SD-31771-01

SHEET INDEX (INITIATED ON ISSUE 14)

FIG.	CONTENTS	SHEET NO. PRIOR TO ISSUE 15	SHEET NO. CURRENT ISSUE	ISSUE NO. 14	15	16	SHEET NO.
	SHEET INDEX SUPPORTING INFORMATION	010	1	14	15	16	1
	CIRCUIT NOTES 101 TO END EQUIPMENT NOTES 201 TO END INFORMATION NOTES FIGURES AND OPTIONS USED TABLE TRANSMISSION TEST REQ TABLE	011	2	14	15	16	2
1 2 3 4 5 A B	TRUNK CKT TRUNK SWITCH CKT INTERCEPT TONE SPURT CKT INTERCEPT TONE GENERATING CKT	012	3	14	15	16	3
	CKT REQT TABLES "A" MAGNET TO END	013	4	14	15	16	4
51 52 53 54 55 56 57 58 59	CABLING DIAGRAMS FOR FIG.1 FOR FIG.1 & 2 FOR FIG.1 FOR FIG.1 FOR FIG.1 FOR FIG.1 OR FIG.1 & 2 FOR FIG.1 FOR FIG.1 & 2 FOR FIG.1 & 2	014	5	14	15	15	5
60 61 62 63 64 65 66 67	CABLING DIAGRAMS FOR FIG.1 OR FIG.1 & 2 FOR FIG.1 & A OR B FOR FIG.1,2 & A OR B FOR FIG.1,2 & A OR B FOR FIG.5	015	6	14	15	16	6

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	~~ED-31771-01~~ ~~ED-31143-01~~ J33016K-( ) J33016U-( ) J33016AN-( )

DWG ISS	CD ISSUE	DWG ISS	CD ISSUE	DWG ISS	CD ISSUE
1	1	2D	2D	3D	2D APP ID
4D	3D	5D	3D APP ID	6D	3D APP 2D
7D	3D APP 3D	8D	3D APP 4D	9D	3D APP 5B
10D	4D	11B	5B	12D	5B APP ID
13D	5B APP 2B				

DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APPD
14D	6D	4-24-69	DHM JTF	NKD FBB EA
15D	6D APP ID	7-1-69	ELEC. ENGR. JTF	WCB RJJ GM
16B	6D APP 2B	12-15-71	CFH RLE PVS	RWH DAJ RDS

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.

ISSUE 16B

1D99

STEP BY STEP SYSTEMS

NO. 1, 350A, 355A, 360A, OR 35-E-97 INTERCEPTING TRUNK CIRCUIT

FROM TRUNK FINDER, CONNECTOR BANK OR INTERCEPTING TRUNK TO TRUNK TO OPERATOR OFFICE ARRANGED TO TRIP RINGING ONLY DURING RINGING INTERVAL (INCPT TRK)(INCPT TRK & TRK SW) 2)

AT&TCO STANDARD

A&M ONLY FOR 350A, 360A & 35-E-97

SD-31771-01-1

6 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

E-T595(1-61)

SD-31771-01-1

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
	1-1/3	-48V SIG	FIG. 1,2, AND 3
			FIG. 4 FROM 1ST FIG. 1
	1/2 HV	-48V SIG	RES LP (A), (FIG. 1)*

BATTERY SYMBOL	VOLTAGE RANGE
-48	45-52V

*EXCEPT FOR 355A DIAL OFFICES WHERE NO LAMP OR FUSING SHALL BE PROVIDED.

102.

FEATURE OR OPTION			PROVIDE FIG.	APP OR WRG	QUANTITY
WHERE INCPT TRAFFIC IS ROUTED TO TRUNK CKT USED BY SUBSCRIBERS FOR CALLS TO THE OPERATOR		WHEN VIBRATING REED TYPE RINGING CONVERTER IS USED	2	K,M, Y	
		WHEN OTHER THAN VIBRATING REED TYPE RINGING CONVERTER IS USED	2	L,M, Y	
WHERE INCPT TRAFFIC IS ROUTED TO TRUNK CKT USED FOR INCPT SERVICE ONLY	WHERE INCPT LOCAL SEL LEVELS ARE MULT TO THE SAME TRUNK CKT	WHEN CONN TO TRUNK FINDER CKT		U,X, Z	
		WHEN NOT CONN TO TRUNK FINDER CKT		U,Z	
	WHERE INCPT LOCAL SEL LEVELS ARE NOT MULT TO THE SAME TRUNK CKT			M	
DIRECT CONN TO THE MULT OF TERM. PER LINE CONN FOR INCPT	REQD ALL CALLS TO TIP STATIONS ONLY	TRIP RELAY IN SERIES WITH RING	A	T*	
		TRIP RELAY IN SERIES WITH GRD	B	T*	
	REQD ALL CALLS TO RING STATIONS ONLY	TRIP RELAY IN SERIES WITH RING	A	R*	
		TRIP RELAY IN SERIES WITH GRD	B	R*	
	REQD OTHER THAN ABOVE		A	B*	
	NOT REQD AUTOMATED LOOP TEST SYSTEMS IN OFFICE	NO	A	B*	
		YES	A	B*,ZF	
WHERE CONN DIRECTLY TO CONN TERM. NOT EQUIPPED WITH A LINE CKT				S	
WHERE ANY CALLS MAY USE + SUPERIMPOSED RINGING				N	
WHERE NO CALLS USE + SUPERIMPOSED RINGING				J	
DISTINCTIVE TONE FOR INCPT CALLS (INCPT LOCAL SEL LEVELS SHALL NOT BE CONN DIRECTLY TO MASTER OFFICE OR OPERATOR TRUNKS)			3,4		

*DENOTES NON RECORD OPTIONS

CIRCUIT NOTES: (CONT)

102.

FEATURE OR OPTION	PROVIDE FIG.	APP OR WRG	QUANTITY
WHEN CONNECTED TO CONNECTOR TERMINAL AND CONNECTORS ARE ARRANGED FOR AUTOMATIC DISCONNECT ON CALLING PARTY HOLDS.	6		

103.

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	8C,12C,OR 13C LP	8C LP		13C	12C	8C	
4D	G OR H	G		H		G,W	
7D	V OR U	V&Z OR M	106	U		V	
	Q OR P	Q		P		Q	
9D	E OR F	F		E	F		
10D	ZA OR A	A&H OR G	107	ZA		A	
11B	ZB OR ZC	ZA OR A	108	ZB	ZC	ZA	
14D			102	FIG. 5			
	ZD OR ZE	NONE	102	ZD, ZE			
15D	FIG.6	FIG.5 & ZD OR ZE OR NONE		FIG.6		FIG.5 ZD, ZE	
16B	ZG OR ZH	ZG		ZH		ZG	
	ZF	NONE	102	ZF			

CIRCUIT NOTES: (CONT)

104. ALL UNEQUIPPED TERMINALS FROM 1 THROUGH 21 SHALL BE MULTIPLED WITH THE LAST EQUIPPED TERMINAL.

105. PROVIDE ONE 1/2 AMP HV FUSE PER OFFICE FOR 105V ± CONTINUOUS RINGING EXCEPT FOR 355A DIAL OFFICES WHERE NO FUSING SHALL BE PROVIDED.

106. PRIOR TO ISS 7D, V OPTION WAS SHOWN AS PART OF Z OPTION.

107. PRIOR TO ISS 10D, A OPTION WAS PART OF H OPTION.

108. PROVIDE OPTIONS AS SHOWN IN THE FOLLOWING TABLE:

(A&M ONLY)

FEATURE OR OPTION	PROVIDE FIG.	APP OR WRG	QUANTITY
OFFICES ARRANGED FOR MAXIMUM EXTERNAL SUBSCRIBERS LOOP OF LESS THAN 1400 OHMS		ZC	

109. WHEN THIS CIRCUIT IS USED IN A 35-E-97 OFFICE THE A,T,R, AND S LEADS CORRESPOND TO LEADS DESIGNATED EC, +, -, AND C RESPECTIVELY.

EQUIPMENT NOTES:

201. THE NON-WORKING TERMINALS OF THE (A) SEL MULT (T,R,S,& A) SHALL BE MULTIPLED BY MEANS OF STRAPS TO THE LAST WORKING TERMINAL, EITHER AT THE ASSOCIATED DISTRIBUTING FRAME TERMINAL STRIP, WHEN FURNISHED, OR AT THE UNIT TERMINAL STRIP.

202. ON ISSUE 14D, CADS. 65 AND 66 WERE ADDED TO PROVIDE CONNECTION WHEN TRUNKS CONNECTED TO CONNECTOR MULTIPLE AND CONNECTOR ARRANGED FOR AUTOMATIC DISCONNECT.

203. THE (A) DIODE IS MOUNTED ON A MISCELLANEOUS MTG PLT COVERED ON J33016AN, EQUIPPED WITH 10 CIRCUITS AND MAY BE ORDERED IN GROUPS OF 10 CIRCUITS WITH A MAXIMUM OF 70 CIRCUITS PER UNIT.

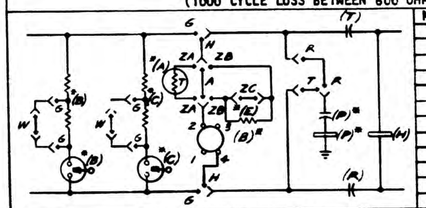
INFORMATION NOTES:

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.

302. PRIOR TO ISSUE 14D, SHEETS 014 AND 015 WERE 012 AND 013 RESPECTIVELY.

FIGURES AND OPTIONS ON THIS DWG			
CKT FIG.		APP OR WIRING	
1	A	Z	
2	B	Y	B
3		X	A
4		W	ZA
5		V	ZB
6		U	ZC
		T	ZD
		S	ZE
		R	ZF
		Q	ZG
		P	ZH
		N	
		M	
		L	
		K	
		J	
		H	
		G	
		F	
		E	

TRANSMISSION TEST REQUIREMENTS
(1000 CYCLE LOSS BETWEEN 600 OHM LINES)



MAX ALLOWABLE CIRCUIT LOSS (DB)
0.2

ALLOWABLE INDIVIDUAL APPARATUS LOSSES (DB)

APPARATUS	DESIG	CODE	MAX LOSS	MIN LOSS	REMARKS
CAPACITORS	T OR R	2UF	13.7	11.7	
RELAY	H	H36	0.2		

*INDICATES APPARATUS FOR WHICH IND LOSSES ARE NOT REQD

DRAWING ISSUE

14D	DHM JTP EA SAM
15D	JTP GAM

ISSUE 16B

INTERCEPTING TRUNK CIRCUIT (2) SD-31771-01-2

BELL TELEPHONE LABORATORIES INCORPORATED SIZE 6S

SD-31771-01-2

DRAWING ISSUE	
14D	DHM JTF EA
15D	JSM JTF GM

FIG. 1
TRUNK CKT
(SEE NOTE 102 & 103)

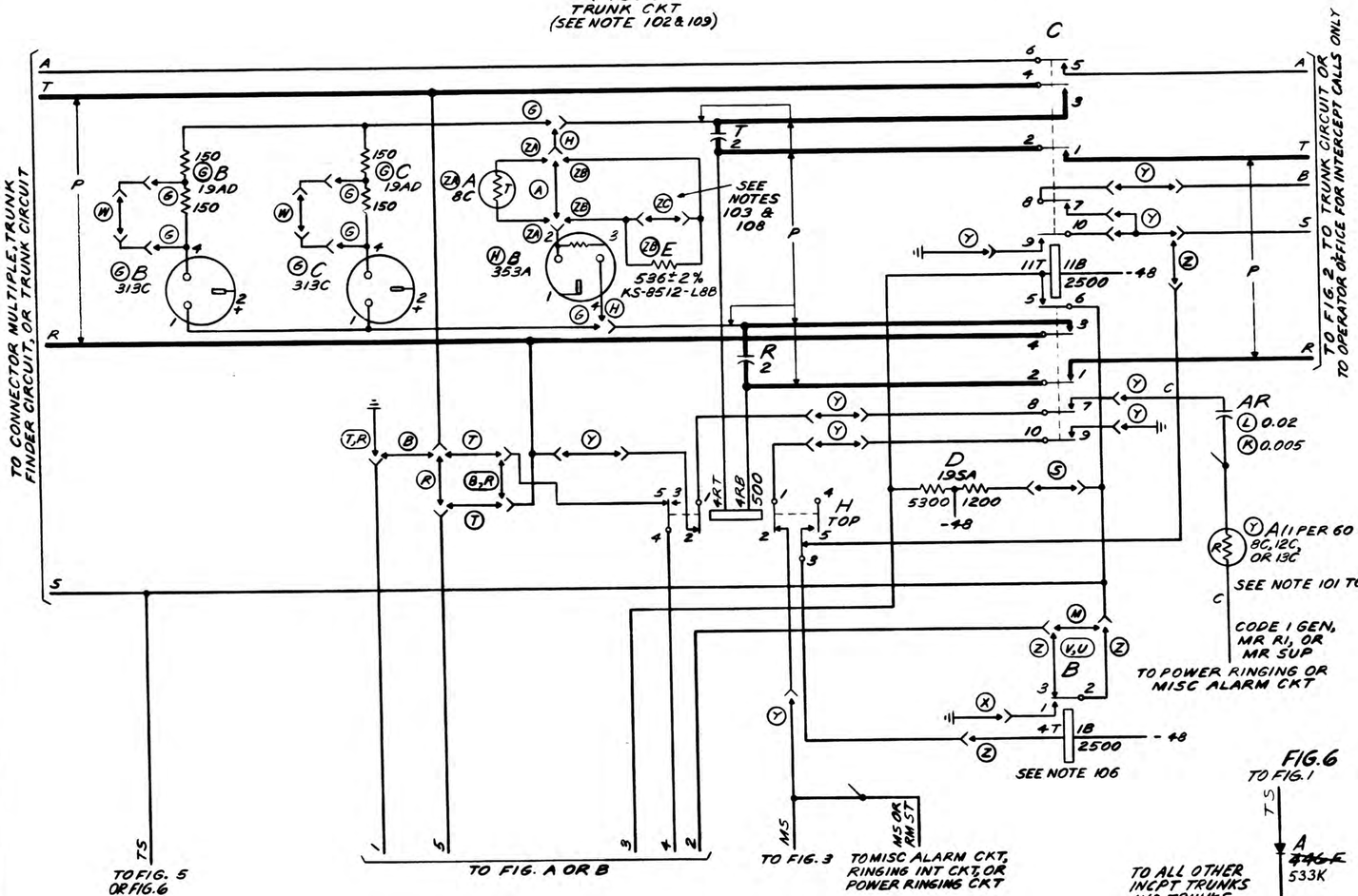


FIG. 2
TRK SWITCH CKT
(SEE NOTE 102)

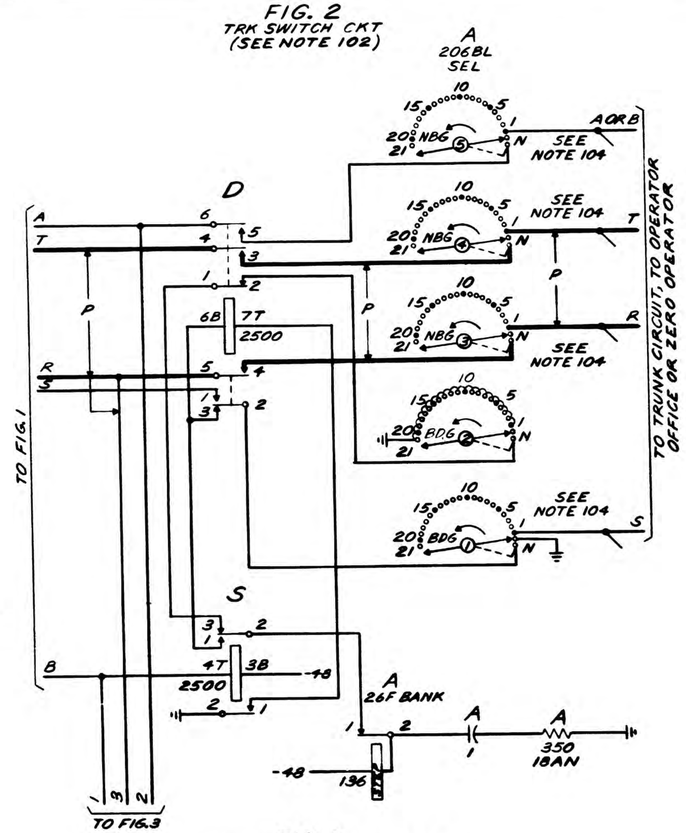


FIG. 3
INTERCEPT TONE SPURT CKT
(SEE NOTES 102 & 105)

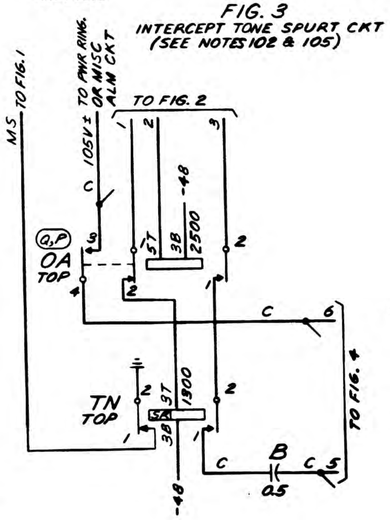


FIG. 4
INTERCEPT TONE GENERATING CKT
ONE PER 3 FIGS. 3
(SEE NOTE 101)

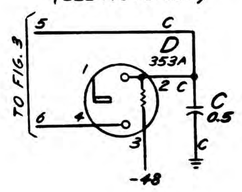


FIG. 5 (MFR DISC.)

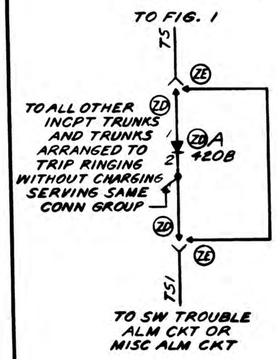


FIG. A
(SEE NOTE 102)

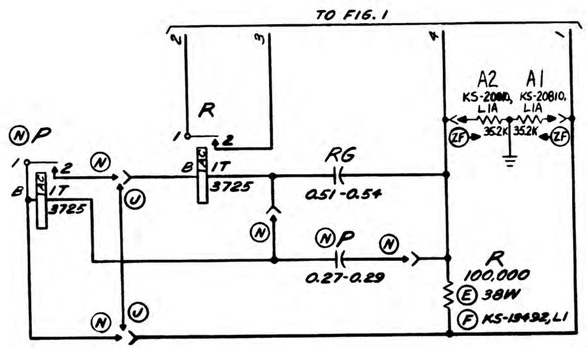


FIG. B
(SEE NOTE 102)

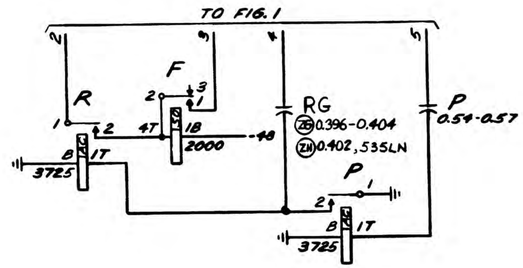
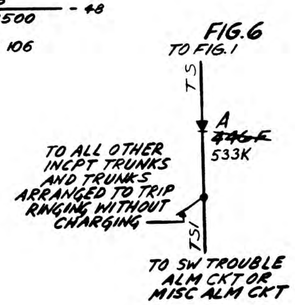


FIG. 6



ISSUE 16B

INTERCEPTING TRUNK CIRCUIT (2) SD-31771-01-3

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-31771-01-3

SD-31771-01 2 PAGES

CIRCUIT REQUIREMENTS

NO. 1, 350A, 355A, 360A, OR 35-E-97 INTERCEPTING TRUNK CIRCUIT (INCPT TRK) (INCPT TRK & TRK SW)

DRAWING ISSUE: 14D DHM JTF E.A.; 15D GMW S JTA GM

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.		MECH REQT BSP FIG.	MECH REQT CONT PRESS.	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA.	DIRECT CURRENT FLOW REQT TEST MA.	DIRECT CURRENT FLOW REQT READJ MA.	REMARKS
MAGNETS																		
A	206BL SEL		2					2T(S)		1(A)	G/V							SEE BSP FOR RUNNING
								2T(S)		2(A)	G/V							SEE BSP FOR STEPPING
RELAYS																		
B	U1239	U	1		132/136	H	47	(H)O		T(B)	GRD			0		8.1	7.7	
B	U365	V	1		132/136	H	47	(H)O		T(B)	GRD	3		0	FS	8.2	7.8	
										T(B)	GRD	3		R	FS	0.4	0.5	
C	U236		1		112/112	H	29							0		9.1	8.6	REL WDG ALONE
								5B(C)		T(C)	GRD			0		14.1	13.4	CKT COMB. OF (D) RES & (C) REL
D	U148		2		120/108	H	47	(S)O, 1B(S), 2B(D)		T(D)	GRD			0		9	8.5	
F	U476		B		132/136	H	47	1T(F)		T(F)	GRD			0		18.4	17.5	
								1T(F)		T(F)	GRD			NO		11.2	11.8	
H	H36		1		12/7	H	35		4RB(H)	4RT(H)	B/G			0		35	33	
OA	U405	Q	3		110/101	H	35			T(OA)	GRD	3		0	FS	6.3	6	
										T(OA)	GRD	3		R	FS	0.5	0.6	
OA	U1244	P	3		110/101	H	35			T(OA)	GRD			0		6.7	6.3	
P	186C	N	A					4B(H)				1		0		AC	AC	GRD 6B(C)
									1T(P)		BAT.			0		3.2	3	CONN DIRECT GRD TO B(P) UNSOLDER WDG TERM. 1T(R)
									1T(P)		BAT.			NO		1.5	1.6	
P	186C		B									4		0		AC	AC	
									1T(P)		BAT.			0		3.2	3	
									1T(P)		BAT.			NO		1.5	1.6	
R	186C		A					4B(H)				2		0		AC	AC	GRD 6B(C)
									1T(R)		BAT.			0		3.2	3	CONN DIRECT GRD TO B(R) UNSOLDER WDG TERM. 1T(R) WITH N APP
									1T(R)		BAT.			NO		1.5	1.6	
R	186C		B					4B(H)				5		0		AC	AC	GRD 6B(C)
									1T(R)		BAT.			0		3.2	3	
									1T(R)		BAT.			NO		1.5	1.6	
S	U185		2		132/101	H	47	(C)NO, (OA)O		T(S)	GRD			0		7.3	6.9	

TEST NOTES:

1. TEST AND READJ (P) AND (R) RELAYS FOR OPERATION ON AC BY OPERATION OF (C) RELAY WITH CODE OR MACHINE RING. SUPPLY GIVING SHORTEST RING. INTERVAL CONNECTED THRU A 13C OR EQUIVALENT RESISTANCE LAMP AND 4200 OHM NON-INDUCTIVE RESISTANCE TO 4B(H) AND, WITH B WIRING, RINGING GROUND TO 4T(C). REPEAT WITH 0 OHMS INSTEAD OF 4200 OHMS. TO RELEASE (C) RELAY REMOVE GROUND AT 6B(C).
2. WITH N APPARATUS FOLLOW TEST NOTE 1. WHERE N APPARATUS IS OMITTED FOLLOW TEST NOTE 1, BUT USE 8500 OHMS INSTEAD OF 4200 OHMS.
3. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
4. TEST AND READJ (P) RELAY FOR OPERATION ON AC BY CONNECTING RING. SUPPLY THRU A 13C OR EQUIVALENT RESISTANCE LAMP AND 8500 OHM NON-INDUCTIVE RESISTANCE TO 4T(C) (R WIRING) OR 4B(C) (T WIRING). REPEAT WITH 0 OHMS INSTEAD OF 8500 OHMS.
5. TEST AND READJ (R) RELAY FOR OPERATION ON AC BY OPERATION OF (F) AND (C) RELAYS WITH CODE OR MACHINE RING. SUPPLY GIVING SHORTEST RING. INTERVAL CONNECTED THRU A 13C OR EQUIVALENT RESISTANCE LAMP AND 8500 OHM NON-INDUCTIVE RESISTANCE TO 4B(H). REPEAT WITH 0 OHMS INSTEAD OF 8500 OHMS TO RELEASE (F) AND (C) RELAYS. REMOVE GROUND AT 6B(C).

PAGE 1

INTERCEPTING TRUNK CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-31771-01-4

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SD-31771-01-4

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CIRCUIT REQUIREMENTS

DRAWING ISSUE: 14D DHM JTF E.A.; 15D GMW S JTA GM

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.		MECH REQT BSP FIG.	MECH REQT CONT PRESS.	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA.	DIRECT CURRENT FLOW REQT TEST MA.	DIRECT CURRENT FLOW REQT READJ MA.	REMARKS
TN	Y63		3		115/115	H	29	(OA)O		T(TN)	GRD	1		Q	FS	19.5	18.5	
								(OA)O		T(TN)	GRD	1		H	FS	1.9	1.7	
								(OA)O		T(TN)	GRD	1		R	FS	0.9	1.2	

TEST NOTES:

1. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.

PAGE 2

ISSUE 16B

INTERCEPTING TRUNK CIRCUIT 2

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

SD-31771-01-4

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FIG. 51 (MFR. DISC.)
(FOR FIG. 1)
SINGLE CKT. UNIT
WITHOUT TRUNK SWITCH
J32003AF AND J32003AP

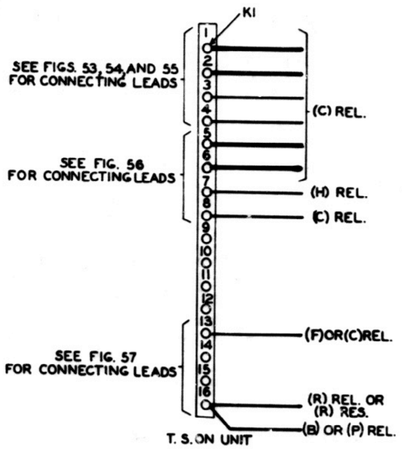


FIG. 52 (MFR. DISC.)
(FOR FIGS. 1 & 2)
3 CKT. UNIT
WITH TRUNK SWITCH
J32003AG AND J32003AR

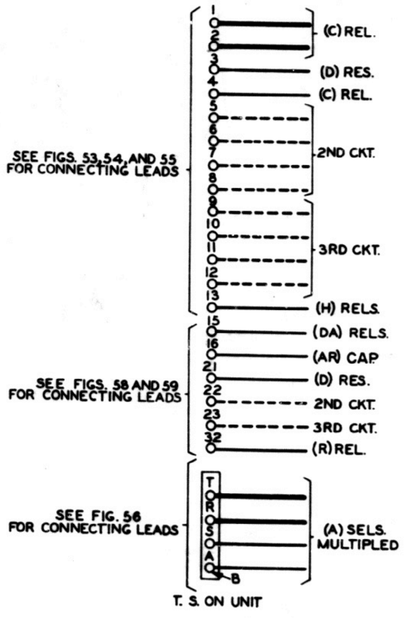


FIG. 53 (MFR. DISC.)
(FOR FIG. 1)
CONNECTIONS TO
CONNECTOR MULTIPLE

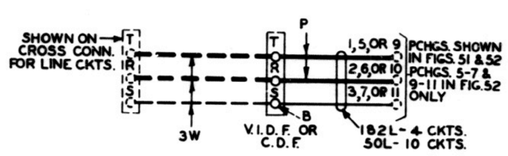


FIG. 54 (MFR. DISC.)
(FOR FIG. 1)
CONNECTION TO
TRUNK FINDER

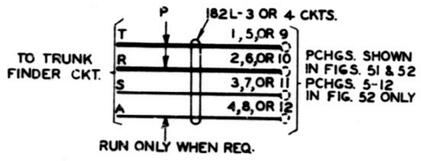


FIG. 55 (MFR. DISC.)
(FOR FIG. 1)
CONNECTION TO
INTERCEPTING TRUNK

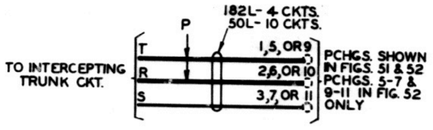


FIG. 56 (MFR. DISC.)
(FOR FIG. 1 OR FIGS. 1 & 2)
CONNECTION TO TRUNK
TO MASTER OFFICE
OR ZERO OPERATOR

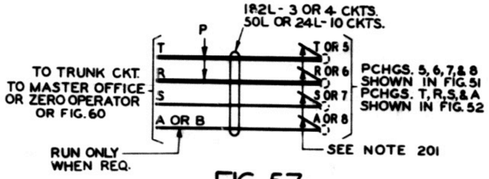


FIG. 57 (MFR. DISC.)
(FOR FIG. 1)
BATTERY AND GROUND LEADS
FOR SINGLE CKT. UNIT

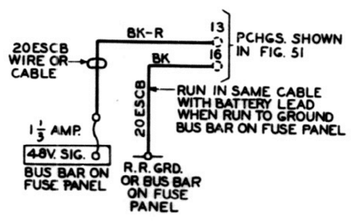


FIG. 58 (MFR. DISC.)
(FOR FIGS. 1 & 2)
BATTERY, GROUND, RINGING, AND MOTOR START LEADS
FOR 3 CKT. UNIT WITH TRUNK SWITCH
355A DIAL OFFICE

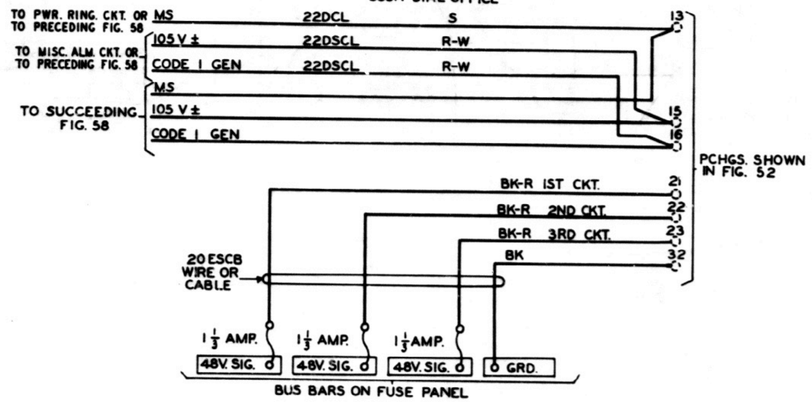
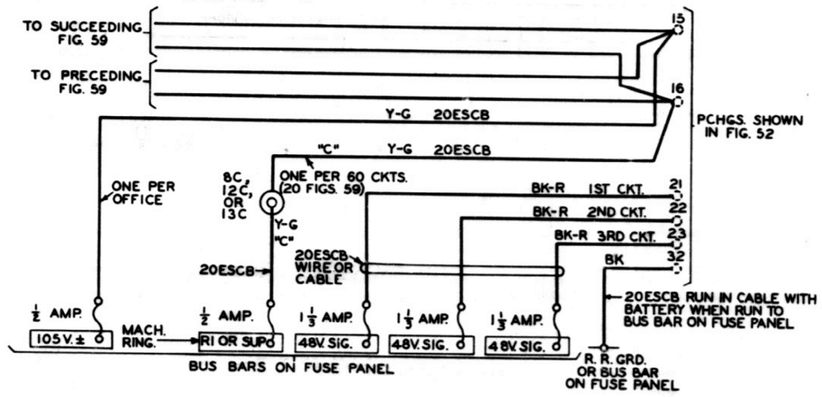


FIG. 59 (MFR. DISC.)
(FOR FIGS. 1 & 2)
BATTERY, GROUND, RINGING, AND MOTOR START LEADS
FOR 3 CKT. UNIT WITH TRUNK SWITCH
NO. 1 AND 350A DIAL OFFICES



SHEET NOTES:

1. SEE NOTE 302.

DWG. ISS.
3-D
4-D
5-D
6-D
7-D
8-D
9D
10D
11B
12D
13D
14D
15D

STEP BY STEP SYSTEMS
NO. 1, 350A, 355A, 360A, OR 38-E-97
INTERCEPTING TRUNK CIRCUIT
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SD-31771-01-5

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FIG. 60
(FOR FIG. 1 OR FIGS. 1 & 2)
CONNECTION TO TRUNK TO OPERATOR OFFICE OR ZERO OPERATOR

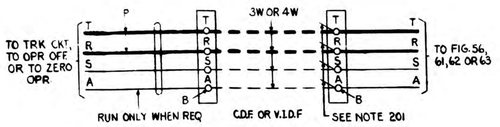


FIG. 61
(FOR FIGS. 1 & A OR B)
SINGLE CKT UNIT WITH TRUNK SWITCH

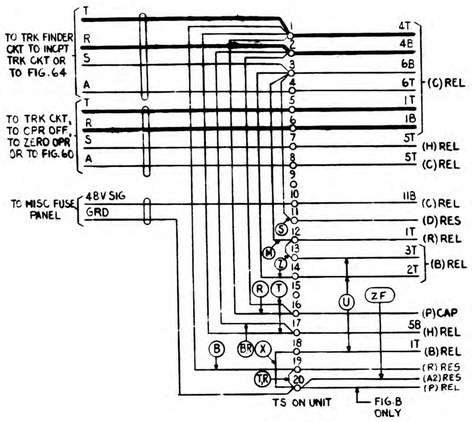


FIG. 62
(FOR FIGS 1, 2 & A OR B)
FOR 2 CKT UNIT WITH TRUNK SWITCH

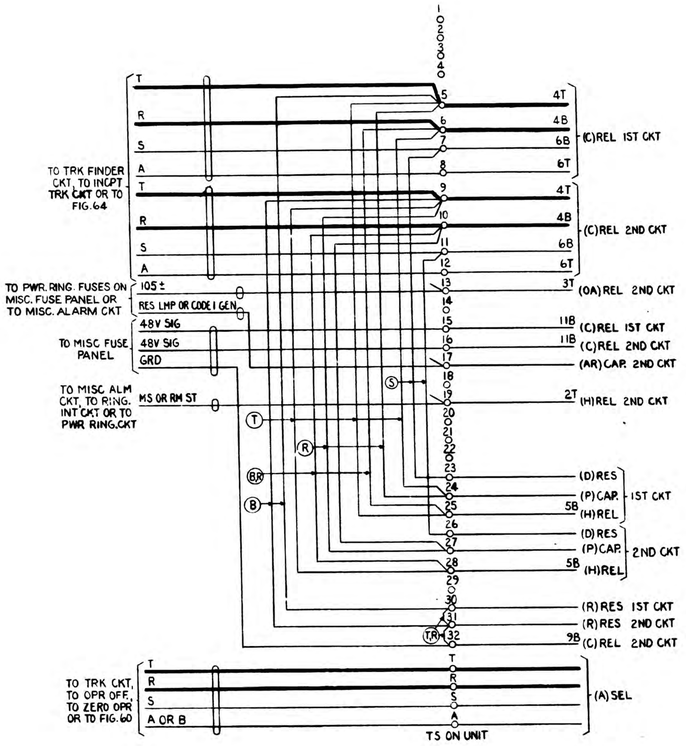


FIG. 63
(FOR FIGS. 1, 2 & A OR B)
FOR 3 CKT UNIT WITH TRUNK SWITCH

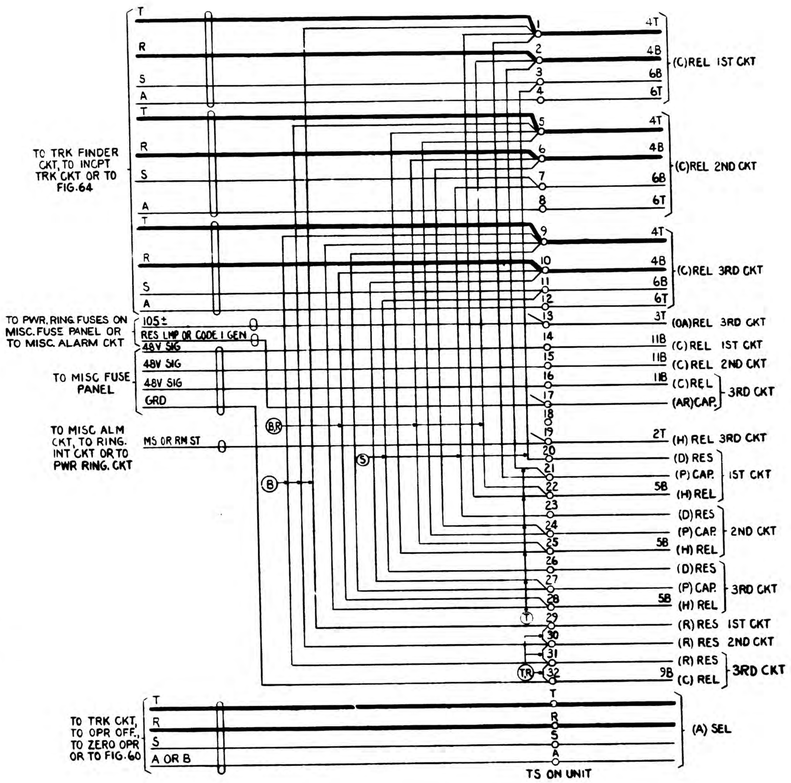


FIG. 64
CROSS CONNECTIONS OF TRUNKS TO CONNECTOR MULTIPLE, SEE FIG. 66

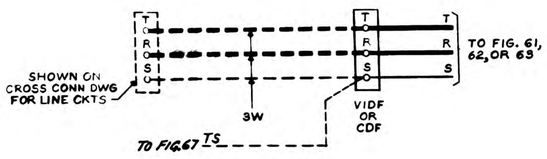


FIG. 65
(SEE FIG. 5)
SEE NOTE 203

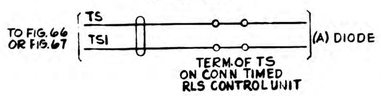


FIG. 67
CROSS CONNECTIONS REQUIRED IN ADDITION TO FIG. 64 WHEN TRUNKS ARE CONNECTED TO CONNECTOR MULTIPLE AND CONNECTORS ARE ARRANGED FOR AUTOMATIC DISCONNECT ON CALLING PARTY HOLDS

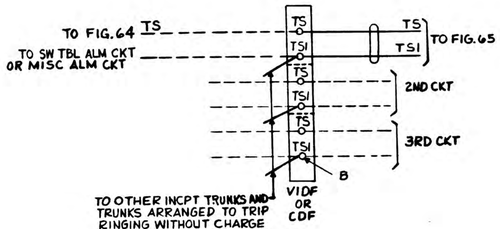
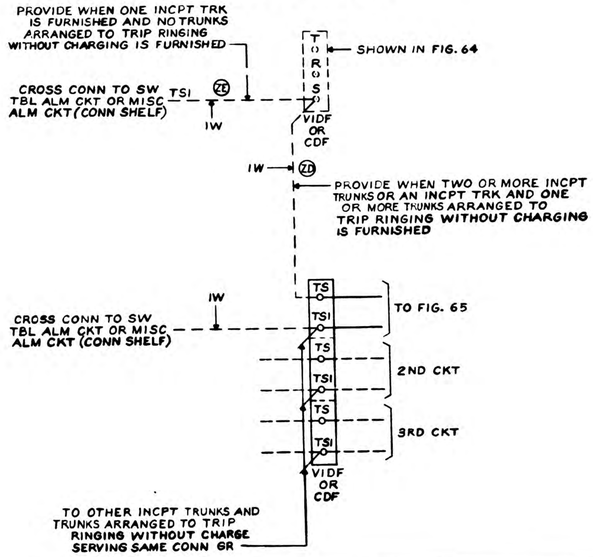


FIG. 66 (MFR DISC)
CROSS CONNECTIONS REQUIRED IN ADDITION TO FIG. 64 WHEN TRUNKS ARE CONNECTED TO CONNECTOR MULTIPLE AND CONNECTORS ARE ARRANGED FOR AUTOMATIC DISCONNECT ON CALLING PARTY HOLDS



SHEET NOTES:

1. SEE NOTE 302.

DRAWING ISSUE	
100	
118	
120	
130	
140	
150	

STEP-BY-STEP SYSTEMS		ISSUE 1 C F
NO. 1, 350A, 355A, 360A, OR 35-E-97 INTERCEPTING TRUNK CIRCUIT		SD-31771-01-6
BELL TELEPHONE LABORATORIES, INC	PAGE NO. 85	