

STATION SYSTEMS  
CONTROL STATION CIRCUIT  
FOR USE WITH CENTRAL OFFICE  
GROUP ALERTING SYSTEM

1. PURPOSE OF CIRCUIT

This circuit permits a dispatcher to alert selectively and pass information to telephone customers who are members of community volunteer fire departments or other similar organizations.

2. WORKING LIMITS

The maximum external loop resistance for proper operation of the (R) relay, Fig. 1, is 1500 ohms based on a minimum 20-cycle ringing current of 80 volts and 10,000-ohm minimum insulation resistance.

3. FUNCTIONS

This circuit provides for:

- (a) Initiation and termination of an alert to select groups by dialing a preset code.
- (b) Idle line termination to permit a continuous test of line facilities by the central office control circuit for trouble indications.
- (c) Dual line facilities to ensure uninterrupted service.
- (d) An associated 2A telephone answering set to permit recorded announcements to be connected to the alerting network and for the announcements to be repeated until the termination of the alert.
- (e) Signal and voice monitoring arrangements to permit a check of system integrity.

4. CONNECTING CIRCUITS

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

- (a) Common Systems - Control Circuit for Alerting System - SD-95883-01.
- (b) Common Systems - Line Circuit for Alerting System - SD-95884-01.

5. DESCRIPTION OF OPERATION

5.1 LIVE AND RECORDED ANNOUNCEMENTS AND MONITORING, FIG. 1, 2, AND 4

This circuit is designed to work in conjunction with a 2A telephone answering set. Power for operation of the line and control circuit, Fig. 1, is provided by a 48-volt dc supply in the 2A telephone answering set. Therefore, the answering set ON-OFF switch must be turned to ON at all times for proper operation of all circuit functions.

5.11 Initiation of Alert

With the receiver off-hook at the key telephone set, Fig. 2, and the first pickup key operated, the telephone set is connected to the regular control line. A path is prepared for the operation of the (ON) relay, Fig. 1, through operated contacts of the pickup key and the switchhook.

When an alert code is dialed, the operate path for the (ON) relay is completed through the off-normal contacts of the dial. Operation of the (ON) relay (a) removes the idle line termination (A) inductor, Fig. 1, from across the line and (b) removes the 2A telephone answering set input from across the telephone set. Upon the completion of pulsing, the off-normal springs of the dial open, releasing the (ON) relay. The idle line termination is restored to the line, and the answering set input is reconnected to the telephone set. If a recorded announcement is desired for repetition of the alert, the answering set function switch is set to ANNOUNCEMENT-DICTATE and the OPERATE button is depressed when making an announcement. The alert announcement is simultaneously recorded and sent to the alerting network.

5.12 Repeat Recorded Announcements

In order to repeat a recorded announcement to the alerting network, the 2A telephone answering set function switch is set to AUTOMATIC-ANSWER and the second pickup key, Fig. 2, is operated. The operated pickup key operates the (TR) relay, Fig. 1. The (TR) relay on operating (a) connects the output of the answering set to the regular line and (b) grounds the "ST" lead, Fig. 1, which causes the answering set to recycle and repeat the recorded announcement to the network over the regular control line. The handset may be replaced

on hook. Release of the second pickup key will release the (TR) relay. The released (TR) relay removes the 2A telephone answering set from the regular line and stops recycling of the 2A telephone answering set.

### 5.13 Termination of Alert

In order to terminate an alert, the first pickup key must be reoperated, the handset taken off hook, and a termination code dialed.

### 5.14 Alternate Control Line

An alternate control line may be provided in case of failure of the regular line. The alternate control line is selected by operation of the third pickup key, Fig. 2. Operation of the circuit functions is the same as described in 5.11.

In order to connect the 2A telephone answering set to the alternate line, the fourth pickup key is operated. A contact on the operated pickup key operates the (TR1) relay, Fig. 1. The (TR1) relay operating (a) connects the output of the answering set to the alternate control line and (b) grounds the "ST" lead, Fig. 1, which causes the answering set to continue to recycle.

### 5.15 Monitoring

A monitor line is provided to check the integrity of the alerting network. When an alert is dialed, interrupted 20-cycle ringing current is connected to the monitor line by the central office alerting line circuit. The interrupted 20-cycle

ringing current causes the (R) relay, Fig. 1, to operate and release. The (R) relay flashes the lamp in the fifth pickup key, Fig. 2. This indicates that the alert has been received and that the alerting network is being signaled. After the answering set is connected to the control line, operation of the fifth pickup key, which is nonlocking, will connect the (C) inductor across the monitor line to trip the ringing signal and hold the line. With the key held operated, the rebroadcast of the recorded announcement to the alerting network can be monitored.

### 5.2 LIVE ANNOUNCEMENTS ONLY, FIG. 3

With the receiver off-hook, the idle line termination (A) resistor, Fig. 3, is removed from across the control line to permit dialing of an alert code. An alert is terminated by dialing a termination code. Restoration of the handset to on-hook reconnects the idle line termination across the control line.

### 5.3 IDLE LINE TERMINATION

The idle line termination is provided on the control lines to permit a continuous test of line facilities by the central office control circuit for trouble indications.

### 5.4 RESISTOR TERMINATIONS

Both M12 of the (ON1) relay and M1 of the (ON) relay, Fig. 1, are used as mounting terminals for the (D) and (E) resistors, respectively, and have no circuit function.

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DEPT 5113-PRK-PBF

STATION SYSTEMS  
CONTROL STATION CIRCUIT  
FOR USE WITH CENTRAL OFFICE  
GROUP ALERTING SYSTEM

CHANGES

B. Changes in Apparatus

SUPERSEDED

500DR Telephone Set  
Fig. 3

SUPERSEDED BY

500S Telephone Set  
Fig. 5

D. Description of Changes

- D.1 Fig. 3 is rated Mfr Disc. and replaced by Fig. 5.
- D.2 Circuit Note 106 is rated Mfr Disc. and replaced  
by Circuit Note 108.

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DEPT 5324-ADA-GAP

# SHEET INDEX (INITIATED ON ISSUE 3)

FIG.	CONTENTS	SHEET NO.	ISSUE NO.																		OLD SHEET NO.
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	CIRCUIT NOTES INFORMATION NOTES WORKING LIMITS FIGURES & OPTIONS FIG. 101	B1	3																		-011
1 4	LINE & CONTROL CKT (MD) CONN BLOCKS IN NO. 2A TEL ANSWERING SET. SEE NOTE 107 (MD)	C1	3																		-012
2	KEY TEL CONTROL STA CKT (MD)	C2	3																		-013
3	CONTROL STA CKT (MD)	C3	3																		-014
5	CONTROL STA CKT SEE NOTE 108	C4	3																		
	CIRCUIT REQUIREMENTS	D1	3																		-014

DWG 188	CD 188	DWG 188	CD 188	DWG 188	CD 188
1	1	2D	APP 10		
DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APP	
3A	1	APP 2A	3-4-65	HBW	ADP
			DHC	GAP	ARM

## SHEET INDEX NOTES

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: 3A.

## SUPPORTING INFORMATION

CATEGORY	NO.

PARTIALLY REPLACED BY SD-69385-01

SD- 69364-01

STATION SYSTEMS  
CONTROL STATION CIRCUIT  
FOR USE WITH CENTRAL OFFICE GROUP  
ALERTING SYSTEM

AT&TCO  
STANDARD

SD-69364-01-A1  
7 SHEETS

BELL TELEPHONE LABORATORIES  
INCORPORATED

DWG 615  
3S

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CIRCUIT NOTES:

101.	DESIG	AMP	POTENTIAL FUSED	ONE PER

102.	FEATURE OR OPTION	FIGS	APP. OR WIR	QUANTITY
	CONTROL STATION CKT - LIVE ANNOUNCEMENTS ONLY	5		ONE PER INSTL

103.	NETWORK	NETWORK VALUES	
	NO.	CODE	RESISTANCE IN OHMS
			CAPACITANCE IN UF

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&M	MD	
	2D						FIGS. 1,2,4	

105. MODIFY THE KEY TELEPHONE SET OF FIG. 2 AS SHOWN IN THE FOLLOWING TABLE AND NOTES:

LEAD	BK-BR	Y	BK	Y-BK
CORD CONDUCTOR		OR-BK		
FROM	X	L1	ON1	IT
TERM.	TO	RR	X	L2

CONVERT PICKUP KEY NO. 5 TO NON-LOCKING BY REMOVING SCREW DETAIL P-12A892 FROM THE PLUNGER. PLACE A 51A LAMP IN LAMP SOCKET NO. 5 ASSOCIATED WITH NO. 5 PICK-UP KEY. TERMINATE ALL UNUSED CORD CONDUCTORS ON CONNECTING BLOCKS OR TAPE AND STORE.

106. MODIFY THE TELEPHONE SET OF FIG. 3 AS SHOWN IN THE FOLLOWING TABLE AND NOTES:

LEAD	Y	BK	S
CORD CONDUCTOR			
FROM	G	G	L2
TERM.	TO	L1	L2

CONNECT A 511Ω KS-14603, L1A RESISTOR BETWEEN TERMINALS L1 AND G OF 425B NETWORK AS SHOWN IN FIG. 101.

107. REVISE THE STRAPPING ON TSH OF THE 2A TELEPHONE ANSWERING SET AS SHOWN IN THE FOLLOWING TABLE:

REMOVE STRAPS	ADD STRAPS
7-8	9-10

108. A. REMOVE D10H CORD SUPPLIED WITH SET AND REPLACE WITH A D3BN CORD.  
B. MODIFY THE TELEPHONE SET OF FIG. 5 AS SHOWN IN THE FOLLOWING TABLE:

LEAD	SWITCHHOOK	DIAL	RING	CORD
	S	Y	BR	G
FROM	4	E1	5	E2
TO	G	L2	C	L1

C. CONNECT A 511-OHM KS-14603 L1A RESISTOR BETWEEN TERMINALS L1 AND G OF 425B NETWORK AS SHOWN IN FIG. 101.  
D. STENCIL BOTTOM OF TELEPHONE SET "MODIFIED PER SD-69364-01".

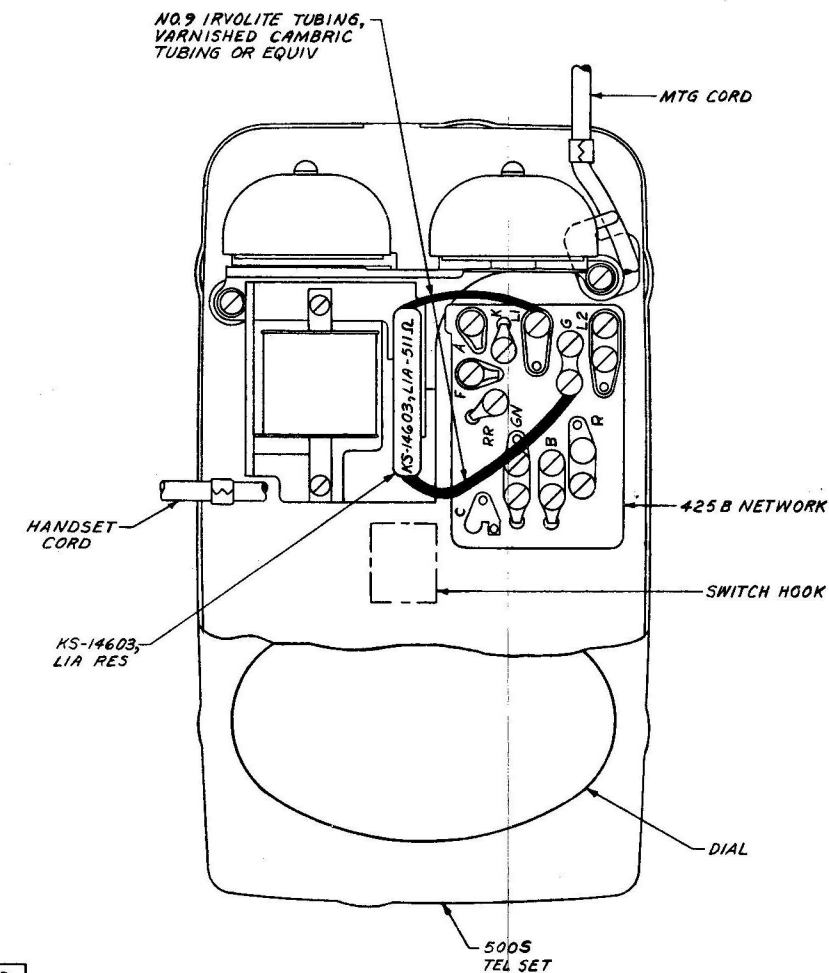
INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS,  
CAPACITANCE VALUES ARE IN MICROFARADS,  
VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

WORKING LIMITS

OPERATING RANGE FOR THE (R) RELAY, FIG. 1:  
MAXIMUM EXTERNAL CIRCUIT LOOP RES=1500Ω  
BASED ON A MINIMUM 20 CYCLE RINGING VOLT-  
AGE OF 80 VOLTS AND 10,000 OHM MINIMUM  
INSULATION RESISTANCE.

FIG. 101



FIGURES AND OPTIONS ON THIS DWG	
CKT FIG	APP O WIRIN
1	101
2	
3	
4	
5	

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CONTROL STATION CIRCUIT

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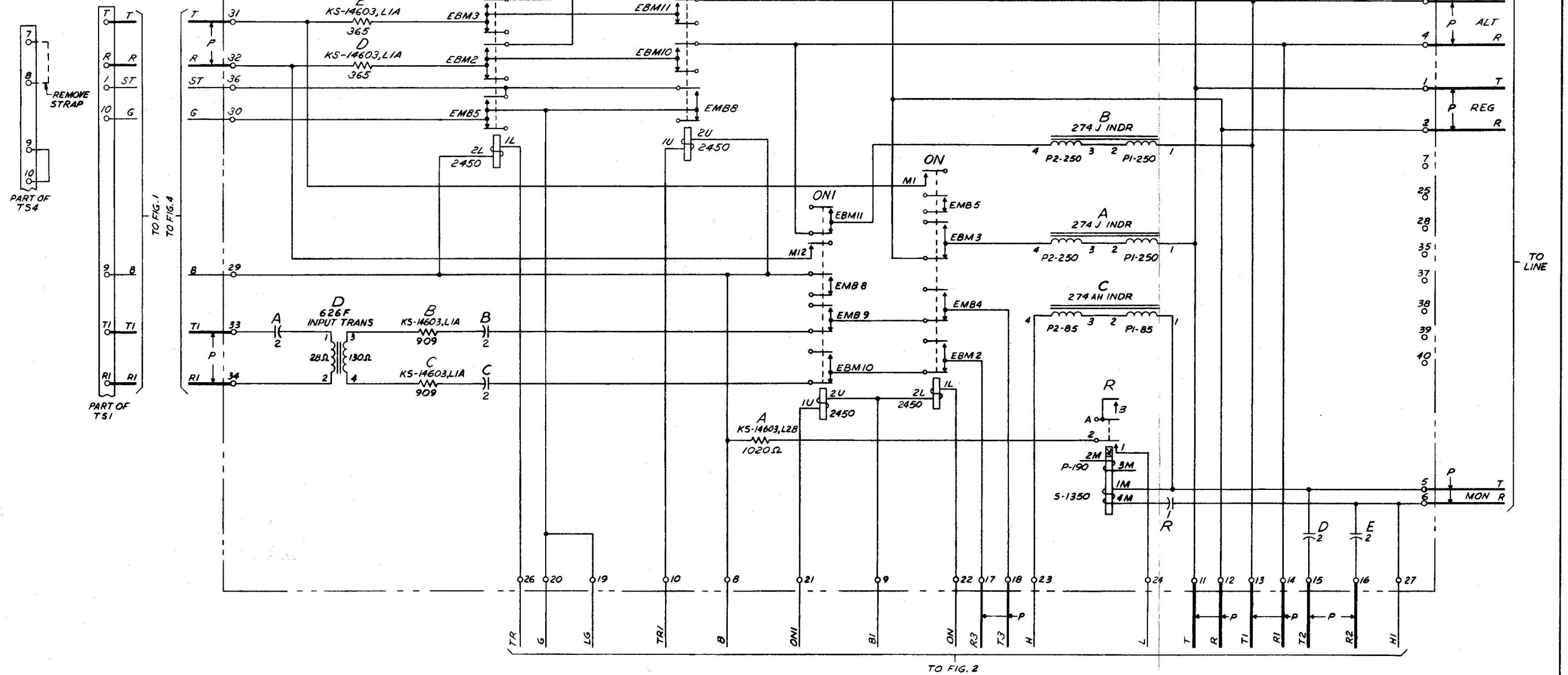
6S

SD-69364-01-B1

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FIG. 1 (MFR. DISC.)  
LINE AND CONTROL CKT

FIG. 4 (MFR. DISC.)  
CONNECTING BLOCKS IN  
NO. 2A TELEPHONE  
ANSWERING SET  
SEE NOTE 107



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CONTROL STATION CIRCUIT

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DRAWING  
ISSUE  
1  
2D  
3A

FIG. 2 (MFR. DISC)  
KEY TELEPHONE CONTROL STATION CIRCUIT

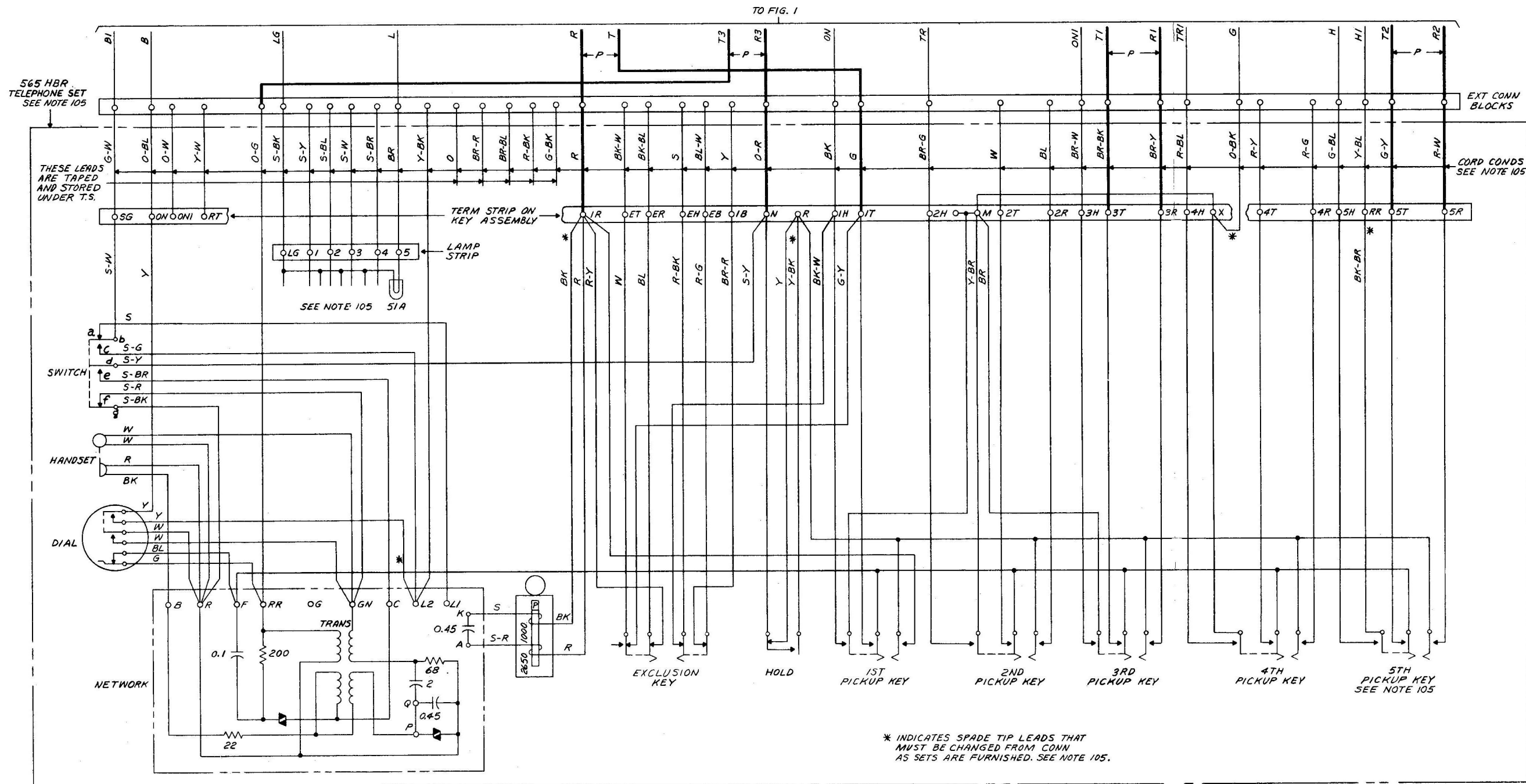
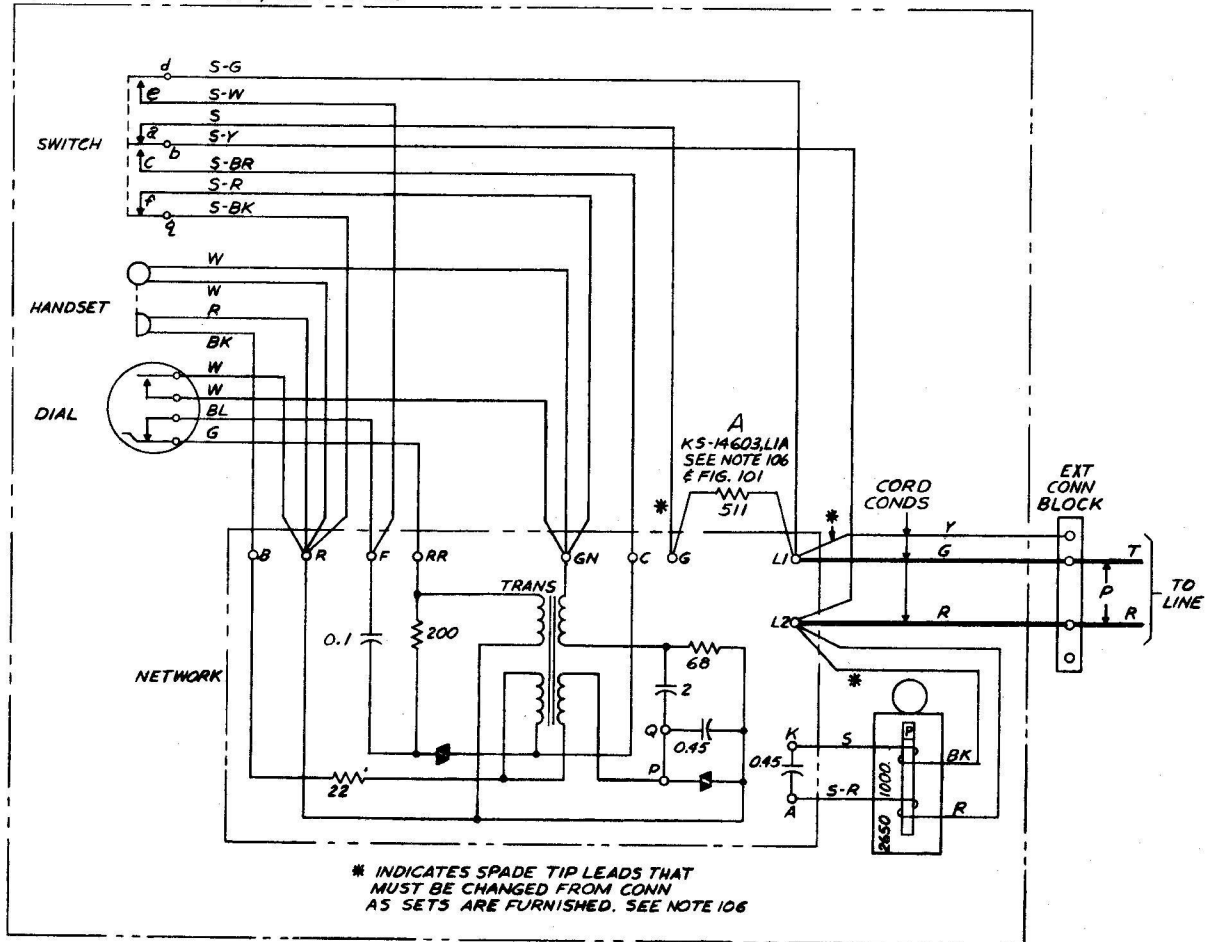


FIG. 3 (MFR DISC.)  
CONTROL STATION CKT

500 DR TELEPHONE SET, SEE NOTE 106



STATION SYSTEMS  
CONTROL STATION CIRCUIT

SD-69364-01-C3

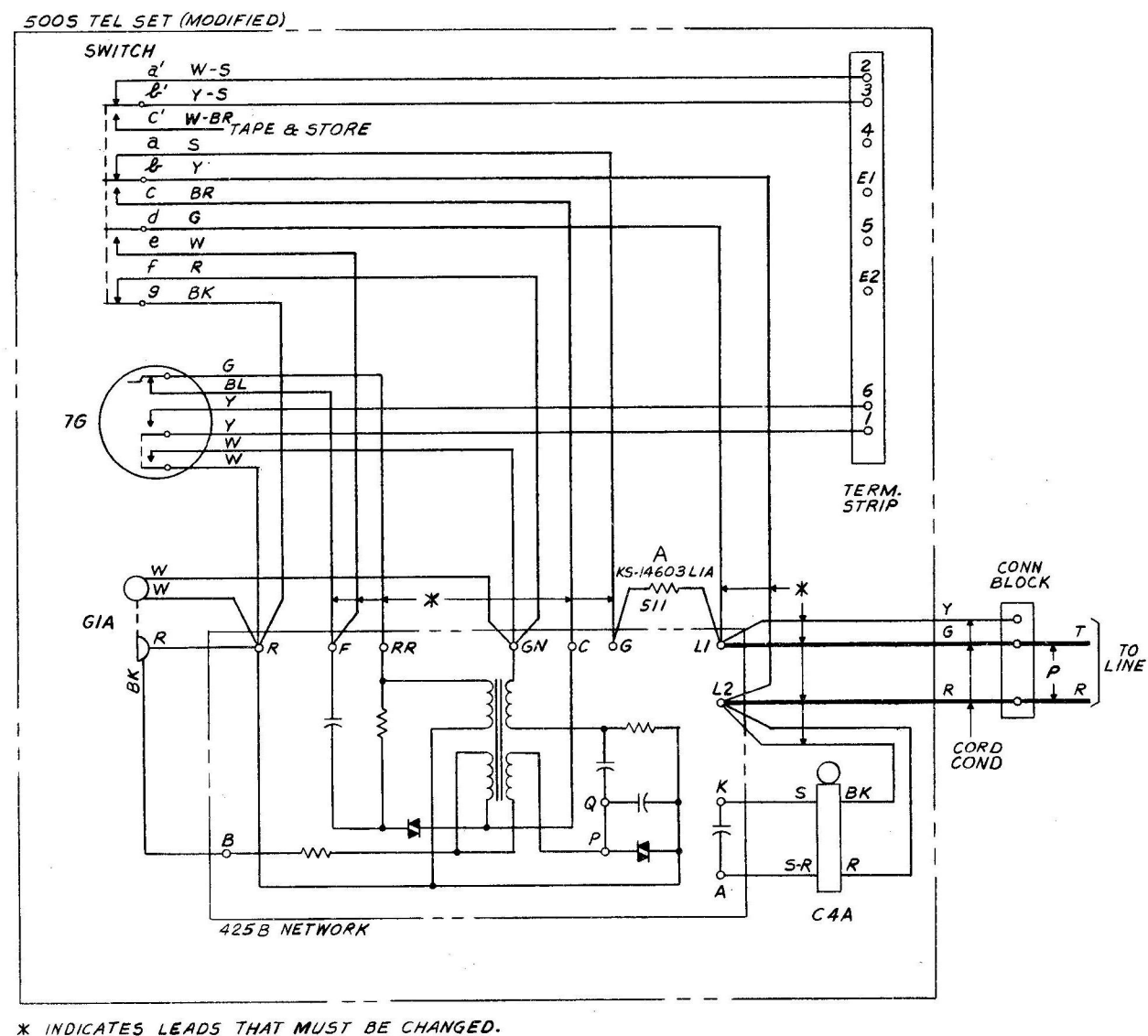
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FIG. 5  
CONTROL STATION CKT  
SEE NOTE 108



## CIRCUIT REQUIREMENTS

## CONTROL STATION CIRCUIT

APPARATUS				MECH REQ		CIRCUIT PREPARATION				DIRECT CURRENT FLOW REQ								REMARKS
DESIG	CODE	OPTION	FIG.	BSP FIG.	CONT PRESS	ARM TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST SET PREP	SEE TEST NOTE	TEST WDG	TEST FOR	AFTER SOAK	TEST	READJ		
								CONN BAT.	CONN GRD					MA.	MA.	MA.		
RELAYS																		
ON	1/2AK4		I	202				2L(ON)	1L(ON)	B/G	1,2		C		11.9	11.3	MOUNTED WITH (ON)	
ONI	1/2AK4		I	202				2U(ONI)	1U(ONI)	B/G	1,2		O		11.9	11.3	MOUNTED WITH (ON)	
R	J23		I	5		23		1M(R)	4M(R)	B/G	1,2,4	3	S	O	AC	AC		
													S	NO	7.2	7.6		
TR	1/2AK4		I	202					1L(TR)	G	1,2,5		O		11.9	11.3	MOUNTED WITH (TR)	
TRI	1/2AK4		I	202					1U(TRI)	G	1,2,6		O		11.9	11.3	MOUNTED WITH (TR)	
						</												

1. NO. 2A ANSWERING SET MUST BE TURNED ON TO PROVIDE 48 VOLTS FOR RELAY OPERATION.
2. BATTERY AND GROUND FOR THE TEST SET MAY BE OBTAINED FROM THE B AND G LEADS FROM FIG. 4 WITH THE NO. 2A ANSWERING SET TURNED ON.
3. TEST AND READJUST BY DIALING 9 ON EITHER THE REGULAR OR ALTERNATE LINE AND OBTAINING A TEST RING ON THE MONITOR LINE.
4. REMOVE UNSOLDERED CONNECTIONS FROM TERMINALS 5 AND 6 OF THE 231A KEY TELEPHONE UNIT.
5. THE 2ND PICKUP KEY ON THE KEY TELEPHONE SET, FIG. 2, MUST BE RELEASED.
6. THE 4TH PICKUP KEY ON THE KEY TELEPHONE SET, FIG. 2, MUST BE RELEASED.

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DRAWING  
ISSUE

1  
2D  
3A

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