NBA Showtime Gold Edition /
NFL Blitz 2000 Gold Edition

C H A P T E R
S I X

TROUBLESHOOTING

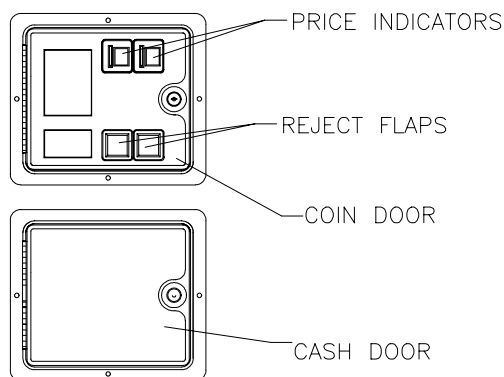|	
👉	**NOTICE:** The term VGM refers to the video game machine.
⚠	**CAUTION:** This VGM uses complex electronic components that are *very sensitive to static electricity.* Observe the following precautions before handling VGM electronics. Failure to do so may void your warranty and could damage electronic assemblies.

- Before servicing electronics, turn off AC power to the VGM. Wait for capacitors to discharge.
- Before touching or handling electronic assemblies, discharge static electricity on your body. To discharge this static, begin by connecting the line cord to a grounded outlet. Don't turn on the VGM! Next, touch the safety ground stud of the power supply chassis.
- Store electronic assemblies in an anti-static area. Use anti-static bags to store or transport VGM circuit boards. Transport the hard drive in its shipping container.
- Don't remove or connect electronic assemblies when cabinet power is on. Otherwise, you'll damage electronic assemblies and void the VGM warranty.
- After you complete maintenance or service, replace ground wires, shields, safety covers, etc. Install and tighten ground and mounting screws.

Coin Mechanism and Pricing Troubleshooting Table

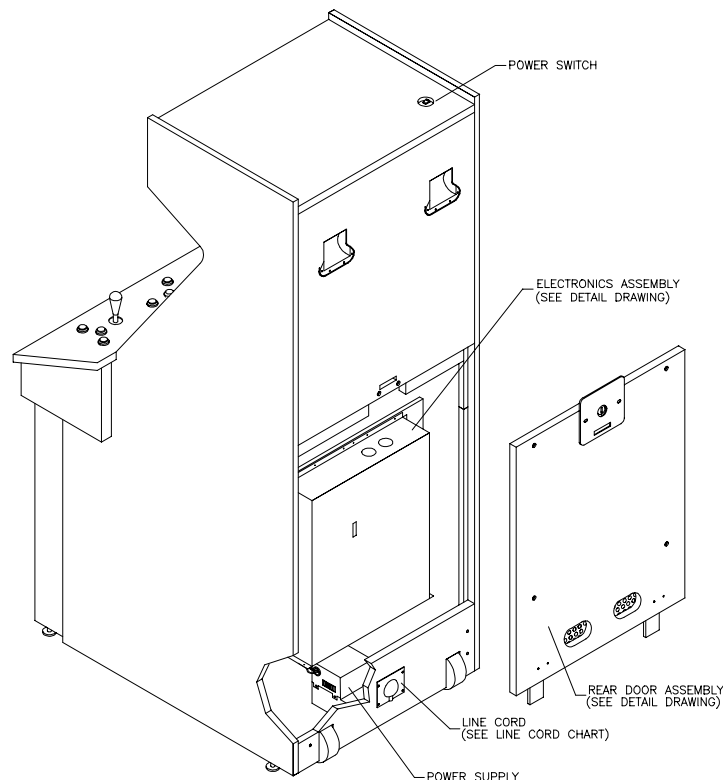| SYMPTOM	CAUSE	REQUIRED ACTION
• VGM *(video game machine)* accepts currency or tokens, but number of credits per coin or bill is incorrect.	Improper settings at Pricing Menu	From Coin Options Menu, choose PRICING OPTIONS MENU. Verify that units and credits are set correctly.
	Incorrect pulse width on bill validators	1. Consult bill validator manufacturer's literature. Adjust pulse width on validator to long setting. 2. Retest validator operation.
	Faulty wiring	1. Check that cabinet wiring is correct for this VGM. 2. Assure that coin meter and coin switches connect properly to control input wires.
	Faulty coin mechanism	1. Verify that coin mechanism works correctly by testing it in working VGM. 2. If mechanism is bad, replace it.
• VGM won't accept currency or tokens. • VGM won't start. • Audio and video are present.	Improper currency	1. Unlock and open cash door. Empty cash box. Inspect revenue for counterfeit currency. 2. Check vault. Remove any items that block path from mechanism.
	Faulty coin mechanism	1. Unlock and open coin door. Check each mechanism for proper mounting. 2. Remove mechanism. 3. Clear currency path. 4. Reinstall mechanism and latch it. 5. Enter Menu System by pressing and holding TEST MODE switch inside coin door. From Main Menu, choose CONTROLS TEST. Use tests to confirm operation of coin switches.
	Tilted coin mechanism or VGM	1. Verify that mechanism is level after doors close. 2. Repair or replace coin door if it is bent or damaged. 3. If necessary, adjust cabinet leg levelers to keep mechanisms vertical.
• Coin indicators don't light	Burned-out bulb	1. Burned-out bulbs may appear white or darkened. Check continuity with DVM. 2. Replace burned-out bulb with same type.
	Open fuse circuit	1. Check fuse continuity with DVM. 2. If fuse is blown, replace fuse with same type. 3. If fuse isn't blown, check wiring.

> ⚠ **CAUTION:** Don't remove or install any connector when power is turned on. Installation under power will damage the circuit boards or hard disk drive and void the warranty.

Typical Coin Mechanism Mounting

VGM Startup Troubleshooting Table

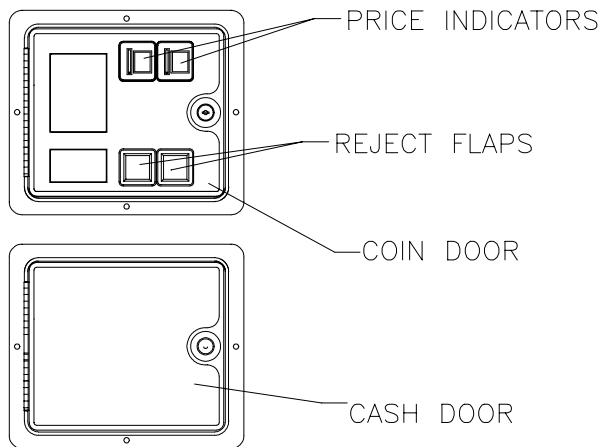| SYMPTOM	CAUSE	REQUIRED ACTION
• VGM *(video game machine)* doesn't start. • VGM appears completely non-functional. • No audio • No illumination • No video display	Power problem	1. Check that VGM power switch is on. 2. Inspect electronics to see if fans are turning. *If not:* Is power supply connected to its power cable? Is power supply turned on? 3. Plug VGM into AC power outlet. Verify presence of AC line voltage.
	Improper line voltage switch setting	Turn off VGM power. Unplug AC line cord. Check line voltage switch. If necessary, set it to agree with local AC line voltage. Retest VGM.
	Open fuse	1. Turn off VGM power. Examine AC fuse on power supply. 2. Examine DC fuses inside coin door vault. 3. Replace faulty fuses with identically rated parts. 4. Turn on VGM power. If fuse opens again, check DC wiring harness and connectors.
	Faulty wiring	1. Remove line cord. Test line cord, power plug, and IEC connector for breaks or damage. Verify continuity of each wire in cord. Install cord at power chassis. Press connector firmly to seat it. 2. Check other cables in same manner. 3. Assure that cabinet wiring harness connectors fully seat in corresponding power supply and board connectors. 4. Inspect wiring for breaks or damage.
	Faulty circuit boards	1. Turn off power for one minute and turn VGM on again. Power On Self-Test checks electronics. 2. Replace faulty parts and rerun self-test.

Typical Location of Power Supply and Line Cord
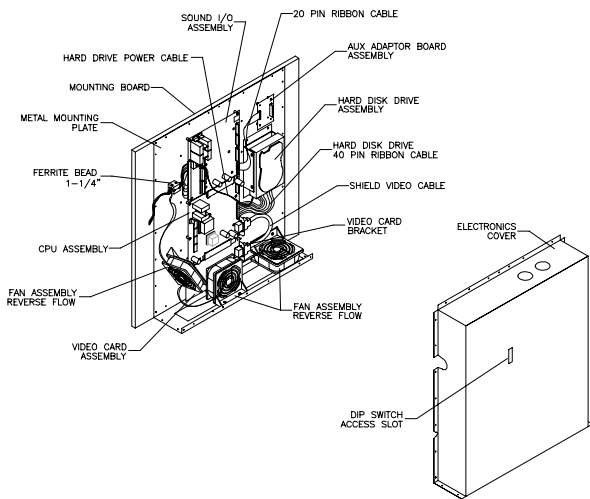
VGM Startup Troubleshooting Table, *continued*

SYMPTOM	CAUSE	REQUIRED ACTION
• VGM *(video game machine)* appears non-functional. • Currency acceptor price indicator is illuminated.	Power problem	1. Inspect circuit boards under low-light conditions. LEDs glow if processor circuits receive voltage. Fan should be turning. These indications prove presence of DC from power supply. Still, voltages or signals may not be normal. 2. Turn on VGM power. Using 20-volt DC setting on digital voltmeter, measure DC voltages at power connector pins. 3. Using 2-volt AC setting on digital voltmeter, measure same DC voltages as above. Any reading indicates ripple or noise. In that case, service power supply.
	Faulty wiring	Turn off VGM power. Assure that wiring harness connectors attach and fully seat onto mating board connectors.
	Improper jumper or DIP switch settings	Verify that circuit board jumpers are set as intended. Check DIP switch settings.
	Faulty circuit boards	1. Run power-up self-test sequence. Note errors or failures during tests. Compare LEDs with LED indicator status charts. Note discrepancies. 2. Replace faulty PC boards and rerun self-test.

CAUTION: Don't remove or install any connector while power is turned on. Doing so will damage circuit boards or hard disk drive, and void warranty.
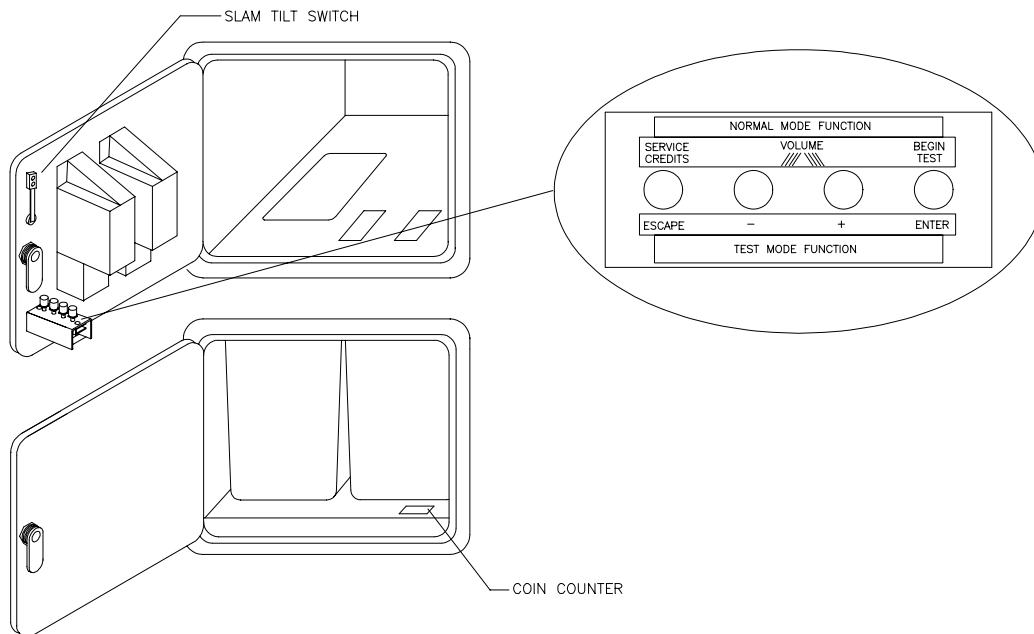

Front View Of Coin Door

Interior View Of Electronics

VGM Startup Troubleshooting Table, *continued*

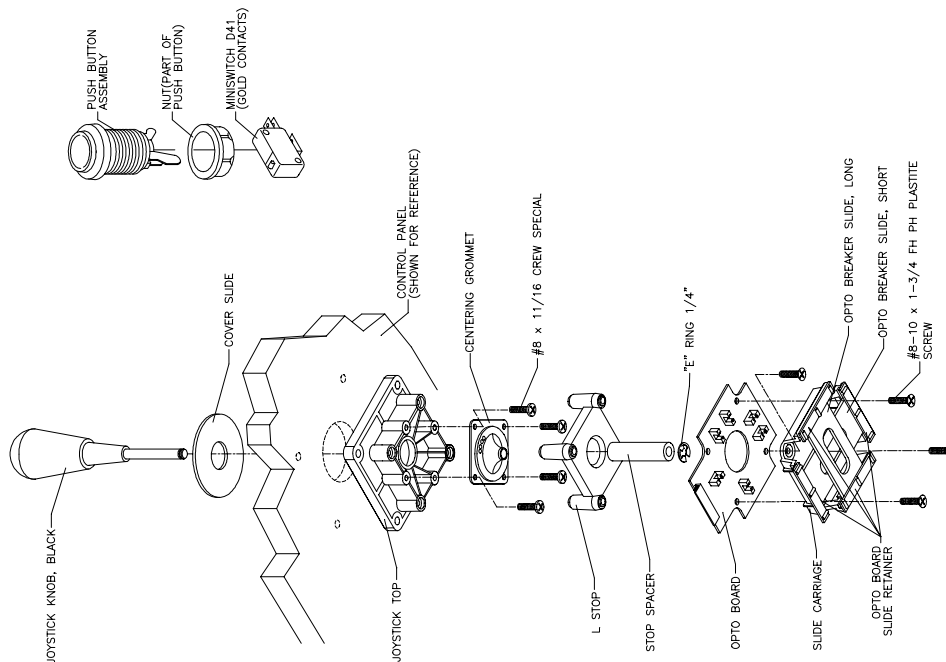| SYMPTOM	CAUSE	REQUIRED ACTION
• VGM *(video game machine)* doesn't start. • VGM accepts currency or tokens. • Audio and video are present.	Faulty coin mechanism	1. Unlock and open coin door. Check each currency acceptor to assure proper mounting. Verify that each release latch is closed and locked. Does mechanism accept and reject currency correctly? Test mechanism with good and bad coins. 2. Inspect to see if external acceptor indicators (Pricing, Flashing Arrows, etc.) are lit. 3. Verify that each acceptor operates properly by placing it in working VGM. Replace bad parts.
	Faulty switches	1. Enter Menu System by pressing and holding TEST MODE switch inside coin door. From Main Menu, choose CONTROLS TEST. Use tests to confirm operation of each switch. 2. Assure that no loose parts or wires are caught in switch contacts. 3. Check for continuity in each suspect switch connection (Common to Normally Open or Common to Normally Closed). 4. Replace faulty switches (bent levers, broken actuators, etc.).
	Faulty wiring	1. Assure that no wires are caught in hinges, latches or switch contacts. 2. Check wiring continuity from circuit board connectors to acceptors. 3. Repair faulty wiring.

Interior View of Coin Door and Cash Door

Audio Troubleshooting Table

SYMPTOM	CAUSE	REQUIRED ACTION
• No audio • Video is present • VGM *(video game machine)* appears to operate normally	Improper volume setting	1. From Main Menu, choose VOLUME LEVEL. Check that Attract Music is on (enabled). Verify that all volume levels are set well above zero. 2. If necessary, change levels to make VGM audible.
	Faulty SIO Board	1. From Main Menu, enter Diagnostics Menu. Select SOUND SUBSYSTEM TEST. Test checks entire sound system. 2. Run power-up self-test sequence. Note errors that VGM finds during tests. Compare Sound I/O Board (SIO) LEDs with LED indicator status charts. Note discrepancies. 3. Verify proper operation of SIO Board by placing it in working VGM. 4. If board is faulty, replace it.
• Constant low hum from all speakers.	Faulty wiring	1. Check that cabinet wiring is correct for this VGM. 2. Verify that cabinet wiring provides separate wires (not common return) for each speaker. 3. Check connection of all cabinet ground wires. 4. Repair faulty wiring.
	Faulty power supply	Using 2 Volt AC setting on digital voltmeter, measure voltages at speaker terminals. Any reading indicates ripple or noise. In that case, service power supply.
• Audio is distorted, muffled or has missing frequencies.	Faulty or improper speaker	1. Turn off VGM power. Remove grilles and check speakers. Assure that speakers are full range (100 to 10,000 Hz) and rated for at least 20 W. Woofers must be rated for at least 40 W. 2. Verify proper speaker operation by connecting speaker in question to working VGM. 3. If speaker is faulty, replace it.
	Faulty wiring	1. Multiple-speaker installations: Check for reversed wires at one speaker. Weak low frequencies and thin or hollow sound quality is symptom of incorrectly phased speakers. Sound tests may not detect this condition, but you can hear it during VGM operation. 2. Repair faulty wiring.
• Dead sound channel	Faulty speaker	1. From Main Menu, choose SOUND TEST. Recheck speakers with audio signals in test. 2. Verify proper speaker operation by connecting speaker in question to working VGM. 3. If speaker is faulty, replace it.
	Faulty circuit board	1. From Main Menu, enter Diagnostics Menu. Select SOUND SUBSYSTEM TEST. Test checks entire sound system. 2. Run power-up self-test sequence. Note errors that VGM finds during tests. Compare circuit board LEDs with LED indicator status charts. Note discrepancies. 3. Verify SIO Board operation by connecting board to working VGM. 4. If board is faulty, replace it.
	Faulty wiring	1. Verify that cabinet wiring is correct. Assure that all speakers connect to audio wires. Check for broken or shorted wires. 2. Repair faulty wiring.

Joystick Troubleshooting Table

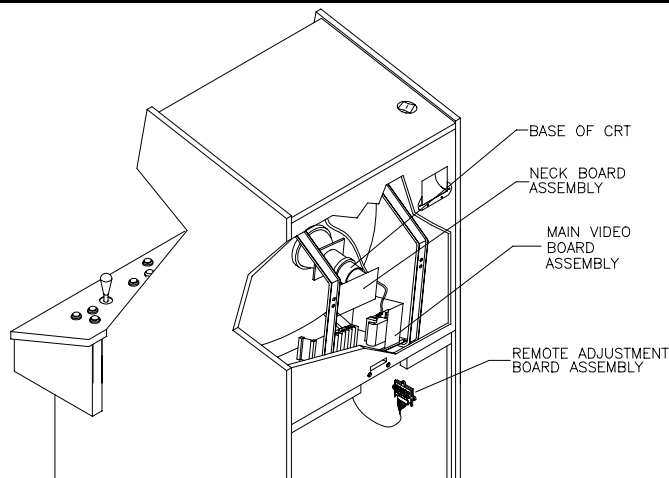| SYMPTOM	CAUSE	REQUIRED ACTION
• Players complain that joystick operates erratically or unreliably • Game starts normally	Faulty switch	Enter game Menu System by pressing and holding TEST MODE switch inside coin door. From Diagnostics Menu, choose SWITCH TEST. Operate joystick in question. Check for proper readings of up, down, left and right.
	Faulty switch wiring	1. Check for wires caught in door hinges, latches or switch contacts. 2. Verify that harness connectors are attached and fully seated. 3. Assure that joystick switches connect properly to control input wires. 4. Reconnect loose cables. 5. Check joystick cable ground connections. 6. Check that cabinet wiring is correct for this VGM *(video game machine).* 7. Repair faulty wiring.
	Faulty mechanical parts	1. Inspect joystick for: Missing, loose or damaged parts, torn rubber T-band, etc. 2. Replace bad parts.
	Dirty optos	Clean dust out of optos with swab and cleaner. *Don't apply cleaner directly into opto. Never use solvents!*
	Faulty joystick fuse	1. Check fuses on I-40 Joystick Interface Board inside player control panel. Each joystick has its own fuse. 2. Replace bad fuses.
	Faulty joystick electronics	1. If joystick fuses are okay, install joystick in working VGM *(video game machine)* and retest it. 2. If joystick still doesn't work, replace it.
	Faulty I-40 Joystick Interface Board	1. If joystick works in second VGM, I-40 Joystick Interface Board may be bad. 2. Replace board and retest joystick.

Joystick Parts

Video Troubleshooting Table

SYMPTOM	CAUSE	REQUIRED ACTION
• Monitor appears non-functional • Audio is present • VGM *(video game machine)* controls operate normally	Power problem	Verify connection of AC Power to video monitor. Inspect CRT neck in dim light. Glowing filament near CRT base proves that some monitor circuits receive power. Still, voltages or signals may not be normal.
	Faulty wiring	1. Turn off VGM power. Verify that video signal and Remote Adjustment Board connectors seat properly on Video Monitor Board. 2. Assure that video cables connect to circuit boards. 3. Assure that no wires are caught on chassis or mounting brackets.
	Improper monitor adjustments	1. Check that BRIGHTNESS (intensity) and CONTRAST are set above their minimum levels. 2. If necessary, adjust these settings.
	Faulty monitor circuitry	1. Examine AC line fuse on Video Monitor Board. If fuse is faulty, replace it with identical fuse. 2. If fuse is good: Verify that video monitor operates correctly by placing it in working VGM. 3. If monitor is bad: Check monitor power supply. 4. If power supply is good: Check monitor horizontal output transistor and related circuitry.

⚡	**WARNING: HIGH VOLTAGE.** VGM monitors generate and store potentially lethal high voltages. Avoid touching any part of the monitor until power has been off for some time. A picture tube can maintain a hazardous charge for up to several days. Only qualified technicians should service monitors. Turn off the power, unplug the VGM and discharge the CRT before attempting service. Even properly discharged tubes can revert to a highly charged state, *without reapplication of power.*
⚠	**WARNING:** In normal operation, the monitor doesn't require isolation from AC line voltage. During bench servicing, you may need to operate the monitor outside the cabinet. If you do, *isolate the monitor from line voltage with an isolation transformer.*
⚠	**CAUTION:** Don't operate the monitor without the Remote Adjustment Board.

- BASE OF CRT
- NECK BOARD ASSEMBLY
- MAIN VIDEO BOARD ASSEMBLY
- REMOTE ADJUSTMENT BOARD ASSEMBLY

Typical Cutaway Rear View

Video Troubleshooting Table, *continued*

SYMPTOM	CAUSE	REQUIRED ACTION
• Game screens don't appear • No audio • Power-up self-test runs	Improper components	1. Verify that hard disk drive is correct for this VGM *(video game machine)*. Label on drive records manufacturer name, assembly number and program version. 2. Verify that circuit boards are correct for this VGM. Label on each board records manufacturer name, assembly number and hardware version. 3. Verify that ROM instruction set is correct for this VGM. VGM set only has one ROM. Label on ROM records assembly number and software version. 4. Replace improper ROMs with correct ones.
	Hard drive problems	1. Turn VGM on. Immediately look *under* hard drive. Hard Drive Activity LED flashes if drive is operating properly. 2. Allow VGM to load normally. Note and record any error messages that occur during self-test. 3. Remove hard drive and install it in working VGM. If symptom recurs there, hard drive is faulty. Replace it.
• Blotches of color appear on screen	Picture tube aperture mask is magnetized	Remove diskettes from room. Demagnetize monitor with external degaussing coil. Take care not to magnetize neighboring VGMs. Monitor may be on or off for this procedure.
• White areas in center of screen appear tinged with color • Object edges have fringe of one or more colors	Picture tube purity or static convergence is out of alignment	1. Turn on VGM *(video game machine)*. 2. Press and hold TEST MODE to enter Menu System. At Main Menu, select Monitor Tests Menu. Run through Crosshatch, Red, Green and Blue screens to find clearest display of problem. 3. Display screen with greatest problem. 4. Display Crosshatch Screen. Locate purity and static convergence ring magnets on back of monitor neck. Watch screen in mirror. Adjust magnets to minimize problem. Follow instructions from monitor manufacturer. 5. Display Crosshatch Screen. Touch up adjustments while watching screen in mirror.
• Background of Attract Mode screens seems out of sync • Words on screen read OK	Medium resolution monitor, and DIP switch set for low resolution	1. Press and hold TEST MODE to enter Menu System. At Main Menu, select Diagnostics. Then select DIP Switch Tests Menu. 2. Locate DIP switch bank U12 on the Sound I/O Board. 3. Turn off switch 2. 4. Reenter Attract Mode and check screens.

⚠	**CAUTION:** Don't operate the monitor without its Remote Adjustment Board.
FRAGILE	**WARNING: HANDLE FLUORESCENT TUBE AND CRT WITH CARE.** If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly eight feet or more from the implosion.

Video Troubleshooting Table, *continued*

SYMPTOM	CAUSE	REQUIRED ACTION
• White areas at screen edges appear tinged with color • Dots at screen edges appear oval or cylindrical	Picture tube dynamic convergence is out of alignment	Have service bureau dynamically reconverge monitor. This procedure requires removing and repositioning yoke. Service bureau must follow instructions from monitor manufacturer.
• Video tears or rolls, or has black bar down middle of screen • Video may appear as colored bars of dashed lines	Improper sync signals	1. Check to see if Video Board puts out type of sync that your monitor requires. 2. Adjust sync for monitor you're using: On SIO Board, set DIP switch bank U12, switch 2. Off = medium resolution (default); on = low resolution. 3. Verify that jumpers are set correctly for monitor. 4. If necessary, add or remove video sync jumper at Sound I/O Board jumper block J2. With no pins connected (or pins 2 and 3 connected), board outputs positive sync. With pins 1 and 2 connected, board outputs negative sync.
	Faulty wiring	1. Check connectors and cables for wiring continuity. Video cables connect graphics card to circuit boards, and then to video monitor. 2. Assure connection of all cabinet ground wires, especially at video monitor chassis. 3. If you find faulty wiring, repair it.
	Faulty monitor circuitry	1. Check video monitor operation by connecting it to working VGM *(video game machine)*. 2. Assure that monitor is correct type for this VGM. Monitors with wrong resolution can't lock sync. 3. If you have wrong type monitor, replace it.
	Electromagnetic fields	Move cabinet far away from machines, appliances, or competitors' VGMs.
• Missing colors	Faulty wiring	1. Check connectors and cables for wiring continuity from circuit boards to video monitor. 2. Repair faulty wiring.
	Faulty monitor color drive circuitry	Verify that video monitor operates correctly by connecting it to working VGM.
• One color is dimmer or brighter than others • Whites appear tinted everywhere on screen	Maladjusted color bias pots	1. Turn on VGM *(video game machine)*. 2. Enter Monitor Tests Menu. 3. Watch Color Bars screen in mirror. 4. Adjust three bias pots for best colors. (Most monitor neck boards include these pots.) 5. Also check White Screen. Touch up controls. 6. If whites still seem tinted, have service bureau rejuvenate picture tube.
• Picture is dim or faded	Maladjusted BRIGHTNESS pot or subnormal picture tube emission	1. Watch Color Bars screen. Adjust BRIGHTNESS and CONTRAST pots for greatest number of grays. You'll find these pots on Monitor Remote Control Board, behind coin door. 2. If pots have no effect, have service bureau rejuvenate picture tube.

Video Troubleshooting Table, *continued*

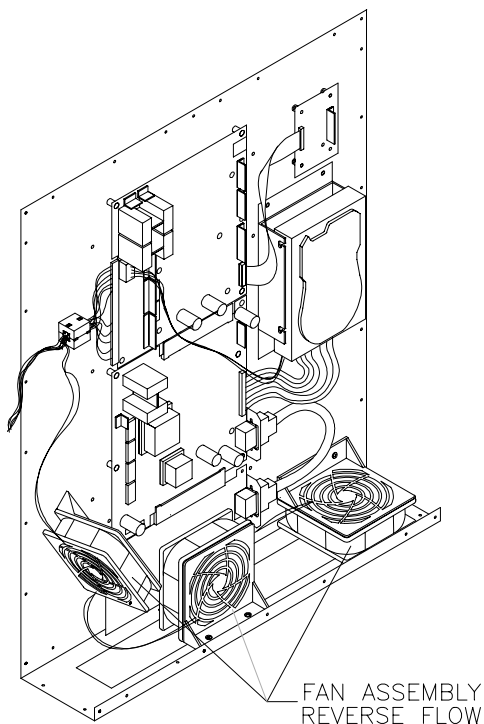|		
• Picture is too narrow	Maladjusted WIDTH pot	Enter Monitor Tests Menu. Watch Crosshatch Screen while adjusting WIDTH pot for best picture. You'll find this pot on Monitor Remote Control Board, behind coin door.
• Picture is too short	Maladjusted HEIGHT pot or damaged vertical circuit	1. Enter Monitor Tests Menu. Watch Crosshatch Screen while adjusting HEIGHT pot for best picture. You'll find this pot on Monitor Remote Control Board, behind coin door. 2. If pot has no effect, service vertical output circuit.
• Picture seems shifted to one side	Maladjusted HORIZONTAL POSITION pot	Enter Monitor Tests Menu. Watch Crosshatch Screen while adjusting HORIZONTAL POSITION pot for best picture. You'll find this pot on Monitor Remote Control Board, behind coin door.
• Keystone-shaped picture	Shorted turns in yoke	1. Substitute working yoke. 2. Have service bureau converge monitor. 3. Retest monitor.

Software Update Troubleshooting Table

SYMPTOM	CAUSE	REQUIRED ACTION
• Update didn't work	You skipped steps or performed them out of sequence.	Return update components to kit, reinstall original parts in cabinet, and try process again.
• After update procedure, screen reports lower than latest version	Installation error may have damaged device.	1. Inspect for bent or broken pins. 2. If you have another kit, try it. 3. Ask your distributor to check your upgrade ROM.
• No Attract Mode screens • Board indicators illuminate, but screen is completely blank	Mismatched boot ROM update version and hard drive.	Boot ROM and disk version numbers must match. If necessary, replace boot ROM or disk.
	You installed boot ROM in wrong socket.	1. Be certain that boot ROM device resides in proper socket. 2. If necessary, move boot ROM to proper location.
	You installed upgrade ROM in wrong socket.	1. Install disk ROM. Only use upgrade socket for hard disk drive updates. 2. Load ROM contents onto drive. 3. Remove ROM from game.
	Upgrade ROM remains in VGM *(video game machine)* during game play.	1. During game play, upgrade ROM must be empty. Switch off VGM. 2. Remove upgrade ROM. 3. Switch on VGM. 4. Retest Game Mode.

NOTICE: Someday, software updates for your VGM *(video game machine)* might become available. These upgrades may improve your VGM's performance or add new VGM features. Such upgrades tend to appear sometime after factory first releases VGM. Contact your distributor for information about updates.

Miscellaneous Problem Troubleshooting Table

SYMPTOM	CAUSE	REQUIRED ACTION
• Marquee lamp is intermittent or non-functional • VGM *(video game machine)* starts and plays normally	Faulty fluorescent tube	1. Remove fluorescent tube from its sockets. If you find cracks or darkened ends, install new lamp. Clean tube. 2. Check continuity of both fluorescent tube filaments. 3. Verify that fluorescent tube operates by placing it in working VGM.
	Faulty lamp fixture	1. Verify that lamp pins make good connection with socket contacts. 2. Check ballast for continuity.
	Faulty wiring	1. Measure fluorescent lamp AC voltages. Check wiring and connector continuity from AC power chassis to lamp assembly. 2. If you find faulty wiring, repair or replace it.
• VGM operates normally • Cabinet becomes warm after several hours of use	Obstructed fan	1. Check bottom and rear of cabinet for blocked airflow. 2. Move VGM away from sources of heat. 3. Turn off VGM power. Remove dust from vent holes with high-power vacuum cleaner.
	Faulty wiring	1. Check fan wiring and connectors. 2. If you find faulty wiring, repair or replace it.
	Faulty fan	1. Check operation of all fans, including power supply fan. 2. If fan is faulty, replace it.
• Error messages appear on screen	Faulty hardware	1. Check any assembly (RAM, ROM, Battery, etc.) identified in error messages. 2. Replace faulty parts. 3. Call your authorized distributor for help with unresolved screen messages.

FAN ASSEMBLY
REVERSE FLOW

Fan Location and Mounting