

CIRCUIT NOTES:

DESIG	AMP	POTENTIAL FUSED	ONE PER
A	3	48V SIG	30 FIGS. 1
A	3	48V SIG	30 FIGS. 2
E	3	48V SIG	LINE GROUP
PSL	3	48V SIG	LINE GROUP

102.

FEATURE OR OPTION	FIG.	APP OR WIR	QUANTITY
FOR ALL CASES EXCEPT: WHEN USED FOR DIAL SELECTED P.B.X. TRUNK CIRCUITS			
WHEN USED FOR SUBS LINES OR MANUALLY SELECTED P.B.X. TRUNKS HAVING EQUIPMENT FOR REDUCING THE UNGUARDED INTERVAL WHEN THE PARTY CALLING THIS LINE OR TRUNK DISCONNECTS FIRST			
WHEN USED WITH PREPAY COIN BOX LONG LINE CKT OR MJ MOBILE RADIO TELEPHONE SYSTEM LINE AND LINK CKTS			
FOR EACH LINE GROUP WHEN CONNECTION TO PERMANENT SIGNAL ALARM CIRCUIT IS REQUIRED	5	OR Y & BAT. PSL	
FOR EACH LINE GROUP WHEN CONNECTION TO PERMANENT SIGNAL ALARM CIRCUIT IS NOT REQUIRED	4	OR Y & BAT. PSL	
FOR PREPAYMENT COIN NO PERM SIG LINES OR DIAL SELECTED LOCK-OUT (SEE NOTE 108)	1		
PBX TRUNK CKTS OR MJ MOBILE RADIO TEL SYS WITH LINE & LINK CKTS & DIAL TONE FIRST COIN BOX LINE LOCK-OUT	2		
SUBS MESSAGE REGISTER			
MESSAGE UNIT RECD			
MESSAGE REPEATITION TO NOT RECD	3	Q OR ZE LAS SPEC ABOVE	
FOR 355A OFFICE DIRECT CLASS OF SERVICE INDICATION ON "A" LEAD	6	V	
FOR 355A OFF. CL. DIRECT GRD ON "A" LEAD	6	V	
OF SERV IND ON LINE BASIS FOR LINES REQUIRING	6	W	
FOR 355A OFF. CL. DIRECT GRD ON "A" LEAD	6	V	
OF SERV IND ON LINE BASIS FOR LINES REQUIRING	6	W	
LINES IN 355A OFFICE (SEE NOTE 105) WITH ANI TYPE B OR C			
+65V MESSAGE REGISTER OPERATION			
REQD		ZF	
NOT REQD		ZG	
LOOP START LINE CKT FOR CONNECTION TO CDA 2WAY AUX LINE CKT	1	X	1 PER LINE
CLASS OF SERVICE TONE IS REQUIRED AND AUX LINE CKT FOR CLASS OF SERVICE TONE IS NOT FURNISHED			
FOR ALL CASES EXCEPT: WHEN USED FOR DIAL SEL PBX TRK CKTS. WHEN USED FOR SUBS LINES OR MAN. SEL PBX TRKS HAVING EQUIPMENT FOR REDUCING THE UNGUARDED INTERVAL WHEN THE PARTY CALLING THIS LINE OR TRUNKS DISCONNECT FIRST WHEN USED WITH PREPAY COIN BOX LONG LINE CKT OR MJ MOBILE RADIO TELEPHONE SYSTEM LINE AND LINK CKTS			
FOR EACH LINE GROUP WHEN CONNECTION TO PERMANENT SIGNAL ALARM CIRCUIT IS REQUIRED		Y & BAT. PSL	
FOR EACH LINE GROUP WHEN CONNECTION TO PERMANENT SIGNAL ALARM CIRCUIT IS REQUIRED		Y & BAT. PSL	
FOR PREPAYMENT COIN LINES OR DIAL SELECTED PBX TRUNK CKTS OR MJ MOBILE RADIO TEL SYS WITH LINE & LINK CKTS & DIAL TONE FIRST COIN BOX LINE			
WO PERM SIG LOCKOUT (SEE NOTE 108)	1		
WITH PERM SIG LOCKOUT	2		
FOR LINES WITH ANI TYPE C (NOTE 105)		N	
165V MESSAGE REGISTER OPERATION			
REQD		ZF	
NOT REQD		ZG	
LOOP START LINE CKT FOR CONNECTION TO CDA 2WAY AUX LINE CKT	1	X	1 PER LINE

CIRCUIT NOTES: (CONT)

CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT
				STD A8M MD
7D	Z OR FIG. 4 OR 5	Z		4 OR 5
10B	ADJA OR B	A		B
11D	Y	Z OR FIG. 4 OR 5	102	Y
13D	T OR U	U		T
15D	S	NONE		S
17D	Q OR R	R		Q
21D	P	Q OR R		P
22D	N	NONE	102 J05	N
32D	ZE	Q OR R	102	ZE
36AC	ZF OR ZG	ZG	303	ZF, ZG
40B	ADJC OR D	ADJC	108	ADJC OR D
40B	D10DE		533R	446F

104. LINES & STATIONS SHALL BE CONNECTED TO CONNECTOR MULTIPLES "A" & "B" AS FOLLOWS:

TRAIN USED IN COMPLETING CALLS FROM OPERATORS	ALL STA EXCEPT POST PAY COIN	POST PAY COIN STA
	TOLL OR LOCAL	TOLL LOCAL
CONNECT TO COIN MULTIPLE	A B	A B A B
INDIVIDUAL LINES AND P.B.X. TRUNKS	✓	✓
RING STA OF T.P.S. LINES 2, 4, 8, OR	✓	✓
TIP STA OF T.P.S. LINES 10 PTY	✓	✓
5 CODE 10 PTY T.P.L. LINES	✓	✓
10-20 CODE 1 OR 2 T.P.L. LINES	✓	✓
10 CODE 10 OR 20 PARTY STA 1-10	✓	✓
2 T.P.L. LINES	✓	✓
8 PTY T.P.L. LINES	✓	✓

a. WHERE POST PAY COIN TRUNK CKT ARRANGED FOR BOTH COIN AND NON-COIN STA ON THE SAME LINE IS USED, NON-COIN STA MAY BE ASSIGNED TO THIS MULTIPLE.

b. ONLY RING STA MAY BE USED FOR COIN SERVICE.

c. ONLY TIP. STA MAY BE USED FOR COIN SERVICE.

d. IN ASSIGNING STA THOSE CONNECTED TO THE RING SIDE OF THE LINE SHOULD BE CONSIDERED TIP STA, AND VICE-VERSA. (CIRCUIT NOTES CONT ON SH 3)

INFORMATION NOTES

301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS.
302. FOR P.B.X. AUTOMATIC IDENTIFIED OUTWARD DIALING (AIOD) SERVICE: A CONNECTION TO AN AIOD NUMBER NETWORK IS REQUIRED IN ADDITION TO THE CONNECTION TO A REGULAR NUMBER NETWORK OR IN PLACE OF THE CONNECTION TO A MISC NUMBER NETWORK.

(INFO NOTES CONTINUED)

WORKING LIMITS

FIG. 1 & "X" WIRING (ADJUSTMENT C)	48V MIN	48V MIN
MAX EXT CKT LOOP	1000	1200
MIN INS RES	15,000	15,000
MAX EARTH POTENTIAL	±20V	±20V

FIG. 1 OR 2 "X" WIRING (ADJUSTMENT D, FIG. 1)

	48V MIN	48V MIN
MAX EXT CKT LOOP	1400	1500
MIN INS RES	15,000	15,000
MAX EARTH POTENTIAL	±20V	±20V

FIG. 1 OR 2 "X" WIRING OMITTED (ADJUSTMENT D, FIG. 1)

MAX EXT RES (RING SIDE TO GRD)	EARTH POTENTIAL
900	0, +22V
800	-1.2, +19.8V
700	-2.4, +17.5V
600	-3.5, +15.4V
500	-4.9, +13.2V
400	-6.1, +11.0V
300	-7.5, +8.8V
200	-8.5, +5.5V
100	-9.6, +4.4V
0	-11.0, +2.2V

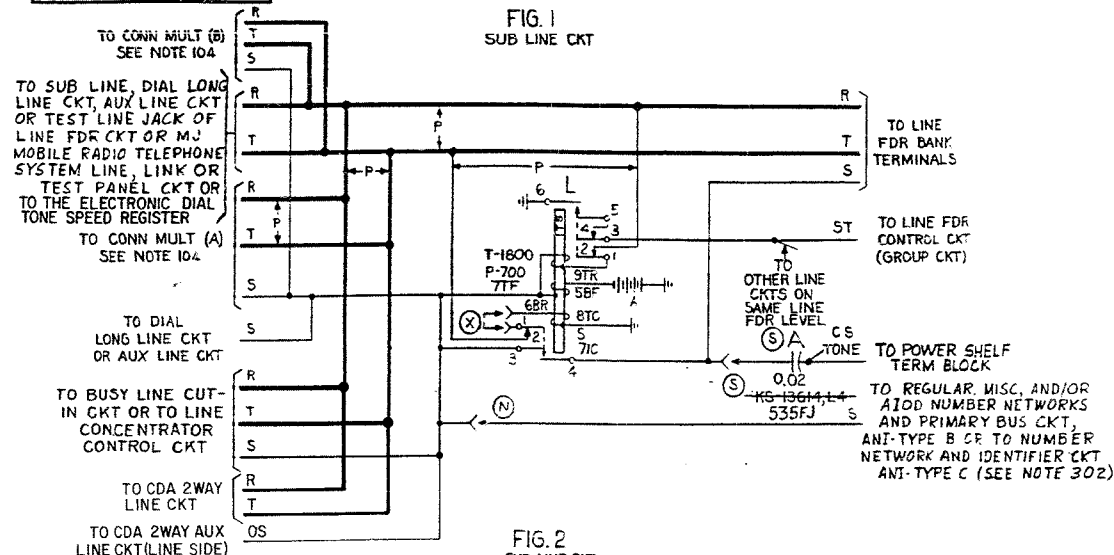
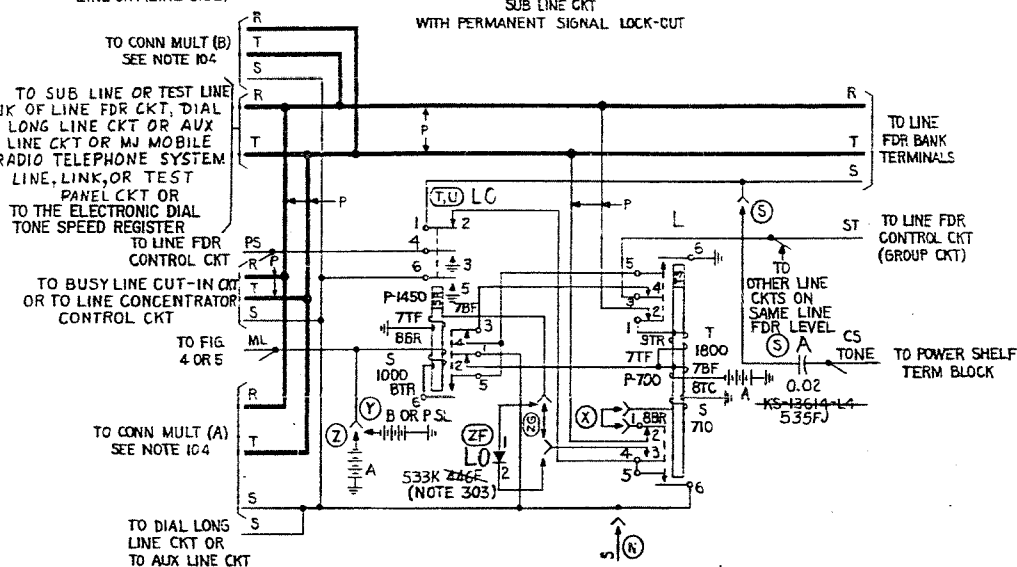
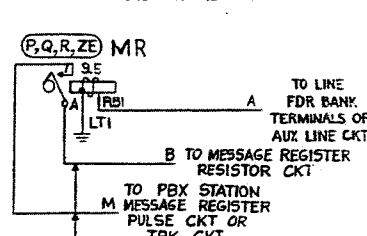
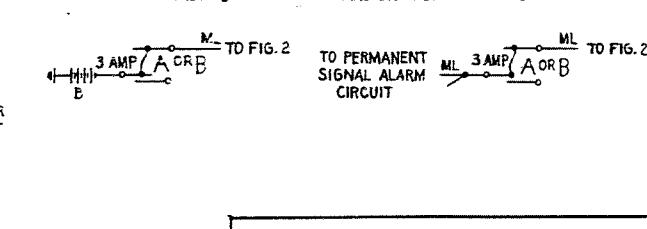
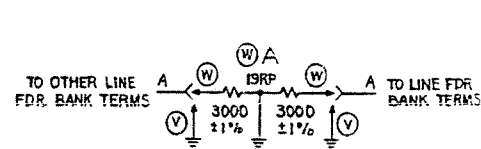
MIN INS RES 15,000

FIG. 1 "X" WIRING OMITTED (ADJUSTMENT C)

MAX EXT RES (RING SIDE TO GRD)	EARTH POTENTIAL
700	0, +17.5V
600	-1.5, +15.4V
500	-2.5, +13.2V
400	-4.2, +11.0V
300	-5.5, +8.8V
200	-6.9, +5.5V
100	-8.2, +4.4V
0	-9.6, +2.2V

MIN INS RES 15,000

10-22212-05

FIG. 1
SUB LINE CKTFIG. 2
SUB LINE CKT
WITH PERMANENT SIGNAL LOCK-OUTFIG. 3
MESSAGE REGISTER CKT
FOR USE WITH MESSAGE RATE TRUNKS
OR AUX LINE CKT
ONE PER LINE CKTFIG. 4 (MFR DISC.)
FUSE CIRCUIT
ONE FOR LINE GROUP A
AND ONE FOR LINE GROUP BFIG. 5 (MFR DISC.)
FUSE CIRCUIT
ONE FOR LINE GROUP A
AND ONE FOR LINE GROUP BFIG. 6
TYPE OF SUBS LINE INDICATION
ONE PER 2 LINE CKTS

INFORMATION NOTES (CONTINUED)

303. WHEN FIG. 2 OF THIS CIRCUIT IS USED WITH MESSAGE REGISTERS WHICH OPERATE ON A +65V BOOSTER BATTERY APPLICATION (SD-31493-01 OR SD-31493-02), ZF OPTION MUST BE USED TO PREVENT THE (LO) RELAY FROM BEING OPERATED WHEN THE REGISTER IS SCORED.

DWG	CD	DWG	CD	DWG	CD
ISS	ISS	ISS	ISS	ISS	ISS
1	1	2A	APP	2A	2A
4A	APP	11	ED	3D	SA
7D	APP	2D	BD	APP	3C
10B	APP	2D	11D	4D	12C
13D	APP	4D	14B	4D	15C
15C	APP	4D	17D	4D	16C
19D	APP	4D	20D	4D	21C
22D	APP	4D	23C	4D	24C
25D	APP	4D	26D	4D	27D
28D	APP	4D	29D	4D	30D
29B	5D	APP	11-23-58	11S	11H
30D	5D	APP	7-25-58	11S	11H
31D	5D	APP	12-3-60	11S	11H
32D	5D	APP	2-7-64	11S	11H
33D	5D	APP	7-21-64	11S	11H
34D	5D	APP	7-12-65	11S	11H
35D	6D	APP	11-9-71	11S	11H
36AC	6D	APP	10-2-72	11S	11H
37A	6D	APP	2-4-74	11S	11H
38D	6D	APP	8-23-74	11S	11H
39B	6D	APP	3-12-75	11S	11H
40B	6D	APP	12-17-77	11S	11H
41B	6D	APP	12-19-79	11S	11H

226-842-501
226-440-501
226-205-500
225-410-500

MAINTENANCE BSP
SYS 355A SD-31780-01
SYS 355A SD-32149-01
SYS 355E7 SD-32325-01

KEYSHEET NO.
J-38809-(814-006-150)
J-33017-(814-050-151)
J-32006-(814-411-150)

EQPT DESIG REQ
J-32006A-()
J-38809E-()
J-38809D-()
J-33017E-()
J-33017C-()
J-33017B-()
J-32006E-()
J-32006C-()

ED-31176-01
ED-31008-01
ED-31007-01
ED-30708-01
ED-30695-01
ED-31176-01
ED-31090-01
ED-31013-01
ED-30717-01
ED-30703-01

EQUIPMENT INFO

NOTICE-NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

REPLACED BY SD-32133-01 FOR FIGS. 1, 3 AND 6 AND SD-32218-01 FOR FIGS. 2, 3 AND 6 FOR NO. 355A AND 35-E-97 OFFICES EXCEPT. FOR ADDITIONS TO PARTIALLY EQUIPPED LINE FINDER FRAMES

41B

2D99

Step By Step Systems
NO. 355A, 356A OR 35-E-97
SUBSCRIBER LINE CIRCUIT

A8M ONLY

(LINE) OR (L)
BELL TELEPHONE LABORATORIES
INCORPORATED

SD-31777-01-1
3 SHEETS

6S

SD-31777-01-1

CIRCUIT REQUIREMENTS																			DRAWING ISSUE		
SUBSCRIBER LINE CKT (LINE) OR (L)																					
APPARATUS				MECH INST			CIRCUIT PREPARATION				DIRECT CURRENT FLOW TEST						REMARKS				
RELS	CODE	OPTION	REL	REL	REL	REL	TEST CLIP DATA	TEST CLIP DATA	TEST CLIP DATA	TEST CLIP DATA	TEST WDG	TEST FOR	AFTER SOAK	TEST	REMARKS						
							CONN BAT	CONN GRD					NA	NA	NA						
RELAYS																					
L	U676		1		314/316	SPL	50		2T(L)	4T(L)	2B(L)	TF(L)	GRD	1/3/4	P	0	29.5	13.7	13.4	ADJ C (SEE TEST NOTE 15)	
									TF(L)	GRD	9/10	P	NO	29.5	12.4	12.6					
									TF(L)	GRD	9	P	0		31	29.5					
									TF(L)	GRD	2/9	P	NO		25	26.5					
						SPL	SPL		2T(L)	4T(L)	2B(L)	BR(L)	TR(L)	M	1/9	P/S/T	0		10.2	ADJ D (SEE TEST NOTE 15)	
									TF(L)	GRD	3/4/7	P	0	29.5	11.7	11.1			ARM TRVL 47		
									TF(L)	GRD	9	P	NO	29.5	9.2	9.7					
									TF(L)	GRD	9	P	0		31	29.5					
									TF(L)	GRD	2/9	P	NO		25	26.5					
									BR(L)	TR(L)	M	9/14	P/S/T	0		9					
L	U680		2		314/315	SPL	SPL		(L)C	2T(L)	2B(L)	TF(L)	GRD	3/4/5/7	P	0	29.5	11.7	11.1	ARM TRVL 47	
									TF(L)	GRD		P	NO	29.5	9.2	9.7					
									TF(L)	GRD		P	0		31	29.5					
									TF(L)	GRD		P	NO		25	26.5					
									BR(L)	TR(L)	M	5	P/S/T	0		9					
L0	Y124	U	2		120/318	H	SPL		(L)NC	2B(L)O		BF(L)O		BAT	11/12/13	P	0	FS	14.7	14	ARM TRVL 50
									BF(L)O			BAT	13	P	NO	FS	9.9	10.5			
									BF(L)O			BAT	13	P	0	FS	21	20			
									BF(L)O			BAT	13	P	H	FS	2.7	2.5			
									BF(L)O			BAT	13	P	R	FS	0.5	0.6			
									4T(L)(L)NO	2B(L)O		BF(L)O	TR(L)O	M	13	P/S	0		15.5	14.5	
L0	Y268	U	2		200/318	H	SPL		(L)NO	2B(L)O		BF(L)O		BAT	11/12/13	P	0	FS	14.7	14	ARM TRVL 50
									BF(L)O			BAT	13	P	NO	FS	9.9	10.5			
									BF(L)O			BAT	13	P	0	FS	21	20			
									BF(L)O			BAT	13	P	H	FS	2.7	2.5			
									BF(L)O			BAT	13	P	R	FS	0.7	0.9			
									4T(L)(L)NO	2B(L)O		BF(L)O	TR(L)O	M	13	P/S	0		15.5		
MR	5AHMR	R	3						RBI (MR)			BAT			0		325				
									RBI (MR)			BAT			NO		260				
MR	14BMR	Q	3						RBI (MR)			BAT			0		325				
									RBI (MR)			BAT			NO		260				
MR	14LAMR	P	3						RBI (MR)			BAT			0		325				
									RBI (MR)			BAT			NO		260				
MR	14R	ZE	3						I (MR)	RBI (MR)		BAT			0		325				
									I (MR)	RBI (MR)		BAT			NO		260				

FIG. 58
(FOR FIG. 2 & "V" OPTION OF FIG. 6)
356A ONLY

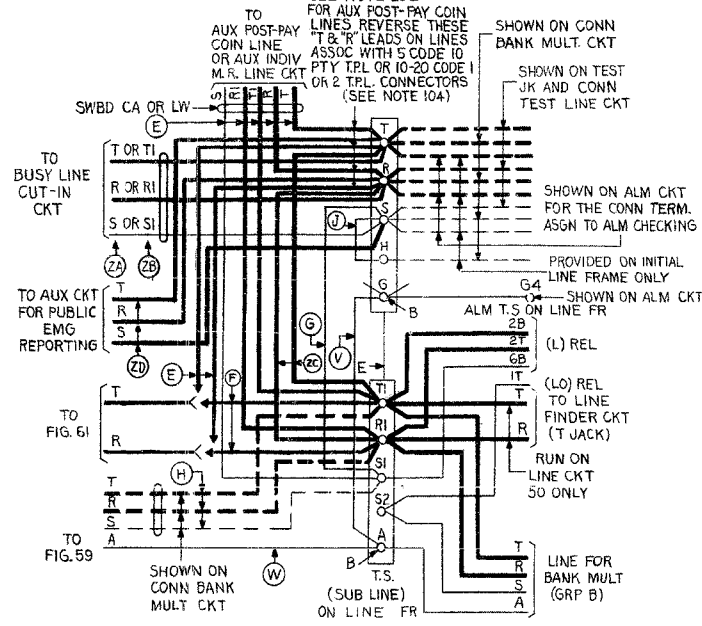


FIG. 59
(FOR FIG. 6 & "W" OPTION)
356A ONLY

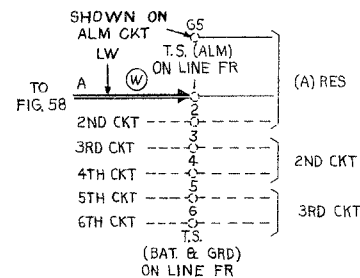


FIG. 60
(FOR FIG. 3)
356A ONLY

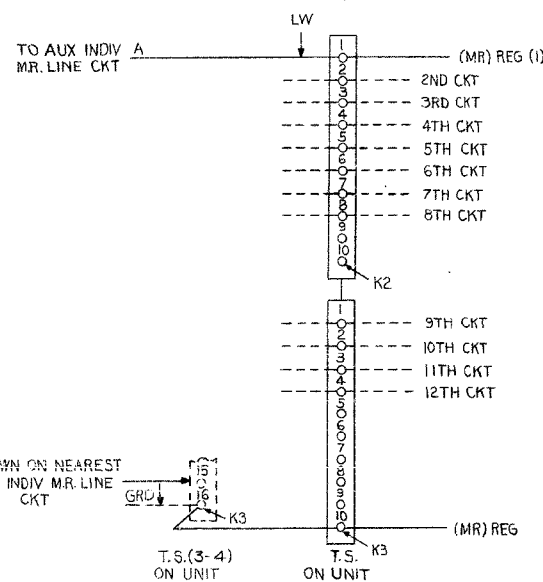


FIG. 61
(FOR FIG. 2)
SINGLE SIDED
DISTRIBUTING FRAME
356A ONLY
T. S. VERT

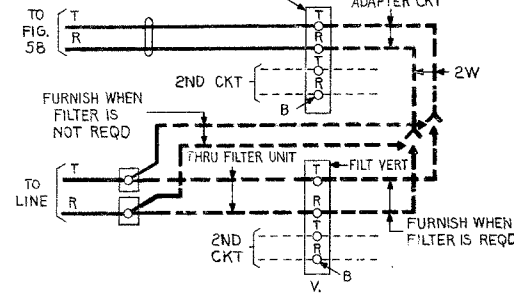


FIG. 6

(FOR FIGS. 1 OR 2)
FOR USE WITH 100 OR 200 POINT,
3W OR 4W LINE FINDERS
WITH SOLDERLESS BANKS
FOR 355A OR 35-E-97 OFFICES
SEE NOTE 206

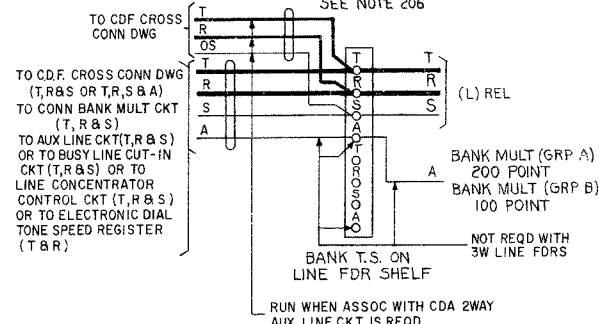


FIG. 63 MFR DISC
(FOR 10 FIG. 3)
OR 355A OFFICE

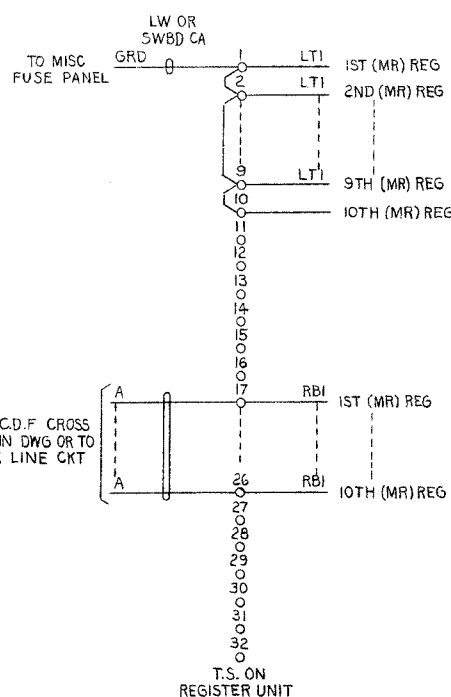


FIG. 64
(FOR 10 FIG. 3 "ZE" APP ONLY)
FOR 355A OFFICE MESSAGE REGISTERS
PROVIDING MESSAGE UNIT REPETITION
TO PBX VIA 3RD WIRE

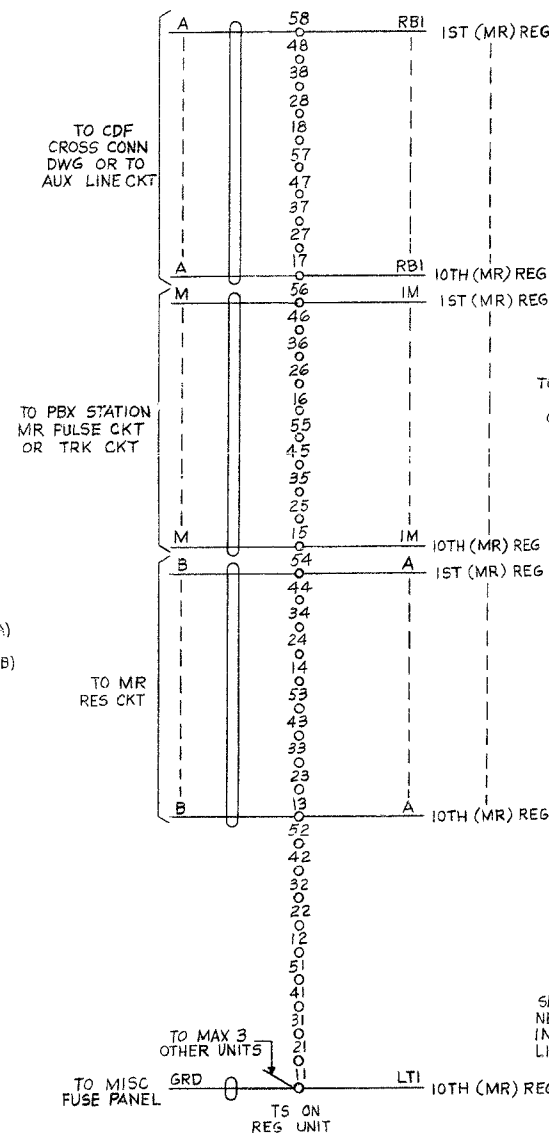


FIG. 66
(FOR IO FIG. 3)
FOR 355A OFFICE

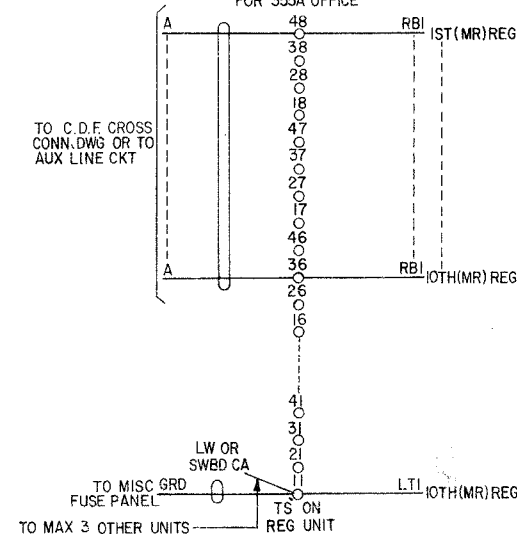
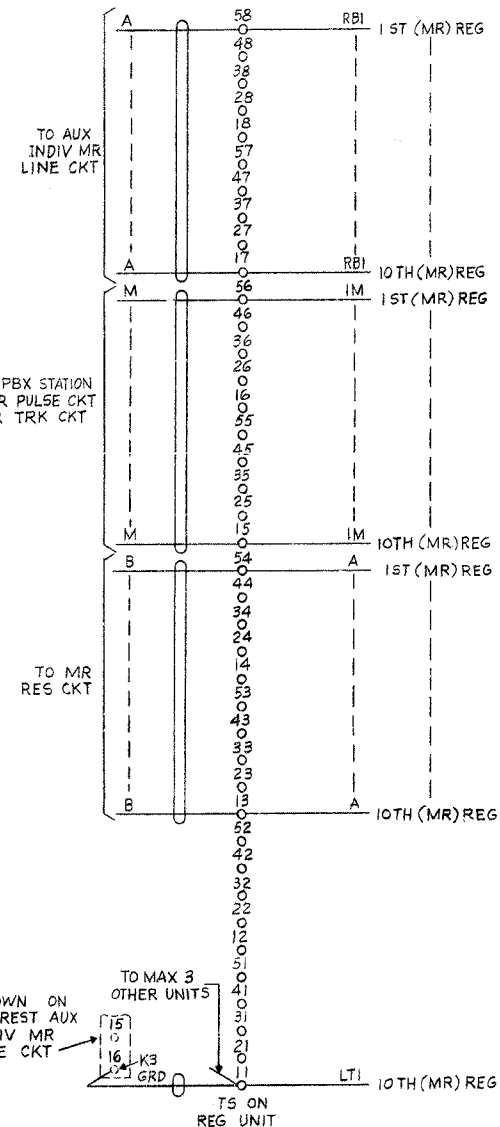


FIG. 65
(FOR 10 FIG. 3 "ZE" APP ONLY)
FOR 356A OFFICE MESSAGE REGISTERS
PROVIDING MESSAGE UNIT REPETITION
TO PBX VIA 3RD WIRE



CIRCUIT NOTES: (CONT FROM SH.1)

105. WHERE POST PAY COIN SERVICE IS PROVIDED "N" OPTION MAY BE APPLIED ON LINES WITH BOTH COIN AND NON-COIN STATIONS WHEN THIS CIRCUIT IS USED WITH CIRCUITS ARRANGED TO RESTRICT SERVICE FROM COIN STATIONS.
106. WHEN THIS CIRCUIT IS ASSIGNED TO A POST-PAY COIN LINE EQUIPPED WITH A 1E COIN STATION, FIG. 2 SHOULD NOT BE SPECIFIED.
107. WHEN THIS CIRCUIT IS ASSIGNED TO A DIAL-TONE-FIRST COIN LINE (EITHER FIG. 1 OR FIG. 2) OPTION X SHOULD BE SPECIFIED.
108. ADJ. D IS NOT RECOMMENDED ON OPEN WIRE LOOPS OR WHERE INSULATION LEAKAGE IS EXPERIENCED SINCE LINE FINDER SHOWERING CAN RESULT. SEE THE WORKING LIMITS TABLE FOR APPLICATION OF ADJ. C OR ADJ. D AND THE CIRCUIT REQUIREMENTS TABLE FOR THE FIG. 1 L RELAY ADJUSTMENTS REQUIRED.