

CONNECTING ARRANGEMENT CEK J53050E INTERCONNECTING UNIT

1. GENERAL

1.01 This section provides identification, operation, installation, maintenance, and connection information for Connecting Arrangement CEK using J53050E Interconnecting Unit (IU), formerly F58356 Interconnecting Unit.

1.02 This section is reissued to include reference to the J53050E IU, to provide information on both third wire and paired wire operation, and to add modification procedures for the F58356 IU (MD) when used for paired wire operation.

1.03 This issue of the section is based on the following drawings:

SD-1E229-01 Issue 3

CD-1E229-01 Issue 1, Appendix 1B

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawing(s), reference should be made to the SDs and CDs to determine the extent of the changes and the manner in which the section may be affected.

1.04 The J53050E IU (Fig. 1) is used to connect from 1 to 10 customer-provided (CP) message registers to Bell System equipment arranged for remote register operation. The J53050E IU arranged as shown in Fig. 4 (Option Z) or the F58356 IU arranged as shown in Fig. 6 is used for operation over a third wire; the J53050E IU arranged as shown in Fig. 5 (option Y) or the F58356 IU arranged as shown in Fig. 7, and modified as

shown in Fig. 8 and 9, is used for operation over paired wires.

1.05 If the customer wants a copy of the Technical Reference which covers this interface specification, the customer should contact the local Telephone Company Business Office or the Marketing Representative.

2. IDENTIFICATION

(a) Purpose

- To provide a connection from the central office (CO) message register (SXS, No. 1 or No. 5 Crossbar, and Panel Systems) or remote control applique circuit of No. 1 ESS to CP message registers.
- To limit excessive levels from CP equipment to provide protection for personnel against hazardous voltages.

(b) Application

Used with Voice Connecting Arrangement CD8 or CDH (loop or ground start trunks) which provide service for CP PBX.

(c) Ordering Guide

- J53050E Interconnecting Unit (one per each 10 or less CP message registers)

Associated Apparatus (Order Separately)

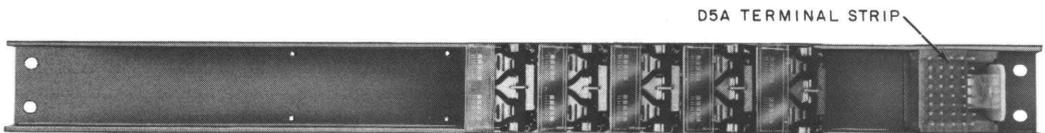


Fig. 1—J53050E Interconnecting Unit

- Block, Connecting, 66M1-50

Note: Other types of blocks may be used when specified by local engineering.

- Clip, Bridging, B (25 per pkg.)

(d) *Design Features*

- Components mounted on a 189A (2- by 23-inch) mounting plate for use with standard relay rack
- Detects message unit pulses from CO over third wire or paired wire connection
- Provides contact closure to CP message register when message unit registration from CO is detected
- Maximum loop resistance from IU to CO for paired wire operation is 2000 ohms
- Maximum resistance from IU to CO for third wire operation is 1250 ohms

3. OPERATION

3.01 Incoming Message Registration Pulse from the Central Office: When a station on the CP PBX originates a call for which a message charge will be registered and the CO equipment completes the connection to the called party, a message register in the CO operates, causing a contact closure to apply battery over the CO facility to the input lead (I-lead) of this connecting arrangement. Application of battery to the input lead operates the K relay closing the dry contacts in the output leads to the CP equipment. The K Relay remains operated for the duration of the message registration pulse and releases when the pulse ends. A diode-resistor network across the relay winding prevents the relay from releasing before a full pulse is transmitted to the CP equipment. The K Relay operates and releases each time a message registration pulse is received from the central office, providing the pulse rate is no faster than 10 pulses-per-second.

4. INSTALLATION

4.01 The J53050E Interconnecting Unit will mount on a standard relay rack or in the same equipment cabinet that houses the associated

CO trunk voice connecting arrangements (604A panel).

4.02 Electrical connection is made to the D5A terminal strip (Fig. 1) using a wire-wrap tool.

4.03 Terminate output leads for required quantity of circuits to the customer equipment on the 66M1-50 connecting block (stencil lead designations on designation strip, Fig. 2) which serves as an interface connecting block.

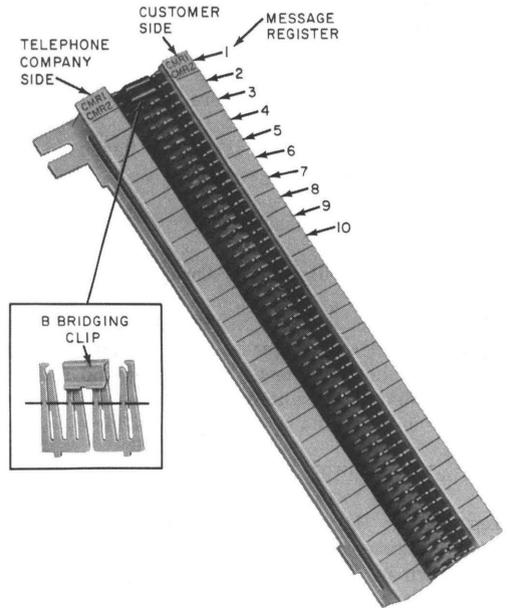


Fig. 2—Typical Interface Connecting Block

5. MAINTENANCE

5.01 When there is an indication of trouble in the connecting arrangement(s), the circuit at fault must be opened at the interface connecting block to verify in which direction the trouble exists. The circuit can be opened at the connecting block by removing the B bridging clip associated with each lead.

5.02 Precautions should be taken when performing tests to avoid adversely affecting service to the customer. Local instructions should be followed with reference to notifying the customer before performing the tests.

5.03 Apparatus Required to Perform Tests

- (a) A dc voltage source with a capability of 35 ma at 48 volts
- (b) Resistor, 2400 ohm $\pm 5\%$, 1 watt
- (c) Ohmmeter or buzzer capable of checking contact closure
- (d) Clip leads for connecting battery and ground to the interconnecting unit.

5.04 Tests—J53050E or F58356 Interconnecting Unit

- (a) Open the two leads of the circuit under test at the interface connecting block. Remove the I-lead of the circuit under test at the 66B3-50 connecting block (when paired wire operation is used also remove the G-lead of the circuit under test). With ground connected to the circuit under test, apply -48 ± 3 volts through the 2400 ohm resistor to the I-lead of the circuit under test (see Table A). Observe that the relay associated with the circuit under test operates. At the interface connecting block check for closure across leads CMR1, CMR2 associated with circuit under test.
- (b) Using Table A and Fig. 4, 5, 6, or 7, perform the preceding tests on all circuits on the interconnecting unit.
- (c) On completion of tests, reconnect leads I- (and G-leads when paired wire operation is used) to the 66B3-50 connecting block and replace the B bridging clips at the interface connecting block associated with the circuit under test.

5.05 If the trouble is toward the CP equipment, inform the customer that the trouble tests toward his equipment. ⚡

♦TABLE A♦

CKT NO.	INPUT LEADS*	RELAY ON UNIT	CMR1,CMR2 LEADS-MESSAGE REGISTER NO.
1	I1,G1	K1.0	1
2	I2,G2	K2.0	2
3	I3,G3	K1.1	3
4	I4,G4	K2.1	4
5	I5,G5	K1.2	5
6	I6,G6	K2.2	6
7	I7,G7	K1.3	7
8	I8,G8	K2.3	8
9	I9,G9	K1.4	9
10	I10,G10	K2.4	10

*Apply battery to I leads and ground to G leads; when third wire operation is used, only one G lead per unit is provided.



Do not attempt any tests or repairs to the customer-provided equipment.

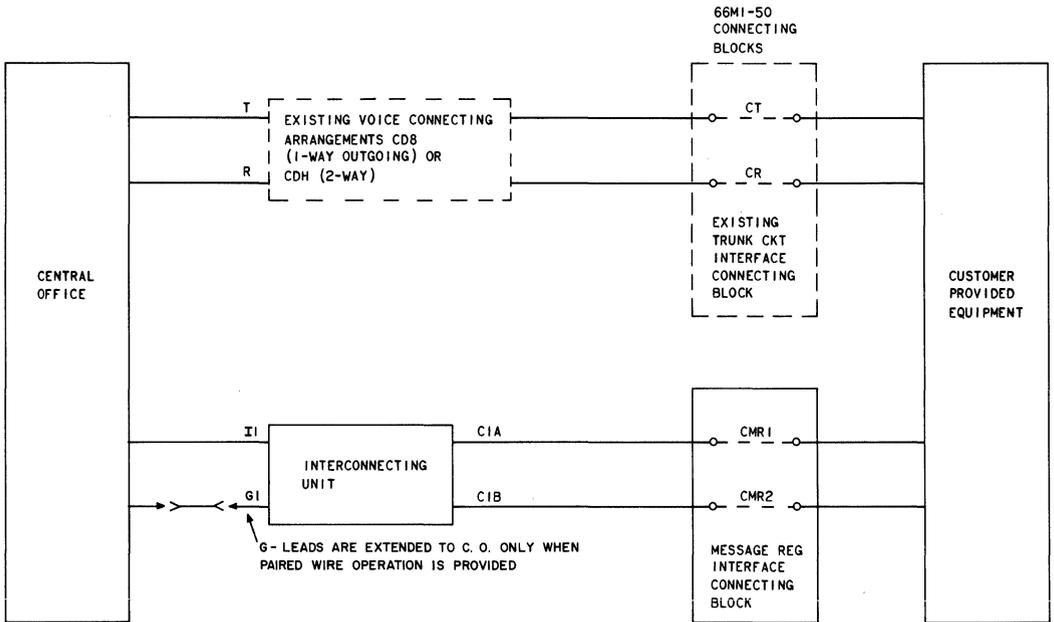
6. CONNECTIONS

6.01 For connecting information, refer to Fig. 2, 3, 4, ♦5, 6, 7, 8, and 9. ⚡

7. ♦F58356 IU MODIFICATION

7.01 The F58356 IU may be locally modified for use in paired wire operation. The common ground used in the F58356 IU must be replaced with an individual ground path from each circuit to the D5A terminal strip. Perform the modification as follows:

- (a) Cut the bare strap wires between the bottom terminals on the terminal board on which networks Z1.0-Z1.4 and Z2.0-Z2.4 are mounted (see Fig. 8 and 9).



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Fig. 3—Typical Installation of Connecting Arrangement CEK, Block Diagram

(b) Remove the black ground wire multiple (see Fig. 8 and 9) from terminals 1 upper and 1 lower of all relays. Remove the black ground wire from terminal 1B of the terminal board on which the networks are mounted. **Do not** remove the black ground wire from terminal 11

of the D5A terminal strip to terminal 1U of K1.0 relay.

(c) Using black, 24AWG wire or equivalent, refer to Fig. 9 and provide individual ground wiring as shown in Table B.

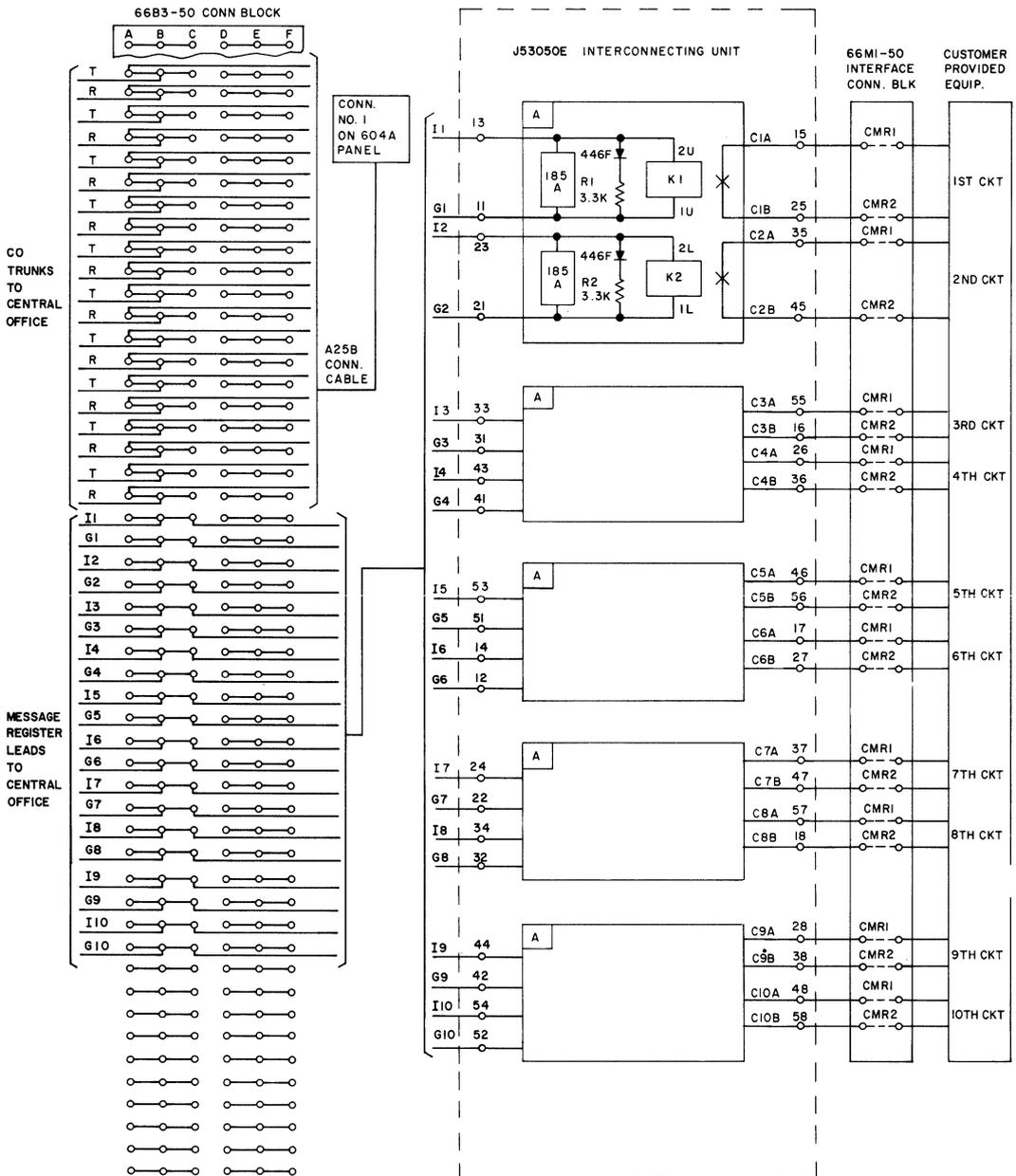


Fig. 5—Connecting Arrangement CEK, Paired Wire Operation, Using J53050E Interconnecting Unit (Option Y), Schematic

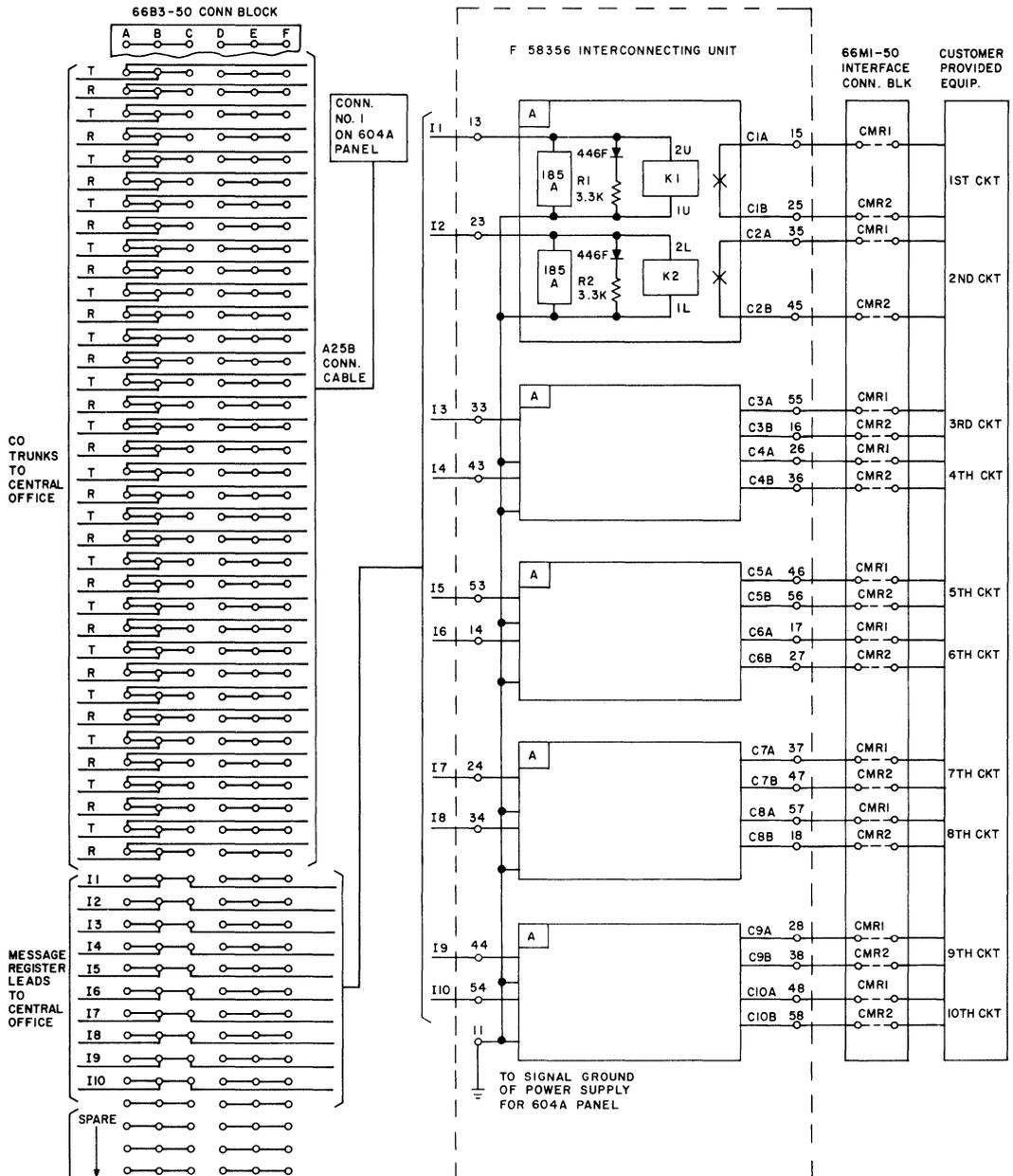


Fig. 6—Connecting Arrangement CEK, Third Wire Operation, Using F58356 Interconnecting Unit, Schematic

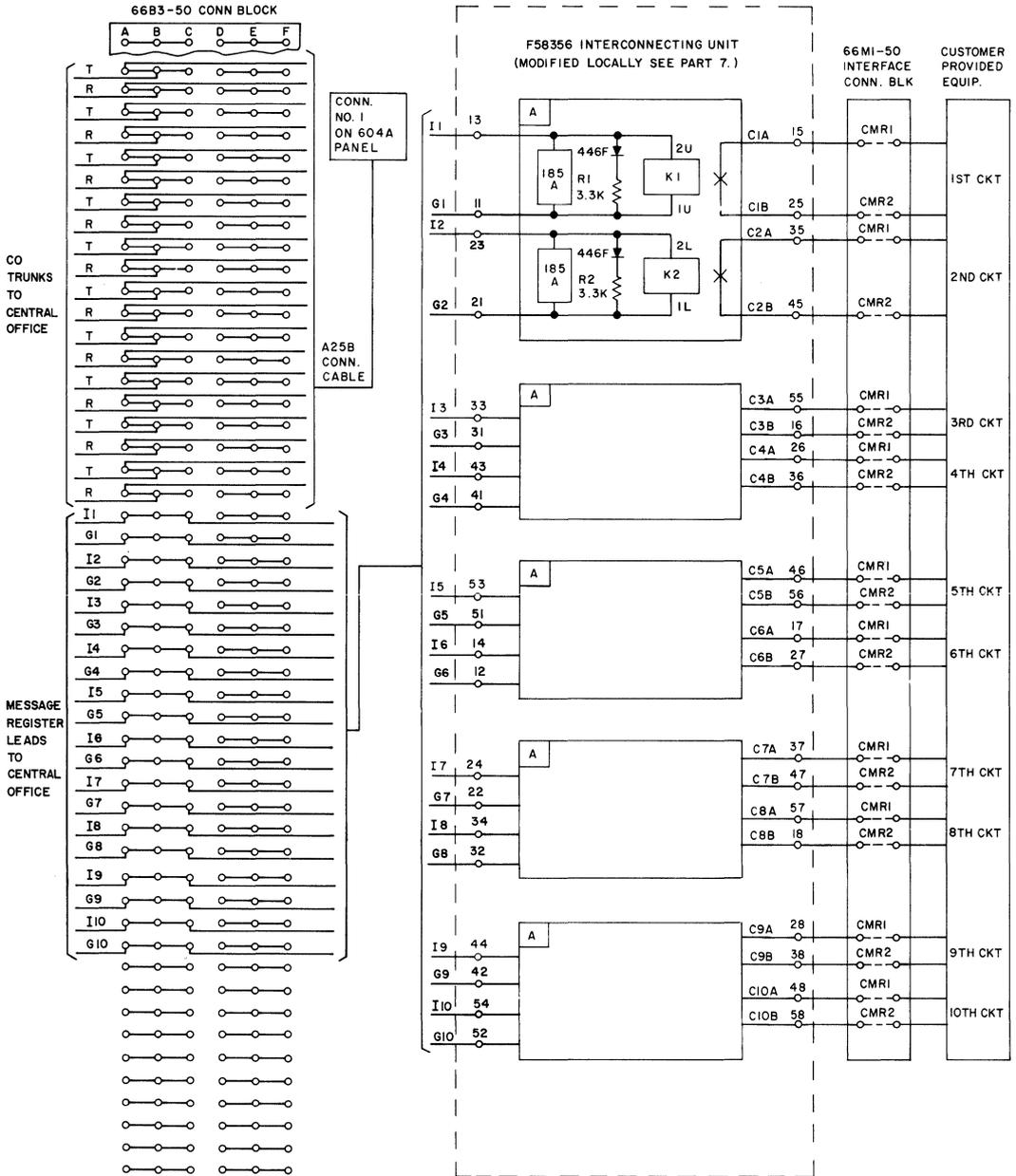


Fig. 7— Connecting Arrangement CEK, Paired Wire Operation, Using Modified F58356 Interconnecting Unit, Schematic

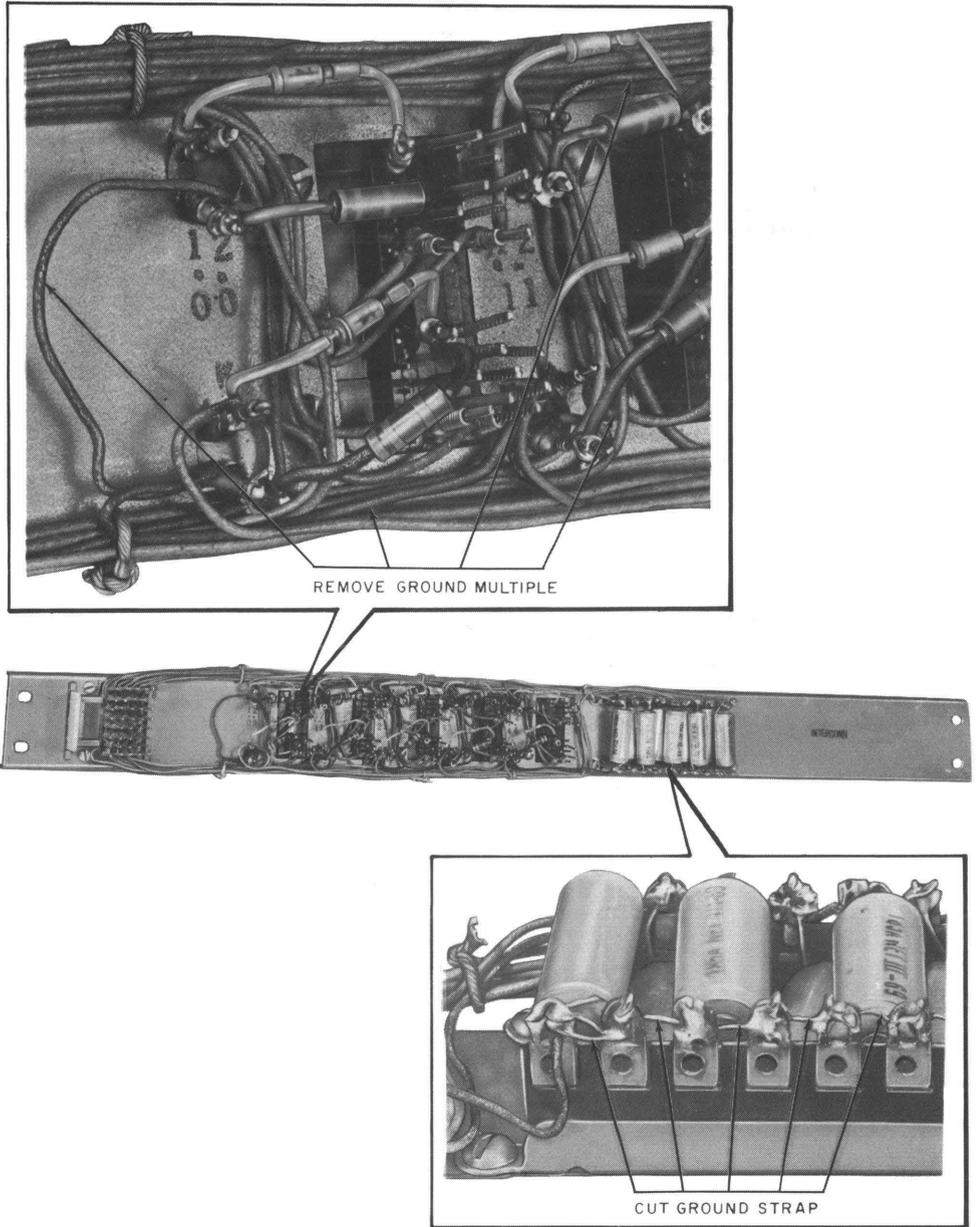


Fig. 8—F58356 Interconnecting Unit, Unmodified

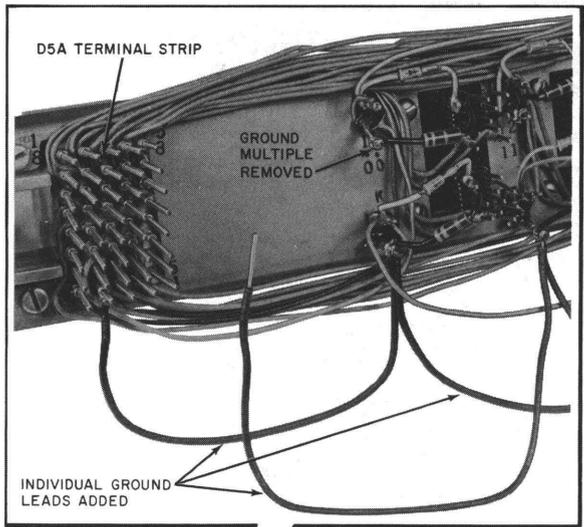
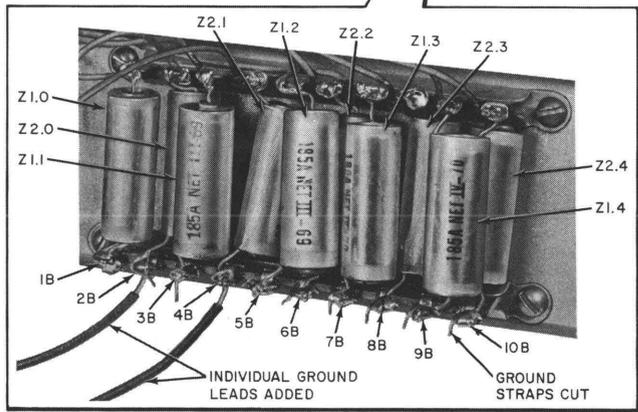
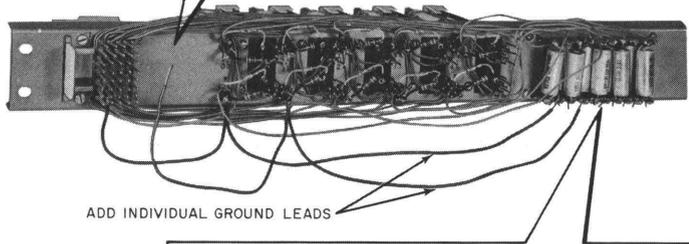


TABLE B
CONNECT INDIVIDUAL GROUND WIRE

FROM		TO		TO
NETWORK	TB TERM. NO.	RELAY	TERM. NO.	D5A TERM. NO.
Z1.0	1B	K1.0	IU	11*
Z2.0	2B	K2.0	IL	21
Z1.1	3B	K1.1	IU	31
Z2.1	4B	K2.1	IL	41
Z1.2	5B	K1.2	IU	51
Z2.2	6B	K2.2	IL	12
Z1.3	7B	K1.3	IU	22
Z2.3	8B	K2.3	IL	32
Z1.4	9B	K1.4	IU	42
Z2.4	10B	K2.4	IL	52

* THE WIRE FROM K1.0 RELAY TERM. IU TO D5A BLOCK TERM. 11 SHOULD ALREADY BE WIRED IN—SEE 7.01(b)



◆ Fig. 9—F58356 Interconnecting Unit, Modification For Paired Wire Operation ◆