OPERATOR’S MANUAL

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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

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning</td>
<td>Failure to avoid this hazard might cause death or serious injury.</td>
</tr>
<tr>
<td>Caution</td>
<td>Failure to avoid this hazard might cause personal injury or property damage.</td>
</tr>
<tr>
<td>Notice</td>
<td>Helpful data about good practice. Doesn’t relate to health.</td>
</tr>
</tbody>
</table>

Safety Instructions for Launch Code

⚠️ WARNING: Front glass door. Avoid personal injury and property damage! The front glass door weighs 100 pounds. Before opening the front glass door, adjust the leg levelers. Otherwise, opening the door could cause the machine to overturn.

⚠️ WARNING: Control panel cabinet (pod). If you’ve removed the control panel cabinet (pod), never open the front glass door. A game machine with a removed pod is unstable: Opening the front glass door could cause the machine tip over. Injury or property damage could result.

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

⚠️ 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.

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

⚠️ 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.

⚠️ 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.
**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. Only certified mold removal professionals should encapsulate and remove mold or mildew.

**WARNING:** Restraining chains. You might need to angle the front glass door beyond the extent of restraining chains. In that case, you must disconnect these chains. Take care to protect the fragile glass door. Don’t let it free-fall out of the cabinet! The glass might slam into the control panel and break. Shards of glass could fly in every direction.

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

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

**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:** AC Mains Supply Cord. If you have a damaged AC mains detachable supply cord, replace it with a factory approved cord assembly. This cord is available from the manufacturer.

**CAUTION:** AC Mains Supply Cord. For 230 VAC operation only, use a detachable AC mains supply cord. The cord must comply with the specifications below.

| 230 VAC Cord | H05VV-F, 3x1.00mm², three-conductor, unshielded, CEE color code; GREEN/YELLOW insulation for earthing conductor |
| Connector     | IEC320-C13 right angle connector |
| Plug          | IEC 884 certified plug compatible with country standards and requirements |

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

**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. The term ESD stands for electrostatic discharge. Wiring can inductively pick up pulses that may affect your gameplay. Both natural and technological sources can produce ESD. ESD 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: Hard drive 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: 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 installing panels, avoid pinching wires.

© CAUTION: Catch slider. Before working on the targets, playfield, or monitor screen, disengage the catch slider. The catch slider is a clear, plastic “sled” that runs under the targets at the bottom of the playfield. To disengage the slider, use the built-in, Diagnostic Mode software. Disengaging moves the slider out of the way of the playfield. Otherwise, moving the playfield will break the slider.

© CAUTION: Cleaning. Never use abrasive pads, cloths, or cleaners on the playfield, glass or plastic surfaces. Abrasives can scratch game surfaces. You may clean with either a mist of water or a mild glass cleaner. A diluted ammonia formula (such as Windex® cleaner) is okay to use. Spritz the water or cleaner on a cloth, not on the surface that you’re cleaning. Otherwise, the cleaner could drip and damage the electronics. Avoid using soap.

© 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.

© CAUTION: Software, hardware and manual changes. This manual, the game machine, and game software are subject to change without notice. On the publication date, this manual was accurate. As necessary during development or production, content may undergo revisions.

♦ NOTICE: Balls, installing from front. You can install balls from the front or back of the machine. To install from the front, open the front glass door. Then drop the balls onto the playfield.

♦ NOTICE: Magnets. When you pivot the playfield out, you’re working against the resistance of magnets. These magnets are strong. To overcome the magnetism, you must exert a slight force. This small force won’t hurt your playfield.

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Chapter 2. Setup

Game Machine Details

**SHIPPING DIMENSIONS (no marquee)**
- Length: 106 inches (2.69 meters)
- Height: 50.5 inches (1.28 meters)
- Width: 46 inches (1.17 meters)

**OPERATING DIMENSIONS (without marquee)**
- Length: 43 inches (1.09 meters)
- Height: 98 inches (2.49 meters)
- Width: 41 inches (1.04 meters)

**MARQUEE (TOPPER) DIMENSIONS**
- Length: 39” (1 meter)
- Height: 33” (0.84 meters)
- Width: 16” (0.41 meters)

**WEIGHT (unpacked)**
- Cabinet: 650 lbs. (294.84 kg)
- Marquee: 20 lbs. (9.07 kg)

**WEIGHT (shipping)**
- Cabinet: 750 lbs. (340.19 kg)
- Marquee: 25 lbs. (18.14 kg)

**POWER**
- Domestic: 120 VAC @ 60 Hz, 5 A
- International: 230 VAC @ 50 Hz, 2.5 A

**OPERATING TEMPERATURE**
- Fahrenheit: 32° F to 104° F
- Centigrade: 0° C to 40° C

**OPERATING HUMIDITY**
- Relative humidity, non-condensing: 5 - 95%
Quick Installation Guide

You’ll Need These Tools

- 7/16", open end or combination wrench
- 3/4", open end or combination wrench
- M4 (4mm hex) metric driver
- 7/16" hex driver

⚠️ WARNING

Front glass door. Avoid personal injury and property damage! The front glass door weighs 100 pounds. Before opening the front glass door, adjust the leg levelers. Otherwise, opening the door could cause the machine to overturn.

⚠️ WARNING

Control panel cabinet (pod). If you’ve removed the control panel cabinet (pod), never open the front glass door. A game machine with a removed pod is unstable: Opening the front glass door could cause the machine tip over. Injury or property damage could result.

⚠️ WARNING

Restraining chains. You might need to angle the front glass door beyond the extent of restraining chains. In that case, you must disconnect these chains. Take care to protect the fragile glass door. Don’t let it free-fall out of the cabinet! The glass might slam into the control panel and break. Shards of glass could fly in every direction.

👋 CAUTION

Shipping insert. You must remove the foam shipping insert. Leaving it in might damage the gantry trolley.

👋 CAUTION

Don’t Discard the Parts Box! Shrink wrap binds the cardboard parts box to the control panel cabinet (pod). You’ll find the parts box between the control panel cabinet (pod) and front glass door. The box contains a red envelope with keys for the cashbox and ticket door. Also in the box are eight balls and the line cord.

1. Remove the game machine from its shipping skid.
2. Check for shipping damage.
3. **Optional:** If your door is too narrow to allow the machine to pass, remove the machine’s control panel (pod).
4. **Optional:** After moving the machine through the door, reassemble the control panel cabinet (pod) to the game cabinet.
5. Stand the cabinet upright.
6. Adjust the leg levelers.
7. Remove two M4 (4mm hex) furniture bolts that secure the front glass door.
8. Pivot the front glass door forward.
9. At the top of the cabinet, remove the foam shipping insert. This insert is under one side of the ball trolley.
10. Load the balls (minimum: four; maximum: eight).
11. Fasten the front glass door to the cabinet frame. Use the two bolts that you removed during disassembly.
12. Assemble and install the marquee. (See instructions that came with the marquee.)
13. Install the power cord.
14. Turn on the power switch.
15. Verify that the game starts and Attract Mode runs.
16. Set pricing as you want it. (Use these menu settings: Coin 1, Coin 2, and Price Per Play.)
17. Are you satisfied that the game machine operates properly? Inspect your work.
Assembly, Detailed Instructions

Unpack the Game Machine

**WARNING**

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

**WARNING**

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

**WARNING**

**Game cabinet is unstable.** If you’ve separated the control cabinet from the game cabinet, the game cabinet becomes unstable. While working on the game cabinet, have a second person keep it steady. Otherwise, the game cabinet could fall over and cause injury. The cabinet, LCD and other parts might also sustain damage.

**CAUTION**

**Don’t Discard the Parts Box!** Shrink wrap binds the cardboard parts box to the control panel cabinet (*pod*). You’ll find the parts box between the control panel cabinet (*pod*) and front glass door. The box contains a red envelope with keys for the cashbox and ticket door. Also in the box are eight balls and the line cord.

You’ll Need These Tools
- 7/16”, open end or combination wrench
- 3/4”, open end or combination wrench
- M4 (4mm hex) metric driver
- 7/16” hex driver

[ ] 1. Place the game machine in a suitable play or service area.

[ ] 2. Remove the game machine from its shipping skid. *There are two pieces*...

- The game machine ships with its left side on the skid.
- The marquee (*topper*) arrives in its own carton. You'll find this carton on the skid next to the game cabinet. You must assemble the marquee and mount it atop the game cabinet. (*Instructions are in the display carton.*)

[ ] 3. Check for shipping damage to the following...
- Cabinet back door
- Cabinet coin door
- Cabinet decals
- Cabinet glass: Marquee and LCD
- Playfield

[ ] 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 game machine upright and stand it on its bottom end. For assembly, allow at least three feet of room behind the machine.
WARNING

Front glass door. Avoid personal injury and property damage! The front glass door weighs 100 pounds. Before opening the front glass door, adjust the leg levelers. Otherwise, opening the door could cause the machine to overturn.

[] 6. This step requires a 3/4-inch end wrench. On the cabinet, adjust the leg levelers as necessary. Leveling cabinets by adjusting leg levelers is a job for two people. There are two levelers under the control panel (pod) area. There are four levelers under the game cabinet.

Remove the Control Panel Cabinet (Optional)

You’ll Need These Tools

- 3/4”, open end or combination wrench
- M4 (4mm hex) metric driver
- 7/16” hex driver

After unpacking, the game machine is 43 inches deep. It might not fit through your door. In that case, you may remove the control panel cabinet (pod) from the game cabinet.

WARNING

Control panel cabinet (pod). If you’ve removed the control panel cabinet (pod), never open the front glass door. A game machine with a removed pod is unstable: Opening the front glass door could cause the machine to tip over. Injury or property damage could result.

[] 1. This step requires an M4 (4mm hex) driver. From the control panel cabinet (pod), remove the two wooden side panels.

[] 2. Inside the right side, disconnect four Molex cable connectors. (As you face the front of the machine, cables are on the right side.)

[] 3. This step requires a 7/16-inch hex driver. Remove the ground braid that connects the control panel cabinet (pod) to the game cabinet.

[] 4. This step requires a 7/16-inch hex driver. Remove the 7/16-inch bolts that secure the control panel cabinet (pod) to the game cabinet.

[] 5. With two workers, move the cabinets through your door.

Reinstall the Control Panel Cabinet (Optional)

You’ll Need These Tools

- 3/4”, open end or combination wrench
- M4 (4mm hex) metric driver
- 7/16” hex driver

[] 1. Position the two cabinets so that you can mount them together.
CAUTION
When installing panels, avoid pinching wires.

[ ] 2. This step requires a 7/16-inch hex driver. Reconnect the ground braid between the control panel cabinet (pod) and the game cabinet.

[ ] 3. Inside the right side, connect four Molex cable connectors. (As you face the front of the machine, cables are on the right side.)

[ ] 4. Secure the control panel cabinet (pod) to the game cabinet. Use bolts that you removed earlier.

[ ] 5. This step requires an M4 (4mm hex) driver. Replace the two wooden side panels.

WARNING
Front glass door. Avoid personal injury and property damage! The front glass door weighs 100 pounds. Before opening the front glass door, adjust the leg levelers. Otherwise, opening the door could cause the machine to overturn.

[ ] 6. This step requires a 3/4-inch end wrench. On the cabinet, adjust the leg levelers as necessary. Leveling cabinets by adjusting leg levelers is a job for two people. There are two levelers under the control panel (pod) cabinet. There are four levelers under the game cabinet.

Remove the Shipping Insert

You’ll Need These Tools
• M4 (4mm hex) metric driver
• 7/16” hex driver

[ ] 1. This step requires an M4 (4mm hex) driver. Remove two hex furniture bolts from the metal LED dot display plate: At the top of the frame, one bolt is on each side of the display. (See the illustrations, below and right.)

[ ] 2. Angle the front glass door forward slowly, until it rests on its retaining chains.

[ ] 3. At the top of the game cabinet is a foam shipping insert. The foam prevents the ball-server trolley from crashing into the ends of the gantry. Remove the insert.
[] 4. Load the balls (*minimum: four; maximum: 8*). Drop the balls onto the top of the playfield.

**WARNING**

*Restraining chains.* You might need to angle the front glass door beyond the extent of restraining chains. In that case, you must disconnect these chains. Take care to protect the fragile glass door. Don't let it free-fall out of the cabinet! The glass might slam into the control panel and break. Shards of glass could fly in every direction.

[] 5. This step requires an M4 (4mm hex) driver. Fasten the front glass door to the cabinet frame. Use the two bolts that you removed during disassembly.

[] 6. This step requires a 7/16-inch hex driver. Remove the back panel of the game cabinet.

[] 7. Inside the game cabinet, remove shipping debris that you might find in the ball trough.

[] 8. Replace the back panel of the game cabinet.

**Inspect Your Work**

**You’ll Need These Tools**

- 3/4", open end or combination wrench

[] 1. Make sure that you’ve fastened the front glass door to the game cabinet.

[] 2. Make sure that the pod and game cabinets join together securely.

[] 3. Make sure that the game machine is level and doesn't wobble.

[] 4. Locate the AC line cord. The line cord is in a cardboard box that ships with the game machine. The box also contains a red envelope with keys for the cashbox and ticket door. Also in the box are eight balls.

[] 5. Insert the line cord into the socket in the back of the machine. The socket is on the bottom left side. (As you face the cabinet back.)

[] 6. Plug the other end of the line cord into an AC outlet.

**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.

[] 7. 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.)

[] 8. Turn on the power switch. After the game finishes loading, the game’s Attract Mode should begin. Loading takes about 30 seconds.

[] 9. Verify that the game starts and Attract Mode runs.
[10. Check the game lamps for any that don’t light.

[11. 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.

[12. Set pricing as you want it. (Use these menu settings: Coin 1, Coin 2/Dollar Bill, and Price Per Play.)

[13. Set the volume control for the desired sound level. This illuminated control is inside the coin door.

[14. 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.

[15. If the sound volume isn’t loud enough for your location, go to the Sound Volume Menu.

[16. Set the Sound Volume Menu as necessary.

[17. Go to the Diagnostic Menu.


[19. Verify that all target switches operate.

[20. In the menu system, go to Blower and Gantry Tests.

[21. Verify that the ball server trolley (drop mech) can drop a ball.

[22. Check that the gantry trolley can travel all the way right and left.

[23. By running the Standard Switch Tests and Opto Switch Tests, check proper game machine operation.

[24. To verify normal gameplay, play a few games.

[25. This is a job for two or three people. Move the game machine into to its exact position. For proper ventilation, keep the cabinet at least two inches away from the wall.

[26. 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.

[27. Store the keys in a safe place.
Gameplay

Launch Code is a striking redemption game with several attractions...

- **This is an oversized machine**, standing eight feet tall (*plus the marquee height*). Players can’t miss it. Plus, it’s full of action from top to bottom!
- **Your master of ceremonies** is a pixie-like space alien.
- **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 targets.
- **Landing a ball** in a target 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 target.
- **Progressive play** is a built-in and programmable feature.

© 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 either button.

Your ticket meter is to the right of the buttons, in the middle of the panel. This meter totals the dispensed tickets from both ticket dispensers in the game machine.

Your coin meters are on the right side of the panel. The top meter counts coin units that pass into Coin Chute 1. The bottom meter counts coin units (including bills) that pass into Coin Chute 2.

Navigating Through Menus

<table>
<thead>
<tr>
<th>Function</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move up through menu rows</td>
<td>TOP DIAGNOSTIC</td>
</tr>
<tr>
<td>Move down through menu rows</td>
<td>BOTTOM DIAGNOSTIC</td>
</tr>
<tr>
<td>Make the selected change</td>
<td>SERVE BALL (on player control panel)</td>
</tr>
</tbody>
</table>

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 (player’s 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. Add pizzazz to your presentation: Adjust the number of targets. Customize features such as these to suit your players: Bonus, target value, and progressive play. 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 state or province.
- On the state or 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...

<table>
<thead>
<tr>
<th>Main Menu</th>
<th>Coin Adjustments, Submenu</th>
<th>1.1.1.0, Coin 1, Sub-submenu</th>
</tr>
</thead>
</table>

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. To reach submenu 1.1.0.0, go to the main menu, 1.0.0.0.

- A nonzero third number (“1.1.1.0,” etc.) indicates a sub-submenu. To reach submenu 1.1.1.0, go to 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 Launch Code - Main Menu

<table>
<thead>
<tr>
<th>1.1.0.0</th>
<th>Coin Adjustments</th>
<th>1.5.0.0</th>
<th>Single Progressive Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1.0</td>
<td>Coin 1</td>
<td>1.5.1.0</td>
<td>Bonus Minimum / Start</td>
</tr>
<tr>
<td>1.1.2.0</td>
<td>Coin 2/Dollar Bill</td>
<td>1.5.2.0</td>
<td>Bonus Maximum</td>
</tr>
<tr>
<td>1.1.3.0</td>
<td>Price Per Play</td>
<td>1.5.3.0</td>
<td>Increment Bonus By</td>
</tr>
<tr>
<td>1.1.4.0</td>
<td>Swipe Card Mode</td>
<td>1.5.4.0</td>
<td>Reset Bonus to Minimum</td>
</tr>
<tr>
<td>1.1.5.0</td>
<td>Reset Adjustables to Factory Defaults</td>
<td>1.5.5.0</td>
<td>Advanced Link and Diag</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.2.0.0</th>
<th>Coin Audits</th>
<th>1.6.0.0</th>
<th>Diagnostics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.0.0</td>
<td>Game Audits</td>
<td>1.6.1.0</td>
<td>Standard Switch Tests</td>
</tr>
<tr>
<td>1.3.1.0</td>
<td>Clear Current Audits</td>
<td>1.6.2.0</td>
<td>Opto Switch Tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.3.0</td>
<td>Coin/Ticket Meter Tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.4.0</td>
<td>Ticket Dispenser Tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.5.0</td>
<td>Blower and Gantry Tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.5.1</td>
<td>Gantry Controller Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.6.0</td>
<td>Show FPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6.7.0</td>
<td>Auto Drop Ball</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.4.0.0</th>
<th>Game Adjustments</th>
<th>1.7.0.0</th>
<th>Software Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.1.0</td>
<td>Attract Sounds</td>
<td>1.8.0.0</td>
<td>Sound Volume</td>
</tr>
<tr>
<td>1.4.2.0</td>
<td># of Targets</td>
<td>1.9.0.0</td>
<td>System Information</td>
</tr>
<tr>
<td>1.4.3.0</td>
<td>Cabinet Knocker</td>
<td>1.4.5.0</td>
<td></td>
</tr>
<tr>
<td>1.4.4.0</td>
<td>Single Progressive</td>
<td>1.4.6.0</td>
<td>Ticket Amount Per Ticket</td>
</tr>
<tr>
<td>1.4.5.0</td>
<td>Ticket Value</td>
<td>1.4.6.0</td>
<td>Remember Tickets Owed</td>
</tr>
<tr>
<td>1.4.6.0</td>
<td>Recall Owed Tickets &amp; Credits</td>
<td>1.4.8.0</td>
<td>Target Value Ticket Adjustments</td>
</tr>
<tr>
<td>1.4.7.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Notes
- **Launch Code™ manual** 3-3  
- **Chapter 3. Adjustments, Audits & Diagnostics**

For service: 847-952-7533, [service@teamplayinc.com](mailto:service@teamplayinc.com)
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.

Launch Code – Main Menu

Coin Adjustments
Coin Audits
Game Audits
Game Adjustments
Single Progressive Adjustments
Diagnostics
Software Update
Sound Volume: 85
System Information

Current Date:
Mon, Nov 16, 2017 12:37:11 a.m.
FPS: 60
Set Date – Game will Restart!

Exit

Features on the Main Menu

<table>
<thead>
<tr>
<th>Feature</th>
<th>What It Does</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin Adjustments</td>
<td>Enter a menu that allows you to set pricing for coin acceptors. You'll also find a swipe-card option.</td>
</tr>
<tr>
<td>Coin Audits</td>
<td>Enter the Coin Audit Menu. Check or clear collection records for the Coin 1 or Coin 2/Dollar Bill chutes.</td>
</tr>
<tr>
<td>Game Audits</td>
<td>Enter the Game Audits Menu. Audit totals for ball and target statistics, plays, play time, and tickets.</td>
</tr>
<tr>
<td>Game Adjustments</td>
<td>Enter the Game Adjustments Menu. Set adjustable game features: Attract sounds, Multiball Mode, ticket value, etc.</td>
</tr>
<tr>
<td>Single Progressive Adjustments</td>
<td>Enter the Single Progressive Adjustments Menu. Alter the minimum and maximum progressive amount. The Single Progressive Adjustments menu also includes progressive audits.</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>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.</td>
</tr>
<tr>
<td>Software Update</td>
<td>Enter a menu that allows you to update system software for the game machine.</td>
</tr>
<tr>
<td>Sound Volume</td>
<td>Enter the Sound Volume Menu: Default 85. Custom settings from 0 to 100.</td>
</tr>
</tbody>
</table>
# Chapter 3. Adjustments, Audits & Diagnostics

## Feature | What It Does
---|---
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

## 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.

### Coin Adjustments

**Coin 1**: $1.00  
**Coin 2/Dollar Bill**: $1.00  
**Price Per Play**: $1.00  
**Swipe Card Mode**: on  
*Note: This resets tickets per target*  
**Reset to Factory Defaults**  
*Note: This resets ALL defaults – Both COIN and GAME*

### Back

## Features on the Coin Adjustments Menu

<table>
<thead>
<tr>
<th>Feature</th>
<th>What It Does</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin 1</td>
<td>Sets the value of a switch closure at Coin Chute 1 (dollar fraction).</td>
</tr>
<tr>
<td>Coin 2/Dollar Bill</td>
<td>Sets the value of a switch closure at Coin Chute 2 (dollar fraction).</td>
</tr>
<tr>
<td>Price Per Play</td>
<td>Sets the charge for one round of the game.</td>
</tr>
<tr>
<td>Reset to Factory Defaults</td>
<td>Enter a menu that allows you to reset software to restore original settings.</td>
</tr>
<tr>
<td>Back</td>
<td>Returns the system to the Main Menu.</td>
</tr>
</tbody>
</table>
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.

Coin 2/Dollar Bill

From the Coin Adjustments Menu, pick Coin 2/Dollar Bill. The Coin 2/Dollar Bill Menu opens. The Coin 2/Dollar Bill chute contains a switch. This switch closes for each inserted coin or bill. The Coin 2/Dollar Bill Menu allows you to adjust the value of the switch closure. 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.
Price per Play

From the Coin Adjustments Menu, pick Price Per Play. The Price Per Play Menu 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.

Swipe Card Mode


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/Dollar Bill. 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 |

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.
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.

© CAUTION
The Coin Audits menu can reset both coin and game settings. Take care: There is no “undo” feature.
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 target statistics, plays, play time, and tickets.

Game Audits
- Total Plays: 1200
- Total Play Time: 2000
- Plays Lifetime: 1200
- Total Balls Dropped: 1500
- Tickets won: 7300
- Tickets Lifetime: 68000
- Tickets Out Percent: 49
- Missed Ball: 0
- Forced Find 1: 202
- Forced Find 2: 0

Targets Scored Per Game
0 Targets Hit: 107
1 Target Hit: 855
2 Targets Hit: 1205
3 Targets Hit: 473
4 Targets Hit: 41

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

© 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.
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.
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. The Set Difficulty feature toggles between “easy,” “normal,” and “hard.” Most other options open submenus.

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.
# of Targets

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

```
# of Targets--4

Set to Maximum (5) +1
Set to Default (4) -1
Set to Minimum (4)
```

Cabinet Knocker

From the Game Adjustments Menu, pick Cabinet Knocker. The Cabinet Knocker Menu opens. Use this menu to switch the knocker feature on or off. The knocker is a solenoid whose plunger impacts the cabinet. The knocker adds sharp, acoustic and percussive sounds to the gameplay. You can switch the feature on or off. The default is on. A line option allows you to pick this default.

```
Cabinet Knocker -- on

Set to on
Set to Default (on)
Set to off
```

Single Progressive
From the Game Adjustments Menu, pick Single Progressive. The Single Progressive Menu opens. Use this menu to enable the progressive feature. This feature allows winners across multiple game machines. Ticket awards can exceed awards from just one game machine. For this reason, progressives add excitement to games. The higher award level tends to increase game purchases.

You can switch the progressive on or off. The default is on. A line option allows you to pick this default.
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...

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

Where

Penny = $0.01 = 1 \text{ cent U.S.}
PM ≤ 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.

### Examples

<table>
<thead>
<tr>
<th>Minimum Value</th>
<th>Value = [(0.01 \times 10) / 100] = $0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Between Value</td>
<td>Value = [(0.01 \times 300) / 100] = $0.03</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>Value = [(0.01 \times 500) / 100] = $0.05</td>
</tr>
</tbody>
</table>
### 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.)

![Ticket Amount Per Ticket -- 1](image)

### Recall Owed Tickets & Credits

From the Game Adjustments Menu, pick Recall Owed Tickets & Credits. The Recall 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.

![Recall Owed Tickets & Credits -- on](image)
Target Value Ticket Adjustments

From the Game Adjustments Menu, pick Target Value Ticket Adjustments. The Target Value Ticket Adjustments Menu opens.

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

The target map, right, shows how the game machine numbers the targets. The topmost target that this function adjusts is Target 36.

How this adjustment works. Select the number of tickets to dispense when players hit the given number of targets. There is also a “Mercy” value. This value allows encouragement in the form of tickets for players who miss the targets.

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.
Main Menu → 1.5.0.0, Single Progressive Adjustments, Submenu

Single Progressive Adjustments

From the Main Menu, pick Single Progressive Adjustments. The Single Progressive Adjustments Menu opens.

From this menu, you can check audit totals for the game machine’s progressive system. Here you can also adjust minimum and maximum payout values for the progressive bonus.

---

**Single Progressive Adjustments**

- Bonus Minimum/Start: 1000
- Bonus Maximum: 5000
- Increment Bonus By: 1
- Reset Bonus to Minimum
- Total Progressive Wins: 0
- Total Progressive Tix: 0

Back
**Bonus Minimum / Start**

From the Single Progressive Adjustments Menu, pick Bonus Minimum / Start. The Bonus Minimum / Start Menu opens. This menu allows you to adjust the minimum point level where the machine may award bonus points.

![Bonus Minimum / Start -- 1000](image)

**Bonus Maximum**

From the Single Progressive Adjustments Menu, pick Bonus Maximum. The Bonus Maximum Menu opens. This menu allows you to adjust the maximum point level where the machine may award bonus points.

![Bonus Maximum (99995)](image)
Increment Bonus By

From the Single Progressive Adjustments Menu, pick Increment Bonus By. The Increment Bonus By Menu opens. This menu allows you to assign bonus increments. From the default, you can increase or decrease the bonus by one-point increments.

```
Increment Bonus By -- 1

Set to Maximum (100)
   +1
Set to Default (2)
   -1
Set to Minimum (1)
   Back
```

Reset Bonus to Minimum

From the Single Progressive Adjustments Menu, pick Reset Bonus to Minimum. The Reset Bonus to Minimum Menu opens. This menu allows you to reset the bonus to its minimum value.

```
Reset Bonus to Minimum

Return to Previous Menu
Reset The Bonus
Back
```
Diagnostics

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

Features on the Diagnostics Menu

<table>
<thead>
<tr>
<th>Feature</th>
<th>What It Does</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube &amp; Opto Switch Tests</td>
<td>Access the Tube &amp; Opto Switch Tests Menu. You can close a switch and watch for a state change. No state change means a bad device.</td>
</tr>
<tr>
<td>Coin / Ticket Meter Tests</td>
<td>Access the Coin / Ticket Meter Tests Menu. Send a meter an increment command. Check to see if the meter advances.</td>
</tr>
<tr>
<td>Ticket Dispenser Tests</td>
<td>Access the Ticket Dispenser Tests Menu. Verify that a ticket dispenser responds to a vend command.</td>
</tr>
<tr>
<td>Blower and Gantry Tests</td>
<td>Access the Blower and Gantry Tests Menu. Operate the blower, gantry motors and solenoids to check for malfunctions.</td>
</tr>
<tr>
<td>Audio Test (No submenu)</td>
<td>Pick this option to sound a chime. Verify speaker and amplifier operation.</td>
</tr>
<tr>
<td>Button Light Test (No submenu)</td>
<td>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.</td>
</tr>
<tr>
<td>Feature</td>
<td>What It Does</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Coin 1 Lockout on/off Test (No submenu)</td>
<td>If you have a New Jersey lockout mechanism, this test activates the Coin 1 coil. If the mech is good, it refuses coins.</td>
</tr>
<tr>
<td>Coin 2 Lockout on/off Test (No submenu)</td>
<td>If you have a New Jersey lockout mechanism, this test activates the Coin 1 coil. If the mech is good, it refuses coins.</td>
</tr>
<tr>
<td>Reboot Game (No submenu)</td>
<td>Reboots the game. The screen turns gray. After several moments, game software reboots and restarts in Game Mode.</td>
</tr>
<tr>
<td>Shut Down Game (No submenu)</td>
<td>Shuts down the game computer. The peripherals are still active. To start the machine again, turn the main power off and on.</td>
</tr>
<tr>
<td>Show FPS: off</td>
<td>Strictly for diagnostic use! 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.</td>
</tr>
<tr>
<td>Auto Drop Ball: off</td>
<td>Strictly for diagnostic use! 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.</td>
</tr>
</tbody>
</table>

⚠️ 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.
Standard Switch Tests


**Button Switches** aren’t pushbuttons. Instead, they’re tiny opto switches that read balls falling into the tubes (*chutes*). The tubes, of which there are nine, are at the bottom of the playfield. Inside each tube is a stack of four switches. Altogether, there are 36 switches.

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!)

![Standard Switch Tests](image)

**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.
Opto Switch Tests

From the Diagnostics Menu, pick Opto Switch Tests. The Opto Switch Tests Menu opens. The Opto Switch Tests cause the system to try to read the target switches.

**Opto Switch Tests**

**TO EXIT: PRESS BOTH DIAGNOSTIC BUTTONS AT THE SAME TIME**

**PRE-LOAD TUBE BALLS**

<table>
<thead>
<tr>
<th>AWAY</th>
<th>HOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

**SLOT 4-Top**

1. SLOT 4-Top
2. SLOT 3
3. SLOT 2
4. BALL DROP MECH
5. SLOT 1-Bottom

**PRESS BIG BUTTON TO DROP A TEST BALL**

**LOWER BALL LOADER**

**BALL CATCH SLIDER**

<table>
<thead>
<tr>
<th>CLOSED</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>36</td>
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<tr>
<td>35</td>
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<td>12</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Thirty-six opto targets line the walls of tubes at the bottom of the game machine. The name for this collection of optos and tubes is the lower ball loader.

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

**Opto Pairs.** Each target (one through 36 in the figure below) contains one opto pair. In each pair, the LED transmitter is on the left side of the target. The phototransistor receiver is on the right.

<table>
<thead>
<tr>
<th>TUBE 1</th>
<th>TUBE 2</th>
<th>TUBE 3</th>
<th>TUBE 4</th>
<th>TUBE 5</th>
<th>TUBE 6</th>
<th>TUBE 7</th>
<th>TUBE 8</th>
<th>TUBE 9</th>
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<tbody>
<tr>
<td>4</td>
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<td>12</td>
<td>16</td>
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<td>10</td>
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<td>22</td>
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<td>30</td>
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<tr>
<td>1</td>
<td>5</td>
<td>9</td>
<td>13</td>
<td>17</td>
<td>21</td>
<td>25</td>
<td>29</td>
<td>33</td>
</tr>
</tbody>
</table>

*Diagram of tubes (chutes) at the bottom of the playfield, indicating 36 opto targets*

Dropping through the target, a ball cuts off the infrared beam. Lacking the beam, the transistor stops passing current. This situation presents 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 target with the open switch. When the state changes, you also hear a sound effect.

**Optos on the gantry** trolley operate differently. With four balls in the trolley, you’ll see four bars at the top of the test screen. Each bar indicates one ball. That is, each bar shows that a ball is blocking one infrared beam. When the ball serves, the infrared beam again excites the opto. Unlike target optos, gantry optos connect directly to the I-O Board.

To review: Target 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. During this test, you can test switches by putting fingers in the targets. Watch for a change in state. Gantry trolley switches cause bars to appear at the top of the screen. Each bar indicates that the trolley is carrying one ball. Any other behavior indicates a problem. Example: Two bars despite four balls riding in the trolley.

<table>
<thead>
<tr>
<th>Main Menu</th>
<th>Diagnostics, Submenu</th>
<th>1.6.3.0, Coin Meter Tests, Sub-Submenu</th>
</tr>
</thead>
</table>

**Coin/Ticket Meter Tests**

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

**Coin/Ticket Meter Tests**

- Advance coin meter 1 one count
- Advance coin meter 1 five counts
- Advance coin meter 1 ten counts
- Advance coin meter 2 one count
- Advance coin meter 2 five counts
- Advance coin meter 2 ten counts
- Advance ticket meter one count
- Advance ticket meter five counts
- Advance ticket meter ten counts

Back
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.

<table>
<thead>
<tr>
<th>Main Menu</th>
<th>Diagnostics, Submenu</th>
<th>1.6.4.0, Ticket Dispenser Tests, Sub-Submenu</th>
</tr>
</thead>
</table>

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.

Ticket Dispenser Tests

All Ticket Dispensers off
Test Ticket Dispenser 1
Test Ticket Dispenser 2
Dispense 1 ticket from #1
Dispense 5 tickets from #1
Dispense 10 tickets from #1
Dispense 1 ticket from #2
Dispense 5 tickets from #2
Dispense 10 tickets from #2

Back
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.

Blower and Gantry Tests

All Motors off
Test Blower Motor
Load Mech Go to Blower
Load Mech Go Home
Tell Game Load A Ball
Test Actuator (lower)
Test Actuator 2 (upper)
Test Actuator 3 (Top 1)
Test Actuator 4 (Top2)
Test Actuator 5 Knocker
Test Drop / Load Ball
Catch Slider Closed
Catch Slider Open
Gantry Controller Test

Back
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.)

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.
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.

Auto Drop Ball -- off

- Set to on
- Set to Default (off)
- Set to off
- Back

⚠️ 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.

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.)
Software Update

Select file to load (Note: will only look for files at the top of the drive--no subdirectories)

Log – 20160603_155727.zip

Back

### 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.

**Sound Volume -- 85**

Set to Maximum (100)
+5
Set to Default (85)
-5
Set to Minimum (0)

Back
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.

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.
### Adjustments, Audits & Diagnostics, Notes

<table>
<thead>
<tr>
<th>Notes</th>
<th>Notes</th>
<th>Notes</th>
<th>Notes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Chapter 4. Maintenance

Inside-Cabinet Maintenance

You’ll Need These Tools

- **M4 (4mm hex) metric driver**
- **Long, 3/16" hex driver**
- **Slightly moistened, non-abrasive cloth**

© CAUTION

**Catch slider.** Before working on the targets, playfield, or monitor screen, disengage the catch slider. The catch slider is a clear, plastic “sled” that runs under the targets at the bottom of the playfield. To disengage the slider, use the built-in, Diagnostic Mode software. Disengaging moves the slider out of the way of the playfield. Otherwise, moving the playfield will break the slider.

[] 1. Open the coin door.

[] 2. Above the cashbox, find the two diagnostic buttons.

[] 3. Enter Diagnostic Mode by pressing either button.

[] 4. In Diagnostic Mode, move down by periodically pressing the diagnostic DOWN button.

[] 5. Pick Blower and Gantry Tests by pressing SERVE BALL *(the player’s button)*.

[] 6. On the Blower and Gantry Tests Menu, pick Catch Slider Open. The target slider *(bottom of game machine)* moves right and disengages. Now you can access items behind the viewing glass.

Disengage
[ ] 7. This step requires an M4 (4mm hex) driver. Remove two hex furniture bolts from the metal LED dot display plate: At the top of the frame, one bolt is on each side of the display. (See the illustrations, below and right.)

[ ] 8. Angle the front glass door forward slowly, until it rests on its retaining chains.

**WARNING**

**Restraining chains.** You might need to angle the front glass door beyond the extent of restraining chains. In that case, you must disconnect these chains. Take care to protect the fragile glass door. Don’t let it free-fall out of the cabinet! The glass might slam into the control panel and break. Shards of glass could fly in every direction.

**CAUTION**

**Cleaning.** Never use abrasive pads, cloths, or cleaners on the playfield, glass or plastic surfaces. Abrasives can scratch game surfaces. You may clean with either a mist of water or a mild glass cleaner. A diluted ammonia formula (such as Windex® cleaner) is okay to use. Spritz the water or cleaner on a cloth, not on the surface that you’re cleaning. Otherwise, the cleaner could drip and damage the electronics. Avoid using soap.

[ ] 9. Optional: This step requires a slightly moistened, non-abrasive cloth. Clean the back of the viewing glass.

[ ] 10. This step requires a long, 3/16-inch hex driver. Remove four hex socket-head bolts at the top and middle of the playfield. The bolts are in channels within the left and right vertical rails of the metal frame.

[ ] 11. Optional: This step requires a slightly moistened, non-abrasive cloth. Clean the front of the playfield.

[ ] 12. Pivot the playfield away from the game cabinet.

**NOTICE**

**Magnets.** When you pivot the playfield out, you’re working against the resistance of magnets. These magnets are strong. To overcome the magnetism, you must exert a slight force. This small force won’t hurt your playfield.

[ ] 13. Optional: This step requires a slightly moistened, non-abrasive cloth. Clean the back of the playfield.
[ ] 14. **Optional:** This step requires a slightly moistened, non-abrasive cloth. Clean the front of the monitor.

[ ] 15. **Optional:** This step requires a slightly moistened, non-abrasive cloth. Clean inside the target chutes.

### Reassembly After Maintenance

#### You’ll Need These Tools

- **M4 (4mm hex) metric**
- **Long, 3/16” hex driver**

[ ] 1. Tilt the playfield back into position.

[ ] 2. This step requires a long, 3/16” hex driver. Replace four hex socket-head bolts at the top and middle of the playfield. The bolts fit into channels within the left and right vertical rails of the metal frame. Use the four bolts that you removed during disassembly.

[ ] 3. This step requires an M4 (4mm hex) driver. Fasten the front glass door to the cabinet frame. Use the two bolts that you removed during disassembly.

[ ] 5. This step requires an M4 (4mm hex) driver. Fasten the front glass door to the cabinet frame. Use the two bolts that you removed during disassembly.

### Power Distribution Table

<table>
<thead>
<tr>
<th>+3.3 VDC, Orange Wires</th>
<th>+5 VDC, Red Wires</th>
<th>+12 VDC, Yellow Wires</th>
<th>+15 VDC, Green Wires</th>
<th>+24 VDC, Blue Wires</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>CPU</td>
<td>Ticket Dispenser</td>
<td>Chase Light Controller</td>
<td>LCD Backlight</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>/</td>
<td>Optos</td>
<td>Coin Door Lights</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>/</td>
<td>Meters</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>/</td>
<td>User Push Button Light</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>/</td>
<td>Gantry Backlight</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>/</td>
<td>Marquee</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>/</td>
<td>Ball Load Mech Motor</td>
<td>/</td>
<td></td>
</tr>
</tbody>
</table>
## Fuses, AC Mains

<table>
<thead>
<tr>
<th>Use</th>
<th>Delay</th>
<th>Volts</th>
<th>Amps</th>
<th>Size</th>
<th>Type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>● For 120VAC/60Hz game machine</td>
<td>T5A</td>
<td>250VAC</td>
<td>5ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Back of game machine, lower-left, by power cord and on-off switch</td>
</tr>
<tr>
<td>● For 230VAC/50Hz game machine</td>
<td>T3A</td>
<td>250VAC</td>
<td>3ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Back of game machine, lower-left, by power cord and on-off switch</td>
</tr>
</tbody>
</table>

## Fuses, Low-Voltage DC

<table>
<thead>
<tr>
<th>Name</th>
<th>Delay</th>
<th>Volts</th>
<th>Amps</th>
<th>Size</th>
<th>Type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Motor 1 (Gantry)</td>
<td>T2A</td>
<td>250VAC</td>
<td>2ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Driver Board, inside back of game machine</td>
</tr>
<tr>
<td>● Motor 2 (Playfield Ball Drop)</td>
<td>T2A</td>
<td>250VAC</td>
<td>2ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Driver Board, inside back of game machine</td>
</tr>
<tr>
<td>● Motor 3 (Ball Load Mech)</td>
<td>T2A</td>
<td>250VAC</td>
<td>2ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Driver Board, inside back of game machine</td>
</tr>
<tr>
<td>● Motor 4 (unused channel)</td>
<td>T2A</td>
<td>250VAC</td>
<td>2ASB</td>
<td>5x20mm</td>
<td>Glass</td>
<td>Driver Board, inside back of game machine</td>
</tr>
<tr>
<td>● Ticket Dispenser 1</td>
<td>T1.5A</td>
<td>250VAC</td>
<td>1.5ASB</td>
<td>3AG</td>
<td>Glass</td>
<td>Inside ticket dispenser door, on left wall of control panel (pod) cabinet</td>
</tr>
<tr>
<td>● Ticket Dispenser 2</td>
<td>T1.5A</td>
<td>250VAC</td>
<td>1.5ASB</td>
<td>3AG</td>
<td>Glass</td>
<td>Inside ticket dispenser door, on left wall of control panel (pod) cabinet</td>
</tr>
<tr>
<td>● Marquee</td>
<td>T3A</td>
<td>250VAC</td>
<td>3ASB</td>
<td>3AG</td>
<td>Glass</td>
<td>Left wall, inside back of game machine</td>
</tr>
</tbody>
</table>
# Chapter 5. Parts

## Understanding the Parts Chapter

**Data Organization.** We’ve organized each component alphabetically by a descriptive noun in the name. For example...

- Marquee, LED Bonus Progressive Drive, disk, 2.5-inch, SATA

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. Yet some parts are unavailable through your distributor. For example, common screws and nuts that you’d find at hardware stores.

## Boards, Circuit

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board, 4-channel coil / 4-channel motor driver</td>
<td>H-A-SEL-0005-00</td>
</tr>
<tr>
<td>Board, Memory, 2 GB, DDR3-1600 SO-DIMM</td>
<td>G-A-SEL-0002-00</td>
</tr>
<tr>
<td>Board, I/O</td>
<td>A-A-SEL-0004-07</td>
</tr>
<tr>
<td>Board, Progressive Marquee Controller</td>
<td>X-A-SEL-0005-00</td>
</tr>
<tr>
<td>Motherboard, IMB-A180</td>
<td>F-A-SEL-0021-00</td>
</tr>
<tr>
<td>PCB, PS2 opto switch interface</td>
<td>F-A-SEL-0022-00</td>
</tr>
<tr>
<td>PCBa, bowl ball drain opto emitter</td>
<td>F-A-SEL-0012-00</td>
</tr>
<tr>
<td>PCBa, bowl ball drain opto receiver</td>
<td>F-A-SEL-0013-00</td>
</tr>
<tr>
<td>PCBa, drop chute opto emitter</td>
<td>F-A-SEL-0016-00</td>
</tr>
<tr>
<td>PCBa, drop chute opto receiver</td>
<td>F-A-SEL-0017-00</td>
</tr>
<tr>
<td>PCBa, playfield ball chute (4 channel opto pcba interconnect)</td>
<td>H-A-SEL-0001-01</td>
</tr>
<tr>
<td>PCBa, playfield ball chute (4-channel opto pcba)</td>
<td>H-A-SEL-0001-00</td>
</tr>
<tr>
<td>PCBa, wide gap opto</td>
<td>F-A-SEL-0020-00</td>
</tr>
</tbody>
</table>
PC Boards Drawing

Buttons
Button, 100mm red, +12, G.I. .................................................. F-A-RBT-0001-00

Fuses & Fuse Holders
Fuse, 1.50 ASB, 3AG, glass .................................................. F-A-REL-0036-00
Fuse, 2 AFB, 5 x 20mm, glass ............................................. F-A-REL-0034-00
Fuse, 3 ASB, 3AG, glass ....................................................... G-A-REL-0005-00
Fuse, 4 ASB, 5 x 20mm, glass ............................................. F-A-REL-0035-00
Fuse, 6.30 ASB, 5 x 20mm, glass ........................................ F-A-REL-0016-00
Holder, fuse, 16 A, 5 x 20 mm, glass .................................... A-A-REL-0015-00

Peripherals & Power Supply
Controller, LED 8-channel RGB, 8-channel WS2811 .................. X-A-SEL-0002-00
Dispenser, ticket, Deltronics DL-1275 ..................................... B-A-REL-0007-00
Drive, disk, 2.5-inch, SATA .................................................. D-A-REL-0004-XD
Marquee, LED Bonus Progressive .................................................. X-A-REL-0006-00
Monitor, AUO 65” LCD, T650HVN13.1 ........................................... X-A-REL-0001-00
Kit, A/D, VGA / DVI / HDMI, +12, AUO T650HVN13.1 .................. X-A-REL-0002-00
Speakers, powered, 50W, 120VAC/60Hz, stereo, 2.1 ..................... F-A-REL-0026-ST
Supply, 750W power .................................................................. X-A-REL-0003-00

• **PARTS, MECHANICAL**

<table>
<thead>
<tr>
<th>Electromechanics</th>
<th></th>
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<tbody>
<tr>
<td>Blower, 230 V / 50 Hz (** European machines**) ........................................</td>
<td>X-A-REL-0008-00</td>
</tr>
<tr>
<td>Blower, 120 V / 60 Hz (** U.S. machines**) ................................................</td>
<td>X-A-REL-0007-00</td>
</tr>
<tr>
<td>Coil, ball drop mechanism (Assembly) ..........................................................</td>
<td>X-A-SAS-0038-00-00</td>
</tr>
<tr>
<td>Coil, ball holding mechanism (Assembly) .....................................................</td>
<td>X-A-SAS-0032-00-00</td>
</tr>
<tr>
<td>Motor, 12 V / 14-RPM ball loader ..................................................................</td>
<td>F-A-SEL-0019-00</td>
</tr>
<tr>
<td>Motor, 24 V / 100-RPM, gantry mech ...........................................................</td>
<td>H-A-SEL-0003-00</td>
</tr>
<tr>
<td>Motor, 24 V / 10-RPM, playfield ball drop ..................................................</td>
<td>H-A-SEL-0004-00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glass</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel, front glass ...........................................................................</td>
<td>X-A-RGL-0001</td>
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