Table of Contents
Safety........................................................................................................................................................................... 3
Product Specifications...................................................................................................................................................... 5
Hardware....................................................................................................................................................................... 6
Setup and Assembly........................................................................................................................................................ 8
Diagnostic Menu System............................................................................................................................................. 24
Maintenance.................................................................................................................................................................. 40
Wiring........................................................................................................................................................................... 43
Parts............................................................................................................................................................................... 49
Troubleshooting........................................................................................................................................................ 53
Contact Information..................................................................................................................................................... 56
Safety

OPERATION
Before operating game, read this manual. Failure to properly install and operate this game could result in malfunction or accident. Operate the game in accordance with the manual.

TRANSPORTING
The cabinet is very heavy. Because the monitor is high, the cabinet is also very top-heavy. Use appropriate care when moving or transporting cabinet. It contains fragile glass and electronic components. Avoid rough handling.

PROXIMITY TO NEON LIGHTS
Locating the cabinet near neon lights may reduce the ability of the IR sensors to accurately track the guns. It is recommended that the cabinet be placed far away from neon lights or that any nearby neon lights be turned off.

HANDLING COMPONENTS
Many components are extremely sensitive to handling, environmental and Electrostatic Discharge (ESD) events, especially the computer. Do not handle it roughly. Before servicing, call your distributor and inquire about the PC warranty. Use proper ESD procedures when servicing. Protect components from harmful environmental conditions, such as extreme temperatures, excessive moisture or other damaging effects.

DISCONNECT POWER
Always turn the power off and unplug the unit before servicing or making adjustments unless otherwise instructed. Installing or repairing components while power is on can damage the components and void the warranty.

GROUNDING
Avoid electrical shock. Do not plug in AC power until you have inspected and properly grounded the unit. Only plug into a grounded, three-wire outlet. Do not use a “cheater” plug or cut off the ground pin on the line cord.

ELECTRICAL SHOCKS
There is no isolation transformer in the cabinet. Disconnect AC power before servicing. However, be aware that lethal voltages can remain in the electronic components even when AC power is disconnected. Use extreme caution when servicing. Verify that there is a working ground connection. If the unit sustains water damage, cease using it immediately and unplug AC power.

MONITOR
Extremely high voltages exist in the video monitor at all times. These high voltages exist even when the monitor is off and the AC line cord is disconnected. These voltages are extremely lethal and will cause death. The monitor contains no user serviceable parts. Do not attempt to service the monitor.

POWER SELECTOR
Before installing game, ensure the voltage on the PC is set properly. There is a 115/230 VAC selector switch that must be set for the correct voltage for your site. Verify the fluorescent lamp rating. The rating must match the line voltage at the installation site.

POWER CORD
If the power cord is damaged or lost, replace it with an identical cord as supplied by the manufacturer or an authorized service agent.
CONNECTORS
Ensure all connectors mate properly. If connectors do not slip in easily, do not force them. Connectors are often keyed and only connect one way. Check for correct orientation.

COMPUTER
The computer contains sensitive components, including a hard drive. Do not handle it roughly. Call your distributor before servicing its internal components. Ask about warranty information as it relates to the PC. Do not turn the PC power switch on or off. It should remain permanently in the ON position. Cycle AC power on or off with the cabinet power switch. A dongle has been inserted into one of the USB ports. This is required for game play. Do not remove the dongle except for troubleshooting purposes.

FLUORESCENT TUBES
A dropped fluorescent tube may break and implode. Shattered glass from the implosion can travel long distances and cause bodily injury. Use proper procedures when handling broken materials, as these items can contain hazardous material such as mercury or lead.

WATER JETS
Do not install or operate game within operating perimeter of a water jet. Do not clean equipment using water jet.

HAZARD TO EPILEPTICS
A small portion of the population has an epileptic condition that may cause seizures. Affected persons experience seizure while watching some television pictures or playing certain video games. People who have not had seizures may still have an undetected epileptic condition. If anyone in your family has experienced epilepsy symptoms (seizures or loss of awareness), consult your physical before using video games. While children play video games, a parent should observe. Be alert to the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation or convulsions. If you or your child experiences these symptoms, discontinue use immediately and consult your physician.

MANUAL
Keep this manual available and ready for use. If the game fails to function properly, turn off the machine and unplug the AC line cord. Contact your local distributor. Your warranty, when applicable, lasts 60 days from your purchase date. You may not reproduce this document or any of its contents without written authorization from Raw Thrills, Inc. or Play Mechanix™ Inc.

SPECIFICATIONS
For reasons such as performance, this product’s specifications may change without notice. Federal patent, copyright and other intellectual property laws protect the content, devices and design of the game and its equipment.
Product Specifications

Electrical Power
Domestic, international users and Japan

120 VAC @ 60 Hz, 5 amps
240 VAC @ 50 Hz, 2.5 amps
100 VAC @ 50 Hz, 5 amps

DC Power Fuse Guide
+5 VDC 2 amp Slow Blow
+12 VDC 7 amp Slow Blow

Temperature
32 degrees F to 100 degrees F
(0 degrees C to 38 degrees C)

Humidity
Must not exceed 95% relative humidity

Dimensions
Screen assembly: height: 121” when fully assembled
width: 97.5”
depth: 18.5”

Screen marquee: height: 16”

Gun pedestal/outriggers: height: 37.25”
width: 76”
depth: 31”

Carton Specs
37” x 50” x 85” tall - 456 lbs
26” x 98” x 27” tall - 305 lbs
33” x 47” x 46.5” tall - 257 lbs
Use this page to identify screws, bolts and nuts used in the setup. A circled letter appears next to each item and is used in the installation instructions. When in doubt, hold the item up to its corresponding measurement to verify.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>¼-20 black washer</td>
<td>24 pcs.</td>
</tr>
<tr>
<td>2</td>
<td>¼-20 nylon insert nut</td>
<td>4 pcs.</td>
</tr>
<tr>
<td>3</td>
<td>¼-20 x ¾” black bolt</td>
<td>38 pcs.</td>
</tr>
<tr>
<td>4</td>
<td>¼-20 x 2” black bolt</td>
<td>4 pcs.</td>
</tr>
<tr>
<td>5</td>
<td>¼-20 x 2” black torx screw</td>
<td>20 pcs.</td>
</tr>
<tr>
<td>6</td>
<td>¼-20 x 3” black bolt</td>
<td>10 pcs.</td>
</tr>
<tr>
<td>7</td>
<td>¼-20 x 1 ¼” black torx screw</td>
<td>12 pcs.</td>
</tr>
<tr>
<td>8</td>
<td>¼-20 x 1 ½” black bolt</td>
<td>4 pcs.</td>
</tr>
<tr>
<td>9</td>
<td>¼-20 x ¾” black torx screw</td>
<td>4 pcs.</td>
</tr>
<tr>
<td>10</td>
<td>#8 x ½” machine screw</td>
<td>10 pcs.</td>
</tr>
</tbody>
</table>
**Setup and Assembly**

**Unpack Carton**
1. Move shipping carton near assembly site.
2. Remove banding straps and open carton.
3. Remove boxes from the top of the carton.
4. Remove corrugated sides and corners from container.
5. Unpack remaining boxes. Set hardware bag aside.
6. Remove all contents from boxes and inspect.
7. For this assembly, you will need
   - One or two assistants,
   - Two six-foot ladders,
   - Phillips head screwdriver,
   - 3/8 socket wrench,
   - 7/16 socket wrench,
   - T-25 security torx screwdriver (included in kit)
   - Level

**Assemble Screen Base**

**USES HARDWARE KIT A**
1. Identify a site for the game that:
   - Has a grounded AC outlet
   - Has about 10 horizontal feet of unobstructed wall space with no windows,
     Light may shine through behind the screen or cast shadows
   - Has about 20 feet of open space from the wall
   - Has at least nine feet ceiling clearance, in order to raise the front screen frame assembly cleanly over the screen base
   - Is moderately dark
   - Is away from neon lights (which impair the IR sensors)
   - Has a relatively flat floor
2. Position the screen base halves about 3 feet from the wall so that the 12 infrared (IR) sensors face away from the wall.
3. Remove the screws holding the access doors on the left and right screen base halves.
4. Remove the access doors and set aside.

5. Using four \( \textcircled{4} \) bolts, fasten the left and right screen base halves together.
6. Connect the IR LED Board power cables
7. Place a level on top of the screen base.
8. Adjust the six leg levelers beneath the screen base until it is level front to back as well as left to right. Turn the knobs at the base of the levelers to raise and lower the screen base.

*Figure 1: Screen Base Assembly*
Arrange Front Screen Frame Posts

1. On the floor in front of the screen base, arrange and identify the front screen frame posts:
   - Top (stamped “A”),
   - Bottom (“B”),
     *This post has four holes to accommodate bolts fastening it into the screen base.*
   - Left (“C”),
   - Right (“D”)
     *The left and right posts each have two holes just near the top.*
   - Center support
     *The top and bottom posts each have a square hole to accommodate this post.*

2. Turn the four black posts so that the sides with the female snaps (which will hold the screen in place) face the floor.
   *Note that the center support post has no snaps or holes.*

3. Orient the posts so the female snaps will be on the outside of the finished frame assembly.
   *Snaps on the left and right posts form a straight line with snaps on the top and bottom posts.*

4. Turn all the posts so the snaps face the floor.

5. Insert the center support post into the top and bottom posts.

6. Abut the left and right posts to the top and bottom posts.
   *On the floor, the right and left posts are reversed. D is on the left and C is on the right.*

---

**Figure 2: Front Screen Assembly**

*During final assembly orientation is reversed. In this image, the right post “D” is on the left.*
Assemble Front Screen Frame

**USES HARDWARE KIT B**

1. Align holes of “A” corner bracket with holes in top and right posts. *The perpendicular wing should point up. See Figure 2A.*
2. Insert four ⌀ bolts through “A” corner bracket into posts. Do not tighten.
3. Repeat steps 1-2 for corner “B” bracket and top and left posts.

![Figure 2a: Front Screen Assembly – Corner Bracket](image)

Close-up of right and top posts and “A” corner bracket. Align holes in brackets with holes in posts and fasten bolts. Note orientation of perpendicular flap on the right of the assembly.

4. Align T bracket with right and bottom posts.
5. Insert five ⌀ bolts through T bracket. Do not tighten.
6. Repeat steps 4-5 with left and bottom posts.
7. Tighten all bolts.
8. Align hole in a cross joiner with hole in perpendicular flap of an “A” corner bracket.
9. Affix one ⌀ bolt through the corner bracket flap into the cross joiner. Tighten bolt. *See Figure 3.*
10. Repeat steps 8-9 with remaining cross joiner into a “B” corner bracket.
Attach Front Screen Frame Assembly to Screen base

**USES HARDWARE KIT B**

1. With an assistant, carefully insert the left and right posts of the front screen frame assembly into holes on top of screen base. Snaps face away from the wall; cross joiners point to the wall.  
   *See Figure 3.*

2. Lift the left post slightly to align the top holes on the side of the screen base with the top hole in the left post.

3. Affix one 6 bolt with 1 washers through screen base into the left post.

4. Repeat steps 2-3 for right post. Do not tighten bolts.

5. Insert four 6 bolts with through holes of bottom post into screen base.

6. Tighten all bolts.

*Figure 3: Screen Base Assembly with Front Screen Assembly*
*Image is oriented from the rear with an access panel removed.*
Assemble Rear Screen Frame

Uses Hardware Kit B

1. Identify the three rear screen frame posts:
   - The top post, marked "G," has four evenly spaced holes.
   - The left ("E") and right ("F") posts have two holes at the top and one near the bottom.
2. Lay out three posts of rear screen frame on the ground according to Figure 4.
   *When laid out properly, the bolt holes on the left and right posts face outward.*
3. Align holes of remaining "A" corner bracket with holes of top and left posts.
   *See Figure 2A.*
4. Insert four /socket bolts through the “A” bracket into posts. Do not tighten.
5. Repeat steps 3-4 for the remaining “B” corner bracket and top and right posts.
6. Tighten all bolts.

Figure 4: Rear Screen Frame Assembly
Attach Rear Screen Frame Assembly to Screen Base

**USES HARDWARE KIT B**
1. Align holes at bottom of rear screen frame assembly posts with holes in rear of screen base. The perpendicular flaps on the rear screen frame assembly should be very near the cross joiners. See Figure 5.
2. Affix two ⬤ bolts through each post into the screen base. Do not tighten bolts.
3. Align hole on left cross joiner with hole on “A” corner bracket on rear screen frame.
4. Insert ⬤ bolt through flap into cross joiner. Do not tighten.
5. Repeat steps 3-4 through “B” corner bracket.
6. Tighten all bolts.

![Figure 5: Screen Base Assembly with Rear Screen Assembly](image)
*Image is oriented from the rear with an access panel removed.*

Attach Lower Screen Spacer to Frame Assembly

**USES HARDWARE KIT C**
1. Lift the lower screen spacer panel sub-assembly into place. Z-brackets should rest on bottom of front screen assembly.
2. Tighten down z-brackets on spacer panel.
3. Position lower right snap bracket on top of spacer panel.
4. Affix five ⬥ screws through snap bracket into spacer panel. Do not tighten.
5. Insure snaps form a straight line and tighten all bolts and screws.

![Figure 6: Lower Screen Spacer](image)
*Image is oriented from the rear. Snap bracket shown is on the left.*
Assemble Screen Frame Panels

**USES HARDWARE KIT C**

1. Align holes of left side panel with holes on left of screen frame assembly.
2. Affix six 7 screws with 1 washers through left side panel into screen frame assembly. Tighten screws.
3. Repeat steps 1-2 for right side panel.

![Figure 7: Screen Panel Assembly](image)
Attach Marquee and Heads to Screen Frame Assembly

Use Caution Climbing Ladders

The marquee assembly and heads are heavy, bulky and fragile. Use extreme caution when you and a partner lift them to the top of the screen frame assembly while climbing ladders or step stools. Ensure ladders are stable and located on solid, flat ground.

USES HARDWARE KIT C

1. Lift terminator head sub-assembly atop screen frame assembly.
2. Lift second terminator head sub-assembly atop screen frame assembly.
3. Position heads to left and right of center.
4. Locate 5V head power cable in left screen base.
5. Thread cable up through base to connect to heads.
6. Lift marquee assembly atop screen frame assembly. Z-brackets should rest on top of front screen assembly. Take care not to snag the connected power cable.

Figure 8: Marquee Sub-Assembly
Image is oriented from the rear. Snap bracket shown is on the right.

7. Affix upper left snap bracket using to marquee using 10 screws. Do not tighten.
8. Insure snaps align correctly to form straight lines and tighten all bolts and screws.

Figure 8a: Upper Left Snap Bracket Assembly
Insure snaps form a straight line before tightening into place.

9. Connect marquee power cable to matching cable from left screen base.
Affix Screen to Screen Frame Assembly
1. Unroll screen so that male snaps face the wall and the label is in the bottom left corner.
2. Starting at top corners, snap screen onto front of screen frame assembly. Use ladders as needed. Screen material stretches to fit frame.

Attach Floor Supports to Screen base
USES HARDWARE KIT D
1. Position floor support sections along side the screen base.

2. Thread cables from the screen base into the short bent segment of the floor support. Left side will have two cables while right side will have only one.
3. Align holes on floor support flange with holes on side of screen base.
4. Insert two 4 bolts with 3 washers through flange into screen base. Do not tighten bolts.
5. Thread cables from short bent segment through long straight segment of floor support.

6. Connect the long segment onto the metal connector sleeve.
7. Affix segments together by inserting four 3 bolts through long straight segment into connector sleeve. Take care to avoid the cables within the floor support. Do not tighten bolts.
8. Repeat steps 1-7 for right floor support.
9. Replace both screen base access doors.
10. Replace screws to secure access doors.
Open Gun Pedestal Coin Door
1. Remove the coin door key from the coin return chute.
2. Open gun pedestal coin door. Note the position of the Service Button Panel.
3. Locate the keys for the projector access door and lower access door on the inside of the coin door. Remove the projector remote control from the cash box.

Connect Floor Support Cables to Gun Pedestal
1. Position gun pedestal near floor supports.
2. Remove gun pedestal lower door.
3. Connect the 2-pin 5V IR cables from the left floor support to its mate inside the gun pedestal.
4. Connect the 2-pin AC plug from the left floor support to its mate inside the gun pedestal.
5. Connect power cable from right floor support to gun pedestal power outlet.

Attach Outrigger Braces to Outriggers

- **USES HARDWARE KIT ATTACHED TO OUTRIGGER**
1. Position outrigger to near gun pedestal.
2. Connect lower outrigger brace to outrigger using two $\#$ torx screws. Do not tighten.
3. Connect upper outrigger brace to outrigger using four $\#$ torx screws. Do not tighten. **Be sure to match the angle of lower brace.**
4. Verify outrigger braces line up correctly to gun pedestal.
5. Tighten down screws.
6. Repeat steps 1-5 for second outrigger.

Connect Outrigger Cables
1. Remove six screws from rear door of outrigger.
2. Remove outrigger rear door and set aside.
3. Locate outrigger power cables inside gun pedestal. **There are 5 connectors needed for each outrigger.**
4. Thread cables from gun pedestal through upper outrigger brace into outrigger.
5. Connect the three 2-pin connectors and two three pin-connectors.
6. Repeat steps 1-5 for second outrigger.
Attach Outriggers to Gun Pedestal

USES HARDWARE KIT ATTACHED TO OUTRIGGER

1. Align outrigger brace with gun pedestal.
2. Connect lower outrigger brace to gun pedestal using two 5 screws.
3. Connect upper outrigger brace to gun pedestal using four 5 torx screws.
4. Replace outrigger door.
5. Fasten six screws to hold door to outrigger.
6. Repeat steps 1-5 for second outrigger.
7. Tighten all screws.

![Gun Pedestal with Outriggers](image)

Attach Floor Supports to Gun Pedestal

USES HARDWARE KIT D

1. Move gun pedestal to floor supports flanges.
2. Position gun pedestal so that posts on gun pedestal mounting plate protrude through holes on floor supports flanges.
3. Fasten a 2 nut and a 1 washer over each post. Do not tighten nuts.
4. Adjust gun pedestal leg levelers to raise the wheels just above the floor to keep the pedestal stable. Leveling does not need to be perfect yet.
5. Adjust outrigger leg levelers to match gun pedestal.
6. Tighten all floor support bolts.
Access the Screen Adjustment Grid

1. Check that the voltage switch is set properly.
2. Turn cabinet AC switch on rear of gun pedestal to ON.
3. Make sure all lights are on and projector is on. Projector may take a moment to turn on. See Troubleshooting if anything fails.
4. Darken as many lights in the room as possible.
5. Press the TEST button on the Service Button Panel to access the Diagnostic Menu System.
6. Use the left gun pump to highlight the System Tests Menu.

7. Press the left Start button to select System Tests Menu.
8. Pump the gun to highlight Screen Tests.
9. Press the Start button to select Screen Tests.
10. Pump the gun to highlight Screen Adjustment
11. Press the Start button to select Screen Adjustment. The following grid appears.
Level the Projector

1. Adjust focus control (front ring near lens) on projector to sharpen screen image.

2. Raise or lower the gun pedestal leg levelers to center the grid on the screen.
   Grid lines should be parallel to the screen borders all around.
   Gun pedestal wheels should not touch the ground.

3. Adjust the zoom control (rear ring) to enlarge the image on screen as much as possible without touching the screen edges.

4. If necessary, make horizontal adjustments to the projector by loosening the screws that hold the projector support tray to the gun pedestal shelf and moving the tray left or right.

5. Tighten screws when finished.

6. Make further, minor vertical adjustments by loosening the red thumbscrews on the projector support tray and lowering or raising the tray.

7. Tighten thumbscrews when finished.

8. While observing screen, close projector access door.
   When door is closed, image should remain crisp and unobstructed.

9. Close and lock projector access door.

10. Press the Start button to exit the Screen Adjustment Menu.

11. Turn cabinet AC switch to OFF.

12. Tighten bolts at front and rear flanges of floor supports into base and pedestal.
   Take care not to tilt base or pedestal.
Make Final Adjustments

1. Turn cabinet AC switch to ON.
2. If necessary, repeat Screen Adjustment as described previously to ensure grid is still parallel to screen after attaching outriggers.
3. Press the Menu button on the projector remote control.
   Refer to projector manual for details on adjusting the projector and using the remote.
4. Scroll to the Settings menu.

   ![Settings Menu]

5. Highlight and adjust keystone to correct any trapezoidal shape to the screen.
6. Scroll to the Extended menu.

   ![Extended Menu]

7. Verify that the Link21L setting is ON.
8. Scroll to Signal menu.
9. Verify that the Aspect setting is 16:9.
10. Scroll to the Reset menu.
11. Highlight and execute Reset Lamp Hours. 
   Execute the Reset Lamp Hours function every time the projector bulb is replaced.
12. Exit the Projector menu system.
13. Further projector adjustment can be made in Diagnostic Mode under the Projector menu.

Calibrate Guns
1. Press the TEST button inside the coin door to enter the Diagnostic System.
2. From the Main Menu, scroll to highlight Gun Calibration.
3. Press a Start button to enter calibration.
4. Pull the trigger on the left gun to indicate that it is Player 1.
5. Stand directly in front of the gun pedestal. Aiming the left gun at the “+” sign, pull trigger to shoot.
6. Follow on-screen instructions for gun tracking. The dot indicates the spot where the gun is aimed.
   Verify accuracy by pointing at different areas of the screen.
7. Accept calibration by pressing the left Start button.
8. Repeat steps 5-9 for right gun.
9. Press Start button when finished.

Test Gun Functionality
1. From Main Menu, pull gun trigger to cycle through choices until you reach System Tests.
2. Press a Start button to select System Tests.
3. Scroll to highlight the Gun Tests Menu.
4. Press the Start button to select the Gun Camera Test.
5. Scroll to highlight the Gun Sensor Test.
6. Press the Start button to select the Gun Sensor Test.
7. Sweep the gun from left to right and back again and watch the squares on screen to ensure they all turn green.
   If any squares remain red, that particular IR sensor may be dirty or damaged.
8. Press the Start button to return to the System Tests menu.
9. Squeeze the trigger to highlight Gun Camera Test.
10. Press the Start button to begin the test. You may use one or both guns for this test. Each gun 
    controls a dual-track of colored dots. As you tilt each gun, the orientation of the tracks rotates, as 
    the sensors perceive the change in angle. Note whether any of the dots disappear or flicker 
    when near the center of the screen. This may indicate a dirty or poorly functioning gun camera.
11. Press the Start button to return to the System Tests menu
12. Scroll to highlight the Gun Electronics Test.
13. Press the Start button to begin the test.
14. Squeeze the trigger to see additional test results.
15. Ensure the guns pass all tests.
16. Press the Start button to conclude the test and return to the System Tests menu.
17. Press the Start button again to return to the Main Menu.
18. Using the Diagnostic system, described later in this manual, run other diagnostics and make desired adjustments.

**Other Tests**

*See the Diagnostic Section for further information.*

1. Enter the Switch Test menu and verify all switches function.
2. Enter the Screen Test menu and verify that video is acceptable.
3. Enter the Sound Test menu and verify the audio works and is not distorted.
4. Enter the Coin Meter Test menu and verify the operation of the coin meter.
5. Enter the Cabinet Lamps Test menu and verify that all cabinet lights work correctly.
6. Enter the Watchdog Test menu, which reboots the game.
7. Upon a successful reboot, you are ready to make adjustments to pricing, volume and other functions found in the Adjustments section of Diagnostics.
Diagnostic Menu System

The Service Button Panel should have four buttons, three of which can navigate the menu system. But it is easiest to navigate with a Start button and trigger/pump.

- Service Panel TEST button enters diagnostic system
- Either Start button or TEST button selects the highlighted option
- Service Panel VOL - button or Squeezing either trigger moves down through menu or setting choices
- Service Panel VOL + button or Pumping either gun moves up through menu or setting choices
- Highlight and select Exit to return to previous screen.

An on-screen message acknowledges changes or when you exit a selection without making a change.

At the bottom of each screen there is a brief description of the menu option’s function. A complete description is available here for all menu functions.
Menu Screens and Descriptions

Main Menu

MAIN MENU

EXIT
OPERATOR ADJUSTMENTS
AUDITS
PROJECTOR MENU
ONLINE MENU
GUN CALIBRATION
RESET MENU
SYSTEM INFORMATION MENU
SYSTEM TESTS MENU
COLLECTIONS
VIEW LOG

For clarity, all menu screens exclude the header, footer, and background image.

Operator Adjustments Menu

This menu controls gameplay, coinage and sound adjustments.

OPERATOR ADJUSTMENTS
EXIT
GAME ADJUSTMENTS
COIN ADJUSTMENTS
PLAYER COST
VOLUME

You can improve collections by customizing performance with game adjustments. Each variable on an adjustment menu changes an aspect of game play or appearance. Optimizing these settings can maintain player interest and improve earnings. Monitor the effects of adjustments by comparing audit information and earnings before and after changes.
Main Menu

Operator Adjustments Menu

Game Adjustments Menu

This controls elements of the player experience and the time the game contacts the tournament server.

### GAME ADJUSTMENTS

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Default</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill Level</td>
<td>Adjusts game difficulty by changing how gun reloads. EASY: Ammunition is restored whenever clip runs out. NORMAL: After each 60 shots, player must reload by pumping gun magazine clip.</td>
<td>Normal</td>
<td>Normal / Easy</td>
</tr>
<tr>
<td>Minimum Game Length</td>
<td>Adjusts length of game in seconds and adjusts damage amounts. The time can be changed in five-second increments.</td>
<td>120</td>
<td>0-300</td>
</tr>
<tr>
<td>Expert Mode Prompt</td>
<td>Disables/Enables access to expert mode of game and the associated leader board.</td>
<td>Off</td>
<td>Off / On</td>
</tr>
<tr>
<td>Reload Offscreen</td>
<td>Turning this function on allows players to shoot the gun off screen to reload their weapon. This may be useful while you are awaiting a replacement part.</td>
<td>Off</td>
<td>Off / On</td>
</tr>
<tr>
<td>Violence</td>
<td>Toggles the display of certain violent scenes in the game</td>
<td>Normal</td>
<td>Normal / Low</td>
</tr>
<tr>
<td>Shooting Mode</td>
<td>Enables gun sight and tracer bullets for all guns</td>
<td>Default</td>
<td>Default, Sight Only, Tracer Only, Gun Sight &amp; Tracer</td>
</tr>
<tr>
<td>Training Mode</td>
<td>Shows extra training videos at start of game</td>
<td>Off</td>
<td>Off / On</td>
</tr>
</tbody>
</table>
This menu does not set game price, but specifies how much game credit is given for money added to the machine. The smallest accepted coin is a quarter, the typical setting for both coin values in the U.S. The DBV value is also a multiple of 25¢.

**COIN SETTINGS**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Default</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeplay</td>
<td>Players can start games without money by pressing START. Use this for promotions, non-commercial applications or to test the machine.</td>
<td>Off</td>
<td>On / Off</td>
</tr>
<tr>
<td>Currency Unit Value</td>
<td>Lets you set base value per coin</td>
<td>$0.25</td>
<td>$0.25 - $63.75 in $.25 increments</td>
</tr>
<tr>
<td>Coin 1 Value</td>
<td>Lets you set coin slot pricing.</td>
<td>$0.25</td>
<td>$0.25 - $63.75 in $.25 increments</td>
</tr>
<tr>
<td>Coin 2 Value</td>
<td>Lets you set coin slot pricing.</td>
<td>$0.25</td>
<td>$0.25 - $63.75 in $.25 increments</td>
</tr>
<tr>
<td>Coin 3 Value / DBV Pulse</td>
<td>The bill validator (DBV) translates bills into electronic pulses. Every $1 bill results in four pulses; each $5 bill is 20 pulses; $10 bill is 40 pulses, etc. This setting determines how much game credit is awarded per pulse. With default setting of $0.25, every $1 bill will award $1 in game credit. Set to $0.50, every $1 bill will award $2 in game credit.</td>
<td>$0.25</td>
<td>$0.25 - $63.75 in $.25 increments</td>
</tr>
<tr>
<td>Maximum Credits</td>
<td>The highest number of unplayed credits allowed.</td>
<td>$500.00</td>
<td>$125 - $500 in $.25 increments</td>
</tr>
<tr>
<td>Bonus Award</td>
<td>The amount of credit awarded per bonus unit (see below).</td>
<td>$0.00</td>
<td>$0.00 - $63.75 in $.25 increments</td>
</tr>
<tr>
<td>Units for Bonus</td>
<td>The value a player must enter to get bonus credit.</td>
<td>$0.00</td>
<td>$0.00 - $50.00 in $.25 increments</td>
</tr>
</tbody>
</table>

**Bonus Award/Units for Bonus example**

To give players $1.25 in credit for every dollar put in the DBV, set Bonus award to $.25 and Units for Bonus to $1.
Main Menu
Operator Adjustments Menu
Player Cost Menu

PLAYER COST
TYPE- OPER FEE- COINUP FEE- TOTAL
EXIT
START COST $1.00 $0.00 $1.00
CONTINUE COST $1.00 $0.00 $1.00

Settings, Defaults and Choices

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Default</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Cost</td>
<td>The amount of money required to begin a game.</td>
<td>$1.00</td>
<td>$0.00 - $63.75 in $0.25 increments</td>
</tr>
<tr>
<td>Continue</td>
<td>The amount of money required for a player to continue a game.</td>
<td>$1.00</td>
<td>$0.00 - $63.75 in $0.25 increments</td>
</tr>
</tbody>
</table>

FEE ADJUSTMENT
Note that CoinUp® fee cannot be adjusted by the operator.

Main Menu
Operator Adjustments Menu
Volume Menu

Rather than requiring a manual dial or up/down buttons, all volume adjustments can be made digitally with this menu. However, during Attract Mode, pressing the Service Panel Vol + and Vol – buttons only adjust Attract Mode volume.

VOLUME
EXIT
GAME VOLUME 9
ATTRACT VOLUME 7
MINIMUM VOLUME 4
ATTRACT SOUNDS OCCASIONALLY

Settings, Defaults and Choices

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Default</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game Volume</td>
<td>This affects sound only while game is played.</td>
<td>9</td>
<td>0 – 32</td>
</tr>
<tr>
<td>Attract Volume</td>
<td>This can be silenced or turned up as an advertisement to draw in players.</td>
<td>7</td>
<td>0 – 32</td>
</tr>
<tr>
<td>Minimum Volume</td>
<td>Determines the lowest setting possible for both Game and Attract Volumes</td>
<td>4</td>
<td>0 – 32</td>
</tr>
<tr>
<td>Attract Sounds</td>
<td>This determines how often the game’s “advertising” sounds will be heard.</td>
<td>Occasionally</td>
<td>Off/Occasionally/Always</td>
</tr>
</tbody>
</table>
Audit screens help assess game performance, find intermittent problems, decide whether to adjust game difficulty and free game award and help maximize game earnings.

### AUDITS
- EXIT
- GENERAL AUDITS
- SYSTEM AUDITS
- COIN AUDITS

### General Audits
- PLAYER STARTS: 0
- PLAYER CONTINUES: 0
- PLAYER CONTINUES OFFERED: 0
- GAMES STARTED: 0
- GAMES ENDED (NOT WON): 0
- GAMES COMPLETED (WON): 0
- AVERAGE GAME TIME (SHOOTING): 0
- AVERAGE GAME TIME (TOTAL): 0

### System Audits
- PLAY TIME: 0 yr 0 dy—0:00:00
- UP TIME: 0 yr 0 dy—0:00:00
- WATCHDOGS: 0
- EXCEPTIONS: 0
- BAD TRAPS: 0
Terminator Salvation™ Super Deluxe

Main Menu

Audits Menu

Coin Audits Menu

COIN AUDITS
EXIT
TOTAL COIN 1 $0.00
TOTAL COIN 2 $0.00
TOTAL COIN 3 DBV $0.00
BONUS COINS $0.00
LIFETIME COIN COUNT $0.00
SERVICE CREDITS $0.00

Main Menu

Projector Menu

PROJECTOR MENU
EXIT
BRIGHTNESS 0
CONTRAST 0
VERTICAL KEYSTONE 0
LAMP SAVING MODE OFF
OFF TIME 10:00 PM
ON TIME 7:00 AM
LAMP HOURS 0
ERROR STATUS NO ERROR

Brightness – Sets the brightness level of the projector
Contrast – Sets the contrast level of the projector
Vertical Keystone – Adjusts the vertical keystone to best fit the screen
Lamp Saving Mode – Set the projector to dim during attract mode to extend life of lamp
Off Time – Sets time for lamp to automatically turn off
On Time – Sets time for lamp to automatically turn on – Not displayed when Off Time is set to NEVER
Lamp Hours – Tracks the number of hours the lamp has been in use
Error Status – Displays if the projector is in an error state

Main Menu

Online Menu

These menus are used by games connected to CoinUp®.

Main Menu

Gun Calibration Menu

This is the same procedure described earlier in the First Calibration section.
Main Menu

Reset Menu

**RESET MENU**
- **EXIT**
- **RESET GAME AUDITS**
- **RESET ADVENTURE AUDITS**
- **RESET CREDITS**
- **RESET COIN COUNTERS**
- **RESET ADJUSTMENTS**
- **RESET HIGH SCORES**
- **FACTORY RESET**

**Reset Game Audits** - zeroes out game audits, system audits and game purchase audits
**Reset High Scores** - zeroes out high score tables
**Reset Credits** - zeroes out money in
**Reset Coin Counters** - zeroes out coin audits, but leaves lifetime and service credits
**Reset Adjustments** - sets operator adjustments to defaults
**Factory Reset** - performs all the above resets

Main Menu

System Information Menu

These submenus can give you information on how the system has been functioning and on various settings and updates.

**SYSTEM INFORMATION**
- **EXIT**
- **VERSION LIST**
- **DIP SWITCH SETTINGS**
- **TELEMETRY DATA**
- **SWITCH TELEMETRY**

Main Menu

System Information Menu

Version List Menu

For troubleshooting purposes, this menu gives you information on the latest update of various components.

**VERSIONS**
- **EXIT**
- **SOUND** 19.3
- **JAMMA** 25q.H8b.Fd1.U2a R
- **PMNET** 00.00.00
- **SOFTWARE** 1.08.00.US – Build: Dec 8 1009 11:39:04
- **LEFT GUN** 9e
- **RIGHT GUN** 9e
Main Menu

System Information Menu

DIP Switch Test Menu

This checks the DIP Switch settings on the I/O Board

DIP SWITCH SETTINGS

| DIPSWITCH 1 | OFF | RESOLUTION |
| DIPSWITCH 2 | OFF | GUN SCAN CGA |
| DIPSWITCH 3 | OFF | HSYNC/VSYNC POLARITY |
| DIPSWITCH 4 | OFF | UNUSED |
| DIPSWITCH 5 | OFF | UNUSED |
| DIPSWITCH 6 | OFF | UNUSED |
| DIPSWITCH 7 | OFF | UNUSED |
| DIPSWITCH 8 | OFF | UNUSED |

PRESS START TO EXIT

Main Menu

System Information Menu

Telemetry Stats

These tests check thermal qualities and electrical conductivity. Generally, only Core Temps 1 and 2 function. The rest should read N/A.

TELEMETRY DATA

EXIT
SYSTEM TEMPERATURE  N/A
CORE TEMP1  23C
CORE TEMP2  26C
TEMPERATURE STATE  N/A
CPU FAN SPEED  N/A
CASE FAN SPEED  N/A
+3.3V:  N/A
+5.0V:  N/A
+12V:  N/A
-5.0V:  N/A
-12.0V  N/A
Main Menu

System Information Menu

Switch Telemetry Data

This gives information on the time since a switch was last used in both number of games played since the switch was used and the clock time since last use.

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>GAMES NOT SEEN</th>
<th>TIME LAST SEEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWITCH</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>LEFT START</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>RIGHT START</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>LEFT TRIGGER</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>LEFT PUMP</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>LEFT GRENADE</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>RIGHT TRIGGER</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>RIGHT PUMP</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>RIGHT GRENADE</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>COIN 1</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>COIN 2</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>DIAG</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>VOLUME UP</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>VOLUME DOWN</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>DBV</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
<tr>
<td>SERVICE CREDIT</td>
<td>0</td>
<td>0d00.02.22</td>
</tr>
</tbody>
</table>

Main Menu

System Tests Menu

These tests check the functionality of cabinet systems.

SYSTEM TESTS
GUN TESTS MENU
ONLINE TESTS MENU
SWITCH TEST
SCREEN TESTS
SOUND TEST
FILE TEST
COIN METER TEST
CABINET LAMPS TEST
WATCHDOG TEST
Some gun test descriptions can be found in the First Calibration section earlier in this manual.

**Gun Status Messages** - displays continually updated status messages  
**Gun Camera Test** - checks light array visibility.  
**Gun Click Test** – is described below.  
**Gun Electronics** - reports the status of the electronic components.  
**Gun Calibration** - is described elsewhere in this manual.

This tests the various click mechanics of the gun.

Pressing the START button cycles through “NO CLICK,” “SINGLE CLICK ON TRIGGER PULL” and AUTO CLICK ON TRIGGER PULL.”

These tests verify components of the online system.
Service Manual

Main Menu

System Tests Menu

Ethernet Port Test

If Ethernet is used, this test sends attempts to send data packets to the server and reports on how many were received and how many were dropped. Note that running this test requires a loopback adapter.

Main Menu

System Tests Menu

Card Test

Insert a valid card to reveal the card type (player or operator) and the cardholder’s name.

CARD TEST

EXIT

PLEASE INSERT CARD

CARD FOUND: Card Type

NAME: Cardholder Name

Main Menu

System Tests Menu

Switch Test Menu

This checks input switch performance. The activated switch is highlighted on screen and the system generates a “switch active” alert sound.

SWITCH TEST

COIN1 COIN2
START 1 START 2
VOLUME DOWN VOLUME UP
TEST BILL
TRIGGER1 TRIGGER2
RELOAD1 RELOAD2
GRENADE1 GRENADE2
SERVICE

The Switch Test menu has a unique exit procedure because it checks the switches normally used for navigation. To exit to the main menu, simultaneously press a Start button and squeeze a trigger.

Main Menu

System Tests Menu

Screen Tests Menu

SCREEN TESTS

EXIT

COLOR ADJUSTMENT

SCREEN ADJUSTMENT

COLOR SCREENS
This color bar screen of gray, yellow, cyan, green, magenta, red and blue helps identify missing colors. Missing color bars may indicate bad video RAM in the PC, or a problem with the projector. Consult the projector manual for information on how to correct problems.

Color bars can also help

- Peak the brightness and black levels
- Balance red, green and blue drives
- Check purity problems (color contamination)
- Compensate for barrel or pincushion distortion
- Adjust size controls
- Test for video noise sources (such as bad cables)
This crosshatch screen helps adjust width and height, static convergence and purity, brightness and focus. This test is the best way to align the projector image with the screen assembly. See projector manual for information on making adjustments.

**Width and Height**
Adjust height and width of the crosshatch pattern until the grid fills the screen. Keep all the lines visible, though. If part of the grid goes off the screen, then the game image will, too.

**Static Convergence and Purity**
All lines in the crosshatch pattern must be white. Else, there is a convergence or purity problem. Slight color tinges at the extreme edges of the screen are okay.

**Brightness**
Ensure the bars are a fairly strong white.

**Focus**
Bars with fuzzy edges indicate a focus problem. Adjust the focus control for best sharpness.

These are solid, one-color images that help adjust color drive controls for proper intensity. The screens are black, white, red, green and blue. Press the Start button to cycle through the screens. The white screen helps adjust brightness and color output balance.
Main Menu

System Tests Menu

Sound Test Menu

This checks sound volume and quality. Missing sounds indicated digital flaws. Distorted sounds suggest analog flaws. Lack of sound suggests disconnected or bad cables or speakers.

SOUND TESTS
EXIT
STREAMING SOUND
SPEECH CALL
GUN FX
SOUND FX
100 Hz SINE WAVE
1000 Hz SINE WAVE

- STREAMING SOUND is a sample of the game music.
- SPEECH CALL includes talking commentary.
- GUN FX is the shotgun blast.
- The first Sound FX is a whistle.
- The second Sound FX is a guitar riff.
- 100 and 1000 Hz Sine Waves generate specific frequency sounds. Cancel these sounds by selecting another test.

Main Menu

System Tests Menu

File Tests

This tests the integrity of the contents of the hard drive, searching for corrupt or missing game files. Damaged or missing files register as failed and are listed. The only solution to this problem is to restore the system from the DVD-ROM, as described in the Restore the Hard Drive section.

Main Menu

System Tests Menu

Coin Meter Test

In this test, the System Tests Menu is the bottom-level menu. Watch the mechanical coin meter, which should increment by one count. If it does, it has passed the test. If it does not, it may not be receiving a pulse from the game. See Troubleshooting for more details.

Main Menu

System Tests Menu

Cabinet Lamps Test

This test turns the various cabinet light lines on and off, cycling through left and right start buttons, the left and right holsters, the T-600 eyes and outriggers, and the gun butt lights.
Main Menu
- System Tests Menu
  - Watchdog Test

This tests the Watchdog circuit, which protects the game against screen freezes (infinite loops). After a countdown, the game resets. To exit before the reset, press either Start or Volume button, squeeze a trigger or pump a gun. See the Troubleshooting Chapter if watchdog test does not cause game to reset.

Main Menu
- View Log Menu

This lists history of significant events or errors in file system.

Main Menu
- Collections

Send Collections Message contacts the server and delivers the latest collections information.

Main Menu
- Collections Menu
  - CoinUp Fee Details

Send Collections Message contacts the server and delivers the latest collections information.
Regular Gun Maintenance

Terminator Salvation™ is equipped with two state-of-the-art custom-designed gun controllers. In order to maximize income potential, keep the guns in optimal working order by performing the following five-step procedure every time you empty the cash box.

1. **Check the camera lens**
   - Observe the clear lens at the tip of the gun to ensure it has no cracks, scratches or dirt. Clean or replace the lens, if necessary.

2. **Visually and manually inspect gun cable connections**
   - Open the coin door to see them. Reach in and ensure the USB and data/power cables are fully connected and are not pinched by any components.

3. **Verify switch functionality**
   - Press the Test button on the service panel, select System Tests and then select Switch Test (described earlier in this manual) to ensure all the gun switches are functioning properly.
   - Switches in the gun include: Trigger, Reload clip, Grenade

4. **Calibrate, calibrate, calibrate**
   - Return to the Main Menu screen and select Gun Calibration. Follow the instructions earlier in this manual or on screen to recalibrate both guns.

5. **Check the I/R sensors**
   - The sensors are directly below and above the printed marquee on the monitor assembly.
   - From the Main Menu, select System Tests, then select Camera Test to ensure all the I/R sensors are working. If any of the IR LEDs are not working, remove the corresponding I/R sensor covers and check the I/R cables for breaks or bad connections. Recalibrate the guns any time the game is moved or the guns are repaired, replaced or swapped.

Note: It is not advisable to replace or swap guns while power is on. Shut AC power off before connecting or disconnecting any components. If, for some reason, guns are changed while power is on, shut off AC power and reboot after the guns are connected again. Failure to do so may confuse the system so it does not recognize the guns.

Following These Procedures Is Critical To Maintaining Guns and Maximizing Revenue. Perform regular gun maintenance to keep your game in top working order.
Hard Drive Recovery

Symptoms requiring hard drive recovery include

- File Test reports bad or missing files.
- Game fails to finish loading during startup.
- After resetting the AC power, an error is reported.
- You are prompted to insert a boot DVD.
- Erratic Game or Attract Mode.
- The following screen:

```
WARNING!
DATA Files Corrupted.
(Game Operation May Become Unstable.)
Use "Test" Switch to Enter Test Mode
and Run "File Test"
Press Start to Continue
```

To identify corrupt files, press Test, choose System Test Menu and run the File Test. The only way to repair corrupt files is to recover the hard drive, as detailed below.

**Computer**

The computer contains sensitive components, including a hard drive. Do not handle roughly. Call your distributor before servicing its internal components. Ask about warranty information as it relates to the PC.

Do **not** use the PC on/off switch. Turn AC power on or off with the cabinet power switch.

1. With game and PC on, verify that the I/O board has power. If not, see Troubleshooting.
2. Open the Coin door.
3. Open the PC DVD-ROM tray by pressing the Open/Close button on the drive bay.
4. Insert the recovery DVD marked as Disc 1 into the tray.
5. Close the tray by pressing the Open/Close button again.
6. Turn cabinet power switch to OFF. Wait 30 seconds.
7. Turn cabinet power switch to ON.
8. Turn projector power switch to ON so as to monitor recovery process.
9. Recovery begins automatically when PC boots up.
10. If recovery does not begin, check to ensure disc is inserted correctly and is not damaged.
    - **Do not interrupt power or reset the game during recovery.**
12. A message indicates remove disc 1 and insert disc 2.
13. Remove disc 1 as indicated – open DVD-ROM tray if necessary.
14. Insert recovery DVD marked as Disc 2 into the tray.
15. Close the tray by pressing the Open/Close button.
16. Recovery will continue automatically after verifying the disc.
    - **If recovery does not continue or an error message appears, disc may be faulty or damaged.**
17. Monitor restoration progress.
    - **Do not interrupt power or reset the game during recovery.**
18. A message indicates that recovery is complete.
    - When instructed to remove disk, open DVD-ROM tray and remove disc.
19. Turn cabinet power switch off.
20. After 30 seconds, turn cabinet power switch on.
21. Game will reboot and enter calibration mode.
22. Re-calibrate guns.
23. Settings will now be factory defaults – make changes as needed.
BIOS Settings/Power Management

Notice
The PC ships with correct BIOS settings. Making changes to the BIOS different from the description below may adversely affect game functions.

This BIOS setting lets the PC automatically power up. With the setting enabled, the PC reboots when it detects AC power. This eliminates the need to manually turn the PC back on after power disruption.

Do not use the PC on/off switch. Turn AC power on or off with the cabinet power switch.

1. Turn cabinet power switch off.
2. Open rear of cabinet.
3. Connect a USB keyboard to the PC.
4. While holding the Delete key on the keyboard down, turn cabinet power switch on.
5. When the BIOS menu screen appears, make the following adjustments.
   - Standard CMOS Features > Drive A [none]
   - Standard CMOS Features > HALT ON [No Errors]
   - Advanced BIOS Features > Boot Sequence 1st CD-ROM 2nd Hard Disk
   - Advanced BIOS Features > APIC Mode Disabled
   - Advanced Chipset Features > Frame Buffer [16M]
   - Advanced Chipset Features > PMU > CPU Frequency [200.0]
   - Power Management Setup > PWRON After PWR-Fail [On]
6. Follow instructions on screen to save and exit.
7. PC will reset and load the game.
## I/O Board Connector Table

### Component Side

<table>
<thead>
<tr>
<th>Function</th>
<th>Wire Color</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground</td>
<td>Black</td>
<td>1</td>
</tr>
<tr>
<td>Ground</td>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>5 Volts</td>
<td>Red</td>
<td>3</td>
</tr>
<tr>
<td>5 Volts</td>
<td>Red</td>
<td>4</td>
</tr>
<tr>
<td>12 Volts</td>
<td>Orange</td>
<td>5</td>
</tr>
<tr>
<td>12 Volts</td>
<td>Orange</td>
<td>6</td>
</tr>
<tr>
<td>Coin Meter</td>
<td>Brown Yellow</td>
<td>7</td>
</tr>
<tr>
<td>Reset</td>
<td>Violet</td>
<td>8</td>
</tr>
<tr>
<td>Speaker (+)</td>
<td>Brown Red</td>
<td>9</td>
</tr>
<tr>
<td>Speaker (+)</td>
<td>Brown Red</td>
<td>10</td>
</tr>
<tr>
<td>Test</td>
<td>Blue</td>
<td>11</td>
</tr>
<tr>
<td>Coin 1</td>
<td>Gray Brown</td>
<td>12</td>
</tr>
<tr>
<td>P1 Start</td>
<td>White Brown</td>
<td>13</td>
</tr>
<tr>
<td>Volume (+)</td>
<td>Orange Red</td>
<td>14</td>
</tr>
<tr>
<td>DBV</td>
<td>Gray Orange</td>
<td>15</td>
</tr>
<tr>
<td>Ground</td>
<td>Black</td>
<td>16</td>
</tr>
<tr>
<td>Ground</td>
<td>Black</td>
<td>17</td>
</tr>
</tbody>
</table>

### Solder Side

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Black</td>
<td>Ground</td>
</tr>
<tr>
<td>B</td>
<td>Black</td>
<td>Ground</td>
</tr>
<tr>
<td>C</td>
<td>Red</td>
<td>5 Volts</td>
</tr>
<tr>
<td>D</td>
<td>Red</td>
<td>5 Volts</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Orange</td>
<td>12 Volts</td>
</tr>
<tr>
<td>G</td>
<td>Orange</td>
<td>12 Volts</td>
</tr>
<tr>
<td>H</td>
<td>Orange</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Violet Brown</td>
<td>P1 Lamp</td>
</tr>
<tr>
<td>J</td>
<td>Violet Red</td>
<td>P2 Lamp</td>
</tr>
<tr>
<td>K</td>
<td>Violet Red</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Brown Black</td>
<td>Speaker (-)</td>
</tr>
<tr>
<td>N</td>
<td>Brown Black</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
<td>Service</td>
</tr>
<tr>
<td>Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Violet White</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>Gray Blue</td>
<td>Coin 2</td>
</tr>
<tr>
<td>U</td>
<td>Green Brown</td>
<td>P2 Start</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Orange Green</td>
<td>Volume (-)</td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Black</td>
<td>Ground</td>
</tr>
<tr>
<td>f</td>
<td>Black</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Terminator Salvation™ Copyright © 2010 T Asset Acquisition Company, LLC
Gun Functional Block Diagram

- **T4 Gun**
  - **Camera**
    - Camera PCB
  - **FPGA**
    - RS232 to USB bridge
  - Trigger Switch
  - Grenade Switch
  - Reload Switch
  - **Solenoid Kick-Board**
    - Control Signal
    - Solenoid Drive
    - Solenoid Power
  - **Expansion Board**
  - **I/O Board**
  - **USB**
  - **RS232**
  - **PC**
  - **+12V Power Supply**
**Parts**

**Guns and Holsters**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Part No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gun</td>
<td>820-00011-00</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Plastic Holster Left</td>
<td>603-00060-01</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Plastic Holster Right</td>
<td>603-00061-01</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Plywood Holster Left</td>
<td>601-00078-01-L</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Plywood Holster Right</td>
<td>601-00078-01-R</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Part No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Gun LED Strip</td>
<td>500-00045-01</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Holster Edge Glow Left</td>
<td>600-00180-01</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Holster Edge Glow Right</td>
<td>500-00180-01</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Gun Bracket</td>
<td>600-000172-01</td>
<td>2</td>
</tr>
</tbody>
</table>
## Terminator Salvation™ Super Deluxe

### Gun Part List

<table>
<thead>
<tr>
<th>Item #</th>
<th>Qty.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>96-0974-00</td>
<td>Rifle Half Left F/Raw Thrills</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>96-0973-00</td>
<td>Rifle Half Right F/Raw Thrills</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>95-4142-10</td>
<td>Switch Assy Ball Detect</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>77-2L12-300SPCL</td>
<td>IPB SM Cir Red Vlt Red Cap 6V Lamp DA3 MS No Printing</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>96-0985-00</td>
<td>Barrel Cap</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>96-0988-00</td>
<td>Trigger Raw Thrills Rifle</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>96-0981-00</td>
<td>Plastic Butt Cap</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>96-0983-00</td>
<td>Plastic Reload Cap</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>96-1045-00</td>
<td>Trigger Spring</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>77-2014-00</td>
<td>Nut F/Vlt PB</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>43-0095-00</td>
<td>Screw 6-32 x 3/8 BHMS T-10 TORX</td>
</tr>
<tr>
<td>12</td>
<td>7</td>
<td>43-1247-00</td>
<td>Screw 6-32 x 5/8 BH TORX Black</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>96-1047-20</td>
<td>Hose and Harness Assembly USB 12 Cond</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>820-00010-01</td>
<td>Camera Assembly (Complete)</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>500-00038-01</td>
<td>Kick Board</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>96-1106-00</td>
<td>Urethane Bumper 5/16 ID x 5/8 OD x ¼ L</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>96-1041-00</td>
<td>Recoil Rod for Raw Thrills Rifle</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>43-2365-00</td>
<td>Bushing Flange JFI-0506-06</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>96-1049-00</td>
<td>Miner General Bumper Ref. # GBA-098S</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>43-0995-00</td>
<td>#10 Flat Washer</td>
</tr>
<tr>
<td>21</td>
<td>2</td>
<td>43-0740-00</td>
<td>Screw 10-32 x ½ BHCS</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>96-1044-00</td>
<td>Recoil Rod Spring for Raw Thrills Rifle</td>
</tr>
<tr>
<td>23</td>
<td>4</td>
<td>43-0172-00</td>
<td>Screw, #2 x ½ Type B. PPH</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>43-0067-00</td>
<td>Screw, 8 x 3/8 Phil Hi-Low PH</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>43-0436-00</td>
<td>Screw #4 x ¼ PH Pan Head</td>
</tr>
<tr>
<td>26</td>
<td>1</td>
<td>96-1051-00</td>
<td>Reload Spring F/Raw Thrills Rifle</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>96-1109-00</td>
<td>Urethane Stop F/Raw Thrills Reload</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>95-4372-00</td>
<td>Grommet for ¼ Dia. Hole .44 OD x .44 LG</td>
</tr>
<tr>
<td>29</td>
<td>13</td>
<td>43-0429-00</td>
<td>Washer, M3 Split Ring Lock Washer</td>
</tr>
<tr>
<td>30</td>
<td>5</td>
<td>43-0492-00</td>
<td>Screw, 4-40 x .25 PH Pan Head</td>
</tr>
<tr>
<td>31</td>
<td>8</td>
<td>43-1061-00</td>
<td>Screw, M3 x 6 mm</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>95-4466-00</td>
<td>Grommet Bumper F/.25 dia. Hole .50 OD x .15 LG</td>
</tr>
<tr>
<td>33</td>
<td>1</td>
<td>96-0987-00</td>
<td>Brass Knocker</td>
</tr>
<tr>
<td>34</td>
<td>1</td>
<td>96-0986-00</td>
<td>Solenoid Housing Bracket F/Raw Thrills Rifle</td>
</tr>
<tr>
<td>35</td>
<td>1</td>
<td>96-1040-00</td>
<td>Solenoid F/Raw Thrills Rifle</td>
</tr>
<tr>
<td>36</td>
<td>7</td>
<td>43-0375-00</td>
<td>Nut 6-32 Hex Nylock Black</td>
</tr>
<tr>
<td>37</td>
<td>1</td>
<td>96-0985-10</td>
<td>Front Cap Upper F/T4 Rifle</td>
</tr>
<tr>
<td>38</td>
<td>1</td>
<td>43-2927-00</td>
<td>Threaded Snap 10-32 F/T4 Rifle</td>
</tr>
<tr>
<td>39</td>
<td>1</td>
<td>43-2350-00</td>
<td>Nut Hex 10-32 Jam Nylock Black Oxide</td>
</tr>
<tr>
<td>40</td>
<td>1</td>
<td>90272A112</td>
<td>Screw 4-40 x 11/16 Torx Black Oxide</td>
</tr>
<tr>
<td>41</td>
<td>1</td>
<td>43-1322-10</td>
<td>Nut Nylock, 4-40 Hex Black Oxide</td>
</tr>
<tr>
<td>42</td>
<td>1</td>
<td>500-00083-01</td>
<td>LED PCB F/T4 Rifle</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>96-0019-00</td>
<td>Right Side Decal</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>96-0019-10</td>
<td>Left Side Decal</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>96-1074-00</td>
<td>Shoulder Strap</td>
</tr>
</tbody>
</table>
Terminator Head

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Part No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Head bracket</td>
<td>600-00178-01</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Distortion print head</td>
<td>603-00064-01</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Red cold cathode</td>
<td>702-00027-00</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Eye LED</td>
<td>500-00048-01</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>LED ring</td>
<td>600-00246-01</td>
<td>2</td>
</tr>
</tbody>
</table>
### Troubleshooting

**Warning:** Review safety chapter before making any adjustments to game.

#### General

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game will not power up</td>
<td>Game not plugged in.</td>
<td>Plug game into outlet.</td>
</tr>
<tr>
<td></td>
<td>Game not turned on.</td>
<td>Turn on main power switch.</td>
</tr>
<tr>
<td></td>
<td>Game fuse is blown.</td>
<td>Check and replace fuse.</td>
</tr>
<tr>
<td></td>
<td>No power to receptacle.</td>
<td>Test outlet and plug game into powered outlet.</td>
</tr>
<tr>
<td></td>
<td>PC not turned on.</td>
<td>Turn PC power switch on. Ensure IEC cable tightly plugged in. Trace cable back to source to ensure continuity.</td>
</tr>
<tr>
<td></td>
<td>PC BIOS set incorrectly.</td>
<td>See BIOS Settings chapter.</td>
</tr>
<tr>
<td>Scrambled or scrolling display</td>
<td>Sync Polarity incorrect.</td>
<td>Change DIPswitch settings for HSYNC and VSYNC.</td>
</tr>
<tr>
<td>No video display</td>
<td>No power or signal to projector.</td>
<td>Check and secure all cables to projector. Consult projector manual for more information.</td>
</tr>
<tr>
<td>No sound</td>
<td>Bad Connection</td>
<td>Check connection to speakers.</td>
</tr>
<tr>
<td>Cold cathode tubes flicker or fail to light.</td>
<td>Bad connection</td>
<td>Check for snug connection at inverter or under topper bracket.</td>
</tr>
<tr>
<td></td>
<td>Loose end caps</td>
<td>Tighten end caps</td>
</tr>
<tr>
<td>Game does not load</td>
<td>Hard drive test reports “bad” or “missing” files.</td>
<td>Recover hard drive.</td>
</tr>
<tr>
<td></td>
<td>Game fails to finish loading.</td>
<td>See procedure at end of this chapter.</td>
</tr>
<tr>
<td></td>
<td>After resetting, game still reports an error.</td>
<td>Recover hard drive.</td>
</tr>
<tr>
<td></td>
<td>Game suggests inserting a boot DVD.</td>
<td>Recover hard drive.</td>
</tr>
<tr>
<td></td>
<td>Erratic game mode or attract mode.</td>
<td>Recover hard drive.</td>
</tr>
</tbody>
</table>

**WARNING!**
Data Files Corrupted. (Game Operation May Become Unstable.)
Use “Test” Switch to Enter Test Mode and Run “File Test.” Press Start To Continue.
<table>
<thead>
<tr>
<th>Message</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin meter does not click during Test</td>
<td>No pulse to meter</td>
<td>Check all wiring from meter to I/O board</td>
</tr>
<tr>
<td></td>
<td>Faulty meter</td>
<td>Replace coin meter</td>
</tr>
<tr>
<td>Exits Test Mode every 3 seconds</td>
<td>Test button stuck in ON position</td>
<td>Slide or toggle button off after Test Menu appears</td>
</tr>
<tr>
<td>No Signal</td>
<td>Video cable not secure.</td>
<td>Check and secure cable.</td>
</tr>
<tr>
<td></td>
<td>PC not turned on.</td>
<td>Turn PC power switch on. Ensure IEC cable tightly plugged in. Trace cable back to source to ensure continuity.</td>
</tr>
<tr>
<td></td>
<td>Sync Polarity incorrect.</td>
<td>Change DIPswitch settings for HSYNC and VSYNC.</td>
</tr>
<tr>
<td>Dongle Not Present</td>
<td>Dongle missing or disconnected</td>
<td>Find dongle and reseat in USB port</td>
</tr>
<tr>
<td></td>
<td>Faulty USB port</td>
<td>Insert dongle in different USB port</td>
</tr>
<tr>
<td>Connect I/O Board or I/O Board Missing</td>
<td>USB cable disconnected</td>
<td>Check USB connection from PC to I/O board</td>
</tr>
<tr>
<td></td>
<td>No power to JAMMA I/O board</td>
<td>Check for proper voltage (+5V, +12V) at JAMMA connector</td>
</tr>
<tr>
<td>Watchdog Disabled or Watchdog Failed</td>
<td>Watchdog defeated by JAMMA I/O DIP switch</td>
<td>Set DIP switch 8 to OFF</td>
</tr>
<tr>
<td></td>
<td>No power to Reset PCB</td>
<td>Connect power to Reset PCB</td>
</tr>
<tr>
<td></td>
<td>Reset input to motherboard</td>
<td>Connect 2-pin reset connector from Reset PCB to motherboard reset pin input</td>
</tr>
<tr>
<td></td>
<td>disconnected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Violet or black wire from Reset PCB disconnected or faulty</td>
<td>Check reset wire connection to JAMMA connector.</td>
</tr>
</tbody>
</table>

Terminator Salvation™ Game Software Copyright © 2010 PlayMechanix™ Inc. All rights reserved.
**Gun Troubleshooting**

*Note:* Do not replace or swap guns while power is on. Shut AC power off before connecting or disconnecting any components. If, for some reason, guns are changed while power is on, shut off AC power and reboot after the guns are connected again. Failure to do so may confuse the system so it does not recognize the guns.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guns won’t register, or function poorly</td>
<td>Bad calibration</td>
<td>Calibrate guns</td>
</tr>
<tr>
<td></td>
<td>No power to JAMMA I/O board</td>
<td>Check for proper voltage (+5V, +12V) at JAMMA connector</td>
</tr>
<tr>
<td></td>
<td>Dirty/damaged lens</td>
<td>Clean gun lens. Replace lens, if necessary.</td>
</tr>
<tr>
<td></td>
<td>Faulty/dirty IR sensors</td>
<td>Clean IR sensors and run Gun Camera Test to look for flickering or missing lights. Remove sensor covers and check cables and connections inside cabinet.</td>
</tr>
<tr>
<td></td>
<td>Gun disconnected</td>
<td>Check USB connections. Swap gun to another USB port to test. Reboot game to let software re-identify guns.</td>
</tr>
<tr>
<td></td>
<td>Faulty USB port</td>
<td>Swap gun to another USB port to test.</td>
</tr>
<tr>
<td></td>
<td>Disconnected USB cable</td>
<td>Check connections at PC and at junction between monitor assembly and front pedestal.</td>
</tr>
<tr>
<td></td>
<td>Display out of adjustment</td>
<td>Enter display diagnostics menu and repair.</td>
</tr>
<tr>
<td></td>
<td>Left gun misidentified as 2nd player</td>
<td>Calibrate guns, making sure to validate left gun as first player in first step. Reboot game to let software re-identify guns.</td>
</tr>
<tr>
<td></td>
<td>Internal wires pinched by housing</td>
<td>Disassemble gun and carefully route wiring through channels.</td>
</tr>
<tr>
<td></td>
<td>Bad solenoid</td>
<td>Run Gun Click Test. Replace solenoid, if necessary.</td>
</tr>
<tr>
<td></td>
<td>Bad power supply to solenoid</td>
<td>Check 12V power supply. Check gun wiring cables and connectors.</td>
</tr>
<tr>
<td></td>
<td>Camera board in gun disconnected</td>
<td>Check cables inside gun.</td>
</tr>
<tr>
<td></td>
<td>Gun LEDs not working</td>
<td>Check 12V power supply and cables. Open gun and check for pinched or disconnected cable.</td>
</tr>
</tbody>
</table>
Contact Information
For an authorized distributor near you, check the Raw Thrills website at www.rawthrills.com

Contact Betson Enterprise Headquarters or your local Betson office for sales, technical information, warranty or repair.
Betson can be reached at (800) 524-2343   Fax (201) 438-4837 www.betson.com

CoinUp® Prize Claims or Service
PlayMechanix™ www.playmechanix.com
800 Roosevelt Road, Suite D-103
Glen Ellyn, IL 60137
(866) 646-1975   fax (630) 942-1073

Betson Enterprises Headquarters
303 Paterson Plank Rd.
Carlstadt, NJ 07072
(800) 524-2343 or (201) 438-1300
fax (201) 438-4837