

112A KEY EQUIPMENT
AIR-GROUND RADIO CIRCUITS
MAINTENANCE

1.00 INTRODUCTION

1.01 This section covers the various circuits that can be established by the operation of keys and jacks associated with radio circuits at air-ground radio consoles, the **TACTICAL CHANNEL ASSIGNMENT PANEL**, the **RADIO MONITOR PANEL**, and the **RADIO SUPERVISORY PANEL**. It covers the operational path of all keys, jacks, relays, switches, and lamps required to complete the control, signaling, and talking paths to either a radio site, a commercial broadcasting company, or a training position.

1.02 Monitoring circuits other than those associated with the **RADIO MONITOR PANEL** and the **RADIO SUPERVISORY PANEL** are covered in Section C71.676, Figs. 2 and 3.

1.03 Each figure comprises a sequence chart and an operational sketch.

References: SD69261-01, Issue 6B
SD69268-01, Issue 5B
SD69272-01, Issue 4A
SD69278-01, Issue 5A
SD69289-01, Issue 2A

2.00 COMMON CHANNEL SELECTION, MAIN OR INDIVIDUAL POSITION, SINGLE SITE KEY OPERATED

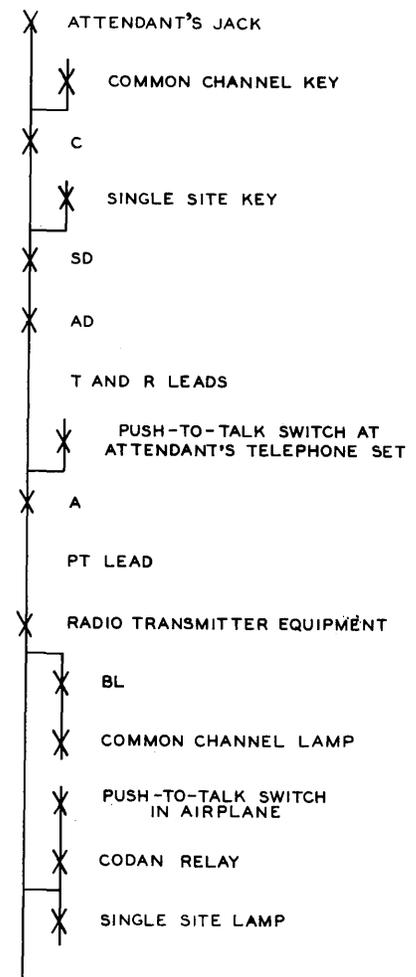
2.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated at a main or individual position, ground is connected to a *CH* lead and operates the *C* relay. When a single site key is operated and the attendant's telephone and key equipment is not connected to a wire line, an *SD* relay operates and in turn operates an *AD* relay. Operated *AD* relay opens the operate path of *AD* relays of higher numbered sites to prevent multiple site connection. With the *C* and *AD* relays operated, the *T* and *R* leads are connected through from the attendant's telephone and key circuit to the air-ground voice communication system, establishing a receiving path.

2.02 When the push-to-talk switch at the attendant's telephone set is operated, the *A* relay operates and causes a ground to be simplexed over the *T* and *R* leads. From the center tap of the *D* inductor this ground is connected to the *PT* lead and, through the air-ground voice communication system, connects the radio transmitting equipment at the site to the *T* and *R* leads from the attendant's telephone and key circuit. Transmitter battery for the attendant's telephone set is supplied through the operate path of the *A* relay. When the radio transmitting equipment at the site is activated, ground is placed on the *BL* lead through the air-ground voice communication system to operate the *BL* relay which operates the common channel lamp. This signals the attendant that his push-to-talk signal has been received and the transmitter is on the air.

2.03 When the push-to-talk switch in an airplane is operated, carrier frequency is sent out. This operates a codan relay at any site which is near enough to respond to it and, through the air-ground voice communication system, places ground on the *CL* lead to operate the site lamp through contacts of the *C* relay.

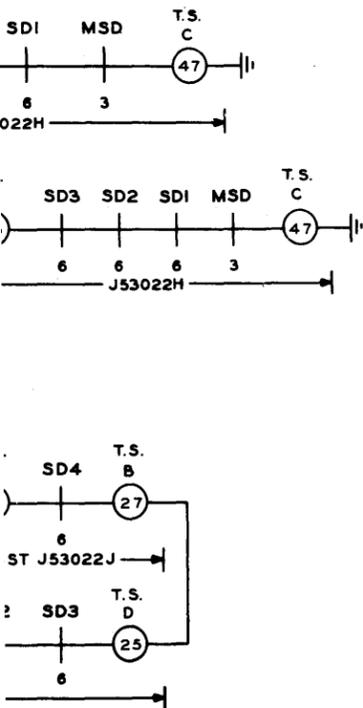
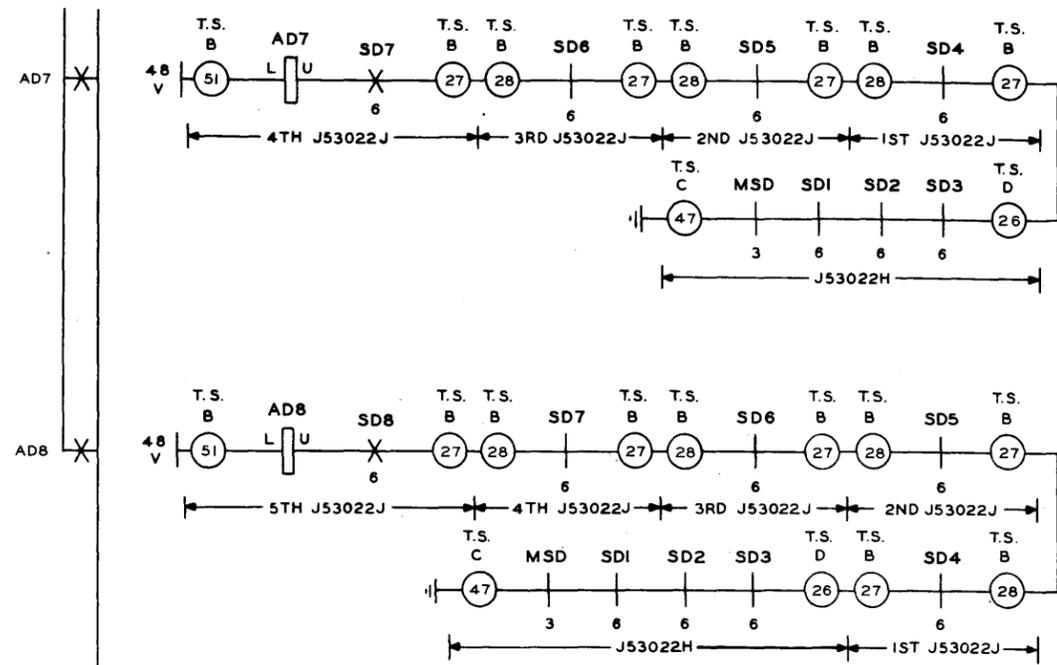
2.04 This completes the talking path between the attendant's telephone set and the airplane. The release of operated keys or the operation of a wire-line key restores telephone equipment to normal.

SEQUENCE CHART



**References: SD69261-01, Issue 6B
SD69268-01, Issue 5B**

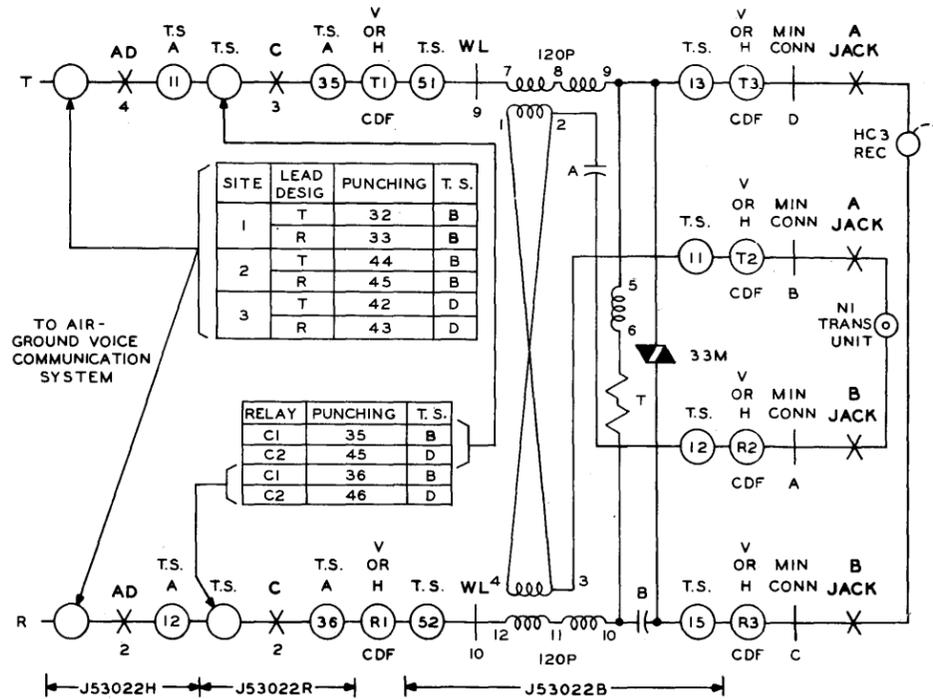
CONTD FROM BELOW



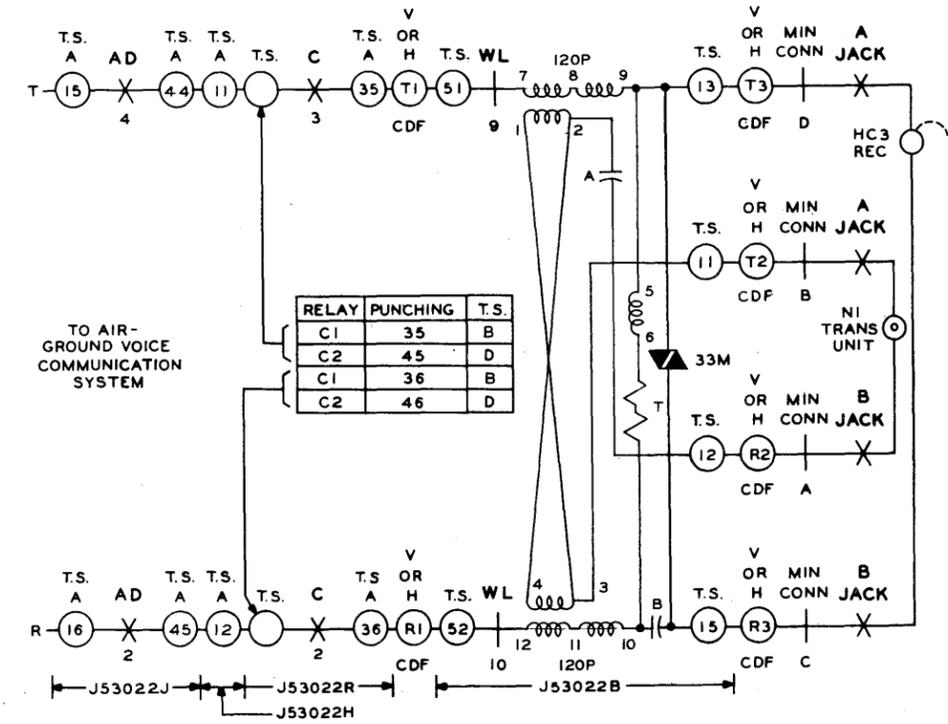
OPERATION OF C AND AD RELAYS CLOSSES THROUGH "T" AND "R" LEADS

T AND R LEADS FOR SITES 1, 2 OR 3

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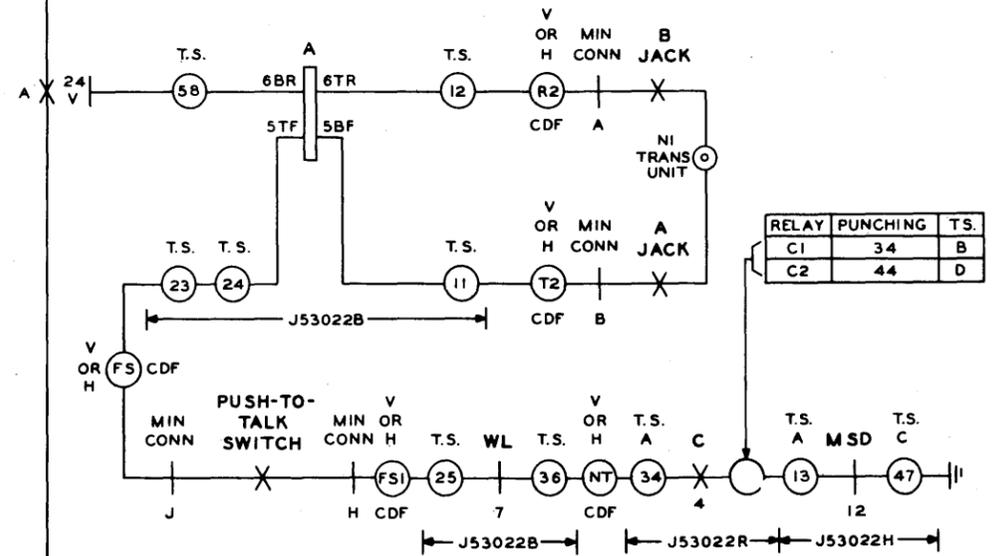
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T AND R LEADS FOR SITES 4, 5, 6, 7 OR 8

PUSH-TO-TALK SWITCH AT ATTENDANT'S TELEPHONE SET

OPERATION OF PUSH-TO-TALK SWITCH CAUSES "A" RELAY TO OPERATE



CONTD ABOVE

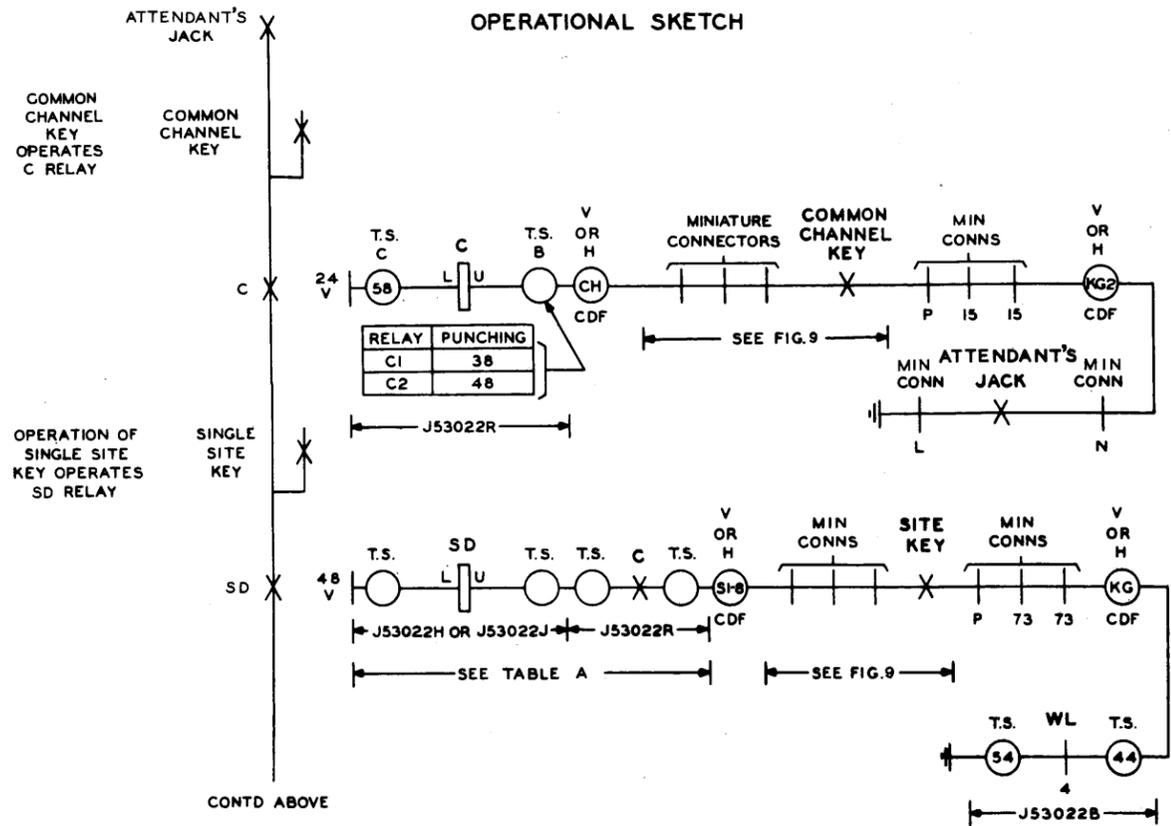
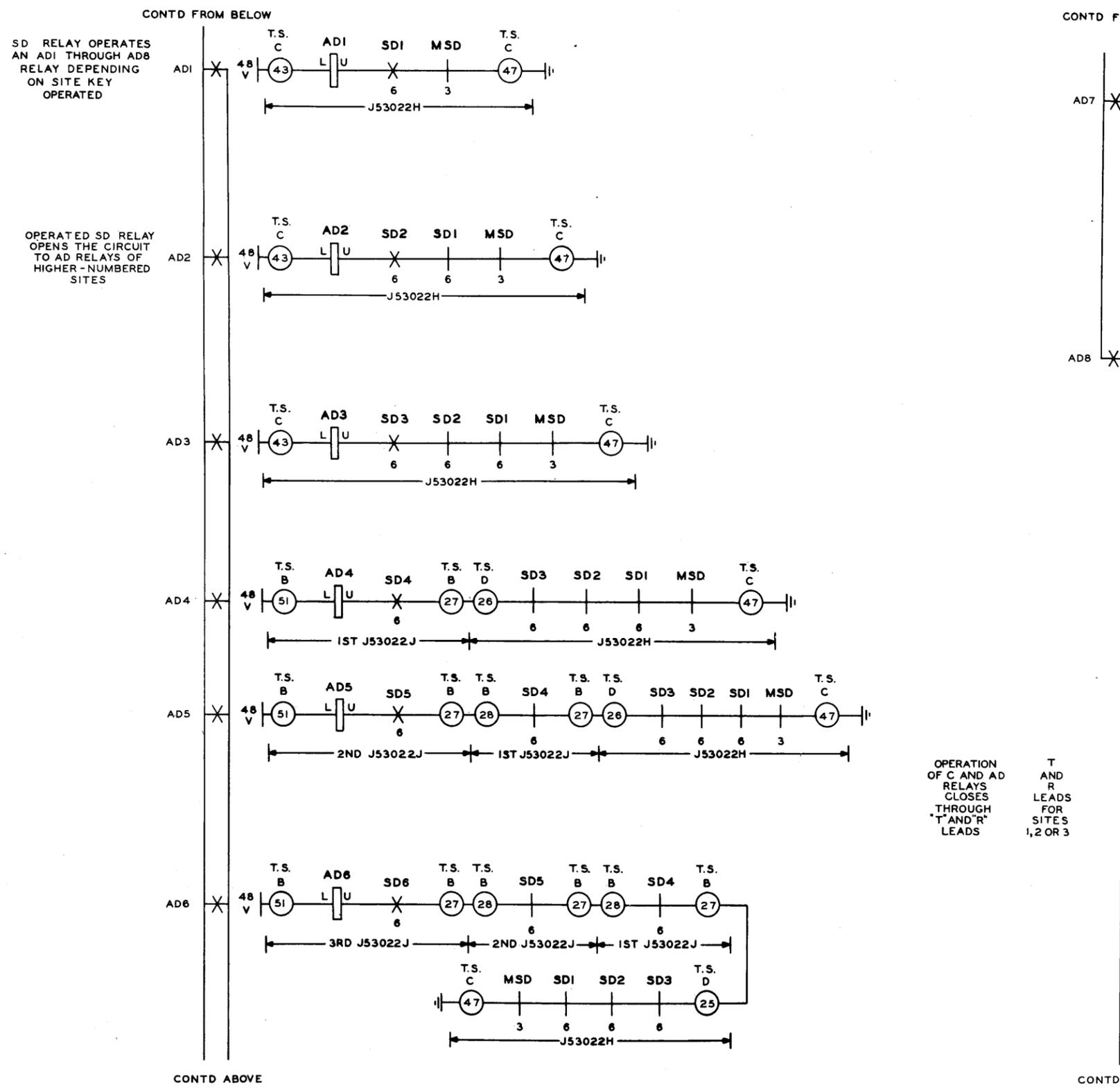


TABLE A
C1 RELAY

SITE KEY	J53022H T.S. C		SD RELAY		J53022H T.S. D		J53022J T.S. A		J53022R T.S. B		C1 RELAY		J53022R T.S. A
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	
1	44		L	U	31				28		M9	9	28
2	44		L	U	32				26		M11	11	26
3	44		L	U	33				24		M13	13	24
4		51	L	U		32		22			M15	15	22
5		51	L	U		32		18			M17	17	18
6		51	L	U		32		16			M19	19	16
7		51	L	U		32		14			M21	21	14
8		51	L	U		32		12			M23	23	12

C2 RELAY

SITE KEY	J53022H T.S. C		SD RELAY		J53022H T.S. D		J53022J T.S. A		J53022R T.S. A		C2 RELAY		J53022R T.S. A
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	
1	44		L	U	31				58		M9	9	28
2	44		L	U	32				56		M11	11	26
3	44		L	U	33				54		M13	13	24
4		51	L	U		32		52			M15	15	22
5		51	L	U		32		48			M17	17	18
6		51	L	U		32		46			M19	19	16
7		51	L	U		32		44			M21	21	14
8		51	L	U		32		42			M23	23	12



OPERATION OF C AND AD RELAYS CLOSES THROUGH "T" AND "R" LEADS

T AND R LEADS FOR SITES 1, 2 OR 3

CONTD

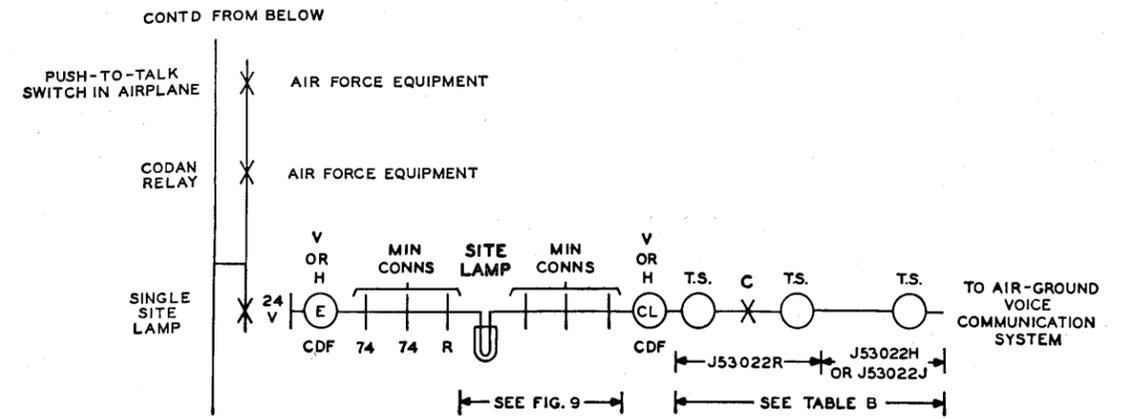
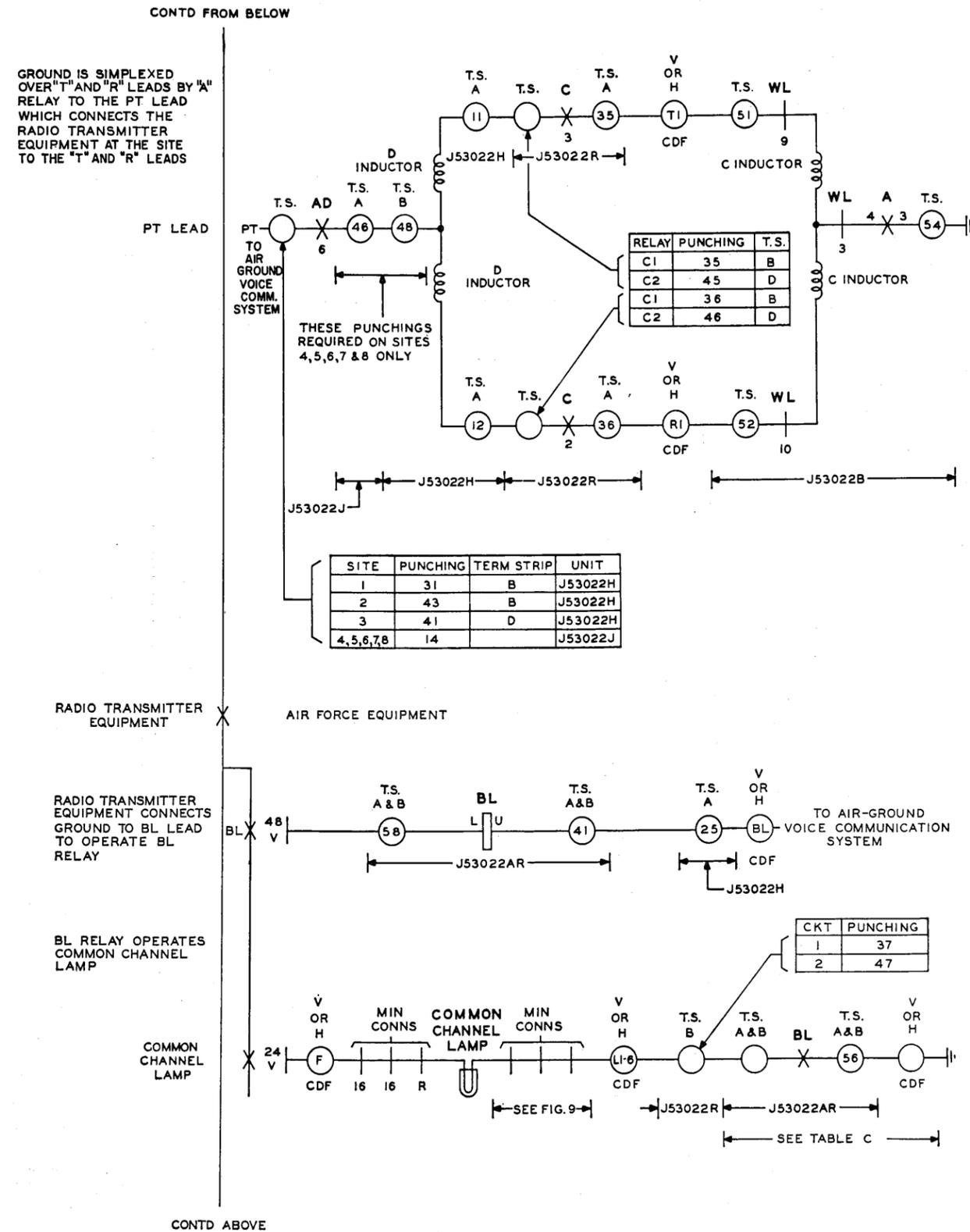


TABLE B

C1 RELAY

SITE LAMP	J53022R T.S. A	C1 RELAY		J53022R T.S. B	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23		45	
4	21	16	M16	21			18
5	17	18	M18	17			18
6	15	20	M20	15			18
7	13	22	M22	13			18
8	11	24	M24	11			18

C2 RELAY

SITE LAMP	J53022R T.S. A	C2 RELAY		J53022R T.S. A	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	57	35		
2	25	12	M12	55	47		
3	23	14	M14	53		45	
4	21	16	M16	51			18
5	17	18	M18	47			18
6	15	20	M20	45			18
7	13	22	M22	43			18
8	11	24	M24	41			18

TABLE C

POSITION	J53022AR T.S. A AND B*	BL RELAY		J53022AR T.S. A AND B*
		IN	OUT	
MAIN AND ASSISTANT	1	11	M1	1
	2	12	M2	2
	3	13	M3	3
	4	14	M4	4
	5	15	M5	5
	6	16	M6	6
	7	17	M7	7
	8	18	M8	8
	9	21	M9	9
	10	22	M10	10
	11	23	M11	11
	12	24	M12	12
	13	25	M13	13
	14	26	M14	14
	15	27	M15	15
	16	28	M16	16
	17	31	M17	17
	18	32	M18	18
	19	33	M19	19
	20	34	M20	20
INDIVIDUAL	1	35	M21	21
	2	36	M22	22
	3	37	M23	23

*T.S. A, CIRCUIT 1.
T.S. B, CIRCUIT 2.

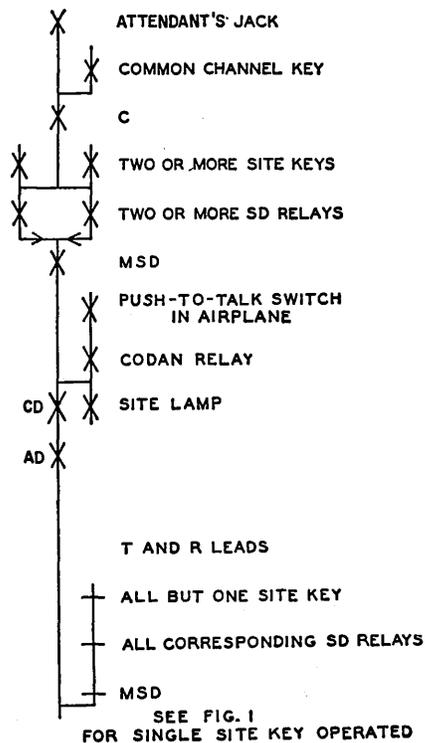
3.00 COMMON CHANNEL SELECTION, MAIN OR INDIVIDUAL POSITION, TWO OR MORE SITE KEYS OPERATED

3.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated, ground is connected to a *CH* lead and operates the *C* relay. When two or more site keys are operated and the attendant's telephone and key equipment is not connected to a wire line, the associated *SD* relays operate. Operated *SD* relays operate the *MSD* relay over the *CSD* and *MSD* leads. Operated *MSD* relay opens ground to the attendant's push-to-talk switch to make it ineffective so that the attendant cannot transmit to two or more sites at once.

3.02 When the push-to-talk switch in an airplane is operated, a carrier frequency is sent out which operates a codan relay at any site near enough to respond to it. The codan relay causes ground to be placed on the *CD* and *CL* leads through the air-ground voice communication system. Ground on the *CL* lead operates the associated site lamp, and ground on the *CD* lead operates the associated *CD* relay. Operated *CD* relay operates the *AD* relay which closes through the *T* and *R* leads from the air-ground voice communication system to the attendant's telephone set for receiving only. Operated *CD* relay (a) locks operated through its own contacts, (b) opens the operating path of lower numbered *CD* relays, and (c) opens the operating path of higher numbered *AD* relays. Therefore, if a signal is received simultaneously on two or more sites, the transmission path can be completed to one site only.

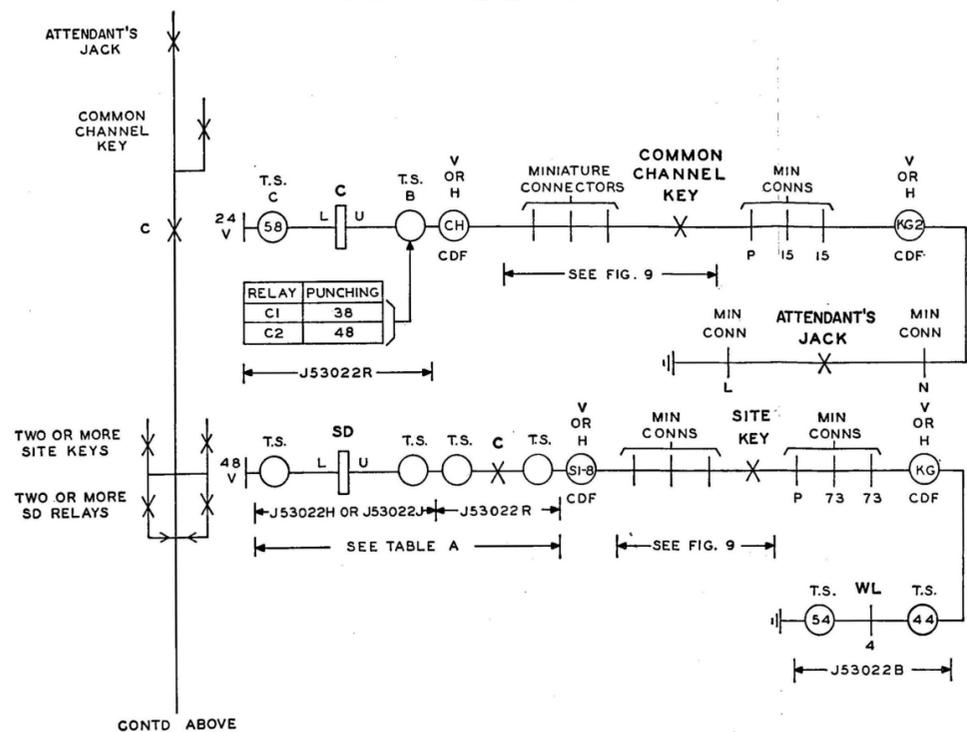
3.03 When the attendant wishes to transmit to an airplane, he must release all but one site key which releases the associated *SD* relays and the *MSD* relay. Refer to Fig. 1, Common Channel Selection, Main or Individual Position, Single Site Key Operated.

SEQUENCE CHART



References: SD69261-01, Issue 6B
SD69268-01, Issue 5B

OPERATIONAL SKETCH



RELAY	PUNCHING
C1	38
C2	48

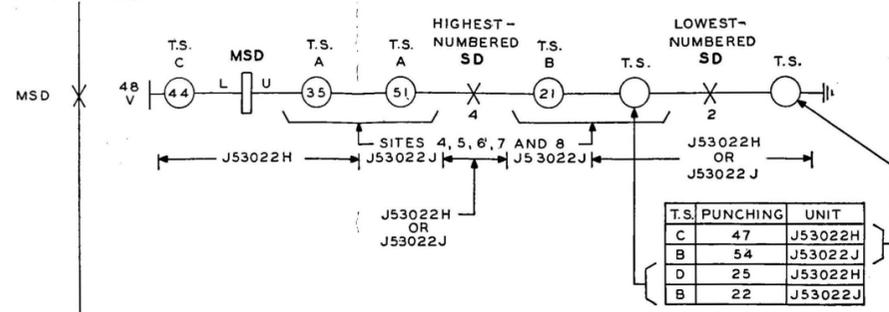
TABLE A
C1 RELAY

SITE KEY	J53022H T.S. C	J53022J T.S. B	SD RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. A	C1 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	44		L	U	31		28	M9	9	28
2	44		L	U	32		26	M11	11	26
3	44		L	U	33		24	M13	13	24
4		51	L	U		32	22	M15	15	22
5		51	L	U		32	18	M17	17	18
6		51	L	U		32	16	M19	19	16
7		51	L	U		32	14	M21	21	14
8		51	L	U		32	12	M23	23	12

TABLE A
C2 RELAY

SITE KEY	J53022H T.S. C	J53022J T.S. B	SD RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. A	C2 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	44		L	U	31		58	M9	9	28
2	44		L	U	32		56	M11	11	26
3	44		L	U	33		54	M13	13	24
4		51	L	U		32	52	M15	15	22
5		51	L	U		32	48	M17	17	18
6		51	L	U		32	46	M19	19	16
7		51	L	U		32	44	M21	21	14
8		51	L	U		32	42	M23	23	12

CONTD FROM BELOW



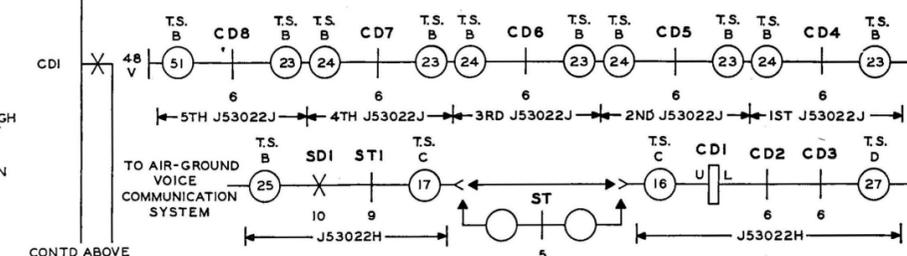
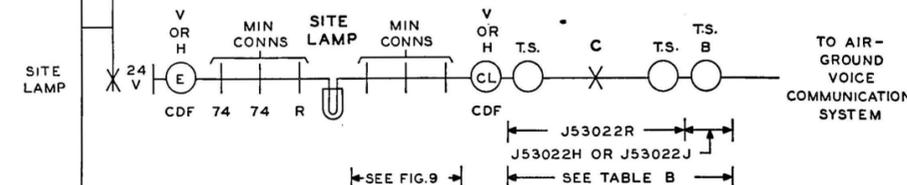
PUSH-TO-TALK SWITCH IN AIRPLANE

AIR FORCE EQUIPMENT

AIR FORCE EQUIPMENT

CARRIER FREQUENCY FROM AIRPLANE OPERATES CODAN RELAY AT ANY SITE NEAR ENOUGH TO RESPOND

CODAN RELAY OPERATION CAUSES SITE LAMP & CD RELAY TO OPERATE THROUGH THE AIR-GROUND VOICE COMMUNICATION SYSTEM



OPTIONAL WIRING THROUGH ST RELAY CONTACTS OF ADJACENT SITE MAY BE REQUIRED TO PREVENT INTERFERENCE BETWEEN ADJACENT SITES WHILE TRANSMITTING

CONTD ABOVE

TABLE B

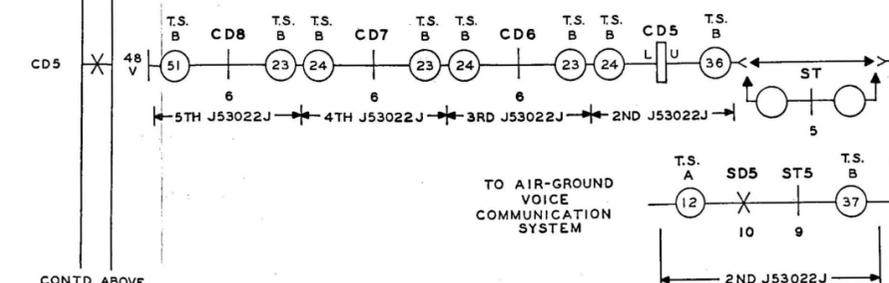
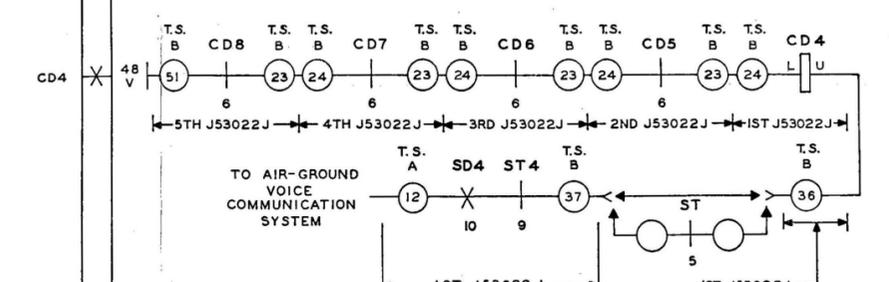
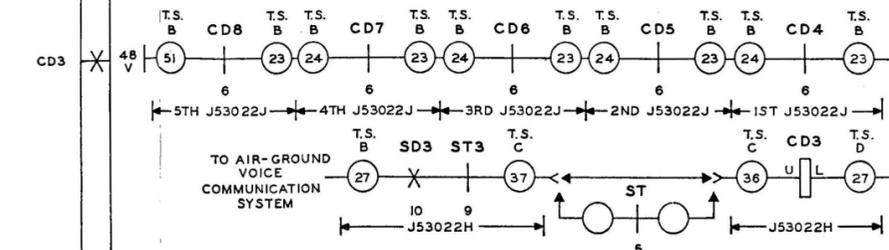
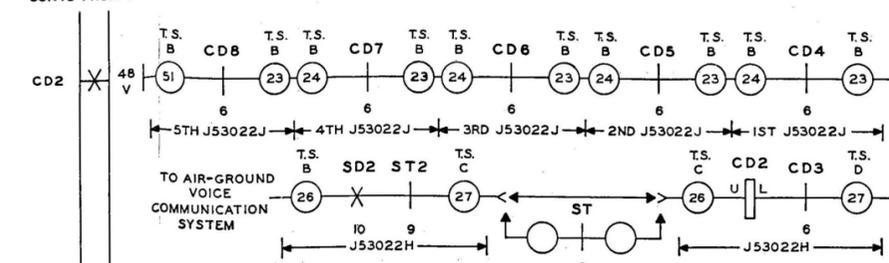
C1 RELAY

SITE LAMP	J53022R T.S. A	C1 RELAY		J53022R T.S. B	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23	45		
4	21	16	M16	21		18	
5	17	18	M18	17		18	
6	15	20	M20	15		18	
7	13	22	M22	13		18	
8	11	24	M24	11		18	

C2 RELAY

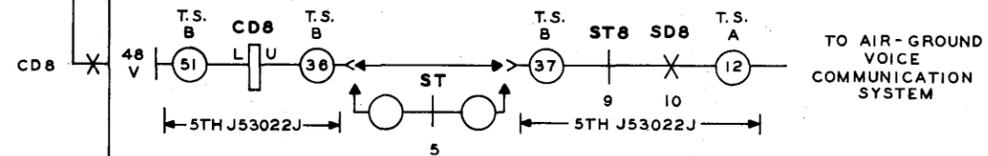
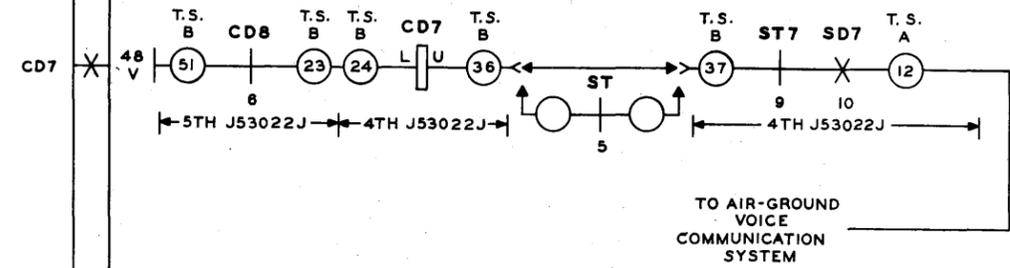
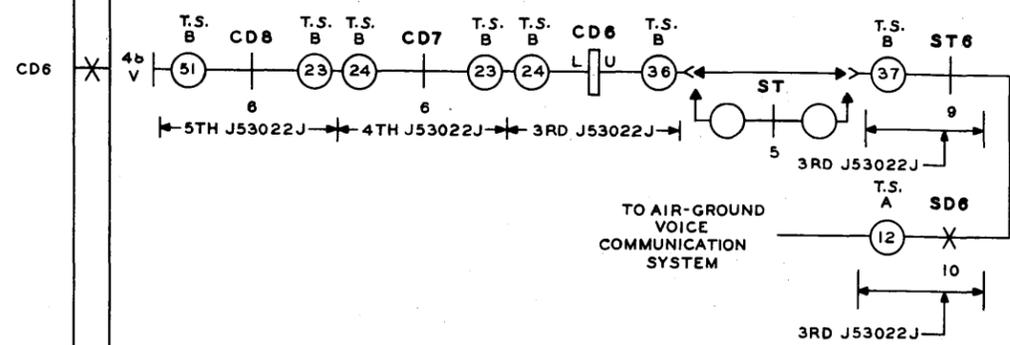
SITE LAMP	J53022R T.S. A	C2 RELAY		J53022R T.S. A	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	57	35		
2	25	12	M12	55	47		
3	23	14	M14	53	45		
4	21	16	M16	51		18	
5	17	18	M18	47		18	
6	15	20	M20	45		18	
7	13	22	M22	43		18	
8	11	24	M24	41		18	

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CD RELAY OPERATES AD RELAY WHICH CLOSES THROUGH "T" AND "R" LEADS

AD X SEE FIG. 3

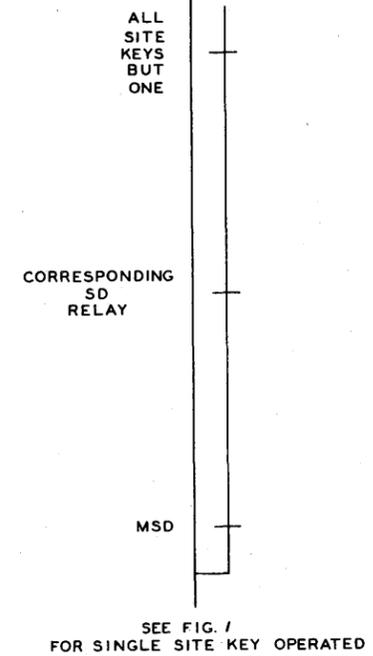
"T" AND "R" LEADS CLOSED THROUGH BETWEEN RADIO EQUIPMENT AND ATTENDANT'S TELEPHONE SET OUTGOING SPEECH IS PREVENTED UNTIL ALL BUT ONE SITE KEY IS RELEASED

T AND R LEADS

SEE FIG. 1

CONTD ABOVE

CONTD FROM BELOW



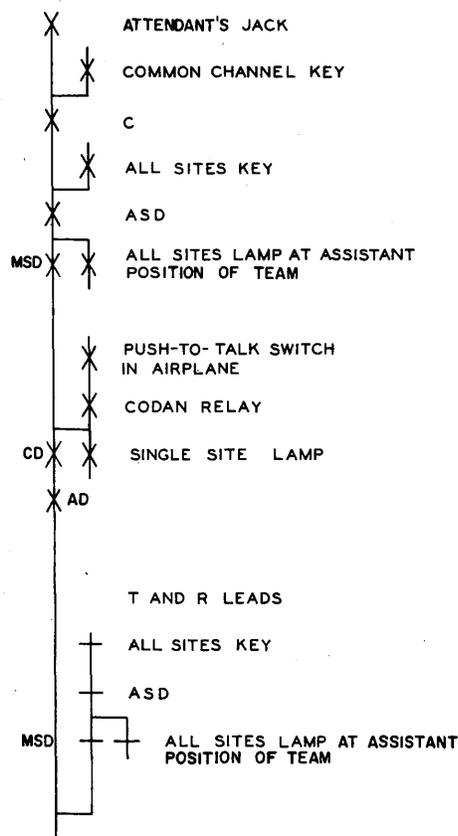
4.00 COMMON CHANNEL SELECTION, MAIN OR INDIVIDUAL POSITION, ALL SITES KEY OPERATED

4.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated at a main or individual position, ground is connected to a *CH* lead and operates the *C* relay. When the *ALL SITES* key is operated and the attendant's telephone equipment is not connected to a wire line, the *ASD* relay operates and (a) operates the *MSD* relay and (b) lights the *ALL SITES* lamp at the assistant's position. Operated *MSD* relay opens ground to the push-to-talk switch to make it ineffective. The operator can now receive a voice signal from any site under the following condition.

4.02 When the push-to-talk switch in an airplane is operated, a carrier frequency is sent out which operates a codan relay at any site near enough to respond to it. The codan relay causes ground to be placed on the *CD* and *CL* leads through the air-ground voice communication system. Ground on the *CL* lead lights the associated site lamp. Ground on the *CD* lead operates the *CD* relay which operates the associated *AD* relay. This closes through the *T* and *R* leads from the air-ground voice communication system to the attendant's telephone set for receiving only. Operated *CD* relay opens the operating path of lower numbered *CD* relays and opens the operating path of higher numbered *AD* relays. Therefore, if a signal is received simultaneously on two or more sites, the transmission path can be completed to one site only.

4.03 When the attendant wishes to transmit to an airplane, he must release the *ALL SITES* key which releases the *ASD* and *MSD* relays and extinguishes the *ALL SITES* lamp. Operation of the site key associated with the operated site lamp will allow the push-to-talk switch to become effective and allow the attendant to transmit, as described in Fig. 1, Common Channel Selection, Main or Individual Position, Single Site Key Operated.

SEQUENCE CHART



SEE FIG. 1 FOR SINGLE SITE KEY OPERATED

References: SD69261-01, Issue 6B
SD69268-01, Issue 5B

OPERATIONAL SKETCH

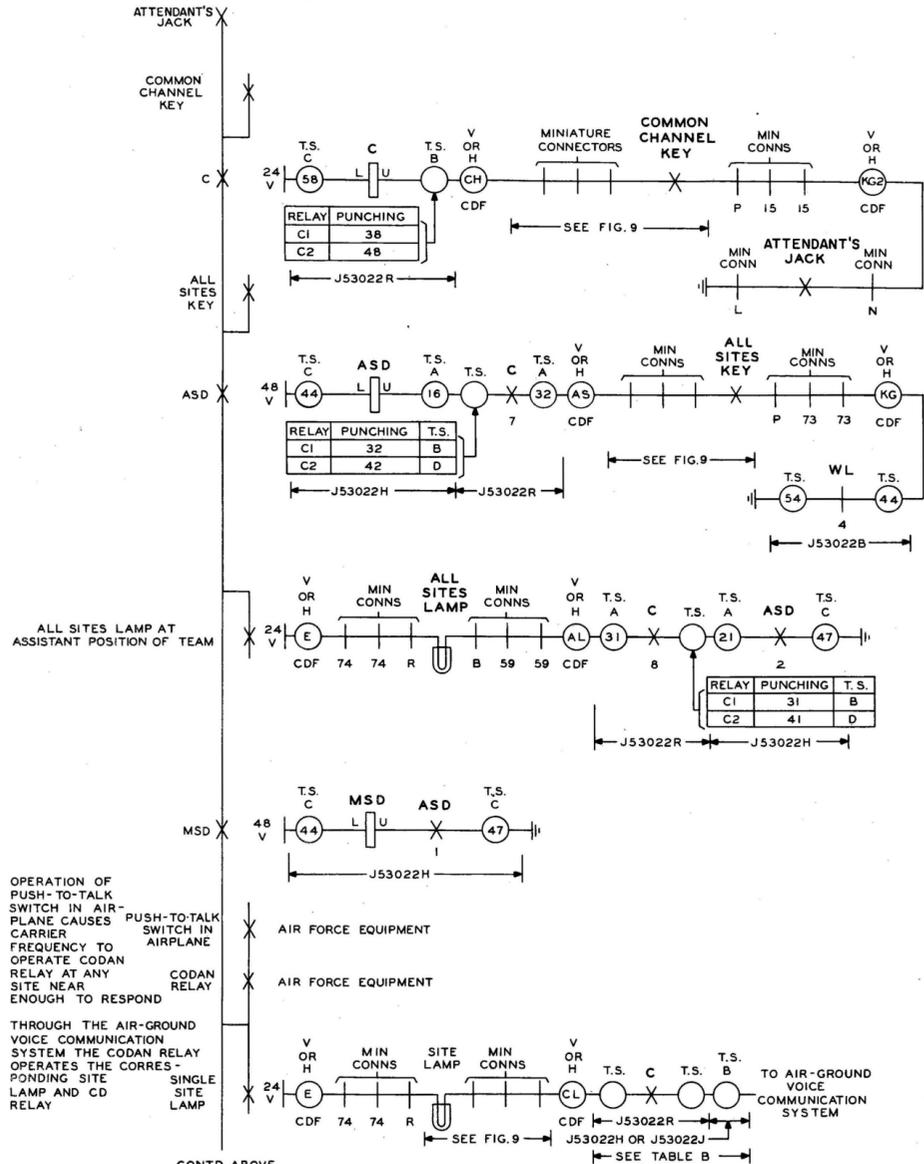
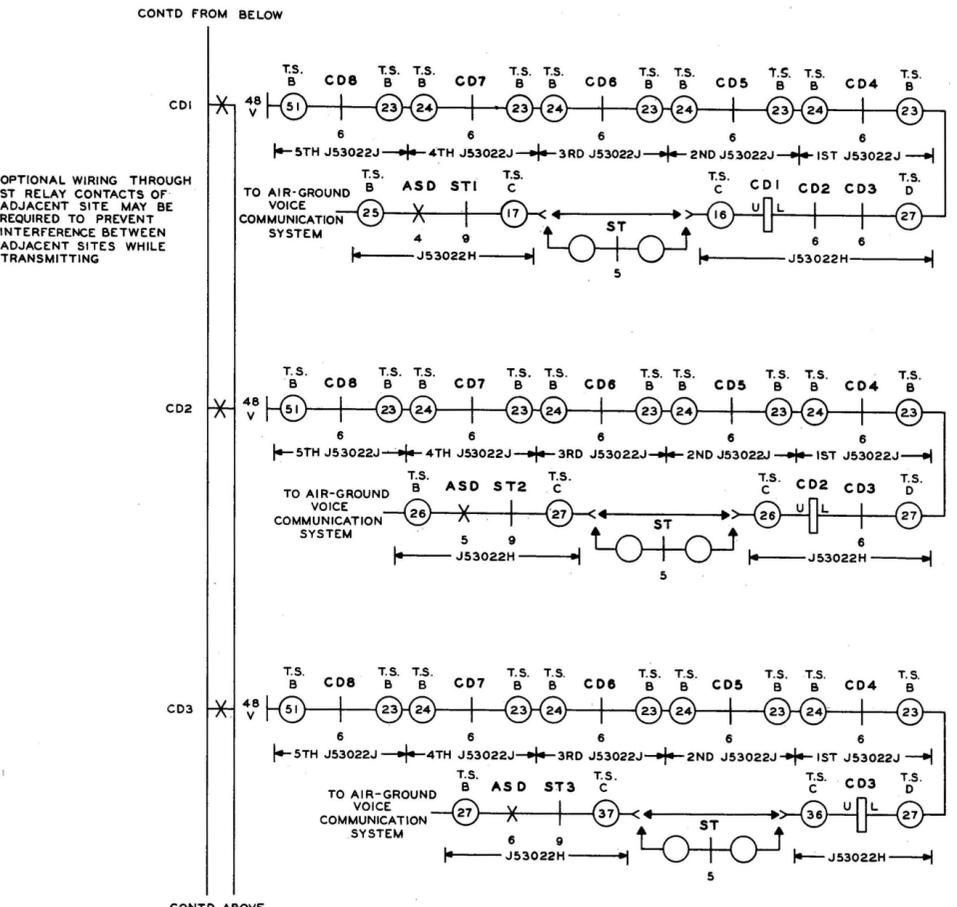
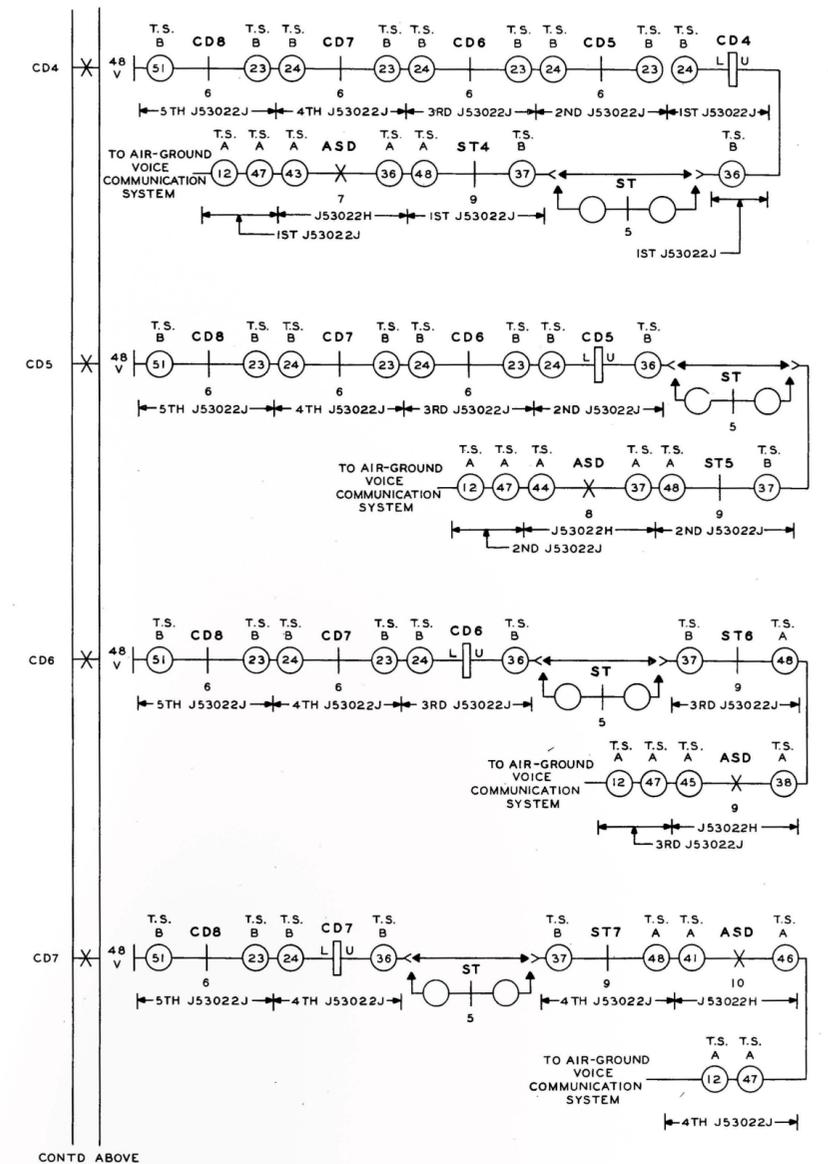


TABLE B

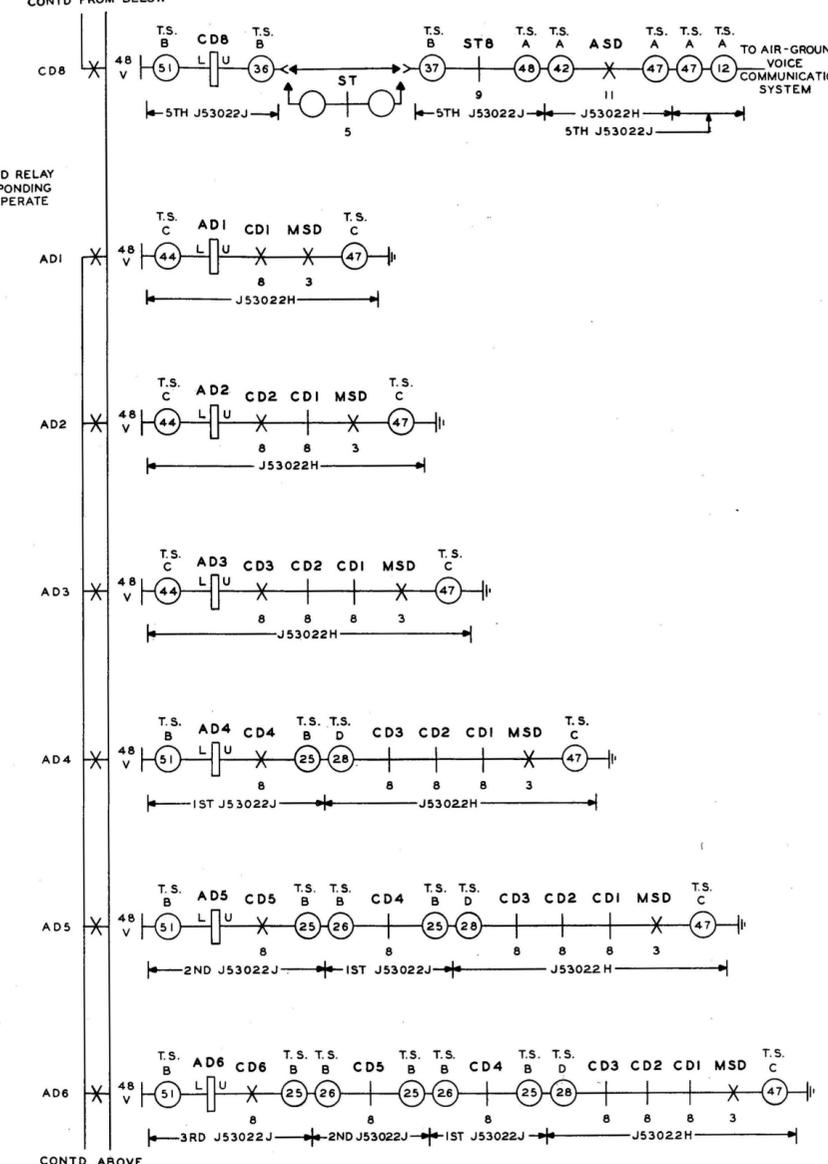
SITE LAMP	C1 RELAY				C2 RELAY			
	J53022R T.S. A	IN	OUT	J53022H T.S. B	J53022R T.S. A	IN	OUT	J53022H T.S. B
1	27	10	M10	27	35			
2	25	12	M12	25	47			
3	23	14	M14	23	45			
4	21	16	M16	21				18
5	17	18	M18	17				18
6	15	20	M20	15				18
7	13	22	M22	13				18
8	11	24	M24	11				18



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CONTD FROM BELOW



5.00 COMMON CHANNEL SELECTION, ASSISTANT POSITION, SINGLE SITE KEY OPERATED

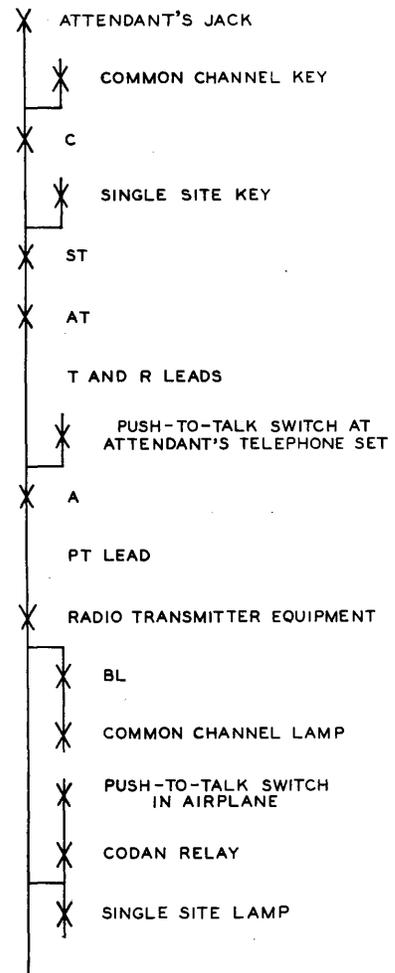
5.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated at an assistant position, ground is connected to a *CH* lead and operates the *C* relay. When a single site key is operated and the attendant's telephone and key equipment is not connected to a wire line, an *ST* relay operates and operates an *AT* relay. Operated *AT* relay opens the operate path of the *AT* relays of higher numbered sites to prevent multiple site connection. With the *C* and *AT* relays operated, the *T* and *R* leads are connected through from the attendant's telephone and key circuit to the air-ground voice communication system, establishing a receiving path.

5.02 When the push-to-talk switch at the attendant's telephone set is operated, the *A* relay operates and causes a ground to be simplexed over the *T* and *R* leads. From the center tap of the *D* inductor, this ground is connected to the *PT* lead and, through the air-ground voice communication system, connects the radio transmitting equipment at the site to the *T* and *R* leads from the attendant's telephone and key circuit. Transmitter battery for the attendant's telephone set is applied through the operate path of the *A* relay. When the radio transmitting equipment at the site is activated, ground is placed on the *BL* lead through the air-ground voice communication system to operate the *BL* relay which operates the common channel lamp. This signals the attendant that his push-to-talk signal has been received and the transmitter is on the air.

5.03 When the push-to-talk switch in an airplane is operated, carrier frequency is sent out. This operates a codan relay at any site which is near enough to respond to it and, through the air-ground voice communication system, places ground on the *CL* lead to operate the site lamp through contacts of the *C* relay.

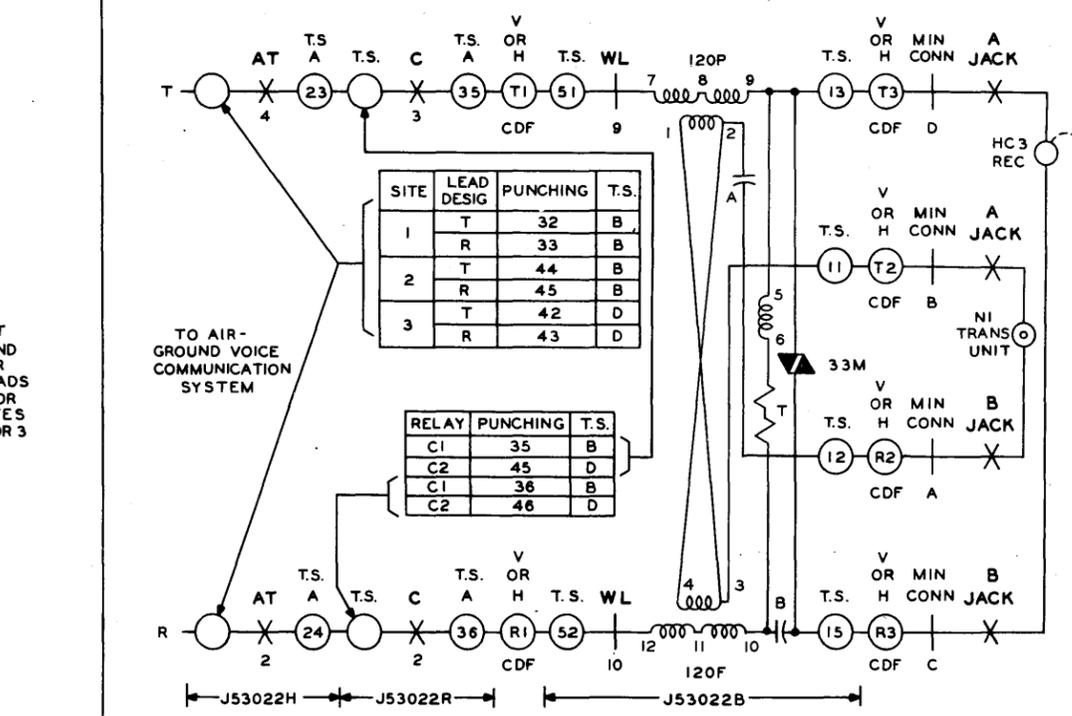
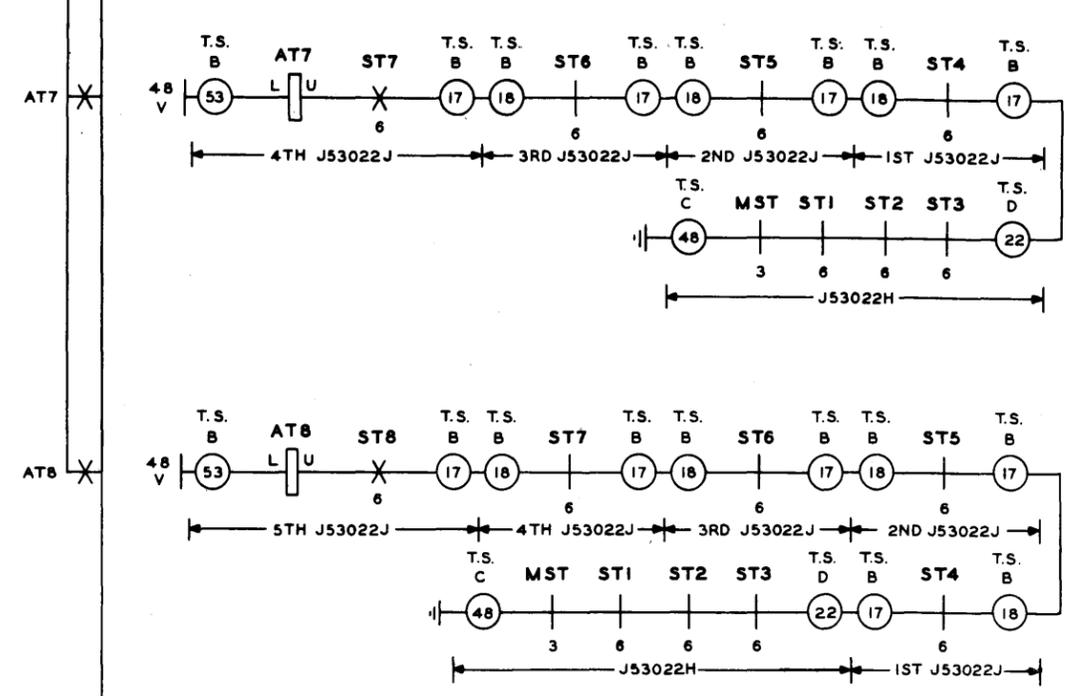
5.04 This completes the talking path between the attendant's telephone set and the airplane. The release of operated keys or the operation of a wire-line key restores telephone equipment to normal.

SEQUENCE CHART



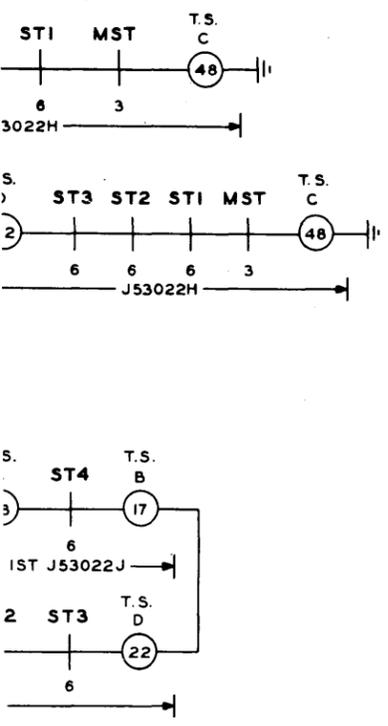
**References: SD69261-01, Issue 6B
SD69268-01, Issue 5B**

CONTD FROM BELOW



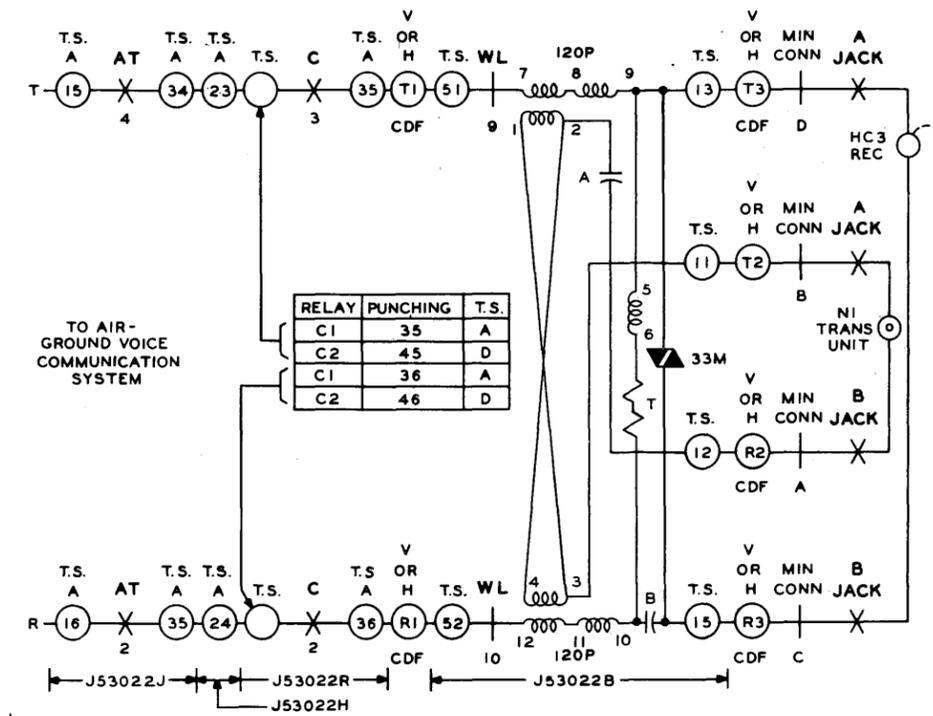
OPERATION OF C AND AT RELAYS CLOSES THROUGH 'T' AND 'R' LEADS

T AND R LEADS FOR SITES 1, 2 OR 3



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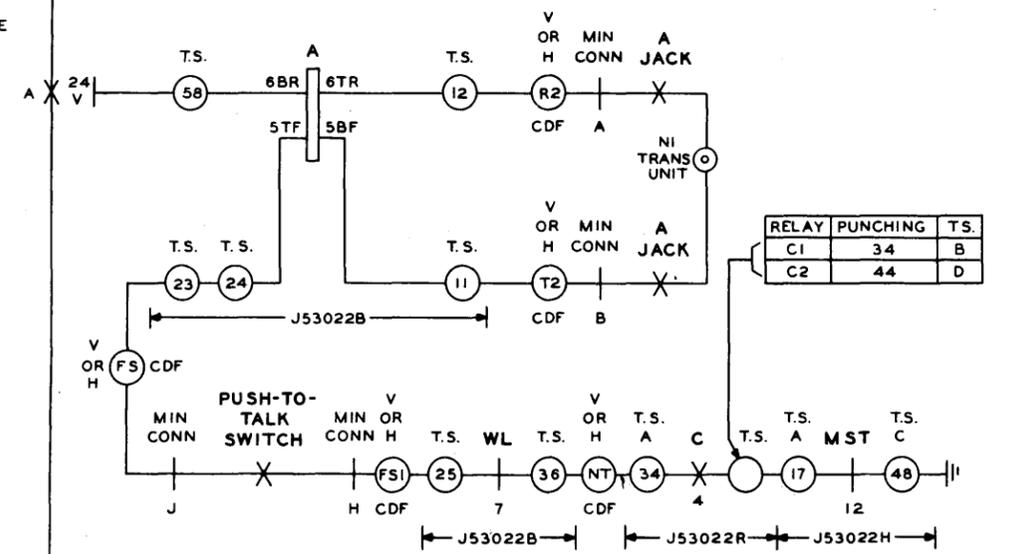
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T AND R LEADS FOR SITES 4, 5, 6, 7 OR 8

PUSH-TO-TALK SWITCH AT ATTENDANT'S TELEPHONE SET

OPERATION OF PUSH-TO-TALK SWITCH CAUSES 'A' RELAY TO OPERATE



CONTD ABOVE

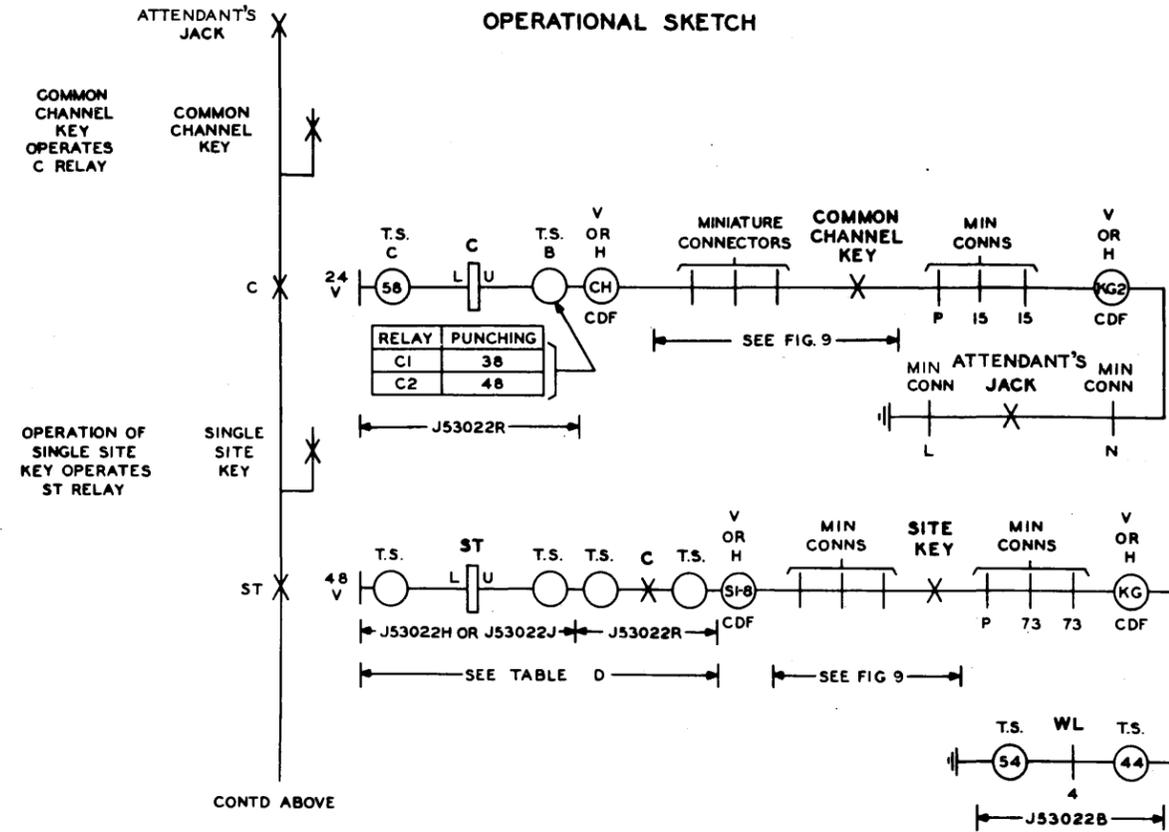
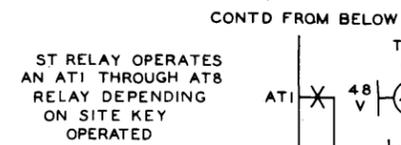


TABLE D
C1 RELAY

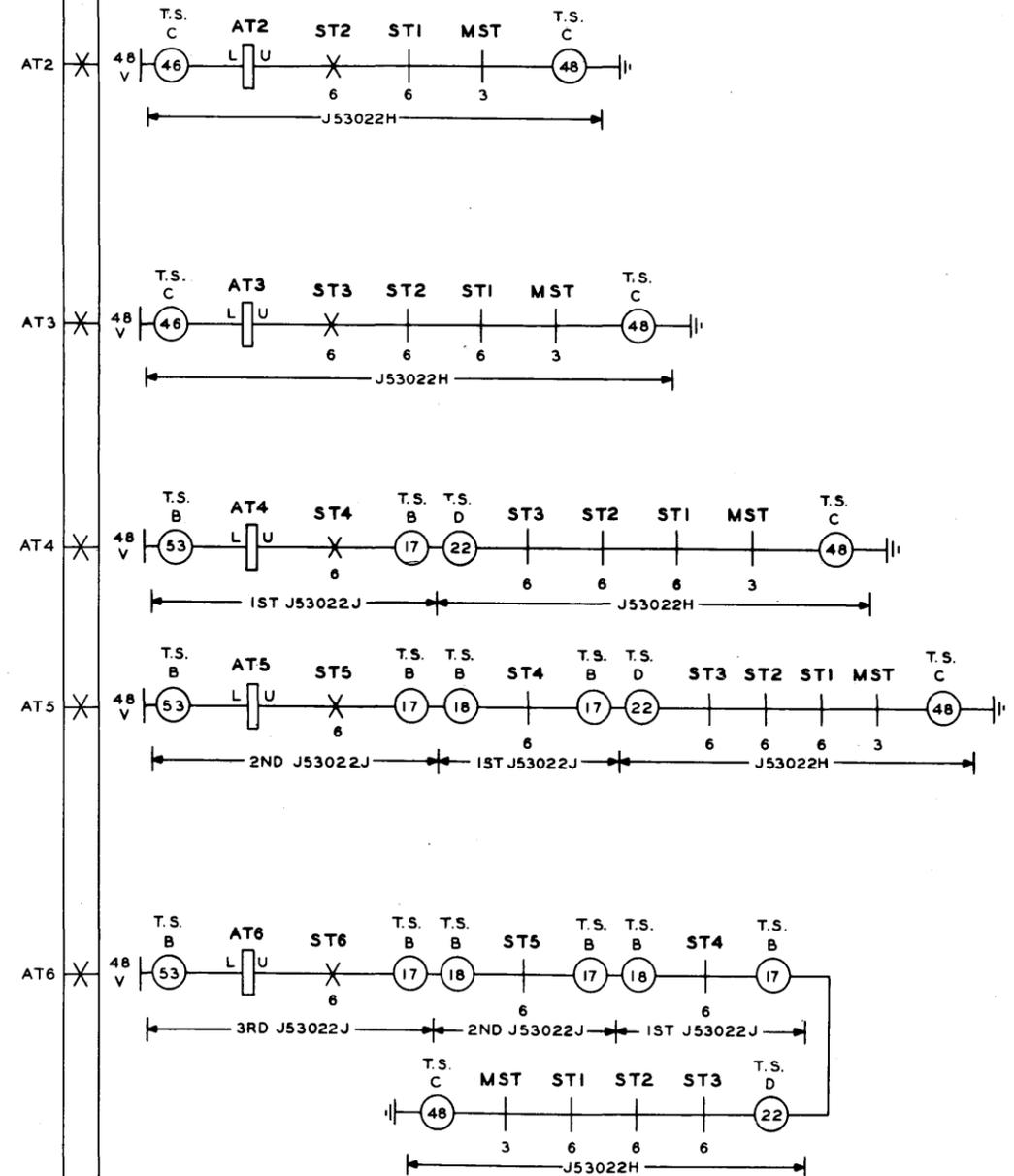
SITE KEY	J53022H T.S. C	J53022J T.S. B	ST RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. B	C1 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	46		L	U	34		28	M9	9	28
2	46		L	U	35		26	M11	11	26
3	46		L	U	36		24	M13	13	24
4		53	L	U		33	22	M15	15	22
5		53	L	U		33	18	M17	17	18
6		53	L	U		33	16	M19	19	16
7		53	L	U		33	14	M21	21	14
8		53	L	U		33	12	M23	23	12

C2 RELAY

SITE KEY	J53022H T.S. C	J53022J T.S. B	ST RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. A	C2 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	46		L	U	34		58	M9	9	28
2	46		L	U	35		56	M11	11	26
3	46		L	U	36		54	M13	13	24
4		53	L	U		33	52	M15	15	22
5		53	L	U		33	48	M17	17	18
6		53	L	U		33	46	M19	19	16
7		53	L	U		33	44	M21	21	14
8		53	L	U		33	42	M23	23	12



ST RELAY OPENS THE CIRCUIT OF HIGHER NUMBERED AT RELAYS



OPERATION OF C AND AT RELAYS CLOSES THROUGH "T" AND "R" LEADS

T AND R LEADS FOR SITES 1, 2 OR 3

CONTD ABOVE

CONT

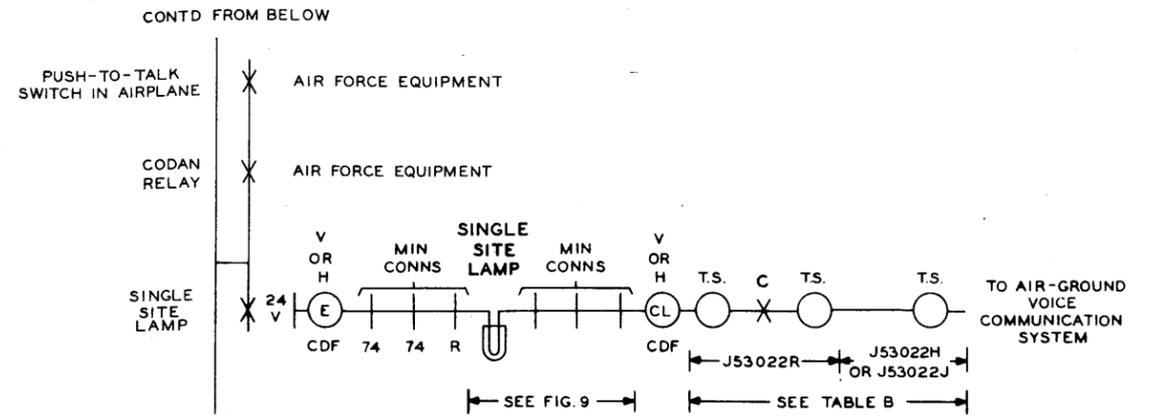
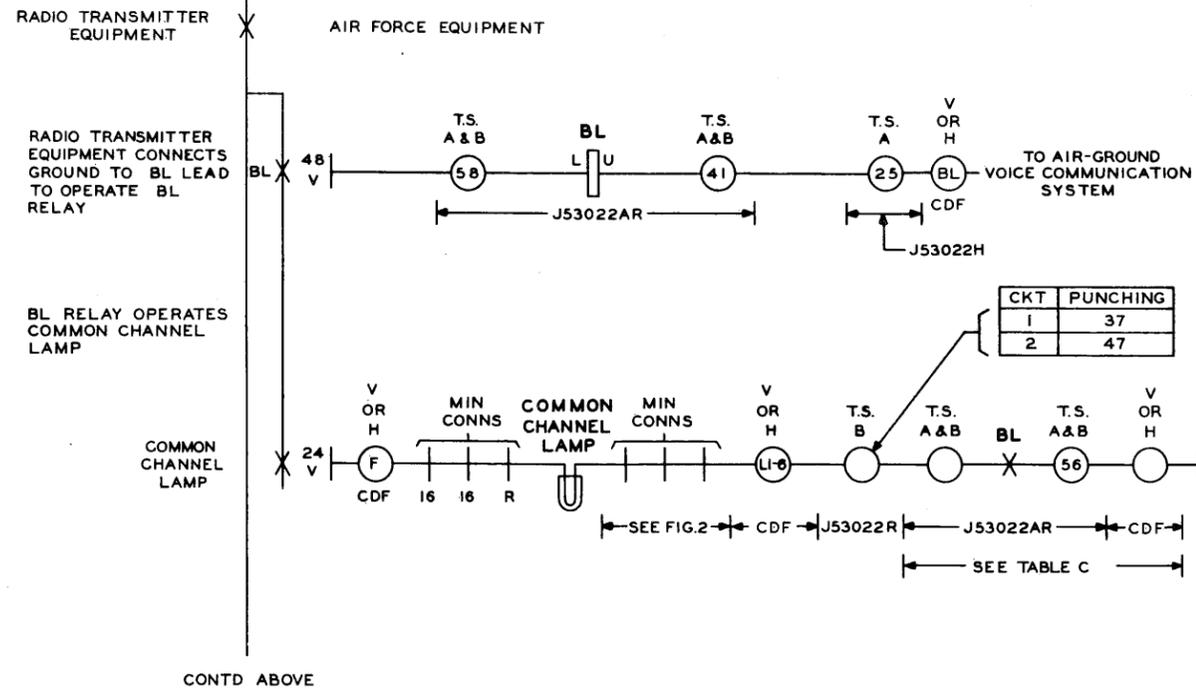
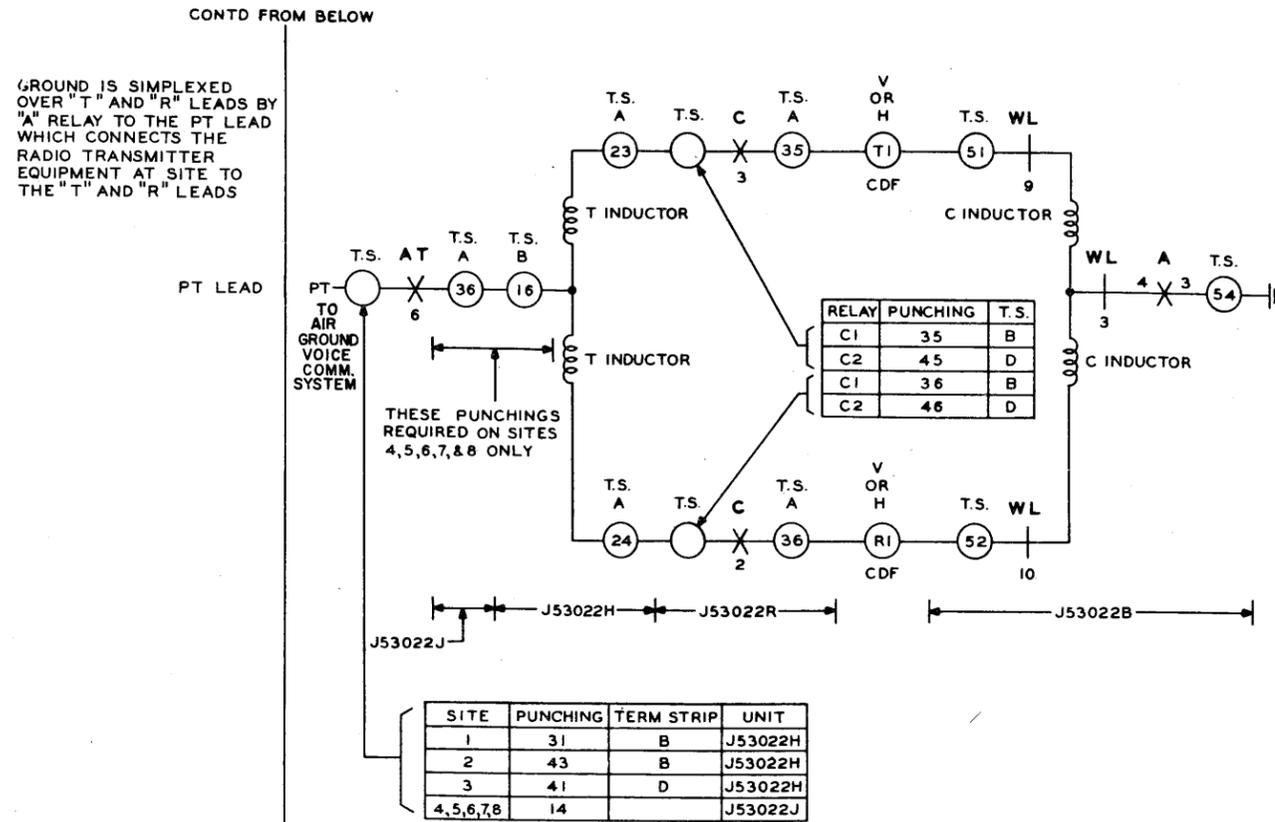


TABLE B

SITE LAMP	J53022R T.S. A	C1 RELAY		J53022R T.S. B	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23	45		
4	21	16	M16	21		18	
5	17	18	M18	17		18	
6	15	20	M20	15		18	
7	13	22	M22	13		18	
8	11	24	M24	11		18	

SITE LAMP	J53022R T.S. A	C2 RELAY		J53022R T.S. A	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	57	35		
2	25	12	M12	55	47		
3	23	14	M14	53	45		
4	21	16	M16	51		18	
5	17	18	M18	47		18	
6	15	20	M20	45		18	
7	13	22	M22	43		18	
8	11	24	M24	41		18	

TABLE C

POSITION	J53022AR T.S. A AND B*	BL RELAY		J53022AR T.S. A AND B*
		IN	OUT	
MAIN AND ASSISTANT	1	11	M1	1
	2	12	M2	2
	3	13	M3	3
	4	14	M4	4
	5	15	M5	5
	6	16	M6	6
	7	17	M7	7
	8	18	M8	8
	9	21	M9	9
	10	22	M10	10
	11	23	M11	11
	12	24	M12	12
	13	25	M13	13
	14	26	M14	14
	15	27	M15	15
	16	28	M16	16
	17	31	M17	17
	18	32	M18	18
	19	33	M19	19
	20	34	M20	20
INDIVIDUAL	1	35	M21	21
	2	36	M22	22
	3	37	M23	23

*T.S. A, CIRCUIT 1.
T.S. B, CIRCUIT 2.

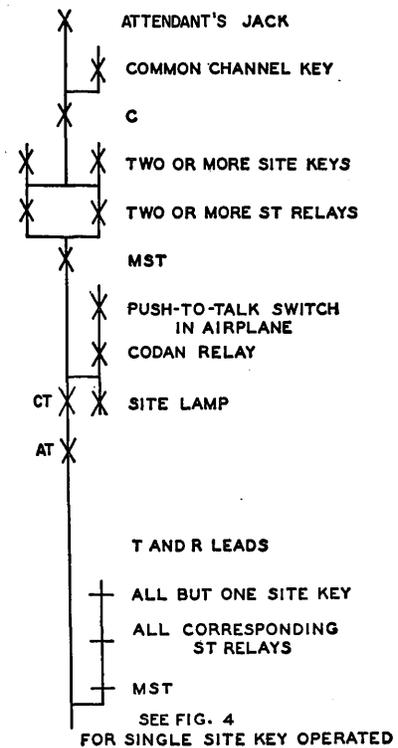
6.00 COMMON CHANNEL SELECTION, ASSISTANT POSITION, TWO OR MORE SITE KEYS OPERATED

6.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated, ground is connected to a *CH* lead and operates the *C* relay. When two or more site keys are operated and the attendant's telephone and key equipment is not connected to a wire line, the associated *ST* relays operate. Operated *ST* relays operate the *MST* relay over the *CST* and *MST* leads. Operated *MST* relay opens ground to the attendant's push-to-talk switch to make it ineffective so that the attendant cannot transmit to two or more sites at once.

6.02 When the push-to-talk switch in an airplane is operated, carrier frequency is sent out which operates a codan relay at any site near enough to respond to it. The codan relay causes ground to be placed on the *CT* and *CL* leads through the air-ground voice communication system. Ground on the *CL* lead operates the associated site lamp, and ground on the *CT* lead operates the associated *CT* relay. Operated *CT* relay operates the *AT* relay which closes through the *T* and *R* leads from the air-ground voice communication system to the attendant's telephone set for receiving only. Operated *CT* relay (a) locks operated through its own contacts, (b) opens the operating path of lower numbered *CT* relays, and (c) opens the operating path of higher numbered *AT* relays. Therefore, if a signal is received simultaneously on two or more sites, the transmission path can be completed to one site only.

6.03 When the attendant wishes to transmit to an airplane, he must release all but one site key which releases the associated *ST* relays and the *MST* relay. Refer to Fig. 4, Common Channel Selection, Assistant Position, Single Site Key Operated.

SEQUENCE CHART



**References: SD69261-01, Issue 6B
SD69268-01, Issue 5B**

OPERATIONAL SKETCH

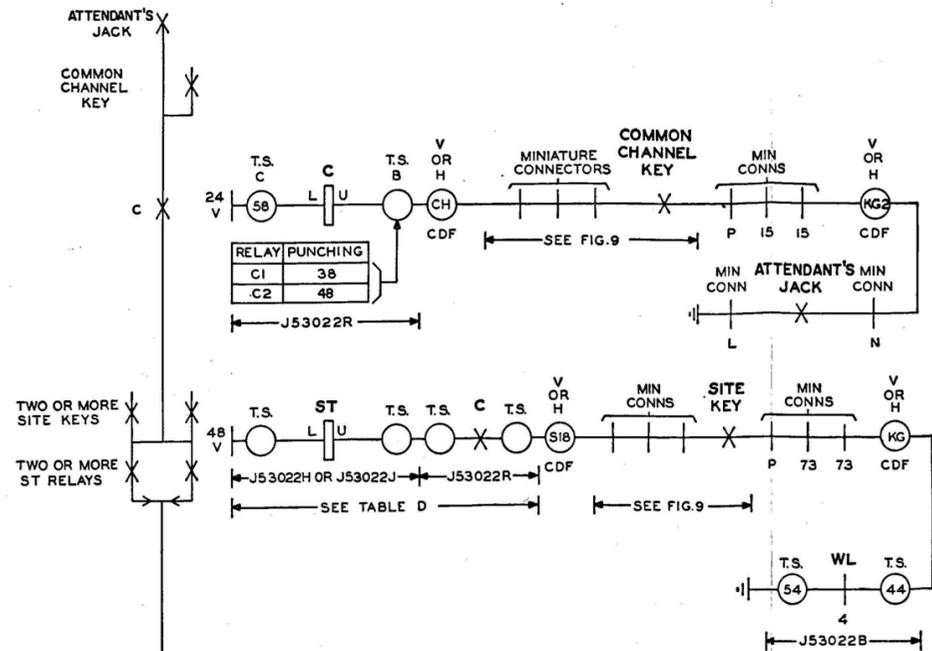


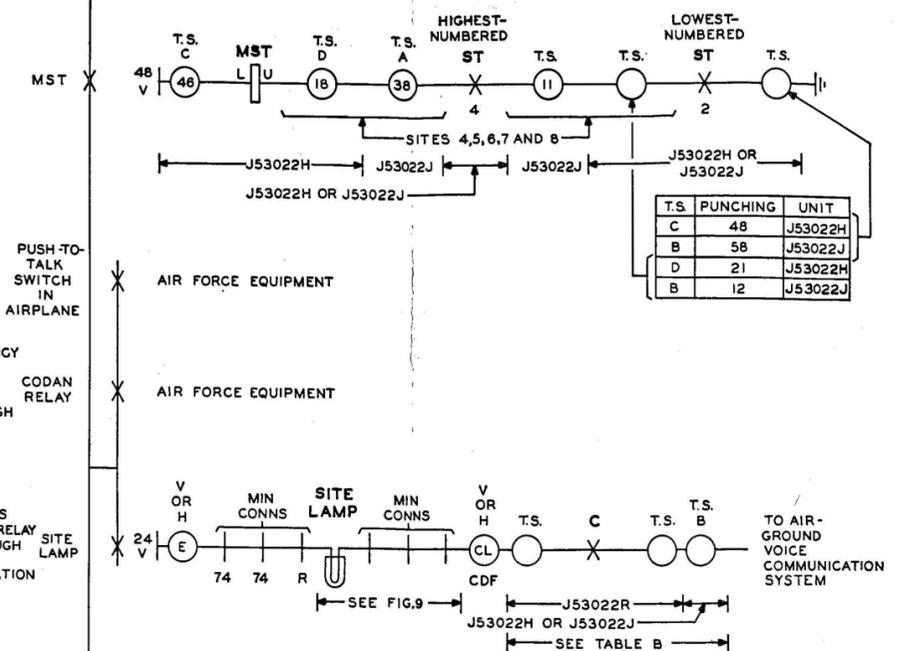
TABLE D
C1 RELAY

SITE KEY	J53022H T.S. C	J53022J T.S. B	ST RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. B	C1 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	46		L	U	34		28	M9	9	28
2	46		L	U	35		26	M11	11	26
3	46		L	U	36		24	M13	13	24
4		53	L	U		33	22	M15	15	22
5		53	L	U		33	18	M17	17	18
6		53	L	U		33	16	M19	19	16
7		53	L	U		33	14	M21	21	14
8		53	L	U		33	12	M23	23	12

C2 RELAY

SITE KEY	J53022H T.S. C	J53022J T.S. B	ST RELAY		J53022H T.S. D	J53022J T.S. A	J53022R T.S. B	C2 RELAY		J53022R T.S. A
			IN	OUT				IN	OUT	
1	46		L	U	34		58	M9	9	28
2	46		L	U	35		56	M11	11	26
3	46		L	U	36		54	M13	13	24
4		53	L	U		33	52	M15	15	22
5		53	L	U		33	48	M17	17	18
6		53	L	U		33	46	M19	19	16
7		53	L	U		33	44	M21	21	14
8		53	L	U		33	42	M23	23	12

CONTD FROM BELOW



CARRIER FREQUENCY FROM AIRPLANE OPERATES CODAN RELAY AT ANY SITE NEAR ENOUGH TO RESPOND

CODAN RELAY OPERATION CAUSES SITE LAMP AND CT RELAY TO OPERATE THROUGH THE AIR-GROUND VOICE COMMUNICATION SYSTEM

OPTIONAL WIRING THROUGH SD RELAY CONTACTS OF SITE MAY BE REQUIRED TO PREVENT INTERFERENCE BETWEEN SITES WHILE TRANSMITTING

CONTD ABOVE

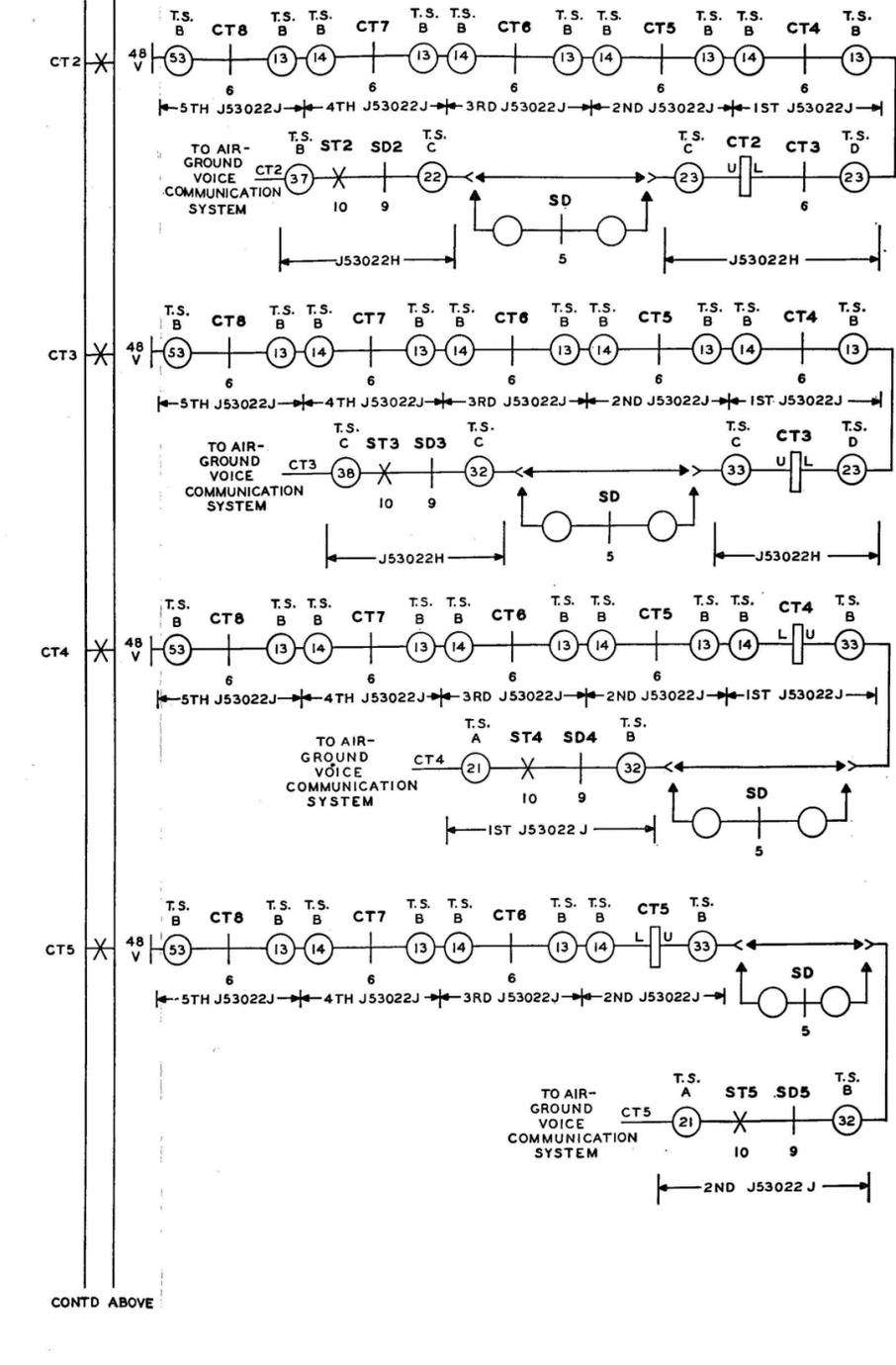
TABLE B
C1 RELAY

SITE LAMP	J53022R T.S. A	C1 RELAY		J53022R T.S. B	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23	45		
4	21	16	M16	21		18	
5	17	18	M18	17		18	
6	15	20	M20	15		18	
7	13	22	M22	13		18	
8	11	24	M24	11		18	

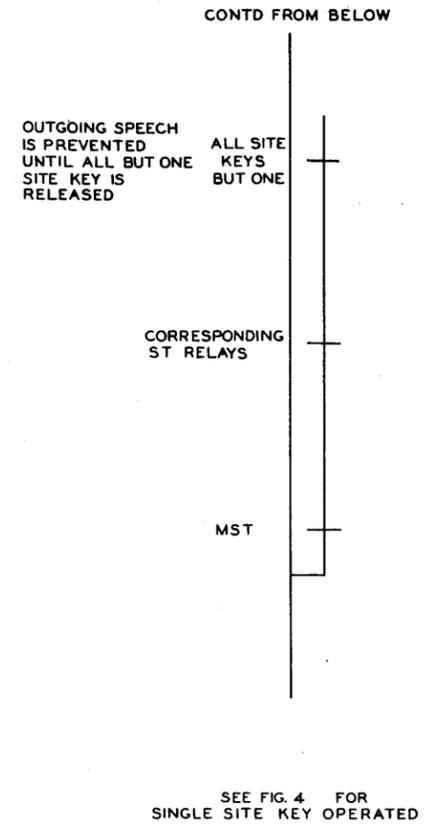
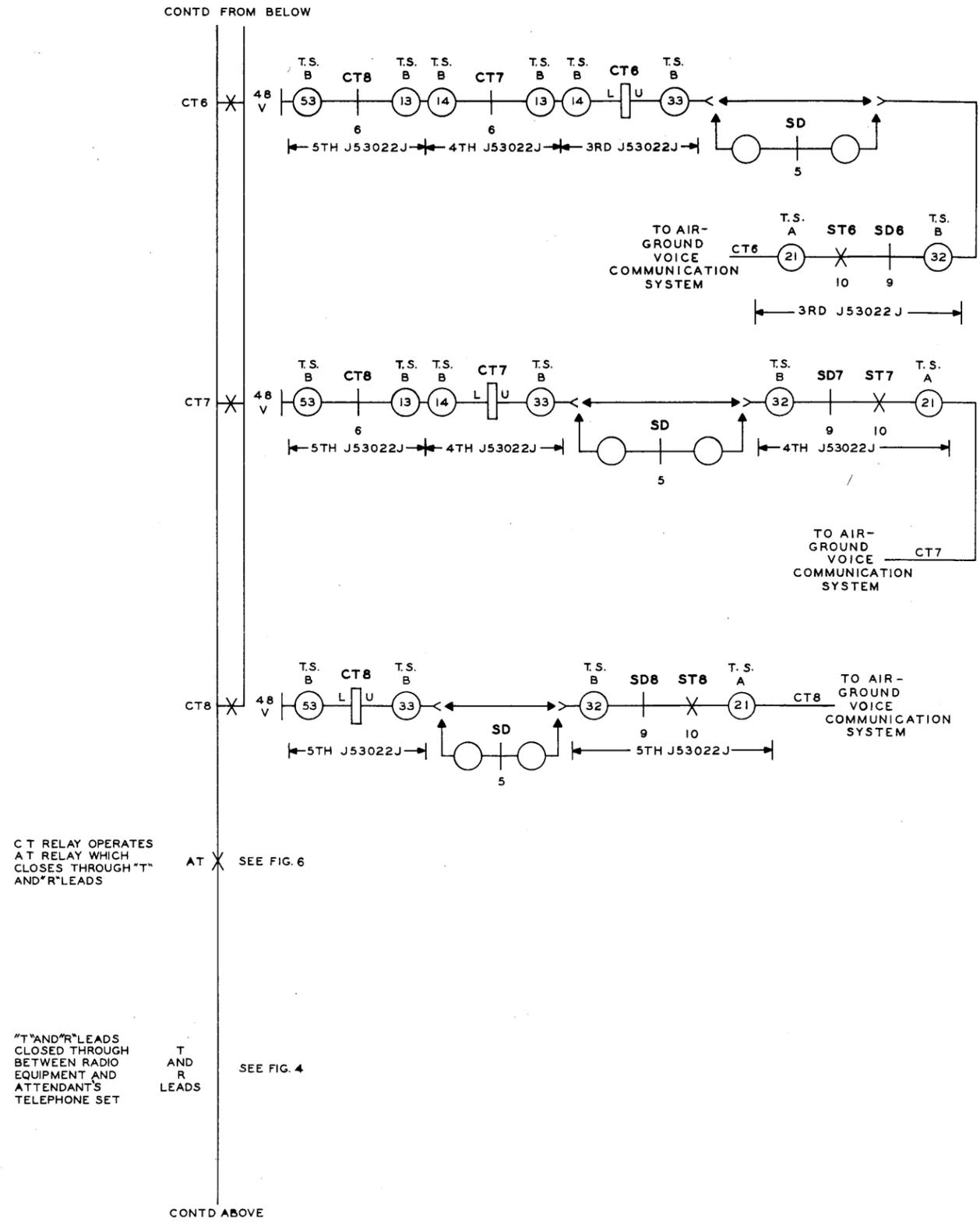
C2 RELAY

SITE LAMP	J53022R T.S. A	C2 RELAY		J53022R T.S. A	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	57	35		
2	25	12	M12	55	47		
3	23	14	M14	53	45		
4	21	16	M16	51		18	
5	17	18	M18	47		18	
6	15	20	M20	45		18	
7	13	22	M22	43		18	
8	11	24	M24	41		18	

CONTD FROM BELOW



CONTD ABOVE



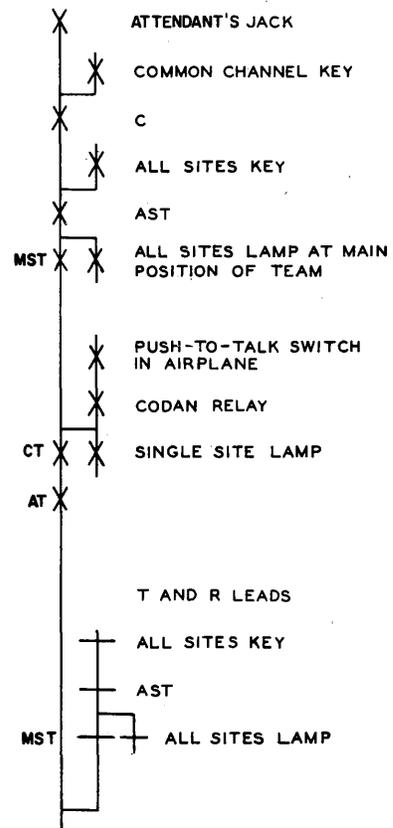
7.00 COMMON CHANNEL SELECTION, ASSISTANT POSITION, ALL SITES KEY OPERATED

7.01 When an attendant's telephone set plug has been inserted in its jack and a common channel key is operated at an assistant position, ground is connected to a *CH* lead and operates the *C* relay. When the **ALL SITES** key is operated and the attendant's telephone equipment is not connected to a wire line, the *AST* relay operates and (a) operates the *MST* relay and (b) lights the **ALL SITES** lamp at the main position. Operated *MST* relay opens ground to the push-to-talk switch to make it ineffective. The operator can now receive a voice signal from any site, see 7.02 and 7.03.

7.02 When the push-to-talk switch in an airplane is operated, a carrier frequency is sent out which operates a codan relay at any site near enough to respond to it. The codan relay causes ground to be placed on the *CT* and *CL* leads through the air-ground voice communication system. Ground on the *CL* lead lights the associated site lamp. Ground on the *CT* lead operates the *CT* relay which operates the associated *AT* relay. This closes through the *T* and *R* leads from the air-ground voice communication system to the attendant's telephone set for receiving only. Operated *CT* relay opens the operating path of lower numbered *CT* relays and opens the operating path of higher numbered *AT* relays. Therefore, if a signal is received simultaneously at two or more sites, the transmission path can be completed to one site only.

7.03 When the attendant wishes to transmit to an airplane, he must release the **ALL SITES** key which releases the *AST* and *MST* relays and extinguishes the **ALL SITES** lamp. Operation of the site key associated with the operated site lamp will allow the push-to-talk switch to become effective and allow the attendant to transmit as covered in Fig. 4, Common Channel Selection, Assistant Position, Single Site Key Operated.

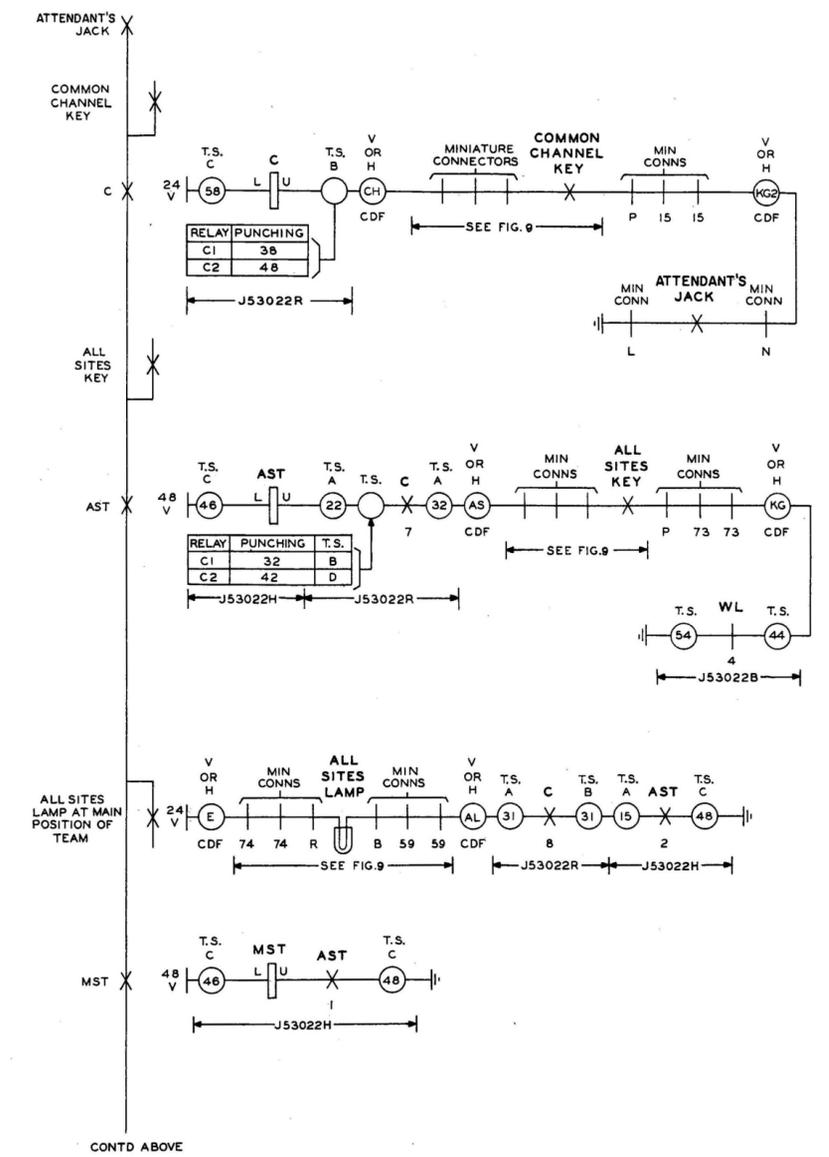
SEQUENCE CHART



SEE FIG. 4 FOR SINGLE SITE KEY OPERATED

References: SD69261-01, Issue 6B
SD69268-01, Issue 5B

OPERATIONAL SKETCH



CONTD FROM BELOW

PUSH-TO-TALK SWITCH IN AIRPLANE

AIR FORCE EQUIPMENT

AIR FORCE EQUIPMENT

OPERATION OF PUSH-TO-TALK SWITCH IN AIRPLANE CAUSES CARRIER FREQUENCY TO OPERATE CODAN RELAY AT ANY SITE NEAR ENOUGH TO RESPOND

THROUGH THE AIR-GROUND VOICE COMMUNICATION SYSTEM, THE CODAN RELAY OPERATES THE CORRESPONDING SITE LAMP AND CT RELAY

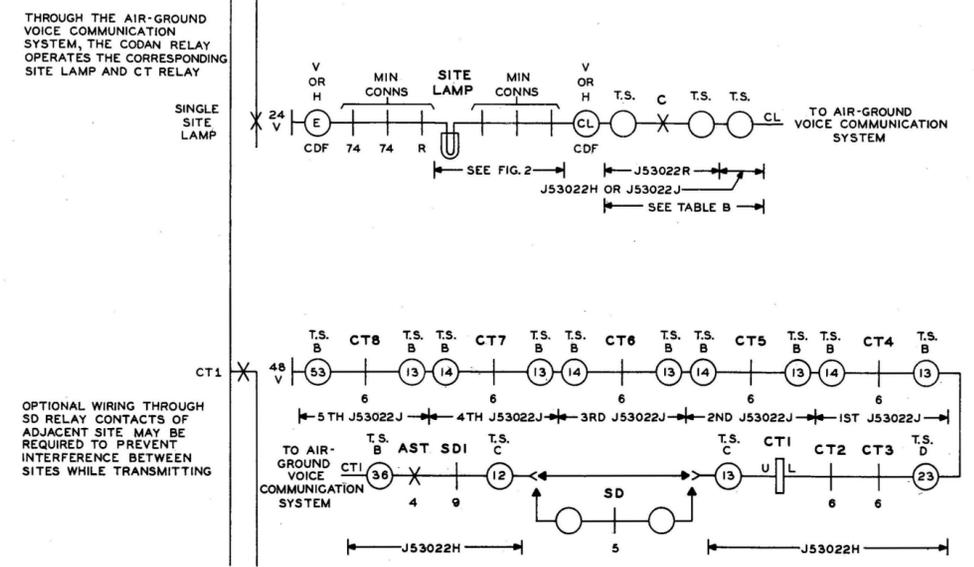
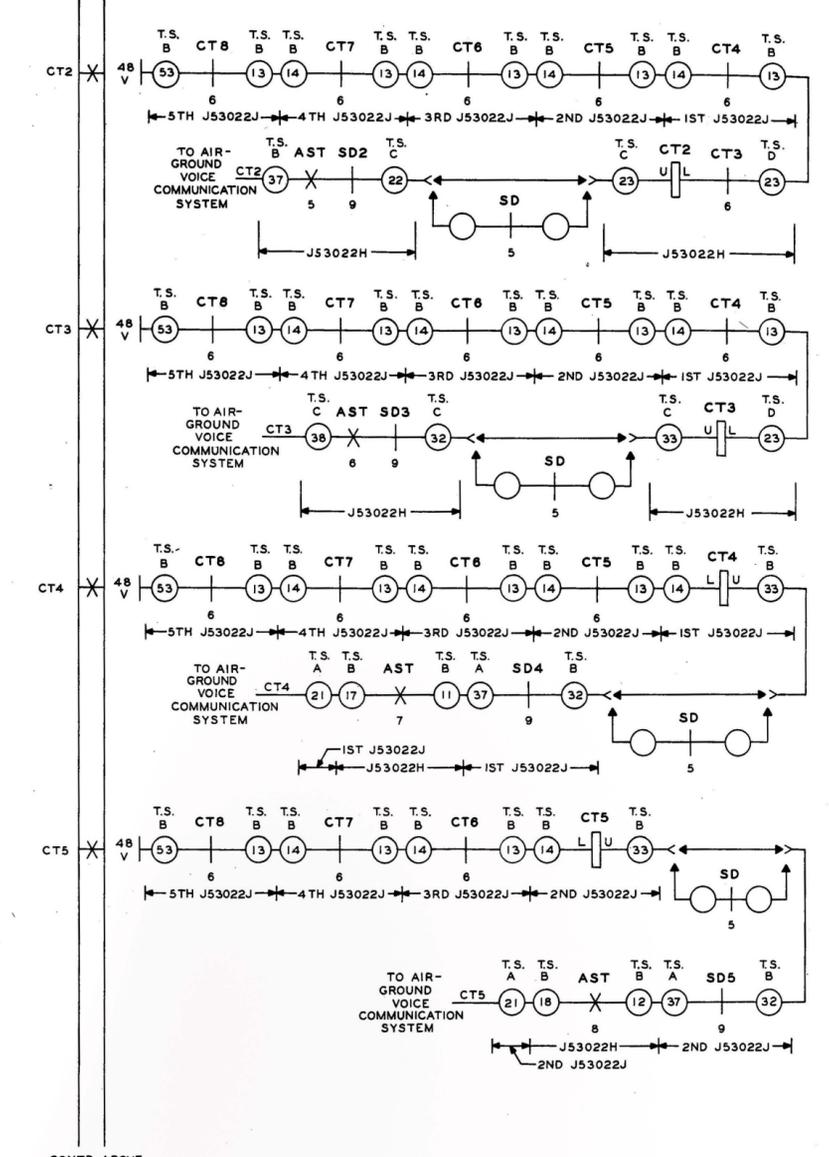


TABLE B

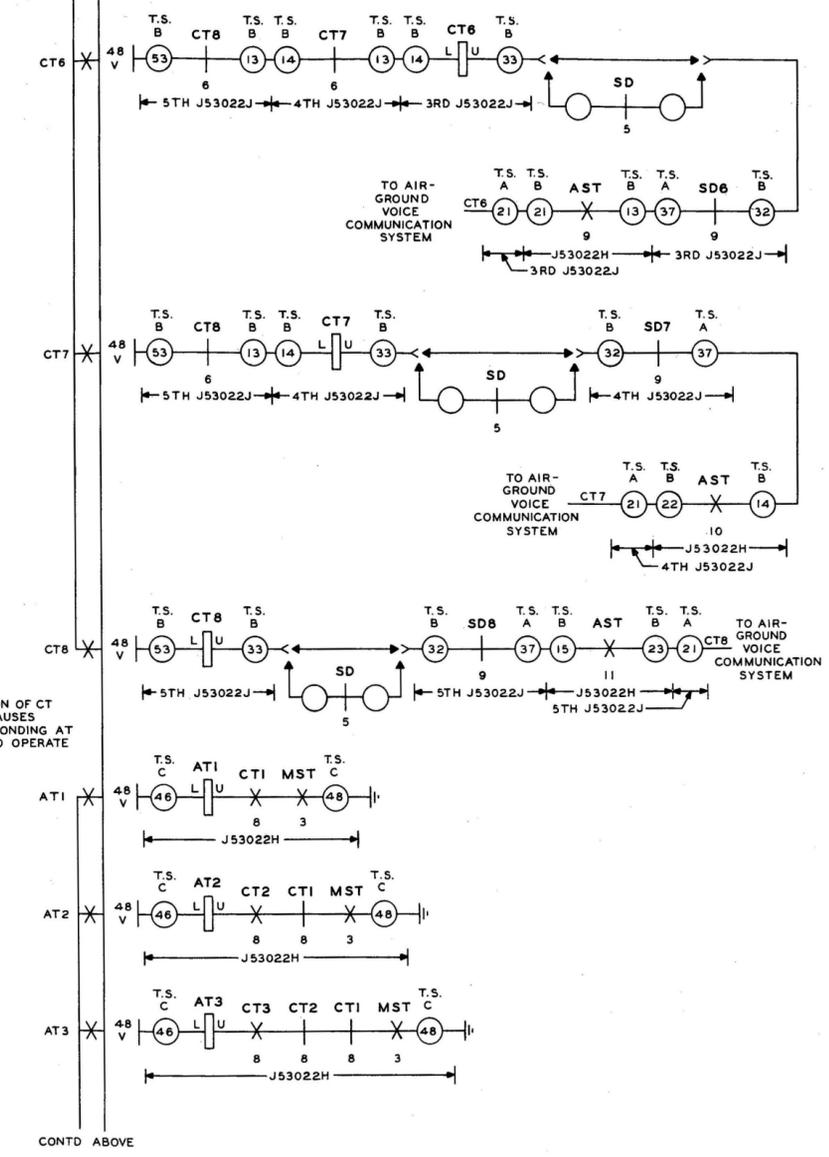
SITE LAMP	J53022R T.S. A	C1 RELAY		J53022R T.S. B	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23		45	
4	21	16	M16	21			18
5	17	18	M18	17			18
6	15	20	M20	15			18
7	13	22	M22	13			18
8	11	24	M24	11			18

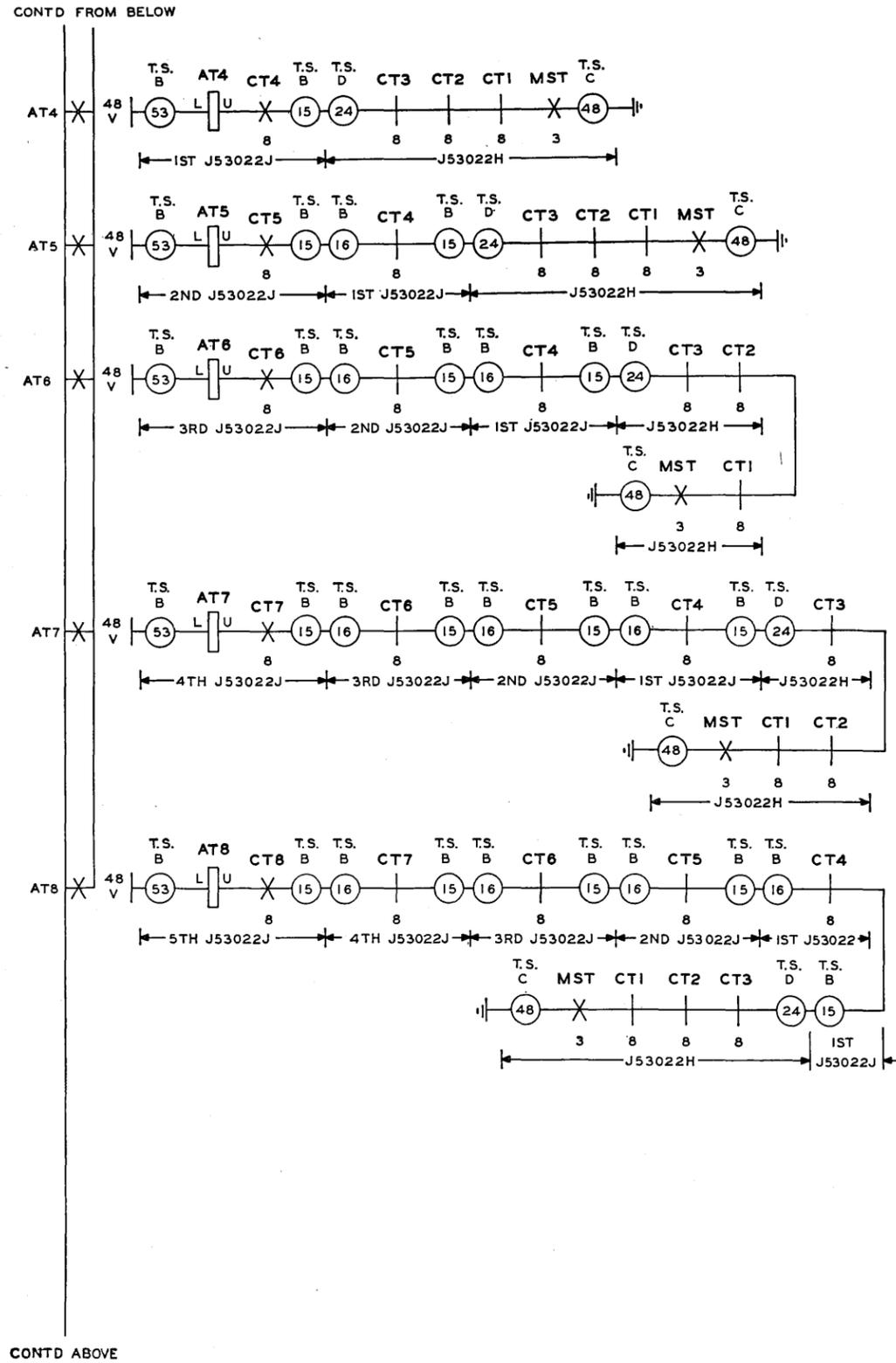
SITE LAMP	J53022R T.S. A	C2 RELAY		J53022R T.S. A	J53022H		J53022J T.S. A
		IN	OUT		T.S. B	T.S. D	
1	27	10	M10	27	35		
2	25	12	M12	25	47		
3	23	14	M14	23		45	
4	21	16	M16	21			18
5	17	18	M18	17			18
6	15	20	M20	15			18
7	13	22	M22	13			18
8	11	24	M24	11			18

CONTD FROM BELOW



CONTD FROM BELOW





CONTD ABOVE

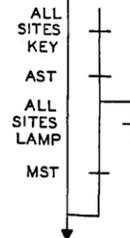
OPERATION OF AT RELAY CLOSES THROUGH "T" AND "R" LEADS FROM AIR-GROUND VOICE COMMUNICATION SYSTEM TO ATTENDANT'S TELEPHONE SET FOR RECEIVING ONLY

CONTD FROM BELOW

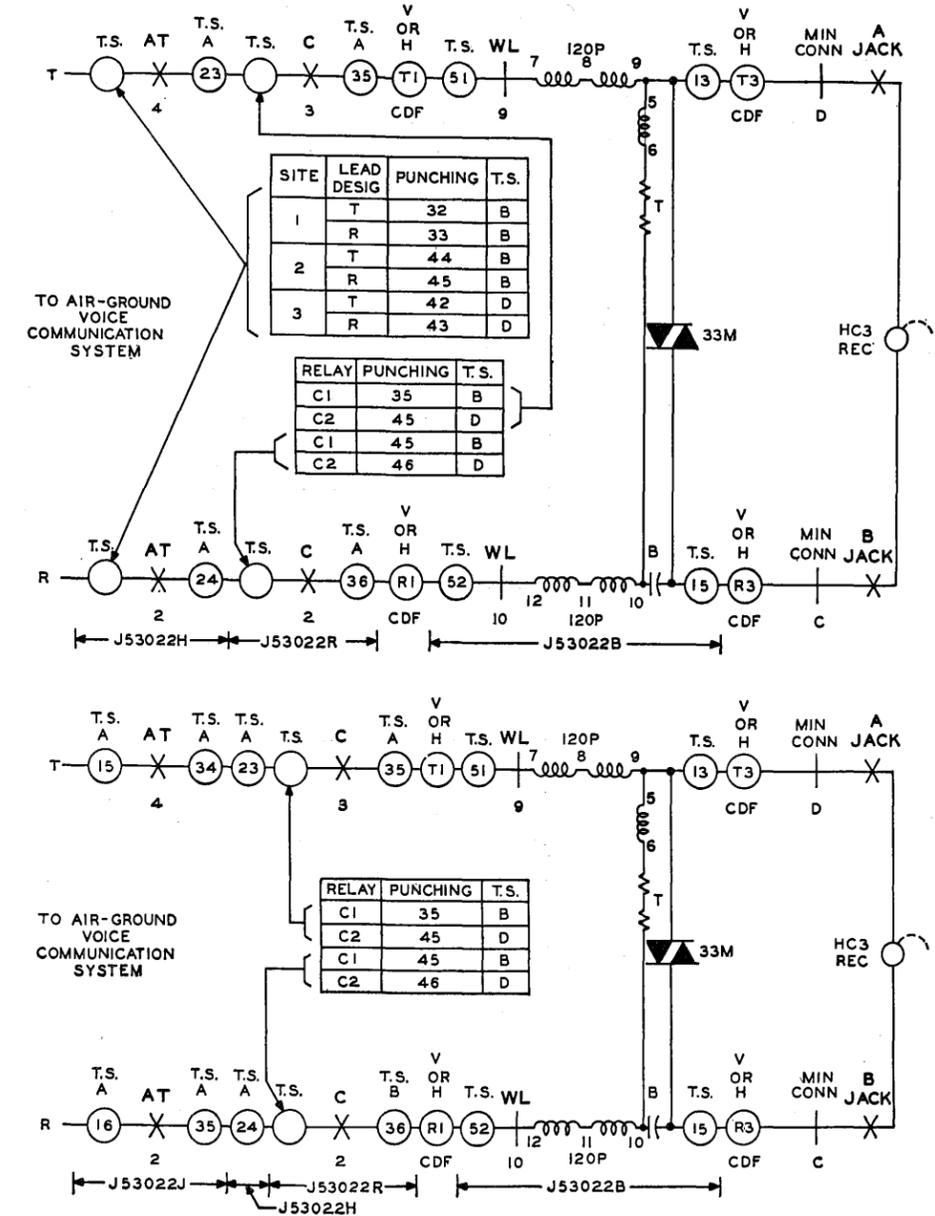
T AND R LEADS FOR SITES 1, 2, OR 3

T AND R LEADS FOR SITES 4, 5, 6, 7 OR 8

OUTGOING SPEECH IS PREVENTED UNTIL ALL SITES KEY IS RESTORED TO NORMAL AND SINGLE SITE KEY IS OPERATED



SEE FIG. 4 FOR SINGLE SITE KEY OPERATED



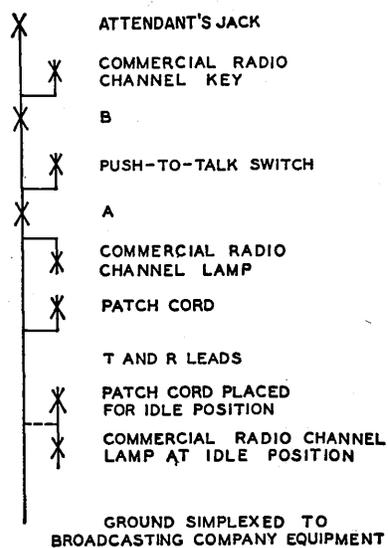
8.00 COMMERCIAL RADIO CHANNEL SELECTION

8.01 When an attendant's telephone set plug has been inserted in its jack and the commercial radio channel key is operated, ground is connected to a *B* lead and operates the *B* relay. Operated *B* relay connects the *T* and *R* leads from the attendant's telephone and key circuit to the team jack. This jack must be patched manually to the radio jack to complete the circuit to the commercial broadcasting company. When the push-to-talk switch is operated, the *A* relay operates. Operated *A* relay (a) connects ground to the *PT* lead through contacts of the *B* relay to the *BF* lead to light the commercial radio channel lamp at the operated position and, through the sleeve connection of the associated patch cords, radio jack, and team jacks, lights the lamps associated with the commercial radio channel key at all positions connected to this channel, (b) furnishes transmitter battery through the windings of the *A* relay, and (c) connects ground which is simplexed over the *T* and *R* leads to operate equipment at the broadcasting company.

8.02 This establishes the transmitting path and visual signal path. There is no provision for receiving from a commercial radio channel.

References: SD69261-01, Issue 6B
SD69268-01, Issue 5B

SEQUENCE CHART



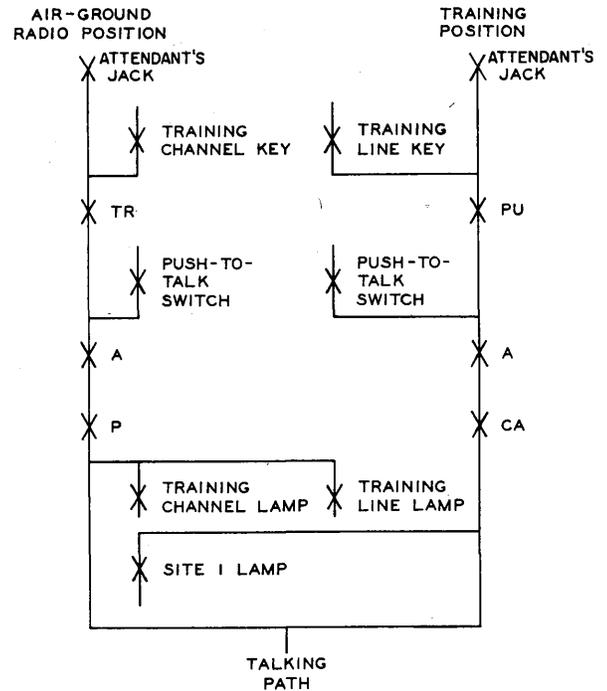
9.00 TRAINING CHANNEL SELECTION

9.01 When an attendant's telephone set plug has been inserted in its jack and the training channel key is operated at an air-ground radio position, ground is connected to a *CH* lead and operates the *TR* relay. When the push-to-talk switch is operated, the *A* relay operates. Operated *A* relay (a) operates *P* relay and (b) furnishes transmitter battery through its operating path. Operated *P* relay (a) closes ground over the *TL* lead to light the training channel lamp and (b) closes battery over the *L* lead to operate the training line lamp at the training position. The *P* relay will be released and the lights extinguished when the attendant releases the push-to-talk switch. By repeated operations of the push-to-talk switch, he can give a flashing, incoming call signal to the attendant at the training position. There is no audible signal provided. The *T* and *R* leads are connected from the attendant's telephone and key circuit through the *TR* relay to the training channel circuit.

9.02 When the attendant's telephone set plug has been inserted in its jack and a key associated with the training channel is operated at the training position, ground is connected to an *A2* lead to operate the *PU* relay. When the push-to-talk switch is operated, the *A* relay operates. Operated *A* relay furnishes transmitter battery through its operating path and operates the *CA* relay which closes ground over the *CLA* lead to light the site 1 lamp at the calling position to indicate that the called attendant has answered. The *T* and *R* leads are connected from the attendant's telephone and key circuit through the *PU* relay to the training channel circuit to complete the talking path between the positions.

9.03 When operated keys are restored to normal, all operated relays release and the circuit is restored to normal.

SEQUENCE CHART



References: SD69261-01, Issue 6B
SD69268-01, Issue 5B

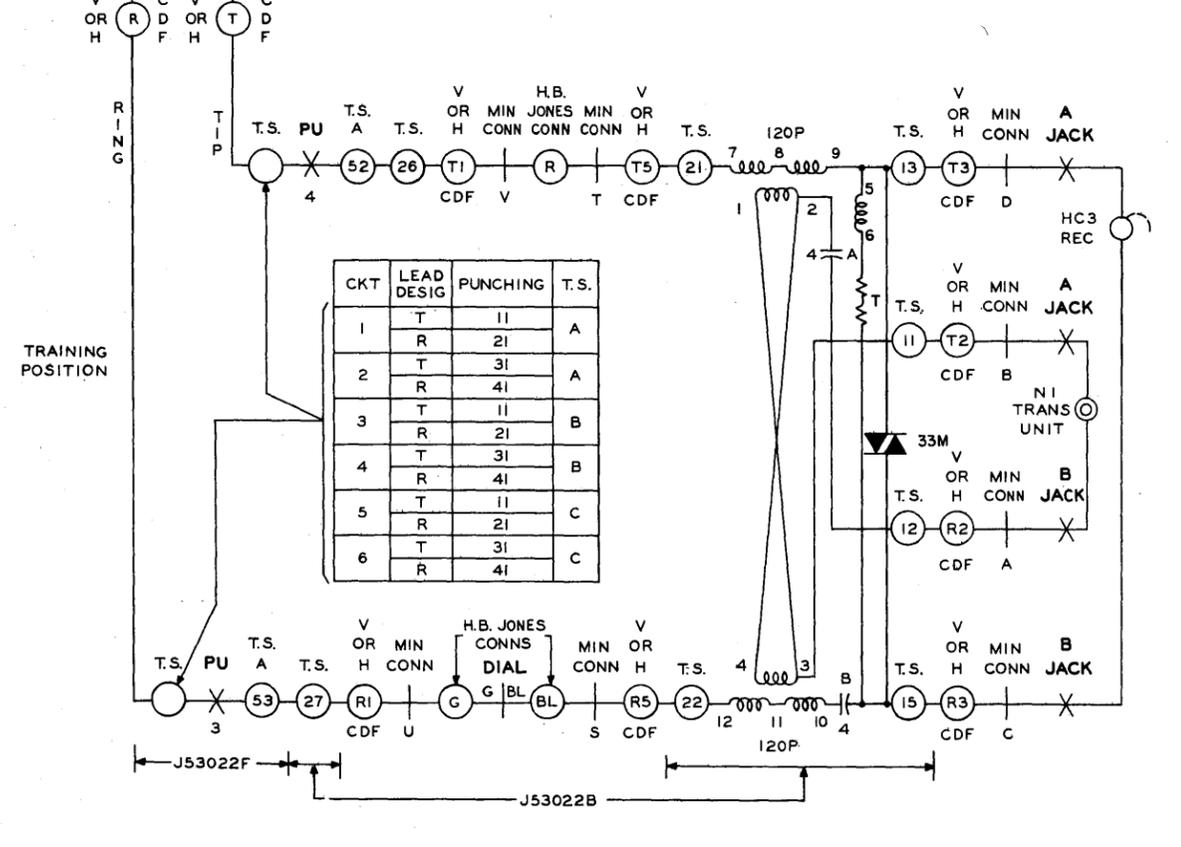
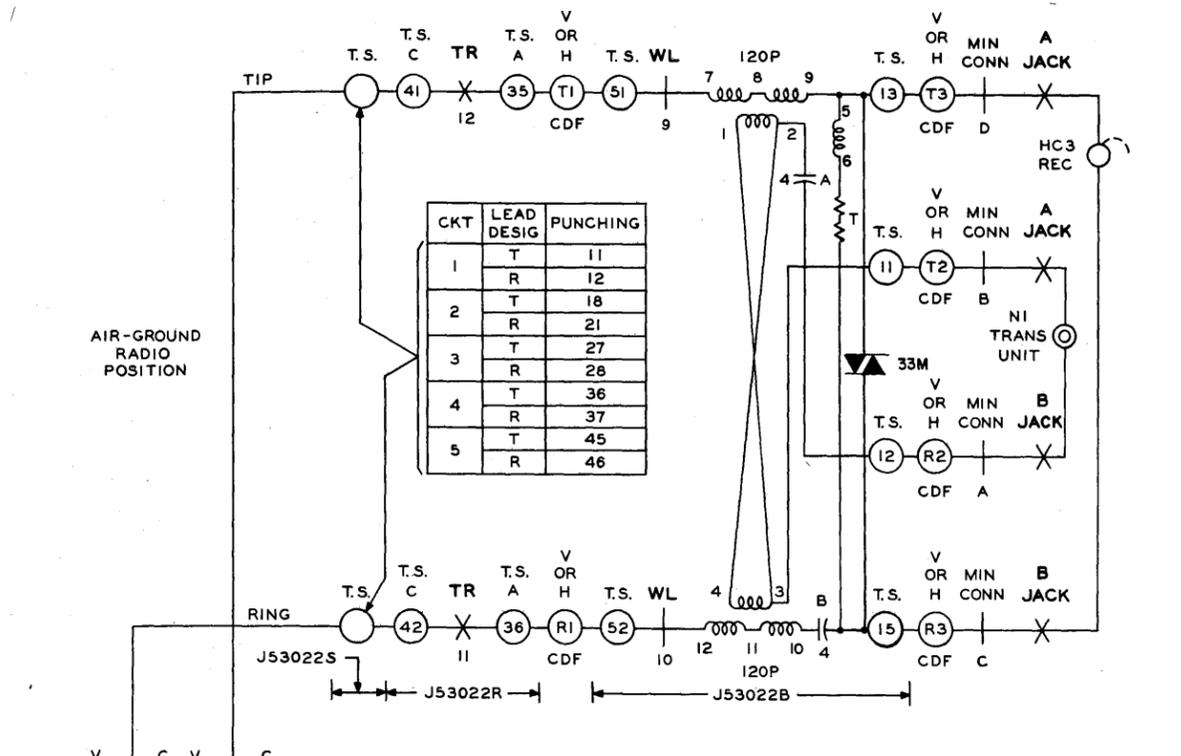
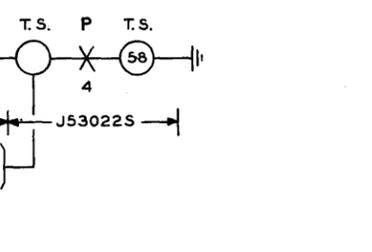
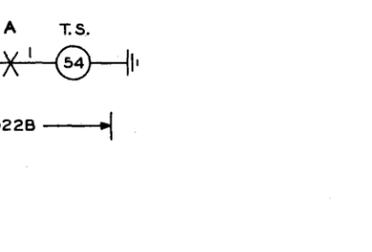
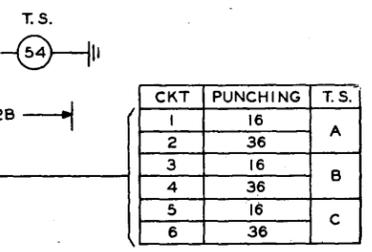
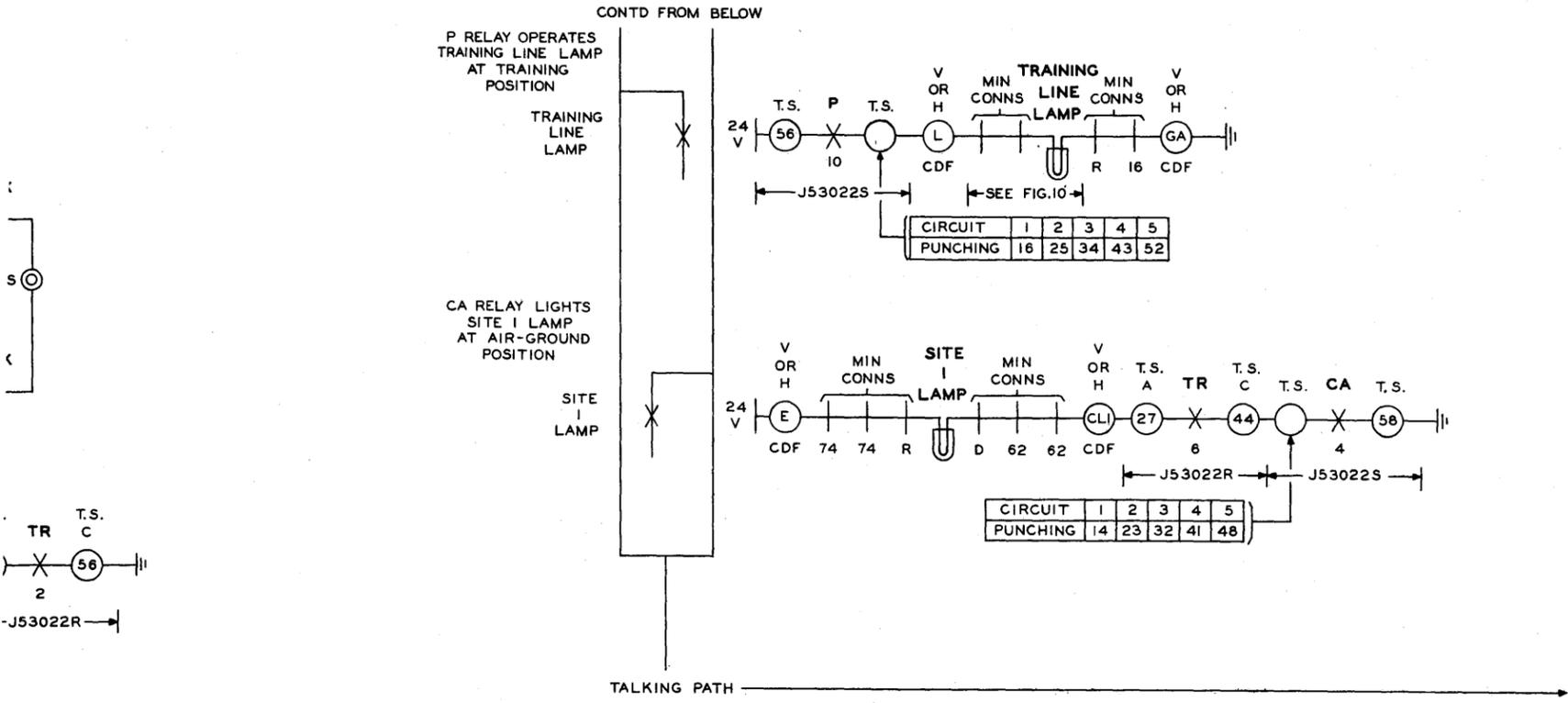
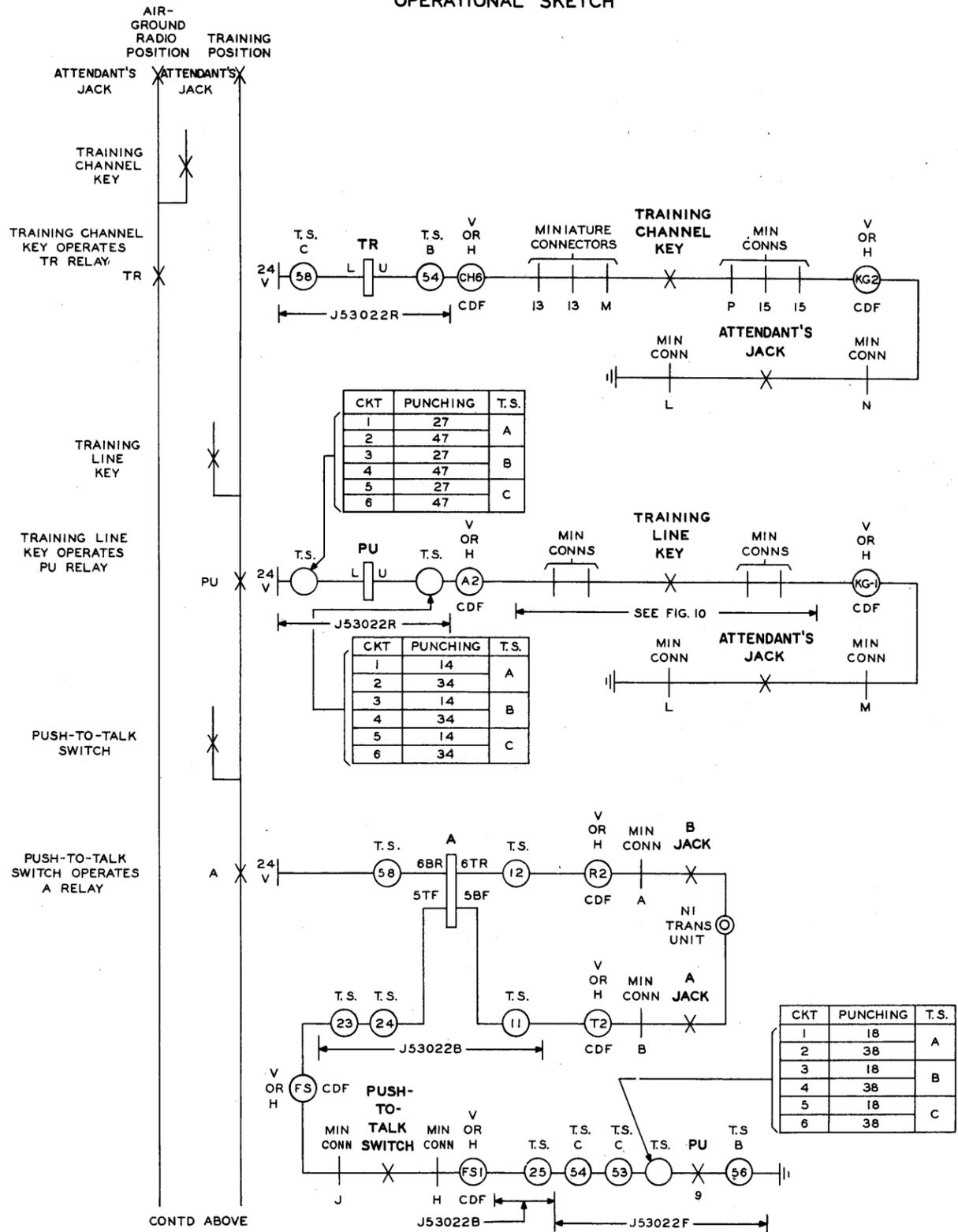
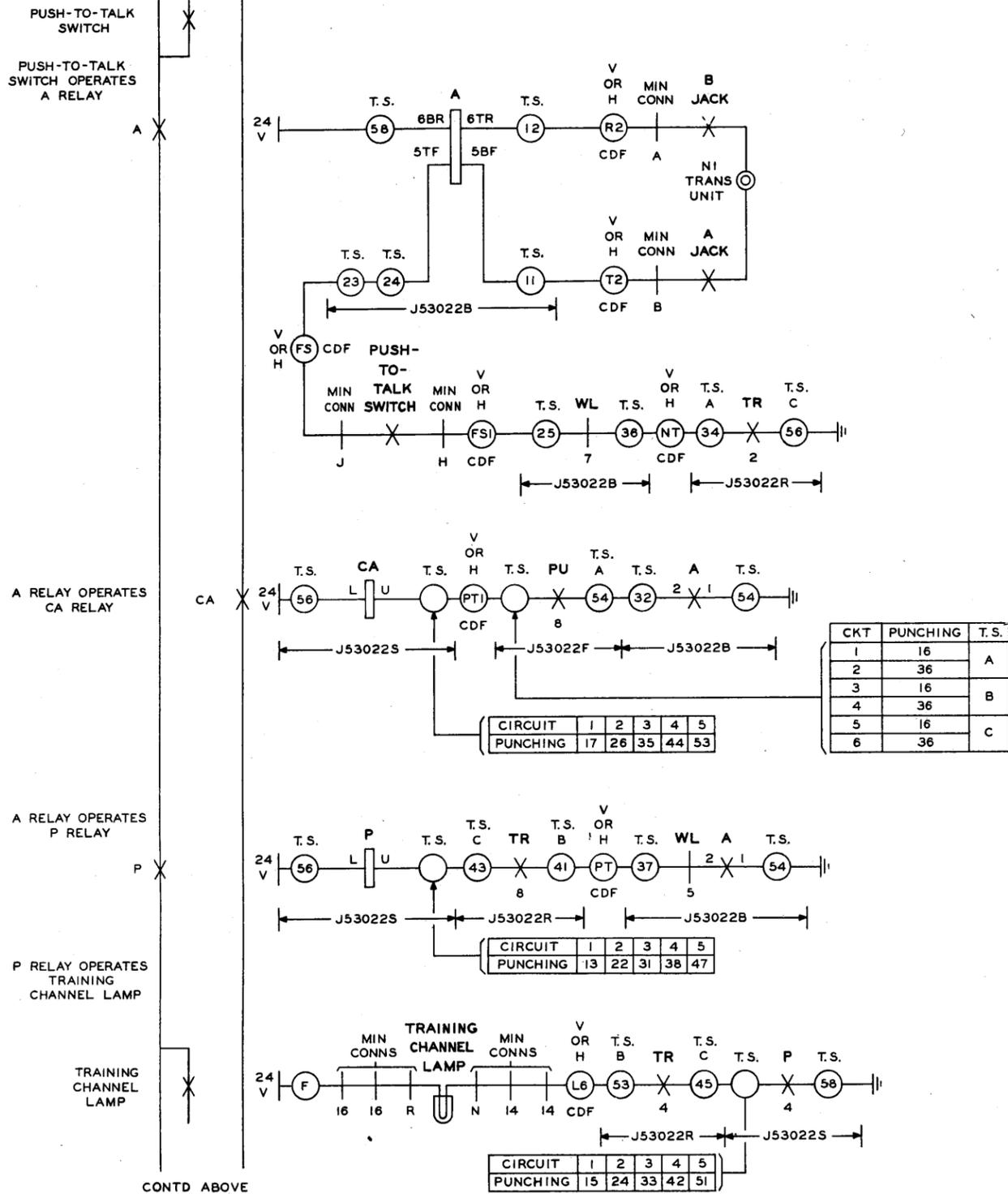


Fig. 8

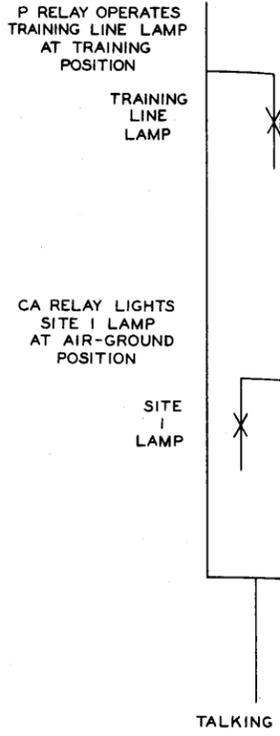
OPERATIONAL SKETCH

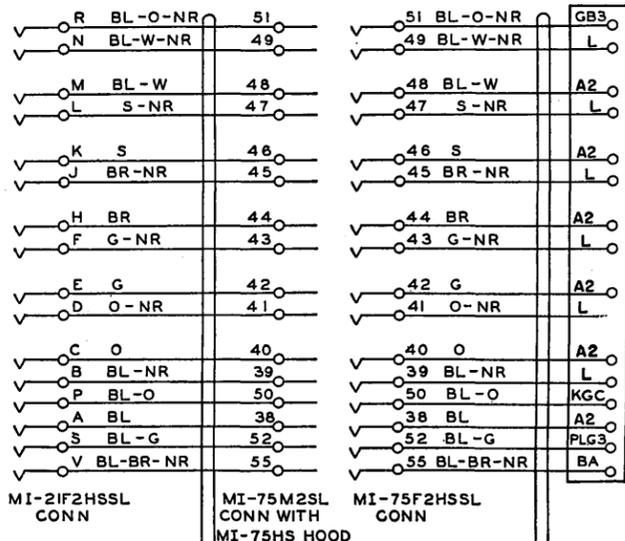
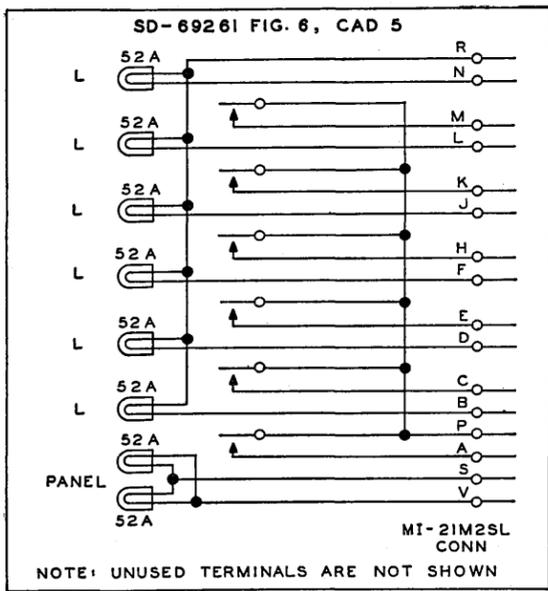


CONTD FROM BELOW

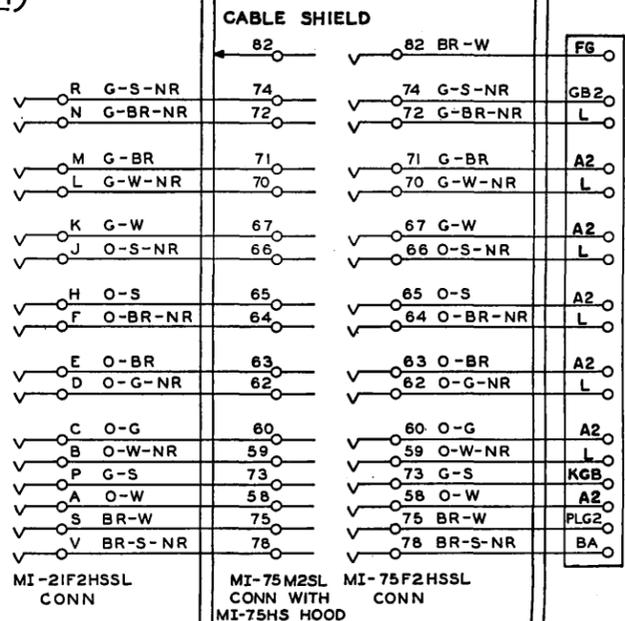
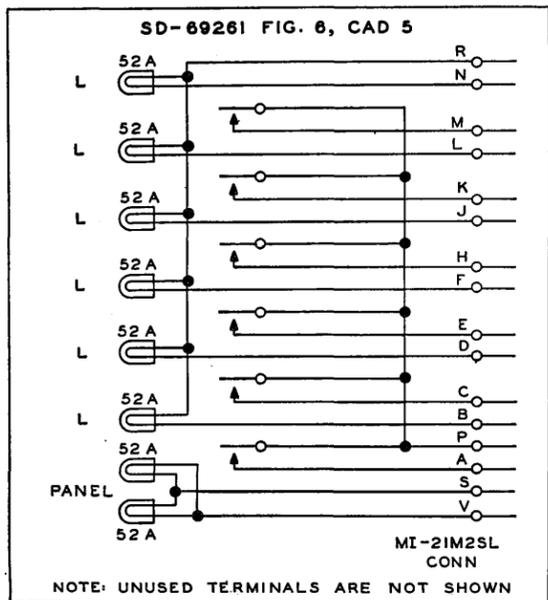


CONTD FROM





701A KEY (SUPPLEMENTARY UNIT)



700A KEY (ORIGINATING UNIT)

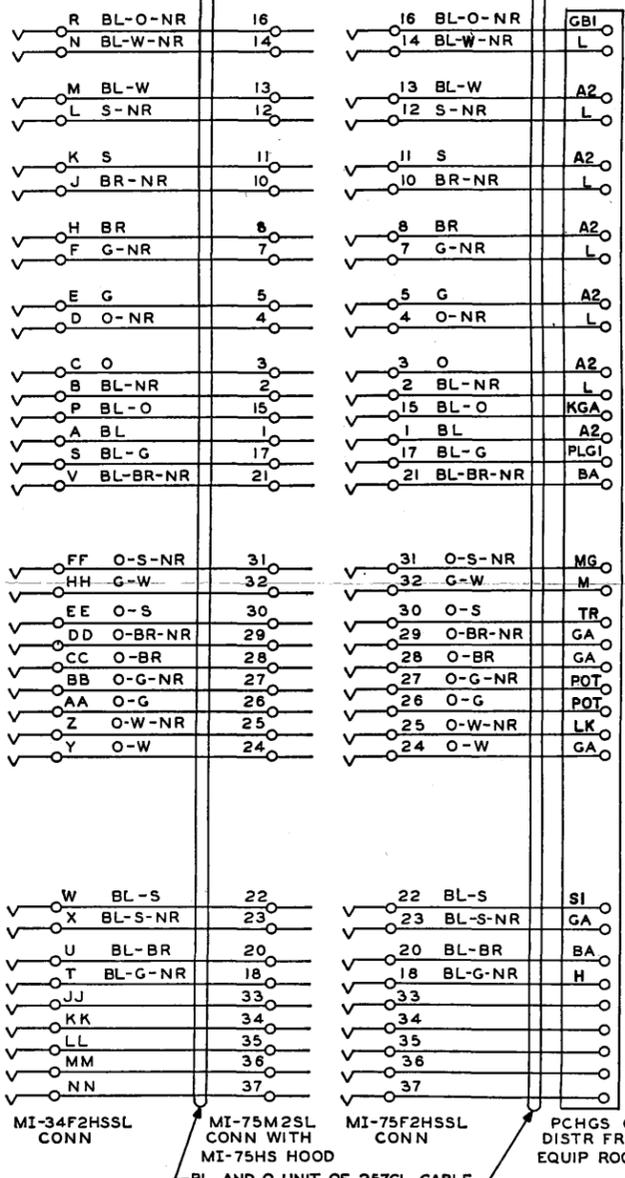
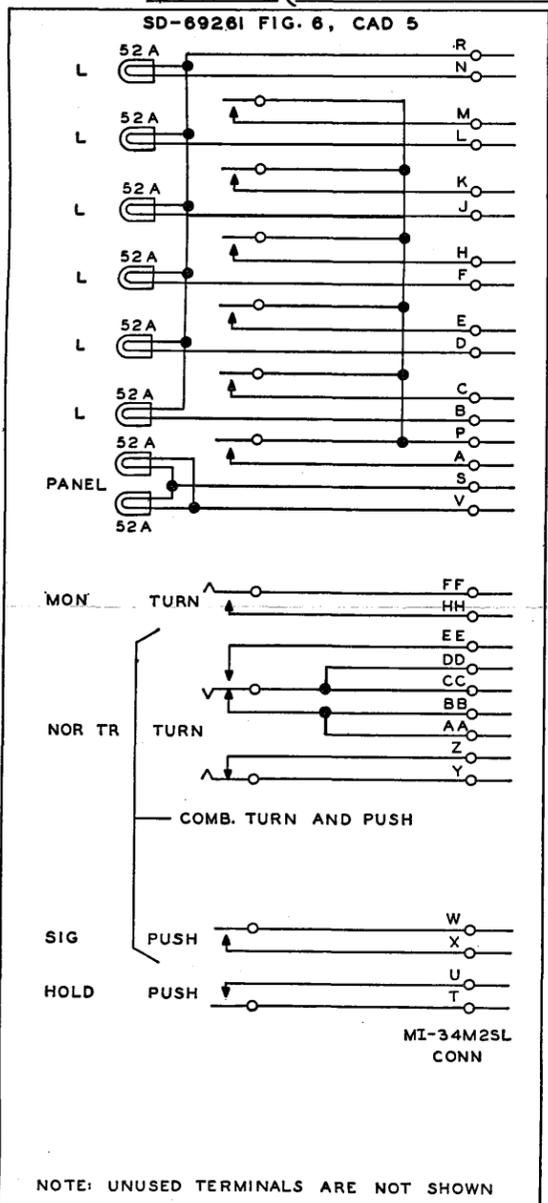


FIG. 10—DIAGRAM OF CONSOLE CABLE WIRE LINES, 701A KEY UNIT (SUPPLEMENTARY UNIT)