

MANDA CHALLENGE™



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memetron
INC.



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TELEX #210227 ANSB MEMORY

VIDEO GAME OPERATOR:

Don't Get Involved In A Federal Crime. Don't Buy Or Operate Copy Or Unauthorized Boards In Your Games.

Warning



*Every operator who buys or operates a counterfeit or unauthorized board (imported or domestic) is contributing to the end of our industry and committing a **FEDERAL CRIME**.*

*New criminal laws have recently been enacted that provide for maximum penalties of \$250,000 or five years in prison or both, per offense. **EACH GAME IS A SEPARATE OFFENSE.***



WARNING

Federal law provides severe civil and criminal penalties for the unauthorized reproduction, distribution or exhibition of copyrighted audiovisual works and video games.

The Federal Bureau of Investigation investigates allegations of criminal copyright infringement.

If you have any information about any unauthorized games in the United States, contact your local FBI or,

American Amusement Machine Association

205 The Strand
Suite 3

Alexandria, Virginia 22314
(703) 548-8044

All information will be treated in confidence.

IMPORTANT F.C.C. WARNING

THIS KIT IS INTENDED FOR USE ONLY ON COIN OPERATED VIDEO GAMES MANUFACTURED AFTER OCT. 1, 1983, WHICH HAVE BEEN VERIFIED FOR COMPLIANCE WITH THE REQUIREMENTS IN PART 15 OF FCC RULE FOR CLASS A COMPUTING DEVICES. IMPROPER CONNECTION OF THE KIT, OR CONNECTION TO ANY OTHER COIN OPERATED VIDEO GAME NOT SO MANUFACTURED OR VERIFIED FOR COMPLIANCE MAY CAUSE UNACCEPTABLE INTERFERENCE TO RADIO AND T.V. RECEPTION REQUIRING THE OPERATOR TO MAKE THE NECESSARY CHANGES TO CORRECT THE INTERFERENCE. MEMETRON, INC., TAKES NO RESPONSIBILITY FOR KITS IMPROPERLY CONNECTED TO GAMES FOR WHICH USE IS NOT INTENDED.

WARNING

MAKE SURE YOUR POWER SUPPLY PROVIDES THESE DC VOLTAGES:
+ 5 AT 7 A, + 12 AT 1 A & - 5 VOLTS

Pac-man, Ms Pac-man, Galaxian and other select games DO NOT provide a D.C. power supply. MEMETRON will not assume responsibility for any p.c.boards returned with damage caused by the introduction of improper voltages.

Pac-man, Ms Pac-man and Galaxian are trademarks of Bally Midway.

K I N G K I T C O N T E N T S

* *	MANIA CHALLENGE PC BOARD	* *
* *	INSTRUCTION MANUAL	* *
* *	CRT PLEXI	* *
* *	MARQUEE PLEXI	* *
* *	JOYSTICKS (2)	* *
* *	CONTROL PANEL OVERLAY	* *
* *	CONTROL PANEL DECALS	* *
* *	INSTRUCTION DECALS	* *
* *	WIRING HARNESS	* *

Contact your Memetron distributor for replacement parts.

M A N I A C H A L L E N G E C O N V E R T S A N Y
C O L O R R A S T E R S C A N M O N I T O R
T H A T I S O R C A N B E M O U N T E D
V E R T I C A L L Y

NOTICE

Parts salvaged from your old game are required to complete your kit. These salvaged parts must operate perfectly for the converted game to perform properly and safely.

MAKE SURE YOUR POWER SUPPLY AND MONITOR ARE WORKING PROPERLY BEFORE ATTEMPTING CONVERSION!

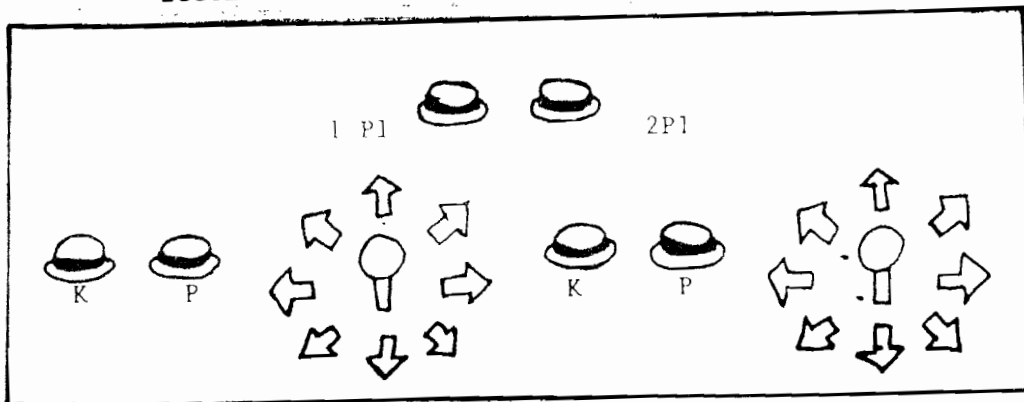
C A B I N E T

Reconditioning the cabinet is one of the most important things that you must do. Remove all old graphics and artwork from the cabinet. Clean the cabinet, and paint if necessary. Remember... A new game promotes player interest. This conversion is a new game... MAKE SURE IT LOOKS LIKE ONE.

C O N T R O L P A N E L

- 1) Remove the old buttons, joystick and control panel overlay (note.. do not throw out parts! certain items are required to complete your new control panel.)
- 2) Refer to suggested control panel layout. (below)
- 3) Drill any new holes that are necessary.
- 4) Plug any holes that will not be used, a common auto body bondo is probably the quickest filler available.
- 5) Carefully apply the new control panel overlay . Avoid getting air bubbles under the vinyl.
- 6) Once the overlay is in place, use an exato knife to cut out the button and joystick holes.
- 7) Place the new buttons, joystick and instruction decals on the control panel.

SUGGESTED CONTROL PANEL FOR MANIA CHALLENGE



C R T A N D M A R Q U E E P L E X I
(wear protective eyewear while cutting plexis)

- 1) The marquee and crt plexi must be cut to fit your game.
Do not remove paper mask until this is done.
- 2) Remove old marquee and crt plexi from game.
- 3) Use these to measure and mark the new plexi for cutting.
- 4) The plexis can be cut the same way you cut tile or window glass.
We suggest using a scribing knife . Using a straight edge to
guide the knife, draw the scriber several times along the edge.
Make sure your cuts go from end to end cleanly.
- 5) Lay the plexi on a table with the scribe mark hanging over the
edge. While clamping the plexi to the table apply sharp downward
pressure to the other side. Sandpaper should remove any rough
edges.

G R O U N D I N G

TO ASSURE PROPER GAME OPERATION AND TO PREVENT SHOCK HAZARD,
MAKE SURE GAME IS PROPERLY GROUNDED. DO NOT USE A "CHEATER"
PLUG TO DEFEAT THE GROUNDING PIN ON THE POWER CORD!

N O T I C E

For safety and reliability, Memetron, Inc does not recommend or
authorize any substitute parts or modifications of Memetron
equipment.

Use of non Memetron parts and modifications of circuitry may
adversely affect game performance.

Substitute parts or equipment modification may void FCC type
acceptance.

Since this game is protected by federal copyright, trademark and
patent laws, unauthorized game conversions may be illegal under
federal law.

This "conversion" principal also applies to unauthorized facsimiles
of Memetron, Inc., equipment logos, designs, publications, assemblies
and games (or features not deemed to be in the public domain),
whether manufactured with Memetron components or not.

C O I N C O U N T E R

To properly connect a coin counter on MANIA CHALLENGE you will need the following items.

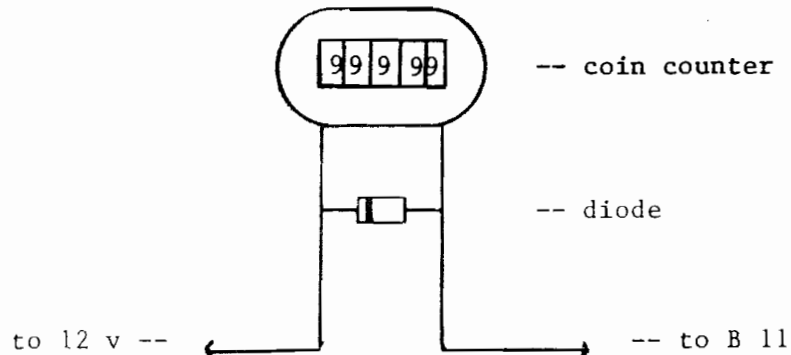
- 1) 12 volt coin counter (1)
- 2) 1N 4004 diode (1)

(see diagram below)

1) connect the coin counter wire, (B11 on the PC board) to the anode side of the 1N 4004 diode, and then connect to one lead of the coin counter

2) Connect the other lead of the coin meter to the cathode side of the diode, and then connect to +12 volts on your power supply.

3) MAKE SURE THE DIODE IS IN PLACE AND HOOKED UP CORRECTLY OR DAMAGE TO THE PC BOARD MAY RESULT!



IF YOU HAVE ANY QUESTIONS CONTACT YOUR MEMETRON SERVICE REPRESENTATIVE
* (312) 595-2828 *

MAIN HARNESS
MANIA CHALLENGE

SOLDER SIDE				PARTS SIDE		
GA	WIRE/COLOR	SIGNAL NAME	PIN NO.	SIGNAL NAME	WIRE/COLOR	GA
18	YELLOW	-5V	A1 B1	+12V	ORANGE	18
22	VIO-WHT	SPEAKER GND	A2 B2	SPEAKER	VIO	22
22	BLU-YEL	1P PUNCH	A3 B3	1P UP	ORG	22
22	BRN-WHT	1P RIGHT	A4 B4	1P LEFT	BRN	22
22	GRAY	1P START	A5 B5	2P START	ORG-WHT	22
22	BLK-YEL	2P PUNCH	A6 B6	2P UP	BLK-ORG	22
22	BLK-RED	2P DOWN	A7 B7			
22	BLK-BRN	2P LEFT	A8 B8	2P RIGHT	BLK-WHT	22
			A9 B9	1P DOWN	GRY-YEL	22
			A10 B10	COIN 1	BLU-GRY	22
			A11 B11	COIN COUNTER	BLU-RED	22
22	BLU-GRN	1P KICK	A12 B12	2P KICK	BLK-GRN	22
22	GREEN	VIDEO GREEN	A13 B13	VIDEO BLUE	BLUE	22
22	RED	VIDEO RED	A14 B14	VIDEO SYNC	WHITE	22
			A15 B15			
18	BLACK	GND	A16 B16	GND	BLACK	18
18	BLACK	GND	A17 B17	GND	BLACK	18
18	RED	+5V	A18 B18	+5V	RED	18

DIP SWITCH SETTINGS

DIP SWITCH 1

1	2	3	4	5	6	7	8	
								• Coin-A
OFF	OFF							1 Coin – 1 Play *
ON	OFF							1 Coin – 2 Play
OFF	ON							1 Coin – 3 Play
ON	ON							2 Coin – 1 Play
					N			• Coin-B
		OFF	OFF		O			1 Coin – 1 Play *
		ON	OFF		T			1 Coin – 2 Play
		OFF	ON					1 Coin – 3 Play
		ON	ON					2 Coin – 1 Play
					U			• Sound for Demonstration
				OFF	S			Sound *
				ON	E			No sound
					D			
								• Check Program
						OFF		OFF
						ON		ON
							ON	Invert Picture

DIP SWITCH 2

1	2	3	4	5	6	7	8	
								• Degree of Difficulty
OFF	OFF	DON'T USE	DON'T USE	DON'T USE	DON'T USE	DON'T USE	DON'T USE	Normal
ON	OFF							↓
OFF	ON							
ON	ON							

* SUGGESTED FACTORY SETTINGS

MAIN HARNESS
MANIA CHALLENGE

MAT MANIA

SOLDER SIDE				PARTS SIDE			
GA	WIRE/COLOR	SIGNAL NAME	PIN. NO.		SIGNAL NAME	WIRE/COLOR	GA
22	WHT-GRN	-5V	A1	B1	+12V	YELLOW	22
22	RED-GRN	SPEAKER GND	A2	B2	SPEAKER	ORG-GRN	22
22	YEL-RED	1P PUNCH	A3	B3	1P UP	ORG-YEL	22
22	BRN-YEL	1P RIGHT	A4	B4	1P LEFT	BLUE-YEL	22
22	VIO-WHT	1P START	A5	B5	2P START	VIO-YEL	22
22	ORG-WHT	2P PUNCH	A6	B6	2P UP	BLK-YEL	22
22	RED-WHT	2P DOWN	A7	B7			
22	BLUE-WHT	2P LEFT	A8	B8	2P RIGHT	BRN-WHT	22
			A9	B9	1P DOWN	GRY-YEL	22
			A10	B10	COIN 1	BLUE-GRY	22
			A11	B11	COIN COUNTER	GRN-GRY	22
22	PINK-WHT	1P KICK	A12	B12	2P KICK	YEL-GRY	22
22	GRN-BRN	VIDEO GREEN	A13	B13	VIDEO BLUE	BLUE-GRN	22
22	RED-BRN	VIDEO RED	A14	B14	VIDEO SYNC	WHT-BRN	22
			A15	B15			
18	BLACK	GND	A16	B16	GND	BLACK	18
18	BLACK	GND	A17	B17	GND	BLACK	18
18	RED	+5V	A18	B18	+5V	RED	18

VIDEO OUTPUT TO MONITOR

The video output consists of three similar circuits, one for each of the composite colors red, green, and blue. Each circuit consists of a 74165 shift register, a 2N2222 driver transistor (with associated biasing resistors), and a connecting harness between the circuit board and the monitor.

The video harness is designed so that either end can plug into either the circuit board or the monitor. The function of each of the wires is as follows:

THESE WIRES ARE LISTED AS THEY APPEAR ON THE MAIN CIRCUIT BOARD.	top pin	YELLOW - HORIZONTAL SYNC
		WHITE - VERTICAL SYNC
		BLACK - VIDEO GROUND
		BLUE - BLUE VIDEO SIGNAL
		GREEN - GREEN VIDEO SIGNAL
	bottom pin	RED - RED VIDEO SIGNAL

The circuit board supports either positive or negative sync signals. These can be adjusted with the two jumpers in the upper right hand corner of the circuit board. The monitor that is supplied with the game uses positive sync signals.

Refer to the VIDEO RAM page of the schematic diagram to supplement the following discussion.

The video signal begins at the 74165 shift registers (R12, B12, and G12). Video data is parallel loaded into each 74165 when PLSR (pin 1) pulses low. CLKS is constantly pulsing to shift the video data out serially at pin 9. As it stands, this signal is not strong enough to drive the monitor, so a 2N2222 transistor is used as a buffer. Pin 9 of the 74165 drives the 2N2222 and this in turn drives the monitor. The 470 ohm resistors are for biasing the transistors. They are located inside the SIF packages on each side of the transistors.

NOTES ON THE SATELLITE BOARD

The satellite circuit board serves two important functions. First, it contains the program that the CPU requires in order to make the game run. Because the entire program is stored on this one small circuit board, it becomes very easy to convert your game to another by simply changing satellite boards or by changing individual ROM memory chips on the board.

The second major function of the satellite board is that it contains all of the bookkeeping information for that game. Through new ROM/RAM technology, this information can be held in a non-volatile memory without a battery backup.

If you hold a satellite board with the chips facing you and the edge connector up, the two leftmost chips are RAM memory. The CPU not only stores the bookkeeping data here, but also uses it to keep track of the progression of the game. If there is a loss of power in the middle of a game, these chips remember where the game left off. When power is restored, the game can continue without any loss of continuity.

The set of large chips next to the RAM is the game program. If you have a JOKER POKER game, there will be three program chips and one empty socket. If you have a 3-IN-1 game, there will be four program chips. The program is stored in EPROM memory, therefore it is advised that the white labels on the chips not be removed. It is possible that the program may be lost if the quartz window under the label is exposed to too much ambient light.

The single rightmost chip is used for decoding and accessing the individual ROM memory chips. On a JOKER POKER game, this will be a 7408. If you have a 3-IN-1 game, this chip is a PAL16R4.

THE FOLLOWING SYMPTOMS CAN BE LINKED TO A FAULTY PAL16R4:

"NO GAME" APPEARS ON THE SCREEN AS YOUR CHOICE OF GAMES.

THE SAME GAME NAME APPEARS AS ALL THREE CHOICES UPON INSERTION OF A COIN.

If a ROM memory chip is faulty, it will be detected upon power-up of the game. A "ROM BAD" message will flash on the screen.

A faulty RAM memory chip may result in erratic bookkeeping figures. It will also cause a random number of credits to appear on the screen upon power-up.