Terminator Salvation™

Setup and Operations Manual

42" Fixed Gun Game

Table of Contents

Terminator Salvation™ 42" Fixed Gun Game

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.

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
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.

SURGE SUPRESSOR
It is recommended that you plug your game's power cord into a surge suppressor to help protect from power surges that may damage sensitive electronic components.

CONNECTORS

When servicing machine, 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.

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

United States, international and Japan
Inrush AC Current: 7 Amps
Operating AC Current: 5 Amps
Voltage: 115 VAC

Dimensions

Height: 81" (2.06 meters)
Width: 39" (.99 meters)
Depth: 55" (1.39 meters)

Temperature

50° F to 104° F
(10° C to 40° C)

Humidity

Must not exceed 95% relative humidity

Carton Weight

450 lbs. (211 kg)

Setup

Unpack Materials

1. Place the shipping crates on a flat, stable surface.
2. Cut the banding straps and remove the cardboard lids.
3. Lift off the large cardboard containers surrounding the front pedestal and monitor assemblies and remove any shipping cleats.
4. Remove the coin door key from the coin return slot.
5. Open the top coin door.
6. Locate the keys for the back door and the cash box door.
7. Open the cash box door and remove the cash box.
8. Check for shipping damage to the following:
   - Left and right guns, cables and decals
   - Marquee and monitor
   - Cabinet decals
9. Check the AC line cord for visible signs of damage.
   Pay particular attention to the plug and line cord insulation.

Check Electrical Settings

1. Verify the voltage in the nearest AC outlet.
2. Verify the AC outlet ground connection is present and working.
3. Open the back door of the monitor assembly.
4. Near the AC power transformer, verify the voltage selector switch is set to correct AC voltage.
5. Route the line cord so that the plug is near the AC outlet.
6. Replace the back door of the monitor assembly.

Startup Game

1. Plug in line cord to AC outlet.
2. Turn the power switch to ON.
3. Check that no component is excessively hot or emitting foul odors.
   If not, turn off AC power and disconnect line cord. Refer to the diagnostic section of this manual.
4. Once software loads, you will be asked to calibrate the guns.
   If not, enter the service menu by pressing the TEST button located on the bracket inside the top coin door.

Diagnostics and Adjustments

The Service Button Panel has four buttons, three of which can navigate the menu system.

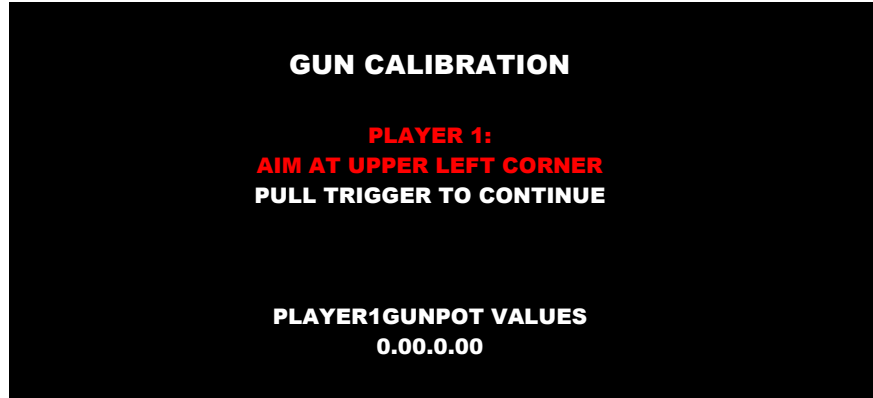But it is easiest to navigate with a Start button and trigger/grenade.
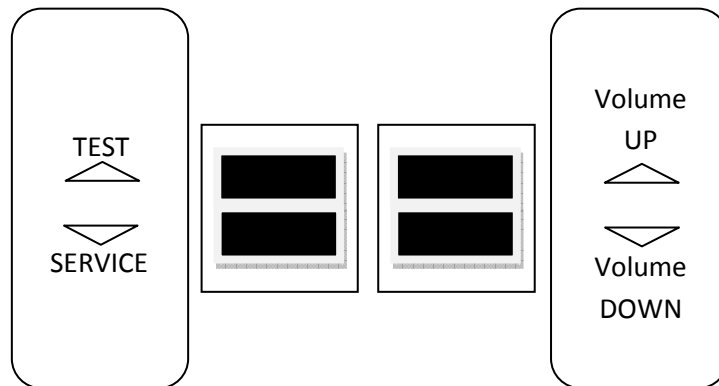
- Service Panel TEST/BACK button enters diagnostic system.

- Either Start button or SELECT button selects the highlighted option.

- Service Panel VOL DOWN button or Squeezing either trigger moves down through menu or setting choices.

- Service Panel VOL UP button or pressing either grenade button 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.
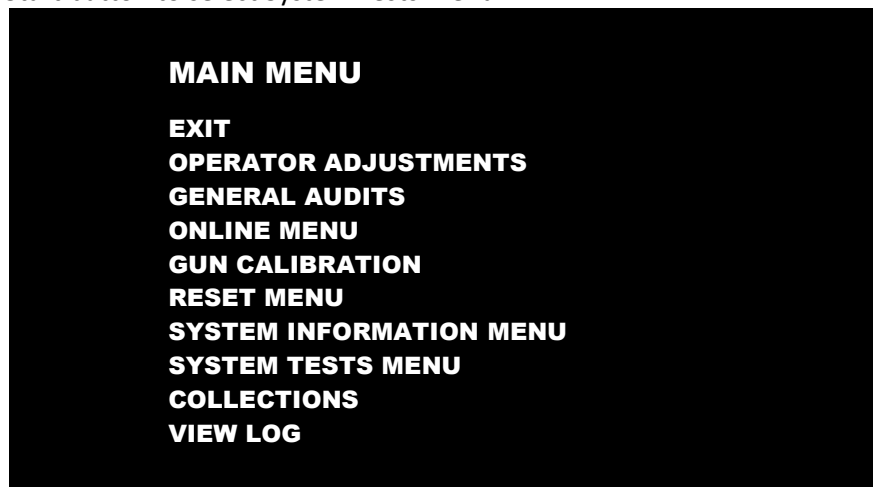
At the bottom of each screen there is a brief description of the menu option's function. A complete description is available here for all menu functions.

Instructions for completing your first calibration start on the next page.

1. If the calibration screen is not visible, press the TEST button to enter the Diagnostic System.
2. From the Main Menu, use a gun trigger to highlight Gun Calibration.
3. Press a Start button to enter calibration.

> **GUN CALIBRATION**
>
> **PLAYER 1:**
> **AIM AT UPPER LEFT CORNER**
> **PULL TRIGGER TO CONTINUE**
>
> **PLAYER1GUNPOT VALUES**
> **0.00.0.00**

4. Follow on-screen instructions and repeat for right gun.
5. Pull trigger to exit calibration.
6. From Main Menu, squeeze a gun trigger to cycle through choices until you reach System Tests.
7. Press a Start button to select System Tests Menu.

> **MAIN MENU**
>
> **EXIT**
> **OPERATOR ADJUSTMENTS**
> **GENERAL AUDITS**
> **ONLINE MENU**
> **GUN CALIBRATION**
> **RESET MENU**
> **SYSTEM INFORMATION MENU**
> **SYSTEM TESTS MENU**
> **COLLECTIONS**
> **VIEW LOG**

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, Audits and Diagnostics section.

Adjustments, Audits and Diagnostics

Main Menu

```
MAIN MENU

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

Main Menu

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.

Terminator Salvation™ 42" Fixed Gun Game

Main Menu

|	Operator Adjustments Menu

		Game Adjustments Menu

This controls elements of the player experience and the time the game contacts the CoinUp® server to check for software updates.
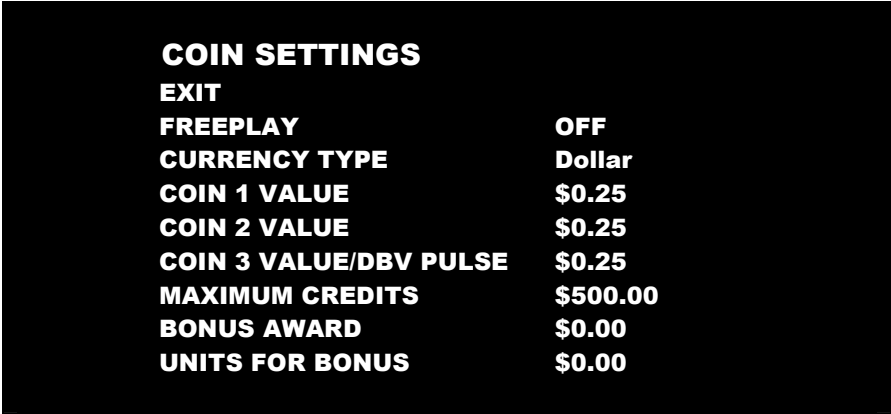
```
GAME ADJUSTMENTS
EXIT
SKILL LEVEL              NORMAL
MINIMUM GAME LENGTH      120
VIOLENCE                NORMAL
SHOOTING MODE           DEFAULT
TRAINING MODE           OFF
```

Settings, Defaults and Choices

Setting	Description	Default	Choices
Skill Level	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.	Normal	Normal / Easy
Minimum Game Length	Adjusts length of game in seconds and adjusts damage amounts. The time can be changed in five-second increments.	120	20 - 300
Violence	Toggles the display of certain violent scenes in the game.	Normal	Normal / Low
Shooting Mode	Enables gun sight and tracer bullets for all guns	Default	Default / Gun Sight & Tracer
Training Mode	Shows extra training videos at start of game	Off	Off/On

Main Menu

	Operator Adjustments Menu

		Coin Settings Menu
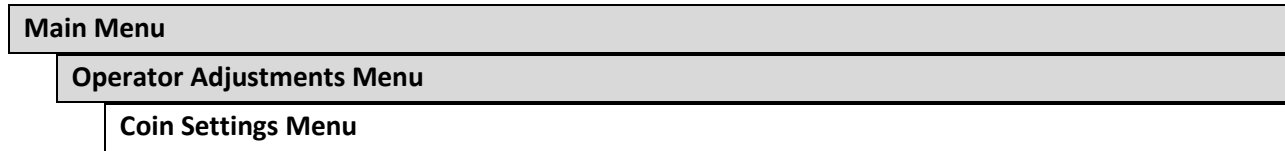
This menu does **not** set game price, but specifies how much game credit is given for money added to the machine. The smallest accepted coin is a quarter, the typical setting for both coin values in the U.S. The DBV value is also a multiple of 25¢.

```
COIN SETTINGS
EXIT
FREEPLAY                    OFF
CURRENCY TYPE               Dollar
COIN 1 VALUE                $0.25
COIN 2 VALUE                $0.25
COIN 3 VALUE/DBV PULSE      $0.25
MAXIMUM CREDITS             $500.00
BONUS AWARD                 $0.00
UNITS FOR BONUS             $0.00
```

Setting	Description	Default	Choices
Freeplay	Players can start games without money by pressing START. Use this for promotions, non-commercial applications or to test the machine.	Off	On / Off
Currency Type	Changing currency type resets coin door values. The denomination symbol changes on screen with each currency.	US Dollar	Yen, Won, Ruble, Real, Peso, Krona, Guilder, Franc, Can. Dollar, Coins, Euro, NZ Dollar, Rand, Pound, Aus. Dollar
Coin 1 Value	Lets you set coin slot pricing.	$0.25	$0.25 - $63.75 in $.25 increments
Coin 2 Value	Lets you set coin slot pricing.	$0.25	$0.25 - $63.75 in $.25 increments
Coin 3 Value / DBV Pulse	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.	$0.25	$0.25 - $63.75 in $.25 increments
Maximum Credits	The highest number of unplayed credits allowed.	$500	$125 - $500 in $.25 increments
Bonus Award	The amount of credit awarded per bonus unit (see below).	$0.00	$0.00 - $63.75 in $.25 increments
Units for Bonus	The value a player must enter to get bonus credit.	$0.00	$0.00 - $50.00 in $.25 increments

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
```

Setting	Description	Default	Choices
Start Cost	money required to begin a game	$1.00	$0.00 - $63.75 in $0.25 increments
Continue Cost	money required to continue a game	$1.00	$0.00 - $63.75 in $0.25 increments

FEE ADJUSTMENT

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

Main Menu

Operator Adjustments Menu

Volume Menu

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

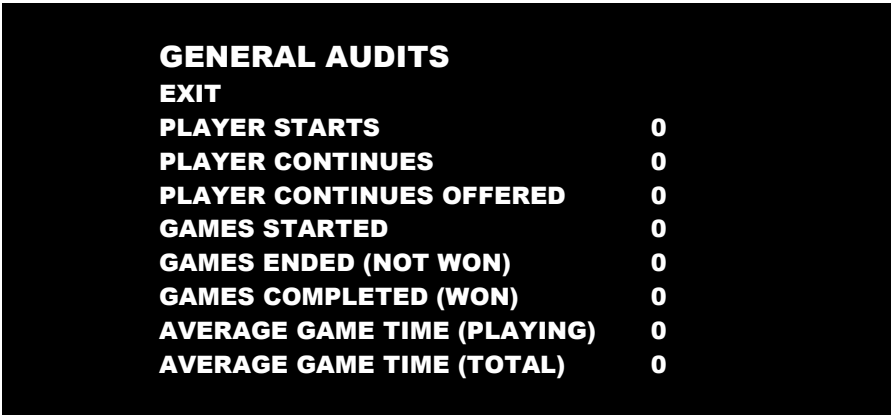| Setting	Description	Default	Choices
Game Volume	This affects sound only while game is played.	9	0 – 32
Attract Volume	This can be silenced or turned up as an advertisement to draw in players.	7	0 – 32
Minimum Volume	Determines the lowest setting possible for both Game and Attract Volumes	4	0 – 32
Attract Sounds	This determines how often the game's "advertising" sounds will be heard.	Occasionally	Never/Occasionally/Always

Main Menu

> **Audits Menu**

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
```

Main Menu

> **Audits Menu**

>> **General Audits**

```
GENERAL AUDITS
EXIT
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 (PLAYING)      0
AVERAGE GAME TIME (TOTAL)        0
```

Main Menu

> **Audits Menu**

>> **System Audits**

```
SYSTEM AUDITS
EXIT
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
```

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

Online Menu

These menus are used by games connected to CoinUp®. See CoinUp® Operation Overview section in this manual and visit www.coinup.com for more information.

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 HIGH SCORES
RESET CREDITS
RESET COIN COUNTERS
RESET ADJUSTMENTS
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 alone lifetime and service credits.
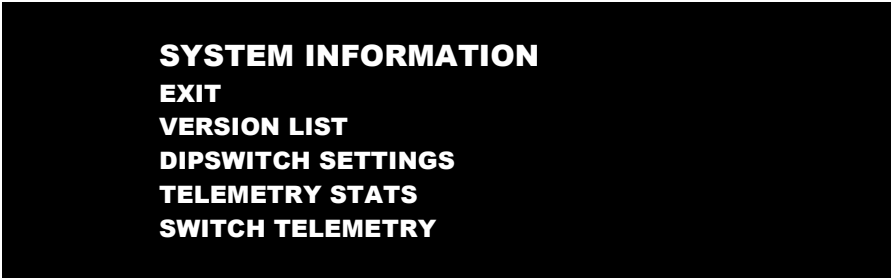
Reset Adjustments sets operator adjustments to defaults.

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.
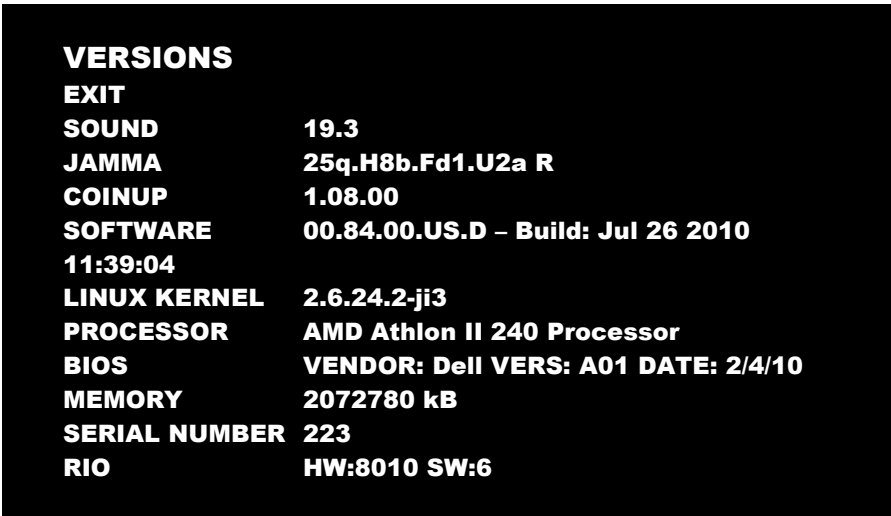
```
SYSTEM INFORMATION
EXIT
VERSION LIST
DIPSWITCH SETTINGS
TELEMETRY STATS
SWITCH TELEMETRY
```

Main Menu

System Information

Version List

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
COINUP         1.08.00
SOFTWARE       00.84.00.US.D – Build: Jul 26 2010
11:39:04
LINUX KERNEL   2.6.24.2-ji3
PROCESSOR      AMD Athlon II 240 Processor
BIOS           VENDOR: Dell VERS: A01 DATE: 2/4/10
MEMORY         2072780 kB
SERIAL NUMBER  223
RIO            HW:8010 SW:6
```

Main Menu

	System Information

		DIP Switch Settings

This checks the DIP Switch settings on the RIO Board

```
DIPSWITCH SETTINGS

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

PRESS START TO EXIT
```

Main Menu

	System Information

		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
+12.0V:                   N/A
-5.0V:                    N/A
-12.0v                    N/A
```

Main Menu

System Information

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.

```
SWITCH TELEMETRY DATA

EXIT
SWITCH              GAMES NOT SEEN      TIME LAST SEEN

LEFT START              0               0d00.02.22
RIGHT START             0               0d00.02.22
LEFT TRIGGER            0               0d00.02.22
LEFT PUMP               0               0d00.02.22
LEFT GRENADE            0               0d00.02.22
RIGHT TRIGGER           0               0d00.02.22
RIGHT PUMP              0               0d00.02.22
RIGHT GRENADE           0               0d00.02.22
COIN 1                  0               0d00.02.22
COIN 2                  0               0d00.02.22
DIAG                    0               0d00.02.22
VOLUME UP               0               0d00.02.22
VOLUME DOWN             0               0d00.02.22
DBV                     0               0d00.02.22
SERVICE CREDIT          0               0d00.02.22
```

Main Menu

System Tests Menu

These tests check the functioning of peripherals.

```
SYSTEM TESTS
EXIT
GUN TESTS MENU
ONLINE TESTS MENU
SWITCH TEST
SCREEN TESTS
SOUND TEST
FILE TEST
COIN METER TEST
CABINET LAMPS TEST
WATCHDOG TEST
```

Main Menu

	System Tests Menu

		Gun Tests Menu
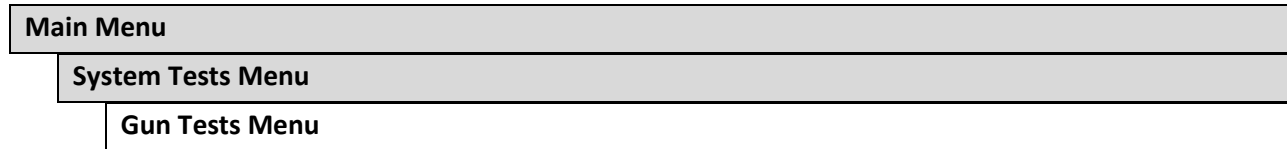
Some gun test descriptions can be found in the First Calibration section earlier in this manual.

```
GUN TESTS
EXIT
GUN CLICK TEST
GUN CALIBRATION
```
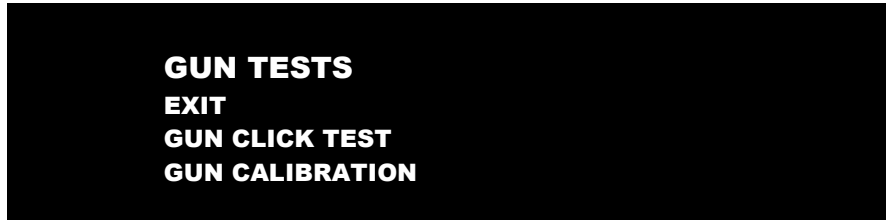
Gun Click Test is shown below.
Gun Calibration is described elsewhere in this manual.

Main Menu

	System Tests Menu

		Gun Tests Menu

			Gun Click Test
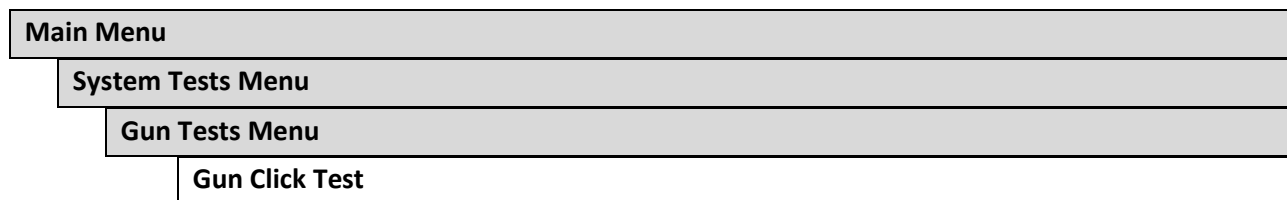
This tests the various click mechanics of the gun.

```
GUN CLICK TEST
GUN #1 CLICK MODE: NO CLICK
    (PRESS LEFT PLAYER GRENADE BUTTON TO CYCLE MODES)

GUN #2 CLICK MODE: NO CLICK
    (PRESS RIGHT PLAYER GRENADE BUTTON TO CYCLE MODES)
```
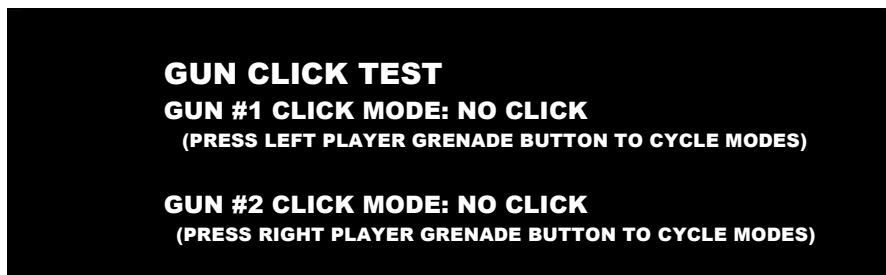
Point the gun at the screen for this test.
Pressing the grenade button cycles through "NO CLICK," "SINGLE CLICK ON TRIGGER PULL" and AUTO CLICK ON TRIGGER PULL."

Main Menu

System Tests Menu

Online Tests Menu
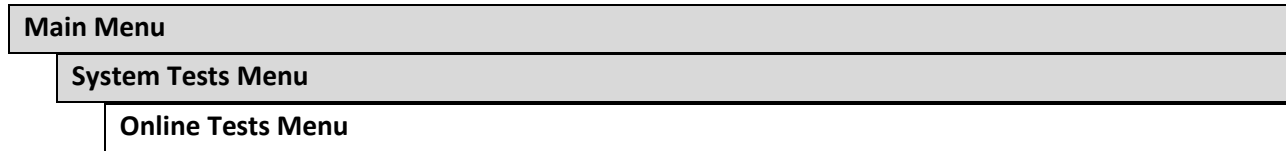
These tests verify components of the online system.

```
ONLINE TESTS
EXIT
ETHERNET PORT TEST
CARD TEST
```

Main Menu

System Tests Menu

Online Tests Menu

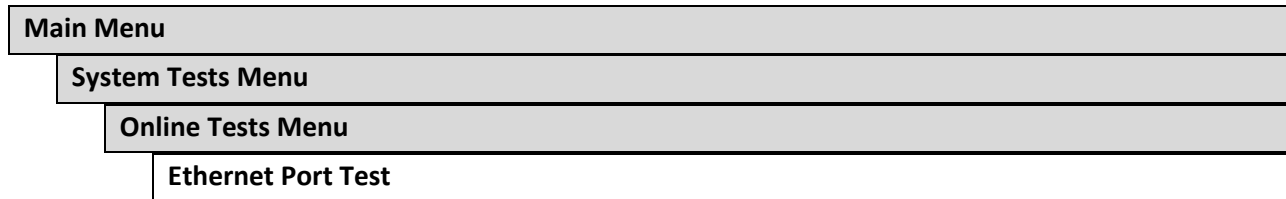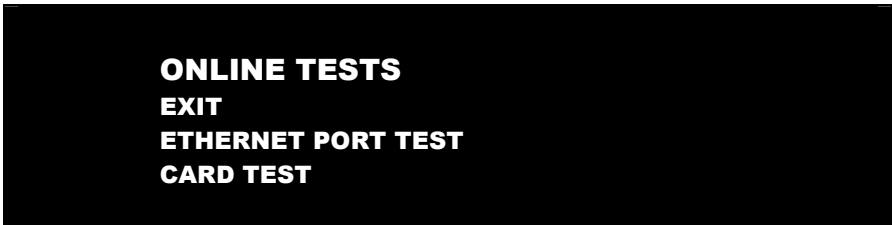| Ethernet Port Test |
|---|

This verifies the functioning of the Ethernet port.

```
Connect loopback adapter and "run test"

EXIT
RUN TEST
```

Main Menu

System Tests Menu

Online Tests Menu

Card Test
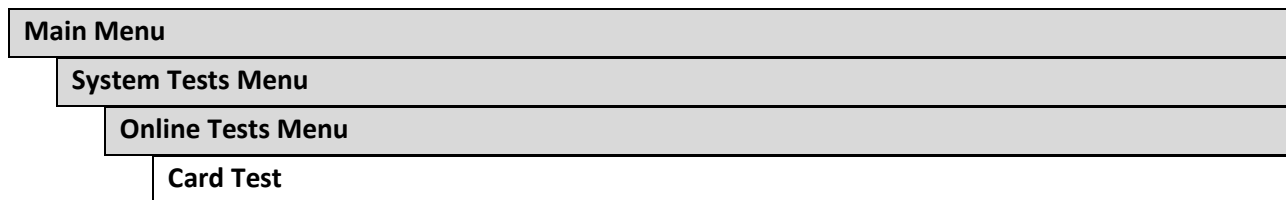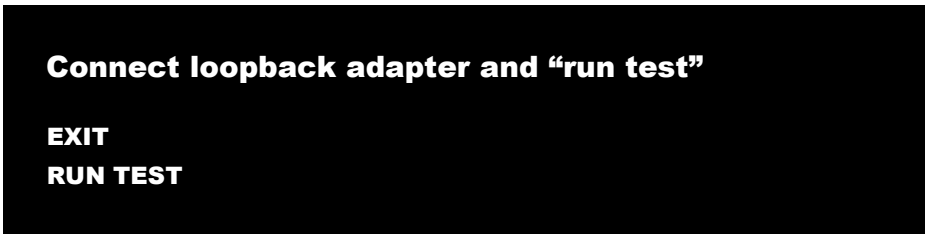
If there is a card reader, insert a valid card to reveals the card type (player or operator) and the cardholder's name.

```
CARD TEST
EXIT
PLEASE INSERT CARD
CARD FOUND:        Card Type
NAME:              Cardholder Name
```

Main Menu

>> System Tests Menu
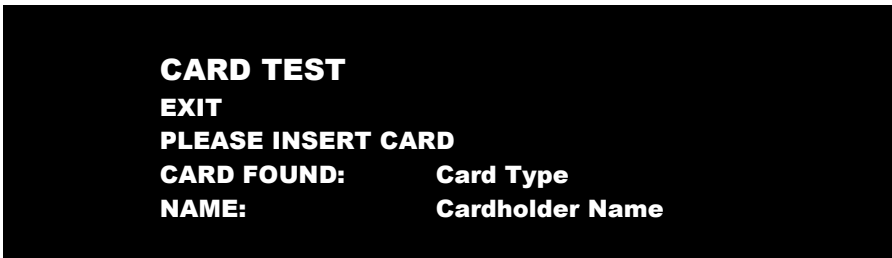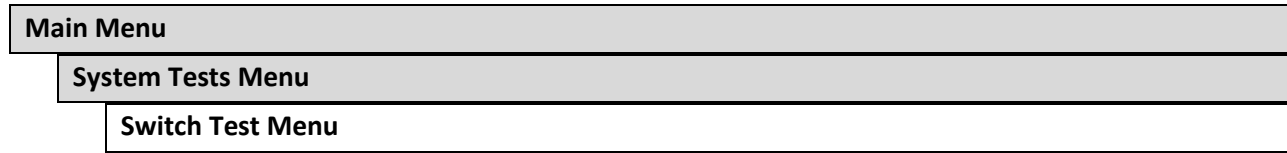
>> Switch Test Menu

This checks input switch performance. The activated switch is highlighted on screen.

SWITCH TEST

COIN1	COIN2
START 1	START 2
VOLUME DOWN	VOLUME UP
TEST	BILL
TRIGGER1	TRIGGER2
RELOAD1	RELOAD2
GRENADE1	GRENADE2
SERVICE	
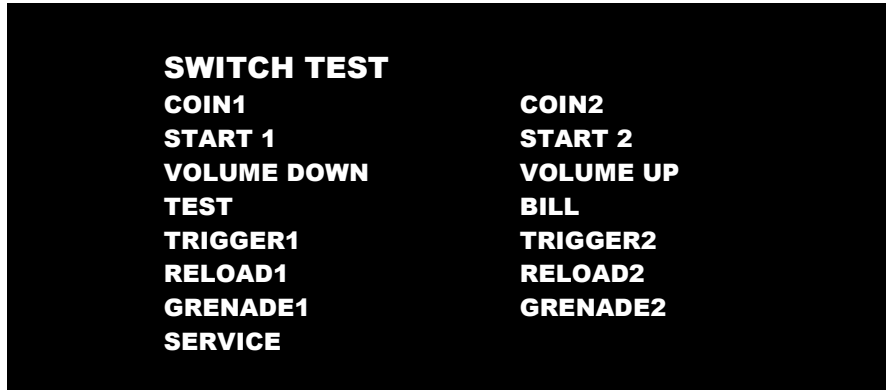
The Switch Test menu has a unique exit procedure because it checks the switches normally used for navigation. To exit to the main menu, simultaneously press a Start button and squeeze a trigger.

Main Menu

>> System Tests Menu

>> Screen Tests Menu

SCREEN TESTS
EXIT
COLOR ADJUSTMENT
SCREEN ADJUSTMENT
COLOR SCREENS

Main Menu

System Tests Menu

Screen Tests Menu

Color Adjustment
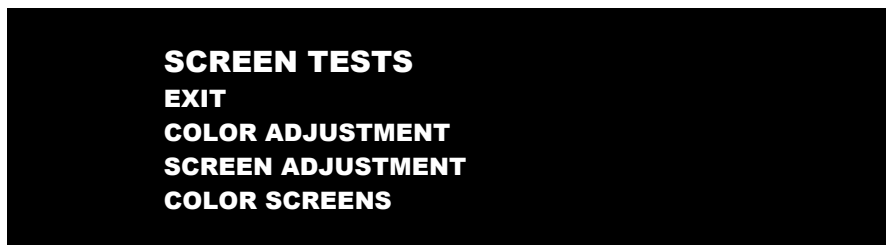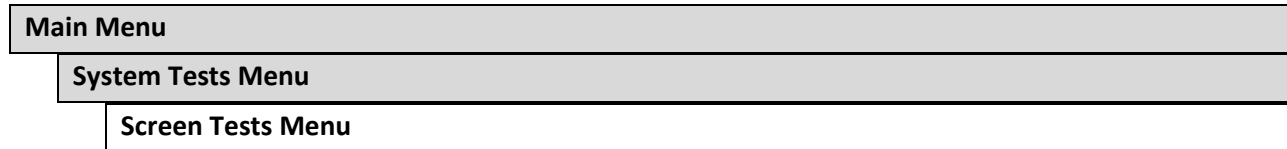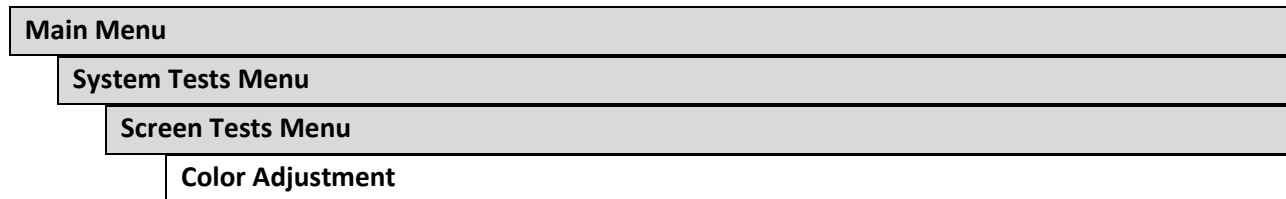
This color bar screen of gray, yellow, cyan, green, magenta, red and blue helps identify missing colors. Missing color bars may indicate bad video RAM in the PC, or a problem with the monitor.

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)
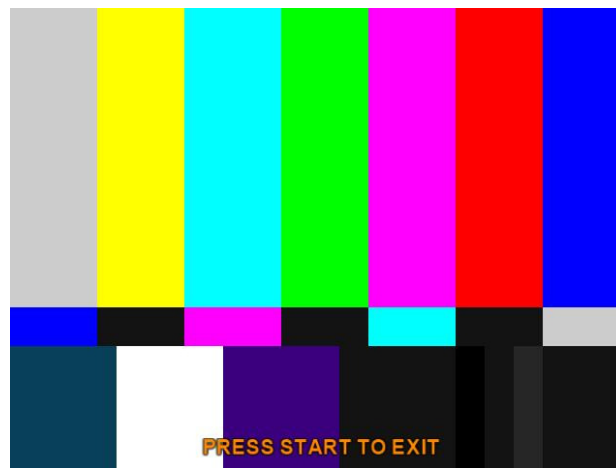
Main Menu

   System Tests Menu

      Screen Tests Menu

         Screen Adjustment Menu

This crosshatch screen adjusts width and height, static convergence and purity, brightness and focus.

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.

ADJUST GRID | TO FIT SCREEN

PRESS START | TO EXIT
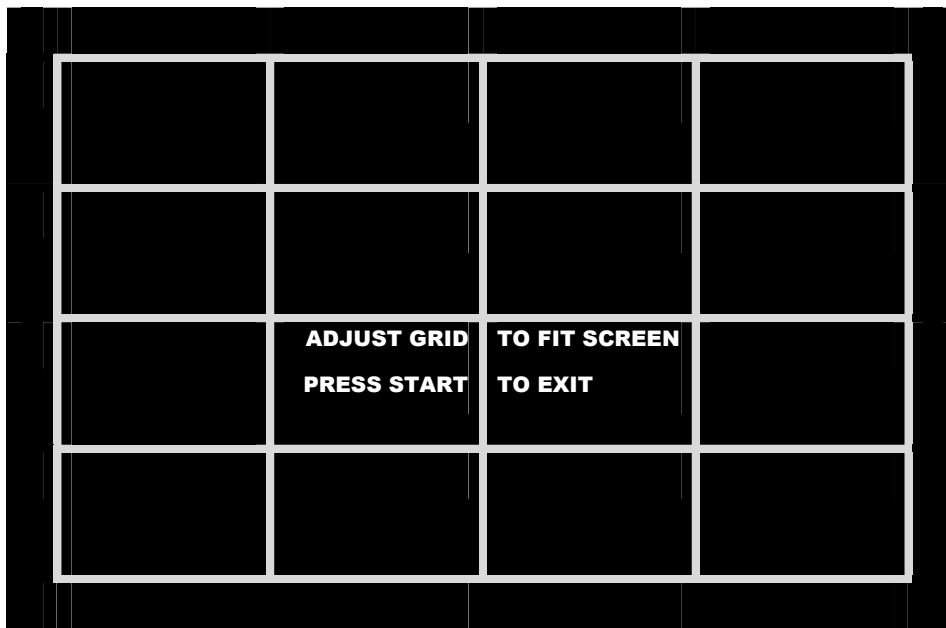
Main Menu

   System Tests Menu

      Screen Tests Menu

         Color Screens

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.

Terminator Salvation™ 42" Fixed Gun Game

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
LEFT CHANNEL
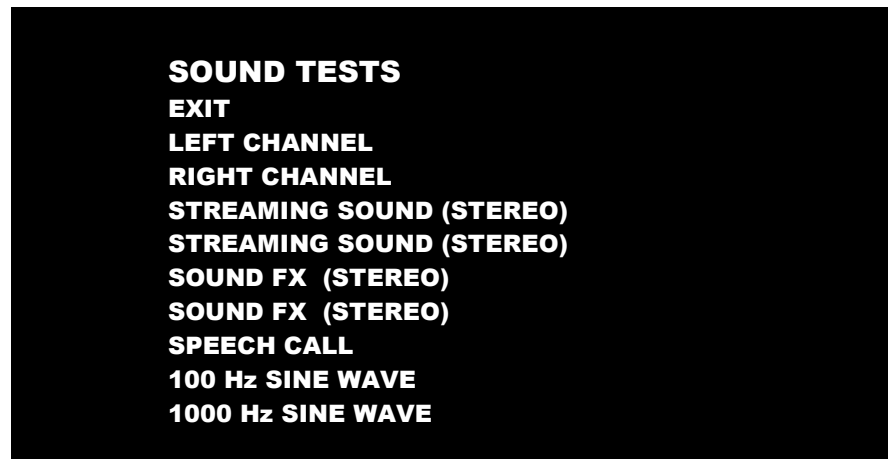RIGHT CHANNEL
STREAMING SOUND (STEREO)
STREAMING SOUND (STEREO)
SOUND FX (STEREO)
SOUND FX (STEREO)
SPEECH CALL
100 Hz SINE WAVE
1000 Hz SINE WAVE

- LEFT CHANNEL AND RIGHT CHANNEL play a gunshot on each speaker.
- The first and second STREAMING SOUND plays a background music track.
- The first and second SOUND FX plays a sound affect.
- SPEECH CALL plays a vocal line.
- 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 five different cabinet light lines on and off, cycling through left and right start buttons, the left and right holsters and the T-600 eyes with subwoofer.

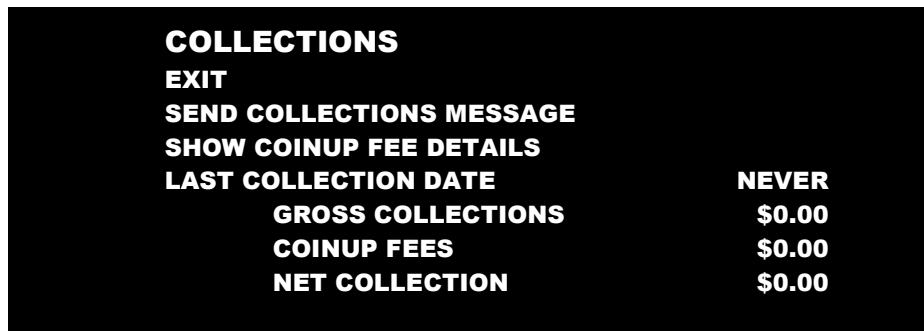| Main Menu |
|---|

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. If the test succeeds, the game resets normally. If the test fails, the reset process loops or ends abnormally. See the Troubleshooting Chapter to diagnose and correct this problem.

If the watchdog is disabled, the countdown will finish with no result.

Main Menu

Collections

```
COLLECTIONS
EXIT
SEND COLLECTIONS MESSAGE
SHOW COINUP FEE DETAILS
LAST COLLECTION DATE              NEVER
        GROSS COLLECTIONS        $0.00
        COINUP FEES              $0.00
        NET COLLECTION           $0.00
```

Send Collections Message contacts the server and delivers the latest collections information, zeroing out local coin data.

Show Coinup Fee Details shows costs related to advertising, communications and upgrades.

Gross Collection is the total amount of money the game has earned since last collection.

CoinUp Fees should match total from CoinUp Fee details.

Net Collection is Gross minus Fees.

Main Menu

View Log Menu

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

Maintenance

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 RIO board has power. If not, see Troubleshooting.
2. Open the Coin door.
3. Open the PC DVD-ROM tray by reaching back to the PC and pressing the Open/Close button on the drive bay.
4. Insert the first of two restore DVDs (labeled *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. Recovery begins automatically when PC boots up.
9. If recovery does not begin, check to ensure disc is inserted correctly and is not damaged.
10. Initial software loading may take several minutes. Check progress periodically.
    Do not interrupt power or reset the game during recovery.
11. At some point, the game will eject *Disc 1* and prompt you to insert *Disc 2*.
    Swap discs and close the tray.
12. When software has been loaded, a message indicates that restore is complete. When instructed to remove *Disc 2*, open DVD-ROM drive tray and remove *Disc 2*.
13. Turn cabinet power switch off.
14. After 30 seconds, turn cabinet power switch on.
15. Game will reboot and enter calibration mode.
16. Re-calibrate guns.

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.

Feature	Set to
Standard CMOS Feaures > 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.

Terminator Salvation™ 42" Fixed Gun Game

Opening the Gun Case

Open the gun case to service the trigger, buttons, and coil assembly. You do not need to open the case to service the pots that aim the gun.

1   To open the gun case, first remove the 12 Torx security screws shown by the single arrows in the picture below, and remove the corresponding nuts from the other side of the gun.
2   Remove the four screws shown by the double arrows in the picture below. These screw into the frame, so there are no nuts to remove.
3   Carefully remove the left side cover from the gun, being careful not to pull the wires from the grenade button on the cover. The wires are long enough that you can set the cover on the control panel near the gun without disconnecting the wires.
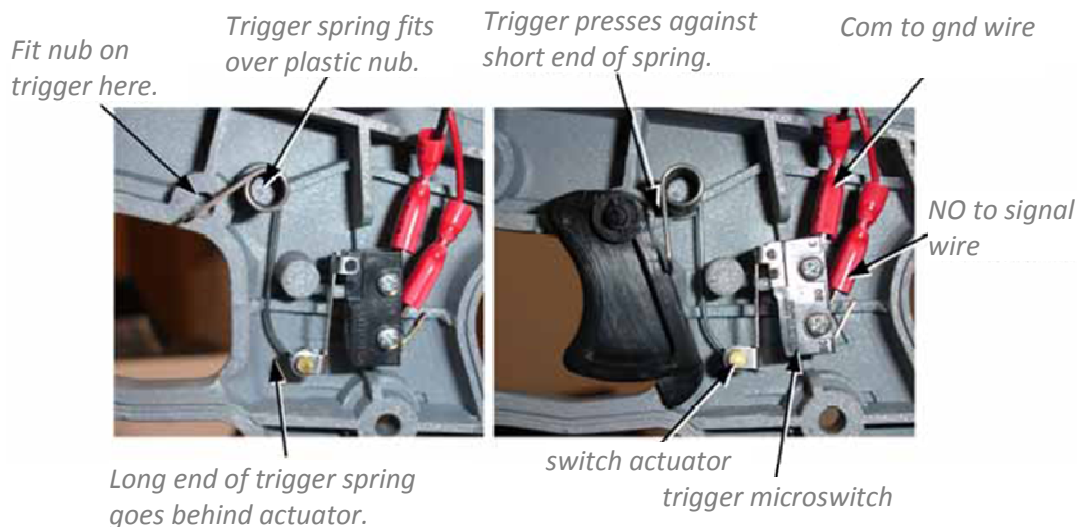

Closing the Gun Case

1   To close the gun case, first align the slots that fit around the gun PCB (with the LED display), and then carefully put the two halves together. Make sure no wires or components get caught or pinched. Pay special attention to the area around the trigger and spring, the wires coming out of the frame shaft, and the wires attached to the coil and barrel light.
2   Insert the four (4) 3/8" x 10-32 screws shown with the double arrows. Partially tighten all four screws, verify the case is mating properly, and then tighten the screws snugly.
3   Check the trigger to make sure it works properly. The trigger or spring could shift while you are assembling the case.
4   Replace the remaining 8-32 screws and nuts, shown by the single arrows above, and tighten snugly. The screw at the top of the muzzle end is 3/4" long, and the two screws in the handle are 1" long, as shown above. All of the other screws are 1 ¼" long.

Gun Trigger Service

To replace the trigger spring, refer to the picture below for its placement in the gun housing.

1. Install the plastic trigger so it presses against the spring, and the bottom part of the trigger will press the switch actuator when a player pulls the trigger.
2. To replace the micro switch, remove the two screws that secure the switch in place. Remove the two wires and install them on the same terminals on the replacement switch.
3. Connect the signal wire to the NO connector (middle connector) and the black ground wire to the C connector.

Fit nub on trigger here.   *Trigger spring fits over plastic nub.*   *Trigger presses against short end of spring.*   *Com to gnd wire*

NO to signal wire

Long end of trigger spring goes behind actuator.   *switch actuator*   *trigger microswitch*

Trigger Mechanics and Wiring

Gun Button Service

These instructions explain service for components of the lighted buttons.

1. If you replace a button micro switch, connect the signal wire to the NO (middle) connector and the black ground wire to the C connector. Failure to do so will cause the button to not work.

2. To replace the LED bulb, pull the lamp assembly straight out of the button housing, and then pull the bulb straight out of the lamp housing. The two lamp wires are interchangeable and can connect to either terminal on the lamp housing.

Gun Coil Assembly Service

The coil assembly provides the force-feedback recoil when the gun is fired. Perform the following steps to replace components of the coil assembly:
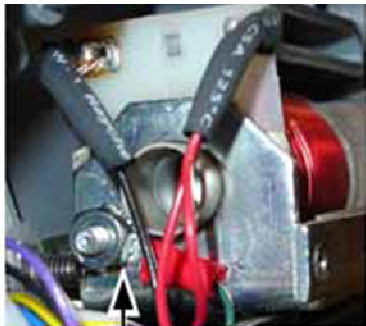
1. Open the gun case as described earlier.

2 Remove the two screws shown below from the right side of the gun.

Two Screws on Right Side of Gun

3 Remove the nut that secures the ground wire to the ground lug on the side of the coil assembly mounting plate, as shown below.
4 Remove the two screws that secure the coil assembly mounting plate to the gun shaft, as shown below.

ground wire to ground lug
NOTE: You must reconnect this wire.

coil assembly mounting screws

Coil Assembly in Gun

5 Reverse the steps to re-install the coin assembly. Be sure to secure the ground wire to the ground lug on the coil assembly mounting plate.

Gun Pot and Gear Service

Each gun has two pots that measure the movement of the gun on the X-axis (left and right) and Y-axis (up and down). The X-axis pot is located under the gun base below the trigger. The Y-axis pot is located on the side of the gun base below the reload button.

Use the Gun Test & Calibrate screen from System Tests in the Operator menu to test gun motion. To test a pot, power off the game and test resistance at the pot. When you move the gun, you should see a steady linear increase or decrease in resistance, with no jumps. Replace the gears if they are worn or cracked.

Perform the following steps to replace a pot or gear shaft:

1   Remove the six (6) Torx security screws that secure the front and rear covers over the gun base, and remove the covers.
2   Remove the two mounting nuts and remove the metal mounting plate from the pot to be replaced.
3   Use an Allen wrench to loosen the set screw from the gear shaft, and remove the gear shaft.
4   Using a 1/2" wrench, remove the nut and lock washer that secure the pot to the frame.
5   De-solder the wires from the pot and solder them on the same terminals on the replacement pot.
6   Install the new 5KΩ pot with the same orientation. Make sure that the plastic keys on the pot mate properly with the metal.
7   Re-install the lock washer and nut, being careful not to over-tighten.
8   Re-install the gear shaft and tighten the set screw.
9   Calibrate the gun using the Gun Test & Calibrate screen from System Tests in the Operator menu after replacing a pot.
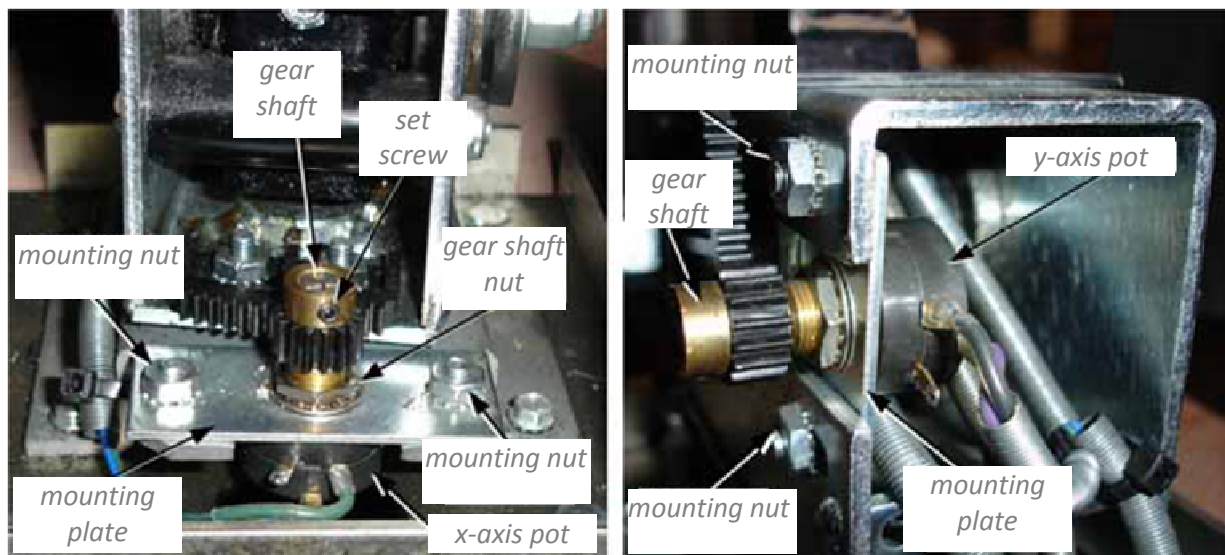
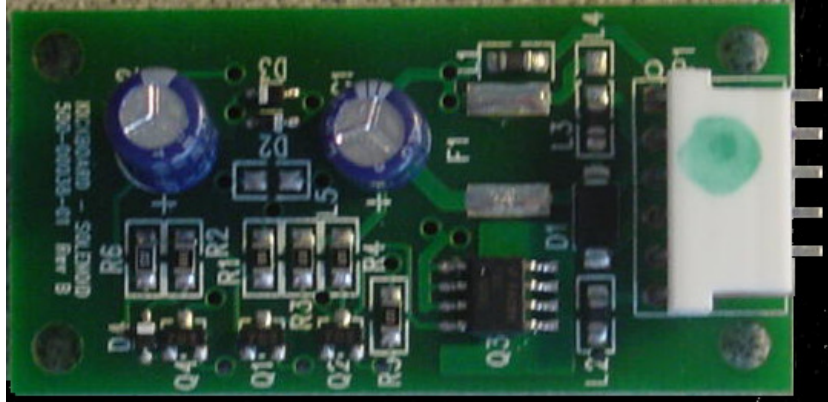

Gun Gears and Pots

Gun PCB

The gun driver board is mounted remotely in the cabinet and controls the voltage to the gun coil. There is one for each gun.

POTENTIAL PCB DAMAGE
Disconnect the cabinet from AC power before making any connections to the gun PCB. Hot-plugging any connector will damage the PCB.

Gun Driver Board

Start Button Service

The Start buttons for each player are illuminated with 12-volt lamps. Perform the following steps to replace the buttons, lamps, and micro switches:

1   Disconnect the cabinet from AC power.
2   Open the coin door and reach up under the control panel to access the buttons.
3   To remove a micro switch, gently rock it to the side and remove it from the housing. Remove the wires and install them on the same connectors on the new micro switch.
4   To remove the lamp housing, gently rock the white plastic housing from side to side to pop it out of the button housing.
5   To remove the button from the control panel, unscrew the retaining ring from under the control panel.
6   To remove a lamp from the housing for replacement, pull it straight out of the lamp housing.
7   When connecting the wiring to the micro switch and lamp, refer to the labels on the wires and the image below to make sure the connections are correct.

MICROSWITCH CONNECTION
Do not connect the 12-volt lamp power wire to the micro switch. This could damage the BVRI/O PCB.

8   Reverse these steps to install the replacement button and micro switch. Connect the ground wire to the COM connector on the bottom of the switch housing, and the signal

NO signal wire

COM signal wire

switch actuator

lamp connector
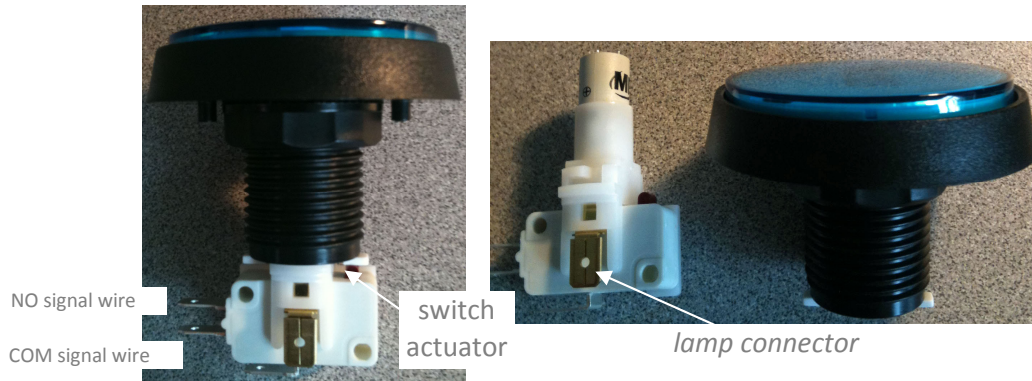
Assembled button (left) and disassembled button (right)

Marquee Florescent Light Service

The marquee is lit by a florescent fixture. To gain access to the marquee fixture, remove the three (3) wood screws and five (5) nuts with washers from the back of the marquee, and then remove the marquee front with the artwork and clear plastic.

Replace the florescent tube with another 18" florescent tube.

To remove the fixture, disconnect the cabinet from AC power. Disconnect the AC power cord from the fixture. Remove the two Phillips screws that secure the fixture to the cabinet and remove the fixture.

# Cold-Cathode Fluorescent Light Service

The cold-cathode florescent lighting is used to add dramatic lighting effects to the cabinet.

Note: If both lights in a set fail, make sure the power connector is firmly attached to the power inverter. Connect the lights to another power inverter to test them. Replace the power inverter if faulty; it is held in place with Velcro and/or cable ties.

| Light Location	Size and Qty	Changing Tube(s)	Inverter Location
Kick Panel	One 12" red tube	Remove the four screws that secure the instruction panel in place.	Cabinet floor
Area below guns	Two 6" red LEDs; one below each gun		Beneath gun mounts
Speaker	One 12" tube	Remove the four screws that secure the instruction panel in place.	Inside cabinet on side wall
Marquee	18" traditional fluorescent	Remove three screws and five nuts with washers, then the marquee front	
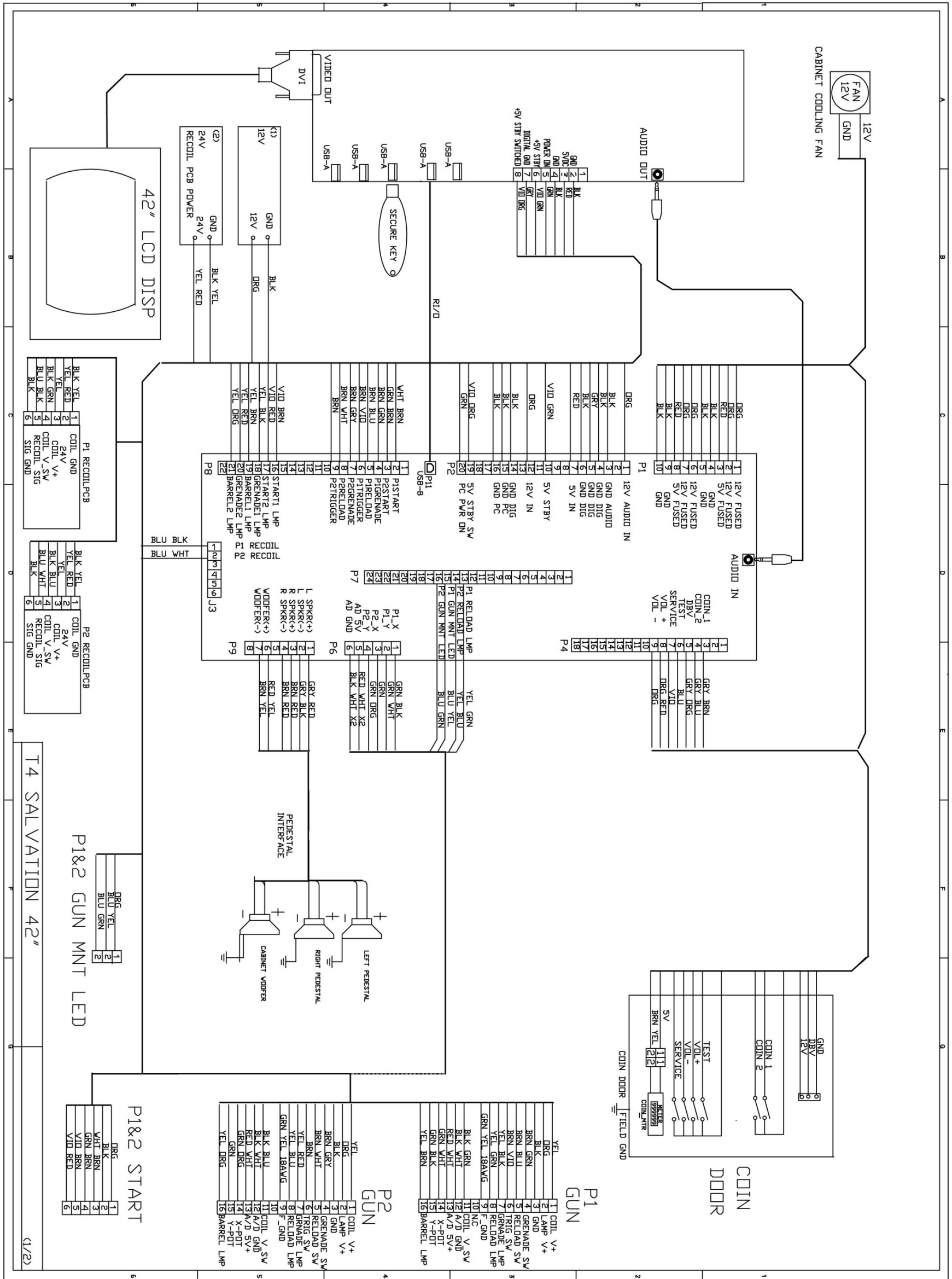
Cabinet Wiring

Gun Parts and Wiring

Exploded Cabinet
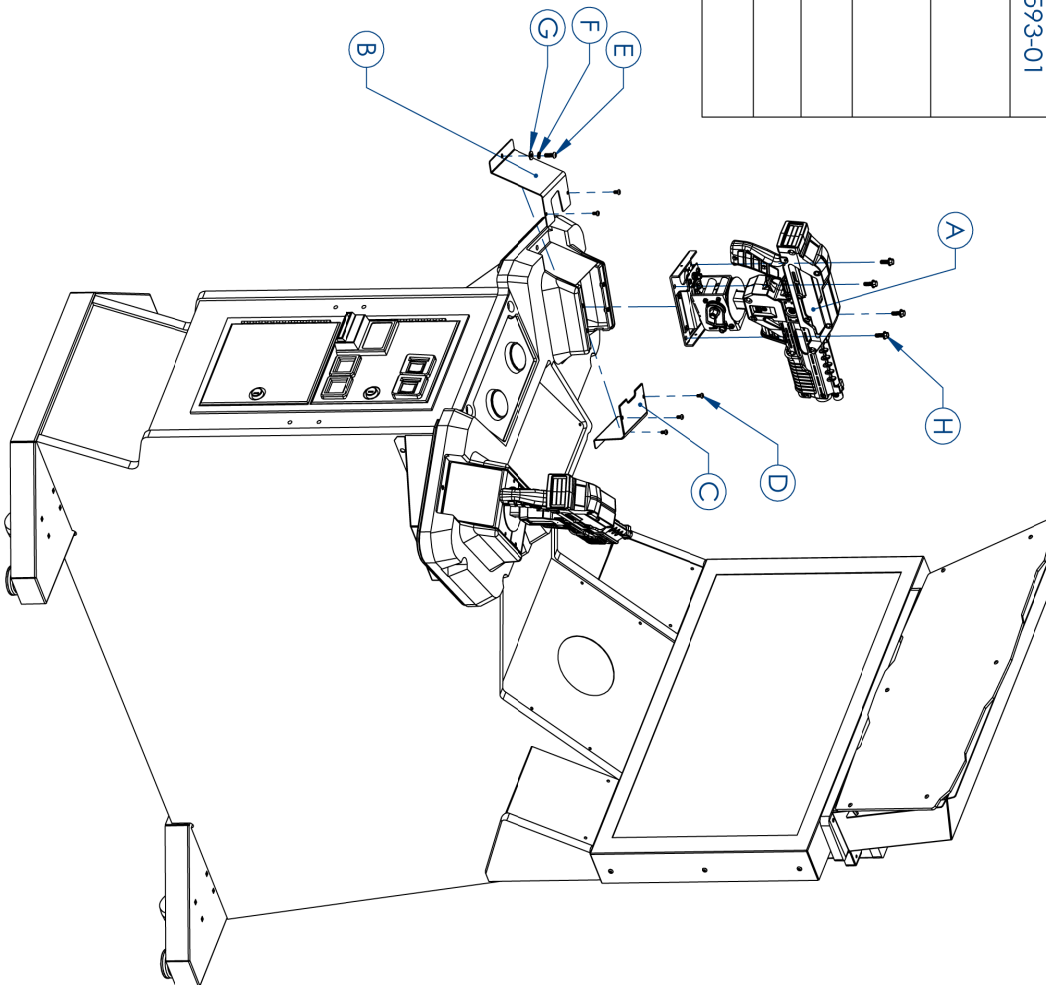
LETTER	PART NAME	PART NO.
A	MARQUEE FRAME	600-00591-01
B	18" FLUORESCENT BULB – 15W	
C	STARTER FS-2	
D	FLUORESCENT FIXTURE COVER	
E	MARQUEE	600-00576-01
F	#8-32 x 1/2" BLACK BUTTON HEAD P.I.T. SCREW (QTY 6)	
G	#1/4-20 x 1.25" BLACK BUTTON HEAD P.I.T. SCREW (QTY 3)	
H	LCD	
I	#6-32 X 3/8" PAN HEAD PHILIPS SCREW (QTY 6)	
J	TEMPERED GLASS 18" X 30.5" X 3/16"	600-00584-01
K	FRONT BEZEL	600-00581-01
L	#10-32 x 3/8" BLACK BUTTON HEAD P.I.T. SCREW (QTY 6)	
M	#1/4-20 X 1" BLACK BUTTON HEAD P.I.T. SCREW (QTY 4)	
N	1/4" BLACK SPLIT LOCKWASHER (QTY 7)	
O	1/4" BLACK WASHER (QTY 7)	
P	#8 x 3/4" BLACK BUTTON HEAD T.I.P. SCREW (QTY 4)	
Q	WOOFER GRILL	600-00585-01
R	6.5" WOOFER SPEAKER 4 OHMS	
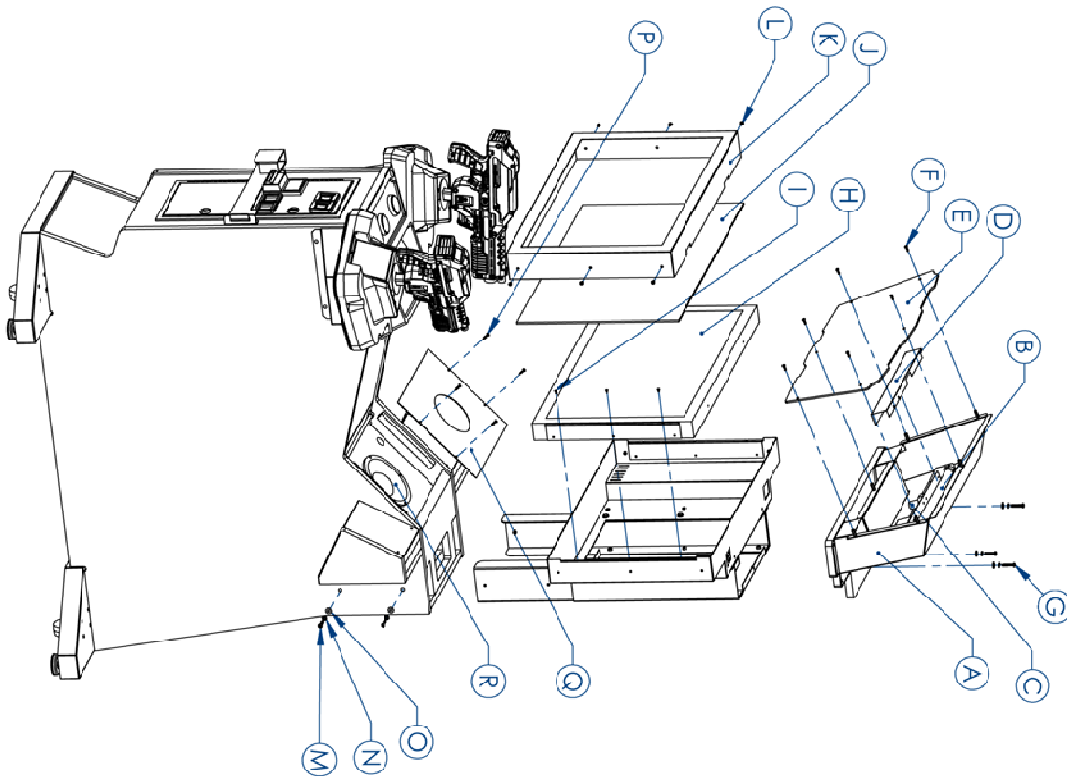
Gun Mounting

LETTER	PART NAME	PART NUMBER
A	GUN	820-00013-00
B	FRONT GUN SHROUD RIGHT / LEFT	600-00606-01 / 600-00607-01
C	REAR GUN SHROUD	600-00593-01
D	#8-32 x 1/2" (QTY 5) BLACK BUTTONHEAD P.I.T. SCREW	
E	#1/4-20 X 3/4" BLACK BUTTON HEAD P.I.T. SCREW	
F	1/4 BLACK SPLIT LOCKWASHER	
G	1/4" BLACK WASHER	
H	#1/4-20 X 3/4 (QTY 4) HEX HEAD WITH KEPS	

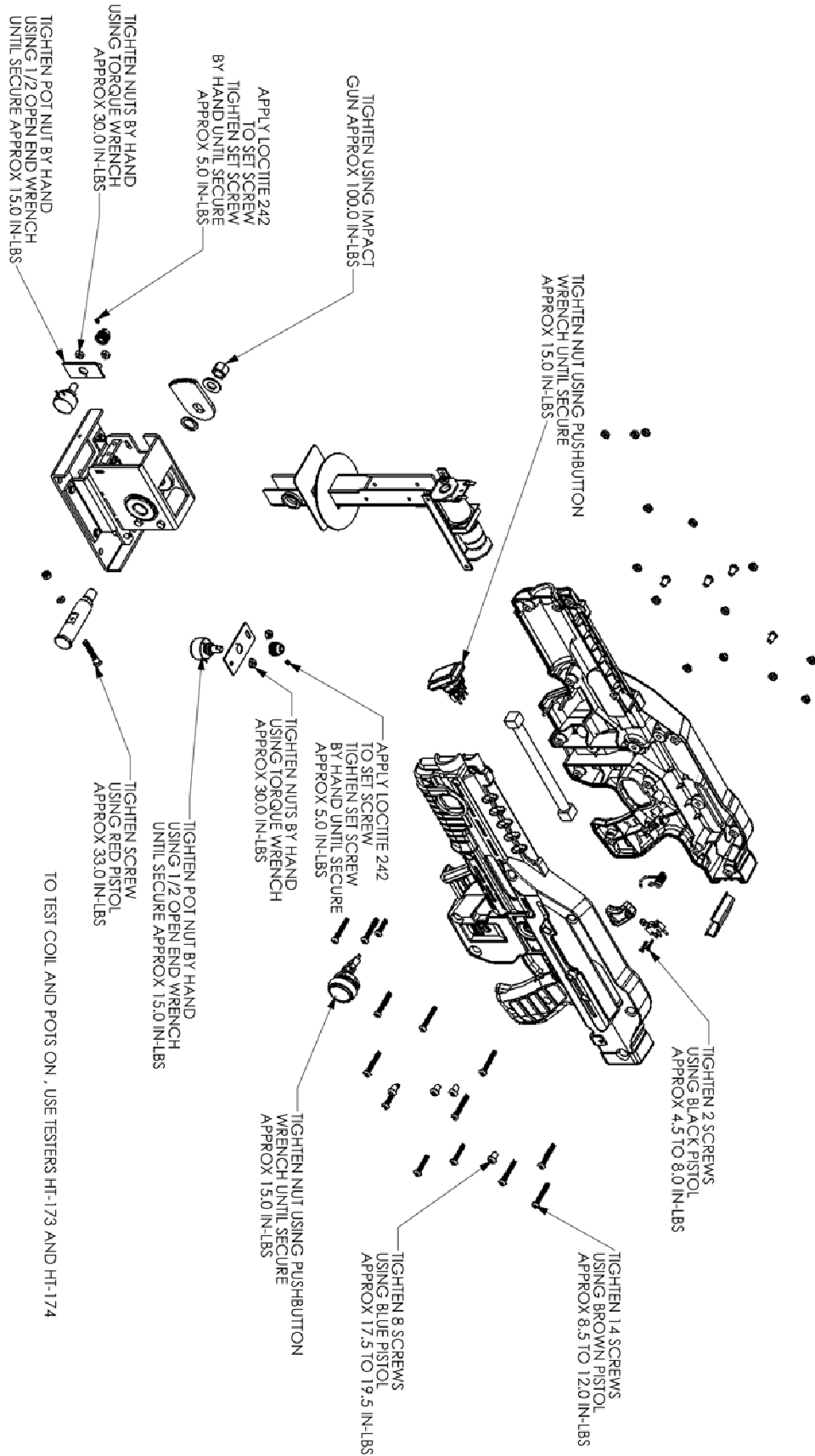| ITEM	QTY.	PART NO.	DESCRIPTION
1	1	96-0853-30	BOTTOM AND BASE BRKT SUBASSY WITH BUMPER F/T4 DELUXE
2	1	96-0854-30	BRKT SUBASSY w/HANDLE & MTG BRKT, COIL, PADS T4 DELUXE
3	1	96-4923-00	SHAFT 5/8 DIA
4	1	96-4907-00	GEAR SEGMENT w/HUB
5	1	96-4960-00	SPACER SEGMENT GEAR
6	5	43-0082-00	NUT, KEPS 8-32
7	5	43-0003-00	3/8 SAE FLAT WASHER ZNC PLTD
8	1	43-0092-00	NUT 3/8-16 NYLOCK
9	2	43-0037-00	LOCKWASHER, EXT #10
10	1	43-9263-00	NUT HEX 10-32 JAM NYLOCK ZINC PLATED
11	1	96-4904-00	BRACKET POT MTG HORIZONTAL
12	1	96-4913-00	BRKT POT MTG VERTICAL
13	2	96-4916-00	LONG LIFE POT w/NUT & WSHR 5K
14	1	96-1084-00	LEFT GUN HALF F/RAW THRLLS T4 DELUXE
15	1	96-1083-00	RIGHT GUN HALF F/RAW THRLLS T4 RIFLE
16	1	95-4142-00	SWITCH ASSY BALL DEFECT
17	1	75V-L0112-20	IPB W/SUB MIN SW SM CIR RED RD CAP DB MS 12V WHT LED LAMP
18	1	96-2515-06	TRIGGER BLACK NEW STYLE
19	1	96-0005-00	SPRING, TRIGGER RETURN
20	1	77-2NLO-577	VLT BUTTON REC AMBER NO LED
21	1	43-0280-00	HEX HEAD CAP SCREW 10-32 X 1-1/4
22	11	43-2327-00	SCREW 8-32 X 1-1/4 BHMS TORX TP BLACK OXIDE
23	8	96-2516-00	SCREW, 10-32 X 3/8 B.H. TORX 1-20 T, PRF
24	14	43-0264-00	NUT 8-32 HEX NYLOCK BLACK
25	2	4008-01100-12	SCREW 8-32 X 3/4 BHMS TORX
26	2	96-0099-00	SCREW, 8-32 x 1" BHMS TORX
27	2	43-0172-00	SCREW, # 2 X 1/2 TYPE B, PPH
28	1	96-0831-10	COVER F/RAW THRLLS T4 DELUXE
29	2	96-4917-01	GEAR 32DP 16T .25 BORE .5 LONG
30	2	43-0011-00	SET SCREW 6-32 X 3/16 CUP POINT
31	1	96-1080-10	LED LIGHT TUBE F/RAW THRLLS T4 DELUXE W/CONN

NOT SHOWN:

1.) 96-1081-00 - MAIN HARNESS, QTY 1
2.) 90-1013-00 - TIE WRAP 4", QTY. 10
3.) 43-01127-00 - TIE PLATE, QTY. 1
4.) 96-0703-01 - SHRINK TUBING 1/8, QTY. 6
5.) 96-0078-01 - TUBING HEAT SHRINK 3/16 X 3/4, QTY. 2

Terminator Salvation™ 42" Fixed Gun Game

TIGHTEN POT NUT BY HAND
USING 1/2 OPEN END WRENCH
UNTIL SECURE APPROX 15.0 IN-LBS

TIGHTEN NUTS BY HAND
USING TORQUE WRENCH
APPROX 30.0 IN-LBS

APPLY LOCTITE 242
TO SET SCREW
TIGHTEN SET SCREW
BY HAND UNTIL SECURE
APPROX 5.0 IN-LBS

TIGHTEN USING IMPACT
GUN APPROX 100.0 IN-LBS

TIGHTEN NUT USING PUSHBUTTON
WRENCH UNTIL SECURE
APPROX 15.0 IN-LBS

TIGHTEN POT NUT BY HAND
USING 1/2 OPEN END WRENCH
UNTIL SECURE APPROX 15.0 IN-LBS

TIGHTEN SCREW
USING RED PISTOL
APPROX 33.0 IN-LBS

TIGHTEN NUTS BY HAND
USING TORQUE WRENCH
APPROX 30.0 IN-LBS

APPLY LOCTITE 242
TO SET SCREW
TIGHTEN SET SCREW
BY HAND UNTIL SECURE
APPROX 5.0 IN-LBS

TO TEST COIL AND POTS ON , USE TESTERS HT-173 AND HT-174

TIGHTEN NUT USING PUSHBUTTON
WRENCH UNTIL SECURE
APPROX 15.0 IN-LBS

TIGHTEN 8 SCREWS
USING BLUE PISTOL
APPROX 17.5 TO 19.5 IN-LBS

TIGHTEN 14 SCREWS
USING BROWN PISTOL
APPROX 8.5 TO 12.0 IN-LBS

TIGHTEN 2 SCREWS
USING BLACK PISTOL
APPROX 4.5 TO 8.0 IN-LBS

Gun Wiring

P1 PIN-OUT

PIN	COLOR	GAUGE	FUNCTION
1	RED0	22 AWG	COIL V+
2	YEL1	22 AWG	LAMP 12V
3	BLK1	22 AWG	GND
4	PUR	22 AWG	GRENADE
5	BRN	22 AWG	RELOAD SW
6	WHT/BLK	22 AWG	GRENADE SW
7	GRN	22 AWG	TRIGGER
8	RED/WHT	22 AWG	GRENADE LMP
9	GRN/YEL1	22 AWG	RELOAD LMP
10	N/C	-	RELOAD GND
11	DRG	22 AWG	COIL SIG
12	BLK2	22 AWG	GND
13	RED2	22 AWG	5V
14	RED3	22 AWG	5V
15	BLU	22 AWG	X-POT
16	WHT	22 AWG	BARREL LMP

MATERIAL LIST

CONNECTOR	MFG	DESCRIPTION	MFG P/N
P1	MOLEX	16 POS. MINIFIT JR. RECEPTACLE HOUSING, V-2 MAT.	39-01-2160
P2, P3	MOLEX	TERMINAL, FEMALE, TIN, 18-24 AWG	39-00-0038
P4-P10, P12-P14	MOLEX	RING TERMINAL, #6 STUD, 18-22 AWG	19073-0038
	MOLEX	QC FEMALE TERM FOR .110 X .020 TAB, 18-22 AWG	19003-0097
P11	MOLEX	2 POS. MINIFIT JR. RECEPTACLE HOUSING, V-2 MAT.	39-01-2020
	MOLEX	TERMINAL, FEMALE, TIN, 18-24 AWG	39-00-0038

P11 PIN-OUT

PIN	COLOR	GAUGE	FUNCTION
1	YEL2	22 AWG	LAMP 12V
2	WHT	22 AWG	BARREL LMP

NOTES:
1) UNLESS OTHERWISE NOTED, ALL WIRES ARE 22AWG, STRANDED, UL TYPE 1007, 300V, VW-1, 80 DEG C, PVC INSULATION
2) TIE WRAPS TO BE ADDED AT BREAKOUTS, SPECIFIC LOCATIONS AS INDICATED BY DOTS, AND EVERY 3" TO 4" AS NEEDED
3) SPRING WIRE PROTECTOR - MATERIAL: 0.023" DIAMETER, TINNED, HARD DRAWN, PRE-PLATED, 0.21 O.D., 0.165 I.D.
4) ALL UNTERMINATED WIRE ENDS TO BE STRIPPED 3/16" AND TINNED
5) ALL CONNECTOR MATERIALS PER MATERIAL LIST TABLE, OR APPROVED EQUIVALENT
6) ASSEMBLY MUST COMPLY WITH EU DIRECTIVE 2002/95/EC (ROHS)
7) ALL MEASUREMENTS ARE BETWEEN DOTS

SPRING MATERIAL FOR WIRE PROTECTION (5 PLCS) - SEE NOTE 3

ADD CABLE TIES TO HOLD SPRINGS IN PLACE (7 PLCS)

Troubleshooting

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

Problem	Possible Cause	Solution
Game will not power up.	Game not plugged in	Plug game into AC outlet.
	Game not turned on	Turn on main power switch.
	Game fuse is blown.	Check and replace fuse.
	No power to receptacle	Test AC outlet and plug game into powered outlet.
	PC not turned on.	Turn PC power switch on. Ensure IEC cable tightly plugged in. Trace cable back to source to ensure continuity.
	PC BIOS set incorrectly.	See BIOS Settings chapter.

Problem	Possible Cause	Solution
Scrambled or scrolling display	Sync polarity incorrect.	Change DIP switch settings for HSYNC and VSYNC.

Problem	Possible Cause	Solution
Buttons do not work	Faulty micro switch	Replace the micro switch on the button and re-test. Verify that the wires are connected to the correct spades on the micro switch
	Faulty wiring	Disconnect the cabinet from AC power. Verify that all wires are firmly connected to each button and the PCB. Verify that no wires are frayed or improperly shorting to ground. Verify that wires are connected to the correct spades on the micro switches.
	Faulty PCB	Ensure all connections to PCB are secure. Replace PCB if faulty.

Problem	Possible Cause	Solution
Neither buttons nor audio work	PCB connected to faulty USB port (boot message may indicate not detected)	To test a USB port, turn off the game, disconnect the device from the port, and then connect the game dongle to the port. Reboot the game. A No Dongle message indicates the port is bad. If the game starts, the port is working. After the test, reconnect all devices to the correct USB ports and reboot.

Problem	Possible Cause	Solution
No sound or bad sound	Bad connection	Check connection to speakers.
	Volume set too low	Use VOL UP button on Test panel to raise volume

	Faulty wiring	Verify all wires are firmly connected to the speakers, PCB, and green computer audio port. Verify that each wire is connected to the correct port and no wires are frayed or improperly shorting to ground.
	Blown speakers	Remove the grill and inspect each speaker for visible damage. Run the Sound Test from System Tests in the Operator Menu to verify each speaker is working.
	Reversed wires	A weak or low muffled sound is a sign of reversed speaker wires. Check for reversed wires on each speaker.
	Faulty PCB	To verify audio is working at the computer, connect stereo headphones to the green computer audio port.

Constant low audio hum	Faulty power supply	Check external DC supply and the PC supply.
	Open ground	Check all ground wires in cabinet. Ensure AC wall outlet is properly grounded

Cold cathode tubes flicker or fail to light.	Bad connection	Check for snug connection at inverter or under topper bracket.
	Loose end caps	Tighten end caps.

Problem	Possible Cause	Solution
Game does not load.	Hard drive failure	Recover hard drive.
Hard drive test reports "bad" or "missing" files.		
Game fails to finish loading.		See Hard Drive Recovery procedure in Maintenance section.
After resetting, game still reports an error.		
Game suggests inserting a boot DVD.		
Erratic game mode or attract mode.		
WARNING! Data Files Corrupted. (Game Operation May Become Unstable.) Use "Test" Switch to Enter Test Mode and Run "File Test." Press Start To Continue.		
Game resets.	Bad file.	Run File Test. Restore hard drive.

Terminator Salvation™ 42" Fixed Gun Game

Coin meter does not click during Test.	No pulse to meter	Check wiring from meter to RIO board
	Faulty meter	Replace coin meter

Improper number of credits given when coins or bills are inserted	Incorrect setting in Adjustments	Adjust settings
	Faulty wiring	Disconnect cabinet from AC power. Verify wires are firmly connected to coin mech and bill validator and ground wires are properly connected. Verify no wires are frayed or shorting to ground.
	Faulty coin mech	Verify coin mech is not jammed. Ensure coin mech is properly aligned and latched to coin door.

Coin meter does not work	Blown fuse(s) on PCB	Replace 5A fuse(s) on PCB

Exits Test Mode every 3 seconds	Test button stuck in ON position	Slide or toggle button off after Test Menu appears

NO VIDEO message	Video cables not plugged in properly	Reattach and tighten power and video cable to monitor.

No Signal	Video or power cable not secure	Check and secure cable.
	PC not turned on	Turn PC power switch on. Ensure IEC cable tightly plugged in. Trace cable back to source to ensure continuity.

Dongle Not Present	Dongle missing or disconnected	Find dongle cable and reseat in USB port
	Faulty USB port	Insert dongle cable in different USB port

Connect RIO Board or *RIO Board Missing*	USB cable disconnected	Check USB connection from PC to RIO board
	No power to RIO board	Check for proper voltage (+5V, +12V) at JAMMA connector

Watchdog Disabled or *Watchdog Failed*	Watchdog defeated by JAMMA I/O DIP switch	Set DIP switch 8 to OFF
	No power to Reset PCB	Connect power to Reset PCB
	Reset input to motherboard disconnected	Connect 2-pin reset connector from Reset PCB to motherboard reset pin input
	Violet or black wire from Reset PCB disconnected or faulty	Check reset wire connection to JAMMA connector.

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Gun Troubleshooting

Note: Do not replace or swap guns while power is on. Shut AC power off before connecting or disconnecting any components. Failure to do so may damage gun components.

Problem	Possible Cause	Solution
Guns won't register, or functions poorly	Faulty wiring	Verify that all wires are firmly connected and none are frayed or improperly shorting to ground.
	Disconnected USB or DC power	Check all power connections. If all gun lights are off, this indicates a problem with +12 VDC power.
	Blown fuse in gun power harness	Check the fuses (MDL 2A Slo Blo) in the gun power harness.
	Faulty power supply	Verify the external DC power supply is putting out the correct voltages.
A button or trigger does not work.	Faulty micro switch or wiring	Check micro switch inside gun. Check wiring. Ensure no wires are pinched in the gun case.
No force feedback recoil in gun	Faulty DC power supply	Ensure external DC power supply puts out +24 VDC.
	Faulty coil	Check wiring. Replace faulty coil.
Gun does not aim properly	Gun out of calibration	Calibrate gun
	Faulty pot or gear	Check gun pots and gears
No crosshairs visible during play but guns are functional	Check Shooting Mode adjustment	Verify selected shooting mode has gun sight
No lights on gun	Check +12 VDC power	Check wiring and ensure external DC power supply puts out +12 VDC
Fuses blow	Pinched wires	Ensure no wires are pinched by case
	Faulty power supply	Test voltage output and replace power supply if faulty

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® 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