

STATION SYSTEMS  
NO. 6B KEY EQUIPMENT  
DIAL SELECTING OBSERVING  
FOR USE WITH OR WITHOUT LOUDSPEAKER**SECTION I - GENERAL DESCRIPTION**1. PURPOSE OF CIRCUIT

1.01 This circuit provides means for:

- (a) Connecting observing equipment by means of a dial and switch to a PBX station line, trunk, attendant telephone set, supervisor circuit, information desk trunk, and position circuit, or central office subscriber line.
- (b) Connecting to repair service desks and local test desks.
- (c) Connecting a head receiver or loudspeaker to the observing equipment.
- (d) Modifying a PBX attendant telephone set for observing purposes.

**SECTION II - DETAILED DESCRIPTION**1. DIALING

1.01 When the observer operates the DIAL key, Fig. 2 or Fig. 9, it causes the associated A relay of the switch to operate through the contacts of the dial and in turn operates the B relay. The B relay operates the H relay which opens the observing circuit to the brushes and operates the G relay through resistor B. The B relay also closes a partial circuit for the operation of the J relay to the back contact of the A relay and finally closes a holding circuit for the J relay. The observer then proceeds to dial the first digit. On the first pulse, the A relay releases and operates the J relay which removes the shunt around the C and D resistors, and the J relay locks through its own contacts under control of the vertical magnet springs. The J relay also shunts down the G relay through resistor B. The G relay serves to hold the B relay operated during pulsing. The A relay also operates the VERT magnet and the C relay. On the first operation of the VERT magnet, the switch steps and operates the vertical off-normal spring, and the C relay, being slow to release, maintains the circuit for the VERT magnet for the remainder of the pulses. As shown, the VERT magnet opens the circuit for the J relay which releases and in turn removes the shunt around the G relay which reoperates. This operation continues throughout the first digit. At the termination of the first digit, the C relay releases which closes a

partial circuit for the future operation of the ROT magnet. On the first pulse of the second digit, the A relay releases and the operation of the J and G relays is the same as described above for the first digit. However, in this case, the ROT magnet and the E relay operate. The E relay operates the F relay which opens a part of the ROT pulsing circuit, but the pulsing circuit is maintained through the E relay which is slow to release. The F relay locks through its own contacts under control of the B relay.

2. CUT-THROUGH

2.01 At the end of the second digit, the E relay releases and in turn releases the H relay which closes through the observing circuit to the T and R brushes of the connector, and the observer is in a position to observe. The H relay releases the G relay.

3. DISCONNECTION

3.01 When the observer releases the DIAL key in Fig. 2 or 9, the A relay releases. The A relay released operates the J relay momentarily until the B relay releases. The B relay releases the J relay and energizes the RLS magnet and the switch restores to normal.

4. LOUDSPEAKER, FIG. 5

4.01 Fig. 5 is used when a loudspeaker is required for observing, and when the key in this figure is operated it disconnects the receiver in Fig. 4 or associated with Fig. 6 or 10 and connects the loudspeaker set to the observing equipment.

4.02 The 106A loudspeaker set is a transistorized replacement for the 100-type loudspeaker set. The 106B loudspeaker set is a 106A with the addition of an automatic volume control.

4.03 The 107-type loudspeaker shall be used in place of the 106A loudspeaker when a low volume from the loudspeaker is adequate.

5. USE OF FIG. 3

5.01 Fig. 3 is used to observe on attendant telephone sets which do not have monitoring taps or, where necessary, to reduce the click heard by an attendant when the connector connects to a position.

## 6. CLICK REDUCTION

6.01 The varistor is provided in Fig. A, B, and C to reduce the intensity of the clicks in the receiver. With normal voltages the resistance of the varistor is very high, but on an increase of voltage the resistance is reduced to a very low value which reduces the intensity of the clicks heard in the receiver.

## 7. ADJUSTMENTS

- (a) When using a 106A loudspeaker set, adjust inside potentiometer at bottom of unit to eliminate extensive volume at maximum setting of volume control on front of unit.
- (b) When using a 106B loudspeaker set, adjust inside potentiometer on side of unit, which controls the automatic volume control, to give equal output level to all voices. Then adjust inside potentiometer at bottom of unit as per (a).
- (c) If the 106-type loudspeaker set is powered by 24 volts direct current, replace the 2Y pilot light lamp with a 2U lamp. If 106-type loudspeaker set is powered by J87202 power supply, replace the 2Y pilot light lamp with a 2T lamp.

## SECTION III - REFERENCE DATA

### 1. WORKING LIMITS

#### 1.01 Dial Leads:

Maximum external circuit  
loop - 50 ohms, 32V min,  
750 ohms, 45V min  
Minimum insulation  
resistance - 20,000 ohms

### 2. FUNCTIONAL DESIGNATIONS

None.

### 3. FUNCTIONS

3.01 Select by means of a dial, key, and switch, a station line, trunk, attendant telephone set, supervisor circuit,

information desk trunk, and position circuit, or central office subscriber line.

3.02 Provide means for observing on miscellaneous circuits listed in 3.01 with the aid of a head receiver or a loudspeaker.

3.03 Provide means for obtaining access to two connectors to increase the number of circuits available for observation.

## 4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a key-sheet, the connecting information thereon is to be followed. The following are typical connecting circuits:

- (a) PBX Station Line Circuit.
- (b) PBX Trunk Circuit.
- (c) Central Office Subscriber Line Circuit.
- (d) PBX Attendant Telephone Circuit - SD-66654-01, or similar circuit.
- (e) PBX Supervisor Circuit - SD-66263-01, or similar circuit.
- (f) PBX Information Desk Trunk and Position Circuit - SD-66670-01.
- (g) Telephone Circuit Local Test Desk No. 14 - SD-95754-01.
- (h) Telephone Circuit Repair Service Desk No. 2 - SD-95717-01.

## SECTION IV - REASONS FOR REISSUE

### D. Description of Changes

- D.1 Connection to local test desks and repair service desks are added.
- D.2 Working limits of the dial leads are extended to 750 ohms with a minimum of 45 volts.

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DEPT 5335-RT-GES

STATION SYSTEMS  
NO. 6B KEY EQUIPMENT  
DIAL SELECTING OBSERVING  
FOR USE WITH OR WITHOUT LOUDSPEAKER

CHANGES

B. Changes in Apparatus

<u>B.1</u>	<u>Removed</u>	<u>Replaced By</u>
	404B jack, Fig 10.	549A jack, Fig. 10
	283B plug, Fig 11.	505A plug, Fig. 11

D. Description of Changes

D.1 The apparatus removed has been rated Mfr Disc.

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[illegible]

DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
1	1	2D	2D	3D	3D
4D	4D	5D	5D	6D	6D
7D	7D	8D	8D	9D	9D
DWG ISS	EE OR CD ISSUE	DATE ISSUED	DRAWN	APPD	
10D	Q D APPR 1.4	2-10-59	87/10 DHC	WFW LHA	
11D	11D	11-1-61	DIR DHC	FD LHA	
12D	12D	5-23-62	GMB DHC	FD LHA	
13D	13D	9-24-63	P.G. DHC	FD LHA	
14D	14D	2-19-66	AHS DHC	FD LHA	
15D	15D	8-6-69	WBM DHC	FD LHA	
16D	15D APP 10	3-10-70	HOM DHC	FD LHA	

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE: JOD.

CATEGORY	NO.
EQUIPMENT INFO	ED-69069-01 ED-69058-01

SD-69069-01		1K02	AT&TCO STANDARD
STATION SYSTEM'S NO. 6B KEY EQUIPMENT DIAL SELECTING OBSERVING FOR USE WITH OR WITHOUT LOUDSPEAKER			
BELL TELEPHONE LABORATORIES		DWG. SIZE 3S	SD-69069-010 7 SHEETS PRINTED IN U.S.A.

## CIRCUIT NOTES:

101. DESIG	AMP	POTENTIAL FUSED	ONE PER
	1-1/3	48V	FIG. 1
BATTERY SYMBOL -48			
VOLTAGE RANGE 32 - 50V			

102. FEATURE OR OPTION		PROVIDE	
		FIG.	APP OR WIR
CONN	179A NETWORK	1	Y
ONE CONN STA EQPT		2	
REP COIL		3	
SINGLE HEADSET		4	
LS	CONNECTION TO 106A LS SET	5	W
KEY	CONNECTION TO 106B LS SET		V
ARR	CONNECTION TO 107-TYPE LS SET		T
HEADSET JACK		6	
TWO CONN STA EQPT		9	
HEADSET JACK		10	
DOUBLE HEADSET		11	
SINGLE HEADSET		12	
J87202 POWER SUP. CONNECTION & STRAPPING OF 106-TYPE LS		13	
CONNECTING CKT FOR MONITORING		14	
24V DC POWER CONNECTIONS & STRAPPING OF 106-TYPE LS		15	
48V DC POWER CONNECTIONS & STRAPPING OF 106-TYPE LS		16	
CONNECTIONS FOR 107-TYPE LS			

103. NETWORK VALUES			
NETWORK		RESISTANCE IN OHMS	CAPACITANCE IN UF
NO.	CODE		
1	179A	150	1

104. RECORD OF FIGURES, WIRING AND APPARATUS CHANGES							
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT			
				STD	A&W	MD	
80				FIG. 10		FIG. 6	
				FIG. 11		FIG. 7	
				FIG. 12		FIG. 8	
110				FIG. C		FIG. 8	
	Y	Z		Y		Z	
	V, W	X		V, W		X	
130	V, W			T			
140				FIG. D		FIG. C	

## CIRCUIT NOTES: (CONT)

105. PROVIDE FIG. 3 WHEN OBSERVING ON PBX ATTENDANT WHEN THE PBX ATTENDANT TELEPHONE SET IS NOT PROVIDED WITH MONITOR TAPS, OR WHERE NECESSARY TO REDUCE CLICKS.
106. REPEATING COIL SHALL BE MOUNTED IN THE SWITCH BOARD SECTION WITH THE ATTENDANT TELEPHONE CIRCUIT.
107. PRIOR TO ISSUE 40, THE D-96231 SUBSCRIBER SET WAS NOT EQUIPPED WITH A VARISTOR.
108. PRIOR TO ISSUE 60, FIG. A WAS PART OF FIG. 2 AND FIG. B WAS NOT SHOWN.
109. PRIOR TO ISSUE 80, THE 6A DIAL WAS NOT SHOWN.
110. PROVIDE FIG. 9 FOR OPERATION WITH TWO CONNECTORS. OTHERWISE PROVIDE FIG. 2.
111. FIG. C (MFR DISC.) OR FIG. D IS MOUNTED IN A 105 APPARATUS BOX.
112. POWER CONNECTIONS FOR FIG. 14 AND 15 SHALL BE FUSED FOR 1/2 AMP IN THE NEGATIVE LEAD.

## WORKING LIMITS:

TO DIAL - MAX. EXT CKT LOOP 50  $\Omega$ , 32V MIN, 750  $\Omega$ , 45V MIN.  
MIN INS RES 20,000  $\Omega$ .

FIGURES AND OPTIONS ON THIS DWG		
CKT FIG.	APP OR WIRING	
1	A	Z
2	B	Y
3	C	X
4	D	W
5		V
6		T
7		
8		
9		
10		
11		
12		
13		
14		
15	16	

DRAWING  
ISSUE

11D

DNR

DNR

12D

DNR

DNR

13D

DNR

DNR

14D

DNR

DNR

15D

STATION SYSTEMS

NO. 6B KEY EQUIPMENT

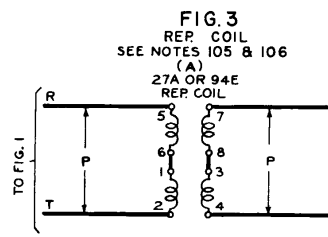
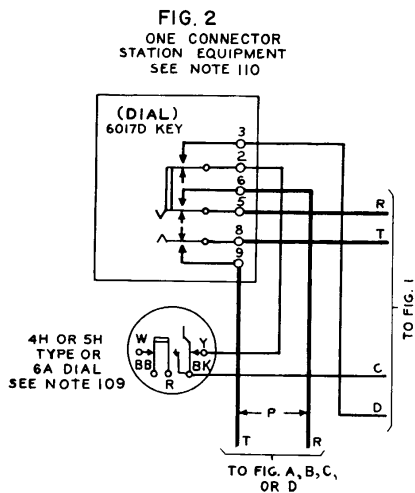
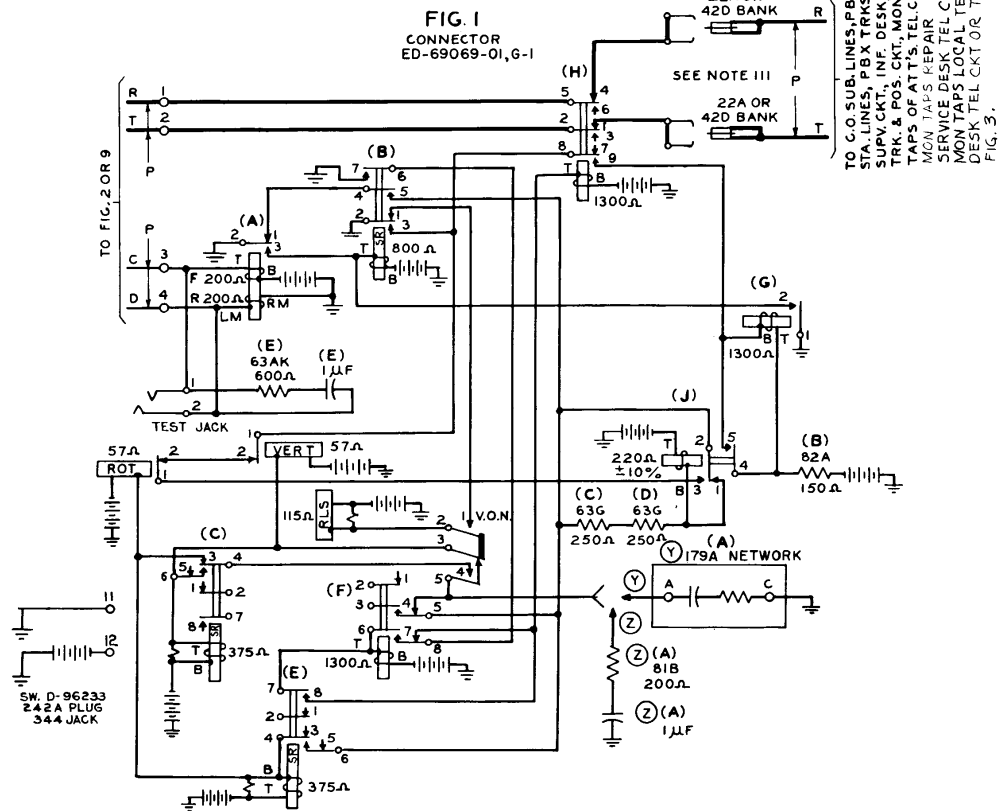
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DRAWING		ISSUE
100	57A	100
110	57A	110
140	57A	140
150	57A	150



CONNECT ACROSS LINE TERMINALS  
OF IND. COIL OF PBX ATND'S TEL  
SET OR TO MON TAPS REPAIR  
SERVICE DESK TEL CKT OR MON  
TAPS LOCAL TEST DESK TEL CKT

FIG. 7 (MFR DISC.)  
DOUBLE HEADSET

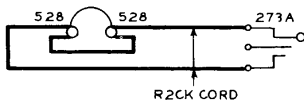


FIG. 8 (MFR DISC.)  
SINGLE HEADSET

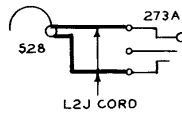


FIG. 11  
DOUBLE HEADSET

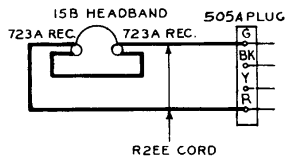


FIG. 12  
SINGLE HEADSET

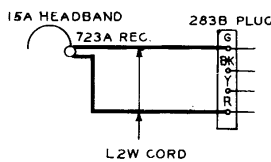


FIG. 4  
SINGLE HEADSET

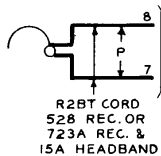


FIG. 6 (MFR DISC.)  
HEADSET JACK

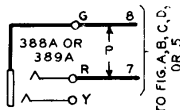


FIG. 10  
HEADSET JACK

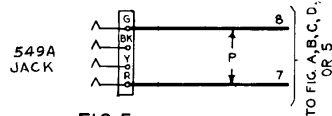


FIG. 5  
LOUDSPEAKER KEY ARRANGMENT  
PROVIDE FIG. 5 WHEN  
LOUD SPEAKER SET IS REQD.

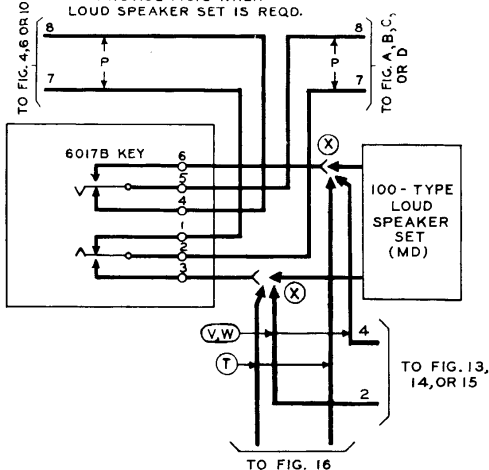


FIG. 9  
TWO CONNECTOR  
STATION EQUIPMENT  
SEE NOTE 110

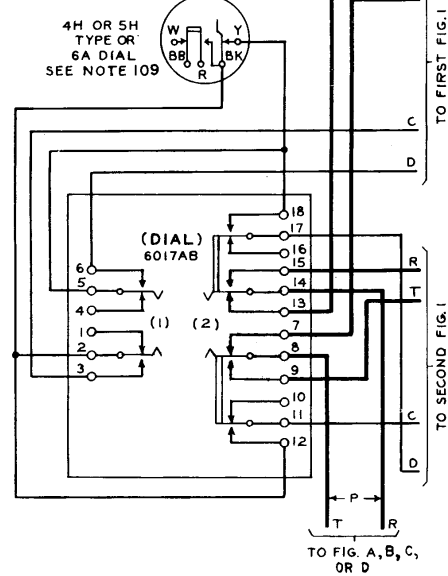


FIG. A (MFR DISC.)

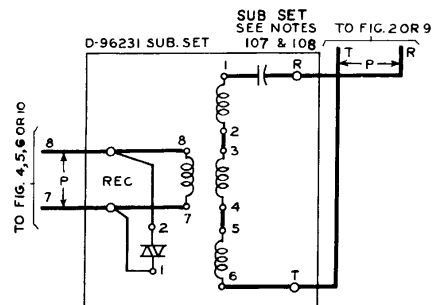


FIG. B (MFR DISC.)  
SUB SET  
SEE NOTE 108

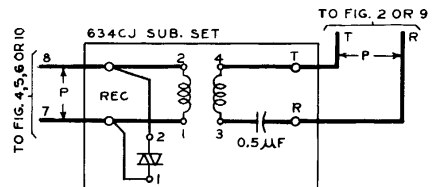
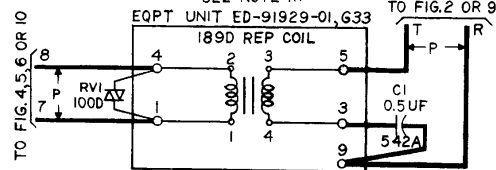


FIG. D  
CONNECTING CIRCUIT FOR MONITORING  
SEE NOTE 111



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DRAWING	ISSUE
10D	STAR
11D	DISC
12D	DISC
13D	DISC
14D	DISC
15D	DISC

FIG. C (MFR DISC.)  
CONNECTING CKT FOR  
MONITORING  
SEE NOTE III

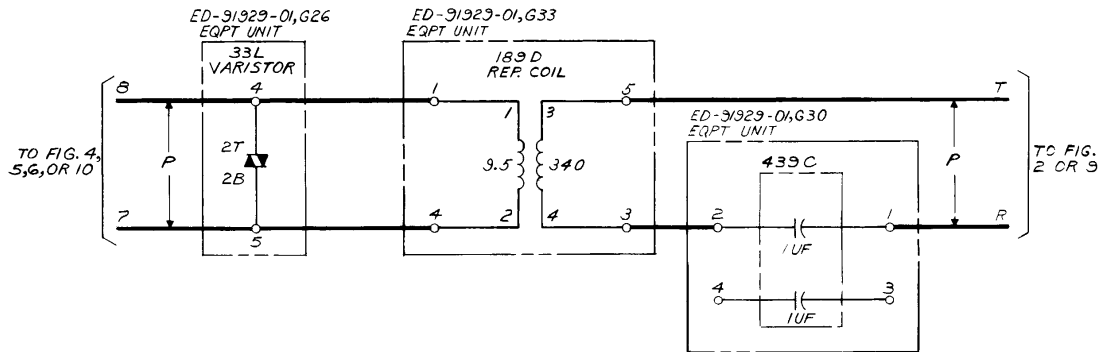


FIG. 13  
JB7202 POWER SUPPLY  
CONNECTION AND STRAPPING  
OF 106-TYPE LOUDSPEAKER

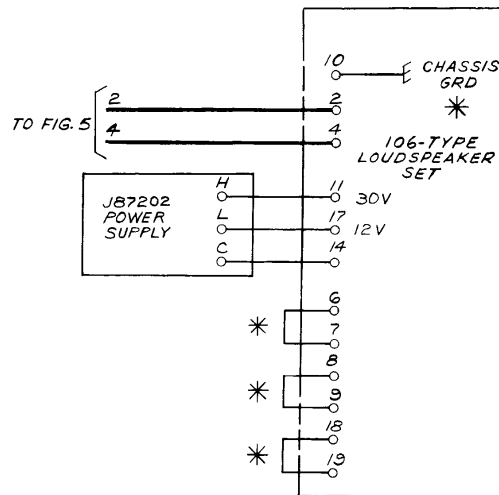


FIG. 15  
48V DC POWER  
CONNECTIONS AND STRAPPING  
OF 106-TYPE LOUDSPEAKER  
SEE NOTE 112

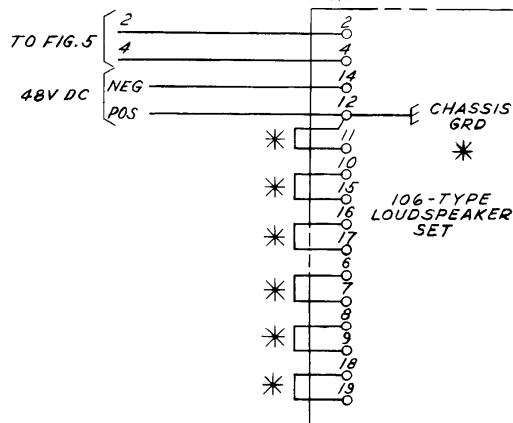


FIG. 14  
24V D.C. POWER  
CONNECTIONS AND STRAPPING  
OF 106-TYPE LOUDSPEAKER  
SEE NOTE 112

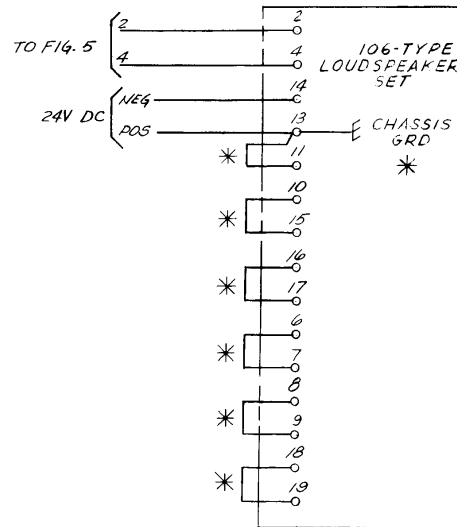
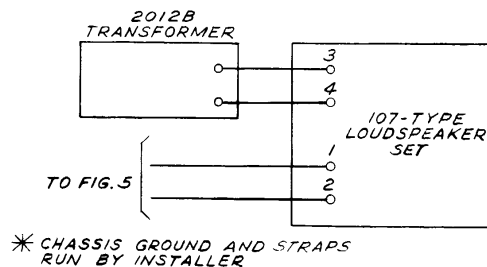


FIG. 16  
CONNECTIONS FOR  
107-TYPE LOUDSPEAKER SET



\* CHASSIS GROUND AND STRAPS  
RUN BY INSTALLER

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[illegible]

FIG. 1K

CONNECTOR TERMINAL ARRANGMENT

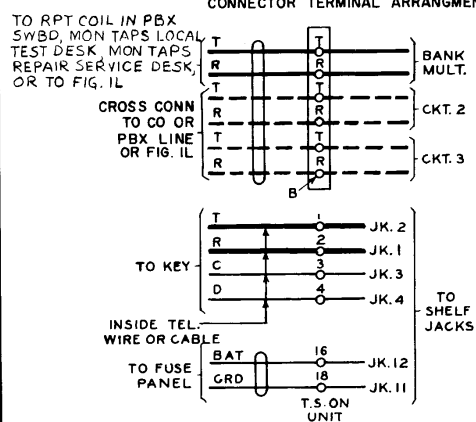
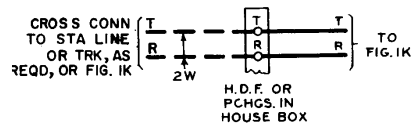


FIG. 1L



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