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Technical Note

1976-37

Supp. 1

Microprocessor Realization
of a Linear Predictive Vocoder

E. M. Hofstetter
J. Tierney
O. C. Wheeler

Appendix C:
LPCM Detail Drawings and Layouts

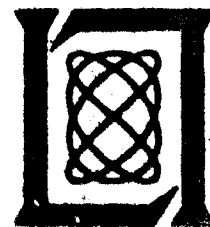
7 February 1977

Prepared for the Defense Communications Agency
under Electronic Systems Division Contract F19628-76-C-0002 by

Lincoln Laboratory

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LEXINGTON, MASSACHUSETTS



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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER

Frederick S. D'Amico

Barth L. Lohpelt, Lt. Col., USAF
Chief, E.D. Lincoln Laboratory Project Office

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY

MICROPROCESSOR REALIZATION
OF A LINEAR PREDICTIVE VOCODER

APPENDIX C:
LPCM DETAIL DRAWINGS AND LAYOUTS

E. M. HOFSTETTER
J. TIERNEY
O. C. WHEELER

Group 24

TECHNICAL NOTE 1976-37
SUPPLEMENT 1

7 FEBRUARY 1977

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APPENDIX C: LPCM Detail Drawings and Layouts

This appendix to Lincoln Laboratory Technical Note 1976-37 provides all of the detailed drawings, layouts and cabling information to construct an identical vocoder to the one described in the technical note. The following additional comments may clear up any additional questions concerning this appendix.

Digital Logic Drawings

The five digital logic drawings completely represent the digital logic on the two LPCM Augat boards. Drawings 1, 2, 3 represent logic on board I, and drawings 4, 5 logic on board II. Interconnections from board to board and from boards to chassis are described in the cable lists. Drawing #1 represents the data memory complex and the four 2901 C.P.U. complex, physically located on the left hand portion (looking down from the front) of board I. Packages on this drawing as well as the other four logic drawings are designated by the location of pin #1 of the package on the layout. For example the most significant 2901 is marked CA1 on the drawing. This tag means the package is placed on board I such that pin 1 (in this case of a 40 pin package) is located in section C, column A, pin 1. The digital package layout drawing for board I also shows the position of this 2901 labelled CA1. When a package contains more than one section such that it is scattered around the drawing, the package number is used to tag each section and then identified on the drawing. For example memory address drivers labelled "5" in the center of

1

647

Accession is	
HTS	2901
BSC	800
UNRECORDED	
JUSTIFICATION	
BT	
DISTRIBUTION	
DATE	
BY	
FILED	
SECTION	
A	23
	5

drawing #1 are listed in the table on the drawing as part of a 7404 element located with pin #1 at section A, column E, pin 35 (AE35). Drawing #2 represents timing, branch and interrupt logic placed roughly in the center of board I. Drawing #3 represents the three 2909 microsequencer complex and the 1K x 48 bit ROM located on the right side of board I. Drawings 4, 5 describe logic on board II. Drawing #4 shows the multiplier complex consisting of the eight 25S05 elements which form the quarter array and the peripheral registers. Drawing #5 shows the in-out channels as well as the multiplexer gates which steer the inputs (including upper and lower products) to board I.

Audio Drawing

The audio drawing shows all analog processing on line and microphone input. The Epitek boxes are active 2nd order filter sections used to form the eighth order elliptic filters used for pre and post sampling filtering. After the input filter, a last section provides speech pre-emphasis which can be removed by switching. This output drives the sample and hold circuit on board II. The digital-analog output drives an attenuator to prevent filter saturation and then drives the output filter followed by a switchable de-emphasis network with position #1 the normal matched de-emphasis. The other positions are provided for individual preference. The final audio output drives a line output and an adjustable earphone level into the handset.

Wire List

The wire list gives all the pin-to-pin connections required for boards I and II. Column 1 indicates either a single connection (1) or a daisy-chain (2). Column 2 gives a symbolic name associated with the

connection. For example, the entry

2 UPØ BB15 CCØ6 CB26

means that a connection called "UPØ" runs from pin BB15 to pin CCØ6 to pin CB26.

Twisted pair connections running from the central board to an edge connector are indicated by an * in column 1. The ground connections for these runs are not always indicated explicitly, it being understood that the nearest convenient ground pin and the mating edge connector pin are to be used.

Listing of LPCM Code

The first part of the listing gives the code to go in the LPCM program memory. Each line of mnemonics in this listing translates into the three 16-bit words appearing as the central column of figures on the left-hand side of the listing. The leftmost column of figures should be ignored but the rightmost column of figures gives the location of this particular 48-bit instruction in the LPCM program memory. The mnemonics are explained in Appendix A of Technical Note 1976-37.

The second part of the listing, which is preceded by the mnemonic

MP	Ø
RAM	Ø,

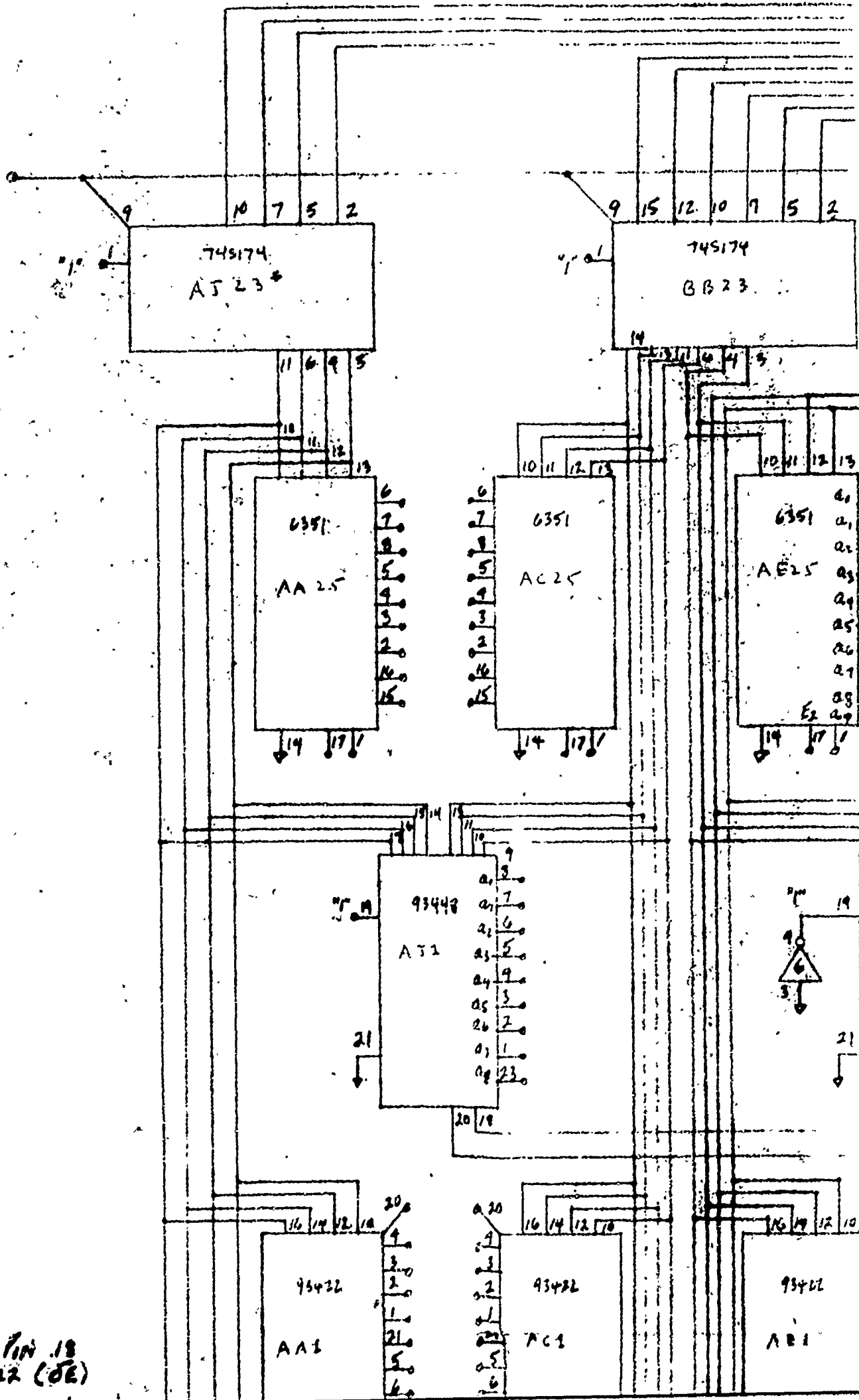
gives the symbolic address assignments used in the LPCM random access memory.

The third part of the listing, which is preceded by the mnemonic

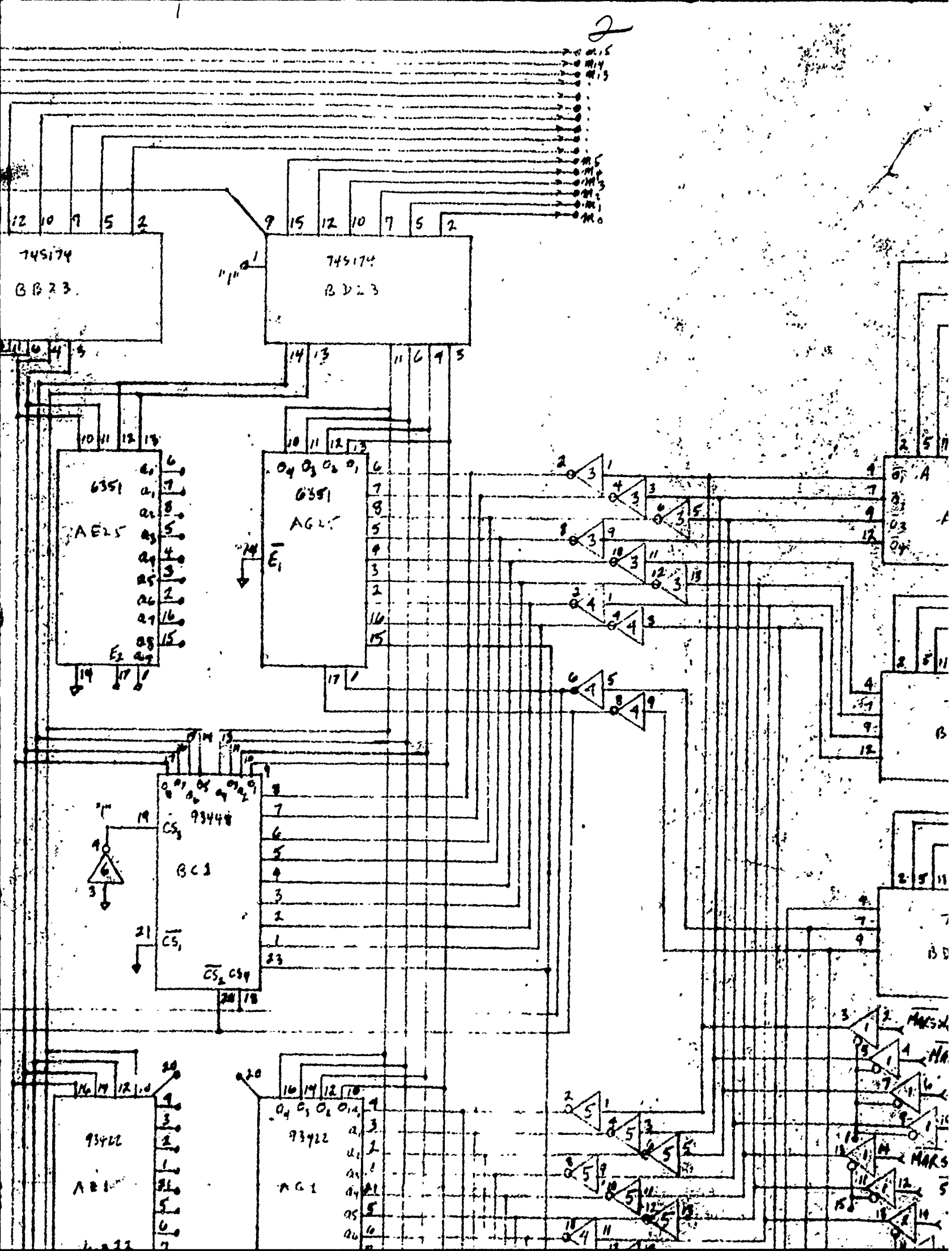
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ROM	Ø,

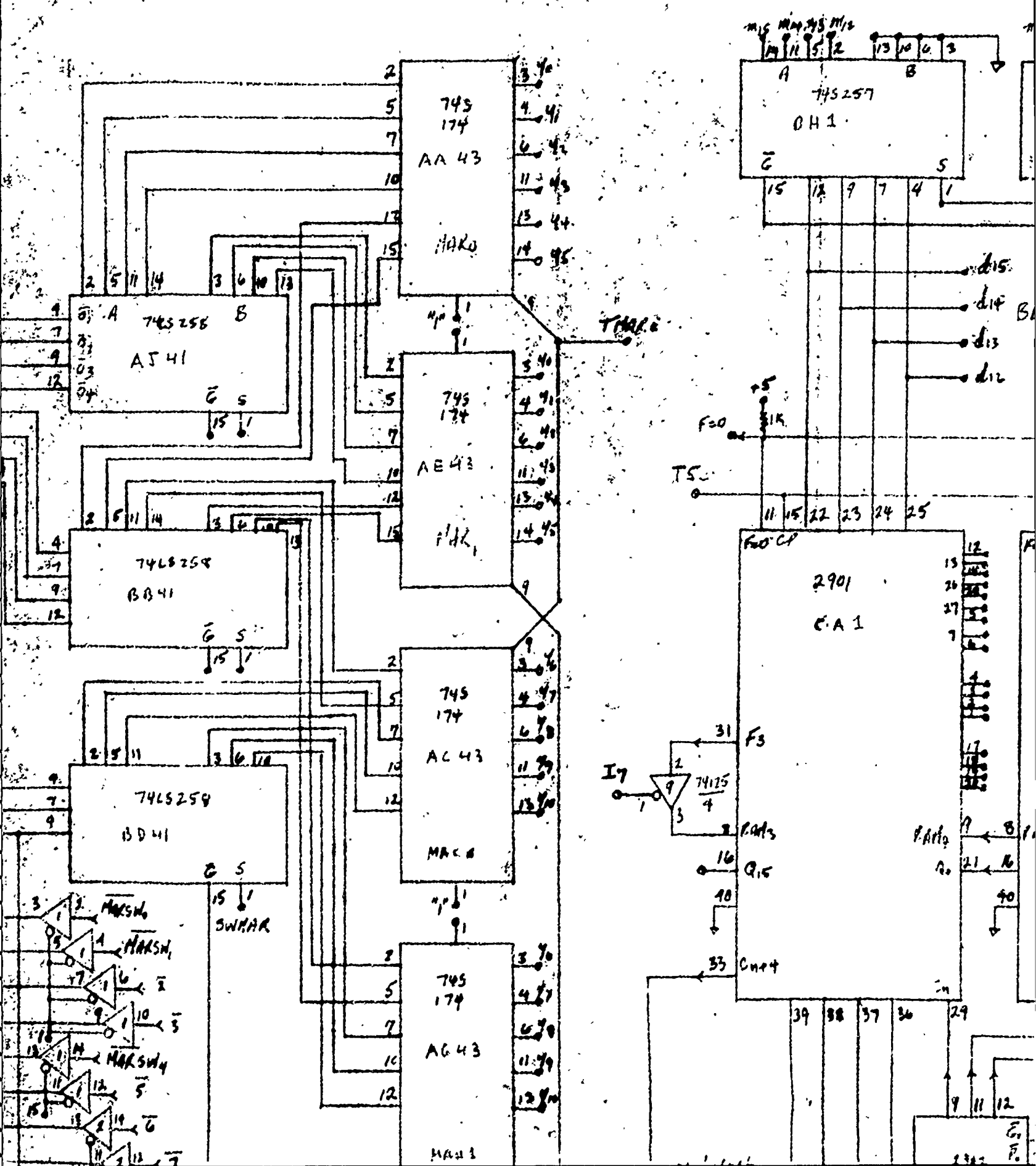
gives the data to go in the LPCM read-only data memory. The second column of figures gives the octal data and the third column of figures gives the data memory address at which this data is to appear.

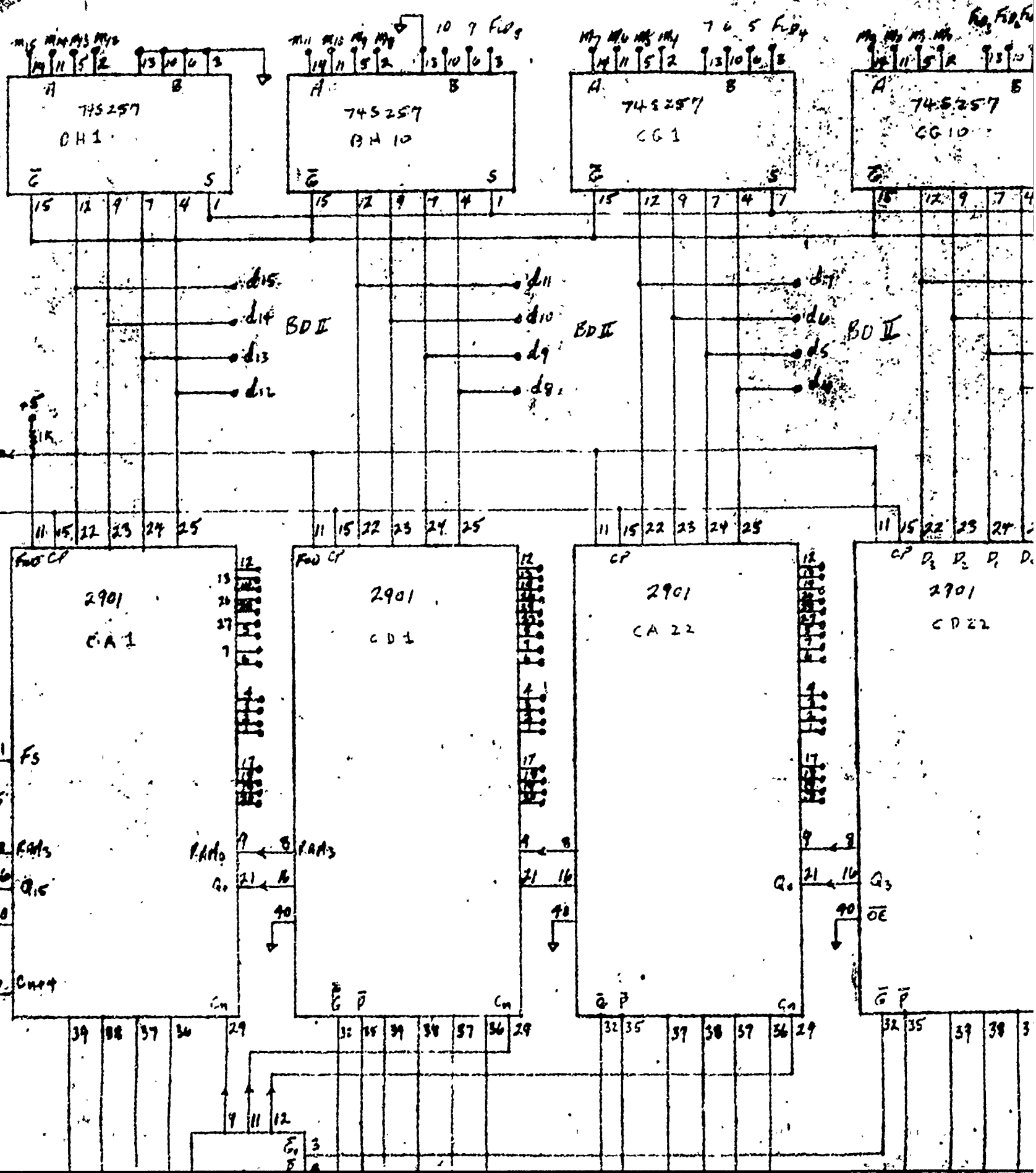
T4

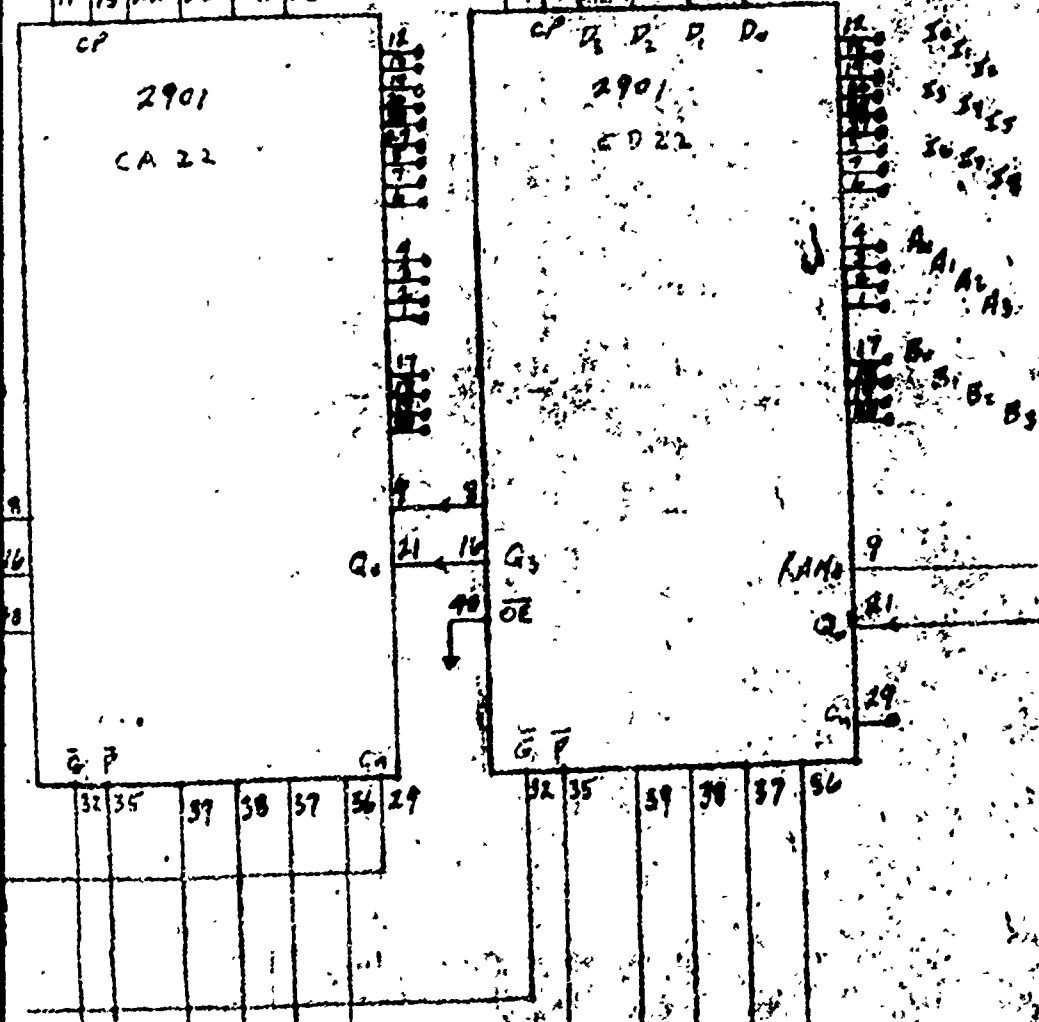
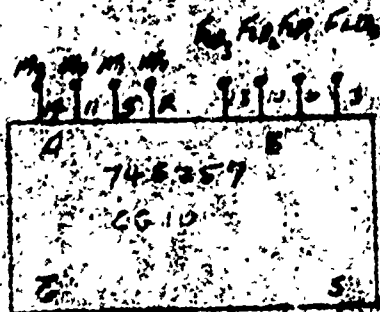


NOTE: GROUND PIN 18
ON 93422 (DE)



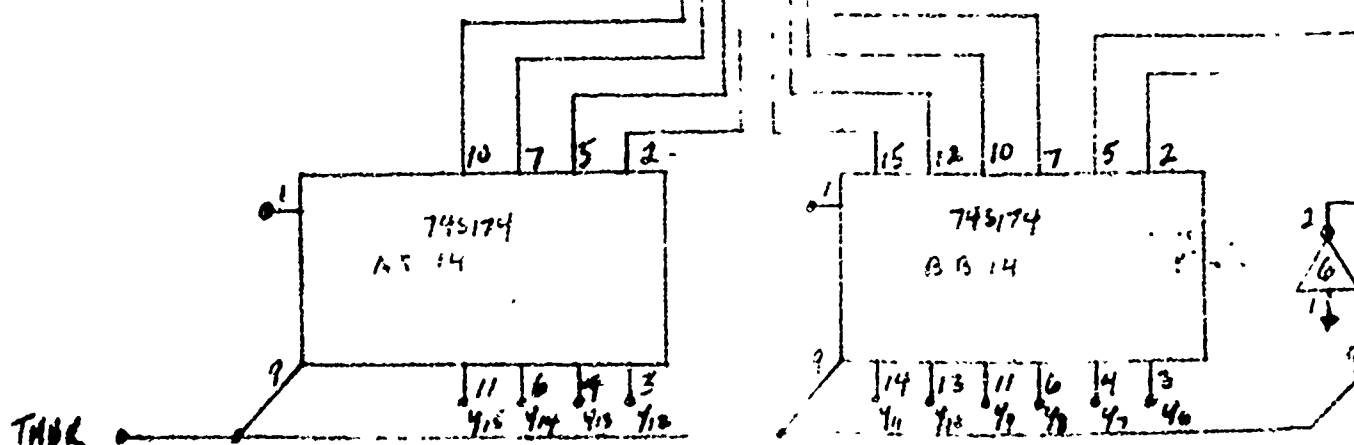






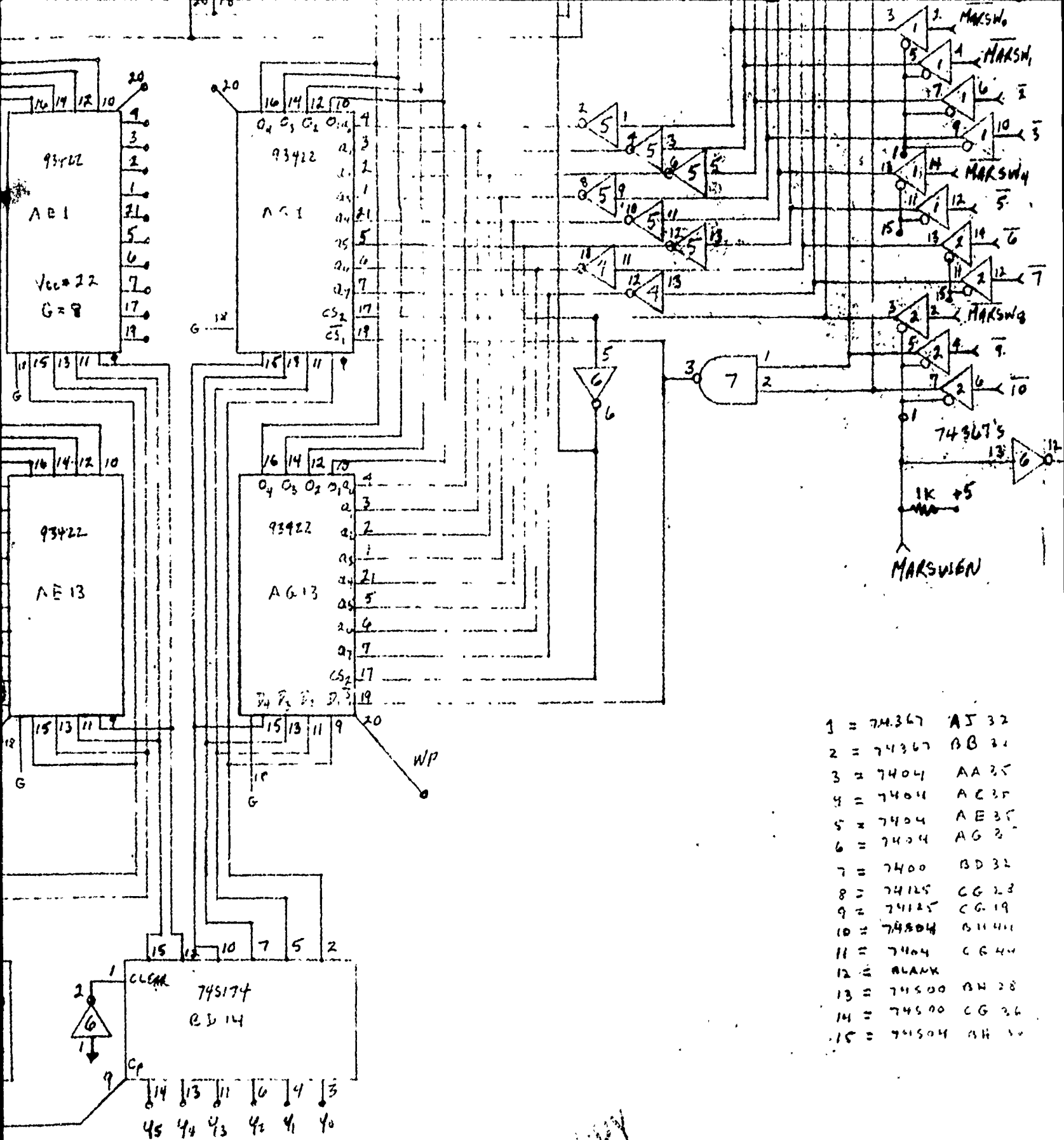
Low ORDER.
RAM

HIGH ORDER
RAM

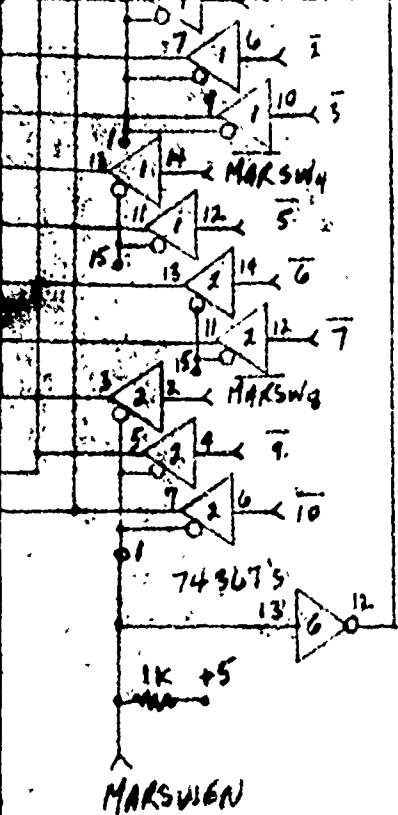


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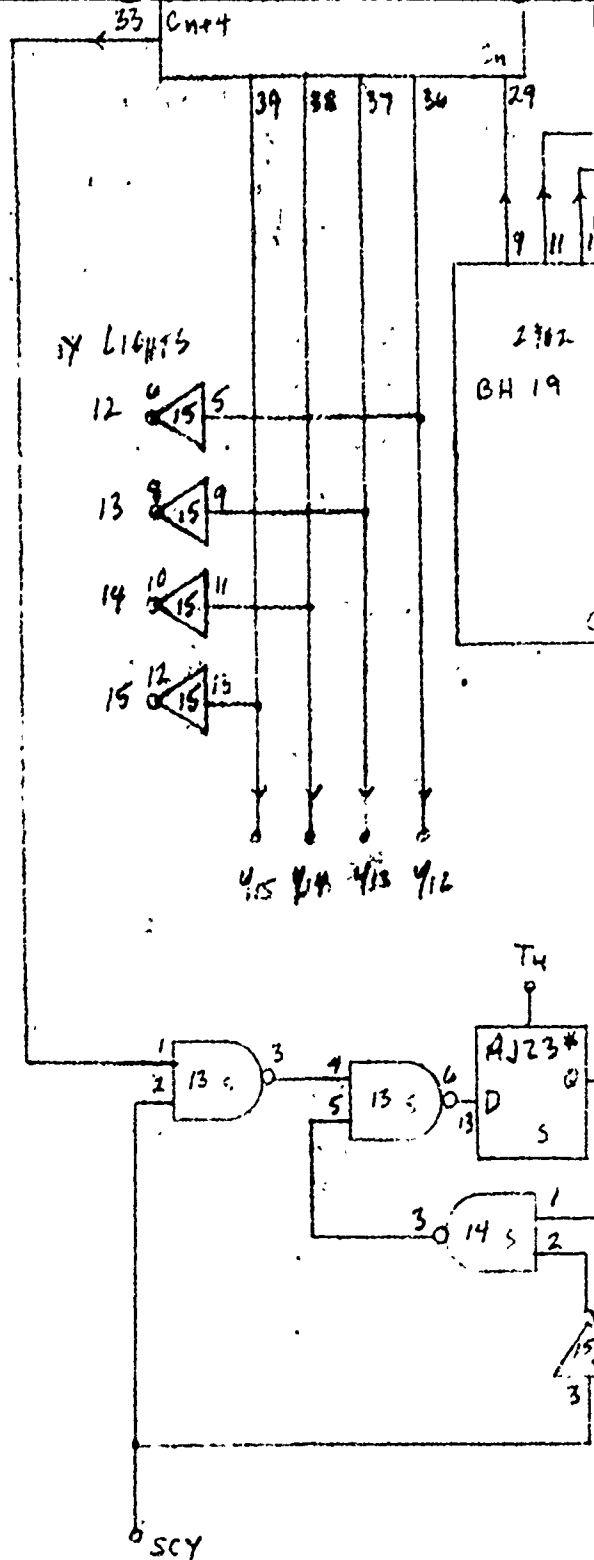
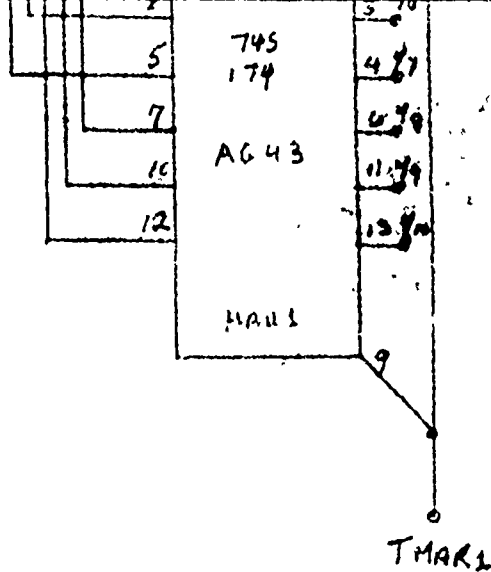
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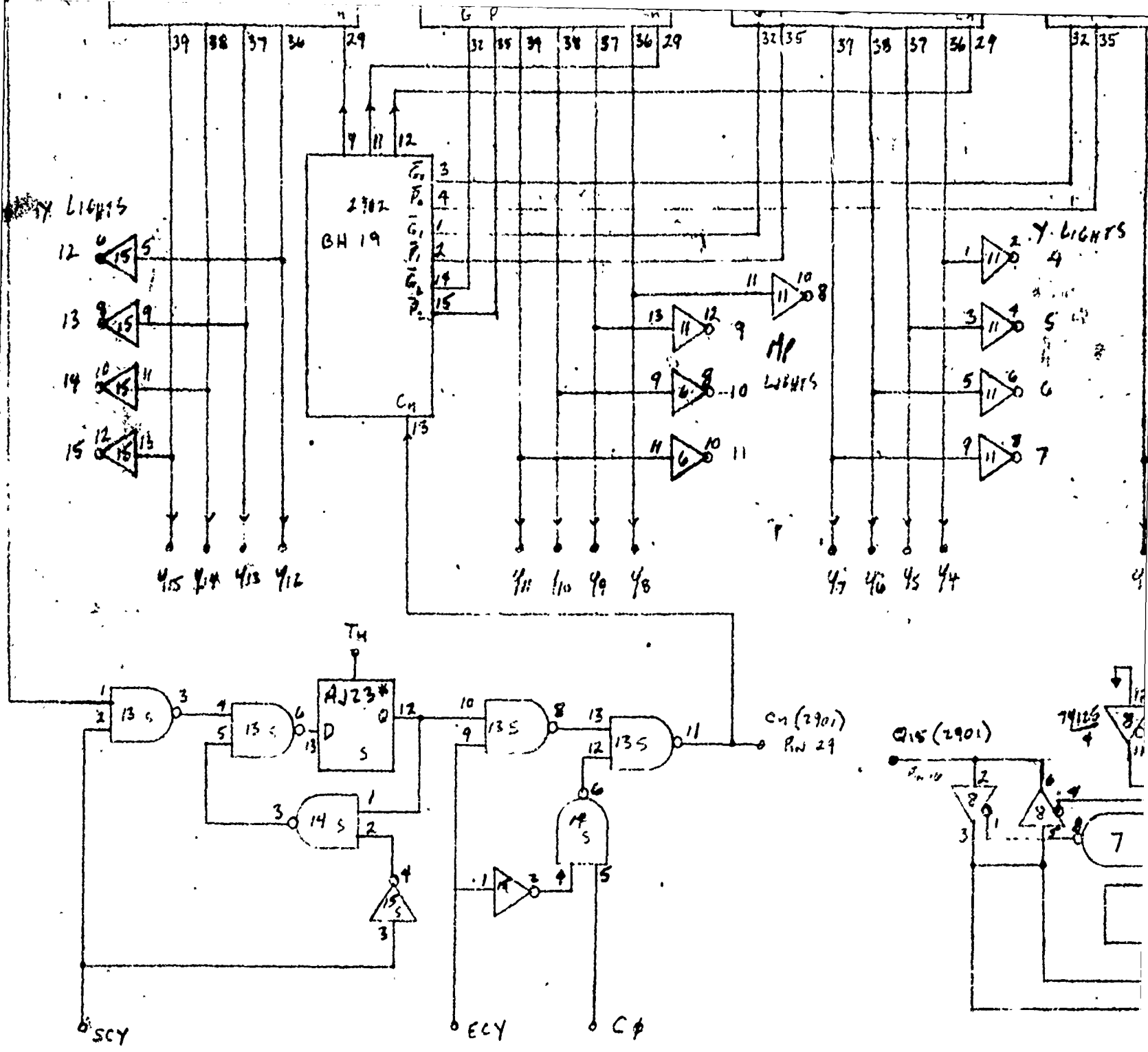


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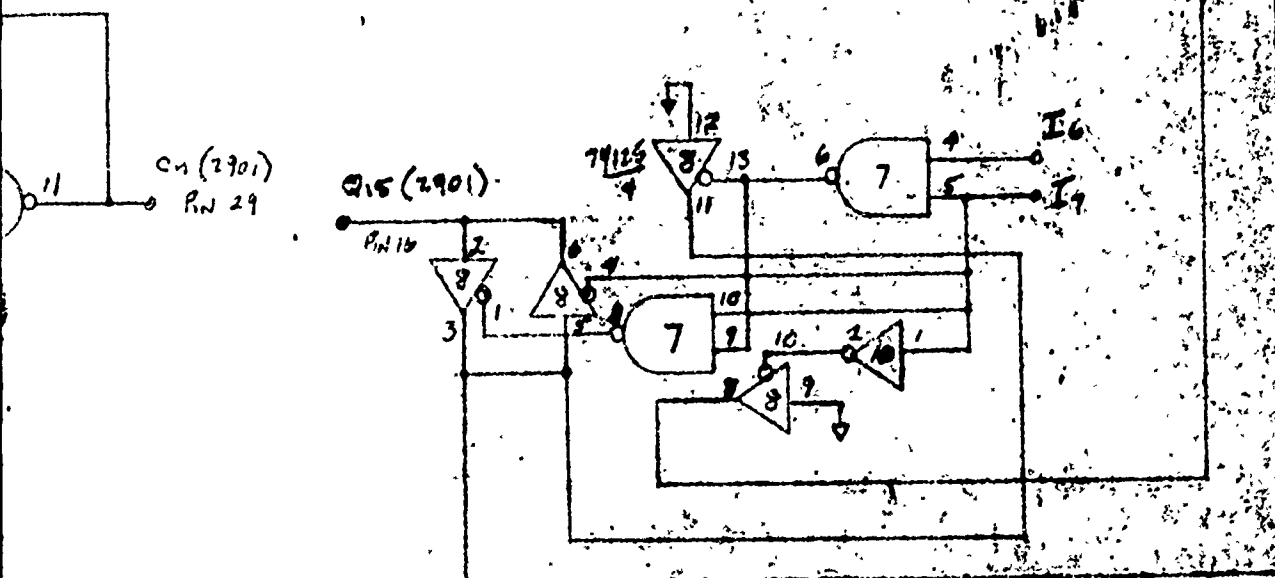
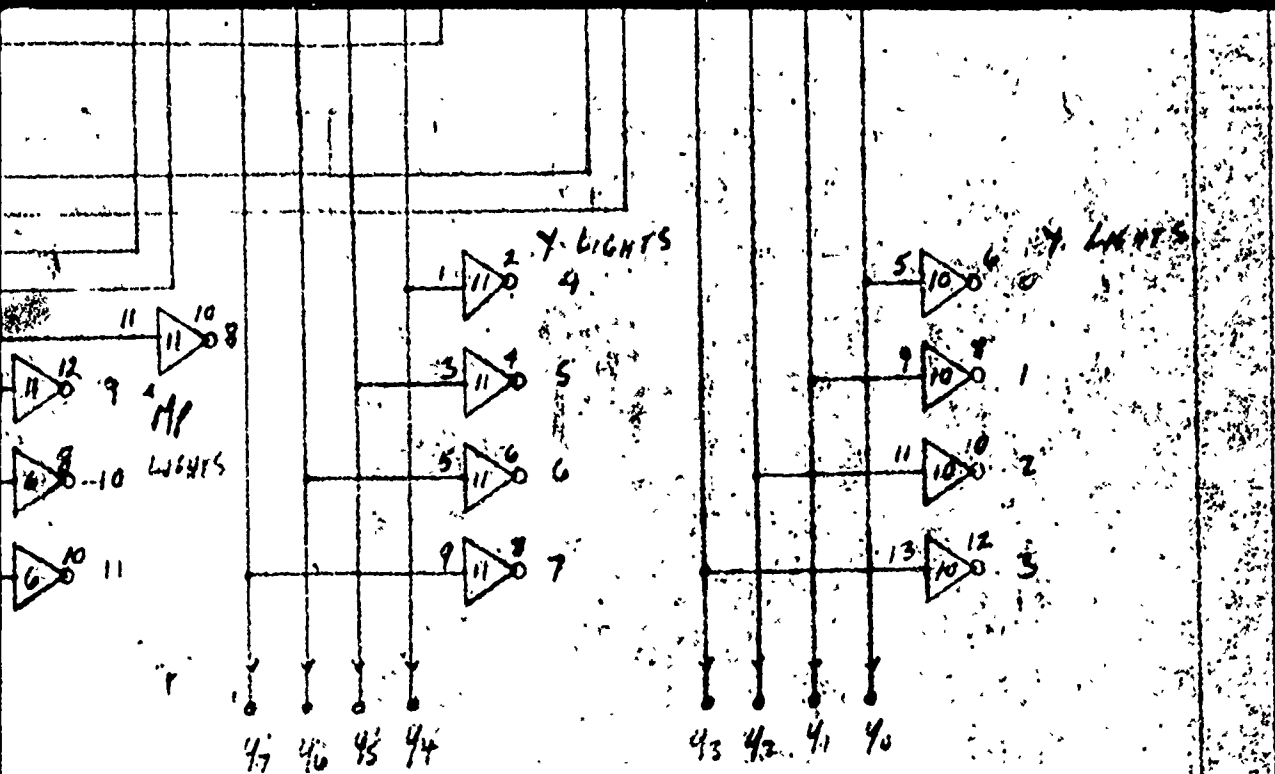


- 1 = 74367 AS 32
- 2 = 74367 AB 32
- 3 = 7404 AA 35
- 4 = 7404 AC 35
- 5 = 7404 AE 35
- 6 = 7404 AG 35
- 7 = 7400 BD 32
- 8 = 74125 CG 28
- 9 = 74125 CG 19
- 10 = 74304 BH 44
- 11 = 7404 CG 44
- 12 = 7404
- 13 = 74500 BH 28
- 14 = 74500 CG 26
- 15 = 74504 BH 10





BEST



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1/24/76

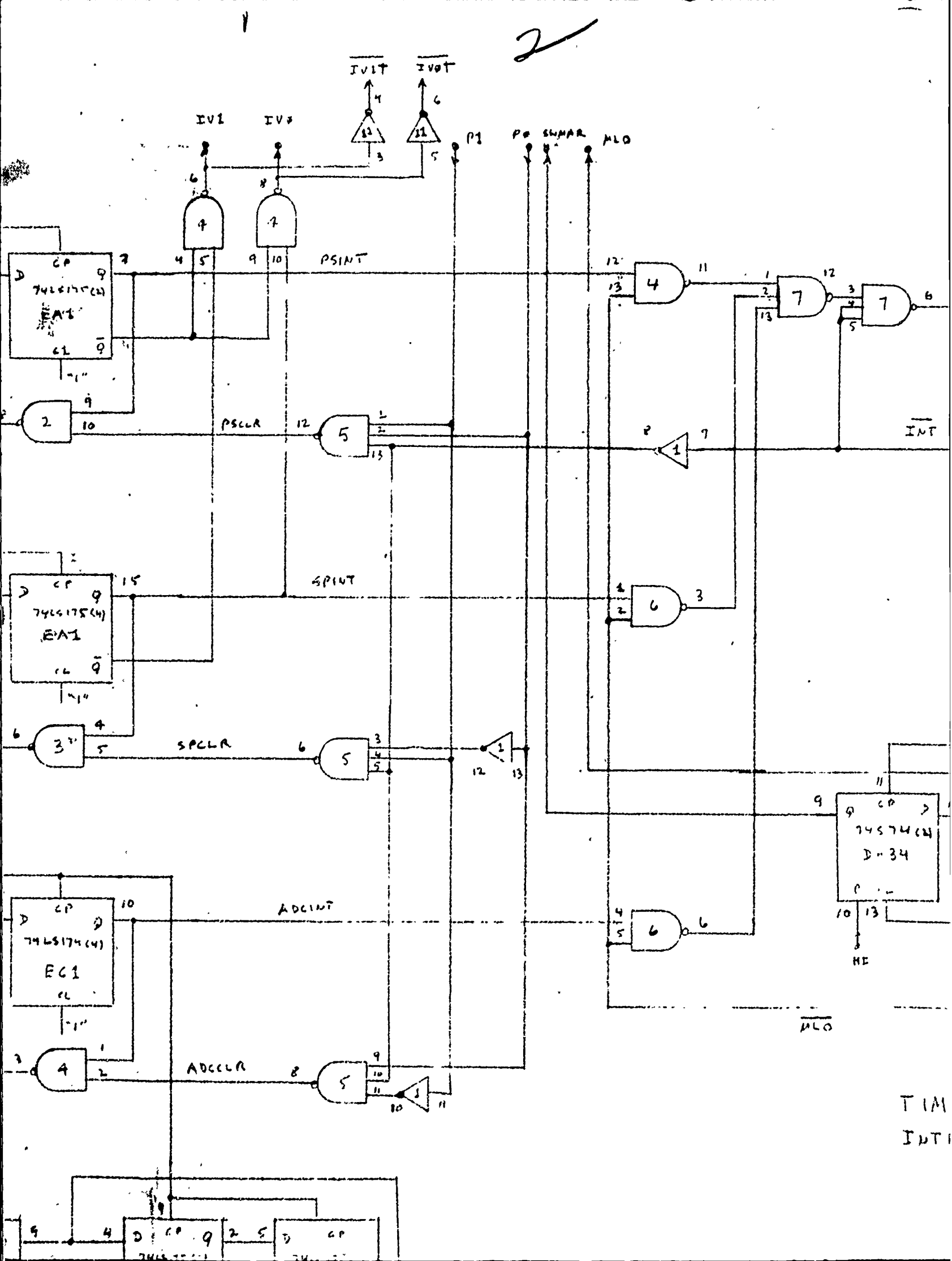
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4/22/76

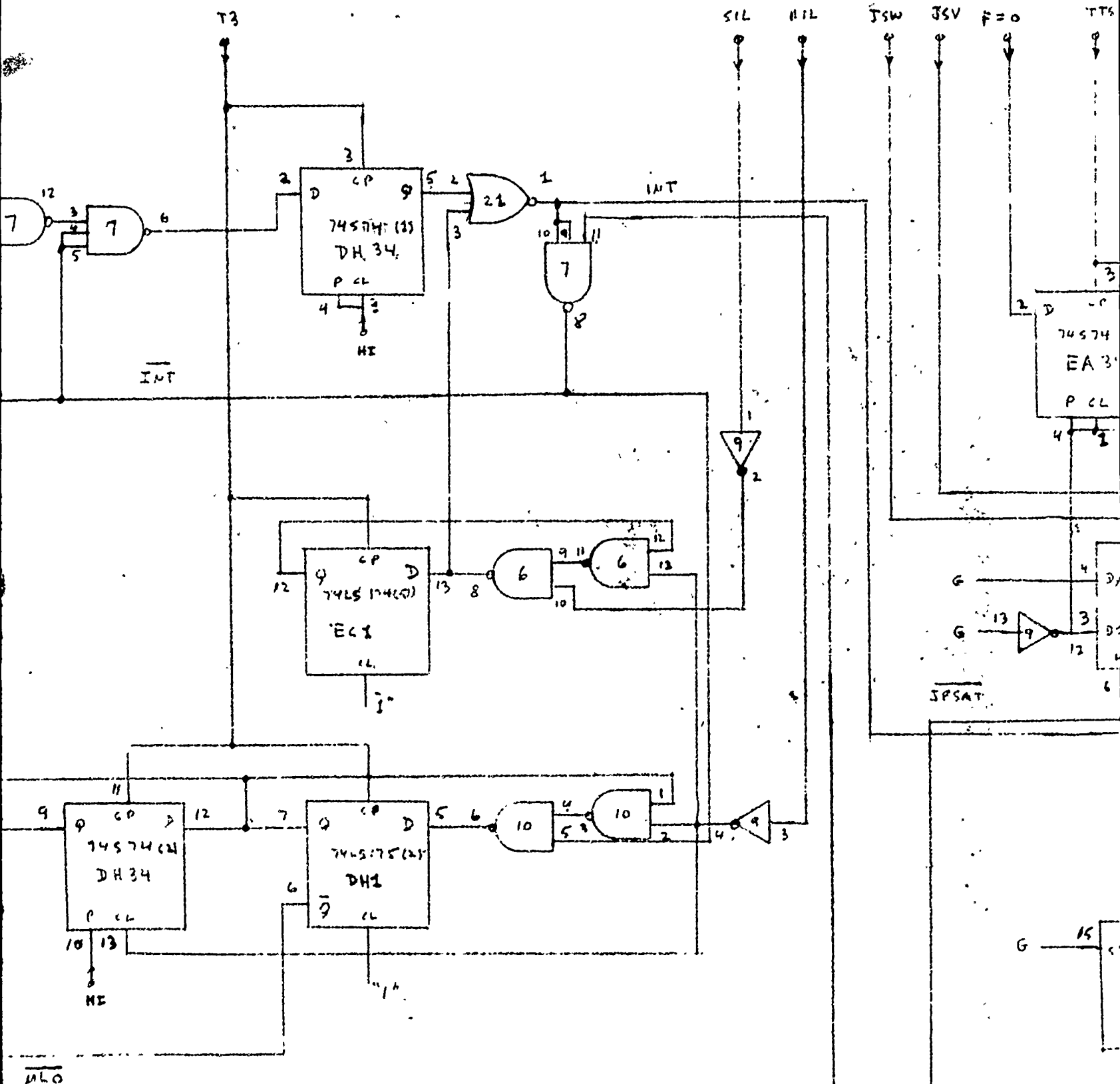
10/24/76

EKN

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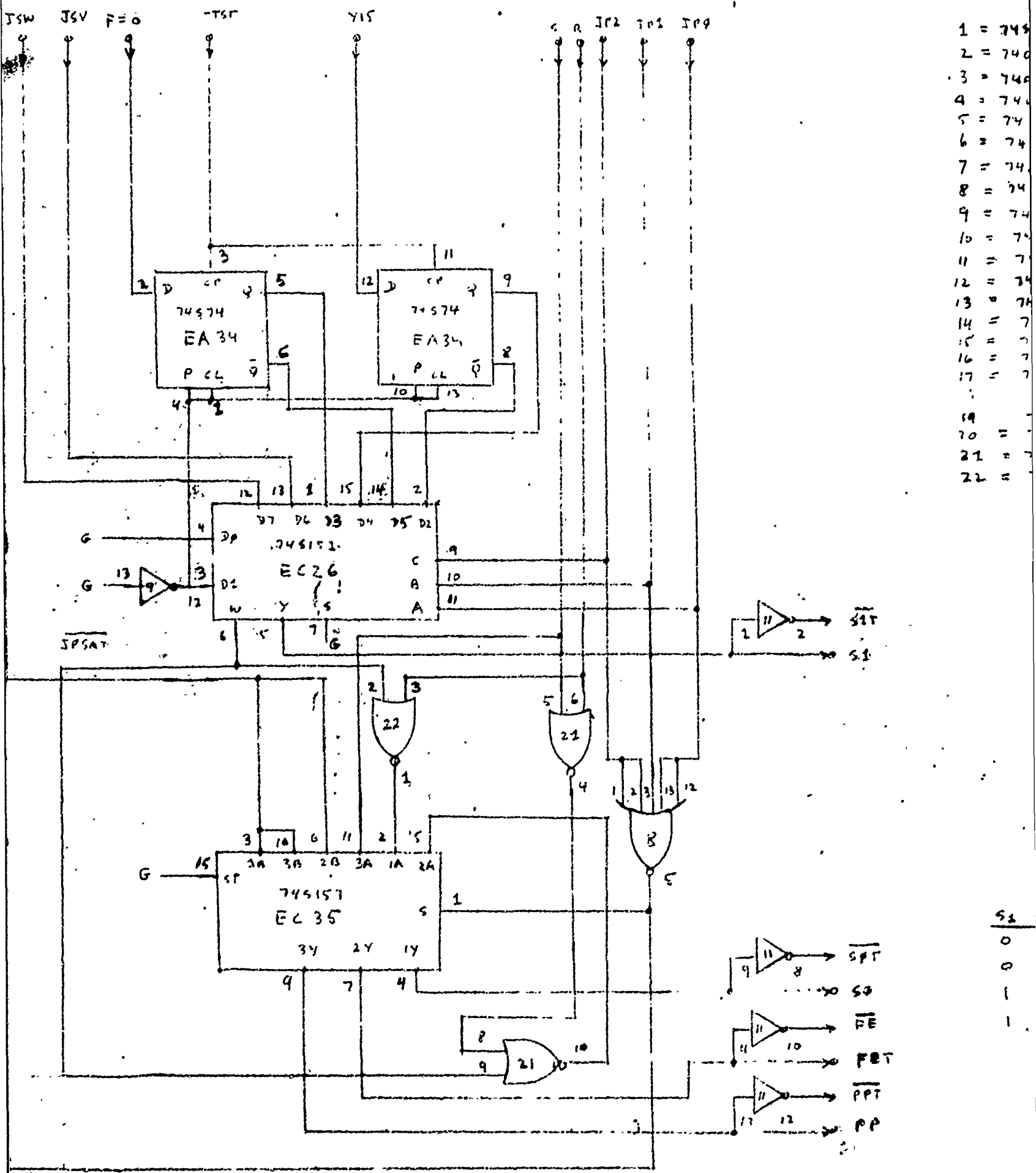


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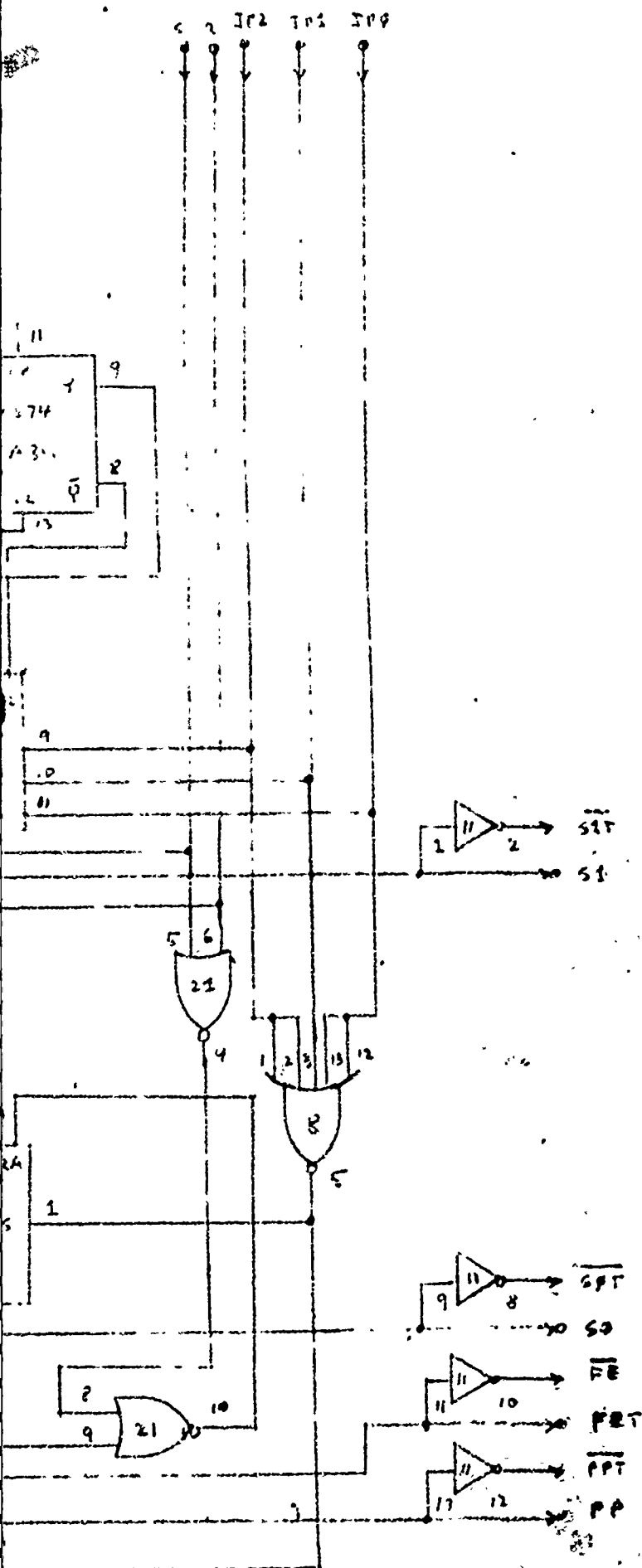


TIMING, BRANCH AND
INTERRUPT LOGIC 2/3/76

4.



5



- 1 = 74504 EC 18 41
- 2 = 7400 EC 31 10
- 3 = 7400 EA 10
- 4 = 7400 DH 10
- 5 = 7410 EA 18
- 6 = 7400 EA 26
- 7 = 7410 DH 18
- 8 = 745260 DH 42
- 9 = 74504 EC 44
- 10 = 7400 DH 26
- 11 = 74504 EA 37
- 12 = 7400 CS 10
- 13 = 74532 DS 10
- 14 = 74502 CS 22
- 15 = 74502 FT 35
- 16 = 74502 DA 27
- 17 = 74502 DB 24
- 18 = 745260 DS 42
- 19 = 7404 DB 18
- 20 = 74502 EA 42
- 21 = 74502 DP 43

S1	S2	
0	0	PC
0	1	IR
1	0	FILE
1	1	SR

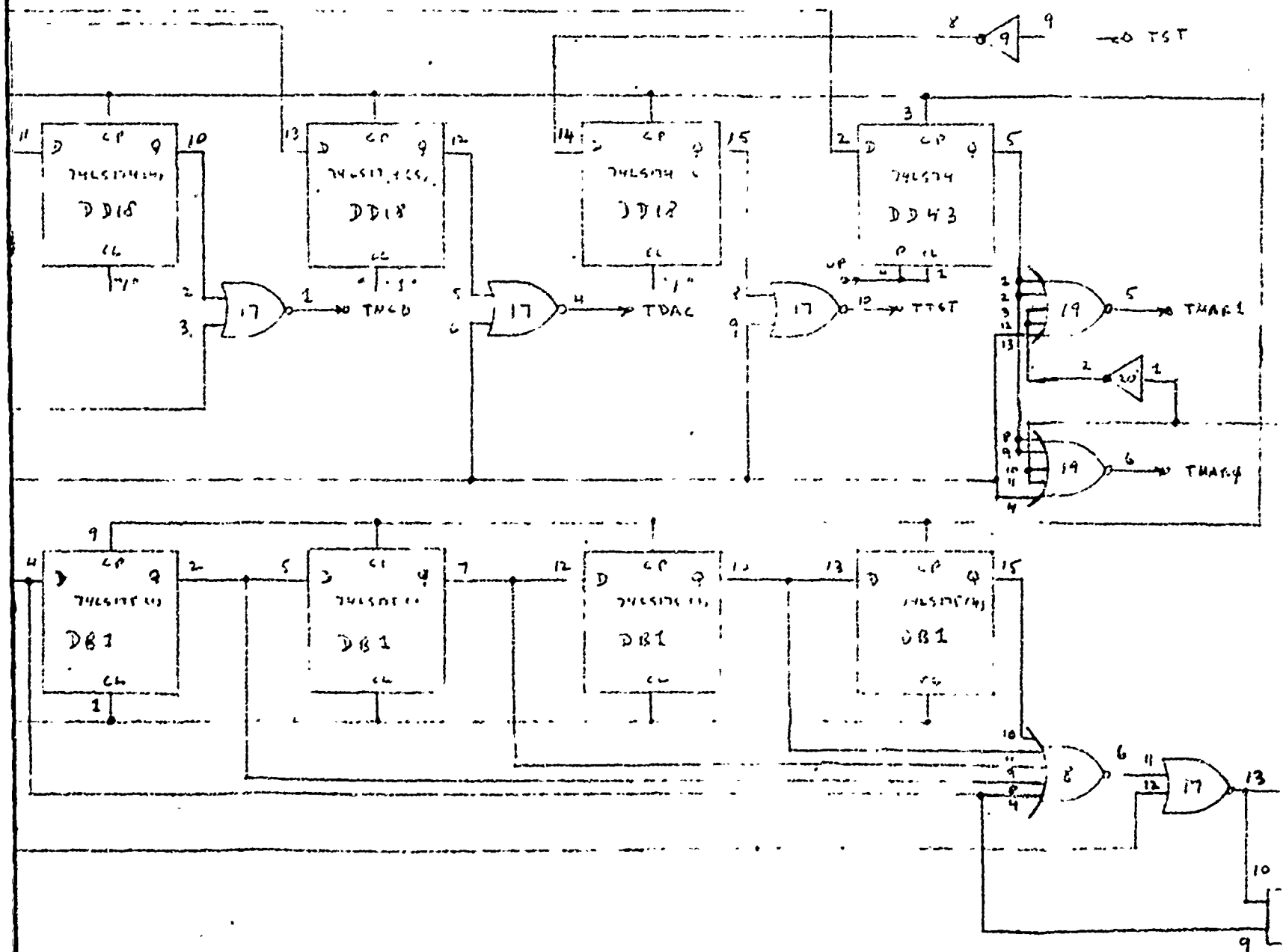
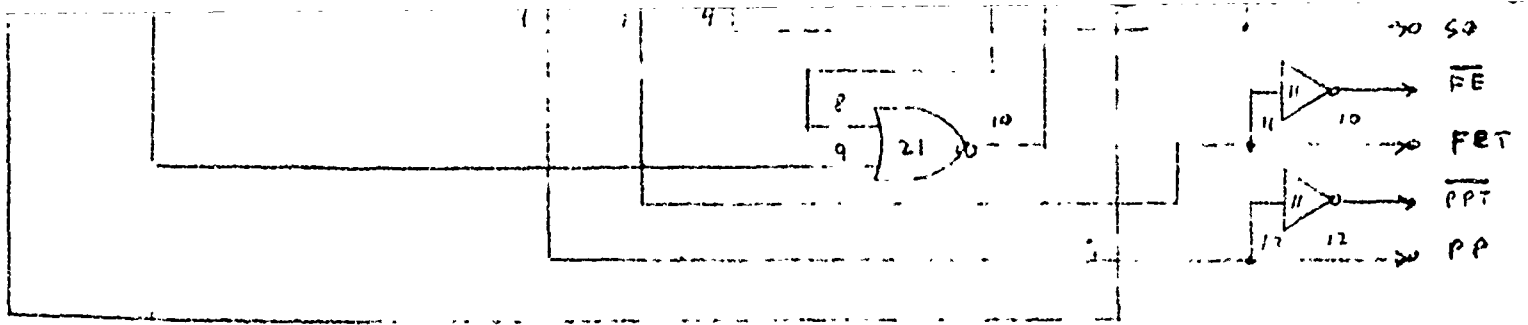


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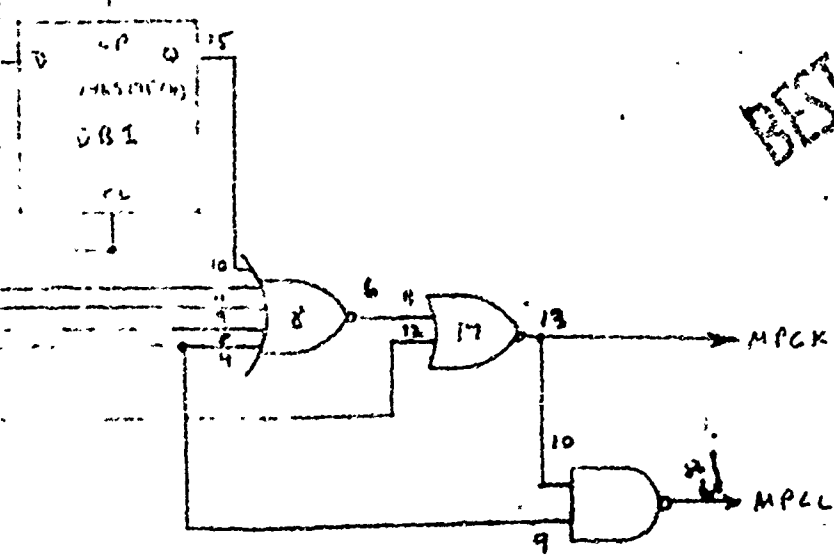
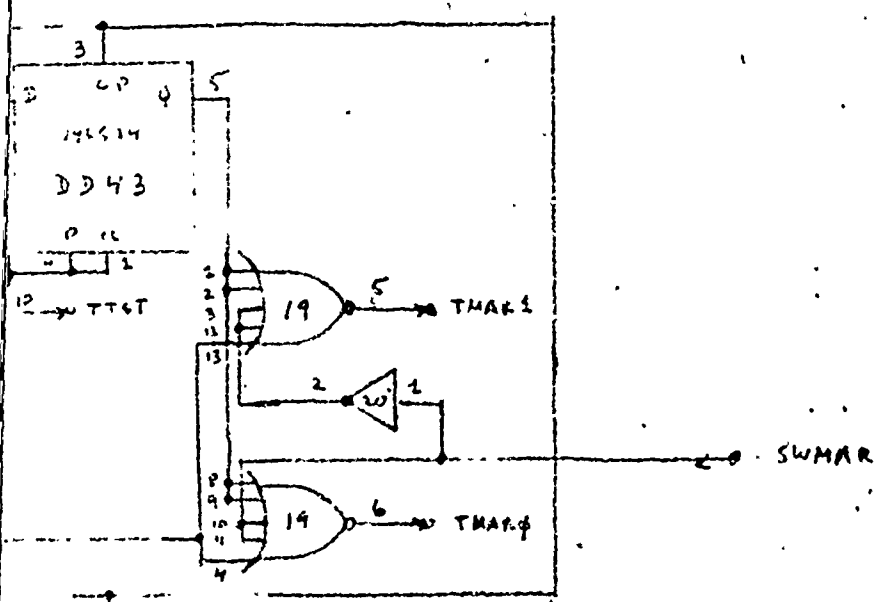
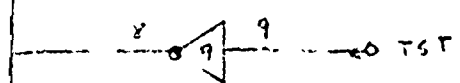
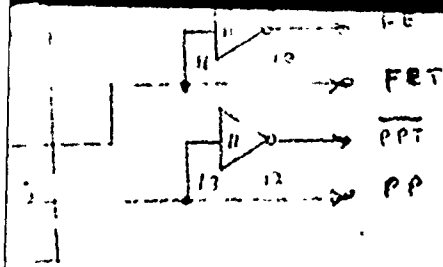


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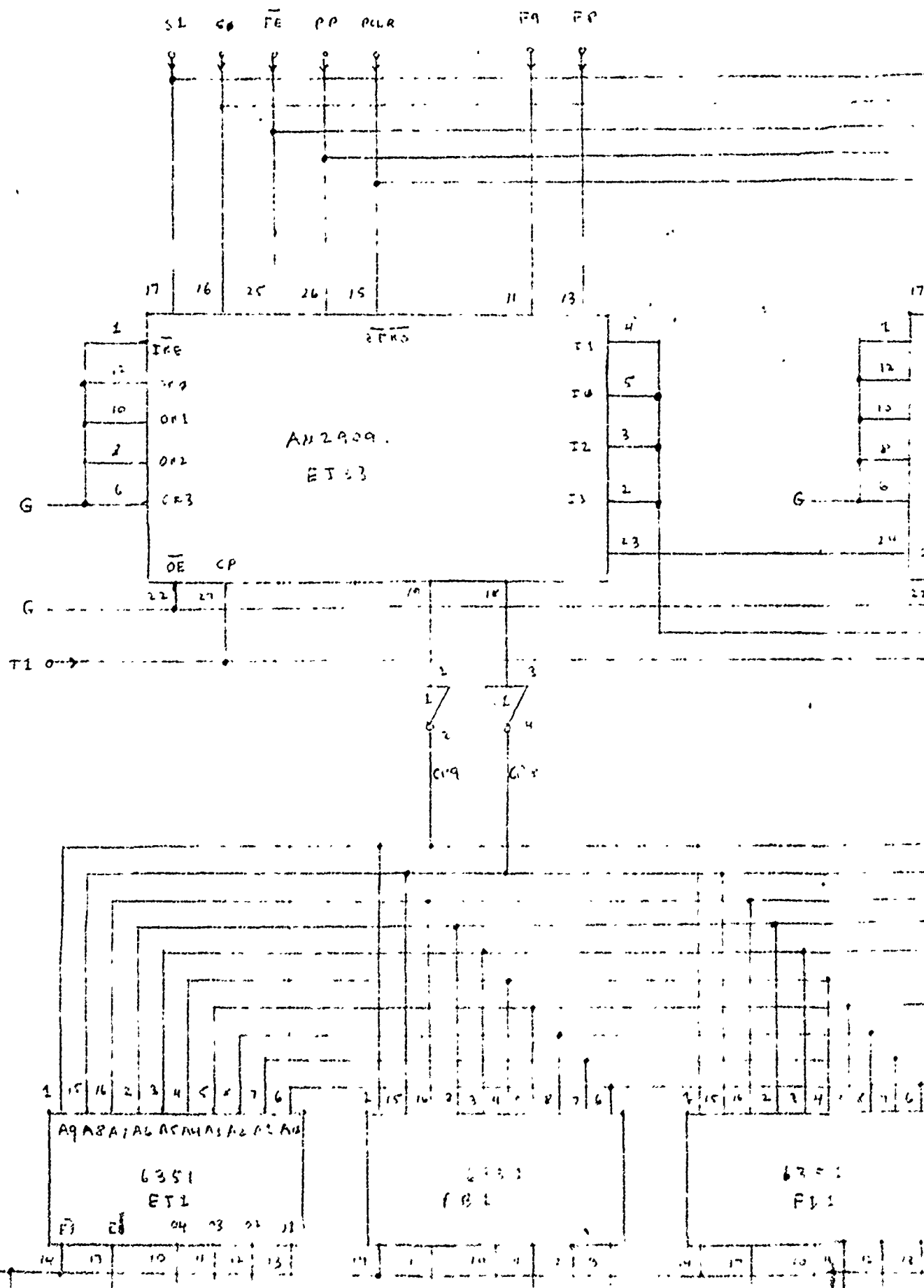
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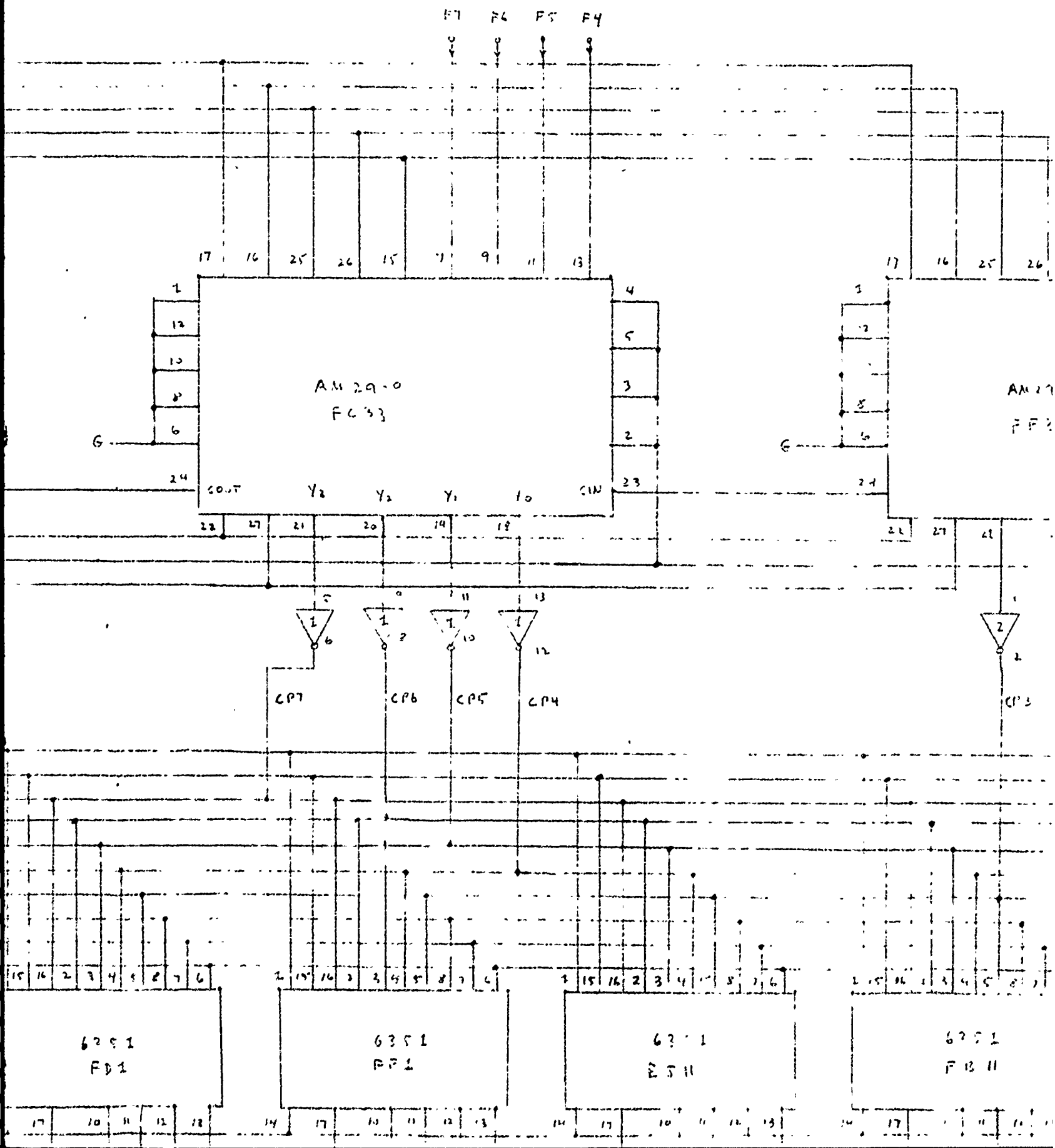
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B448

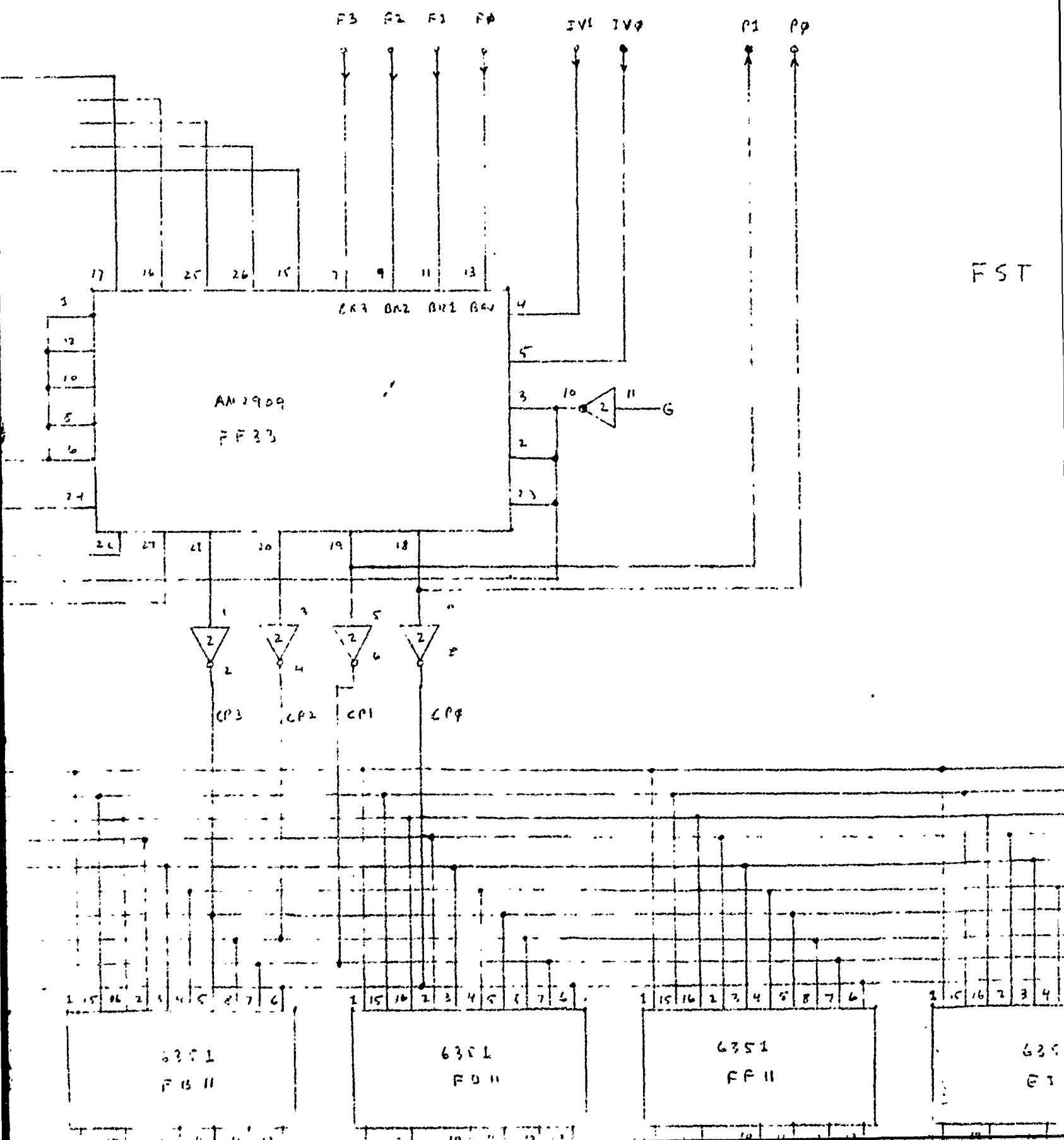
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2



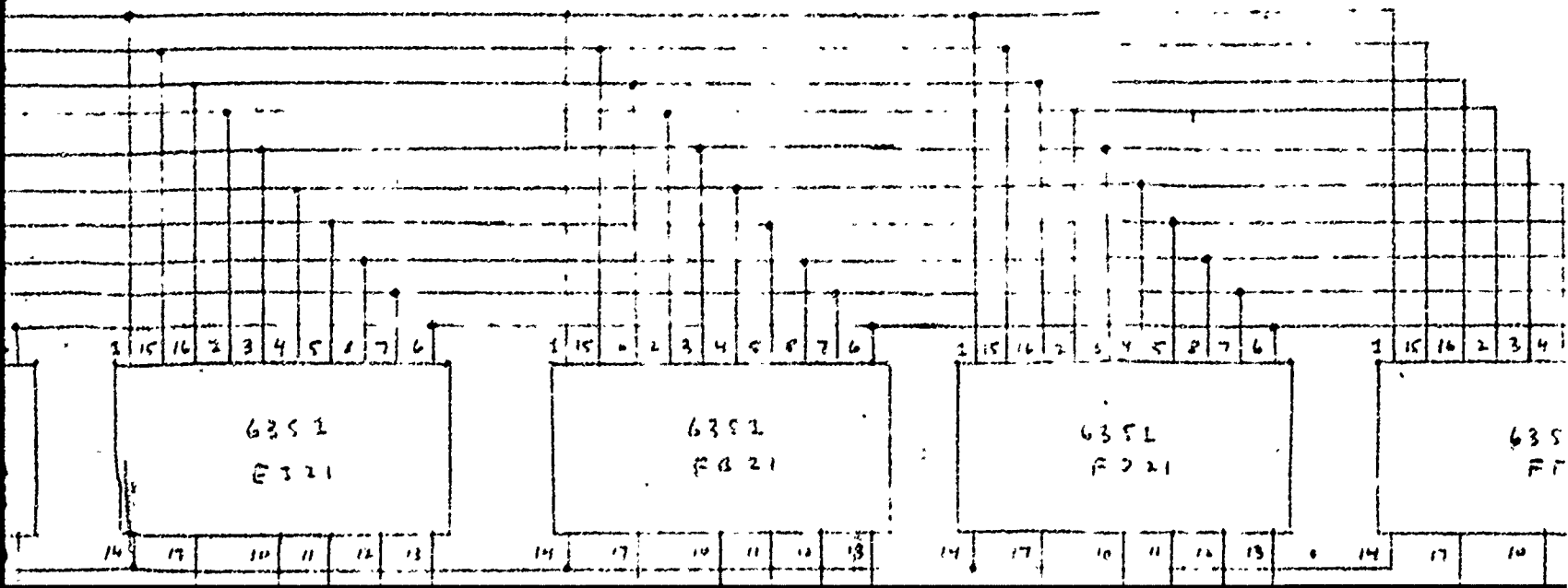
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FST

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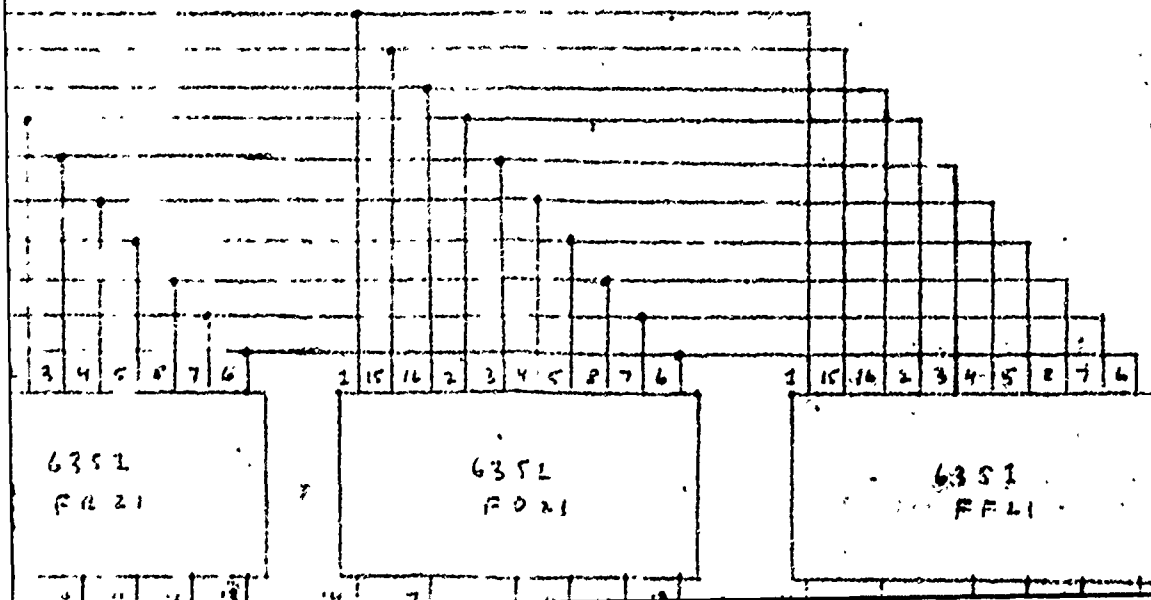
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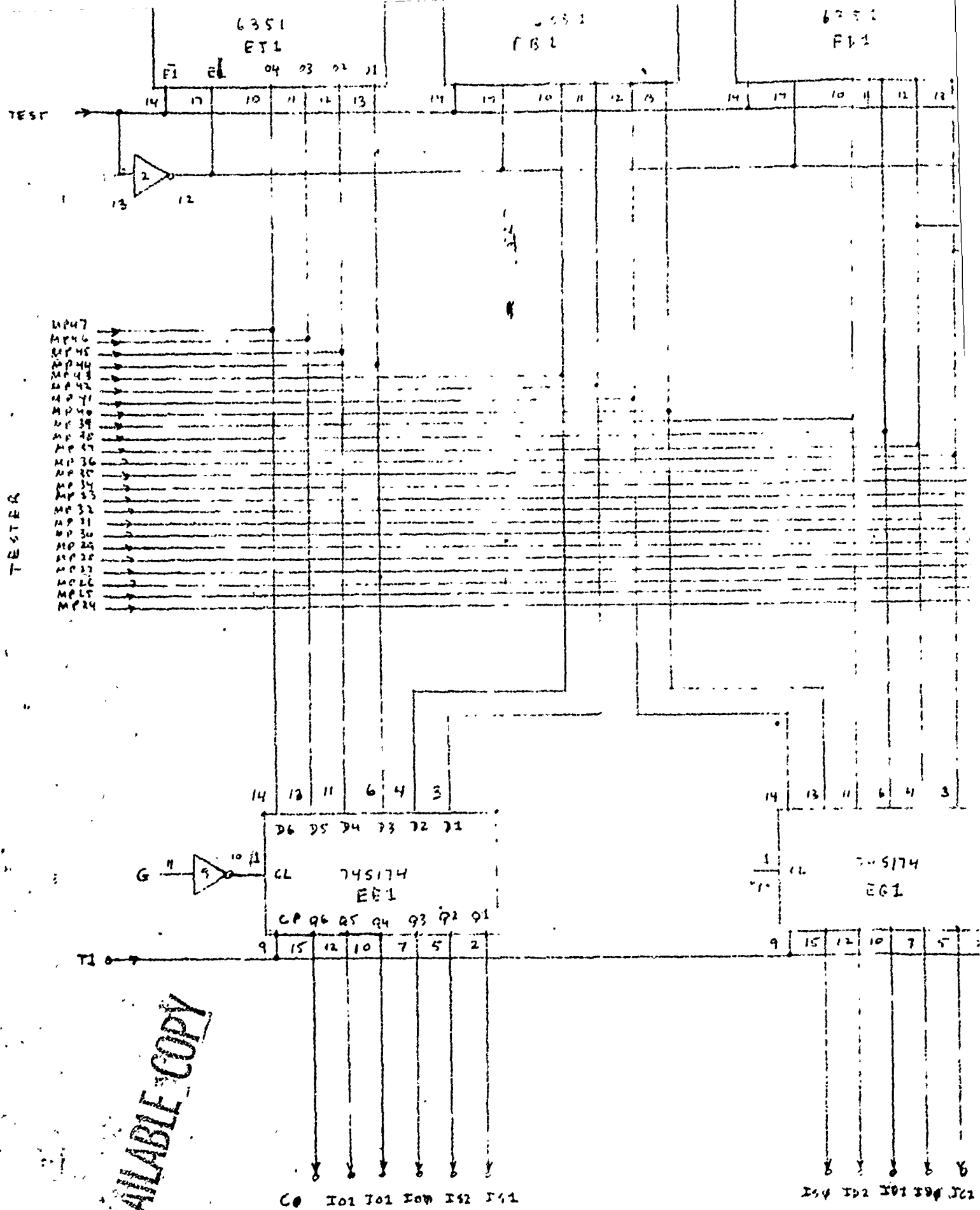


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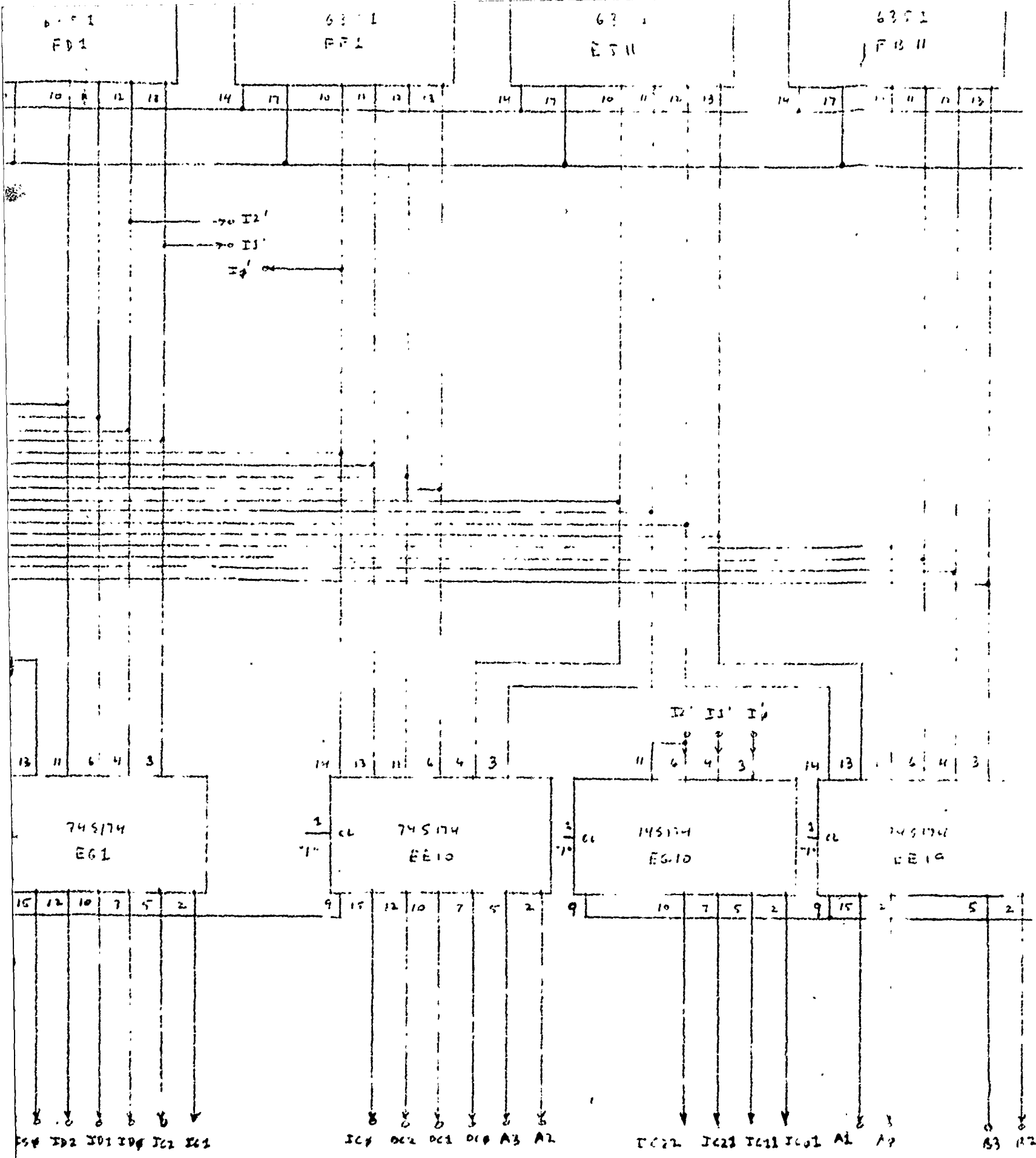
2 = 74504 FH25

2/3/76

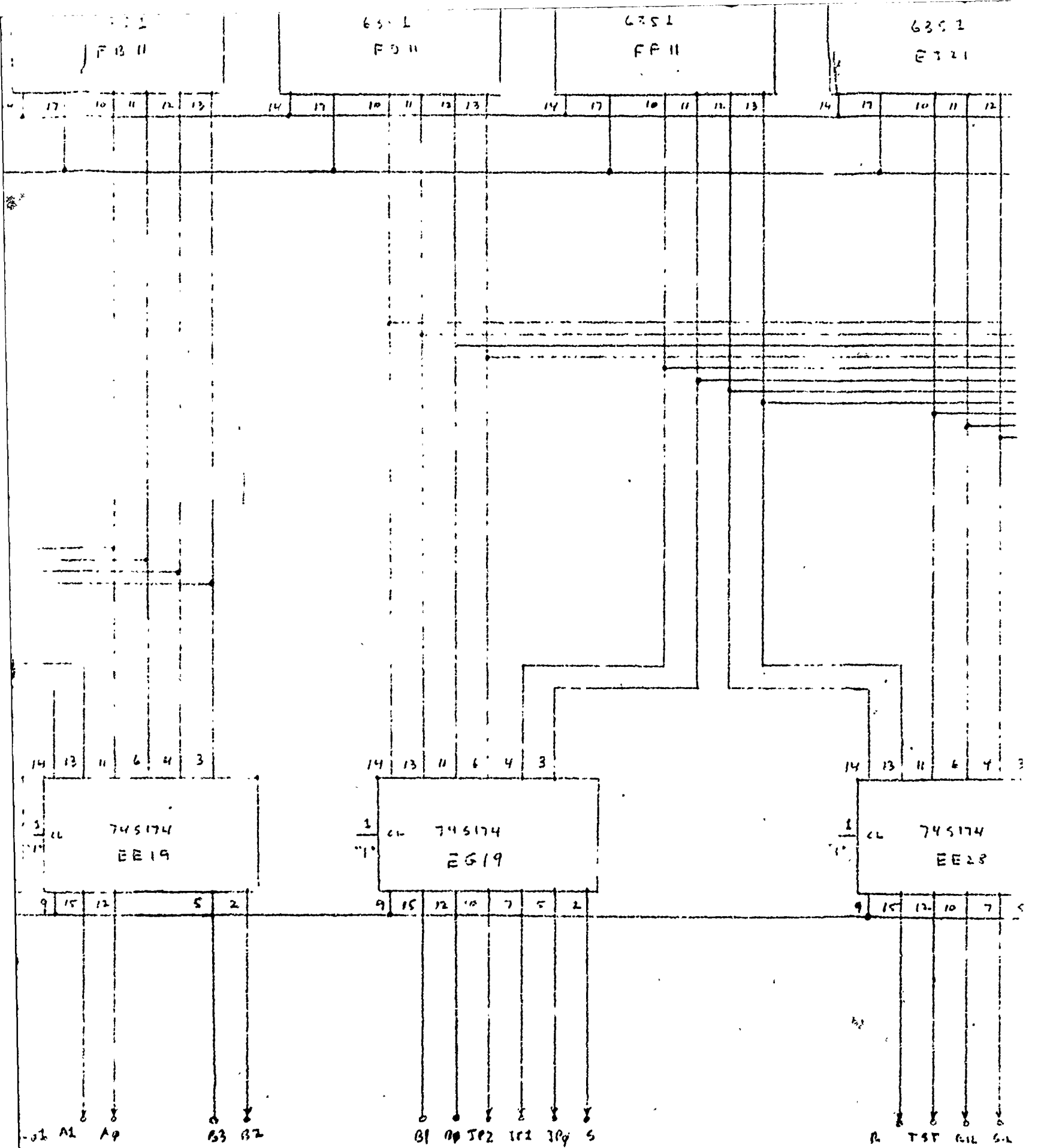




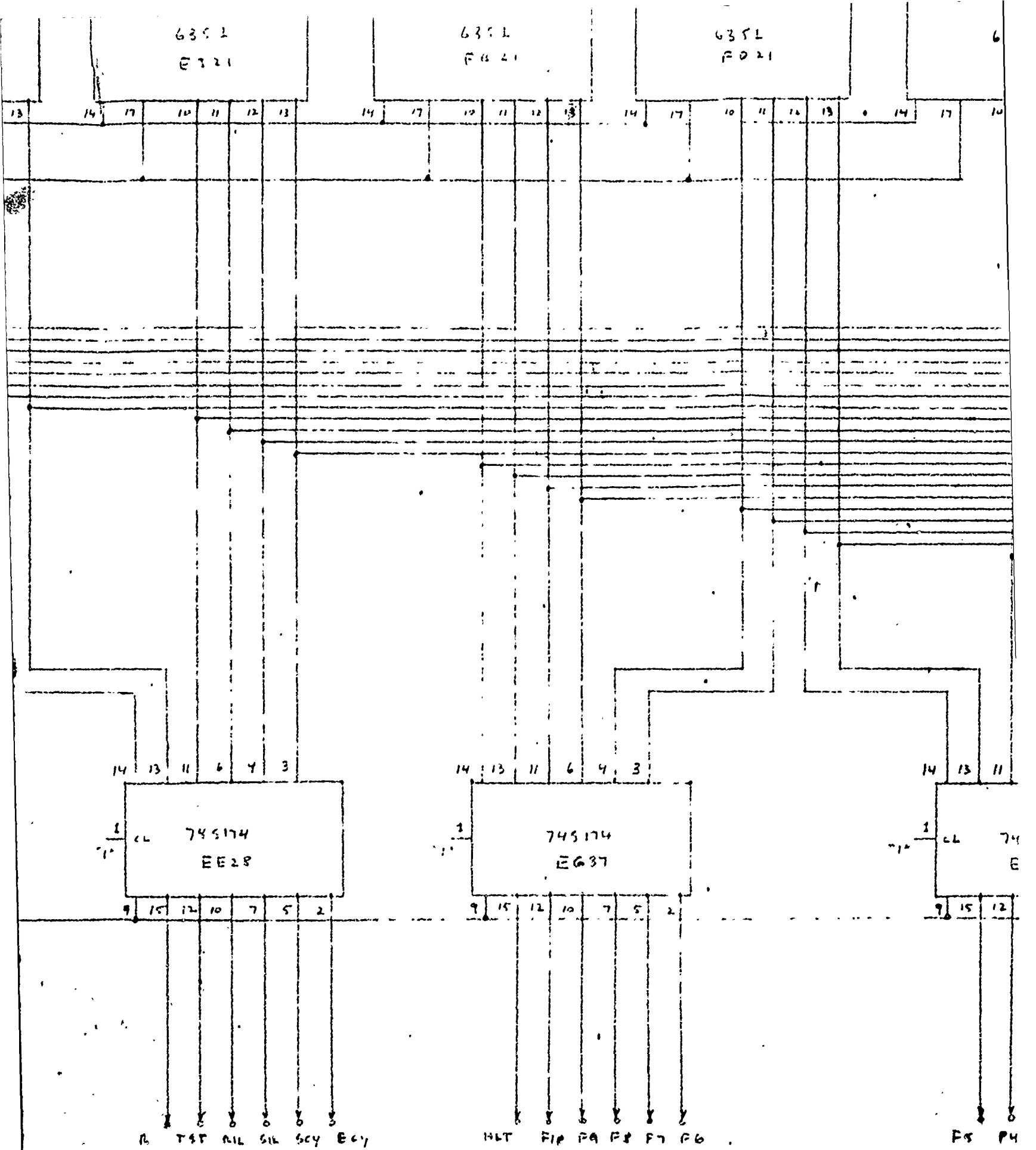
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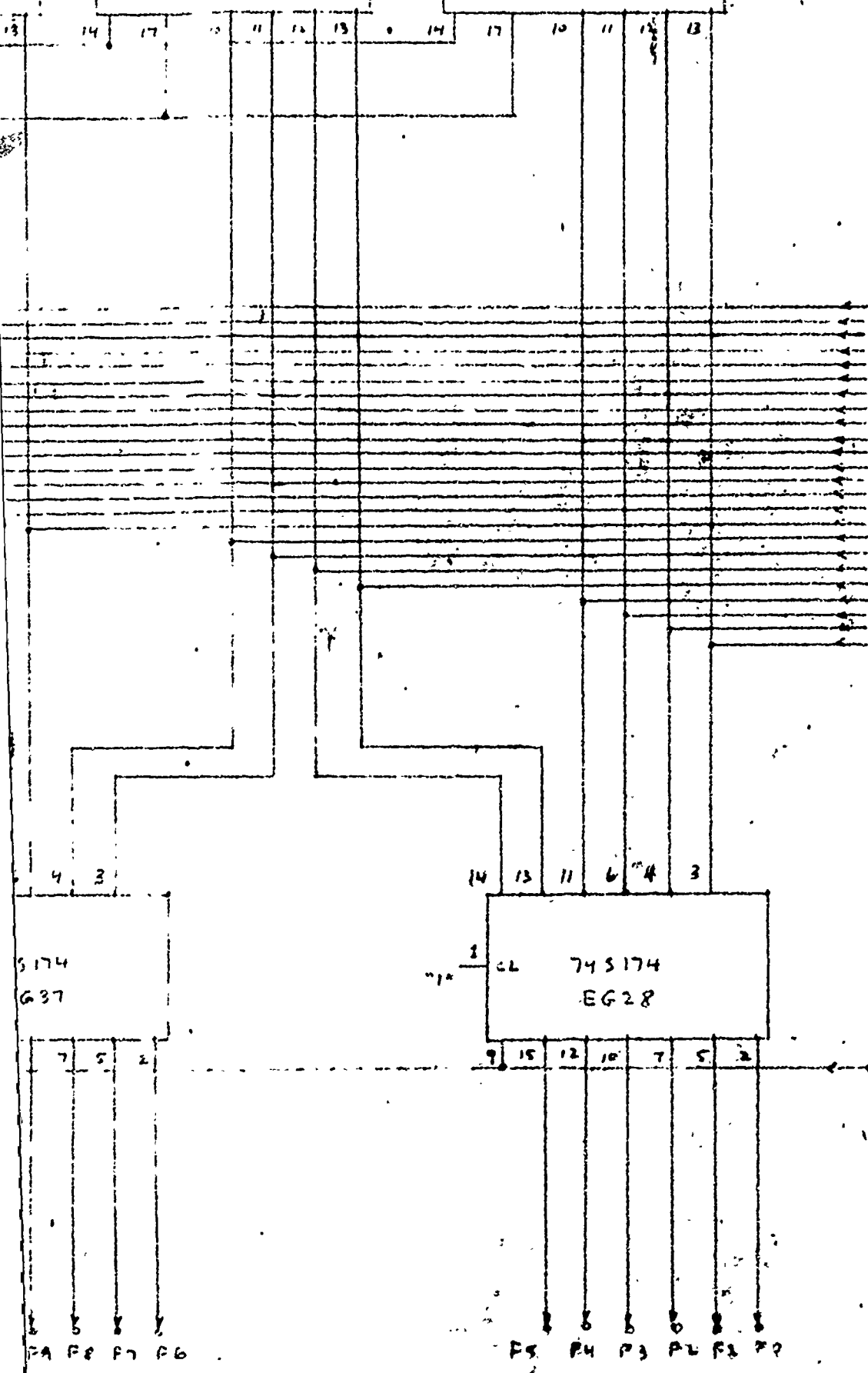


6



6351
F021

6351
FF21



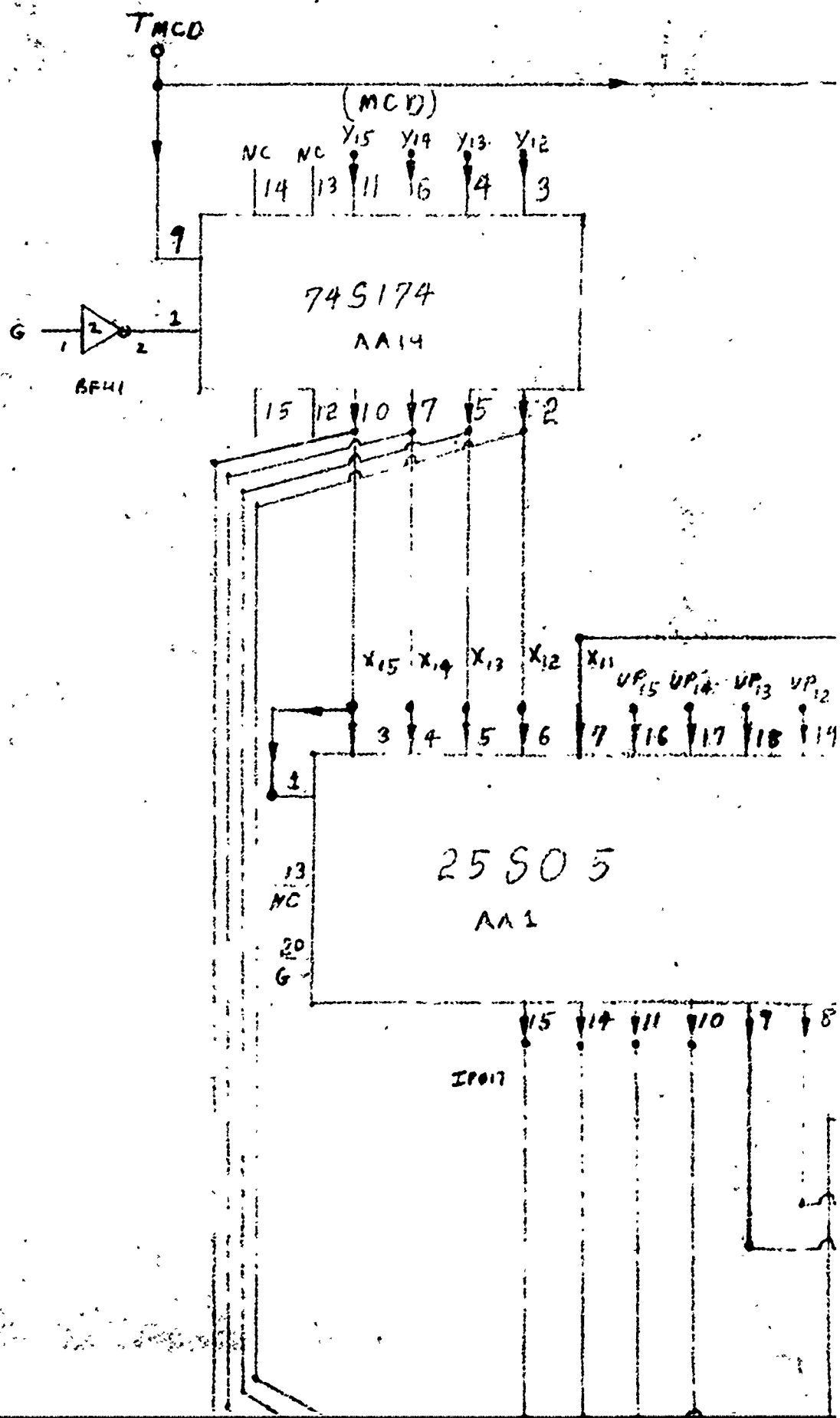
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MP21
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MP18
MP17
MP16
MP15
MP14
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MP7
MP6
MP5
MP4
MP3
MP2
MP1
MP0

TESTER

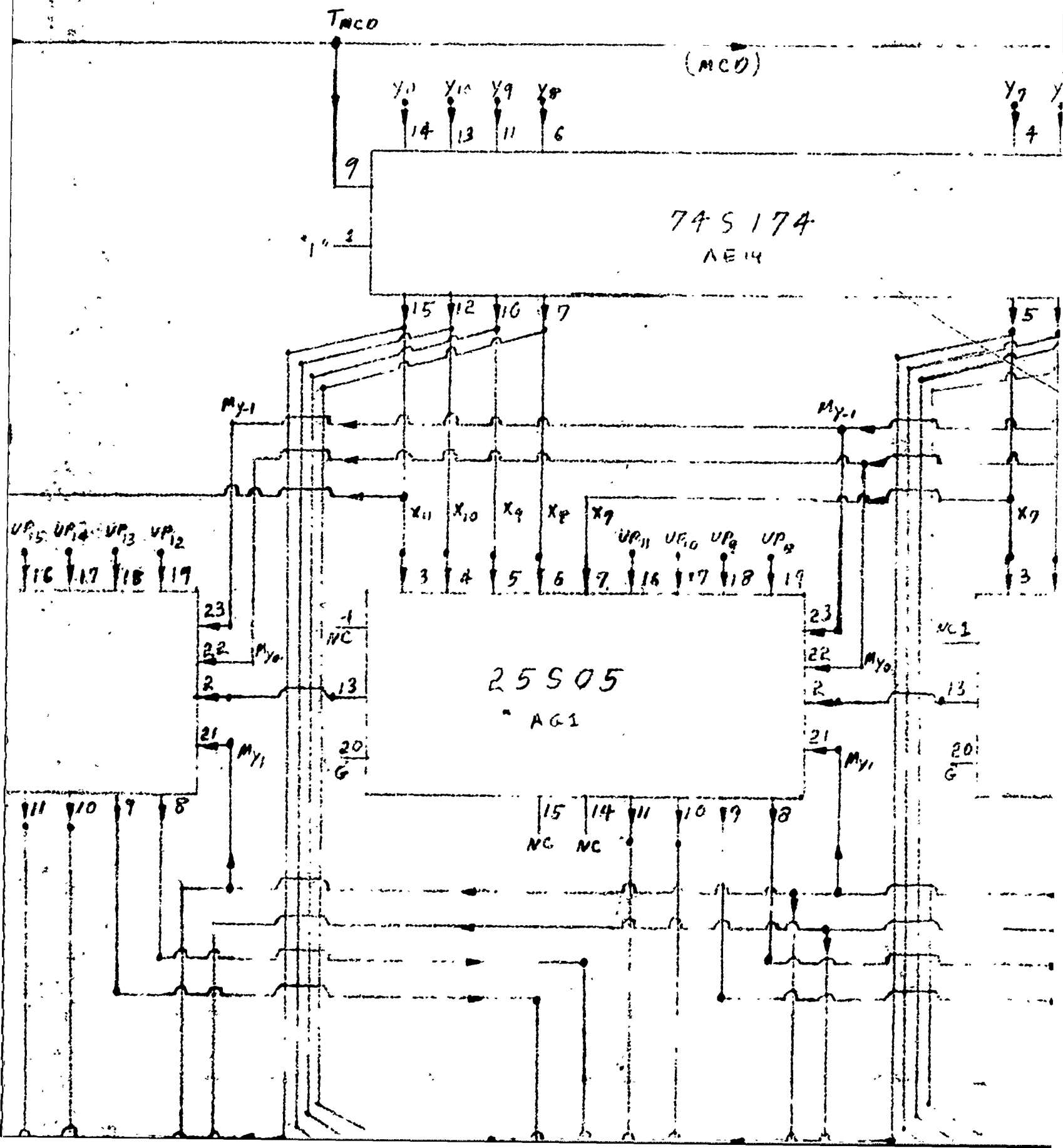
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10/20/76
DMA

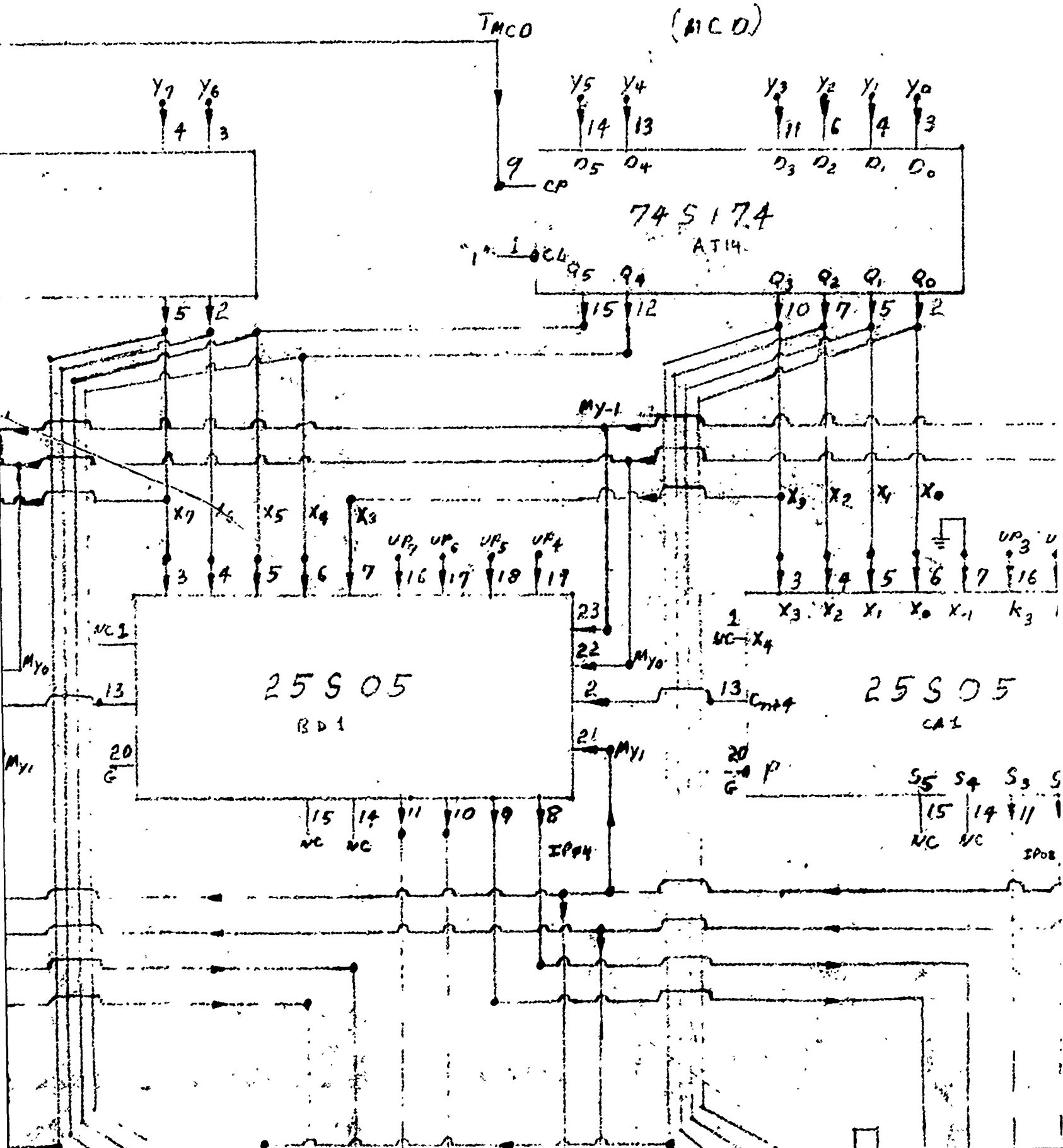
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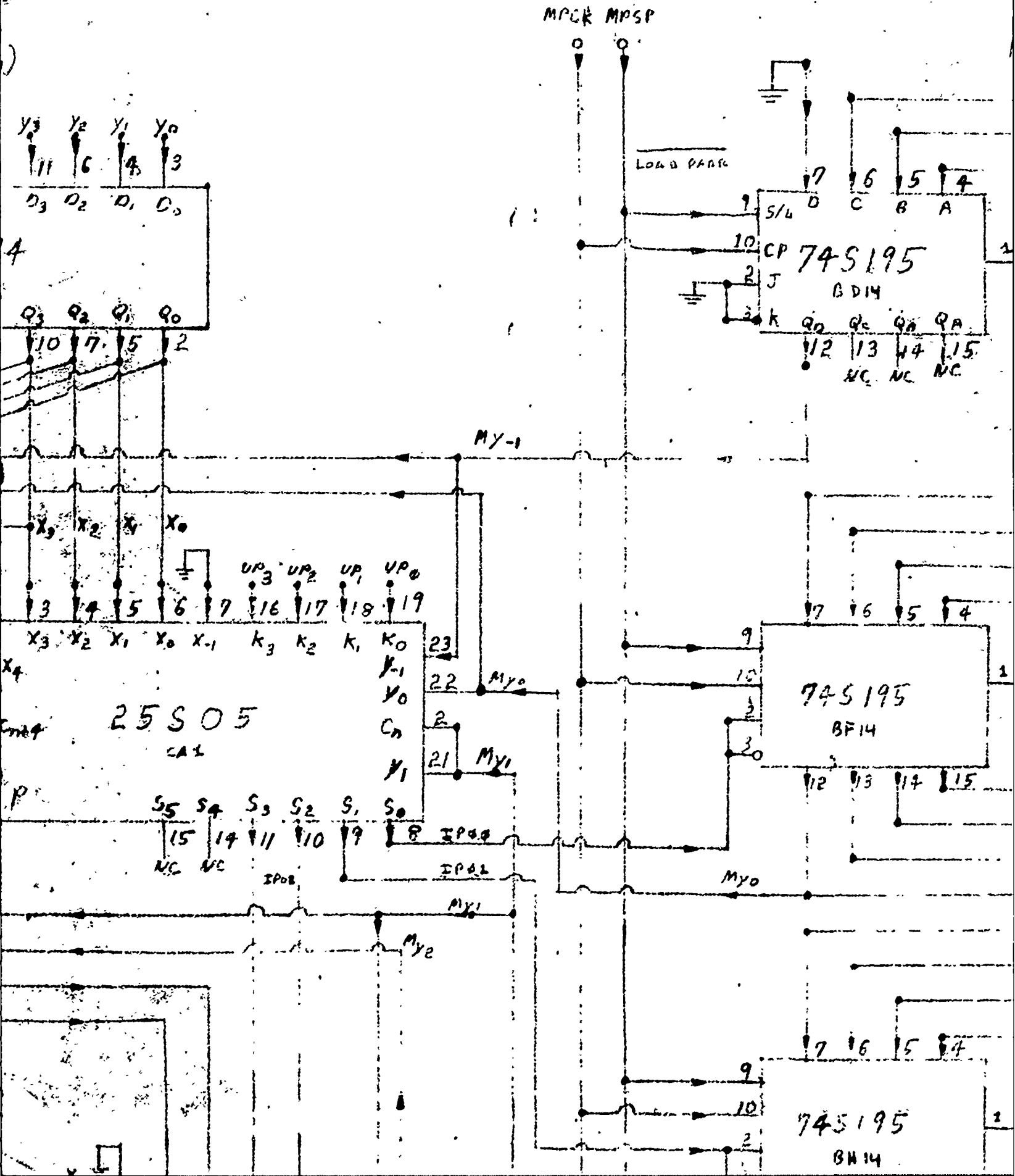
1 2



3



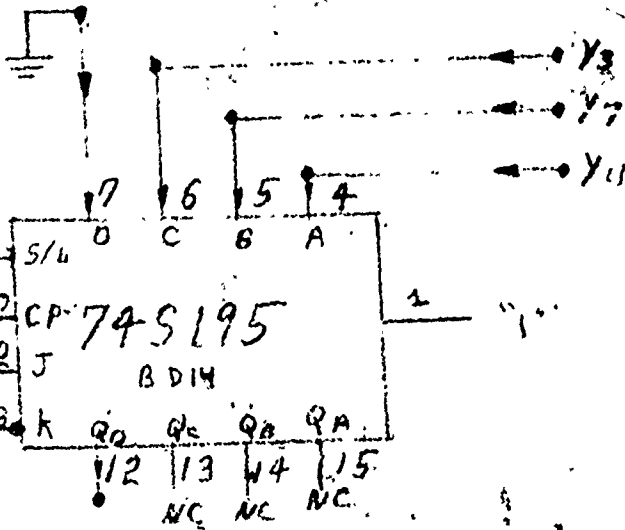
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MPCK MPSP

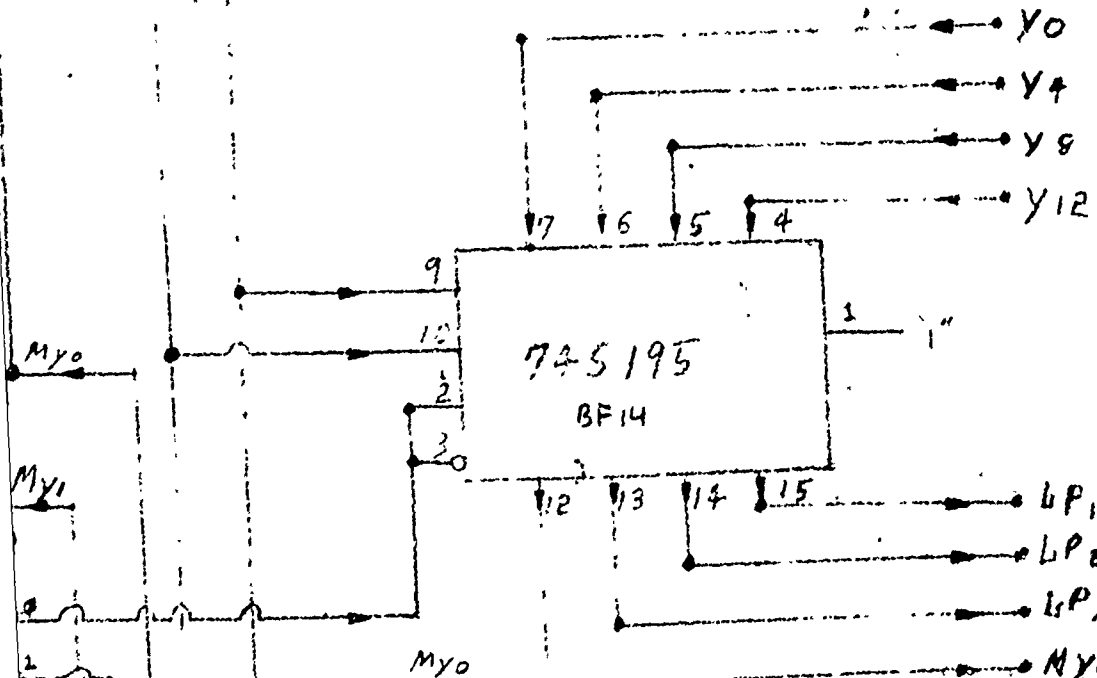
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LOAD PANG

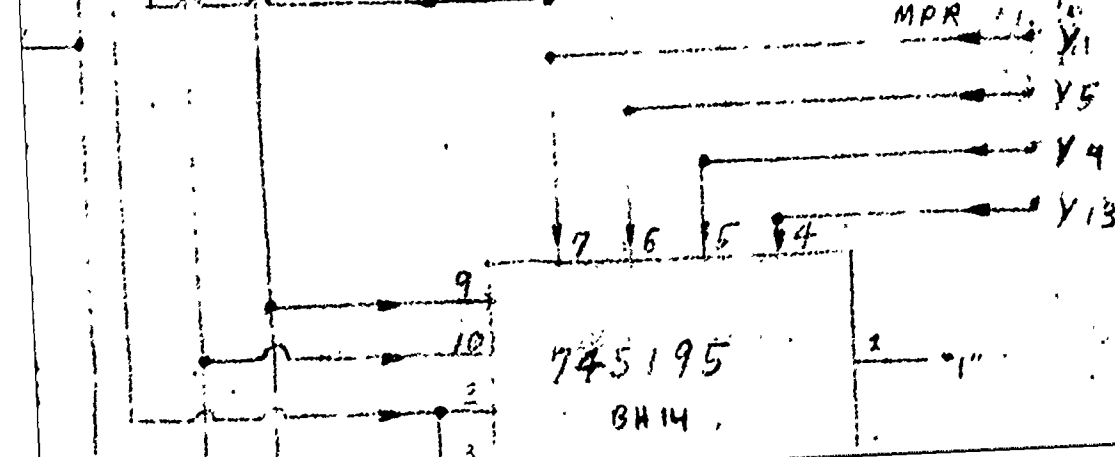


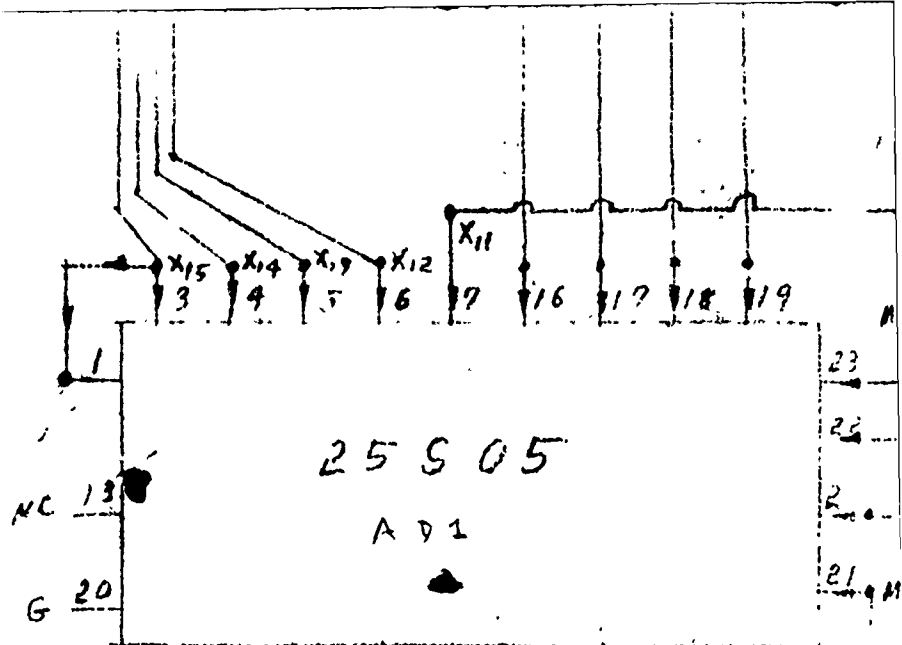
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MPR

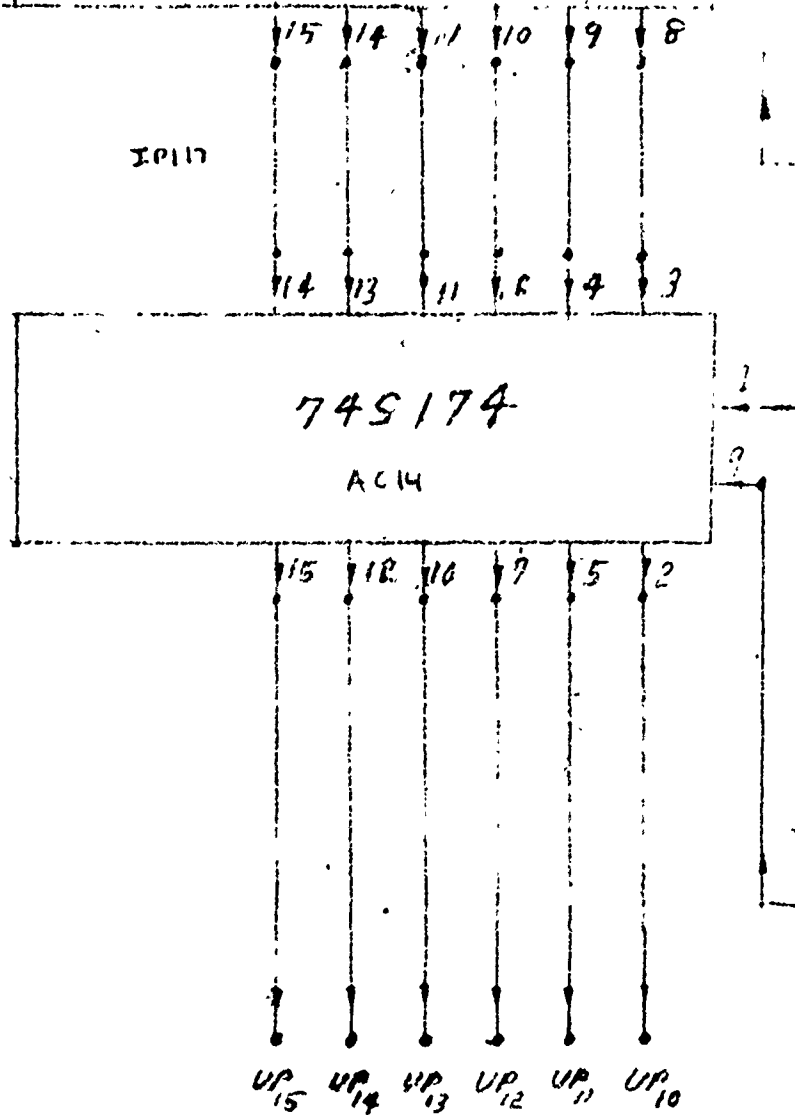


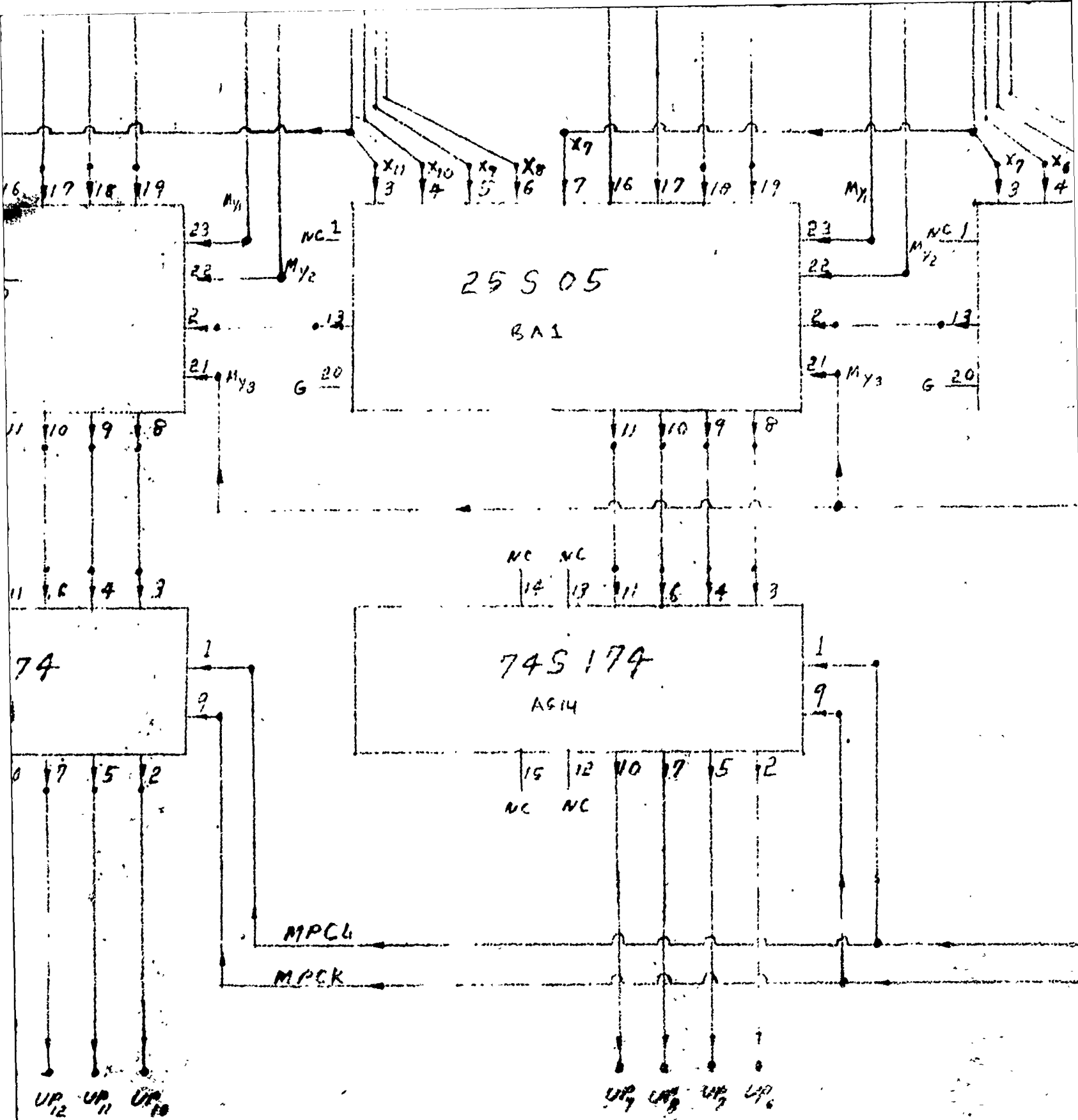
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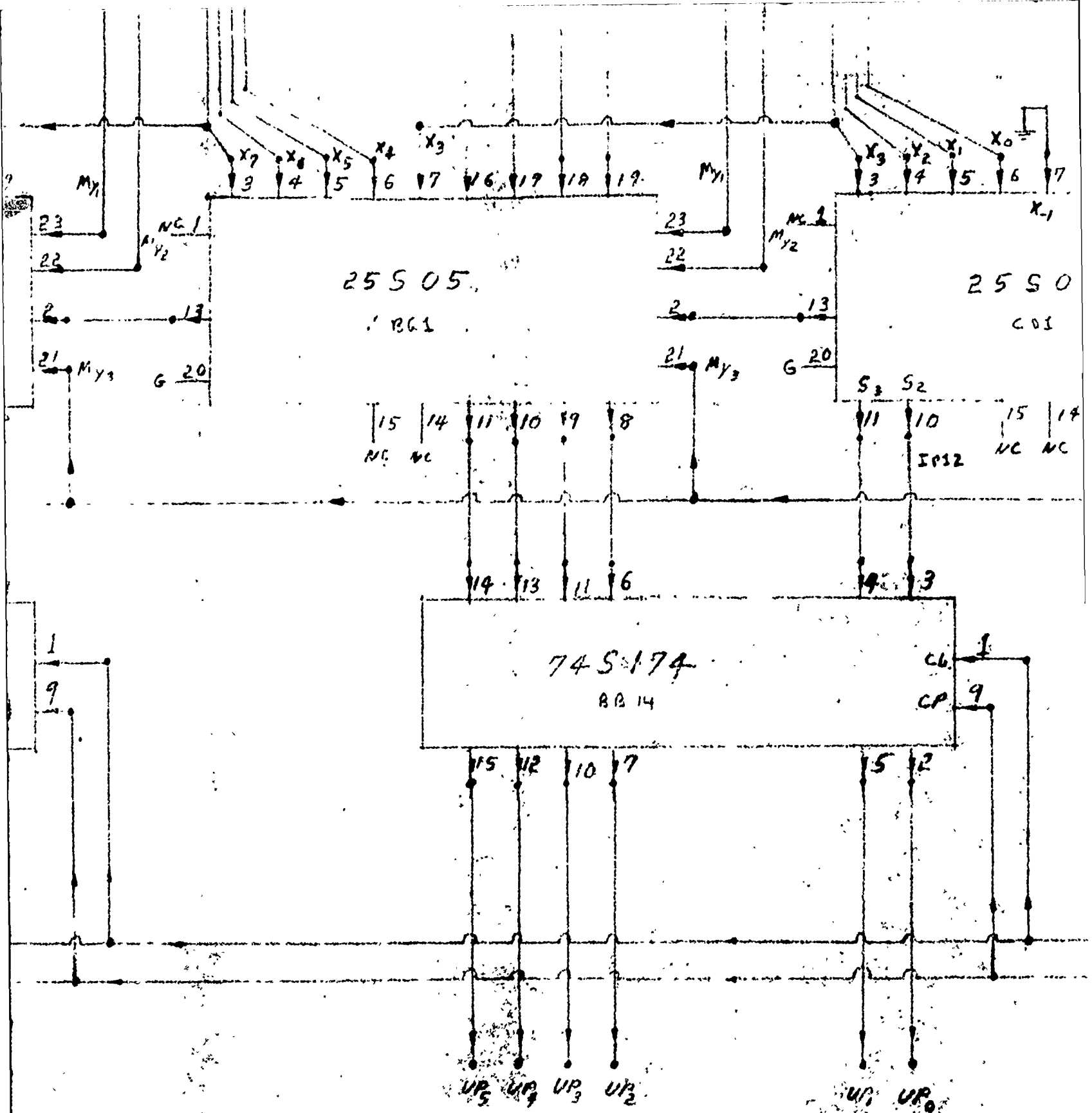




IP117

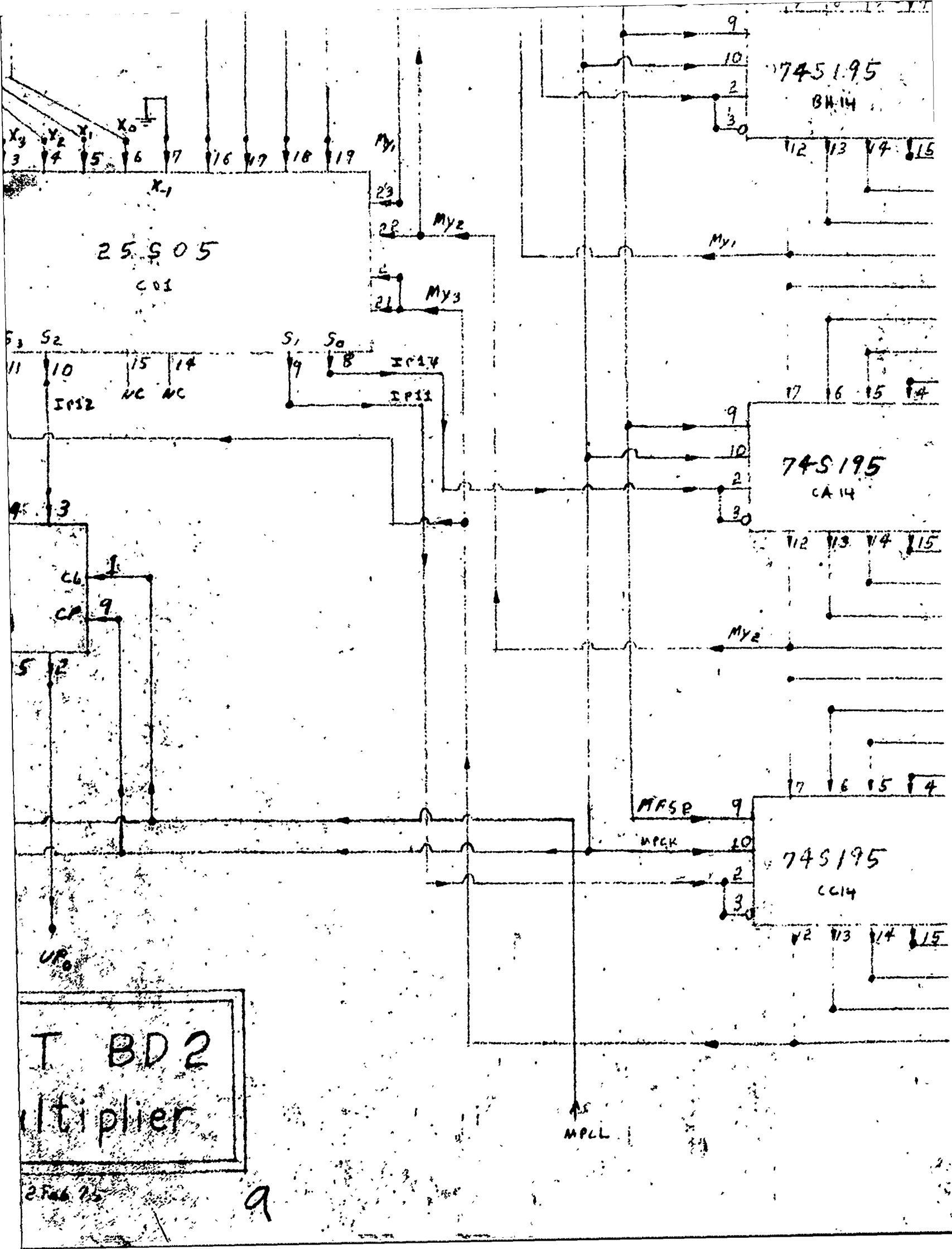


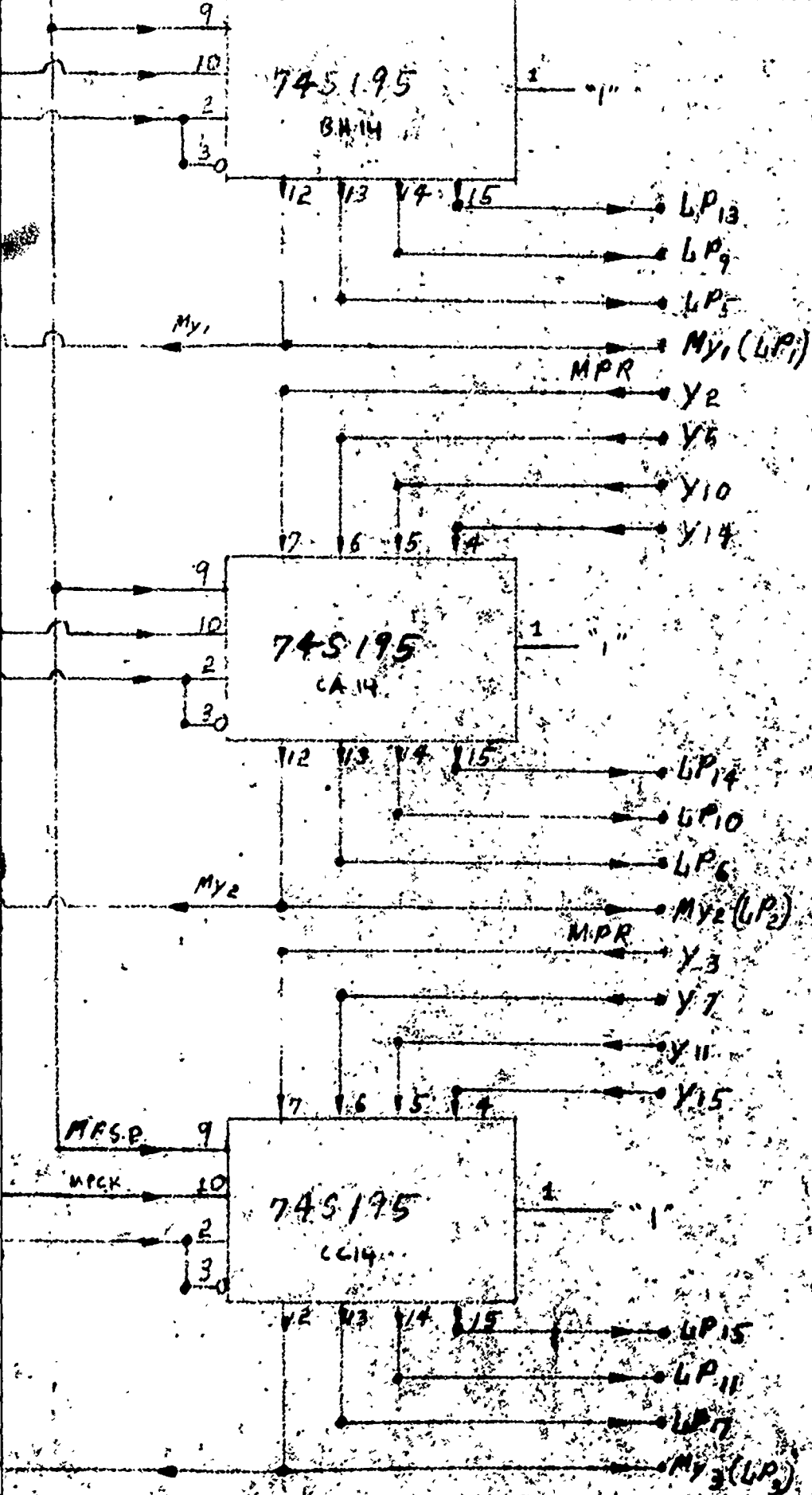




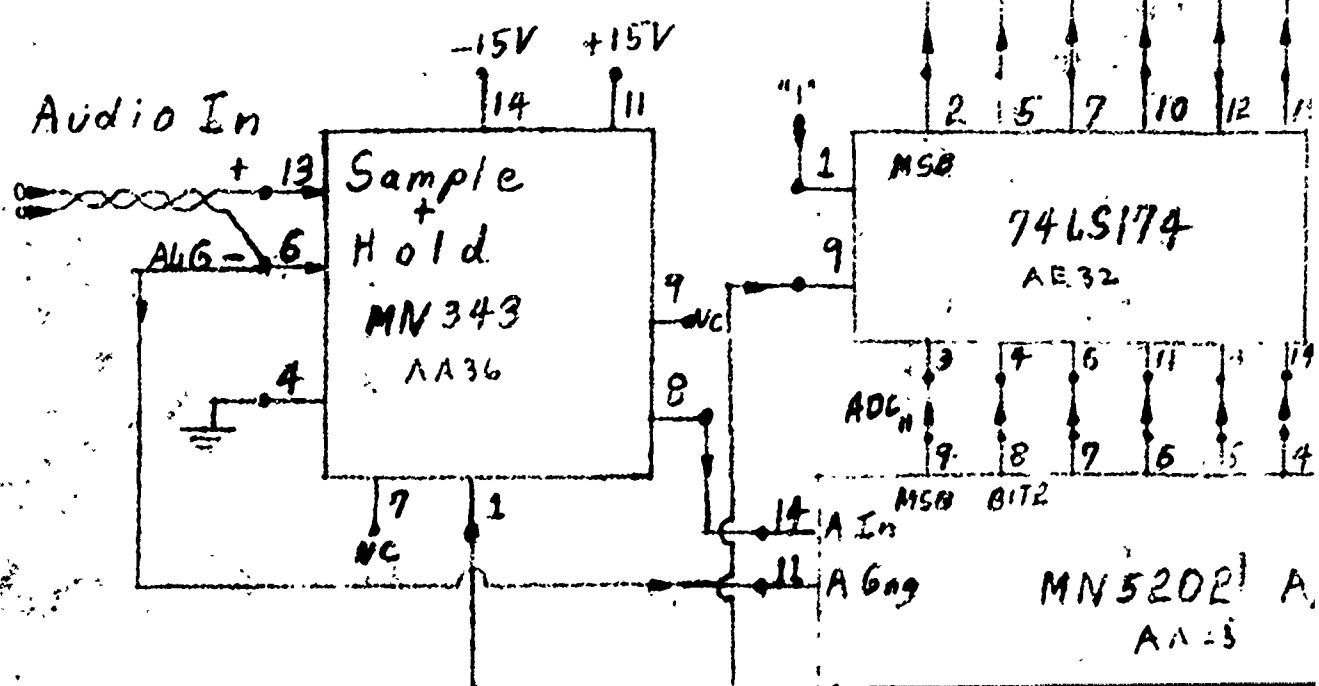
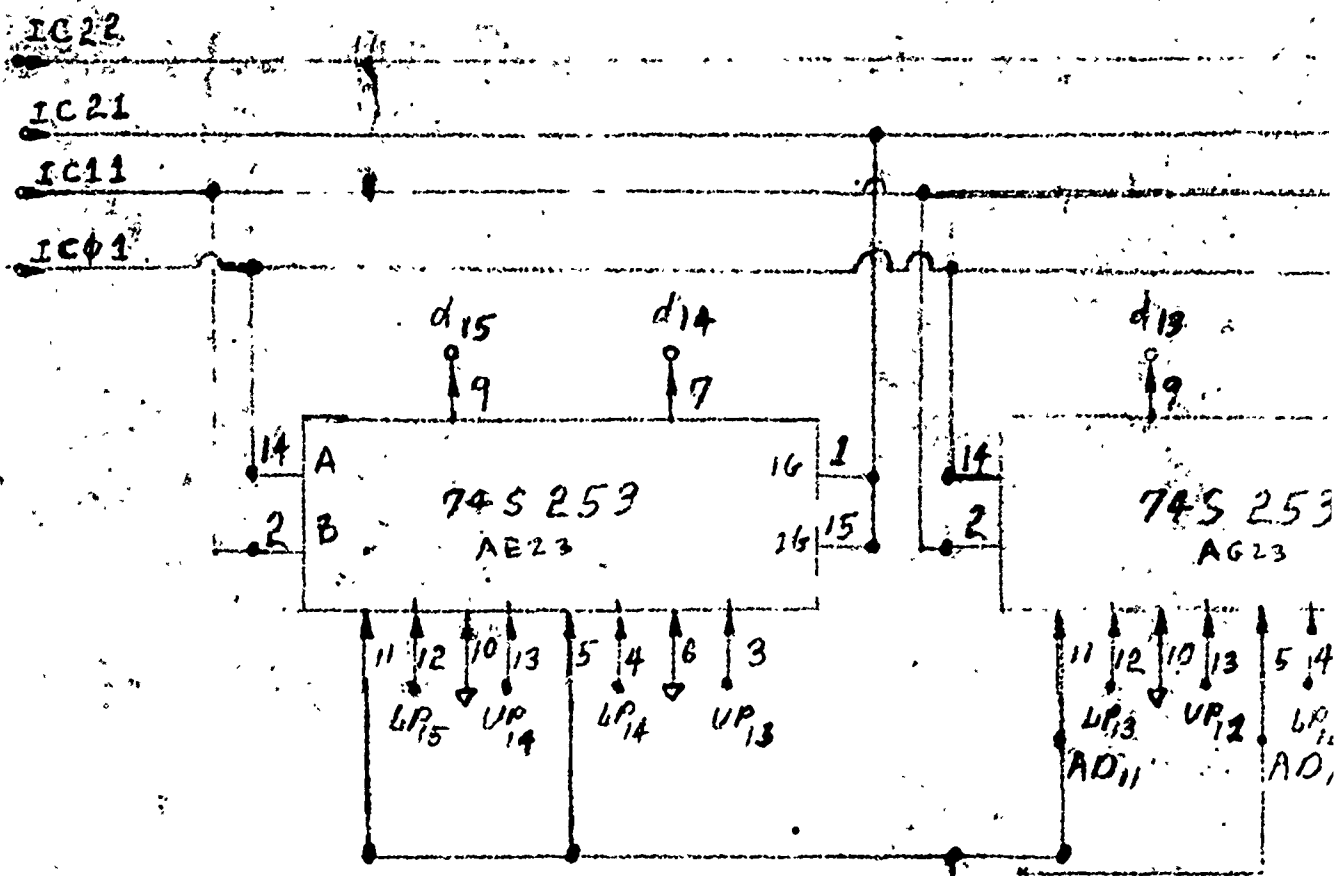
FST BD2
Multiplier

2 Feb 21

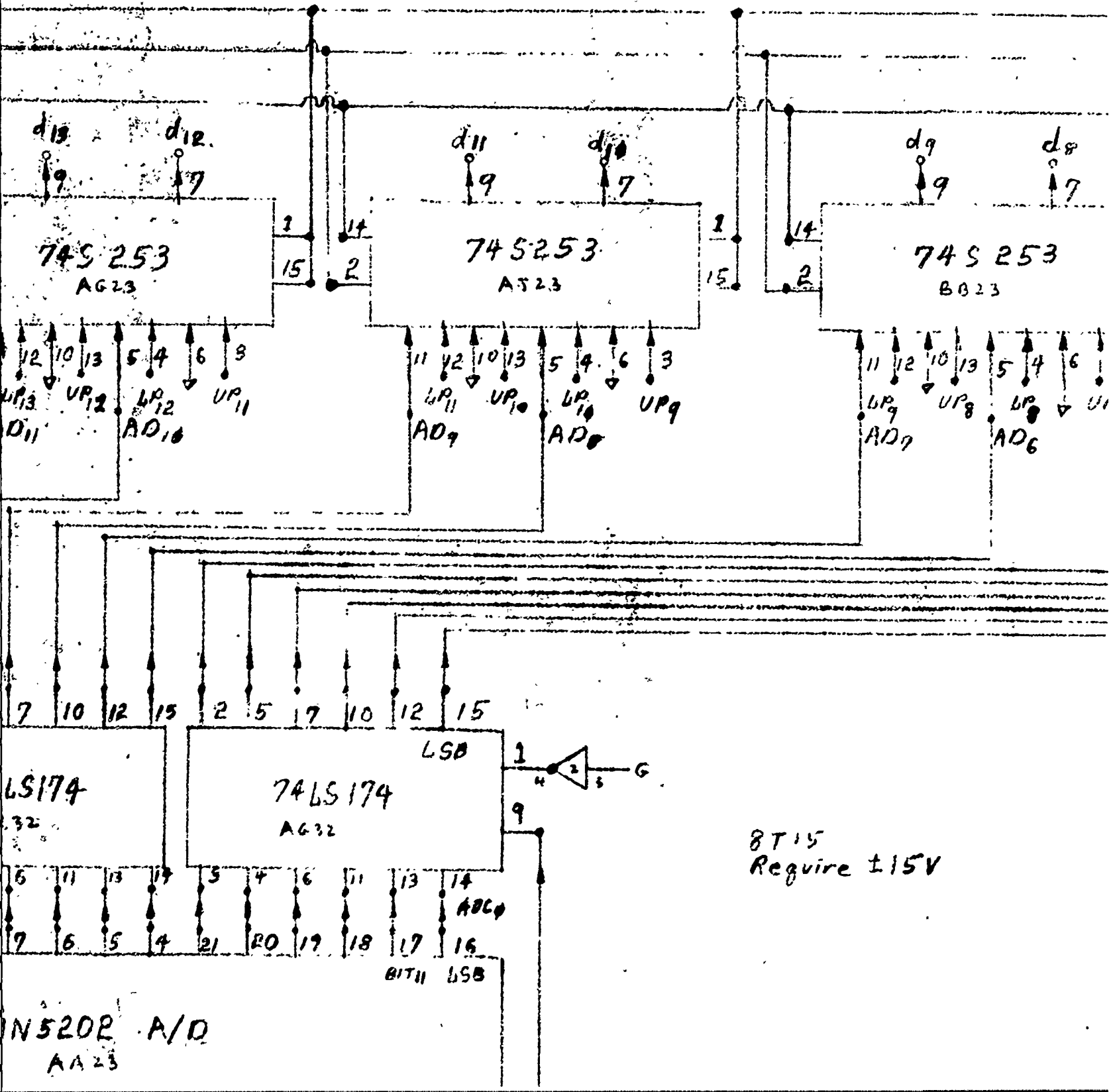




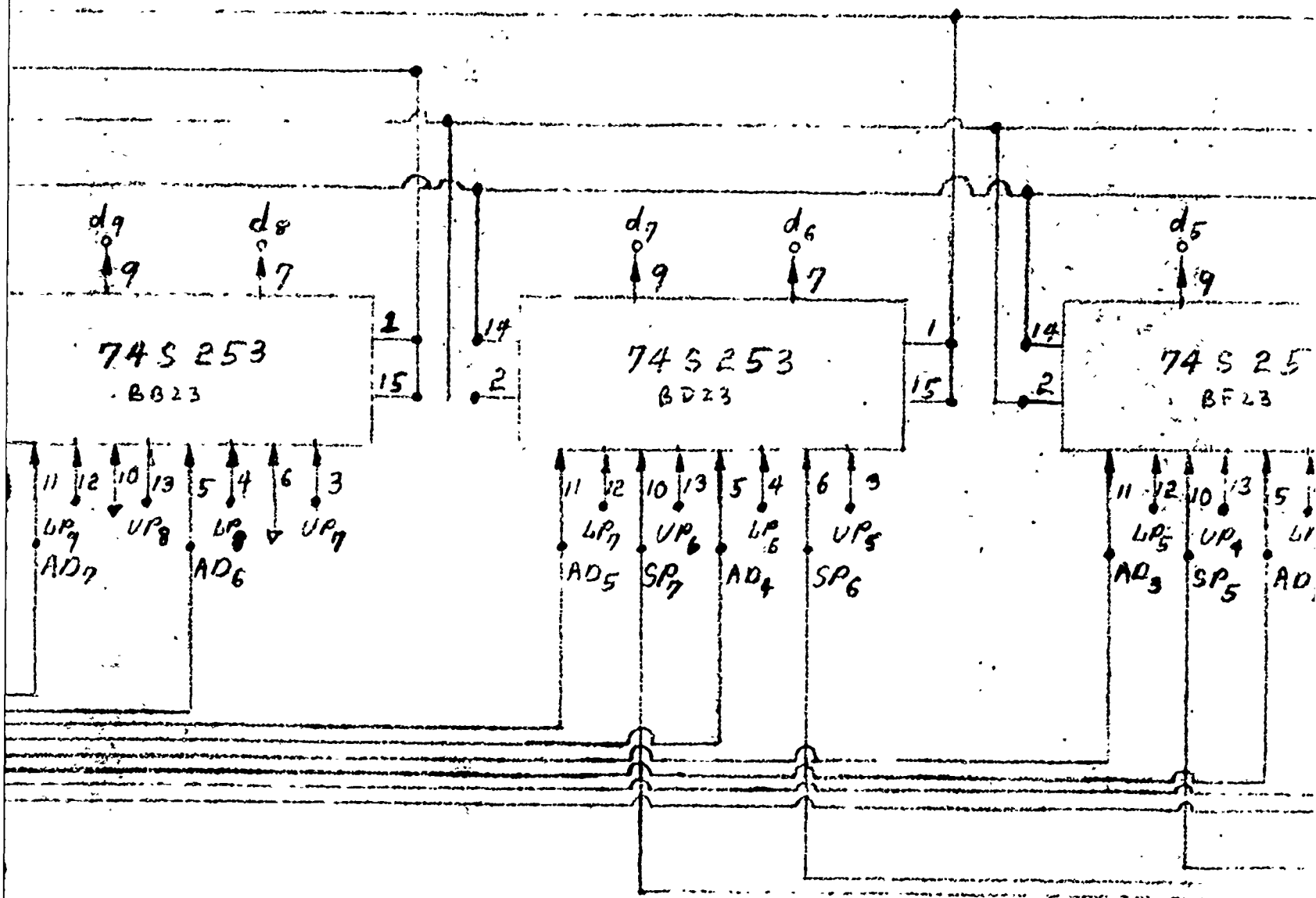
10/25/76
EMH



2



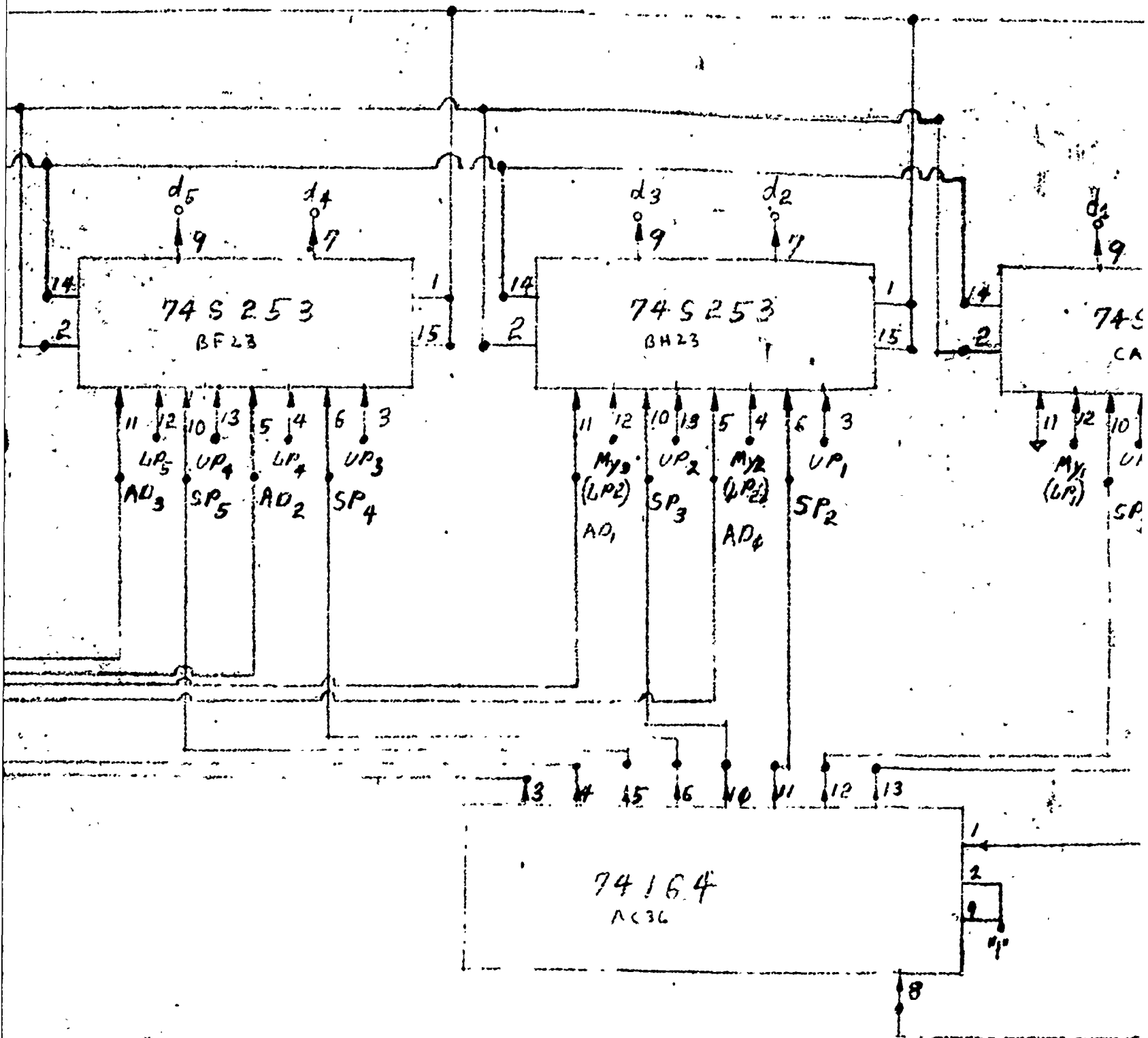
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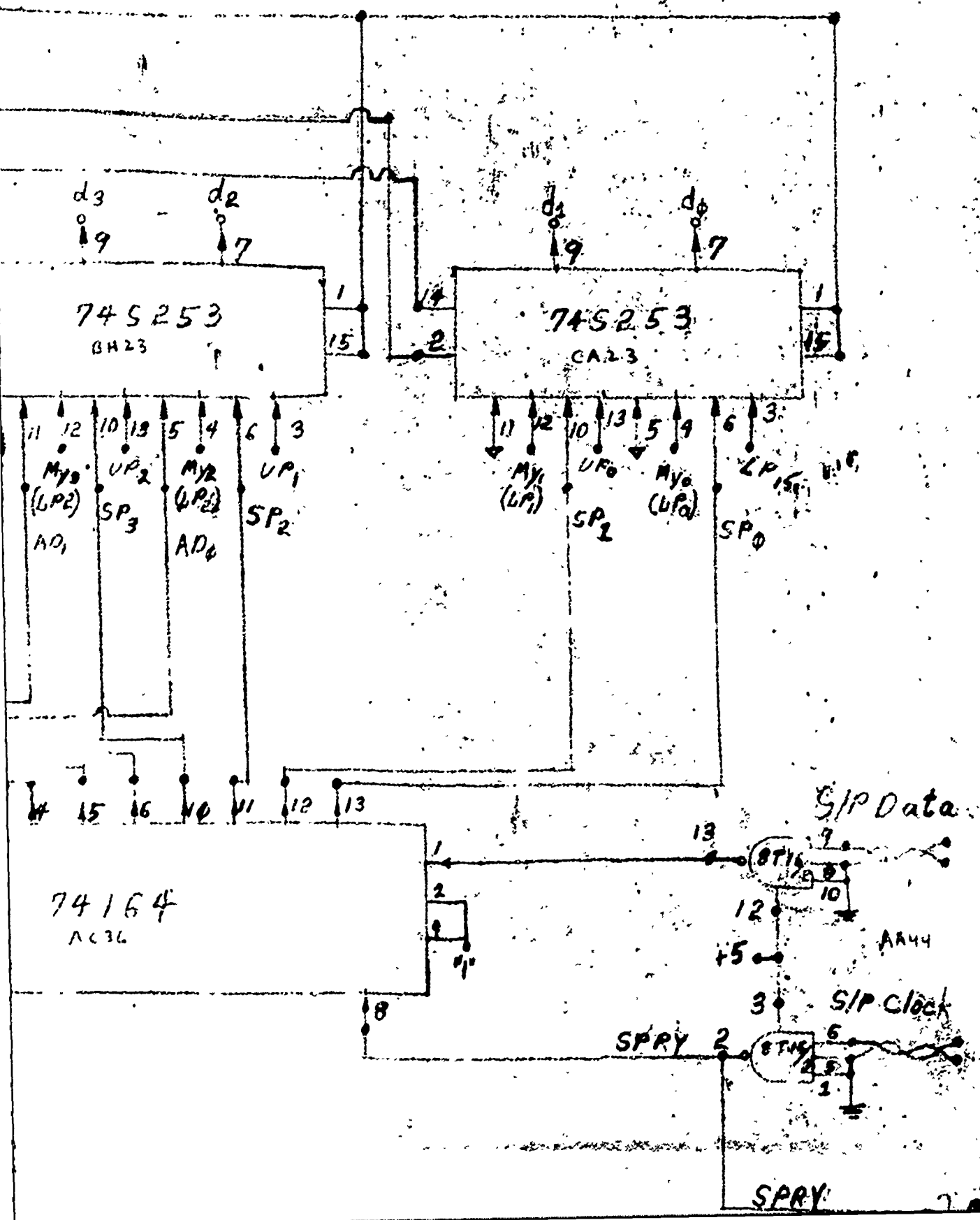
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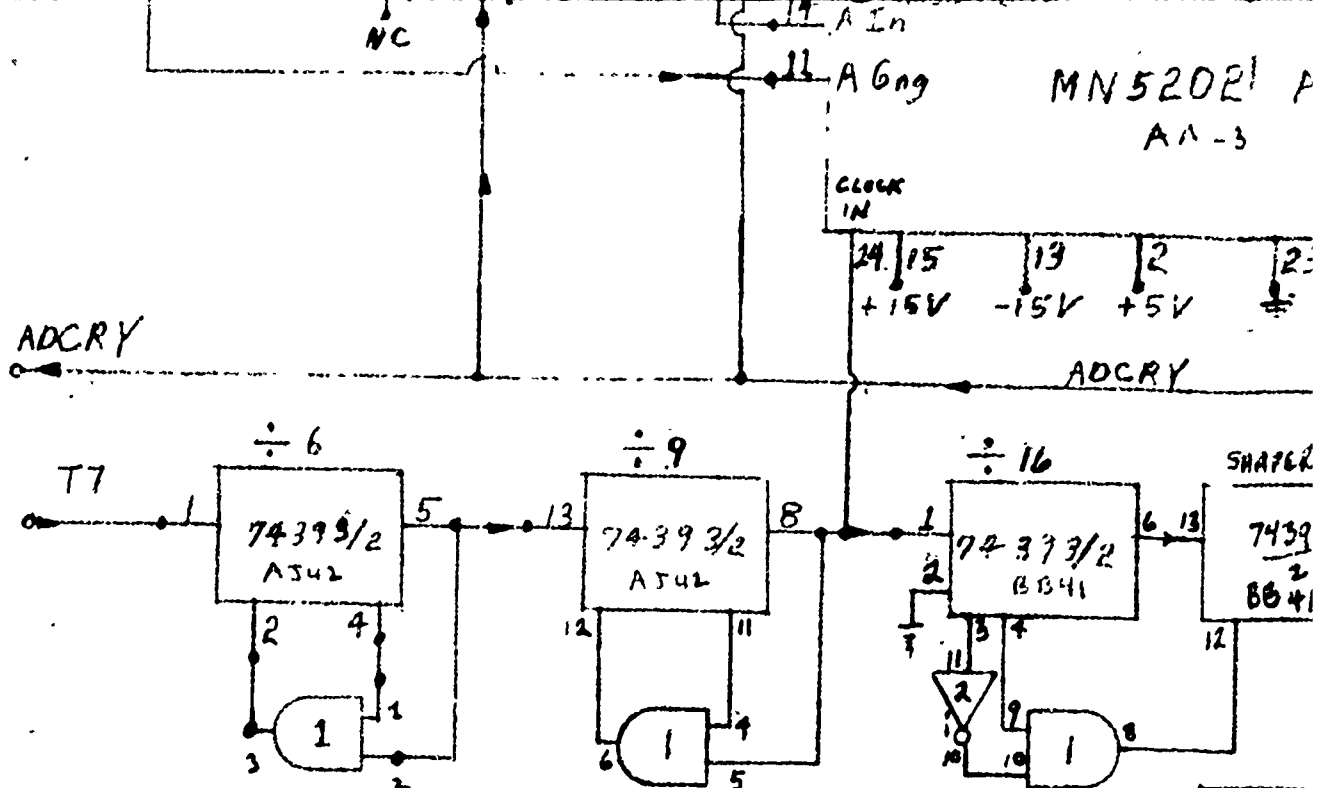
1 = 7402 BD41
2 = 7404 BF41

4

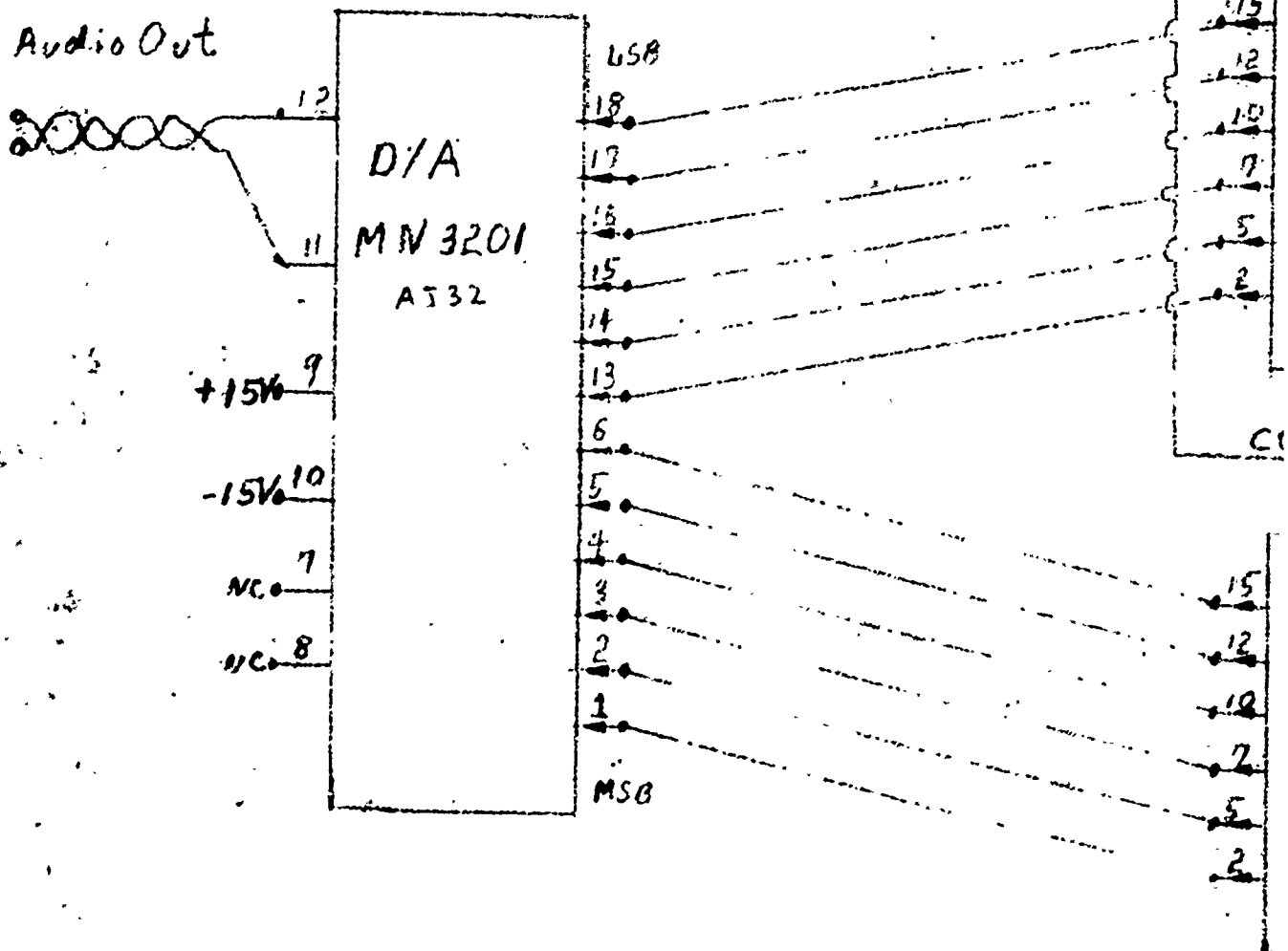


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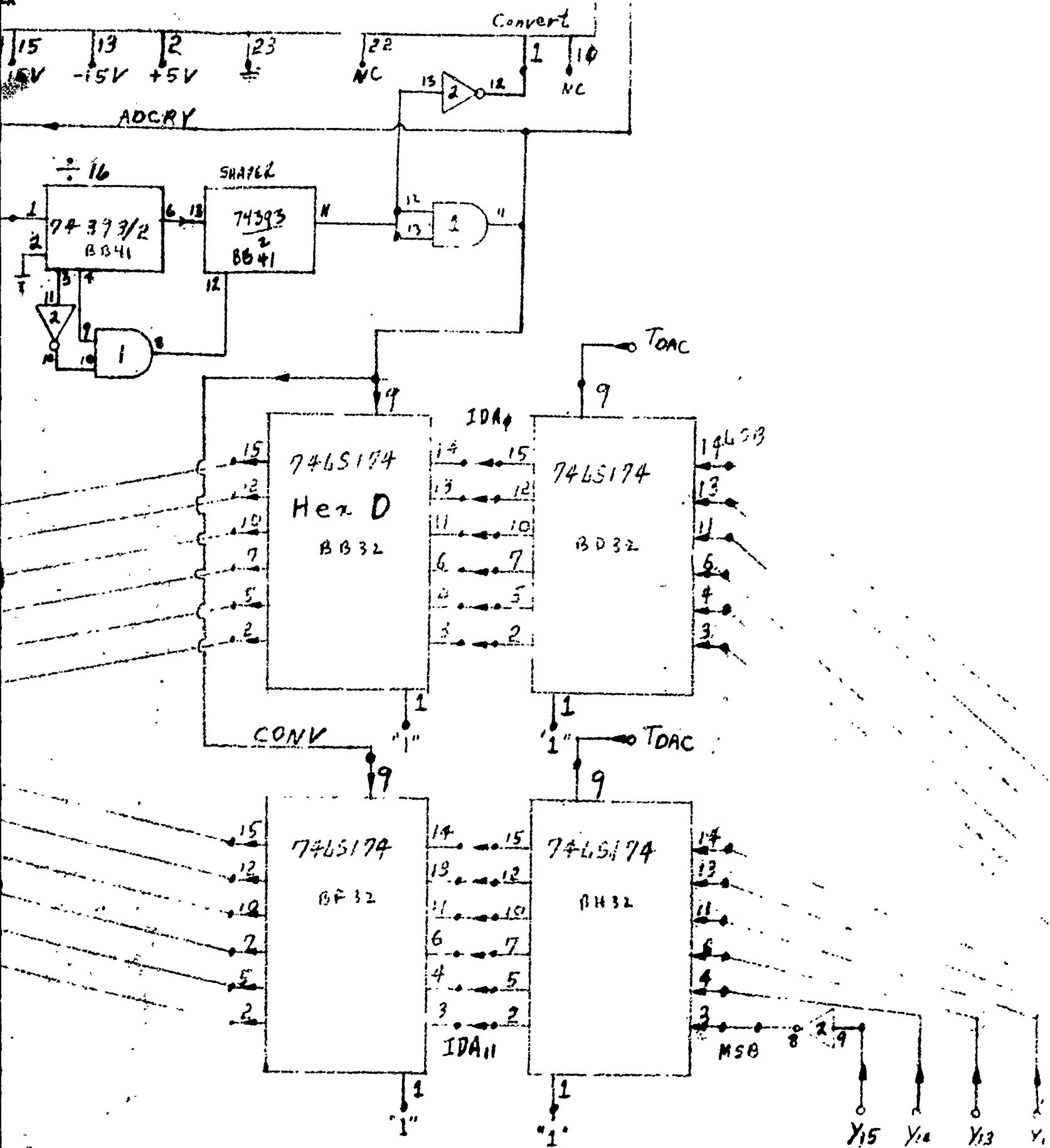


Audio Out

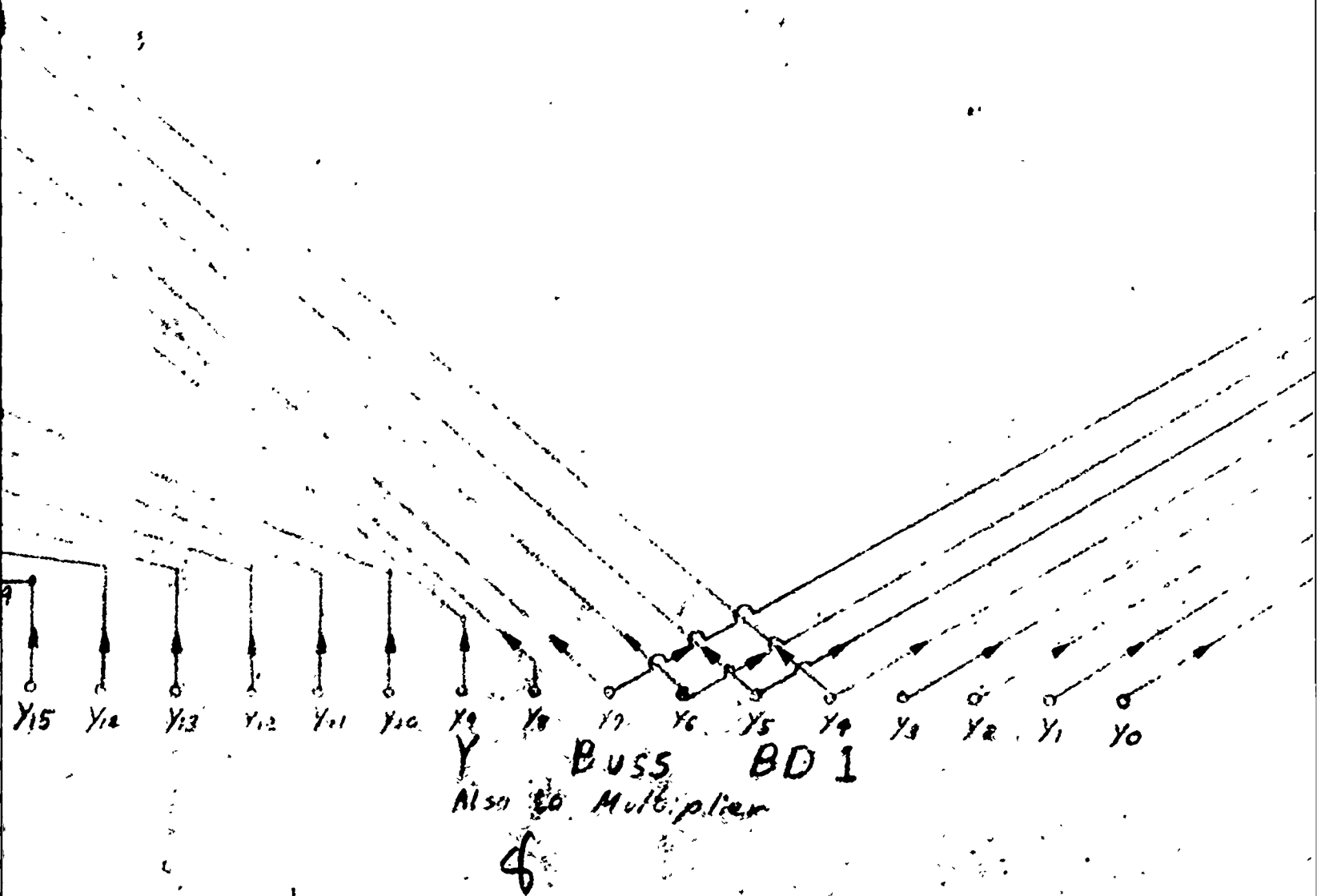


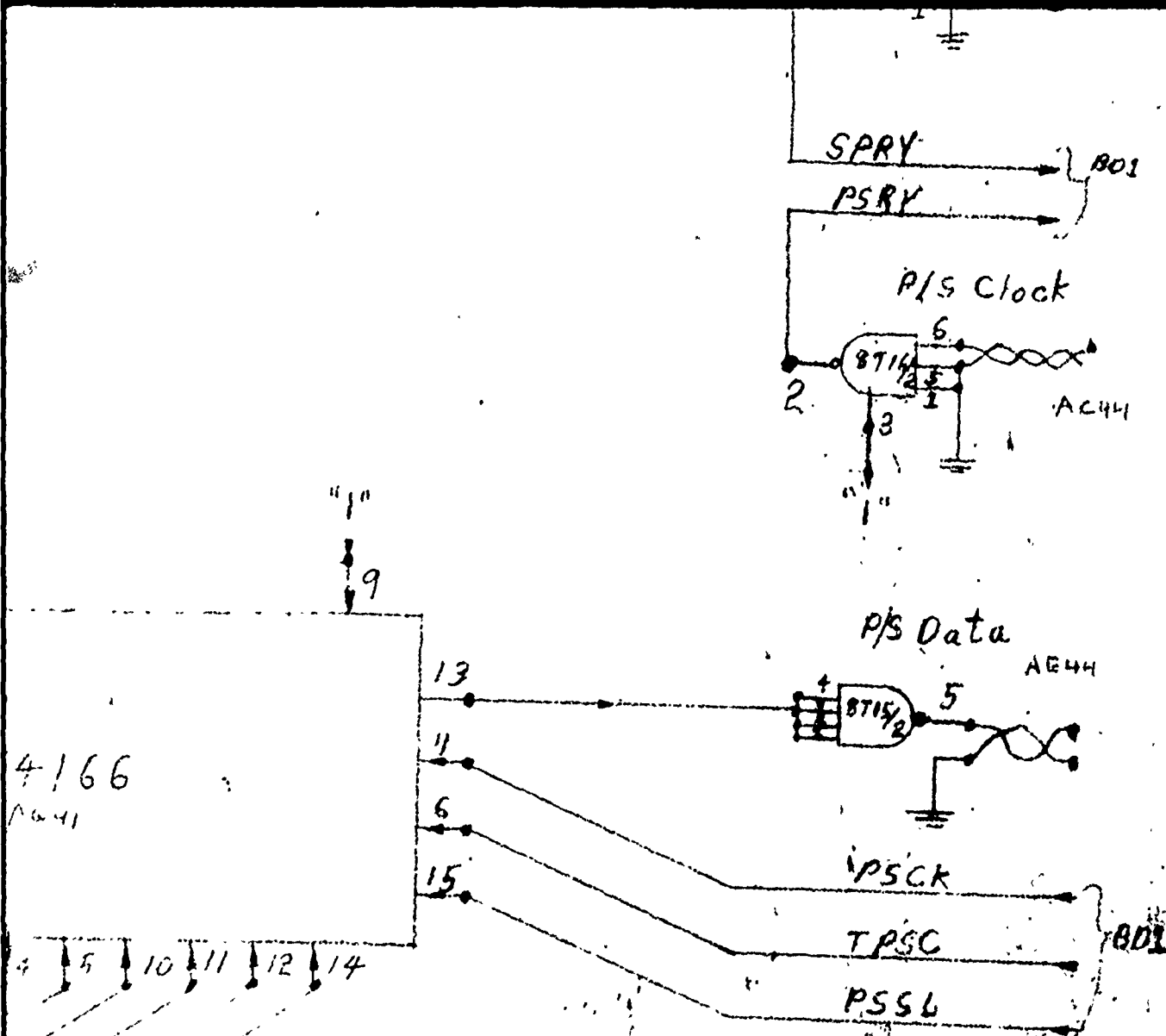
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MN5202/ A/D
A123



7





FST BD 2
4:1 D MUX
+
IO Circuits

RIT 29 Jan 76

updated March 29, 1976

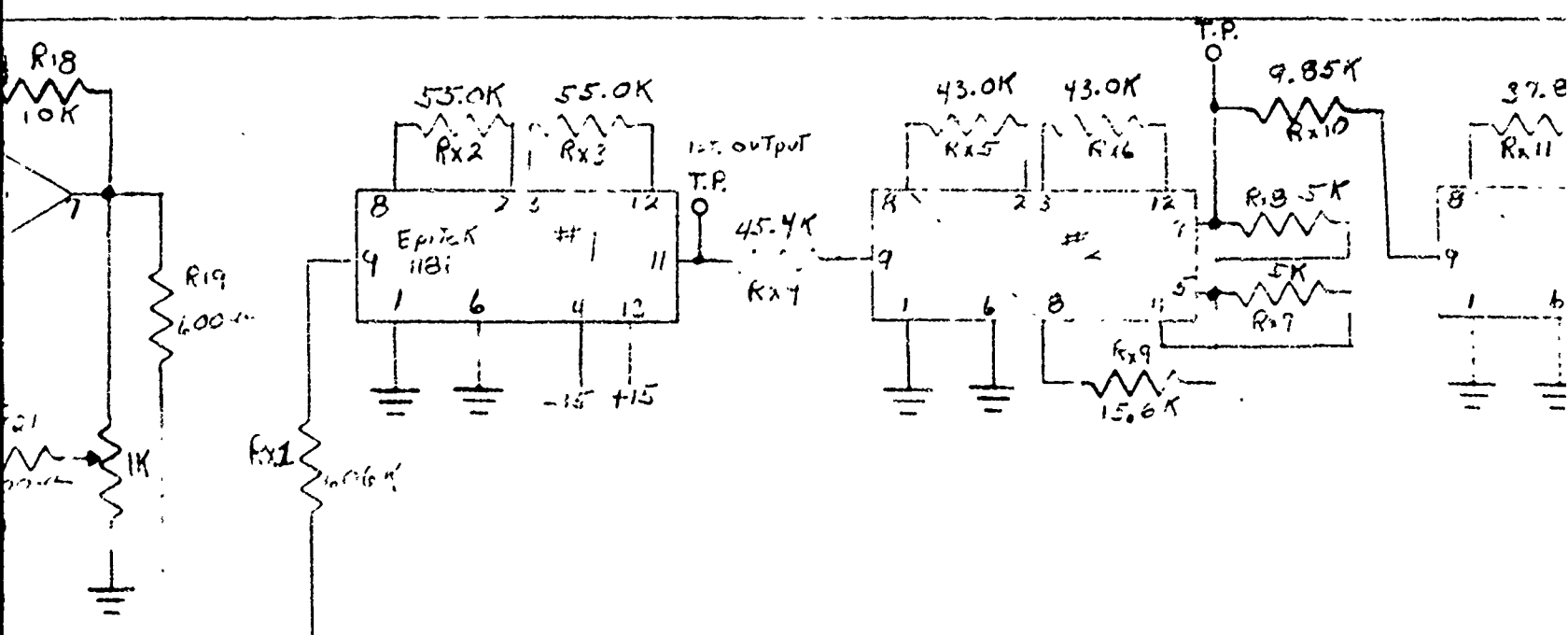
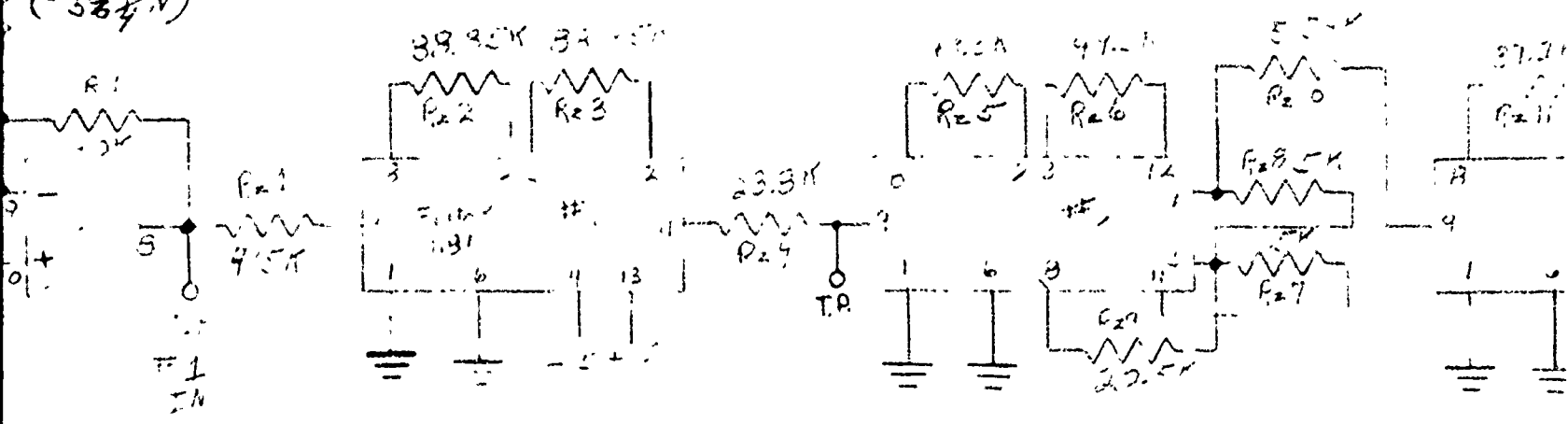
10/24/76
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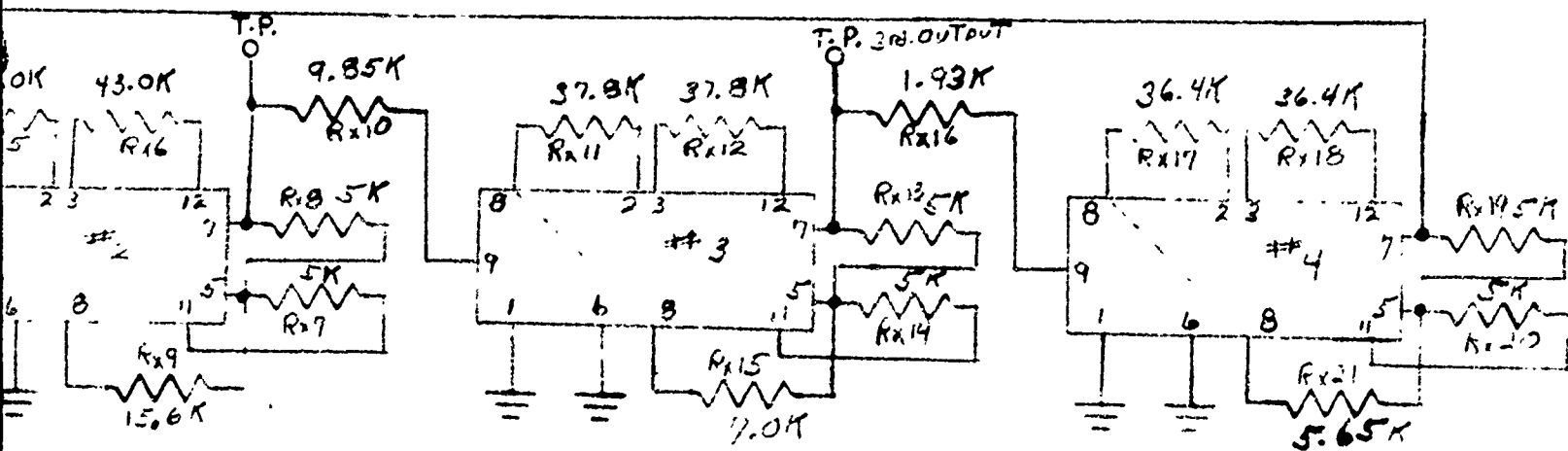
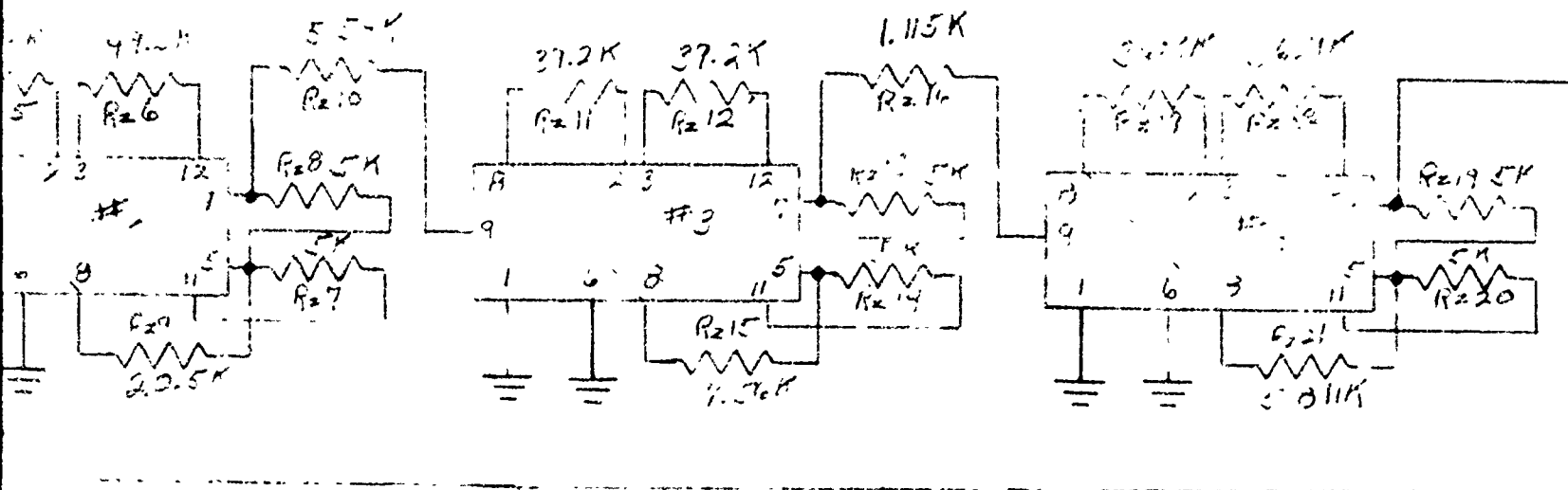
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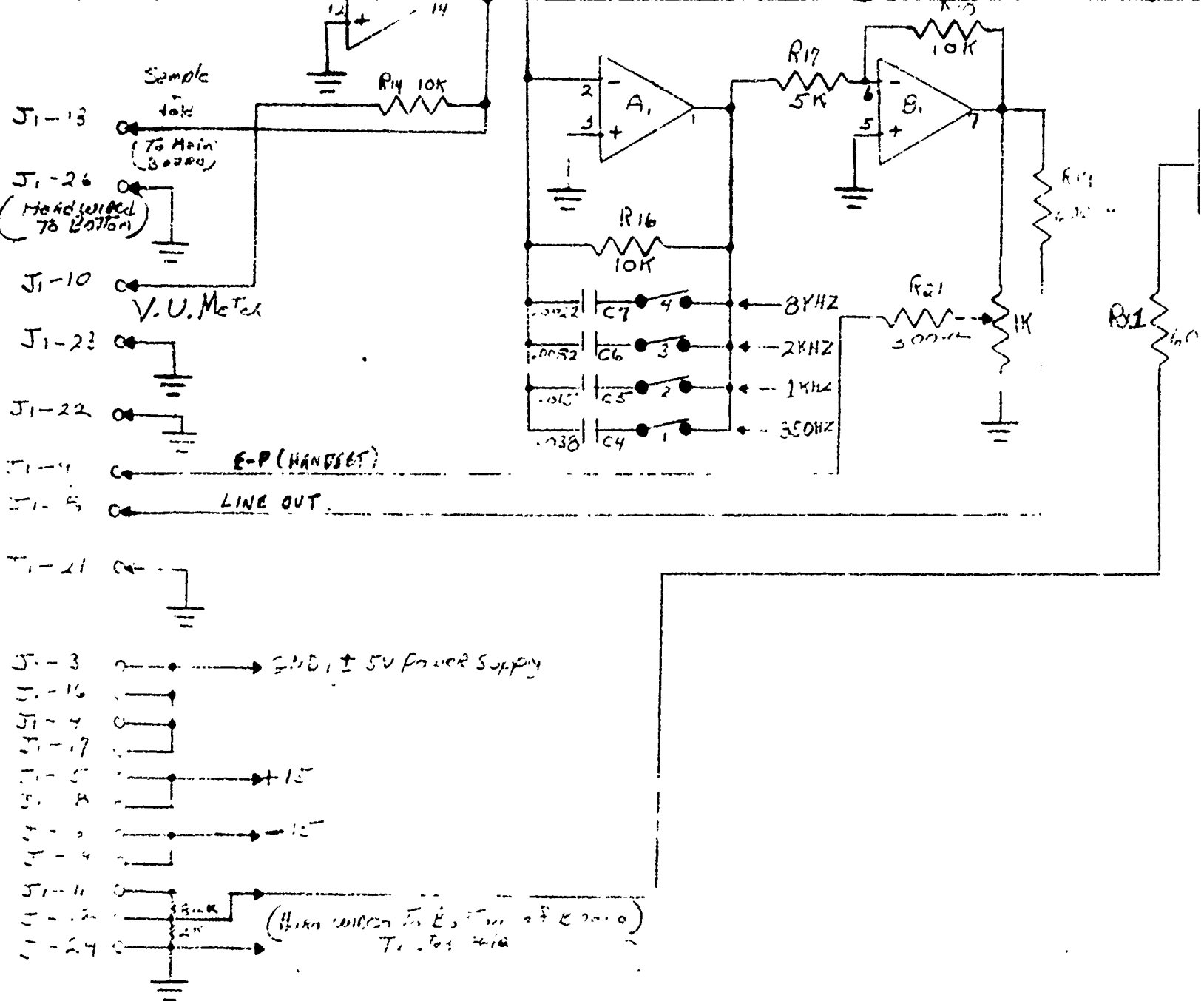
2

10
OK
+15

5.1V
(-58.4V)

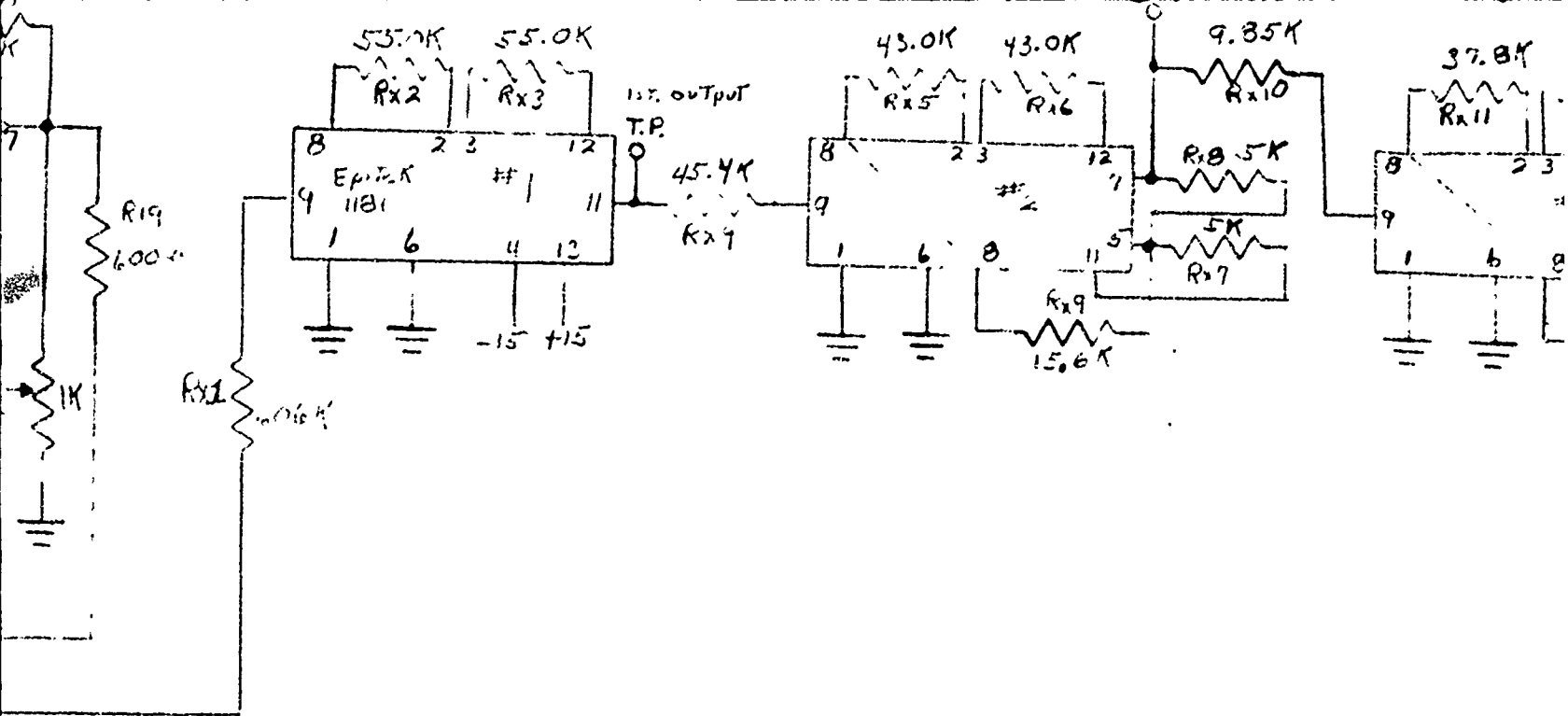




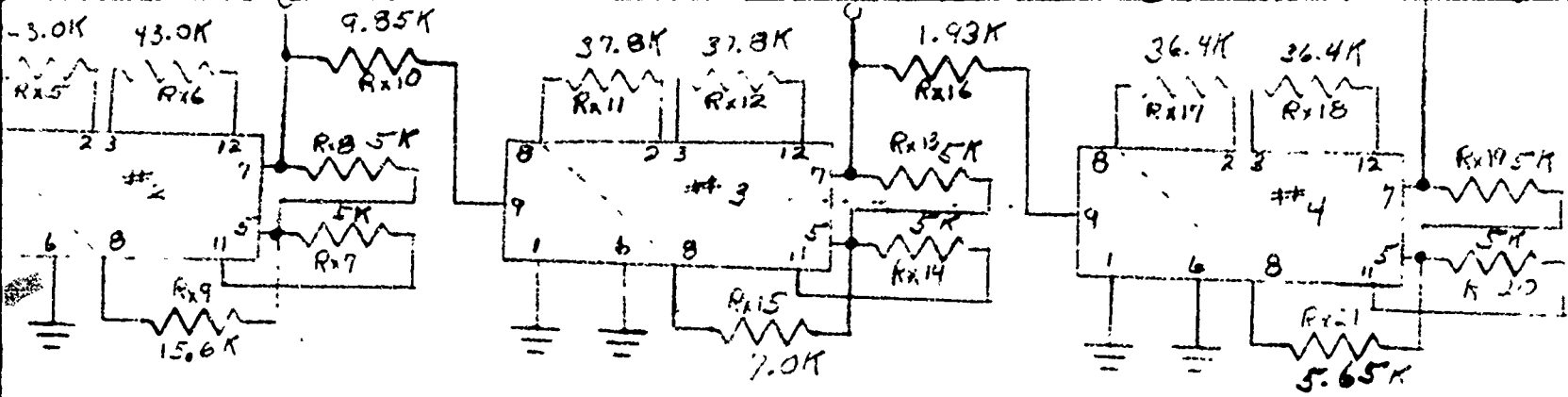


J1
All Twisted Pair

BEST AVAILABLE COPY



LPCM AUDIO SCHEMATIC



TIC

BEST AVAILABLE COPY.

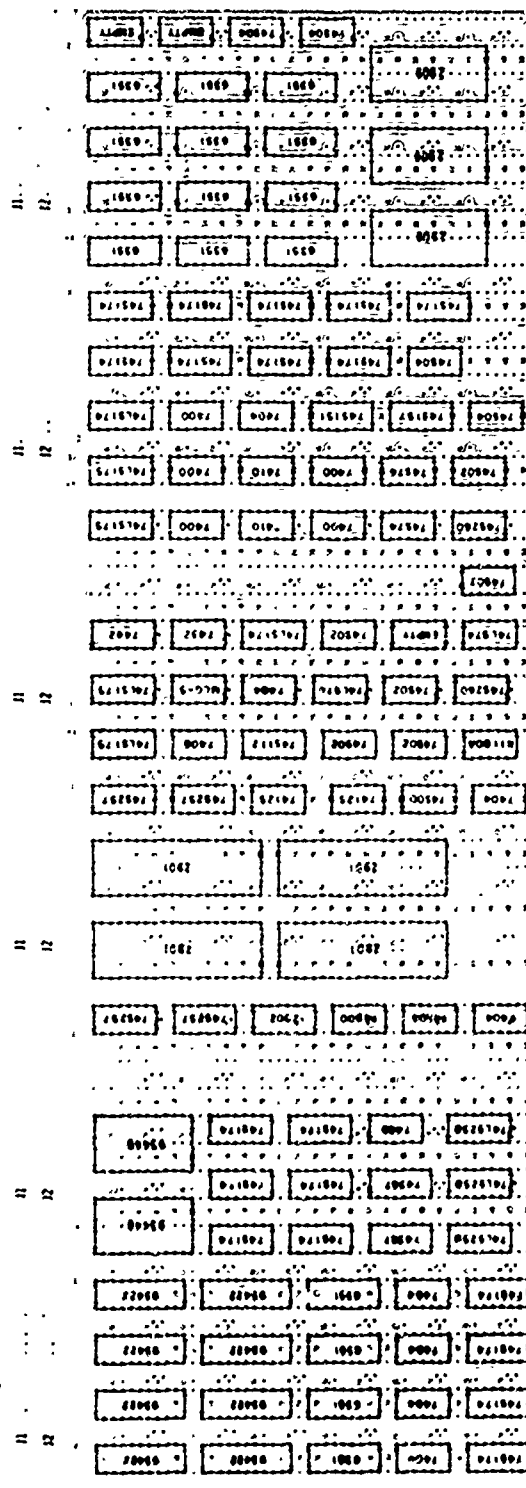
6

FB
1-16-77

8136-UG6 AND 8136-UG61 SERIES WORK SHEET -- COMPONENT SIDE

NOTE: For technical information on U Series Boards, request data sheet Class 006. Series U-Boards General / Sheet 1

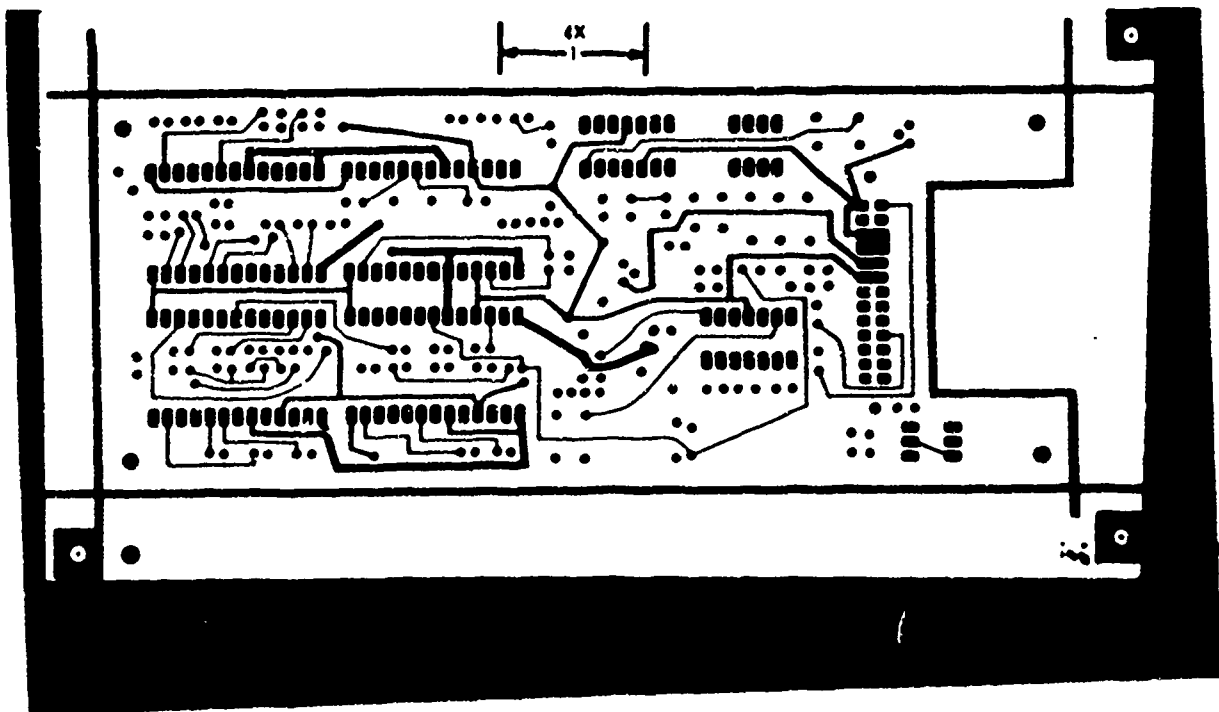
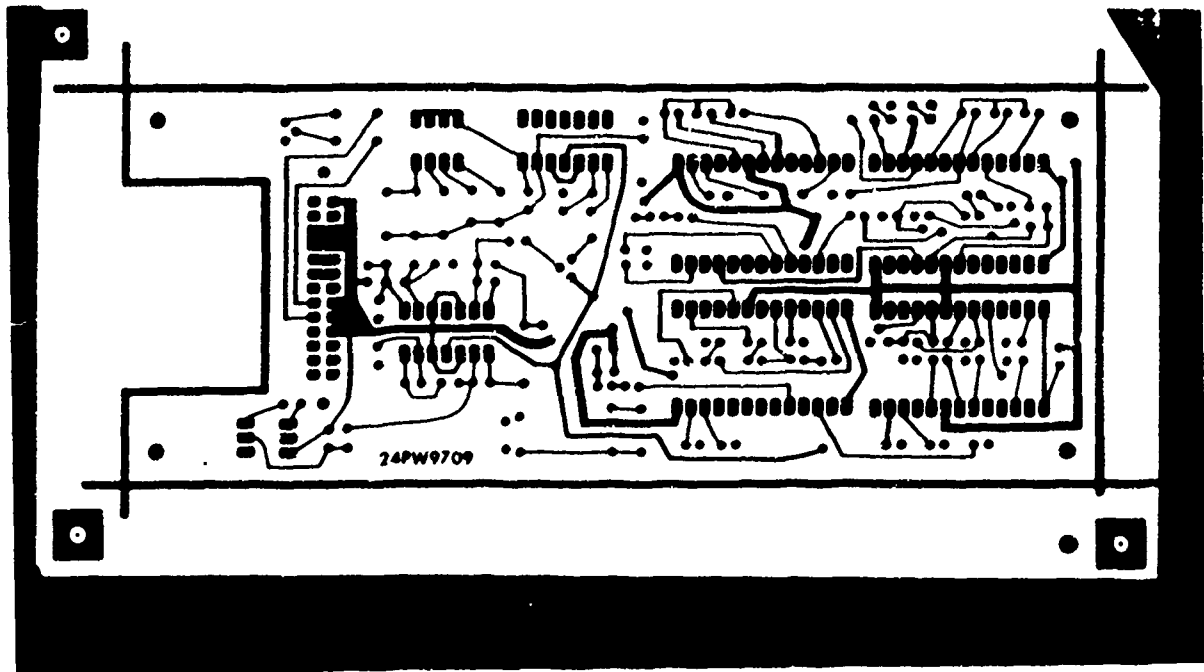
DO NOT SCALE PRINT



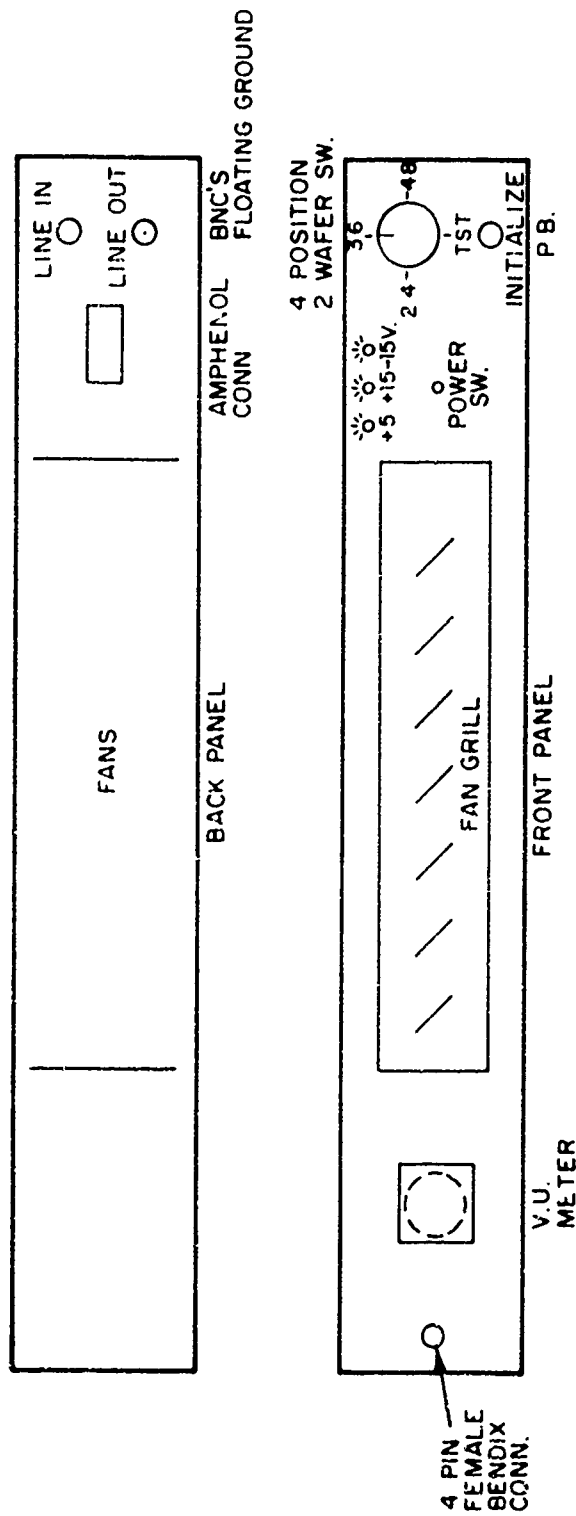
Digital Package Layout Board I

Copy

Audio Printed Circuit Layout



18-2-13255



Panel Layout

Cable List Board I and Board II

AJ1 I	TWISTED PAIRS		AJ2 II
0 14 1	Y0		0 1 14
0 15 2	Y2		0 2 15
0 16 3	Y4		0 3 16
0 17 4	Y6		0 4 17
0 18 5	Y8		0 5 18
0 19 6	Y10		0 6 19
0 20 7	Y12		0 7 20
0 21 8	Y14		0 8 21
0 22 9	SPRY		0 9 22
0 23 10	ADCRY		0 10 23
0 24 11			0 11 24
0 25 12	IC01		0 12 25
0 26 13	IC11		0 13 26

18-2-13256

Cable List Board I and Board II

AJ2 I		TWISTED PAIRS		AJ1 II	
C	0		Y1	0	0
14	1			1	14
0	0		Y3	0	0
15	2			2	15
0	0		Y5	0	0
16	3			3	16
0	0		Y7	0	0
17	4			4	17
0	0		Y9	0	0
18	5			5	18
0	0		Y11	0	0
19	6			6	19
0	0		Y13	0	0
20	7			7	20
0	0		Y15	0	0
21	8			8	21
0	0		PSRY	0	0
22	9			9	22
0	0			0	0
23	10			10	23
0	0			0	0
24	11			11	24
0	0		IC21	0	0
25	12			12	25
0	0		IC22	0	0
26	13			13	26

18-2-13257

Cable List Board I and Board II

BJ1 I	TWISTED PAIRS		BJ2 II
0 0 14 1	~~~~~ T7		0 0 1 14
0 0 15 2			MPCK 0 0 2 15
0 0 16 3			TMCD 0 0 3 16
0 0 17 4			TPSC 0 0 4 17
0 0 18 5			PSSL 0 0 5 18
0 0 19 6	•		D0 0 0 6 19
0 0 20 7			D2 0 0 7 20
0 0 21 8	•		D4 0 0 8 21
0 0 22 9			D6 0 0 9 22
0 0 23 10	•		D8 0 0 10 23
0 0 24 11			D10 0 0 11 24
0 0 25 12			D12 0 0 12 25
0 0 26 13			D14 0 0 13 26

18-2-13258

Cable List Board I and Board II

BJ2 I	TWISTED PAIRS	BJ1 II
0 14 1	 MPCL	0 14 1
0 15 2		TDAC 0 15 2
0 16 3		MPSP 0 16 3
0 17 4		PSCK 0 17 4
0 18 5		0 18 5
0 19 6	•	D1 0 19 6
0 20 7		D3 0 20 7
0 21 8	•	D5 0 21 8
0 22 9		D7 0 22 9
0 23 10	•	D9 0 23 10
0 24 11		D11 0 24 11
0 25 12		D13 0 25 12
0 26 13		D15 0 26 13

18-2-13259

Cable List Chassis to Board I and II

FROM FRONT PANEL SWITCH V W

18-2-13260

2.4 0 0

3.6 0 1

4.8 1 0

TST 1 1

W	CJ ₁ -1	} BD I
W _G	CJ ₁ -14	
V	CJ ₁ -2	
V _G	CJ ₁ -15	
INIT	CJ ₁ -3	
INIT _G	CJ ₁ -16	

FROM AMPHENOL BACK PANEL CONNECTOR

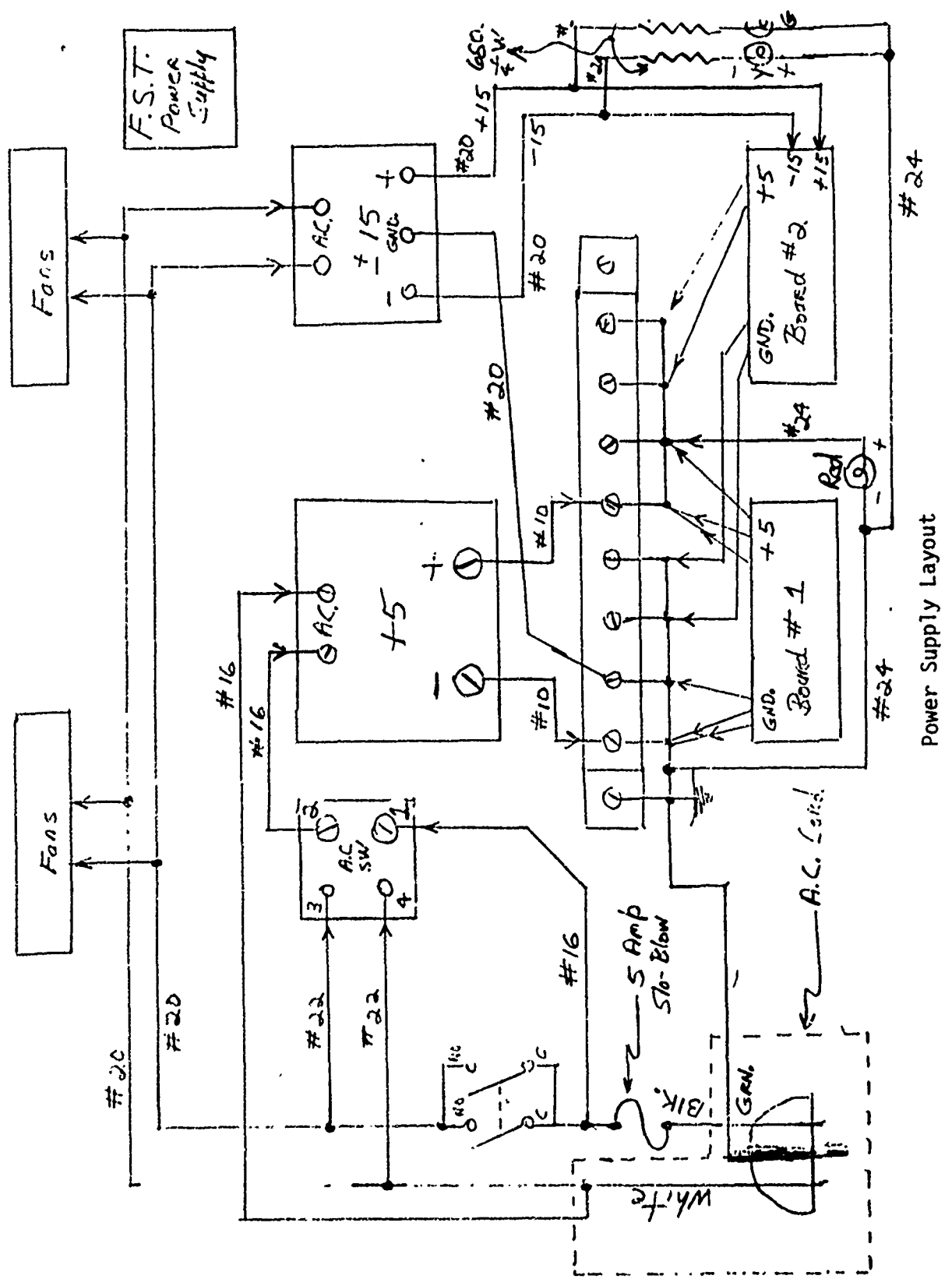
DIGITAL DATA IN	H	1	CJ ₂ -1	} BD II
	G	9	CJ ₂ -14	
CLOCK DATA IN	H	2	CJ ₂ -2	
	G	10	CJ ₂ -15	
DIGITAL DATA OUT	H	7	CJ ₂ -7	
	G	15	CJ ₂ -20	
CLOCK DATA OUT	H	6	CJ ₂ -6	
	G	14	CJ ₂ -19	

AUDIO CONNECTORS FRONT, AND REAR, AND AUDIO VOLTAGE

18-2-13261

+15 (from supply)	CJ ₁ -5, 18	BD II CJ ₁	AUDIO BOARD CONNECTOR	FROM AUDIO BD CONNECTOR	TO BD II CJ ₁
GROUND (from supply)	CJ ₁ -3, 4, 16, 17				
-15 (from supply)	CJ ₁ -6, 19				
BENDIX "A" (microphone)	DJ ₁ -1				
"g"	DJ ₁ -14				
BNC LINE INPUT +	DJ ₁ -2				
-	DJ ₁ -15				
BENDIX "C" + (earphone)	DJ ₁ -8				
"D" -	DJ ₁ -21				
BNC LINE OUTPUT +	DJ ₁ -9				
-	DJ ₁ -22				
VU METER +	DJ ₁ -10				
-	DJ ₁ -23				
+15 (from supply)	DJ ₁ -5, 18				
-15 (from supply)	DJ ₁ -6, 19				
GROUND (from supply)	DJ ₁ -3, 4, 16, 17				
				DJ ₁ -11	CJ ₁ -11
				DJ ₁ -24	CJ ₁ -24
				DJ ₁ -13	CJ ₁ -12
				DJ ₁ -26	CJ ₁ -25

Cable List Chassis to Board I and II



Power Supply Layout

Wire List (Punched Card Image) Board I

FILE: EDS

TAPRWLST A1 1/19/77 16:12

M.I.T. LINCOLN LABORATORY

	POWER	AND	GROUND	
1	DFV48		DFV48	DG43
1	DFG44		DFG44	DF49
1	AB25		AB25	ABV24
1	ABG36		ABG36	AA33
1	ABG36		ABG36	AC33
1	AF25		AF25	AFV24
1	AF33		AF33	ADG36
1	AH25		AH25	AHV24
1	AFG36		AFG36	AG33
1	AB36		AB36	ABV32
1	ABG44		ABG44	AA41
1	AD35		AD35	ADV32
1	ADG44		ADG44	AC41
1	AF35		AF35	AFV32
1	ADG44		ADG44	AE41
1	AH35		AH35	AHV32
1	AFG44		AFG44	AG41
1	AB43		AB43	ABV48
1	ABG44		ABG44	AA50
1	AD43		AD43	ADV48
1	ABG44		ABG44	AC50
1	AF43		AF43	AFV48
1	ADG44		ADG44	AE50
1	AF43		AH43	AHV40
1	AFG44		AFG44	AG50
1	BB01		BB01	BBV08
1	AJ12		AJ12	AHG12
1	BEC1		BEC1	BDV08
1	BC12		BC12	BBG12
1	BBV16		BBV16	EA14
1	AHG20		AHG20	AJ21
1	BBV16		BBV16	BC14
1	BB21		BB21	BBG20
1	BE14		BE14	BDV16
1	BD21		BD21	BDG20
1	BBV24		BBV24	BA23
1	AHG28		AHG28	AJ30
1	BBV24		BBV24	BC23
1	BB30		BB30	BBG28
1	BE23		BE23	BDV24
1	BD30		BD30	BDG28
1	BBV32		BBV32	BA32
1	AJ39		AJ39	AHG36
1	BBV32		BBV32	BC32
1	BB39		BB39	BBG36
1	BE32		BE32	BDV32
1	BD38		BD38	BDG36
1	BBV40		BBV40	BA41
1	AJ48		AJ48	AHG44
1	BBV40		BBV40	BC41
1	BB48		BB48	BBG44
1	BE41		BE41	BDV40
1	BD48		BD48	BDG44
1	ABC1		ABC1	ADV08

FILE: EDS

TAPFWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

1	ADC1	AD01	ADV08
1	ABG04	ABG04	AAC0
1	ABG04	ABG04	ACC0
1	AF01	AF01	AFV08
1	ADG04	ADG04	AE08
1	AHC1	AH01	AHV08
1	APG04	APG04	AGC0
1	AB13	AB13	ABV16
1	ABG20	ABG20	AA20
1	AD13	AD13	ADV16
1	ABG20	ABG20	AC20
1	AF13	AF13	AFV16
1	ADG20	ADG20	AE20
1	AH13	AH13	AHV16
1	APG20	APG20	AG20
1	BHV08	BHV08	BJ01
1	BHG04	BHG04	BH08
1	BHV08	BHV08	BJ10
1	BH17	BH17	BHG20
1	BJ19	BJ19	BHV16
1	BH26	BH26	BHG28
1	BJ28	BJ28	BHV24
1	BH34	BH34	BHG36
1	BHV40	BHV40	BJ30
1	BHG44	BHG44	BH42
1	BHV40	BHV40	BJ44
1	BHG44	BHG44	BH50
1	CA10	CA10	CBV08
1	CC11	CC11	CBG12
1	CD10	CD10	CDV08
1	CF11	CF11	CFG12
1	CA31	CA31	CBV32
1	CC32	CC32	CBG28
1	CD31	CD31	CDV32
1	CF32	CF32	CDG28
1	CHV08	CHV08	CH01
1	CFG04	CFG04	CG08
1	CHV08	CHV08	CH10
1	CFG20	CFG20	CG17
1	CH19	CH19	CHV16
1	CG25	CG25	CFG28
1	CH28	CH28	CHV32
1	CG34	CG34	CFG36
1	CH36	CH36	CHV40
1	CFG44	CFG44	CG42
1	CH44	CH44	CHV48
1	CFG44	CFG44	CG50
1	DDV08	DDV08	DD01
1	CJ08	CJ08	CHG04
1	DB08	DB08	DBG04
1	DDV08	DDV08	DE01
1	DDG04	DDG04	DD08
1	DBV08	DBV08	DA10
1	CJ16	CJ16	CHG12
1	DBV08	DBV08	DC10

FILE: EDS

TAPRWLST A1 1/19/77 16:22

M.I.T. LINCOLN LABORATORY

1	DB16	DB16	DEG12
1	DDV28	DDV28	DE10
1	DBV16	DBV16	DA18
1	DD16	DD16	DDG12
1	CHG20	CHG20	CJ25
1	DBV16	DBV16	DC18
1	DBG20	DBG20	DE24
1	DE18	DE18	DDV16
1	DDG28	DDG28	DD25
1	DBV24	DBV24	DA27
1	CHG36	CHG36	CJ33
1	DBV24	DBV24	DC26
1	DBG36	DBG36	DB32
1	DE27	DE27	DDV24
1	DD32	DD32	DDG36
1	DA35	DA35	DBV32
1	CHG44	CHG44	CJ41
1	DC34	DC34	DDV32
1	DBG36	DBG36	DB40
1	DA43	DA43	DBV40
1	CHG44	CHG44	CJ49
1	DDV40	DDV40	DC42
1	DB48	DB48	DBG44
1	DDV40	DDV40	DE43
1	DD49	DD49	DDG44
1	DHV28	DHV28	DJC1
1	DHC8	DHC8	DHGC4
1	EBV28	EBV28	EB1
1	EAC8	EAC8	ERG24
1	EDV28	EDV28	ED1
1	ECC8	ECC8	FDGC4
1	EFV28	EFV28	EF1
1	EEC8	EEC8	FFGC4
1	EHV28	EHV28	EH1
1	EHGC4	EHGC4	EG08
1	DHVC8	DHVC8	DJ10
1	DH16	DH16	DHG12
1	EBVC8	EBVC8	EB10
1	FRG12	FRG12	EA16
1	EDV28	EDV28	ED10
1	EBG12	EBG12	IC16
1	FFVC8	FFVC8	EF10
1	EE17	EE17	FDG12
1	EHVC8	EHVC8	EH10
1	FG17	FG17	FFG20
1	DJ18	DJ18	DHV16
1	DH24	DH24	DHG20
1	EB18	EB18	EBV16
1	EBG20	EBG20	EA24
1	ED18	ED18	FDV16
1	ERG20	ERG20	EC24
1	EF19	EF19	EFV16
1	EE26	EE26	EDG28
1	EH19	EH19	EHV16
1	EG26	EG26	FFG28

FILE: EDS

TAPRWLSF A1 1/19/77 16:32

M.I.T. LINCOLN LABORATORY

1	DJ26	DJ26	PHV24			
1	OH32	DH31	DHG28			
1	ED26	FB26	ERV24			
1	EBG36	FRG36	EA32			
1	ED26	ED26	FDV24			
1	EHG36	EBG36	EC32			
1	EF28	EF28	EFV24			
1	EDG36	EDG36	FF35			
1	PHV24	EHV24	EH28			
1	EG35	EG35	EHG36			
1	DJ34	DJ34	DHV32			
1	DH40	DH40	DHG36			
1	PH34	EB34	EHV32			
2	EBG44	ERG44	EA40	EC50	EA48	FC42
1	ED35	ED35	EDV32			
1	EF37	EF37	EFV40			
1	EB43	EF43	EFG44			
1	PH37	EH37	EHV40			
1	EHG44	EHG44	EG44			
1	DJ42	DJ42	DHV40			
1	DH48	DH48	DHG44			
1	EB42	EB42	EPV40			
1	FDV08	FDV08	FEC1			
1	FDV08	FDV08	FF11			
1	ADV24	ADV24	AD25			
1	ED44	ED44	EDV48			
1	EHV08	EHV08	FAC1			
1	EHG04	EHG04	EJC9			
1	FBV08	FBV08	FCC1			
1	FB09	FB09	FBG04			
1	FD09	FD09	FDG04			
1	FFV08	FFV08	FGC1			
1	FF09	FF09	FFG04			
1	FBV16	FBV16	FA11			
1	EJ19	EJ19	FHG28			
1	FBV08	FBV08	FC11			
1	FB19	FB19	FBG28			
1	FD19	FD19	FDG28			
1	FFV08	FFV08	FG11			
1	FF19	FF19	FFG28			
1	EHV24	EHV24	FA21			
1	EJ29	EJ29	EHG28			
1	FC21	FC21	FDV24			
1	FB29	FB29	FBG28			
1	FE21	FE21	FDV24			
1	FD29	FD29	FDG28			
1	FG21	FG21	FFV24			
1	FF29	FF29	FFG28			
1	FB33	FB33	FBV32			
1	EHG44	EHG44	EJ46			
1	FE33	FE33	FDV32			
1	FBG44	FBG44	FC46			
1	PH33	PH33	PHV32			
1	FFG44	FFG44	FF46			
1	PJ17	PJ17	PHV16			

FILP: FDS

TAPPWLST A1

1/19/77 16:02

M.I.T. LINCOLN LABORATORY

1	PH23	PH23	FHG24		
1	PJ25	PJ25	FHV24		
1	PHG28	PHG28	FH31		
1	DBV'8	DBV'8	DA'1		
	XOR TO 2:1 MUX				
1	MOE	BD24	CG11		
1	MOE1	BD27	CG14		
1	MOE2	BD29	CH15		
1	MOE3	BE29	CH12		
1	MOE4	BE27	CGC3		
1	MOE5	BE24	CGC5		
1	MOE6	BB24	CHC6		
1	MOE7	BB27	CHC3		
1	MOE8	BB29	HH11		
1	MOE9	BC29	HH14		
1	MOE10	BC27	HJ15		
1	MOE11	BC24	HJ12		
1	MOE12	AJ24	BHC2		
1	MOE13	AJ27	BH05		
1	MOE14	AJ29	BJC6		
1	MOE15	DA29	FJC3		
	HD OUTPUT TO MOR				
2	MO0	AG22	AG10	BC09	AH30
2	MO01	AH23	AH11	BC10	AH31
2	MO02	AH21	AH09	BC11	AH32
2	MO03	AH19	AH07	BE12	AH33
2	MO04	AE22	AE10	BE11	AF30
2	MO05	AF23	AF11	BE10	AF31
2	MO06	AF21	AF09	BF09	AF32
2	MO07	AF19	AF07	BE08	AF33
2	MO08	AC22	AC10	AJ09	AD30
2	MO09	AD23	AD11	AJ10	AD31
2	MO010	AD21	AD09	AJ11	AD32
2	MO011	AD19	AD07	BU12	AD33
2	MO012	AA22	AA10	BR11	AB30
2	MO013	AB23	AB11	BR10	AB31
2	MO014	AB21	AB09	BR09	AB32
2	MO015	AB19	AB07	BR08	AB33
	CLOCK FOR MOR				
2	T4	DA36	BA30	BC30	BE30
	ENABLES AND CLEARS				
2	AG38	AG28	BF06	BE06	BD23
2	AG38	AJ23			BE23
1	AFG36	AFG26	AG37		
1	AHG28	AHG28	AH29		
1	AF29	AF29	AFG28		
1	AD29	AD29	ADG28		
1	AB29	AB29	ABG28		
1	BE04	BE04	BDG04		
1	BB04	BB04	BDG04		
	MOR TO MD				
2	*BRO0	BD15	AG21	AG09	
2	MBRO1	BD18	AG23	AG11	
2	MBRO2	BD21	AH22	AH10	
2	MBRO3	BE29	AH20	AH08	

FILE: FDS

TAPRWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

2	MBRO4	BE18	AE21	AE49		
2	MBRO5	BE15	AE23	AE44		
2	MBRO6	BB15	AF22	AF10		
2	MBRO7	BB18	AF20	AF08		
2	MBRO8	BB20	AC21	AC09		
2	MBRC9	BC20	AC23	AC11		
2	MBRC10	BC18	AD22	AD10		
2	MBRO11	BC15	AD20	AD08		
2	MBRO12	AJ15	AA21	AA09		
2	MBRO13	AJ18	AA23	AA11		
2	MBRO14	AJ20	AB22	AB10		
2	MBRO15	BA20	AB20	AB08		
2	AG36	AG36	PD14	BE14	AJ14	AA43
2	AG36	AE43	AC43	AG43		
2	EMBR	DE28	EA21	BC21	BE21	
1	AFG36	AFG36	AG35			

93422 OF BAR

1	ANG20	ANG20	AH17		
1	AFG20	AFG20	AF17		
1	ADG20	ADG20	AD17		
1	ARG20	ARG20	AE17		
1	ABG04	ABG04	ABC5		
1	ADG04	ADG04	ADC5		
1	AFG04	AFG04	APC5		
1	AHC5	AHC5	ANG04		

NO ADDRESS BITS 0 TO 7 LOWER ADDRESSES

1	MDAL0	AE36	AG04	
1	MDAL0	AG04	AEC4	
1	MDAL0	AEC4	ACC4	
1	MDAL0	ACC4	AAC4	
1	MDAL0	AA04	AA16	
1	MDAL0	AA16	AC16	
1	MDAL0	AC16	AE16	
1	MDAL0	AE16	AG16	
1	MDAL0	AG16	AG04	
1	MDAL1	AE38	AG03	
1	MDAL1	AG03	AEC3	
1	MDAL1	AE03	AC03	
1	MDAL1	AC03	AAC3	
1	MDAL1	AA03	AA15	
1	MDAL1	AA15	AC15	
1	MDAL1	AC15	AE15	
1	MDAL1	AE15	AG15	
1	MDAL1	AG15	AG01	
1	MDAL2	AE40	AG02	
1	MDAL2	AG02	AEC2	
1	MDAL2	AEC2	ACC2	
1	MDAL2	AC02	AAC2	
1	MDAL2	AA02	AA14	
1	MDAL2	AA14	AC14	
1	MDAL2	AC14	AE14	
1	MDAL2	AE14	AG14	
1	MDAL2	AG14	AG02	
1	MDAL3	AF01	AG01	
1	MDAL3	AG01	AEC1	

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FILE: FDS

TAPRNLST R1

1/19/77 16:02

M.I.T. LINCOLN LABORATORY

1	MDAL3	AE01	AC01
1	MDAL3	AC01	AA01
1	MDAL3	AA01	AA13
1	MDAL3	AA13	AC13
1	MDAL3	AC13	AF13
1	MDAL3	AE13	AG13
1	MDAL3	AG13	AG01
1	MDAL4	AF19	AA02
1	MDAL4	AA02	AF02
1	MDAL4	AF02	AD02
1	MDAL4	AD02	AB02
1	MDAL4	AB02	AB14
1	MDAL4	AB14	AD14
1	MDAL4	AD14	AE14
1	MDAL4	AE14	AA14
1	MDAL4	AA14	AF02
1	MDAL5	AF37	AG05
1	MDAL5	AG05	AE05
1	MDAL5	AE05	AC05
1	MDAL5	AC05	AA05
1	MDAL5	AA05	AA17
1	MDAL5	AA17	AC17
1	MDAL5	AC17	AE17
1	MDAL5	AE17	AG17
1	MDAL5	AG17	AG05
1	MDAL6	AD39	AG06
1	MDAL6	AG06	AE06
1	MDAL6	AE06	AC06
1	MDAL6	AC06	AA06
1	MDAL6	AA06	AA18
1	MDAL6	AA18	AC18
1	MDAL6	AC18	AE18
1	MDAL6	AE18	AG18
1	MDAL6	AG18	AG06
1	MDAL7	AD37	AG07
1	MDAL7	AG07	AE07
1	MDAL7	AE07	AC07
1	MDAL7	AC07	AA07
1	MDAL7	AA07	AA19
1	MDAL7	AA19	AC19
1	MDAL7	AC19	AE19
1	MDAL7	AE19	AG19
1	MDAL7	AG19	AG07
1	MD ADDRESS BITS : TO 7 UPPER ADDRESSES		
1	MDAU0	AA36	AG30
1	MDAU0	AG30	AE30
1	MDAU0	AE30	AC30
1	MDAU0	AC30	AA30
1	MDAU0	AA36	BCC8
1	MDAU0	BCC8	AJC8
1	MDAU1	AA38	AG31
1	MDAU1	AG31	AE31
1	MDAU1	AE31	AC31
1	MDAU1	AC31	AA31
1	MDAU1	AA38	BCC7

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FILE: EDS.

TAPFWLST A1

1/19/77 16:02

N. I. T. LINCOLN LABORATORY

1	MDAU1	BC07	AJC7
1	MDAU2	AA40	AG32
1	MDAU2	AG32	AE32
1	MDAU2	AE32	AC32
1	MDAU2	AC32	AA32
1	MDAU2	AA40	BCC6
1	MDAU2	BC06	AJC6
1	MDAU3	AB41	AG29
1	MDAU3	AG29	AE29
1	MDAU3	AE29	AC29
1	MDAU3	AC29	AA29
1	MDAU3	AB41	BCC5
1	MDAU2	BC05	AJC5
1	MDAU4	AB39	AG28
1	MDAU4	AG28	AE28
1	MDAU4	AE28	AC28
1	MDAU4	AC28	AA28
1	MDAU4	AB39	BCC4
1	MDAU4	BC04	AJC4
1	MDAU5	AB37	AG27
1	MDAU5	AG27	AE27
1	MDAU5	AE27	AC27
1	MDAU5	AC27	AA27
1	MDAU5	AB37	BCC3
1	MDAU5	BC03	AJC3
1	MDAU6	AC36	AG26
1	MDAU6	AG26	AE26
1	MDAU6	AE26	AC26
1	MDAU6	AC26	AA26
1	MDAU6	AC36	BCC2
1	MDAU6	BC02	AJC2
1	MDAU7	AC38	AH27
1	MDAU7	AH27	AF27
1	MDAU7	AF27	AD27
1	MDAU7	AD27	AB27
1	MDAU7	AC38	BCC1
1	MDAU7	BC01	AJC1
1	MDAL8	BD44	AHC6
1	MDAL8	AHC6	AFC6
1	MDAL8	AFC6	ADC6
1	MDAL8	AD06	AB06
1	MDAL8	AG40	AH18
1	MDAL8	AH18	AF18
1	MDAL8	AF18	AD18
1	MDAL8	AD18	AB18
1	MDAL9	BD34	AHC4
1	MDAL9	AHC4	AFC4
1	MDAL9	AFC4	AD04
1	MDAL9	AD04	AB04
1	MDAL9	AB04	AB16
1	MDAL9	AB16	AD16
1	MDAL9	AD16	AF16
1	MDAL9	AF16	AH16
1	MDAL9	AH16	AHC4
1	MDALE	AG40	AH28

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FILE: EDS

TAPRWLST M1

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M. L. T. LINCOLN LABORATORY

1	CMDA1F	AH28	AF28
1	CMDA1F	AF28	AD28
1	CMDA1F	AD28	AB28
1	CMDA1F	AG47	BF42
1	CMDA1F	BE42	BEC2
1	MDA18	AC47	AG25
1	MDA18	AG25	AE25
1	MDA18	AE25	AC25
1	MDA18	AC25	AA25
1	MDA18	AC47	BEC7
1	MDA18	BE47	BEC7
1	MDA19	AD41	AH26
1	MDA19	AH26	AF26
1	MDA19	AF26	AD26
1	MDA19	AD26	AB26
1	MDA19	AD41	BEC5
1	MDA19	BEC5	BEC5
2	CMDA1	AJ44	AA25
2	CMDA1	AJ47	AA37
2	CMDA2	DA48	AA39
2	CMDA3	BA45	AB47
2	CMDA4	BB44	AB38
2	CMDA5	BB47	AB36
2	CMDA6	BC48	AC35
2	CMDA7	BC45	AC37
1	MDA18	BD44	AG39
2	CMDA9	BD47	AC39
2	CMDA10	BE48	AD47
1	CMDA10	AJ34	AE35
1	CMDA1	AJ36	AE37
1	CMDA2	AJ38	AE39
1	CMDA3	BA39	AF47
1	CMDA4	BA35	AF38
1	CMDA5	BA37	AF36
1	CMDA6	BC35	AD38
1	CMDA7	BC37	AD36
1	MDA18	BB34	AG39
1	CMDA9	BB36	BD32
1	CMDA10	BB38	BD33
1	MAR10	AA44	AJ42
1	MAR11	AA47	AJ45
1	MAR12	AA49	BA46
1	MAR13	AB49	BA43
1	MAR14	AB47	BB42
1	MAR15	AB44	BR45
1	MAR16	AC44	BC46
1	MAR17	AC47	BC43
1	MAR18	AC49	BD42
1	MAR19	AD49	BD45
1	MAR20	AD47	BE46
1	MAR21	AE44	AJ43
1	MAR22	AF47	AJ46
1	MAR23	AE49	EA47
1	MAR24	AF49	BA44
1	MAR25	AF47	BB43

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M.I.T. LINCOLN LABORATORY

1	MAR15	AF44	BB46			
1	MAR16	AG44	BC47			
1	MAR17	AG47	BC44			
1	MAR18	AG49	BD43			
1	MAR19	AH49	BD46			
1	MAR110	AH47	BE47			
2	TYAPC	DB47	AB51	AD51		
2	TYAR1	DB46	AH51	AF50		
2	TH37	AH37	BA42	BC42	BE42	
1	CFG20	CFG20	CF22			
1	CBG20	CBG20	CC22			
1	CFG04	CFG04	CFC1			
1	CBG04	CBG04	CC01			
1	BH28	BH28	CC08			
2	SCY	EE32	PH29	BH38		
1	BH31	BH31	BH30			
2	BHG04	BHG04	BH03	BH06	BJ07	BJ04
1	BHG12	BHG12	BJ13			
1	F	EG29	CG12			
1	F1	EG32	CG15			
1	F2	EG34	CH16			
1	F3	EH34	CH13			
1	F4	EH32	CG03			
1	F5	EH29	CG06			
1	F6	EG38	CH07			
1	F7	EG41	CH04			
1	F8	EG43	BH12			
1	F9	EH43	BH15			
1	F10	EH41	BJ16			
2	IC0	EF11	CG10	CG01	BH10	BH01
1	IC2	EG05	BH46			
2	CIC2	BH47	BJ02	BJ11	CH02	CH11
1	D1	CG13	CF37			
1	D1	CG16	CF38			
1	D2	CH17	CF39			
1	D3	CH14	CF40			
1	D4	CG04	CC37			
1	D5	CG07	CC38			
1	D6	CH08	CC39			
1	D7	CH05	CC40			
1	D8	BH13	CF16			
1	D9	BH16	CF17			
1	D10	BJ17	CF18			
1	D11	BJ14	CF19			
1	D12	BH04	CC16			
1	D13	BH07	CC17			
1	D14	BJ08	CC18			
1	D15	BJ15	CC19			
2	FE00	CD32	CA32	CD11	CA11	EA35
2	T5	DE27	CA15	CD15	CA36	CD36
2	TS0	EH02	CD33	CA33	CD12	CA12
2	TS1	EF02	CD34	CA34	CD13	CA13
2	TS2	EF05	CD35	CA35	CD14	CA14
2	IO0	EE07	CF36	CC36	CF15	CC15
2	IO1	EF17	CF34	CC34	CF13	CC13

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M.I.T. LINCOLN LABORATORY

2	FD2	EF05	CF35	CC35	CF14	CC14
2	FD0	EG07	CF26	CA26	CD05	CA05
2	FD1	EH07	CD28	CA28	CD07	CA07
2	FD2	EH05	CD27	CA27	CD06	CA06
2	A0	EF23	CD25	CA25	CD04	CA04
2	A1	EF20	CF24	CA24	CD03	CA03
2	A2	EE11	CD23	CA23	CD02	CA02
2	A3	EF14	CD22	CA22	CD01	CA01
2	B0	FH23	CD38	CA38	CD17	CA17
2	B1	EH20	CD39	CA39	CD18	CA18
2	B2	EE20	CD40	CA40	CD19	CA19
2	B3	FE23	CD41	CA41	CD20	CA20

SHIFT LOGIC

1	CD29	CD29	CA30		
1	CA29	CA29	CD09		
1	CD08	CD08	CA09		
1	CA08	CA08	CG21		
1	CG20	CG20	CC10		
1	FD1	CG19	CA07		
1	CD37	CD37	CC41		
1	CA37	CA37	CF20		
1	CD16	CD16	CC20		
2	CA16	CA16	CG29	CG33	
1	CHG28	CHG28	CH30		
1	CHG28	CH30	CH33		
2	CG30	CG30	CG32	CD30	CH31
1	CH34	CH34	CF41		
1	BE38	BE38	CG28		
2	CH29	CH29	BD37	BE37	
1	ID1	CA28	BD36		
1	ID1	BD36	CG31		
1	ID1	CG31	BE36		
1	ID1	DE36	BH44		
1	BH45	BH45	CH32		
1	ID0	CA26	BD35		
1	BH32	BH32	CG38		
1	BH33	BH33	BA26		
2	BA27	BA27	BJ32	CG36	
1	BH39	BH39	CG37		
2	BCY	EE29	BH36	BJ33	
1	BH37	BH37	CG39		
1	EF02	EF02	CG40		
1	BJ34	BJ34	BJ29		
1	BJ30	BJ30	CG41		
2	BJ31	BJ31	CF33	BJ22	
1	BJ26	BJ26	CC12		
1	BJ24	BJ24	CF12		
1	BJ23	BJ23	CC33		
1	GC	CF30	BH21		
1	CP0	CF27	BH22		
1	G1	CC30	BH19		
1	CP1	CC27	BH20		
1	G2	CF09	BJ21		
1	CP2	CF06	BJ20		
1	YC	CF26	BD16		

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M.I.T. LINCOLN LABORATORY

2	Y1	CF26	LH48	AF45	AA45	
1	Y1	CF25	BD17			
2	Y1	CF25	BJ49	AF46	AA46	
1	Y2	CF24	ED10			
2	Y2	CF24	BJ47	AE48	AA48	
1	Y3	CF23	BE19			
2	Y3	CF23	DJ45	AF48	AB48	
1	Y4	CC26	FE17			
2	Y4	CC26	CG44	AF46	AB46	
1	Y5	CC25	BE16			
1	Y5	CC25	CG46			
1	Y5	CC25	AF45			
1	Y5	AF45	AB45			
1	Y6	CC24	BB16			
1	Y6	CC24	CG48			
1	Y6	CC24	AG45			
1	Y6	AG45	AC45			
1	Y7	CC23	BE17			
1	Y7	CC23	CH49			
1	Y7	CC23	AG46			
1	Y7	AG46	AC46			
2	Y8	CF05	DB10	AG48	AC48	
1	Y8	CF05	CH47			
2	Y9	CF04	BC19	AH48	AD48	
1	Y9	CF04	CH45			
2	Y10	CF03	BC17	AH46	AD46	AH40
2	Y11	CF02	AH38	BC16		
1	Y12	CC05	AJ16			
1	Y12	CC05	DH40			
1	Y13	CC04	BJ41			
1	Y13	CC04	AJ17			
1	Y14	CC03	BJ39			
1	Y14	CC03	AJ19			
1	Y15	CC02	BJ37			
1	Y15	CC02	DA19			
2	WP	DC24	AH15	AF15	AD15	AB15
2	WP	AH03	AF03	AD03	AB03	
INTERRUPT AND BRANCH LOGIC						
1	DH12	DH12	ED11			
2	EC02	EC02	EA04	EC11		
1	EBG20	EBG20	EC20			
2	HT	EC21	EC01	EA01	DJ38	DH34
2	HT	DH37	DH01			
1	EA03	EA03	EC10			
2	EC12	EC12	EC13	EC18		
1	EC15	EC15	EA05			
1	ED16	ED16	EC14			
2	EC05	EC05	TBC05	ED11		
1	EB06	EB06	ED12			
1	ED13	ED13	EA10			
1	EA12	EA12	EB04			
1	EA15	EA15	FA11			
2	EC07	EC07	DH04	EB14		
1	DH03	DH03	EB15			
1	EB16	EB16	EB12			

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M.I.T. LINCOLN LABORATORY

1	EB13	EB13	FDC6			
2	T2	DA39	DJ37	DH36		
1	T3	DA39	DJ68			
1	T1	DJ 8	ED08			
1	T2	DJ08	DA08			
1	T3	EB08	ED08			
2	PSINT	EA07	ED15	DJ12		
2	SPINT	EB 2	FA13	EA26		
2	ADCI N1	ED07	DH10	EA29		
1	PSCLP	ER20	ED14			
1	SPCLP	EA23	FA14			
1	ADCCLP	EB24	DH11			
2	TA06	EA06	DH13	DJ15		
1	EB03	EB03	DH14			
1	SPINT	EB02	DJ14			
2	TV 1	DH15	EE39	FF36		
2	IV0	DJ16	EE41	FF37		
2	P1	FH42	EA18	EA21	ED21	
2	P0	FH00	EA19	ED19	ED23	
2	P1	ED	FB19	EA22	EB22	
1	ED21	ED21	EA20			
1	ED22	ED22	EB21			
2	CHLD	DH06	EA30	EA27	DJ11	
1	DJ13	DJ13	DH18			
1	EA28	EA28	DH19			
1	EA31	EA31	DJ19			
1	DJ20	DJ20	DH20			
1	DH23	DH23	DH35			
1	DH38	DH38	EA43			
2	INT	EA42	DJ23	DJ22		
2	INT	EC37	ED41	EC40		
2	CINT	DJ24	ED23	DH21	DH22	DH30
1	ED05	ED05	EB28			
2	EB32	EB32	ED04	EA44		
1	EB29	EB29	EB31			
1	STL	EE34	EC44			
1	EC45	EC45	LB30			
1	RIL	EF34	EC46			
2	EC47	EC47	DH27	EB27	DJ35	
2	HLO	DH07	DJ36	DH26		
1	DH28	DH28	DH29			
1	DH31	DH31	DH05			
2	SWHAR	DJ39	BD41	BB41	AJ41	DB19
2	SWHAR	DC45	DC45			
2	S	EG20	ED40	EA06		
2	R	EP29	EA47	DF05		
1	EA45	EA45	FB48			
2	JP2	EG25	ED33	DH42	DH43	
2	JP1	EG25	ED32	DH44		
2	JP0	EG23	ED31	DJ44	DJ43	
2	DH46	DH46	EC35	DJ21		
1	EBG36	EC32	EC33			
1	EDG36	EDG36	ED36			
2	TTST	DC38	EA36	EB37		
1	Y15	CC02	LB36			

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M.I.T. LINCOLN LABORATORY

1	DF43	DF43	FC36			
1	FA38	EA38	EC26			
1	EB39	EB39	ED27			
1	FA39	EA39	ED28			
1	EB40	EB40	EC27			
1	EC29	EC29	EBG28			
2	ED46	ED46	EC28	EA37	EA34	
2	ED46	EB38	EB35			
1	EDG44	EDG44	ED45			
2	CJPSAT	EC31	EB47	DF44		
2	S1	EC37	FE37	FB44	FE44	FI44
2	S2	EC38	EF42	FB45	FE45	FI45
1	FET	EC41	EF41			
1	EB46	EB46	EC39			
2	CPE	EF41	FB36	FE36	FI36	
2	P2	ED42	EF38	FB35	FE35	FI35
	TIMING GENERATION					
2	DC15	DC15	DB27	DB26	DC27	
2	DB35	DB35	DC28	CJ11		
1	DC32	DC32	CJ10			
2	DC31	DC31	CJ04	CJ13		
1	CJ02	CJ02	CJ05			
1	CJ06	CJ06	CJ14			
1	CJ15	CJ15	DE15			
1	DE16	DE16	DB20			
2	PCIR	DB21	FB46	FE46	FI46	
1	DBG20	DBG20	DC19			
2	DC20	CJ21	DA19	DA24		
2	DC20	DC20	DB29	DC30		
1	DBV16	DBV16	DC14			
2	DC20	DD43	DD46	DD18		
2	CLOCK	DA49	DB28	DC29	CJ18	DA21
2	CJ12	CJ12	DC21	DD10		
1	DD12	DD12	CJ20			
2	DC22	DC22	CJ01	DA20		
2	CJ22	CJ22	DA23	DA22		
1	TCE3	DA31	EB45			
1	EBG44	EBG44	EB44			
1	DA25	DA25	DA15			
1	DA16	DA16	CJ19			
1	DD15	DD15	DA14			
1	HLT	EH38	DD13			
2	DA25	DA25	CJ29	CJ32	DA32	DA31
2	CHG28	CHG28	CJ31	DA33	DA29	CJ28
2	DAC7	DAC7	PA04	DA11		
1	DA03	DAC3	DA12			
1	DA13	DA13	DE14			
2	TCE1	CJ27	DE25	DD45	DCC8	
2	TCE2	CJ30	DE32	DE29	DB36	DC36
2	TCE3	DA31	DB39	DC39	DC43	DF45
2	DA28	DA28	CJ37	CJ39	DA41	DA38
2	DA28	DD28	DD31			
2	DDG28	DDG28	DD32	DD29		
2	CHG36	CHG36	CJ36	CJ40	DA40	DA37
1	PS	DD16	DD20			

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M.I.T. LINCOLN LABORATORY

1	MBR	DD13	DD21			
2	MPR	DD17	DD23	DD1		
1	MCD	DD14	DE23			
1	DAC	DD15	DE21			
1	MAR	DD12	DD44			
1	WST	EF32	ED49			
1	PD5	ED51	DE21			
1	DF19	DE19	DC40			
1	WMBP	DE28	DC23			
1	DD19	DD19	DE33			
1	DD22	DD22	DE30			
1	DD24	DD24	DB22			
1	DE24	DE24	DB35			
1	DE22	DE22	DB38			
2	DD47	DD47	DB42	DB43	DC48	DC47
2	DB19	DB19	DC44	DB44		
1	DDG14	DDG14	DEC5			
1	OC2	EF14	DEC4			
1	OC1	EF16	DEC3			
1	OC0	EE16	DEC2			
2	DB12	DB12	DB05	DJ48		
2	DB23	DB23	DB04	DH45	DJ31	
2	DB07	DB07	DC05	DJ47		
2	DC07	DC07	DC04	DJ45		
1	DC02	DC02	DJ46			
1	DH47	DH47	DC37			
1	CJ23	CJ23	EC22			
2	EHG36	EHG36	FJ38	EJ41	EJ33	
2	PHG44	PHG44	EJ44	EJ42		
1	FBG36	FBG36	FB39			
1	F9	EH43	EJ43			
1	F8	EG43	EJ45			
1	PHG28	PHG28	FJ28			
2	FJ29	FJ29	FH38	FP35	FP34	
2	FJ29	FC34	FC35	FC37	FC36	
2	FJ29	EJ34	FJ35	EJ37	EJ36	
2	FBG36	FBG36	FC33	FC38	FC40	
2	FBG44	FBG44	FC42	FC44		
1	PDG36	PDG36	FE39			
1	FE37	FE37	FB36			
1	F7	EG41	FC39			
1	F6	EG38	FC41			
1	F5	EH29	FC43			
1	F4	EH32	FC45			
2	PPG36	PPG36	FP33	FF38	FF40	
2	PPG44	PPG44	FP42	FF44		
1	PHG36	PHG36	FH39			
1	DC35	DC35	DJ30			
1	FP37	PH37	FE38			
1	F3	EH34	FP39			
1	F2	EG34	FP41			
1	F1	EG32	FP43			
1	F0	EG29	FF45			
2	T1	CJ35	FB34	FB34	FH34	
1	T1	CJ35	EP08			

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M.I.T. LINCOLN LABORATORY

1	P1	EF 8	EH08
1	T1	EH18	FF17
1	P1	PH43	FJ30
1	P1	PH42	FH29
1	P2	PH41	FH27
1	P3	PH40	FH25
1	P4	PE43	IJ18
1	P5	PE42	FJ20
1	P6	PE41	FJ22
1	P7	PE40	FH21
1	P8	PH43	FH19
1	P9	PH42	FH17
1	CP0	FJ31	EF26
1	CP0	FF26	FD26
1	CP0	FD26	FB26
1	CP0	FB26	EJ20
1	CP0	EJ16	FJ06
1	CP0	EJ16	FB06
1	CP0	FB16	FD06
1	CP0	FD06	FF06
1	CP0	FF06	FF16
1	CP0	FF16	FF26
1	CP0	FF16	FD16
1	CP0	FD16	FB16
1	CP1	FH30	FF27
1	CP1	FF27	FD27
1	CP1	FD27	FB27
1	CP1	FB27	EJ27
1	CP1	EJ27	EJ17
1	CP1	EJ17	EJ07
1	CP1	EJ07	FB07
1	CP1	FB07	FD07
1	CP1	FD07	FF07
1	CP1	FF07	FF17
1	CP1	FF17	FF27
1	CP1	FF17	FD17
1	CP1	FD17	FB17
1	CP2	FH29	FF28
1	CP2	FF28	FD28
1	CP2	FD28	FB28
1	CP2	FB28	EJ28
1	CP2	EJ28	FJ18
1	CP2	EJ18	EJ08
1	CP2	EJ08	FD08
1	CP2	FD08	FF08
1	CP2	FF08	FF18
1	CP2	FF18	FF28
1	CP2	FF18	FD18
1	CP2	FD18	FB18
1	CP3	FH26	FF25
1	CP3	FF25	FD25
1	CP3	FD25	FB25
1	CP3	FB25	EJ25
1	CP3	EJ25	EJ15

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M.I.T. LINCOLN LABORATORY

1	CP3	EJ15	EJ05
1	CP3	EJ05	FBC5
1	CP3	FBC5	FD05
1	CP3	FD05	FF05
1	CP3	FF05	FF15
1	CP3	FF15	FF25
1	CP3	FF15	FD15
1	CP3	FD15	FE15
1	CP4	FJ19	FF24
1	CP4	FF24	FD24
1	CP4	FD24	FB24
1	CP4	FB24	EJ24
1	CP4	EJ24	EJ14
1	CP4	FJ14	EJ04
1	CP4	EJ04	FBC4
1	CP4	FBC4	FD04
1	CP4	FD04	FF04
1	CP4	FF04	FF14
1	CP4	FF14	FF24
1	CP4	FF14	FD14
1	CP4	FD14	FB14
1	CP5	FJ21	FF23
1	CP5	FF23	FD23
1	CP5	FD23	FB23
1	CP5	FB23	EJ23
1	CP5	EJ23	EJ13
1	CP5	EJ13	EJ03
1	CP5	EJ03	FBC3
1	CP5	FBC3	FD03
1	CP5	FD03	FF03
1	CP5	FF03	FF13
1	CP5	FF13	FF23
1	CP5	FF13	FD13
1	CP5	FD13	FB13
1	CP6	FJ23	FF22
1	CP6	FF22	FD22
1	CP6	FD22	FB22
1	CP6	FB22	EJ22
1	CP6	EJ22	EJ12
1	CP6	EJ12	EJ02
1	CP6	EJ02	FBC2
1	CP6	FB02	FD02
1	CP6	FD02	FF02
1	CP6	FF02	FF12
1	CP6	FF12	FF22
1	CP6	FF12	FD12
1	CP6	FD12	FB12
1	CP7	FG22	FG23
1	CP7	FG23	FE23
1	CP7	FE23	FC23
1	CP7	FC23	FA23
1	CP7	FA23	FA13
1	CP7	FA13	FA03
1	CP7	FA03	FC03
1	CP7	FC03	FE03

FILE: EDS

TAPFNLST A1

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M.I.T. LINCOLN LABORATORY

1	CP7	FF 3	FGC3
1	CP7	FG 3	FG13
1	CP7	FG13	FG22
1	CP7	FG13	FE13
1	CP7	FE13	FC13
1	CP8	FH27	FG24
1	CP8	FG24	FE24
1	CP8	FE24	FC24
1	CP8	FG24	FA24
1	CP8	FA24	FA14
1	CP8	FA14	FA04
1	CP8	FA04	FGC4
1	CP8	FGC4	FE04
1	CP8	FE04	FGC4
1	CP8	FGC4	FG14
1	CP8	FG14	FG24
1	CP8	FG14	FE14
1	CP8	FE14	FC14
1	CP9	FH18	FF21
1	CP9	FF21	FD21
1	CP9	FD21	FB21
1	CP9	FB21	FJ21
1	CP9	EJ21	EJ11
1	CP9	EJ11	EJ01
1	CP9	EJ01	FB01
1	CP9	FB01	FDC1
1	CP9	FDC1	FF01
1	CP9	FF01	FF11
1	CP9	FF11	FF21
1	CP9	FF11	FD11
1	CP9	FD11	FB11
1	MP0	FG26	EG30
1	MP1	FG27	EG31
1	MP2	FG28	EG33
1	MP3	FG29	EH33
1	MP4	FE26	EH31
1	MP5	FE27	EH30
1	MP6	FE28	EG39
1	MP7	FE29	EG40
1	MP8	FC26	EG42
1	MP9	FC27	EH42
1	MP10	FC28	EH40
1	MP11	FC29	EH39
1	MP12	FA26	EE30
1	MP13	FA27	EE31
1	MP14	FA28	EE33
1	MP15	FA29	FP33
1	MP16	FG16	EF31
1	MP17	FG17	EF30
1	MP18	FG18	EG21
1	MP19	FG19	EG22
1	MP20	FE16	EG24
1	MP21	FE17	EH24
1	MP22	FE18	EH22
1	MP23	FE19	EH21

FILE: FDS

TAPFWLST P1

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M.I.T. LINCOLN LABORATORY

1	MP24	FC16	EE21			
1	MP25	FC17	FE22			
1	MP26	FC18	EE24			
1	MP27	FC19	FF24			
1	MP28	FA16	FF22			
1	MP29	FA17	EF21			
1	MP30	FA18	EE12			
1	MP31	FA19	EE13			
1	MP32	FG16	EE15			
1	MP33	FG17	EF15			
1	MP34	FG18	FF13			
1	MP35	FG19	EF12			
1	MP35	FF12	FG12			
1	MP36	EG13	EG13			
1	MP36	FE16	EG13			
1	MP37	FE17	EG14			
2	MP37	EG14	EG15	EH15		
1	MP38	FE18	EG16			
1	MP39	FE19	EH16			
1	MP40	FC16	EH14			
1	MP41	FC17	EH13			
1	MP42	FC18	EE13			
1	MP43	FC19	EE14			
1	MP44	FA16	EE16			
1	MP45	FA17	EF16			
1	MP46	FA18	EF14			
1	MP47	FA19	EF13			
2	TEST	FA15	FC15	FE15	FG15	FA15
2	TEST	FC15	FE15	FG15		
2	TEST	FA25	FC25	FE25	FG25	
2	CTEST	PJ27	FA12	FC12	FE12	FG12
2	CTEST	FA12	FC12	FE12		
2	CTEST	FG12	FA22	FC22	FE22	FG22
1	EDG44	EDG44	ED47			
2	ED48	ED46	EE11	EG11	EE10	EG10
2	ED48	EE19	EG19	EE28	EG37	EG28
2	T2	CJ38	EH44	EH35	EH26	EH17
2	T2	EF35	EF26			
	MP0	EJ1-01	EG30			
	MP1	EJ1-02	EG31			
	MP2	EJ1-03	EG33			
	MP3	EJ1-04	EH33			
	MP4	EJ1-05	EH31			
	MP5	EJ1-06	EH30			
	MP6	EJ1-07	EG39			
	MP7	EJ1-08	EG40			
	MP8	EJ1-09	EG42			
	MP9	EJ1-10	EH42			
	MP10	EJ1-11	EH40			
	MP11	EJ1-12	EH39			
	MP12	EJ1-13	EE30			
	MP06	EJ1-14				
	MP16	EJ1-15				
	MP26	EJ1-16				
	MP36	EJ1-17				

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FILE: EDS

TAPENLST A1

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M.I.T. LINCOLN LABORATORY

MP4G	FJ1-18	
MP5G	EJ1-19	
MP6G	EJ1-20	
MP7G	FJ1-21	
MP8G	FJ1-22	
MP9G	EJ1-23	
MP10G	EJ1-24	
MP11G	EJ1-25	
MP12G	EJ1-26	
MP13	EJ2-C1	FE31
MP14	EJ2-C2	EE33
MP15	EJ2-C3	EF33
MP16	EJ2-C4	EF31
MP17	EJ2-C5	EF30
MP18	EJ2-C6	EG21
MP19	EJ2-C7	EG22
MP20	EJ2-C8	EG24
MP21	EJ2-C9	EH24
MP22	EJ2-10	EH22
MP23	EJ2-11	EH21
MP24	EJ2-12	EE21
MP25	FJ2-13	EE22
MP13G	EJ2-14	
MP14G	EJ2-15	
MP15G	EJ2-16	
MP16G	FJ2-17	
MP17G	EJ2-18	
MP18G	EJ2-19	
MP19G	FJ2-20	
MP20G	EJ2-21	
MP21G	EJ2-22	
MP22G	EJ2-23	
MP23G	EJ2-24	
MP24G	FJ2-25	
MP25G	EJ2-26	
MP26	FJ1-13	EE24
MP27	FJ2-13	EF24
MP28	FJ1-12	EF22
MP29	FJ2-12	EF21
MP30	FJ1-11	EE12
MP31	FJ2-11	EE13
MP32	FJ1-10	EE15
MP33	FJ2-10	EF15
MP34	FJ1-09	EF13
MP35	FJ2-09	EF12
MP36	FJ1-08	EG03
MP37	FJ2-08	FG04
MP38	FJ1-07	EG06
MP39	FJ2-07	EH06
MP40	FJ1-06	EH04
MP41	FJ2-06	EH03
MP42	FJ1-05	EE03
MP43	FJ2-05	EE04
MP44	FJ1-04	EE06
MP45	FJ2-04	EF06

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TAPRBLST A1

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M.I.T. LINCOLN LABORATORY

MP46	FJ1-C3	FFC4	
MP47	FJ2-C3	EFF3	
MP26G	FJ1-26		
MP27G	FJ2-26		
MP28G	FJ1-25		
MP29G	FJ2-25		
MP30G	FJ1-24		
MP31G	FJ2-24		
MP32G	FJ1-23		
MP33G	FJ2-23		
MP34G	FJ1-22		
MP35G	FJ2-22		
MP36G	FJ1-21		
MP37G	FJ2-21		
MP38G	FJ1-20		
MP39G	FJ2-20		
MP40G	FJ1-19		
MP41G	FJ2-19		
MP42G	FJ1-18		
MP43G	FJ2-18		
MP44G	FJ1-17		
MP45G	FJ2-17		
MP46G	FJ1-16		
MP47G	FJ2-16		
TEST	FJ1-C1	FA05	
TESTG	FJ1-14		
1 TEST	FA05	FJ26	
1 MARSW0	DJ1-04	AJ33	
1 MARSW1	DJ1-C5	AJ35	
1 MARSW2	DJ1-C6	AJ37	
1 MARSW3	DJ1-C7	BA38	
1 MARSW4	DJ1-C8	BA34	
1 MARSW5	DJ1-09	BA36	
1 MARSW6	DJ1-22	BC34	
1 MARSW7	DJ1-21	BC36	
1 MARSW8	DJ1-20	BB33	
1 MARSW9	DJ1-19	BB35	
1 MARSW10	DJ1-18	BB37	
MARSWEN	DJ1-10	BB32	
STOP	DJ1-13	DD14	
STOPG	DJ1-26		
START	DJ2-13	DE11	
STARTG	DJ2-26		
STPD	DJ1-11	EC23	
STPDG	DJ1-24		
T6	DJ1-12	DD30	
T6G	DJ1-25		
MARSWG	DJ1-17		
MARSWENG	DJ1-23		
2 MARSWPN	BR32	BC33	AJ32 BA33 AH36
CS0T	DJ1-C1	EF43	
CS1T	DJ2-C1	EE38	
F2T	DJ1-02	EF40	
CPPT	DJ2-02	EF39	
CIVOT	DJ1-03	EE42	

FILE: EPS

TAPFWLSP A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

	CIV1T	DJ2-C3	RE40
	CS0TG	DJ1-14	
	CS1TG	DJ2-14	
	CTTG	DJ1-15	
	CPPTG	DJ2-15	
	CIV0TG	DJ1-16	
	CIV1TG	DJ2-16	
1	CY0	DJ2-04	BH40
1	CY1	DJ2-C5	BJ50
1	CY2	DJ2-C6	BJ48
1	CY3	DJ2-C7	BJ46
1	CY4	DJ2-C8	CG45
1	CY5	DJ2-09	CG47
1	CY6	DJ2-10	CG49
1	CY7	DJ2-11	CH50
1	CY8	DJ2-15	CH48
1	CY9	DJ2-24	CH46
1	CY10	DJ2-23	AH41
1	CY11	DJ2-22	AH39
1	CY12	DJ2-21	BH41
1	CY13	DJ2-20	BJ42
1	CY14	DJ2-19	BJ40
1	CY15	DJ2-18	BJ38
	CY61	DJ2-17	
	CY62	DJ2-12	
	T7	BJ1-C1	FB43
	T7G	BJ1-14	
	HPCL	BJ2-C1	DB22
	MPCLG	BJ1-14	
	MPCK	BJ1-C2	DC35
	MPCKG	BJ1-14	
	MPSP	DJ32	BJ2-23
	MPSPG	DH32	BJ2-16
	Y0	AJ1-C1	BD16
	Y1	AJ2-01	BD17
	Y2	AJ1-02	BD19
	Y3	AJ2-C2	BE19
	Y4	AJ1-C3	BE17
	Y5	AJ2-C3	BE16
	Y6	AJ1-04	BB16
	Y7	AJ2-C4	BB17
	Y8	AJ1-C5	BB19
	Y9	AJ2-C5	BC19
	Y10	AJ1-C6	BC17
	Y11	AJ2-C6	BC16
	Y12	AJ1-C7	AJ16
	Y13	AJ2-C7	AJ17
	Y14	AJ1-C8	AJ19
	Y15	AJ2-C8	BA19
	TDAC	BJ2-C2	DB37
	TDACG	BJ2-15	
	THCD	BJ1-C3	DB34
	THCDG	BJ1-16	
	Y0G	AJ1-14	
	Y1G	AJ2-14	

FILE: EDS

TAPRWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

Y2G	AJ1-15	
Y3G	AJ2-15	
Y4G	AJ1-16	
Y5G	AJ2-16	
Y6G	AJ1-17	
Y7G	AJ2-17	
Y8G	AJ1-18	
Y9G	AJ2-18	
Y10G	AJ1-19	
Y11G	AJ2-19	
Y12G	AJ1-20	
Y13G	AJ2-20	
Y14G	AJ1-21	
Y15G	AJ2-21	
TPSC	BJ1-04	DF31
TPSCG	BJ1-17	
PSCK	BJ2-04	EC19
PSCKG	BJ2-17	
PSSL	BJ1-05	DD19
PSSLG	BJ1-08	
D0	BJ1-06	CF37
D1	BJ2-06	CF38
D2	BJ1-07	CF39
D3	BJ2-07	CF40
D4	BJ1-08	CC37
D5	BJ2-08	CC38
D6	BJ1-09	CC39
D7	BJ2-09	CC40
D8	BJ1-10	CF16
D9	BJ2-10	CF17
D10	BJ1-11	CF18
D11	BJ2-11	CF19
D12	BJ1-12	CC16
D13	BJ2-12	CC17
D14	BJ1-13	CC18
D15	BJ2-13	CC19
SPRY	AJ1-09	ECC4
SPRYG	AJ1-22	
PSRY	AJ2-09	EC03
SPRYG	AJ2-22	
ADCFY	AJ1-10	ECC6
ADCRYG	AJ1-23	
DAG	BJ1-19	
D1G	BJ2-19	
D2G	BJ1-20	
D3G	BJ2-20	
D4G	BJ1-21	
D5G	BJ2-21	
D6G	BJ1-22	
D7G	BJ2-22	
D8G	BJ1-23	
D9G	BJ2-23	
D10G	BJ1-24	
D11G	BJ2-24	
D12G	BJ1-25	

FILE: EDS

TAPRWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

D13G	BJ2-25	
D14G	BJ1-26	
D15G	BJ2-26	
IC01	AJ1-12	FG11
IC11	AJ1-13	EG14
IC21	AJ2-12	FG16
JSW	CJ1-01	FD30
JSV	CJ1-02	ED29
INIT	CJ1-03	DA05
IC21	AJ2-12	EG16
IC22	AJ2-13	EH16

Wire List (Punched Card Image) Board II

FILE: EDS2 TAPRWLST A1 1/19/77 16:03 M.T.T. LINCOLN LABORATORY

	POWER	AND	GROUND	
1	AHG20		AHG20	AJ21
1	ACC1		ACC1	ABV08
1	AA12		AA12	ABG12
1	AF01		AF01	APV08
1	AD12		AD12	ADG12
1	AJ01		AJ01	APV08
1	AG12		AG12	AHG12
1	BC01		BC01	BBV08
1	BA12		BA12	BBG12
1	BF01		BF01	BFV08
1	BD12		BD12	PDG12
1	BJ01		BJ01	PHV08
1	BG12		BG12	BHG12
1	CC01		CC01	CBV08
1	CA12		CA12	CBG12
1	AHG44		AHG44	AJ48
1	CF01		CF01	CFV08
1	CD12		CD12	CDG12
1	AB14		AB14	ABV16
1	AA21		AA21	ABG20
1	AD14		AD14	ADV16
1	AC21		AC21	ADG20
1	AF14		AF14	APV16
1	AE21		AE21	APG20
1	AH14		AH14	AHV16
1	AHG20		AHG20	AG21
1	BBV16		BBV16	BA14
1	BBV16		BBV16	BC14
1	BB21		BB21	BRG20
1	BE14		BE14	BDV16
1	BDG20		BDG20	BD21
1	BG14		BG14	PFV16
1	BF21		BF21	BFG20
1	BJ14		BJ14	BHV16
1	BH21		BH21	BHG20
1	CB14		CB14	CBV16
1	CBG20		CBG20	CA21
1	CD14		CD14	CDV16
1	CBG20		CBG20	CC21
1	AA24		AA24	ABV24
1	AF23		AF23	APV24
1	AE30		AE30	ADG28
1	AH23		AH23	AHV24
1	BBV24		BBV24	BA23
1	AHG28		AHG28	AJ30
1	BBV24		BBV24	BC23
1	BDG28		BDG28	BB30
1	BE23		BE23	BDV24
1	BD30		BD30	BDG28
1	BG23		BG23	BFV24
1	BF30		BF30	BFG28
1	BJ23		BJ23	BHV24
1	BH30		BH30	BHG28
1	CB23		CB23	CBV24

FILE: EDS2

TAPRWLST A1

1/19/77 16:03

M.I.T. LINCOLN LABORATORY

1	CBG28	CBG28	CA3C			
1	AF32	AF32	AFV32			
1	AE39	AF39	ADG36			
1	AG39	AG39	AFG36			
1	BHG36	BHG36	BA39			
1	BC32	BC32	BBV32			
1	BHG36	BHG36	BD39			
1	BE32	BE32	EDV32			
1	BD39	BD39	BDG36			
1	BG32	BG32	DFV32			
1	BF39	BF39	BFG36			
1	DJ32	DJ32	BHV32			
1	BH39	BH39	BHG36			
1	AA39	AA39	ABG36			
1	AD36	AD36	ADV40			
1	ABG44	ABG44	AC42			
1	AH41	AH41	AHV40			
1	AG48	AG48	AFG44			
1	BBV40	BBV40	BA42			
1	BBV40	BBV40	BC41			
1	BHG44	BHG44	BB47			
1	BE41	BE41	BDV40			
1	BD47	BD47	BDG44			
1	BG41	BG41	BFV40			
1	BFG44	BFG44	BF47			
1	ABV48	ABV48	AB44			
1	ABG44	ABG44	AA5C			
1	AD44	AD44	ADV48			
1	ADG44	ADG44	AC5C			
1	ADG44	ADG44	AE5C			
1	AH32	AH32	AHV32			
	INPUT	OUTPUT	LOGIC			
2	ICC1	AF25	AH25	BA25	BC25	BE25
2	ICC1	BG25	BJ25	CB25		
2	IC11	AE24	AG24	AJ24	BB24	BD24
2	IC11	BF24	BH24	CA24		
2	IC21	AE23	AF24	AG23	AH24	
2	IC21	AJ23	BA24	BB23	BC24	
2	IC22	BD23	BE24	BF23	BG24	
2	IC22	BH23	BJ24	CA23	CB24	
1	AD0	AH33	BH27			
1	AD1	AH36	BJ28			
1	AD2	AH38	BF27			
1	AD3	AG38	BG28			
1	AD4	AG36	BD27			
1	AD5	AG33	BE28			
1	AD6	AF33	BR27			
1	AD7	AF36	BC28			
1	AD8	AP38	AJ27			
1	AD9	AE38	BA28			
1	AD10	AE36	AG27			
2	AD11	BF46	AH28	AE27	AF28	
1	AE33	AE33	BF45			
2	CBG28	CBG28	CA27	CB28		
1	SPC	AD37	CA28			

FILE: EDS2

TAPRWLST A1

1/19/77 16:13

M.T.T. LINCOLN LABORATORY

1	SP1	AD38	CE20			
1	SP2	AD39	DE20			
1	SP3	AD40	DJ20			
1	SP4	AC41	BF28			
1	SP5	AC42	BG29			
1	SP6	AC39	BD28			
1	SP7	AC38	BE29			
2	BFG28	BFG28	RR28	BC29	BA29	AJ28
2	AHG28	AHG28	AH29	AG28		
2	AFG28	AFG28	AF29	AF28		
1	ADC1	AC31	AH34			
1	ADC1	AC32	AH35			
1	ADC2	AC29	AH37			
1	ADC3	AC28	AG37			
1	ADC4	AC27	AG35			
1	ADC5	AC26	AG34			
1	ADC6	AA26	AF34			
1	ADC7	AA27	AF35			
1	ADC8	AA28	AF37			
1	ADC9	AA29	AE37			
1	ADC10	AA30	AF35			
1	ADC11	AA31	AE34			
1	BFG44	BFG44	BF43			
2	BF44	BF44	AG32	AE32	BB32	BD32
2	BF44	BF32	BH32			
1	AB42	AB42	AC33			
1	AA41	AA41	AA33			
	ADC CLOCK LOGIC					
1	BD46	BD46	BA44			
1	BD44	BD44	BA45			
2	BA48	BA48	BD45	AC23		
1	BFG44	BFG44	BB42			
1	BE47	BE47	BC43			
1	BB44	BB44	BE46			
1	BB46	BB46	BC42			
1	BG44	BG44	BB43			
1	BG45	BG45	BE45			
2	BC44	BC44	BE43	BE42	BG42	
1	BG43	BG43	AA23			
2	ADCRY	BE44	BC39	BG39	AA36	AP39
2	ADCRY	AH39				
2	BF44	AD41	AC37	AH48		
2	BF42	BD14	BF14	BH14	CA14	CC14
2	BF42	BF42	AA14	AE14	AJ14	
2	ABV48	ABV48	AA46	AB46	AC46	
2	AJ46	AJ46	BA43	BD42		
1	AJ45	AJ45	BD41			
1	BD43	BD43	AJ43			
1	BA48	BA48	BB41			
1	ABG28	ABG28	AC24			
1	IDA0	BE33	BC34			
1	IDA1	BE36	BC35			
1	IDA2	BE38	BC37			
1	IDA3	BD38	BB37			
1	IDA4	BD36	BB35			

FILE: EDS2 TAPPLST A1 1/19/77 16:03 M.I.T. LINCOLN LABORATORY

1	IDA5	BD33	UB34			
1	IDA6	BJ33	BG34			
1	IDA7	BJ36	BG35			
1	IDA8	RJ34	BG37			
1	IDA9	BH39	BF37			
1	IDA10	BH36	BF35			
1	IDA11	BH33	PF34			
1	DA1	BC33	BA32			
1	DA1	BC36	BA33			
1	DA2	BC39	BA34			
1	DA3	BB38	BA35			
1	DA4	BB36	BA36			
1	DA5	BF33	BA37			
1	DA6	BG33	AJ37			
1	DA8	BG36	AJ36			
1	DA8	BG38	AJ35			
1	DA9	BF38	AJ34			
1	DA10	BF36	AJ33			
1	DA11	BF33	AJ32			
1	AB45	AC36				
1	AA45	AA45	AD42			
2	AH44	AH44	AE44	AF45	AE46	AE47
1	AHG44	AHG44	AG41			
1	BFG44	BFG44	BF41			
2	X0	AJ15	CA06	CD06		
2	X1	AJ18	CA05	CD05		
2	X2	AJ20	CAG4	CD04		
2	X3	BA20	CA03	CD03	BD07	BG07
2	X4	BA18	BD06	BG06		
2	X5	BA15	BD05	BG05		
2	X6	AE15	BD04	BG04		
2	X7	AE18	BD03	BG03	AG07	BAC7
2	X8	AE20	AG06	BAG6		
2	X9	AF20	AG05	BAG5		
2	X10	AF18	AG04	BAG4		
2	X11	AF15	AG03	BAG3	AA07	ADC7
2	X12	AA15	AA06	AD06		
2	X13	AA18	AA05	ADC5		
2	X14	AA20	AA04	AD04		
2	X15	AB20	AAC3	AAC1	AD03	ADC1
2	IP00	CA08	BF15	BF16		
2	IP01	CA09	BH15	BH16		
1	IP02	CA10	CF06			
1	IP03	CA11	CF07			
1	IP04	BD08	CF08			
1	IP05	BD09	CF09			
1	IP06	PD10	FJ06			
1	IP07	PD11	HJC7			
1	IP08	PD12	HJC8			
1	IP09	PD13	HJC9			
1	IP010	PD14	BCC6			
1	IP011	PD15	BC07			
1	IP012	PD16	BCC8			
1	IP013	PD17	EC09			
1	IP014	AA1	APC6			

FILE: EDS2

TAPRWLST A1

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M.I.T. LINCOLN LABORATORY

1	IPC15	AA11	AFC7			
1	IPC16	AC11	AFC8			
1	IPC17	AC12	AFC9			
2	IP10	CD18	CA15	CA16		
2	IP11	CD19	CC15	CC16		
1	IP12	CD10	BB16			
1	IP13	CD11	BB17			
1	IP14	BG18	BB19			
1	IP15	BG19	BC19			
1	IP16	BG10	BC17			
1	IP17	BG11	BC16			
1	IP18	BA18	AG16			
1	IP19	BA19	AG17			
1	IP110	BA10	AG19			
1	IP111	BA11	AH19			
1	IP112	AD08	AC16			
1	IP113	AD09	AC17			
1	IP114	AD10	AC19			
1	IP115	AD11	AD19			
1	IP116	AP11	AD17			
1	IP117	AP10	AD16			
2	UP0	BB15	CC06	CR26		
2	UP1	BB18	CC07	BH25		
2	UP2	BB20	CC08	BJ26		
2	UP3	BC20	CCC9	BF25		
2	UP4	BC18	BF06	BG26		
2	UP5	BC15	BF07	BD25		
2	UP6	AG15	BF08	BE26		
2	UP7	AG18	BF09	BR25		
2	UP8	AG20	AJ06	BC26		
2	UP9	AH20	AJ07	AJ25		
2	UP10	AC15	AJ08	BA26		
2	UP11	AC18	AJ09	AG25		
2	UP12	AC20	ACC6	AH26		
2	UP13	AD20	ACC7	AE25		
2	UP14	AD18	AC08	AF26		
1	UP15	AD15	ACC9			
2	MY-1	BE18	CC02	BF02	AJ02	AC02
2	BDG20	BDG20	BD20	BD15	BD16	
1	LP15	CD15	CA25			
2	LP1	BJ18	CCC4	BF04	AJ04	ACC4
1	LP1	CF02	EJ02	BC02	AF02	
2	LP2	CC04	CAC2			
2	LP3	CR18	CF03	BJ03	BC03	AF03
1	CC12	CD18	CF04	BJ04	BC04	AF04
1	BF12	CC12	BDC2			
1	AJ12	BF12	AGC2			
1	LP3	AJ12	AA02			
1	CF12	CF14	CD02			
1	BJ12	CF12	BG02			
1	BC12	BJ12	BA02			
2	CBG04	BC12	ADC2			
2	CDG04	CBG04	CAC7			
1	BF05	CDG04	CD07			
		BF05	BFG04			
				CC05		
				CF05		

FILE: EDS2

TAPKWLST A1

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M.I.T. LINCOLN LABORATORY

1	AJC5	AJC5	AHG4			
1	AC05	AC05	AGG4			
1	AP05	AP05	AFG4			
1	BC05	BC05	BBG4			
1	PJC5	PJC5	BHG4			
1	LP0	BG16	CA26			
2	LP0	BG18	CC03	BFC3	AJ03	AC03
1	LP1	BJ18	CB27			
1	LP2	CB18	BF26			
1	LP3	CD18	BJ27			
1	LP4	BG17	BF26			
1	LP5	BJ17	BG27			
1	LP6	CB17	BD26			
1	LP7	CD17	BE27			
1	LP8	BG16	UB26			
1	LP9	BJ16	BC27			
1	LP10	CB16	AJ26			
1	LP11	CD16	PA27			
1	LP12	BG15	AG26			
1	LP13	BJ15	AH27			
1	LP14	CB15	AE26			
1	LP15	CD15	AF27			
	THCD	BJ2-03	BA21			
	THCDG	BJ2-16				
2	THCD	BA21	AF21	AB21		
	MPCI	BJ1-01	BE21			
	MPSP	BJ1-03	BB14			
	MPSPG	BJ1-16				
2	MPCL	BE21	BG21	BJ21	CB21	
2	MPCL	CD21				
1	MPCL	BB14	AG14			
1	MPCL	AG14	AC14			
	MPCK	BJ2-02	BC21			
	MPCKG	BJ2-15				
2	MPCK	BC21	BF20	BG20	BJ20	CB20
2	MPCK	CD20	AH21	AD21		
	Y0	AJ2-01	AJ16			
	Y1	AJ1-01	AJ17			
	Y2	AJ2-02	AJ19			
	Y3	AJ1-02	BA19			
	Y4	AJ2-03	BA17			
	Y5	AJ1-03	BA16			
	Y6	AJ2-04	AE16			
	Y7	AJ1-04	AE17			
	Y8	AJ2-05	AE19			
	Y9	AJ1-05	AF19			
	Y10	AJ2-06	AF17			
	Y11	AJ1-06	AF16			
	Y12	AJ2-07	AA16			
	Y13	AJ1-07	AA17			
	Y14	AJ2-08	AA19			
	Y15	AJ1-08	AB19			
1	CY15	BG47	BH34			
2	ABG44	ABG44	AB40	AB50	AA48	AA44
2	ADG44	ADG44	AD40	AD50	AC48	AC44

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TAPFWLST A1

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M.I.T. LINCOLN LABORATORY

P2

1	TDAC	BE39	BJ39		
	PSCK	BJ1-04	AG47		
	PSL	BJ2-05	AH42		
	T7	BJ2-01	AJ42		
	ISRY	AJ1-09	AC45		
	ISRY	AJ2-09	AA45		
	ADCRY	AJ2-10	AF39		
	AC	BJ1-02	FE39		
		BJ2-06	CA29		
		BJ1-06	CB30		
		BJ2-07	BH29		
		BJ1-07	BJ30		
		BJ2-08	BF29		
		BJ1-08	RG30		
		BJ2-09	BD29		
		BJ1-09	FE30		
		BJ2-10	BB29		
		BJ1-10	BC30		
		BJ2-11	AJ29		
		BJ1-11	BA30		
		BJ2-12	AG29		
		BJ1-12	AH30		
		BJ2-13	AE29		
		BJ1-13	AF30		
	IC01	AJ2-12	AF25		
	IC11	AJ2-13	AE24		
	IC21	AJ1-12	AE23		
	IC22	AJ1-13	BD23		
2	Y0	AH43	AJ16	BF20	
2	Y1	AH45	AJ17	BH20	
2	Y2	AH46	AJ19	CA20	
2	Y3	AH47	BA19	CC20	BD19
2	Y4	AG45	FE34	BA17	BF19
2	Y5	AG44	BE35	BA16	BH19
2	Y6	AG43	BE37	AE16	CA19
2	Y7	AG42	BD37	AE17	CC19
2	Y8	BD35	AE19	BF18	
2	Y9	BD34	AF19	BH18	
2	Y10	BJ34	AF17	CA18	
2	Y11	BJ35	AF16	BD17	CC18
2	Y12	BJ37	AA16	BF17	
2	Y13	BH37	AA17	BH17	
2	Y14	BH35	AA19	CA17	
2	Y15	AB19	BG46	CC17	
	TPSC	BJ2-04	AG46		
	SPDATAG	CJ2-14	AB50		
	SPCLK	CJ2-02	AA49		
	SPCLKG	CJ2-15	AA48		
	PSDATA	CJ2-07	AE48		
	PSDATAG	CJ2-20	AFG44		
	PSCLK	CJ2-06	AC49		
	PSCLKG	CJ2-19	AC48		
	DAOUT	CJ1-11	BA38		
	DAOUTG	CJ1-24	BA39		
	SHIN	CJ1-12	AB37		

FILE: EDS2

CAPWLST A1 1/19/77 16:03

M.I.T. LINCOLN LABORATORY

SHING	CJ1-25	AA41			
+15V	CJ1-05	AF44	AJ4C	AC32	AB39 NOT TWISTED PAIR
-15V	CJ1-06	AF5C	BA40	AC34	AA36
ANALOG	CJ1-03	EA39	AA33	AA41	
SPDATA	CJ2-01	AB49			

Listing of LPCM ROM Code

TITLE: LPCM LINEAR PREDICTIVE VOCODER
IFSTLPC3E 9/13/76

PARAMETER ASSIGNMENTS

N=159.
P=12.
D24=10.
INT=50
PTRN=5
THOID=1777
FRM=6

CODING PARAMETERS

NPIT=8.
NFN=5

NK024=6
NK124=6
NK224=4
NK324=4
NK424=3
NK524=3
NK624=3
NK724=3
NK824=3
NK924=3

NK036=6
NK136=6
NK236=5
NK336=5
NK436=5
NK536=5
NK636=5
NK736=5
NK836=5
NK936=5
NK1036=5
NK1136=5

NK048=7
NK148=7
NK248=7
NK348=7
NK448=7

NK54A=7
NK64A=7
NK74A=7
NK84A=7
NK94A=7
NK104A=7
NK114A=7

PAGE

ILPC INITIALIZATION ROUTINE

INITIAL	MOV	FD	R	R0	SIL	FLD 1600	CLEAR RAM
010000							
010001							
010002	DECA	A0	R	R0	MAR	TSI	
010003							
010004	CLR	Y	MBR	JNZ	FLD --1		
010005							
010006							
010007	POVD	FD	Y	MAR	FLD PVAL		
010008							
010009	POVD	FD	Y	MBR	FLD P+2		PVAL CONTAINS P+2
010010							
010011	MOV	FD	Y	MAR	FLD RAN		
010012							
010013	MOV	FD	Y	MBR	FLD 100		
010014							
010015	MOV	FD	Y	MAR	FLD NPTCH		
010016							
010017	CSO	FD	Y	MBR	FLD 1		
010018							
010019	NOOP	JSW	FLD 48R				
010020							
010021	NOOP	JSV	FLD 36R				
010022							
010023	MOV	FD	Y	MAR	FLD MASK		
010024							
010025	MOV	FD	Y	MBR	FLD MSK24		
010026							
010027	MOV	FD	Y	MAR	FLD NRITS		
010028							
010029	MOV	FD	Y	MBR	FLD NRIT24		
010030							
010031	MOV	FD	Y	MAR	FLD DCTRL		
010032							
010033	MOV	FD	Y	MBR	FLD DRAD24		
010034							
010035							
010036							
010037							
010038							
010039							
010040							
010041							
010042							
010043							
010044							
010045							
010046							
010047							
010048							
010049							
010050							
010051							
010052							
010053							
010054							
010055							
010056							
010057							
010058							
010059							
010060							
010061							
010062							

24R

MOV	FD	Y	MAR	FLD PVAL	
MOV	FD	Y	MAR	FLD P24+2	:PVAL CONTAINS P24+2
MOV	FD	Y	MAR	FLD ORPTR	
CSD	FD	Y	MAR	FLD 2+P	
MOV	FD	Y	MAR	FLD IRITCT	
CSD	FD	Y	MAR	FLD A.+NK924-1	
MOV	FD	Y	MAR	FLD ORITCT	
CSD	FD	Y	MAR	FLD NK924-1	
NOOP	JP		FLD IDLE		
MOV	FD	Y	MAR	FLC MASK	
MOV	FD	Y	MAR	FLC MASK36	
MOV	FD	Y	MAR	FLD NRITS	
MOV	FD	Y	MAR	FLC NRIT36	
MOV	FD	Y	MAR	FLD DCTRI	
MOV	FD	Y	MAR	FLD DCAN36	
MOV	FD	Y	MAR	FLD IRITCT	
CSD	FD	Y	MAR	FLD A.+NK1136-1	:FOR START-UP SYNC
MOV	FD	Y	MAR	FLD ORITCT	
CSD	FD	Y	MAR	FLD NK1136-1	

Address	OpCode	JP	FLD IDLE	Comments
010154	NOOP			
010155	NOOP			
010156	NOOP			
010157	NOOP			
010160	NOOP			
010161	NOOP			
010162	NOOP			
010163	NOOP			
010164	NOOP			
010165	NOOP			
010166	NOOP			
010167	NOOP			
010170	NOOP			
010171	NOOP			
010172	NOOP			
010173	NOOP			
010174	NOOP			
010175	NOOP			
010176	NOOP			
010177	NOOP			
010200	NOOP			
010201	NOOP			
010202	NOOP			
010203	NOOP			
010204	NOOP			
010205	NOOP			
010206	NOOP			
010207	NOOP			
010210	NOOP			
010211	NOOP			
010212	NOOP			
010213	NOOP			
010214	NOOP			
010215	NOOP			
010216	NOOP			
010217	NOOP			
010140	NOOP			
010141	NOOP			
010142	NOOP			
010143	NOOP			
010144	NOOP			
010145	NOOP			
010146	NOOP			
010147	NOOP			
010148	NOOP			
010149	NOOP			
010150	NOOP			
010151	NOOP			
010152	NOOP			
010153	NOOP			
010154	NOOP			
010155	NOOP			
010156	NOOP			
010157	NOOP			
010158	NOOP			
010159	NOOP			
010160	NOOP			
010161	NOOP			
010162	NOOP			
010163	NOOP			
010164	NOOP			
010165	NOOP			
010166	NOOP			
010167	NOOP			
010168	NOOP			
010169	NOOP			
010170	NOOP			
010171	NOOP			
010172	NOOP			
010173	NOOP			
010174	NOOP			
010175	NOOP			
010176	NOOP			
010177	NOOP			
010200	NOOP			
010201	NOOP			
010202	NOOP			
010203	NOOP			
010204	NOOP			
010205	NOOP			
010206	NOOP			
010207	NOOP			
010210	NOOP			
010211	NOOP			
010212	NOOP			
010213	NOOP			
010214	NOOP			
010215	NOOP			
010216	NOOP			
010217	NOOP			

INLF	MOVU	FD	Y	MAR	RIL	FLD	FRSTFG
010220	037151	0060					
010221	000000	0060					
010222	100050	0060					
010223	037140	0061	Y				
010224	000000	0061					
010225	000000	0061					
010226	037140	0062	MOR	Y	TST	SIL	:IDLF LOOP
010227	000001	0062					
010230	000000	0062					
010231	000140	0063	RIL	JZ	FLD	.-2	
010232	000030	0063					
010233	100061	0063					
010234	042142	0064	Y	MPF		:CLEAR START FLAG	
010235	000000	0064					
010236	000000	0064					

: PITCH DETECTOR

PNET	MOVU	FD	Y	MAR	FLD	MT	
010237	037151	0065					
010240	000000	0065					
010241	000051	0065					
010242	037151	0066	Y	MAR	SIL	FLD	LO
010243	000000	0066					
010244	040052	0065					
010245	037140	0067	MOR	R	B7	RIL	
010246	000000	0067					
010247	100000	0067					
010250	115540	0070	MOR	A7	B7	:HI-LO	
010251	070000	0070					
010252	000000	0070					
010253	115550	0071	SUPAI	A7	FD	F	B7
010254	070001	0071					
010255	041777	0071					
010256	042142	0072	Y	MAR		:CLEAR LO	
010257	000000	0072					
010260	000000	0072					
010261	037151	0073	FD	Y	MAR	FLD	MT
010262	000000	0073					
010263	000051	0073					
010264	042142	0074	CLR	Y	MAR	RIL	JPZ
010265	000020	0074					
010266	100113	0074					
010267	037151	0075	FD	Y	MAR	FLD	PITCH
010270	000000	0075					
010271	000102	0075					
010272	042142	0075	CLR	Y	MAR		:CLEAR PITCH
010273	000000	0075					
010274	000000	0075					
010275	037151	0077	MOVU	FD	Y	MAR	FLD
010276	000000	0077					
010277	000053	0077					
010300	117152	0100	CSO	FD	Y	MAR	FLD
010301	000000	0100					:SFT LOCK

010302	000001	0100	MOV	FD	R	P7	FID 6	
010303	037250	0101						
010304	000000	0101						
010305	000006	0101	CSE	FD	R	R10	FLR 53.	
010306	117250	0102						
010307	001000	0102						
010310	000065	0103	CSD	FD	R	R11	FLR 3	:INITIALIZE BLOCKS
010311	117250	0103						
010312	001000	0103						
010313	000003	0103	ADDDA	FD	A11	Y	MAR	FLD CHAN1+3
010314	000051	0104						
010315	110000	0104						
010316	001007	0104	INCA	A10	PAY	R10	TST	SIL
010317	100240	0105						
010320	101001	0105						
010321	040000	0105	ADDDA	FD	A10	Y	MAR	FLD CHAN+53.-1
010322	000051	0106						
010323	100000	0106						
010324	000064	0106						
010325	007142	0107	MOV	MOR	Y	MAR	R11	JP2 FID FIXPIT
010326	000020	0107						
010327	100040	0107						
010330	114040	0110	INCA	A11	PAY	F11	TST	SIL
010331	111101	0110						
010332	040000	0110	NOOP	RIL	JP	FLD LP1		
010333	000040	0111						
010334	000040	0111						
010335	100104	0111						
010336	001040	0112	ADDDA	A7	R10	P	JP	FID LP2
010337	071010	0112						:NEXT BLOCK
010340	000103	0112						
010341	037250	0113	MOV	FD	R	R7	FID CHAN	
010342	000000	0113						
010343	000000	0113						
010344	042040	0114	CIR	R	R10			
010345	001000	0114						
010346	000000	0114						
010347	117250	0115	CSE	FD	R	R11	FLD 29.	
010350	001100	0115						
010351	000035	0115						
010352	034041	0115	MOVA	A7	Y	MAR	:SET UP PITCH MATRIX	
010353	070000	0116						
010354	000000	0116						
010355	000051	0117	ADDDA	FD	A10	Y	MAR	SIL FID PTAB
010356	110000	0117						
010357	040074	0117	MOV	MOR	P	MAR	R14	RIL :PA
010360	007242	0120						
010361	010000	0120						
010362	100000	0120	ADDDA	FD	A7	Y	MAR	FID 1
010363	000051	0121						
010364	070000	0121						
010365	000001	0121						
010366	000051	0122	ADDDA	FD	A11	Y	MAR	SIL FID PTAB+35.
010367	110000	0122						
010370	040037	0122						
010371	007042	0123	MOV	MOR	P	MAR	B12	RIL :PB
010372	001000	0123						

010373	100000	0123	ADDDA	FD	A7	Y	MAP	FLD 2
010374	000051	0124						
010375	070000	0124	ADDDA	FD	A11	Y	PAR	SIL FLD PTAR+36.
010376	000002	0125						
010377	000051	0125	POVD	NOR	R	PER	B13	RIL IPC
010400	100000	0125						
010401	000040	0126	ADDDA	FD	A11	Y	MAP	FLD PTAR+37.
010402	000042	0126						
010403	000000	0127	ADDDA	A12	B13	R	PER	IPR+PR
010404	100000	0127						
010405	000051	0130	ADDDA	FD	A11	Y	MAP	FLD PTAR+38.
010406	100000	0131						
010407	000041	0131	ADDDA	A13	B14	Y	PAR	IPR+PR+PC
010410	000042	0132						
010411	000000	0132	ADDDA	FD	A11	Y	MAP	FLD PTAR+39.
010412	000051	0133						
010413	000000	0133	ADDDA	FD	A7	R	R7	FLD IN. :NEXT BLOCK
010414	000051	0134						
010415	000042	0134	TNCA	A10	R	R10		
010416	000041	0135						
010417	000042	0135	ADDDA	FD	A11	R	B11	TSI SIL FLD =
010418	000000	0135						
010419	000050	0136	ADDDA	A12	B14	Y	PAR	RIL JN FLD CCAND :PA+PP
010420	000041	0136						
010421	000042	0137	POVD	FD	Y	PAR	FLD WINSO.	
010422	000000	0137						
010423	000051	0140	CSD	FD	Y	PAR	FLD 1	:SFT WINNING SCORE NEG.
010424	000042	0140						
010425	000000	0141						
010426	000041	0141						
010427	000042	0141						
010428	000050	0142						
010429	000041	0142						
010430	000042	0142						
010431	000000	0142						
010432	000051	0142						
010433	000042	0142						
010434	000000	0142						
010435	000041	0142						
010436	000042	0142						
010437	000000	0142						
010438	000041	0142						
010439	000042	0142						
010440	000000	0142						
010441	000041	0142						
010442	000042	0142						
010443	000000	0142						
010444	000041	0142						
010445	000042	0142						

```

:R7=PARX PARX INDEX
:R10=MAP. SCCKF
:R11=EXPAND POTINTER TO PITCH CANDIDATE
:R12=INDEX FOR D036
:R13=WORKING REGISTER
:R14=CANDY PITCH CANDIDATE
:R15=PARNE
:R16=WINOM
:R17=SCORE

```

010446	117050	0142	CSD	FD	R	P11	FLD 5
010447	001100	0142					

RTGLUP	MOVL	FD	Y	MAR	FLP PCCO	CURRENT SCORE
000005						
010450						
010451						
010452						
010453						
010454						
010455						
010456						
010457						
010458						
010459						
010460						
010461						
010462						
010463						
010464						
010465						
010466						
010467						
010468						
010469						
010470						
010471						
010472						
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010481						
010482						
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010494						
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010496						
010497						
010498						
010499						
010500						
010501						
010502						
010503						
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010507						
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010510						
010511						
010512						
010513						
010514						
010515						
010516						
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010520						
010521						
010522						
010523						
010524						
010525						
010526						
010527						
010528						
010529						
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010541	040000	0165	NOOP	RIL	JN	FLD .+2						
010542	000040	0165										
010543	040040	0165										
010544	100070	0165	CSA	A13	F	P13						
010545	120040	0167										
010546	130000	0167										
010547	000000	0167	ADDAF	A15	R13	P	TST	SIL	:THRESH_MAG. DELTA P			
010548	000000	0170										
010549	160001	0170										
010550	000000	0170	ADDDA	FD	A12	Y	MAR	FLU	PTAR+36.			
010551	000000	0171										
010552	000000	0171										
010553	000000	0171										
010554	000000	0171										
010555	000000	0171										
010556	100000	0172	INCA	A12	RAY	R12	TST	JN	FLD	N000 :JUMP ON FAILURE		
010557	100000	0172										
010558	000070	0172										
010559	100000	0173	INCA	A17	P	R17			:INCREMENT <CONF			
010560	100000	0173										
010561	000000	0173										
010562	100000	0173										
010563	000000	0173										
010564	100000	0174	SURAG	A14	MOR	R	B13	TST	SIL	JN	FLD	N006
010565	100000	0174										
010566	000000	0174										
010567	000000	0175	MOVA	A17	Y	TST	SIL			:TEST SCOPE		
010568	100000	0175										
010569	000000	0175										
010570	000000	0175										
010571	000000	0175										
010572	000000	0175										
010573	000000	0175										
010574	000000	0175										
010575	000000	0175										
010576	000000	0177	MOVA	A17	P	B10	RIL	JP2	FLD .+2	:TAKE MAG SCOPE		
010577	100000	0177										
010578	100000	0200	CSA	A10	R	B10						
010579	100000	0200										
010580	000000	0201	MOVE	MOR	P	R13	TST	SIL				
010581	000000	0201										
010582	000000	0201										
010583	000000	0201										
010584	000000	0201										
010585	000000	0201										
010586	000000	0202	NOOP	RIL	JP2	FLD .+2						
010587	000000	0202										
010588	000000	0202										
010589	000000	0202										
010590	000000	0203	CSA	A13	R	P13						
010591	100000	0203										
010592	100000	0203										
010593	000000	0203										
010594	100000	0204	SURAF	A13	B10	Y	TST	SIL	:MAC. OLD-MAG. NEW			
010595	100000	0204										
010596	000000	0204										
010597	000000	0205	NOOP	RIL	JP2	FLD .+2						
010598	000000	0205										
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010631	000000	0205										

010632	100'61	0210	MOV	FD	Y	W	STL	FLD WIPSC
010633	037'51	0211						
010634	000'00	0211	MOV	MOR	P	E13	PIL	IPSCC
010635	040'54	0211						
010636	037'40	0212						
010637	001'00	0212						
010638	100'00	0212	SURDA	MOR	A13	Y	TST	SIL
010639	124'40	0213						WIPSC-PSCC
010640	130'03	0213						
010641	040'00	0213	NOOP	RIL	JPZ	FLD	NEXTC	
010642	000'40	0214						
010643	000'20	0214						
010644	100'20	0214	MOVA	A13	Y	MOR	IPSCC ->	WIPSC
010645	034'42	0215						
010646	130'00	0215	MOV	FD	Y	MAR	FLD	PITCH
010647	000'00	0215						
010648	037'51	0216	MOVA	A14	Y	MOR	ICANDIDATE=PITCH	
010649	000'00	0216						
010650	034'42	0217						
010651	100'00	0217	NEXTC	A11	RAY	R11	TST	SIL
010652	000'00	0217						
010653	104'40	0220	NOOP	RIL	JH	FLD	RIGUP	
010654	111'01	0220						
010655	040'00	0221	MOV	FD	Y	MAR	FLD	PITCH
010656	000'40	0221						
010657	000'00	0222	MOV	FD	Y	MAR	STL	FLD WIPSC
010658	037'51	0222						
010659	000'00	0222						
010660	037'51	0223	MOV	MOR	R	R13	RIL	IPITCH WINNER
010661	040'54	0223						
010662	037'40	0224						
010663	001'00	0224	MOV	MOR	Y	TST	STL	ITEST WINNING SCORE
010664	100'00	0224						
010665	037'40	0225						
010666	000'01	0225	NOOP	RIL	JH	FLD	PHISS	INEG. SCORE=WHISS
010667	000'00	0225						
010668	037'40	0226	SURDA	A13	FD	Y	TST	SIL
010669	100'20	0226						FLD 108.
010670	114'50	0227	NOOP	RIL	JPZ	FLD	PHISS	IPITCH TON LOW
010671	040'00	0227						
010672	000'40	0230						
010673	000'00	0230	NOOP	JP	FLD	POVEN		
010674	100'32	0230						
010675	000'40	0231						
010676	000'00	0231	PHISS	MOV	FD	Y	MAR	FLD LOCK
010677	037'51	0232						
010678	000'00	0232						
010679	000'00	0233	CSD	FD	Y	MAR	FLD 1	ISFT LOCK
010680	117'52	0233						
010681	000'00	0235						

010723	000001	0233	MOVD	FD	Y	MR	FID PITCH	
010724	037151	0234						
010725	000000	0234						
010726	000102	0234						
010727	042142	0235	CLR	Y	MR	JP	FID FIXPLT	PITCH=0
010730	000010	0235						
010731	000140	0235						
010732	037151	0236	MOVD	FD	Y	MR	FID LOCK	
010733	000000	0236						
010734	000053	0236						
010735	042142	0237	CLR	Y	MR	ICLEAR LOCK		
010736	000000	0237						
010737	000000	0237						
			PAGE					

ADDRESS	INSTR	OPERANDS	COMMENT
010740	FIXPVT MOVE	FD Y	
010741			
010742	MOV	FD Y	FLD VARMASK
010743			
010744	MOV	FD Y	FLD VARMASK
010745			
010746	MOV	FD Y	FLD VARMASK
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010748	MOV	FD Y	FLD VARMASK
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010750	MOV	FD Y	FLD VARMASK
010751			
010752	MOV	FD Y	FLD VARMASK
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010754	MOV	FD Y	FLD VARMASK
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010756	MOV	FD Y	FLD VARMASK
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010758	MOV	FD Y	FLD VARMASK
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010760	MOV	FD Y	FLD VARMASK
010761			
010762	MOV	FD Y	FLD VARMASK
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010764	MOV	FD Y	FLD VARMASK
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010766	MOV	FD Y	FLD VARMASK
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010768	MOV	FD Y	FLD VARMASK
010769			
010770	MOV	FD Y	FLD VARMASK
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010772	MOV	FD Y	FLD VARMASK
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010774	MOV	FD Y	FLD VARMASK
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010776	MOV	FD Y	FLD VARMASK
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010778	MOV	FD Y	FLD VARMASK
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010780	MOV	FD Y	FLD VARMASK
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010782	MOV	FD Y	FLD VARMASK
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010788	MOV	FD Y	FLD VARMASK
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010790	MOV	FD Y	FLD VARMASK
010791			
010792	MOV	FD Y	FLD VARMASK
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010794	MOV	FD Y	FLD VARMASK
010795			
010796	MOV	FD Y	FLD VARMASK
010797			
010798	MOV	FD Y	FLD VARMASK
010799			
010800	MOV	FD Y	FLD VARMASK
010801			
010802	MOV	FD Y	FLD VARMASK
010803			
010804	MOV	FD Y	FLD VARMASK
010805			
010806	MOV	FD Y	FLD VARMASK

ADDR	OPCODE	OP	OP1	OP2	OP3	OP4	OP5	OP6	OP7	OP8	OP9	OP10	OP11	OP12	OP13	OP14	OP15	OP16	OP17	OP18	OP19	OP20	OP21	OP22	OP23	OP24	OP25	OP26	OP27	OP28	OP29	OP30	OP31	OP32	OP33	OP34	OP35	OP36	OP37	OP38	OP39	OP40	OP41	OP42	OP43	OP44	OP45	OP46	OP47	OP48	OP49	OP50	OP51	OP52	OP53	OP54	OP55	OP56	OP57	OP58	OP59	OP60	OP61	OP62	OP63	OP64	OP65	OP66	OP67	OP68	OP69	OP70	OP71	OP72	OP73	OP74	OP75	OP76	OP77	OP78	OP79	OP80	OP81	OP82	OP83	OP84	OP85	OP86	OP87	OP88	OP89	OP90	OP91	OP92	OP93	OP94	OP95	OP96	OP97	OP98	OP99	OP100	OP101	OP102	OP103	OP104	OP105	OP106	OP107	OP108	OP109	OP110	OP111	OP112	OP113	OP114	OP115	OP116	OP117	OP118	OP119	OP120	OP121	OP122	OP123	OP124	OP125	OP126	OP127	OP128	OP129	OP130	OP131	OP132	OP133	OP134	OP135	OP136	OP137	OP138	OP139	OP140	OP141	OP142	OP143	OP144	OP145	OP146	OP147	OP148	OP149	OP150	OP151	OP152	OP153	OP154	OP155	OP156	OP157	OP158	OP159	OP160	OP161	OP162	OP163	OP164	OP165	OP166	OP167	OP168	OP169	OP170	OP171	OP172	OP173	OP174	OP175	OP176	OP177	OP178	OP179	OP180	OP181	OP182	OP183	OP184	OP185	OP186	OP187	OP188	OP189	OP190	OP191	OP192	OP193	OP194	OP195	OP196	OP197	OP198	OP199	OP200	OP201	OP202	OP203	OP204	OP205	OP206	OP207	OP208	OP209	OP210	OP211	OP212	OP213	OP214	OP215	OP216	OP217	OP218	OP219	OP220	OP221	OP222	OP223	OP224	OP225	OP226	OP227	OP228	OP229	OP230	OP231	OP232	OP233	OP234	OP235	OP236	OP237	OP238	OP239	OP240	OP241	OP242	OP243	OP244	OP245	OP246	OP247	OP248	OP249	OP250	OP251	OP252	OP253	OP254	OP255	OP256	OP257	OP258	OP259	OP260	OP261	OP262	OP263	OP264	OP265	OP266	OP267	OP268	OP269	OP270	OP271	OP272	OP273	OP274	OP275	OP276	OP277	OP278	OP279	OP280	OP281	OP282	OP283	OP284	OP285	OP286	OP287	OP288	OP289	OP290	OP291	OP292	OP293	OP294	OP295	OP296	OP297	OP298	OP299	OP300	OP301	OP302	OP303	OP304	OP305	OP306	OP307	OP308	OP309	OP310	OP311	OP312	OP313	OP314	OP315	OP316	OP317	OP318	OP319	OP320	OP321	OP322	OP323	OP324	OP325	OP326	OP327	OP328	OP329	OP330	OP331	OP332	OP333	OP334	OP335	OP336	OP337	OP338	OP339	OP340	OP341	OP342	OP343	OP344	OP345	OP346	OP347	OP348	OP349	OP350	OP351	OP352	OP353	OP354	OP355	OP356	OP357	OP358	OP359	OP360	OP361	OP362	OP363	OP364	OP365	OP366	OP367	OP368	OP369	OP370	OP371	OP372	OP373	OP374	OP375	OP376	OP377	OP378	OP379	OP380	OP381	OP382	OP383	OP384	OP385	OP386	OP387	OP388	OP389	OP390	OP391	OP392	OP393	OP394	OP395	OP396	OP397	OP398	OP399	OP400	OP401	OP402	OP403	OP404	OP405	OP406	OP407	OP408	OP409	OP410	OP411	OP412	OP413	OP414	OP415	OP416	OP417	OP418	OP419	OP420	OP421	OP422	OP423	OP424	OP425	OP426	OP427	OP428	OP429	OP430	OP431	OP432	OP433	OP434	OP435	OP436	OP437	OP438	OP439	OP440	OP441	OP442	OP443	OP444	OP445	OP446	OP447	OP448	OP449	OP450	OP451	OP452	OP453	OP454	OP455	OP456	OP457	OP458	OP459	OP460	OP461	OP462	OP463	OP464	OP465	OP466	OP467	OP468	OP469	OP470	OP471	OP472	OP473	OP474	OP475	OP476	OP477	OP478	OP479	OP480	OP481	OP482	OP483	OP484	OP485	OP486	OP487	OP488	OP489	OP490	OP491	OP492	OP493	OP494	OP495	OP496	OP497	OP498	OP499	OP500	OP501	OP502	OP503	OP504	OP505	OP506	OP507	OP508	OP509	OP510	OP511	OP512	OP513	OP514	OP515	OP516	OP517	OP518	OP519	OP520	OP521	OP522	OP523	OP524	OP525	OP526	OP527	OP528	OP529	OP530	OP531	OP532	OP533	OP534	OP535	OP536	OP537	OP538	OP539	OP540	OP541	OP542	OP543	OP544	OP545	OP546	OP547	OP548	OP549	OP550	OP551	OP552	OP553	OP554	OP555	OP556	OP557	OP558	OP559	OP560	OP561	OP562	OP563	OP564	OP565	OP566	OP567	OP568	OP569	OP570	OP571	OP572	OP573	OP574	OP575	OP576	OP577	OP578	OP579	OP580	OP581	OP582	OP583	OP584	OP585	OP586	OP587	OP588	OP589	OP590	OP591	OP592	OP593	OP594	OP595	OP596	OP597	OP598	OP599	OP600	OP601	OP602	OP603	OP604	OP605	OP606	OP607	OP608	OP609	OP610	OP611	OP612	OP613	OP614	OP615	OP616	OP617	OP618	OP619	OP620	OP621	OP622	OP623	OP624	OP625	OP626	OP627	OP628	OP629	OP630	OP631	OP632	OP633	OP634	OP635	OP636	OP637	OP638	OP639	OP640	OP641	OP642	OP643	OP644	OP645	OP646	OP647	OP648	OP649	OP650	OP651	OP652	OP653	OP654	OP655	OP656	OP657	OP658	OP659	OP660	OP661	OP662	OP663	OP664	OP665	OP666	OP667	OP668	OP669	OP670	OP671	OP672	OP673	OP674	OP675	OP676	OP677	OP678	OP679	OP680	OP681	OP682	OP683	OP684	OP685	OP686	OP687	OP688	OP689	OP690	OP691	OP692	OP693	OP694	OP695	OP696	OP697	OP698	OP699	OP700	OP701	OP702	OP703	OP704	OP705	OP706	OP707	OP708	OP709	OP710	OP711	OP712	OP713	OP714	OP715	OP716	OP717	OP718	OP719	OP720	OP721	OP722	OP723	OP724	OP725	OP726	OP727	OP728	OP729	OP730	OP731	OP732	OP733	OP734	OP735	OP736	OP737	OP738	OP739	OP740	OP741	OP742	OP743	OP744	OP745	OP746	OP747	OP748	OP749	OP750	OP751	OP752	OP753	OP754	OP755	OP756	OP757	OP758	OP759	OP760	OP761	OP762	OP763	OP764	OP765	OP766	OP767	OP768	OP769	OP770	OP771	OP772	OP773	OP774	OP775	OP776	OP777	OP778	OP779	OP780	OP781	OP782	OP783	OP784	OP785	OP786	OP787	OP788	OP789	OP790	OP791	OP792	OP793	OP794	OP795	OP796	OP797	OP798	OP799	OP800	OP801	OP802	OP803	OP804	OP805	OP806	OP807	OP808	OP809	OP810	OP811	OP812	OP813	OP814	OP815	OP816	OP817	OP818	OP819	OP820	OP821	OP822	OP823	OP824	OP825	OP826	OP827	OP828	OP829	OP830	OP831	OP832	OP833	OP834	OP835	OP836	OP837	OP838	OP839	OP840	OP841	OP842	OP843	OP844	OP845	OP846	OP847	OP848	OP849	OP850	OP851	OP852	OP853	OP854	OP855	OP856	OP857	OP858	OP859	OP860	OP861	OP862	OP863	OP864	OP865	OP866	OP867	OP868	OP869	OP870	OP871	OP872	OP873	OP874	OP875	OP876	OP877	OP878	OP879	OP880	OP881	OP882	OP883	OP884	OP885	OP886	OP887	OP888	OP889	OP890	OP891	OP892	OP893	OP894	OP895	OP896	OP897	OP898	OP899	OP900	OP901	OP902	OP903	OP904	OP905	OP906	OP907	OP908	OP909	OP910	OP911	OP912	OP913	OP914	OP915	OP916	OP917	OP918	OP919	OP920	OP921	OP922	OP923	OP924	OP925	OP926	OP927	OP928	OP929	OP930	OP931	OP932	OP933	OP934	OP935	OP936	OP937	OP938	OP939	OP940	OP941	OP942	OP943	OP944	OP945	OP946	OP947	OP948	OP949	OP950	OP951	OP952	OP953	OP954	OP955	OP956	OP957	OP958	OP959	OP960	OP961	OP962	OP963	OP964	OP965	OP966	OP967	OP968	OP969	OP970	OP971	OP972	OP973	OP974	OP975	OP976	OP977	OP978	OP979	OP980	OP981	OP982	OP983	OP984	OP985	OP986	OP987	OP988	OP989	OP990	OP991	OP992	OP993	OP994	OP995	OP996	OP997	OP998	OP999	OP1000
011046	011047	011048	011049	011050	011051	011052	011053	011054	011055	011056	011057	011058	011059	011060	011061	011062	011063	011064	011065	011066	011067	011068	011069	011070	011071	011072	011073	011074	011075	011076	011077	011078	011079	011080	011081	011082	011083	011084	011085	011086	011087	011088	011089	011090	011091	011092	011093	011094	011095	011096	011097	011098	011099	011100	011101	011102	011103	011104	011105	011106	011107	011108	011109	011110	011111	011112	011113	011114	011115	011116	011117	011118	011119	011120	011121	011122	011123	011124	011125	011126	011127	011128	011129	011130	011131	011132	011133	011134	011135	011136	011137	011138	011139	011140	011141	011142	011143	011144	011145	011146	011147	011148	011149	011150	011151	011152	011153	011154	011155	011156	011157	011158	011159	011160	011161	011162	011163	011164	011165	011166	011167	011168	011169	011170	011171	011172	011173	011174	011175	011176	011177	011178	011179	011180	011181	011182	011183	011184	011185	011186	011187	011188	011189	011190	011191	011192	011193	011194	011195	011196	011197	011198	011199	011200	011201	011202	011203	011204	011205	011206	011207	011208	011209	011210	011211	011212	011213	011214	011215	011216	011217	011218	011219	011220	011221	011222	011223	011224	011225	011226	011227	011228	011229	011230	011231	011232	011233	011234	011235	011236	011237	011238	011239	011240	011241	011242	011243	011244	011245	011246	011																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

011147	117350	0315	CSC	FD	R	R13	FLD 2*P+3
011150	001700	0315					
011151	000033	0315					
011152	037151	0316	MOVL	FD	Y	MAR	FLD PVAL
011153	000000	0316					
011154	000040	0316					
011155	104340	0317	INCA	A17	R	P17	
011156	171700	0317					
011157	000000	0317					
011160	025140	0320	SUPCaj	MOR	A17	Y	TST SIL
011161	170001	0320					
011162	040000	0320					
011163	000140	0321	MOOP	RIL	JM2	FLD CONXT	
011164	000050	0321					
011165	100063	0321					
011166	037151	0322	MOVQ	FD	Y	MAR	FLD COBPIR
011167	000000	0322					
011170	000057	0322					
011171	034142	0323	MOVA	A13	Y	MER	
011172	130000	0323					
011173	000000	0323					

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IRIOL4 FLOATING POINT ROUTINE

011174	037151	MOVQ	FD	Y	MAR	FLD R0+P+1	:LSR R(0)	
011175	000000							
011176	000065	MOVQ	FD	Y	MAR	STL FLD RS	:MSR R(0)	
011177	037151							
011200	000000							
011201	000050	MOVQ	MOR	Q	RTL			
011202	000040							
011203	000000							
011204	100000	MOVQ	MOR	P	P17			
011205	000040							
011206	000000							
011207	000000	CSF	FD	R	R16	FLD 15.	:MAXIMUM SHIFT OF 16.	
011210	117150							
011211	000000							
011212	000017	MOVQ	A17	SUD	R17			
011213	000040							
011214	117100							
011215	000000	MOVQ	A17	Y	TST	STL		
011216	030040							
011217	170001							
011220	000000	INCA	A15	PAY	R16	TST JN	FLD SCLEND	
011221	100040							
011222	161041							
011223	000035							
011224	000040	MOVQ	A17	SUD	R17	JN	FLD 0-2	
011225	117140							
011226	000032							
011227	120040	SCLEND CSA	A15	P	R16	RTL		
011230	100000							
011231	100000							
011232	100050							
011233	161001							
011234	000016	SURAI	FD	A16	P	P16	TST STL FLD 14.	:SCALE FACTOR - 0.1M
011235	000051							
011236	000000	MOVQ	FD	Y	MAR	FLD <77777>	:SCALE LP ZERO	
011237	000000							
011240	030040	MOVQ	A17	SN	B17	RTL J7	FLD SCLEFN	:15.= SCALE UP 1.
011241	117130							
011242	100055							
011243	037151	MOVQ	FD	Y	MAR	STL FLD RS		
011244	000000							
011245	000050	ANDEA	MOR	A17	Y	MAR	RTL	:REMOVE SIGN EXTENSION AND STORE R11
011246	000042							
011247	170000							
011250	100000							
011251	117150	CSC	FD	R	R14	FLD P-1		
011252	000000							
011253	000013							
011254	000051	OSLIP	ADDQA	FD	A14	Y	MAR	FLD RS+P+1 :ISP
011255	100000							
011256	000001							

ADDR	FD	A14	Y	PAR	SIL	FID	RC+P	:RSP
011257	ADD							
011260								
011261	MOV	G	PIL					
011262								
011263								
011264	MOV	R	R17					
011265								
011266								
011267	MOV	P	R15					
011270								
011271								
011272								
011273	IN	R	R15					
011274								
011275								
011276	MOV	SUD	B17	JM	FLU			
011277								
011300	IN	PAY	R14	TST				
011301								
011302								
011303	MOV	Y	R15	PJL	JM	FID	OCLLP	:STORE SCALFD R
011304								
011305								
011306								
011307	SCLE	Y	R15	FID	SCLFAC			
011310								
011311								
011312	MOV	Y	R15					
011313								
011314								

PAGE

LEVENSON RECEPTION

:R17=AV
 :R16=APX
 :R15=ENT
 :R14=OV
 :R13=VUM
 :R12=DFH
 :R11=DUOT
 :R10=TFPH
 :R7=TFEP
 :R6=TFEP

011315	037151	0357	LEVENSON MOVU	FD	Y	PAR	FLP RS	
011316	000000	0357						
011317	000050	0357	CSF	FD	P	R14	FID 1	
011320	117250	0360						
011321	001400	0360	MOVU	MOV	R	R12	TST STL	:FIRST OFN
011322	000000	0361						
011324	001201	0361						
011325	000000	0362	MOVU	FD	Y	PAR	FID RS+1	
011326	037151	0362						
011327	000000	0362	CLP	R	P7	PTL JP	FLU APOPT	:APOPT IF DFH < 0
011330	000051	0363						
011331	042740	0363	MOVU	MOV	R	R13	TST STL	:FIRST OFN
011332	100057	0363						
011333	037740	0364	MOVA	A13	R	P10	RIL JPZ FID +2	:MAG NUM
011334	001201	0364						
011335	040000	0364						
011337	034240	0365	CSA	A10	P	B10		
011340	131220	0365						
011341	100267	0365						
011342	124240	0365						
011343	101000	0365						
011344	000000	0365	SURBA	B10	P	A12	TST STL	JPS FLD DIVIDE
011345	111340	0367						
011346	121015	0367						
011347	040467	0367	MOVA	A11	SN	F7	MRR	:STOPF FIRST K
011350	024242	0370						
011351	100700	0370						
011352	000000	0370	MOVA	A7	SN	P7		
011353	024240	0371						
011354	070700	0371						
011355	000000	0371	MOVL	FD	Y	PAR	FID AS	
011356	037151	0372						
011357	000000	0372						
011360	000065	0372	MOVA	A7	Y	WER	:STOPF FIRST A	
011361	024142	0373						
011362	070000	0373						
011363	000000	0373						
011364	034240	0374	MOVA	A14	R	R16		
011365	141000	0374	OI UPI					

011366	000000	0274	ADDA	A16	FD	Y	MAR	FLD RS+2
011367	000051	0275						
011370	100000	0275						
011371	000052	0275	CLC	R	B17			
011372	040040	0276						
011373	000000	0276						
011374	000000	0275	CLC	R	P10	STL		
011375	000000	0277						
011376	000000	0277						
011377	000000	0277						
011400	000051	0400	NUM111P ADDCA	FD	A17	Y	MAR	FLD AS
011401	170000	0400						
011402	000065	0400	MOVU	MOR	Y	PCD		
011403	037143	0401						
011404	000000	0401						
011405	000000	0401	MOVL	MOR	Y	DDR		
011406	037146	0402						
011407	000000	0402						
011410	000000	0402	INCB	B17	R			
011411	100000	0403						
011412	000000	0403						
011413	000000	0403						
011414	000000	0404	MOOP	Y				
011415	000000	0404						
011416	000000	0404						
011417	000051	0405	ADDDA	FD	A16	Y	MAR	FLD RS+1
011420	100000	0405						
011421	000051	0405	DECA	A16	PAY	P16	TEST	
011422	010000	0406						
011423	100001	0405						
011424	000000	0405						
011425	000030	0407	ADDDA	UP	A10	P	B10	JPZ FLD NUM111P
011426	100020	0407						
011427	000000	0407						
011430	000051	0410	CALNUM ADDCA	FD	A14	Y	MAR	RTL FLD RS+3
011431	100000	0410						
011432	100053	0410	MOVA	A10	SU	P10		
011433	030040	0411						
011434	100000	0411						
011435	000000	0411						
011436	030040	0412	MOVA	A10	SU	P10		
011437	100000	0412						
011440	000000	0412	SURDA	MOR	A10	P	B10	NUMFPATOR
011441	100050	0413						
011442	100000	0413						
011443	000000	0413	INCB	B14	P			
011444	100000	0414						
011445	000000	0414						
011446	000000	0414	CALNPN MOVA	A11	Y	PCD	STL	
011447	030043	0415						
011450	100000	0415						
011451	000000	0415						
011452	030046	0415	MOVA	A13	Y	MOR	:OLD K * OLD NUM	
011453	100000	0415						
011454	000000	0415						
011455	030040	0417	MOVA	A12	P	P7	:SAVE OLD DFN	
011456	120000	0417						

011457	000000	MOVA	A10	R	R13	TST	:NEW NUM -> CLR NUM
011460	034340						
011461	101101	MOOP	JPZ	FLD +2			
011462	000000						
011463	000140						
011464	000020						
011465	000023	CSA	A10	P	P10	:MAC NUM	
011466	124340						
011467	101000						
011470	000000	MOVD	FO	Y	PAR	FLD E	
011471	037151						
011472	000000						
011473	000103	SURAI	A12	UP	R	R12	MRK TST :NEW DEN
011474	115332						
011475	121001						
011476	000000						
011477	000140	MOOP	RIL	UN	FLD	ABOCT	
011500	000040						
011501	100057						
011502	111240	SUBBA	B10	A12	F	TST	SIL JPS FLD DIVIDE
011503	121015						
011504	040067						
011505	030042	MOVA	A11	SD	P10	MRP	:STORE K
011506	111000						
011507	000000						
011510	115150	SUBAR	A14	FO	Y	TST	SIL FLD P-2
011511	140001						
011512	040012						
011513	030040	MOVA	A10	SD	P10	RIL	JPZ FLD UNSCAL
011514	101020						
011515	100006						
011516	000051	ADDDA	FO	A14	Y	PAR	FLD AS+1
011517	140000						
011520	000066						
011521	030042	MOVA	A10	Y	MRP	:STORE A	
011522	100000						
011523	000000						
011524	040040	PRET	CLR	R	R17	:AX	
011525	001700						
011526	000000						
011527	030040	MOVA	A14	R	P16	:APX	
011530	141000						
011531	000000						
011532	000051	ADDDA	FO	A16	Y	PAR	FLD AS
011533	100000						
011534	000065						
011535	110050						
011536	141000						
011537	000002	SURAI	A15	FC	SD	R15	FLU 2 : (APX-2)/2 -> CNT
011540	030043						
011541	110000	MOVA	A11	Y	MRP	SIL	:K -> MCD
011542	040000						
011543	037040						
011544	000700	MOVD	MOR	R	P7		
011545	000000						
011546	030046	MOVA	A7	R	P5	MPR	:K*A(APX) SAVF PRESENT A(APX)
011547	070000	IIUPL					

011550	000000	0442	ADDDA	FD	A16	Y	PAR	FLD AS-1	
011551	000051	0443							
011552	100000	0443	ADDDA	FD	A17	Y	MAP	FLD AS	
011553	000064	0443							
011554	000051	0444							
011555	100000	0444	MOVD	MOR	P	R7	:SAVE NEXT A(APX)		
011556	000065	0444							
011557	037040	0445							
011560	000000	0445							
011561	000000	0445							
011562	100040	0446	INCB	B17	P				
011563	001000	0446							
011564	000000	0446	MOVD	UP	P	R10			
011565	037030	0447							
011566	001000	0447							
011567	000000	0447	MOVD	MOR	Y	MPR	:K=AX(AX)		
011570	000000	0450							
011571	000000	0450							
011572	000000	0450	SUBDA	MOR	A10	Y	PRR	:A(AX)-K=AX(APX) -> A(AX)	
011573	100042	0451							
011574	100000	0451							
011575	000000	0451	ADDDA	FD	A16	Y	MAP	FLD AS	
011576	000051	0452							
011577	100000	0452							
011600	000065	0452	DECB	B15	P				
011601	010040	0453							
011602	001000	0453							
011603	000000	0453	DECA	A15	RAY	R15	TST		
011604	014040	0454							
011605	101001	0454							
011606	000000	0454							
011607	100032	0455	SUBAR	AS	IP	Y	PRR	JPZ FLD ILUPL :A(APX)-K=AX(AX) -> A,APX,	
011610	000020	0455							
011611	000042	0455	MOOP	RIL	JP	FLD ILUPL			
011612	000040	0455							
011613	000010	0456							
011614	100070	0456	PAGE						

011615	037151	0457	ABORT	MOVCL	FD	Y	MAR	FLC E
011616	000000	0457						
011617	000103	0457	MOVA	A7	Y	MAR		:USF OLD F
011620	030142	0460						
011621	070000	0460	SUBAL	A14	FN	F	B14	FLD P-2
011622	000000	0460						
011623	110750	0461						
011624	141400	0461						
011625	000112	0461						
011626	000151	0462	ADDOA	FD	A14	Y	MAR	FLD KSAP-1
011627	140000	0462						
011630	000117	0462	INCA	A14	RAY	R14	TST	STL :CLFAR REMAINING MS
011631	100740	0463						
011632	141401	0463						
011633	040000	0463	CLP	Y	MAR	R14	JP	FLD -2
011634	040142	0464						
011635	000040	0464						
011636	100462	0464						
011637	037750	0465	MOVCL	FD	R	R14	FLD P-2	
011640	001400	0465						
011641	000012	0465						
011642	040740	0465	CLP	R	R11	JP	FLD UNSCAL	
011643	001110	0465						
011644	000506	0465						

:DIVIDE SUBROUTINE

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:NUM-REF IN R10 WITH TST PERFORMED
:REV IN R12
:COUNT IN R11

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011645	034740	0467	DIVINE	MOVA	A10	SU	R10	R14	JP2	FLD ABORT
011646	101020	0467								
011647	100457	0467								
011648	037151	0470	MOVCL	FD	Y	MAR	FLD	<77777>		
011651	000000	0470								
011652	001000	0470	MOVCL	FD	R	R11	FLC	1		
011653	037750	0471								
011654	001100	0471								
011655	000001	0471								
011656	001740	0472	ADDOA	A12	R10	P	TST	SIL		
011657	101001	0472								
011660	040000	0472								
011661	037740	0473	DIVINE	MOVB	B10	SU				
011662	001000	0473								
011663	000000	0473	MOVB	B11	SU	TST	JP2	FLD Q1		
011664	037740	0474								
011665	001121	0474								
011666	000077	0474								
011667	001740	0475	ADDOA	A12	R	R10	TST	JP2	FLD DIVLUP	
011670	101021	0475								
011671	000073	0475	MOVA	A13	Y	TST	JP	FLD DIVEND+1		
011672	034740	0475								

011673	140011	0475							
011674	000002	0475							
011675	111446	0477							
011676	121000	0477							
011677	000000	0477							
011700	101040	0500							
011701	101121	0500							
011702	000073	0500							
011703	030140	0501							
011704	140001	0501							
011705	000000	0501							
011706	040040	0502							
011707	111100	0502							
011710	000000	0502							
011711	040040	0503							
011712	111120	0503							
011713	000005	0503							
011714	120040	0504							
011715	001100	0504							
011716	000000	0504							
011717	040051	0505							
011720	140012	0505							
011721	100105	0505							

UNSCALING ROUTINE

011722	037151	0505							
011723	000000	0505							
011724	100101	0506							
011725	037151	0507							
011726	000000	0507							
011727	020103	0507							
011730	037140	0510							
011731	001401	0510							
011732	000000	0510							
011733	037140	0511							
011734	001100	0511							
011735	000000	0511							
011736	042040	0512							
011737	000020	0512							
011740	100115	0512							
011741	100140	0513							
011742	141401	0513							
011743	040000	0513							
011744	030040	0514							
011745	171740	0514							
011746	000013	0514							
011747	117350	0515							
011748	001400	0515							
011751	000003	0515							
011752	030040	0516							
011753	171700	0516							
011754	000000	0516							
011755	040040	0517							
011756	170001	0517							
011757	000000	0517							

INCA	A15	PAY	B16	TST	JN	FID OV
NOOP	JN	FLD	--3			
MOVA	A17	Y	PAR	M1L	JP	FID INLE
MOVD	FD	Y	MAR	FLD	<77777>	
MOVD	FD	Y	PAR	FLD	E	
MOVD	MOR	P	B17	JP	FID OV-1	
PAGE						

OV

011760	100000	000000	000000
011761	100000	000000	000000
011762	100000	000000	000000
011763	100000	000000	000000
011764	100000	000000	000000
011765	100000	000000	000000
011766	100000	000000	000000
011767	100000	000000	000000
011768	100000	000000	000000
011769	100000	000000	000000
011770	100000	000000	000000
011771	100000	000000	000000
011772	100000	000000	000000
011773	100000	000000	000000
011774	100000	000000	000000
011775	100000	000000	000000
011776	100000	000000	000000
011777	100000	000000	000000
012000	100000	000000	000000
012001	100000	000000	000000

IPS INTERRUPT SERVICE ROUTINE

012002	037751	PSC	MOVD	FD	Y	WIR	FLR OBITCT	:- (RPTS-1)).....0
012003	000000							
012004	000447		MOVB	FD	Y	PAR	FLD OPRDX	00.....0+1
012005	037751							
012006	000000		MOVD	MOR	R	PC		
012007	000460							
012010	037740		INCA	A0	RAY	R0	TST	
012011	000000							
012012	000000		INCD	MOR	R	P1	JN	FLD PSFFT
012013	100000							
012014	000001		MOVD	FD	Y	PAR	FLD PVAL	
012015	000000							
012016	107740		MOVD	FD	Y	PAR	FLD OPRDX	
012017	000000							
012018	000000		SUBDL	MOR	A1	Y	TST	IP+2-OWRDY
012019	000000							
012020	000000		MOVA	A1	Y	MEM	JNZ	FLD NOTFPM
012021	037751							ISFT OWRDX
012022	000000		CLR	R	P1	M3P	IRESET OWRDY	
012023	000442							
012024	000000		MPWFP	MOVD	FD	Y	WIR	FLD CNT
012025	000000							
012026	000000		CLR	Y	MRR		IRESET CNT	
012027	100000							
012028	000000		CRFTH	CSP	FD	R	R2	FLD 2+P+1
012029	000000							INCU FRAME
012030	037751		ADDDA	FD	A2	Y	MAR	FLD RRU+2+P+1
012031	000000							YFP DATA
012032	000000		INCA	A2	RAY	R2	TST	
012033	000000							
012034	100000		ADDDA	FD	A2	Y	MAR	FLD RS+2+P
012035	000000							
012036	000000		MOVD	MOR	Y	PAR	JN	FLD 0-3
012037	000000							
012038	000000		CSC	FD	R	R2	FLD 3+P+2	ICLFR BUFFERS
012039	107750							
012040	000000							
012041	000000							
012042	000000							
012043	000000							
012044	000000							
012045	000000							
012046	000000							
012047	000000							
012048	000000							
012049	000000							
012050	000000							
012051	000000							
012052	000000							
012053	000000							
012054	000000							
012055	000000							
012056	000000							
012057	000000							
012058	000000							
012059	000000							
012060	000000							
012061	000000							
012062	000000							
012063	000000							
012064	000000							
012065	000000							
012066	000000							

012067	000046	0047	ANDCA	FD	A2	Y	MAF	FLD RRUU+3,p+2
012070	000051	0050						
012071	020000	0050						
012072	070047	0050	INCA	A2	RAY	R2	TST	
012073	100000	0051						
012074	020001	0051						
012075	000000	0051						
012076	040042	0052	CLP	Y	MRP	JN	FLD --2	
012077	000000	0052						
012100	070050	0052	MOVD	FD	Y	MAR	FLD POSTFG	
012101	037051	0053						
012102	000000	0053	MOVA	A2	Y	MRB	:SET START FLAG	
012103	000050	0053						
012104	030042	0054						
012105	020000	0054						
012106	000000	0054						
012107	037051	0055	NOTERM MOVD	FD	Y	MAR	FLD NRITS	
012110	000000	0055						
012111	000043	0055						
012112	037051	0056	MOVD	FD	Y	MAP	FLD ORPTX :--2,p-3,....0	
012113	000000	0056						
012114	000045	0056						
012115	000041	0057	ADDDA	MOR	A1	Y	PAR	
012116	000000	0057						
012117	000000	0057	MOVE	MOR	P	R1		
012120	037040	0060						
012121	000000	0060						
012122	000000	0060	MOVD	MOR	R	R0	:NEW NRITS	
012123	037040	0061						
012124	000000	0061						
012125	000000	0061						
012126	000051	0062	ADDDA	FD	A1	Y	MAP	FLD ORUF+2,p+3
012127	010000	0062						
012130	000055	0062						
012131	100040	0063	INCA	A1	RAY	R1	TST	
012132	010001	0063						
012133	000000	0063						
012134	037045	0064	MOVE	MOR	Y	FS	JN' FLU .+2 :NEXT WORD OUT	
012135	000040	0064						
012136	000066	0064						
012137	117050	0065	CSP	FD	P	R1	FLD 2,p+3 :RESET ORPTX	
012140	000000	0065						
012141	000033	0065						
012142	037051	0066	MOVD	FD	Y	MAR	FLD ORPTX	
012143	000000	0066						
012144	000045	0066						
012145	030042	0067	MOVA	A1	Y	MRB	:STORE ORPTR	
012146	010000	0067						
012147	000000	0067						
012150	037051	0070	PERF MOVD	FD	Y	MAP	FLD ORITCY	
012151	000000	0070						
012152	000047	0070						
012153	030042	0071	MOVA	A0	Y	MRB		
012154	000000	0071						
012155	000000	0071						
012156	000140	0072	NOOP	Y				
012157	000000	0072						

012160	000000	0072
012161	000140	0073
012162	000012	0073
012163	100000	0073

NOOP SBA PTL

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ISPP INTERRUPT SERVICE ROUTINE

012163	037400	0574	SOC	MOV	SP	R	RD	:RIT-RT-INT SYNC ROUTINE
012165	000000	0574						
012167	000000	0574						
012170	000000	0575		AND	FD	A0	R	B0 FLD 37E
012171	000000	0575						
012172	060000	0576		YOR	FD	A0	Y	TST FLD PTRN1 ;LOW FOR PATTERN
012173	000001	0576						
012174	000012	0576		CLR	R	PA	JNZ	FLD SPSYMT
012175	040000	0577						
012176	000050	0577						
012177	000032	0577		MOV	FD	Y	PAR	FLD NP ;PATTERN EQUIN
012200	037151	0600						
012201	000000	0600						
012202	000062	0600						
012203	037151	0601		MOV	FD	Y	PAR	FLD LOCN
012204	000000	0601						
012205	000063	0601		MOV	MOR	Y	TST	
012206	037151	0602						
012207	000001	0602						
012210	000000	0602		MOV	MOR	P	PI	JP FLD HUNTE
012211	037151	0603						
012212	000000	0603						
012213	000012	0603						
012214	037151	0604		MOV	FD	Y	PAR	FLD LCCSAV
012215	000000	0604						
012216	000064	0604						
012217	037151	0605		MOV	MOR	Y	PAR	LOCN -> LCCSAV
012220	000000	0605						
012221	000000	0605						
012222	037151	0605		MOV	FD	Y	PAR	FLD NP
012223	000000	0605						
012224	000062	0606						
012225	117152	0607		CSD	FD	Y	PAR	FLD FPM ;SET FRAME COUNTER
012227	000000	0607						
012228	000006	0607		MOV	FD	Y	PAR	FLD LCCGUD
012230	037151	0610						
012231	000000	0610						
012232	000065	0610						
012233	100102	0611		INCA	A0	Y	PAR	JP FLD SPSYMT
012234	000010	0611						
012235	000032	0611						
012236	037151	0612		HUNTE	MOV	FD	Y	PAR
012237	000000	0612						
012240	000064	0612						
012241	000100	0613		NOOP	Y			
012242	000000	0613						
012243	000000	0613						
012244	000100	0614		XOR	MOR	A1	Y	TST ;LOCN = LCCSAV ?
012245	000001	0614						
012246	000000	0614						
012247	040000	0615		CLP	R	B0	JNZ	FLD SPSYMT ;JUMP IF LOCN PAR

012250	000050	0415	MOVCL	FD	Y	MAR	FID No	
012251	000032	0415						
012252	037151	0416						
012253	000000	0416						
012254	000062	0416	MOVCL	FD	Y	MAR	FID LOGGUD	
012255	037151	0417						
012256	000000	0417						
012257	000064	0417	INCD	MOR	R	R1	YST	:INFRMNT NR
012260	107140	0420						
012261	000101	0420						
012262	000000	0420						
012263	104142	0421	INCA	A0	Y	MAR	U7	FID +3 :SET LOGGUD
012264	000030	0421						
012265	000024	0421						
012266	037151	0422	MOVCL	FD	Y	MAR	FID NR	
012267	000000	0422						
012270	000062	0422						
012271	034142	0423	MOVA	A1	Y	MAR	UP	FID SPSTRT :STORE NR
012272	000010	0423						
012273	000032	0423						
012274	037151	0424	RFSync MOVCL	FD	Y	MAR	FID IWRDX	
012275	000000	0424						
012276	000064	0424						
012277	042142	0425	CLR	Y	MAR			
012300	000000	0425						
012301	000000	0425						
012302	037151	0426	MOVCL	FD	Y	MAR	FID IPRCT	
012303	000000	0426						
012304	000046	0426						
012305	042142	0427	CLP	Y	MAR			
012306	000000	0427						
012307	000000	0427						
012310	037151	0430	MOVCL	FD	Y	MAR	FID LOGGUD	
012311	000000	0430						
012312	000065	0430						
012313	042142	0431	CLR	Y	MAR			
012314	000000	0431						
012315	000000	0431						
012316	037151	0432	SpSync MOVCL	FD	Y	MAR	FID LOGN	
012317	000000	0432						
012320	000063	0432						
012321	000140	0433	MOOP	Y				
012322	000000	0433						
012323	000000	0433						
012324	107142	0434	INCD	MOR	Y	MAR		:END OF SYNC ROUTINE
012325	000000	0434						
012326	000000	0434						
012327	037151	0435	MOVCL	FD	Y	MAR	FID IPRCT	:-(NRITS-1),.....0
012330	000000	0435						
012331	000046	0435						
012332	037151	0436	MOVCL	FD	Y	MAR	FID IWRDX	:0.....n+1
012333	000000	0436						
012334	000064	0436						
012335	037140	0437	MOVCL	MOR	P	R0		
012336	000000	0437						
012337	000000	0437	INCA	A0	RAY	R0	YST	
012340	104140	0440						

012432	010001	0463	MOVA	A1	Y	WAR	JNZ	FLD SPRT2	
012433	000000	0463							
012434	037142	0464							
012435	000050	0464	CLF	R	B1	PRR	:RESET	INDEX, :IF, FOLME	
012436	01755	0465							
012437	042342	0465							
012440	000100	0465							
012441	000000	0465	MOVE	FD	Y	WAR	FLC PINPG		
012442	037151	0465							
012443	000000	0465							
012444	000067	0465	CLR	Y	PRR	:RESET	PINGPONG		
012445	042142	0467							
012446	000000	0467							
012447	000000	0467	MOVE	FD	Y	WAR	FLD NPITCH		
012450	037151	0470							
012451	000000	0470							
012452	000120	0470	MOVE	FD	Y	WAR	FLC PIT		
012453	037151	0471							
012454	000000	0471							
012455	000070	0471	MOVE	MOR	Y	WAR	:NPITCH TO PIT		
012456	037142	0472							
012457	000000	0472							
012460	000000	0472	MOVE	FD	Y	WAR	FLD BNPTT		
012461	037151	0473							
012462	000000	0473							
012463	000004	0473	MOVE	FD	Y	WAR	FLC NPITCH		
012464	037151	0474							
012465	000000	0474							
012466	000120	0474							
012467	037142	0475	DECD	MOR	R	P2	WAR	:NPITCH-1 TO NPITCH AND P2	
012470	000000	0475							
012471	000000	0475	ANDDA	FD	A2	R	B3	TST	FLD 160
012472	042350	0475							
012473	037101	0475							
012474	000160	0475	NOOP	JNZ	FLD	02			
012475	000140	0477							
012476	000050	0477							
012477	000001	0477	DECA	A3	R	P3	WAR	JP	FLD ISHISS
012500	014342	0700							:--1 TO NPITCH
012501	030310	0700							
012502	000012	0700	ADDDA1	FD	A2	Y	WAR	FLD RTPDN-1A.	:IS RUZ7
012503	105151	0701							
012504	020000	0701							
012505	037116	0701	MOVE	FD	Y	WAR	FLC BNE		
012506	037151	0702							
012507	000000	0702							
012510	000005	0702	MOVE	MOR	Y	MCD			
012511	037143	0703							
012512	000000	0703							
012513	000000	0703	MOVE	MOR	Y	MPR			
012514	037146	0704							
012515	000000	0704							
012516	000000	0704	MOVE	FD	Y	WAR	FLD NHAMP		
012517	037151	0705							
012520	000000	0705							
012521	000071	0705	MOVE	FD	Y	WAR	FLC HAMP		
012522	037151	0705							

012705	000000	SPRFT2	MOVQ	FD	Y	WAR	FLC	NRITS	
012706	000000								
012707	037151								
012710	000000								
012711	000043								
012712	000040		NOOP	Y					
012713	000000								
012714	000000		ADDDA	MOR	A1	Y	MAP		
012715	000041								
012716	010000								
012717	000000								
012720	037151		MOVQ	FD	Y	MAP	FLC	INITCT	
012721	000000								
012722	000046		MOVQ	MOR	Y	WAR	JP	FLC SPFT11+2	INFW NRITS
012723	037142								
012724	000010								
012725	000064								
012726	037151		SPRFT1	MOVQ	FD	Y	WAR	FLD	INITCT
012727	000000								
012730	000046								
012731	034042		MOVA	A0	Y	WAR			
012732	000000								
012733	000000								
012734	000040								
012735	000000		NOOP	Y					
012736	000000								
012737	000040								
012740	000012		NOOP	SBR	RIL				
012741	100000								
012742	037151		ISPT	MOVQ	FD	Y	WAR	FLD	RMPTI
012743	000000								
012744	000004								
012745	034040		MOVA	A2	SD	EP			
012746	020000								
012747	000000								
012750	034042		MOVA	A2	Y	WAR	JP	FLD	SPFT3
012751	020010								
012752	000060								
			PAGE						

1A/2-2/A CONVERTER INTERRUPT SERVICE ROUTINE

012753	037151	0771	AN,DA	MOVD	FD	Y	M/R	FLC SP,OUT
012754	000000	0771						
012755	000075	0771		MOVD	FD	Y	M/R	FLC SP,IN
012756	037151	0772						
012757	000000	0772						
012760	000076	0772		MOVD	MOR	Y	0AC	
012761	037144	0775						
012762	000000	0775						
012763	000000	0773		MOVD	ADC	Y	M/R	
012764	037112	0774						
012765	000000	0774						
012766	000000	0774						

WINDOWED DOUBLE PRECISION CORRELATOR

012767	037151	0775	WINDOW	MOVD	FD	Y	M/R	FLC CNT	
012770	000000	0775							
012771	000061	0775		MOVD	FD	R	FD	FLD N/2-1	
012772	037150	0775							
012773	000000	0775							
012774	000116	0775		SUBAL	A0	MOR	Y	TEST	:N/2-1-CNT
012775	110140	0777							
012776	000001	0777							
012777	000000	0777		MOVD	MOR	R	P0	JPZ	FLD +2
013000	037140	1000							:FINC WINDOW HALF
013001	000020	1000							
013002	001002	1000							
013003	120150	1001		SUBAL	FD	A0	P	BN	FLD N-1
013004	000000	1001							
013005	000235	1001							
013006	107142	1002		INCD	MOR	Y	M/R	:INCREMENT COUNTER	
013007	000000	1002							
013010	000000	1002							
013011	000151	1003		ADDDA	FD	A0	Y	M/R	FLD WINDOW
013012	000000	1003							:WINDOW ADDRESS
013013	000117	1003		MOVD	FD	Y	M/R	FLC SP,IN	
013014	037151	1004							
013015	000000	1004							
013016	000076	1004							
013017	037143	1005		MOVL	MOR	Y	MCD		
013020	000000	1005							
013021	000000	1005							
013022	037151	1006		MOVD	FD	Y	M/R	FLD PTR	:FETCH STACK POINTER
013023	000000	1006							
013024	000477	1006							
013025	037146	1007		MOVD	MOR	Y	M/R	:PERFORM WINDOW	
013026	000000	1007							
013027	000000	1007							
013030	037140	1010		MOVD	MOR	R	R1		
013031	000100	1010							

Address	OpCode	OpName	OpType	OpSize	OpValue	OpComment
013032	000000	ADD00	FD	A1	Y	TST FLD P-1 ;STV PTR IN BOUNDS ?
013033	000000	ADD00	FD	A1	Y	
013034	000000	ADD00	FD	A1	Y	
013035	000000	ADD00	FD	A1	Y	
013036	000000	ADD00	FD	A1	Y	
013037	000000	ADD00	FD	A1	Y	
013038	000000	ADD00	FD	A1	Y	
013039	000000	ADD00	FD	A1	Y	
013040	000000	ADD00	FD	A1	Y	
013041	000000	ADD00	FD	A1	Y	
013042	000000	ADD00	FD	A1	Y	
013043	000000	ADD00	FD	A1	Y	
013044	000000	ADD00	FD	A1	Y	
013045	000000	ADD00	FD	A1	Y	
013046	000000	ADD00	FD	A1	Y	
013047	000000	ADD00	FD	A1	Y	
013048	000000	ADD00	FD	A1	Y	
013049	000000	ADD00	FD	A1	Y	
013050	000000	ADD00	FD	A1	Y	
013051	000000	ADD00	FD	A1	Y	
013052	000000	ADD00	FD	A1	Y	
013053	000000	ADD00	FD	A1	Y	
013054	000000	ADD00	FD	A1	Y	
013055	000000	ADD00	FD	A1	Y	
013056	000000	ADD00	FD	A1	Y	
013057	000000	ADD00	FD	A1	Y	
013058	000000	ADD00	FD	A1	Y	
013059	000000	ADD00	FD	A1	Y	
013060	000000	ADD00	FD	A1	Y	
013061	000000	ADD00	FD	A1	Y	
013062	000000	ADD00	FD	A1	Y	
013063	000000	ADD00	FD	A1	Y	
013064	000000	ADD00	FD	A1	Y	
013065	000000	ADD00	FD	A1	Y	
013066	000000	ADD00	FD	A1	Y	
013067	000000	ADD00	FD	A1	Y	
013068	000000	ADD00	FD	A1	Y	
013069	000000	ADD00	FD	A1	Y	
013070	000000	ADD00	FD	A1	Y	
013071	000000	ADD00	FD	A1	Y	
013072	000000	ADD00	FD	A1	Y	
013073	000000	ADD00	FD	A1	Y	
013074	000000	ADD00	FD	A1	Y	
013075	000000	ADD00	FD	A1	Y	
013076	000000	ADD00	FD	A1	Y	
013077	000000	ADD00	FD	A1	Y	
013078	000000	ADD00	FD	A1	Y	
013079	000000	ADD00	FD	A1	Y	
013080	000000	ADD00	FD	A1	Y	
013081	000000	ADD00	FD	A1	Y	
013082	000000	ADD00	FD	A1	Y	
013083	000000	ADD00	FD	A1	Y	
013084	000000	ADD00	FD	A1	Y	
013085	000000	ADD00	FD	A1	Y	
013086	000000	ADD00	FD	A1	Y	
013087	000000	ADD00	FD	A1	Y	
013088	000000	ADD00	FD	A1	Y	
013089	000000	ADD00	FD	A1	Y	
013090	000000	ADD00	FD	A1	Y	
013091	000000	ADD00	FD	A1	Y	
013092	000000	ADD00	FD	A1	Y	
013093	000000	ADD00	FD	A1	Y	
013094	000000	ADD00	FD	A1	Y	
013095	000000	ADD00	FD	A1	Y	
013096	000000	ADD00	FD	A1	Y	
013097	000000	ADD00	FD	A1	Y	
013098	000000	ADD00	FD	A1	Y	
013099	000000	ADD00	FD	A1	Y	
013100	000000	ADD00	FD	A1	Y	
013101	000000	ADD00	FD	A1	Y	
013102	000000	ADD00	FD	A1	Y	
013103	000000	ADD00	FD	A1	Y	
013104	000000	ADD00	FD	A1	Y	
013105	000000	ADD00	FD	A1	Y	
013106	000000	ADD00	FD	A1	Y	
013107	000000	ADD00	FD	A1	Y	
013108	000000	ADD00	FD	A1	Y	
013109	000000	ADD00	FD	A1	Y	
013110	000000	ADD00	FD	A1	Y	
013111	000000	ADD00	FD	A1	Y	
013112	000000	ADD00	FD	A1	Y	
013113	000000	ADD00	FD	A1	Y	
013114	000000	ADD00	FD	A1	Y	
013115	000000	ADD00	FD	A1	Y	
013116	000000	ADD00	FD	A1	Y	
013117	000000	ADD00	FD	A1	Y	
013118	000000	ADD00	FD	A1	Y	
013119	000000	ADD00	FD	A1	Y	
013120	000000	ADD00	FD	A1	Y	
013121	000000	ADD00	FD	A1	Y	
013122	000000	ADD00	FD	A1	Y	

INCB	B2	RAY	A2	TST
000015	1033			
000016	1034			
000017	1034			
000018	1034			
000019	1035			
000020	1035			
000021	1035			
000022	1035			
000023	1035			

15-1-1 FILTER

INCB	B2	RAY	A2	TST	INCB	B2	RAY	A2	TST
000015	1033				000015	1033			
000016	1034				000016	1034			
000017	1034				000017	1034			
000018	1034				000018	1034			
000019	1035				000019	1035			
000020	1035				000020	1035			
000021	1035				000021	1035			
000022	1035				000022	1035			
000023	1035				000023	1035			

013206	000056	1054	INCA	A2	RAY	P2	TST		
013207	100040	1055							
013210	000001	1055							
013211	000000	1055	MOVA	A1	Y	MAR	JN	FLD 0+2	NEW OUTPUT
013212	000042	1056							
013213	010040	1055							
013214	001060	1055	CSD	FD	R	B2	FLC 4	REFCT POINTER	
013215	117050	1057							
013216	000000	1057							
013217	000004	1057	MOVD	FD	Y	MAP	FLD PTR5		
013220	037051	1060							
013221	000000	1060							
013222	000057	1060	POVA	A2	Y	MAR		STORE POINTER	
013223	000042	1061							
013224	000000	1061							
013225	000000	1061	MOVA	A1	SD	P0		INPUT TO NEXT FILTER	
013226	000040	1062							
013227	010000	1062							
013230	000000	1062							
013231	037051	1063	MOVD	FD	Y	MAR	FLD PTR4	FIL4	
013232	000000	1063							
013233	000066	1063							
013234	037051	1064	POVD	FD	Y	MAR	FLC OUT4		
013235	000000	1064							
013236	000065	1064							
013237	037040	1065	POVC	MOR	R	B2			
013240	000000	1065							
013241	000000	1065							
013242	000051	1066	ADDDA	A2	FD	Y	MAR	FLU S4+2	
013243	000000	1066							
013244	000072	1066	MOVD	MOR	R	R1			
013245	000040	1067							
013246	000000	1067							
013247	000000	1067	SUBAL	A1	MOR	P	B3	SUB OIDEY DATUM	
013250	110000	1070							
013251	010000	1070							
013252	000000	1070	ADDAF	A0	R3	P		ADD NEW DATUM	
013253	001040	1071							
013254	000000	1071							
013255	000000	1071	MOVA	A0	Y	MAR		NEW DATUM TO STACK	
013256	000042	1072							
013257	000000	1072							
013260	000000	1072	MOVD	FD	Y	MAR	FLD OUT4		
013261	037051	1073							
013262	000000	1073							
013263	000065	1073							
013264	100040	1074	INCA	A2	RAY	P2	TST		
013265	000001	1074							
013266	000000	1074							
013267	000042	1075	MOVA	A1	Y	MAR	JN	FLU 0+2	NEW OUTPUT
013270	010040	1075							
013271	001077	1075							
013272	117050	1075	CSD	FD	R	R2	FLD 3		
013273	000000	1075							
013274	000003	1076							
013275	037051	1077	MOVD	FD	Y	MAR	FLD PTR4		
013276	000000	1077							

013277	000066	1077	MOVA	A2	Y	MAR	:STORE POINTER
013300	000042	1100					
013301	020000	1100					
013302	000000	1100	MOVA	A1	SD	B0	:INPUT TO NEXT FILTER
013303	030040	1101					
013304	010000	1101	MOVD	FD	Y	MAR	FID PTR3 :FIL3
013305	000000	1101					
013306	000051	1102					
013307	000000	1102					
013310	000074	1102	MOVD	FD	Y	MAR	FID OUT3
013311	030051	1103					
013312	000000	1103	MOVD	MOR	R	R2	
013313	000073	1103					
013314	000000	1104					
013315	000000	1104	ADDEA	A2	FD	Y	MAR FID S3+2
013316	000000	1104					
013317	000051	1105					
013320	020000	1105	MOVD	MOR	R	P1	
013321	000077	1105					
013322	030040	1106	SLIPAC	A1	MOR	R	B1 :SUB OLDEST DATUM
013323	000000	1106					
013324	000000	1106	ADDAF	A0	B1	P	:ADD NEW DATUM
013325	100040	1107					
013326	000000	1107	MOVA	A0	Y	MAR	:NEW DATUM TO STACK
013327	000000	1107					
013330	000000	1110	POVC	FD	Y	MAR	FID OUT3
013331	000000	1110					
013332	000000	1111	INCA	A2	RAY	R2	TST
013333	000042	1111					
013334	000000	1111	MOVA	A1	Y	MAR	JN FLU +2 :NEW OUTPUT
013335	000000	1111					
013336	000000	1113	CSO	FD	R	R2	FID 2
013337	000000	1113					
013340	000073	1112	POVD	FD	Y	MAR	FID PTR3
013341	100040	1113					
013342	000001	1113	MOVA	A2	Y	MAR	:STORE POINTER
013343	000000	1113					
013344	000042	1114					
013345	000040	1114					
013346	000016	1114					
013347	100050	1115					
013348	000000	1115					
013351	000002	1115					
013352	000051	1116					
013353	000000	1116					
013354	000074	1116					
013355	000042	1117					
013356	020000	1117					
013357	000000	1117					

HELPMETARY PITCH DETECTORS

013360	030051	1120	PFAC	MOVD	FD	Y	MAR	FID SN0	:PUSH SLOPPS
013361	000000	1120							
013362	000001	1120	MOVD	MOVD	FD	Y	MAR	FID SNM1	
013363	000051	1121							

Address	OpCode	OpName	OpType	OpSize	OpValue	OpComment
013360	000000	NOVD	Y	WDR		
013361	000000	NOVD	Y	WDR		
013362	000000	NOVD	Y	WDR		
013363	000000	NOVD	Y	WDR		
013364	000000	NOVD	Y	WDR		
013365	000000	NOVD	Y	WDR		
013366	000000	NOVD	Y	WDR		
013367	000000	NOVD	Y	WDR		
013368	000000	NOVD	Y	WDR		
013369	000000	NOVD	Y	WDR		
013370	000000	NOVD	Y	WDR		
013371	000000	NOVD	Y	WDR		
013372	000000	NOVD	Y	WDR		
013373	000000	NOVD	Y	WDR		
013374	000000	NOVD	Y	WDR		
013375	000000	NOVD	Y	WDR		
013376	000000	NOVD	Y	WDR		
013377	000000	NOVD	Y	WDR		
013378	000000	NOVD	Y	WDR		
013379	000000	NOVD	Y	WDR		
013380	000000	NOVD	Y	WDR		
013381	000000	NOVD	Y	WDR		
013382	000000	NOVD	Y	WDR		
013383	000000	NOVD	Y	WDR		
013384	000000	NOVD	Y	WDR		
013385	000000	NOVD	Y	WDR		
013386	000000	NOVD	Y	WDR		
013387	000000	NOVD	Y	WDR		
013388	000000	NOVD	Y	WDR		
013389	000000	NOVD	Y	WDR		
013390	000000	NOVD	Y	WDR		
013391	000000	NOVD	Y	WDR		
013392	000000	NOVD	Y	WDR		
013393	000000	NOVD	Y	WDR		
013394	000000	NOVD	Y	WDR		
013395	000000	NOVD	Y	WDR		
013396	000000	NOVD	Y	WDR		
013397	000000	NOVD	Y	WDR		
013398	000000	NOVD	Y	WDR		
013399	000000	NOVD	Y	WDR		
013400	000000	NOVD	Y	WDR		
013401	000000	NOVD	Y	WDR		
013402	000000	NOVD	Y	WDR		
013403	000000	NOVD	Y	WDR		
013404	000000	NOVD	Y	WDR		
013405	000000	NOVD	Y	WDR		
013406	000000	NOVD	Y	WDR		
013407	000000	NOVD	Y	WDR		
013408	000000	NOVD	Y	WDR		
013409	000000	NOVD	Y	WDR		
013410	000000	NOVD	Y	WDR		
013411	000000	NOVD	Y	WDR		
013412	000000	NOVD	Y	WDR		
013413	000000	NOVD	Y	WDR		
013414	000000	NOVD	Y	WDR		
013415	000000	NOVD	Y	WDR		
013416	000000	NOVD	Y	WDR		
013417	000000	NOVD	Y	WDR		
013418	000000	NOVD	Y	WDR		
013419	000000	NOVD	Y	WDR		
013420	000000	NOVD	Y	WDR		
013421	000000	NOVD	Y	WDR		
013422	000000	NOVD	Y	WDR		
013423	000000	NOVD	Y	WDR		
013424	000000	NOVD	Y	WDR		
013425	000000	NOVD	Y	WDR		
013426	000000	NOVD	Y	WDR		
013427	000000	NOVD	Y	WDR		
013428	000000	NOVD	Y	WDR		
013429	000000	NOVD	Y	WDR		
013430	000000	NOVD	Y	WDR		
013431	000000	NOVD	Y	WDR		
013432	000000	NOVD	Y	WDR		
013433	000000	NOVD	Y	WDR		
013434	000000	NOVD	Y	WDR		
013435	000000	NOVD	Y	WDR		
013436	000000	NOVD	Y	WDR		
013437	000000	NOVD	Y	WDR		
013438	000000	NOVD	Y	WDR		
013439	000000	NOVD	Y	WDR		
013440	000000	NOVD	Y	WDR		
013441	000000	NOVD	Y	WDR		
013442	000000	NOVD	Y	WDR		
013443	000000	NOVD	Y	WDR		
013444	000000	NOVD	Y	WDR		
013445	000000	NOVD	Y	WDR		
013446	000000	NOVD	Y	WDR		
013447	000000	NOVD	Y	WDR		
013448	000000	NOVD	Y	WDR		
013449	000000	NOVD	Y	WDR		
013450	000000	NOVD	Y	WDR		
013451	000000	NOVD	Y	WDR		
013452	000000	NOVD	Y	WDR		
013453	000000	NOVD	Y	WDR		
013454	000000	NOVD	Y	WDR		

013536	000073	1164	ADDDA	FD	AP	Y	MAP	FLD CHAN+5A.	:THRESHOLD
013537	000051	1165							
013540	000000	1165							
013541	000072	1165	MOVD	MOR	Y	MOR			
013542	000000	1165							
013543	000000	1165							
013544	000000	1166	MOVD	MOR	Y	MOR			
013545	000000	1167							
013546	000000	1167							
013547	000000	1167							
013550	000040	1170	NOOP	Y					
013551	000000	1170							
013552	000000	1170							
013553	000040	1171	NOOP	Y					
013554	000000	1171							
013555	000000	1171							
013556	000040	1172	NOOP	Y					
013557	000000	1172							
013560	000000	1172							
013561	000050	1173	ADDDA	FD	AP	RAY	R0	TST FLD In.	:NEXT BLOCK
013562	000001	1173							
013563	000012	1173							
013564	000032	1174	MOVD	UP	Y	MOR	JF	FLD UPDAT	:STORE THRESHOLD
013565	000040	1174							
013566	000054	1174							

COMPUTE ENERGY MEASURE

013567	000051	1175	NRG	MOVD	FD	Y	MAR	FLD OUT3
013570 <td>000000</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1175						
013571 <td>000073</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000073	1175						
013572 <td>000051</td> <td>1175</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD HT</td> <td></td>	000051	1175	MOVD	FD	Y	MAR	FLD HT	
013573 <td>000000</td> <td>1176</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1176						
013574 <td>000051</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000051	1175						
013575 <td>000040</td> <td>1177</td> <td>MOVD</td> <td>MOR</td> <td>R</td> <td>P1</td> <td>:XN -> H1</td> <td></td>	000040	1177	MOVD	MOR	R	P1	:XN -> H1	
013576 <td>000000</td> <td>1177</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1177						
013577 <td>000000</td> <td>1177</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1177						
013600 <td>000051</td> <td>1200</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD LO</td> <td></td>	000051	1200	MOVD	FD	Y	MAR	FLD LO	
013601 <td>000000</td> <td>1200</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1200						
013602 <td>000052</td> <td>1200</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000052	1200						
013603 <td>110040</td> <td>1201</td> <td>SUBAT</td> <td>A1</td> <td>MOR</td> <td>Y</td> <td>TST</td> <td>:XN-HT</td>	110040	1201	SUBAT	A1	MOR	Y	TST	:XN-HT
013604 <td>010001</td> <td>1201</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	010001	1201						
013605 <td>000000</td> <td>1201</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1201						
013606 <td>110040</td> <td>1202</td> <td>SUBAT</td> <td>A1</td> <td>MOR</td> <td>Y</td> <td>TST</td> <td>JN FLD +.3</td>	110040	1202	SUBAT	A1	MOR	Y	TST	JN FLD +.3
013607 <td>000041</td> <td>1202</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000041	1202						
013610 <td>000051</td> <td>1202</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD HT</td> <td></td>	000051	1202	MOVD	FD	Y	MAR	FLD HT	
013611 <td>000000</td> <td>1203</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1203						
013612 <td>000051</td> <td>1203</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000051	1203						
013613 <td>000051</td> <td>1203</td> <td>MOVA</td> <td>A1</td> <td>Y</td> <td>MAR</td> <td>JF</td> <td>FLD CKPH</td>	000051	1203	MOVA	A1	Y	MAR	JF	FLD CKPH
013614 <td>000042</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000042	1204						
013615 <td>010010</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	010010	1204						
013616 <td>000024</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000024	1204						
013617 <td>000040</td> <td>1205</td> <td>NOOP</td> <td>JPZ</td> <td>FLD CKPH</td> <td></td> <td></td> <td></td>	000040	1205	NOOP	JPZ	FLD CKPH			
013620 <td>000020</td> <td>1205</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000020	1205						
013621 <td>000024</td> <td>1205</td> <td>MOVA</td> <td>A1</td> <td>Y</td> <td>MOR</td> <td>JF</td> <td>FLD CKPH</td>	000024	1205	MOVA	A1	Y	MOR	JF	FLD CKPH
013622 <td>000042</td> <td>1205</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000042	1205						

013704	013705	013706	013707	SUBRAC	A2	MOR	R	P2	JP	FLD N1M4
000000	1225	000000	000000							
013704	1227	100000	000000							
013705	1227	000000	000000							
013706	1227	000000	000000							
013707	1227	000000	000000							
:SUCCESSFUL PLAK										
013710	1230	000000	000000							
013711	1230	000000	000000							
013712	1230	000000	000000							
013713	1231	000000	000000							
013714	1231	000000	000000							
013715	1231	000000	000000							
013716	1232	000000	000000							
013717	1232	000000	000000							
013718	1232	000000	000000							
013719	1233	000000	000000							
013720	1233	000000	000000							
013721	1233	000000	000000							
013722	1233	000000	000000							
013723	1233	000000	000000							
013724	1234	000000	000000							
013725	1234	000000	000000							
013726	1234	000000	000000							
013727	1235	000000	000000							
013728	1235	000000	000000							
013729	1235	000000	000000							
013730	1235	000000	000000							
013731	1235	000000	000000							
013732	1236	000000	000000							
013733	1236	000000	000000							
013734	1236	000000	000000							
013735	1237	000000	000000							
013736	1237	000000	000000							
013737	1237	000000	000000							
013738	1237	000000	000000							
013739	1237	000000	000000							
013740	1237	000000	000000							
013741	1237	000000	000000							
013742	1237	000000	000000							
013743	1237	000000	000000							
013744	1237	000000	000000							
013745	1237	000000	000000							
013746	1237	000000	000000							
013747	1237	000000	000000							
013748	1237	000000	000000							
013749	1237	000000	000000							
013750	1237	000000	000000							
013751	1237	000000	000000							
013752	1237	000000	000000							
013753	1237	000000	000000							
013754	1237	000000	000000							
013755	1237	000000	000000							

ADDRESS	OPERATION	FD	R3	FIL	30.
013770	MOV				
013771	MOV				
013772	MOV				
013773	MOV				
013774	MOV				
013775	MOV				
013776	MOV				
013777	MOV				
014000	MOV				
014001	MOV				
014002	MOV				
014003	MOV				
014004	MOV				
014005	MOV				
014006	MOV				
014007	MOV				
014010	MOV				
014011	MOV				
014012	MOV				
014013	MOV				
014014	MOV				

COMPUTE DECAY FACTOR

ADDRESS	OPERATION	FD	R3	FIL	30.
014015	MOV				
014016	MOV				
014017	MOV				
014020	MOV				
014021	MOV				
014022	MOV				
014023	MOV				
014024	MOV				
014025	MOV				
014026	MOV				
014027	MOV				
014030	MOV				
014031	MOV				
014032	MOV				
014033	MOV				
014034	MOV				
014035	MOV				
014036	MOV				
014037	MOV				
014040	MOV				
014041	MOV				
014042	MOV				
014043	MOV				
014044	MOV				

COMPUTE BLANKING INTERVAL

ADDRESS	OPERATION	FD	R3	FIL	30.
014045	MOV				
014046	MOV				
014047	MOV				
014050	MOV				

014051	000000	1270					
014052	011002	1270					
014053	037143	1271					
014054	000000	1271					
014055	000000	1271					
014056	037146	1272					
014057	000000	1272					
014060	000000	1272					
014061	000000	1273					
014062	000000	1273					
014063	000007	1273					
014064	000000	1274					
014065	000000	1274					
014066	000012	1274					
014067	000040	1275					
014070	000000	1275					
014071	000000	1275					
014072	000040	1276					
014073	000000	1276					
014074	000000	1276					
014075	037132	1277					
014076	000012	1277					
014077	000000	1277					

MOVD	MOR	Y	MCN				
MOVD	MOR	Y	YDR				
ADDDA	FD	A0	Y	MAF	FLU 7		
ADDDA	FD	A0	P	B0	FLU 10.		NEXT BLOCK
NOOP	Y						
NOOP	Y						
POVD	UP	Y	M2P	SFF			PAV*.4.

PAGE

PARAMETER INTERPOLATION ROUTINE

ADDRESS	INSTR	MOVD	FD	Y	MAP	FLD ICNT'	ENTRY FOR TURF
014100	037151						
014101	000000						
014102	000474						
014103	037152	MOVD	FD	Y	MAP	FLD INT-1	
014104	000000						
014105	000047	MOVD	FD	R	P1	FLD P-1	
014106	037150						
014107	000100						
014110	000013						
014111	037151	PTNTR	MOVD	FD	Y	MAP	ENTRY FOR PCFI
014112	000000						
014113	000473						
014114	000151	ADDDA	A1	FD	Y	MAP	FLD DF+1
014115	000000						
014116	000137	MOVL	MOR	Y	PCD		
014117	037143						
014120	000000						
014121	000000	MOVD	MOR	Y	MAP		
014122	037146						
014123	000000						
014124	000000	NOOP	Y				
014125	000140						
014126	000000						
014127	000000	NOOP	Y				
014130	000140						
014131	000000						
014132	000000						
014133	000140	NOOP	Y				
014134	000000						
014135	000000						
014136	000151	ADDDA	FD	A1	Y	MAP	FLD DF
014137	000000						
014140	000136	MOVD	UP	SU	PC		
014141	037130						
014142	000000						
014143	000000						
014144	037146	INTLUP	MOVD	MOR	Y	MAP	
014145	000000						
014146	000000						
014147	000151	ADDDA	FD	A1	Y	MAP	FLD NF+1
014150	000000						
014151	000122						
014152	000151	ADDDA	FD	A1	Y	MAP	FLD IF+1
014153	000000						
014154	000154						
014155	000142	ADDDA	MOR	A0	P	MAP	B3
014156	000000						
014157	000000						
014160	000140	DECA	A1	RAY	P1	TST	
014161	000101						
014162	000000						
014163	000151	ADDDA	FD	A1	Y	MAP	FLD DF
014164	000000						

014165	000136	1421	MOVD	UP	SI	PC	JPZ	FLD INTHUP
014166	037730	1422						
014167	000020	1422						
014170	001114	1422	MOVD	FD	Y	MAR	SAR	FLD EXCIT
014171	037751	1423						
014172	000012	1423						
014173	000000	1423						

SYNTHESIS EXCITATION

014174	037751	1424	CKRH	MOVD	FD	Y	MAR	FLC PIT	PITCH-1
014175	000000	1424							
014176	000070	1424							
014177	037751	1425	MOVD	FD	Y	MAR	FLD PCNT		
014200	000000	1425							
014201	000003	1425	MOVC	MOR	R	RQ	TST		
014202	037740	1426							
014203	000001	1426							
014204	000000	1426							
014205	000140	1427	MOOP	JPZ	FLC PGF				
014206	000020	1427							
014207	001743	1427							
014210	17752	1430	HTSS	CSN	FD	Y	MAR	FLD 1	1-1 TO PCNT
014211	000000	1430							
014212	000001	1430							
014213	037751	1431	MOVC	FD	Y	MAR	FLC RAN		
014214	000000	1431							
014215	000041	1431							
014216	000140	1432	MOOP	Y					
014217	000000	1432							
014220	000000	1432							
014221	037740	1433	MOVC	MOR	R	PQ	TST		
014222	000001	1433							
014223	000000	1433							
014224	034740	1434	MOVA	A0	SU	PQ	JPZ	FLD RANFIN	
014225	000020	1434							
014226	001136	1434							
014227	001150	1435	YORDI	FD	A0	P	B0	FLD 641	PASIC NUMBER
014230	000000	1435							
014231	000041	1435	RANFTN	MOVA	A0	Y	MAR	TST	
014232	034142	1436							
014233	000001	1436							
014234	000000	1436							
014235	037751	1437	MOVD	FD	Y	MAR	FID HAMP		
014236	000000	1437							
014237	000072	1437	MOVC	FD	Y	MAR	FID EXCIT		
014240	037751	1440							
014241	000000	1440							
014242	000000	1440							
014243	037742	1441	MOVD	MOR	R	MAR	RQ	JPZ	FID TURE
014244	000020	1441							
014245	001152	1441							
014246	144142	1442	CSA	A0	Y	MAR	JP	FLD TURF	
014247	000010	1442							

PCN	DECD	MOR	R	MAP	B1	TSI	:DEFERMENT PCNT
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ACOUSTIC TUBE SYNTHESIZER

PCN	DECD	MOR	R	MAP	B1	TSI	:DEFERMENT PCNT
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014333	000155	1263	MOV D	FD	Y	PAR	FID EYCI1
014334	017151	1264					
014335	000000	1264					
014336	000000	1264	MOV D	MOR	R	P2	
014337	017140	1265					
014340	000000	1265					
014341	000000	1265	MOV D	MOR	P	P3	
014342	017140	1266					
014343	000000	1265					
014344	000000	1265					
014345	114130	1267	SUBAR	A3	UP	P	P2
014346	030100	1267					
014347	000000	1267	ADDDA	FD	A1	Y	MAP FLD RPL+1
014350	000151	1270					
014351	010000	1270					
014352	000171	1270	MOVA	A2	Y	MCD	IK5(P-2)
014353	034043	1271					
014354	020000	1271					
014355	000000	1271	MOV D	MOR	Y	MPR	IK5(P-2)*BRL(P-2)
014356	017146	1272					
014357	000000	1272					
014360	000000	1272	MOV D	FD	Y	MCR	FLD M11
014361	037151	1273					
014362	000000	1273					
014363	000073	1273					
014364	037150	1274	MOV D	FD	P	PN	FLD (200000/r+1)/2+1
014365	000000	1274					
014366	000120	1274	ADDDA	MOR	PN	Y	MRR TS1
014367	000142	1275					
014370	000001	1275					
014371	000000	1275	NOOP	JN	FLD	0+2	
014372	000110	1276					
014373	000040	1275					
014374	001400	1275					
014375	042142	1277	CLP	Y	MPR		
014376	000000	1277					
014377	000000	1277					
014400	000140	1400					
014401	000000	1400					
014402	000000	1400					
014403	114136	1401	SUBAR	A3	UP	P	P3 MPR
014404	030100	1401					
014405	000000	1401					
014406	014140	1402	DECA	A1	PAY	R1	TST
014407	010101	1402					
014410	000000	1402					
014411	000140	1403	NOOP	Y			
014412	000000	1403					
014413	000000	1403					
014414	000151	1404	ADDDA	FD	A1	Y	MAP FLD IK5+1
014415	010000	1404					
014416	000151	1404					
014417	000151	1405	ADDDA	FD	A1	Y	MAP FLD BRL+1
014420	010000	1405					
014421	000171	1405					
014422	037143	1406	MOV D	MOR	Y	MCD	NEW K
014423	000000	1406					

014515 100000 1431

PAGE

015767	000140	1775
015770	000010	1775
015771	000771	1775
015772	000140	1776
015773	000010	1776
015774	000574	1776
015775	000140	1777
015776	000010	1777
015777	000526	1777

MP	1775		
NOOP	JP	FLD AD,DA	INTERUPT VECT

NOOP	JP	FLD SPC
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NOOP	JP	FLD PSC
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PAGE

020000	000000	0000	EXCIT	0		
020001	000015	0001	RAUFH	RLOCK	P+1	IRBUFI,RRUFL,YBUF CONTIGUOU
020016	000015	0016	RAUFI	RLOCK	P+1	
020033	000015	0033	YAUFI	RLOCK	P+1	
020050	000015	0050	RS	RLOCK	P+1	IRS,AS,SCLFAC CONTIGUOUS
020065	000014	0065	AS	RLOCK	P	
020101	000000	0101	SCLFAC	0		
020102	000000	0102	PITCH	0		PITCH,E,KS CONTIGUOUS
020103	000000	0103	E	0		
020104	000014	0104	KS	RLOCK	P	
020120	000000	0120	NPITCH	0		
020121	000000	0121	NE	0		
020122	000014	0122	NKS	RLOCK	P	
020136	000000	0136	DF	0		
020137	000014	0137	DKS	RLOCK	P	
020153	000000	0153	IF	0		
020154	000014	0154	IKS	RLOCK	P	
020170	000014	0170	RRL	RLOCK	P	
020204	000000	0204	RNPIT	0		
020205	000015	0205	BYE	RLOCK	P+1	
020222	000034	0222	ORUF	RLOCK	2*(P+2)	
020256	000000	0256	OUT5	0		
020257	000000	0257	PTR5	0		
020260	000005	0260	S5	RLOCK	5	
020265	000000	0265	OUT4	0		
020266	000000	0266	PTR4	0		
020267	000004	0267	S4	RLOCK	4	
020273	000000	0273	OUT3	0		
020274	000000	0274	PTR3	0		
020275	000003	0275	S3	RLOCK	3	
020300	000074	0300	CHAN	RLOCK	60.	
020374	000044	0374	PTAB	RLOCK	36.	
			VARIABLES			
020440	DVAL					
020441	DAN					
020442	MASK					
020443	INTTS					
020444	CTHI					
020445	CTR					
020446	INTCT					
020447	OUTCT					
020450	ENCTFG					
020451	HI					
020452	LO					
020453	ACK					
020454	INTSC					
020455	PCO					
020456	VARMASK					
020457	CONCTP					
020460	OWEDX					
020461	CHT					
020462	NR					
020463	ICEN					
020464	LOCNAV					

020465	LOGCUD
020466	TWOIX
020467	DTAMP
020470	DIT
020471	DTAMP
020472	WAMP
020473	MII
020474	TCNT
020475	SPOUT
020476	SCIN
020477	OTR
020500	YMM1
020501	SN
020502	YMM1
020503	PCNT

PAGE

			MP	512.	
			ROM	G	
			CONSTANTS		
021000	077777	1000			
021001	100000	1001			
021002	031463	1002			
021003	005056	1003	RUTC	.079556.	
021004	000010	1004	CHANT	200.	IPA
021005	000072	1005		250.	IPB
021006	000054	1006		300.	IPC
021007	000036	1007		350.	ISAMPLES SINCE LAST PEAK
			:	0	CURRENT MEASUREMENT
			:	0	PREVIOUS MEASUREMENT FOR MIM4
			:	0	PAV
			:	0	BLANKING COUNT
			:	0	CURRENT THRESHOLD
			:	0	DECAY FACTOR
021010	076025	1010	DECY	.979160.	
021011	076025	1011		.979160.	
021012	076075	1012		.982337.	
021013	077011	1013		.984674.	
021014	077104	1014		.986465.	
021015	077162	1015		.987881.	
021016	077230	1016		.989029.	
021017	077267	1017		.989978.	
021020	077321	1020		.990776.	
021021	777773	1021	BIAS	-5	
021022	777771	1022		-7	
021023	777766	1023		-10.	
021024	777764	1024		-12.	
021025	001055	1025	DRAD04	DET61	
021026	003075	1026		DLAR16	
021027	003075	1027		DLAR16	
021030	003013	1030		DLAR4	
021031	003013	1031		DLAR4	
021032	003042	1032		DLAR3	
021033	003042	1033		DLAR3	
021034	003042	1034		DLAR3	
021035	003042	1035		DLAR3	
021036	003055	1036		DLAR3	
021037	003055	1037		DLAR3	
021040	001055	1040	DRAD06	DET81	
021041	003075	1041		DLAR16	
021042	003075	1042		DLAR16	
021043	003034	1043		DLAR5	
021044	003034	1044		DLAR5	
021045	003034	1045		DLAR5	
021046	003034	1046		DLAR5	
021047	003034	1047		DLAR5	
021050	003034	1050		DLAR5	
021051	003034	1051		DLAR5	
021052	003034	1052		DLAR5	
021053	003034	1053		DLAR5	
021054	003034	1054		DLAR5	

021055	001555	1055	DRAD48	DFTEI
021056	002177	1056		DLAR1 7
021057	002177	1057		DLAR1 7
021060	002576	1060		DLAR7
021061	002576	1061		DLAR7
021062	002576	1062		DLAR7
021063	002576	1063		DLAR7
021064	002576	1064		DLAR7
021065	002576	1065		DLAR7
021066	002576	1066		DLAR7
021067	002576	1067		DLAR7
021070	002576	1070		DLAR7
021071	002576	1071		DLAR7
021072	777777	1072	NRIT24	1-NK924
021073	777771	1073		1-MPIT
021074	777774	1074		1-NEI
021075	777773	1075		1-NK024
021076	777773	1076		1-NK124
021077	777775	1077		1-NK224
021100	777775	1100		1-NK324
021101	777776	1101		1-NK424
021102	777776	1102		1-NK524
021103	777776	1103		1-NK624
021104	777776	1104		1-NK724
021105	777777	1105		1-NK824
021106	777774	1106	NRIT36	1-NK1136
021107	777771	1107		1-MPIT
021110	777774	1110		1-NEI
021111	777773	1111		1-NK036
021112	777773	1112		1-NK136
021113	777774	1113		1-NK236
021114	777774	1114		1-NK336
021115	777774	1115		1-NK436
021116	777774	1116		1-NK536
021117	777774	1117		1-NK636
021120	777774	1120		1-NK736
021121	777774	1121		1-NK836
021122	777774	1122		1-NK936
021123	777774	1123		1-NK1036
021124	777772	1124	NRIT48	1-NK1148
021125	777771	1125		1-MPIT
021126	777774	1126		1-NEI
021127	777772	1127		1-NK048
021130	777772	1130		1-NK148
021131	777772	1131		1-NK248
021132	777772	1132		1-NK348
021133	777772	1133		1-NK448
021134	777772	1134		1-NK548
021135	777772	1135		1-NK648
021136	777772	1136		1-NK748
021137	777772	1137		1-NK848
021140	777772	1140		1-NK948
021141	777772	1141		1-NK1048

021142	000077	1142	MSK24	(1^Nf 1T)-1
021143	000037	1143		(1^Nf 1T)-1
021144	000077	1144		(1^Nf 024)-1
021145	000077	1145		(1^Nf 124)-1
021146	000017	1146		(1^Nf 224)-1
021147	000017	1147		(1^Nf 324)-1
021150	000007	1150		(1^Nf 424)-1
021151	000007	1151		(1^Nf 524)-1
021152	000007	1152		(1^Nf 624)-1
021153	000007	1153		(1^Nf 724)-1
021154	000003	1154		(1^Nf 824)-1
021155	000003	1155		(1^Nf 924)-1

021156	000077	1156	MSK36	(1^Nf 1T)-1
021157	000037	1157		(1^Nf 1T)-1
021160	000077	1160		(1^Nf 036)-1
021161	000077	1161		(1^Nf 136)-1
021162	000037	1162		(1^Nf 236)-1
021163	000037	1163		(1^Nf 336)-1
021164	000037	1164		(1^Nf 436)-1
021165	000037	1165		(1^Nf 536)-1
021166	000037	1166		(1^Nf 636)-1
021167	000037	1167		(1^Nf 736)-1
021170	000037	1170		(1^Nf 836)-1
021171	000037	1171		(1^Nf 936)-1
021172	000037	1172		(1^Nf 1036)-1
021173	000037	1173		(1^Nf 1136)-1

021174	000077	1174	MSK48	(1^Nf 1T)-1
021175	000037	1175		(1^Nf 1T)-1
021176	000077	1176		(1^Nf 048)-1
021177	000077	1177		(1^Nf 148)-1
021200	000077	1200		(1^Nf 248)-1
021201	000077	1201		(1^Nf 348)-1
021202	000077	1202		(1^Nf 448)-1
021203	000077	1203		(1^Nf 548)-1
021204	000077	1204		(1^Nf 648)-1
021205	000077	1205		(1^Nf 748)-1
021206	000077	1206		(1^Nf 848)-1
021207	000077	1207		(1^Nf 948)-1
021210	000077	1210		(1^Nf 1048)-1
021211	000077	1211		(1^Nf 1148)-1

021212	000075	1212		.080000. ;PADDED TO163.
021213	000075	1213		.080000.
021214	000075	1214		.080000.
021215	000075	1215		.080000.
021216	000075	1216		.080000.
021217	000075	1217	WINDOW	.080000.
021220	000111	1220		.080368.
021221	000155	1221		.081473.
021222	000251	1222		.083311.
021223	000376	1223		.085088.
021224	000552	1224		.089179.
021225	000755	1225		.093198.
021226	000911	1226		.097233.
021227	000973	1227		.103375.

11/2 OF 158 POINT HAMMING WINDOW

021230	007004	1230	.109517.
021231	007044	1231	.116348.
021232	007732	1232	.123158.
021233	010046	1233	.132034.
021234	011007	1234	.140863.
021235	011476	1235	.150332.
021236	012010	1236	.160425.
021237	012047	1237	.171125.
021240	012531	1240	.182416.
021241	014036	1241	.194280.
021242	015165	1242	.206198.
021243	016035	1243	.219649.
021244	016926	1244	.233113.
021245	017637	1245	.247069.
021246	020570	1246	.261494.
021247	021537	1247	.276364.
021250	022525	1250	.291657.
021251	023527	1251	.307348.
021252	024545	1252	.323411.
021253	025577	1253	.339821.
021254	026643	1254	.356552.
021255	027721	1255	.373576.
021256	028807	1256	.390867.
021257	030106	1257	.408397.
021260	033013	1260	.426138.
021261	034026	1261	.444061.
021262	035047	1262	.462137.
021263	036073	1263	.480338.
021264	037123	1264	.498635.
021265	041054	1265	.516998.
021266	042007	1266	.535398.
021267	043043	1267	.553805.
021270	044075	1270	.572190.
021271	045026	1271	.590524.
021272	046054	1272	.608776.
021273	050076	1273	.626918.
021274	051014	1274	.644922.
021275	052025	1275	.662757.
021276	053027	1276	.680396.
021277	054021	1277	.697810.
021300	055004	1300	.714971.
021301	056055	1301	.731852.
021302	057714	1302	.748425.
021303	0600740	1303	.764665.
021304	061050	1304	.780546.
021305	062044	1305	.796040.
021306	063022	1306	.811125.
021307	064063	1307	.825776.
021310	065004	1310	.839669.
021311	066005	1311	.853682.
021312	067060	1312	.866892.
021313	070026	1313	.879579.
021314	071043	1314	.891722.
021315	072037	1315	.903302.
021316	073007	1316	.914300.
021317	074034	1317	.924699.
021320	075035	1320	.934481.

021321	074310	1321	.943632.
021322	074737	1322	.952136.
021323	074740	1323	.959481.
021324	075713	1324	.967153.
021325	076740	1325	.973641.
021326	076836	1326	.979434.
021327	077004	1327	.984524.
021330	077224	1330	.988902.
021331	077414	1331	.992561.
021332	077554	1332	.995495.
021333	077664	1333	.997700.
021334	077744	1334	.999171.
021335	077774	1335	.999908.

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021336	024273	1236	RTPOM	.318223.
021337	024274	1237		.328017.
021340	025064	1240		.337526.
021341	026143	1241		.346775.
021342	026112	1242		.355784.
021343	027252	1243		.364570.
021344	027203	1244		.373149.
021345	028226	1245		.381536.
021346	028243	1246		.389742.
021347	029252	1247		.397779.
021350	031254	1250		.405656.
021351	032251	1251		.413384.
021352	032742	1252		.420969.
021353	033226	1253		.428421.
021354	033706	1254		.435745.
021355	034262	1255		.442448.
021356	034632	1256		.450035.
021357	035177	1257		.457013.
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023262	025522	3262	.338450.
023263	030531	3263	.385537.
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LAR4

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023347	020112	3347		.254230.
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023360	036041	3360		.477592.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This appendix to Lincoln Laboratory Technical Note 1976-37 provides all of the detailed drawings, layouts and cabling information to construct an identical vocoder to the one described in the technical note. The additional comments may clear up any additional questions concerning this appendix.			

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