TM-256
1st printing

# DRAGON'S LAIR*

**Operators Manual** With Illustrated Parts Lists

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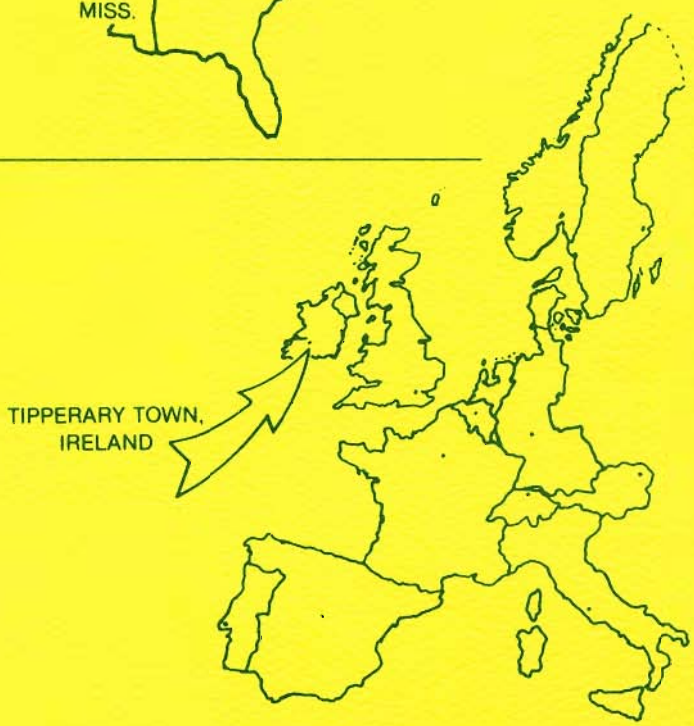

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# CHAPTER 1 SET UP

## HOW TO USE THIS MANUAL

This manual, written for game operators and service technicians, describes your new ATARI game.

Chapter 1 contains a game overview, game specifications, inspection procedures, voltage plug and fuse information, switch locations, and option information.

Chapter 2 contains self-test procedures.

Chapter 3 contains troubleshooting procedures.

Chapter 4 contains maintenance and repair procedures.

Chapter 5 contains illustrated parts lists. Notes in this chapter refer you to other places in the manual for more detailed information.

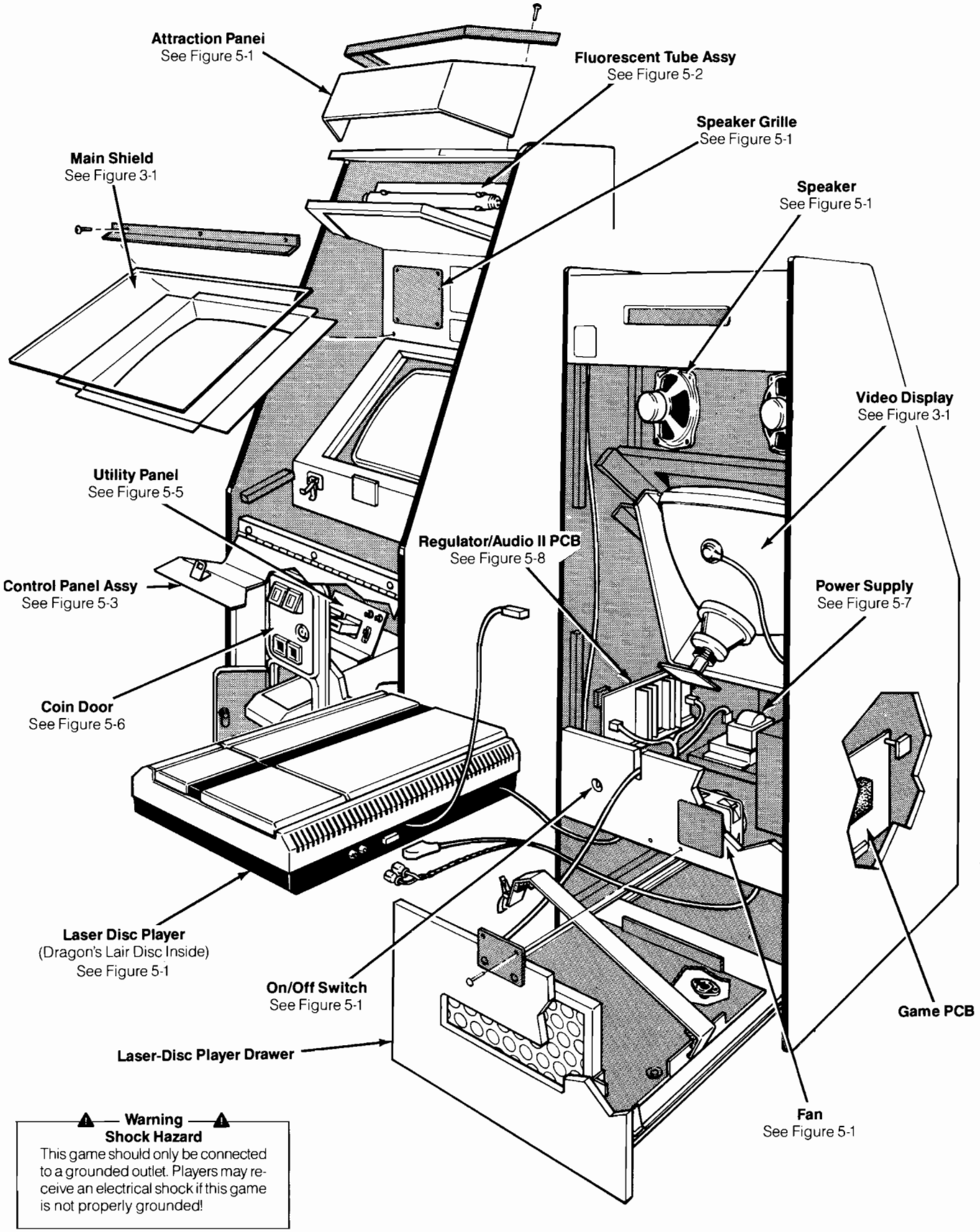
Schematic diagrams of the game circuitry are included as a supplement to this manual.

**WARNING**

Shock Hazard

To avoid electrical shock, do not plug in the game until it has been inspected and properly set up for the line voltage in your area.

Do not touch internal parts of the display with your hands or metal objects!




**⚠ Warning ⚠**
**Shock Hazard**
This game should only be connected to a grounded outlet. Players may receive an electrical shock if this game is not properly grounded!

**Figure 1-1 Game Overview**

## GAME OVERVIEW

**WARNING**

Shock Hazard

This game should only be connected to a grounded outlet. Players may receive an electrical shock if this game is not properly grounded!

Dragon's Lair is new! It's THE original laser disc video game--the video and sound sequences for the game are stored on a LASER DISC. This unprecedented game lets a player participate in an animated AND INTERACTIVE motion-picture experience!

As Dirk the Daring, a player's goal is to rescue the princess. The adventures along the way are horrible and terrifying, but, a skilled and brave knight, like honor and truth, can prevail.

Dragon's Lair can be a one-or two-player game. If two play, two twin knights engage in mortal combat with the same demons until they both die (use up their lives), or until one rescues the fair princess from the dragon's lair.

Major Assemblies of the Dragon's Lair game are shown in Figure 1-1.

## SETTING UP THE GAME

**WARNING**

The ambient temperature for proper operation of the laser-disc player must be 5°C (37°F) or more.

When the game is unpacked in cold conditions it should be allowed to reach room ambient temperature before power is applied.

Follow the guidelines below to set up the game.

### Inspecting the Game

1. Examine the exterior of the game cabinet for dents, chips, or broken parts.

2. Remove the screws from the rear access panel. Unlock and remove this panel. Inspect the interior of the game as follows:

   a. Ensure that all plug-in connectors (on the game harnesses) are firmly plugged in. Replug any unplugged connectors. Do not force connectors together. The connectors are keyed so they only fit in the proper orientation.

   b. Ensure that all plug-in integrated circuits on the PCB are firmly plugged into their sockets.

   c. Remove the tie-wrap that secures the coiled power cord inside the cabinet. Inspect the power cord for any cuts or dents in the insulation. Repair or replace it as required. Attach a plug to the power cord--BE SURE THAT IT IS THE CORRECT PLUG FOR THE LINE VOLTAGE IN YOUR LOCATION! Place the square strain-relief plate in the wood slot at the bottom of the rear-panel opening.

   d. Inspect the power supply. Make sure the fuse block cover is mounted in place. Check that the green/yellow ground wire is connected.

   e. Inspect other major subassemblies, such as the control panel, video display, and each PCB. Make sure they are mounted securely and that the green ground wires are connected.

## Setting Up the Disc Player

The disc player is installed in the drawer/player assembly of the cabinet before the game is shipped, and the Dragon's Lair video disc is already installed in the player. Therefore, the disc player should require no special set up. If you have trouble with the disc player, see Chapter 3 for instructions on how and where to send it for service.

**CAUTION**

Disconnect the disc controller interface cable from connector J2 on the Main PCB and connect the static prevention plug (attached to the end of the interface cable) to the player interface cable connector. This will prevent damaging the static-sensitive devices in the player.

## Voltage-Plug Selection and Fuses

The power supply in your game contains six fuses. When you replace a fuse, use the identical type fuse with the same electrical rating (see Figure 1-2).

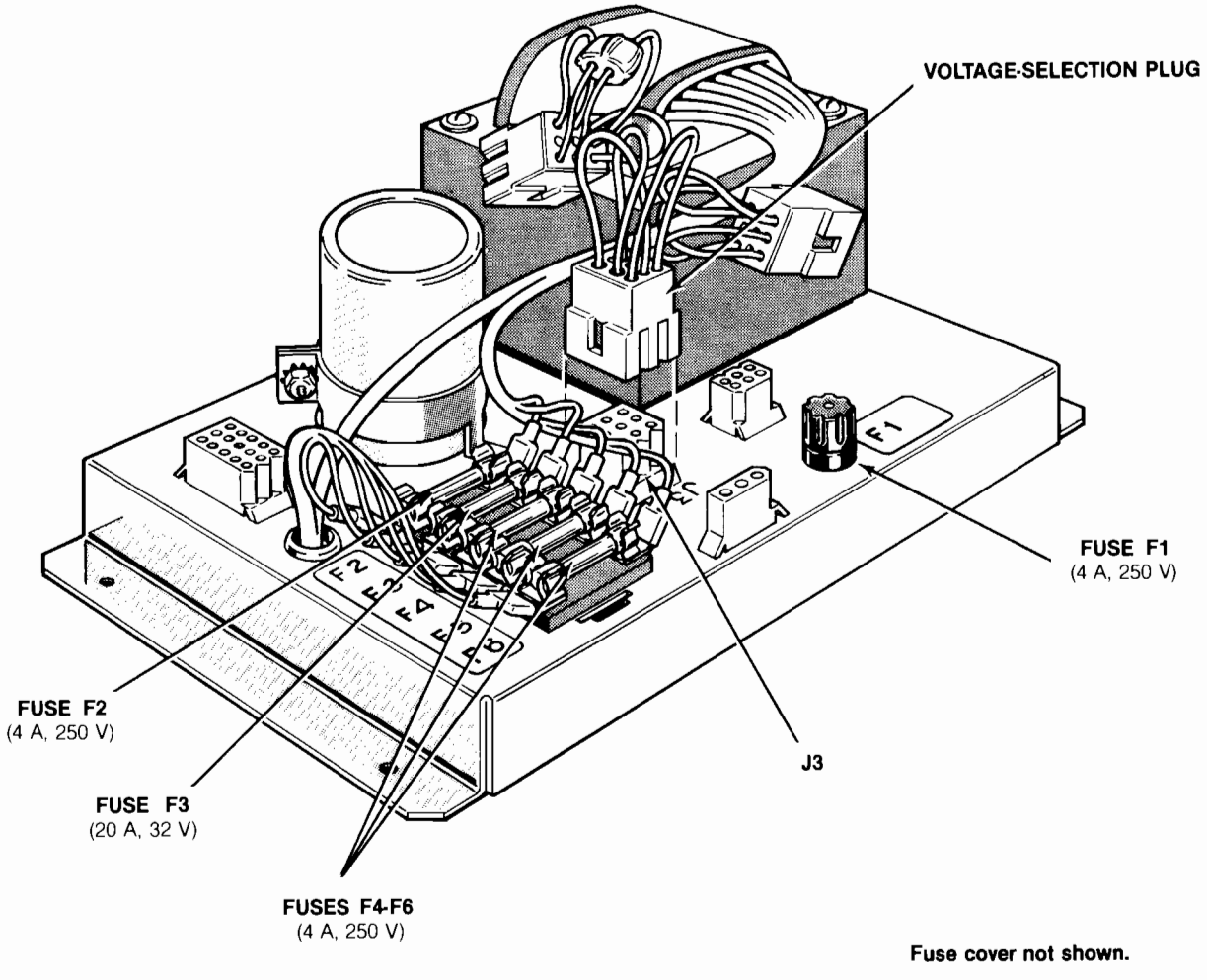



**Figure 1-2 Voltage-Selection Plug and Fuse Locations**

This power supply operates on the line voltage of many countries. The power supply comes with either one, two, or three voltage-selection plugs. Plug voltages and wire colors are 100 VAC (violet wire color), 120 VAC (yellow wire color), 220 VAC (blue wire color), and 240 VAC (brown wire color).

See Figure 1-2 for placement of the voltage-selection plug. Before plugging in your game, check your line voltage. Next, check the wire color on the voltage-selection plug. Make sure the voltage-selection plug is correct for the line voltage of your location.

Now plug the game into a grounded outlet.

> **NOTE**
>
> When you turn the game on, the self-test program will automatically run. See Chapter 2 for more information about self test.

## SWITCH INFORMATION

### Power On/Off Switch

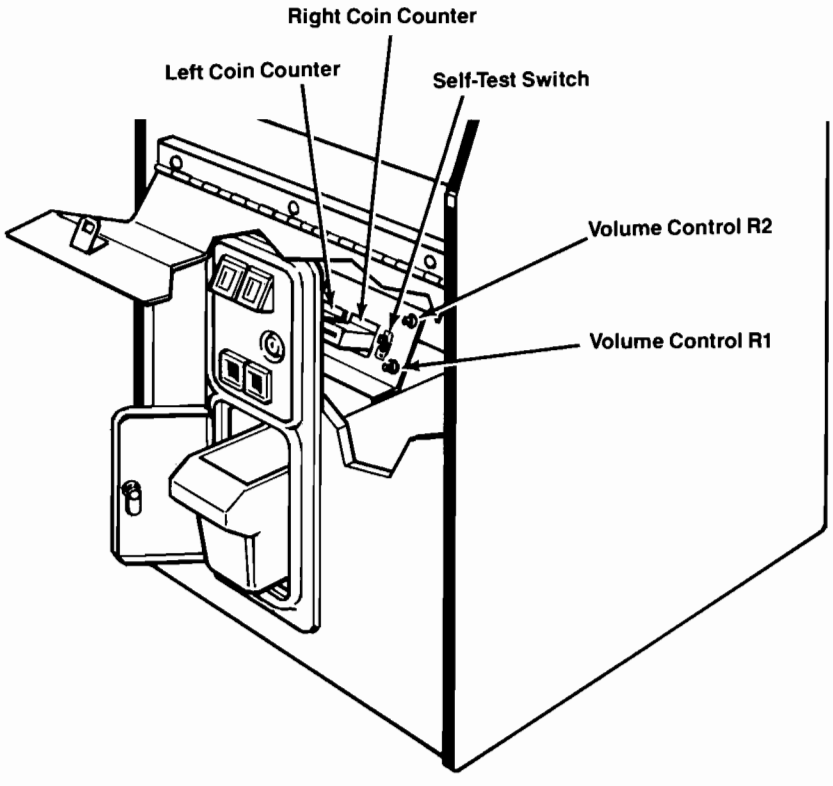
The power on/off switch is located on the back of the cabinet on the lower left side (see Figure 1-1).

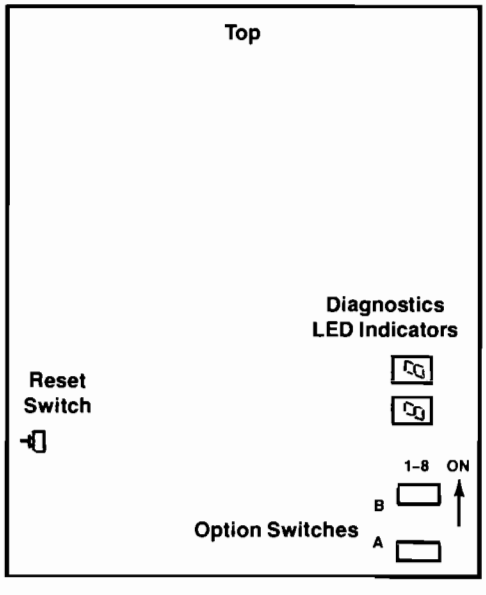
### Utility Panel Switches

The utility panel is located inside the upper coin door (see Figure 1-1). Two coin counters, a self-test switch, and two volume controls are located on the utility panel. See Figures 1-1, 1-3, and 5-5 for details of these switches.

Each coin counter records the number of coins entered into the game. The self-test switch starts the self-test diagnostic program. Each volume control adjusts the level of sound produced by one channel of the game.

> **NOTE**
>
> The laser disc contains two sound channels. Control R1 adjusts sound from Channel A to one speaker; Control R2 adjusts sound from Channel B and computer-generated sounds to the other speaker.




Game PCB

**Figure 1-3 Switch Locations**

## Disc Player Switches

The disc player has two rectangular silver pushbuttons. One is marked "ON", and the other is marked "OPEN".

**CAUTION**

Make sure the retaining strap is removed from the player before you press the "OPEN" button.

## Option Switches

Two dual-inline-package (DIP) switches are located on the game PCB at locations SWA and SWB (see Figure 1-3). Each of these DIP switches consist of eight switches. Use these switches to select different game play and pricing options.

Possible game and pricing options are listed in Tables 1-1 and 1-2.

Table 1-1 Switch Settings for Option Switch SWA

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Option |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Left Slot Coins |
| Off | Off | Off | | | | | | Freeplay |
| On | Off | Off | | | | | | 1 coin |
| Off | On | Off | | | | | | 2 coins * |
| On | On | Off | | | | | | 3 coins |
| Off | Off | On | | | | | | 4 coins |
| On | Off | On | | | | | | 5 coins |
| Off | On | On | | | | | | 6 coins |
| On | On | On | | | | | | 7 coins |
| | | | | | | | | Left Slot Credits |
| | | | Off | Off | | | | Slot disabled |
| | | | On | Off | | | | 1 credit * |
| | | | Off | On | | | | 2 credits |
| | | | On | On | | | | 3 credits |
| | | | | | | | | Attract Mode Audio |
| | | | | | Off | | | Silent * |
| | | | | | On | | | Sound |
| | | | | | | | | Difficulty Level |
| | | | | | | Off | Off | Easy * |
| | | | | | | On | Off | Intermediate |
| | | | | | | Off | On | Hard |
| | | | | | | On | On | Very Hard |

*Manufacturer's recommended settings

Table 1-2 Switch Settings for Options Switch SWB

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Option |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Right Slot Coins |
| Off | Off | Off | | | | | | Freeplay |
| On | Off | Off | | | | | | 1 coin |
| Off | On | Off | | | | | | 2 coins * |
| On | On | Off | | | | | | 3 coins |
| Off | Off | On | | | | | | 4 coins |
| On | Off | On | | | | | | 5 coins |
| Off | On | On | | | | | | 6 coins |
| On | On | On | | | | | | 7 coins |
| | | | | | | | | Right Slot Credits |
| | | | Off | Off | Off | | | Slot disabled |
| | | | On | Off | Off | | | 1 credit * |
| | | | Off | On | Off | | | 2 credits |
| | | | On | On | Off | | | 3 credits |
| | | | Off | Off | On | | | 4 credits |
| | | | On | Off | On | | | 5 credits |
| | | | Off | On | On | | | 6 credits |
| | | | On | On | On | | | 7 credits |
| | | | | | | | | Lives per Game |
| | | | | | | Off | | 3 * |
| | | | | | | On | | 5 |
| | | | | | | | | Watchdog Timer |
| | | | | | | | On | Enable * |
| | | | | | | | Off | Disabled |

*Manufacturer's recommended settings

## GAME PLAY

Dragon's Lair is the first game born to the new generation of video games! This unprecedented game is the first motion-picture type fairy tale you interact with! As Dirk the Daring, your goal is to rescue the princess. Your adventures will be horrible and terrifying, but, brave knight errant that you are, you can do it!

The images for the game are stored on a laser disc, a new type of storage device that can compress information so densely that an entire encyclopedia can be contained on just one!

Dragon's Lair uses a laser-disc player made by Philips (model 22VP 932/00) and a Z80 microprocessor to generate the images and action required for game play. You control the knight with a 4-position joystick and a SWORD button. This game can accommodate a right- or left-handed knight.

Dragon's Lair has four operational modes--Attract, Play, High-Score, and Self-Test.

### Attract Mode

The attract mode plays when the game has no credits registered or after a high-score mode has ended. It is designed to lure customers to play the game by introducing the characters and showing scenes from game play. The attract mode can be displayed with or without sound (see Table 1-1 for sound options in the attract mode).

The player's goal for Dragon's Lair is described by the announcer during the attract mode--to slay the dragon and rescue the Princess. "Dragon's Lair...the fantasy adventure...." is recited by the narrator while DRAGON'S LAIR and © 1983 STARCOM appear on the screen. Then the cast of characters is introduced--DIRK The DARING, The PRINCESS DAPHNE, The GIDDY GOONS, The LIZARD KING, The CRYPT CREEPS, and The SMITHEE. These are just a few of the motley monsters that Dirk meets on his adventures through the castle.

### Play Mode

Game play starts when enough coins have been inserted to register a credit (see Tables 1-1 and 1-2 for coinage information). "PUSH ONE PLAYER OR TWO PLAYER BUTTON" and the number of credits will appear on the screen.

A player has a choice of 5 moves at any given time (4 positions on the joystick plus the SWORD button). A complete game of Dragon's Lair requires more than 200 correct moves. Timing is critical! Dirk can be too hesitant or too eager to make a move. Only experience and a good memory enable Dirk to complete his mission.

The game opens with the dark visage of a foreboding castle looming in the distance. Why, the next thing you know, YOU are DIRK, running across the castle drawbridge! The gate clangs shut behind you, and your quest to kill the dragon and save Princess Daphne has begun!

More than 40 possible episodes will be presented to you. Some require many fast repeated moves; others will require fewer, more calculated moves.

NOTE

Operators! We recommend you learn how to play Dragon's Lair so that you can help your customers if they get frustrated. Read Hints for Game Play for specific pointers.

Hints for Game Play

1. React! Often the player will be given a visual cue as to which direction to move. These cues are often presented as a flashing light, flashing tunnel, flashing rope, or flashing door. In general, the player should move toward a flashing object.

2. Remember, even though the player may know the direction to move, the timing of his move is critical.

3. The player must react to fire--it is his enemy. He should not linger too long near fire, and in general, he should move away from blazing fires.

At the beginning of the game, if the player makes a wrong move and loses a life, a new scene will appear at random. Later in the game, a scene that is not completed properly is repeated until it is mastered. Also, when a player loses a life, the scene stops, the screen turns blue, and "PLAYER ONE" or "PLAYER TWO" is displayed on the screen, along with that player's number of remaining lives.

As you play the game you may find that some scenes are repeated, but the image is reversed on the screen. (The scene is reversed on the disc, not by the hardware.)

Princess Daphne appears during the game, in distress and crying for help. She is unattainable until the end. Her voice is very high-pitched. If it is annoying, remember that the audio is stereo, and you can soften her voice with one of the two volume controls on the utility panel.

Most of the sounds you hear during game play originate from the disc.

## High-Score Mode

After Dirk loses his last life, game play ends. The screen turns blue, and score information appears. The "HIGH SCORE" and the "LAST SCORE" earned are displayed at the same time. (Dragon's Lair does not have a table of high scores.)

## Self-Test Mode

For complete self-test information, see Chapter 2.

# CHAPTER 2 SELF TEST

## SELF-TEST PROCEDURE

The self-test diagnostic program provides data to show if the game's circuitry and controls are operating properly. Data is provided on the LED display, DS1, located on the game PCB near the option switches (see Figure 1-3). No additional equipment is necessary.

> **NOTE**
>
> Open the coin door or remove the rear access panel to see the LED readout at DS1.

The self-test runs automatically when power is applied to the game, or after system reset. (The reset switch is the red switch on the game PCB at S1.) This program can also be started manually by setting the self-test switch on the utility panel to the on position.

If all the tests pass, a "P" is displayed on DS1. If a test fails, a number from 1 to 5 will appear on DS1. Table 2-1 lists possible DS1 readouts and their meanings.

Table 2-1 Self-Test Error Messages

| DS1 Readout | Meaning |
|---|---|
| P | All tests pass |
| 1 | CPU Test Failure |
| 2 | ROM Test Failure |
| 3 | RAM Test Failure |
| 4 | Display Memory Test Failure |
| 5 | CTC Test Failure |

**CAUTION**

If this game needs servicing, repair should only be performed by a qualified electronic technician.

# CHAPTER 3 MAINTENANCE

The maintenance procedures provided in this chapter are for those items which are subject to the most severe use (refer to the following NOTE regarding laser-disc player maintenance). To assure the maximum trouble-free operation from this game, Atari recommends that periodic routine maintenance be performed on the game components described in the following procedures. How often routine maintenance is performed depends upon the game environment and frequency of play.

Refer to the illustrated parts lists in Chapter 5 of this manual to aid in locating the parts of this game that are mentioned in this chapter.

**WARNING**

To avoid possible electrical shock, unplug the game prior to performing the following maintenance procedures.

**NOTE**

Only routine cleaning procedures for the dust filter, laser disc, and objective lens of the laser-disc player are provided in this chapter. Atari recommends that the laser-disc player in this game be returned to your distributor for major maintenance or repair. Observe the Removing the Disc Player and Packing the Disc Player for Shipment instructions in this chapter for removing the player from the game cabinet and shipping the player to your distributor.

## CLEANING REQUIREMENTS

The dust filter at the rear of the player drawer, the laser disc itself, and the objective lens in the laser-disc player should be cleaned at least twice a month to ensure optimum player quality and reliability. Clean the dust filter, the laser disc, and the objective lens as follows:

1. Open the laser disc player drawer as described in the first four steps under Removing the Disc Player.

2. Remove the dust filter at the rear of the player drawer.

3. Shake the dust from the filter and reinstall the filter in the drawer.

4. Release the draw latch on the player retaining strap.

5. Push the player drawer partially in and remove the player retaining strap.

6. Apply power to the game.

7. Press the OPEN pushbutton on the front of the player. Wait about 10 seconds and the lid will open automatically to allow access to the laser disc.

8. Remove power from the game.

> **CAUTION**
>
> Do not touch the playing surface of the laser disc. Handle the laser disc only by its edges or between the center hole and one edge.

9. Carefully remove the laser disc from the player.

10. Remove the dust from the objective lens and the video disc with a clean, lint-free, 100% cotton cloth. If necessary, dampen the cloth slightly with water.

> **CAUTION**
>
> Do not use any form of abrasive cleaner, alcohol, or solvent to clean the laser disc or objective lens. Permanent damage to the disc playing surface or lens may result.

11. With the playing surface of the disc facing downward, reinstall the disc in the player and press it gently onto the center spindle.

12. Close the lid on the player.

13. Replace the retaining strap.

14. Gently close and secure the player drawer.

15. Apply power to the game.

The game cabinet and display shield may be cleaned with any non-abrasive household cleaner. The coin mechanism should be cleaned periodically with hot or boiling water and a mild detergent. A toothbrush may be used to remove any stubborn build-up of residue in the coin path. After cleaning the coin mechanism, flush thoroughly with hot or boiling water and blow out all the water with compressed air. Compressed air is also recommended for cleaning dust from the interior of the cabinet. No lubrication is required for any of the moving parts in this game.

## REMOVING THE DISC PLAYER

1. Remove power from the game.
2. Remove the rear access panel from the game cabinet.
3. Use an 8 mm socket to remove the two wing nuts and washers from the inside of the drawer security plate. Save the hardware for reassembly.
4. Gently slide the player drawer open.
5. Release the draw latch on the player retaining strap and remove the strap.
6. Apply power to the game.
7. Press the OPEN pushbutton on the front of the player. Wait about 10 seconds and the lid will open automatically.
8. Remove power from the game.

> **CAUTION**
>
> Handle the laser disc only by its edges or between the center hole and one edge. Do not touch the playing surface of the disc.

9. Carefully remove the laser disc from the player and place it in the envelope provided with the game. Store the disc in a cool, dark place.
10. Close the lid on the player.
11. Disconnect the coaxial video connector and the two audio connectors from the back of the player.
12. Disconnect the disc controller interface cable from connector J2 on the Main PCB and connect the static prevention plug (attached to the end of the interface cable) to the player interface cable connector.

13. Disconnect the player power cord from the yellow three-pin connector J4A on the power supply. Carefully cut the cable ties that retain the power cord.

14. Remove the player drawer by gently lifting and sliding the drawer out of the track.

15. Gently lift the laser-disc player from its mounting plate and out of the drawer.

Reinstall the laser-disc player in the game cabinet in the reverse order of removal. Make certain that the disc controller interface cable is free from any obstructions as the player is placed in the drawer. Replace the power cord cable ties.

## PACKING THE DISC PLAYER FOR SHIPMENT

Check the window in the laser-disc player lid to make certain the laser disc has been removed before packing the player for shipment. If the laser disc is inside the laser-disc player, apply power to the player from connector J4A on the game power supply. Then, press the OPEN pushbutton and wait for the lid to open. Refer to the Removing the Disc Player procedure for detailed laser disc removal instructions.

Seal the laser-disc player in a plastic (or an equivalent material) bag to provide moisture and dust protection during transit. Pack the sealed laser-disc player in a sturdy shipping container large enough to allow at least three inches of space around the top, bottom, and all sides of the player. Pack at least three inches of loose or rigid foam (or an equivalent shock-absorbent material) on the bottom of the container. Place the laser-disc player in the container and pack all sides tightly with packing material. Then place enough packing material on the top of the player to hold the player firmly in place when the container lid is closed. Seal the shipping container with an appropriate adhesive tape.

**NOTE**

If the laser-disc player is to be shipped by common carrier, we suggest you insure the player against loss or damage for the replacement cost.

## OPENING THE CONTROL PANEL

1. Unlock and open the coin door. Reach up through the opening to the top of the control panel and release the two spring-draw latches.

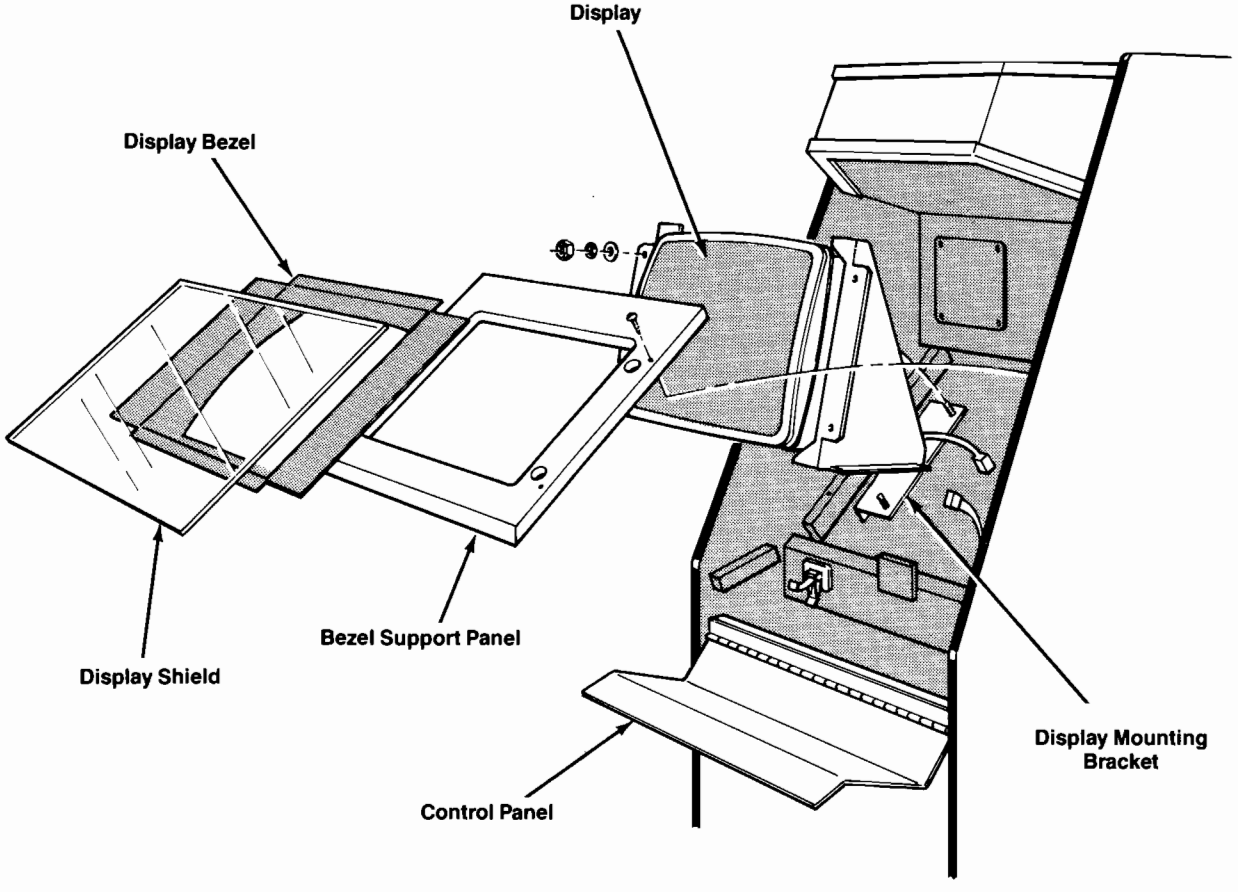



**Figure 3-1 Removing the Display**

2. Close the coin door.

3. Lift the control panel at the top edge and tilt it toward you.

## REMOVING THE DISPLAY

This procedure is illustrated in Figure 3-1.

1. Unplug the game.

2. Remove the rear access panel from the game cabinet.

3. Disconnect the power lead (two-pin connector) and the video input lead (five-pin connector J5) from the CRT assembly.

4. Open the control panel as previously described.

5. Carefully remove the display shield and bezel.

6. Remove the four screws that secure the display support panel to the cabinet.

7. Lift the front edge of the bezel support panel and slide it out from the front of the game.

8. Use an 11 mm socket to remove the four bolts, nuts, and washers from the front of the display mounting brackets.

9. Carefully lift the CRT assembly out from the front of the game cabinet.

Reinstall the CRT assembly in the reverse order of removal.

## SERVICING THE JOYSTICK LEAF SWITCHES

1. Open the control panel as previously described.

2. To replace the joystick leaf switches, you do not need to disassemble the joystick. Using your thumbs, pry apart the plastic flanges on the switch holder. With your index finger, lift the switch up so that it will clear the plastic tab located on the outside end of the switch holder.

3. Slide the leaf switch out of its holder. Replace the switch in reverse order.

4. Make sure that each leaf switch is firmly seated in its holder. There is a small gray plastic tab on the outside end of the switch

holder. The black plastic part of each leaf switch must be in front of this tab.

5. Check that all four leaf switches can be activated by watching the switch blades as you move the joystick handle up, down, left, and right.

6. Adjust each switch contact for a narrow gap using the following procedure:

   a. Push the joystick handle away from the switch for easier servicing.

   b. Use a pair of needlenose pliers or a switch adjustment tool to bend each double set of blades in toward the center. Make the bend where the double set of blades protrude from the black plastic part of the switch.

7. Inspect the switch action. The switches must move independently for right, left, up, and down motion of the joystick.

## DISASSEMBLING THE JOYSTICK ASSEMBLY

1. Open the control panel as previously described.

2. Remove the entire joystick assembly from the control panel.

3. Remove the four screws in the plastic joystick frame.

4. Remove the retaining ring from the bottom of the shaft. The assembly will now come apart.

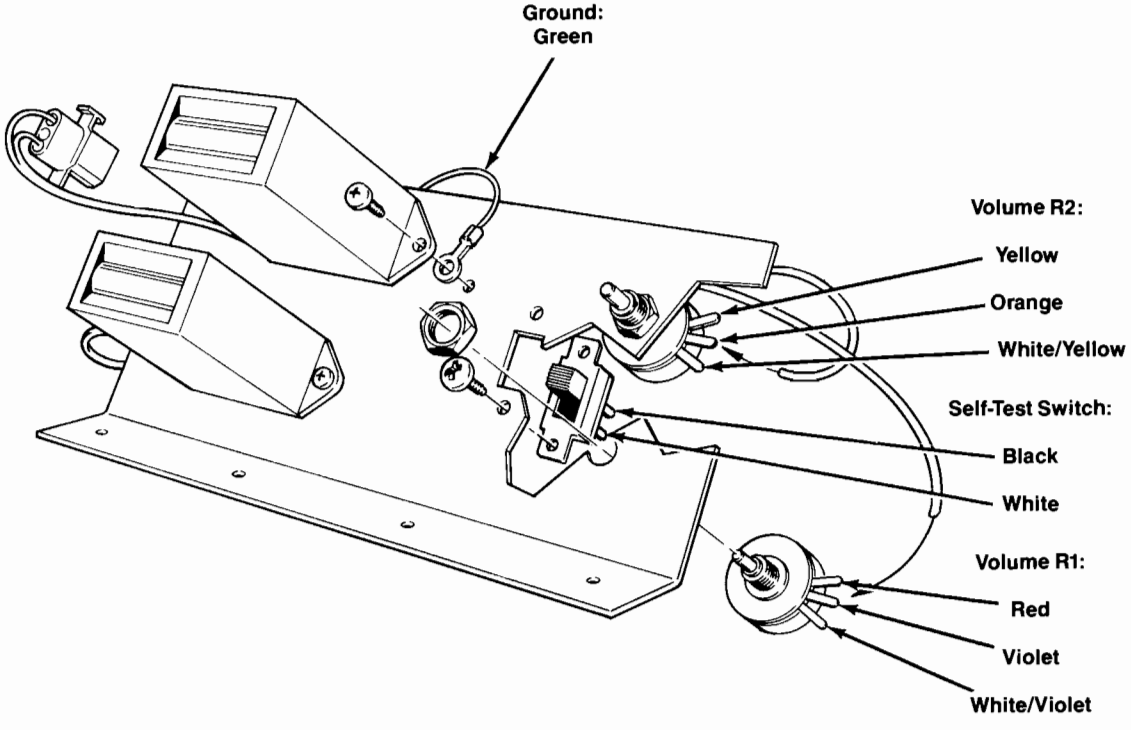
5. To replace the bellows, pry the bellows up and out of the plastic frame. Note that the inner raised ring on the bellows is longer on one side. This longer side goes on top of the assembly (toward the control knob).

Reassemble the joystick in reverse order.

## SERVICING THE PUSHBUTTON LEAF SWITCHES

1. Open the control panel as previously described.

2. Adjust the leaf switch contacts for a narrow gap. When a pushbutton is pressed, the resulting wiping action of the cross-bar contacts provides a self-cleaning feature. Don't burnish the contacts. To clean them, use electrical contact cleaner.



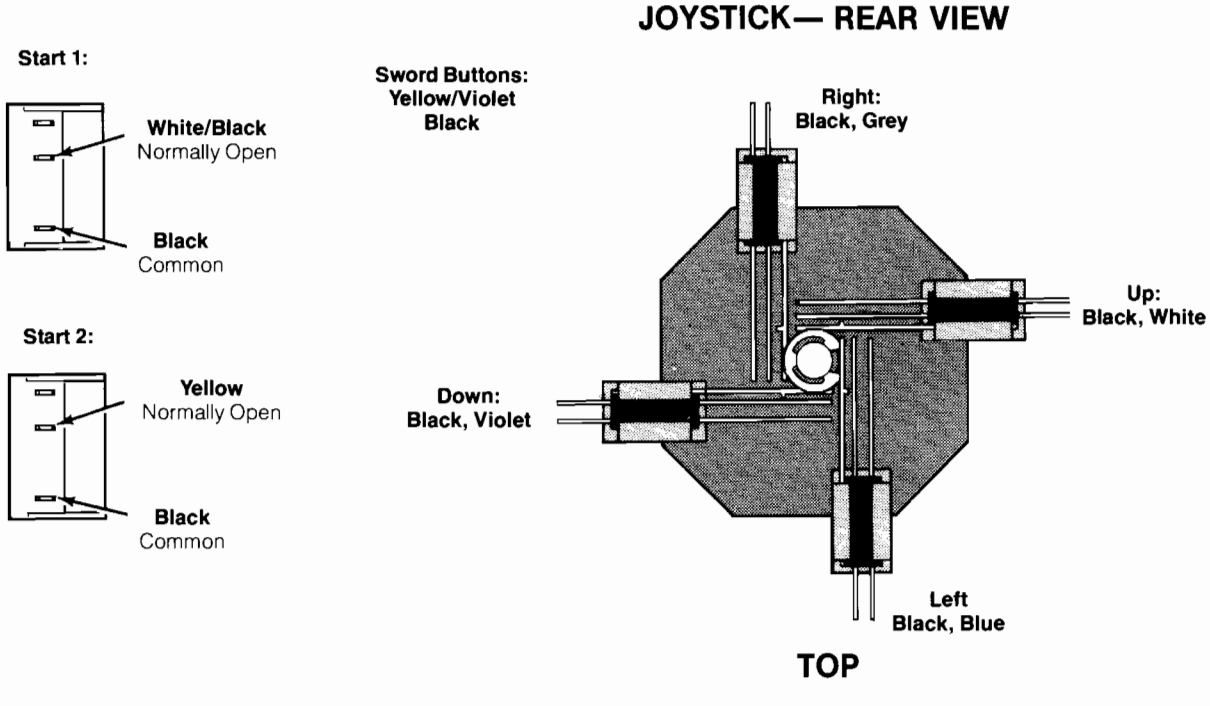




**Figure 3-2 Wire Colors**

3. To replace a leaf switch, remove the stamped nut and replace the molded switch body.

4. To replace the switch pushbutton, turn the stamped nut with a wrench in a counterclockwise direction, as seen from the inside of the control panel. The ring on the outside of the control panel should not spin.

5. Reinstall the pushbutton switch. Reconnect the harness wires to the switch terminals (see Figure 3-2).

## SERVICING THE START SWITCHES

1. Open the control panel as previously described.

> **NOTE**
>
> Start switches can be checked for proper operation with an ohmmeter. Disconnect the wires from the switch terminals and connect an ohmmeter between the normally open and common contacts (see Figure 3-2). Press and release the pushbutton and check for zero and infinite resistance. If the switch is not operating properly, perform the following procedure.

2. Turn the switch counterclockwise while firmly holding the black cone-shaped bushing on the outside of the control panel.

3. Install a new switch using the reverse procedure.

4. Reconnect the harness wires as shown in Figure 3-2. Make certain the right colors go to the right tabs on the switch.

## WIRING THE CONTROLS

When you replace a switch or conrol, refer to Figure 3-2 for the proper wire connections.

# CHAPTER 4 TROUBLESHOOTING

## TROUBLESHOOTING AIDS

> **NOTE**
>
> Atari recommends that the laser-disc player be returned to your distributor for maintenance or repair. Refer to the Disc Player Removal procedures and the Disc Player Packing for Shipment instructions in Chapter 3 before shipping the player to your distributor.

Troubleshooting aids are provided throughout this manual and the Schematic Package supplement. The following information is intended to acquaint the service technician with the portions of these documents that contain useful troubleshooting and repair information.

### Assembly and Component Locations

The parts lists in Chapter 5 illustrate the locations of assemblies and components. Printed-circuit board (PCB) illustrations aid in rapidly locating components shown on the corresponding schematic diagram(s).

### Diagrams

The Schematic Package supplement included with this game contains the following:

- Schematic diagrams with component locations, active component type numbers, and electrical values.
- Memory map(s) with address and data information.

### Troubleshooting Procedures

This game will test itself and provide data to aid in localizing troubles to a major circuit. Self-test procedures are provided in Chapter 2. Refer to the following section on Troubleshooting Techniques for a suggested troubleshooting sequence that uses the self-test procedures.

Detailed theory of operation information to aid in locating defective components is provided inside the Schematic Package supplement.

## TROUBLESHOOTING TECHNIQUES

> **WARNING**
>
> To avoid electrical shock, turn off the game power before attempting to troubleshoot this game.

The following troubleshooting steps are arranged in a sequence recommended for locating a defective component. The procedure begins with a check of the simple trouble possibilities and progresses to more extensive procedures for localizing the trouble to an assembly or major circuit, and then to a defective component.

### Check Switch Settings

Incorrect switch settings can sometimes indicate a problem that does not exist. Refer to Chapter 1 to verify that the game has been installed properly and that the switches are set to their correct positions. Check for proper operation in all game-play modes.

### Check Fuses

Check for open fuses. Refer to the Power Supply Assembly Parts List in Chapter 5 and to the Display Manual for the location and rating of each fuse used in this game. Make sure that replacement fuses are the proper type and rating.

### Check Power-Supply Voltages

Improper operation of all circuits usually indicates a power supply problem. Check that the proper line voltage is available to the power supply.

### Localize Trouble

Determine the trouble symptom. Use the wiring diagrams in the Schematic Package supplement to determine which assemblies or major circuits could cause the trouble. Perform the self-test procedure provided in Chapter 2.

### Visual Check

Visually check for obvious problems in the portion of the game where the trouble is suspected. For example, check for loose or defective solder connections, integrated circuits loose in their sockets, loose cable connections, broken wires, and damaged printed-circuit boards or components.

Check Voltages

Check for correct voltages.

Check Individual Components

Check soldered-in passive components (e.g., resistors, capacitors, diodes) by disconnecting one end to isolate the measurement from the effects of the surrounding circuitry. Often, direct substitution is the most practical way to determine if a component is faulty. However, eliminate the possibility of some other circuit problem existing that could damage the substitute component.

Repair the Assembly

CAUTION

Soldered-in transistors and integrated circuits are difficult to remove without damaging the printed-circuit board or component. Refer to the information in this chapter pertaining to soldering and replacing integrated circuits and transistors.

Repair or replace the defective part. Refer to Chapter 3 for special removal and replacement procedures. Check for proper operation of the repaired circuit. Refer to the Schematic Package supplement for applicable adjustment procedures.

## SOLDERING TECHNIQUES

Observe the following recommendations when removing or replacing components soldered to a printed-circuit board (PCB) in this game. Poor soldering practices can damage a PCB or heat-sensitive electrical components.

Choosing the proper soldering iron is essential before attempting to remove or replace soldered-in components. Excessive heat is a common cause of damage to a component or PCB. However, transient voltages from solder guns or improperly grounded soldering irons can also damage certain voltage-sensitive semiconductor devices. Refer to Troubleshooting Discrete Field-Effect Transistors for more specific information.

A 15- to 27-watt pencil-tip soldering iron is recommended to avoid separating the etched circuit wiring from the board material and to avoid damaging active components. A temperature-controlled soldering station rated at 700°F with a fine cone or a very fine chisel tip can also be used.

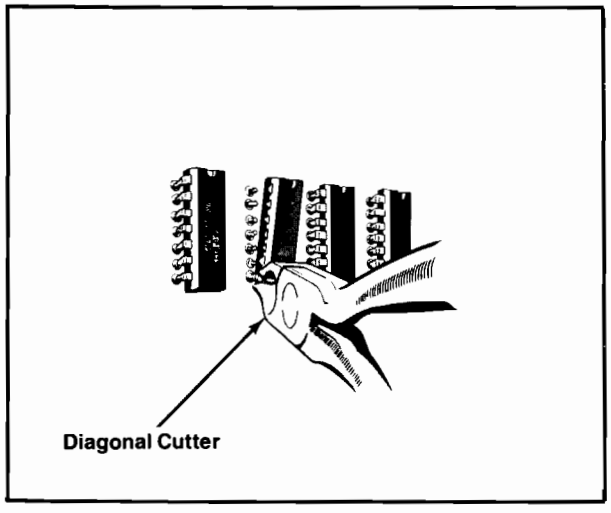



Figure 4-1 Removing ICs (Cut Pin Method)

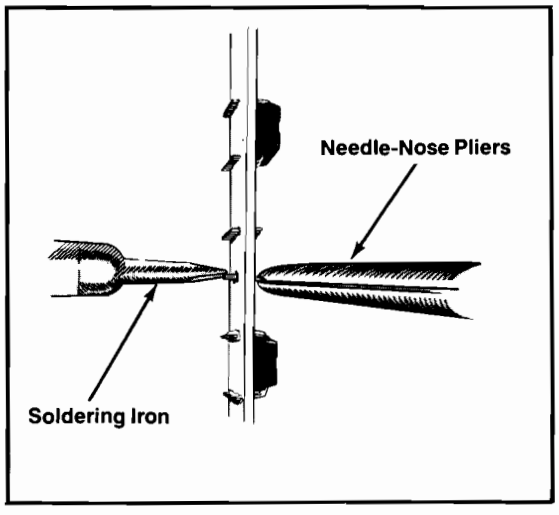



Figure 4-2 Removing IC Pins

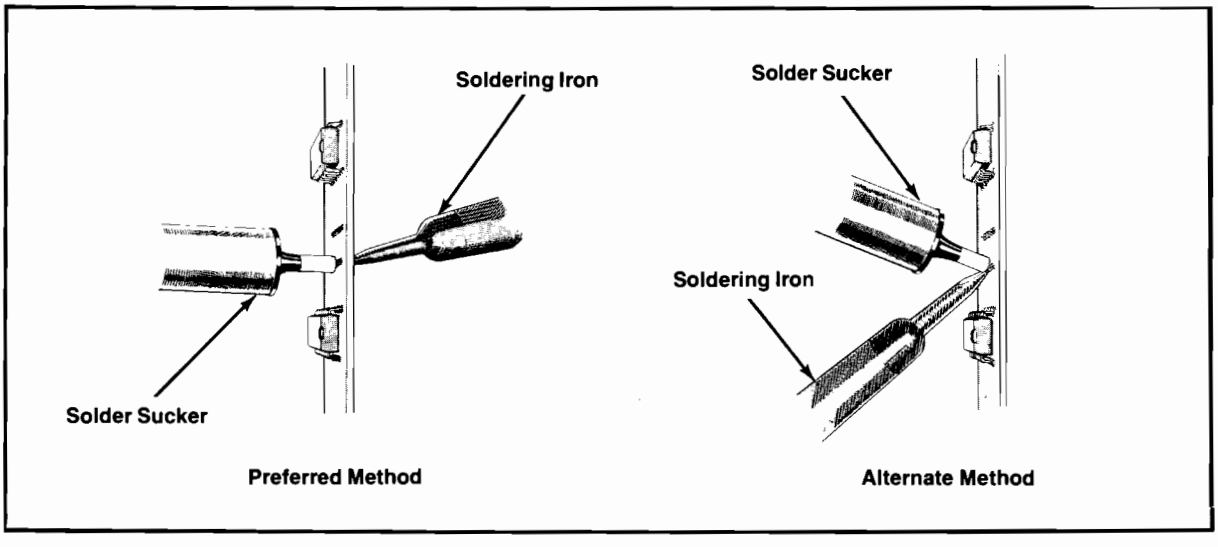



Figure 4-3 Removing Solder from Plated-Through Holes

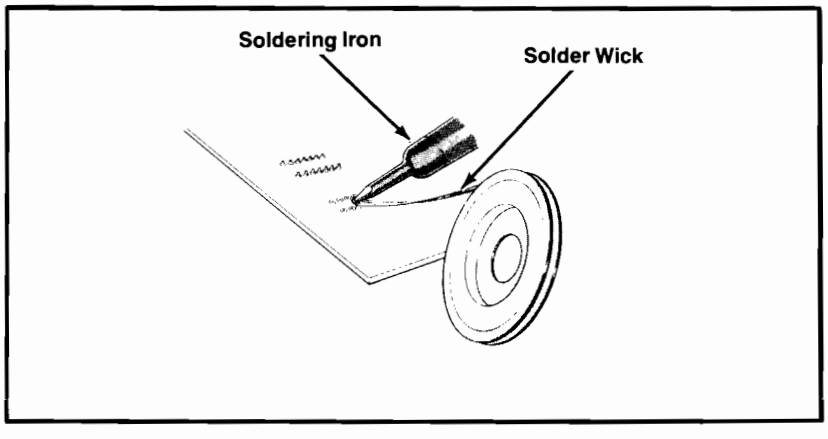



Figure 4-4 Removing Solder from Lead Connection Pads

CAUTION

Solder guns are not recommended for removing or replacing soldered-in components on a PCB. The added possibility for overheating and the large transient voltage induced by the solder gun could cause damage to heat- or voltage-sensitive devices.

The following additional equipment is recommended for removing and replacing soldered-in components:

- Solder Sucker--Hand-operated vacuum tool used to remove liquified solder from the PCB. Top-of-the-line Soldapullt® brand is recommended.
- Solder Wick--Resin-soaked copper braid used for removing excess solder from the lead connections on the PCB. See Removing Integrated Circuits for precautions relating to the use of a solder wick on a multi-layer PCB with plated-through holes.
- Flux Remover--Non-corrosive chemical used to clean foreign material from the PCB before soldering and to remove any flux residue where components have been replaced. Also used to clean any foreign material from the PCB during preventive maintenance. Isopropyl alcohol is recommended.
- Acid Brush--Small stiff-bristled paint or tooth brush used with flux remover to clean flux and other foreign material from the PCB.

## REMOVING INTEGRATED CIRCUITS

The easiest and safest method for removing soldered-in integrated circuits (IC) from a printed-circuit board (PCB) is to cut off each pin as close to the IC case as possible with a tip dyke or diagonal cutter as shown in Figure 4-1.

Use the proper soldering iron as described under Soldering Techniques. Then, to avoid excessive heat buildup in one area of the PCB, apply heat directly to each pin in a random order. Remove the loosened pin with the tip of the soldering iron or a needle-nose pliers as shown in Figure 4-2. Allow a moment for the PCB to cool before proceeding to the next pin. Apply just enough heat to remove any stubborn pins.

For a multi-layer PCB with plated-through holes, use a solder sucker to remove the remaining solder from inside each hole as shown in Figure 4-3. If possible, suck the solder from the opposite side of the PCB from where the heat is applied.

Use a solder wick to remove excess solder from around the lead connection pads on the top and/or bottom surface of the PCB as shown in Figure 4-4.

CAUTION

Do not use a solder wick to remove solder from inside plated-through holes. The heat required for the solder wick to remove the solder from inside the hole could damage the PCB.

## TROUBLESHOOTING STATIC-SENSITIVE DEVICES

Certain precautions must be taken when working with static-sensitive devices,e.g., microprocessors, field-effect transistors (FET), complementary metal-oxide semiconductors (CMOS), and other large-scale integration (LSI) devices that use metal-oxide semiconductor (MOS) technology. Static charge buildup in a person's body or leakage from an improperly grounded soldering iron can cause static-sensitive device failure.

Before handling a static-sensitive device or a PCB with such devices attached to it, ground any static voltage that may have accumulated in your body by touching an object that has been earth grounded. A bare wire wrapped around your wrist and attached to an earth ground is effective when working extensively with static-sensitive devices. When soldering on a static-sensitive device, use a soldering iron with a properly grounded three-wire cord. (Refer to Soldering Techniques for a discussion of recommended soldering irons and procedures.)

A static-sensitive device may appear defective due to leakage on a PCB. Observe the precautions for grounding static voltages described in the preceding paragraph and clean both sides of the PCB with flux remover or an eraser before replacing what may be a good static-sensitive device. For discrete FETs, clean thoroughly between the gate, drain, and source leads.

Static-sensitive devices may be packaged in conductive foam or have a protective shorting wire attached to the pins. Remove the conductive foam just prior to inserting the device in its socket or soldering to a PCB. Remove the shorting wire only after the device is inserted in its socket or after all the leads are soldered in place.

# CHAPTER 5 ILLUSTRATED PARTS LISTS

This chapter provides information you need to order parts for your game. Common hardware (screws, nuts, washers, etc.) has been deleted from most of the parts lists. However, a parts list is included for the hardware to mount the printed-circuit boards (PCBs) to the cabinet.

The PCB parts lists are arranged in alphabetical order by component. Each component subsection is arranged alphanumerically by reference designator.

Other parts lists are arranged alphanumerically by Atari part number. In these parts lists, all A-prefix numbers come first. Following these are numbers in sequence evaluated up to the hyphen, namely 00- through 99-, then 000598- through approximately 201000-.

When ordering parts, please give the part number, part name, number of this manual, and serial number of your game. This will aid in filling your order rapidly and correctly. We hope the results will be less downtime and more profit from your game.

Atari Customer Service numbers are listed on the inside front cover of this manual.

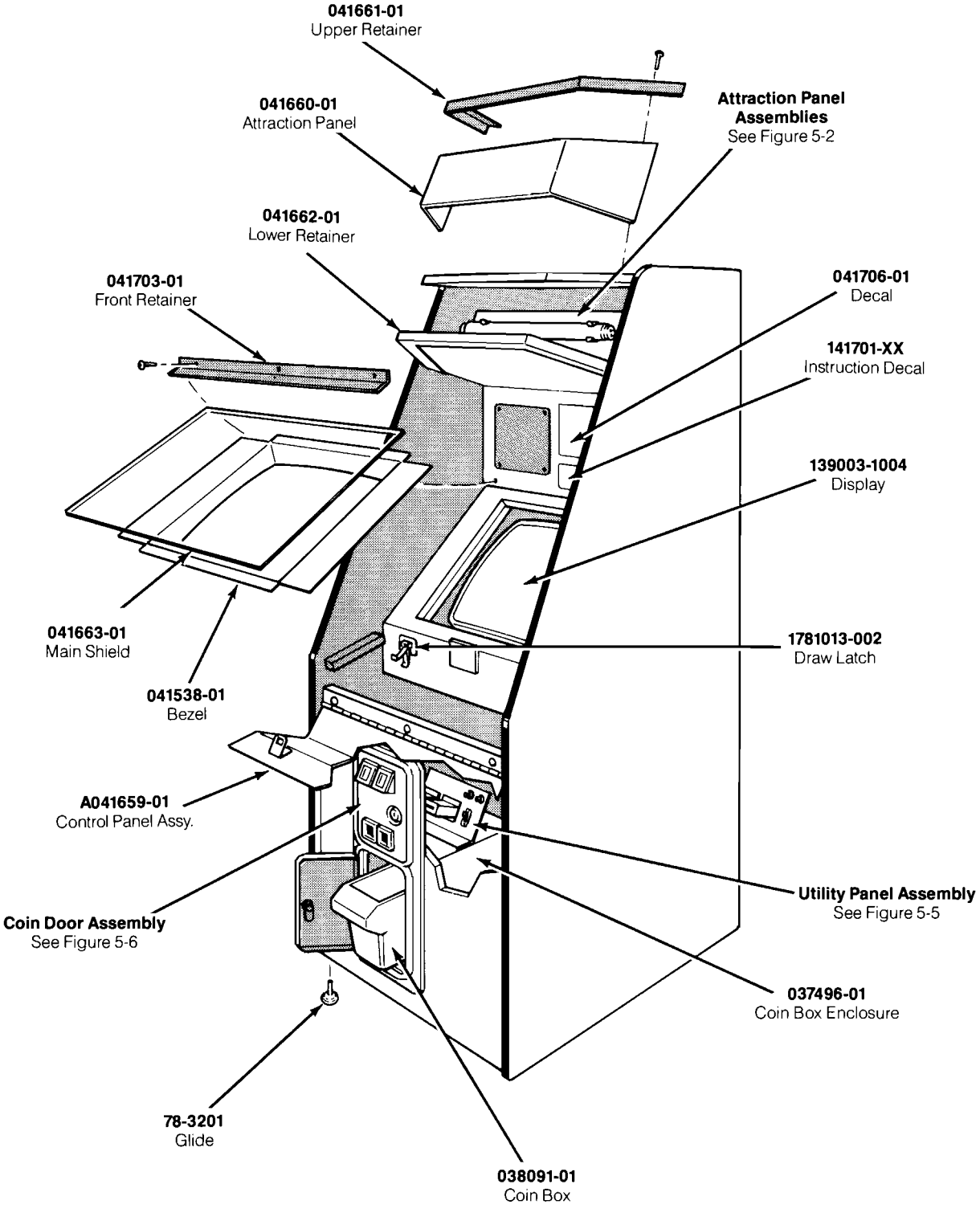



**Figure 5-1 Cabinet-Mounted Assemblies**
**A041650-01 A**

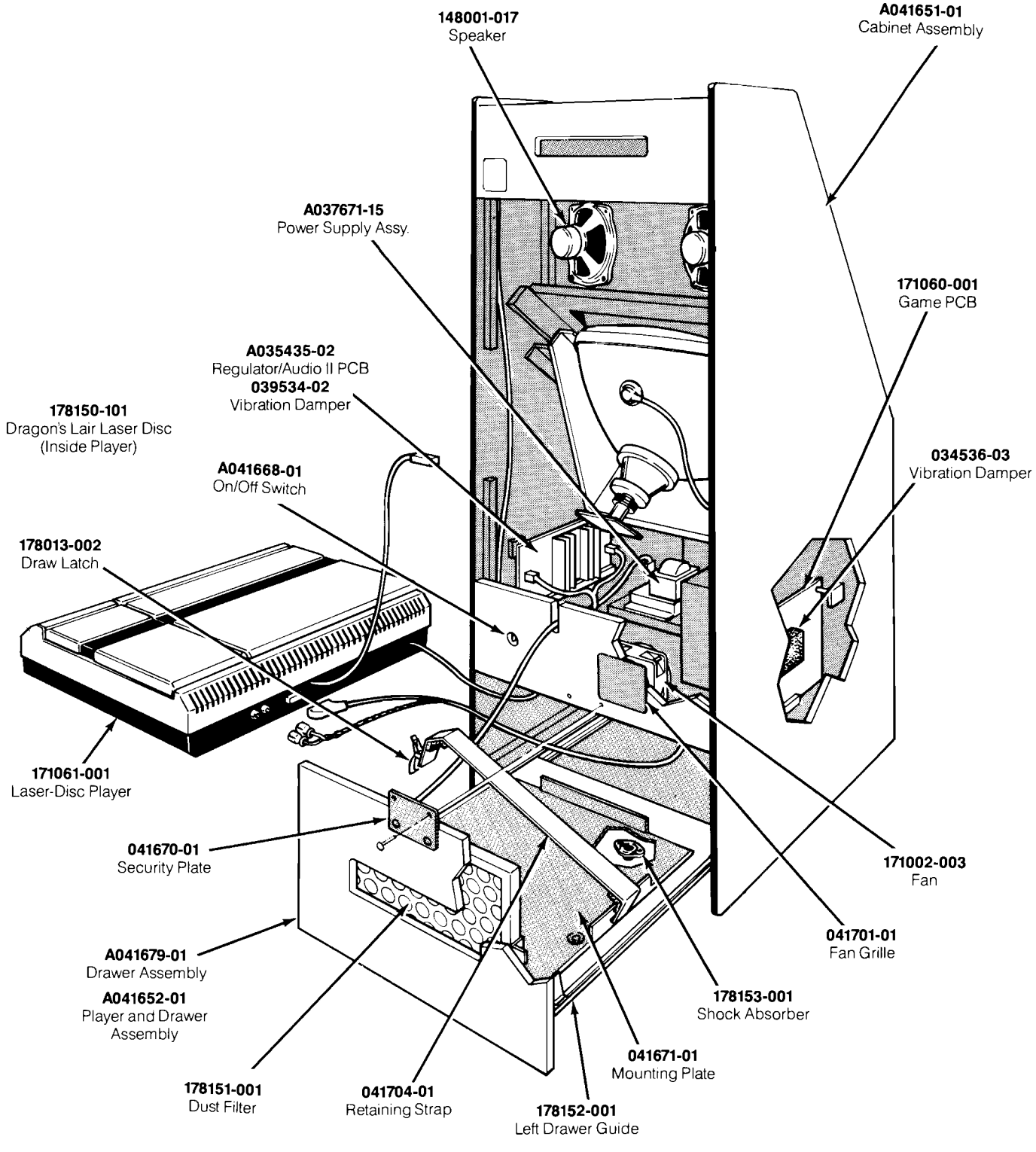



**Figure 5-1 Cabinet-Mounted Assemblies, continued**
**A041650-01 A**

## Cabinet Mounted Assemblies
## A041650-01 A

| Part No. | Description |
|---|---|
| A041651-01 | Cabinet Assembly |
| A041652-01 | Player and Drawer Assembly--includes: |
| A041679-01 | Drawer Assembly |
| 178152-001 | Left Sliding Drawer Guide |
| 178152-002 | Right Sliding Drawer Guide (not shown) |
| 041671-01 | Player Mounting Plate |
| 041704-01 | Disc Player Retaining Strap |
| 171061-101 | Video Disc Player--22VP932/00 (includes video cable) |
| 178013-002 | Draw Latch |
| 178150-001 | Dragon's Lair Laser Disc |
| 178151-001 | Dust Filter |
| 178153-001 | Shock Absorber (three required -- acceptable substitute is part no. 178153-002) |
| A041655-01 | Main Harness (not shown) |
| A041666-01 | On/Off Harness (not shown) |
| A041667-01 | Strain Relief Power Cord Assembly (not shown) |
| A041668-01 | On/Off Switch |
| A041669-01 | Rear Door Assembly (not shown) |
| A041700-01 | Display Video Harness (not shown) |
| 78-6900402 | 1/4-Inch by 1/8-Inch Foam Tape (not shown) |
| 009992-01 | On/Off Switch Cover (not shown) |
| 034536-03 | Foam Vibration Damper |
| 037496-01 | Coin Box Enclosure |
| 038091-01 | Coin Box |
| 039534-02 | 1/2-Inch Thick Foam Vibration Damper |
| 041538-01 | Cardboard Bezel |
| 041660-01 | Upper Attraction Panel |
| 041661-01 | Upper Retainer |
| 041662-01 | Lower Retainer |
| 041663-01 | Main Shield |
| 041670-01 | Drawer Security Plate |
| 041671-01 | Mounting Plate |
| 041672-01 | Display Bracket (not shown) |
| 041673-01 | Power Base Support Bracket (not shown) |
| 041674-01 | Filter Retainer Bracket (not shown) |
| 041693-01 | Display Panel (not shown) |
| 041694-01 | Support Cleat (not shown) |

Cabinet Mounted Assemblies
A041650-01 A

| Part No. | Description |
|---|---|
| 041695-01 | Side Panel Decal (not shown) |
| 041701-01 | Fan Grille |
| 041702-01 | Disc Player Spacer (not shown) |
| 041703-01 | Front Retainer |
| 041704-01 | Disc Player Retaining Strap |
| 041706-01 | Credit Line Decal |
| 139003-1004 | 19-Inch Color Raster Display (Matsushita) |
| 148001-017 | Speaker |
| 171002-003 | Fan |
| 178003-001 | Fan Finger Guard (not shown) |

The following are technical information supplements to this game:

| | |
|---|---|
| TM-256 | Dragon's Lair Operators Manual |
| TM-220 | 19-Inch Color Raster Display Manual (Matsushita) |
| SP-256 | Dragon's Lair Schematic Package |
| 041709-01 | Disc Player Manual (English) (not shown) |
| 041709-02 | Disc Player Manual (German) (not shown) |

Fluorescent Tube Assembly
Parts List

| Part No. | Description |
|---|---|
| A005493-01 | Tube and Speaker Harness Assembly |
| 70-304 | 18-Inch, 15 W, Cool White Fluorescent Tube |
| 99-11002 | 1 1/8-Inch Fluorescent Tube Clamp |
| 99-11003 | Fluorescent Tube Starter |
| 99-11008 | 50 Hz, 118 V, Ballast Transformer |
| 99-11009 | Starter Socket |
| 035835-01 | 12-Inch Y-Lead Connector |
| 041660-01 | Upper Attraction Panel (not shown) |
| 041661-01 | Upper Retainer (not shown) |
| 041662-01 | Lower Retainer (not shown) |
| 041689-01 | Tube Board |

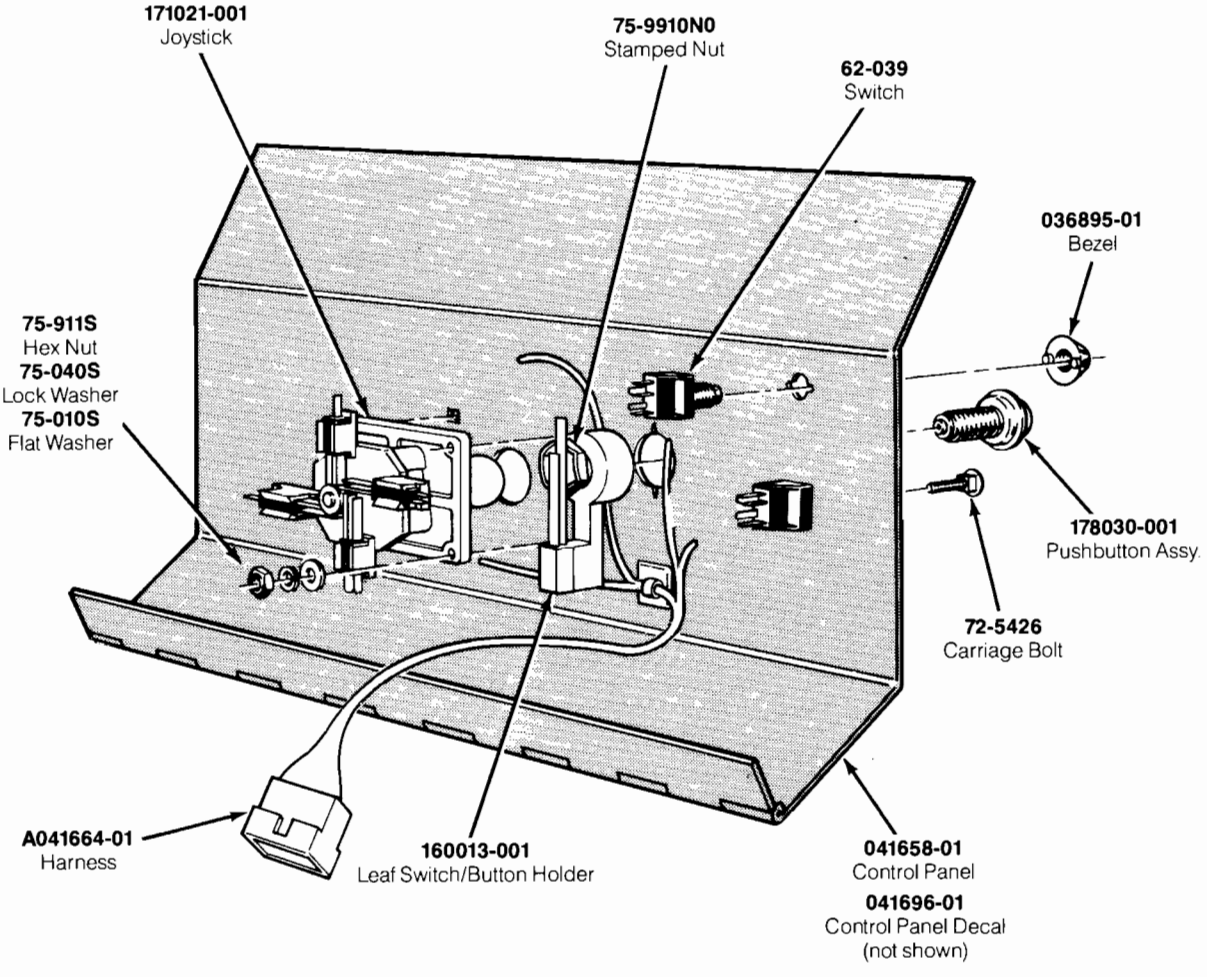



**Figure 5-3 Control Panel Assembly**
**A041656-01 A**

## Control Panel Assembly
## Parts List

| Part No. | Description |
|---|---|
| A041657-01 | Control Panel and Graphics Assembly--includes: |
| 041658-01 | Control Panel |
| 041696-01 | Control Panel Decal |
| A041664-01 | Control Harness |
| 62-039 | Switch |
| 72-5426 | #10 x 3/4-Inch Carriage Bolt |
| 75-9910N0 | Stamped Nut |
| 036895-01 | Bezel |
| 160013-001 | Switch |
| 171021-001 | Joystick |
| 178030-001 | White Pushbutton Assembly |

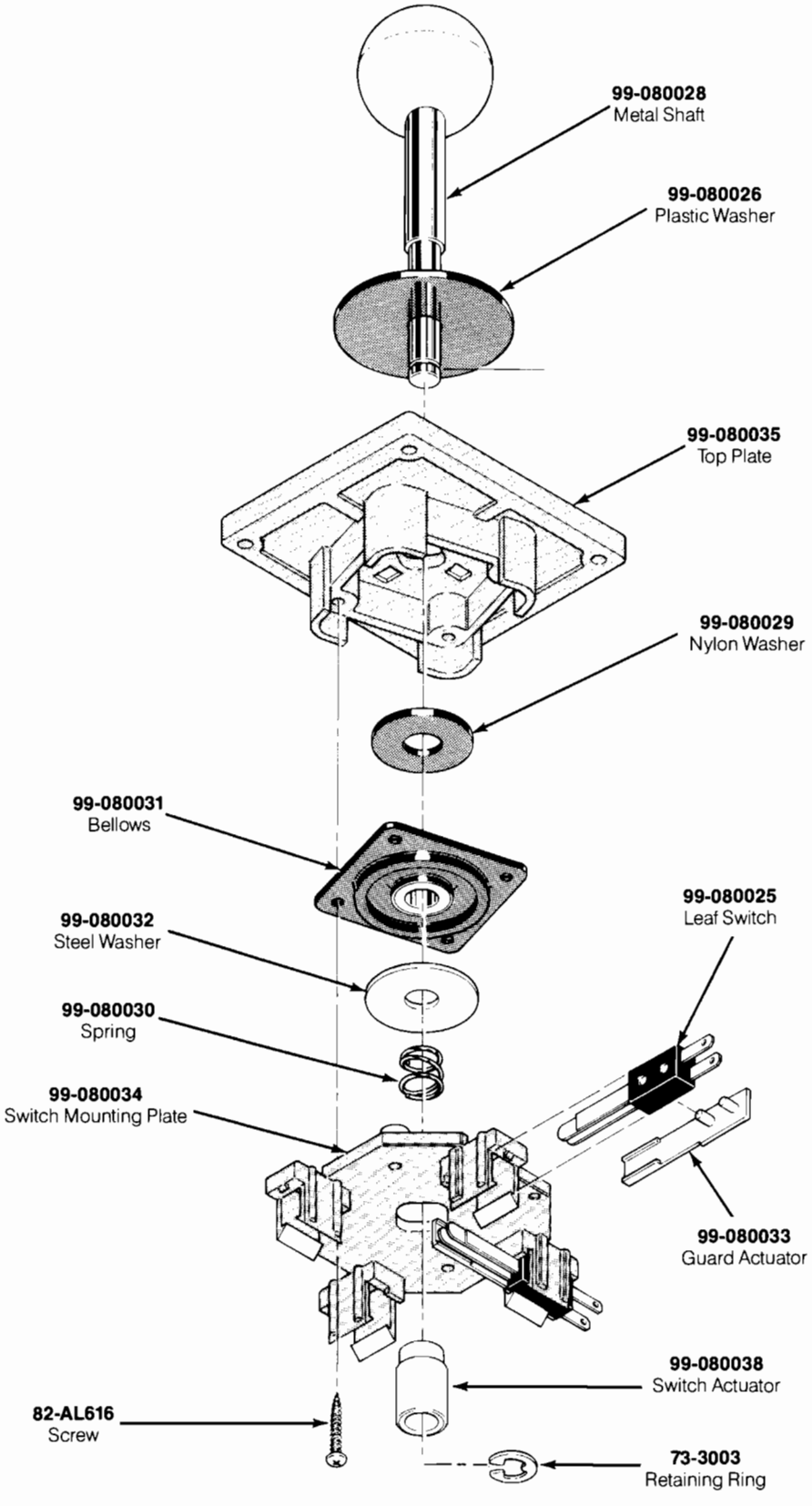



**Figure 5-4 4-Position Joystick Assembly 171021-001**

## 4-Position Joystick Assembly
## Parts List

| Part No. | Description |
|---|---|
| 73-3003 | Retaining Ring |
| 82-AL616 | #6 x 1-Inch Cross-Recessed Pan-Head Type BT Tapping Steel Screw |
| 99-080025 | Leaf Switch |
| 99-080026 | 2-Inch Black Plastic Washer |
| 99-080028 | Metal Shaft |
| 99-080029 | Nylon Washer |
| 99-080030 | Spring |
| 99-080031 | Bellows |
| 99-080032 | Flat Steel Washer |
| 99-080033 | Plastic Guard/Actuator |
| 99-080035 | Top Plate |
| 99-080034 | Switch Mounting Plate |
| 99-080038 | Nylon Switch Actuator |

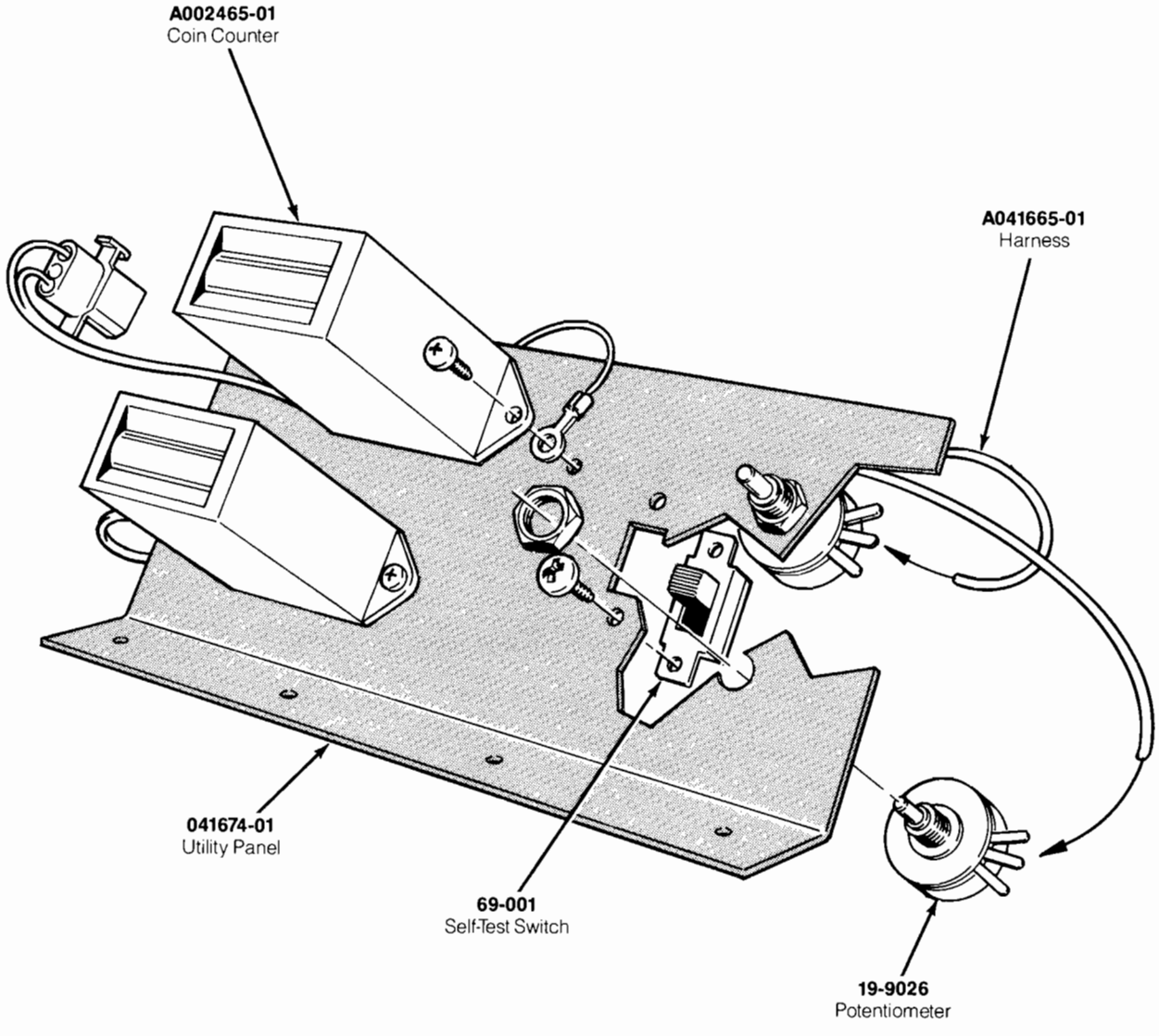



**Figure 5-5 Utility Panel Assembly**
**A041653-01 A**

## Utility Panel Assembly
## Parts List

| Part No. | Description |
|---|---|
| A002465-01 | 10 V Coin Counter |
| A041665-01 | Utility Panel Harness |
| 19-9026 | 5 KΩ Potentiometer with Hex Nut and Locking Washer (Volume Control) Acceptable substitute is part no. 19-9022 |
| 69-001 | Self-Test Switch |
| 041674-01 | Utility Panel |

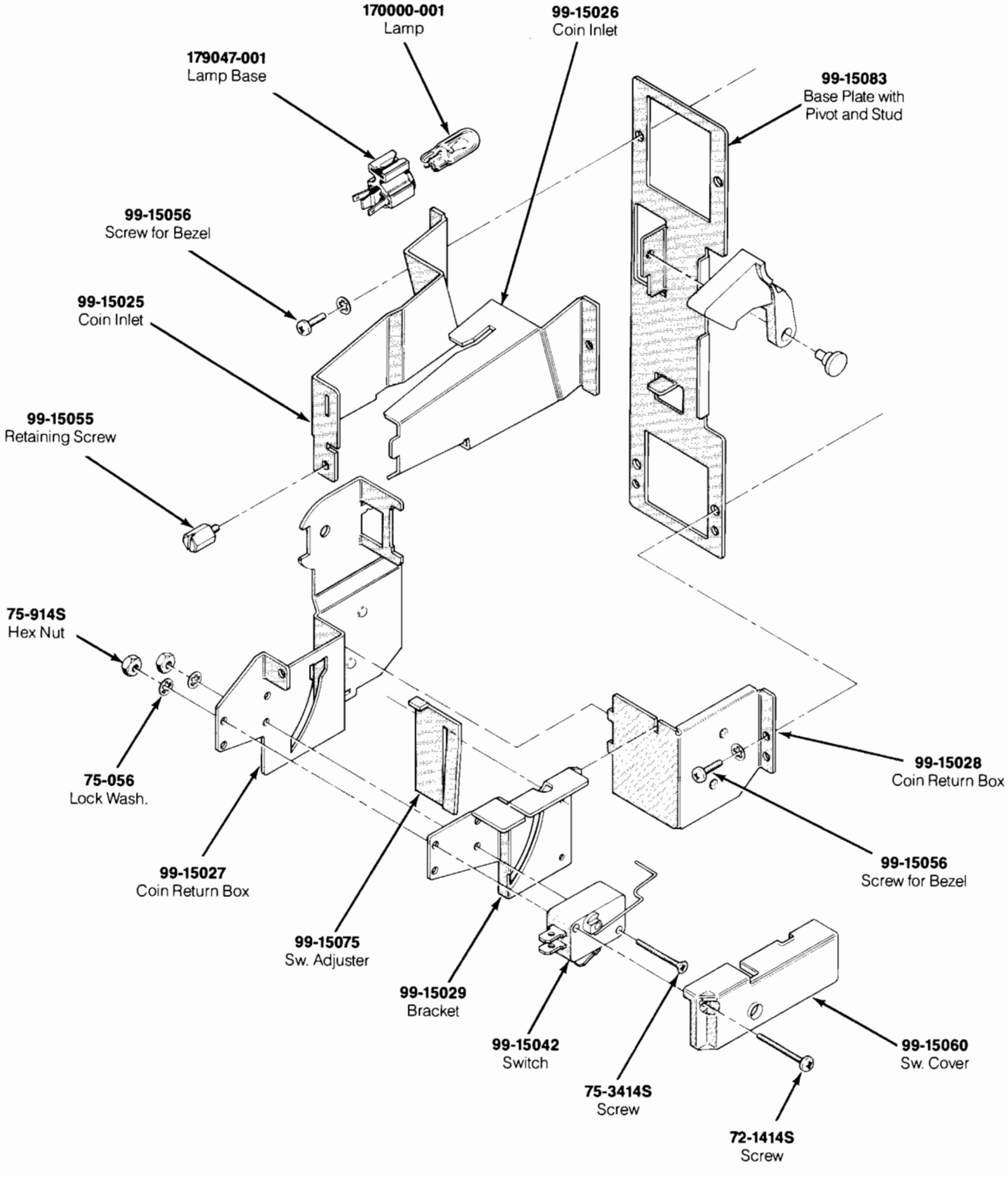



**Figure 5-6 Coin Controls Coin Door**
**171034-xxx A**

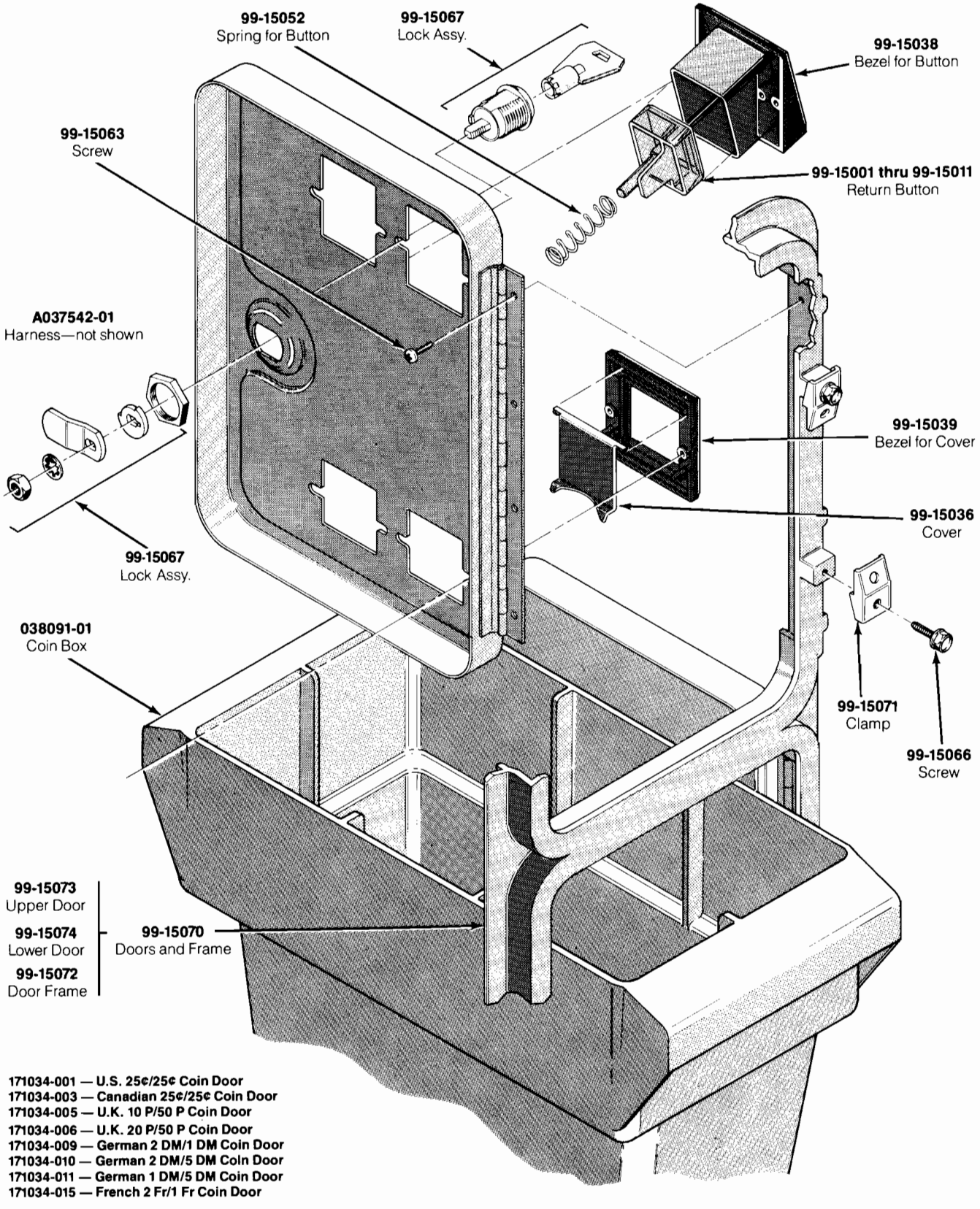



**Figure 5-6 Coin Controls Coin Door, continued**
**171034-xxx A**

## Coin Controls Coin Door Assembly
## Parts List

| Part No. | Description |
|---|---|
| A036597-01 | Harness Assembly (Ireland-Built cabinet only) |
| A037542-01 | Harness Assembly |
| 72-1414S | #4-40 x 7/8-Inch Cross-Recessed Pan-Head Steel Machine Screw |
| 75-056 | #6 Internal-Tooth Zinc-Plated Steel Lock Washer |
| 75-914S | #4-40 Steel Machine Hex Nut |
| 75-3414S | #4-40 x 7/8-Inch 82° Cross-Recessed Flat-Head Steel Machine Screw |
| 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-cent Price Plate |
| 99-15011 | Coin Return Button with Italian 100 Lire 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 |
| 99-15036 | Metal Coin Return Cover |
| 99-15038 | Bezel for Coin Return Button |
| 99-15039 | Metal Bezel for Coin Return Button |
| 99-15052 | Spring for Coin Return Button |
| 99-15055 | Retaining Screw |

Coin Controls Coin Door Assembly, continued
Parts List

| Part No. | Description |
|---|---|
| 99-15056 | #4-40 x 5/16-Inch Cross-Recessed Pan-Head Steel Machine Screw |
| 99-15060 | Switch Cover |
| 99-15063 | Screw for Hinge |
| 99-15066 | Screw for Clamp |
| 99-15067 | Lock Assembly |
| 99-15070 | Doors and Frame |
| 99-15071 | Clamp for Frame |
| 99-15072 | Door Frame |
| 99-15073 | Upper Door |
| 99-15074 | Lower Door |
| 99-15075 | Switch Adjuster |
| 99-15083 | Base Plate--includes: |
| 99-15040 | Lever |
| 99-15054 | Pivot for Lever |
| 99-15023 | Base Plate |
| 038091-01 | Coin Box--not included in assembly (Acceptable substitute is part no. A037491-01) |
| 170000-001 | 6.3 V Miniature Wedge-Base Incandescent Lamp |
| 171006-037 | Metal Coin Mechanism for German 1 DM |
| 171006-038 | Metal Coin Mechanism for German 2 DM |
| 171006-039 | Metal Coin Mechanism for German 5 DM |
| 171006-005 | Metal Coin Mechanism for Belgian 5 Fr |
| 171006-010 | Metal Coin Mechanism for French 1 Fr |
| 171006-018 | Metal Coin Mechanism for Japanese 100 Y |
| 171006-030 | Metal Coin Mechanism for British 10 P |
| 171006-002 | Metal Coin Mechanism for Australian $.20 |
| 171006-015 | Metal Coin Mechanism for Italian 100 L |
| 179047-001 | Lamp Base |

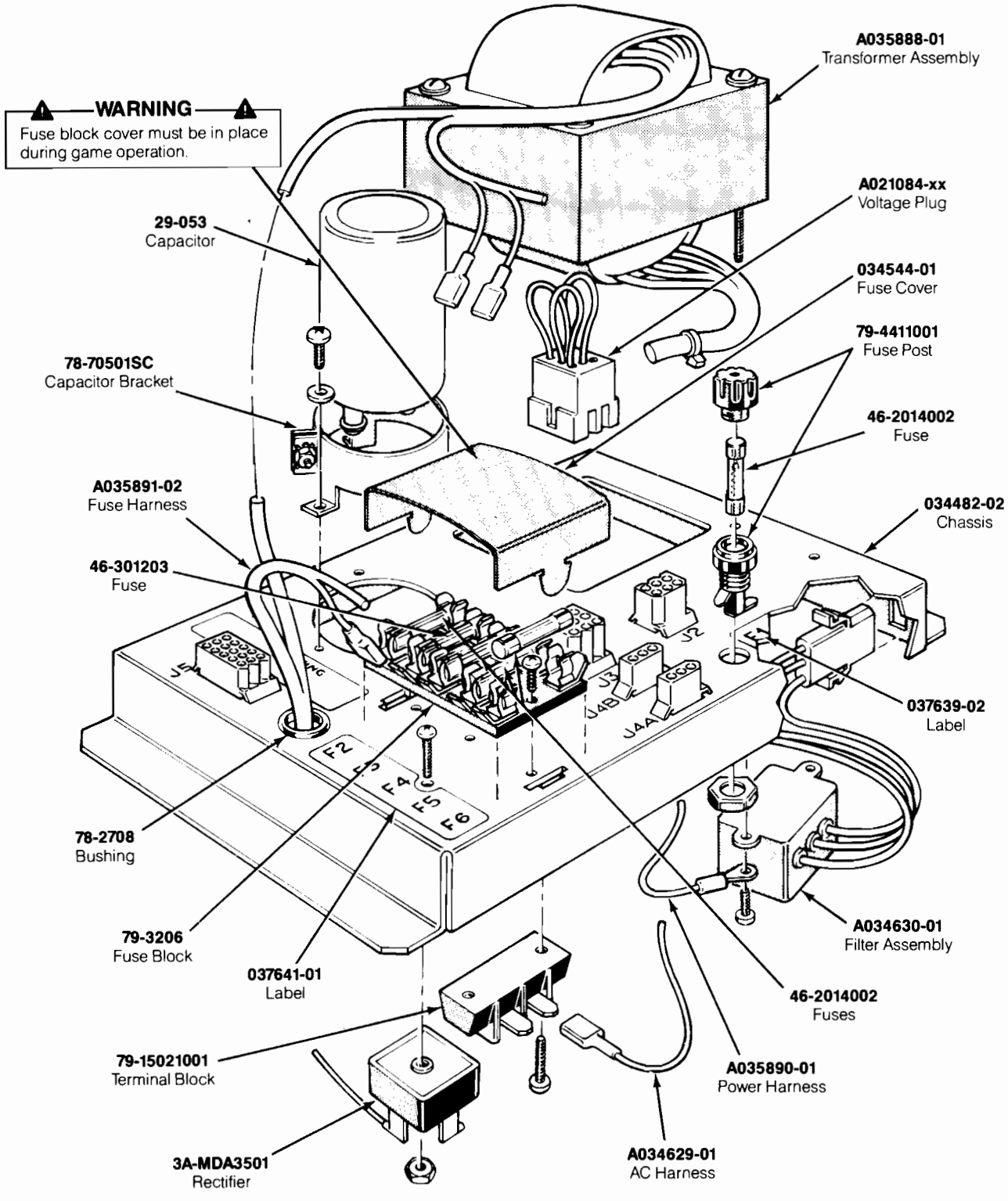



**Figure 5-7 Power Supply Assembly**
**A037671-15 A**

Power Supply Assembly
Parts List

| Designator | Description | Part No. |
|---|---|---|
| J3 | Voltage Block Assembly for 220 V (200--240 VAC) (blue wire color) | A021084-04 |
| J3 | Voltage Block Assembly for 220 V (200--240 VAC) (brown wire color) | A021084-05 |
| F1, F2, F4-F6 | 4 A, 250 V Slow-Blow Glass Cartridge-Type Fuse (Acceptable substitute is part no. 46-2014001) | 46-2014002 |
| F2 -F6 | Label for Fuse Values | 037641-01 |
| F1 | Label for Fuse Value | 037639-02 |
| C1 | 27,000 µF, 15 VDC Electrolytic Capacitor | 29-053 |
| C1 | 2-Inch Diameter Capacitor Mounting Bracket | 78-70501SC |
| CR1 | Type-MDA 3501 Bridge Rectifier | 3A-MDA3501 |
| F1 | Panel-Mounting Non-Indicating 3AG Cartridge-Type Fuse Post | 79-4411001 |
| F2 -F6 | 5-Position 3AG Fuse Block with 1/4-Inch Quick-Disconnect Terminals | 79-3206 |
| F2 -F6 | Fuse Block Cover | 034544-01 |
| F3 | 20 A, 32 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-301203 |
| F4 | 2-Circuit Single-Row Terminal Block | 79-15021001 |
| FL1 | RFI Filter Assembly (designation not marked) | A034630-01 |
| J2 | Power Harness | A035890-01 |
| J4A | AC Harness | A034629-01 |
| T1 | Transformer Assembly (Acceptable substitute is part no. A035888-02) | A035888-01 |
| | Power Supply Chassis Base | 034482-02 |
| | Fuse Harness | A035891-02 |
| | Nylon Type 6/6 Hole Bushing with 5/8-Inch Inside Diameter x 55/64-Inch Outside Diameter x 1/4-Inch Thick | 78-2708 |

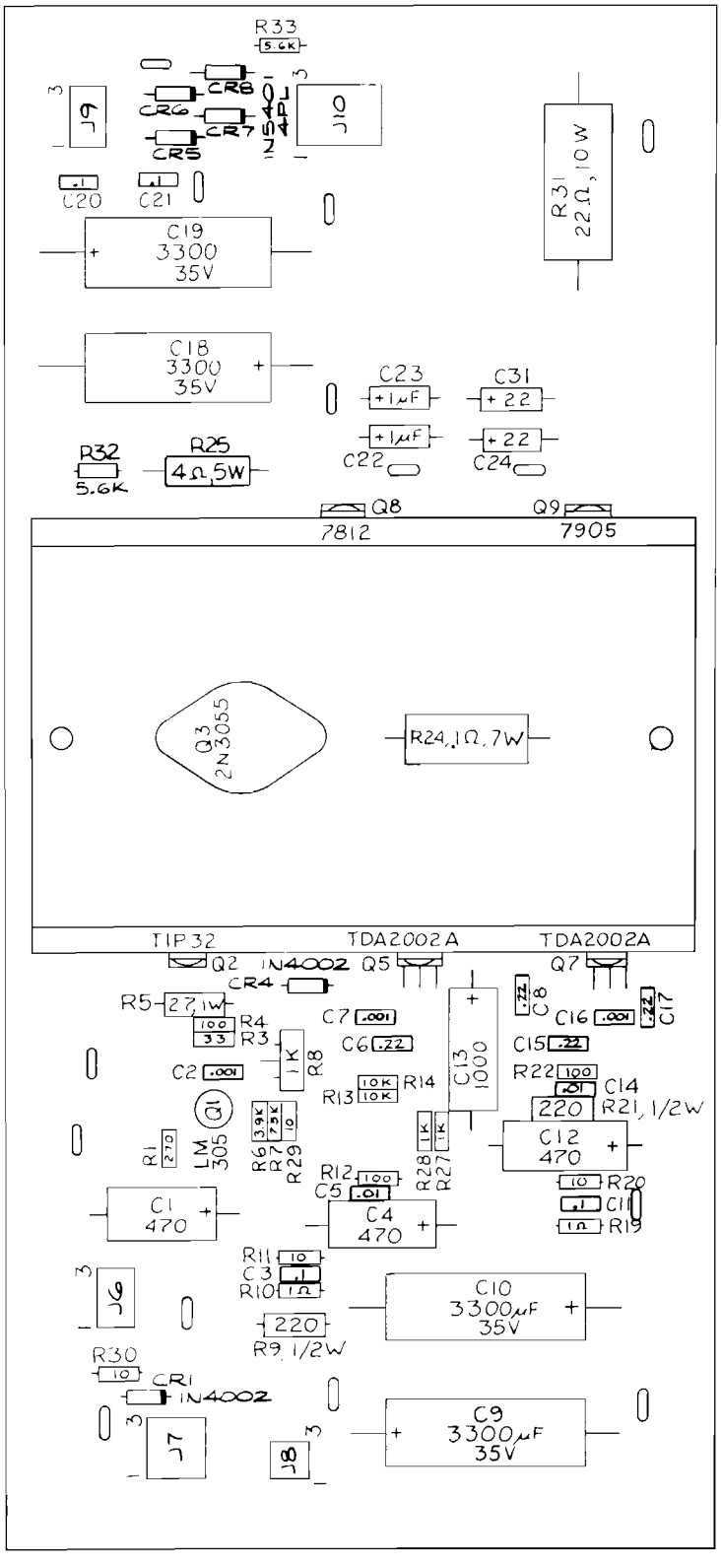



**Figure 5-8 Regulator/Audio II PCB Assembly A035435-02 H**

Regulator/Audio II PCB Assembly
Parts List

| Designator | Description | Part No. |
|---|---|---|
| | **Capacitors** | |
| C1 | 470 µF, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C2 | 0.001 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C3 | 0.1 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122002-104) | 29-088 |
| C4 | 470 µF, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C5 | 0.01 µF, 25 V Minimum, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122005-103) | 100015-103 |
| C6 | 0.22 µF, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C7 | 0.001 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C8 | 0.22 µF, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C9, C10 | 3300 µF, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350338 |
| C11 | 0.1 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122002-104) | 29-088 |
| C12 | 470 µF, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C13 | 1000 µF, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250108 |
| C14 | 0.01 µF, 25 V Minimum, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122005-103) | 100015-103 |
| C15 | 0.22 µF, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C16 | 0.001 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C17 | 0.22 µF, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C18, C19 | 3300 µF, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350338 |
| C20, C21 | 0.1 µF, 50 V, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122002-104) | 29-088 |
| C22, C23 | 1 µF, 50 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-500105 |
| C24 | 22 µF, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350226 |
| C31 | 22 µF, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350226 |

Regulator/Audio II PCB Assembly
Parts List, continued

| Designator | Description | Part No. |
|---|---|---|
| | **Diodes** | |
| CR1 | Type-1N4002, 1 A, 100 V Silicon Rectifier Diode | 31-1N4002 |
| CR4 | Type-1N4002, 1 A, 100 V Silicon Rectifier Diode | 31-1N4002 |
| CR5--CR8 | Type-1N5401, 3 A, 100 V Silicon Rectifier Diode | 31-1N5401 |
| | **Resistors** | |
| R1 | 270 Ω, ±5%, 1/4 W Resistor | 110000-271 |
| R3 | 33 Ω, ±5%, 1/4 W Resistor | 110000-330 |
| R4 | 100 Ω, ±5%, 1/4 W Resistor | 110000-101 |
| R5 | 2.7 Ω, ±5%, 1 W Resistor | 110009-027 |
| R6 | 3.9 kΩ, ±5%, 1/4 W Resistor | 110000-392 |
| R7 | 7.5 kΩ, ±5%, 1/4 W Resistor | 110000-752 |
| R8 | 1 kΩ Vertical PCB-Mounting Cermet Potentiometer | 119002-102 |
| R9 | 220 Ω, ±5%, 1/2 W Resistor | 110001-221 |
| R10 | 1 Ω, ±5%, 1/4 W Resistor | 110000-010 |
| R11 | 10 Ω, ±5%, 1/4 W Resistor | 110000-100 |
| R12 | 100 Ω, ±5%, 1/4 W Resistor | 110000-101 |
| R13, R14 | 10 kΩ, ±5%, 1/4 W Resistor | 110000-103 |
| R19 | 1 Ω, ±5%, 1/4 W Resistor | 110000-010 |
| R20 | 10 Ω, ±5%, 1/4 W Resistor | 110000-100 |
| R21 | 220 Ω, ±5%, 1/2 W Resistor | 110001-221 |
| R22 | 100 Ω, ±5%, 1/4 W Resistor | 110000-101 |
| R24 | 0.1 Ω, ±3%, 7 W Wirewound Resistor | 19-100P1015 |
| R25 | 4 Ω, ±5%, 5 W Wirewound Resistor | 116001-040 |
| R27, R28 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R29, R30 | 10 Ω, ±5%, 1/4 W Resistor | 110000-100 |
| R31 | 22 Ω, ±5%, 10 W Wirewound Resistor | 116000-220 |
| R32, R33 | 5.6 kΩ, ±5%, 1/4 W Resistor | 110000-562 |
| | **Transistors** | |
| Q2 | Type-TIP32 PNP Power Transistor | 33-TIP32 |
| Q3 | Type-2N3055 NPN Silicon Transistor | 34-2N3055 |
| | **Miscellaneous** | |
| J6 | 6-Position Connector Receptacle | 79-58306 |
| J7 | 9-Position Connector Receptacle | 79-58308 |
| J8 | 4-Position Connector Receptacle | 79-58354 |
| J9 | 6-Position Connector Receptacle | 79-58306 |

Regulator/Audio II PCB Assembly
Parts List, continued

| Designator | Description | Part No. |
|---|---|---|
| J10 | 12-Position Connector Receptacle | 79-58346 |
| Q1 | Type-LM305, 5 V, Linear Voltage Regulator | 37-LM305 |
| Q2, Q9 | Thermally Conductive Silicon Insulator | 78-16014 |
| Q3 | Thermally Conductive Silicon Insulator | 78-16008 |
| Q5 | Type-TDA2002A Linear Audio Amplifier | 137151-002 |
| Q7 | Type-TDA2002A Linear Audio Amplifier | 137151-002 |
| Q8 | Type-7812, +12 V, Voltage Regulator | 37-7812 |
| Q9 | Type-7905, -5 V, Voltage Regulator | 37-7905 |
| | Heat Sink | 034531-01 |
| | Test Point (Acceptable substitute is part no. 179051-001) | 179051-002 |

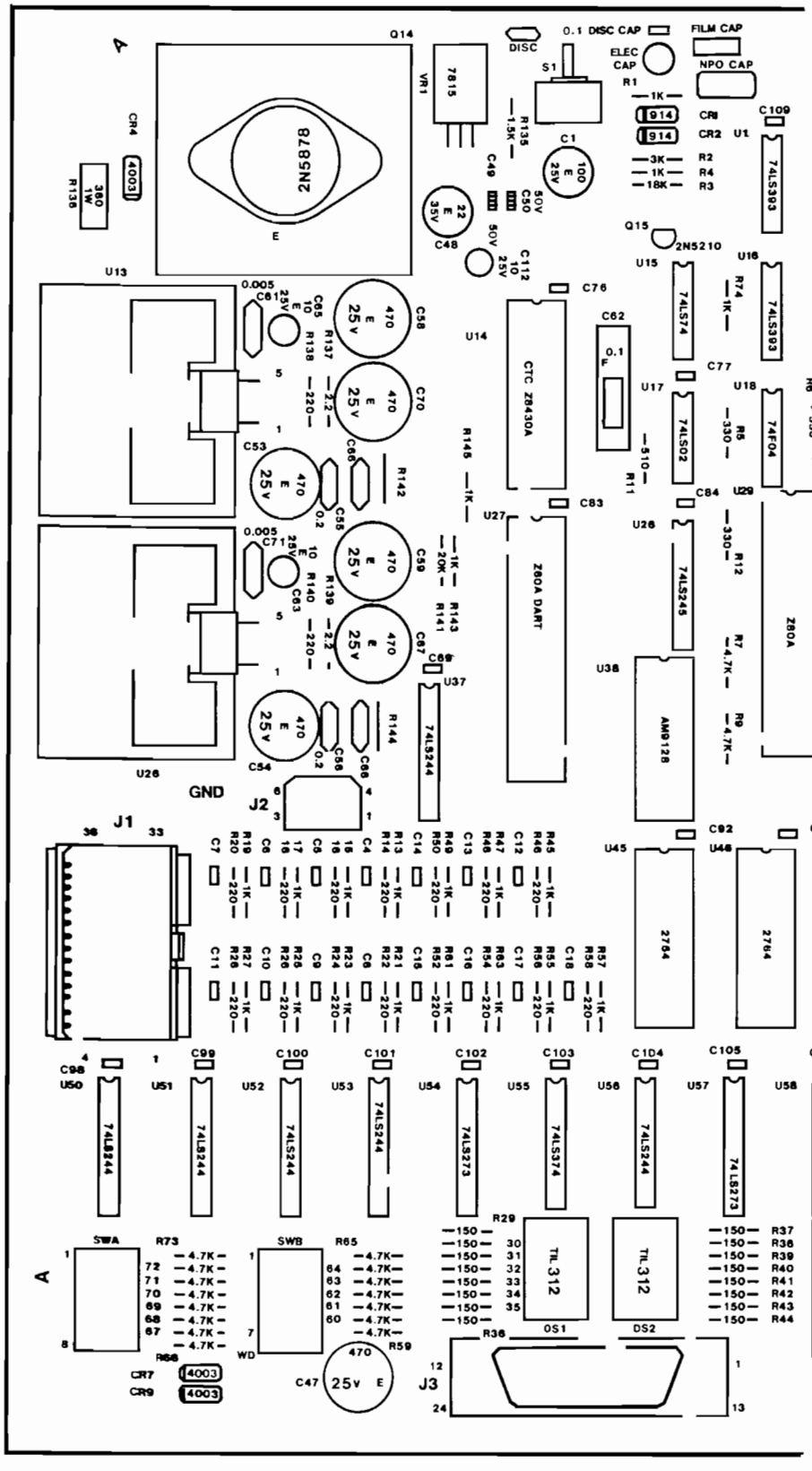



**Figure 5-9 Game PCB Assembly**

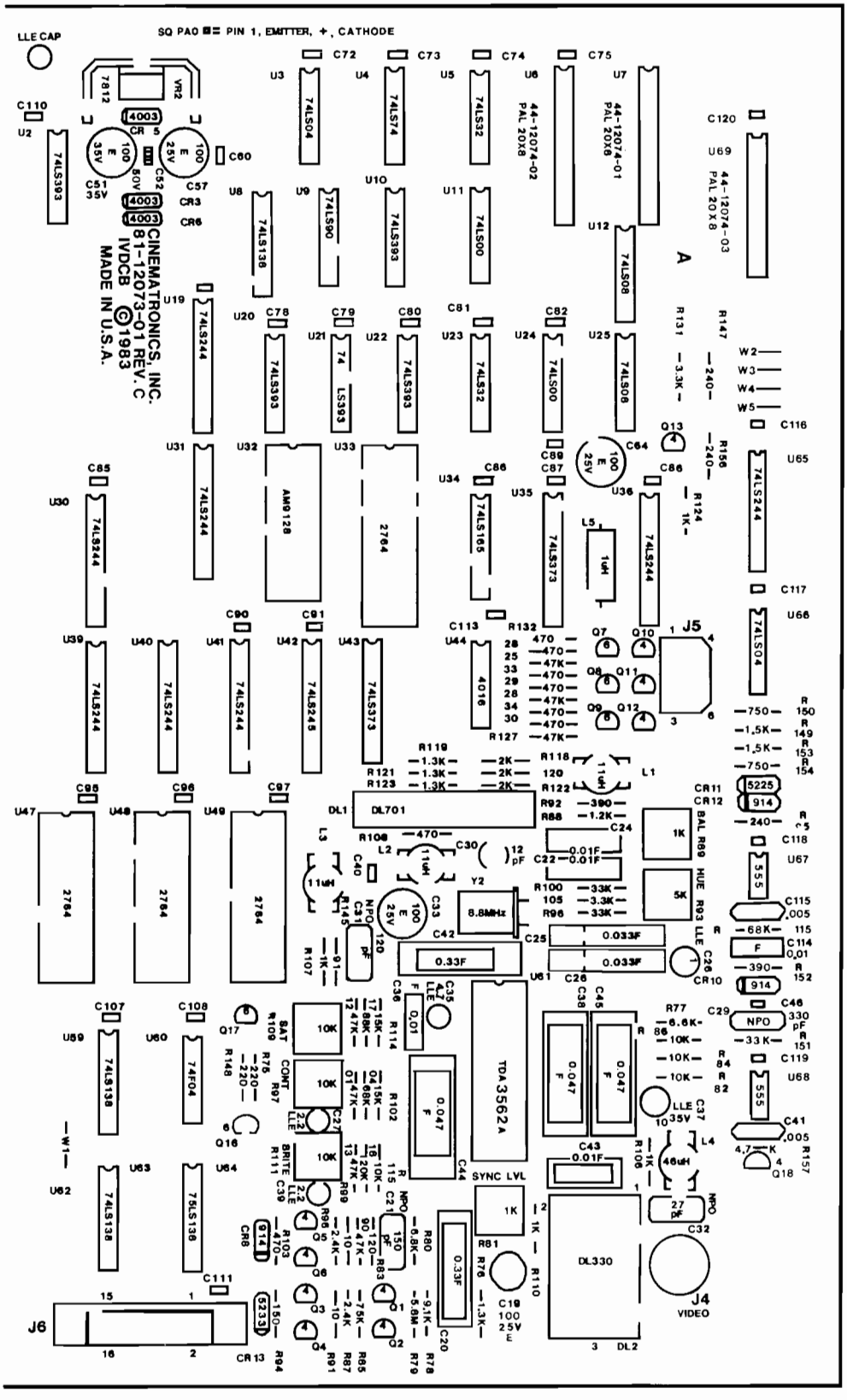



**Figure 5-9 Game PCB Assembly, continued**

Dragon's Lair PCB Assembly
171060-101 Rev A

| Designator | Description | Part Number |
|---|---|---|
| | **Capacitors** | |
| C1 | 100 µF, 25 V Radial-Lead Electrolytic Capacitor | 123003-107 |
| C2 | 680 pF, ±20%, 50 V Ceramic Disk Capacitor | 121020-681 |
| C3 | 470 pF, ±20%, 50 V Ceramic Disc Capacitor | 121020-471 |
| C4-C18 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C19 | 100 µF, 16 V Radial-Lead Electrolytic Capacitor | 123004-101 |
| C20 | 0.33 µF, 100 V Film Capacitor | 99-201004 |
| C21 | 150 pF, ±5%, NPO Film Capacitor | 122016-151 |
| C22 | 0.01 µF, 100 V Film Capacitor | 125000-103 |
| C24 | 0.01 µF, 100 V Film Capacitor | 125000-103 |
| C25 | 0.033 µF, 250 V Film Capacitor | 99-201005 |
| C26 | 1 µF, 16 V Electrolytic Capacitor | 123001-105 |
| C27 | 2.2 µF, 50 V Electrolytic Capacitor | 24-500225 |
| C28 | 0.033 µF, 250 V Film Capacitor | 99-201005 |
| C29 | 330 pF, ±5% NPO Capacitor | 122016-331 |
| C30 | 12 pF, Ver. Adj. Capacitor | 128002-120 |
| C31 | 120 pF, ±5%, NPO Film Capacitor | 122016-121 |
| C32 | 27 pF, ±5%, NPO Film Capacitor | 122016-270 |
| C33 | 100 µF, 25 V Radial-Lead Electrolytic Capacitor | 123003-107 |
| C35 | 4.7 µF, 35 V Radial-Lead Electrolytic Capacitor | 123000-475 |
| C36 | 0.01 µF, 100 V Film Capacitor | 125000-103 |
| C37 | 10 µF, 35 V LLE Capacitor | 24-350106 |
| C38 | 0.047 µF, 100 V Film Capacitor | 21-101473 |
| C39 | 2.2 µF, 50 V Electrolytic Capacitor | 24-500225 |
| C40 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C41 | 0.005 µF, 50 V Capacitor | 122015-472 |
| C42 | 0.33 µF, 100 V Film Capacitor | 99-201004 |
| C43 | 0.01 µF, 100 V Film Capacitor | 125000-103 |
| C44, C45 | 0.047 µF, 100 V Film Capacitor | 21-101473 |
| C46 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C47 | 470 µF, 25 V Electrolytic Capacitor | 24-250477 |
| C48 | 22 µF, 35 V Electrolytic Capacitor | 24-350226 |
| C49 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C50 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C51 | 100 µF, 25 V Radial-Lead Electrolytic Capacitor | 123003-107 |
| C52 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C53, C54 | 470 µF, 25 V Electrolytic Capacitor | 24-250477 |
| C55 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C56 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |

| | | |
|---|---|---|
| C57 | 100 µF, 25 V Radial-Lead Electrolytic Capacitor | 123003-107 |
| C58, C59 | 470 µF, 25 V Electrolytic Capacitor | 24-250477 |
| C60 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C61 | 0.005 µF, 50 V Capacitor | 122015-472 |
| C62 | 0.1 µF, 100 V Film Capacitor | 126000-104 |
| C63 | 10 µF, 25 V Electrolytic Capacitor | 24-250106 |
| C64 | 100 µF, 25 V Radial-Lead Electrolytic Capacitor | 123003-107 |
| C65 | 10 µF, 25 V Electrolytic Capacitor | 24-250106 |
| C66 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C67 | 470 µF, 25 V Electrolytic Capacitor | 24-250477 |
| C68, C69 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C70 | 470 µF, 25 V Electrolytic Capacitor | 24-250477 |
| C71 | 0.005 µF, 50 V Capacitor | 122015-472 |
| C72-C93 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C95-C111 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |
| C112 | 10 µF, 25 V Electrolytic Capacitor | 24-250106 |
| C114 | 0.01 µF, 100 V Film Capacitor | 125000-103 |
| C115 | 0.005 µF, 50 V Capacitor | 122015-472 |
| C116-C119 | 1 µF, ±20%, 50 V Ceramic Disc Capacitor | 122002-104 |

## Diodes

| | | |
|---|---|---|
| CR1, CR2 | Type-1N914 Diode | 31-1N914 |
| CR3-CR7 | Type-1N4003 ENCPL | 99-201001 |
| CR8 | Type-1N914 Diode | 31-1N914 |
| CR9 | Type-1N4003 ENCPL | 99-201001 |
| CR10 | Type-1N914 Diode | 31-1N914 |
| CR11 | Type-IN5225 Diode | 99-201002 |
| CR12 | Type-1N914 Diode | 31-1N914 |
| CR13 | Type-IN5233 6 V Diode | 99-201003 |
| DS1, DS2 | Type-TIL312 Diode | 38-MAN71A |

## Inductors

| | | |
|---|---|---|
| L1, L2 | 11 µH Adj. Choke | 99-201008 |
| L3 | 11 µH C.T. Bifalar Adj. | 99-201010 |
| L4 | 46 µH Adj. Choke | 99-201006 |
| L5 | 1 µH Choke | 141006-09 |

## Integrated Circuits

| | | |
|---|---|---|
| U1, U2 | Type-74LS393 Integrated Circuit | 37-74LS393 |
| U3 | Type-74LS04 Integrated Circuit | 37-74LS04 |
| U4 | Type-74LS74 Integrated Circuit | 37-LS74 |
| U5 | Type-74LS32 Integrated Circuit | 37-74LS32 |

| | | |
|---|---|---|
| U6 | 20 x 8 PAL Integrated Circuit (Vertical) | 99-201019 |
| U7 | 20 x 8 PAL Integrated Circuit (Horizontal) | 99-201018 |
| U8 | Type-74LS138 Integrated Circuit | 137177-001 |
| U9 | Type-74LS90 Integrated Circuit | 37-74LS90 |
| U10 | Type-74LS393 Integrated Circuit | 37-74LS393 |
| U11 | Type-74LS00 Integrated Circuit | 37-74LS00 |
| U12 | Type-74LS08 Integrated Circuit | 37-74LS08 |
| U13 | Type-CA2002 Integrated Circuit | 137151-002 |
| U14 | CTCZ8430A Integrated Circuit | 99-201014 |
| U15 | Type-74LS74 Integrated Circuit | 37-LS74 |
| U16 | Type-74LS393 Integrated Circuit | 37-74LS393 |
| U17 | Type-74LS02 Integrated Circuit | 37-74LS02 |
| U18 | Type-74F04 Integrated Circuit | 99-201017 |
| U19 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U20-22 | Type-74LS393 Integrated Circuit | 37-74LS393 |
| U23 | Type-74LS32 Integrated Circuit | 37-74LS32 |
| U24 | Type-74LS00 Integrated Circuit | 37-74LS00 |
| U25 | Type-74LS08 Integrated Circuit | 37-74LS08 |
| U26 | Type-CA2002 Integrated Circuit | 137151-002 |
| U27 | Type-Z8470 DART Integrated Circuit | 99-201016 |
| U28 | Type-74LS245 Integrated Circuit | 37-74LS245 |
| U29 | Type-Z80A (4 MHz) Microprocessor | 137194-001 |
| U30, U31 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U32 | Type-AM9128 Integrated Circuit | 137348-003 |
| U33 | Type-2764 Integrated Circuit | 99-201021 |
| U34 | Type-74LS165 Integrated Circuit | 37-74LS165 |
| U35 | Type-74LS373 Integrated Circuit | 37-74LS373 |
| U36, U37 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U38 | Type-AM9128 Integrated Circuit | 137348-003 |
| U39-U41 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U42 | Type-74LS245 Integrated Circuit | 37-74LS245 |
| U43 | Type-74LS373 Integrated Circuit | 37-74LS373 |
| U44 | MC14016B Integrated Circuit | 37-4016 |
| U45 | Type-2764 Integrated Circuit | 99-201022 |
| U46 | Type-2764 Integrated Circuit | 99-201023 |
| U47 | Type-2764 Integrated Circuit | 99-201024 |
| U48 | Type-2764 Integrated Circuit | 99-201025 |
| U49 | Type-2764 Integrated Circuit | 99-201026 |
| U50-U53 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U54 | Type-74LS273 Integrated Circuit | 37-74LS273 |
| U57, U58 | Type-74LS273 Integrated Circuit | 37-74LS273 |
| U59 | Type-74LS138 Integrated Circuit | 137177-001 |
| U60 | Type-74F04 Integrated Circuit | 99-201017 |
| U61 | TDA3562A Integrated Circuit | 99-201015 |

| | | |
|---|---|---|
| U63, U64 | Type-74LS138 Integrated Circuit | 137177-001 |
| U65 | Type-74LS244 Integrated Circuit | 37-74LS244 |
| U66 | Type-74LS04 Integrated Circuit | 37-74LS04 |
| U67, U68 | Type-LM555 Integrated Circuit | 37-555 |
| U69 | 20 x 8 PAL Burst Gate Integrated Circuit | 99-201020 |
| VR1 | Type-LM7815 Integrated Circuit | 37-LM7815 |
| VR2 | Type-LM7812 Integrated Circuit | 37-7812 |

Resistors

| | | |
|---|---|---|
| R1 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R2 | 3 kΩ, ±5%, 1/4 W Resistor | 110000-302 |
| R3 | 18 kΩ, ±5%, 1/4 W Resistor | 110000-183 |
| R4 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R5, R6 | 330 Ω, ±5%, 1/4 W Resistor | 110000-331 |
| R7-R10 | 4.7 kΩ, ±5%, 1/4 W Resistor | 110000-472 |
| R11 | 510 Ω, ±5%, 1/4 W Resistor | 110000-511 |
| R12 | 330 Ω, ±5%, 1/4 W Resistor | 110000-331 |
| R13 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R14 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R15 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R16 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R17 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R18 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R19 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R20 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R21 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R22 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R23 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R24 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R25 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R26 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R27 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R28 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R29-R44 | 150 Ω, ±5%, 1/4 W Resistor | 110000-151 |
| R45 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R46 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R47 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R48 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R49 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R50 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R51 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R52 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R53 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |

| | | |
|---|---|---|
| R54 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R55 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R56 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R57 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R58 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R59-R73 | 4.7 kΩ, ±5%, 1/4 W Resistor | 110000-472 |
| R75 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R76 | 1.3 kΩ, ±5%, 1/4 W Resistor | 110000-132 |
| R77 | 6.8 kΩ, ±5%, 1/4 W Resistor | 110000-682 |
| R78 | 9.1 kΩ, ±5%, 1/4 W Resistor | 110000-912 |
| R79 | 5.6 MΩ, ±5%, 1/4 W Resistor | 110000-565 |
| R80 | 6.8 kΩ, ±5%, 1/4 W Resistor | 110000-682 |
| R81 | 1 kΩ Trimming Potentiometer | 119002-102 |
| R82 | 10 kΩ, ±5%, 1/4 W Resistor | 110000-103 |
| R83 | 120 Ω, ±5%, 1/4 W Resistor | 110000-121 |
| R84 | 10 kΩ, ±5%, 1/4 W Resistor | 110000-103 |
| R85 | 75 kΩ, ±5%, 1/4 W Resistor | 110000-753 |
| R86 | 10 kΩ, ±5%, 1/4 W Resistor | 110000-103 |
| R87 | 2.4 kΩ, ±5%, 1/4 W Resistor | 110000-242 |
| R88 | 1.2 kΩ, ±5%, 1/4 W Resistor | 110000-122 |
| R89 | 1 kΩ Trimming Potentiometer | 119002-102 |
| R90 | 47 kΩ, ±5%, 1/4 W Resistor | 110000-473 |
| R91 | 10 Ω, ±5%, 1/4 W Resistor | 110000-100 |
| R92 | 390 Ω, ±5%, 1/4 W Resistor | 110000-391 |
| R93 | 5 kΩ T.G. Potentiometer | 119002-502 |
| R94 | 150 Ω, ±5%, 1/4 W Resistor | 110000-151 |
| R95 | 240 Ω, ±5%, 1/4 W Resistor | 110000-241 |
| R96 | 2.4 kΩ, ±5%, 1/4 W Resistor | 110000-242 |
| R97 | 10 kΩ Trimming Potentiometer | 119002-103 |
| R98 | 33 kΩ, ±5%, 1/4 W Resistor | 110000-333 |
| R99 | 10 Ω, ±5%, 1/4 W Resistor | 110000-100 |
| R100 | 33 kΩ, ±5%, 1/4 W Resistor | 110000-333 |
| R101 | 47 kΩ, ±5%, 1/4 W Resistor | 110000-473 |
| R102 | 15 kΩ, ±5%, 1/4 W Resistor | 110000-153 |
| R103 | 470 Ω, ±5%, 1/4 W Resistor | 110000-471 |
| R104 | 68 kΩ, ±5%, 1/4 W Resistor | 110000-683 |
| R105 | 3.3 kΩ, ±5%, 1/4 W Resistor | 110000-332 |
| R106, R107 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R108 | 470 Ω, ±5%, 1/4 W Resistor | 110000-471 |
| R109 | 10 kΩ Trimming Potentiometer | 119002-103 |
| R110 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R111 | 10 kΩ Trimming Potentiometer | 119002-103 |
| R112, R113 | 47 kΩ, ±5%, 1/4 W Resistor | 110000-473 |

| | | |
|---|---|---|
| R114 | 15 kΩ, ±5%, 1/4 W Resistor | 110000-153 |
| R115 | 10 kΩ, ±5%, 1/4 W Resistor | 110000-103 |
| R116 | 120 kΩ, ±5%, 1/4 W Resistor | 110000-124 |
| R117 | 68 kΩ, ±5%, 1/4 W Resistor | 110000-683 |
| R118 | 2 kΩ, ±5%, 1/4 W Resistor | 110000-202 |
| R119 | 1.3 kΩ, ±5%, 1/4 W Resistor | 110000-132 |
| R120 | 2 kΩ, ±5%, 1/4 W Resistor | 110000-202 |
| R121 | 1.3 kΩ, ±5%, 1/4 W Resistor | 110000-132 |
| R122 | 2 kΩ, ±5%, 1/4 W Resistor | 110000-202 |
| R123 | 1.3 kΩ, ±5%, 1/4 W Resistor | 110000-132 |
| R124 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R125-R127 | 47 kΩ, ±5%, 1/4 W Resistor | 110000-473 |
| R128-R130 | 470 Ω, ±5%, 1/4 W Resistor | 110000-471 |
| R131 | 3.3 kΩ, ±5%, 1/4 W Resistor | 110000-332 |
| R132-R134 | 470 Ω, ±5%, 1/4 W Resistor | 110000-471 |
| R135 | 1.5 kΩ, ±5%, 1/4 W Resistor | 110000-152 |
| R136 | 360 Ω, ±5%, 1/4 W Resistor | 110000-361 |
| R137 | 2.2 Ω, ±5%, 1/4 W Resistor | 110000-022 |
| R138 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R139 | 2.2 Ω, ±5%, 1/4 W Resistor | 110000-022 |
| R140 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R141 | 20 kΩ, ±5%, 1/4 W Resistor | 110000-203 |
| R143 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R145 | 91 Ω, ±5%, 1/4 W Resistor | 110000-910 |
| R146 | 1 kΩ, ±5%, 1/4 W Resistor | 110000-102 |
| R147 | 240 Ω, ±5%, 1/4 W Resistor | 110000-241 |
| R148 | 220 Ω, ±5%, 1/4 W Resistor | 110000-221 |
| R149 | 1.5 kΩ, ±5%, 1/4 W Resistor | 110000-152 |
| R150 | 750 Ω, ±5%, 1/4 W Resistor | 110000-751 |
| R151 | 33 kΩ, ±5%, 1/4 W Resistor | 110000-333 |
| R152 | 390 Ω, ±5%, 1/4 W Resistor | 110000-391 |
| R153 | 1.5 kΩ, ±5%, 1/4 W Resistor | 110000-152 |
| R154 | 750 Ω, ±5%, 1/4 W Resistor | 110000-751 |
| R155 | 68 kΩ, ±5%, 1/4 W Resistor | 110000-683 |
| R156 | 240 Ω, ±5%, 1/4 W Resistor | 110000-241 |
| R157 | 4.7 kΩ, ±5%, 1/4 W Resistor | 110000-472 |

Switches

| | | |
|---|---|---|
| SWA, SWB | 8-Position Dual-Inline-Package Switch | 66-119P1T |

## Transistors

| | | |
|---|---|---|
| Q1-Q6 | Type-2N3904, 350 mW, 60 V, NPN | 34-2N3904 |
| Q7-Q9 | Type-2N3906, PNP Transistor | 34-2N3906 |
| Q10-Q13 | Type-2N3904, 350 mW, 60 V, NPN | 34-2N3904 |
| Q14 | Type-2N5878 NPN Transistor | 99-201012 |
| Q15 | Type-2N5210 NPN Transistor | 99-201011 |
| Q16, Q17 | Type-2N3906, PNP Transistor | 34-2N3906 |
| Q18 | Type-2N3904, 350 mW, 60 V, NPN | 34-2N3904 |

## Miscellaneous

| | | |
|---|---|---|
| Y1 | 14.31818 MHz Crystal | 90-101 |
| Y2 | 8.8672375 MHz Crystal | 99-201013 |
| DL1 | Type-DL701 Delay Line | 99-201007 |
| DL2 | Type-DL330 Delay Line | 99-201006 |

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Name _____

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Phone: Country Code _____ Local Number _____

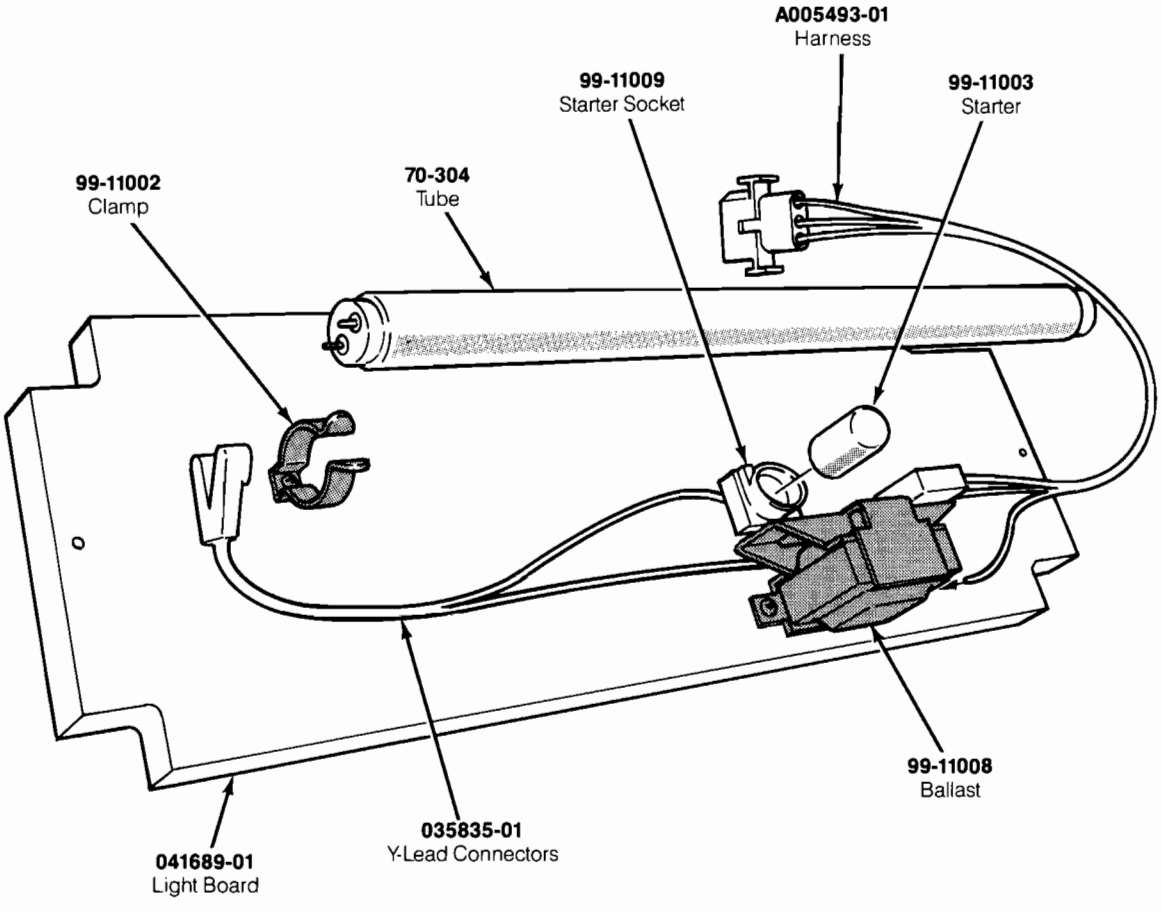


**Figure 5-2 Fluorescent Tube Assembly A041659-01 A**

First Fold

Attach
Necessary
Postage

**Atari Ireland Limited**
**Attn.: Field Service/Coin-Op Division**
**Tipperary Town, Ireland**

Second Fold

From: _____

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Tape this edge

# 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 video displays and laser video disc players (in games supplied with displays and video disc players) 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, Seller's 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 Seller's plant; and

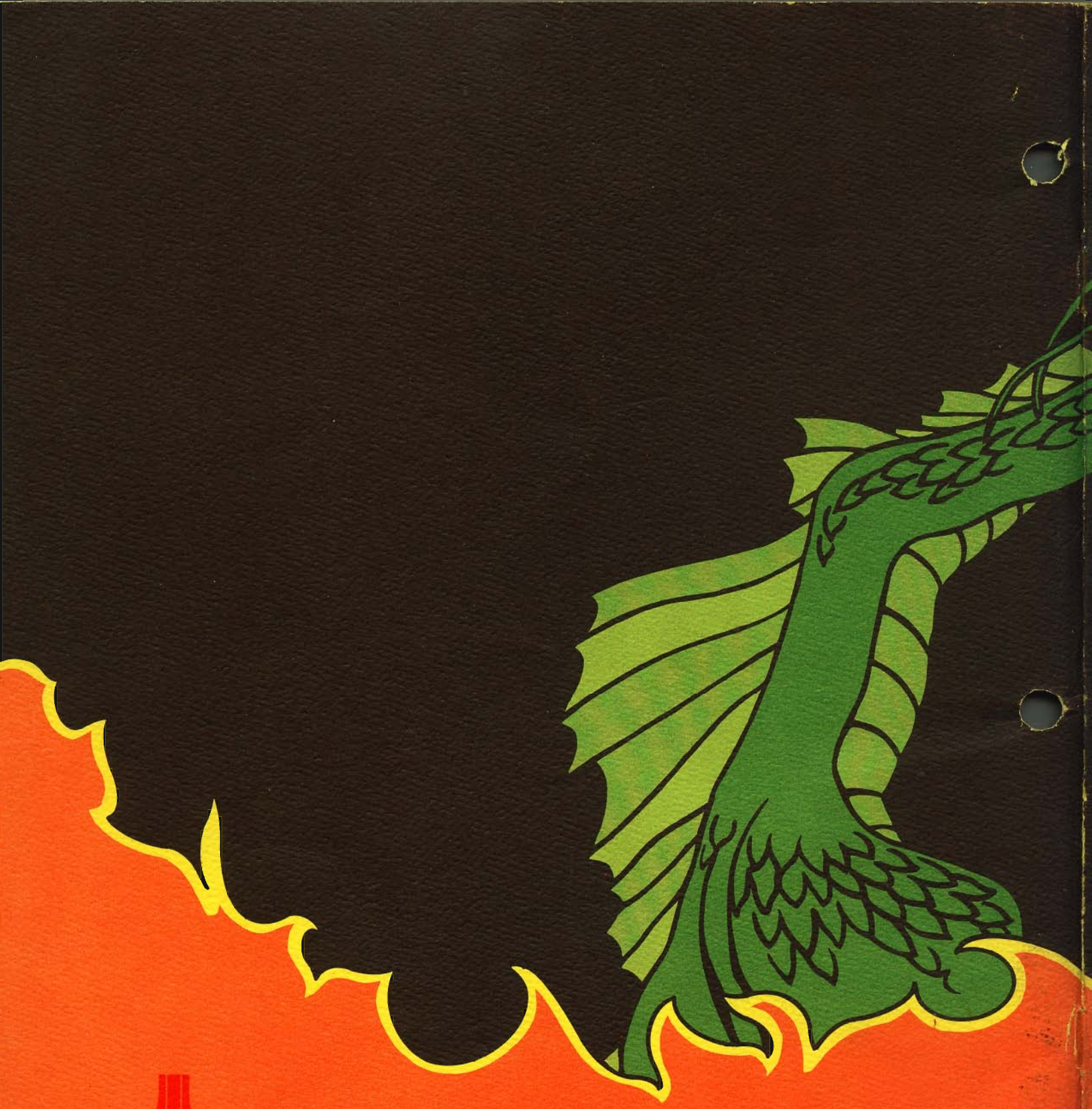
(c) Seller's examination of said products discloses to Seller's satisfaction that such alleged defects existed and were not caused by accident, misuse, neglect, alteration, improper repair, installation, or improper testing.

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 herein, 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 by Seller.*

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 you and others. Be very cautious in using non-Atari-supplied components with our games, in order to ensure 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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