

# Service & Diagnostic Manual

JOHN ELWAY'S

# TEAM



# QUARTERBACK



Part 72-13605-21

## FCC WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a class "A" computing device pursuant to subpart "J" of part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be responsible to correct the interference.

## NON-LELAND REPLACEMENT PARTS NOTICE

The Leland Corporation recommends the use of only Leland Corp. parts when replacing any malfunctioning component or assembly in your video amusement machine. For safety and reliability, the Leland Corp. does not recommend or authorize any substitution parts or modifications of Leland Corp. equipment. Such alterations may adversely affect game play or cause serious injury, and will void your warranty. Unauthorized parts, modifications and non-Leland Corp. game conversion parts may also void FCC compliance.

## OPTIMIZE YOUR PROFITS

Our research shows that a two minute quarter both satisfies the player and keeps the quarters flowing. This game is equipped with a very sophisticated diagnostics program. Refer to your Diagnostics Manual to set your game for maximum appeal and profit.

**MACHINE INFORMATION:** PURCHASE DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DISTRIBUTOR: \_\_\_\_\_

SERIAL NUMBERS:

PROGRAM (See lower left corner of attract screen): \_\_\_\_\_

MAIN (Lower) BOARD: \_\_\_\_\_

SUB (Upper) BOARD: \_\_\_\_\_

CABINET: \_\_\_\_\_

Written and illustrated  
by: **D.P.SABLE**

**" JOHN ELWAY'S  
TEAM QUARTERBACK"™  
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## THE LELAND CORPORATION WARRANTY

The Leland Corporation warrants that whenever the video display (monitor) and/or the power supply and/or the printed circuit boards and/or all parts contained therein are furnished with its product, that such part or parts will be free from all defects in materials and workmanship for a period of sixty (60) days from the date of shipment. The Leland Corporation's warranty of above parts is subject to the normal use and service of its product. No other products or parts thereof are warranted. If the products described in this manual fail to conform to this warranty, The Leland Corporation's sole liability shall be, as mutually agreed, to replace or repair such products which are returned to The Leland Corporation during stated warranty period, provided:

- A. The Leland Corporation is notified *in writing* upon discovery by the buyer that said products are defective.
- B. The defective product or part is returned *pre-paid* to The Leland Corporation's plant with a Leland Corp. Returned Merchandise Authorization (RMA) number clearly visible on the outside of the package.
- C. The Leland Corporation's examination of the returned product(s) or part(s) determines, to our satisfaction, that the alleged defects existed and were not caused by accident, misuse, neglect, alteration, improper repair, installation, or testing.

The Leland Corporation is not responsible for bent pins on ICs not installed by our employees. In no event shall The Leland Corporation be liable for loss of profits, loss of use, or incidental or consequential damages.

**EXCEPT FOR THIS WARRANTY, THE LELAND CORPORATION DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE LELAND CORPORATION'S BEHALF, AND IT NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR THE LELAND CORPORATION ANY OTHER LIABILITIES IN CONNECTION WITH THE SALE OF PRODUCTS MANUFACTURED BY THE LELAND CORPORATION.**

## **GAME CONCEPT**

"John Elway's TEAM QUARTERBACK" adds the advantage of "team" play to the hard-hitting football action of Leland's "Quarterback".

The action gets faster and the excitement more intense as the third and fourth players enter the arena. Six additional offensive plays and six added defensive alignments provide a greater variety of play calling options. These options are multiplied by the ability of the quarterback to "pitch and go" or the linebackers to "red dog".

The offensive arsenal now includes not only the run and the pass, but also the pitch, the option, and the "flea flicker". The halfback can choose speed (go after that long bomb), strength (pass block or open a hole in the line), or "hands" (receive a pitch or come down with the ball in a crowd).

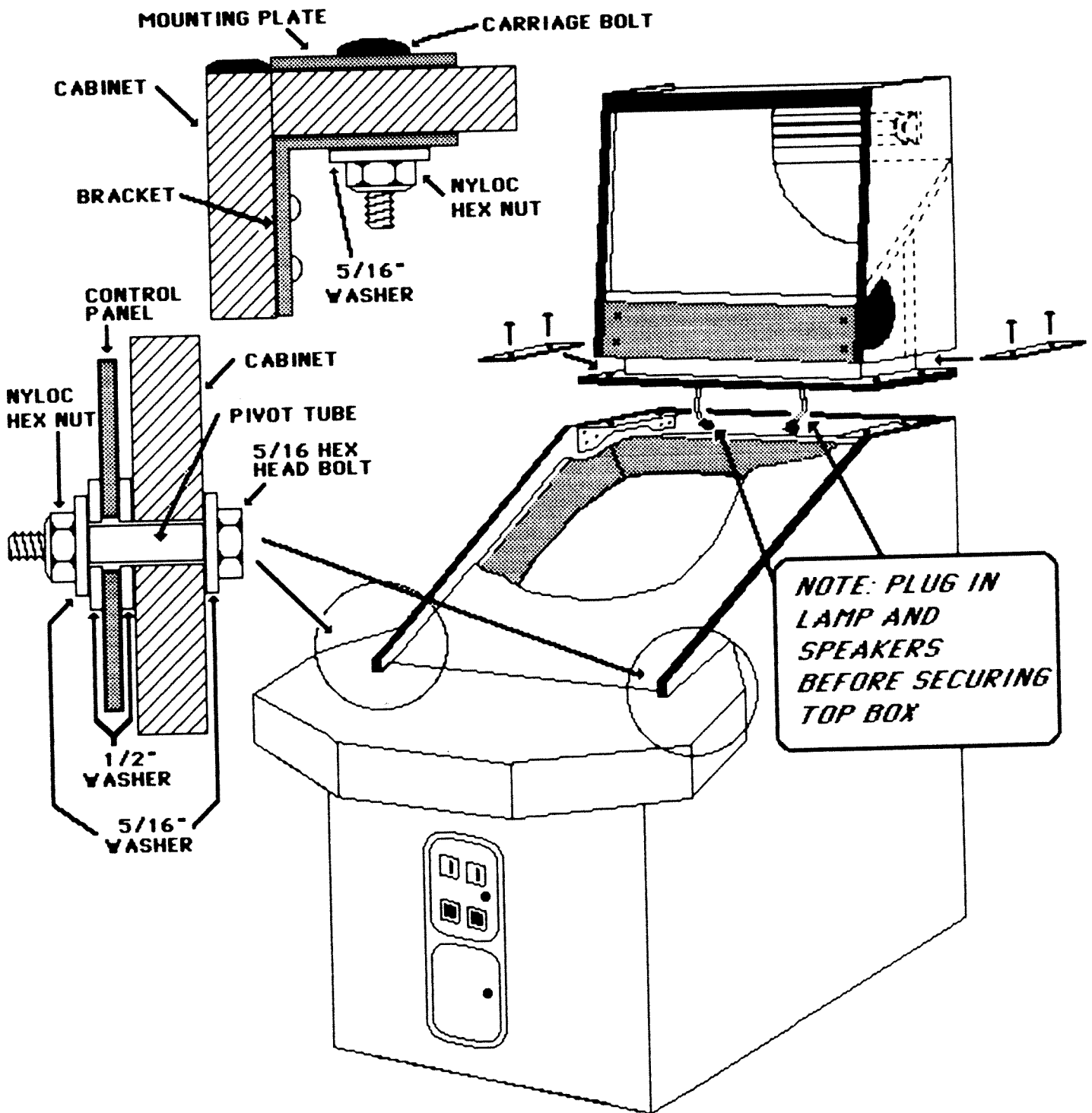
Defensive strategy has expanded to include the all out blitz or double coverage on an especially good receiver. One linebacker selects the defensive alignment and the other may choose to be strong (ward off blockers and get through the line) or fast (cover the receiver).

As in the real thing, the wind is always a factor in the kicking game and the clock comes into play near the end of each half.

Like the original "Quarterback", Team Quarterback keeps track of over 15 categories of game play statistics for each player (completed pass percentage, rushing average, etc.). The top 50 players' names are listed on the high score screen along with their salaries. The player's salary is a reflection of his/her personal statistics and players compete for the top salary.

Unlike the original, Team Quarterback lends itself readily to tournament competition. Because of the variety and depth of the game, no two games are alike and no two teams have exactly the same strategy.

# CABINET ASSEMBLY



# THE TROUBLESHOOTIST'S SECTION

## A NOTE ABOUT POWER

### **DC POWER**

The computer board in this machine operates most efficiently when the power supply is providing a steady + 5.15VDC ( +0.1VDC). When checking DC power always put your leads across the power inputs on the main board and be sure that the +5 volt supply is between +5.15VDC and +5.20VDC. Also be sure that there is less than .005 volts AC riding on the +5 volt line. If you do find AC on the DC line, suspect the filter capacitor or the rectifier on the power supply. Low voltage or AC on the DC lines is the main cause of the following problems:

- \* "Garbage" on the screen.
- \* Computer "Freeze".
- \* Coin or Coin Meter malfunction.
- \* A variety of seemingly unrelated problems.

### **AC POWER**

Connect this game only to a grounded three-wire outlet which provides between 108 and 132 volts AC. If you have only a two-wire outlet we recommend that you hire a licensed electrician to install a grounded outlet. The possibility exists that players may receive an electrical shock if this system is not properly grounded.

## **OUR SERVICE DEPARTMENT**

For parts, service, and technical information first contact your authorized Leland Corporation distributor. For additional technical aid feel free to contact the Leland Corp. Customer Service Department at **(619)562-7000** Monday through Friday from **8:00 AM to 5:00 PM Pacific Standard Time.**

To provide you with the quickest possible response to your questions, please have the following information ready when you call:

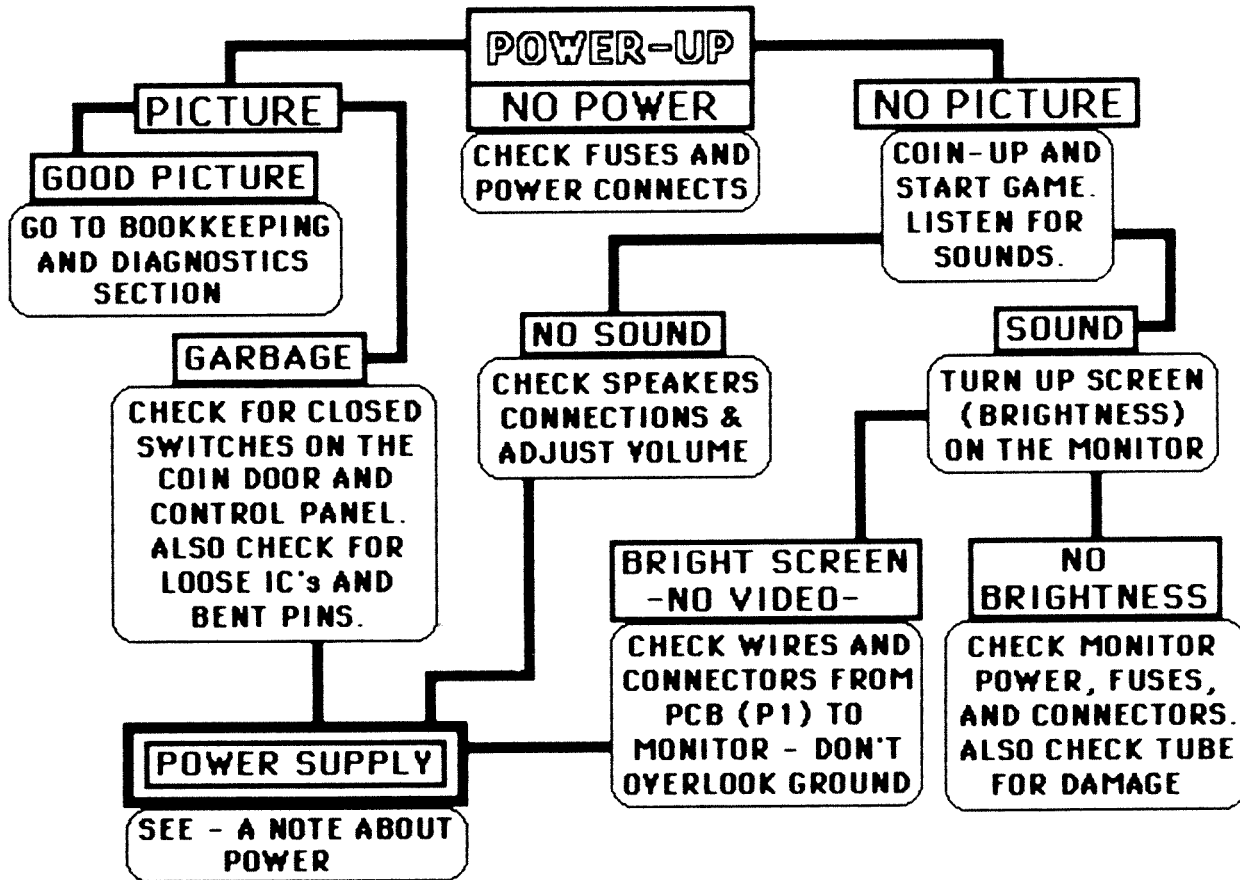
- 1. Your game name and serial number.**
- 2. Any reference materials and a list of observations.**

## TROUBLESHOOTING FLOW CHART

**DON'T TOUCH THAT SWITCH !!!**

Before you reach for the power switch take a good look at the game. Open it up and check for loose wires, bad connections, or burned spots. Look for spilled drinks and signs of vandalism. Those quick checks will save you a lot of time.

After you've eliminated the obvious, start digging.



Never take anything for granted. This is easy to do if you are in a hurry --- You'll kick yourself every time for missing a broken wire or loose connector after spending hours looking in the wrong place - I have.



## **GENERAL SHOOTING**

### **GARBAGE**

Check: Power supply voltages.  
Closed switches on the control panel or coin door.  
Loose connections, loose IC's, or bent pins on the board.

### **NO SOUND**

Check: Loose connections.  
Low +12VDC supply.  
Bad speaker or volume pot.

### **NO CONTROL OR FUNCTION SWITCHES (Includes coin switches)**

Check: All Connections. (Especially ground)  
Wire continuity between board and switch.  
Closed or broken switches.  
Input buffers. (See BUFFERS.)

## **MONITOR SHOOTING**

### **NO PICTURE**

Check: Power connection.  
Monitor fuses.  
Video connections. (Check continuity.)

### **SYNC PROBLEMS**

Check: Sync and ground connections. (See WIRING DIAGRAM)  
Sync polarity.  
Video output buffer.

## **BUFFERS**

An input or output (I/O) buffer is the component that connects the actual game computer to the outside world and, as such, is the part most likely to fail. Check the following list when attempting to isolate possible problems. First and second choices are given. (M=Main Board, I/O= Multi-Function Board.)

***NOTE: ANY UNAUTHORIZED BOARD REPAIR OR ATTEMPTED REPAIR  
WILL VOID YOUR WARRANTY.***

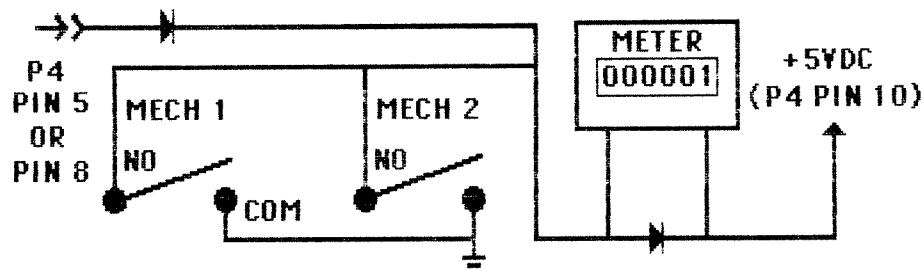
<u>PROBLEM AREA</u>	<u>COMPONENT</u>	<u>PCB LOCATION</u>
VIDEO (Colors or Sync)	1 <sup>st</sup> 7405 or 74S05 2 <sup>nd</sup> 74LS374	M-U24 M-U37
PLAYER CONTROLS and/or COIN CONTROLS	1 <sup>st</sup> 150 ohm resistor pack. 2 <sup>nd</sup> 74LS257	See Wiring Diagram & Schematics for specific switch.
AUDIO (Bad channel)	1 <sup>st</sup> 7524  2 <sup>nd</sup> 7533	I/O-U35(ch5) through U40 (ch0) I/O-U31

## ABOUT MECHANICAL COIN COUNTERS

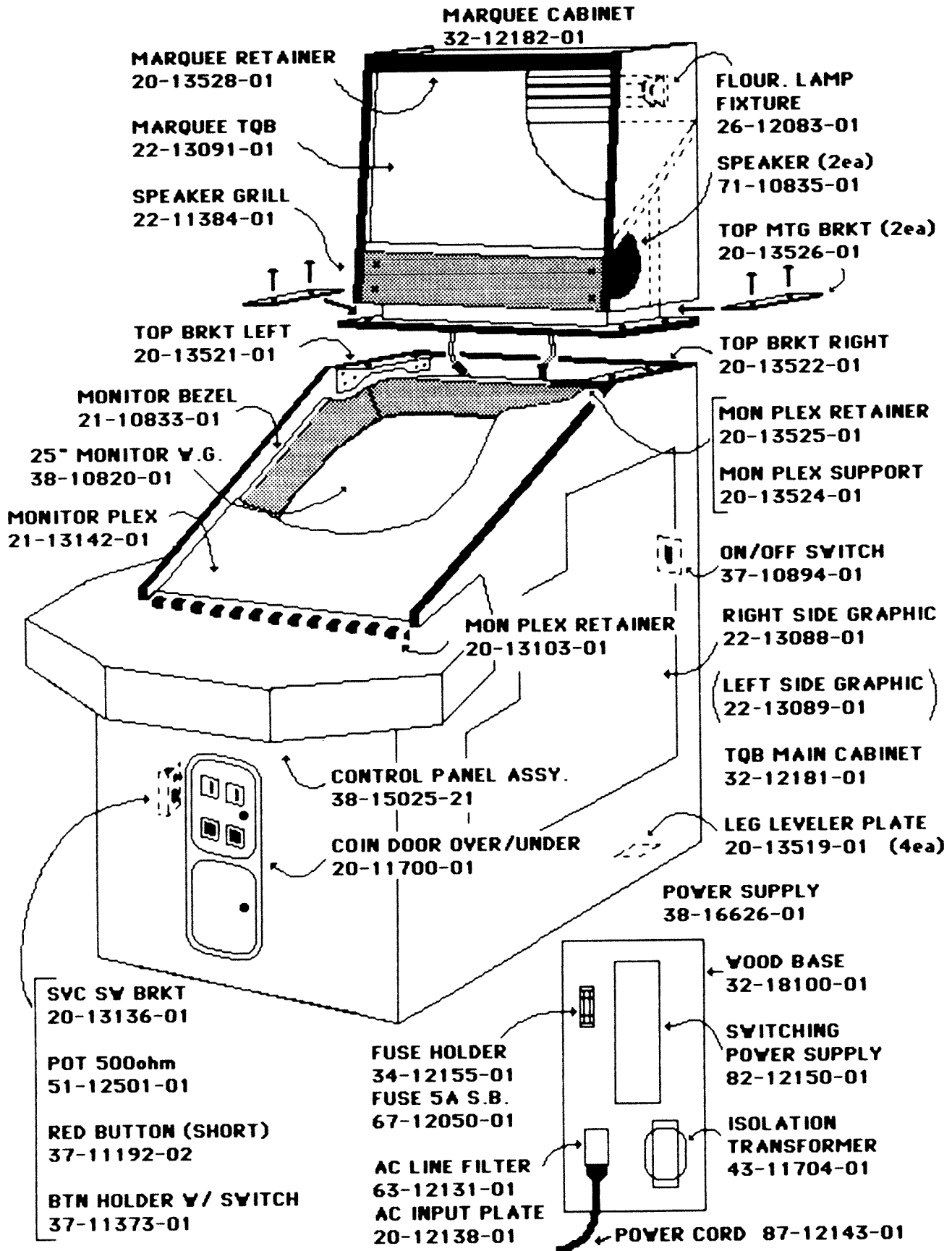
We have not installed a mechanical coin counter on this game for two reasons:

1. The bookkeeping program is extremely accurate and includes not only number of coins dropped and dollars earned but also the number of tests and coins in a given period. (See BOOKKEEPING in the DIAGNOSTICS section.)
2. These mechanical coin counters produce an inductive "kick" that *will* damage components on the circuit board. Checkerboard video is the most common problem. If this is, in fact, your problem - take a look at the "NMI not" signal on the master Z80 (pin 17). If a low output is observed, try replacing U114 (74LS08) and/or U119 (74LS157).

**NOTE:** If you must install a mechanical coin counter, please use the following diagram. (Diodes may be 1N4001 to 1N4004.)



# ILLUSTRATED PARTS SECTION

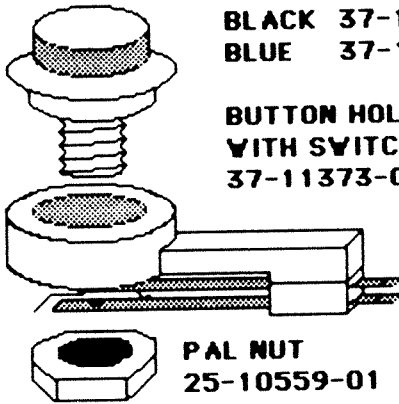


# CONTROL PANEL ILLUSTRATED PARTS LIST

**BUTTONS (SHORT)**

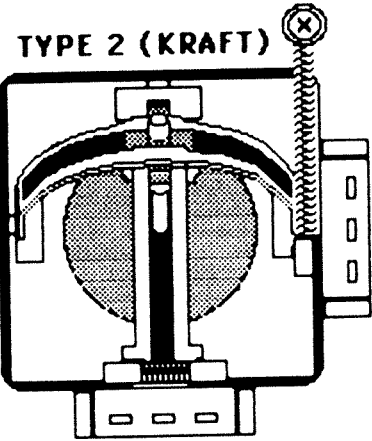
- RED 37-11192-02
- BLACK 37-11192-03
- BLUE 37-11192-06

**BUTTON HOLDER  
WITH SWITCH  
37-11373-01**



**PAL NUT  
25-10559-01**

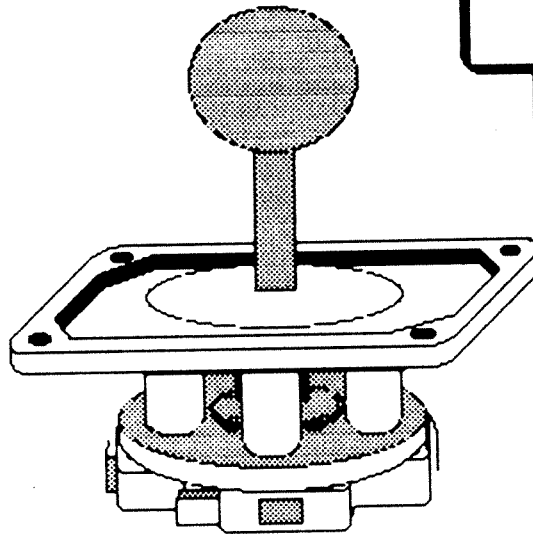
**ANALOG (SPRING)  
JOYSTICK  
37-13055-01**



**NOT SHOWN  
SPRINGSTICK  
ADAPTER PLATE  
20-15102-00  
SPRINGSTICK  
RUBBER GASKET  
23-10401-01**

**JOYSTICK, MICRO**

- RED 38-11397-01
- BLACK 38-11398-01



**LEXAN RETAINER  
20-13515-01**

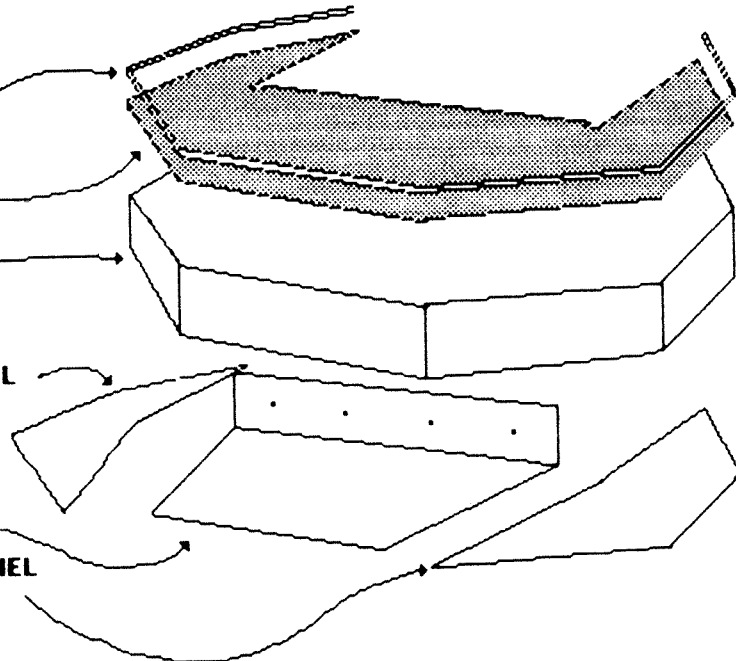
**C/P OVERLAY  
22-14912-01**

**C/P METAL  
20-13510-01**

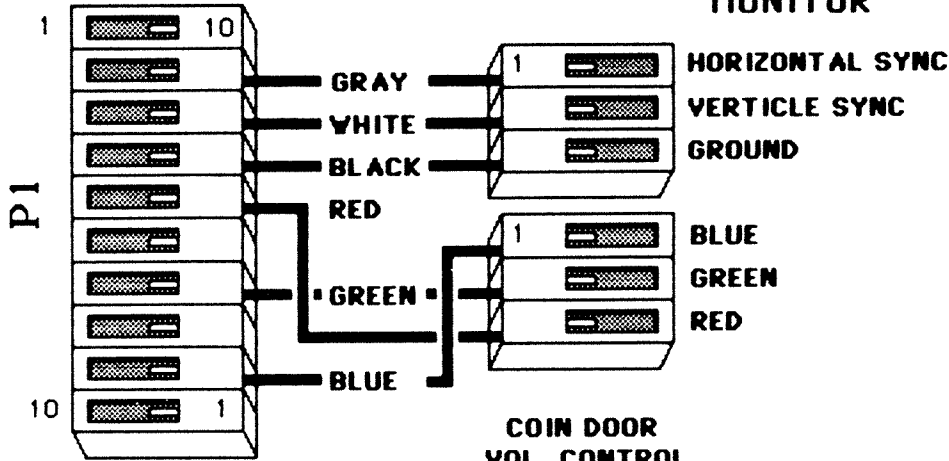
**LEFT BOTTOM PANEL  
20-13512-01**

**BOTTOM PANEL  
20-13511-01**

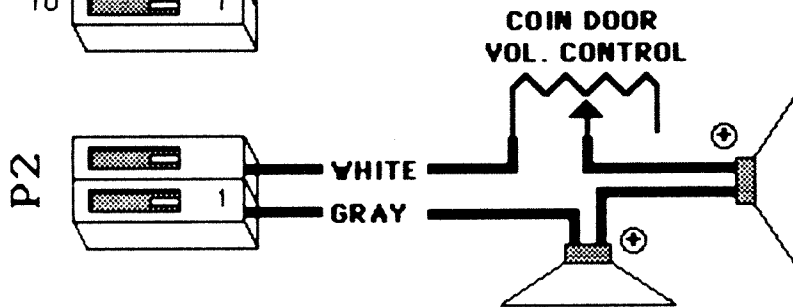
**RIGHT BOTTOM PANEL  
20-13513-01**



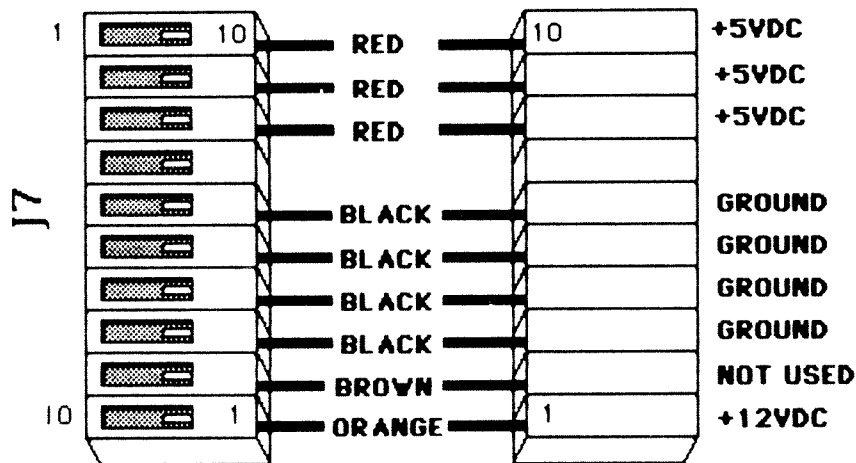
TO  
MONITOR



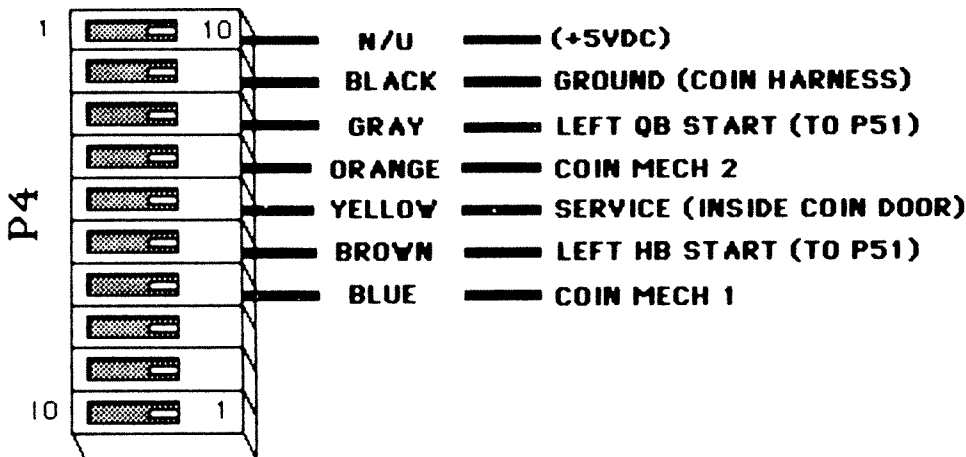
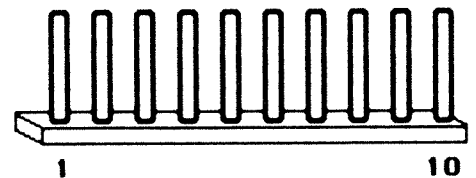
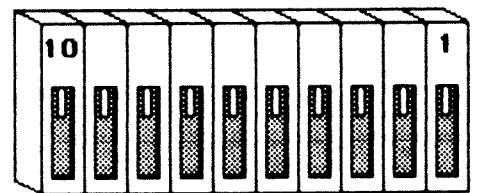
**MAIN WIRING  
DIAGRAM  
(MAIN BOARD)**



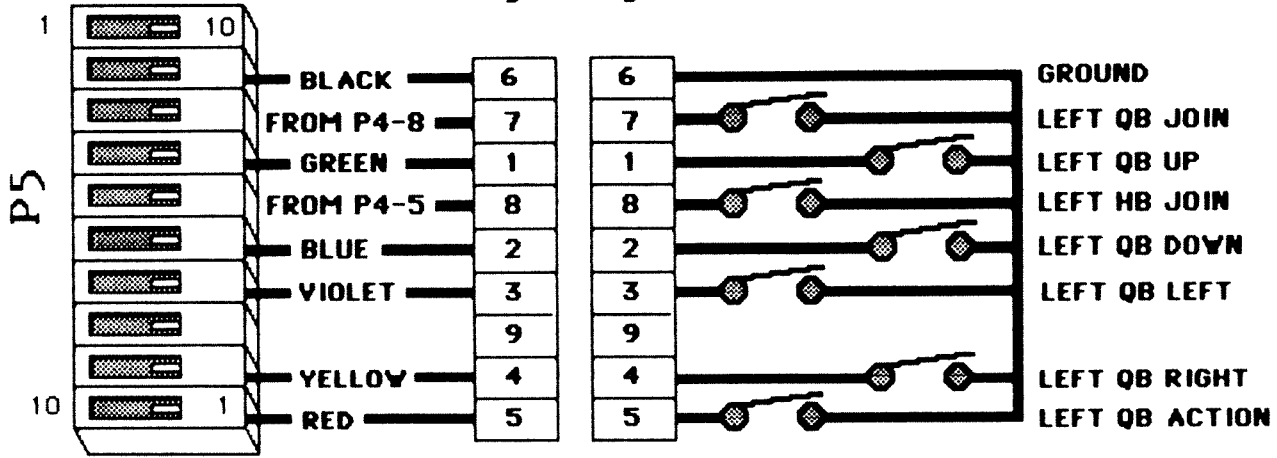
TOP (MULTI-FUNCTION) PCB



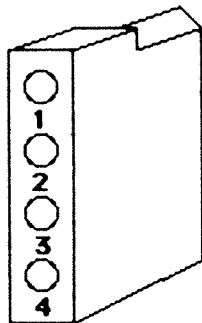
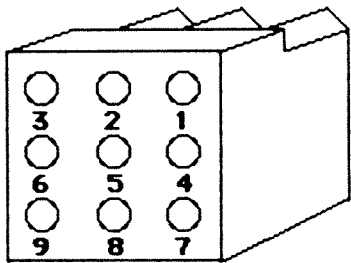
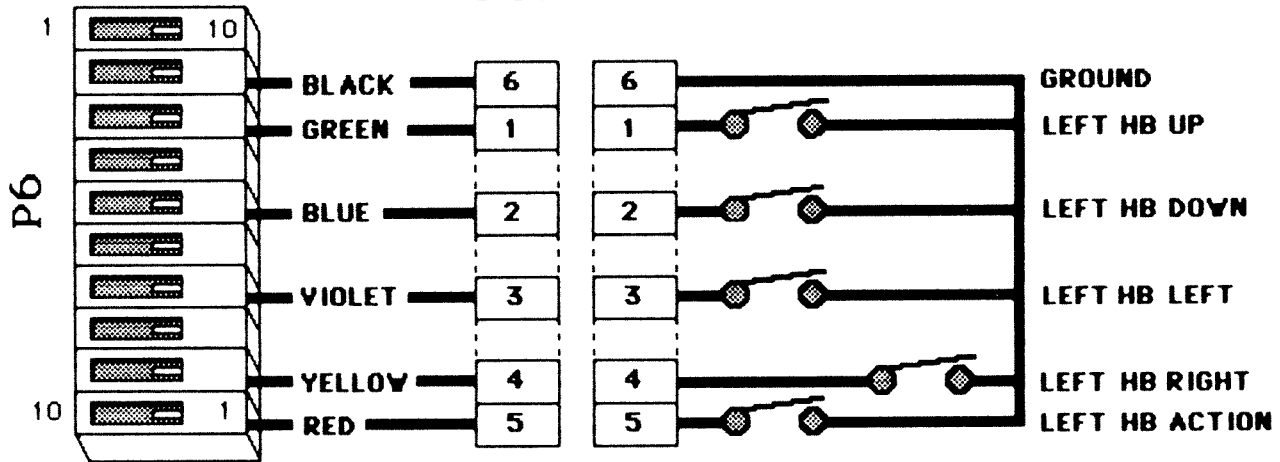
*NOTE: SYSTEM PIN-OUT  
OPPOSITE OF PIN-OUT  
MOLDED IN HARNESS  
CONNECTORS.*



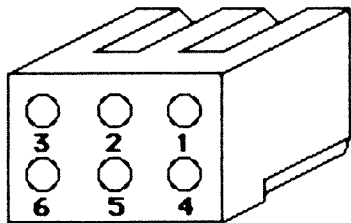
P51 P52



P61 P62

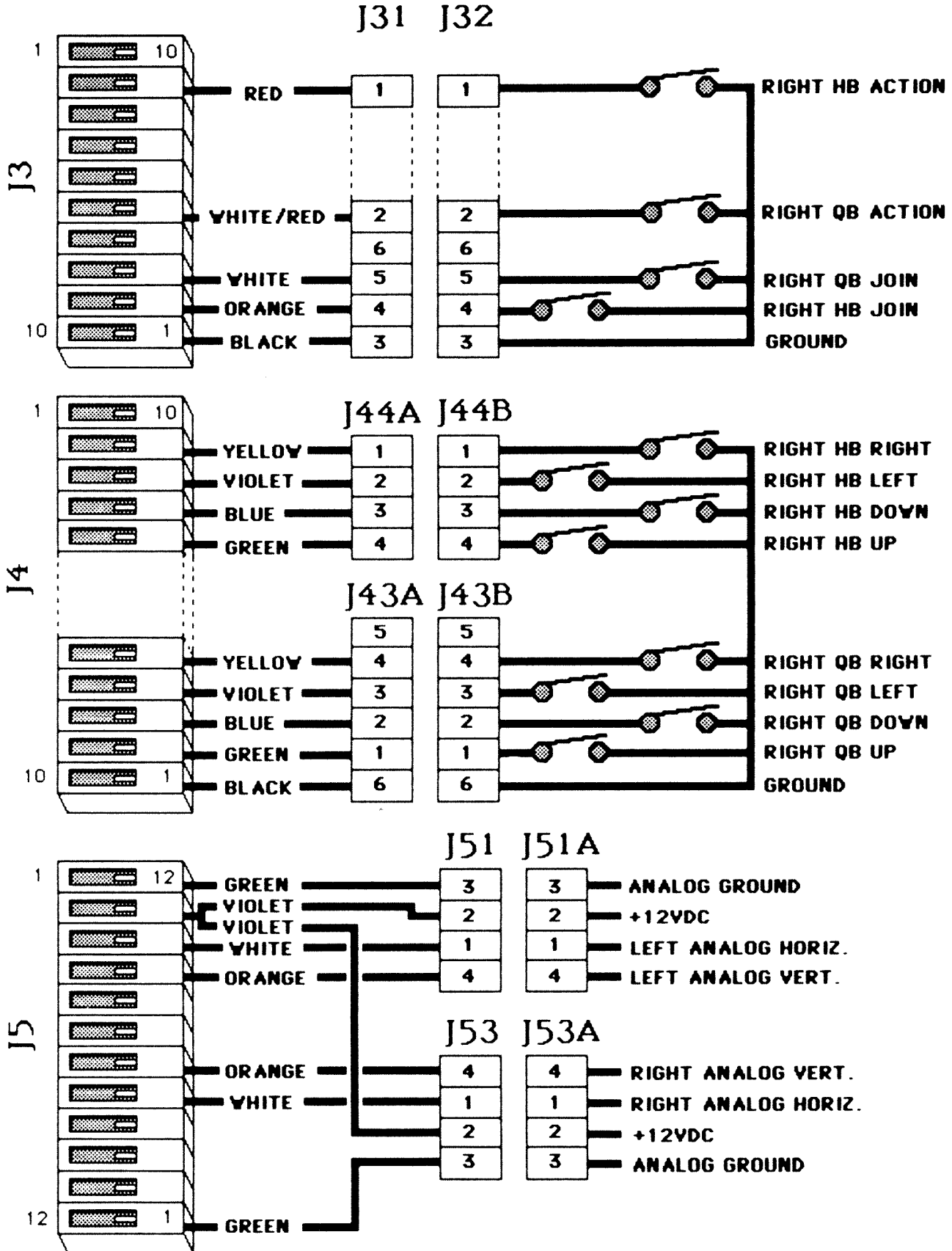


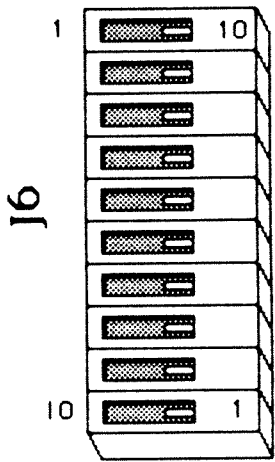
*MALE MOLEX CONNECTORS  
TYPICAL PIN-OUT*



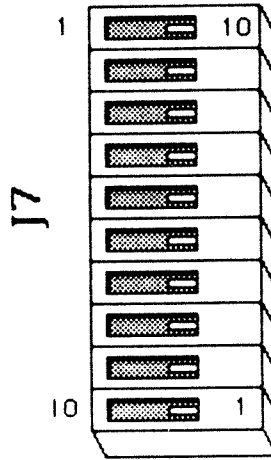
*SEE MAIN BOARD LAYOUT  
FOR BOARD CONNECTOR  
LOCATIONS.*

# MAIN WIRING DIAGRAM (MULTI-FUNCTION BOARD)

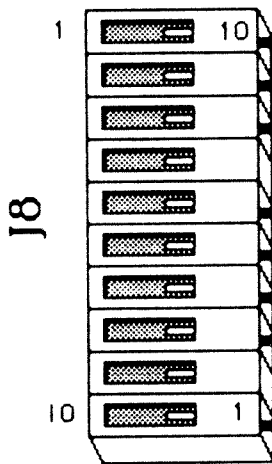




NOT USED



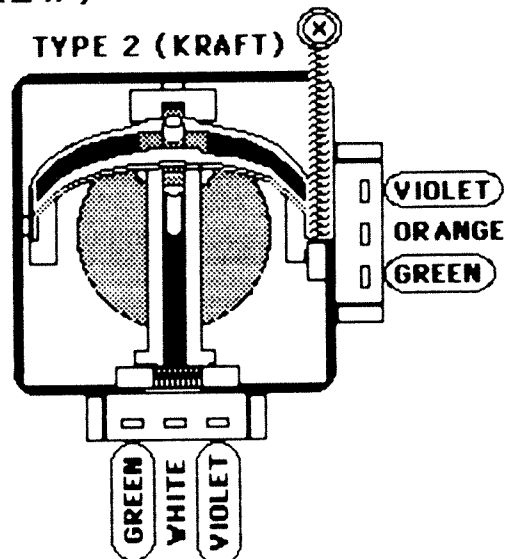
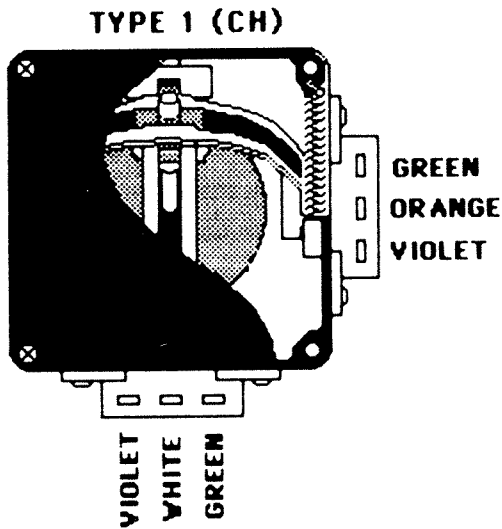
SEE P7 ON MAIN BOARD WIRING DIAGRAM



- RED — +5VDC
- RED — +5VDC
- RED — +5VDC
- BLACK — GROUND
- BLACK — GROUND
- BLACK — GROUND
- BLACK — GROUND
- ORANGE — +12VDC

FROM SWITCHING POWER SUPPLY

TYPICAL ANALOG SPRINGSTICK ASSY.  
(BOTTOM VIEW)

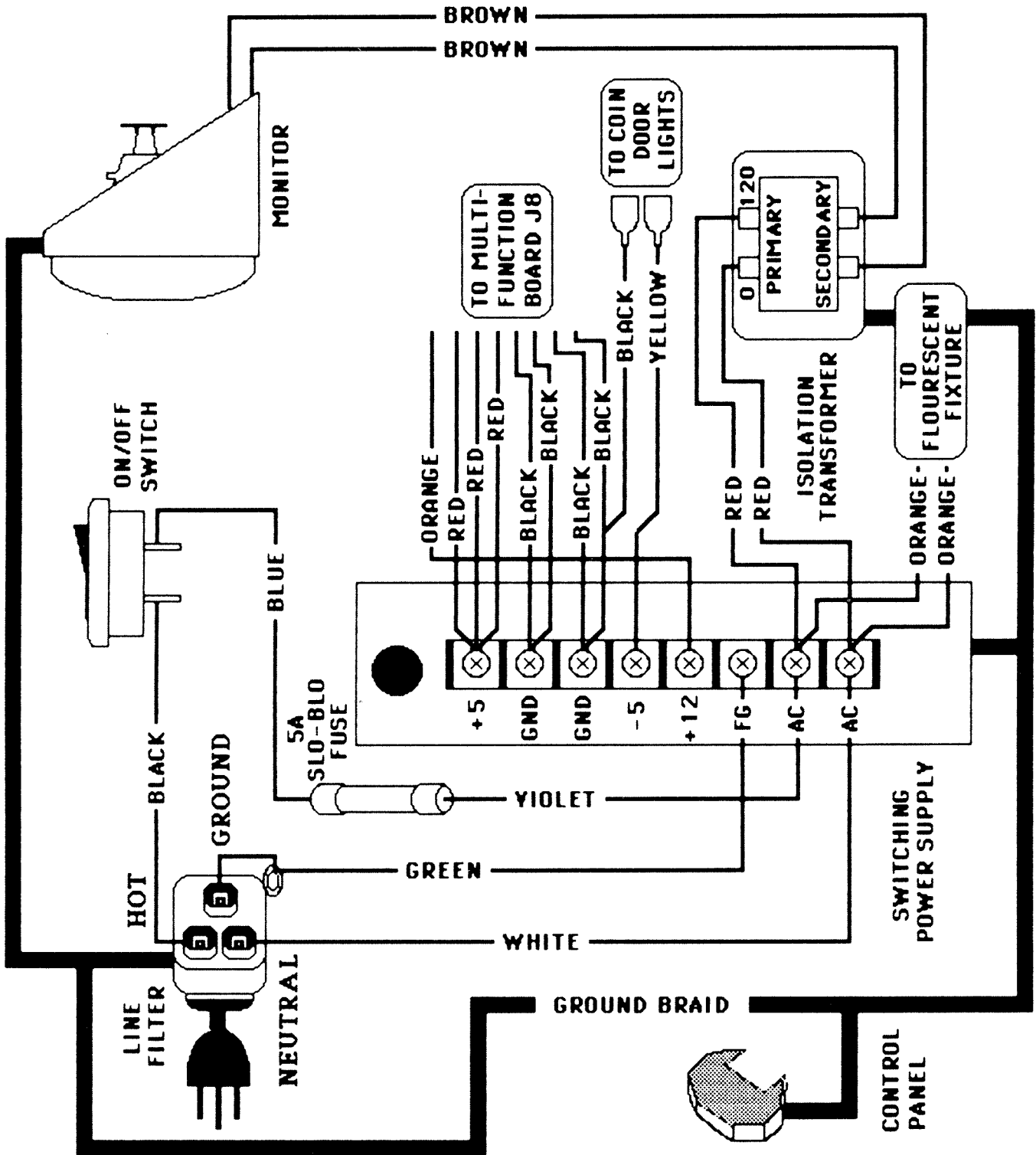




# CABINET WIRING DIAGRAM

**AC POWER**  
 108 - 132 VAC  
 2.5A MAX

**DC POWER**  
 +5VDC @ 11A  
 +12VDC @ 2A  
 -5VDC @ 1A

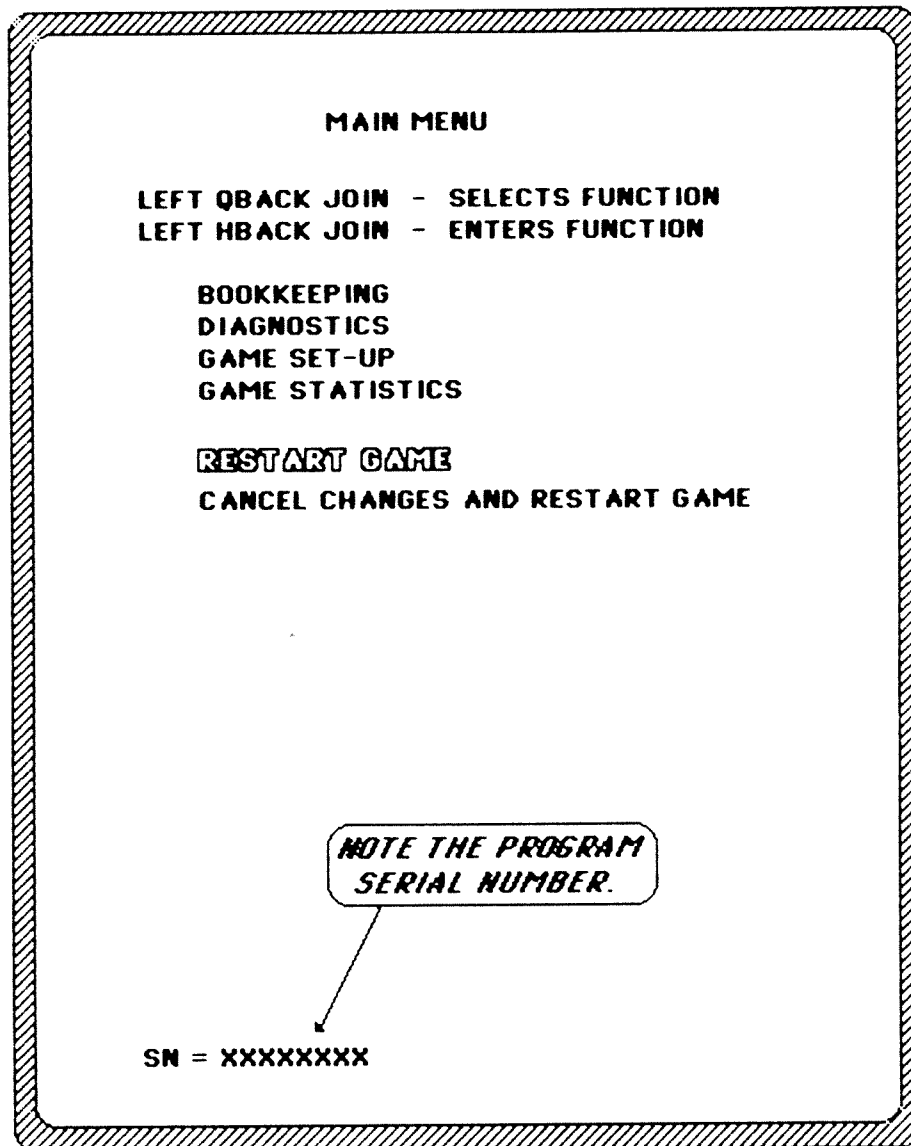


# BOOKKEEPING AND DIAGNOSTICS SECTION

To enter the Bookkeeping and Diagnostics Section:

- \* Press and hold the left Quarterback Join button.
- \* Press the test button. (Located inside the front door.)
- \* Release both buttons.

Upon entering the program the Main Menu will appear. Follow the instructions on this menu to select and enter the desired function.



## BOOKKEEPING

The Bookkeeping function is your game accountant. It records the lifetime earnings of your game and allows you, through the use of resettable "PERIOD" totals to keep track of weekly, monthly, or location earnings.

**NOTE:** The "SET COINS/TOKENS PER DOLLAR" category must be set to the location standard to maintain accurate accounting data. (i.e. 6 COINS/TOKENS PER DOLLAR.)

THIS FUNCTION DOES NOT AFFECT THE NUMBER OF COINS PER CREDIT. (SEE "GAME SET-UP" SECTION FOR THIS INFORMATION.)

**BOOKKEEPING**

LEFT QBACK JOIN - SELECTS FUNCTION  
LEFT HBACK JOIN - ENTERS FUNCTION

COINS DROPPED - MECH 1  
LIFETIME: 0  
PERIOD COINS: 0  
PERIOD DOLLARS: \$0.00

COINS DROPPED - MECH 2  
LIFETIME: 0  
PERIOD COINS: 0  
PERIOD DOLLARS: \$0.00

TOTAL COINS DROPPED  
LIFETIME: 0  
PERIOD COINS: 0  
PERIOD DOLLARS: \$0.00

SERVICE BUTTON PRESSED 0  
TOTAL CREDITS GIVEN 0

RESET COIN MECH COUNTERS :  
RESET MECH 1 DOLLARS COLLECTED  
RESET MECH 2 DOLLARS COLLECTED

SET COINS/TOKENS PER DOLLAR :  
4 COINS PER DOLLAR COIN MECH 1  
4 COINS PER DOLLAR COIN MECH 2

RETURN TO MAIN MENU

*OUTLINES SHOW  
RESETTABLE  
AREAS*

## DIAGNOSTICS MENU

Invoking the DIAGNOSTICS function will open a very complete and easy to use set of tests designed to take the grumbling and hair pulling out of adjusting, troubleshooting, and servicing your machine.

You will notice that the diagnostics section has a sub-menu of its own.

**DIAGNOSTICS**

LEFT QBACK JOIN - SELECTS FUNCTION  
LEFT HBACK JOIN - ENTERS FUNCTION

BUTTONS AND CONTROLS TEST  
PROCESSOR MEMORY TEST  
VIDEO ALIGNMENT SCREENS  
BACKGROUND SCREENS  
AUDIO SUBSYSTEMS TEST

RETURN TO MAIN MENU

## BUTTONS AND CONTROLS TEST

This test provides a quick examination of the state of all buttons and controls as well as an easy range setting format for the analog inputs (springsticks).

Minimum and maximum settings are shown in italics on the screen to the left. To reset the pots, break melt points or loosen screws (depending on joystick type), align each pot using this screen, and reseal the pot to the mounting assembly with a hot soldering pencil or retighten screws.

PRESS THE FOLLOWING BUTTONS:

QUARTERBACK 1 JOIN	<b>CLOSED</b>	
HALFBACK 1 JOIN	OPEN	
QUARTERBACK 2 JOIN	OPEN	
HALFBACK 2 JOIN	OPEN	
COIN MECH 1	OPEN	
COIN MECH 2	OPEN	
SERVICE SWITCH	OPEN	
QUARTERBACK 1 ACTION	OPEN	
HALFBACK 1 ACTION	OPEN	
QUARTERBACK 2 ACTION	OPEN	
HALFBACK 2 ACTION	OPEN	
QUARTERBACK 1 JOYSTICK		
UP	LEFT	DOWN
		<b>RIGHT</b>
HALFBACK 1 JOYSTICK		
UP	LEFT	DOWN
		RIGHT
QUARTERBACK 2 JOYSTICK		
UP	LEFT	DOWN
		RIGHT
HALFBACK 2 JOYSTICK		
UP	LEFT	DOWN
		RIGHT
LEFT SPRINGSTICK HORIZONTAL :		80H ( <i>±02</i> )
<i>D1H</i> ██████████		<i>FFH</i>
LEFT SPRINGSTICK VERTICAL :		01H ( <i>±02</i> )
<i>D1H</i> ██████████		<i>FFH</i>
RIGHT SPRINGSTICK HORIZONTAL :		80H ( <i>±02</i> )
<i>D1H</i> ██████████		<i>FFH</i>
RIGHT SPRINGSTICK VERTICAL :		01H ( <i>±02</i> )
<i>D1H</i> ██████████		<i>FFH</i>

PRESS HALFBACK 1 JOIN BUTTON OR SERVICE BUTTON TWICE TO EXIT.

**DENOTES PRESSED OR STUCK SWITCH**

## PROCESSOR MEMORY TEST

The Erasable Programmable Read Only Memory (EPROM) and Random Access Memory (RAM) IC's are storage areas for the actual game guidelines and are accessed by the Microprocessor section. The percentage of field failures in these areas is very low but when problems do arise they can be a bear to track down. This test samples the action of the processor section and notes any incongruities.

**WARNING:** Read your warranty before attempting *any* printed circuit board repairs.

PROCESSOR MEMORY TEST

MASTER ROM TESTED  
MASTER ROM GOOD

MASTER RAM TESTED  
MASTER RAM GOOD

COLOR RAM TESTED  
COLOR RAM GOOD

SLAVE MEMORY TESTED

SLAVE RAM GOOD  
SLAVE ROM GOOD

LEFT HALFBACK JOIN EXITS TEST

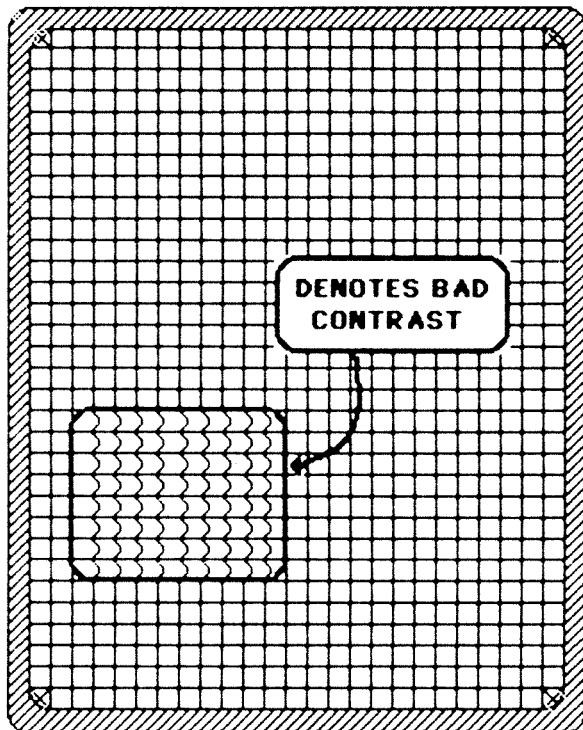
*IF A TESTED PART DOES NOT PASS, THE PART WILL BE DISPLAYED BY ITS BOARD LOCATION NUMBER - I.E. "MASTER ROM TESTED CHIP U49T SUSPECT"*

*PRESS TEST BUTTON TO HURRY THROUGH COLOR RAM TEST.*

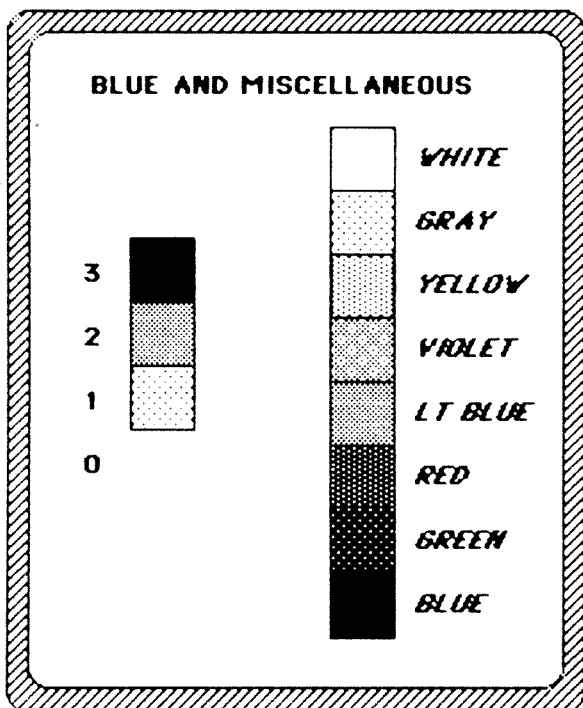
# VIDEO ALIGNMENT SCREENS

The picture on the screen is the most important and most neglected part of the game. It is a proven fact that a dirty, misaligned, or unfocused screen will cause a player to walk away even if the game is his/her favorite piece.

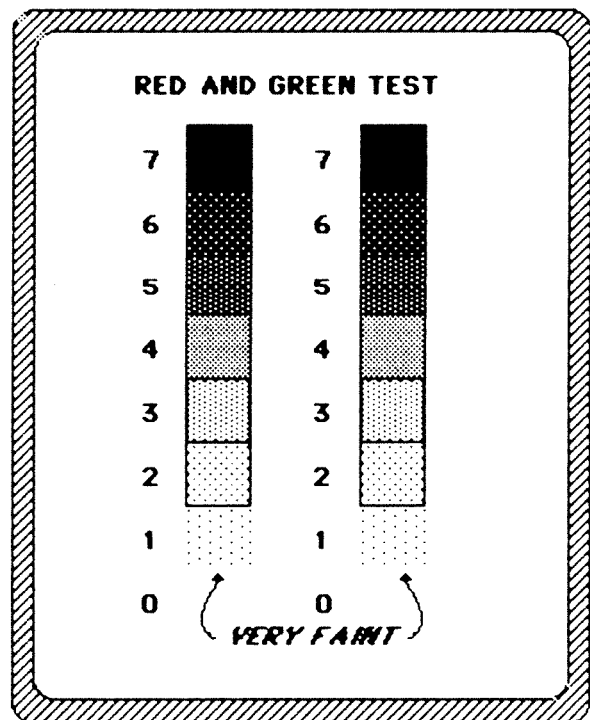
A little elbow grease and a couple of minutes taken to go through these adjustment screens will make a big difference in the cashbox. Use all three screens to adjust your picture and then go to the BACKGROUND SCREENS section to make the game look "rich".



← **THE CROSS-HATCH SCREEN** Used to adjust focus, alignment, size (note x's in corners) and contrast. Wavy horizontal lines (see inset) denote bad contrast. The background should be black and the lines solid white.



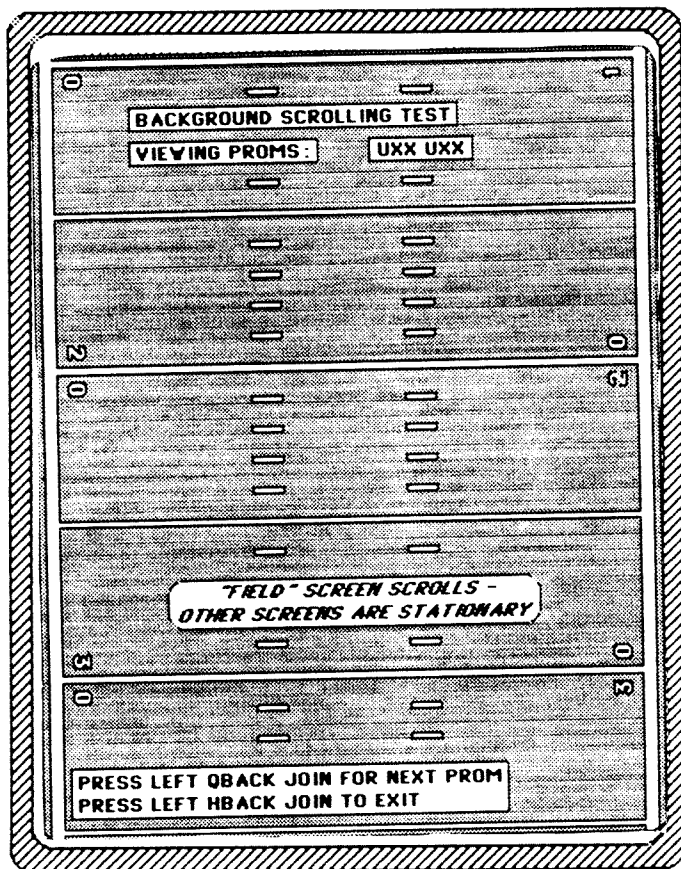
← **BLUE AND MISC. SCREEN** Use blue cutoff control to make gray color bar look gray. Adjust red and green drive controls slightly, if necessary to make the white color bar white.



**RED AND GREEN SCREEN** ↑ Adjust screen control so green color bar shows faintly on the 1 level and use red cutoff control to adjust red to the same intensity.

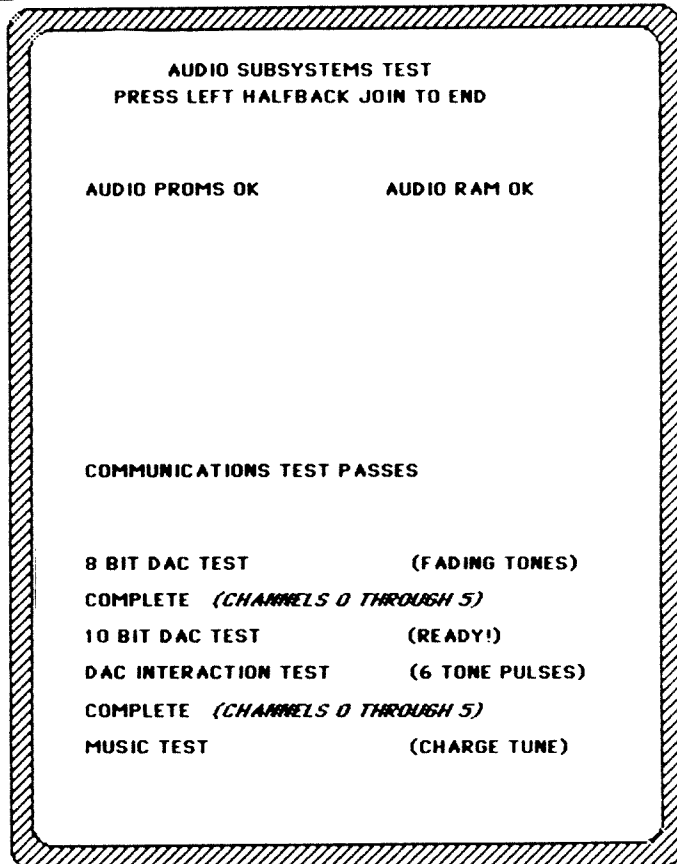
## BACKGROUND SCREENS

In this test the background screens are shown while the EPROMS which contain the information for these screens are displayed at the top of the screen. The test is not only helpful when looking for those "glitches" one sometimes encounters but may also be viewed as a visual test of the colors and picture clarity after the VIDEO ALIGNMENT test has been completed.



## AUDIO SUBSYSTEMS TEST

The sounds are the second most important feature of any game and in a game like "TEAM QUARTERBACK"™ are essential to the feel of the game. The volume of sound is, for the most part, dictated by the location and thus a "given" but the quality of sound is a function of the program. This test will be of help in your quest to find those "odd" sounds or to remedy the lack of certain sounds.



**GAME SET-UP**

LEFT QBACK JOIN - SELECTS FUNCTION  
LEFT HBACK JOIN - ENTERS FUNCTION

COIN MECH 1  
1 COIN FOR  
1 CREDIT

COIN MECH 2  
4 COINS FOR  
5 CREDITS

PLAY TIME PER CREDIT ----- 2:00  
ATTRACT MODE SOUND ----- YES

RETURN TO MAIN MENU

SOME SOUND ADVICE: Those annoying attract mode sounds are supposed to draw attention LET THEM!

## GAME SET-UP

This section is vital to the condition of your cashbox. When used in conjunction with the BOOKKEEPING section of the diagnostics package, the GAME SET-UP function will keep your game on your list of top earners for many seasons. The coins per credit settings range from 1 coin/1 credit to 20 coins/20 credits. You might even set the two mechs differently, say 1 coin/1credit and 4 coins/5credits. Sometimes a little tinkering pays off. The PLAY TIME PER CREDIT function sets the time in 30 second increments.

## GAME STATISTICS

This section is your REPORT CARD. It lets you know how well you've done in setting your game for MAXIMUM EARNING POWER. You will notice that no where in this booklet is the word difficulty mentioned. The reason for this is that the game is set up to sense the ability of the player and respond accordingly. The way it works is - the players salary increases as his percentages increase (i.e. passing percentage) and the computer knows it must play harder - simple huh?

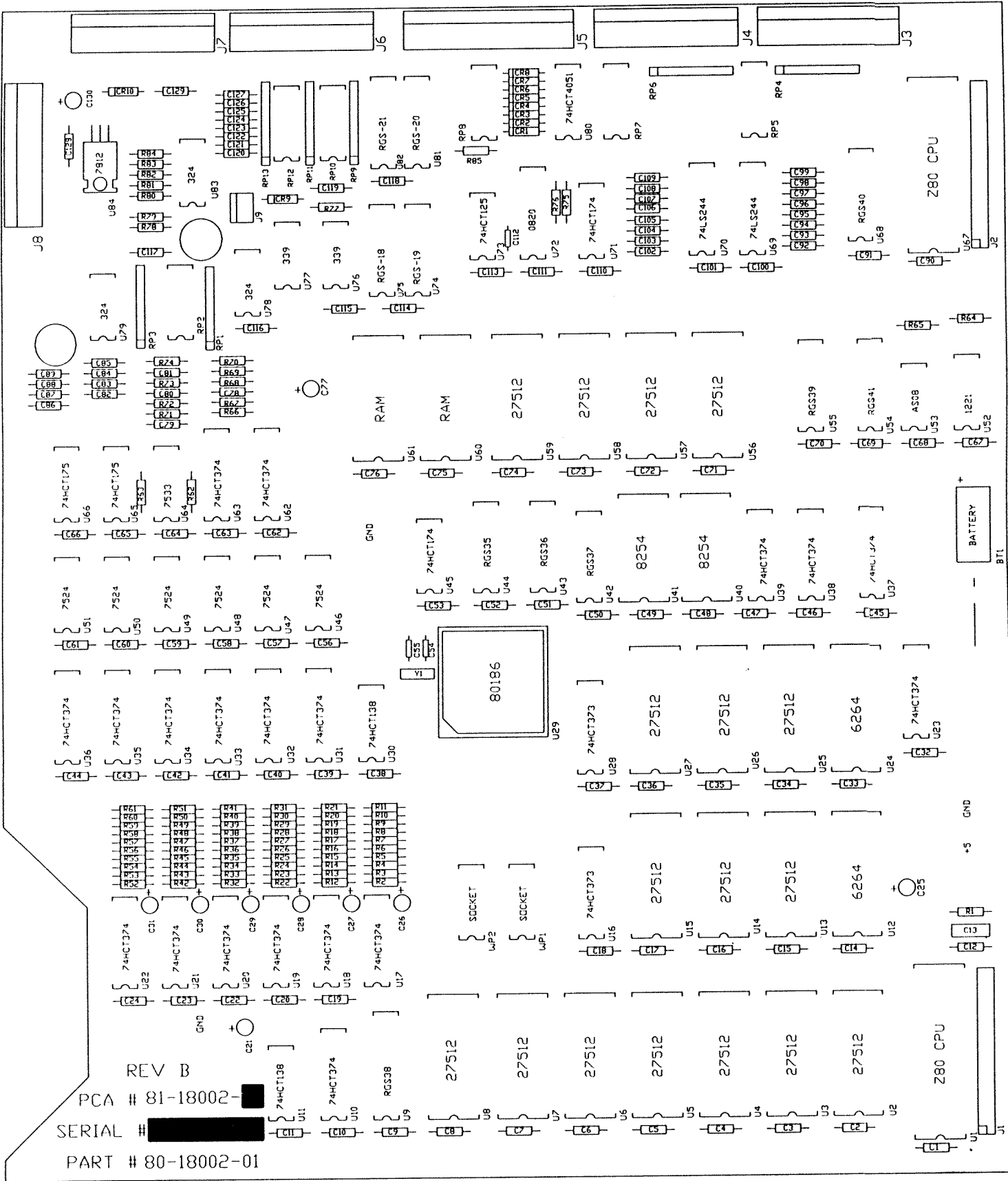
**GAME STATISTICS**

LEFT QBACK JOIN - SELECTS FUNCTION  
LEFT HBACK JOIN - ENTERS FUNCTION

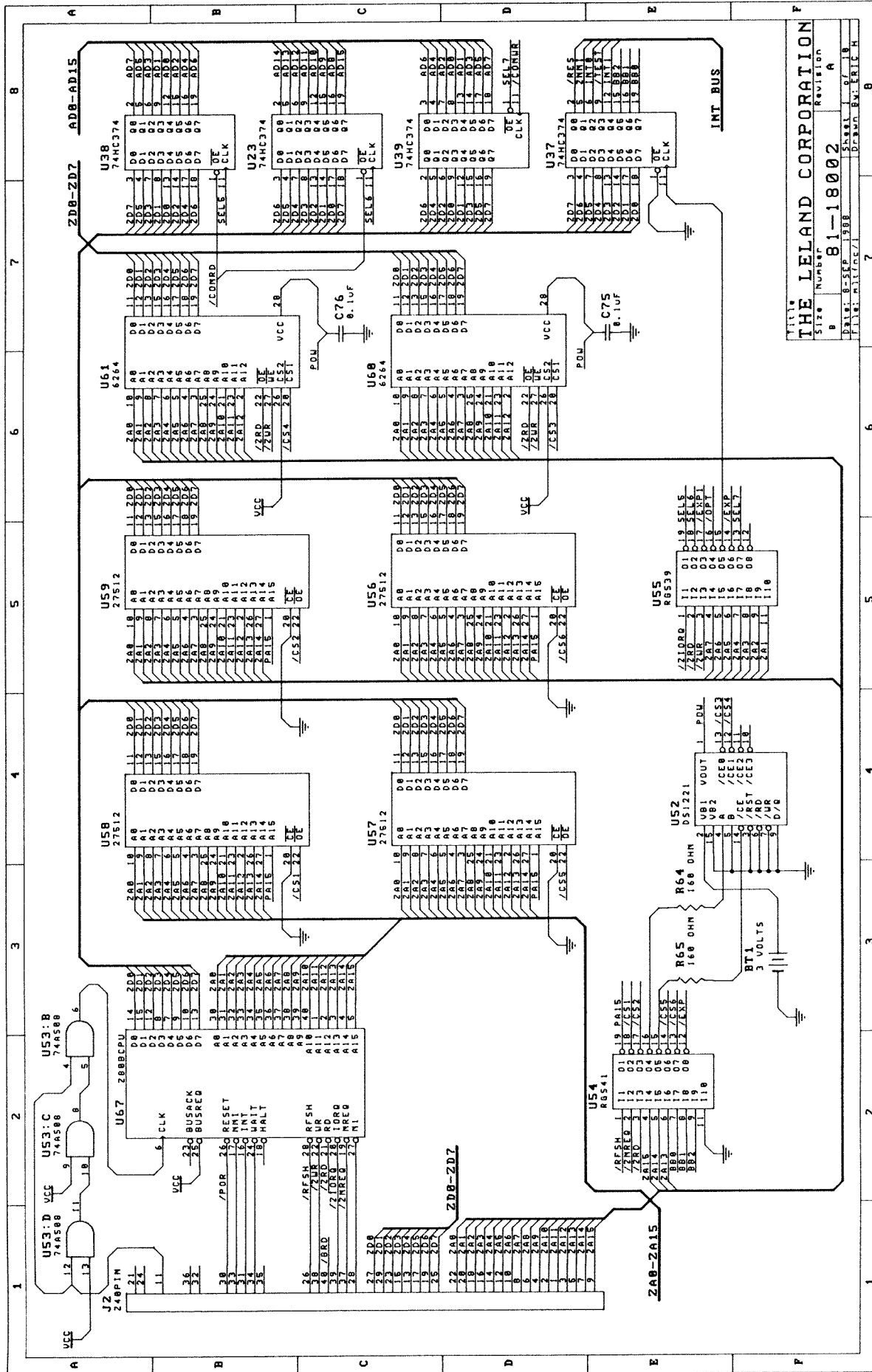
	1PL	2PL	3PL	4PL
GAMES	0	0	0	0
	STARTED	JOINED	CONT'D	COMP'D
LEFT QB	0	0	0	0
LEFT HB	0	0	0	0
RIGHT QB	0	0	0	0
RIGHT HB	0	0	0	0

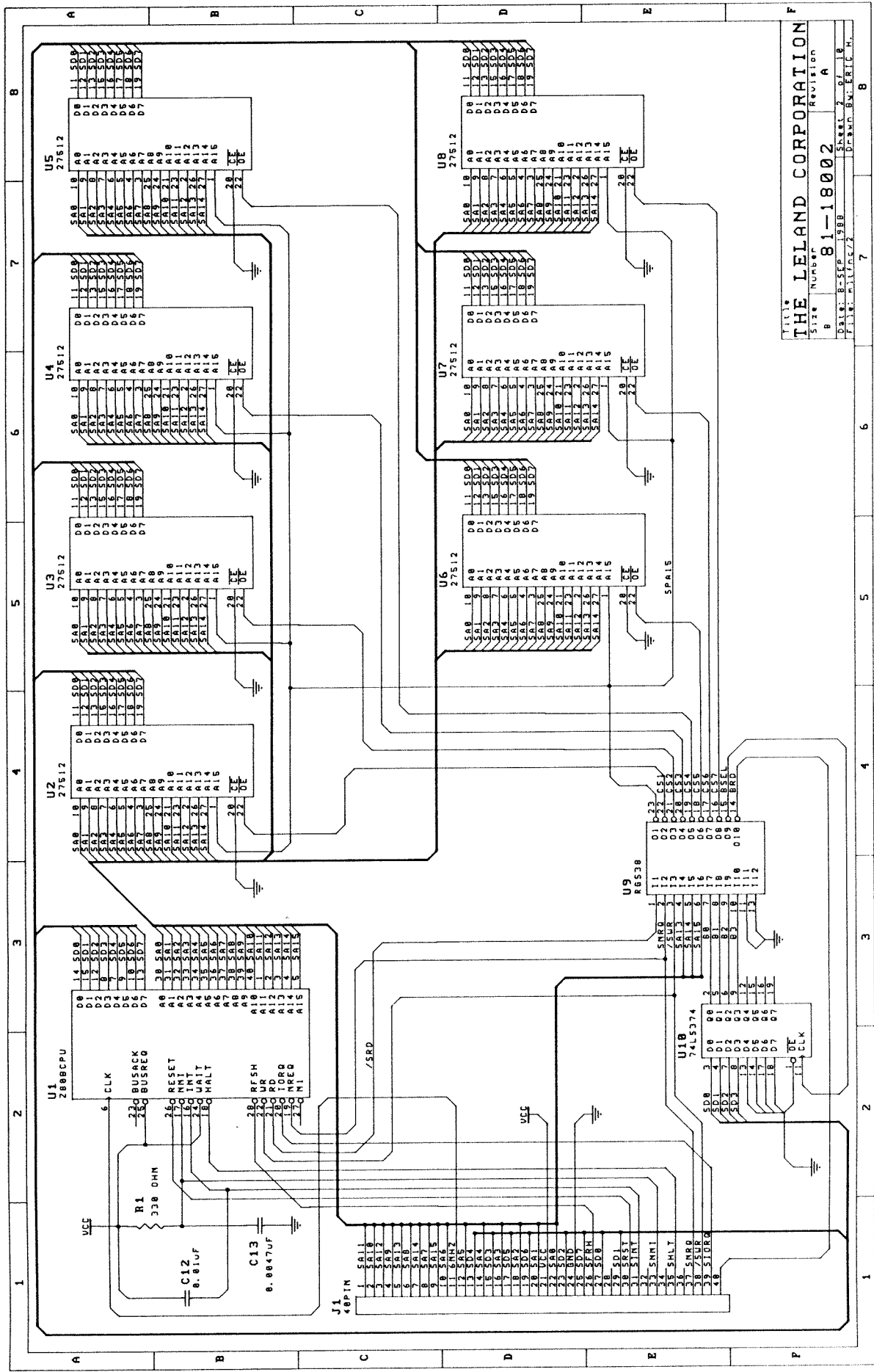
ERASE HALL OF FAME ON EXIT - NO  
CLEAR GAME STATISTICS

RETURN TO MAIN MENU

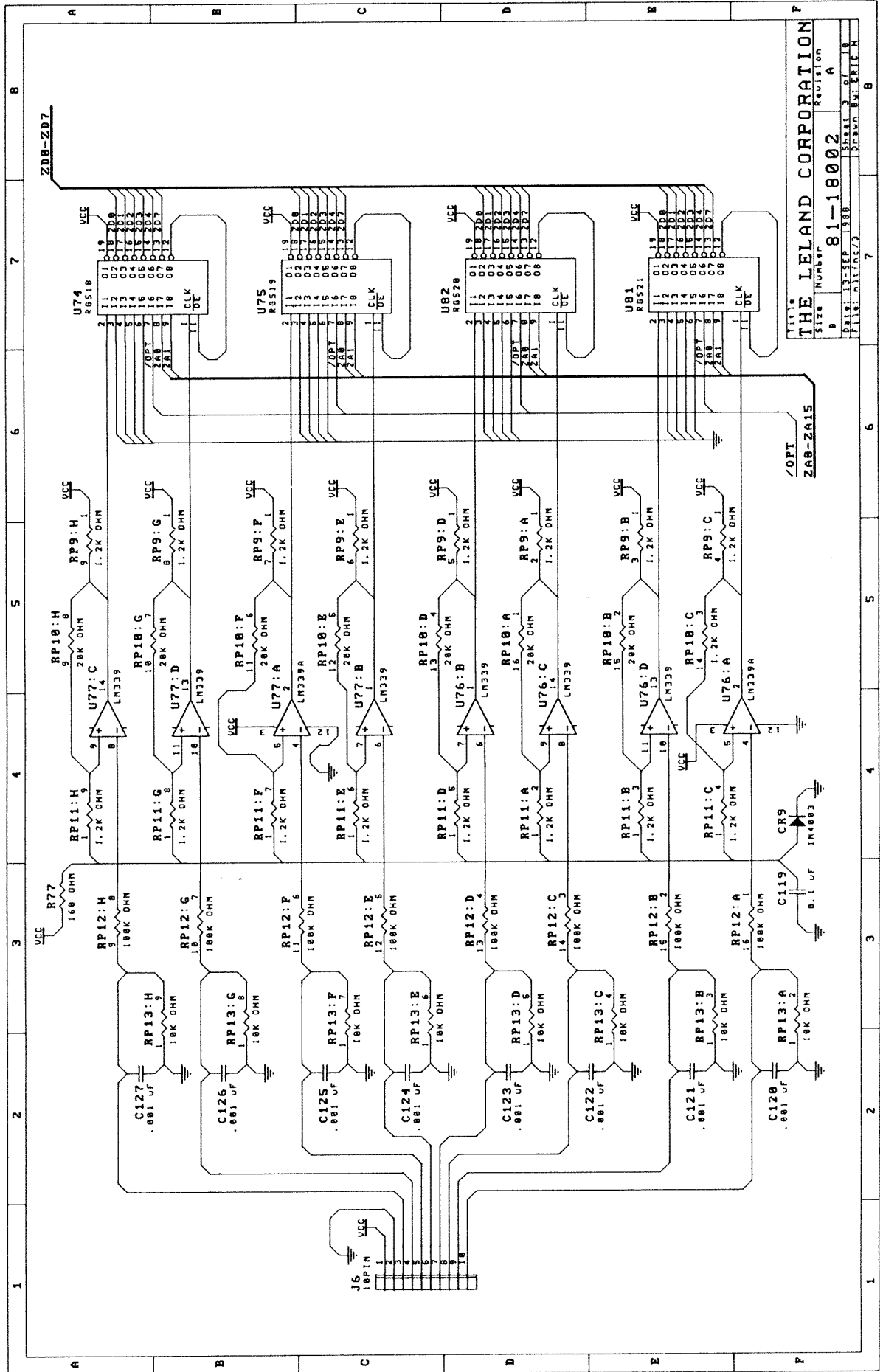




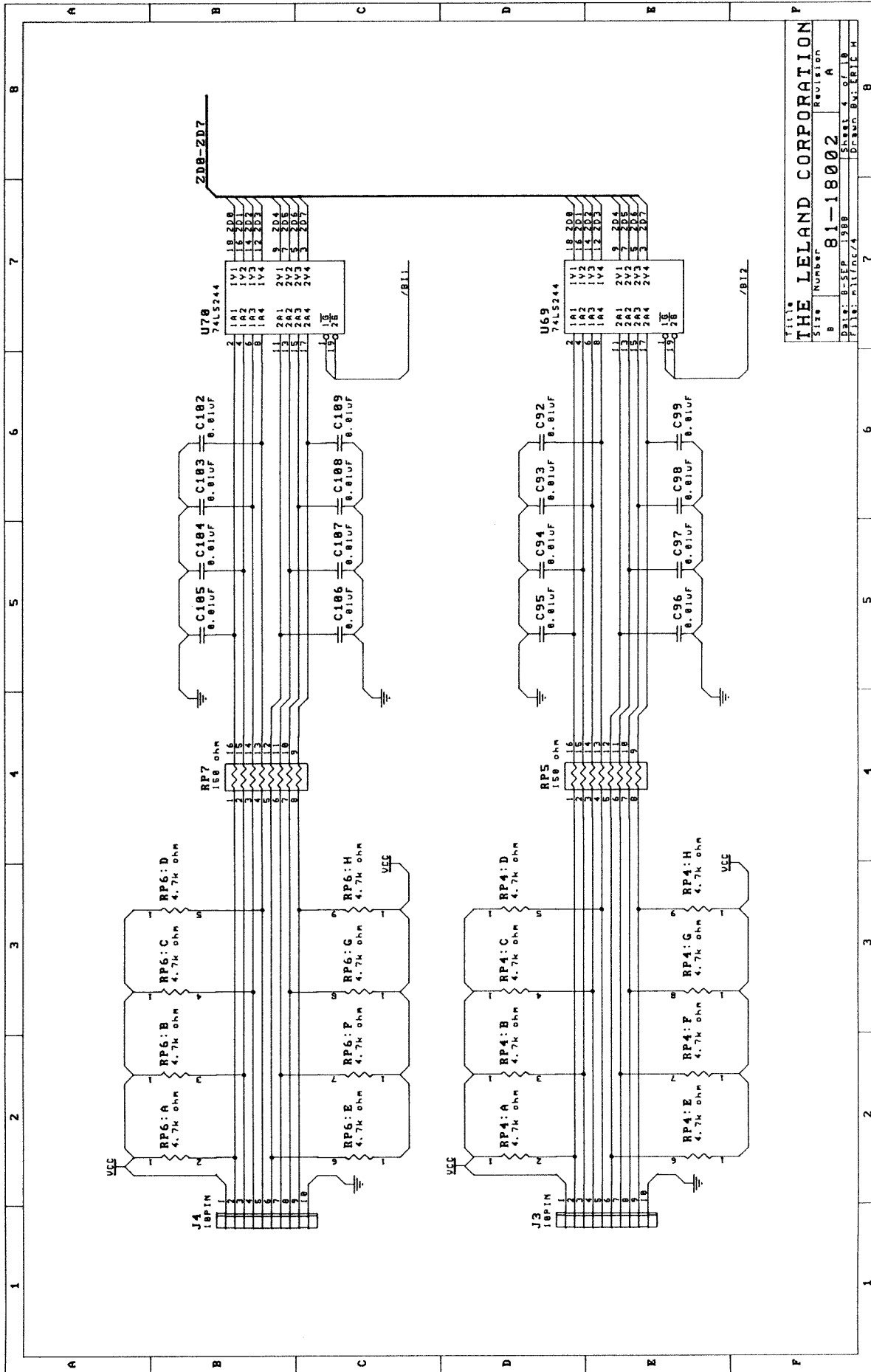




THE LELAND CORPORATION  
 Size Number 81-18002  
 Revision A  
 Date: 8-SEP-1988  
 P.L.N.: 111152/2  
 Scale: 2" = 1"

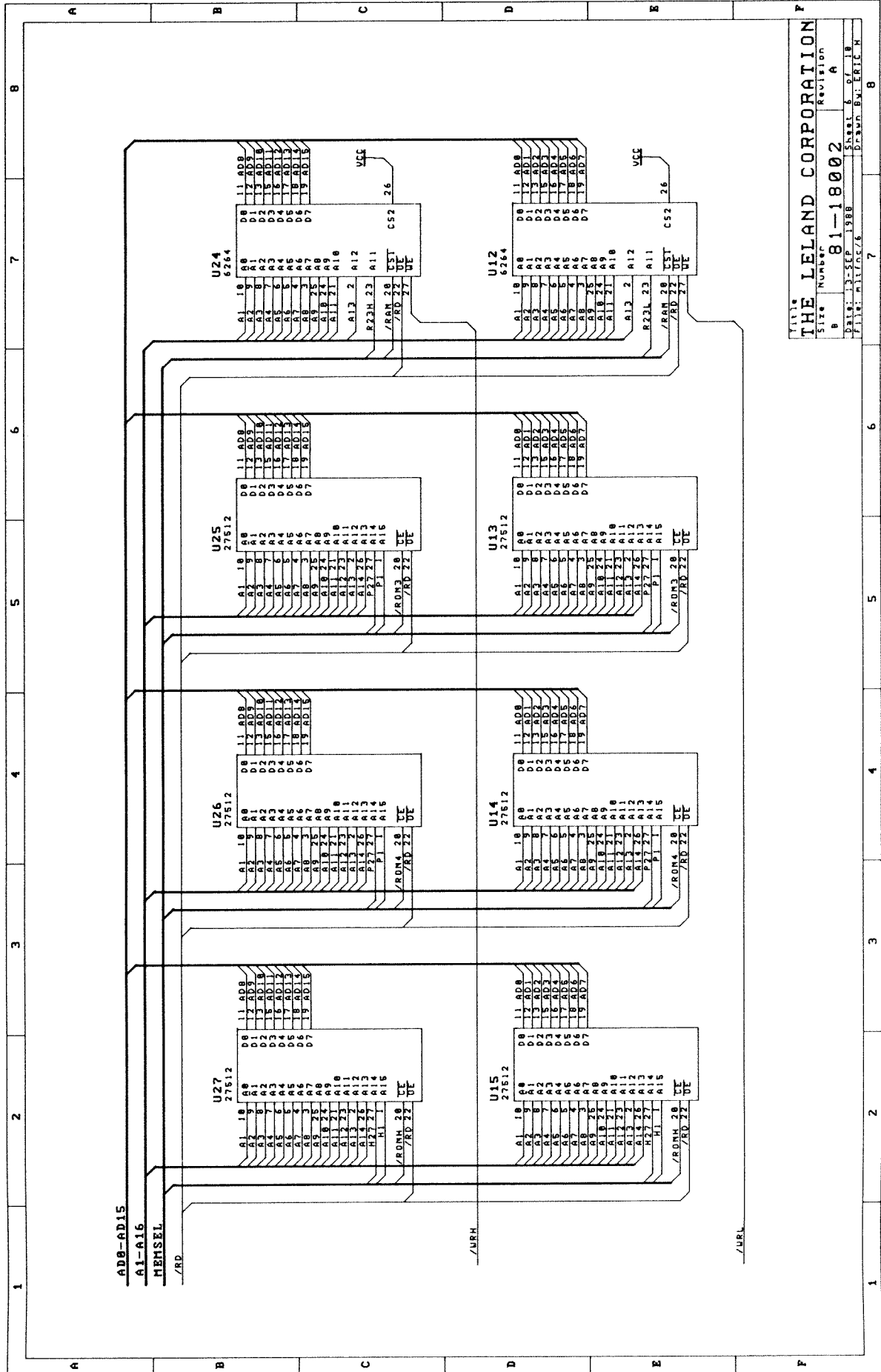


THE LELAND CORPORATION	
Size Number	Revision
81-18002	A
DATE: 13-SEP-1988	SHEET 3 OF 18
FILE: P114673	DESIGN: B.W. ERIC H

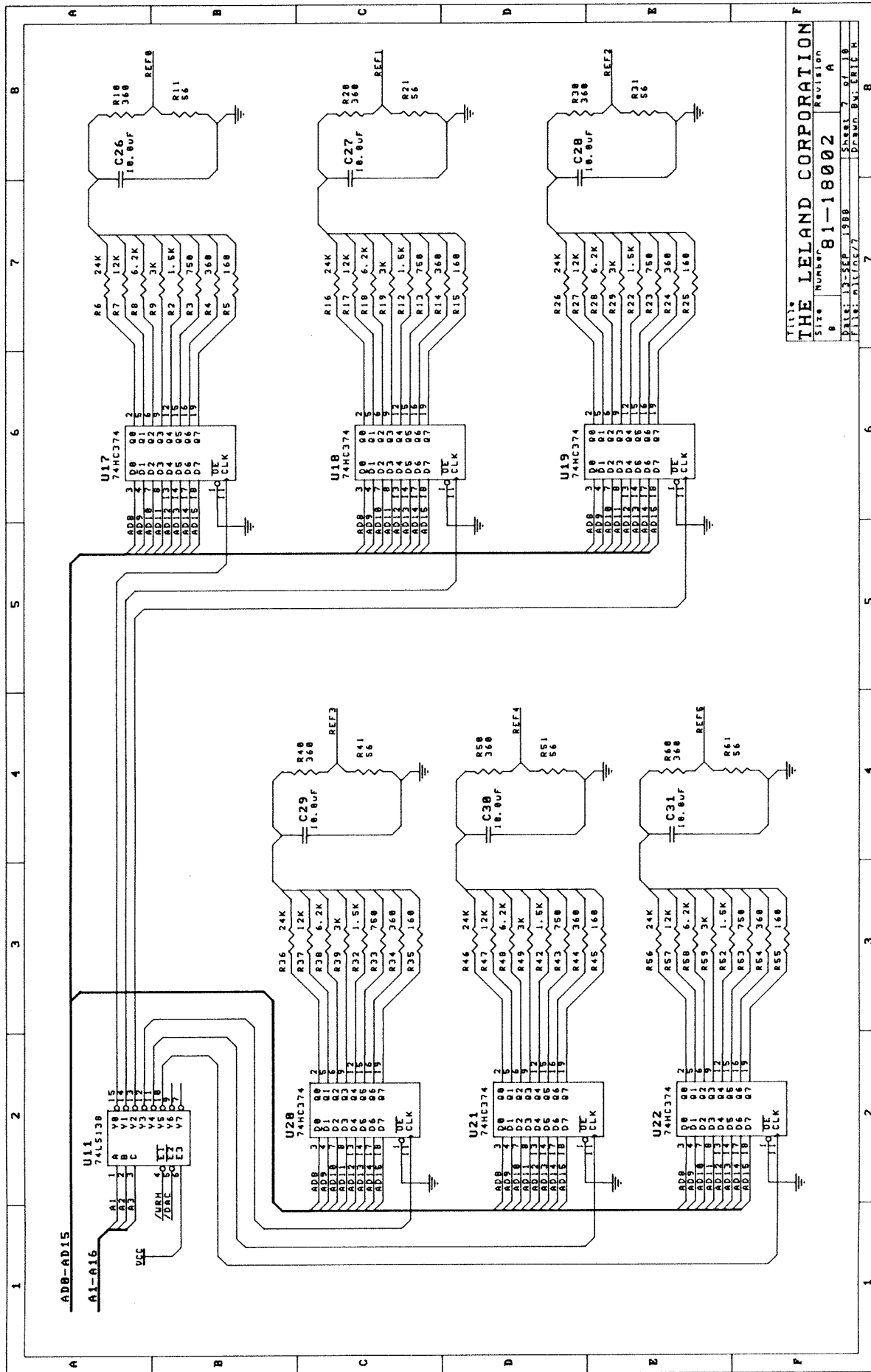


THE LELAND CORPORATION  
 Size Number 81-19002 Revision  
 Date: 8-SEP-1988 Sheet 4 of 10  
 FILE: PAL100/4 DR:RAN PA:GRL:W

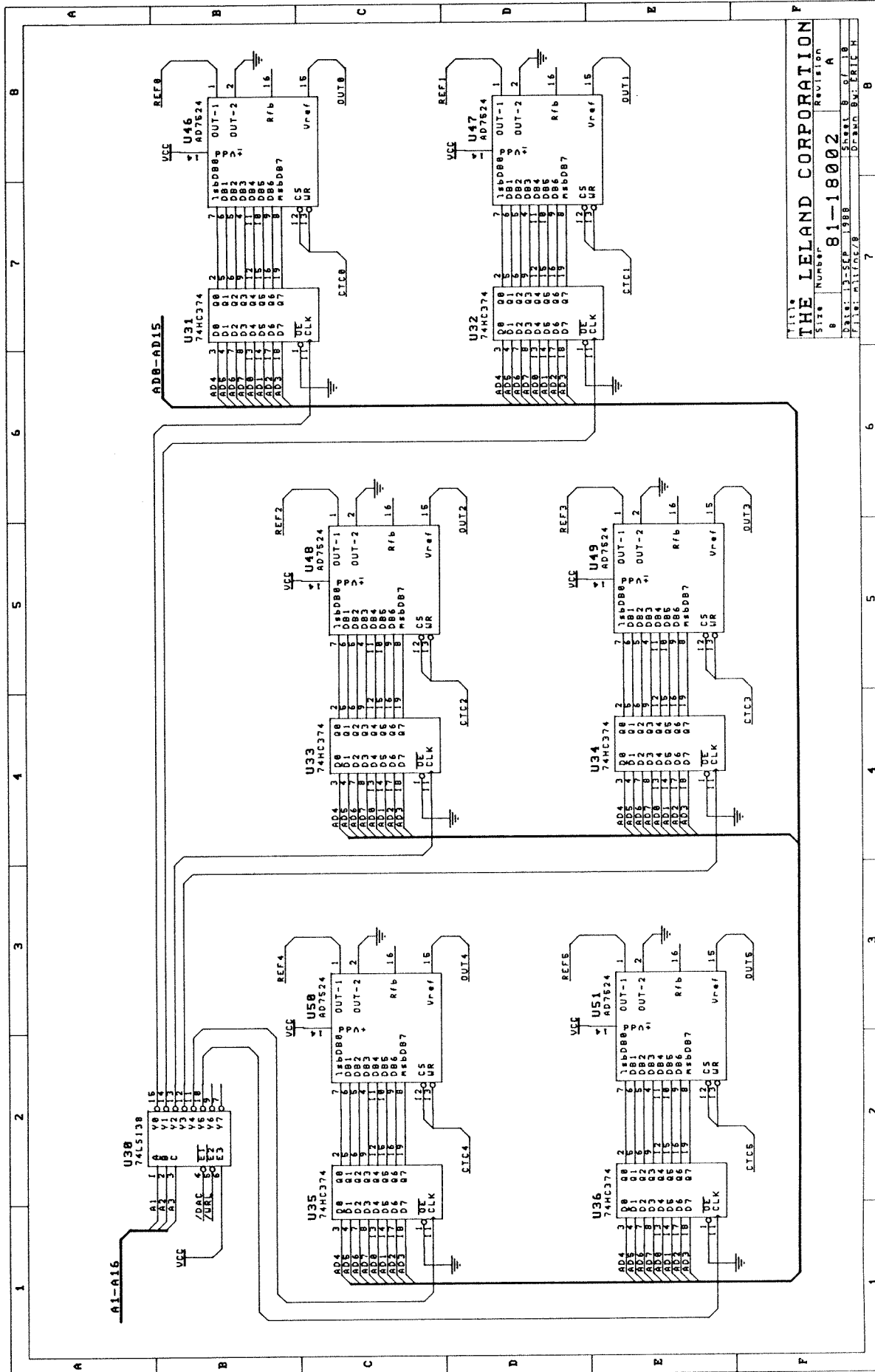




THE LELAND CORPORATION  
 SIZE NUMBER 81-18002  
 REVISION A  
 DATE: 12-26-1988  
 DRAWN BY: EBL:CH

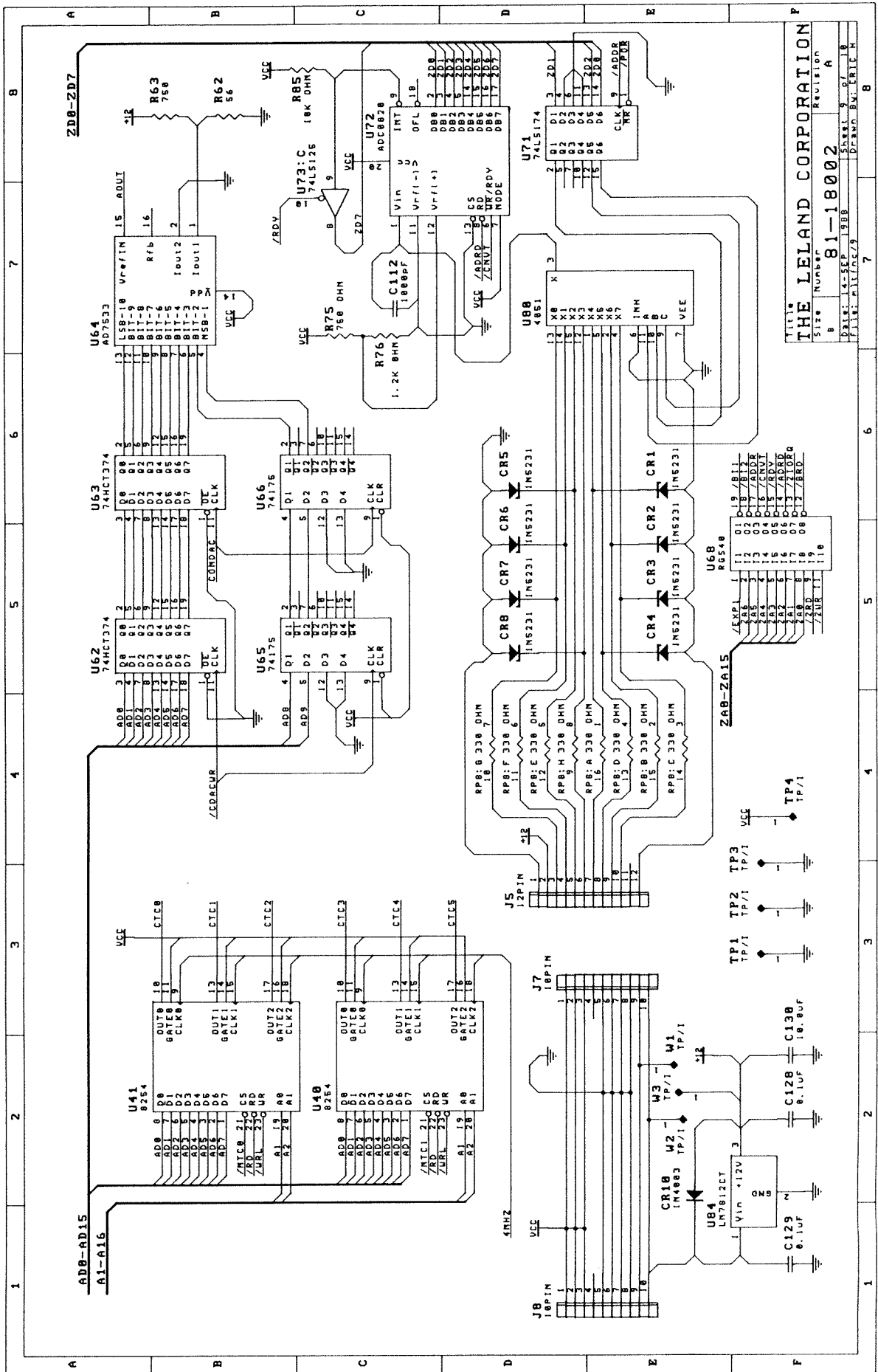


THE LELAND CORPORATION	
Size	Revision
Number	81-1802
Drawn	7/8/88
Checked	8/1/88
Approved	B.V. GRIFFIN

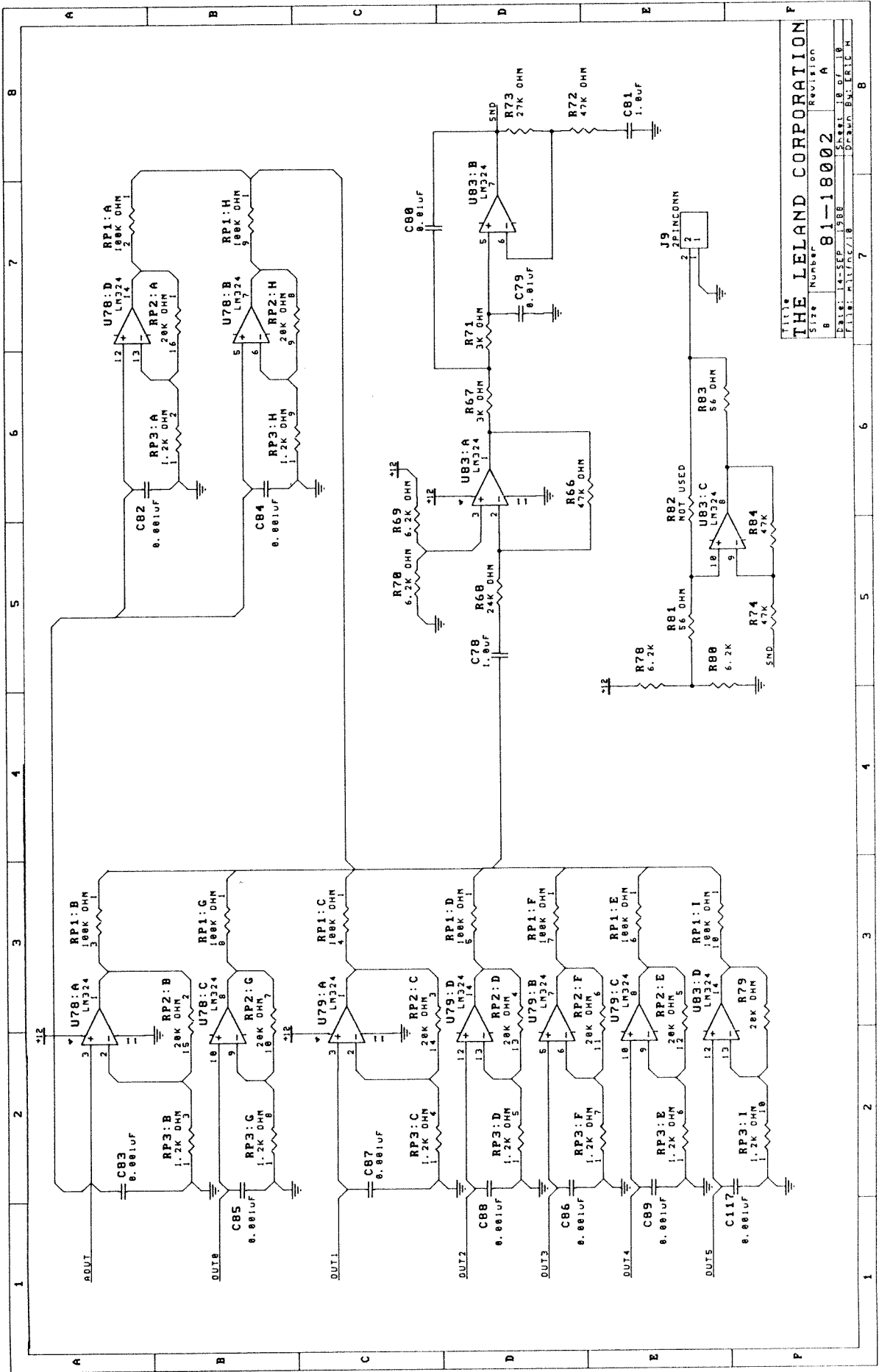


THE LELAND CORPORATION  
 Size Number 81-1802  
 Revision A  
 Date: 3-SEP-1988  
 Sheet 8 of 18  
 File: P1111C28  
 Drawn By: ERIC H

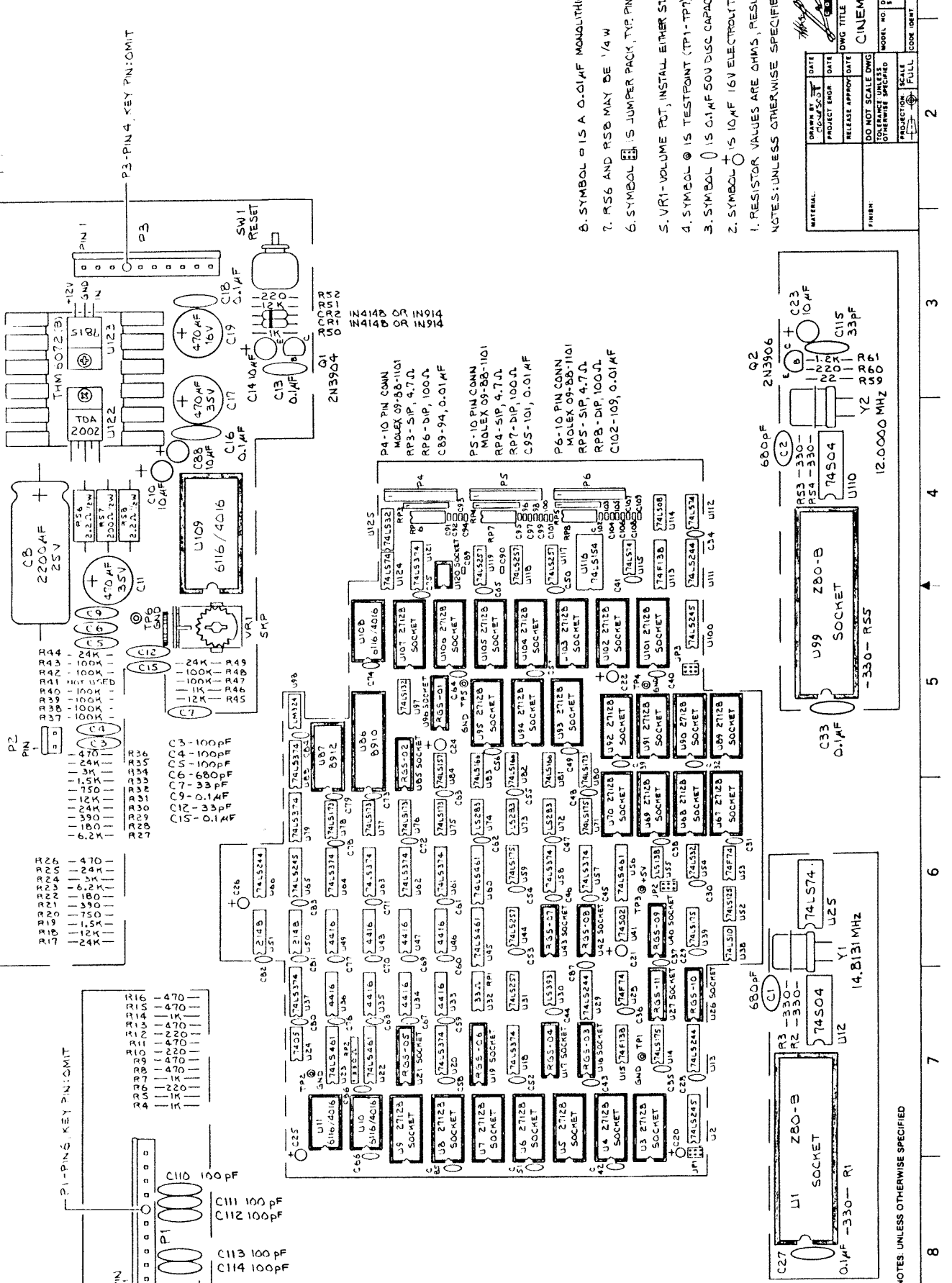




**THE LELAND CORPORATION**  
 FILE NO. 81-18002  
 SIZE NUMBER REVISION  
 DATE: 4-7-80  
 DRAWN: B.N. ERIC H.  
 CHECKED: S. J. 18  
 APPROVED: B. 8



THE LELAND CORPORATION	
Size Number	81-18002
Revision	A
Drawn	14-SEP-1958
Checked	WILLIAMS/18
Released	W. G. L. H.



NOTES: UNLESS OTHERWISE SPECIFIED

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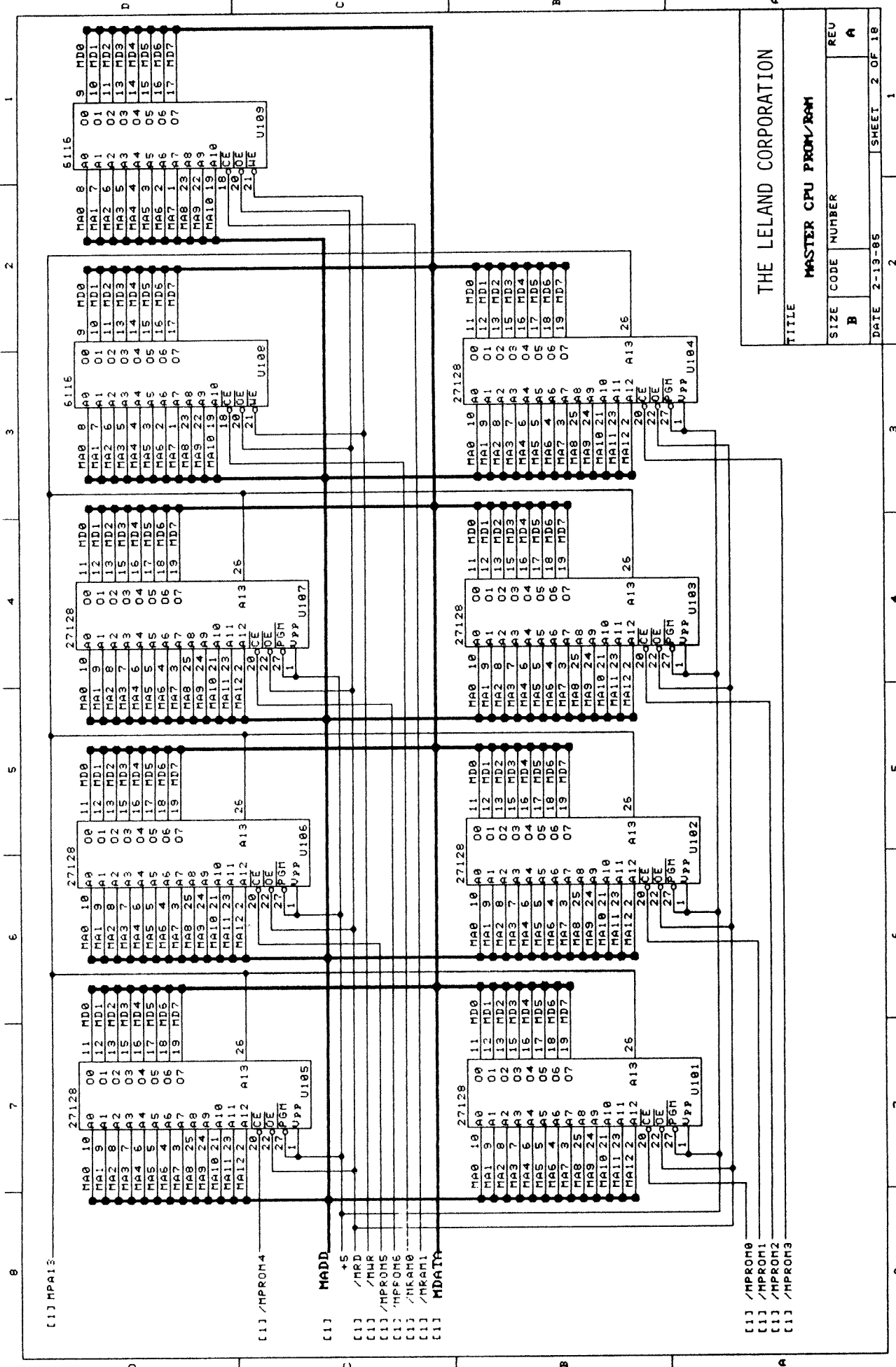
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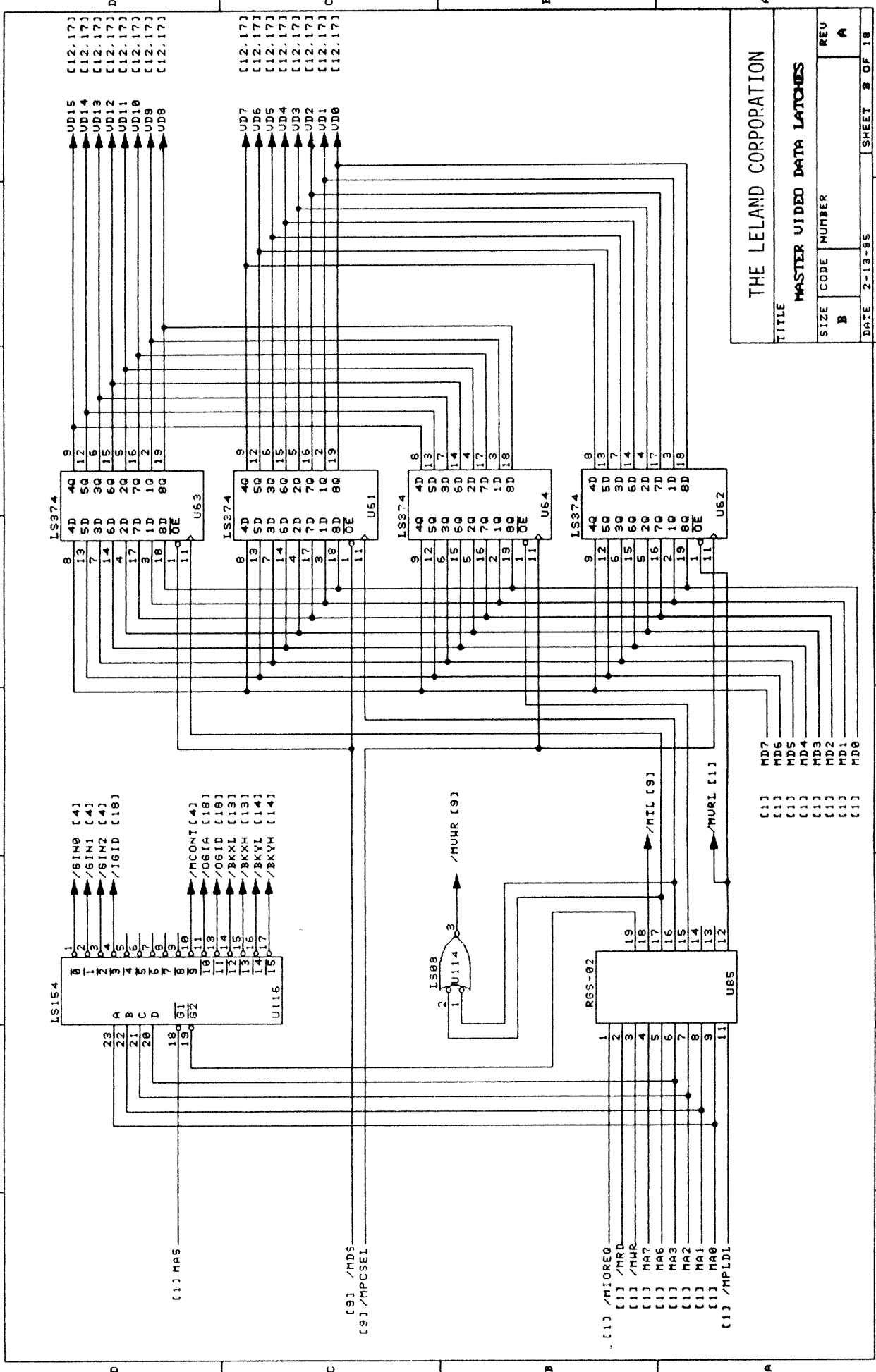


THE LELAND CORPORATION

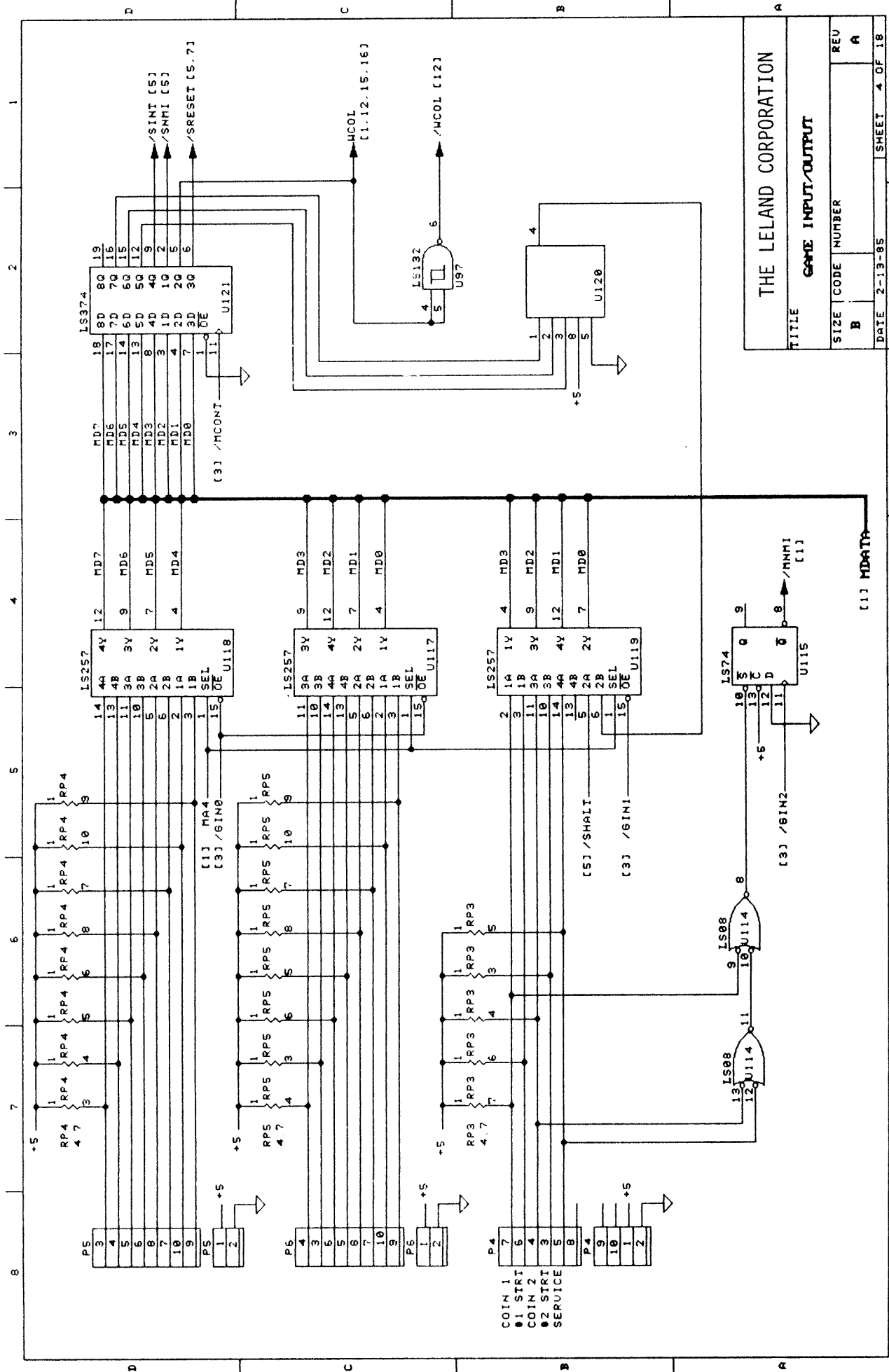
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SIZE **B** CODE NUMBER  
 REV **A**

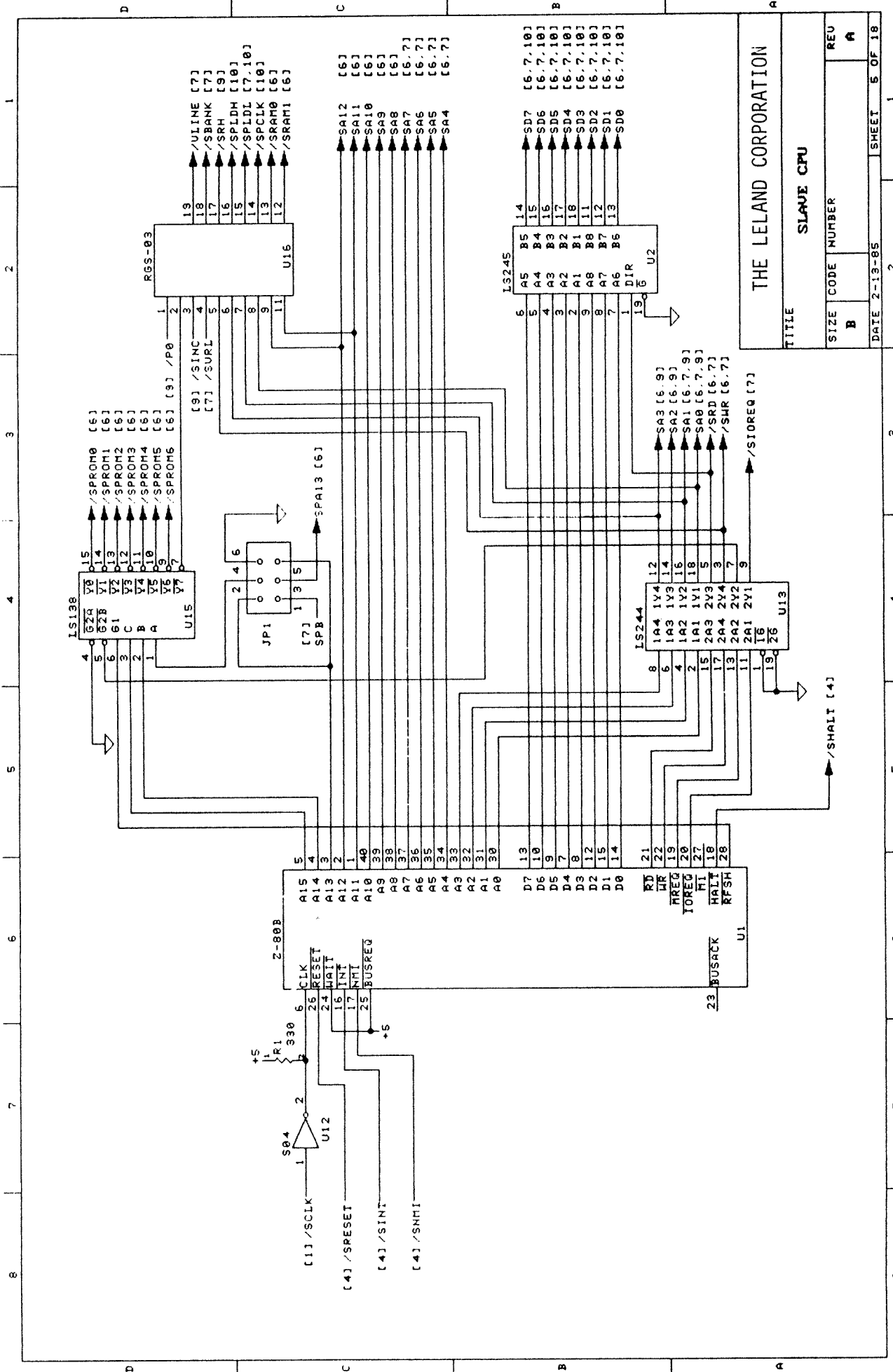
DATE 2-13-85 SHEET 2 OF 18



THE LELAND CORPORATION  
 TITLE  
 MASTER VIDEO DATA LATCHES  
 SIZE CODE NUMBER  
 B A  
 REU  
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 DATE 2-13-85 SHEET 8 OF 18

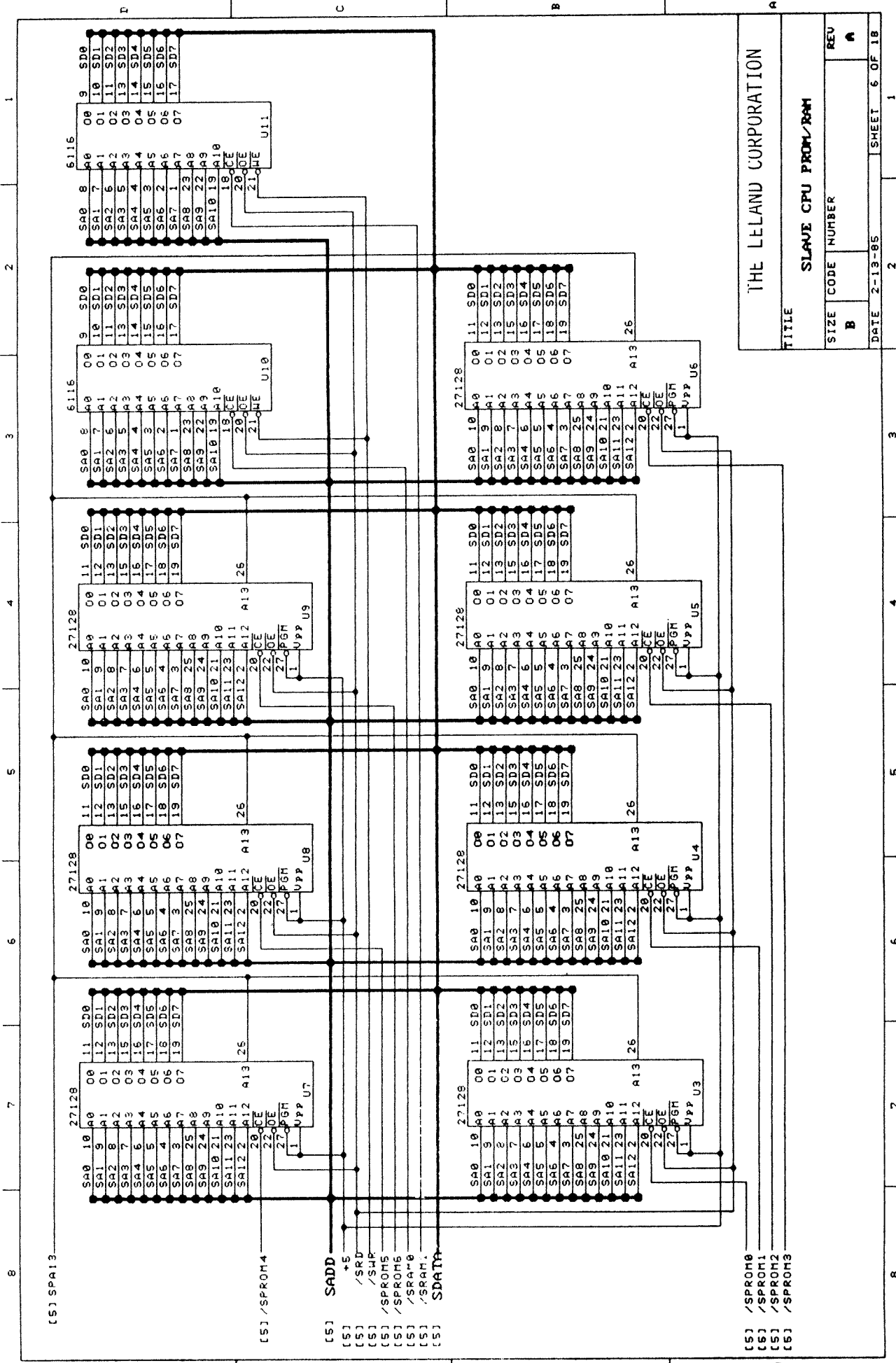


THE LELAND CORPORATION			
TITLE GAME INPUT/OUTPUT			
SIZE	CODE	NUMBER	REV
B			A
DATE	2-13-85	SHEET	4 OF 18



THE LELAND CORPORATION	
TITLE	
SLAVE CPU	
SIZE	CODE NUMBER
B	A
DATE	SHEET
2-13-85	5 OF 18





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[5] /SPROM4

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THE LELAND CORPORATION

TITLE

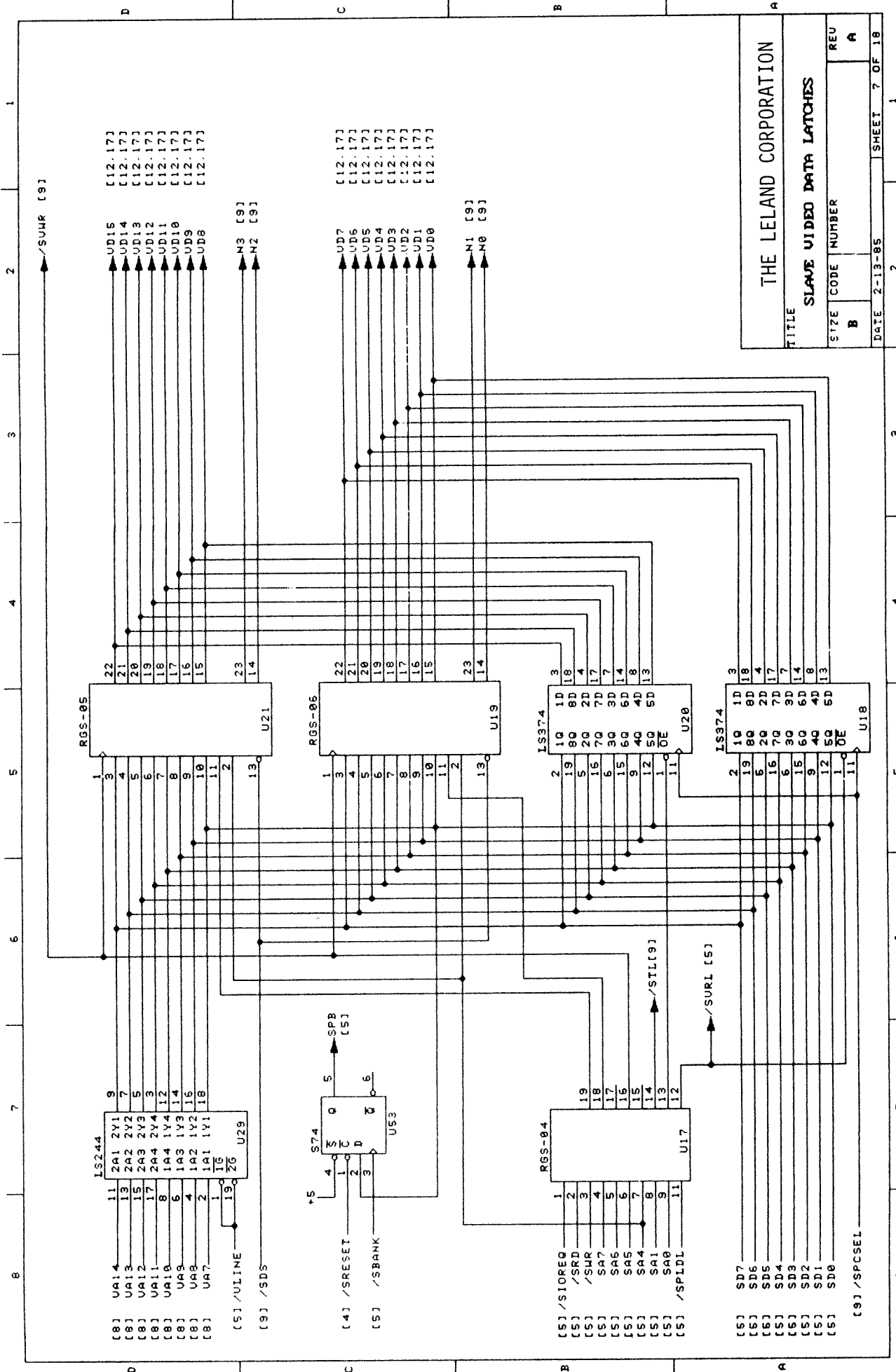
SLAVE CPU PROM/RAM

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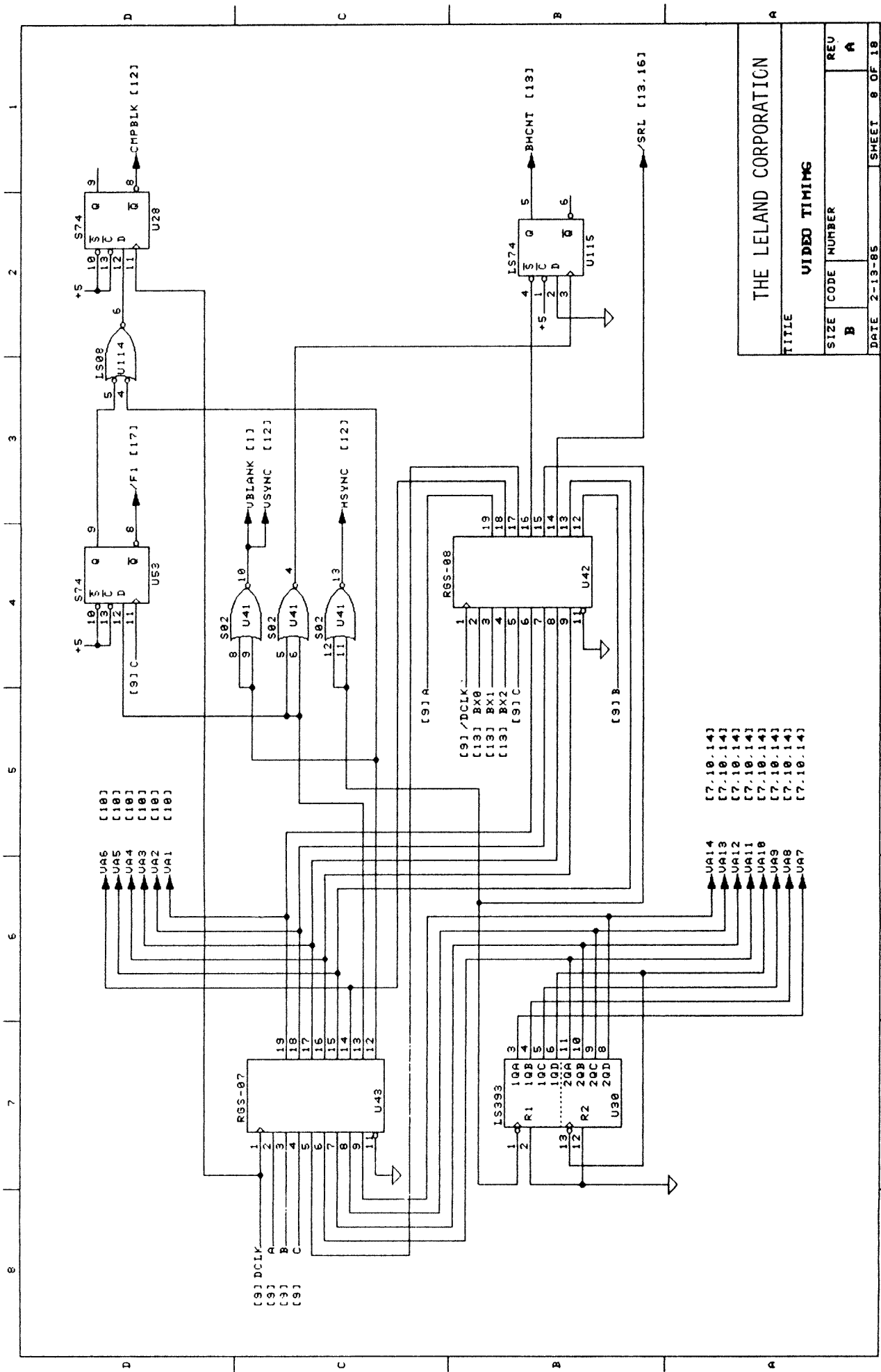
B

REV A

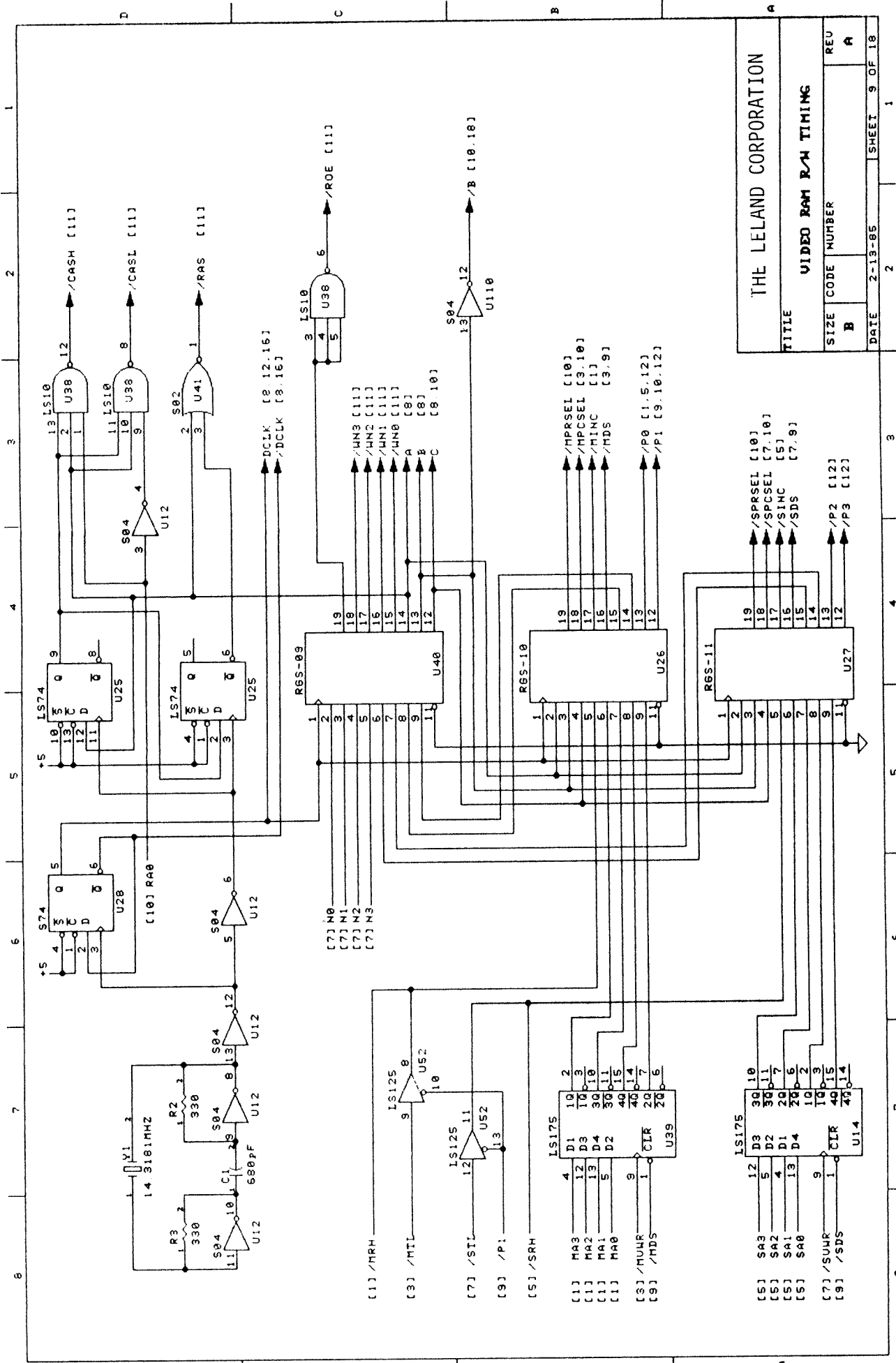
DATE 2-13-85 SHEET 6 OF 18



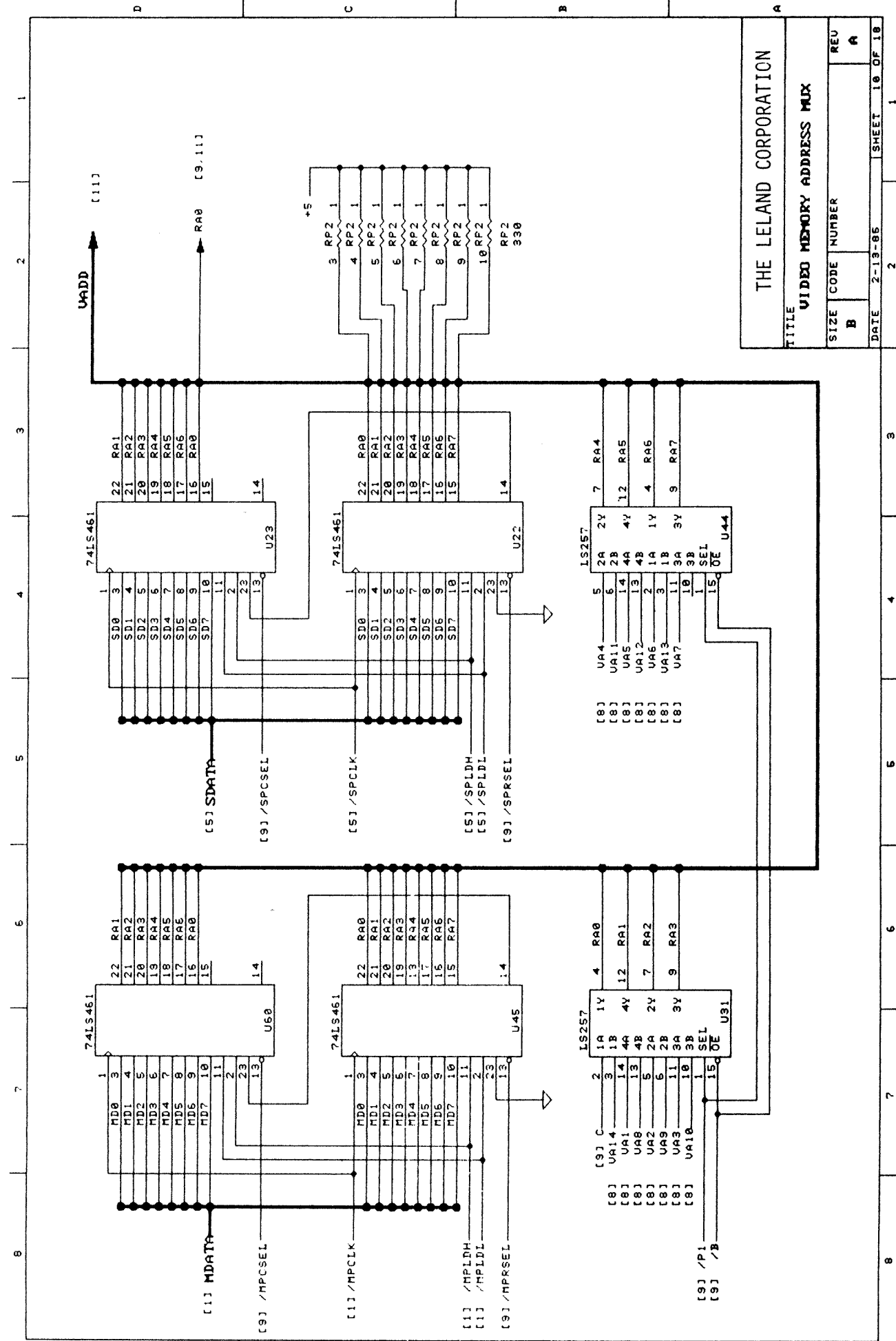
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TITLE SLAVE VIDEO DATA LATCHES	
SIZE B	REV A
DATE 2-13-85	SHEET 7 OF 18



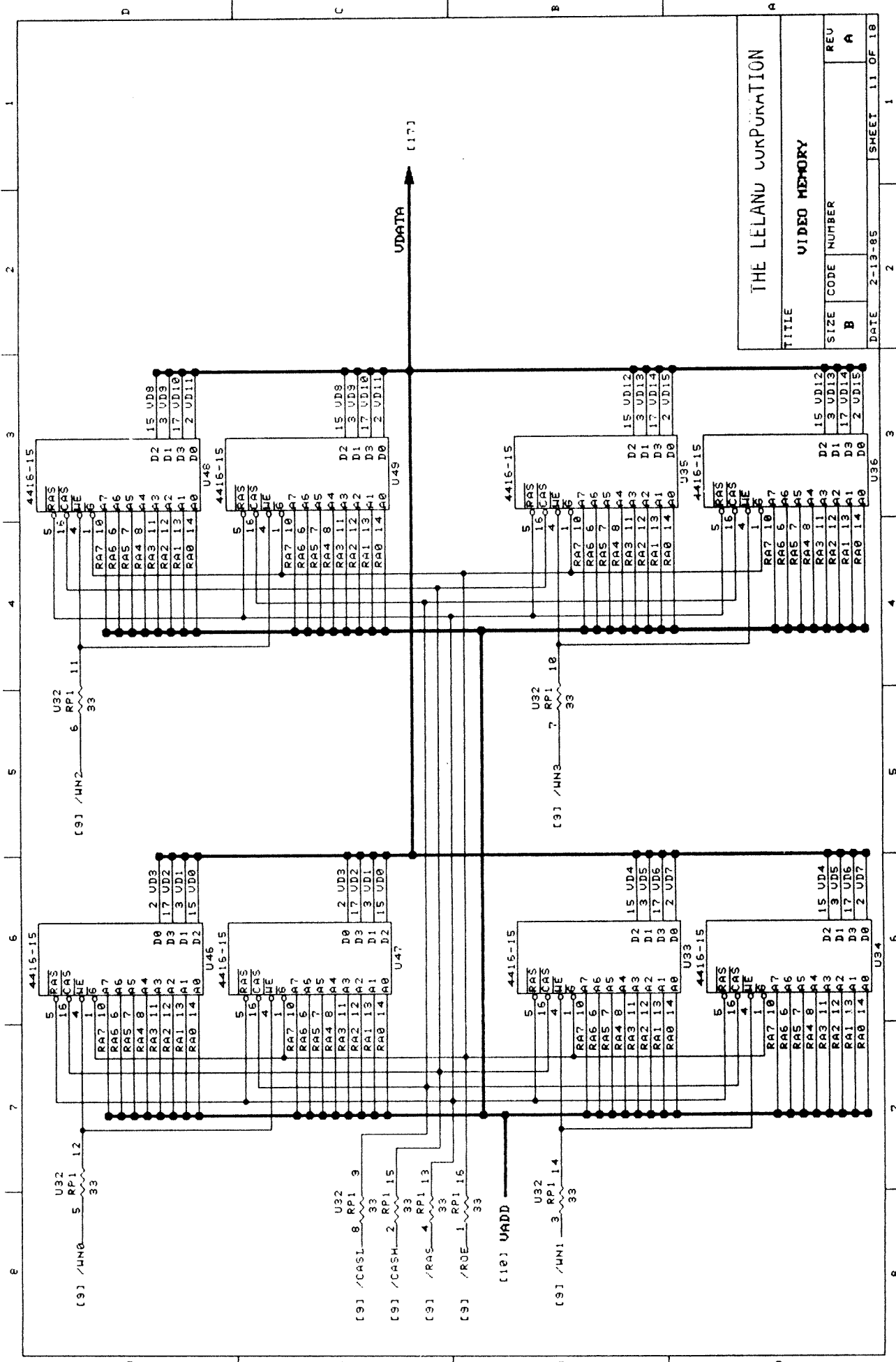
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SIZE B	CODE NUMBER REV A
DATE 2-13-85	SHEET 8 OF 18



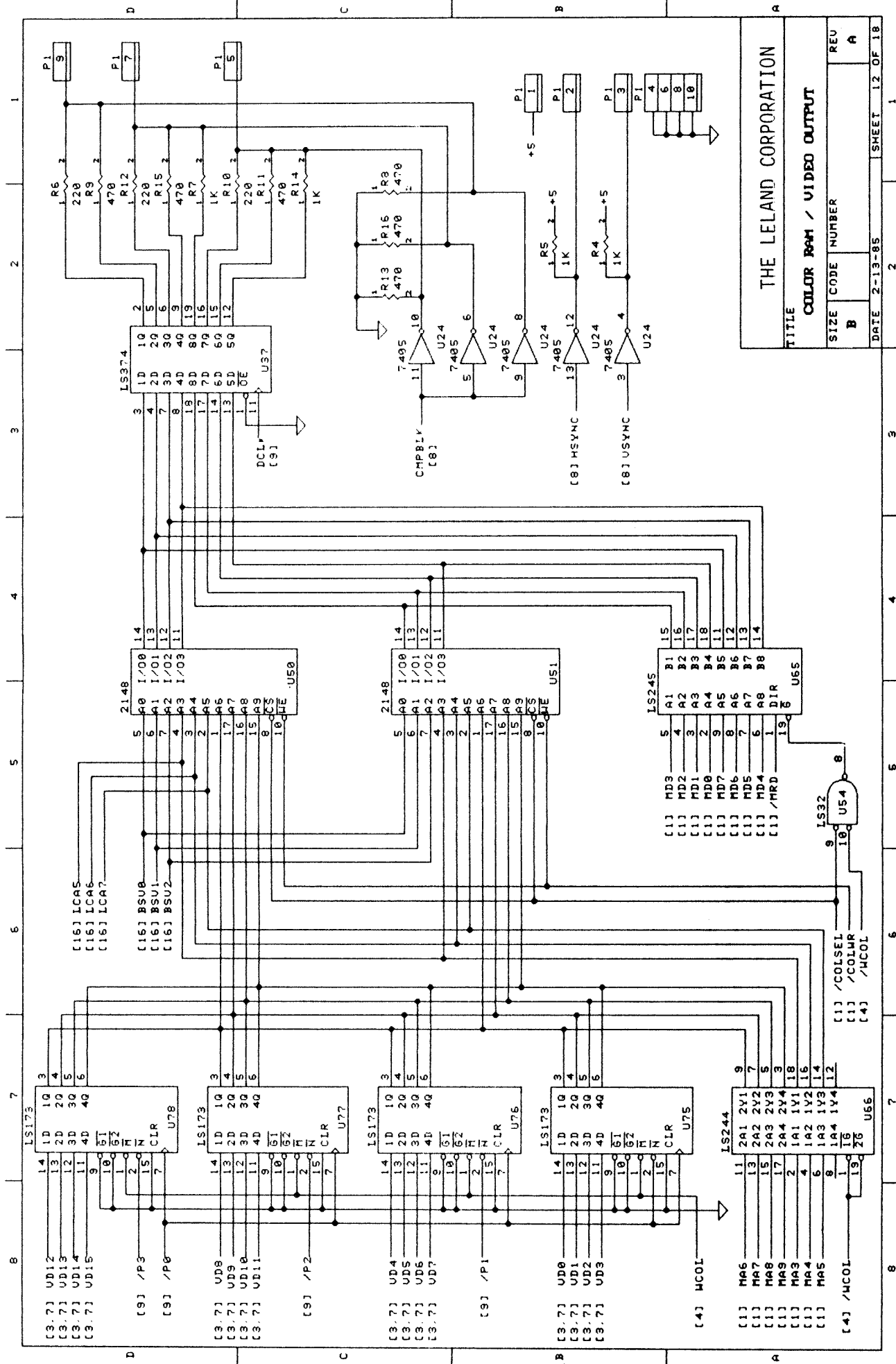
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B	A
DATE	SHEET
2-13-85	9 OF 18

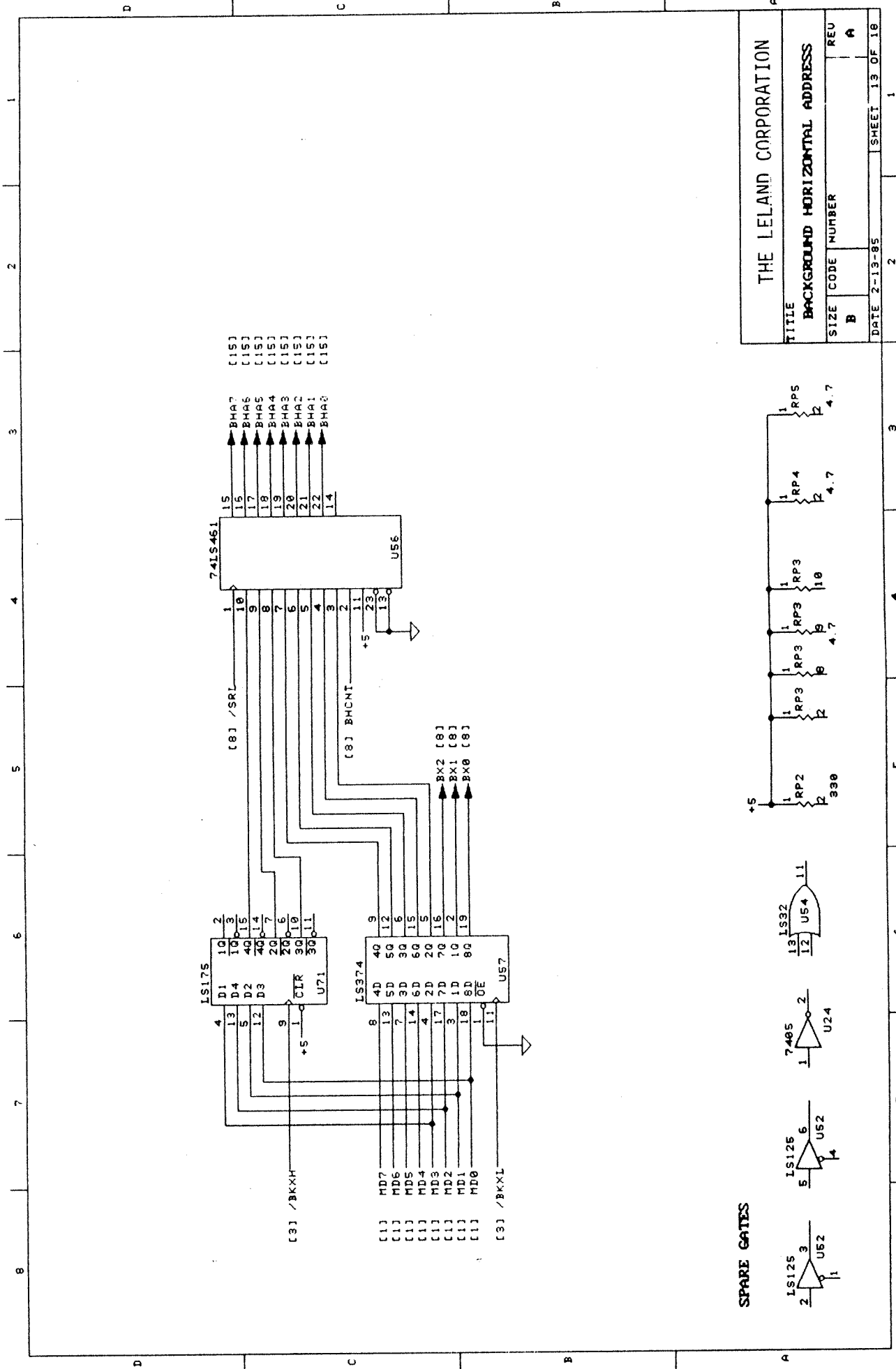


THE LELAND CORPORATION  
 VIDEO MEMORY ADDRESS MUX  
 TITLE  
 SIZE CODE NUMBER  
 B  
 REV A  
 DATE 2-19-85 SHEET 10 OF 18



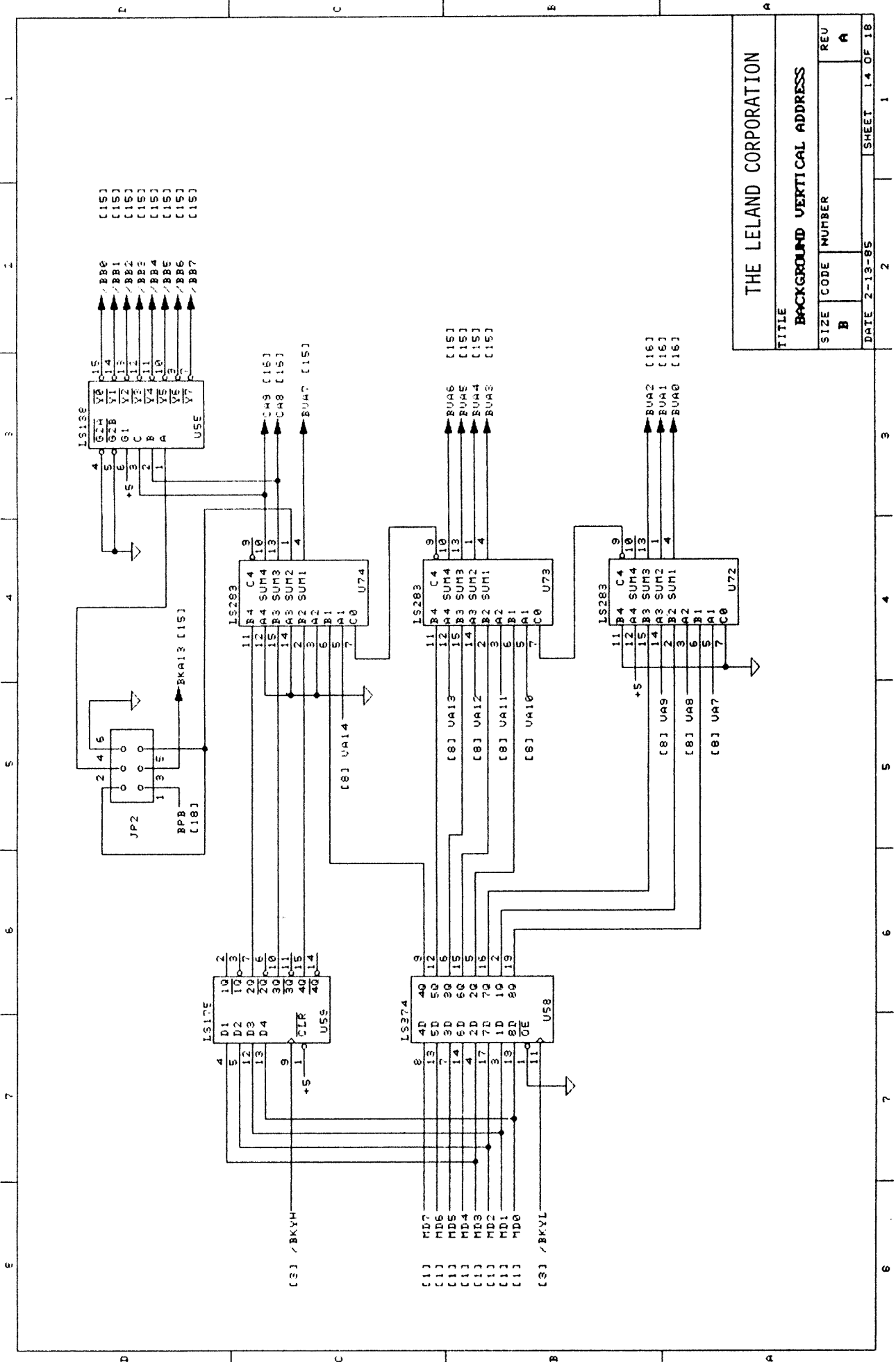
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VIDEO MEMORY	
SIZE	CODE NUMBER
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DATE	2-13-85
SHEET	11 OF 18



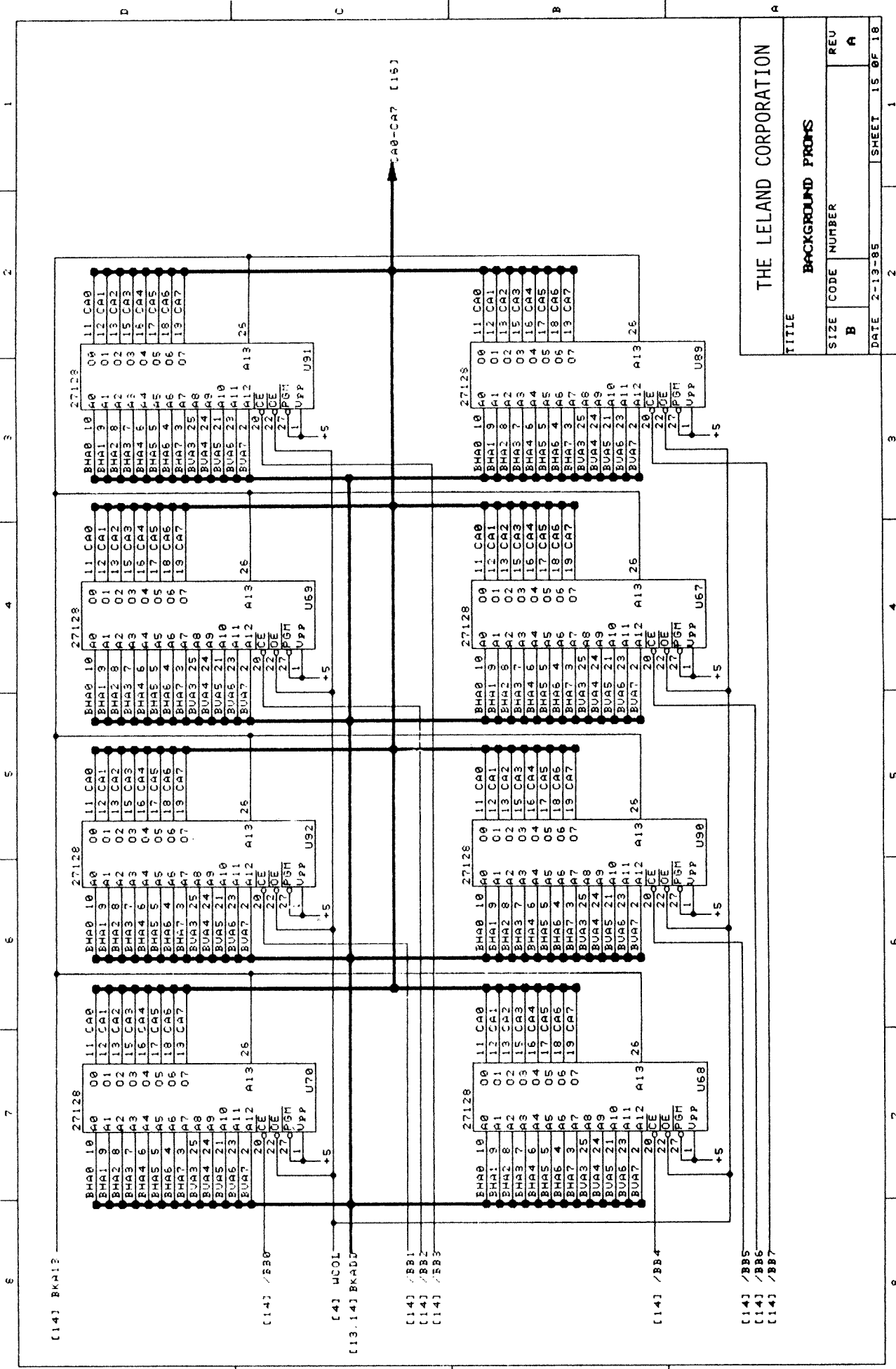


THE LELAND CORPORATION	
TITLE	BACKGROUND HORIZONTAL ADDRESS
SIZE	CODE NUMBER
B	A
REV	REV
DATE 2-19-85	SHEET 13 OF 18





THE LELAND CORPORATION	
TITLE	
BACKGROUND VERTICAL ADDRESS	
SIZE	REV
B	A
DATE 2-13-85	SHEET 14 OF 18



[14] BK412

[14] /BB0

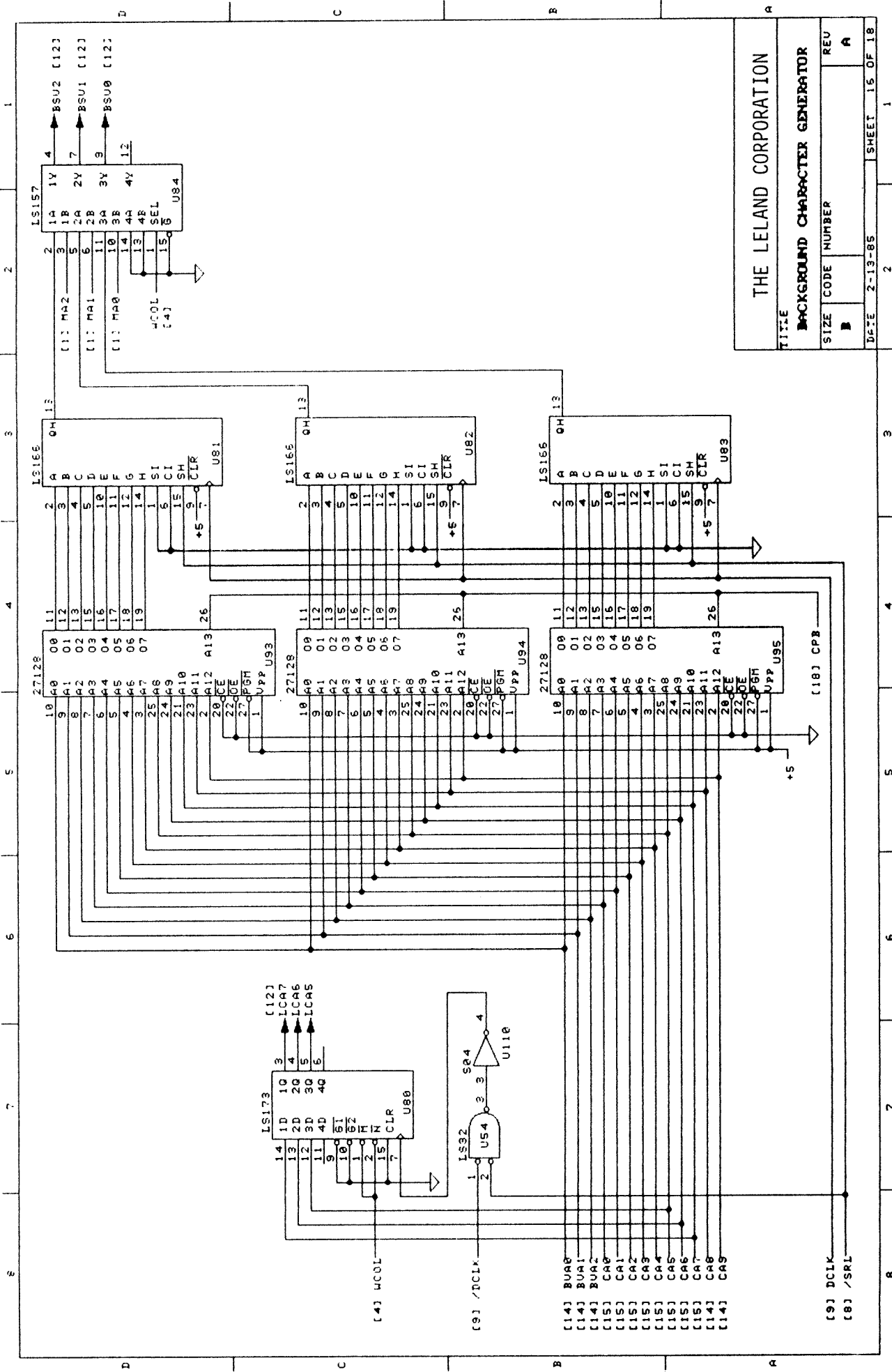
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[13,14] BK400

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[14] /BB2  
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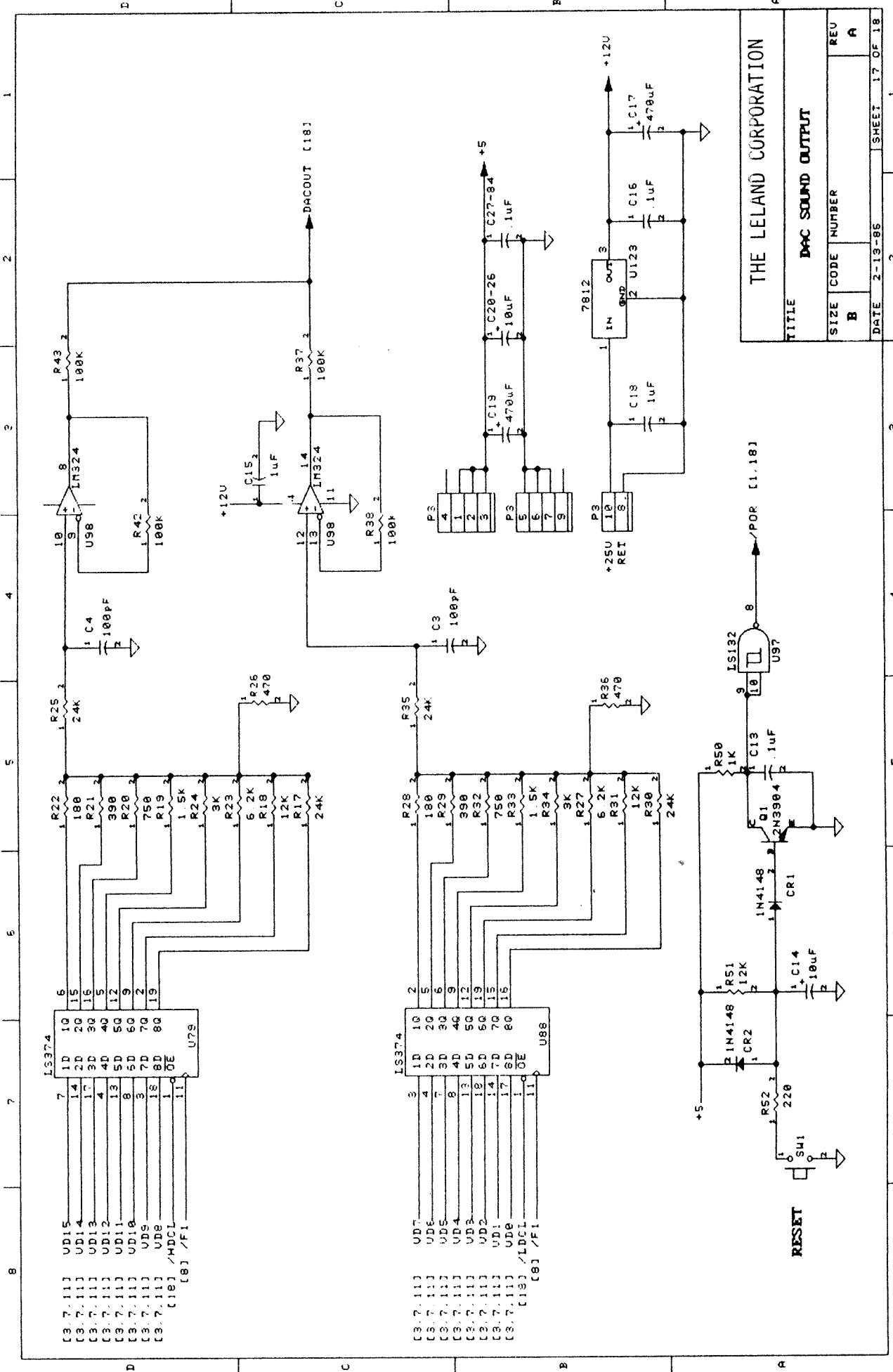
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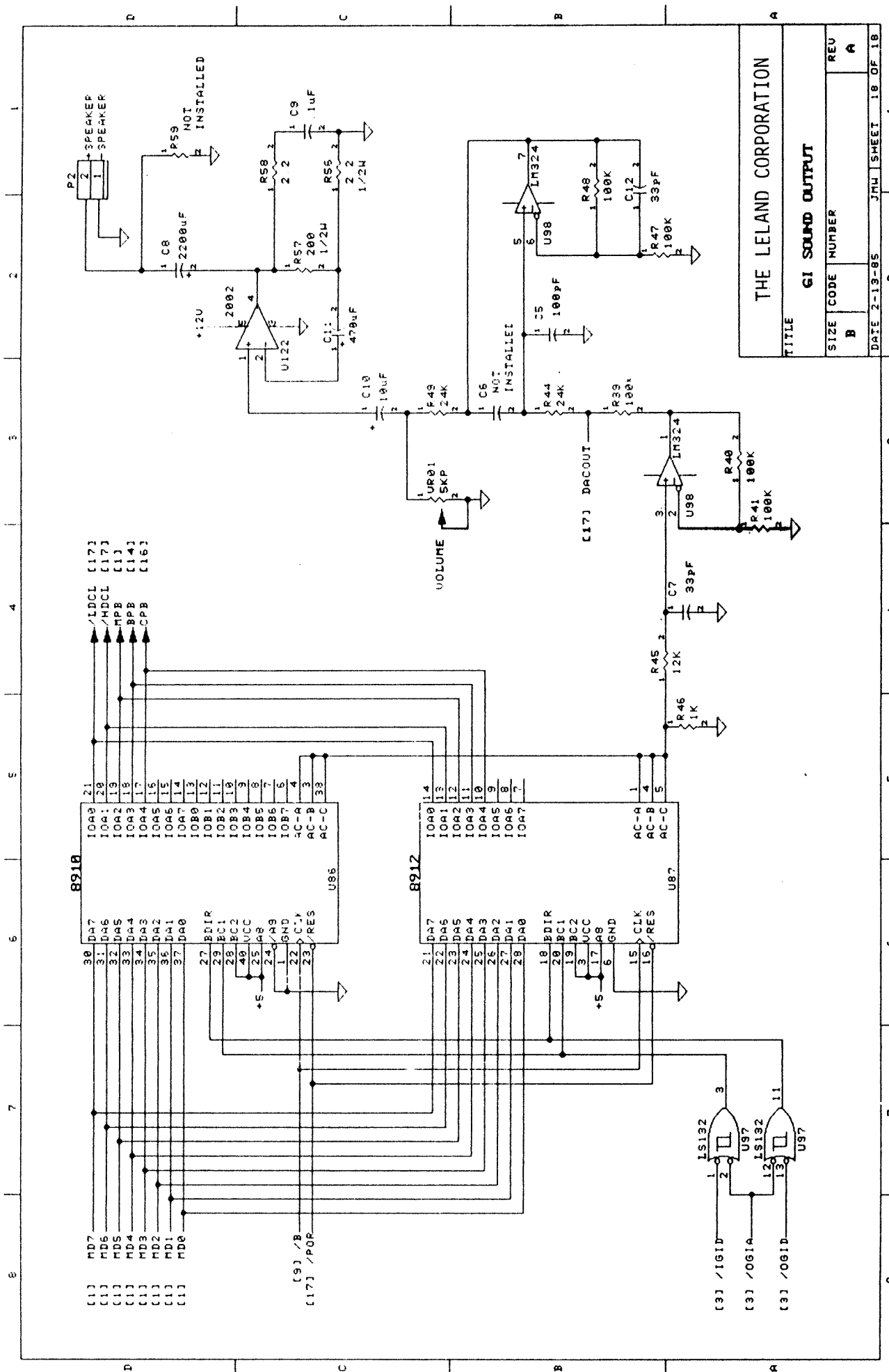
THE LELAND CORPORATION	
TITLE	
BACKGROUND PROHS	REV
SIZE	B
CODE	NUMBER
DATE	2-13-85
SHEET	15 OF 18



THE LELAND CORPORATION	
TITLE BACKGROUND CHARACTER GENERATOR	
SIZE B	CODE NUMBER A
REV A	
DATE 2-13-65	SHEET 16 OF 18

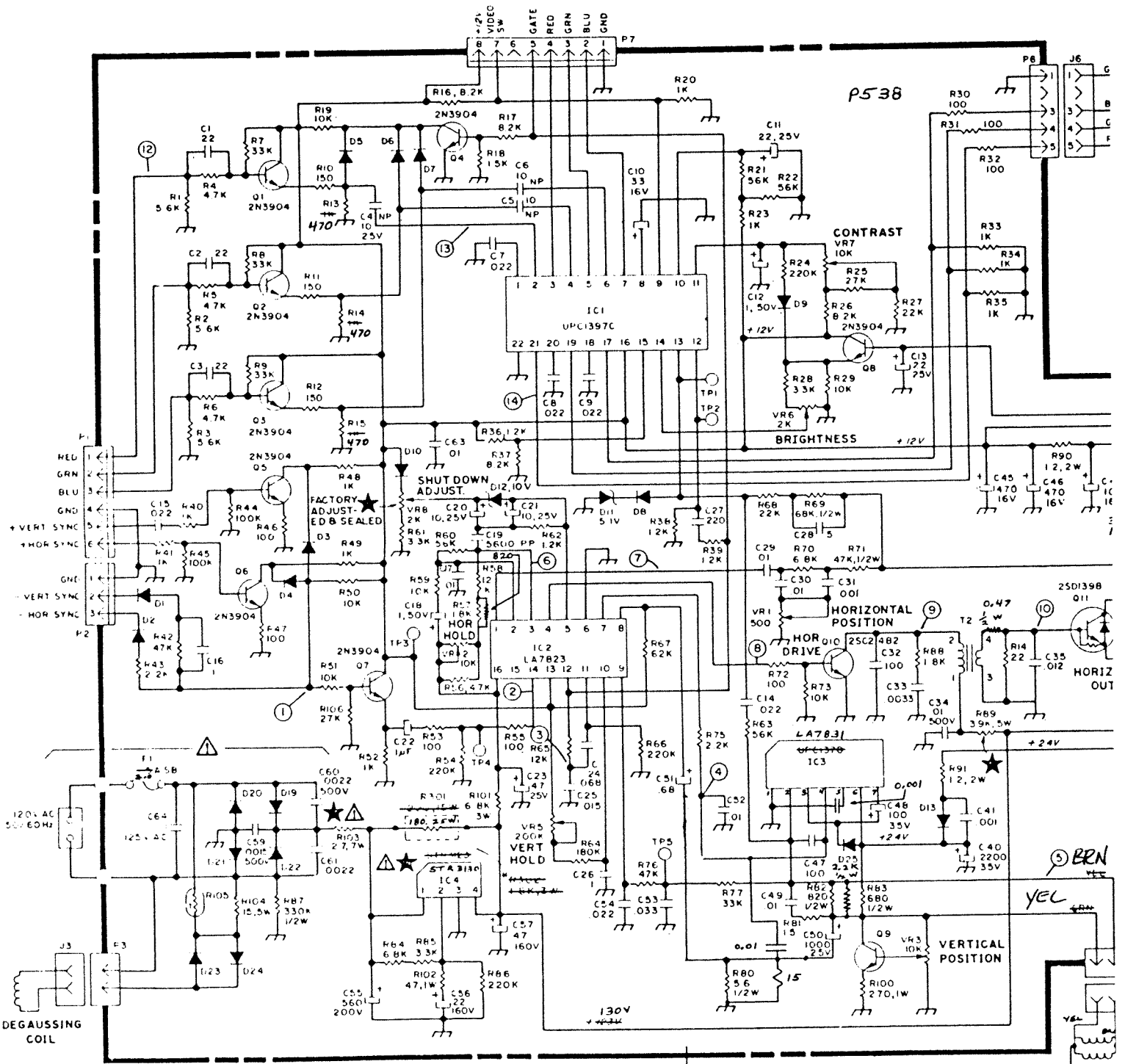


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SIZE	CODE	NUMBER	REV
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DATE		SHEET	
2-13-85		17 OF 18	

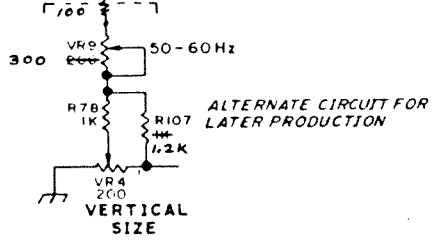


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SIZE	CODE	NUMBER	REV
B			A
DATE 2-19-85		JMH	SHEET 18 OF 18

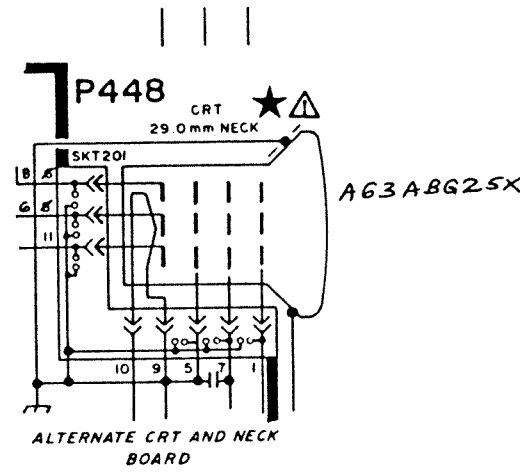
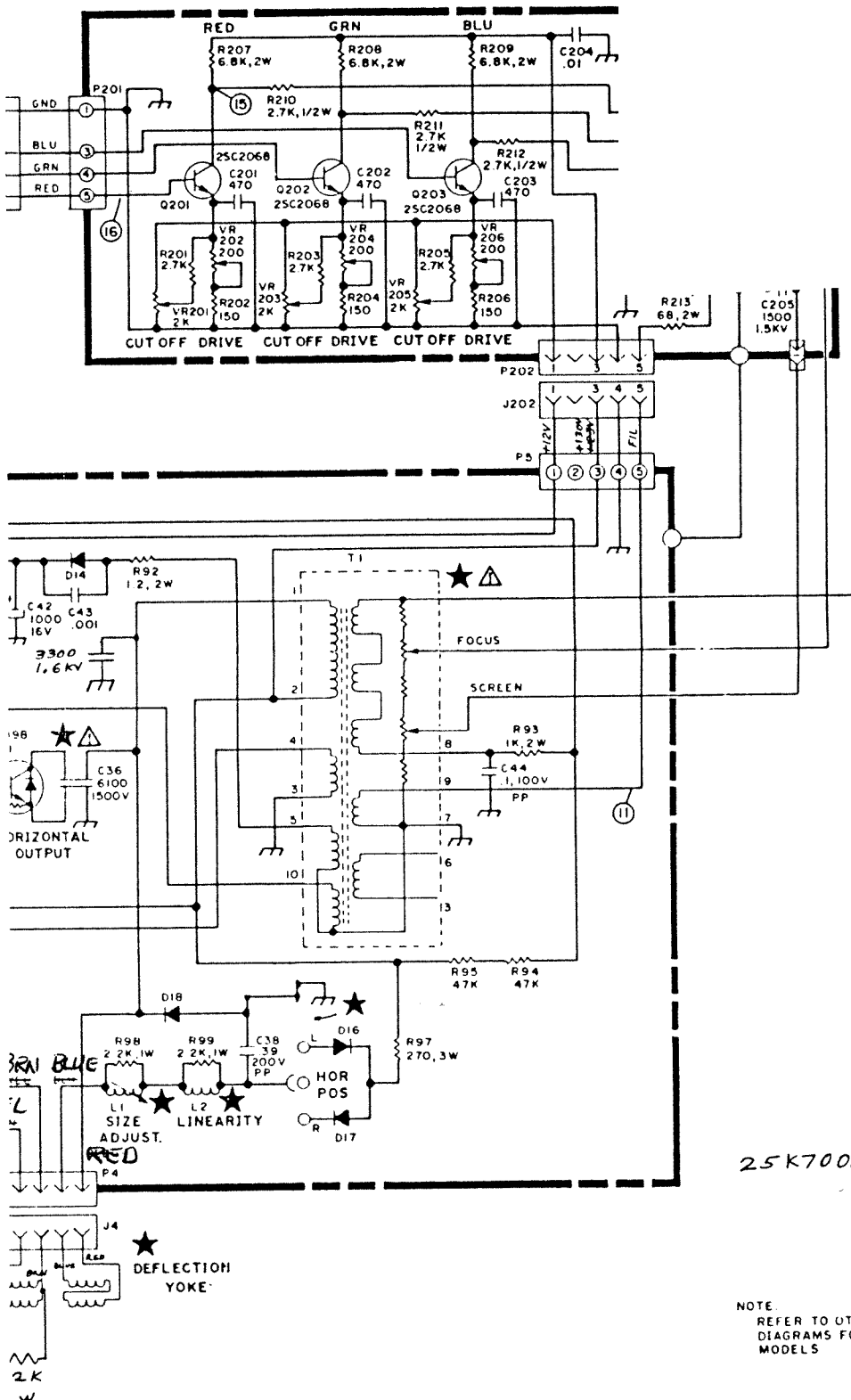
# K7000 COLOR MONITOR SCHEMATIC DIAGRAM



\*R302 IS PRESENT ONLY ON 19K7600 AND 19K7900 SERIES MONITORS



BRN  
YEL



- NOTES:
- 1 ALL RESISTORS ARE IN OHMS, 1/4W, 5% UNLESS OTHERWISE INDICATED.
  - 2 CAPACITANCE VALUES LESS THAN 1 ARE IN MICROFARADS. ABOVE 1 IN PICOFARADS UNLESS OTHERWISE INDICATED.
  - 3 CIRCLED NUMBERS INDICATE LOCATIONS OF CERTAIN WAVEFORM READINGS.

⚠ CAUTION SAFETY CRITICAL COMPONENT.  
 ★ X-RAY RADIATION RELATED COMPONENT.  
 REPLACE ONLY WITH SAME TYPE PARTS AS SHOWN IN PARTS LIST.

25K7000

LELAND  
 3-7-88

NOTE:  
 REFER TO OTHER SCHEMATIC DIAGRAMS FOR CERTAIN UNIQUE MODELS

*The Leland*  
CORPORATION

1841 Friendship Dr., El Cajon, CA 92020-9981  
619-562-7000 Telex - 4974293 Cintron Fax - 619-562-9468