



OPERATOR'S MANUAL

1. Safety
2. Setup
3. Audits, Adjustments & Diagnostics
4. Maintenance, Troubleshooting & Wiring
5. Parts



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Chapter 1. Safety

Live Well: Keep Safe.

Observe safety instructions! Before preparing your game machine for play, make sure that you read these instructions. The Safety chapter is a collection of basic safety instructions and related data. Later chapters include further safety messages.

Key to Safety Terms

Term	Meaning
Warning	Failure to avoid this hazard <i>might</i> cause death or serious injury.
Caution	Failure to avoid this hazard <i>might</i> cause personal injury or property damage.
Notice	Helpful data about good practice. Doesn't relate to health.

Safety Instructions for Fishbowl Frenzy

Δ WARNING: Connectors. Your game machine uses keyed connectors that only fit one way. Forcing a connector could cause injury or equipment damage. Be sure that connectors fit together properly.

Δ WARNING: Cables. With power on, never connect or disconnect game machine cables or connectors. Otherwise, you might damage the game machine.

Δ WARNING: Disconnect power when servicing. Prevent electrical shocks and equipment damage.

Δ WARNING: Fuses. Never jumper a fuse. Only replace a fuse with one of the same type, fusing time and current rating. Failure to observe this warning might result in fire or electrical shocks.

Δ WARNING: Ground connection. The game machine requires a grounded, three-wire power outlet. *Never* defeat the ground pin! Ungrounded operation risks electrical shocks and equipment damage.

Δ WARNING: Mold and Mildew can endanger your health. Mold *removal* can be hazardous to your health and that of co-workers. Spores can invade the lungs and cause respiratory disease. Removal chemicals contain chlorine bleach, which is toxic. During removal, appropriate protective clothing and strong ventilation to the outdoors is necessary. A trained and properly equipped HazMat team should encapsulate and remove mold or mildew from the premises.

Δ WARNING: Restraining cables. You might need to angle the front glass beyond the extent of restraining cables. (The same applies to the LCD.) In that case, you must disconnect these cables. Take care to protect the fragile glass and LCD. Don't let them free-fall out of the cabinet! The LCD might slam into the control panel and break. The front glass could snap or splinter. Before resting the glass and LCD on the CPU (pod) cabinet, remove the top panels. Otherwise, the glass or LCD might shatter against the player button. Shards of glass could fly in every direction.

Δ WARNING: LCD. Handle the liquid crystal display with care. Avoid serious injuries from shattered glass.

Δ WARNING: Transporting. Movers should watch out for one another, avoid injury and be respectful of heavy equipment. Glass and fragile components require special care.

Δ WARNING: Water. Never allow the game machine to come into contact with water, sewage or mud. If such contact occurs, drying the machine *won't* render the machine safe again. Shut off the machine and service it. Repair or replace the electronics. Lube mechanical joints and moving parts. Disinfect surfaces to protect users from bacterial or mold exposure. Otherwise, death or injury by fire, shock, contamination or illness is likely.

◎ CAUTION: Auto Drop Ball serves balls randomly. While a technician may use this feature to diagnose blower and gantry problems, normal gameplay is impossible. Before restoring the game machine to service, disable this feature.

◎ CAUTION

- **Avert accidents and malfunctions!** Your installation must be safe and mechanically stable. It must comply with building codes, ordinances and procedures in this manual.
- **For safety's sake,** turn off any malfunctioning game device. Have a qualified technician service the machine. Call your distributor and see if your warranty covers the service fee. Your warranty is in force for six months after your purchase.

◎ CAUTION: ESD / EMP. The term ESD stands for electrostatic discharge. The term EMP stands for electromagnetic pulse. ESD is a conducted threat to your equipment. EMP is a radiated threat. Yet wiring can inductively pick up an EMP, converting EMP into a conducted threat. Both natural and man-made sources can produce ESD or EMP. ESD and EMP effects vary from software disruption to hardware malfunctions, damage or destruction.

⊙ **CAUTION: Marquee.** Before transporting a game machine, remove the marquee. Otherwise, the marquee could break off.

⊙ **CAUTION: Liability.** This equipment might be subject to damage from static discharges or power surges. Team Play assumes no liability for equipment damage. We recommend a surge protector.

⊙ **CAUTION: PC handling.** The hard drive is sensitive to mechanical shocks. Gentle handling will reward you with long and reliable operation. Otherwise, a sharp rap to an operating hard drive can destroy it.

⊙ **CAUTION: Playfield surface.** The playfield surface is a soft plastic. A mild cleaner is necessary. Use of abrasives will scratch this plastic surface. Abrasives can also pit the glass monitor screen.

⊙ **CAUTION**

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- Intellectual property laws protect the game machine's hardware, software and content.
- Product specifications might change without notice.

⊙ **CAUTION: Shipping Screws.** You *must* remove the shipping screws. Leaving them in might damage the LCD.

⊙ **CAUTION: Show FPS.** Before putting the game into service, disable this feature. Otherwise, code will overwrite game graphics and spoil gameplay.

⊙ **CAUTION: Start Mode.** When you start the game machine, don't go straight into Diagnostic Mode. Instead, allow the machine to start in Game Mode so that the switches initialize properly. Then after a few moments, you may enter Diagnostic Mode. Otherwise, switches might start in the wrong position during a game, causing a malfunction.

⊙ **CAUTION: The menu, Reset Adjustables to Factory Defaults** can reset both coin and game settings. Take care: There is no "undo" feature.

⊙ **CAUTION: The Coin Audits menu** can reset both coin and game settings. Take care: There is no "undo" feature.

☉ **CAUTION: Flood water** can contain minerals that could damage your equipment.

☉ **CAUTION: The Game Audits menu** can reset both coin and game settings. Take care: There is no “undo” feature.

☉ **CAUTION: Ventilation.** Allow at least two inches of clearance for ventilation between the back of the game machine and the building wall. Otherwise, the wall will obstruct ventilation fans at the top of the cabinet. The machine might overheat.

☉ **CAUTION: When joining cabinets** or installing panels, avoid pinching wires.

☉ **CAUTION: You are responsible** for proper installation, maintenance and operation. Team Play Inc. isn't accountable for damage resulting from faulty assembly, maintenance or operation.

◆ **NOTICE: Balls, installing from front.** You can install balls from the front or back of the machine. To install from the front, open the speaker panel and drop the balls onto the playfield.

◆ **NOTICE: Copyright** © 2014 by Team Play Inc. All rights reserved. Keep this manual available for use.

◆ **NOTICE: Patent** www.teamplayinc.net/legal.html

◆ **NOTICE: Speaker Replacement.** You must replace the top speakers in pairs. .

◆ **NOTICE: Trademark.** Fishbowl Frenzy is a trademark of Team Play Inc. All rights reserved.

Chapter 2. Setup

Game Machine Details

DIMENSIONS (*without marquee*)

Height99 inches (2.52 meters)
Depth56 inches (1.42 meters)
Width40 inches (1.02 meters)

MARQUEE (TOPPER) DIMENSIONS

Height 33" (0.84 meters)
Depth 16" (0.41 meters)
Width 39" (1 meter)

WEIGHT (*unpacked*)

LCD Cabinet600 lbs.(272.16 kg)
CPU Cabinet (Pod)..... 150 lbs. (68.04 kg)
Marquee..... 20 lbs. (9.07 kg)

WEIGHT (*shipping*)

LCD Cabinet725 lbs. (328.85 kg)
Pod 190 lbs. (86.18 kg)
Marquee..... 40 lbs. (18.14 kg)

POWER

Domestic..... 120 VAC @ 60 Hz, 6.3 A
International 230 VAC @ 50 Hz, 3.5 A

OPERATING TEMPERATURE

Fahrenheit32° F to 104° F
Centigrade0° C to 40° C

OPERATING HUMIDITY

Relative humidity, non-condensing 5 - 95%



Quick Installation Guide

You'll Need These Tools

- 7/16-inch socket
- 3/4-inch end wrench
- #2 Phillips screwdriver
- 11/32 socket or hand driver
- T15 tamper-proof Torx® driver
- T27 tamper-proof Torx® driver
- 3/8-inch socket or hand driver

⚠ WARNING

Restraining cables. You might need to angle the front glass beyond the extent of restraining cables. (The same applies to the LCD.) In that case, you must disconnect these cables. Take care to protect the fragile glass and LCD. Don't let them free-fall out of the cabinet! The LCD might slam into the control panel

and break. The front glass could snap or splinter. Before resting the glass and LCD on the CPU (Pod) cabinet, remove the top panels. Otherwise, the glass or LCD might shatter against the player button. Shards of glass could fly in every direction.

ⓘ CAUTION

Shipping Screws. You *must* remove the shipping screws. Leaving them in might damage the LCD. See Step 9.

- | | |
|--|--|
| [] 1. Remove the game machine from its shipping skids. <i>There are three pieces on two skids.</i> | [] 13. Connect the cables between the LCD cabinet and CPU cabinet (Pod): <i>Ten connectors.</i> |
| [] 2. Check for shipping damage. | [] 14. Adjust the CPU (Pod) cabinet leg levelers. |
| [] 3. Stand the LCD (<i>large</i>) cabinet upright. | [] 15. Load the balls (<i>minimum: four</i>). |
| [] 4. Adjust the LCD cabinet leg levelers. | [] 16. Assemble and install the marquee. (See <i>Assemble and Install the Marquee</i> , p. 2-6.) |
| [] 5. Remove the two screws that secure the upper front speaker panel. These screws are on the sides of the LCD cabinet. | [] 17. Bolt the marquee to the LCD cabinet roof. On each side of the marquee, use two half-inch, number 6 sheet metal screws. |
| [] 6. At the top of the LCD cabinet, remove the foam shipping insert. This insert is under the cable support that attaches to the ball trolley. | [] 18. Turn on the power switch. |
| [] 7. Remove the hex bolts that secure the front glass to the cabinet frame. | [] 19. Verify that the game starts and Attract Mode runs. |
| [] 8. Pivot the viewing glass forward. | [] 20. Set pricing as you want it. (Use these menu settings: Coin 1, Coin 2, and Price Per Play.) |
| [] 9. Remove the two shipping screws from the LCD panel. <i>Removal reduces the chance of LCD damage.</i> | [] 21. If you're satisfied that the game machine operates properly, reinstall the bottom LCD access panel. |
| [] 10. Unscrew and remove the metal access panel at the bottom-front of the LCD cabinet. | [] 22. Reinstall the two top panels on the CPU cabinet (Pod). |
| [] 11. Remove the two top panels from the CPU cabinet (Pod). | [] 23. On the LCD cabinet, pivot the speaker panel back against the viewing glass. |
| [] 12. For this step, use four bolts with flat and lock washers: Assemble the LCD cabinet to the CPU cabinet (Pod). | [] 24. To secure the speaker panel, reinstall the screws that you removed earlier. |

Detailed Assembly Instructions

Unpack the Game Machine

Δ WARNING: Transporting. Movers should watch out for one another, avoid injury and be respectful of heavy equipment. Glass and fragile components require special care.

Δ WARNING

Disconnect power when servicing. Prevent electrical shocks and equipment damage.

You'll Need These Tools

- 7/16-inch socket
- 3/4-inch end wrench
- T15 tamper-proof Torx® driver
- T27 tamper-proof Torx® driver

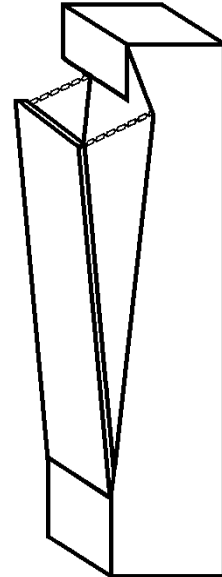
- [] 1. Place the game machine in a suitable play or service area.
- [] 2. Remove the game machine from its shipping skids. *There are three pieces...*
 - The main game cabinet (*LCD cabinet*) ships with its left side on the skid.
 - The CPU cabinet (*Pod*) ships on a separate skid.
 - The marquee (*topper*) arrives in its own carton. You'll find this carton on the skid with the CPU (Pod) cabinet. (The marquee box is perpendicular to the CPU cabinet.) You must assemble the marquee and mount it atop the LCD cabinet. (*Instructions appear in this chapter.*)
- [] 3. Check for shipping damage to the following...
 - Cabinet back door
 - Cabinet coin door
 - Cabinet decals
 - Cabinet glass: Marquee and LCD
 - Fish bowls
- [] 4. Check the AC line cord for visible signs of damage. Pay particular attention to the plug and line cord insulation.
- [] 5. At the location, move the LCD (*large*) cabinet upright and stand it on its bottom end. Allow at least three feet of room behind the cabinet for assembly.
- [] 6. This step requires a 3/4-inch end wrench. On the LCD cabinet, adjust the leg levelers as necessary. Leveling cabinets by adjusting leg levelers is a job for two people.

Remove Shipping Insert & Screws

You'll Need These Tools

- 7/16-inch socket
- 3/4-inch end wrench
- #2 Phillips screwdriver
- T15 tamper-proof Torx® driver
- T27 tamper-proof Torx® driver

- [] 1. This step requires a T15 tamper-proof Torx® driver. From the side of the LCD cabinet, remove the speaker panel retaining screws. (One screw on each side of the cabinet.)
- [] 2. At the top of the LCD cabinet is a foam shipping insert. (Look under the cable support from the ball server assembly.) The foam prevents the ball-server trolley from crashing into the ends of the gantry. Remove the insert.
- [] 3. Load the balls (*minimum: four*). Drop the balls onto the top of the playfield.
- [] 4. Pivot the speaker panel away from of the cabinet.
- [] 5. The step requires a 7/16-inch socket. Remove the hex bolts from the upper corners of the viewing glass.
- [] 6. Pivot the front glass out of the cabinet by two feet. (Two hold-back cables restrict maximum travel to two feet.)



⚠ WARNING

Restraining cables. You might need to angle the front glass beyond the extent of restraining cables. (The same applies to the LCD.) In that case, you must disconnect these cables. Take care to protect the fragile glass and LCD. Don't let them free-fall out of the cabinet! The LCD might slam into the control panel and break. The front glass could snap or splinter. Before resting the glass and LCD on the CPU (Pod) cabinet, remove the top panels. Otherwise, the glass or LCD might shatter against the player button. Shards of glass could fly in every direction.

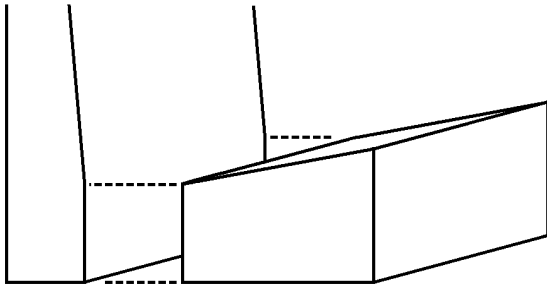
ⓘ CAUTION

Shipping Screws. You *must* remove the shipping screws. Leaving them in might damage the LCD. See Step 7.

- [] 7. This step requires a #2 Phillips screwdriver. Remove the two shipping screws from the LCD panel. *Removal reduces the chance of LCD damage.*
- [] 8. The step requires a 7/16-inch socket. Fasten the viewing glass to the cabinet frame. Use the two fasteners that you removed during disassembly.
- [] 9. Ease the speaker panel back into position.
- [] 10. This step requires a T15 tamper-proof Torx® wrench. Fasten the speaker panel with the two screws that you removed during disassembly.

Join the Cabinets

- [] 1. This step requires a T15 tamper-proof Torx® wrench. Unscrew and remove the metal access panel at the bottom-front of the LCD cabinet. Without the panel in the way, you can reach the cables.



- [] 2. This step requires a T27 tamper-proof Torx® wrench. Remove the two top panels from the CPU cabinet.
- [] 3. Move the CPU (Pod) cabinet in front of the larger LCD cabinet. The coin door must face the player position.
- [] 4. This step requires a 3/4-inch end wrench. Adjust the two leg levelers on the CPU cabinet. The goal is to make the CPU cabinet even with the LCD cabinet. Leveling cabinets by adjusting leg levelers is a job for two people.

- [] 1. Slide the CPU cabinet flush with the LCD cabinet.
- [] 2. This step requires a 7/16-inch socket. Assemble the LCD cabinet to the CPU cabinet (Pod). Use this hardware from the hardware kit: 1/4-20 x 1-1/2-inch hex head bolts, flat washer and lock washer. The bolts screw directly into the LCD cabinet frame. Installing alternate right and left bolts together is a good idea.






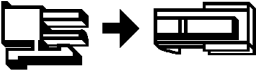







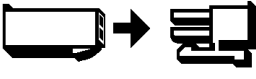






ⓘ CAUTION

When joining cabinets or installing panels, avoid pinching wires.

- [] 3. Route cables through the opening in the rear wall of the CPU cabinet (Pod).
- [] 4. Connect cables between the LCD cabinet and CPU cabinet: Mate these connectors...

Left Side of Cabinet (<i>5 connectors</i>)	Right Side of Cabinet (<i>5 connectors</i>)
<ul style="list-style-type: none"> • HDMI cable • 2-pin connector for ball-server motor • 6-pin connector for trolley motor driver / deadman • 2-pin connector for LCD power • 3-pin connector for solenoid power-enable 	<ul style="list-style-type: none"> • Playfield optos, etc.: 24-pin • Cabinet: 16-pin; switch inputs, lights, chute optos, blower control • 3.5mm audio connector: Woofer & satellite speakers (<i>up high</i>) • AC 3-pin, 3191 series locking • Ground braid from LCD cabinet: Secure it to CPU cabinet braid on right wall of CPU cabinet. Use provided wing nut.

Check 10 connections between cabinets!

Cabt-Left	Cabt-Right
  -HDMI video 1	  -Pfld optos (18) -Gnd/ +5 -Home/Away Gantry -Home/Away Trolley 6
  -Loader motor 2	  -Gnd/ +24 -Gnd/ +12(A) -Gnd/ +12(B) -Gnd/ +5 -Ball server chute optos 1-4 -Ball loader optos 1&2 -Blower ctl -Blower +12 7
  -Trolley motor driver/ deadman 3	  -Stereo audio 8
  -LCD power 4	  -AC power 9
  -Solenoid power-enable 5	  -Join braids between cabts 10

Fish Bowl Frenzy Marquee Installation

(This replaces Marquee instructions on page 7 of manual)

1. Check to verify all parts.

- A. (1) Large Plexi Marquee w/LED lights and controller
- B. (1) Metal Mounting Plate w/LED strip attached
- C. (2) Metal Mounting Brackets
- D. Bag of Hardware:

At Least: (10) #8-32 keps nuts

(9) #8-32 machine black screws

(9) black washers

(4) #6 x 1/2" wood screws

A.



B.



C.



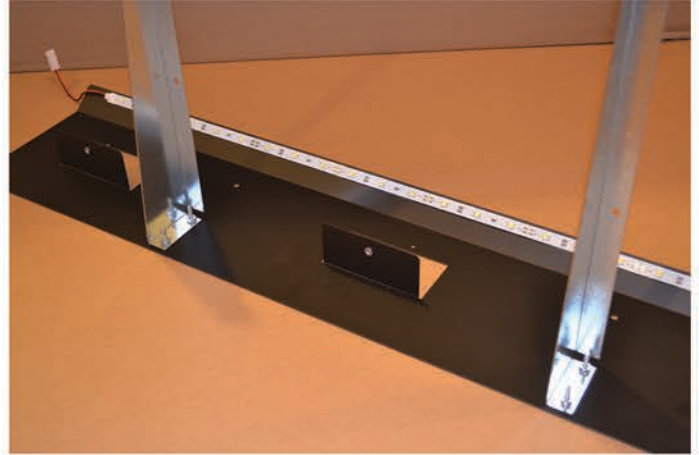
D.



Fish Bowl Frenzy Marquee Installation

(This replaces Marquee instructions on page 7 of manual)

2. Mount the 90° short side of metal brackets to the mounting plate using (2) #8 Keps nuts for each bracket. Make sure the 90° long side of each metal mounting bracket faces the LED lights on the metal mounting plate.



3. Position the Plexi Marquee in front of the metal mounting brackets; position and secure the top hole on each side of the marquee to the top hole on the metal mounting brackets using #8 black machine screws with black washers on the front side face of the plexi.



4. Position and secure the marquee to the center hole of the metal mounting plate using #8 black machine screw with a black washer. This will align the other 6 mounting holes making it easier to fasten the Marquee to the metal mounting brackets and mounting plate.
5. When securing the lower left side of the marquee to the metal mounting plate, make sure not to pinch the wires leading to the controller board between the marquee and mounting plate.



Fish Bowl Frenzy Marquee Installation

(This replaces Marquee instructions on page 7 of manual)

6. Place the fully assembled Marquee on top of your Fish Bowl Frenzy cabinet. Position it toward the front of the machine; make sure that the wire leads coming from the top of your Fish Bowl Frenzy cabinet reach the connectors on the Marquee.



7. Secure the assembled Marquee using the (4) #6 x 1/2" Wood screws. There are 4 holes through the metal mounting plate (2 positioned between the LED light strip and Plexi Marquee and 2 positioned behind the Plexi Marquee).



8. Connect the 2 wire lead from the Fish Bowl Frenzy main cabinet to the LED controller board. Connect the 2 wire lead from the Fish Bowl Frenzy main cabinet to the LED light strip.



Inspect Your Work

You'll Need These Tools

- 3/4-inch end wrench

- [] 1. On the back of the LCD cabinet, locate the AC line cord. Plug the line cord into an AC outlet. The switch is on the bottom left side. (As you face the cabinet back.)

Δ WARNING

Ground connection. The game machine requires a grounded, three-wire power outlet. *Never* defeat the ground pin! Ungrounded operation risks electrical shocks and equipment damage.

- [] 2. On the back of the game cabinet, locate the game AC power switch. The switch is on the bottom left side. (As you face the cabinet back.)
- [] 3. Turn on the power switch. After the game finishes loading, the game's Attract Mode should begin. Loading takes about 30 seconds.
- [] 4. Verify that the game starts and Attract Mode runs.
- [] 5. Check the game lamps for any that don't light.
- [] 6. If you're unfamiliar with the game machine's adjustment system, read *Chapter 3* of this manual. Then return to this instruction. Otherwise, enter the Main Menu.
- [] 7. Set pricing as you want it. (Use these menu settings: Coin 1, Coin 2, and Price Per Play.)
- [] 8. Set the volume control for the desired sound level. This control is inside the CPU cabinet (Pod). Inside the upper coin door panel, the control mounts to the right cabinet wall.
- [] 9. On the side of the volume control mount is a slider. This slider controls woofer (bass) volume. Set the woofer control for the desired sound level.
- [] 10. If the sound volume isn't loud enough for your location, go to the Sound Volume Menu.

- [] 11. Set the Sound Volume Menu as necessary.
- [] 12. Go to the Diagnostic Menu.
- [] 13. Select Bowl Opto Switch Tests.
- [] 14. Verify that all bowl trigger switches operate. See the procedure in *Chapter 4. Maintenance, Troubleshooting & Wiring*.
- [] 15. In the menu system, go to Blower and Gantry Tests.
- [] 16. Verify that the ball server trolley (*drop mech*) can drop a ball.
- [] 17. Check that the gantry trolley can travel all the way right and left.
- [] 18. By running the Switch Test, check proper game machine operation.
- [] 19. To verify normal gameplay, play a few games.

ⓘ CAUTION

When joining cabinets or installing panels, avoid pinching wires.

- [] 20. This is a job for two or three people. Move the game machine into to its exact position. For proper ventilation, keep the LCD cabinet at least two inches away from the wall.
- [] 21. This step requires a 3/4-inch end wrench. Adjust the leg levelers on both cabinets as necessary. Leveling cabinets by adjusting leg levelers is a job for two people.
- [] 22. Find the coin door key, cashbox key and ticket door key. The keys are in a red bag. The bag ships in a cardboard box inside the CPU (Pod) Cabinet.
- [] 23. Store the keys in a safe place.

Gameplay

Fishbowl Frenzy is a colorful redemption game with several twists...

- **This is an oversized machine**, standing nine feet tall. Yet every nook is full of action!
- **Animated fish** appear to swim inside 3D fishbowls. The fishbowls actually protrude from the front of the machine.
- **Server.** Using the machine's movable ball server or trolley, the player drops balls into the playfield.
- **Points.** A player earns points by succeeding in landing a ball in one of the fishbowls.
- **Landing a ball** in a bowl causes the system to dispense a number of tickets.
- **Button.** The SERVE BALL button controls a unique ball server chute that rides on a trolley in an overhead gantry.
- **A skilled player** can serve the ball in such a way that it falls into a particular fishbowl.
- **Multiball play** is possible once per game. One of the bowls is the Multiball fishbowl. Below this bowl, you'll notice the sparkling display MULTIBALL. A player earns the Multiball feature by landing a ball in the Multiball fishbowl. Multiball causes the gantry to serve three balls in quick succession. Because the trolley moves while serving, each ball falls in a different location. Any of these balls might drop into a fishbowl, triggering the game machine to vend tickets. During Multiball Mode, every fishbowl dunk adds to the score. Another aspect of Multiball is that it varies from game to game. The Multiball fishbowl doesn't remain in a constant location. Any bowl can be a Multiball fishbowl. Between games, the game machine switches the location of the Multiball fishbowl. Yet in any game, the feature never changes bowls.

ⓘ CAUTION

Start Mode. When you start the game machine, don't go straight into Diagnostic Mode. Instead, allow the machine to start in Game Mode so that the switches initialize properly. Then after a few moments, you may enter Diagnostic Mode. Otherwise, switches might start in the wrong position during a game, causing a malfunction.

ⓘ CAUTION

Ventilation. Allow at least two inches of clearance for ventilation between the back of the game machine and the building wall. Otherwise, the wall will obstruct ventilation fans at the top of the cabinet. The machine might overheat.

Chapter 3. Adjustments, Audits & Diagnostics

Menu System

Special software in your game machine provides a method for tailoring the customer experience and improving your bottom line. You can temporarily shut down the game machine and adjust operation or audit play statistics. Or you can diagnose problems. To help you, an operator menu system displays. Over two dozen menus give you point-and-click access to every software-controlled aspect of the game experience. The menus allow you to find and resolve game issues.

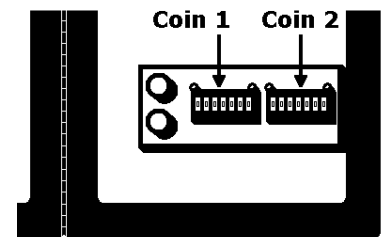
The menu system is accessible from Attract Mode or even during a game. (If you enter Diagnostic Mode during a game, the game aborts. Despite this fact, the player doesn't lose his tickets. After you exit Diagnostic Mode, the game machine dispenses the player's tickets.)

Diagnostic Button Panel

Bracket. Locate the *Diagnostic Button Panel*. (See the drawing, right.) The button panel mounts to a bracket inside the coin door, on top of the cash box vault.

To launch Diagnostic Mode, press the upper or lower diagnostic button.

Your coin meters are to the right of the buttons. The left meter counts the coins into Coin Chute 1. The right meter counts Coin 2 coins.



Diagnostic buttons in coin door

Navigating Through Menus

Function	Control
Move up through menu rows	TOP DIAGNOSTIC
Move down through menu rows	BOTTOM DIAGNOSTIC
Make the selected change	SERVE BALL

To move *down* through menu rows, press the BOTTOM DIAGNOSTIC button. To move *up* through menu rows, press the TOP DIAGNOSTIC button. The type in the selected row turns yellow. To activate a menu option, press the SERVE BALL button.

To return to the previous menu, activate the BACK option. Exiting from the Main Menu causes the game machine to enter Game Mode.

Improve Earnings

What players want. You'll want to take note of the Coin Adjustments and Game Adjustments menus. These menus can augment your bottom line. Game adjustments help you to deliver what players want, encourage repeat plays and even attract new players.

On the Coin Adjustments screen, you can change the pricing to suit your location.

Game Adjustments offers features that you can tailor to customers: Attract sounds draw the curious. The adjustable number of Multiballs and the ticket spin feature add pizzazz to your presentation. From Game Adjustments, you can also alter the ticket value and other ticket options.

How This Chapter Can Help

Finding your way. The menu system has four levels. That is, the top menu presents categories. You pick a category and then a lower level menu opens. This menu in turn might offer various types of choices. Two or three levels down from the main menu, you'll find what you need. For example, imagine that you're searching for a business. Here's how a menu system would allow you to find that business...

- The top menu asks what country. You choose a country.
- On the country's submenu, you choose a province.
- On the province submenu, you choose a city.
- On the city page, you locate the desired business.

To help you with the menus, this chapter provides listings of each screen. Each menu's page also includes descriptive information about the menu. At the beginning of each listing, a summary table shows what menu, submenu, etc. that this page is part of. This table will help you to trace the path to the page, starting with the main menu. See the example table below...

Main Menu→	Coin Adjustments, Submenu→	1.1.1.0, Coin 1, Sub-Submenu	
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Tour of the Menu System

In the table below, each line represents a submenu under the Main Menu. We've numbered the lines to indicate accessibility. You can use the numbers to find which menu takes you to which submenu. Here's how the numbers work...

- Let's say that you're looking at the main menu, 1.0.0.0. The first number ("1") indicates the main menu. The trailing zeros indicate that you're on the top level for menu number 1. The main menu takes you to submenus that begin with "1." (*That's all of them!*)
- If the second number is greater than zero ("1.1.0.0," etc.), it indicates a submenu. If the desired submenu is 1.1.0.0, you can reach it from the main menu "1.0.0.0."
- A nonzero third number ("1.1.1.0," etc.) indicates a sub-submenu. If the desired sub-submenu is 1.1.1.0, you can reach it from submenu "1.1.0.0."
- A nonzero fourth number ("1.1.1.0," etc.) indicates a sub-sub-submenu. Submenu rules apply.

1.0.0.0 Fishbowl Frenzy - Main Menu	
1.1.0.0 Coin Adjustments 1.1.1.0 Coin 1 1.1.2.0 Coin 2 1.1.3.0 Price Per Play 1.1.4.0 Swipe Card Mode 1.1.5.0 Reset Adjustables to Factory Defaults	1.5.0.0 Diagnostics 1.5.1.0 Standard Switch Tests 1.5.2.0 Bowl Opto Switch Tests 1.5.3.0 Coin Meter Tests 1.5.4.0 Ticket Dispenser Tests 1.5.5.0 Blower and Gantry Tests 1.5.6.0 Audio Test 1.5.7.0 Button Light Test 1.5.8.0 Coin 1 Lockout on/off Test 1.5.9.0 Coin 2 Lockout on/off Test 1.5.A.0 Reboot Game 1.5.B.0 Shut Down Game 1.5.C.0 Show FPS: off 1.5.D.0 Auto Drop Ball: off
1.2.0.0 Coin Audits 1.3.0.0 Game Audits 1.3.1.0 Clear Current Audits	1.6.0.0 Software Update 1.7.0.0 Sound Volume 1.8.0.0 System Information 1.9.0.0 Set Date – Game will Restart
1.4.0.0 Game Adjustments 1.4.1.0 Attract Sounds 1.4.2.0 # of Multiballs 1.4.3.0 Top Bowl Ticket Spin 1.4.4.0 Ticket Value 1.4.5.0 Ticket Amount Per Ticket 1.4.6.0 Remember Tickets Owed 1.4.7.0 Bowl/Drain Ticket Adjustments 1.4.8.0 Top Bowl Ticket Adjustments 1.4.8.1 Top Bowl 1 Tickets	

Main Menu

When you press either diagnostic button, the Main Menu appears. The Main Menu presents a number of selections that you can choose. As you can see in the figure below, these options cover game adjustments, audits and diagnostics.



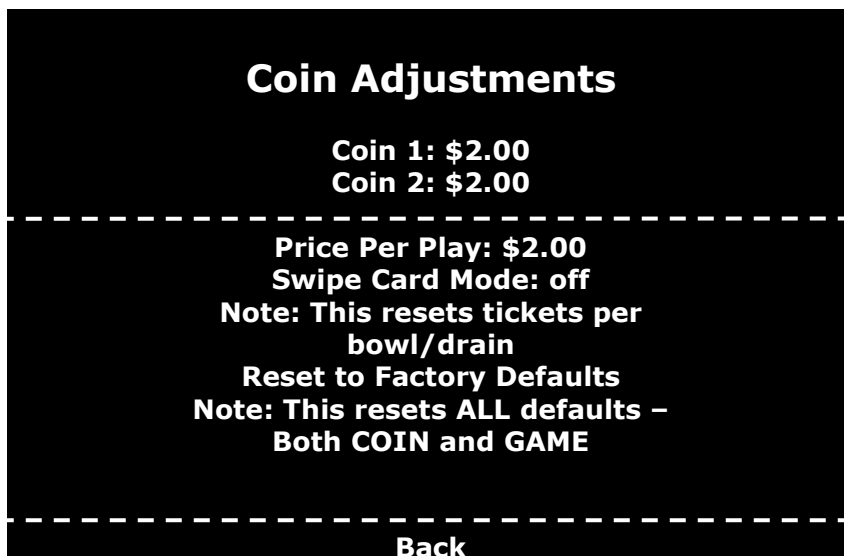
Features on the Main Menu

Feature	What It Does
Coin Adjustments	Enter a menu that allows you to set pricing for coin acceptors. You'll also find a swipe-card option.
Coin Audits	Enter the Coin Audit Menu. Check or clear collection records for the Coin 1 or Coin 2 chutes.
Game Audits	Enter the Game Audits Menu. Audit totals for ball and fishbowl statistics, plays, play time, and tickets.
Game Adjustments	Enter the Game Adjustments Menu. Set adjustable game features: Attract sounds, Multiball Mode, ticket value, etc.
Diagnostics	Enter the Diagnostics Menu. As you desire, test each peripheral device: Switches, meters, ball-server solenoids, motors, audio, and more. Check the frame rate (FPS) of the liquid crystal monitor.
Software Update	Enter a menu that allows you to update system software for the game machine.
Sound Volume	Enter the Sound Volume Menu: Default 85. Custom settings from 0 to 100.
System Information	Enter a menu that provides the current system and OS version, etc.
Set Date	Enter a menu that allows you to set the date and time.
Exit	Leave the menu system and enter Attract Mode.

Main Menu→	1.1.0.0, Coin Adjustments, Submenu		
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Coin Adjustments

From the Main Menu, pick Coin Adjustments. The Coin Adjustments Menu opens. From here, you can pick gameplay, coinage or sound adjustments. Then go to the selected menu and tailor the game to your installation.



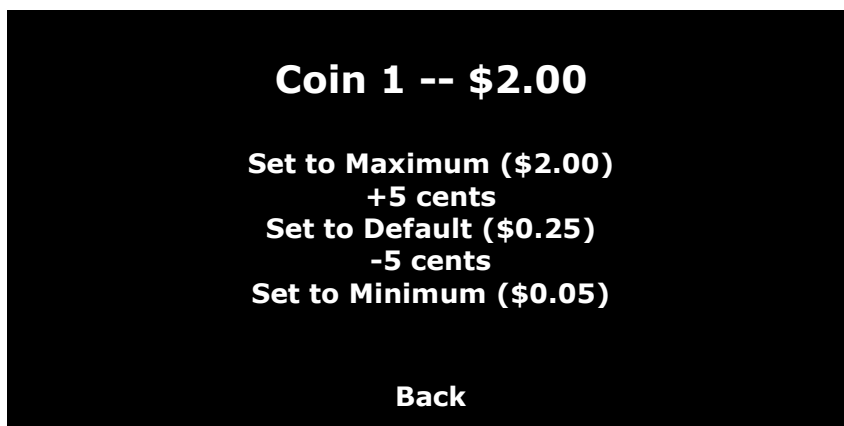
Features on the Coin Adjustments Menu

Feature	What It Does
Coin 1	Sets the value of a switch closure at Coin Chute 1 (dollar fraction).
Coin 2	Sets the value of a switch closure at Coin Chute 2 (dollar fraction).
Price Per Play	Sets the charge for one round of the game.
Swipe Card Mode	On (<i>default</i>): Accept swipe cards. Off: Ignore swipe cards.
Reset to Factory Defaults	Enter a menu that allows you to reset software to restore original settings.
Back	Returns the system to the Main Menu.

Main Menu→	Coin Adjustments, Submenu→	1.1.1.0, Coin 1, Sub- Submenu	
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Coin 1

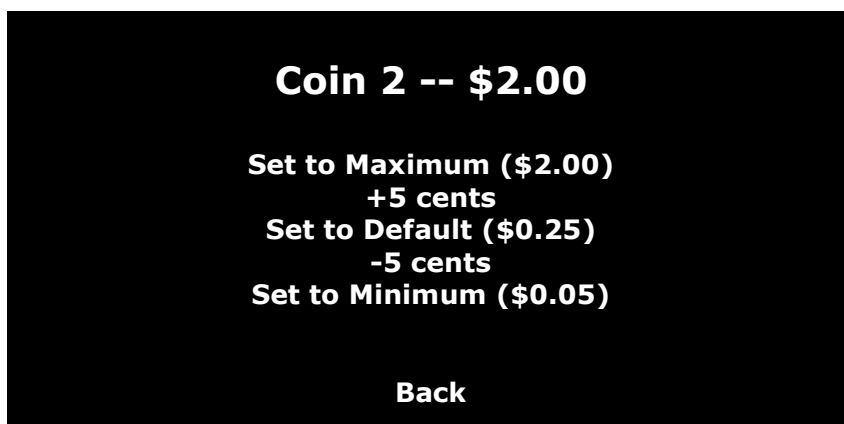
From the Coin Adjustments Menu, pick Coin 1. The Coin 1 Menu opens. From this screen, you can adjust the value of a switch closure at the Coin 1 chute. The maximum value is \$2 and the minimum is a nickel. You can raise or reduce the value in nickel increments. The default setting is 25 cents. A line option allows you to pick this default.



Main Menu→	Coin Adjustments, Submenu→	1.1.2.0, Coin 2, Sub- Submenu	
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Coin 2

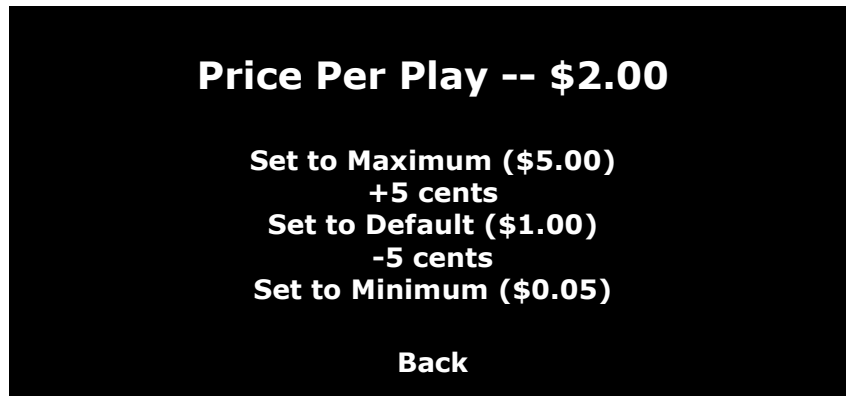
From the Coin Adjustments Menu, pick Coin 2. The Coin 2 Menu opens. From this screen, you can adjust the value of a switch closure at the Coin 2 chute. The maximum value is \$2 and the minimum is a nickel. You can raise or reduce the value in nickel increments. The default setting is 25 cents. A line option allows you to pick this default.



Main Menu→	Coin Adjustments, Submenu→	1.1.3.0, Price Per Play, Sub-Submenu	
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Price per Play

From the Coin Adjustments Menu, pick Price Per Play. The Price Per Play opens. Use this menu to set the charge for one round of the game. The maximum value is \$5 and the minimum is a nickel. You can raise or reduce the value in nickel increments. The default setting is \$1. A line option allows you to pick this default.

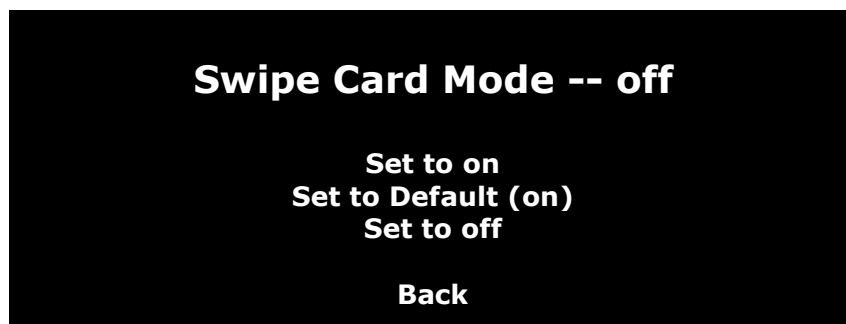


Main Menu→	Coin Adjustments, Submenu→	1.1.4.0, Swipe Card, Sub-Submenu	
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Swipe Card Mode

From the Coin Adjustments Menu, pick Swipe Card Mode. The Swipe Card Menu opens.

Use this menu to enable swipe card payments. On the swipe card screen, you can turn the swipe card option off or on. Or you can pick the default setting, which is "on."



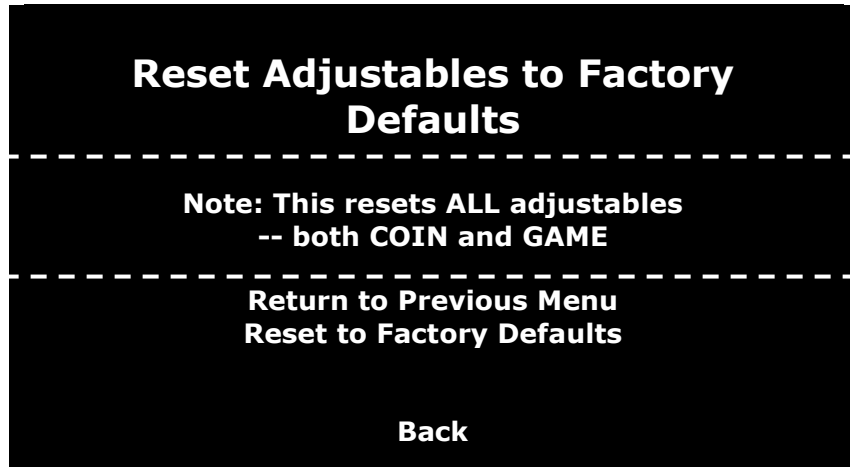
Set Swipe Card Value. The swipe card value may correspond to Coin 1 or Coin 2. Suppose that you connect the card reader to the Coin 1 wiring. Then the game system recognizes the card reader as "Coin 1." In that case, go to the Coin 1 Menu (1.1.1.0) to set the card value.

Effects Attract Mode Screen. If you select Swipe Card Mode, Attract Mode substitutes "Swipe Card" for "Insert Coin."

Main Menu→	Coin Adjustments, Submenu→	1.1.5.0, Reset Adjustables to Factory Defaults, Sub-Submenu	
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Reset Adjustables to Factory Defaults

From the Coin Adjustments Menu, pick Reset Adjustables to Factory Defaults. The Reset Adjustables Menu opens. This powerful menu can bring your game software back into compliance with the original settings.



ⓘ CAUTION

The menu, **Reset Adjustables to Factory Defaults** can reset both coin and game settings. Take care: There is no “undo” feature.

Main Menu→	1.2.0.0, Coin Audits, Submenu		
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Coin Audits

From the Main Menu, pick Coin Audits. The Coin Audits Menu opens. From this menu, you can check or clear collection records for the coin chutes.

Coin Audits

Coin 1 Lifetime: \$2400.00
Coin 2 Lifetime: \$200.000
Plays Lifetime: 1200

Coin 1 Current: \$24.00
Coin 2 Current: \$2.00

Clear Current Audits
note: This clears all audits – both COIN and GAME

Clear Current Credits / Coins

Please Clear Audits after changes
Are made to ensure correct data tracking

Back

ⓘ CAUTION

The Coin Audits menu can reset both coin and game settings. Take care: There is no “undo” feature.

Main Menu→	1.3.0.0, Game Audits, Submenu		
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Game Audits

From the General Audits Menu, pick Game Audits. The Game Audits Menu opens. Use this menu to view audit totals for ball and fishbowl statistics, plays, play time, and tickets.

Game Audits

Total Plays: 1200
Total Play Time: 2000
Plays Lifetime: 1200
Total Balls Dropped: 1500
Total Multiball wins: 100
Tickets won: 7300
Tickets Lifetime: 68000
Drain Left: 300
Drain Right: 200
Missed Ball: 0
Payout Percent: 30

Bowl Hits

Bowl 1: 190	Bowl 8: 33
Bowl 2: 135	Bowl 9: 11
Bowl 3: 210	Bowl 10: 47
Bowl 4: 121	Bowl 11: 82
Bowl 5: 134	Bowl 12: 71
Bowl 6: 176	Bowl 13: 79
Bowl 7: 34	

Clear Current Audits
Note: This clears ALL audits –
Both
COIN and GAME

Back

© CAUTION

The Game Audits menu can reset both coin and game settings. Take care: There is no “undo” feature.

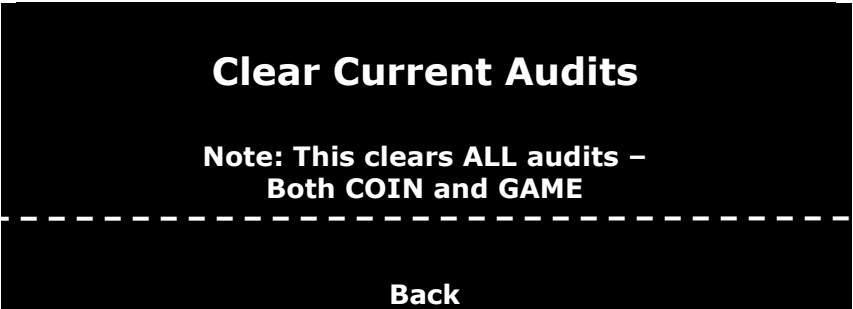
Uses for Game Audits

- Compare popularity of machines at different locations.
- Check the earnings impact of a game adjustment.
- Pinpoint mysterious problems.
- Analyze and compare the performance of games.

Main Menu→	Game Audits, Submenu→	1.3.1.0, Clear Current Audits, Sub- Submenu	
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Clear Current Audits

From the Game Audits Menu, pick Clear Current Audits. The Clear Current Audits Menu opens.



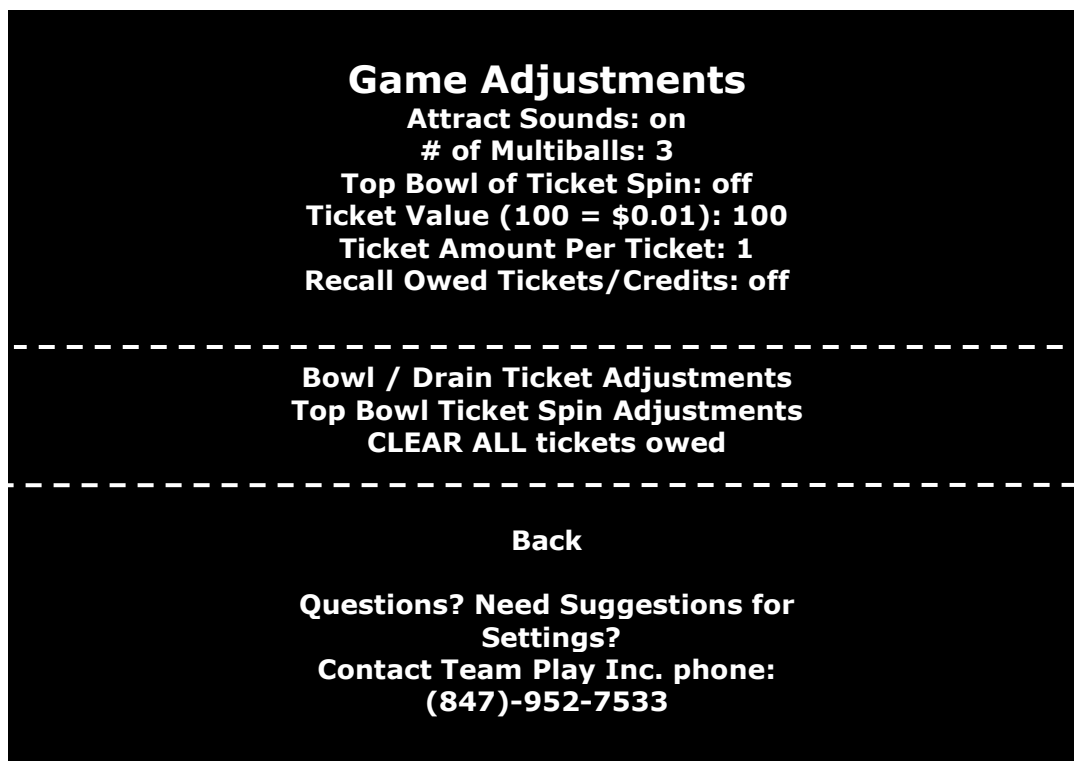
ⓘ CAUTION

The Game Audits menu can reset both coin and game settings. Take care: There is no “undo” feature.

Main Menu→	1.4.0.0, Game Adjustments, Submenu		
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Game Adjustments

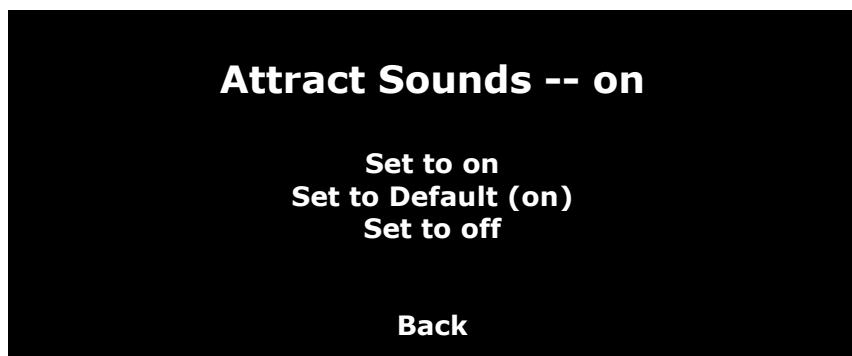
From the Main Menu, pick Game Adjustments. The Game Adjustments Menu opens. From this menu, you can set adjustable game features: Attract sounds, Multiball Mode, ticket value, etc.



Main Menu→	Game Adjustments, Submenu→	1.4.1.0, Attract Sounds, Sub-Submenu	
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Attract Sounds

From the Game Adjustments Menu, pick Attract Sounds. The Attract Sounds Menu opens. Use this menu to switch Attract Mode sounds on or off. The default setting is on.



Main Menu→	Game Adjustments, Submenu→	1.4.2.0, # of Multiballs, Sub-Submenu	
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of Multiballs

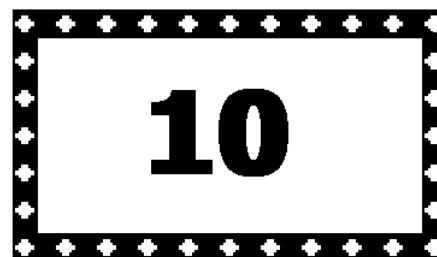
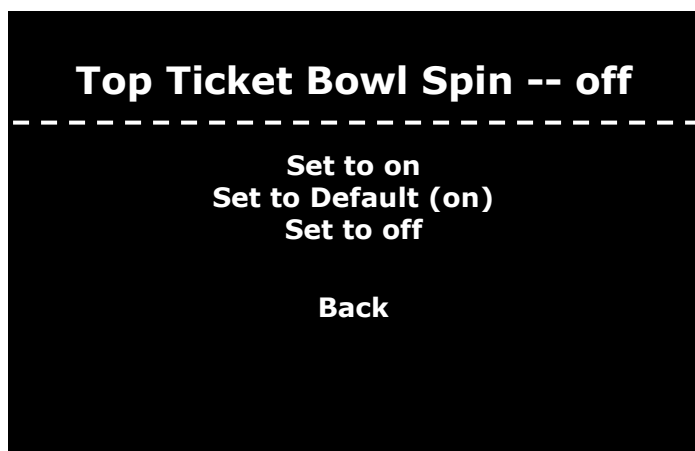
From the Game Adjustments Menu, pick # of Multiballs. The # of Multiballs Menu opens. Use this menu to alter or eliminate Multiball play. The maximum value is three Multiballs. The minimum is zero. You can raise or reduce the value by one ball at a time. The default setting is three. A line option allows you to pick this default.



Main Menu→	Game Adjustments, Submenu→	1.4.3.0, Top Bowl Ticket Spin, Sub-Submenu	
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Top Bowl Ticket Spin

From the Game Adjustments Menu, pick Top Bowl Ticket Spin. The Top Bowl Ticket Spin Menu opens. Use this menu to toggle a feature where the ticket amount for the top bowl appears in a sparkling frame. You can switch the feature on or off. The default is on. A line option allows you to pick this default.



The ticket amount for the top bowl can appear in a sparkling frame. This adjustment turns the frame on or off.

Main Menu→	Game Adjustments, Submenu→	1.4.4.0, Ticket Value, Sub-Submenu	
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Ticket Value

From the Game Adjustments Menu, pick Ticket Value. The Ticket Value Menu opens. Use this menu to alter or eliminate ticket value. The ticket denomination is a fraction of a cent. Typically a ticket value is a multiple of one-one-hundredth of a penny. The figure on this screen (100 in the example below) is the penny multiplier (*PM*). Here's the formula for ticket value...

$$\text{Ticket Value} = [(0.01 \times \text{PM}) / 100]$$

Where

Penny = \$0.01 = 1 cent U.S.

$$\text{PM} \leq 500$$

Reciprocal. Greater PM values result in higher ticket values. The default setting for PM is 100. A line option allows you to pick this default. In that case, one ticket is worth 1 / 100 cent.

Minimum and Maximum Ticket Values

The maximum ticket value is a nickel. The minimum value is one-tenth cent. You can raise or reduce the ticket value by hundredths of a cent.

Ticket Value (100 = \$0.01): 100

Set to Maximum (500)

+1

Set to Default (100)

-1

Set to Minimum (10)

Back

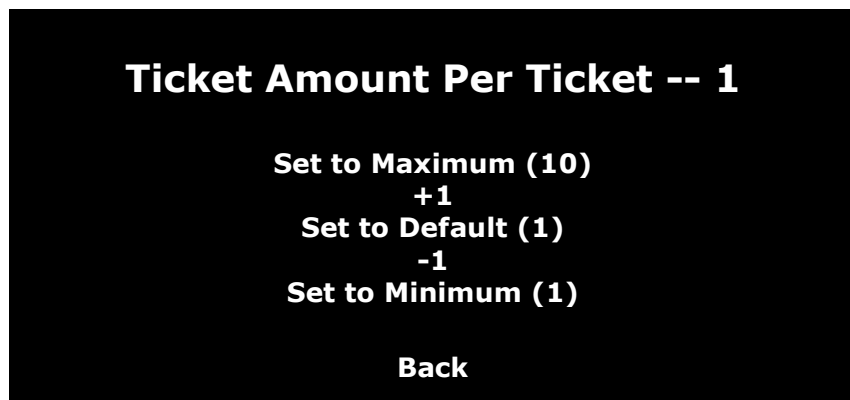
Examples	
Minimum Value	Value = $[(0.01 \times 10) / 100] = \0.001
In-Between Value	Value = $[(0.01 \times 300) / 100] = \0.03
Maximum Value	Value = $[(0.01 \times 500) / 100] = \0.05

Main Menu→	Game Adjustments, Submenu→	1.4.5.0, Ticket Amount Per Ticket, Sub-Submenu	
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Ticket Amount Per Ticket

From the Game Adjustments Menu, pick Ticket Amount Per Ticket. The Ticket Amount Per Ticket Menu opens. Use this menu to increase or decrease the value for one ticket. You can switch the feature on or off. The default is on. A line option allows you to pick this default.

You can save paper by multiplying the value of each ticket. For example, you can dispense one ticket for every two tickets the player wins. Then you fulfill the value of two tickets for every ticket that the player turns in. The system doesn't permit fractional values for this feature. (That is, causing the machine to dispense many tickets per ticket that the player won.)

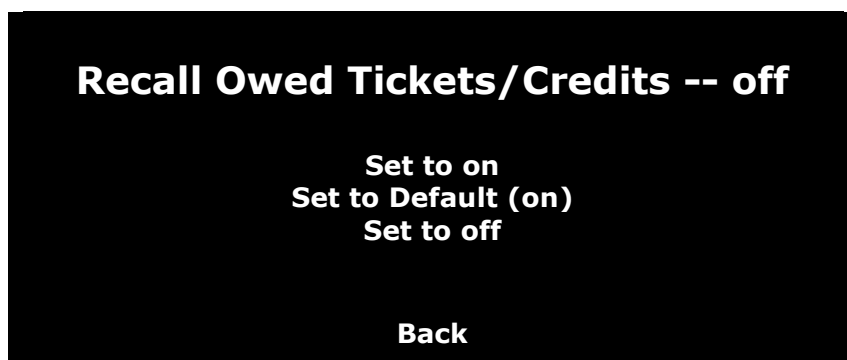


Main Menu→	Game Adjustments, Submenu→	1.4.6.0, Recall Owed Tickets/Credits, Sub-Submenu	
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Recall Owed Tickets/Credits

From the Game Adjustments Menu, pick Recall Owed Tickets/ Credits. The Remember Owed Tickets/Credits Menu opens.

Use this menu to let the system recall tickets and credits that a player won before a system reboot. You can enable or disable the feature. The default is on. A line option allows you to pick this default.



Main Menu→	Game Adjustments, Submenu→	1.4.7.0, Bowl/Drain Ticket Adjustments, Sub-Submenu	
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Bowl/Drain Ticket Adjustments

From the Game Adjustments Menu, pick Bowl/Drain Ticket Adjustments. The Bowl/Drain Ticket Adjustments Menu opens.

When fishbowl points exceed a particular number, a ticket dispenses. The number of points is different for each fishbowl.

Use this menu to change the value of points for a fishbowl payout.



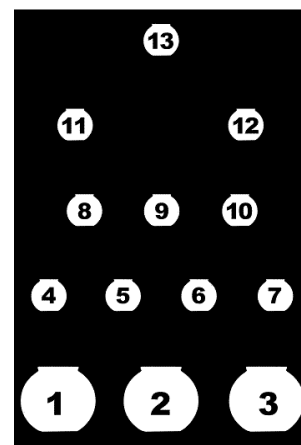
Main Menu→	Game Adjustments, Submenu→	1.4.8.0, Top Bowl Ticket Adjustments, Sub-Submenu	
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Top Bowl Ticket Adjustments

From the Game Adjustments Menu, pick Top Bowl Ticket Adjustments. The Top Bowl Ticket Adjustments Menu opens.

This menu affects ticket dispensing. Use this menu to change how many tickets the game machine dispenses for making the topmost fishbowl.

The bowl map, right, shows how the game machine numbers the fishbowls. The topmost fishbowl that this function adjusts is Bowl 13.



How this adjustment works. The award value in dispensed tickets changes over time. You can make this award rotate through as many as 10 values. On the menu, the first two lines set the first two values. A third line sets one value that repeats eight times. In other words, there are two unique values and eight values that are the same.

To make a change, select the desired line item. The system takes you to a submenu where you may change one award level. When you return to this menu, the relevant line will display your change in the number of dispensed tickets.

Top Bowl Ticket Adjustments

Top Bowl 1 Tickets: 0

Top Bowl 2 Tickets: 0

3 - 10: 0

Reset All Payouts to Defaults

Back

Main Menu→	Game Adjustments, Submenu→	Top Bowl Ticket Adjustments, Sub- Submenu→	1.4.8.1, Top Bowl 1 Tickets, Sub-Sub- Submenu
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Top Bowl 1 Tickets

From the Top Bowl Ticket Adjustments Menu, pick Top Bowl 1 Tickets. The Top Bowl 1 Tickets Menu opens.

Use this menu to change the number of tickets for the top bowl fishbowl. The top fishbowl can store 10 dispensed ticket amounts. The menu Top Bowl Ticket Adjustments will send you to this menu for each award level that you want to change. Each time you arrive here, you can only set one award level.

Top Bowl 1 Tickets--0

Set to Maximum (500)

+1000
+100
+10
+1

Set to Default (10)

-1
-10
-100
-1000

Set to Minimum (0)

Back

Main Menu→	1.5.0.0, Diagnostics, Submenu		
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Diagnostics

From the Main Menu, pick Diagnostics. The Diagnostics Menu opens. From this menu, you can check electromechanical features of your *Fishbowl Frenzy* game machine.



Features on the Diagnostics Menu

Feature	What It Does
1.5.1.0, Standard Switch Tests	Access the Standard Switch Tests Menu. You can make a switch and watch for a state change. No state change means a bad device.
1.5.2.0, Bowl Opto Switch Tests	Access to the Bowl Opto Switch Tests Menu. You can make a switch and watch for a state change. No state change means a bad device.
1.5.3.0, Coin Meter Tests	Access the Coin Meter Tests Menu. Send a meter an increment command. Check to see if the meter advances.
1.5.4.0, Ticket Dispenser Tests	Access the Ticket Dispenser Tests Menu. Verify that a ticket dispenser responds to a vend command.
1.5.5.0, Blower and Gantry Tests	Access the Blower and Gantry Tests Menu. Operate the blower, gantry motors and solenoids to check for malfunctions.
1.5.6.0, Audio Test	Pick this option to sound a chime. Verify speaker and amplifier operation.

1.5.7.0, Button Light Test	Pick this option to light the player button lamp. To turn off the lamp, press the button. Helps you to check the lamp and cables.
1.5.8.0, Coin 1 Lockout on/off Test,	If you have a New Jersey lockout mechanism, this test activates the Coin 1 coil. If the mech is good, it refuses coins.
1.5.9.0, Coin 2 Lockout on/off Test	If you have a New Jersey lockout mechanism, this test activates the Coin 1 coil. If the mech is good, it refuses coins.
1.5.A.0, Reboot Game	Reboots the game. After several moments, game software reboots and restarts in Game Mode.
1.5.B.0, Shutdown Game	Shuts down the game computer. The peripherals are still active. To start the machine up again, turn the main power off and on.
1.5.C.0, Show FPS: off	<i>Strictly for diagnostic use!</i> Access the Show FPS Menu. During a game, you can display the monitor frame rate. (Also other game code.) The character mode display appears sideways and superimposes over game video.
1.5.D.0, Auto Drop Ball: off	<i>Strictly for diagnostic use!</i> Access the Auto Drop Ball Menu. When active, this feature causes balls to drop randomly in Game Mode. Use Auto Drop Ball to test the blower, gantry, trolley and server mech. Then reset the feature for normal gameplay.

ⓘ CAUTION

Show FPS. Before putting the game into service, disable this feature. Otherwise, code will overwrite game graphics and spoil gameplay.

ⓘ CAUTION

Auto Drop Ball serves balls randomly. While a technician may use this feature to diagnose blower and gantry problems, normal gameplay is impossible. Before restoring the game machine to service, disable this feature.

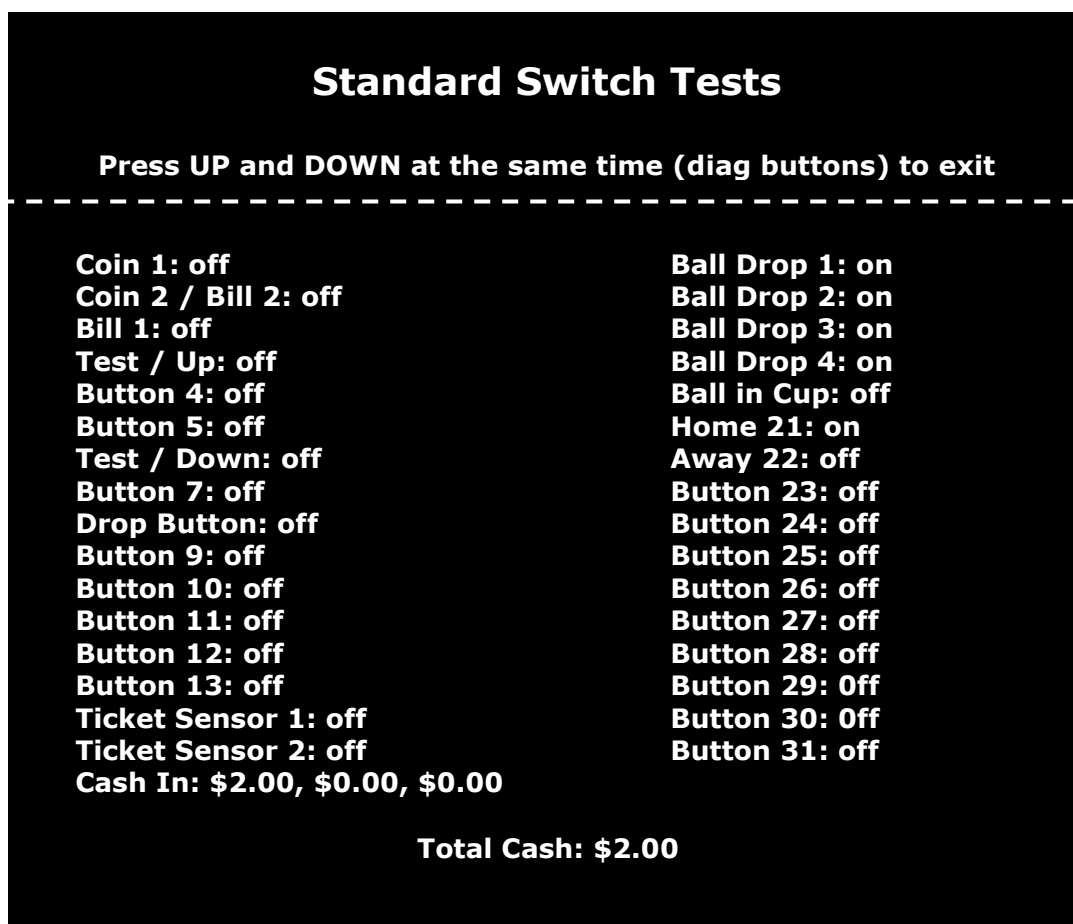
Main Menu→	Diagnostics, Submenu→	1.5.1.0, Standard Switch Tests, Sub- Submenu	
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Standard Switch Tests

From the Diagnostics Menu, pick Standard Switch Tests. The Standard Switch Tests Menu opens.

Button Switches *aren't* pushbuttons. Instead, they're tiny switches that read balls falling into the fishbowls. The small bowls have one switch each. The large bowls have more than one switch each.

The Standard Switch Tests cause the system to try to read the switches. The highest switch numbers might not correspond to switches in your game machine. Depending on the game revision, the highest actual switch number varies. (Yet if the system "reads" a nonexistent switch, there is a real problem!)



© CAUTION

When you start the game machine, don't go straight into Diagnostic Mode. Instead, allow the machine to start in Game Mode so that the switches will initialize properly. Then after a few moments, you may enter Diagnostic Mode. Otherwise, switches might start in the wrong position during a game, causing a malfunction.

Main Menu→	Diagnostics, Submenu→	1.5.2.0, Bowl Opto Switch Tests, Sub- Submenu	
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Bowl Opto Switch Tests

From the Diagnostics Menu, pick Bowl Opto Switch Tests. The Bowl Opto Switch Tests Menu opens.

The Bowl Opto Switch Tests cause the system to try to read the fishbowl switches.



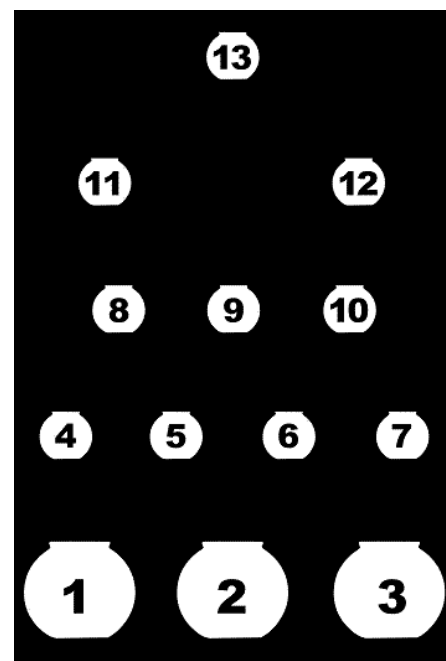
Thirteen plastic fishbowls adorn the front of the game machine and jut out from the front glass. The figure (*below, right*) shows the way the game program numbers the fishbowls.

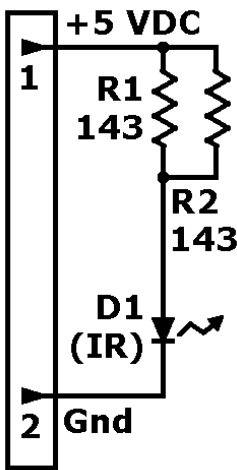
Using the Opto Switch Tests, you can check each switch to see that it operates correctly. This test is important, because dust can settle on an opto transmitter or receiver. With enough dust buildup, the opto will stop working reliably. Another reliability issue: Aging LEDs (opto transmitters) grow dimmer.

An opto switch closure causes current to flow at the opto receiver, a phototransistor. The bowl switches are normally closed switches. This is so because the infrared beam normally has a free path from transmitter to receiver.

Opto Pairs. The small bowls (Bowls 7 through 13 at right) each contain one opto pair, an LED and a phototransistor. The large bowls (Bowls 1 through 3 at right) each contain two opto pairs. In each case, the LED transmitter is on one side of the bowl. The phototransistor receiver is on the other side.

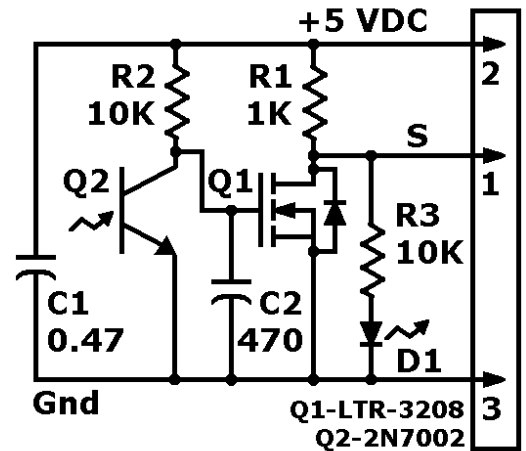
When a ball drops through the opto, it cuts off the infrared beam. Lacking the beam, the transistor stops passing current. This situation is a state change. The test responds by displaying a red bar at the position of the open (high) receiver output. The bar only appears in the fishbowl with the open switch. When the state changes, you also hear a sound effect.





Schematics. In the left schematic, LED D1 transmits an infrared beam. Right, phototransistor Q2 receives the beam. MOSFET Q1 buffers the output signal S. Visible indicator D1 changes state.

The ball as trigger. If this circuit is a bowl switch, Q2 remains on until a ball passes between D1 and Q2. The ball breaks the beam, causing the Q2 collector to rise high. This logic level change triggers Q1. Its drain clamps and sends low pulse S to the PS2 port. When the drain clamps, indicator D1 winks out.



Optos on the gantry trolley operate differently. With four balls in the trolley, you'll see four bars at the top of the screen (*above Bowl 13*). Each bar indicates one of the balls. That is, each bar shows that a ball is blocking one infrared beam. When the ball serves, the infrared beam again excites the opto receiver and the bar disappears. Unlike bowl optos, gantry optos connect directly to the I-O Board.

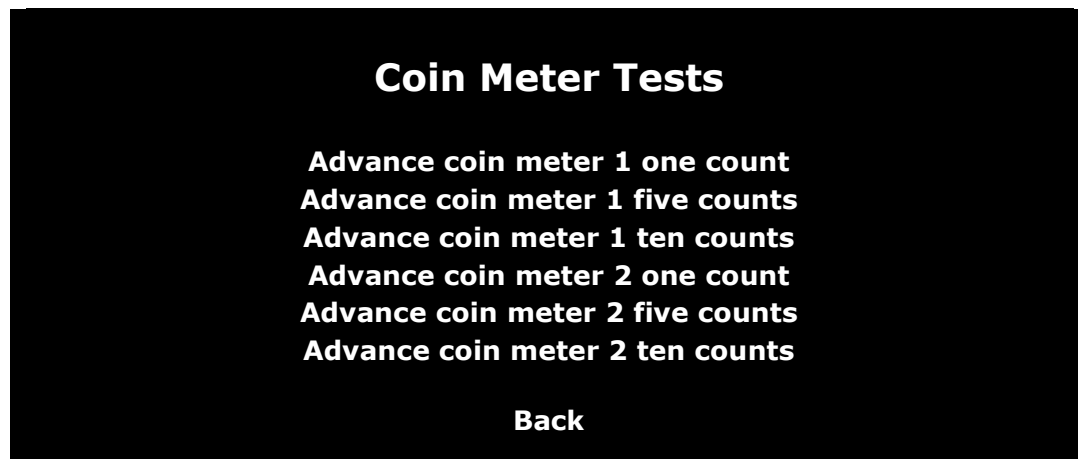
To review: Bowl switches that behave normally have no bar until something interrupts the beam. If something interrupts the beam, the bar should appear. When the state changes, you also hear a sound effect. Any other behavior indicates a problem. You can test switches by putting fingers in the bowls during this test. Watch for a change in state. Gantry trolley switches cause bars to appear at the top-center of the screen. Each bar indicates that the trolley is carrying one ball. Any other behavior indicates a problem. Here's an example failure mode: Two bars despite four balls riding in the trolley.

The procedure for opto finger tests appears in *Chapter 3, Maintenance, Troubleshooting & Wiring*.

Main Menu→	Diagnostics, Submenu→	1.5.3.0, Coin Meter Tests, Sub-Submenu	
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Coin Meter Tests

From the Diagnostics Menu, pick Coin Meter Tests. The Coin Meter Tests menu opens.



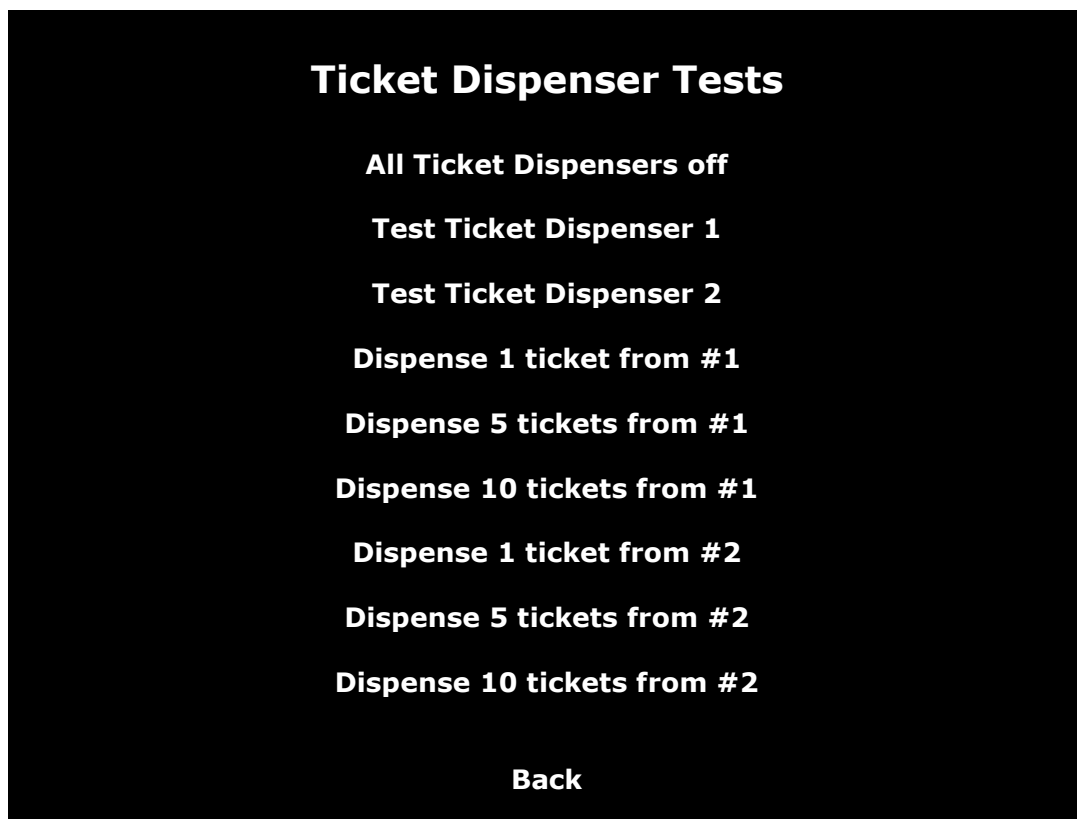
Watch the Meter. You'll find two coin meters on the switch bracket behind the coin door. The left one is Coin Meter 1. The right one is Coin Meter 2. With this test, you can test each one in turn. Watch one of your game machine's mechanical coin meters. Select the desired number of meter increments (one to ten). If you can increment by one or several counts, the meter and drive circuit are okay. If the meter doesn't click, then it probably isn't receiving a pulse from the game machine. You might have a broken cable or a bad driver. The driver would be on the I-O Board. Troubleshoot the problem. If the meter clicks, but doesn't increment, replace the meter.

Main Menu→	Diagnostics, Submenu→	1.5.4.0, Ticket Dispenser Tests, Sub-Submenu	
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Ticket Dispenser Tests

From the Diagnostics Menu, pick Ticket Dispenser Tests. The Ticket Dispenser Tests Menu opens. Use this menu to set up or check your game machine's two ticket dispensers. For example, you can verify the operation of either ticket mechanism by dispensing one, five or 10 tickets.

Or if you want to continuously dispense tickets, pick Test Ticket Dispenser 1 (or 2). The dispenser will feed tickets as long as you hold down the SERVE BALL button.



Main Menu→	Diagnostics, Submenu→	1.5.5.0, Blower and Gantry Tests, Sub- Submenu	
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Blower and Gantry Tests

From the Diagnostics Menu, pick Motor and Gantry Tests. The Motor and Gantry Tests Menu opens. Use this menu to check input performance of gantry parts: The gantry motor, blower motor, switches, belts and solenoids. You can also use this menu to check the mechanical alignment and operation of the ball server gantry.



Main Menu→	Diagnostics, Submenu→	Blower and Gantry Tests, Sub- Submenu→	1.5.5.1, Gantry Controller Test, Sub- Sub-Submenu
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Gantry Controller Test

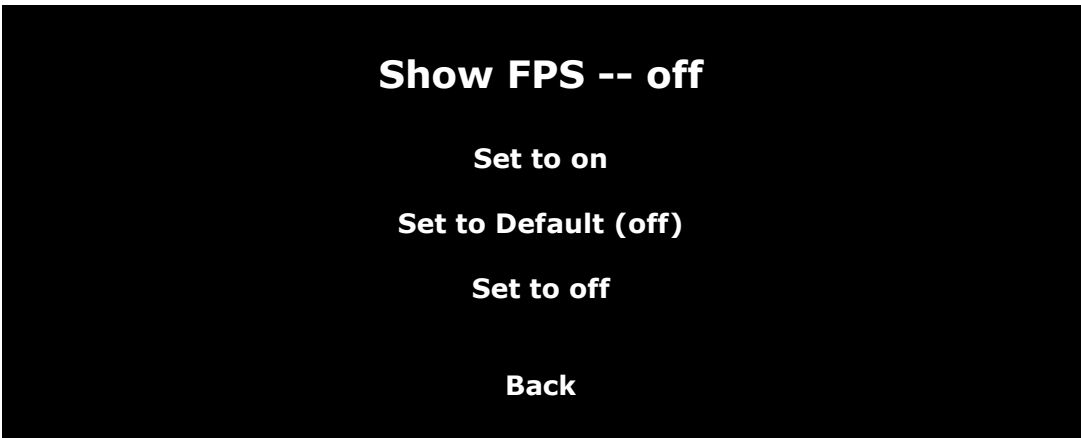
From the Blower and Gantry Tests Menu, pick Gantry Controller Test. The Gantry Controller Test Menu opens. Each line item pulses one of the motors or solenoids. A test pulse is the same as a normal control signal. This pulse should cause the motor or solenoid to activate. If you don't detect any movement, check the device and its cables. (The drop chute is another name for the trolley.)



Main Menu→	Diagnostics, Submenu→	1.5.6.0, Show FPS, Sub-Submenu	
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Show FPS

From the Diagnostics Menu, pick Show FPS. The Show FPS Menu opens. Use this menu to enable or disable the frames per second (*FPS*) display. The FPS display lets you know how fast the monitor is scanning. The standard for this panel is 30 Hz.



ⓘ CAUTION

Show FPS. Before putting the game into service, disable this feature. Otherwise, code will overwrite game graphics and spoil gameplay.

Main Menu→	Diagnostics, Submenu→	1.5.7.0, Auto Drop Ball, Sub-Submenu	
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Auto Drop Ball

From the Diagnostics Menu, pick Auto Drop Ball. The Auto Drop Ball Menu opens. From this menu, you can activate the auto-drop function. This function allows you to use Game Mode for tests of the ball server. With the Auto Drop diagnostic on, the SERVE BALL button loses control of the ball. Instead, the game machine assumes control and randomly drops balls.



ⓘ CAUTION

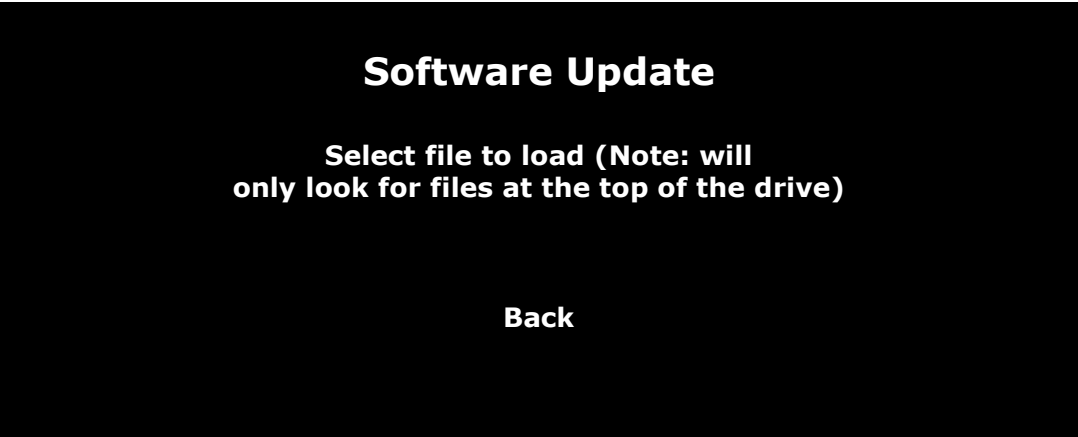
Auto Drop Ball serves balls randomly. While a technician may use this feature to diagnose blower and gantry problems, normal gameplay is impossible. Before restoring the game machine to service, disable this feature.

Main Menu→	1.6.0.0, Software Update, Submenu		
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Software Update

From the Main Menu, pick Software Update. The Software Update Menu opens. Use this menu when updating game software from a USB thumb drive.

To update game software, insert a thumb drive with the game files into the game CPU Board. You can use any free USB port. The file names will appear on the LCD screen. You may select a file with the diagnostic buttons and the player button. The game machine can only access files that are in the root directory. (The machine ignores files that are in folders or subdirectories.)

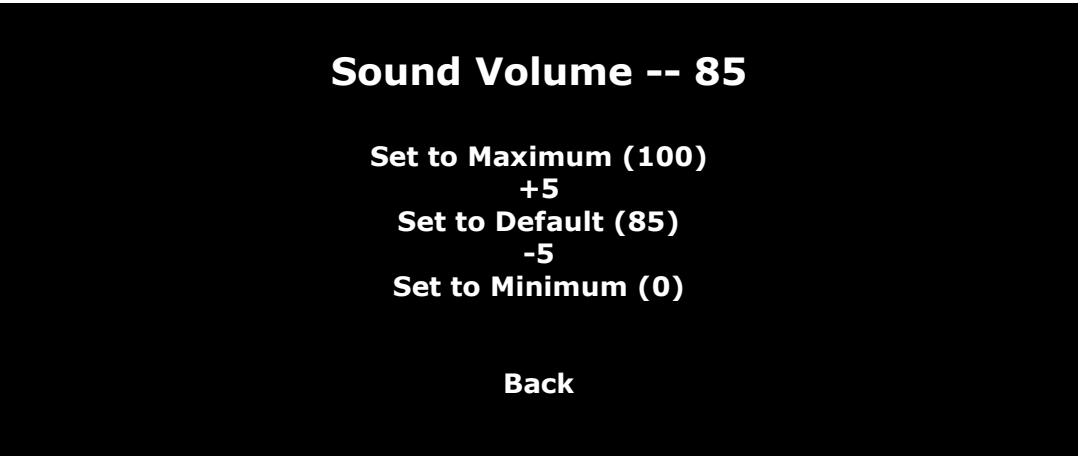


Main Menu→	1.7.0.0, Sound Volume, Submenu		
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Sound Volume

From the Main Menu, pick Sound Volume. The Sound Volume Menu opens. Use this menu to check sound level and quality.

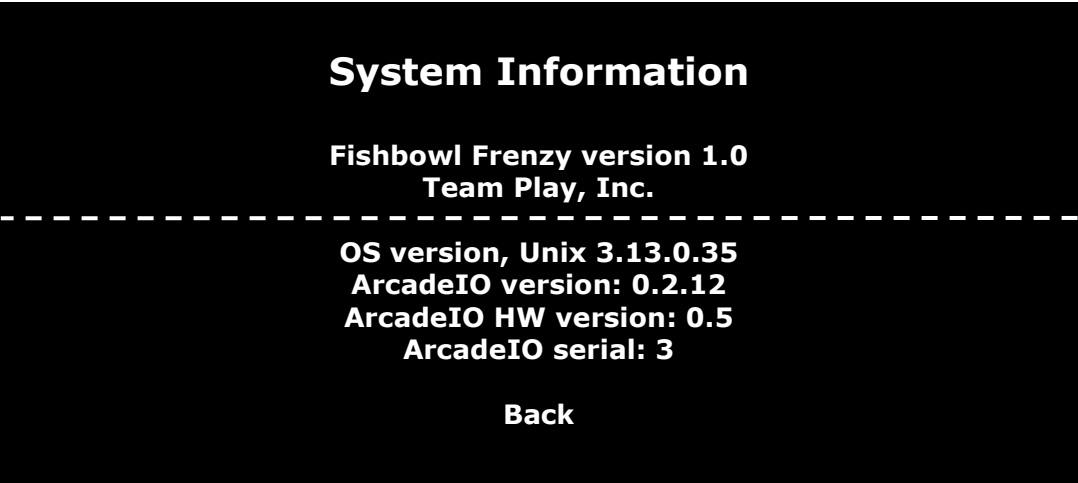
Missing sounds indicate digital flaws. Distorted sounds suggest analog flaws. The lack of sound implies disconnected or bad cables, speakers or amplifiers. Of course, for a sound test to be valid, the rest of the game must operate.



Main Menu→	1.8.0.0, System Information, Submenu		
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System Information

From the Main Menu, pick System Information. The System Information Menu opens. This is a data display page. There are no user settings.

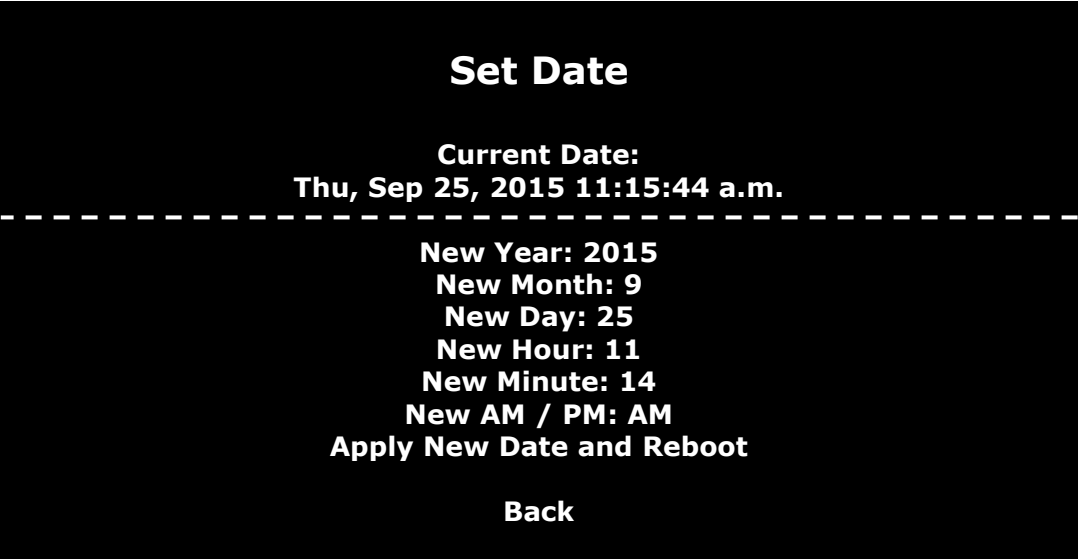


Main Menu→	1.9.0.0, Set Date, Submenu		
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Set Date

From the Main Menu, pick Set Date. The Set Date menu opens. Above the dashed line is the system date. Below the line is a date-entry form. To set the date, follow these steps...

1. On this menu, set each line item.
2. Pick "Apply New Date and Reboot." The system then assembles the date from your entries.



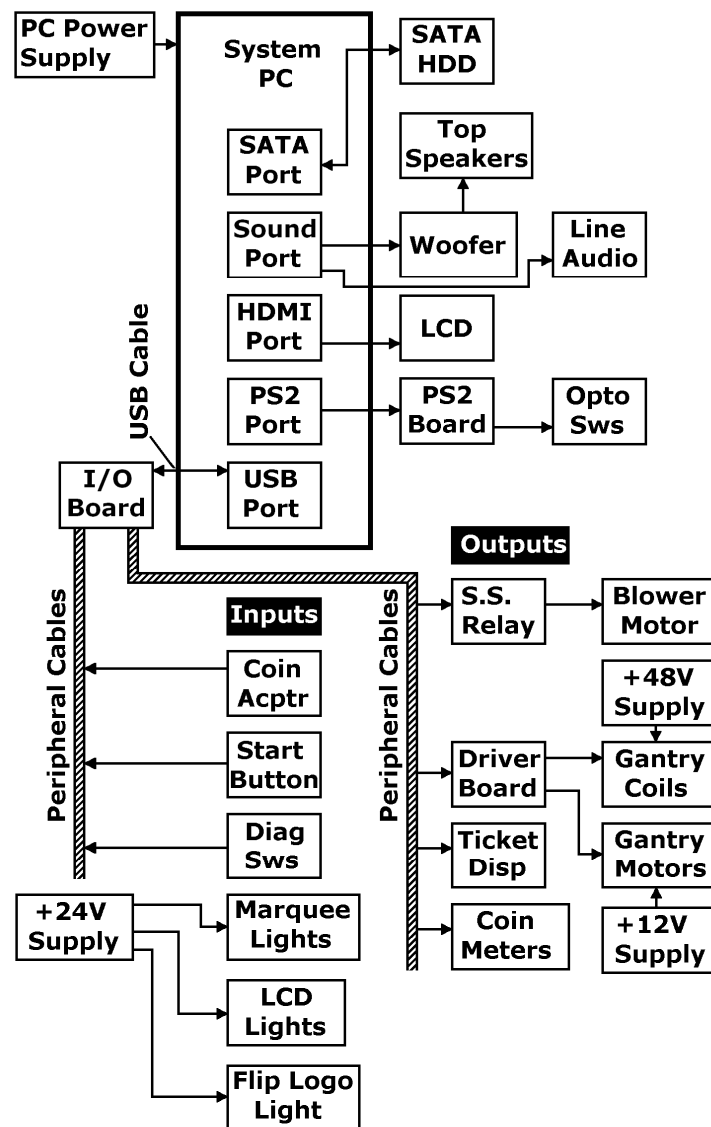
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Chapter 4. Maintenance, Troubleshooting & Wiring

Power Fuses

Description	Location
Main power fuse: (1) 6.3A SB, 5 x 20mm	Back of game machine, lower-left, by power cord and on-off switch.
Peripherals: (4) fuses	Motor-Solenoid Driver Board

Block Diagram



Restore Missing Game Features

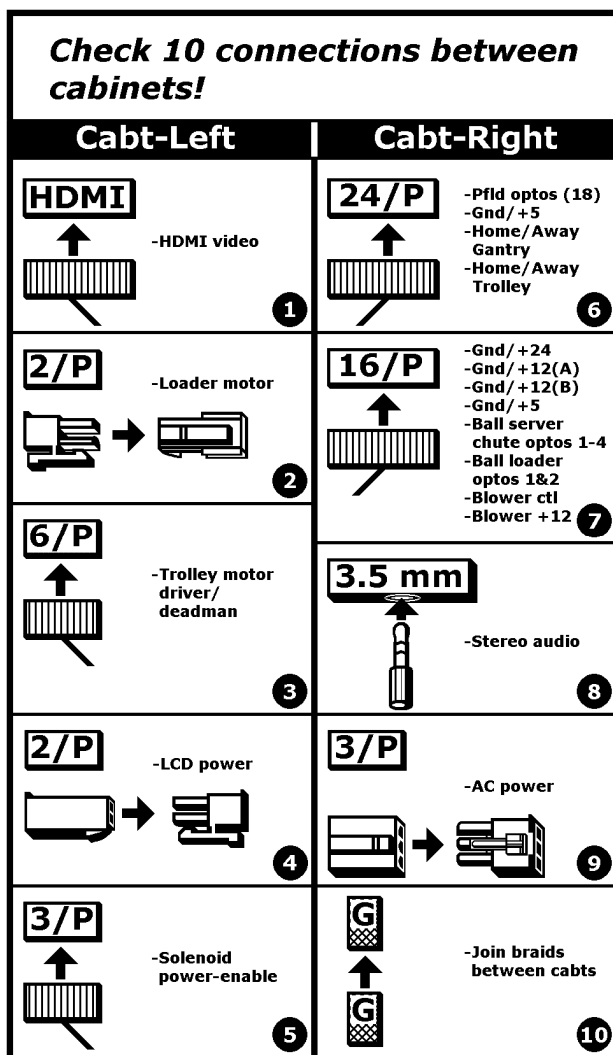
Particularly in new game machines, the cause of missing game features is often an open cable. Installers might have forgotten to connect just one cable between cabinets. There are 10 such inter-cabinet cables. You can easily find “free” connectors and mate them in the CPU (Pod) Cabinet.

You’ll Need These Tools

- T27 tamper-proof Torx® driver

Disassembly

- [] 1. Switch off power to the game machine.
- [] 2. This step requires a T27 tamper-proof Torx® driver. Remove the two top panels from the CPU cabinet.



Reassembly

- [] 1. This step requires a T27 tamper-proof Torx® driver. Fasten the two top panels onto the CPU cabinet.

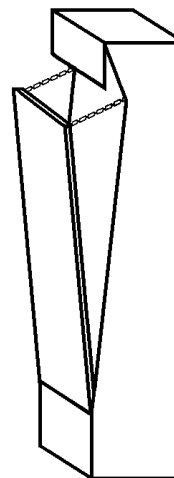
Test Playfield Opto Switches

You'll Need These Tools

- T15 tamper-proof Torx® driver
- 7/16 socket or hand driver

Disassembly

- [] 3. Switch off power to the game machine.
- [] 4. Remove the top two screws from the LCD cabinet. These screws secure the top of the acrylic window ("glass") to the cabinet. The bottom of the glass connects to the cabinet with a hinge.
- [] 5. Ease the speaker panel away from of the cabinet.
- [] 6. Ease the front glass out of the cabinet by two feet. (Two hold-back cables restrict maximum travel to two feet.)
- [] 7. Unscrew two fasteners from the top of the LCD.
- [] 8. Ease the LCD out of the cabinet until the LCD rests on the front glass. Now you can access the plastic playfield.
- [] 9. Switch on power to the game machine.



Servicing the Optos

- [] 1. Enter the Diagnostic Menu System.
- [] 2. Go to the Bowl Opto Switch Tests.
- [] 3. Test opto switches of interest with your fingers: Placing fingers in any bowl should cause the switch to change state. When the state changes, a red bar displays in the bowl, indicating an open switch (*normal*). As the switch opens, the game machine will also play a sound. A missing bar or sound means that there is no state change. Then something must be wrong with the switch. For example, the opto receiver (transistor) might be dirty, or the LED might have failed.
- [] 4. Service optos as necessary. For example, replace suspect or bad boards and retest the fishbowl with the new opto.

⚠ WARNING

RESTRAINING CABLES. You might need to angle the front glass beyond the extent of restraining cables. (The same applies to the LCD.) In that case, you must disconnect these cables. Take care to protect the fragile glass and LCD. Don't let them free-fall out of the cabinet! The LCD might slam into the control panel and break. The front glass could snap or splinter. Before resting the glass and LCD on the CPU (pod) cabinet, remove the top panels. Otherwise, the glass or LCD might shatter against the player button. Shards of glass could fly in every direction.

Reassembly

- [] 1. Ease the LCD back into position inside the cabinet.
- [] 2. Fasten the LCD with the two fasteners that you removed during disassembly.
- [] 3. Ease the front glass back position inside the cabinet.
- [] 4. Ease the speaker panel back into position.
- [] 5. Replace the top two screws on the LCD cabinet.

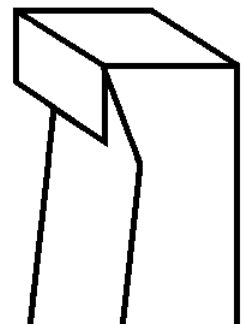
Test Gantry Opto Switches

You'll Need These Tools

- T15 tamper-proof Torx® driver
- 7/16 socket or hand driver

Disassembly

- [] 1. Switch off power to the game machine.
- [] 2. This step requires a T15 tamper-proof Torx® driver. Remove the two speaker panel screws from the LCD cabinet. These screws secure the speaker panel's acrylic window ("glass") to the cabinet. The top of the glass connects to the cabinet with a hinge.
- [] 3. Ease the speaker panel away from of the cabinet. The gantry and trolley are behind this glass.
- [] 4. The step requires a 7/16-inch, ¼-20 socket, ratchet end wrench. Remove the top two screws from the LCD cabinet. These screws secure the top of the acrylic window ("glass") to the cabinet. The bottom of the glass connects to the cabinet with a hinge.
- [] 5. Switch on power to the game machine.
- [] 6. Enter the Diagnostic Menu System.
- [] 7. Go to the Bowl Opto Switch Tests.



Testing Gantry Optos

- [] 1. Test opto switches of interest with your fingers: You can remove or add balls to the trolley (ball server). Or you can put your fingers in the trolley and cause optos to change states. When the state changes, a red bar displays at the top of the screen, indicating an open switch (*normal*). No change in state, or a missing bar means that something is wrong with the switch. For example, the opto receiver (transistor) might be dirty, or the LED might have failed.
- [] 2. Service optos as necessary. For example, replace suspect or bad boards and retest the trolley with the new opto.

Reassembly

- [] 1. Ease the speaker panel toward the cabinet.
- [] 2. This step requires a T15 tamper-proof Torx® driver. Fasten the speaker panel with the two screws that you removed during disassembly.

Clean the LCD and Playfield

You'll Need These Tools

- Microfiber towels
- T15 tamper-proof Torx® driver
- Cleaning solution (See *Cleaning*, below)
- 7/16 socket or hand driver

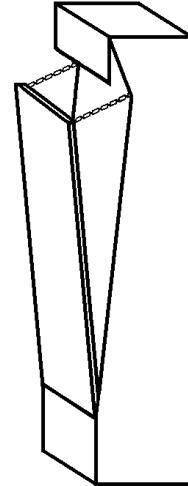
Disassembly

ⓘ CAUTION

Playfield surface. The playfield surface is a soft plastic. A mild cleaner is necessary. Use of abrasives will scratch this plastic surface. Abrasives can also pit the glass monitor screen.

- [] 1. Switch off power to the game machine.
- [] 2. This step requires a T15 tamper-proof Torx® driver. Remove the top two screws from the LCD cabinet.

- [] 3. Ease the speaker panel away from of the cabinet.
- [] 4. The step requires a 7/16-inch socket or hand driver. Remove the top two screws from the LCD cabinet. These screws secure the top of the viewing glass to the LCD cabinet frame. The bottom of the glass connects to the cabinet with a hinge.
- [] 5. Gradually let down the front glass and small bowls. (Two hold-back cables restrict maximum travel to about two feet.)
- [] 6. Release the LCD panel from the playfield side rails.



Cleaning

- [] 1. Moisten a microfiber towel with an appropriate cleaning solution such as Suzo-Happ® Anti-Foam Plexi-Clean Cleaner & Polisher. (Other suggested products: Novus® #1 Plastic Cleaner from Marco Specialties. Endust® Screen Cleaner, available from Amazon.com. The microfiber towels are also available from Amazon.)
- [] 2. Rub the moist towel on the LCD screen, removing dirt as you go. To maintain towel moisture, add cleaner as necessary.
- [] 3. When the towel becomes too dirty or wears out, discard and replace it. Repeat the moistening instructions above.
- [] 4. After you finish the entire screen or playfield, examine your work for streaking.
- [] 5. If you find streaks, go over your work with a fresh and moist towel.
- [] 6. Repeat this procedure as necessary until you've satisfactorily cleaned the LCD or playfield.

Reassembly

- [] 1. Reposition the LCD panel into the frame from the playfield side rails.
- [] 2. Ease the front glass and small bowls back into the cabinet. Take care not to catch the hold-back chains.
- [] 3. The step requires a 7/16-inch socket or hand driver. Fasten the top of the acrylic window ("glass") to the cabinet. Use two screws that you removed during disassembly.
- [] 4. Ease the speaker panel back into position.
- [] 5. This step requires a T15 tamper-proof Torx® driver. Fasten the speaker panel with the two screws that you removed during disassembly.
- [] 6. Switch the power back on.

Replace the Top Speakers

You'll Need These Tools

- T15 tamper-proof Torx® driver
- 8/32 socket or hand driver

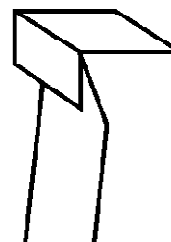
The LCD cabinet speakers are on the back of the top, hinged panel. The hinge runs along the top of the cabinet. When free, the panel swings outward. On the back of the panel are four speakers. From the back of the panel, four nuts hold each speaker in place.

◆NOTICE

Speaker Replacement. You must replace the top speakers in pairs.

Disassembly

- [] 1. Switch off power to the game machine.
- [] 2. This step requires a T15 tamper-proof Torx® driver. Remove the two speaker panel screws from the LCD cabinet. These screws secure the bottom of the hinged speaker panel.
- [] 3. Ease the speaker panel away from of the cabinet.
- [] 4. This step requires an 8/32 socket or hand driver. Remove the hex nuts that secure the speaker mounting brackets.
- [] 5. Remove the speaker cable from the cable clamps on the inside of the speaker panel.
- [] 6. Remove the speakers.



Speaker Replacement

- [] 1. Place the new speakers against the speaker panel.
- [] 2. This step requires an 8/32 socket or hand driver. Secure the speakers using the speaker mounting brackets and hex nuts.

Reassembly

- [] 1. Ease the speaker panel toward the cabinet.
- [] 2. This step requires a T15 tamper-proof Torx® driver. Fasten the speaker panel with the two screws that you removed during disassembly.
- [] 3. Switch the power back on.
- [] 4. Retest speakers by listening to them during Attract Mode.

⚠ WARNING

Cables. With power on, never connect or disconnect game machine cables or connectors. Otherwise, you might damage the game machine.

Marquee Lights Troubleshooting

SYMPTOM	CAUSE	ACTION TO TAKE
No... <ul style="list-style-type: none">• Marquee lights,• LCD lights• Flip logo light <i>But: Game plays.</i>	Connectors don't seat correctly.	Reseat connectors.
	At lamp connector, +24V is absent.	Restore +24V source: Connect cable or repair broken cable.
	Missing AC power at lamp power supply	Verify that AC power is present at power supply.
	Disconnected AC power cable to power supply	Reconnect AC power.
	Bad +24-volt power supply for lamps	[] 1. Swap out power supply. [] 2. Retest lamps.
One of above light sources fails.	Disconnected cable plug or failed cable	[] 1. Check: Are connectors tight? [] 2. No: Reconnect loose plugs, or replace cables with defective connectors. [] 3. Yes, but still no light: Replace cable to lamp that is out.

Motor & Solenoid Troubleshooting

SYMPTOM	CAUSE	ACTION TO TAKE
Trolley fails to load or release balls.	Broken solenoid wiring, usually at solenoid contact	Reconnect and solder wires. (To relieve strain during operation, use heat shrink tubing over joint.)
	Bad solenoid	Replace solenoid.
Trolley stalls at one end of gantry.	Blown motor fuse.	[] 1. Open CPU Cabinet. [] 2. Find bad fuse on Motor-Solenoid Driver Board, left wall of cabinet. [] 3. Replace fuse.
	Broken motor wiring, usually at motor	Reconnect and solder wires.
	Bad cable to Motor-Solenoid Driver Board	Repair or replace cable.
	Bad motor	Replace motor.
Balls never arrive at trolley.	Blown blower fuse	[] 1. Open CPU Cabinet. [] 2. Find bad fuse on Motor-Solenoid Driver Board, left wall of cabinet. [] 3. Replace fuse.
	Bad cable to Motor-Solenoid Driver Board	Repair or replace cable.
	Bad blower motor	Replace blower motor.

Opto Troubleshooting

SYMPTOM	CAUSE	ACTION TO TAKE
<p><i>If gantry problem:</i> Gantry trolley fails to stop at either end of travel.</p> <p><i>If fishbowl problem:</i> Ball drains through fishbowl, but without rewarding player.</p>	Dirty optics	Clean opto transmitter and receiver. Don't apply cleaner directly to opto.
	Disconnected opto	Reconnect opto transmitter or receiver.
	Loose or missing parts	Inspect opto. Replace parts or opto.
	Disconnected cable between cabinets	Reconnect cable.
	Faulty opto cable, opto circuit board or opto	Replace opto or service damaged part.
	Bad cabinet cable between opto cable and I-O Board	Replace cable.
	Trolley Optos: Bad I-O Board	<input type="checkbox"/> 1. Test opto board by swapping it with new, good board. <input type="checkbox"/> 2. If new board doesn't solve problem, replace I-O Board.
	Playfield Optos: Bad PS/2 Board	<input type="checkbox"/> 1. Test opto board by swapping it with new, good board. <input type="checkbox"/> 2. If new board doesn't solve problem, replace PS/2 Board.

Peripheral Troubleshooting: Inputs

SYMPTOM	CAUSE	ACTION TO TAKE
<p>Unresponsive</p> <ul style="list-style-type: none"> Coin acceptor Start button Diagnostic switches 	<ul style="list-style-type: none"> Stuck micro switch Jammed coin 	<input type="checkbox"/> 1. Repair micro switch actuator if possible (It might have a bend that you can fix.) <input type="checkbox"/> 2. Replace a bad or undependable switch. <input type="checkbox"/> 3. Clear jammed coin. <input type="checkbox"/> 4. Check switch operation.
	<ul style="list-style-type: none"> Bad cable 	Repair or replace cable.
	<ul style="list-style-type: none"> Bad solder joint 	Resolder faulty joint.

Peripheral Troubleshooting: Outputs

SYMPTOM	CAUSE	ACTION TO TAKE
Either of these is unresponsive... <ul style="list-style-type: none"> • Gantry motor • Gantry coils 	<ul style="list-style-type: none"> • Disconnected or open cable • Dead driver on Driver Board • Motor or coil failure 	<div>[] 1. Check: Are connectors tight?</div> <div>[] 2. Bad cable: Replace cable to inactive device.</div> <div>[] 3. Cable is good: Swap out Driver Board and retest gantry.</div> <div>[] 4. Driver Board is good: If motor or coil is bad, replace it.</div>
Unresponsive blower motor	<ul style="list-style-type: none"> • Disconnected or open cable • Dead solid-state relay (SSR) • Motor failure • Dead driver on Driver Board 	<div>[] 1. Check: Are connectors tight?</div> <div>[] 2. Bad cable: Replace cable to inactive device.</div> <div>[] 3. Cable is good: If SSR is bad, replace it.</div> <div>[] 4. SSR is good: If motor is bad, replace it.</div> <div>[] 5. Motor is good: Swap out Driver Board and retest machine.</div> <div>[] 6. Driver Board is good: Swap out I-O Board and retest machine.</div>
Either of these is unresponsive... <ul style="list-style-type: none"> • Coin meters • Ticket dispenser 	<ul style="list-style-type: none"> • Disconnected or open cable • Motor failure • Dead driver on Driver Board 	<div>[] 1. Check: Are connectors tight?</div> <div>[] 2. Bad cable: Replace cable to inactive device.</div> <div>[] 3. Cable is good: If meter or dispenser is bad, replace it.</div> <div>[] 4. Meter or dispenser is good: Swap out I-O Board and retest machine.</div>
Unresponsive gantry coils	Solder joint, cables, Driver Board	<div>[] 1. Service solder joints and cables as necessary.</div> <div>[] 2. Coils still don't respond: Replace Driver Board.</div>

System-Wide Troubleshooting

SYMPTOM	CAUSE	ACTION TO TAKE
Game machine doesn't power up.	Game machine has no power.	Plug in game.
	Game machine is off.	Turn on main power switch
	Machine fuse blew.	Replace bad fuses.
	No power to outlet	Plug game into powered outlet.
	Disconnected PC power supply	Reconnect AC cord to power supply.
	Disconnected cabinet AC	Reconnect cabinet AC cable.
"No Signal" displays. No game display	Loose video cable	Reconnect video cable.
	Disconnected PC power supply	Reconnect AC cord to power supply.
	Disconnected cabinet AC	Reconnect cabinet AC cable.
	Bad hard drive (HDD)	Replace HDD.
No sound	Disconnected cable	Connect audio cable.
	Disconnected speaker	Connect speaker.
	Failure in woofer amplifier or power supply	Replace entire woofer unit.
Distorted sound	Woofer volume is too high. Bad speaker	<div>[] 1. Turn down woofer volume control.</div> <div>[] 2. If you find a bad overhead speaker: Replace it and its partner with same type. <i>(Replace two together.)</i></div> <div>[] 3. If woofer is bad: Replace entire woofer cabinet.</div>
Missing features. Optos or coils don't work.	Disconnected cable	Check or reconnect 10 cables between cabinets.
No video	Loose HDMI cable	Reconnect HDMI cable.
Dead pixels or dark patches on screen	Dirt on screen	Clean screen.
	Failing LCD	Dark areas remain: Replace LCD panel.
No response from all: Gantry trolley, blower, coin acceptors, control buttons or ticket dispenser	Disconnected USB connector.	[] 1. Reconnect USB cable from PC to I-O board.
	Missing or inadequate power to I-O Board	<div>[] 1. Check DC power to I-O Board.</div> <div>[] 2. Restore I-O Board power.</div>
	Bad I-O Board	Replace I-O Board.
Screen action freezes	Loose HDMI cable	Remove and reinsert both ends of HDMI cable.
	Failing PC Power Supply	<div>[] 1. Check power supply output.</div> <div>[] 2. If supply is bad, replace it.</div>
Game machine resets.	Low DC voltage output from PC Power Supply	<div>[] 1. Check for proper voltage (+5V and +12V).</div> <div>[] 2. If supply is bad, replace it.</div>

Disaster Recovery: Flood

⚠ WARNING

Mold and Mildew can endanger your health. Mold *removal* can be hazardous to your health and that of co-workers. Spores can invade the lungs and cause respiratory disease. Removal chemicals contain chlorine bleach, which is toxic. During removal, appropriate protective clothing and strong ventilation to the outdoors is necessary. A trained and properly equipped HazMat team should encapsulate and remove mold or mildew from the premises.

ⓘ CAUTION

Flood water can contain minerals that could damage your equipment.

SYMPTOM	CAUSE	ACTION TO TAKE
Moisture or standing water	Excess humidity, leakage, storm, sewer backup, etc.	<ul style="list-style-type: none">• Cleanse and if necessary, disinfect equipment, including PC boards.• Dry equipment with a hair dryer, dehumidifier, or other suitable means.
"Damp basement" odor	Mold	<ul style="list-style-type: none">• Remove mold with bleach product, such as <i>Tilex Mold & Mildew Remover</i> by Clorox.• Wear appropriate protective clothing, such as ventilated face mask and long rubber gloves. (Some experts recommend wearing HazMat compliant suit.)• Ventilate room to outdoors with powerful fan.• If mold is pervasive, hire HazMat crew to remove mold from machine and from room.
Trolley freezes	Flood stripped out oil.	Lubricate trolley motor and pulley bearings. Use light machine oil.
Motor runs hot	Flood stripped out oil.	Lube motor.

SYMPTOM	CAUSE	ACTION TO TAKE
Game machine won't start.	<ul style="list-style-type: none"> • Fuse • Cables • Bad CPU power supply • Bad CPU Board 	<input type="checkbox"/> 1. Inspect fuses. <input type="checkbox"/> 2. Replace fuses as necessary. <input type="checkbox"/> 3. Reseat and check power cable to CPU Board. <input type="checkbox"/> 4. Still doesn't start: Swap out power supply and recheck machine. <input type="checkbox"/> 5. Still doesn't start: Swap out power supply and recheck machine.
Electronic or software problems <ul style="list-style-type: none"> • Game won't start • Missing features • Hardware malfunction 	Game machine hardware or software	See the relevant troubleshooting table for the subject problem.

Disaster Recovery: Fire

SYMPTOM	CAUSE	ACTION TO TAKE
<ul style="list-style-type: none"> • Charred cabinet sides • Damaged PVC pipe from blower • Damaged glass • Damaged cables • Scorched paint on metal parts, etc. 	Heat or open flames	<input type="checkbox"/> 1. Visually inspect the game for further damage. <input type="checkbox"/> 2. Replace damaged cabinet sides and unsound framing. <input type="checkbox"/> 3. Replace damaged PVC pipe from blower. <input type="checkbox"/> 4. Replace decals. <input type="checkbox"/> 5. Repair or replace damaged cables. <input type="checkbox"/> 6. Touch up paint on coin door, ticket dispenser and control panel.
Ashes, water, dirt, or dust on the playfield and gantry	Machine is overdue for thorough cleaning	<input type="checkbox"/> 1. Vacuum dirt and dust out of the PVC pipe that connects to the blower motor. <input type="checkbox"/> 2. Swab down the playfield, optos, LCD and gantry mechanism. Follow directions at <i>Clean the LCD and Playfield</i> in this chapter.

SYMPTOM	CAUSE	ACTION TO TAKE
Electronic or software problems <ul style="list-style-type: none"> • Game won't start • Missing features • Hardware malfunction 	Game machine hardware or software	See the relevant troubleshooting table for the subject problem.

Disaster Recovery: Lightning Strike / ESD / EMP

SYMPTOM	CAUSE	ACTION TO TAKE
Game won't boot.	Disconnected or dead CPU Power Supply Board	[] 1. Reconnect cables and recheck game machine. [] 2. Still doesn't boot: Swap out Power Supply Board and recheck machine.
Black screen at turn-on.	Disconnected or dead LCD	[] 1. Reconnect HDMI cable and recheck machine. [] 2. Black screen persists: Connect HDMI cable to a test monitor and recheck machine. [] 3. If original monitor is bad, replace it.
Black screen after PC powers up.	Disconnected or hard drive or dead CPU Board	[] 1. Reconnect cables and recheck game machine. [] 2. Still doesn't boot: Swap out hard drive and recheck machine. [] 3. Still doesn't boot: Swap out CPU Board and recheck machine.

ⓘ CAUTION

ESD / EMP. The term ESD stands for electrostatic discharge. The term EMP stands for electromagnetic pulse. ESD is a conducted threat to your equipment. EMP is a radiated threat. Yet wiring can inductively pick up an EMP, converting EMP into a conducted threat. Both natural and man-made sources can produce ESD or EMP. ESD and EMP effects vary from software disruption to hardware malfunctions, damage or destruction.

[illegible]

Chapter 5. Parts

Understanding the Parts Chapter

Data Organization. This chapter organizes parts alphabetically, by assembly name. Under each assembly item are the available components of that assembly. (Examples of such available components are proprietary hardware and artwork.) We've organized each component alphabetically by a descriptive noun in the name. For example...

Bracket, marquee middle art
Controller, Tivoli lamp string

The part number by which you can order the part is on the right side of the page.

Use the part description to find the part number. The number allows you to order the part. If you order by assembly number, you receive the available parts of that assembly. (In some cases such as weldments, an assembly might not have separable parts.) Yet some parts are unavailable through your distributor. For example, common screws and nuts that you'd find at hardware stores.

Service Kits. For convenient servicing, Team Play offers many service kits. These kits include groups of parts that technicians use together in maintaining and servicing your game machine. See the "Kits, Service" listing in this chapter. Service parts have their own part designation beginning with the letters "F-A-SPT-."

List of Assemblies

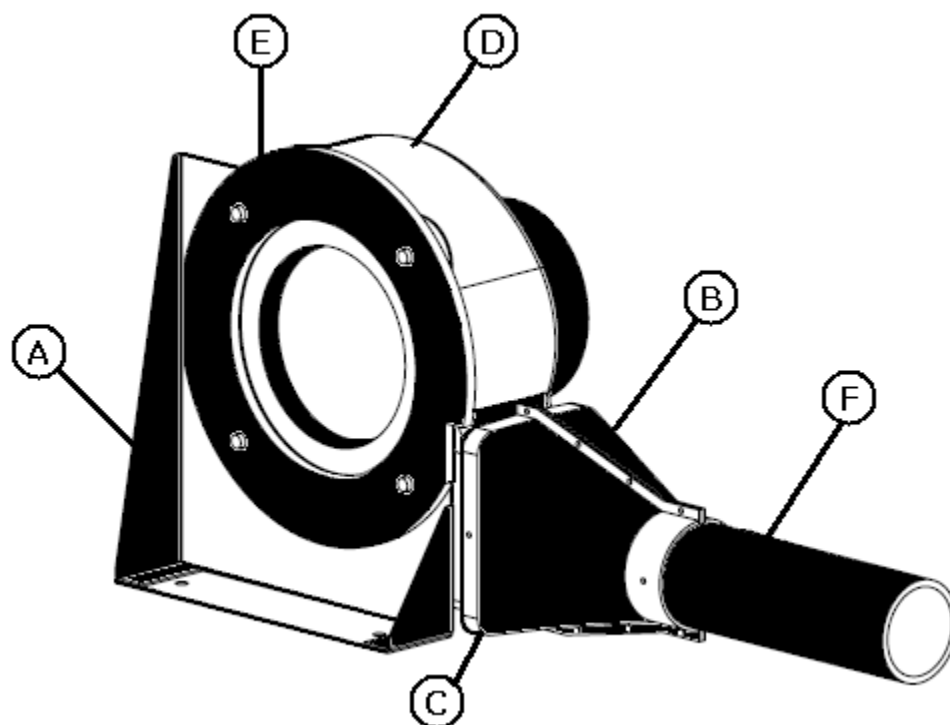
Assembly	Part Number
• <i>in right column indicates that full assembly is available.</i>	
Blower	• F-A-SAS-0028-00
Bowl, large, center	• F-A-SAS-0017-00
Bowl, large, left	• F-A-SAS-0016-00
Bowl, large, right	• F-A-SAS-0018-00
Bowl, small.....	• F-A-SAS-0015-00
Bowls, machined	• F-A-SAS-0020-00
Cabinet, CPU (pod).....	F-A-SAS-0002-00
Cabinet, main LCD	F-A-SAS-0007-00
Chute, ball	• F-A-SAS-0024-00
Chute, glass	F-A-SAS-0013-00
Chute, glass	F-A-SAS-0013-00
Conduit, gantry cable	• F-A-SAS-0026-00
CPU / I/O /PS / HD	F-A-SAS-0006-00
Door, bottom	F-A-SAS-0009-00
Door, ticket	F-A-SAS-0004-00
Door, top: LCD cabinet	F-A-SAS-0010-00
Gantry	• F-A-SAS-0021-00
Glass, front	F-A-SAS-0019-00
LCD, main cabinet	F-A-SAS-0007-00

LCD/playfield	F-A-SAS-0011-00
Loader, ball	• F-A-SAS-0027-00
Manual, Installation, Service and Parts.....	• F-A-RMN-0304-00
Marquee	• F-A-SAS-0001-00
Marquee, Flat	• F-A-SAS-0037-00
Marquee, Mini	• F-A-SAS-0035-00
Panel, control	• F-A-SAS-0005-00
Playfield	• F-A-SAS-0014-00
Power, line	• F-A-SAS-0030-00
Rail, LED lamp bottom	F-A-SAS-0029-00
Rail, LED lamp top	F-A-SAS-0008-00
Shield	F-A-SAS-0012-00
Solenoid, ball server, +48V	• F-A-SAS-0025-00
Speakers, 2 with audio cable	• F-A-SAS-0031-00
Supply, 24 volt power	• F-A-SAS-0032-00
Switch, EOS away	• F-A-SAS-0023-00
Switch, EOS home	• F-A-SAS-0022-00
Tray, ticket	F-A-SAS-0003-00

Blower (assembly).....F-A-SAS-0028-00

• *The above assembly is available. You may also order these parts of the assembly.*

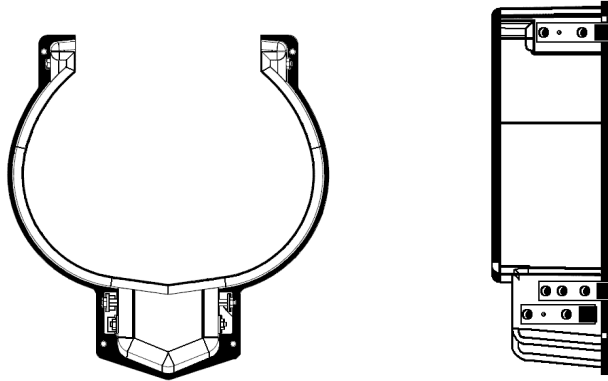
Funnel, half #1 (#B on drawing).....	F-A-RPL-0288-01
Funnel, half #2 (#C on drawing).....	F-A-RPL-0288-02
Motor, 120 VAC, 60 Hz, 200 CFM, blower (#D)	F-A-REL-0013-00
Tube, 2-inch PVC, 8 inches long (#F).....	F-A-RPL-0205-00



Bowl, playfield large, center (assembly).F-A-SAS-0017-00

- *The above assembly is available. You may also order these parts of the assembly.*

Opto, receiver PCBAF-A-SEL-0013-00
Opto, transmitter PCBA.....F-A-SEL-0012-00
Bowl, vacuform large.....F-A-RPL-0128-00



Bowl, playfield large, left (assembly)F-A-SAS-0016-00

- *The above assembly is available. You may also order these parts of the assembly.*

Bowl, vacuform large.....F-A-RPL-0128-00
Opto, receiver PCBAF-A-SEL-0013-00
Opto, transmitter PCBA.....F-A-SEL-0012-00

Bowl, playfield large, right (assembly) ...F-A-SAS-0018-00

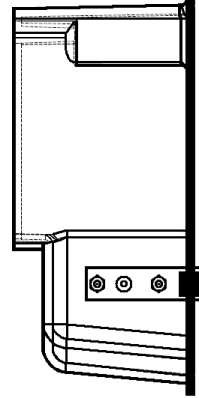
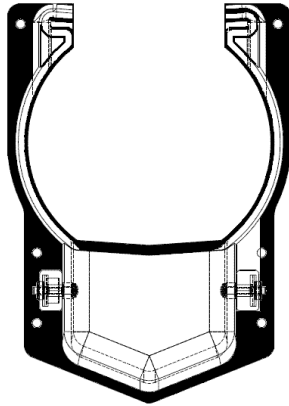
- *The above assembly is available. You may also order these parts of the assembly.*

Bowl, vacuform large.....F-A-RPL-0128-00
Opto, receiver PCBAF-A-SEL-0013-00
Opto, transmitter PCBA.....F-A-SEL-0012-00

Bowl, playfield small (assembly)F-A-SAS-0015-00

- *The above assembly is available. You may also order these parts of the assembly.*

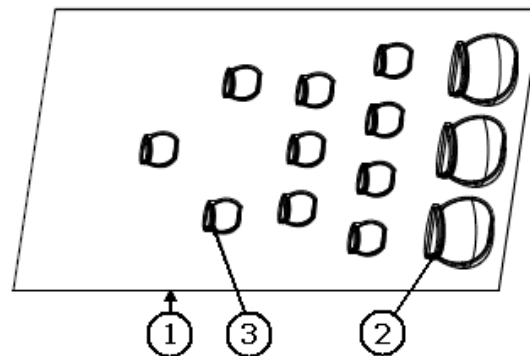
Bowl, vacuform small.....F-A-RPL-0127-00
Opto, receiver PCBAF-A-SEL-0013-00
Opto, transmitter PCBA.....F-A-SEL-0012-00



Bowls, machined (assembly)F-A-SAS-0020-00

- *The above assembly is available. You may also order these parts of the assembly.*

Bowls, large viewing glass (#2)	F-A-RPL-0150-00
Bowl, small viewing glass (#3)	F-A-RPL-0149-00
Plate, viewing glass bowls mounting (#1)	F-A-RPL-0148-00



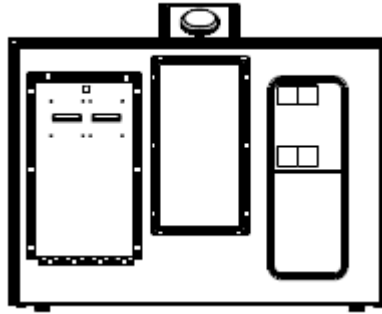
Cabinet, CPU / pod (assembly)F-A-SAS-0002-00

- *Unavailable assembly. You may order the parts below.*

Art, front.....	F-A-RGR-0282-00
Art, left side	F-A-RGR-0281-00
Art, right side	F-A-RGR-0280-00
Art, second top panel.....	F-A-RGR-0286-00
Board, infrared interface PS2 (assembly)	F-A-REL-0007-00
Board, solenoid and motor driver	F-A-SEL-0018-00
CPU / IO / PS / HD (assembly)	F-A-SAS-0006-00
Lighting, LED illuminated panel	F-A-REL-0021-00
Panel, illuminated flip	F-A-RGR-0293-00
Shield, illuminated plastic flip	F-A-RPL-0271-00
Speakers, service kit of all.....	F-A-SPT-0001-00
Supply, 12 & 53 volt, 300W power	F-A-REL-0006-00

◆ **NOTICE**

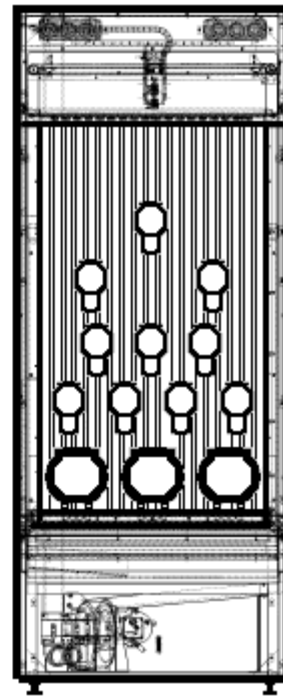
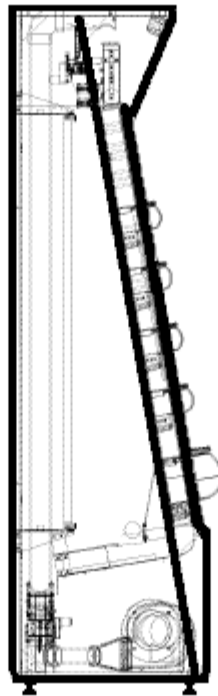
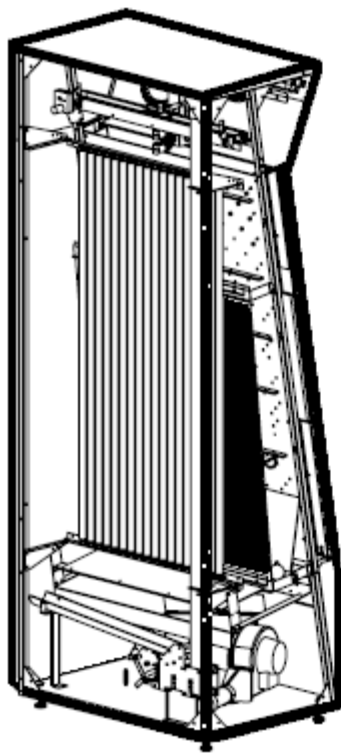
More Cabinet, CPU / pod parts. See *CPU / I-O / PS /HD (assembly)*.



Cabinet, main LCD (assembly)F-A-SAS-0007-00

• *Unavailable assembly. You may order the parts below.*

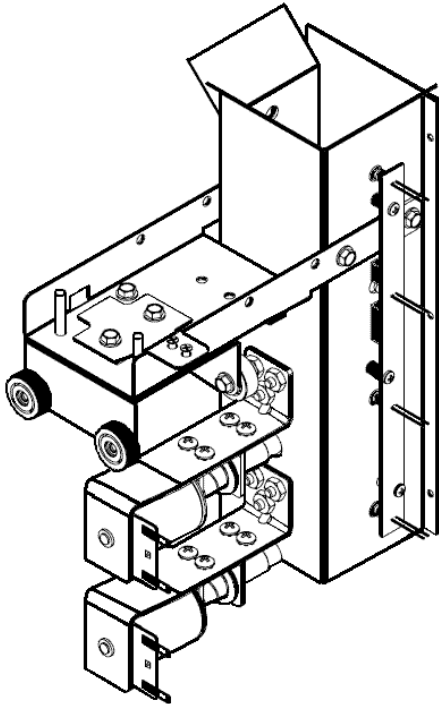
Decal, bottom speaker panel	F-A-RGR-0289-00
Decal, LCD cabinet, left.....	F-A-RGR-0288-00
Decal, LCD cabinet, right.....	F-A-RGR-0287-00
Gantry (assembly)	F-A-SAS-0021-00
Lamps, LED	F-A-RTL-0002-00
Loader, ball (assembly).....	F-A-SAS-0027-00
Motor, blower (assembly).....	F-A-SAS-0028-00
Power, line (assembly).....	F-A-SAS-0030-00
Relay, motor solid state	F-A-REL-0010-00
Supply, 24-volt power (assembly)	F-A-SAS-0032-00
Tube, 85-inch length; PVC, 2.5-inch diameter, ball.....	F-A-RPL-0290-00
Tube, right-angle sweep; PVC, 2.5-inch diameter, ball.....	F-A-RPL-0202-00
Tube, T-connector; PVC, 2.5-inch diameter, ball	F-A-RPL-0203-00
Tube, 86.75-inch length; Schedule 40 PVC, 2.5-inch diameter, ball	F-A-RPL-0294-00



Chute, gantry ball (assembly).....F-A-SAS-0024-00

- *The above assembly is available. You may also order these parts of the assembly.*

Ball	F-A-RBL-0001-00
Bearing, Roller.....	F-A-RHD-0206-00
Cover, ball chute.....	F-A-RPL-0136-00
Opto, ball server chute, transmitter (assembly)	F-A-SEL-0016-00
Opto, ball server chute, receiver (assembly).....	F-A-SEL-0017-00
Solenoid, ball server (assembly)	F-A-SAS-0025-00



◆ NOTICE

More Chute, gantry ball parts. See *Solenoid, ball server (assembly)*.

◆ NOTICE

Another name for the gantry ball chute is the gantry trolley.

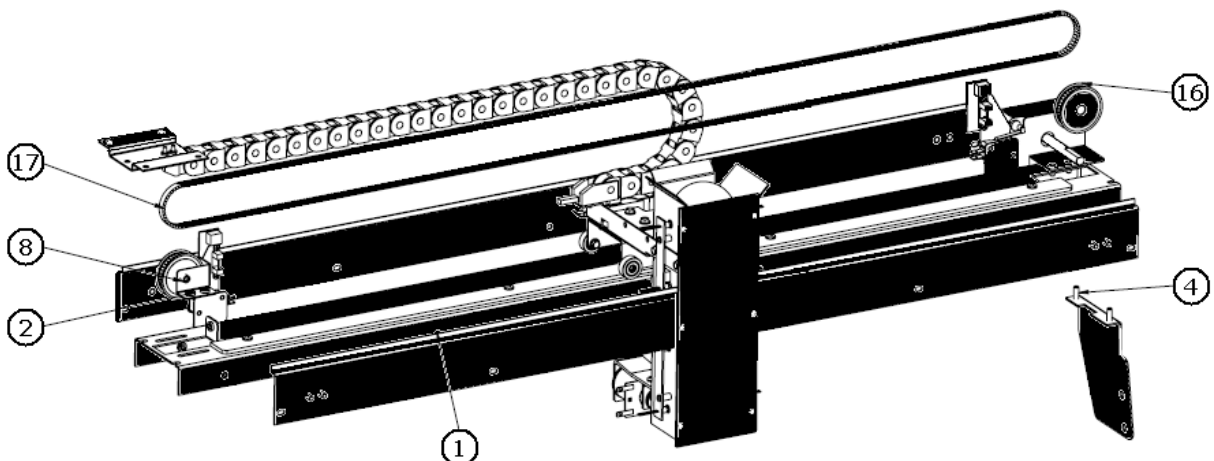
Conduit, gantry cable (assembly)F-A-SAS-0026-00

- *The above assembly is available. You may also order these parts of the assembly.*

Chain, FlexTrack (31 links) E-	F-A-RHD-0100-00
Chain, FlexTrack end (fixed) E-	F-A-RHD-0101-00
Chain, FlexTrack (moving) E-.....	F-A-RHD-0102-00
Harness, high-flex gantry cable (assembly)	F-A-RCB-0053-00

• *Unavailable assembly. You may order the parts below.*

- Door, LCD cabinet top (assembly).....F-A-SAS-0010-00**



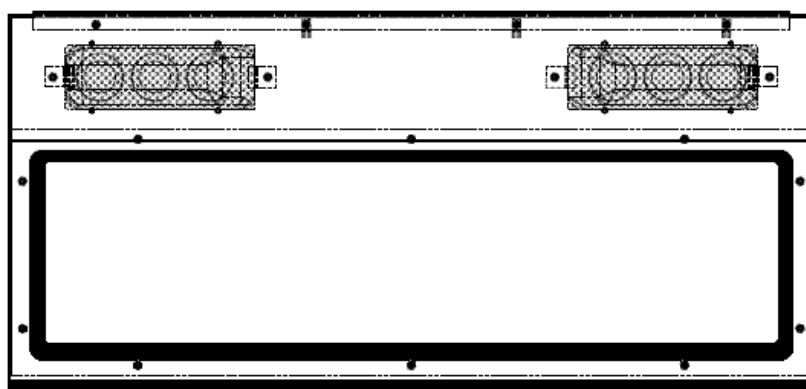
◆ NOTICE

More Gantry parts. See *Switch, EOS away (assembly)* and *Switch, EOS home (assembly)*.

Glass, chute (assembly).....F-A-SAS-0013-00

- *Unavailable assembly. You may order the parts below.*

Art, chute glass.....	F-A-RGR-0292-00
Decal, top speaker panel.....	F-A-RGR-0290-00
Glass, chute	F-A-RPL-0211-00
Lamp, LED 36-inch strip.....	A-A-RLT-0004-00
Speakers, service kit of all.....	F-A-SPT-0001-00



Glass, front (assembly).....F-A-SAS-0019-00

- *Unavailable assembly. You may order the parts below.*

Glass, front bowl	F-A-RGL-0146-00
Bowls, machined front (assembly).....	F-A-SAS-0020-00
Decal, glass frame.....	F-A-RGR-0291-00
Decal, bottom wood shelf.....	F-A-RGR-0298-00

Kits, service

- *Unavailable assembly. You may order the parts below.*

Funnel, service kit for blower; <i>includes both halves</i>	F-A-SPT-0005-00
Pins, service kit of 5; <i>includes mounting washers & nuts</i>	F-A-SPT-0002-00
Optos, service kit for playfield bowl; <i>includes receiver & transmitter</i>	F-A-SPT-0003-00
Optos, service kit for gantry trolley; <i>includes receiver & transmitter</i>	F-A-SPT-0004-00
Optos, service kit with wide gap fork; <i>includes receiver & transmitter</i>	F-A-SEL-0020-00
Speakers, service kit of all.....	F-A-SPT-0001-00

LCD / playfield (assembly)F-A-SAS-0011-00

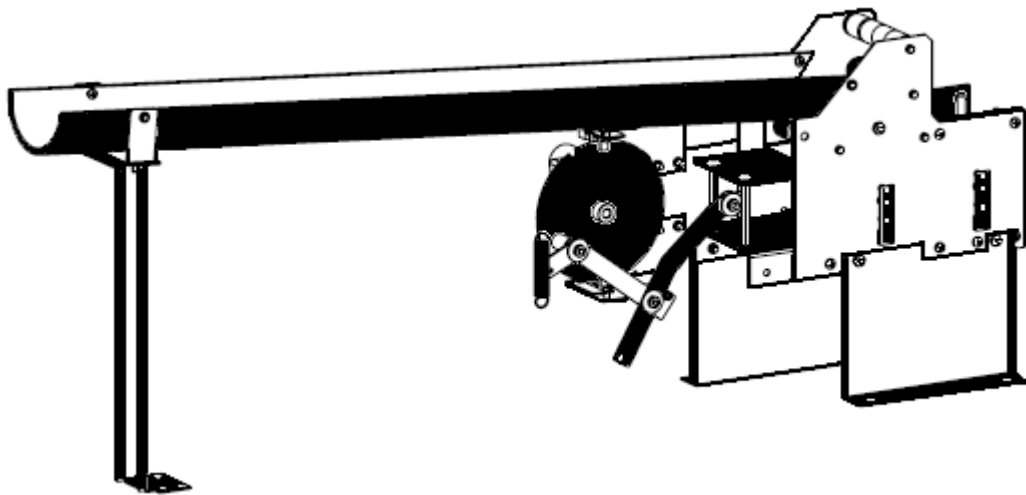
- *Unavailable assembly. You may order the parts below.*

LCD, transmissive	F-A-REL-0001-00
Playfield (assembly)	F-A-SAS-0014-00
Sheet, plastic for back of LCD	F-A-RPL-0145-00

Loader (assembly)F-A-SAS-0027-00

- *The above assembly is available. You may also order these parts of the assembly.*

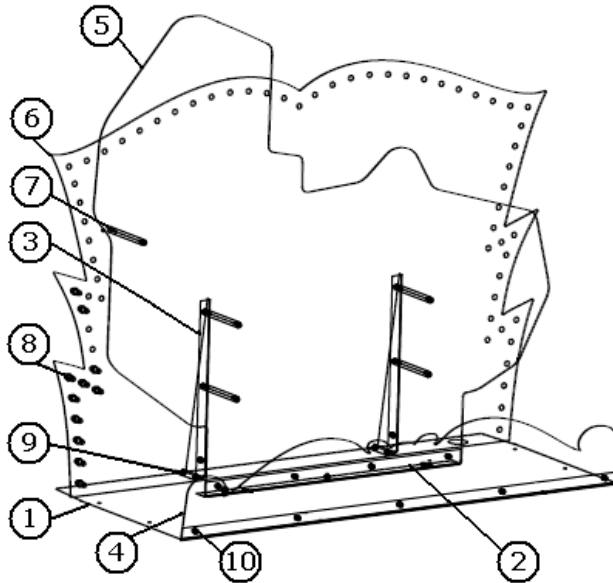
Link, #1 scissor	F-A-RMT-0286-00
Link, #2 scissor	F-A-RMT-0287-00
Motor, DC gear, +12 V, 12 RPM	F-A-REL-0019-00
Opto, receiver PCBA	F-A-SEL-0013-00
Opto, transmitter PCBA.....	F-A-SEL-0012-00
Opto, wide gap (assembly).....	F-A-SEL-0020-00
Pin, cam	F-A-RPL-0224-00
Roller.....	F-A-RPL-0207-00
Spacer, nylon #8	F-A-RHD-0015-00
Spring, drive link.....	F-A-RHD-0200-00
Tube, loader blower, 2-inch PVC right angle	F-A-RPL-0204-00



Marquee (assembly)F-A-SAS-0001-00

- *The above assembly is available. You may also order these parts of the assembly.*

Art, marquee front (#4).....	F-A-RGR-0295-00
Art, marquee middle (#5).....	F-A-RGR-0296-00
Art, marquee rear (#6).....	F-A-RGR-0297-00
Controller, Tivoli lamp string.....	F-A-SEL-0019-00
Lamp, foot LED strips 32".....	F-A-RLT-0003-00
Lamp, marquee Tivoli LED string, 50 lamps (#8)	F-A-REL-0030-00



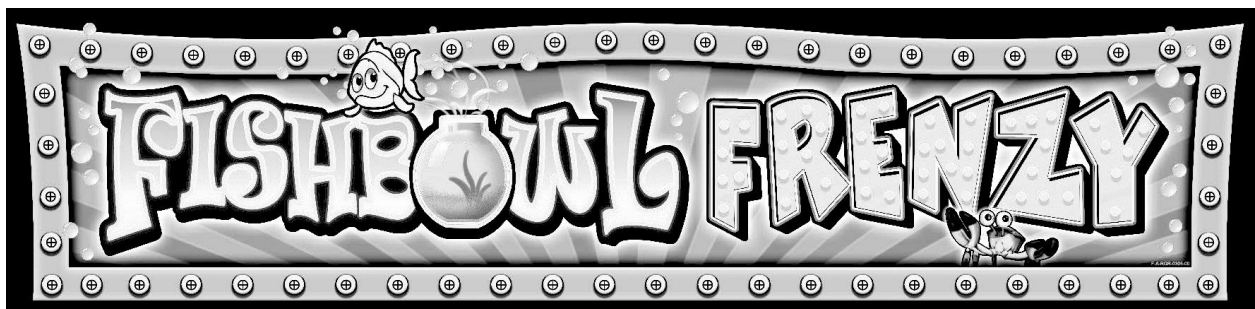
Marquee, Flat (assembly)F-A-SAS-0037-00

- Only available as a complete assembly.



Marquee, Mini (assembly)F-A-SAS-0035-00

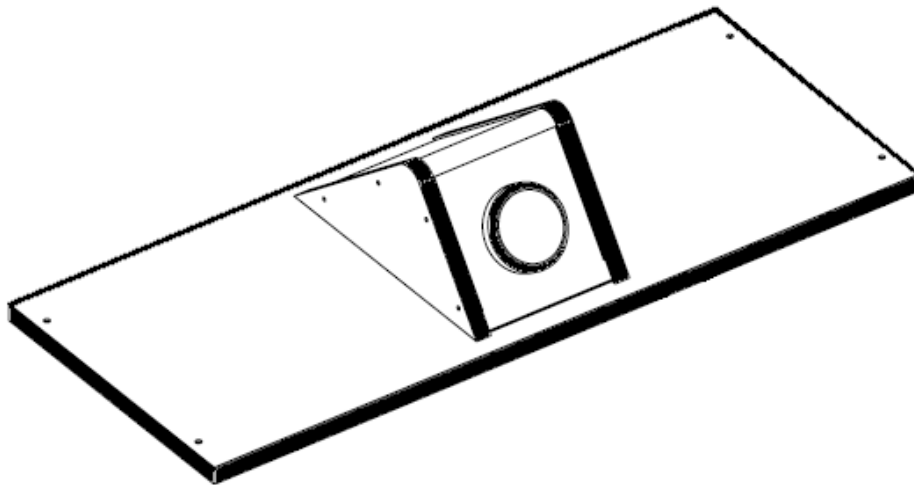
- Only available as a complete assembly.



Panel, control (assembly)F-A-SAS-0005-00

- *Unavailable assembly. You may order the parts below.*

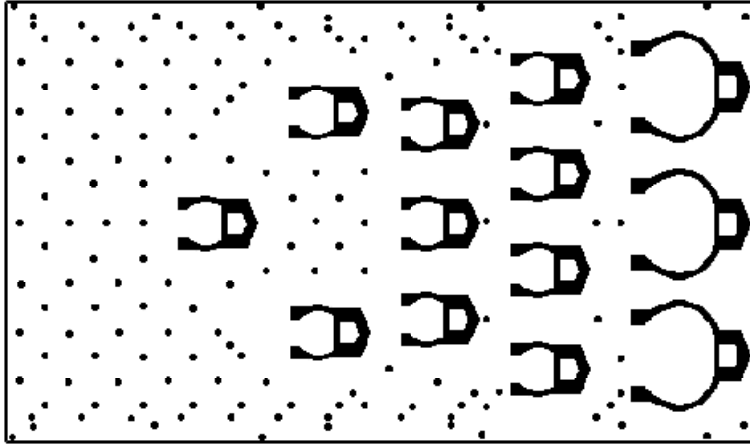
Art, control panel overlay	F-A-RGR-0285-00
Button, control panel	F-A-RBT-0001-00
Decal, left pod ring	F-A-RGR-00284-00
Decal, right pod ring	F-A-RGR-00283-00
Overlay, control panel plastic.....	F-A-RAC-0106-00



Playfield (assembly)F-A-SAS-0014-00

- *The above assembly is available. You may also order these parts of the assembly.*

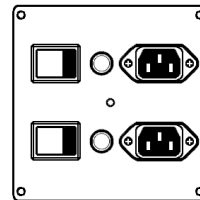
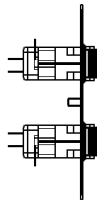
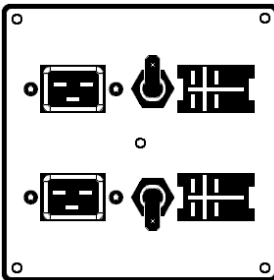
Bowl, large, center (assembly).....	F-A-SAS-0017-00
Bowl, large, left (assembly)	F-A-SAS-0016-00
Bowl, large, right (assembly).....	F-A-SAS-0018-00
Pin, molded	F-A-RPL-0129-04
Playfield	F-A-RPL-0133-00
Bowl, small (assembly)	F-A-SAS-0015-00
Nut, HWX, ¼-20, nylon.....	F-A-RPL-0131-00
Washer, playfield pin, nylon.....	F-A-RPL-0130-00



Power, line (assembly)F-A-SAS-0030-00

- The above assembly is available. You may also order these parts of the assembly.

Filter, AC line with EMI C320 inlet, 6A, 250V.....	A-A-REL-0013-00
Holder, panel-mount 5 x 20 mm, 250V fuse	A-A-REL-0015-00
Switch, AC line, DP-ST Canal power series	A-A-REL-0014-00



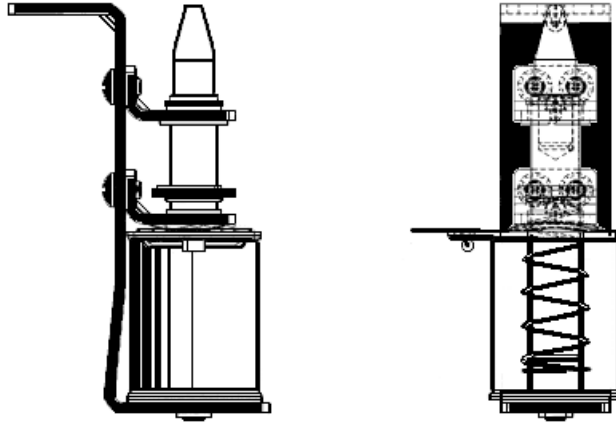
Shield (assembly)F-A-SAS-0012-00

- Unavailable assembly. You may order the parts below.

Plate, shield.....	F-A-RPL-0215-00
Plate, #2 shield.....	F-A-RPL-0303-00

Solenoid, ball server (assembly).....F-A-SAS-0025-00

- *Only available as a complete assembly.*



Supply, 24-volt power (assembly)F-A-SAS-0032-00

- *The above assembly is available. You may this part of the assembly.*

Supply, 24-volt, 500WF-A-REL-0025-00

Switch, EOS away (assembly).....F-A-SAS-0023-00

- *The above assembly is available. You may these parts of the assembly.*

Opto, wide gap (assembly).....F-A-SEL-0020-00

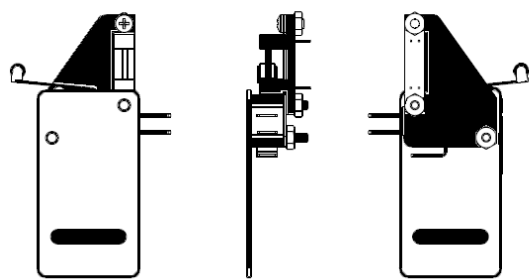
Switch, D41 w/ roller actuator; 0.205-inch terminalF-A-REL-0023-00

Switch, EOS home (assembly)F-A-SAS-0022-00

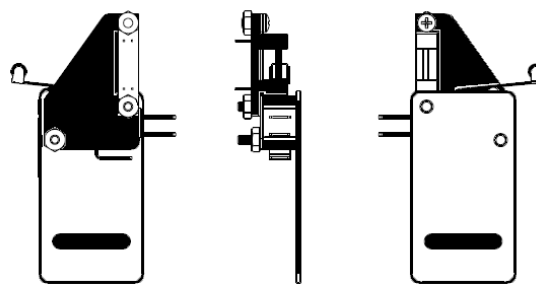
- *The above assembly is available. You may these parts of the assembly.*

Opto, wide gap (assembly).....F-A-SEL-0020-00

Switch, D41 w/ roller actuator; 0.205-inch terminalF-A-REL-0023-00



EOS HOME SWITCH ASSEMBLY



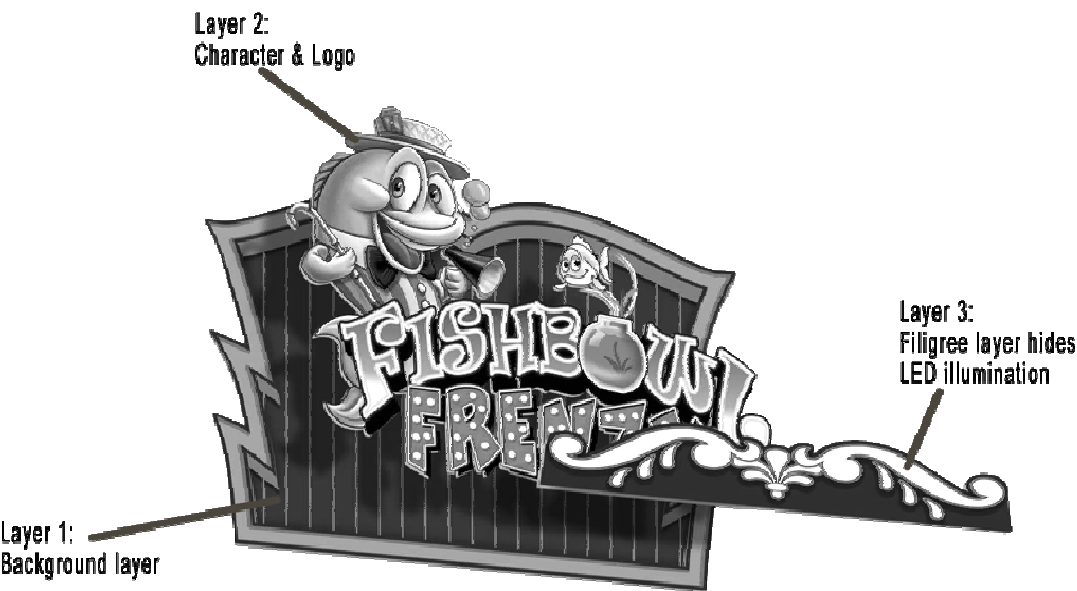
EOS AWAY SWITCH ASSEMBLY

Parts, Notes

[illegible]

Power Fuses

Description	Location
Main power fuse: (1) 6.3A SB, 5 x 20mm	Back of game machine, lower-left, by power cord and on-off switch.
Peripherals: (4) fuses	Motor-Solenoid Driver Board



MARQUEE BUILD OPTION

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201 Crossen Avenue, Elk Grove Village, IL 60007



**(847) 952-7533 phone
(847) 952-7534 fax
Sales@teampplayinc.com**