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.

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 F.C.C. 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.
receivers 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 7A, +12 AT 1A & -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.
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WIRING HARNESS
**

Contact your Memetron distributor for replacement parts.

MANIA CHALLENGE CONVERTS ANY COLOR RASTER SCAN MONITOR THAT IS OR CAN BE MOUNTED VERTICALLY

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!
CABINET

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.

CONTROL PANEL

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
CRT AND MARQUEE PLEXI
(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 scribe 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.

GROUNDING

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!

NOTICE

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.
COIN COUNTER

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 *
<table>
<thead>
<tr>
<th>GA</th>
<th>WIRE/COLOR</th>
<th>SIGNAL NAME</th>
<th>PIN NO.</th>
<th>PARTS SIDE</th>
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## DIP SWITCH SETTINGS

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<td>Coin-B</td>
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<td>DON'T USE</td>
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* SUGGESTED FACTORY SETTINGS
## MAIN HARNESS
### MANIA CHALLANGE
### MAT MANIA

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<tr>
<th>SOLDER SIDE</th>
<th>WIRE/COLOR</th>
<th>SIGNAL NAME</th>
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<td>B1</td>
<td>+12V</td>
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<td>B2</td>
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<td>ORG-GRN</td>
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<tr>
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<td>B5</td>
<td>2P START</td>
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<td>B6</td>
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<td>B10</td>
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<td>BLUE-GRN</td>
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<td>22</td>
<td>RED-BRN</td>
<td>VIDEO RED</td>
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<td>A18</td>
<td>B18</td>
<td>+5V</td>
<td>RED</td>
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</table>
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:

- **top pin** yellow - horizontal sync
- **top pin** white - vertical sync
- **top pin** black - video ground
- **top pin** blue - blue video signal
- **top pin** green - green video signal
- **top pin** red - red video signal

These wires are listed as they appear on the main circuit board.

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. CLUSR 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 SIP 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.