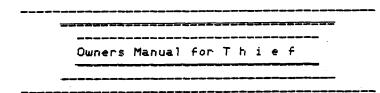
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Pacific Novelty Manufacturins
Customer Service Department
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Marina Del Rey, Ca. 90291
(213) 822-0399

(PL010382)

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INDEX

_				ALLY OLD DESCRIPTION OF THE PROPERTY OF THE PR
	ART	1		QUICK REFERENCE CHART OF SETTINGS
Pi	ART	ΙΙ	_	OPERATIONS MANUAL
P	ART	III	_	DIAGNOSTICS
	ART	IV		NOTICES

TOP LEFT DIP SWITCH

```
1 2
         10,000 POINTS / BONUS CAR
                                        SOFTWARE VERSION: :
 00
         20,000 POINTS / BONUS CAR : 011082 :
 1 0
         30,000 POINTS / BONUS CAR --
 0 1
         40,000 POINTS / BONUS CAR
 -1 - 1
 SWITCH 3 - ON = AWARD ONLY SINGLE BONUS CAR AT SCORE SET BY
            SWITCHES 1 AND 2 DURING ENTIRE GAME.

OFF = AWARD A CAR AT INTERVALS LEVELS SET BY
                  SWITCHES 1 AND 2(MULTIPLE CARS).
 SWITCH 4 - ON = BONUS CARS FOR SCORES ABOVE
            OFF = NO BONUS CARS FOR ANY SCORE
5 6 7 8 C- SWITCH NUMBERS
0 0 0 1 - BURN-IN TEST(1ST 2 DIGITS IN CHECKSUM=SOCKET#)
1 0 0 1 - COLOR BAR DISPLAY
0 1 0 1 - CROSS HATCH GRID
1 1 0 1 - CONTINUOUS COLOR MAP WRITES
O O 1 1 - VIDEO RAM ADDRESS SELECT WRITES
1 O 1 1 - VIDEO BIT MOVE
0 1 1 1 - IO BOARD DRIVER TEST
1 1 1 0 - Display current options in effect
*** Close SLAM switch or turn off/on same for new test ***
*** DON'T FORGET TO TURN OFF 5,6,7 & 8 WHEN DONE!!!!! ***
                        Top right dip switch
 <del>1 2</del>
          25 CENTS/GAME
  00
          50 CENTS/GAME
  0 1
          2 games/25 cents
          1 same/25 3 sames/50
  1 1
  3 4
  00
          3 CARS/GAME
          4 CARS/GAME
  1 0
          5 CARS/GAME
  0 1
         7 CARS/GAME
  1 1
  5678
  x \times ^{\circ} x
      if on then cocktail version
      if off them upright version
```

SYMBOLS: X <-IGNORE : 1 <-TURN ON (CLOSE) : 0 <- TURN OFF (OPEN)

```
TOP LEFT DIP SWITCH
 1 2
          10,000 POINTS / BONUS CAR : SOFTWARE VERSION: :
20,000 POINTS / BONUS CAR : 011082 :
30,000 POINTS / BONUS CAR ------
 00
 1 0
  0 1
           40,000 POINTS / BONUS CAR
 SWITCH 3 - ON = AWARD ONLY SINGLE BONUS CAR AT SCORE SET BY
             SWITCHES 1 AND 2 DURING ENTIRE GAME.
OFF = AWARD A CAR AT INTERVALS LEVELS SET BY
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5 6 7 8 C- SWITCH NUMBERS
0 0 0 1 - BURN-IN TEST(1ST 2 DIGITS IN CHECKSUM=SOCKET#)
1 0 0 1 - COLOR BAR DISPLAY
 0 1 0 1 - CROSS HATCH GRID
1 1 0 1 - CONTINUOUS COLOR MAP WRITES
O O 1 1 - VIDEO RAM ADDRESS SELECT WRITES
 1 O 1 1 - VIDEO BIT MOVE
 O 1 1 1 - IO BOARD DRIVER TEST
1110 - Display current options in effect
*** Close SLAM switch or turn off/on same for new test ***
*** DON'T FORGET TO TURN OFF 5,6,7 & 8 WHEN DONE!!!!! ***
                           Top right dip switch
  12
  00
           25 CENTS/GAME
           50 CENTS/GAME
  10
  0 1
           2 sames/25 cents
           1 same/25 3 sames/50
  1, 1
  3 4
           3 CARS/GAME
  00
          4 CARS/GAME
  1 0
           5 CARS/GAME
  0 1
           7 CARS/GAME
  5678
  x x^x
       if on then cocktail version
       if off then upright version
SYMBOLS: X <-IGNORE : 1 <-TURN ON (CLOSE) : 0 <- TURN OFF (OPEN)
```

Your THIEF same incorporates a number of adjustments in order to control the time the player can tie up the machine. You can control the following:

- 1. Number of cars per same 3,4,5 or 7 cars.
 We sussest 3 cars per same
- 2. Bonus car feature at a selected score level
 We suggest you turn this feature on
- S. Single shot bonus or multiple bonus cars
 We suggest Multiple bonus cars
- 4. Points needed for bonus car.
 We suggest 10,000 dollars per bonus car
 You can set it at 20,000 , 30,000 or 40,000 dollars.
- 5. Price per play.

 We suggest you follow your location policy as to price.

 You can splect 25 or 50 cent play.

Controls used in the Game

The Player has the following controls:

Joystick - When moved in any of four directions, the players car will move in that direction. That is up,down,left, right. The Joystick contains four switches which are depressed by the movement of the control by the player.

One Player Start - Starts the single player game if an appropriate number of coins have been deposited.

Two Player Start - Starts the two player same if an appropriate number of coins have been deposited.

Helpful Hints about your Game

There are a number of areas you sould pay attention to in order to maximize your earnings from this pame.

Care of the Color Monitor-

The primary display device for this same is the Color Monitor. When you receive your same, or move it around, you may find that the same has acquired what appears to be a case of multi-colored blotchy color areas. These are caused by stray magnetic fields which magnitize the tube and surrounding metal. We suggest that you desauss' your same with a desaussing coil. The coil is a large round electromagnet which pluss into the 110 volt line. Since the power line is AC it has the property of demagnitizing the parts near and on the monitor. Your distributor most likely has such a coil and will be able to instruct you in its use (if you need it at all). All controls on the monitor have been preset at the factory. If you change any of the controls you better know what you are doing!

Care of Tape Unit-

This same incorporates an leaderless autoreverse cassette which produces the chatter between cars as well as the crashing sounds when the cars are hit. We suggest that you pay particular attention to the maintenence of this unit. With your same instruction manual you will find an instruction manual for the car stereo in your unit. Refer to this for any information as to the maintenace and care of this unit. If you find that the Stereo unit is functional (try playing a regular tape in it), yet the leaderless cassette doesn't play, you may have a damaged or worn out tape (under normal use (?) these tapes have a lifetime of over two(2) years). You may purchase from FNM, a replacement for your original tape.

Care of Player Controls-

The pushbutton parts used in the front panel of the same can be directly cross-referenced to WICO replacements. The leaf switches are sold plated and may be cleaned with an ordinary piece of paper rubbed between the two surfaces. An ordinary point adjusted may be used to set the spacing. The Joystick should be aligned so that it is sensitive for deflection in 4 directions.

Coin Door -

The list of things that can be done to a coin door is unbelievable. If the mech fails to accept coins after months of service we suggest you clean it (Who's buried in Grant's Tomb?). The door incorporated a slam switch which is NORMALLY OPEN. To test the operation, kick the door and watch for a same reset. The slam switch erases ALL credits (surry Charlie!).

- Cabinet Levelers -

The cabinet is shipped with levelers used to make the same level (losical?). We strongly suggest that you install them to: A. Protect your floors from scratching; and B. To keep your players from waltzing your same across the floor.

TLC -

Treat you same with a lot of care and it will make bass and bass of quarters for you. Here at the factory we put a lot of care into the programming and building of the same to make the same a success. Keep the same working in top form and both you and the players will be happy cookies.

***	*******	********	**********	****
*****	****	****	*************	****
*****	*****	*****	*****	*****
*****	* DI	AGNOSTIC	TEST *	*****
******				*****
******	PACIFIC	NOVELTY	MANUFACTURING	*****
******	*****	*******	***********	*****
***	****	*****	******	***
	***	****	****	
				nician to test the
electromics rac	kage in 1	the Thic	ef game.	
*				
1. DIAGNOSTICS	ARE ENABL	LED WHEN	SWITCH 8 IS ON	-
(THE BOTTOM	MOST AND	LEFT SW	(TCH).	
				·
2. CLOSE SLAM S	WITCH TO	STONAL O	HANGE OF DIAGN	DOTTOS SUTTOU
		OZOITAL C	SIMILOR OF BIHOM	OSTICS SMITTCH
~~~~~~~~~~				
		•		
1234567	8 C- SWIT	TCH NUMBE	RS	
				N. OUEOWOUN COOKETUS
				N CHECKSUM=SOCKET#)
X X X X 1 O O	1 - COLOR	R BAR DIS	SPLAY	
X X X X O 1 O	1 - CROSS	HATCH O	RID	
X X X X 1 1 0				
			LOR MAP WRITES	
X X X X O O 1	1 - VIDEO	) RAM ADI	DRESS SELECT WR	ITES
X X X X 1 0 1	1 - VIDEO	BIT MOV	Æ	
X X X X O 1 1		DARD DRIV	-	
X X X X 1 1 1	1 - (KESE	KVED FOR	( FUTURE USE)	(SETTINGS)

P.11

	BURN-IN Test Rom instructions
The	Burn in test supplied to you contains the following tests:
1:	Checksum of all roms in the system — Reports the condition of all ROMS on board.
2:	Harness/Control/IO board Test sequence Displays the position of all switches in the system.
3:	Dip Switch Display Shows the switch positions of the two dip switches
4:	2114 RAM test - Test the condition of the on board RAM.
5:	4116 RAM test - Test the display RAM.
6:	Coprocessor test - Test verious section of coprocessor

# * TYPICAL DISPLAY *

<che< th=""><th>ecksums&gt;</th><th>&lt;0</th><th>on:</th><th>tro</th><th>15</th><th>&gt;</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></che<>	ecksums>	<0	on:	tro	15	>								
	<del>Cok&gt;</del>	€F	·1a	ver	- 1	<del></del>								
02	<ok></ok>													
04	<ok></ok>								<-	This	5 is	the	Player	1
<del>ిద</del>	<del>- Cok&gt;</del>			_	•					C	ontr	o i P	anel	
ÖS	Cok>													
10	Cok>	<f< td=""><td>'la</td><td>Yer</td><td>~ 2</td><td>&gt;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></f<>	'la	Yer	~ 2	>								
12 14	Cok>	•			• •	•	•		<-			the	Player anel	2
		•	•	•	•					- ((	Cock	tail	version	1)
		:	•	•	:	ζ-	T	nese	-				tches	
		•	•	•	•	<del></del>	•	•	Oper	1 CI	cui	<del></del>	Closed	circu
		:	:	:	:	21:		ERR	<-	Bad			•	
<del>D4=(ok)</del> F4=(ok)		•	:	·	•	41:	16	ERR	<del></del>	Bad	411	5		

Note that from time to time you may set a 4116 error messase. Since the 4116 ic's are used in the video section, you can still have a very playable same with a small fraction of errors.

If you set any error messages in the lower left side of the screen, these are caused by problems with the Coprocessor board. Errors such as 'CNTXT ERR' or 'ADDR XLAT ERR' are Coprocessor generated. If you receive a large number of messages in the lower left hand side, you either have the power missing from the corocessor or else the 50 pin flat cable has come loose.

All errors besides 4116 are of a very serious nature and should be corrected immediately as they impair the earning of the game.

!!!! CAUTIONS !!!!

There are a number of dependences and limitations of this particular test rom.

1. The whole relam of tests depend on the existence of OOOD RAM in the lowest 1k sesement of memory.

2. The tests used for the detection of errors and the 2114 and 4116 tests are very limited in their scope and the ability to trace down subtle problems in these areas.

#### CHECKSUMS

The first test (checksums) adds up the contents (numbers in ROM) and generates a checksum number. The Test Rom has a table of correct values and upon finding the correct value displays 'Cok' to indicate it found what it expected. In case it doesn't find the correct number it will display a four digit number (16 bit hexadecimal checksum found). In case you do get something other than the 'Cok' check you manual for any changes which may have been made to that rom since the production of the test rom.

# DIP SWITCHES

The Dip switch display provides you with a method of determining the position of the dip switches located on the IO (small) board. What you are seeing on the screen is the internal representation (as the computer sees them) of the dip switches on the IO board. This test is useful in determining the most low level operation of the IO board.

### PLAYER CONTROL DISPLAY

One thing that is most annoying is problems in the harness and the adjustment of switches. This test shows you the opening and closing of switches on the:

- A: Player 1 control panel
- B: Player 2 control manel
- C: Coin and slam switches

The dots (.) shown represent the identical switches and their correct positions on the fron panel of the actual same. The only exeception to this rule is on the player 2 panel. In this case you will find that the positions used for the one and two player start have been replaced with the COIN and SLAM switches. The symbols (.) and (*) represent the OPEN and CLOSED positions of the switches on the front panel.

## Theory of Operation

Imbedded in the base of the ROMO rom is code which detects the existence of a Rom14. If it does find a rom in this position it checks for the proper contents at the beginning of the ROM14 and if they are correct; the system begins execution at beginning of ROM14 + 6.

# COLBAR - Color Bar display senerator

THIS routine generates a color bar pattern to test the operation of the video section. The test itself erases a byte to zero then writes to the selected plane of display memory.

You will find this routine especially useful for testing the Wait line back to the CPU as well as the timing of writes.

The following must be running for this test to operate:

- 1 CPU and select logic to RAM/ROM
- 2 CPU RAM

### VIDSEL - Video Ram select writes

In this test we cause each of the Video RAM select lines to be selected. Each Video RAM is read and written to in sequence. This test is designed to check that the Video section is actually connected to the CPU section.

Use this test to check for the existence of /MRD + /MWR +/WAIT as well as the address lines leading to the Video RAMS and the signals internal to the video circuit. Each address line going to the Video RAMS is exercised as well. In addition the data written is incremented after each pass through the test.

The test will try to reset the Video Controller chip and then begin to read and write data to each of the address boundry location points 1,2,4...last significant address. These are the only locations which will be written to.

Sync your scope to the /OUT O select as this signals the start a select sequence.

# VIDBIT - Video bit Move

This routine generates a single bit write in each and every cell (byte) in the display memory. It is intended to detect stuck bits in individual planes.

In the normal operation of this routine, you will see thirty two lines accross the screen. On each pass you will see the entire group move to the side one single cell. You will notice that the test repeats after every eight writes due to there being only eight bits to test per cell.

Since the memory is arranged to the processor as eight bit bytes and the internal representation is as 4 bit pixels. You may be able to isolate the problem to whether the problem is of a 4 or 8 bit error pattern. — Internal to video or in the interface between the two.

This test requires that the CPU be functioning as well as the 2114 Ram section. Selects to these sections must of course be operating.

### PSGTST - IO board driver test

Programmable sound generator and DUTPUT DRIVE test

In the Pss test, each channel of the Pss is, in sequence frequency modulated at full volume.

After all the Psm's have been tested, the relays and transistor drivers are sequenced in order.

#### Sequence:

- 1 All units off
- 2 Tape power on
  Talk track on
  Coin meter power on
- 3 Explosion track relay on
- 4 Explosion track relay off
  Coin meter off
  Talkins track relay off
- 5 Start at sequence number 1 asain

While each of the above is soins on, each of the 6 channels of the PSG's (3 channels per PSG) is being frequency modulated. This makes a sort of Whooop, Whooop, Whooop and pause sound. The frequency modulated sequence is carried out on the total of 6 channels supplied by the two PSG's.

#### NOTICES IV

# WARRANTY

Pacific Novelty Manufacturins (PNM) warrants that it's circuit boards and parts are free from any defects in workmanship and materials under normal use and service, for a period of thirty (30) days from date of shipment. PNM also warrants it's television monitors (in sames which use them) to be free from any defects in workmanship and materials under normal use and service, for a period of Thirty (30) days from date of shipment. No other of the Seller's products or parts therefor are warranted.

- If the product described in this manual should fail to conform to this warranty. The seller's sole liability shall be, at its options to repair, replace, or credit Buyer's account for such products which are returned to the Seller during the said warranty period provided that:
- A) The Seller is promptly notified IN WRITING upon discovery by the Buyer, that said products are defective.
- B) Such products are returned to the Seller's plant; and
- C) Seller's examination of the said products discloses to the Seller's satisfaction that such alleged defects existed and were not caused by alteration, improper repair, installation, accident, misuse, improper testing or accident.

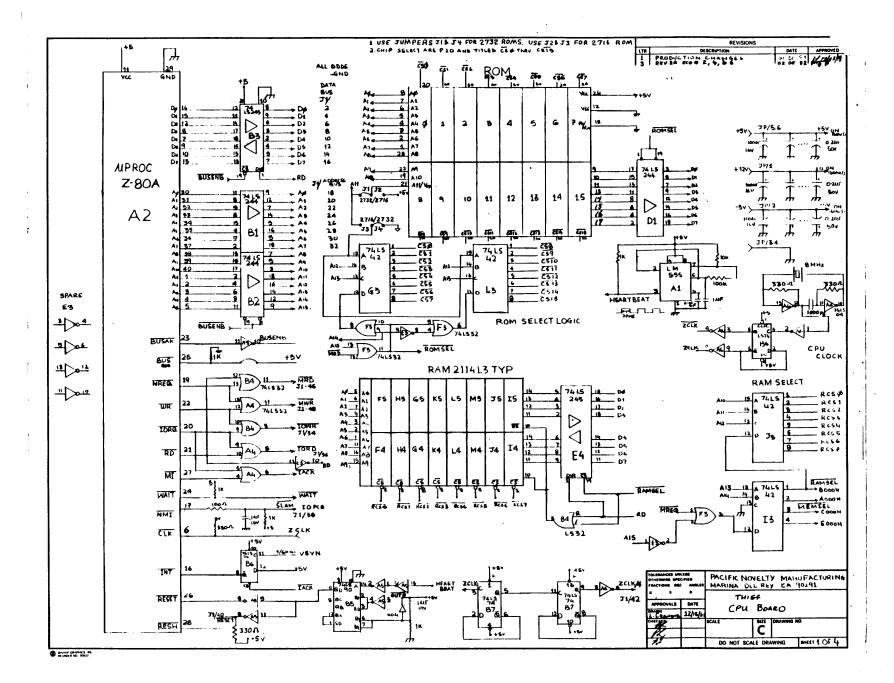
In NO event shall Seller be liable for incidental or consequential damages such as loss of profits, loss of use or any other such losses.

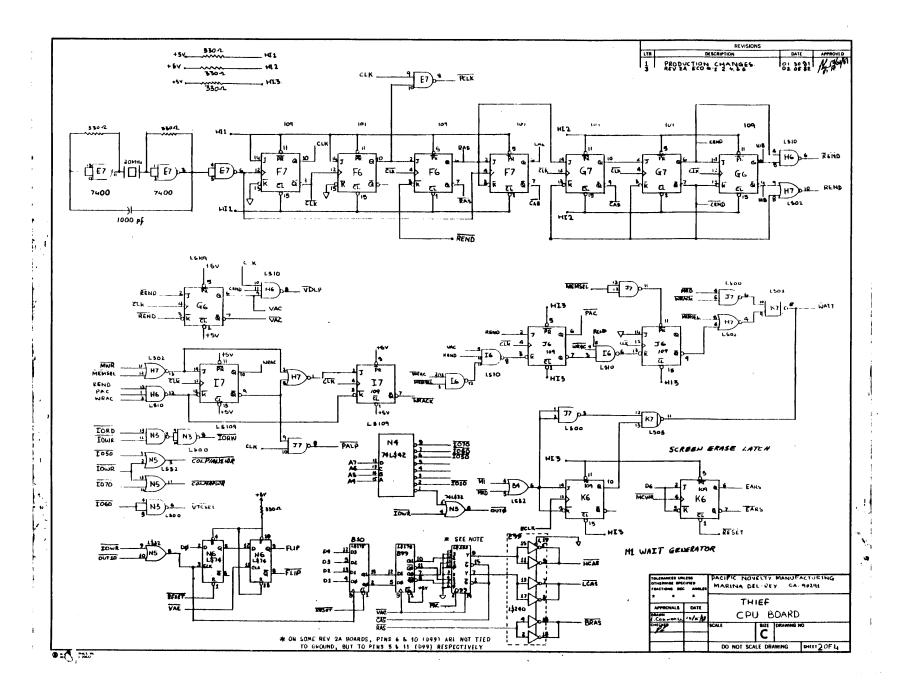
written contract between Seller and Buyer which contract supersedes the terms of this order, this warranty is expressed in lieu of all other warranties expressed or implied, including the implied warranties of merchantability and fitness for particular purpose, and of all other obligations or liabilities on the Seller's part, and it neither assumes, nor authorizes any other person to assume for the Seller any other liabilities in connection with the sale of products under this order.

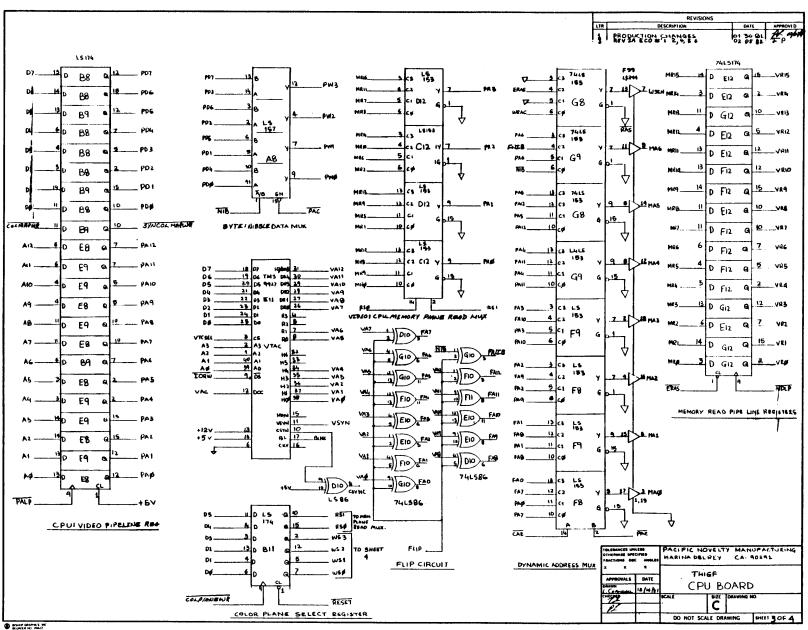
#### NOTICES IV

# WARNING!

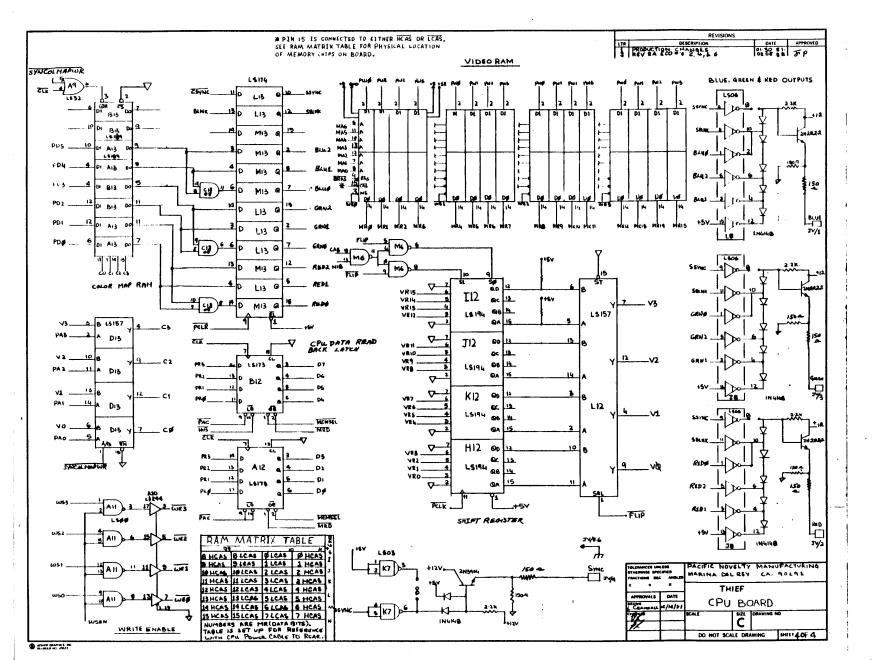
This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual - it's use may result in interference with radio communication services. As temporarily permitted by resulations, it (the same) has not been tested for complience (with the limits for class A computing devices) persuant to sub part J of part 15 of F.C.C. rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is may cause interference—in which case, the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

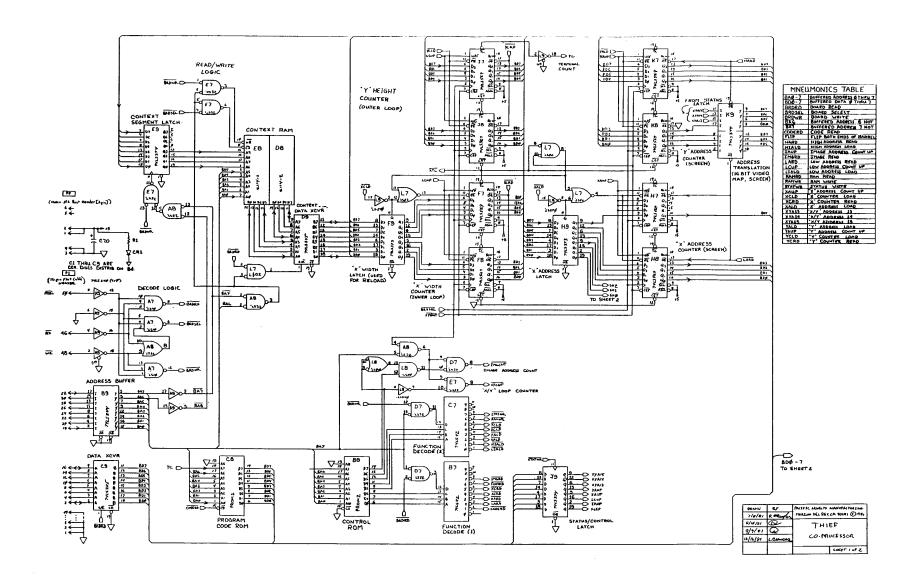


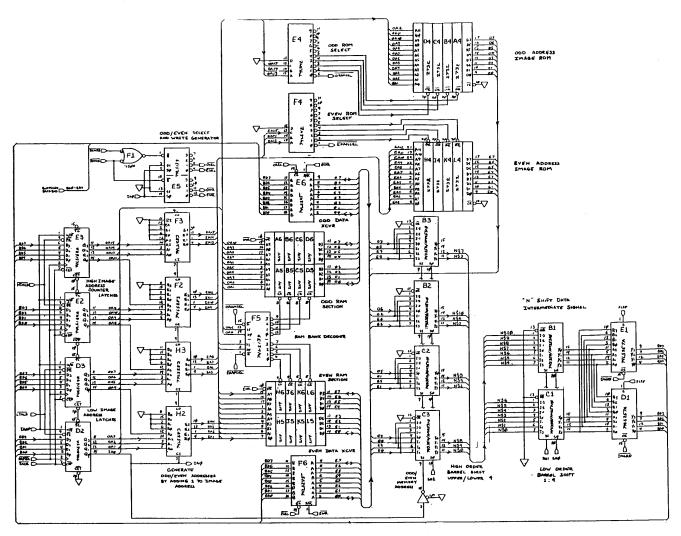




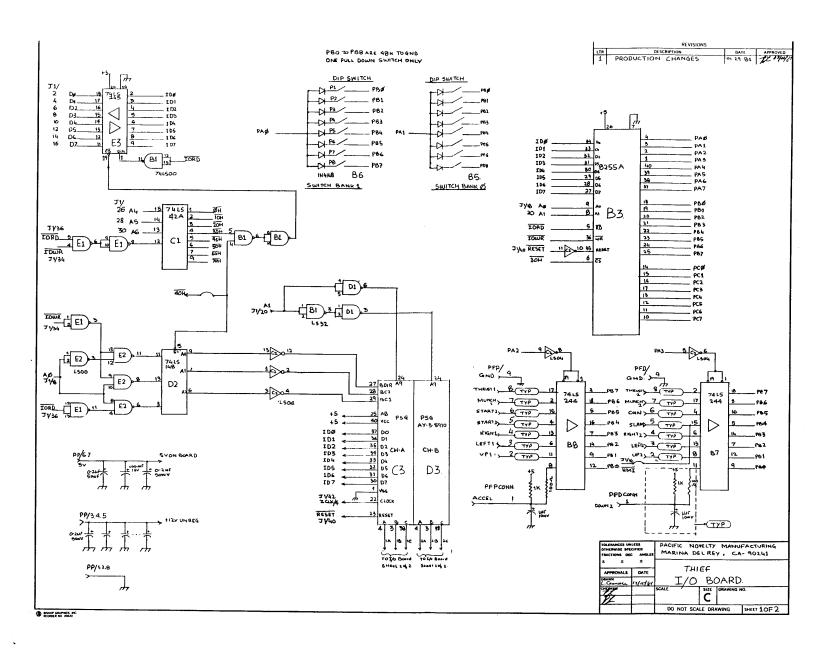
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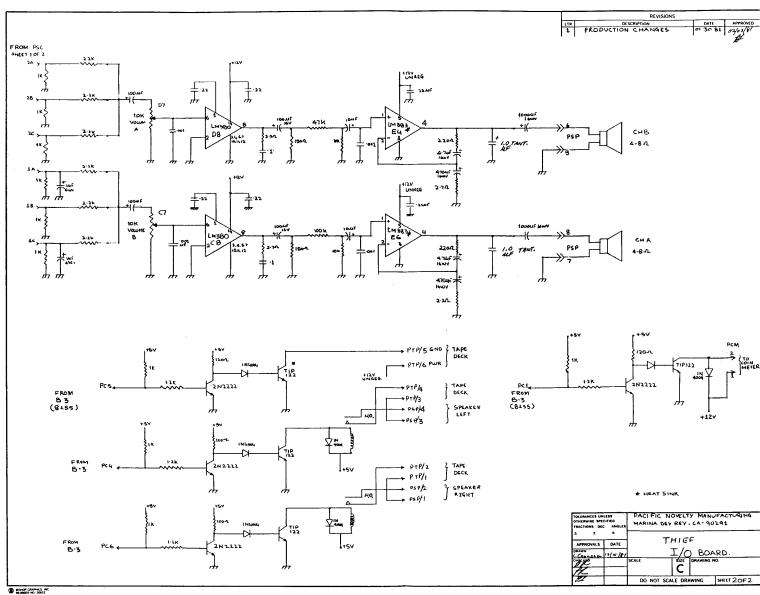




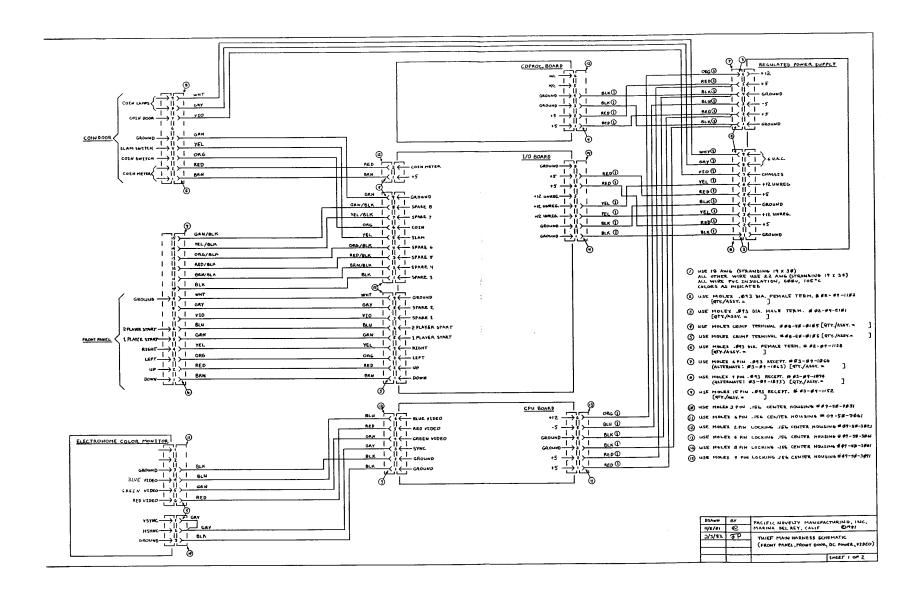
DRAWN	64	PACIFIC NOVELTY MANUFACTURING
7/8/8/	Rmake	Morne Del Ray, CA 40291 (0176)
0/4/81		THIEF
4/7/81	@	
12/16/81	L. Cannone	CU- PROCESSOR
		SHEET Z of Z

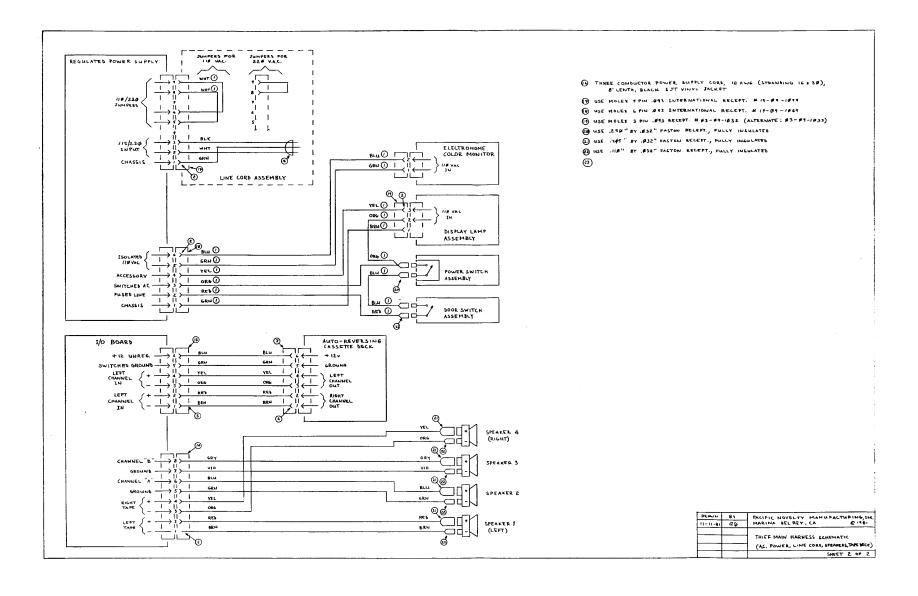


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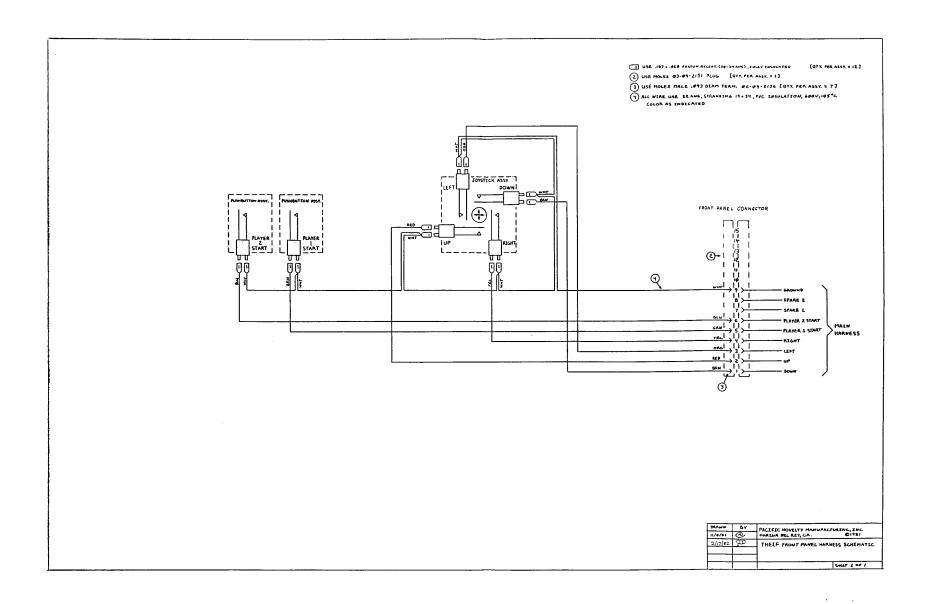


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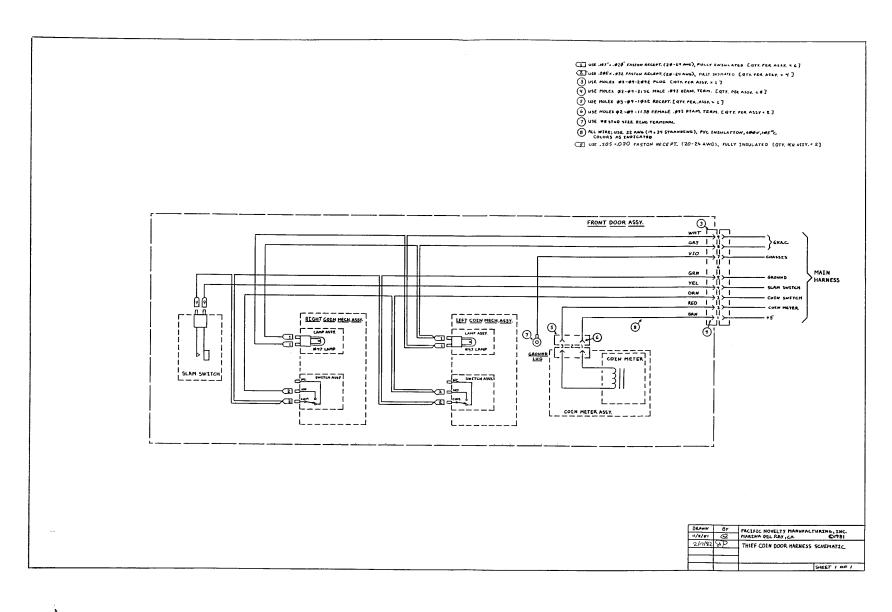


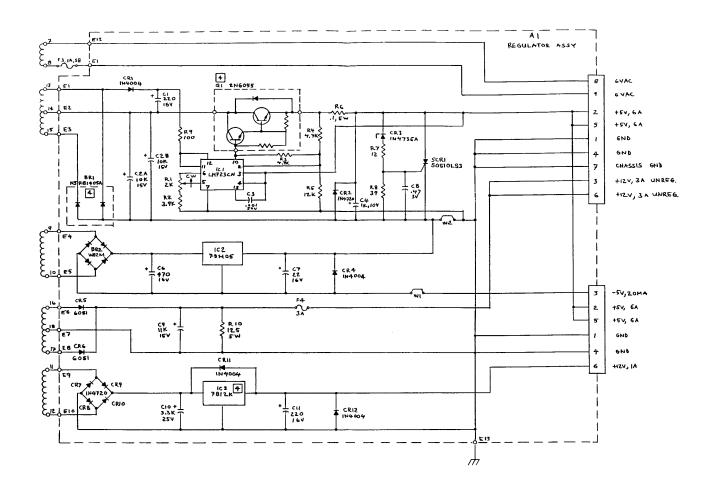


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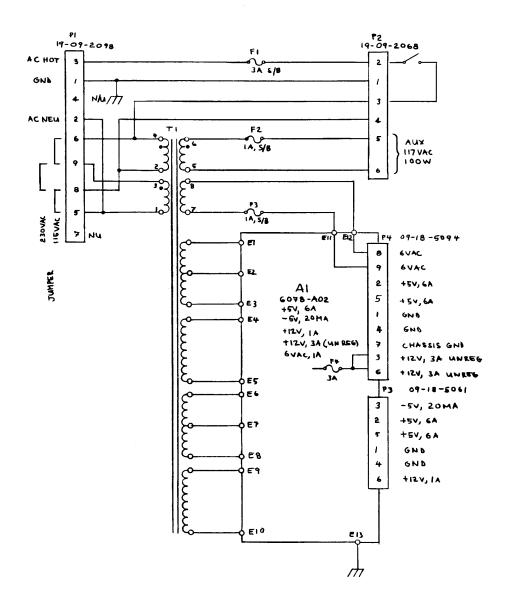


4 COMPONENT MOUNTED ON CHASSIS.

3. ALL RESISTANCE VALUES IN DHMS ±5%, VzW.
2. ALL CAPACITANCE VALUES IN MICROFARASS.

NOTES: UNLESS OTHERWISE SPECIFIED

		PACIFIC NOVELTY MANUFACTURING MARINA BEL REY CA. FORGE					
MAWHLY	MTE	COMPUTER PORTRAIT					
18	10-24	REGULATOR SCHEMATIC					
	-						
		SHEET 1 CO					



NOTES: UNLESS OTHERWISE SPECIFIED

		PACIFIC NOVELTY MANUFACTURING MARINA BL. RRY CA. 90291 TITUE COMPUTER PORTRAIT POWER SUPPLY SCHEMITIC					
Bear By	DATE						
	//			Dwe. Me.			
	<del>                                     </del>	<del> </del>		L	Smc= 1991		