

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.

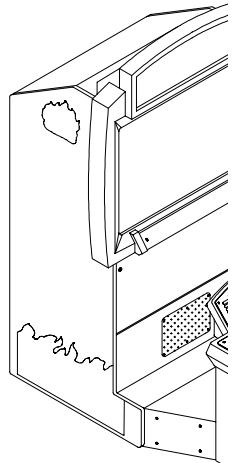
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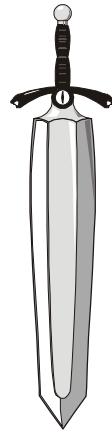
**Operations Manual****Setup • Service • Sy**

The manufacturer intends that any federal, state or local law or operator of this game are responsible for setting up the game. It is the operator's responsibility to make the appropriate adjustments to the game to ensure safe operation.

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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.

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Product specifications

Operating Requirements

Electrical Power	Temperature	Humidity
Domestic 120VAC @ 60Hz 3.0 Amps	32°F to 100°F (0°C to 38°C)	Not to exceed 95% relative
Foreign 230VAC @ 50Hz 2.0 Amps		
Japan 100VAC @ 50Hz 3.0 Amps		

Cabinet Statistics

Shipping Dimensions	Shipping Weight	Design Type
Main Cabinet	Main Cab	Dedicated video game machine with 49-way optodetector joysticks
Width 58 in (147 cm)	580 lbs	
Depth 36 in (91 cm)	140 lbs	
Height 79 in (201 cm)	264 kg	
	64 kg	

Equipment Characteristics

Video Display Monitor	Audio System	Currency Acceptors
Medium resolution RGB 39 in (96.5 cm) CRT	Digital Stereo 2 4.5 in (8 cm) full range speakers	Standard coin door 2 coin mechanisms 1 coin counter

Game Characteristics

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

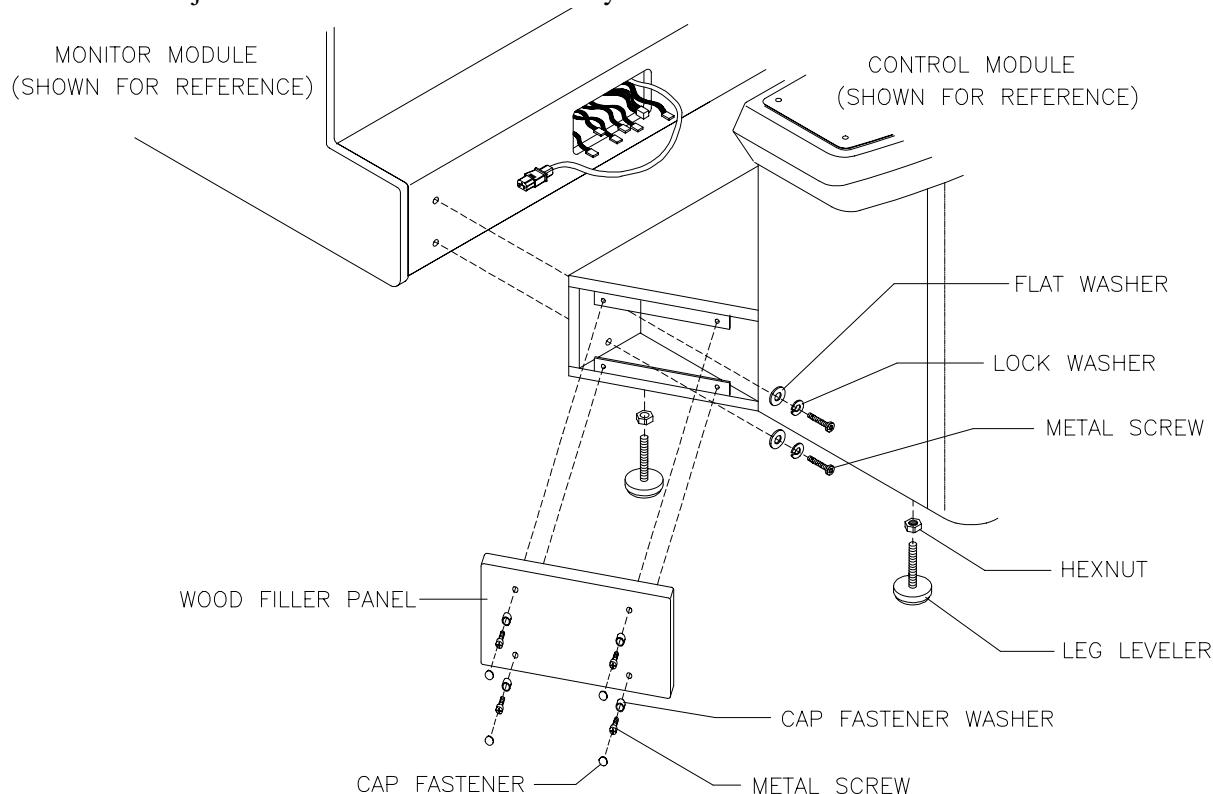
INSTALLATION AND INSPECTION

1. Remove all components and packaging from shipping containers and set aside.
2. Inspect main cabinet and control section exteriors for damage.



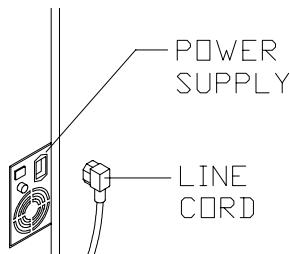
CAUTION. Cabinet is top heavy. Do not push against plastic parts during movement

3. Main cabinet is mounted on four swivel casters. Roll cabinet to intended location, maintaining clearance from walls, drapes, other games or obstructions.
4. Lower each leg leveler until cabinet is stable and level. Adjust levelers to raise wheels up off floor and distribute weight equally on each corner.
5. Move control section near main cabinet, leaving space to attach wiring harness. Mate each control cable with its cabinet cable. Press firmly to seat connectors.
6. Lift and move control section against main cabinet, guiding harness into main cabinet.
7. Install and adjust each leg leveler until control section is stable and level. Adjust levelers until bottoms of both pieces are flush and parallel with each other. Inspect for binding or pinched wires.
8. Locate coin door keys on one of the joysticks. Unlock and open coin door.
9. Locate access panel and monitor panel keys on rear fan grill. Unlock and open cash box door. Remove spare parts stored in cash box.
10. Unlock and open front door. Let it rest on support chains. Inspect cabinet interior for signs of damage. Ensure all major assemblies are mounted securely.



ATTACHMENT OF CONTROL SECTION TO MAIN CABINET

11. Refer to Cabinet Wiring Diagram (Wiring Chapter), and ensure all cable connectors are correctly secured. Do not force connectors, which are keyed to fit in only one location. Bent pins and reversed connections may damage your game and void the warranty.
12. Place one lockwasher and one flatwasher onto each bolt in spare parts bag. Align control section holes with main cabinet holes. Install one bolt with its washers through control section and into each threaded cabinet hole. Tighten all bolts securely.
13. Place one cover cap washer onto each screw in spare parts bag.
14. Locate wood filler panel inside control section. Reach inside coin door to retrieve.
15. Place wood filler panel over bolt access opening in control section. Align wood filler panel holes with control section holes. Install one screw with its washer through wood filler panel and into each control section hole. Repeat installation for remaining wood filler panel, then tighten screws firmly. Snap decorative cover caps over screws.
16. Locate line cord in spare parts. Match holes on IEC plug with prongs in receptacle and push firmly to seat line cord. Route cord away from cabinet wheels and heavy foot-traffic areas.



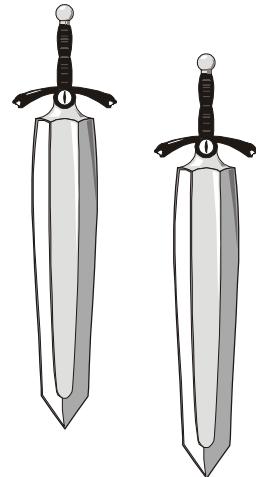
LINE CORD INTO POWER SUPPLY

17. Plug game into a grounded (3-terminal) AC wall outlet. Switch AC power on at ON/OFF switch on center left rear of cabinet. Gauntlet: Dark Legacy powers up and begins self-diagnostics. If no errors are found, Attract Mode begins.

NOTES



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. The following product guidelines apply to all game operators and service personnel. Specific notes, cautions and warnings appear throughout this manual. Read safety information in Setup Chapter thoroughly before beginning service.

Control Panel

Switch off AC power. Remove screws along curved front edge of control panel. Protect speaker grilles where joysticks will touch. Grip joysticks and carefully tilt control panel back on its hinge.

To return control panel to normal position, slowly lean it forward until it rests on cabinet. Do not let panel slam down onto control base. Fix bound or pinched wires before re-installing screws. Rotate each joystick and verify motion is smooth and does not bind.

Coin Mechanism

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

Dollar Bill Validator

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

Install dollar bill validators or other currency acceptors in games manufactured with additional wiring connector. Turn AC power off and unplug line cord. Unlock and open coin door. Read door label for additional information. Remove nuts, spacers, and cover plate from door. Change switch setting or other adjustments before mounting unit. If manufacturer has supplied an adapter plate, place it over door cutout.

Install spacers on threaded studs, then align validator mounting holes with studs and seat unit in door opening. Install nuts and tighten firmly. Attach ground wire (green with yellow stripe) lug to door ground stud next to hinge. Mate wiring harnesses and press to fully seat connectors. Route wires away from door edges and hinge. Check for proper bill chute alignment. Plug in line cord and turn on AC power. Change mechanism setup and pricing, then test known good and bad bills to verify proper operation. Close and lock coin door when correct.

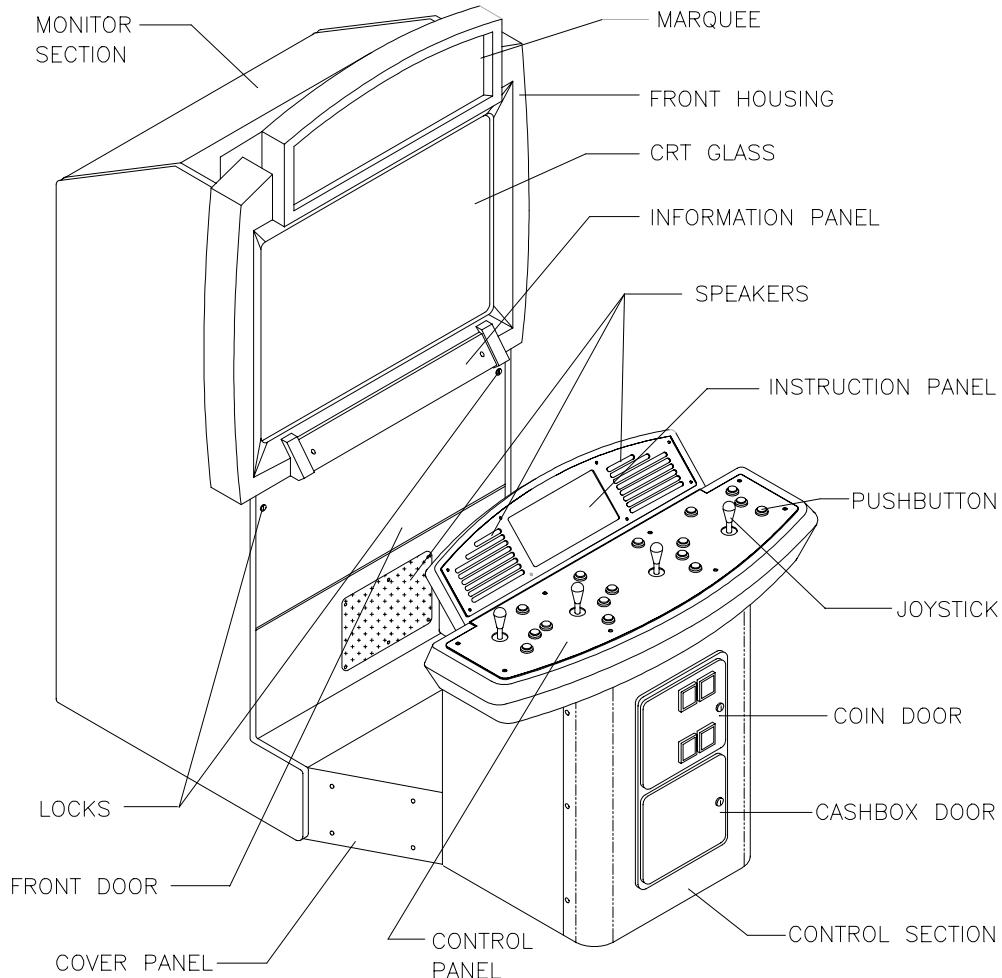
Front Housing/Marquee Assembly

Switch off AC power. Unlock and open front cabinet door until it rests on chains. Unlatch front housing and gently pull out on bottom, swinging it up towards the control section. Remove free end of prop rod from retainer at left side of monitor shelf and swing up until it rests in rod bracket on lower right side of front housing. Disconnect fluorescent light harness. Remove prop rod and snap into retainer before lowering housing to its previous position. Have someone hold housing from control panel side while removing three screws holding hinge to top of cabinet. Place housing face down on a workbench for service. Do not overtighten hinge screws during reinstallation.

Viewing Glass

Switch off AC power. Remove front housing and marquee assembly. Set assembly on a workbench. Remove metal bracket between viewing window and marquee. Remove metal bracket under window. Lift

viewing glass out of front housing. Clean glass before reinstalling. Install bracket and tighten screws. Do not use excessive force.



EXTERNAL COMPONENTS

Marquee

Switch off AC power. Open front cabinet door and prop up front housing. Disconnect fluorescent light harness. Remove Front Housing/Marquee Assembly and place on a workbench. Remove metal bracket between viewing window and marquee. Remove metal bracket at top of marquee opening. Lift glass and artwork out from front housing. Clean glass before reinstalling. Tighten screws.

Fluorescent Light Assembly



WARNING. If a dropped fluorescent tube or a CRT breaks, it will implode. Use care in handling.

Switch off AC power. To change starter or bulb, open front cabinet door and prop up front housing. Grasp bulb at each end and give it a quarter turn. Gently pull bulb straight out to remove from sockets. Starter

also requires quarter turn for removal. Do not force bulb or starter during reinstallation. Clean bulb to remove fingerprints and dust. Close housing and turn on AC power. Verify lamp lights before locking door.

To remove entire light fixture, open door and prop up housing. Disconnect fluorescent light assembly connector from power cable. Close and remove housing from cabinet, setting it on a workbench. Remove bulb. Remove screws that hold assembly to light cover, then lift out assembly. Ballast is in the base.

Instruction Overlay and Mini Marquee

Remove eight screws from speaker panel. Lift cover up and off to expose instruction overlay and mini marquee. Bulbs may be removed from strip light assembly with a fuse puller when necessary.

Coin Counter

Switch off AC power. Unlock and open coin and cash doors. Meter is in a lower corner of the 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 wires. Remove coin door mounting screws. Remove coin door and set on a workbench. 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.

Joysticks

Switch off AC power. Protect speaker grilles and open control panel. Mark and disconnect wiring harness at joystick. Remove fasteners and separate joystick from panel. Remove E-ring and stop spacer from end of joystick shaft, then grasp knob and extract stick from the assembly. Remove corner screws to free slide carriage and stop piece from joystick top. This exposes centering grommet. Do not cross-thread screws during reassembly.

Speakers

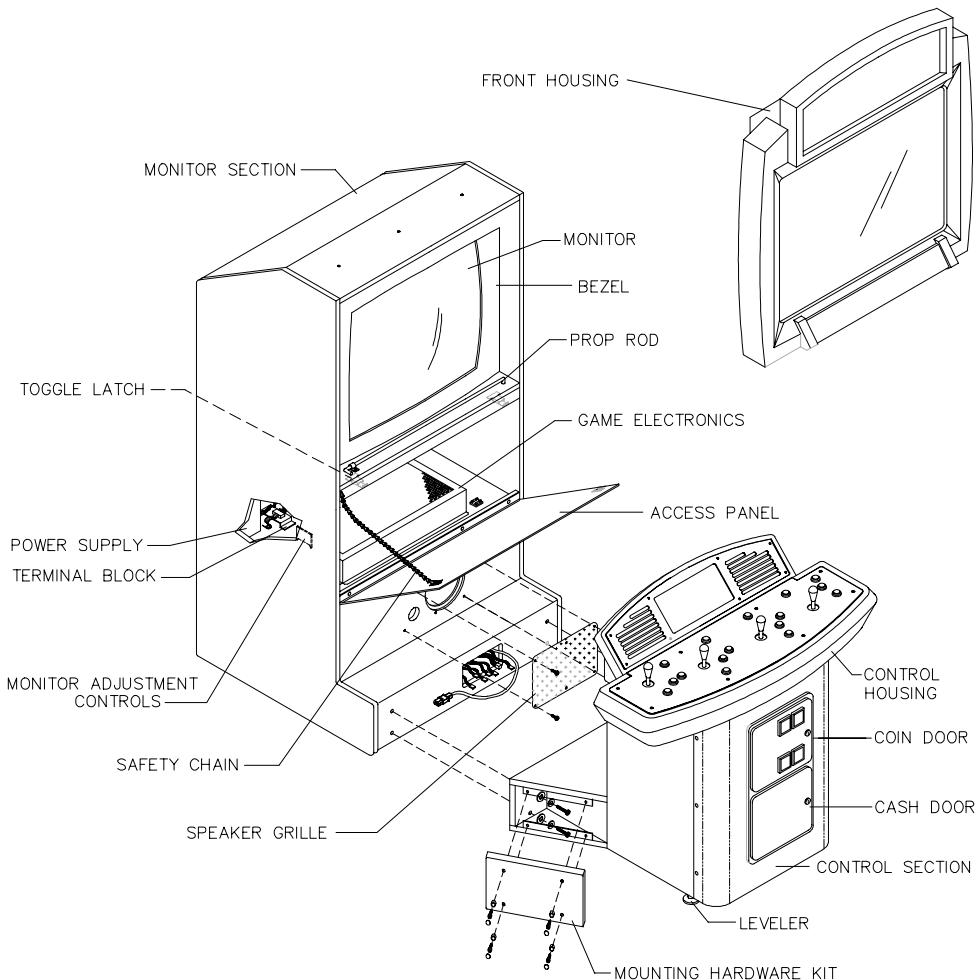
Switch off AC power. Two full range speakers are mounted behind grille at top of the control section. Grill and speakers come out the front. Remove screws and set grille aside. Always remove upper mounting screws first and replace them last to avoid damaging speaker.

Remove speakers from enclosure and disconnect wires. Refer to Cabinet Wiring Diagram for speaker wiring information. Do not use excess force when removing or tightening mounting screws threaded into plastic.

Monitor

Switch off AC power. Open front cabinet door. Move monitor remote board and wiring harness and place it in monitor assembly. (Monitor remote adjustment board is behind front door.) Disconnect fluorescent light assembly connector and all monitor cables. Remove front housing hinge screws and set housing aside. Remove monitor bezel and all barrier panels. Remove four flange nuts securing monitor mounting

brackets to mounting panel. Pull monitor carefully from cabinet and set in safe place. Clean CRT face before reinstalling barrier panels and monitor bezel.



INTERNAL COMPONENTS

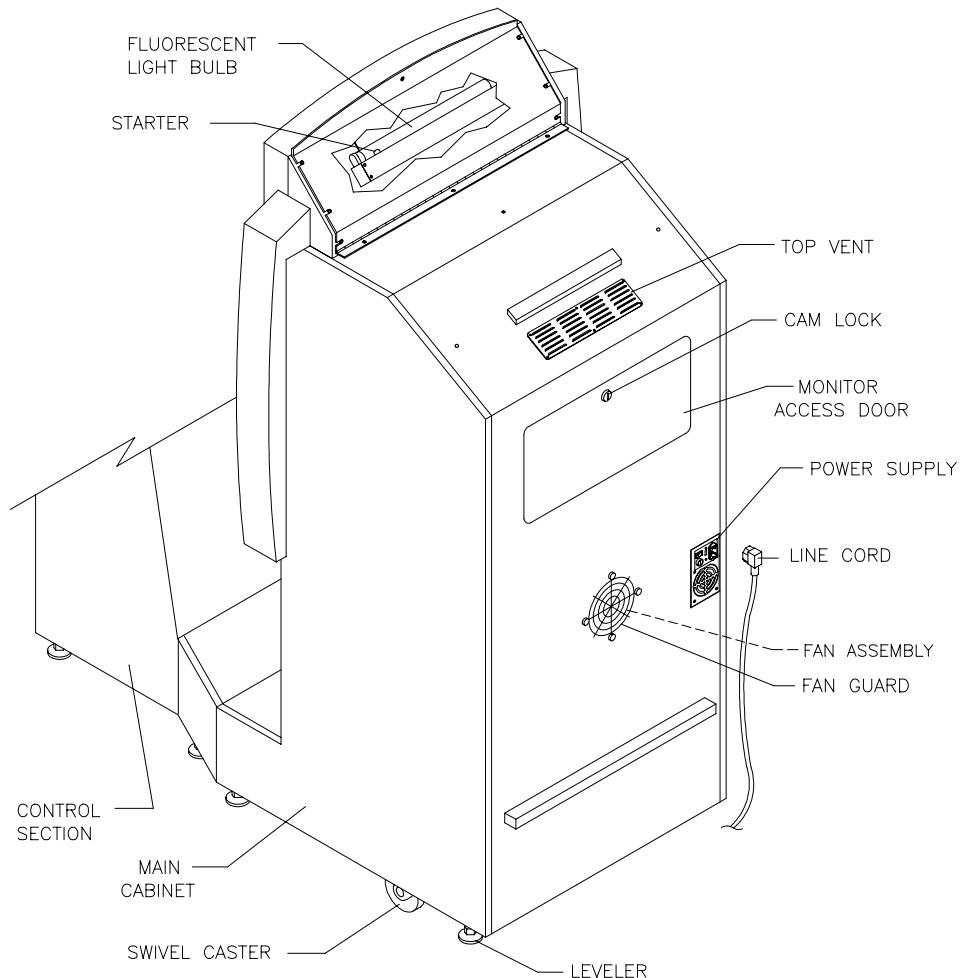
	CAUTION. Video monitor is heavy, with most weight toward front of assembly. Firmly support monitor when you remove it from cabinet.
	WARNING. Monitor does not require isolation from AC line voltage in normal operation. However, when operating outside the cabinet or servicing the monitor on a test bench, you must isolate monitor from line voltage with an isolation transformer

Buttons

Open control panel. Mark and disconnect wiring harness at the switches. Bend large prong away from each switch just enough to slide switch off housing. Separate each switch from its button. Mark switches and harnesses with player numbers and lay them inside control panel box. Unscrew mounting nut from housing. Remove button housing through switch hole from front of control panel.

CPU Board Assembly

Switch off AC power. Open front door. Remove groundplane cover to expose Electronics Assembly. Note orientation of JAMMA connector and other cables. Extract harness and hard disk drive ribbon cable from board connectors. Remove ground plane mounting screws. Slide entire electronics assembly out of cabinet and set in static-free place. Disconnect VGA connector. Remove mounting screws from circuit boards. Carefully remove Sound I/O Board, pulling gently to disconnect PCI edge connector from CPU Board. Set Sound I/O board in static-free place. Carefully remove CPU Board, pulling gently to disconnect from Video Card. Use anti-static bags and protective containers from new parts to store board, if not reinstalled.



REAR VIEW OF CABINET

Sound I/O Assembly

Switch off AC power. Open front door. If used, remove metal cover top to expose Electronics Assembly. Carefully note orientation of JAMMA connector and other cables. Extract harness and hard disk drive ribbon cable from board connectors. Remove groundplane mounting screws. Slide entire electronics assembly from cabinet and set in a static-free place. Remove mounting screws from circuit board. 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 not reinstalled.

Hard Disk Drive

Switch off AC power. Unlock and open front cabinet door until it rests on chains. Remove metal cover from electronics assembly. Disconnect power cable from hard disk drive. Unplug ribbon cable from hard drive and leave attached to CPU board. Remove screws and lift drive assembly from cabinet. Do not stack or drop drives. Store drives in anti-static bags or approved shipping containers.



CAUTION. Hard disk drives are fragile. Never move cabinet while AC power is on. Never stack or drop hard disk drives. Store unused hard disk drives in anti-static bags.

Video Card

Switch off AC power. Open front door. If used, remove metal cover top to expose Electronics Assembly. Disconnect VGA connector. Remove screws holding 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 board if not reinstalled.

Memory

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

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

Power Supply

Switch off AC power and disconnect line cord. Unlock and open front door. Unplug IEC connector from top of supply and wiring harnesses from back. Disconnect DC. power cable from hard disk drive. Remove two rear screws from supply, then slide from cabinet. Verify line voltage switch setting before reinstalling power supply.



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

Battery

Switch off AC power. Unlock and remove rear door. Remove perforated metal cover. Battery is mounted on top of integrated circuit at Sound I/O Board Assembly location U28. Use chip extraction tool to grasp battery edges and pull up firmly to remove device. Set aside with pins facing up. When installing new battery, align key with slot in integrated circuit.

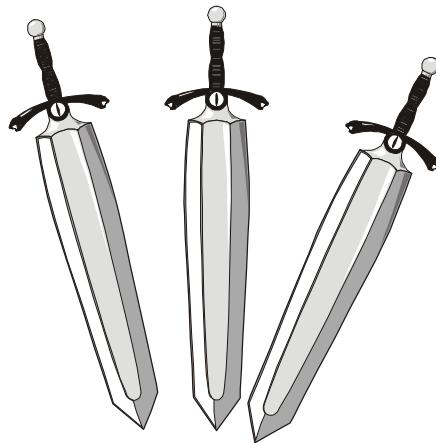


NOTE. To avoid explosion, replacement batteries must match original in size, voltage rating, and composition. These batteries are designed for very long life. Do not attempt to recharge. Avoid direct shorts across terminals or from terminals to ground. Remove from their holders and store in a safe place until repairs are complete. Dispose of used batteries according to manufacturer's instructions

NOTES



CHAPTER



System



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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

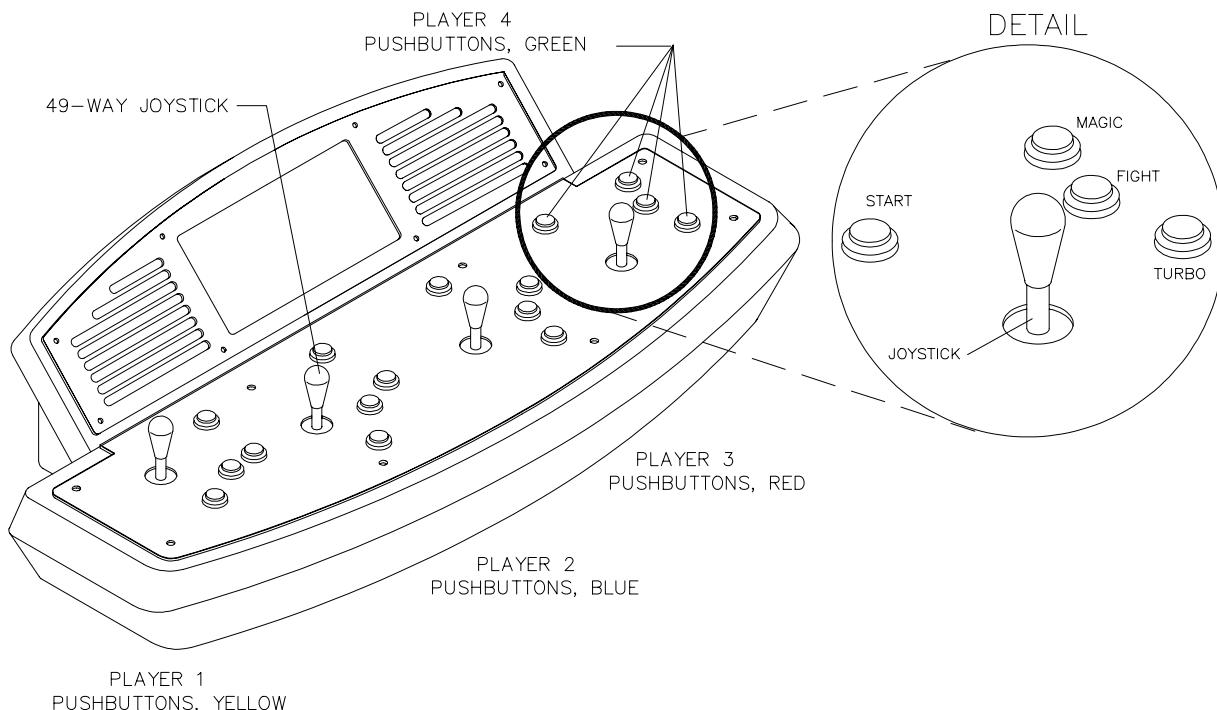
START buttons let players begin or continue play and also select items from the service menu.

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.

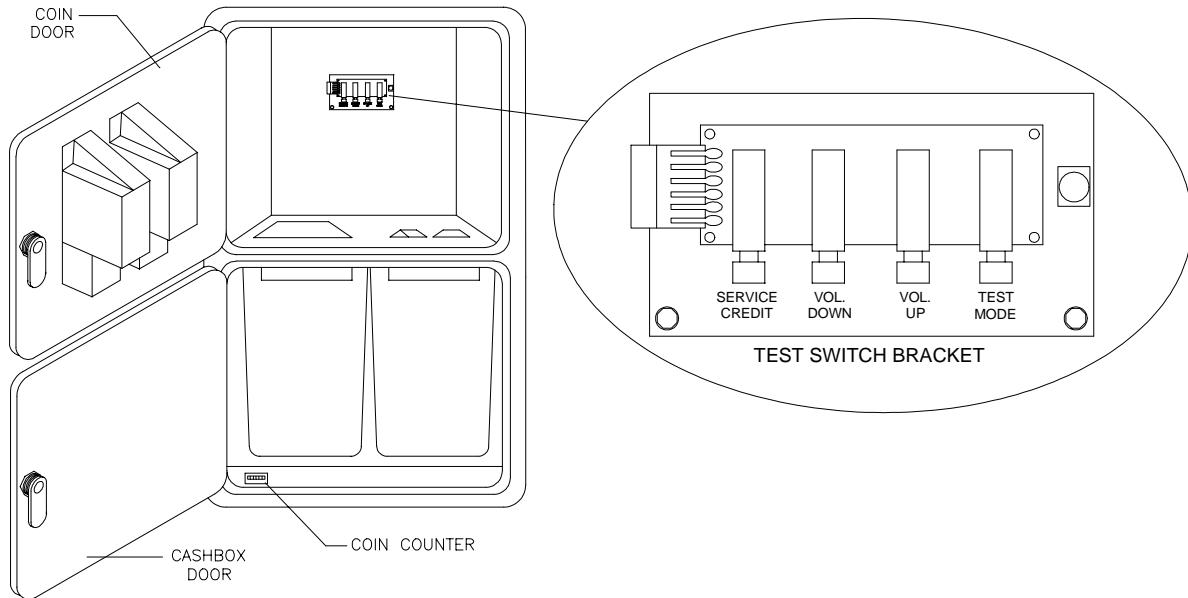
NOTE Attract Mode volume is set as a percentage of Game Mode volume. When volume up/down buttons are pressed during Attract mode the volume is temporary set to game volume.

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.

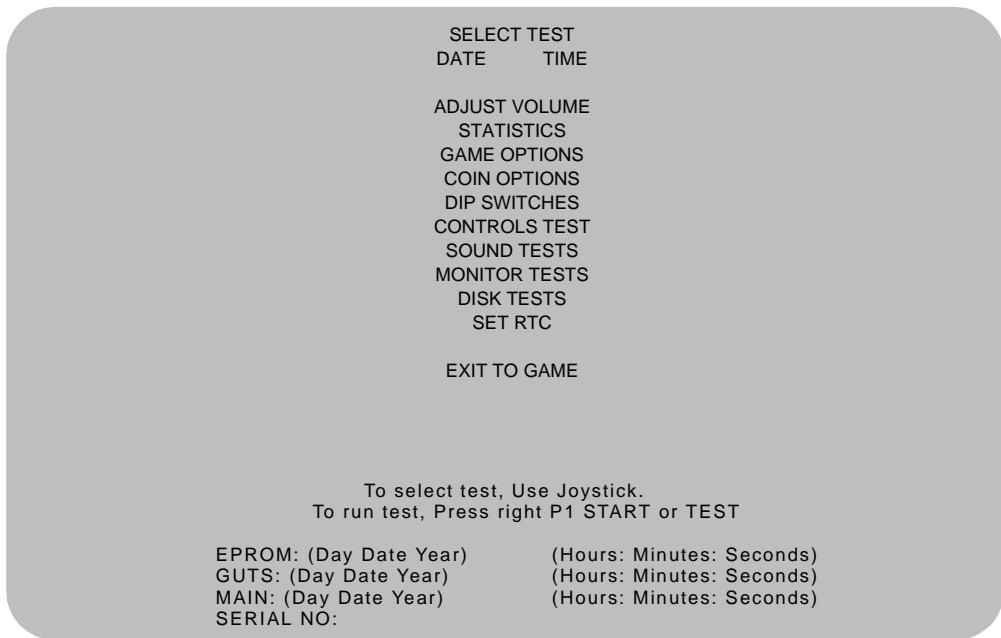
SCREEN LAYOUT

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.

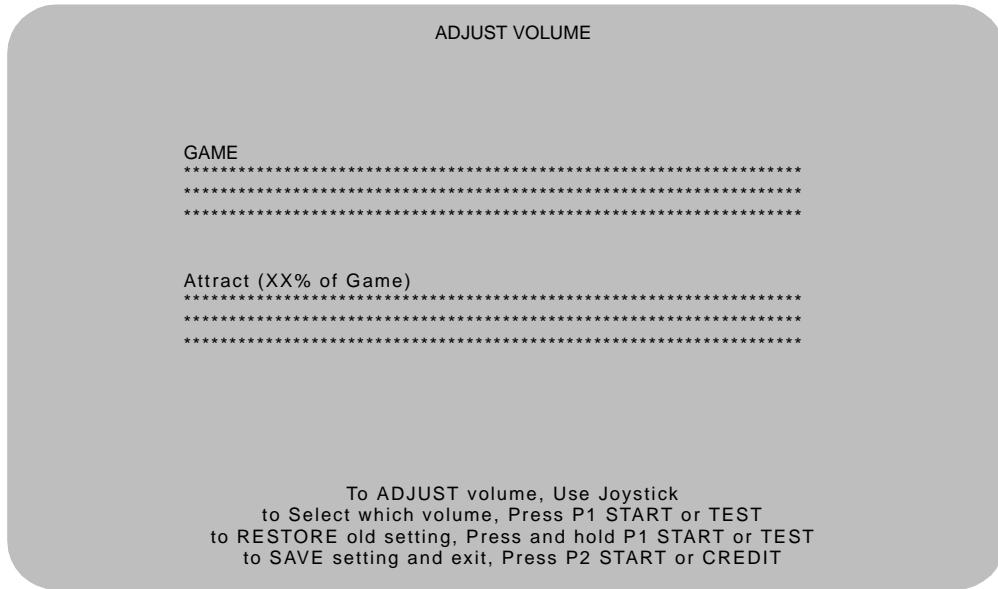
Use the indicated control to highlight an item. You can only select one highlighted at a time. To return to game play, select EXIT TO GAME, then press the indicated button.



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.



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.

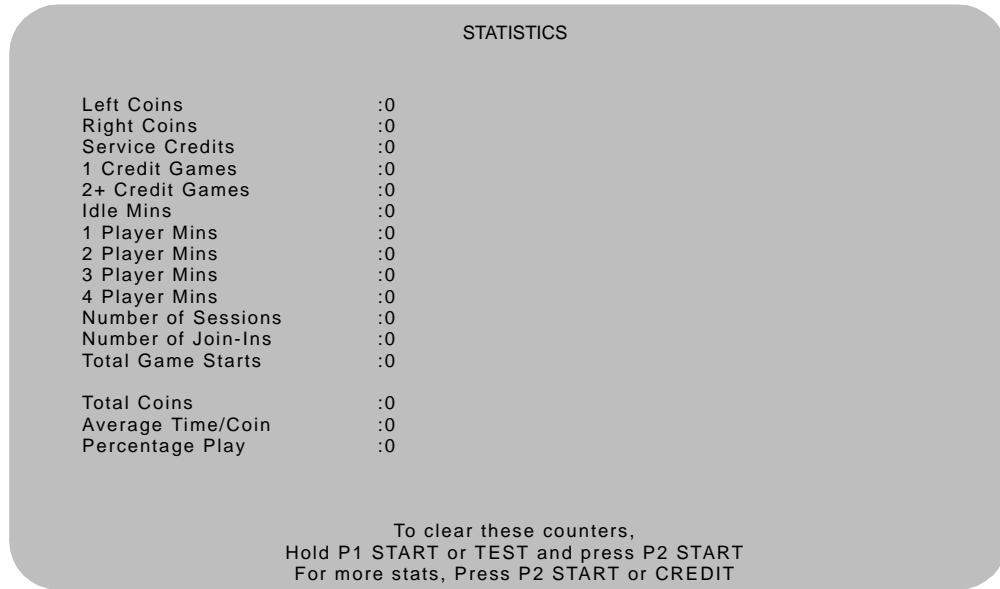
Press the Player 2 START button after making volume adjustments. The Player 1 START button cancels your recent changes and returns both levels to what they were before you touched them.

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 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.

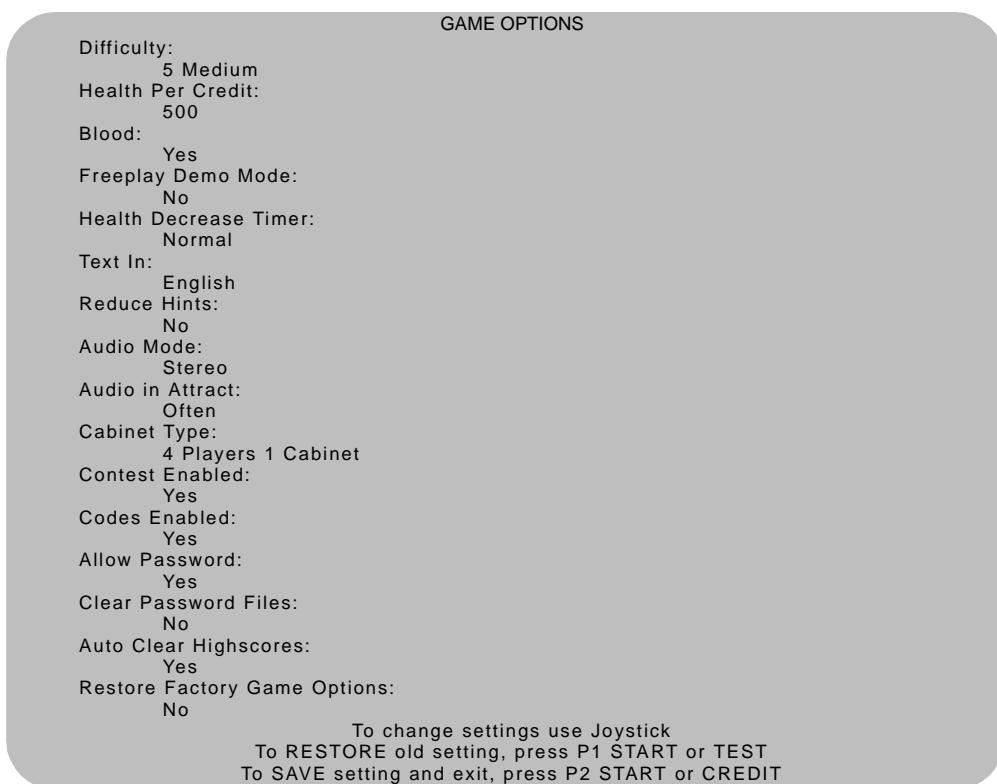
The HISTOGRAMS screens will have no bar graphs until the system has enough data to plot.

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 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. 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

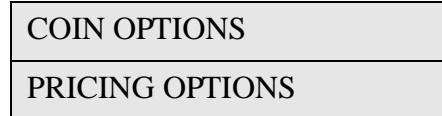
Clear Password files controls password file deletion. Set this feature to Yes to delete all saved character experience and passwords. Factory default is No.

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

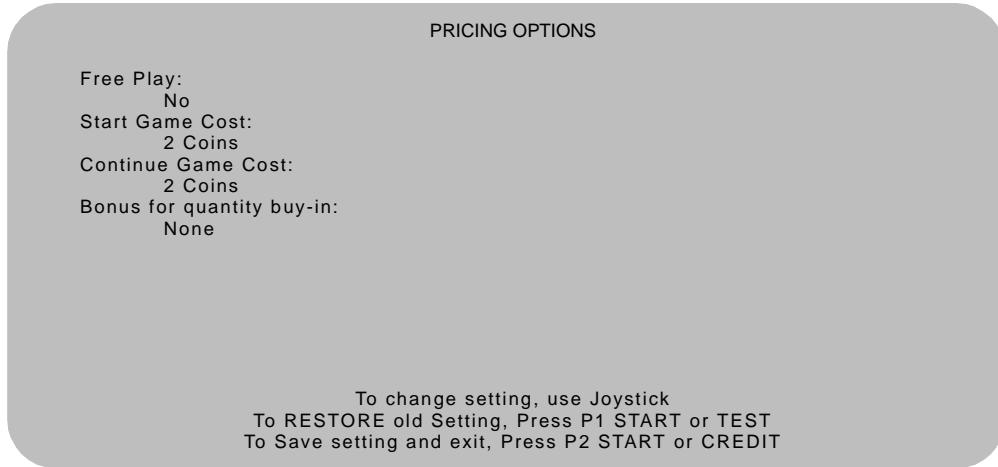
Restore Factory Game Options resets the Game Options. Set this option to Yes to reset the game to factory default options. Factory default is No.

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 .



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 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

 1OFF
 2OFFRun Game
 3OFFNot Used
 4OFFNot Used
 5OFFNot Used
 6OFFNot Used
 7OFFNot Used
 8OFFNot Used
 U12

 1ON
 2OFFMedium Resolution (512 x 384)
 3ON49-Way Joysticks
 4ONMidway Cabinet/Harness
 5OFFSIO rev 1 or greater
 6OFFNot Used
 7OFFNot Used
 8OFFNot 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	
•••	•••	•••	•••	
START	START	START	START	TILT
MAGIC	MAGIC	MAGIC	MAGIC	VOL+
FIGHT	FIGHT	FIGHT	FIGHT	VOL-
RUN	RUN	RUN	RUN	TEST
				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.

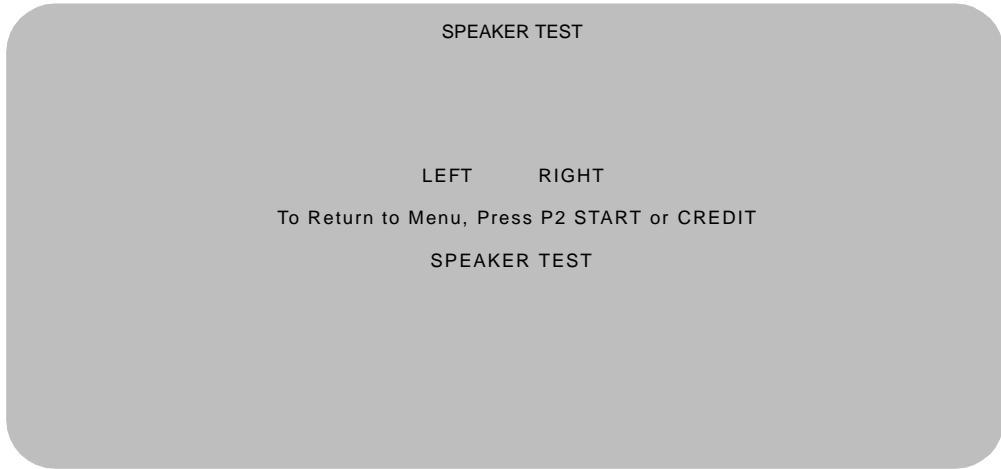
OPERATOR CONTROLS are shown on screen under the MISC heading. Each switch change should be exactly duplicated by a single indication on the menu screen.

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

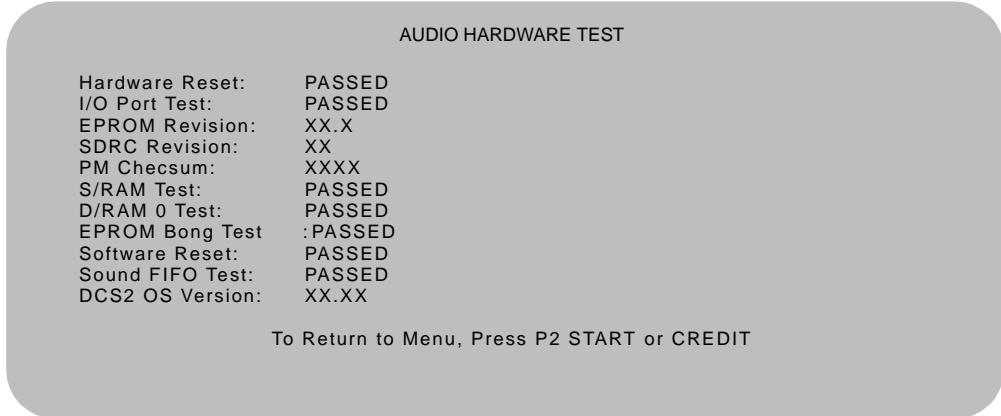
These tests verify the proper connection and operation of the audio components. There are no custom settings or variables in these tests, which are performed automatically.



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.



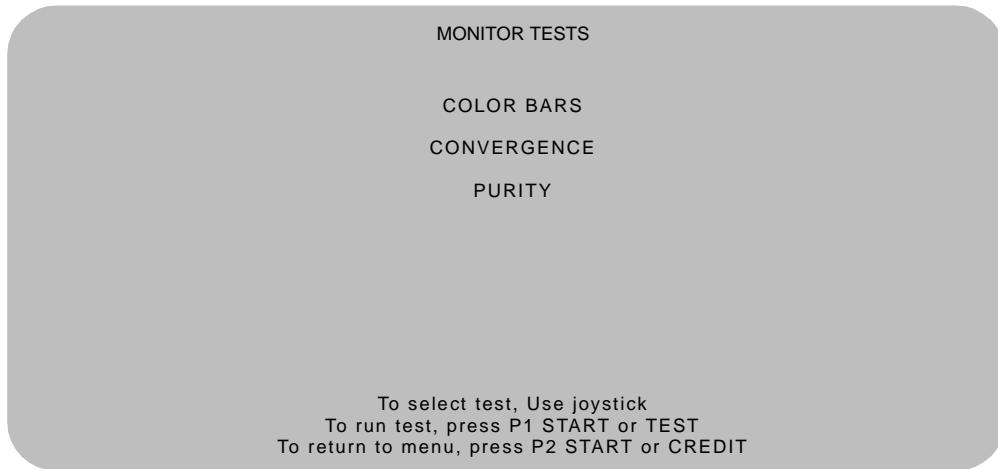
AUDIO HARDWARE TEST REPORT SCREEN

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 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.

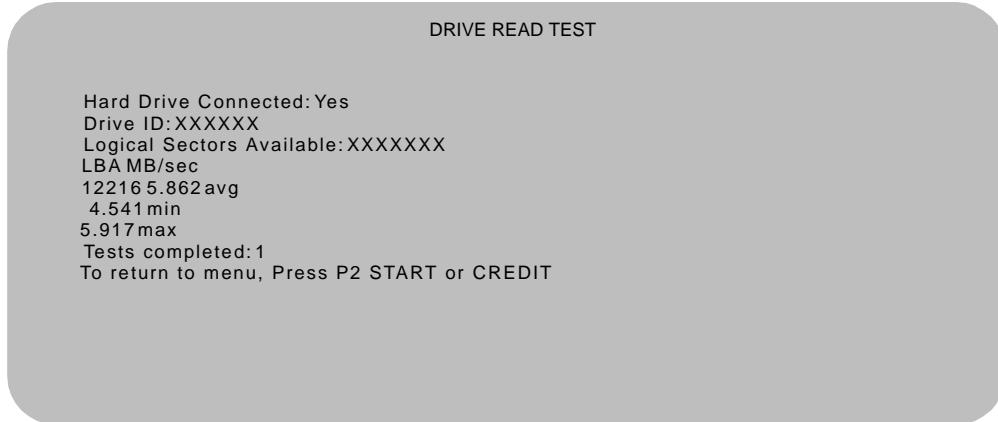
PURITY tests fill the screen with 100% of the chosen color at normal intensity. Each screen should be uniform from top to bottom and side to side. No retrace lines or noise should be visible.

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.



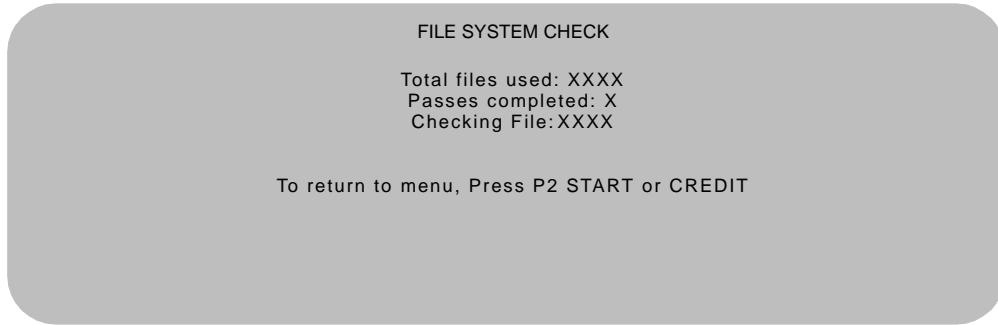
DRIVE READ TEST MENU SCREEN

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 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

There is one pushbutton switch on the CPU Board Assembly. It resets the CPU Board and restarts the game without turning off the power supply. There are two DIP switches on the Sound I/O Assembly at U12 and U13. See 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).

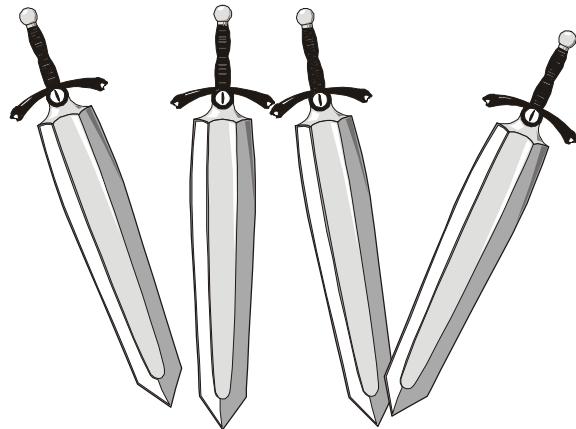
After recording messages, turn off AC power, wait a few minutes, then turn AC power on. Pay attention to the startup screens and note any error messages during Power On Self Tests. If possible, enter the SELF TEST MENU SYSTEM and run all tests related to where errors occurred. Record and compare any 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.



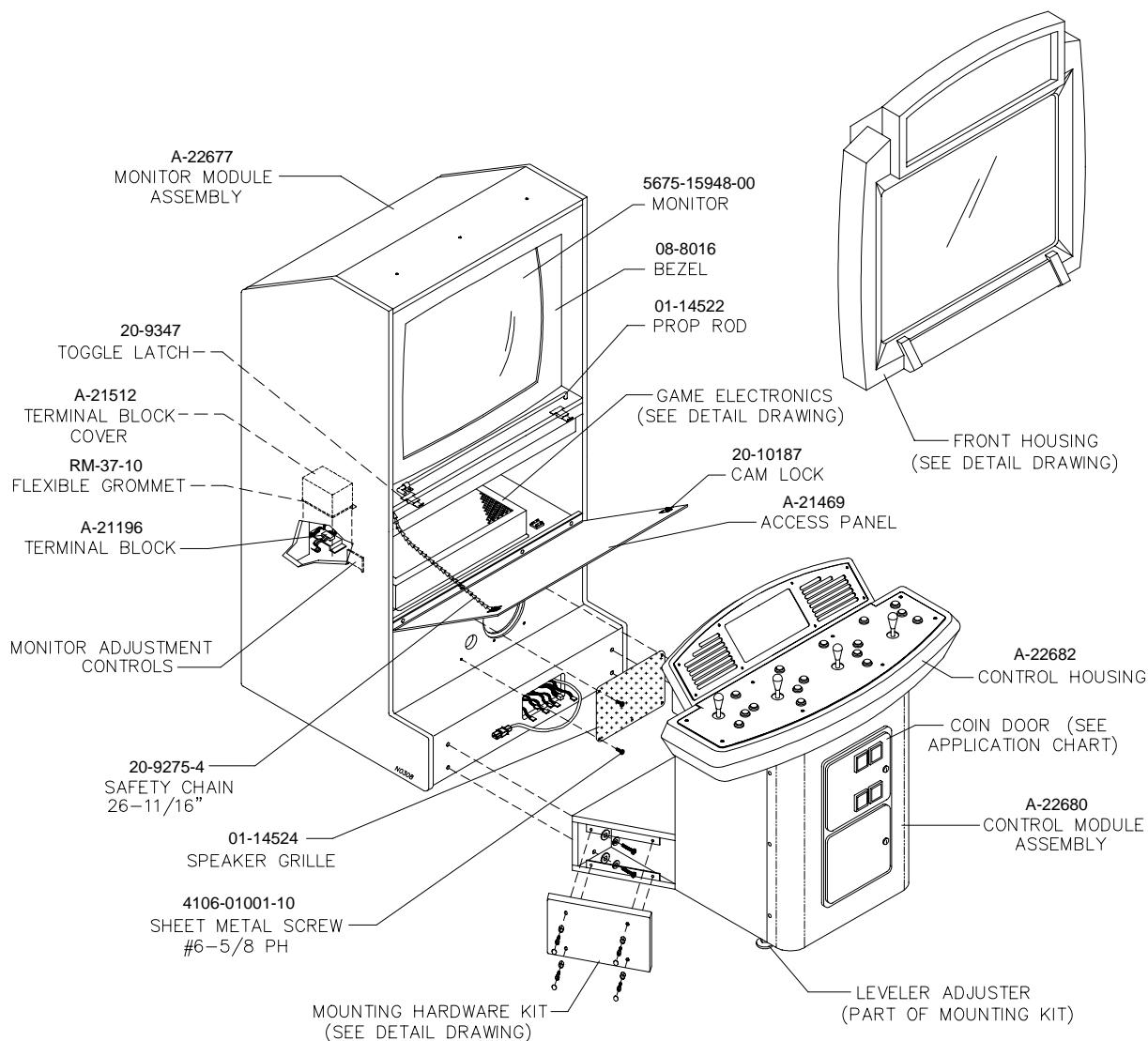
CHAPTER



Parts

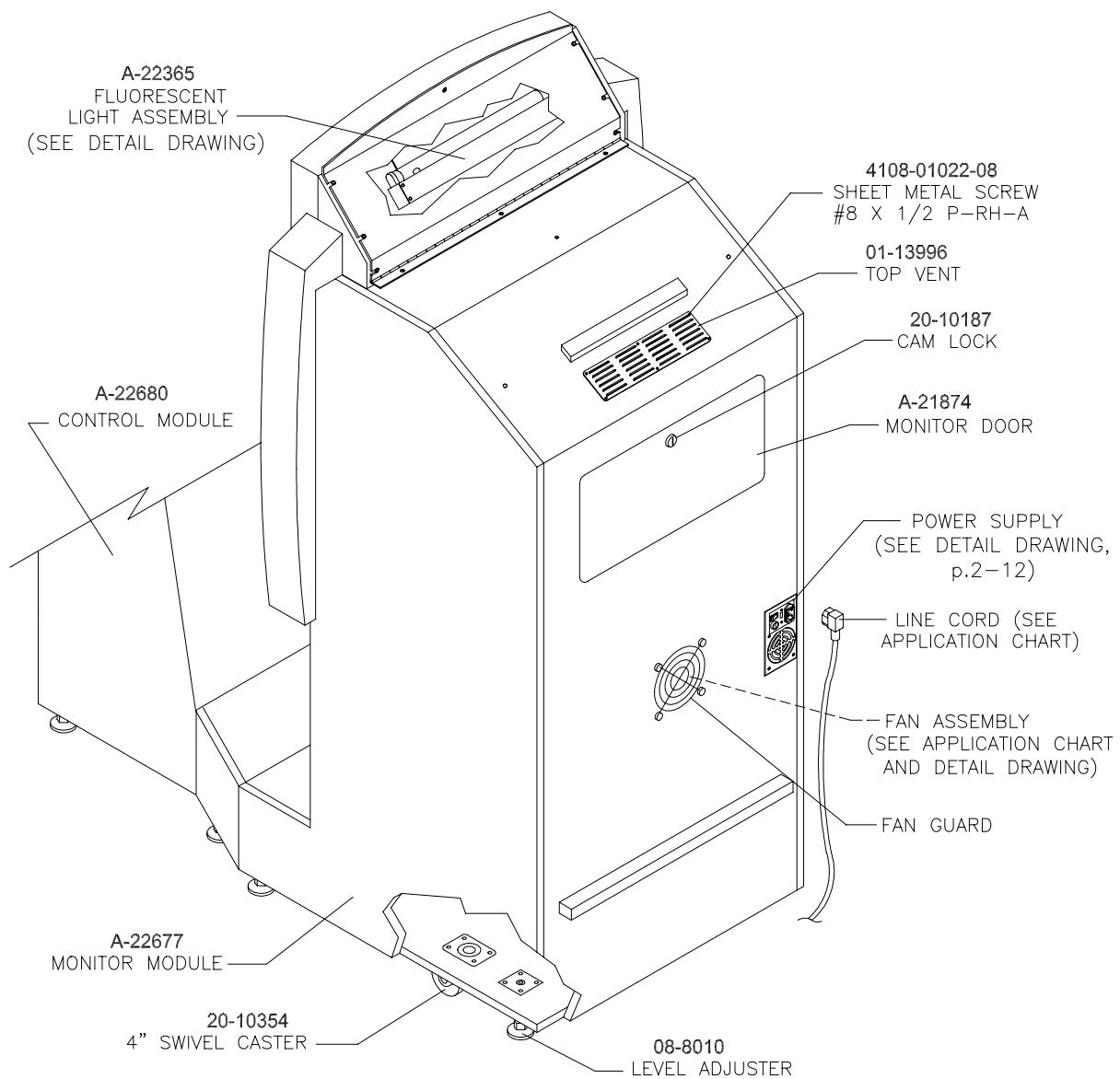


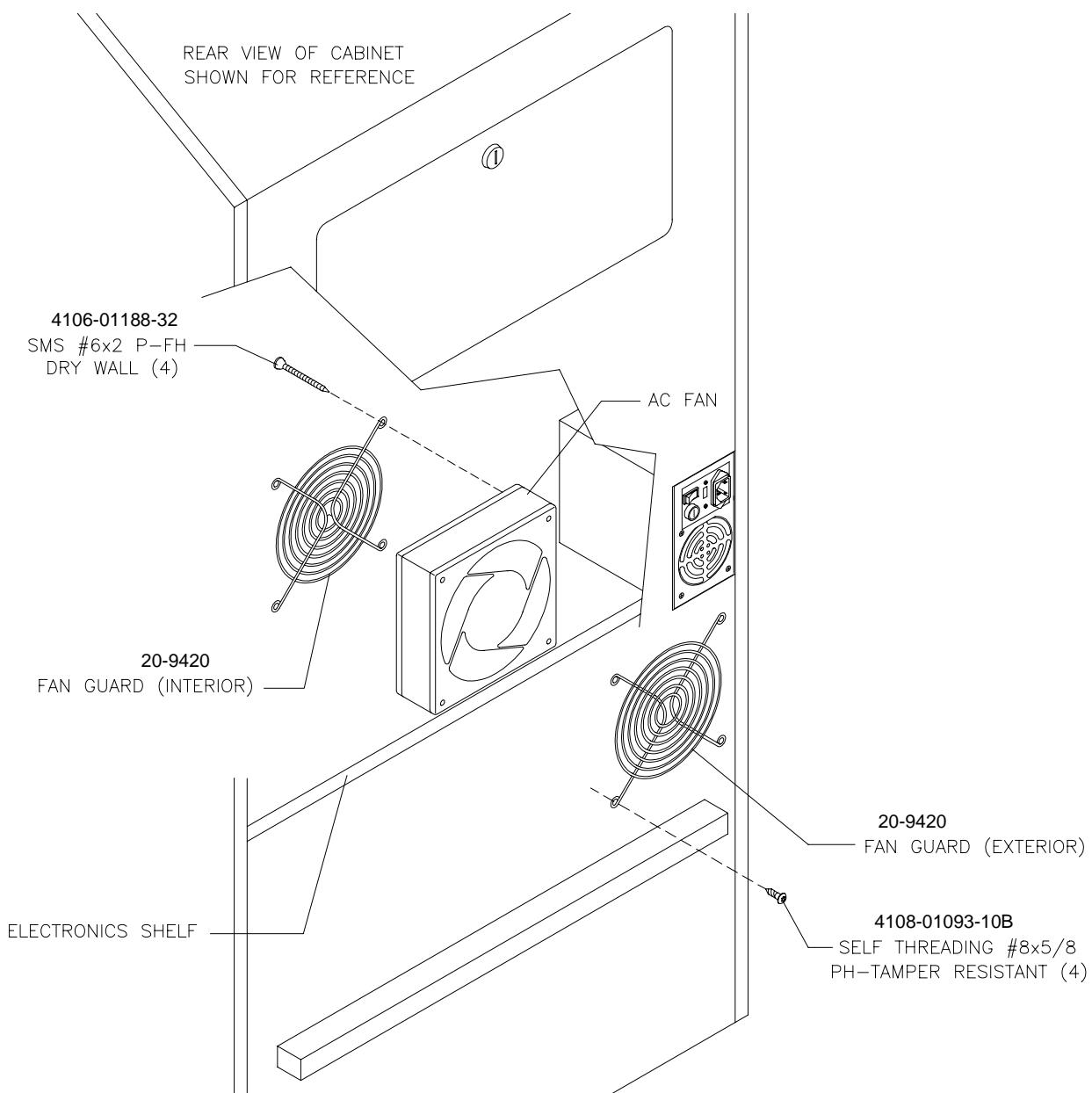
NOTICE: Information in this manual may change without notice. Midway Games West Inc. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

CABINET FRONT VIEW (36247)

MONITOR MODULE HARDWARE NOT SHOWN:

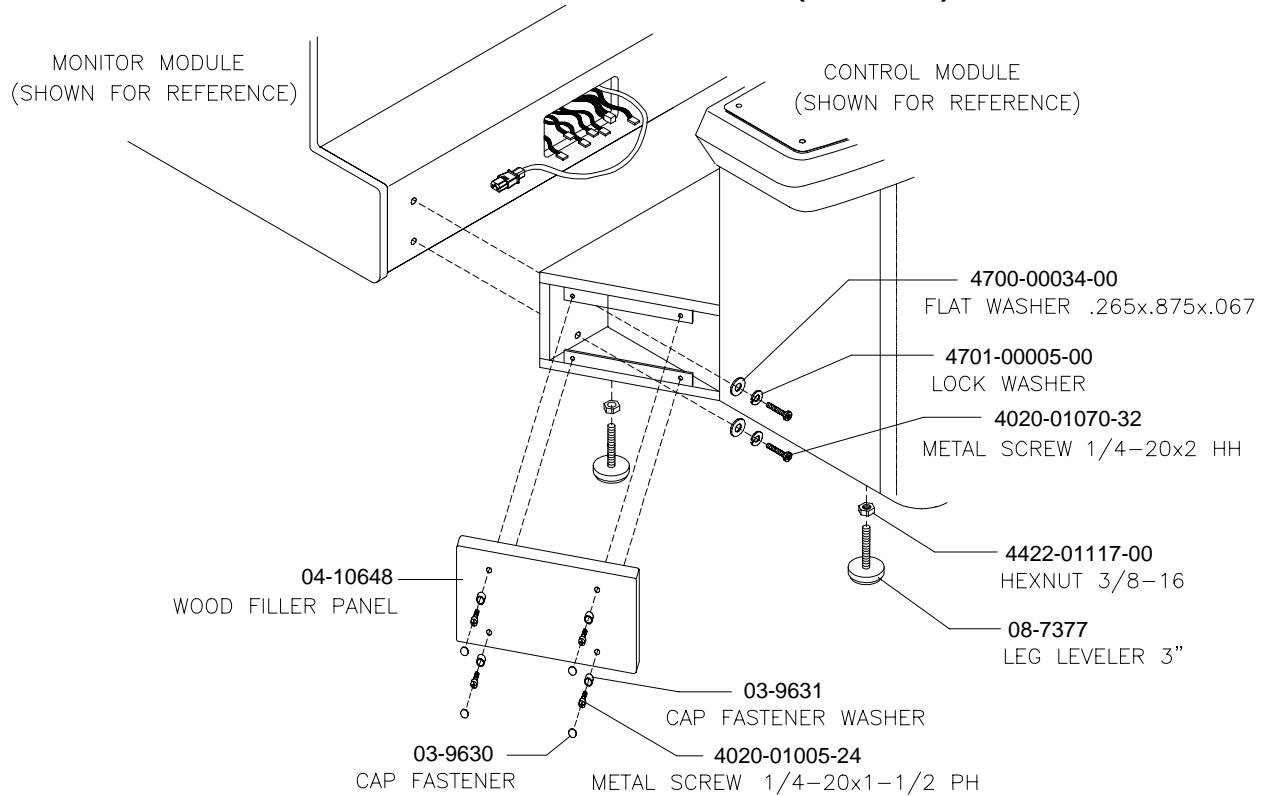
CONTROL MODULE HARDWARE NOT SHOWN:

CABINET REAR VIEW

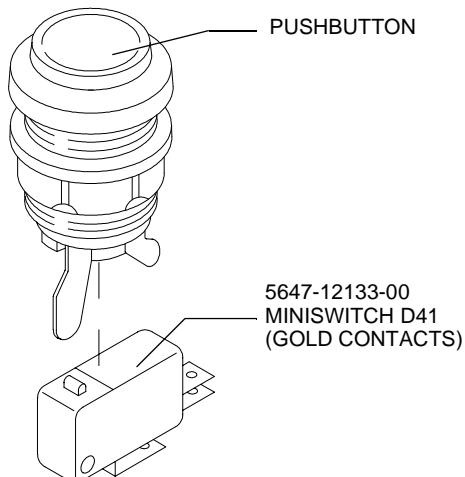
FAN ASSEMBLY**FAN APPLICATION CHART**

20-10234 AC Fan	250V 50/60Hz Ball Bearing (UK)
20-10399 AC Fan	110V Ball Bearing (USA)
20-10399 AC Fan	110V Ball Bearing (Japan)

MOUNTING HARDWARE KIT (A-22681)

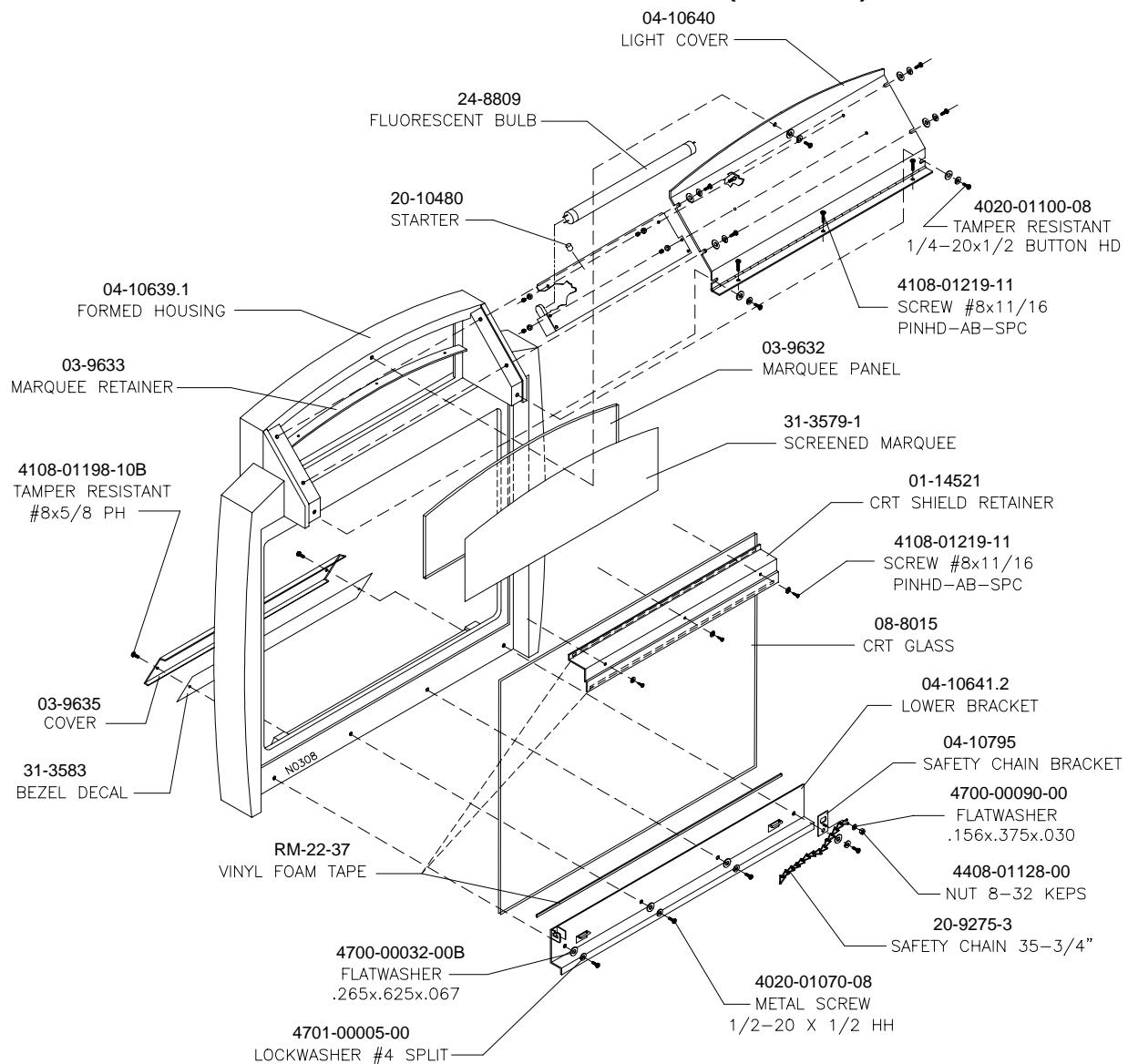


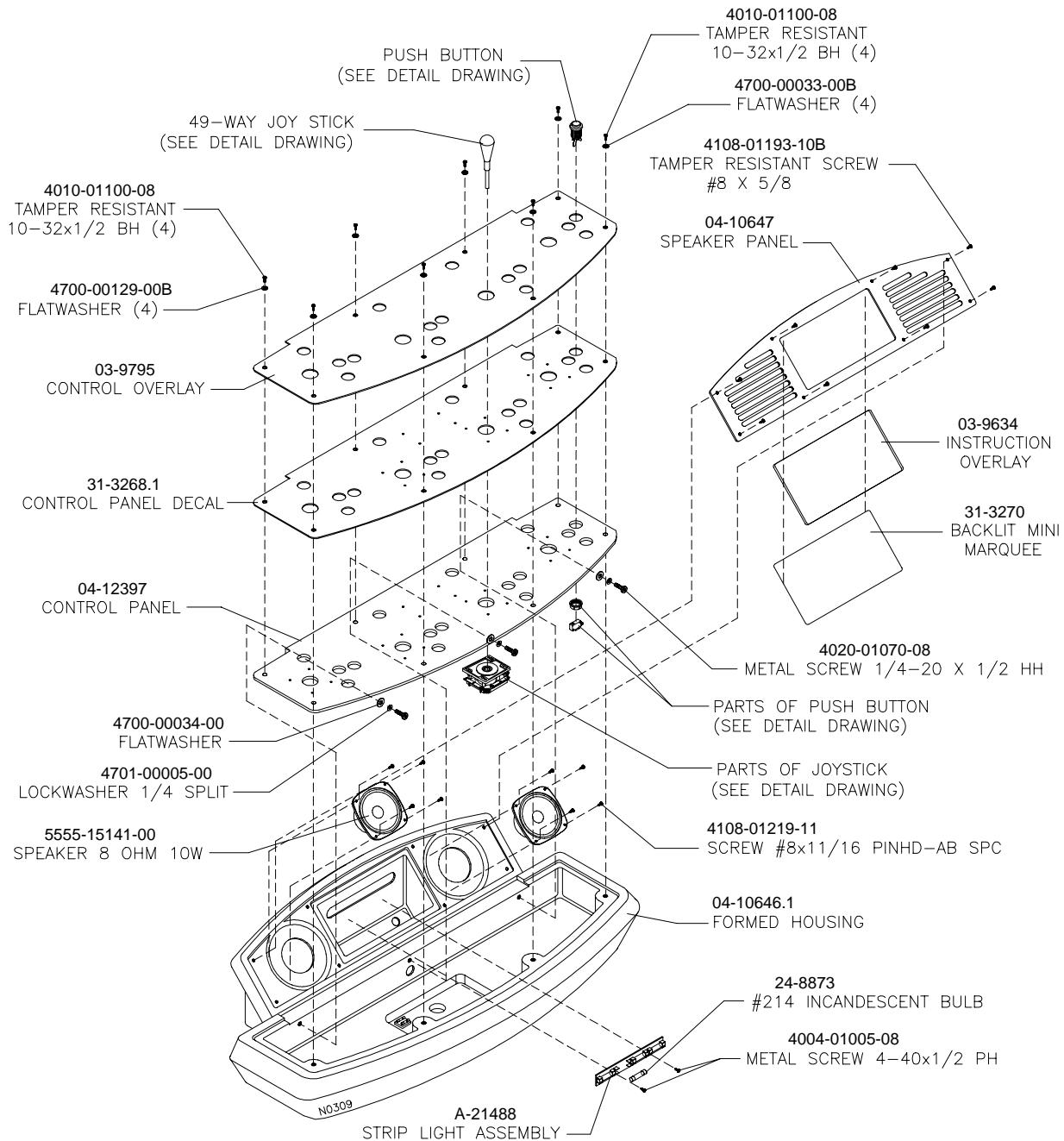
PUSHBUTTON ASSEMBLY



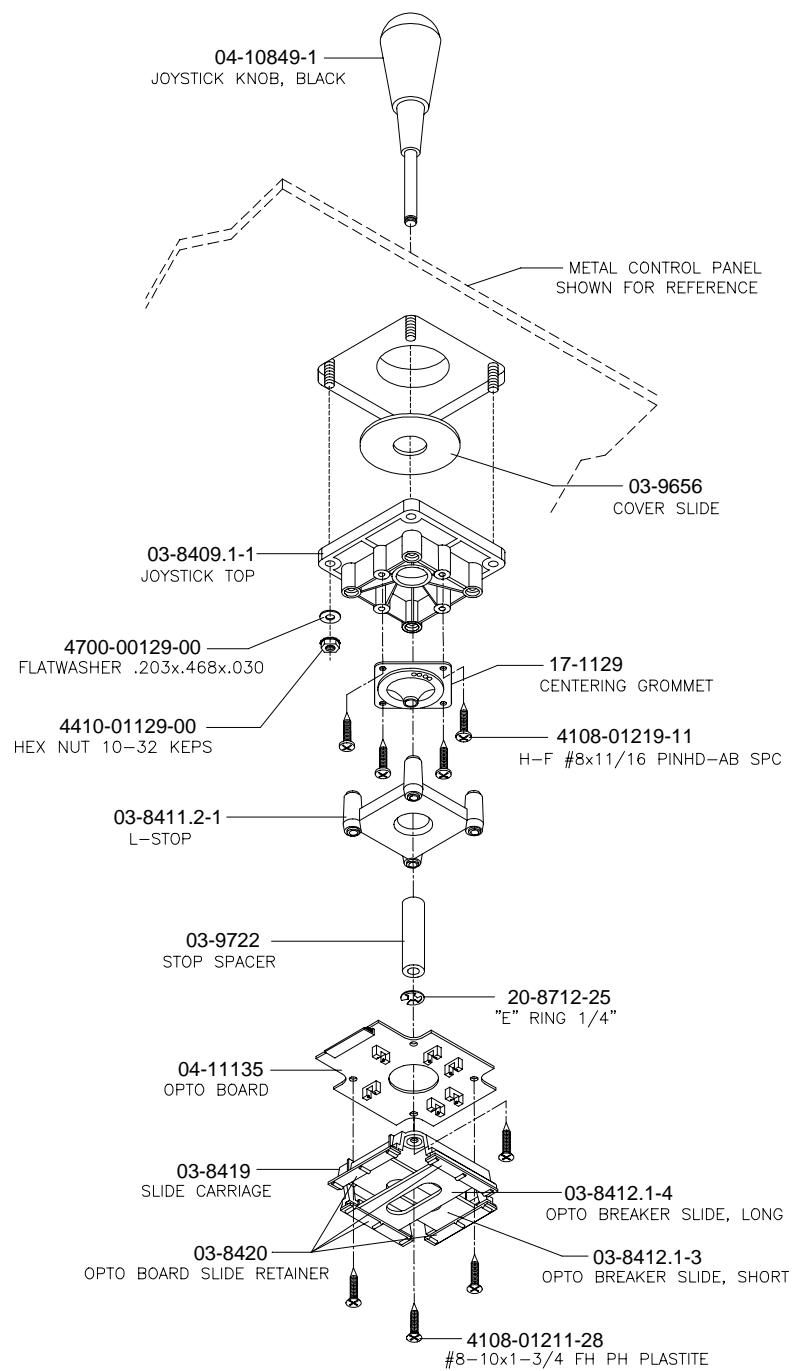
Part No.	Description	Quantity
20-10209-1	Pushbutton, long shaft, red	4
20-10209-3	Pushbutton, long shaft, blue	4
20-10209-4	Pushbutton, long shaft, green	4
20-10209-5	Pushbutton, long shaft, yellow	4

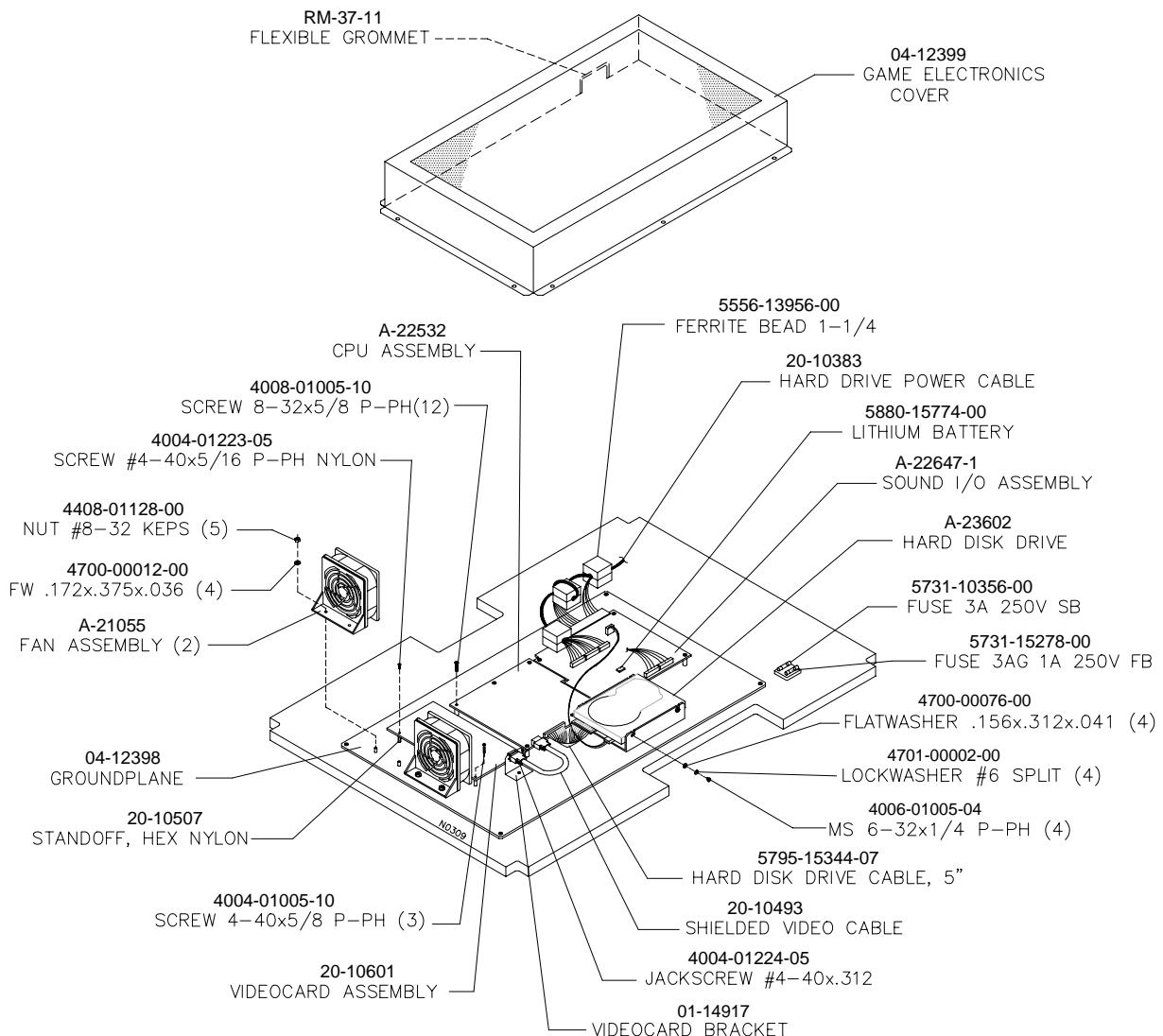
FRONT HOUSING ASSEMBLY (A-22679)



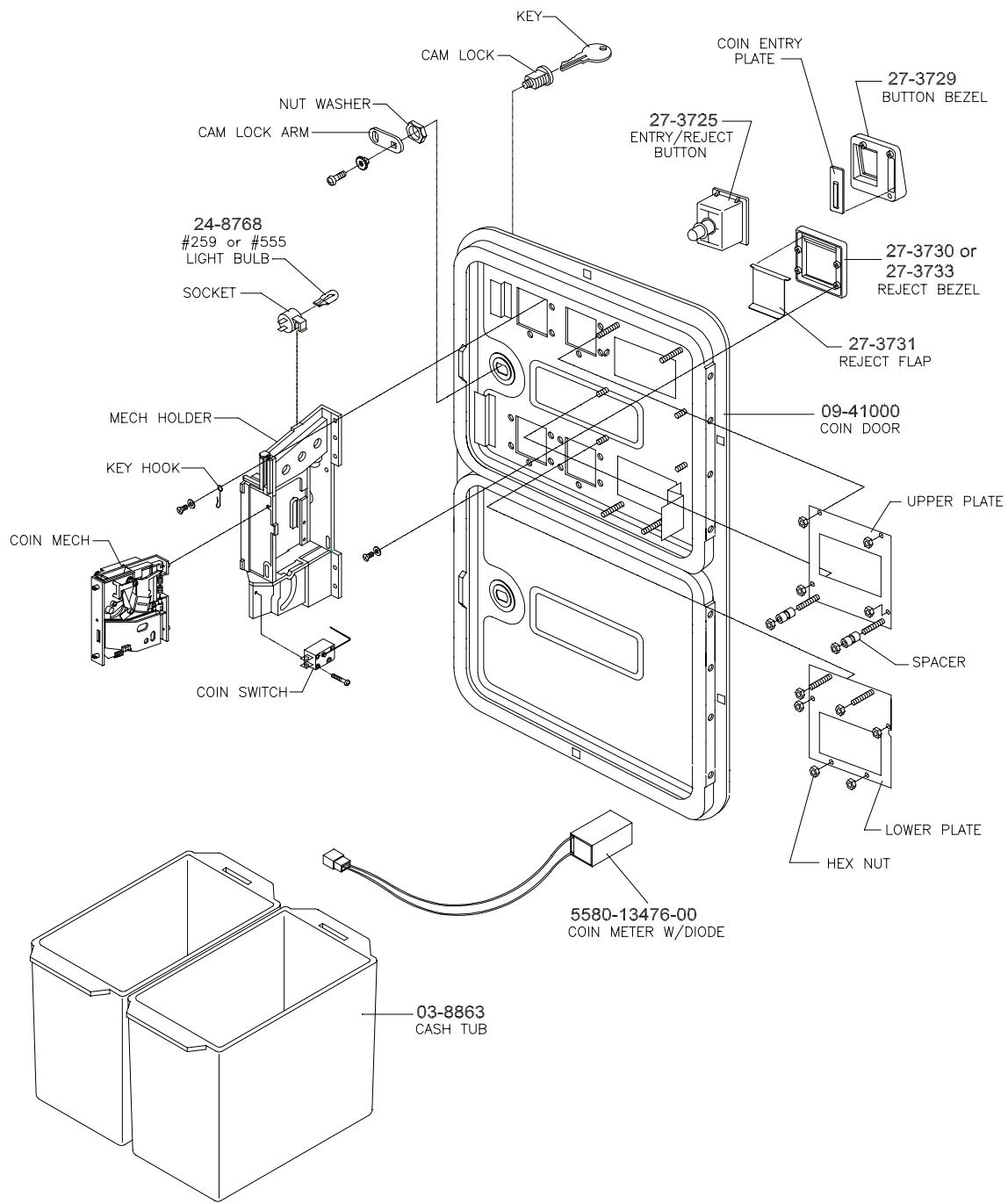
CONTROL PANEL AND HOUSING ASSEMBLY (A-22682-36247)

49-WAY JOYSTICK ASSEMBLY (A21939-1)

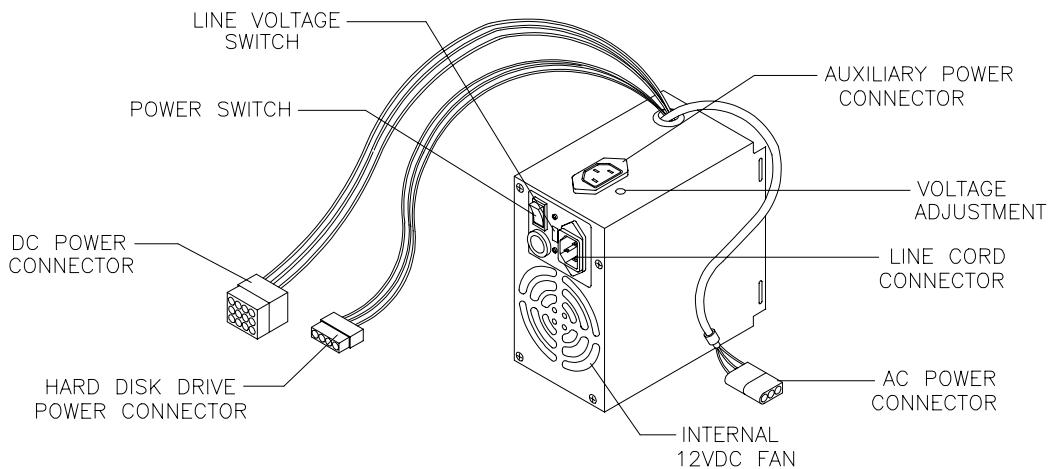


ELECTRONICS ASSEMBLY (A-22678-36247)

COIN DOOR



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
4,5,6,7,8	RETURN	BLACK
9	-5 VDC	BLUE
10,11	+12 VDC	YELLOW
12	-12 VDC	WHITE

HARD DISK DRIVE POWER CONNECTOR

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

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

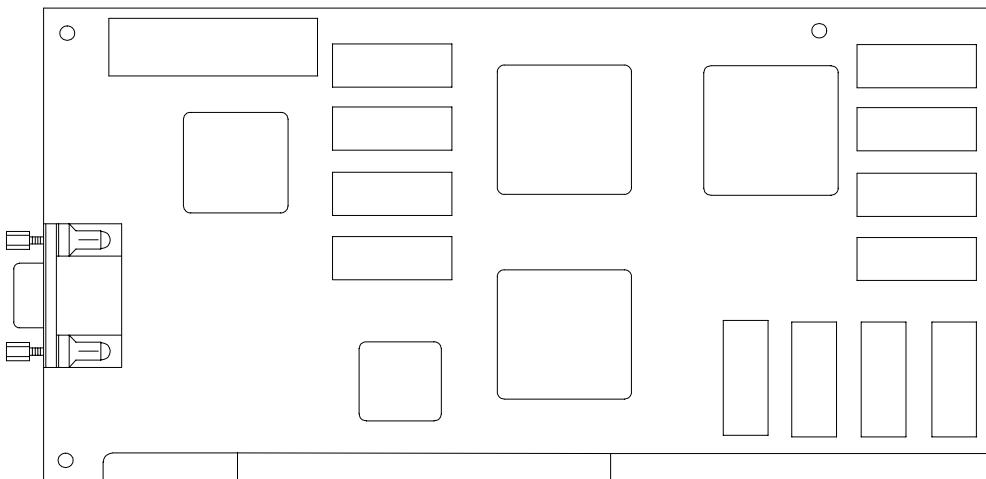
COUNTRY SPECIFIC IEC AC LINE CORDS

5850-15521-01 (USA)

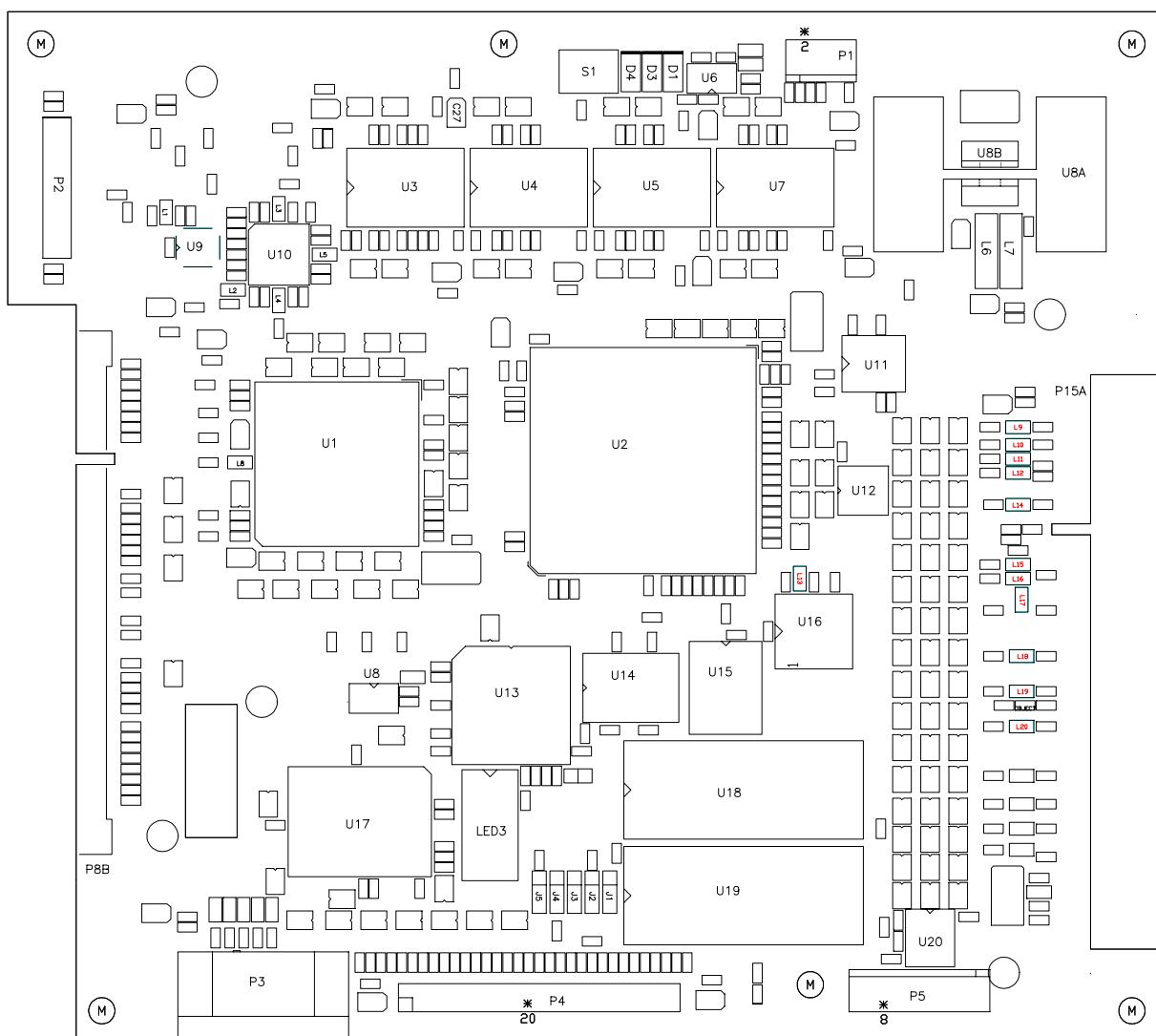
5850-15521-03 (UK)

5850-15521-06 (Japan)

VIDEOCARD ASSEMBLY (20-10511)

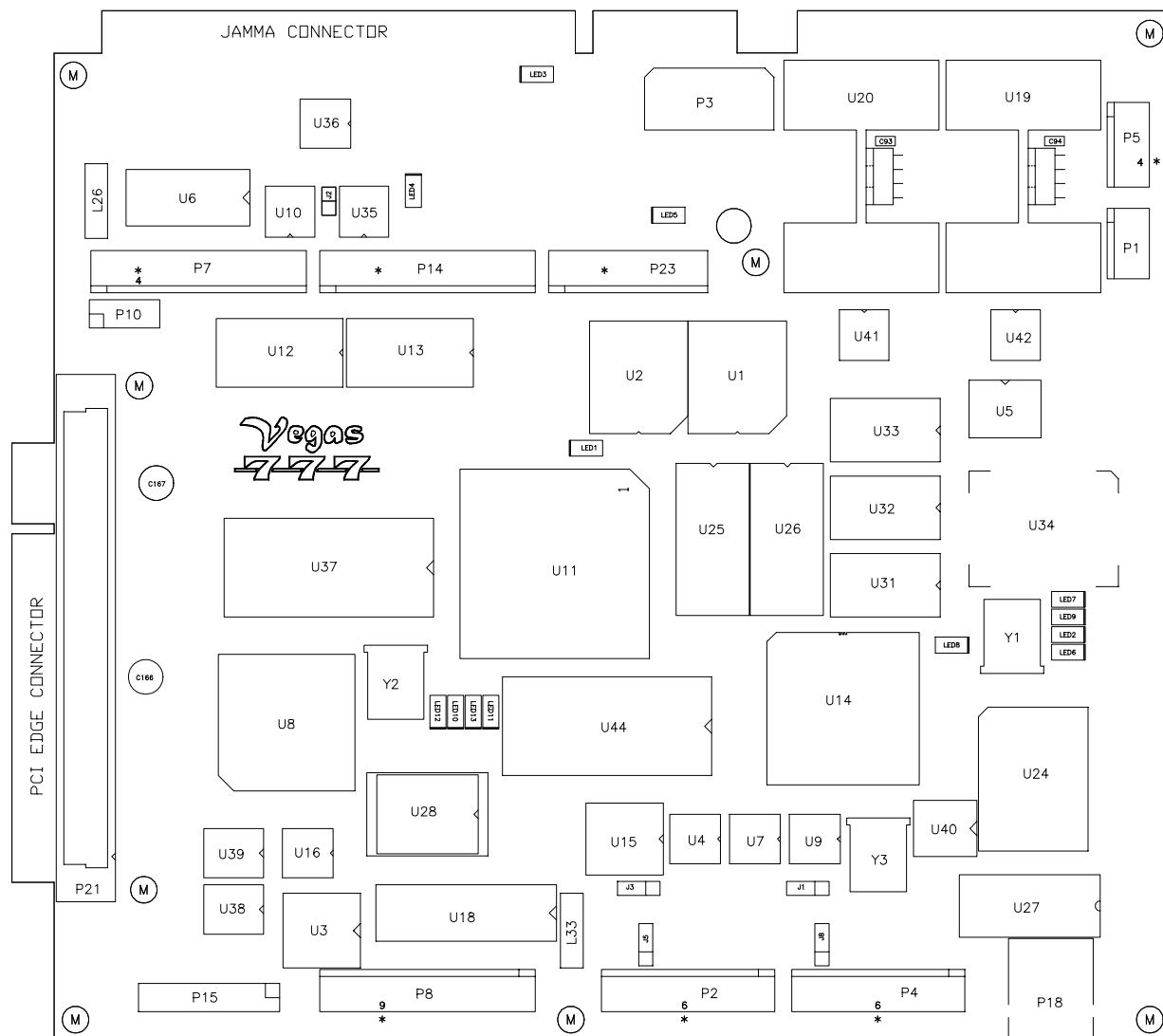


There are no field replaceable parts in the videocard assembly.

VEGAS CPU BOARD ASSEMBLY (A-22532)**FIELD REPLACEABLE PARTS**

Designation	Part Number	Function	Description
U8A	5460-15671-00	+3V Regulator	Voltage Regulator 3.3 BT
U11	A-22545		EPROM 93C46
U13	A-22650	Game Logic Circuit	PAL Assembly
U18	A-5343-30046-1	CPU Boot ROM	EPROM Assembly

VEGAS SOUND I/O BOARD ASSEMBLY (A-22647)



FIELD REPLACEABLE PARTS

Designation	Part Number	Function	Description
U1, U2	5344-15764-00	FIFO Memory Circuit	AM 7201-35JC
U19, U20	5370-14146-00	Audio Amplifier	TDA 7204A
U37	A-23657	Security	PIC Assembly
U44	A-5343-30022-3	Audio Instructions	EPROM Assembly

Other Parts Necessary

Protection

Fuse, 1A, 250V, FB5730-15278-00

Fuse, 3A, 250V, SB5731-10356-00

Fuse, 6.3A, 250V, Type T5731-14529-00

Cables

Control Module Harness Cable H-22704

Main Harness (JAMMA) Cable H-22701

AC Harness Cable H-22048

Light and Speaker Harness Cable H-21487

Fluorescent Light Cable H-22050

Hard Disk Drive Ribbon Cable 5795-15344-07

Ground Wire H-21672

Pod Harness Cable H-22703

Documents

Game Manual 16-30047-101

Other Items

T-20 Tamper-Resistant Wrench 20-9620

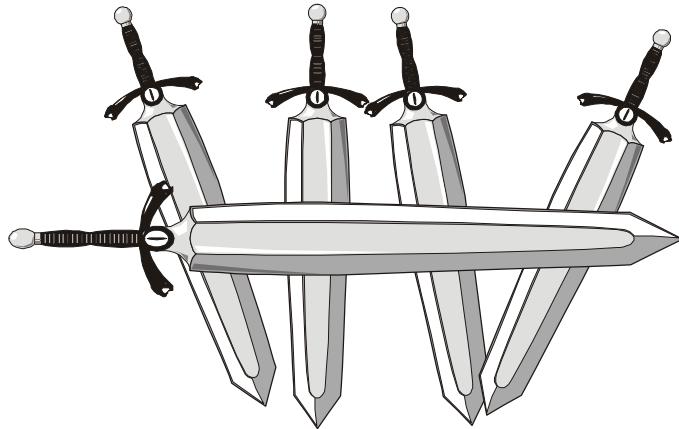
T-25 Tamper-Resistant Wrench 20-10144

T-27 Tamper-Resistant Wrench 20-10140

Light Bulb #555 6.3V24-8768



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.

JAMMA 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
2 Start	Violet-White	U	17	White	1 Start
2 Up	Violet-Black	V	18	White-Black	1 Up
2 Down	Violet-Brown	W	19	White-Brown	1 Down
2 Left	Violet-Red	X	20	White-Red	1 Left
2 Right	Violet-Orange	Y	21	White-Orange	1 Right
2 Switch A	Violet-Yellow	Z	22	White-Yellow	1 Switch A
2 Switch B	Violet-Green	a	23	White-Green	1 Switch B
2 Switch C	Violet-Blue	b	24	White-Blue	1 Switch C
2 Switch D	Violet	c	25	White-Violet	1 Switch D
Not Used	N/C	d	26	N/C	Not Used
Not Used	N/C	e	27	N/C	Not Used
Ground	Black	f	28	Black	Ground
SOLDER SIDE			COMPONENT SIDE		

Control wires that are not part of the Main JAMMA Harness

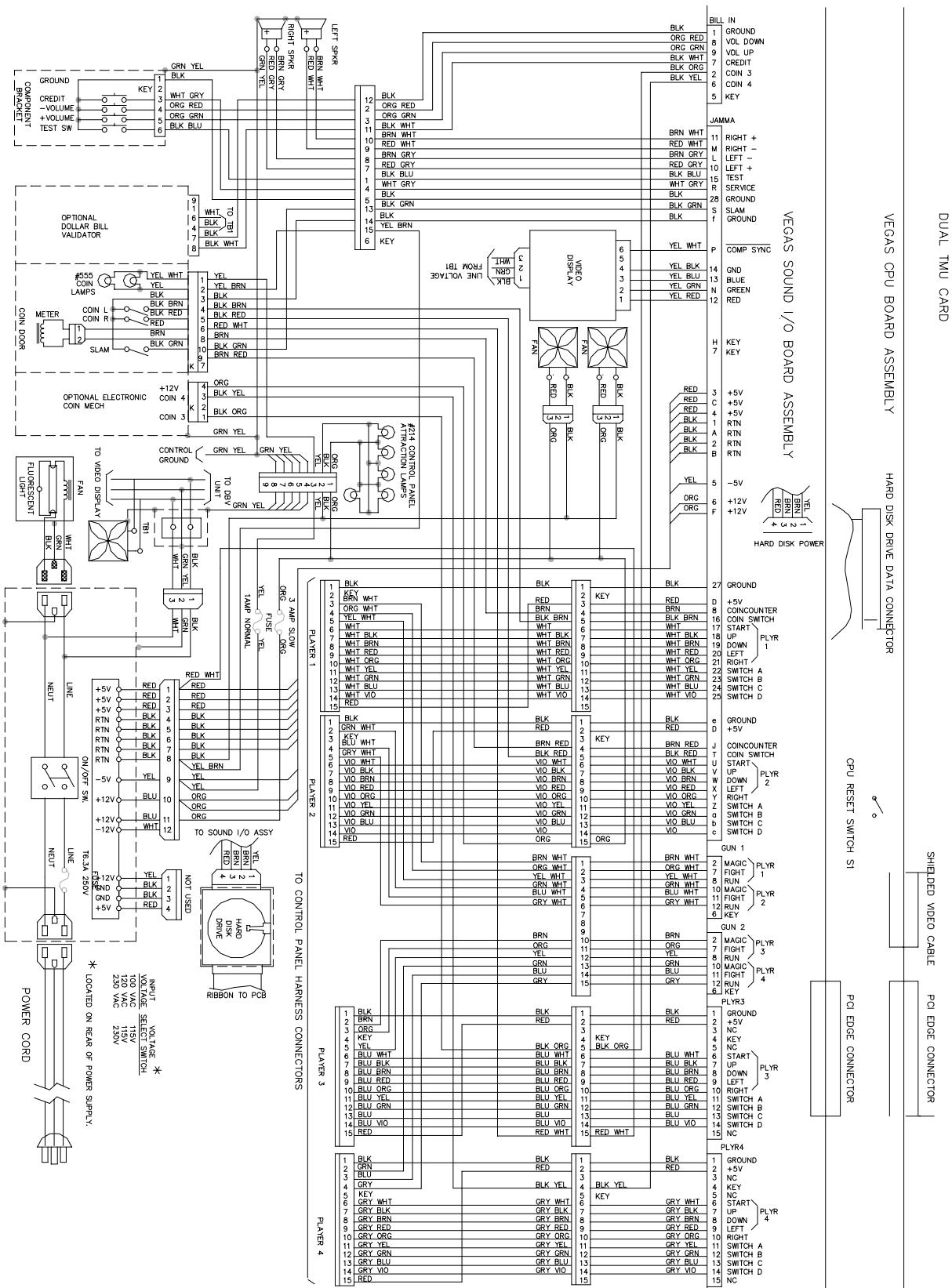
4 Start	Grey-White	6	6	Blue-White	3 Start
4 Up	Grey-Black	7	7	Blue-Black	3 Up
4 Down	Grey-Brown	8	8	Blue-Brown	3 Down
4 Left	Grey-Red	9	9	Blue-Red	3 Left
4 Right	Grey-Orange	10	10	Blue-Orange	3 Right
4 Switch A	Grey-Yellow	11	11	Blue-Yellow	3 Switch A
4 Switch B	Grey-Green	12	12	Blue-Green	3 Switch B
4 Switch C	Grey-Blue	13	13	Blue	3 Switch C
4 Switch D	Grey-Violet	14	14	Blue-Violet	3 Switch D

DC Power Source Voltage Limits

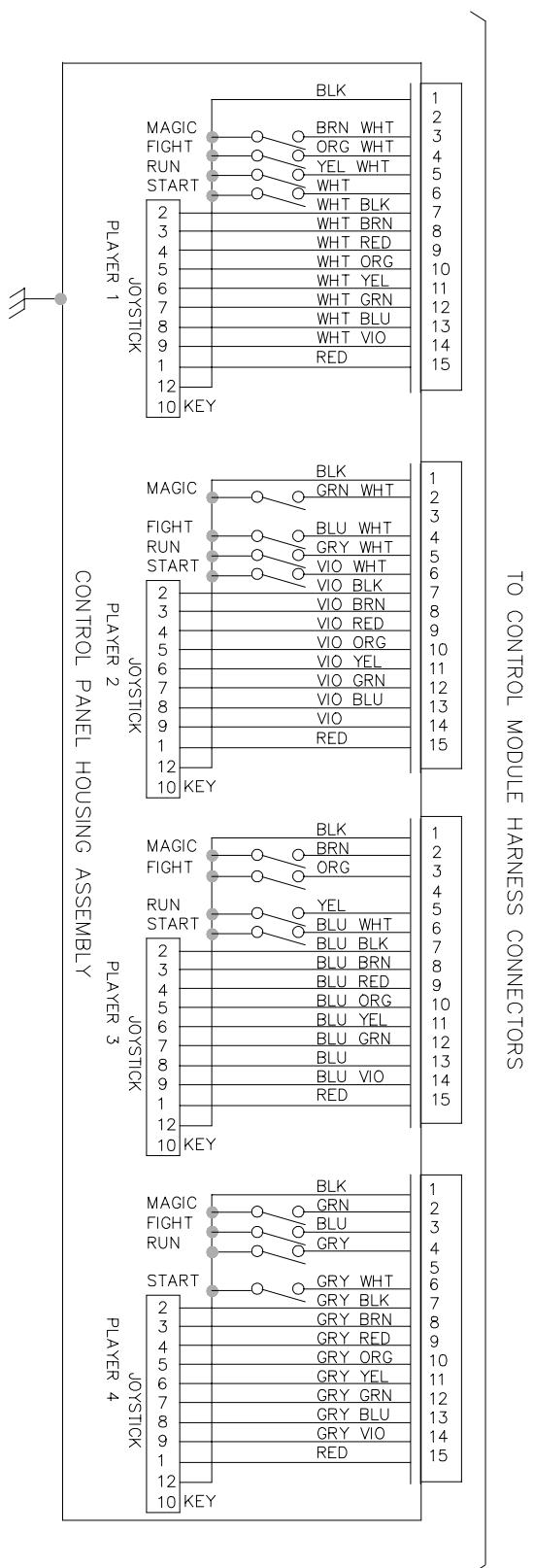
FUNCTION	RANGE LIMITS	COLOR	FUNCTION	RANGE LIMITS	COLOR
Digital Circuits	+4.90V to +5.10 V	Red	Coin Lights	-4.75V to -5.25V	Yellow
Audio, Lights	+11.5V to +12.5V	Orange	Aux. Power	-11.5V to -12.5V	Blue

Note: Power Supply has +5V adjustment. Other source voltages are all fixed. Set voltage so TOO HIGH and TOO LOW voltage LED indicators on CPU Board are both OFF.

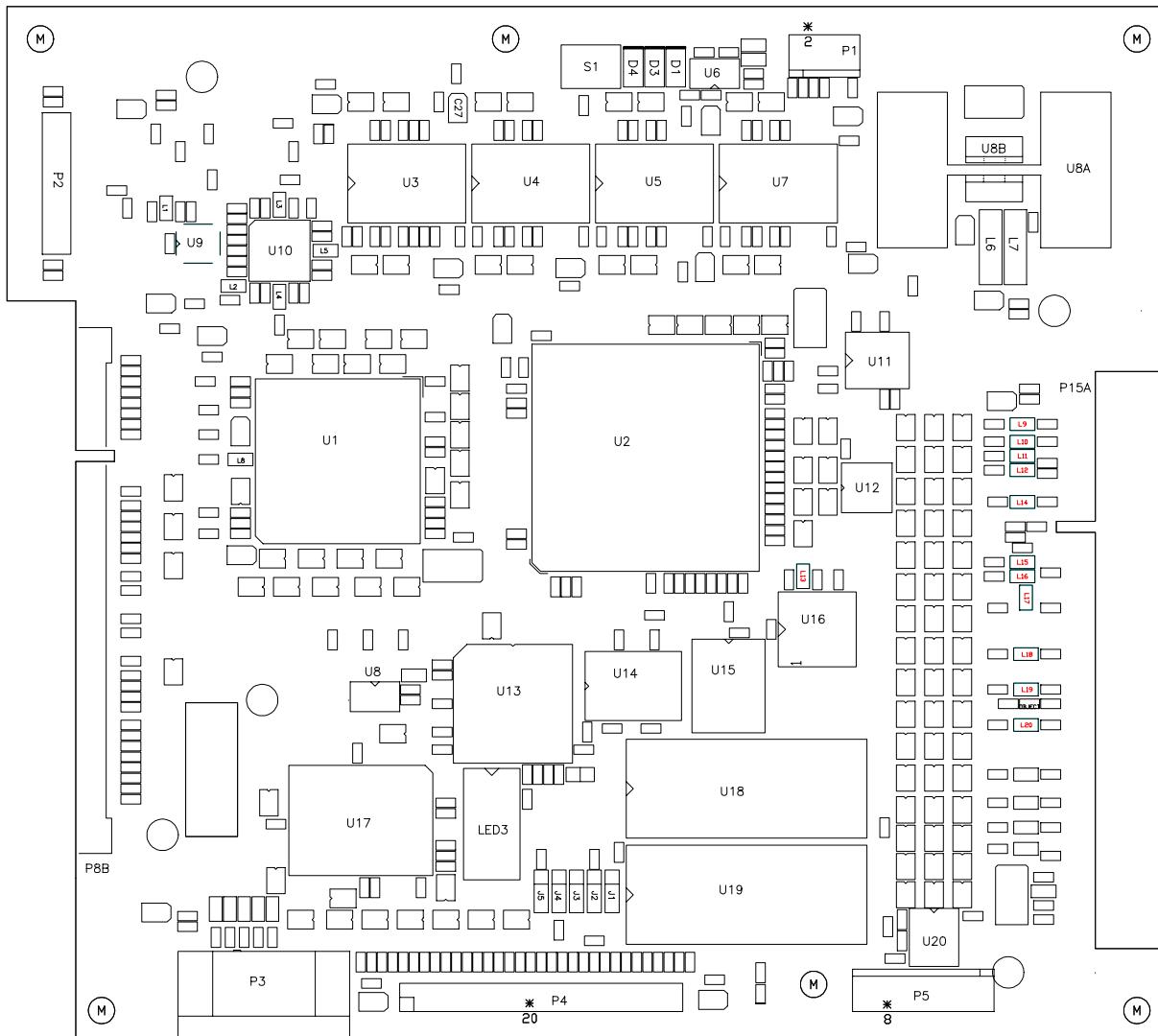
MAIN CABINET WIRING DIAGRAM



CONTROL SECTION WIRING DIAGRAM



VEGAS CPU BOARD ASSEMBLY



VEGAS CPU ASSEMBLY SWITCH

DESIGNATION	LOCATION	FUNCTION	POSITIONS	STATE	MEANING
S1	edge near U4, U5	resets, restarts game	2	OFF	normal operation
				ON	forced reset

Note: This switch resets CPU Board without turning AC power off at 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

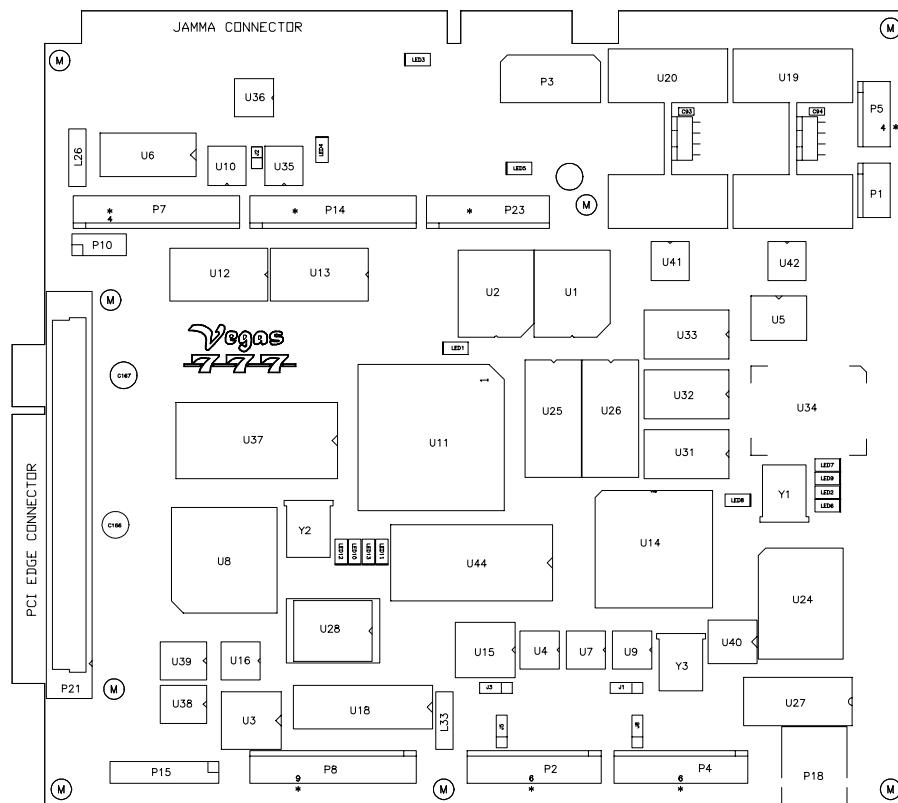
Designation	Location	Function	Color	State	Meaning
LED1 (Note 1)	Near U3 & U10	3.3V CPU Power Indicator	Red	Off	Insufficient Power
				On	Power OK
				Blinking	Power Fault
LED2 (Note 2)	Near U19 & Connector P4	Hard Disk Drive Activity	Green	Off	Not in use
				On	Locked Up
				Blinking	Normal disk activity
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 & Crystal Y3	Gun 1 I/O Connector P2	Input Mode	Pins 1 & 2	X
			Output Mode	Pins 2 & 3	
J2	Between U35 and U10	Video Sync	Positive Sync	Jumper Not Installed	X
			Negative Sync	Pins 1 & 2	
J3 (Note 2)	Near U15	Gun 2 I/O Connector P4	Input Mode	Pins 1 & 2	X
			Output Mode	Pins 2 & 3	
J4	None	None	Not Used	None	---
J5 (Note 2)	Between U15 & Connector P2	Gun 2 I/O Connector P4	Input Mode	Pins 1 & 2	X
			Output Mode	Pins 2 & 3	
J6	None	None	Not used	None	---
J7	None	None	Not Used	None	---
J8 (Note 1)	Between U9 & Connector P4	Gun 1 I/O Connector P2	Input Mode	Pins 1 & 2	X
			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

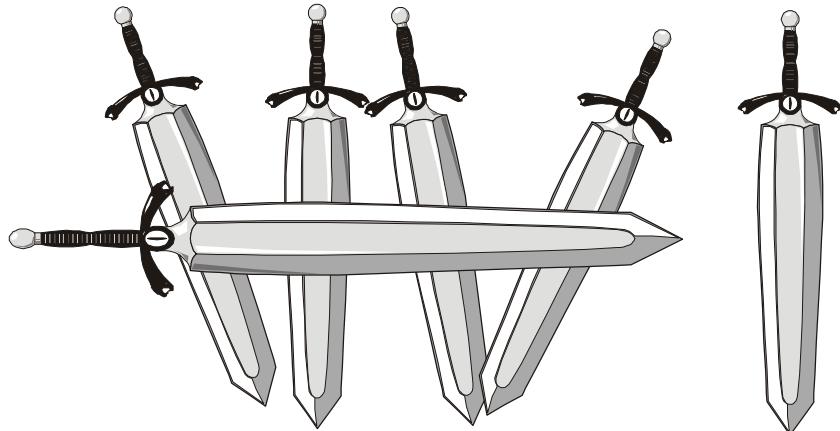
DC POWER SOURCE VOLTAGE LIMITS

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

NOTES



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
<ul style="list-style-type: none"> • Machine appears non-functional • No audio • No Illumination • No video display 	Lack of electricity	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Ensure cabinet wiring harness connectors are fully seated in corresponding power supply and board connectors. 2. Inspect wiring for breaks or damage.
<ul style="list-style-type: none"> • Machine appears non-functional. • Currency acceptor price indicator is illuminated 	CPU Board Assembly not operational	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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
<ul style="list-style-type: none"> • Game does not accept currency or tokens. • Game does not start. • Audio present • Video present 	Blocked coin path.	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • Game accepts currency or tokens. • Game does not start. • Audio present • Video present. 		<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • Bill validator fails after field installation. • Coin mechanisms operate properly. 		<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Audio non-functional. • Video present. • Game operates normally. 	Volume set too low	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • Audio muffled, distorted, or missing frequencies. • Constant, low hum. 	Faulty speaker	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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
<ul style="list-style-type: none"> Monitor appears non-functional. Audio present Controls operate normally. 	Poor signal	<ol style="list-style-type: none"> Verify AC power is connected to video monitor. 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. 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. Examine AC line fuse on video monitor. If faulty, replace with fuse of proper voltage and current rating. Ensure no loose parts or wires are caught on chassis or mounting brackets.
	Bad settings	Ensure brightness and contrast are not at minimum levels.
<ul style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 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	<ol style="list-style-type: none"> Turn AC power on. Use 20V DC setting on digital voltmeter to measure voltages at power connector pins. Verify +5V source. 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. Compare LED states with indicator charts.
<ul style="list-style-type: none"> Monitor fails to lock onto signal and provide stable picture. Colors missing, etc. 	Poor sync	<ol style="list-style-type: none"> Check connectors and cables for wiring continuity from CPU Board Assembly to monitor. Verify jumpers are set correctly for monitor. Ensure monitor is correct for game. Incorrect resolution results in horizontal tearing or complete loss of sync. Place monitor in working machine to verify operation.
<ul style="list-style-type: none"> Game operates normally. Picture wavers or rolls, has dark bars, uneven colors, etc. 	Faulty wiring	<ol style="list-style-type: none"> Check connectors and cables for wiring continuity from CPU Board Assembly to monitor. Ensure all cabinet ground wires are connected, especially at monitor chassis. 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
<ul style="list-style-type: none"> • Indicator lamps intermittent or non-functional. • Game starts and plays normally. 		<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • Game operates normally. • Fan noisy. 		<ol style="list-style-type: none"> 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.		<ol style="list-style-type: none"> 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.
<ul style="list-style-type: none"> • Error messages appear. • Game does not start. • No audio. 		<ol style="list-style-type: none"> 1. Check any assembly identified in error message. 2. Call your authorized distributor for help with unresolved screen messages.