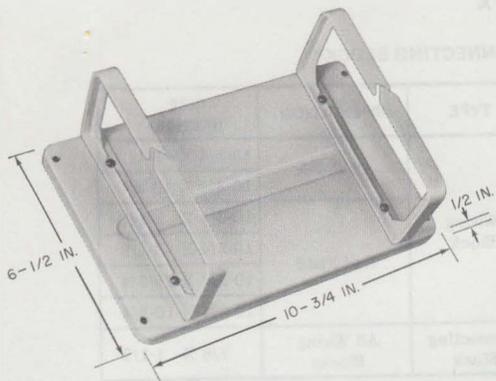


Fig. 4—188B1 Backboard

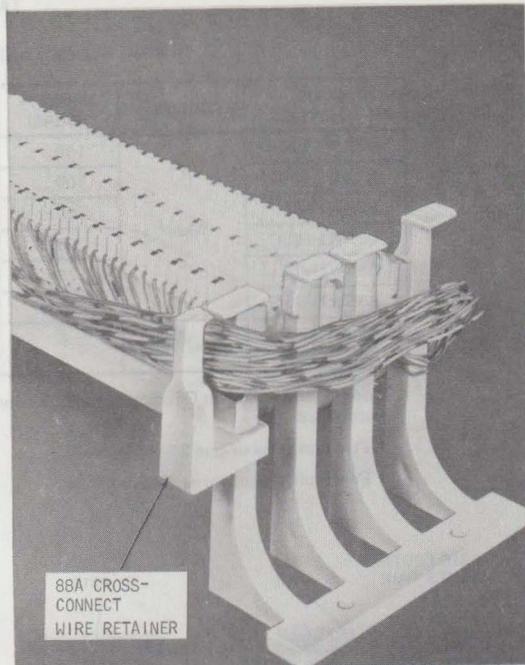


Fig. 6—88A Wire Retainer

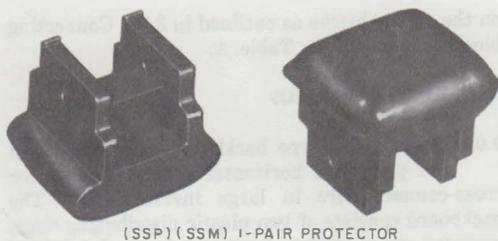


Fig. 5—AT-8660 F Clip Terminal Insulator

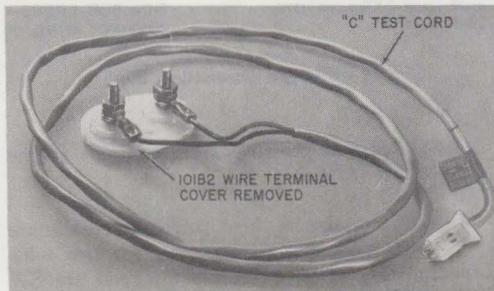


Fig. 7—C Test Cord and Terminal Block

2.11 The B key equipment test block can be used to test CO/PBX line circuits in 1A1 or 1A2 Key Telephone Systems (KTSs). The test block (Fig. 8) can be used on 88-type connecting blocks in the red or blue fields with or without jumpers terminated on the connecting block. Spring-loaded probes make connection with the contacts associated with T, R, A, A1, LG, and L on the station side of the line circuit. The test block is also equipped with two lamps (T/R and LP), a pushbutton (H), and a 2-position slide switch (TST-TLK). Two terminals on the sides of the test block are provided for connecting a 1013A or

equivalent hand test set. Use of the test block is covered in Table C.♦

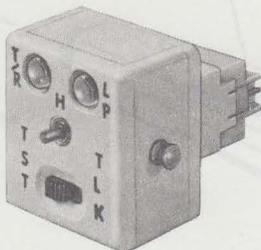


Fig. 8—B Key Equipment Test Block♦

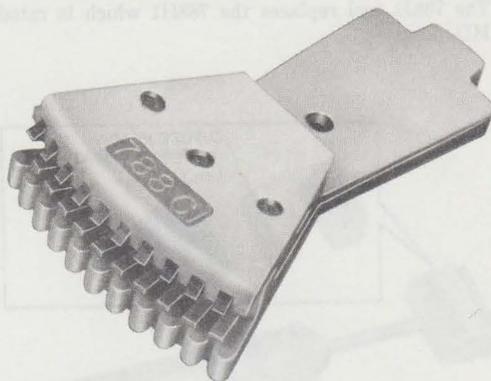


Fig. 10—788C1 Tool, 5-Pair Cutoff Tool

TOOLS

2.12 The 5-pair insertion tool (Fig. 9) consists of the 788B1 tool head mounted in the 788A1 tool handle. ♦The tool head is used to seat five cable pairs at one time or to insert 3- or 5-pair connecting blocks on the index strip of the wiring block.♦



Fig. 9—5-Pair Insertion Tool

2.13 The 788C1 cutoff tool head (Fig. 10) mounts in the 788A1 tool handle and is used to cut five cable pairs at one time on the index strip after proper insertion.

2.14 The single pair insertion tool (788D3) is supplied as a combination of the handle and insertion head. The reversible ends of the head provide either insertion/cutoff or insertion only (Fig. 11) of a single cable pair.



Fig. 11—788D3 Tool, Single-Pair Insertion/Cutoff♦

2.15 ♦The 788J1 impact tool (Fig. 12) is used to perform the same functions as the 788B1 and 788C1 tools, but it has a spring-loaded handle designed to supply the proper impact force to seat and cut off conductors or to insert the connecting blocks. The blade section of the head is easily removed for replacement or positioning for wire seating/cutoff or seating only. The 88-type connecting blocks should be placed on the index strips, by hand, before insertion, using the tool.

The 788J1 tool replaces the 788H1 which is rated MD.

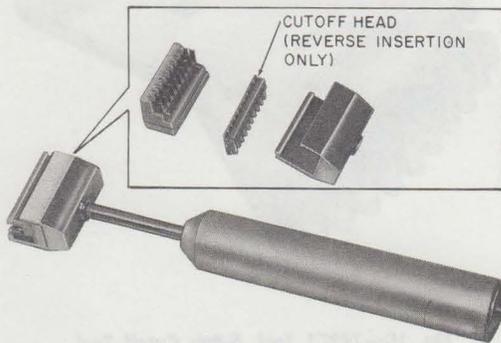


Fig. 12—788J1 Tool, Impact Insertion

2.16 The 788K1 lead retention tool is used when it is necessary to remove the 88-type connecting blocks from the index strips of the wiring blocks. The blade of the tool is used to hold the wires in place in the index strips (Fig. 26) while the connecting block is being removed as shown in 4.02.

2.17 The D impact tool (Fig. 13) consists of a handle with an adjustable impact force and a cavity for storing an extra blade. Double-ended blades are available which permit insertion/cutoff or insertion only of single conductors on 88-, 66-, or 630-type connecting blocks. Two knurled wheels are provided in the tool handle—one to adjust the impact force depending on wire gauge and type of connecting block; the other to expose the opening for the extra blade storage. The D impact tool is used to cut off and/or seat single conductors on the connecting blocks.

ORDERING GUIDE

Blocks and Tools

- Block, Wiring, 88-Type (refer to Table A)
- Block, Connecting, 88-Type (refer to Table A)
- Tools (refer to Table B)

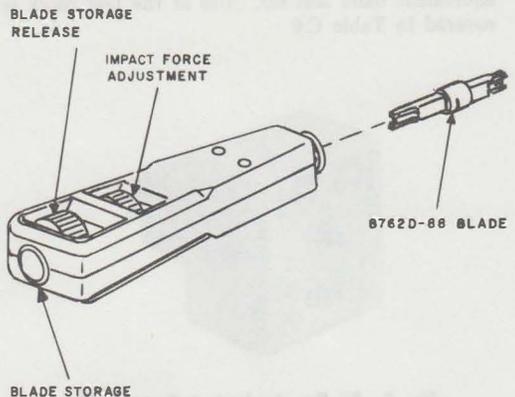


Fig. 13—D Impact Tool

Associated Apparatus

● Strip, Designation

- ◆ 188AB1-100 (blue, two per package—predesignated 1 to 100)
- 188AG1-100 (green, two per package—predesignated 1 to 100)
- 188BB1-100 (blue, two per package)
- 188BP1-100 (purple, two per package)
- 188BY1-100 (yellow, two per package)
- 188CR1-25 (red, one per package)

- Insulator, Terminal, Clip F, AT-8660 (as required)
- Retainer, 88A (as required)
- Backboard, 188B1 (as required)
- Cord, Test C, AT-8662, 4 foot or 8 foot (specify length)
- Terminal, Wire, 101B2
- ◆ Block, Test, B Key Equipment, AT-8700

TABLE B

TOOLS

ORDERING GUIDE	DESCRIPTION	REMARKS
Handle, 788A1	Tool Handle	For 788B1 or 788C1 Tools
Tool, 788B1	5-pair Insertion Tool Head	Order Handle Separately
Tool, 788C1	5-pair Cutoff Tool Head	
Tool, 788D3	1-pair Insertion/Cutoff Tool	Consists of Head and Handle
Tool, 788J1 Tool, 788H1 (MD)	5-pair Insertion Tool	Impact Type
Tool, 788K1	Lead Retention Tool	Used when removing Connecting Blocks
Tool, Impact, D	Tool Handle	Adjustable Impact Tool
Blade, 8762D-88	Single Lead Insertion or Insertion/Cutoff	For use in D Impact Tool on 88-Type Wiring Blocks*
Tool, 788M1	5-pair Tool Head	Replacement Head for 788J1 Tool

* Blades are available for 66- or 630-type connecting blocks. For 66-type, order 8762D-66; for 630-type, order 8762D-630.

3. INSTALLATION

3.01 The 88-type wiring blocks are usually arranged so that the direction of expansion, if required, will be horizontal as shown in Section 518-010-101.

3.02 Wiring blocks may be added to existing blocks following the pattern established for centralized key telephone installations. Refer to Section 518-010-101.

3.03 Mount the 88-type wiring blocks with index strips horizontal on a smooth wall surface using fasteners appropriate for the type of wall surface.

3.04 Cables are considered permanent and are always placed on the index strip of the wiring block, never on top of the connecting block. Rearrangements can be made as required with cross-connect wire on top of the connecting blocks.

3.05 Cabling can enter the array of wiring blocks from either top or bottom. Fish cables behind installed wiring blocks as follows:

(1) When station or equipment cable enters from the top, use No. 6 twine with a weight. Drop behind wiring block and use wire hook to fish through proper cable slot. Pull cable down through cable slot.

(2) When cable enters from the bottom, drop weighted No. 6 twine through proper cable slot and down behind the wiring blocks. Pull cable up through cable slot.

3.06 Cable slots are numbered with the odd numbers on the left and the even numbers on the right, from top to bottom (Fig. 14). In the red field, only the odd number cable slots on the left side are used.

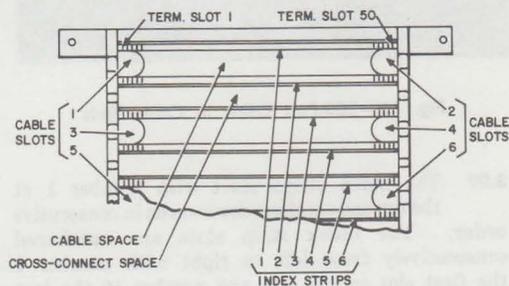


Fig. 14—Numbering Plan for 88-Type Wiring Block

3.07 When running 25-pair station cables, leave jacket on until cable has been threaded through the proper cable slot. Start cable 1 through

slot 1 to row 1, cable 2 through slot 2 to row 2, etc.

3.08 Remove the cable sheath for multiple binder cables, approximately twice the length of the wiring block, allowing the sheath end to extend under the backboard. The cable is separated into 25-pair groups with their proper identification (color binder). The 25-pair binder groups are threaded through the cable slots provided in the backboard (blue-white through cable slot number 1 to row 1, orange-white through cable slot number 2 to row 2, green-white through cable slot number 3 to row 3, brown-white through cable slot number 4 to row 4, etc (Fig. 15).

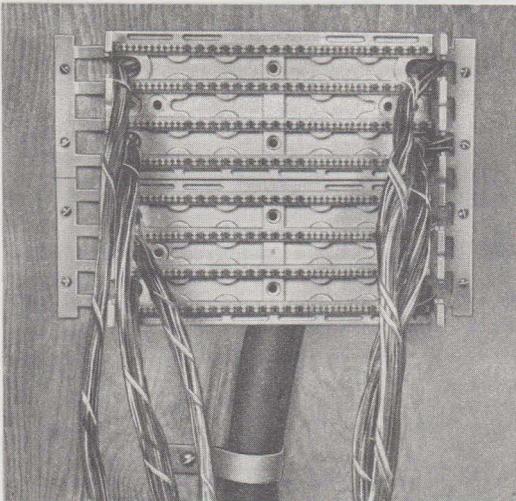


Fig. 15—200-Pair Cable in Cable Slots

3.09 The index strips start with number 1 at the top and continue downwards in consecutive order. The index strip slots are numbered consecutively from left to right with number 1 the first slot on the left and number 50 the last slot on the right. Pair number 1 would be seated in slots 1 and 2, and pair number 25 would be in slots 49 and 50.

3.10 Terminations are made following the sequence outlined in 3.11 through 3.24.

3.11 The conductors of a 25-pair cable or a binder group are placed in the index strip slots following the even-count color code starting with white-blue in slot 1, blue-white in slot 2, white-orange in slot 3, etc (Fig. 16). The conductors should not be taut; some slack is desirable. The high tooth on the index strip splits the conductors of a pair. Light finger pressure is sufficient to cause the conductor to be held in the index strip. Place all 25 pairs and check for split pairs, missed slots, etc.

3.12 After all pairs are placed in a pair of index strips adjacent to a cable space, the 788B1 or 788J1 insertion tool is used to seat the conductors in the index strip (Fig. 17). Start at the end of the index strip nearest the cable entrance and work across the block. Make sure conductors are bottomed in the index strip, especially when using larger gauge wire. Use only enough pressure to seat conductors: **Do not hammer on 788B1 insertion tool.**

3.13 On wiring blocks used to provide key line service multiples (red field), the conductors are placed across the five index strips, again using a light finger pressure to place (Fig. 18). Conductors should not be tight.

3.14 Seat the conductors in the same manner described in 3.12.

3.15 Cut off excess wire using the 4-pair cutoff tool (Fig. 19) or the cutoff side of the 788J1 tool. Conductors should be perpendicular to index strip for ease in cutting.

Caution: *Do not use diagonal pliers or electrician scissors due to the possibility of cutting more than one wire at a time or causing shorts between conductors. Doing so may cause circuit damage to solid-state devices used in key telephone systems or PBXs.*

3.16 The conductors are electrically terminated by placing an 88-type connecting block on the wiring block using the insertion tools. **Properly align connecting block in the index strip (Fig. 20), by hand, then seat the block with a straightforward motion (do not rock) using the 788B1 or 788J1 tool.**

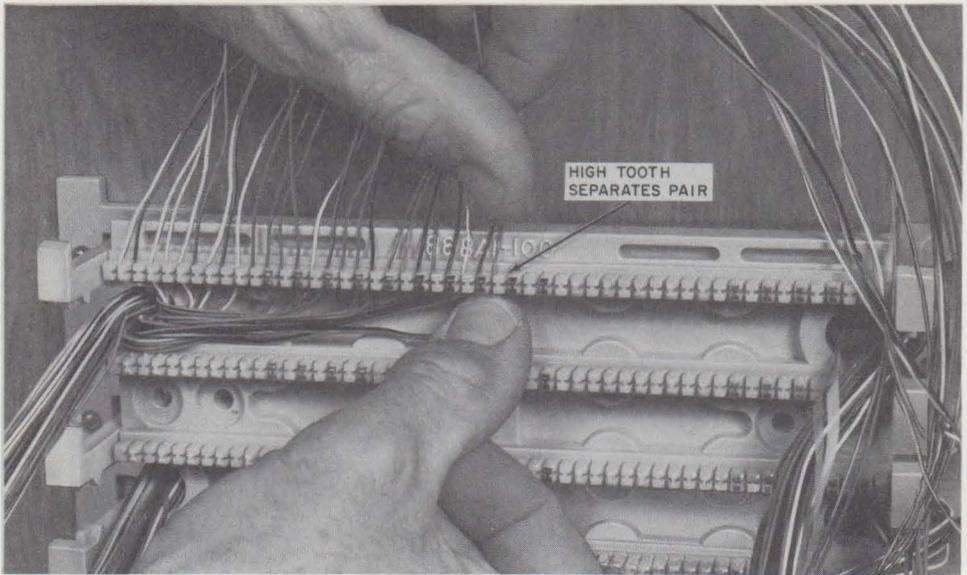


Fig. 16—Placing Conductors in Index Strip

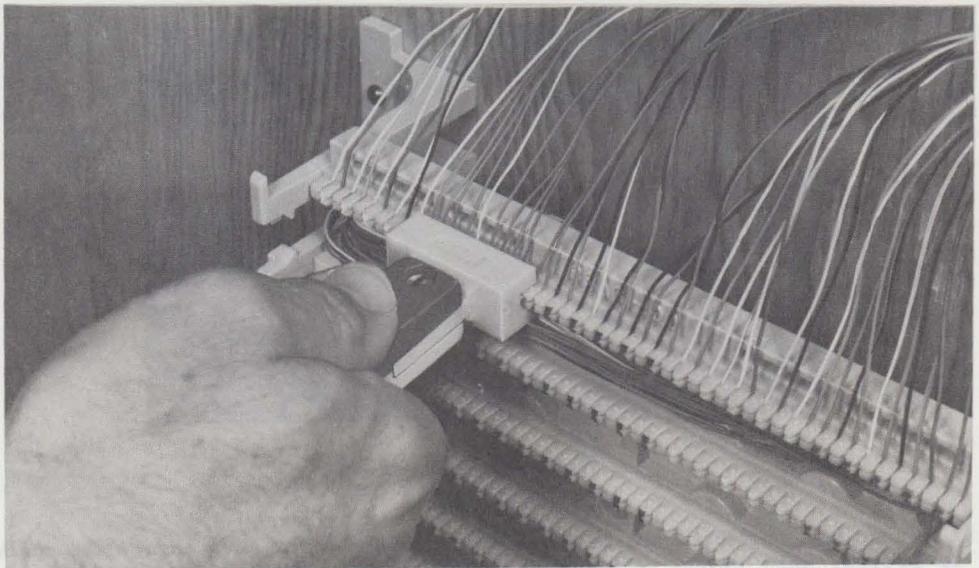


Fig. 17—Seating Conductors in Index Strip

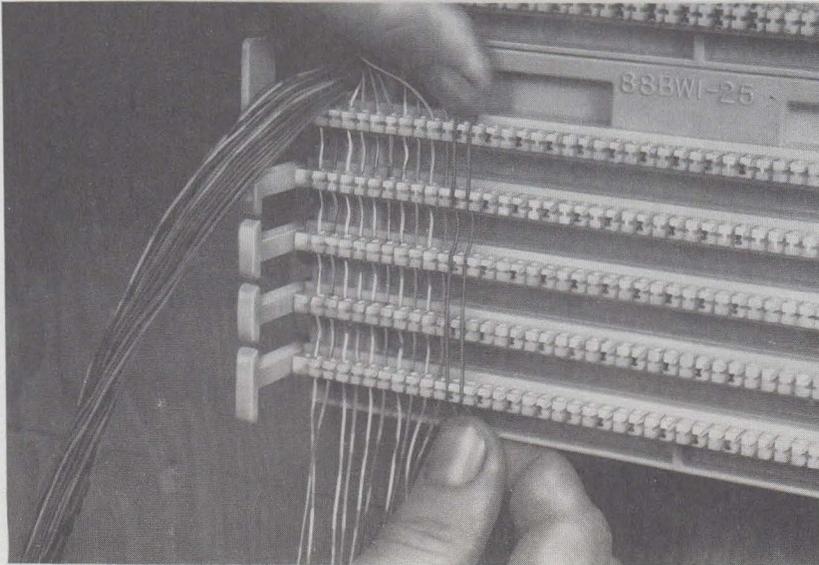


Fig. 18—Multiple Connections in Red Field

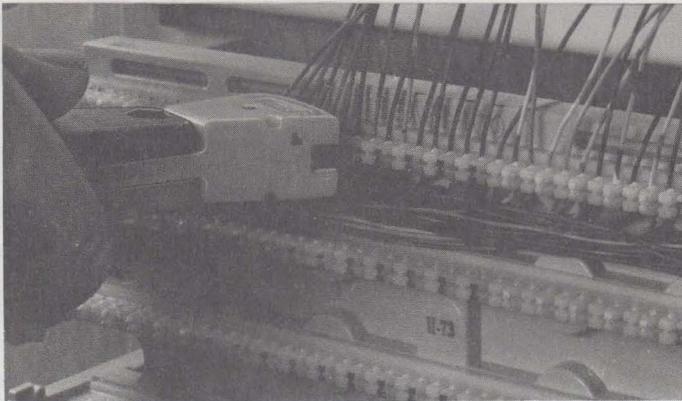


Fig. 19—Cutting Excess Wire

Caution: 88-type blocks are designed to prevent split pairs. Connecting blocks must be properly located on the index strip to prevent block breakage during insertion. Low teeth

of the index strip engage the shallow cavities of the connecting blocks, and high teeth engage the deep cavities. To prevent damage to the conductors and to seat the connecting block with

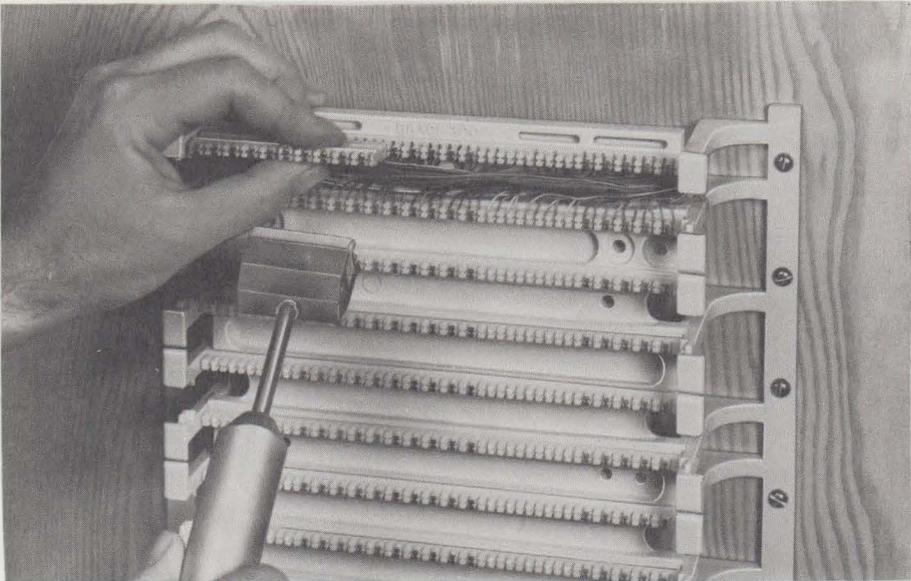


Fig. 20—Connecting Block Placed on Index Strip

the least effort, it is imperative that proper alignment is made before applying pressure to seat the connecting block. The connecting block is properly seated when the buttons on the index strip are fully engaged by the holes in the connecting block skirt. Do not hammer on insertion tool.

3.17 The slate-white 88-type connecting blocks aid in pair identification. Place the blocks on the index strip starting with the white side up at the extreme left and alternating slate and white sides for the remainder of the strip (Fig. 21). Use the 5-pair connecting block where it is desirable to identify even-count color groups. Use the 3-pair blocks where the six leads of key system line circuits are terminated such as in the blue field. Place blocks only as required.

3.18 After all connecting blocks have been seated, snap the appropriately colored designation strip in the wiring block (Fig. 22). Mark the designation, as required, for later identification of lines or stations.

3.19 Insert the F-type, 24-gauge cross-connect wire into the connecting block slots as shown in Fig. 23. Light finger pressure is sufficient to insure retention of the wire in its proper location. **Leave 2 inches of slack in the wire for tracing and repairing.** Cross-connect wire may be routed through either fanning strip for shortest wire runs.

3.20 ♦Using the 788D3 tool with the head properly positioned (black side up), seat and cut off the excess wire as shown in Fig. 24. With the white side up, the tool will seat the wire only. The D impact tool can also be used for this operation (using the proper blade), **but the 788C1 or 788J1 should not be used.**

3.21 When using the D impact tool to make connections to the connecting block, make sure the proper blade is being used (8762D-88) and the proper end of the blade is exposed, depending on whether or not the wire is to be cut off. The impact should be adjusted to the "LO" position.

3.22 Use only 24-gauge F cross-connect wire on the top of the connecting blocks. The wire

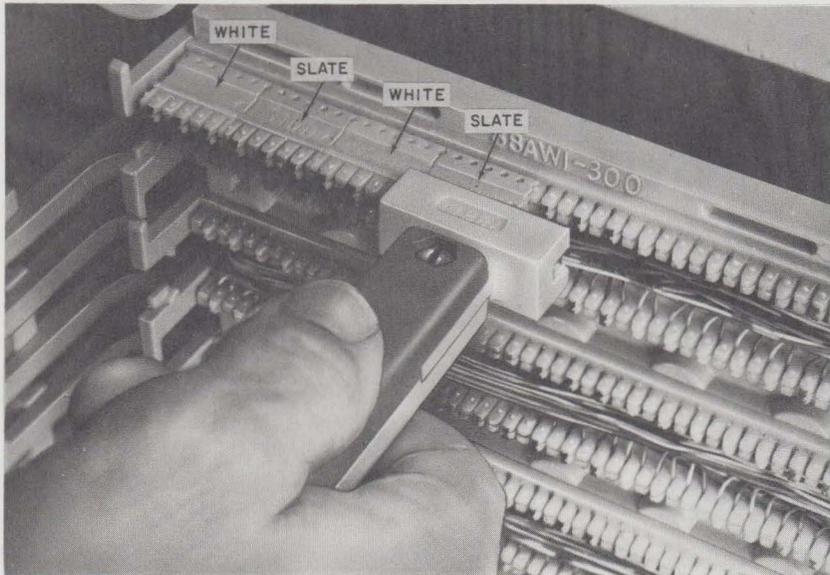


Fig. 21—Seating Connecting Block on Index Strip

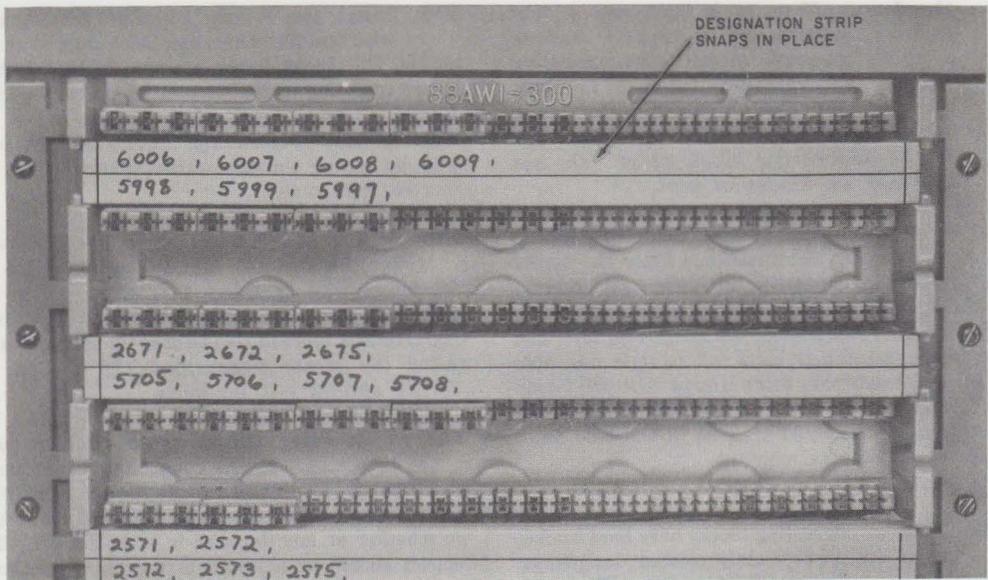


Fig. 22—Marked Designation Strips on Wiring Block

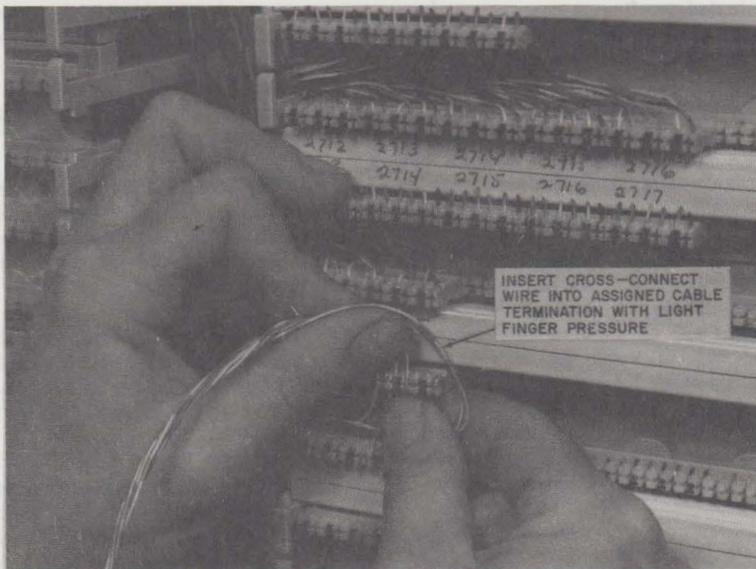


Fig. 23—Inserting Cross-Connect Wire

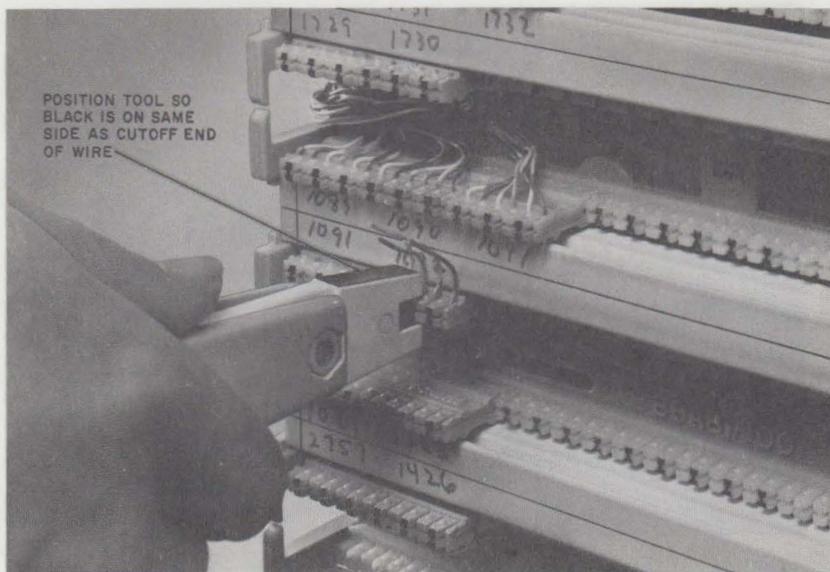


Fig. 24—Terminating Cross-Connect Wire

may be reterminated as often as necessary as long as a new bite is taken at the connector each time it is reterminated.♦

3.23 To remove a cross-connect wire, use long-nose pliers to grip the wire where it enters the connecting block (Fig. 25) and pull straight out. Remove any fragments of insulation remaining on the clip or its cavity ♦using a KS-6320 orange stick.♦

3.24 To reterminate a wire which has been removed for rearrangement or testing, cut off the old contact area, pull ♦a small amount of slack and repeat 3.19 and 3.20 using long-nose pliers to place wire in connecting block.♦

3.25 D station wire (22 gauge) is treated as station cable and fanned into the index strip. Where D station wire is used, it should be kept to a minimum.

3.26 Never terminate drop or block wiring on 88-type wiring blocks; always terminate on

protectors or other blocks, and cross-connect using 24-gauge wire to 88-type hardware.

3.27 More than five multiples of a given feature can be provided, when required, using one of the following methods:

- (a) Use a KS-19252,L2 (PCP) bridging adapter and the precabled wiring blocks (88BW1-25C or 88BW1-75C) to obtain ten multiples. Refer to Section 461-200-101 for information on the bridging adapter.
- (b) If the need for additional multiples is known at the time the blocks are cabled, 15 multiples can be provided using an 88BW1-75 wiring block and placing the cable end in all 15 index strips.
- (c) Where additions require more multiples than available, use one of the multiples to jumper to an unused or added wiring block. The jumpers should originate in the last appearance of the initial wiring block and terminate in the index strips of the new wiring block.

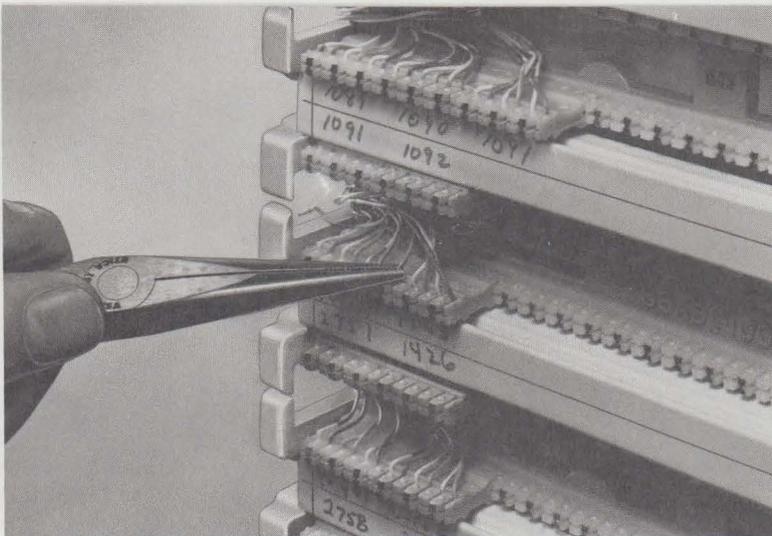


Fig. 25—Removing Cross-Connect Wire

4. MAINTENANCE

4.01 Connecting blocks would normally not be removed from wiring blocks except as follows:

- (a) When the cable is being removed.
- (b) To repair a cable conductor on the wiring block.
- (c) To replace a defective connecting block.

Always tag and identify all cables and their next point of termination. **Do not remove a connecting block during routine trouble shooting. Use appropriate test tools to isolate a fault. In most cases, the fault location will not be under the connecting block.**

4.02 There is no prescribed method of repairing a damaged connecting block; the connecting block must be replaced as follows:

- (1) Tag and remove the cross-connect wires from the connecting block.
- (2) Remove the designation strip from the wiring block.
- (3) Position the blade end of the 788K1 tool at the base of the connecting block over the cable pairs to retain them in the index strip while the connecting block is being removed (Fig. 26).
- (4) Using a pair of combination or side-cutting pliers, grip the 88-type connecting block firmly in the center as shown in Fig. 26, then gently pull with a slight up-and-down motion to release the connecting block from index strip. **Do not reuse connecting block.**
- (5) If the cable conductors were pulled out of the index strip on the wiring block, replace them as follows after cutting off old contact portion of wire:

- (a) Using a pair of long-nose pliers, grip each removed conductor individually and pull to obtain slack; then reposition the conductors in their original position on the index strip (be careful not to split pairs). If enough slack cannot be obtained to reposition the



Fig. 26—788K1 Lead Retention Tool

conductor in the index strips, it will be necessary to piece out the conductor (use wire having the same colored insulation and gauge; splice with Bell System or other approved connectors).

- (b) Using the 788D3 or D impact tool, seat the conductor firmly in the bottom of the index strip (Fig. 27).
 - (6) Place a new 88-type connecting block as outlined in Part 3 and replace the designation strip.
 - (7) Replace the tagged cross-connect wires in their original position as outlined in Part 3 after cutting off old contact part of wire.
- 4.03 The B key equipment test block can be used as an aid in isolating trouble in CO/PBX lines or for testing newly installed circuits. Table C lists the various tests that can be made and the test results expected. The test block may be used on the equipment wiring blocks with or without jumpers in place. Care must be taken to align the block on the T, R, A, A1, LG, and L terminals for the line being tested.

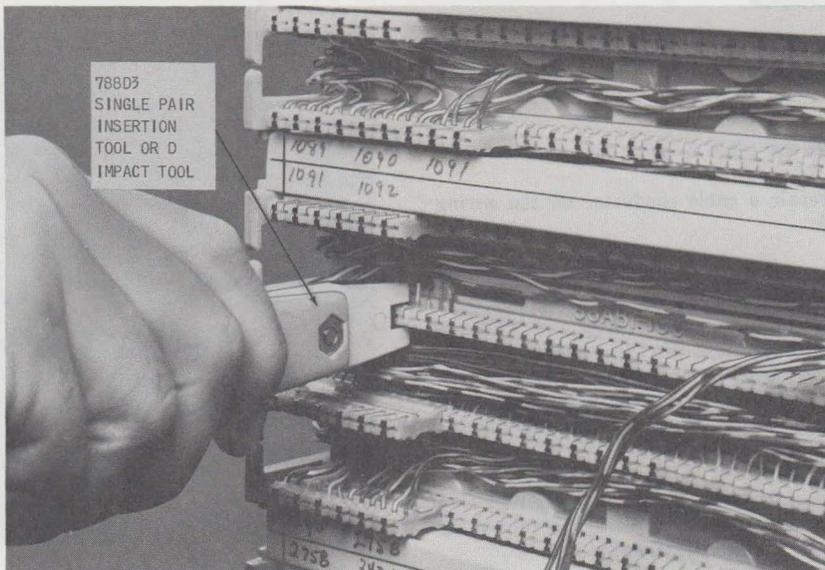


Fig. 27—Seating Conductors With Single-Pair Insertion Tool

4.04 ♦The lamps in the test block can be replaced as follows:

- (1) Use a straightened paper clip or equivalent to eject the lamp by inserting the clip in the small hole in the rear of the block, directly behind the lamp.
- (2) Insert the new lamp from the front, making sure the proper voltage lamp is used. The voltage of the lamp is marked directly above the ejection hole.

Replacement lamps can be obtained from Sylvania Electrical Products, Incorporated. For the 12-volt lamp (LP), use a 12ESB indicator lamp, code 31255-0. For the 48-volt lamp (T/R), use a 48ESB, code 34861-0.♦

4.05 In the event it becomes necessary to replace a cable due to trouble or rearrangements, follow the procedures in the following paragraphs:

Caution: Do not cut a working cable. Doing so may cause system troubles

or cause surge currents that can damage electronic components.

4.06 One method of cable rearrangement requires an unused index strip as follows:

- (1) Cut off existing inside wiring cable at the blue wiring block and remove designation strip.
- (2) Replace cable, using old cable to pull in new if in duct.
- (3) Remove sheath of new cable and cut down on a vacant index strip.
- (4) Install new connecting blocks on index strip in same position as old index strip.
- (5) At the cable cutoff in (1) above, trace each 3-pair jumper back to its origin on the red wiring block.
- (6) Remove the old jumpers, one at a time, and run new jumpers, terminating on the new index strip.

- (7) Replace designation strip, marking as required.
- (8) Remove connecting blocks and IW cable from old index strip. This strip can be used in future rearrangements.
- 4.07** An alternate method of cable rearrangement uses the existing index strip as follows:
- (1) Cut off the IW cable at the blue wiring block and remove the designation strip.
- (2) Replace cable, using old cable to pull in new cable if in duct.
- (3) Remove each 3-pair jumper from the connecting blocks, tagging each with its location.
- (4) Remove the connecting blocks and the stub ends of the cutoff cable.
- (5) Cut down the new cable on the index strip and install new connecting blocks in the same positions, as required.
- (6) Rerminate jumpers in proper position on connecting blocks, making sure to cut off old contact area.
- (7) Replace designation strip, re-marking if required.

TABLE C

B KEY EQUIPMENT TEST BLOCK OPERATION

SWITCH POSITIONS		LAMP INDICATIONS		TEST RESULTS
H	TST-TLK	T/R	LP	
Normal	Test	On	On	Normal—KTU OK, CO/PBX line OK
		Off	On	KTU OK—CO/PBX line open or short
		On	Off	KTU defective (A lead)—CO/PBX line OK
		Off	Off	KTU defective, missing or miswired
Depressed	Test	Off	Wink	Normal—if key system is wired for wink-on-hold
		Off	Steady	Station off-hook or short on line (Note 1)
		On	Off	KTU defective or faulty power supply
		Off	Off	KTU defective, missing or miswired
Normal	Talk	Off	On	Normal (Note 2)
		Off	Off	KTU defective, missing or miswired
Depressed	Talk	Off	Off	Normal
		Off	On	Station off-hook or short on line

Note 1: Normal if key system is wired for steady lamp on hold.

Note 2: If CO/PBX line is connected, it should be possible to dial out using hand test set connected to terminals.