

BELL TELEPHONE LABORATORIES, INC.

CROSSBAR SYSTEMS NO. 5 KEY SHEET

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GENERAL DESCRIPTION FOR NO. 5 CROSSBAR SYSTEM
IS SHOWN IN BSP SECTION 971.501.01

FOR CURRENT DRAIN DATA
SEE SD-25760-02

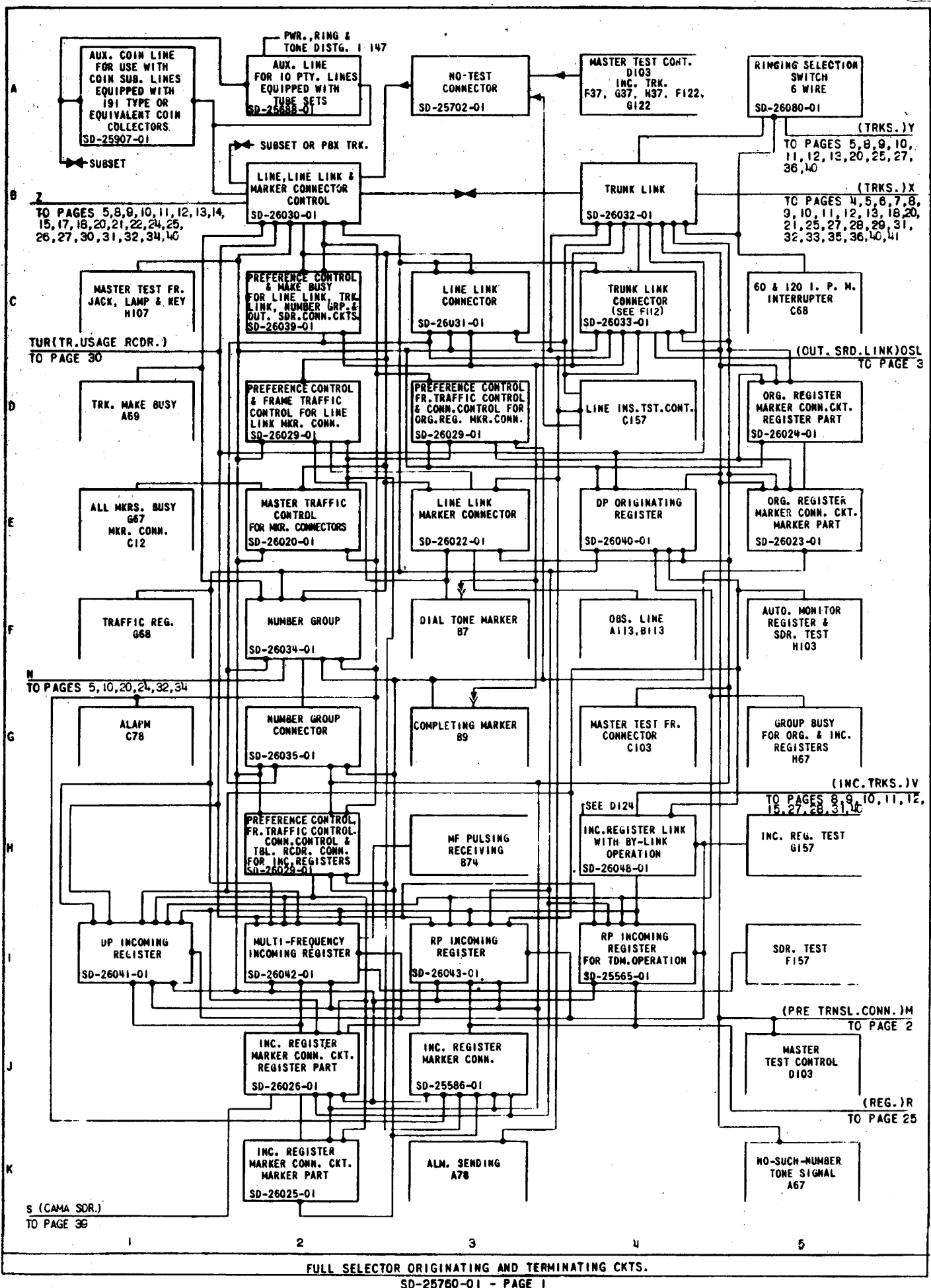
FOR EXPLANATION OF CONVENTIONS
SEE MASTER KEY SHEET SD-90250-01

DWG ISS	CD ISSUE	DATE ISSUED	DRAWN	APPD
9	9	5-13-55	L. R. F. C.	J. J. S. E. W. O.
10	10	7-11-58	SVS. L. H. E.	S. W. E. W. O.

PRINTED IN U. S. A.

AT & TCO
STANDARD

SD-25760-01



A

PRTD

TO PAGE 30

(MISC.FR.)MF
TC PAGE 30

B

SEE F3

DIAL TONE MARKER
SD-26001-01SEE G3,B11,A94,
K112,G191COMPLETING MARKER
SD-26002-01

C

MASTER TEST FR.
CONNECTOR
C103MASTER
TEST CONTROL
D103TRAFFIC REG.
G68ALL MKRS. BUSY
G67AUTOMATIC
PROGRESSION
TRK. TEST
J157

D

GROUP BUSY
FOR ORG. & INC.
REGISTERS
H67MASTER TEST FR.
PLANT REGISTER
H102AUTOMATIC MONITOR
REGISTER &
SENDER TEST
H103MASTER TEST FR.
JACK, LAMP & KEY
H107SERV. OBS.
TRK. SELECTION
& CONTROL
J113

E

LINE INS. TST. CONT.
C157TR. USAGE RCDR
G149SERV. OBS.
REGISTER CONN.
3182INC. REGISTER
TEST
G157

F

FOREIGN AREA
TRANSLATOR
CONNECTOR
SD-25864-01FOREIGN AREA
TRANSLATOR
SD-25863-01ALM. SENDING
A78

G

IN SXS, PAN. OR
CBL. NO. 1 DSA SWBD.
OR TOLL SWBD. NO. 1,
3, 3C OR 3CL;
COIN SUPERVISORY
CKT., STUCK COIN &
OVERTIME MONITORINGCOIN SUPERVISORY
CONCENTRATING
SD-25721-01COIN SUPERVISORY
FOR USE WITH TRKS.
ARR. FOR OVERTIME
COIN COLLECTION
SD-25736-01COIN SUPERVISORY
LINK
SD-26049-01ALARM
C78

H

IN TOLL SWBD. NO. 1,
3, 3C OR 3CL;
COIN SUPERVISORY CKT.,
STUCK COINTIMING
C72COIN SUPERVISORY
RELEASE
SD-25859-01AUX. SIG. CKT.
IN DSA OR
TOLL SWBD.M(ORG.REG.)
TO PAGE 1

J

PRETRANSLATOR
CONNECTOR CKT.
ORIGINATING
REGISTER PART
SD-26038-01PRETRANSLATOR
CONNECTOR
SD-25569-01PRETRANSLATOR
SD-25568-01

6

7

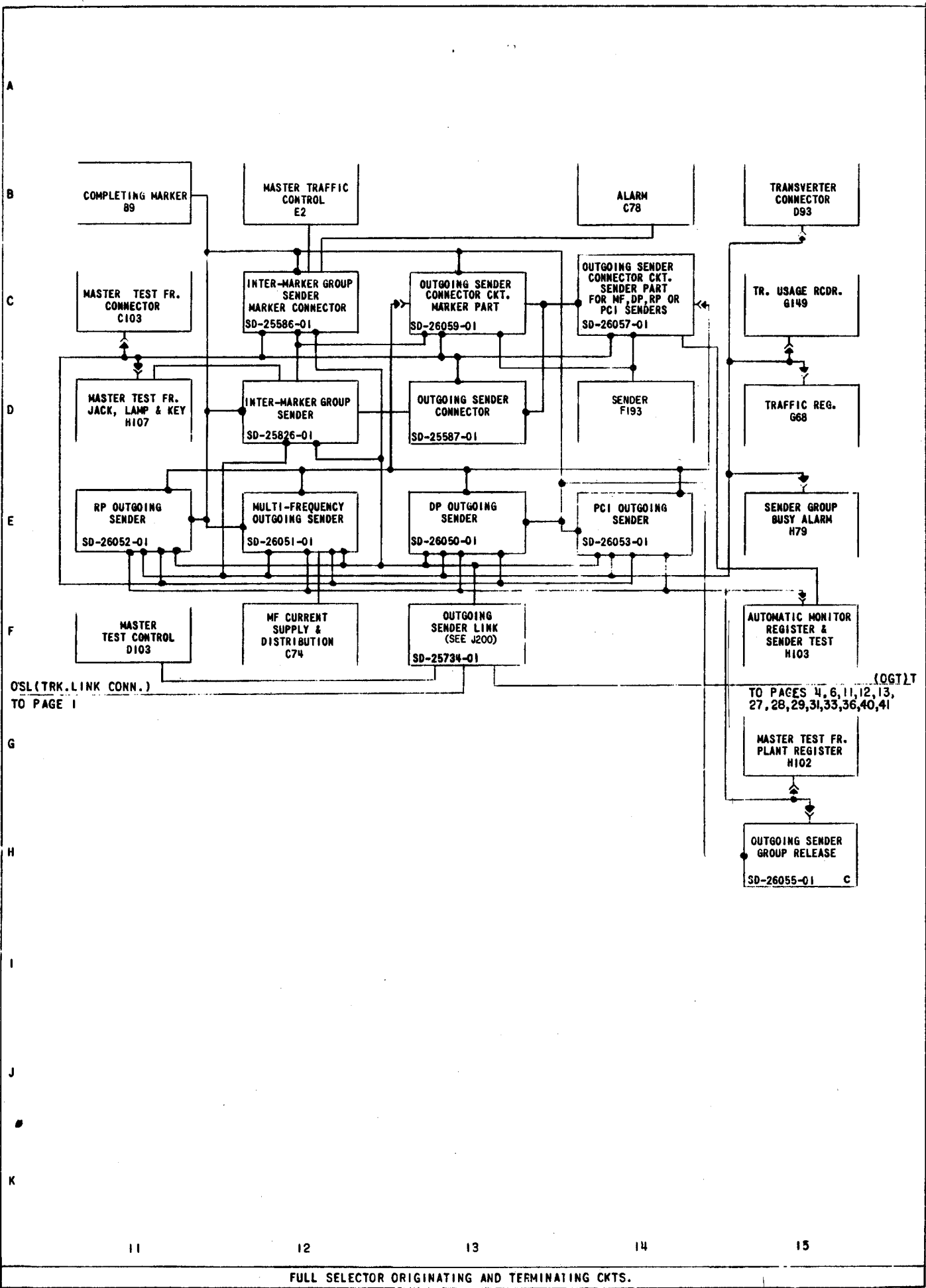
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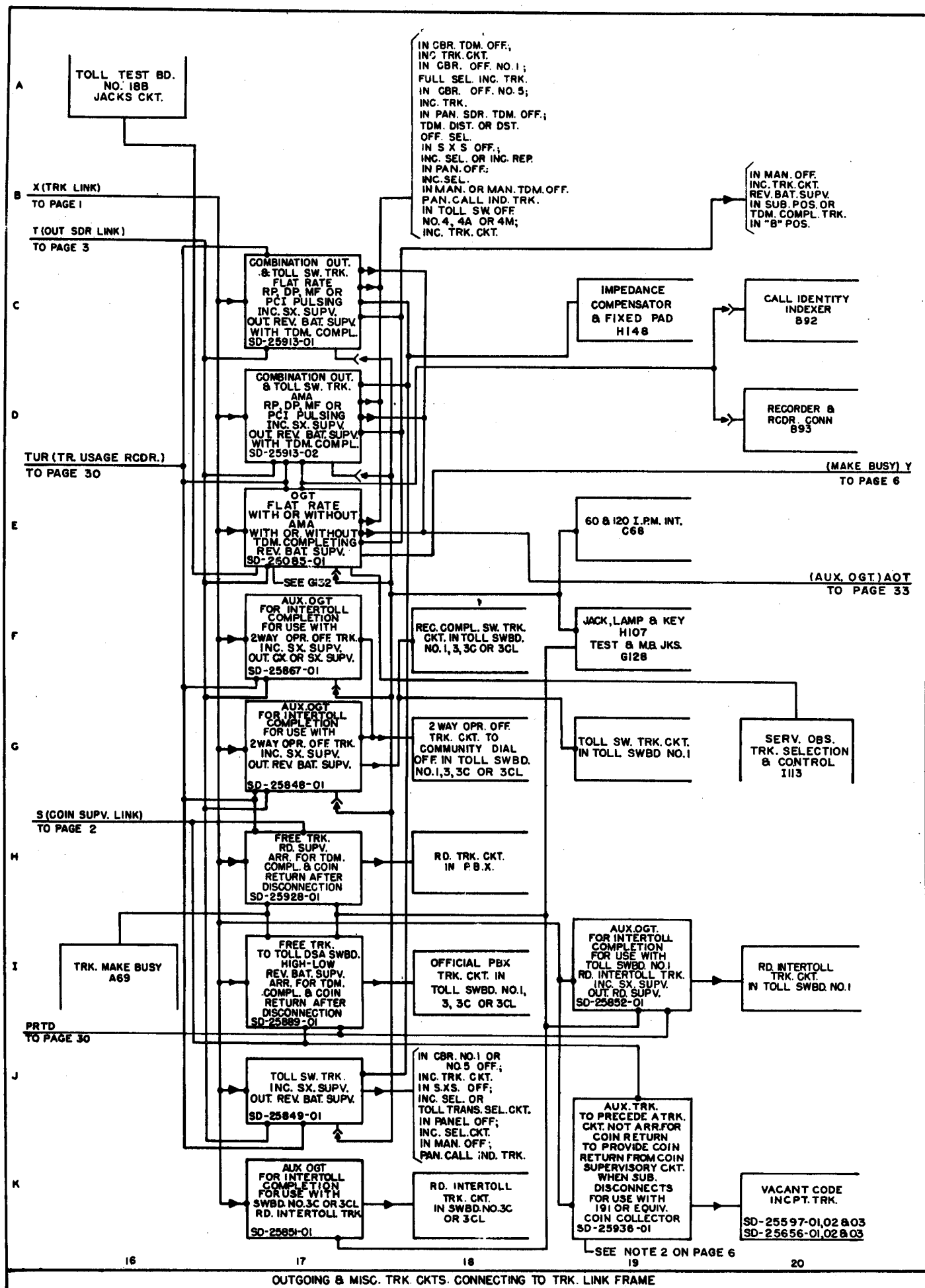
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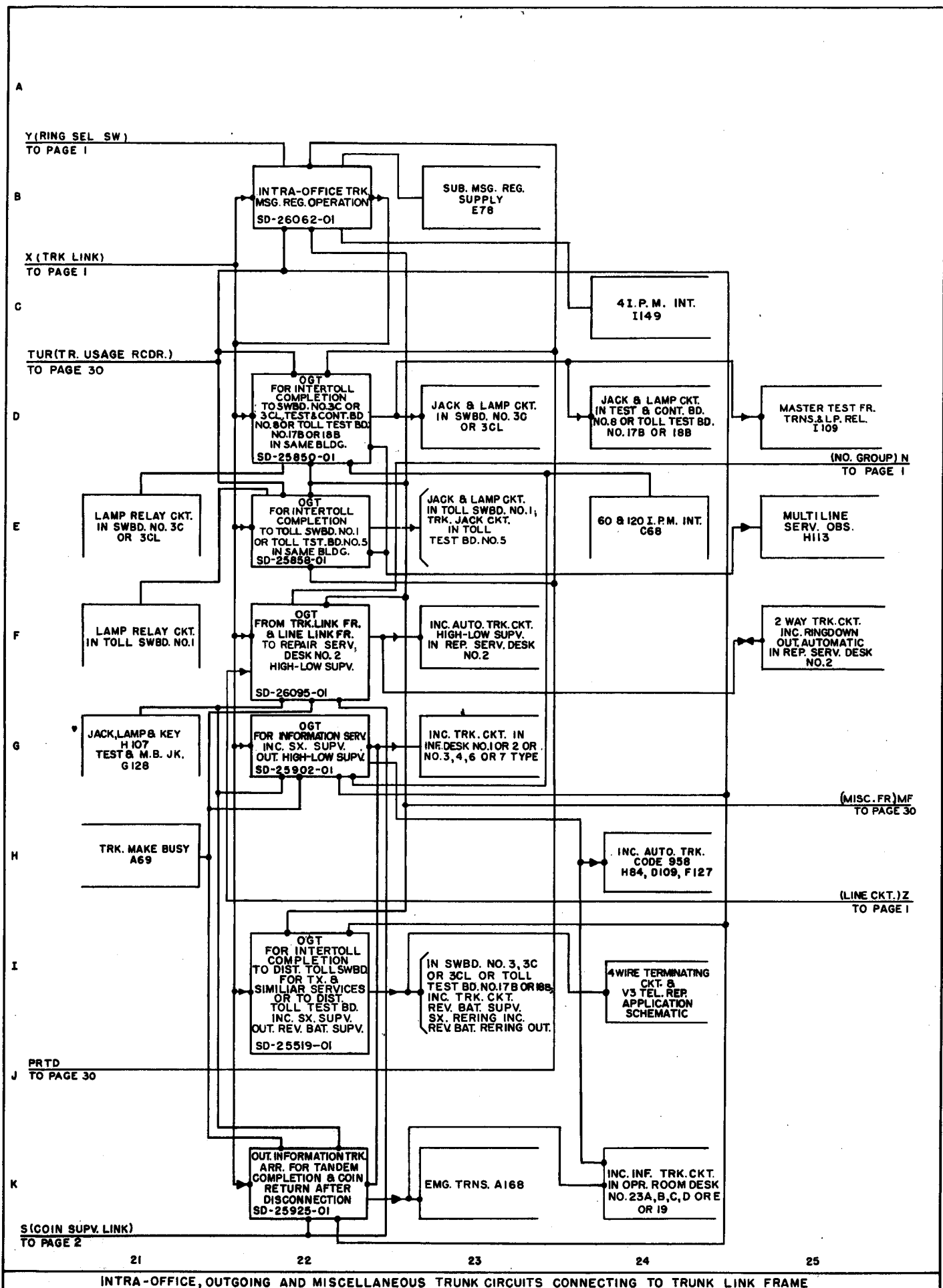
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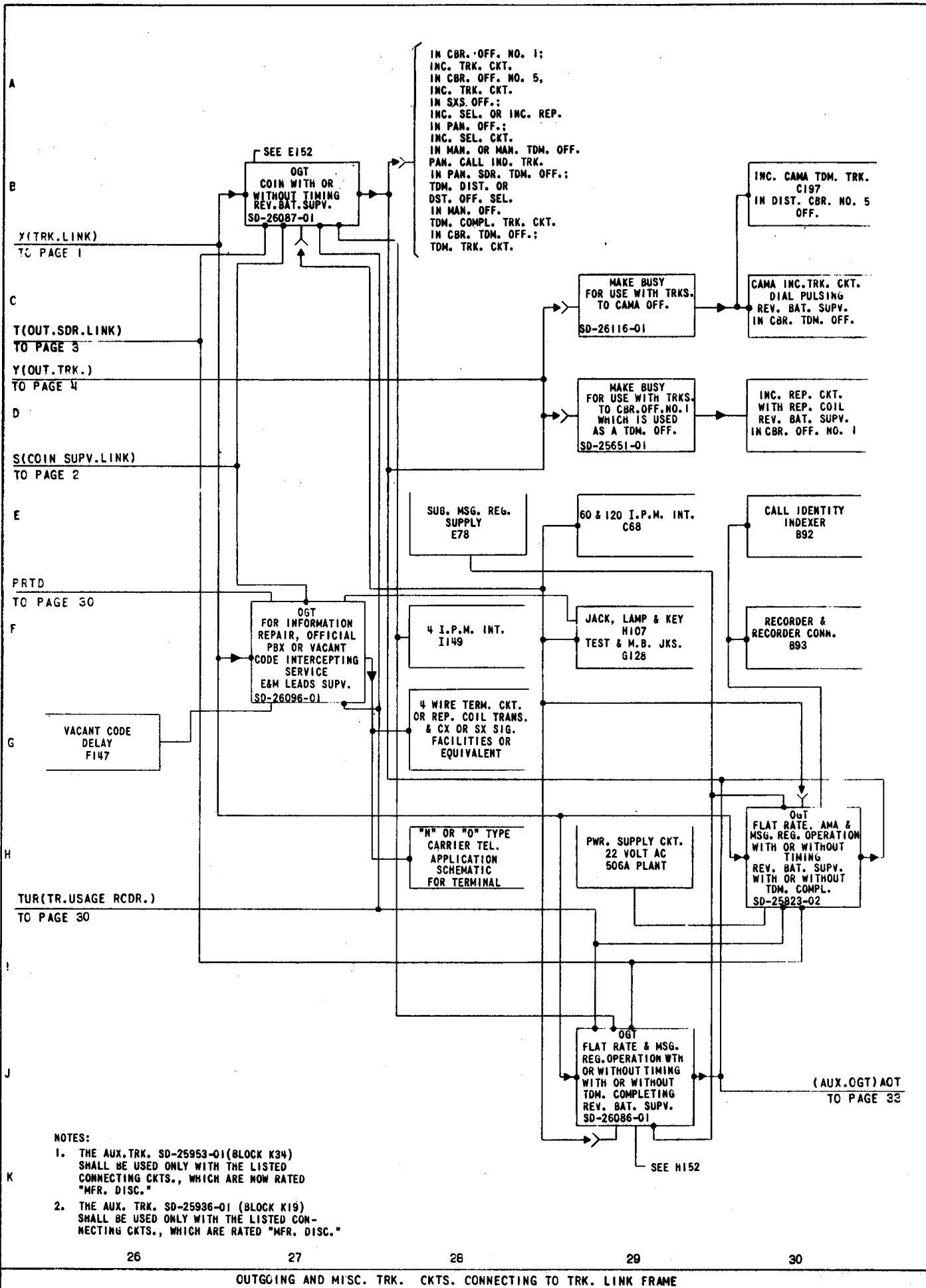
FULL SELECTOR ORIGINATING AND TERMINATING CKTS.

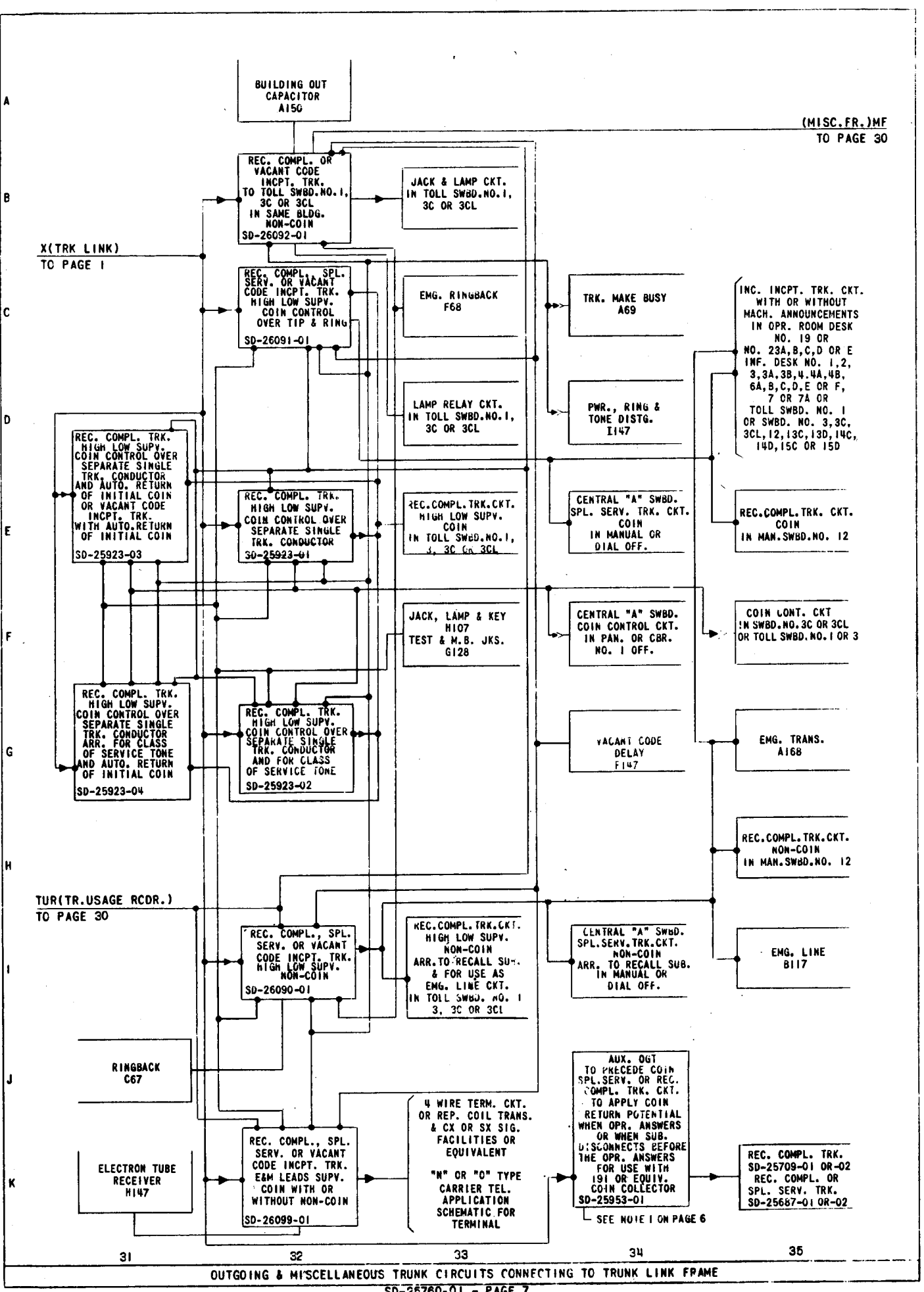
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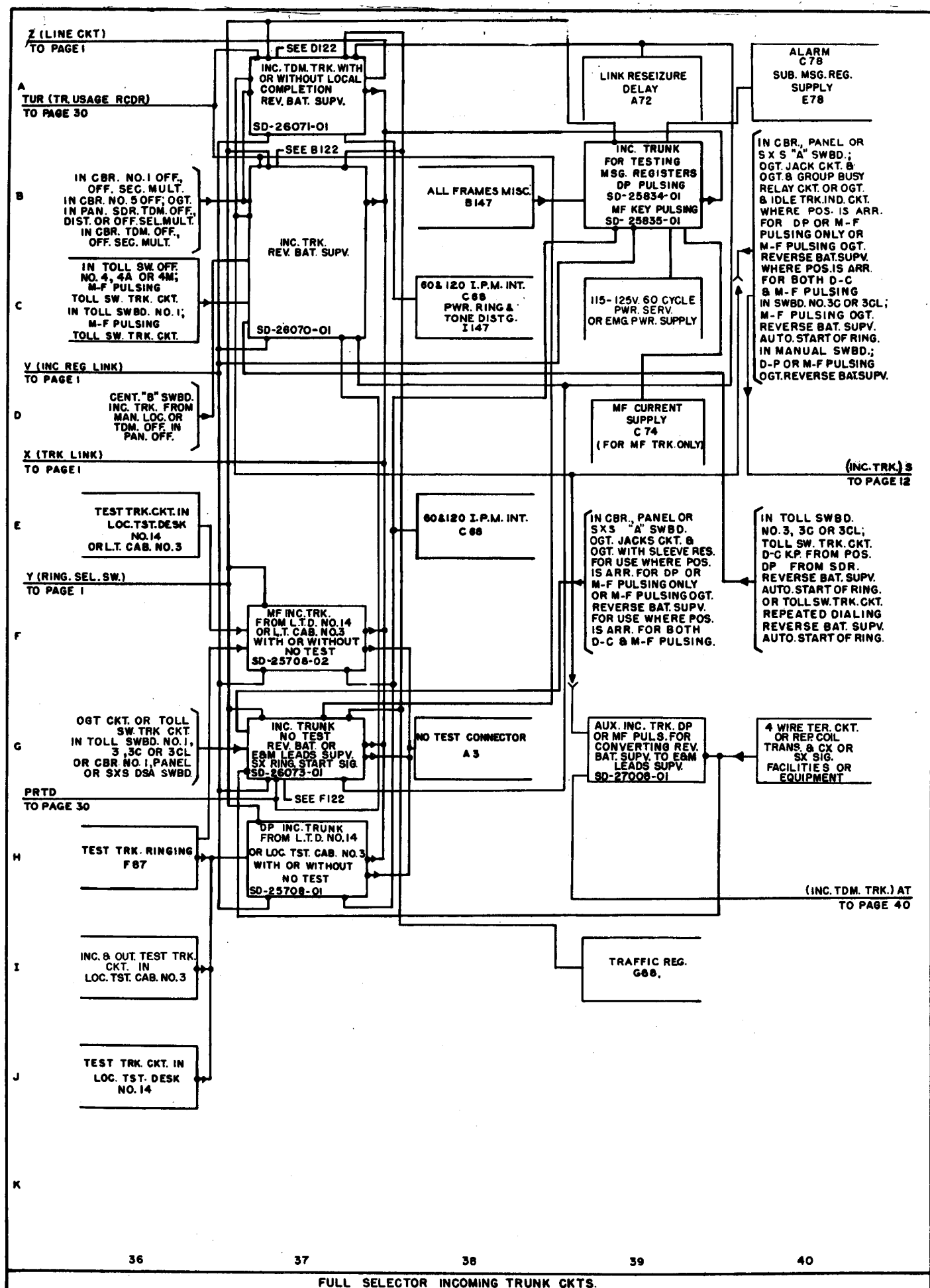
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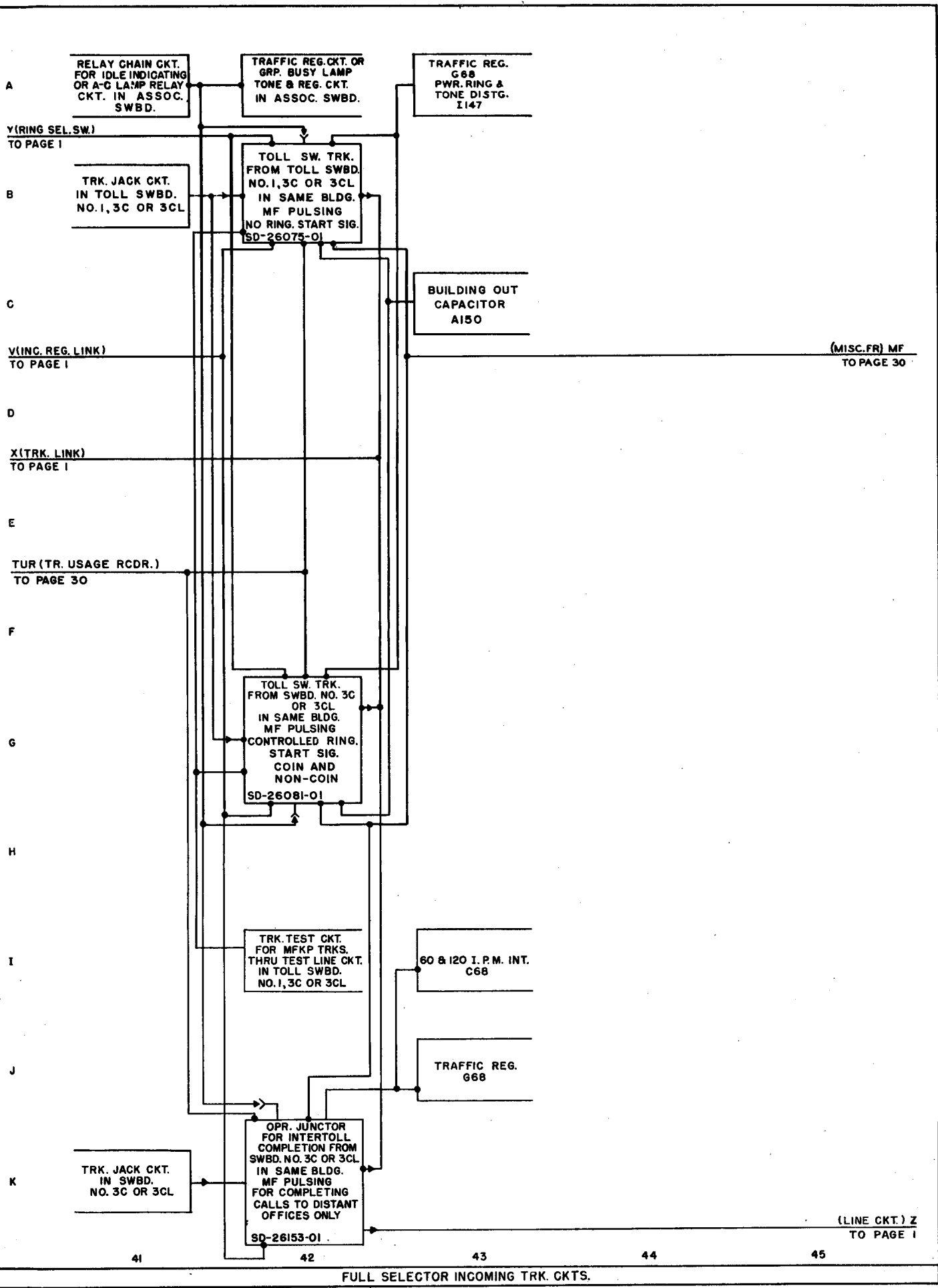
X(TRK LINK)
TO PAGE 1

TUR(TR.USAGE RCDR.)
TO PAGE 30

OUTGOING & MISCELLANEOUS TRUNK CIRCUITS CONNECTING TO TRUNK LINK FRAME

02617-1960





TUR (TR. USAGE RCDR.)
TO PAGE 30

A

Y (RING. SEL. SW.)
TO PAGE 1

B

C

V (INC. REG. LINK)
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D

E

F

G

Z (LINE CKT.)
TO PAGE 1

H

X (TRK. LINK)
TO PAGE 1

I

S (COIN SUPV. LINK)
TO PAGE 2

K

4 WIRE TERM. CKT.
OR REP. COIL TRANS.
8 CX OR SX SIG.
FACILITIES OR
EQUIVALENT

IN CBR. KEY PLSG.
CENT. "A" SWBD.;
RP. PULSING OGT
REV. BAT. SUPV.
SX RING. START SIG.
WITH OR WITHOUT
COIN CONTROL
IN CBR. PAN. OR
SXS "A" SWBD.;
D.P. PULSING OGT
REV. BAT. SUPV.
SX. CONT. RING.
WITH OR WITHOUT
COIN CONTROL
IN TOLL. SWBD. NO. 1,
3, 3C OR 3CL;
MF PULSING OGT
REV. BAT. SUPV.
SX. CONT. RING.
IN PAN. OFF;
CENT. "B" SWBD.
INC. TRK. FROM
LONG DISTANCE OFF.
IN TOLL. SWBD. NO. 1,
3, 3C OR 3CL;
TOLL. SW. TRK. CKT.
REV. BAT. SUPV.

SEE I122

SEE H122

INC. TRK.
REPEATED DIALING
USING BY-LINK
REV. BAT. SUPV.
WITH OR WITHOUT
TDM. COMPLETING
SD-26077-01

INC. TRK.
R.P. D.P. OR MFP.
REV. BAT. OR
E & M LEADS SUPV.
SX OR SINGLE FREQ.
RING. START SIG.
COIN. CONT. OVER
SEPARATE SINGLE
TRK. CONDUCTOR OR
SINGLE OR
2 FREQUENCIES
SD-26083-01

INC. TRK.
R.P. D.P. OR MFP.
REV. BAT. SUPV.
OR E&M LEADS SUPV.
CONTROLLED RING.
SD-26074-01

TRAFFIC REG.
C88
PWR. RING &
TONE DISTG.
I147

CENTRAL "A" SWBD.
COIN CONTROL CKT.
IN PAN. OR CBR.
NO. 1 OFF

TOLL SWBD. NO. 1
TRK. JACK CKT.
(COIN CONT. JK.)

TRK. COIN CONT. CKT.
POSITION METHOD
OF COIN CONT.
IN TOLL SWBD.
NO. 1 OR 3

ELECTRON TUBE
RECEIVER
H147

LINK RESEIZURE
DELAY
A72

INCPT. TRK.
FOR USE WITH
ANNOUNCEMENT MACH.
ANN. SYSTEM NO. 7A
SD-26121-01

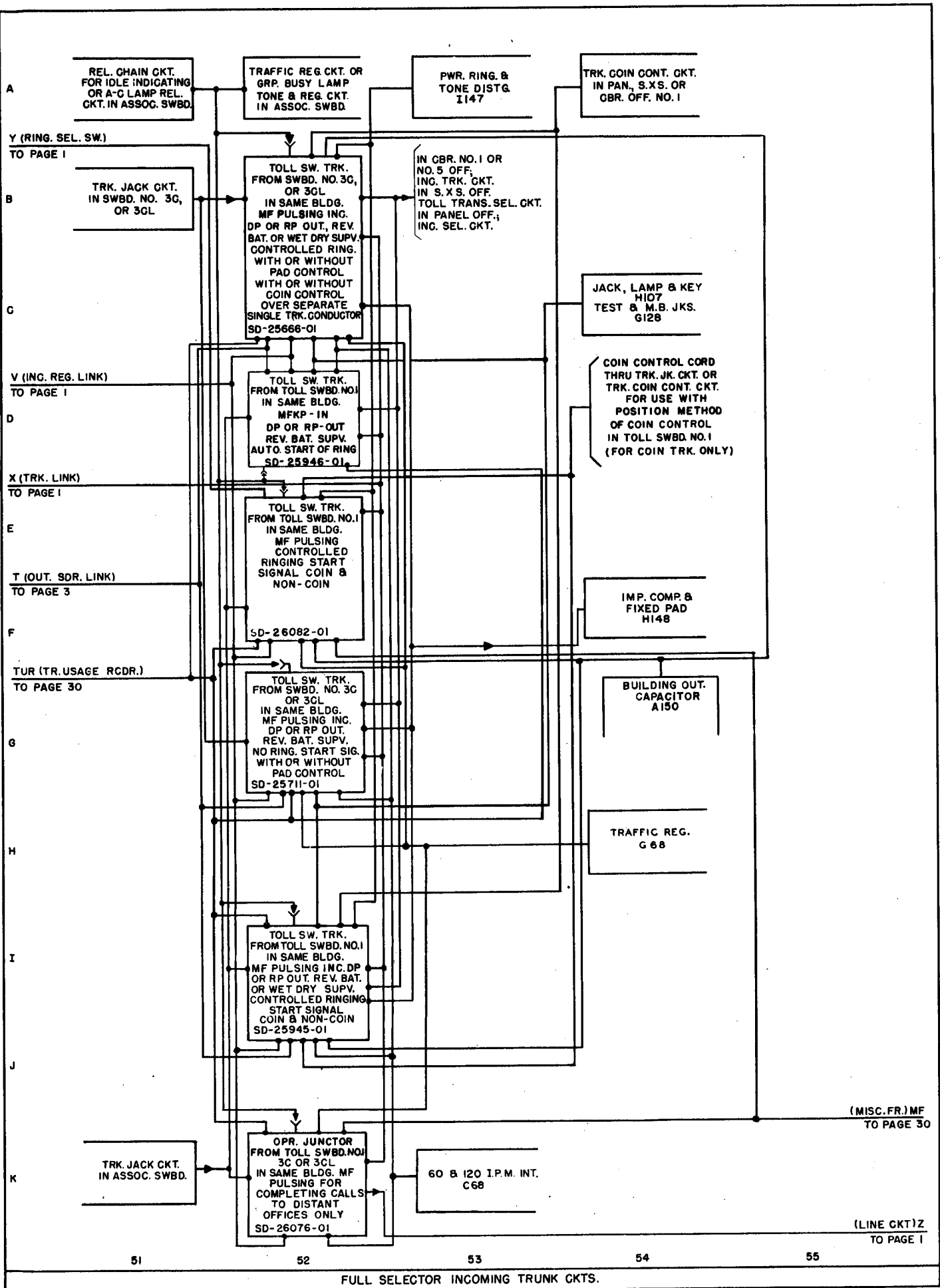
2AA TEL.
ANSWERING SET

(NO. GROUP) N
TO PAGE 1

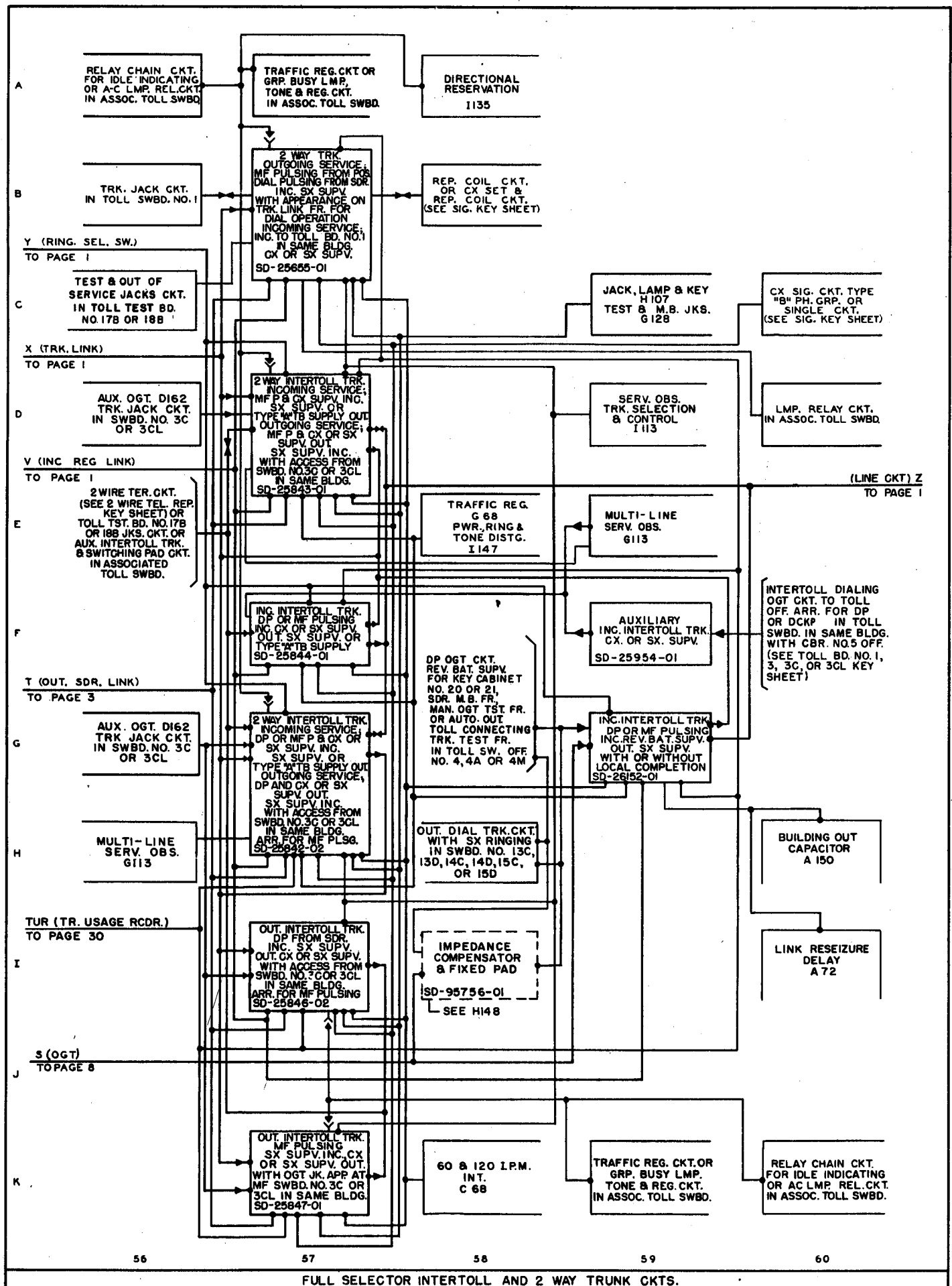
(MISC. FR.) MF
TO PAGE 30

ALARM
C78

(AUX. TRK.) ATL
TO PAGE 33



FULL SELECTOR INCOMING TRUNK CKTS.



PRTD
TO PAGE 30

(MISC. FR.)MF
TO PAGE 30

TUR(TR.USAGE RCDR.)
TO PAGE 30

Y(RING.SEL.SW.)
TO PAGE 1

S(CCIN SUPV.LINK)
TO PAGE 2

X(TRK.LINK)
TO PAGE 1

T(OUT.SDR.LINK)
TO PAGE 3

H

I

J

K

INTER-MARKER GROUP
TRK., FLAT RATE
SUB. TO SUB.
SD-26140-01

INTER-MARKER GROUP
TRK., FLAT RATE &
AMA
SUB. TO SUB.
SD-26141-01

INTER-MARKER GROUP
TRK., FOR COIN LINES
WITH OR WITHOUT
TIMING
SUB. TO SUB.
SD-26142-01

INTER-MARKER GROUP
TRK., FLAT RATE
WITH OR WITHOUT AMA
REV. BAT. OR
SX SUPV. OUT.
SUB. TO TRK.
SD-26145-01

INTER-MARKER GROUP
TRK. FLAT RATE &
MSG.REG. OPERATION
SUB. TO SUB.
SD-25839-02

INTER-MARKER GROUP
TRK., REV. BAT.
OR SX. SUPV.,
TRK. TO SUB.
SD-26143-01

SEE J152
INTER-MARKER GROUP
TRK., FOR COIN LINES
WITH OR WITHOUT
TIMING
REV. BAT. SUPV.
SUB. TO TRK.
SD-26147-01

INTER-MARKER GROUP
TRK., FLAT RATE &
MSG.REG. OPERATION
WITH OR WITHOUT TNG.
REV. BAT. SUPV.
SUB. TO TRK.
SD-25836-01

4 I.P.M. INT.
I149

SERV. OBS.
TRK. SELECTION
& CONTROL
I113

60 & 120 I.P.M. INT.
C68

MSG. REG. PWR.
SUPPLY
E78

CALL IDENTITY
INDEXER
B92

RECORDER &
RECORDER CUMM.
B93

(LINE CKT.)Z
TO PAGE 1

PWR. SUPPLY CKT.
22 VOLT AC
506A PLANT

61

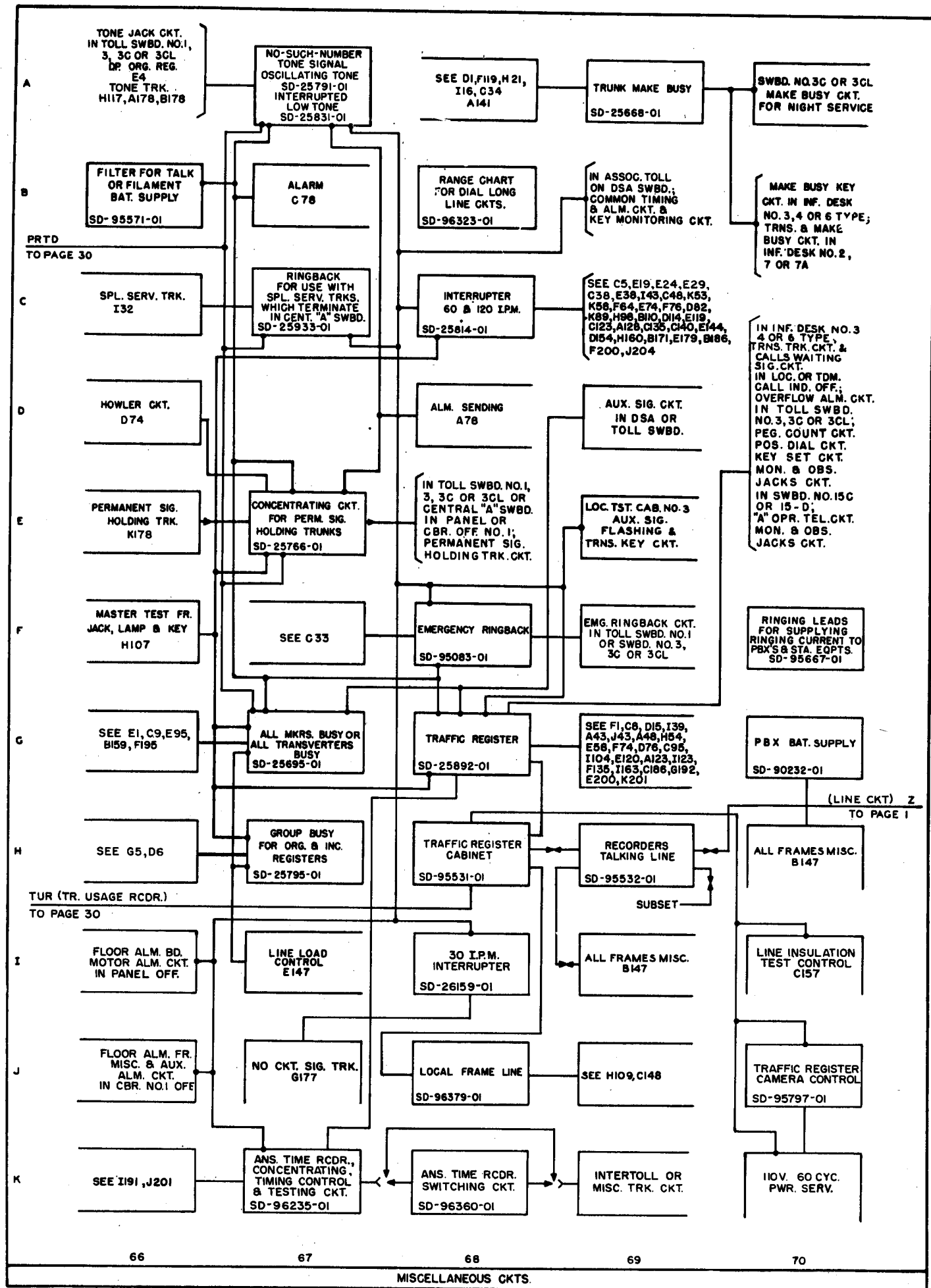
62

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65

FULL SELECTOR INTER-MARKER GROUP TRUNK CKTS.



V (INC. REG. LINK)
TO PAGE 1

A

B

C

PRTD
TO PAGE 30

D

E

F

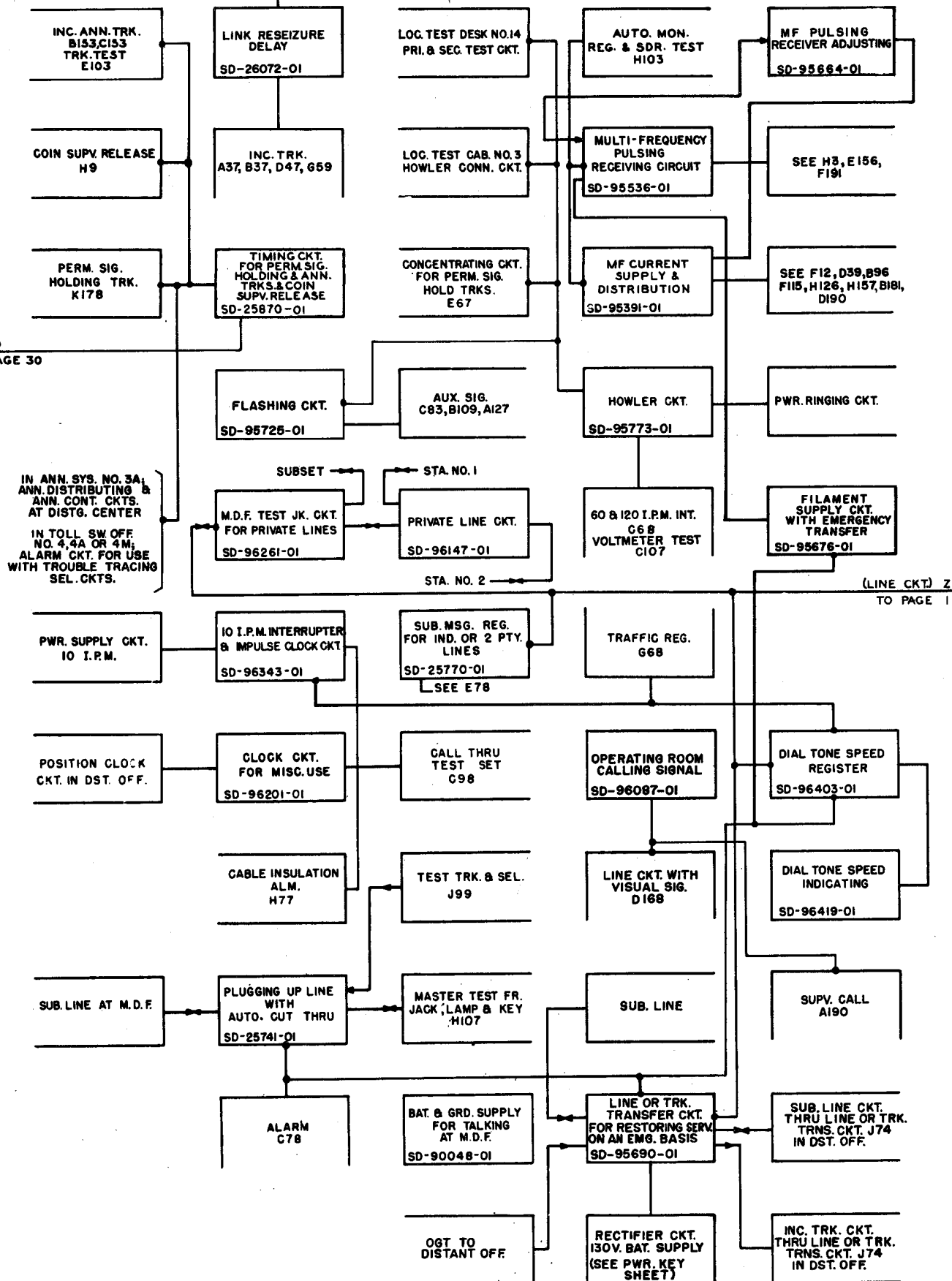
G

H

I

J

K



71

72

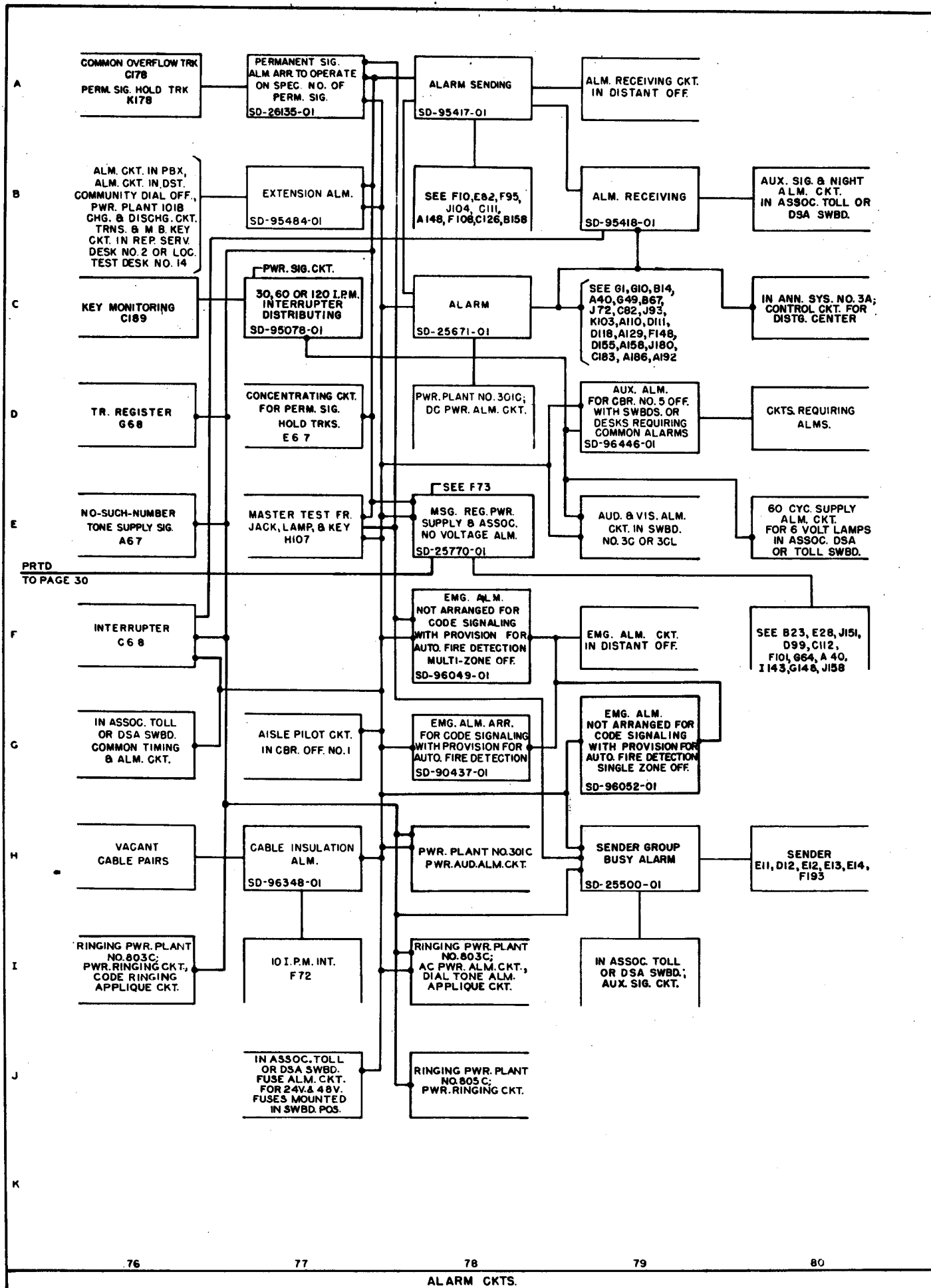
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74

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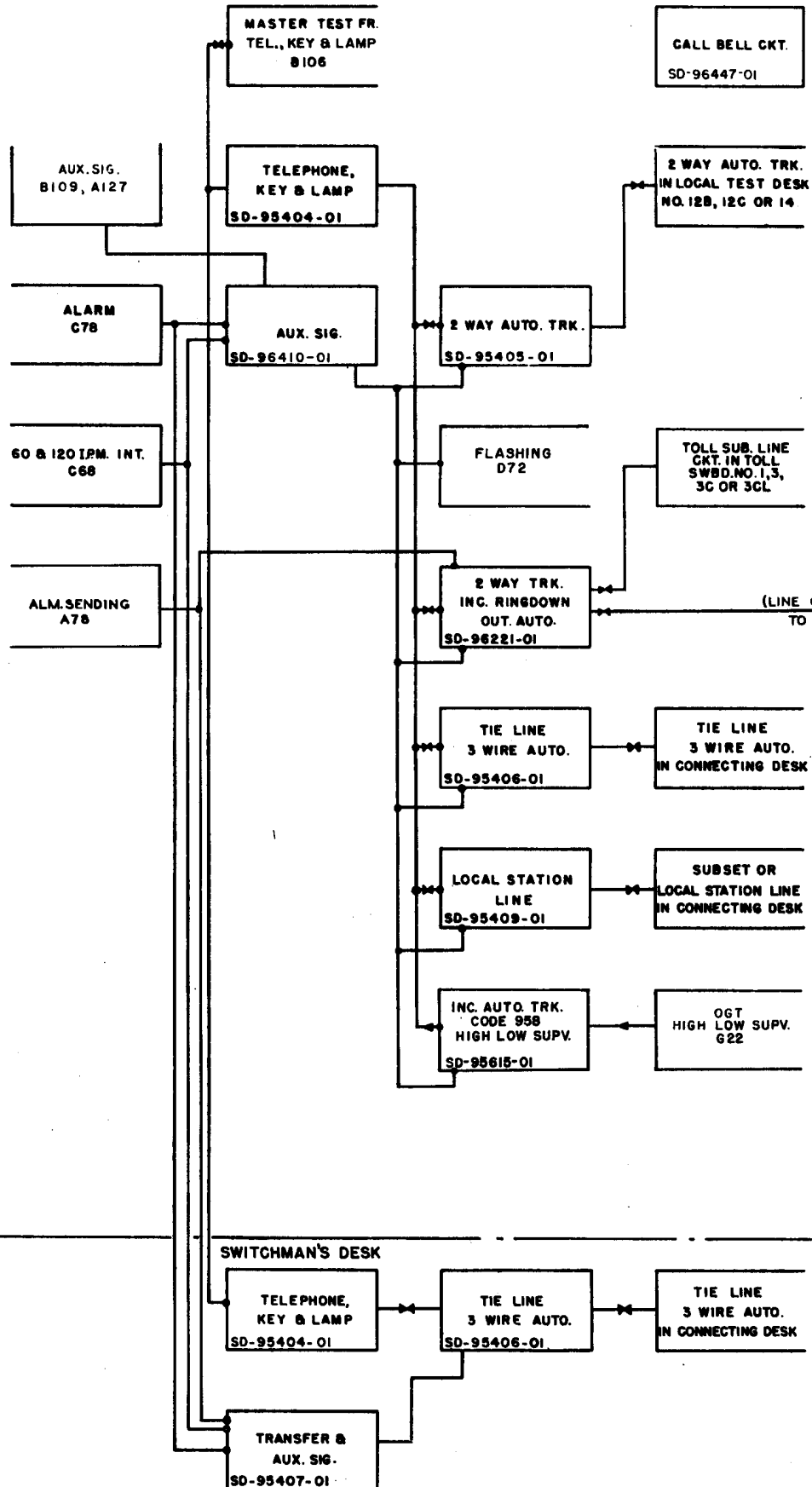
MISCELLANEOUS CIRCUITS

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CHIEF SWITCHMAN'S DESK

A
B
C
D
E
F
G
H
I
J
K



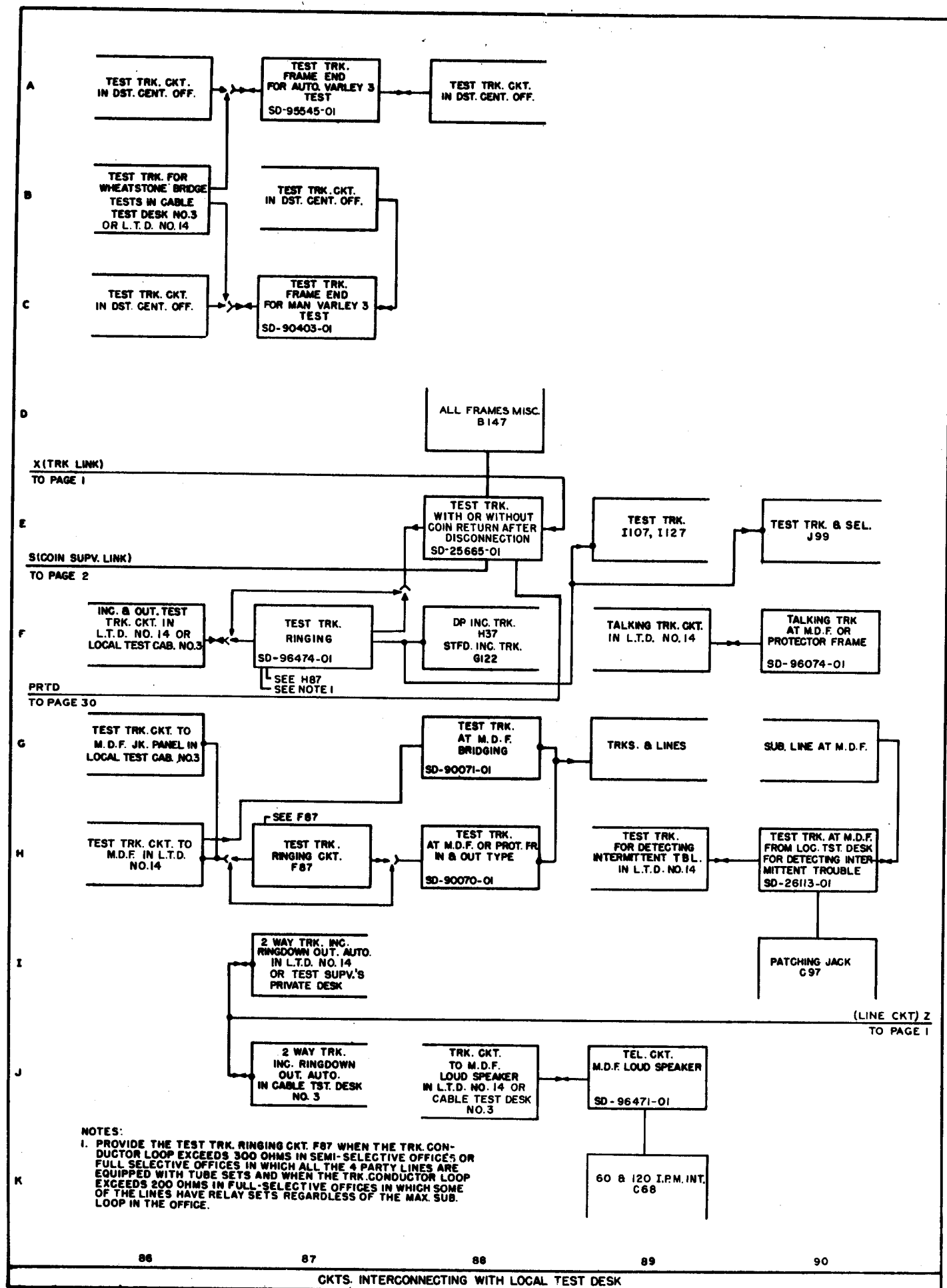
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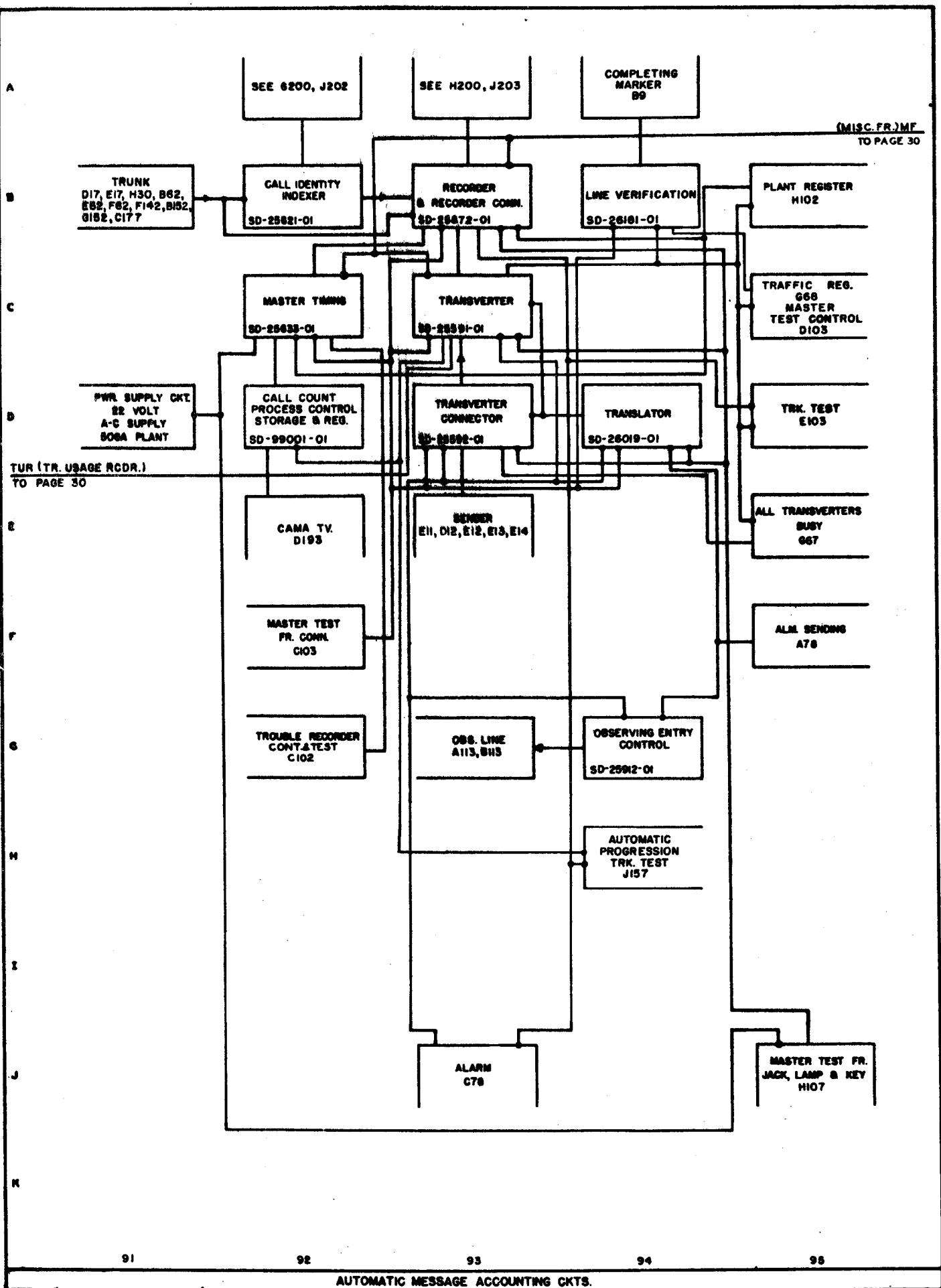
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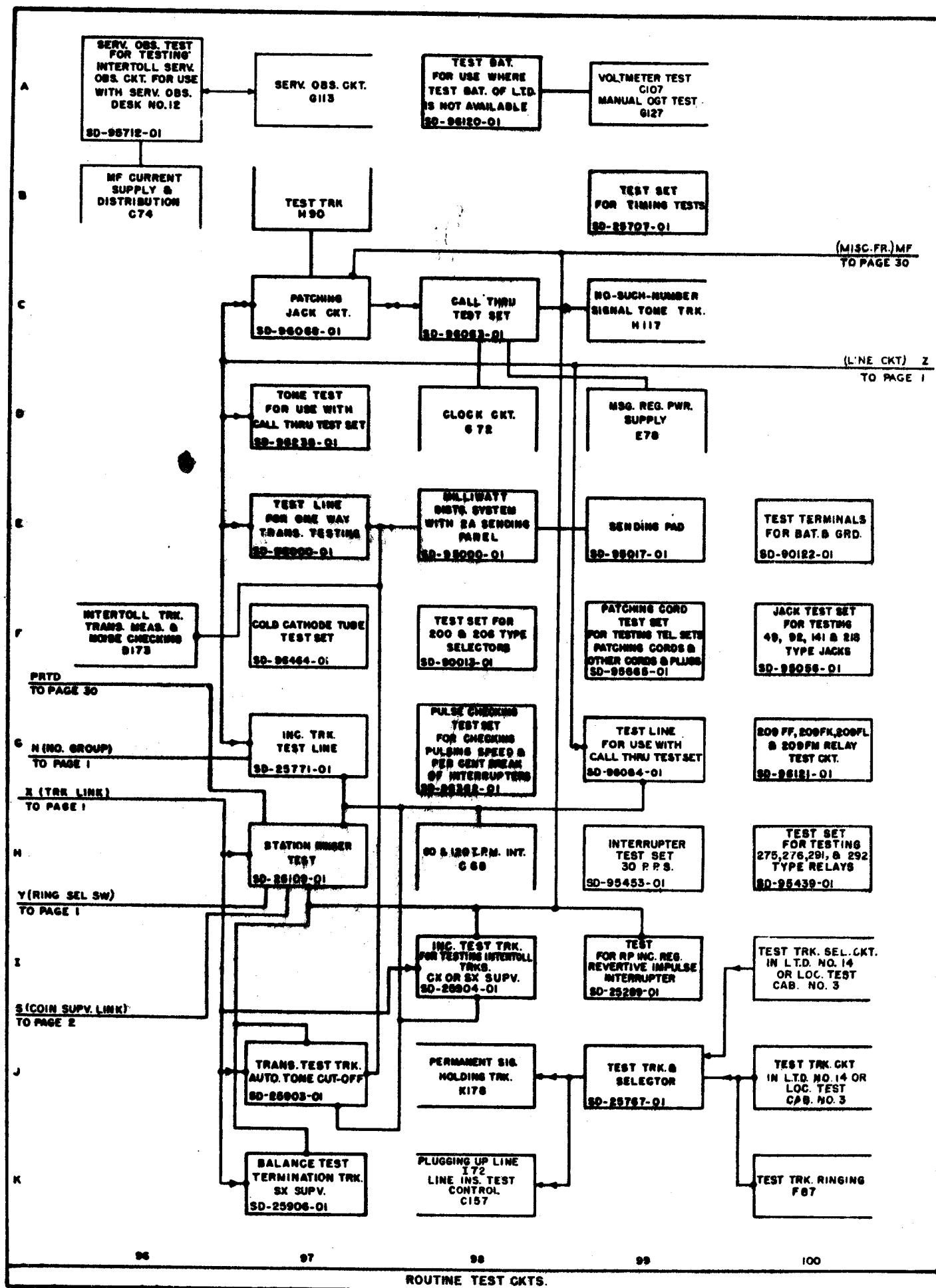
83

84

85







A
B
C
D
E
F
G
H
I
J
K

BILLING INDEXER
C194

(MISC.FR.) MF
TO PAGE 30

LINE VERIFICATION
B94

TRANSLATOR
D94

RCDR. & RCDR. CONN.
B93

SEE G4, C6, C11,
D157, G123

TROUBLE RECORDER
CONTROL & TEST
SD-25572-01

MASTER TEST FR.
CONNECTOR
SD-25805-01

TRANSVERTER
C93, D193

SEE D186, E195,
E197

MASTER
TEST CONTROL
SD-25800-01

TRANSVERTER
C93, D193
MARKER
B7, B9
CAMA - SDR.
F193

TRANSVERTER CONN.
D93, E193

X (TRK.LINK)
TO PAGE 1

IN TOLL TEST BD.
NO. 17B OR 18B;
TEST JACK CKT.

REG. TEST SET
G158

TRUNK TEST
SD-25918-01

JACK, LAMP & KEY
H107

SEE J5, F11, C95,
H159, D186, J197

(LINE CKT.) Z
TO PAGE 1

MSG. REG. PWR.
SUPPLY
E78

TIMING CKT.
C72

VOLTMETER TEST
C107

MASTER TIMING
C92

TEL. KEY & LAMP
B106

TEST TRK.
I107

LINE INS. TEST
CONTROL
C157

SEE D7, G15, B95,
F192

PLANT REGISTER
SD-25793-01

AUTOMATIC MONITOR
REGISTER &
SENDER TEST
SD-25680-01

SEE F5, D8, F15,
A74, F125, H156,
I205

NO TEST CONN.
A3

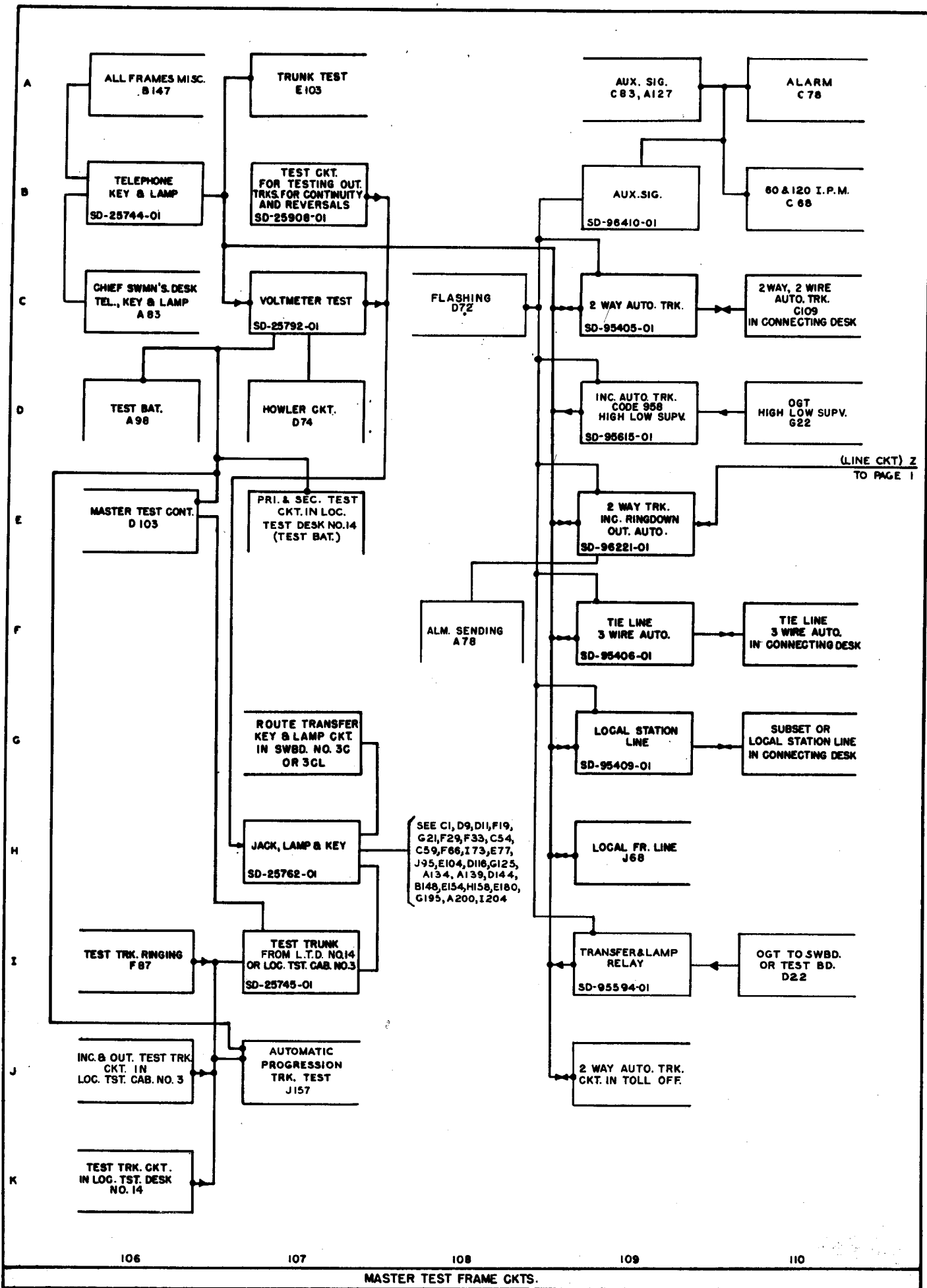
TRAFFIC REG.
G68

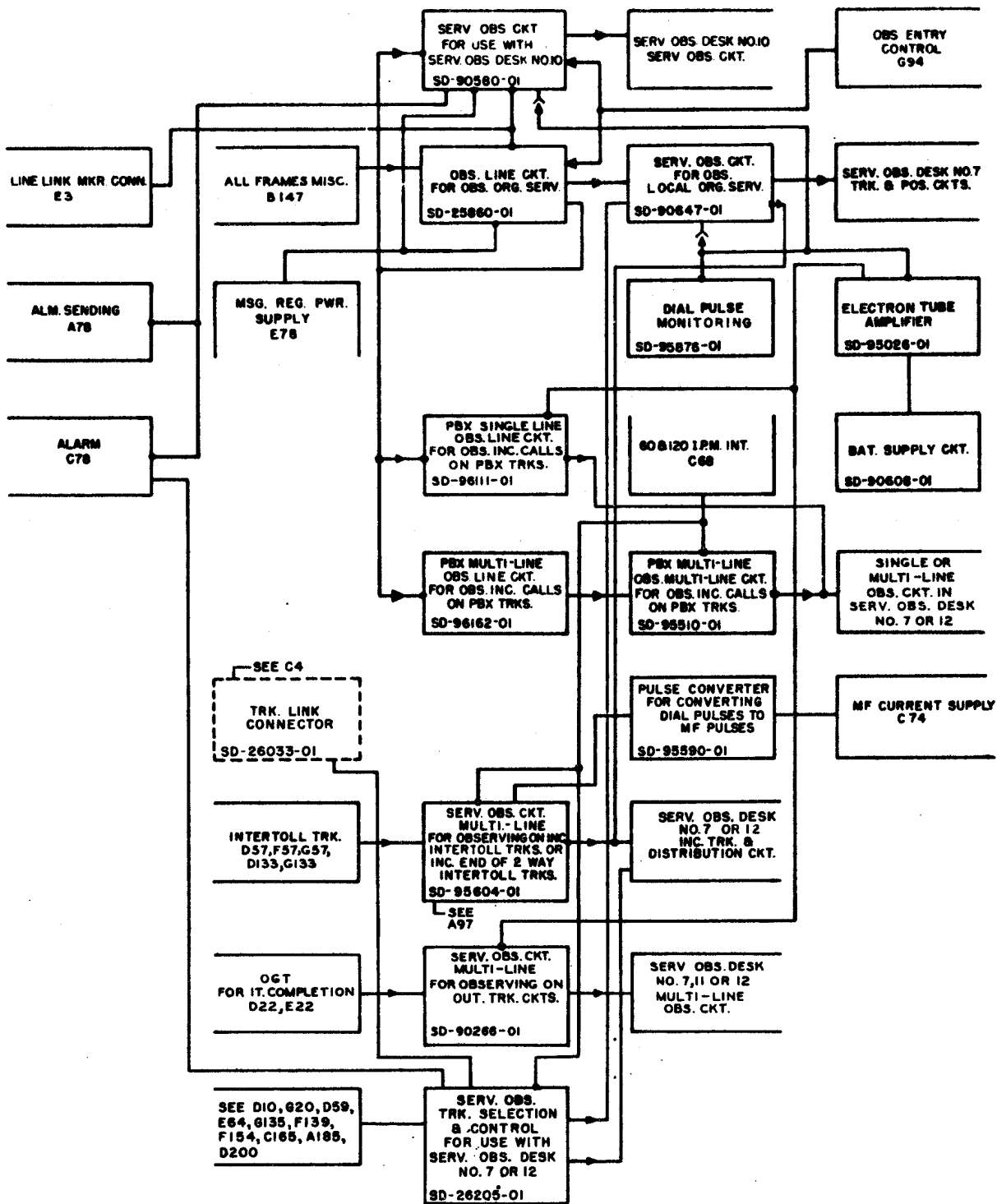
ALM. SENDING
A78

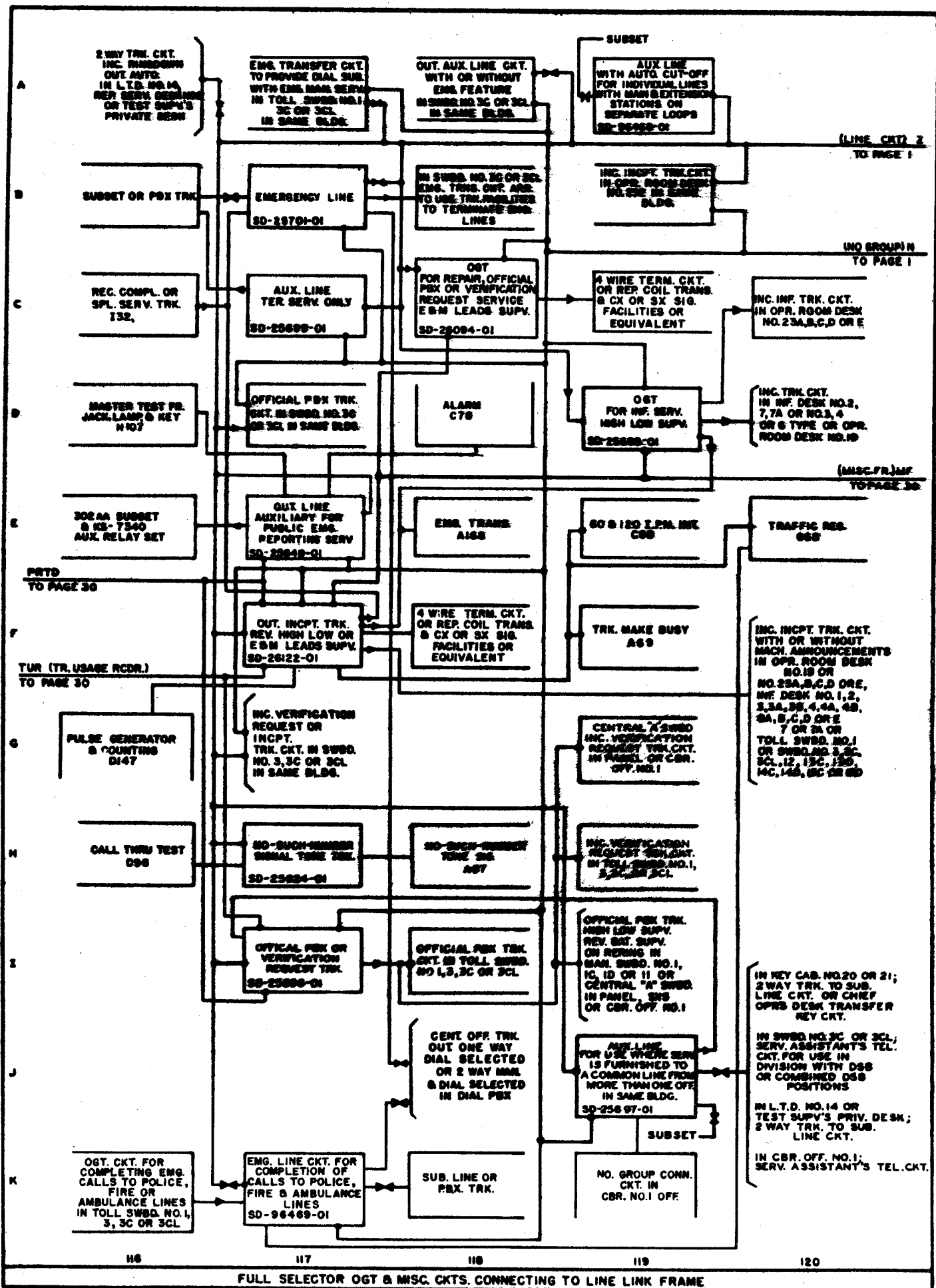
ALARM
C78

101 102 103 104 105

MASTER TEST FRAME CKTS.







FULL SELECTOR OGT & MSC. CKTS. CONNECTING TO LINE LINK FRAME

TUR (TR. USAGE RCDR)
TO PAGE 30

A

B

Y (RING SEL. SW)
TO PAGE 1

C

D

X (TRK. LINK)
TO PAGE 1

E

R (INC. REG. MKR. CONN.)
TO PAGE 1

F

G

H

I

J

K

OGT IN MAN.
LOC. OFF

OGT CKT. IN
MAN LOC. OFF

TRAFFIC REG.
G68

AUX. INC. TRK.
ARR. TO CONVERT
REV. BAT. SUPV. TO
HIGH LOW SUPV.
SD-25025-01

SEE B37
INC. TRUNK
REVERSE BAT. SUPV.
SD-26070-01
SEE NOTE 1

OGT
IN MAN. TDM. OFF.

60 & 120 I.P.M. INT.
G68

SEE A37
INC. TDM. TRK.
WITH OR WITHOUT
LOCAL COMPLETION
REV. BAT. SUPV.
SD-26071-01

SEE H4
INC.
REGISTER LINK
SD-26048-01

RP REGISTER
TER. OFF PART
FOR USE WITH
CENT. "B" SWBD.
SD-25794-01

STFD. OGT CKT. IN
SWBD. NO. 3C OR 3CL;
TOLL SW. TRK. CKT.
INTOLL SWBD.
NO. 1 OR 3 OR
CENT. "A" SWBD.
OGT CKT. IN
CBR. NO. 1 OFF

SEE G37
INC. TRK.
NO TEST
REV. BAT. OR
E&M LEADS SUPV.
SX RING. START SIG.
SD-26073-01

NO TEST CONNECTOR
A3

TEST TRK. RINGING
F87

INC. TRK.
FROM L.T.D. NO. 14
OR LOC. TST. CAB. NO. 3
WITH OR WITHOUT
NO TEST
SD-25708-03

MASTER TEST FR.
CONN.
G103

STFD. OGT CKT.
REV. BAT. SUPV.
SX RING. START SIG.
IN CBR. NO. 1, PANEL
OR SXS DSA SWBD.

SEE D47
INC. TRK.
REV. BAT. SUPV.
OR E & M LEADS
SUPV. CONTROLLED
RING.
SD-26074-01

INC. & OUT. TEST
TRK. CKT. IN
LOC. TST. CAB. NO. 3

SEE B47
INC. TRK.
REV. BAT. OR
E&M LEADS SUPV.
SX OR SINGLE FREQ.
RING. START SIG.
COIN CONT. OVER
SEPARATE SINGLE
TRK. CONDUCTOR OR
SINGLE OR
2 FREQUENCIES
SD-26083-01

TRAFFIC REG.
G68
PWR. RING &
TONE DISTG.
I147

TEST TRK. CKT. IN
LOC. TST. DESK
NO. 14

4 WIRE TERM. CKT.
OR REP. COIL TRANS.
& CX OR SX SIG.
FACILITIES OR
EQUIVALENT

INC. REG. TEST
G157

CENT. "B" SWBD.
SDR. CKT.
SWBD. PART
IN CBR. NO. 1
OR PAN. OFF.
OR SWBD. NO. 3C
OR 3CL

AUTOMATIC MONITOR,
REGISTER &
SENDER TEST
H103

MASTER TEST FR.
JACK, LAMP & KEY
H107

CENTRAL "A" SWBD.
COIN CONTROL CKT.
IN PAN. OR CBR.
NO. 1 OFF.

TOLL SWBD. NO. 1
TRK. JACK CKT.
(COIN CONT. JK.)

TRK. COIN CONT. CKT.
POSITION METHOD
OF COIN CONT.
IN TOLL SWBD.
NO. 1 OR 3

ELECTRON TUBE
RECEIVER
H147

(LINE CKT.) Z
TO PAGE 1

NOTES:
1. THE ALL TRUNKS BUSY REGISTER SHALL BE OMITTED
FROM B122 AND CONNECTED TO B121 WHEN B121 IS PROVIDED.

121

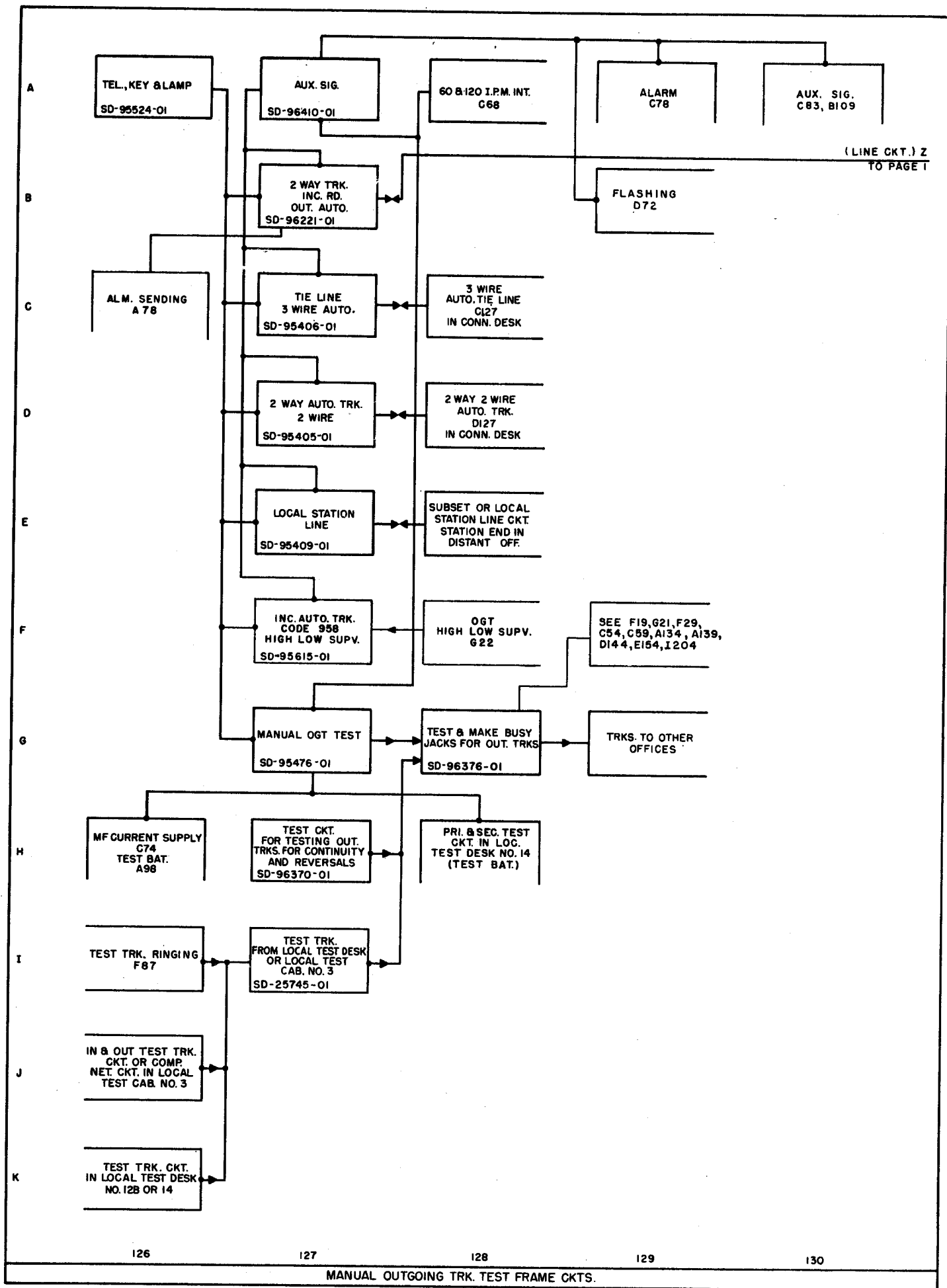
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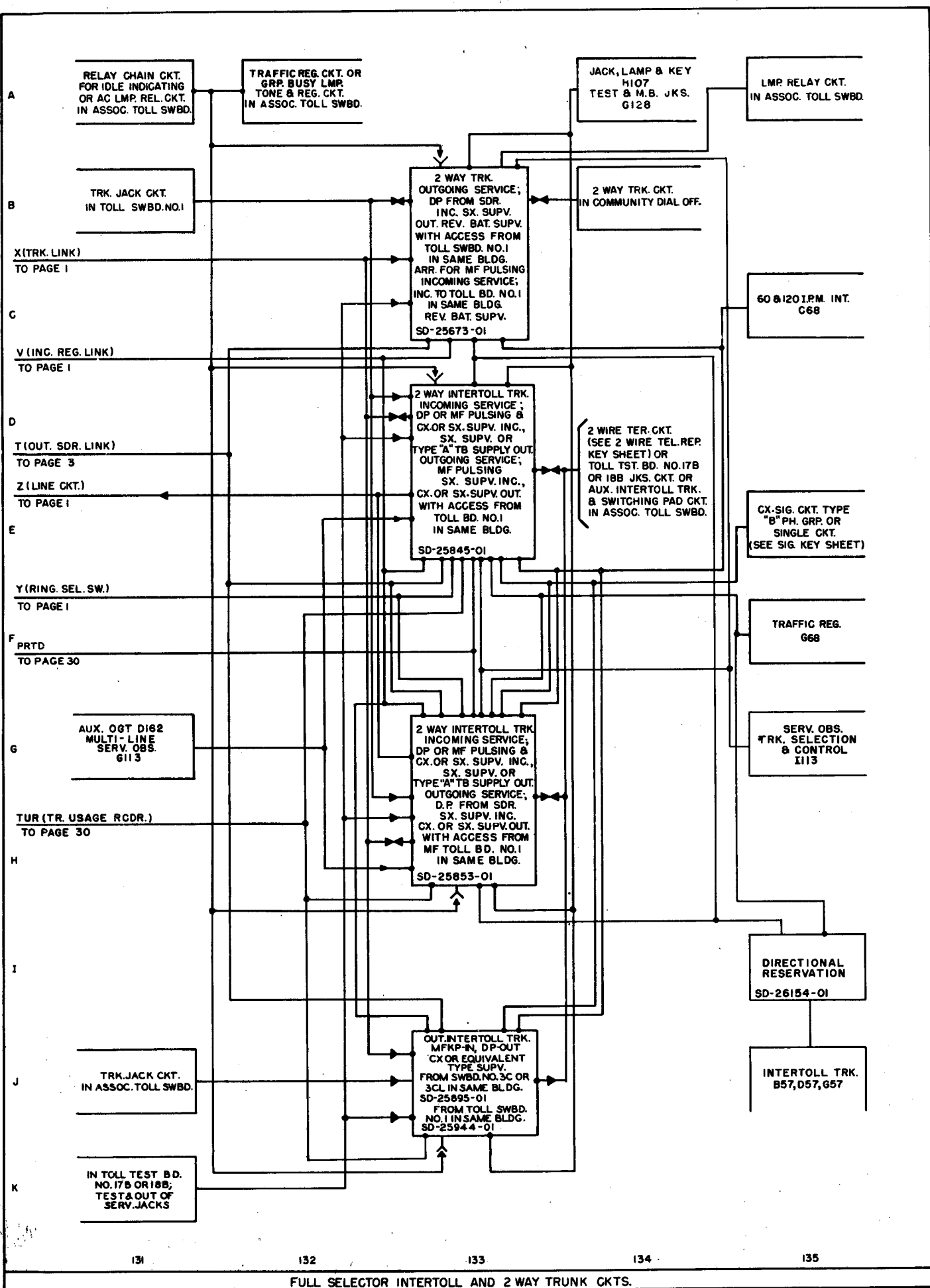
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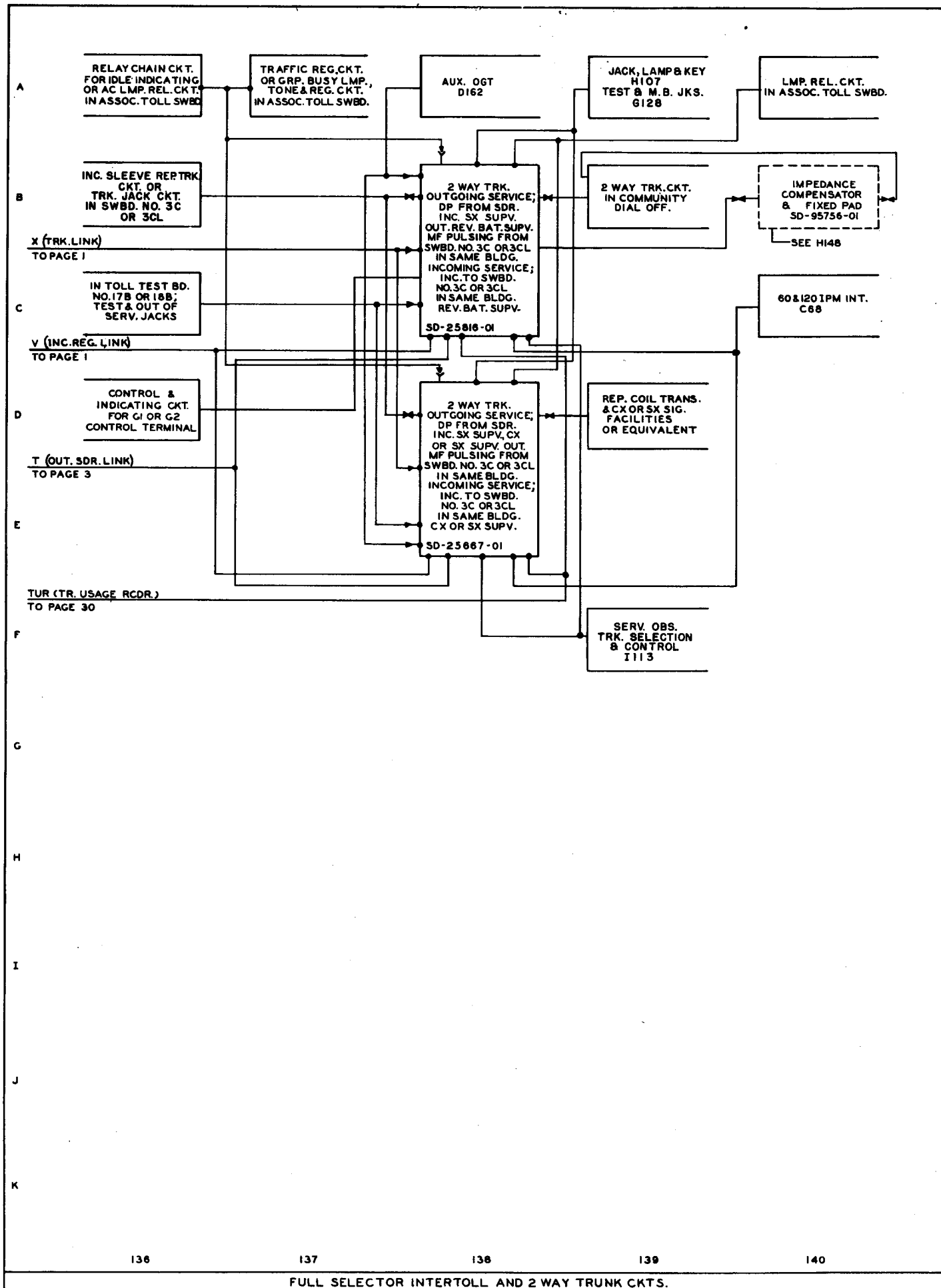
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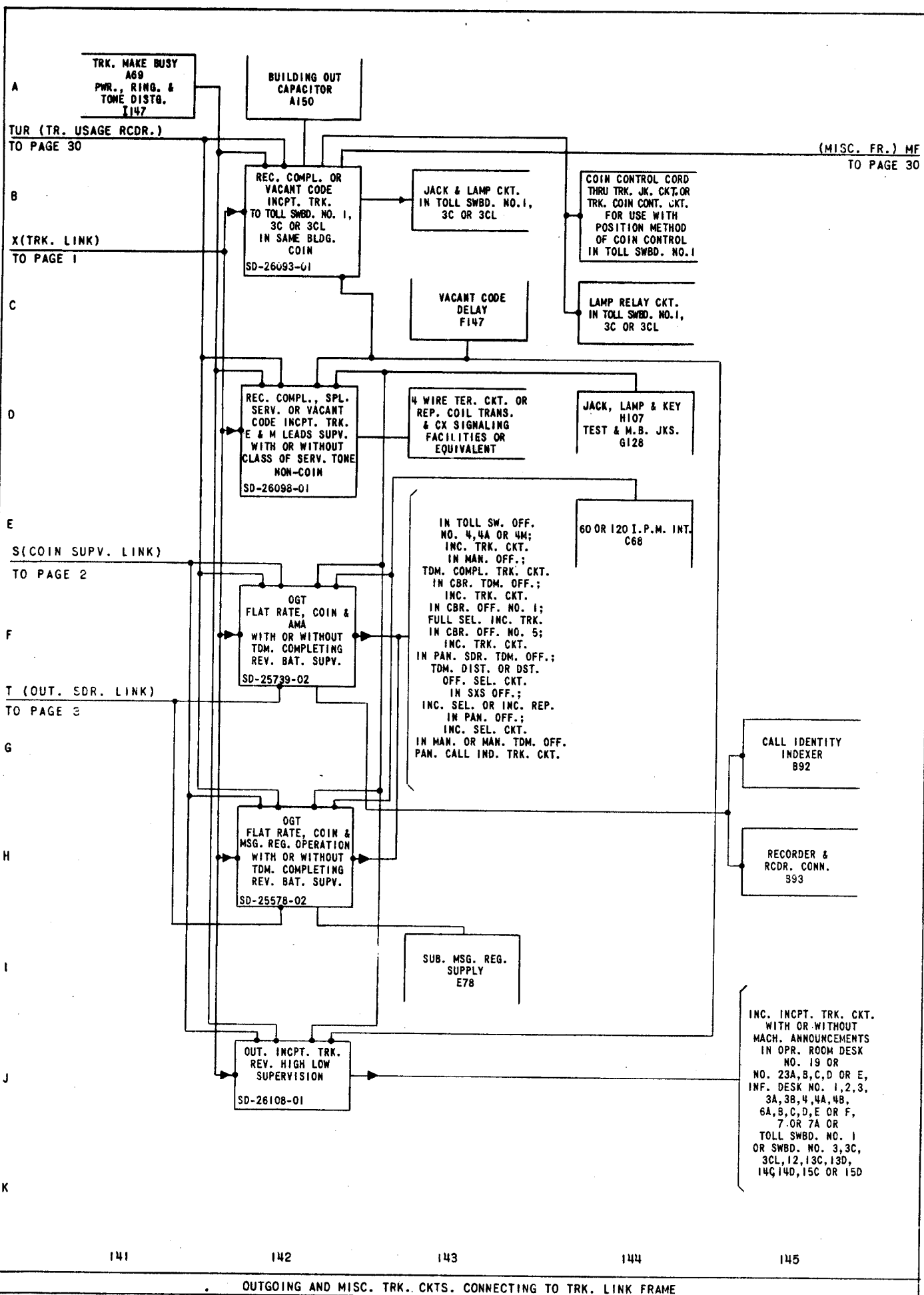
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STFD. OPERATION VIA CENTRAL "B" SWBD. CKTS.









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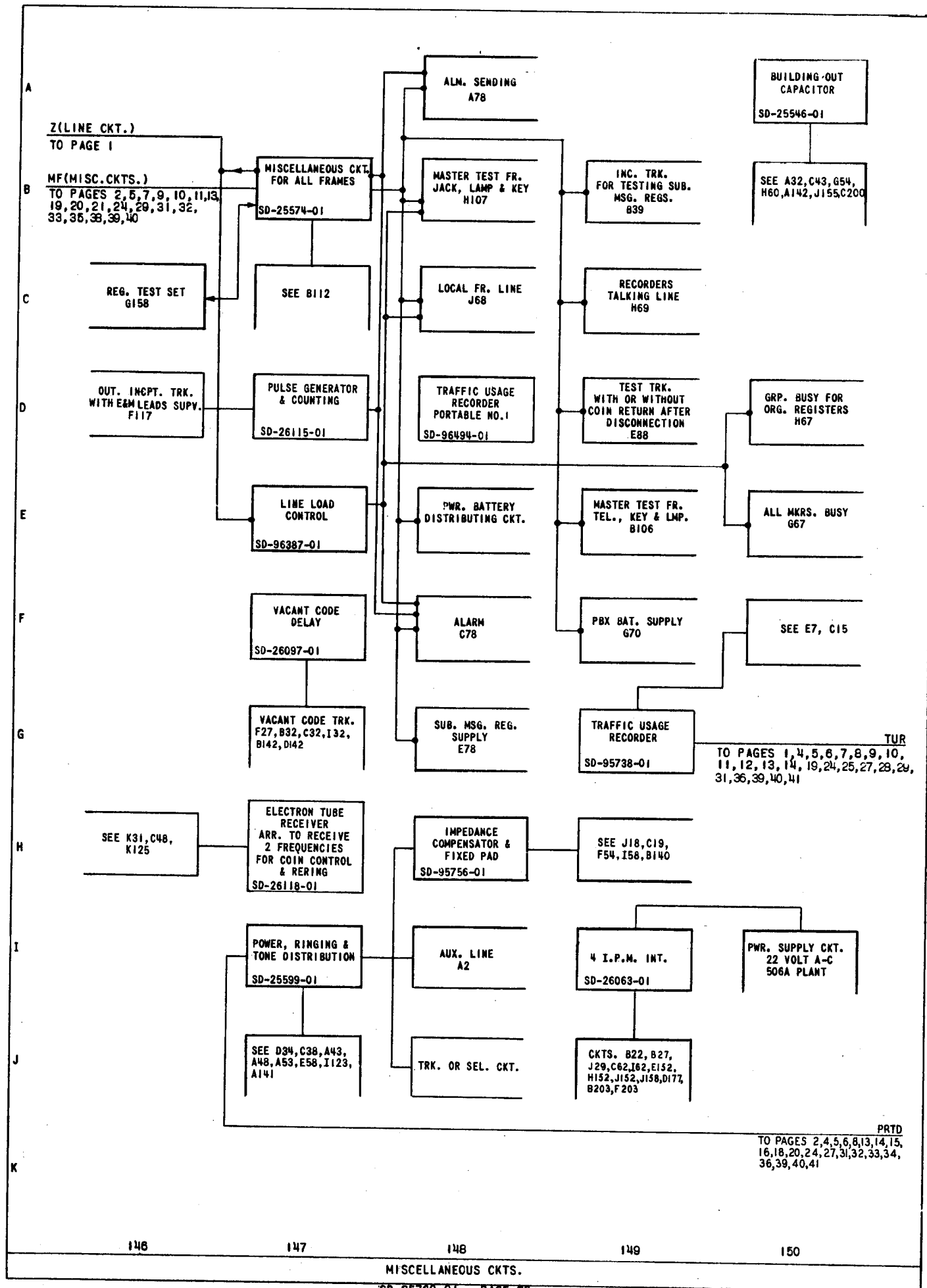
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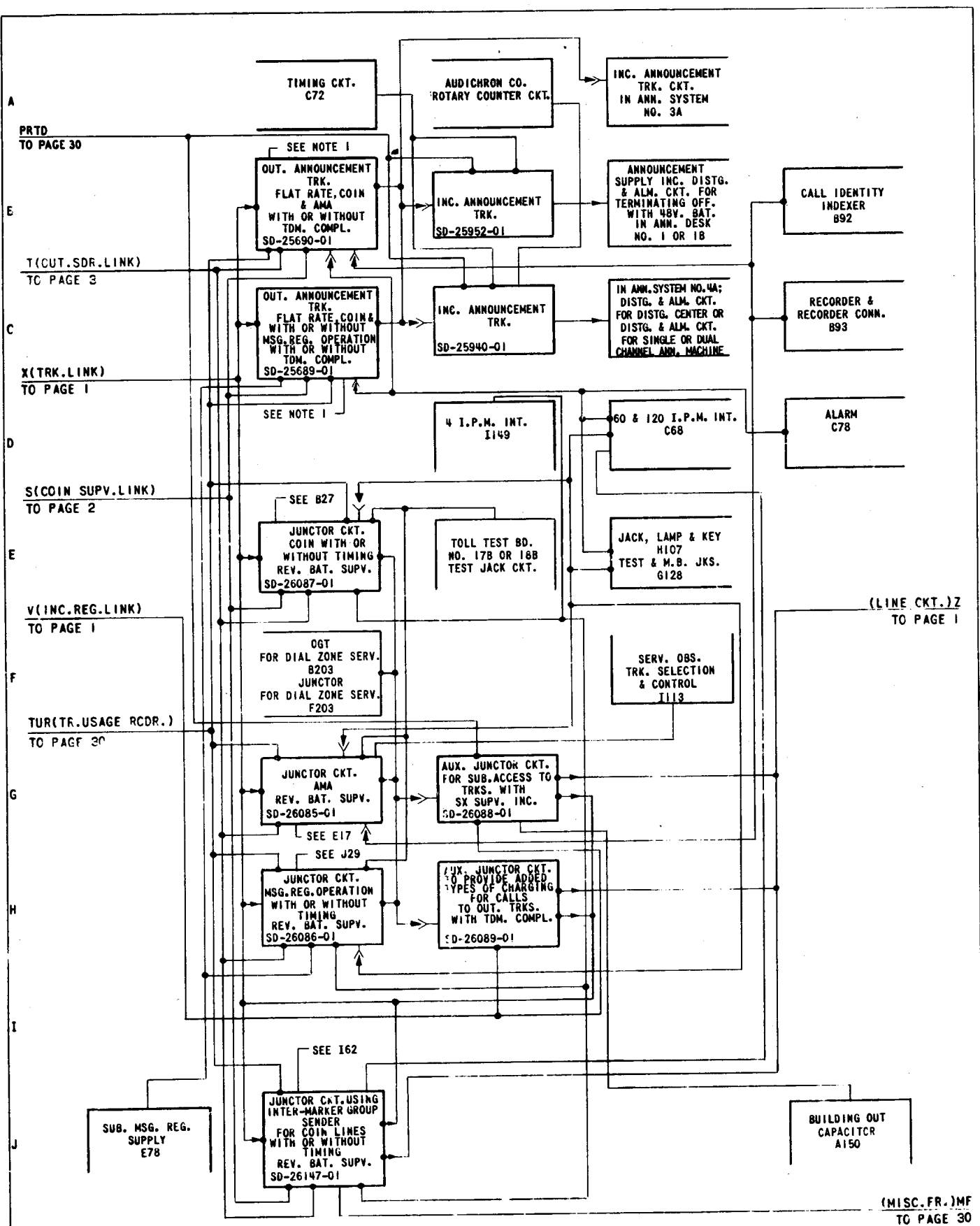
144

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OUTGOING AND MISC. TRK. CKTS. CONNECTING TO TRK. LINK FRAME

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NOTES:

1. SD-25690-01 (BLOCK B152) & SD-25689-01 (BLOCK C152) CONNECT TO SD-25952-01 (BLOCK B153) OR SD-25940-01 (BLOCK C153) IN SAME OR DISTANT CROSSBAR NO. 5 OFFICE.

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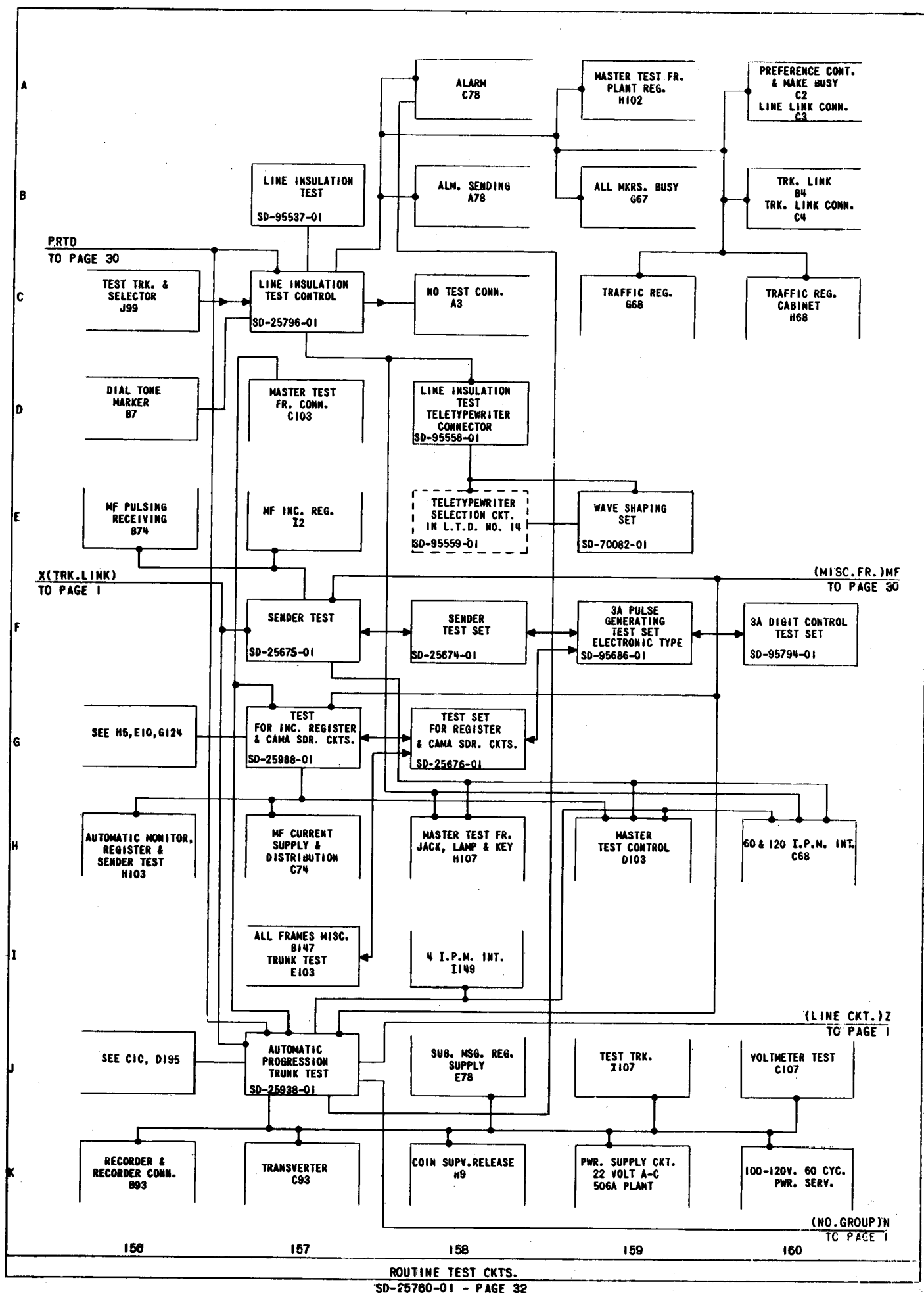
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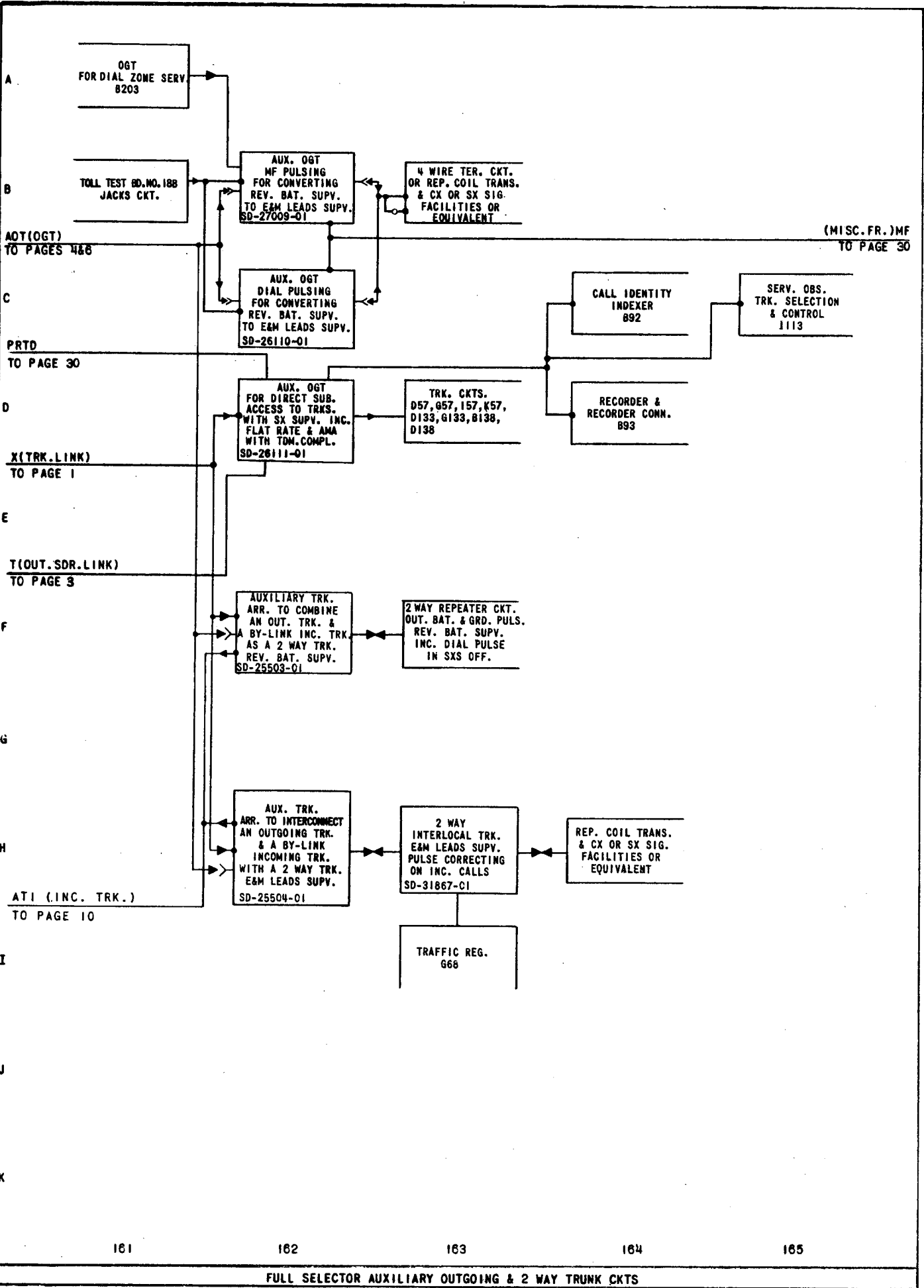
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OUTGOING & MISC. TRK. CKTS. CONNECTING TO TRK. LINK FRAME





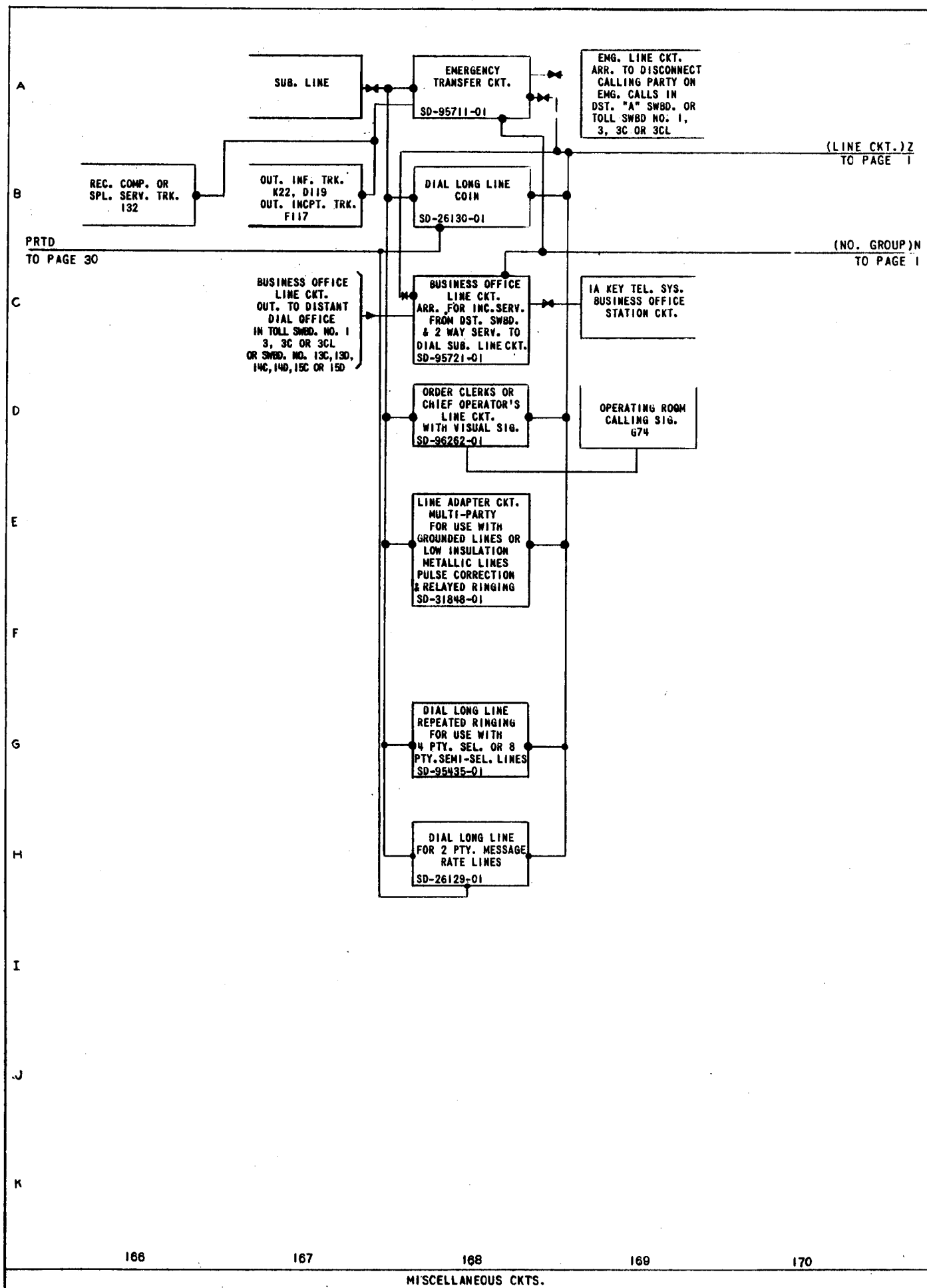
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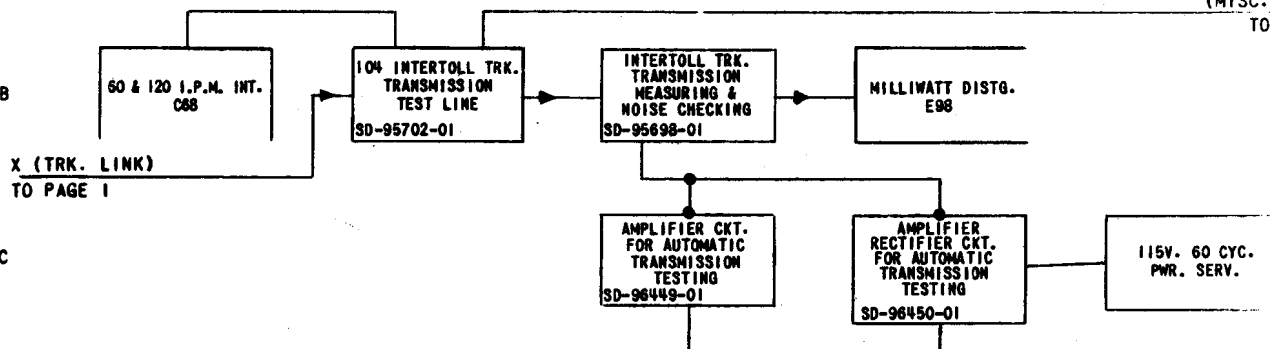
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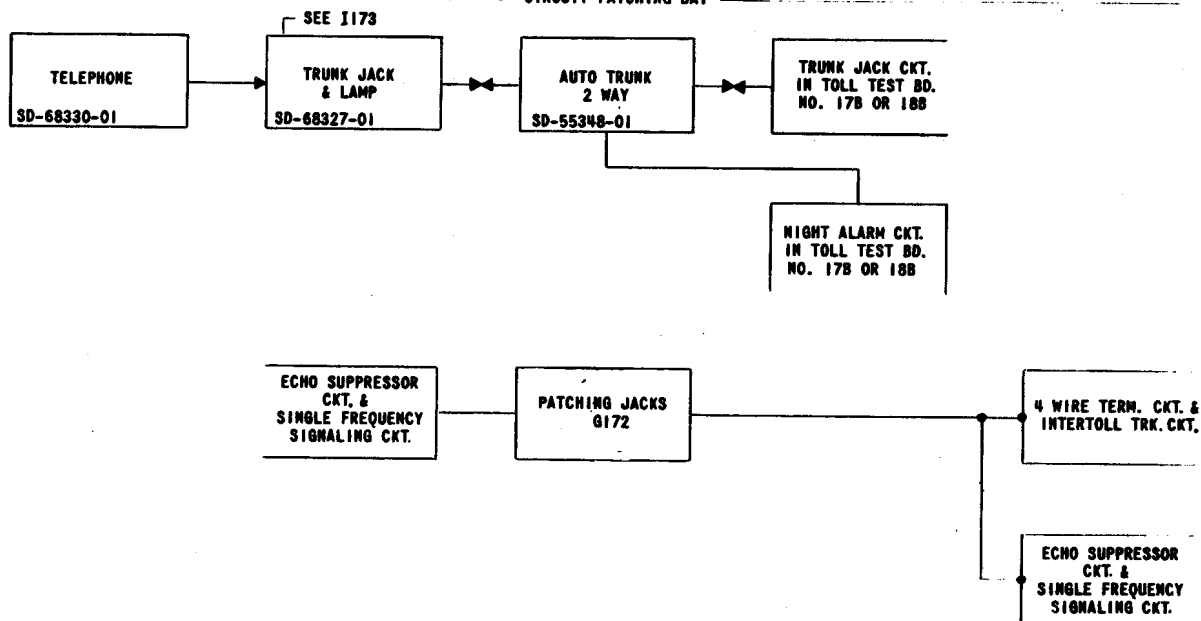


ROUTINE TEST

(MISC. FR.) MF
TO PAGE 30



CIRCUIT PATCHING BAY



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172

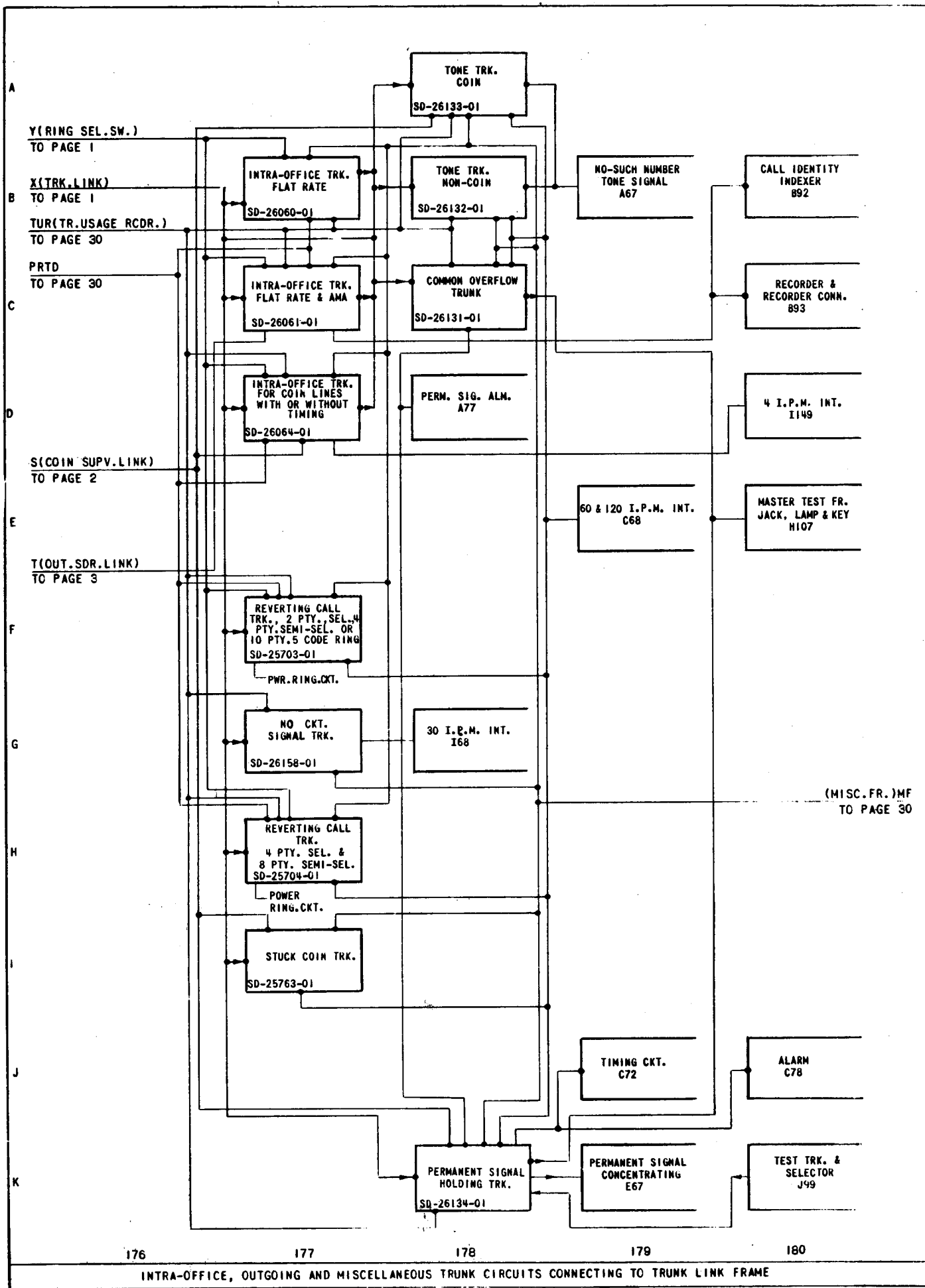
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175

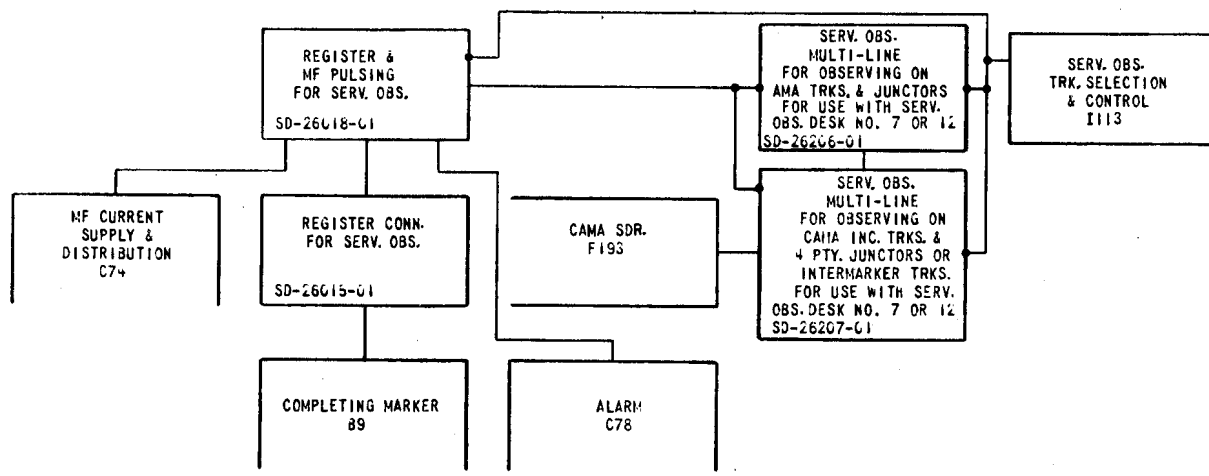
ROUTINE TEST CKTS. & CKT. PATCHING BAY

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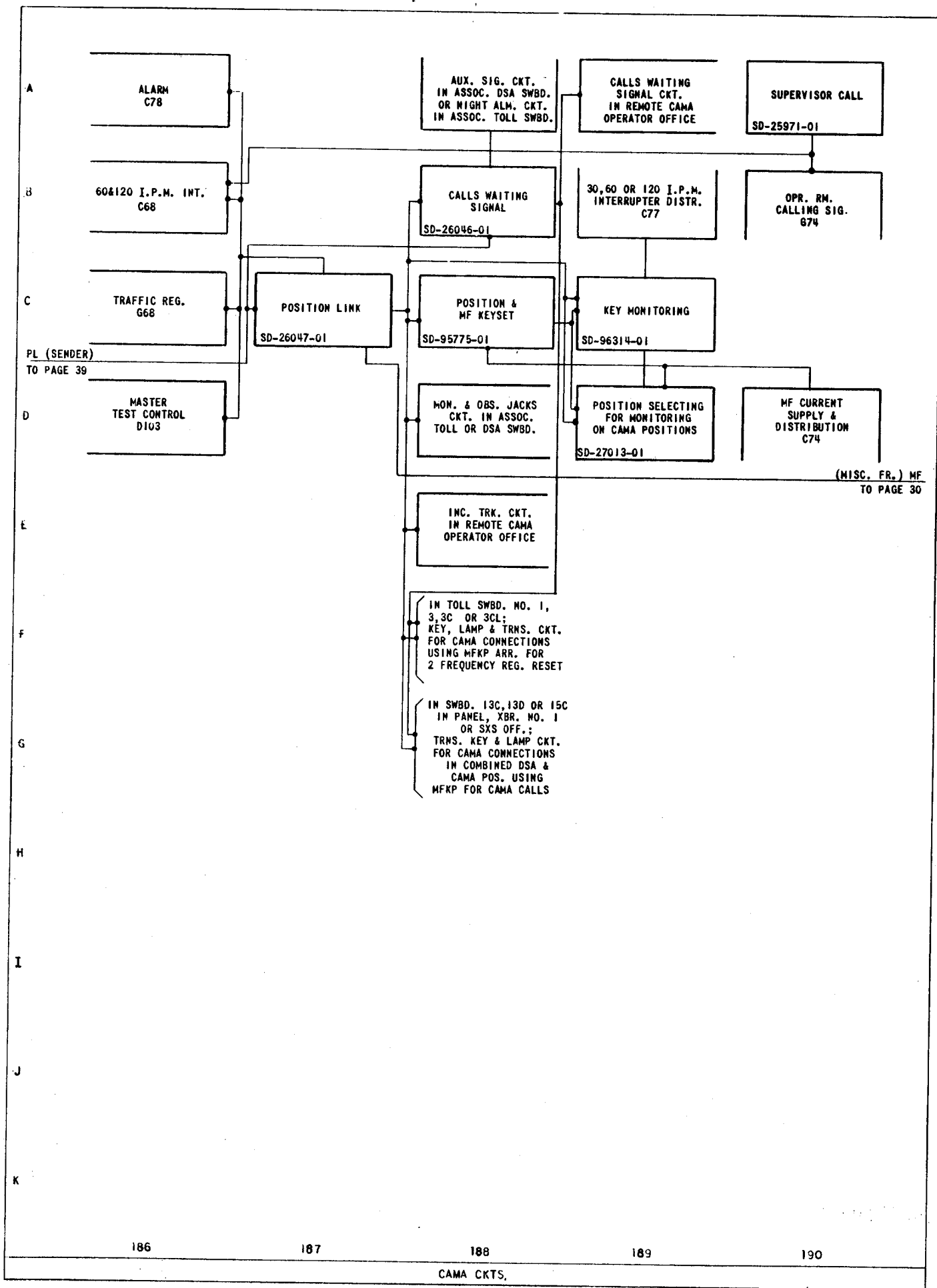


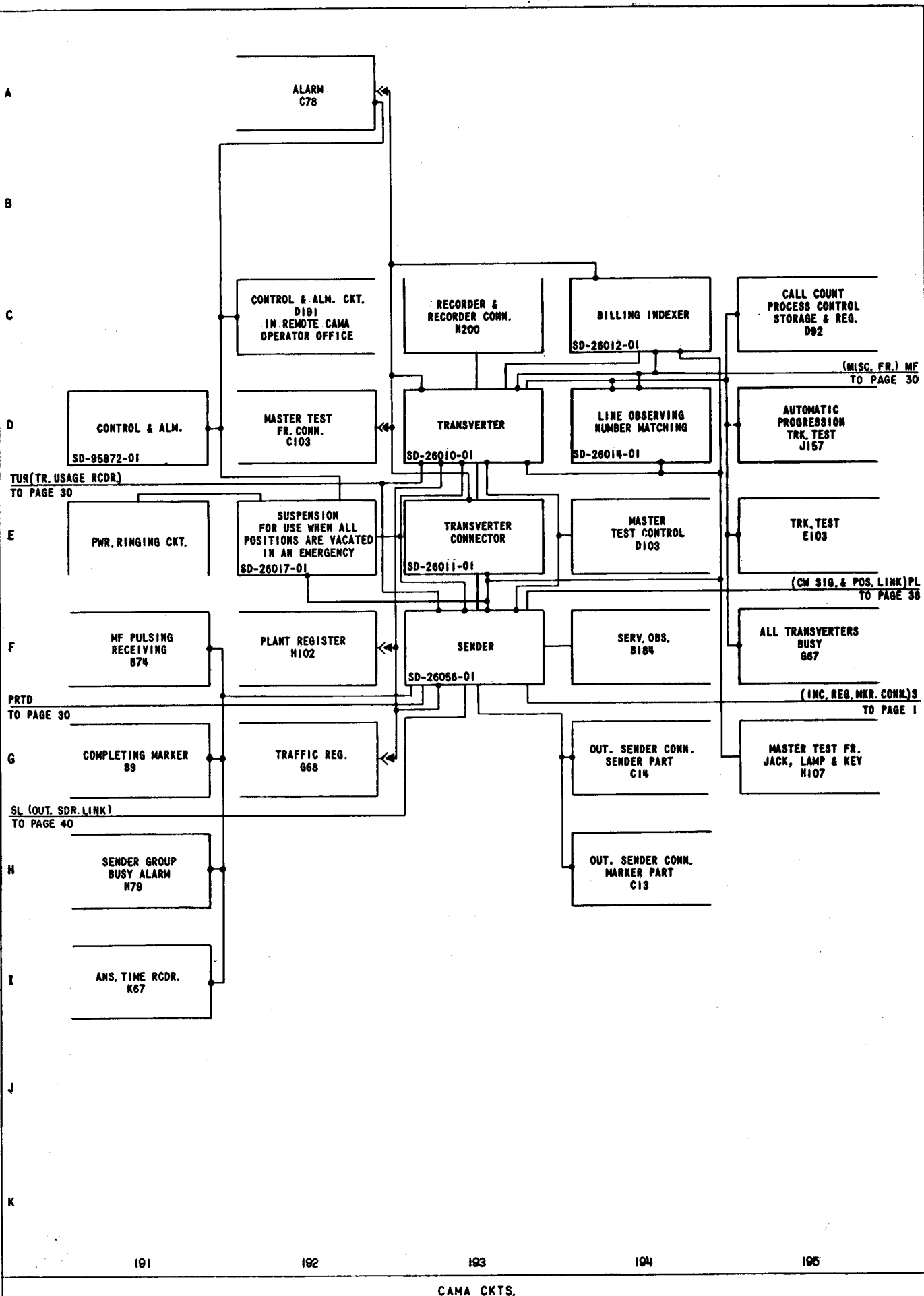
INTRA-OFFICE, OUTGOING AND MISCELLANEOUS TRUNK CIRCUITS CONNECTING TO TRUNK LINK FRAME

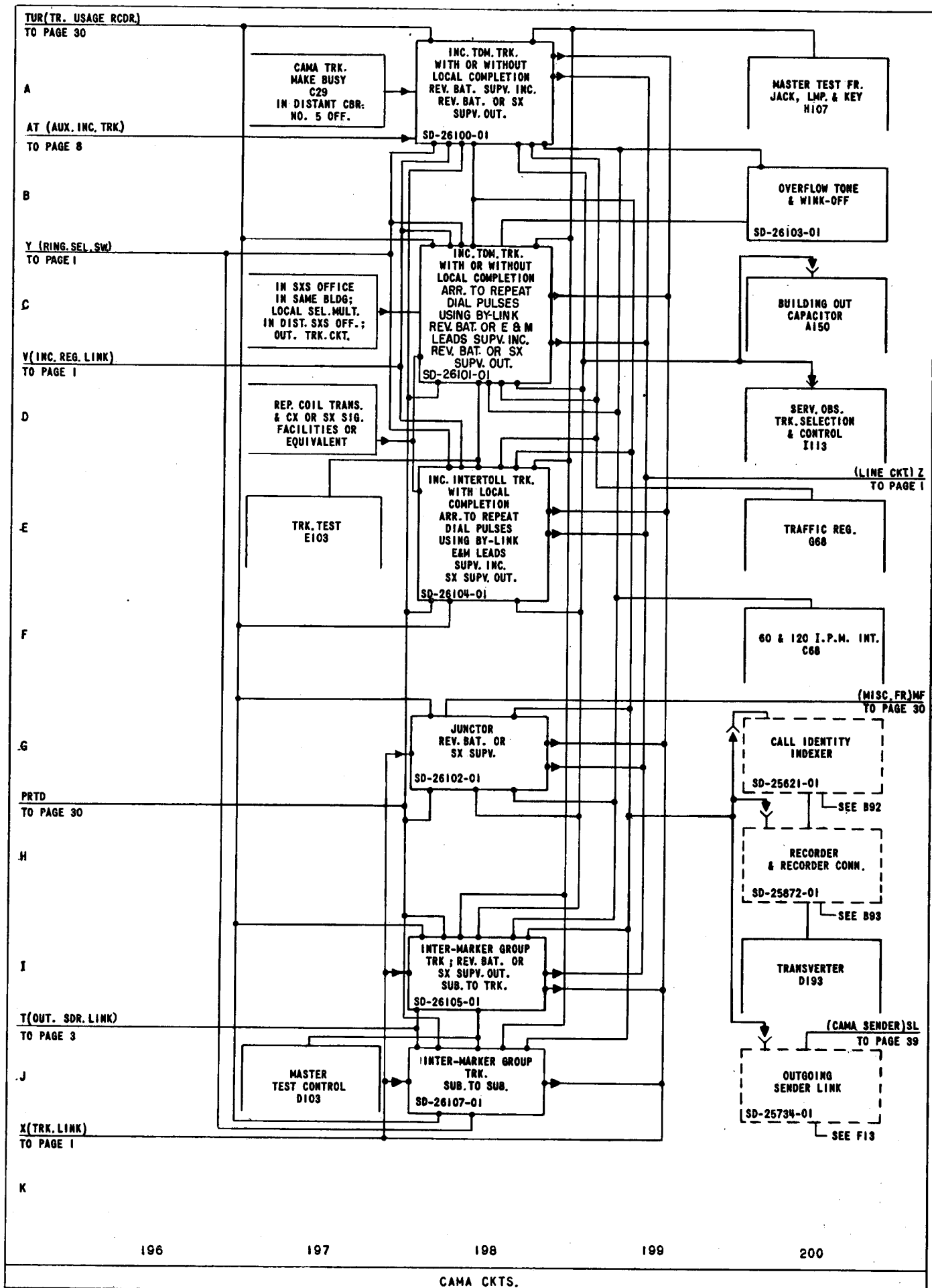
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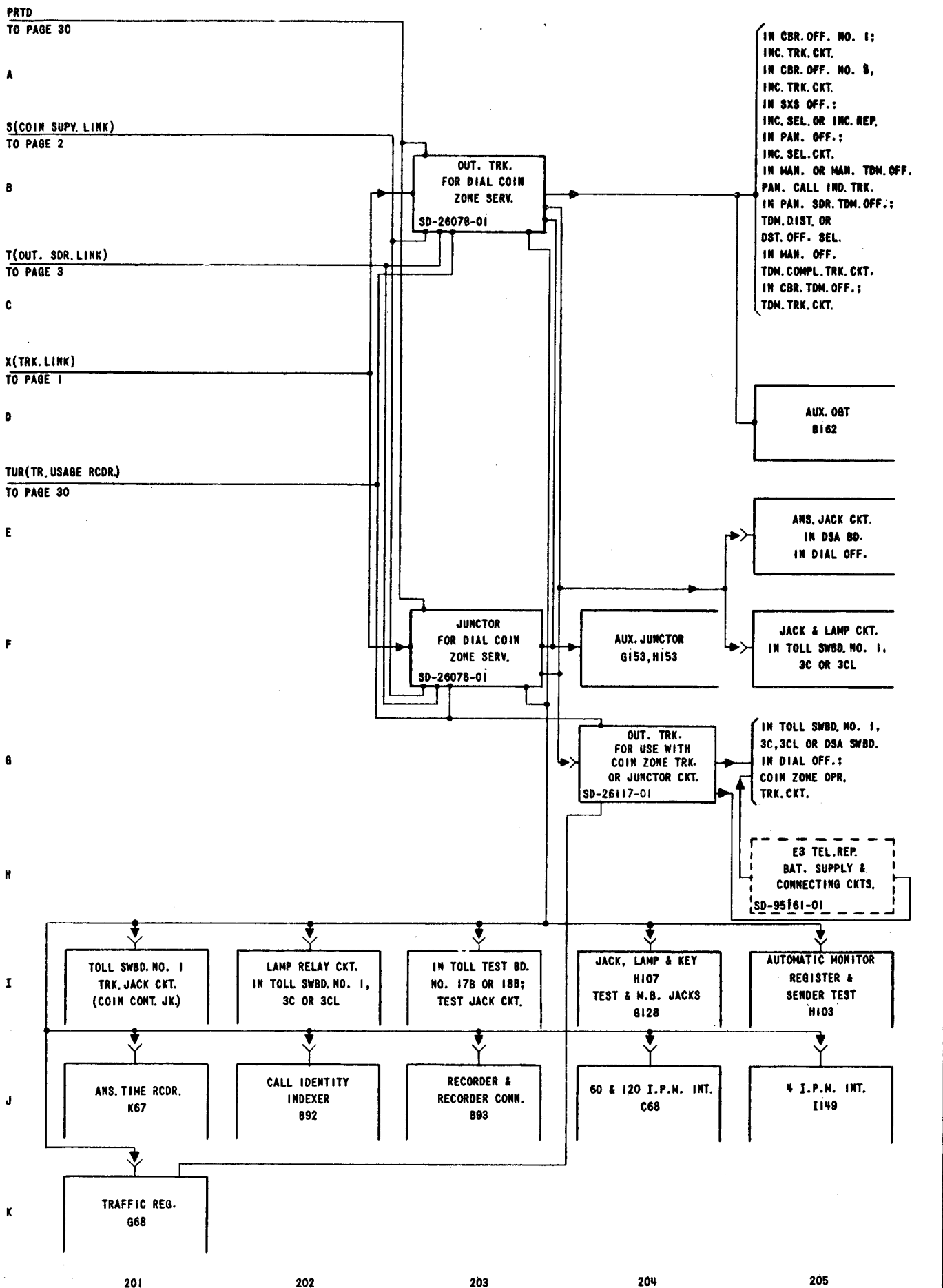


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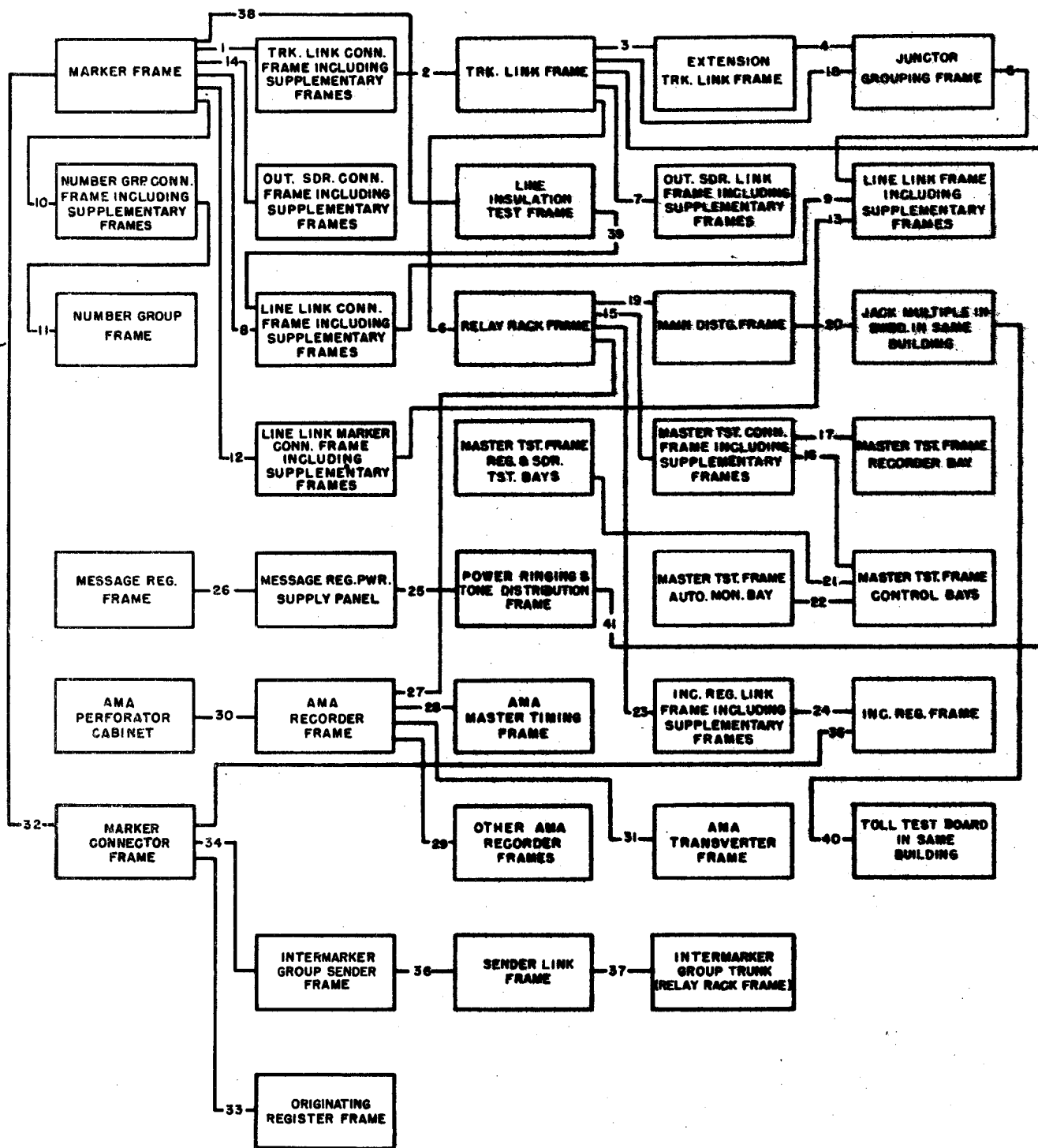


DIAL COIN ZONE CKTS.

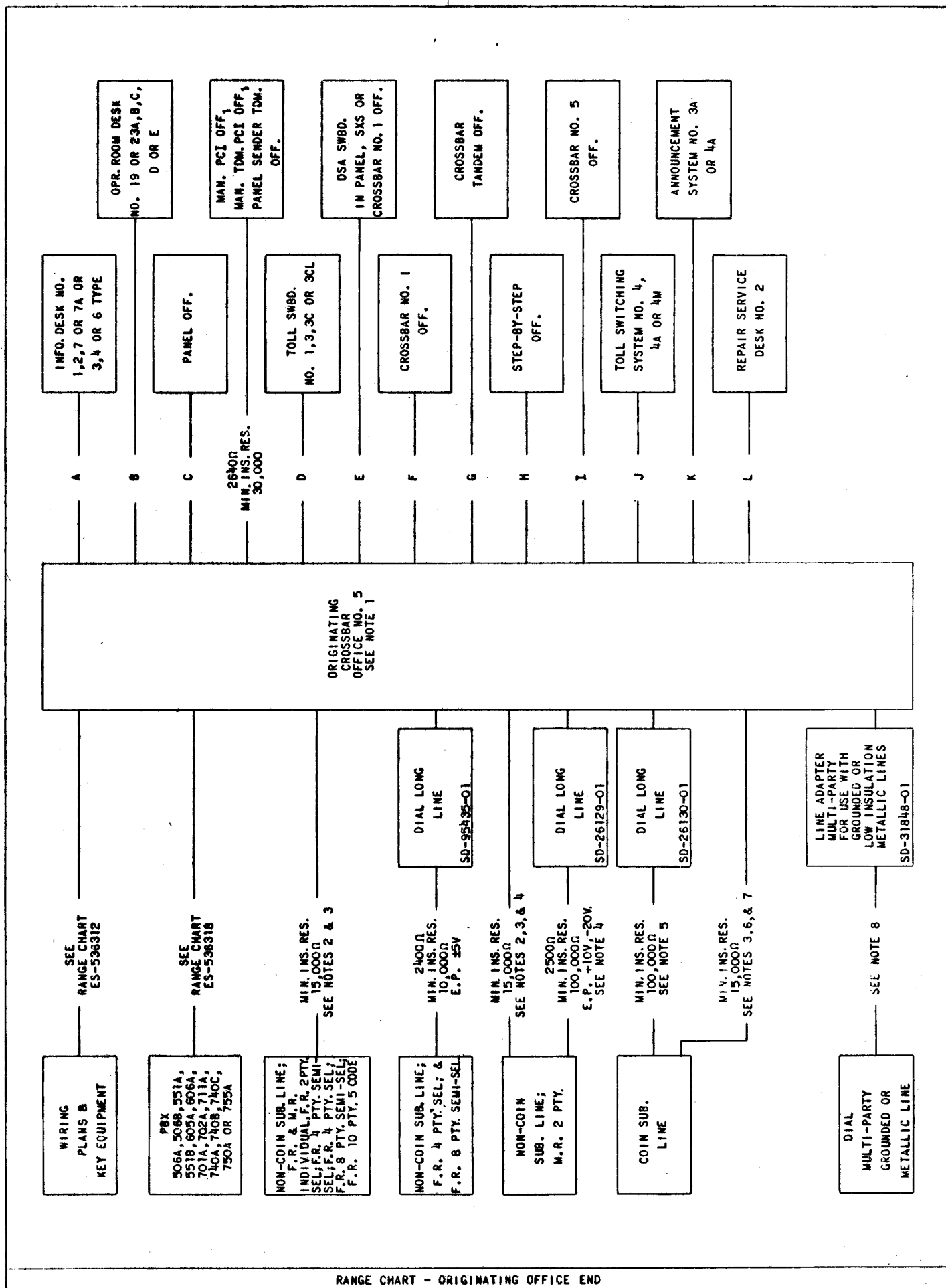
1. THE FOLLOWING TABLE COVERS THE DESIGNATIONS OF CRITICAL LEADS AND THEIR MAXIMUM ALLOWABLE RESISTANCE LIMITS BETWEEN VARIOUS FRAMES, RELAY RACKS AND CABINETS TO INSURE SATISFACTORY OPERATION OF THE ASSOCIATED CIRCUITS MOUNTED THEREON. THE LEADS ARE NUMBERED ON THE CHART FOR USE AS A REFERENCE FOR THE LEAD DESIGNATIONS IN THE TABLE. THE RESISTANCE LIMITS INCLUDE THE SWITCHBOARD CABLE STRIPPERS AND THE MULTIPLE OF THE LEADS ON THE SUPPLEMENTARY FRAMES.

LEAD NO.	LEAD DESIGNATIONS	RESISTANCE (OHMS)	SEE NOTE
1 + 2 + 3 + 4 + 5	T & R	31.46	1 (A)
1 + 2 + 3	J0-9, LH0-9, & BST	20	
1 + 2 + 6	RS0-9	25	
1 + 2 + 7	SS0-9	25	
8 + 9 OR 38 + 39 + 9	LH0-4	10	
	LB	15	
	LL0-9	15.35	
	VGB0-13, HGO-9, BS, CS0-29 & SMO-9	15	
10 + 11	WL, WG, WF, FTO-3, FU0-9, VG00-13, HGO-9, RCOI-15, & VFO-4	8	
12 + 13	VGA0-13	15	
14	XS & XSMA	15	
15 + 16	NTLH	10	
17	SO-8	1	
4 + 5	S	5.34	
3	S	6.66	
6	S	8	
18 + 5	S	12	
19 + 20 + 40	S	10	
21	ALL LEADS	8	
22	ALL LEADS	8	
23 + 24	D	10	
25	MRS TP & MRS RP	1	
26	MRS R & MRS T	1	
27	RC	10	
	DJ & CH	9	
28	RL & RNT	5	
29	BT	6	
28 + 30	PAM & PA	10	
30 + 31	PAM & PA	10	
28 + 30	FO-7, EO-7, DO-7, CO-7, BO-7 & AO-2	30	
30 + 31	FO-7, EO-7, DO-7, CO-7, BO-7, & AO-2	30	
32 + 35 OR 32 + 34 OR 32 + 33	XII, II, LT, TT, FVD, OA, OB, PHC, THC, RO, INC, TAN, TOL, PCR, PCD, PCDI, OR	20	
32 + 37	T, R, D	10	
41	MRS-RP, MRS-TP	5	

(A) THIS IS NOT A RESISTANCE LIMIT BUT A CAPACITY LIMIT. THE LIMIT IS 31.46 OHMS OF CABLE AND FOR 1,2,3,4,OR 5 NO INDIVIDUAL RUN MAY EXCEED 18.29 OHMS OF CABLE.



MAXIMUM ALLOWABLE RESISTANCE LIMITS OF CRITICAL LEADS



RANGE CHART - ORIGINATING OFFICE END

LOOP DESIG.	CKT. TITLE	SD- DWG. NO.	OHMS MAX. EXT. CKT. LOOP			OHMS MAX. CONDUCTOR LOOP			OHMS MIN. INS. RES.	SEE NOTE	NO. OF MILES OF CABLE NOT TO EXCEED	REMARKS				
			PLSG.	SUPV.	RING.	PLSG.	SUPV.	RING.			ANY LOADING					
A	OUT. INFO. TRK.	25698-01		3350				2995			30,000	14				
				3350				2550			30,000	42				
				3350				2200			30,000	43				
		25902-01		2550				2195			30,000	14				
				2550				2520			30,000	42				
				2550				2325			30,000	43				
		25925-01		NONE				1920			30,000	14				
				NONE				3030			30,000	42		INDUCTOR ONLY USED		
				NONE				4050			30,000	43				
	OUT. INCPT. TRK.	26122-01		3525				2910			30,000	44,45				
VACANT CODE INCPT. TRK.	26090-01		3615				3000			30,000	44,45					
	26091-01		3615				3000			30,000	44,45					
B	OUT. INFO. TRK.	25968-01		3350				2550			30,000	46,49				
				3350				3120			30,000	47,48				
		25902-01		2550				2520			30,000	46,49				
				2550				2320			30,000	47,48				
		25925-01		NONE				3030			30,000	46				
				NONE				4450			30,000	48		INDUCTOR ONLY USED		
				NONE				6450			30,000	49				
	VACANT CODE INCPT. TRK.	26090-01		3615				3000			30,000	10,11				
		26091-01		3615				3000			30,000	10,11				
OUT. INCPT. TRK.	26122-01		3525				2910			30,000	10,11					
C	OUTGOING TRK.	26085-01 (TYPICAL)		8000			1300			30,000	38	12		RP PULSING		
						2010			30,000	39	20					
						1640			30,000	40	14					
						2700			30,000	41	24					
D	OFFICIAL PBX OR VERIFICATION REQUEST TRK.	25696-01		3000				2690			30,000	12,25				
	REC. COMPL. TRK.	25923-01 25923-02 25923-03 25923-04		3740				2945			60,000	13,15				
		26090-01		3615				2875			60,000	13,17				
		26091-01		3615				2875			60,000	13,15,16				
		COIN SUPERVISORY	25736-01		6000				3540			30,000	18,19, 20,21		RANGE IS FOR EACH PAIR OF CONDUCTORS	MAX. E.P. ±20V.
	CONCENTRATING FOR PERM. SIG. HOLDING TRKS.	25766-01		6490				3000			30,000	22,23, 24			MAX. E.P. ±20V.	
	FREE TRK.	25889-01		3200				2890				12,25				
	EMG. TRANSFER	95711-01		3250				2940			30,000	26				
E	SPECIAL SERV. TRK.	26090-01		3615				3000			30,000	27				
		26091-01		3615				3000			30,000	29				
	CONCENTRATING FOR PERM. SIG. HOLDING TRKS.	25766-01		6490				3000			30,000	22,32			MAX. E.P. ±20V.	
	EMG. TRANSFER	95711-01		3000				2715			30,000	33				
	COIN SUPERVISORY	25736-01		6000				3540			30,000	34		RANGE IS FOR EACH PAIR OF CONDUCTORS	MAX. E.P. ±20V.	
	OFFICIAL PBX OR VERIFICATION REQUEST TRK.	25696-01		3000				2715			30,000	35				
F	OUTGOING TRK.	26085-01 (TYPICAL)		8000												
	RP SENDER	26052-01	3300				2900			30,000	36	32		RP PULSING		
	OUTGOING TRK.	26085-01 (TYPICAL)							5105			30,000	36	40		MF PULSING
	MF SENDER	26051-01	6400													
RANGE CHART TABLE - ORIGINATING OFFICE END																

RANGE CHART TABLE - ORIGINATING OFFICE END

LOOP DESIG.	CKT. TITLE	SD- DWG. NO.	OHMS MAX. EXT. CKT. LOOP				OHMS MAX. CONDUCTOR LOOP				OHMS MIN. INS. RES.	SEE NOTE	NO. OF MILES OF CABLE NOT TO EXCEED ANY LOADING	REMARKS
			PLSG	SUPV	RING		PLSG	SUPV	RING					
G	OUTGOING TRK.	26085-01 (TYPICAL)		8000			2885				30,000	50	34	DP PULSING
	DP SENDER	26050-01	6400											
	OUTGOING TRK.	26085-01 (TYPICAL)		8000			4705				60,000	50	40	MF PULSING
	MF SENDER	26051-01	6400											
	OUTGOING TRK.	26085-01 (TYPICAL)		8000			2640				60,000	51		PCI PULSING
	PCI SENDER	26053-01	5850											
H	OUTGOING TRK.	26085-01 (TYPICAL)		8000			1200	1200			30,000	52		LOOP PULSING
				8000			1900	1900			30,000			BAT. & GRD. PULSING
				8000			3000	3000			30,000	53		8-11 P.P.S.
				8000			1200	1200			30,000	54		
	DP SENDER	26050-01	6400	8000			2000	2000			30,000	55		
I	OUTGOING TRK.	26085-01 (TYPICAL)		8000			5520				30,000	56	60	MF PULSING
	MF SENDER	26051-01	6400											
J	OUTGOING TRK.	26085-01 (TYPICAL)		8000			3975				30,000	37		
	MF SENDER	26051-01	6400											
K	OUT. ANNOUNCEMENT TRK.	25689-01 25690-01		5500			4340				30,000	30, 31		
L	OUTGOING TRK.	26095-01		3500			2990				30,000	28		

NOTES:

1. ALL INTEROFFICE LOOP VALUES ON THE CHART INCLUDE THE RES. OF THE OUTSIDE CABLING, THE CENTRAL OFFICE WIRING AND THE HEAT COILS. THE RES. OF THE CENTRAL OFFICE APPARATUS IS NOT INCLUDED. FOR COIN AND NON-COIN LINES, VALUES ARE SHOWN IN TERMS OF CONDUCTOR LOOP BETWEEN THE CENTRAL OFFICE LINE CIRCUIT AND THE STATION APPARATUS, ALLOWING FOR A MAXIMUM OF 200 OHMS IN THE STATION APPARATUS IN ALL CASES EXCEPT FOR THE 191 COIN COLLECTOR, FOR WHICH A MAXIMUM OF 300 OHMS IS ALLOWED.
2. MAXIMUM 2WF BRIDGED CAPACITY FOR INDIVIDUAL NON-COIN LINES, MAXIMUM 2UF CAPACITY ON EITHER SIDE OF THE LINE TO GROUND FOR 2 PARTY SELECTIVE AND 4 PARTY SEMISELECTIVE LINES, MAXIMUM 2.5 UF CAPACITY FOR 10 PARTY 5 CODE RINGING LINES AND 4 PARTY SELECTIVE AND 0 PARTY SEMISELECTIVE LINES.
3. THE MAXIMUM CONDUCTOR LOOP RESISTANCE FOR SUBSCRIBER LINES IN SUPERIMPOSED AND AC-DC RINGING OFFICES USING THE AJ47 TRIP RELAY AND THE EA44 AND/OR EA36 LINE RELAYS WITH MINIMUM OFFICE VOLTAGES OF 45V. AND 48V. IS AS FOLLOWS: RANGE INFORMATION FOR OFFICES USING OTHER THAN THE AJ47 TRIP RELAY AND THE EA44 AND/OR EA36 LINE RELAYS ARE SHOWN IN BSP AA442.030. FOR GENERAL PRINCIPLES AND METHODS IN DETERMINATION OF RANGES FOR INTEROFFICE TRUNKS SEE BSP AA400.801.

MIN. DAT.	LINE RELAY	ALL NONCOIN LINES-EXCEPT PBX LINES AND TIP PARTY OF 2-PARTY LINES HAVING STATION IDENTIFICATION		TIP PARTY OF 2-PARTY LINES HAVING STATION IDENTIFICATION				COIN LINES-5-CENT INITIAL DEPOSIT TYPE COIN COLLECTOR (GROUND START) (SEE NOTE 9)		COIN LINES-10-CENT INITIAL DEPOSIT TYPE COIN COLLECTOR (GROUND START) (SEE NOTE 9)		EARTH POT. ±(VOLTS)	TYPE OF RINGING
				1000-OHM STATION		3640-OHM STATION							
		MAX. COND. LOOP (OHMS)		MAX. COND. LOOP (OHMS)		MAX. COND. LOOP (OHMS)		MAX. COND. LOOP (OHMS)					
		RINGING	SILENT	RINGING	SILENT	RINGING	SILENT	RINGING	SILENT	RINGING	SILENT		
45	EA36 (SEC.WDG.ONLY)	1250	1250	1250	1250	1250	1250	1250	1250	1150	1150	0	SUPER-IMPOSED
				1250	1250	1250	1250	1250	1250	1150	1150	5	
				1250	1250	1250	1250	1250	1200	1110	1110	10	
	EA44 OR EA36 (PRI.& SEC.WDGS.) IN SERIES	1400	1420	1400	1420	1400	1420	1400	1420	1300	1320	0	
				1400	1420	1400	1420	1340	1340	1300	1300	5	
				1400	1420	1400	1420	1200	1200	1110	1110	10	
48	EA36 (SEC.WDG.ONLY)	1380	1380	1380	1380	1380	1380	1380	1380	1280	1280	0	
				1380	1380	1380	1380	1340	1340	1280	1280	5	
				1380	1380	1380	1380	1200	1200	1200	1200	10	
	EA44 OR EA36 (PRI.& SEC.WDGS.) IN SERIES	1400	1540	1400	1540	1400	1540	1400	1490	1300	1440	0	
				1400	1540	1400	1540	1340	1340	1300	1340	5	
				1400	1540	1400	1540	1200	1200	1200	1200	10	
45	EA36 (SEC.WDG.ONLY)	1250	1250	1250	1250	1250	1250	1250	1250	1150	1150	0	AC-DC
				1250	1250	1250	1250	1250	1250	1150	1150	5	
				1250	1250	1250	1250	1200	1200	1110	1110	10	
	EA44 OR EA36 (PRI.& SEC.WDGS.) IN SERIES	1320	1420	1450	1420	1500	1420	1450	1420	1320	1320	0	
				1440	1420	1480	1420	1340	1340	1300	1300	5	
				1420	1420	1470	1420	1200	1200	1110	1110	10	
48	EA36 (SEC.WDG.ONLY)	1380	1380	1380	1380	1380	1380	1380	1380	1280	1280	0	
				1380	1380	1380	1380	1340	1340	1280	1280	5	
				1380	1380	1380	1380	1200	1200	1200	1200	10	
	EA44 OR EA36 (PRI.& SEC.WDGS.) IN SERIES	1640	1740	1600	1540	1640	1540	1490	1490	1470	1440	0	
				1590	1540	1630	1540	1340	1340	1340	1340	5	
				1570	1540	1620	1540	1200	1200	1200	1200	10	

4. MAXIMUM ALLOWABLE RESISTANCE OF RINGER IN TIP PARTY SUBSCRIBER SET FOR IDENTIFICATION PURPOSES IS 1100 OHMS. IN OFFICES WHERE TIP STATION IDENTIFICATION IS MADE WITH A 3640-OHM RINGER RESISTANCE IT WILL BE NECESSARY TO USE THE 1100-OHM RINGER RESISTANCE ON LINES ASSOCIATED WITH THE LONG LINE CIRCUIT.
5. THE CONDUCTOR LOOP RESISTANCE WITH AND WITHOUT THE S36 RELAY AT COIN STATION IS AS FOLLOWS:

EARTH POTENTIAL (VOLTS) ±	WITH S36 RELAY	MAX. LOOP RES. (OHMS)	MIN. LOOP RES. (OHMS)
0	YES	3000	1200
	NO	1900	
5	YES	2800	
	NO	1750	
10	YES	2600	
	NO	1600	
15	YES	2400	
	NO	1440	
20	YES		
	NO	1290	

NOTES: (CONT.)

6. THE RANGE SHOWN FOR COIN SUBSCRIBER LINE USING OTHER THAN THE 10-CENT INITIAL DEPOSIT TYPE COIN COLLECTOR ALSO APPLIES TO SIDE TONE COIN COLLECTOR WITH ANTI-SIDE TONE SUBSET WHICH HAS 3UF BRIDGED ACROSS THE LINE AT ALL TIMES.
7. FOR COIN TEST THE LIMITS ARE AS FOLLOWS:

CONDUCTOR LOOP	MIN. INS. RES.	MIN. COIN VOLTAGE	EARTH POTENTIAL	SUBSET RES.
1450Ω	10,000Ω	125V.	±10V.	200Ω
1420Ω	10,000Ω	125V.	±10V.	300Ω

8. THE SUBSCRIBER LOOP RANGE SHALL NOT EXCEED THE VALUES SHOWN IN TABLES A & B BELOW.

TABLE A			
GROUND RETURN LINES	SUB. LOOP RANGE	MIN. INS. RES.	E.P.
	1200Ω	3000Ω	±6V.
	1200Ω	3500Ω	±16V.

TABLE B				
METALLIC LINES	SUB. LOOP RANGE	MIN. INS. RES.		E.P.
		WIRE TO WIRE	EITHER WIRE TO GRD.	
	1200Ω	2700Ω	1600Ω	±6V.
	1100Ω	2700Ω	1900Ω	±16V.
	1700Ω	3900Ω	2200Ω	±6V.
	1600Ω	3900Ω	2600Ω	±16V.
	2100Ω	10,000Ω	10,000Ω	±5V.

9. COIN RANGES ARE BASED ON A MINIMUM 125-VOLT COIN BATTERY. IN OFFICES WHERE THE COIN POTENTIAL IS OTHER THAN 125 VOLTS MINIMUM, THE RANGE CAN BE COMPUTED BY APPLYING THE FOLLOWING FORMULA.

CONDUCTOR LOOP (OHMS)

$$= R_{LK} \times \frac{2[(V-63)-E.P.]}{.065 \times R_{LK} + 63} - 305$$

WHERE V = COIN CONTROL VOLTAGE

E.P. = + OR - EARTH POTENTIAL

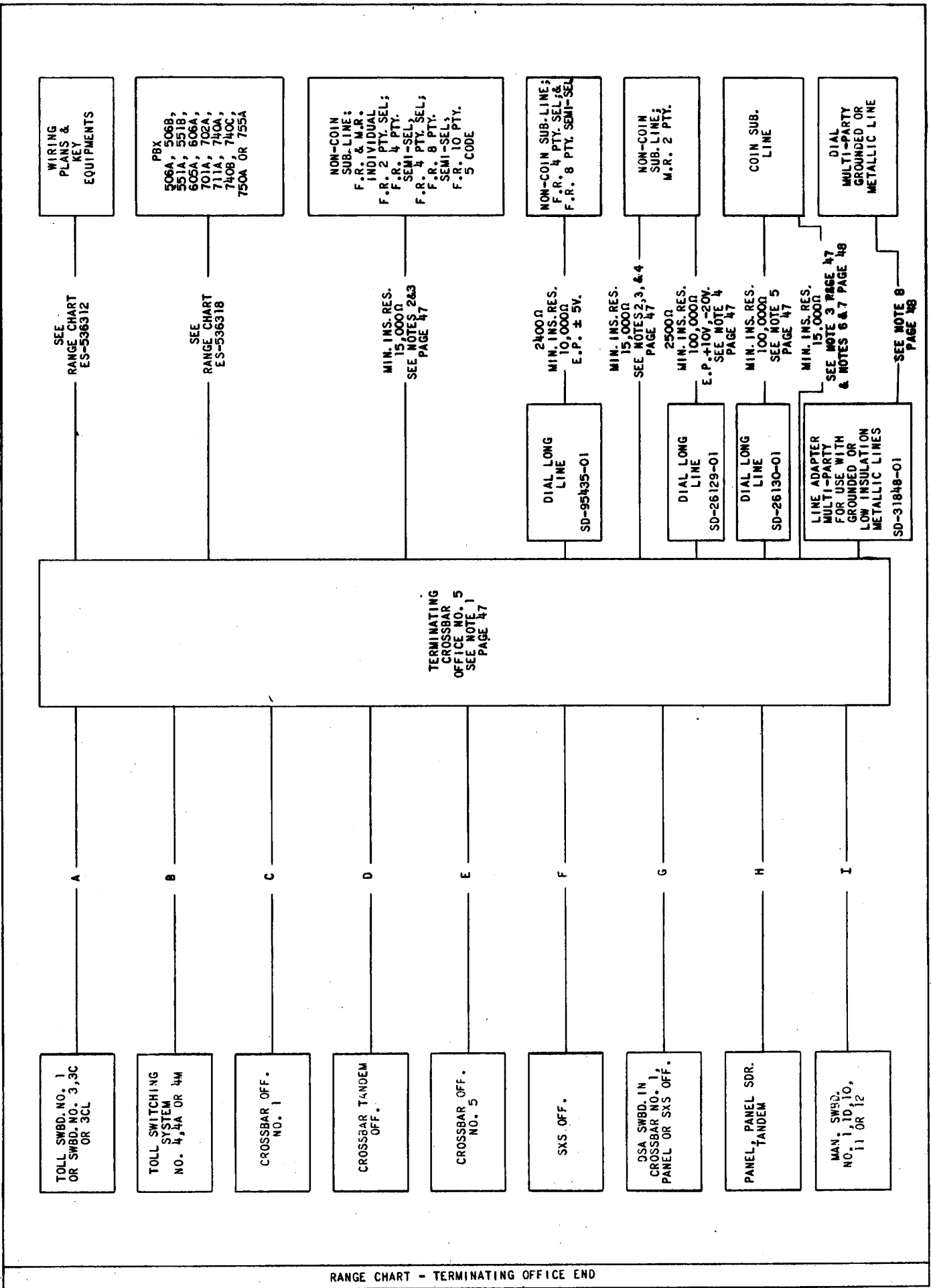
R_{LK} = MIN. INSULATION RESISTANCE

TO OBTAIN EXTERNAL CIRCUIT LOOP, ADD 200 OHMS FOR LINES WITH THE 5-CENT INITIAL DEPOSIT TYPE COIN COLLECTOR AND 300 OHMS FOR LINES WITH THE 10-CENT INITIAL DEPOSIT TYPE COIN COLLECTOR.

10. WHEN DISTANT TRUNK SD-95789-01 IS USED IN OPERATING ROOM DESK NO. 19 OR 23E.
11. WHEN DISTANT TRUNK SD-95740-01 IS USED IN OPERATING ROOM DESK NO. 23A, B, C OR D.
12. WHEN DISTANT TRUNK SD-55778-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
13. WHEN DISTANT TRUNK SD-55873-01 IS USED IN TOLL SWITCHBOARD NO. 1.
14. WHEN DISTANT TRUNK SD-90434-01 IS USED IN INFORMATION DESK NO. 1.
15. WHEN DISTANT TRUNK SD-56127-01 IS USED IN SWITCHBOARD NO. 3.
16. WHEN DISTANT TRUNK SD-55875-01 IS USED IN SWITCHBOARD NO. 3C OR 3CL.
17. WHEN DISTANT TRUNK SD-55872-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
18. THE 6,000Ω VALUE APPLIES TO EACH TRUNK CONDUCTOR.
19. WHEN DISTANT TRUNK SD-56032-01 IS USED IN SWITCHBOARD NO. 3C OR 3CL.
20. WHEN DISTANT TRUNK SD-55844-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
21. WHEN DISTANT TRUNK SD-56123-01 IS USED IN TOLL SWITCHBOARD NO. 1.
22. THE 6490Ω VALUE APPLIES TO EACH TRUNK CONDUCTOR.
23. WHEN DISTANT TRUNK SD-56119-01 IS USED IN TOLL SWITCHBOARD NO. 1.
24. WHEN DISTANT TRUNK SD-55889-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
25. WHEN DISTANT TRUNK SD-56241-01 IS USED IN TOLL SWITCHBOARD NO. 1.

NOTES: (CONT.)

26. WHEN DISTANT TRUNK SD-95713-01 IS USED IN TOLL SWITCHBOARD NO. 1, 3, 3C OR 3CL.
27. WHEN DISTANT TRUNK SD-95745-01 IS USED IN DSA SWITCHBOARD.
28. WHEN DISTANT TRUNK SD-95782-01 IS USED AT REPAIR SERVICE DESK NO. 2.
29. WHEN DISTANT TRUNK SD-96365-01 IS USED IN DSA SWITCHBOARD.
30. WHEN DISTANT TRUNK SD-25940-01 IS USED AT ANNOUNCEMENT SYSTEM NO. 4A.
31. WHEN DISTANT TRUNK SD-95777-01 IS USED AT ANNOUNCEMENT SYSTEM NO. 3A.
32. WHEN DISTANT TRUNK SD-95474-01 IS USED IN DSA SWITCHBOARD.
33. WHEN DISTANT TRUNK SD-95713-01 IS USED IN DSA SWITCHBOARD.
34. WHEN DISTANT TRUNK SD-95473-01 IS USED IN DSA SWITCHBOARD.
35. WHEN DISTANT TRUNK SD-95673-01 IS USED IN DSA SWITCHBOARD.
36. WHEN DISTANT TRUNK SD-26204-01 IS USED IN CROSSBAR NO. 1 OFFICE.
37. WHEN DISTANT TRUNK SD-68358-01 IS USED IN TOLL SWITCHING SYSTEM NO. 4A OR SD-68331-01 IS USED IN TOLL SWITCHING SYSTEM NO. 4 OR 4M.
38. WHEN TERMINATING PANEL OFFICE IS GROUND CUTOFF TYPE AND REPEATING INCOMING SELECTORS ARE NOT USED.
39. WHEN TERMINATING PANEL OFFICE IS GROUND CUTOFF TYPE AND REPEATING INCOMING SELECTORS ARE USED.
40. WHEN TERMINATING PANEL OFFICE IS BATTERY CUTOFF TYPE AND INCOMING SELECTOR IS EQUIPPED WITH R132 RELAY.
41. WHEN TERMINATING PANEL OFFICE IS BATTERY CUTOFF TYPE AND INCOMING SELECTOR IS EQUIPPED WITH N3 RELAY.
42. WHEN DISTANT TRUNK SD-90527-01 IS USED IN INFORMATION DESK NO. 2, 7 OR 7A.
43. WHEN DISTANT TRUNK SD-96355-01 IS USED IN INFORMATION DESK NO. 3, 4 OR 6 TYPE.
44. WHEN DISTANT TRUNK SD-95789-01 IS USED IN INFORMATION DESK NO. 1, 2, 7 OR 7A.
45. WHEN DISTANT TRUNK SD-95740-01 OR SD-95426-01 IS USED IN INFORMATION DESK NO. 3, 4 OR 6 TYPE.
46. WHEN DISTANT TRUNK SD-90527-01 IS USED IN OPERATING ROOM DESK NO. 19.
47. WHEN DISTANT TRUNK SD-95585-01 IS USED IN OPERATING ROOM DESK NO. 23E.
48. WHEN DISTANT TRUNK SD-95513-01 IS USED IN OPERATING ROOM DESK NO. 23A, B, C OR D.
49. WHEN DISTANT TRUNK SD-95580-01 IS USED IN OPERATING ROOM DESK NO. 23E.
50. WHEN DISTANT TRUNK SD-25887-01 IS USED IN CROSSBAR TANDEM OFFICE.
51. WHEN DISTANT TRUNK SD-25520-01 OR SD-25956-01 IS USED AT CROSSBAR TANDEM OFFICE.
52. WHEN DISTANT TRUNK SD-30200-01 (TYPICAL) IS USED AT SXS OFFICE.
53. WHEN DISTANT TRUNK SD-31648-01 IS USED AT SXS OFFICE.
54. WHEN DISTANT TRUNK SD-31841-01 IS USED AT SXS OFFICE WITH 221 FAE PULSING RELAY.
55. WHEN DISTANT TRUNK SD-31841-01 IS USED AT SXS OFFICE WITH 221 FAF PULSING RELAY.
56. WHEN DISTANT TRUNK SD-26070-01 (TYPICAL) IS USED AT CROSSBAR NO. 5 OFFICE.



LOOP DESIG	CKT TITLE	SD- DWG NO.	OHMS MAX EXT CKT LOOP				OHMS MAX CONDUCTOR LOOP				OHMS MIN INS RES	SEE NOTE	NO. OF MILES OF CABLE NOT TO EXCEED	REMARKS
			PLSG	SUPV	RING		PLSG	SUPV	RING				ANY LOADING	
A	INCOMING TRK	26083-01 OR 26074-01 (TYPICAL)		6000				4480			30,000	1,9	60	MF PULSING
				6000				3810			30,000	2,10		DP PULSING
				6000			3950				30,000	36,11		REPEATED DIALING
				6000			4135				30,000	5,7		RP PULSING
				3115			2900				30,000	34,6,8		
B	INCOMING TRK	26070-01 (TYPICAL)		6400			3925			30,000	12	42	DP PULSING	
				6400				5825			30,000	12,13	60	MF PULSING
C	INCOMING TRK	26070-01 (TYPICAL)		3115			2900			30,000	14	32	RP PULSING	
D	INCOMING TRK	26070-01 (TYPICAL)		3115			2900			30,000	15	32	RP PULSING	
				6400			4000			30,000	15	42	DP PULSING	
				6400				5470			30,000	15	60	MF PULSING
E	INCOMING TRK	26070-01 (TYPICAL)		6400				5520		30,000	16	60	MF PULSING	
F	INCOMING TRK USING BY-LINK	26077-01		2410			2400	2400		30,000	19	WHEN BAT. & GRD PULSING IS USED		
				2410			2000	2120		30,000	17			
				2410			2000	2090		30,000	18			
				4465			4200	4125		30,000	20,23			
				4465			4095	4465		30,000	21,22,23			
G	INCOMING TRK	26083-01 OR 26074-01 (TYPICAL) 26070-01 (TYPICAL)		6400				3810		30,000	27	60	MF PULSING	
				3115			2900			30,000	24	32	RP PULSING	
				6400			3885			30,000	25	42	DP PULSING	
				6400				5785		30,000	26	60	MF PULSING	
				6400			3885			30,000	28	42	DP PULSING	
H	INCOMING TRK	26070-01 (TYPICAL)		3115				2900		30,000	33,34	32	RP PULSING	
I	INCOMING TRK	26070-01 (TYPICAL)		6400				4120		30,000	29	42	DP PULSING	
				6400				5990		30,000	30,31	60	IMP TRANS	
				6400				6060		30,000	30,32		REP COIL TRANS	
													MF PULSING	

NOTES:

1. WHEN DISTANT TRUNK SD-64404-01 IS USED IN TOLL SWITCHBOARD NO. 1.
2. WHEN DISTANT TRUNK SD-56144-01 IS USED IN TOLL SWITCHBOARD NO. 1.
3. WHEN DISTANT TRUNK SD-56128-01 IS USED IN TOLL SWITCHBOARD NO. 1.
4. WHEN DISTANT TRUNK SD-56246-01 IS USED IN TOLL SWITCHBOARD NO. 1.
5. WHEN DISTANT TRUNK SD-64898-01 IS USED IN TOLL SWITCHBOARD NO. 1.
6. WHEN DISTANT TRUNK SD-55291-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
7. WHEN DISTANT TRUNK SD-55346-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
8. WHEN DISTANT TRUNK SD-56245-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
9. WHEN DISTANT TRUNK SD-55224-01 IS USED IN SWITCHBOARD NO. 3.
10. WHEN DISTANT TRUNK SD-55879-01 IS USED IN SWITCHBOARD NO. 3C OR 3CL.
11. WHEN DISTANT TRUNK SD-56105-01 IS USED IN SWITCHBOARD NO. 3, 3C OR 3CL.
12. WHEN DISTANT TRUNK SD-68242-01 IS USED IN TOLL SWITCHING SYSTEM NO. 4A.
13. WHEN DISTANT TRUNK SD-68325-01 IS USED IN TOLL SWITCHING SYSTEM NO. 4 OR 4M.
14. WHEN DISTANT TRUNK SD-26201-01 (TYPICAL) IS USED IN CROSSBAR OFFICE NO. 1.
15. WHEN DISTANT TRUNK SD-25887-01 IS USED IN CROSSBAR TANDEM OFFICE.
16. WHEN DISTANT TRUNK SD-26085-01 (TYPICAL) IS USED IN CROSSBAR NO. 5 OFFICE.
17. WHEN DISTANT TRUNK SD-31779-01 IS USED IN SXS OFFICE.
18. WHEN DISTANT TRUNK SD-32008-01 IS USED IN SXS OFFICE.
19. WHEN DISTANT TRUNK SD-31142-01 IS USED IN SXS OFFICE.
20. WHEN DISTANT TRUNK SD-32087-01 IS USED IN SXS OFFICE.
21. WHEN DISTANT TRUNK SD-32204-01 IS USED IN SXS OFFICE.
22. WHEN DISTANT TRUNK SD-31949-01 IS USED IN SXS OFFICE.
23. WHERE THE ENTIRE LENGTH OF THE CABLE IS 19 GAUGE, THE MAXIMUM MILES OF CABLE IS 32; IN ALL OTHER CASES THE MAXIMUM MILES OF CABLE IS 24.
24. WHEN DISTANT TRUNK SD-25446-01 (TYPICAL) IS USED IN DSA SWITCHBOARD.
25. WHEN DISTANT TRUNK SD-95471-01 (TYPICAL) IS USED IN DSA SWITCHBOARD.
26. WHEN DISTANT TRUNK SD-95425-01 (TYPICAL) IS USED IN DSA SWITCHBOARD.
27. WHEN DISTANT TRUNK SD-95566-01 (TYPICAL) IS USED IN DSA SWITCHBOARD.
28. WHEN DISTANT TRUNK SD-96164-01 IS USED IN DSA SWITCHBOARD.
29. WHEN DISTANT TRUNK SD-14192-01 OR SD-14193-01 IS USED IN MANUAL SWITCHBOARD NO. 1, 1D, 1O OR 11.
30. WHEN DISTANT TRUNK SD-15193-01 IS USED IN MANUAL SWITCHBOARD NO. 12.
31. WHEN DISTANT TRUNK SD-12570-01 IS USED IN MANUAL SWITCHBOARD NO. 1, 1D OR 11.
32. WHEN DISTANT TRUNK SD-12999-01 IS USED IN MANUAL SWITCHBOARD NO. 1, 1D OR 11.
33. WHEN DISTANT TRUNK SD-21627-01 (TYPICAL) IS USED IN PANEL OFFICE.
34. WHEN DISTANT TRUNK SD-21143-01 (TYPICAL) IS USED IN PANEL SENDER TANDEM OFFICE.

TABLE I

INCOMING TRUNK CIRCUITS													
KIND OF PULSING FROM ORG. OFF.	KIND OF SUPV.	LOCATION OF TYPICAL CKTS. ON KEY SHEET	ORG. OFF. (SEE NOTE 1)	START PULSING SIG. FROM CBR. NO. 5 OFF. (SEE NOTE 2)	KIND OF RING. START SIG.	POLARITY OF INCOMING LEADS LOOKING INTO INCOMING TRUNK							SEE NOTE
						LEADS	NORMAL	INC. REG. SEIZED	INC. REG. READY TO RECEIVE PULSING	AWTG. ANSWER (ON HOOK)	ANSWER (OFF HOOK)		
RP	REV. BAT.	A37, B37, G37	TOLL DSA, TOLL, PAN., PAN. SDR. TDM., CBR. NO. 1, CBR. NO. 5 OR CBR. TDM.	NONE	NONE	T	BAT.	BAT.	BAT.	BAT.	GRD.		
						R	GRD.	GRD.	GRD.	GRD.	BAT.		
		B47, D47	TOLL DSA OR TOLL SWBD.	NONE	SX	T	BAT.	BAT.	BAT.	BAT.	GRD.		
						R	GRD.	GRD.	GRD.	GRD.	BAT.		
DP (SEE NOTE 4)	REV. BAT.	A37, B37, G37	TOLL DSA, TOLL OR MAN. SWBD.	DELAY DIAL	NONE	T	BAT.	BAT.	GRD.	GRD.	BAT.		3
						R	GRD.	GRD.	BAT.	BAT.	GRD.		
			DSA SWBD.	DELAY DIAL	NONE	T	GRD.	GRD.	BAT.	BAT.	GRD.		
						R	BAT.	BAT.	GRD.	GRD.	BAT.		
			CBR. TDM. OFF. FOR SX'S AREAS ONLY OR CBR. NO. 5 OFF.	WINK	NONE	T	GRD.	BAT.	GRD.	GRD.	BAT.		
						R	BAT.	GRD.	BAT.	BAT.	GRD.		
			CBR. TDM. OFF. FOR CBR. & PANEL AREAS WITH OR WITHOUT SOME SX'S OFFICES OR PAN. SENDER TDM. OFF.	WINK	NONE	T	BAT.	GRD.	BAT.	BAT.	GRD.		
						R	GRD.	BAT.	GRD.	GRD.	BAT.		
		G47	SX'S (BY LINK OPERATION)	NONE	NONE	T	GRD.	GRD.	GRD.	GRD.	BAT.		
						R	BAT.	BAT.	BAT.	BAT.	GRD.		
		B47, D47	TOLL DSA OR TOLL SWBD.	DELAY DIAL	SX	T	BAT.	BAT.	GRD.	GRD.	BAT.		3, 6
						R	GRD.	GRD.	BAT.	BAT.	GRD.		
DSA SWBD.	DELAY DIAL		SX	T	GRD.	GRD.	BAT.	BAT.	GRD.				
				R	BAT.	BAT.	GRD.	GRD.	BAT.				
MF	REV. BAT.	A37, B37, G37	TOLL DSA, TOLL OR MAN. SWBD.	DELAY DIAL	NONE	T	BAT.	BAT.	GRD.	GRD.	BAT.		3
						R	GRD.	GRD.	BAT.	BAT.	GRD.		
			DSA SWBD.	DELAY DIAL	NONE	T	GRD.	GRD.	BAT.	BAT.	GRD.		
						R	BAT.	BAT.	GRD.	GRD.	BAT.		
			CBR. NO. 5 OFF.	WINK	NONE	T	GRD.	BAT.	GRD.	GRD.	BAT.		
						R	BAT.	GRD.	BAT.	BAT.	GRD.		
		B37	TOLL DSA, TOLL OR TOLL SW. OFF. NO. 4 OR 4A	DELAY DIAL	NONE	T	BAT.	BAT.	GRD.	GRD.	BAT.		3
						R	GRD.	GRD.	BAT.	BAT.	GRD.		
		B47, D47	TOLL DSA OR TOLL SWBD.	DELAY DIAL	SX	T	BAT.	BAT.	GRD.	GRD.	BAT.		3
						R	GRD.	GRD.	BAT.	BAT.	GRD.		
			DSA SWBD.	DELAY DIAL	SX	T	GRD.	GRD.	BAT.	BAT.	GRD.		
						R	BAT.	BAT.	GRD.	GRD.	BAT.		
NONE (STFD.)	REV. BAT.	B122, D122	MAN. OR MAN. TDM. SWBD.	NONE	NONE	T	GRD.	-	-	GRD.	BAT.		
						R	BAT.	-	-	BAT.	GRD.		
		F122, H122	TOLL DSA OR TOLL SWBD.	NONE	SX	T	GRD.	-	-	GRD.	BAT.		
						R	BAT.	-	-	BAT.	GRD.		
		B121	MAN. SWBD. (AUX. CONVERTS REV. BAT. SUPV. TO HIGH-LOW SUPV.)	NONE	NONE	T	HIGH RES. BRIDGE	-	-	HIGH RES. BRIDGE	LOW RES. BRIDGE		
						R		-	-				

TABLE 2

OUTGOING TRUNK CIRCUITS											
KIND OF PULSING FROM CBR. NO. 5 OFF.	KIND OF SUPV.	LOCATION OF TYPICAL CKTS. ON KEY SHEET	TER. OFF.	START PULSING SIG. FROM TER. OFF. (SEE NOTE 2)	POLARITY OF OUTGOING LEADS TO TERMINATING OFFICE AT VERTICAL MAIN DISTG. FRAME						
					LEADS	NORMAL	CBR. NO. 5 SDR. AWTG. SIG. TO START PULSING	CBR. NO. 5 SDR. STARTS PULSING	AWAITING ANSWER ON (HOOK)	ANSWER OFF (HOOK)	SEE NOTE.
RP	REV. BAT.	E17 B27, J29, H30	PANEL, CBR. NO. 1 OR CBR. NO. 5	NONE	T	BAT.	BAT.	BAT.	BAT.	GRD.	
					R	GRD.	GRD.	GRD.	GRD.	BAT.	
DP (SEE NOTE 5)	REV. BAT.	E17 B27, J29, H30	SXS OR SXS CALL IND.	NONE	T	GRD.	GRD.	GRD.	GRD.	BAT.	
					R	BAT.	BAT.	BAT.	BAT.	GRD.	
			CBR. TDM.	WINK	T	GRD.	BAT.	GRD.	GRD.	BAT.	
					R	BAT.	GRD.	BAT.	BAT.	GRD.	
PCI	REV. BAT.	E17 B27, J29, H30	PCI MAN. OR MAN. TDM. OFFICE OR PANEL SENDER TDM. OFFICE	NONE	T	BAT.	BAT.	DRY	BAT.	GRD.	
					R	GRD.	GRD.	DRY	GRD.	BAT.	
MF	REV. BAT.	E17 B27, J29, H30	CBR. NO. 1, CBR. NO. 5 OR CBR. TDM.	WINK	T	GRD.	BAT.	GRD.	GRD.	BAT.	
					R	BAT.	GRD.	BAT.	BAT.	GRD.	
NONE (STFD. OR AUTO.)	REV. BAT.	E17 B27, J29, H30	MANUAL	NONE	T	GRD.	—	—	GRD.	BAT.	
					R	BAT.	—	—	BAT.	GRD.	

NOTES:

- "TOLL DSA" IS A TOLL SWITCHBOARD POSITION WHICH MAY HANDLE DSA TRAFFIC ONLY OR BOTH TOLL AND DSA TRAFFIC.
- FOR "DELAY DIAL" OPERATION ON INCOMING CALLS THE NORMAL TRUNK POLARITY IS A STOP PULSING SIGNAL AND THE REGISTER REVERSES THE TRUNK POLARITY WHEN READY TO RECEIVE PULSING. FOR "WINK" OPERATION ON INCOMING CALLS THE NORMAL TRUNK POLARITY IS A START PULSING SIGNAL WHICH IS MOMENTARILY REVERSED THEN FOLLOWED BY THE NORMAL TRUNK POLARITY WHEN THE REGISTER IS READY TO RECEIVE PULSING. FOR "WINK" OPERATION ON OUTGOING CALLS THE NORMAL TRUNK POLARITY OF THE SENDER OR REGISTER IN THE TERMINATING OFFICE IS A START PULSING SIGNAL WHICH IS MOMENTARILY REVERSED THEN FOLLOWED BY THE NORMAL POLARITY WHEN READY TO RECEIVE PULSES FROM THE CROSSBAR NO. 5 OFFICE.
- THE POLARITY OF THE TIP AND RING LEADS AS SHOWN IS THE PREFERRED POLARITY BUT MAY BE REVERSED WHEN IT IS REQUIRED BY THE CONNECTING CIRCUIT.
- THE CROSSBAR NO. 5 INC. REGISTERS WILL RECEIVE 20 P.P.S. WITH INTERDIGITAL TIMING OF 0.28 SEC. MINIMUM OR 10 P.P.S. WITH INTERDIGITAL TIMING OF 0.4 SEC. MINIMUM.
- THE CROSSBAR NO. 5 OUT. DIAL PULSE SENDERS WILL TRANSMIT 20 P.P.S. WITH INTERDIGITAL TIMING OF 0.28 SEC. OR 10 P.P.S. WITH INTERDIGITAL TIMING OF 0.53 SEC.
- A SEPARATE SINGLE TRUNK CONDUCTOR CONNECTION TO TRUNK CIRCUIT 5D-26083-01 (BLOCK B47) IS REQUIRED FOR DISPOSAL OF COINS.

General

The tables on pages 53 and 54 show the principal operating features of a Crossbar No. 5 office from the point of view of interoffice operation and is intended primarily to facilitate the selection of options in the connecting circuits in other offices.

For example, assume that a No. 3CL switchboard operator is to complete calls to coin subscriber lines in the crossbar office using DC key pulsing and that SD-56105-01 outgoing trunk circuit arranged for reverse battery supervision and simplex or no ringing start signal which functions with SD-95480-01 sender circuit arranged to receive DC key pulses and transmit dial pulses is selected for the circuit from the No. 3CL switchboard. Reference to the feature and option tables on these drawings shows that it is necessary to select certain options for the circuits to work with the crossbar office.

Table 1 shows the types of signals that the crossbar office receives and the options required in the connecting circuits at the originating office to function with the crossbar office.

Referring to table 1, it is shown that the incoming trunk circuit arranged for reverse battery supervision in block B47 (SD-26083-01) will function with the outgoing trunk circuit SD-56105-01. If SD-26083-01 is used, this trunk:

1. Transmits "delay dial" start pulsing signal to the toll office.
2. Requires simplex ringing start signal.
3. Requires coin control over separate single trunk conductor.
4. Will receive 10 or 20 dial pulses per second.
5. Controls originating end by trunk polarity as follows:
 - a. Battery on tip, ground on ring - trunk is normal.
 - b. Battery on tip, ground on ring - incoming register seized.
 - c. Ground on tip, battery on ring - incoming register ready to receive pulses.
 - d. Ground on tip, battery on ring - awaiting answer (on-hook).
 - e. Battery on tip, ground on ring - called party answers (off-hook).

The following options will then be required on the circuits in the toll office.

1. Option "Q" of the sender circuit if 20 P.P.S. is used or no option if 10 P.P.S. is used as shown in the feature or option table.
2. Figure A and options AB and A (class A or B) or B (class C or D) of the sender circuit to delay outpulsing until the incoming register in the crossbar office is ready to receive the pulses as shown in the feature or option table.
3. Figures 7 and 8 of the outgoing trunk circuit for simplex ringing start signal as shown in the feature or option table.
4. Figure 4 and option H of the outgoing trunk circuit if pad control is required since simplex ringing start signal is used as shown in the feature or option table.
5. Figure 5 and option E of the outgoing trunk circuit for coin control with pad control or figures 5 and 6 and option E for coin control without pad control as shown in the feature or option table.
6. No other options are necessary on the outgoing trunk circuit to satisfy the trunk polarity of the incoming trunk circuit in the crossbar office as shown in the feature or option table.

Table 2 shows the types of outgoing trunk circuits which may be used to complete calls to other offices.

For example, assume that the crossbar office is to complete calls to a step-by-step office via the outgoing trunk circuit in block E17 (SD-26085-01).

Referring to table 2, it is shown that this outgoing trunk circuit:

1. Is arranged for dial pulsing required by the step-by-step office.
2. Requires no start pulsing signal.
3. Functions under control of trunk polarity as follows:
 - a. Ground on tip, battery on ring - trunk is normal.
 - b. Ground on tip, battery on ring - crossbar sender starts pulsing.

c. Ground on tip, battery on ring - awaiting answer (on-hook).

d. Battery on tip, ground on ring - called party answers (off-hook).

Assume that SD-30200-01 incoming selector circuit and SD-30201-01 local

connector circuit are selected for the local train at the step-by-step office. Reference to the feature or option tables on these drawings shows that no options are required to provide the features required by the outgoing trunk circuit in the crossbar office.

ADAPTER

Line, Multi-Party, for
Use with Grounded
Lines or Low Insula-
tion Metallic Lines,
Pulse Correcting &
Relayed Ringing

SD-31848-01 E168

ADJUSTING

MF Pulsing Receiver

SD-95664-01 A75

ALARM

Sdr. Grp. Busy
Office
Msg. Reg. Pwr. Supply
No Voltage

SD-25500-01 H79

SD-25671-01 C78

SD-25770-01 E78

Perm. Sig., Arr. to
Operate on Spec. No.
of Perm. Signals

SD-26135-01 A77

Emg., Arr. for Code
Signaling with Auto.
Fire Detection

SD-90437-01 G78

Extension
CAMA, for Use with
Suspension Ckt.

SD-95484-01 B77

SD-95872-01 D191

Emg., Not Arr. for
Code Signaling with
Provision for Auto.
Fire Detection for
Use in Multi-Zone
Off.

SD-96049-01 F78

Emg., Not Arr. for
Code Signaling with
Provision for Auto.
Fire Detection for
Use in Single Zone
Off.

SD-96052-01 G79

Cable Insulation
Aux., for Cbr. No. 5
Off. with Swbds. or
Desks Requiring
Common Alarms

SD-96348-01 H77

SD-96446-01 D79

ALARM RECEIVING

SD-95418-01 B79

ALARM SENDING

SD-95417-01 A78

AMPLIFIER

Electron Tube
For Auto. Trans. Test-
ing

SD-95026-01 C115

SD-96449-01 C173

AMPLIFIER-RECTIFIER

For Auto. Trans.
Testing

SD-96450-01 C174

BATTERY SUPPLY

Amplifier

SD-90608-01 D115

BELL

Chief Swmn's. Call

SD-96447-01 A85

BUSY

All Markers or
All Transverters
Group, for Org. & Inc.
Registers

SD-25695-01 G67

SD-25795-01 H67

CABINET

Traffic Register

SD-95531-01 H68

CALL

CAMA Supervisor

SD-25971-01 A190

CAPACITOR

Building Out

SD-25546-01 A150

CLOCK

Misc. Use
10 I.P.M. Impulse

SD-96201-01 G72

SD-96343-01 F72

CONCENTRATING

Coin Supervisory
For Perm. Sig.
Holding Trks.

SD-25721-01 G7

SD-25766-01 E67

CONNECTOR

Pretranslator
Inc. Reg. Marker
Inter-Marker-Group
Sender Marker
Out. Sender
Transverter
Recorder
No Test
Master Test Frame
Foreign Area
Translator

SD-25569-01 J8

SD-25586-01 J3

SD-25586-01 C12

SD-25587-01 D13

SD-25592-01 D93

SD-25872-01 B93

SD-25702-01 A3

SD-25805-01 C103

SD-25864-01 F7

CAMA Transverter
Register, for Serv.

SD-26011-01 E193

SD-26015-01 E182

Obs.
Line Link Mkr.

SD-26022-01 E3

Org. Reg. Mkr., Mkr.
Part

SD-26023-01 E5

Org. Reg. Mkr., Reg.
Part

SD-26024-01 D5

Inc. Reg. Mkr., Mkr.
Part

SD-26025-01 K2

Inc. Reg. Mkr., Reg.
Part

SD-26026-01 J2

Tbl. Rcdr., for
Inc. Registers

SD-26029-01 H2

Line Link

SD-26031-01 C3

Trunk Link

SD-26033-01 C4

Number Group

SD-26035-01 G2

Pretranslator, Org.
Reg. Part

SD-26038-01 J7

Out. Sender, Sender
Part for MF, DP, RP
or PCI Senders

SD-26057-01 C14

Out. Sender, Mkr.
Part

SD-26059-01 C13

Line Insulation Test
Teletypewriter

SD-95558-01 D158

CONTROL

Trouble Recorder	SD-25572-01	C102
Line Insulation Test	SD-25796-01	C157
Master Test	SD-25800-01	D103
Observing Entry, for	SD-25912-01	G94
Use in AMA Offices		
Master Traffic, for	SD-26020-01	E2
Mkr. Connectors		
Preference, Frame	SD-26029-01	D3
Traffic & Conn.,		
for Org. Reg. Mkr.		
Conn.		
Preference, Frame	SD-26029-01	H2
Traffic & Conn.,		
for Inc. Registers		
Preference & Frame	SD-26029-01	D2
Traffic, for Line		
Link Mkr. Conn.		
Marker Connector	SD-26030-01	B2
Preference, for Line	SD-26039-01	C2
Link, Trk. Link,		
No. Group & Out.		
Sdr. Conn. Ckts.		
Traffic Reg. Camera	SD-95797-01	J70
CAMA, for Use with	SD-95872-01	D191
Suspension Ckt.		
Line Load	SD-96387-01	E147

CONVERTER

Pulse, for Convert-	SD-95590-01	F114
ing Dial Pulses to		
MF Pulses for Use		
with Intertoll Type		
Serv. Obs. Ckts.		

CUT-OFF

Trans. Test Trk.	SD-25903-01	J97
Auto. Tone		

DELAY

Link Reseizure	SD-26072-01	A72
Vacant Code	SD-26097-01	F147

DISTRIBUTING

30, 60 or 120 IPM	SD-95078-01	C77
Int.		

DISTRIBUTION

Power, Ring. and	SD-25599-01	I147
Tone		

FILTER

For Talk or Filament	SD-95571-01	B66
Bat. Supply		

FLASHING

SD-95725-01	D72
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GENERATOR

Pulse, & Counting	SD-26115-01	D147
for Use with Incpt.		
Trks. Using E&M		
Leads Supv.		

HOWLER

SD-95773-01	D74
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INDEXER

Call Identity	SD-25621-01	B92
CAMA, Billing	SD-26012-01	C194

INDICATING

Dial Tone Speed	SD-96419-01	H75
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INTERRUPTER

60 & 120 I.P.M.	SD-25814-01	C68
4 I.P.M.	SD-26063-01	I149
30 I.P.M.	SD-26159-01	I62

JACK

Patching	SD-96068-01	C97
M.D.F. Test, for	SD-96261-01	E72
Private Lines		
Test & M.B. for Out.	SD-96376-01	G128
Trks.		

JACK & LAMP

Ckt. Patching Bay	SD-68327-01	G172,
Trk.		I173

JACK, LAMP AND KEY

SD-25762-01	H107
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JUNCTOR

Operator, from Toll	SD-26076-01	K52
Swbd. No. 1, 3C or		
3CL in Same Bldg.,		
MF, for Completing		
Calls to Dst. Of-		
fices Only		
For Dial Coin Zone	SD-26078-01	F203
Serv.		
AMA, Rev. Bat. Supv.	SD-26085-01	G152
Msg. Reg. Operation,	SD-26086-01	H152
with or without		
Timing, Rev. Bat.		
Supv.		
Coin, with or with-	SD-26087-01	E152
out Timing, Rev.		
Bat. Supv.		
Aux., for Sub. Ac-	SD-26088-01	G153
cess to Trks. with		
SX Supv. Inc.		
Aux., to Provide	SD-26089-01	H153
Added Types of		
Charging for Calls		
to Out. Trks. with		
Tdm. Compl.		
CAMA, Rev. Bat. or	SD-26102-01	G198
SX Supv.		
Using Inter-Mkr.-	SD-26147-01	J152
Grp. Sdr., for		
Coin Lines, with		
or without Timing,		
Rev. Bat. Supv.		
Operator, For Inter-	SD-26153-01	K42
toll Completion		
From Swbd. No. 3C		
or 3CL in Same Bldg.,		
MF Puls. For Complet-		
ing Calls to Dist.		
Offices Only		

KEYSET

CAMA Pos. & MF SD-95775-01 C188

LEADS

Ringling, for Supply- SD-95667-01 F70
ing Ring Current
to PBX's and Sta.
Equipments

LINE (Also see "Tie Line")

Out. Auxiliary, for SD-25649-01 E117
Public Emergency
Reporting Service

Aux., for 10 Pty. SD-25688-01 A2
Lines Equipped with
Tube Sets

Aux., for Use Where SD-25697-01 J119
Serv. is Furnished
to a Common Line
from More Than One
Off. in Same Bldg.

Aux. for Terminating SD-25699-01 C117
Service Only

Emergency SD-25701-01 B117
Plugging Up, With
Auto. Cut Through

Inc. Trk. Test SD-25771-01 G97
Aux. Coin, for Use
with Coin Sub. SD-25907-01 A1

Lines Equipped with
191 Type or Equiva-
lent Coin Collector

Dial SD-26030-01 B2
Dial Long, for 2 Pty. SD-26129-01 H168

Message Rate Lines
Dial Long, Coin SD-26130-01 B168
Local Station SD-95409-01 G84,
G109,
E127,
G168

Dial Long, Repeated SD-95435-01 G168
Ring. for Use with
4 Party Selective
or 8 Part Semi-
Selective Lines

Recorders Talking SD-95532-01 H69
104 It. Trk. Trans. SD-95702-01 B172
Test

Business Office, Arr. SD-95721-01 C168
for Inc. Serv. from
Dst. Swbd. & 2 Way
Serv. to Dial Sub.
Line Ckt.

Transmission Test, SD-96000-01 E97
One Way

Test, For Use with SD-96064-01 G99
Call Through Test
Set

P.B.X. Single Line SD-96111-01 D113
Obs., for Obs. Inc.

Calls on P.B.X. Trks.
Private SD-96147-01 E73

Order Clerks or Chief SD-96262-01 D168
Opr.'s, with Visual
Sig.

Local Frame SD-96379-01 J68

Aux., With Automatic SD-96468-01 A119
Cut-Off For Ind.

Lines with Main
& Extension Stations
On Separate Loops
Emg., for Completion SD-96469-01 K117
of Calls to Police,
Fire & Ambulance
Lines

LINE VERIFICATION SD-26181-01 B94

LINK

Out Sender SD-25734-01 F13
Line SD-26030-01 B2

Trunk SD-26032-01 B4

CAMA Position SD-26047-01 C187

Inc. Reg., with By- SD-26048-01 H4

Link Operation

Coin Supervisory SD-26049-01 G9

LONG LINE

Dial, for other Long SD-96323-01 C68
Lines Ckts. Shown
only on Range Chart
Dwg.

MAKE BUSY

For Use with Trks.to SD-25651-01 D29
Xbr. Off. No. 1
which is Used as a
Tandem Office

Trunk SD-25668-01 A69

For Line Link, Trk. SD-26039-01 C2

Link, No. Group &
Out. Sdr. Conn.
Ckts.

For Use with Trks. SD-26116-01 C29
to CAMA Office

MARKER

Dial Tone SD-26001-01 B7
Completing SD-26002-01 B9

MATCHING

CAMA Line Observing SD-26014-01 D194
Number

MEASURING

It. Trk. Trans., & SD-95698-01 B173
Noise Checking

MISC. FOR ALL FRAMES SD-25574-01 B147

MONITORING

CAMA Key SD-96314-01 C189
Dial Pulse, for Use SD-95876-01 C114
with Serv.Obs. Ckts.

NUMBER GROUP SD-26034-01 F2

OBSERVING

Obs. Line Org.Serv.	SD-25860-01	B113
Obs.		
Serv., Multi-Line,	SD-26206-01	A184
for Obs. On AMA Trk.		
& Junctor Ckts., for		
Use with Serv. Obs.		
Desk No. 7 or 12		
Serv., Multi-Line,	SD-26207-01	B184
for Obs. on CAMA		
Inc. Trks. & 4 Party		
Junctors or Inter-		
marker Trks., for		
Use with Serv. Obs.		
Desk No. 7 or 12		
Serv., Multi-Line	SD-90266-01	H113
for Obs. Out. Trk.		
Ckts.		
Serv. Obs. for Use	SD-90580-01	A113
with Serv. Obs.		
Desk. No. 10		
Serv. Obs. for	SD-90647-01	B114
Local Org. Service		
PEX Multi-Line Obs.	SD-95510-01	E114
Multi-Line		
Multi-Line Serv., for	SD-95604-01	G113
Observing on Inc.		
Intertoll Trks. or		
Inc. End of 2 Way		
Intertoll Trks.		
for Use with Serv.		
Obs. Desk No. 7 or 12		
PEX Multi-Line Obs.	SD-96162-01	E113
Line		

PAD

Impedance Compensator	SD-95756-01	H148
& Fixed Pad		

PRETRANSLATOR

SD-25568-01	J9
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PULSING

MF, for Serv. Obs.	SD-26018-01	A182
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RECEIVER

Electron Tube, Arr.	SD-26118-01	H147
to Rec. 2 Fre-		
quencies for Coin		
Control & Rering		

RECEIVING

Multi-Frequency	SD-95536-01	B74
Pulsing		

RECORDER

Trouble	SD-25572-01	C102
Auto. Mess. Account-	SD-25872-01	B93
ing		
Traffic Usage	SD-95738-01	G149
Ans. Time, Concen-	SD-96235-01	K67
trating, Timing		
Control & Testing		
Traffic Usage,	SD-96494-01	D148
Portable No. 1		

REGISTER

RP Inc., for Tandem	SD-25565-01	I4
Operation		
Sub. Message, for Ind.	SD-25770-01	F73
or 2 Pty Lines		
Plant	SD-25793-01	H102
"B" Swbd. RP, Ter.	SD-25794-01	E124
Off. Part, for Use		
with Central "B"		
Swbd.		
Traffic	SD-25892-01	G68
For Serv. Obs.	SD-26018-01	A182
Dial Puls, Originat-	SD-26040-01	E4
ing		
Dial Pulsing Inc.	SD-26041-01	I1
Multi-Frequency Inc.	SD-26042-01	I2
Revertive Pulsing Inc.	SD-26043-01	I3
Dial Tone Speed	SD-96403-01	G75
Call Count Process	SD-99001-01	D92
Control		

RELEASE

Coin Supervisory	SD-25859-01	H9
Out. Sdr. Grp.	SD-26055-01	H15

RESERVATION

Directional, for Use	SD-26154-01	I135
with 2 Way Inter-		
toll Trk. Ckts.		

RINGBACK

For use with Spl.	SD-25933-01	C67
Serv. Trks. which		
Terminate in Cent.		
"A" Swbd.		
Emergency	SD-95083-01	F68

RINGING

Test Trk.	SD-96474-01	F87
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SELECTION

Serv. Obs. Trk., &	SD-26205-01	I113
Control, for Use		
With Serv. Obs.		
Desk No. 7 or 12		

SELECTING

Position, for Monitor-	SD-27013-01	D189
ing on CAMA Positions		

SELECTOR

Test Trk.	SD-25767-01	J99
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SENDER

Inter-Marker Group	SD-25826-01	D12
DP Out.	SD-26050-01	E13
MF Pulsing Out.	SD-26051-01	E12
RP Out.	SD-26052-01	E11
PCI Out.	SD-26053-01	E14
CAMA	SD-26056-01	F193

SET			Swmn. & Chief Swmn's Desk	SD-95404-01	B83, J83
Wave Shaping	SD-70082-01	E159	Man. OGT Test Fr.	SD-95524-01	A126
SIGNAL			TEST		
No-Such-Number Tone, Oscillating Tone	SD-25791-01	A67	For Revertive Impulse Interrupter Used with RP Inc. Reg. Ckt.	SD-25289-01	I99
No-Such-Number Tone, Interrupted Low Tone	SD-25831-01	A67	Tbl. Recorder	SD-25572-01	C102
CAMA Calls Waiting	SD-26046-01	B188	Sender	SD-25675-01	F157
Opr. Room Calling	SD-96087-01	G74	Auto. Monitor, Reg. & Sdr.	SD-25680-01	H103
Chief Switchman's Desk Aux.	SD-96410-01	C83	Voltmeter	SD-25792-01	C107
Master Test Fr. Aux.	SD-96410-01	B109	Master Test Fr., for Testing Out. Trks. for Continuity and Reversals	SD-25908-01	B107
Man. OGT Test Fr. Aux.	SD-96410-01	A127	Master Test Fr., Trunk	SD-25918-01	E103
STORAGE			Auto. Progression Trk.	SD-25938-01	J157
Call Count Process Control	SD-99001-01	D92	Inc. Reg. & CAMA Sender	SD-25988-01	G157
SUPERVISORY			Station Ringer	SD-26109-01	H97
Coin, for Use with Trks. Arr. for Overtime Collection	SD-25736-01	G8	Bat. & Grd. Test Terminals	SD-90122-01	E100
SUPPLY			2A Sending Panel Trans.	SD-95000-01	E98
Message Reg. Pwr.	SD-25770-01	E78	Sending Pad Trans.	SD-95017-01	E99
M.D.F. Bat. & Grd.	SD-90048-01	J73	Man. OGT Test Fr.	SD-95476-01	G127
P.B.X. Battery	SD-90232-01	G70	Man. OGT		
M.F. Current & Distribution	SD-95391-01	C74	Line Insulation	SD-95537-01	B157
Filament, with Emg. Transfer for MF Signaling Receiving Ckts.	SD-95676-01	E75	Serv. Obs., for Testing It. Serv. Obs. Ckt., for Use with Serv. Obs. Desk No. 7 or 12	SD-95712-01	A96
SUSPENSION			Test Bat., for Use Where L.T.D. Bat. Is Not Available	SD-96120-01	A98
CAMA, for Use When All Positions are Vacated in an Emergency	SD-26017-01	E192	209FF, 209FK, 209FC and 209FM Relay	SD-96121-01	G100
SWITCH			Tone, for Use with Call Through Test Set	SD-96238-01	D97
Ringing Selection, 6 Wire	SD-26080-01	A5	Man. OGT Test Fr. Test, for Testing Out. Trks. for Continuity & Reversals	SD-96370-01	H127
SWITCHING			TEST SET		
Ans. Time Recorder	SD-96360-01	K68	Sender	SD-25674-01	F158
TELEPHONE			Reg. & CAMA Sender	SD-25676-01	G158
Ckt. Patching Bay	SD-68330-01	G171	For Timing Test	SD-25707-01	B99
M.D.F. Loudspeaker for Use with L.T.D. No. 14 or Cable Test Desk No. 3	SD-96471-01	J89	206 Type Selector	SD-90013-01	F98
TELEPHONE, KEY & LAMP			Jack, for Testing 49, 92, 141 & 218 Type	SD-95056-01	F100
Master Test Fr.	SD-25744-01	B106	For Testing 275, 276, 291 and 292 Type Relays	SD-95439-01	H100
			Patching Cord	SD-95665-01	F99
			3A Pulse Generating, Electronic Type	SD-95686-01	F159
			3A Digit Control	SD-95794-01	F160
			Call Through	SD-96063-01	C98
			Pulse Checking	SD-96362-01	G98
			Cold Cathode Tube	SD-96464-01	F97

TIE LINE

3 Wire Auto. SD-95406-01 F84,
J84,
F109,
C127

TIMING

AMA Master SD-25633-01 C92
For Perm.Sig. Holding SD-25870-01 C72
Trks. & Announcement
Trks. & Coin Supv.
Release

TONE

Overflow, & Wink- SD-26103-01 B200
Off for Use with
CAMA By-Link Trk.
Ckts.

TRANSFER

Line or Trk., for SD-95690-01 J74
Restoring Service
on an Emg. Basis
Emg. SD-95711-01 A168

TRANSFER & AUX. SIG. SD-95407-01 K83

TRANSFER & LAMP RELAY SD-95594-01 I109

TRANSLATOR

Foreign Area SD-25863-01 F8
AMA SD-26019-01 D94

TRANSVERTER

AMA SD-25591-01 C93
CAMA SD-26010-01 D193

TRUNK

Intra-Office

Flat Rate SD-26060-01 B177
Flat Rate & AMA SD-26061-01 C177
Msg. Reg. Operation SD-26062-01 B22
For Coin Lines, with SD-26064-01 D177
or without Timing

Inter-Marker-Group

Flat Rate & Msg. SD-25836-01 K62
Reg. Operation, with
or without Timing,
Rev. Bat. Supv.,
Sub. to Trk.
Flat Rate & Msg. SD-25839-02 F62
Reg. Operation,
Sub. to Sub.
CAMA, Rev. Bat. or SD-26105-01 I198
SX Supv. Out., Sub.
to Trk.
CAMA, Sub. to Sub. SD-26107-01 J198
Flat Rate, Sub. to SD-26140-01 A62
Sub.

Flat Rate & AMA, SD-26141-01 B62
Sub. to Sub.
For Coin Lines, with SD-26142-01 C62
or without Timing,
Sub. to Sub.
Rev. Bat. or SX SD-26143-01 G62
Supv., Trk. to Sub.
Flat Rate, with or SD-26145-01 E62
without AMA, Rev.
Bat. or SX Supv.
Out., Sub. to Trk.
For Coin Lines, with SD-26147-01 I62
or without Timing,
Rev. Bat. Supv.,
Sub. to Trk.

Incoming

Aux., Stfd., Arr. SD-25025-01 B121
to Convert Rev.
Bat. Supv. to High-
Low Supv.
Toll Sw., from Swbd. SD-25666-01 B52
No. 3C or 3CL in
Same Bldg., MFP Inc.,
DP or RP Out., Rev.
Bat. or Wet Dry
Supv., Controlled
Ring., With or With-
out Coin Control
over Separate Single
Trk. Conductor
DP, from Loc. Test SD-25708-01 H37
Desk No. 14, or
Loc. Tst. Cabinet
No. 3, with or
without No. Test
MF, from Loc. Test SD-25708-02 F37
Desk No. 14, or
Loc. Tst. Cab.No.
3 With or Without
No Test
Stfd., from Loc. SD-25708-03 G122
Test Desk No. 14,
or Loc. Test Cab.
No. 3 With or
Without No Test
Toll Sw., from SD-25711-01 G52
Swbd. No. 3C or
3CL in Same Bldg.,
MF Plsg. Inc., DP
or RP Plsg. Out.,
Rev. Bat. Supv.,
No Ring. Start
Signal With or
Without Pad Con-
trol
DP, for Testing SD-25834-01 B39
Sub. Msg. Registers
MF, for Testing SD-25835-01 B39
Sub. Msg. Registers
Intertoll, DP or
MFP, Inc. CX or
SX Supv., Out. SX
Supv. or TYPE "A"
TB Supply
Announcement, for SD-25940-01 C153
Use with Ann. Sys.
No. 4A

TRUNK (Cont'd)

Incoming (Cont'd)

Toll Sw., from Toll Swbd. No. 1 in Same Bldg., MF Pulsing Inc., DP or RP Pulsing Out., Rev. Bat. or Wet Dry Supv., Controlled Ring. Start Sig., Coin and Noncoin	SD-25945-01	I52
Toll Sw., from Toll Swbd. No. 1 in Same Bldg., MF KP-In, DP or RP-Out, Rev. Bat. Supv., Auto. Start of Ringing	SD-25946-01	D52
Announcement, for Use with Ann. Sys. No. 1 or 1B	SD-25952-01	B153
Aux. Inc. Intertoll, CX or SX Supv.	SD-25954-01	F59
Rev. Bat. Supv.	SD-26070-01	B37, B122
Tdm., with or without Local Completion, Rev. Bat. Supv.	SD-26071-01	A37, D122
No Test, SX Ring. Start Signal, Rev. Bat. or E&M Leads Supv.	SD-26073-01	G37, F122
RP, DP or MF Pulsing, Rev. Bat. Supv. or E&M Leads Supv., Controlled Ringing	SD-26074-01	D47, H122
Toll Sw., from Toll Swbd. No. 1, 3C or 3CL in Same Bldg., MFP, No Ringing Start Signal	SD-26075-01	B42
Rep. Dial. Using By-Link, Rev. Bat. Supv., with or without Tdm. Compl.	SD-26077-01	G47
Toll Sw., from Swbd. No. 3C or 3CL in Same Bldg., MF Pulsing, Controlled Ring. Start Sig., Coin and Noncoin	SD-26081-01	G42
Toll Sw., from Toll Swbd. No. 1 in Same Bldg., MF Pulsing, Controlled Ring. Start Sig., Coin and Noncoin	SD-26082-01	E52
RP, DP, MFP or Stfd., Rev. Bat. or E&M Leads Supv., SX or Single Freq. Ring. Start Signal, Coin Control over Separate Single Trk. Conductor or Single or 2 Frequencies	SD-26083-01	B47, I122

CAMA Tdm., with or without Local Completion, Rev. Bat. Supv. Inc., Rev. Bat. or SX Supv. Out.	SD-26100-01	A198
CAMA Tdm., with or without Local Completion, Arr. to Repeat Dial Pulses Using By-Link, Rev. Bat. or E&M Leads Supv. Inc., Rev. Bat. or SX Supv. Out.	SD-26101-01	C198
CAMA Intertoll, with Local Completion, Arr. to Repeat Dial Pulses Using By-Link, E&M Leads Supv. Inc., SX Supv. Out.	SD-26104-01	E198
Incpt. From Trk. Link Fr. and/or Line Link Fr., for use with Ann. Machine, Ann. Sys. No. 7A	SD-26121-01	E48
Intertoll, DP or MF Puls., Inc. Rev. Bat. Supv., Out. SX Supv. with or without Local Completion	SD-26152-01	G59
Aux., DP or MF Pulsing, for Converting Rev. Bat. Supv. to E&M Leads Supv.	SD-27008-01	G39
Mtce. Desk Auto., Code 958, High Low Supv.	SD-95615-01	H84, D109, F127

Outgoing

For Intertoll Completion to Dst. Toll Swbd. for TX & Similar Services or to Dst. Toll Test Board, Inc. SX Supv., Out. Rev. Bat. Supv.	SD-25519-01	I22
Flat Rate, Coin & Msg. Reg. Operation, with or without Tdm. Compl., Rev. Bat. Supv.	SD-25578-02	H142
Announcement, Flat Rate, Coin and With or Without Msg. Reg. Opr. and With or Without Tdm. Compl.	SD-25689-01	C152

TRUNK (Cont'd)

Outgoing (Cont'd)

Announcement, Flat Rate, Coin and AMA With or Without Tdm. Compl.	SD-25690-01	B152
Official P.B.X. or Verification Request	SD-25696-01	I117
For Information Serv. from Line Link Fr., High-Low Supv.	SD-25698-01	D119
Flat Rate, Coin & AMA, With or Without Tdm. Compl., Rev. Bat. Supv.	SD-25739-02	F142
Flat Rate, AMA & Msg. Operation With or Without Timing, Rev. Bat. Supv., With or Without Tdm. Completing	SD-25823-02	H30
Intertoll, DP from Sdr., Inc. SX Supv., Out. CX or SX Supv., With Access From Swbd. No. 3C or 3CL in Same Bldg. Arr. for MF Plsg.	SD-25846-02	I57
Intertoll, MFP & SX Supv. Inc., CX or SX Supv. Out., With OGT Jack Appearance at MF Swbd. No. 3C or 3CL in Same Bldg.	SD-25847-01	K57
Aux., for Intertoll Compl. for Use with Toll Swbd. No. 1, 3, 3C or 3CL 2 Way Opr. Off. Trk., Inc. SX Supv., Out. Rev. Bat. Supv.	SD-25848-01	G17
Toll Sw., RP, DP, MFP, or PCI, Inc. SX Supv., Out. Rev. Bat. Supv.	SD-25849-01	J17
Intertoll Compl. to Swbd. No. 3C or 3CL, Test & Cont. Bd. No. 8, or Toll Test Bd. No. 17B or 18B in Same Bldg., Inc. SX Supv.	SD-25850-01	D22
Aux., for Intertoll Compl. for Use With Swbd. No. 3C or 3CL Rd. Intertoll Trk., Inc. SX Supv., Out. RD. Supv.	SD-25851-01	K17
Aux., for Intertoll Compl. for Use with Toll Swbd. No. 1 Rd. Intertoll Trk., Inc. SX Supv., Out. RD. Supv.	SD-25852-01	I19

Intertoll Compl. to Toll Swbd. No. 1 or Toll Test Bd. No. 5 in Same Bldg., Inc. SX Supv.	SD-25858-01	E22
Aux., for Intertoll Compl. for Use With Toll Swbd. No. 1, 3, 3C or 3CL 2 Way Opr. Off. Trk., Inc. SX Supv., Out., CX or SX Supv.	SD-25867-01	F17
Free, to Toll DSA Swbd., High-Low Rev. Bat. Supv., Arr. for Tdm. Completing & Coin Return after Disconnection	SD-25889-01	I17
Intertoll, MFKP - In, DP - Out, CX or Equiv. Type Supv., from Swbd. No. 3C or 3CL in Same Bldg.	SD-25895-01	J133
For Inf. Service, Inc. SX Supv., Out. High-Low Supv.	SD-25902-01	G22
Combination Out. & Toll Sw., Flat Rate, RP, DP, MF or PCI Pulsing, Inc. SX Supv., Out. Rev. Bat. Supv., with Tdm. Compl.	SD-25913-01	C17
Combination Out. & Toll Sw., AMA, RP, DP, MF or PCI Pulsing, Inc. SX Supv., Out. Rev. Bat. Supv., with Tdm. Compl.	SD-25913-02	D17
Rec. Completing, High-Low Supv., Arr. for Coin Control Over Separate Single Trk. Conductor	SD-25923-01	E32
Rec. Completing, High-Low Supv., Arr. for Coin Control Over Separate Single Trk. Conductor & for Class of Service Tone	SD-25923-02	G32
Rec. Compl., High-Low Supv., Arr. for Coin Control Over Separate Single Trk. Conductor and Auto. Return of Initial Coin, or Vacant Code Incpt., with Auto. Return of Initial Coin	SD-25923-03	E31
Rec. Compl., High-Low Supv., Coin Control over Separate Conductor, Arr. for Class of	SD-25923-04	G31

Serv. Tone and Auto. Return of Initial Coin			Rec. Compl. or Vacant Code Incpt., to Toll Swbd. No. 1, 3C or 3CL in Same Bldg., Coin	SD-26093-01	B142
Inf. from Trk. Link Frame Arr. for Tdm. Completion & Coin Return after Disconnection	SD-25925-01	K22	From Line Link Fr. for Repair, Of- ficial PBX or Verification Re- quest Serv., E&M Leads Supv.	SD-26094-01	C118
Free, Ringdown Supv., Arr. for Tdm. Com- pleting & Coin Return after Dis- connection	SD-25928-01	H17	From Trk. Link Fr. & Line Link Fr. to Repair Serv. Desk No. 2, High- Low Supv.	SD-26095-01	F22
Aux., to Precede a Trk. Ckt. Not Arr. for Coin Return, to provide Coin Return from Coin Supv. Ckt. when Sub. Disconnects, for Use with 191 Type or Equivalent Coin Collector	SD-25936-01	K19	From Trk. Link Fr. for Info., Re- pair, Official PBX or Vacant Code Incpt. Serv., E&M Leads Supv.	SD-26096-01	F27
Intertoll, MFKP - In, DP - Out, CX or Equiv. Type Supv. from Toll Swbd. No. 1 in Same Bldg.	SD-25944-01	J133	Rec. Compl., Spl. Serv. or Vacant Code Incpt., E&M Leads Supv., with or without Class of Service Tone, Noncoin	SD-26098-01	D142
Aux., to Precede Coin Spl. Serv. or Rec. Compl. Trk., to Apply Coin Return Potential when Opr. Ans. or when Sub. Disconnects before Opr. Ans., for Use with 191 or Equiva- lent Coin Collector	SD-25953-01	K34	Rec. Compl. Spl. Serv. or Vacant Code Incpt., E&M Leads Supv., Coin with or without Noncoin	SD-26099-01	K32
For Dial Coin Zone Serv.	SD-26078-01	B203	Intercepting, from Trk. Link Fr. to Operator or Ann. System No. 6A, Rev. High-Low Supv.	SD-26108-01	J142
Flat Rate, with or without AMA, with or without Tdm. Compl., Rev. Bat. Supv.	SD-26085-01	E17	Aux., DP, for Converting Rev. Bat. Supv. to E&M Leads Supv.	SD-26110-01	C162
Flat Rate & Msg. Reg. Operation, with or without Timing, with or without Tdm. Compl., Rev. Bat. Supv.	SD-26086-01	J29	Aux., for Direct Sub. Access to Trks. with SX Supv. Inc., Flat Rate & AMA with Tdm. Compl.	SD-26111-01	D162
Coin, with or with- out Timing, Rev. Bat. Supv.	SD-26087-01	B27	For Use with Coin Zone Trk. or Junction Ckt.	SD-26117-01	G204
Rec. Compl., Spl. Serv. or Vacant Code Incpt., High- Low Supv., Noncoin	SD-26090-01	I32	Intercepting, Rev. High-Low or E&M Leads Supv.	SD-26122-01	F117
Rec. Compl., Spl. Serv. or Vacant Code Incpt., High- Low Supv., Coin Control over Tip and Ring	SD-26091-01	C32	Aux., MFP, for Converting Rev. Bat. Supv. to E&M Leads Supv.	SD-27009-01	B162
Rec. Compl. or Vacant Code Incpt., to Toll Swbd. No. 1, 3C or 3CL in Same Bldg., Noncoin	SD-26092-01	B32			
			<u>Overflow</u>		
			Common	SD-26131-01	C178
			<u>Permanent Signal</u> <u>Holding</u>	SD-26134-01	K178

TRUNK (Cont'd)

Reverting Call

2 Pty., 4 Pty. SD-25703-01 F177
Semi-Sel. or 10
Pty. 5 Code
4 Pty. Sel. & 8 SD-25704-01 H177
Pty. Semi-Sel.

Stuck Coin

SD-25763-01 I177

Tone

No-Such-Number SD-25824-01 H117
Signal
Noncoin SD-26132-01 B178
Coin SD-26133-01 A178

2 Way

Aux., Arr. to Com- SD-25503-01 F162
bine and Out.Trk.
& a By-Link Inc.
Trk. as a 2 Way
Trk., Rev. Bat.
Supv.

Aux., Arr. to SD-25504-01 H162
Interconnect an
Out. Trk. & a
By-Link Inc.
Trk. with a 2
Way Trk., E&M
Leads Supv.

Out. Service; MFP SD-25655-01 B57
From Pos., DP
from Sdr., Inc.
SX Supv. With
Appearance on
Trk. Link Frame
for Dial Opera-
tion-Inc. Serv.;
Inc. to Toll
Swbd. No. 1 in
Same Bldg., CX
or SX Supv.

Out. Serv.; DP SD-25667-01 E138
from Sdr., Inc.
SX Supv., Out.
CX or SX Supv.,
MFP from Swbd.
No. 3C or 3CL in
Same Bldg. -
Inc. Serv.; Inc.
to Swbd. No.
3C or 3CL in
Same Bldg. CX
or SX Supv.

Intertoll, Out. SD-25673-01 C133
Serv.; DP from
Sender, Inc.
SX Supv., Out.
Rev. Bat. Supv.,
With Access from
Toll Swbd. No. 1
in Same Bldg. Arr.
for MF Pulsing -
Inc. Serv.; Inc.
to Toll Swbd.
No. 1 in Same Bldg.,
Rev. Bat. Supv.

Out. Serv.; DP from SD-25816-01 C138
Sender, SX Supv.
Inc., Rev. Bat. Supv.
Out.; MFP from Swbd.
No. 3C or 3CL in
Same Bldg. - Inc.
Serv.; Inc. to Swbd.
No. 3C or 3CL in
Same Bldg. Rev. Bat.
Supv.

Intertoll, Inc. Serv. SD-25842-02 G57
DP or MFP & CX or
SX Supv. Inc., SX
Supv. or Type "A"
TB Supply Out. -

Outgoing Service;
DP & CX or SX
Supv. Out., SX
Supv. Inc., With
Access from Swbd.
No. 3C or 3CL in
Same Bldg. Arr.
for MF Pulsing

Intertoll, Inc. SD-25843-01 D57
Serv.; MFP & CX

Supv. Inc., SX
Supv. or Type "A"
TB Supply Out -
Outgoing Service;
MFP & CX or SX
Supv. Out., SX
Supv. Inc. With
Access From Swbd.
No. 3C or 3CL in
Same Bldg.

Intertoll, Inc. SD-25845-01 D133
Serv.; DP or MF

Pulsing and CX or
SX Supv. Inc., SX
Supv. or Type "A"
TB Supply Out.
Outgoing Service;
MF Pulsing, SX Supv.
Inc., CX or SX Supv.
Out., with Access
from Toll Swbd. No.
1 in Same Bldg.

Intertoll, Inc. Serv.; SD-25853-01 H133
DP or MFP & CX or SX

Supv. Inc., SX Supv.
or Type "A" TB Sup-
ply Out.-Outgoing
Service; DP Pulsing
from Sdr., SX Supv.
Inc., CX or SX Supv.
Out. with Access from
MF Toll Swbd. No. 1
in Same Bldg.

Interlocal, E&M Leads SD-31867-01 H163
Supv., Pulse cor-

recting on Inc. Calls

Auto., Ckt. Patching SD-55348-01 G173

Bay

Mtce. Desks 2 Way SD-95405-01 C84

Auto. to Swbd. or

Desk

Mtce. Desks 2 Way SD-96221-01 E84,

Inc. Ringdown,

Out. Auto. E109
B127

TRUNK (Cont'd)

Miscellaneous

Test, to Loc. Test Desk No. 14 or Loc. Test Cabinet No. 3 from Trk. Link Frame With or With- out Coin Return after Disconnection	SD-25665-01	E88
Test, from L.T.D. No. 14 or Local Test Cabinet No. 3	SD-25745-01	I107, I127
Inc. Test, for Test- ing Intertoll Trks., CX or SX Supv.	SD-25904-01	I98
Balance Test Termi- nation, SX Supv.	SD-25906-01	K97
Test from Loc. Test Desk No. 14 for Detecting Inter- mittent Trouble	SD-26113-01	H90
No Ckt. Signal	SD-26158-01	G177

Test, at M.D.F. or Protector Frame, In and Out Type, from L.T.D. No. 14 or Loc Test Cab. No. 3	SD-90070-01	H88
Test, at M.D.F. Bridging From L.T.D. No. 14	J-90071-01	G88
Test, Frame End from Cable Test Desk No. 3 or L.T.D. No. 14 Arr. for Man. Varley 3 Test	SD-90403-01	C87
Test, Frame End from Cable Test Desk No. 3 or L.T.D. No. 14 Arr. for Auto. Varley 3 Test	SD-95545-01	A87
Talking, at M.D.F. or Protector Frame to L.T.D. No. 14	SD-96074-01	F90