

CONSTRUCTION AND  
MAINTENANCE PRACTICES  
OUTSIDE PLANT



SECTION 55

PART 607

1A - 1A1 KEY TELEPHONE SYSTEMS  
400-TYPE TELEPHONE SETS

CONTENTS	ITEM NUMBER
General .....	607. 1
Description .....	607. 2
Use .....	607. 3
607. 1 GENERAL: This part is issued to provide the circuit drawings for the 400-types of key telephone sets.	
607. 2 DESCRIPTION: These circuits provide for selection of from one to a maximum of six lines or, when holding is required, a maximum of five lines in a self-contained telephone. Cutoff, exclusion and signaling keys are available in certain types of these sets.	
607. 3 USE: The tables and circuit drawings included with this part show the key arrangements and circuit options.	
607. 3-a These sets are equipped with an antisidetone circuit using the 101-type induction coil and are for use with standard 2-wire common battery or dial PBX, PABX or central office lines, including manual or dial intercommunicating circuits.	
607. 3-b A hold key is provided which is nonlocking and is common to the pickup keys. This key operated, restores the pickup key and places a holding bridge across the line when holding equipment is provided.	
607. 3-c An exclusion key is provided on certain of these telephones. It consists of a plunger which is a part of the switch assembly. When this key is operated in the upper position, those stations connected through it are excluded. Should the user need to flash the operator the other plunger is used for that purpose. When the call is completed and the handset unit replaced on the cradle, it automatically restores the exclusion key and the stations are reconnected.	
607. 3-d Certain telephone sets have a rotary cutoff key which may be used for various functions such as a ringer control, etc.	
607. 3-e Visual signals may be externally mounted or included in the telephone, in which case the pickup keys are illuminated.	
607. 3-f A ringing bridge is supplied with each telephone. This may be connected across any single line or used as a common audible signal for all lines. The ringer may be removed and a 7-type buzzer, mounted on a 36A bracket, used in its place.	

# KEY TELEPHONE SYSTEM NO. 1A OR 1A1 KEY AND TELEPHONE CIRCUIT

ARRANGED FOR PICK-UP, HOLDING, LAMPS,  
EXCLUSION, CUT-OFF AND SIGNALING

FIG. 1

## KEY AND TELEPHONE CIRCUIT

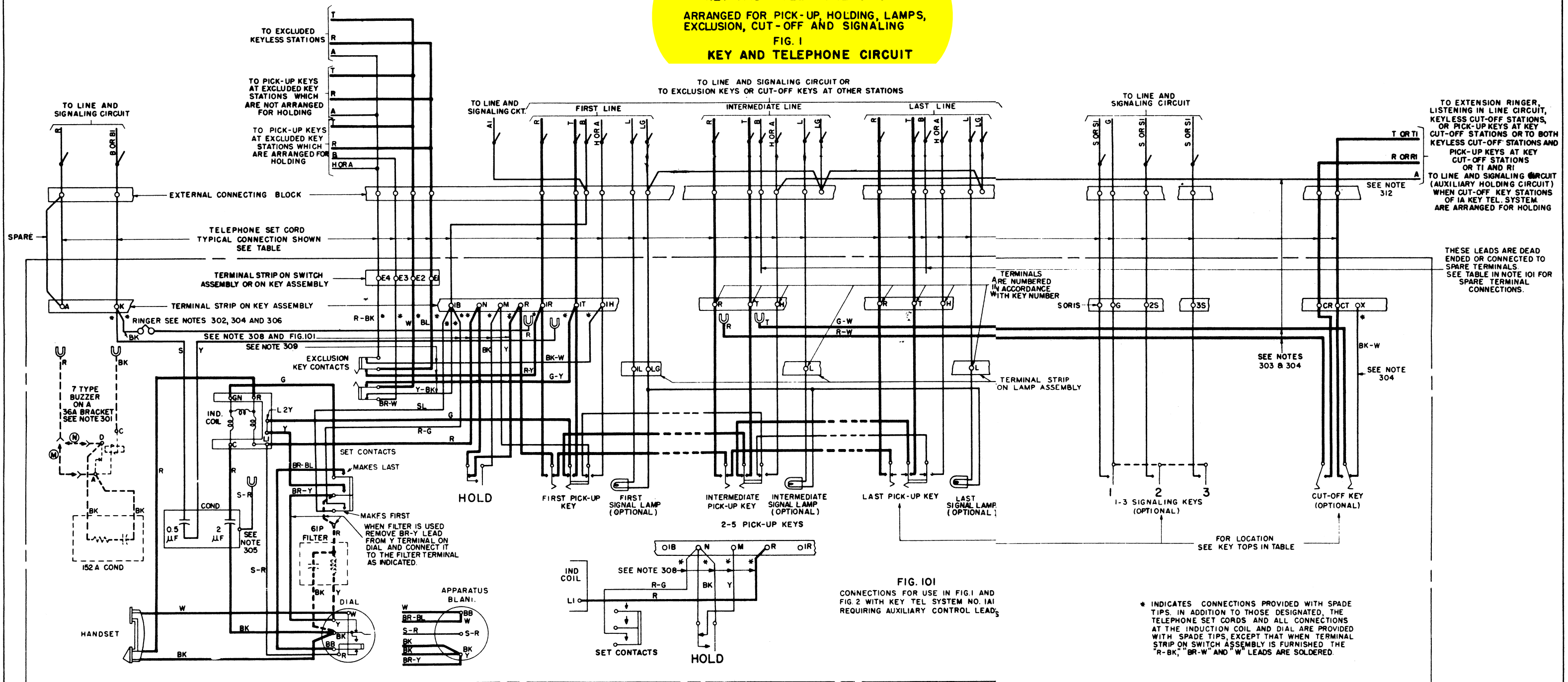
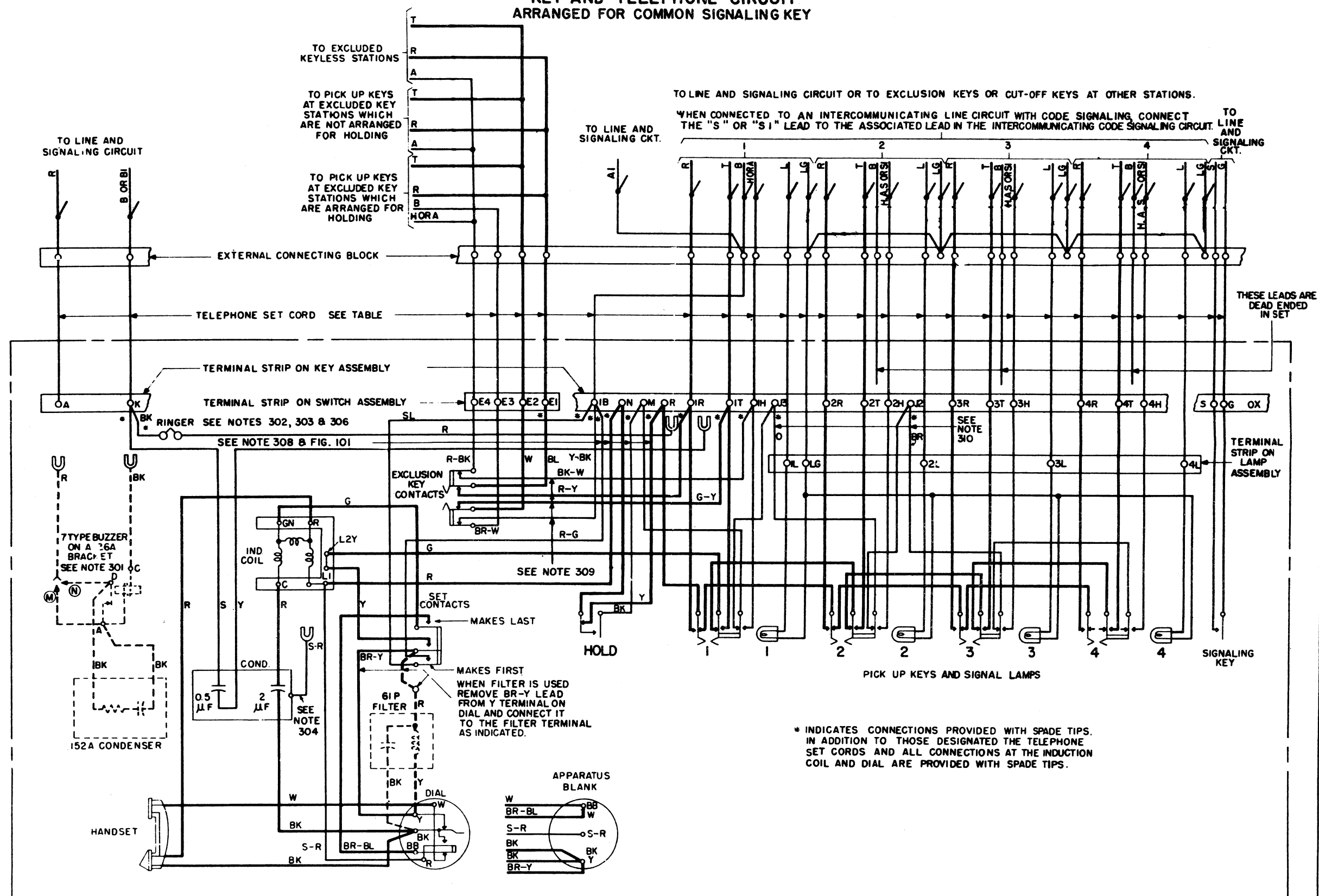


FIG. 2

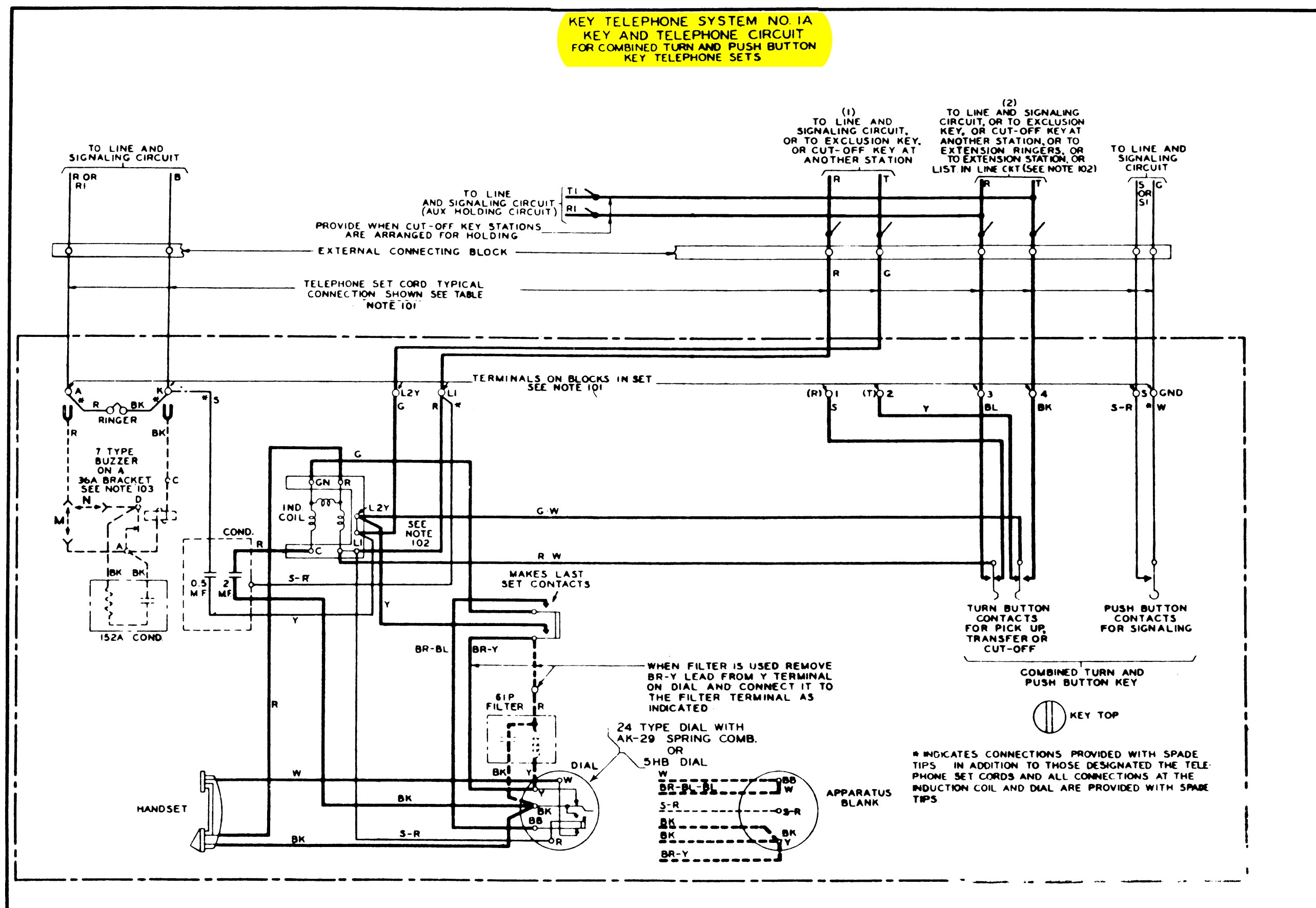
**KEY AND TELEPHONE CIRCUIT  
ARRANGED FOR COMMON SIGNALING KEY**



**SECTION 55**  
**PART 607**

**FIG. 2**

FIG. 3





CIRCUIT NOTES:  
101. PROVIDE THE KEY TELEPHONE SET IN ACCORDANCE WITH REQUIREMENTS AS INDICATED IN THE FOLLOWING TABLE. THE DESIGNATIONS SHOWN UNDER THE CORD CONDUCTOR COLORS ARE THE DESIGNATIONS OF THE TERMINALS IN THE SET.

BASIC FEATURES	WITH SIGNALING		WITH INDIVIDUAL RINGER	WITH COMMON RINGER OR FOR PRIVATE LINE	CODES					TO LINE 1		TO LINE 2		TO EXCLUDED STATIONS		TO EXT. STA OR RINGER OR LISTENING IN HEAD SET		TO SIGNALING CIRCUIT		TO COMMON RINGER RELAY OR PRIVATE LINE CIRCUIT						RINGER AND CONDENSER CONNECTIONS						
					KEY TELEPHONE SET			TEL SET CORD		RING	TIP	RING	TIP	RING	TIP	RING	TIP	BUZZ.	GND.	R LEAD		B LEAD				SET WIRING						
					MANUAL	24 TYPE DIAL	5HB DIAL			R	GN	Y	BK	BL	R-R	W	G-G	Y	BK	Y	BL	BK	W	Y-Y	R-R	BL	BK-BK	G-G	W	R	Y	S
SINGLE LINE RINGER CUT-OFF (RINGER IN SET)	YES		YES	NO	410AA	410AY	410AC	D4AH		L1	L2Y							(S)		(GND)									(3)	(4)	K	
SINGLE LINE EXTENSION CUT-OFF WITH RINGER TRANSFER	YES		YES	NO	410BA	410BY	410BC	D6P		L1	L2Y						3	4		S		GND							(1)	(2)	K	
	NO		YES	NO	410AA	410AY	410AC	D4AH		L1	L2Y						3	4											(1)	(2)	K	
SINGLE LINE EXTENSION CUT-OFF, RINGER CUT-OFF (EXTERNAL RINGER), OR HEAD SET CONTROL	YES		YES	NO	410BA	410BY	410BC	D6P	TERMINALS IN SET	L1	L2Y						3	4		S		GND							L1	L2Y	K	
	NO		YES	NO	410AA	410AY	410AC	D4AH			L1	L2Y						3	4										L1	L2Y	K	
TWO LINE PICK UP	YES		YES	NO	410BA	410BY	410BC	D6P		(1)	(2)	3	4							S		GND							(1)	(2)	K	
			NO	YES	410CA	410CY	410CC	D8M			1	2	3	4						S		GND		A			K		A	L2Y	(L2Y)	
	NO		YES	NO	410AA	410AY	410AC	D4AH	(1)	(2)	3	4																(1)	(2)	K		
			NO	YES	410BA	410BY	410BC	D6P	(1)	(2)	3	4													(A)		(K)	(A)	L2Y	(L2Y)		

102. WHEN HEAD RECEIVERS ARE USED AS LISTENING IN SETS, CONNECT "T" AND "R" LEADS TO VARISTOR. THE "G-W" & "R-W" WIRES FROM THE TURN BUTTON KEY SHOULD BE CHANGED FROM "L2Y" AND "L1" TERMINALS TO THE "GN" AND "R" TERMINALS RESPECTIVELY OF THE INDUCTION COIL.

103. PROVIDE "M" WIRING WHEN THE BUZZER IS TO OPERATE ON 80 CYCLE A-C, AND PROVIDE "N" WIRING WHEN THE BUZZER IS TO OPERATE ON D-C. THE BUZZER MUST BE INSTALLED WITHOUT ITS COVER.

\* THE CONNECTIONS SHOWN PROVIDE FOR RINGING ON LINE ONE. IF RINGING ON LINE TWO IS REQUIRED, CONNECT THE RED RINGER LEAD AND YELLOW CONDENSER LEAD TO TERMINALS 3 AND 4 RESPECTIVELY.

\*\* INDICATES TERMINALS ON INDUCTION COIL. OTHER TERMINALS IN TABLE ARE ON CONNECTING BLOCK.

○ CIRCLE INDICATES LEADS TO TERMINALS THAT MUST BE CHANGED FROM CONNECTIONS AS PROVIDED IN SHOP.

101. PROVIDE THE KEY TELEPHONE SET IN ACCORDANCE WITH REQUIREMENTS AS INDICATED IN THE FOLLOWING TABLE. THE DESIGNATIONS SHOWN UNDER THE CORD CONDUCTOR COLORS ARE THE DESIGNATIONS OF THE TERMINALS IN THE SET.

102. WHEN HEAD RECEIVERS ARE USED AS LISTENING IN SETS, CONNECT "T" AND "R" LEADS TO VARISTOR. THE "G-W" & "R-W" WIRES FROM THE TURN BUTTON KEY SHOULD BE CHANGED FROM "L2Y" AND "L1" TERMINALS TO THE "GN" AND "R" TERMINALS RESPECTIVELY OF THE INDUCTION COIL.

103. PROVIDE "M" WIRING WHEN THE BUZZER IS TO OPERATE ON 60 CYCLE A-C. AND PROVIDE "N" WIRING WHEN THE BUZZER IS TO OPERATE ON D-C. THE BUZZER MUST BE INSTALLED WITHOUT ITS COVER.

\* THE CONNECTIONS SHOWN PROVIDE FOR RINGING ON LINE ONE. IF RINGING ON LINE TWO IS REQUIRED, CONNECT THE RED RINGER LEAD AND YELLOW CONDENSER LEAD TO TERMINALS 3 AND 4 RESPECTIVELY.

■ INDICATES TERMINALS ON INDUCTION COIL. OTHER TERMINALS  
IN TABLE ARE ON CONNECTING BLOCK.

○ CIRCLE INDICATES LEADS TO TERMINALS THAT MUST BE CHANGED FROM CONNECTIONS AS PROVIDED IN SHOP.

## CIRCUIT NOTES:

101. PROVIDE THE KEY TELEPHONE SET IN ACCORDANCE WITH REQUIREMENTS AS INDICATED IN THE FOLLOWING TABLES. TABLE "A" SHALL BE USED FOR SETS EQUIPPED WITH BRAID COVERED CORDS AND TABLE "B" FOR SETS EQUIPPED WITH VINYL JACKETED CORDS. THE CORD CONDUCTOR COLORS ARE SHOWN UNDER THE DESIGNATIONS OF THE TERMINALS IN THE SET EXCEPT WHERE "D" APPEARS WHICH INDICATES THAT THE CONDUCTOR IS DEAD-ENDED IN THE SET, AND WHERE "DD" APPEARS WHICH INDICATES THAT THE SPADE TIP OF THE CONDUCTOR IS TAPED AND DRESSED UNDER TERMINAL PLATE OF KEY.

102. MANUAL TELEPHONE SETS WITH NO RATING GIVEN MAY BE OBTAINED ONLY BY TELEPHONE CO. CONVERSION OF DIAL SETS.

TABLE A  
(FOR SETS EQUIPPED WITH BRAID COVERED CORDS)

FEATURES PROVIDED FOR				TELEPHONE SET						TO LINE 1		TO LINE 2				TO LINE 3				TO LINE 4				TO LINE 5				SIGNALING CIRCUITS			EXTENSION OR HEADSET CUT-OFF		TO EXCLUDED STATIONS				TO LINE & SIGNAL CKT.		LINE AND BUSY LAMPS					SPARE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
STATION CONTROL KEY		EXCL. KEY	SIGNAL LAMPS	MANUAL (SEE NOTE 102)	DIAL (5HB)	CKT. FIG.	CORD CODE SEE NOTE 313	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	GND	CKT 1	CKT 2	CKT 3	RING	TIP	RING	TIP	BAL	HOLD	R	B	LAMP GRD	LAMP 1	LAMP 2	LAMP 3	LAMP 4	LAMP 5	A	X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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TABLE B  
(FOR SETS EQUIPPED WITH VINYL JACKETED CORDS)

FEATURES PROVIDED FOR				TELEPHONE SET						TO LINE 1		TO LINE 2		TO LINE 3		TO LINE 4		TO LINE 5		SIGNALING CKTS			EXTENSION OR HEADSET CUTOFF		TO EXCLUDED STATIONS				TO LINE & SIGNAL CKT		LINE AND BUSY LAMPS						SPARE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
STATION CONTROL KEY		EXCL KEY	SIG. LAMPS	MANUAL (SEE NOTE 102)	DIAL (5HB)	CKT FIG	CORD CODE	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	RING	TIP	BAL	HOLD	GND	CKT 1	CKT 2	CKT 3	RING	TIP	BAL	HOLD	R	B	LAMP GRD	LAMP 1	LAMP 2	LAMP 3	LAMP 4	LAMP 5	DD	DD	DD	DD	DD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
ARRANGEMENT		CODE		CODE	RATING	CODE	RATING	DESIGNATIONS OF THE TERMINALS IN THE SET (SEE NOTES 302, 303 & 304)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
H O P O P O P O		561DE		440EE	MD	1	D14G	IR	IT	IB	1H	2R	2T	DD	D	2B	2H	3R	3T	DD	D	3B	3H	4R	4T	DD	D	4B	4H	5R	5T	D	5B	5H	G	S	IS	2S	3S	CR	CT	E1	E2	E3	E4	A	A	LG	IL	2L	3L	4L	5L	DD	DD	DD	DD	DD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
H O P O P O P O		561DE	/	441EE	MD	1	D27A	R	G	Y	BK	BL	W			BR-R	BR-G	BR-YBR-BK			BR-BL	BR-W																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

FIG. 6