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AREA S i t e 4

TM



DEDICATED GAME 25" (63 cm) COLOR MONITOR OPERATION MANUAL

Operation & Adjustments • Testing & Problem Diagnosis
Parts Information • Wiring Diagrams

WARNINGS & NOTICES

WARNING

USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* For safety and reliability, substitute parts and modifications are not recommended.

* Substitute parts or modifications may void EMC directive or FCC type acceptance.

* Use only authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

* This game is protected by federal copyright, trademark and patent laws. Unauthorized modifications may be illegal under federal law. This also applies to ATARI logos, designs, publications and assemblies. Moreover, facsimiles of ATARI equipment (or any feature thereof) may be illegal under federal law, regardless of whether or not such facsimiles are manufactured with ATARI components.

TABLE OF CONTENTS

Section One - Operation

Safety Notices	1-2
Product Specifications.....	1-3
Maintenance.....	1-3
Service	1-4
Game Operation	1-11
Initial Start-Up	1-11
Attract Mode	1-11
Player Controls.....	1-11
Game Rules	1-12
Game Play.....	1-12
Operator Controls	1-13
Cabinet Switches	1-13
Control Switches.....	1-13
Self Test Menu System Operation	1-14
System Overview.....	1-14
Screen Layout.....	1-14
Organization.....	1-14
Volume Adjustment	1-15
Statistics	1-16
Game Options	1-17
Coin Options... ..	1-18
Controls Test	1-19
Gun Tests	1-20
Monitor Tests	1-21
Disk Test.....	1-22
Watchdog Test	1-23
Switches and Jumpers	1-24
Errors	1-24

Section Two - Parts Information

Cabinet Front View	2-2
Cabinet Rear View	2-3
Rear Door Assembly	2-4
Pushbutton Assembly.....	2-5
Optic Gun Assembly	2-6
Power Supply Assembly.....	2-7
Country Specific Line Cords.....	2-7
Coin Door Assembly.....	2-8
Country Specific Coin Doors	2-8
Electronics Assembly	2-9
JAMMIT Board Assembly.....	2-10
CPU Board Assembly.....	2-11
Other Parts Necessary.....	2-12

Section Three - Cabinet Wiring

Edge Connector Chart	3-2
Main Cabinet Wiring Diagram	3-3
CPU Board Assembly.....	3-4
JAMMIT Board Assembly.....	3-5
JAMMIT Board Jumper Position Chart.....	3-6
JAMMIT Board LED Status Indicator Chart.....	3-7

Section Four - Troubleshooting

Game Does Not Start.....	4-2
Game Can Not Be Played	4-3
Gun Problems	4-4
Audio Problems.....	4-5
Video Problems.....	4-6
Miscellaneous.....	4-7

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SECTION ONE

OPERATION

NOTICE

Information in this manual is subject to change without notice. ATARI reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

Fill out and mail in the Game Information Card. Be sure to include the game serial number from the label on the rear of the cabinet. For your records, write the game serial number in the manual. SERIAL NUMBER _____

SAFETY NOTICES

The following safety instructions apply to all game operators and service personnel. There are specific warnings and cautions throughout this manual where they apply. Read this page before preparing your game for play.



HARD DISK DRIVE. Pack the hard disk drive in an anti-static bag. Pack the disk drive assembly in an approved shipping container (P/N 08-8068) when sending it in for repair or replacement. Do not stack or drop hard disk drives during installation or removal.

TRANSPORTING GAME. This game contains glass and fragile electronic devices. Transport this game securely. Avoid rough handling when moving cabinet. Do not move this game with power on.

AC POWER CONNECTION. Verify that the switch on the power matches the local line voltage, 110VAC or 220VAC. Verify that the fluorescent lamp assembly is correct for local line voltage.

PROPERLY GROUND THE GAME. To avoid electrical shocks, do not plug in the game until it has been inspected and properly grounded. Plug this game only into a fixed-location grounded 3-wire outlet. Do not use a "cheater" plug or cut off the ground pin on the line cord.

POTENTIAL SHOCK HAZARD. This video game system does not utilize an isolation transformer. There is no isolation between the internal cabinet AC system and the external AC line.

DISCONNECT POWER DURING REPAIRS. To avoid electrical shock, turn off the power switch and disconnect the game from the AC power source before removing or repairing any part of the game. After servicing any parts of the unit, secure all of the ground wires before restoring power.

PROPERLY ATTACH ALL CONNECTORS. Be sure to attach the connectors on each printed circuit board (PCB) properly. If they do not slip on easily, do not force them. A reversed connector may damage your game and void the warranty. Each connector has a key to fit specific pins on each board.

USE PROPER FUSE. To avoid electrical shock, all replacement fuses must match the type, voltage rating, and current rating of the original fuse.

HANDLE FLUORESCENT TUBE AND CRT WITH CARE. If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly eight feet or more from the implosion.

EPILEPSY WARNING

A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g., seizures or loss of awareness), immediately consult your physician before using any video games.

Parents should observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, **DISCONTINUE USE IMMEDIATELY** and consult your physician.

PRODUCT SPECIFICATIONS

Operating Requirements

<u>Location</u>	<u>Electrical Power</u>	<u>Temperature</u>	<u>Humidity</u>
Domestic	120VAC @ 60Hz 4.0 Amps	32°F to 100°F	Not to exceed 95% relative
Foreign	230VAC @ 50Hz 2.0 Amps	(0°C to 38°C)	
Japan	100VAC @ 50Hz 4.0 Amps		

Cabinet Statistics

<u>Shipping Dimensions</u>	<u>Shipping Weight</u>	<u>Design Type</u>
Width 29.0" (75 cm) Depth 34.0" (87 cm) Height 72.0" (184 cm)	325 lbs. (148 kg.)	Optical Gun Type Single Dedicated Video Game

Equipment Characteristics

<u>Video Display Monitor</u>	<u>Audio System</u>	<u>Currency Acceptors</u>
Standard Resolution RGB 25" (63 cm) CRT	Single-Channel Audio 1 Full Range Speaker	Standard Coin Door 2 Coin Mechanisms 1 Coin Counter

Game Characteristics

<u>Player Variables</u>	<u>Operator Variables</u>	<u>Diagnostics</u>
1 or 2 players Choice of Mission and Stage High Score Recognition	Coinage, Play Mode, Difficulty, Volume, Audits, Statistics	Automatic Power-Up Test Manual Menu System

MAINTENANCE

◆ Viewing Glass

It is not necessary to switch off power to clean the game. Apply a mild glass cleaner to a clean cloth or sponge, then use this to wipe the viewing glass. **Do not apply the cleaner directly on the glass!** Liquid could drip down into switches or circuits and cause erratic game operation.

◆ Cabinet

Use plastic-safe non-abrasive cleaners to avoid damage. Apply cleaner to a clean cloth or sponge, then use this to wipe the decals or cabinet. **Do not apply cleaner directly on artwork or cabinet!**

◆ Controls

Use plastic-safe non-abrasive cleaners to avoid damaging the parts. Apply cleaner to a clean cloth or sponge, then use it to wipe the controls clean. **Do not apply cleaner directly to the controls or cabinet!**

◆ Guns

Dirt or debris on the gun lens can affect accuracy. Apply the cleaner to a clean cloth or cotton swab, then use this to wipe the lens clean. **Do not apply the cleaner directly into the gun barrel!**

SERVICE

Only qualified service personnel should perform maintenance and repairs. The following product guidelines apply to all game operators and service personnel. There are specific notes, cautions and warnings throughout this manual where they apply. Read thoroughly and understand the SAFETY pages before beginning service.

◆ **Guns**

Switch off power to the game. Unlock and open the coin door. Disconnect the gun cable from the wiring harness. Remove locking nuts and pull the gun cable mount off the cabinet front panel. Retain carriage bolts from the mount for re-assembly. Be sure to reattach the ground connection and that the gun cable can rotate freely in its mount before closing cabinet and installing screws.

To disassemble an individual gun, lay the gun on a work surface and remove the screws. Separate the parts at the handle end first, using care not to dislodge parts (trigger is spring loaded). Clean the lens to remove fingerprints and dust, then reinstall any shields removed during disassembly. Verify a good connection exists between the static shield and the cable ground when the gun is reassembled.

◆ **Coin Mechanism**

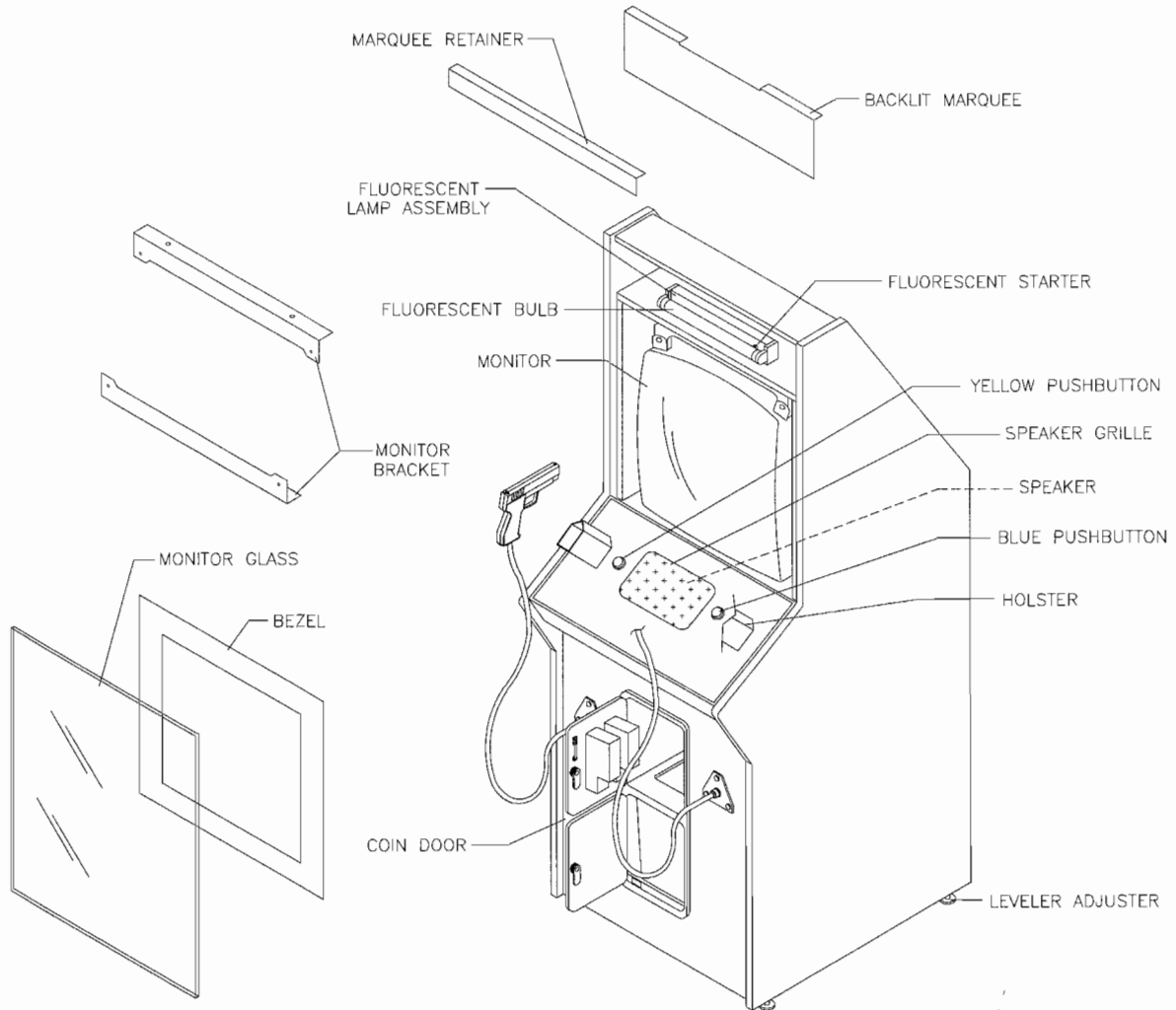
Switch off power to the game. Unlock the coin door and swing it open. Unlatch and remove each coin mechanism separately to clean or replace with a different type. Ensure that mechanism seats fully in the holder upon reinstallation. Close and lock the release latch, then close the door. Turn on the game and change the mechanism setup, then test known good and bad coins to verify operation.

◆ **Coin Counter**

Switch off power to the game. Unlock the cash door and swing it open. The meter is located at the lower right corner of the door opening. Record the meter count before testing or replacement.

Insert a finger through access hole and locate the meter wires. Disconnect wiring at the connector. Remove the screws from the front. Ensure that replacement unit has a diode across the terminals.

CABINET FRONT VIEW



◆ Push Buttons

Remove the six speaker grille mounting screws. Lift the speaker grille from the mounting panel and set it aside. Remove the four speaker mounting screws and set them aside. Do not disconnect the speaker wires. Lift the speaker just enough to turn it sideways and slide it through the mounting hole in the control panel. Set the speaker temporarily on the bottom of the control panel box.

Reach into the control panel compartment through the speaker mounting hole and locate each of the switches for the player control buttons. Feel for and bend the large prong away from each switch just enough to slide the switch off of the housing. Separate each switch from its push-button. Mark the switches and harnesses with their player numbers and lay them temporarily inside the control panel box. Unscrew the mounting nut from the housing. Remove the push-button housing through the switch hole from the front side of the control panel.

◆ Viewing Glass

Switch off power to the game. Remove the metal retainer bracket above the viewing window and the marquee. Swing viewing glass out at the top, then lift up and out of the cabinet. Clean the glass before reinstalling. Install the retainer bracket and tighten the screws, but do not use excessive force.

◆ Marquee

Switch off power to the game. Remove the viewing glass as described above. Lift the marquee up and out of the cabinet. Align tabs with cabinet edges when replacing the marquee. Clean the glass before reinstalling. Install the retaining bracket and tighten screws, but do not use excessive force.

◆ Fluorescent Light Assembly

Switch off power to the game. Remove the viewing glass and the marquee. Grasp the bulb at each end and give it a quarter turn. Gently pull the bulb straight out to remove it from its sockets. The starter also requires a quarter turn for removal. Do not force bulb or starter during reinstallation. Clean the bulb to remove fingerprints and dust. Install the marquee and the viewing glass. Verify that the lamp lights before locking door.

To remove the entire light fixture, remove viewing glass and marquee. Remove the the bulb. Disconnect the fluorescent light assembly connector from its power cable. Remove the screws that hold the assembly to the light cover, then lift out the assembly. The ballast is in the base.



!! WARNING !!

If you drop a fluorescent tube or a CRT and it breaks, it will implode! Use care in handling.

◆ Monitor

Switch off power to the game. Remove the viewing glass. Disconnect all monitor cables. Remove the monitor bezel and both barrier panels. Remove the four flange nuts securing the monitor's mounting brackets to its mounting panel. Pull the monitor carefully from the cabinet and set in a safe place. The monitor remote adjustment board is behind the control panel just above the coin vault. Clean the face of the CRT before reinstalling the barrier panels and the monitor bezel.



CAUTION

THE VIDEO MONITOR IS HEAVY, WITH MOST OF THE WEIGHT TOWARD THE FRONT OF THE ASSEMBLY. BE SURE IT IS FIRMLY SUPPORTED AS IT IS REMOVED FROM THE CABINET.



WARNING

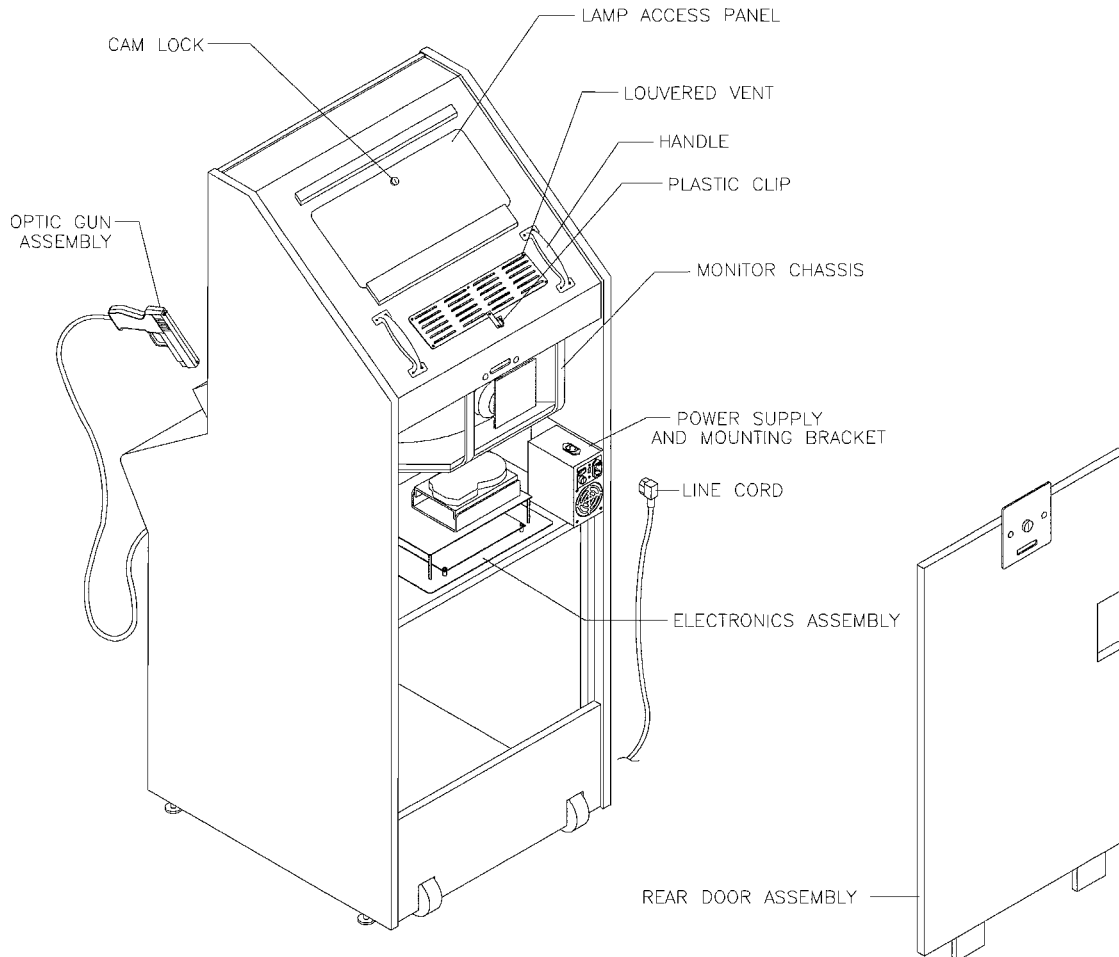
The monitor does not require isolation from the A.C. line voltage in normal operation. However, when operating outside the cabinet or servicing the monitor on a test bench, YOU MUST ISOLATE THE MONITOR FROM LINE VOLTAGE WITH AN ISOLATION TRANSFORMER.

◆ Speaker

Switch off power to the game. The speaker is mounted behind a grille on the control panel. The grill and the speaker come out from the front. Remove the screws and set the grille aside. Always remove the upper mounting screws first and replace them last to avoid damage to the speaker.

Remove the speaker from the enclosure and disconnect the wires. Refer to the Wiring Diagram (Section Three) for speaker wiring information. *Do not use excessive force when removing or tightening mounting screws threaded into plastic or particle board.*

CABINET REAR VIEW



◆ Power Supply

Switch off power to the game and disconnect the line cord. Unlock and remove the rear door. Unplug the IEC A.C. connector from the top of the supply and the wiring harnesses from the back. Loosen and remove the screws holding the supply to the power supply mounting bracket. Remove the nut holding the rear of the supply to the bracket, then slide the supply out of the bracket. Verify the line voltage switch setting before reinstalling the power supply.

◆ Hard Disk Drive

Switch off power to the game. Unlock and remove the rear door. Remove the electronics assembly cover, if used. Disconnect the D.C. power cable from the hard disk drive. Unplug the ribbon cable from the hard drive and leave it attached to the CPU board. Carefully remove the mounting screws and lift the drive assembly away from the mounting bracket. It is not necessary to remove the ground plane. *Do not stack or drop hard disk drives.*



!! WARNING !!

Never move a game with the power on. This can damage the hard disk drive.

◆ **Battery**

Switch off power to the game. Remove the cabinet rear door. Remove the electronics assembly cover, if used. Remove the Hard Disk Drive Assembly and its ground plane. Carefully note the battery position, then gently lift the contact arm to release tension. *Do not bend the arm.* Slight finger pressure may be needed to pry the cell from its holder. *Avoid direct shorts across terminals or from terminals to ground.*

To reinstall the battery, orient it near its holder and slide it in under the contact arm. *Do not force.*



CAUTION

Danger of explosion if battery is incorrectly installed. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to instructions printed on the battery or the manufacturer's packaging.

◆ **CPU Fan**

Switch off power to the game. Remove the cabinet rear door. Remove the electronics assembly cover, if used. Remove the Hard Disk Drive Assembly and its ground plane. Disconnect the fan power connector from the circuit board. Remove the four screws holding the fan to the heat sink. On reinstallation, tighten the screws snugly but do not overtighten.

◆ **CPU Board Assembly**

Switch off power to the game. Open the rear door. Remove the electronics assembly cover, if used, to expose the CPU Board Assembly and the JAMMIT Board Assembly. Disconnect the hard drive ribbon cable from the CPU board. Leave the other end of the ribbon cable attached to the hard disk drive. Remove the hard disk drive and its ground plane from the standoffs. Unscrew the standoffs from the CPU Board.

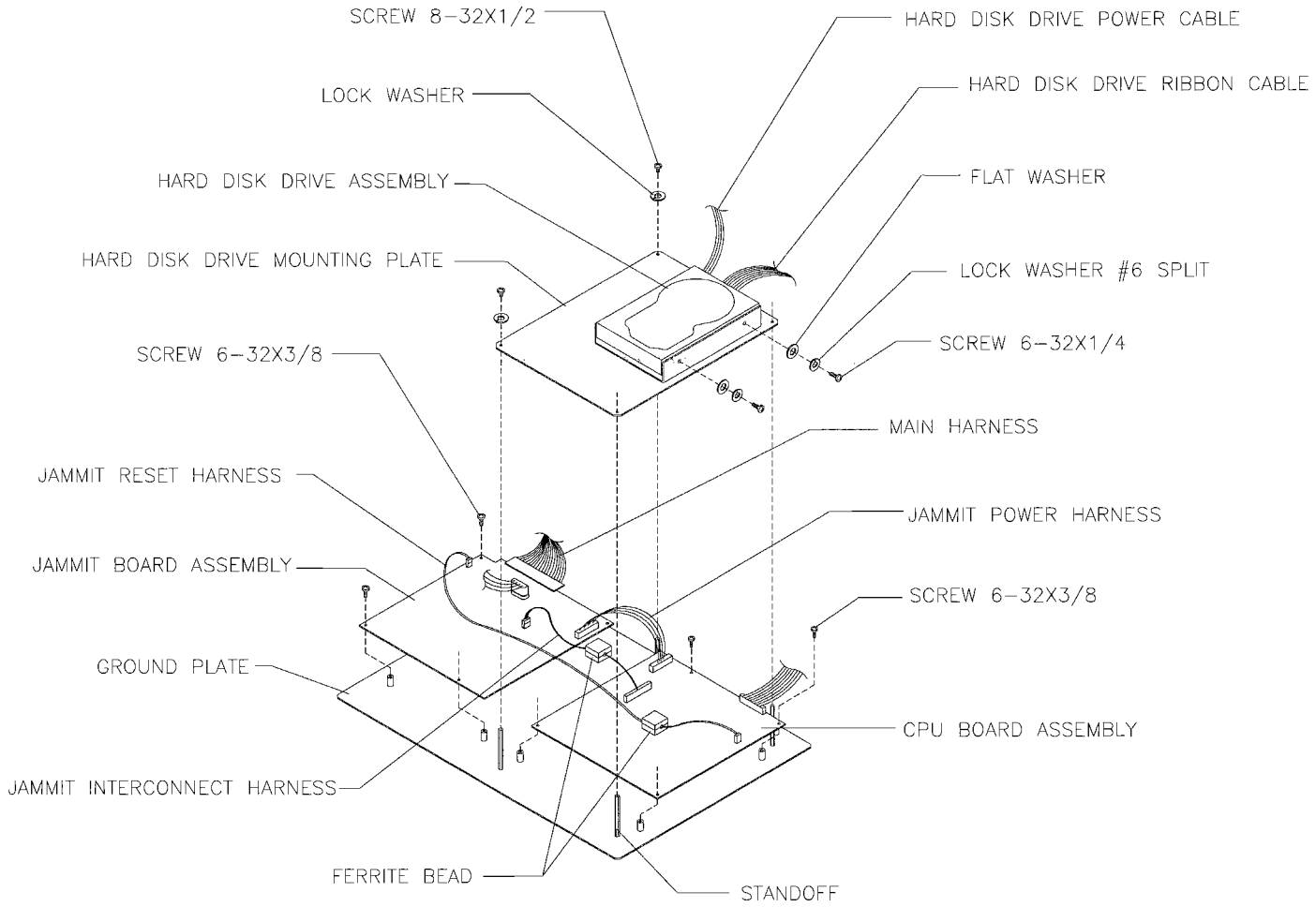
Carefully note the orientation of the harnesses connecting the CPU to the JAMMIT board and the other cables. Mark and extract the harnesses from the CPU board only.

Remove CPU Board Assembly mounting screws. Separate the JAMMIT board from the CPU Board Assembly. Lift the board out of the cabinet and set in a safe place. Use the anti-static bags and protective containers from new parts to store the board if it is not immediately reinstalled.

◆ **JAMMIT Board Assembly**

Switch off power to the game. Open the rear door. . Remove the electronics assembly cover, if used, to expose the JAMMIT Board Assembly. Carefully note the orientation of the harnesses connecting the CPU to the JAMMIT Board Assembly and the other cables. Mark and extract the harnesses from the JAMMIT Board Assembly only. Remove the edge connector from the JAMMIT board.

Remove the JAMMIT Board Assembly mounting screws. Lift the board out of the cabinet and set in a safe place. Use the anti-static bags and protective containers from new parts to store the JAMMIT Board Assembly if it is not immediately reinstalled.



ELECTRONICS ASSEMBLY COMPONENTS



CAUTION

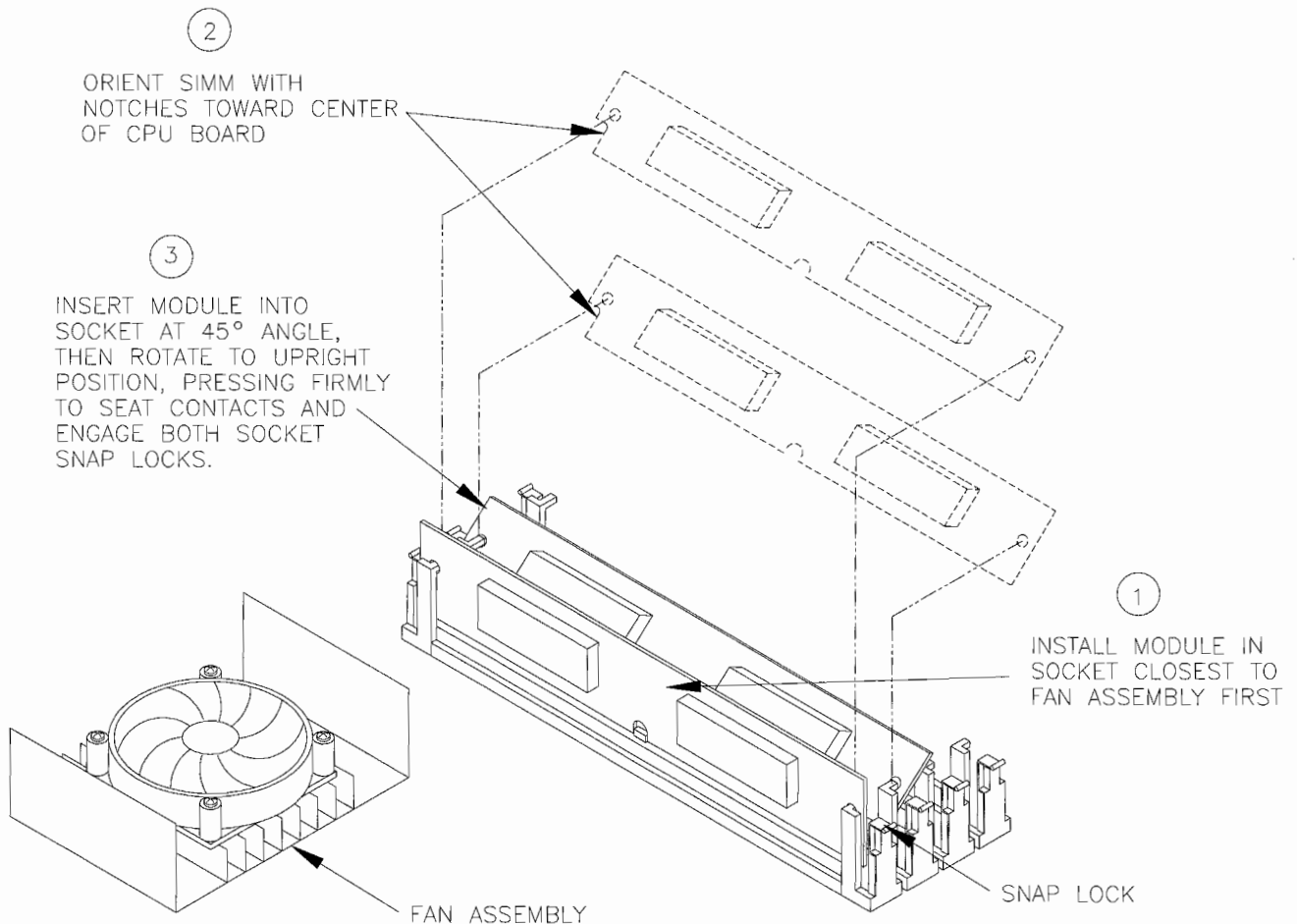
*Discharge any static electricity built up in your body by touching the power supply chassis. Do this **BEFORE** touching or handling the electronic assemblies.*

◆ Memory SIMMs (Single In-line Memory Modules)

The Memory SIMM circuits contain the computer memory for this game.

Switch off power to the game. Remove the cabinet rear door. Remove the electronics assembly cover, if used. Carefully noting its position, remove each SIMM by pressing the spring locks on each side of the SIMM outward and rotating the circuit board to a 45-degree angle, pointing it away from the Fan Assembly. Lift the board carefully from the socket to remove it. Handle the SIMM only by its edges.

To reinstall the SIMMs, orient each over its socket at a 45-degree angle. Make sure the keying holes and notch are in their proper positions. Begin with the SIMM closest to the Fan Assembly. Push the top of the SIMM board to an upright position, until the board snaps into place under the spring locks on each side of the socket. *Do not use excessive force.*



SINGLE IN-LINE MEMORY MODULE INSTALLATION

GAME OPERATION

Initial Start Up

When the game is first turned on, power is restored, or a reset occurs, it executes the BIOS code. Automatic self-diagnostic tests verify and report the condition of the hardware, memory, hard disk drive, and other components. If any of the individual tests fails, an error message displays for that particular test. Record all messages before starting a game.

- ◆ If no buttons are pressed, the system quickly completes all tests then loads and runs the game.
- ◆ Press and hold the coin door TEST button to skip the start-up tests and activate the Menu System.

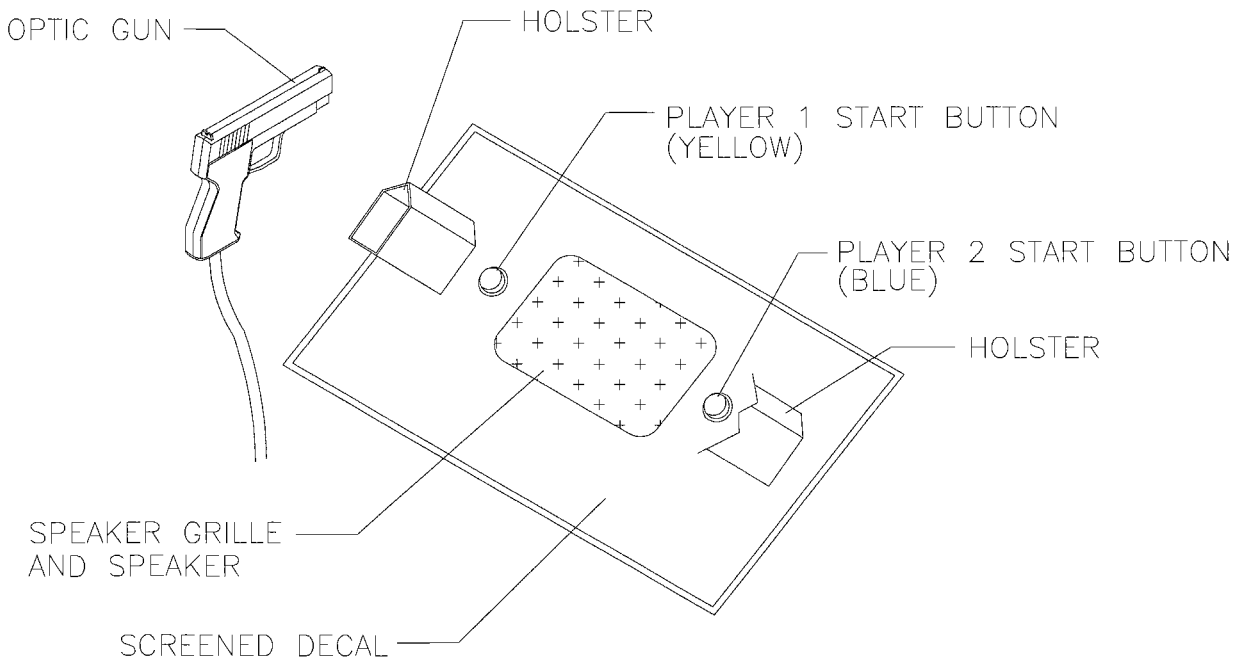
Once Power-up tests have been completed, the game goes into ATTRACT MODE. Scenes and sounds from a typical game are alternated with high scores in endless repetition until game play starts.

Attract Mode

Once the game successfully completes all power-up tests, the ATTRACT screens show scenes and sounds from typical games in each of the missions. Alternating with these scenes are views of the missions, high scores, game production team acknowledgements, and other information. The attraction screens cycle endlessly until a player or operator starts the game.

PLAYER CONTROLS

- ◆ **START Buttons**
These buttons allows players to begin or continue play.
These same buttons select items from the menu during service.
- ◆ **GUNS**
Use the guns to shoot aliens and other targets. They also select or change menu items during service.



TYPICAL PLAYER CONTROL LOCATIONS

GAME RULES

INDIVIDUAL PLAYER START

A player inserts currency to start the game, presses a START button, and takes the corresponding gun. The player selects a mission and stage by shooting them on screen.

MULTIPLE PLAYER START

Both players insert currency and press their START buttons. Each takes the corresponding gun. One player selects a mission and stage by shooting on screen. The first player to select a mission and stage selects for both players. Players who successfully complete the first three sites can advance to the "TOP SECRET" mission.

Players can join the competition at any time by inserting currency and pressing START.

GAME PLAY

Play begins after choosing a mission and a stage. Players can choose games or missions in any order. Two players can play at one time.

Each player begins with a set number of "lives." The object of each game is to eliminate aliens or equipment before losing all of one's "lives." To successfully complete each mission, players must eliminate a "quota" of aliens or equipment. At the end of a mission, a player who has "lives" remaining can select another mission and continue playing.

When either player has no "lives" remaining, a "continue" message appears on screen allowing that player to get back into the game by inserting currency. The game is suspended for the remaining player until more currency is inserted or "continue" time expires, then proceeds for the remaining player from the point it left off.

Play may pause from time to time during a particular mission to inform the players of their score and accuracy ratings. A second player can join the game at these times while the game displays a JOIN IN on-screen message.

During the game, players gain points not only by shooting aliens, but also by targeting certain objects. Players should shoot objects as instructed on screen to gain extra points or weaponry.

At various intervals throughout the game, players can acquire extra ammunition or weaponry. Players shoot floating "power up" symbols to obtain a more powerful weapon. Shooting certain other targets gains players specific weaponry for the player's arsenal.

Aliens shoot back at players. Each time an alien shoots back successfully, the player loses one "life." The player also loses any "power up" weaponry. Play continues until all "lives" are exhausted for both players.

The game has "secret rooms," where players can gain more points by shooting targets without being fired upon in return. In some cases, targets must be shot in a particular order to enter a "secret room." When either player opens the "door" to the secret room, both can gain points by shooting targets.

Players should avoid shooting certain characters wearing blue military uniforms or jumpsuits labeled "S.T.A.A.R.," an abbreviation of "Strategic Tactical Advanced Alien Response." Shooting any of these characters loses a player one "life," and eliminates any "power up" weaponry acquired.

When play is over, players can enter their initials if they have a high score. If players do not purchase any more credits, the game automatically returns to the "attract mode."

OPERATOR CONTROLS

CABINET SWITCHES

- ◆ **Power Switch** (on the power supply at the rear of the cabinet).
The **Power Switch** turns off the game during service. It does not reset the game variables.
- ◆ **Monitor Remote Adjustments** (typically behind the coin door or in the cabinet near the monitor).
The **Monitor Remote Adjustment Board** sets the video display for optimum viewing.
- ◆ **Slam Tilt Switch** (on coin door) prevents cabinet abuses such as pounding to obtain free games.

CONTROL SWITCHES

- ◆ **Volume Down and Volume Up Buttons** (frequently mounted on or behind coin door in many games). The **Volume Down** and **Volume Up** push-button switches increase or decrease game sound levels. Press either button briefly to make minor changes. Press and hold a button to make major changes.

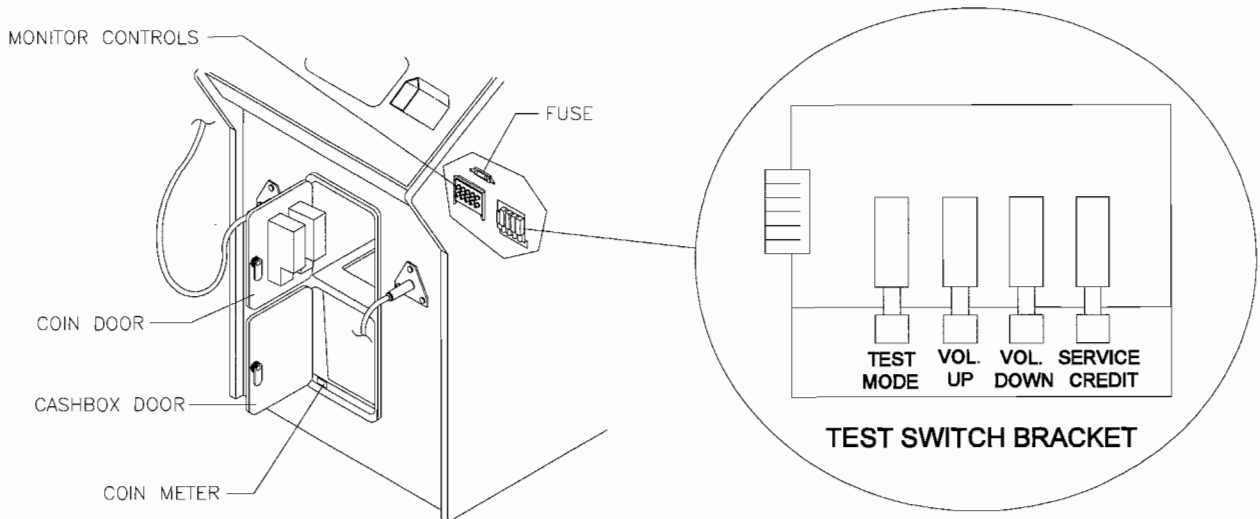
NOTE

The Attract Mode volume is controlled independently of the Game Mode volume.
For greater profits, adjust your volume levels to a loud setting to draw attention to this game.

- ◆ **Test Mode Button** (on or behind the coin door). The **Test Mode** push-button switch enters the menu system. Press the Test Mode button briefly to run automatic tests. To make changes, press and hold Test until the system menu is displayed.
- ◆ **Service Credit Buttons** (mounted on or behind the coin door on games equipped with this switch).
The **Service Credit** push-button switch allots credits without changing the game's bookkeeping total.

These buttons may also be used instead of the guns when operating the menu system.

NOTE: The coin door must be open to reach the control switches.



CONTROL SWITCH LOCATION

MENU SYSTEM

SYSTEM OVERVIEW

Game variables and diagnostics are presented in a series of on-screen menus. The Main Menu screen allows the operator to view information, make changes, or verify equipment operation. Each Sub Menu screen displays one specific group of choices. The Detail Menu presents data or runs the required test. You must be at the Detail Menu level to detect errors, make changes, or activate tests. Both the operator controls and the player controls are used to move through the menus and start or stop particular routines.

SCREEN LAYOUT

Each menu screen is different, but the material presented stays in the same physical location each time.

The color bar at the top center of each screen displays the current menu title.

The center of the screen is used for data (menu items, video signals, statistics, reports, etc.)

The bottom of the screen is reserved for messages (control functions, revision levels, etc.)

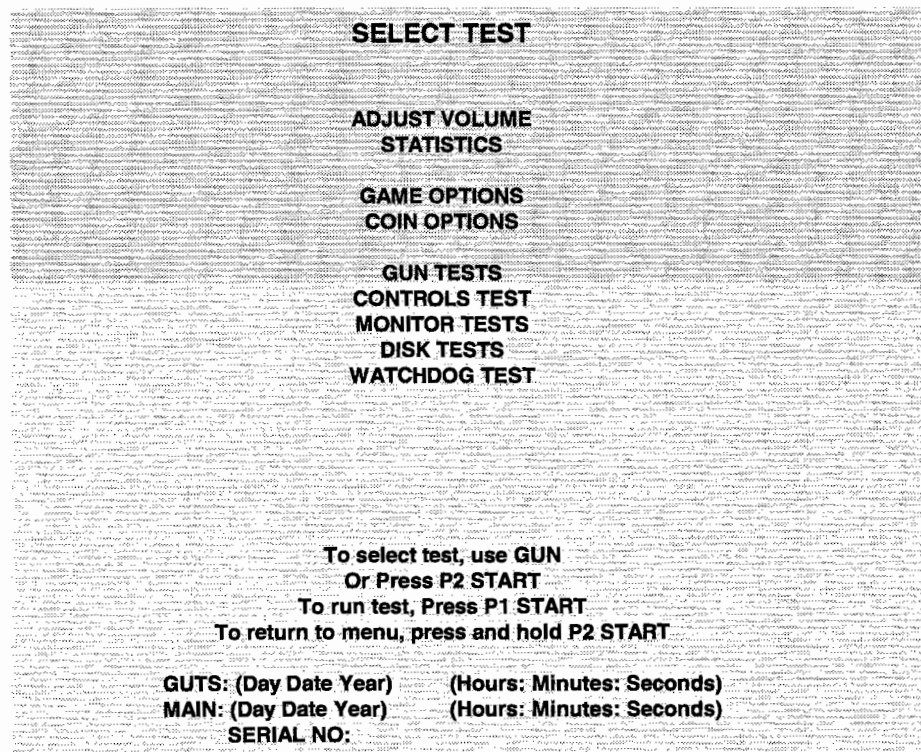
ORGANIZATION

Main Menu screen items fall into two categories: options and tests. Items must be activated manually.

Sub Menu screen items offer the operator choices within a category. Some items have no Sub Menu while others may have more than one. You can get back to the previous menu or go on to the next menu.

Detail Menu screen items contain specific information. The operator commands the system to get results or to make changes. There is always a way to go back to the previous menus from this screen.

Use the control indicated to highlight an item on any menu. Only one highlighted item can be selected at a time. To return the game to normal select this option with the indicated control.

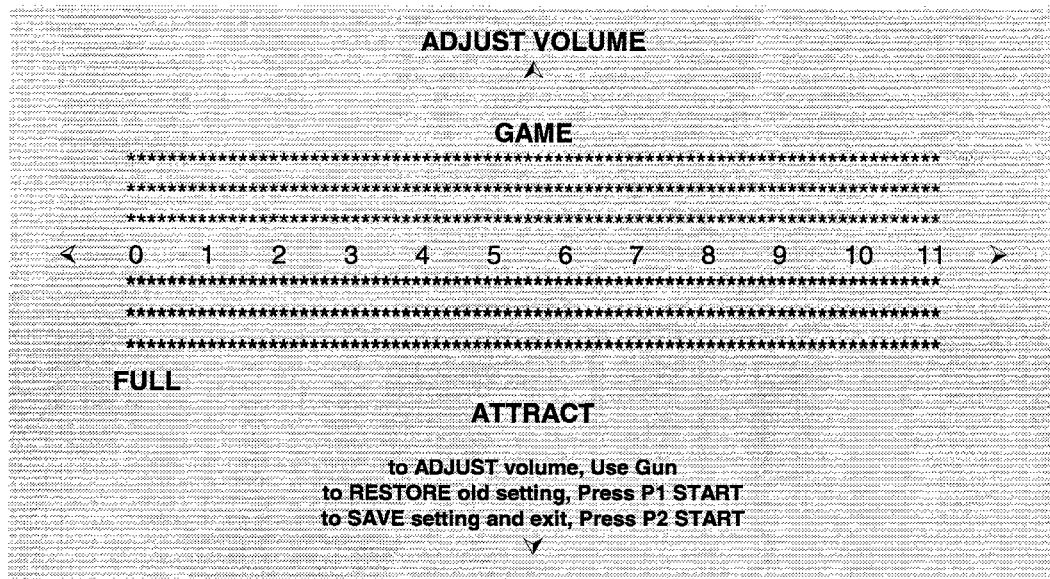


TYPICAL SELECT TEST MENU SCREEN

VOLUME ADJUSTMENT

The Volume Adjust feature allows the operator to determine the sound and music level of the game.

The volume level can be adjusted for either the Attract Mode or the Game. Press the Volume Up button to raise the volume level and the Volume Down button to lower the volume level. Fire a gun at the left or right arrows to raise or lower the volume level. Music plays continuously during adjustment.



VOLUME ADJUSTMENT MENU SCREEN

Shoot a gun at the up or down arrows to choose either "Game" or "Attract" volume adjustment. When the selected variable is flashing on the screen, shoot the left or right arrows to change the level as desired.

The "Game" volume is continuously adjustable from zero to eleven. The game will seem more realistic if the player experiences high volume sounds during play (these weapons do not have silencers).

The "Attract" volume is continuously adjustable from Mute (zero) to maximum (FULL). For greater profits, adjust your volume levels to a loud setting to draw attention to this game.

The "Attract" and "Game" volume levels may be adjusted to different values independently, but "Attract" cannot be set higher than the level chosen for normal game play. If the "Game" level is lowered, it will automatically lower the "Attract" level. Lowering the "Attract" volume level will not affect the "Game" setting. Raising the "Attract" volume will simultaneously raise the "Game" setting after the "Attract" volume reaches the "FULL" setting.

The current volume level is represented by the length of a bar made of dots. A longer bar indicates a higher volume setting than a short bar. Factory default for "Game" and "Attract" volume levels is 7.

Be certain to press only the Player 2 START button after making any volume adjustments. The Player 1 START button will cancel any settings on the screen and return both levels to the previous screen values.

NOTE: These adjustments affect the volume of the tests as well as the game play. If the volume levels are set to minimum (zero), there will be no sounds from the speakers during any of the audio tests. It is recommended that the volume levels be set to a moderately high value each time the sound portion of the game or the speakers are checked. The levels may be returned to their previous settings after the tests have been completed.

STATISTICS

The Statistics report allows the operator to assess how well the game is being played. In addition to the earnings, various game aspects are tracked to determine the player skill levels.

Statistics may be reset to zero or allowed to increase after each viewing. To reset the statistics, hold the Player 1 START button, then press the Player 2 START button.

STATISTICS	
Coin 1 (Left)	:0
Coin 2 (Right)	:0
Coin 3 (Center)	:0
Coin 4 Coins	:0
Bill value	:0
Aux Coins	:0
Idle Mins	:0
1 Player Mins	:0
2 Player Mins	:0
Session Mins	:0
New Games	:0
Cont Games	:0
Free Games	:0
New Game Times	0:00
Cont Game Times	0:00
Free Game Times	0:00
Mach Sessions	:0
Error Count	:0
Total Coins	:0
Avg. Time/Coin	0:00
Percentage Play	:0

To clear these counters,
hold P1 START and press P2 START
For more stats, Press P2 START

STATISTICS REPORT MENU SCREEN

The illustration shows how the report screen will look after resetting the game or turning it on for the first time. Most of the statistics will increase in value as the game is played. It is normal for some values to remain at zero. For example, the Aux Coins count will not change unless an additional Currency Acceptor has been installed in the game, and the Error Count will not change if there are no errors.

Low counts in both coin and player statistics may indicate that the game is too difficult for the skill levels of the players at this location; high continue counts may indicate that the game is not difficult enough. The difficulty level and other play characteristics may be adjusted from the Game Options menu.

Record the Statistics before doing any service or repairs on this game.

Press the Player 2 START button to view the additional game statistics. Press the Player 2 START button again to display the HISTOGRAMS sub-menu, which allows several choices to graphically represent player progress.

Select CLEAR ALL HISTOGRAMS to cancel any data on the screen and return all counts to the factory default values.

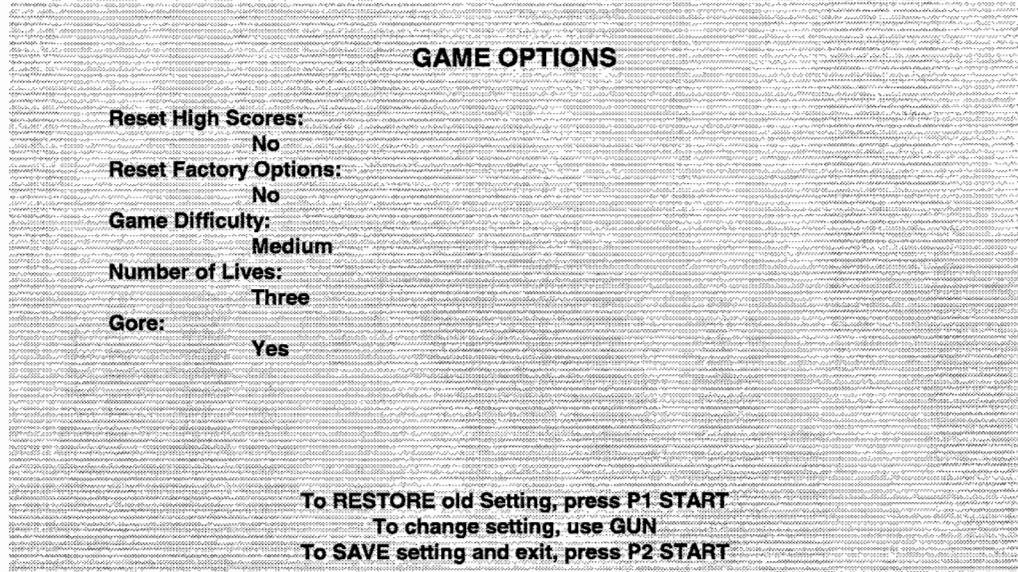
The HISTOGRAMS screens will have no bar graphs until the system has enough data to plot.

When the system detects an error, a USER MSGS screen will appear.

GAME OPTIONS

These adjustments allow the operator to customize the game. Each of the variables will change some aspect of game appearance or play. Optimum settings cause high player interest and increase earnings.

Use the Player 2 START button to select a menu item. The gun is also used to view the range of choices and change its value. Reset the options to factory defaults, change them, or leave them alone after each viewing. Use the Player 2 START button to scroll to other menu options, if MORE ABOVE or MORE BELOW appears on screen.



GAME OPTIONS MENU SCREEN

The illustration shows how this report screen will look after resetting the game or turning it on for the first time. Use the GUN to select a variable or advance it through its range of choices. Some items have more options than others do. View all of the choices before selecting one.

By comparing statistics reports before and after making changes, operators can judge the effects of these options. As players become more familiar with the game, new features or increased difficulty will make the game challenging and continue to generate interest.

Gore controls whether the game shows blood on screen. Factory default is Yes.

Game Difficulty ranges from "Easiest" to "Hardest" in several stages. Factory default is Medium.

Number of Lives ranges from three to six. Factory default is three.

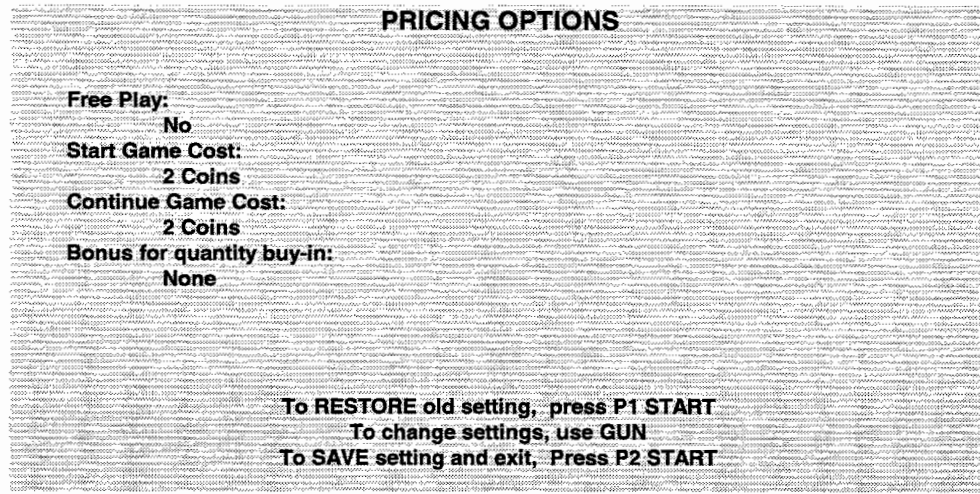
Record the High Scores before making any option changes to this game.

NOTE: Changes to Game Difficulty or Number of lives will automatically reset the Player High Scores, since these variables directly affect the ability to collect points.

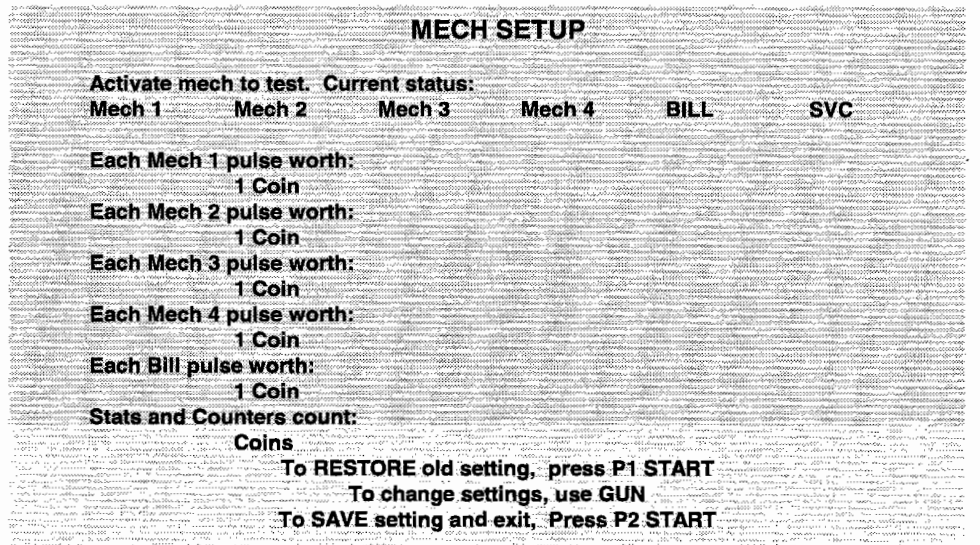
Press the Player 2 START button to save any changes and exit to the main menu.

COIN OPTIONS

Use the Coin Options are to set up the coin mechanisms and adjust the pricing of the games. Use the GUN to select a menu item and to view the range of choices or change its value. Operators may change, retain, or reset options to factory defaults after each viewing.



PRICING OPTIONS MENU SCREEN



MECH SETUP MENU SCREEN

The illustrations show how these screens will look with all of the factory default settings. Use the GUN to advance a variable through its range of choices. Some items have more options than others. View all choices before selecting one. If the message MORE BELOW appears at the bottom of the screen, use the GUN to view further options.

PRICING OPTIONS

Custom pricing sets credits required to start and continue a game, rewards for buy-in and winning, etc. There are no other options if free play is selected. *Free game player incentives may reduce earnings.*

MECH SETUP

Mech setup permits the operator to add or remove coin or bill mechanisms and test their operation. Although values are shown for all devices, changes to unused inputs will have no effect if there is no such mechanism in the game.

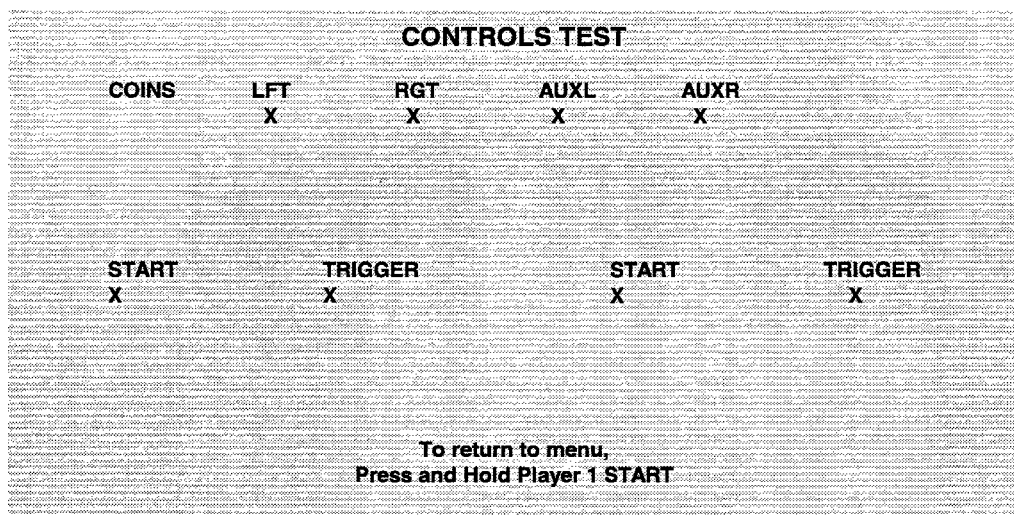
CONTROLS TEST

These tests allow the operator to manually check each switch in the game. Gun aim is tested separately.

NOTE

Some switches may not be used with this game. Check the wiring diagram before testing.

Use any gun to select the Controls Test. Press the Player 2 START button to begin the test. Activate each switch and the switch indication on the screen changes from "X" to "O". Release the switch and the indicator returns to its previous normally open or closed condition. Switches may be tested in any combination.



CONTROLS TEST MENU SCREEN

PLAYER CONTROLS are shown on the screen just as they are found on the cabinet control panel. Each switch change should be exactly duplicated by a single indication on the menu screen.

The Player Controls Tests are used to verify crossed wires, intermittent conditions, and stuck switches.

OPERATOR CONTROLS are shown on the screen just as they are found on the coin door bracket. Each switch change should be exactly duplicated by a single indication on the menu screen.

The Operator Controls Tests are used to verify crossed wires, intermittent conditions, and stuck switches.

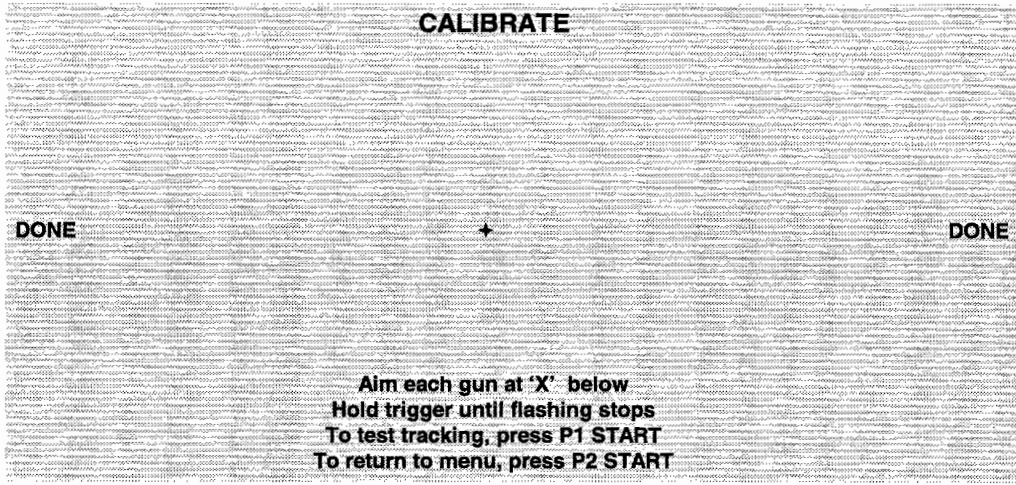
The Coin and Cabinet Switches are shown on the screen without regard for their actual game location. Each switch change should be exactly duplicated by a single indication on the menu screen.

These Switch Tests are used to verify crossed wires, intermittent conditions, and stuck switches.

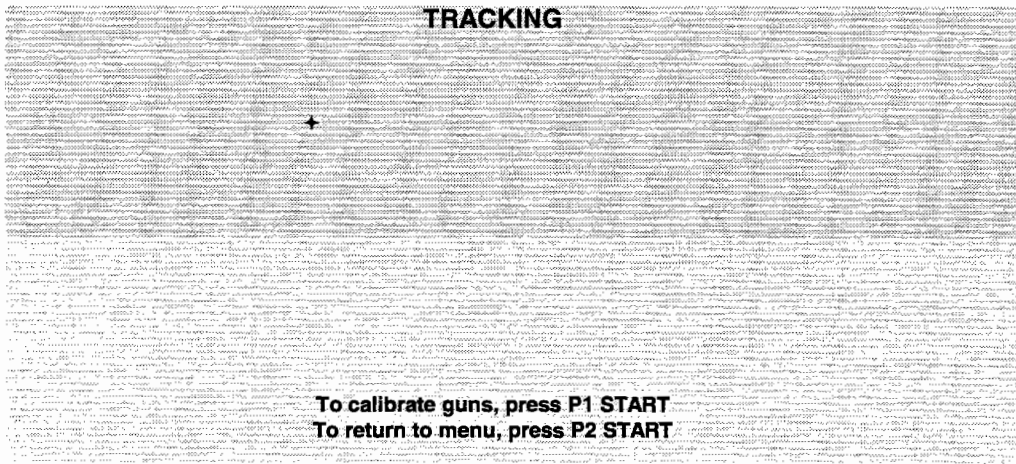
GUN TESTS

These tests allow the operator to change gun calibration and verify precise aim for all points on the screen. Inaccurate firing will discourage players quickly and reduce repeat game play.

Use Player 2 START to select Gun Tests. Aim and fire each gun at the target until the screen indicates successful calibration by displaying DONE on screen. Press the Player 2 START button to check all guns for tracking after adjustment. The target indicator of each gun should be continuously visible on all parts of the screen during the TRACKING test if the gun is properly calibrated. If the indicator stalls or disappears while aiming at any part of the screen, recalibrate the gun and repeat the TRACKING test.



GUN CALIBRATION SCREEN



GUN TRACKING SCREEN

The illustrations show how these screens will look when each test begins. Fire guns one at a time to avoid miscalibration. Test and recalibrate guns often to keep the game at maximum earnings.

Before calibrating, check the gun barrels for dirt or debris. No amount of calibration and testing can fix a dirty optical system, loose components, or defective cables.

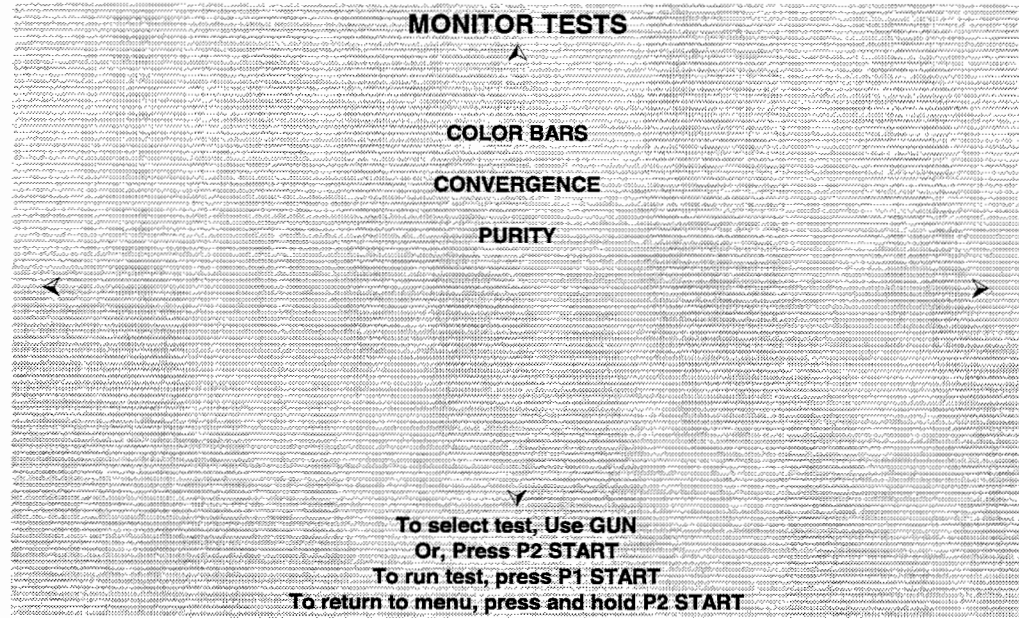
Stand directly behind the gun holder and extend the cable to its full length during these gun tests.

NOTE: Bright overhead lights can occasionally interfere with proper optical gun operation. Reduce light levels and recalibrate guns to minimize or eliminate this problem.

MONITOR TESTS

The Monitor Tests provide patterns for verifying the monitor performance or making adjustments.

Use the GUN or the Player 2 START button to select a menu item. Press the Player 1 START button to begin the test. Once the menu is open, use a gun or the Player 1 START button to select an option, and the Player 1 START button to begin it. Press and hold the Player 2 START button again to return to the Monitor Tests menu screen.



MONITOR TESTS MENU SCREEN

COLOR BARS fills the screen with shades of colors to verify red, green, blue and white level dynamic adjustments. Each color bar should appear sharp, clear, and distinct from bars on either side.

Borders must be visible on top, bottom, and both sides of the screen. The color bars should not change screen position or color as the background or border are removed or restored from the video display.

The Color Bars screen is useful in adjusting the monitor brightness and contrast.

CONVERGENCE tests fill the screen with a grid and a series of dots. The grid and the dots should be all one color, with no fringes or parallel images. The lines should be straight and the dots round.

Borders must be visible on top, bottom, and both sides of the screen. Lines and dots should not change screen position or color as the background or border are removed or restored from the video display.

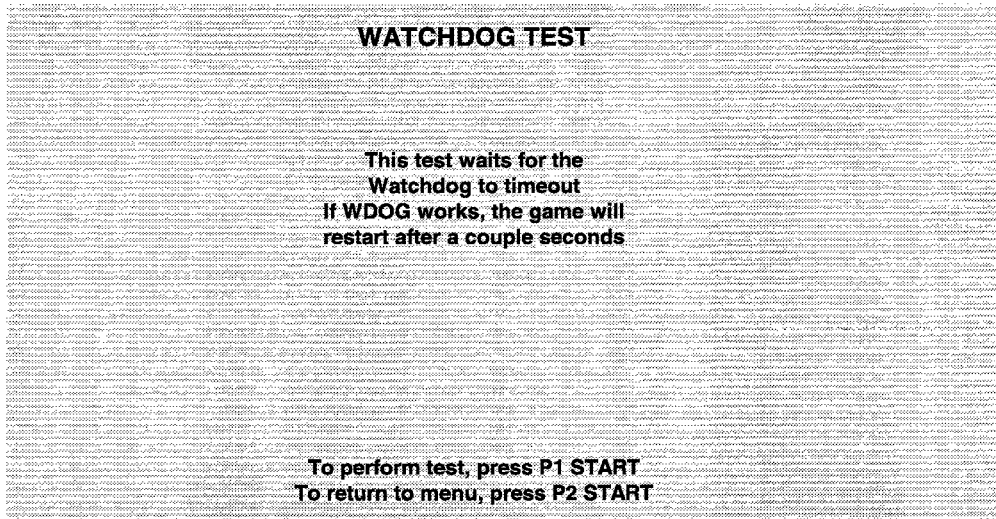
The Convergence tests are useful in verifying the monitor convergence, linearity, and dynamic focus.

PURITY tests fill the screen with 100% of the chosen color at normal intensity. Each screen should be absolutely uniform from top to bottom and side to side. No retrace lines or noise should be visible.

In the first series of tests, borders must be visible on top, bottom, and both sides of the screen. Image color should not change screen position or color as the background or border are removed or restored from the video display. A second series of tests removes the border and any text, filling the screen with the test color. Press the Player 2 START button to move through the test colors.

The Purity tests are useful in verifying monitor intensity, black level, blanking and automatic degaussing.

WATCHDOG TEST



This option tests the performance of the watchdog (reset) circuit jumper cable between the CPU Board and JAMMIT Board assemblies. Pressing the Player 1 START button resets the CPU and JAMMIT boards and restarts the game. Pressing the Player 2 START button returns to the main SELF TEST menu without performing the Watchdog Test. If the reset jumper cable connecting the boards is missing or faulty, the message "WATCHDOG FAILED Check RESET jumper cable" appears on screen.

SWITCHES AND JUMPERS

Electronics assemblies have a number of hardware variables that can be changed to adapt the assembly to other uses. Jumpers determine which circuit paths are active.

Switches

There are no switches on the CPU Board Assembly or the JAMMIT board.

Jumpers

Jumpers on the JAMMIT Board are used to control audio and video signals to other components in this game.

These signals are set to match the production audio amplifiers, speaker system, and video monitors.

The active circuit paths have been optimized at the factory during the board test procedure. Refer to Wiring (Section Three) for the function of each jumper and recommended settings.

ERRORS

The system may detect errors at start up or during various diagnostic tests and reports them on screen. Always record error messages before attempting to correct any problem. In most cases, the game will continue to operate with reduced performance after discovering minor errors.

NOTE: *Do not ignore error messages even if the game continues to operate. Games with errors may generate reduced earnings due to poor performance.*

AREA 51 SITE 4™

SECTION TWO

PARTS

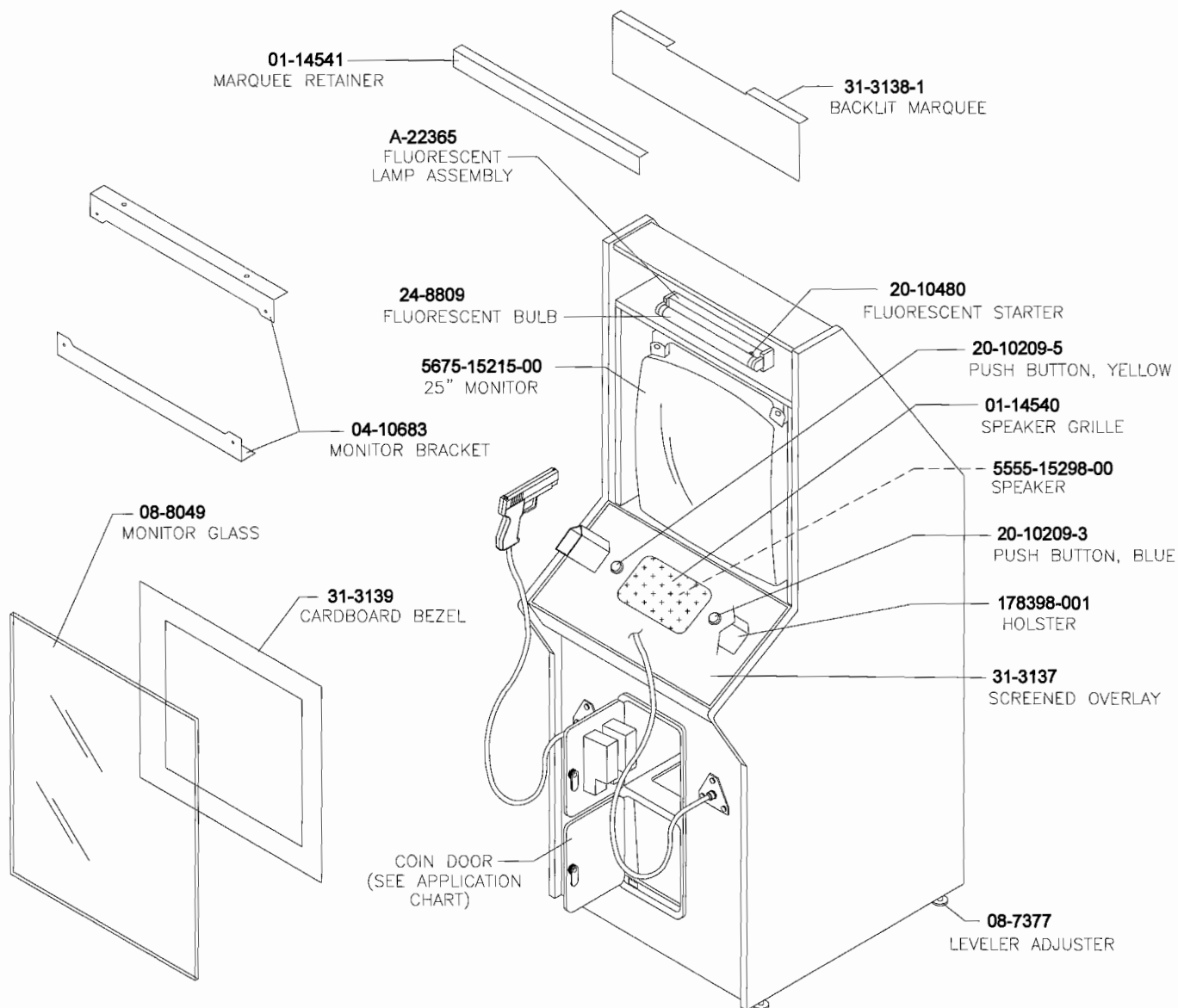
Warning

USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* For safety and reliability, substitute parts and modifications are not recommended.

* Substitute parts or modifications may void EMC directive or FCC type acceptance.

CABINET FRONT VIEW



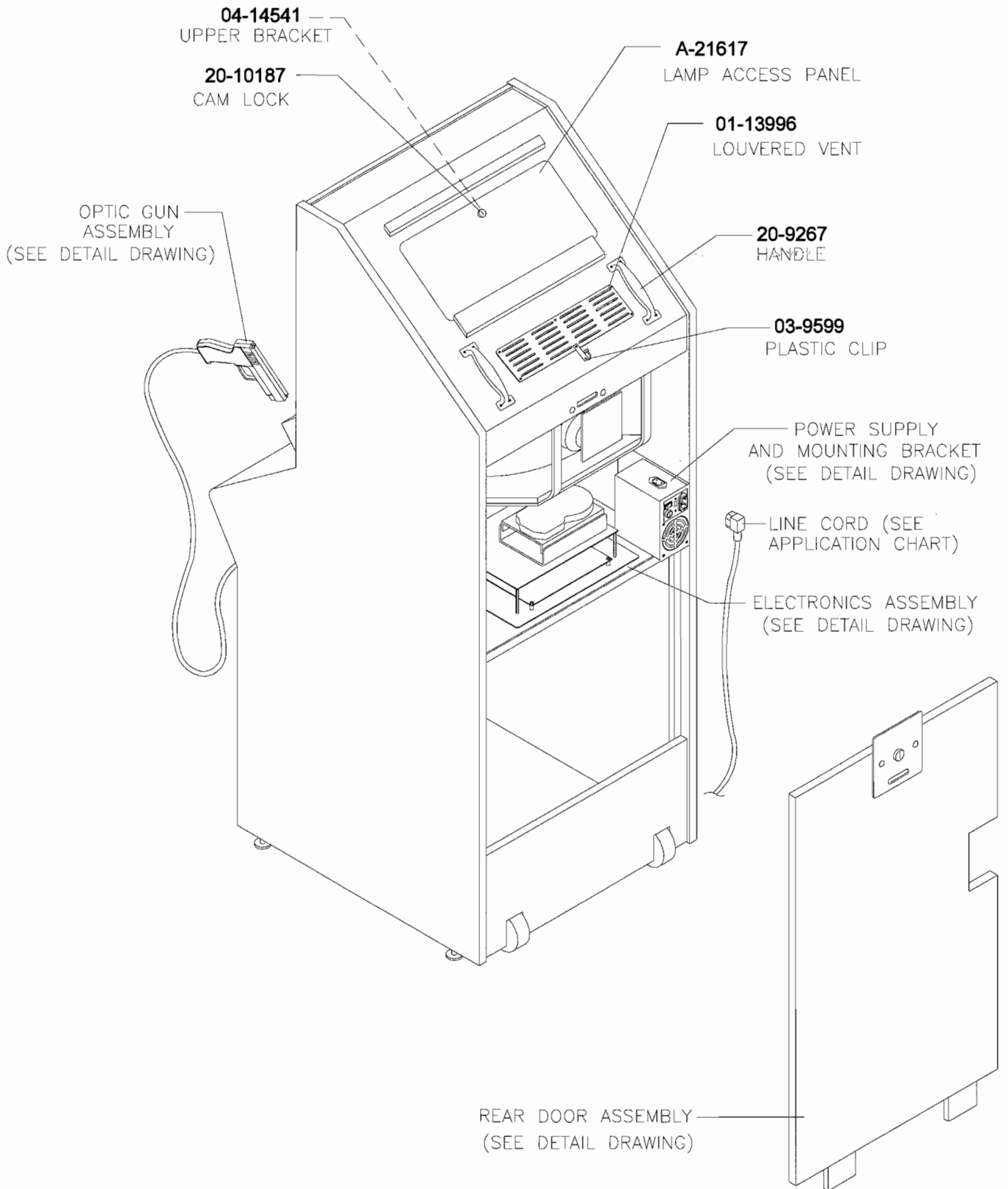
HARDWARE NOT SHOWN:

4008-01113-06	MS 8-32X3/8 PL-HWH (4)
4020-01070-20	MS 1/4-20X1-1/4 HH (8)
4106-01001-12	SMS #6X3/4 P-PH
4106-01115-12	SMS #6X3/4 PL-HWH (2)
4108-01022-08	SMS #8X1/2 P-RWH-A (4)
4108-01193-10B	SMS #8X5/8 TRX-TR (15)
4208-01203-20	WS 8X1-1/4 PH RWH BLK (10)
4310-01136-20B	BOLT 10-32X1-1/4 CB (6)
4320-01123-20B	BOLT 1/4-20X1-1/4 CB (2)
4408-01128-00	NUT 8-32 KEPS (2)
4410-01128-00	NUT 10-24 KEPS (6)
4410-00129-00	NUT 10-32 KEPS UNF (6)
4420-01128-00	NUT 1/4-20 KEPS UNC (4)
4420-01141-00	NUT 1/4-20 FLANGRIP (2)
4608-01081-11	H-F #8X11/16 PL-HWH (22)
4700-00032-00	FW .265X.625X.067 (8)
4700-00129-00	FW .203X.468X.030 (12)
4701-00005-00	LW 1/4 SPLIT (8)

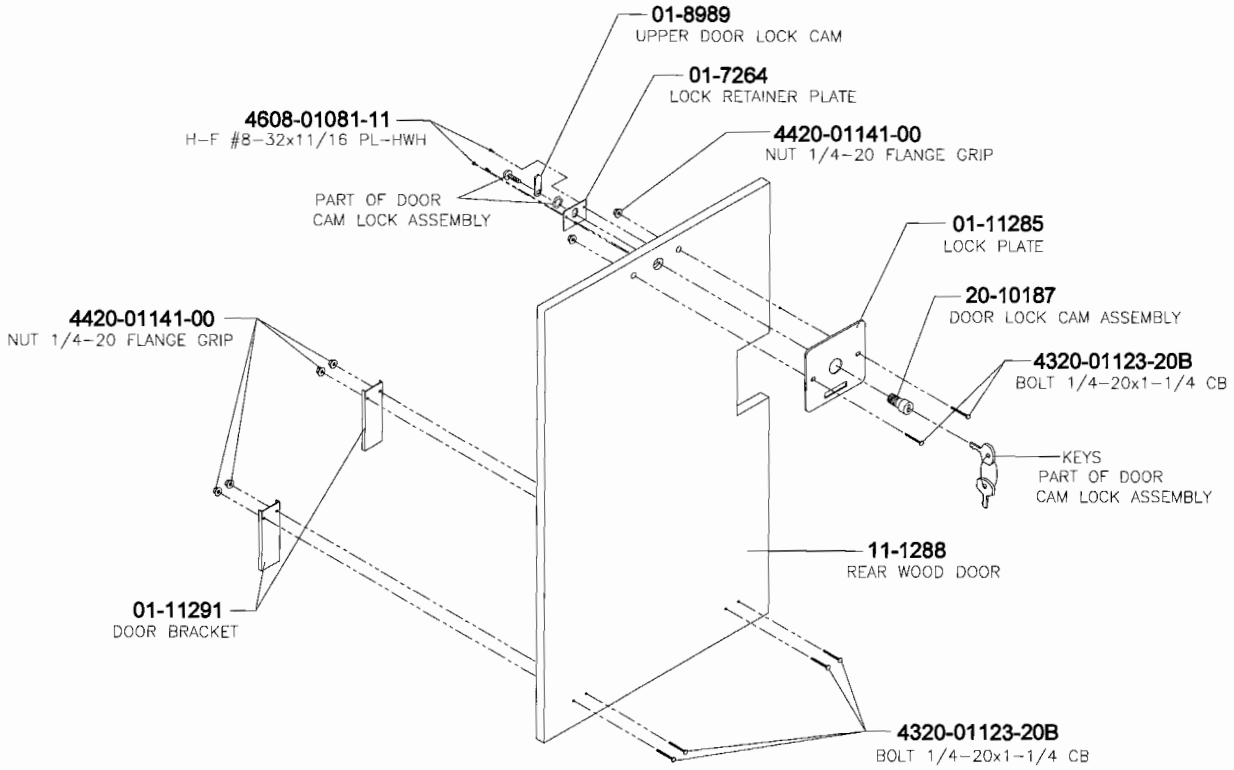
ASSOCIATED PARTS NOT SHOWN:

A-22365	120VAC60Hz FLUORESCENT LAMP ASS'Y
A-21504	230VAC50Hz FLUORESCENT LAMP ASS'Y
A-22365-3	100VAC60Hz FLUORESCENT LAMP ASS'Y
24-8874	ALTERNATE FLUORESCENT BULB

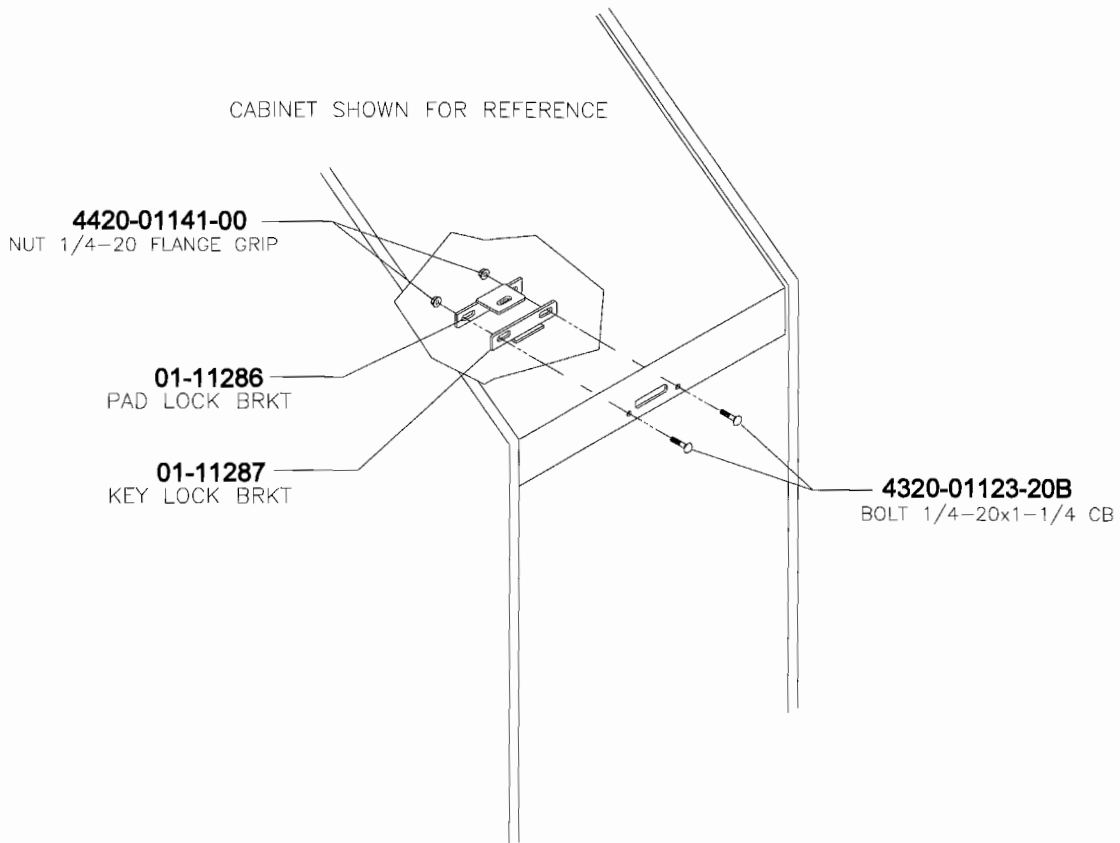
CABINET REAR VIEW



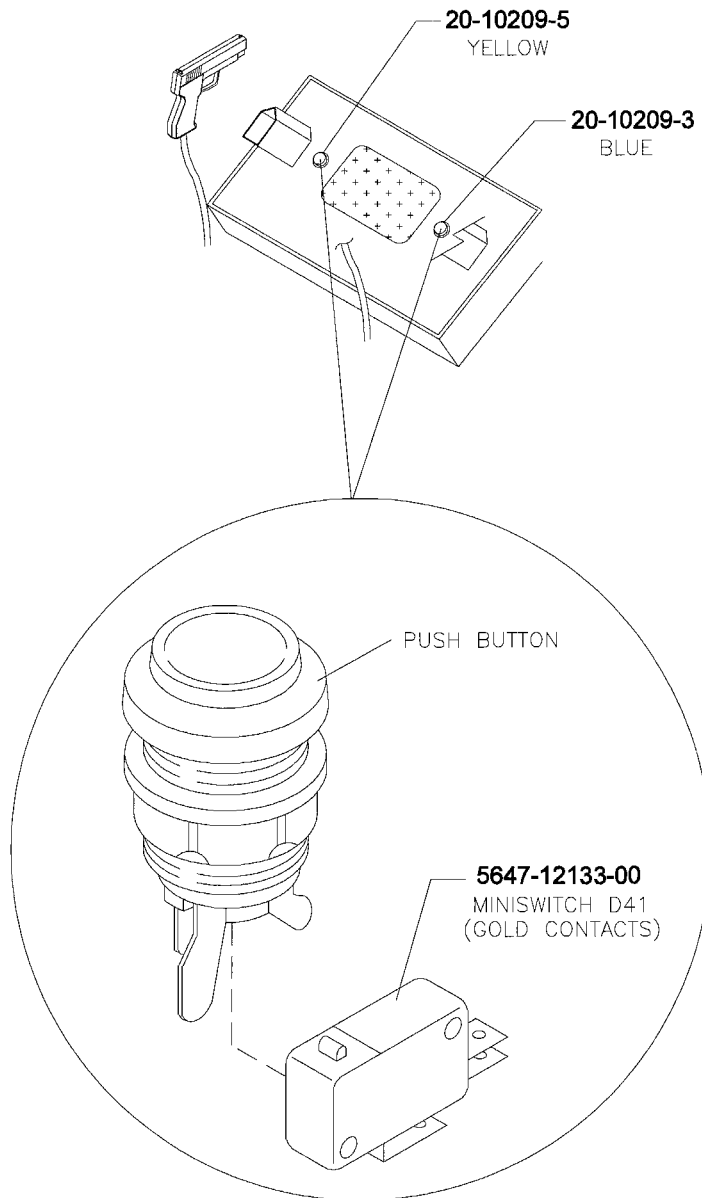
A-22510 REAR DOOR ASSEMBLY



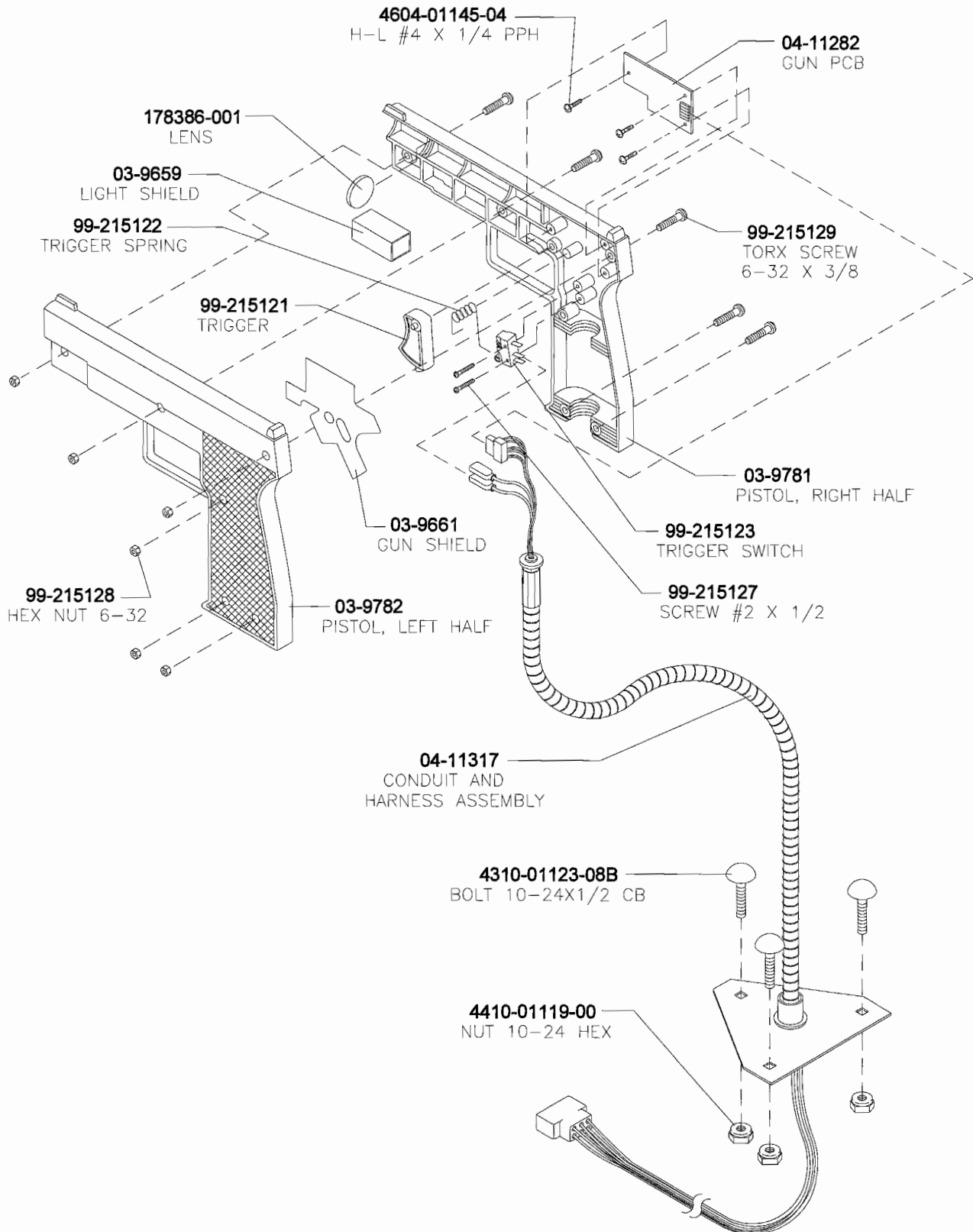
CABINET SHOWN FOR REFERENCE



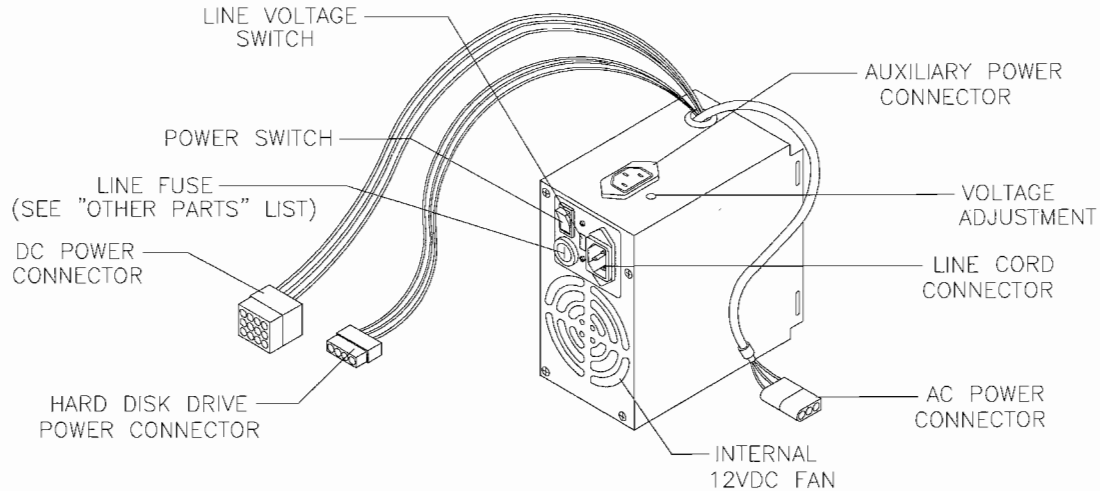
PUSHBUTTON ASSEMBLY



04-11243 OPTIC GUN ASSEMBLY



20-10400.1 POWER SUPPLY ASSEMBLY



A.C. AUXILIARY POWER CONNECTOR

PINS	FUNCTION	COLOR
1	LINE	BLACK
2	GROUND	GREEN
3	NEUTRAL	WHITE

D.C. MAIN POWER CONNECTOR

PINS	FUNCTION	COLOR
1,2,3	+5 VDC	RED
4,5,6,7,8	RETURN	BLACK
9	-5 VDC	BLUE
10,11	+12 VDC	YELLOW
12	-12 VDC	WHITE

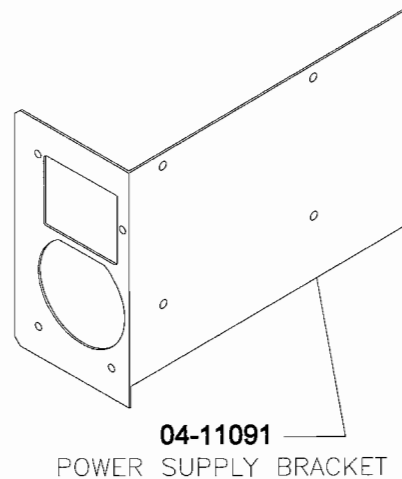
HARD DISK DRIVE POWER CONNECTOR

PINS	FUNCTION	COLOR
1	+5 VDC	RED
2,3	RETURN	BLACK
4	+12 VDC	YELLOW

NOTE: Many computer grade power supplies use alternate wire colors. This is acceptable as long as the pinout is correct.

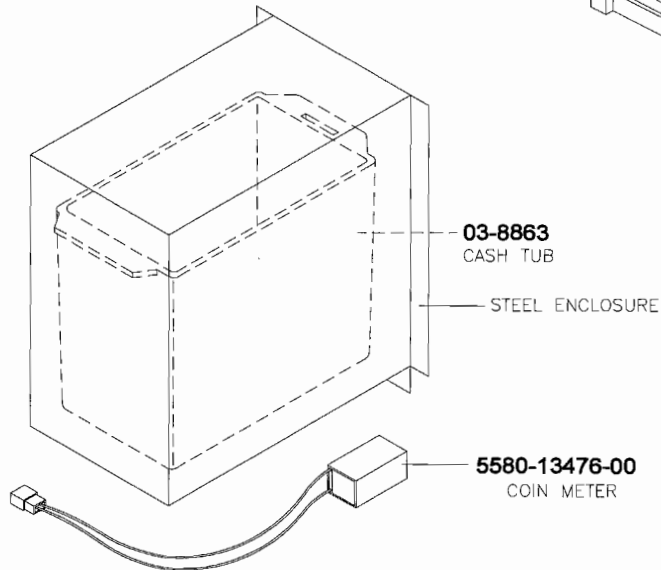
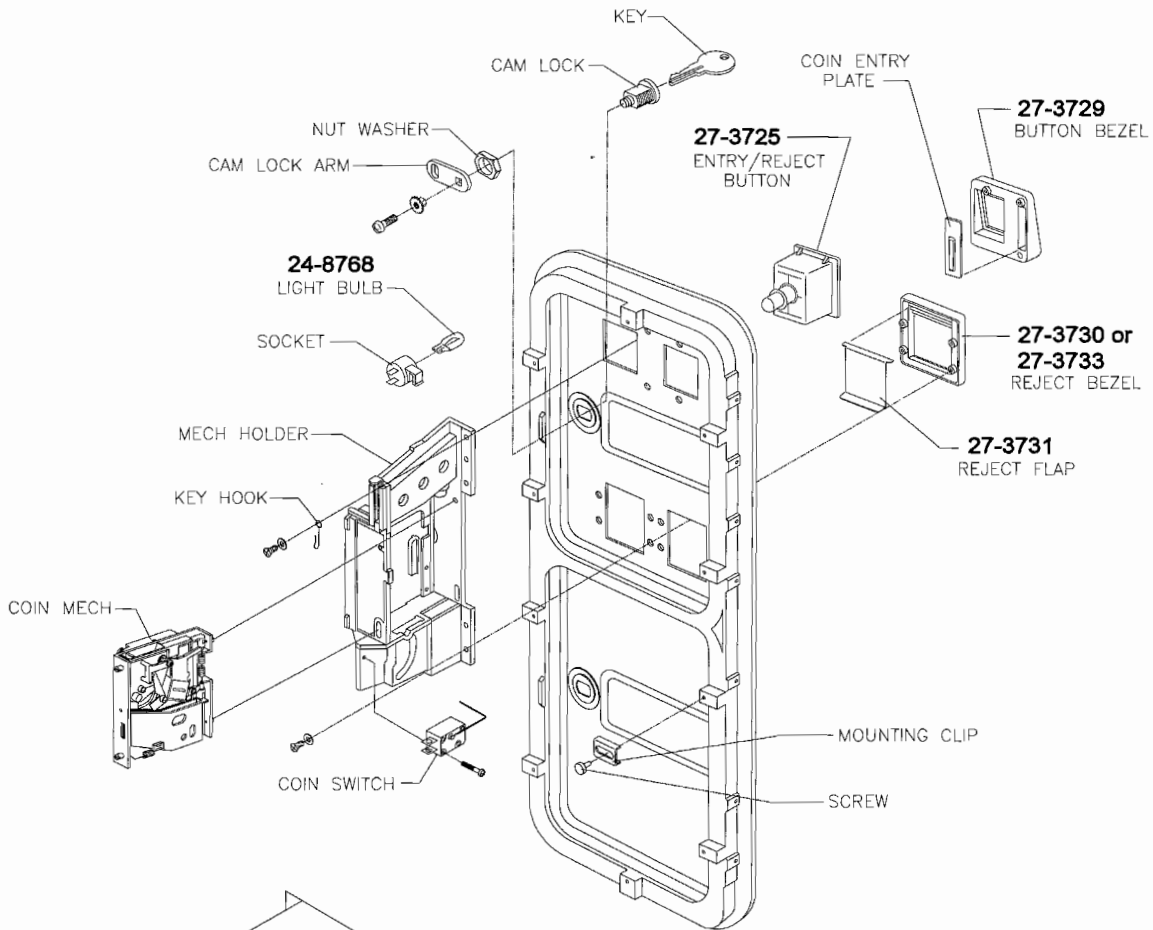
COUNTRY SPECIFIC LINE CORDS:

5850-15521-01	USA IEC AC CORD
5850-15521-03	UNITED KINGDOM
5850-15521-06	JAPAN



04-11091
POWER SUPPLY BRACKET

COIN DOOR ASSEMBLY

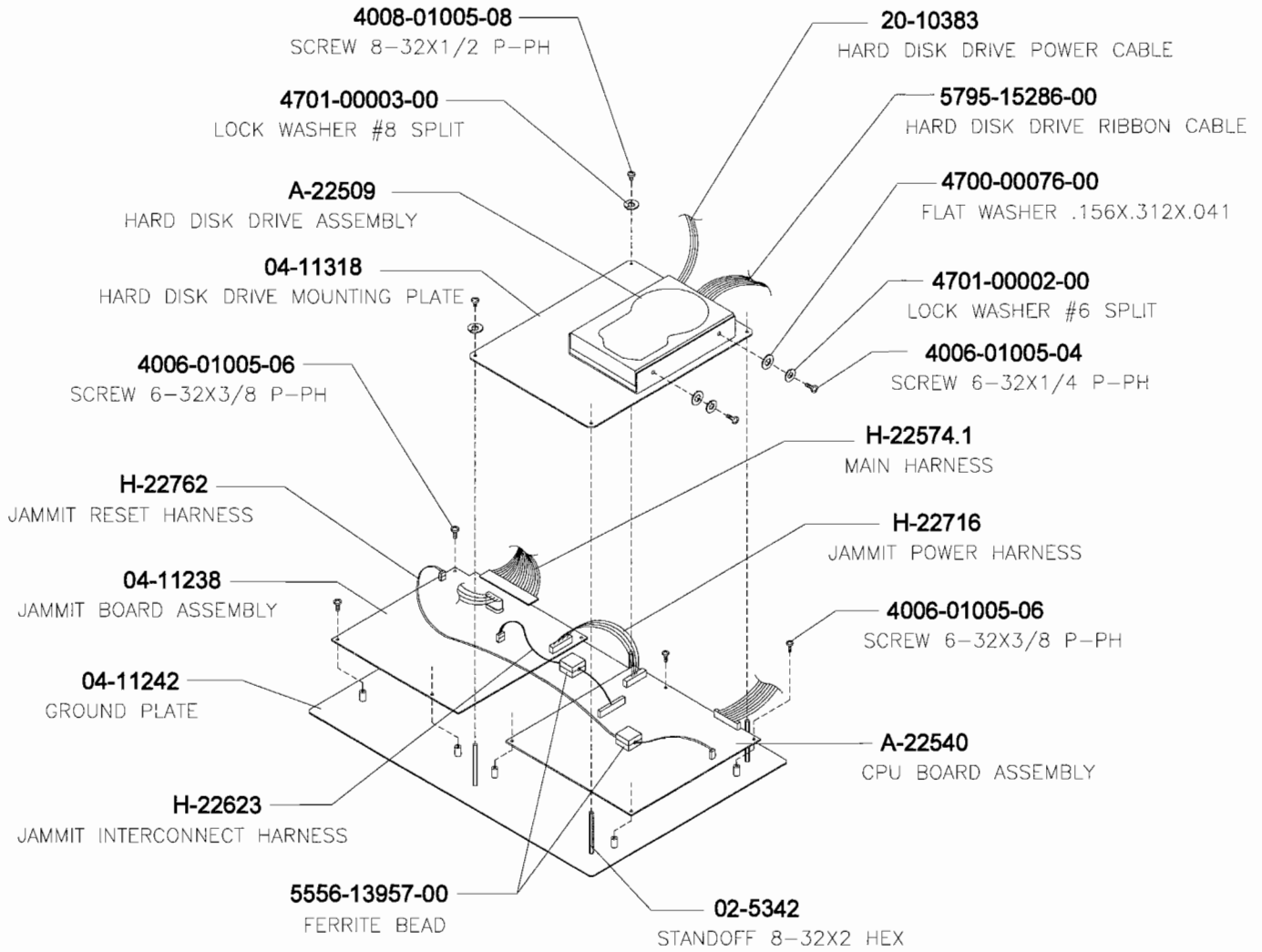


COUNTRY SPECIFIC COIN DOORS:

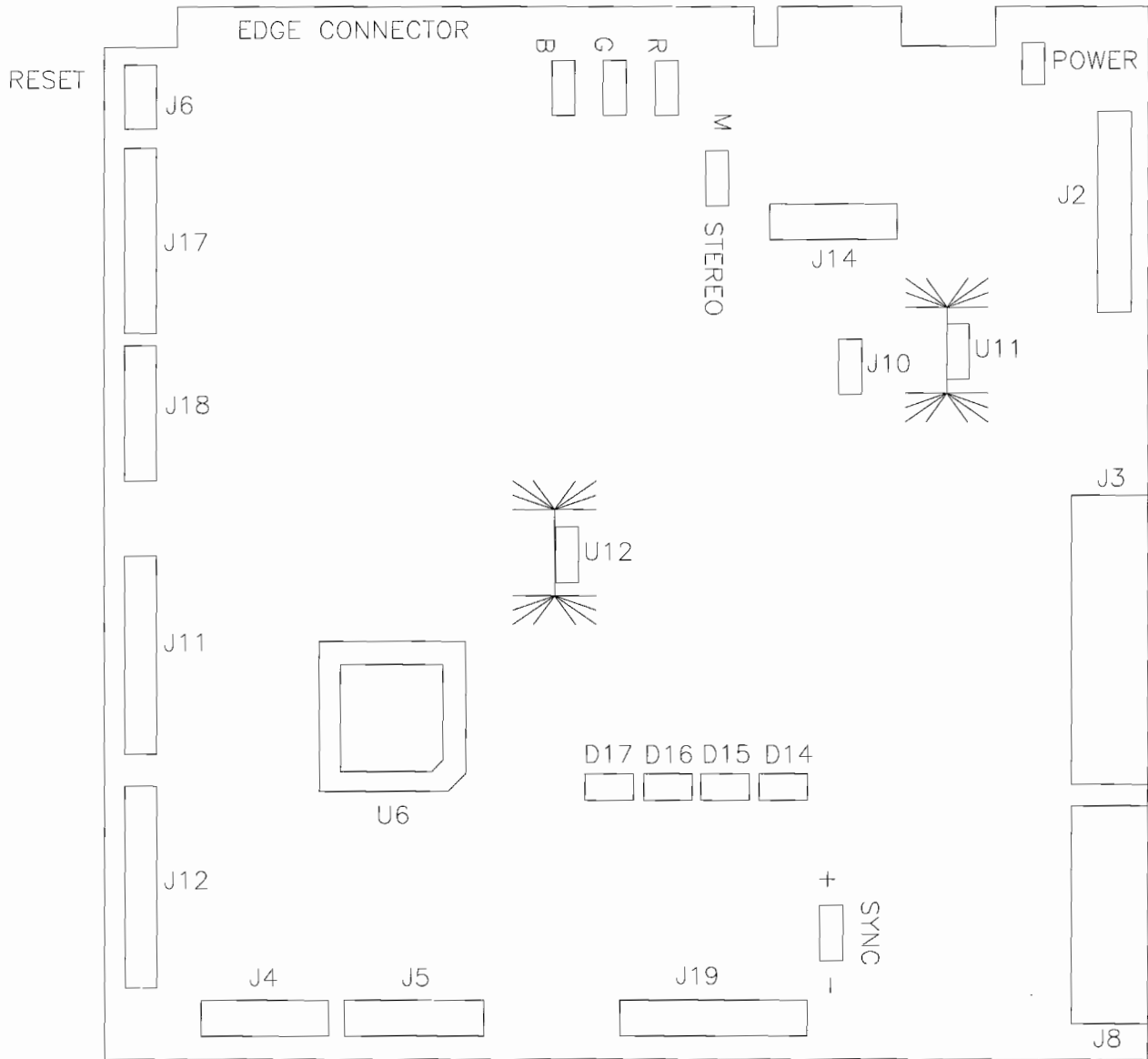
09-72000-1	UNITED STATES
09-22000-V-1	UNITED KINGDOM
09-72000-15	JAPAN

NOTE: The United Kingdom coin door requires Electronic Coin Mechanism Assembly part number 04-11139-3. The other coin doors include coin mechanisms.

A-22508 ELECTRONICS ASSEMBLY



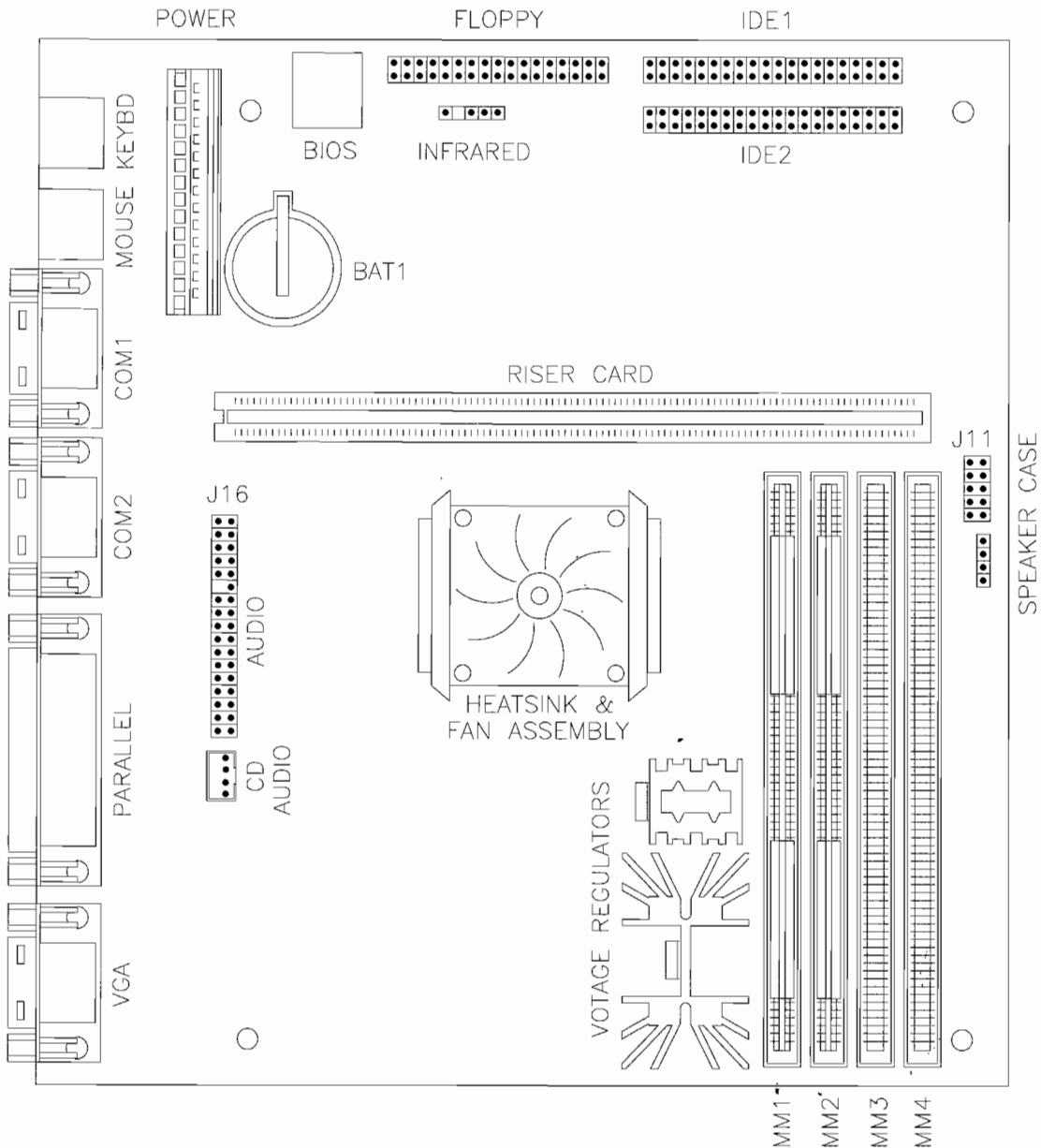
04-11238 JAMMIT PCB ASSEMBLY



Field Replaceable Parts

DESIGNATION	PART NUMBER	FUNCTION	DESCRIPTION
U6	A-22505	Gun control and security	FPGA Assembly
U11, U12	2370-14146-00	Audio amplifier	TDA 7240A

A-22540 CPU BOARD ASSEMBLY



Field Replaceable Parts

DESIGNATION	PART NUMBER	FUNCTION	DESCRIPTION
SIMM1, SIMM2	5343-15926-00	Random Access Memory	Working RAM
BAT1	5880-15925-00	Memory Backup	3V Lithium Battery CR2032
Fan	04-12466	Cools CPU	12V Fan Assembly
Q1, Q2	5250-15944-00	Adjustable Voltage Regulator	Voltage Regulator EZ1587

Other Parts Necessary

Power and Protection

Fuse 3AG 1A 250V	5730-15278-00
Power Supply Fuse 6.3AL 250V	5731-14529-00
A.C. Line Filter, 6A, 250V	H-22339
Bulb, Incandescent, 6.3V, #555	24-8768

Cables

Main Harness Cable	H-22574
Fluorescent Lamp Cable Assembly	H-21492
AC Harness	H-22575
Ground Wire	H-21672
Ground Wire Cable	H-21894

Documents

Product Registration Card	16-10650
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Tools

T-20 Tamper-Resistant Fastener Wrench	20-9620
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AREA 51 SITE 4TM

**SECTION
THREE**

WIRING

Warning

Failure to reconnect all ground wires or to replace metal shields and covers with each mounting screw installed and securely tightened may result in radio frequency interference.

Edge Connector Chart

(NOTE: Some cabinets do not use all wires listed below)

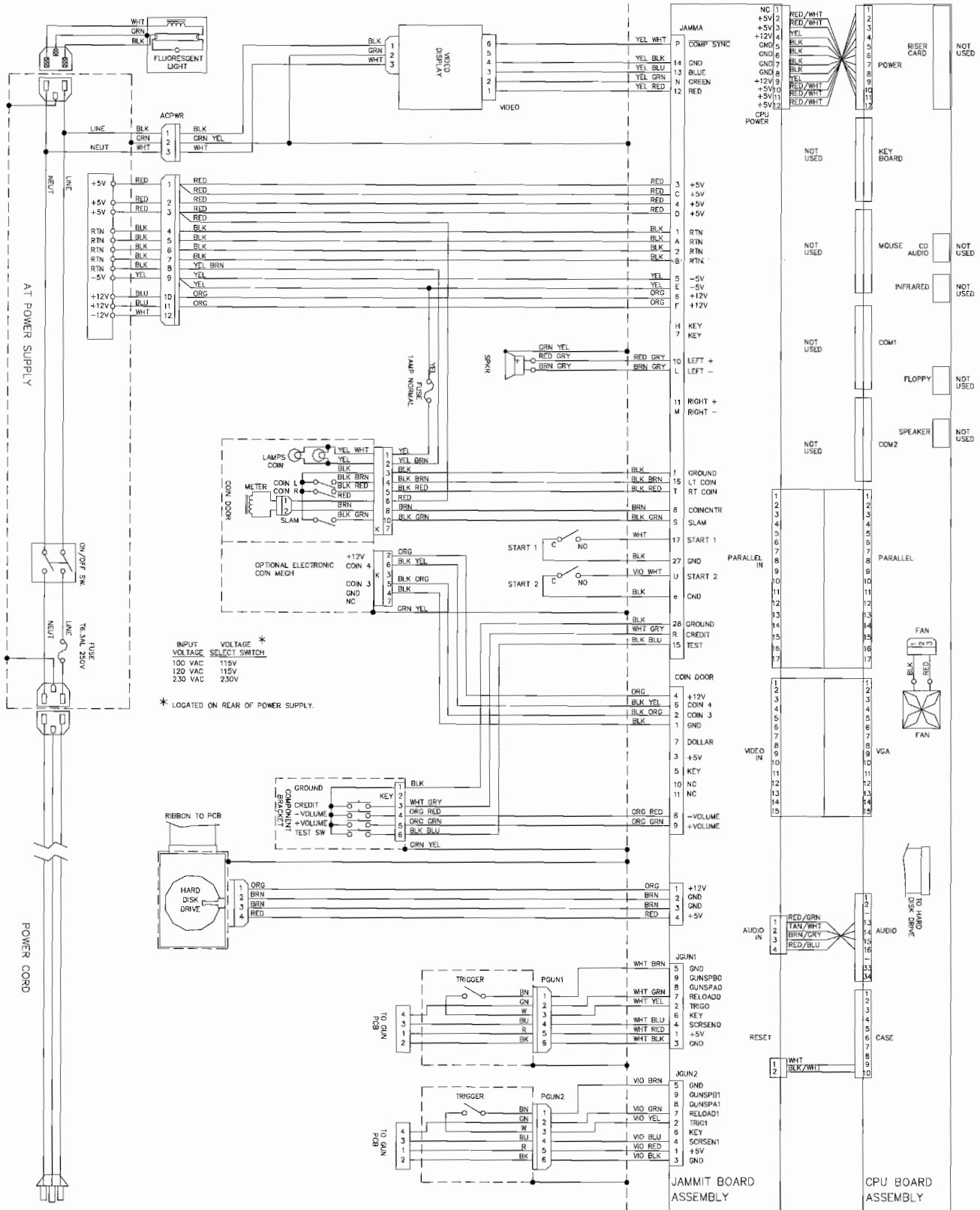
FUNCTION	WIRE COLOR	PIN	PIN	WIRE COLOR	FUNCTION
Ground	Black	A	1	Black	Ground
Ground	Black	B	2	Black	Ground
+5VDC	Red	C	3	Red	+5VDC
+5VDC	Red	D	4	Red	+5VDC
-5VDC	Yellow	E	5	Yellow	-5VDC
+12VDC	Orange	F	6	Orange	+12VDC
Key	N/C	H	7	N/C	Key
Coin Counter 2	Brown-Red	J	8	Brown	Coin Counter 1
Not Used	N/C	K	9	N/C	Not Used
Speaker -, Left	Brown-Gray	L	10	Red-Gray	Speaker +, Left
Speaker +, Right	Brown-White	M	11	Red-White	Speaker -, Right
Video Green	Yellow-Green	N	12	Yellow-Red	Video Red
Video Sync	Yellow-White	P	13	Yellow-Blue	Video Blue
Service Credits	White-Gray	R	14	Yellow-Black	Video Ground
Slam Tilt	Black-Green	S	15	Black-Blue	Test
Coin 2	Black-Red	T	16	Black-Brown	Coin 1
2 Start	Violet-White	U	17	White	1 Start
Not Used	N/C	V	18	N/C	Not Used
Not Used	N/C	W	19	N/C	Not Used
Not Used	N/C	X	20	N/C	Not Used
Not Used	N/C	Y	21	N/C	Not Used
Not Used	N/C	Z	22	N/C	Not Used
Not Used	N/C	a	23	N/C	Not Used
Not Used	N/C	b	24	N/C	Not Used
Not Used	N/C	c	25	N/C	Not Used
Not Used	N/C	d	26	N/C	Not Used
Ground	Black	e	27	Black	Ground
Ground	Black	f	28	Black	Ground
SOLDER SIDE			COMPONENT SIDE		

D.C. Power Source Voltage Limits

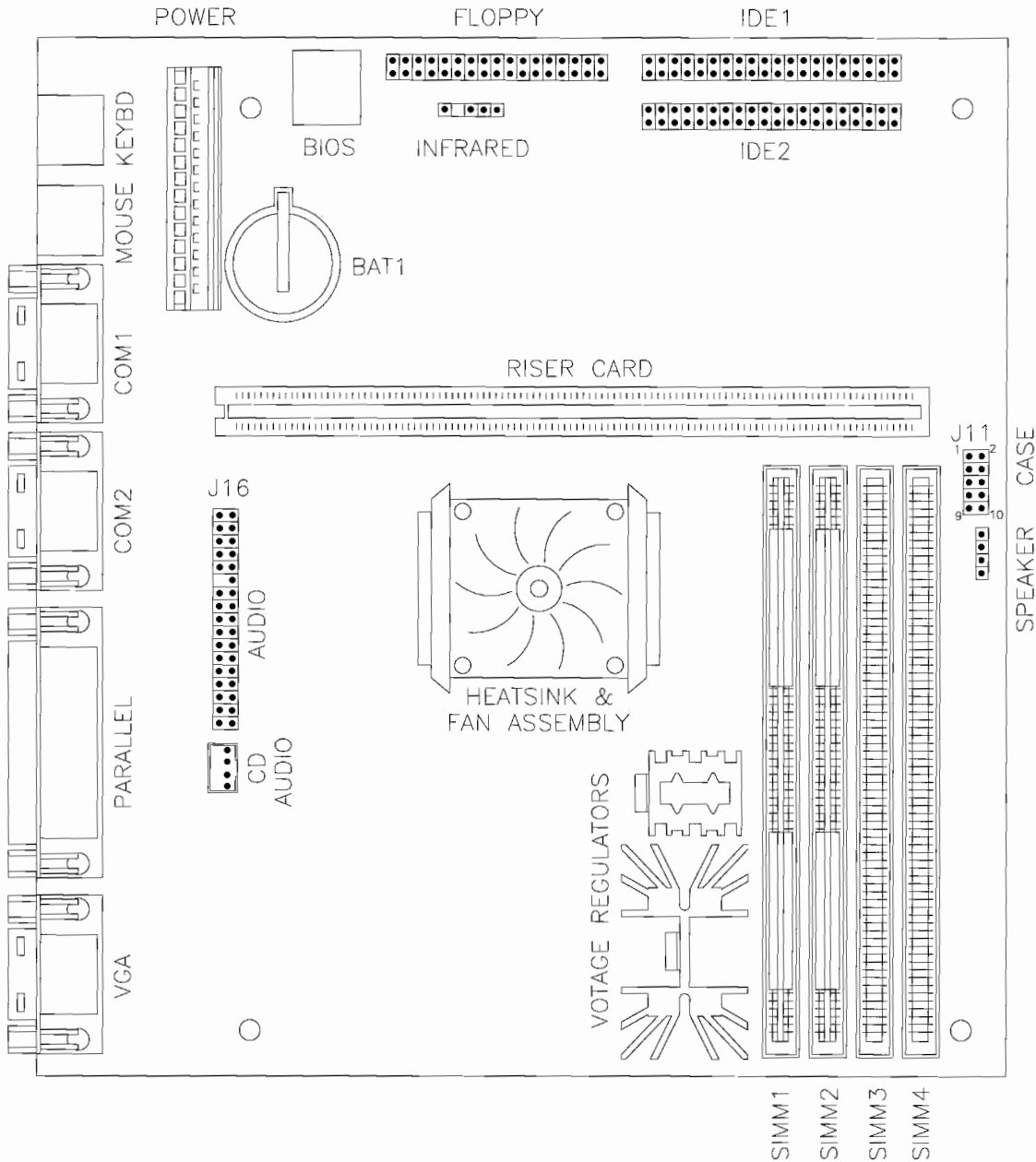
FUNCTION	RANGE LIMITS	COLOR	FUNCTION	RANGE LIMITS	COLOR
Digital Circuits	+4.90V to +5.10V	Red	Coin Lights	-4.75V to -5.25V	Yellow
Audio, Lights	+11.5V to +12.5V	Blue	N/C	-11.5V to -12.5	White

NOTE: Power Supply has +5V adjustment. All other source voltages are fixed.

MAIN CABINET WIRING DIAGRAM



A-22540 CPU BOARD ASSEMBLY



CPU CONNECTORS

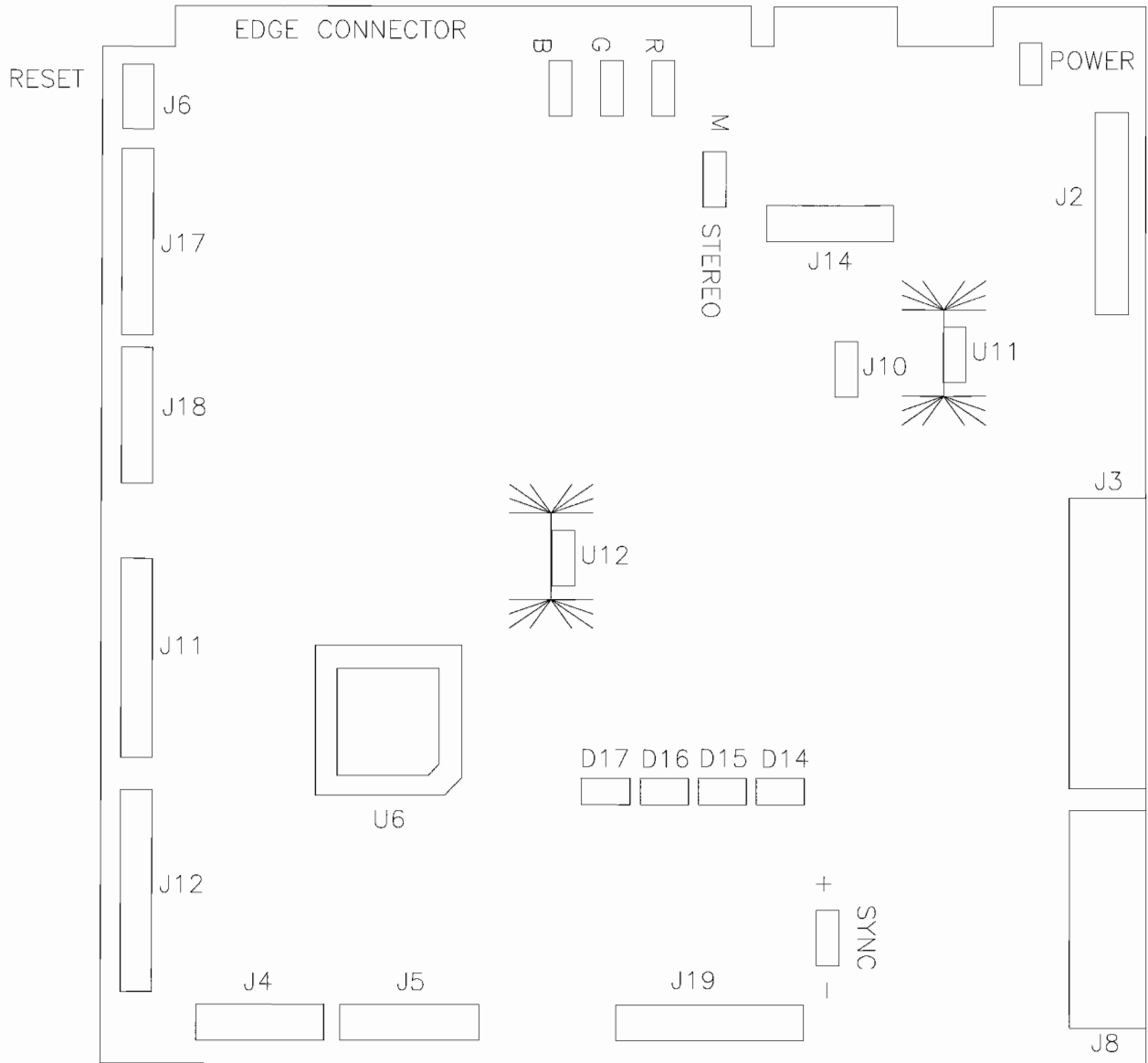
NOTE: There are no switches for CPU Board bench tests. The coin door TEST switch activates the SELF TEST menu system. However, for testing purposes, a reset switch can be attached to pins 9 and 10 of connector J11 on the CPU Board Assembly.

The Basic Input/Output System (BIOS) is loaded at the factory.

There are no LEDs or jumpers on the CPU Board Assembly. The Hard Disk Drive Activity LED is *under* the Hard Disk Drive.

The keyboard, mouse, COM1, and COM2 connectors are not used. The PARALLEL and VGA output connectors should only be joined with the JAMMIT board PARALLEL and VGA input jacks.

04-11238 JAMMIT PCB ASSEMBLY



JAMMIT CONNECTORS

- Connector J2 transfers power from the edge connector to the CPU Board Assembly.
- Connector J3 is the data signal bus from the CPU Board Assembly.
- Connectors J4 and J5 are inputs for the left and right guns.
- Connector J6 provides reset signals to the CPU Board Assembly.
- Connector J8 is the video signal bus from the CPU Board Assembly.
- Connector J14 supplies power to the hard disk drive assembly.
- Connector J10 receives sound signals from the CPU Board Assembly.
- Connectors J1, J7, J9, J11, J12, J13, J15, J16, J17, J18, and J19 are not used at this time.

JAMMIT BOARD JUMPER POSITION CHART

DESIGNATION	LOCATION	FUNCTION	POSITION	STATE	MEANING
M — STEREO (NOTE 1)	NEAR EDGE CONNECTOR	AUDIO AMPLIFIER MODE SELECTION	PINS 1 & 2	STEREO	PERMITS STEREO SOUND OUTPUT
			PINS 2 & 3	MONO	SETS OUTPUT TO MONAURAL SOUND
SYNC (NOTE 2)	NEAR VGA CONNECTOR	MONITOR SYNC MODE	PINS 1 & 2	POSITIVE	POSITIVE MONITOR SYNC
			PINS 2 & 3	NEGATIVE	NEGATIVE MONITOR SYNC
R (NOTE 3)	NEAR EDGE CONNECTOR	RED VIDEO SIGNAL LEVEL	PINS 1 & 2	LOW LEVEL	LOW VIDEO INPUT VOLTAGE
			PINS 2 & 3	HIGH LEVEL	HIGH VIDEO INPUT VOLTAGE
B (NOTE 3)	NEAR EDGE CONNECTOR	BLUE VIDEO SIGNAL LEVEL	PINS 1 & 2	LOW LEVEL	LOW VIDEO INPUT VOLTAGE
			PINS 2 & 3	HIGH LEVEL	HIGH VIDEO INPUT VOLTAGE
G (NOTE 3)	NEAR EDGE CONNECTOR	GREEN VIDEO SIGNAL LEVEL	PINS 1 & 2	LOW LEVEL	LOW VIDEO INPUT VOLTAGE
			PINS 2 & 3	HIGH LEVEL	HIGH VIDEO INPUT VOLTAGE

NOTES:

1. Set the M-STEREO jumper to STEREO for cabinets with two-channel speaker systems. Factory default is mono sound.
2. Standard production monitors use negative sync signals. Factory default is negative sync.
3. Use the R, G, and B jumpers for cabinets with non-standard video monitors. Factory default is low level.

JAMMIT BOARD LED INDICATOR STATUS CHART

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
POWER (NOTE 1)	BETWEEN POWER CONNECTOR J2 AND EDGE CONNECTOR	POWER STATUS	RED	OFF	NO POWER APPLIED
				ON	NORMAL OPERATION
				BLINKING	POWER FAULT
D14 D15 D16 D17 (NOTE 2)	CENTER NEAR U6	JAMMIT ACTIVITY	RED	OFF	NO DATA REACHING JAMMIT BOARD
				ON	JAMMIT BOARD LOCKED UP
				BLINKING SEQUENTIALLY	NORMAL OPERATION

NOTES:

1. The POWER LED monitors power supply activity. Should be continuously ON during play.
2. D14 through D17 indicate processor data bus activity. Should always blink sequentially while game is turned on. If one or more of these LEDs remain continuously on, the JAMMIT board is locked up.

NOTES

AREA 51 SITE 4TM

SECTION FOUR

TROUBLESHOOTING

This game uses complex electronic components that are very SENSITIVE to static electricity. Observe and follow these precautions prior to handling any of the game electronics:

1. Ensure that the A.C. power to the game is turned OFF prior to servicing the electronics.
2. Discharge any static electricity build up in your body by touching the power supply chassis while the line cord is connected to a properly grounded outlet. Do this BEFORE touching or handling the electronic assemblies.
3. Store the electronic assemblies in an anti-static area. Use anti-static bags to store or transport the game CPU Board Assembly.
4. DO NOT remove or connect any electronic assemblies when the cabinet power is ON. Doing so will damage the electronic assemblies and void the warranty.
5. Always replace ground wires, shields, safety covers, etc. when maintenance or service is completed. Ensure that all ground and mounting screws are installed and tightened firmly.

GAME DOES NOT START

1. Game appears completely non-functional; no audio, no illumination, no video display.

- A. Check that the Power Switch has been turned ON (on power supply at rear of the main cabinet).
- B. Turn OFF the game power. Unplug the A.C. line cord. Examine the Power Supply fuse or circuit breaker. The Power Supply Line Voltage Switch must be set to agree with the local line voltage.
- C. Remove the Line Cord. Test the line cord, power plug and I.E.C. connectors for breaks or damage. Verify the continuity of each wire in the cord. Install the cord at the Power Supply and press firmly to fully seat the connector into the supply receptacle.
- D. Unlock and open the cabinet door or panel as required to expose the game electronics. Ensure that cabinet wiring harness connectors are fully seated in the corresponding power supply and board connectors (refer to Wiring Diagram, Section Three). Inspect wiring for breaks or damage.
- E. Examine the A.C. fuses on the A.C. Chassis or the power supply, and the D.C. Fuses on the chassis or the electronic equipment shelf. If any fuse is faulty, replace it with an identical fuse.
- F. Fully seat the A.C. plug in the power outlet. Verify that A.C. line voltage is present. Turn the game power ON. Check the D.C. wiring harness and connectors if fuse opens the circuit again.

2. Video game appears non-functional, but currency acceptor price indicator is illuminated.

- A. Unlock and open a cabinet door or panel as required to expose the game electronics. Inspect the JAMMIT Board Assembly under low light level conditions. The Light Emitting Diodes (LEDs) glow if there is voltage in the processor circuits. This does not mean that voltages or signals are as they should be, but it does indicate that the JAMMIT Board is receiving some D.C. power from the power supply. The power supply fan should also be operating.
- B. Turn OFF the game power. Inspect the JAMMIT Board Assembly. Ensure that the JAMMA Wire Harness connector is attached and fully seated onto the mating board connector. Check the other wiring harness connectors in the same way.

CAUTION: DO NOT REMOVE OR INSTALL ANY CONNECTOR WHEN POWER IS TURNED ON. DOING SO WILL DAMAGE THE GAME CPU BOARD ASSEMBLY AND VOID THE WARRANTY.

- C. Verify that the game CPU switches and jumpers are set as intended. Refer to the Board Configuration Charts (Section Three) for variables and default settings.
- D. Turn OFF the game power. Discharge any static electricity by touching the power supply ground stud, then remove the battery from its holder on the CPU board. Let the game stand idle with no battery and the power OFF for at least 10 minutes. Replace the battery. Be careful not to bend the contacts. Turn the game power ON.
- E. Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Adjust the +5V source if it is necessary. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- F. Using the 2 Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- G. Verify that the game runs and completes the power-up self-test sequence without any errors. Note errors and/or failures found during these tests. Compare the JAMMIT Board Assembly Light Emitting Diodes with the LED Indicator Status Chart (Section Three) and note any discrepancies.

- H. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELECT TEST menu, choose the MONITOR TESTS (refer to Section One for additional details). Use this set of tests to check the operation of each screen used in the game.

GAME CAN NOT BE PLAYED

1. Game will not accept currency or tokens and will not start. Audio and video are present.

- A. Unlock and open the cash door. Empty the cash box. Inspect the revenue for any counterfeit currency. Check the vault and remove any items that block the path from the mechanism.
- B. Unlock and open the coin door. Check each mechanism by hand to ensure proper mounting. Remove the mechanism and clear the currency path. Reinstall the mechanism and latch it.
- C. Verify that the mechanism is level when the doors are closed. Repair or replace the coin door if it is bent or damaged. Adjust the cabinet leg levelers if necessary to keep mechanisms vertical.
- D. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELF TEST menu, choose COIN OPTIONS (refer to Section One for additional details). Use these tests to confirm the pricing and setup of each mechanism used in the game.
- E. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELF TEST menu, choose the CONTROL TESTS (refer to Section One for additional details). Use this set of tests to check the operation of each coin or bill mechanism.

2. Game accepts currency or tokens, but does not start. Audio and video are present.

- A. Unlock and open the coin door. Check each mechanism by hand to ensure proper mounting. Verify that each of the release latches is in the closed and locked position. Test known good and bad coins to see if the mechanism accepts and rejects the currency correctly.
- B. Ensure that no loose parts or wires are caught in the hinges, latches, or switch contacts.
- C. Inspect to see if the external coin door indicators (pricing, flashing arrows, etc.) are illuminated. Check connectors and cables for wiring continuity from JAMMIT Board to the coin mechanisms.
- D. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELF TEST menu, choose COIN OPTIONS (refer to Section One for additional details). Use these tests to confirm the pricing and setup of each mechanism used in the game.
- E. Check for continuity in each of the suspect switch connections (Common to Normally Open or Common to Normally Closed). Replace faulty switches (bent levers, broken actuators, etc.).
- F. Verify that each coin mechanism is operating properly by placing it in a known good unit.

3. Bill validator does not function after field installation. Coin mechanisms operate properly.

- A. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELF TEST menu, choose COIN OPTIONS (refer to Section One). Confirm pricing and setup. Check validator switch settings against manufacturer's instruction sheet.

- B. Inspect to see if the external coin door indicators (pricing, flashing arrows, etc.) are illuminated. Ensure that no loose parts or wires are caught in the hinges, latches, or switch contacts. Verify that the harness connectors are attached and fully seated. Check for validator cable continuity.
- C. Verify that the bill validator is operating properly by placing it in a known good unit.

GUN PROBLEMS

1. Players complain that one or more guns do not hit the targets. Game starts normally.

- A. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELECT TEST menu, choose the GUN TEST (refer to Section One for additional details). Use the TRACKING test to confirm the accuracy of each gun in the game. Check the aim from several typical player positions. The crosshair must remain in the gun sight at all points on the screen. Return to this screen each time the guns are cleaned or repaired.
- B. From the SELECT TEST menu, choose the GUN TEST (refer to Section One for additional details). Use the CALIBRATION screen to reset the aim of each gun. Stand directly behind the gun holder and extend the cable to its full length to ensure the greatest accuracy.
- C. Inspect each gun for missing screws, loose or damaged parts, broken cables, etc. Examine the gun barrel and the lens for dirt or debris. ***Do not apply cleaner directly into the gun barrel.***
- D. Check the gun cable grounds for continuity and verify that the harness connectors are attached and fully seated.
- E. Verify that each gun assembly is operating properly by placing it in a known good unit.

2. Guns fire erratically when trigger is pulled. Problem may be related to firing position of gun.

- A. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELECT TEST menu, choose the CONTROLS TEST (refer to Section One for additional details). Use these tests to confirm the operation of the gun trigger switches. Hold the trigger down and shake each gun cable to test the wiring.
- B. From the SELECT TEST menu, choose the GUN TEST (refer to Section One for additional details). Use the TRACKING test to confirm the accuracy of each gun in the game. The crosshair must remain in the gun sight at all points on the screen. Vary the gun angle during these tests. Examine the gun barrel and the lens for dirt and debris.
- C. Reduce or eliminate bright lights from overhead, front or sides of the cabinet and recheck tracking. If this solves the trouble, then the environment is the problem and not the game. Change the lighting or relocate the game. If the problem remains, check the gun switch continuity. Ensure that the trigger switch mounting screws are not loose or missing.

3. Guns are intermittent or completely non-functional. Game starts normally.

- A. Enter the game Menu System by pressing and holding the TEST MODE switch inside the coin door. From the SELECT TEST menu, choose the GUN TEST (refer to Section One for additional details). Use the CALIBRATION screen to reset the aim of each gun. Stand directly behind the gun holder and extend the cable to its full length to ensure the greatest accuracy. Use the TRACKING test to confirm the accuracy of each gun in the game.
- B. Remove screws from gun. Separate pieces at handle end first, using care not to dislodge parts (trigger is spring loaded). Check the gun board and switch connectors. Clean lens to remove

fingerprints and dust, then reinstall any shields removed during disassembly. Verify a good connection exists between the static shield and the cable ground when the gun is reassembled.

- C. Verify that each gun assembly is operating properly by placing it in a known good unit.

AUDIO PROBLEMS

1. Audio is non-functional, but video is present and game appears to operate normally.

- A. Enter the game Menu System by pressing and holding the TEST MODE switch. From the SELECT TEST menu, choose ADJUST VOLUME (refer to Section One for additional details). Verify that attract and game volume levels are set above Zero. Change the levels if necessary to make the game audible.
- B. Turn OFF the game power. Remove the grille and inspect the speaker. Ensure that no loose parts or wires are caught in speaker cones, terminals, mounting screws, or stuck to the magnets.
- C. Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Verify the +5V, -5V and +12V sources. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- D. Using the 2-Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- E. Verify proper operation of game JAMMIT Board Assembly by placing it in a known good game.

2. The audio is distorted, muffled or missing frequencies. There may be a constant low hum.

- A. Turn OFF the game power. Remove the grill and check the speaker. Ensure that the speaker is FULL RANGE (100 to 10,000 Hz response) and rated for at least 20 WATTS.
- B. Verify that the speaker is operating properly by placing in a known good unit.
- C. Verify that cabinet wiring for this game is correct. Ensure that speakers are connected to the JAMMIT Board JAMMA audio output wires. Check for shorted wires. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.
- D. Using the 2-Volt A.C. setting on a digital voltmeter, measure voltages at the speaker terminals. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- E. Check JAMMIT Board jumper positions. M-STEREO controls the amplifier operation. Set the jumper to M (pins 2 and 3 connected).

VIDEO PROBLEMS

1. Monitor appears non-functional, but audio is present and controls operate as expected.

- A. Open the cabinet to expose the Video Monitor. Verify that A.C. Power is connected to the Video Monitor. Inspect the neck of the CRT under low light level conditions. The CRT base glows if there is voltage in the filament circuits. This does not mean that other voltages or signals are as they should be, but it does indicate that monitor circuits are receiving some power.
- B. Turn OFF the game power. Verify that the Video Signal and the Remote Adjustment Board connectors are fully seated on the Video Monitor Board Assembly. Check the other monitor connectors in the same way. **Do not operate a monitor without a Remote Adjustment Board.**
- C. Examine the A.C. line fuse on the Video Monitor Board Assembly. If the fuse is faulty, replace it with an identical fuse of the proper voltage and current rating.
- D. Ensure that no loose parts or wires are caught on the chassis or the mounting brackets.
- E. Check that the brightness (intensity) and contrast are set above their minimum levels.
- F. Verify that the Video Monitor is operating correctly by placing it in a known good unit.

2. The power-up self-test will run, but the game does not appear. No audio is present.

- A. Note and record any error messages that occur during self-test. Press and hold the TEST MODE switch to enter the menu system. From the SELECT TESTS menu, choose DISK TESTS. These tests will verify some of the Hard Disk Drive functions in this game.
- B. Turn OFF the game power. Unlock and open the front door. Inspect the CPU Board Assembly. Ensure that the Hard Disk Drive Assembly ribbon cable connector is fully seated into the mating connector on the CPU Board. Verify that all hard drive mounting screws are installed.

CAUTION: DO NOT REMOVE OR INSTALL ANY CONNECTOR WHEN POWER IS TURNED ON. THIS WILL DAMAGE THE CPU BOARD OR HARD DISK DRIVE AND VOID THE WARRANTY.

- C. Check that the Hard Disk Drive Assembly is the correct part for this game. Each Hard Disk Drive is labeled with the assembly number and the software version. Refer to Parts (Section Two).
- D. Look *under* the Hard Disk Drive Assembly as the game is first turned ON. The Hard Disk Drive Activity LED will flash if the drive is operating properly.
- E. Verify that the Electronics Assemblies are correct for this game. Each Board is marked with the manufacturer name, assembly number and the hardware version.
- F. Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Verify the +5V source if it is adjustable. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- G. Using the 2 Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading indicates that the supply voltages are unstable and may contain ripple or noise.
- H. Compare the JAMMIT Board Light Emitting Diode (LED) states with the JAMMIT Indicator Chart (Section Three).

3. Monitor will not lock onto the signal and provide a stable picture, colors are missing, etc.

- A. Check connectors and cables for wiring continuity from the JAMMIT Board to the Video Monitor. Verify that all jumpers are set correctly for this monitor. Refer to Board Configuration (Section Three). Check that the SYNC jumper is set to match the sync requirements of the monitor.
- B. Ensure that the Video Monitor Assembly is correct for this game. Use of video monitors with different resolution will result in what appears to be horizontal tearing or complete loss of sync.
- C. Verify that the Video Monitor is operating correctly by placing it in a known good unit.

4. Game operates normally, but video picture wavers or rolls, has dark bars, uneven colors, etc.

- A. Check connectors and cables for wiring continuity from the JAMMIT Board to the Video Monitor.
- B. Ensure that all the cabinet ground wires are connected, especially at the Video Monitor Chassis.
- C. Move the cabinet farther away from machines, appliances, other games, etc. Very strong electrical or magnetic fields are emitted from some equipment when it is operating normally.
- D. Verify that the Video Monitor is operating correctly by placing it in a known good unit.

MISCELLANEOUS

1. Marquee lamp is intermittent or non-functional. Game starts and plays normally.

- A. Open the cabinet marquee or attraction panel. Remove the fluorescent tube from the holders. Install a new lamp if there are cracks or darkened ends on the tube. Clean the tube.
- B. Verify that the lamp and starter pins make good connection with their socket contacts.
- C. Measure the Fluorescent Lamp Assembly A.C. voltages (Power Wiring Diagram, Section Three). Check wiring and connector continuity from the A.C. Power Chassis to the Lamp Assembly.
- D. Ensure that the Fluorescent Lamp Ballast is rated for the local A.C. line voltage and frequency.
- E. Check for continuity of both fluorescent lamp filaments, the starter, and the ballast. One at a time, verify that the lamp, starter, and ballast operate by placing each in a known good unit.

2. Game operates normally, but fan is noticeably noisy.

- A. Check the bottom and rear of cabinet airflow blockage. Move game away from sources of heat.
- B. Turn OFF the game power. Apply high power vacuum cleaner to vent holes to remove dust.
- C. Open the cabinet to expose the electronics. Verify that the CPU fan bearings are not binding or worn.

3. Error Messages appear on the screen. The game does not start and there is no audio.

- A. Check any assembly (RAM, Battery, etc.) identified in the Error Message.
- B. Call your authorized distributor for help with unresolved screen messages.

NOTES

WARNINGS & NOTICES

WARNING

USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* For safety and reliability, substitute parts and modifications are not recommended.

* Substitute parts or modifications may void FCC type acceptance.

* Use only authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

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When ATARI ships a game, it is in compliance with FCC regulations. Your label is proof. If the label is missing or damaged, legal repercussions to the owner or distributor of the game may result. If your game does not contain an FCC label, call ATARI immediately.

WARNING

Plug this game into a properly grounded outlet to prevent shock hazards and assure proper game operation. Do not use a cheater plug to defeat the power cord's grounding pin. Do not cut off the ground pin.

WARNING

A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g. seizures or loss of awareness), immediately consult your physician before using any video games.

We recommend that parents observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, DISCONTINUE USE IMMEDIATELY and consult your physician.

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