WARNING

- Use of non-Midway parts or circuit modifications may cause serious injury or equipment damage!
- Federal copyright, trademark and patent laws protect this game. Unauthorized modifications may be illegal under Federal law. The modification ban also applies to Midway Games Incorporated and game logos, designs, publications and assemblies. Moreover, facsimiles of Midway equipment (or any feature thereof) may be illegal under federal law, regardless of whether or not such facsimiles are manufactured with Midway components.

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

CAUTION. A very small portion of the population has a condition which may cause epileptic seizures or 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.
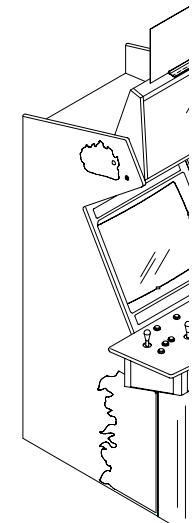
CAUTION. Information in this manual is subject to change without notice. Midway reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods warrants.

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GAUNTLET DARK Legacy

Operations Manua
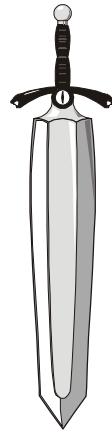
Setup • Service • Sy

The manufacturer intends that any federal, state or local law o operators of this game are resp turer's factory settings for this g specific jurisdiction. It is the op to make the appropriate adjust

675 syca

27"   27"

GAUNTLET DARK Legacy

CHAPTER

Setup

	NOTICE: Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

Safety Notices

The following safety instructions apply to all operators and service personnel. Specific warnings and cautions appear throughout this manual. Read this page before preparing your game for play.

⚠️	**CAUTION:** The hard disk drive must be packed in an anti-static bag and 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.
🍷	**CAUTION.** Transport machine securely, as it contains glass and fragile electronic devices. Avoid rough handling and never move cabinet while power is on.
⚠️	**CAUTION.** Verify switch on the power supply is set for 110VAC or 220VAC according to local line voltage. Verify fluorescent lamp is correct for local voltage.
⚡	**WARNING.** Avoid electrical shocks. Do not plug in line cord until machine has been inspected and properly grounded. Use only a fixed-location grounded 3-wire outlet. Do not use a "cheater" plug or cut off ground pin on line cord
⚡	**WARNING.** This video game machine has no isolation transformer. There is no isolation between the internal cabinet AC system and the external AC line.
⚡	**WARNING.** To avoid electrical shock, turn off power switch and disconnect from AC power source before removing or repairing any component. After servicing, ensure all ground wires are secure before restoring power.
👉	**NOTICE.** Ensure proper mating of all connectors. If a connector does not slip on easily, do not force. Reversed connectors may damage your machine and void the warranty. Connectors are keyed to fit specific pins on each board.
⚡	**WARNING.** To avoid electrical shock, all replacement fuses must match the type, voltage rating, and current rating of the original fuse.
🍷	**WARNING.** A dropped fluorescent tube or CRT can break and explode, shattering glass eight feet or more from the point of impact. Handle all glass parts carefully.

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

Electrical Power	Temperature	Humidity
Domestic 120VAC @ 60Hz 3.0 Amps	37ºF to 100ºF	Not to exceed 95% relative
Foreign 230VAC @ 50Hz 2.0 Amps	(3ºC to 38ºC)	tive
Japan 100VAC @ 50Hz 3.0 Amps		

Cabinet Statistics

Shipping Dimensions	Shipping Weight	Design Type
Width 28.5 in (72.4 cm)	486 lbs (221 kg)	Dedicated video game
Depth 43.5 in (111 cm)		machine with 49-way
Height 74.0 in (188 cm)		optodetector joysticks

Equipment Characteristics

Video Display Monitor	Audio System	Currency Acceptors
Medium resolution RGB	2 channel audio	Standard coin door
27 in (68.5 cm) CRT	2 full range speakers	2 coin mechanisms, DBV
		ready
		1 coin counter

Game Characteristics

Player Variables	Operator Variables	Diagnostics
1 to 4 players per game	Coinage, game options,	Automatic power-up test
High score recognition	difficulty, volume, demo	Manual multi-level Menu
	mode, audits, statistics	System

MAINTENANCE

Viewing Glass
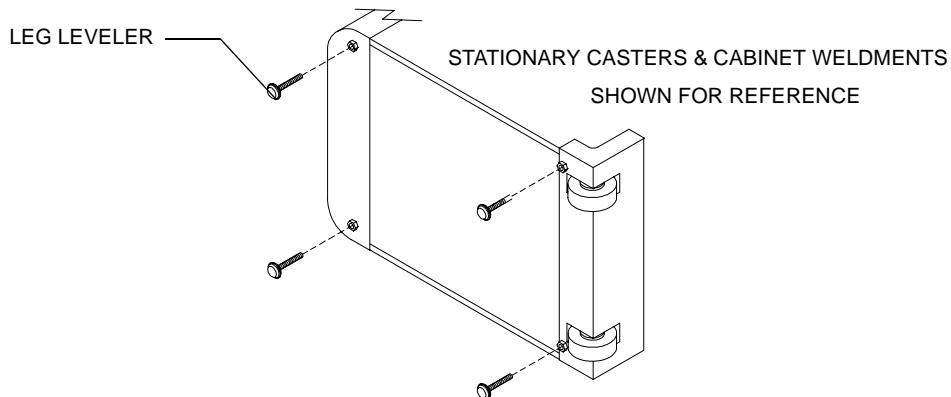
You need not switch off AC power to clean the glass. Apply a mild glass cleaner to a clean cloth or sponge, then use this to wipe the viewing glass. Do not apply cleaner directly onto glass. Liquid could drip down into video game machine circuits or onto detectors and cause erratic operation.

Cabinet

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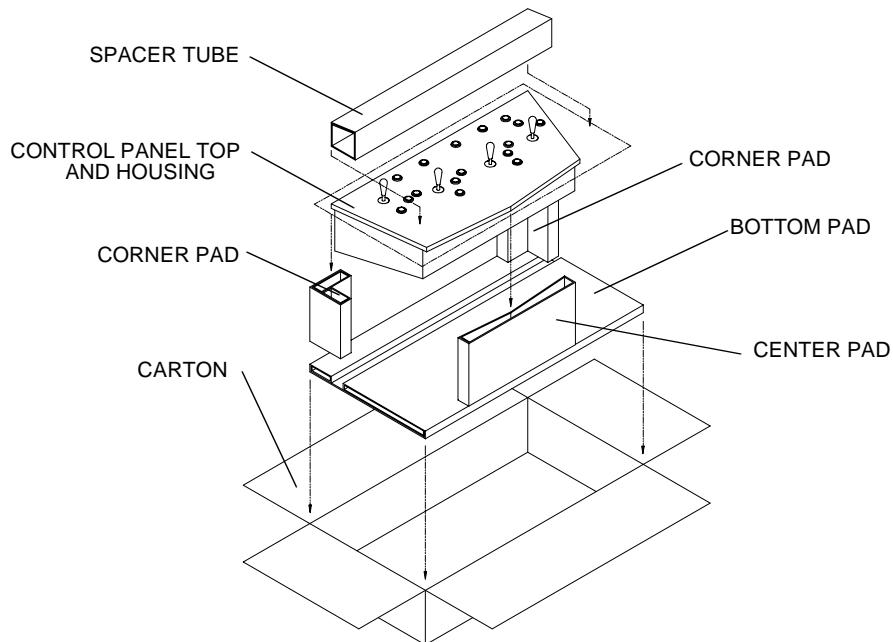
INSTALLATION AND INSPECTION

1. Remove packing material and set control panel box aside. Inspect cabinet exterior for signs of damage.
2. **KEYS** Reach down through control panel opening into front of cabinet and remove keys from hook on coin door. Unlock and open coin and cash box doors. Electrical cords, spare parts, levelers, mounting hardware, tools, and other items are packed in cash box.
3. Move cabinet to intended location. Ensure vent holes at rear of cabinet are not blocked or next to heat registers. Adjust leg levelers as necessary to stabilize cabinet and raise wheels above floor. Distribute weight equally on each corner Use cabinet in fixed position only.

LEG LEVELER — STATIONARY CASTERS & CABINET WELDMENTS
SHOWN FOR REFERENCE
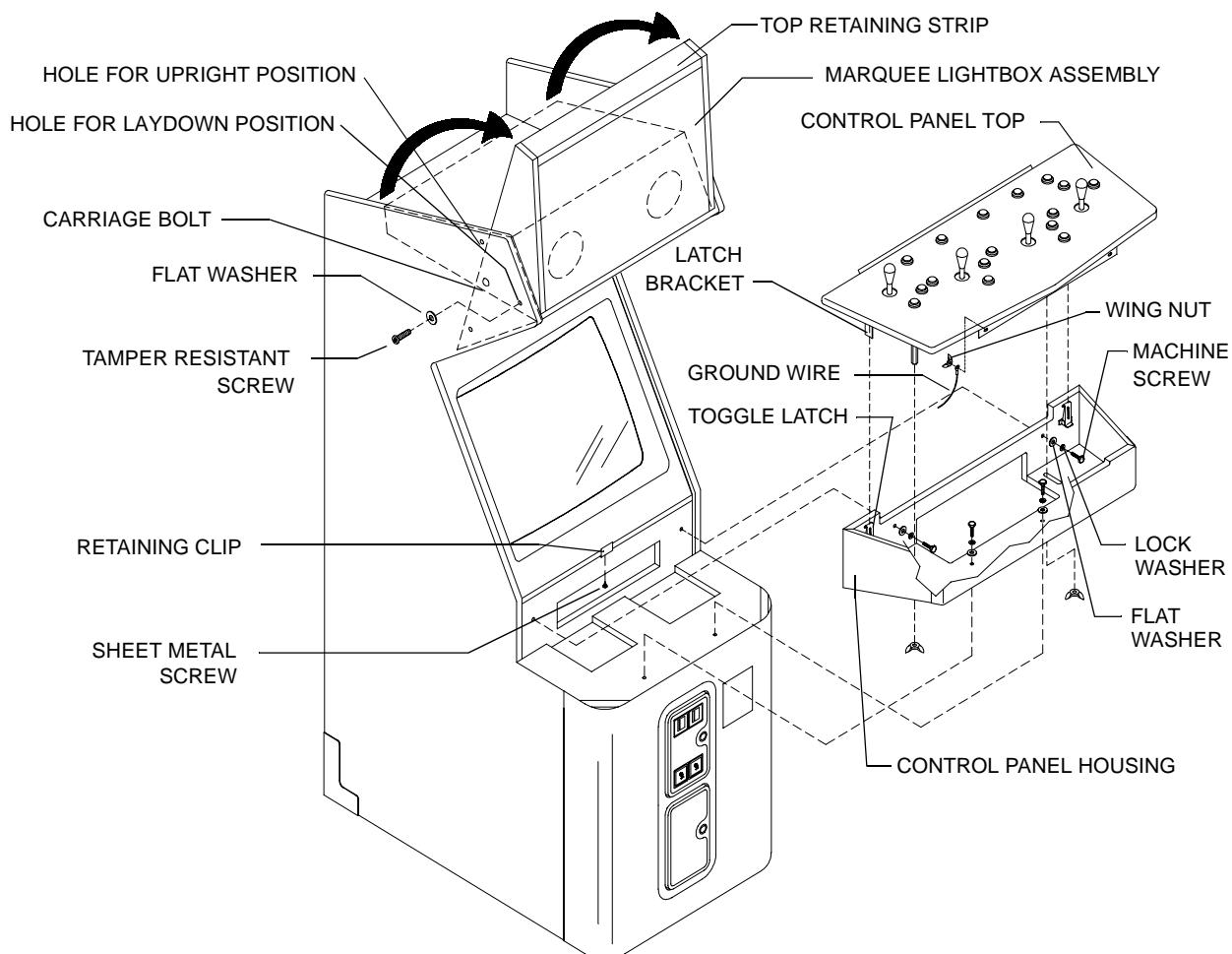
CASTERS AND LEG LEVELERS UNDER CABINET

4. **CONTROL PANEL** Place carton containing control panel on floor face down. Open container carefully and remove packing material. Inspect control panel for signs of damage.
5. Lift control panel assembly from box and set on its front side. Remove wing nuts from bolts protruding from underside of control panel and retain them for reinstallation.

SPACER TUBE

CONTROL PANEL TOP
AND HOUSING

CORNER PAD

CORNER PAD

BOTTOM PAD

CENTER PAD

CARTON

CONTROL PANEL HOUSING ASSEMBLY PACKAGE
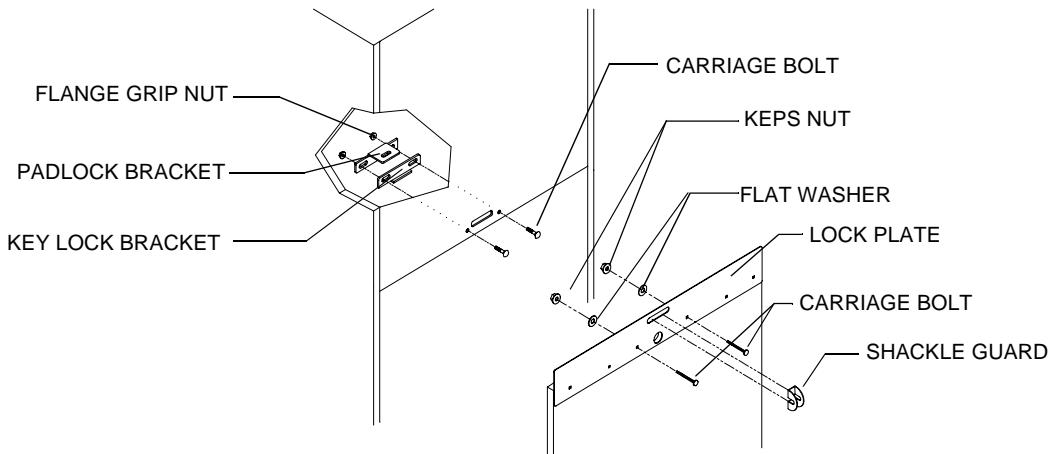
6. Reach into control panel from underside and open latches that hold control panel top to control panel housing. Leave panel closed until it is installed on cabinet.
7. Place control panel assembly on cabinet ledge. Slide control panel housing toward monitor. Align gasketed control panel bracket with bottom of viewing glass.
8. Lift control panel and hold it open. Align mounting screw holes in control panel box with those in cabinet. Use four ¼-20 hex-head bolts, flat washers, and lock washers in spare parts kit to secure control panel to cabinet. Tighten bolts firmly.
9. Remove retaining clip at bottom center of the viewing glass. Reinstall screw in mounting hole. Keep clip with spare parts for reinstallation when relocating cabinet.
10. **WIRING** Mate control panel wiring harness connectors with main wiring harness connectors. Attach control panel ground wire to hinge assembly with wing nut. Close control panel. Reach up through open coin door to secure and fasten latches at sides of control panel.
11. Reach through coin door and locate threaded ends of control panel attachment bolts. Install a wing nut on each bolt where it protrudes through control panel housing into cabinet. Hand-tighten nuts snugly.
12. **MARQUEE** Locate T-27 tamper-resistant fastener wrench in spare parts kit. Remove and retain screws and washers from either side of top of cabinet. Pivot marquee lightbox assembly upright. Reinstall screws and washers through top of cabinet into lower lightbox holes. Do not overtighten screws.


CONTROL PANEL AND MARQUEE SETUP
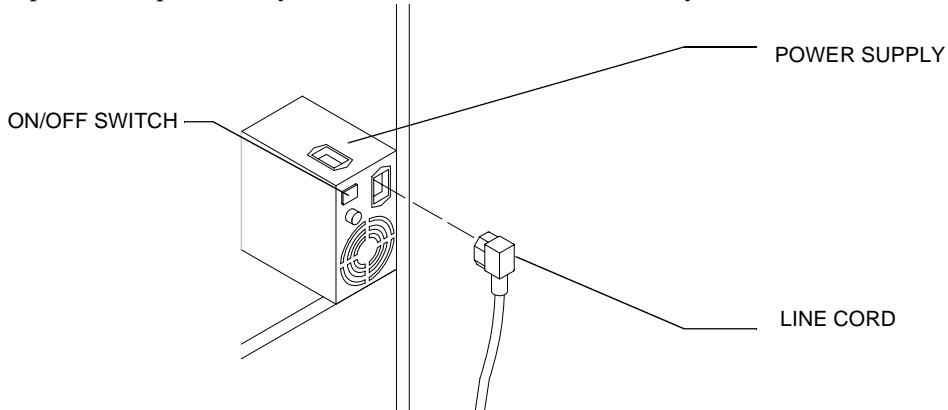
13. **ELECTRONICS** Remove rear door. Inspect cabinet interior for signs of damage. Check all major assemblies to ensure secure mounting. Clear path to allow open airflow from fan.

14. **SECURITY** To install an extra padlock to secure the rear door, remove lock bracket nuts from inside cabinet. A hasp is attached inside cabinet above rear door. Reverse hasp on bolts so it protrudes through slot in back of cabinet. Reinstall nuts. Hold shackle guard in place over hasp when installing lock. Order an extra shackle guard and install it over the game electronics hasp for additional security.

HASP BRACKET AND LOCK PLATE ASSEMBLY INSTALLATION

15. **AC POWER** Find the power cord in the spare parts kit. Match holes on IEC plug with the prongs in receptacle and push firmly to seat line cord. Route cord away from areas of foot traffic.
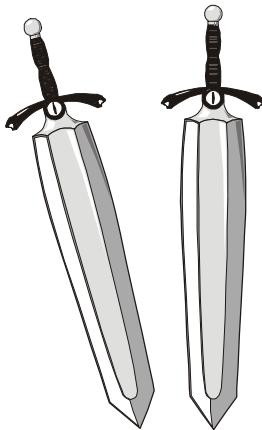
LINE CORD INSTALLATION

16. Refer to Main Cabinet Wiring Diagram on page 51 and check that all cable connectors are correctly secured. Inspect for damaged connectors. Avoid forcing connectors or reversing connections.

17. Plug line cord into grounded (3-terminal) wall outlet. Switch AC power on using the ON/OFF switch on the power supply. The game powers up and begins self-diagnostics. If there are no errors, Attract Mode begins.

18. **POP** For added visibility, slide the POP display artwork ("Check Me Out") into the plastic holder.

19. Remove adhesive backing from bottom of holder and center on top of marquee top retaining strip. Or remove center screw on top of retaining strip and remove adhesive tape from bottom of holder. Slide holder under retaining strip.

GAUNTLET DARK Legacy

CHAPTER

Service

👉	**NOTICE:** Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

Only qualified service personnel should perform maintenance and repairs. Product guidelines apply to all game operators and service personnel. Specific notes, cautions, and warnings abound throughout this manual where applicable. Read the safety pages before beginning service.

This video game machine uses complex electronic components that are very sensitive to static electricity. Observe and follow these precautions prior to handling the game electronics:

- Ensure AC power is turned off prior to servicing electronics.
- 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.
- Store electronic assemblies in an anti-static area. Use anti-static bags to store or transport hard disk drive, CPU Board Assembly, and all other electronics.
- *Do not* remove or connect electronics with AC power on, as this will damage them and void the warranty.
- Always replace ground wires, shields, covers, etc., when maintenance or service is completed.

Marquee

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

> ⚠ **WARNING.** Marquee glass can fall from the cabinet and break when retaining strip is removed. Hold glass in place until it can be safely removed.

Fluorescent Lamp and Starter

Lower marquee as described above. Remove retaining strip, glass, and artwork. Turn tube a quarter turn and pull from sockets. Starter also requires quarter turn for removal or installation. Carefully place new tube into socket and rotate quarter turn to reinstall. Clean tube to remove fingerprints and dust.

> ⚠ **WARNING.** A dropped fluorescent tube will implode when broken and can shatter glass dangerously. Use care in handling.

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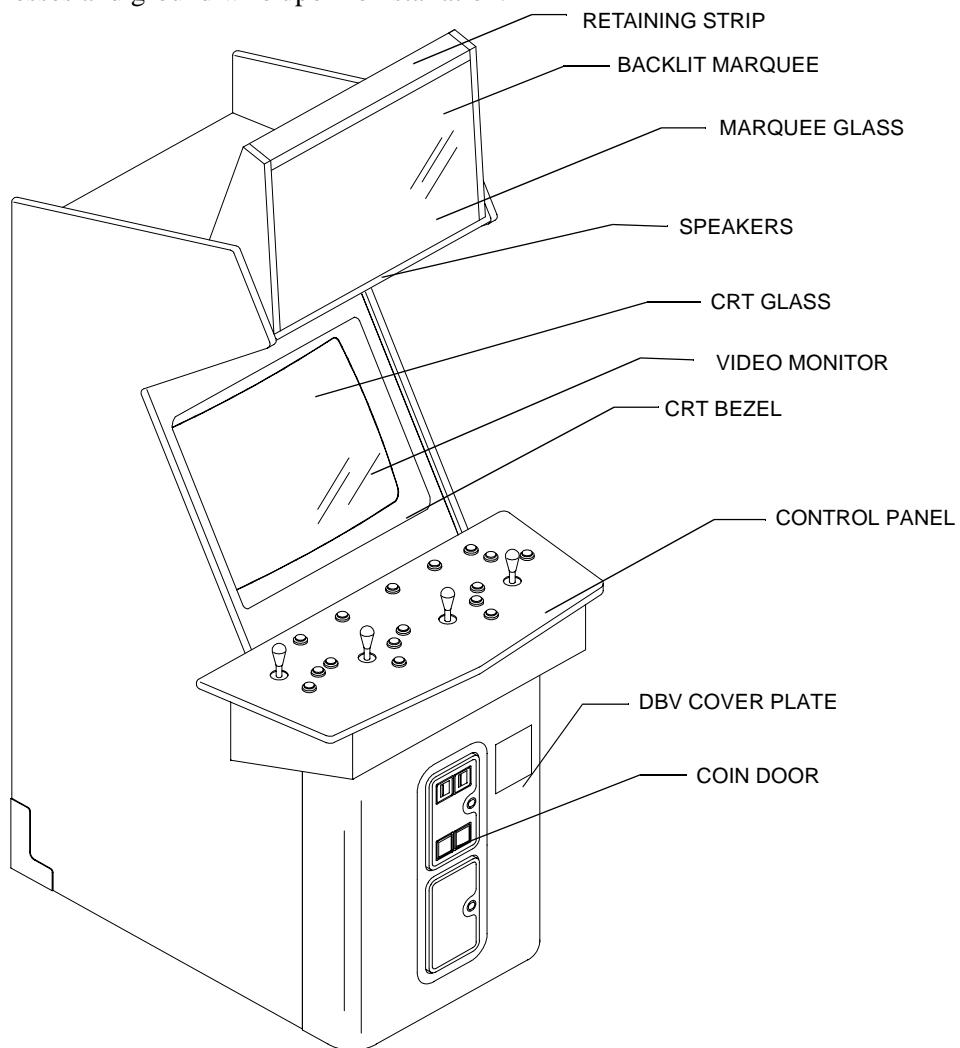
Lower marquee as described above. Remove retaining strip, glass, and artwork. Disconnect power cable from fluorescent light assembly. Loosen but do not remove fasteners holding assembly to cabinet. Remove ground wire. Slide assembly slightly forward to disengage screws from keyholes. Lift out assembly.

Control Panel Switches

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

Coin Counter

Unlock and open coin and cash doors. Meter is in a lower corner of door opening. Record meter count before testing or replacing. Disconnect wiring harnesses and ground wires to coin mechanisms. Reach through coin door and locate meter wires. Disconnect wiring at connector. Remove coin door mounting screws. Remove coin door assembly from cabinet and set it on a work surface. Remove meter mounting screws from front. Ensure replacement unit has a diode across the terminals. Remember to reconnect wiring harnesses and ground wire upon reinstallation.

RETAINING STRIP
BACKLIT MARQUEE
MARQUEE GLASS
SPEAKERS
CRT GLASS
VIDEO MONITOR
CRT BEZEL
CONTROL PANEL
DBV COVER PLATE
COIN DOOR

FRONT VIEW OF CABINET

Monitor Bezel

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

⚠	**WARNING.** the video monitor is heavy, with most of its weight toward the front of the assembly. Firmly support it when removing from cabinet.
⚡	**CAUTION.** The monitor does not require isolation from AC line voltage during normal operation. However, when operating outside cabinet or servicing on a test bench, isolate monitor from line voltage with an isolation transformer.

Monitor

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

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

⚡	**WARNING.** There is an AC power distribution block behind the power supply. Do not touch AC terminals when power supply is switched on. Disconnect AC power before working near power supply.
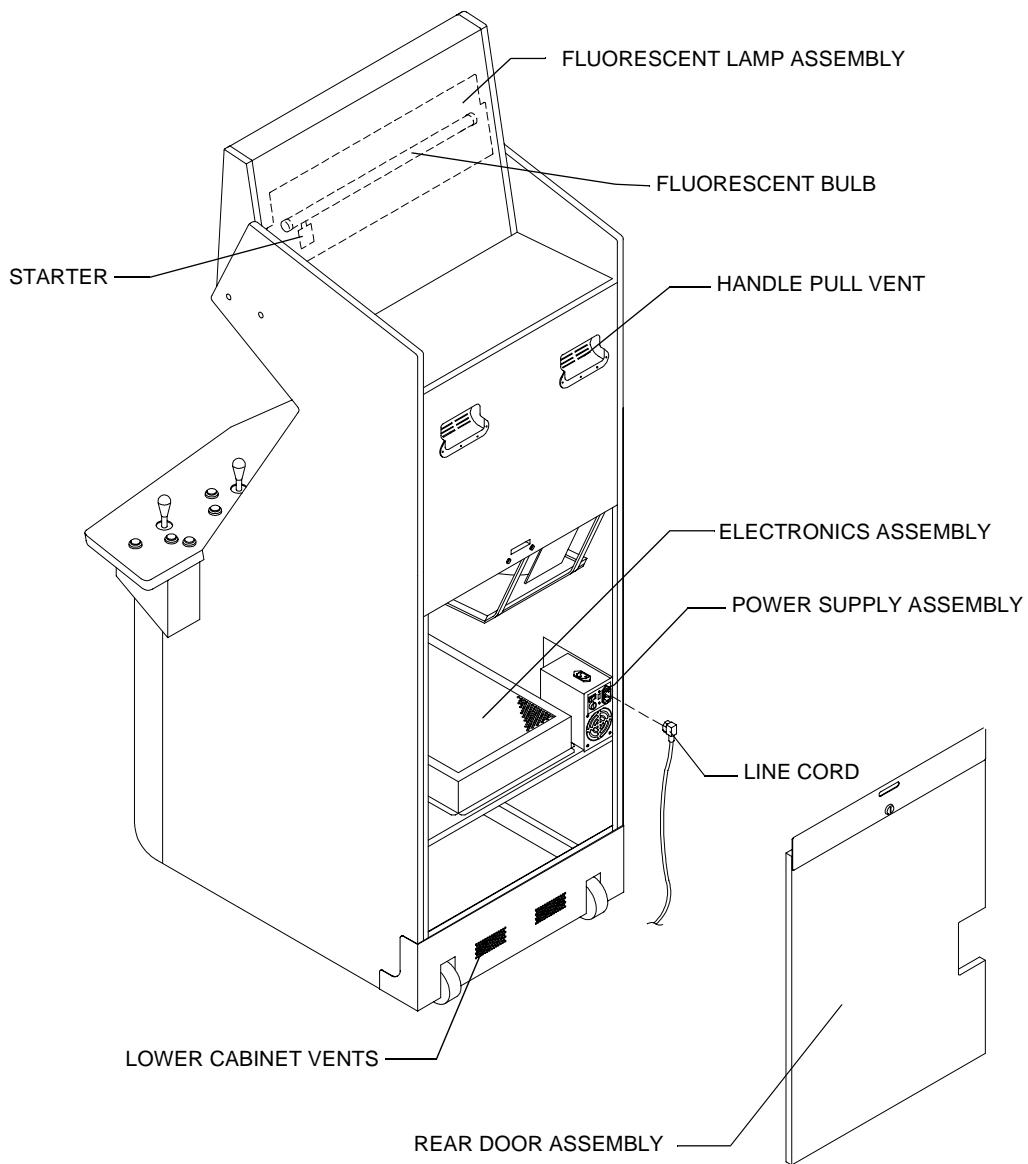
Power Supply

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

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

⚡	**CAUTION.** Discharge any static electricity buildup in your body by touching the power supply chassis before touching or handling electronics assemblies.

REAR VIEW OF CABINET (30046)

FLUORESCENT LAMP ASSEMBLY

FLUORESCENT BULB

STARTER

HANDLE PULL VENT

ELECTRONICS ASSEMBLY

POWER SUPPLY ASSEMBLY

LINE CORD

LOWER CABINET VENTS

REAR DOOR ASSEMBLY

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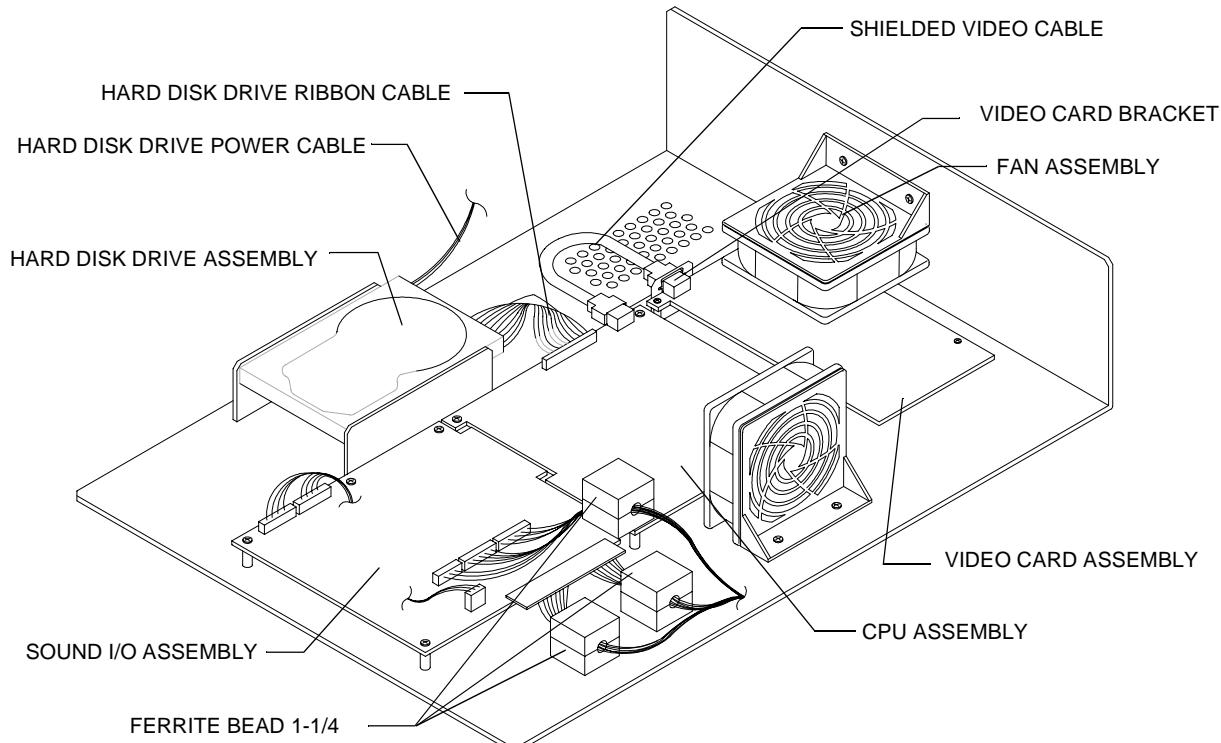
   Switch off AC power. Open rear door. Remove metal electronics cover. Carefully note orientation of JAMMA connector and other cables. Extract harnesses and hard disk drive ribbon cable from board connectors. Remove groundplane mounting screws and security lock. Slide entire electronics assembly toward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

Hard Disk Drive

⚠	**CAUTION.** Hard disk drives are fragile. Never move a game with AC power on. Never stack or drop hard disk drives.

Switch off AC power. Unlock and remove cabinet door. Remove electronics cover. Disconnect DC power cable from hard disk drive. Unplug ribbon cable from hard drive and leave it attached to CPU board. Carefully remove screws and lift drive assembly out of cabinet. Store drives in anti-static bags or approved shipping containers.

ELECTRONICS ASSEMBLY

Sound I/O Assembly

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

Video Card

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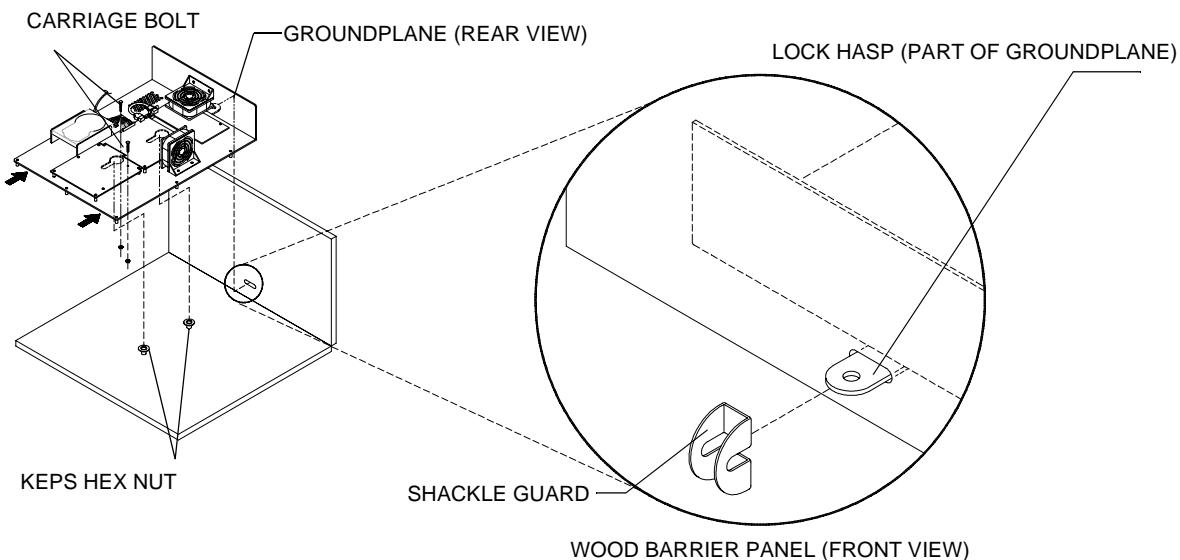
Battery

Switch off AC power. Remove rear door. Remove Electronics Assembly cover. Hold battery edges and pull up firmly to remove. When installing new battery, note position of keyhole in socket. Replace only with same or equivalent type recommended by manufacturer. Dispose of used batteries according to instructions on battery package.

Memory

The ROM (Read Only Memory) circuits contain game operating instructions. Switch off AC power. Carefully note position, then remove using a chip extraction tool.

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

CARRIAGE BOLT
GROUNDPLANE (REAR VIEW)
LOCK HASP (PART OF GROUNDPLANE)
KEPS HEX NUT
SHACKLE GUARD
WOOD BARRIER PANEL (FRONT VIEW)

Game Electronics Security

The shackle guard shipped with cabinet is intended for use on rear door. An additional guard may be used to safeguard game electronics.

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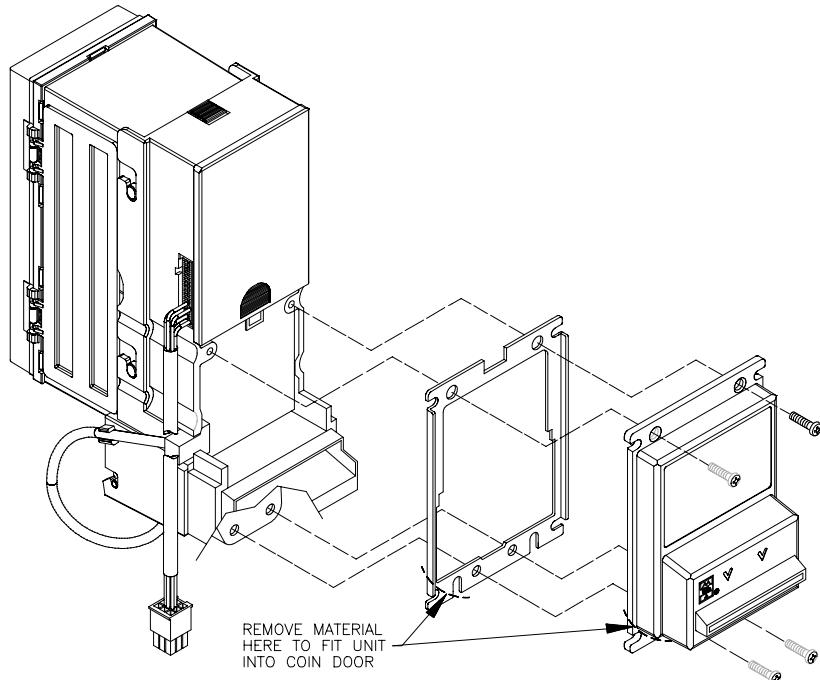
The ROM (Read Only Memory) circuits contain game operating instructions. Memory devices are especially sensitive to static charges. Use grounding precautions when handling these parts.

Switch off AC power. Unlock and remove rear door. Remove electronics cover. Carefully note each IC position, then remove them using a chip extraction tool. To reinstall memory circuits, orient chip over socket and press firmly to seat pins. Do not force.

Dollar Bill Validator

(Use MARS AE2411-U3 U.L. Recognized currency changer) Install dollar bill validators or other currency acceptors with the additional wiring connector. Switch off AC power and unplug line cord. Unlock and open coin door. Read door label for additional information. Disassemble validator and remove material to fit it inside coin door as illustrated, then reassemble unit.
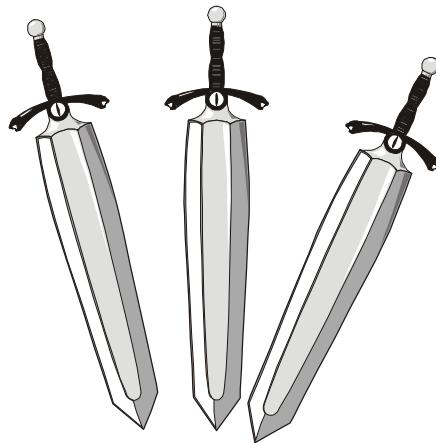
Remove nuts, spacers, and cover plate from door. Change switch settings or make adjustments before mounting the unit. If the manufacturer has supplied an adapter plate, place it over the door cutout at this time. Install spacers on threaded studs, then align the validator mounting holes with the studs 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.

REMOVE MATERIAL
HERE TO FIT UNIT
INTO COIN DOOR

DOLLAR BILL VALIDATOR

GAUNTLET DARK Legacy™

CHAPTER

System

	NOTICE: Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

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 TEST button inside the coin door to skip the boot ROM tests and activate the Menu System.

Once all Power-up tests have been passed, the game goes into 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 game. Play begins after a mission is chosen. The game progresses until time runs out. If no more play is required, the game automatically returns to the "attract mode".

GAME RULES

Play instructions are on information panel between speakers. Up to four players at a time can explore a world, facing hordes of monsters, searching for treasure, avoiding traps, finding and using magic, and adventuring their way to the exits.

Players choose from eight characters (and, later, eight alternate characters) to face the hordes of monsters that have overrun the land of Gauntlet. With more than 100 unique monsters and 10 intimidating boss characters, players have their hands full, defeating each of the eight world bosses and collecting keys before meeting the demon Skorne. Following Skorne's defeat, players must defeat him yet again in an underworld level, after which they face the evil overlord Garm. 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 saves all eight 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 players find.

To access the alternate characters, players first build characters to level 10. Depending upon which character they have played, they then can choose to play as the Minotaur (Warrior), Falconess (Valkyrie), Jackal (Wizard), Tigress (Archer), Hyena (Jester), Ogre (Dwarf), Medussa (Sorceress), and Unicorn (Knight).

To defeat Garm, players must find all 13 Rune Stones and defeat Skorne twice. Three Stones are hidden in each world. Upon finding a Stone, a character is saved permanently with a 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.

INDIVIDUAL AND MULTIPLE PLAY

Insert currency to start game. Select a joystick/button combination and press START. Select a password, character, and journey. In multi-player games the first to select a journey determines everyone's path. On-screen life counters decrease as characters are wounded until they reach zero, at which point the player must deposit more coins to continue. You can continue playing after others drop out. When coins are inserted, the character joins in the middle of the action.

PLAYER CONTROLS
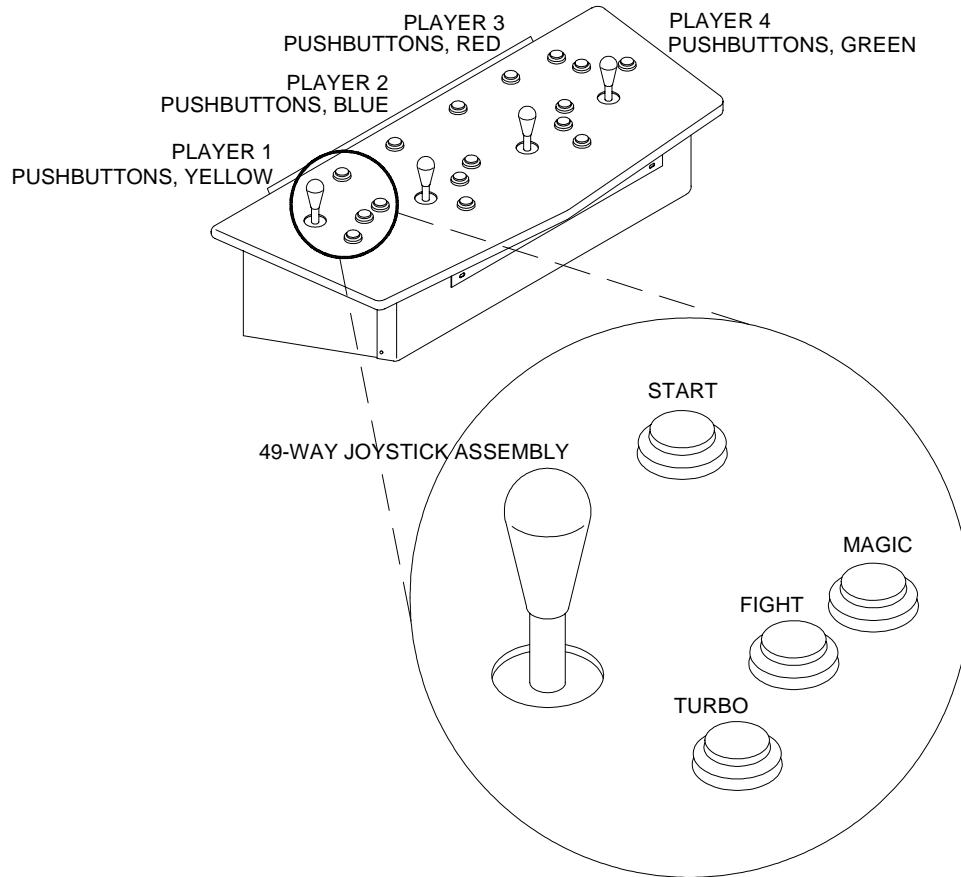
START buttons let players begin or continue play and also select items from the service menu.

FIGHT/MAGIC/TURBO Buttons attach enemies. Players access special turbo movies by pressing TURBO and FIGHT at the same time when their "fight bar" has been charged up.

Magic is used by pressing TURBO + MAGIC and FIGHT + MAGIC during game play.

Between levels, players redeem accumulated gold for valuable power-ups and things that will enhance their characters like strength, toughness, speed, and magic.

JOYSTICKS advance a character along a journey and select items from service menu.

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

The Power Switch (located on the power supply at the rear of the cabinet) turns off the game during service. It does not reset the game variables.

Monitor Remote Adjustments

The Monitor Remote Adjustment Board (located just behind the coin door) sets the video display for optimum viewing.

Control Switches

Volume Down and Volume Up Buttons (mounted on a bracket behind the coin door) increase or decrease game sound levels.
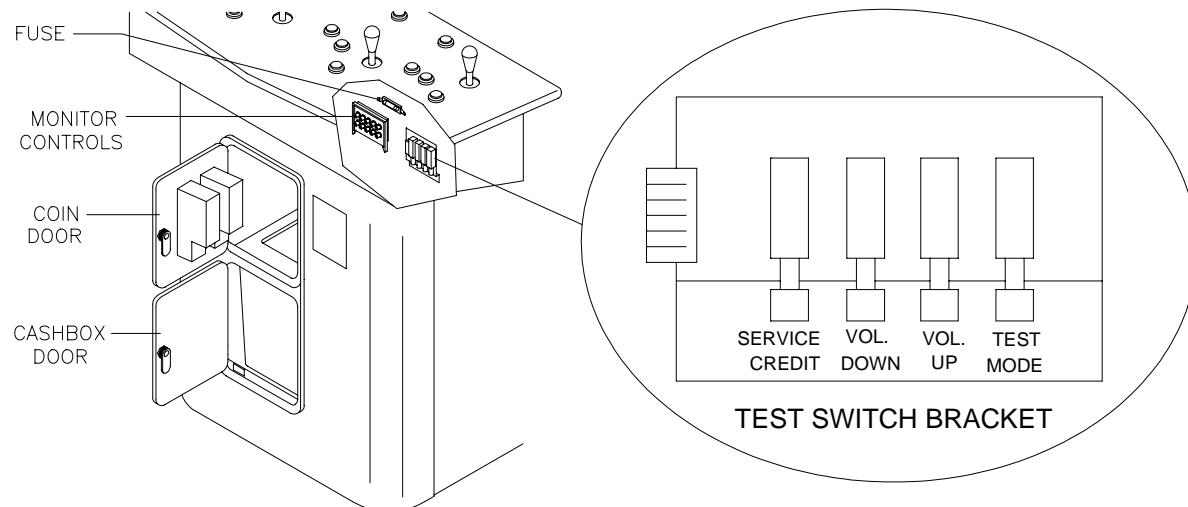
NOTE Attract Mode volume is set as a percentage of Game Mode volume. When volume up/down buttons are pressed during Attract mode the volume is temporary set to game volume.

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

Test Mode Button 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 Button: this button 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.

OPERATOR CONTROLS

MENU SYSTEM

SYSTEM OVERVIEW

  Game variables and diagnostics are presented in a series of on-screen menus. The Main Menu allows you to view information, change or verify equipment operation. Submenus display further choices, after which more data appears or tests run. Use both operator and player controls to navigate menus and start or stop routines.
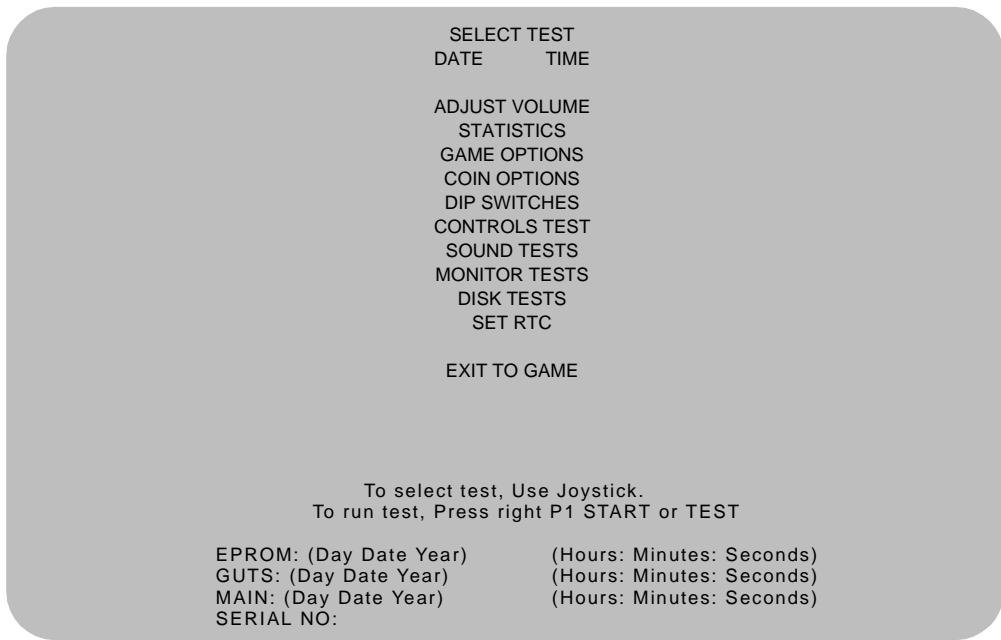
SCREEN LAYOUT

  The color bar at the top center of each screen displays the current menu title. The center of the screen holds data (menu items, video signals, statistics, reports, etc.) The bottom of the screen contains messages (control functions, revision levels, etc.).

ORGANIZATION

  Main Menu screen items are either options or tests. Submenu screen items offer choices within a category. A Menu may have zero, one, or several Submenus. You can always return to the previous menu, and often advance to the next menu. Detail Menu screen items contain specific information. You interact with the system to get results or to make changes.
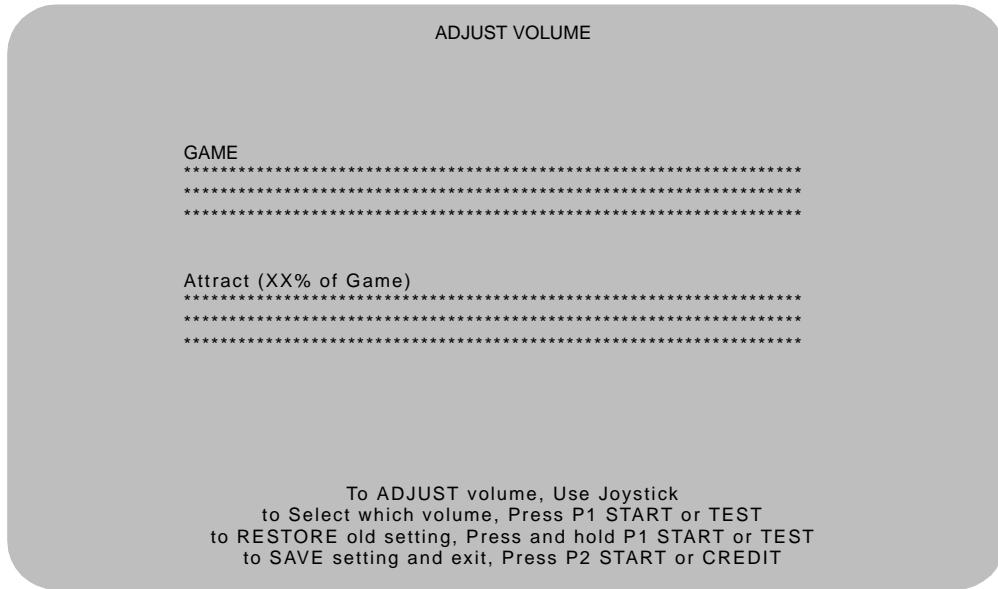
  Use the indicated control to highlight an item. You can only select one highlighted at a time. To return to game play, select EXIT TO GAME, then press the indicated button.

```
                    SELECT TEST
              DATE          TIME

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


                  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

ADJUST VOLUME

You can adjust Attract Mode volume independently of Game volume. Use the joystick to raise or lower volume level. Music plays continuously while setting 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 Game or Attract volume adjustment. When the selected variable flashes, use the joystick to change the level.

Game volume adjusts from zero to maximum. The game seems more realistic if players experience loud sounds during play. These weapons do not have silencers.

Attract volume is continuously adjustable from Mute (zero) to maximum. For greater profits, make Attract Mode loud to draw attention to Gauntlet: Dark Legacy.

You adjust Attract and Game volume levels independently, but Attract cannot be louder than Game volume. If you try this, Attract level automatically lowers proportionately. Lowering Attract level does not affect Game setting.

Volume level is represented a bar made of dots. The longer the bar, the higher the volume.
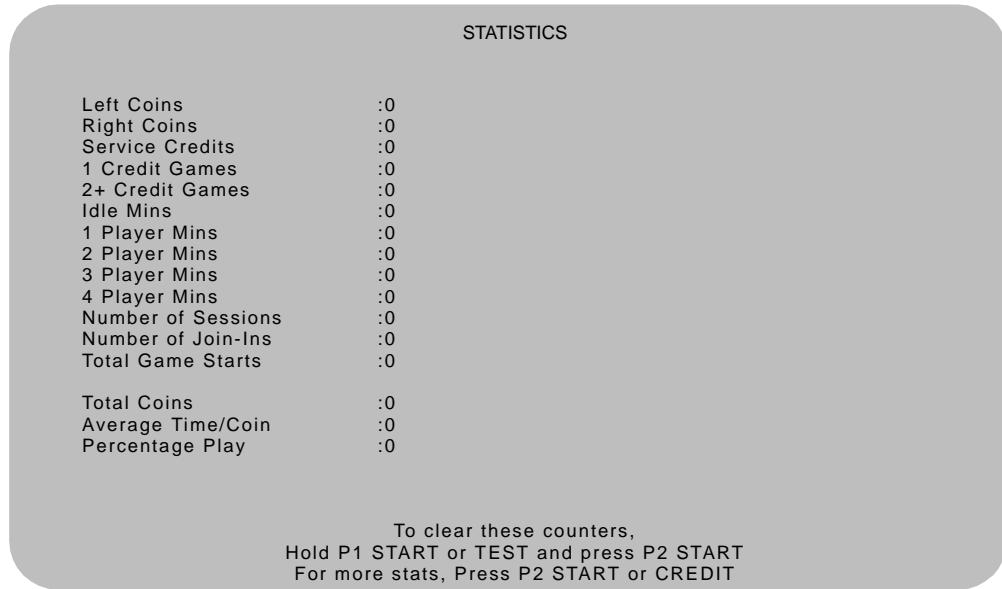
Press the Player 2 START button after making volume adjustments. The Player 1 START button cancels your recent changes and returns both levels to what they were before you touched them.

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 completing 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.

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
        Percentage Play         :0


                        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 looks after the game is reset or is first turned on. Most statistics 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 suggest the game is too difficult for the skill levels of the players at this location; high continue counts may indicate the game is too easy. Difficulty level and other play characteristics may be adjusted from the Game Options menu.

Record statistics before performing service or making repairs on the game.

Press Player 2 START or service credit button to view system errors, which tell you the status of the hardware. Press Player 2 START again, and you will see user messages. Press Player 2 START again and you will see histograms. Press Player 2 START again to see level histograms.

Press both START buttons to cancel settings on screen and return all counts to factory default values.
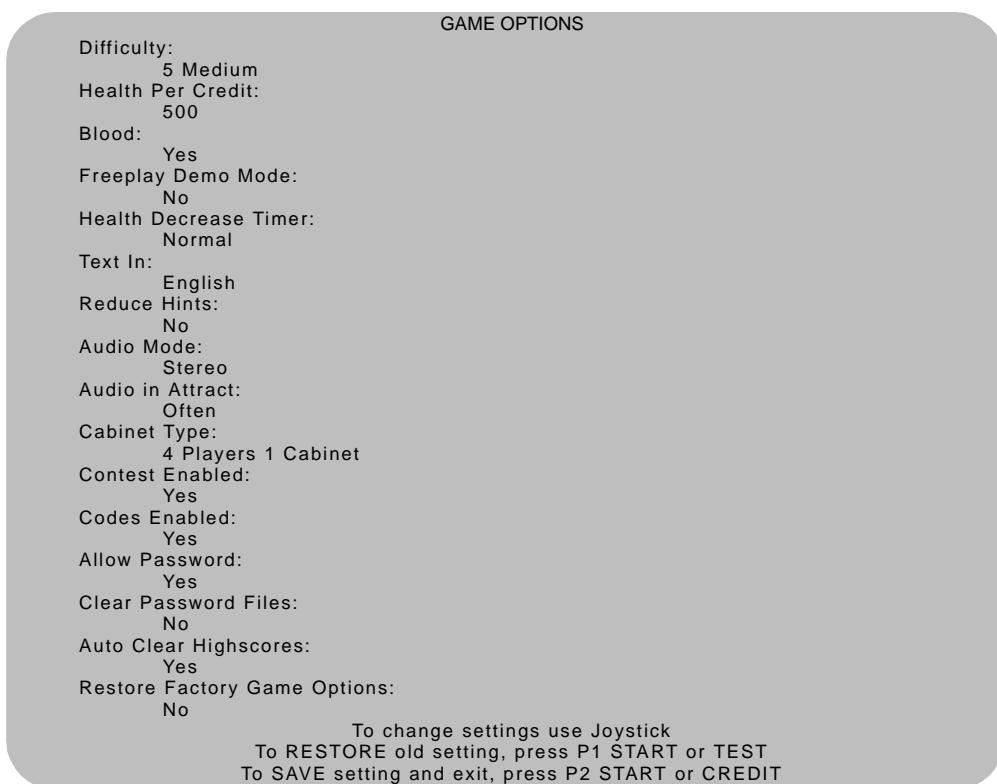
The HISTOGRAMS screens will have no bar graphs until the system has enough data to plot.

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

GAME OPTIONS

These adjustments allow you to customize the game. Each variable changes an 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

Factory defaults are displayed in green text.

The illustration shows how this report screen looks after game is reset or first turned on. Use joystick to advance variables through range of choices. Some items have more options than others. 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.

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. Take special caution before changing this setting, as many registered players invest much time and money into building up their characters, which can only be accessed with passwords.

Contest Enabled allows Midway sponsored T-shirt promotion. Players who defeat Garm by collecting all 13 rune stones and winning the final battle are eligible for an "I Beat Garm" T-shirt. Factory default is Yes.

Codes Enabled allows use of secret codes. Factory default is Yes
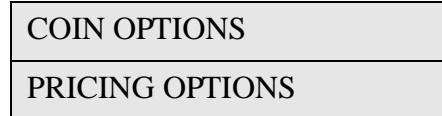
Clear Password files controls password file deletion. Set this feature to Yes to delete all saved character experience and passwords. Factory default is No.

Auto Clear Highscores sets whether the game will automatically reset the high score table from time to time. Factory default is No.
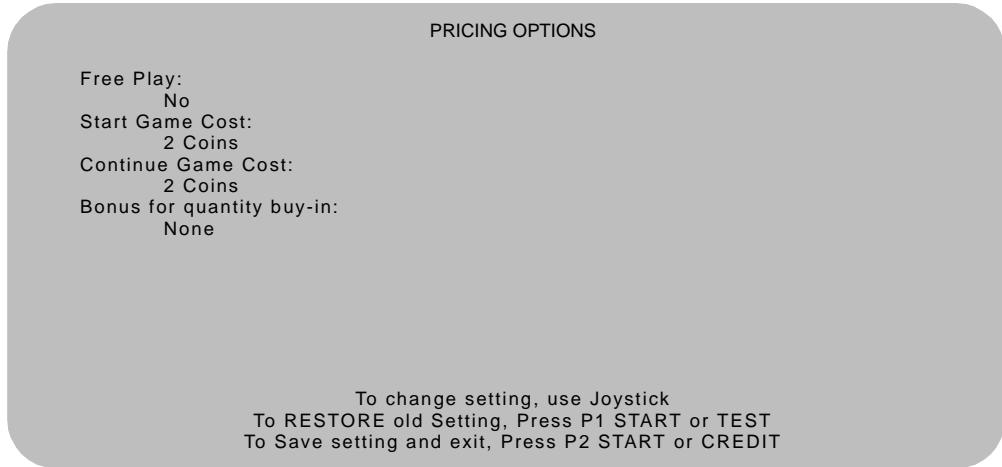
Restore Factory Game Options resets the Game Options. Set this option to Yes to reset the game to factory default options. Factory default is No.

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
PRICING OPTIONS

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

Custom pricing sets credits required to start and continue a game, rewards for buy-in and winning, etc. Factory default are shown above. View all choices before selecting, as some items have more options than others. Free offers no options. Free game incentives may reduce earnings.

COIN OPTIONS

PRICING OPTIONS

   Mech setup permits operators to add or remove coin or bill mechanisms. Values are shown for all devices, but changes to unused inputs have no effect if the mechanism is not in the game.

```
                              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

DIP SWITCHES

   The two DIP switches located at U13 and U12 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 Wiring Chapter 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

        U12
        -----
        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 P2 START or CREDIT
```

DIP SWITCH MENU SCREEN

CONTROLS TEST

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

> 👉 **NOTE.** Some switches may not be used in Gauntlet: Dark Legacy. Check wiring diagram before testing.

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

```
                    CONTROLS TEST
                     COIN MECHS
                    ------------------
                      1  2  3  4
                      SVC BILL

    Plyr 1        Plyr 2        Plyr 3        Plyr 4        MISC
    --------      --------      --------      --------      --------
    • • •         • • •         • • •         • • •
    • • • 0 0     • • • 0 0     • • • 0 0     • • • 0 0
    • • •         • • •         • • •         • • •
                                                            TILT
    START         START         START         START         VOL+
    MAGIC         MAGIC         MAGIC         MAGIC          VOL-
    FIGHT         FIGHT         FIGHT         FIGHT          TEST
    RUN           RUN           RUN           RUN            ITRLK




            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

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.

Player Controls Tests verify crossed wires, intermittent conditions, and stuck switches.
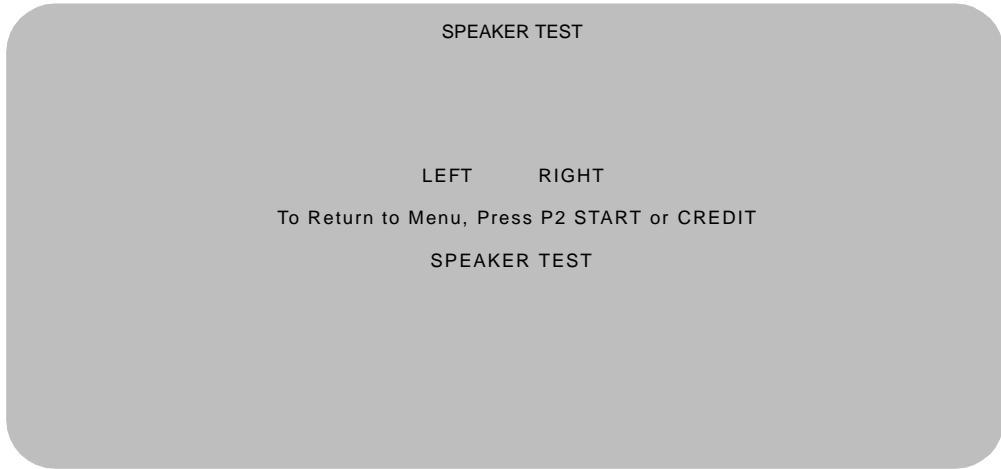
OPERATOR CONTROLS are shown on screen under the MISC heading. Each switch change should be exactly duplicated by a single indication on the menu screen.

Operator Controls Tests verify crossed wires, intermittent conditions, and stuck switches.

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
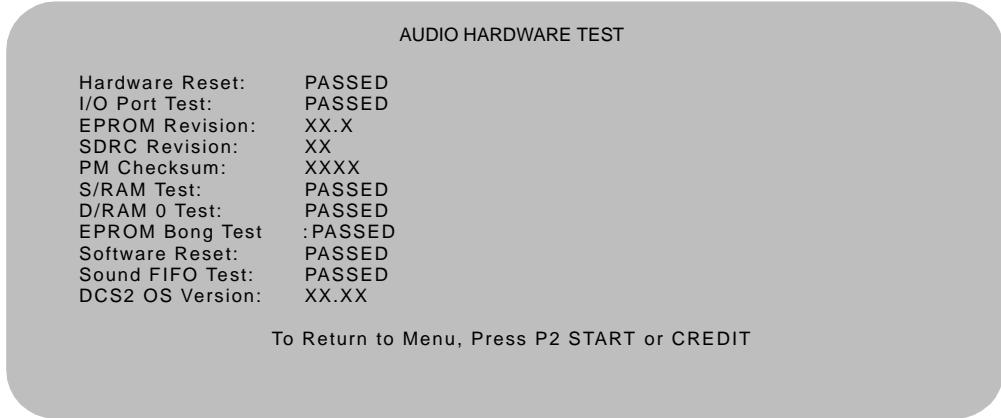
These tests verify the proper connection and operation of the audio components. There are no custom settings or variables in these tests, which are performed automatically.

```
                          SPEAKER TEST




               LEFT       RIGHT
         To Return to Menu, Press P2 START or CREDIT

                     SPEAKER TEST
```

MENU SCREEN

SPEAKER TEST sends alternating voice sounds to the left and right speakers. 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

         Hardware Reset:       PASSED
         I/O Port Test:        PASSED
         EPROM Revision:       XX.X
         SDRC Revision:        XX
         PM Checksum:          XXXX
         S/RAM Test:           PASSED
         D/RAM 0 Test:         PASSED
         EPROM Bong Test     : PASSED
         Software Reset:       PASSED
         Sound FIFO Test:      PASSED
         DCS2 OS Version:      XX.XX

                To Return to Menu, Press P2 START or CREDIT
```
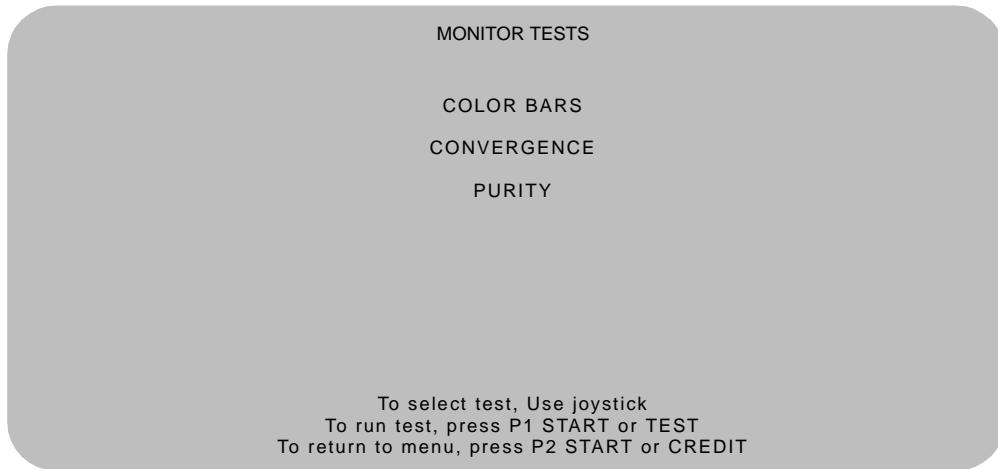
AUDIO HARDWARE TEST REPORT SCREEN

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 refer to the Troubleshooting Chapter.

MONITOR TESTS

Monitor Tests provide patterns to verify monitor performance or make adjustments. Gauntlet: Dark Legacy uses a medium-resolution monitor. Other monitors may cause poor 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 bar should appear sharp, clear, and distinct from bars on either side.

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

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. Grid and the dots should be all one color, with no fringes or parallel images. Lines should be straight and dots round.

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

Convergence tests are useful in verifying the monitor convergence, linearity, and dynamic focus.
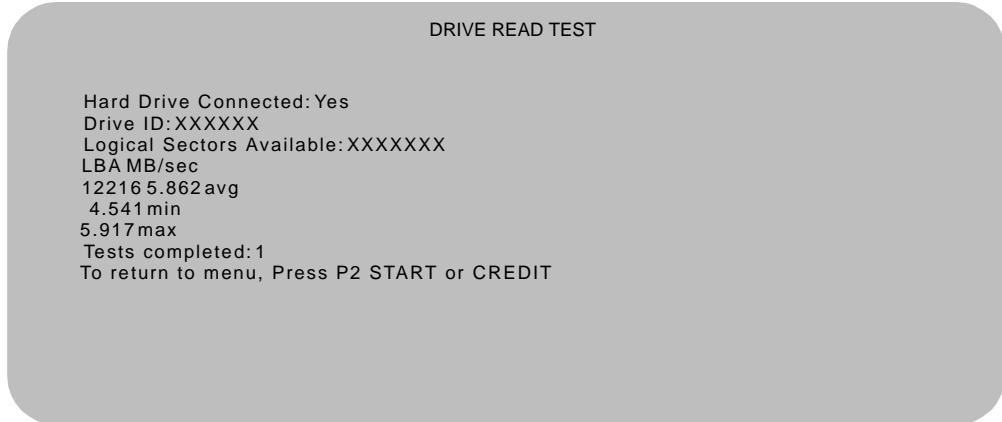
PURITY tests fill the screen with 100% of the chosen color at normal intensity. Each screen should be uniform from top to bottom and side to side. No retrace lines or noise should be visible.

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

Purity tests help verify monitor intensity, black level, blanking and automatic degaussing.

DISK TESTS

These verify Hard Disk Drive functions. 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


     Hard Drive Connected: Yes
     Drive ID: XXXXXX
     Logical Sectors Available: XXXXXXX
     LBA MB/sec
     12216 5.862 avg
      4.541 min
     5.917 max
     Tests completed: 1
     To return to menu, Press P2 START or CREDIT
```
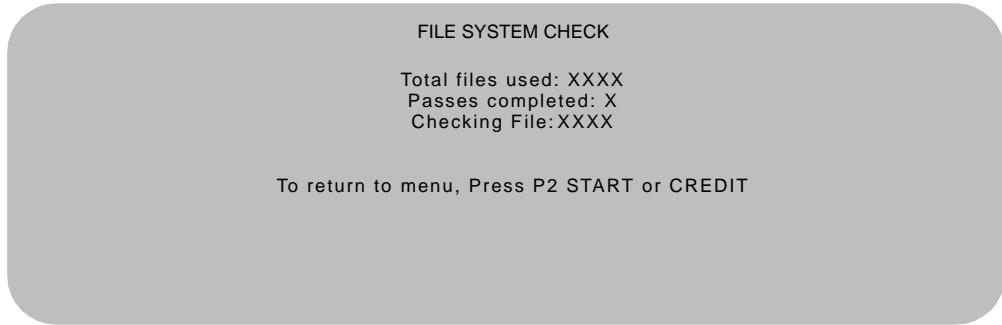
DRIVE READ TEST MENU SCREEN

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

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

Logical Sector Test performs a sector by sector read/verify test on the drive. As the status of each block of sectors is checked, the speed of 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 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.

SET RTC

Use this menu to set the correct time and date for your location.

SET RTC

Date: day mo date year
Time hr min

SET RTC MENU SCREEN

SWITCHES AND JUMPERS

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

Switches

The CPU Board Assembly has one pushbutton switch, which resets the CPU Board and restarts the game without turning off AC power. There are two DIP switches on the Sound I/O Assembly at U12 and U13. See Wiring Chapter for further explanation.

Jumpers

Jumpers control signals to other components in this game. These signals match production audio amplifiers, speaker system, and video monitors.

Active circuit paths are factory optimized during the board test procedure. Leave jumpers in original positions to avoid program error messages.

Errors

The system detects errors at startup or during diagnostic tests and reports them on screen. The system automatically repairs errors such as minor disk data faults. Fix other errors, such as player control calibration, by manually resetting values in game memory. Gauntlet: Dark Legacy generally continues to operate (but with reduced performance) after discovering minor errors.

Record error messages before attempting to correct a problem. The USER MESSAGES report may store additional temporary messages (refer to STATISTICS earlier in this chapter).
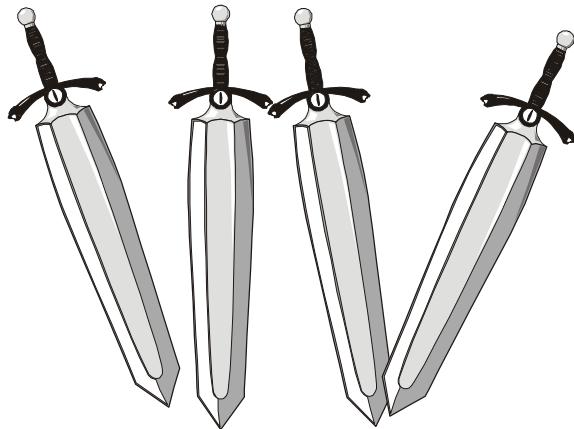
After recording messages, turn off AC power, wait a few minutes, then turn AC power on. Pay attention to the startup screens and note any error messages during Power On Self Tests. If possible, enter the SELF TEST MENU SYSTEM and run all tests related to where errors occurred. Record and compare any new messages to the previous ones to determine whether errors are random or chronic.

NOTICE. Do not ignore error messages even if you can start and operate the game. Poor performance caused by playing games with errors may reduce earnings.
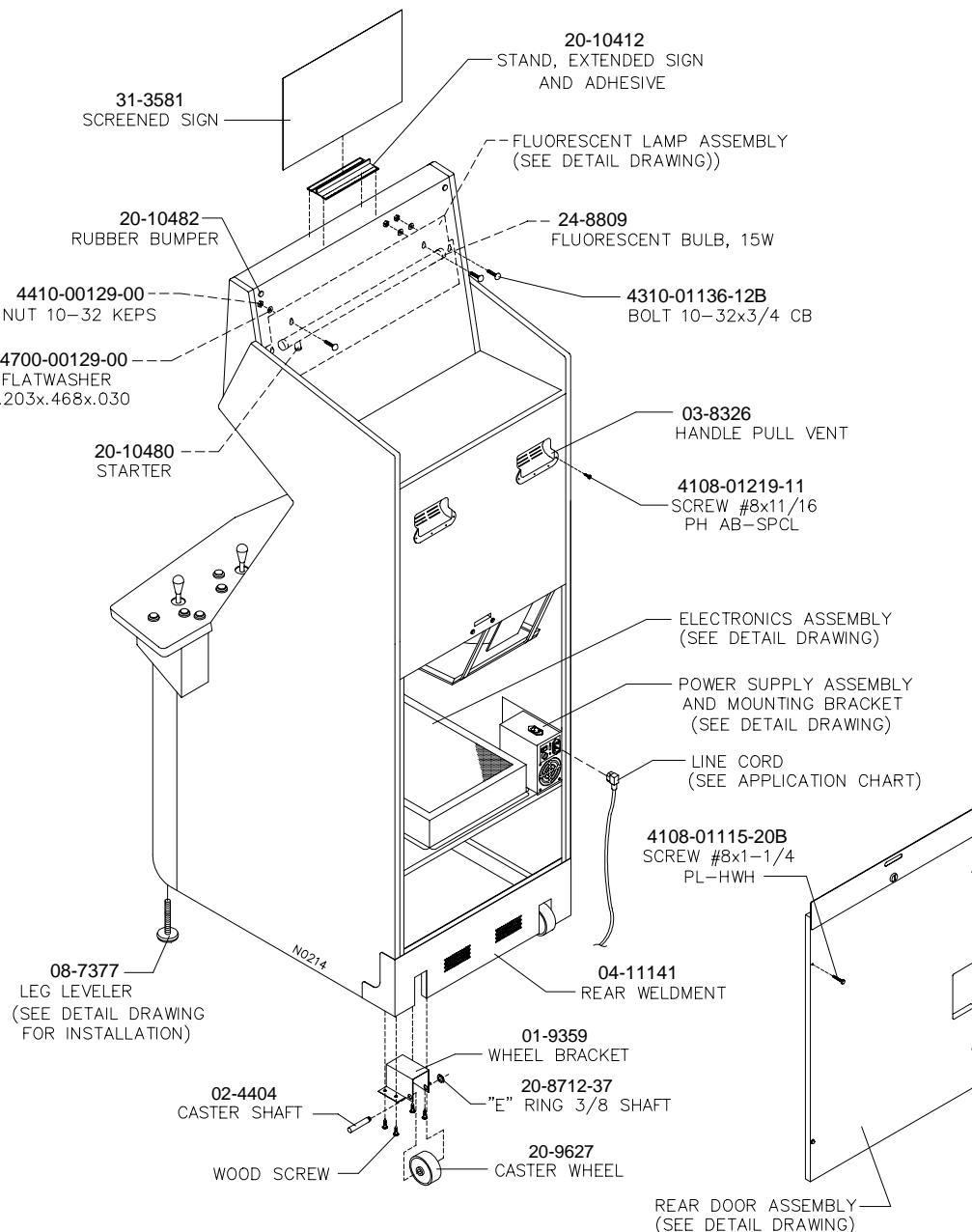
GAUNTLET DARK Legacy

CHAPTER

Parts

| ☞	**NOTICE:** Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.
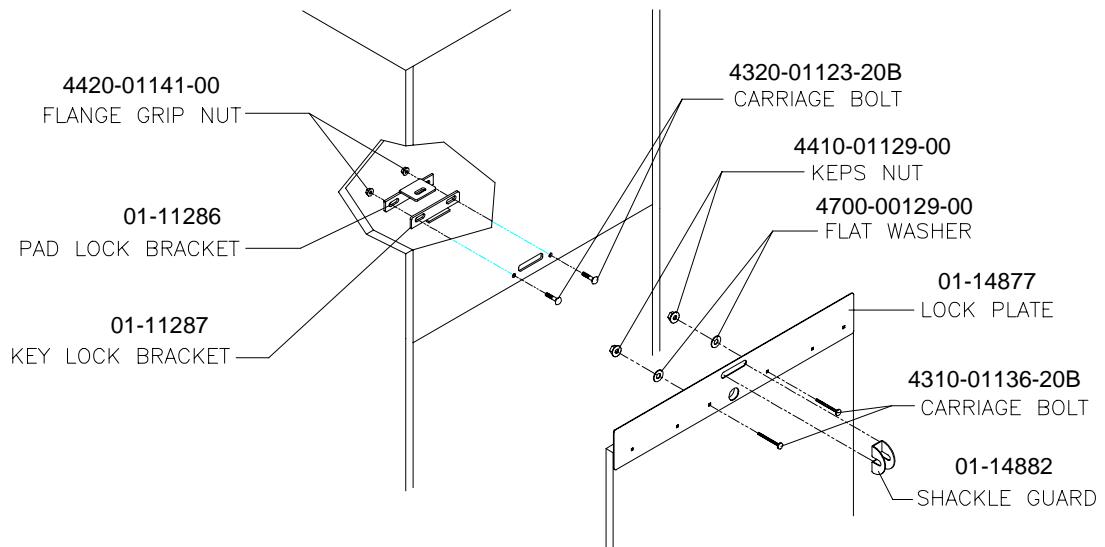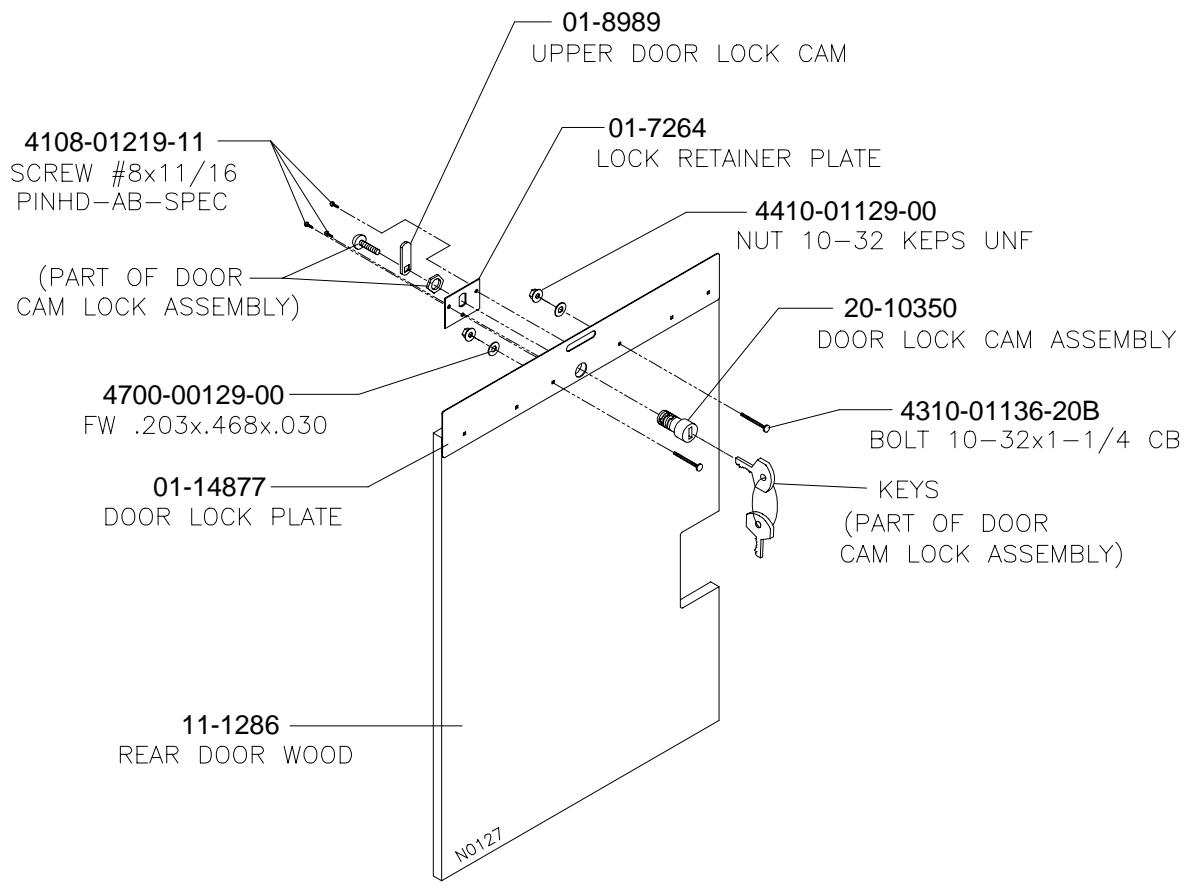
CABINET FRONT VIEW (30046)

31-3505
UPPER DECAL, BEZEL

03-9764
CRT BEZEL

01-14878
TOP RETAINER

31-3504
BACKLIT MARQUEE

A-23643
MARQUEE LIGHTBOX
ASSEMBLY

31-3506
LOWER DECAL, BEZEL

08-8196
BLANK MARQUEE
GLASS

SPEAKER PANEL ASSY
(SEE DETAIL DWG)

4020-01070-20
SCREW 1/4—20x1—1/4 HH

08-8197.1
CRT GLASS

4701-00005-00
LW 1/4 SPLIT

4700-00034-00
FW .265x.875x.067

5675-15355-00
MONITOR

04-11230
MONITOR MOUNTING
BRACKET

CONTROL PANEL ASSEMBLY
(SEE DETAIL DRAWING)

04-12935
SCREENED
CABINET

4408-01128-00
NUT 8—32 KEPS

4308-01123-16B
BOLT #8—32x1 CB

01-14886-1
DBV COVER PLATE

OVER/UNDER COIN DOOR
(SEE APPLICATION CHART
AND DETAIL DRAWING)

N0217

04-11229-1
FRONT PANEL COVER

HARDWARE NOT SHOWN:

|	
4010-01007-08	MS 10—32x1/2 P—PH
4020-01100-32	TR 1/4—20x2 BH CS
4106-01001-10	SMS #6x5/8 P—PH
4106-01115-20	SMS #6x1—1/4 PL—HWH—A
4420-01141-00	NUT 1/4—20 FLANGRIP
4420-01119-00	NUT 1/4—20 ESN/NE
4320-01123-20B	BOLT 1/4—20x1—1/4 CB
4320-01123-28	BOLT 1/4—20x1—3/4 CB
4320-01123-40B	BOLT 1/4—20x2—1/2 CB
4700-00032-00B	FW .265x.625x.067
4700-00139-00	FW .265x1.250x.059

CABINET REAR VIEW (30046)

20-10412
STAND, EXTENDED SIGN
AND ADHESIVE

31-3581
SCREENED SIGN

FLUORESCENT LAMP ASSEMBLY
(SEE DETAIL DRAWING))

20-10482
RUBBER BUMPER

24-8809
FLUORESCENT BULB, 15W

4410-00129-00
NUT 10-32 KEPS

4310-01136-12B
BOLT 10-32x3/4 CB

4700-00129-00
FLATWASHER
.203x.468x.030

03-8326
HANDLE PULL VENT

20-10480
STARTER

4108-01219-11
SCREW #8x11/16
PH AB-SPCL

ELECTRONICS ASSEMBLY
(SEE DETAIL DRAWING)

POWER SUPPLY ASSEMBLY
AND MOUNTING BRACKET
(SEE DETAIL DRAWING)

LINE CORD
(SEE APPLICATION CHART)

4108-01115-20B
SCREW #8x1-1/4
PL-HWH

08-7377
LEG LEVELER
(SEE DETAIL DRAWING
FOR INSTALLATION)

N0214

04-11141
REAR WELDMENT

01-9359
WHEEL BRACKET

02-4404
CASTER SHAFT

20-8712-37
"E" RING 3/8 SHAFT

WOOD SCREW

20-9627
CASTER WHEEL

REAR DOOR ASSEMBLY
(SEE DETAIL DRAWING)

REAR DOOR LOCK ASSEMBLY (A-22403)

01-8989
UPPER DOOR LOCK CAM

4108-01219-11
SCREW #8x11/16
PINHD—AB—SPEC

(PART OF DOOR
CAM LOCK ASSEMBLY)

01-7264
LOCK RETAINER PLATE

4410-01129-00
NUT 10—32 KEPS UNF

20-10350
DOOR LOCK CAM ASSEMBLY

4700-00129-00
FW .203x.468x.030

4310-01136-20B
BOLT 10—32x1—1/4 CB

01-14877
DOOR LOCK PLATE

KEYS
(PART OF DOOR
CAM LOCK ASSEMBLY)

11-1286
REAR DOOR WOOD

N0127

4420-01141-00
FLANGE GRIP NUT

4320-01123-20B
CARRIAGE BOLT

4410-01129-00
KEPS NUT

4700-00129-00
FLAT WASHER

01-11286
PAD LOCK BRACKET

01-14877
LOCK PLATE

01-11287
KEY LOCK BRACKET

4310-01136-20B
CARRIAGE BOLT

01-14882
SHACKLE GUARD

CONTROL PANEL AND HOUSING ASSEMBLIES (A-23603)

20-10209-4
PUSHBUTTONS, GREEN

01-14879
GLASS RETAINER

A-21939-1
49-WAY JOYSTICK ASSEMBLY

20-10209-3
PUSHBUTTONS, BLUE

20-10209-5
PUSHBUTTONS,
YELLOW

16-8587-583
GROUND STRAP
WARNING LABEL

4322-01124-128
BOLT 3/8-16X8 HH

20-10483
STAMPED STEEL NUT

01-11955
LATCH BRACKET

4408-00128-00
NUT 8-32 KEPS

20-9347
TOGGLE LATCH

4108-01193-10B
SCREW #8x5/8
TAMPER RESISTANT

01-14884
CORNER BRACKET

31-3502-1
DECAL, LEFT SIDE

31-3502-2
DECAL, RIGHT SIDE
(APPLIED ON OPPOSITE SIDE)

20-10484
WINGNUT

A-23605
CONTROL PANEL ASSEMBLY

03-9763
CLEAR OVERLAY

31-3503
DECAL OVERLAY

4108-01193-10B
SCREW #8x5/8
TAMPER RESISTANT

20-9841.1
CONTROL PANEL HINGE

20-10209-1
PUSHBUTTONS, RED

4408-01120-00
GROUND NUT 8-32 WING

4108-01219-11
SCREW #8x11/16 PINHD-AB SPCL

4308-01123-16B
BOLT 8-32x1 CB

4700-00032-00
FLATWASHER .265x.625x.067

4701-00005-00
LOCKWASHER 1/4 SPLIT

4020-01070-24
SCREW 1/4-20x1-1/2 HH

4408-00128-00
NUT 8-32 KEPS

04-12934
SCREENED HOUSING

04-11235-1
PANEL HOUSING FRONT

31-3502-3
DECAL, CONTROL PANEL FRONT

N0210

A-23604
CONTROL PANEL HOUSING ASSEMBLY

49-WAY JOYSTICK ASSEMBLY (A-21939-1)

04-10849-1
JOYSTICK KNOB, BLACK

WOOD CONTROL PANEL
SHOWN FOR REFERENCE

03-9656
COVER SLIDE

03-8409.1-1
JOYSTICK TOP

4700-00129-00
FLATWASHER .203x.468x.030

17-1129
CENTERING GROMMET

4410-01129-00
HEX NUT 10—32 KEPS

4108-01219-11
H—F #8x11/16 PINHD—AB SPC

03-8411.2-1
L—STOP

03-9722
STOP SPACER

20-8712-25
"E" RING 1/4"

04-11135
OPTO BOARD

03-8419
SLIDE CARRIAGE

03-8412.1-4
OPTO BREAKER SLIDE, LONG

03-8420
OPTO BOARD SLIDE RETAINER

03-8412.1-3
OPTO BREAKER SLIDE, SHORT

4108-01211-28
#8—10x1—3/4 FH PH PLASTITE

PUSHBUTTON ASSEMBLY

PUSHBUTTON

5647-12133-00
MINISWITCH D41
(GOLD CONTACTS)

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

VIDEO ASSEMBLY (A-22923)

*NECK BOARD
ASSEMBLY

FRAME, CRT, AND
DEFLECTION YOKE

MANUFACTURER'S
IDENTIFICATION
LABEL

5675-15355-00
VIDEO MONITOR
WITHOUT BEZEL

03-9764
BEZEL

*MAIN BOARD
ASSEMBLY

REMOTE ADJUSTMENT
BOARD ASSEMBLY

*THESE PARTS ARE AVAILABLE FOR THE RCA BRAND CRT
ONLY AS A SET UNDER PART NO. 04-11032.

   When ordering video components, identify monitor and CRT manufacturers. Manufacturer is marked on the neck or main board assemblies. CRT brand is typically marked on the tube near the deflection yoke.
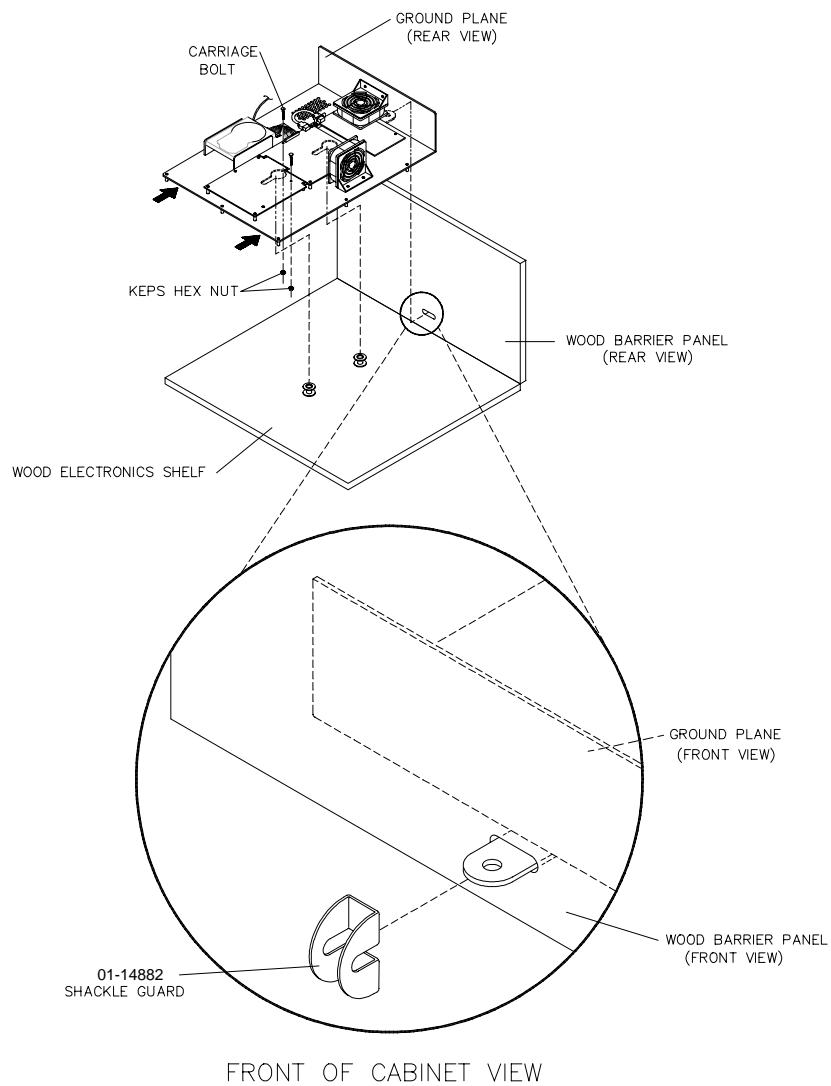
   CRT, frame, deflection yoke, and remote adjustment board assembly are unavailable separately. These components are specific to monitors and cannot be interchanged. Monitors use CRTs with slightly different shapes. Each bezel fits only one shape correctly. Each monitor board set consists of a neck board assembly and a main board assembly as a matched set. CRTs use different glorification yokes. Each board set matches only one CRT and yoke correctly.

   Each video assembly consists of a complete monitor and matched bezel. Complete video assemblies are electrically and mechanically interchangeable in a cabinet.
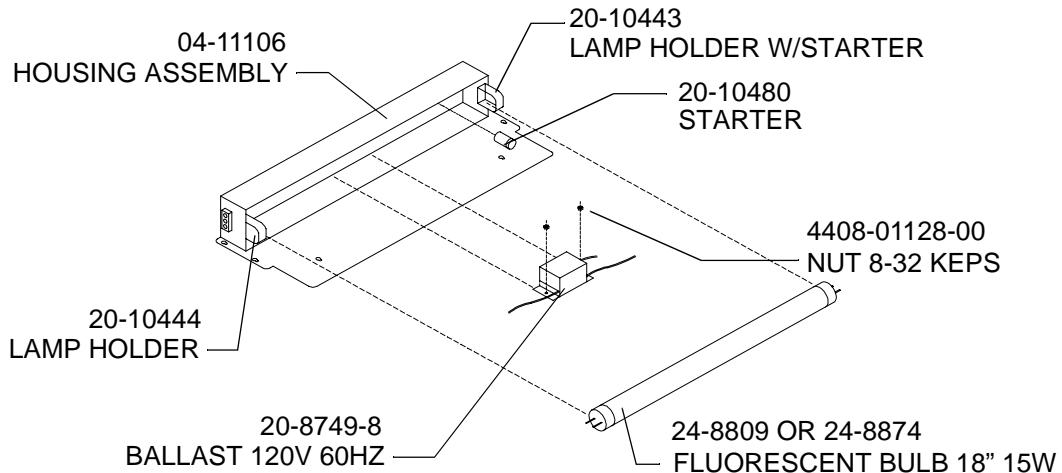
ELECTRONICS ASSEMBLY (A-23601)

04-12393
COVER

RM-37-11
FLEXIBLE GROMMET

4408-01128-00
NUT #8-32 KEPS

20-10493
SHIELDED VIDEO CABLE

4700-00012-00
FLATWASHER
.172x.375x.036

5795-15344-07
HARD DISK DRIVE CABLE 7"

A-23064
FAN ASSEMBLY

H-23127
HARD DRIVE POWER
AND FAN HARNESS

4004-01005-14
SCREW 4-40x 7/8 P-PH

A-23602
HARD DRIVE ASSEMBLY

4004-01223-05
SCREW #4-40x5/16
P-PH NYLON

4308-01123-20
BOLT 8-32x1-1/4CB

20-10507
STANDOFF, HEX NYLON

4006-01209-04
SCREW #6-32x1/4 P-PH
W/SPRING SEMS

20-10601
VIDEOCARD ASSEMBLY

4008-01005-16
SCREW 8-32x1 P-PH

A-21055
FAN ASSEMBLY

A-23620
SOUND I/O ASSEMBLY

04-11225
GROUNDPLANE

4700-00011-00
FLATWASHER .172x.437x.059

A-23619
CPU ASSEMBLY

5556-13956-00
FERRITE BEAD 1-1/4

ELECTRONICS SECURITY

GROUND PLANE
(REAR VIEW)

CARRIAGE
BOLT

KEPS HEX NUT

WOOD BARRIER PANEL
(REAR VIEW)

WOOD ELECTRONICS SHELF

GROUND PLANE
(FRONT VIEW)

WOOD BARRIER PANEL
(FRONT VIEW)

01-14882
SHACKLE GUARD

FRONT OF CABINET VIEW

FLUORESCENT LAMP ASSEMBLY (A-22365)

04-11106
HOUSING ASSEMBLY

20-10443
LAMP HOLDER W/STARTER

20-10480
STARTER

4408-01128-00
NUT 8-32 KEPS

20-10444
LAMP HOLDER

20-8749-8
BALLAST 120V 60HZ

24-8809 OR 24-8874
FLUORESCENT BULB 18" 15W

FLUORESCENT LAMP ASSEMBLY (A-22506)

20-10444
LAMP HOLDER

04-11241.1
FLUORESCENT HOUSING

4002-01105-04
SCREW #2-56 P-PH

20-10481.2
ELECTRONIC BALLAST

20-10444
LAMP HOLDER

24-8809 OR 24-8874
FLUORESCENT BULB 18" 15W

SPEAKER PANEL ASSEMBLY (A-22524)

4408-01128-00
NUT 8-32 KEPS

4700-00009-00
FLATWASHER
.172 X .437 X .032

RM-22-37
FOAM TAPE 24"

5555-15098-00
SPEAKER 8 OHM
5-1/2 FULL SHIELDED

04-01128-00
SPEAKER PANEL

H-22499
GROUND WIRE
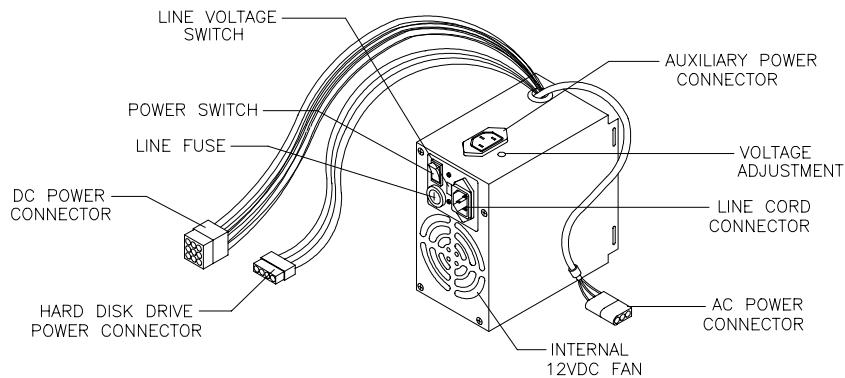
COIN DOOR ASSEMBLY

COIN DOOR AND LINE CORD CHART

Country	Coin Door	Line Cord
US	09-72000-1	5850-15521-01
Germany	09-96010.1	5850-15521-02
France	09-96010.1	5850-15521-02
UK	09-96010.1	5850-15521-03
Italy	09-96010.1	5850-15521-00
Japan	09-72000-15	5850-15521-06
Spain	09-96010.1	5850-15521-02

POWER SUPPLY ASSEMBLY (20-10400.1)

A.C. AUXILIARY POWER CONNECTOR

PINS	FUNCTION	COLOR
1	LINE	BLACK
2	GROUND	GREEN
3	NEUTRAL	WHITE
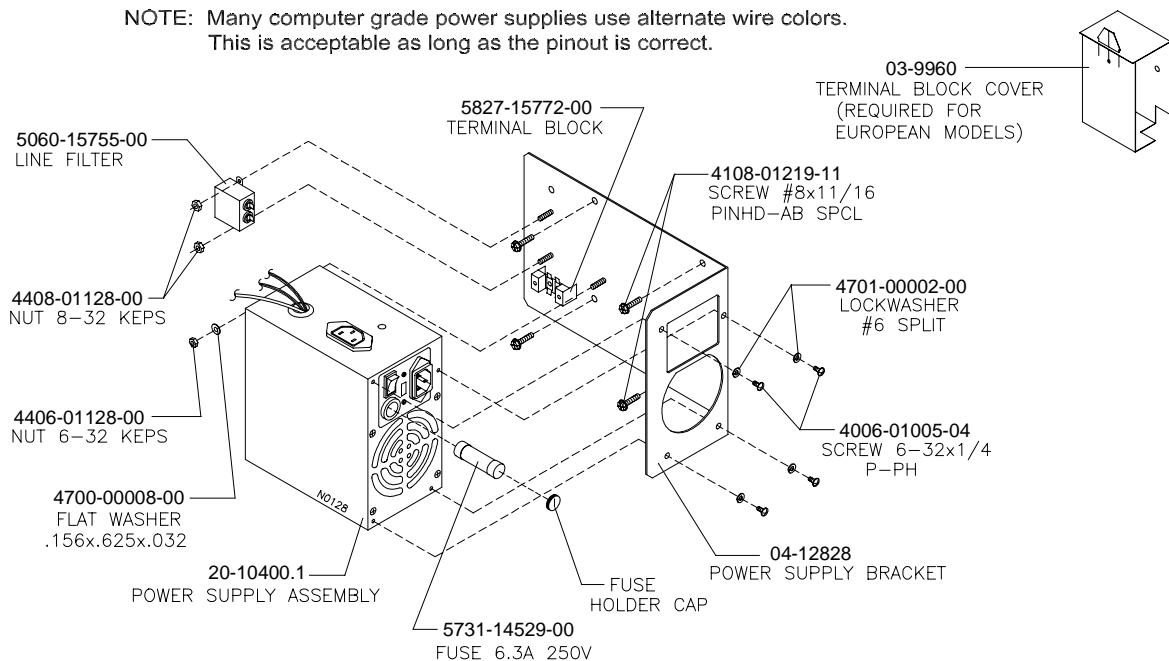
D.C. MAIN POWER CONNECTOR

PINS	FUNCTION	COLOR
1,2,3	+5 VDC	RED
4,5,6	RETURN	BLACK
7	−5 VDC	BLUE
8	+12 VDC	YELLOW
9	−12 VDC	WHITE
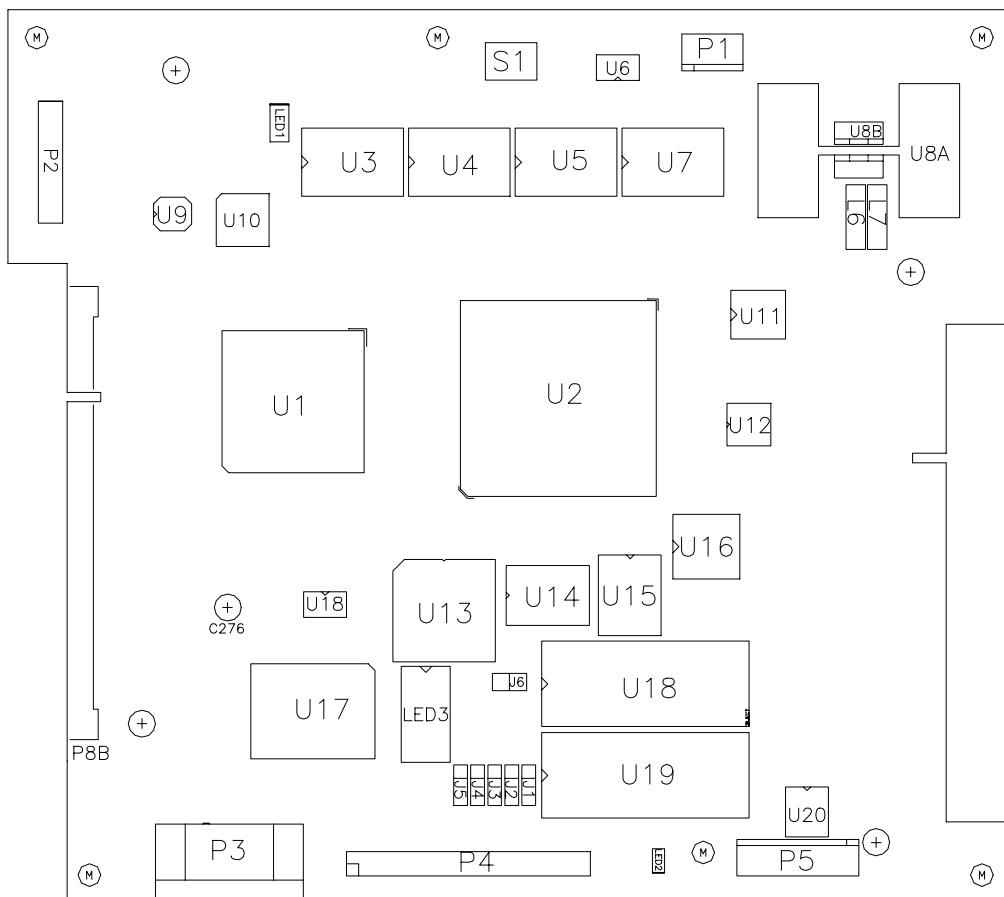
HARD DISK DRIVE POWER CONNECTOR

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.
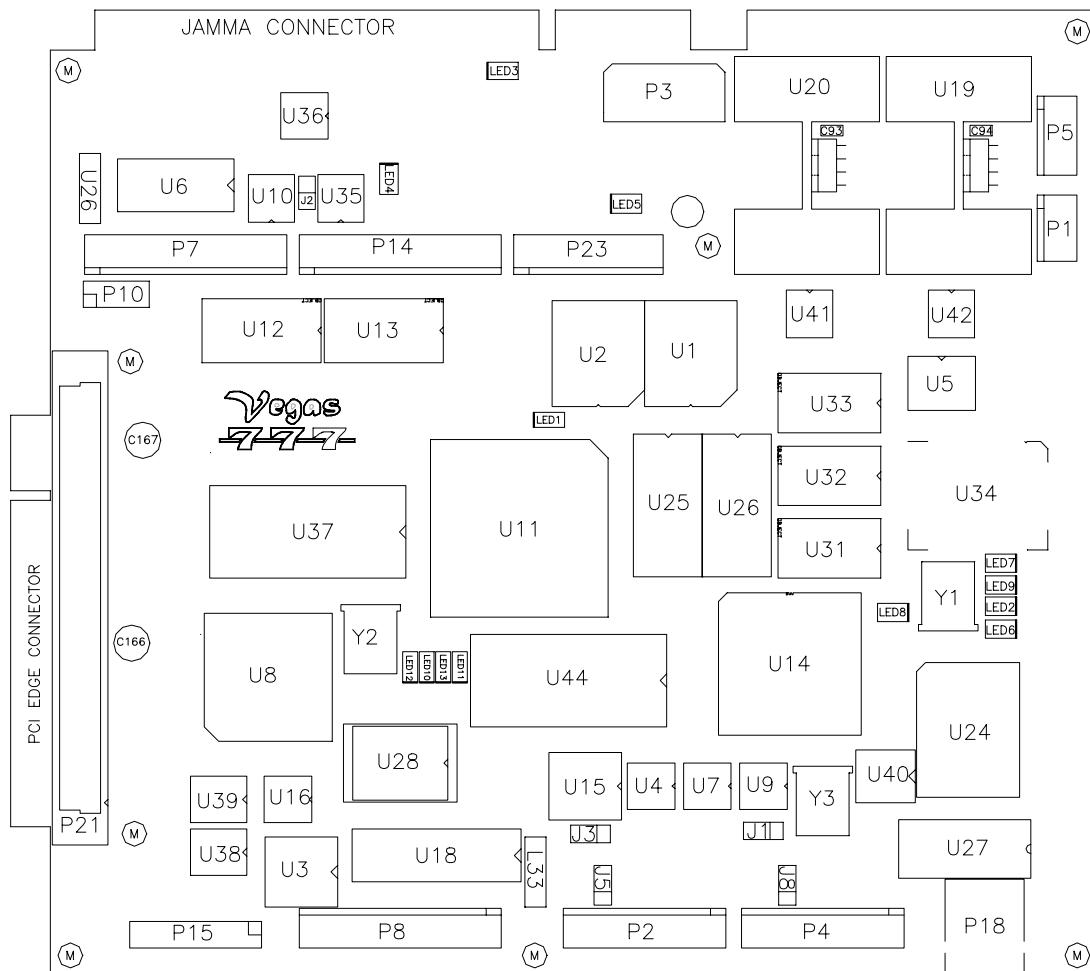
CPU BOARD ASSEMBLY (A-23619)

FIELD REPLACABLE PARTS

Designation	Part No.	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-5343-30046-1	CPU Boot ROM	EPROM Assembly
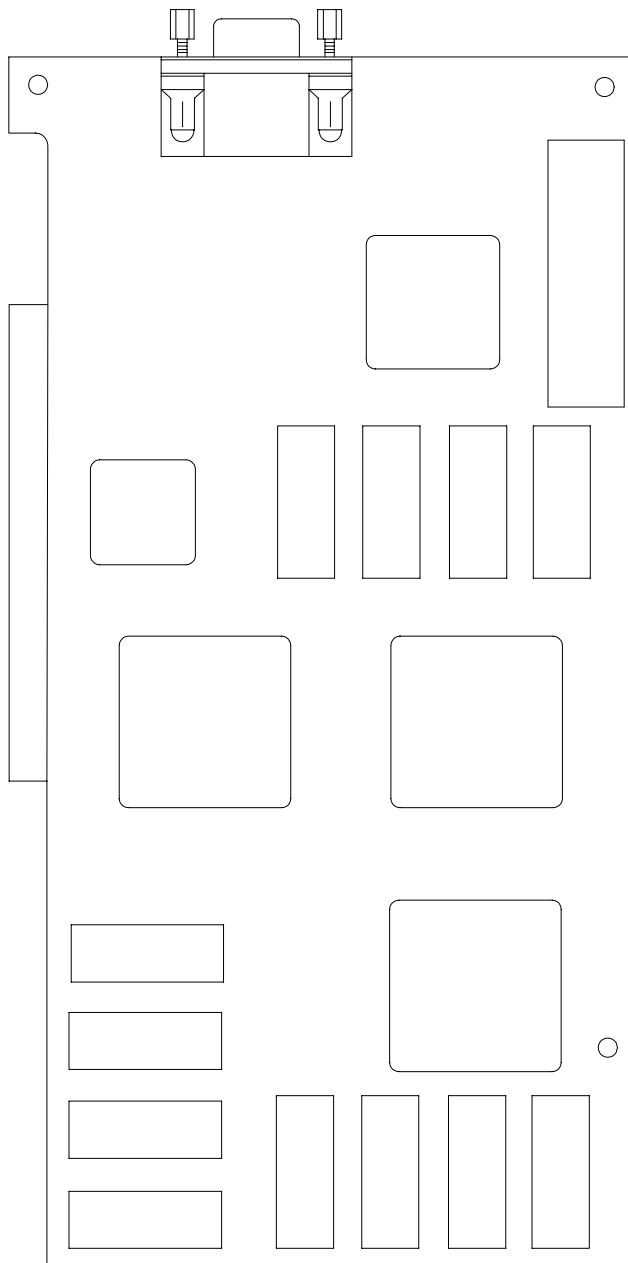
SOUND I/O BOARD ASSEMBLY (A-23620)

FIELD REPLACABLE PARTS

Designation	Part No.	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-23622	Security	PIC Assembly
U44	A-5343-30022-3	Audio Instructions	EPROM Assembly

VIDEO CARD ASSEMBLY (20-10601)

Other Parts Necessary

Protection

Fuse, 1A, 250V, Fast Blow5730-15278-00

Cables

Control Module Harness Cable H-22498

Main Harness (JAMMA) Cable H-22495

AC Harness Cable H-23609

AC Line Harness H-22399

RFI Jumper H-22393

DBV Harness H-23610

Light and Speaker Harness Cable H-22497

Fluorescent Light Cable H-21492

Hard Disk Drive Ribbon Cable 5795-15344-07

Hard Drive Power and Fan Harness H-23127

Ground Wire H-22499

Ground Wire - Braided H-21672

Fluorescent Lamp Cable H-22384

Fluorescent Light Adapter H-23624

Documents

Game Manual 16-30046-101

Product Safety Manual 16-10341

Game Registration Card 16-10650

Caution Sheet16-10077

Other Items:

T-27 Long Arm Wrench 20-10140
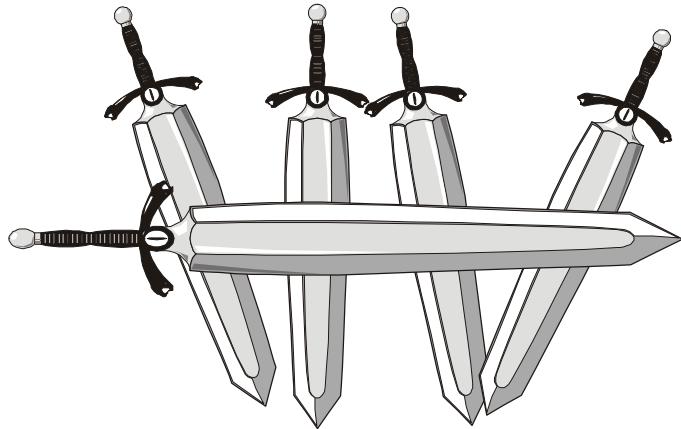
T-20 Long Arm Wrench 20-9620

Epilepsy Label 16-9922.1

Light Bulb #555 24-8768

CHAPTER

Wiring

	NOTICE: Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.
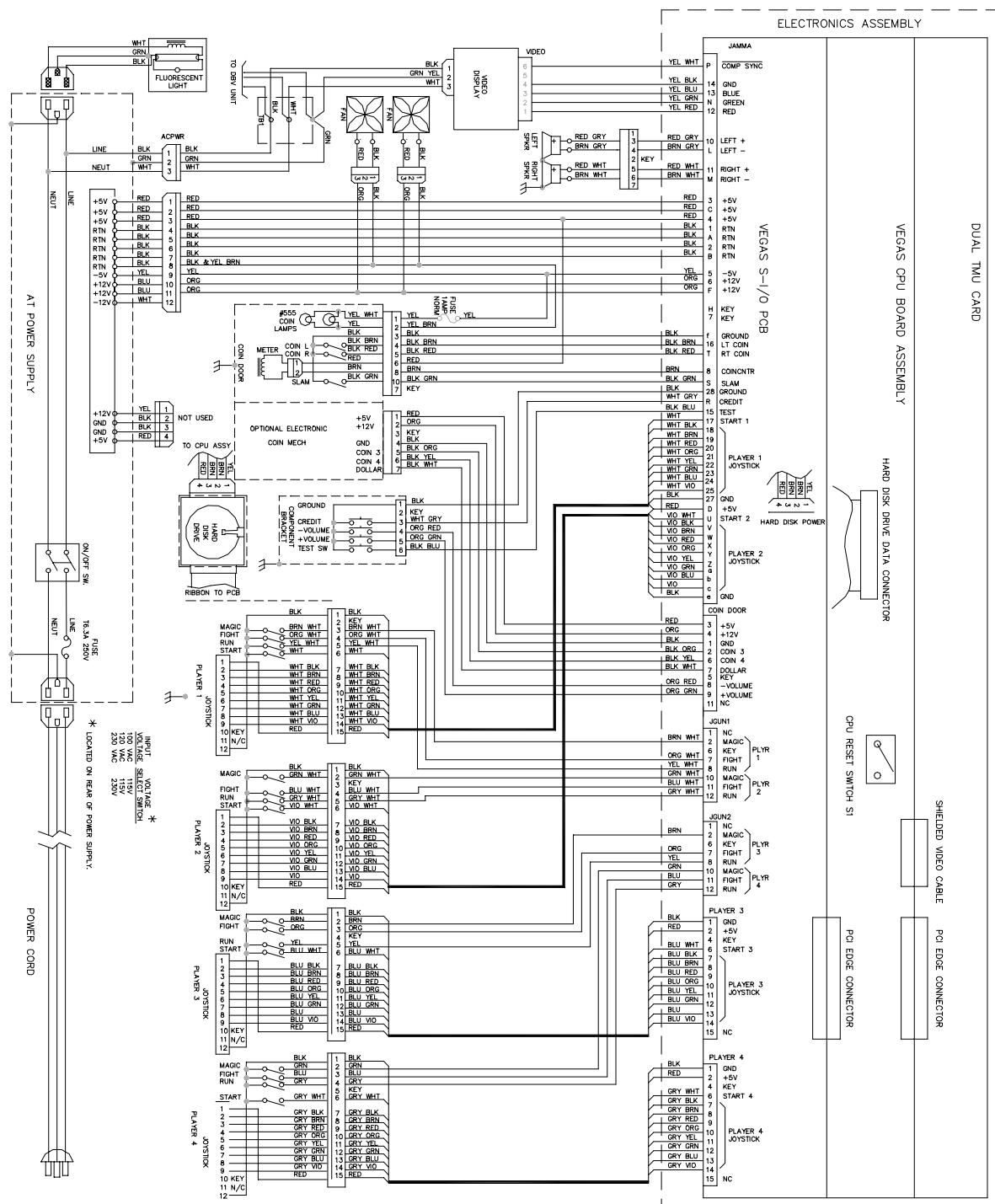
EDGE CONNECTOR CHART

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
Player 2 Start	Violet-White	U	17	White	Player 1 Start
Player 2 U/D Bit 0	Violet-Black	V	18	White-Black	Player 1 U/D Bit 0
Player 2 U/D Bit 1	Violet-Brown	W	19	White-Brown	Player 1 U/D Bit 1
Player 2 U/D Bit 2	Violet-Red	X	20	White-Red	Player 1 U/D Bit 2
Player 2 U/D Dir Bit	Violet-Orange	Y	21	White-Orange	Player 1 U/D Dir Bit
Player 2 L/R Bit 0	Violet-Yellow	Z	22	White-Yellow	Player 1 L/R Bit 0
Player 2 L/R Bit 1	Violet-Green	a	23	White-Green	Player 1 L/R Bit 1
Player 2 L/R Bit 2	Violet-Blue	b	24	White-Blue	Player 1 L/R Bit 2
Player 2 L/R Dir Bit	Violet	c	25	White-Violet	Player 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		
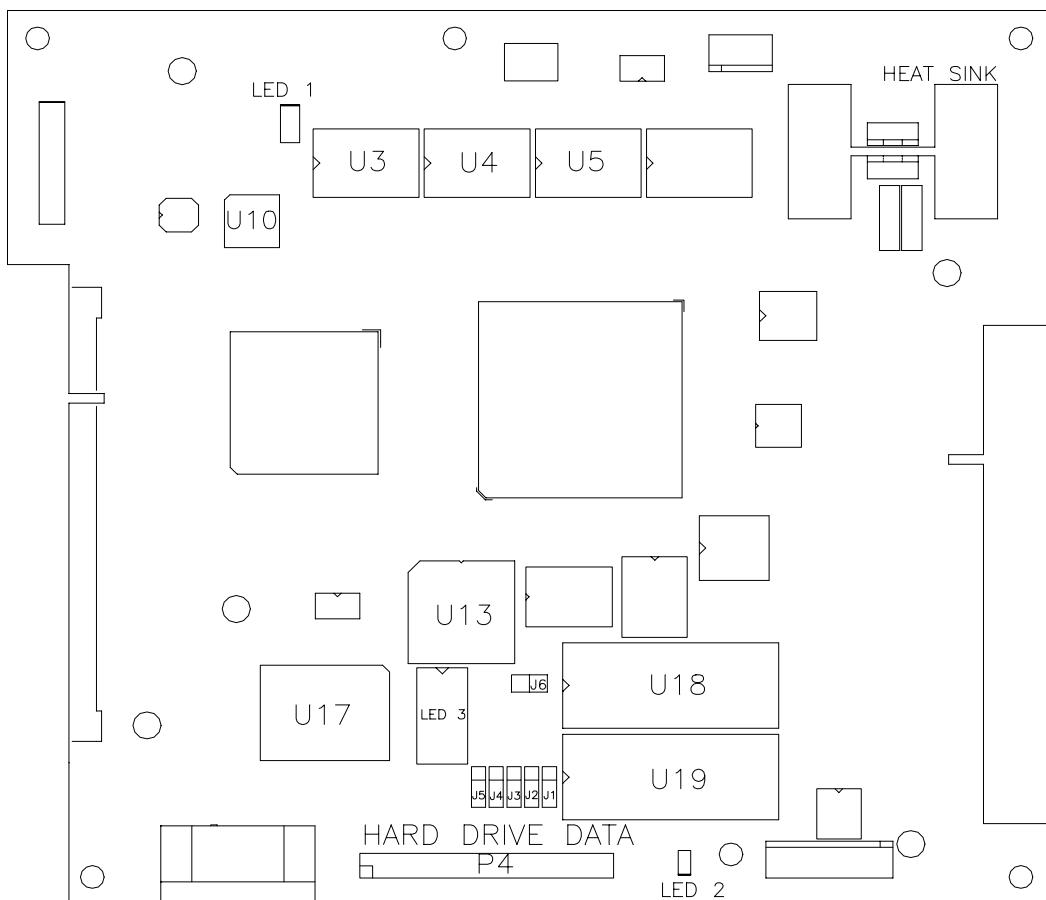
Joystick control wires that are not part of the main JAMMA Harness

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

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
S1	Edge near U4 and U5	Resets and Restarts Game	2	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	X
			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	X
			8 Mbit flash ROM	Pins 2 & 3	
J3 (Note 1)	Near U19 & Connector P4	CPU Boot ROM Type	EPROM	Pins 1 & 2	X
			Flash ROM	Pins 2 & 3	
J4 (Note 2)	Near U19 & Connector P4	CPU Boot ROM Size (U18)	2Mbit ROM	Pins 1 & 2	X
			1Mbit ROM	Pins 2 & 3	
J5 (Note 3)	Near U19 & Connector P4	Expansion Boot ROM Size (U19)	4Mbit ROM	Pins 1 & 2	X
			8Mbit ROM	Pins 2 & 3	
J6	Between U13 & U18	Boot Program Location	Boot from CPU ROM	Pins 1 & 2	X
			Boot from SIO ROM	Pins 2 & 3	

Note 1:   Set both jumpers J1 and J3 to EPROM or Flash ROM mode to use such devices.

Note 2:   These jumpers are independent

Note 3:   This jumper is independent of the CPU boot ROM size selected

VEGAS CPU BOARD ASSY LED INDICATOR STATUS CHART
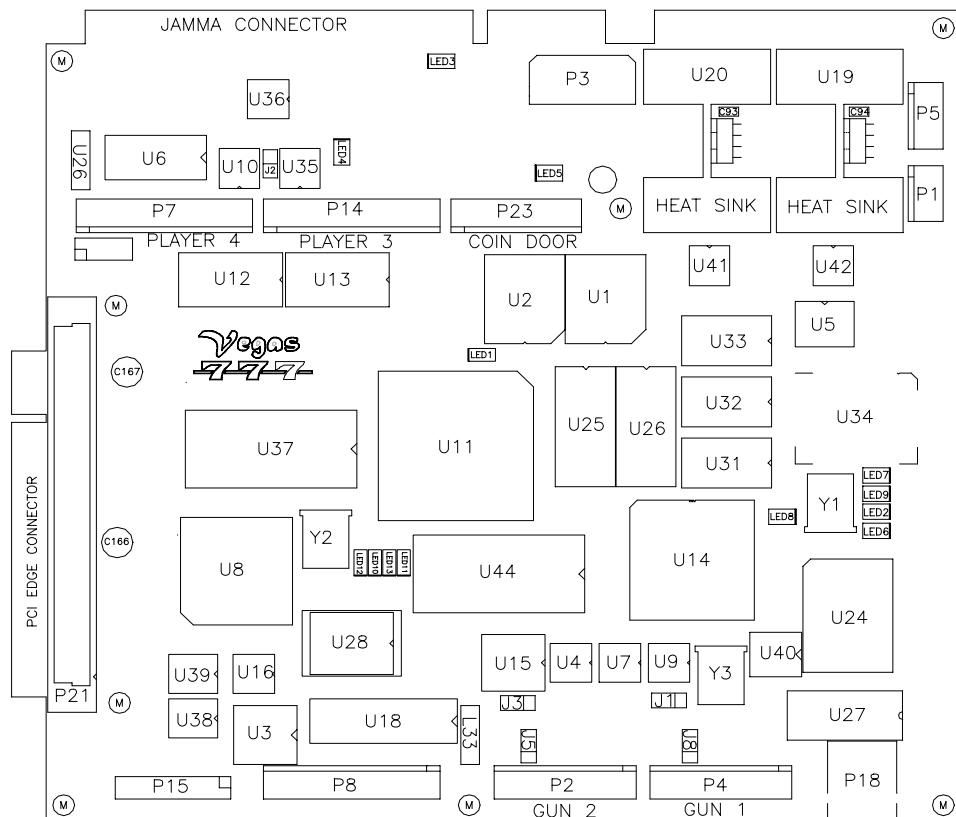
Designation	Location	Function	Color	State	Meaning
LED1 (Note 1)	Near U3 & U10	3.3V CPU Power Indicator	Red	Off	Insufficient Power
				On	Power OK
				Blinking	Power Fault
LED2 (Note 2)	Near U19 & Connector P4	Hard Disk Drive Activity	Green	Off	Not in use
				On	Locked Up
				Blinking	Normal disk activity
LED3 (Note 3)	Near U13 & U17	Indicator	Red	Off*	*See Note Below
				On*	
				Blinking* Sequentially	

Note 1   LED1 monitors CPU power (+3.3 Volts). If this LED is off or blinking, investigate processor circuits. If other LEDs are off or blinking at the same time, check the +5 Volt circuits or game power supply.

Note 2   LED2 flashes when hard disk operates during game play. It may light continuously during startup. If this LED lights continuously, there may be a fault with the hard disk drive, which may be locked up.

Note 3   LED3 initially indicates program start-up stages. It is a seven-segment alphanumeric display device. Under normal conditions, it displays a lowercase "b" or a sequentially blinking segment 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 ASSY JUMPER POSITION CHART

Designation	Location	Function	Meaning	Position	State
J1 (Note 1)	Near U9 &	Gun 1 I/0	Input Mode	Pins 1 & 2	X
	Crystal Y3	Connector P2	Output Mode	Pins 2 & 3	
J2	Between U35 and U10	Video Sync	Positive Sync	Jumper Not Installed	X
J3 (Note 2)	Near U15	Gun 2 I/O Connector P4	Negative Sync	Pins 1 & 2	
			Input Mode	Pins 1 & 2	X
			Output Mode	Pins 2 & 3	
J4	None	None	Not Used	None	---
J5 (Note 2)	Between U15 &	Gun 2 I/O	Input Mode	Pins 1 & 2	X
	Connector P2	Connector P4	Output Mode	Pins 2 & 3	
J6	None	None	Not used	None	---
J7	None	None	Not Used	None	---
J8 (Note 1)	Between U9 &	Gun 1 I/O	Input Mode	Pins 1 & 2	X
	Connector P4	Connector P2	Output Mode	Pins 2 & 3	

Note 1   Set Gun 1 (P2) I/O port by setting both J1 and J8 jumpers to input or output mode.

Note 2   Set Gun 2 (P4) I/O port by setting both 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	Power Fault
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
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 AC power on. "*" indicates factory defaults.

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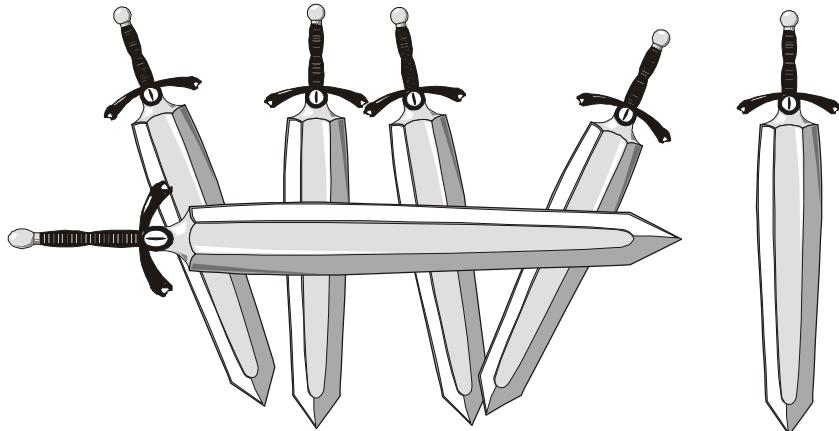
DIP Switch U12		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Monitor resolution	Standard Medium	Off On*							
Monitor Style	Video Game VGA		Off* On						
Joystick Type	8-Way 49-Way			Off On*					
Switch Condition	Normally Closed Normally Open				Off On*				
Vegas Sound I/O Board Version	Revisions 1 to 5 Revisions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

DC POWER SOURCE VOLTAGE LIMITS

Function	Range Limits	Color	Function	Range Limits	Color
Digital Circuits	+4.90 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

CHAPTER

Troubleshooting

☞	**WARNING:** Do not remove or install any connector when power is turned on. Doing so will damage the CPU Board Assembly or the hard disk drive and void the warranty.

Game Does Not Start

Symptom	Problem	Suggested Solution
• Machine appears non-functional • No audio • No Illumination • No video display	Lack of electricity	1. Check that Power Switch has been turned on 2. Verify that line cord is plugged fully into receptacle and into power supply. 3. Try another power outlet.
	Wrong voltage	1. Ensure power supply line voltage switch matches local line voltage. 2. Using voltage meter, correctly adjust +5V output on power supply using adjustment knob.
	Faulty line cord	1. Test line cord, power plug, and IEC connector for breaks or damage. Replace if necessary. 2. Verify continuity of each wire in cord.
	Poor connection	1. Ensure cabinet wiring harness connectors are fully seated in corresponding power supply and board connectors. 2. Inspect wiring for breaks or damage.
• Machine appears non-functional. • Currency acceptor price indicator is illuminated	CPU Board Assembly not operational	1. Inspect 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 indicates that boards are receiving some DC power from power supply. The power supply fan should also be operating. 2. Turn AC power off. Inspect board assemblies. Ensure JAMMA wire harness connector is attached and fully seated onto mating board connector. Check other wiring harness connectors in same way. 3. Verify game switches and jumpers are set correctly. Refer to Board Configuration Chart for variables and default settings.
	Power supply out of voltage tolerance.	1. Turn AC power on. Using 20V DC setting on digital voltmeter, measure voltages at power connector pins. Adjust +5V source if necessary. Refer to Cabinet Wiring Diagram for specific wiring information and voltage limits. 2. Using 2V AC setting on digital voltmeter, measure same DC voltages as above. A reading indicates that supply voltages are unstable and may contain ripple or noise.

Game cannot be played

Symptom	Problem	Suggested Solution
• Game does not accept currency or tokens. • Game does not start. • Audio present • Video present	Blocked coin path.	1. Unlock and open cash door. Empty cash box and inspect revenue for counterfeit currency. 2. Remove items that block path from coin mechanism. 3. Ensure proper mounting of each mechanism. Clear currency path. Reinstall and latch mechanism.
	Poor leveling	Verify mechanisms are level when doors are closed. Repair or replace bent or damaged coin door. Adjust cabinet leg levelers to keep mechanisms vertical.
	Incorrect software setting	1. Enter Menu System by pressing TEST MODE switch. From SELF TEST menu, choose COIN OPTIONS. Confirm pricing and setup of each mechanism. 2. Choose CONTROL TESTS to check operation of each coin or bill mechanism.
• Game accepts currency or tokens. • Game does not start. • Audio present • Video present.		1. Ensure proper mounting of each mechanism. Verify each release latch is closed and locked. Test acceptance and rejection functions with known good and bad coins. 2. Ensure no loose parts or wires are caught in hinges, latches, or switch contacts. 3. Inspect illumination of external coin door indicators (i.e., pricing, flashing arrows). Check wiring continuity of connectors and cables from CPU Board to coin mechs. 4. Enter Menu System by pressing TEST MODE switch. From SELF TEST menu, choose COIN OPTIONS. Use tests to confirm pricing and setup of each mechanism. 5. Check for continuity in each suspect switch connection (Common to Normally Open or Common to Normally Closed) Replace faulty switches (bent levers, broken actuators, etc.) 6. Place coin mechs in known good unit to verify operation.
• Bill validator fails after field installation. • Coin mechanisms operate properly.		1. Enter Menu System by pressing TEST MODE switch. From SELF TEST menu, choose COIN OPTIONS. Confirm pricing and setup of each mechanism. Check validator switch settings against manufacturer's instructions. 2. Check illumination of external coin door indicators (i.e., pricing, flashing arrows). Free parts or wires caught in hinges, latches, or switch contacts. Verify seating of harness connectors. Check validator cable continuity. 3. Place bill validator in known good unit to verify operation.
• Coin indicators do not light. • Game operates normally.	Bad fuse.	Check coin light fuse and wiring harness. Replace bad fuse.

Audio Problems

Symptom	Problem	Suggested Solution
• Audio non-functional. • Video present. • Game operates normally.	Volume set too low	1. Press TEST MODE switch to enter Menu System. From SELECT TEST menu, choose ADJUST VOLUME. Verify that attract and game volume levels are not set to zero. Change to appropriate levels. 2. Return to previous menu and choose SOUND TESTS. Verify operation of each speaker.
	Faulty hardware	Turn off AC power. Remove grills and inspect speakers. Ensure no loose parts or wires are caught in speaker cones, terminals, mounting screws, or stuck to magnets.
	Poor voltage	1. Turn AC power on. Using 20 V DC setting on digital voltmeter, measure voltages at power connector pins. Verify +5V, -5V, and +12V sources. Refer to Cabinet Wiring Diagram for specific wiring information and voltage limits. 2. Using 2 volt AC setting on digital voltmeter, measure voltages at speaker terminals. Any reading here indicates supply voltages are unstable and may contain ripple or noise. 3. Place speaker in good machine to verify operation.
• Audio muffled, distorted, or missing frequencies. • Constant, low hum.	Faulty speaker	1. Press TEST MODE switch to enter Menu System. From SELECT TEST menu, choose SOUND TESTS. These verify some audio functions. 2. Using 2 volt AC setting on digital voltmeter, measure voltages at speaker terminals. Any reading here indicates supply voltages are unstable and may contain ripple or noise. 3. Place speaker in good machine to verify operation.
	Wrong speaker	Turn AC power off. Remove grills and inspect speakers. Ensure each coaxial speaker is full range (100 to 10,000 Hz response) and rated for at least 10 watts.
	Faulty wiring	1. Check cabinet wiring is correct for game. 2. Verify all cabinet wiring provides separate wires (not a common return) for each speaker. 3. Ensure all ground wires are connected. Refer to Cabinet Wiring Diagram for specific wiring information.
• Weak, low frequencies. • Thin or hollow sound quality	Incorrectly phased speakers	Inspect speaker wiring and reverse back to correct position. See Cabinet Wiring Diagram.
• Monaural audio	Faulty wiring	Verify cabinet wiring is correct. Check for shorted wires. Refer to Cabinet Wiring Diagram.

Video Problems ⚠ **WARNING:** Do not operate monitor without Remote Adjustment Board.

Symptom	Problem	Suggested Solution
• Monitor appears non-functional. • Audio present • Controls operate normally.	Poor signal	1. Verify AC power is connected to video monitor. 2. Inspect neck of CRT under low light level conditions. If there is voltage in filament circuits, you will see a glow near the CRT base. This indicates monitor circuits are receiving power, not that voltages or signals are proper. 3. Turn AC power off. Verify video signal and remote adjustment board connectors are fully seated on video monitor board assembly. Check other monitor connections in the same way. 4. Examine AC line fuse on video monitor. If faulty, replace with fuse of proper voltage and current rating. 5. Ensure no loose parts or wires are caught on chassis or mounting brackets.
	Bad settings	Ensure brightness and contrast are not at minimum levels.
• Power-up self test runs. • Game does not appear. • No audio.	Error message	Record error messages. Press TEST switch to enter menu system. From SELECT TESTS menu, choose DISK TESTS. These tests verify hard disk drive functions.
	Faulty hard disk drive	1. Turn off AC power. Unlock and open front door. Ensure hard disk cable connector is fully seated on CPU Board. Ensure all hard drive mounting screws are installed. 2. Ensure hard disk, ROM set and CPU Board Assembly are correct part for game. Each component is labeled with the assembly number and software or hardware version.
	Poor voltage	1. Turn AC power on. Use 20V DC setting on digital voltmeter to measure voltages at power connector pins. Verify +5V source. 2. Using 2V AC setting on digital voltmeter, measure same DC voltages as above. A reading indicates that supply voltages are unstable and may contain ripple or noise. 3. Compare LED states with indicator charts.
• Monitor fails to lock onto signal and provide stable picture. • Colors missing, etc.	Poor sync	1. Check connectors and cables for wiring continuity from CPU Board Assembly to monitor. 2. Verify jumpers are set correctly for monitor. 3. Ensure monitor is correct for game. Incorrect resolution results in horizontal tearing or complete loss of sync. 4. Place monitor in working machine to verify operation.
• Game operates normally. • Picture wavers or rolls, has dark bars, uneven colors, etc.	Faulty wiring	1. Check connectors and cables for wiring continuity from CPU Board Assembly to monitor. 2. Ensure all cabinet ground wires are connected, especially at monitor chassis. 3. Place monitor in good machine to verify operation.
	Interference from other equipment	Move cabinet away from machines, appliances, other games, etc. Very strong electrical or magnetic fields are emitted from some equipment when operating normally.

Miscellaneous

Symptom	Problem	Suggested Solution
• Indicator lamps intermittent or non-functional. • Game starts and plays normally.		1. Open marquee. Remove fluorescent tube from holders. Install new lamp if cracks or darkened ends are found. Clean tube. 2. Verify that lamp and starter pins make good connection with socket contacts. 3. Measure Fluorescent Lamp Assembly AC voltages. Check wiring and connector continuity from Power Supply connector to lamp assembly. 4. Ensure Fluorescent Lamp Ballast is rated for local AC line voltage and frequency. 5. Check for continuity of both fluorescent lamp filaments, starter, and ballast. One at a time, verify that lamp, starter, and ballast operate by placing each in a known good unit. 6. Examine DC fuse on Electronics Assembly shelf. If any fuse is faulty, replace with identical fuse from spare parts bag. Replace spare fuse when repairs are complete.
• Game operates normally. • Fan noisy.		1. Check bottom and rear of cabinet for blocked air flow. 2. Move game away from heat sources. 3. Turn AC power off. Remove dust from vent holes with high power vacuum cleaner. 4. Unlock and remove rear door. Ensure fan is connected to wiring harness.
• Game resets randomly.		1. Check fan assemblies on CPU Board Assembly. Ensure fans are connected to power sources. 2. Check cabinet and Electronics Assembly ventilation holes for obstructions. 3. Clear obstructions and allow ventilation holes access to fresh air.
• Error messages appear. • Game does not start. • No audio.		1. Check any assembly identified in error message. 2. Call your authorized distributor for help with unresolved screen messages.