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--MARK--



OCTOBER 1998
16-30022-101

GAUNTLET[®]

LEGENDS[™]



DEDICATED VIDEO GAME 27" (69 cm) COLOR MONITOR OPERATION MANUAL

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

WARNINGS & NOTICES

WARNING

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

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

* Use only authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation. Substitute parts or modifications may void EMC directive or FCC type acceptance.

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GAUNTLET™

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 Registration card. 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. The hard disk drive must be packed in an anti-static bag. The disk drive assembly must be packed in an approved shipping container (P/N 08-8068) in order to be sent 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 supply is set for 110VAC or 220VAC according to local line voltage. 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. This game should only be plugged 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, be sure that all of the ground wires are secure before restoring power.

PROPERLY ATTACH ALL CONNECTORS. Be sure that the connectors on each printed circuit board (PCB) are properly connected. If they do not slip on easily, do not force them. A reversed connector may damage your game and void the warranty. Connectors are keyed 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 3.0 Amps	37°F to 100°F	Not to exceed 95% relative
Foreign	230VAC @ 50Hz 2.0 Amps	(3°C to 38°C)	
Japan	100VAC @ 50Hz 3.0 Amps		

Cabinet Statistics

<u>Shipping Dimensions</u>	<u>Shipping Weight</u>	<u>Design Type</u>
Width 28.5" (72.4 cm)	486 lbs. (221 kg.)	Dedicated Video Game with 49-Way Optodetector Joysticks
Depth 43.5" (111 cm)		
Height 74.0" (188 cm)		

Equipment Characteristics

<u>Video Display Monitor</u>	<u>Audio System</u>	<u>Currency Acceptors</u>
Medium Resolution RGB 27" (68.5 cm) CRT	2 Channel Audio 2 Full Range Speakers	Standard Coin Door 2 Coin Mechanisms, DBV ready 1 Coin Counter

Game Characteristics

<u>Player Variables</u>	<u>Operator Variables</u>	<u>Diagnostics</u>
1 to 4 players per game High Score Recognition	Coinage, Game Options, Difficulty, Volume, Demo Mode, Audits, Statistics	Automatic Power-Up Test Manual Multi-Level Menu System

MAINTENANCE

◆ Viewing Glass

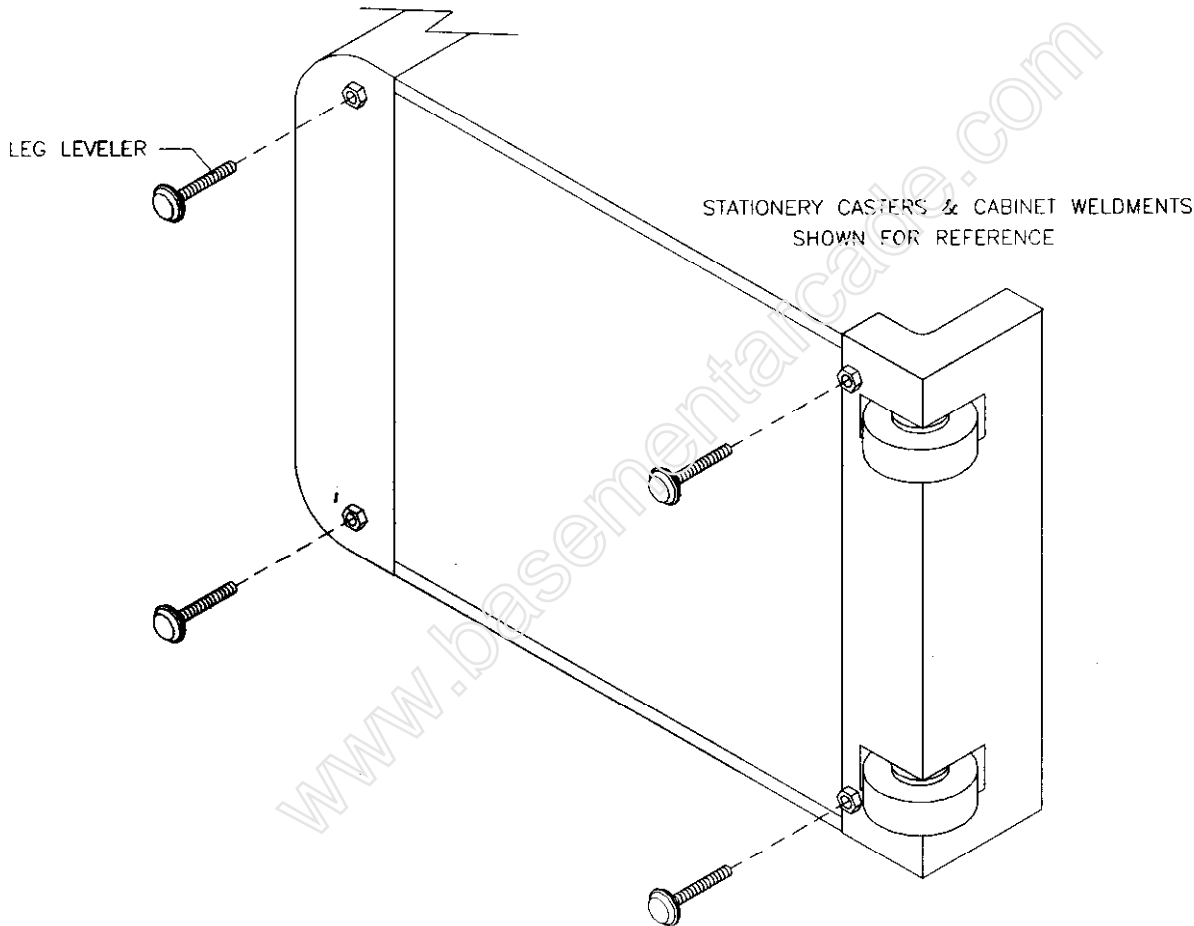
It is not necessary to switch off power to the game to clean the glass. Apply a mild glass cleaner to a clean cloth or sponge, then use this to wipe the viewing glass. **Do not apply the cleaner directly on the glass!** Liquid could drip down into game circuits or opto detectors and cause erratic operation.

◆ Cabinet

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

INSTALLATION AND INSPECTION

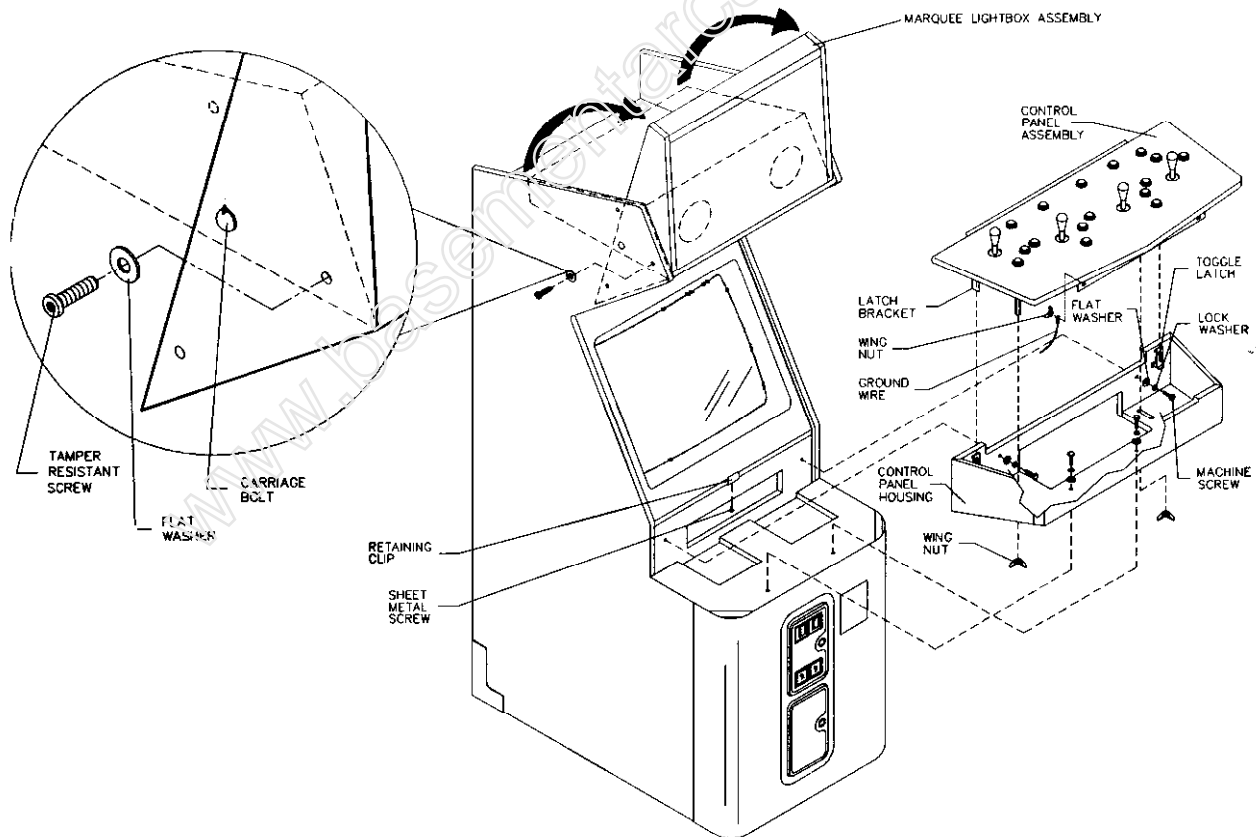
1. Remove the packing material from the game. Set the box containing the control panel aside. Inspect the exterior of the cabinet for any signs of damage.
2. Reach into the front of the cabinet and remove the keys from the hook on the coin door. Unlock and open the coin and cash box doors. Electrical cords, spare parts, levelers, mounting hardware, and other items are packed in the cash box.
3. Move the cabinet to its intended location. Lower the leg levelers as necessary to stabilize the cabinet.



LOCATION OF CASTERS AND LEG LEVELERS UNDER CABINET AND SEAT

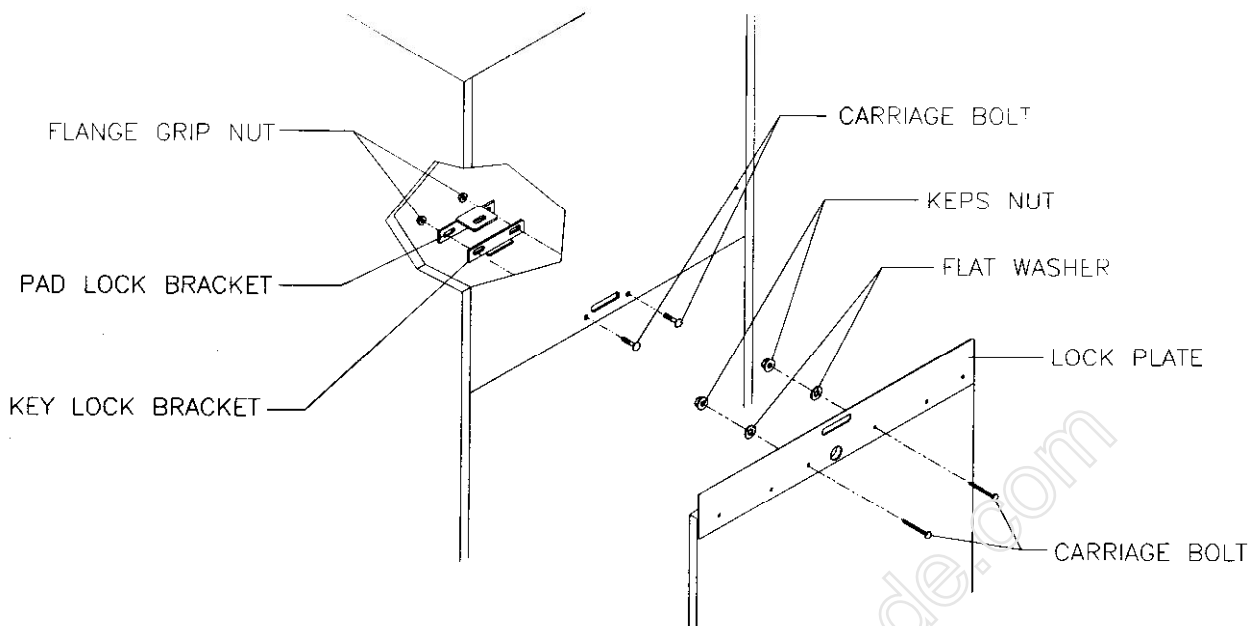
4. This game is intended for use only in a fixed position. Ensure that the final adjustment raises the game so that the caster wheels are not touching the floor. Distribute weight equally on each corner.
5. Place the box containing the control panel on the floor with its underside up. Open the container carefully and remove the packing material. Inspect the control panel for any signs of damage.
6. Lift the control panel assembly from its box and set it on its front side. Remove the wing nuts from the bolts protruding from the underside of the control panel and retain them for reinstallation.
7. Reach into the control panel from the underside and open the latches holding the control panel top to the control panel box. Leave the panel closed until it has been installed on the cabinet.

8. Place the control panel assembly on the cabinet ledge. Slide the control panel housing forward toward the monitor. Align the gasketed control panel bracket with the bottom of the viewing glass.
9. Lift the control panel and hold it open. Align the mounting screw holes in the control panel box with those in the cabinet. Use the four 1/4-20 hex-head bolts, flat washers, and lock washers in the spare parts package to secure the control panel to the cabinet. Tighten the bolts firmly.
10. Remove the shipping bracket at the bottom center of the viewing glass. Retain the bracket with the spare parts for reinstallation when the game is relocated.
11. Mate the control panel wiring harness connectors with the main wiring harness connectors. Attach the control panel ground wire to hinge assembly with the wing nut. Close the control panel. Reach up through the coin door to secure the latches for the control panel.
12. Locate the ends of the control panel attachment bolts. Install one wing nut on each bolt where it protrudes down through the control panel housing into the cabinet. Hand tighten snugly. Fasten the toggle latches.
13. Locate the T-27 tamper-resistant fastener wrench in the spare parts. Remove and retain the two tamper resistant screws and washers from the top front sides of the cabinet. Raise the marquee to an upright position. Reinstall the screws and washers. Do not overtighten.



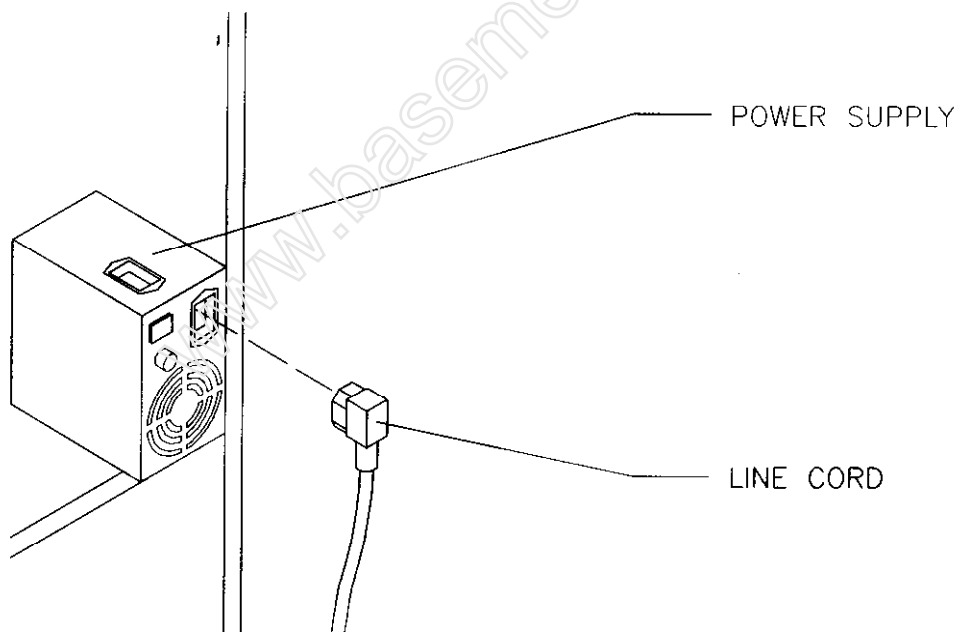
CONTROL PANEL AND MARQUEE SETUP

14. Remove the rear door of cabinet. Inspect cabinet interior for any signs of damage. Check all major assemblies to assure that they are mounted securely. Ensure that nothing blocks the fan airflow.
15. An extra padlock may be installed to secure the rear door. The hasp is attached inside the cabinet above the rear door. Remove the two lock bracket nuts from inside the cabinet. Reverse the hasp on the bolts so that it protrudes through the slot in back of the cabinet, and then reinstall the nuts.



HASP BRACKET AND LOCK PLATE ASSEMBLY INSTALLATION

16. Find the power cord in the spare parts package. Match the holes on the IEC plug with the prongs in the receptacle and push firmly to seat the line cord.



LINE CORD INSTALLATION

17. Refer to the game's Cabinet Wiring Diagram (Section Three of this manual) and check to see that all cable connectors are correctly secured. Inspect for damaged connectors. Be sure **NOT TO FORCE CONNECTORS** and avoid making reversed connections.
18. Plug the game into a grounded (3-terminal) AC wall outlet. Switch **ON** the game using the **ON/OFF** switch located on the power supply. The game will power up and begin self-diagnostics. If there are no errors, the game will automatically enter its "attract" mode of operation.

SERVICE

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

This game uses complex electronic components that are very SENSITIVE to static electricity. Observe and follow these precautions prior to handling 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 first touching the metal power supply chassis. 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 hard disk drive, the CPU Board Assembly, and all other electronics.
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, covers, etc., when maintenance or service is completed.

◆ Marquee

Remove the tamper-resistant screws and washers at the top front sides of the cabinet. Lower the marquee lightbox assembly backwards to a horizontal position on top of the cabinet. From the rear of the machine, remove the three hex-head sheet metal screws holding the marquee retaining strip to the cabinet while holding the retaining strip in place. Restrain the glass when removing the strip to avoid breakage. Remove the retaining strip and set it aside. Lift marquee glass, plastic channel, and artwork out of the groove and set in a safe place. Do not cross-thread screws during re-installation.



WARNING

The marquee glass could fall out of the cabinet and break when the retaining strip is removed. Hold the glass in place until it can be removed.

◆ Fluorescent Lamp and Starter

Remove the screws and lower the marquee as described above. Remove the retaining strip, glass, and artwork. Grasp the tube, give it a quarter turn and pull it from its sockets. The starter also requires a quarter turn for removal or installation. Carefully place a new tube into the socket and rotate it a quarter turn to reinstall. Clean the tube to remove fingerprints and dust.



WARNING

If a fluorescent tube drops and breaks, it will implode and shatter glass! Use care in handling.

◆ Fluorescent Light Assembly

Remove the screws and lower the marquee as described above. Remove the retaining strip, glass, and artwork. Disconnect the power cable from the fluorescent light assembly. Loosen but do not remove the fasteners holding the assembly to the cabinet. Remove the ground wire. Slide the assembly slightly forward to disengage the screws from the keyholes. Lift out the assembly.

◆ **Control Panel Switches**

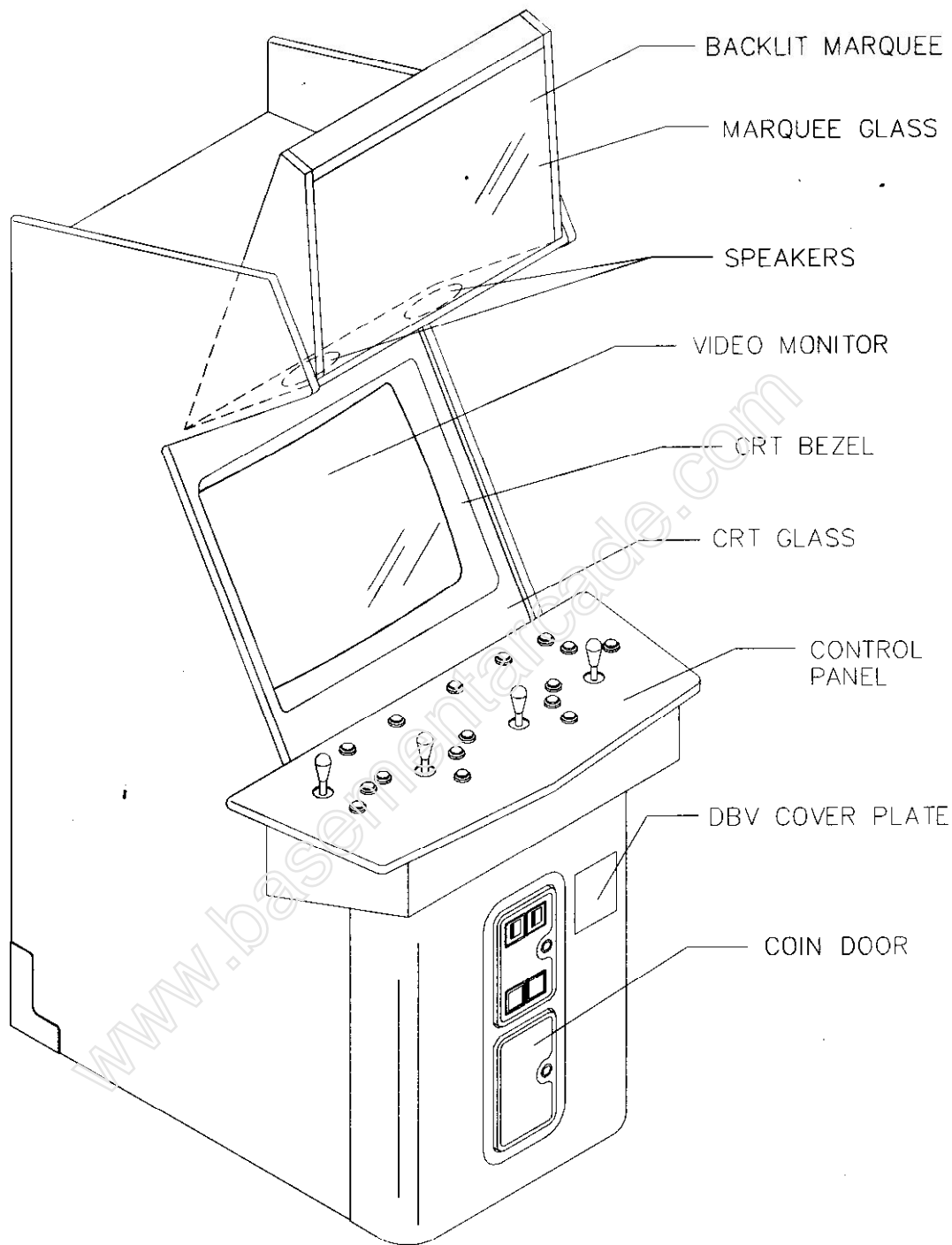
Unlock and open the coin door. Reach through the door and remove the wing nuts. Release the toggle latches. Open the control panel. Label and disconnect wires. Separate the switch from its button housing. Bend the large prong away from the switch just enough to slide the switch off the housing. Unscrew the switch mounting nut and pull the entire button assembly out toward the front of the control panel.

◆ **Coin Counter**

Switch off power to the game. Unlock the coin and cash doors and swing them open. The meter is located in a lower corner of the door opening. Record the meter count before testing or replacement.

Disconnect the wiring harnesses and ground wires to the coin mechanisms. Reach through the coin door and locate the meter wires. Disconnect wiring at the connector. Remove the coin door mounting screws. Remove the coin door assembly from the cabinet and set it on a work surface. Remove the meter mounting screws from the front. Ensure that replacement unit has a diode across the terminals. Remember to reconnect wiring harnesses and ground wire upon reinstallation.

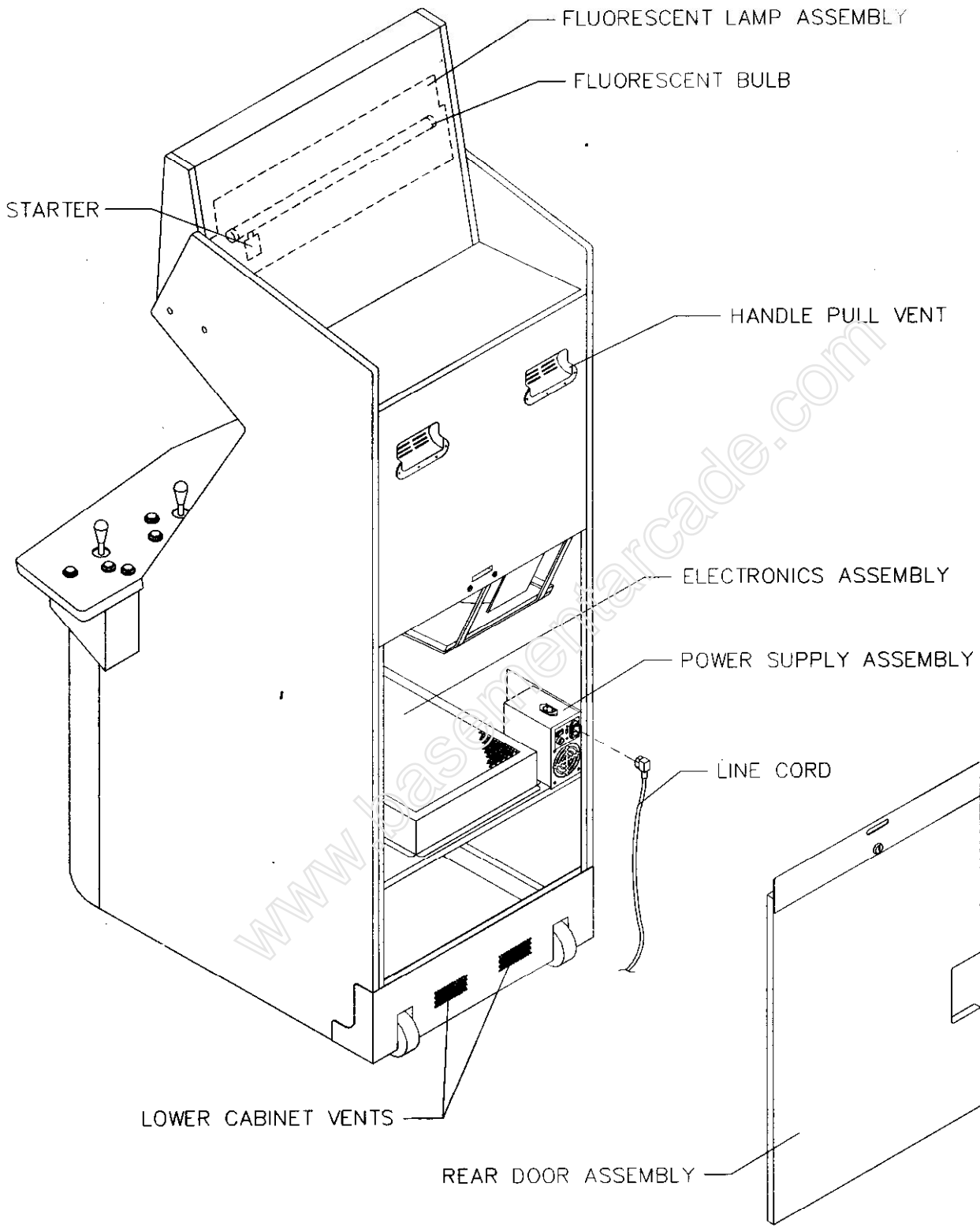
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FRONT VIEW OF CABINET

◆ **Monitor Bezel**

Unlock and open the coin door. Reach through the door and remove the attachment bolt wing nuts. Open the control panel. Push the viewing glass up just enough to swing it out of the cabinet and then pull it out and down to remove it. Grasp the monitor bezel at the bottom and lift it out of the groove.



REAR VIEW OF CABINET

◆ Monitor

Read these precautions thoroughly before beginning this procedure.



WARNING

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.



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.

Unlock and remove the rear door. Disconnect the monitor from the wiring harness and ground wires. Unlock and open the coin door. Reach through the door and remove the attachment bolt wing nuts. Open the control panel. Remove the viewing glass and monitor bezel. Remove four ¼-20 flange nuts securing the monitor mounting flanges to the mounting panel. Pull the monitor carefully from the cabinet and set aside.

To install a different monitor, remove the three 3/8-16 hex bolts from the bracket at the bottom of the monitor. Install this bracket and its bolts onto the bottom of the new monitor. Slide the bottom of the monitor into the cabinet and tilt it up from the top. Replace the flange nuts at the top of the monitor, and the screws on the outside of the cabinet.

◆ Power Supply

Switch off power. Remove screws, then unlock and remove the rear door. Unplug the IEC A.C. connector from the rear and the D.C. connector from the top of the supply. Remove two top and two bottom screws holding the supply to the power chassis, then lift it off the power chassis. Note voltage setting.

To reinstall the power supply, remove the voltage switch cover if necessary and set the voltage to the correct value. Set the supply on the power chassis and align the mounting holes. Install the four screws and the two power connectors.



WARNING

THERE IS AN AC POWER DISTRIBUTION BLOCK BEHIND THE POWER SUPPLY. DO NOT TOUCH THE AC TERMINALS WHEN THE POWER SUPPLY IS SWITCHED ON. DISCONNECT THE AC POWER BEFORE WORKING NEAR THE POWER SUPPLY.

◆ CPU Board Assembly

Switch off power to the game. Open the rear door. Remove the metal cover of the Electronics Assembly. Carefully note the orientation of the JAMMA connector and the other cables. Extract the harnesses and the hard disk drive ribbon cable from the board connectors. Remove the ground plane mounting screws and security lock. Slide the entire electronics assembly toward the rear of the cabinet and lift it up to remove it. Set the electronics assembly in a static-free place. Disconnect the VGA connector. Remove the security mounting bolts and screws connecting the circuit boards to the ground plane. Carefully remove the Sound I/O Board, pulling gently to disconnect the PCI edge connector from the CPU Board. Set the Sound I/O board in a static-free place. Carefully remove the CPU Board, pulling gently to disconnect it from the TMU Card. Use anti-static bags and protective containers from new parts to store the board if it is not reinstalled.

◆ Hard Disk Drive



CAUTION

Hard disk drives are fragile! Never move a game with the power on. Never stack or drop hard disk drives.

Switch off power to the game. Unlock and remove the cabinet door. Remove the metal cover from the electronics assembly. 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 screws and lift the drive assembly out of the cabinet. *Do not stack or drop hard disk drives. Store hard disk drives in anti-static bags or approved shipping containers.*

◆ Sound I/O Assembly

Switch off power to the game. Open the rear door. Remove the metal cover of the Electronics Assembly. Carefully note the orientation of the JAMMA connector and the other cables. Extract the harnesses and the hard disk drive ribbon cable from the board connectors. Remove the ground plane mounting screws and security lock. Slide the entire electronics assembly toward the rear of the cabinet and lift it up to remove it. Set the electronics assembly in a static-free place. Remove the security mounting bolts and mounting screws connecting the circuit board to the ground plane. Carefully remove the Sound I/O Board, pulling gently to disconnect the PCI edge connector from the CPU Board. Use anti-static bags and protective containers from new parts to store the board if it is not reinstalled.

◆ TMU Card

Switch off power to the game. Open and remove the rear door. Remove the Electronics Assembly cover. Disconnect the VGA connector. Remove the screws holding the TMU Card to the ground plane. Carefully slide the TMU Card away from the CPU Board, disconnecting the PCI edge connector. Use anti-static bags and protective containers from new parts to store the board if it is not reinstalled.

◆ Battery

Switch off power to the game. Open and remove the rear door. Remove the Electronics Assembly cover. Hold the battery edges and pull up firmly to remove. When installing a new battery, note the position of the keyhole in the socket.



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 on the manufacturer's packaging.

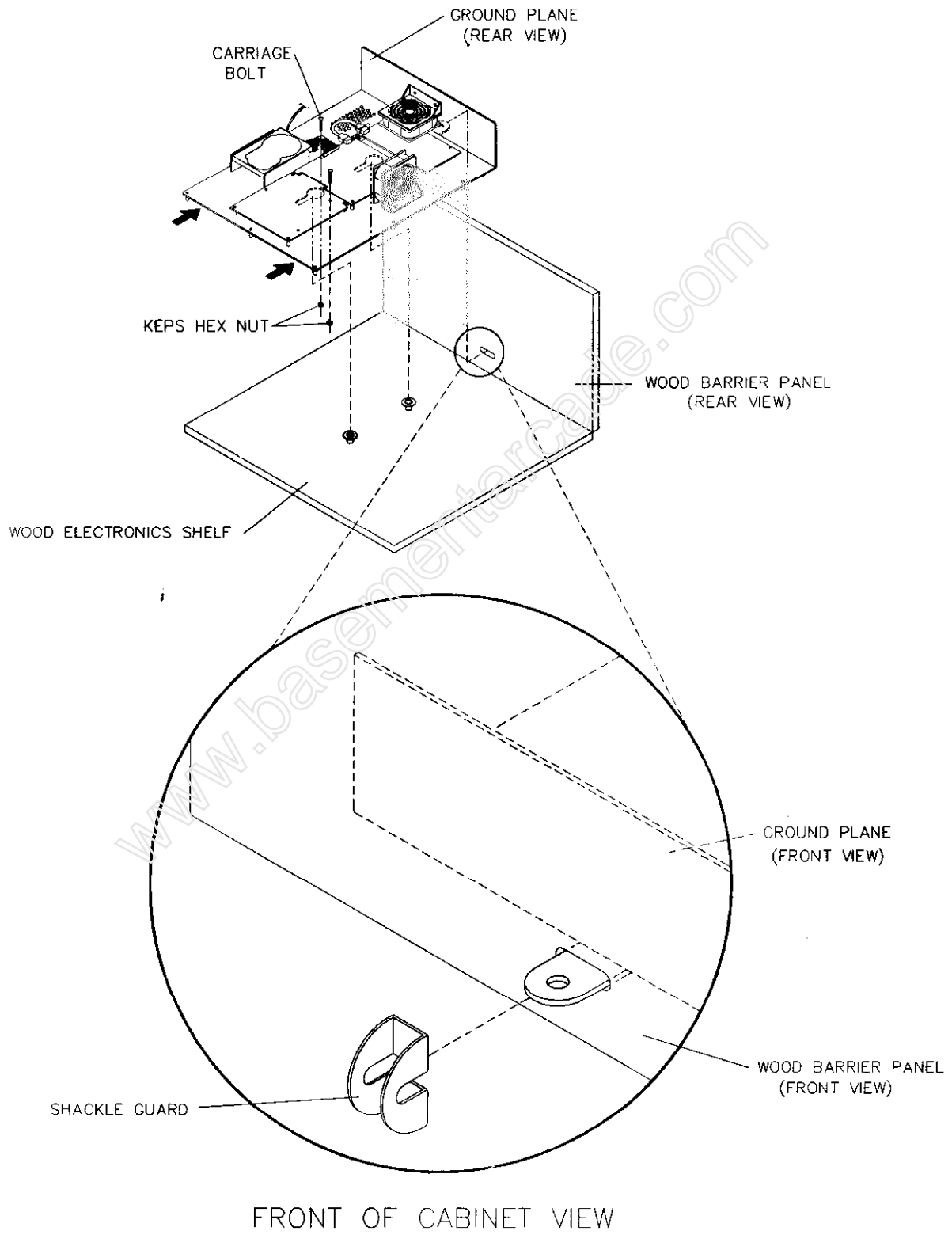


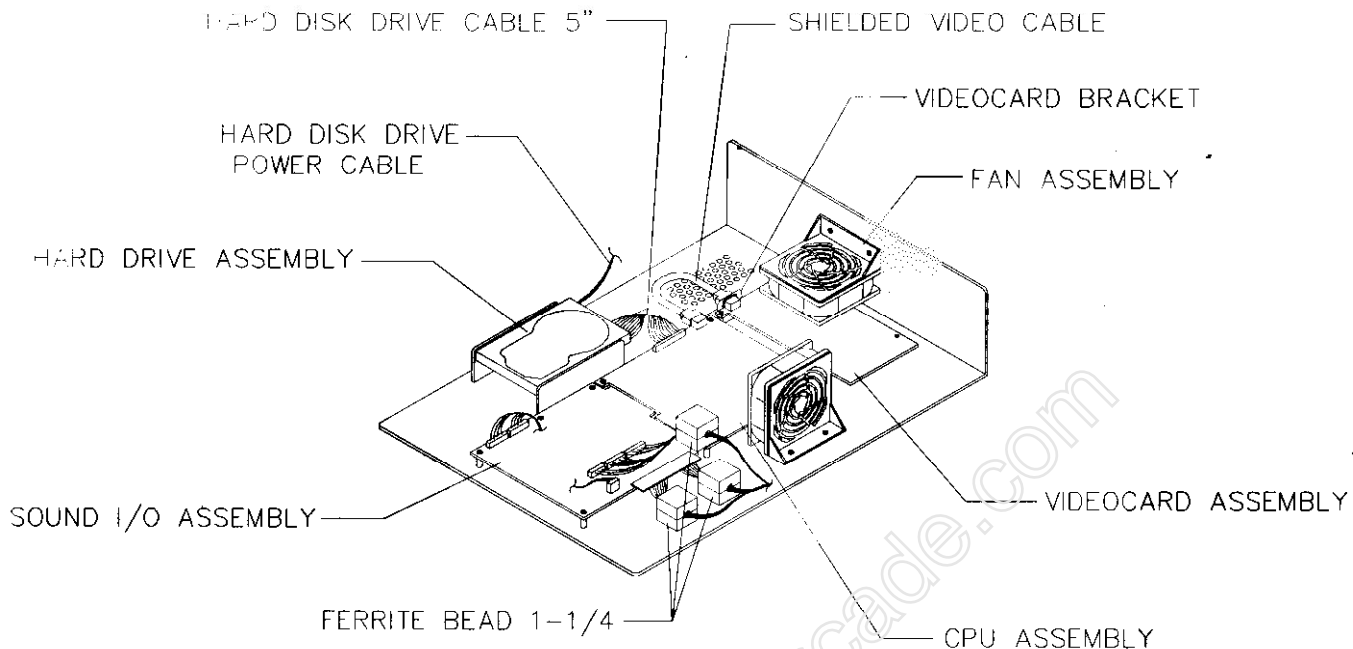
NOTE: To avoid explosion, all replacement batteries must match the original in size, voltage rating, and composition. Manufacturer recommended equivalent types are acceptable. These batteries are designed for very long life. Do not attempt to recharge these batteries! Avoid direct shorts across the terminals or from terminals to ground. Remove them from their holders and store in a safe place until repairs have been completed. Dispose of used batteries according to the manufacturer's instructions.

◆ Memory

The ROM (Read Only Memory) circuits contain the computer operating instructions for this game. Switch off power to the game. Carefully note the position, then remove using a chip extraction tool. To reinstall memory circuits, orient a chip over its socket and press firmly to seat pins. *Do not force.*

ELECTRONICS SECURITY





GAME ELECTRONICS COMPONENTS

◆ Memory Replacement

The ROM (Read Only Memory) circuits contain the computer operating instructions. *Memory devices are especially sensitive to static charges. Use grounding precautions when handling these parts.*

Switch off power to the game. Unlock and remove the rear door. Remove the RF Cage top to expose the Electronics Assembly. Carefully note each IC position, then remove them using a chip extraction tool.

To reinstall memory circuits, orient a chip over its socket and press firmly to seat pins. *Do not force.*



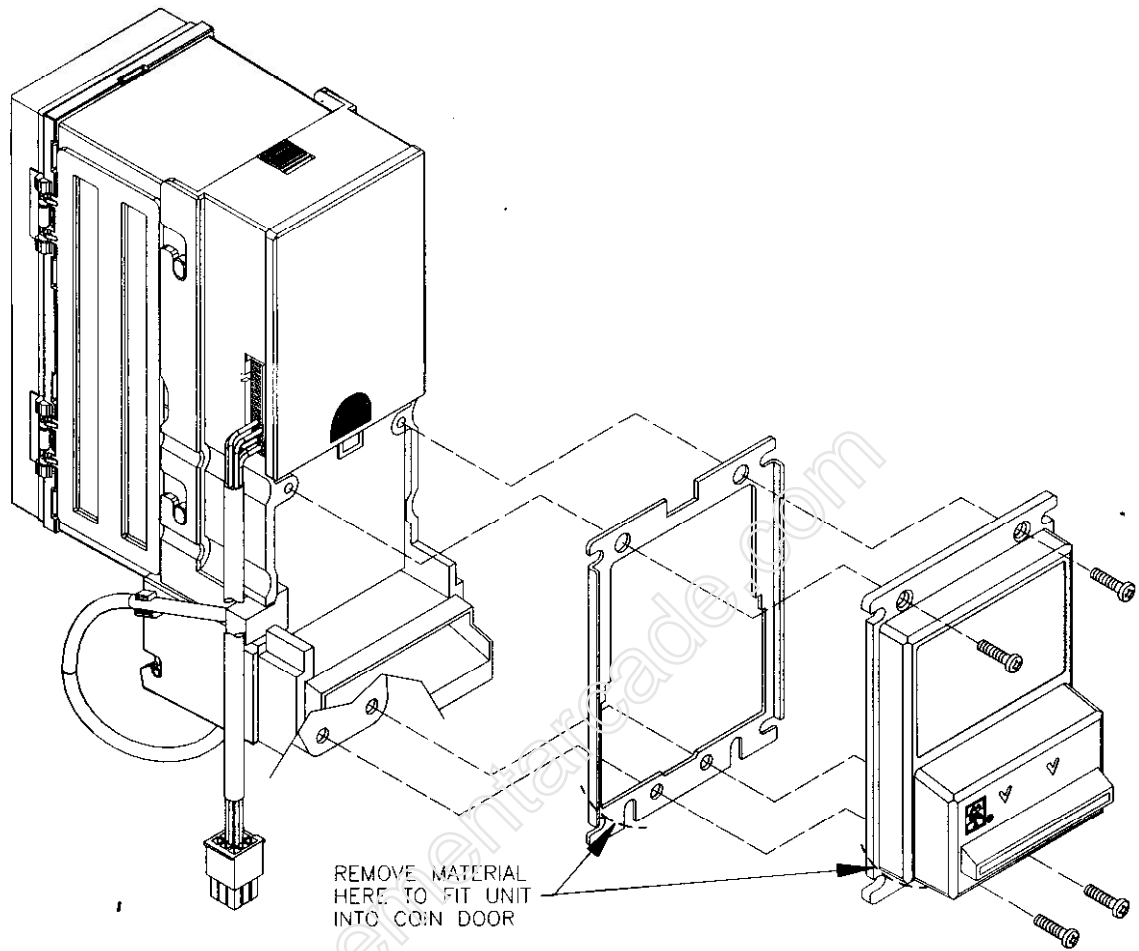
CAUTION

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

◆ Dollar Bill Validator

(Use MARS AE2411-U3 U.L. Recognized currency changer)

Dollar bill validators or other currency acceptors may be installed in games that were manufactured with the additional wiring connector. Switch off power to the game and unplug the A.C. line cord. Unlock the coin door and swing it open. Read door label for additional information. Disassemble the validator and remove material to permit it to fit inside the coin door as illustrated, then reassemble unit.



Remove nuts, spacers, and cover plate from the door. Change switch settings or make adjustments before mounting the unit. If the manufacturer has supplied an adapter plate, place it over the door cutout at this time. Install spacers on threaded studs, then align the validator mounting holes with the studs and seat the unit in the door opening. Install the nuts and tighten firmly. Attach the ground wire (green with yellow stripe) lug to the door ground stud next to the hinge. Mate the wiring harnesses and press to fully seat connectors. Route wires away from door edges and hinge. Inspect for proper bill chute alignment. Plug in the line cord and turn on the game. Change the mechanism setup and pricing, then test known good and bad bills to verify proper operation. Close and lock the coin door when correct. Reverse these steps to remove a validator for service or replacement.

GAME OPERATION

STARTING UP

Each time the game is first turned on or power is restored, it begins executing code out of the boot ROM. These self-diagnostic tests automatically verify and report condition of the hardware and the disk drive. The screen is blank during these tests. If any of the individual tests fails, then an error message will be displayed for each test. The message will be displayed for 30 seconds or until any button is pressed.

- * If no buttons are pressed, the system will quickly complete all tests then load and run the game.
- * Press and hold the coin door TEST button to skip the boot ROM tests and activate the Menu System.

Once all Power-up tests have been passed, the game goes into its "attract mode". Scenes and sounds from a typical game are alternated with previous high scores in an endless pattern until game play starts.

Insert currency to start the game. Play begins after a mission is chosen. The game will progress until time is exhausted. If no more play is required, the game automatically returns to the "attract mode".

GAME RULES *Play instructions are found on the lighted information panel between the speakers.*

Up to four players at a time can explore a world, facing hordes of monsters, searching for treasure, avoiding traps, picking up and using magic, and making their way to the exits.

Players have a choice of four characters (and later four secret characters) to take on the hordes of monsters that have overrun the land of Gauntlet. There are over 50 unique monsters in all, topped off by five awesome boss characters. Players must defeat all four of the world bosses to unlock the secret fifth world and defeat the demon Skorne. Numerous power-up enhancements are scattered throughout the land to help players get to the finish.

Players can save their character with player IDs. One password will save all four different characters. During game variable selection, players simply enter their initials and their own 3-letter player ID that they choose. The characters, with their experience levels and current ratings for strength, speed, toughness, and magic are automatically saved along with any Rune Stones the players have found.

There are four secret characters in Gauntlet Legends. To access these, players must first build a character to level 10. Depending upon which character they have played, they then can choose to play as the Minotaur (Warrior), Falconess (Valkyrie), Jackal (Wizard), or Tigress (Archer).

To Beat Gauntlet Legends, players must defeat the demon Skorne.

To get to Skorne, they must collect all four KEYS by defeating the boss character (Dragon, Spider Queen, et al.) at the end of each of the four main worlds.

To defeat Skorne, players must find all 12 of the Rune Stones. Three Rune Stones are hidden in each of the four worlds. Once a character has found a Rune Stone, they will be saved permanently with their password.

There are over 35 unique special weapons found throughout the game that will help players in their quest. These power-ups are found in chests and barrels, in nooks and crannies, and even in plain view and can be bought with gold in the Shop.

GAUNTLET LEGENDS T-SHIRT CONTEST

Players can win a Gauntlet Legends t-shirt by successfully completing all of the journeys, collecting the twelve Rune Stones and defeating Skorne. On-screen congratulations precede information on how to register for the prize. During the attract screens, players can read information about the contest by pressing the TURBO button when the contest advertisement appears.

GAUNTLET LEGENDS SWEEPSTAKES OFFICIAL RULES

No purchase necessary. Who may enter: The Gauntlet Legends Sweepstakes is open to all legal residents of the United States, except employees of Midway Games Inc., its subsidiaries, related parties and their immediate families. All federal, state, and local laws apply. Void where prohibited.

Sweepstakes sponsored by Atari Games Corp., 675 Sycamore Drive, Milpitas, CA 95035. Deadline: The Sweepstakes runs from November 1, 1998 to June 30, 1999. To be eligible for the Sweepstakes, entries must be received no later than 11:59 P.M. on July 9, 1999. Sponsor is not responsible for mechanical errors, typographical or printing errors, lost, stolen, slow, late, or misdirected mail, third party interference or electrical, network, computer, hardware, or software malfunctions.

To enter: The first 500 non-repeating entries received by Atari each win a prize. Only one prize per person. Play the Gauntlet Legends arcade game at your local arcade. To win, collect all twelve Rune Stones and destroy Skorne to receive a validation code. Send the validation code on a 3 x 5 card with your name, age, address, and phone number and send it to the address below; or send a 3 x 5 card with your name, address, age and phone number to the address below:

"Gauntlet Legends Sweepstakes Entries"

Marketing Dept.
Atari Games Corp.
675 Sycamore Drive
Milpitas, CA 95035

No mechanical reproductions or facsimile entries permitted. All decisions of the judges are final and binding in all respects.

Odds: Odds will depend on the number of entries and the speed of entry.

Prizes: Prize (500) Gauntlet Legends t-shirts (approximate retail value: \$9.99 each). Total prize value: \$4,995. Requirements: Winners will be required to complete an affidavit of eligibility, waiver of liability, and publicity release, which must be returned within 15 days of receipt or any prize will be void. If a winner is under the age of 18, that winner must provide a signed parental/guardian consent, in a form provided by the sponsor, in order to receive a prize. Unclaimed prizes will not be awarded. No substitution or transfer of prizes. Taxes are the responsibility of winners. By participating, winners consent to use of their names, address, and likeness for advertising, promotional and publicity purposes without additional compensation, except where prohibited by law.

Notification: Winners will be notified by mail and/or telephone within 30 days of receipt of winning entry. Winner's List: For a winners list, please send a SASE to Gauntlet Legends Sweepstakes Results, Atari Games Corp., 675 Sycamore Dr., Milpitas, CA 95035

INDIVIDUAL PLAY

Insert currency to start the game. Choose a player position and press the nearest START button. Enter a password and select a character. Select a journey. A life-counter at the bottom of the screen decreases as play continues. When it reaches zero, a player must deposit more coins to continue.

MULTIPLE PLAYERS

Insert currency to start the game. Each player chooses a position and each presses a START button. Each player enters a password and selects a character. The first player to select a journey determines the journey for both players. A life-counter at the bottom of the screen for each player decreases as each continues to play. When any counter reaches zero, that player must deposit coins to continue.

PLAYER CONTROLS

◆ **START Buttons**

These buttons allow players to begin or continue play.
These same buttons select items from the menu during service.

◆ **FIGHT/MAGIC/TURBO Buttons**

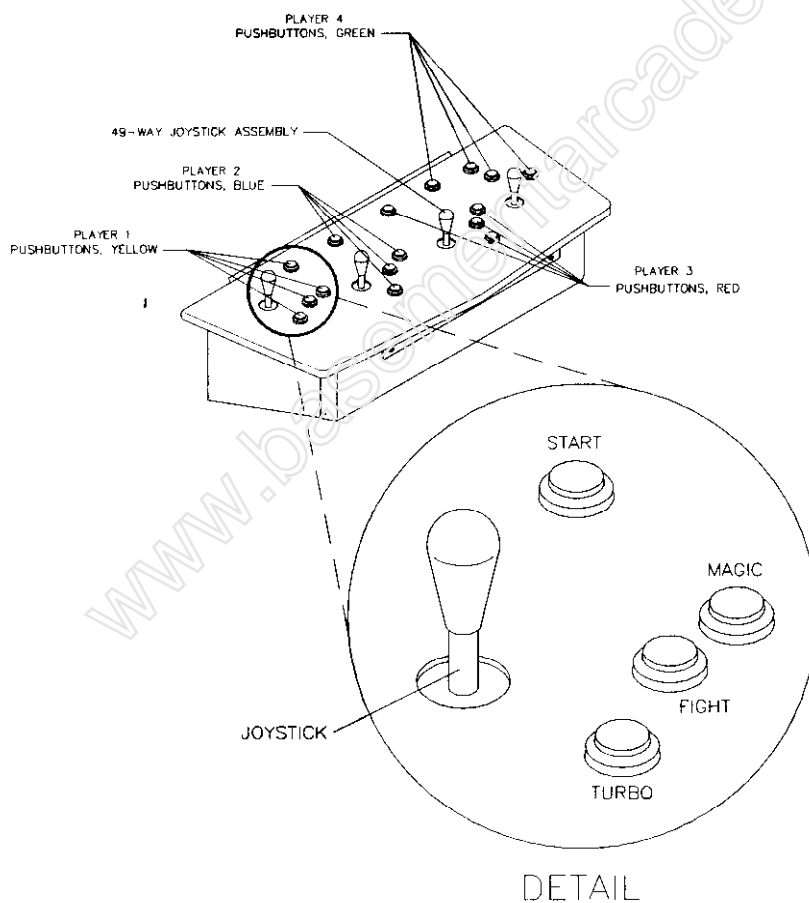
Players use these buttons to defend themselves against enemies. Players have special turbo movies available to them simple by pressing TURBO and FIGHT at the same time when their "fight bar" has been charged up.

Players can also use magic in different ways by pressing TURBO + MAGIC and FIGHT + MAGIC during game play.

In between levels, players redeem the gold they have collected to trade for valuable power-ups and things that will enhance their characters like strength, toughness, speed, and magic.

◆ **JOYSTICKS**

The joysticks advance a character along a journey.
They also select items from the menu during service.



PLAYER CONTROL LOCATIONS

OPERATOR CONTROLS

Operators have lock-and-key access to the menu system for statistics, adjustments, and testing to prevent tampering. On-screen messages guide the operator through menu options.

CABINET SWITCHES

- ◆ **Power Switch** (on the power supply at the rear of the main cabinet)
The **Power Switch** turns off the game during service. It does not reset the game variables.
- ◆ **Monitor Remote Adjustments** (behind the front door)
The **Monitor Remote Adjustment Board** sets the video display for optimum viewing.

CONTROL SWITCHES

- ◆ **Volume Down and Volume Up Buttons** (mounted on a bracket behind the coin door)
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

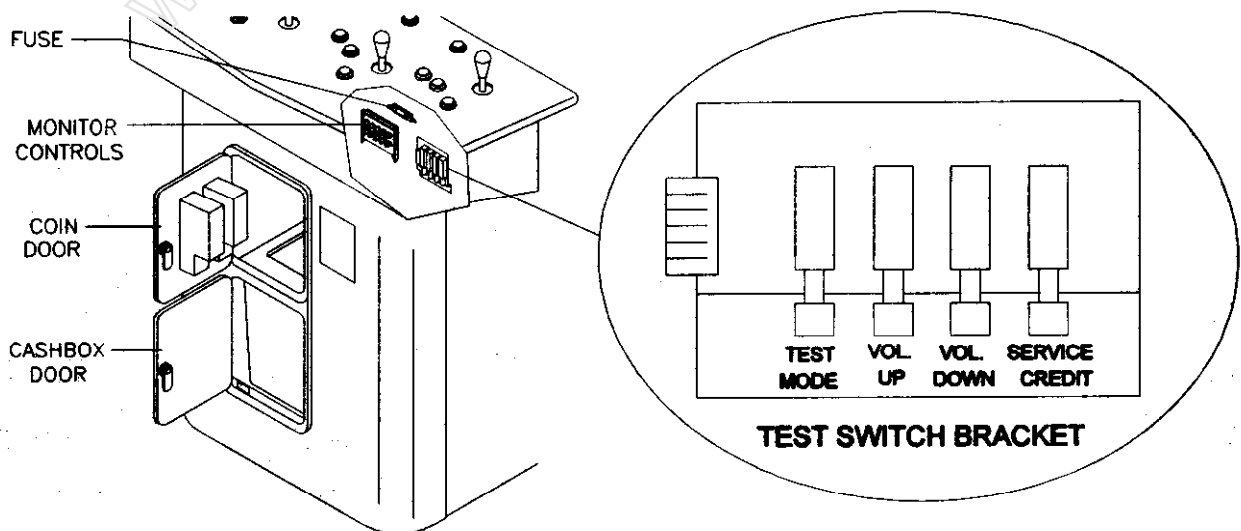
The Attract Mode volume is set as a percentage of the Game Mode volume. When the volume up/down buttons are pressed while game is in Attract mode the volume is temporary set to game volume.

For greater profits, adjust your volume levels to a loud setting to draw attention to this game.

- ◆ **Test Mode Button** (mounted on a bracket 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 a bracket behind the coin door)
The **Service Credit** push-button switch allots credits without changing the game's bookkeeping total.

These buttons may also be used instead of the control panel buttons and joystick when operating the menu system.

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



OPERATOR CONTROL LOCATIONS

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 must interact with 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 EXIT TO GAME, then press the indicated button.

SELECT TEST

ADJUST VOLUME
STATISTICS
GAME OPTIONS
COIN OPTIONS
DIP SWITCHES
CONTROLS TEST
SOUND TESTS
MONITOR TESTS
DISK TESTS

EXIT TO GAME

To select test, Use Joystick

To run test, Press right P1 START or TEST

EPROM: (Day Date Year) (Hours: Minutes: Seconds)
GUTS: (Day Date Year) (Hours: Minutes: Seconds)
MAIN: (Day Date Year) (Hours: Minutes: Seconds)
SERIAL NO:

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 independently for the Attract Mode and the Game. Press the Volume Up button to raise the volume level and the Volume Down button to lower the volume level. Use the joystick to raise or lower the volume level. Music plays continuously while setting the volume.

ADJUST VOLUME

Game

Attract (XX% of Game)

to ADJUST volume, Use Joystick
to Select which volume, Press P1 START or TEST
to RESTORE old setting, Press and hold P1 START or TEST
to SAVE setting and exit, Press P2 START or CREDIT

VOLUME ADJUSTMENT MENU SCREEN

Use the Player 1 START button to choose either "Game" or "Attract" volume adjustment. When the selected variable is flashing on the screen, use the joystick to change the level.

The "Game" volume is continuously adjustable from zero to maximum. 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. 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, it will automatically lower the "Attract" level proportionately. Lowering the "Attract" level will not affect the "Game" 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.

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 both the volume of the tests and 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. Set the volume levels to a moderately high value when checking the game audio components and speakers. Return the levels to their previous settings after completin the tests.

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.

Use a the joystick to select a menu item. The gun is also used to view the range of choices and change its value. Statistics may be reset to zero or allowed to increase after each viewing.

STATISTICS

Left Coins	:0
Right Coins	:0
Service Credits	:0
1 Credit Games	:0
2+ Credit Games	:0
Idle Mins	:0
1 Player Mins	:0
2 Player Mins	:0
3 Player Mins	:0
4 Player Mins	:0
Number of Sessions	:0
Number of Join-Ins	:0
Total Game Starts	:0
Total Coins	:0
Average Time / Coin	0:00
Percentage Play	00%

To clear these counters,
Hold P1 START or TEST and press P2 START
For more stats, Press P2 START or CREDIT

STATISTICS REPORT MENU SCREEN

The illustration shows how the report screen will look after the game has been reset or is first turned on. 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 no errors have occurred.

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 performing service or making repairs on the game.

Press the Player 2 START or service credit button to view the additional game statistics. This will present the players progress with different game features such as credit usage and player skill.

Press the Player 2 START button to see HISTOGRAMS or USER MSGS screens. Press both START buttons to cancel any settings 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.

The USER MSGS screen will contain no messages until the system detects an error.

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 joystick to select a menu item and to view the range of choices or change their value. Options may be reset to factory defaults or changed after each viewing.

GAME OPTIONS

Difficulty:
5 Medium
Health Per Credit:
500
Blood:
Yes
Freeplay Demo Mode:
No
Health Decrease Timer:
Normal
Text In:
English
Reduce Hints:
No
Audio Mode:
Stereo
Audio in Attract:
Often
Cabinet Type:
4 Players 1 Cabinet
Contest Enabled:
Yes
Codes Enabled:
Yes
Allow Password:
Yes
Clear Password Files:
No
Auto Clear Highscores:
Yes
Restore Factory Game Options:
No

To change settings, use Joystick
To RESTORE old setting, press P1 START or TEST
To SAVE setting and exit, press P2 START or CREDIT

GAME OPTIONS MENU SCREEN

The illustration shows how this report screen will look after the game has been reset or is first turned on. Use the joystick to advance a variable through its range of choices. Some items have more options than others do. View all options before selecting one.

The effects of these options can be judged by comparing statistics reports before and after changes were made. As players become more familiar with the game, new features or increased difficulty will make the game challenging and continue to generate interest.

Difficulty adjusts the level of play difficulty. It ranges from easiest to hardest in several steps. Default is Medium.

Health Per Credit determines amount of health credits added to the timer each time a player uses a credit by pressing the START button. It ranges from 300 to 1000. Factory default is 500.

Blood controls whether blood and gore appear on screen when a character is killed. Factory default is Yes.

Freeplay Demo Mode increases the maximum number of health credits allowed on the health timer per game credit beyond normal game limits. Factory default is Off.

Health Decrease Timer sets the speed of the Health timer. It ranges from Off to Fast in several steps. Factory default is Normal.

Texts In selects the language of the on-screen announcements and hints. Selection of a different language changes the player information presented only on the screen. It does not change any of the voice announcements, menu screens or tests. Factory default is English.

Reduce Hints sets the frequency of visual and verbal assistance to a player during the game. Yes decreases the frequency of hints. Factory default is No.

Audio Mode sets the audio output of the game. Use Stereo for cabinets with more than one speaker. Use Mono for cabinets with a single speaker. Factory default is Stereo.

Audio in Attract sets the frequency of game play instructions while the game is idle and in attract mode. It ranges from Never to Always. Factory default is Often.

Cabinet Type configures the number and type of inputs for the cabinet. Factory default is 4 Players 1 Cabinet. Factory default is 4 players 1 cabinet.

Allow Password controls whether the game will save a player's character experience with a three-digit password for later games. Factory default is Yes.

Contest Enabled allows ATARI Games sponsored T-shirt promotion. Players who defeat Skorne by collecting all 12 rune stones and winning the final battle are eligible for an "I Beat Skorne" T-shirt. Factory default is Yes.

Codes Enabled allows use of secret codes. Factory default is Yes

Clear Password files controls password file deletion. Set this feature to Yes to delete all saved character experience and passwords. Factory default is No.

Auto Clear Highscores sets whether the game will automatically reset the high score table from time to time. Factory default is No.

Restore Factory Game Options resets the Game Options. Set this option to Yes to reset the game to factory default options. Factory default is No.

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

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

COIN OPTIONS

The Coin Options are used to set up the coin mechanisms and adjust the pricing of the games. Factory default values can be considered standard.

Use the Player 1 joystick to select menu items, view the range of choices, and change values. Options may be reset to factory defaults or changed after each viewing.

PRICING OPTIONS

Free Play:
No
Start Game Cost:
2 Coins
Continue Game Cost:
2 Coins
Bonus for quantity buy-in:
None

To change setting, use Joystick
To RESTORE old Setting, Press P1 START or TEST
To Save setting and exit, Press P2 START or CREDIT

PRICING OPTIONS MENU SCREEN

MECH SETUP

Activate mech to test. Current status:
Mech 1 Mech 2 Mech 3 Mech 4 BILL Service
Each Mech 1 pulse worth:
1 Coin
Each Mech 2 pulse worth:
1 Coin
Each Mech 3 pulse worth:
1 Coin
Each Mech 4 pulse worth:
1 Coin
Each Bill pulse worth:
1 Coin
Stats and Counters count:
Coins

To change setting, use Joystick
To RESTORE old Setting, Press P1 START or TEST
To Save setting and exit, Press P2 START or CREDIT

MECH SETUP MENU SCREEN

The illustrations show how these screens will look with all of the factory default settings. Fire a gun at the left or right arrows to advance a variable through its range of choices. Some items have more options than others. View all choices before selecting one.

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. Although values are shown for all devices, changes to unused inputs will have no effect if there is no such mechanism in the game.

DIP SWITCHES

The two DIP switches located at U13 and U14 on the SIO Board configure the Electronics Assembly for various input and output devices. The on screen display shows the switch status for easy reference. See Section 3 for specific information on the function of switch positions.

DIP SWITCHES

U13

1	OFF	
2	OFF	Run Game
3	OFF	Not Used
4	OFF	Not Used
5	OFF	Not Used
6	OFF	Not Used
7	OFF	Not Used
8	OFF	Not Used

U14

1	ON	
2	OFF	Medium Resolution (512 x 384)
3	ON	49-Way Joysticks
4	ON	Midway Cabinet/Harness
5	OFF	SIO rev 1 or greater
6	OFF	Not Used
7	OFF	Not Used
8	OFF	Not Used

To return to Menu, Press F2 START or CREDIT

CONTROLS TEST

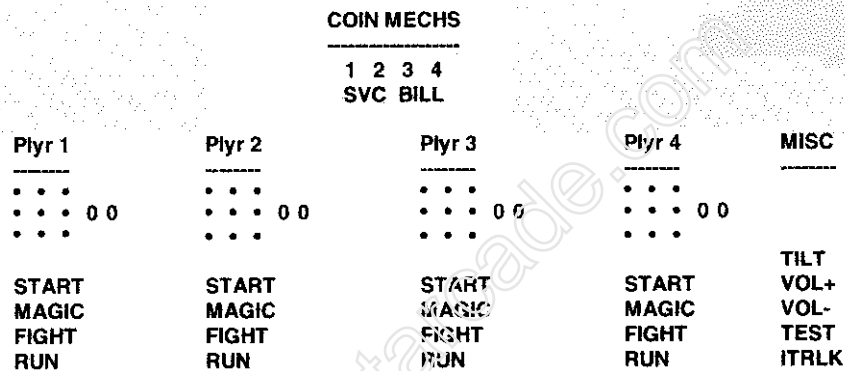
These tests allow the operator to manually check each switch in the game.

NOTE

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

Use the joystick to select the Controls Test. Press the Player 1 START button to begin the test. Activate each switch and the switch indication on the screen changes state. Release the switch and the indicator returns to its previous normally open or closed condition. Switches may be tested in any combination.

CONTROLS TEST



GRN=Switch OK, RED=Switch ON, YEL=Switch not tested.

Press TILT switch to activate coin counter
Press and hold P2 START or CREDIT to return to menu

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 alphanumeric indicators next to each joystick should display three distinct settings as the stick is moved in each direction toward its outermost limit.

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.

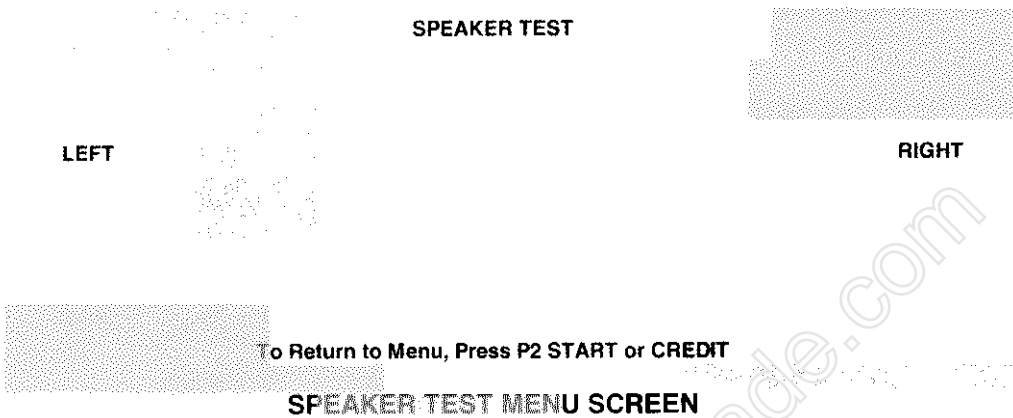
The Coin and Cabinet Switches are shown on the screen without regard for their actual game location. Each switch change should be exactly duplicated by a single indication on the menu screen.

SOUND TESTS

These tests verify the proper connection and operation of the audio components.

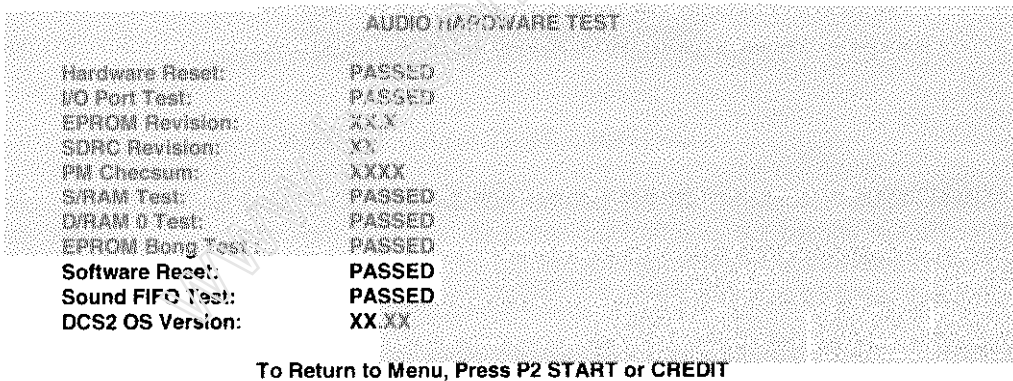
NOTE: Increase the **VOLUME** to a moderately high level to test the speakers accurately.

There are no custom settings or adjustable variables in these tests. The test is performed automatically.



SPEAKER TEST sends alternating voice sounds to the left and right speakers. The voices should be clear and distinct from each other. Each voice must come from the location identified. Refer to **ADJUST VOLUME** screen if necessary to increase loudness for this test.

The Speaker Test screen verifies crossed connections, incorrect phase, and distortion. Press the Player 2 **START** button to end the Audio Speaker Test and return to the **SOUND TESTS** menu.



AUDIO HARDWARE TEST automatically tests the electronic components of the audio amplifier for problems and reports the results as "passed" or "failed." Each "failed" result should be noted and referred to qualified service personnel. This test also shows the revision numbers for the audio EPROMs and other components. Press **SERVICE CREDIT** to return to the **SOUND TESTS** menu after noting and recording any errors.

NOTE: If any test reports any result other than "PASSED," refer to **Troubleshooting in Section Four**.

MONITOR TESTS

The Monitor Tests provide patterns for verifying the monitor performance or making adjustments. *Note: Gauntlet Legends 3D must have a medium-resolution monitor to work properly. Any other type of monitor will cause undesired game performance.*

Use the joystick to select a menu item. Press the Player 1 START button to begin the test. Once the menu is open, use the joystick to select an option, and the Player 1 START button to begin it. Use the Player 1 START button to select various elements of each test. Press the Player 2 START button to return to the Monitor Tests menu screen.

MONITOR TESTS

COLOR BARS

CONVERGENCE

PURITY

To select test, Use joystick
To run test, press P1 START or TEST
To return to menu, press P2 START or CREDIT

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.

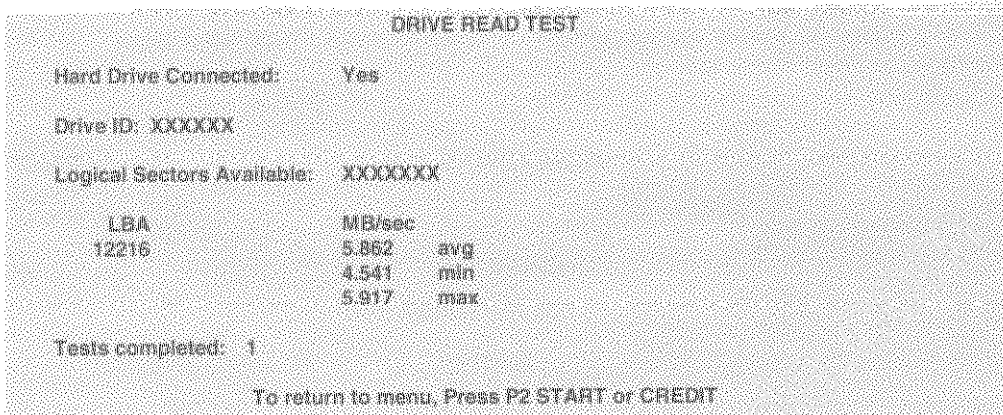
Borders must be visible on top, bottom, and both sides of the screen. Image color should not change screen position or color as the background or border are removed or restored from the video display.

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

DISK TESTS

The DISK TESTS verify the functions of the Hard Disk Drive Assembly. Some files can be repaired.

These tests are automatic and the results appear on the menu screen as they occur. There are no custom settings or adjustable variables in these tests. The Player 2 START button aborts the tests.



DRIVE READ TEST MENU SCREEN

Hard Drive Connected

This test routine verifies the interface between the CPU Board Assembly and the Hard Disk Drive itself. The processor requests disk information. Data cannot be retrieved successfully if there is a problem.

Drive ID

This is an industry standard identification for Hard Disk Drive type and capacity. This is a manufacturer hardware number only; it will not identify the software or the game program stored on the drive assembly.

Logical Sector Test

This test performs a sector by sector read/verify test on the disk drive. As the status of each block of sectors is checked, the speed of the data transfer is compared to its acceptance limits.

Tests Completed

These tests run over and over. The number increases each time the test cycle repeats (approx. every 5 minutes). After at least one cycle ("pass") is complete, note any errors and press the Player 2 START button to end the test.

FILE SYSTEM CHECK

Total files used: XXXX
Passes completed: X

Checking File: XXXX

To return to menu, Press P2 START or CREDIT

FILE SYSTEM TEST SCREEN

Checking File

This routine performs a file by file check of data stored on the hard disk drive and reports its findings. If there are errors, the system tries to fix them (approx. 5 minutes per cycle). The system reports on the severity of the errors and advises if they will affect game performance.

SWITCHES AND JUMPERS

The CPU Board and Sound I/O Boards have a number of hardware variables that can be changed to adapt this assembly to other uses. Jumpers activate circuit paths, and DIP switches select instructions.

Switches

There is one pushbutton switch on the CPU Board Assembly. This switch resets the CPU Board and restarts the game without turning off the power supply. There are two DIP switches on the Sound I/O Assembly at U12 and U13. See Section 3 for an explanation of the settings.

Jumpers

Jumpers on the CPU Board Assembly and Sound I/O Board Assembly are used to control 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. Each of the jumpers should be left in its original position to avoid program error messages.

ERRORS

The system detects errors at start up or during various diagnostic tests or operations and reports them on the screen. Some errors, such as minor disk data faults, are automatically repaired by the system. Other errors, such as player control calibration, are fixed by manually resetting the values in game memory. In most cases, the game will continue to operate with reduced performance after discovering minor errors.

Always record error messages before attempting to correct any problem. The USER MESSAGES report may store some additional temporary messages (refer to STATISTICS earlier in this section).

After recording the error messages, turn off the game's power, wait a few minutes, then turn the power back on again. Pay attention to the start-up screens and note any error messages during the Power On Tests. If possible, enter the SELF TEST MENU SYSTEM and run all of tests related to where the errors occurred. Record any new error messages and compare them to those previously recorded to determine whether the errors are random or continuous in nature.

NOTE: Do not ignore error messages when the game can be forced to start and operate. Games with errors may reduce earnings due to poor performance.

GAUNTLET™

SECTION TWO

PARTS

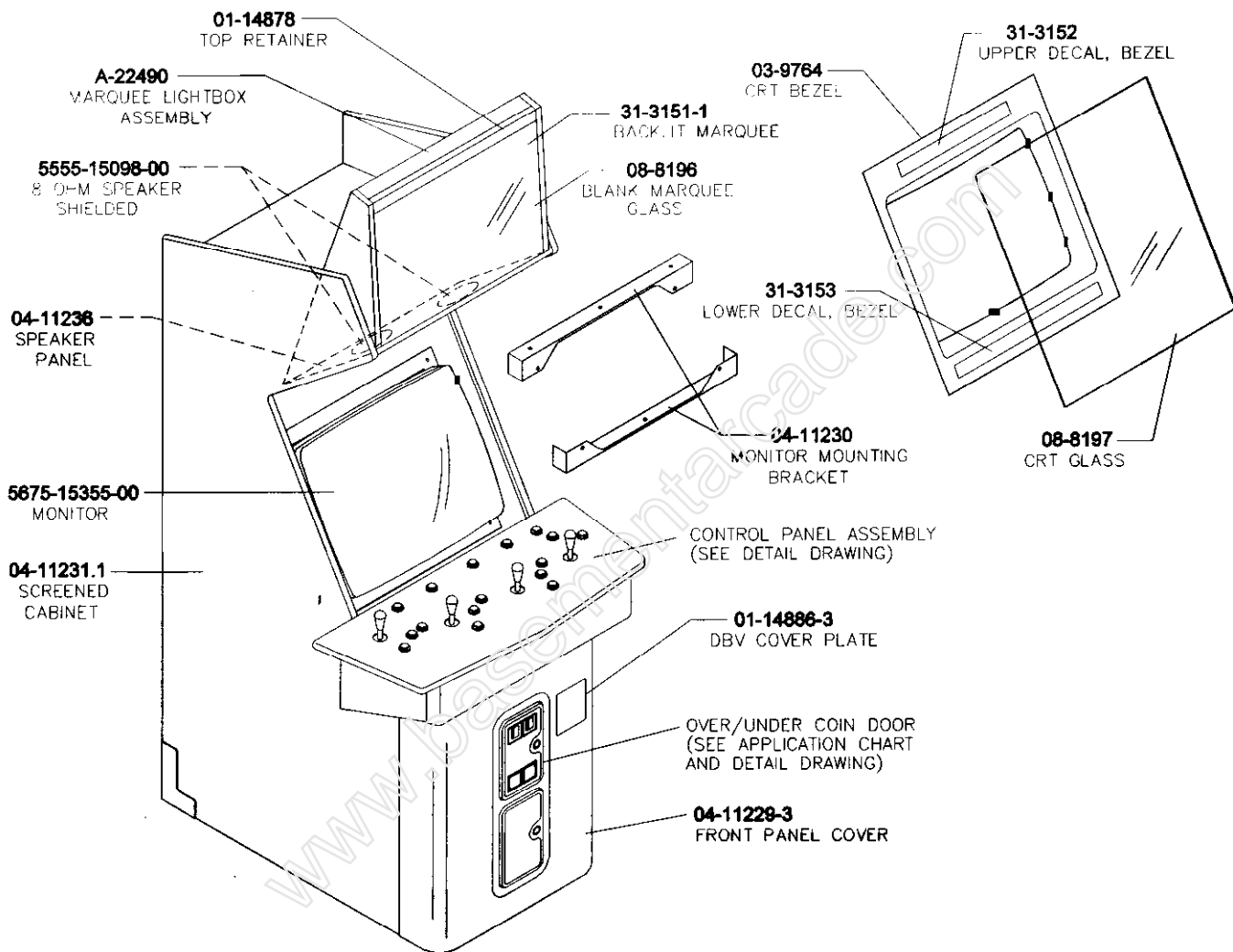
Warning

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 FCC type acceptance.

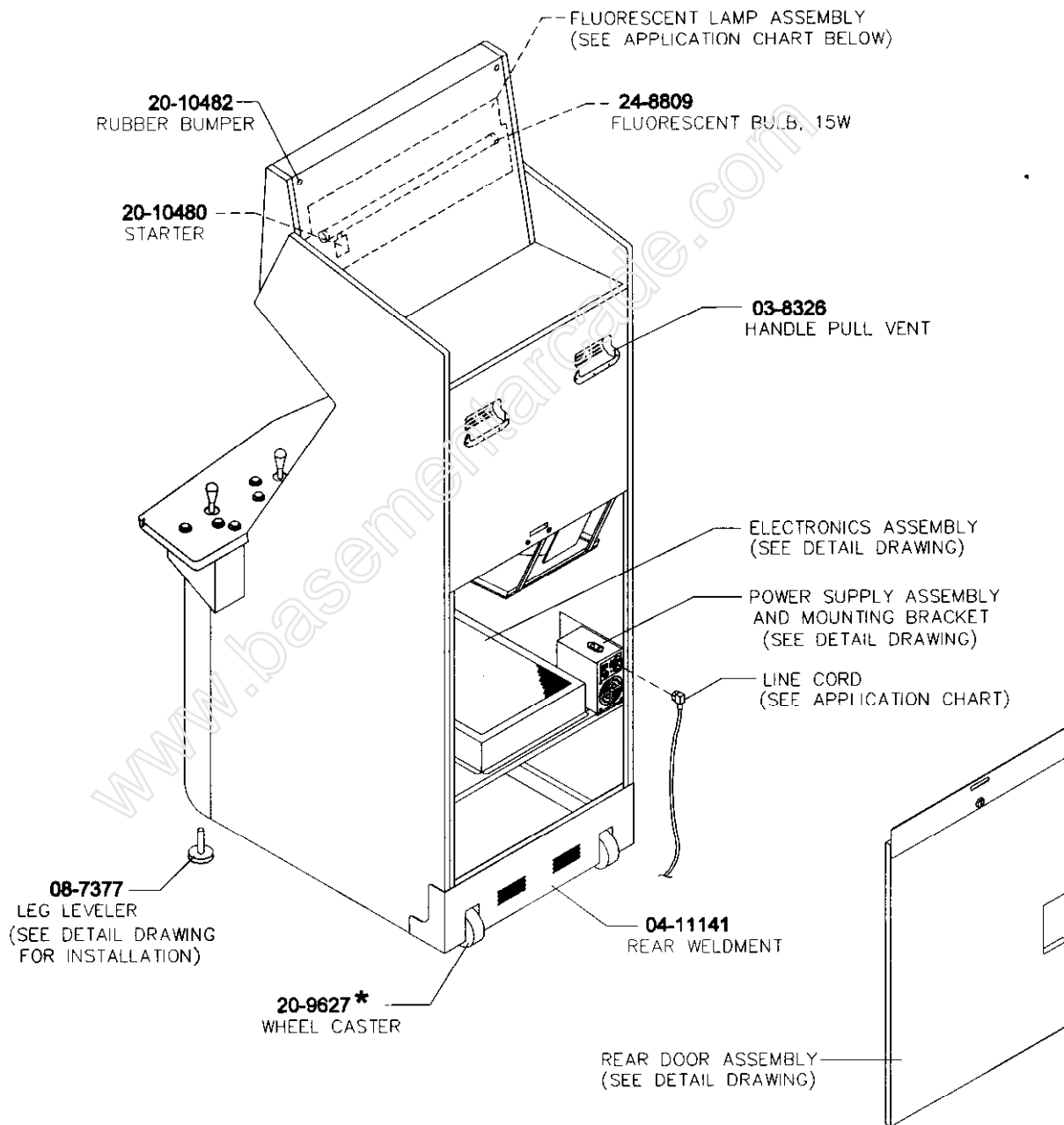
CABINET FRONT VIEW (30022)



HARDWARE NOT SHOWN:

4010-01007-08	MS 10-32x1/2 P-PH	4408-01128-00	NUT 8-32 KEPS
4020-01070-20	MS 1/4-20x1-1/4 HH	4410-00129-00	NUT 10-32 KEPS UNF
4020-01100-32	TR 1/4-20x2 BH CS	4420-01141-00	NUT 1/4-20 FLANGRIP
4106-01001-10	SMS #6x5/8 P-PH	4420-01119-00	NUT 1/4-20 ESN/NE
4106-01115-20	SMS #6x1-1/4 PL-HWH-A	4420-01128-00	NUT 1/4-20 KEPS UNC
4108-01115-20B	SMS #8x1-1/4 PL-HWH-A	4608-01081-11	H-F #8x11/16 PL-HWH
4108-01193-10B	SMS #8x5/8 TRX-TR	4700-00032-00B	FW .265x.625x.067
4308-01123-16B	BOLT 8-32x1 CB	4700-00034-00	FW .265x.875x.067
4320-01123-16B	BOLT 1/4-20x1 RH CB	4700-00139-00	FW .265x1.250x.059
4320-01123-20B	BOLT 1/4-20x1-1/4 CB	4701-00005-00	LW 1/4 SPLIT
4320-01123-28	BOLT 1/4-20x1-3/4 CB		
4320-01123-40B	BOLT 1/4-20x2-1/2 CB		

CABINET REAR VIEW (30022)



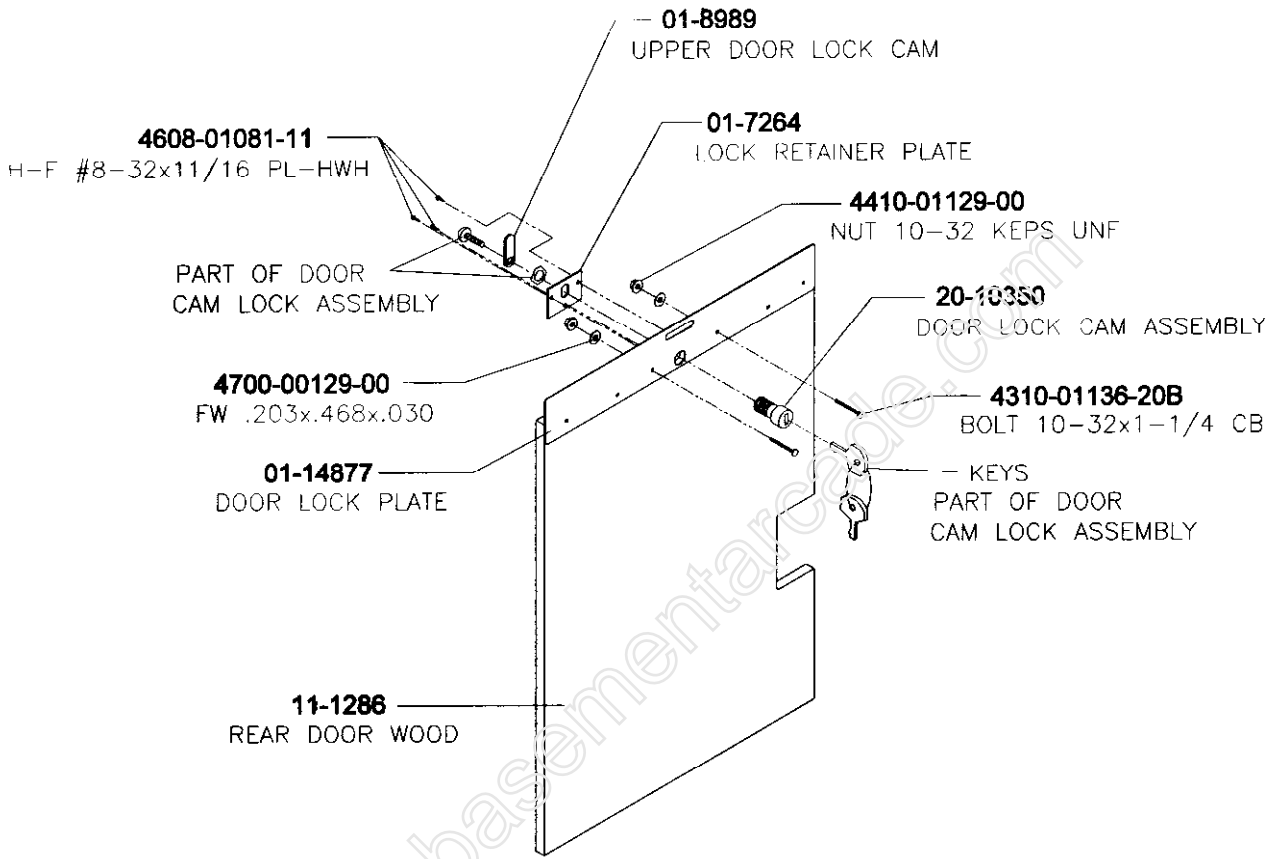
* ASSOCIATED PARTS NOT SHOWN:

02-4404 CASTER SHAFT
20-8712-37 "E" RING, 3/8 SHAFT

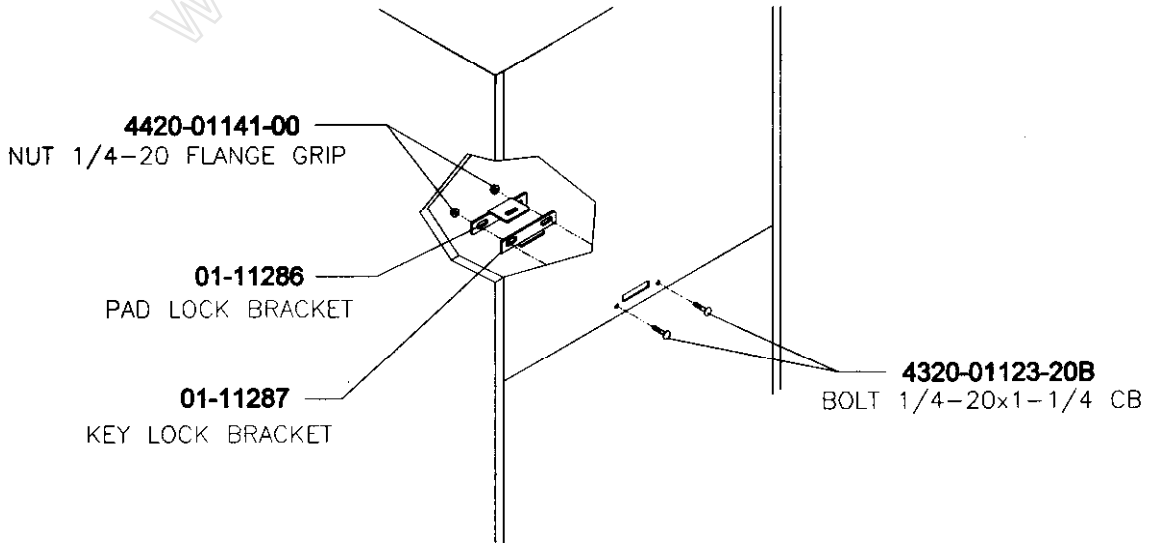
LAMP ASSEMBLIES:

A-22365 120VAC 60Hz FLUORESCENT LAMP ASS'Y - USA
A-22365-3 100VAC 50Hz FLUORESCENT LAMP ASS'Y - JAPAN
A-22365-5 240VAC 50Hz FLUORESCENT LAMP ASS'Y - UK
24-8874 ALTERNATE FLUORESCENT BULB

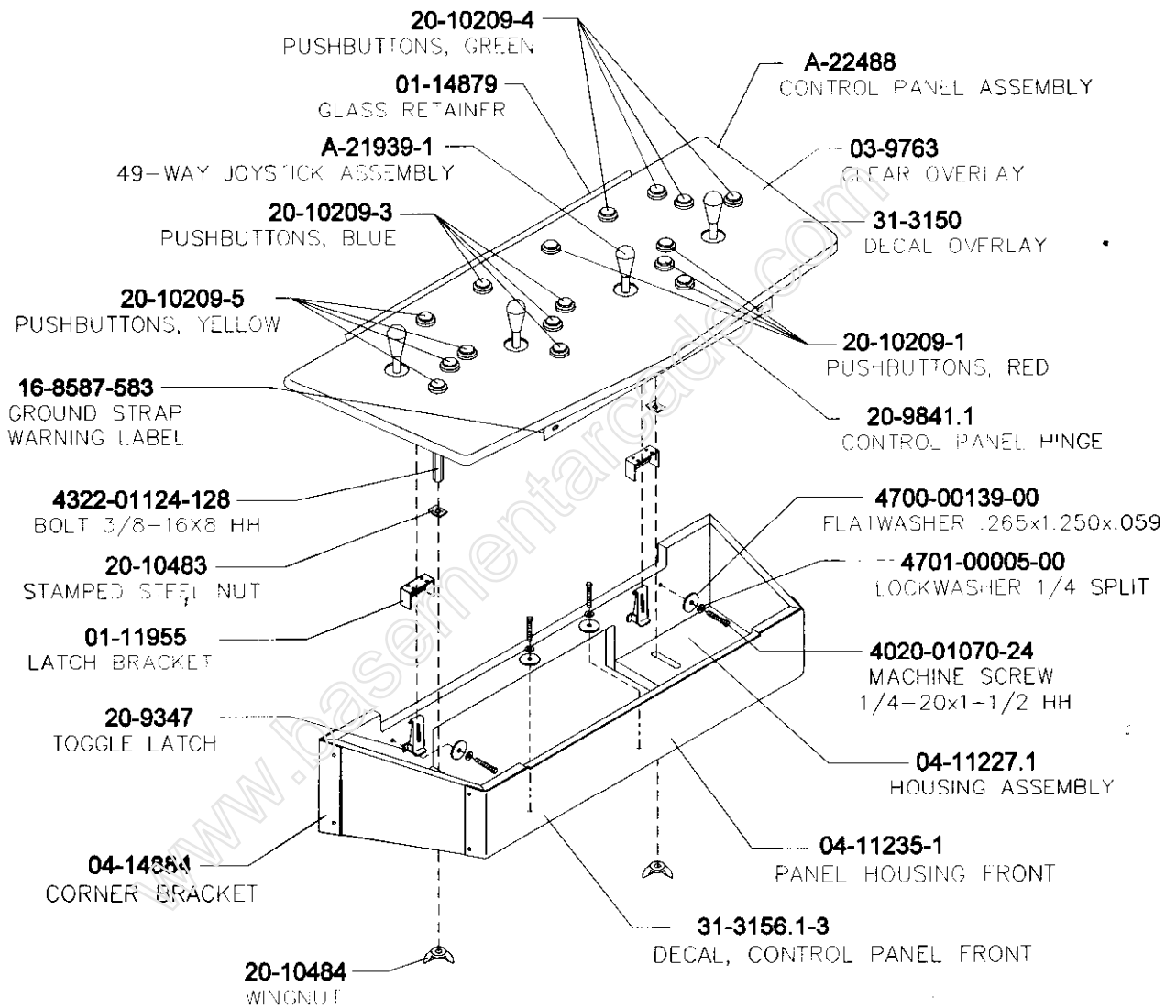
A-22403 REAR DOOR LOCK ASSEMBLY



CABINET SHOWN FOR REFERENCE



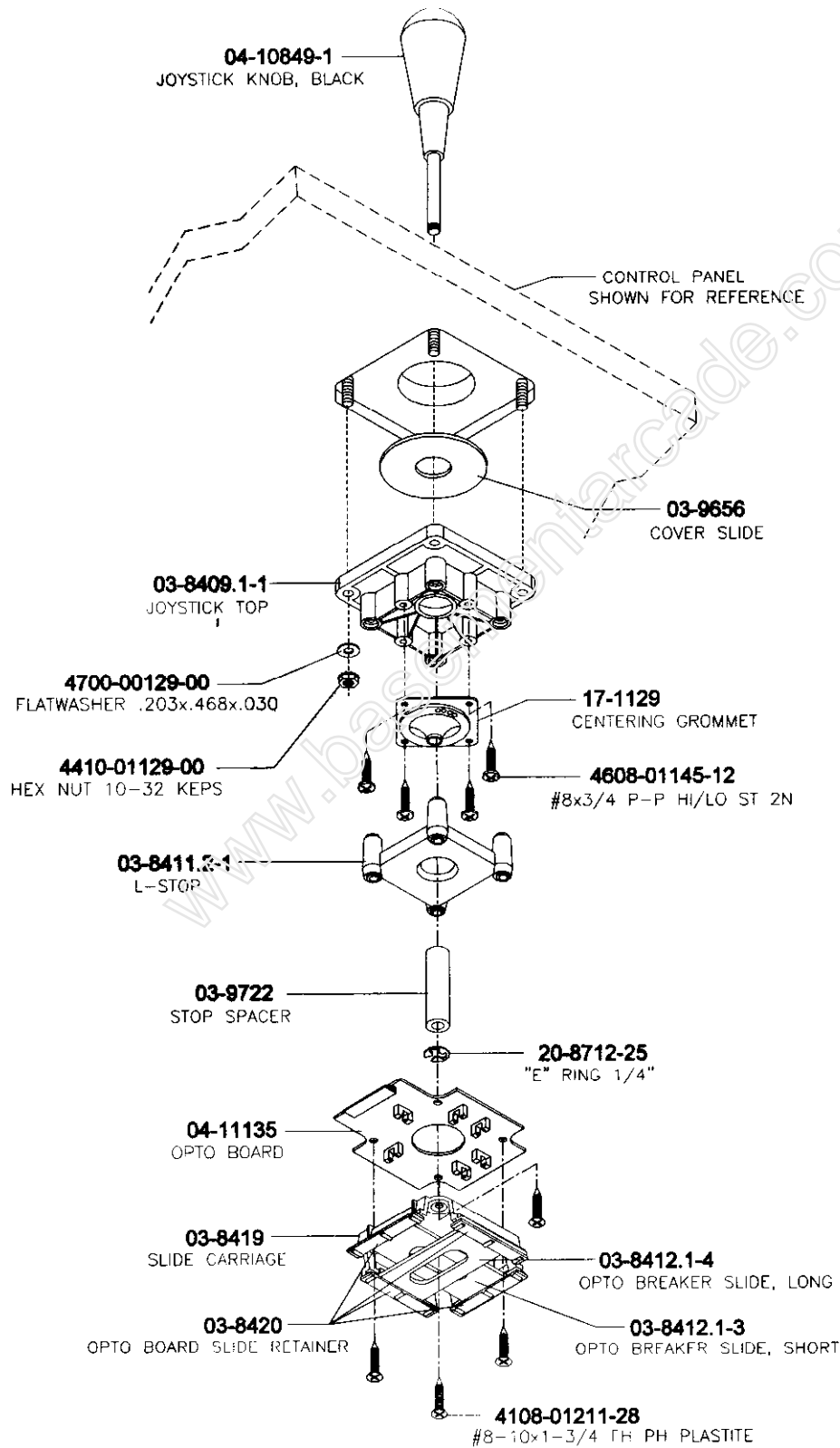
A-22487 CONTROL PANEL AND HOUSING ASSEMBLY



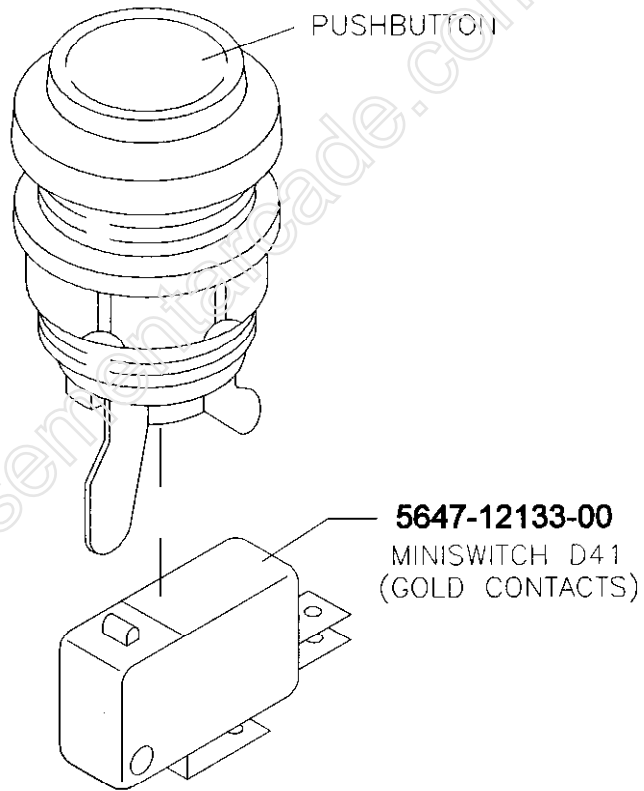
HARDWARE NOT SHOWN:

4408-01081-11	H-F #8x11/16 PL-HWH
4700-00129-00	FLATWASHER .203x.468x.030
4700-00032-00	FLATWASHER .265x.625x.067
4408-01120-00	NUT 8-32 WING
4420-00128-00	NUT 1/4-20 KEPS UNC
4408-00128-00	NUT 8-32 KEPS
4308-01123-16B	BOLT 8-32x1 CB
4108-01193-10B	SMS #8x5/8 TRX-TR

A-21939-1 49-WAY JOYSTICK ASSEMBLY

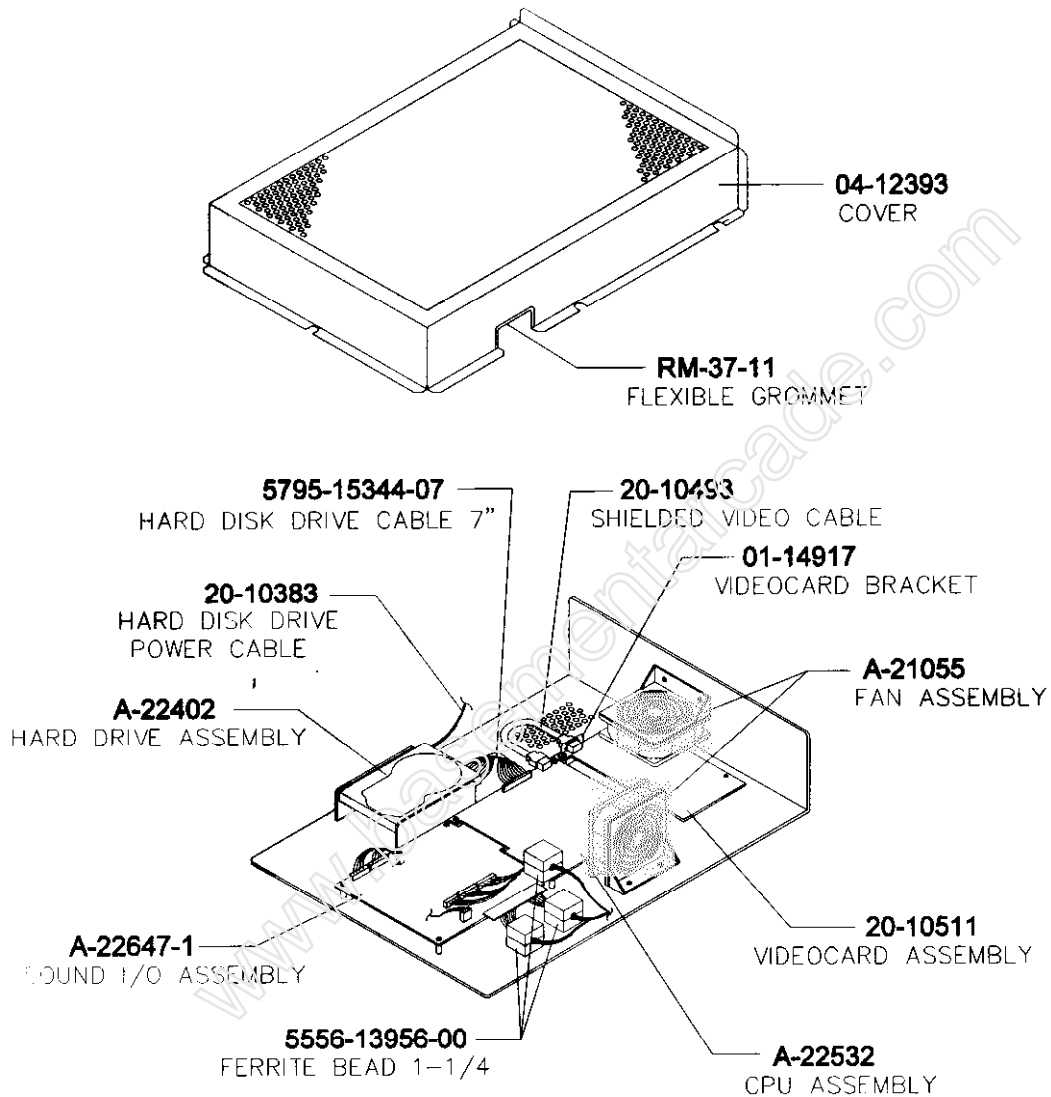


PUSHBUTTON ASSEMBLY



PART NO.	DESCRIPTION	QTY.
20-10209-1	PUSHBUTTON LONG SHAFT, RED	4
20-10209-3	PUSHBUTTON LONG SHAFT, BLUE	4
20-10209-4	PUSHBUTTON LONG SHAFT, GREEN	4
20-10209-5	PUSHBUTTON LONG SHAFT, YELLOW	4

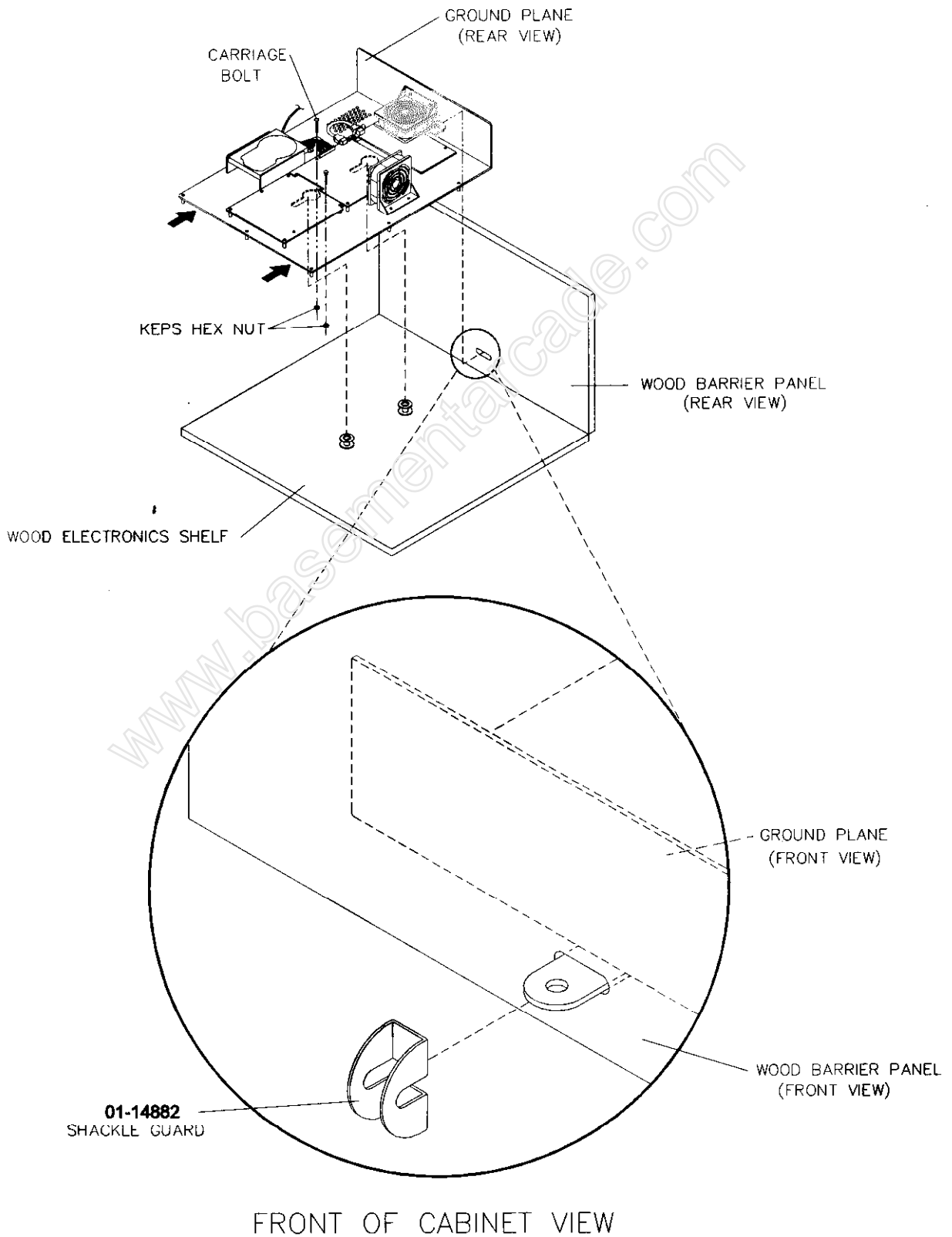
A-22401 ELECTRONICS ASSEMBLY



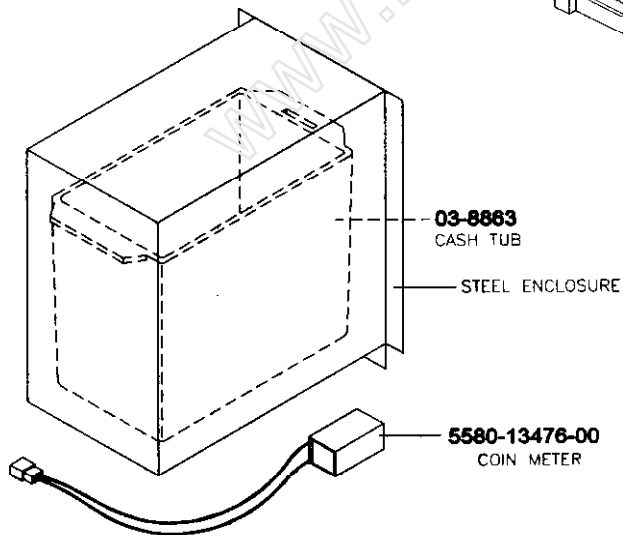
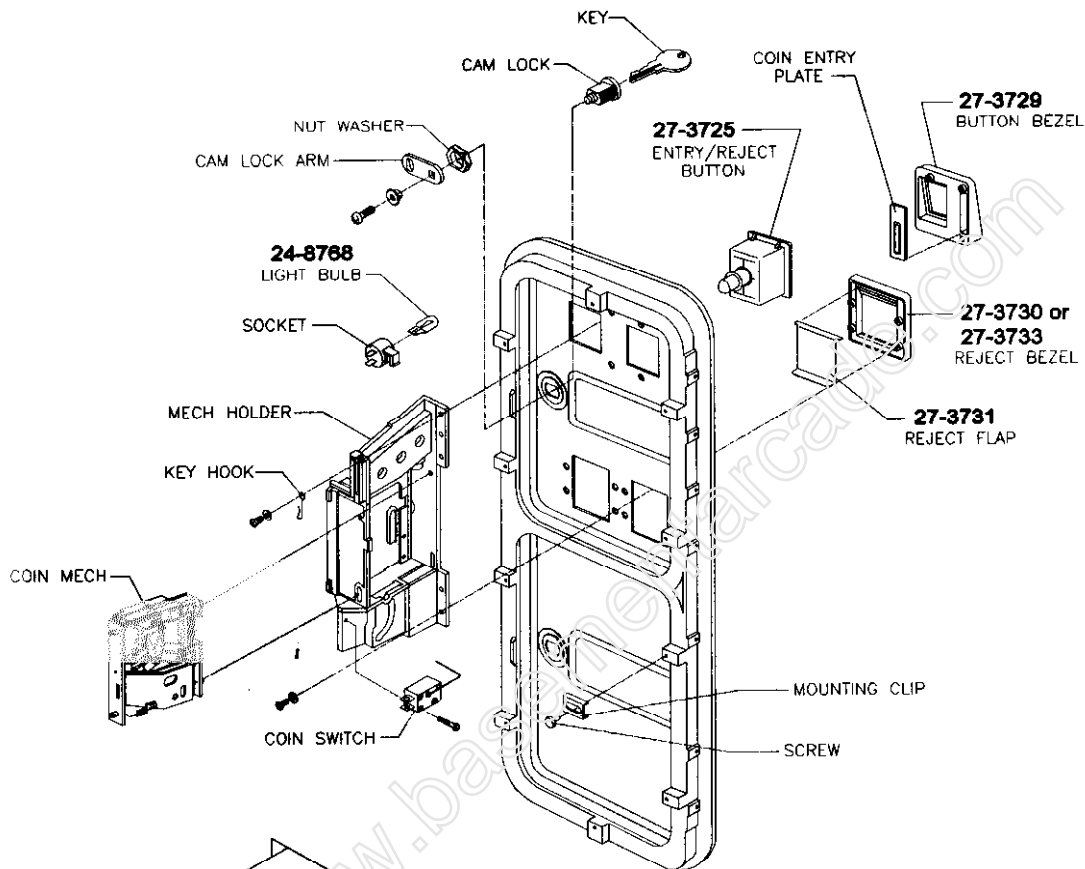
HARDWARE NOT SHOWN:

4404-01224-05	#4-40x.312 SH JACKSCREW
4701-00004-00	LOCKWASHER #10 SPLIT
4004-01123-05	MS #4-40x5/16 P-PH NYLON
4701-00002-00	LOCKWASHER #6 SPLIT
4700-00076-00	FLATWASHER .153x.312x.041
4700-00012-00	FLATWASHER .172x.375x.036
4308-01123-20	BOLT 8-32x1-1/4 CB
4010-01006-08	MS 10-32 X 1/2 P-PH
4408-01128-00	NUT 8-32 KEPS
4408-01005-16	MS 8-32 x 1 P-PH
4006-01005-04	MS 6-32 X 1/4 P-PH
4004-01005-14	MS 4-40 x 7/8 P-PH
20-10507	STANDOFF, HEX NYLON

ELECTRONICS SECURITY



COIN DOOR ASSEMBLY

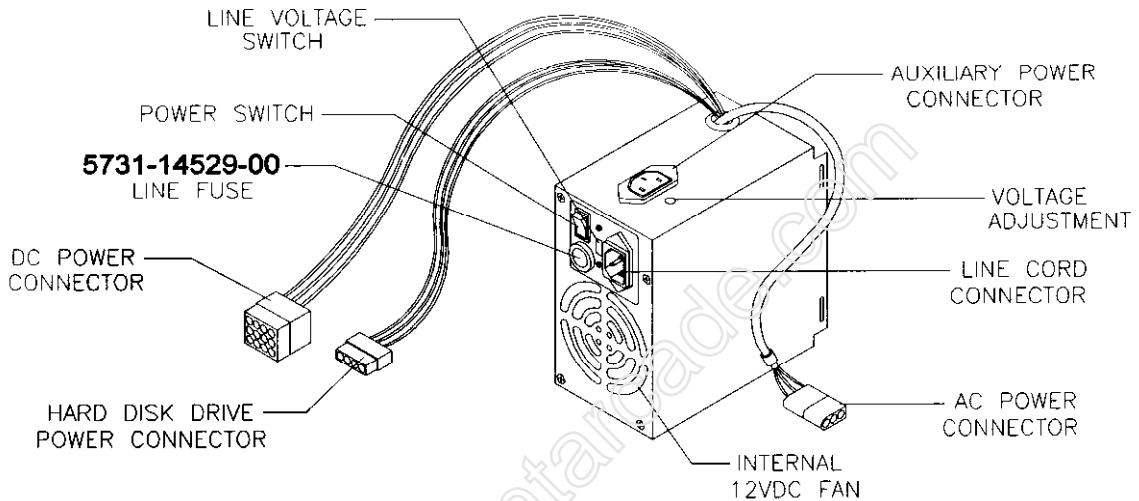


COUNTRY SPECIFIC COIN DOORS:

09-72000-1	UNITED STATES
09-22000-V-1 H-19726	UNITED KINGDOM ELECTRONIC COIN DOOR CABLE - UK
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.

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

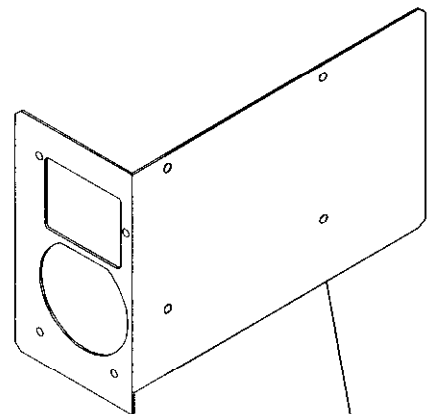
HARD DISK DRIVE POWER CONNECTOR

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.

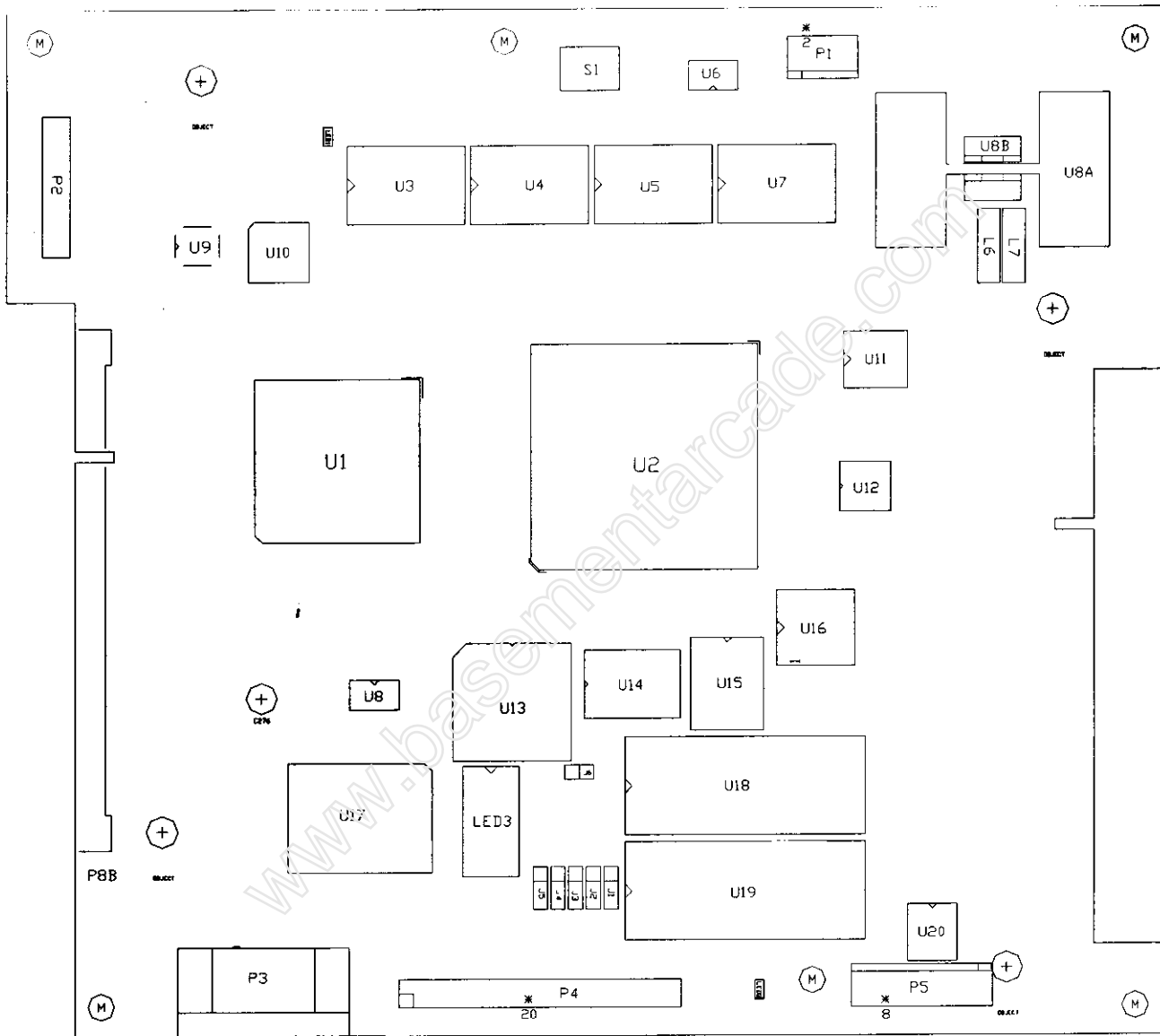
LINE CORDS COUNTRY SPECIFIC:

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



04-11091
POWER SUPPLY BRACKET

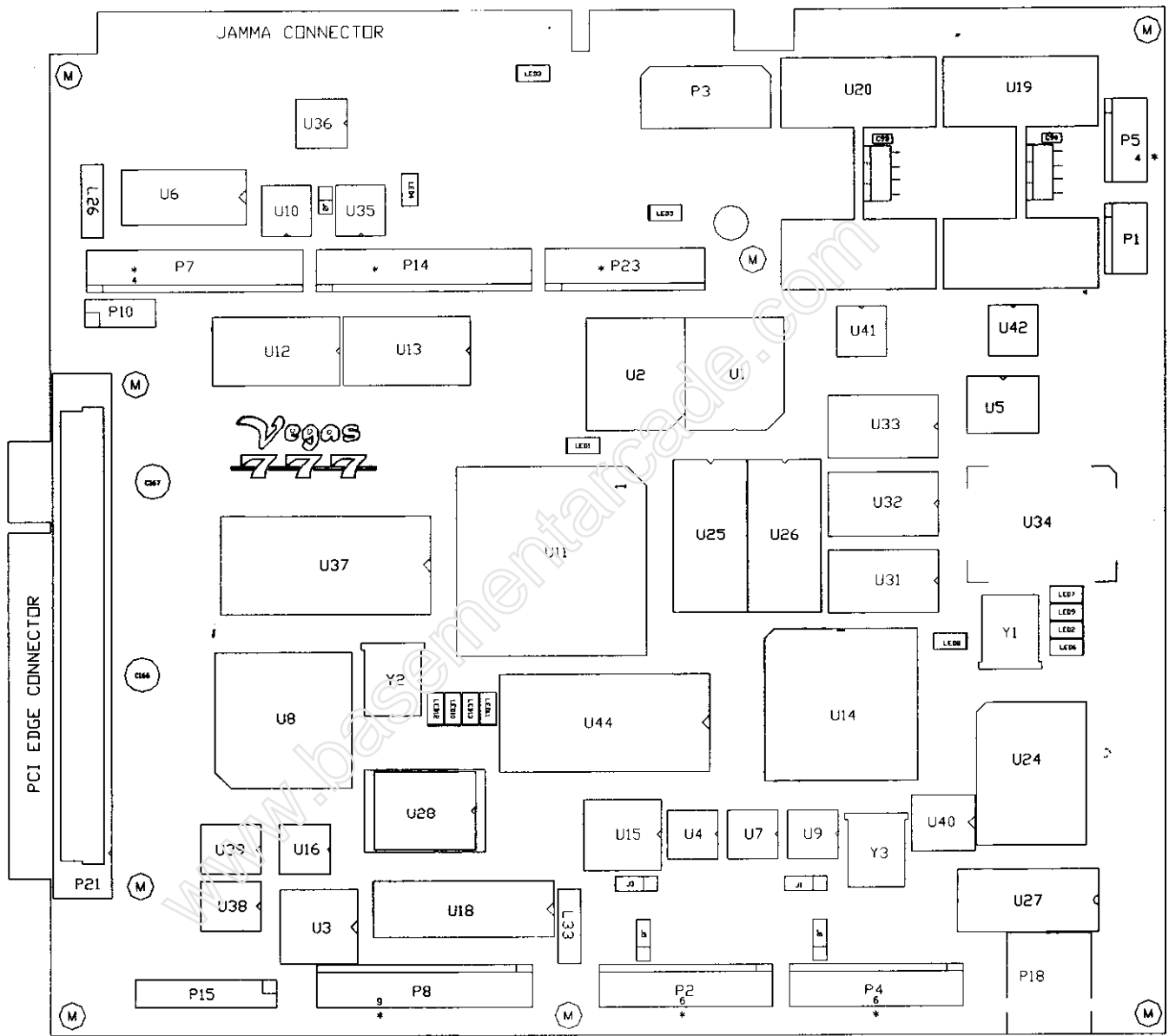
A-22532 VEGAS CPU BOARD ASSEMBLY



Field Replaceable Parts

DESIGNATION	PART NUMBER	FUNCTION	DESCRIPTION
U8A	5460-15671-00	+3V Regulator	Voltage Regulator 3.3BT
U11	A-22545	Game Setup Memory	EPROM 93C46
U13	A-22560	Game Logic Circuit	PAL Assembly
U18	A-5343-30022-1	CPU Boot ROM	EPROM Assembly

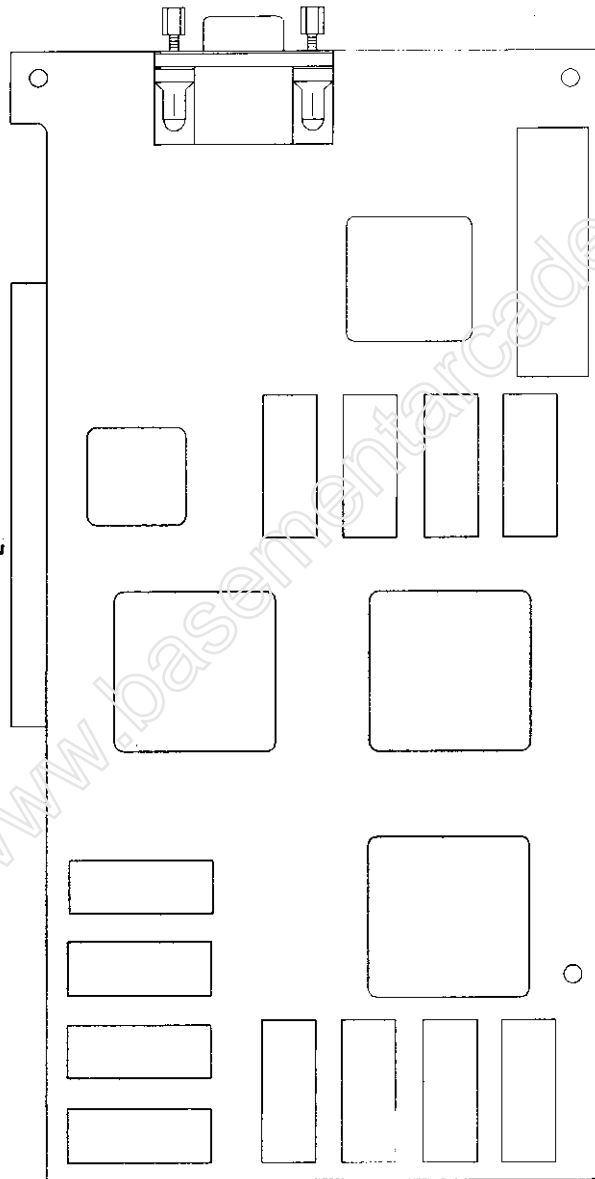
A-22647-1 VEGAS SOUND I/O BOARD ASSEMBLY



Field Replaceable Parts

DESIGNATION	PART NUMBER	FUNCTION	DESCRIPTION
U1, U2	5344-15764-00	FIFO Memory Circuit	AM 7201-35JC
U19, U20	5370-14146-00	Audio Amplifier	TDA 7204A
U28	5880-15774-00	Memory Backup	Lithium Battery
U37	A-22546	Sound Logic Circuit	PIC Assembly
U44	A-5343-30022-3	Audio Instructions	EPROM Assembly

20-10511 VIDEOCARD ASSEMBLY



Field Replaceable Parts

There are no field replaceable parts in the Dual TMU Card Assembly.

Other Parts Necessary

Protection

Fuse, 1A, 250V, FB	5730-15278-00
Fuse, 6.3A, 250V, Type T	5731-15429-00

Cables

Control Module Harness Cable	H-22498
Main Harness (JAMMA) Cable	H-22495
AC Harness Cable	H-22496
Light and Speaker Harness Cable	H-22497
Fluorescent Light Cable	H-21492
Hard Disk Drive Ribbon Cable	5795-15344-07
Ground Wire	H-22499
Ground Wire - Braided	H-21672
Fluorescent Lamp Cable	H-22354

Documents

Game Manual	16-30022-101
Product Safety Manual	16-10341
Game Registration Card	16-10650
Caution Sheet	16-10077

Other Items:

T-27 Long Arm Wrench	20-10140
T-20 Long Arm Wrench	20-9620
Epilepsy Label	16-9922.1
Light Bulb #555	24-8768

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SECTION THREE

WIRING

Warning

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

Edge Connector Chart

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
Plyr 2 Start	Violet-White	U	17	White	Plyr 1 Start
Plyr 2 U/D Bit 0	Violet-Black	V	18	White-Black	Plyr 1 U/D Bit 0
Plyr 2 U/D Bit 1	Violet-Brown	W	19	White-Brown	Plyr 1 U/D Bit 1
Plyr 2 U/D Bit 2	Violet-Red	X	20	White-Red	Plyr 1 U/D Bit 2
Plyr 2 U/D Dir Bit	Violet-Orange	Y	21	White-Orange	Plyr 1 U/D Dir Bit
Plyr 2 L/R Bit 0	Violet-Yellow	Z	22	White-Yellow	Plyr 1 L/R Bit 0
Plyr 2 L/R Bit 1	Violet-Green	a	23	White-Green	Plyr 1 L/R Bit 1
Plyr 2 L/R Bit 2	Violet-Blue	b	24	White-Blue	Plyr 1 L/R Bit 2
Plyr 2 L/R Dir Bit	Violet	c	25	White-Violet	Plyr 1 L/R Dir Bit
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		

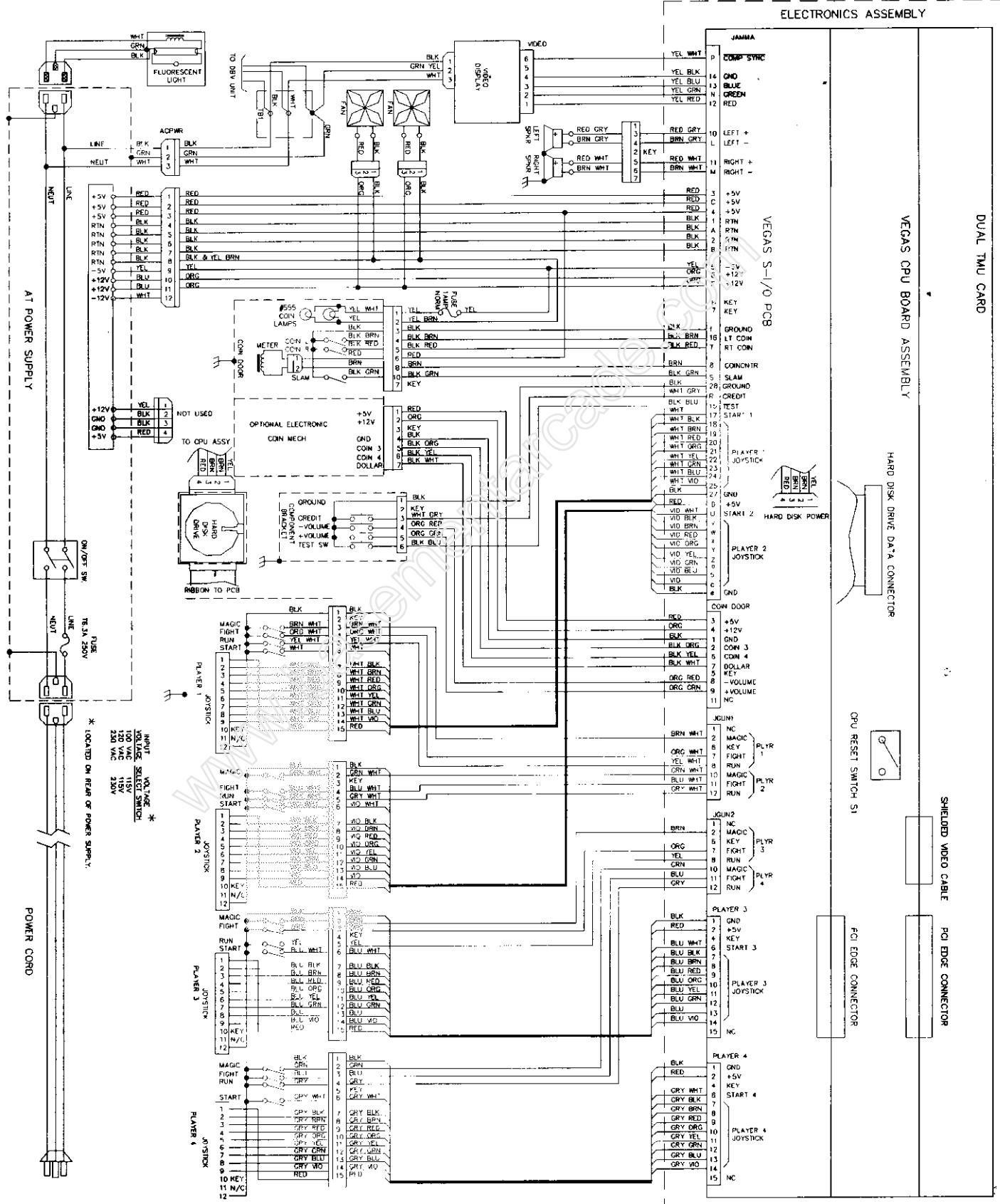
Joystick control wires that are not part of the main JAMMA Harness.

Ground	Black	1	1	Black	Ground
+5V	Red	2	2	Red	+5V
Not Used	N/C	3	3	Not Used	N/C
Key	N/C	4	4	Key	N/C
Not Used	N/C	3	3	Not Used	N/C
Plyr 4 Start	Grey-White	6	6	Blue-White	Plyr 3 Start
Plyr 4 U/D Bit 0	Grey-Black	7	7	Blue-Black	Plyr 3 U/D Bit 0
Plyr 4 U/D Bit 1	Grey-Brown	8	8	Blue-Brown	Plyr 3 U/D Bit 1
Plyr 4 U/D Bit 2	Grey-Red	9	9	Blue-Red	Plyr 3 U/D Bit 2
Plyr 4 U/D Dir Bit	Grey-Orange	10	10	Blue-Orange	Plyr 3 U/D Dir Bit
Plyr 4 L/R Bit 0	Grey-Yellow	11	11	Blue-Yellow	Plyr 3 L/R Bit 0
Plyr 4 L/R Bit 1	Grey-Green	12	12	Blue-Green	Plyr 3 L/R Bit 1
Plyr 4 L/R Bit 2	Grey-Blue	13	13	Blue	Plyr 3 L/R Bit 2
Plyr 4 L/R Dir Bit	Grey-Violet	14	14	Blue-Violet	Plyr 3 L/R Dir Bit

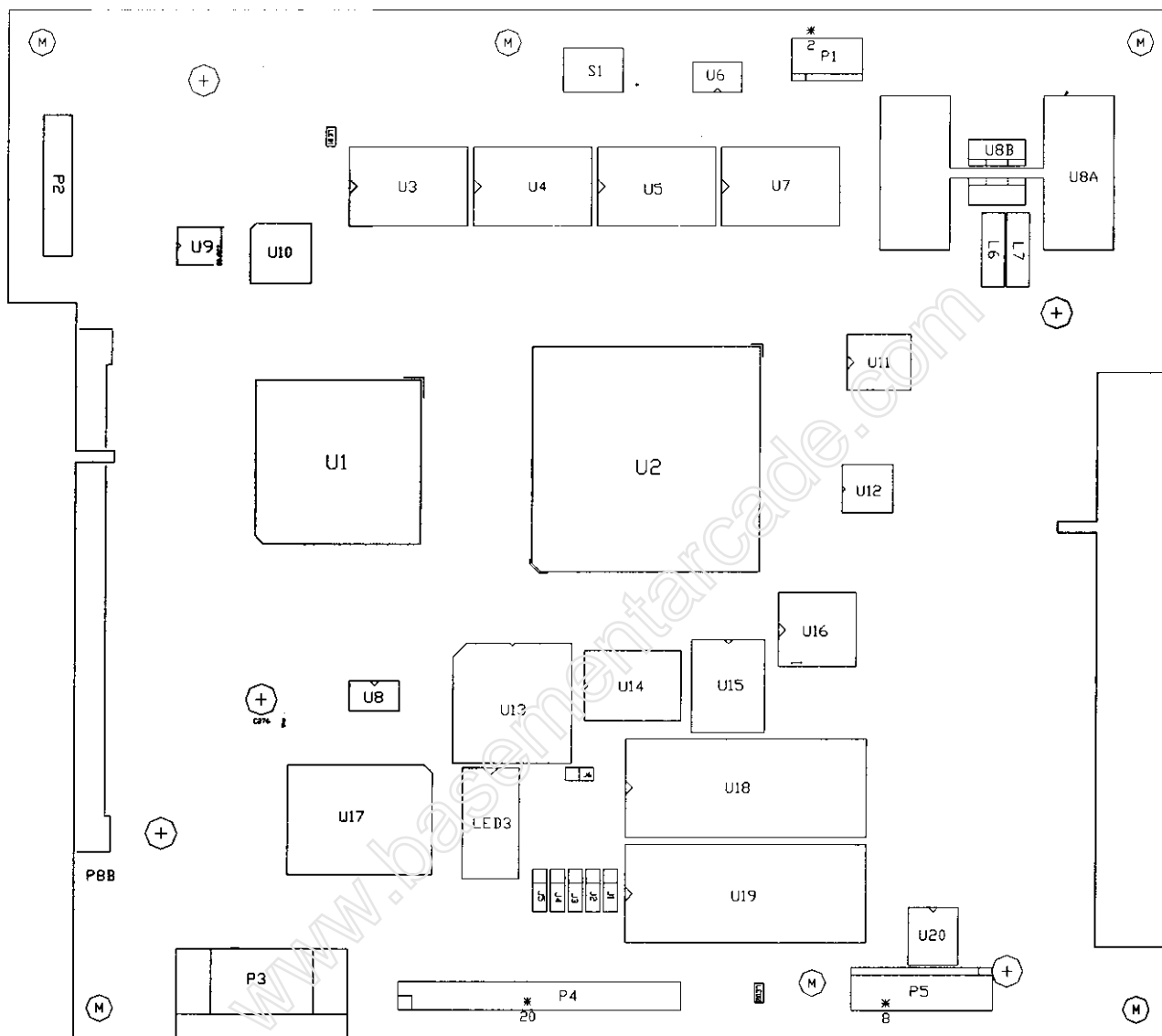
D.C. Power Source Voltage Limits

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	Orange	Auxiliary Power	-11.5V to -12.5V	Blue

MAIN CABINET WIRING DIAGRAM



VEGAS CPU BOARD ASSEMBLY



VEGAS CPU ASSEMBLY SWITCH

DESIGNATION	LOCATION	FUNCTION	POSITIONS	STATE	MEANING
S1	EDGE NEAR U4 AND U5	RESETS AND RESTARTS GAME	2	OFF	NORMAL OPERATION
				ON	FORCED RESET

NOTE: This switch resets the CPU Board without turning the power off at the power supply.

VEGAS CPU BOARD ASSEMBLY JUMPER POSITION CHART

DESIGNATION	LOCATION	FUNCTION	MEANING	POSITION	DEFAULT
J1 (NOTE 1)	NEAR U19 & CONNECTOR P4	CPU Boot ROM Type (U18)	EPROM	PINS 1 & 2	●
			Flash ROM	PINS 2 & 3	
J2 (NOTE 2)	NEAR U19 & CONNECTOR P4	CPU Boot ROM Size (U18)	1,2, or 4Mbit Flash ROM	PINS 1 & 2	●
			8Mbit Flash ROM	PINS 2 & 3	
J3 (NOTE 1)	NEAR U19 & CONNECTOR P4	CPU Boot ROM Type	EPROM	PINS 1 & 2	●
			Flash ROM	PINS 2 & 3	
J4 (NOTE 2)	NEAR U19 & CONNECTOR P4	CPU Boot ROM Size (U18)	2Mbit ROM	PINS 1 & 2	●
			1Mbit ROM	PINS 2 & 3	
J5 (NOTE 3)	NEAR U19 & CONNECTOR P4	Expansion Boot ROM Size (U19)	4Mbit ROM	PINS 1 & 2	●
			8Mbit ROM	PINS 2 & 3	
J6	BETWEEN U13 & U18	Boot Program Location	Boot from CPU ROM	PINS 1 & 2	●
			Boot from SIO ROM	PINS 2 & 3	

- NOTES:
1. Set both jumpers J1 and J3 to EPROM or Flash ROM mode to use such devices.
 2. These jumpers are independent
 3. This jumper is independent of the CPU boot ROM size selected.

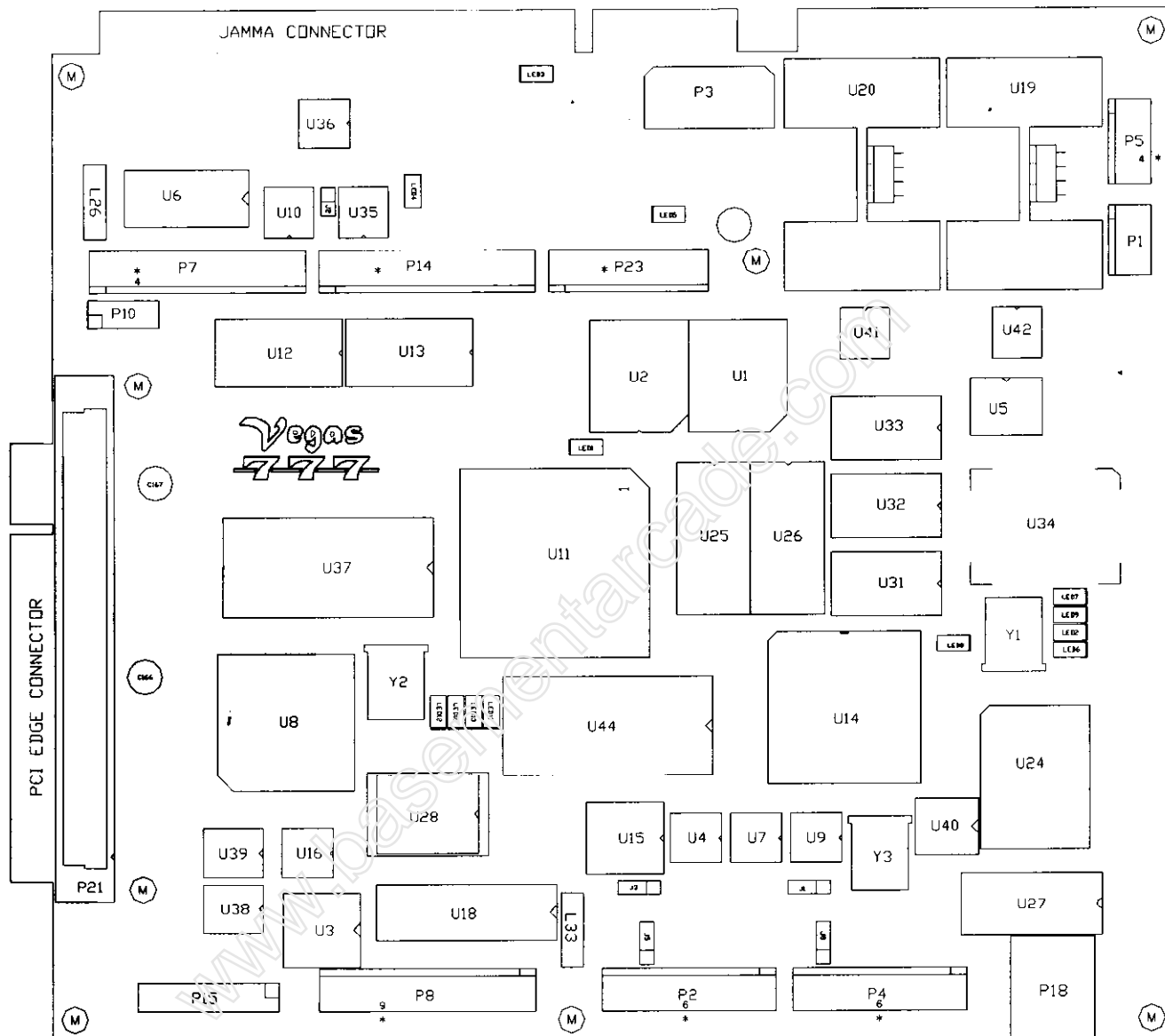
**VEGAS CPU BOARD ASSEMBLY
LED INDICATOR STATUS CHART**

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED1 (NOTE 1)	NEAR U3 & U10	3.3V CPU Power Indicator	RED	OFF	Insufficient Power
				ON	Power O.K.
				BLINKING	Power fault
LED2 (NOTE 2)	NEAR U19 & CONNECTOR P4	Hard Disk Drive Activity	GREEN	OFF	Not in use
				ON	Locked Up
				BLINKING	Normal disk activity
LED3 (NOTE 3)	NEAR U13 & U17	Indicator	RED	OFF*	*See note below.
				ON*	
				BLINKING* SEQUENTIALLY	

NOTES:

- LED1 monitors CPU power (+3.3 Volts). If this LED is off or blinking, investigate the processor circuits. If other LEDs are off or blinking at the same time, check the +5 Volt circuits or the game power supply.
- LED2 flashes when the hard disk is operating during game play. It may light continuously during startup. If this LED is lighted continuously, there may be a fault with the hard disk drive, which may be locked up.
- LED3 initially indicates program start-up stages. It is a seven segment alpha-numeric display device. Under normal conditions, it displays a lowercase "b" or a sequentially blinking segments in an "O" pattern. During any of the self-test screens, it displays a "bouncing bar" resembling a hyphen ("-").

VEGAS SOUND I/O ASSEMBLY



**VEGAS SOUND I/O BOARD ASSEMBLY
JUMPER POSITION CHART***

DESIGNATION	LOCATION	FUNCTION	MEANING	POSITION	STATE
J1 (NOTE 1)	NEAR U9 & CRYSTAL Y3	Gun 1 I/O Connector P2	Input Mode	PINS 1 & 2	●
			Output Mode	PINS 2 & 3	
J2	BETWEEN U35 AND U10	Video Sync	Positive Sync	Jumper Not Installed	●
			Negative Sync	PINS 1 & 2	
J3 (NOTE 2)	NEAR U15	Gun 2 I/O Connector P4	Input Mode	PINS 1 & 2	●
			Output Mode	PINS 2 & 3	
J4	NONE	NONE	NOT USED	NONE	---
J5 (NOTE 2)	BETWEEN U15 & CONNECTOR P2	Gun 2 I/O Connector P4	Input Mode	PINS 1 & 2	●
			Output Mode	PINS 2 & 3	
J6	NONE	NONE	NOT USED	NONE	---
J7	NONE	NONE	NOT USED	NONE	---
J8 (NOTE 1)	BETWEEN U9 & CONNECTOR P4	Gun 1 I/O Connector P2	Input Mode	PINS 1 & 2	●
			Output Mode	PINS 2 & 3	

***NOTES:**

1. Set the Gun 1 (P2) I/O port by setting both the J1 and J8 jumpers to input or output mode.
2. Set the Gun 2 (P4) I/O port by setting both the J3 and J5 jumpers to input or output mode.

**VEGAS SOUND I/O BOARD ASSEMBLY
LED INDICATOR STATUS CHART**

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED1	NEAR U11	SIO BOARD ACTIVITY	GREEN	OFF	No boot ROM
				ON	SIO board locked up
				BLINKING	Normal operation
LED2	NEAR U34 & CRYSTAL Y1	LINKING CONNECTOR STATUS	GREEN	OFF	Not in use (no game linking)
				ON	Normal linked operation
				BLINKING	Link fault
LED3	NEAR THE JAMMA CONNECTOR	-5V POWER INDICATOR	RED	OFF	No power
				ON	Normal operation
				BLINKING	Power fault
LED4	NEAR U35 & CONNECTOR P14	+12V POWER INDICATOR	RED	OFF	No power
				ON	Normal operation
				BLINKING	Power fault
LED5	NEAR CONNECTOR P23	-5V POWER INDICATOR	RED	OFF	No power
				ON	Normal operation
				BLINKING	Power fault
LED6	NEAR U34 & CRYSTAL Y1	CPU LINKING ACTIVITY	RED	OFF	Not in use
				ON	CPU linking in progress
				BLINKING	Normal operation
LED7	NEAR U34 & CRYSTAL Y1	LINKING DATA	RED	OFF	Not in use (no game linking)
				ON	Sending data
				BLINKING	Normal operation
LED8	NEAR U14 & CRYSTAL Y1	AUDIO ACTIVITY	YELLOW	OFF	No sound boot ROM
				ON	Locked up
				BLINKING	Normal operation

**VEGAS SOUND I/O BOARD ASSEMBLY
LED INDICATOR STATUS CHART - CONTINUED**

LED9	NEAR U34 & CRYSTAL Y1	LINKING RECEIVING DATA	YELLOW	OFF	Not in use (no game linking)
				ON	Receiving data
				BLINKING	Normal operation
LED10	NEAR U44 & CRYSTAL Y2	AUDIO ACTIVITY	GREEN	OFF	Not in use (no audio data)
				ON	Receiving data
				BLINKING	Normal operation
LED11	NEAR U44 & CRYSTAL Y2	NONE	RED	OFF	Not in use (normal)
				ON	Circuit fault
				BLINKING	Circuit fault
LED12	NEAR U44 & CRYSTAL Y2	INTERRUPT ACTIVITY	YELLOW	OFF	Not in use (no interrupts)
				ON	Receiving data
				BLINKING	Normal operation
LED13	NEAR U44 & CRYSTAL Y2	DISK ACTIVITY	YELLOW	OFF	Not in use
				ON	Processing data
				BLINKING	Normal operation

VEGAS SOUND I/O ASSEMBLY DIP-SWITCH SETTINGS

Service technicians may change DIP-switches with the power on. Refer to the charts for assistance in choosing the desired switch positions (* indicates factory defaults).

DIP Switch U12		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Monitor Resolution	Standard Medium	Off On*							
Monitor Style	Video Game VGA		Off* On						
Joystick Type	8-Way 49-Way			Off On*					
Switch Condition	Normally Closed Normally Open				Off On*				
Vegas Sound I/O Board Version	Revisions 1 to 5 Revisions 6+					Off On*			
Not Used							Off* On		
Not Used								Off* On	
Not Used									Off* On

DIP Switch U13		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Display Comments on VT100	No Yes	Off* On							
Diagnostic Code Source	Hard Disk Drive EPROM		Off* On						
Not Used				Off* On					
Not Used					Off* On				
Not Used						Off* On			
Not Used							Off* On		
Not Used								Off* On	
Not Used									Off* On

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SECTION FOUR

TROUBLESHOOTING

This game uses complex electronic components that are very SENSITIVE to static electricity. The following precautions must be observed and followed 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 safety ground stud of the power supply chassis while the line cord is connected to a properly grounded outlet. This is to be done BEFORE touching or handling the electronic assemblies.
3. Store the electronic assemblies in an anti-static area. Anti-static bags are to be used 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. connector 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 front door under the monitor. Swing it out until it rests on the chains. 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: 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 the front door under the monitor. Swing it out until it rests on the chains. Inspect the board assemblies under low light level conditions. A glow will be seen from the Light Emitting Diodes 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 boards are 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 board assemblies. 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 switches and jumpers are set as intended. Refer to the Board Configuration Chart (Section Three) for variables and default settings.
- D: 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.
- E: 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.
- F: 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 CPU Board Assembly Light Emitting Diodes with the LED Indicator Status Chart (Section Three) and note any discrepancies.
- G: Enter the game Menu System by pressing and holding the TEST MODE switch inside the coin door. 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 cannot be started. 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 inside the coin door. 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 inside the coin door. 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 CPU Board to the coin mechanisms.
- D: Enter the game Menu System by pressing and holding the TEST MODE switch inside the coin door. 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 inside the coin door. 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.

4. Coin indicators do not light. Game operates normally.

Check the coin light fuse and coin light wiring harnesses. Replace the fuse if necessary.

AUDIO PROBLEMS

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

- A: Unlock and open the coin door. Enter the game Menu System by pressing and holding the TEST MODE switch inside the coin door. From the SELECT TEST menu, choose ADJUST VOLUME (refer to Section One for additional details). Verify that the attract and game volume levels have not been set at Zero. Change the levels if necessary to make the game audible.
- B: Follow the on-screen instructions to return to the first menu. From the SELECT TEST menu, choose SOUND TESTS. Use these tests to confirm the operation of each speaker in the cabinet.
- C: Turn OFF the game power. Remove grilles and inspect speakers. Ensure that no loose parts or wires are caught in speaker cones, terminals, mounting screws, or stuck to the magnets.
- D: 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.
- E: 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.
- F: Verify proper operation of game CPU Board Assembly by placing it in a known good game.

2: The audio is distorted, muffled or missing frequencies. A constant low hum may be present.

- A: Unlock and open the coin door. Enter the game Menu System by pressing and holding the TEST MODE switch inside the coin door. From the SELECT TEST menu, choose SOUND TESTS. These tests will verify some of the functions of the audio circuits in this game.
- B: Turn OFF the game power. Remove the grills and check the speakers. This game uses two coaxial speakers. Ensure that each speaker is FULL RANGE (100 to 10,000 Hz response) and rated for at least 10 WATTS.
- C: Check that the speaker wiring is not reversed at one of the speakers. Weak low frequencies and a thin or hollow sound quality is a symptom of incorrectly phased speakers. This condition will not be detected by the SOUND TESTS, but it will be audible during normal game operation.
- D: Check that the cabinet wiring is correct for this game. Verify that the cabinet wiring provides separate wires (not a common return) for each speaker. Ensure that all cabinet ground wires are connected. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.
- E: 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.
- F: Verify that the speaker is operating properly by placing in a known good unit.

3: The audio is monaural (it should be stereo).

- A: Verify that cabinet wiring for this game is correct. Check for shorted wires.
- B: Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.

VIDEO PROBLEMS

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

- A: Unlock and remove the monitor access door. Verify that A.C. Power is connected to the Video Monitor. Inspect the neck of the CRT under low light level conditions. A glow will be seen near the CRT base 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 have not been set to 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. Open the coin door. 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 board assemblies. 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: Verify that the ROM instruction set is correct for this game. There is more than one ROM in a game set. Each ROM circuit is labeled with the assembly number and the software version.
- E: Verify that the CPU Board Assembly is correct for this game. Each CPU 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 board assembly Light Emitting Diode states with the indicator charts (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 CPU Board to the Video Monitor. Verify all jumpers are set correctly for this monitor. Refer to Board Configuration (Section Three).
- 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 CPU 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: Indicator lamps intermittent or non-functional. Game starts and plays normally.

- A: Open the marquee. Remove the the fluorescent tube from the holders. Install a new lamp if cracks or darkened ends are found. Clean the tube.
- B: Verify that the lamp and starter pins are making 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 Power Supply connector 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.
- F: Examine the D.C. Fuse on the electronic equipment shelf. If any fuse is faulty, replace it with an identical fuse from the spare parts bag. Replace the spare fuse when repairs are complete.

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

- A: Check bottom and rear of cabinet for blocked air flow. 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: Unlock and remove the rear door. Ensure that the fan is connected to wiring harness.

3. Game plays normally, then resets after a period of time.

- A: Check the fan assemblies on the Electronics assemblies. Make sure they are connected to their power sources.

B: Check the cabinet and Electronics Assembly ventilation holes for obstructions. Clear obstructions and allow the ventilation holes access to fresh air.

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

A: Check any assembly (RAM, ROM, Battery, etc.) identified in the Error Message.

B: Call your authorized distributor for help with unresolved screen messages.

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WARNINGS & NOTICES

WARNING

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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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