

# **HIT ME**

## **OPERATOR'S MANUAL**

**ramtek**

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Sunnyvale, CA., 94086

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## 1.0 INTRODUCTION

1.1 Hit Me is another Ramtek Amusement Device which is engineered to provide the highest degree of reliability using the most advanced techniques available. All solid state circuitry insures years of dependable service.

Hit Me is a one to four player game in which each player is matched against a dealer. Initially each player is given a number of chips ranging from 5-40 and is allocated a number of hands also ranging from 5-40. The card game played is 21 in which the object is to come as close to a total point count of 21 without exceeding it.

## 2.0 GAME OPERATION

2.1 Initially each player drops a coin into the coin drop slot. For each coin dropped a player is entitled to a number of chips and hands ranging from 5 to 40 in steps of 5 depending on the setting of switches located on the game processor board. (See Section 3) The games are set at the factory initiating with 40 chips and 5 hands. The first coin dropped results in a coin sound and a display on the upper right hand TV screen as follows:

CHIPS	HANDS
#1	

The second coin dropped would add #2 underneath the #1 message. If four coins are dropped, the game automatically begins. If less than four coins are dropped, the start button must be pushed to start a game. Once the game has started, the number of chips and hands available for each player appears. For instance, in the four player case the display would be:

	CHIPS	HANDS
#1	40	5
#2	40	5
#3	40	5
#4	40	5

Next, "ANTE UP" appears on the upper left hand screen and "ANTE 00" appear across the screen, one for each hand. At this point a delay occurs which allows each player to Ante the desired number of chips by pressing his respective Ante button. Antes are automatically in groups of 10 chips until the player's supply is down to 20 at which time they are incremental. For each chip anted, a corresponding number is subtracted from the players supply shown in the upper right hand section of the screen. If no one antes for a set period, the game automatically antes the minimum possible (10 or 1 depending on player's supply) and then the cards are shuffled while the message "SHUFFLE IN PROGRESS" appears. Following the shuffle the cards are dealt, two cards face up to each player and one card up and one down to the dealer. Then a flashing "NEXT" appears above the first players cards and the message "FOR ANOTHER CARD, PUSH HIT. TO STOP, PUSH STAND."

Approximately 7 seconds are allowed the first player to decide whether to Hit or Stand. If no action is taken cards will automatically be dealt to the player until he busts or achieves 21. If the player hits, another card is dealt to him face up. If the sum of his three cards is still below 21, the flashing "NEXT" sign appears for him to again decide to hit or stand. This continues until the player either stands, busts, or five cards are dealt totaling below or equal to 21. In the latter case, the player is automatically awarded 21 and stands. Once the player busts, stands, or achieves an automatic 21, the flashing "NEXT" sign appears above the next players cards and the process is repeated. Note that an ace can count as either 11 or 1 and the machine will automatically give 11 points to the ace unless it is necessary to give it a value of 1 in order to prevent busting.

Once all the players have made their final decisions and have been dealt all their cards, the dealer down card is shown and additional cards are automatically dealt to the dealer if necessary until he either busts or achieves a score of 17 or greater, in which case the dealer automatically stands.

Next, one of the following messages appear depending on the dealers score.

- a) If the dealer busts (dealers score exceeds 21).  
"DEALER PAYS ALL BUT BUSTS, NATURALS PAY 2-1"
- b) Dealers score is 17-20 inclusive.  
"DEALER PAYS \_\_\_ OR BETTER NATURALS PAY 2-1"

c) Dealer score is 21 but is not a natural. A natural is a score of 21 achieved with an ace and a 10 value card.

"DEALER PAYS NATURALS ONLY, NATURALS PAY 2-1"

d) Dealer has a natural.

"DEALER PUSHES NATURALS"

Next, above each player's cards appears one of the following messages, depending on how the player fared.

"WIN", "LOSE", "PUSH"

The players that win then receive their initial bet plus winnings and those that pushed receive their initial bet. Then, "ANTE UP" appears again and another hand begins. A player can bet all his available chips up to a maximum of 200 chips.

The game is over when all the hands available have been used or when every player has used all his chips. At this time, the following message appears:

"GAME OVER, INSERT 25¢ FOR EACH PLAYER, PUSH START"

During the course of the game, the cards are not reshuffled until all 52 cards have been played.

In later HIT ME games an attract sequence follows the game over message.

### 3.0 OPERATOR SELECTABLE OPTIONS

3.1 The characteristics of the game which can be altered by the operator are:

- 1) Number of chips each player starts with at the beginning of a game.
- 2) The number of hands available for each game.
- 3) Whether or not a free hand is given on naturals.
- 4) The overall speed of the game, that is, the time allowed for decisions, dealing speed, etc.
- 5) The width of the cards dealt.

A component top view of the microprocessor board used on Hit Me is shown in FIGURE 1.

The chart below explains the settings of the 8 switches on the DIP switch.

A plus in a column means the toggle switch is up on the plus side of the DIP.

SW	123	No. of Chips	456	No. of Hands
	000	5	000	5
	+00	10	+00	10
	0+0	15	0+0	15
	++0	20	++0	20
	00+	25	00+	25
	+0+	30	+0+	30
	0++	35	0++	35
	+++	40	+++	40

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	++0	20	++0	20
	00+	25	00+	25
	+0+	30	+0+	30
	0++	35	0++	35
	+++	40	+++	40



When switch 7 is up on the plus side of the DIP a natural gives a player an extra free hand. Switch 8 is not used.

The pot close to the DIP switch in FIGURE 1 controls the overall game speed (clockwise rotation looking from edge connector end of the board slows the game). The other pot on the board controls the card width (clockwise rotation looking from edge connector end of the board makes the cards dealt narrower).

#### 4.0 BLOCK DIAGRAM

4.1 A block diagram in FIGURE 2 describes the interconnection of the major components of a Hit Me game.

Front Panel Controls---the front panel controls consists of an "ANTE", "HIT", and "STAND" button for each of four potential players.

The coin drop box contains three signals for the processor board. Besides the COIN drop signal, the START and TILT signals originate here.

The coin drop signal also supplies a pulse for the coin counter.

The TV monitor plug receives video and audio signals from the processor board. The monitor amplifies the audio received from the processor board and transmits it to the speaker. Additionally, the monitor provides the +5 Volt power needed by the processor board.

The Filter, Transformer block provides 115V to the TV monitor as well as 12V AC to the processor board. The processor board converts the 12V AC to +12V DC and -5V DC for use by logic elements on the board.

The heart of the microprocessor board is the 8080 microprocessor. Signals to and from this 40 pin unit can be separated into four categories. They are:

- 1) Power +5V, -5V, +12V, GROUND.
- 2) Sixteen Address Lines---addressing memory and switch status.
- 3) Eight Bidirectional Data Lines over which information going to the 8080 and coming from the 8080 travel.
- 4) Hand Shake Lines---the sole purpose of these lines is to communicate between the 8080 and memory, or switches, the necessary timing signals indicating when address and data lines are stable with valid information.

The program which performs the functions needed to play Hit Me are located in 2048 or 2560 bytes of PROM (depending on Hit Me serial number).

In addition, 1536 bytes of RAM contain information for the TV screen display. Another 256 bytes of RAM are used as temporary storage for the 8080.

## 5.0 TROUBLE SHOOTING TECHNIQUES

- 5.1 Make sure the power cord is plugged in the wall socket and the interlock switch is ON. The interlock switch is on when it is fully depressed---this requires the back cover to maintain closure; or when the switch is pulled fully out---maintains self in this position.

Check all four fuses in the game---the system power fuse located on the transformer filter board and three fuses mounted on the TV monitor.

Check the brightness and contrast control on the monitor and turn them in the direction to give maximum brightness and contrast. Adjust the Vertical and Horizontal Holds if necessary.

Disconnect the edge connector from the processor board and touch pins M and ll on connector with your fingers. This should put random lines on the screen indicating that the monitor functions properly.

With the sound control on the monitor set to maximum output touch pin L with your fingers. If you hear a sound, any problem with sound is probably on the processor board, otherwise it is probably in the monitor.

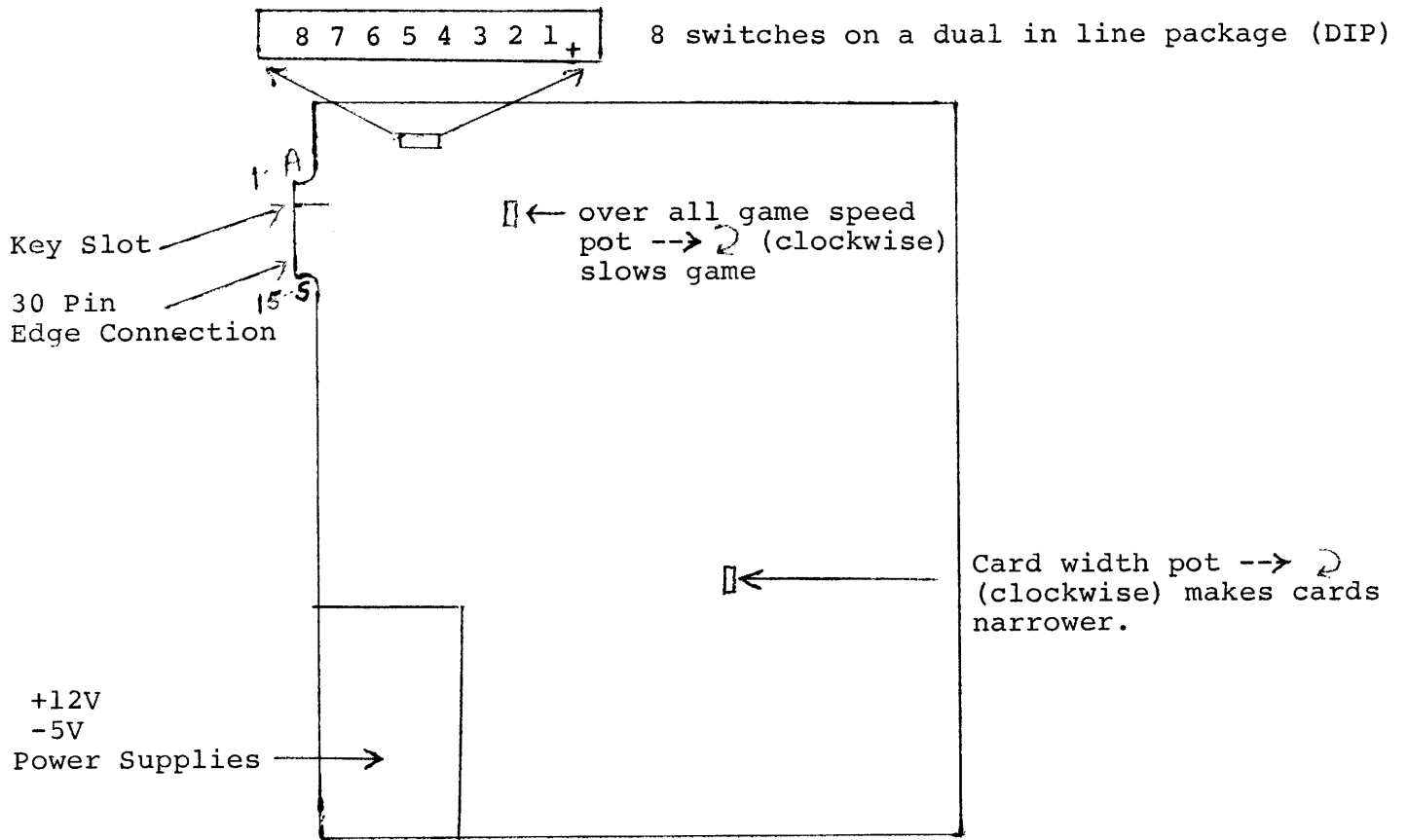
Whenever the game malfunctions, the +5V, -5V and +12V DC supplies should be checked. Use any standard voltmeter. The +5V can be measured by using any two buss bars bracketing each row of IC's. Plus 5V, -5V, and +12V and GND points are etched on the PC board in the lower left hand corner section shown in FIGURE 1 where the +12V and -5V are generated. Remember, the +5V is coming from the TV monitor. Be careful not to short these supplies when making measurements.

If the +5V is out of specification, that is below 4.75 or above 5.25, disconnect the processor board from its edge connector after power has been shut down. After turning power back on, check the 5V between pins 1 and A on the connector. If the supply is still out of spec. adjust the 5V supply output by turning the pot on the small PC board on the monitor located just behind the monitor power transformer. If the 5V is not there at all check the fuse soldered in on the monitor located near the power transformer. If the +5V is alright when the processor board is disconnected but is below spec. once it is connected, something on the processor board is overloading the supply or the +5V supply in the monitor is not able to supply its rated 3A.

If the +12V or -5V supplies or both are out of spec. (+12V  $\pm$  5%, or -5V  $\pm$  5%) check to see if the 12.6 V AC input to the processor board is within spec. (12.6V  $\pm$  2V AC). This voltage comes in on pins 15 and 14. Be careful not to short these pins. If this voltage alright, something is wrong with the processor board voltage regulators or they are being overloaded with a malfunctioning chip on the board.

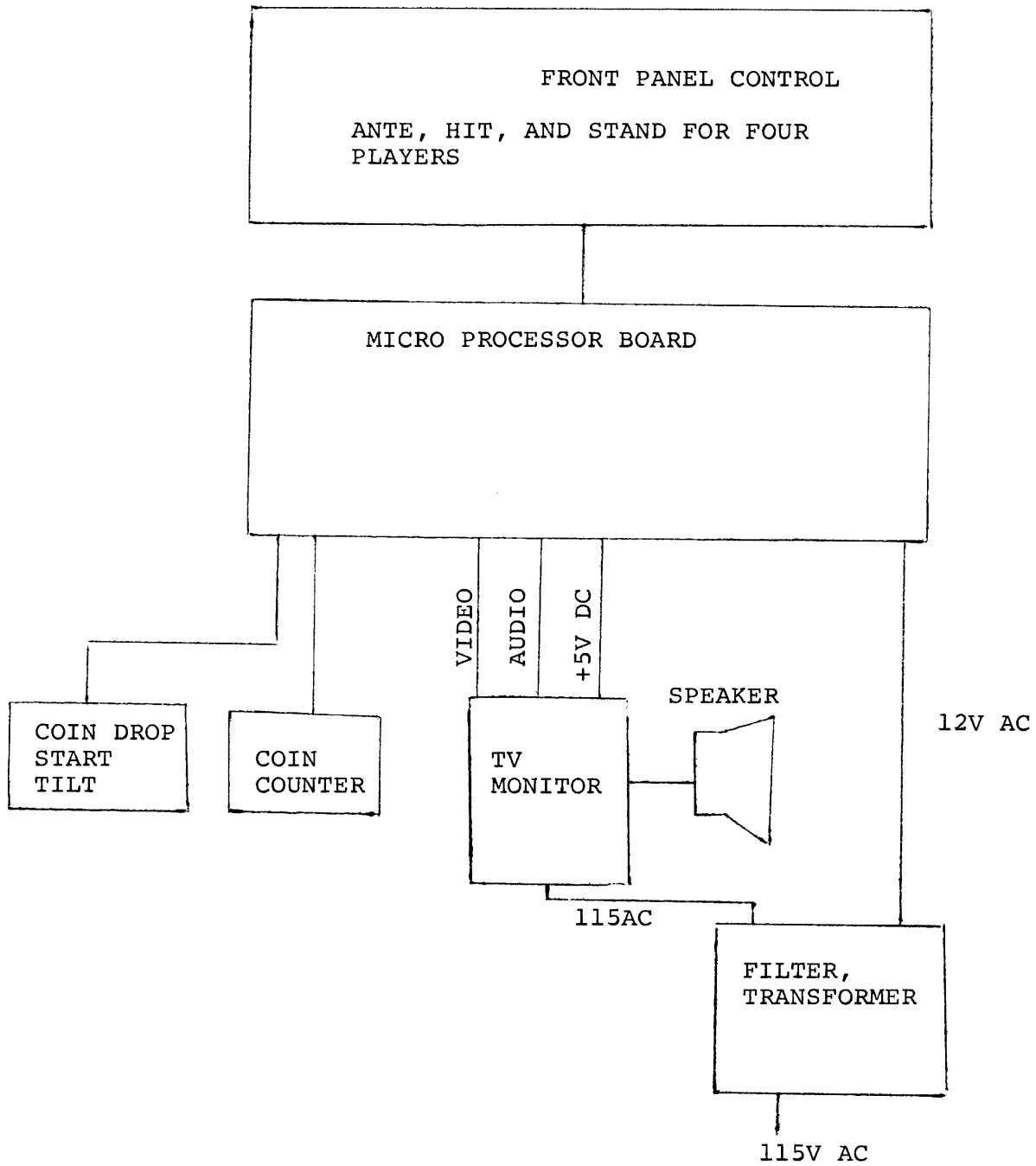
In any case, another processor board should replace the one with the problem.

Trouble shooting the processor board to a point further than this is beyond the scope of this manual.



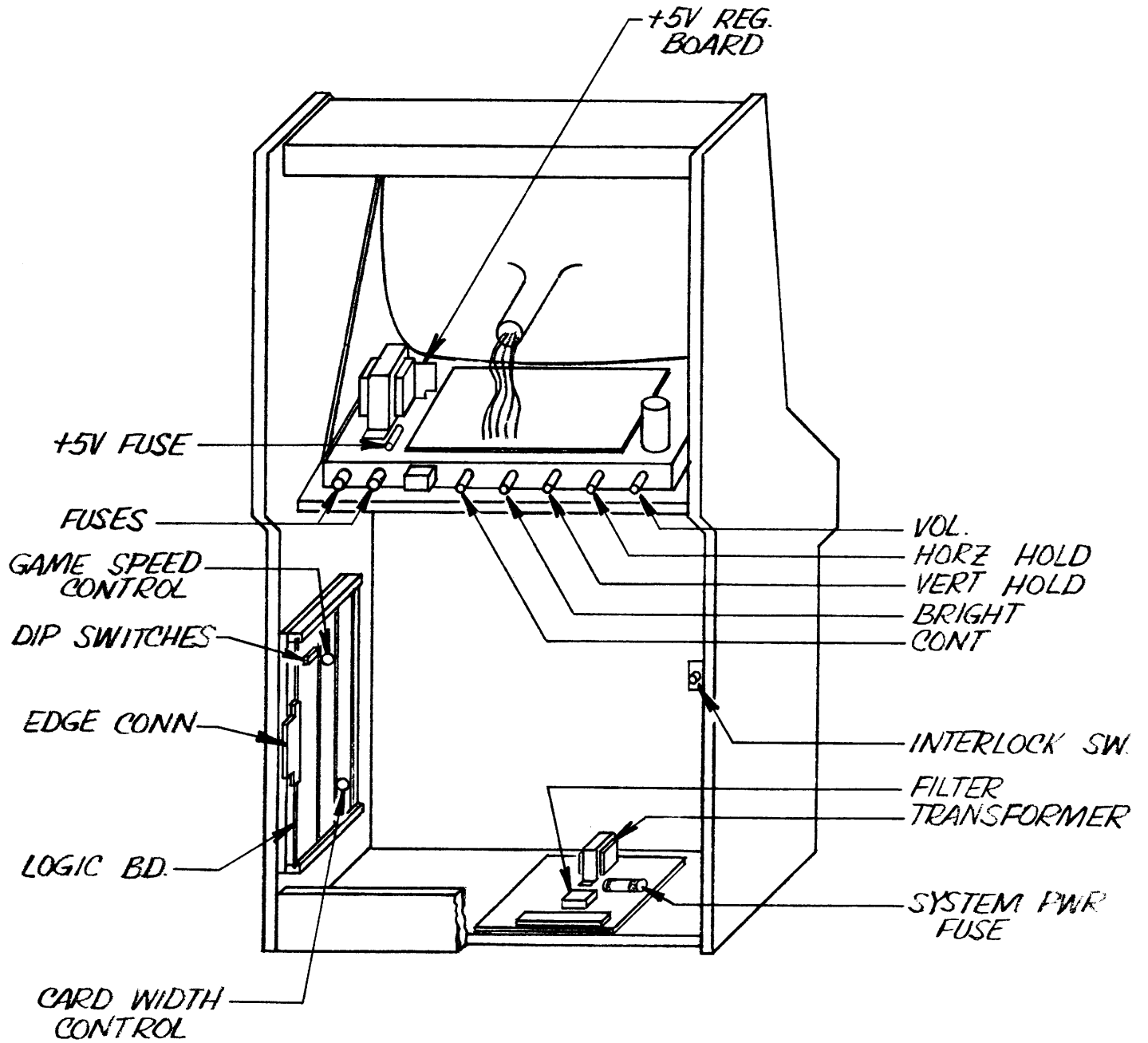
HIT ME PROCESSOR BOARD

FIGURE 1



HIT ME BLOCK DIAGRAM

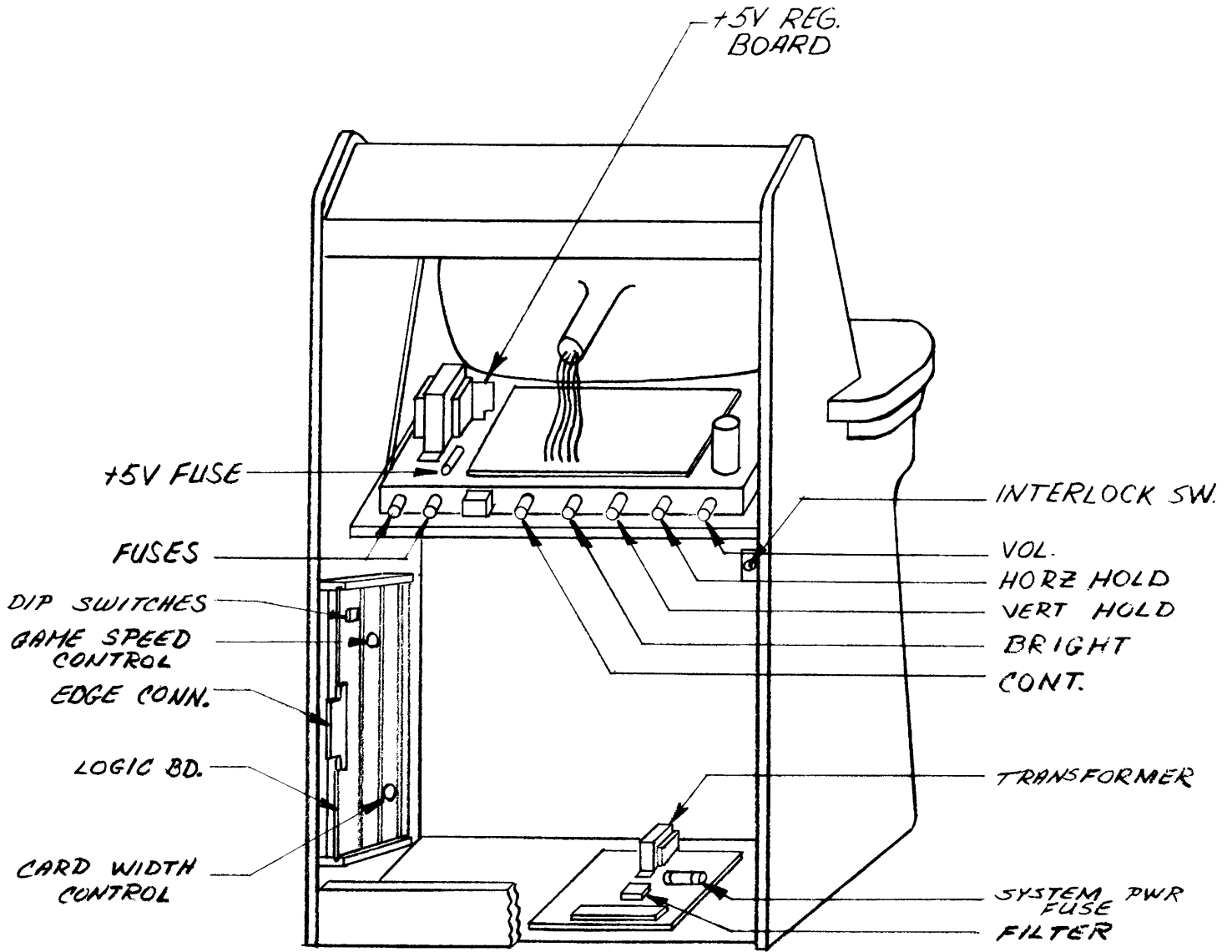
FIGURE 2



— REAR VIEW —  
 "HIT ME" CABINET

— FIGURE 3 —





— REAR VIEW —  
 "HIT ME" DESIGNER TABLE

— FIGURE 3 —

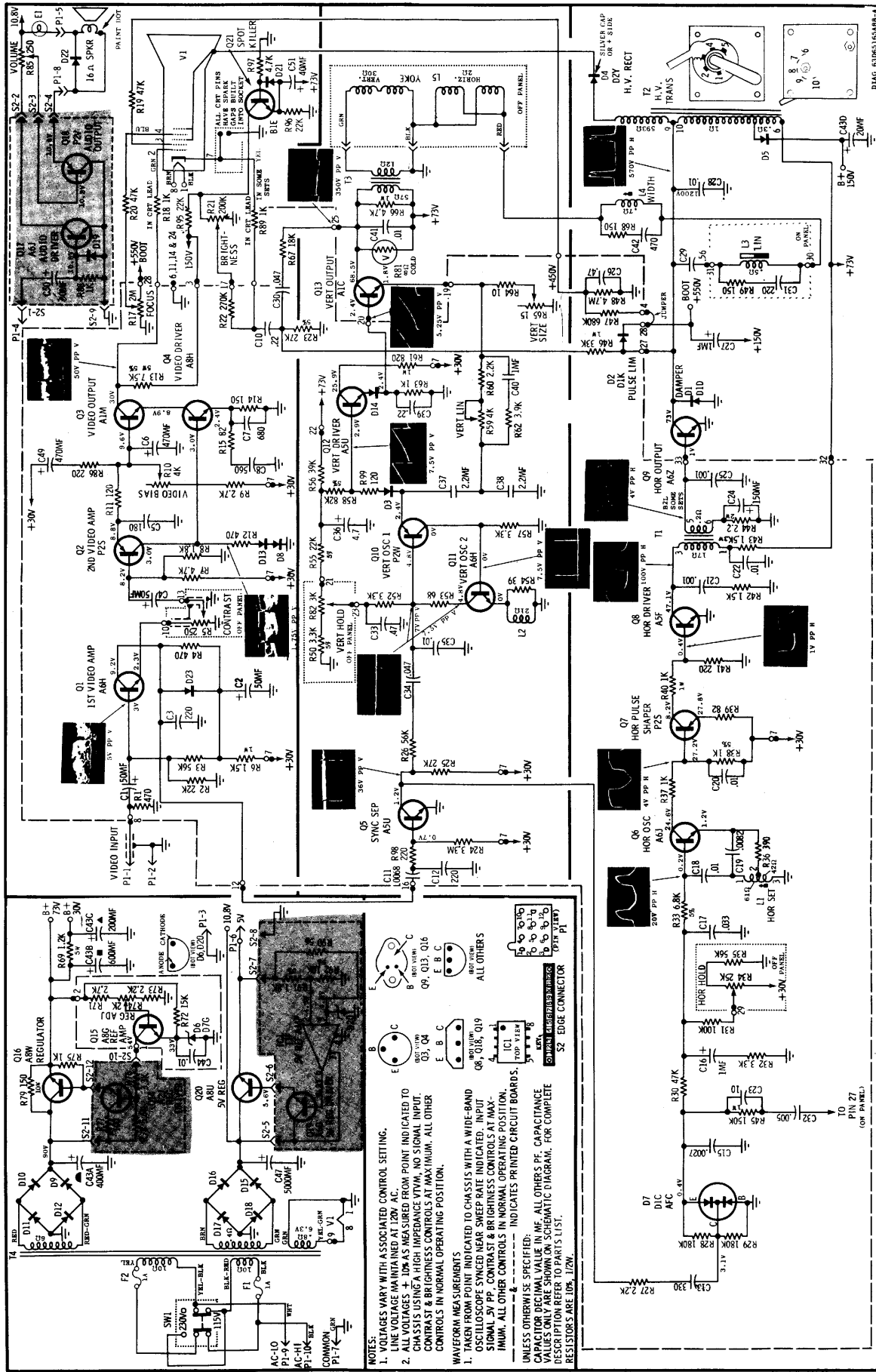
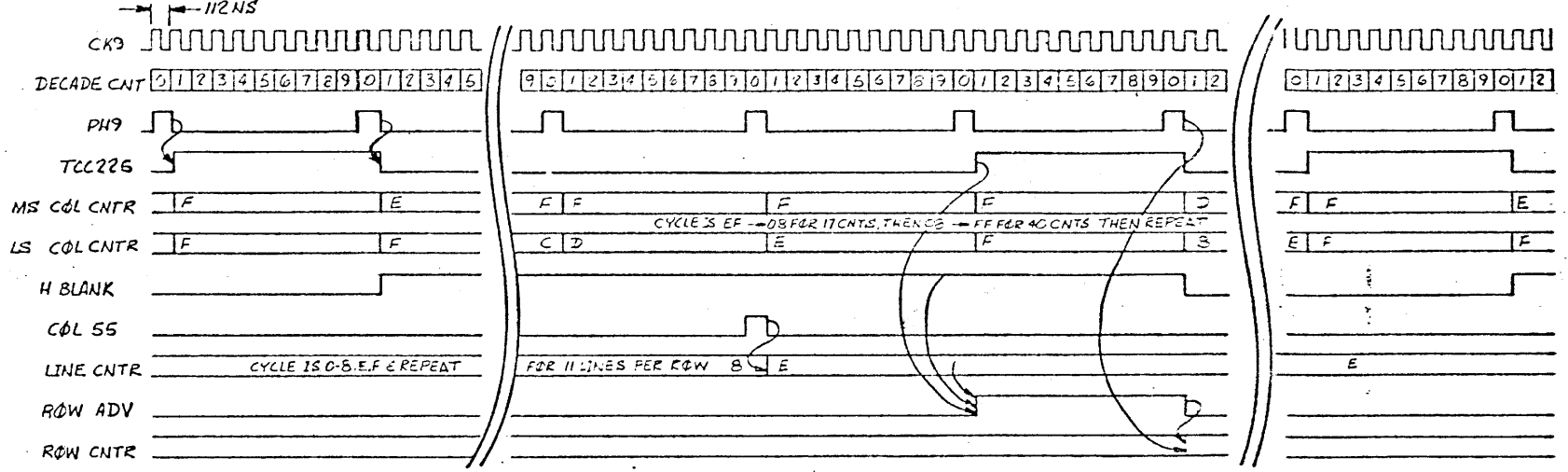


FIGURE 4: T.V. MONITOR Schematic Diagram



REVISIONS			
LTN	DESCRIPTION	APVD	DATE
B	RELEASE FOR PRD.		
C	RELEASE FOR PRD		

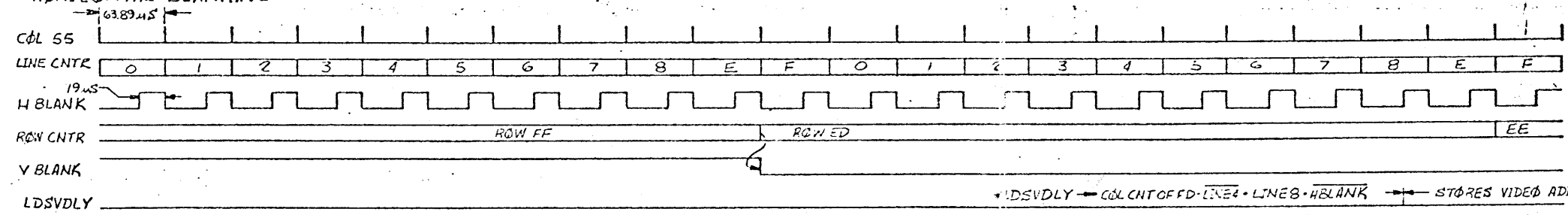
**COLUMN, LINE, ROW COUNTERS**



COLUMN COUNTER EF - (17 CNTS) - 08 - (40 CNTS) - EF  
 LINE COUNTER 0-8, E, F (11 LINES/ROW)  
 ROW COUNTER FB - (5 CNTS) - ED - (19 CNTS) - FB  
 V BLANKING VISIBLE ROWS

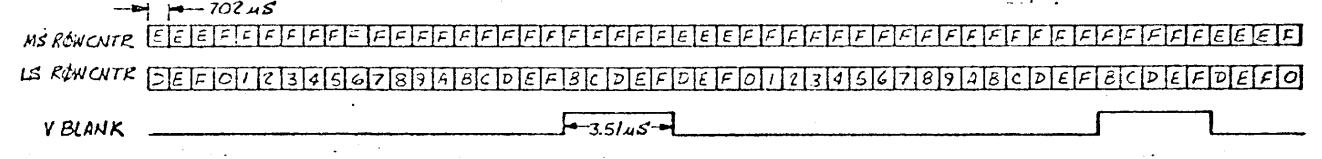
CK9 TIME IS 112 NS  
 PH9 TO PH9 IS 10X112 NS = 1.12 μS  
 H BLANK TIME IS 1.12 X 17 = 19.04 μS  
 VISIBLE COL TIME IS 1.12 X 40 = 44.80 μS  
 H BLANK TO H BLANK = 63.94 μS  
 VERTICAL BLANK TIME IS 5X11 X 63.84 = 3.51 μS  
 VERTICAL BLANK TO VERTICAL BLANK IS 24X11 X 63.84 = 16.87 μS

**HORIZONTAL BLANKING**

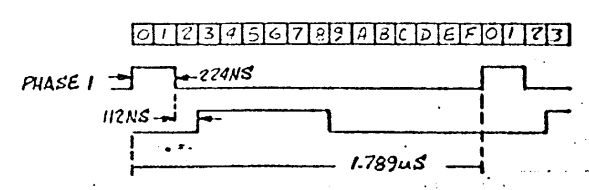


VAC CNTR CNTS EVERY PH9 BUT IS LOADED EVERY COL55 WITH CONTENTS OF VIDEO ADDRESS MEM (DEVICES EK, 5J)

**VERTICAL BLANKING**



**PHASE 1, PHASE 2 TIMING**

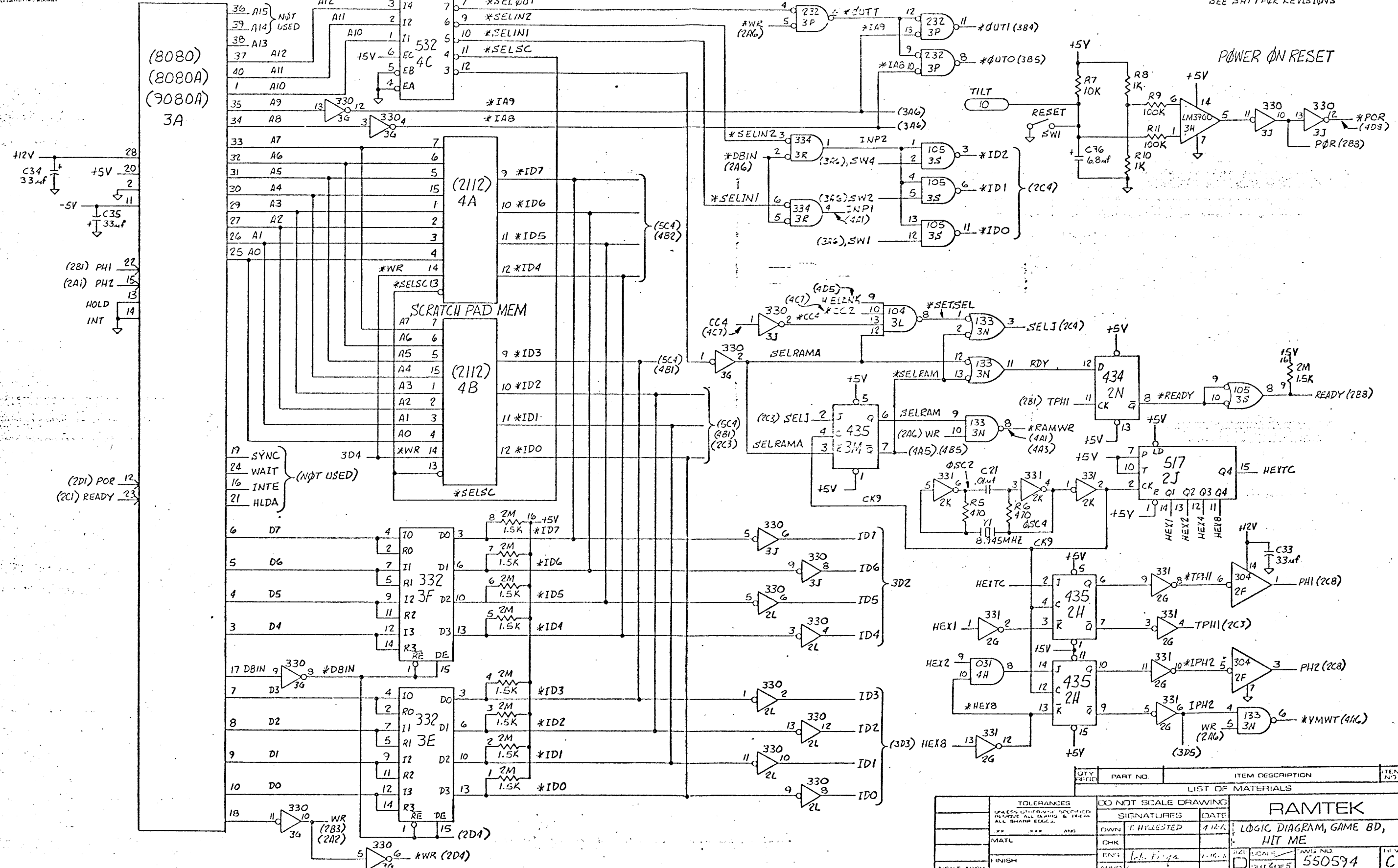


QTY	PART NO.	ITEM DESCRIPTION	ITEM NO.
LIST OF MATERIALS			
TO: FRANCES		DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED REMOVE ALL TIGHTS & LOCKWASHERS. ALL SHARP EDGES.		SIGNATURES DATE	
CHK	ENG	THYLESTED	4-27-71
MATL	CHK	DWN	
FINISH	ENG	W. H. HAGA	4-16-71
NEXT ASSY	APVD		
SCALE		DWG NO.	REV
1/1 OF 5		550594	C

NOTE: SIGNALS A0 THRU A13 GO TO FRM MEMORY & PRGM DECODE ON SHT 5 (DEVICES 7A THRU 7G)

I/O ADDRESS DECODE

REVISIONS			
LT#	DESCRIPTION	APVD	DATE
SEE SHIT FOR REVISIONS			



TOLERANCES		DO NOT SCALE DRAWING		ITEM DESCRIPTION		ITEM NO.
UNLESS OTHERWISE SPECIFIED	RESISTORS: 1% (1% & 5% ALL SHARP EDGES)	SIGNATURES	DATE	LOGIC DIAGRAM, GAME BD, HIT ME		
XX	XXX	OWN	T. HILTESTED	1/12/74		
MATL		CHK				
FINISH		ENR	J. H. P. J.	1/12/74		
NEXT ASSY		APVD				
				DRAWING NO. 550594		C

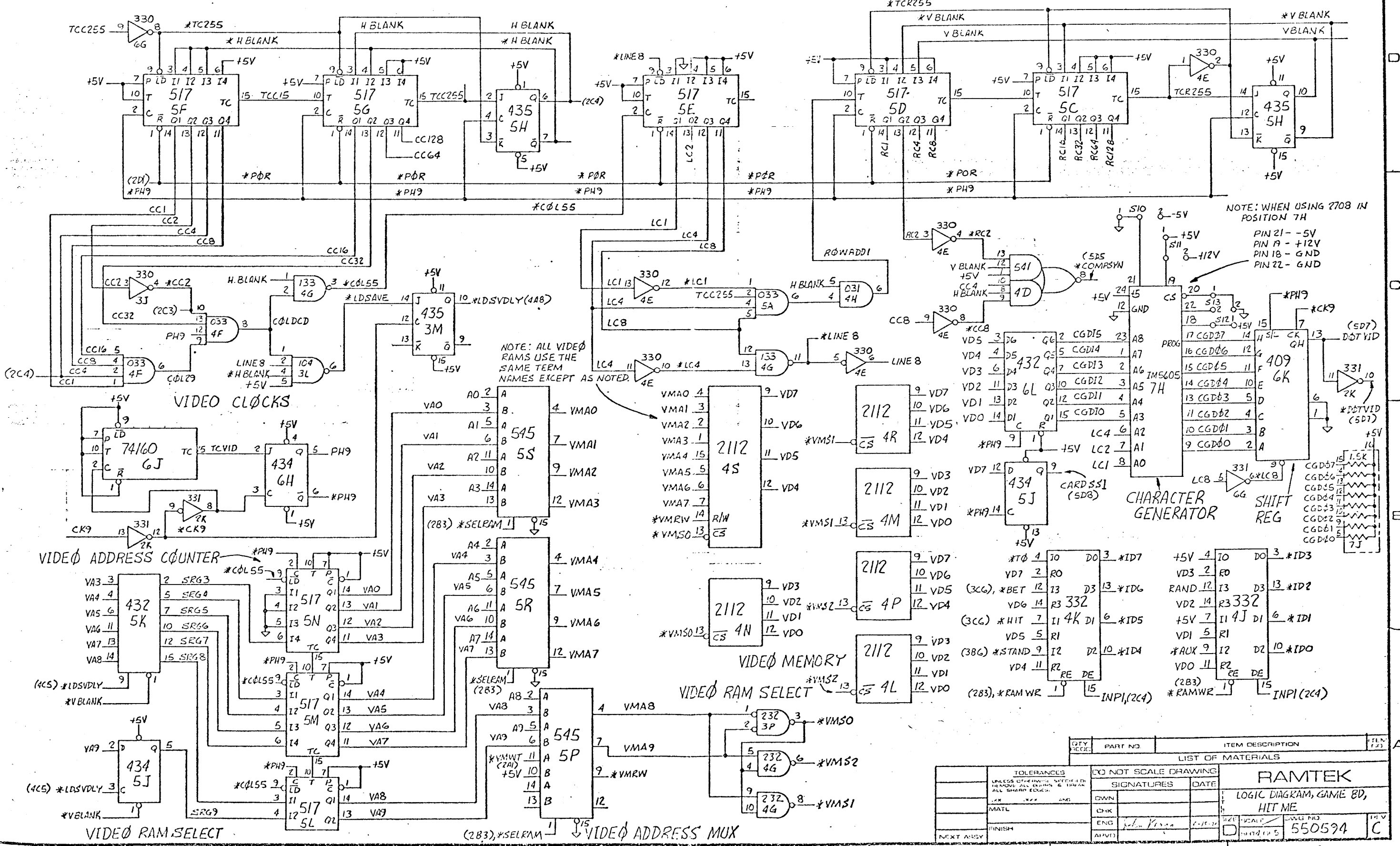


REVISIONS		
REV	DESCRIPTION	DATE
SEE SHEET FOR REVISIONS		

### COLUMN COUNTER

### LINE COUNTER

### ROW COUNTER



NOTE: ALL VIDEO RAMS USE THE SAME TERM NAMES EXCEPT AS NOTED.

NOTE: WHEN USING 2708 IN POSITION 7H  
 PIN 21 - -5V  
 PIN 19 - +12V  
 PIN 18 - GND  
 PIN 22 - GND

### VIDEO ADDRESS COUNTER

### VIDEO MEMORY

### CHARACTER GENERATOR

### SHIFT REG

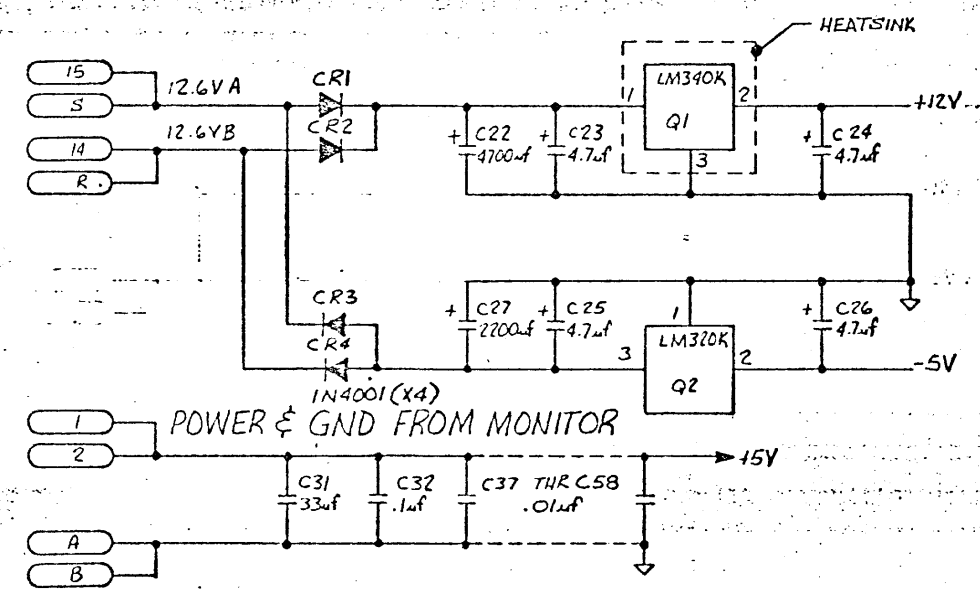
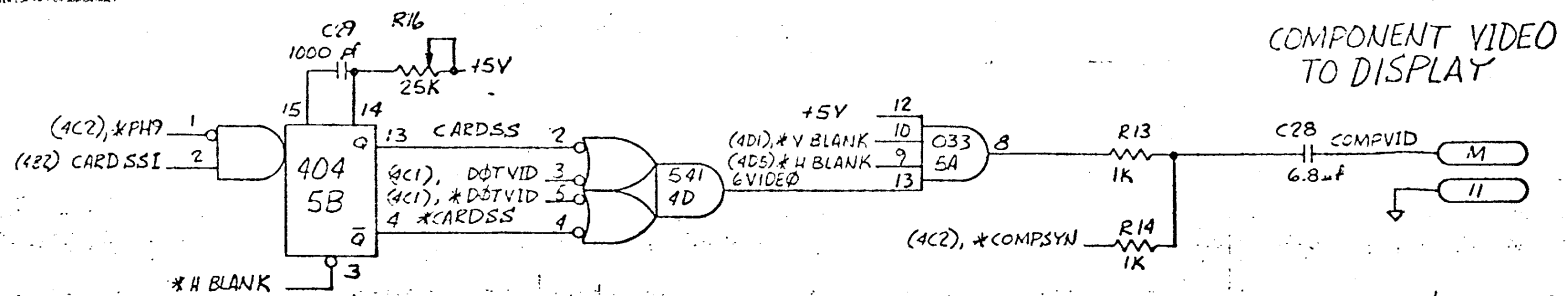
### VIDEO RAM SELECT

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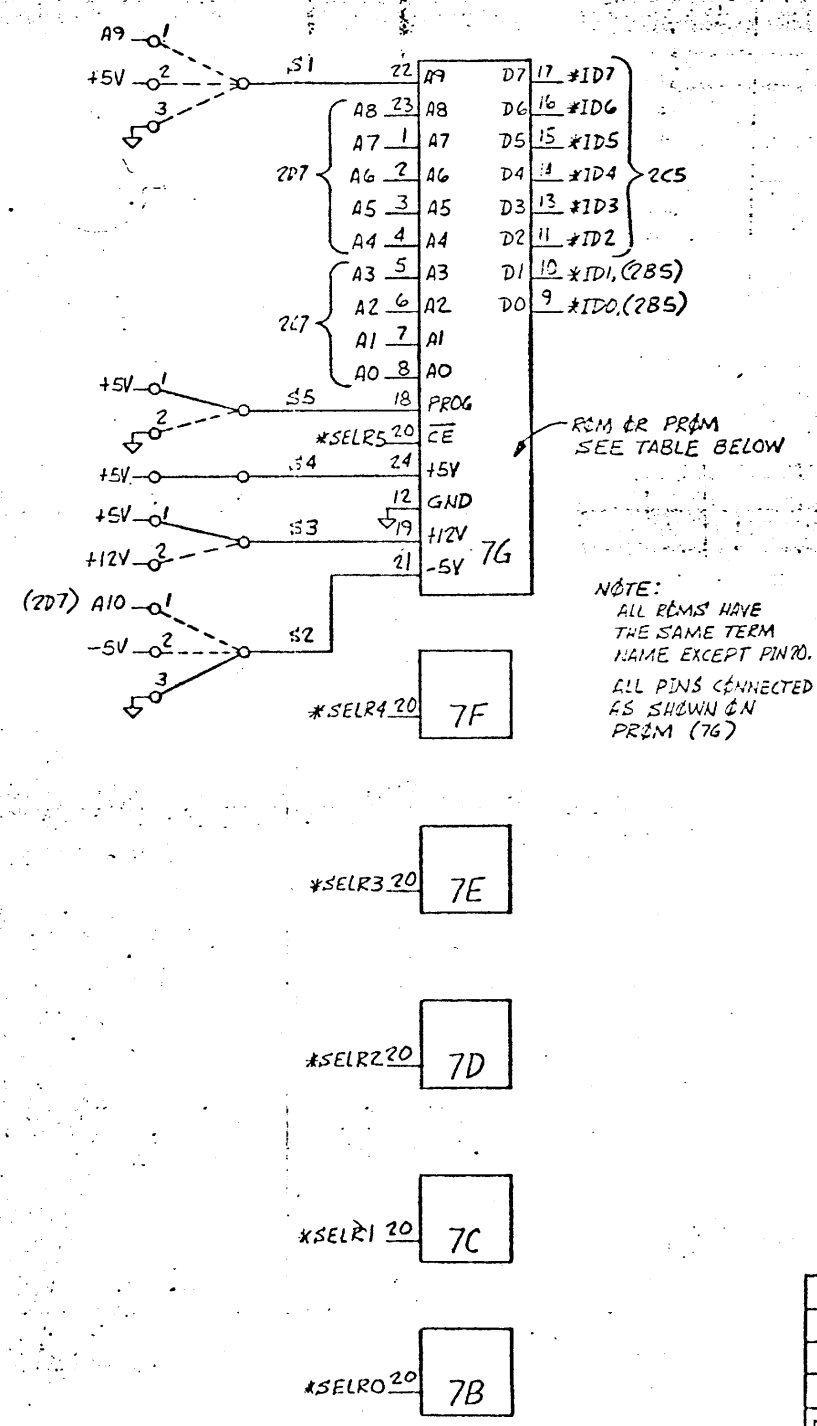
### VIDEO ADDRESS MUX

QTY	PART NO	ITEM DESCRIPTION	FLY
LIST OF MATERIALS			
TOLERANCES UNLESS OTHERWISE SPECIFIED REMOVE ALL SHARP EDGES			
MAX	MIN	ANG	
MATL	CHK	ENG	
NEXT ASSY	FINISH	APVD	
DO NOT SCALE DRAWING		SIGNATURES	DATE
RAMTEK		LOGIC DIAGRAM, GAME BD, HIT ME	
DATE	SCALE	DRAWING NO	REV
		550594	C





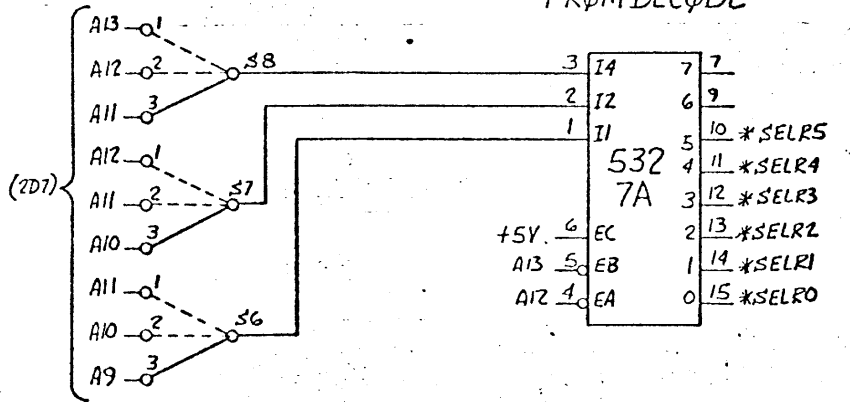
PRØM MEMORY (512 x 8)



NOTE:  
 ALL PRØMS HAVE THE SAME TERM NAME EXCEPT PIN 20. ALL PINS CONNECTED AS SHOWN ON PRØM (7G)

MFG	PART NO.	S1 PIN 22	S2 PIN 21	S3 PIN 19	S4 PIN 24	S5 PIN 18	S6	S7	S8	SIZE	ROM
INTEL	2308 8308	A9	-5V	+12V	+5V	GND	A10	A11	A12	1Kx8	
INTEL	2708	A9	-5V	+12V	+5V	GND	A10	A11	A12	1Kx8	
INTEL	3624 3624-4	+5V	GND	+5V	+5V	+5V	A9	A10	A11	512x8	
INTEL	3604-4 3604L-4	+5V	GND	+5V	+5V	+5V	A9	A10	A11	512x8	
INTEL	3604-6 3604L-6	+5V	GND	+5V	CUT OFF PIN	+5V	A9	A10	A11	512x8	
AMD	9208	A9	ØPEN	+12V	+5V	+5V	A10	A11	A12	1Kx8	ROM
AMD	7216	A9	A10	+12V	+5V	+5V	A11	A12	A13	2Kx8	ROM
FARQUER	9343B 9344B	ØPEN	GND	+5V	+5V	+5V	A9	A10	A11	512x8	
INTERSL	1M5605 1M5625	ØPEN	GND	+5V	+5V	+5V	A9	A10	A11	512x8	

PRØM DECODE



QTY	PART NO.	ITEM DESCRIPTION	ITEM NO.
LIST OF MATERIALS			

TOLERANCES UNLESS OTHERWISE SPECIFIED REMOVE ALL DIMS & NEAR ALL SHARP EDGES.		DO NOT SCALE DRAWING	
XX .XX .XX .XX	MM .MM .MM	DATE	SIGNATURES
MATL	CHK	DATE	SIGNATURES
FINISH	APVD	DATE	SIGNATURES
NEXT ASSY	APVD	DATE	SIGNATURES

RAMTEK  
 LOGIC DIAGRAM, GAME BD,  
 HIT ME

SCALE 1:1  
 55059A