10-80996-DS

SHEET INDEX

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FS1 54B INTERROGATOR TEST CONTROL CKT	B1	1	2	3	3	3	3	3	3	5	5	9	9	9	14											
	B2	1	2	2	2	5	5	5	5	5	5	5	5	5	5											
	B3	1	1	1	1	5	5	5	5	5	5	5	5	5	5											
	B4A	1	2	3	4	4	4	7	7	9	9	9	9	9	14											
	B4B	1	2	3	4	4	4	4	4	4	4	4	4	4	4											
FS2 54C MANUALLY CONTROLLED INTERROGATOR CKT	B5	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
	B6	1	2	3	4	4	4	4	4	9	9	9	9	9	14											
FS3 54D ROTL CONTROL CKT	B7	1	2	3	4	5	5	5	5	9	9	9	9	9	14											
	B8	1	2	2	2	5	5	5	5	5	5	5	5	5	5											
FS4 54E MCI/RCU CONSOLE FS5 54F RESISTANCE BUILDOUT	B9		2	2	4	4	6	6	6	9	9	5	9	9	9											
APP FIG. 1	C1	1	2	3	4	4	4	7	7	9	9	9	9	9	9											
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	D3	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	D4	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	D5	1	1	1	1	1	1	1	1	1	1	1	1	13	13											
	D6	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
	D7	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	D8	1	1	3	3	3	6	6	6	6	6	6	6	6	6											
	D9	1	2	3	3	3	3	3	3	3	3	3	3	3	3											
	D10	1	1	3	3	3	6	6	6	6	6	6	6	6	6											
	D11	1	1	3	4	4	4	4	4	4	4	4	4	4	4											
	D12	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	D13	1	1	3	3	3	3	3	3	3	3	11	11	11	11											
	D14													13	13											
SC1	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	E2	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
SC2	E3	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	E4	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
CAD. 1-9	G1	1	2	3	3	3	3	3	3	3	3	3	3	3	14											
CAD. 10-16	G2	1	2	3	4	4	4	7	7	7	7	7	7	7	14											
CAD. 17-20	G3		2	2	4	4	6	6	8	9	9	11	11	11	14											
CAD. 21-23	G4		2	2	4	4	4	4	4	4	4	4	4	4	4											
BD1	H1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
BD2	H2	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
BD3	H3													13	13											
CPS 1 POWER SUPPLY	J1	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
CPS 2 DATA RECEIVER	J2A	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	J2B	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
CPS 3 TIMING CIRCUITRY	J3	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
CPS 4 DATA CONVERTER	J4A	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	J4B	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
CPS 5 MF SEQUENCE CIRCUITRY	J5	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
CPS 6 INTERROGATOR TEST CONTROL/ PANEL INTERFACE CKT	J6A	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
	J6B	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
CPS 7 INT TEST CONT INTERFACE A	J7A	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
	J7B	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
CPS 8 INT TEST CONT INTERFACE B	J8A	1	1	3	3	5	5	5	5	5	5	5	5	5	5											
	J8B	1	1	3	3	5	5	5	5	5	5	5	5	5	5											
	J8C	1	1	3	3	5	5	5	5	5	5	5	5	5	5											
CPS 9 PROGRAM CONTROL CKT A	J9A	1	1	3	3	3	3	3	3	3	3	11	11	11	11											
	J9B	1	1	3	3	5	5	5	5	5	5	11	11	11	11											
	J9C	1	1	3	3	5	5	5	5	5	5	11	11	11	11											
CPS 10 PROGRAM CONTROL CKT B	J10A	1	1	3	3	3	3	3	3	3	3	3	3	3	3											
	J10B	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	J10C	1	1	3	4	4	4	4	4	4	4	4	4	4	4											
CPS 11 MF DECODING CKT	J11A	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
	J11B	1	1	3	3	3	3	3	3	3	3	3	3	3	3											

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CPS 12 INT TEST CONT PRIMING DECODER	J12A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J12B	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 13 LOCAL RESPONDER CONTROL CKT B	J13A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J13B	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 14 LOCAL RESPONDER CONTROL CKT A	J14A	1	1	1	1	1	1	1	1	1	1	1	1	14												
	J14B	1	1	3	3	3	3	3	3	3	3	3	3	14												
CPS 15 MF OSCILLATOR (MAIN FRAME)	J15A	1	1	3	3	5	6	6	6	6	6	6	6	6												
	J15B	1	1	3	3	3	3	3	3	3	3	3	3	3												
	J15C	1	1	3	3	3	6	6	6	6	6	6	6	6												
CPS 16 KEYBOARD CIRCUIT	J16A	1	1	1	1	1	1	1	1	1	1	11	11	11												
	J16B	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J16C	1	1	3	3	3	3	3	3	3	3	11	11	11												
CPS 17 NUMERIC DISPLAY CIRCUIT	J17A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J17B	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J17C	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 18 PANEL RESULTS MEMORY	J18A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J18B	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 19 PANEL PRIMING MEMORY	J19A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J19B	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 20 ALPHA-NUMERIC DISPLAY CKT	J20A	1	1	3	3	5	5	5	5	5	5	5	5	5												
	J20B	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J20C	1	1	3	4	5	5	5	5	5	5	5	5	5												
CPS 21 PANEL INTERFACE & MONITOR CKT	J21A	1	1	1	1	1	1	1	1	1	10	10	10	10												
	J21B	1	1	3	4	4	4	4	4	4	4	4	4	4												
	J21C	1	1	3	4	4	4	4	4	4	10	10	10	13												
CPS 22 TIP & RING SWITCHING	J22A	1	1	3	3	3	6	6	6	6	6	6	6	6												
	J22B	1	1	3	3	3	3	3	3	3	3	3	3	13												
CPS 23 TIMING AND SIGNALING & MF SENDER	J23A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J23B	1	1	3	3	3	3	3	3	3	3	3	3	3												
	J23C	1	1	1	1	1	1	1	1	1	1	1	1	13												
	J23D	1	1	3	4	4	4	4	4	4	4	4	4	4												
CPS 24 PRIMING FIELD MEMORY AND ANSWER CALLBACK CKT	J24A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J24B	1	1	1	1	5	5	5	5	5	5	5	5	5												
	J24C	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J24D	1	1	3	3	3	3	3	3	3	3	3	3	13												
CPS 25 MF OSCILLATOR (PANEL)	J25A	1	1	3	3	5	6	6	6	6	6	6	6	6												
	J25B	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J25C	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 26 BUTTON CONTROL & PRIMING FORMAT DECODER CIRCUITS	J26A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J26B	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J26C	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 27 ROTL PRIMING REGISTERS & PRIMING FORMAT TRANSLATOR	J27A	1	1	1	1	1	1	1	1	1	1	1	1	1												
	J27B	1	1	3	3	3	3	3	3	3	3	3	3	3												
	J27C	1	1	3	4	4	4	4	4	4	4	4	4	4												
CPS 28 POWER SUPPLY	J28	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 29 DISPLAY CKT	J29	1	1	1	1	1	1	1	1	10	10	10	10	10												
CPS 30 TOUCH-TONE OSCILLATOR CKT	J30A	1	1	1	1	5	5	5	8	8	8	8	8	8												
	J30B	1	1	3	4	5	6	6	8	8	8	8	8	8												
CPS 31 DC ISOLATION CKT	J31	1	1	3	3	3	3	3	3	3	3	3	3	3												
CPS 32 LOCAL TIP & RING SWITCHING	J32			1	4	4	6	6	6	6	6	6	6	6												
CPS 33 AUTOMATIC RESULTS GENERATOR	J33A						7	7	7	7	7	7	7	7												
	J33B						7	7	7	7	7	7	7	7												
CPS 34 POWER CONVERSION	J34								9	9	9	9	9	9												
CPS 35 POWER CONVERSION	J35								9	9	9	9	9	9												

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.

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	J940548-( ) J940549-( ) J940549-( ) J94051-E-( ) J940547-( )
EQUIPMENT DESIGN REQT	J94052 (801-250-173)
GENERAL DESCRIPTION	103-251-113

DRWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APPD
1	1	3-5-75	CDI JHF	KSS EGJ MEJ
2B	1 APP 1B	10/2/75	DN DN	DP EGJ MEJ
3A	1 APP 2A	10/21/75	DN DN	DP EGJ MEJ
4B	1 APP 3B	10/21/75	DN DN	DP EGJ MEJ
5A	1 APP 4A	10/21/75	DN DN	DP EGJ MEJ
6A	1 APP 5A	3/21/77	ZEM WB	DP EGJ MEJ
7B	1 APP 6B	3/21/77	ZEM WB	DP EGJ MEJ
8A	1 APP 7A	3/21/77	ZEM WB	DP EGJ MEJ
9A	1 APP 9A	3/21/77	ZEM WB	DP EGJ MEJ
10A	1 APP 9A	3/21/77	ZEM WB	DP EGJ MEJ
11A	1 APP 10A	3/21/77	ZEM WB	DP EGJ MEJ
12A	APP 11A	3/21/77	ZEM WB	DP EGJ MEJ
13B	1 APP 12B	3/21/77	ADC WB	DP EGJ MEJ
14A	2H	3/21/77	ADC WB	DP EGJ MEJ

ISSUE 14A

SD-96608-01 1NZ0

COMMON SYSTEMS TRANSMISSION MEASURING
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

(2)

AT&TCO STANDARD

SD-96608-01-A1
117 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-A1

m 102

APPARATUS INDEX

EQPT LOC	APP FIG. NO.	APP FIG. SH NO.
CIRCUIT PACKS		
54B UNIT		
01	1	C1
04	1	C1
07	1	C1
09	1	C1
13	1	C1
15	1	C1
19	1	C1
21	1	C1
23	1	C1
25	1	C1
29	1	C1
33	1	C1
36	1	C1
38	1	C1
41	1	C1
53	1	C1
59	1	C1
54C UNIT		
01	2	C2
03	2	C2
05	2	C2
07	2	C2
09	2	C2
11	2	C2
13	2	C2
20	2	C2
25	3	C2,C3
CP29	2	C2
54D UNIT		
01	3	C3
03	3	C3
06	3	C3
08	3	C3
10	3	C3
12	3	C3
CP31	3	C3

DESIG	LOCATION FS	CAD	APP FIG.	EQPT
CABLE ASSEMBLIES				
W1	4B3		4	
W2	9B3		4	
W3		1D3 OR 3F6	2	
W4		4B0	4	
W5		7B1	4	

DESIG	LOCATION FS	APP FIG.	EQPT
CAPACITORS			
C1	6H5	2	

DESIG	LOCATION FS	CAD	APP FIG.	EQPT
CONNECTORS				
J1		1G0	1	
J1		2H5	2	
J2		1D0	1	
J3		1D0	1	
J3		2G5	3	
J4		1D0	1	
J4		2G7	3	
J5		1D0	1	
J5		2H8	2	
J6		1D0	1	
J7	6H6		2	
J8	5A0		2	
J10-J16	9A4-9D4		4	
J17	9B2		4	
P1		1G0	1	
P1		2H5	2	
P3		1H2, 1H4, 1H5, 1H7	1	
P3		2G0	2	
P4		2G2	2	
P5		2D8	2	
P6		1D5	2	
P20		3E4	4	

DESIG	LOCATION FS	APP FIG.	EQPT
DIODES, LIGHT EMITTING			
DS1-DS4	5F2	2	
DS5	6G5	2	
DS6	6D2	2	
DS7	8A2	3	
DS8	8B2	3	
DS9-DS11	8C2	3	
DS12-DS14	8D2	3	

DESIG	LOCATION FS	APP FIG.	EQPT
FANS			
B1	9B3	4	

DESIG	LOCATION FS	APP FIG.	EQPT
FUSES			
F1	9B2	4	

DESIG	LOCATION FS	APP FIG.	EQPT
KEYPAD ASSEMBLIES			
S1	5A0	2	

DESIG	LOCATION FS	APP FIG.	EQPT
NETWORKS			
( )R1A	9C8	5	
( )R4	9B8	5	
( )T1A	9C8	5	
( )TA	9A8	5	

DESIG	LOCATION FS	APP FIG.	EQPT
POTENTIOMETERS			
R1	6H5	2	

DESIG	LOCATION FS	APP FIG.	EQPT
POWER SUPPLIES			
PS1	9C1	4	
PS2	9D1	4	

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTORS			
R2	5A0	2	
R3-R5	5B0	2	
R6-R8	5C0	2	
R9-R11	5D0	2	
R12,R13	5E0	2	
R14	6H5	2	
R14-R19	8C2	3	

DESIG	LOCATION FS	APP FIG.	EQPT
SPEAKERS			
LS1	6G6	2	

DESIG	LOCATION FS	APP FIG.	EQPT
SWITCHES			
S1	9B1	4	
S2	6H0	2	
S2	9E1	4	
S3	6H0	2	
S4	6G0	2	
S5	5F0	2	
S6	5G0	2	
S7	5G0	2	
S8	5E0	2	
S9	5F0	2	
S10	5G0	2	
S11	5F0	2	
S12	8D0	3	
S13	7E8	3	
S14	8B0	3	
S15	8D0	3	
S16	8C0	3	
S17	8H0	3	
S18	8A0	3	
S19	8B0	3	
S20	8C0	3	
S21	8G0	3	
S22	8G0	3	
S23	8E0	3	
S24	8E0	3	
S25	8E2	3	
S26	8E0	3	
S27	8E0	3	

ISSUE 9A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-A2

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

SD-96608-01-A2

LEAD INDEX

DESIG	LOCATION FS	LOCATION CAD
51B RESPONDER		
4W	4A/G8	1F6
600	4A/C8	
900	4A/C8	
R	4A/G8	
R1	4A/G8	
R100	4A/C8	
R102	4A/C8	
R105	4A/C8	
RTC	4A/G8	
T	4A/G8	
T1	4A/G8	
TP0	4A/C8	
TP2	4A/C8	1F6

DESIG	LOCATION FS	LOCATION CAD
52A RESPONDER		
4W	4A/G8	1E3
R	4A/G8	
R1	4A/G8	
RR	4A/G8	
RT	4A/G8	
RTC	4A/G8	
T	4A/G8	
T1	4A/G8	1E3

DESIG	LOCATION FS	LOCATION CAD
105 TEST LINE		
4W	4A/G8	1F4,1F8
600	4A/C8	1F8
900	4A/C8	1F8
CT	4A/F5	1F4,1F8
CTR	4A/F5	1F4,1F8
ME(REBSY)	6E2	1F4,1F8
R	4A/G8	1F4,1F8
R1	4A/G8	1F4,1F8
R100	4A/C8	1F8
R102	4A/C8	1F8
R105	4A/C8	1F8
RR	4A/G8	1F4,1F8
RT	4A/G8	1F4,1F8
ST	4A/G8	1F4,1F8
T	4A/G8	1F4,1F8
T1	4A/G8	1F4,1F8
TP0	4A/C8	1F8
TP2	4A/C8	1F8

DESIG	LOCATION FS	LOCATION CAD
OFFICE BATTERY		
-48	1H0	1G0
-48	6F6	2H5
GRD	1H0	1G0
GRD	6F6	2H5

DESIG	LOCATION FS	LOCATION CAD
POSITION JACK FIELD		
ARIA	4B/C0	
ARIA1	4B/C0	
ARIA2	9C9	
ATIA	4B/C0	
ATIA1	4B/C0	
ATIA2	9C9	
BRIA	4B/D0	
BRIA1	4B/D0	
BRIA2	9C9	
BTIA	4B/D0	
BTIA1	4B/D0	
BTIA2	9C9	
CRIA	4B/E0	
CRIA1	4B/E0	
CRIA2	9C9	
CTIA	4B/E0	
CTIA1	4B/E0	
CTIA2	9C9	
CUT R	8B6	2F9
CUT R1	8B6	2F9
CUT T	8B6	2F9
CUT T1	8B6	2F9
DRIA	4B/F0	
DRIA1	4B/F0	
DRIA2	9C9	
DTIA	4B/F0	
DTIA1	4B/F0	
DTIA2	9C9	
RIA	9D5	2H9
TIA	9D5	2K9
TR	5D7,9D5	2F9
TT	5D7,9D5	2F9

DESIG	LOCATION FS	LOCATION CAD
REMOTE MONITOR JACK		
S	6H6	2G9
T	6H6	2G9

DESIG	LOCATION FS	LOCATION CAD
REMOTE OFFICE TEST LINE		
BAL A	5D9	2E9,3C5
BAL B	5D9	2E9,3C5
BID A	5D9	2E9,3C5
BID B	5D9	2E9,3C5
CUT A	5D9	2E9,3C5
CUT B	5D9	2E9,3C5
CUT R	8B6	2E9,3C5
CUT R1	8B6	2E9,3C5
CUT T	8B6	2E9,3C5
CUT T1	8B6	2E9,3C5
DR	5E7	2E9,3C5
DT	5E7	2E9,3C5

DESIG	LOCATION FS	LOCATION CAD
SUBSCRIBER LOOP (ANS CALL BACK)		
CBR	7G6	2G9,3E5
CBT	7G6	2G9,3E5

DESIG	LOCATION FS	LOCATION CAD
SUBSCRIBER LOOP (ORIGINATING)		
R	5D7,9E5	2G9,3D5
T	5D7,9E5	2G9,3D5

OPTION INDEX

APP OR WRG	RATED ON ISSUE	REF NOTES	LOC
3	STD 2		APP FIG.3, 5C8, FS3
4	STD 2		APP FIG.4, 1H2,4A/E6, 5E7,6F8, 7G9,8C6, 9C9,FS4, CAD 18-21
Z		104	2E0
Y			3G5,4A/B6, CAD 8,CAD 9
W		106	4A/F5, CAD 6,CAD 8
X		106	4A/F5,4A/G5, CAD 7,CAD 9
V		105	6H6,CAD 13
T		105	6H6,CAD 15
S			5C8
R			7A8,7C7
N			7A8,7C7
M		104	2E0
K		104	2D0
J		104	2D0
G			4B/B3
F			4B/C2
E			4B/E2
B			1H0, 1H1, 4A,M6,4B/C0, 4B/D0,4B/E1, 4B/F1,5B9, 5D7,6F6-6F8,7F8, 8C6,9C9 CAD 5,CAD 15
A			CAD 2
ZA			4B/C0,4B/D0, 4B/E1,4B/F1, 5B9, FS5, CAD 22, CAD 23
ZB			4B/C0,4B/D0, 4B/E1,4B/F1, 5B9, 9C6, FS5,CAD 22, CAD 23
ZC			7F8
ZD	NO 4		CAD 11
ZE	STD 4		CAD 11
ZF			2E0, 9E1
ZG	STD 7		
ZK	STD 9		

ISSUE 9A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-A3

BELL TELEPHONE LABORATORIES INCORPORATED

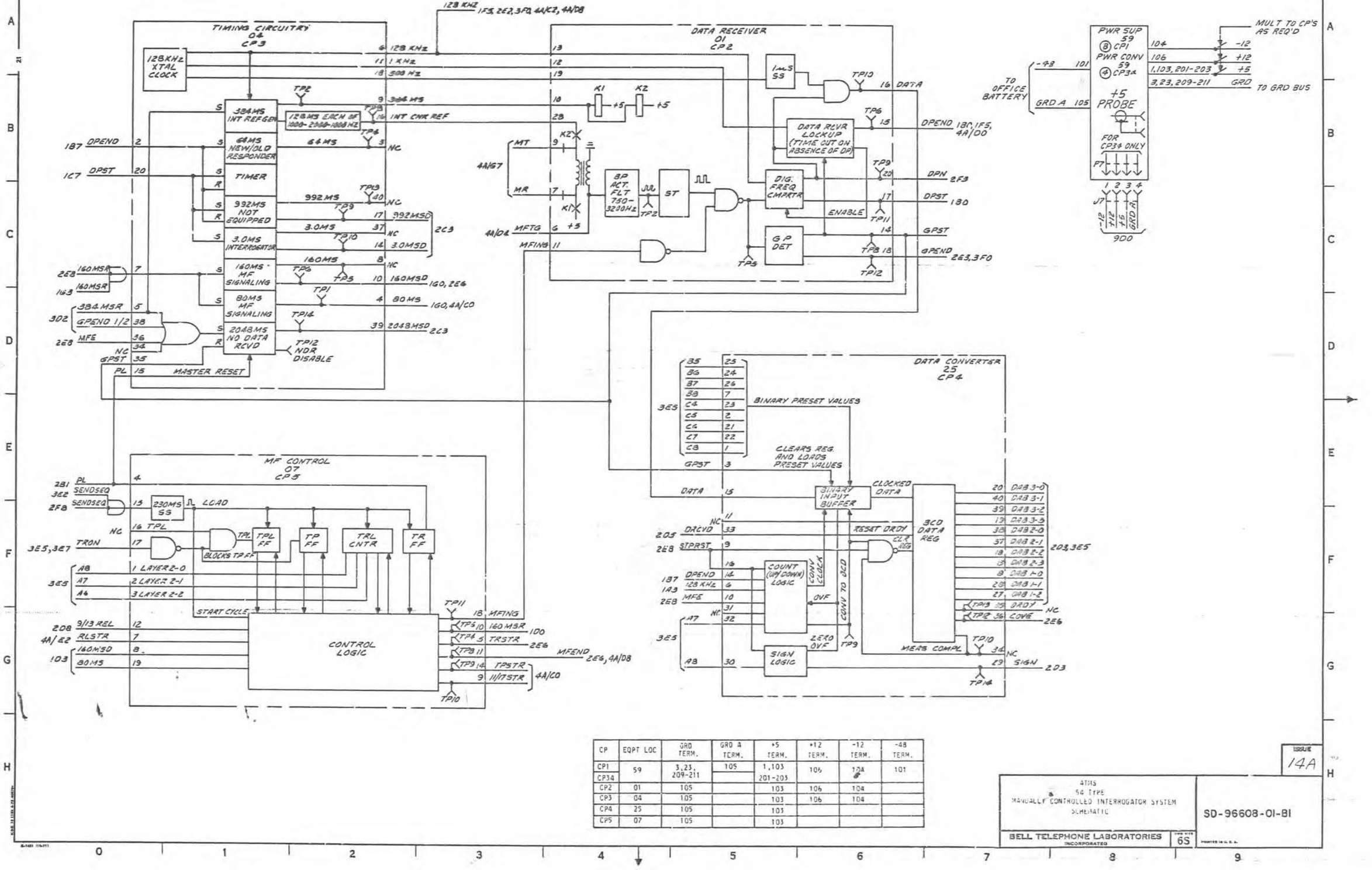
CAGE CODE 6S

PRINTED IN U.S.A.

SD-96608-01-A3

PART OF FS I

548 INTERROGATOR TEST CONTROL CKT



CP	EQPT LOC	GRD TERM.	GRD A TERM.	+5 TERM.	+12 TERM.	-12 TERM.	-48 TERM.
CP1	59	3,23, 209-211	105	1,103	106	104	101
CP34				201-203			
CP2	01	105		103	106	104	
CP3	04	105		103	106	104	
CP4	25	105		103			
CP5	07	105		103			

ISSUE 14A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-81

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET NO. 6S

PART OF FS I

54B INTERROGATOR TEST CONTROL CKT

1E0, 3D0, 3C5, 4D0, 4H5 PL

INT TST CONT /PANEL INTERFACE 09 CP6

PSA 205
PSAR 206
PSB 203
PSBR 202
6E5 PSC 20
PSCR 201
PSD 19
PSDR 18
POUTA 10
POUTAR 11
POUTB 2
POUTBR 1
6F5 POUTC 3
POUTCR 4
POUTD 9
POUTDR 8
4WB 216
4WD 214
4WC 213
4WA 209

SEE NOTE 104

S2A S2B 9E0

208 PL
37 DATA I

TP8 6 I/OE A
TP9 5 I/OE B 4B/C0
TP7 36 I/OE C
TP10 29 I/OE D 4B/E0

SERVA
SERVB
SERVC
SERVD

14 PANA
27 PANAR
13 PANB
35 PANBR 6G3
15 PANC
34 PANCR
12 PAND
28 PANDR

TP1
TP2
TP3
TP4
TP11
TP12
TP13
TP14

210 4WIRE 4A/G5
215 128 KHZ 1A3

INT TST CONT INTERFACE A 13 CP7

1E4 2048 MSD 7
932 MSD 28
3.0 MSD 203
DAB1-0 206
DAB1-1 33
DAB1-2 34
DAB2-0 35
DAB2-1 17
DAB2-2 37
1F7 DAB2-3 40
DAB3-0 39
DAB3-1 201
DAB3-2 209
DAB3-3 210
SIGN 211
2F8 COVED 38
1C7 SPENO 205
3G2 FSC 2
3D7 SCPART 216
SCONLY 16
3C5 A4 204
A5 22
A6 31
A7 11
3D5 A8 18
A9 28
1B7 OPN 9
2D8 I/O FAIL 207
DT 27
3D2 INTCHK 24
LAST 4
Y 13 12 X

32 NOR 18
30 TR8 205
213 TR7 209
214 TR6 213
215 TR5 211
212 TR4 210
203 TRANS RESULT 11
23 STP 15
15 55 3F0
3 DACVD 1F5
202 NXTTT 3F0

4E7 NXTTT
3E2 NXTTT 38
PL 215
DATA I 3

5 INHIBIT 3F0

INT TST CONT INTERFACE B 15 CP8

3E7 101TL 23
105TL 37
RELINH 13
SDPRIM 21
1C3 160 MSD 8
INT CHK 10
3E2 INV REQ 12
1G3 TRSTR 25
1G4 MFENO 5
1G7 COVE 1
3E2 DATAP 31
NC DISABLE 17
4A/E7 ON 33
3E2 EOT2 22
128 KHZ 14
SENO SEQ 2

40 TTA20 3C0, 3E3
204 TTA10
203 TTA4 3C0, 3E3, 3F5
20 TTA2
202 TTA1 3E3, 3F5
39 START 3D0, 4A/D0, 4A/H5
24 RDTI 3D0
201 EOIC 3D0
212 I/O FAIL 2F3
9 9/13 REL 1G3, 4A/C0
27 700A
30 1300B 4A/B2
19 PRIME 3D5
206 T3RC NC
4 TRSTRM 4C0
28 160 MSR 1C0
29 EOT 4A/E6
16 STPRST 1F5, 3D5
7 MFE 1D0, 1F5, 3G0
36 COVED 2E3
6 SENO SEQ 1F0
26 OUTPUT

OUTPUT

CP	EQPT LOC	GRD TERM	+5 TERM	+5 FUSE	-12 TERM	-12 FUSE
CP6	09	105	103			
CP7	13	105	103			
CP8	15	105	103		104	

ISSUE 54

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-B2

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-96608-01-B2

PART OF FS 1

54B INTERROGATOR TEST CONTROL CKT

PROGRAM CONT CKT A 19 CP9

2C8	RDTT	19	
	TTA2	25	
	TTA4	22	
	TTA10	23	
	TTA20	24	
	START	207	
	EOIC	205	
2B1	PL	10	
3C5	ROMB1	32	
	ROMB2	30	
	ROMB3	29	
	ROMB4	31	
	ROMB5	9	
	E	208	
3D7	LIMIT	212	
3D7	SCONLY	16	
3E7	105TL	12	
1C7	GPEND	13	
1A3	128KHZ	17	
3E5	B3	33	
2F5	INHIBIT	203	
3D8	101TL	216	
3D7	SCPART	211	
2D5	S5	209	
	NXTTTI	28	
2E8	MFE	11	
3E7	RDPRIM	201	

	26	LOAD CAR	NC
TP14	213	CP(WORK)	11
TP1	2	CP(CAR)	24
TP7	210	SER PAR	205
TP4	21	I/O WORK	30
	202	CLEAR CAR	3
	214	LOAD JSB	6
	6	A	23
	5	B	5
	1	384MSR	1D0
	14	GPEND 1/2	1D0, 4A/D8
TP12	27	DT	
	34	LAST	2F3
	215	INTCHK	2F3, 2E6
TP8	18	INVREQ	2E6
TP3	3	DATAP	3F5, 2F6
TP5	8	SEND SEQ	1E0
	7	NXT TT	2B6
	4	EOT2	2F6
TP10	20	EXECUTE	NC
JSB (TP2	204	RESET	39
	40	FSC	2E3

PROGRAM CONT CKT B 21 CP10

3D7	102	33	
	100	12	
	107	13	
	SC	32	
2C8	TTA1	29	
	TTA2	9	
	TTA4	10	
	TTA10	31	
	TTA20	8	

	14	ROMB1	
	207	ROMB2	
	216	ROMB3	3D0
	214	ROMB4	
	213	ROMB5	
	215	ROMB6	
	206	ROMB7	NC
	208	ROMB8	
	202	E	3E0
TP10	17	A2	
TP14	19	A3	
TP12	18	A4	
TP9	36	A5	
TP8	16	A6	1F0, 2F3
TP11	37	A7	
TP13	38	A8	1F0, 1G5, 2F3
	201	TRON	1F0
	20	B3	3F0
	40	B4	4A/E0
	203	B5	
TP5	15	B6	
TP7	34	B7	
TP6	35	B8	1E5, 4A/E0
	211	C4	
	209	C5	
	210	C6	
	212	C7	
	204	C3	
	23	ROMA 0	
	22	ROMA 1	
	21	ROMA 2	
	25	ROMA 3	
	2	ROMA 4	NC
	1	ROMA 5	
	27	ROMA 6	
	4	ROMA 7	
	26	ROMA 8	
	7	ROMA 9	

2F3 A4 A5

INT TEST CONT PRIMING DECODER 27 CP12

2B1	PL	30	
2D8	PRIME	18	
2E8	STPRST	26	
	A2	37	
	A3	36	
	A4	16	
	A5	17	
	DAB1-0	22	
	DAB1-1	23	
	DAB1-2	24	
	DAB2-0	34	
	DAB2-1	21	
	DAB2-2	6	
1F7	DAB2-3	5	
	DAB3-0	31	
	DAB3-1	32	
	DAB3-2	33	
	DAB3-3	35	
	TTA1	204	
2C8	TTA2	208	
	TTA4	205	
	TTA10	206	
3E2	DATAP	27	

Y S1B 7

	25	LIMIT	3E0
	12	SC PART	2E3, 3F0
TP11	209	SCONLY	2E3, 3E0
TP14	202	SC	3E3
TP6	9	100	3D3, 4A/C4
TP5	23	102	3D3, 4A/C6
TP8	1	107	3D3, 4A/D0
TP9	3	101TL	2D6, 3F0, 4A/D0, 4A/G5
TP10	2	105TL	2D6, 3E0, 4A/G5
TP13	201	RELINH	2D6
TP1	4	SDPRIM	
TP2	8	TRON	1F0
	207	LOCAL	4A/E5, 4A/C6
TP7	203	RDPRIM	3G0, 4A/E5
	10	105T	4A/J6
	216	600Ω	
	215	OTLP	4A/D0, 4A/C6
TP3	11	TP2-2	
TP4	28	TP2-3	4A/D0

CP	EQPT LOC	GRD TERM	+5 TERM	+5 FUSE
CP9	19	105	103	
CP10	21	105	103	
CP12	27	105	103	

ISSUE 5A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-B3

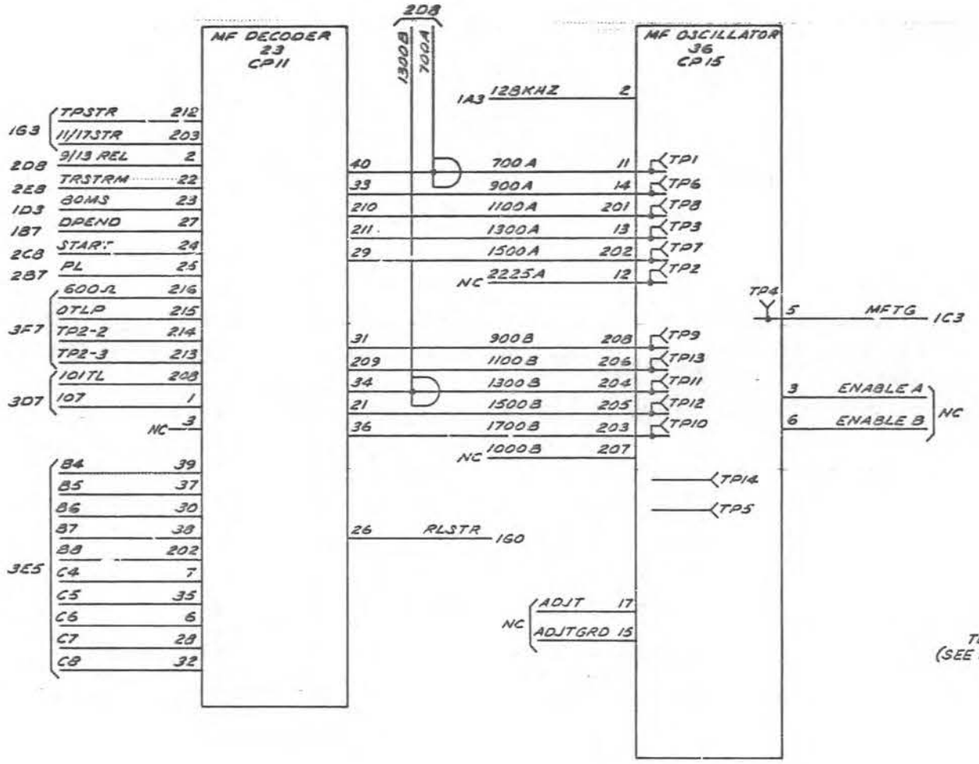
BELL TELEPHONE LABORATORIES INCORPORATED

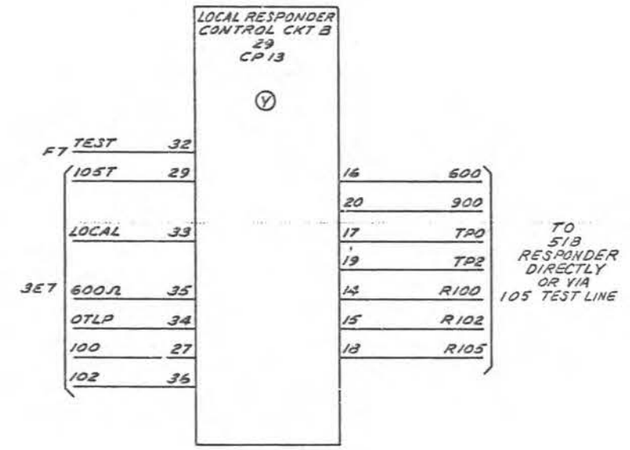
SIZE 6S

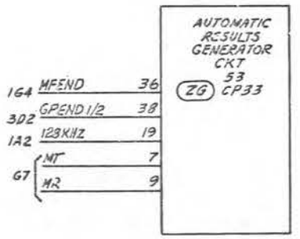
SD-96608-01-B3

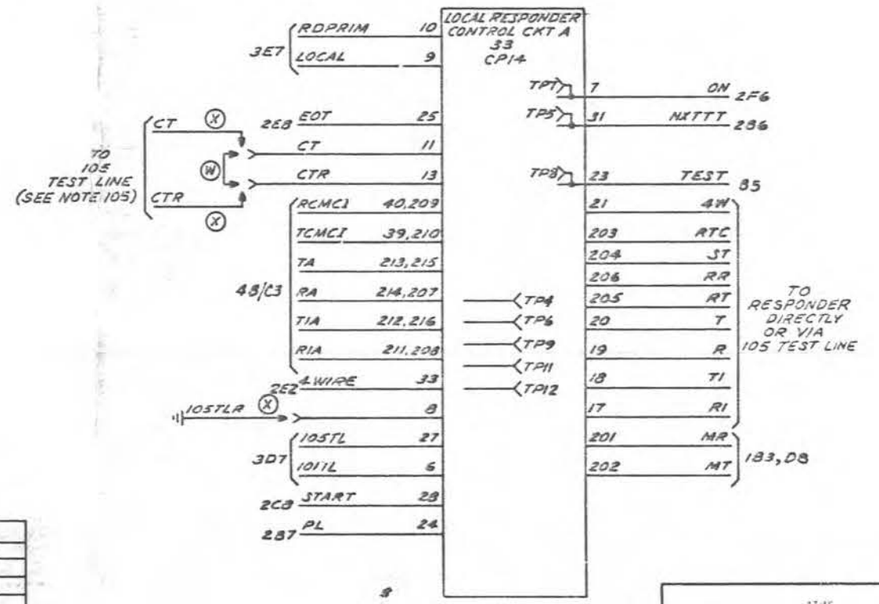
PART OF FS I

548 INTERROGATOR TEST CONTROL CKT









CP	EQPT LOC	GRD TERM	+5 TERM.	+12 TERM.	-12 TERM.	-48 TERM.
CP11	23	105	103			
CP13	29	105	103			
CP14	33	105	103		101	
CP15	36	105	103	106	104	
CP33	53	105	103	106	104	

ISSUE 14A

ATAS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE ES

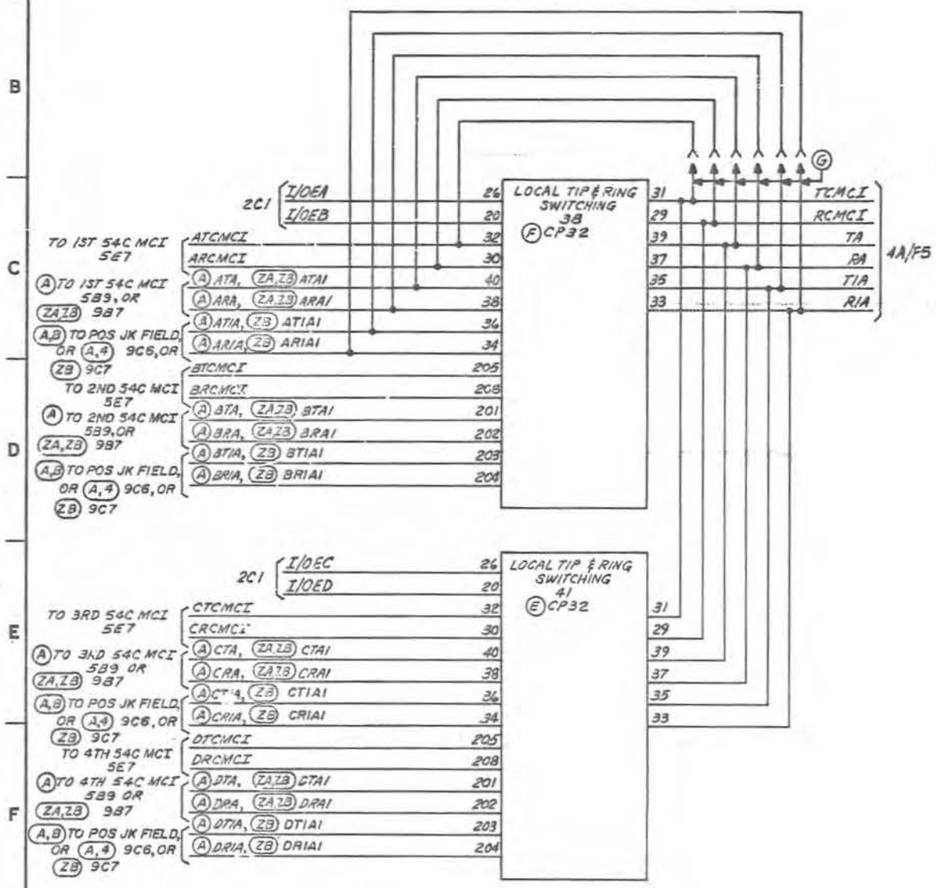
SD-96608-01-B4A

PRINTED IN U.S.A.

SD 96608-01-B4A

PART OF FS 1

54B INTERROGATOR TEST CONTROL CKT



CP	EQPT LOC	GRD TERM.	+5 TERM.	+5 FUSE
32	38 & 41	105	103	

ISSUE 4B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-B4B

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

SD-96608-01-B4B

PART OF FS 2

54C MANUALLY CONTROLLED INTERROGATOR CKT

CP	EQPT LOC	GRD TERM	+5 TERM	+5 FUSE	+12 TERM	+12 FUSE	-12 TERM	-12 FUSE
CP16	01	1,38	6,43					
CP17	03	1,38	6,43					
CP22	13	1,38	6,43		34		36	
CP29	-	46	47					

ISSUE 3A

AIMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-85

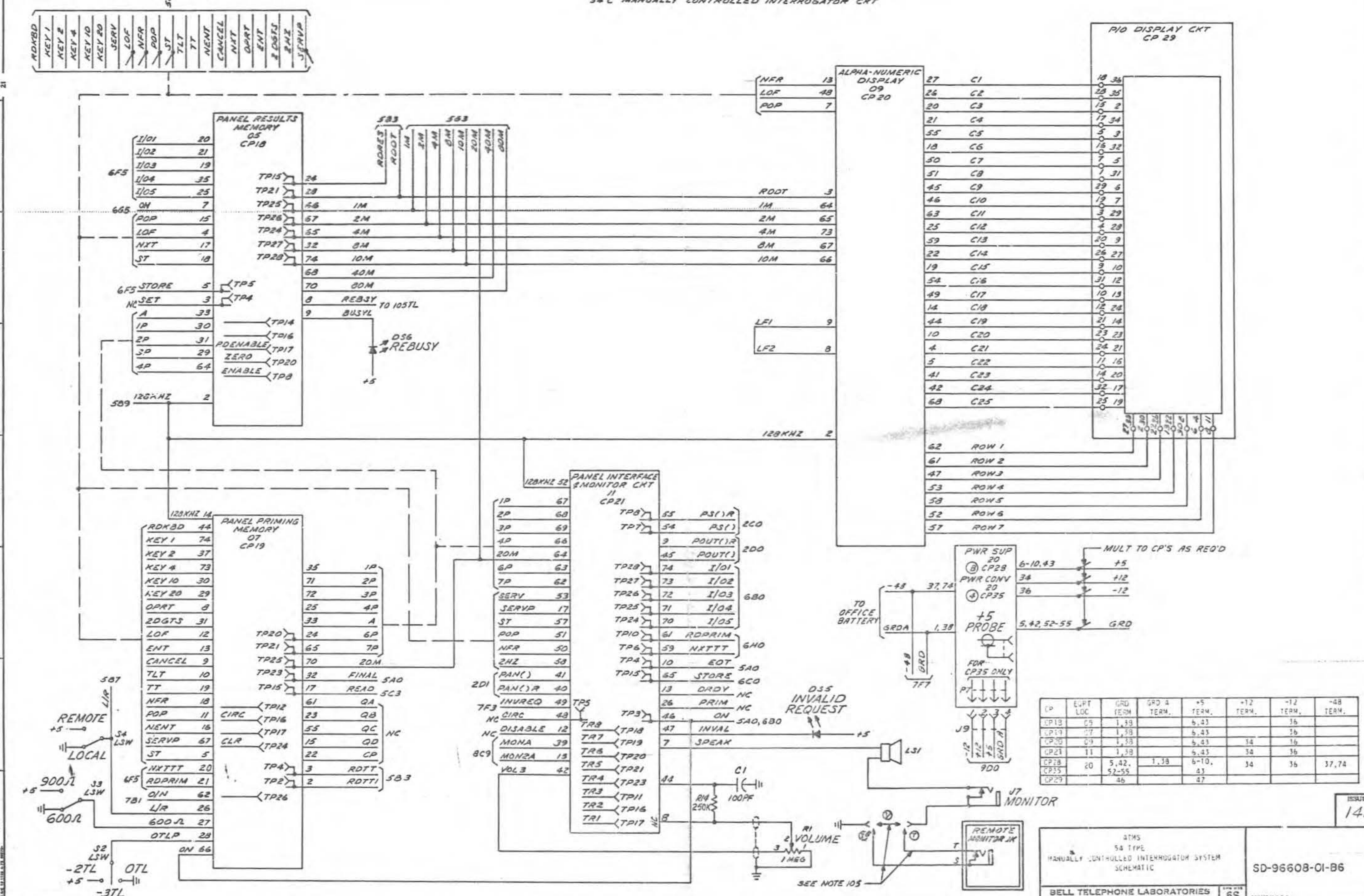
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-85

PART OF FS 2

54C MANUALLY CONTROLLED INTERROGATOR CKT



CP	EQPT LOC	GRD TERM	GRD A TERM.	+5 TERM.	+12 TERM.	-12 TERM.	-48 TERM.
CP18	05	1,39		6,43		36	
CP19	07	1,38		6,43		36	
CP20	09	1,38		6,43	34	36	
CP21	11	1,38		6,43	34	36	
CP28 / CP35	20	5,42, 52-55	1,38	6-10, 43	34	36	37,74
CP29		46		47			

ISSUE 14A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-B6

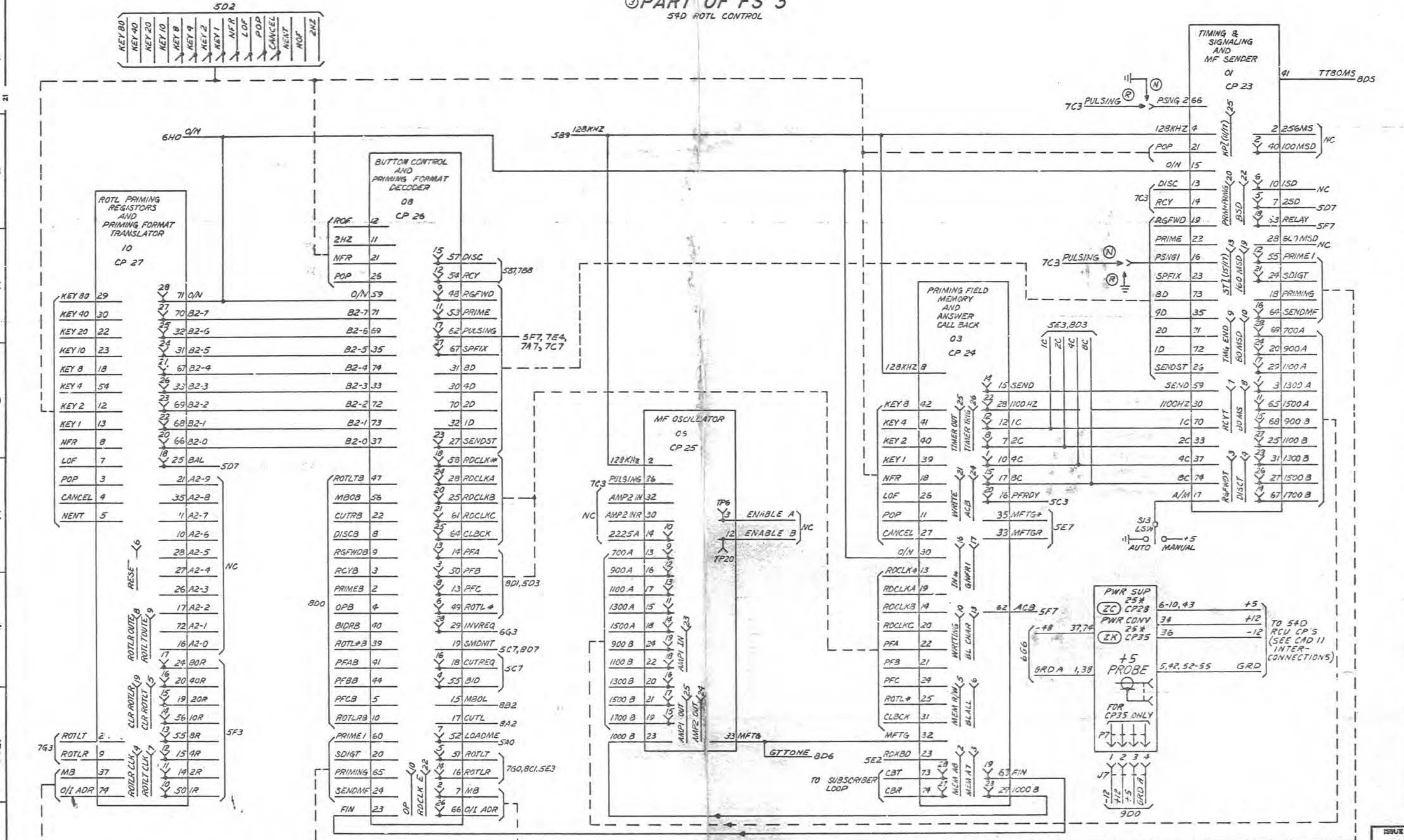
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-B6

③PART OF FS 3

54D ROTL CONTROL



NOTE:

1. * IS LOCATED IN 54C MANUALLY CONTROLLED INTERROGATOR CKT.

CP	EQPT LOC	GRD TERM	GRD A TERM.	+5 TERM.	+12 TERM.	-12 TERM.	-48 TERM.
CP23	01	1,38		6,43	34	36	
CP24	03	1,38		6,43	34	36	
CP25	06	1,38		6,43	34	36	
CP26	08	1,38		6,43			
CP27	10	1,38		6,43			
CP28 / CP35	25 *	5,42, 52-55	1,38	6-10, 43	34	36	37,74

ISSUE 14A

AIMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-B7

③PART OF FS 3

543 ROTL CONTROL

S18 NL SW ROTL TYPE — ROTLTB — +5
S19 NL SW MTCE BUSY — MBOB — +5
S14 NL SW CUT THRU — CUTRB — +5
S20 NL SW DISC — DISCB — +5
S16 NL SW RNG FWD — RGFWDB — +5
S15 NL SW RECYCLE — RCYB — +5 (7F2)
S12 NL SW PRIME — PRIMEB — +5
S26 NL SW OP — OPB — +5
S24 NL SW BID — BIDRB — +5
S27 NL SW ROTL NO — ROTL#B — +5
S23 NL SW A — PFAB — +5
S22 NL SW B — PFBB — +5
S21 NL SW C — PFCB — +5
S17 NL SW ROTL REQ — ROTLRB — +5

PRIMING FIELD

DS37 CUT THRU — CUTL — +5
DS38 MTCE BUSY OVRD — MBOL — +5 (7G3)

DS9 ROTLT — ROTLT — R14 100 — +5
DS10 ROTLR — ROTLR — R15 100 — +5
DS11 PFA — PFA — R16 100 — +5
DS12 PFB — PFB — R17 100 — +5 (7F3)
DS13 PFC — PFC — R18 100 — +5
DS14 ROTL# — ROTL# — R19 100 — +5

S25 TRUNK DIRECT LOOP — 5C7 TRUNK — 8D7 LOOPB

TOUCH TONE OSCILLATOR CIRCUIT
12
CP30
Ⓐ

697T	55	
770T	54	
852T	53	
NC 941T	52	
1209T	51	
1336T	50	
1477T	49	
1C	10	
2C	11	
7C7 4C	12	
8C	13	
7A9 TT80MS	14	
NC	40	

TP1 TP2 TP3 TP4 TP6 TP7 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP17 TP18 TP19 TP20

TP16	4	GAIN 1
	39	GAIN 2
TP8	41	GTTONE 7F5

NC

TO REMOTE OFFICE TEST LINE AND Ⓑ POS JK FIELD OR ④ 985

DC ISOLATION CIRCUIT
CP31

	CUTT1	1	17	CUTT1A
	CUTR1	3	18	CUTR1A
	CUTT	2	14	CUTTA
	CUTR	7	16	CUTRA
5A7				
589	MON	5	12	MONA
	MON2	6	13	MON2A
6G3				
5C9	T*	8	10	T*A
	R*	9	11	R*A
5C9				
TF3	S.MONIT	4		
8F1	LOOPB	21	19	LOOP 5C7

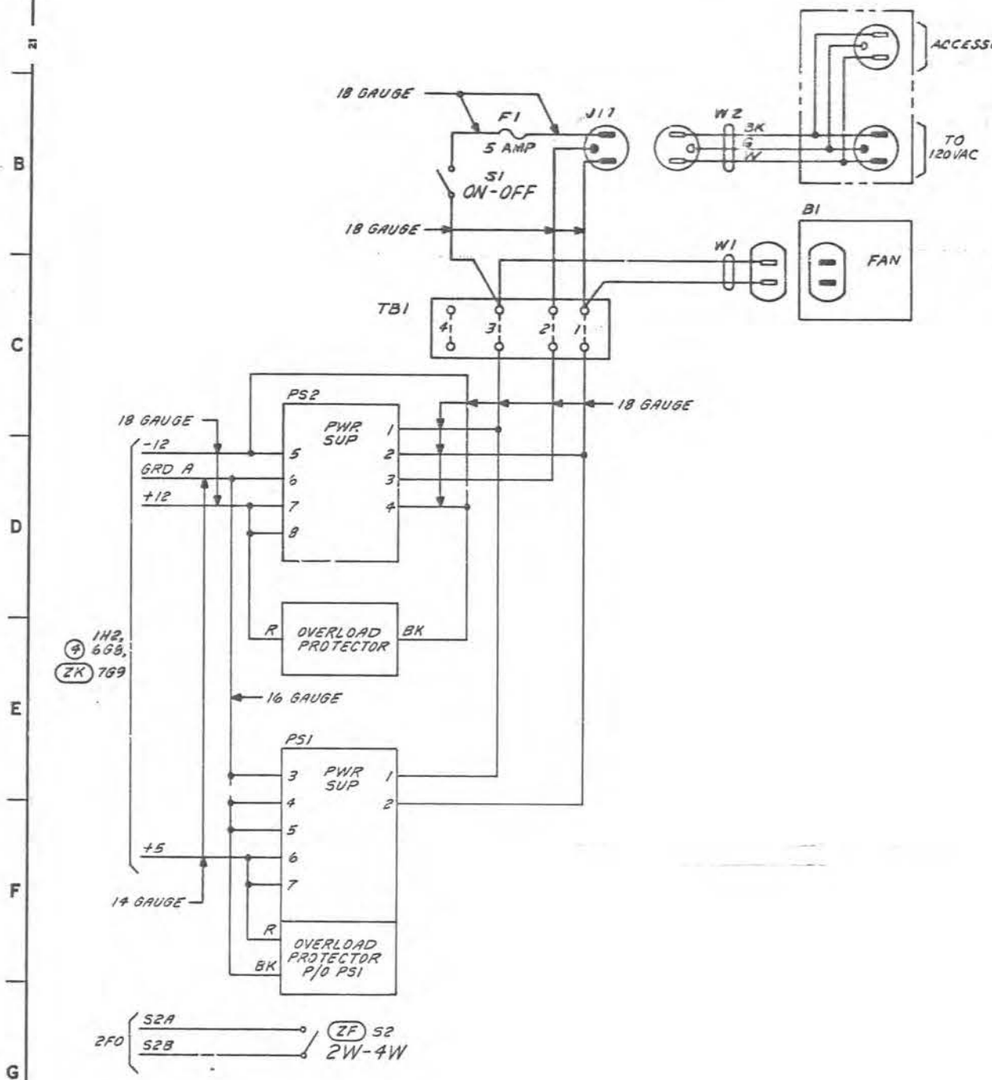
CP	EQPT LOC	GRD TERM	+5 TERM	+5 FUSE	+12 TERM	+12 FUSE	-12 TERM	-12 FUSE
CP30	12	1,38	6,43		34		36	
CP31		15	20					

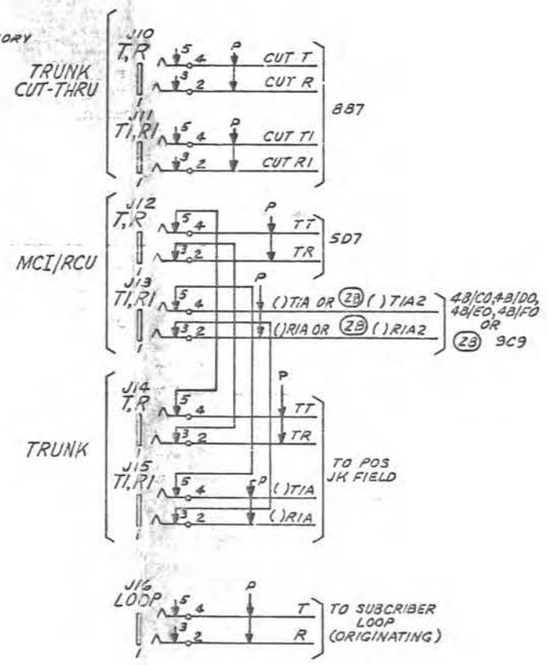
ISSUE 5A

ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-88
BELL TELEPHONE LABORATORIES INCORPORATED — SHEET SIZE 6S — PRINTED IN U.S.A.	

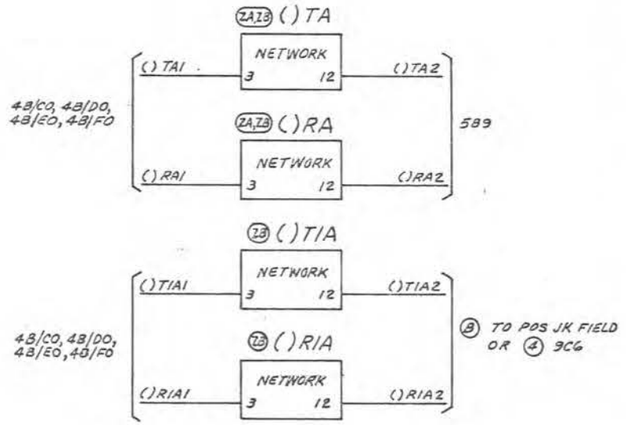
SD-96608-01-88

④ FS 4
54E MCI/RCU CONSOLE





FS 5
54F RESISTANCE BUILDOUT
(ZA 2-WIRE, ZB 4-WIRE)



ISSUE	9A
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-B9
BELL TELEPHONE LABORATORIES INCORPORATED	6S

68-10-80996-SD

APP FIG.1

CIRCUIT PACK

EQPT LOC	01		04	07	09		13	15		19	21	23		25		27
DESIG	(CP2)		(CP3)	(CP5)	(CP6)		(CP7)	(CP8)		(CP9)	(CP10)	(CP11)		(CP4)		(CP12)
CODE	ED-2C127-( )		ED-2C128-( )	ED-2C110-( )	ED-2C106-( )		ED-2C307-( )	ED-2C368-( )		ED-2C309-( )	ED-2C310-( )	ED-2C311-( )		ED-2C129-( )		ED-2C312-( )
OPTION																
ELEM IDENT																
FS LOC	1A5		1A1	1E2	2B1		2B4	2B7		3C1	3C4	4A/C1		1D6		3C6

EQPT LOC	29		33		36	38	41		53		59	59				
DESIG	(CP13)		(CP14)		(CP15)	(CP32)	(CP32)		(CP 33)		(CP1)	(CP34)				
CODE			ED-2C314-( )		ED-2C315-( )				ED-2C466-( )		ED-2C305-( )	ED-2C519-( )				
OPTION	Y					F	E		ZG		B	4				
ELEM IDENT																
FS LOC	4A/B6		4A/C6		4A/C3	4B/C2	4B/E2		4A/C9		1H1	1H1				

CONNECTOR

	DESIG	LOC	CAD LOC	CODE
(8)	J1		1G0	SM7-20SSKGDH-1 (CONTINENTAL CONNECTOR CORP.)
	J2		1D0	
	J3		1D0	
	J4		1D0	KS-16786,L2
	J5		1D0	
	J6		1D7	
(8)	P1		1G0	SM7-20PSGD (CONTINENTAL CONNECTOR CORP)
	P3		1H2,1H4,1H5, 1H7	KS-16786,L10
(4)	J7			S304CCT-4 (CINCH)

4ESS 5A TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-C1
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 6S

ISSUE 9A

APP FIG. 2

CIRCUIT PACK

P/O APP FIG. 3

EQPT LOC	01	03	05	07	09	11	13			20	20	25	25			
DESIG	(CP16)	(CP17)	(CP18)	(CP19)	(CP20)	(CP21)	(CP22)			(CP35)	(CP28)	(CP35) ※	(CP28)*	(CP29)		
CODE	ED-2C316-( )	ED-2C317-( )	ED-2C318-( )	ED-2C319-( )	ED-2C320-( )	ED-2C321-( )	ED-2C322-( )			ED-2C520-( )	ED-2C328-( )	ED-2C520-( )	ED-2C328-( )	ED-2C329-( )		
OPTION										4	8	ZK	ZC			
ELEM IDENT																
FS LOC	5A1	5A4	6B1	6E1	6B5	6E4	5A8			6F7	6F7	7F8	7F8	5H6		

※ PART OF J940540

CABLE ASSEMBLY

DESIG	CAD LOC		CODE
[1] W3	1D3	(A)	ED-
	4F6	(ZA,ZB)	ED-

CAPACITOR

DESIG	LOC	CODE
C1	6H5	KS-20676 L1, 100PF

CONNECTOR

DESIG	LOC	CAD. LOC	CODE
(B) J1		2H5	SM7-20SSKGOH-1 (CONTINENTAL CONNECTOR CORP)
(B) J5		2H8	SM-29-20SSKGOH-1 (CONTINENTAL CONNECTOR CORP)
J7		6H6	N112A JACK (SWITCHCRAFT)
J8	5A0		251-25-30-160 (CINCH MANUFACTURING CO.)
(B) P1		2H5	SM5-20PSGD
P3		2G0	50-20PSGD
P4		2G2	50-20PSGD
P5		2D8	SM-29-20PSGD (CONTINENTAL CONNECTOR CORP)
P6		1D5	SM-26-20PSGD
(4) J9			S304CCT-4 (CINCH)

KEYPAD ASSEMBLY

DESIG	LOC	CODE
S1	5A0	5-69476-123 (OAK ELECTRO/NETICS CORP., SW DIVISION)

LIGHT EMITTING DIODES

DESIG	LOC	CODE
[4] DS1-DS4	5F2	5082-4403 (HEWLETT PACKARD)
DS5	6G5	
DS6	6D2	

POTENTIOMETER

DESIG	LOC	CODE
R1	6H5	GA2N045105UA (ALLEN BRADLEY)

RESISTOR

DESIG	LOC	CODE
R2	5A0	
[3] R3-R5	5B0	
[3] R6-R8	5C0	KS-20616,L14,1000
[3] R9-R11	5D0	
[3] R12-R13	5E0	
R14	6H5	KS-20616 L1A, 250K

SPEAKER

DESIG	LOC	CODE
LS1	6G6	25A07 (QUAM NICHOLS CO.)

SWITCH

DESIG	LOC	CODE
S2	6H0	KS-19963,L26
S3	6H0	KS-19963,L26
S4	6G0	KS-19963,L26
S5	5F0	46YY2314-11
S6	5G0	46YY2314-10
S7	5G0	46YY2314-9 (GRAYHILL)
S8	5E0	46YY2315-2
S9	5F0	46YY2315-2
S10	5G0	46YY2314-12
S11	5F0	46YY2315-1

ISSUE 9A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERPOGATOR SYSTEM
SCHEMATIC

SD-96608-01-C2

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

③ APP FIG.3

CIRCUIT PACK

EQPT LOC	01	03		06		08	10		12			*	*			
DESIG	(CP23)	(CP24)		(CP25)		(CP26)	(CP27)		(CP30)	(CP31)		(CP35)	(CP28)			
CODE	ED-2C323-( )	ED-2C324-( )		ED-2C325-( )		ED-2C326-( )	ED-2C327-( )		ED-2C330-( )	ED-2C331-( )		ED-2C520-( )	ED-2C328-( )			
OPTION	3	3		3		3	3		R			2K	ZC			
ELEM IDENT																
FS LOC	7A0	7C6		7E4		7a2	7C0		885	888		7F8	7F8			

* LOCATED IN 54C MANUALLY CONTROLLED INTERROGATOR CIRCUIT (APP FIG. 2)

CONNECTOR

DESIG	CAD LOC	CODE
J3	2G5	50-20SGDSKH4 (CONTINENTAL CONNECTOR CORP.)
J4	2G7	
(ZK) J7		S304CCT-4 (CINCH)

LIGHT EMITTING DIODE

DESIG	LOC	CODE
DS7	8A2	5082-4403 (HEWLETT PACKARD)
DS8	8B2	
DS9	8C2	
DS10	8C2	
DS11	8C2	
DS12	8D2	
DS13	8D2	
DS14	8D2	

SWITCH

DESIG	LOC	CODE
S12	8D0	46YY2315-2 (GRAYHILL)
S13	7E8	KS-19963,L26
S14	8B0	46YY2314-7
S15	8D0	46YY2315-2
S16	8C0	46YY2315-2
S17	8H0	46YY2314-2
S18	8A0	46YY2314-1
S19	8B0	46YY2314-6 (GRAYHILL)
S20	8C0	46YY2315-2
S21	8G0	46YY2314-5
S22	8G0	46YY2314-4
S23	8E0	46YY2314-3
S24	8E0	46YY2315-2
S25	8E2	12037T (SWITCHCRAFT)
S26	8E0	46YY2315-2 (GRAYHILL)
S27	8E0	46YY2314-8

RESISTOR

DESIG	LOC	CODE
[6] R14-R19	8C2	KS-20616 L1A, 100

④ APP FIG. 4

CABLE ASSEMBLY

DESIG	LOC	CAD LOC	CODE
W1	9B3		428001 (ROTRON) KS-20340 L2
W2	9B3		
(ZF) W4		4B0	
W5		3B1	

CONNECTOR

DESIG	LOC	CAD LOC	CODE
[7] J10-J16	9A4-9D4		239A JACK
J17	9B2		EAC-301 (SWITCHCRAFT INC)
P20		3E4	KS-16785,L10

FAN

DESIG	LOC	CODE
B1	9B3	MU2A1 (ROTRON INC)

FUSE

DESIG	LOC	CODE
F1	9B2	5A MDX (BUSSMAN INC)

POWER SUPPLY

DESIG	LOC	CODE
PS1	9C1	LXS-CC-5-0V-R (LAMDA ELECTRONICS CORP)
PS2	9D1	LXD-B-152-R E/W LM-0V-3 OVERLOAD PROTECTOR

SWITCH

DESIG	LOC	CODE
S1	9B1	8134K21K4T51 (CUTLER-HAMMER)
(ZF) S2	9E1	

APP FIG. 5

NETWORK

DESIG	LOC	CODE
(ZB) ( )R1A	9C8	ED-94823-83,G321
(ZA,ZB) ( )RA	9B8	
(ZB) ( )T1A	9C8	
(ZA,ZB) ( )TA	9A8	

ISSUE 9A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

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SD-96608-01-C3

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
			CIRCUIT
	2	-48V	54B ITC CKT
	3	-48V	54C MCI CKT

BATTERY SYMBOL	VOLTAGE RANGE
-48	-44 TO -52

CURRENT DRAIN FOR 54B ITC IS 1.1 AMPERES
CURRENT DRAIN FOR 54C MCI & 54D RCU IS 1.6 AMPERES

102.

FEATURE OR OPTION			PROVIDE APP FIG	PROVIDE APP OR WRG	PROVIDE QUANTITY
54B INTERROGATOR TEST CONTROL	FOR RACK MOUNTING		1	B	ONE PER SYSTEM
	FOR CONSOLE MOUNTING			4	
	FOR CONNECTION TO 51B RESPONDER	DIRECTLY WIRED TO DEDICATED RESPONDER		W,Y	
		VIA INTERROGATOR ACCESS CKT OF 105TL		X,Y	
	FOR CONNECTION TO 52A RESPONDER	DIRECTLY WIRED TO DEDICATED RESPONDER		W	
		VIA INTERROGATOR ACCESS CKT OF 105TL		X	
	FOR ONE MCI/RCU PANEL CAPABILITY			G	
	FOR TWO MCI/RCU PANEL CAPABILITY			F	
	FOR 3 OR 4 MCI/RCU PANEL CAPACITY			F,E	
	FOR AUTOMATIC RESULTS GENERATOR CIRCUIT			ZG	
54C MANUALLY CONTROLLED INTERROGATOR	FOR RACK MOUNTING		2	B	MAX. OF 4 PER SYSTEM
	FOR CONSOLE MOUNTING			4	
	WITHOUT CONNECTION TO 54F RES BUILDOUT			A	
	WITH CONNECTION TO 54F RES BUILDOUT	FOR 2-WIRE APPLICATION		ZA	
		FOR 4-WIRE APPLICATION		ZB	
	WITH ROTL ACCESS			J	
	WITHOUT ROTL ACCESS			S	
	WITH REMOTE AUDIO MONITOR CAPABILITY			T	
	WITHOUT REMOTE AUDIO MONITOR CAPABILITY			V	
54D ROTL CONTROL UNIT	FOR RACK MOUNTING		3	ZC	MAX. OF 4 PER SYSTEM
	FOR CONSOLE MOUNTING			ZK	
	WITH TOUCH-TONE ®			R	
	WITHOUT TOUCH-TONE ®			N	
54E MCI/RCU CONSOLE	MAIN CONSOLE		4	ZF	ONE PER SYSTEM
	SECONDARY CONSOLE				MAX. 3 PER SYSTEM
54F RESISTANCE BUILDOUT PANEL	FOR 2-WIRE APPLICATION		5	ZA	SEE NOTE 204
	FOR 4-WIRE APPLICATION			ZB	

CIRCUIT NOTES: (CONT)

103.

RECORD OF APP FIGURES, WIRING & APPARATUS CHANGES						
CHANGED IN ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT STD	A&M	MD
AB	ZE	ZD		ZE		ZD
AG	ZG	NONE		ZG		
AA	ZK	NONE		ZK		

104. Z,K,M, & J OPTIONS ARE NONRECORD OPTIONS TO BE APPLIED BY CUSTOMER TO EQUIP PANEL UNITS FOR 4-WIRE OPERATION. Z OPTION IS APPLIED TO PNL A, K OPTION IS APPLIED TO PNL B, M OPTION IS APPLIED TO PNL C, & J OPTION IS APPLIED TO PNL D.

105. T, V OPTIONS ARE INSTALLERS OPTIONS TO BE APPLIED PER CAD 15.

106. W, X ARE INSTALLERS OPTIONS TO BE APPLIED PER CAD 6,7,8, OR 9. FOR 2-WIRE OFFICES, TT & TR IN CAD 15 & 18 SHOULD BE WIRED TO MISCELLANEOUS JACK AT A TEST POSITION WHERE THERE IS JACK ACCESS TO TRUNKS. FOR 4-WIRE OFFICES, TT, TR, T1A, R1A IN CAD 15 & 18 SHOULD BE WIRED TO MISCELLANEOUS JACK AT A TEST POSITION FOR JACK ACCESS.

107. THE T,R SUBSCRIBER LOOP SHOULD BE WIRED TO THE DF AND CONNECTED BY THE TELEPHONE COMPANY FOR DIAL PULSE SUBSCRIBER SERVICE IF OPTION N IS WIRED, OR FOR TOUCH-TONE® SERVICE IF OPTION R IS WIRED. THE CBT, CBR PAIR SHOULD BE WIRED TO THE DF AND CONNECTED BY THE TELEPHONE COMPANY FOR SEVEN DIGIT SUBSCRIBER SERVICE. THE ROTL MUST BE SET TO CALL THIS NUMBER WHEN TRUNK MAKE BUSY AND UNLOCK IS REQUESTED.

108. THE PANEL JACK IS WIRED TO CUT OFF THE SPEAKER WHEN A HEADSET IS USED. A REMOTE SPEAKER CUT-OFF MONITOR JACK, Ⓣ, CAN BE INSTALLED IN ANY AVAILABLE LOCATION. THE SPEAKER WILL NOT OPERATE UNLESS SHORTING STRAP Ⓥ IS INSTALLED OR THE REMOTE MONITOR OPTION Ⓣ IS INSTALLED AND THE T & S WIRES ARE SWITCHED TOGETHER BY THE REMOTE JACK (SEE SHEET B6).

109. WHEN THE 54C IS CONNECTED TO THE LOCAL ROTL TO PROVIDE DIRECT ACCESS, THESE CONNECTIONS MUST BE MADE, OTHERWISE THEY ARE NOT CONNECTED. THE PAIRS, CUTA-CUTB, BALA-BALB, B1DA-B1DB ARE RELAY OUTPUTS TO THE ROTL WHICH SPECIFY THE TYPE OF SERVICE REQUIRED. THE PAIR, DT-DR, IS FOR AUDIO COMMUNICATION WITH THE ROTL. TRUNK CUT-THRU IS PROVIDED BY WIRING CUTT-CUTR (ON TERMINALS J & H) TO THE ROTL AND CUTT-CUTR (ON TERMINALS S & T) TO AN AVAILABLE JACK POSITION. IN 4-WIRE OFFICES, CUTT1-CUTR1 (ON TERMINALS L & K) MUST BE WIRED TO THE ROTL AND THOSE ON TERMINALS U & V MUST BE WIRED ALONG WITH THOSE ON TERMINALS S & T TO AN AVAILABLE JACK POSITION.

EQUIPMENT NOTES:

201. UNLESS OTHERWISE SPECIFIED:
ALL WIRING SHALL BE 24 GAUGE, SOLID , TYPE BU OR BG COLORED.
ALL POWER AND GROUND WIRING SHALL BE 20 GAUGE SOLID ALL SHIELDED WIRING TO BE 24 GAUGE, SOLID, TYPE BU OR BG. IN FS1, GRD LEADS FROM CONNECTORS OF CIRCUIT PACKS TO BF RUN DIRECTLY TO GRD BUS.
WIRING TO CP29, LS1 SPKR, R1 POT., J7 JACK, AND DS1.-DS5 LAMP TO BE SCGRAGATED FROM WIRING TO J8 CONN AND S2-S11 SWITCHES.

202. THE CUT-THRU TIP AND RING LEADS FROM THE J5 CONNECTOR ON THE J94054L PANEL ARE WIRED TO THE ROTL THROUGH E6 REPEATERS EQUIPPED WITH ONE 831 GAIN UNIT AND TWO 932A DUMMY NETWORKS, AS SHOWN ON BLOCK DIAGRAM B02 ON SHEET H2. ONE SUCH REPEATER IS REQUIRED FOR A 2-WIRE PATH (CUTT, CUTR) AND TWO ARE REQUIRED FOR A 4-WIRE PATH 1 CUTT, CUTR AND CUTT1, CUTR1).

203. THE W4 CABLE SHALL BE 2 1/2 FT IN LENGTH.

204. THE 54F RESISTANCE BUILDOUT PANEL (J94054F) HAS THE CAPACITY FOR MOUNTING AND WIRING A MAXIMUM OF 16 ED-94823-83, G321 AMPLAS COMPONENT ASSEMBLIES, OTHERWISE KNOWN AS RESISTANCE NETWORK UNITS. THE NUMBER OF RESISTANCE NETWORK UNITS TO BE MOUNTED AND WIRED IN A 54F PANEL FOR A GIVEN SYSTEM DEPENDS UPON SEVERAL CONDITIONS. FIRST, IT IS DEPENDENT UPON THE NUMBER OF 54C MCI PANEL UNITS INVOLVED; THERE CAN BE FROM ONE TO FOUR PANEL UNITS ASSOCIATED WITH A PARTICULAR 54B INTERROGATOR TEST CONTROL UNIT. IN ADDITION, EACH 54C PANEL UNIT IN A SYSTEM CAN BE SPECIFIED EITHER FOR A 2-WIRE OR A 4-WIRE TRUNK CONFIGURATION. A 2-WIRE TRUNK (T,R) REQUIRES TWO RESISTANCE NETWORKS AND A 4-WIRE TRUNK (T,R,T1,R1) REQUIRES FOUR RESISTANCE NETWORKS. THE RESISTANCE NETWORKS ARE AVAILABLE AS A SET OF TWO UNITS. A SYSTEM ASSOCIATED WITH A GIVEN 54B UNIT REQUIRES A MINIMUM OF ONE SET AND UP TO A MAXIMUM OF 8 SETS OF RESISTOR NETWORKS TO BE MOUNTED AND WIRED IN ITS ASSOCIATED 54F PANEL. THE 54F PANEL IS REQUIRED ONLY FOR CERTAIN SYSTEM CONFIGURATIONS AS SPECIFIED IN BSP 103-251-110.

205. FOR CONNECTION TO THE 52A RESPONDER CKT THE INSTALLER SHALL PROVIDE AN A25C CONNECTOR CABLE (LENGTH AS REQ'D) WHICH IS TO BE WIRED TO CONNECTOR P3 PER CAD 6.

206. THIS SYSTEM IS CONSTRUCTED DIGITAL LOGIC DEVICES AND IS CONSEQUENTLY SECEPTIBLE TO LARGE SWITCHING NOISE TRANSIENTS. CARE SHOULD BE TAKEN TO AVOID ENGINEERING THIS EQUIPMENT INTO ROTL FRAMES OR TO ANY FRAME WHICH HAS UNPROTECTED RELAYS.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS, WITH K FOR KILOHMS, CAPACITANCE VALUES ARE IN MICROFARADS, INDUCTANCE VALUES ARE IN HENRIES. VALUES PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.

302. INTEGRATED CIRCUIT INFORMATION

TABLE OF CONTENTS

* SEE SD-1C478-01

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ISSUE 138

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-01

BELL TELEPHONE LABORATORIES INCORPORATED

CODE IDENT 6S

PRINTED IN U.S.A.

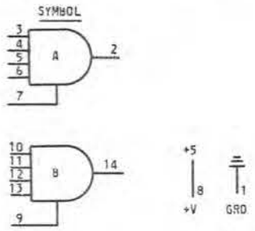
INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
CAPACITANCE VALUES ARE IN MICROFARADS:
INDUCTANCE VALUES ARE IN HENRIES:
RESISTANCE VALUES ARE IN OHMS, WITH K FOR VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

302. INTEGRATED CIRCUIT
OUTSIDE SUPPLIER ENTERIES IN THESE NOTES SHOWING MORE THAN ONE MANUFACTURER ARE APPROVED EQUIVALENTS.

304. EXPANDABLE 4-INPUT "AND" GATE, 2 PER IC
SP304A - SIGNETICS

SYMBOL



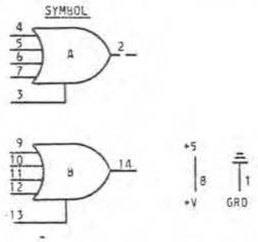
INPUT/OUTPUT INFORMATION

A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT A GATE OUTPUT IF ALL INPUTS ARE HIGH (≥ 2.5V). A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT THE OUTPUT IF ANY OR ALL INPUTS ARE LOW (≤ 0.5V).

PINS 7 AND 9 CONSTITUTE EXPANDER INPUTS. AN EXPANDER INPUT MAY BE USED TO GENERATE EXTRA GATE INPUTS BY CONNECTING EACH EXTRA GATE INPUT TO THE EXPANDER INPUT THROUGHT A SEPARATE SILICON DIODE (SUCH AS THE WECO 485C). THE ANODES OF ALL THESE DIODES SHOULD BE CONNECTED TO THE EXPANDER INPUT. THE OUTPUTS CANNOT BE WIRE OR TIED.

334. EXPANDABLE 4-INPUT "OR" GATE, 2 PER IC
SP334A - SIGNETICS

SYMBOL



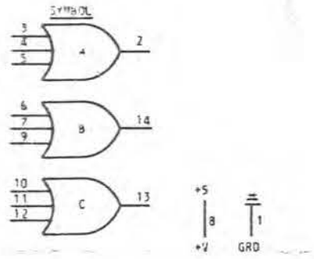
INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT A GATE OUTPUT IF ALL INPUTS ARE LOW (≤ 0.5V). A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT THE OUTPUT IF ANY ONE OR ALL INPUTS ARE HIGH (≥ 2.5V).

PINS 3 AND 13 CONSTITUTE EXPANDER INPUTS. AN EXPANDER INPUT MAY BE USED TO GENERATE EXTRA GATE INPUTS BY CONNECTING EACH EXTRA GATE INPUT TO THE EXPANDER INPUT THROUGH A SEPARATE SILICON DIODE (SUCH AS THE WECO 485C). THE ANODES OF ALL THESE DIODES SHOULD BE CONNECTED TO THE EXPANDER INPUT. THE OUTPUT CANNOT BE WIRE OR TIED.

374. 3-INPUT "OR" GATE, 3 PER IC
SP374A - SIGNETICS
C4154A - SIGNETICS

SYMBOL



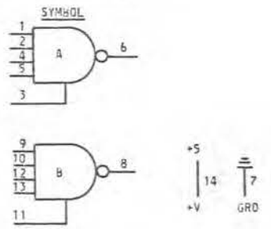
INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT A GATE OUTPUT IF ALL INPUTS ARE LOW (≤ 0.5V). A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT THE OUTPUT IF ONE OR ALL INPUTS ARE HIGH (≥ 2.5V).

(SAME AS 846) EXCEPT THE OUTPUTS CANNOT BE WIRED TOGETHER.

830. EXPANDABLE 4-INPUT "NAND" GATE, 2 PER IC
MC830P - MOTOROLA
U6A9930S9X - FAIRCHILD
CD2300E/830 - RCA
SN15830N - TEXAS INSTRUMENT

SYMBOL



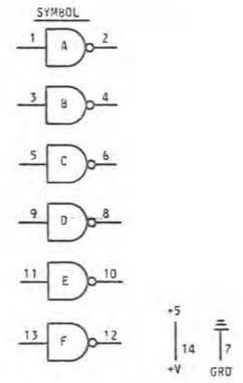
INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ .5V) EXISTS AT A GATE OUTPUT ONLY IF ALL 4 REGULAR INPUTS AND ALL EXPANDER INPUTS ARE HIGH (≥ 2.5V). IF ONE OR MORE GATE INPUTS OR EXPANDER INPUTS ARE LOW (≤ .5V), THE GATE OUTPUT IS HIGH (≥ 2.5V).

PINS 3 AND 11 CONSTITUTE EXPANDER INPUTS. AN EXPANDER INPUT MAY BE USED TO GENERATE EXTRA GATE INPUTS BY CONNECTING EACH EXTRA GATE INPUT TO THE EXPANDER INPUT THROUGH A SEPARATE SILICON DIODE (SUCH AS THE WECO 485C). THE ANODES OF ALL THESE DIODES SHOULD BE CONNECTED TO THE EXPANDER INPUT WHEN EXTRA INPUTS ARE GENERATED IN THIS WAY, EACH SILICON DIODE IS EQUIVALENT TO 1 DTL LOAD FOR THE GATE WHICH IS DRIVING IT. IF UNUSED, THE EXPANDER INPUT SHOULD BE LEFT OPEN. TOTAL POWER DISSIPATION = 22mW TYPE/PKG.

836. "NAND" GATE, 6 PER IC
MC836P - MOTOROLA
U6A9936S9X - FAIRCHILD
CD2310E/836 - RCA
SN15836N - TEXAS INSTRUMENT

SYMBOL

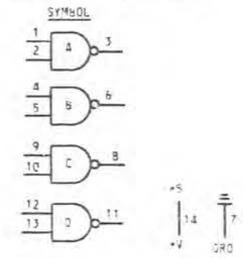


INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ .5V) EXISTS AT AN INVERTER OUTPUT ONLY IF THE INVERTER INPUT IS HIGH (≥ 2.5V). IF THE INVERTER INPUT IS LOW (≤ 0.5V) THE INVERTER OUTPUT IS HIGH (≥ 2.5V).

846. "NAND" GATE 2-INPUT, 4 PER IC
MC846 MOTOROLA
U6A9946S9X - FAIRCHILD
CD2302E/846 - RCA
SN15846N - TEXAS INSTRUMENT

SYMBOL



INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ .5V) EXISTS AT A GATE OUTPUT ONLY IF BOTH GATE INPUTS ARE HIGH (≥ 2.5V). IF ONE OR BOTH GATE INPUTS ARE LOW (≤ .5V), A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT THE GATE OUTPUT.

ISSUE 6A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D2

BELL TELEPHONE LABORATORIES INCORPORATED

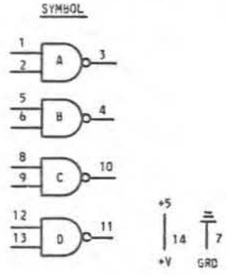
SIZE 6S

INFORMATION NOTES:

302. (CONT)

857. "NAND" GATE 2-INPUT BUFFER, 4 PER IC
MC857P - MOTOROLA
SN15857N - TEXAS INSTRUMENT

SYMBOL

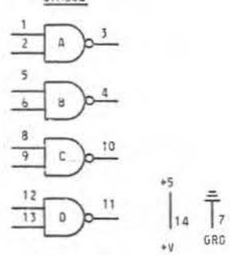


INPUT/OUTPUT INFORMATION

(SAME AS 846 EXCEPT THAT THE OUTPUTS CANNOT BE TIED TOGETHER TO PERFORM THE WIRED COLLECTOR OR FUNCTION). IN ADDITION, THE OUTPUT CAN DRIVE UP TO 25 LOADS. THE OUTPUT IS DESIGNED TO DRIVE LARGE CAPACITIVE LOADS AT HIGH SPEEDS; THE OUTPUT HAS A LOW OUTPUT IMPEDANCE FOR BOTH THE LOW AND THE HIGH LEVELS.

858. "NAND" POWER GATE 2-INPUT, 4 PER IC
MC858P - MOTOROLA
SN15858N - TEXAS INSTRUMENT.

SYMBOL

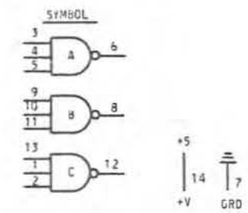


INPUT/OUTPUT INFORMATION

(SAME AS 846 EXCEPT OUTPUTS ARE OPEN COLLECTOR TO ALLOW FOR WIRED OR CAPABILITY.) IN ADDITION, THE OUTPUT CAN DRIVE UP TO 25 LOADS.

862. "NAND" GATE 3-INPUT, 3 PER IC
MC862P - MOTOROLA
U6499625?X - FA _HILD
CD230BE/862 - RCA
SN15862N - TEXAS INSTRUMENT

SYMBOL

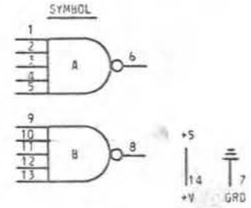


INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ .5V) EXISTS AT A GATE OUTPUT ONLY IF ALL THREE GATE INPUTS ARE HIGH (≥ 2.5V). IF ONE OR MORE GATE INPUTS ARE LOW (≤ .5V), THE GATE OUTPUT IS HIGH (≥ 2.5V)

1800. "NAND" GATE 5-INPUT, 2 PER IC
MC1800P - MOTOROLA
SN151800N - FAIRCHILD.

SYMBOL

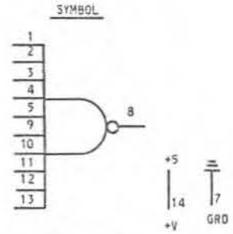


INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ .5V) EXISTS AT A GATE OUTPUT ONLY IF ALL FIVE GATE INPUTS ARE HIGH (≥ 2.5V). IF ONE OR MORE GATE INPUTS ARE LOW (≤ .5V), THE GATE OUTPUT IS HIGH (≥ 2.5V)

1804. "NAND" GATE 10-INPUT, 1 PER IC
MC1804P - MOTOROLA
SN151804N - TEXAS INSTRUMENT.

SYMBOL

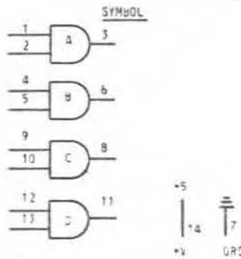


INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT THE OUTPUT ONLY IF ALL THE INPUTS ARE HIGH (≥ 2.5V). IF ONE OR MORE INPUTS ARE LOW (≤ 0.5V) THE OUTPUT OF THE GATE IS GOING TO BE HIGH (≥2.5V).

1806. "AND" GATE 2-INPUT, 4 PER IC
MC1806P - MOTOROLA
SN151806N - TEXAS INSTRUMENT

SYMBOL



INPUT/OUTPUT INFORMATION

A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT A GATE OUTPUT IF BOTH INPUTS ARE HIGH (≥ 2.5V). A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT THE OUTPUT IF EITHER OR BOTH INPUTS ARE LOW (≤ 0.5V)

ISSUE 7

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D3

BELL TELEPHONE LABORATORIES INCORPORATED

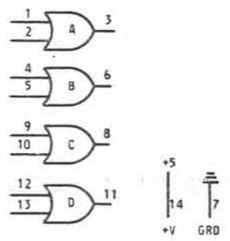
6S

INFORMATION NOTES:

302. (CONT)

1808. "OR" GATE 2-INPUT, 4 PER IC
MC1808P - MOTOROLA
SN151808N - TEXAS INSTRUMENT

SYMBOL

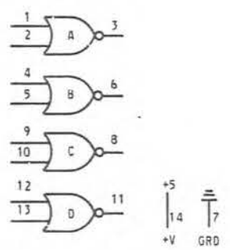


INPUT/OUTPUT INFORMATION

A LOW VOLTAGE CONDITION (≤ 0.5V) EXISTS AT A GATE OUTPUT IF BOTH INPUTS ARE LOW (< 0.5V). A HIGH VOLTAGE CONDITION (> 2.5V) EXISTS AT THE OUTPUT IF EITHER OR BOTH INPUTS ARE HIGH (≥ 2.5V)

1810. "NOR" GATE 2-INPUT, 4 PER IC
MC1810P - MOTOROLA
SN151810N - TEXAS INSTRUMENT

SYMBOL

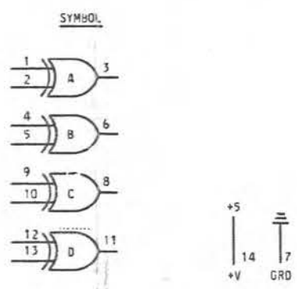


INPUT/OUTPUT INFORMATION

A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT A GATE OUTPUT IF BOTH INPUTS ARE LOW (< 0.5V). A LOW VOLTAGE CONDITION (< 0.5V) EXISTS AT THE OUTPUT IF EITHER OR BOTH INPUTS ARE HIGH (≥ 2.5V)

1812. EXCLUSIVE "OR" GATE 2-INPUT, 4 PER IC
MC1812P - MOTOR.
SN151812N - TEXAS INSTRUMENT

SYMBOL



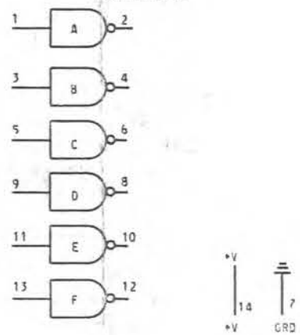
INPUT/OUTPUT INFORMATION

A HIGH VOLTAGE CONDITION (≥ 2.5V) EXISTS AT A GATE OUTPUT ONLY IF ONE GATE INPUT IS HIGH (≥ 2.5V) AND THE OTHER GATE INPUT IS LOW (≤ 0.5V) IF THE TWO GATE INPUTS ARE IN THE SAME STATE (HIGH OR LOW) THEN THE GATE OUTPUT IS LOW (≤ 0.5V)

1820.6. NAND GATES 1-INPUT
MC1820P MOTOROLA

SYMBOL

HEX INVERTER



INPUT/OUTPUT INFORMATION

SAME AS IC1, BUT IN ADDITION THIS HEX INVERTER ALLOWS TRANSLATION FROM THE LOW LOGIC LEVELS (5 VOLTS) TO A VOLTAGE LEVEL OF 30 VOLTS. THE OUTPUT TRANSISTOR HAS AN OPEN COLLECTOR WHICH ALLOWS VOLTAGE SWINGS TO 30 VOLTS.

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D4

BELL TELEPHONE LABORATORIES
INCORPORATED

SHEET SIZE 6S

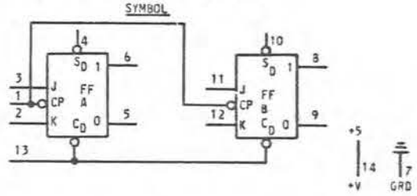
INFORMATION NOTES:

302. (CONT)

852. FLIP FLOP, JK; CLOCKED, MASTER SLAVE, 2 PER IC

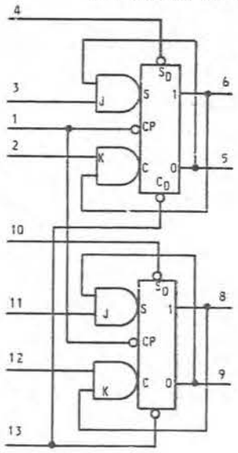
MC852P - MOTOROLA
U6A909959X - FAIRCHILD
SN158099N - TEXAS INSTRUMENT
SW706 - NOT RECOMMENDED FOR USE

SYMBOL



LOGIC DIAGRAM

FLIP-FLOP, JK, CLOCKED



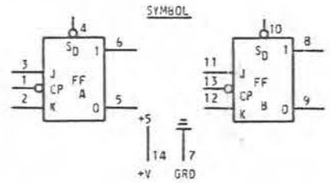
INPUT/OUTPUT INFORMATION

(SAME AS FOR 6 J FLIP-FLOP). IN ADDITION, WHEN THE DIRECT CLEAR (C_D) LEAD GOES TO THE LOW VOLTAGE CONDITION, THE FLIP-FLOP GOES IMMEDIATELY TO THE 1 LOW, 0 HIGH CONDITION, INDEPENDENTLY OF THE STATES OF THE J AND K LEADS.

853. FLIPFLOP, JK, CLOCKED, MASTER SLAVE, 2 PER IC

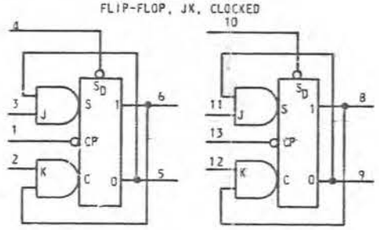
MC853P - MOTOROLA
U6A909359X - FAIRCHILD
SN158093N - TEXAS INSTRUMENT

SYMBOL



LOGIC DIAGRAM

FLIP-FLOP, JK, CLOCKED



INPUT/OUTPUT INFORMATION

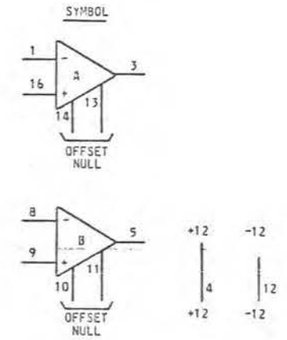
INFORMATION IS STORED IN THE MASTER FLIP-FLOP AT THE INSTANT THAT CP GOES FROM THE LOW VOLTAGE CONDITION (≤ .5V) TO THE HIGH VOLTAGE CONDITION (≥ 2.5V). INFORMATION IS TRANSFERRED FROM THE MASTER FLIP-FLOP TO THE SLAVE FLIP-FLOP AT THE INSTANT THAT CP GOES FROM THE HIGH VOLTAGE CONDITION TO THE LOW VOLTAGE CONDITION. WHEN CP IS IN A STEADY STATE HIGH OR LOW VOLTAGE CONDITION, CHANGING THE J AND K INPUT WILL HAVE NO AFFECT ON EITHER THE MASTER OR SLAVE FLIP-FLOPS. THE FOLLOWING STATE TABLE CHARACTERIZES THE OPERATION OF EACH JK FLIP-FLOP WHEN THE DIRECT SET INPUTS ARE HELD IN THE HIGH CONDITION.

VOLTAGE CONDITION EXISTING THE INSTANT BEFORE CP GOES FROM THE LOW CONDITION TO THE HIGH CONDITION				VOLTAGE CONDITION EXISTING THE INSTANT AFTER CP GOES FROM THE HIGH CONDITION TO THE LOW CONDITION			
J	K	1	0	1	0		
LOW	LOW	LOW	HIGH	LOW	HIGH		
LOW	LOW	HIGH	LOW	HIGH	LOW		
LOW	HIGH	LOW	HIGH	LOW	HIGH		
LOW	HIGH	HIGH	LOW	LOW	HIGH		
HIGH	LOW	LOW	HIGH	HIGH	LOW		
HIGH	LOW	HIGH	LOW	HIGH	LOW		
HIGH	HIGH	LOW	HIGH	HIGH	LOW		
HIGH	HIGH	HIGH	LOW	LOW	HIGH		

WHEN THE DIRECT SET LEAD (S_D) GOES TO THE LOW VOLTAGE CONDITION, THE FLIP-FLOP GOES IMMEDIATELY TO THE 1 HIGH, 0 LOW CONDITION, INDEPENDENTLY OF THE STATES OF THE J AND K INPUTS.

502AR. DUAL VOICE FREQUENCY OP AMPL
502AR, WECO

SYMBOL



INPUT/OUTPUT INFORMATION

OPEN LOOP GAIN	73 dB
UNITY-GAIN FREQUENCY	750 kHz
OUTPUT CURRENT DRIVE	±60 mA
INPUT OFFSET VOLTAGE	±4.5 mV
INPUT BIAS CURRENT	0.4 uA
CMRR	100 dB
PSRR	75 uV/V
PS CURRENT	5.6 mA
INPUT OFFSET CURRENT	±80 nA
INPUT RESISTANCE	1.2 MEG

CIRCUIT DESCRIPTION

THE 502AR OPERATIONAL AMPLIFIER IS CHARACTERIZED AS A DUAL VOICE-FREQUENCY DEVICE INTENDED FOR GENERAL PURPOSE USE WHERE INTERNAL COMPENSATION IS DESIRED. THE 502AR IS USED WITH ±8 TO ±15 VOLT POWER SUPPLIES.

ISSUE 13B

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D5

BELL TELEPHONE LABORATORIES INCORPORATED

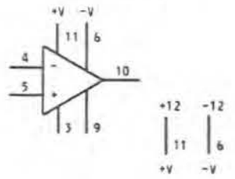
SIZE 6S

INFORMATION NOTES:

302. (CONT)

741, OPERATIONAL AMPLIFIER
MC1741L - MOTOROLA
U6E7741393 - FAIRCHILD
SN72741N - TEXAS INSTRUMENT

SYMBOL



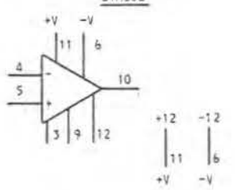
INPUT/OUTPUT INFORMATION

THIS IS AN OPERATIONAL AMPLIFIER WITH INTERNAL FREQUENCY COMPENSATION. IT HAS A TYPICAL GAIN OF 100 dB WHICH ROLLS OFF AT 6 dB PER OCTAVE STARTING AT APPROXIMATELY 10 Hz. THE AMPLIFIER IS SHORT-CIRCUIT PROTECTED AND WILL NOT "LATCH-UP"

PIN 4 IS THE INVERTING INPUT AND PIN 5 IS THE NON-INVERTING INPUT. PINS 3 AND 9 PERMIT AN EXTERNAL VOLTAGE OFFSET NULL CIRCUIT WHEN NECESSARY. PIN 10 IS THE OUTPUT.

748, OPERATIONAL AMPLIFIER
U6E7748393 - FAIRCHILD
SN72748N - TEXAS INSTRUMENT

SYMBOL



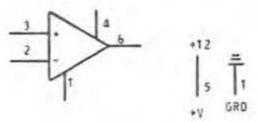
INPUT/OUTPUT INFORMATION

(SAME AS 741 BUT WITH NO INTERNAL FREQUENCY COMPENSATION).

(SAME AS 741 BUT WITH THE ADDITION OF PIN 12 FOR EXTERNAL FREQUENCY COMPENSATION AS REQUIRED.

6070, 1 WATT AUDIO POWER AMPLIFIER
WFC 6070 MOTOROLA

SYMBOL



INPUT/OUTPUT INFORMATION

THIS AMPLIFIER IS SHORT TERM-SHORT CIRCUIT PROTECTED (10 SEC TYP.). THE MAXIMUM POWER SUPPLY VOLTAGE IS 20V AND POWER DISSIPATION IS 1 WATT. THE AMPLIFIER HAS A 100mV SENSITIVITY FOR 1 WATT OUTPUT.

PIN 2 IS THE INVERTING INPUT

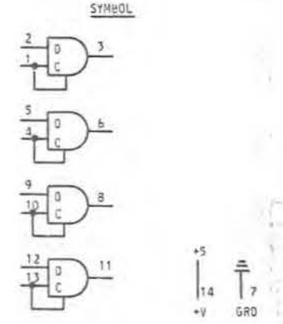
PIN 3 IS THE NON-INVERTING INPUT

PIN 4 SUPPLIES BIASING FOR THE OUTPUT STAGE

PIN 6 IS THE OUTPUT

8094, BUFFER 2-INPUT, 4 PER IC
DM8094NS -NATIONAL SEMICONDUCTOR

SYMBOL



INPUT/OUTPUT INFORMATION

THE C INPUT TO EACH BUFFER IS USED AS A CONTROL LINE TO GATE THE OUTPUT INTO THE HIGH IMPEDANCE STATE. THE OTHER INPUT IS PASSED THROUGH THE BUFFER WHEN C IS HIGH.

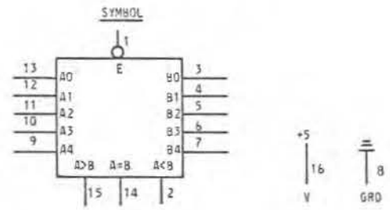
TRUTH TABLE

DATA	CONTROL	OUTPUT
1	1	1
0	1	0
X	0	HI-Z

OUTPUTS MAY BE TIED TOGETHER AND CONNECTED TO A COMMON BUS LINE. THE OUTPUTS BECOME OPEN WHEN THE C INPUT IS LOW AND PASS THE LOGICAL D INPUT WHEN C IS HIGH.

9324, 5 BIT COMPARATOR
U78932459X FAIRCHILD (9324 DC)

SYMBOL



INPUT/OUTPUT INFORMATION

THIS IS A HIGH SPEED EXPANDABLE COMPARATOR WHICH PROVIDES COMPARISON BETWEEN TWO 5-BIT WORDS AND GIVES THREE OUTPUTS "LESS THAN", "GREATER THAN", AND "EQUAL TO". A HIGH LEVEL ON THE ACTIVE LOW ENABLE (E) INPUT FORCES ALL THREE OUTPUTS LOW.

PIN NAMES		LOADING
$\overline{E}$	ENABLE (ACTIVE LOW) INPUT	2UL
$A_0.A_1.A_2.A_3.A_4$	WORD A PARALLEL INPUTS	2UL
$B_0.B_1.B_2.B_3.B_4$	WORD B PARALLEL INPUTS	2UL
A < B	A LESS THAN B OUTPUT	9UL
A > B	A GREATER THAN B OUTPUT	9UL
A = B	A EQUAL TO B OUTPUT	9UL

TRUTH TABLE

$\overline{E}$	A B	A < B	A > B	A = B
H	X X	L	L	L
L	WORD A = WORD B	L	L	H
L	WORD A > WORD B	L	H	L
L	WORD B > WORD A	H	L	L

ISSUE 3A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D6

BELL TELEPHONE LABORATORIES INCORPORATED

6S

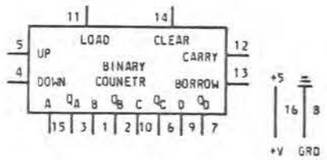
SD-96608-01-D6

INFORMATION NOTES:

302. (CONT)

193. SYNCHRONOUS BINARY COUNTER
SN74193 TEXAS INSTRUMENT
DM8563 NATIONAL SEMICONDUCTOR

SYMBOL



INPUT/OUTPUT INFORMATION

AN INPUT BUFFER IS ON THE CLEAR, COUNT AND LOAD INPUTS TO LOWER THE DRIVE REQUIREMENTS TO ONE NORMALIZED LOAD. THE INPUT LOADING ON THESE IS 1 DTL LOAD. TYPICAL POWER DISSIPATION IS 325 mW. MAXIMUM INPUT COUNT FREQUENCY IS 32 MHz. INPUT CLAMPING DIODES ARE PROVIDED TO MINIMIZE TRANSMISSION-LINE EFFECTS.

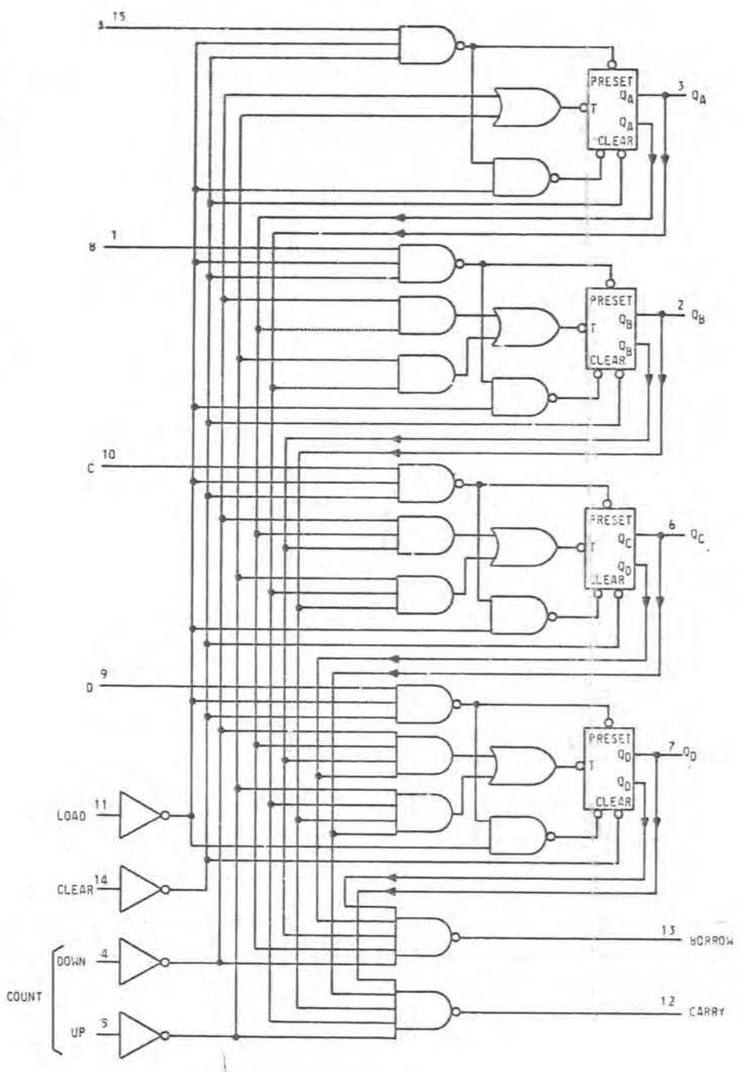
CIRCUIT DESCRIPTION

THE OUTPUTS OF THE FOUR MASTER-SLAVE FLIP-FLOPS ARE TRIGGERED BY A LOW-TO-HIGH-LEVEL TRANSITION OF EITHER COUNT (CLOCK) INPUT. THE DIRECTION OF COUNTING IS DETERMINED BY WHICH COUNT INPUT IS PULSED WHILE THE OTHER COUNT INPUT IS HIGH.

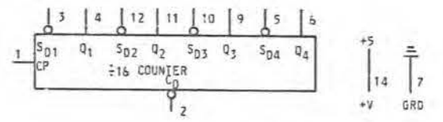
A CLEAR INPUT FORCES ALL OUTPUTS TO THE LOW LEVEL WHEN A HIGH LEVEL IS APPLIED. THE CLEAR FUNCTION IS INDEPENDENT OF THE COUNT AND LOAD INPUTS.

LOGIC DIAGRAM

SYNCHRONOUS BINARY COUNTER

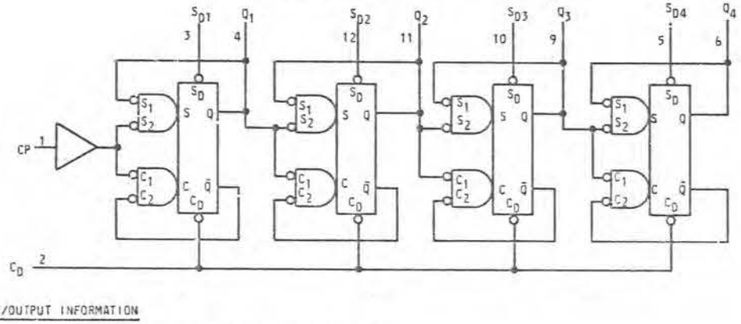


839. DIVIDE BY SIXTEEN COUNTER
MC839P MOTOROLA
SW939P-2P STEWART WARNER



LOGIC DIAGRAM

DIVIDE-BY-SIXTEEN COUNTER



INPUT/OUTPUT INFORMATION

THE 4 BIT COUNTER CONSISTS OF 4 MASTER SLAVE FLIP-FLOP INTERNALLY CONNECTED TO PROVIDE A BINARY COUNTING SEQUENCE. THE SEQUENCE OF COUNTING STATES IS SHOWN BY THE FOLLOWING TABLE. IF THE DIRECT CLEAR (C_D) AND DIRECT SET (S_D) INPUTS ARE HELD HIGH, THE SEQUENCE OF COUNTING STATES ARE AS SHOWN IN THE TABLE. THE COUNTER GOES FROM ONE STATE TO THE NEXT ONLY WHEN THE COUNTER INPUT (CP) GOES FROM THE HIGH VOLTAGE ($\geq$ 2.5V) CONDITION TO THE LOW VOLTAGE ($\leq$ .5V) CONDITION. IF ALL DIRECT SET INPUTS ARE HELD HIGH AND THE DIRECT CLEAR INPUT GOES LOW, THE COUNTER GOES IMMEDIATELY TO THE 0000 STATE AND REMAINS AS LONG AS C_D IS HELD LOW. IF ANY COMBINATION OF DIRECT SET INPUTS GO LOW WITH DIRECT CLEAR HELD HIGH, THEN EACH FLIP-FLOP WITH LOW DIRECT SET GOES TO THE 1 STATE AND REMAINS THERE AS LONG AS THE CORRESPONDING DIRECT SET REMAINS LOW.

STATE	OUTPUT			
	Q_4	Q_3	Q_2	Q_1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	0
14	1	1	1	0
15	1	1	1	1

NOTES: A "0" OUTPUT VOLTAGE CORRESPONDS TO A LOW VOLTAGE CONDITION (<.5V) WHILE A "1" OUTPUT VOLTAGE CORRESPONDS TO A HIGH CONDITION (>2.5V).

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D7

BELL TELEPHONE LABORATORIES
INCORPORATED

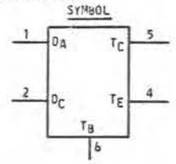
6S

INFORMATION NOTES: (CONT)

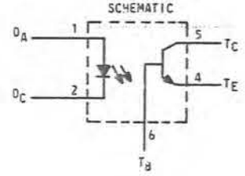
302. (CONT)

1000. OPTICAL COUPLER
MOC1000 MOTOROLA
4N26 (MOTOROLA)

SYMBOL



SCHEMATIC

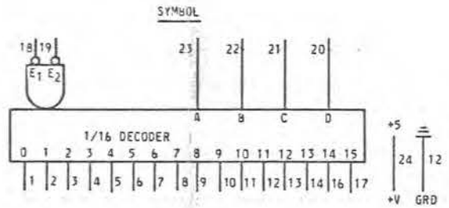


INPUT/OUTPUT INFORMATION

THIS DEVICE IS AN OPTICAL COUPLER WITH AN ISOLATION VOLTAGE OF 1500V MIN.
THE CIRCUIT OPERATES AS FOLLOWS: WHEN CURRENT (~10MA) FLOWS THROUGH THE LED IT EMITS LIGHT WHICH TURNS ON THE PHOTO TRANSISTOR. WITH NO CURRENT FLOWING THROUGH THE DIODE THE TRANSISTOR IS OFF. THE TRANSISTOR MAY ALSO BE CONTROLLED THROUGH ITS BASE, PIN 6.

154. ONE OF SIXTEEN DECODER
U6N9311598 FAIRCHILD (9311 DC)
SN74154N TEXAS INSTRUMENT

SYMBOL



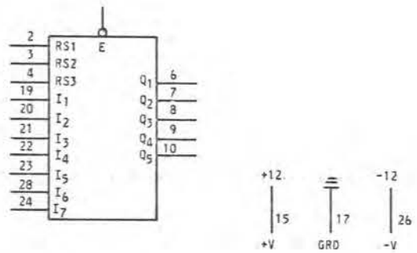
INPUT/OUTPUT INFORMATION

THE 4-LINE-TO-16-LINE DECODER UTILIZES TTL CIRCUITRY TO DECODE 4 BINARY-CODED INPUTS INTO ONE OF SIXTEEN MUTUALLY EXCLUSIVE OUTPUTS WHEN BOTH THE STROBE INPUTS (E_1 AND E_2) ARE LOW. THE SELECTED OUTPUT LEAD GOES LOW WHILE ALL OTHER LEADS REMAIN NORMALLY HIGH.

INPUT CLAMPING DIODES ARE PROVIDED TO MINIMIZE TRANSMISSION-LINE EFFECTS. INPUT BUFFERS ARE USED TO LOWER THE FAN-IN REQUIREMENT TO ONLY ONE NORMALIZED LOAD. A FAN-OUT TO 10 NORMALIZED LOADS IN THE LOW-LEVEL STATE AND 20 IN THE HIGH LEVEL STATE IS AVAILABLE FROM EACH OF THE SIXTEEN OUTPUTS. TYPICAL POWER DISSIPATION IS 170mW.

2403. ROW OUTPUT CHARACTER GENERATOR
TMS 2403JC ASCII TEXAS INSTRUMENT
MCM 1122P-MOTOROLA
NCM112P - NITRON

SYMBOL



INPUT/OUTPUT INFORMATION

ROW SELECT			SELECTS ROW
RS3	RS2	RS1	
1	1	1	NONE
1	1	0	R1
1	0	1	R2
1	0	0	R3
0	1	1	R4
0	1	0	R5
0	0	1	R6
0	0	0	R7

THE MEMORY IS ORGANIZED TO FUNCTION PRIMARILY AS A ROW OUTPUT CHARACTER GENERATOR. THE FIVE OUTPUTS REPRESENT A ROW IN A 5 x 7 DOT MATRIX. INCLUDED IS A 7-BIT PARALLEL INPUT CHARACTER ADDRESS DECODER AND A 3-BIT PARALLEL INPUT ROW ADDRESS DECODER, BOTH COMPLETE WITH INPUT INVERTERS. EITHER OPEN-DRAIN OR DOUBLE-ENDED OUTPUT BUFFERS ARE PROVIDED FOR EXTERNAL INTERFACES. THE MEMORY ORGANIZATION AND DATA ARE PERMANENTTLY STORED BY PROGRAMMING A SINGLE MASK DURING MANUFACTURE.

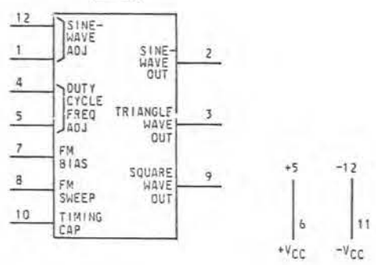
CIRCUIT DESCRIPTION
THE CIRCUIT FEATURES STATIC OPERATION, NO CLOCKS ARE REQUIRED. THE OUTPUT DATA WILL REMAIN VALID AS LONG AS THE INPUT ADDRESS (INCLUDING CHIP ENABLE) REMAINS UNCHANGED. "ACCESS TIME" IS DEFINED AS THE TIME REQUIRED FOR ALL OUTPUTS TO REACH THE MINIMUM 1 LEVEL OR MAXIMUM 0 LEVEL WITH THE CORRECT DATA. THIS TIME IS MEASURED FROM THE POINT AT WHICH ALL ADDRESS INPUTS AND CHIP ENABLE INPUTS ARE VALID.

LOGIC DEFINITION

LOGIC 0 = GRD
LOGIC 1 = +12V

8038. VOLTAGE CONTROLLED OSCILLATOR
ICL8038CCPD, INTERSIL

SYMBOL



INPUT/OUTPUT INFORMATION

THIS CIRCUIT GENERATES A TRIANGLE, SQUARE, AND SINE WAVE OUTPUT OF THE SAME FREQUENCY AND DUTY CYCLE. THE FREQUENCY CAN BE SWEPT FROM PIN 8. THE SQUARE WAVE OUTPUT REQUIRES AN EXTERNAL PULLUP RESISTOR TO PROVIDE A HIGH OUTPUT VOLTAGE LEVEL. THE BALANCE OF THE SINEWAVE OUTPUT CAN BE EXTERNALLY ADJUSTED BY VARYING THE VOLTAGES ON PINS 1 AND 2 BETWEEN $+V_{CC}$ AND $-V_{CC}$. IF A RESISTOR OF VALUE R IS TIED FROM PIN 4 TO V_{CC} AND FROM PIN 5 TO V_{CC} THE OUTPUT FREQUENCY IS: $F = \frac{0.3}{RC}$ WHERE C IS THE CAPACITOR TIED FROM PIN 10 TO GROUND.

TRUTH TABLE

INPUTS					OUTPUTS													
E_1	E_2	D	C	B	A	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
L	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
L	L	H	L	L	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H
L	L	H	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H
L	L	H	L	H	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H
L	L	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H
L	L	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H
L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H
L	L	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H
L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L
L	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	L	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

H = HIGH, L = LOW, X = DON'T CARE

SD-10-80996-OS

ISSUE 6A

ATIS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D8

BELL TELEPHONE LABORATORIES INCORPORATED

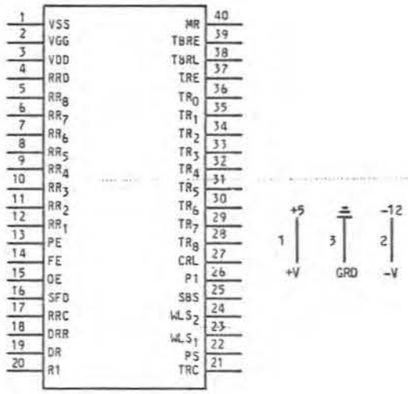
SHEET 65

INFORMATION NOTES:

302. (CONT)

6011. ASYNCHRONOUS DATA INTERFACE
TMS 6011 JC,NC TEXAS INSTRUMENT
TR 16028 WESTERN DIGITAL

SYMBOL



INPUT/OUTPUT INFORMATION

THE RECEIVER SECTION WILL ACCEPT SERIAL DATA FROM THE TRANSMISSION LINE AND CONVERT IT TO PARALLEL DATA. THE SERIAL WORD WILL HAVE START, DATA, AND STOP BITS. PARITY MAY BE GENERATED AND VERIFIED. THE RECEIVER SECTION WILL VALIDATE THE RECEIVED DATA TRANSMISSION BY CHECKING PROPER PARITY, START, AND STOP BITS, AND CONVERT THE DATA TO PARALLEL.

THE TRANSMITTER SECTION WILL ACCEPT PARALLEL DATA, CONVERT IT TO SERIAL FORM AND GENERATE THE START, PARITY, AND STOP BITS.

RECEIVER AND TRANSMITTER SECTIONS ARE SEPARATE AND THE DEVICE CAN OPERATE IN FULL DUPLEX MODE.

THE TRANSMITTER SECTION WILL ACCCPT DATA IN PARALLEL FORM, SERIALIZE IT, FORMAT IT, AND TRANSMIT IT IN SERIAL FORM.

THE DATA IS RECEIVED IN SERIAL FORM ON THE RECEIVE INPUT RINPUT.

THE DATA IS PRESENTED IN PARALLEL FORM ON THE EIGHT DATA OUTPUTS RR_1 THROUGH RR_8.

RINPUT IS THE DATA INPUT TERMINAL. THE DATA FROM RINPUT ENTERS THE RECEIVER REGISTER AT A POINT DETERMINED BY THE CHARACTER LENGTH, THE PARITY, AND THE NUMBER OF STOP BITS. RINPUT MUST BE MAINTAINED HIGH WHEN NO DATA IS BEING RECEIVED. THE DATA IS CLOCKED THROUGH THE RR CLOCK. THE CLOCK RATE IS 16 TIMES FASTER THAN THE DATA RATE.

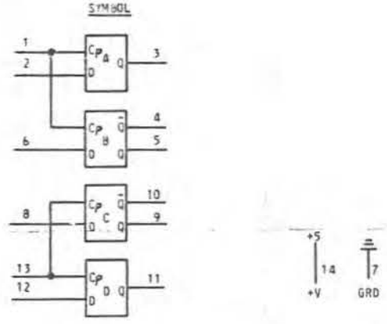
THE COMMON CONTROL SECTION WILL DIRECT BOTH THE RECEIVER AND THE TRANSMITTER SECTIONS.

THE WORD LENGTH MAY BE 5, 6, 7, OR 8 BITS. THE SELECTION IS AS FOLLOWS:

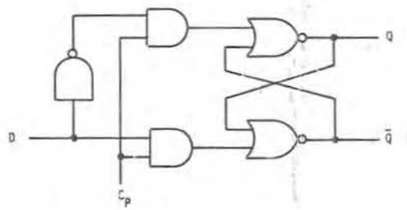
WORD LENGTH	WLS_1	WLS_2
5	LOW	LOW
6	HIGH	LOW
7	LOW	HIGH

1814. QUAD LATCH, 4 PER IC
MC1814P - MOTOROLA

SYMBOL



LOGIC DIAGRAM



INPUT/OUTPUT INFORMATION

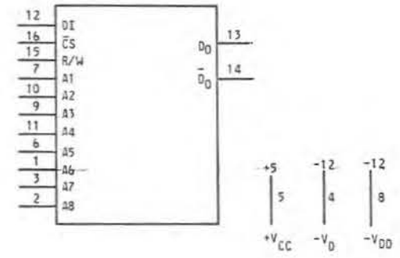
A HIGH VOLTAGE CONDITION ($\geq$ 2.5V) IS LATCHED AT THE OUTPUT Q WHEN THE INPUT D AND THE CLOCK PULSE, C_p, ARE HIGH ($\geq$ 2.5V) AT THE SAME TIME.

A LOW VOLTAGE CONDITION ($\leq$ 0.5V) IS LATCHED AT THE OUTPUT Q WHEN THE INPUT D IS LOW ($\leq$0.5V) AND THE C_p INPUT IS HIGH ($\geq$ 2.5V).

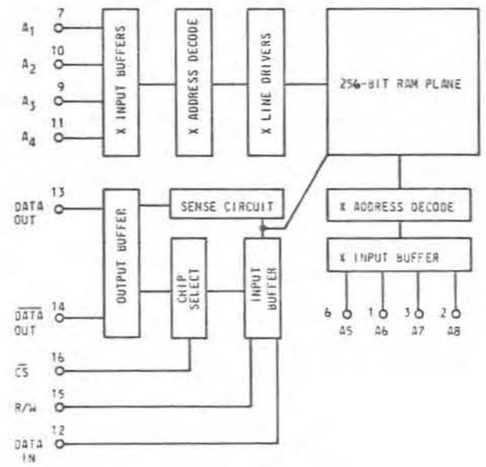
INFORMATION PRESENT AT THE DATA INPUT D IS TRANSFERRED TO THE Q OUTPUT WHEN THE CLOCK IS HIGH, AND THE Q OUTPUT WILL FOLLOW THE STATE OF THE DATA INPUT AS LONG AS THE CLOCK REMAINS HIGH. INFORMATION PRESENT AT THE Q OUTPUT WILL BE RETAINED AS CLOCK GOES LOW UNTIL SUCH TIME AS THE CLOCK IS PERMITTED TO GO HIGH.

25L01. FULLY DECODED 256X1 STATIC RANDOM ACCESS MEMORY
25L01BSIGNETICS.

SYMBOL



LOGIC DIAGRAM



INPUT/OUTPUT INFORMATION

THE OUTPUTS OF THE 25L01 ARE EFFECTIVELY OPEN CIRCUITED WHEN THE DEVICE IS NOT SELECTED (LOGIC 1 ON CHIP SELECTED). THIS ALLOWS OR-TYING FOR MEMORY EXPANSION.

ISSUE 3A

ATMS
94 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D9

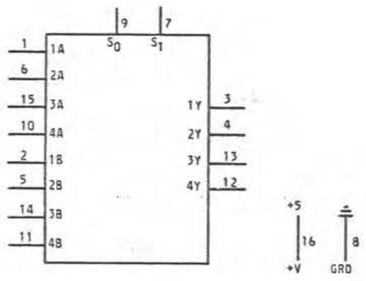
BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-96608-01-D9

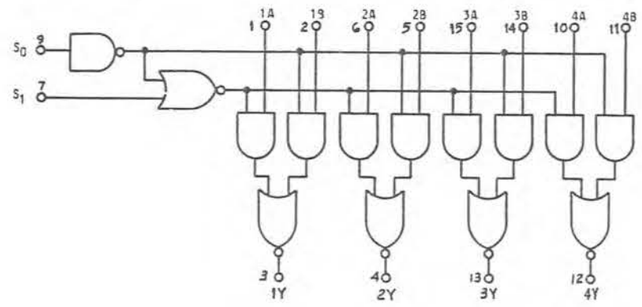
INFORMATION NOTES:
302. (CONT)

8234, 2-INPUT 4-BIT DIGITAL MULTIPLEXER
N82348 SIGNETICS

SYMBOL



LOGIC DIAGRAM



INPUT/OUTPUT INFORMATION

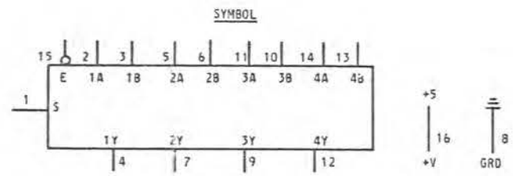
THE 8234 IS A 2-INPUT,4-BIT DIGITAL MULTIPLEXER FOR USE IN GENERAL PURPOSE DATA-SELECTION APPLICATION WITH INVERTING DATA PATHS.

OPEN COLLECTOR OUTPUTS PERMIT DIRECT WIRING TO OTHER OPEN COLLECTOR OUTPUTS (COLLECTOR LOGIC) TO ALLOW THE WIRED AND FUNCTION.

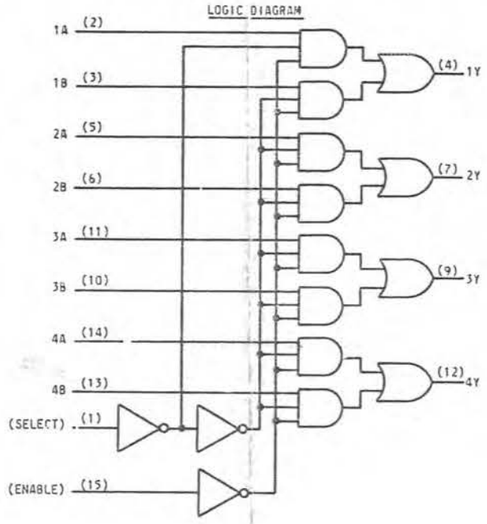
PULL-UP RESISTORS ARE NEEDED ON THE OUTPUT.

9322, QUAD 2-INPUT MULTIPLEXER
U7B932259X FAIRCHILD (9322 DC)
SN74157N TEXAS INSTRUMENT

SYMBOL



LOGIC DIAGRAM



INPUT/OUTPUT INFORMATION

THE CIRCUIT CONSISTS OF FOUR TWO-INPUT MULTIPLEX SWITCHES. WITH THE ENABLE HELD LOW,A IS SELECTED WHEN A LOW LEVEL IS APPLIED TO S;OTHERWISE B IS SELECTED. WHEN THE ENABLE IS HELD HIGH,THE OUTPUT,OF THE SWITCH GOES LOW.

EACH INPUT IS DIODE CLAMPED AND CONSISTS OF 1 TTL LOAD. LOW FANOUT IS 10 LOADS AND HIGH FANOUT IS 20 LOADS. WIRED OR IS NOT POSSIBLE WITH THIS DEVICE. TYPICAL POWER DISSIPATION IS 150 MW.

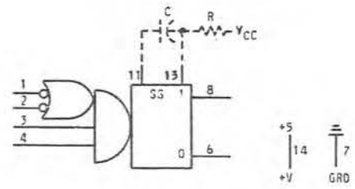
TRUTH TABLE		
INPUTS		OUTPUT Y
ENABLE	SELECT	
1	X	0
0	0	A
0	1	B

"1" $\geq$ 2.0V

"0" $\leq$ 0.8V

"X" = DONT CARE

9601, MULTIVIBRATOR RETRIGGERABLE MONOSTABLE
U9A960159X FAIRCHILD (9601 DC)
SN74122N TEXAS INSTRUMENT



INPUT/OUTPUT INFORMATION

THIS RETRIGGERABLE MONOSTABLE MULTIVIBRATOR PROVIDES A POSITIVE OUTPUT PULSE ON PIN 8 AND A NEGITIVE PULSE ON PIN 6 WHEN THE FOLLOWING CONDITIONS INITIALLY ARE APPLIED:

INPUTS ON BOTH PINS 3 & 4 ARE HIGH,AND
INPUT ON EITHER PIN 1 OR PIN 2 IS LOW

CIRCUIT DESCRIPTION

THE CIRCUIT WILL RESPOND TO TRIGGER INPUTS EVEN WHEN ALREADY IN ITS ACTIVE TIMING STATE,AND WILL TIME OUT FROM THE LAST INPUT PULSE RECEIVED. THE TIMING PULSE WIDTH IN SECONDS IS APPROXIMATELY .36RC.

ISSUE 6A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D10

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-96608-01-D10

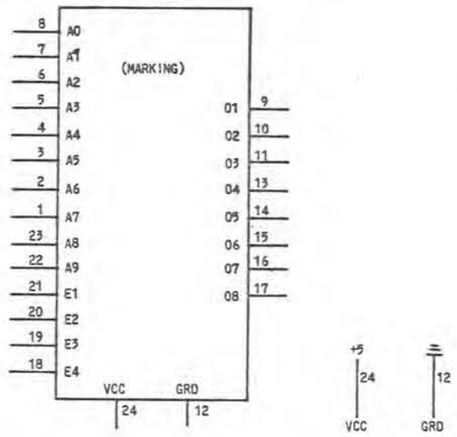
INFORMATION NOTES:

302. (CONT)

AT002, FM002, SEQ002, DT001

6280 TYPE, READ ONLY MEMORY 8 BITS MMI6280D6938AT002, MMI6280D6937FM002, MMI6280D8188SEQ002, MMI6280D5774DT001, MONOLITHIC MEMORIES, INC. MICROSYSTEMS INTERNATIONAL

SYMBOL



INPUT/OUTPUT INFORMATION

ADDRESSING

THE MEMORY HAS TEN INPUT ADDRESS LEADS A0 TO A9. INPUTS ON THESE LEADS ARE THE BINARY EQUIVALENTS OF MEMORY ADDRESSES. THEY PROVIDE FOR SELECTING ANY WORD FROM MEMORY.

ENABLING

THIS MEMORY CAN BE ENABLED IN ONE OF TWO WAYS. INPUTS E3 AND E4 MUST BOTH BE HIGH (1-STATE) OR INPUTS E1 AND E2 MUST BOTH BE LOW (0-STATE). HIGH IS +5 TO +2 VOLTS AND LOW IS +.8 TO +0 VOLTS.

OUTPUT

OUTPUTS (WORDS AT MEMORY ADDRESSES) APPEAR AS EIGHT BITS ON OUTPUT LEADS O1 TO O8.

CIRCUIT DESCRIPTION

THE 6280 DEVICE IS A MASKED PROGRAMMED BIPOLAR, STATIC READ ONLY MEMORY (ROM). ITS CONTENT IS PERMANENT AND CANNOT BE ALTERED AFTER MANUFACTURE. THE MEMORY IS ORGANIZED INTO 1024 WORDS WITH EACH WORD CONTAINING EIGHT BITS THUS FORMING A MEMORY CONTAINING A TOTAL OF 8192 BITS.

THE OUTPUT STAGE HAS AN OPEN COLLECTOR REQUIRING AN EXTERNAL "PULL UP" RESISTOR THAT WILL ASSURE OUTPUTS AT ADEQUATELY HIGH VOLTAGE LEVELS. MEMORY ACCESS TIME IS 150 NSEC (MAX).

TRUTH TABLE ORGANIZATION

TYPICAL ENTRY INTERPRETATION

ADDRESS

	(08) (01)					
00084	HHHLLLLL (00084)	HHHHHHHH (00085)	HHHHHHHH (00086)	HHHHHHHH (00087)	HHLHLLHH (00088)	HHLHLLHL (00089)
00090	HHLLHHLL (00090)					

ADDRESSES, SUCH AS 00084, ARE GIVEN AS THE DECIMAL EQUIVALENTS OF THE BINARY ADDRESSES. EACH LINE OF THE TRUTH TABLE CONTAINS SIX OUTPUT WORDS. THE ADDRESS GIVEN AT THE LEFT SIDE OF THE TABLE IS THE ADDRESS FOR THE FIRST WORD ON A LINE. WITH EACH SUCCESSIVE WORD, THE ADDRESS INCREMENTS BY ONE. THE MOST SIGNIFICANT DIGIT (08) OF AN ADDRESS IS AT THE LEFT OF EACH OUTPUT WORD AS SHOWN ABOVE.

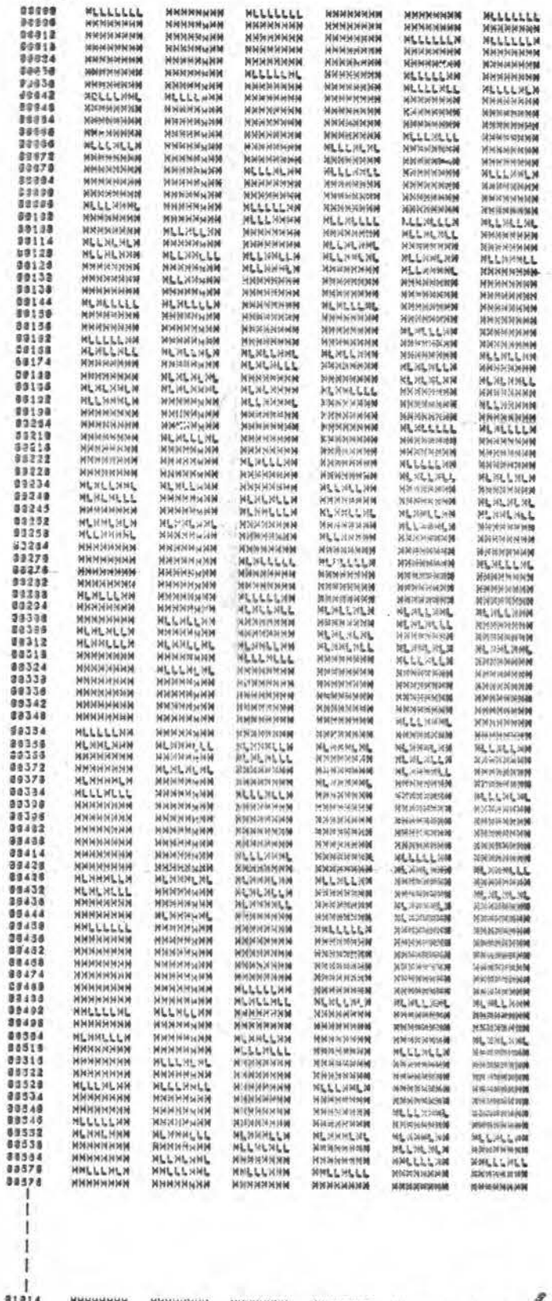
MARKING

THE TRUTH TABLES OF FOUR ROMS ARE SHOWN IN THIS NOTE. EACH OF THE ASSOCIATED ROMS WILL BEAR THE SPECIFIC MARKING (DT001, E.G.) THAT APPEARS AT THE BEGINNING OF EACH TRUTH TABLE.

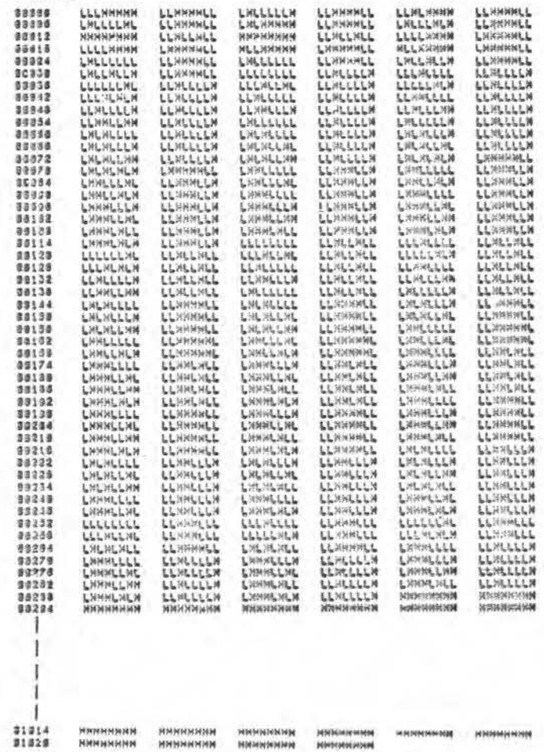
CURRENT DRAIN

80 MILLIAMPS - CONSTANT

AT002



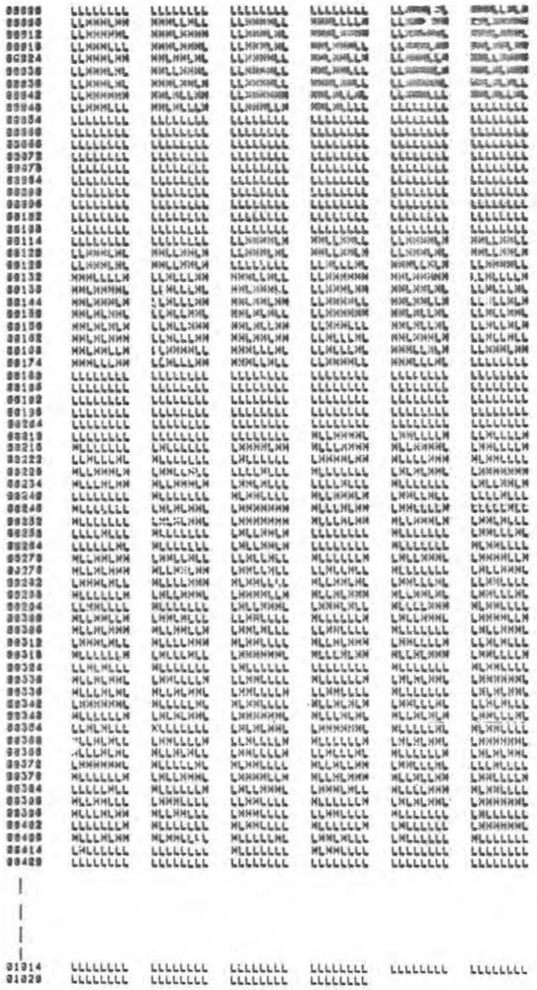
FM002



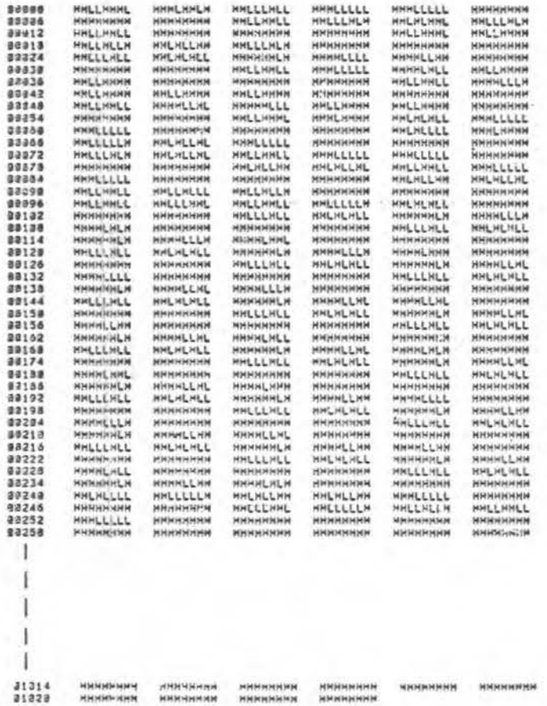
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-D11
BELL TELEPHONE LABORATORIES INCORPORATED	65

48

SEQ002



DT001



ISSUE	1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-D12

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

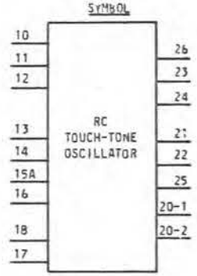
SD-96608-01-D12

INFORMATION NOTES:

302. (CONT)

9A,9B, RC TOUCH-TONE OSCILLATOR

SYMBOL



INPUT/OUTPUT INFORMATION

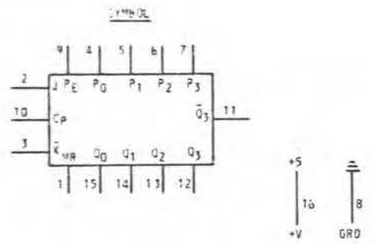
THIS HYBRID INTEGRATED CIRCUIT CONSISTS OF TWO RC OSCILLATORS WHERE FREQUENCIES OF OSCILLATION ARE CONTROLLED EXTERNALLY BY SELECTIVELY SHUNTING OUT CERTAIN INTERNAL RESISTORS.

LOW RESISTANCE CLOSURES ARE PROVIDED AT THE INPUTS TO SELECT THE FREQUENCIES AT WHICH THE OSCILLATOR WILL OSCILLATE. A CLOSURE REQUIRES 200 OHMS OR LESS. WHEN NOT SELECTED THE CLOSURES MUST PRESENT A RESISTANCE GREATER THAN 10 MEGOHMS. POWER IS APPLIED THRU PINS 23 AND 24.

9300, 4-BIT SHIFT REGISTER

MC9300P MOTOROLA
U6A9300593 FAIRCHILD (9300 DC)
MC8300, MOTOROLA

SYMBOL



INPUT/OUTPUT INFORMATION

THE INPUTS ARE: J, K, MR, P_0, P_1, P_2, P_3, P_E, AND C_p.
THE OUTPUTS ARE: Q_0, Q_1, Q_2, Q_3, $\overline{Q_3}$.
A LOW FOR AN INPUT IS ANY VOLTAGE LESS THAN 0.8 VOLTS;
A HIGH FOR AN INPUT IS ANY VOLTAGE GREATER THAN 2.0 VOLTS.
A LOW FOR AN OUTPUT IS ANY VOLTAGE LESS THAN 0.4 VOLTS;
A HIGH FOR AN OUTPUT IS ANY VOLTAGE GREATER THAN 2.4 VOLTS.

CIRCUIT DESCRIPTION

PARALLEL INFORMATION APPEARING ON INPUTS P_0, P_1, P_2, P_3, IS SHIFTED IN WHEN THE CLOCK INPUT GOES FROM A LOW TO A HIGH PROVIDED THAT AT THE TIME OF THE CLOCK TRANSITION THE PARALLEL ENABLE (P_E) IS LOW. THE INFORMATION APPEARING ON INPUTS P_0, P_1, P_2, P_3, THEN APPEARS AT THE OUTPUTS Q_0, Q_1, Q_2, Q_3, AFTER THE LOW TO HIGH TRANSITION OF THE CLOCK INPUT. WHEN THE PARALLEL ENABLE LEAD IS HIGH OR NOT CONNECTED, PARALLEL READ-IN CAN NOT BE ACCOMPLISHED.

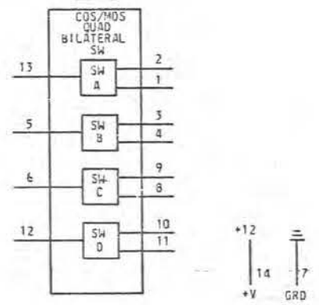
SERIAL INFORMATION IS READ IN THROUGH THE $J\overline{K}$ LEAD (J AND $\overline{K}$ CONNECTED TOGETHER) WHENEVER THE PARALLEL ENABLE (P_E) IS HIGH AND SYNCHRONOUS WITH THE CLOCK. THE INFORMATION WHICH WAS ON THE $J\overline{K}$ LEAD AT THE LOW LEVEL OF THE CLOCK WILL BE TRANSFERRED TO Q_0 AFTER THE LOW TO HIGH TRANSITION OF THE CLOCK. IF THE J AND $\overline{K}$ LEADS ARE DISCONNECTED AND THE J IS LOW AND THE $\overline{K}$ IS HIGH Q_0 WILL NOT CHANGE DURING ANY CLOCK TRANSITION. IF J IS HIGH AND $\overline{K}$ IS LOW THEN AT EACH LOW TO HIGH TRANSITION OF THE CLOCK Q_0 WILL CHANGE LEVELS.

ON THE LOW TO HIGH CLOCK TRANSITIONS, WHEN THE P_E LEAD IS HIGH, THE INFORMATION WHICH WAS ON THE OUTPUTS AT THE LOW LEVEL OF THE CLOCK WILL BE SHIFTED BY ONE TO THE RIGHT. THAT IS, $J\overline{K}$ TO Q_0, Q_0 TO Q_1, Q_1 TO Q_2 AND Q_2 TO Q_3. THE MASTER RESET (MR) CAN ASYNCHRONOUSLY SET ALL STAGES TO ZERO INDEPENDENT OF THE CONDITION ON ANY OTHER INPUTS, BY SETTING MR TO A LOW.

4016, COS/MOS QUAD BILATERAL SWITCH

CD4016A RCA

SYMBOL



INPUT/OUTPUT INFORMATION

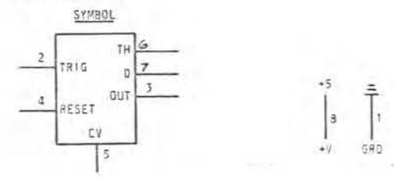
WHEN THE GATING SIGNAL IS A LOGICAL "1", (V_{DD} VOLTS, THE MOST POSITIVE SUPPLY TO THE CHIP - TYPICALLY 12-15 VOLTS) THE SWITCH RESISTANCE BECOMES 300 OHMS TYPICALLY. WHEN THE GATING SIGNAL IS A LOGICAL "0", (V_{SS} VOLTS, THE MOST NEGATIVE SUPPLY TO THE CHIP, TYPICALLY 0 VOLTS) THE SWITCH RESISTANCE BECOMES VERY HIGH (IN THE MEGOHMS). PIN 7 GOES TO V_{SS} (i.e. GROUND) AND PIN 14 GOES TO V_{DD} (i.e. +12 VOLTS).

PINS 13, 5, 6, AND 12 CONSTITUTE THE GATING SIGNALS WHICH CONTROL THE FOUR INDEPENDENT BILATERAL MOS SWITCHES CONTAINED IN THE CHIP. PINS 1-2, 4-3, 8-9, AND 11-10 ARE THE CORRESPONDING SWITCH TERMINALS.

555, TIMER

NE555V SIGNETICS

SYMBOL



INPUT/OUTPUT INFORMATION

IN THE TIME DELAY MODE OF OPERATION, THE TIME IS CONTROLLED BY ONE EXTERNAL RESISTOR AND CAPACITOR. FOR A STABLE OPERATION AS AN OSCILLATOR, THE FREE RUNNING FREQUENCY AND THE DUTY CYCLE ARE BOTH CONTROLLED WITH TWO EXTERNAL RESISTORS AND ONE CAPACITOR. THE CIRCUIT MAY BE TRIGGERED AND RESET ON FALLING WAVE FORMS, AND THE OUTPUT STRUCTURE CAN SOURCE OR SINK UP TO 200 MA OR DRIVE TTL CIRCUITS.

TRIGGER CURRENT IS 0.5 μA, RESET VOLTAGE IS 0.7V, RESET CURRENT IS 0.1 MA.

A LOW PULSE ON TRIGGER INITIATES TIMING WHICH IS A HIGH LEVEL ON OUT. THE INTERVAL CAN BE STOPPED BY A LOW PULSE ON RESET.

ISSUE 11A

ATNS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-013

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

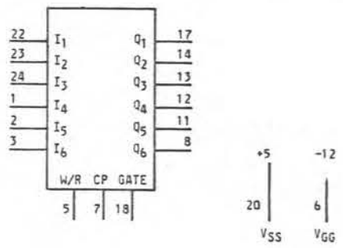
SD-96608-01-013

INFORMATION NOTES: (CONT)

302. (CONT)

31129, HEX 32 BIT LONG STATIC SHIFT REGISTER
TMS3112NC, TEXAS INSTRUMENTS.

SYMBOL



INPUT/OUTPUT INFORMATION

TRANSFER OF DATA INTO (W/R = "0") OR AT (GATE = "0") OCCURS ON THE LOW TO HIGH TRANSITION OF THE CLOCK INTO CP. THE DATA IS RECIRCULATED WHEN (W/R = "1") THE INPUT CLOCK MAKES A LOW TO HIGH TRANSITION. THUS IF ONE SIX BIT WORD IS READ INTO THE DEVICE (ON I_1 THRU I_6) IT MUST BE RECIRCULATED AND CLOCKED 32 TIMES BEFORE IT APPEARS AT THE OUTPUTS (Q_1 THRU Q_6). DATA INPUT IS INHIBITED DURING RECIRCULATION.

INFORMATION NOTES: (CONT)

303. SCREENING REQUIREMENTS FOR COMMERCIAL INTEGRATED CIRCUIT

EACH DEVICE SHALL BE SCREENED IN THE SEQUENCE SHOWN AND DESCRIBED HEREIN:

PLASTIC DIP

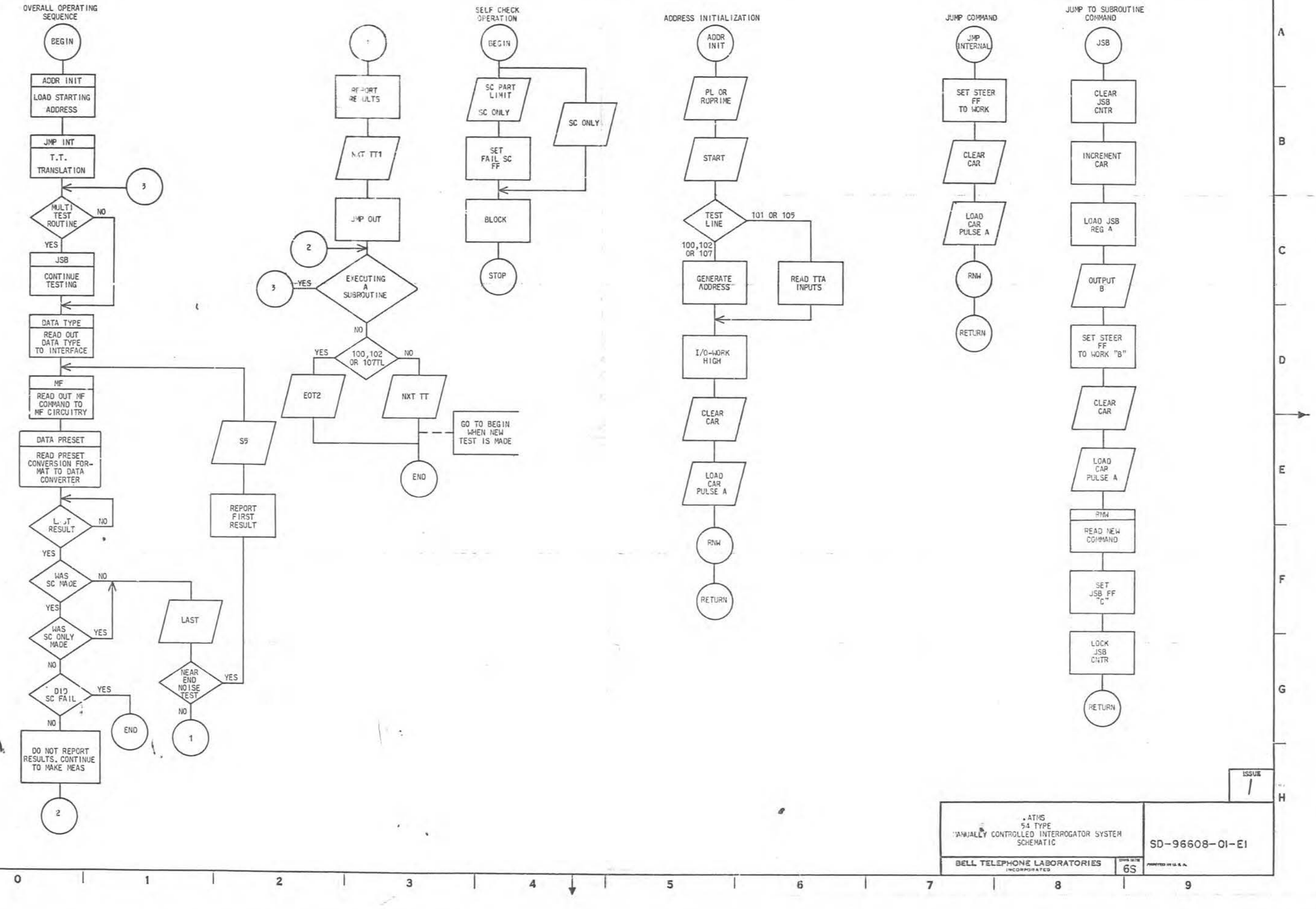
CERAMIC DIP OR METAL CAN

PLASTIC DIP	CERAMIC DIP OR METAL CAN	
	X	TEMPERATURE CYCLING PER MIL-STD-883, METHOD 1010, CONDITION B FOR 10 CYCLES. (-55 TO +125°C).
X		TEMPERATURE CYCLING PER MIL-STD-883, METHOD 1010, CONDITION B FOR 10 CYCLES, EXCEPT T(HIGH) = 100°C, T(LOW) = 0°C.
X	X	BURN-IN PER MIL-STD-883, METHOD 1015, CONDITION D, 160 HRS. MIN, 125° ± 5°C. COND A IS ACCEPTABLE IF THE IC IS IN A TRUE REVERSE BIAS CONDITION.
	X	HERMETICITY CHECK FINE LEAD PER MIL-STD-883, METHOD 1014, CONDITION A OR B. GROSS LEAK PER MIL-STD-883, METHOD 1014, CONDITION D OR C2.
		ELECTRICAL TEST EITHER a) OR b) IS ACCEPTABLE
X	X	a) DC PARAMETERS AT 100°C ± 5°C SHALL AGREE WITH MANUFACTURERS REQUIREMENTS. DYNAMIC TESTS SHALL BE PERFORMED AT 100°C ONCE PER MONTH TO AQL OF 1.6%.
X	X	b) FUNCTIONS AND DC PARAMETERS SHALL AGREE WITH THE MANUFACTURER'S SPECIFICATIONS FOR 25°C.
X	X	MARKING - APPLY A "WE" DESIGNATION AFTER OR NEAR THE CODE MARKING OF EACH DEVICE WHICH PASSED ALL TESTS.

DEVICES WHICH MEET KS REQUIREMENTS ARE CONSIDERED ACCEPTABLE ALTERNATES, ALSO ACCEPTABLE ARE DEVICES WHICH MEET A MANUFACTURER'S STANDARD RELIABILITY PROGRAM WHICH MEETS OR EXCEEDS THE ABOVE SPECIFICATION. DEVICES EXCLUDED FROM THE ABOVE REQUIREMENT ARE: 2405, 6280, 4016.

ATMS 5A TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC		DWG SIZE A5	ISSUE 13B
BELL LABORATORIES	SD-96608-01		D14

PART OF SC I



ISSUE 1

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-E1

BELL TELEPHONE LABORATORIES
INCORPORATED

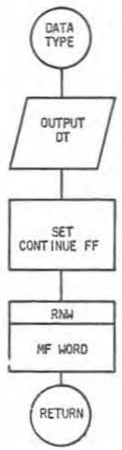
DRWG SIZE 6S

PRINTED IN U.S.A.

SD-96608-01-E1

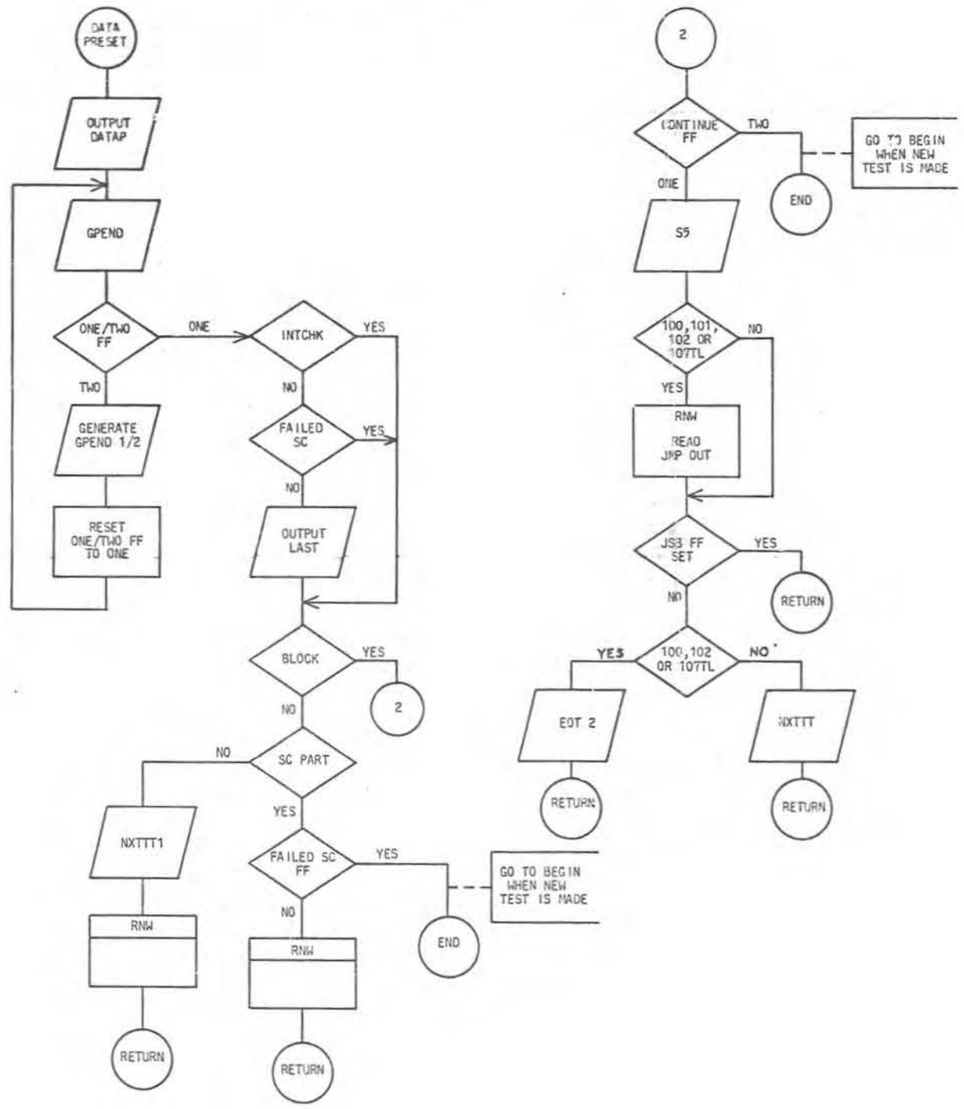
PART OF SC I

DATA TYPE COMMAND

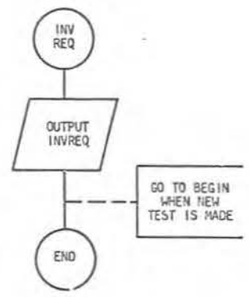


MF COMMAND

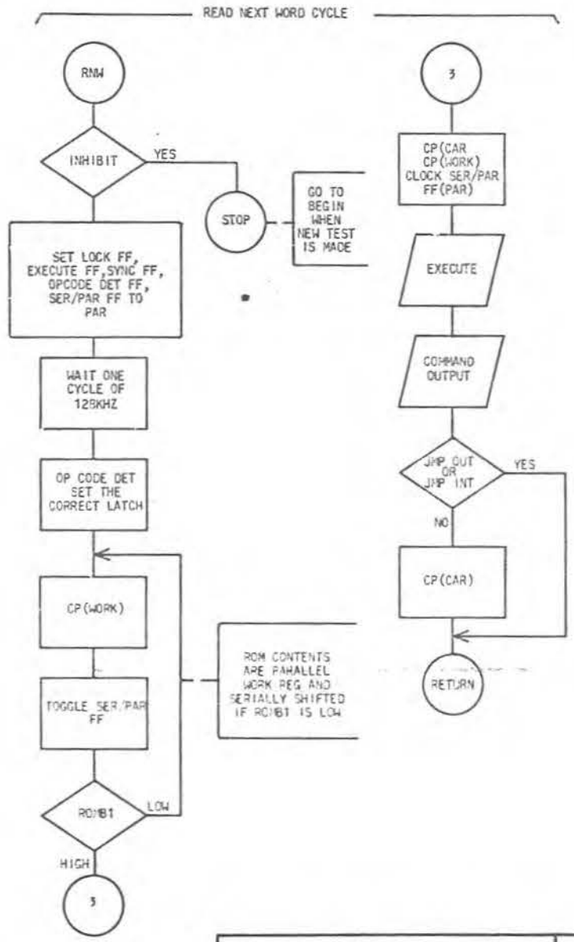
DATA PRESET COMMAND



INVALID ROM LOCATION



READ NEXT WORD CYCLE



ISSUE 1

ATHS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-E2

BELL TELEPHONE LABORATORIES INCORPORATED

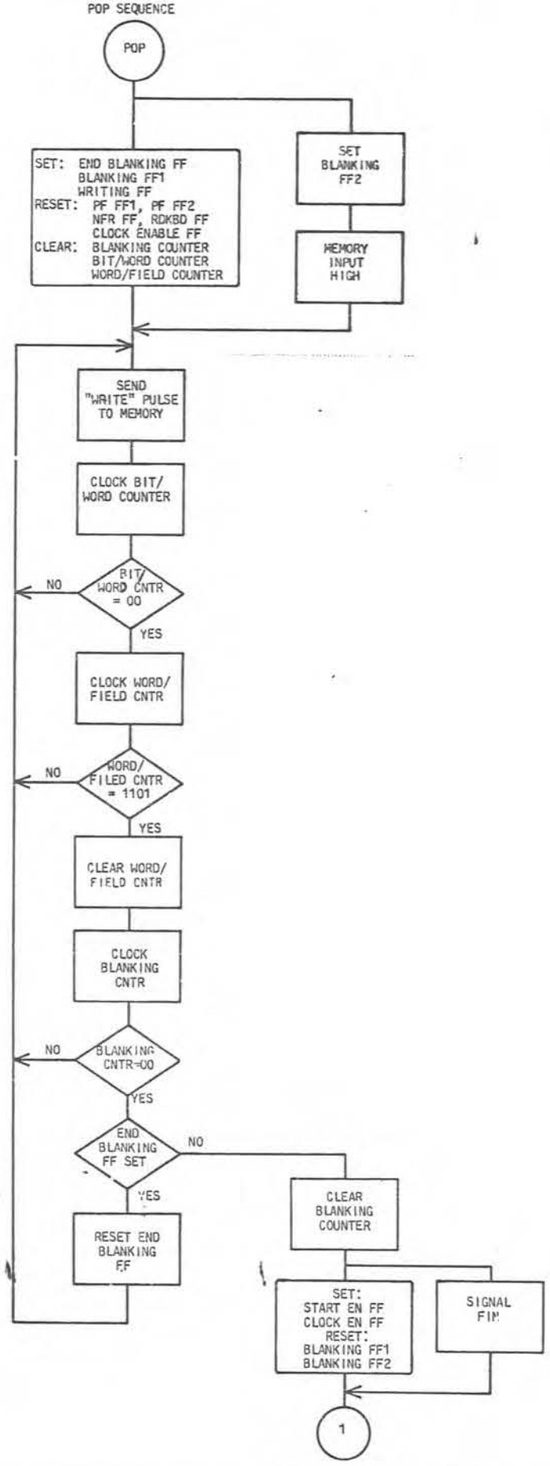
SIZE 6S

SD-96608-01-E2

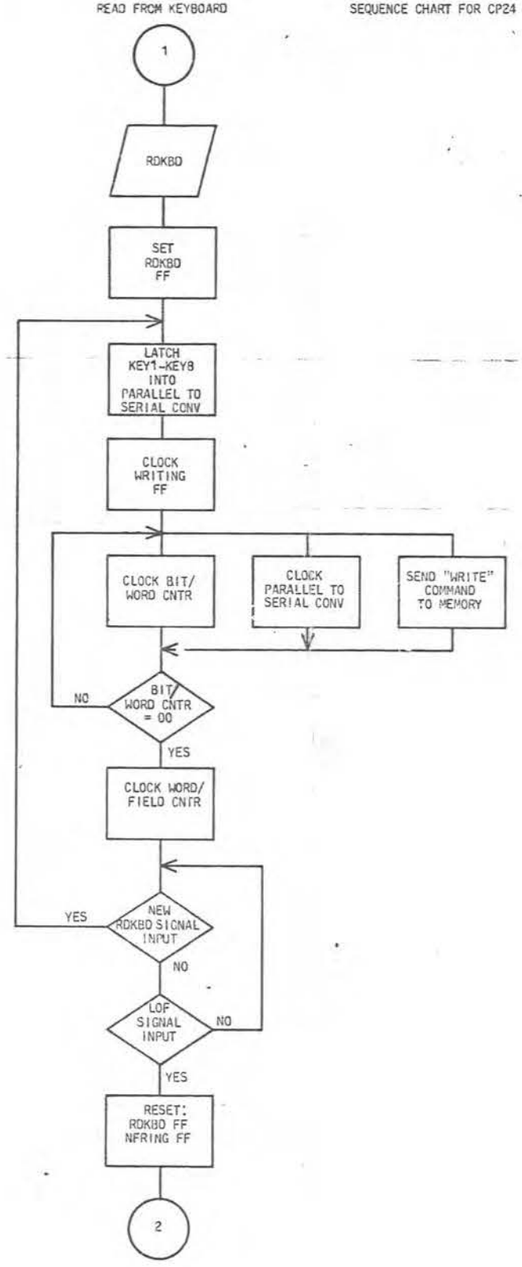
PART OF SC 2

SEQUENCE CHART FOR CP24

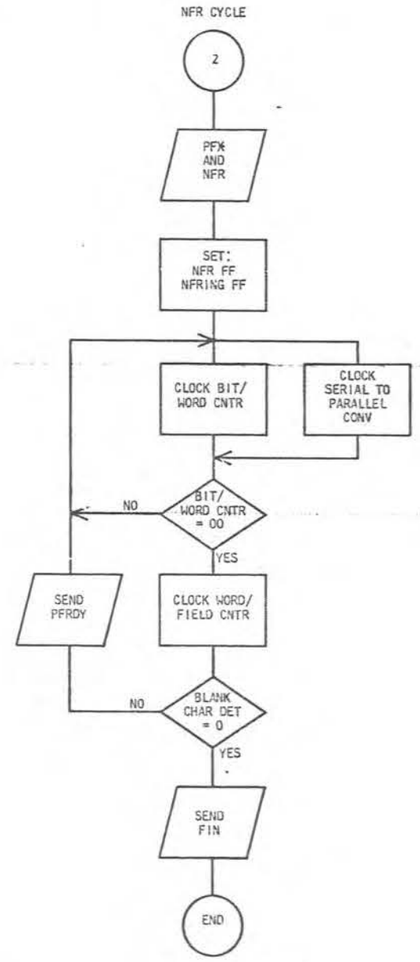
POP SEQUENCE



READ FROM KEYBOARD



NFR CYCLE



ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

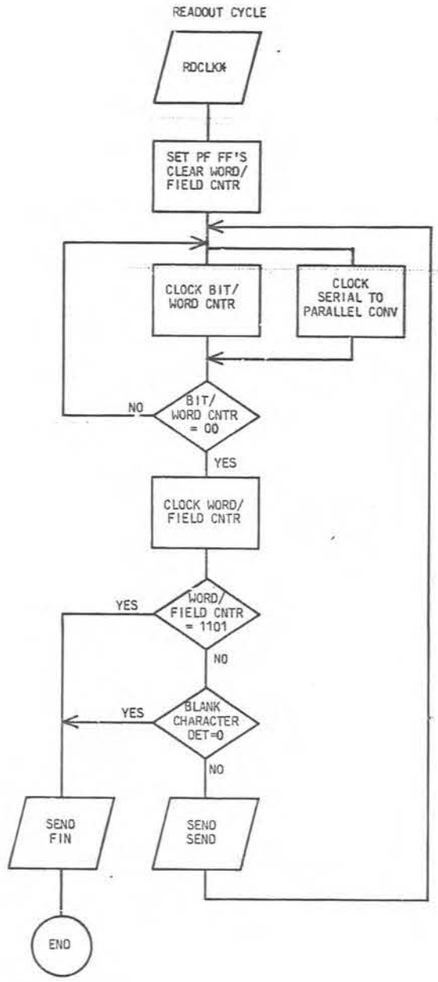
SIZE 6S

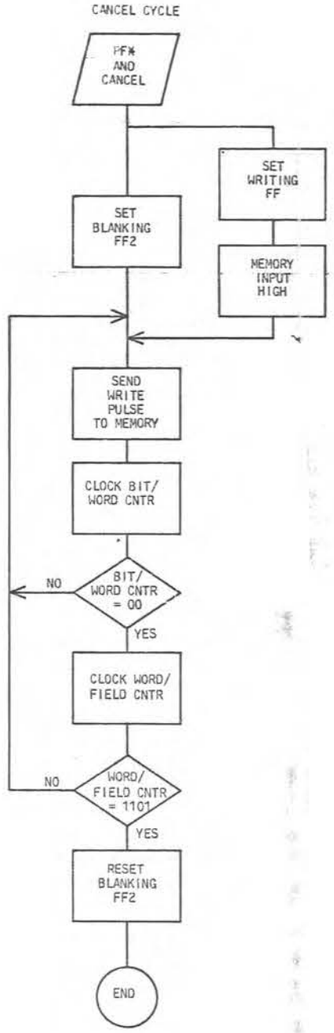
SD-96608-01-E3

SD-96608-01-E3

PART OF SC 2

SEQUENCE CHART FOR C124





ISSUE 1

ATHS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SYSTEM

SD-96608-01-E4

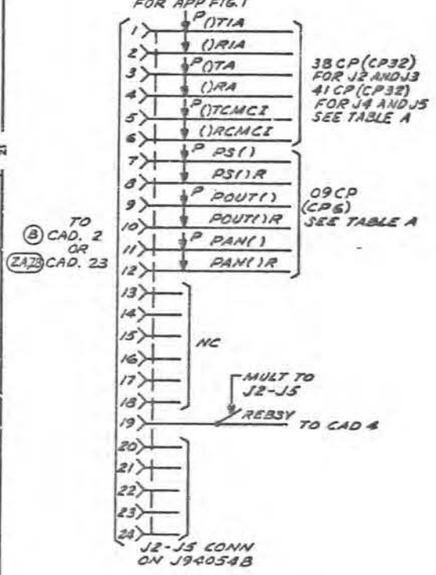
BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

SD-96608-01-E4

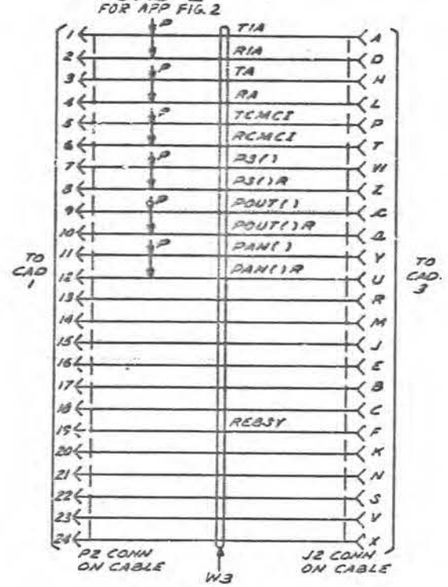
CAD 1

FOR APP FIG. 1



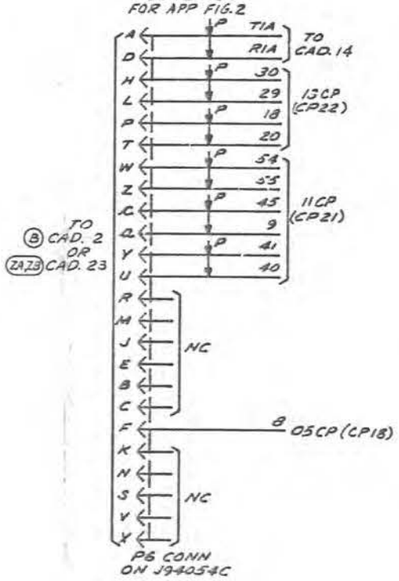
(A) CAD 2

FOR APP FIG. 2



CAD 3

FOR APP FIG. 2



CAD 4

FOR APP FIG. 1

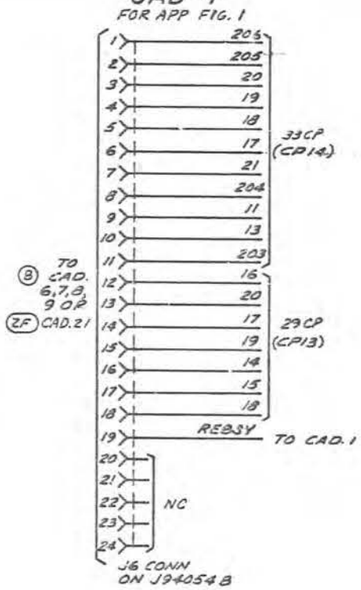


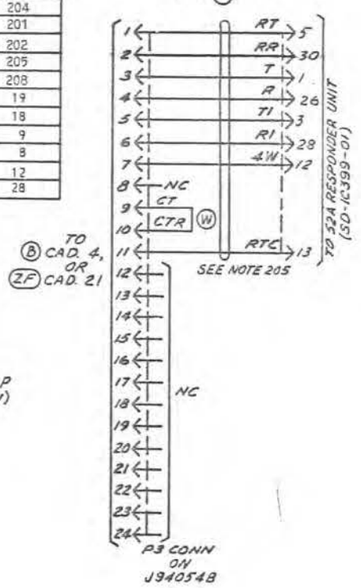
TABLE A

LEAD DESIG	J2 CONN CP TERM	J3 CONN CP TERM	J4 CONN CP TERM	J5 CONN CP TERM
( )T1A	36	203	36	203
( )R1A	34	204	34	204
( )TA	40	201	40	201
( )RA	38	202	38	202
( )TCMCI	32	205	32	205
( )RCMCI	30	208	30	208
PS( )	205	203	20	19
PS( )R	206	202	201	18
POUT( )	10	2	3	9
POUT( )R	11	1	4	8
PAN( )	14	13	15	12
PAN( )R	27	35	34	28

( ) IS A, B, C OR D

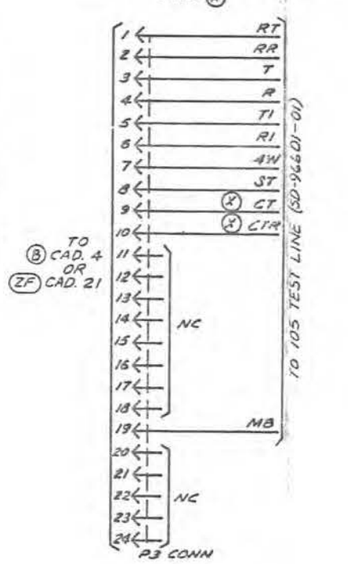
CAD 6

FOR USE WITH 52A RESPONDER DIRECTLY WIRED WITH (W)



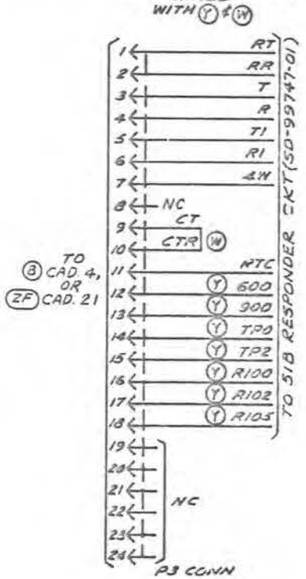
CAD 7

FOR USE WITH INTERROGATOR ACCESS CKT OF 105TL USING 52A RESPONDER WITH (X)



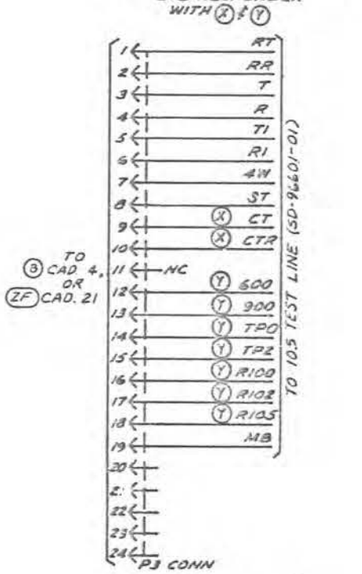
CAD 8

FOR USE WITH 51B RESPONDER DIRECTLY WIRED WITH (Y) & (W)



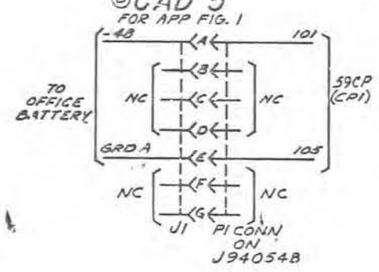
CAD 9

FOR USE WITH INTERROGATOR ACCESS CKT OF 105TL USING 51B RESPONDER WITH (X) & (Y)



(B) CAD 5

FOR APP FIG. 1



ISSUE 14A

ATMS 5A TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-GI
BELL TELEPHONE LABORATORIES INCORPORATED	6S

SD-96608-01-GI

CAD 10
FOR APP FIG. 2

A	(2SD)	44	13CP (CP22)
B	(RELAY)	41	
C	(128 KHZ)	5	
D	(POP)	15	01CP (CP16)
E	(RDKBD)	35	
F	(PFRDY)	57	
H	(1C)	68	03CP (CP17)
J	(2C)	67	
K	(4C)	28	
L	(8C)	58	
M	(1R)	30	
N	(2R)	27	
P	(4R)	70	
R	(8R)	59	
S	(10R)	65	
T	(20R)	63	
U	(40R)	61	
V	(80R)	24	
W	(MFTGR)	21	13CP (CP22)
X	(MFTG$)	19	
Y	(SMONIT)	46	
Z	(BID)	47	
a	(CUTREQ)	11	
b	(PULSING)	8	
c	(INVREQ)	49	11CP(CP21)
d	(LOAD ME)	49	01CP (CP16)
e	(ROF)	9	
f	(2HZ)	54	
h	(ROTL^{MB})	11	03CP (CP17)
j	(PFC)	47	
k	(PFB)	10	
m	(PFA)	46	
n	(ROTLT)	4	
p	(ROTLR)	41	
r	(DI3C)	13	13CP (CP22)
s	(A. Y)	7	
t	(LOOPB)	21	CP31
u	(TRUNK) ③	10	13CP(CP22)
w	(CBT)	a	TO CAD 14
w	(CBR)	b	
x			NC
y			
z			
AA			
BB			
CC			
DD			
EE			
FF			
HH			

TO CAD. 12

P3 CONN ON J94054C

CAD 11
FOR APP FIG. 2

A	(BAL)	9	13CP(CP22)
B	(OHM)	62	07CP(CP19)
C	(KEY 1)	5	
D	(KEY 2)	42	
E	(KEY 4)	7	
F	(KEY 8)	8	
H	(KEY 10)	40	01CP (CP16)
J	(KEY 20)	3	
K	(KEY 40)	39	
L	(KEY 80)	2	
M	(NENT)	18	
N	(CANCEL)	46	
P	(LOF)	41	
R	(NFR)	32	
S	(ACB)	2	13CP(CP22)
T			
U			
V			
W			
X			
Y			
Z			
a			
b			NC
c			
d			
e			
f			
h			
j			
k			
m			
n			
p			
r			
s	GRD	5	
t		42	
u		52	
n		53	
w		54	
x		55	
y	-12	36	25CP (CP28)
z	-12	36	
AA	+12	34	
BB	+5	6	
CC		7	
DD		8	
EE		9	
FF		10	
HH		43	

TO CAD. 13

P4 CONN ON J94054C

ZE

ZD

CAD 12
FOR APP FIG. 3

A	(2SD)	7	01CP (CP23)
B	(RELAY)	63	
C	(128 KHZ)	4	
D	(POP)	21	
E	(RDKBD)	23	
F	(PFRDY)	16	03CP (CP24)
H	(1C)	17	
J	(2C)	10	
K	(4C)	7	
L	(8C)	12	
M	(1R)	50	
N	(2R)	14	
P	(4R)	15	10CP (CP27)
R	(8R)	55	
S	(10R)	56	
T	(20R)	19	
U	(40R)	20	
V	(80R)	24	
W	(MFTGR)	33	03CP (CP24)
X	(MFTG$)	35	
Y	(SMONIT)	19	
Z	(BID)	55	08CP (CP26)
a	(CUTREQ)	18	
b	(PULSING)	62	
c	(INVREQ)	29	
d	(LOAD ME)	52	
e	(ROF)	12	
f	(2HZ)	11	
h	(ROTL^{MB})	49	
j	(PFC)	13	
k	(PFB)	50	
m	(PFA)	14	
n	(ROTLT)	51	
p	(ROTLR)	16	
r	(DI3C)	13	01CP (CP23)
s	(RCV)	14	
t	(LOOP)		325 SW
u	(TRUNK)		
n	(CBT)	73	03CP (CP24)
w	(CBR)	74	
x	SPARE		NC
y	SPARE		
z	SPARE		
AA	SPARE		
BB			
CC			
DD			
EE			
FF			
HH			

TO CAD. 10

NC

J3 CONN ON J94054D

236M CABLE

⑧ CAD. 16
FOR APP FIG. 2

-48

TO OFFICE BATTERY

A		31
B		
C	NC	NC
D		
E	GRD A	1
F	NC	NC
G		

20 CP

J1 P1 CONN ON J94054C

CAD 13
FOR APP FIG. 3

A	(BAL)	25	10CP (CP27)
B	(OHM)	71	
C	(KEY 1)	13	
D	(KEY 2)	12	
E	(KEY 4)	54	
F	(KEY 8)	18	
H	(KEY 10)	23	
J	(KEY 20)	22	
K	(KEY 40)	30	
L	(KEY 80)	29	
M	(NENTRY)	5	
N	(CANCEL)	4	
P	(LOF)	7	
R	(NFR)	6	
S	(ACB)	62	03 CP (CP24)
T	SPARE		NC
U	SPARE		
V	SPARE		
W	SPARE		
X			
Y			
Z			
a			
b			
c			
d			
e			NC
f			
h			
j			
k			
m			
n			
p			
r			
s	(GRD)	1	01CP (CP23)
t	(GRD)	1	03CP (CP24)
u	(GRD)	1	06CP (CP25)
n	(GRD)	1	08CP (CP26)
w	(GRD)	1	10CP (CP27)
x	(GRD)	1	12CP (CP30)
y	(-12)	36	03CP (CP24)
z	(-12)	36	06 CP (CP25)
AA	(+12)	34	
BB	(+5)	6	01CP (CP23)
CC	(+5)	6	03CP (CP24)
DD	(+5)	6	06CP (CP25)
EE	(+5)	6	08CP (CP26)
FF	(+5)	6	10CP (CP27)
HH	(+5)	6	12CP (CP30)

TO CAD. 11

J4 CONN ON J94054D

236M CABLE

CAD 14
FOR APP FIG. 2

TO CAD. 15 OR CAD 17

A	(CUT A)	P 22	13CP (CP22)
B	(CUT B)	15	
C	(BAL A)	P 23	
D	(BAL B)	51	
E	(BID A)	P 24	
F	(BID B)	14	
H	(CUT R)	P 7	CP31
J	(CUT T)	2	
K	(CUT RI)	P 3	
L	(CUT TI)	1	
M	(DT)	P 32	13CP (CP22)
N	(DR)	17	
P	(TT)	P 31	
R	(TR)	16	
S	(CUT T)	P 2	CP31
T	(CUT R)	7	
U	(CUT TI)	P 1	
V	(CUT RI)	3	
W	(T)		(JACK) J7
X	(S)		(RES) RI
Y	(T)	P 26	13CP (CP22)
Z	(R)	23	
a	(CBT)	P V	TO CAD 10
b	(CBR)	W	
c	(T1A)	P A	TO CAD 3
d	(R1A)	D	

P5 CONN ON J94054C

② CAD. 15
FOR APP FIG. 2

TO CAD. 14

A	(CUT A)	TO REMOTE OFFICE TEST LINE SEE TABLE A SH -G3 (SEE NOTE 109)
B	(CUT B)	
C	(BAL A)	
D	(BAL B)	
E	(BID A)	
F	(BID B)	
H	(CUT R)	
J	(CUT T)	
K	(CUT RI)	
L	(CUT TI)	
M	(DT)	
N	(DR) 4W	
P	(TT) 2W	
R	(TR)	TO POS JK FIELD (SEE NOTES 106 & 109)
S	(CUT T)	
T	(CUT R)	
U	(CUT TI)	
V	(CUT RI)	
W	(T) ⑦	TO REMOTE MONITOR JK (SEE NOTE 108)
X	(S) ⑦	
Y	(T) ⑦	TO SUBSCRIBER LOOP(ORIGINATING) (SEE NOTE 107)
Y	(R)	
Z	(CBT)	TO SUBSCRIBER LOOP(ANS CALL BACK) (NOTE 107)
a	(CBR)	
b	(T1A)	TO POS JK FIELD (SEE NOTE 106)
c	(R1A)	

J5 CONN ON J94054

ISSUE 14A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-G2

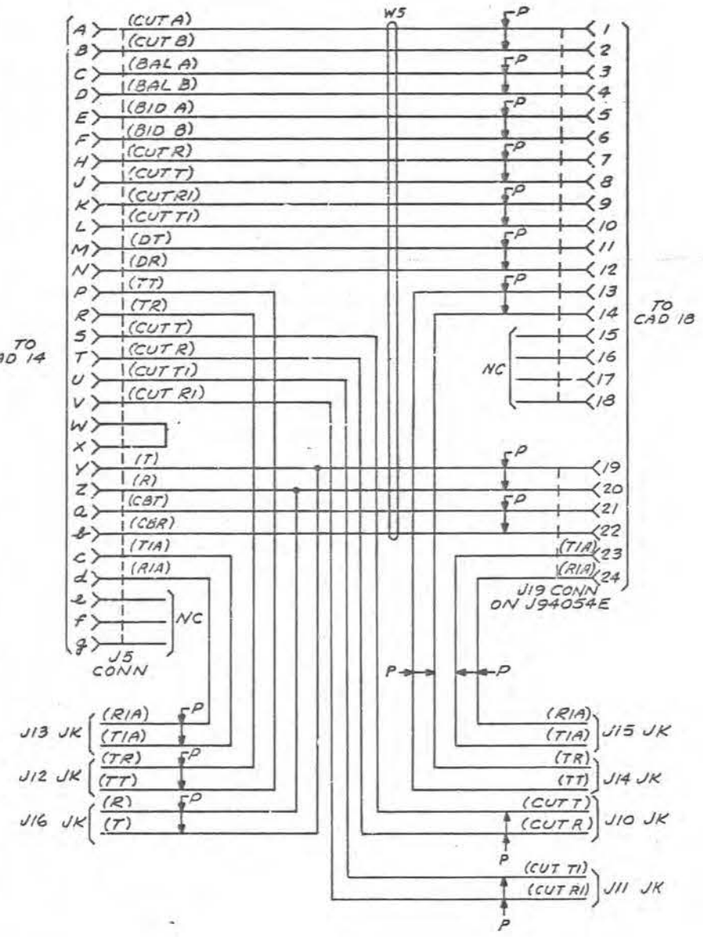
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

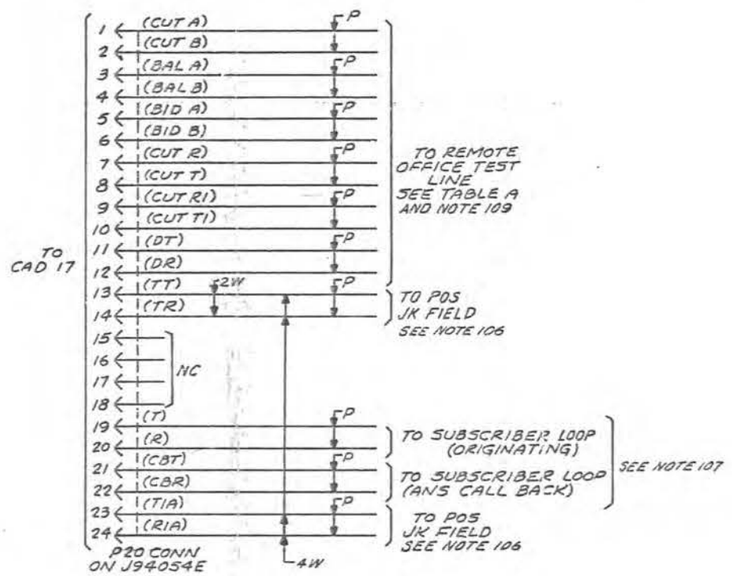
PRINTED IN U.S.A.

SD-96608-01-G2

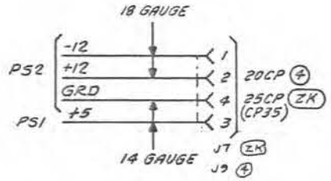
④ CAD 17
FOR APP FIG. 4



④ CAD 18
FOR APP FIG. 4



CAD 19
FOR APP FIG. 2, 3 & 4



CAD 20
FOR APP FIG. 1 & 4

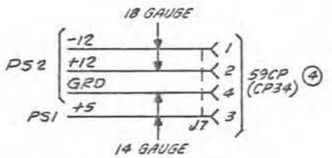


TABLE A

ROTL CONNECTING CIRCUITS	
ROTL	SCHEMATIC
NO.1 XBR	SD-28067-01
CS6R TANDEM	SD-28067-01
NO.5 XBR-EXPANDED	SD-28035-01
5XS EXPANDED	SD-32544-01
DITS-ROTL	SD-1P066-01

ISSUE 14A

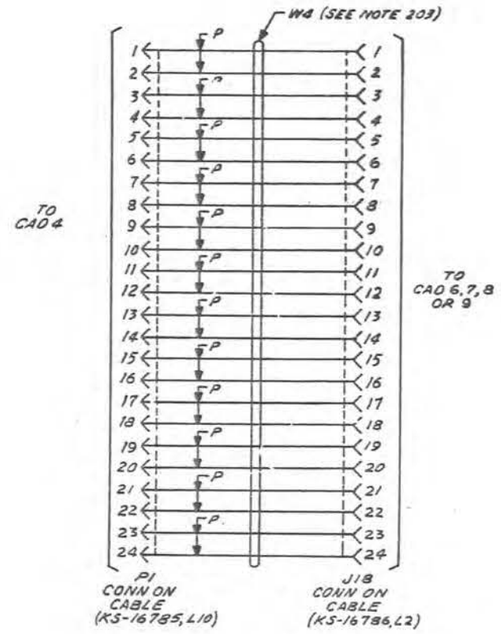
AMTS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-G3

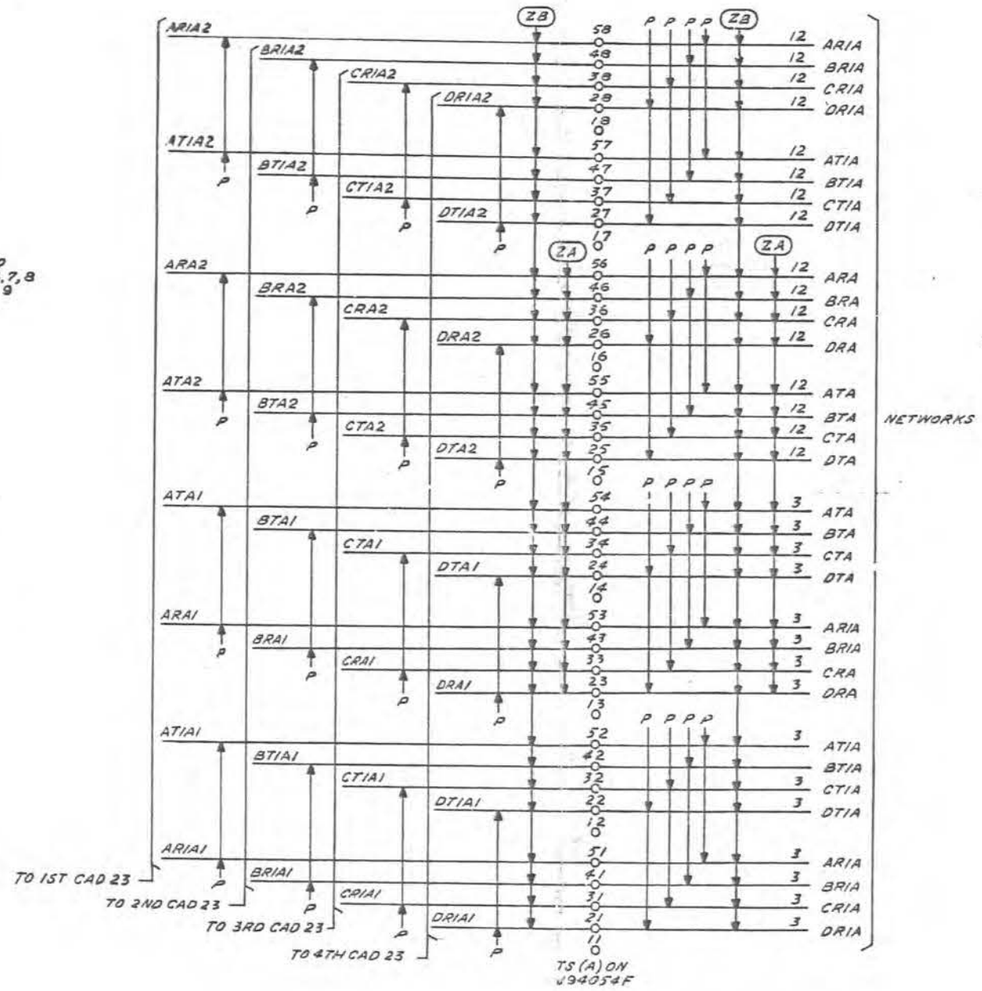
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

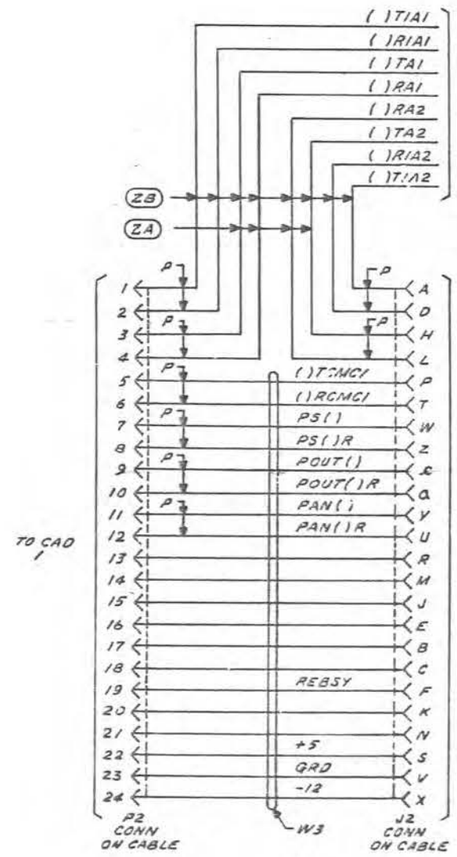
(ZF) CAD 21
FOR APP FIG. 4



(ZA, ZB) CAD 22
FOR APP FIG. 5



(ZA, ZB) CAD 23
FOR APP FIG. 2
(FOR USE WITH BUILDOUT NETWORKS)



ISSUE 4B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

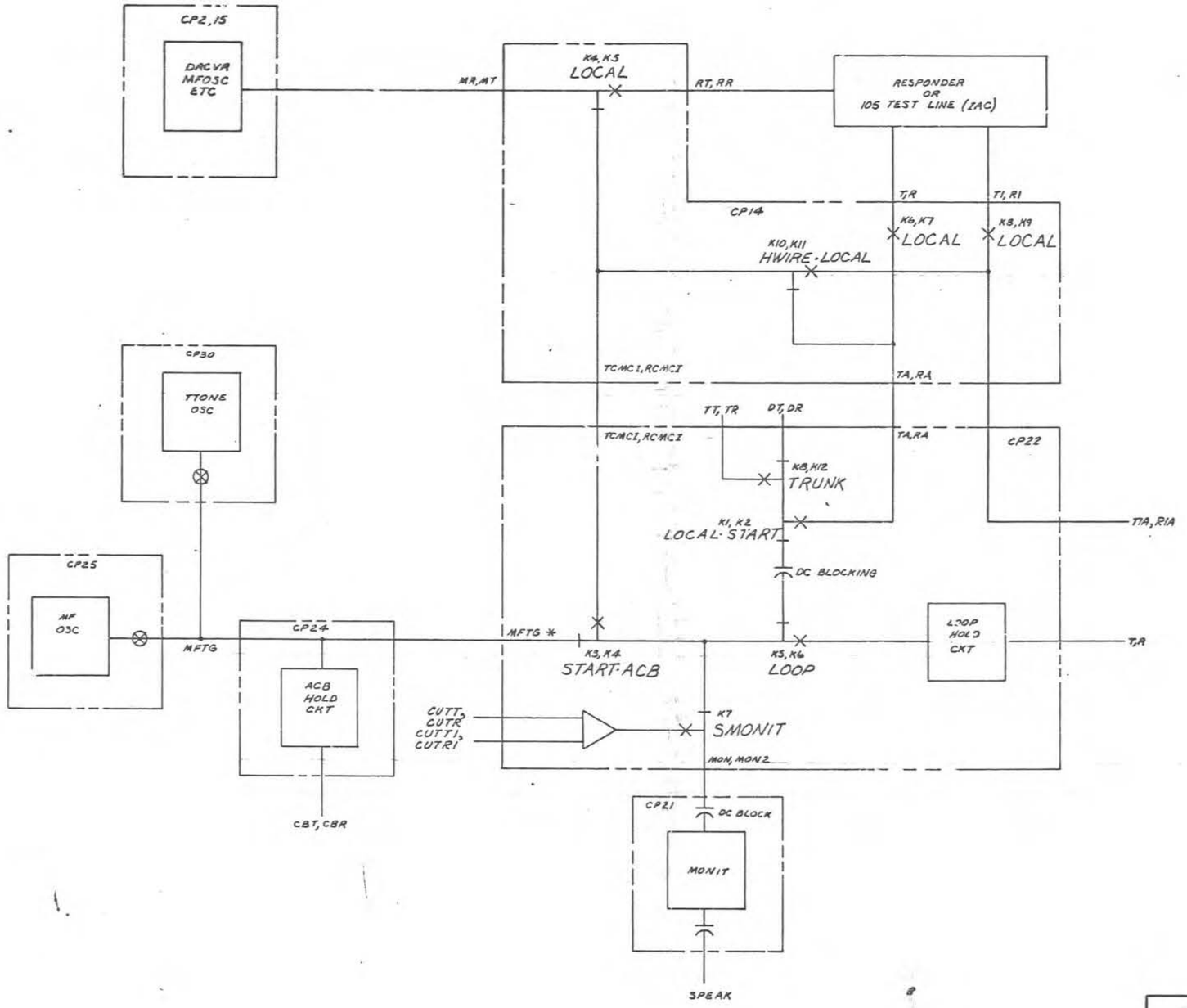
BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-G4

SD-96608-01-G4

BD I

MCI/RCU SIGNALLING AND TRANSMISSION PATHS

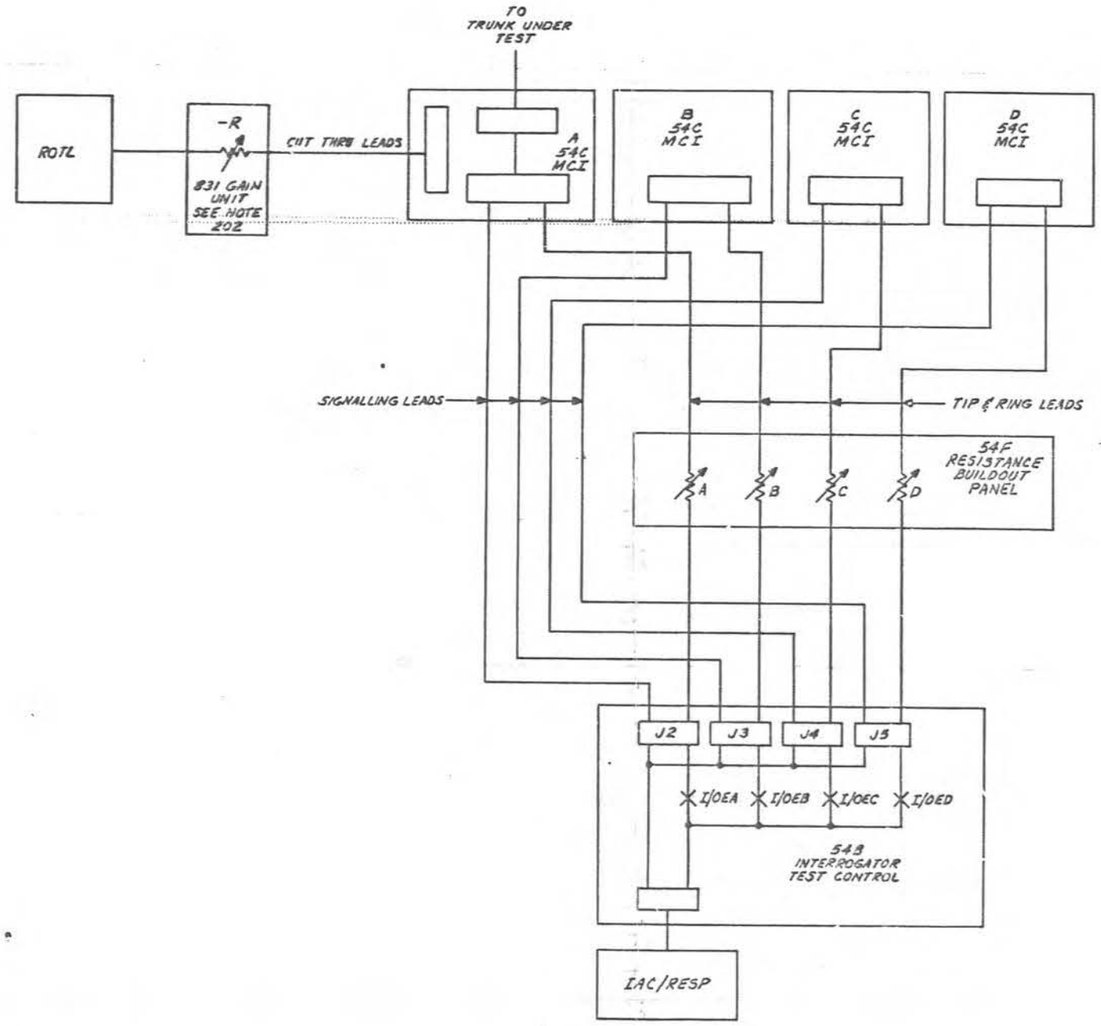


ISSUE	1
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-HI
BELL TELEPHONE LABORATORIES INCORPORATED	6S

SD-96608-01-HI

BD 2

BUILDOUT AND CUT THRU
COMPENSATION ARRANGEMENT



ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-H2

BELL TELEPHONE LABORATORIES
INCORPORATED

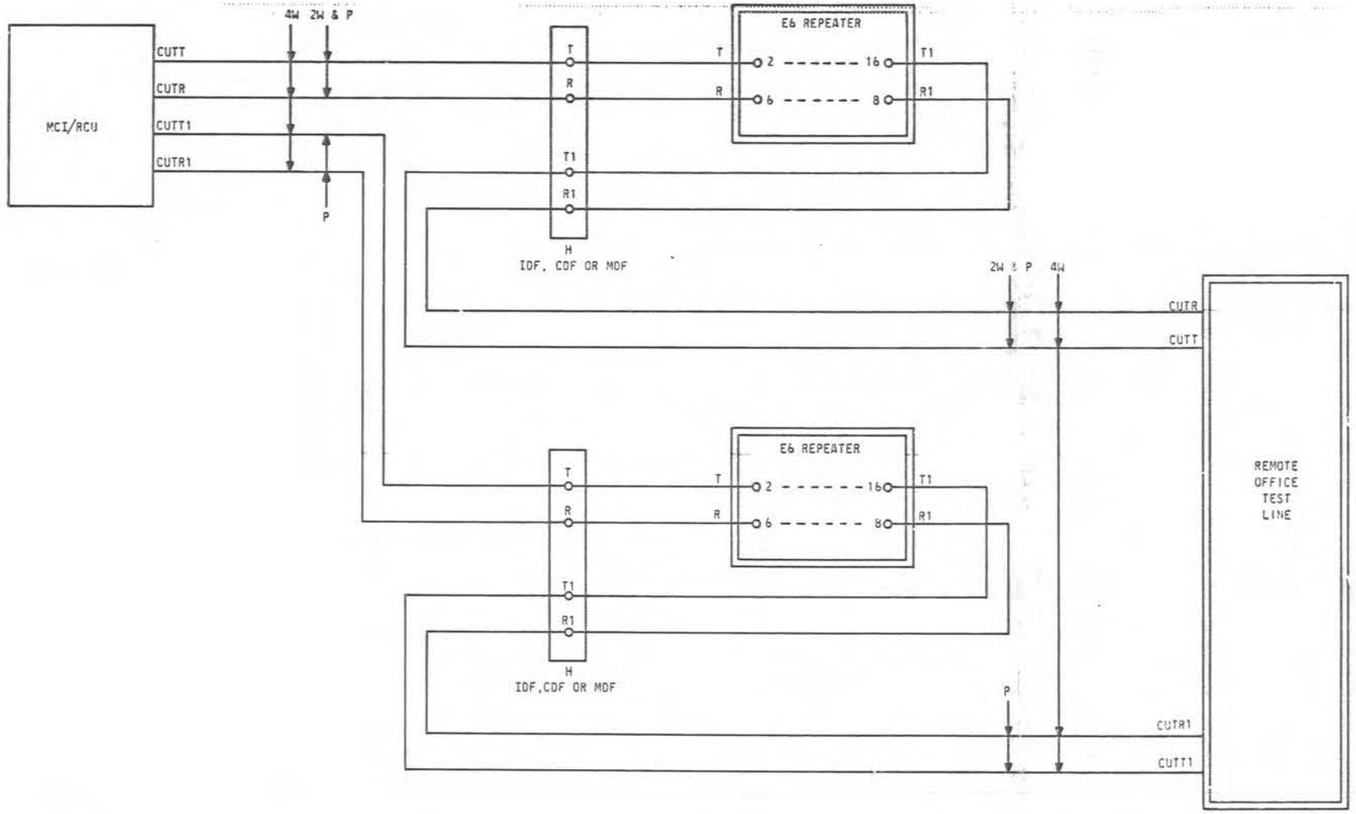
CHNG MODE 6S

PRINTED IN U.S.A.

SD-96608-01-H2

BD 3

BUILD OUT FOR CUT-THRU TESTING,
E6 REPEATER INTERCONNECTIONS
TO MCI/RCU AND ROTL
(SEE NOTE 1)



NOTES:
1. CONNECTIONS TO AND FROM THE E6 REPEATER CAN BE MADE VIA A DISTRIBUTING FRAME TERMINAL STRIP OR DIRECT AT TEL CO. OPTION.

ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	DWG SIZE 6S	ISSUE 13B
BELL LABORATORIES	SD-96608-01-	H3

CPS I
POWER SUPPLY

COMPONENT LIST

POWER SUPPLY

DESIG	CODE
PS1	KS-20966 L2

CONNECTOR

DESIG	CODE
J1	51-236, AMPHENOL

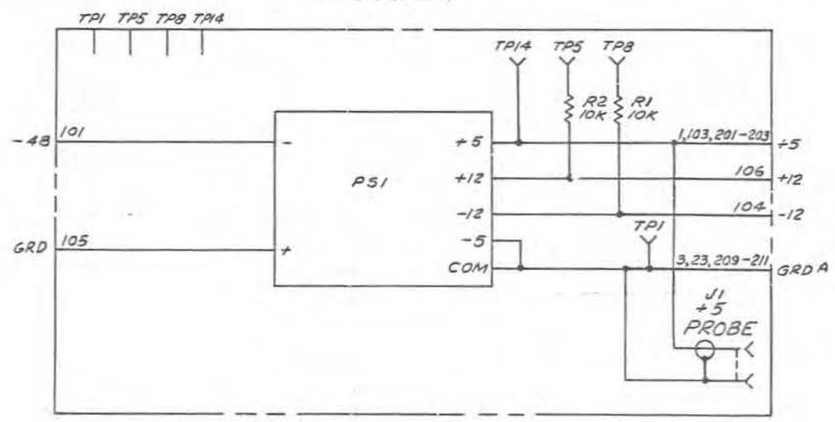
RESISTOR

DESIG	CODE
R1,R2	KS-20616 L1A,10K

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS.
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. THE TEST POINTS WHICH APPEAR ON THE FACEPLATE OF THIS CP ARE IDENTIFIED IN THE FOLLOWING TABLE.

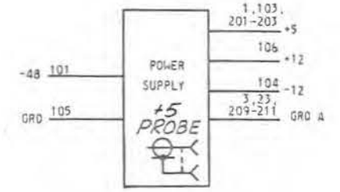
TEST POINT	IDENTIFICATION
TP 1	CIRCUIT GROUND
TP 5	+12 VOLTS VIA 10 KOHMS
TP 8	-12 VOLTS VIA 10 KOHMS
TP 14	+ 5 VOLTS



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-20305-( )
CONNECTOR ON FRAME	9278

SYMBOL



INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

THIS CP CONTAINS A DC-DC CONVERTER WHICH HAS AN INPUT OF -44 TO -52 (NOMINAL -48) VOLTS AND OUTPUTS AT +5, +12, AND -12 VOLTS. EACH OUTPUT HAS A TOLERANCE OF ±0.2 VOLTS.

SD-96608-01-JI

POWER SUPPLY | CPS I | ISSUE 3A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-JI

BELL TELEPHONE LABORATORIES INCORPORATED | SIZE 6S

PART OF CPS 2
PART OF DATA RECEIVER

MANUFACTURING REFERENCES

CATEGORY	NO.
CONTROLLING DRAWING	SD-1C478-01
CIRCUIT PACK CODE	ED-2C217-( )
CONNECTOR ON FRAME	927B

BAND-PASS ACTIVE FILTER 750-3200 HZ

LOW PASS

HIGH PASS

30dB AMPL

SCHMITT TRIGGER

INT CHK RELAYS

DETECTOR CIRCUITRY

2ms EDGE TRIGGERED SS

GAST SS

GPEND SS

AC REJECTION FILTERS

PART OF CPS 2	ISSUE 1
PART OF DATA RECEIVER	
ATHS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-J2A
BELL TELEPHONE LABORATORIES INCORPORATED	6S

SD-96608-01-J2A

PART OF CPS 2

PART OF DATA RECEIVER

128KHz
1KHz
500Hz
2A/C7 FIN
2A/E6
2A/E7 GPST
FDEN
TP1
TP14
EDGE DETECTOR SS
RESET SS
LOCK FF
DPST SS
TIMER ENABLE FF
4MS TIMER
DPEND SS
DP FF
DPST FF
500HZ SS
R30 2K
ICB-1 ÷16 COUNTER
C22 1000PF
C23 1000PF
C24 1000PF
C25 1000PF
C25 1000PF
C27 1000PF
TP1
TP6
TP11
TP9
TP10
DPEND
DPST
OPN
DATA
DATA FREQUENCY DETECTOR

PART OF DATA RECEIVER

PART OF CPS 2

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J2B

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 11x8 6S

SD-96608-01-J2B

PART OF CPS 3
TIMING CIRCUIT

128KHz XTAL CLOCK

DIVIDER NETWORK

INTERROGATOR REF SIG GEN

INT REF SIG 384 MS

MF TIMING 80 MS

MF TIMING 160 MS

OLD/NEW RESPONDER 68 MS

DPEND S.S.

UNDERRANGE 3MS

NOT EQUIPPED 992 MS

NDR DISABLE NO DATA RCVD 2048 MS

384 MSR
160 MSR
DPST
DPEND
GPST
MFE
GPEND 1/2
PL

1 KHz
2048 MSD
992 MSD
384 MS
80 MS
160 MSD
3.0 MSD
INT CHK REF
500 Hz
128 KHz

MANUFACTURING REFERENCES

CATEGORY	NO.
CONTROLLING DRAWING	SD-10478-01
CIRCUIT PACK CODE	ED-2C128-( )
CONNECTOR ON FRAME	927B

PART OF CPS 3 — ISSUE 1

TIMING CIRCUIT
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J3

BELL TELEPHONE LABORATORIES INCORPORATED — 6S

SD-96608-01-J3

PART OF CPS 4

PART OF DATA CONVERTER

STPRST
48/87
128KHZ
CONVERT FF
48/C7
CONV
COVE 48/80
B5
DATA
48/103 UP/DOWN
C8
C7
C6
C5
C4
B8
B7
B6
GPST
R1 2K
BCD COUNTER
SETOP 48/C0
IC7-1 DECADE COUNTER
IC7-2 DECADE COUNTER
IC7-3 DECADE COUNTER
TP14
TP1
TP12
TP3
TP2
TP8
DAB 1-2
DAB 1-1
DAB 1-0
DAB 2-3
DAB 2-2
DAB 2-1
DAB 2-0
DAB 3-3
DAB 3-2
DAB 3-1
DAB 3-0
BINARY COUNTER
IC29-1 BINARY COUNTER
IC29-2 BINARY COUNTER
LOAD
CLEAR
CARRY
BORROW
BINARY LOAD SS
C4 1000 PF
C1 1000PF
GPST 48/E0
OVF FF1
OVF 48/F0
105
103
+5
GRD

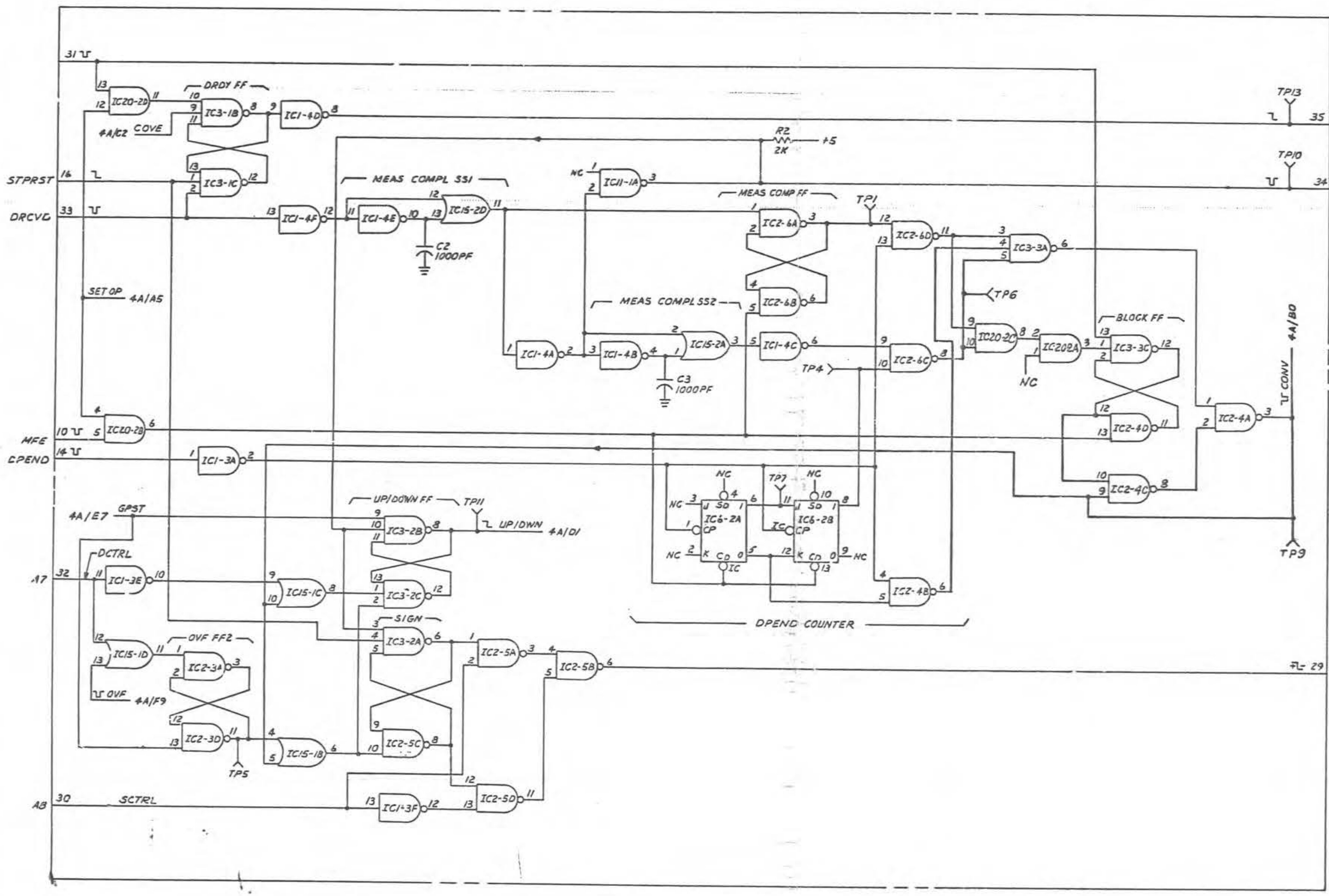
PART OF DATA CONVERTER	PART OF CPS 4
AMTS 5A TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-J4A
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 6S

ISSUE 1

PART OF CPS 4
PART OF DATA CONVERTER

MANUFACTURING REFERENCES

CATEGORY	NO.
CONTROLLING DRAWING	SD-1C478-01
CIRCUIT PACK CODE	ED-2C129-0
CONNECTOR ON FRAME	9278



PART OF DATA CONVERTER

PART OF CPS 4

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

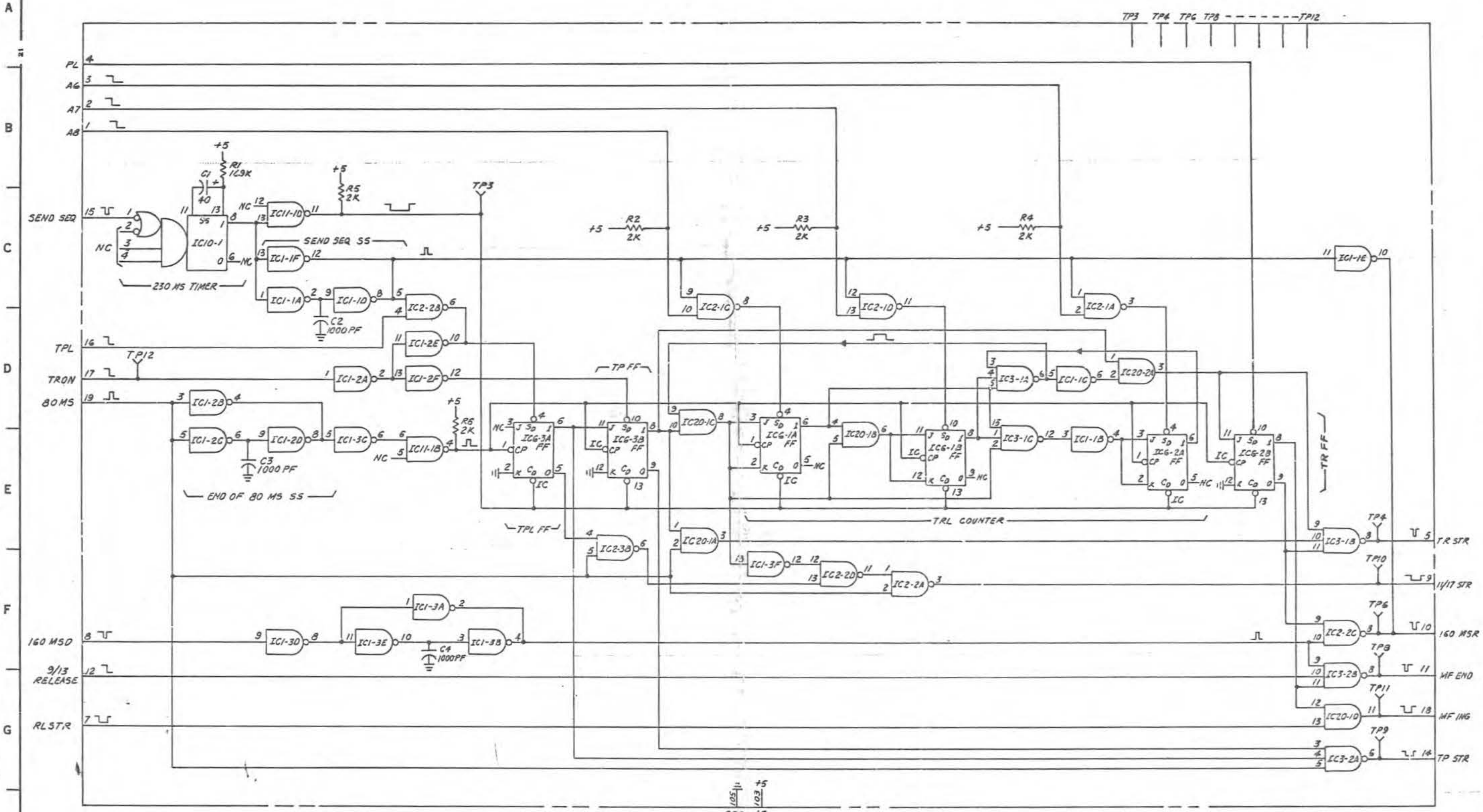
SD-96608-01-J4B

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CPS 5

MF SEQUENCE CIRCUIT



MANUFACTURING REFERENCES

CATEGORY	NO.
CONTROLLING DRAWING	SD-1C478-01
CIRCUIT PACK CODE	ED-2C130-( )
CONNECTOR ON FRAME	927

MF SEQUENCE CIRCUIT

PART OF CPS 5

ISSUE 1

ATHS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J5

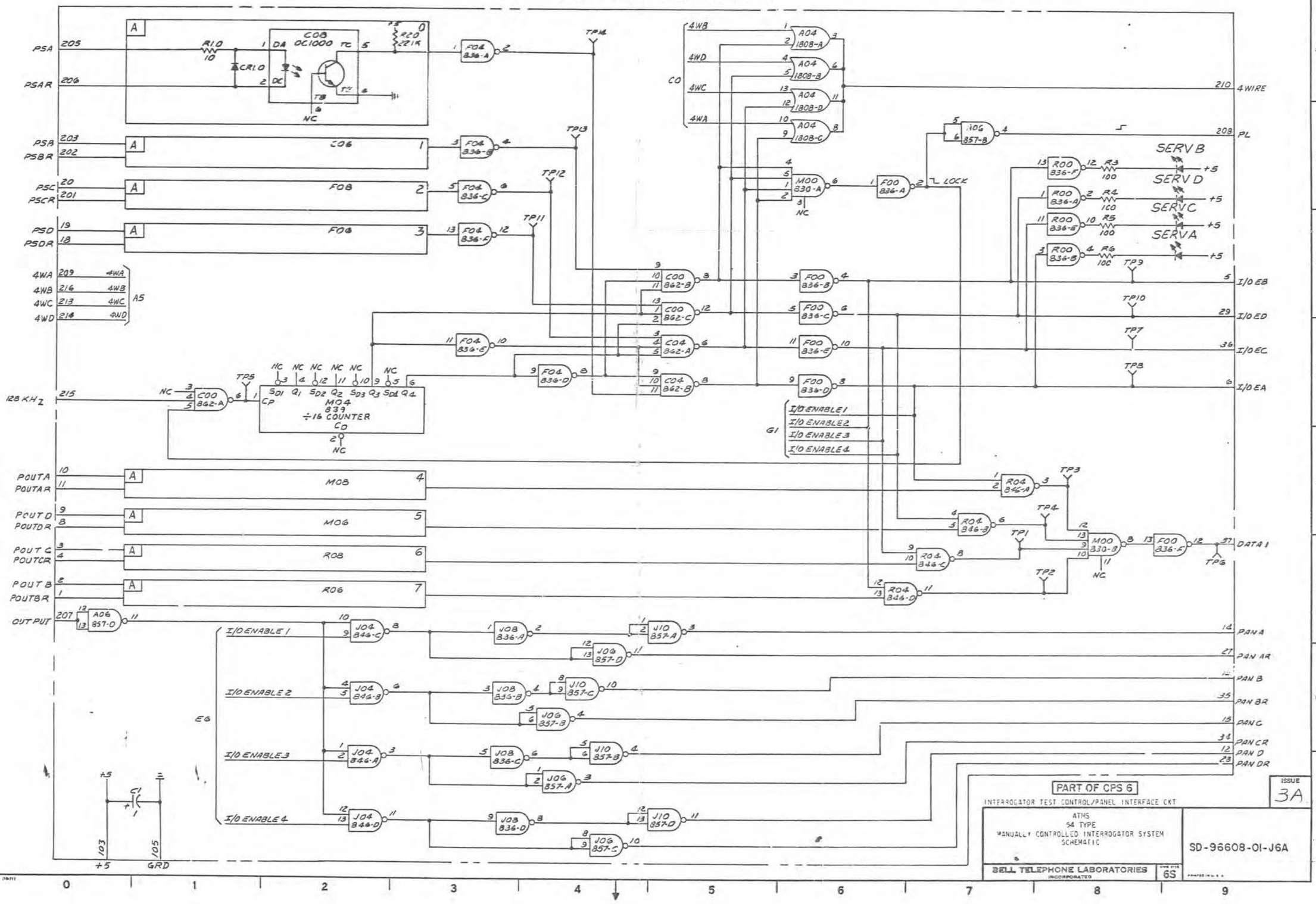
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J5

PART OF CPS 6

INTERROGATOR TEST CONTROL/PANEL INTERFACE



PART OF CPS 6

INTERROGATOR TEST CONTROL/PANEL INTERFACE CKT

ISSUE 3A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J6A

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

V5R10-80996-US

PART OF CPS 6

INTERROGATOR TEST CONTROL/PANEL INTERFACE CKT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A04		A06		C00		C04		C06		C08		F00		F04		F06		F08						J04		J06		J08		J10		LOC ON CP
CODE	1808		857		862		862		OC1000*		OC1000*		836		836		OC1000*		OC1000*						846		857		836		857		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/A6	SPARE			A/D1		A/D5		A/B5		A/A2		A/B6		A/A3		A/C2		A/B2						A/G2		A/H4		A/F3		A/F5	A
B		A/A6		A/B7		A/C5		A/D5						A/C6		A/B3										A/G2		A/G4		A/G3		A/G4	B
C		A/B6	SPARE			A/C5	SPARE							A/D5		A/B3										A/F2		A/H4		A/G3		A/G4	C
D		A/B6		A/F0										A/D6		A/D4										A/H2		A/G4		A/H3		A/H5	D
E														A/D6		A/D3													SPARE				E
F														A/F9		A/C3													SPARE				F

LOC ON CP	M00				M04		M06		M08		R00				R04		R06		R08														LOC ON CP
CODE	830				839*		OC1000*		OC1000*		836				846		OC1000*		OC1000*														CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B6				A/D2		A/E2		A/E2		A/B8				A/E7		A/F2		A/F2													A
B		A/F8										A/C8				A/E7																	B
C											SPARE					A/F7																	C
D											SPARE					A/F6																	D
E												A/C8																					E
F												A/B8																					F

LOC ON CP																																	LOC ON CP
CODE																																	CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																																	A
B																																	B
C																																	C
D																																	D
E																																	E
F																																	F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
C1	600A

DIODE

DESIG	CODE
[8]CR1.0-CR1.7	1N3666

DIODE, LIGHT EMITTING

DESIG	CODE
SERVA, SERVB, SERVC, SERVD	5082-4403 HEWLETT PACKARD

RESISTOR

DESIG	CODE
R1.0-R1.7	KS-20616L1A,10
R2.0-R2.7	KS-20616L1A,22.1K
R3-R6	KS-20616L1A,100

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C306-( )
CONNECTOR ON FRAME	9278

SYMBOL
SEE F3

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM
844 836 839 846 857 862	14	7	OC1000	-	-

P/O CPS 6
INTERROGATOR TEST CONTROL/PANEL INTERFACE CKT

ISSUE 3A

AIMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J6B

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J6B

PART OF CPS 7

INTERROGATOR TEST CONTROL INTERFACE A

DT STORE

UNDERRANGE 2

NDR

BLANK RESULT

NOT EQUIPPED

UNDERRANGE 1

ENABLE

80MS CLOCK

(BLANK)

PART OF CPS 7

INTERROGATOR TEST CONTROL INTERFACE A

ISSUE 3A

ATMS
S4 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J7A

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J7A

PART OF CPS 7
INTERROGATOR TEST CONTROL INTERFACE A

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP					B00		B03		B06		B09						D00		D03		D06		D09						F00				LOC ON CP
CODE					846		1800		346		1808						1808		9311 *		1806		1808						836				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						A/F4		A/G7		A/D6	SPARE							A/C3		A/E5		A/E7		A/B9						A/F0			A
B						A/H1		A/C3		A/J7		A/J4						A/H0				A/E7		A/B9						A/G0			B
C						A/H1				A/J6	SPARE							A/E9				A/E7		A/C9						A/H6			C
D						A/H0				A/D4	SPARE							A/F1				A/F7		A/C9						A/H6			D
E																													SPARE				E
F																														A/G6			F

LOC ON CP	F06		F09		G03				H00				H06		H09						K00		K03		K06		K09						LOC ON CP
CODE	839 *		9322*		1806				862				1806		9322 *						1808		9601 *		1808		9322 *						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F4		A/B5	SPARE				SPARE				A/D7		A/B4							A/E4		A/H5		A/F7		A/B2					A
B						A/F7				A/H2			A/C5								SPARE					A/B7								B
C					SPARE					A/G2			A/B7									A/E3					A/E8								C
D						A/D4							A/B8									A/H4			SPARE									D
E																																	E
F																																	F

LOC ON CP	M00		M03		M06		M09						P00		P03		P06		P09						S00		S03		S06		S09		LOC ON CP
CODE	862		862		304		1814						374		1806		846		836						1800		852		1814		1808		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F2		A/C3		A/F9		A/A1						A/F1		A/D9	SPARE			A/D0						A/H3	SPARE			A/C1		A/E1	A
B		A/E2		A/F7	SPARE			A/B1						A/F1		A/C2		A/D3		A/D1						A/E2		A/C4	SPARE			A/A9	B
C		A/F2		A/F3				A/B1						A/H2		A/D2		A/C8		A/C8									SPARE			A/G7	C
D								A/C1								A/F9		A/F8		A/A7									SPARE			A/D7	D
E																				A/A8													E
F																				A/D0													F

* SINGLE - ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
C1	600A
C2	601B
[4] C3-C6	KS-19774,L1, 100PF

RESISTOR

DESIG	CODE
R1	KS-20616L1A, 20K

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C307-( )
CONNECTOR ON FRAME	9278

SYMBOL

SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN
3. DESIGNATED BATTERY AND GROUND RETURN TERM FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM
836			104	8	1
839			374	8	1
846			9311	24	12
852			9322	16	8
862	14	7			
1800					
1806					
1808					
1814					
9601					

PART OF CPS 7
INTERROGATOR TEST CONTROL INTERFACE A

ISSUE 3A

AIMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

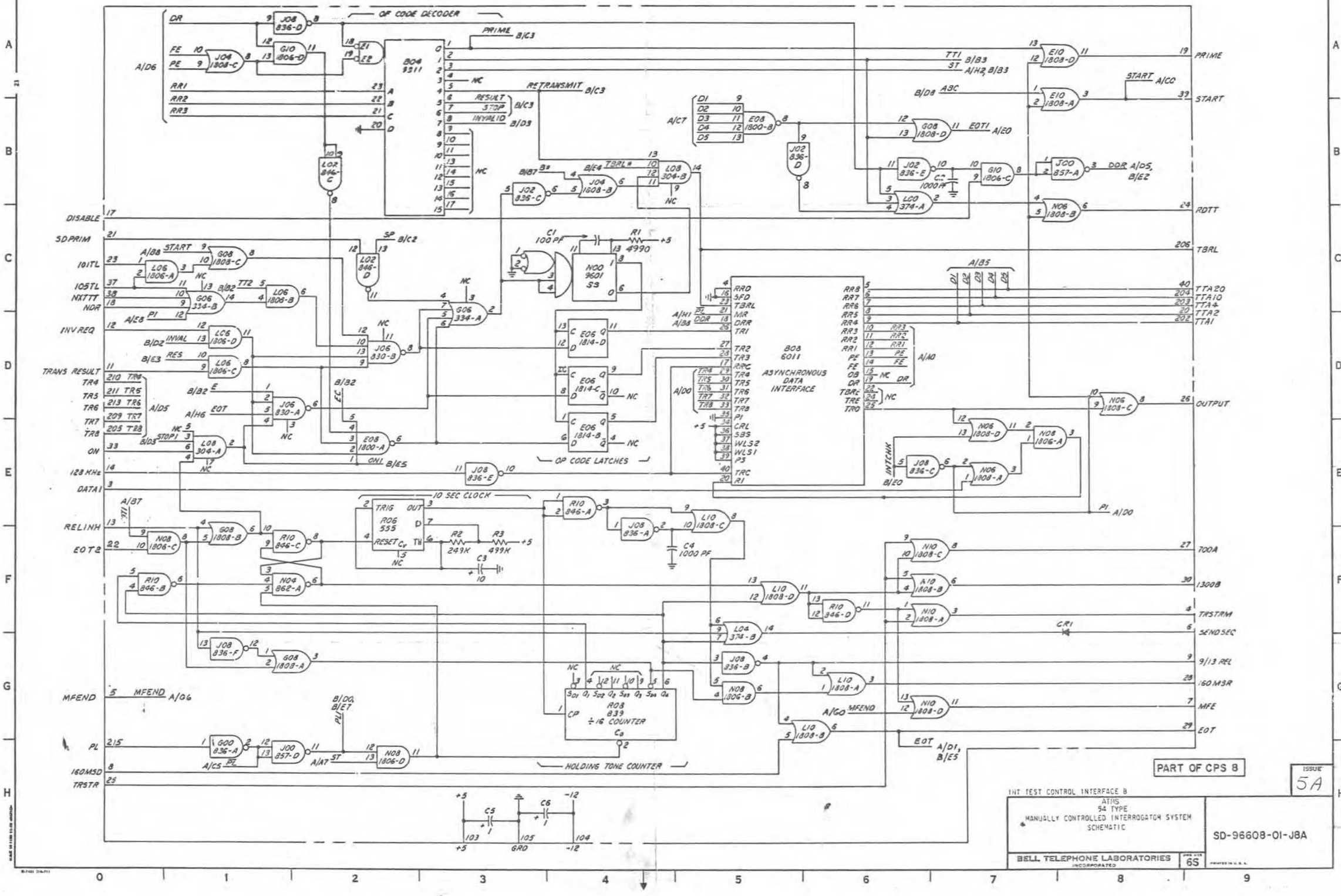
SIZE 6S

SD-96608-01-J7B

SD-96608-01-J7B

PART OF CPS 8

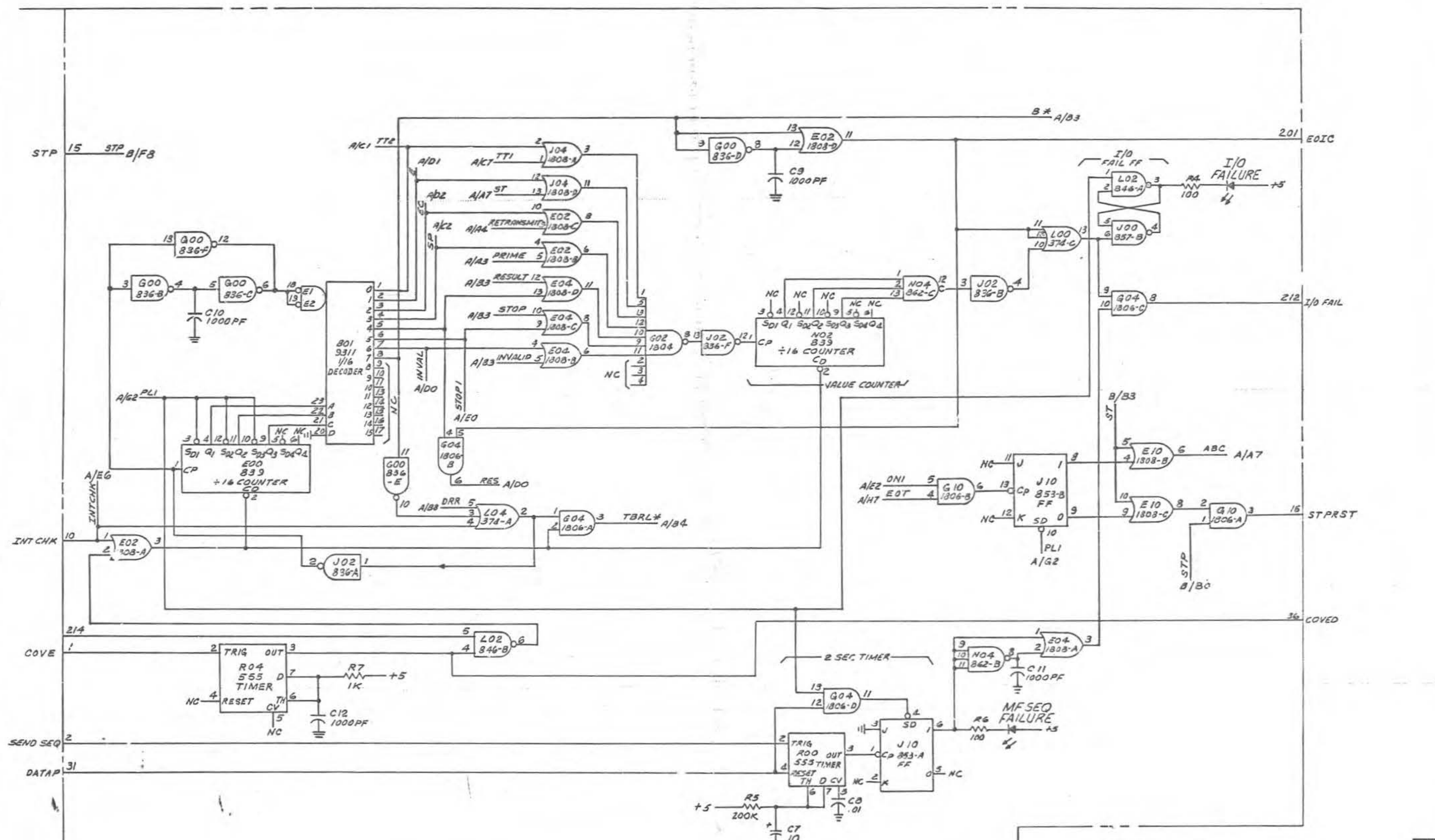
INT TEST CONTROL INTERFACE B



SD-96608-01-J8A

PART OF CPS 8

INT TEST CONTROL INTERFACE B



PART OF CPS 8

INT TEST CONTROL INTERFACE B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

ISSUE 5A

SD-96608-01-J8B

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CPS 8

INT TEST CONTROL INTERFACE B

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B01		B04				B08						E00		E02		E04		E06		E08		E10				G00		G02		G04		LOC ON CP
CODE	9311 *		9311 *				6011 *						839 *		1808		1808		1814		1800		1808				836		1804 *		1806		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/D2		A/B2				A/D5						B/E1		B/E0		B/F7	SPARE			A/E2		A/B8				A/H1		B/D4		B/E3	A
B																B/C3		B/D3		A/E4		A/B5		B/D7				B/C0				B/D3	B
C																B/C3		B/C3		A/D4				B/E7				B/C1				B/C7	C
D																B/B5		B/C3		A/D4				A/B8				B/B4				B/G5	D
E																												B/E2					E
F																												B/C1					F

LOC ON CP	G06		G08		G10				J00		J02		J04		J06		J08		J10				L00		L02		L04		L06		L08		LOC ON CP
CODE	334		1808		1806				857		836		1808		830		836		853				374		846		374		1806		304		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/C3		A/G1		B/E3				A/B8		B/E2		A/D8		A/D1		A/E4		B/G6				A/B6		B/B7		A/F5		A/C0		A/E1	A
B		B/C1		A/F1		B/E6				B/C7		B/C6		A/B4		A/D2		A/G5		B/E7			SPARE			B/F3		B/E3		A/C1		A/B4	B
C				A/C1		A/B7			SPARE			A/B3		A/A1				A/E6						B/C7		A/B2				A/D1			C
D				A/B7		A/A1				A/H1		A/B5		B/B3				A/A1								A/C2				A/D1			D
E												A/B6						A/E3															E
F												B/D4						A/G1															F

LOC ON CP	L10				N00		N02		N04		N06		N08		N10				R00				R04		R06		R08		R10				LOC ON CP
CODE	1808				9601 *		839 *		862		1808		1806		1808				555 *				555 *		555 *		839 *		846				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/G6				A/C4		B/C5		A/F1		A/E7		A/E7		A/F6				B/G5				B/F1		A/E2		A/G4		A/G4			A
B		A/G6								B/F6		A/C8		A/G5		A/F6														A/F0			B
C		A/E5								B/C6		A/D8		A/F0		A/F6														A/F1			C
D		A/F5										A/E7		A/H2		A/G6														A/F6			D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
C1	KS-20676 L1, 100PF
C2	KS-19774 L1, 1000PF
C3	6018
C4	KS-19774 L1, 1000PF
C5-C6	6004
C7	6018
C8	KS-20676 L1, .01
C9	KS-19774 L1, 1000PF
C10	KS-19774 L1, 1000PF
C11	KS-19774 L1, 1000PF
C12	KS-19774 L1, 1000PF

DIODE

DESIG	CODE
CR1	1N3666

DIODE, LIGHT EMITTING

DESIG	CODE
I/O FAILURE	5082-4403
MF SEQ FAILURE	HEWLETT-PACKARD

RESISTOR

DESIG	CODE
R1	KS-20616 L1A, 499Ω
R2	KS-20810 L1A, 249K
R3	KS-20810 L1A, 499K
R4	KS-20616 L1A, 100
R5	KS-20616 L1A, 200K
R6	KS-20616 L1A, 100
R7	KS-20616 L1A, 1K

CIRCUIT DESCRIPTION

INPUT/OUTPUT INFORMATION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C308-( )
CONNECTOR ON FRAME	9278

SYMBOL

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VOLTAGES PRECEDED BY THE SYMBOL +(PLUS)
   OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GND TERM	IC CODE	+5 BAT TERM.	-12 BAT TERM	GND TERM
830	14	7	304	8	-	1
836			334	8	-	1
839			374	8	-	1
846			555	8	-	1
853			6011	1	2	3
857			9311	24	-	12
862						
1800						
1804						
1806						
1808						
1814						
9601						

P/O CPS 8

ISSUE 5A

INT TEST CONTROL INTERFACE B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

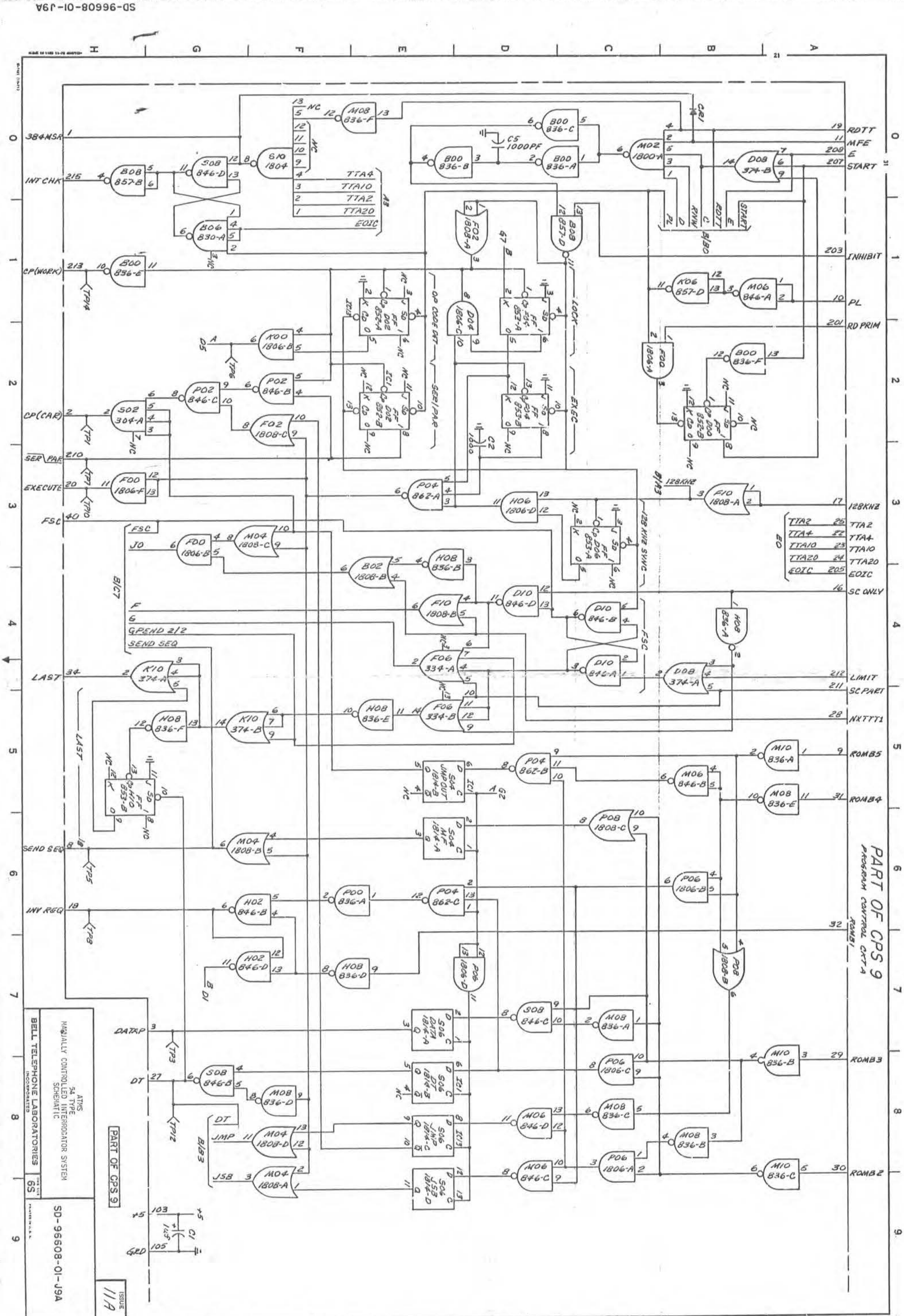
SD-96608-01-J8C

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

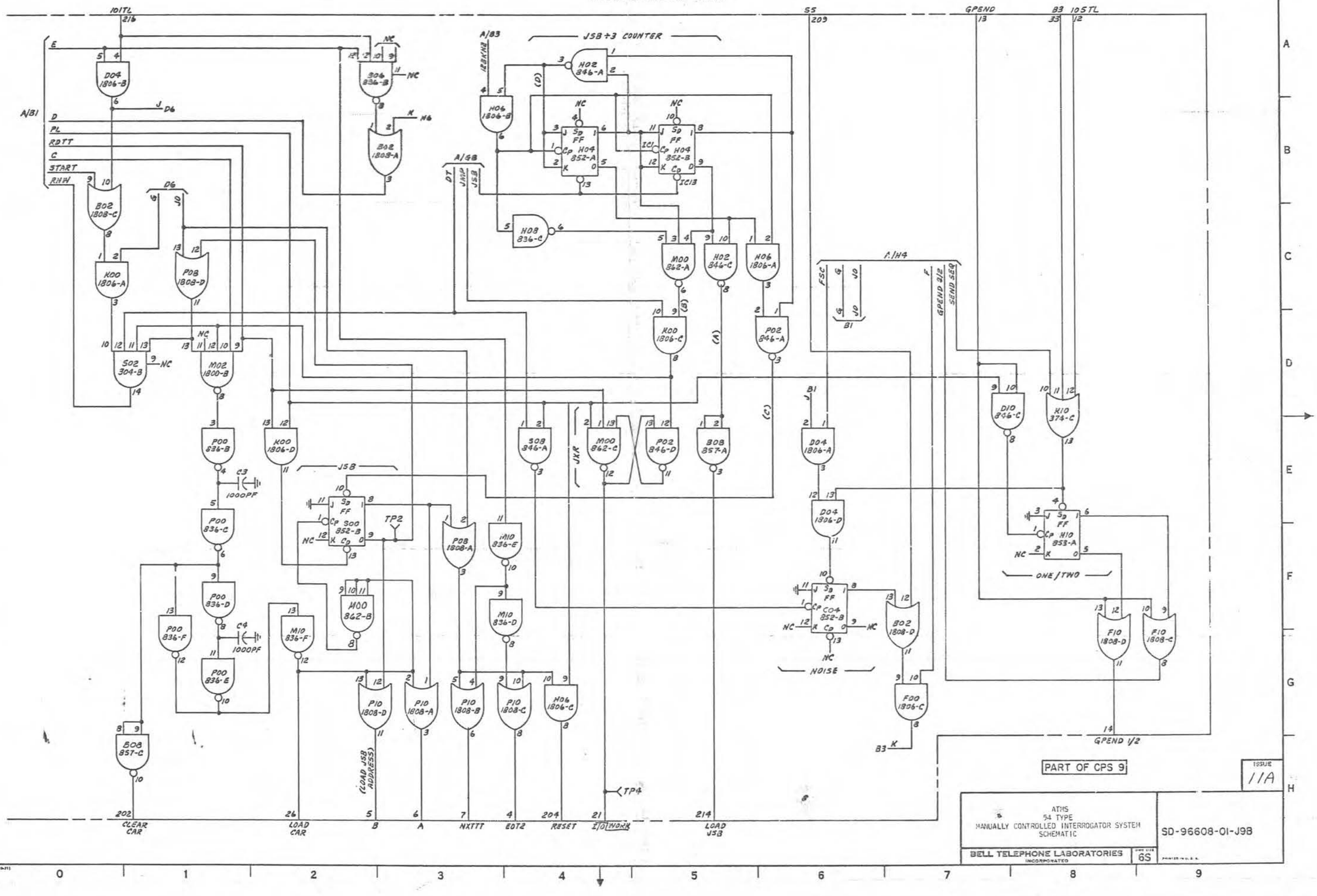
PRINTED IN U.S.A.

SD-96608-01-J8C



SD-96608-01-J9A
PART OF CPS 9
PROGRAM CONTROL CKT-A
BELL TELEPHONE LABORATORIES
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC
6S
ISSUE
11A
384MSR
INT CHK
CP(WORK)
CP(CAR)
SER PAR
EXECUTE
FSC
LAST
SEND SEQ
INV REQ
DATRP
DT
RDTT
MFE
E
START
INHIBIT
PL
RD PRIM
128KHZ
TTA2
TTA4
TTA10
TTA20
EOIC
SC ONLY
LIMIT
SC PART
NXTTT1
ROMB5
ROMB4
ROMB1
ROMB3
ROMB2
C5 1000PF

PART OF CPS 9
PROGRAM CONTROL CKT A



SD-96608-01-J98

PART OF CPS 9

COMPONENT LIST
INTEGRATED CIRCUIT **

PROGRAM CONTROL CKT A

LOC ON CP	B00		B02				B06		B08		C04		D00		D02		D04		D06		D08		D10		F00		F02		F04		F06		LOC ON CP
CODE	836		1808				830		857				852		852		1806		853		374		846		1806		1808		853		334		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D0		3/B3				B/G1		B/E5	SPARE		SPARE			A/E1		B/E6		A/C3		A/B4		A/C4		A/C1		A/D1		A/D1		A/E4	A
B		A/D0		A/E3				B/A2		B/H6		B/F6		A/B2		A/E2		B/A0	SPARE			A/B0		A/C4		A/G3	SPARE			A/D2		A/E5	B
C		A/D0		B/C0						B/H1								A/D1		B/G9	SPARE			B/E8		B/G7		A/F2	SPARE		SPARE		C
D	SPARE			B/F7						A/C0								B/E6		B/G8	SPARE			A/D4	SPARE		SPARE		SPARE		SPARE		D
E		A/H1																															E
F		A/B1																															F

LOC ON CP	F10		H02		H04		H06		H08		H10		K00		K06		K10		M00		M02		M04		M06		M08		M10		P00		LOC ON CP
CODE	1808		846		852		1806		836		853		1806		857		374		862		1800		1808		846		836		836		836		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B3		B/A4		B/B4		B/C6		A/B4		B/F8		B/C0	SPARE			A/G4		B/C5		A/C0		A/F9		A/A0		A/C7		A/A5		A/F6	A
B		A/B4		A/F6		B/B5		D/B3		A/E3		A/H5		A/F2	SPARE			A/F5		B/F2		B/D1		A/G6		A/B5		A/B8		A/A7		B/E1	B
C	SPARE			B/C5				B/C4		B/C4	SPARE			B/D5	SPARE			B/E8		B/E4				A/F3		A/D6		A/C8		A/A8		B/F1	C
D	SPARE			A/F7				A/D3		A/F7	SPARE			B/E2		A/B0	SPARE							A/F8		A/D8		A/F8		B/F3		B/F1	D
E										A/E5																		A/A5		B/F3		B/G1	E
F										A/G5																		A/E0		B/F2		B/F1	F

LOC ON CP	P02		P04		P06		P08		P10		S00		S02		S04		S06		S08		S10												LOC ON CP
CODE	846		862		1806		1808		1808		852		304		1814		1814		846		1804*												CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/D6		A/E3		A/C8		B/F3		B/G3	SPARE			A/H2		A/E6		A/E7		B/E4		A/F0											A
B		A/F2		A/D5		A/B6		A/D7		B/G3		B/E2		B/D1		A/E5		A/E8		A/G8															B
C		A/G2		A/E6		A/C9		A/C5		B/G4					SPARE			A/E8		A/D7															C
D		B/E5				A/D1		B/C1		B/G2					SPARE			A/E9		A/G0															D
E																																			E
F																																			F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION

CAPACITOR

DESIG	CODE
C1	600A
[4] C2-C5	KS-19774L1,1000PF

DIODE

DESIG	COD.
CR1	1N3666

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C309-( )
CONNECTOR ON FRAME	927B

SYMBOL
SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM
830 836 846 852 853 857 862 1800 1804 1806 1808 1814	14	7

IC CODE	+5 BAT TERM	GRD TERM
304	8	1
374	8	1

P/O CPS 9
PROGRAM CONTROL CKT A

ISSUE 11A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J9C

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CPS 10

PROGRAM CONTROL CIRCUIT B

LOAD USB 6
CLEAR CAR 3
CP (CAR) 24
TP1
T01 839 16 COUNTER
R01 1814-A LATCH
R01 1814-B LATCH
R01 1814-C LATCH
K01 1814-D LATCH
R03 839 16 COUNTER
R05 1814-A LATCH
R05 1814-B LATCH
R05 1814-C LATCH
R05 1814-D LATCH
R07 839 16 COUNTER
N07 1814-A LATCH
N07 1814-B LATCH
B/D4
+5
J00 SEQ002 8192 BIT BIPOLAR
ROM B1
ROM B2
ROM B3
ROM B4
ROM B5
ROM B6
ROM B7
ROM B8
Q0
N09 836-E
N01 8234 DIGITAL MULTIPLEX
N03 8234 DIGITAL MULTIPLEX
N05 8234 DIGITAL MULTIPLEX
I/O WORK 30
A 28
L01 9322 2 INPUT MULTIPLEXER
L03 9322 2 INPUT MULTIPLEXER
J09 1808-A
E09 836-E
J05 1806 A
J05 1806 B
204
2F4
PROGRAM ADDRESS COUNTER
WORK REGISTER
SER PAR 205 (WORK REG)
CP(WORK) 11 (WORK REG)
J03 857-C
RESET 39
E8
C09 9300 SHIFT REGISTER
C07 9300 SHIFT REGISTER
C05 9300 SHIFT REGISTER
C03 9300 SHIFT REGISTER
C01 9300 SHIFT REGISTER
E09 836-A
E09 836-C
E07 836-B
E05 836-A
E05 836-B
E03 836-A
E03 836-F
E03 836-C
E07 836-C
E05 836-E
B/F4
B/G4

PART OF CPS 10
PROGRAM CONTROL CIRCUIT B

ISSUE 3A

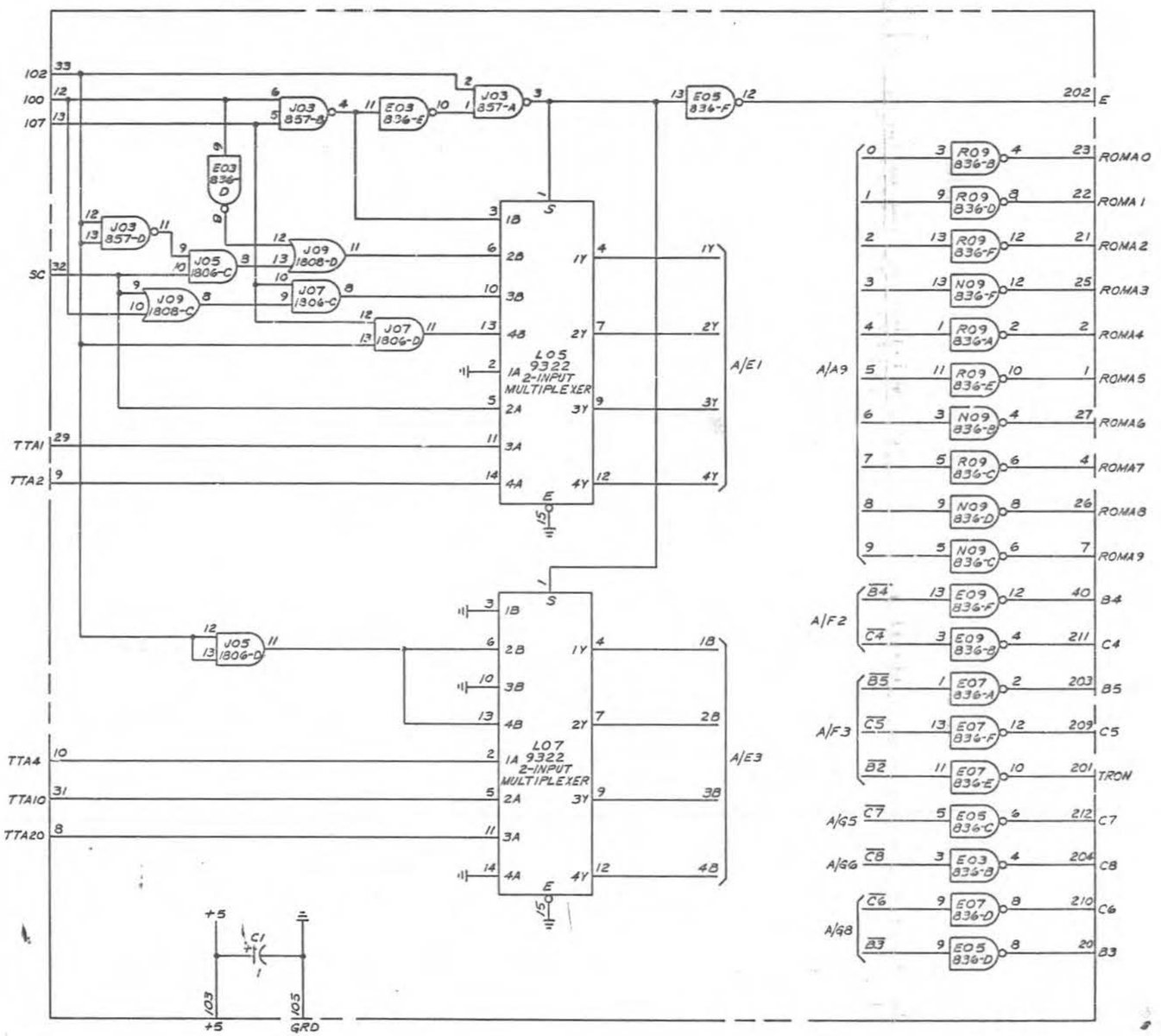
ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J10A

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS 10
PROGRAM CONTROL CIRCUIT B



PART OF CPS 10
PROGRAM CONTROL CIRCUIT B

ISSUE 1

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J108

BELL TELEPHONE LABORATORIES INCORPORATED

CODE IDENT NO. 65

PART OF CPS 10

PROGRAM CONTROL CIRCUIT B

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP			C01		C03		C05		C07		C09				E03		E05		E07		E09				J00		J03		J05		J07		LOC ON CP
CODE			9300 *		9300 *		9300 *		9300 *		9300 *				836		836		836		836				SEQ002 *		857		1806		1806		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				A/G8		A/G6		A/G5		A/G3		A/G2				A/F6		A/F5		B/F5		A/F2				A/C8		B/B3		A/D6	SPARE		A
B																B/G5		A/F5		A/F4		B/F5						B/B2		A/D6	SPARE		B
C																A/F7		B/G5		A/F8		A/F2						A/G1		B/C1		B/C2	C
D																B/C1		B/H5		B/G5	SPARE							B/C1		B/F1		B/D2	D
E																B/B2		A/G8		B/G5		A/D5											E
F																A/F6		B/B4		B/F5		B/E5											F

LOC ON CP	J09				L01		L03		L05		L07				N01		N03		N05		N07		N09										LOC ON CP
CODE	1808				9322 *		9322 *		9322 *		9322 *				8234 *		8234 *		8234 *		1814		836										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D5				A/D1		A/D4		B/D3		B/F3				A/C1		A/C4		A/C6		A/B7	SPARE										A
B	SPARE																					A/B8		B/D5									B
C		B/D1																			SPARE			B/E5									C
D		B/C2																			SPARE			B/E5									D
E																								A/C1									E
F																								B/C5									F

LOC ON CP			R01		R03		R05		R07		R09				T01																		LOC ON CP
CODE			1814		839 *		1814		839 *		836				839 *																		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				A/B2		A/B4		A/B5		A/B6		A/B7				A/B1																	A
B				A/B2				A/B5																									B
C				A/B3				A/B5																									C
D				A/B3				A/B6																									D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C310-( )
CONNECTOR ON FRAME	927B

SYMBOL

SEE FS

CAPACITOR

DESIG	CODE
C1	600A, 1UF

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

NOTES:

1. UNLESS OTHERWISE SPECIFIED: CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR − (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM	+12 BAT TERM	-12 BAT TERM
836 839 857 1806 1808 1814	14	7	8234	16	8		
			9300	16	8		
			9322	16	8		
			SEQ002	24	12		

P/O CPS 10
PROGRAM CONTROL CKT 2

ISSUE 4B

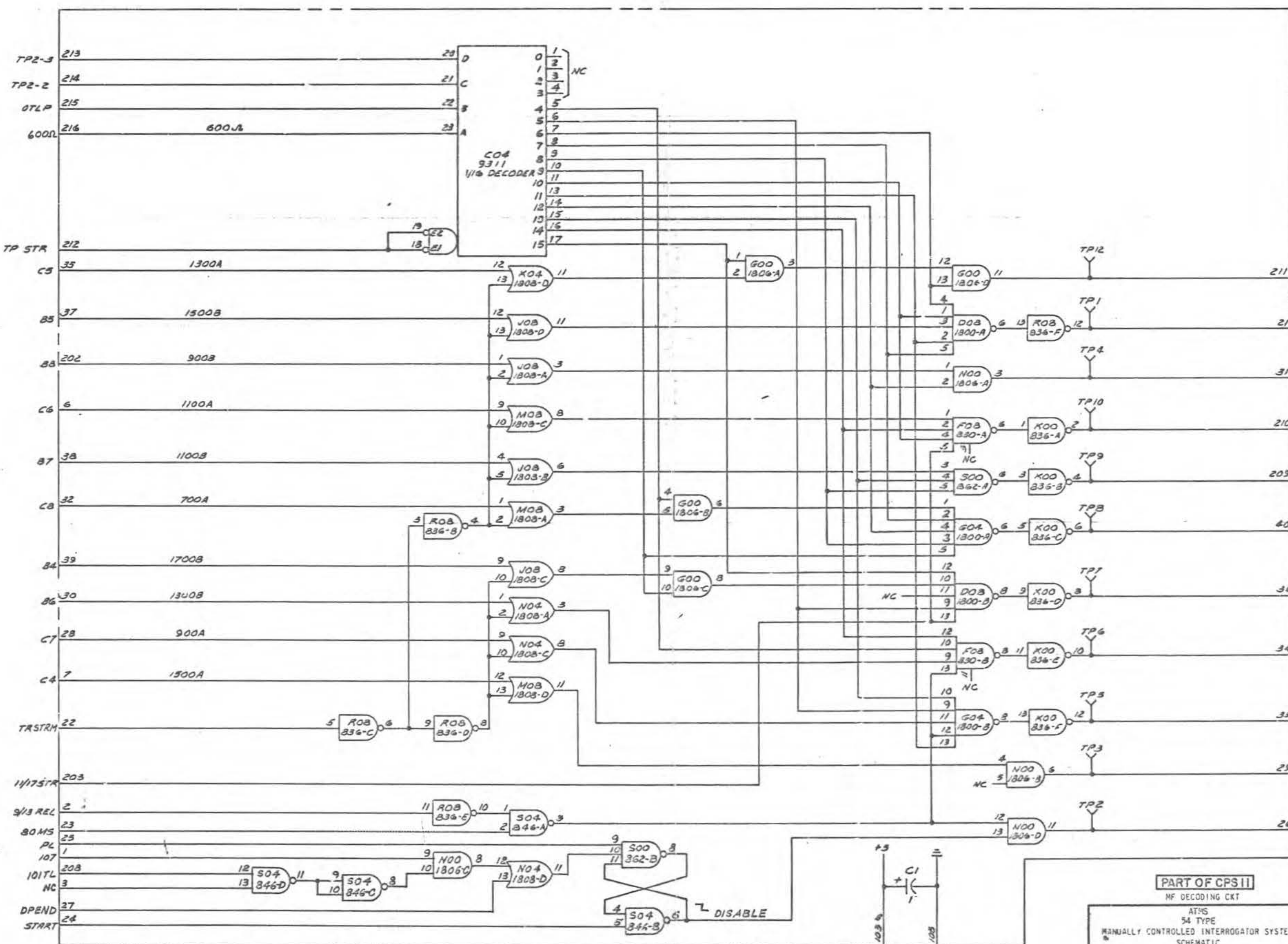
ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J10C

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS II
MF DECODING CKT



PART OF CPS II
MF DECODING CKT

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J11A

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

ISSUE 1

SD-96608-01-J11A

PART OF CPS II

MF DECODING CKT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP																														LOC ON CP
CODE																C04						D08								CODE
																9311 *						1800								
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																	A/B3						A/C6								A
B																							A/F6								B
C																															C
D																															D
E																															E
F																															F

LOC ON CP			F08		G00			G04					J08		K00			K04												LOC ON CP
CODE			830		1806			1800					1808		836			1808												CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				A/D6		A/C5			A/E6					A/D3		A/D7			SPARE											A
B				A/F6		A/E4			A/G6					A/D3		A/E3			SPARE											B
C						A/E4								A/E3		A/E7			SPARE											C
D						A/C6								A/C3		A/F7				A/C3										D
E																A/F7														E
F																A/G7														F

LOC ON CP					M08		N00			N04							R08		S00				S04								LOC ON CP
CODE					1808		1806			1808							836		862				846								CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						A/E3		A/D7				A/F3							SPARE			A/E6				A/G3					A
B					SPARE			A/G7			SPARE									A/E3		A/H4				A/H4					B
C						A/D3		A/H3				A/F3								A/G2	SPARE					A/H2					C
D						A/F3		A/G7				A/H3								A/G3						A/H2					D
E																				A/G3											E
F																				A/C7											F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

INPUT/OUTPUT INFORMATION

CAPACITOR

DESIG	CODE
C1	600A

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	E0-2C311-( )
CONNECTION ON FRAME	927B

SYMBOL
SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS.
   CAPACITANCE VALUES ARE IN MICROFARADS.
   VALUES PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.
830 836 846 862 1800 1806 1808	14	7

IC CODE	+5 BAT TERM.	GRD TERM.
9311	24	12

P/O CPS II

ISSUE 3A

MF DECODING CKT

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

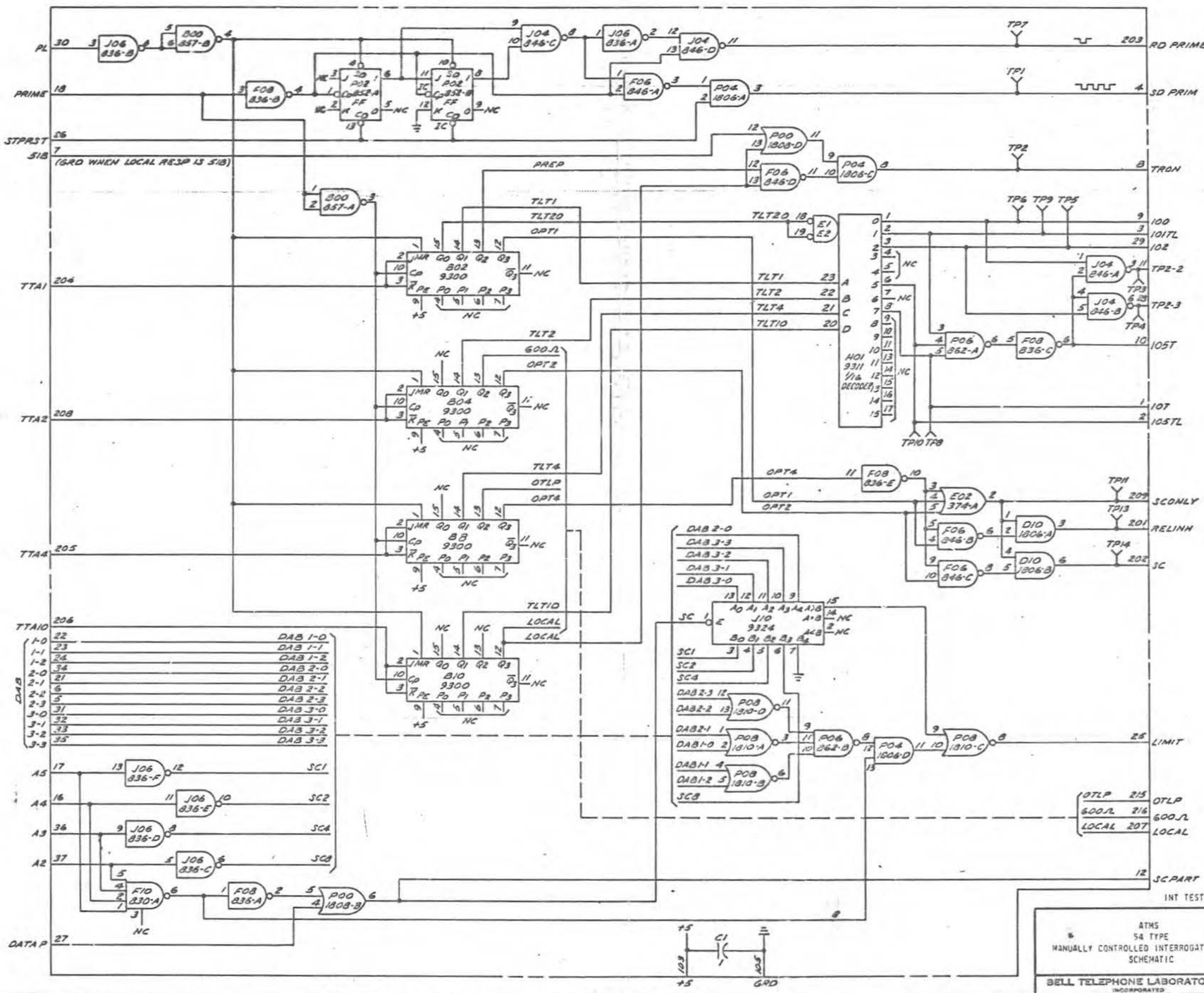
SD-96608-01-J11B

PRINTED IN U.S.A.

SD-96608-01-J11B

PART OF CPS 12

INT TEST CONT PRIMING DECODER



PART OF CPS 12
INT TEST CONT PRIMING DECODER

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J12A

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J12A

PART OF CPS 12

INT TEST CONT PRIMING DECODER

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B00		B02		B04		B08		B10						D10		E02				F06		F08		F10						LOC ON CP
CODE	857		9300 *		9300 *		9300 *		9300 *						1806		374				846		836		830						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B3		A/C3		A/D3		A/E3		A/F3						A/E7		A/E7						A/B5		A/H2		A/H1			A
B		A/A2														A/E7	SPARE							A/E7		A/B2	SPARE				B
C	SPARE														SPARE		SPARE							A/E7		A/D7					C
D															SPARE									A/C5	SPARE							D
E																										A/E6						E
F																									SPARE							F

LOC ON CP	H01								J04		J06				J10																LOC ON CP
CODE	9311 *								846		836				9324 *																CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D6								A/C8		A/B4				A/F5															A
B										A/C8		A/B1																			B
C										A/A4		A/H2																			C
D										A/A5		A/G1																			D
E												A/G2																			E
F												A/G1																			F

LOC ON CP	P00		P02		P04		P06		P08																						LOC ON CP
CODE	1808		852		1806		862		1810																						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE			A/B3		A/B5		A/D7		A/G5																					A
B		A/H3		A/B3	SPARE			A/G6		A/G5																					B
C	SPARE					A/B6				A/G7																					C
D		A/B5				A/G6				A/G5																					D
E																															E
F																															F

* INDICATES SINGLE ELEMENT IC.
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
C1	600A

CIRCUIT DESCRIPTION

INPUT/OUTPUT INFORMATION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C312-( )
CONNECTOR ON FRAME	9278

SYMBOL

NOTES:

1. UNLESS OTHERWISE SPECIFIED: CAPACITANCE VALUES ARE IN MICROFARADS VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM
830 836 846 852 857 862 1806 1808 1810	14	7	374	8	1
			9300	16	8
			9311	24	12
			9324	16	8

P/O CPS 12
INT TEST CONT PRIMING DECODER

ISSUE 3A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

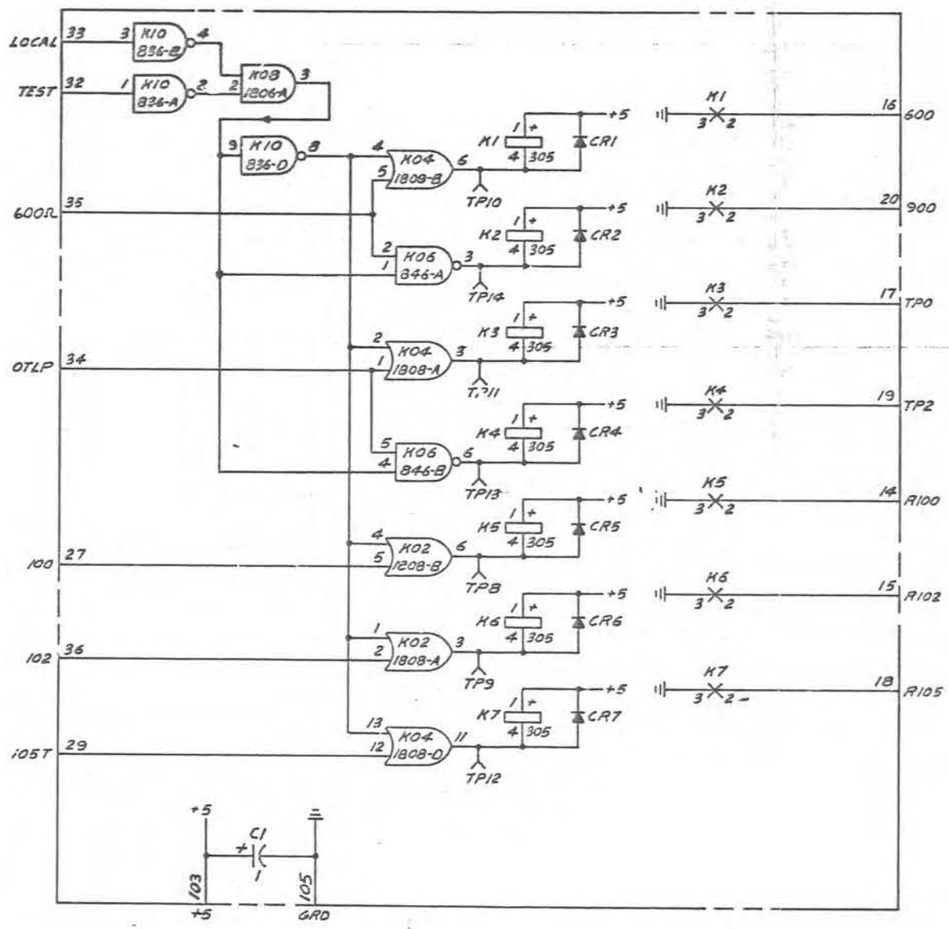
SD-96608-01-J128

BELL TELEPHONE LABORATORIES INCORPORATED

65

PART OF CPS 13

LOCAL RESPONDER CONTROL CKT B
(FOR USE WITH SIB TYPE ROTL RESPONDER ONLY)



PART OF CPS 13 — ISSUE 1

LOCAL RESPONDER CONTROL CKT B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J13A

BELL TELEPHONE LABORATORIES INCORPORATED — 6S

SD-96608-01-J13A

PART OF CPS 13

LOCAL RESPONDER CONTROL CKT B
(FOR USE WITH 518 TYPE RESPONDER ONLY)

COMPONENT LIST
INTEGRATED CIRCUIT **

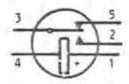
LOC ON CP																																LOC ON CP
CODE																																CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																																A
B																																B
C																																C
D																																D
E																																E
F																																F

LOC ON CP																																LOC ON CP
CODE																					K02		K04		K06		K08		K10						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	1808 DESIG	1808 LOC	1808 DESIG	1808 LOC	846 DESIG	846 LOC	1806 DESIG	1806 LOC	836 DESIG	836 LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																				A/F3		A/D3		A/C3		A/B2		A/C2					A
B																				A/E3		A/C3		A/E3	SPARE			A/B2					B
C																			SPARE		SPARE		SPARE		SPARE		SPARE						C
D																			SPARE			A/F3	SPARE		SPARE			A/C2					D
E																											SPARE						E
F																											SPARE						F

LOC ON CP																																LOC ON CP
CODE																																CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																																A
B																																B
C																																C
D																																D
E																																E
F																																F

** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

RELAY



DESIG	K1	K2	K3	K4	K5	K6	K7
CODE	337A	337A	337A	337A	337A	337A	337A
OPTION							
5							
4	13A/E4	13A/E4	13A/F4	13A/F4	13A/G4	13A/G4	13A/H4
3	13A/E5	13A/F5	13A/F5	13A/F5	13A/G5	13A/G5	13A/H5
2	13A/E5	13A/E5	13A/F5	13A/F5	13A/G5	13A/G5	13A/H5
1	13A/E4	13A/E4	13A/F4	13A/F4	13A/G4	13A/G4	13A/H4

CAPACITOR

DESIG	CODE
C1	600A

DIODE

DESIG	CODE
[7] CR1-CR7	1N3666

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C313-( )
CONNECTOR ON FRAME	9278

SYMBOL

SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR − (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM
ALL	14	7

P/O CPS 13
LOCAL RESPONDER CONTROL CKT B

ISSUE 3A

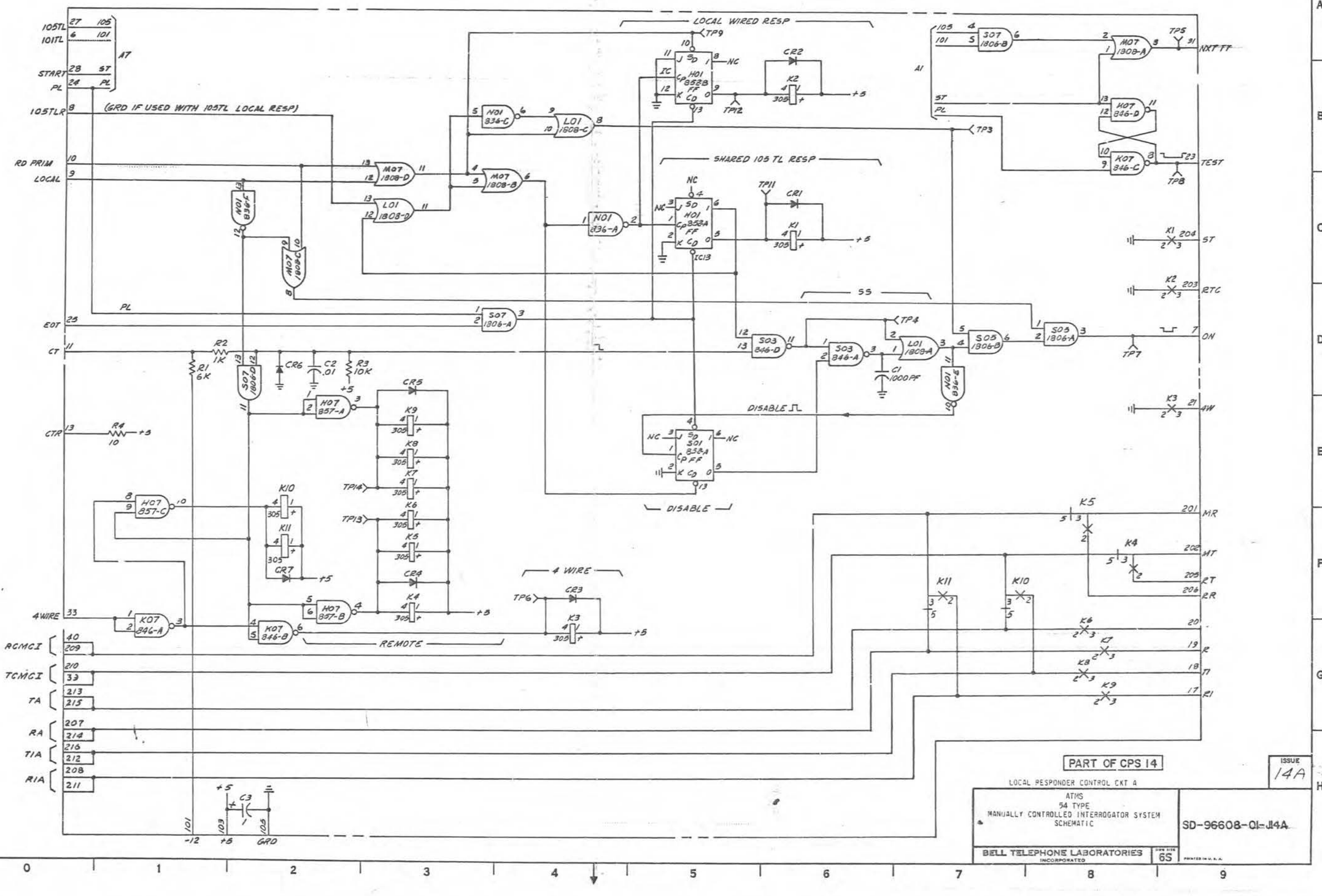
ATMS
* 54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J138

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

PART OF CPS 14
LOCAL RESPONDER CONTROL CKT A



SD-96608-01-J14A

PART OF CPS 14

LOCAL RESPONDER CONTROL CKT A

COMPONENT LIST
INTEGRATED CIRCUIT **

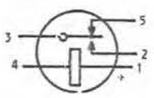
LOC ON CP																																LOC ON CP
CODE																			H01						H07								CODE
																			852						857								
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																				A/C5						A/E2							A
B																				A/B5						A/F2							B
C																										A/E1							C
D																									SPARE								D
E																																	E
F																																	F

LOC ON CP					K07				L01						N07		N01																LOC ON CP
CODE					846				1808						1808		836																CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						A/G1				A/D7					A/A8			A/C4															A
B						A/G2			SPARE						A/C4		SPARE																	B
C						A/B8				B/B4					A/C2			A/B4															C
D						A/B8				A/C3					A/C3		SPARE																	D
E																		A/D7															E
F																		A/C2															F

LOC ON CP	S01		S03		S05		S07																										LOC ON CP
CODE	852		846		1806		1806																										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/E5		A/D6		A/D8		A/D4																									A
B	SPARE		SPARE			A/D7		A/A7																									B
C			SPARE		SPARE		SPARE																										C
D				A/D6	SPARE			A/D2																										D
E																																	E
F																																	F

** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

RELAY



DESIG	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11
CODE	337A	337A	337A	337A	337A	337A	337A	337A	337A	337A	337A
OPTION											
5				A/F8	A/F8					A/F7	A/F7
4	A/C6	A/B6	A/G4	A/F3	A/F3	A/F3	A/E3	A/E3	A/E3	A/F2	A/F2
3	A/C8	A/B8	A/E8	A/F8	A/F8	A/G8	A/G8	A/G8	A/G8	A/F7	A/F7
2	A/C8	A/B8	A/E8	A/F8	A/F8	A/G8	A/G8	A/G8	A/G8	A/F7	A/F7
1	A/C6	A/B6	A/G4	A/F3	A/F3	A/F3	A/E3	A/E3	A/E3	A/F2	A/F2

RELAYS NOT ADJUSTABLE. REPLACE WHEN THERE IS MALFUNCTION

CAPACITOR

DESIG	CODE
C1	KS-19774 L1,1000PF
C2	KS-20676 L7,.01
C3	600A

DIODE

DESIG	CODE
[7] CR1-CR7	1N3666

RESISTOR

DESIG	CODE
R1	KS-20616 L1A,6K
R2	KS-20616 L1A,1K
R3	KS-20616 L1A,10K
R4	KS-20616 L1A,10

CIRCUIT DESCRIPTION

INPUT/OUTPUT INFORMATION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C314-( )
CONNECTOR ON FRAME	9278

SYMBOL
SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL +(PLUS)
   OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.
ALL	14	7

P/O CPS 14

ISSUE 14A

LOCAL RESPONDER CONTROL CKT A

ATMS
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC
54 TYPE

SD-96608-01-J14B

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS 15

MF OSCILLATOR (MAIN FRAME)

FREQUENCY DOUBLER

128KHz

T08 1812-C

T03 1812-A

T08 1812-D

C1 1000Aμf

C2 1000μμf

256KHz A/E7

A/E7

T08 839 ÷16 COUNTER

T02 839 ÷16 COUNTER

T04 839 ÷16 COUNTER

T06 839 ÷16 COUNTER

R00 1806-A

R00 1806-B

R00 1806-C

R04 1806-A

R04 1806-B

R04 1806-D

R04 1806-C

N00 1800-A

N00 1800-B

N04 862-C

R00 1806-D

R02 1800-A

N02 1800-A

R02 1800-B

N02 1800-B

N04 862-B

N06 862-B

N04 862-A

N06 862-C

N06 862-A

R06 1800-A

R06 1800-B

L04 846-A

L04 846-B

L04 846-D

L04 846-C

L02 858-A

L02 858-B

L02 858-D

L02 858-C

L00 853 CP-A FF

L00 853 CP-B FF

L06 853 CP-A FF

L06 853 CP-B FF

+5

R1 1K

R2 1K

F04 1806-C

F04 1806-D

F04 1806-B

F04 1806-A

H04 830-A

H04 830-B

J02 1808-C

J02 1808-D

T08 1812-B

A/B3 256KHz

A/C2

ENABLE A B/A3

ENABLE A

ENABLE B B/A4

ENABLE B

B/A1

B/A2

B/C0

B/C0

+5 +12 -12

C13 C14 C15

103 +5

105 GRD

106 +12

104 -12

PART OF CPS 15

ISSUE 6A

MF OSCILLATOR (MAIN FRAME)

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J15A

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J15A

PART OF CPS 15
MF OSCILLATOR (MAIN FRAME)

700A
900B
900A
1100B
1100A
1300B
1300A
1500B
1500A
1700B
1000B
2225A
ADJT
ADJT GRD

A/D5
A/G5
ENABLE A A/G9
ENABLE B A/F9

TP1 TP9 TP6 TP13 TP8 TP11 TP3 TP12 TP7 TP10 TP2

G00 836-B
G00 836-F
G00 836-E
G00 836-A
G00 836-D
G00 836-C
G00 836-C

E00 836-A
E00 836-D
E03 836-F
E00 836-E
E00 836-B

B30 1808-B
B30 1808-A
B30 1808-C
B30 1808-D
D B08 (8094-A)
D02 1806-B
F02 1806-C
D02 1806-A
F02 1806-A
D02 1806-D
F02 1806-D
D02 1806-C
F02 1806-B
D B08 (8094-B)
D B08 (8094-C)
D B08 (8094-D)

B02 1808-B
B02 1808-A
B02 1808-D
B02 1808-C

D B04 (8094-B)
D B04 (8094-A)
D B04 (8094-D)
D B04 (8094-C)

+12
R11 58.3K
R3 432K
R12 12.1K
R4 237K
C5 .0205
R5 127K
R13 10K
R14 10K
R6 71.5K
TP14
R7 44.2K
R8 27.4K
R9 16.3K
R10 7.15K

C6 100PF
R15 1.1MEG
-12
E10 741
NC
TP5
R16 619
R17 10K

R18 9420
R19 6340
R20 3650
C7 .0442
C8 .0442
C9 4640PF
C10 4640PF
R23 45.3K
R22 45.3K
R24 45.3K
C11 4640PF
L10 741
TP4
R21 24.3K
R25 600
C12 1.0
MFTG

PART OF CPS 15
MF OSCILLATOR (MAIN FRAME)

ISSUE 3A

ATHS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J15B

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CPS 15

MF OSCILLATOR (MAIN FRAME)

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B00		B02		B04				B08						D02				E00				E10				F02		F04				LOC ON CP
CODE	1808		1808		8094				8094						1806				836				741*				1806		1806				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/B3		B/D4		B/D5				B/C3						B/D4				B/C2				B/D6				B/D3		A/G6			A
B		B/B3		B/C4		B/C5				B/E4						B/C4				B/E2								B/E3		A/G6			B
C		B/B3		B/E4		B/E5				B/E4						B/D4				B/E1								B/C3		A/D6			C
D		B/C3		B/D4		B/D5				A/E3						B/D4				B/D2								B/D3		A/D6			D
E																				B/D2													E
F																				B/E2													F

LOC ON CP					G00				H04		J02				L00		L02		L04		L06				L10		N00		N02		LOC ON CP
CODE					836				830		1808				853		858		846		853				741*		1800		1800		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						B/D1				A/G7	SPARE					A/B7		A/B6		A/F6		A/F7				B/D8		A/B5		A/B5		A	
B						B/C1				A/D7	SPARE					A/B7		A/C6		A/F6		A/F7						A/B5		A/C4		B	
C						B/F1						A/D8						A/F6		A/G7												C	
D						B/E1						A/D8						A/F6		A/C7												D	
E						B/D1																										E	
F						B/D1																										F	

LOC ON CP	N04		N06						R00		R02		R04		R06						T00		T02		T04		T06		T08				LOC ON CP
CODE	862		862						1806		1800		1806		1800						839*		839*		839*		839*		1812				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F5		A/F5						A/B3		A/B4		A/D4		A/E5						A/B2		A/C2		A/E2		A/F2		A/B1			A
B		A/E5		A/E5						A/B3		A/C4		A/E4		A/F7														A/E7			B
C		A/B5		A/F5						A/B3				A/E4																A/B0			C
D										A/B6				A/E4																A/B2			D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
[4] C1-C4	KS-19774L1,1000PF
C5	KS-20676L7,.0205
C6	KS-20676L3,1000PF
[2] C7,C8	570C0
[3] C9-C11	KS-20676 L3,4640PF
C12	596C,1
[3] C13-C15	600A

RESISTOR

DESIG	CODE
R1,R2	KS-20616L1A,1K
R3	KS-20810L1A,432K
R4	KS-20616L1A,237K
R5	KS-20616L1A,127K
R6	KS-20616L1A,71.5K
R7	KS-20616L1A,44.2K
R8	KS-20616L1A,27.4K
R9	KS-20616L1A,169K
R10	KS-20616L1A,7.15K
R11	KS-20616L1A,58.3K
R12	KS-20616L1A,12.1K
[2] R13,R14	KS-20810L1A,10K
R15	KS-13490L1,1.1 MEG
R16	KS-20616L1A,619
R17	KS-20616L1A,10K
R18	KS-20810L1A,9420
R19	KS-20616L1A,6340
R20	KS-20810L1A,9650
R21	KS-20810L1A,24.3K
[3] R22-R24	KS-20616L1A,45.3K
R25	KS-20616L1A,600

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C315-( )
CONNECTOR ON FRAME	9278

SYMBOL

SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN
3. DESIGNATED BATTERY AND GROUND RETURN TABS FOR ICS.

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM	+12 BAT TERM	-12 BAT TERM
830 836 839 846 853 858 862 1800 1806 1808 1812 8094	14	7	741	-	-	11	6

P/O CPS 15
MF OSCILLATOR (MAIN FRAME)

ISSUE 6A

AIMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J15C

BELL TELEPHONE LABORATORIES INCORPORATED

FORM 6S

PART OF CPS 16
KEYBOARD CIRCUIT

KEYBOARD DEBOUNCE CKT

50 MS

TT FF

SERV FF

OPRT FF

TLT FF

CLALL A/67

A/80 RDK80

A/80 NFR

READ-1

TP26

TP8

TP21

TP20

TP10

TP5

TP24

TP22

TP6

TP23

TP19

TP25

TP13

TP9

TP7

KEY 80

KEY 40

KEY 20

KEY 10

KEY 8

KEY 4

KEY 2

KEY 1

RDKBD

LOF

ROF

NFR

TLTL

TLT

TT

MENT

DELIM

CANCEL

+5

GRD

2 DGTS

ISSUE	PART OF CPS 16
11A	KEYBOARD CIRCUIT

ATHS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

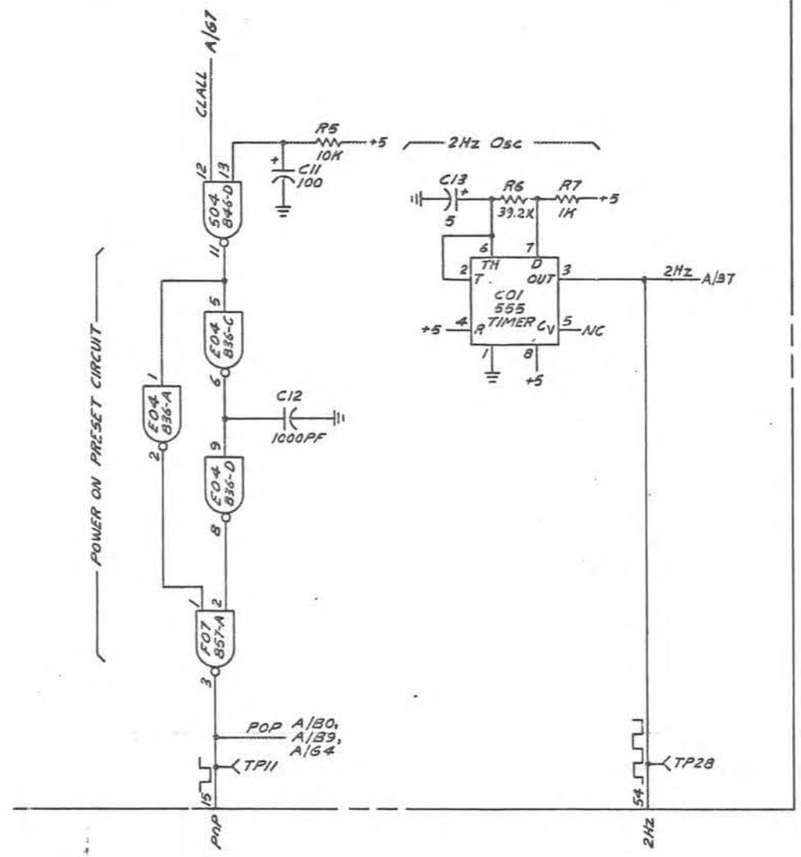
SD-96608-01-J16A

BELL TELEPHONE LABORATORIES INCORPORATED

65

SD-96608-01-J16A

PART OF CPS 16
KEYBOARD CIRCUIT



PART OF CPS 16 KEYBOARD CIRCUIT	ISSUE 1
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-J16B...
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 8S

SD-96608-01-J16B

PART OF CPS 16

KEYBOARD CIRCUIT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP					B07		C01		C04						D07		E01		E04				F07		G01		G04						LOC ON CP
CODE					1804 *		555 *		1808						1800		853		836				857		1808		1808						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						A/B3		B/D2		A/F0						A/C1		A/C9		B/E1				B/F1		A/E8		A/E7					A
B										A/E0						A/C2		A/H2	SPARE				SPARE			A/E8		A/E8					B
C										A/E2										B/D1			SPARE			A/E9		A/B8					C
D										A/G4										B/E1			SPARE			A/E9		A/H2					D
E																				A/H1													E
F																			SPARE														F

LOC ON CP	J01		J04		J07		L01		L04		L07				P01		P04		P07				S01		S04		S07						LOC ON CP
CODE	857		836		1800		1808		9601 *		862				836		836		1806				846		846		846						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/C6		A/D0		A/C2		A/B6		A/C4		A/C1				A/D0		A/E3	SPARE					A/C0		A/F0	SPARE						A
B		A/C6		A/B6		A/B5		A/B7				A/E3				A/E0	SPARE			A/B9				A/C0		A/G5	SPARE						B
C		A/E7		A/C8				A/D3				A/A4				A/C4		A/G4		A/F4				A/D0		A/B4	SPARE						C
D		A/E7		A/B4				A/E6								A/D3		A/G5		A/C9				A/D7		B/D1		A/G1					D
E				A/E8												A/D4		A/G5															E
F			SPARE													A/D4		A/G5															F

LOC ON CP	U01		U07		U07		W01		W04		W07		Y01		Y04		Y07																LOC ON CP
CODE	1806		9601 *		1808		836		857		9300 *		857		852		9300 *																CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/E5		A/C5		A/B7		A/D5		A/H5		A/F2		A/E6		A/F1		A/G2															A
B		A/C2				A/C5		A/D5		A/H5				A/E6		A/F1																	B
C		A/B0			SPARE			A/D5		A/G0				A/F4																			C
D		A/B5			SPARE			A/F5		A/G1				A/F8																			D
E								A/F5																									E
F								A/F5																									F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
[2] C1,C2	6018
[2] C3,C4	KS-19774 L1,1000PF
[2] C5,C6	KS-19774 L1,2200PF
C7	KS-19774 L1,1000PF
C8	KS-19774 L1,2200PF
C9	600A
C11	602B
C12	KS-19774 L1,1000PF
C13	60

RESISTOR

DESIG	CODE
[3] R1,R2,R5	KS-20616 L1A,10K
[2] R3,R4	KS-20616 L1A,100
R6	KS-20616 L1A,39.2K
[3] R7-R9	KS-20616 L1A,1K
[3] R10-R12	KS-20616 L1A,100

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C316-( )
CONNECTOR ON FRAME	94981

SYMBOL
SEE FS

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.
836	14	7
846		
852		
853		
857		
862		
1800		
1804		
1806		
9601		

IC TERM.	+5 BAT TERM.	GRD TERM.
555	8	1
9100	16	8

P/O CPS 16

ISSUE 11A

KEYBOARD CIRCUIT
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

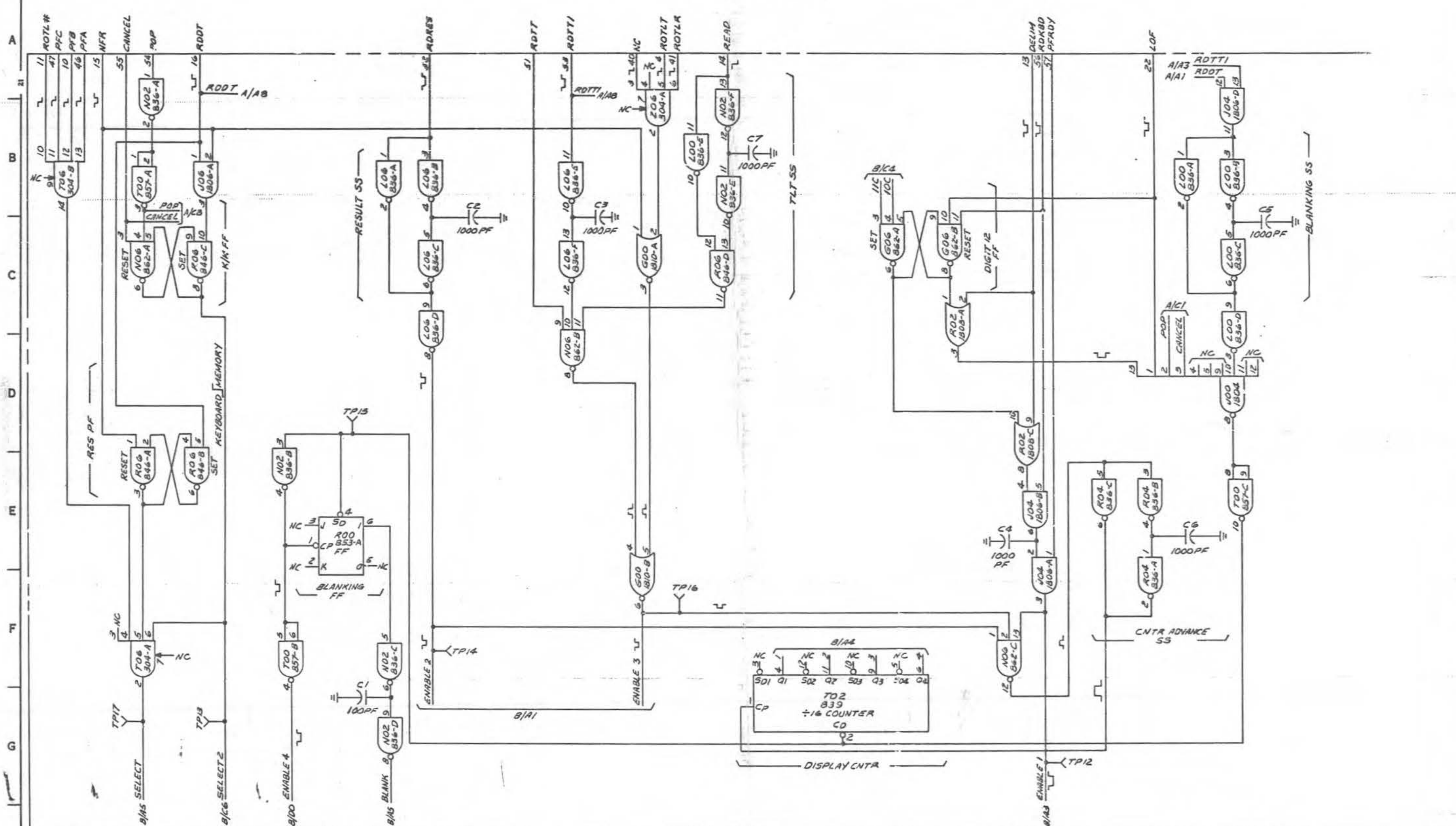
BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-J16C

SD-96608-01-J16C

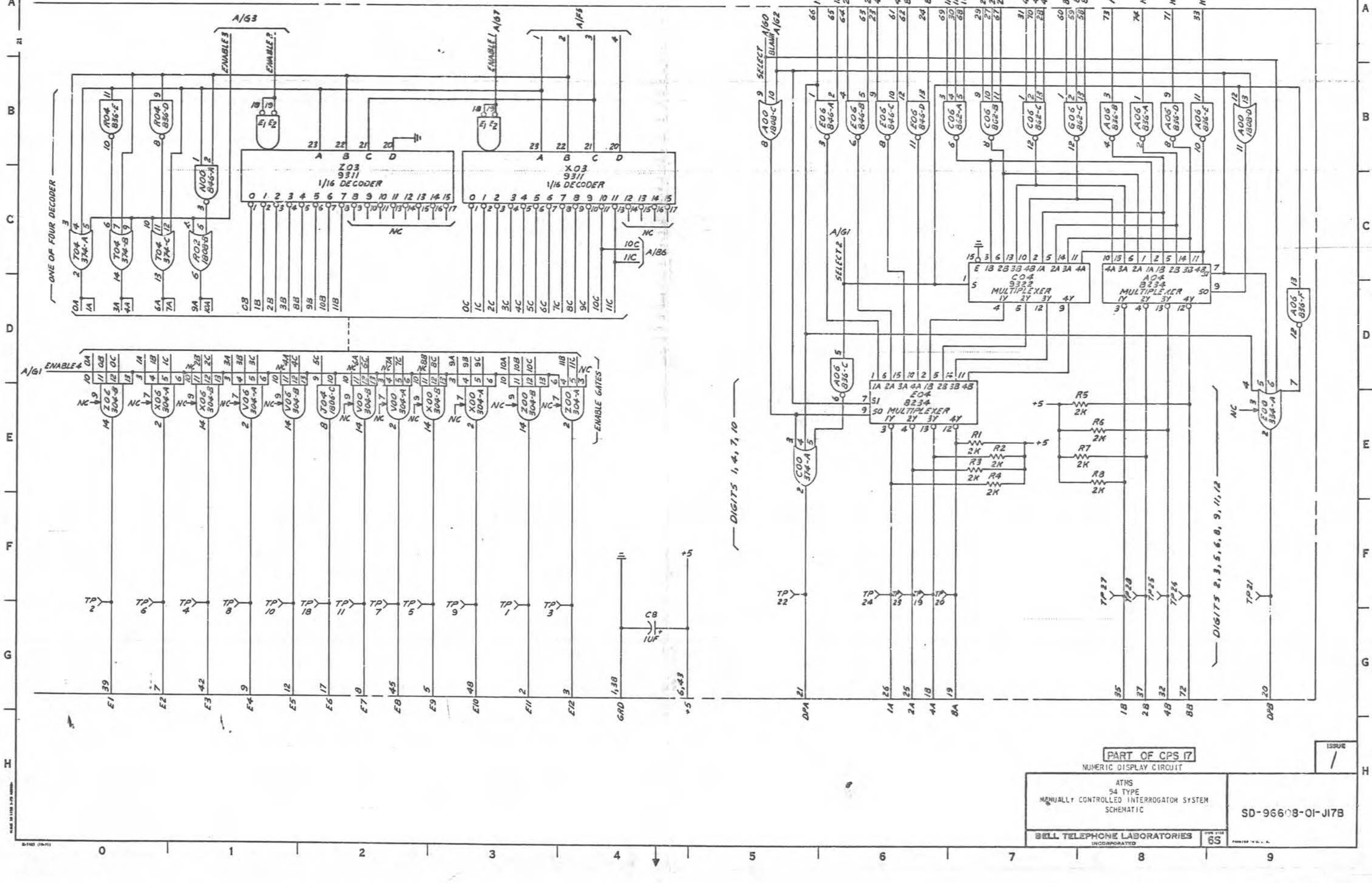
PART OF CPS 17

NUMERIC DISPLAY CIRCUIT



PART OF CPS 17 NUMERIC DISPLAY CIRCUIT	ISSUE 1
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-J17A
BELL TELEPHONE LABORATORIES INCORPORATED	6S

PART OF CPS 17
NUMERIC DISPLAY CIRCUIT



PART OF CPS 17
NUMERIC DISPLAY CIRCUIT

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J17B

BELL TELEPHONE LABORATORIES
INCORPORATED

65

SD-96608-01-J17B

PART OF CPS 17

NUMERIC DISPLAY CIRCUIT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A00				A04		A06		C00				C04		C06		E00				E04		E06		G00				G06		J00		LOC ON CP
CODE	1808				8234 *		836		374				9322 *		862		334				8234 *		846		1810				862		1804 *		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE					B/D8		B/98		A/E5				B/D7		B/87		B/E9				B/E6		B/86		A/C4				A/C6				A
B	SPARE							B/88	SPARE							B/97	SPARE							B/86		A/F4				A/C6				B
C		B/B5						B/D6	SPARE							B/97								B/86	SPARE					B/B7				C
D		B/B9						B/B8																B/86										D
E								B/B8																										E
F								B/D9																										F

LOC ON CP	J04		J06				L00				L06				N00		N02				N06				R00		R02		R04		R06		LOC ON CP
CODE	1806		1806				836				836				846		836				862				853		1808		836		846		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F7		A/B1				A/B8				A/B2				B/C1		A/A0				A/C0				A/E2		A/C6		A/E7		A/E0	A
B		A/E7	SPARE					A/B8				A/B2			SPARE			A/E1				A/D3			SPARE			B/C1		A/E7		A/E1	B
C		B/E2	SPARE					A/C8				A/C2			SPARE			A/F2				A/F6						A/D7		A/E7		A/C1	C
D		A/B8	SPARE					A/D8				A/D2			SPARE			A/G2									SPARE			B/B0	SPARE		D
E								A/B4				A/B3						A/C4												B/B0			E
F							SPARE					A/C3						A/B4											SPARE					F

LOC ON CP	T00		T02		T04		T06		V00				V06				X00		X03		X06				Z00		Z03		Z06				LOC ON CP
CODE	857		839 *		374		304		304				304				304		9311 *		304				304		9311 *		304				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B0		A/G5		B/C0		A/F0		B/E2				B/E1				B/E3		B/C4		B/E0				B/E4		B/C2		A/B4			A
B		A/F1				B/C0		A/20		B/E2				B/E1				B/E3				B/E1				B/E3				B/E0			B
C		A/E8				B/C1																											C
D	SPARE																																D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "0" SECTION.

CAPACITOR

DESIG	CODE
C1	KS-20676 L1, 100
C2-C7	KS-19774 L1, 1000
C8	600A

RESISTOR

DESIG	CODE
R1-R8	KS-20810 L1A, 2K

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C317-( )
CONNECTOR ON FRAME	94981

SYMPOL
SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN PICOFARADS,
   VALUES PRECEDED BY THE SYMBOL +(PLUS)
   OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.	IC CODE	+5 BAT TERM.	GRD TERM.
836	14	7	304	8	1
839			334	8	1
846			374	8	1
853			8234	16	8
857			9311	24	12
862			9322	16	8
1804					
1806					
1808					
1810					

P/O CPS 17

ISSUE 3A

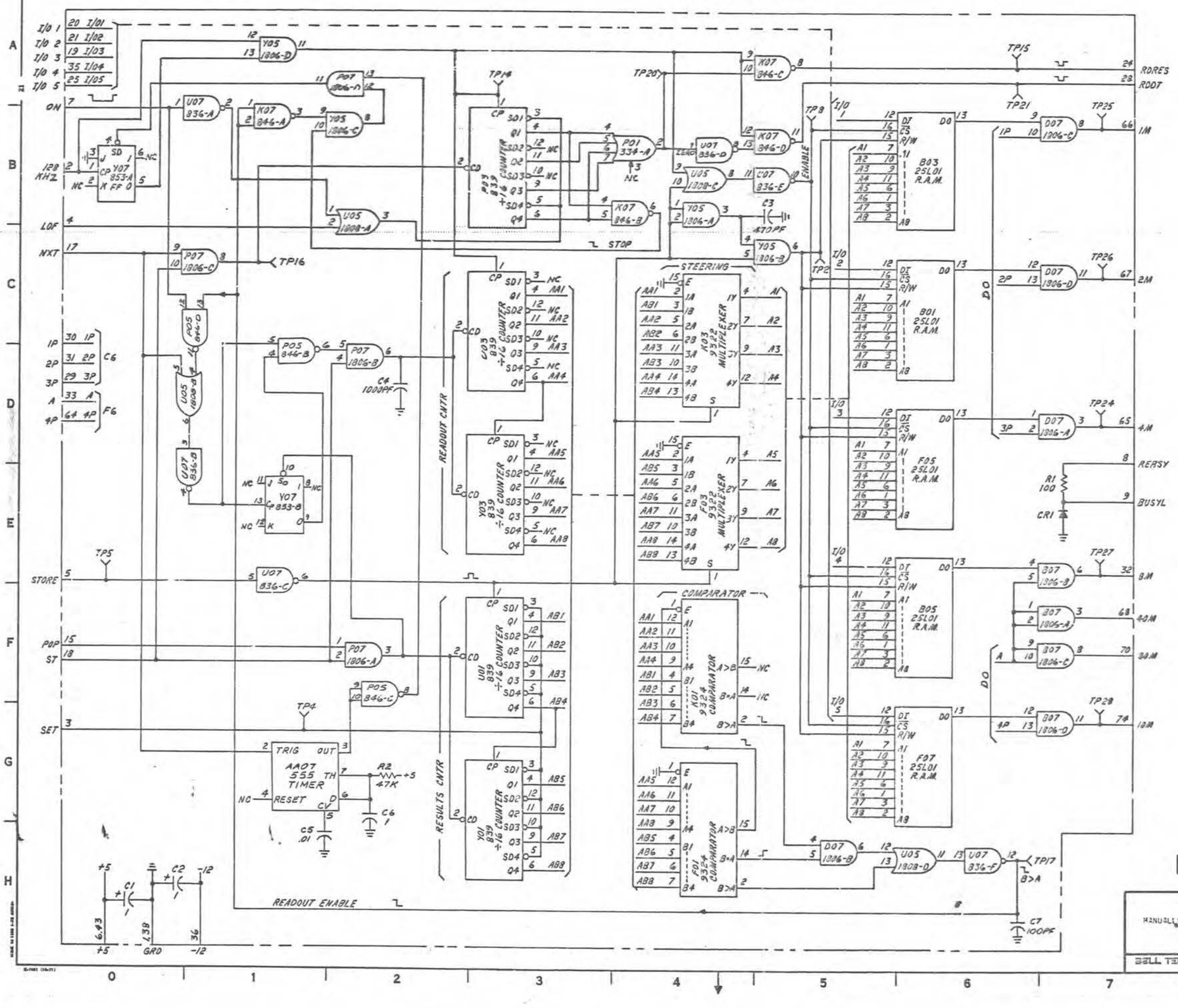
NUMERIC DISPLAY CIRCUIT
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J17C

BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-J17C

PART OF CPS 18
PANEL RESULTS MEMORY



PART OF CPS 18
PANEL RESULTS MEMORY

ISSUE 1

ATNS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J18A

BELL TELEPHONE LABORATORIES INCORPORATED

PART OF CPS 18

PANEL RESULTS MEMORY

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B01		B03		B05		B07								D07		F01		F03		F05		F07										LOC ON CP
CODE	25L01*		25L01*		25L01*		1806								1806		9324*		9322*		25L01*		25L01*										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/C6		A/B6		A/F6		A/F7								A/D7		A/G4		A/D4		A/E6		A/G6									A
B								A/E7								A/H5																	B
C								A/F7								A/B7																	C
D								A/G7								A/C7																	D
E																																	E
F																																	F

LOC ON CP	K01		K03				K07												P01		P03		P05		P07								LOC ON CP
CODE	9324*		9322*				846												334		839		846		1806								CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F4		A/C4				A/B1												A/B4		A/B3	SPARE			A/F2							A
B								A/B3											SPARE					A/C1		A/C2								B
C								A/A3																A/F2		A/C1								C
D								A/B5																A/C1		A/A2								D
E																																	E
F																																	F

LOC ON CP	U01		U03		U05		U07												Y01		Y03		Y05		Y07						AA07		LOC ON CP
CODE	839*		839*		1808		836												839*		839*		1806		853						555 *		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/F3		A/C3		A/B2		A/B1												A/G3		A/D3		A/B4		A/B0						A/G1	A
B						A/C1		A/D1																A/C5		A/E1							B
C						A/B4		A/E1																A/B2									C
D						A/H6		A/B4																A/A1									D
E								A/B5																									E
F								A/H6																									F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION

CAPACITOR

DESIG	CODE
[3] C1,C2,C6	600A
C3	KS-19774 L1,470PF
C4	KS-19774,L1,1000PF
C5	KS-20676,L7,.01
C7	KS-20676,L1,100PF

DIODE

DESIG	CODE
CR1	1N3666

RESISTOR

DESIG	CODE
R1	KS-20810 L1A,100
R2	KS-20810 L1A,47K

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-[illegible]318-( )
CONNECTOR ON FRAME	94981

SYMBOL

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS:
   CAPACITANCE VALUES ARE IN MICROFARADS
   VALUES PRECEDED BY THE SYMBOL
   +(PLUS)OR-(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT. TERM	GRD TERM	+12 BAT TERM	-12 BAT TERM
836	14	7	334	8	1	-	-
839			9322	16	8	-	-
846			9324	16	8	-	-
853			25L01	5	-	-	4,8
1806							
1808							

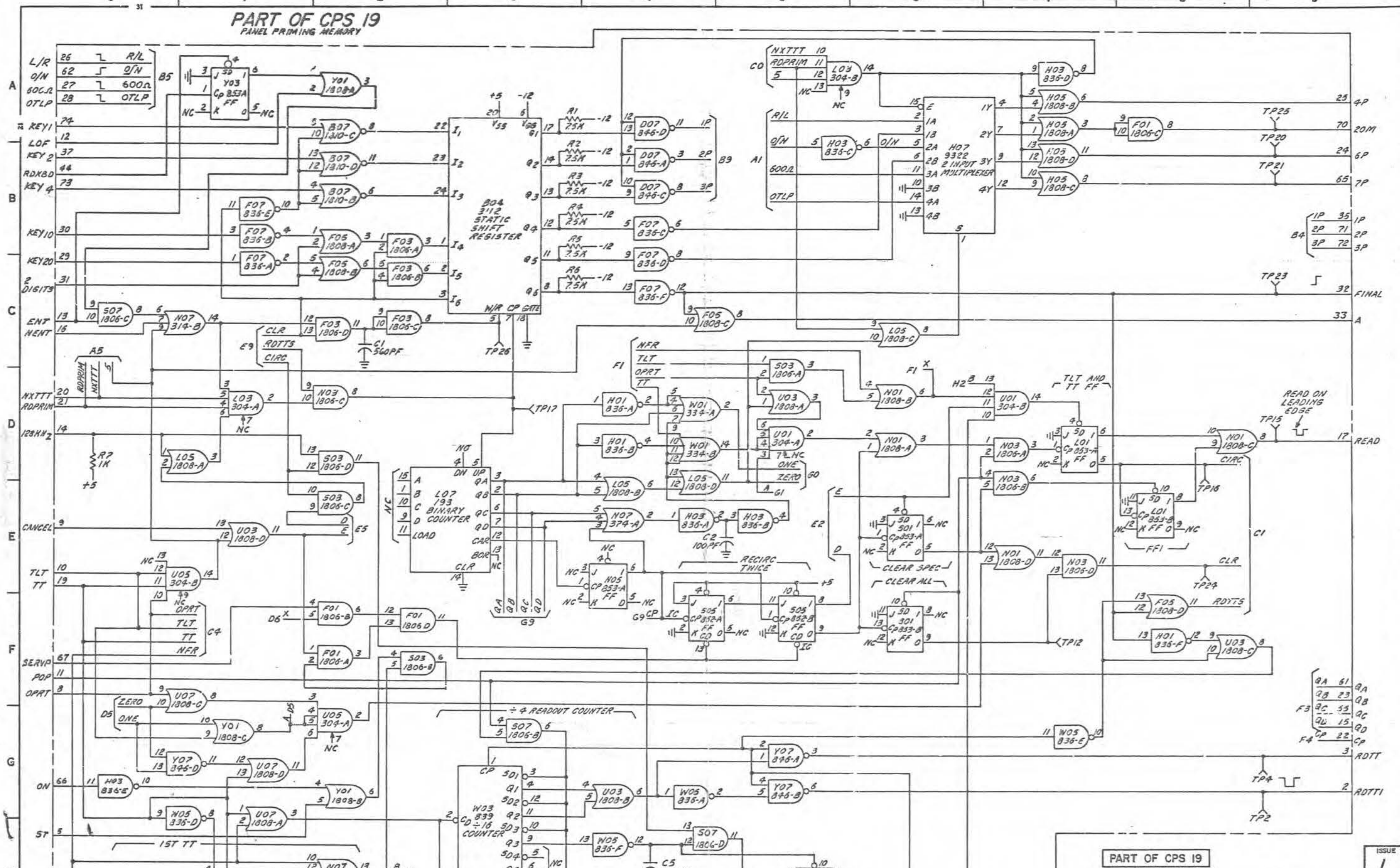
P/O CPS 18
PANEL RESULTS MEMORY

ISSUE 3A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J188

BELL TELEPHONE LABORATORIES INCORPORATED 6S



PART OF CPS 19

PANEL PRIMING MEMORY

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-96608-01-J19A

ISSUE 1

PART OF CPS 19

PANEL PRIMING MEMORY

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP			B04				B07				D07				F01		F03		F05		F07				H01		H03		H05		H07		LOC ON CP
CODE			3112 *				1810				846				1806		1806		1808		836				836		836		1808		9322*		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				183			SPARE					A/B4				A/F2		A/B2		A/B2		A/C1				A/D4		A/E4		A/A7		A/B6	A
B								A/B2			SPARE					A/F2		A/C2		A/C2		A/B1				A/D4		A/E5		A/A7			B
C								A/B2				A/B4				A/A8		A/C2		A/C4		A/B4			SPARE			A/B5		A/B7			C
D								A/B2				A/A4				A/F2		A/C2		A/F8		A/B4			SPARE			A/A7		A/B7			D
E																						A/B1			SPARE			A/G0					E
F																						A/C4				A/F8	SPARE						F

LOC ON CP	L01		L03		L05		L07				M01		N03		N05		N07				S01		S03		S05		S07						LOC ON CP
CODE	853		304		1808		193 *				1808		1806		853		374				853		1806		852		1806						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D7		A/D1		A/D1		A/E3				A/D6		A/D7		A/F4		A/E4				A/E6		A/D5		A/F4		A/H6					A
B		A/E8		A/A5		A/D4						A/D6		A/E7		A/H5		A/C0				A/E6	SPARE			A/F5		A/G3					B
C						A/C6						A/D8		A/D2				A/H2						A/D2				A/C0					C
D						A/D4						A/E7		A/E7										A/D2				A/H4					D
E																																	E
F																																	F

LOC ON CP	U01		U03		U05		U07				W01		W03		W05		W07		Y01		Y03				Y07								LOC ON CP
CODE	304		1808		304		1808				334		839*		836		853		1808		853				846								CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D5		A/D5		A/G2		A/G1				A/D4		A/G3		A/G4		A/H3		A/A2		A/A1				A/G5							A
B		A/D7		A/G4		A/E1		A/H4				A/D4				A/H0		A/H1		A/G2	SPARE					A/G5							B
C				A/F8				A/F1								A/H3				A/G2					SPARE								C
D				A/F1				A/G1								A/G1			SPARE							A/G1							D
E																A/G7																	E
F																A/H4																	F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C319-( )
CONNECTOR ON FRAME	94981

SYMBOL
SEE FS

CAPACITOR

DESIG	CODE
C1	KS-20676 L1,560PF
C2	KS-20676 L1,100PF
[2] C3,C4	600A
C5	KS-19774 L1,1000PF

RESISTOR

DESIG	CODE
[6] R1-R6	KS-20616 L1A,7.5K
R7	KS-20616 L1A,1K

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS, K FOR KILOHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM	+12 BAT TERM	-12 BAT TERM
836	14	7	193	16	8	-	-
839			304	8	1	-	-
846			334				
852			374				
853			3112	20	-	-	6
1806			9322	16	8	-	-
1808							
1810							

P/O CPS 19
PANEL PRIMING MEMORY

ISSUE 3A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J198

PRINTED IN U.S.A.

PART OF CPS 20

ALPHA-NUMERIC DISPLAY CIRCUIT

POP
NFR
LOF
LF1
RDDT
128 KHz
LF2
CLOCK START FF
GATED CLOCK
LOW FREQUENCY DETECTOR
CNTR RESTART 55
CHAR STROBE CNTR
A/F2
1 OF 5 DECODER
ROW STROBE CNTR
A/E3
ROW SELECT DECODER
B/03
B/CO
BLANK B/F3
L1A
L2A
L3A
L4A
L5A
1M
2M
4M
8M
10M
DATA TYPE LATCHES
A/B4
B01 DT001 ROM
A/D5
+5 LEVEL SHIFTERS AND BUFFERS
E05 2403 CHAR GEN
ASCII TO DISPLAY DECODER
OUTPUT LEVEL SHIFTERS
OD1
OD2
OD3
OD4
OD5

ALPHA-NUMERIC DISPLAY CKT
PART OF CPS 20
ISSUE 5A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-J20A

PART OF CPS 20

ALPHA-NUMERIC DISPLAY CIRCUIT

L1A
OD1 K06 858-A R17 33.2 C1
OD2 K06 858-D R18 33.2 C2
OD3 M06 858-A R19 33.2 C3
OD4 M06 858-D R20 33.2 C4
OD5 P06 858-D R21 33.2 C5
A/D9
L2A
OD1 P06 858-A R22 33.2 C6
OD2 S06 858-A R23 33.2 C7
OD3 S06 858-D R24 33.2 C8
OD4 U06 858-A R25 33.2 C9
OD5 U06 858-D R26 33.2 C10

COLUMN DRIVERS

L3A
OD1 K06 858-B R27 33.2 C11
OD2 K04 858-C R28 33.2 C12
OD3 M06 858-B R29 33.2 C13
OD4 M06 858-C R30 33.2 C14
OD5 P06 858-C R31 33.2 C15
L4A
OD1 P06 858-B R32 33.2 C16
OD2 S06 858-B R33 33.2 C17
OD3 S06 858-C R34 33.2 C18
OD4 U06 858-B R35 33.2 C19
OD5 U06 858-C R36 33.2 C20
A/D9
L5A
OD1 W06 858-A R37 33.2 C21
OD2 W06 858-D R38 33.2 C22
OD3 W06 858-B R39 33.2 C23
OD4 W06 858-C R40 33.2 C24
OD5 K04 858-C R41 33.2 C25

COLUMN DRIVERS

4/A7 BLANK
RD1 K00 1808-A R42 2K R49 133 Q2 ROW 1
RD2 K00 1808-D R43 2K R50 133 Q3 ROW 2
RD3 K00 1808-B R44 2K R51 133 Q4 ROW 3
A/D7
RD4 K00 1808-C R45 2K R52 133 Q5 ROW 4
RD5 K02 1808-C R46 2K R53 133 Q6 ROW 5
RD6 K02 1808-D R47 2K R54 133 Q7 ROW 6
RD7 K02 1808-A R48 2K R55 133 Q8 ROW 7

+5

ROW DRIVERS

C1 27 C1
C2 26 C2
C3 20 C3
C4 21 C4
C5 55 C5
C6 18 C6
C7 50 C7
C8 51 C8
C9 45 C9
C10 46 C10
C11 63 C11
C12 25 C12
C13 59 C13
C14 22 C14
C15 19 C15
C16 54 C16
C17 49 C17
C18 14 C18
C19 44 C19
C20 10 C20
C21 4 C21
C22 5 C22
C23 41 C23
C24 42 C24
C25 68 C25

ROW1 62 ROW1
ROW2 61 ROW2
ROW3 47 ROW3
ROW4 53 ROW4
ROW5 58 ROW5
ROW6 52 ROW6
ROW7 57 ROW7

+12 C8 .34 +12
+5 C8 6.43 +5
GRD 7.38
-12 C7 .36 -12

ALPHA-NUMERIC DISPLAY CKT
PART OF CPS 20
ISSUE 1

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J208

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-96608-01-J208

PART OF CPS 20

ALPHA-NUMERIC DISPLAY CKT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B01		B04		B06				D00		D02						E05				G01						H04		H06		LOC ON CP
CODE	DT001 *		858		858				1814		1814						2403*				9311*						839*		1806		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/G2		A/G3		A/F3				A/F1		A/H*						A/F5				A/D6						A/D5		A/F7	A
B				A/E3		A/F3				A/F1	SPARE																			A/G7	B
C				A/E3		A/G3				A/G1	SPARE																			A/G7	C
D				A/E3		A/G3				A/G1	SPARE																			A/G7	D
E																															E
F																															F

LOC ON CP	K00		K02		K04		K06										M06				P04		P06		S00		S02		S04		LOC ON CP
CODE	1808		1808		858		858										858				1806		858		304		304		304		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/A4		B/F4	SPARE			B/A0										B/B0				A/B3		B/C0		A/C6		A/B6		A/A6	A
B		B/C4	SPARE		SPARE			B/A2										B/B2				A/B2		B/C2		A/C6		A/B6		A/A0	B
C		B/D4		B/E4		B/F2		B/B2										B/B2				A/F7		B/C2							C
D		B/B4		B/F4		A/G3		B/B0										B/B0				A/C4		B/C0							D
E																															E
F																															F

LOC ON CP	S06		U00		U02		U04		U06		W00				W04		W06		Y00		Y02												LOC ON CP
CODE	858		1812		836		839*		858		862				846		858		836		555*												CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/C0	SPARE			A/D2		A/B4		B/D0		A/B1				A/B1		B/E2	SPARE			A/C1											A
B		B/C2		A/D3		A/D3				B/D2	SPARE				SPARE			B/F2	SPARE														B
C		B/D2	SPARE			A/D4				B/D2	SPARE					A/B3		B/F2	SPARE														C
D		B/D0	SPARE			A/B5				B/D0					SPARE			B/E2	SPARE														D
E						A/B5													SPARE														E
F						A/B5														A/E1													F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
[2]C1,C2	KS-19774 L1,1000PF
C3	KS-20676 L7,.01
C4	600A
C5	KS-19774 L1,1000PF
[3]C6-C8	600A

RESISTOR

DESIG	CODE
[9]R1-49	KS-20616 L1A,2K
[5]R10-R14	KS-20616 L1A,8.06K
R15	KS-20616 L1A,1100
R16	KS-20616 L1A,2K
[25]R17-R41	KS-20616 L1A,33.2
[7]R42-R48	KS-20616 L1A,2K
R49-R55	KS-20616 L1A,133
R56	KS-20616 L1A,2K

TRANSISTOR

DESIG	CODE
Q1	51A
Q2-Q8	2N4918(MOTOROLA)

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C320-( )
CONNECTOR ON FRAME	94981

SYMBOL

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,K FOR KILOHMS.
   CAPACITANCE VALUES ARE MICROFARADS.
   VALUES PRECEDED BY THE SYMBOL +(PLUS)OR -(MINUS)
   ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT. TERM.	GRD TERM.	IC CODE	+5 BAT. TERM.	GRD TERM.	+12 BAT. TERM.	-12 BAT. TERM.
836			304	8	1		
839			555	8	1		
846			2403	—	17	15	26
858	14	7					
862			9311	24	12		
1306							
1812			DT001	24	12		
1814							

ALPHA-NUMERIC DISPLAY CKT
PART OF CPS 20
ISSUE 54

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J200

BELL TELEPHONE LABORATORIES INCORPORATED
SIZE 6S

PART OF CPS 21

PANEL INTERFACE & MONITOR CKT

E07 QUAD 2 INPUT - MULTIPLEXER 9322

B02 ASYNCHRONOUS DATA INTERFACE 6011

E01 ONE OF SIXTEEN DECODER 9311

E04 +16 COUNTER 839 — ERROR COUNTER

X07 TB OCJCOD

V04 CD 9352-A

A07 3601

PART OF CPS 21

PANEL INTERFACE & MONITOR CKT

ISSUE 10A

ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC

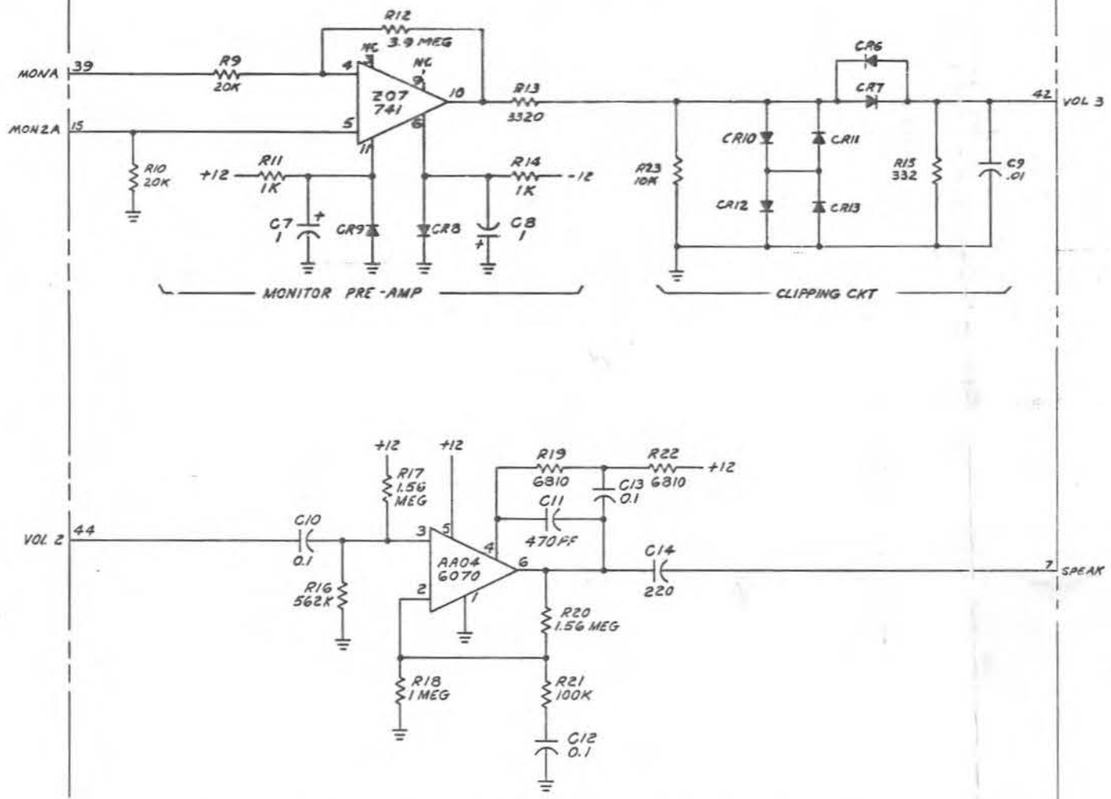
SD-96608-01-J21A

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET NO. 65

PART OF CPS 21

PANEL INTERFACE & MONITOR CKT



P/O CPS 21

PANEL INTERFACE & MONITOR CKT

ISSUE 4B

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

SD-96608-01-J21B

SD-96608-01-J21B

PART OF CPS 21

PANEL INTERFACE & MONITOR CKT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP					A07		B02						C07						E04				E07		G01		G04		G07				LOC ON CP
CODE					9601*		6011*						1814						839*				9322*		9311*		1814		1814				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A						A/D5		A/F1						A/B2						A/D8				A/C1		A/G2		A/C4		A/B1				A
B														A/B2														A/C4		A/B1				B
C														A/B2														SPARE		SPARE				C
D														A/B1														A/C4		A/B0				D
E																																	E
F																																	F

LOC ON CP	J04				J07		L01		L04		L07		N01		N04		N07				R01		R04		R07				T01		T04		LOC ON CP
CODE	836				1800		1808		862		846		852		857		1806				836		1806		1808				1808		846		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B0				A/B5		A/C3		A/B8		A/C6		A/C3		A/C0		A/D7				A/A6		A/E5		A/G0				A/E6		A/E3	A
B		A/B4			SPARE			A/D5		A/B6	SPARE		SPARE			A/C0	SPARE					A/A7		A/B4		A/E0				A/E6		A/G4	B
C		A/B4						A/E3	SPARE			A/D8				A/B3	SPARE				SPARE			A/B8		A/C8				A/E7		A/C7	C
D		A/B4						A/B6				A/C8				A/B6	SPARE				SPARE			A/E8	SPARE				A/E7		A/B6	D
E		A/B5																				A/E3											E
F		A/C5																				A/F4											F

LOC ON CP	T07						V04		V07						X07								Z07				AA04						LOC ON CP
CODE	836						852		857						0C1000*								741*				6070*						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/G0						A/F5		A/G0						A/B7								B/A2				B/D2					A
B		A/F0					SPARE			A/H0																							B
C		A/C9							SPARE																								C
D	SPARE								SPARE																								D
E	SPARE																																E
F	SPARE																																F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C321-( )
CONNECTOR ON FRAME	94981

SYMBOL

CAPACITOR

DESIG	CODE
C1	KS-20676 L1,100PF
C2	KS-19774 L1,1000PF
C3	KS-19774,L1, 3300PF
[5] C4-C8	600A
C9	KS-19974,L4,.01
[3] C10,C12,C13	KS-19774,L5,0.1
C11	KS-20676 L1,470PF
C14	150D227X0010S2 .·RAGUE ELECT CO
C15	KS-19774,L4,.01

DIODE

DESIG	CODE
CR1	1N3666
[2] CR6,CR7	1N3666
[2] CR8,CR9	~~4468,~~ 8088
[3] CR10-CR13	1N3666

DIODE,LIGHT EMITTING

DESIG	CODE
[4] CR2-CR5	5082-4403, HEWLETT-PACKARD

RESISTOR

DESIG	CODE
R1	KS-20616 L1A,10
R2	KS-20616 L1A,10K
[5] R3-R7	KS-20616 L1A,100
R8	KS-20616 L1A,4990
[2] R9,R10	KS-20616 L1A,20K
R11	KS-20616 L1A,1K
R12	KS-16645 L1,3.9MEG
R13	KS-20616 L1A,3320
R14	KS-20616 L1A,1K
R15	KS-20616 L1A,332
R16	KS-20810 L1A,562K
[2] R17,R20	KS-20810 L1A,1.56 MEG
R18	KS-20810 L1A,1 MEG
[2] R19,R22	KS-20616 L1A,6810
R21	KS-20616 L1A,100K
R23	KS-20810 L1A,10K

INPUT INFORMATION

CIRCUIT DESCRIPTION

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,K FOR KILOHMS.
   CAPACITANCE VALUES ARE IN MICROFARADS.
   VALUES PRECEDED BY THE SYMBOL
   +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM FOR ICS:

IC CODE	+5 BAT. TERM	GRD TERM.	IC CODE	+5 BAT. TERM.	GRD TERM.	+12 BAT TERM	-12 BAT. TERM.
836	14	7	741	—	—	11	6
839			6011	1	3	—	2
846			6070	—	1	5	—
852			9311	24	12	—	—
857			9322	16	8	—	—
862			0C1000	—	—	—	—
1800							
1806							
1808							
1814							
9601							

P/O CPS 21
PANEL INTERFACE & MONITOR CKT

ISSUE 13B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J21C

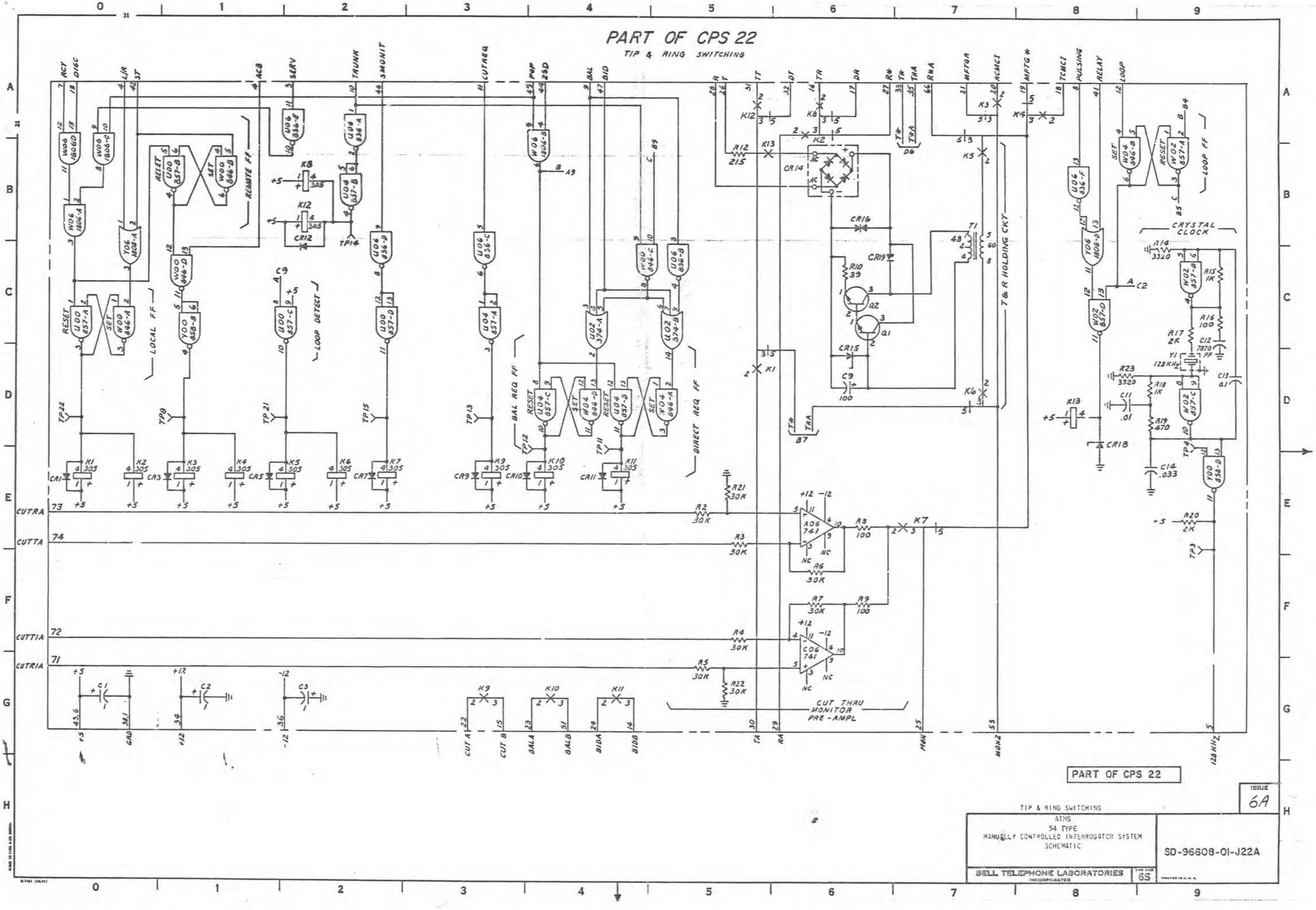
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J21C

PART OF CPS 22

TIP & RING SWITCHING



PART OF CPS 22

ISSUE 6A

TIP & RING SWITCHING
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J22A

BELL TELEPHONE LABORATORIES INCORPORATED

TYPE AND SIZE 6S

SD-96608-01-J22A

PART OF CPS 22

TIP AND RING SWITCHING

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A06						C06						U00				U02				U04				U06		LOC ON CP
CODE	741 *						741 *						857				374				857				836		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/E6										A/D6						A/C0				A/C4		A/C3		A/A2	A
B																		A/B1				A/C5		A/B2		A/C5	B
C																		A/C2		SPARE				A/D4		A/C3	C
D																		A/C2						A/D4		A/C2	D
E																										A/A2	E
F																										A/B8	F

LOC ON CP		W00			W02			W04			W06			Y00				Y06		LOC ON CP
CODE		846			857			846			1806			858				1808		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				A/C0				A/B9				A/D5				A/B0		SPARE				A/B0	A
B				A/B1				A/C9				A/B8				A/B4				A/C1	SPARE		B
C				A/C4				A/D9	SPARE							A/B0		SPARE			SPARE		C
D				A/C1				A/C8				A/D4				A/B0				A/E9		A/B8	D
E																							E
F					BYPASS	C15																	F

LOC ON CP																											LOC ON CP
CODE																											CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																													A
B																													B
C																													C
D																													D
E																													E
F																													F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C322-( )
CONNECTOR ON FRAME	94981

SYMBOL
SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL +(PLUS)
   OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT. TERM.	GRD TERM.	IC CODE	+5 BAT. TERM.	GRD TERM.	+12 BAT. TERM.	-12 BAT. TERM.
836	14	7	374	8	1	-	-
846			741	-	-	11	6
857							
858							
1806							
1808							

RELAY

DESIG	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12
CODE	337A	337A	337A	337A	337A	337A	337A	337A	337A	337A	337A	337A
OPTION												
5	A/D5	A/B6	A/A7	A/A8	A/B7	A/D7	A/D8	A/A6				A/A5
4	A/E0	A/E1	A/E1	A/E1	A/E2	A/E2	A/E2	A/B2	A/E3	A/E4	Q/E4	A/B1
3	A/B5	A/B6	A/A7	A/A8	A/B6	A/D7	A/D8	A/A6	A/G3	A/G4	A/G4	A/A5
2	A/B5	A/B6	A/A7	A/A8	A/A6	A/D7	A/D7	A/A6	A/G3	A/G4	A/G4	A/A5
1	A/E0	A/E1	A/E1	A/E1	A/E2	A/E2	A/E2	A/B2	A/E3	A/E4	A/E4	A/B1

RELAYS NOT ADJUSTABLE. REPLACE WHEN THERE IS MALFUNCTION.

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

CAPACITOR

DESIG	CODE
[3] C1-C3	600A, 1
C9	150D107X5015S2, SPRAGUE ELECT CO.,100
C11	KS-20676 L7, .01
C12	KS-20676 L7, 7870PF
C13	535AB, 0.1
C14	535EY 0.033
C15	KS-19774 L5, 0.1

CRYSTAL

DESIG	CODE
Y1	112EC

DIODE

DESIG	CODE
[8] CR1,3,5,7,9-12	IN3666
CR15	459J
CR16	~~446AF~~, 8080A
CR18	459E

DIODE, BRIDGE

DESIG	CODE
CR14	MDA 9203-7 MOTOROLA

RESISTOR

DESIG	CODE
[6] R2-R7	KS-20616 L1A, 30K
[3] R8,R9, R16	KS-20616 L1A, 100
R10	KS-20616 L1A, 39
R12	KS-20289 L6C, 215
R14	KS-20616 L1A, 3320
[2] R15, R18	KS-20616 L1A, 1K
[2] R17, R20	KS-20616 L1A, 2K
R19	KS-20616 L1A, 470
R21, R22	KS-20616 L1A, 30K
R23	KS-20616 L1A, 3320

TRANSFORMER

DESIG	CODE
T1	2564N

TRANSISTOR

DESIG	CODE
[2] Q1, Q2	660

RELAY

DESIG	CODE
K13	LC2R-170C-05, FIFTH DIMENSION, INC

P/O CPS 22

ISSUE 138

TIP AND RING SWITCHING

4TMS
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC
S4 TYPE

SD-96608-01-J228

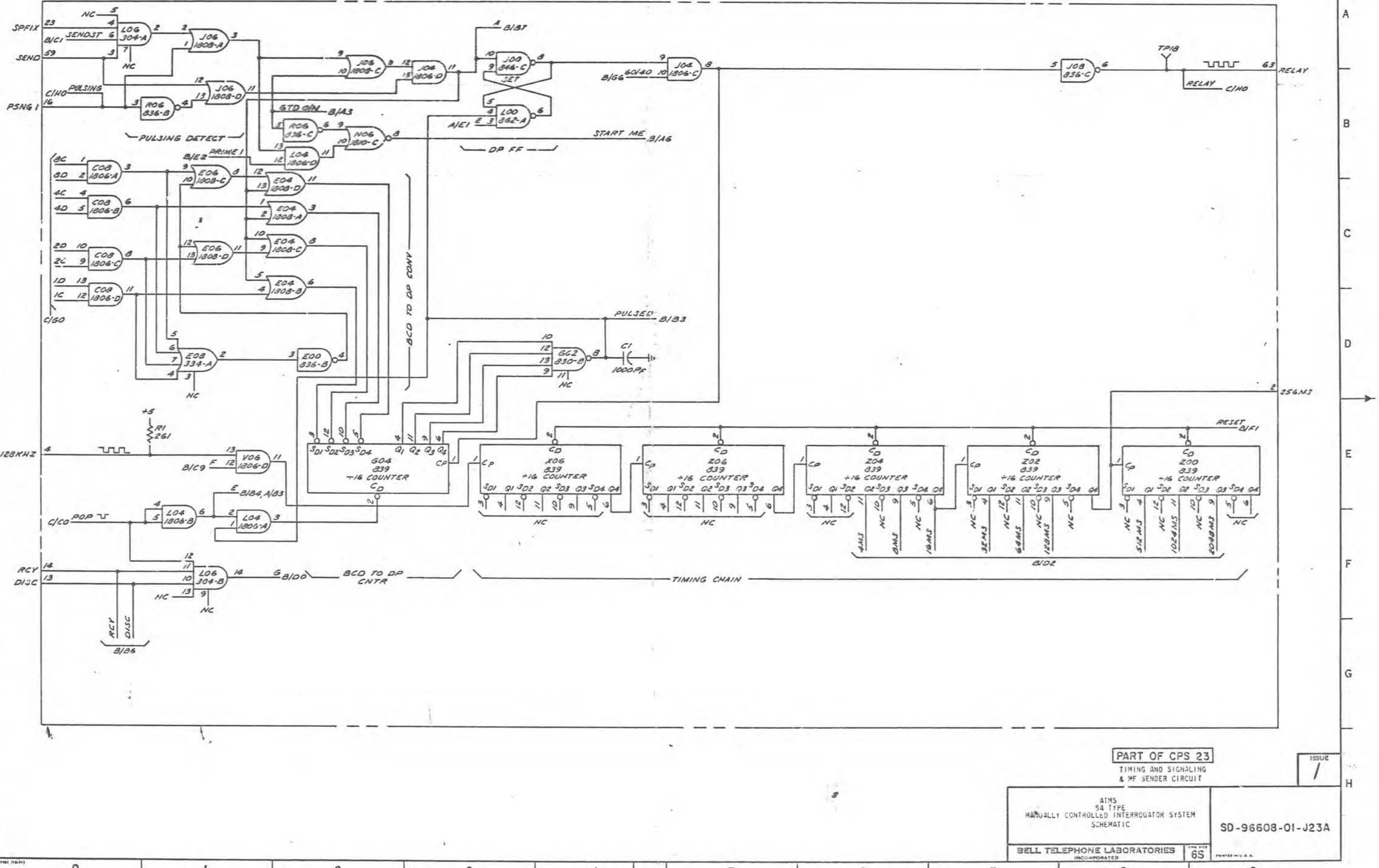
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J228

PART OF CPS 23

TIMING AND SIGNALING
& MF SENDER CIRCUIT



PART OF CPS 23
TIMING AND SIGNALING
& MF SENDER CIRCUIT

ISSUE 1

AIMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

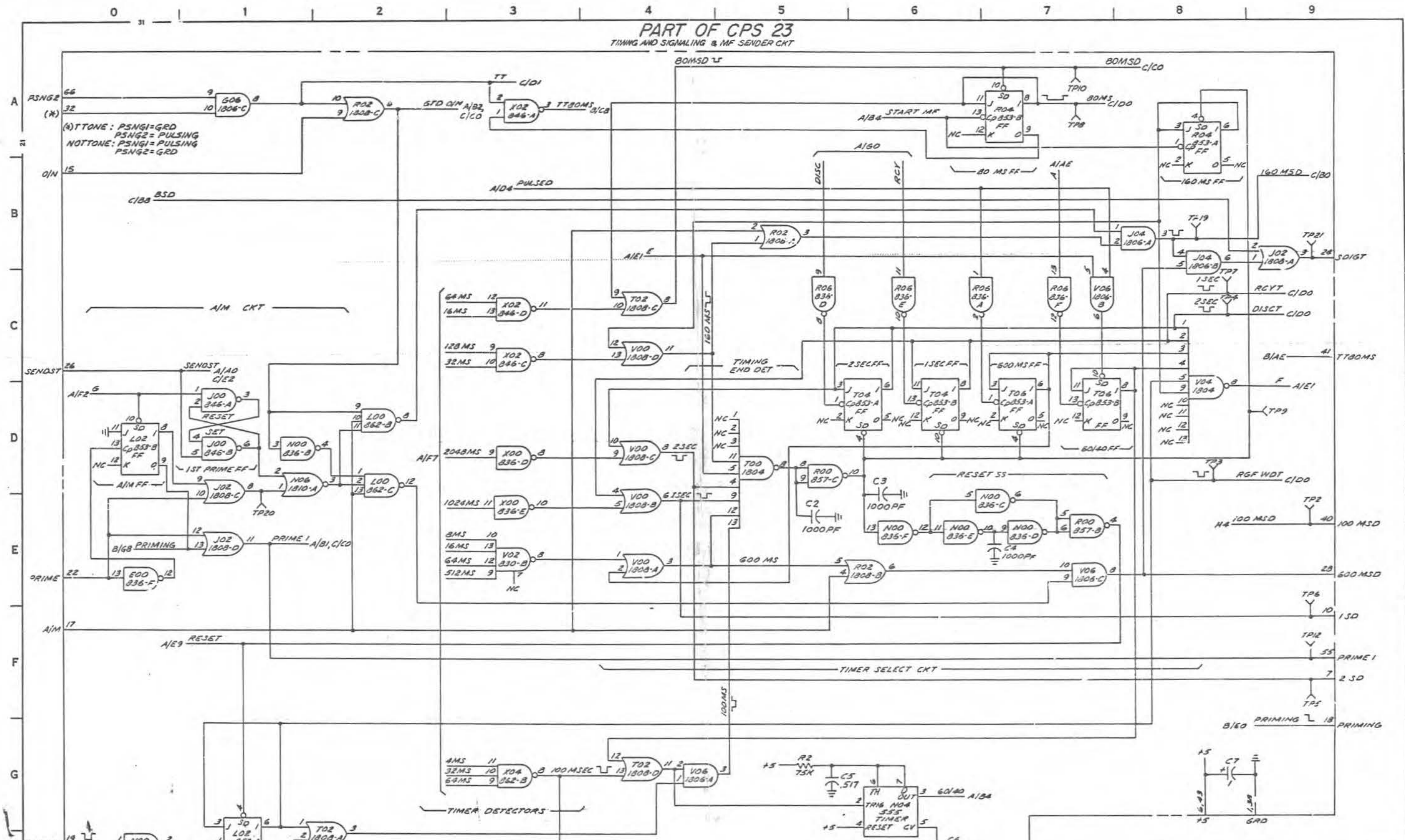
SD-96608-01-J23A

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

PRINTED IN U.S.A.

SD-96608-01-J23A



PART OF CPS 23
TIMING AND SIGNALING & MF SENDER CKT

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J23B

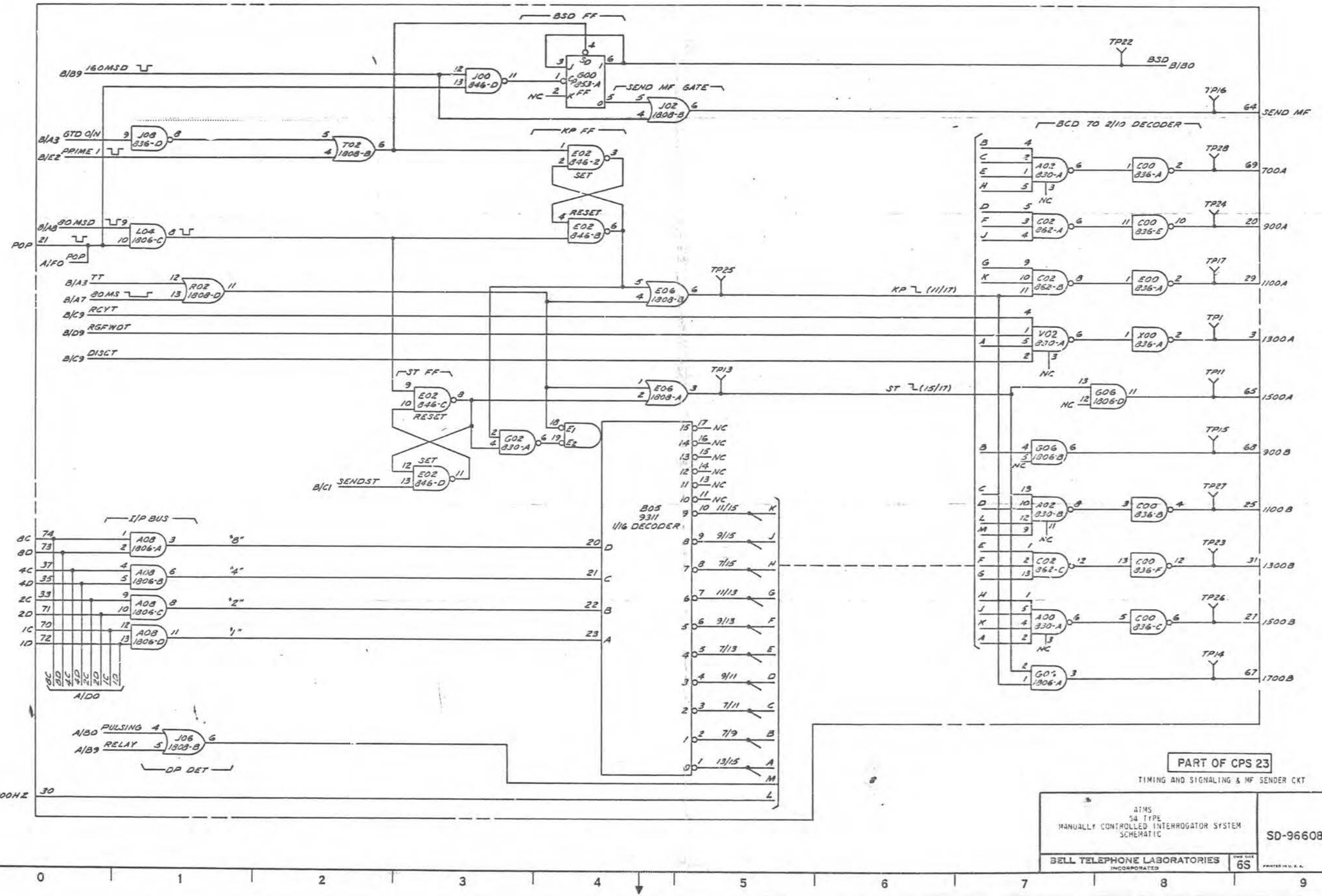
BELL TELEPHONE LABORATORIES
INCORPORATED

6S

ISSUE 3A

PART OF CPS 23

TIMING AND SIGNALING & MF SENDER CKT



PART OF CPS 23

TIMING AND SIGNALING & MF SENDER CKT

ISSUE 138

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J23C

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS 23

TIMING AND SIGNALING & MF SENDER CKT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A00		A02		A08		B05		C00		C02		C08		E00		E02		E04		E06		E08		G00		G02		G04		G06		LOC ON CP
CODE	830		830		1806		9311 *		836		862		1806		836		846		1808		1808		334		853		830		839 *		1806		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		G/G7		C/C7		C/F1		B/F4		C/C8		C/C8		B/B0		C/D8		C/C4		A/C1		C/E4		A/D1		C/B4		C/E3		B/E2		B/G7	A
B	SPARE			C/F7		C/E1				C/F9		C/D7		A/C0		A/D2		C/C4		A/C1		C/D4	SPARE		SPARE			A/D4				B/E7	B
C						C/G1				C/G9		C/F7		A/C0	SPARE			C/E3		A/C1		A/B1										B/A1	C
D						C/G1			SPARE					B/D0	SPARE			C/E3		A/C1		A/C1										B/E8	D
E										C/C8					SPARE																		E
F										C/F8						B/E0																	F

LOC ON CP	J00		J02		J04		J06		J08		L00		L02		L04		L06		N00		N04		N06		R00		R02		R04		R06		LOC ON CP
CODE	846		1808		1806		1808		836		862		853		1806		304		836		555 *		1810		857		1808		853		836		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/D1		B/B9		B/B7		A/A1	SPARE			B/B3		B/H1		A/F1		B/A0		B/H0		B/G6		B/D1	SPARE			B/B5		B/A8		B/C6	A
B		B/D1		C/B4		B/B8		C/H1	SPARE			B/D2		B/D0		A/F1		B/F1		B/D1			SPARE			B/E7		B/E6		B/A7		A/B1	B
C		A/A3		B/D1		A/B4		A/A2		B/B8		B/D2				C/C1				B/E7				A/B2		B/D5		B/A2				A/B2	C
D		C/B3		B/E1		A/B2		B/B1		C/C1						A/B2				B/E7			SPARE		SPARE			C/D1				B/C5	D
E									SPARE											B/E6												B/C6	E
F									SPARE											B/E6												B/C7	F

LOC ON CP	T00		T02		T04		T06		V00		V02		V04		V06		X00		X02		X04		X06		Z00		Z02		Z04		Z06		LOC ON CP
CODE	1804 *		1808		853		853		1808		830		1804 *		1806		836		846		862		839 *		839 *		839 *		839 *		839 *		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/D5		B/G2		B/D6		B/D7		B/E4		C/D7		B/D8		B/G4		C/D8		B/A3	SPARE			A/E3		A/E8		A/E7		A/E6		A/E5	A
B				C/C2		B/D5		B/D7		B/D4		B/E3				B/C7	SPARE		SPARE			B/G3											B
C				B/C4						B/D4						B/E7	SPARE			B/C3	SPARE												C
D				B/G4						B/C4						A/E1		B/D3		B/C3													D
E																		B/D8															E
F																	SPARE																F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
[4]C1-C4	KS-19774,L1 ,1000PF
C5	535JA, .517
C6	KS-20676,L7, .01
C7	600A ,1

RESISTOR

DESIG	CODE
R1	KS-[illegible]16,L1A,261
R2	KS-16312,L4F,75K

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND AND ASSEMBLY DWG	ED-2C323-( )
CONNECTOR ON FRAME	94941

SYMBOL
SEE FS

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	GRD TERM	+12 BAT TERM	-12 BAT TERM
830 836 839 846 853 857 862 1804 1806 1808 1810	14	7	304	8	1		
			334	8	1		
			555	8	1		
			9311	24	12		

P/O CPS 23

ISSUE 4B

TIMING AND SIGNALING & MF SENDER CKT

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J23D

BELL TELEPHONE LABORATORIES INCORPORATED

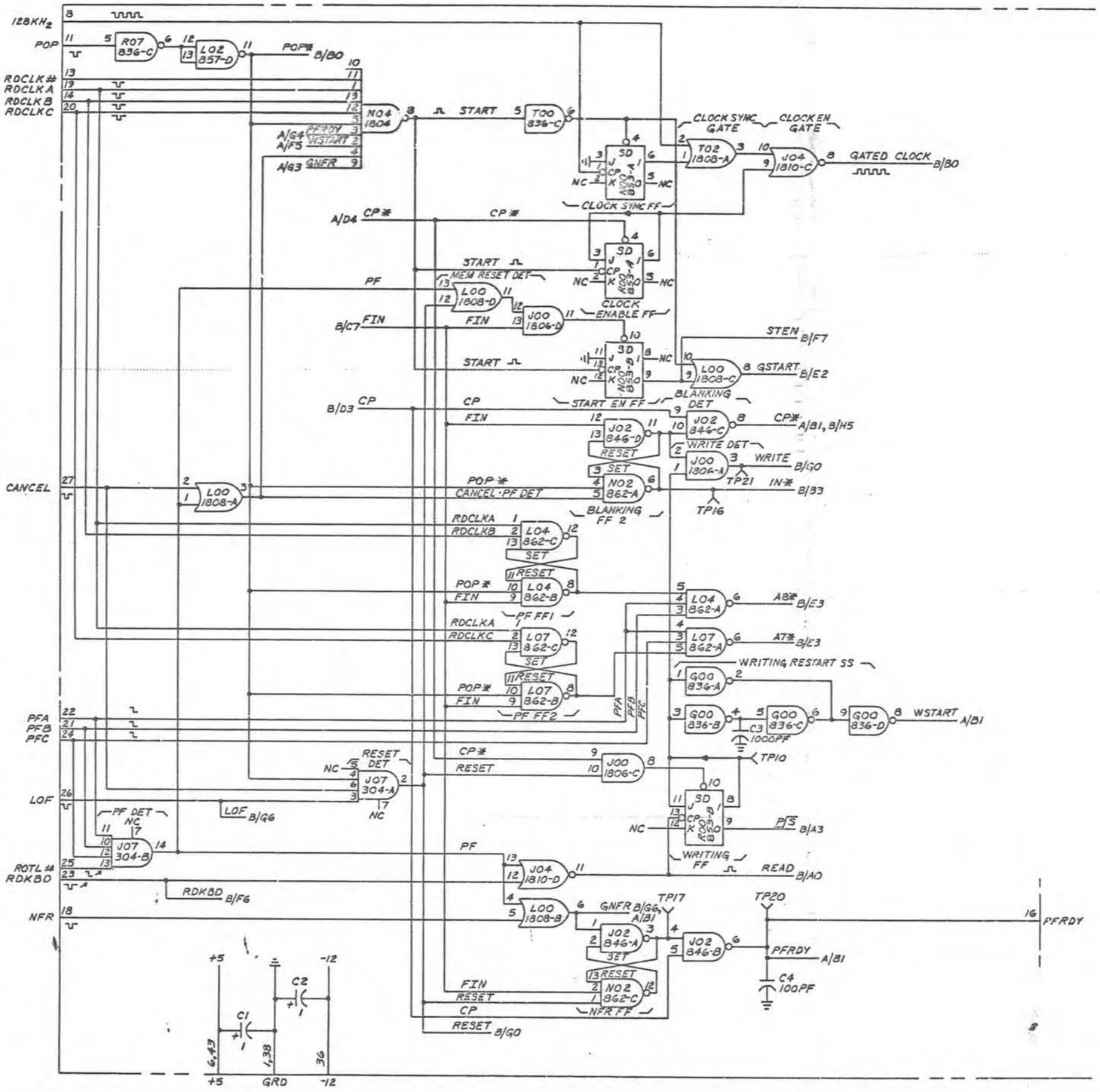
SIZE 6S

PRINTED IN U.S.A.

SD-96608-01-J23D

PART OF CPS 24

PRIMING FIELD MEMORY
AND ANSWER CALLBACK CKTS



PART OF CPS 24
PRIMING FIELD MEMORY
AND ANSWER CALLBACK CKTS

ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J24A

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J24A

PART OF CPS 24

PRIMING FIELD MEMORY AND ANSWER CALLBACK CKTS

KEY 1
KEY 2
KEY 4
KEY 8
A/64 READ
A/85 GATED CLOCK
A/01 POP*
A/06 INT* POP*
B/F5 ENDBLANK
B/F8 BLANKEOF
B/C6 EOF
ENDBLANK
A/C4 GSTART
POP*
A/C4 A7*
A/C4 A8*
A/04 WRITE
A/H2 RESET
B/B6 BLALL
A/C1
A/04 CP*
A/C4 STSN S
A/61 LDF S
A/63 GNFR
A/64 RDKBD

BIT/WORD CNTR
BIT/WORD SS
BLANKING CNTR
BLANKING SS
R/W SS
WORD/FIELD CNTR
MEMORY
PARALLEL TO SERIAL CONV
BLANKING FF
END OF BLANKING FF
SERIAL TO PARALLEL CONV
BLANK CHAR DET
RDKBD FF
NFRING FF
SEND SS

BLALL B/F0
END BLANK B/C0
EOF B/E0
FIN A/C1
BFIN B/G6
FIN 63
SEND 15
BLANKEOF B/C3
BFIN B/C7

TP1 TP2 TP3 TP5 TP6 TP8 TP12 TP13 TP14 TP15 TP19

C3 1000PF
C5 1000PF
C6 1000PF
C8 1000PF
C9 1000PF
C10 1000PF

PART OF CPS 24
PRIMING FIELD MEMORY AND ANSWER CALLBACK CKTS

ISSUE 5A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J24B

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS 24

PRIMING FIELD MEMORY
AND ANSWER CALL BACK CKT

MFTG #
MFTGR
MFTG 32
+5
T2
T1
NC
Q2
Q1
CR2
CR3
CR1
CR7
C12 100
R2 39
R3 215
K1
HOLDING CKT
CBR 74
CBT 73
35 MFTG #
33 MFTGR
62 ACB
LO2 857-B
LO2 857-C
K1
CR8
1.3 SEC TIMER
+5
R9 2K
1.3 SEC
TP25
TP23
TP22
GO4 862-A
GO4 862-C
GO0 836-F
29 1000B
28 1100HZ
+5
RG 133K
C14 15
R1 51.1K
C11 .750
CR4
C13 2.2
R4 10
CR5
R5 619K
DA TE
B05 1000
DC TB TC
NC
D TH
D05 555
TRIG
RESET
OUT
CV
C15 .01
TP26
R10 2K
+5
ANS CALL BACK CKT
CLBCK 31
O/N 30
CR6
+5
R11 30.1K
C16 15
TRIG TH
555
RESET OUT
CV
C17 .01
NC
R07 836-B
.35SEC
R12 2K
.3 SEC TIMER

PART OF CPS 24
PRIMITIVE FIELD MEMORY
AND ANSWER CALLBACK CKTS

ISSUE 1

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J24C

SD-96608-01-J24C

PART OF CPS 24

PRIMING FIELD MEMORY AND ANSWER CALLBACK CKTS

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	B05				J05				G00		G02		G04		G06		J00		J02		J04		J07		L00				LOC ON CP
CODE	1000*				555*				816		1000*		862		555*		1806		846		1810		304		1808				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		C/E4				C/E4				A/F4		C/C2		C/D7		C/G4		A/D4		A/H3	SPARE			A/F2		A/D1			A
B										A/F4				B/C8			SPARE	C/C8		A/H4		B/C7		A/G0		A/G3			B
C										A/F4				C/D7				A/F3		A/D4		A/B4				A/C4			C
D										A/F5								A/C3		A/D3		A/G3				A/C2			D
E																													E
F										C/D6																			F

LOC ON CP	L02		L04		L07		N00		N02		N04		N07		P00		R02		R04		R07		T00		T02		T04		T07				LOC ON CP
CODE	857		862		862		853		862		1804*		1806		853		1806		846		836		836		1808		853		9300*				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE			A/E4		A/E4		A/B3		A/D3		A/B2		B/F8		A/C3	SPARE			B/G1		C/E6	SPARE			A/B4		B/F3		B/D6				A
B		C/B7		A/E3		A/F3		A/C3		B/C4				B/F7		A/C4		B/F7		C/H7		C/G5		B/H6		B/F8	SPARE							B
C		C/B7		A/E3		A/E3				A/H3								B/C6		B/F9		A/A0		A/B3		B/D7								C
D		A/B1																B/C5		B/F3		B/D7		B/D2		B/C6								D
E																						B/E7		B/D2										E
F																						B/E6		B/D3										F

LOC ON CP	V00		V02		V04		V07		X00		X02		X04		X07		Z00		Z02		Z04		Z07										LOC ON CP
CODE	304		846		836		839*		1806		836		1808		2501*		852		852		1810		9300*										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE			B/G6	SPARE			B/D3		B/F0		B/G2		B/F4		B/D5		B/E1		B/C1	SPARE			B/B3										A
B		B/E2		B/G6	SPARE					B/D3		B/G3		B/G2				B/F1		B/D1		B/E4												B
C				B/B4		B/F3				B/F0		B/F2		B/F2								B/E4												C
D				B/C4		B/F2				B/D0		B/G6		B/B4								B/B3												D
E						B/F2						B/H6																						E
F						B/F3						B/G1																						F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "0" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE	ED-2C324-( )
CONNECTOR ON FRAME	~~94981~~

SYMBOL

CAPACITOR

DESIG	CODE
[2] C1,C2	600A
[7] C3,C5-C10	KS-19774 L1,1000PF
C4	KS-19774 L1,100PF
C11	596C,750
C12	602B
C13	150D225X505B2, SPRAGUE ELECT CO
[2] C14,C16	150D156X501B2, SPRAGUE ELECT CO
[2] C15,C17	KS-~~20676~~ L7,.01

DIODE

DESIG	CODE
CR1	~~448F~~, 808DA
CR2	458C
CR5	45411,RCA OR 1N5761
CR6	KS-16986 L2M
CR7	459B
CR8	459E

DIODE BRIDGE

DESIG	CODE
[2] CR3,CR4	MDA920A-7, MOTOROLA

RESISTOR

DESIG	CODE
R1	KS-20616 L1A,51.1K
R2	KS-20616 L1A, 39
R3	KS-20289 L6C, 215
R4	KS-20616 L1A, 10
R5	KS-20616 L1A, 619K
R6	KS-20616 L1A, 133K
[3] R9,R10,R12	KS-20616 L1A, 2K
R11	KS-20616 L1A, 30.1K

TRANSFORMER

DESIG	CODE
[2] T1,T2	2564N

TRANSISTOR

DESIG	CODE
[2] Q1,Q2	66G

RELAY

DESIG	CODE
K1	LC2R-1700-05, 5TH DIMENSION, INC

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   CAPACITANCE VALUES ARE IN MICROFARADS;
   RESISTANCE VALUES ARE IN OHMS WITH K FOR KILOHMS;
   VALUES PRECEDED BY THE SYMBOL
   +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR IC'S.

IC CODE	+5 BAT. TERM.	GRD TERM.	IC CODE	+5 BAT. TERM.	GRD TERM.	+12 BAT TERM.	-12 BAT TERM.
836	14	7	304	8	1	—	—
839			555	8	1	—	—
846			9300	16	8	—	—
852			OC1000	—	—	—	—
853			2501	5	—	—	3,8
857							
862							
1800							
1804							
1806							
1808							
1810							

P/O CPS 24
PRIMING FIELD MEMORY AND ANSWER CALLBACK CKTS

ISSUE 13B

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

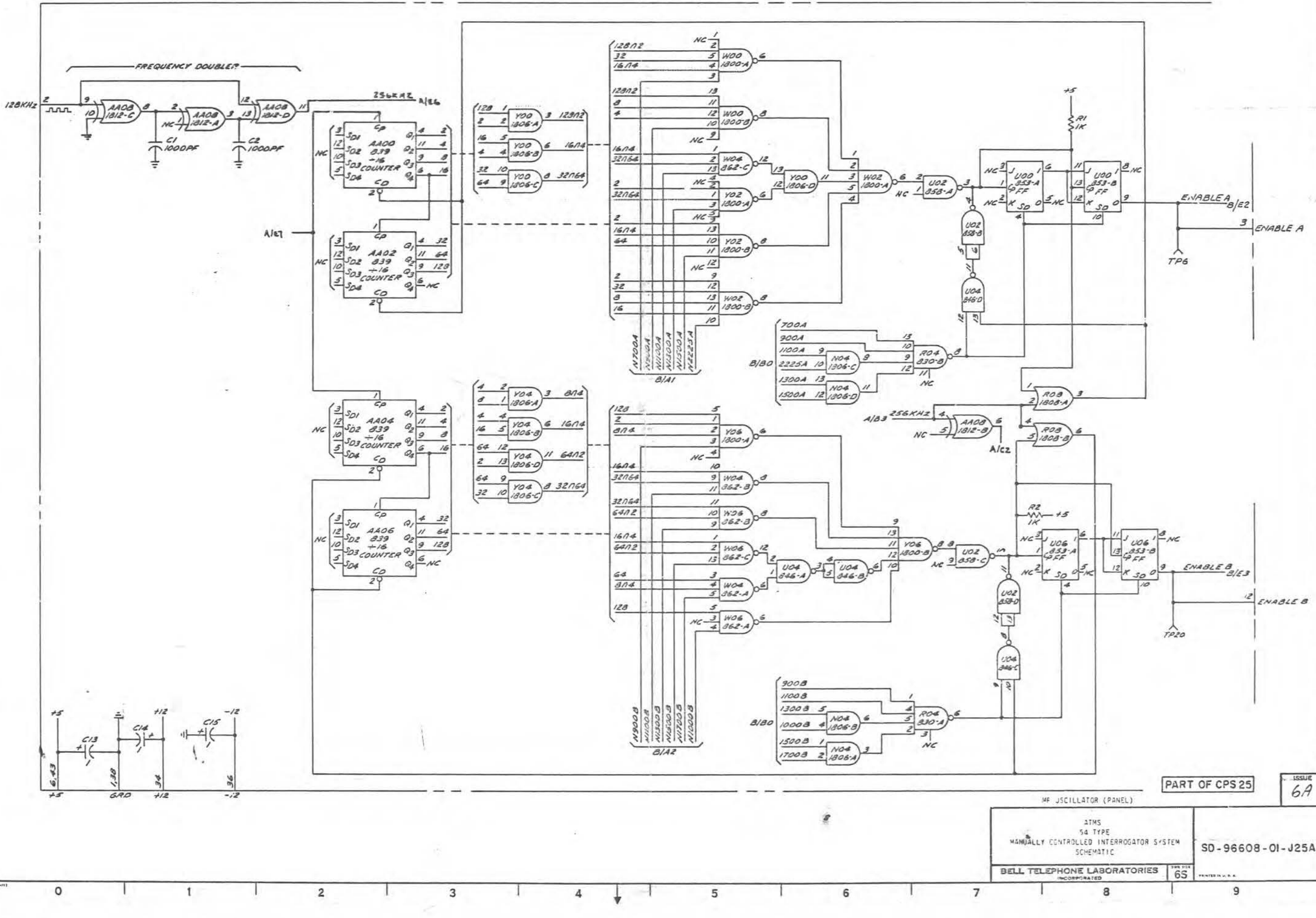
SD-96608-01-J24D

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PART OF CPS 25

MF OSCILLATOR (PANEL)



PART OF CPS 25 — ISSUE 6A

MF OSCILLATOR (PANEL)

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

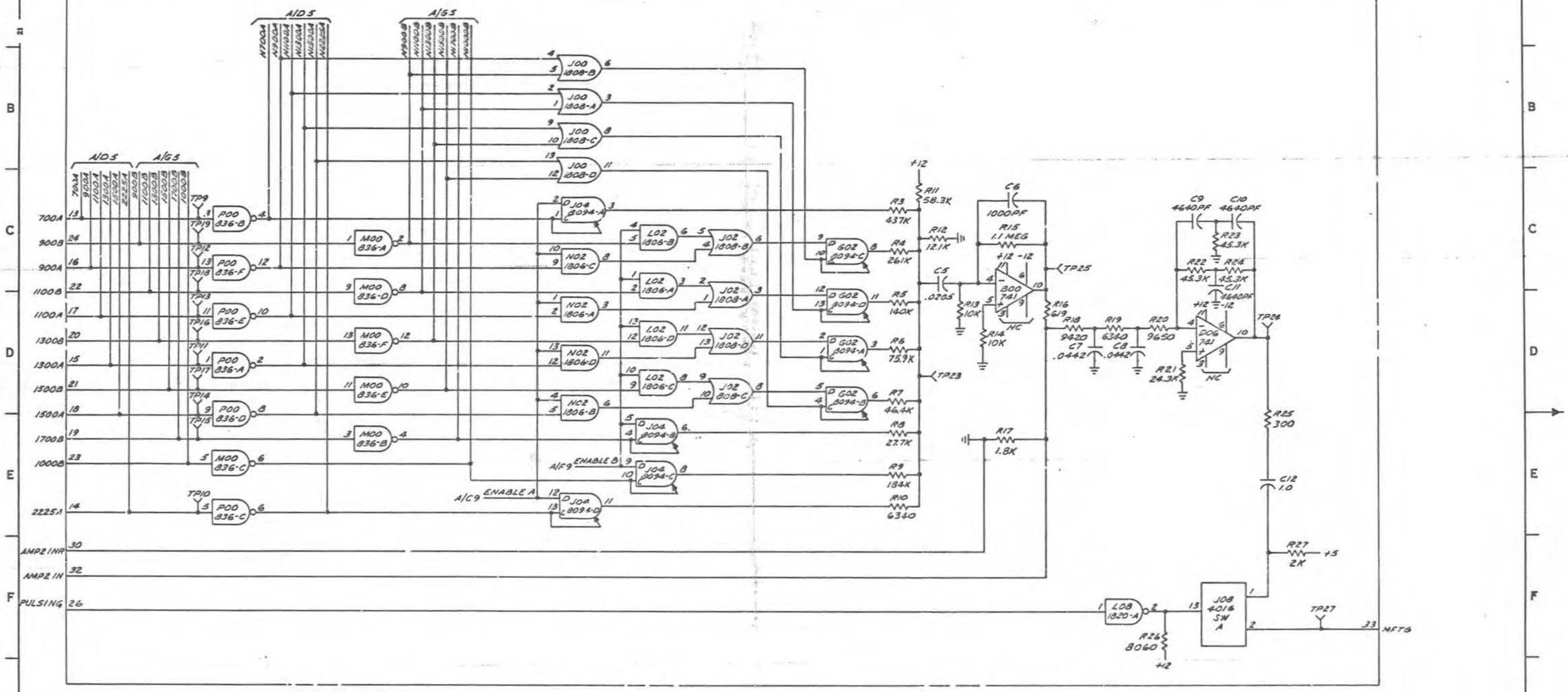
SD-96608-01-J25A

BELL TELEPHONE LABORATORIES INCORPORATED — SIZE 6S

PRINTED IN U.S.A.

PART OF CPS 25

MF OSCILLATOR (PANEL)



MF OSCILLATOR (PANEL)	PART OF CPS 25 — ISSUE /
ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	SD-96608-01-J25B
BELL TELEPHONE LABORATORIES INCORPORATED — SIZE 6S	

SD-96608-01-J25B

PART OF CPS 25

MF OSCILLATOR (PANEL)

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	800				006						002				300		302		304		308		L02		L08		M00				N02		LOC ON CP
CODE	741*				741*						8094				1808		1808		8094		4016		1806		1820		836				1806		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/F6				B/G7						B/G5				B/E3		B/F4		B/E3		B/F7		B/F3		B/F7		B/F2				B/F3	A
B												B/G5				B/D3		B/F4		B/G3	SPARE			B/F3	SPARE			B/G2				B/G3	B
C												B/F5				B/E3		B/G4		B/H3	SPARE			B/G3	SPARE			B/H1				B/F3	C
D												B/F5				B/E3		B/G4		B/H3	SPARE			B/G3	SPARE			B/F2				B/G3	D
E																									SPARE			B/G2					E
F																									SPARE			B/G2					F

LOC ON CP	N04				P00				R04		R08		U0C		U02		U04		U06				W00		W02		W04		W06				LOC ON CP
CODE	1806				836				830		1808		853		858		846		853				1800		1800		862		862				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/G5				B/G1				A/G6		A/D8		A/B7		A/B6		A/F5		A/F7				A/B4		A/B5		A/F4		A/G4			A
B		A/G5				B/F1				A/D6		A/E8		A/B7		A/C6		A/F5		A/F7				A/B4		A/D4		A/E4		A/E4			B
C		A/D5				B/H1					SPARE					A/F6		A/C6										A/B4		A/F4			C
D		A/D5				B/G1					SPARE					A/F6		A/C6															D
E						B/G1																											E
F						B/F1																											F

LOC ON CP	Y0C		Y02		Y04		Y06				AA00		AA02		AA04		AA06		AA08														LOC ON CP
CODE	1806		1800		1806		1800				839*		839*		839*		839*		1812														CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B3		A/C4		A/D3		A/E4				A/B2		A/C2		A/E2		A/F2		A/B1													A
B		A/B3		A/C4		A/E3		A/F6												A/E7													B
C		A/B3				A/E3														A/B0													C
D		A/B5				A/E3														A/B2													D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C325-( )
CONNECTOR ON FRAME	94981

SYMBOL

SEE FS

CAPACITOR

DESIG	CODE
[4] C1-C4	KS-19774 L1,1000PF
C5	KS-20676 L7,0.02Ø5
C6	KS-20676 L3,1000PF
C7,C8	570CD, 0.044Ø
C9-C11	KS-20676 L3,4640PF
C12	596C,1
C13-C15	600A

RESISTOR

DESIG	CODE
R1,R2	KS-20616 L1A,1K
R3	KS-20810 L1A,437K
R4	KS-20616 L1A,261K
R5	KS-20616 L1A,140K
R6	KS-20616 L1A,75.9K
R7	KS-20616 L1A,46.4K
R8	KS-20616 L1A,27.7K
R9	KS-20616 L1A,184K
R10	KS-20616 L1A,634Ø
R11	KS-20616 L1A,58.3K
R12	KS-20616 L1A,12.1K
[2] R13,R14	KS-20810 L1A,10K
R15	KS-13490 L1,1.1 MEG Ω
R16	KS-20616 L1A,619
R17	KS-20616 L1A,1.8K
R18	KS-20810 L1A,9420
R19	KS-20616 L1A,634Ø
R20	KS-20810 L1A,9650
R21	KS-20810 L1A,24.3K
R22-R24	KS-20616 L1A,45.3K
R25	KS-20616 L1A,300
R26	KS-20616 L1A,8060
R27	KS-20616 L1A,2K

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   K FOR KILOHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS,
   VALUES PRECEDED BY THE SYMBOL +(PLUS)
   OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+5 BAT TERM	+12 BAT TERM	-12 BAT TERM	GRD TERM
830 836 839 846 853 858 862 1800 1806 1808 1812 8094	14	7	741	—	11	6	—
			4016		14		—

P/O CPS 25
MF OSCILLATOR (PANEL)

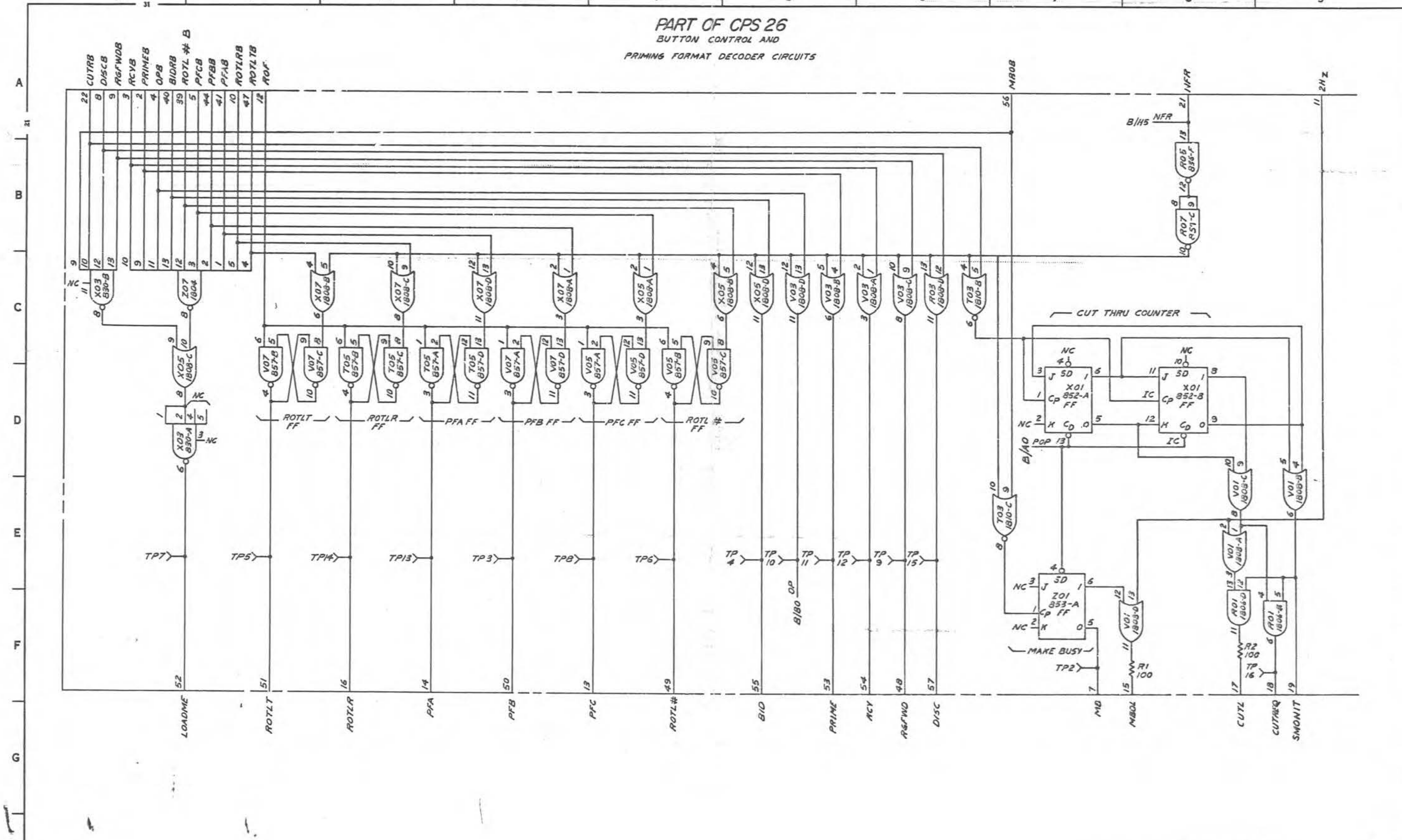
ISSUE 3A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J25C

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S



PART OF CPS 26

BUTTON CONTROL AND PRIMING FORMAT DECODER CIRCUITS

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES INCORPORATED

SD-96608-01-J26A

ISSUE 1

PART OF CPS 26

BUTTON CONTROL AND PRIMING FORMAT DECODER CIRCUITS

POP
POP A/D7, B/H5
SEND MF B/G8
SEND MF
PRIME I
O/N
O/I ADR FF
C7 1000PF
O/I ADR
TP26
B/G9
PULSING FF
A/F5 OP
PULSING B/C8
C2 1000PF
PRIME SS
SENDING CNTR DECODER
RDCLK
TP18
FIN
C1 1000PF
C6 1000PF
TP17
B/B1 PULSING
PULSING
SDIGT
C4 1000PF
SENDING ORDER CNTR
1ST ONE OF FOUR DECODER
SENDING FF
C3 1000PF
B2-0
B2-1
B2-2
SENDING SS
2ND ONE OF FOUR DECODER
1ST FIELD EN
2ND FIELD EN
3RD ONE OF FOUR DECODER
3RD FIELD EN
B2-3
B2-4
B2-5
PRIMING
TP21 RDCLKC
TP20 RDCLKB
TP24 RDCLKA
TP22
TP23 SEND ST
B/H4
B/A1 SEND MF
SEND MF FF
B2-6
B2-7
BLANK DETECT
CLBCK
SPFIX
4469
B/A6
B/F9
TP25 CLBCK
B/F4 SPFIX
TP28 INVREQ
A/A3 NFR
B/A10 POP
INVREQ FF
C8 .1
+5
643
738
GND
PREFIX SELECT

BUTTON CONTROL AND PRIMING DECODER CIRCUITS — PART OF CPS 26 — ISSUE 1

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J26B

BELL TELEPHONE LABORATORIES INCORPORATED — DWG SIZE 6S

SD-96608-01-J26B

PART OF CPS 26

BUTTON CONTROL AND PRIMING FORMAT DECODER CIRCUITS

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A01		A03		A05		A07		C01		C03		C05		C07		E01		E03		E05		E07		G01		G03		G05		G07		LOC ON CP
CODE	1808		836		846		9322 *		1808		1808		1808		1808		1808		1808		836		830		862		1808		1808		304		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		B/D5		B/F5		2F5		B/H2		B/D6		B/C5		B/F8		B/G4		B/E6		B/G6		B/G3		B/G2		B/E8		B/C5		B/B6		B/F2	A
B		B/D5		B/F5		2D5				B/D6		B/F5		B/G5		B/H4		B/E5		B/G6		B/G5		B/F8		B/E8		B/E5	SPARE		SPARE		B
C		B/E5		B/D5		2G6				B/D6		B/F5		B/G4		B/H4		B/E5		B/F6		B/B4				B/E8		B/C5		B/A5			C
D		B/D5		B/D5		2E5				B/D6		B/G5		B/G3		B/H4		B/F6		B/F6		B/B3						B/B5		B/B3			D
E				B/E5																		B/B3											E
F				B/E5																	SPARE													F

LOC ON CP			J01		J03		J05		J07		L01		L03		L05		L07		N01				N07		R01		R03		R05		R07		LOC ON CP
CODE			846		1808		862		853		836		852		1806		1808		846				304		1806		1808		836		857		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A				B/F8		B/B5		B/A2		B/C2		B/D3		B/C4		B/A2	SPARE			B/B4				B/C2		B/D1		B/B1	SPARE		SPARE		A
B				B/E8		B/C5		B/A2		B/F8		B/D3	SPARE			B/A0		B/C3		B/D4			SPARE			A/F9		B/C0	SPARE		SPARE		B
C				B/E8		B/C5		B/H6				B/D4				B/B5		B/C3		B/B0					SPARE			B/B2	SPARE			A/B8	C
D				B/E8		B/C5					SPARE					B/B2	SPARE		SPARE							A/F8	SPARE		SPARE		SPARE		D
E											SPARE																		SPARE				E
F												B/D1																		A/B8			F

LOC ON CP	T03		T05				V01		V03		V05		V07		X01		X03		X05		X07				Z01				Z07				LOC ON CP
CODE	1810		857				1808		1808		857		857		852		830		1808		1808				853				1804				CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE			A/C2				A/E8		A/C6		A/C4		A/C3		A/D7		A/D0		A/C4		A/C3				A/F7				A/C0			A
B		A/C6		A/C2				A/E9		A/C5		A/C4		A/C1		A/D8		A/C0		A/C5		A/C2				B/B1			SPARE				B
C		A/E7		A/C2				A/C8		A/C6		A/C5		A/C1						A/D0		A/C2							SPARE				C
D	SPARE			A/C3				A/F7		A/C5		A/C1		A/C3						A/C5		A/C3							SPARE				D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

INPUT/OUTPUT INFORMATION

CAPACITOR

DESIG	CODE
C1-C4	KS-19774,L1,1000PF
C5	600A
C6,C7	KS-19774,L1,1000PF

RESISTOR

DESIG	CODE
R1,R2	KS-20616,L1,100

CIRCUIT DESCRIPTION

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DWG	ED-2C326-( )
CONNECTOR ON FRAME	94981

SYMBOL
S&E FS

NOTES:
1. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.
830	14	7
836		
846		
852		
853		
857		
862		
1804		
1806		
1808		
1810		

IC CODE	+5 BAT TERM.	GRD TERM.
304	8	1
9322	16	8

P/O CPS 26

ISSUE 3A

BUTTON CONTROL AND PRIMING FORMAT DECODER CIRCUITS

ATIS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J26C

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J26C

PART OF CPS 27

ROTL PRIMING REGISTERS & PRIMING FORMAT TRANSLATOR

POP
LOF
CANCEL
NFR
ROTLR NEXT
ROTLT
KEY 80
KEY 40
KEY 20
KEY 10
KEY 8
KEY 4
KEY 2
KEY 1

V00 1806 -C
V00 1806 -B
TP6
V02 1808 -B
V04 1808 -A
V04 1808 -C
V04 1808 -B
H02 836 -A
H02 836 -B
L02 836 -A
L02 836 -B
P02 836 -A
P02 836 -B
T02 836 -A
T02 836 -B
V02 1808 -A
V00 1806 -A
V06 846 -B
T06 857 -C
SET
RESET
ROTLR FF
TP4
V02 1808 -D
V02 1808 -A
TP7
ROTLT FF
T06 857 -D
V06 846 -A
I/P BUFFER
V02 1808 -C
V00 1806 -D
CLEAR ROTL TYPE
CLEAR ROTL REQUEST
TP 19

H00 9300 SHIFT REGISTER
P00 9300 SHIFT REGISTER
L00 9300 SHIFT REGISTER
T00 9300 SHIFT REGISTER
ROTL REQUEST REGISTER
ROTL TYPE REGISTER
TP5

ROTLR OUTPUT ENABLE
ROTL REQUEST CNT
ROTL TYPE CNT
ROTLT OUTPUT ENABLE

H02 836 -C
H02 836 -F
H02 836 -E
H02 836 -D
P02 836 -C
P02 836 -F
P02 836 -E
P02 836 -D
ROTLR O/P BUFFER
TP8
L02 836 -C
L02 836 -F
L02 836 -E
L02 836 -D
T02 836 -C
T02 836 -F
T02 836 -E
T02 836 -D
ROTLT O/P BUFFER
TP9

ROTLR O/P GATES
H04 1808 -B
H04 1808 -A
H04 1808 -C
H04 1808 -D
80B
40B
20B
10B
A/G6
L06 1806 -B
L06 1806 -A
L06 1806 -C
L06 1806 -D
TP17
TP16
TP15
TP14
80R
40R
20R
10R

P04 1808 -B
P04 1808 -A
P04 1808 -C
P04 1808 -D
8B
4B
2B
1B
A/G7
P06 1806 -B
P06 1806 -A
P06 1806 -C
P06 1806 -D
TP13
TP12
TP11
TP10
8R
4R
2R
1R

A2-6
A2-7
A2-8
A2-9
A2-0
A2-1
A2-2
A2-3
A2-4
A2-5
B/B4
A2-5
A2-4
A2-3
A2-2
A2-1
A2-0
A2-9
A2-8
A2-7
A2-6

L04 1808 -B
L04 1808 -A
L04 1808 -C
L04 1808 -D
80B
40B
20B
10B
A/G1
T04 1808 -B
T04 1808 -A
T04 1808 -C
T04 1808 -D
8B
4B
2B
1B
A/G3
ROTLT O/P GATES

+5
C1
1
6.43
1.38
+5
GRD

PART OF CPS 27
ROTL PRIMING REGISTERS & PRIMING FORMAT TRANSLATOR

ISSUE 1

AEIS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J27A

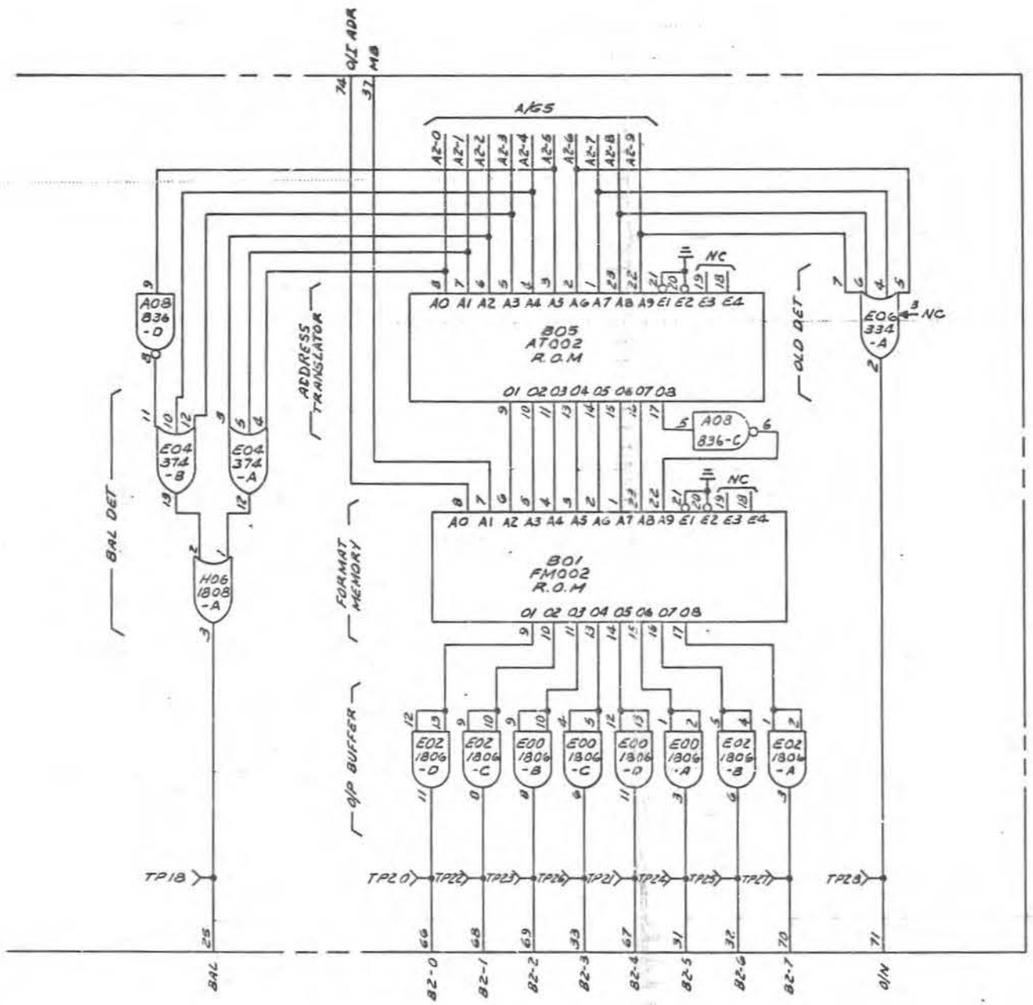
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J27A

PART OF CPS 27

ROTL PRIMING REGISTERS &
PRIMING FORMAT TRANSLATOR



PART OF CPS 27

ROTL PRIMING REGISTERS &
PRIMING FORMAT TRANSLATOR

ISSUE 3A

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J27B

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CPS 27

HOTL PRIMING REGISTERS & PRIMING FORMAT TRANSLATOR

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP	A08				B01		B05				E00		E02		E04		E06				H00		H02		H04		H06						LOC ON CP
CODE	836				FM002 *		AT002 *				1806		1806		374		334				9300 *		836		1808		1808						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A	SPARE					B/E4		B/C4				B/F5		B/F5		B/D3		B/C6				A/D1		A/B5		A/G1		B/E2					A
B	SPARE											B/F4		B/F5		B/D2	SPARE							A/B6		A/G1	SPARE						B
C		B/D5										B/F4		B/F4	SPARE									A/F1		A/G1	SPARE						C
D		B/C2										B/F4		B/F4										A/F1		A/G1	SPARE						D
E	SPARE																							A/F1									E
F	SPARE																							A/F1									F

LOC ON CP	L00		L02		L04		L06				P00		P02		P04		P06				T00		T02		T04		T06						LOC ON CP
CODE	9300 *		836		1808		1806				9300 *		836		1808		1806				9300 *		836		1808		857						CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D8		A/B7		A/G6		A/H1				A/D2		A/B6		A/G2		A/H2				A/D7		A/B7		A/G7	SPARE						A
B				A/B7		A/G5		A/H1						A/B6		A/G2		A/H2						A/B7		A/G7	SPARE						B
C				A/F5		A/G6		A/H1						A/F2		A/G2		A/H2						A/F7		A/G7		A/C3					C
D				A/F6		A/G6		A/H1						A/F2		A/G2		A/H2						A/F7		A/G7		A/C5					D
E				A/F6										A/F2										A/F7									E
F				A/F6										A/F2										A/F7									F

LOC ON CP	V00		V02		V04		V06																										LOC ON CP
CODE	1806		1808		1808		846																										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B1		A/C4		A/B2		A/C5																									A
B		A/B1		A/B1		A/B5		A/C2																									B
C		A/A0		A/B8		A/B3	SPARE																										C
D		A/B8		A/C3	SPARE																												D
E																																	E
F																																	F

* SINGLE-ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C327-( )
CONNECTOR ON FRAME	94981

SYMBOL
SEE FS

CAPACITOR

DESIG	CODE
C1	600A

INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

NOTES:
1. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES, PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM FOR ICS:

IC CODE	+5 BAT TERM.	GRD TERM.	IC CODE	+5 BAT TERM.	GRD TERM.
836	14	7	334	8	1
846			374	8	1
857					
1806			9300	16	8
1808					
			FM002 AT002	14	7

P/O CPS 27

ISSUE 4B

HOTL PRIMING REGISTERS & PRIMING FORMAT TRANSLATOR

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J27C

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

CPS 28
POWER SUPPLY

COMPONENT LIST

CONNECTOR

DESIG	CODE
J1	31-236, AMPHENOL

POWER SUPPLY

DESIG	CODE
PS1	KS-20966 L2

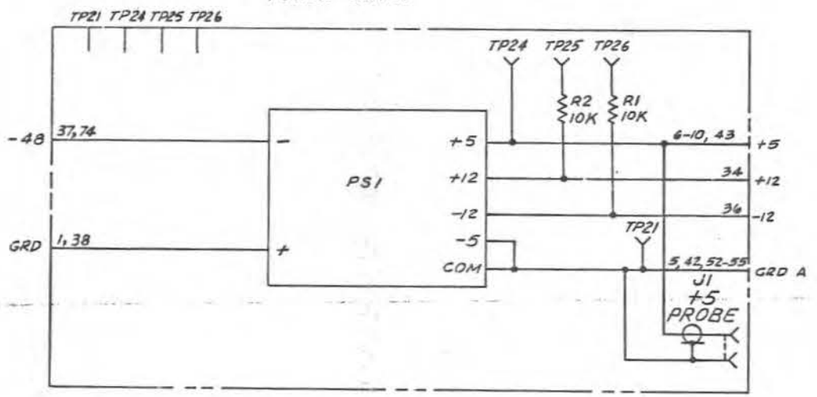
RESISTOR

DESIG	CODE
R1,R2	KS-20616 L1A, 10K

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. THE TEST POINTS WHICH APPEAR ON THE FACEPLATE OF THIS CP ARE IDENTIFIED IN THE FOLLOWING TABLE:

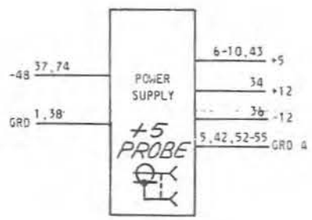
TEST POINT	IDENTIFICATION
TP 21	CIRCUIT GROUND
TP 24	+5 VOLTS
TP 25	+12 VOLTS VIA 10 KILOHMS
TP 26	-12 VOLTS VIA 10 KILOHMS



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C328-( )
CONNECTOR ON FRAME	949B1

SYMBOL



INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

THIS CP CONTAINS A DC-DC CONVERTER WHICH HAS AN INPUT OF -48 TO -52 (NOMINAL -48) VOLTS DC. OUTPUTS OF +5, +12, AND -12 VOLTS. EACH OUTPUT HAS A TOLERANCE OF ±0.2 VOLT.

CPS 28
POWER SUPPLY

ISSUE 3A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J28

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE CODE 6S

SD-96608-01-J28

CPS 29

COMPONENT LIST

INDICATOR

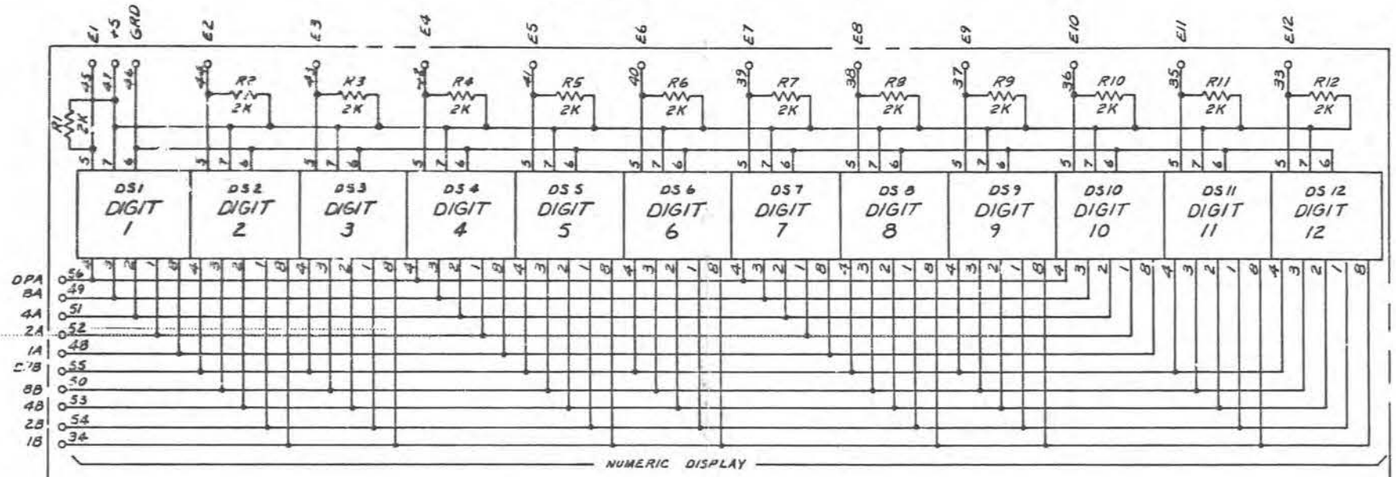
DESIG	CODE
DS1-DS12	5082-7300 NUMERIC HEWLETT PACKARD CO.
DS13	5082-7102 HEWLETT PACKARD CO.

RESISTOR

DESIG	CODE
[3] R1-R12	KS-20616,L1A, 2000

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-20329-( )
CONNECTOR ON FRAME	NONE

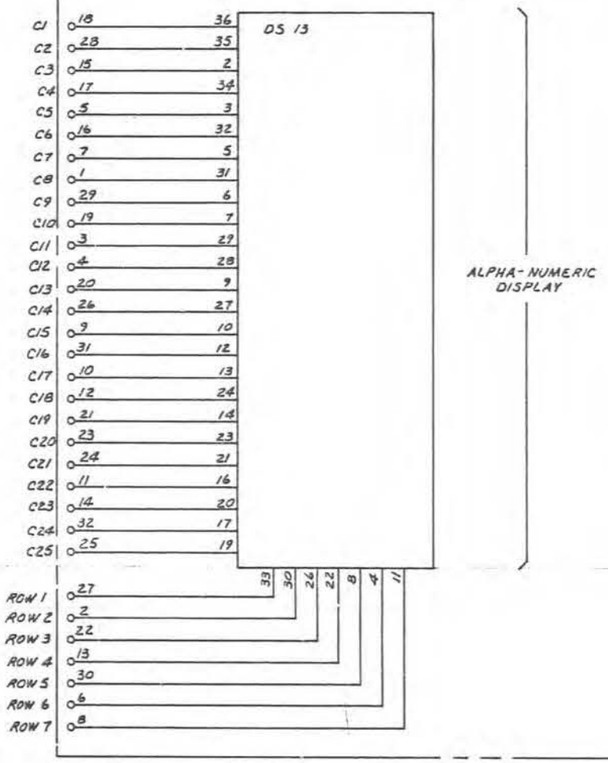


SYMBOL

TERMINAL DIAGRAM
DS1-DS12

FUNCTION TABLE

PIN	FUNCTION
1	BINARY 2
2	BINARY 4
3	BINARY 8
4	DECIMAL POINT
5	LATCH ENABLE
6	GROUND
7	+5 VOLTS
8	BINARY 1



NOTES.

1. UNLESS OTHERWISE SPECIFIED. RESISTANCE VALUES ARE IN OHMS, WITH K FOR KILOHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR – (MINUS) ARE IN VOLTS.
2. GROUND RETURN.

CPS 29
DISPLAY CIRCUIT

ISSUE 10A

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J29

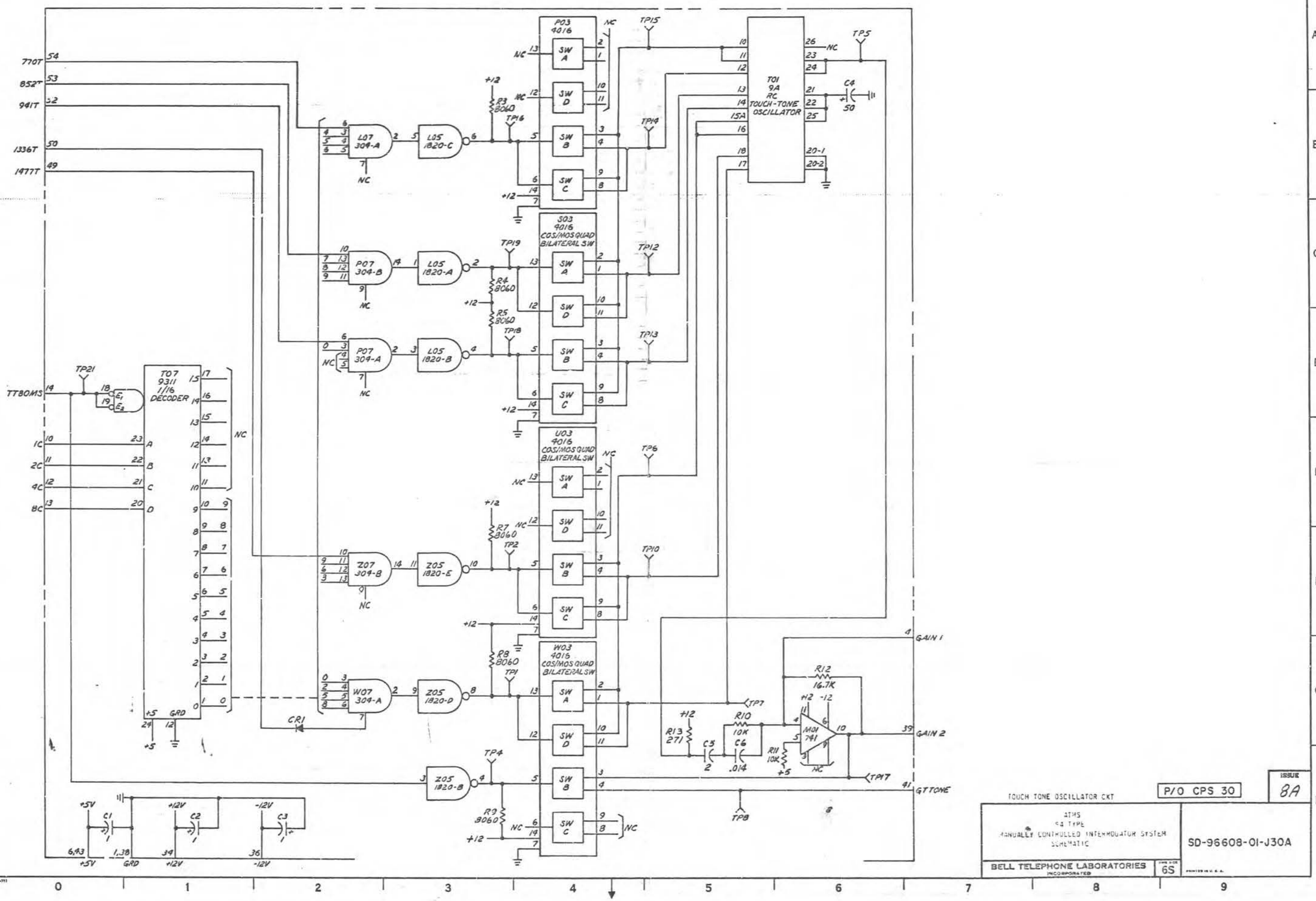
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-96608-01-J29

PART OF CPS 30

TOUCH TONE OSCILLATOR CIRCUIT



TOUCH TONE OSCILLATOR CKT

P/O CPS 30

ISSUE 8A

ATMS
#4 TYPE
AUTOMATICALLY CONTROLLED INTERMODULATOR SYSTEM
SCHEMATIC

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

SD-96608-01-J30A

PART OF CPS 30

TOUCH TONE OSCILLATOR CIRCUIT

COMPONENT LIST
INTEGRATED CIRCUIT **

LOC ON CP																														LOC ON CP
CODE																														CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A																														A
B																														B
C																														C
D																														D
E																														E
F																														F

LOC ON CP									L05		L07				M01				P03				P07						S03			LOC ON CP
CODE									1820		304				741 *				4016 *				304						4016 *			CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A										A/C3		A/B2				A/G6				A/A4				A/D2						A/C4			A
B										A/D3		A/A2												A/C2									B
C										A/B3																							C
D										A/A3																							D
E									SPARE																								E
F									SPARE																								F

LOC ON CP	T01				T07						U03						W03				W07								Z05		Z07		LOC ON CP
CODE	94 *				9311 *						4016 *						4016 *				304								1820		304		CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B5				A/D1						A/E4						A/G4				A/G2							SPARE		SPARE		A
B																						A/E2								A/H3		A/F2	B
C																														A/H2			C
D																														A/G3			D
E																														A/F3			E
F																														A/E3			F

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITORS

DESIG	LOC	CODE
[3] C1-C3	A/H1	600A
C4	A/B6	KS-16390,L26,50
C5	A/H5	KS-19774 L9, 2.2,
C6	A/H5	KS-20676 L9, .015,

DIODE

DESIG	LOC	CODE
CR 1	A/F2	KS-16986,L2M

RESISTORS

DESIG	LOC	CODE
[6] R3-R5,R7-R9	A/(A-H)3	KS-20616,L1A,8060
[2] R10,R11	A/G5	KS-20616,L1A,10K
R12	A/G6	KS-20616,L1A,16.7K
R13	A/G5	KS-20616,L1A, 271

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C330-( )
CONNECTOR ON FRAME	949B1

SYMBOL
SEE FS

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS,
   CAPACITANCE VALUES ARE IN MICROFARADS
   VALUES PRECEDED BY THE SYMBOL + (PLUS)
   OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERMINALS FOR ICS.

IC CODE	+5 BAT TERM	GRD TERM	IC CODE	+12 BAT TERM	-12 BAT TERM	GRD TERM.
304	8	1	748	11	6	
1820	14	7				
			4016	14		7
9311	24	12				

P/O CPS 30

ISSUE 8A

TOUCH TONE OSCILLATOR CKT

ATMS
5A TYPE
MANUALLY CONTROLLED INTERROGATOR SYTEM
SCHEMATIC

SD-96608-01-J30B

BELL TELEPHONE LABORATORIES INCORPORATED — SIZE 6S

SD-96608-01-J30B

CPS 31
DC ISOLATION CKT

COMPONENT LIST

INTEGRATED CIRCUIT **

LOC ON CP	IC1		IC2		IC3	
CODE	836		857		9601 *	
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC
A		G5		G6		G4
B		G6		E3		
C		G4		E4		
D	SPARE		SPARE			
E	SPARE					
F		F5				

* SINGLE ELEMENT IC
** COMPLETE CODES AND APPROVED EQUIVALENTS ARE SHOWN IN "D" SECTION.

CAPACITOR

DESIG	CODE
[5] C1-C5	542L,0.1
C6	600A
C7	602A
C8	KS-19774,L1,1000PF

DIODE

DESIG	CODE
CR1	459E

RELAY

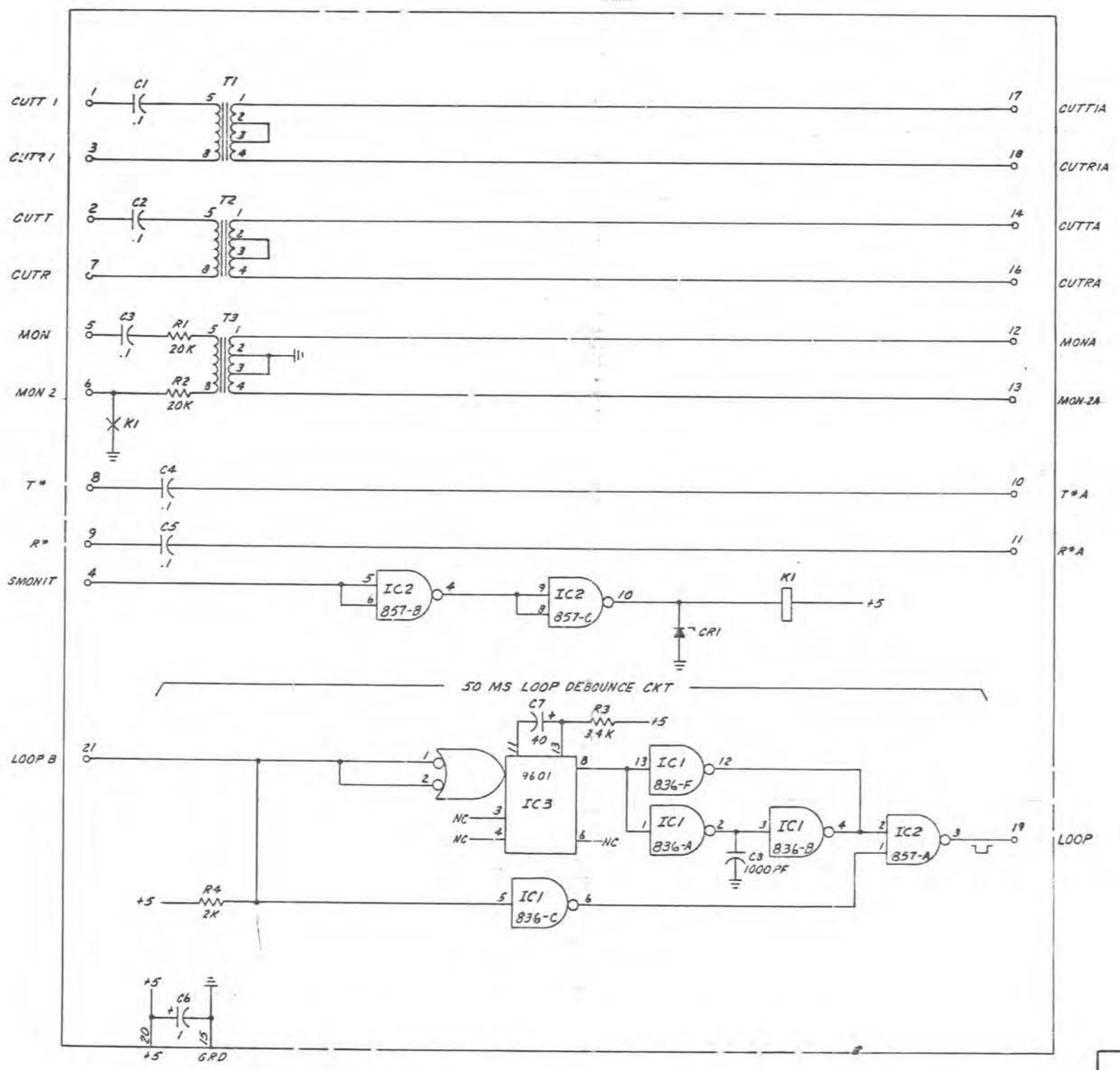
DESIG	CODE
K1	LC2R-1700-05 5TH DIMENSION INC.

RESISTOR

DESIG	CODE
R1,R2	KS-20616,L1A, 20K
R3	KS-20616,L1A, 3.4K
R4	KS-20616,L1A, 2K

TRANSFORMER

DESIG	CODE
T1-T3	2564AR



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C331-( )
CONNECTOR ON FRAME	NONE

SYMBOL

SEE FS

NOTES.

1. UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, WITH K FOR KILOHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR IC'S.

IC CODE	+5 BAT TERM.	GRD TERM.
836 857 9601	14	7

DC ISOLATION CKT

ISSUE 3A

ATMS
1A TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

SD-96608-01-J31

BELL TELEPHONE LABORATORIES INCORPORATED

6S

CPS 32
LOCAL TIP & RING SWITCHING

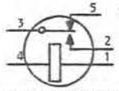
COMPONENT LIST

INTEGRATED CIRCUIT

LOC ON CP	G00		M00			
CODE	857		857			
	MC857P MOTOROLA		MC857P MOTOROLA			
ELEM IDENT	DESIG	LOC	DESIG	LOC		
A		C2		A3		
B	SPARE			B3		
C		C2	SPARE			
D		D2		B3		
E						
F						

RELAY

337A



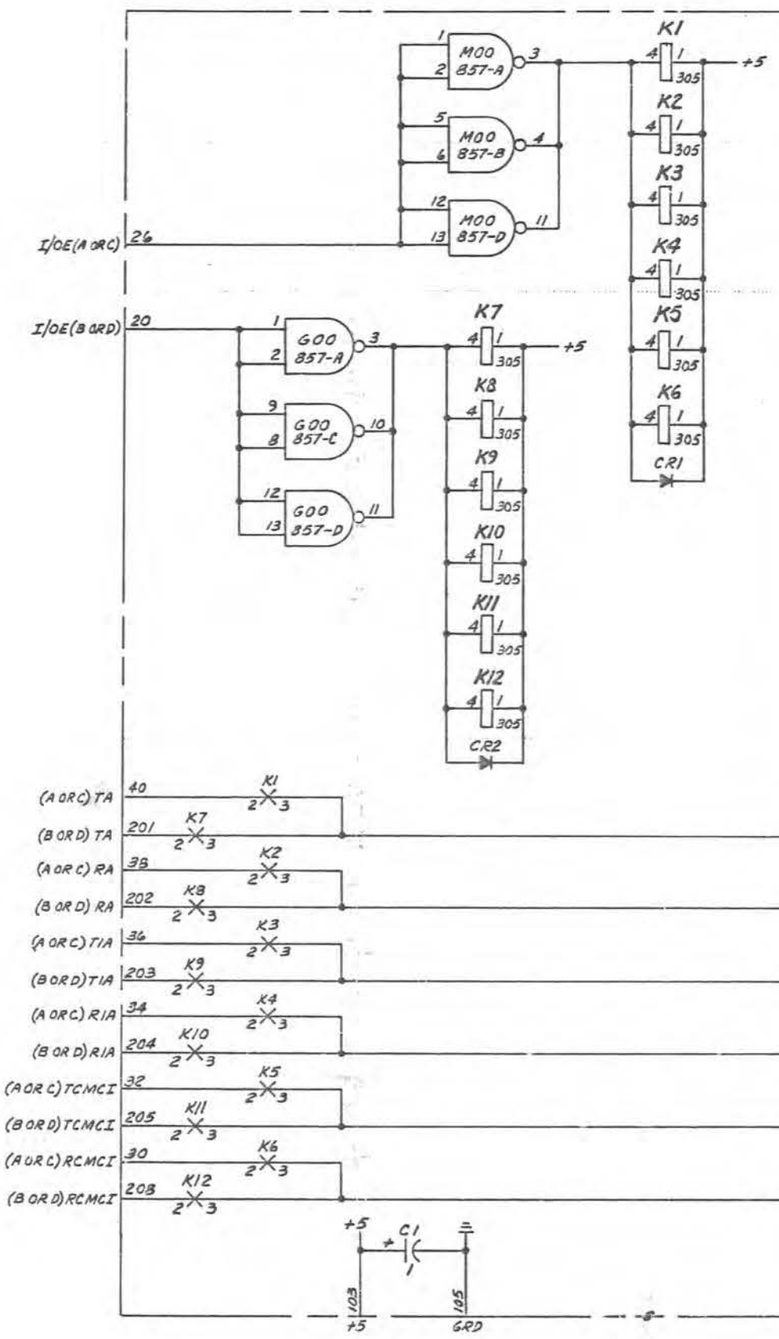
RELAY NOT ADJUSTABLE. REPLACE WHEN THERE IS MALFUNCTION.

CAPACITOR

DESIG	CODE
C1	600A

DIODE

DESIG	CODE
[2] CR1,CR2	1N3666



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C332-( )
CONNECTOR ON FRAME	927B

SYMBOL

SHOWN IN FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED: CAPACITANCE VALUES ARE IN MICROFARADS VALUES PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. BATTERY AND GROUND TERMINATING FOR IC'S.

IC CODE	GRD TERM.	+5 TERM.
857	7	14

CPS 32

LOCAL TIP & RING SWITCHING

ISSUE 6A

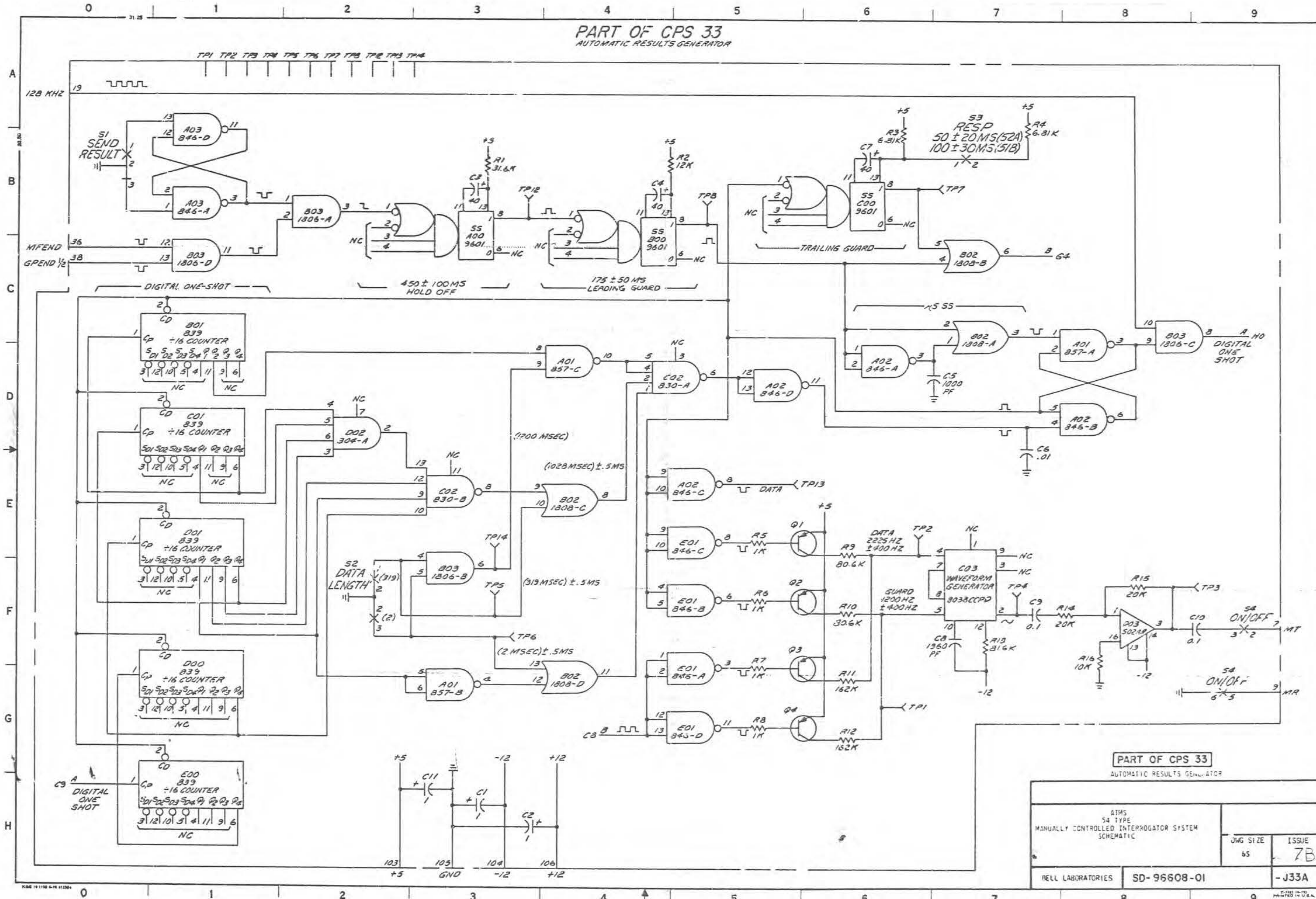
54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC

SD-96608-01-J32

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-96608-01-J32



PART OF CPS 33
AUTOMATIC RESULTS GENERATOR
128 KHZ
S1 SEND RESULT
MFEND
GPEND 1/2
DIGITAL ONE-SHOT
450 ± 100MS HOLD OFF
175 ± 50MS LEADING GUARD
TRAILING GUARD
S3 RESP 50 ± 20MS(52A) 100 ± 30MS(51B)
DIGITAL ONE SHOT
(1200 MSEC)
(1028MSEC) ± .5MS
(319MSEC) ± .5MS
(2 MSEC) ± .5MS
S2 DATA LENGTH
DATA
DATA 2225HZ ± 400HZ
GUARD 1200HZ ± 400HZ
C03 WAVEFORM GENERATOR 8038CCPD
S4 ON/OFF
+5
GND
-12
+12
PART OF CPS 33
AUTOMATIC RESULTS GENERATOR
ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC
DWG SIZE
6S
ISSUE
7B
BELL LABORATORIES
SD-96608-01
-J33A

PART OF CPS 33

AUTOMATIC RESULTS GENERATOR

COMPONENT LIST

INTEGRATED CIRCUIT

LOC ON CP	A00		B00		C00		D00		E00								A01		B01		C01		D01		E01								LOC ON CP
CODE	9601 *		9601 *		9601 *		839 *		839 *								857		839 *		839 *		839 *		846								CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/B3		A/B4		A/B6		A/G1		A/H1								A/C8		A/C1		A/D1		A/E1		A/F5							A
B																		A/G3								A/F5							B
C																		A/D4								A/E5							C
D																										A/G5							D
E																																	E
F																																	F

LOC ON CP	A02		B02		C02		D02										A03		B03		C03		D03										LOC ON CP
CODE	846		1808		830		304										846		1806		8038 *		502AR *										CODE
ELEM IDENT	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	DESIG	LOC	ELEM IDENT
A		A/D6		A/C7		A/D5		A/D2										A/B1		A/B2		A/E7		A/F8									A
B		A/D8		A/C7		A/E3														A/E3													B
C		A/E5		A/E4																A/C9													C
D		A/D5		A/F4														A/A1		A/C1													D
E																																	E
F																																	F

* SINGLE-ELEMENT IC

CAPACITOR

DESIG	CODE
C1	600A,1UF
C2	600A,1UF
C3	602A,40UF
C4	602A,40UF
C5	KS-20676,L1,1000PF
C6	KS-19774,L1,.01UF
C7	602A,40UF
C8	KS-20676,L1,1960PF
C9	KS-19774,L5,0.1UF
C10	KS-19774,L5,0.1UF
C11	600A,1UF

RESISTOR

DESIG	CODE
R1	KS-20616,L1A,31.6K
R2	KS-20616,L1A,12K
R3	KS-20616,L1A,6.81K
R4	KS-20616,L1A,6.81K
R5	KS-20616,L1A,1K
R6	KS-20616,L1A,1K
R7	KS-20616,L1A,1K
R8	KS-20616,L1A,1K
R9	KS-20616,L1A,80.6K
R10	KS-20616,L1A,80.6K
R11	KS-20616,L1A,162K
R12	KS-20616,L1A,162K
R13	KS-20616,L1A,81.6K
R14	KS-20616,L1A,20K
R15	KS-20616,L1A,20K
R16	KS-20616,L1A,10K

TRANSISTOR

DESIG	CODE
[4] Q1-Q4	51A1

COMPONENT LIST (CONT)

SWITCH (MOUNTED ON FACEPLATE)

DESIG	S1 SEND RESULT	S2 DATA LENGTH	S3 RESP	S4 ON/OFF
CODE	KS-19636,L7	KS-19563,L1	KS-19636,L5	KS-19636,L5
TERM	LOC	LOC	LOC	LOC
1	A/B0	A/F2	A/B7	
2	A/B0	A/F2	A/B7	A/F9
3	A/B0	A/F2		A/F9
4				
5				A/G9
6				A/G9

TERMINAL NUMBERS ARE FOR REFERENCE ONLY.

CIRCUIT DESCRIPTION

THE AUTOMATIC RESULTS GENERATOR (CP33) IS A TEST CARD FOR USE WITH THE 54-TYPE ATMS MANUALLY CONTROLLED INTERROGATOR (MCI) IT IS CONTROLLED BY FOUR SWITCHES ON ITS FACEPLATE WHICH HAVE THE FOLLOWING FUNCTIONS:

1. ON/OFF
2. SEND RESULT
3. DATA LENGTH (2ms, 319ms, 1200ms)
4. RESP (518, 52)

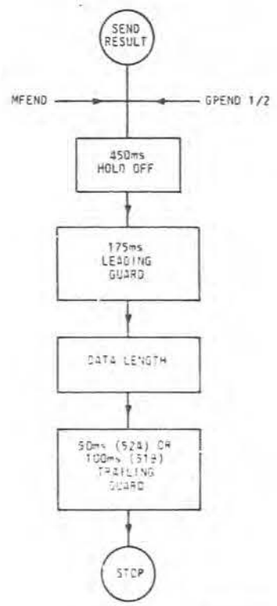
CP33 SIMULATES THE FREQUENCY SHIFT DATA SIGNAL OF THE FORM GUARD-DATA-GUARD THAT THE MCI NORMALLY RECEIVES FROM THE 51B RESPONDER OR 52A RESPONDER. THE GUARD PORTION OF THE SIGNAL CORRESPONDS TO 1200 Hz TONE AND THE DATA PORTION CORRESPONDS TO 2225 Hz TONE. THE TIME THAT THE DATA PORTION IS PRESENT IS PROPORTIONAL TO THE MEASUREMENT VALUE.

THE LENGTH OF THE DATA PORTION OF THE FREQUENCY SHIFT DATA SIGNAL MAY BE PRESET ON THE FACEPLATE OF CP33 TO INDICATE THE FOLLOWING RESULTS: 2 MILLISECONDS FOR AN UNDERRANGE, 1200 MILLISECONDS FOR A NOT-EQUIPPED-TO-MAKE-TEST, AND 319 MILLISECONDS WHICH REPRESENT A 0 dBm LOSS SELF-CHECK RESULT. A DIGITAL ONE SHOT CIRCUIT ASSURES THE ACCURACY OF THE SELECTED DATA LENGTH.

THE TRAILING GUARD PORTION OF THE GUARD-DATE-GUARD SEQUENCE MAY ALSO BE SELECTED WITH THE USE OF TOGGLE SWITCH (S3) TO PROVIDE A TRAILING GUARD LENGTH OF 100 MILLISECONDS TO SIMULATE A 51B RESPONDER OR 50 MILLISECONDS DURATION TO SIMULATE A TYPE 52A RESPONDER.

THE CP33 MAY BE TRIGGERED IN ONE OF THREE WAYS. THE UNIT WILL OPERATE UPON RECEIPT OF A NEGATIVE PULSE FROM THE MCI ON INPUT "MFEND", WHICH SIGNALS THE END OF THE COMPLETE MF CYCLE AND THE REQUEST FOR A DATA RESULT. ALSO, WHEN "GPEND 1/2" ARRIVES AS A NEGATIVE PULSE FROM THE MCI INDICATING THAT A SECOND DATA RESULT IS EXPECTED, CP33 WILL BE TRIGGERED AGAIN AND SEND A DATA SIGNAL TO THE MCI. THE AUTOMATIC RESULTS GENERATOR MAY ALSO BE ENABLED BY PRESSING THE "SEND RESULT" BUTTON PROVIDED ON THE FACEPLATE OF CP33.

INPUT/OUTPUT INFORMATION



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	ED-2C466-( )
CONNECTOR ON FRAME	9278

SYMBOL

SEE FS

NOTES:

1. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
2. ⏚ GROUND RETURN.
3. DESIGNATED BATTERY AND GROUND RETURN TERM. FOR IC'S.

IC CODE	+5 BAT TERM	+12 BAT TERM	-12 BAT TERM	GRD TERM
304	8	-	-	1
830	14	-	-	7
839	14	-	-	7
846	14	-	-	7
857	14	-	-	7
1806	14	-	-	7
1808	14	-	-	7
9601	14	-	-	7
502AR	-	4	12	-
8038CLPD	6	-	11	-

PART OF CPS 33

AUTOMATIC RESULTS GENERATOR

ATMS 54 TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC		DWG SIZE 6S	ISSUE 7B
BELL LABORATORIES	SD-96608-01		-J338

CPS 34
POWER CONVERSION

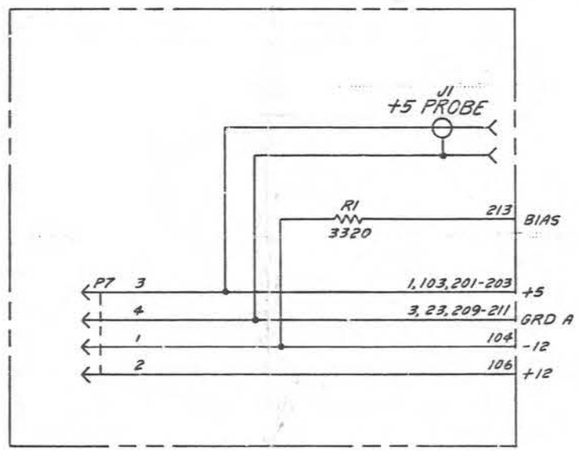
COMPONENT LIST

CONNECTOR

DESIG	CODE
J1	31-236 AMPHENOL
P7	P304AB-4 (CINCH)

RESISTOR

DESIG	CODE
R1	KS-20616,L14,3320Ω



MANUFACTURING REFERENCES

CATEGORY	NO.
CKT PACK CODE	ED-2C519-( )
CONN ON FRAME	9278

CPS 34
POWER CONVERSION

ATMS 5A TYPE MANUALLY CONTROLLED INTERROGATOR SYSTEM SCHEMATIC	DWG SIZE 6S	ISSUE 9A
BELL LABORATORIES	SD-96608-01	-J34

COMPONENT LIST

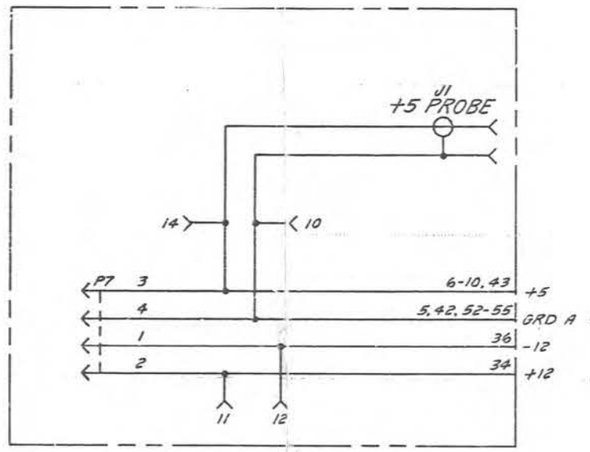
CONNECTOR

DESIG	CODE
J1	31-236 AMPHENOL
P7	P304AB-4 (CINCH)

CPS 35
POWER CONVERSION

MANUFACTURING REFERENCES

CATEGORY	NO.
CKT PACK CODE	ED-2C520-( )
CONN ON FRAME	94981



CPS 35
POWER CONVERSION

ATMS
54 TYPE
MANUALLY CONTROLLED INTERROGATOR SYSTEM
SCHEMATIC

DWG SIZE: 63
ISSUE: 9A

BELL LABORATORIES | SD-96608-01 | -J35