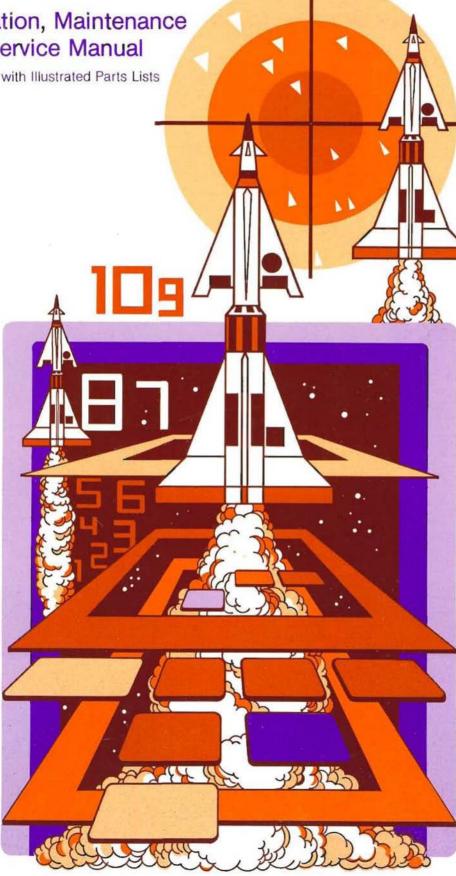




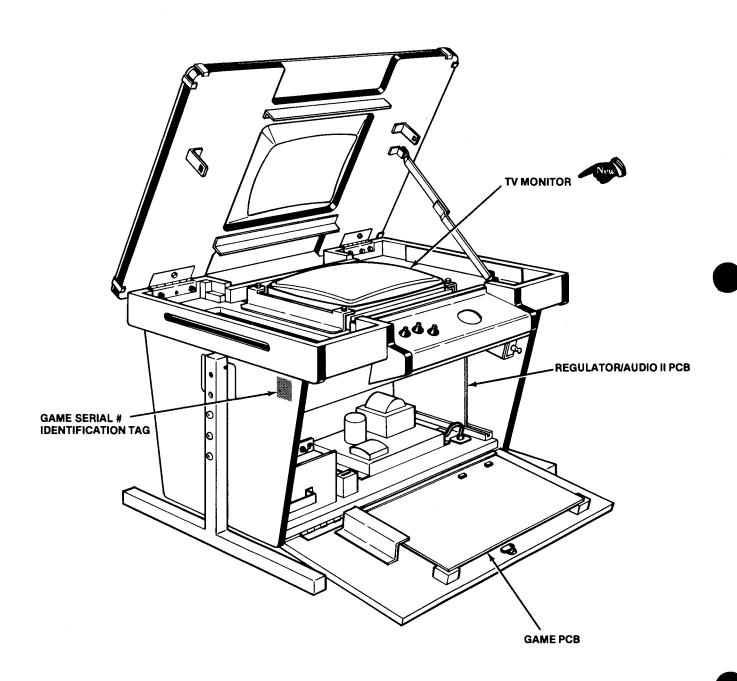
Operation, Maintenance and Service Manual

Complete with Illustrated Parts Lists



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 TV monitor, Regulator/Audio II PCB, and Game PCB. Please mention this number whenever calling your distributor for service.



COCKTAIL Operation, Maintenance and Service Manual Complete with Illustrated Parts Lists

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人 ATARI®

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NOTE

If reading through this manual does not lead to solving a certain maintenance problem, call Tele-Help $^{\text{TM}}$ at the Atari Customer Service office in your geographical area, as shown in one of the two maps below. Order all parts from the California office.

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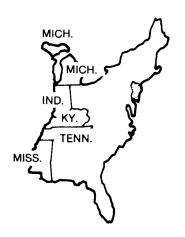
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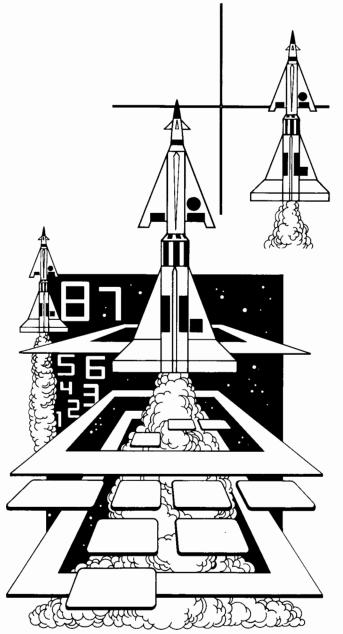
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A. New Parts

The Cocktail Missile Command[™] game has four new parts. If you have worked on Atari games in the past, then you should be aware of these important differences. The new parts are:

- 14-Inch Color TV 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.
- Mini-Trak Ball[™] Assembly. The widely used Trak Ball Assembly has been redesigned and scaled down for use in Atari's compact cocktail-table and Cabaret games.

Location Setup



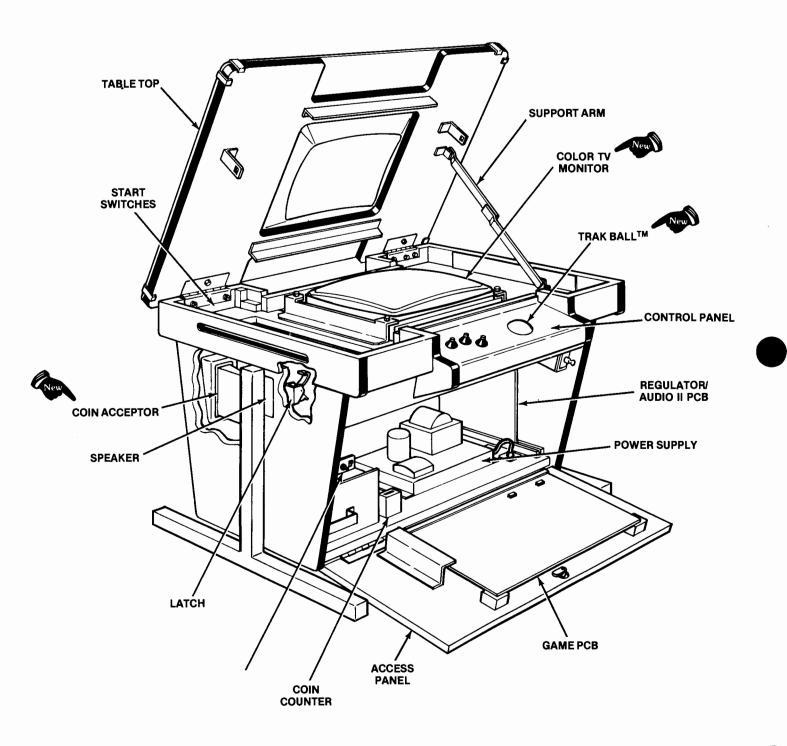


Figure 1 Overview of Game

- Cocktail Table Cabinet. This new cabinet design allows for adjustable height and easy access for servicing. The tempered-glass top eliminates the possibility of spilled liquids entering into the cabinet.
- Coin Acceptor. This is one of the first uses of this fixed-mounting coin acceptor.

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 in the page margin:

B. Opening the Game Cabinet

Refer to Figure 1 and do the following:

- 1. Unlock and open the access panel.
- Reach inside and unfasten the hook-type latch on each end of the cabinet.
- Lift the table top until the support arm locks into place.

The inside of the cabinet, excluding the two control panels, is fully accessible for servicing.

To close the cabinet, do the following:

- 1. Stand on the access-panel side of the cabinet and grasp the table top with your left hand.
- 2. With the right hand, press the button at the middle of the support arm and pull the support arm toward you.
- Gently lower the table top to the closed position.
- Reach inside the access panel and lock the two latches.
- 5. Close and lock the access panel.

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!

- Examine the exterior of the game cabinet for dents, chips, or broken parts.
- 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.
 - 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 TV 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 Game PCB, Regulator/Audio II PCB and TV Monitor are all identical. A drawing of the serial number locations 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 panel and TV monitor for secure mounting.

D. Game Installation

Figure 2 Installation Requirements

Power Temperature Humidity Space Required Game Height

100 watts 0 to 38° C (32 to 100°F) Not over 95% relative 60×81 cm (23¾×31¾ in.) 61 to 71 cm (24 to 28½ in.)

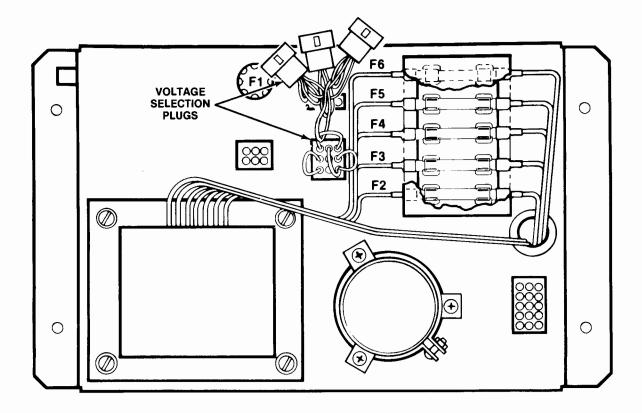


Figure 3 Power Supply

1. Voltage Selection

Before plugging in your game, make sure that the voltage selection plug on the power supply (see Figure 3) is correct for your location's line voltage. Check the wire color on the plug and see if it is correct per the list below.

Line Voltage Range	Voltage Selection Plug Color
90-110 VAC (100)	Violet
105-135 VAC (120)	Yellow
200-240 VAC (225)	Blue
220-260 VAC (240)	Brown

2. Interlock and Power On/Off Switches

To minimize the hazard of electrical shock while working on the inside of the game cabinet, an inter-

lock switch has been installed (see Figure 4). This switch removes all AC line power from the game circuitry when the access panel is opened.

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

- Unlock and open the access panel.
- Plug the AC line power cord into an AC outlet.
- Close the access panel.
- Set the power on/off switch to the on position.
 Within approximately 30 seconds the TV monitor should display a picture.
- Slowly open the rear access panel. The TV monitor picture should disappear when the panel is opened approximately 2.5 cm (1 inch). Close and lock the access panel.

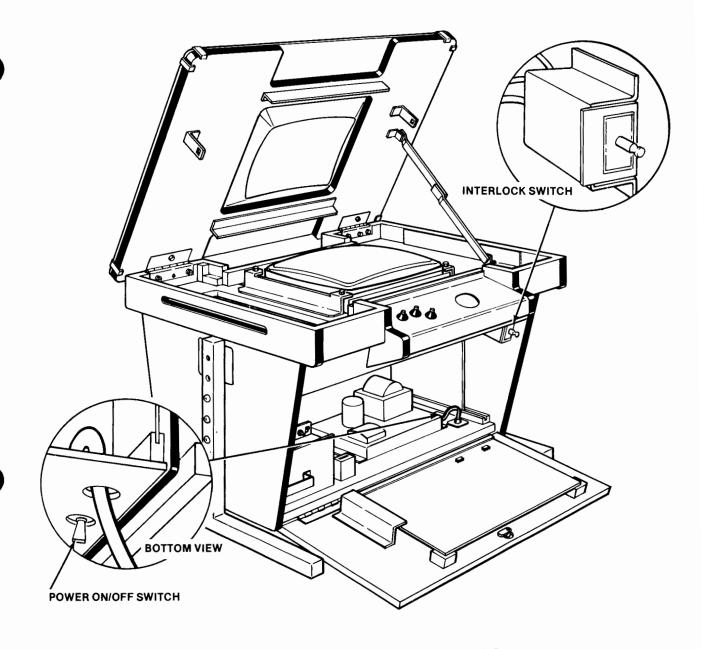


Figure 4 Interlock and Power On/Off Switches

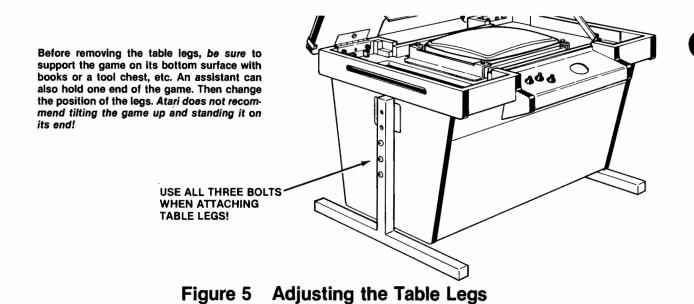
E. Adjusting the Table Legs



This cocktail-table game is designed for three adjustable heights, from 61 to 71 cm. The table may be set at 61, 66, or 71 cm. To adjust the table height, refer to Figure 5.

NOTE

To ensure cabinet strength, you **must** use all three bolts when attaching table legs. If you use only two bolts, you may break the cabinet wall when sliding 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 TV 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.

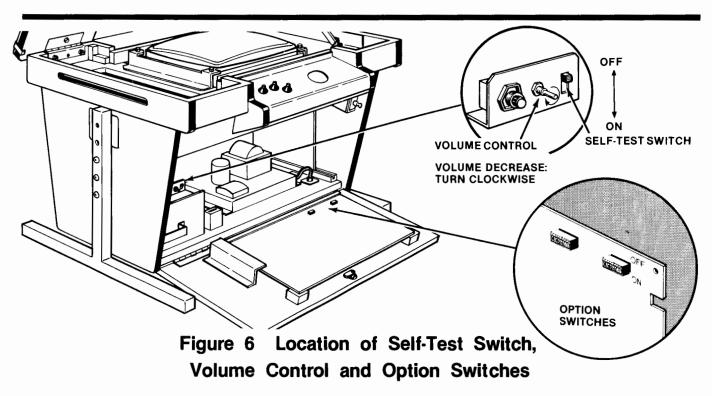


Figure 7 Self-Test Procedure

Instruction

Result if Test Passes

Result if Test Fails

1. Set self-test switch to on position (see Figure 5). Note: entering self-test will set the HIGH SCORE TODAY display to 7500.

After about 5 seconds of frozen attract mode, a low raspy tone is followed by a low beep, then high beep. TV monitor screen displays picture as shown below:

ROM OK MAP OK RAM OK

...plus the options display—see Figure 8 for explanation. Both LED start buttons will also be lighted.

A continuous raspy tone means V BLANK is malfunctioning. Self-test will not continue.

A RAM failure is indicated by a blank or "garbage"-filled screen and a repeated series of 8 beeps, separated by a low raspy tone. See note 1 below. Self-test will not restart.

ROM failure is indicated by **BAD ROM**; see note 2 below.

BAD MAP means bit-mapping hardware has failed.

BAD CHIP means custom audio I/O chip at location P8/9 has failed.

2. Roll the player 1 Trak Ball control in all directions.

Press any player 1 fire switch and screen will flip 180°. Roll player 2 Trak Ball in all directions. The + moves around on the screen in directions corresponding to Trak Ball control—up to an invisible border along the screen's edges.

The + doesn't move in same direction as ball, or not at all. One of the Steering PCBs on Trak Ball control may be bad, harness wires or connector may be loose, Trak Ball reading circuitry on Game PCB may be bad, or Trak Ball bearings may need oiling.

- 3. Press the following switches:
- · Coin switch trip wires
- Slam switch
- All six fire switches
- Player start buttons

A sound is heard as each switch is pressed. The background color also changes.

No sound or color changes are produced when pressing one of these switches: indicates a bad switch, loose harness wires, or loose connector.

4. Set self-test switch to off position.

Note 1: In test no. 1, a low beep means a good chip; a high beep is a bad RAM, as follows:

High beep in series of 8 tones:	Bad chip at location:
1st	P4
2nd	N4
3rd	M4
4th	L4
5th	K4
6th	J4
7th	H4
8th	F4

Note 2: BAD ROM plus some or all of the digits 1 thru 6 are displayed. These numbers show which 2K of memory are bad. For example, 1 means the first 2K are bad. The + may not appear.

Figure 8 Option Switch Settings

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

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

	Toggle Se	ttings of 8	3-Toggle S	witch on	Game PCB	(at R10)		
8	7	6	5	4	3	2	1	Option
						On	On	1 coin* for 1 play
						Off	On	Free play
						On	Off	2 coins* for 1 play \$
Used						Off	Off	1 coin* for 2 plays
ž V V								Switch positions are irrelevant for Cocktail Missile Command
Z	On	On						English language
	On	Off						French language
	Off	On						German language
	Off	Off						Spanish language
	Toggle Se	ettings of	8-Toggle S	Switch on	Game PCB	(at R8)		
8	7	6	5	4	3	2	1	Option
						Off	Off	Game starts with 7 cities
						On	On	Game starts with 6 cities \$
						Off	On	Game starts with 5 cities
						On	Off	Game starts with 4 cities
					On			No bonus credit
D					Off			1 bonus credit for 4 successive coins \$
Nsed								Switch position is irrelevant for Cocktail Missile Cormand
N _{ot}	Off	Off	On					Bonus city every 8,000 points
	On	On	On					Bonus city every 10,000 points \$
	On	On	Off					Bonus city every 12,000 points
	On	Off	On					Bonus city every 14,000 points
	On	Off	Off					Bonus city every 15,000 points
	Off	On	On					Bonus city every 18,000 points
	Off	On	Off					Bonus city every 20,000 points
	Off	Off	Off					No bonus city

The format of the self-test display is as follows:

Bonus city every _____ points (line disappears if no bonus city is chosen)

Coinage setting

4, 5, 6, or 7 cities (always in English)

A B CI

A, B, C: Ignore these three displays for Cocktail Missile Command. D is an "X" if switch 3 (of R8) is off.

An example of an actual option switch display is as follows:

BONUS CITY EVERY 10,000 POINTS

2 COINS 1 PLAY

6 CITIES

1 1 X

\$ Manufacturer's suggested settings

^{*} In the U.S., a "coin" is defined as 25¢.

G. Game Play

Missile Command™ is a 1- or 2-player game with a color monitor. The game depicts an Armageddonstyle war in which players defend their bases and cities with antiballistic missiles (ABMs). The enemy—the game computer—launches incoming waves of attack missiles. These weapons may be either individual or branching-attack missiles. In addition, the enemy occasionally launches missiles from a fast-moving "killer" satellite or from bombers. The enemy also launches "smart" missiles that almost always can avoid explosions.

Players receive varying numbers of points for intercepting attack missiles, for having unused missiles still in their bases' arsenals, and for having their cities undamaged after a missile wave.

The game has five possible modes of operation: attract, ready-to-play, play, high-score initial, and self-test. The latter is a special mode for checking the game switches and computer functions. You may enter this mode at any time. When entered, all game credits are cancelled, and the "HIGH SCORE TODAY" is reset to 7500. A list of eight "highest" scores and initials are also reset onto the screen (to provide player challenge).

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 entering self-test.

In this mode, the *Missile Command* name is displayed, then the computer plays one wave—handling both offense and defense. Following this, the computer displays the high score table, then the *Missile Command* graphics reappear.

2. Ready-to-Play Mode

This mode begins when sufficient coins have been accepted for a one- or two-player game. It ends when the 1 PLAYER START or 2 PLAYER START pushbutton is pressed.

When this mode begins, the message PRESS START scrolls along the bottom of the screen. DEFEND CITIES and red arrows pointing down to each

city also appear on the screen. The displayed pictures are otherwise the same as those shown in the attract mode.

3. Play Mode

The play mode begins when either start pushbutton is pressed. The mode ends when the player's last city is destroyed.

The three bases—Alpha, Delta and Omega—each have 10 ABMs ready to be fired (shown as \bot 's). Players must be careful to fire the missiles more or less evenly from among those bases, because no more missiles are granted until the screen resets in preparation for a new wave of attack missiles. If the enemy missiles strike a city, the colorful buildings will change to the solid color of the landscape.

The game continues until all cities are destroyed. Missile Command[™] has no operator-selectable fixed time length. Thus a highly skilled player can play longer than the novice.

If the 2 PLAYER START pushbutton was pressed, at the beginning of each new wave of missiles the screen image will invert or turn 180° so the players can see it correctly. A flashing arrow indicates which score applies to the current player.

During the second wave, a "killer" satellite and/or bomber will appear on the screen, moving quickly and launching attack missiles at the bases and cities. Players get bonus points for shooting down the satellites or bombers.

The general approach for getting high point scores is fairly quickly discovered: try to launch your ABMs when the enemy missiles have just appeared at the top of the screen. Then they are clustered together, where one ABM can usually destroy several enemy missiles.

4. High Score Initial Mode

If a player's score exceeds the minimum on the high score initial list, he or she may put up to three initials on this list at the end of the game. Spinning the Mini-Trak Ball™ control changes the letters (A thru Z and a blank are available). Pressing any fire switch will fix that letter on the screen, and move the choice to the next letter. If the player doesn't enter his or her initials within 90 seconds, three blank spaces will be entered automatically.



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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 TV monitor fuses). Replace fuses only with the same type as listed in Figure 20 of this manual. For the monitor fuse data, see the Matsushita TV monitor manual, TM-153, or the Sanyo TV monitor manual, TM-157.

C. Opening the Control Panel

Prior to repairing or replacing any switch or the Mini-Trak Ball™ on the control panel, unplug the game. First open the game top. Then, to open the control panel, simply unscrew the two Allen-head screws at the top edge of the control panel. Once these screws are removed, the control panel will tilt 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 9.

- 1. Remove the wires from the suspected switch.
- Set multimeter to ohms scale. Set ohms scale to R x 1, then zero the meter.

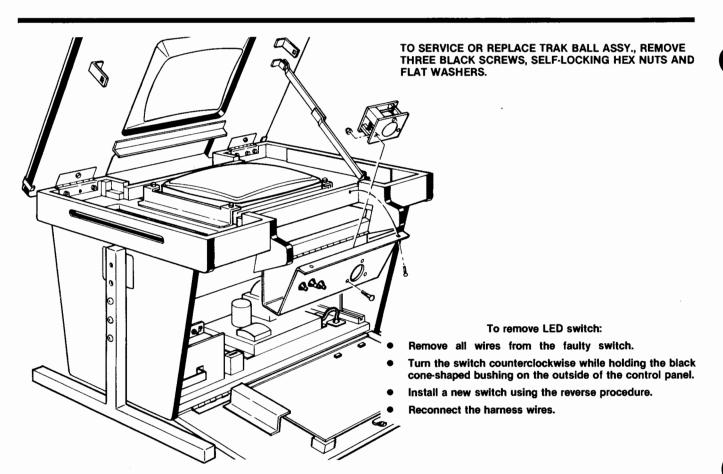
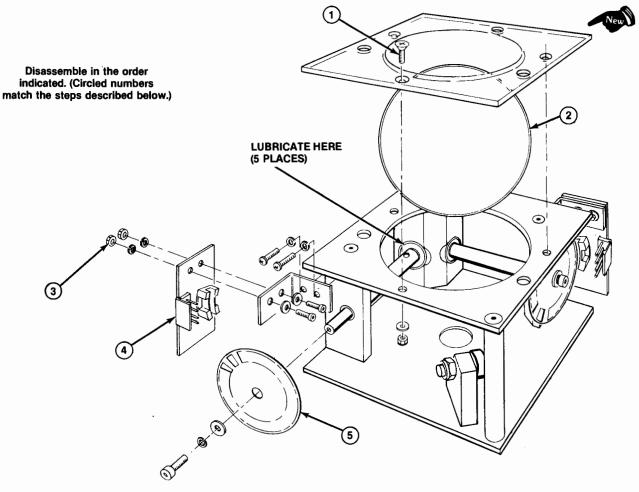


Figure 9 Opening the Control Panel and Replacing Switches



Ball Replacement

- First remove the entire Mini-Trak Ball assembly from the control panel as shown in Figure 9. Now locate the three countersunk machine screws in the acrylic top plate; remove these screws, flat washers, and lock nuts. (When the assembly is installed, these three screws are right underneath the control panel.)
- 2. Lift off the acrylic top plate; remove and replace the ball.

Coupler PCB Replacement

- Unplug the red connector on the coupler PCB. Remove the two socket-head machine screws, flat and lock washers, and hex nuts from the coupler PCB.
- 4. Remove the coupler PCB.
- When replacing this PCB assembly, be certain that the black metal encoding wheel turns freely between the two halves of the red photosensor device.

Figure 10 Mini-Trak Ball™ Maintenance and Repair

Connect multimeter leads to appropriate LED switch contacts (see Figure 9 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. Mini-Trak Ball™ Maintenance and Repair



To maintain this control, you will only have to lubricate the bearings approximately every 2,000 credits. The number of credits can be read off the coin counter, located on the floor of the cabinet, next to the coin box. Use **only 2 drops** of 3-in-One® oil in each of the ball bearings. (Each Mini-Trak Ball™ control has five bearings.)

For further instructions on how the replace the ball or either coupler PCB, see Figure 10.



D. TV Monitor Removal

▲

- WARNING -



High voltages may exist in any television monitor, even with power disconnected. Use extreme caution and do not touch electrical parts of the TV yoke area with your hands or with metal objects in your hands! If you drop the TV monitor and it breaks, it will implode! Shattered glass and the yoke can fly 6 feet or more from the implosion. Use care when replacing any TV monitor.

If you should need to remove the color TV monitor, follow steps 1 thru 5 below. Refer also to Figure 11.

- 1. Unlock and open the access panel.
- 2. Unfasten and open the table top.
- Locate the 12-pin Molex connector between the game PCB and the TV monitor. Unplug this connector.
- Locate the four Phillips-head screws (one at each corner of the TV monitor screen) that attach the TV monitor to the cabinet. Remove these screws.
- Carefully lift the TV monitor chassis up and out of the cabinet.

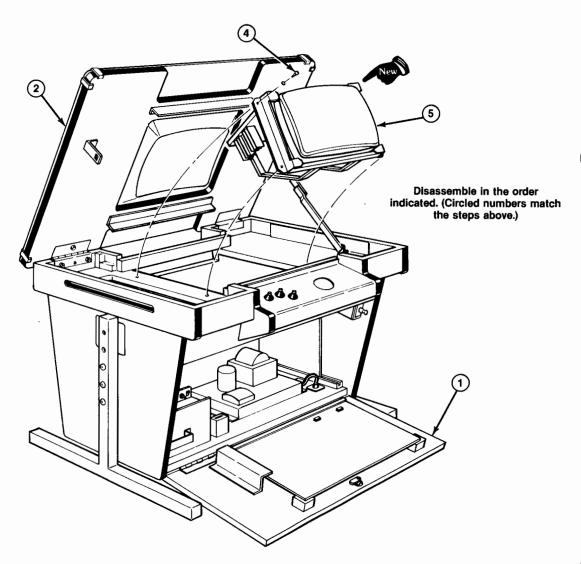


Figure 11 TV Monitor Removal

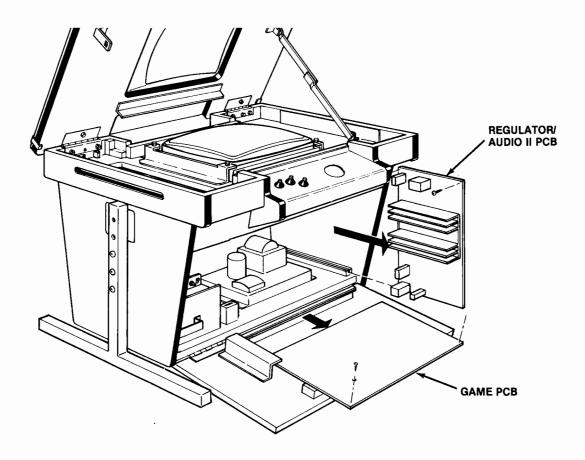


Figure 12 Game and Regulator/Audio II PCB Replacement

E. Printed-Circuit Board Replacement

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 12 and proceed as follows:

1. Game PCB Removal

- Unlock and open the access panel.
- Remove the 44-pin edge connector from the right side of the game PCB.
- Locate the Phillips-head screws that extend through the PCB and into the two wood blocks at the lock side of the access panel. Remove these two screws.
- Remove the PCB from the access panel by lifting up and pulling it out of the plastic PCB re-

- tainer at the hinge side of the access panel.
- 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 by performing 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 access panel.
- Remove the five plug-in connectors.
- Locate the two Phillips-head screws that extend through the PCB and into the wood blocks at the top two corners of the PCB. Remove these two screws.
- Remove the PCB from the wall of the cabinet by pulling it up and out of the wood slot.

F. Game Operation

With this manual you received two large sheets that contain the wiring and schematic diagrams for your game. Sheet 1, Side A, includes information that explains the functions of the circuits and defines inputs and outputs.

Atari's Cocktail Missile Command™ is a microprocessor-controlled game. The microprocessor is mounted on the game PCB. The game PCB receives switch inputs from the control panel and coin mechanism. These inputs are processed by the game PCB and output to the TV monitor, Regulator/Audio II PCB, loudspeakers, and control panel.

The Regulator/Audio II PCB performs two functions: 1) it regulates the +10 VDC from the power

supply to +5 VDC, and 2) it amplifies the audio output 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 three fuses (F3, F4 and F5) 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 13 illustrates the distribution of power in this game. Figure 14 illustrates the distribution of signals.

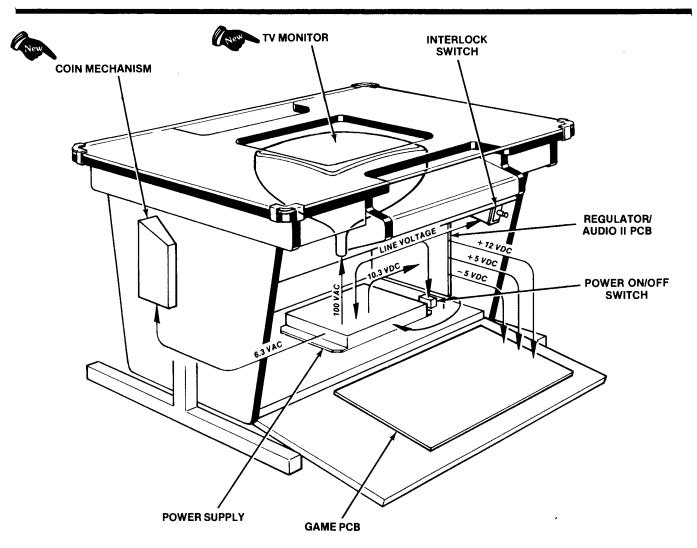


Figure 13 Power Distribution

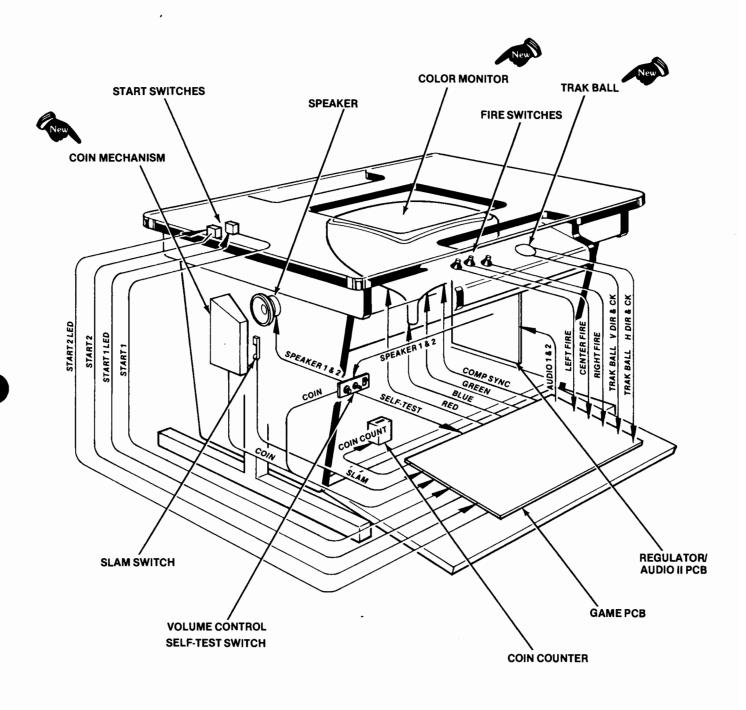


Figure 14 Signal Distribution

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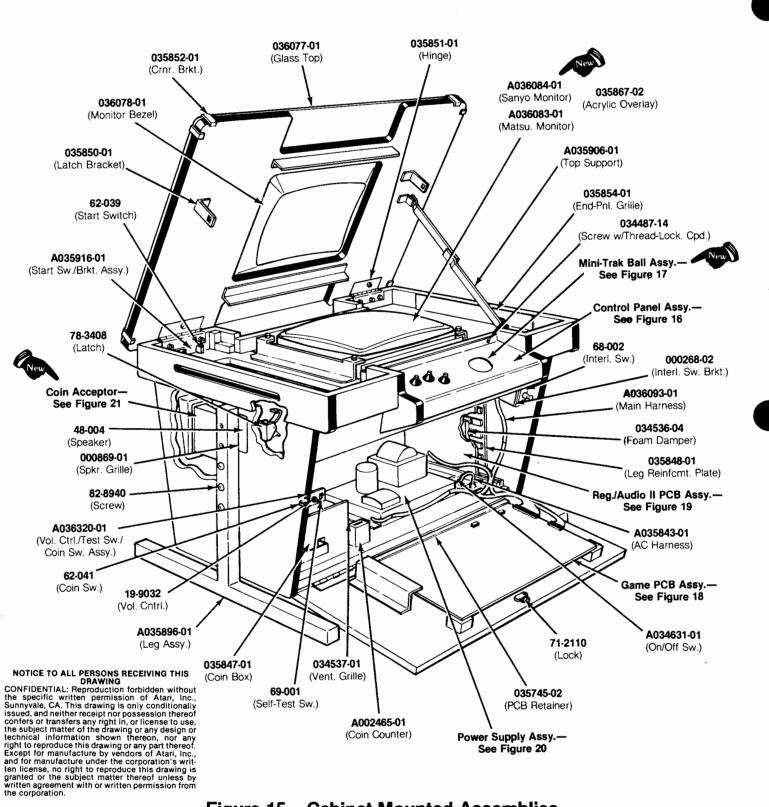
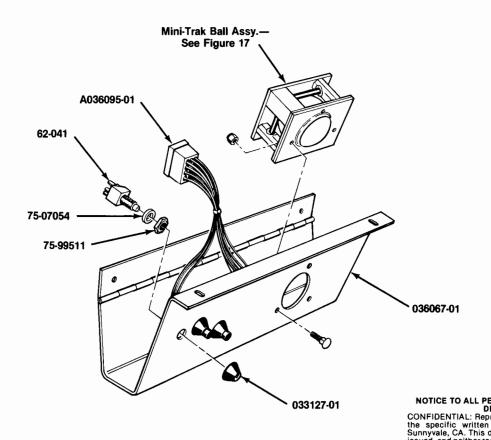


Figure 15 Cabinet-Mounted Assemblies A036080-xx B

Figure 15 Cabinet-Mounted Assemblies Parts List

Part No.	Description	
A002465-01 A007638-01 A034631-01 A035843-01	Coin Counter Slam Switch Assembly 15 Amp @ 125V (10 Amp @ 250V) DPDT Toggle Switch AC Harness Assembly	
A035896-01 A035906-01 A035916-01 A035992-01	Leg Assembly Top Support Assembly Start Switches/Bracket Assy. (includes switches, stamped nuts, bushings and bracket) Strain-Relief Power Cord Assembly (for use in USA and Japan)	•
A036083-01 A036084-01 A036093-01 A036320-01	14" Matsushita Monitor Assembly (includes adapter harness and steel side supports) 14" Sanyo Monitor Assembly (includes steel side supports) Main Harness Volume Control/Test Switch/Coin Switch Assembly (includes bracket)	
DP-152-01 DP-152-02 ST-152 TM-152	Sheet 1 of Schematic Drawing Package Sheet 2 of Schematic Drawing Package Self-Test Label Technical Manual for Cocktail Missile Command TM	
TM-153 TM-157 19-9032 48-004	Manual for Matsushita 14" Color Monitor Manual for Sanyo 14" Color Monitor 50-Ohm, 12½-Watt, Wirewound Rheostat (Volume Control) 16-Ohm, 4-Watt, 4-Inch High-Fidelity Loudspeaker	
62-039 62-041 68-002 69-001	SPDT Momentary-Contact Pushbutton Start Switch with Red Light-Emitting Diode SPDT Momentary-Contact Pushbutton Coin Switch (for operator convenience) 30-Amp. Interlock Switch DPDT Slide Switch (self-test)	
71-2110 75-07017 75-9910W0 78-24012	Panel Cartridge Lock Mechanism Spacer for Mounting Printed-Circuit Boards 15/32-32 Steel Stamped Nut (for start switch) 5" Beaded Nylon Tie Wrap (for securing edge connector to Game PCB)	
78-3408 78-6900402 82-8940 000268-02	Spring Draw Latch Adhesive Foam Tape <i>(for glass top)</i> 3/8-16 × 2½" Button-Head Hex Socket Machine-Thread Screw Interlock Switch Mounting Bracket	
000869-01 007882-02 033127-01 034487-14	Speaker Grille Interlock Switch Cover Black Molded Polycarbonate Switch Bushing 10-32 × 7/8" Button-Head Hex-Head Machine-Thread Screw with Thread-Locking Compound	
034536-04 034537-01 035745-02 035845-01	Foam Vibration Damper Ventilation Grille 18"-Long Plastic PCB Retainer Coin Box Lid	
035847-01 035848-01 035850-01 035851-01	Coin Box Leg Reinforcement Plate Latch Bracket Hinge	
035852-01 035854-01 035867-02 035917-01	Corner Bracket End-Panel Grille (2 per game) Bronze-Color Acrylic Overlay On/Off Switch Cover	
036077-01 036078-01	Glass Top with Graphics Cardboard Monitor Bezel	
99-15012	PUSH BUTTON 50¢ PUSH BUTTO V 25¢	



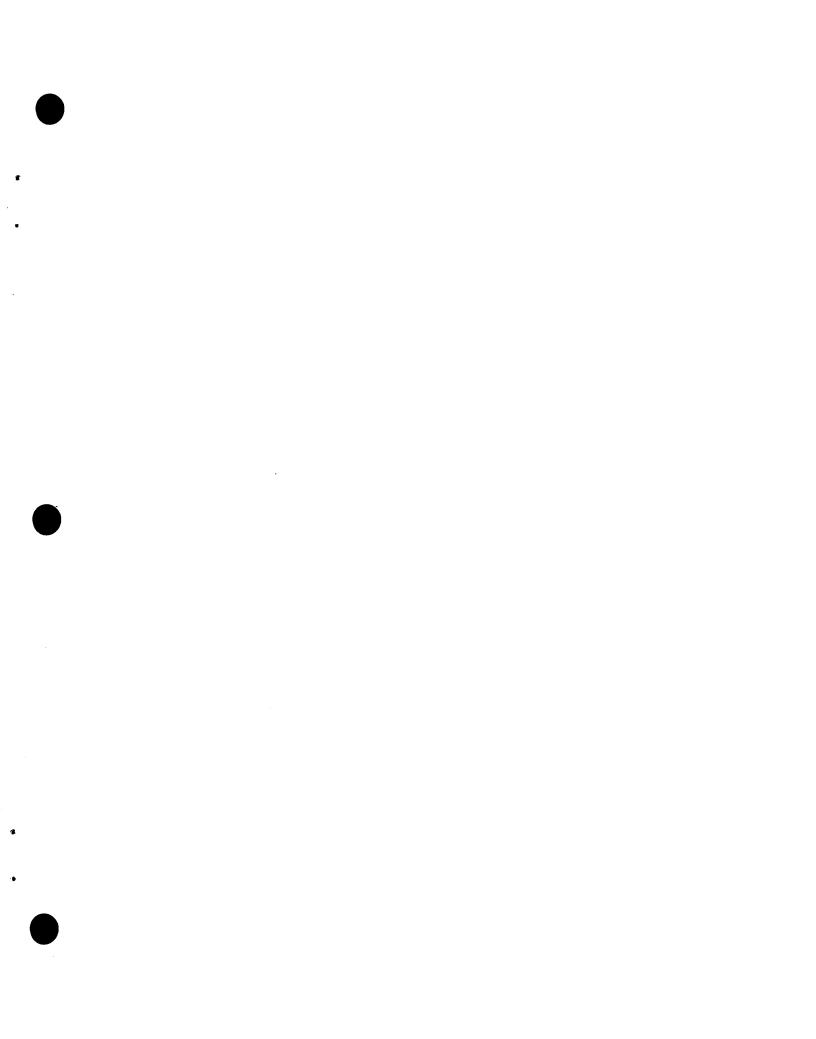
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Figure 16 Control Panel Assembly A036076-01 A

Parts List

Part No.	Description
A036095-01 62-041 75-07054	Control Panel Harness Assembly Pushbutton Switch with Black Cap (3 per game) Flat Nylon Washer, 0.470" inside diameter × 0.968" outside diameter × 0.075" thick
75-99511 033127-01 036067-01	#10-24 Steel Stamped Nut Black Molded Switch Bushing Control Panel with Graphics



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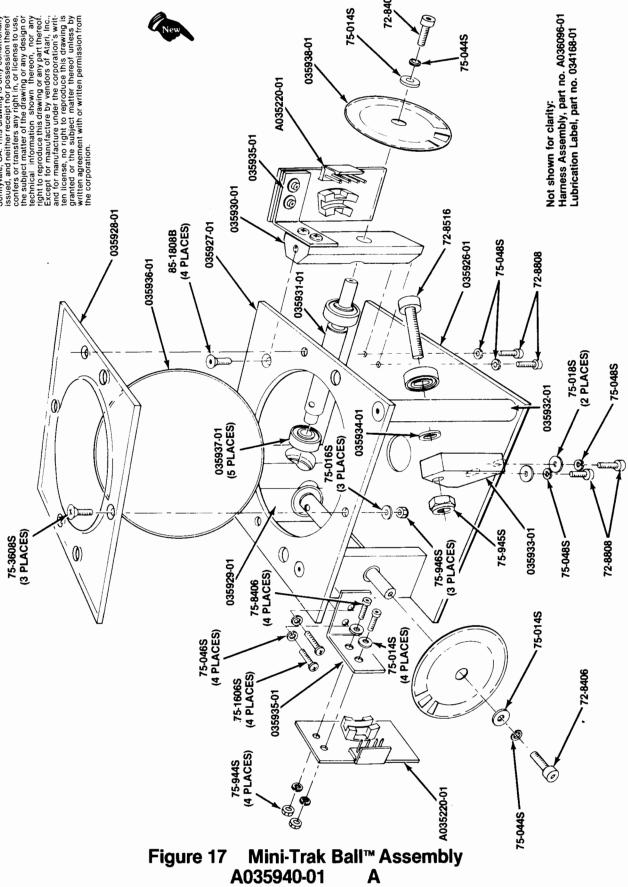


Figure 17 Mini-Trak Ball™ Assembly Parts List



Part No.	Description	
A035220-01	Coupler PCB Assembly	
A036096-01	Harness Assembly	
72-1606S	#6-32 × 3/8" Cross-Recessed Pan-Head Cadmium-Plated Steel Machine Screw	
72-8406	#4-40 × 3/8" Hex Socket-Head Cap Alloy Steel Machine Screw	
72-8516	1/4-20 × 1" Hex Socket-Head Cap Alloy Steel Machine Screw	
72-8808	#8-32 × ½" Hex Socket-Head Cap Alloy Steel Machine Screw	
75-014S	#4 Flat Plain SAE-Standard Zinc-Plated Steel Washer	
75-016S	#6 Flat Plain SAE-Standard Zinc-Plated Steel Washer	
75-018S	#8 Flat SAE-Standard Zinc-Plated Steel Washer	
75-044S	#4 Zinc-Plated Steel Split Lock Washer	
75-046S	#6 Zinc-Plated Steel Split Lock Washer	
75-048S	#8 Zinc-Plated Steel Split Lock Washer	
75-944S	#4-40 Self-Locking Steel/Polymer Hex Nut	
75-945S	1/4-20 Self-Locking Steel/Polymer Hex Nut	
75-946S	#6-32 Self-Locking Steel/Polymer Hex Nut	
85-1808B	#8-32 × ½" Socket Cap Flat Countersunk-Head Black-Oxide Steel Screw	
034168-01	Label with Lubrication Instructions	
035926-01	Base Plate	
035927-01	Top Plate (Metal)	
035928-01	Top Plate (Acrylic)	
035929-01	Corner Post	
035930-01	End Post	
035931-01	Roller Shaft	
035932-01	Standoff	
035933-01	Adjustable Post	
035934-01	Spacer	
035935-01	Angle Bracket	
035936-01	Mini-Trak Ball [™]	
035937-01	Bearing	
035938-01	Encoding Wheel	

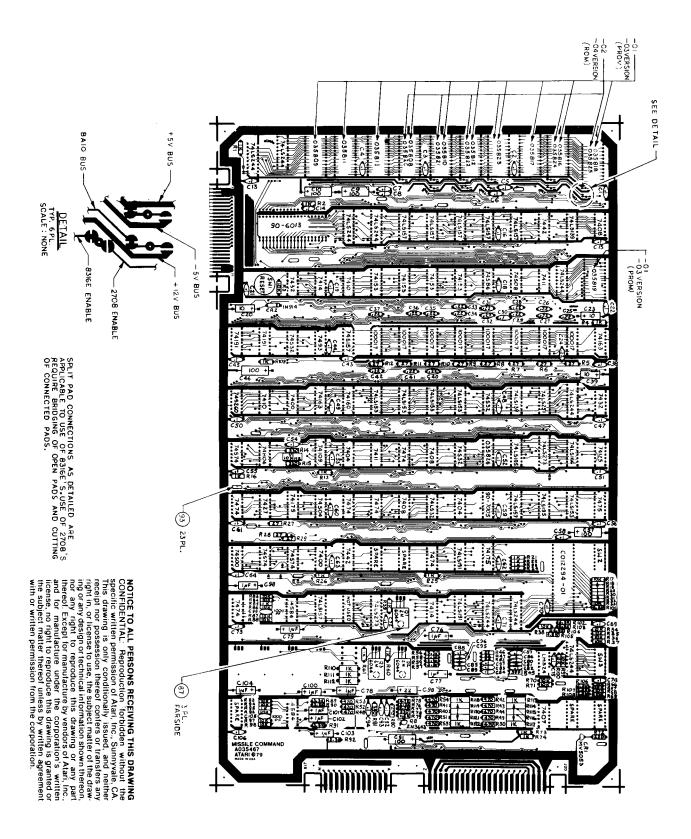


Figure 18 Game PCB Assembly A035467-01 thru -04 D

Figure 18 Game PCB Assembly Parts List

Part No.	Description (Reference Designations and Locations in Bold)
C012294-01	Audio I/O N-Channel MOS/LSI Custom Chip (P8/9)
21-101683	.068 uf, ± 10%, Radial-Lead Epoxy-Dipped 100V Mylar Capacitor (C65-68)
24-250105	1 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C76-79, 98, 100-104)
24-250106	10 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C20, 23, 39)
24-250107	100 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C9, 10, 46, 57, 91)
24-250226	22 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C90)
27-250103	.01 uf Ceramic-Disc 25V Radial-Lead Capacitor (C76-79)
28-101102	1000 pf Epoxy-Dipped 100V Radial-Lead Mica Capacitor (C99, 105)
29-088	.1 uf Ceramic-Disc 25V Radial-Lead Capacitor (C1-8, 13-16, 18, 19, 21, 22, 30, 38, 43-45, 47-56, 58-64, 69-75, 80-89, 92-97, 106)
31-1N914	75V Type-1N914 Switching Diode (CR2)
34-2N3643	Type 2N3643 NPN Switching Transistor (Q8)
34-2N6044	Type 2N6044 NPN Darlington Transistor (Q1-3)
07.45040	Time 44504 leterated Circuit (00, 044)
37-4584B	Type 14584 Integrated Circuit (C9, C11)
37-7400	Type 7400 Integrated Circuit (C5, D8)
37-74800	Type 74S00 Integrated Circuit (A8)
37-7404	Type 7404 Integrated Circuit (E6, K7)
37-74H04	Type 74H04 Integrated Circuit (B6)
37-74S04	Type 74S04 Integrated Circuit (D7)
37-7407	Type 7407 Integrated Circuit (N11)
37-74LS08	Type 74LS08 Integrated Circuit (H7)
	T 7400 laborated Oire it (PO 10)
37-7408	Type 7408 Integrated Circuit (R2, J6)
37-74S08	Type 74S08 Integrated Circuit (M3)
37-74LS10	Type 74LS10 Integrated Circuit (E3)
37-7410	Type 7410 Integrated Circuit (B5)
37-74LS14	Type 74LS14 Integrated Circuit (D3)
37-7414	Type 7414 Integrated Circuit (J9)
37-7427	Type 7427 Integrated Circuit (B7)
37-7432	Type 7432 Integrated Circuit (C3, R5)
07.741.000	Time 741 COO Internated Circuit (17)
37-74LS32	Type 74LS32 Integrated Circuit (J7)
37-74S32	Type 74S32 Integrated Circuit (C4, L5, K6)
37-7442	Type 7442 Integrated Circuit (N2, E8)
37-7474	Type 7474 Integrated Circuit (H6, A7, E7, F7, J8, A9)
37-74S74	Type 74S74 Integrated Circuit (A6, B8, C8)
37-7475	Type 7475 Integrated Circuit (R7)
37-7493	Type 7493 Integrated Circuit (D4)
37-74109	Type 74109 Integrated Circuit (D6)
27 74125	Type 74125 Integrated Circuit (P6)
37-74125 27-741-0420	Type 74125 Integrated Circuit (R6)
37-74LS139	Type 74LS139 Integrated Circuit (P2, M5)
37-74LS153	Type 74LS153 Integrated Circuit (F5, H5, J5, K5, P7)
37-74153	Type 74153 Integrated Circuit (F3, H3, J3, K3)
37-74LS157	Type 74LS157 Integrated Circuit (H2, J2, K2, L2, M2, M7, D9)
37-74S157	Type 74S157 Integrated Circuit (E4)
	Type 74160 Integrated Circuit (E5)

Figure 18 Game PCB Assembly, continued Parts List

Part No.	Description (Reference Designations and Locations in Bold)
37-74163	Type 74163 Integrated Circuit (D5)
37-74LS163A	Type 74LS163A Integrated Circuit (R4)
37-74LS166	Type 74LS166 Integrated Circuit (P6)
37-74175	Type 74175 Integrated Circuit (L8)
31-14113	Type 74173 Integrated Official (LO)
37-74LS175	Type 74LS175 Integrated Circuit (C7)
37-74LS191	Type 74LS191 Integrated Circuit (K8, K9)
37-74191	Type 74191 Integrated Circuit (A4, B4)
37-74LS195	Type 74LS195 Integrated Circuit (M6, N7)
37-74LS244	Type 74LS244 Integrated Circuit (A/B1, E2, F2, P5, L9, M9, P10, B/C1, N/P3)
37-74LS251	Type 74LS251 Integrated Circuit (N5)
37-74S260	Type 74S260 Integrated Circuit (A5)
37-74LS273	Type 74LS273 Integrated Circuit (N6, F9)
07.1.8400.4	Tors I MOOA laterrated Circuit (MAO)
37-LM324	Type LM324 Integrated Circuit (N10)
38-MV5053	Type MV5053 Light-Emitting Diode (CR1) SPST Pushbutton Switch (B3)
62-001	
66-118P1T	8-Station Single-Throw, Dual-Inline-Package Bit Switch (R8, R10)
79-42C24	24-Contact Medium-Insertion-Force Integrated Circuit Socket (For -01 and -03 PCB Assemblies: D1, E1, F1, H1, J/K1, K/L1, L/M1, M/N1, N/P1, R1, R3; For -02 and -04 PCB Assemblies: H1, J/K1, K/L1, L/M1, N/P1, R1)
79-42C40	40-Contact Medium-Insertion-Force Integrated Circuit Socket (C2, P8/9)
81-4302	Nylon Snap-In Fastener
90-123	10.000 MHz, ±.005%, Crystal (Y1)
90-6013	Microprocessor (C2)
9 0-7005	Random-Access Memory (L7)
020670-01	Test Point
.035826-01	Programmable Read-Only Memory (L6)
400017-001	Random-Access Memory (F4, H4, J4, K4, L4, M4, N4, P4)
110000-102	1K Ohm, ±5%, ¼W Resistor (R1, 2, 4, 13, 16, 21-26, 39, 60, 61, 73, 74, 85, 95, 109-122)
110000 100	10// Ohm. 1 50/ 1//M Decister. /P2 17 00 20 20 66 74 92 94 96 90 02 04 06 100)
110000-103	10K Ohm, ±5%, ¼W Resistor (R3, 17-20, 30-38, 66-71, 83, 84, 86-88, 93, 94, 96-100)
110000-152	1.5K Ohm, ±5%, ¼W Resistor (R79)
110000-220	22 Ohm, ±5%, ¼W Resistor (R46, 47, 82)
110000-221	220 Ohm, ±5%, ¼W Resistor (R72)
110000-222	2.2K Ohm, ±5%, 1/4W Resistor (R76)
110000-332	3.3K Ohm, ±5%, ¼W Resistor (R56-59, 89-92)
110000-270	27 Ohm, ±5%, ¼W Resistor (R5-12, 27-29)
110000-331	330 Ohm, ±5%, ¼W Resistor (R14, 15, 78)
110000.201	390 Ohm, ±5%, ¼W Resistor (R45, 81)
110000-391	
110000-471 110000-472	470 Ohm, ±5%, ¼W Resistor (R40-44, 48-55, 80) 4.7K Ohm, ±5%, ¼W Resistor (R75)
110000-472	4.7K Ohm, ±5%, ¼W Resistor (R75) 6.8K Ohm, ±5%, ¼W Resistor (R101-108)
110000-822	8.2K Ohm, ±5%, ¼W Resistor (R77)
122004-224	.22 uf Ceramic-Disc 25V Radial-Lead Capacitor (C24-29, 31-37, 40-42)
	Type 74S86 Integrated Circuit (L3) Type 74LS11 Integrated Circuit (F6, N3)

For remaining memory components and their part numbers, see list on next page.

300

Figure 18 Game PCB Assembly, continued Parts List

Memory Components and Their Equivalents (Locations Shown in Bold)

-01 P.C. E (mostly P		-02 P.C. Boards (ROMs)		-03 P.C. Boards (mostly PROMs)		-04 P.C. Boards (ROMs)	
035812-01	K/L1	035822-01	K/L1	035812-02	K/L1	035822-02	K/L1
035813-01	F1	035622-01	NLI	035813-02	F1	033622-02	N/L1
035823-01	L/M1	035823-01	L/M1	035823-02	L/M1	035823-02	L/ M 1
035816-01	N/P1	005004.04	N/P1	035816-02	N/P1	025924.02	N/P1
035817-01	M/N1	035824-01	N/P1	035817-02	M/N1	035824-02	N/P I
035818-01	R1	035825-01	R1	035818-02	R1	035825-02	R1
035819-01	R3	033623-01	NI	035819-02	R3	033623-02	nı
035808-01	H1	025920.01	Li4	035808-02	H1	025920.02	ш
035809-01	D1	035820-01	H1	035809-02	D1	035820-02	H1
035810-01	J/K1	005004.04	1/1/4	035810-02	J/K1	005004.00	1074
035811-01	E1	035821-01	J/K1	035811-02	E1	035821-02	J/K1

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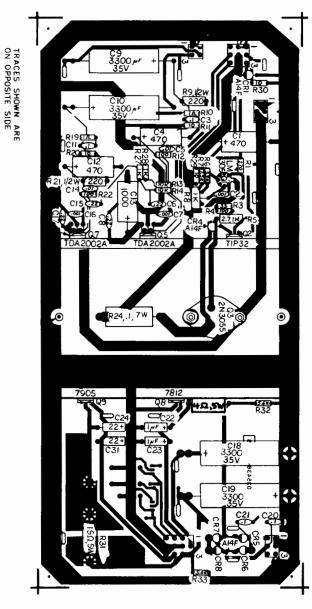
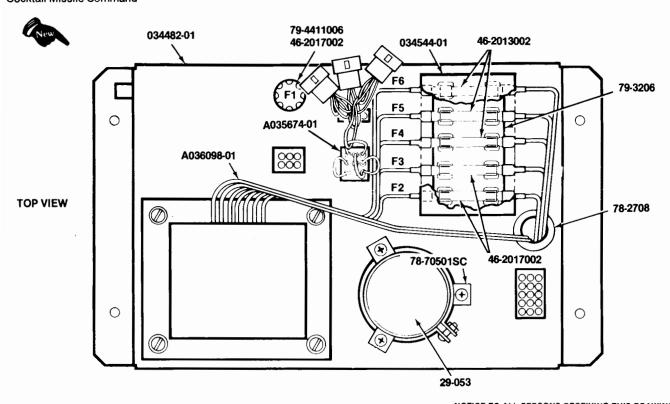


Figure 19 Regulator/Audio II PCB Assembly A035435-02 B

Figure 19 Regulator/Audio II PCB Assembly Parts List

Part No.	Description (Reference Designations and Locations in Bold)
12-52P7 16-54P0	2.7 Ohm, ± 5%, 1W Resistor (R5) 4 Ohm, ± 5%, 5W Wirewound Resistor (R25)
19-100P1015	.1 Ohm, ± 3%, 7W Wirewound Resistor (R24)
19-315102	1K Ohm Vertical PCB-Mounting Cermet Trimpot (R8)
24-250106	10 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C5, 15)
24-250108 24-250477	1000 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C9, 10, 13) 470 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C1, 4, 12)
24-250478	4700 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C1, 4, 12)
24-250108	1000 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C13)
24-250477 24-350226 24-350338	470 uf Aluminum Electrolytic Fixed Axial-Lead 25V Capacitor (C1, 4, 12) 22 uf Aluminum Electrolytic Fixed Axial-Lead 35V Capacitor (C24, 31) 3300 uf Aluminum Electrolytic Fixed Axial-Lead 35V Capacitor (C9, 10, 18, 19)
24-500105 27-250102	1 uf Aluminum Electrolytic Fixed Axial-Lead 50V Capacitor (C22, 23) .001 uf Ceramic-Disc 35V Radial-Lead Capacitor (C2, 7, 16)
27-250103	.01 uf Ceramic-Disc 25V Radial-Lead Capacitor (C5, C14)
29-088	.1 uf Ceramic-Disc 25V Radial-Lead Capacitor (C3, 11, 20, 21)
31-A14F	50V 2.5A Miniature Axial-Lead High-Current Rectifier (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 70-1609C	- 5V Voltage Regulator, Type 7905 (Q9)
72-1608C 75-F60405	#6-32 × ½" Cross-Recessed Pan-Head Corrosion-Resistant Steel Machine Screw #6-32 × ¼" Binder-Head Nylon Screw
	·
75-99516 78-46000	#6-32 Nut/Washer Assembly
78-16008 78-16014	Thermally Conductive Compound (Q3) Thermally Conductive Compound (Q2, 5, 7-9)
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 Heat Sink
034531-01 110000-010	1 Ohm, ± 5%, ¼W Resistor (R10, 19)
110000-100	10 Ohm, ± 5%, ¼W Resistor (R11, 20, 29, 30)
110000-101 110000-102	100 Ohm, ± 5%, ¼W Resistor (R4, 12, 22) 1K Ohm, ± 5%, ¼W Resistor (R27, 28)
110000-102	10K Ohm, ± 5%, ¼W Resistor (R13, 14)
110000-271	270 Ohm, ± 5%, ¼W Resistor (R1)
110000-330	33 Ohm, ± 5%, ¼ W Resistor (R3)
110000-392	3.9K Ohm, ± 5%, ¼W Resistor (R6)
110000-562	5.6K Ohm, ± 5%, ¼W Resistor (R32, 33)
110000-752 110001-221	7.5K Ohm, ± 5%, ¼W Resistor (R7) 220 Ohm, ± 5%, ½W Resistor (R9, 21)
116000-220	22 Ohm, ± 5%, 10W Wirewound Resistor (R31)
122004-224	.22 uf Ceramic-Disc 25V Capacitor (C6, 8, 15, 17)
137151-002	Type TDA2002A 8W Linear Audio Amplifier Integrated Circuit (Q5, 7)



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Figure 20 Power Supply Assembly for Color Raster-Scan Games A036099-01 A

Figure 20 Power Supply Assembly for Color Raster-Scan Games Parts List

Part No.	Description			
A006555-01	Rectifier Printed Circuit Board Assembly			
A036098-Q1	Transformer and Harness Assembly (includes Shielded Power Transformer)			
A034629-01	AC Harness Assembly			
A034630-01	RFI Filter Assembly			
A035674-01	Voltage Plug Assembly (set of four plugs)			
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" Inside Diameter × 55/64" Outside Diameter × 1/4" Thick			
78-70501SC	2"-Diameter Capacitor Mounting Bracket			
79-15021001	2-Circuit Single-Row Terminal Block			
79-3206	5-Position 3AG Fuse Block with 1/4" 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 (with isolation windings)			

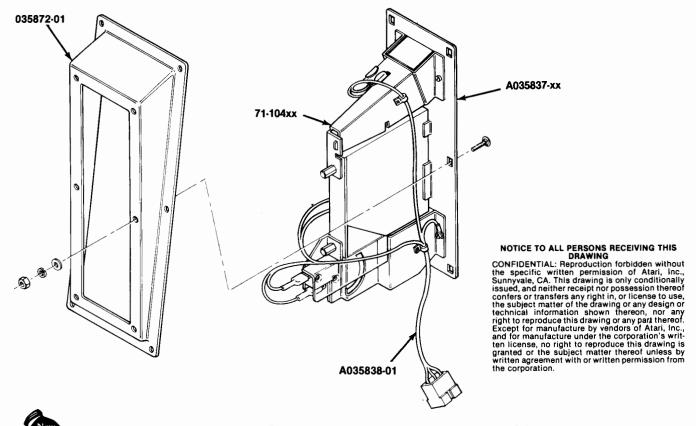


Figure 21 Coin Acceptor Mount Assembly A035912-xx D

Parts List

Part No.	Description
A035837-01 A035837-02 A035837-03 A035837-04 A035837-05 A035837-06	Coin Acceptor Face Plate (25¢) Coin Acceptor Face Plate (100 Yen) Coin Acceptor Face Plate (10 Pence) Coin Acceptor Face Plate (1 DM) Coin Acceptor Face Plate (2 DM) Coin Acceptor Face Plate (100 Lire)
A035837-07 A035837-08 A035837-09 A035837-10 A035838-01 035872-01	Coin Acceptor Face Plate (1 Kr Swedish) Coin Acceptor Face Plate (20 [©] Australian) Coin Acceptor Face Plate (1 Fr French) Coin Acceptor Face Plate (5 Fr Belgian) Coin Mechanism Harness Coin Acceptor Mount
71-10425CU 71-104100YJ 71-10410PE 71-10401MG 71-10402MG 71-104100LI	Coin Acceptor (25¢) Coin Acceptor (100 Yen) Coin Acceptor (10 Pence) Coin Acceptor (1 DM) Coin Acceptor (2 DM) Coin Acceptor (100 Lire)
71-10401KS 71-10420CA 71-10401FF 71-10405FB	Coin Acceptor (1 Kr Swedish) Coin Acceptor (20¢ Australian) Coin Acceptor (1 Fr French) Coin Acceptor (5 Fr Belgian)

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- (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.

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