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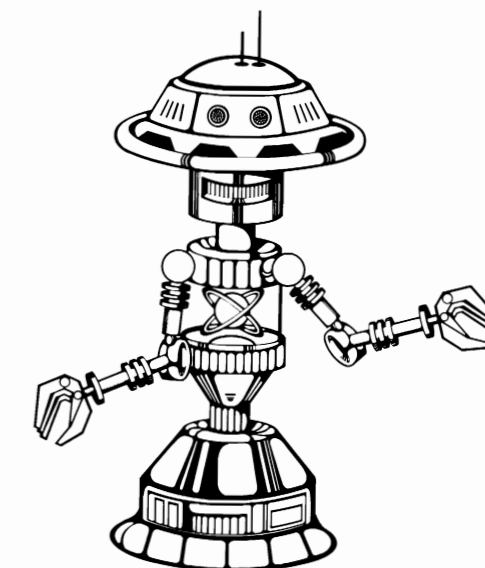
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NOTE

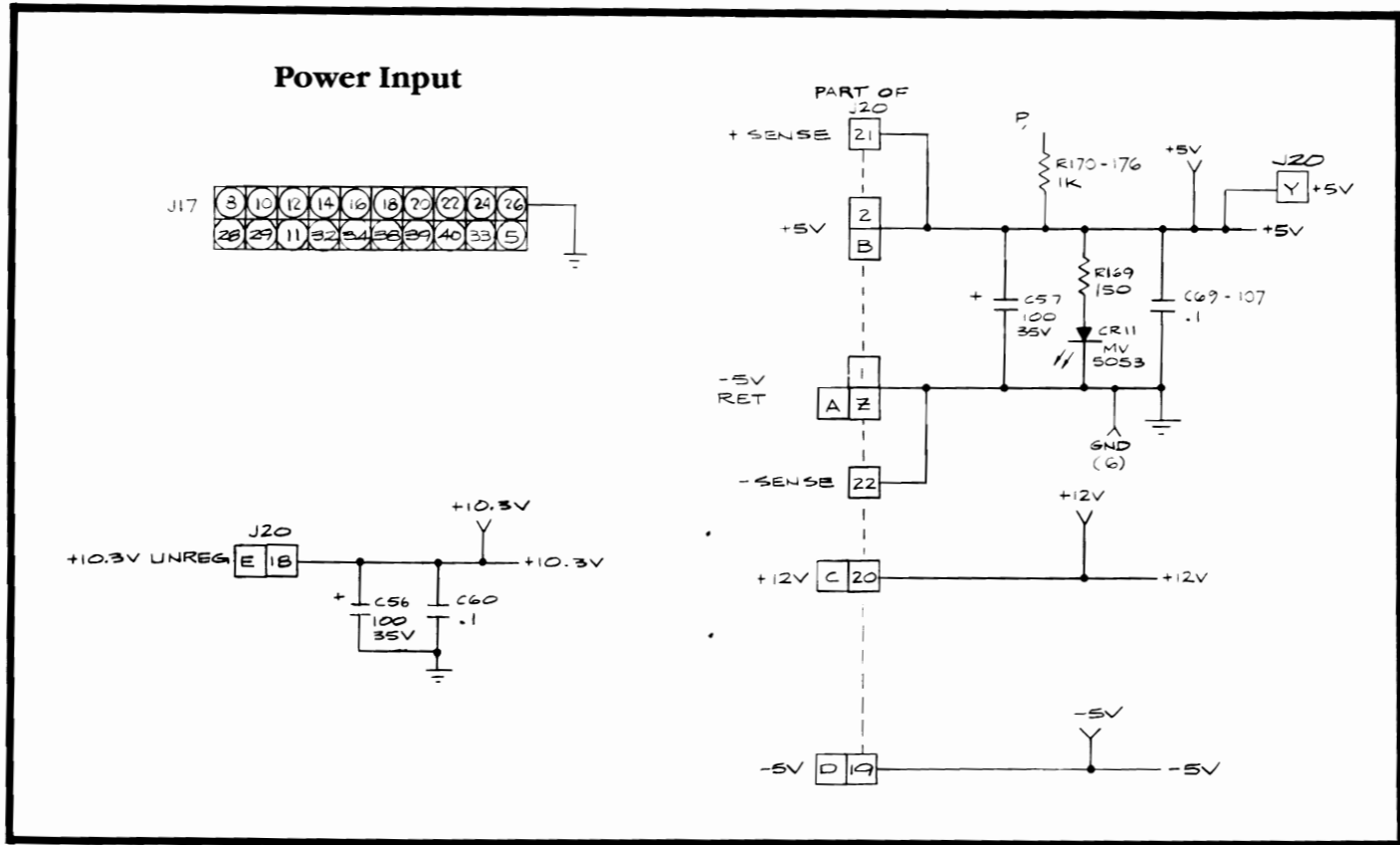
This staple temporarily holds the schematic package together. Remove the staple before using these schematics.

Schematic Package Supplement to



Operators Manual

Power Input



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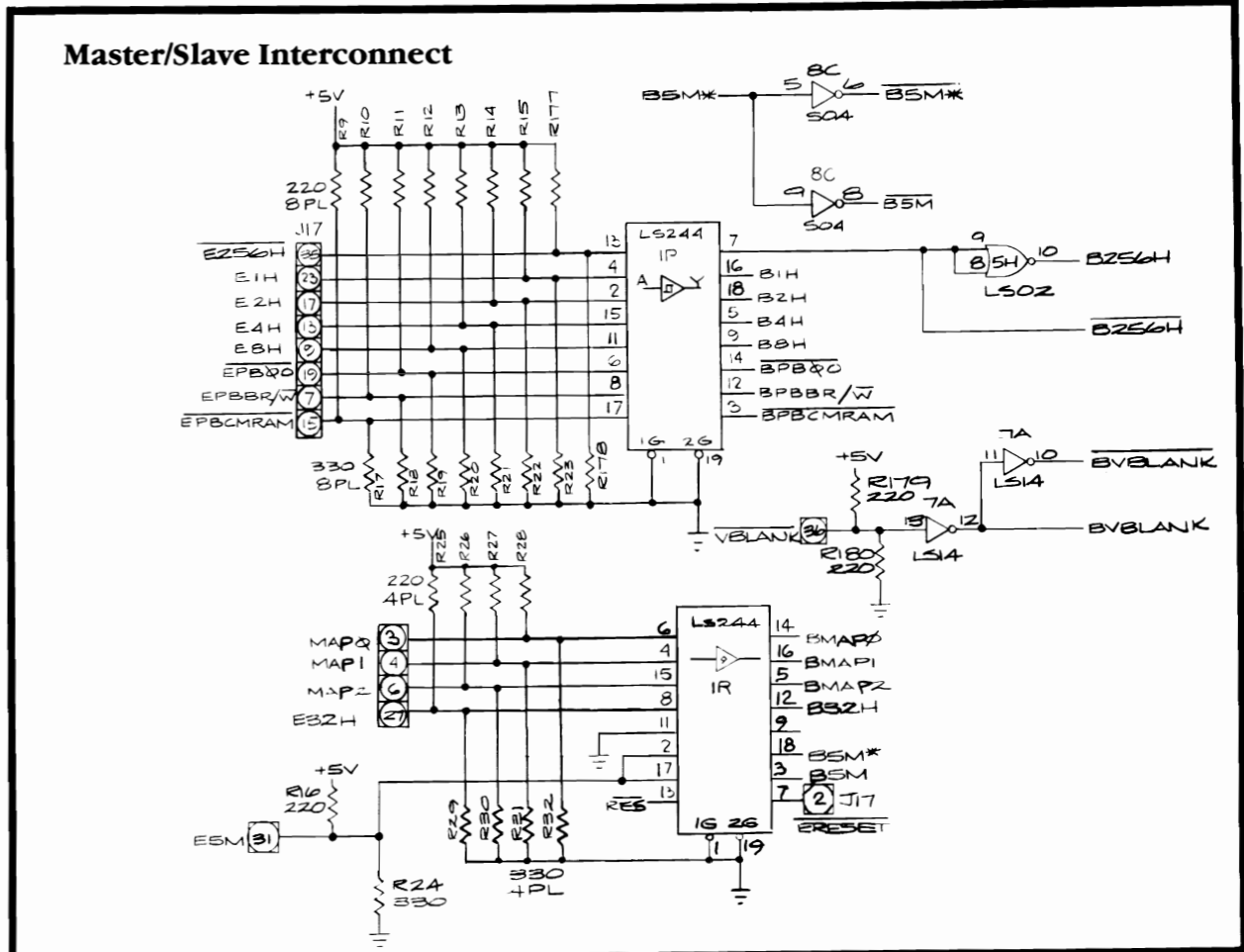
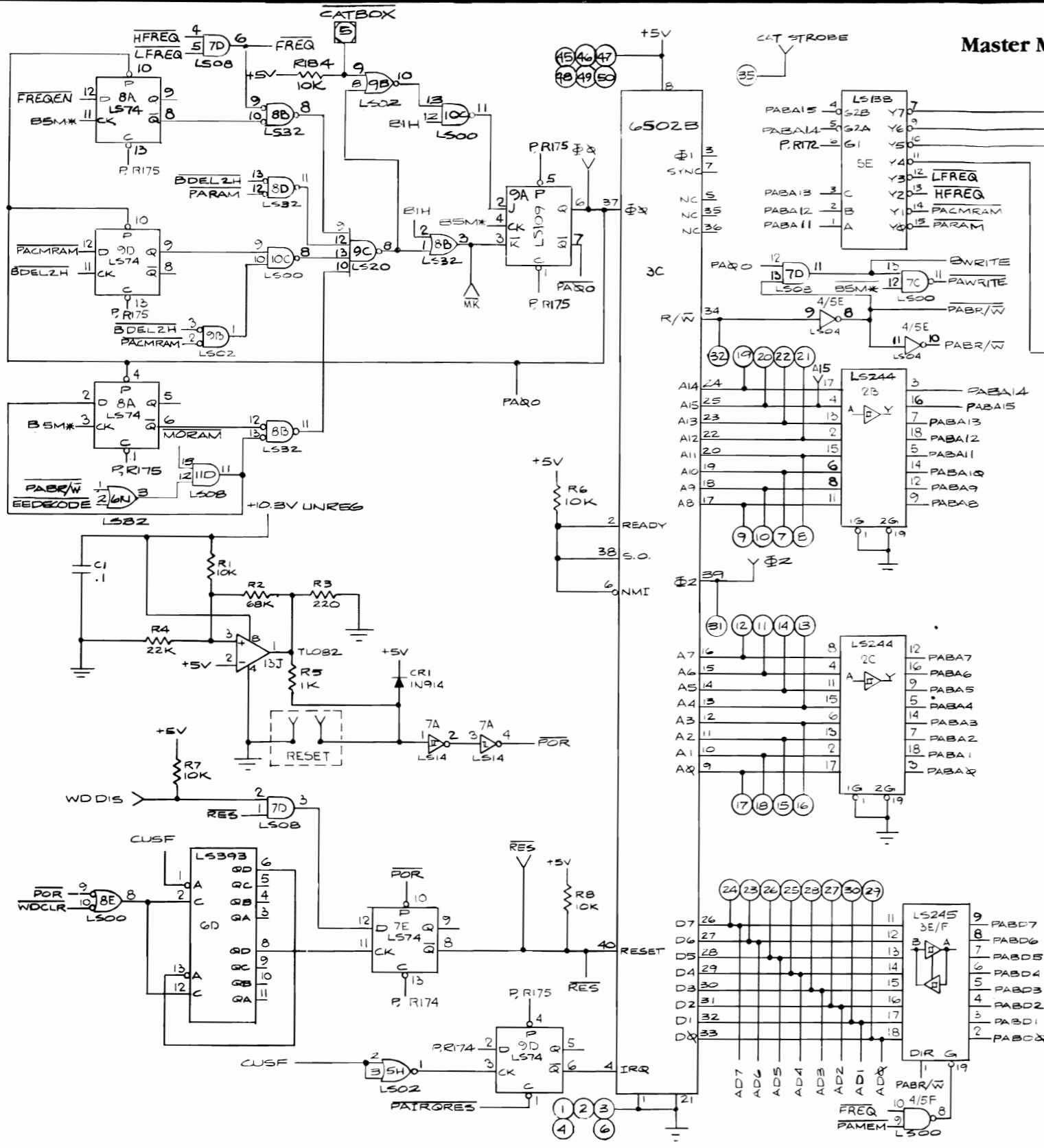
**Cloak and Dagger
Master PCB Schematic Diagram**



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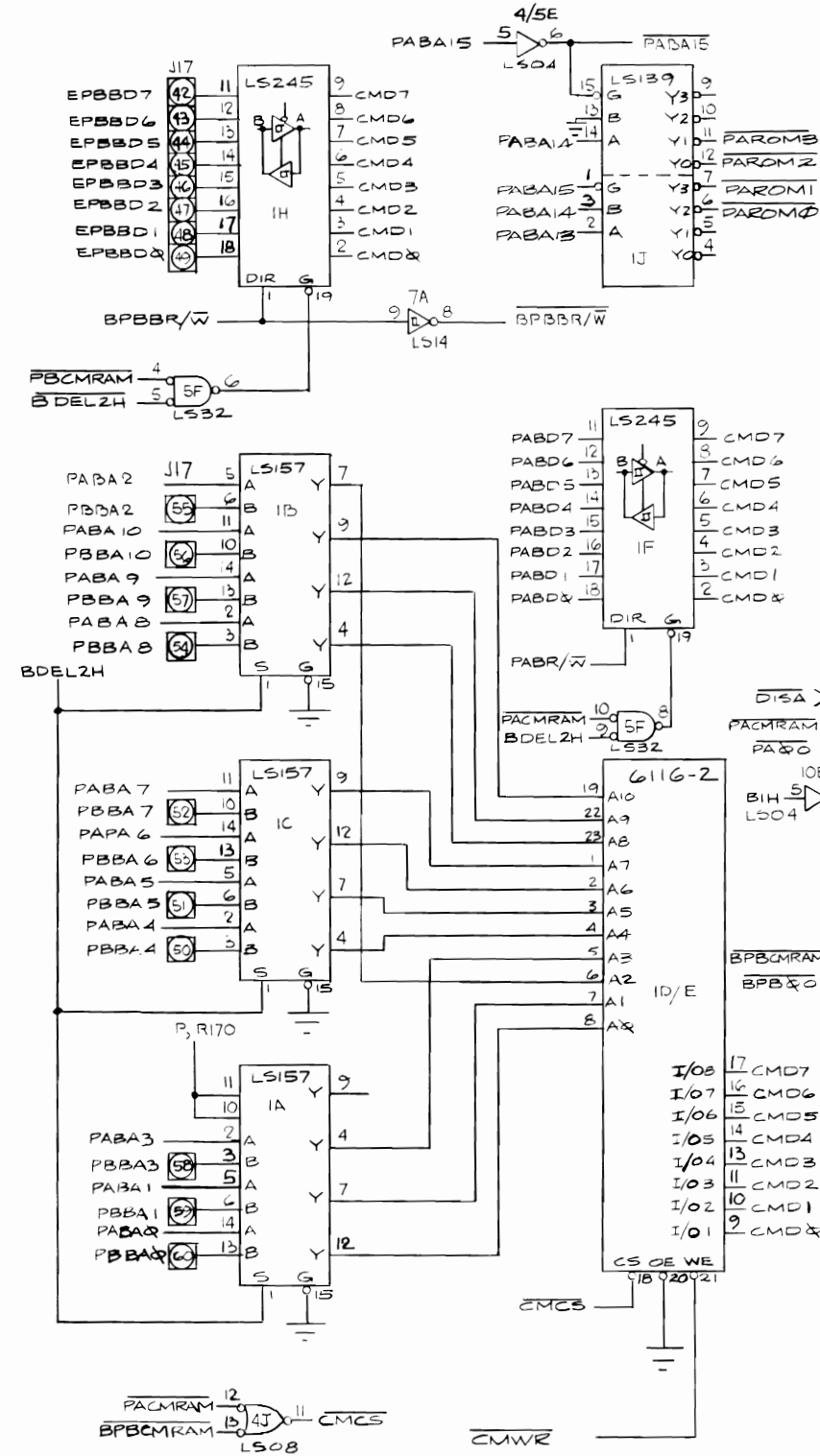
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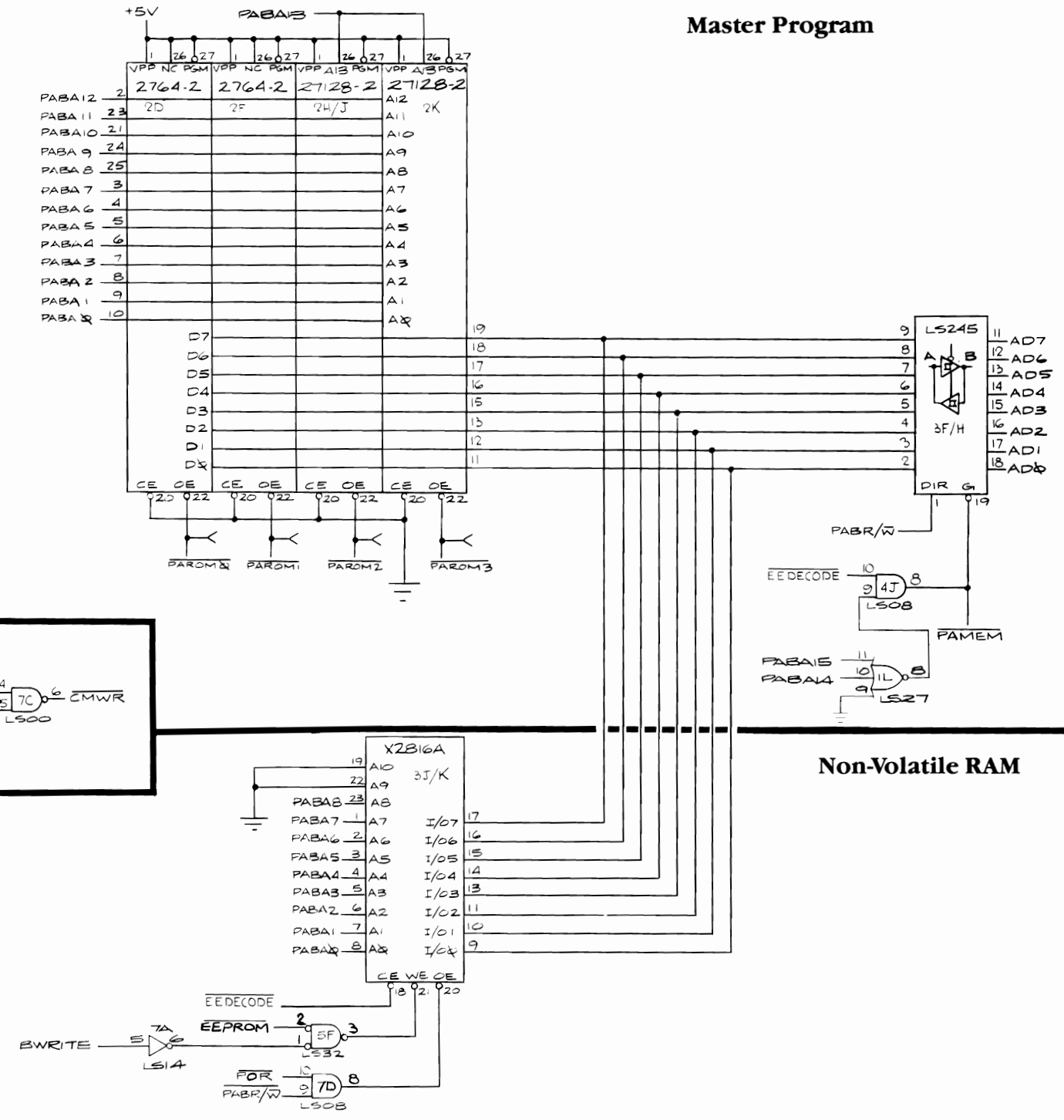
**Cloak and Dagger
Master PCB Schematic Diagram**



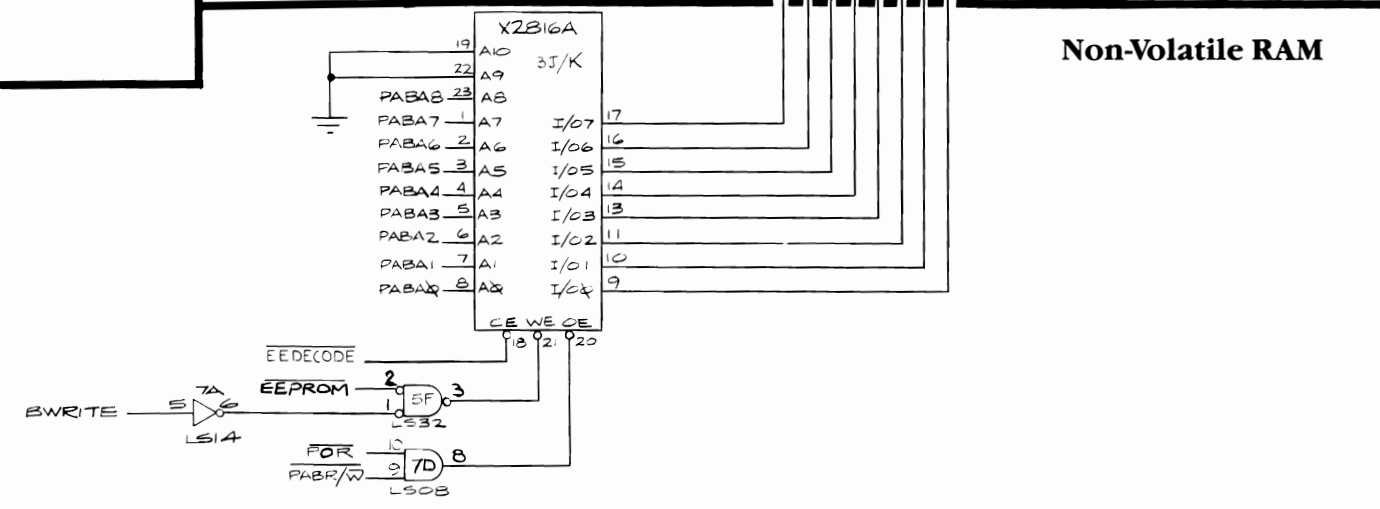
Communication RAM



Master Program



Non-Volatile RAM



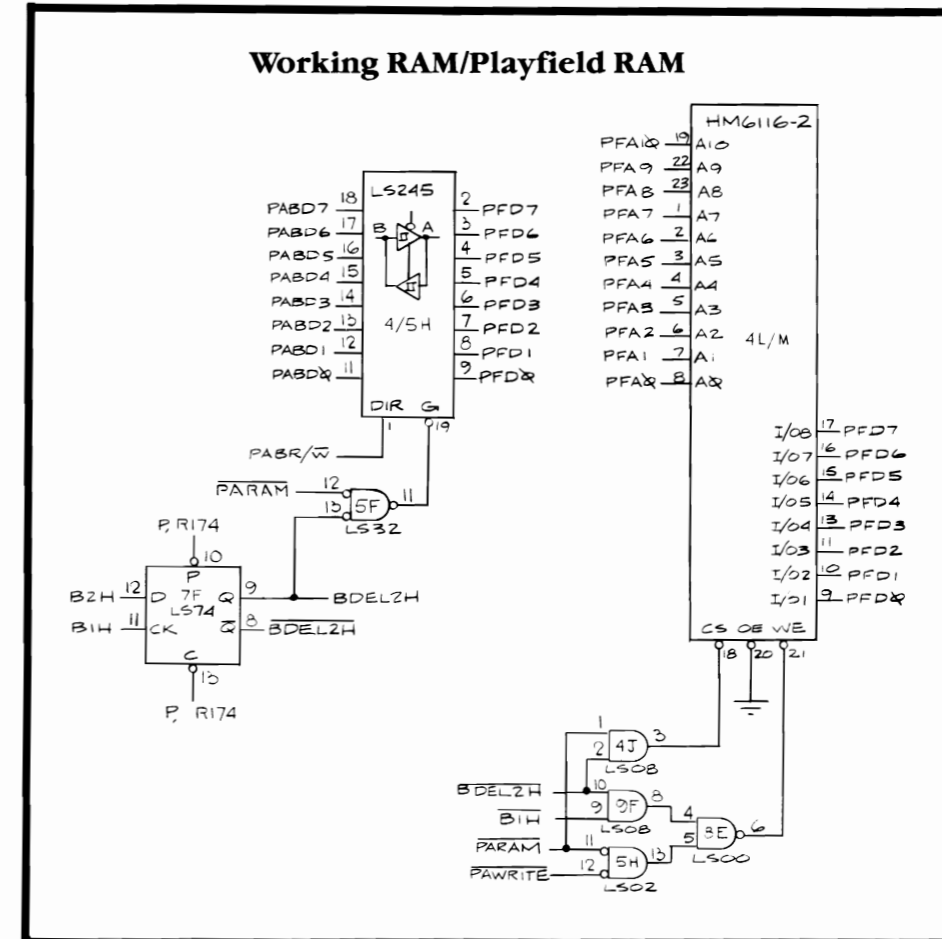
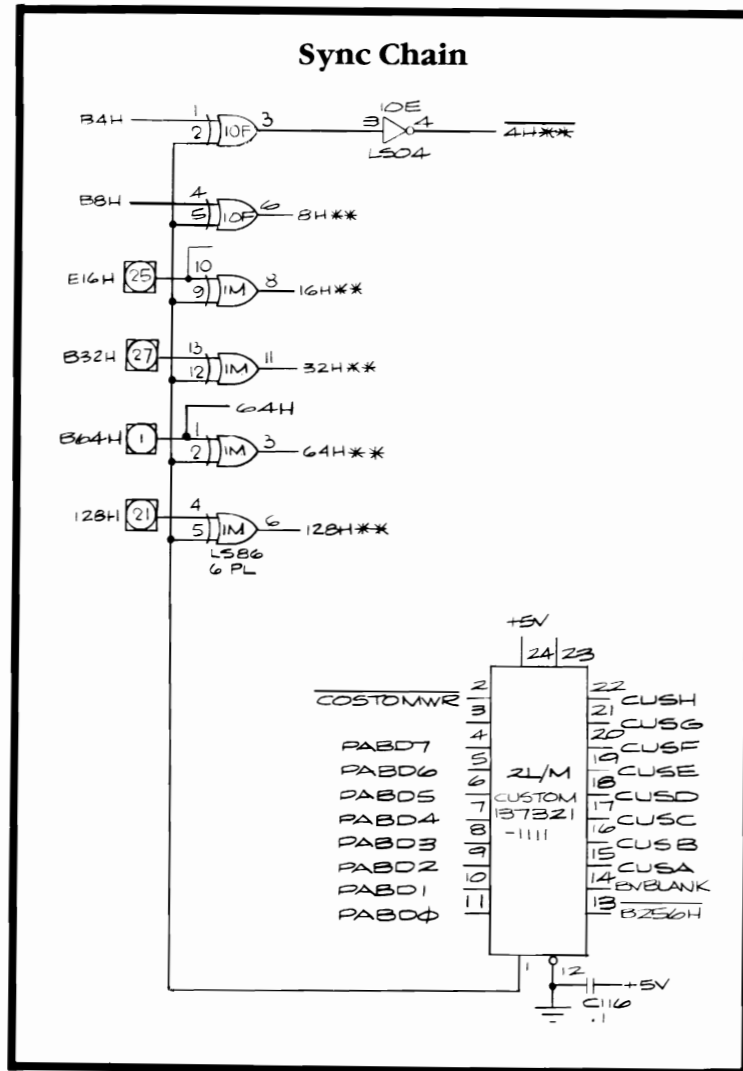
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Cloak and Dagger Master PCB Schematic Diagram



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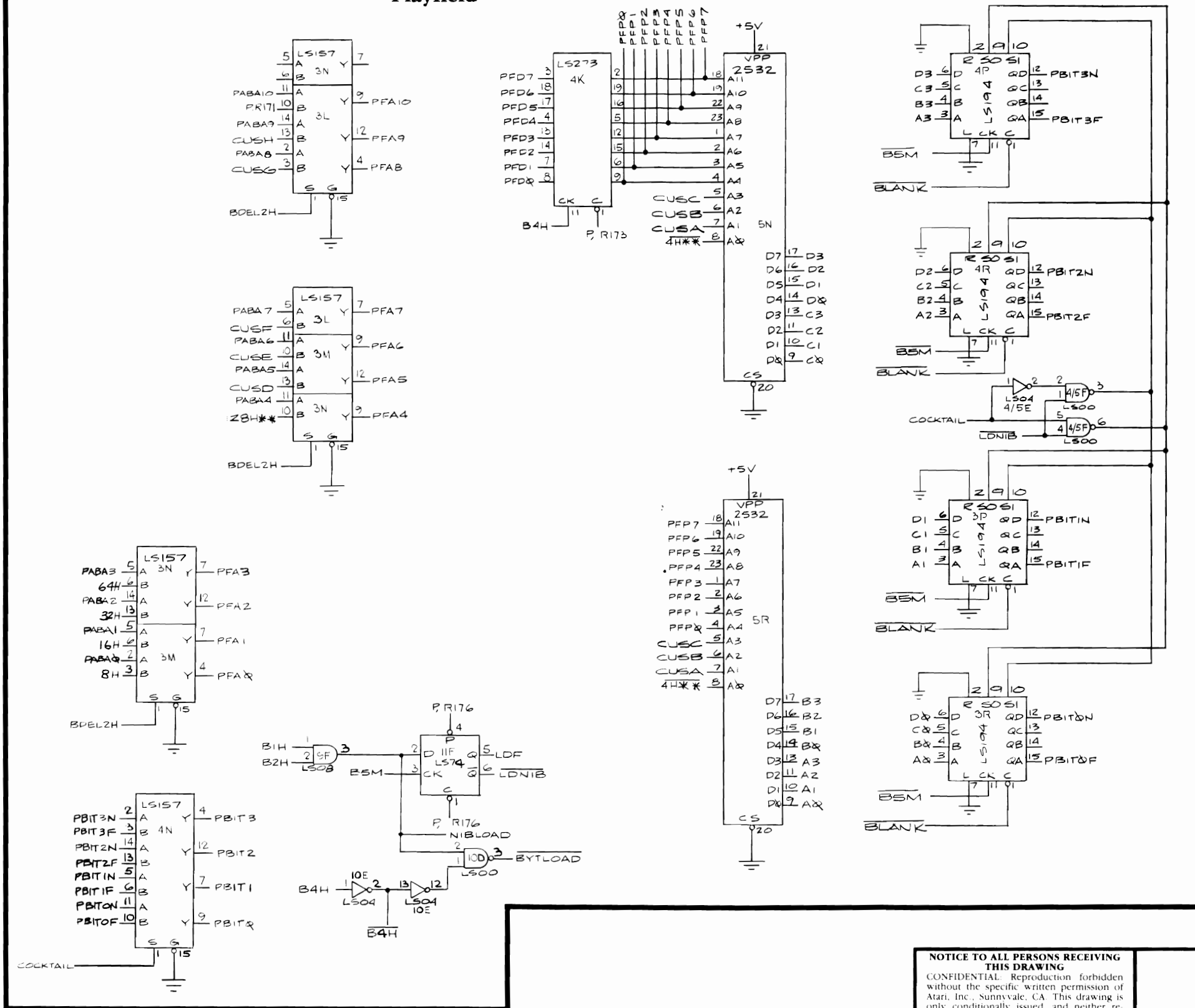
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Playfield



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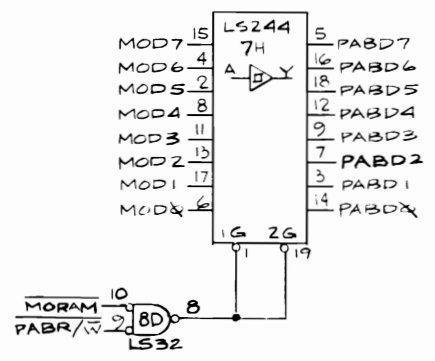
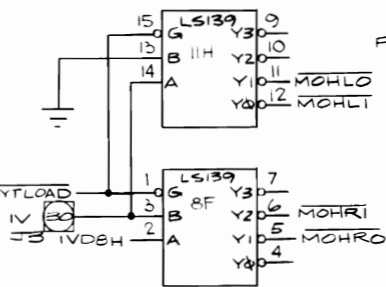
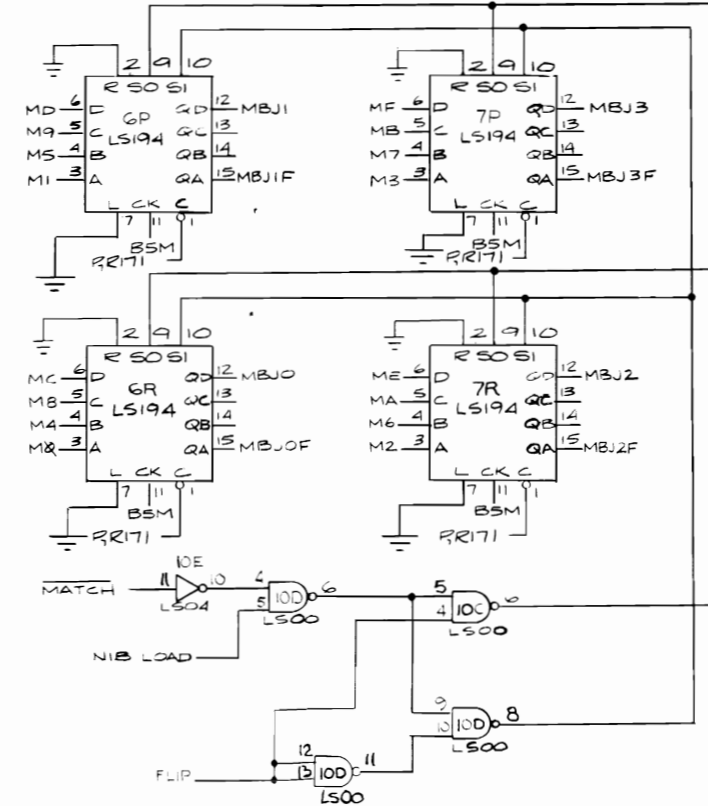
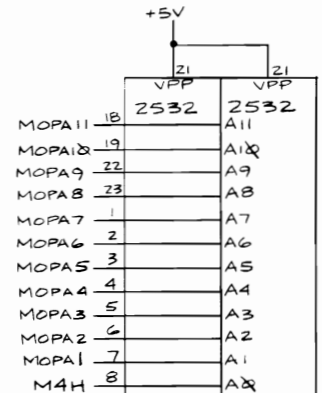
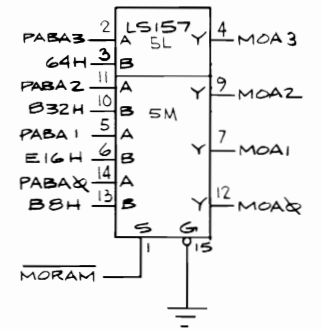
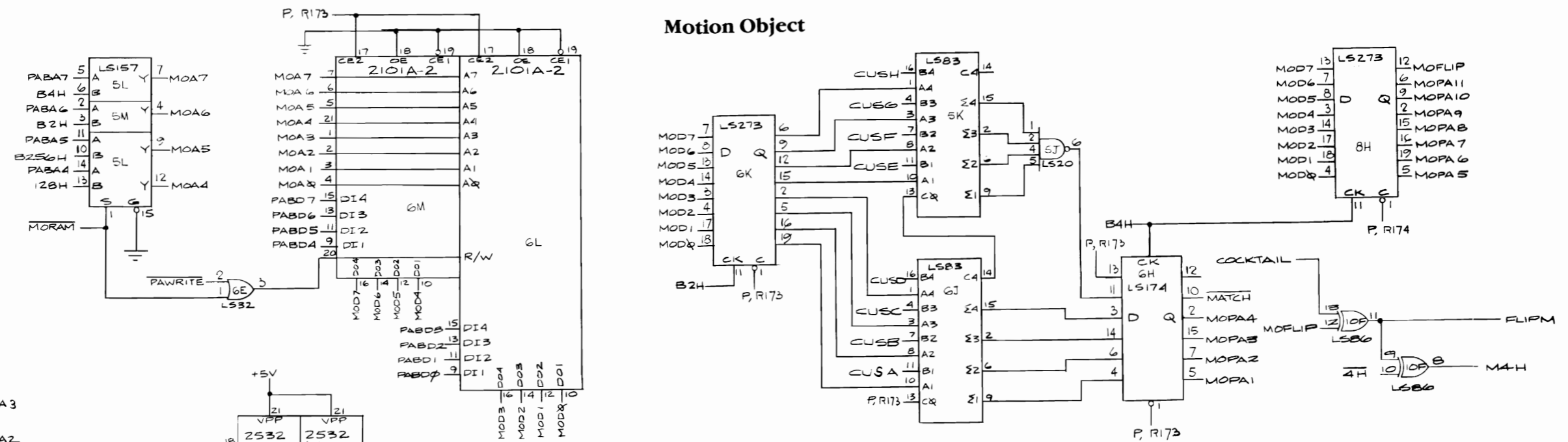
Cloak and Dagger
Master PCB Schematic Diagram



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Motion Object



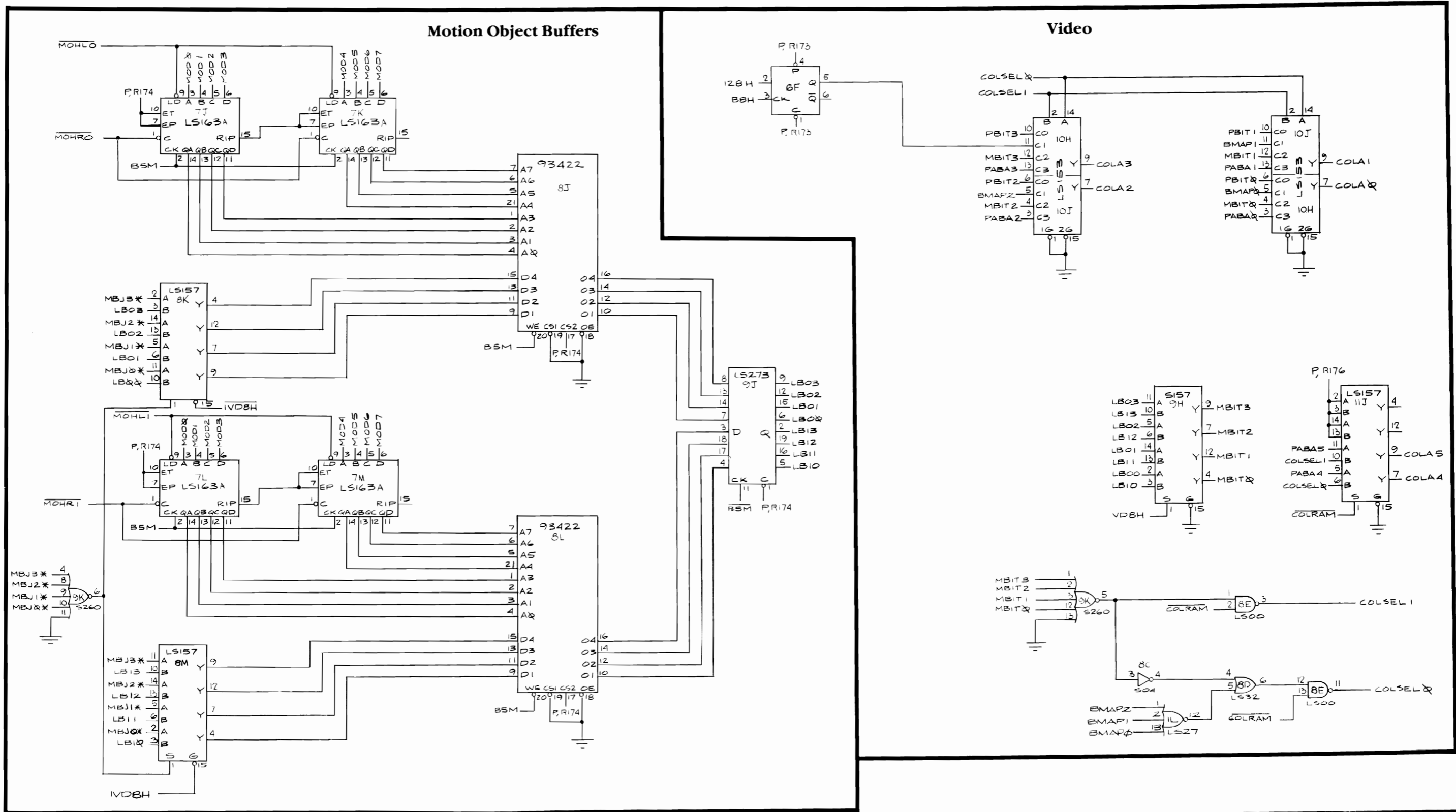
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Cloak and Dagger
Master PCB Schematic Diagram


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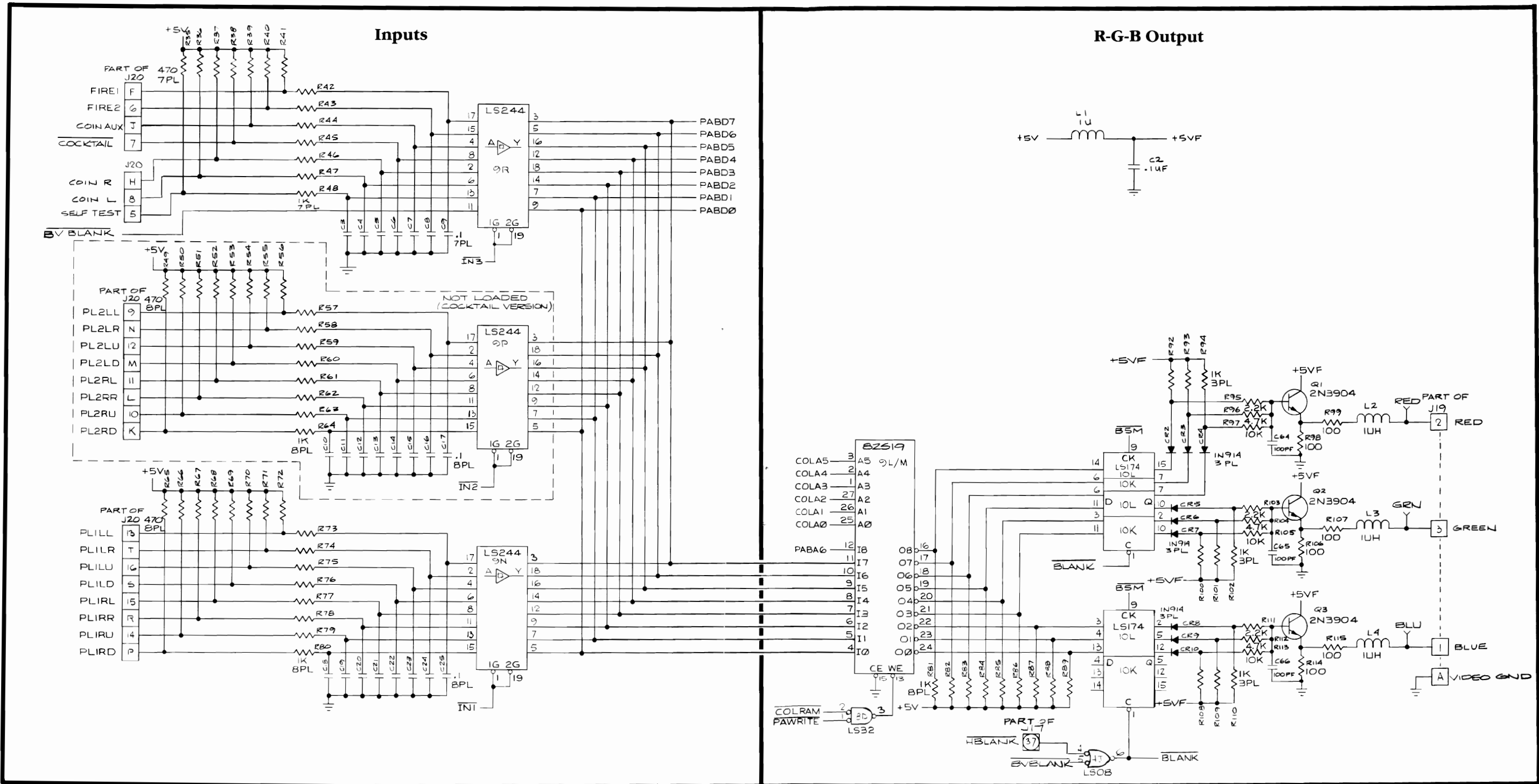


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**Cloak and Dagger
 Master PCB Schematic Diagram**


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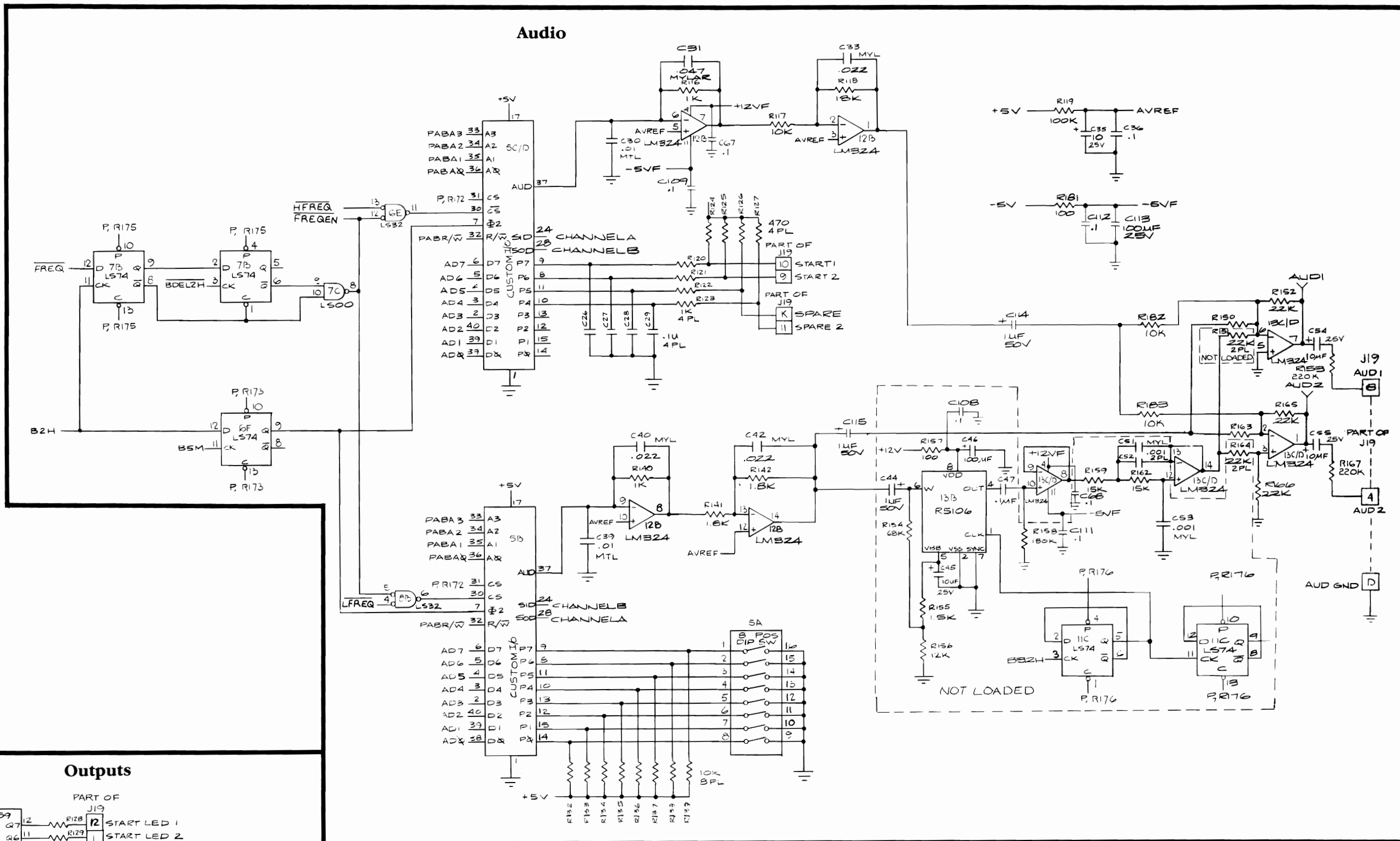
Cloak and Dagger
Master PCB Schematic Diagram


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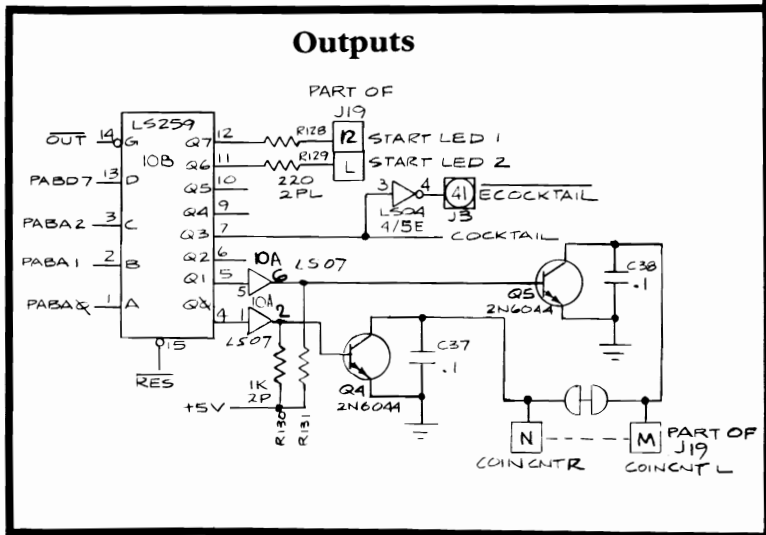
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Audio



Outputs



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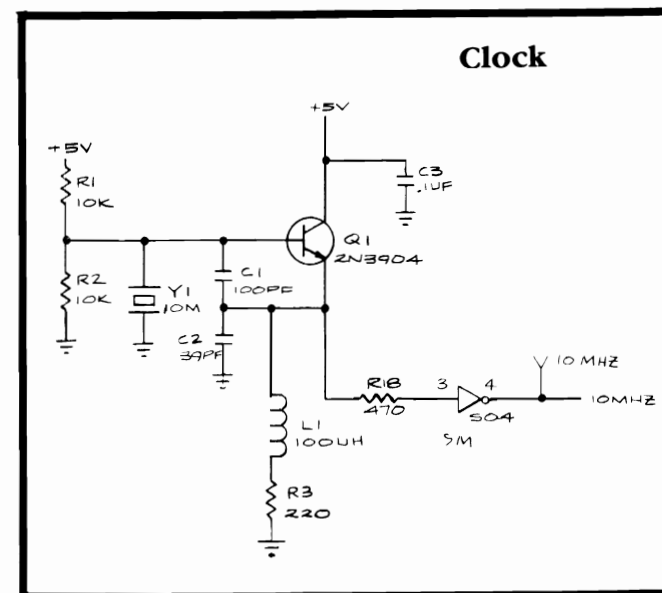
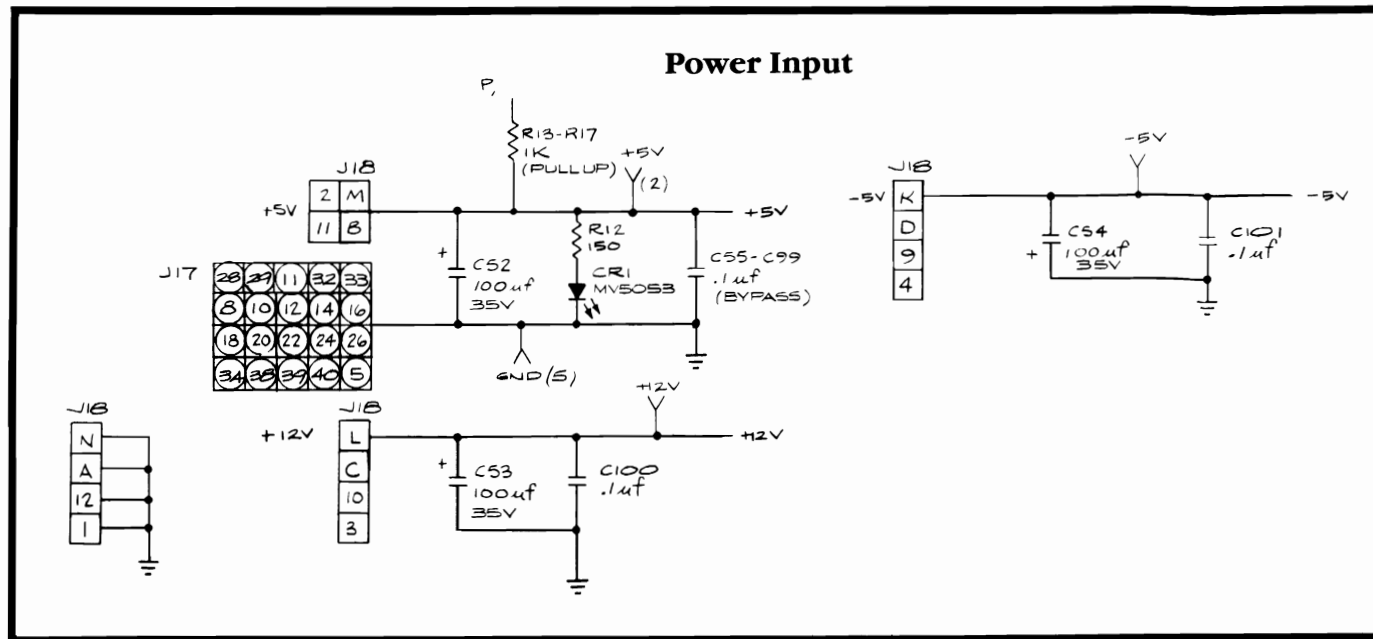
Cloak and Dagger Master PCB Schematic Diagram



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**Cloak and Dagger
Slave PCB Schematic Diagram**

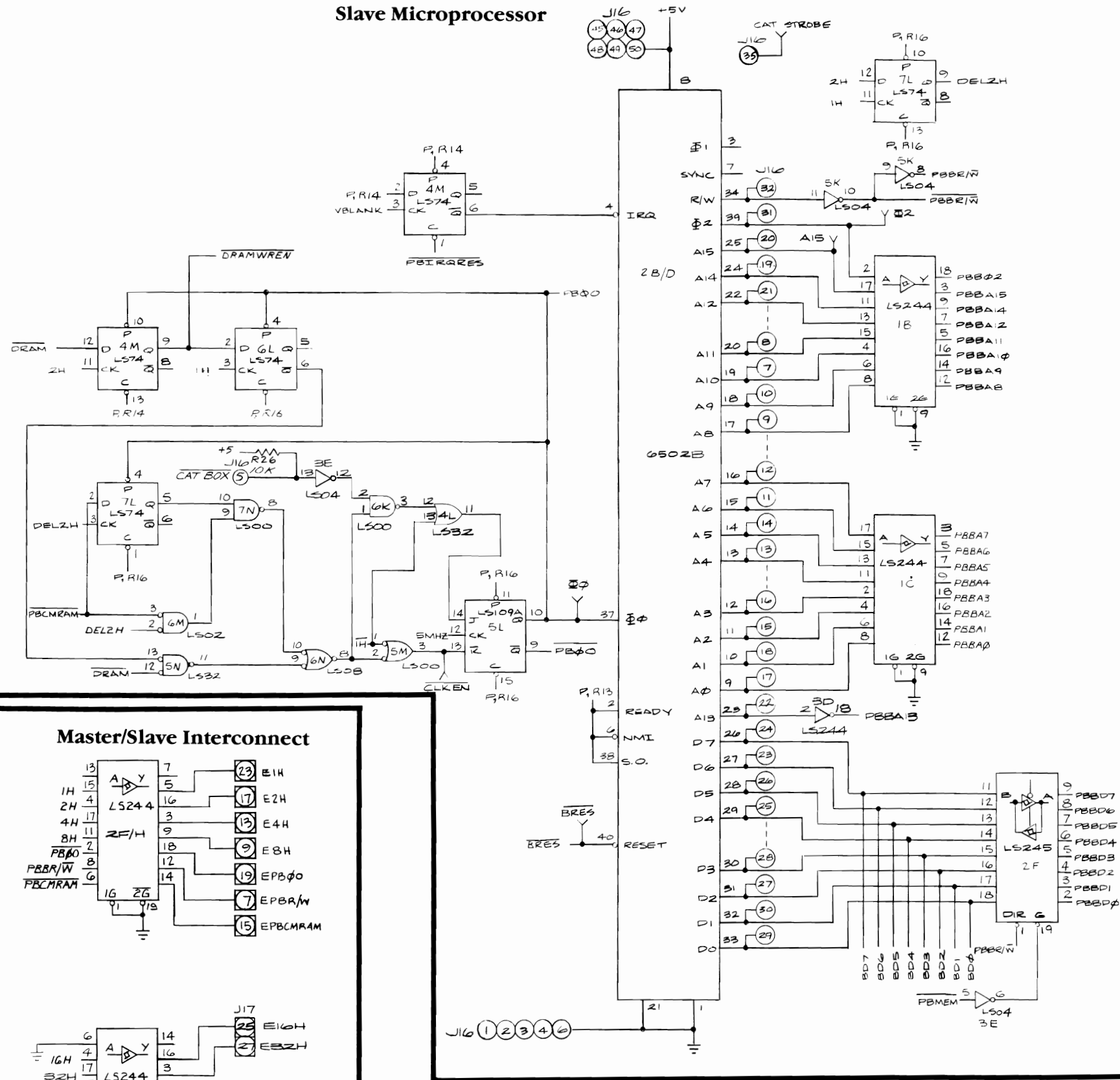


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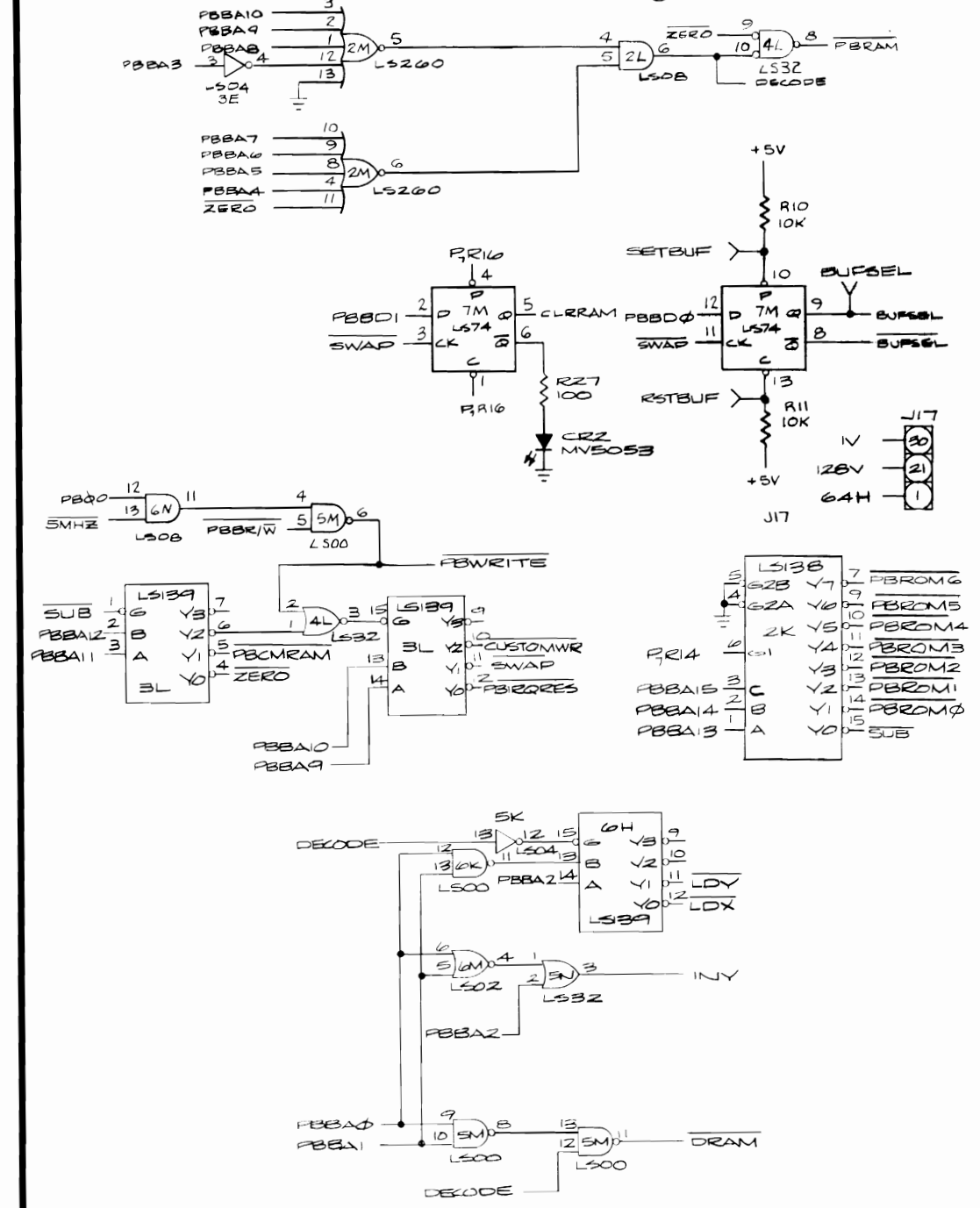
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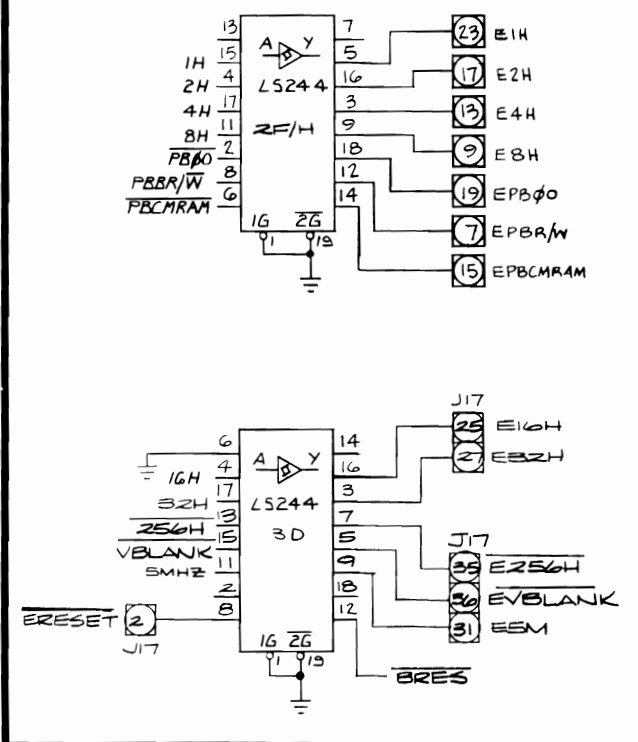
Slave Microprocessor



Slave Processing




Master/Slave Interconnect



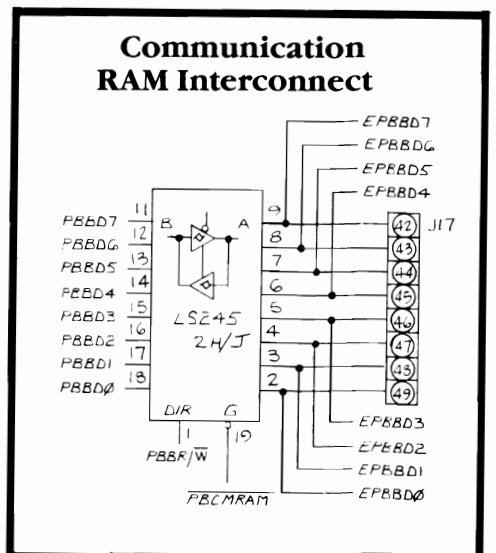
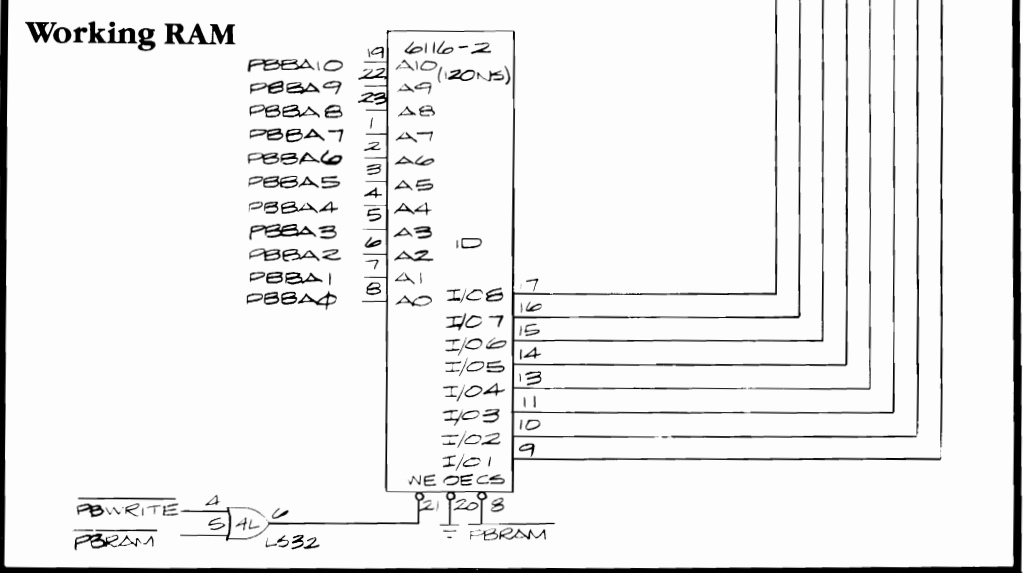
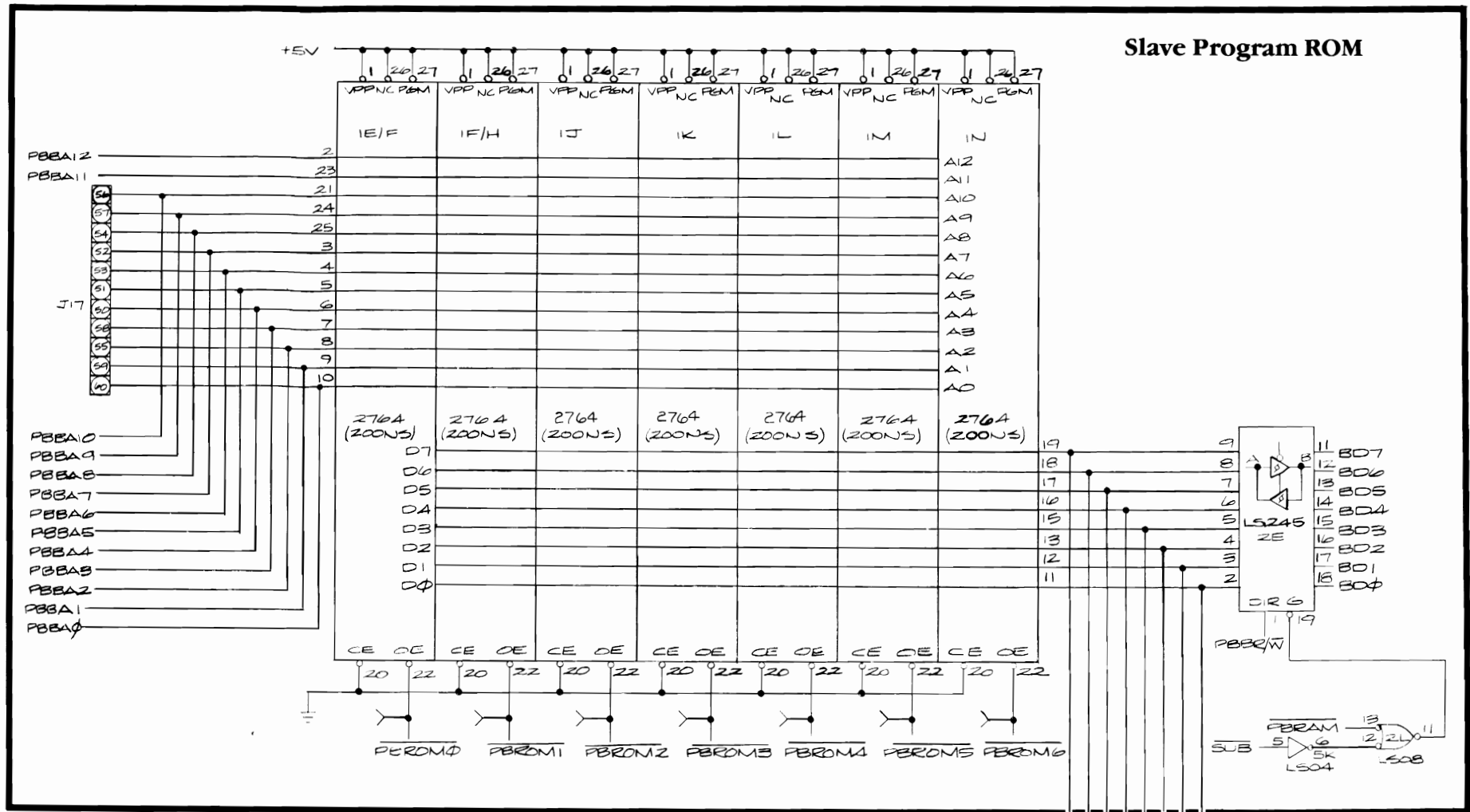
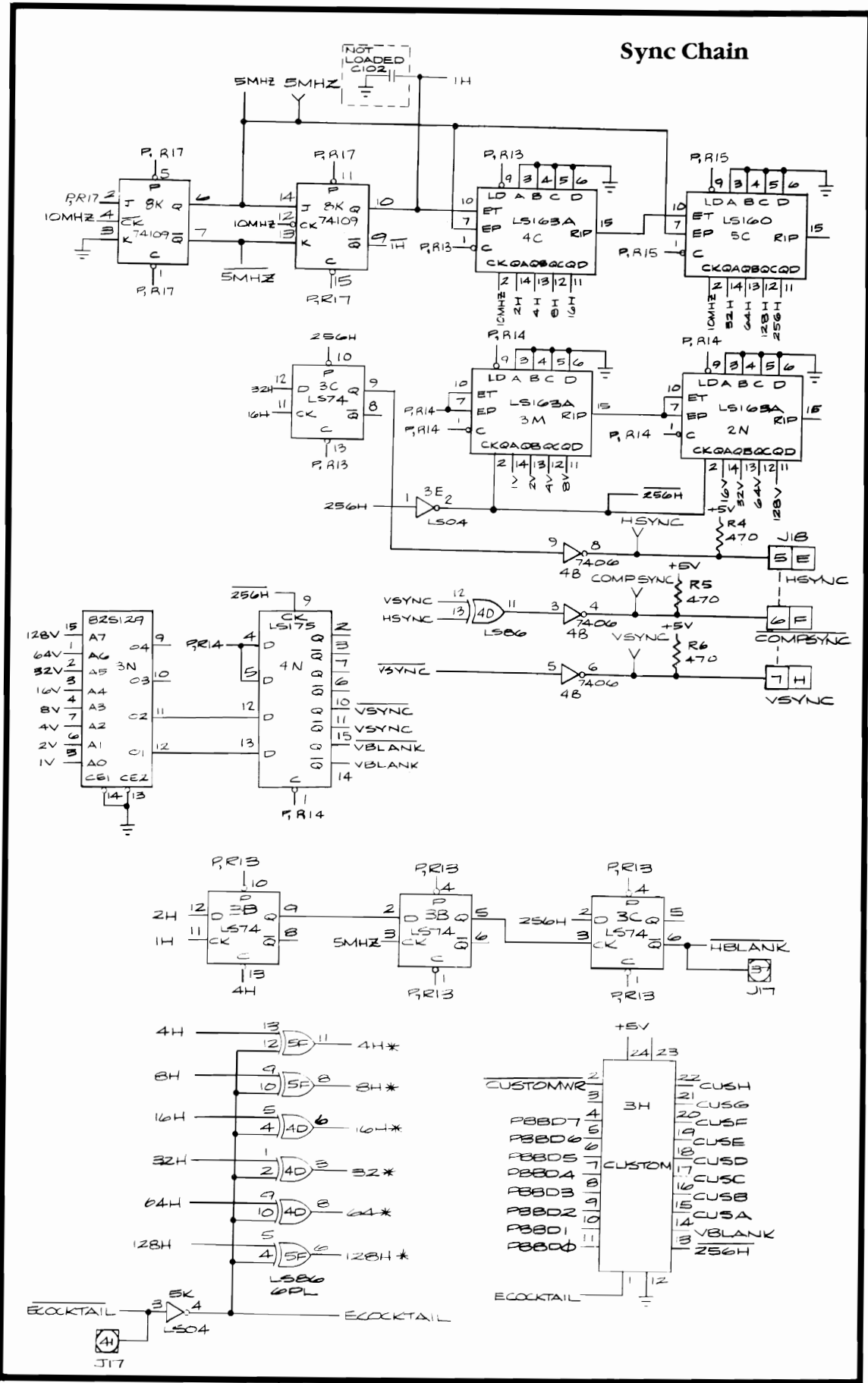
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Cloak and Dagger
Slave PCB Schematic Diagram



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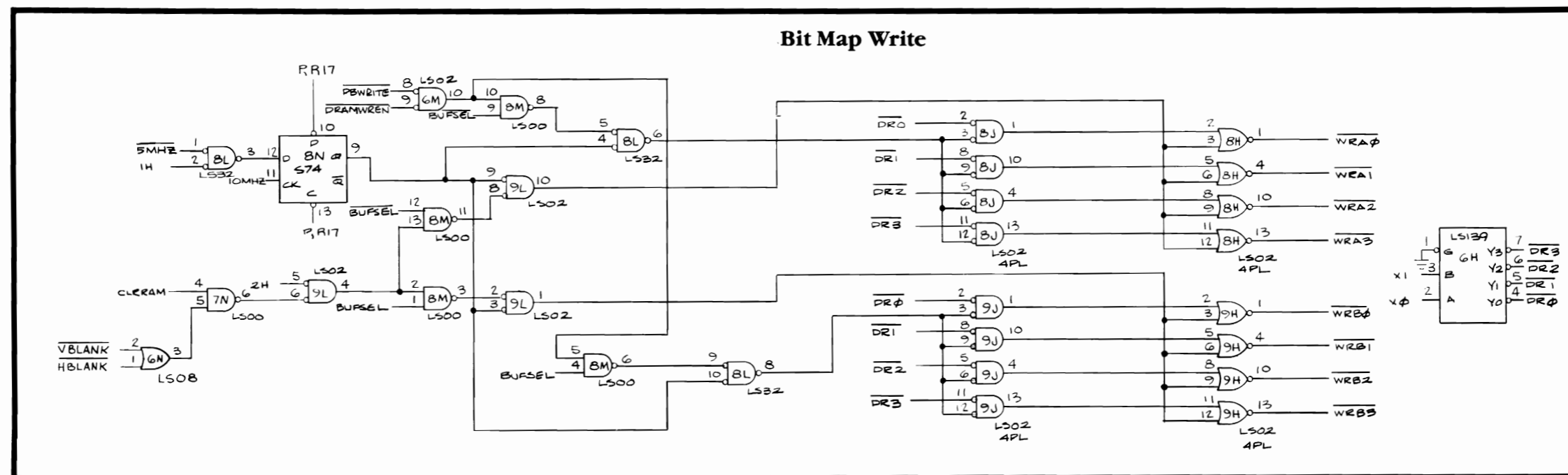
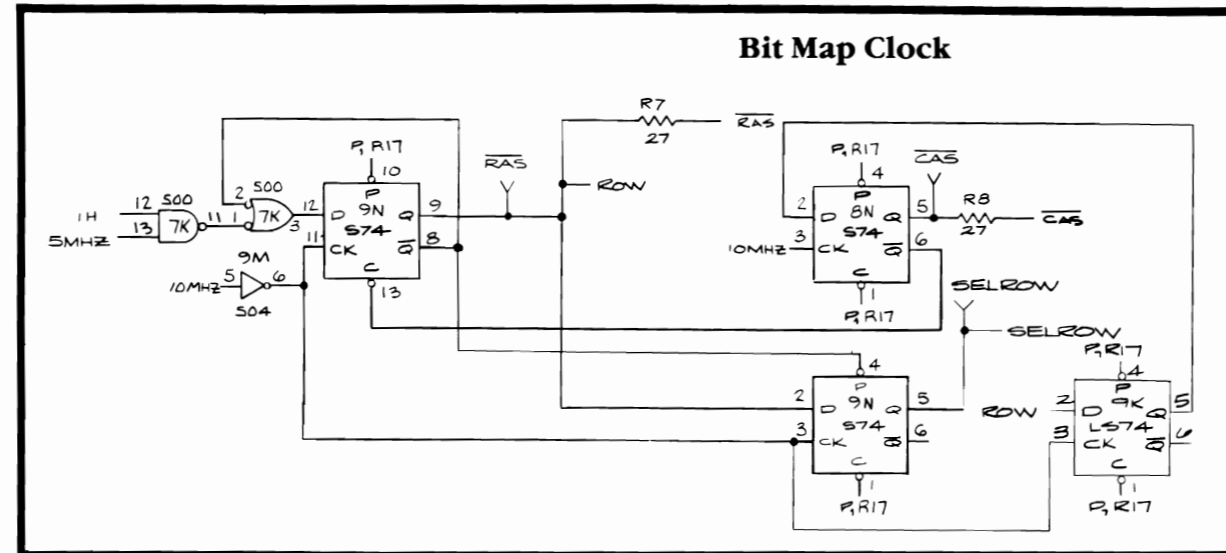
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Cloak and Dagger

Slave PCB Schematic Diagram

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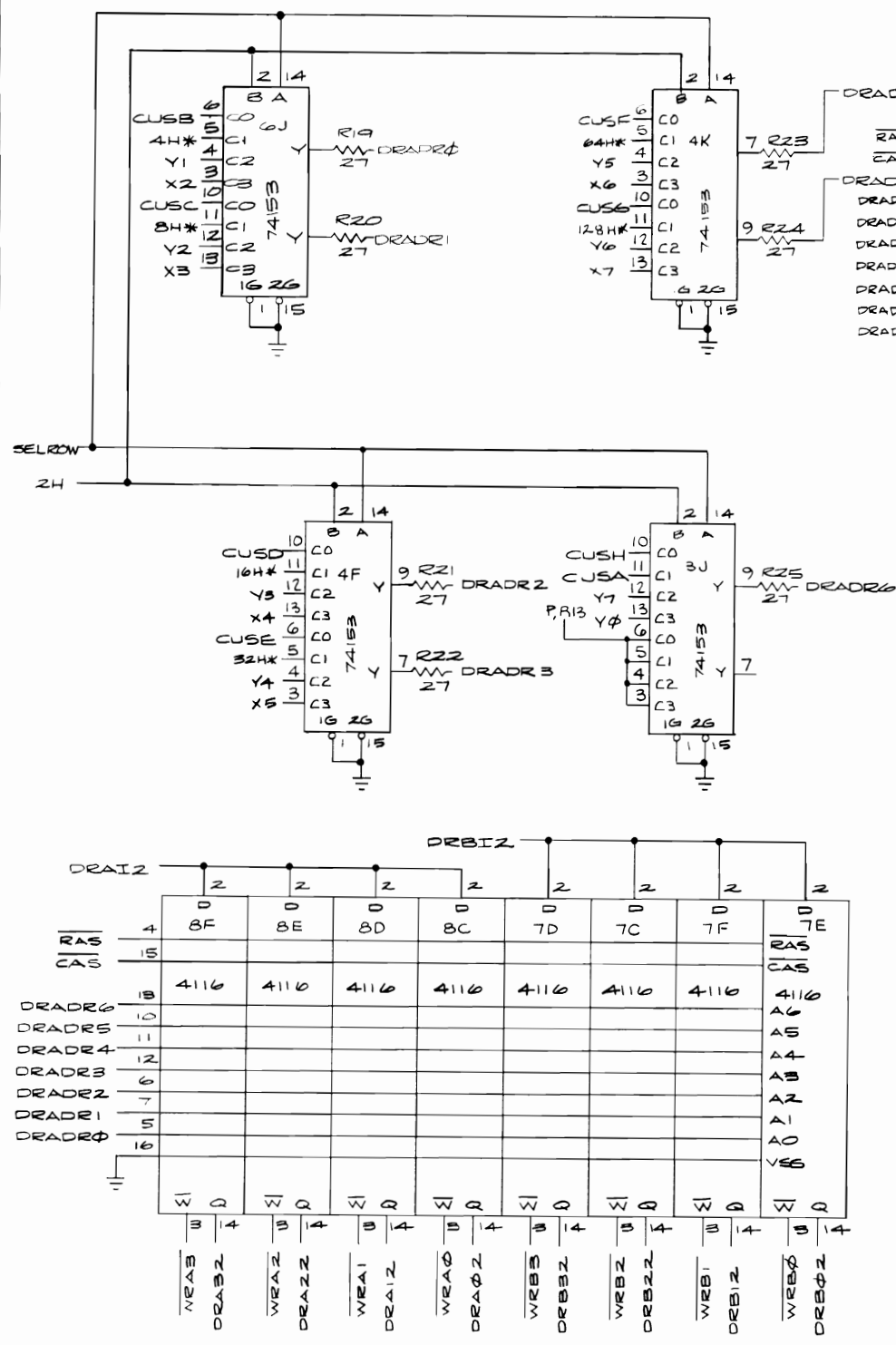
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Cloak and Dagger Slave PCB Schematic Diagram

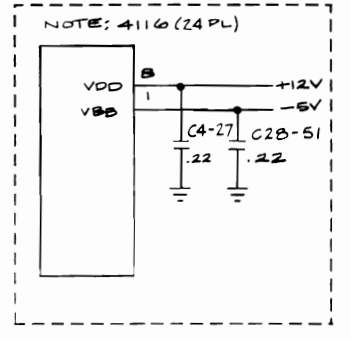
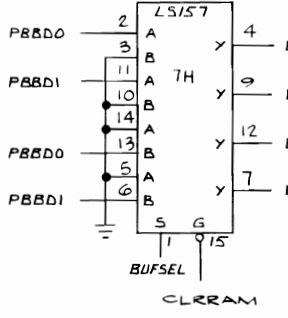
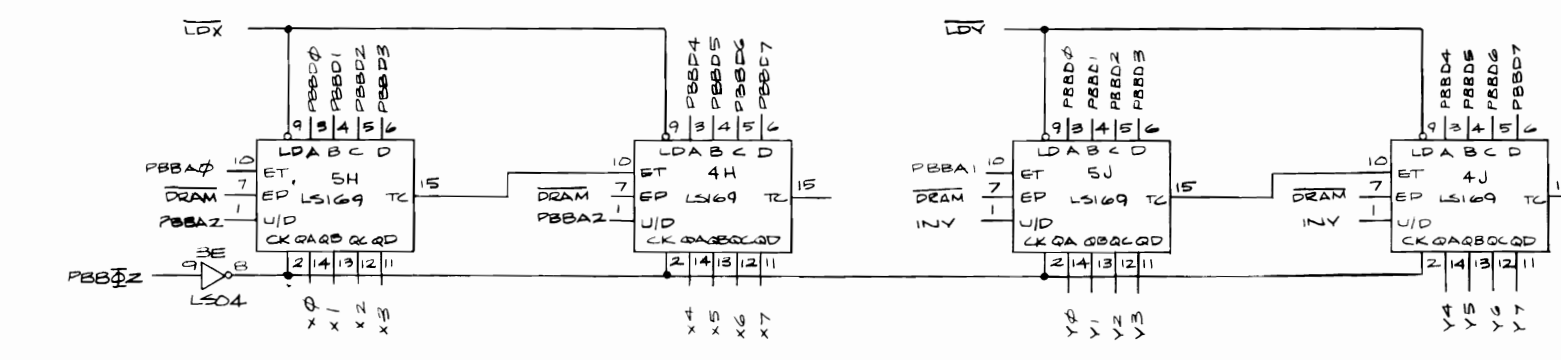
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Bit Map




DRADR0	DRADR1	DRADR2	DRADR3	DRADR4	DRADR5	DRADR6	DRADR7	RAS	CAS	DRB0	DRB1	DRB2	DRB3	DRB4	DRB5	DRB6	DRB7
16	15	7	12	11	10	13	4	4	15	0	1	2	3	4	5	6	7
4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116
10D	9D	10C	9C	10B	9B	10A	9A	9F	7B	9E	7A	10F	8A	10E			
WRB3	WRB2	WRB1	WRB0	WRB3	WRB2	WRB1	WRB0	WRB3	WRB2	WRB1	WRB0	WRB3	WRB2	WRB1	WRB0	WRB3	WRB2



NOTE: 4116 (24 PL)

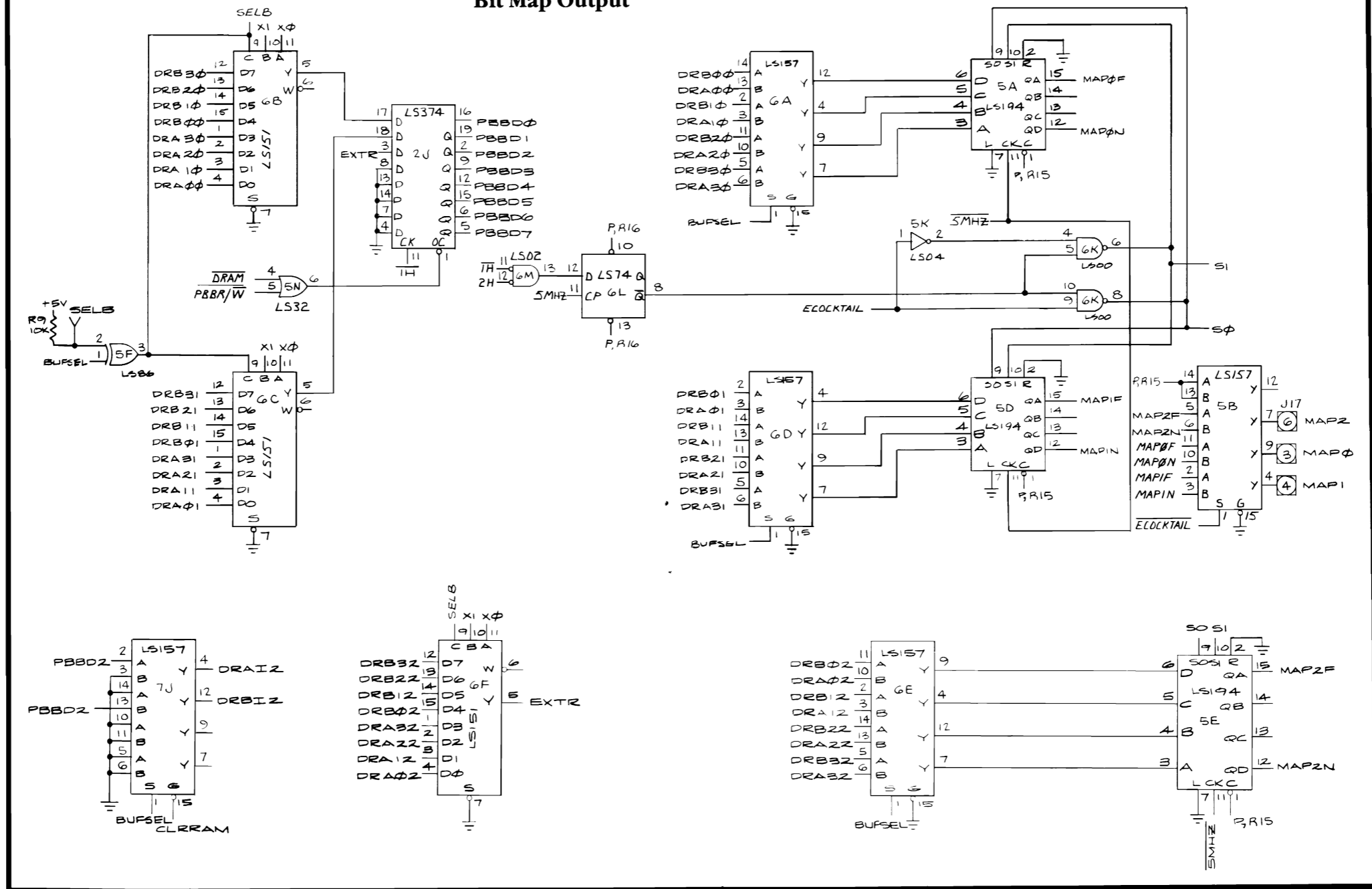
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Cloak and Dagger
Slave PCB Schematic Diagram



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Bit Map Output



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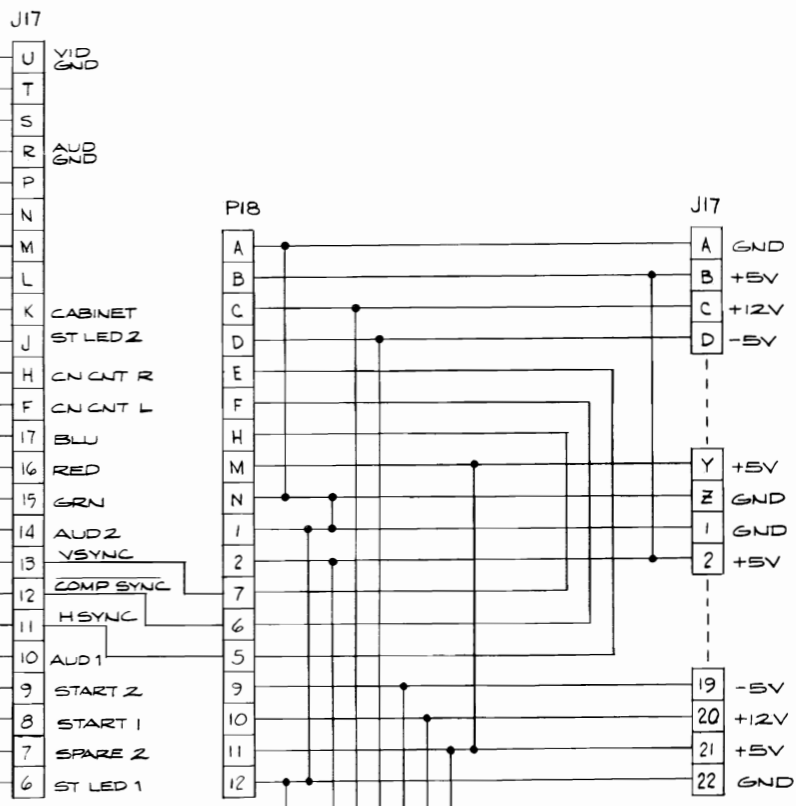
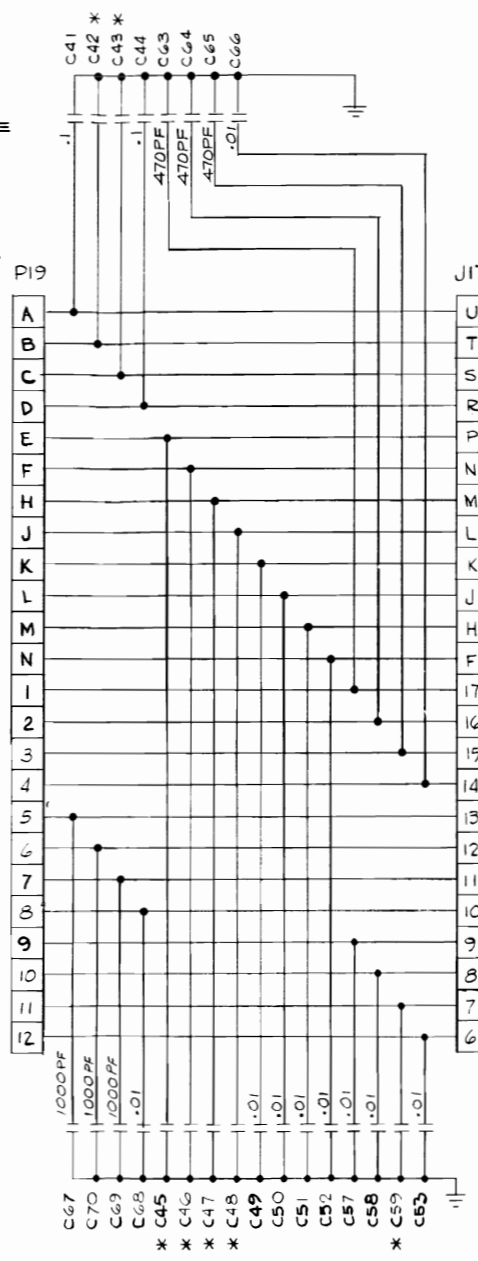
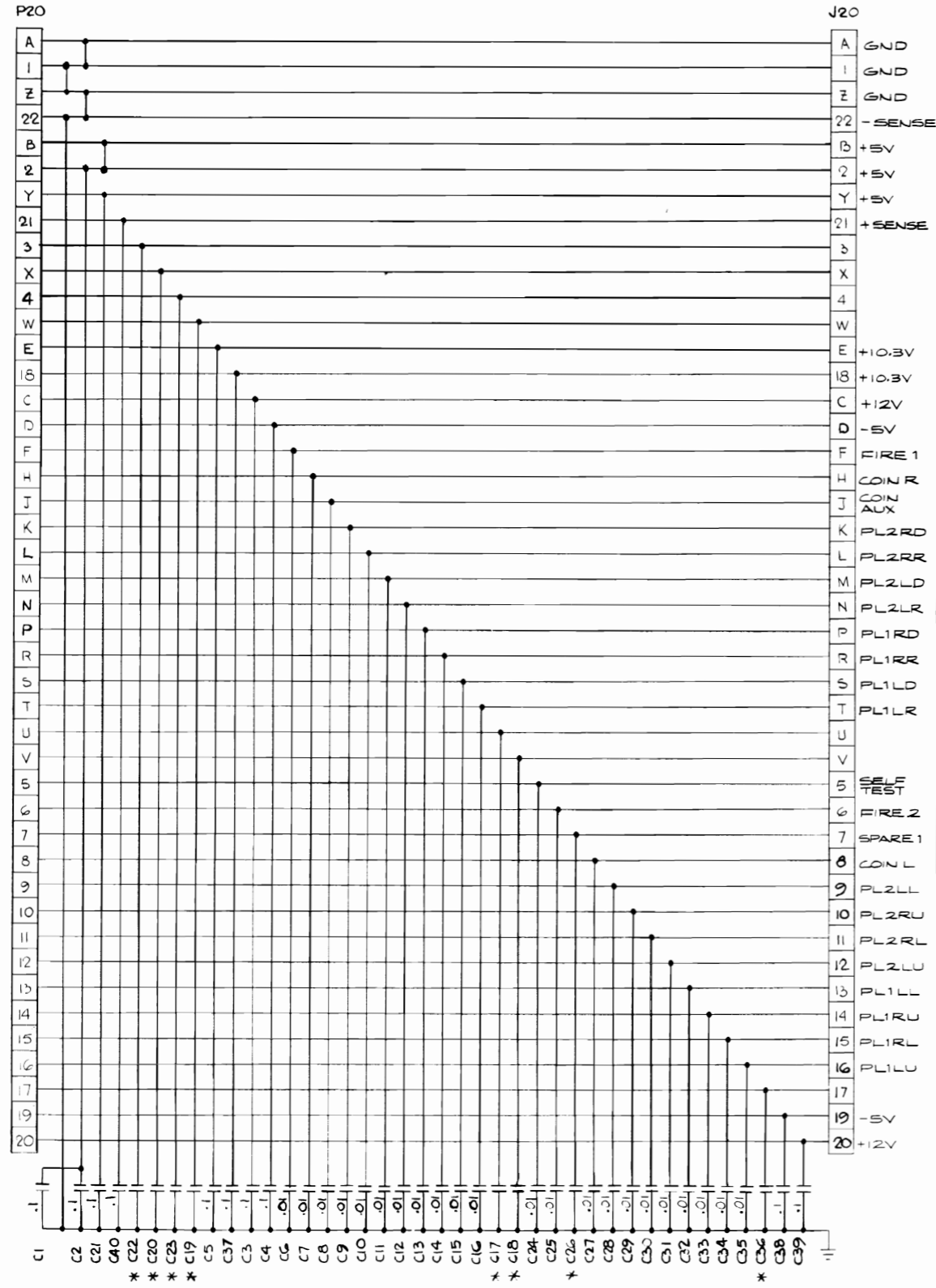
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NOTES:
 1. * DENOTES CAPACITOR NOT LOADED.

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**Cloak and Dagger
EMI Shield PCB**

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Master PCB

HEXA-DECIMAL ADDRESS	ADDRESS BUS SIGNAL LINES																READ/ WRITE	DATA BUS SIGNAL LINES								FUNCTION
	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0		D7	D6	D5	D4	D3	D2	D1	D0	
0000-03FF	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Working RAM
0400-07FF	0	0	0	0	0	1	A	A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Playfield RAM
0800-0FFF	0	0	0	0	1	A	A	A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Communication RAM
1000-100F	0	0	0	1	0							A	A	A	A		R	D	D	D	D	D	D	D	D	Custom I/O 1
1008	0	0	0	1	0							1	0	0	0		R	D								Start 2 Players
1008	0	0	0	1	0							1	0	0	0		R	D								Start 1 Player
1800-180F	0	0	0	1	1							A	A	A	A		R/W	D	D	D	D	D	D	D	D	Custom I/O 2
2000	0	0	1	0	0	0	0										R	D	D	D	D	D	D	D	D	Player 1 Joysticks
2200	0	0	1	0	0	0	1										R	D	D	D	D	D	D	D	D	Player 2 Joysticks
2400	0	0	1	0	0	1	0										R								D	Vertical Blank
																	R								D	Self-Test
																	R								D	Left Coin
																	R								D	Right Coin
																	R								D	Cocktail Input
																	R								D	Auxiliary Coin
																	R								D	Player 2 Igniter
																	R								D	Player 1 Igniter
2600	0	0	1	0	0	1	1										W	D	D	D	D	D	D	D	D	Custom Write
2800-29FF	0	0	1	0	1			A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Non-Volatile RAM
3000-30FF	0	0	1	1	0	0	0		A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Motion RAM
3200-327F	0	0	1	1	0	0	1			D*	A	A	A	A	A	A	W	D	D	D	D	D	D	D	D	Color RAM
3800	0	0	1	1	1	0	0							0	0	0	W	D								Right coin Counter
3801	0	0	1	1	1	0	0							0	0	1	W	D								Left Coin Counter
3803	0	0	1	1	1	0	0							0	1	1	W	D								Cocktail Output
3806	0	0	1	1	1	0	0							1	1	0	W	D								Start 2 LED
3807	0	0	1	1	1	0	0							1	1	1	W	D								Start 1 LED
3A00	0	0	1	1	1	0	1										W									Watchdog
3C00	0	0	1	1	1	1	0										W									Reset IRQ
3E00	0	0	1	1	1	1	1										W								D	Enable Non-Volatile RAM
4000-FFFF	0	1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	R	D	D	D	D	D	D	D	D	Program RAM
	1	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	R	D	D	D	D	D	D	D	D	Program RAM
	1	1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	R	D	D	D	D	D	D	D	D	Program RAM

*9th data bit for the Color RAM.

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Cloak and Dagger Memory Map-Master PCB

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Slave PCB

HEXA-DECIMAL ADDRESS	ADDRESS BUS SIGNAL LINES															READ/WRITE	DATA BUS SIGNAL LINES								FUNCTION	
	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1		A0	D7	D6	D5	D4	D3	D2	D1		D0
000-0007	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	A	R/W	D	D	D	D	D	D	D	D	Working RAM
0008-000A, 000C-000E	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	0	R/W						D	D	D	Store To/Read From Bit Map
	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	1	R/W									
	0	0	0	0	0	0	0	0	0	0	0	0	1	A	1	0	R/W									
000B	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	W	D	D	D	D	D	D	D	D	Bit Map X Coordinate
000F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	W	D	D	D	D	D	D	D	D	Bit Map Y Coordinate
0008	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	R/W									Decrmt. X, Incrmt. Y
0009	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	R/W									Decrmt. Y
000A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	R/W									Decrmt. X
000C	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	R/W									Incrmt. X, Incrmt Y
000D	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	R/W									Incrmt. Y
000E	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	R/W									Incrmt. X
0010-07FF	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Working RAM
0800-0FFF	0	0	0	0	1	A	A	A	A	A	A	A	A	A	A	A	R/W	D	D	D	D	D	D	D	D	Communication RAM
1000	0	0	0	1	0	0	0										W									Reset IRQ
1200	0	0	0	1	0	0	1										W								D	Swap Bit Maps
1200	0	0	0	1	0	0	1										W								D	Clear Bit Map
1400	0	0	0	1	0	1	0										W	D	D	D	D	D	D	D	D	Custom Write
2000-FFFF	A*	A*	A*	A	A	A	A	A	A	A	A	A	A	A	A	A	R	D	D	D	D	D	D	D	D	Program Memory

*Not equal to 000.

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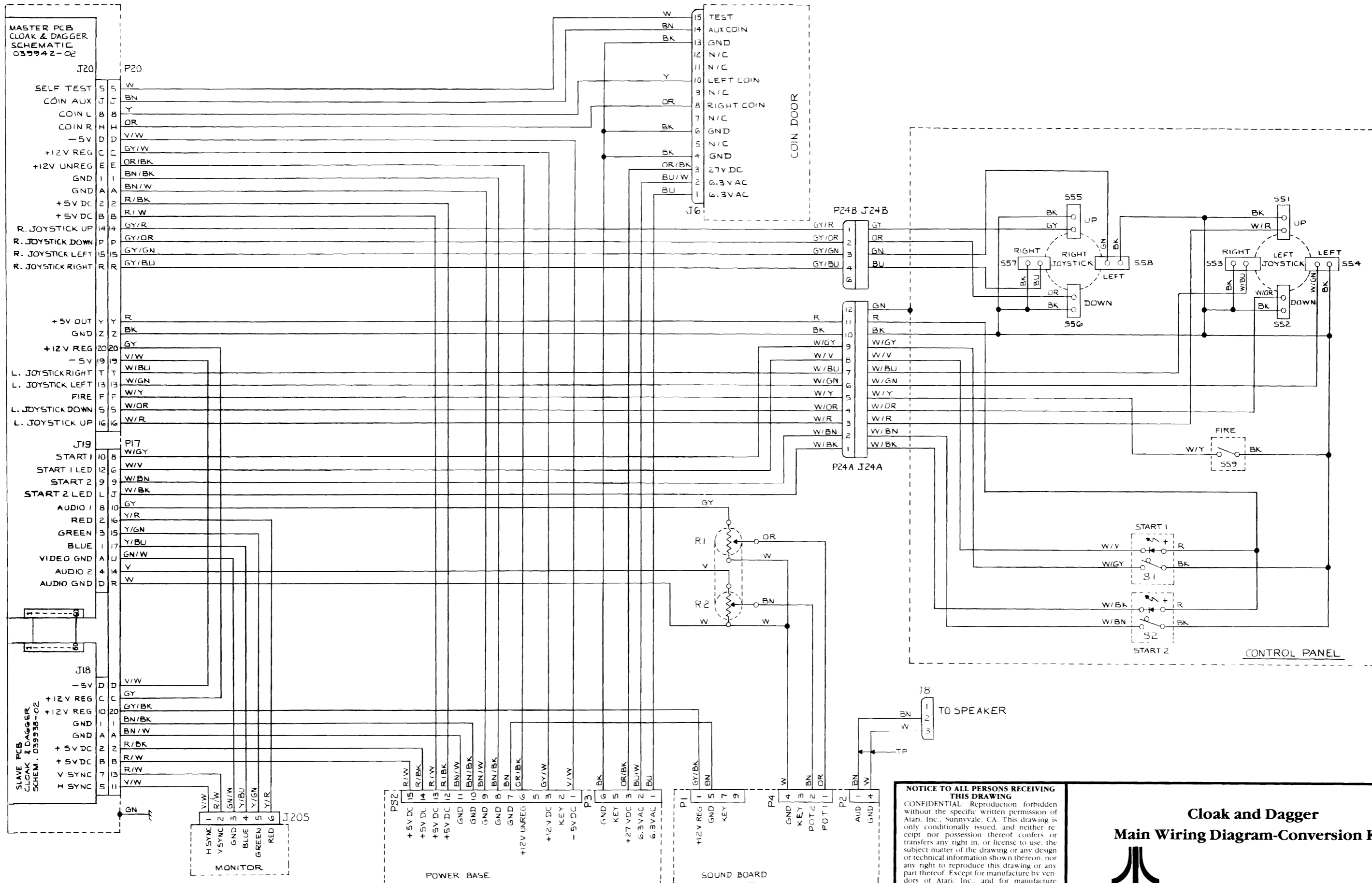
**Cloak and Dagger
Memory Map-Slave PCB**



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Cloak and Dagger
Main Wiring Diagram-Conversion Kit


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