



Understanding The  
**CHUCK E CHEESE**  
And  
**3-STAGE**  
Shows

Understanding

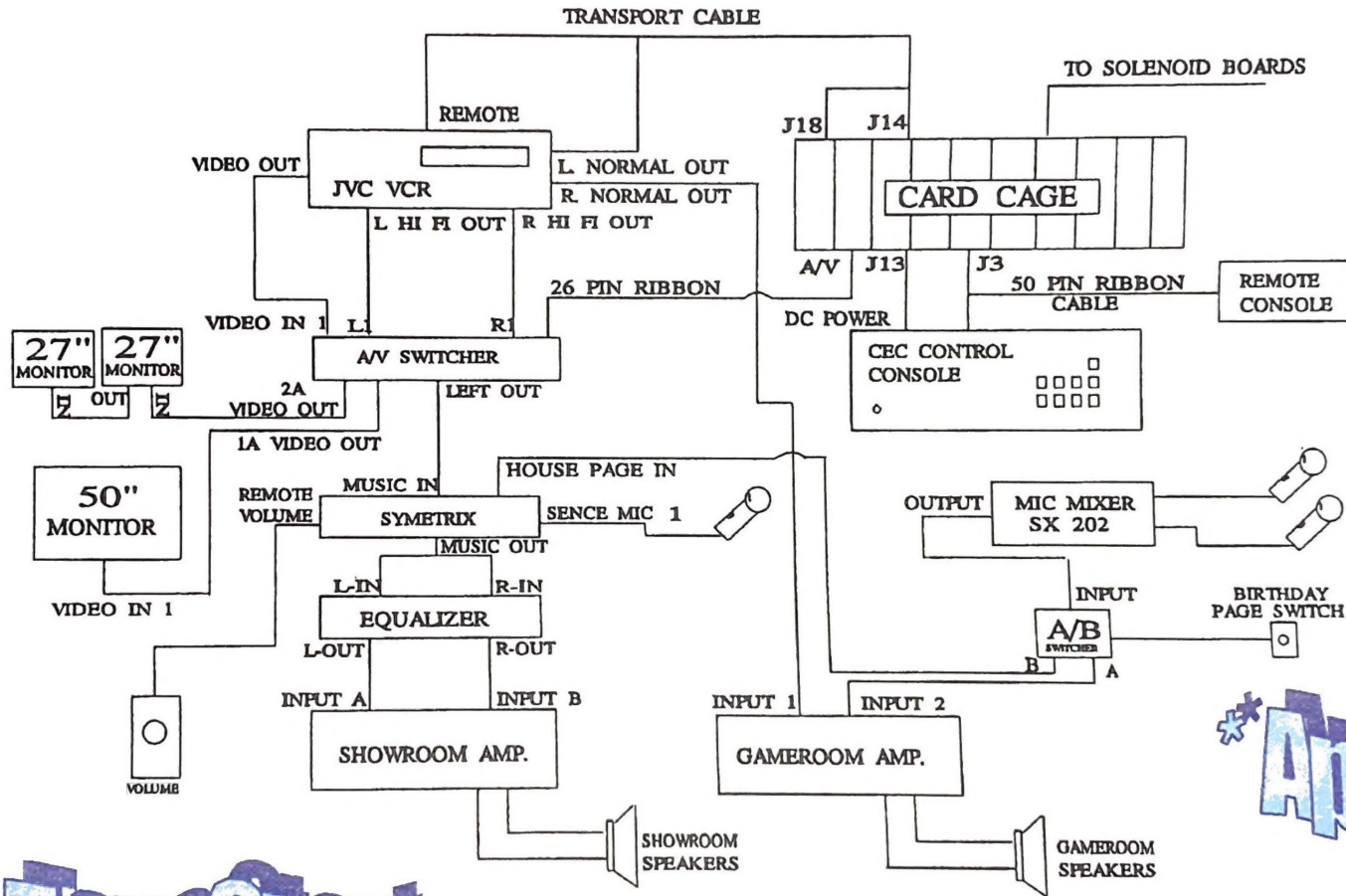
The

**Chuck E Cheese**

**Show**

# Data CEC SHOW LAYOUT

CEC ELECTRONICS



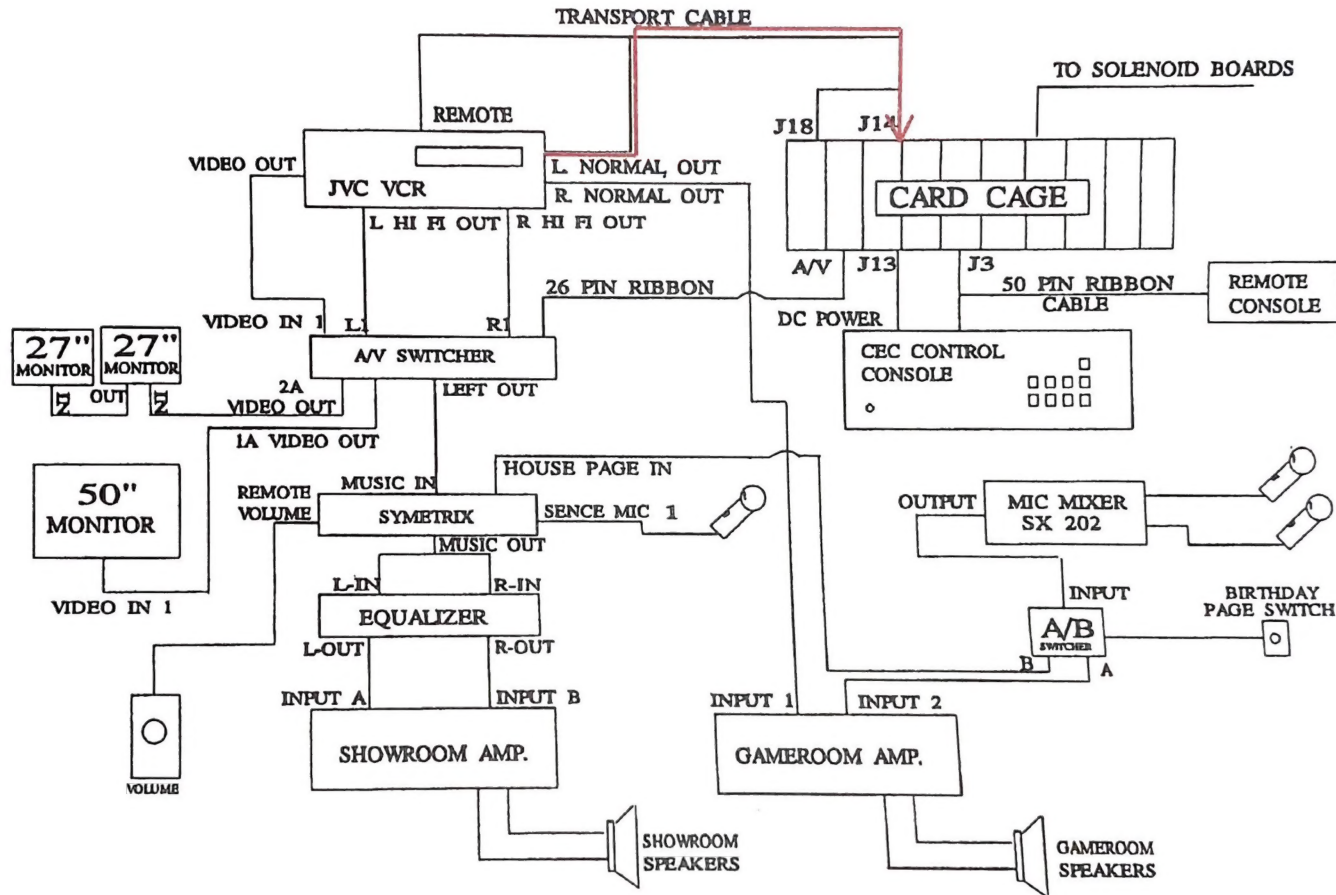
**Tape Start**

**Ape Start**

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DRAWING 7-1

# CEC SHOW LAYOUT

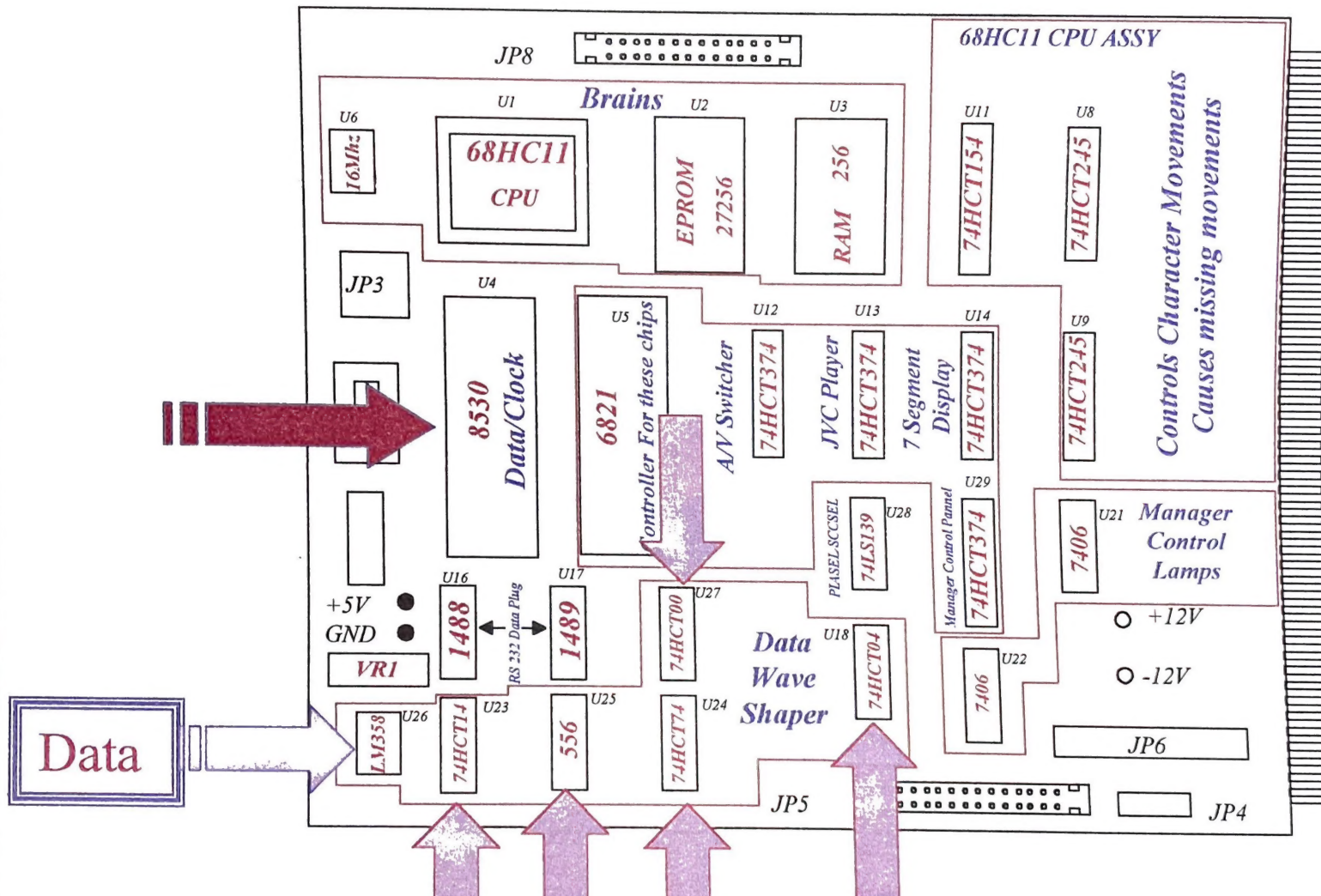


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*Controls Character Movements  
Causes missing movements*

*Manager Control Lamps*

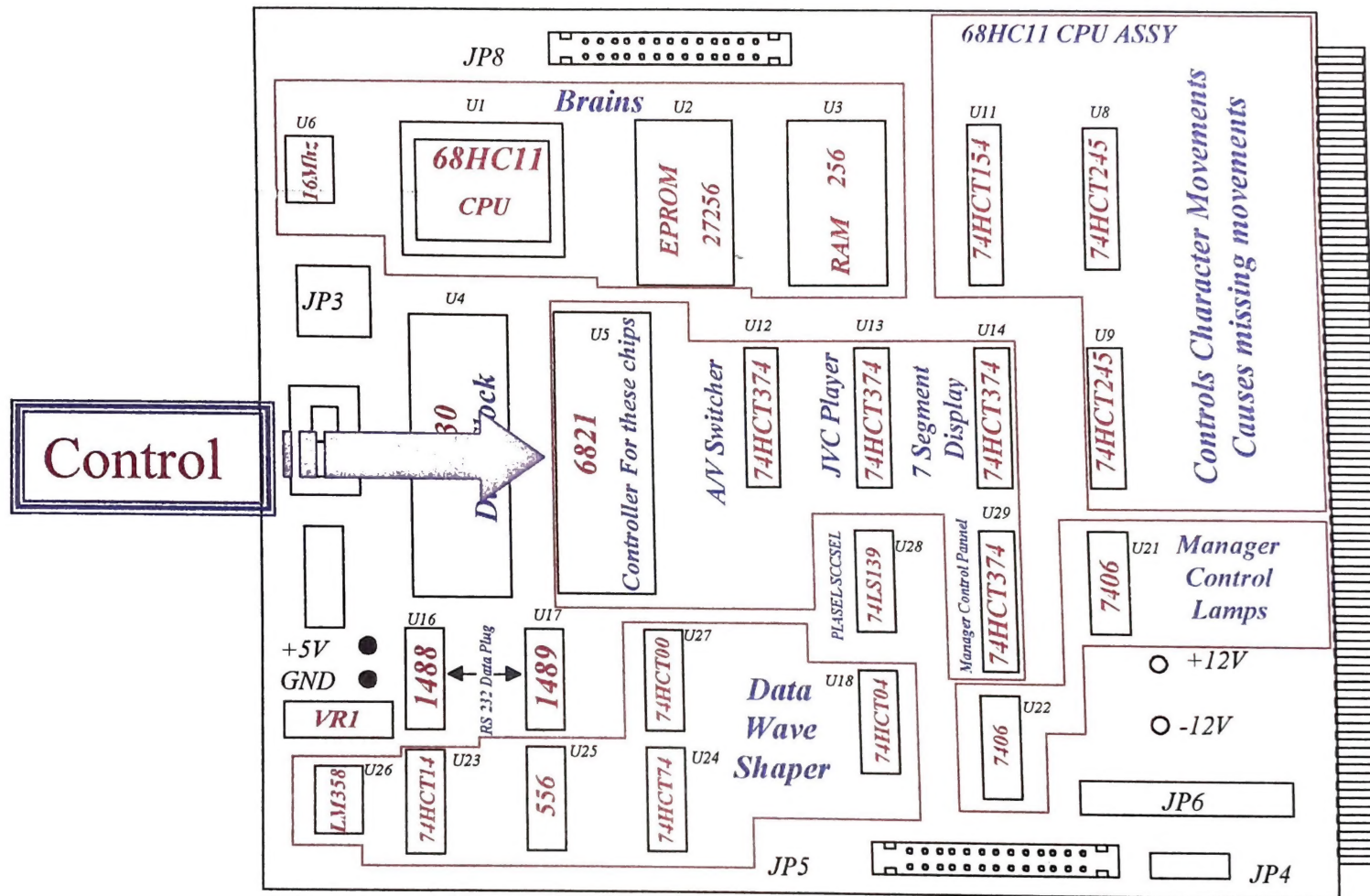
*Data Wave Shaper*

*Brains*

- JP5 A/V SWITCHER 26 PIN HEADER
- JP6 TRANSPORT ADAPTER 26 PIN HEADER
- JP8 LCD DISPLAY 26 PIN HEADER

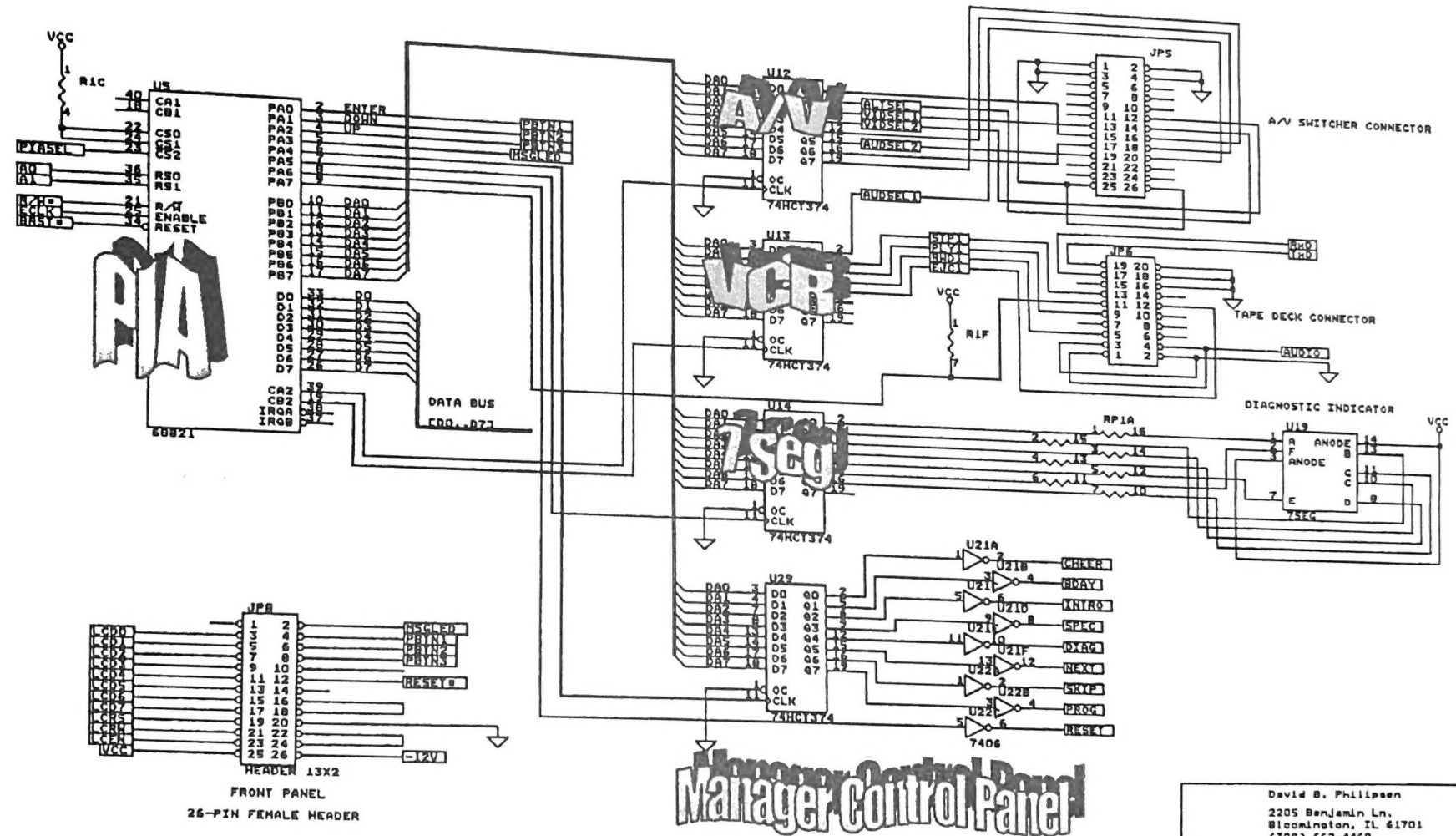
Title: <b>68HC11</b>	Drawn by: <b>Tim Snelling</b>
Drawing Number: <b>CEC9711</b>	Date: <b>11-25-97</b>





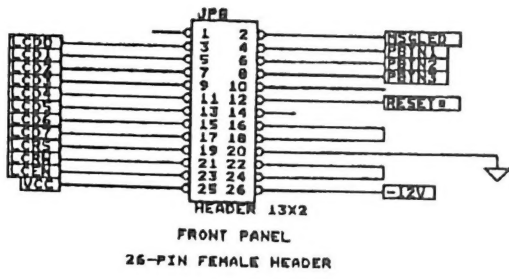
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Title: <b>68HC11</b>	Drawn by: <b>Tim Snelling</b>
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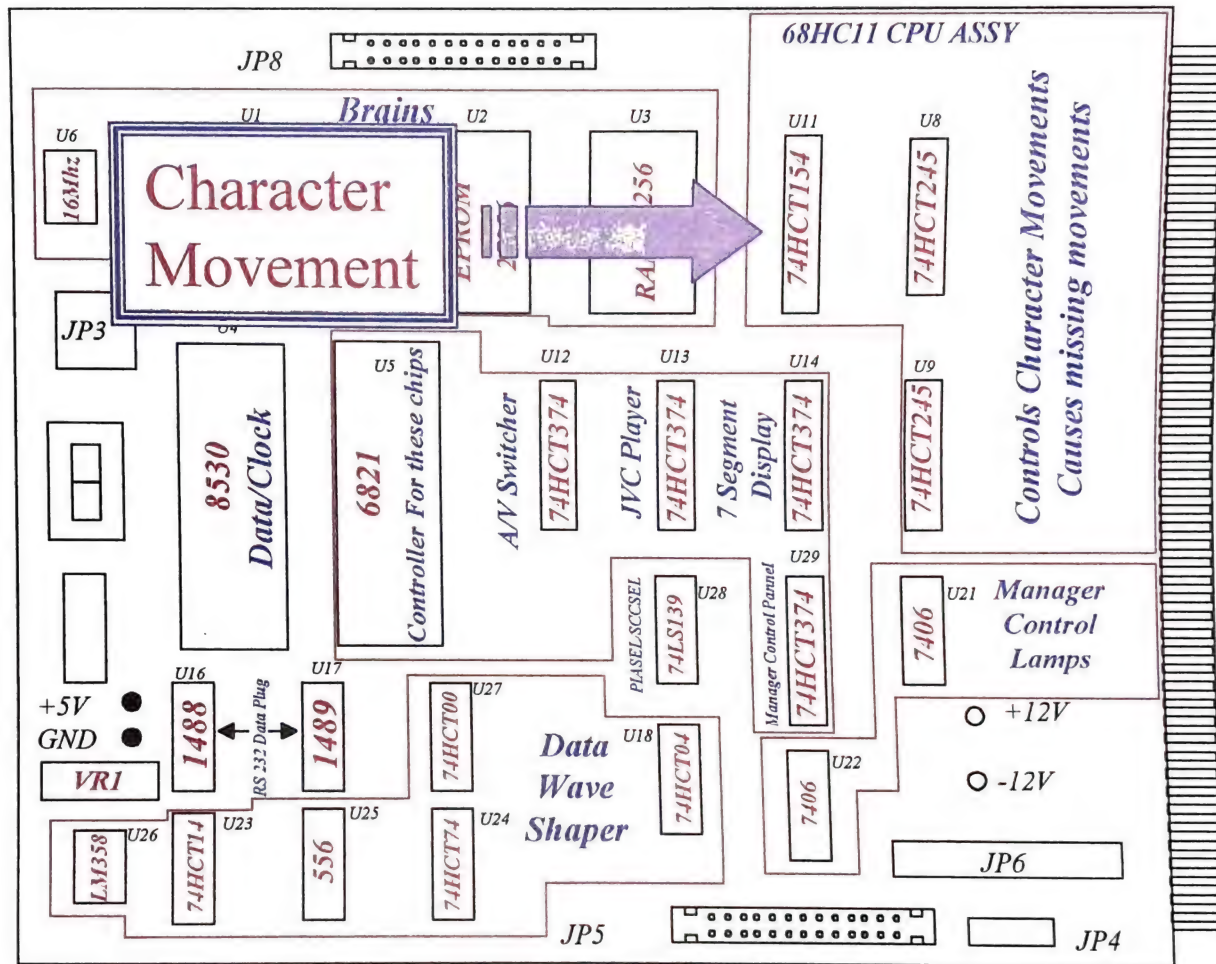


**AA**

**Manager Control Panel**

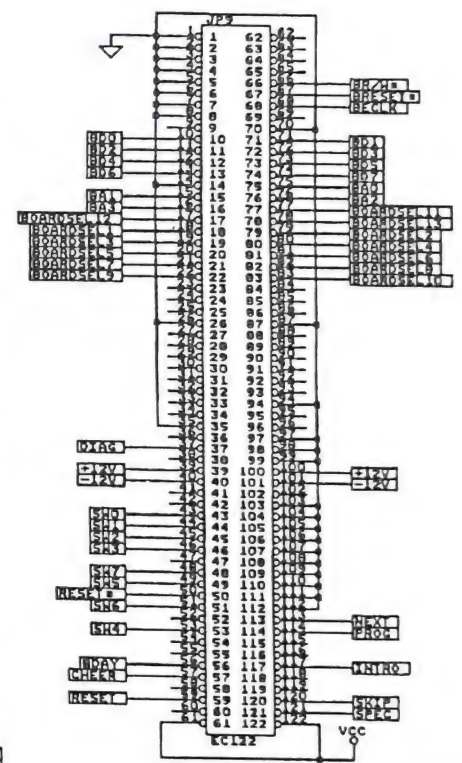
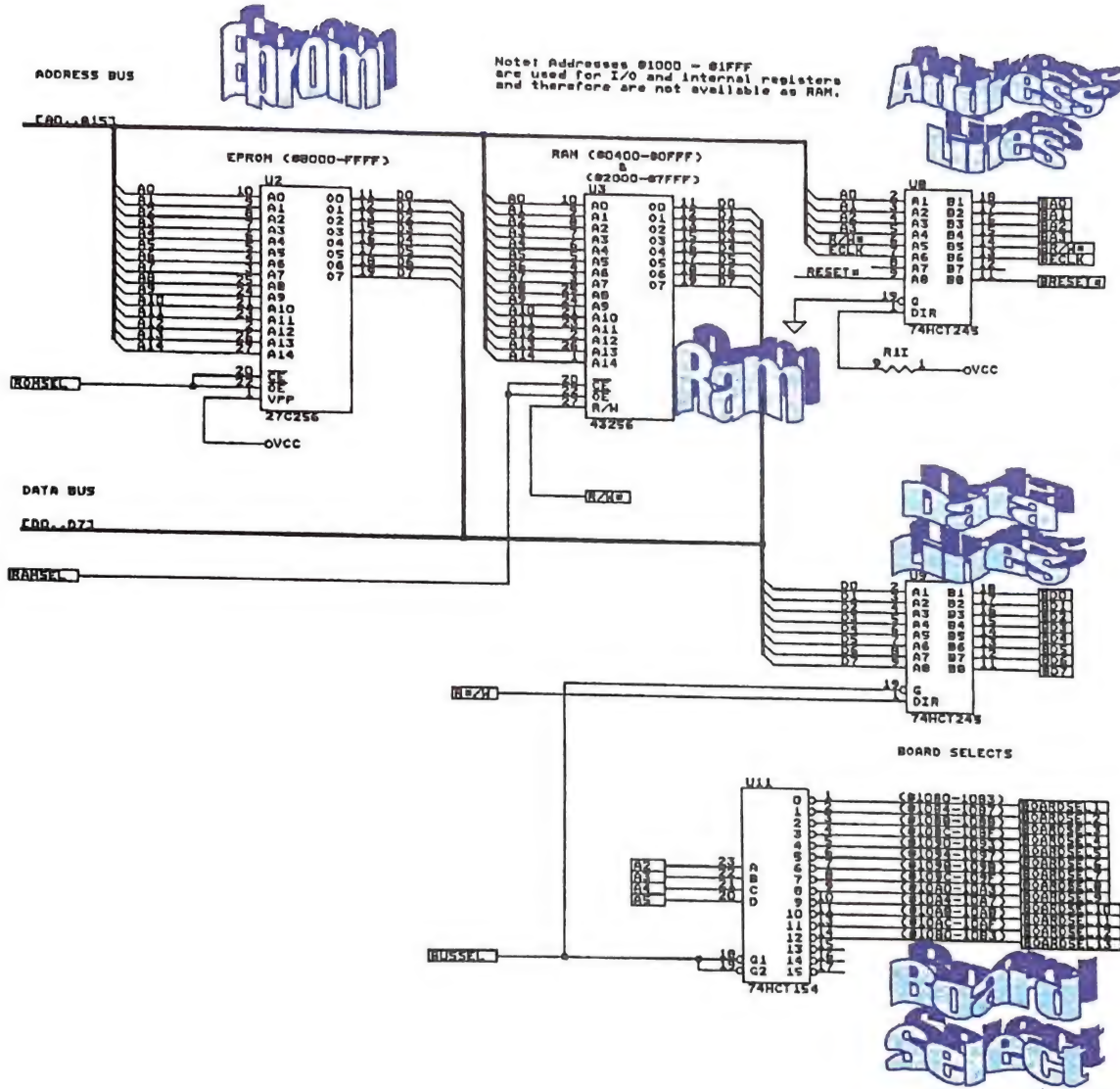


David B. Phillipsen 2205 Benjamin Ln. Bloomington, IL 61701 (309) 662-4469		
Title PIA I/O CIRCUITRY		
Size	Document Number	REV
B	CEC_CPU_003	D
Date:	October 4, 1993	Sheet 3 of 5



- JP5 A/V SWITCHER 26 PIN HEADER
- JP6 TRANSPORT ADAPTER 26 PIN HEADER
- JP8 LCD DISPLAY 26 PIN HEADER

Title:	68HC11	Drawn by:	Tim Snelling
Drawing Number:	CEC9711	Date:	11-25-97



David B. Phillipsen  
 2205 Benjamin Ln.  
 Bloomington, IL 61701  
 (309) 662-4460

Title ROM, RAM, AND CYBERAMICS BUS  
 Size Document Number B  
 Date December 16, 1993 Sheet 5 of 6

# Character Driver Card

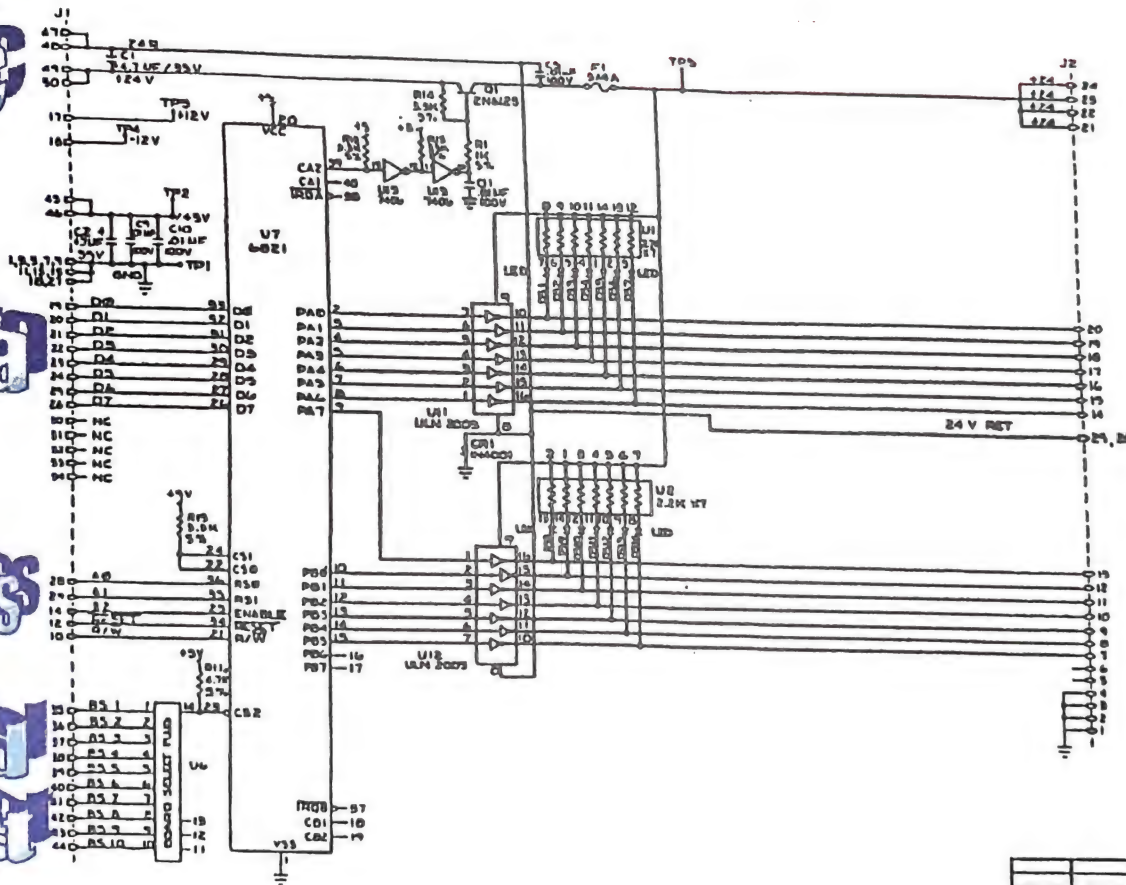
CEC ELECTRONICS

24Vdc

Data

Address

Board Select

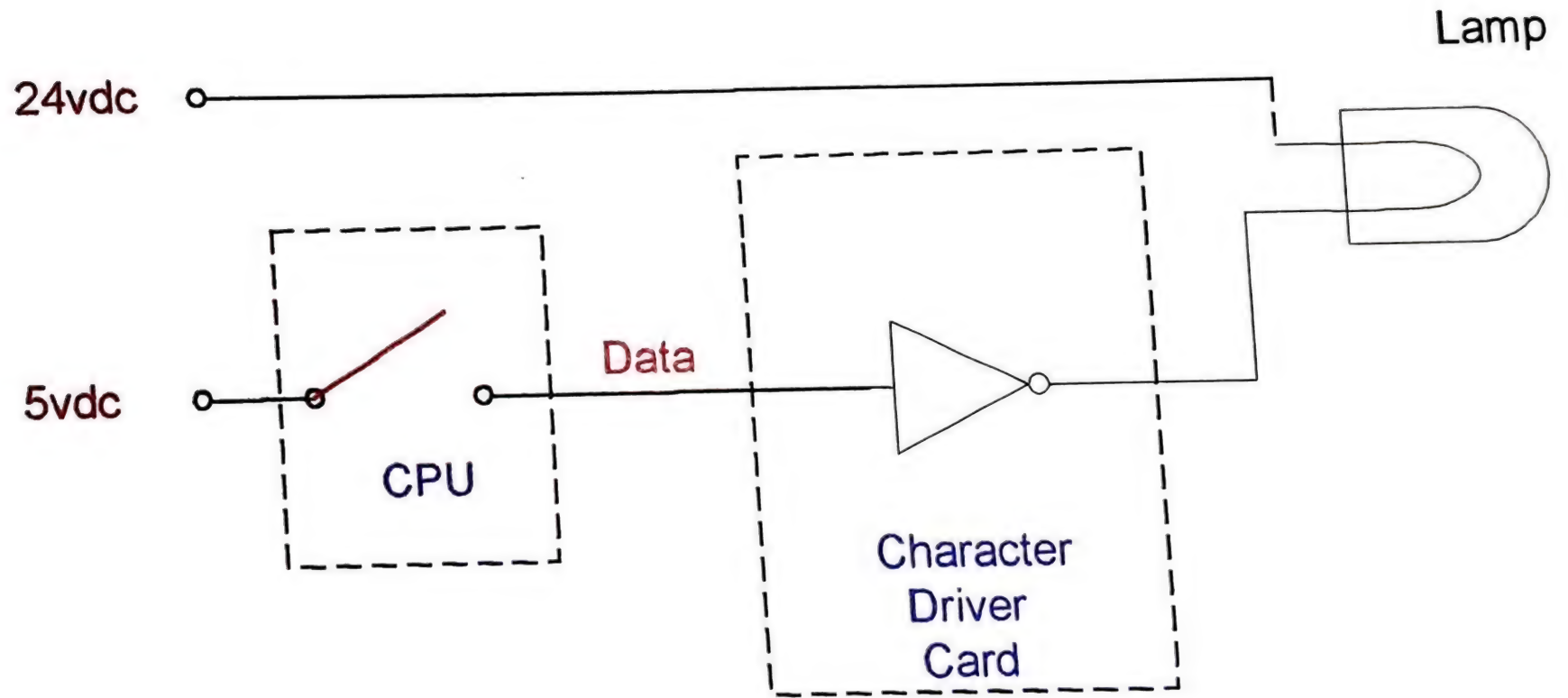


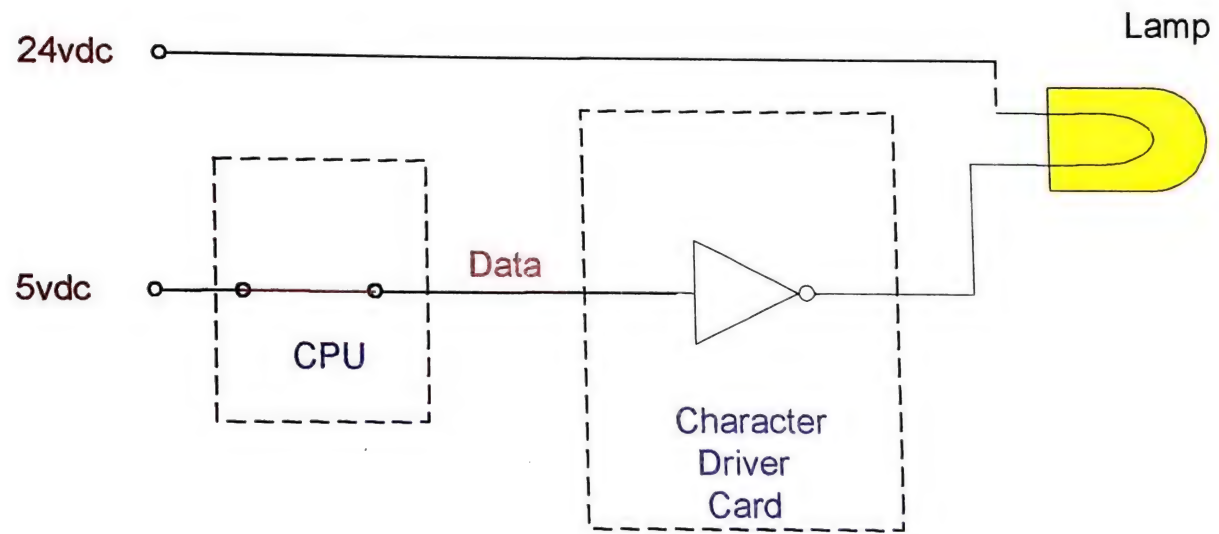
24 CONDUCTOR 341 REMOTE CABLE

REV. 1 DATE: 4-5-82 BY: L. F. ... CHECKED: ... APPROVED: ...		PERMAL 4-5-82 L. F. ... DATE: 4-5-82 BY: ... CHECKED: ... APPROVED: ...	PERMAL 4-5-82 L. F. ... DATE: 4-5-82 BY: ... CHECKED: ... APPROVED: ...
TITLE: CHARACTER DRIVER SCHEMATIC PART NO: D06-0034 REV: A		CEC ELECTRONICS 1118 ... ...	

CONFIDENTIAL

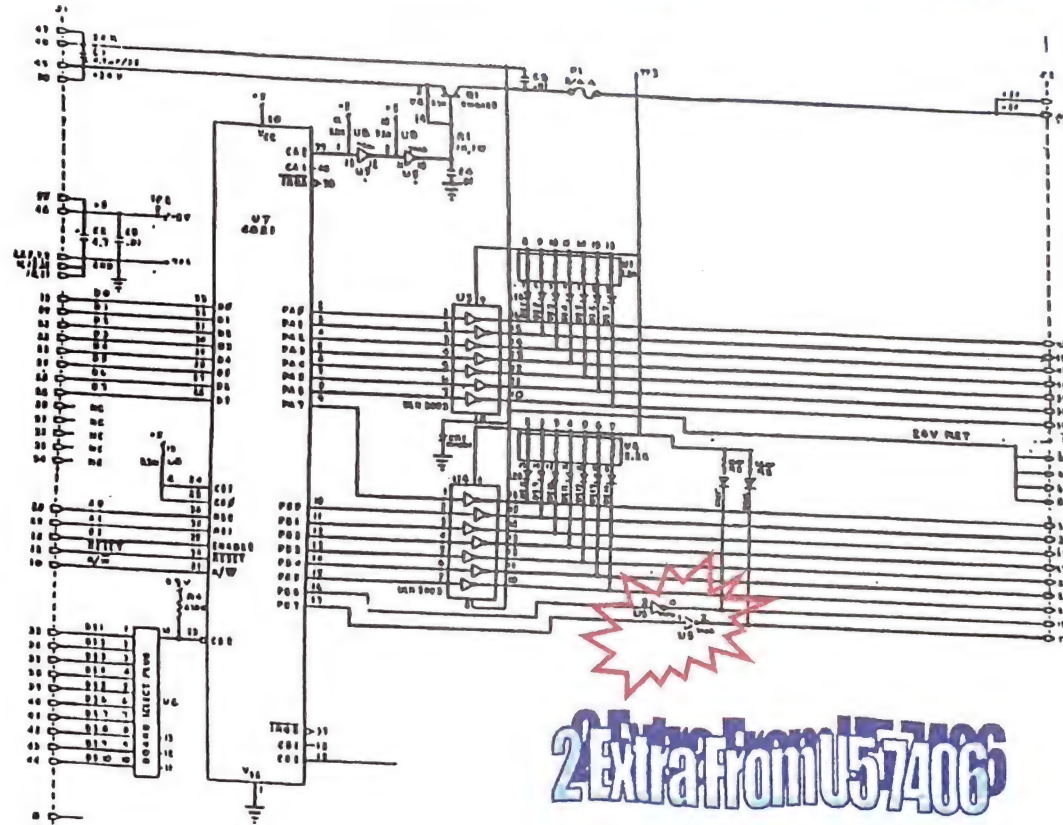
DRAWING 7-5





# Light Driver Card

CEC ELECTRONICS



See connector 3rd wireframe

2 Extra From U57406

APPROVED BY _____ DATE _____		DR. DATE SCALE 08-06-21 1:1 1:1 1:1	CEC ELECTRONICS 10000 S. 10th St. Everett, WA 98201
TITLE _____		DRAWN BY J. M. N.	CHECKED BY _____
PART NUMBER _____		SCHEMATIC LIGHT DRIVER	
REVISION _____		D 08-06-21	



## Understanding The Chuck E Cheese Rosetta

Chuck E Cheese R12 Version Rosetta  
(Used for all stages with curtains)

	HEADER 1	HEADER 2	HEADER 3	HEADER 4	HEADER 5	HEADER 6	HEADER 7	HEADER 8	
Terminal	CHUCK	JASPER	PASQUALLY	MUNCH	HELEN	A/V CONT	LIGHTS	LIGHTS	LED#
TB1,1-2	MOUTH	MOUTH	MOUTH	MOUTH	MOUTH	AUDSEL1	LIVE FLOOD	AMBER BKDROP	1
TB1,3-4	HEAD L	HEAD L	HEAD L	HEAD L	HEAD L	AUDSEL2	LIVE STROBE	RED BKDROP	2
TB1,5-6	HEAD R	HEAD R	HEAD R	HEAD R	HEAD R		PASQ DRUM	BLUE BKDROP	3
TB1,7-8	HEAD UP	HEAD UP	L ARM	L ARM	HEAD UP		PASQ SPOT	AMBR BKDP CEC	4
TB1,9-10	EYES R	EYES R	EYES R	EYES R	EYES R		ORG LEG OUT	AMBR OVRHEAD	5
TB1,11-12	EYELIDS	EYELIDS	EYELIDS	EYELIDS	EYELIDS		HELEN SPOT	RED OVRHEAD	6
TB1,13-14	HAND	HAND	R ARM	R ARM	HAND		CEC STAR/ROPE	BLUE OVRHEAD	7
TB1,15-16	EYES L	EYES L	EYES L	EYES L	EYES L	VIDSEL1	CHUCK SPOT	RED BKDRP CEC	8

Terminal	PROPS	CURTAINS	PROPS	PROPS					LED#
TB2,1-2	FLWMOUTH	CRTN OPN1	FLOWER SPT	TTMECH	DIMMER	VIDSEL2	CEC FIBER SIGN	FIBER CURTAIN	9
TB2,3-4	WINK	CRTN CLS1		TTLIVE	USA FLAG		ORG LEG MID	HELICOPTER	10
TB2,5-6		CRTN OPN CEC		FOG	CONF FLAG		JASPER SPOT	WINK SPOT	11
TB2,7-8		CRTN CLS CEC			STATE FLAG		ORGAN FACE2	CEC GOBO	12
TB2,9-10		CRTN OPN MUN			CEC FLAG		MUNCH SPOT	JASPER SEAT LT	13
TB2,11-12		CRTN CLS MUN	FLWMOUTH	FLWMOUTH	ITAL FLAG		ORGAN FACE1	MUNCH SIGN	14
TB2,13-14							ORGAN LEG INR	BLUE BKDRP CEC	15
TB2,15-16								DANCING STAR	16

**HEADER #** - This is the position of the jumper on the header chip located on the Character Driver Card that makes one board different from the other 4 character driver cards. All 5 Character Driver Cards in the rack are exactly the same and can be given a new identity by changing this jumper. Example: Chuck E Cheese – the jumper is from pin 1 to pin 14, Jasper- the jumper is from pin 2 to pin 14. Thus the wording HEADER #1, HEADER #2, etc. The Header Chip or jumper chip is located at U6 on the Character Driver Card. The Light Driver Cards in the rack also have a header chip that can be changed; this is useful if you think you have lighting problem and you want to isolate it to the card.

**TERMINAL** - (TB1, 1-2, etc.) – These are the post that are located on the characters back. TB1 is located on the lower portion of the board and TB2 is on top. The 1-2 are the terminals that the wires are hooked on too.

**LED#** - That is the LED that located on the Character Driver Card in the rack. Looking at the board in the rack, LED # 1 is located at the bottom of the board. LED # 14 (16 on Light Driver Cards) is at the top. You can make a movement happen by grounding the bottom leg of any LED on the Character Driver Card or the Light Driver Card.

**A/V (Audio/Video) Controller** – This board is used to interface the JVC VCR to the computer. Your Data and your remote control functions from the JVC pass through this board. Reseat this board if you are having Data problems. This board is always in slot 1.

Note:

When working on the light relay boards you will find that the Rosetta is configured the same as the relay boards. Example - Board 1 (H EADER 7) LED # 3 is also circuit #3 (Pasqually's drum light) on the relay board.

Understanding

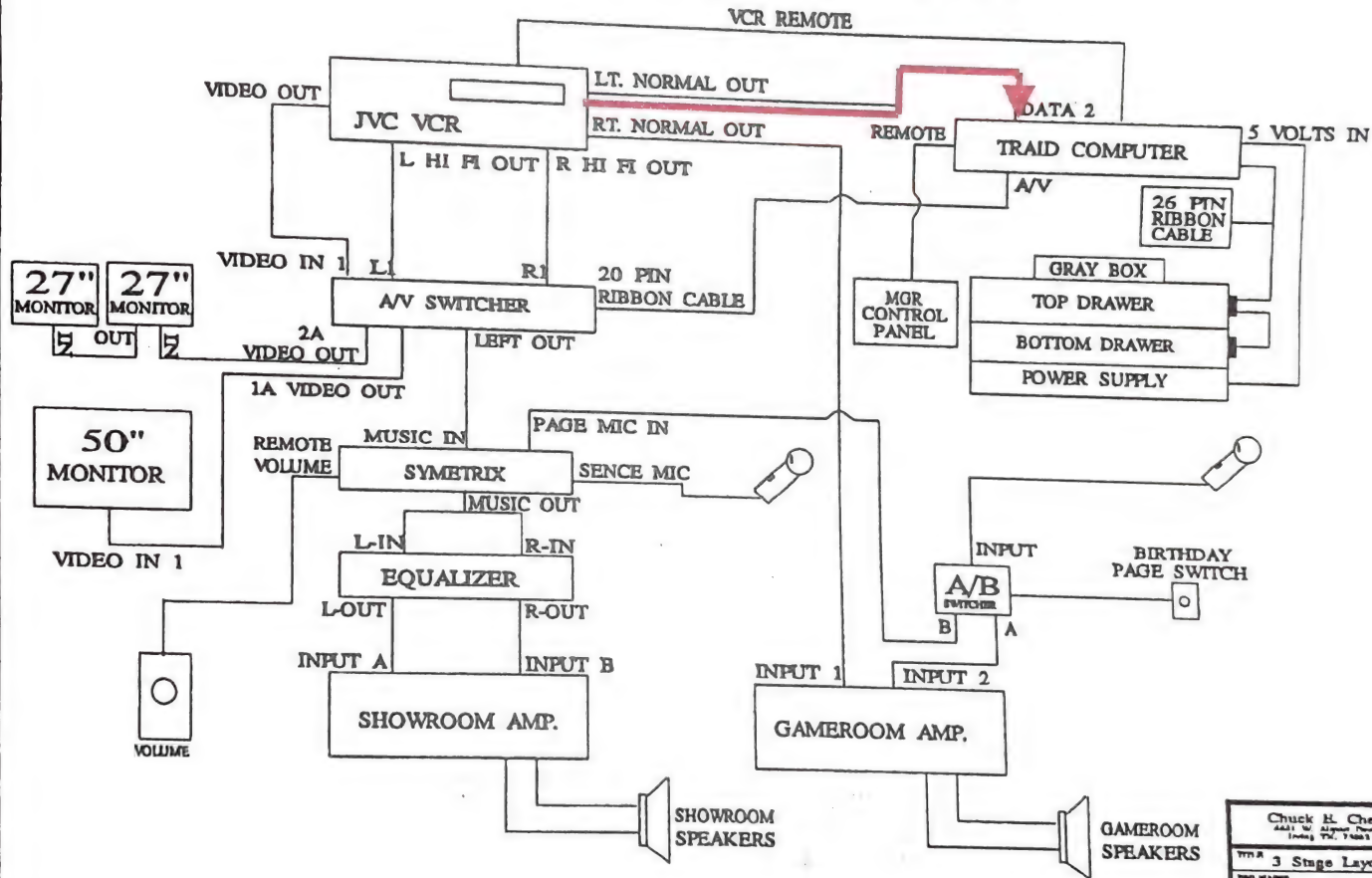
The

**3-Stage**

**Show**



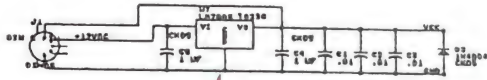
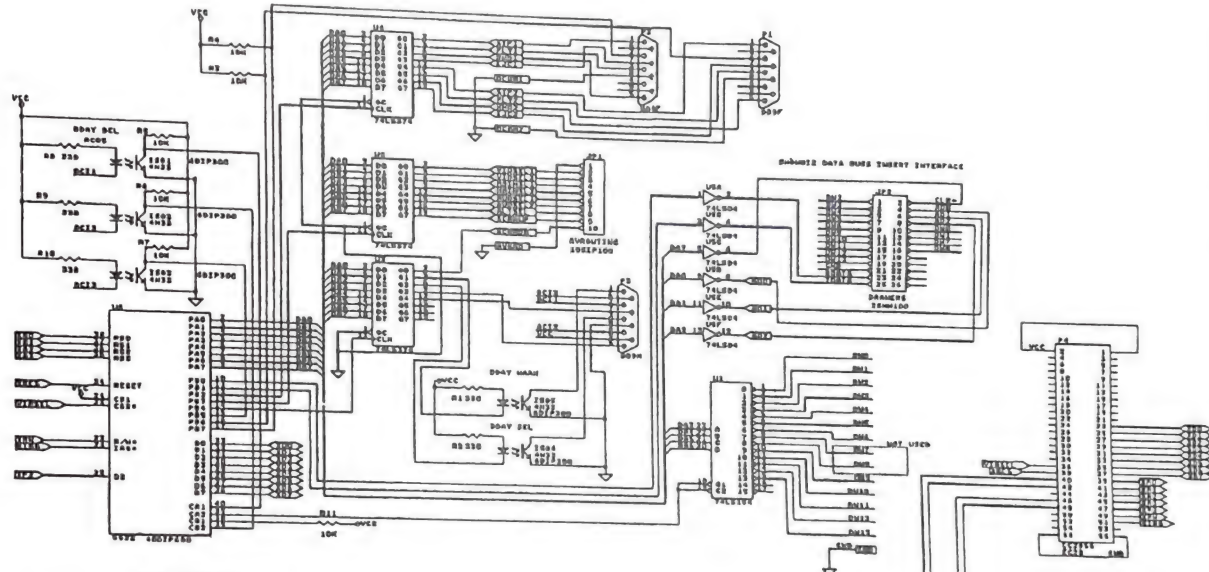
# 3 STAGE SHOW LAYOUT



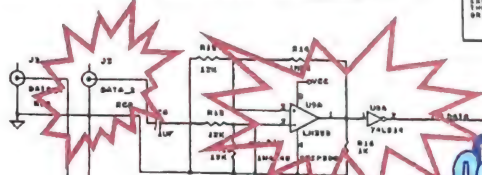
Chuck H. Cheema 441 W. Algonquin Parkway Itasca, IL 60143	
TYPE	3 Stage Layout
DWG NAME	
DRAWN BY	Jeff Albridge
DATE	
APPROVED BY	

# Back-Plane

3-STG ELECTRONICS



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## Common Failure Chips

TRINO PRODUCTIONS, INC	
1918 INDEPENDENCE AVE	
MILWAUKEE, WIS 53207	
TITLE	SHIMMIE CYBERSTAR BACKPLANE
DESIGNER	VCY/BJC
DATE	MAR 1983

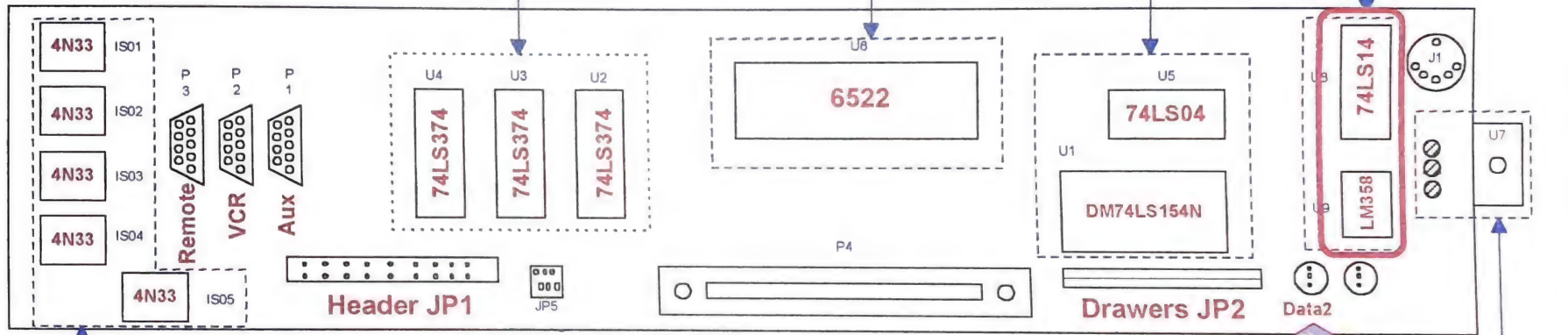
DRAWING 4-16

U2 - Manager Control Panel Problems  
 U3 - A/V Switcher Problems  
 U4 - Tape Deck Problems

U5, U1 - Output to the drawers. Causes Movement Problems, Normally more than 1 at a time.

U8, U9 - Part of the wave shaper circuit. Tape Plays but you have No sound/ No video and has \*\*\*Tape Start or Ape Start on the LCD Display.

Controls U1, U2, U3, U4, U5,



IS01-IS05 are used to isolate the button and lights on the managers control panel from the CPU.

IS01 - Birthday Select Switch  
 IS02 - Not Used  
 IS03 - Not used  
 IS04 - Birthday Select Light  
 IS05 - Birthday Warning Light

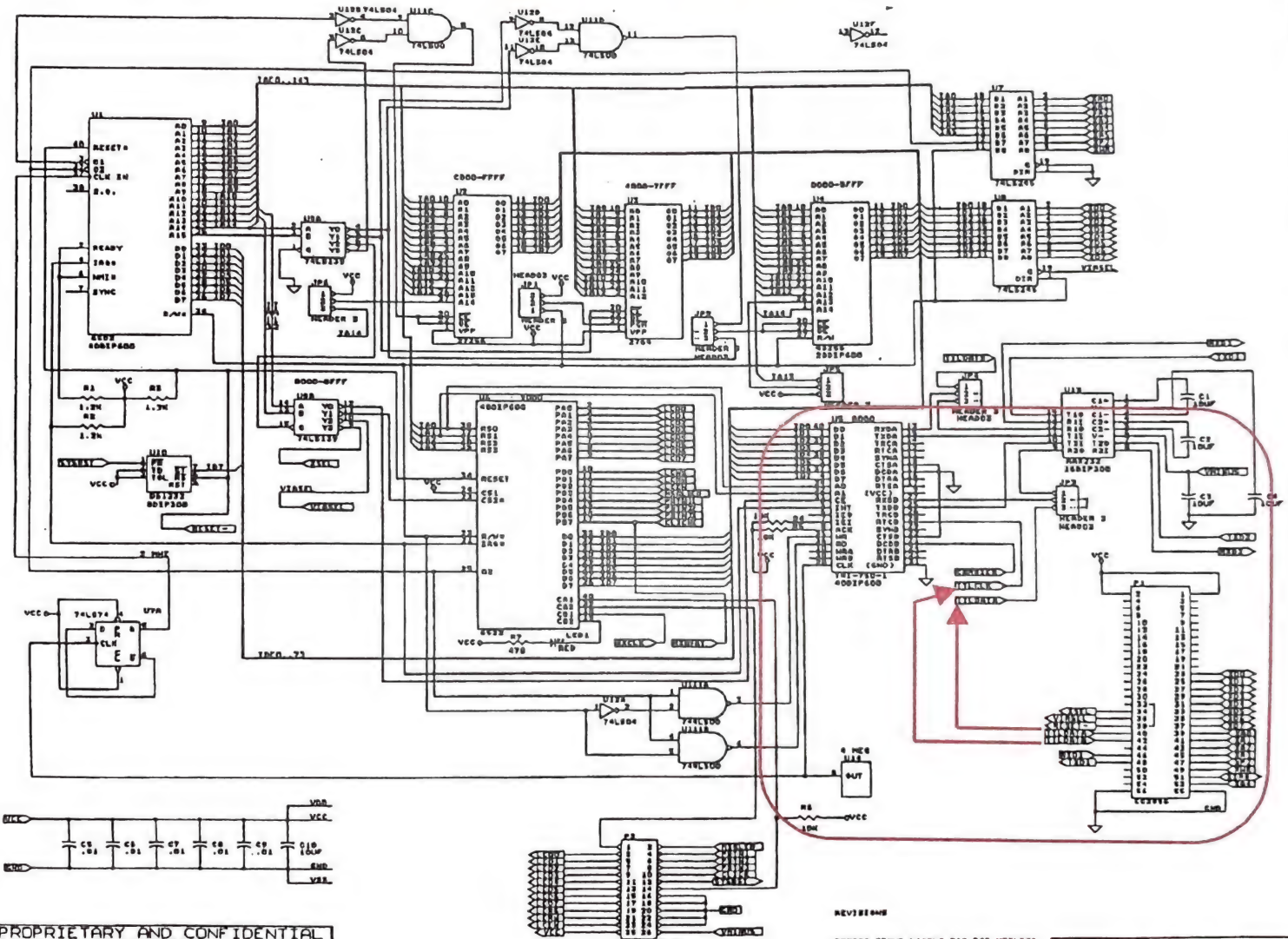
3 Stage Cyberstar Back-plane ( Inside View )



Title: 3 Stage Back-Plane	Drawn by: Tim Snelling
Drawing Number: HC119712	Date: 12-4-97

# Main Board

3-STG ELECTRONICS



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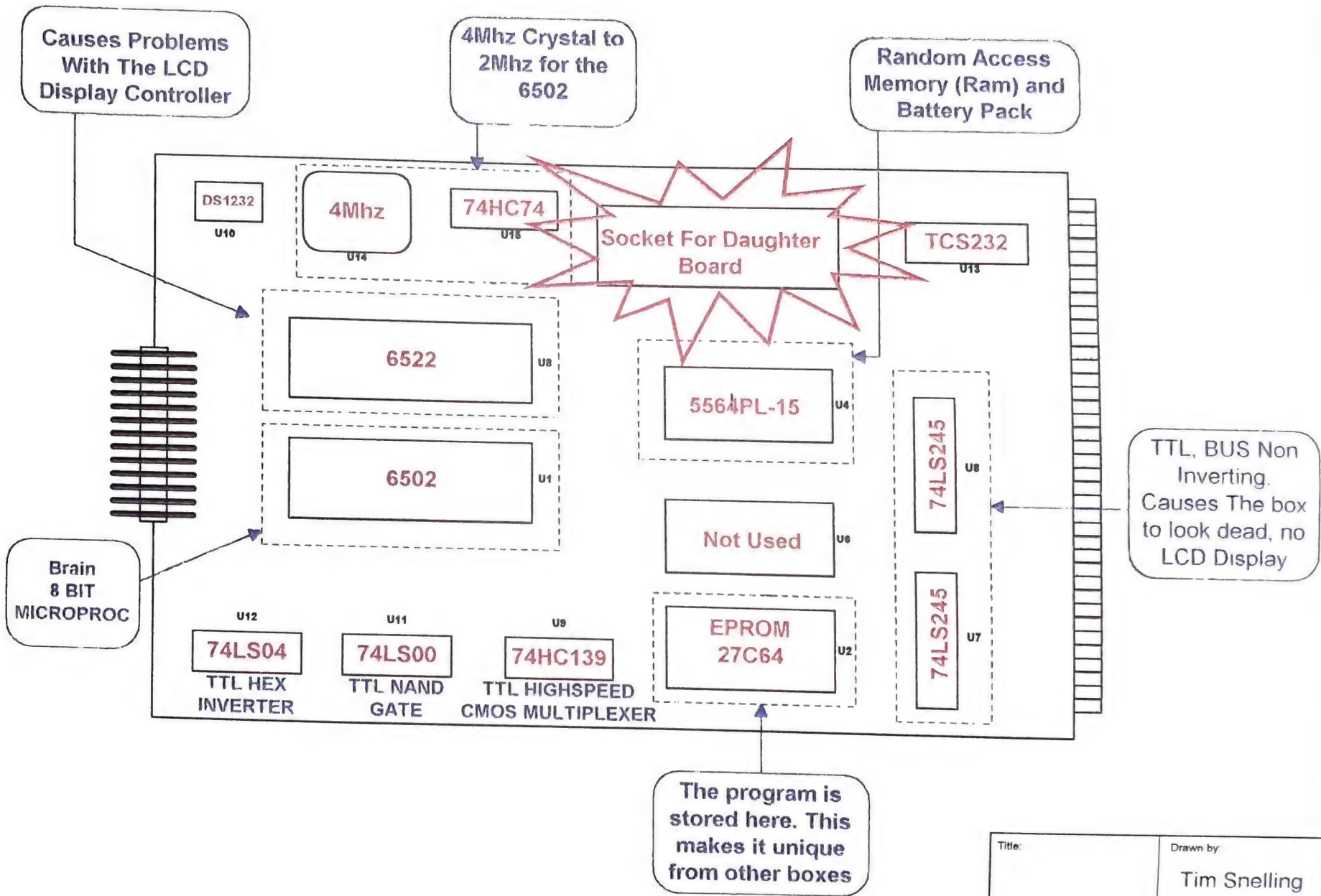
28 PIN DUAL HEADER

REVISED  
 800200 PART LABELS FOR PCB MEX101  
 2801P600 FOR 2801 SELECTOR  
 2802P600 FOR 2802 SELECTOR  
 800401 ADD SELECT JUMPER FOR U5 AND U4 (2803 SELECT)

TRIMM PRODUCTIONS, INC.  
 1918 SHEPHERD AVE.  
 DES MOINES, IOWA  
 50319-2418  
 SHOWS CYBERSTAR PROCESSOR CARD  
 C 1 CTR. PCB  
 1/11/80

**CONFIDENTIAL**

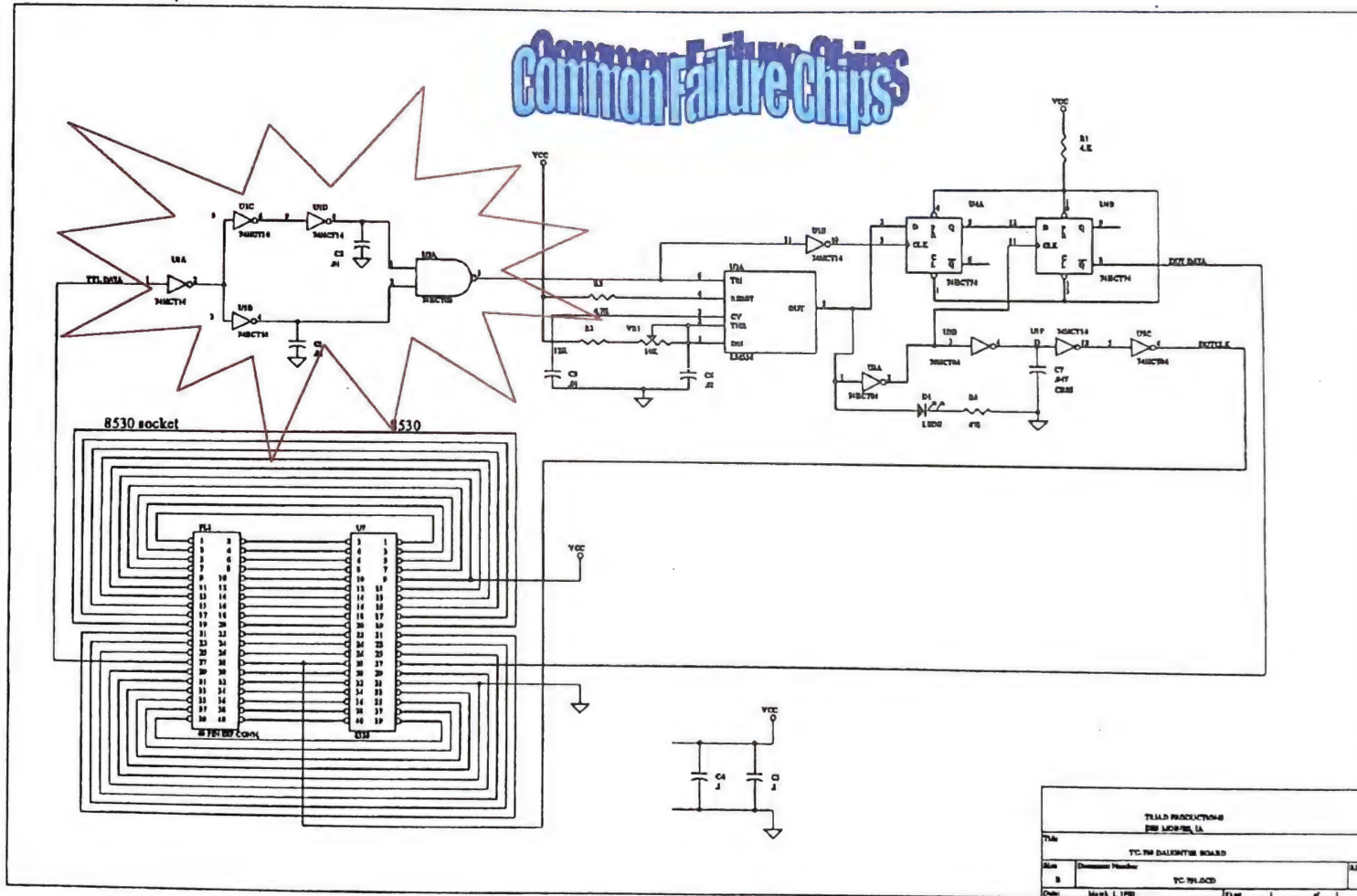
DRAWING 4-15



Title:	Drawn by: Tim Snelling
Drawing Number:	Date:

# Daughter Board

3-STG ELECTRONICS



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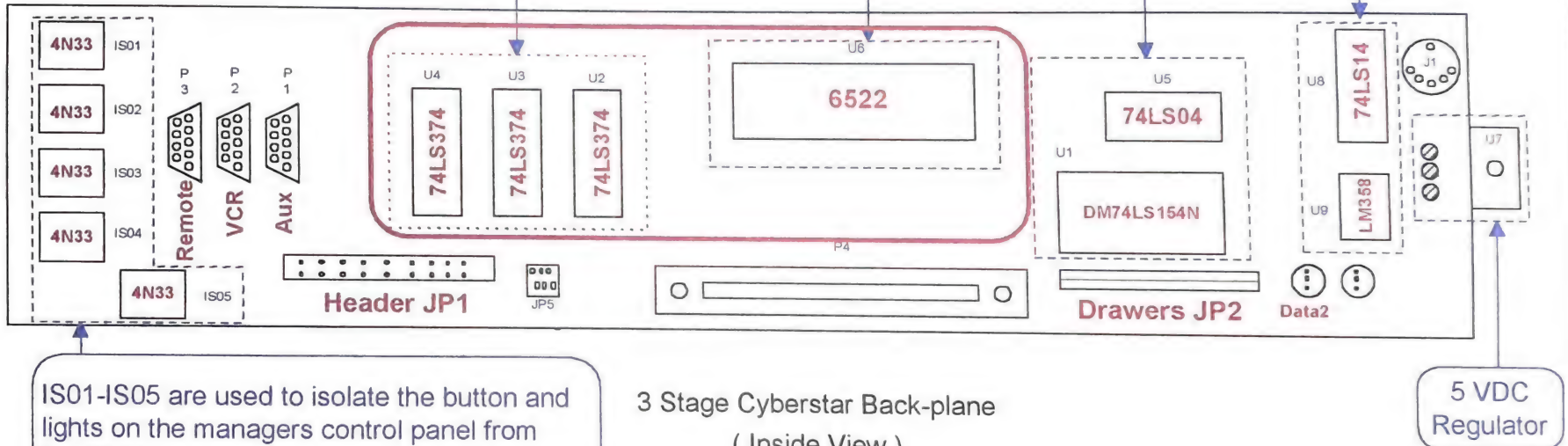


U2 - Manager Control Panel Problems  
 U3 - A/V Switcher Problems  
 U4 - Tape Deck Problems

Controls U1, U2, U3,  
 U4, U5,

U5, U1 - Output to the  
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IS01-IS05 are used to isolate the button and lights on the managers control panel from the CPU.

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- IS03 - Not used
- IS04 - Birthday Select Light
- IS05 - Birthday Warning Light

3 Stage Cyberstar Back-plane  
 ( Inside View )

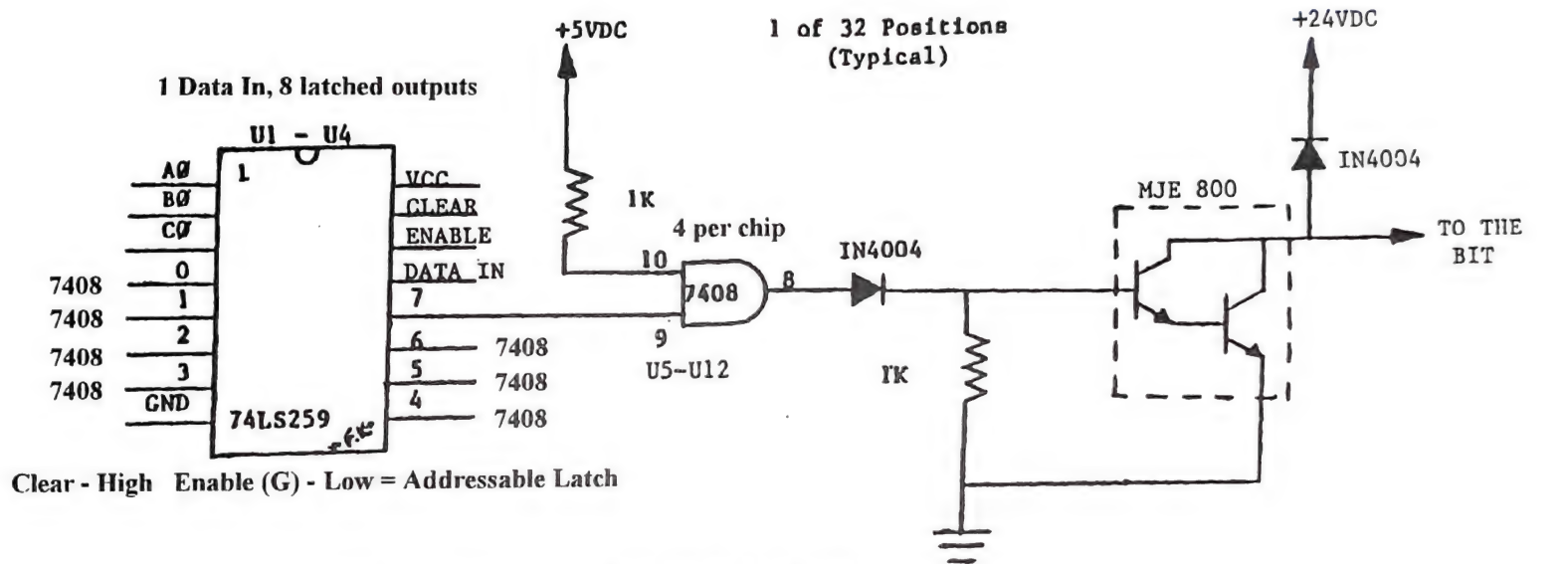
Title: 3 Stage Back-Plane	Drawn by: Tim Snelling
Drawing Number: HC119712	Date: 12-4-97



# Long-Driver Board

LONG DRIVER BOARD SCHEMATIC (Partial)

3-STG ELECTR



J1-3	J1	ON BOARD TIE POINTS	
---	1	PIN 1 U1 - U4	AD0 from Cyberstar
---	2	PIN 2 U1 - U4	AD1 from Cyberstar
47	3	PIN 3 U1 - U4	AD2 from Cyberstar
46	4	VCC (+5VDC)	
45	5	PIN 15 U1 - U4	Clear from Cyberstar
48	6	PIN 14 U3	DW from Cyberstar to Enable on 74LS259
22	7	PIN 14 U2	DW from Cyberstar to Enable on 74LS259
19	8	KEY	
18	9	PIN 13 U1 - U4	TData or BData from Cyberstar to Data In on 74LS259
---	10	PIN 14 U4	DW from Cyberstar to Enable on 74LS259
21	11	PIN 14 U1	DW from Cyberstar to Enable on 74LS259
20	12		
17	13		

Determines the address (0 thru 7)

SN54259, SN54LS259B, SN74259, SN74LS259B  
8-BIT ADDRESSABLE LATCHES

DECEMBER 1983 - REVISED MARCH 1988

- 8-Bit Parallel-Out Storage Register Performs Serial-to-Parallel Conversion with Storage
- Asynchronous Parallel Clear
- Active High Decoder
- Enable/Disable Input Simplified Expansion
- Expandable for N-Bit Applications
- Four Distinct Functional Modes
- Package Options Include Ceramic Chip Carriers and Flat Packages in Addition to Plastic and Ceramic DIPs
- Dependable Texas Instruments Quality and Reliability

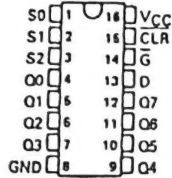
description

These 8-bit addressable latches are designed for general purpose storage applications in digital systems. Specific uses include working registers, serial-holding registers, and active-high decoders or demultiplexers. They are multifunctional devices capable of storing single-line data in eight addressable latches, and being a 1-of-8 decoder or demultiplexer with active-high outputs.

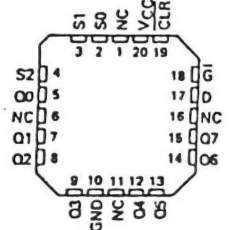
Four distinct modes of operation are selectable by controlling the clear (CLR) and enable (G) inputs as enumerated in the function table. In the addressable-latch mode, data at the data-in terminal is written into the addressed latch. The addressed latch will follow the data input with all unaddressed latches remaining in their previous states. In the memory mode, all latches remain in their previous states and are unaffected by the data or address inputs. To eliminate the possibility of entering erroneous data in the latches, enable G should be held high (inactive) while the address lines are changing. In the 1-of-8 decoding or demultiplexing mode, the addressed output will follow the level of the D input with all other outputs low. In the clear mode, all outputs are low and unaffected by the address and data inputs.

The SN54259 and SN54LS259B are characterized for operation over the full military temperature range of -55°C to 125°C. The SN74259 and SN74LS259B are characterized for operation from 0°C to 70°C.

SN54259, SN54LS259B... J OR W PACKAGE  
SN74259... N PACKAGE  
SN74LS259B... D OR N PACKAGE  
(TOP VIEW)

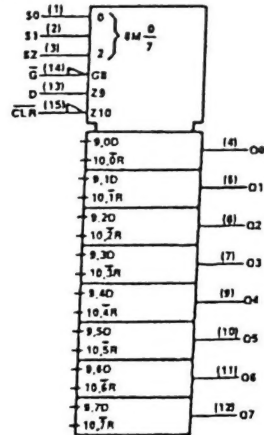


SN54LS259B... FK PACKAGE  
(TOP VIEW)



NC - No Internal connection

logic symbol<sup>†</sup>



<sup>†</sup>This symbol is in accordance with ANS/MEE Std. 01-1984 and IEC Publication 817-12. Pin numbers shown are for D, J, N, and W packages.

SN54259, SN54LS259B, SN74259, SN74LS259B  
8-BIT ADDRESSABLE LATCHES

FUNCTION TABLE

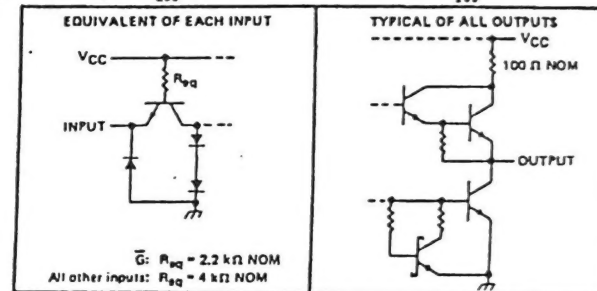
INPUTS		OUTPUT OF ADDRESSED LATCH	EACH OTHER OUTPUT	FUNCTION
CLR	G			
H	L	D	$Q_{i0}$	Addressable Latch
H	H	$Q_{i0}$	$Q_{i0}$	Memory
L	L	D	L	8-Line Demultiplexer
L	H	L	L	Clear

H = high level, L = low level  
D = the level of the data input  
 $Q_{i0}$  = the level of  $Q_i$  ( $i = 0, 1, \dots, 7$ , as appropriate) before the indicated steady-state input conditions were established.

LATCH SELECTION TABLE

SELECT INPUTS			LATCH ADDRESSED
S2	S1	S0	
L	L	L	0
L	L	H	1
L	H	L	2
L	H	H	3
H	L	L	4
H	L	H	5
H	H	L	6
H	H	H	7

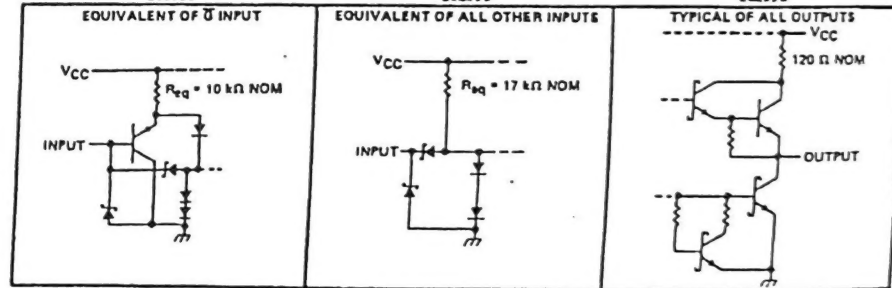
schematic of inputs and outputs



<sup>†</sup>LS259B

<sup>†</sup>LS259B

<sup>†</sup>LS259B



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage (see Note 1)	7 V
Input voltage: SN54259, SN74259	5.5 V
SN54LS259B, SN74LS259B	7 V
Operating free-air temperature range: SN54259, SN54LS259B	-55°C to 125°C
SN74259, SN74LS259B	0°C to 70°C
Storage temperature range	-85°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

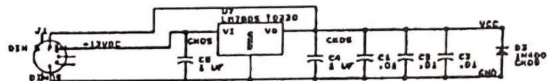
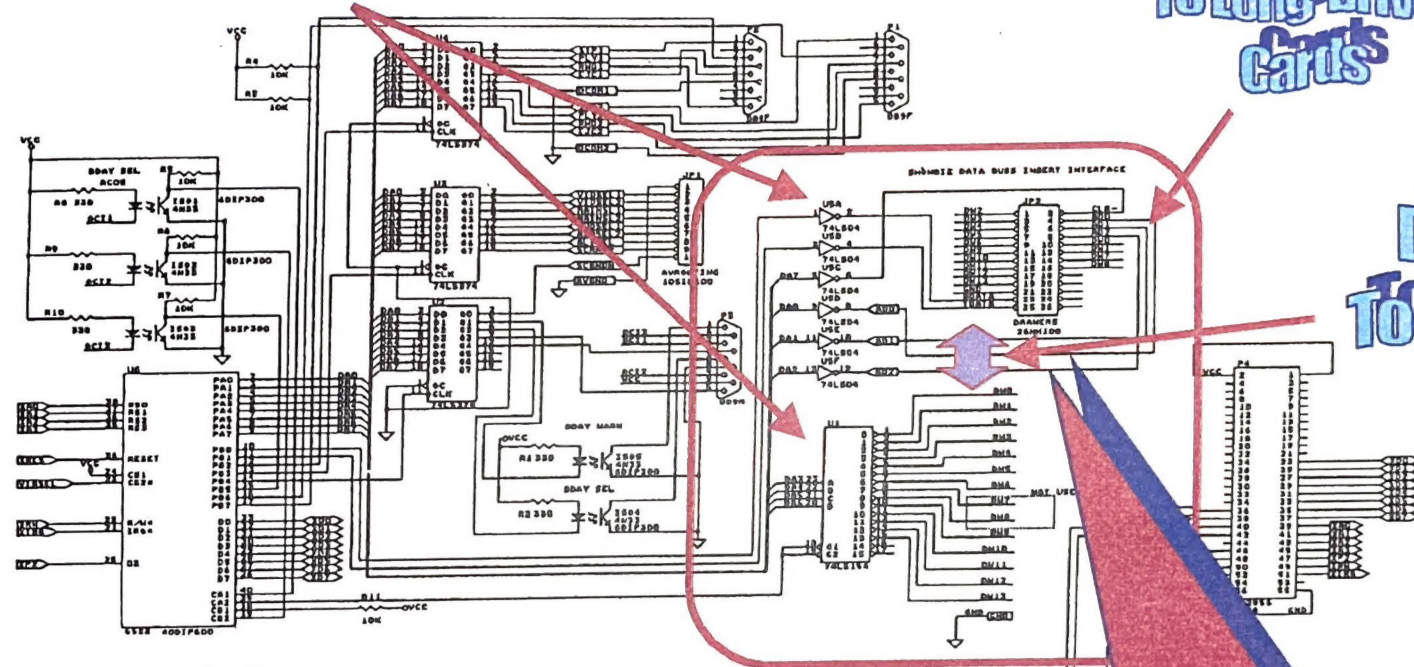
# Back-Plane

3-STG ELECTRONICS

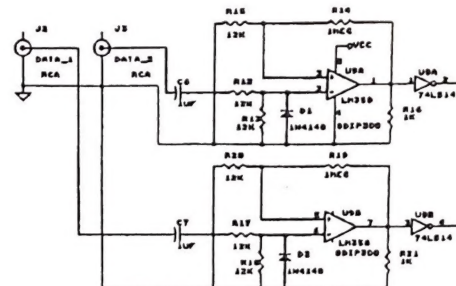
## Character Movement

Address Lines  
To Long-Driver  
Cards

Data Lines  
To Long-Driver  
Cards



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**Common Failure:**  
Characters will not move.  
Burnt trace on JP2 pin 21.  
(Ground pin)

TRIAD PRODUCTIONS, INC	
1710 INGLEWOOD AVE.	
DUE HUNTER, ILL. 62427	
SHOBIE CYBERSTAR BACKPLANE	
REV	REV
DATE	DATE
BY	BY
CHKD	CHKD
APP'D	APP'D

# 3-Stage Bit Chart

				Top Drawer					
Bit #	Chuck E Cheese	Bit #	Munch	Bit #	Pasqually	Bit #	Curtains	Bit #	Organ
1	Mouth	45	Mouth	30	Mouth	89	Stage Right Open	66	Top Blue
9	Left Ear	41	Left Eyelid	26	Left Eyelid	90	Stage Right Close	67	Top Red
10	Right Ear	42	Right Eyelid	27	Right Eyelid	91	Center Stage Open	68	Top Amber
2	Left Eyelid	43	Eyes Left	28	Eyes Left	92	Center Stage Close	69	Top Green
3	Right Eyelid	44	Eyes Right	29	Eyes Right	93	Stage Left Open	71	Top Leg
4	Eyes Left	54	Head Left	25	Head Left	94	Stage Left Close	72	Middle Leg
5	Eyes Right	55	Head Right	21	Head Right			73	Bottom Leg
6	Head Left	51	Head Tilt Left	22	Head Up		<b>Props</b>	74	Continuous Strobe
7	Head Right	52	Head Tilt Right	33	left Arm Swing	38	Building Mouth	75	Flash Strobe
8	Head Up	53	Head Up	34	Right Arm Swing	39	Building Up		
11	Left Arm Raise	57	left Arm Swing	35	Left Elbow	40	Dual Press Reg.		<b>Spots</b>
12	Left Arm Twist	58	Right Arm Swing	31	Right Elbow	46	Moon Mouth	81	Wink
13	Left Elbow	59	Left Elbow	32	High Hat	47	Moon Up	82	Jasper
17	Right Arm Raise	60	Right Elbow	64	Body Lean	49	Wink	83	Camera
18	Right Arm Twist	61	Foot Tap			50	Baby Munch	84	Pasqually
19	Right Elbow	62	Body Lean		<b>Sign</b>			85	Munch
14	Body Left			76	Inner Group			86	Helen
15	Body Right			77	Middle Group			87	Helicopter Light
16	Body Lean			78	Outer Group			88	Chuck
				79	Continuous Strobe				
				80	Flash Strobe				
					<b>Bottom Drawer</b>				
Bit #	Helen	Bit #	Jasper	Bit #	Special Effects	Bit #	Camera	Bit #	Flood Lights
35	Mouth	16	Mouth	94	CEC Neon Sign	17	Mouth	66	Stage Right Blue
26	Left Ear	1	Left Eyelid	95	Star Tips Blue/Juke	41	Left Eyelid	67	Stage Right Green
27	Right Ear	2	Right Eyelid	70	Star Burst	42	Right Eyelid	68	Stage Right Amber
31	Left Eyelid	3	Eyes Cross	81	Green Backdrop	43	Eyescross	69	Stage Right Red
32	Right Eyelid	6	Head Left	82	Yellow Backdrop	21	Head Right	71	Center Stage Blue
33	Eyes Left	7	Head Right	83	Red Buildings	22	Head Raise	72	Live Floods
34	Eyes Right	8	Head Up	84	Blue Backdrop			73	Center Stage Amber
28	Head Left	11	Right Arm Raise	85	Red Backdrop		<b>House Lights</b>	74	Center Stage Red
29	Head Right	12	Right Arm Twist	86	Red	64	House Lights 1	76	Stage Left Blue
30	Head Up	13	Right Elbow Twist	87	Blue	64	House Lights 2	77	Stage Left Green
23	Left Arm Raise	14	Right Wrist	75	Fiber Optic Curtain	64	House lights 3	78	Stage Left Amber
18	Right Arm Raise	4	Guitar Slide	91	Yellow Kick Drum			79	Stage Left Red
24	Left Elbow	5	Guitar Raise	92	Red Backdrop				
19	Right Elbow	9	Left Leg Raise	93	Blue Backdrop				
25	Left Arm Twist	10	Right Leg Raise	80	Red Snare/Pasqually				
20	Right Arm twist	15	Body Lean	88	Building Spot				
36	Body turn Left			89	Moon Spot				
37	Body Turn Right			90	Baby Munch Spot / Gobo				
38	Body Lean			96	Guitar Spot				

# Chip Kits From Home Office



## A/V Switcher Chip Kit 005-0054-80

- (1) 74HC138 - U8 , (1) LM359 - U17
- (1) 74HC139 - U24
- (1) 74HC14 - U18
- (1) 74HC75 - U21
- (1) 74HC00 - U9
- (2) 74LS04 - U7
- (2) TL072 - U14, U15, U16
- (2) 4053 - U11, U12, U19, U20, U21



## Character & Light Driver Card Chip Kit 005-0021-090

- (1) 6821 - U7
- (4) ULN 2003 - U11 & U12 (CD), U4 & U3 (LD)
- (2) 4.7MFD 35V Tan. Cap.- C1 & C2
- (4) 16 pin sockets
- CD = Character Driver Card
- LD = Light Driver Card



## Triad Computer Chip Kit 005-0053-80

- (1) 6522 - U6
- (1) 74LS154 - U1
- (4) 74LS04 - U5
- (3) 74LS374 - U4, U3, U2
- (1) LM358 - U9
- (1) 74LS14 - U8



## 68HC11 CEC CPU Chip Kit 005-0002-040

- (1) 68B21 - U5
- (1) 74HCT154 - U11
- (1) 74LS06 - U21 & U22
- (1) 74HCT00 - U27
- (1) 74HCT74 - U24
- (2) 74HCT374N - U13 & U14
- (1) LM358N - U26
- (1) 74HCT14 - U23



## LDB Chip Kit 005-0068-10

- (8) 74LS08
- (8) 14 pin sockets
- (4) 74LS259
- (4) 16 pin sockets

972-258-5557