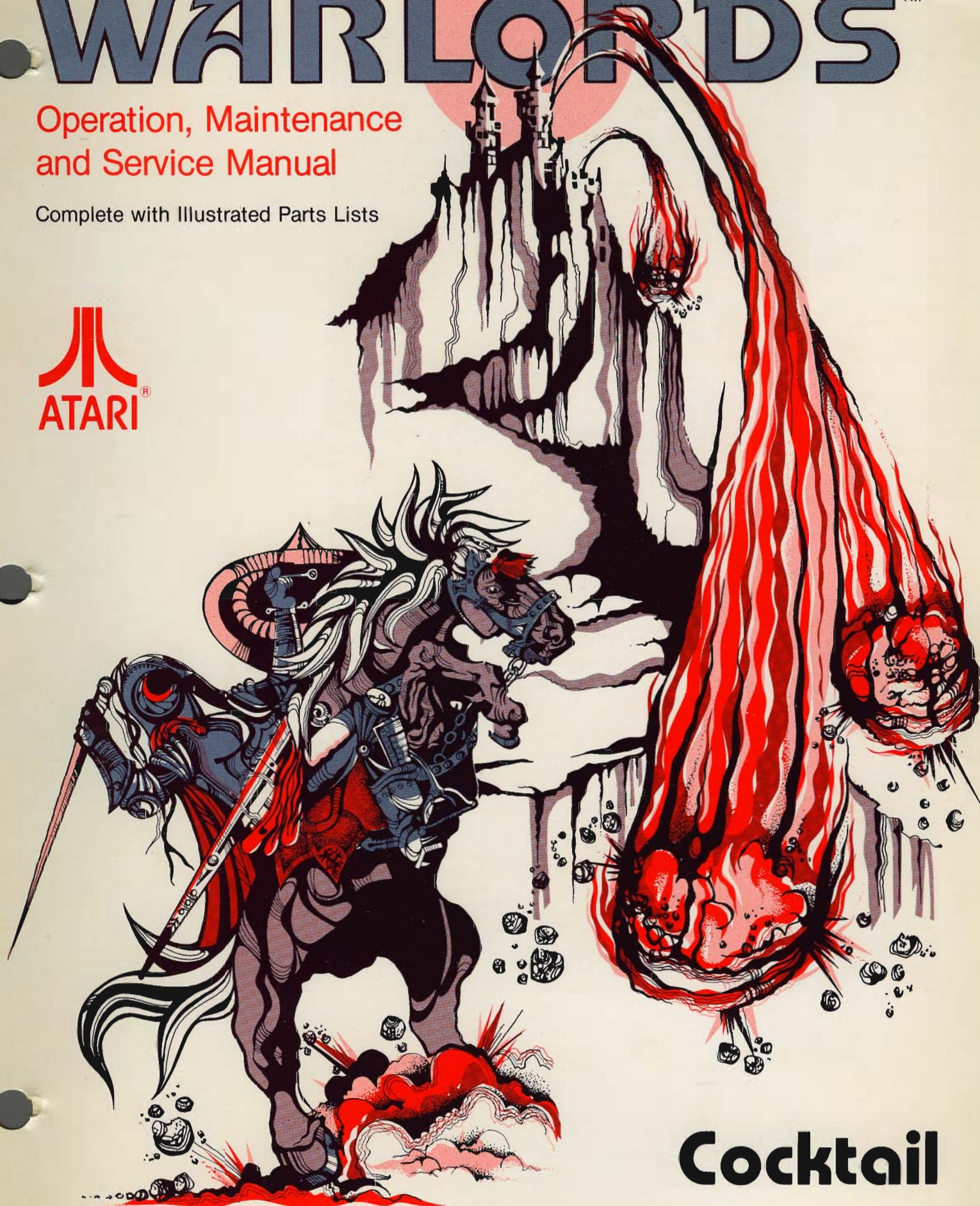


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WARLORDS™

Operation, Maintenance
and Service Manual

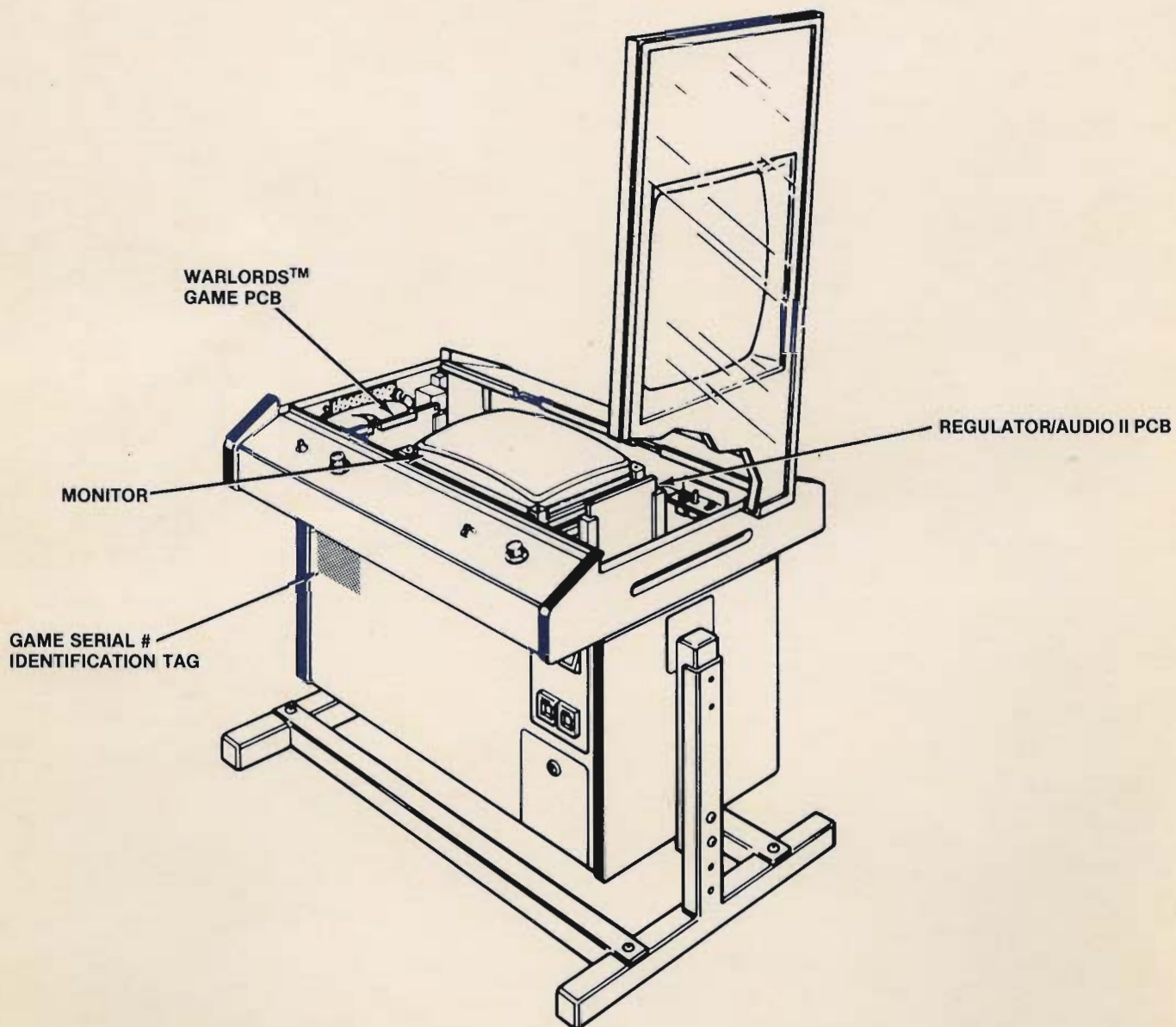
Complete with Illustrated Parts Lists



Cocktail

GAME SERIAL NUMBER LOCATION

Your game's serial number is stamped on a plate on the outside of the game. The same number is also stamped on the chassis of the monitor, Regulator/Audio II PCB, and the Warlords™ Game PCB. Please mention this number whenever calling your distributor for service.



WARLORDS™

Operation, Maintenance and Service Manual

Complete with Illustrated Parts Lists



 A Warner Communications Company



Cocktail

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Notice Regarding Non-Atari Parts



Atari, Inc.'s warranty (printed on the inside back cover of this manual) may be voided, if you do any of the following:

- 1.) you substitute non-Atari parts in your coin-operated game, or
- 2.) you modify or alter any circuits in your Atari game by using kits or parts **not** supplied by Atari.

Not only may the use of any non-Atari parts void your warranty, but any such alteration may also adversely affect the safety of your game, and may cause injury to you and your players.

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NOTE


If reading through this manual does not lead to solving a certain maintenance problem, call Tele-Help® at the Atari Customer Service office in your geographical area, as shown below.

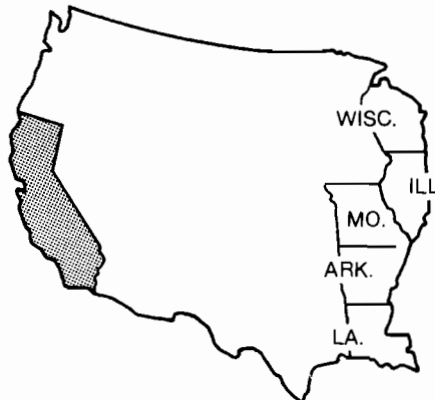
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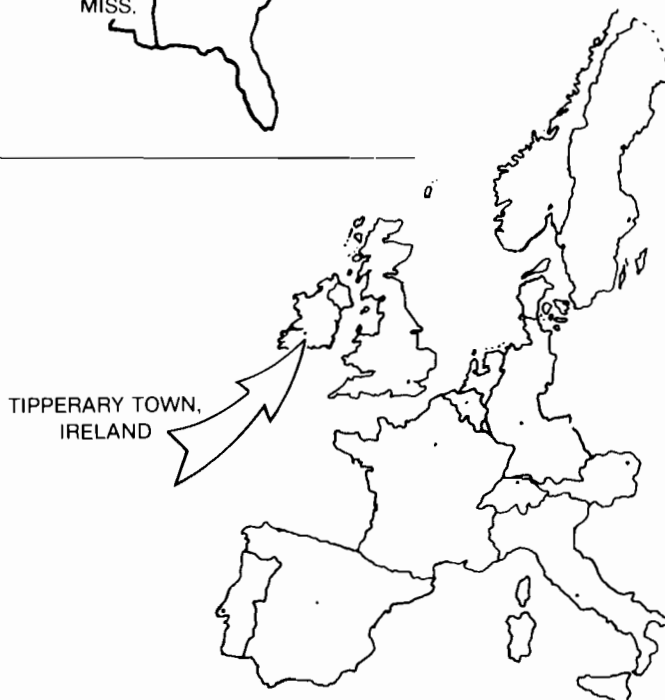
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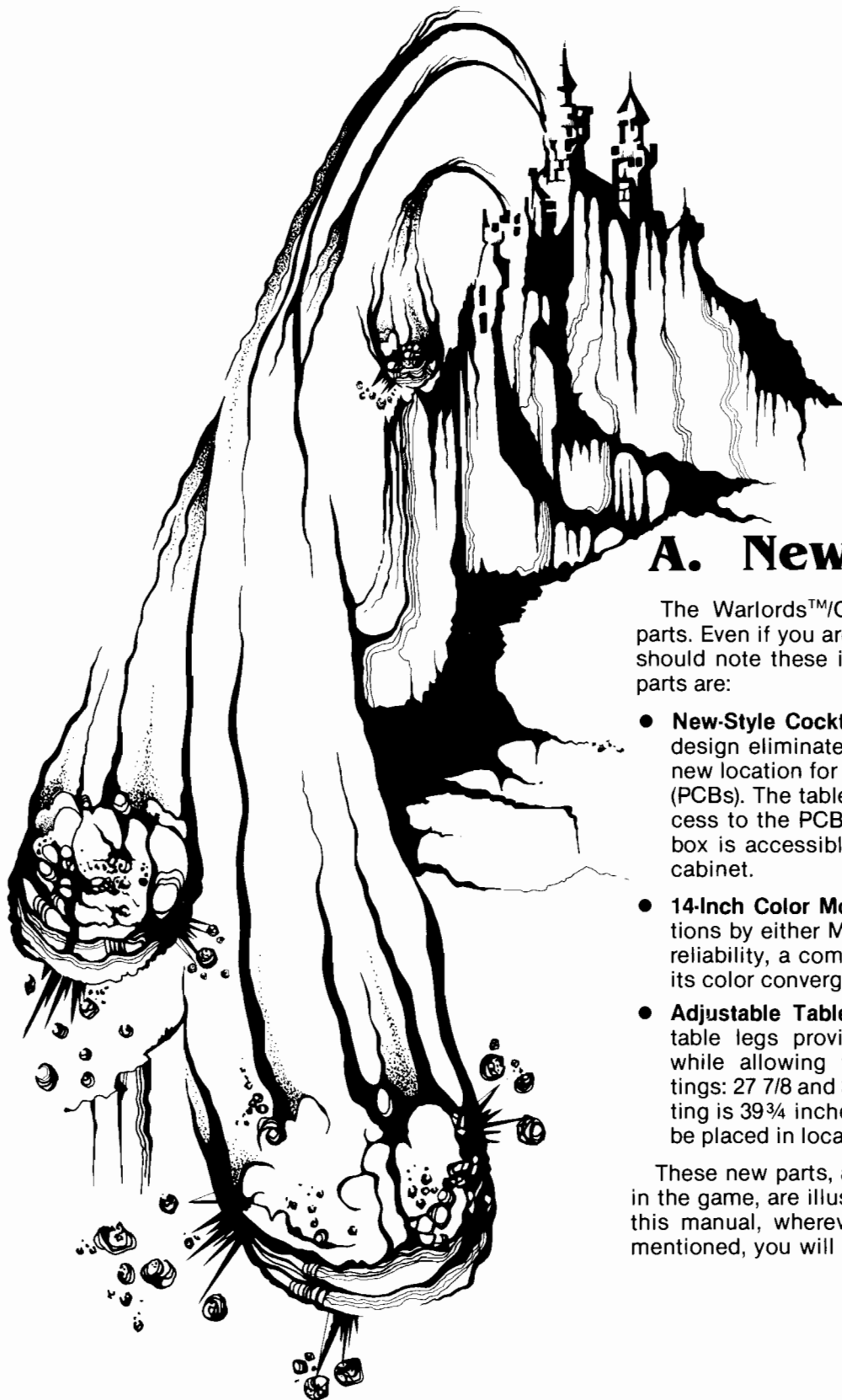
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Telex 28165
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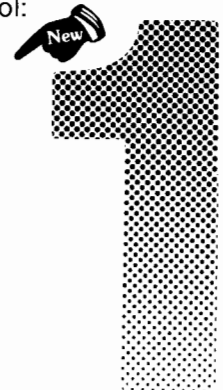


A. New Features

The Warlords™/Cocktail game has three new parts. Even if you are familiar with Atari games, you should note these important differences. The new parts are:

- **New-Style Cocktail-Table Cabinet.** This cabinet design eliminates the side door and provides a new location for the game printed-circuit boards (PCBs). The table top is end-hinged for easy access to the PCBs and control panels. The coin box is accessible only from the outside of the cabinet.
- **14-Inch Color Monitor.** Made to Atari specifications by either Matsushita or Sanyo, it has high reliability, a compact size, and should maintain its color convergence for a long period of time.
- **Adjustable Table Legs.** These newly-designed table legs provide improved cabinet stability while allowing two cocktail-table height settings: 27 7/8 and 30 inches. A third "upright" setting is 39 3/4 inches high, and allows the game to be placed in locations with other upright games.

These new parts, as well as all other major parts in the game, are illustrated in Figure 1. Throughout this manual, wherever one of these new parts is mentioned, you will see this symbol:



Location Setup

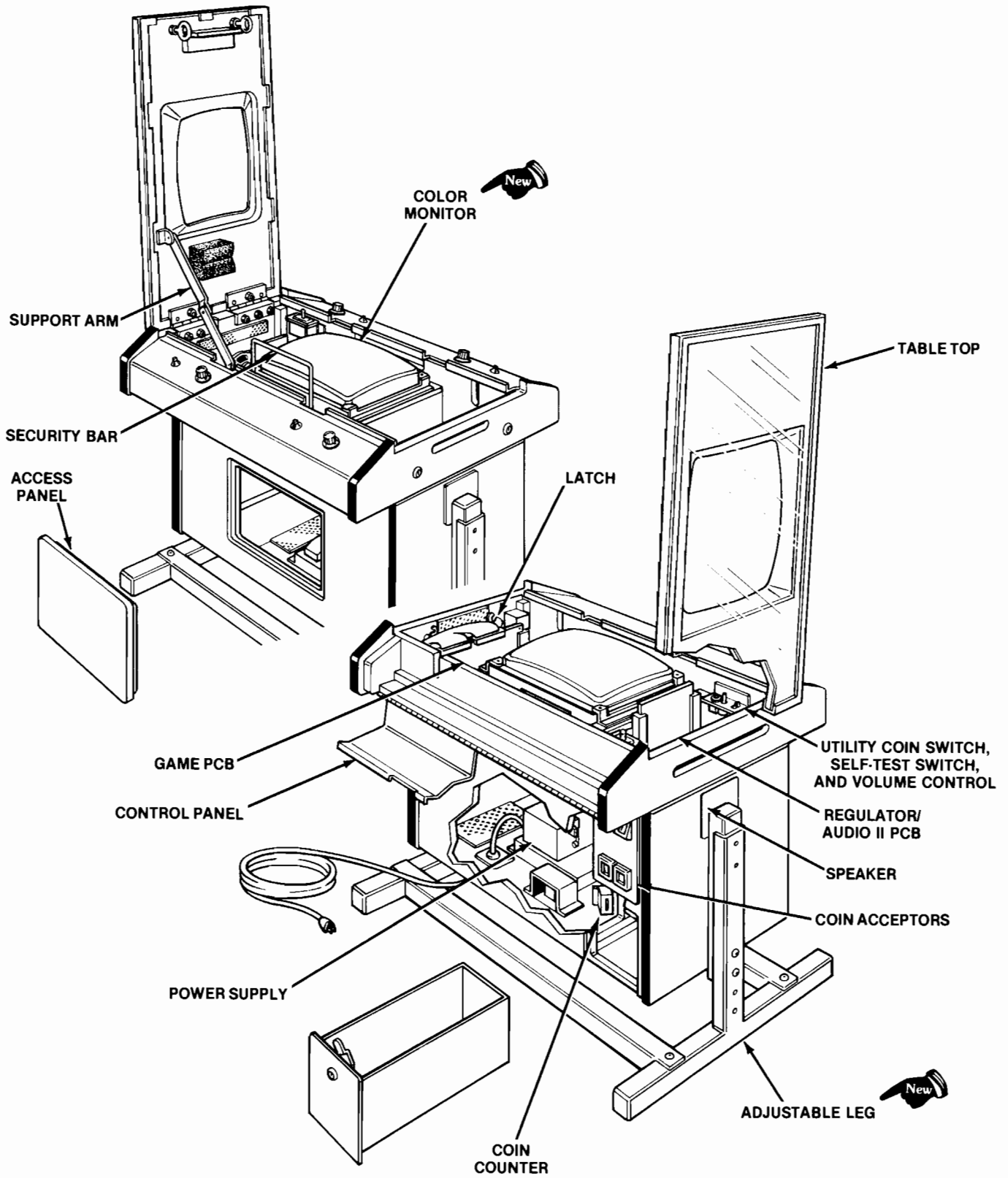


Figure 1 Overview of Game

⚠ WARNING: ⚠
SHOCK HAZARD

Connect this game only to a grounded 3-wire outlet. If you have only a 2-wire outlet, we recommend you hire a licensed electrician to install a grounded outlet. **Players may receive an electric shock** if this game is not properly grounded!

B. Opening the Game Cabinet

1. Opening the Table Top

- To open the game cabinet unlock and open the two locks at one end of the game, located immediately below the table top (see Figure 1).
- Carefully lift the table top until the support arm locks into place. **Do not jam the table top at the end of its upward swing.**

2. Access Panel

- To open the access panel, lift up the U-shaped steel security bar inside the cabinet wall.
- The access panel near the bottom of the cabinet will then come out. This small panel was designed with a bar instead of the usual lock to reduce the number of keys required for this game.

3. Closing the Table Top

- To close the cabinet, stand on the coin acceptor side of the cabinet and grasp the table top with your right hand.
- With your left hand, press the button at the middle of the support arm and pull the support arm toward the left.
- **Gently** lower the table top to the closed position.
- Be sure the control panel is properly engaged with the table top. Otherwise you might damage either the top or the control panel. **Do not force-fit** the table top in order to lock it.
- Lock the two latches on the left end of the cabinet, located just underneath the table top.

C. Game Inspection

This new game is ready to play upon removal from the shipping carton. However, your careful inspection is needed to supply the final touch of quality control. Please follow these steps to help us insure that your new game was delivered to you in good condition.

NOTE

Do not plug the game in yet!

1. Examine the exterior of the game cabinet for dents, chips, or broken parts.
2. Unlock and open the access panel of the cabinet and inspect the interior of the game as follows:
 - Check that all plug-in connectors (on the game harness) are firmly seated. Replug any connectors found unplugged. **Don't force connectors together.** The connectors are keyed so they only go on in the proper orientation. **A reversed edge connector will damage a PCB** and will void your warranty.
 - Check that all plug-in integrated circuits on the game PCB are firmly seated in their sockets.

⚠ WARNING ⚠

To avoid possible unpleasant electrical shock, do not touch internal parts of the monitor with your hands or metal objects held in your hands!

- Note the location of the game's serial number—it is printed on the special label on the outside of the game cabinet. Verify that the serial numbers also stamped on the Warlords™ Game PCB, Regulator/Audio II PCB, and monitor are all identical. A drawing of the serial-numbered components is on the inside front cover of this manual. Please mention this number whenever you call your distributor for service.
- Check all major subassemblies such as the power supply, control panels, and monitor for secure mounting.

D. Game Installation

Figure 2 Installation Requirements

| | |
|----------------|-------------------------------|
| Power | 100 watts |
| Temperature | 0 to 38° C (32 to 100°F) |
| Humidity | Not over 95% relative |
| Space Required | 63½ x 84 cm (25 x 33 in.) |
| Game Height | 65 to 101 cm (25¾ to 39¾ in.) |

1. Voltage Selection

The power supply in this game has four colored voltage selection plugs and operates on the line voltage of almost any country in the world.

Before plugging in your game, check your power supply to be sure the voltage selection plug is correct for your location's line voltage. Check the wire color on the plug and see if it is correct per Figure 3.

2. Interlock and Power On/Off Switches

To minimize the hazard of electrical shock while working on the inside of the game cabinet, an interlock switch has been installed under the table top (see Figure 4). This switch removes all AC line power from the game circuitry when the table top is opened.

Check for proper operation of the interlock switches by doing the following:

- Make sure the table top is closed. Plug the AC line power cord into an AC outlet.
- Set the power on/off switch to the **on** position. Within approximately 30 seconds the monitor should display a picture.
- Slowly open the table top. The monitor picture should disappear when the top is lifted approximately 2½ cm (1 inch).
- If the results of the preceding step are satisfactory, the interlock switch is operating properly. If the monitor doesn't go off as described, check to see if the interlock switch is broken from its mounting or stuck in the **on** position.

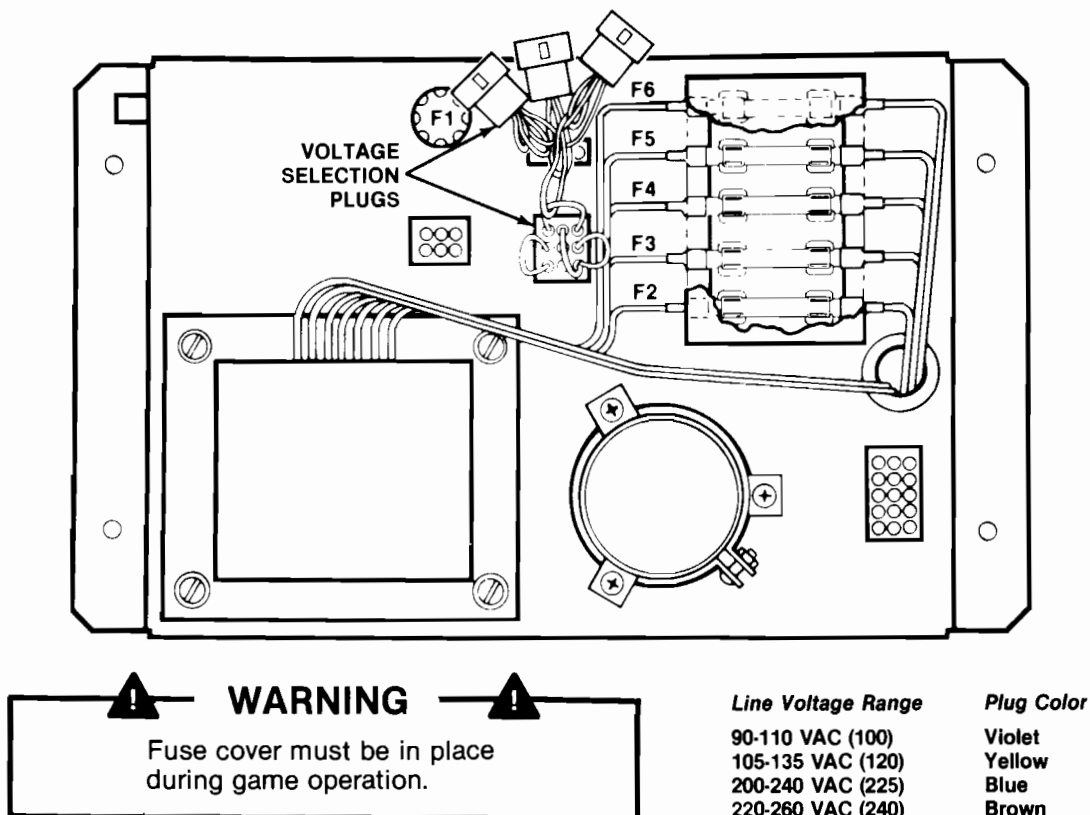


Figure 3 Voltage Plug Selection

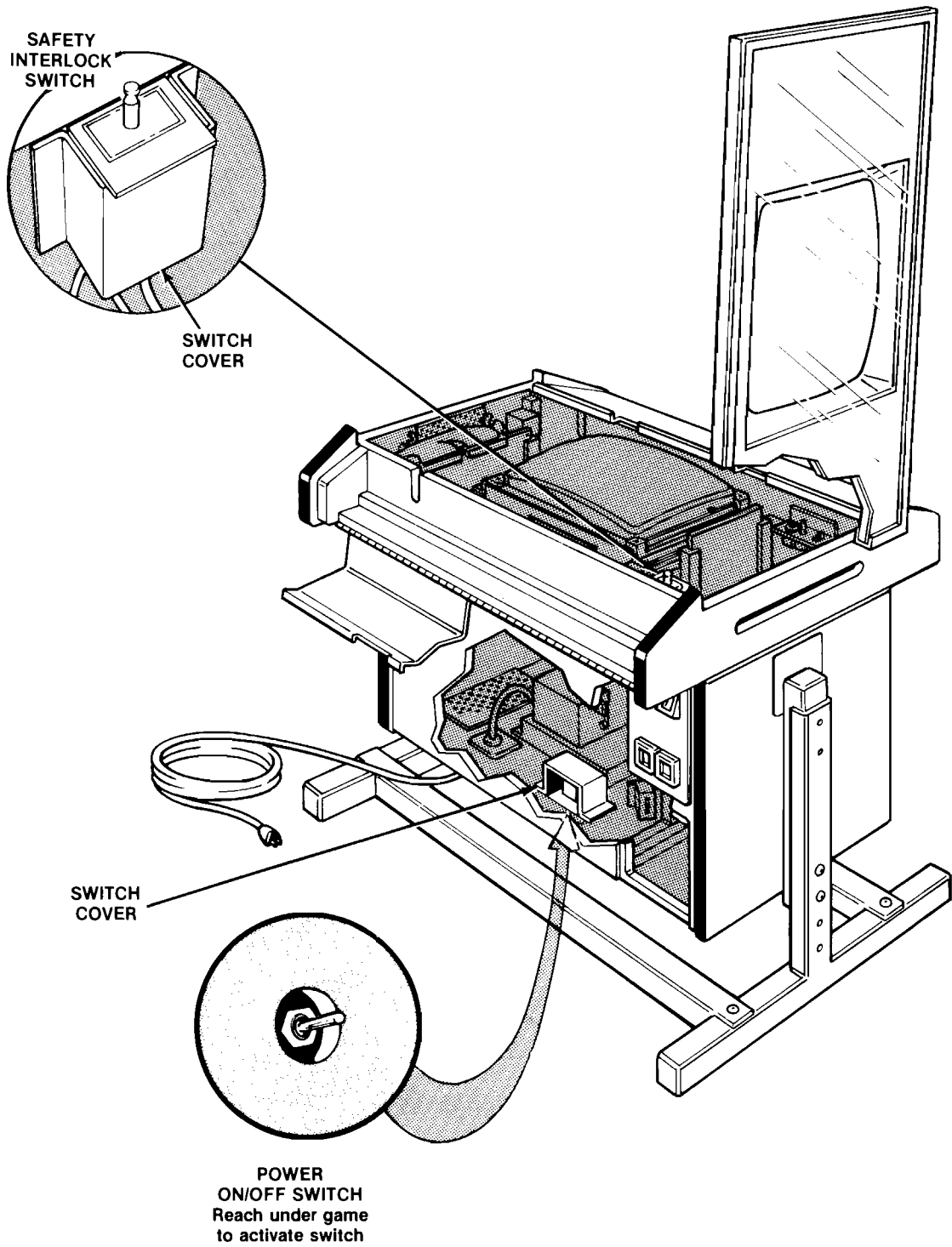


Figure 4 Interlock and Power On/Off Switches

- Remove or empty the coin box. Loose coins may slide out of the coin box and into the game cabinet.
- Lay the table on its side. Place a support (the coin box, books or tool box) under the recessed side of the cabinet.
- Loosen the two Allen-head screws on each leg. Grasp the legs and slide them into the desired position. Then tighten the screws.

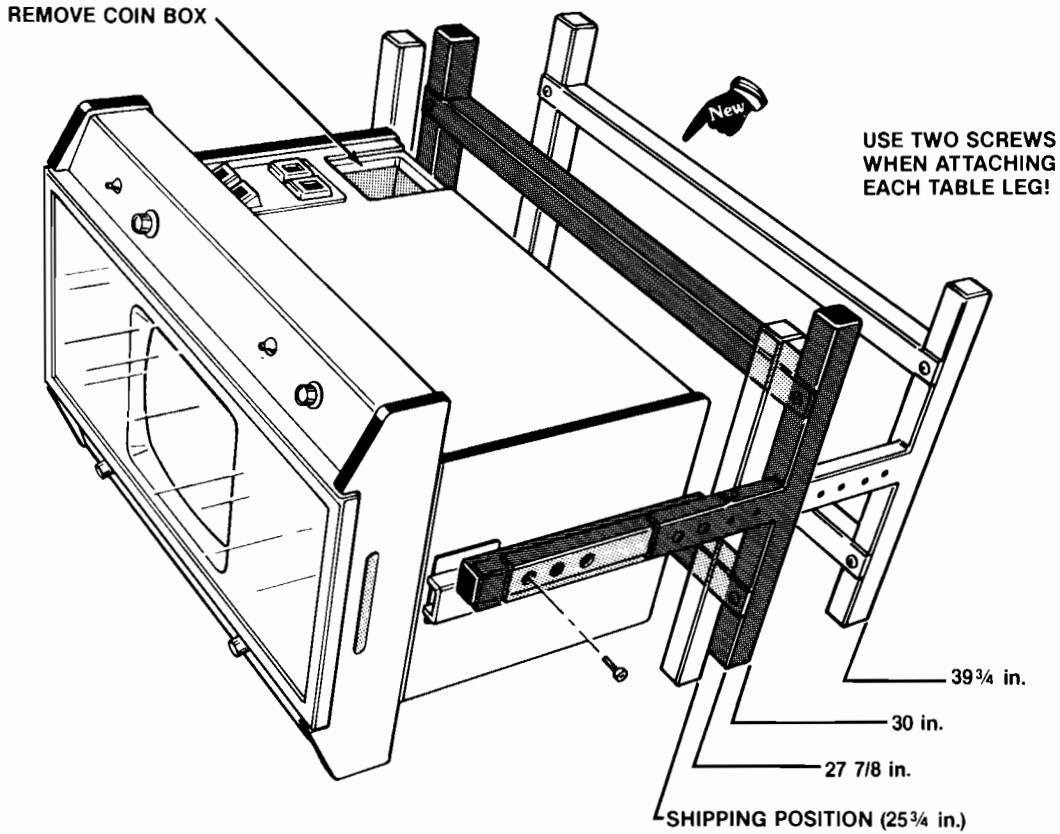


Figure 5 Adjusting the Table Legs

E. Adjusting the Table Legs

This cocktail-table game is designed for four adjustable heights—65, 70, 76 or 101 cm (25 3/4, 27 7/8, 30 or 39 3/4 inches). To adjust the table height, refer to Figure 5.

NOTE

To ensure cabinet strength, you **must** use two screws when attaching each table leg. Using only one screw may result in damage to the cabinet wall when you move the cabinet across the floor.

F. Self-Test Procedure

This game will test itself and provide data to demonstrate that the game's circuitry and controls are operating properly. The data is provided on the monitor and the game speaker; no additional equipment is necessary.

Part of the self-test procedure includes a display of the operator-selectable game options. Therefore, we suggest you run the self-test procedure anytime you need to change the game's options.

To run the self-test, follow the instructions outlined in Figure 7.

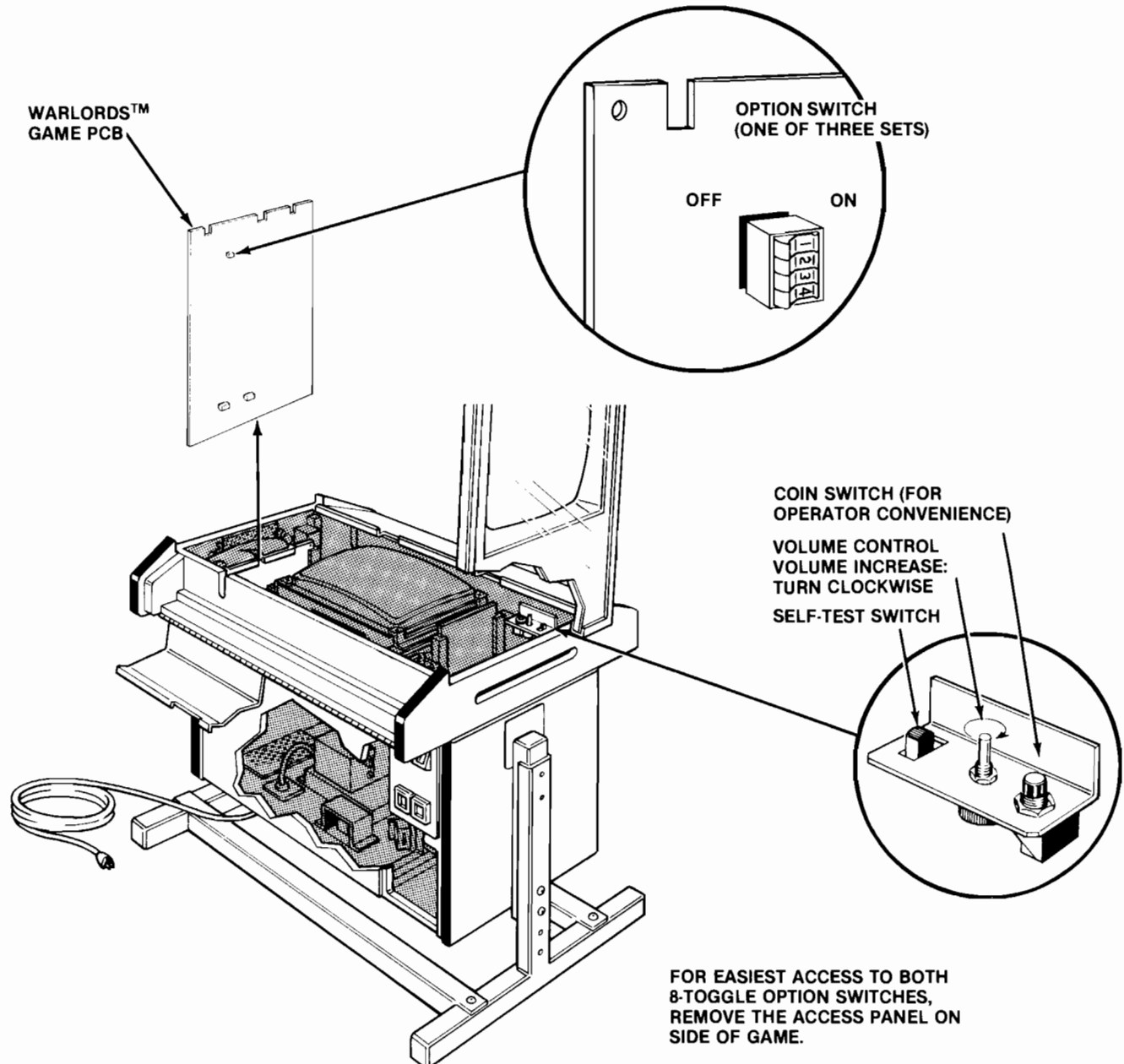
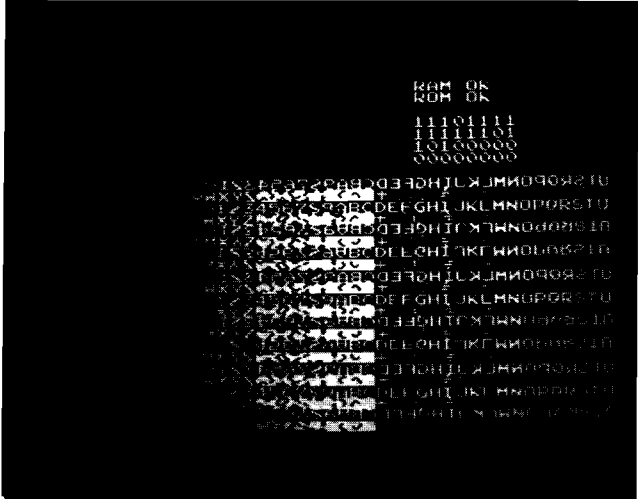


Figure 6 Location of Self-Test Switch, Volume Control and Option Switches

Figure 7 Self-Test Procedure

| Instruction | Results if Test Passes | Results if Test Fails |
|--|---|---|
| <p>1. Unlock and open the table top. Set self-test switch to on position (see Figure 6).</p> | <p>The monitor displays the picture below. You may hear a ticking sound. This is normal.</p> | <p>RAM FAILURE is indicated by the message <i>BAD RAM</i>.</p> <p>ROM/PROM FAILURE is indicated by the message <i>BAD ROM</i>.</p> |
|  | | |
| <p>2. Turn each shield control knob slowly back and forth and observe the monitor.</p> | <p>A fireball will move smoothly on a diagonal across the screen. Ignore any "wraparound" that the fireball does on the screen.</p> | <p>A fireball will jump erratically or not move at all, indicating a bad potentiometer or loose harness wires.</p> |
| <p>3. Activate the following switches, if you can reach them: slam, utility coin, two coin mechanism, and four LED switches.</p> | <p>You will hear a high tone; also, one of the characters in the 4th row of 0s and 1s on the screen will change to a 1 (on). Simultaneously pressing more and more switches will progressively lower the tone. Tone disappears when switch is released.</p> | <p>A tone produced while you are not pressing any switches indicates a shorted switch.</p> <p>No sound at all indicates bad sound circuitry, loose speaker wires, bad switch circuitry or volume control turned all the way down.</p> |
| <p>4. When satisfied with test, set self-test switch to off position. Close and lock the table top.</p> | <p>All coin acceptor and LED lamps are lit.</p> | <p>Either some or all lamps are dark (burned out).</p> |

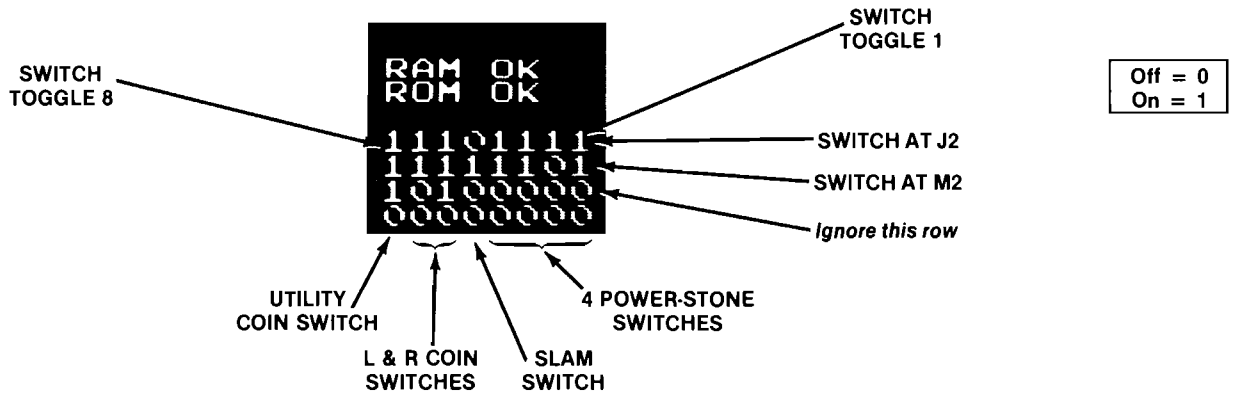


Figure 8 Game Option Settings

To change toggle positions on the switch assemblies, you need not remove the game PCB. The switch, usually colored blue, is easily accessible when the Warlords™ Game PCB is mounted in place.

When changing the options, verify proper results on the monitor display **by performing the self-test**. Note that changing an option on any of the following eight toggles will cause an immediate change on the monitor screen during the self-test.

| Toggle Settings of 8-Toggle Switch on Warlords PCB (at J2—LOWER RIGHT switch when PCB is in game) | | | | | | | | Option |
|--|----------|-----|-----|----------|---|---|-----|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| | | | | | | | On | English language \$ |
| | | | | | | | On | French language |
| | | | | | | | Off | Spanish language |
| | | | | | | | Off | German language |
| Not Used | Not Used | | | Not Used | | | On | Music ends each game. \$ |
| | | | | | | | Off | Music at end of game only for a new high score (1- and 2-player games only). |
| | | On | On | | | | | 1- to 4-player game costs 1 credit. |
| | | On | Off | | | | | 1-player game costs 1 credit; 2- to 4-player game costs 2 credits. \$ |
| | | Off | Off | | | | | 1- to 4-player game costs 2 credits. |
| | | Off | On | | | | | 1-player 1 credit; 2-player 2 credits; 3-player 3 credits; 4-player 4 credits. |

\$ Manufacturer's suggested settings
For pricing for "credits", see Figure 9.



Figure 9 Game Price Settings

The white block below contains Atari's suggested settings. All numbers 1 thru 8 are toggle settings on the 8-toggle switch at location M2, on the Warlords™ game PCB (the LOWER LEFT switch assembly).

50¢ PER CREDIT:

| | No bonus | Bonus \$1.00 = 3 credits | Bonus \$.50 = 1 credit \$.75 = 2 credits \$1.00 = 3 credits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | On | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | On | Off | Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | Off | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| On | On | Off | Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25¢/\$1.00 Mechs | ① <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>On</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>Off</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | On | On | 4 | 3 | 2 | 1 | On | Off | Off | Off | ③ ⑤ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>Off</td></tr> </table> | 8 | 7 | 6 | 5 | On | Off | Off | On | 4 | 3 | 2 | 1 | On | Off | Off | Off | ④ ⑤ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>Off</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | Off | On | 4 | 3 | 2 | 1 | On | Off | Off | Off |
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| On | On | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| On | Off | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| On | On | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | Off | Off | Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

25¢ PER CREDIT:

| | No bonus | Bonus \$.50 = 3 credits | Bonus \$1.00 = 5 credits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|----------------------------|-----------------------------|---|---|----|----|----|----|---|---|---|---|----|-----|-----|----|--|---|---|---|---|----|----|-----|----|---|---|---|---|----|-----|-----|----|--|---|---|---|---|----|-----|----|----|---|---|---|---|----|-----|-----|----|
| All 25¢ Mechs | ② <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>On</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | On | On | 4 | 3 | 2 | 1 | On | On | Off | On | ⑦ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | Off | On | 4 | 3 | 2 | 1 | On | On | Off | On | ⑦ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>Off</td><td>On</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | Off | On | On | 4 | 3 | 2 | 1 | On | On | Off | On |
| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | On | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| On | Off | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | On | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25¢/\$1.00 Mechs | ② <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>On</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | On | On | 4 | 3 | 2 | 1 | On | Off | Off | On | ⑦ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>On</td><td>Off</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | On | Off | On | 4 | 3 | 2 | 1 | On | Off | Off | On | ⑦ <table border="1"> <tr><td>8</td><td>7</td><td>6</td><td>5</td></tr> <tr><td>On</td><td>Off</td><td>On</td><td>On</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>On</td><td>Off</td><td>Off</td><td>On</td></tr> </table> | 8 | 7 | 6 | 5 | On | Off | On | On | 4 | 3 | 2 | 1 | On | Off | Off | On |
| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | On | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| On | Off | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 7 | 6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | Off | On | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On | Off | Off | On | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Circled numbers refer to coin-door labels you should use with each situation (labels are illustrated on the following page).

Figure 9 Game Price Settings, continued

For your information, we have defined below the switch settings for those options relating to game price, coin mechanism multipliers, and bonus play. This information is useful in case you

need to temporarily set the Warlords™ game on free play, or if you have German coin mechanisms in your door.

| Toggle Settings of 8-Toggle Switch on Warlords PCB (at M2—LOWER LEFT switch when PCB is in game) | | | | | | | | Option |
|--|-----|-----|-----|-----|-----|-----|-----|--|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| | | | | | | On | On | Free play |
| | | | | | | On | Off | 1 coin* for 2 credits |
| | | | | | | Off | On | 1 coin* for 1 credit \$ |
| | | | | | | Off | Off | 2 coins* for 1 credit |
| | | | | On | On | | | Right coin mech × 1 \$ |
| | | | | On | Off | | | Right coin mech × 4 |
| | | | | Off | On | | | Right coin mech × 5 |
| | | | | Off | Off | | | Right coin mech × 6 |
| | | | On | | | | | Left coin mech × 1 \$ |
| | | | Off | | | | | Left coin mech × 2 |
| On | On | On | | | | | | No bonus coins \$ |
| On | On | Off | | | | | | For every 2 coins* inserted, game logic adds 1 more coin* |
| On | Off | On | | | | | | For every 4 coins* inserted, game logic adds 1 more coin* |
| On | Off | Off | | | | | | For every 4 coins* inserted, game logic adds 2 more coins* |
| Off | On | On | | | | | | For every 5 coins* inserted, game logic adds 1 more coin* |

*In the U.S., a coin is defined as 25¢. In Germany a coin is 1 DM.
 \$ Manufacturer's suggested settings

To receive any bonus "coins" from the game logic (as listed in the last four settings above), players must insert all coins before pressing any start button.

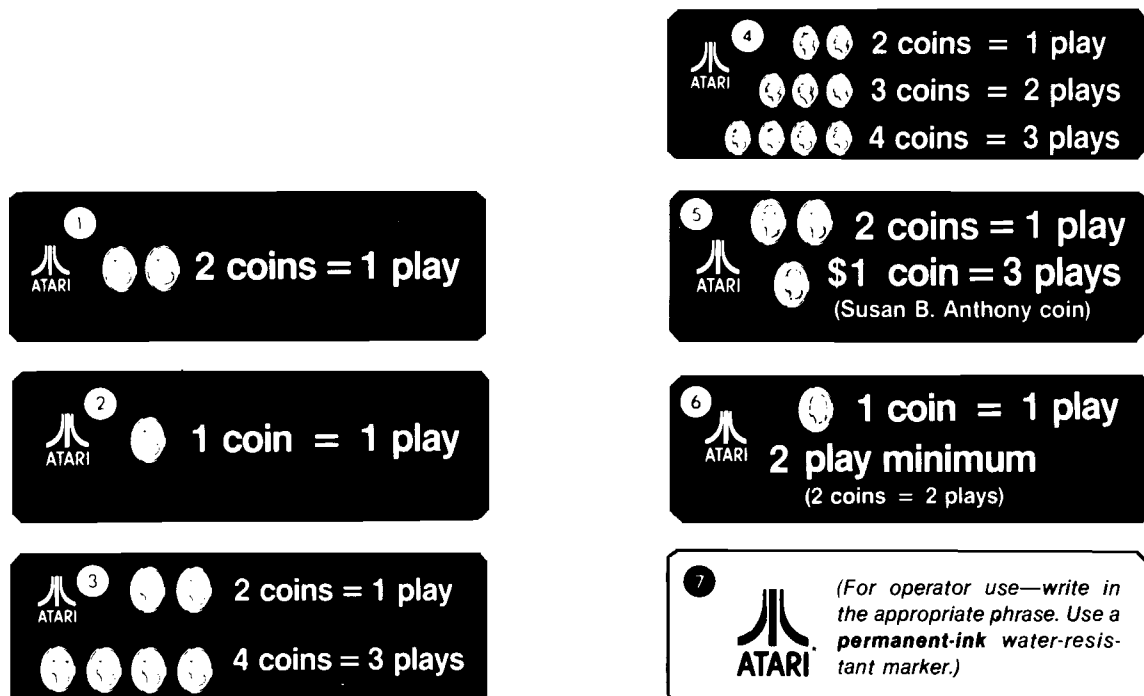


Figure 10 Coin Counter Option Settings

[These toggles determine which coin mechanisms activate which counters]

| Toggle Settings of 4-Toggle Switch on Game PCB (L9) | | | | Two coin acceptors in the coin door: | Two coin acceptors and a push-button utility coin switch in the game: | Three coin acceptors in the coin door: |
|---|----------|-----|-----|---|--|--|
| 4 | 3 | 2 | 1 | | | |
| Not Used | Not Used | On | On | Both acceptors activate all coin counters simultaneously. | <i>Do not use this setting.</i> | All 3 are same denomination and they activate all coin counters simultaneously. |
| | | Off | On | Both acceptors activate 2 counters separately. | <i>Do not use this setting.</i> | Left and center acceptor activate one coin counter; right acceptor activates another coin counter. |
| | | On | Off | Both acceptors activate all coin counters simultaneously. | Utility coin switch will not activate a coin counter, if you do not hook up it up. Both acceptors activate all coin counters simultaneously. \$ | Left acceptor activates one coin counter; center and right acceptor activate another coin counter. <i>Not for any currently designed 3-mech coin door.</i> |
| | | Off | Off | Both acceptors activate 2 counters separately. | Utility coin switch will not activate a coin counter, if you do not hook it up. Left and right acceptors activate 2 coin counters separately. | Left, center and right acceptors activate 3 coin counters separately. |

\$ Manufacturer's suggested setting



G. Option Switch Settings

1. Bonus Play Feature

Warlords™/Cocktail is one of the first Atari games to offer a bonus play for certain combinations of coins inserted. This bonus feature is operator-selectable, meaning you may choose to offer it or not.

For example, with your game set at 50¢ per credit, players who deposit four successive quarters or a \$1.00 coin, then press the start button, will receive a bonus credit. Therefore, players receive 3 credits for \$1.00.

This bonus feature encourages players to insert more money than just the minimum 50¢ you could require for one credit. Various other bonuses are available (see Figure 9).

2. Coin Mechanism Multipliers

The Atari coin acceptor mount for this game is available with about a dozen different mechanisms. You may have both mechanisms accept the same or different denominations.

Regardless of the type of mechanism you install, you must correctly set the “multipliers” for each mech on the game PCB. The multipliers determine how much each mechanism will be worth to the game’s logic.

The basic unit of measurement is 25¢, which equals a multiplier of $\times 1$. Therefore, if you have 25¢/\$1 coin acceptors, you will probably want to set the left and right option-switch multipliers at $\times 1/\times 4$.

You can set these multipliers with toggles 3 thru 5 on the Warlords™ PCB switch assembly at location M2. For exact settings of these toggles, refer to Figure 9.

3. Examples of Game Price Settings

Figure 9 explains the options, giving twelve examples of the most common U.S. situations. The toggles mentioned are all in the switch at location M2; they **only** relate to game price, coin mechanism multipliers, and the bonus credit for multiple quarters or the \$1.00 coin. You should set the toggles relating to other functions as you see fit, although Figures 8, 9, and 10 provide “\$” signs indicating Atari’s recommendations.

H. Game Play

Atari’s Warlords™/Cocktail is a one- to four-player game with a color raster-scan monitor. The game depicts a third-person view of four castles. The knights and kings use shields to defend their castle walls from the fireballs that ricochet around the playfield.

Players can capture and catapult the fireballs at opposing castles, using their shield control and “power stone” pushbutton. When a fireball hits a castle wall, it destroys one or more bricks, depending on its speed.

The computer controls any unactivated positions in the game, with black knights displayed in the appropriate castles. These knights catapult fireballs at the players with increasing accuracy, to provide challenge.

The game has five possible modes of operation: attract, ready-to-play, play, high score initial, and self-test. Self-test is a special mode for checking the game switches, potentiometers, and computer functions. You may enter this mode at any time. When entered, all game credits are cancelled.

1. Attract Mode

The attract mode begins when power is applied to the game, after a play or high score initial mode, or after self-test. This mode is continuous and is only interrupted when a game is paid for and accepted or when you enter self-test.

In this mode, the monitor displays a simulated game. A fireball bounces across the playfield, knocking out several bricks on castle walls. Shields are left invisible to indicate the attract mode. This is why the fireball appears to be deflected from something near the middle of the playfield.

If you select one of the three coined-play settings, the screen shows *GAME OVER/INSERT COINS*, followed by various messages regarding the number of coins required for multi-player games. If you set the appropriate option switches for free play, the game displays the messages *PRESS YOUR POWER STONE* and *START YOUR KING*.

2. Ready-to-Play Mode

This mode begins when sufficient coins have been accepted for at least a one-player game. It ends when any player presses a start pushbutton and the subsequent countdown has ended. The countdown lasts about 10 seconds (counting from 9 to 0) and allows more players to insert coins and join the first player.

3. Play Mode

The play mode begins when any start button is pressed and the countdown has ended. The mode ends when the last player's castle (containing a crown) is penetrated by a fireball. At this point a white cloud envelops the crown, and both disappear.

During the countdown a dragon flies back and forth across the screen with a fireball in its mouth. By the end of the countdown, all positions activated by start buttons have had their black knights changed to kings' crowns. The unactivated positions remain as knights and are controlled by the computer. The dragon then spits the fireball from its mouth in a random direction towards a player.

The objective is to destroy the three other castles, while protecting one's own castle with the moving shield (potentiometer). The LED pushbuttons have dual functions: in the ready-to-play mode they work as start switches, and during game play they become "power stones" to allow players to capture and catapult fireballs at opponents.

The spinning fireballs released from a shield have more destructive force on a castle wall than a fireball simply deflected from another wall or the sides of the playfield. However, players will soon find out that they cannot hold onto fireballs for long, since they slowly destroy their own castle walls under the fireball.

Additional fireballs appear at predetermined intervals or when a castle is destroyed, whichever comes first. A maximum of four fireballs simultaneously appears on the screen.

In one- and two-player games, the players' crowns will be accompanied by a zero, to begin scoring. The point-scoring system is printed on each control

panel (the black knights do not earn points). In three- and four-player games, no scores appear: the winner is the survivor of the battle against the other three warlords—be they kings or black knights.

In one- and two-player games, if the black knight has the surviving castle, the game ends. However, if a player (king) has the surviving castle, that player receives bonus points, all castles are rebuilt, and the game continues with a new battle at a higher "level."

The subsequent levels begin, as mentioned before, with the fireball thrown out by the dragon. In the higher levels black knights play more accurately and faster.



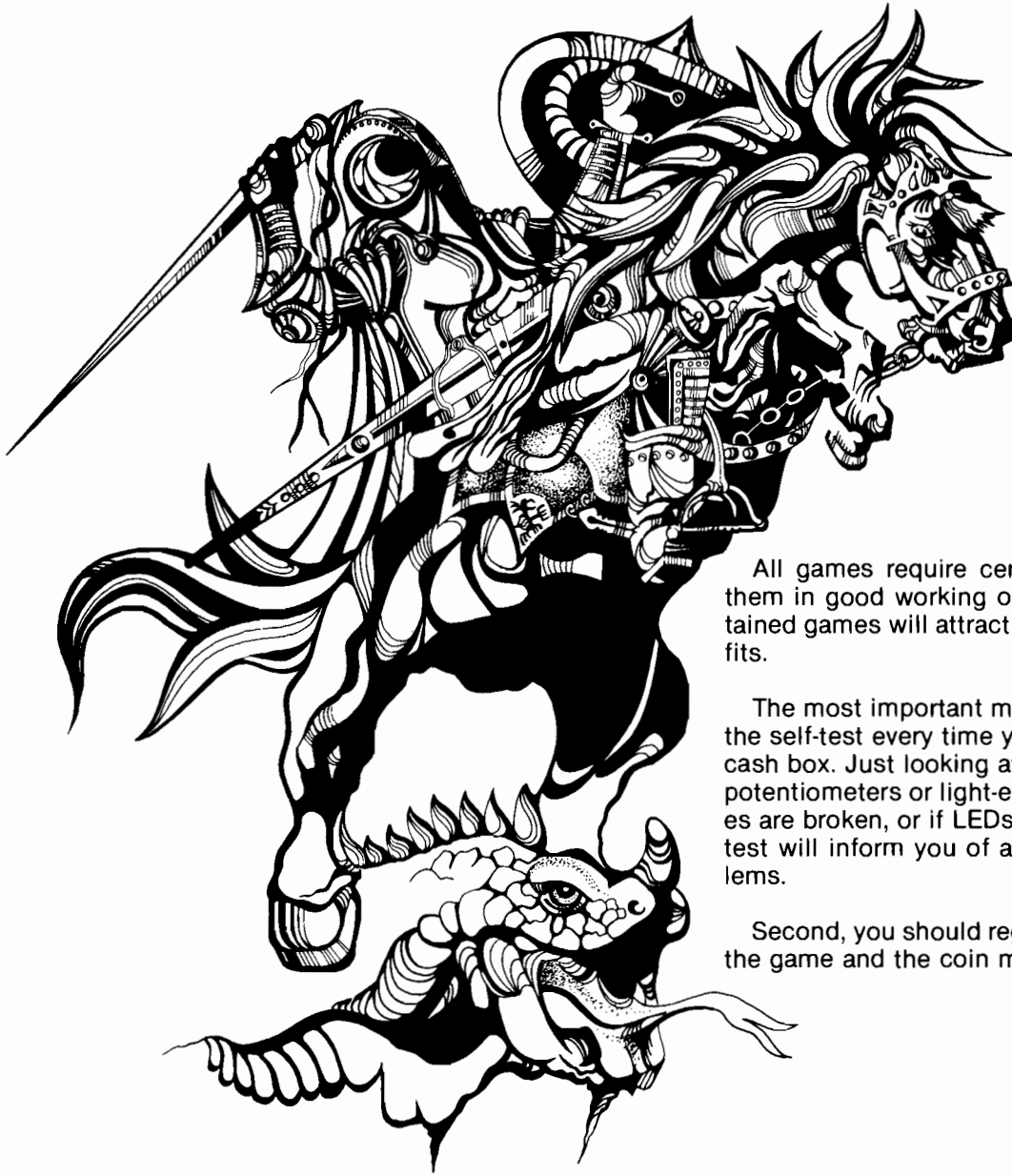
The game provides individual player percentaging based on the skill of the player or players. In sensing that a player is not very skilled, the computer softens the game play for a short period, allowing the player to adjust to the game play. In sensing that a player is more skilled, the game difficulty increases.

If players abuse the game and activate the slam switch, the computer will produce an oscillating high-pitched sound as a warning signal. However, game play will not be interrupted.

4. High Score Initial Mode

If one or more players have achieved the highest score currently in the memory, they can enter their initials. Turning the shield-control knob will change the letters, and pressing the start button will enter the selected initial. Up to three letters will be displayed next to the individual or team high score during the attract mode.



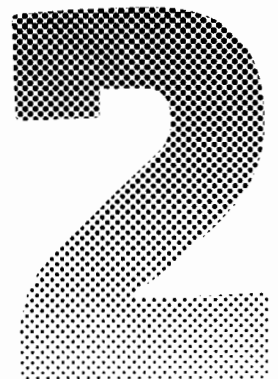


All games require certain maintenance to keep them in good working order. Clean, properly maintained games will attract players and earn more profits.

The most important maintenance item is running the self-test every time you collect money from the cash box. Just looking at a game will not tell you if potentiometers or light-emitting-diode (LED) switches are broken, or if LEDs have burned out. The self-test will inform you of any of these possible problems.

Second, you should regularly clean the outside of the game and the coin mechanisms.

Maintenance and Repair



A. Cleaning

The exterior of the game cabinet and the metal and glass surfaces may be cleaned with any non-abrasive household cleaner. If desired, special coin machine cleaners that leave no residue can be obtained from your distributor.

The large monitor shield is made of tempered glass and should be scratch-resistant: if cleaned without abrasive substances, you should hardly ever have to replace it.

B. Fuse Replacement

This game contains six fuses—all on the power supply assembly (not including the monitor fuses). Replace fuses only with the same type as listed in Figure 21 of this manual. See the Matsushita or Sanyo color-monitor manual for the monitor fuse data.

C. Opening the Control Panel

Prior to repairing or replacing any component on either control panel, first unplug the game. Next, open the game top as described in Chapter 1, Section B, *Opening the Game Cabinet*. Then simply tilt the top edge of the control panel towards you.

1. LED Switch Replacement

The light-emitting diode (LED) switches on the control panel have a very low failure rate. In case a switch should ever be suspect, first test it per the description that follows. To replace the switch, refer to Figure 11.

- Remove the wires from the suspected switch.
- Set multimeter to ohms scale. Set ohms scale to $R \times 1$, then zero the meter.
- Connect multimeter leads to appropriate LED switch contacts (see Figure 11 for designation of switch contacts).
- Check contacts (push and release the switch button) for closed and open continuity.
- If the contacts do not operate sharply or always remain closed or open, then replace the LED switch as outlined in the figure.

2. Potentiometer Replacement

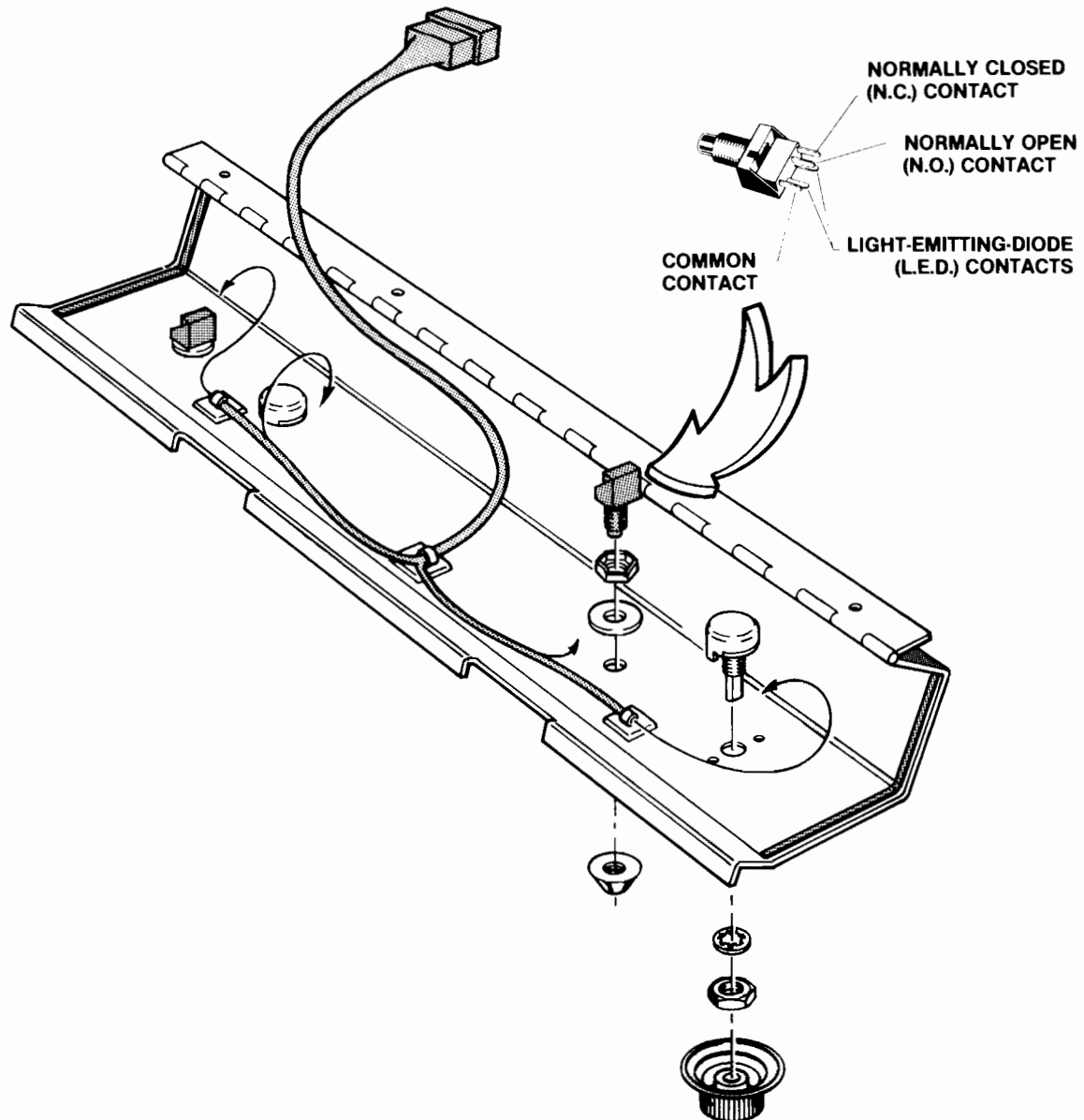
Unsolder and remove the wires from the faulty potentiometer. Using a 5/64-inch Allen wrench, loosen both set screws on the side of the shield control knob; remove this knob. Then remove the flat hex nut on the outside of the panel with a wrench, as well as the internal-tooth lock washer.

Replace the potentiometer with a new one, making sure the hex nut and knob are tightened securely. Then resolder the three harness wires.



To remove LED switch:

- Remove all wires from the faulty switch.
- Turn the switch counterclockwise while holding the black cone-shaped bushing on the outside of the control panel.
- Install a new switch using the reverse procedure.
- Reconnect the harness wires.

**Figure 11 Replacing Player Controls**

D. Monitor Removal

⚠ WARNING ⚠

Shock Hazard

High voltages may exist in any television or monitor, even with power disconnected. Use extreme caution and do not touch electrical parts of the yoke area with your hands or with metal objects in your hands!

Implosion Hazard

If you drop the monitor and the picture tube breaks, **it will implode!** Shattered glass and the yoke can fly 6 feet or more from the implosion. Use care when replacing any monitor.

If you should need to remove the color monitor, follow steps 1 thru 5 as listed on this page. Refer also to Figure 12.

1. **Be sure the game is unplugged from its wall outlet!** Unlock and open the table top.
2. Lift up the "U"-shaped security bar, located along the inside wall of the cabinet. Remove the bar entirely from the cabinet. Remove the access panel from the game.
3. Locate the 6-pin monitor and 3-pin power connectors underneath the monitor, just above the power supply transformer. Unplug these connectors.
4. Remove the four Phillips-head screws and flat washers (one set at each corner of the monitor screen) that attach the monitor to the cabinet. Remove these screws.
5. Carefully lift the monitor chassis up and out of the cabinet.

Disassemble in the order indicated. (Circled numbers match the steps above.)

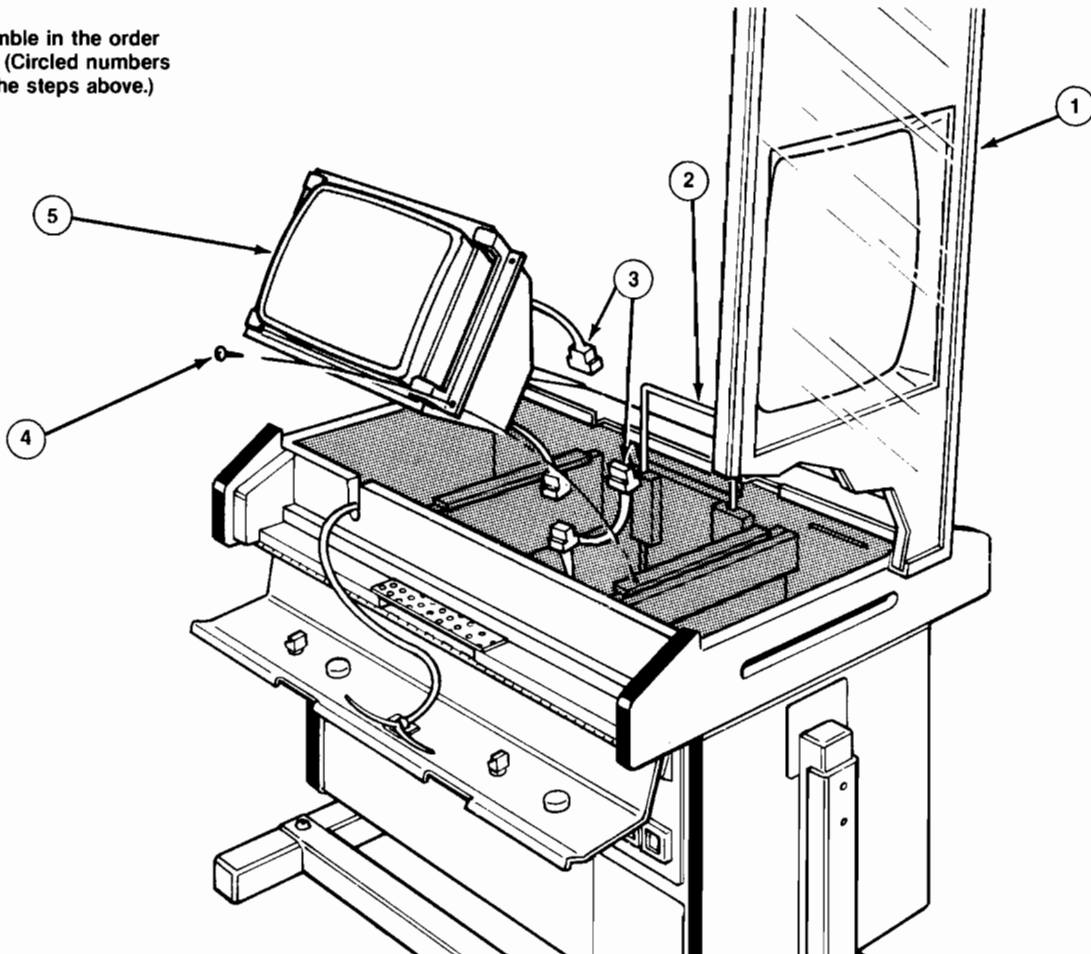
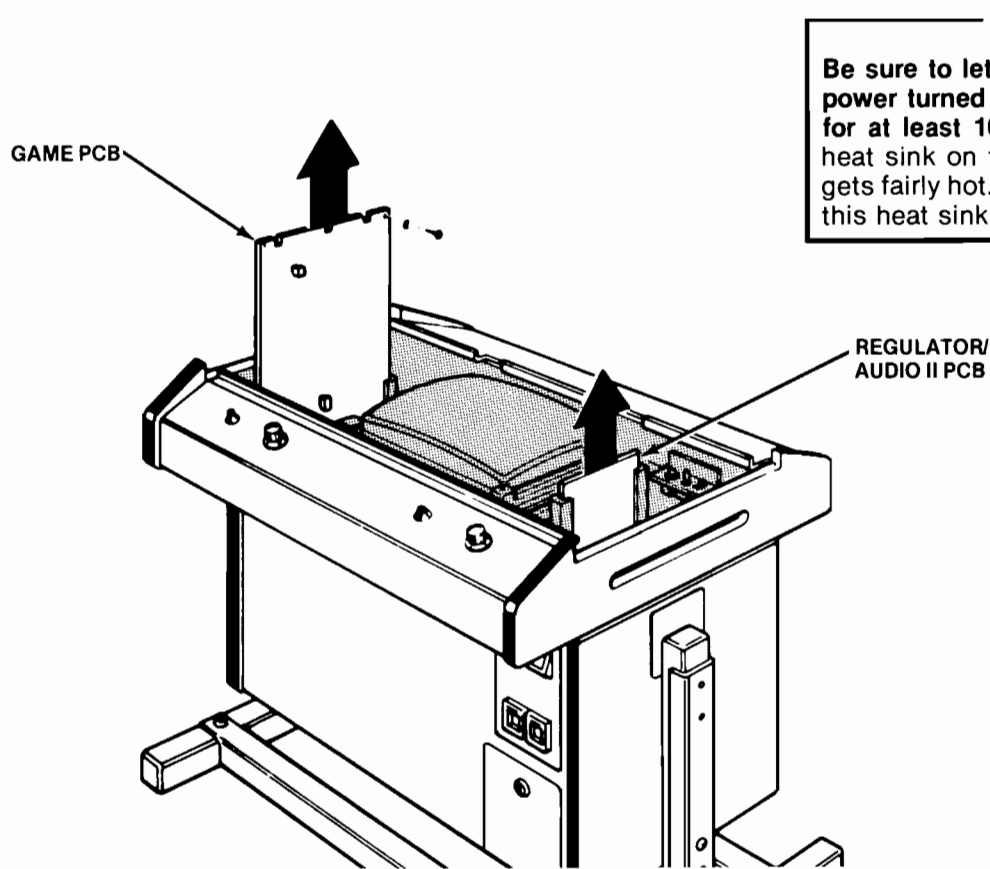


Figure 12 Monitor Removal

**CAUTION**

Be sure to let the game cool down (with power turned off and the table top open) for at least 10 minutes. The large black heat sink on the Regulator/Audio II PCB gets fairly hot. You could burn yourself on this heat sink while removing the PCB.

Figure 13 Printed-Circuit Board Removal

E. Printed-Circuit Board Removal

You may wish to remove the game printed-circuit board (PCB) or the Regulator/Audio II PCB for service or inspection. To do this, refer to Figure 13 and proceed as follows:

1. Game PCB Removal

- Unlock and open the table top.
- Remove the nylon tie wraps from the top side of the game PCB. Then remove the 44-pin edge connector.
- Locate the Phillips-head screws that extend through the PCB and into the two wood blocks near the top of the game. Remove these two screws and the associated fiber washers.
- Remove the PCB from the game by sliding it up out of the plastic PCB retainers.

- Reinstall the PCB, making sure that the 44-pin edge connector is properly plugged in. Note that the connector is keyed to fit on only one way, so if it doesn't slip on easily, don't force it! **A reversed connector will probably damage your game and will void the warranty.**
- Check that the operation of the game is correct and **perform the self-test**. This is especially important with any game when you replace a PCB.

2. Regulator/Audio II PCB Removal

- Unlock and open the table top.
- Remove the three plug-in connectors.
- Locate the Phillips-head screw that extends through the PCB and into the wood at the top of the PCB. Remove this screw and its associated washers.
- Remove the PCB from the inside wall of the cabinet by pulling it up and out of the wood retainer.

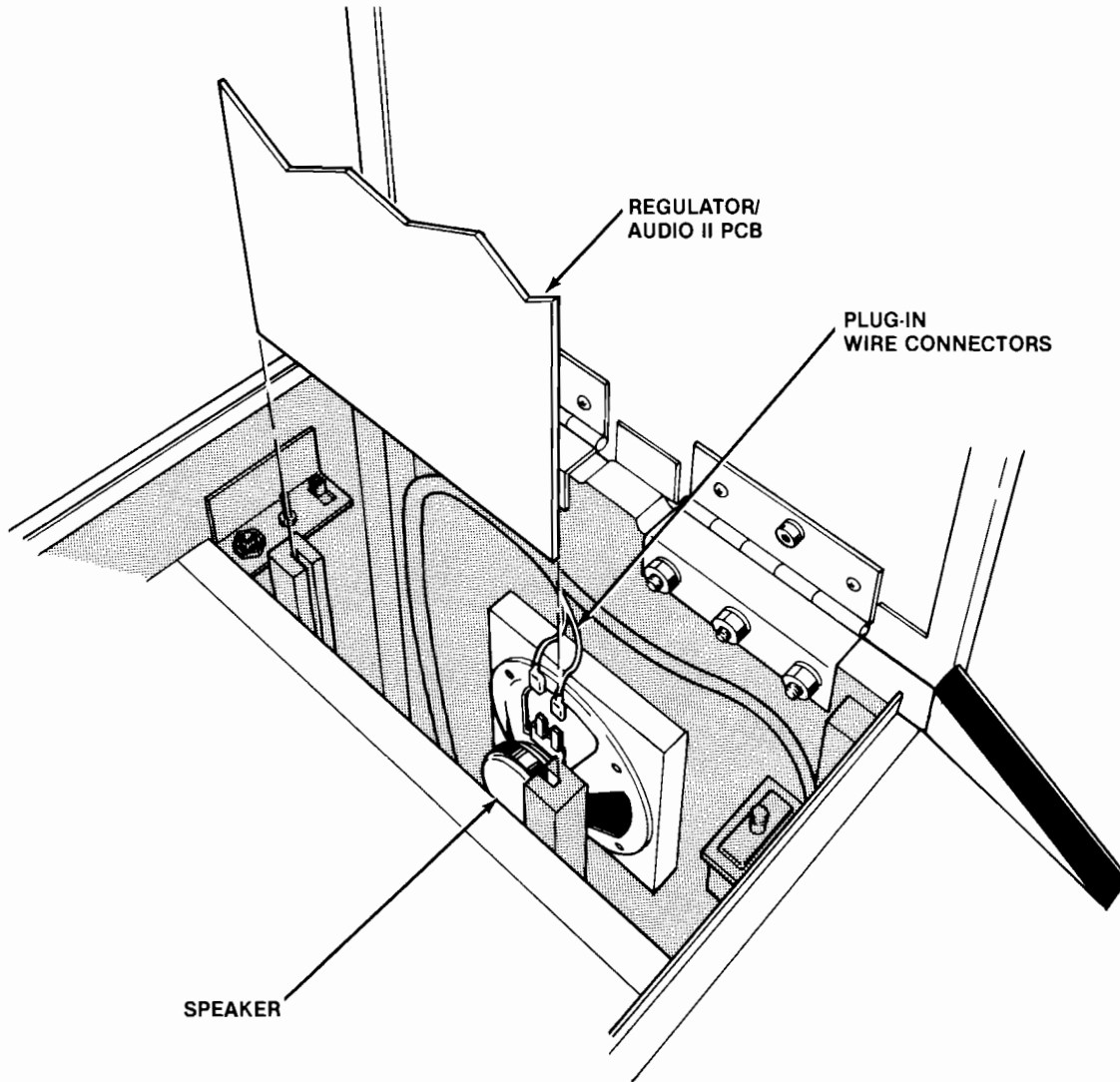


Figure 14 Speaker Replacement

F. Speaker Replacement

If the loudspeaker should ever need to be replaced, follow the instructions below and refer to Figure 14. Probably the only cause of speaker failure is an open voice coil or a ruptured cone, but both of these failures are highly unlikely.

Open the table top. Unplug both speaker-wire connectors. If the speaker is *stapled* to the cabinet wall, use a flat-bladed screwdriver to pry loose the staples that secure the speaker.

If *screws* are used to secure the speaker, use a very short-handled Phillips screwdriver to remove the four screws. For greater ease in reaching these screws, and to prevent slipping and damaging the Regulator/Audio II PCB, remove this PCB first.

CAUTION

Be sure to let the game cool down (with power turned off and the table top open) for at least 10 minutes. The large black heat sink on the Regulator/Audio II PCB gets fairly hot, and you could burn yourself on this heat sink while removing the speaker.

G. Game Operation

With this manual you received three large sheets that contain the wiring and schematic diagrams for the Warlords™/Cocktail game. Sheet 1, Side A, includes information that shows the arrangement of these diagrams. These diagrams include information that explains the functions of the circuits and defines inputs and outputs.

Atari's Warlords™ is a microprocessor-controlled game. The microprocessor is mounted on the game PCB. The game PCB receives switch inputs from the control panels and coin acceptors. These inputs are processed by the game PCB and output to the monitor, Regulator/Audio II PCB, loudspeaker, coin counter, and control panels.

The Regulator/Audio II PCB performs two functions: 1) it regulates the +10.3 VDC from the power supply to +5 VDC, and 2) it amplifies the audio out-

put from the game PCB. The +5 VDC from the Regulator/Audio II PCB provides most logic power to the game PCB. The audio output from the Regulator/Audio II PCB directly drives the game speakers and is controlled by the volume control, mounted on the bracket inside the game.

The power supply is the source of all voltages in the game. These voltages are protected by four fuses (F3 thru F6) on the power supply chassis. The primary winding of the power supply transformer is protected by the fuses F1 and F2 on the power supply chassis.

Figure 15 illustrates the distribution of power in this game. Figure 16 illustrates the distribution of signals.



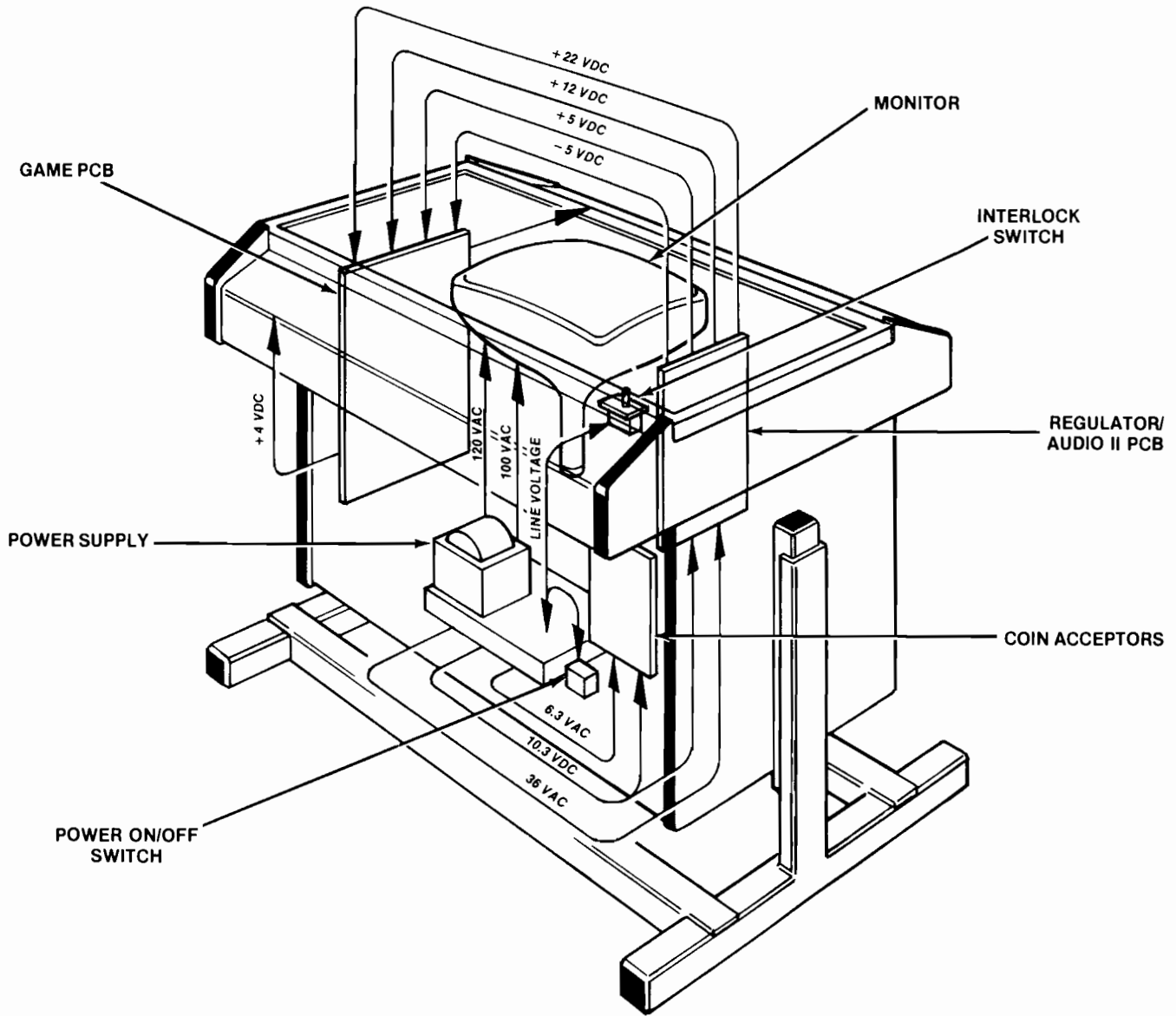


Figure 15 Power Distribution

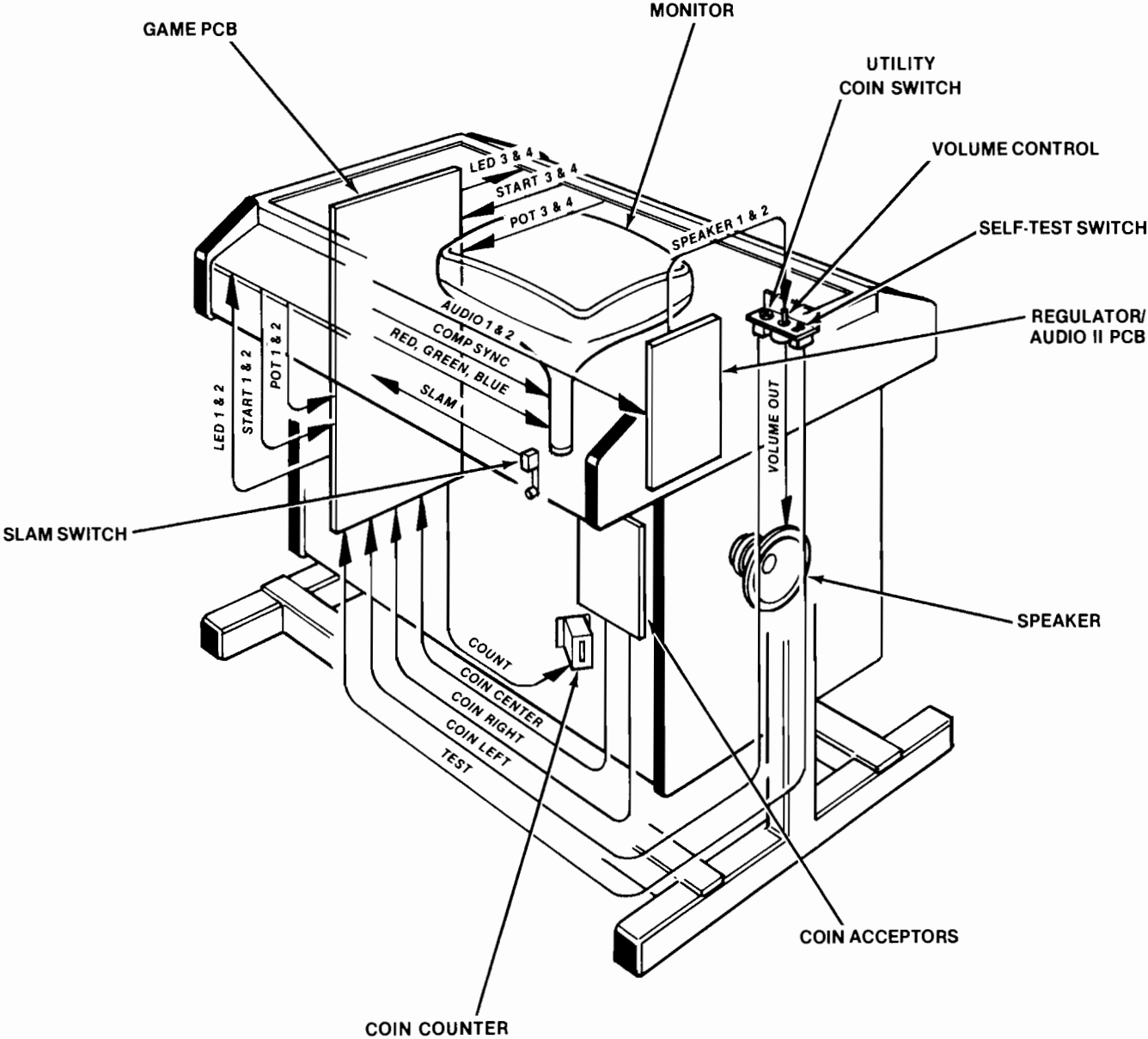
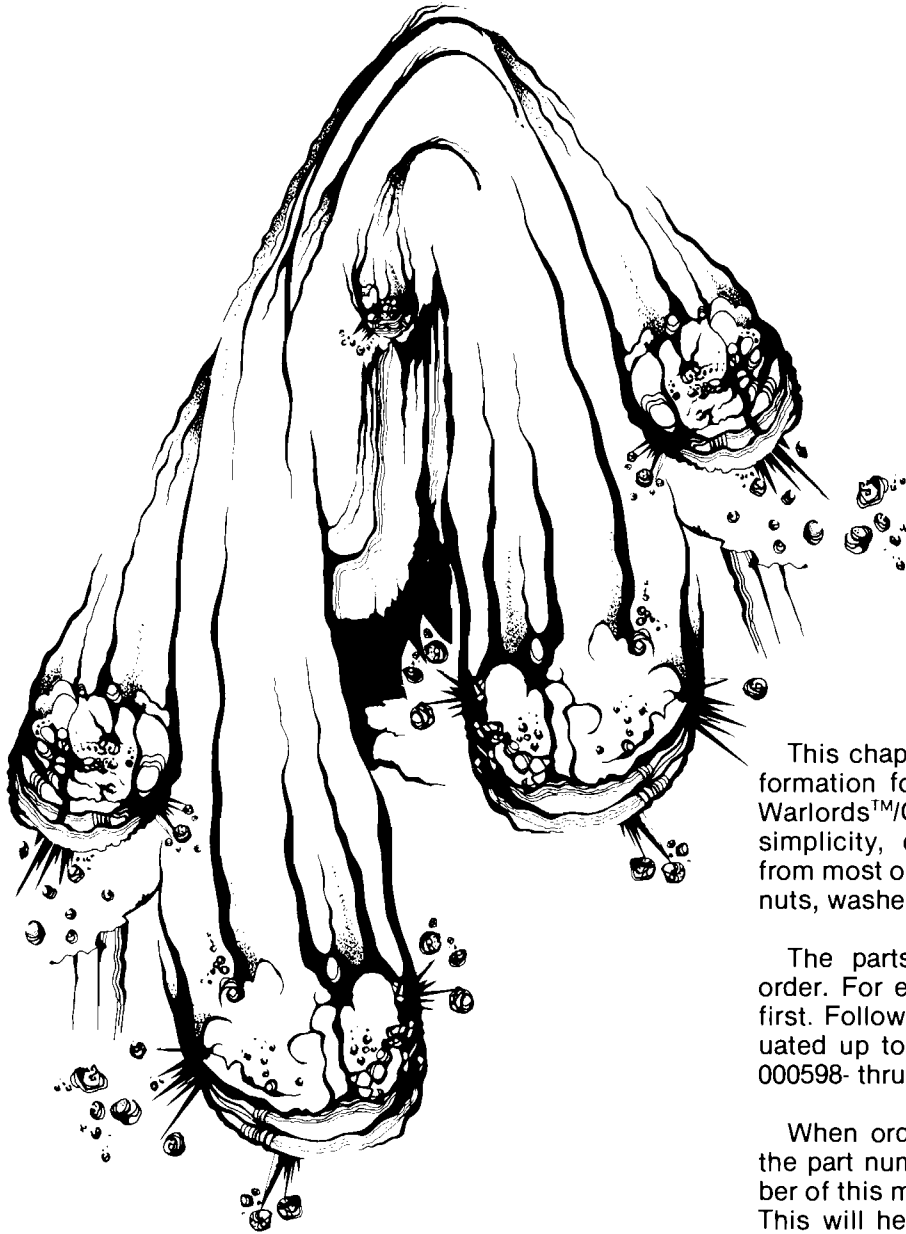


Figure 16 Signal Distribution

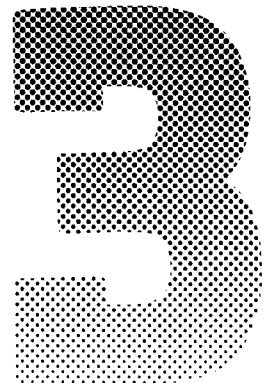


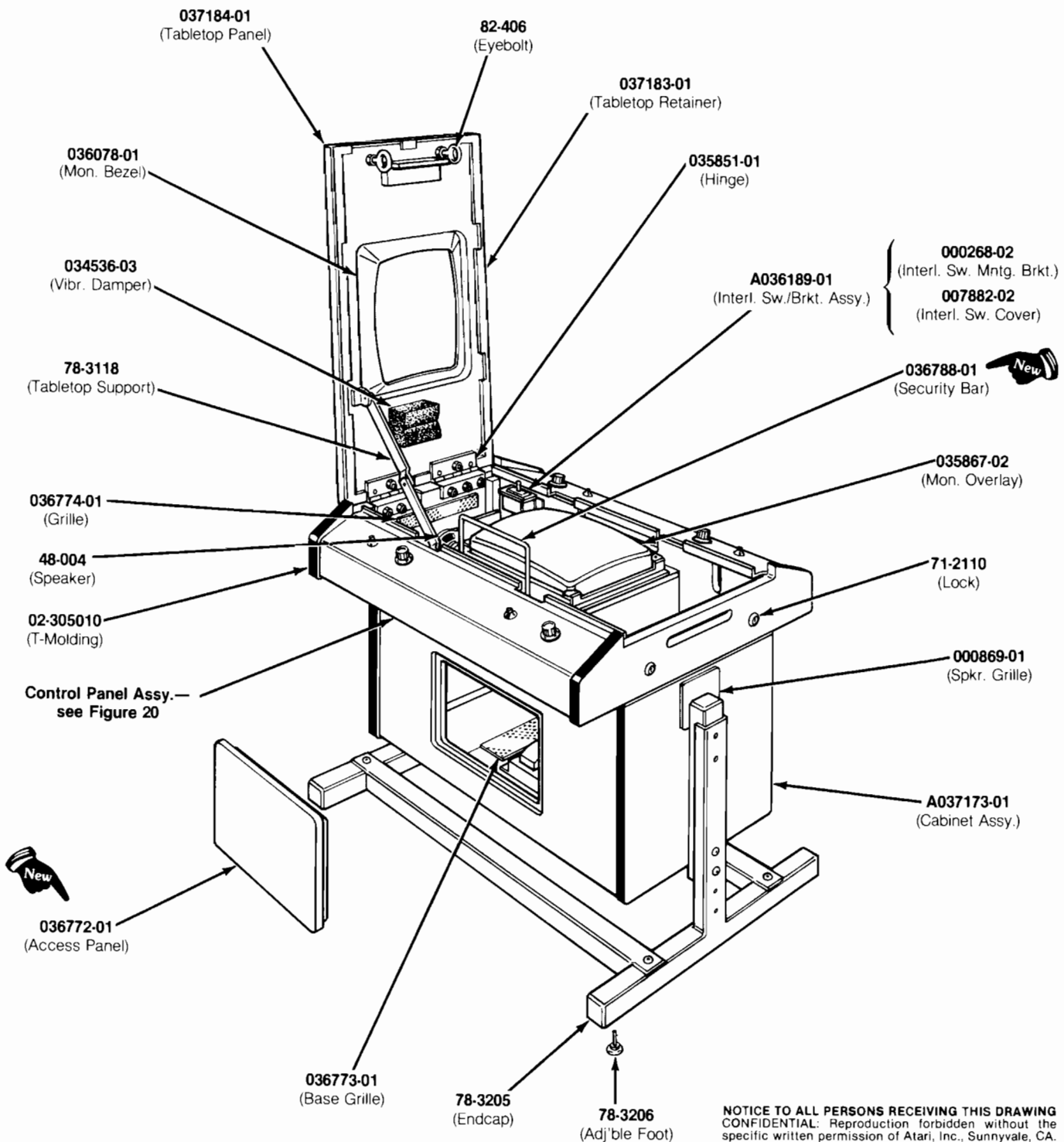
This chapter provides you with the necessary information for ordering replacement parts for your Warlords™/Cocktail game. Please note that, for simplicity, **common hardware has been deleted** from most of these parts lists. This includes screws, nuts, washers, bolts, etc.

The parts lists are arranged in alphanumeric order. For example, all "A-" prefix numbers come first. Following this are numbers in sequence evaluated up to the hyphen, namely 00- thru 99-, then 000598- thru approximately 190000-.

When ordering parts from your distributor, give the part number, part name, applicable figure number of this manual, and serial number of your game. This will help to avoid confusion and mistakes in your order. We hope the results will be less downtime and more profit from your game.

Illustrated Parts Lists





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Figure 17 Cabinet-Mounted Assemblies
A037172-01 B

Schematics, Self-Test Labels & Manuals—
see parts list on next page

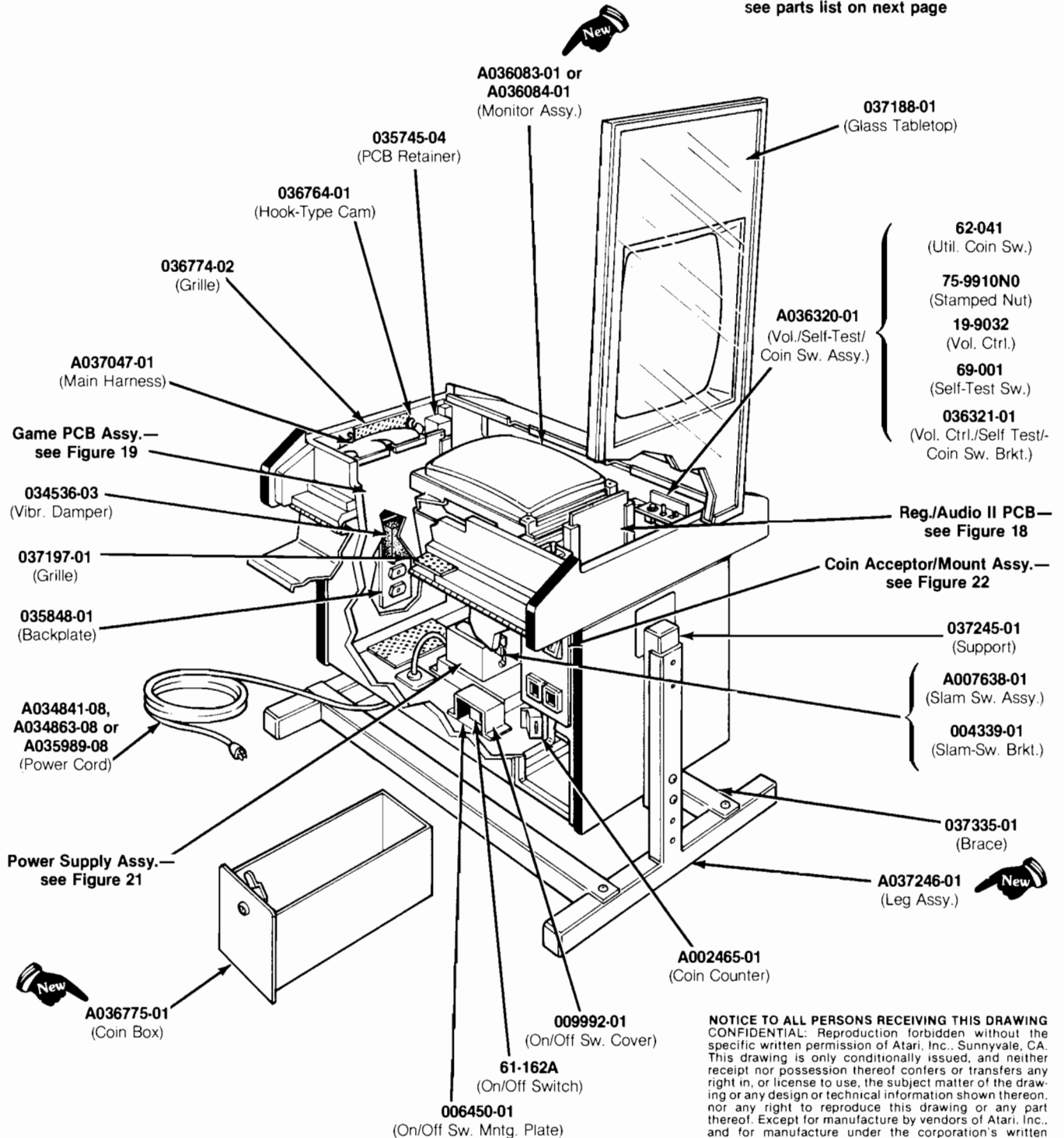


Figure 17 Cabinet-Mounted Assemblies
A037172-01 B

Figure 17 Cabinet-Mounted Assemblies Parts List

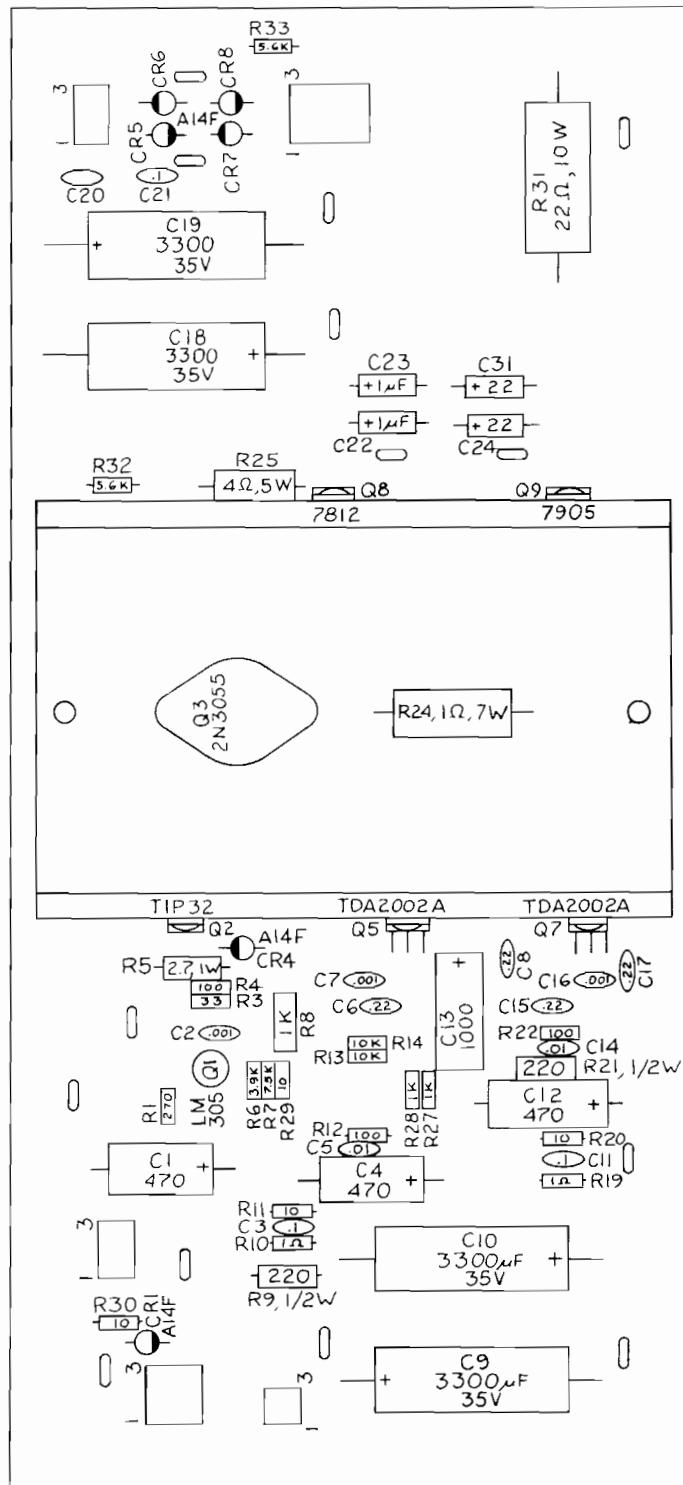
| Part No. | Description |
|--|--|
| A002465-01 | Coin Counter |
| A007638-01 | Slam Switch Assembly <i>(includes bracket)</i> |
| A034631-01 | On/Off Switch Assembly <i>(includes mounting plate)</i> |
| A034841-08 | U.S. Strain-Relief Power Cord |
| A034863-08 | German Strain-Relief Power Cord |
| A035989-08 | Australian Strain-Relief Power Cord |
| A036083-01, or | 14-Inch Matsushita Color Monitor Assembly or |
| A036084-01 | 14-Inch Sanyo Color Monitor Assembly |
| A036189-01 | Interlock Switch/Bracket Assembly <i>(modified for safety)</i> |
| A036320-01 | Volume/Self-Test/Utility Coin Switch Assembly <i>(includes bracket)</i> |
| A036775-01 | Coin Box Assembly <i>(includes lock)</i> |
| A037047-01 | Main Harness Assembly |
| A037173-01 | Wood Cabinet Assembly <i>(includes legs, support arm, grilles, locks and tabletop)</i> |
| A037246-01 | Leg Assembly <i>(includes support, brace, adjustable feet and endcaps)</i> |
| <i>The following seven items are the technical information supplements to this game:</i> | |
| DP-177-01 | Warlords™/Cocktail Schematic Drawings <i>(Sheet 1)</i> |
| DP-177-02 | Warlords/Cocktail Schematic Drawings <i>(Sheet 2)</i> |
| ST-177-01 and -02 | Labels with Self-Test Procedure and Option Switch Settings |
| TM-153, or | Matsushita 14-Inch Color Monitor Manual, or |
| TM-157 | Sanyo 14-Inch Color Monitor Manual |
| TM-177 | Warlords/Cocktail Operation, Maintenance and Service Manual |
| 02-305010 | 25/32-Inch Black Plastic T-Molding |
| 19-9032 | 50-Ohm, 12½-Watt, Wirewound Rheostat <i>(volume control)</i> |
| 48-004 | 5-Inch, 8-Ohm, 5-Watt Round High-Fidelity Speaker |
| 61-162A | DPST Power On/Off Toggle Switch |
| 62-041 | SPDT Momentary-Contact Pushbutton Utility Coin Switch with Black Cap |
| 69-001 | DPDT Slide Switch <i>(for self-test)</i> |
| 71-2110 | Panel Cartridge Lock Mechanism <i>(does not include black hook-type cam)</i> |
| 75-9910N0 | 5/8-11 Steel Stamped Nut <i>(for utility coin switch)</i> |
| 78-24012 | 5-Inch Beaded Nylon Tie-Wrap <i>(for PCB edge connector)</i> |
| 78-3118 | Right-Hand Tabletop Support <i>(acceptable substitute is part no. 178015-001, left-hand support)</i> |
| 78-3205 | Square Black Endcap for Leg Assembly |
| 78-3206 | Adjustable Foot |
| 82-406 | #¼-20 × 2-Inch-Long Eyebolt, with ¾-Inch Threads |
| 000268-02 | Interlock Switch Mounting Bracket |
| 000869-01 | Speaker Grille |
| 004339-01 | Slam-Switch Bracket |
| 006450-01 | On/Off Switch Mounting Plate |
| 007882-02 | Interlock Switch Cover |
| 009992-01 | On/Off Switch Cover |
| 034536-03 | Foam Vibration Damper |
| 035745-04 | 16-Inch-Long Plastic PCB Retainer |
| 035848-01 | Backplate for Attaching Leg |
| 035851-01 | Tabletop Hinge |
| 035867-02 | Smoke-Color Acrylic Monitor Overlay |

[Continued on next page]

Figure 17 Cabinet-Mounted Assemblies, continued Parts List

| <i>Part No.</i> | <i>Description</i> |
|-----------------|---|
| 036078-01 | Cardboard Monitor Bezel |
| 036321-01 | Bracket for Volume Control, Self-Test and Utility Coin Switches |
| 036686-01 | Card with Game Pricing Labels |
| 036764-01 | Black Hook-Type Cam for Locking Tabletop |
| 036772-01 | Access Panel |
| 036773-01 | Grille in Cabinet Base |
| 036774-01 | Upper End-Panel Grille <i>(about 9 inches long)</i> |
| 036774-02 | Upper End-Panel Grille <i>(6¼ inches long)</i> |
| 036788-01 | "U"-Shaped Security Bar |
| 037183-01 | Black Retainer for Tabletop Glass <i>(two per game)</i> |
| 037184-01 | Wood Tabletop Panel |
| 037188-01 | Tempered-Glass Tabletop with Graphics |
| 037197-01 | Grille underneath Control Panel |
| 037245-01 | Leg Support |
| 037335-01 | Leg Brace |

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**Figure 18 Regulator/Audio II PCB Assembly
 A035435-02 D**

Figure 18 Regulator/Audio II PCB Assembly Parts List

| Part No. | Description (Reference Designations and Locations in Bold) |
|-------------|---|
| 12-52P7 | 2.7 Ohm, $\pm 5\%$, 1W Resistor (R5) |
| 16-54PO | 4 Ohm, $\pm 5\%$, 5W Wirewound Resistor (R25) |
| 19-100P1015 | .1 Ohm, $\pm 3\%$, 7W Wirewound Resistor (R24) |
| 19-315102 | 1K Ohm Vertical PCB-Mounting Cermet Trimpot (R8) |
| 24-250108 | 1000 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C13) |
| 24-250477 | 470 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C1, 4, 12) |
| 24-350226 | 22 uf Aluminum Electrolytic Fixed Axial-Lead 35V Capacitor (C24, 31) |
| 24-350338 | 3300 uf Aluminum Electrolytic Fixed Axial-Lead 35V Capacitor (C9, 10, 18, 19) |
| 24-500105 | 1 uf Aluminum Electrolytic Fixed Axial-Lead 50V Capacitor (C22, 23) |
| 29-088 | .1 uf Ceramic-Disc 25V Radial-Lead Capacitor (C3, 11, 20, 21) |
| 31-1N4002 | 100V 1-Amp. Silicon Rectifier Type 1N4002 Diode (CR1, 4-8) |
| 33-TIP32 | PNP Power Transistor, Type TIP32 (Q2) |
| 34-2N3055 | NPN Silicon Transistor, Type 2N3055 (Q3) |
| 37-LM305 | 5V Linear Voltage Regulator (Q1) |
| 37-7812 | + 12V Voltage Regulator, Type 7812 (Q8) |
| 37-7905 | - 5V Voltage Regulator, Type 7905 (Q9) |
| 72-1608C | #6-32 \times 1/2-Inch Cross-Recessed Pan-Head Corrosion-Resistant Steel Machine Screw |
| 75-F60405 | #6-32 \times 1/4-Inch Binder-Head Nylon Screw |
| 75-99516 | #6-32 Nut/Washer Assembly |
| 78-16008 | Thermally Conductive Compound (Q3) |
| 78-16014 | Thermally Conductive Silicon Insulator (Q2, 9) |
| 79-58306 | 6-Position Connector Receptacle (J6, 9) |
| 79-58308 | 9-Position Connector Receptacle (J7) |
| 79-58346 | 12-Position Connector Receptacle (J10) |
| 79-58354 | 4-Position Connector Receptacle (J8) |
| 020670-01 | Test Point |
| 034531-01 | Heat Sink |
| 110000-010 | 1 Ohm, $\pm 5\%$, 1/4W Resistor (R10, 19) |
| 110000-100 | 10 Ohm, $\pm 5\%$, 1/4W Resistor (R11, 20, 29, 30) |
| 110000-101 | 100 Ohm, $\pm 5\%$, 1/4W Resistor (R4, 12, 22) |
| 110000-102 | 1K Ohm, $\pm 5\%$, 1/4W Resistor (R27, 28) |
| 110000-103 | 10K Ohm, $\pm 5\%$, 1/4W Resistor (R13, 14) |
| 110000-271 | 270 Ohm, $\pm 5\%$, 1/4W Resistor (R1) |
| 110000-330 | 33 Ohm, $\pm 5\%$, 1/4W Resistor (R3) |
| 110000-392 | 3.9K Ohm, $\pm 5\%$, 1/4W Resistor (R6) |
| 110000-562 | 5.6K Ohm, $\pm 5\%$, 1/4W Resistor (R32, 33) |
| 110000-752 | 7.5K Ohm, $\pm 5\%$, 1/4W Resistor (R7) |
| 110001-221 | 220 Ohm, $\pm 5\%$, 1/2W Resistor (R9, 21) |
| 116000-220 | 22 Ohm, $\pm 5\%$, 10W Wirewound Resistor (R31) |
| 122002-102 | .001 uf Ceramic-Disc Minimum 25V Radial-Lead Capacitor (C2, 7, 16) |
| 122004-224 | .22 uf Ceramic-Disc 25V Capacitor (C6, 8, 15, 17) |
| 100015-103 | .01 uf Ceramic-Disc 25V Radial-Lead Capacitor (C5, C14) |
| 137151-002 | Type TDA2002A 8W Linear Audio Amplifier Integrated Circuit (Q5, 7) |

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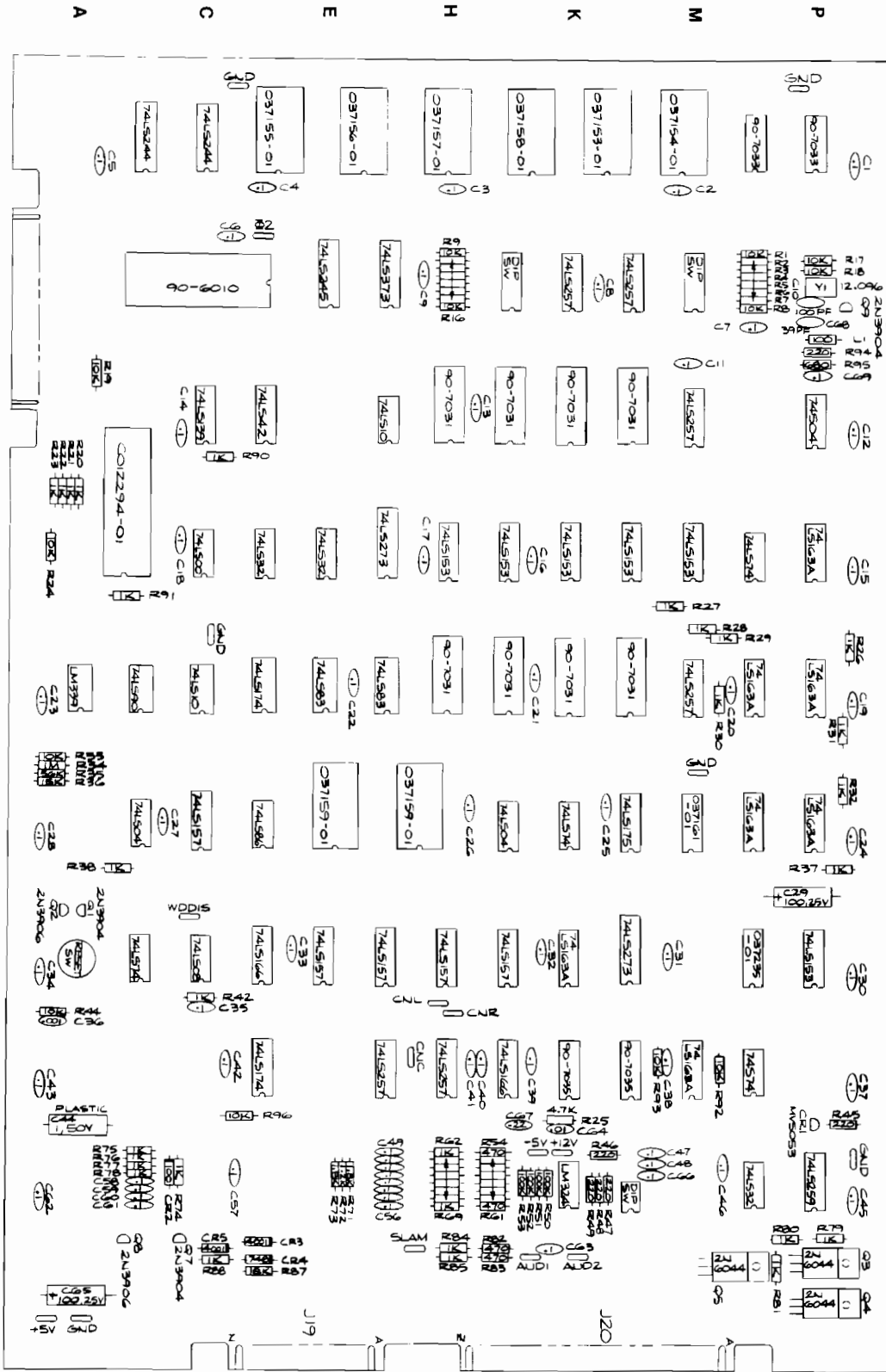


Figure 19 Warlords™ Game PCB Assembly
A036434-01 and -02 B

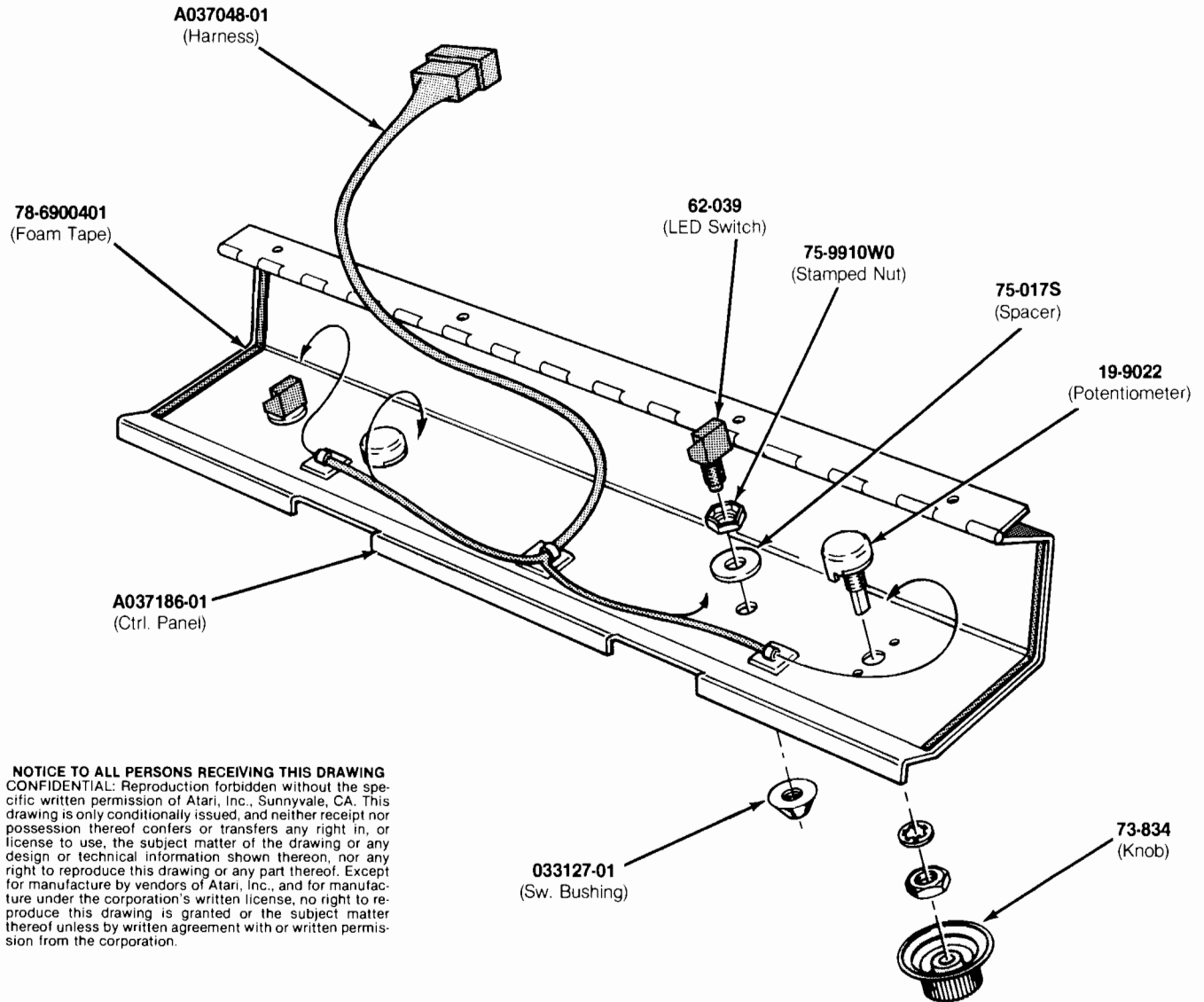
Figure 19 Warlords™ Game PCB Assembly, continued Parts List

| Part No. | Description (Reference Designations and Locations in Bold) |
|-------------|--|
| C012294-01 | Audio I/O N-Channel MOS/LSI Custom Chip (B3/4) |
| 24-250107 | 100 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C29, 65) |
| 28-101101 | 100 pf Radial-Lead Epoxy-Dipped 100V Mica Capacitor (C10) |
| 28-101390 | 39 pf Radial-Lead Epoxy-Dipped 100V Mica Capacitor (C68) |
| 29-088 | .1 uf Ceramic-Disc 25V Radial-Lead Capacitor (C1-9, 11-28, 30-35, 37-43, 45-63, 66, 69) |
| 31-1N100 | 100V Type-1N100 Switching Diode (CR2) |
| 31-1N4001 | 75V Type-1N4001 Switching Diode (CR3, 5) |
| 33-2N3906 | Type-2N3906 PNP Switching and Amplifying Transistor (Q2, 8) |
| 34-2N3904 | Type-2N3904 NPN Silicon Transistor (Q1, 7, 9) |
| 34-2N6044 | Type-2N6044 Darlington NPN Transistor (Q3-5) |
| 37-LM324 | Type-LM324 Integrated Circuit (K9) |
| 37-LM339 | Type-LS339 Integrated Circuit (A5) |
| 37-74LS00 | Type-74LS00 Integrated Circuit (C4) |
| 37-74LS04 | Type-74LS04 Integrated Circuit (B6, J6) |
| 37-74LS08 | Type-74LS08 Integrated Circuit (C7) |
| 37-74LS10 | Type-74LS10 Integrated Circuit (C5, F3) |
| 37-74LS32 | Type-74LS32 Integrated Circuit (D4, E4, N9) |
| 37-74LS42 | Type-74LS42 Integrated Circuit (D3) |
| 37-74LS74 | Type-74LS74 Integrated Circuit (N4, K6, B7) |
| 37-74LS83 | Type-74LS83 Integrated Circuit (E5, F5) |
| 37-74LS86 | Type-74LS86 Integrated Circuit (D6) |
| 37-74LS90 | Type-74LS90 Integrated Circuit (B5) |
| 37-74LS139 | Type-74LS139 Integrated Circuit (C3) |
| 37-74LS153 | Type-74LS153 Integrated Circuit (H4, J4, K4, L4, M4, P7) |
| 37-74LS157 | Type-74LS157 Integrated Circuit (E7, F7, H7, J7, C6) |
| 37-74LS163A | Type-74LS163A Integrated Circuit (M8, K7, P4, P5, P6, N5, N6) |
| 37-74LS166 | Type-74LS166 Integrated Circuit (D7, J8) |
| 37-74LS174 | Type-74LS174 Integrated Circuit (D5, D8) |
| 37-74LS175 | Type-74LS175 Integrated Circuit (L6) |
| 37-74LS244 | Type-74LS244 Integrated Circuit (B1, C1) |
| 37-74LS245 | Type-74LS245 Integrated Circuit (E2) |
| 37-74LS257 | Type-74LS257 Integrated Circuit (L2, K2, M3, M5, F8, H8) |
| 37-74LS259 | Type-74LS259 Integrated Circuit (P9) |
| 37-74LS273 | Type-74LS273 Integrated Circuit (F4, L7) |
| 37-74LS373 | Type-74LS373 Integrated Circuit (F2) |
| 37-74S04 | Type-74S04 Integrated Circuit (P3) |
| 37-74S74 | Type-74S74 Integrated Circuit (N8) |
| 38-MV5053 | Type-MV5053 Light-Emitting Diode (CR1) |
| 41-3003 | 100 uH, ± 5%, Hot-Molded Plastic Fixed R.F. Choke (L1) |
| 62-001 | SPST Momentary Pushbutton Switch (A7) |
| 66-114P1T | 4-Station, Single-Throw, Dual-Inline-Package Bit Switch (L9) |
| 66-118P1T | 8-Station, Single-Throw, Dual-Inline-Package Bit Switch (J2, M2) |
| 79-42C16 | 16-Contact Medium-Insertion-Force Integrated Circuit Socket (M6, N7) |
| 79-42C24 | 24-Contact Medium-Insertion-Force Integrated Circuit Socket (K/L1, M1, D1, E/F1, H1, J/K1, F/H6, E6) |

[Continued on next page]

Figure 19 Warlords™ Game PCB Assembly, continued Parts List

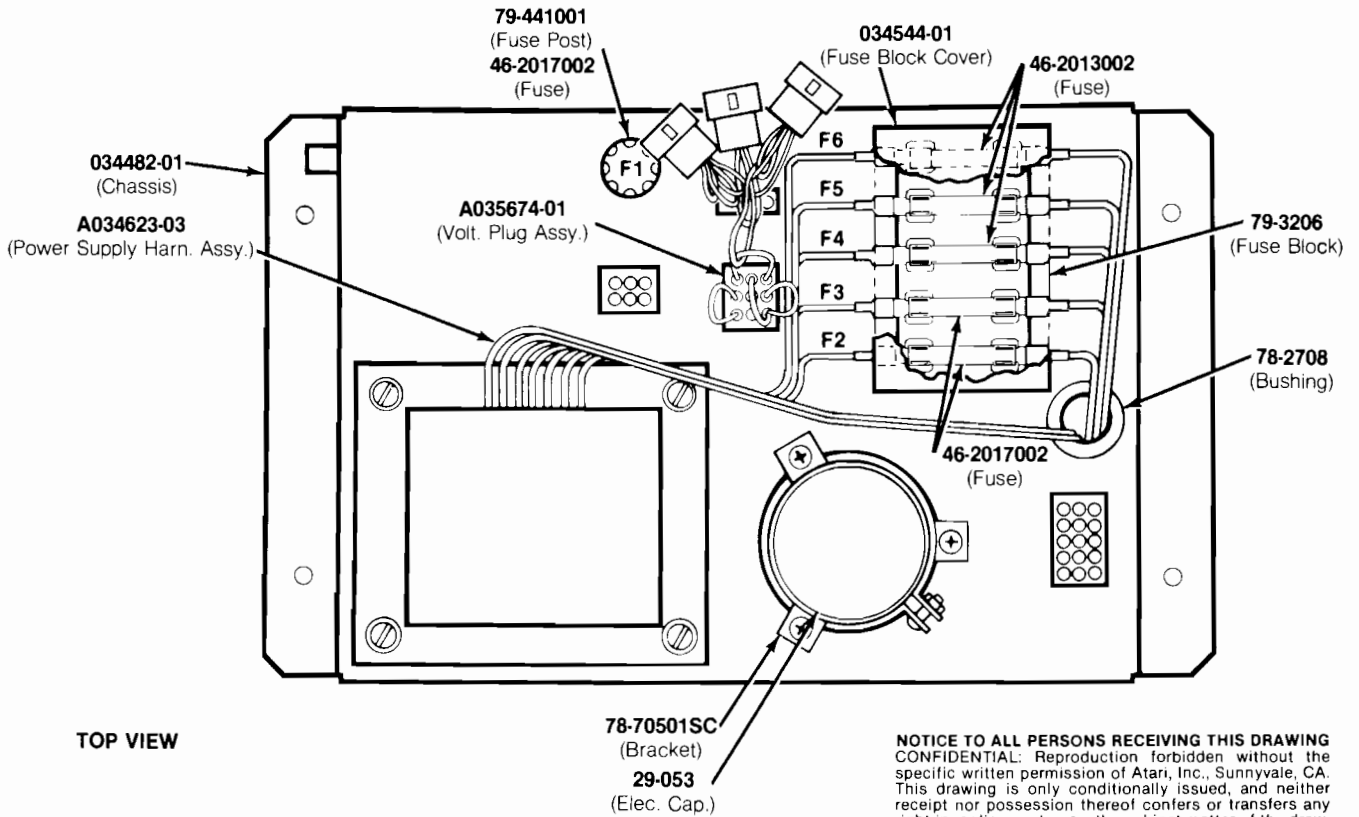
| <i>Part No.</i> | <i>Description (Reference Designations and Locations in Bold)</i> |
|-----------------|---|
| 79-42C40 | 40-Contact Medium-Insertion-Force Integrated Circuit Socket (B3/4, C2) |
| 81-4302 | Nylon Snap-In Fastener (Q3-5) |
| 90-102 | 12.096 MHz, $\pm .005\%$, Crystal (Y1) |
| 90-6010 | Microprocessor (C2) |
| 90-7031 | Random-Access Memory (H3, J3, K3, L3, H5, J5, K5, L5) |
| 90-7033 | Random-Access Memory (N1, P1) |
| 90-7035 | Random-Access Memory (L8, K8) |
| 020670-01 | Test Point |
| 037153-01 | Read-Only Memory (K/L1) |
| 037154-01 | Read-Only Memory (M1) |
| 037155-01 | Read-Only Memory (D1) |
| 037156-01 | Read-Only Memory (E/F1) |
| 037157-01 | Read-Only Memory (H1) |
| 037158-01 | Read-Only Memory (J/K1) |
| 037159-01 | Read-Only Memory—Graphics (E6, F/H6) |
| 037161-01 | Programmable Read-Only Memory (M6) |
| 037235-01 | Programmable Read-Only Memory (N7) |
| 100015-103 | .01 uf Ceramic-Disc 25V Radial-Lead Capacitor (C64) |
| 110000-102 | 1K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R20-23, 26-32, 37, 38, 42, 62-69, 74-81, 84, 85, 88, 90, 91) |
| 110000-103 | 10K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R1-19, 24, 33, 44, 92, 93, 96) |
| 110000-104 | 100K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R50-53) |
| 110000-105 | 1M Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R34) |
| 110000-122 | 1.2K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R72) |
| 110000-153 | 15K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R36) |
| 110000-182 | 1.8K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R71, 73) |
| 110000-183 | 18K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R87) |
| 110000-221 | 220 Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R45-49, 94) |
| 110000-471 | 470 Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R54-61, 82, 83) |
| 110000-472 | 4.7K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R25) |
| 110000-563 | 56K Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R35) |
| 110000-681 | 680 Ohm, $\pm 5\%$, $\frac{1}{4}$ W Resistor (R95) |
| 121008-105 | 1 uf, $\pm 10\%$, Polyester 50V Radial-Lead Capacitor (C44) |
| 122002-102 | .001 uf Ceramic-Disc 25V Radial-Lead Capacitor (C36) |
| 122004-224 | .22 uf Ceramic-Disc 25V Radial-Lead Capacitor (C67) |
| 131000-001 | 3.9 V, $\pm 10\%$, 0.4 W, Type-1N748 Zener Diode (CR4) |



**Figure 20 Control Panel Assembly
A037185-01 A**

Parts List

| <i>Part No.</i> | <i>Description</i> |
|-----------------|--|
| A037048-01 | Control-Panel Harness Assembly |
| A037186-01 | Control Panel with Graphics |
| 19-9022 | 5K Ohm, $\pm 20\%$, Linear Slip-Clutch Potentiometer |
| 62-039 | Momentary-Contact SPDT Light-Emitting-Diode Switch with Red Cap |
| 73-834 | Black Knob with Skirt |
| 75-017S | Spacer for Light-Emitting-Diode Switch |
| 75-9910W0 | #15/32-32 Steel Stamped Nut |
| 78-6900401 | Vinyl Foam Single-Coated-Adhesive Tape, 1/16-inch thick \times 1/4-inch wide <i>(specify no. of inches required)</i> |
| 033127-01 | Black Molded Switch Bushing |



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BOTTOM VIEW

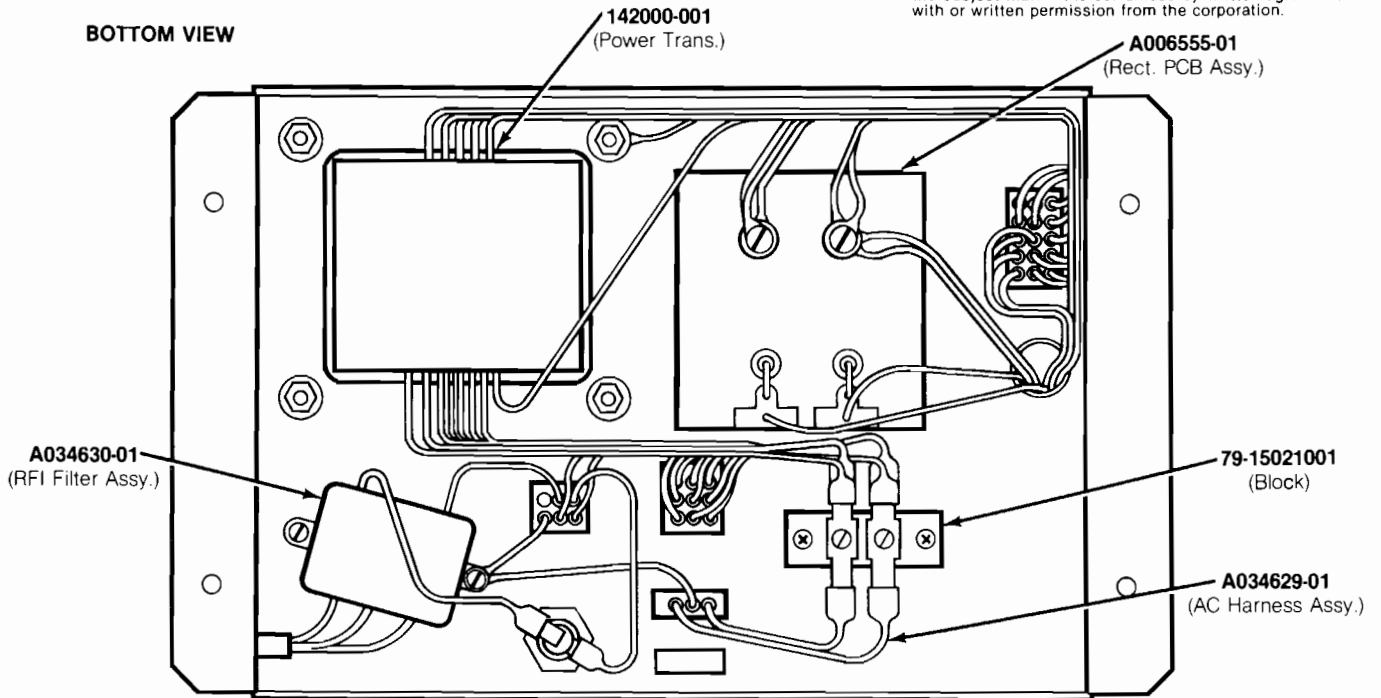


Figure 21 Power Supply Assembly for Color Raster-Scan Games
A036099-01 A

Figure 21 Power Supply Assembly for Color Raster-Scan Games Parts List

| <i>Part No.</i> | <i>Description</i> |
|-----------------|--|
| A006555-01 | Rectifier Printed Circuit Board Assembly |
| A036098-01 | Transformer and Harness Assembly <i>(includes shielded power transformer)</i> |
| A034629-01 | AC Harness Assembly |
| A034630-01 | RFI Filter Assembly |
| A035674-01 | Voltage Plug Assembly <i>(set of four plugs)</i> |
| 29-053 | 26,000 uf 15V Electrolytic Capacitor |
| 46-2013002 | 3-Amp. 250V 3AG Slow-Blow Glass Cartridge-Type Fuse |
| 46-2017002 | 7-Amp. 250V 3AG Slow-Blow Glass Cartridge-Type Fuse |
| 78-2708 | Nylon Type 6/6 Hole Bushing with 5/8-Inch Inside Diameter × 55/64-Inch Outside Diameter × 1/4-Inch Thick |
| 78-70501SC | 2-Inch-Diameter Capacitor Mounting Bracket |
| 79-15021001 | 2-Circuit Single-Row Terminal Block |
| 79-3206 | 5-Position 3AG Fuse Block with 1/4-Inch Quick-Disconnect Terminals |
| 79-4411006 | Panel-Mounting Non-Indicating 3AG Cartridge-Type Fuse Post |
| 034544-01 | Fuse Block Cover |
| 142001-001 | Shielded Power Transformer Only <i>(with isolation windings)</i> |

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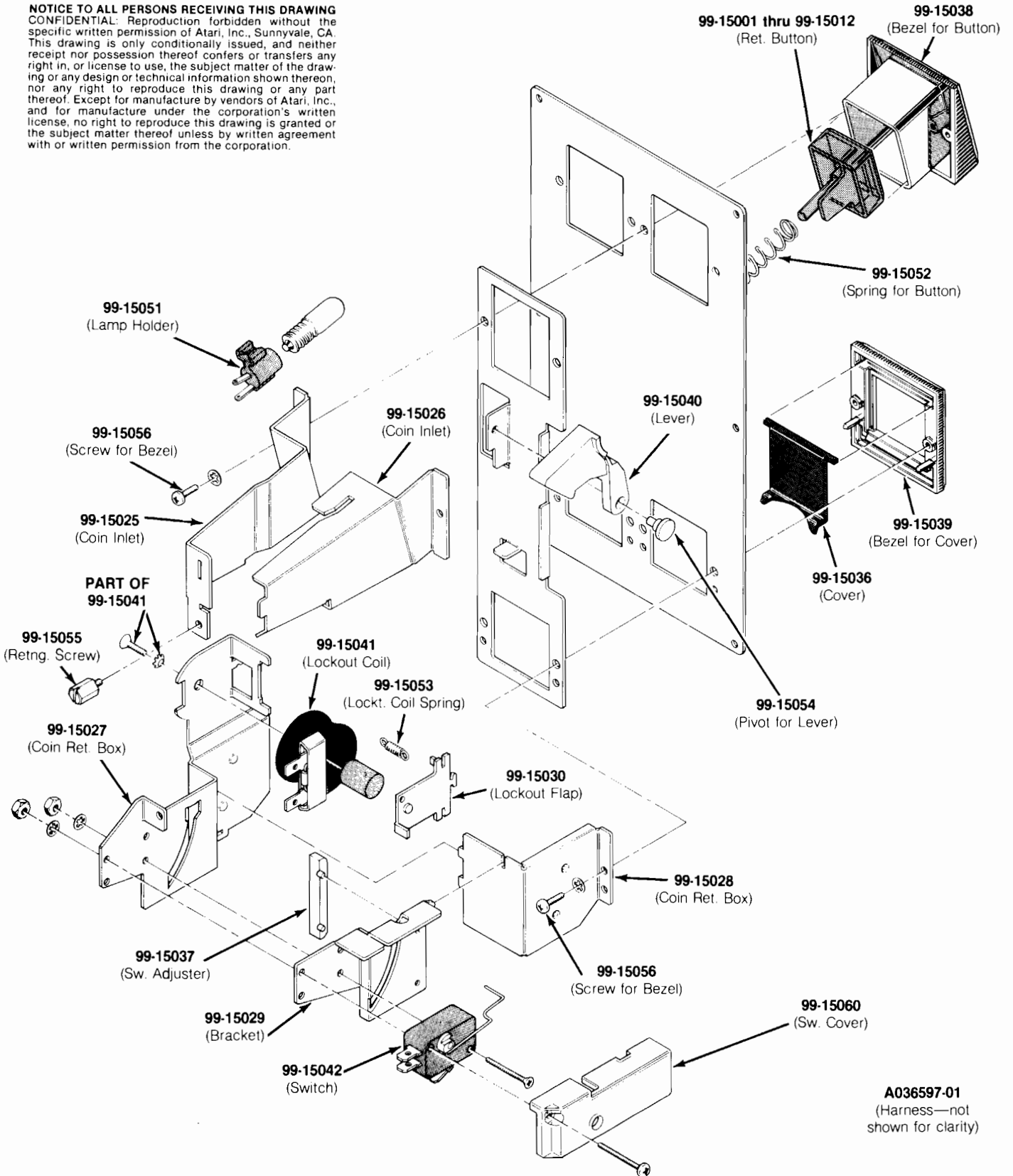


Figure 22 Double Coin Acceptor/Mount Assembly
A036693-xx A

Figure 22 Double Coin Acceptor/Mount Assembly Parts List

| <i>Part No.</i> | <i>Description</i> |
|-----------------|--|
| A036597-01 | Double Coin Acceptor Harness Assy. |
| 99-15001 | Coin Return Button with U.S. 25¢ Price Plate |
| 99-15002 | Coin Return Button with U.S. \$1 Price Plate |
| 99-15003 | Coin Return Button with German 1 DM Price Plate |
| 99-15004 | Coin Return Button with German 2 DM Price Plate |
| 99-15005 | Coin Return Button with German 5 DM Price Plate |
| 99-15006 | Coin Return Button with Belgian 5 Fr Price Plate |
| 99-15007 | Coin Return Button with French 1 Fr Price Plate |
| 99-15008 | Coin Return Button with Japanese 100 Yen Price Plate |
| 99-15009 | Coin Return Button with British 10 Pence Price Plate |
| 99-15010 | Coin Return Button with Australian 20¢ Price Plate |
| 99-15011 | Coin Return Button with Italian 100 Lire Price Plate |
| 99-15012 | Coin Return Button with U.S. 50¢ (2 × 25¢) Price Plate |
| 99-15025 | Left Half of Coin Inlet |
| 99-15026 | Right Half of Coin Inlet |
| 99-15027 | Side Plate of Coin Return Box |
| 99-15028 | Base Plate of Coin Return Box |
| 99-15029 | Switch Bracket |
| 99-15030 | Flap for Lockout Coil (U.S. 25¢) |
| 99-15036 | Coin Return Cover |
| 99-15037 | Switch Adjuster |
| 99-15038 | Bezel for Coin Return Button |
| 99-15039 | Bezel for Coin Return Cover |
| 99-15040 | Coin Return Lever |
| 99-15041 | Lockout Coil |
| 99-15042 | Coin Switch for U.S. 25¢ |
| 99-15051 | Lamp Holder |
| 99-15052 | Spring for Coin Return Button |
| 99-15053 | Spring for Lockout Coil |
| 99-15054 | Pivot for Coin Return Lever |
| 99-15055 | Retaining Screw |
| 99-15056 | Screw for Both Bezels |
| 99-15060 | Switch Cover |

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Warlords™/Cocktail
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Atari, Inc.
Attn.: Field Service/Coin-Op Division
P. O. Box 427
Sunnyvale, California 94086



Second fold

From:

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Warranty

Seller warrants that its printed circuit boards and parts thereon are free from defects in material and workmanship under normal use and service for a period of ninety (90) days from date of shipment. Seller warrants that its television monitors (in games supplied with monitors) are free from defects in material and workmanship under normal use and service for a period of thirty (30) days from date of shipment. None of the Seller's other products or parts thereof are warranted.

If the products described in this manual fail to conform to this warranty, Sellers' sole liability shall be, at its option, to repair, replace, or credit Buyer's account for such products which are returned to Seller during said warranty period, provided:

- (a) Seller is promptly notified in writing upon discovery by Buyer that said products are defective;
- (b) Such products are returned prepaid to Sellers' plant; and
- (c) Seller's examination of said products discloses to Seller's satisfaction that such alleged defects existed and were not caused by accident, misuse, neglect, alteration, improper repair, installation or improper testing.

In no event shall Seller be liable for loss of profits, loss of use, incidental or consequential damages.

Except for any express warranty set forth in a 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 a 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.

The use of any non-Atari parts may void your warranty, according to the terms of the warranty. The use of any non-Atari parts may also adversely affect the safety of your game and cause injury to yourself and others. Be very cautious in using non-Atari-supplied components with our games, in order to insure your safety.

Atari distributors are independent, being privately owned and operated. In their judgment they may sell parts or accessories other than Atari parts or accessories. Atari cannot be responsible for the quality, suitability or safety of any non-Atari part or any modification including labor which is performed by such distributor.

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