

# FIRE & ICE X-TREME



**PLEASE READ FIRST BEFORE  
PLUGGING IN MACHINE**  
ALL RIGHT RESERVED. PAT. PENDING

098MAN-01-C

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## Fire & Ice X-Treme Game Play

The object of Fire & Ice X-Treme is to time the ball drop button press so that the 7 balls fall into slots on the wheel, choosing either red or blue slots by pushing either the red or the blue button to release the balls. Filling all 7 slots of your chosen color wins the progressive jackpot. Filling less than 7 slots of your chosen color pays out from 5-350 tickets depending on the number of slots filled. See table below for ticket payout.

Number of slots of chosen color filled	Tickets Dispensed
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1 slot of chosen color	250
2 slots of chosen color	5
3 slots of chosen color	15
4 slots of chosen color	20
5 slots of chosen color	100
6 slots of chosen color	350
7 slots of chosen color	Jackpot Value

### LED Lighting

The Fire & Ice X-Treme utilizes low voltage (12v) LED lighting throughout the game for general illumination and accents. The Fire & Ice X-Treme also has a secondary power supply that runs most of its LED lighting.

12v LED light



Secondary power supply

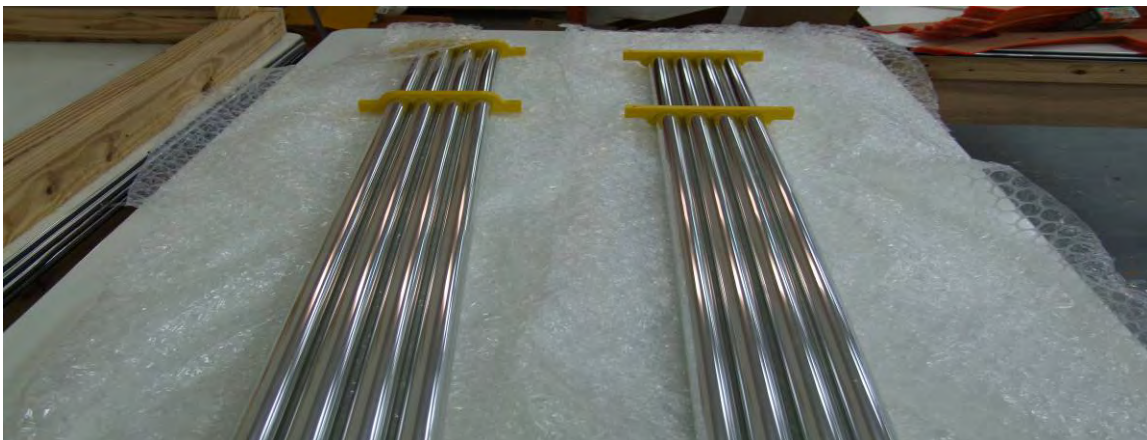




## Game Assembly



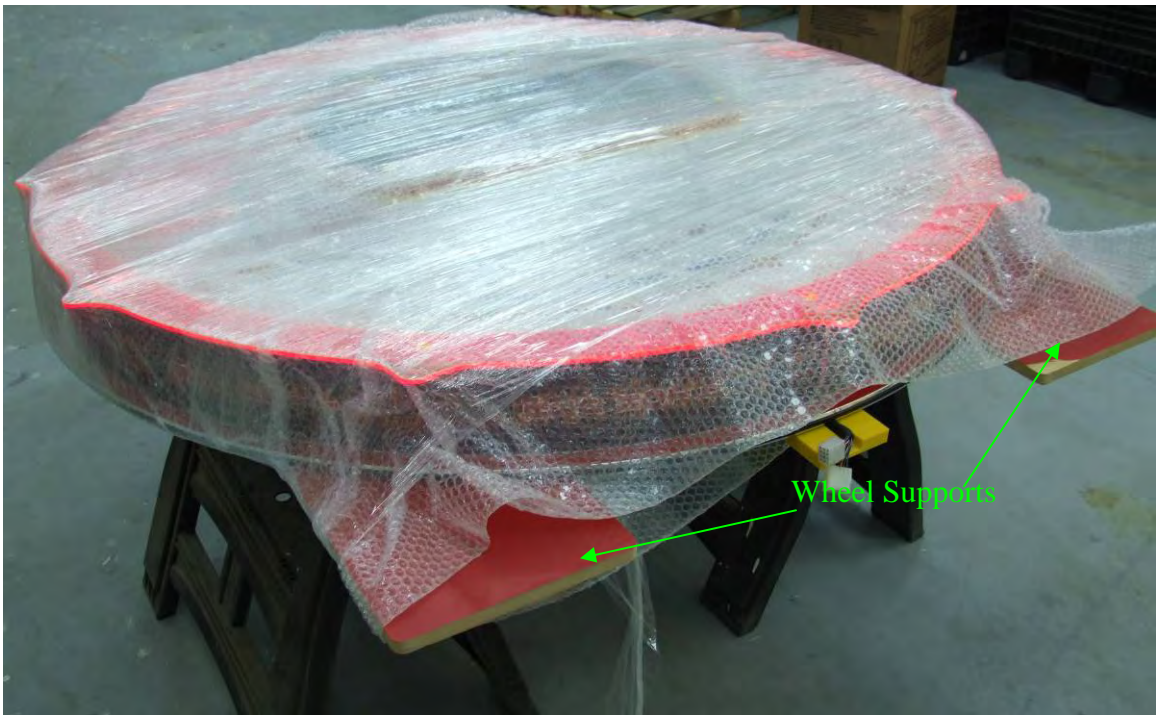
1. Cut the plastic and remove the support pipes boxes
2. Remove pipes from boxes



3. Remove the Fire & Ice X-treme Wheel from box (Wheel is very heavy)



4. Lay Wheel on back off the ground (Wheel is very heavy)



5. Remove Fire & Ice X-treme Wheel shipping supports, saving bolts. They will be used later to attach the wheel to the base.



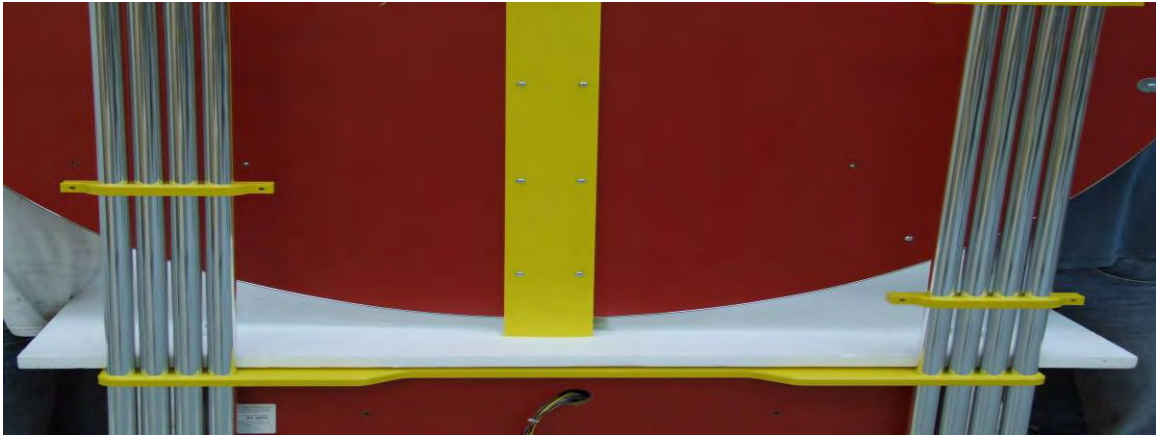
6. Remove Fire & Ice X-treme base from box.



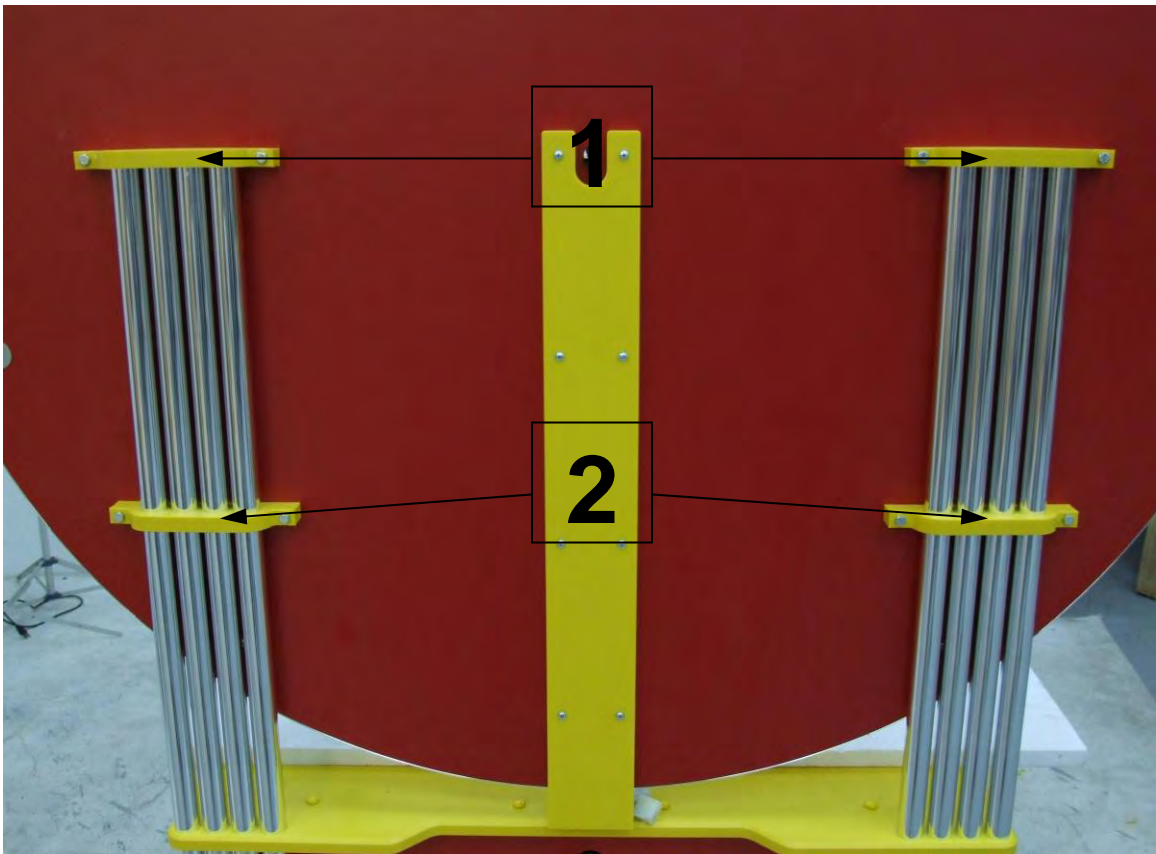
7. Slide wheel support pipes into Fire & Ice X-treme base



8. Place a piece of foam from the shipping box onto the Fire & Ice X-treme Base.



9. With two people, lift the Fire & Ice X-treme Wheel and place on foam against the support pipes hold it there.



10. Now attach the wheel to the support pipes with the bolts from the shipping supports, starting with the top.



11. Cut the plastic wrap holding the light strips so that they hang.

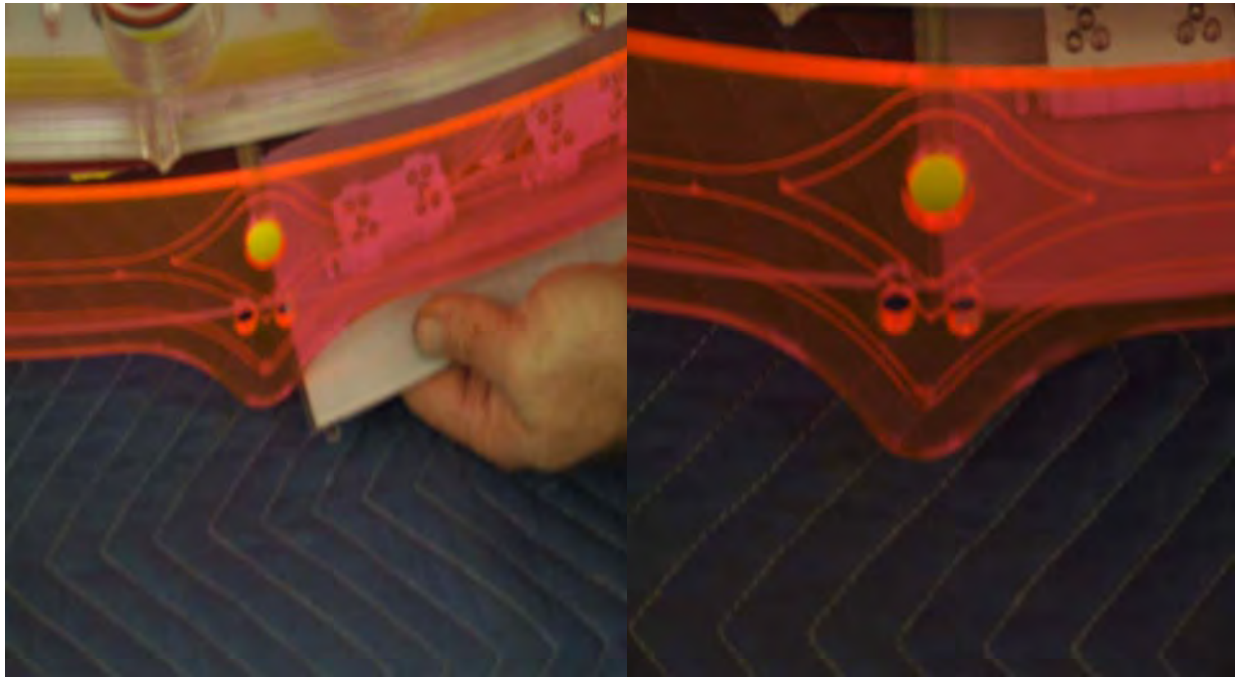


12. Attach the trim pieces using the hardware provided. There are 3 screws for each pieces of trim.





13. Slide the light strips along the wheel and snap the tabs into the holes in the trim



14. Connect the Fire & Ice X-treme Wheel wires to the connectors on the Fire & Ice X-treme Base.



15. Connect to power source

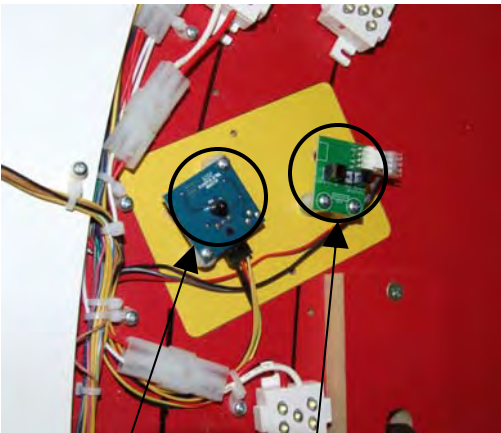
16. Load ticket dispensers

# Technical Operation

**Stepper Controller Board**



**Optical Sensors**



**Optical Receiver**

**Home Optical**

## **Wheel Position**

Wheel position in Fire & Ice X-Treme is determined by an optical sensor that communicates with the CPU board. The CPU receives a HOME signal from an optical sensor located behind the wheel. There is a pin inserted into the wheel and when the pin passes thru the optical sensor it blocks the beam then the sensor sends a signal to the CPU telling it that it has detected HOME pin. This HOME signal lets the CPU know the exact position of the wheel.

A stepper controller board (SCB) controls a stepper motor that rotates the wheel. The wheel rotation is broken up into many “Steps” and the CPU counts these “steps.” Because the CPU knows where the HOME position is and it’s counting every “step” it knows exactly where the wheel is at any time.

## **Scoring- ball sensor**

There is an optical transmitter located on the left side of the wheel that transmits a beam through the holes in the wheel and a receiver behind the wheel that detects the beam. When a ball falls into a slot it blocks the optical beam and its position is sent to the CPU. Since we know the position of the wheel at all times we can identify each hole. The CPU counts how many balls a player has in his color choice slots and awards the corresponding number of tickets

The Fire & Ice X-Treme has a secondary power supply which powers most of the LED lights throughout the game.



# Programming the Fire & Ice X-treme Game

## 1.) “Entering Programming Mode

To enter program mode, press and hold the right button located on the Power Distribution Board. After 2 seconds, “TOTALS” will appear on the LCD Display. At this time, release the button. “TOTAL PLAYS” with the number of credits played will be displayed. The game is now in Program Mode. **PLEASE NOTE** that from this point forward, the right (Button 1) and left (Button 2) buttons on the Power Distribution Board are the buttons used. Each programming option is displayed on the LCD Display (located in the lower cabinet at the rear of the cashbox enclosure), with the functions shown for Buttons 1 and 2. In General, Button 1 changes the setting for each programming option, and Button 2 advances to the next programming option.

Depressing Button 2 will advance to “TOTAL ONES”, which shows the number of times only one ball scored. Depressing Button 2 will advance through the totals for TOTAL 2, 3, 4, 5, 6, and 7 balls scored. The Totals displayed to this point are not resettable and roll over at 1,000,000,000. Depressing Button 2 again will display “COINS IN”

## 2.) “COINS IN”

The total coins received through the coin mechanisms are displayed. The total will rollover to zero when it reaches 1,000,000,000. Depressing button 2 will display “TICKETS OUT”.

## 3.) “TICKETS OUT”

The total tickets dispensed are displayed. The total will rollover to zero when it reaches 1,000,000,000. Depressing button 2 will display “CLEAR TICKETS OWED or “ENTER PROGRAMMING MODE?”.

## 4.) “CLEAR TICKETS OWED?”

This option is displayed only if there are tickets that are owed that have not been dispensed, and will show the number of tickets. Depressing Button 1 will clear these tickets from the system, and “TICKETS CLEARED” will be displayed. Depressing Button 2 will display “ENTER PROGRAM MODE?”

## 5.) “ENTER PROGRAM MODE?”

Depressing Button 1 at this time will enter the area of Program Mode where parameters may be changed. Depressing Button 2 will return the game to Run Mode.

## **6.) “ENTER PASSCODE”**

To be able to change programming parameters or reset the counters, a 4-digit passcode must be entered. The default passcode is 0000. To enter the passcode, Depress Button 1 to change the digit from 0 to 9, then press Button 2 to move to the next digit. After all digits have been entered correctly, depressing button 2 will Display the first programming option, “CHANGE PASSCODE?”.

## **7.) “CHANGE PASSCODE?”**

Depressing Button 1 will allow for changing the passcode. Depressing Button 2 will move to “DISPLAY CONTRAST”.

**IMPORTANT!!! ONCE THE PASSCODE IS CHANGED, THE DEFAULT OF 0000 WILL NO LONGER WORK! BE SURE TO SAVE THE PASSCODE IN A SAFE PLACE!**

Entering the new passcode is accomplished in the same way that entering the passcode is done, as explained in 6.) .

## **8.) DISPLAY CONTRAST**

This option sets the contrast for the LCD Display. Depress and hold Button 1 until the desired contrast is reached, then release Button 1. Depressing Button 2 will move to the next option, “PLAY MODE VOLUME”.

## **9.) PLAY MODE VOLUME**

This option sets the speaker volume during game play. When this option is entered, the game’s background music will play continuously. Depressing Button 1 will increase/decrease the volume. As long as Button 1 is depressed, the volume will increase until the maximum is reached, then decrease until the volume is off. Depress and hold Button 1 until the desired volume is reached. Releasing Button 1 at any time and then depressing it again will change the direction of the volume adjustment. Depressing Button 2 will display the next option, “ATTRACTION MODE VOLUME”.

## **10.) ATTRACTION MODE VOLUME**

This option sets the speaker volume during Attraction Mode. When this option is entered, the game’s background music will play continuously. Depressing Button 1 will increase/decrease the volume. As long as Button 1 is depressed, the volume will increase until the maximum is reached, then decrease until the volume is off. Depress and hold Button 1 until the desired volume is reached. Releasing Button 1 at any time and then depressing it again will change the direction of the volume adjustment. Depressing Button 2 will display the next option, “JACKPOT MODE VOLUME”.



### **11.) JACKPOT MODE VOLUME**

This option sets the speaker volume during a Jackpot Event. When this option is entered, the game's background music will play continuously. Depressing Button 1 will increase/decrease the volume. As long as Button 1 is depressed, the volume will increase until the maximum is reached, then decrease until the volume is off. Depress and hold Button 1 until the desired volume is reached. Releasing Button 1 at any time and then depressing it again will change the direction of the volume adjustment. Depressing Button 2 will display the next option, "ATTRACTION FREQUENCY".

### **12.) ATTRACTION FREQUENCY**

This option sets the frequency at which the attraction mode occurs. The settings are from OFF to every 30 minutes. Depressing Button 1 will change the settings in 1-minute increments from OFF to 30 minutes, then back to OFF. Depressing Button 2 displays the next option, "COINS PER CREDIT".

### **13.) COINS PER CREDIT**

This option sets the number of coins required for a credit. The settings are from 1 to 8 coins per credit. Depressing Button 1 will change the setting from 1 to 8, then back to 1. Depressing Button 2 displays the next option, "JACKPOT INCREMENT"

### **14.) JACKPOT INCREMENT**

Every time a credit is logged onto the game, the jackpot value is incremented by this amount. The setting is from 1 to 20 in increments of 1. Depressing Button 1 will change this setting from 1 to 20, and then revert back to 1. Depressing Button 2 will display the next option, "MERCY TICKET".

### **15.) MERCY TICKET**

This option sets the Mercy Ticket Option to On or Off. Depressing button 1 will change the setting. Depressing Button 2 displays the next option, "WHEEL SPEED"

### **16.) WHEEL SPEED**

This option changes the speed of the wheel. Depressing button 1 will change the setting from 1(slowest) to 5(fastest). Depressing Button 2 displays the next option, "DISPLAY TICKETS OWED".

## **17.) DISPLAY TICKETS OWED**

If this option is turned on, tickets that are won are displayed and counted down on the Jackpot Display. If there are no tickets to be paid out, then the Jackpot Value is displayed. If this option is turned off, then only the Jackpot Value is displayed. Depressing Button 1 will change this option. Depressing Button 2 displays the next option, "JACKPOT START VALUE".

## **18.) JACKPOT START VALUE**

This option changes the Jackpot Start Value. Depressing button 1 will change the setting from 100 to 900 in increments of 100. Depressing Button 2 displays the next option, "JACKPOT MAX VALUE".

## **19.) JACKPOT MAX VALUE**

This option changes the Jackpot Max Value. Depressing button 1 will change the setting from the start value (set in Option **18**) to 99999 in increments of 100. Holding Button 1 depressed changes the number continuously. Every time Button 1 is released and depressed again, the value changes from increasing to decreasing or vice-versa. Depressing Button 2 displays the next option, "PAYOUT TABLE".

## **20.) PAYOUT TABLE**

This option changes the ticket values awarded. **NOTE: THIS OPTION REQUIRES A CHANGE OF THE GRAPHICS. CONTACT BENCHMARK'S PARTS DEPT. BEFORE SELECTING A PAYOUT TABLE OTHER THAN NUMBER 1.** Depressing button 1 will change the Payout Table. Depressing Button 2 displays the next option, "BALL DROP MODE".

## **20.) BALL DROP MODE**

This option changes the Ball Drop Mode between dropping all of the balls when the Play Button is depressed to dropping one ball at a time with each Play Button Press. Depressing Button 1 will change this mode. When the One-Ball Drop Option is selected, the number of balls dropped is displayed on the Jackpot Display during Game Play. Depressing Button 2 will give the option to reset the totals

## **21.) RESETTING TOTALS**

The totals displayed at the beginning of Program Mode (COINS IN, TICKETS OUT) and NUMBER OF JACKPOTS may be reset to zero here. The total number for each will be displayed. Depressing Button 1 will clear the total, and zero will be displayed, confirming that the count has been cleared. Depressing Button 2 will display the next total. Depressing Button 2 after all of the totals have been displayed will display the next option, "ENTER PROGRAM MODE?"



## **22.) “ENTER PROGRAM MODE?”**

This option gives the opportunity to re-enter program mode if it is necessary to change any options again. Depressing Button 2 leaves Program Mode and the game returns to normal, Run Mode.

### **ERROR CODES**

<b>E-1</b>	<b>BALL SENSOR ERROR</b>
<b>E-2</b>	<b>HOME SENSOR ERROR</b>
<b>E-3</b>	<b>TICKET ERROR</b>

### **DEFAULT SETTINGS (ALL PAYOUT TABLES)**

<b>PASSCODE</b>	<b>0000</b>
<b>PLAY MODE VOLUME</b>	<b>21</b>
<b>ATTRACTION MODE VOLUME</b>	<b>42</b>
<b>JACKPOT MODE VOLUME</b>	<b>MAX</b>
<b>ATTRACTION FREQUENCY</b>	<b>5 Minutes</b>
<b>COINS PER CREDIT</b>	<b>1</b>
<b>JACKPOT INCREMENT</b>	<b>5</b>
<b>MERCY TICKET</b>	<b>OFF</b>
<b>WHEEL SPEED</b>	<b>1</b>
<b>DISPLAY TICKETS OWED</b>	<b>ON</b>
<b>JACKPOT START VALUE</b>	<b>400</b>
<b>JACKPOT MAX VALUE</b>	<b>99999</b>
<b>PAYOUT TABLE</b>	<b>1</b>
<b>BALL DROP MODE</b>	<b>ALL</b>

# Electronic Components

## Electronics Assembly



Audio Board

Hi Current Driver

Stepper Controller

CPU Board

Power Distribution board

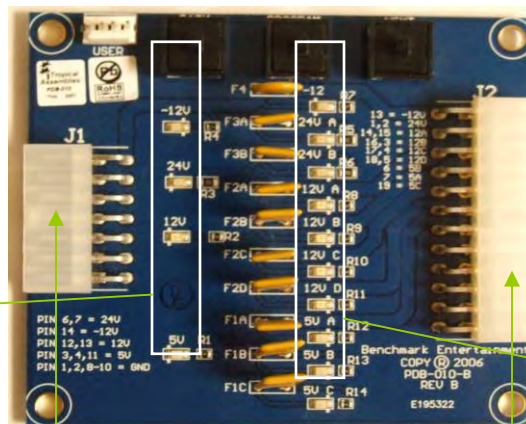
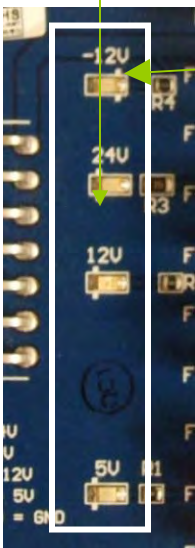
Power Supply

Power Supply (lights)

Power Distribution Board LED Indicators

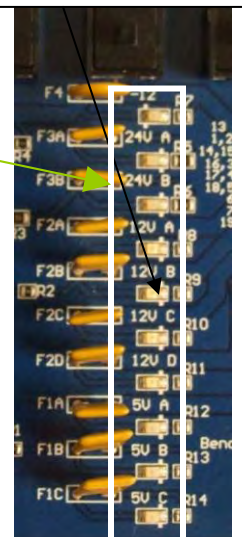
LEDs should be ON when game is powered up. They identify which voltages are present

LEDs should normally be OFF. If ON they indicate an overload on the indicated voltage



J1 Power IN

J2 Power OUT

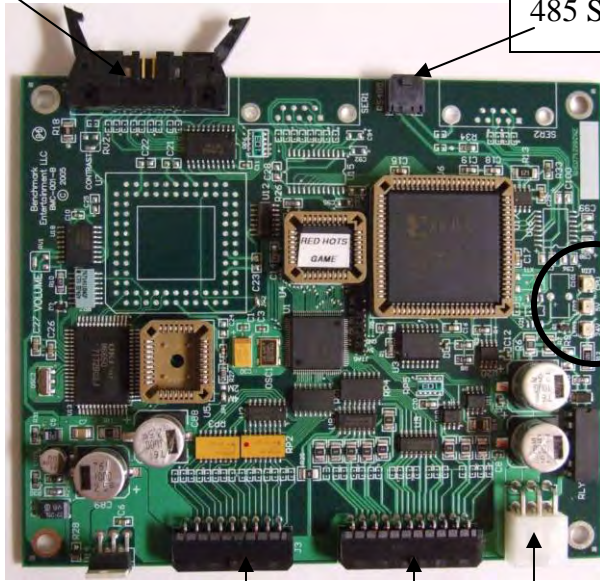


# Electronic Components

CPU

J4

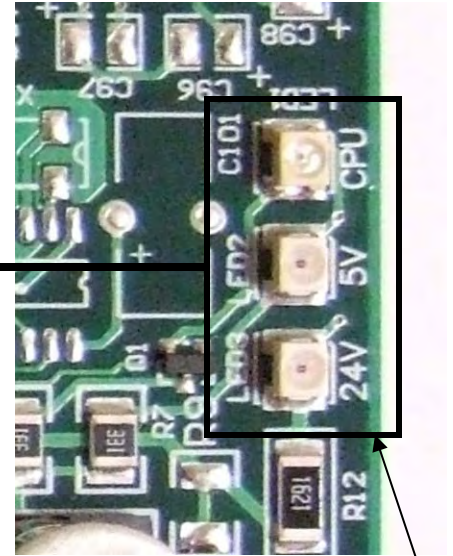
485 Serial Connector



J3

J2

J1



## CPU LED Chart

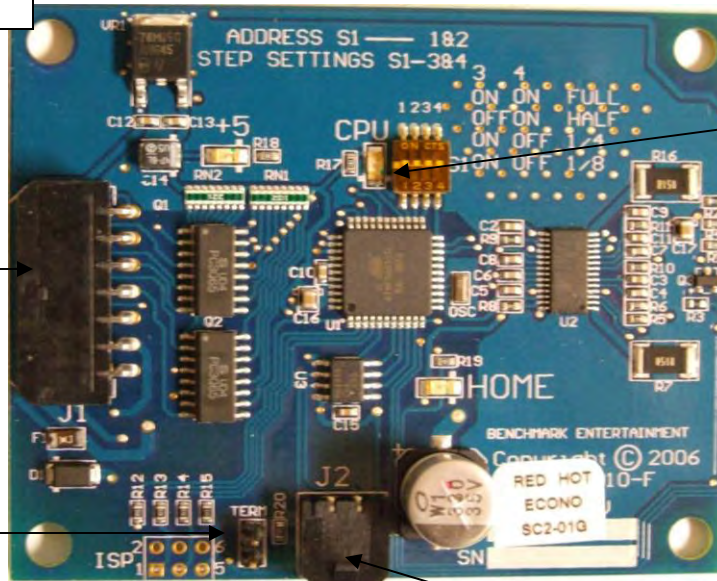
CPU LED	Flashes = OK
5V LED	ON = 5v
24V LED	ON = 24v

## Stepper LED Chart

CPU LED	Flashes = OK
5V	ON = 5v
HOME	ON but dim

Stepper Controller Board

Switch Settings  
All Switches OFF



J1

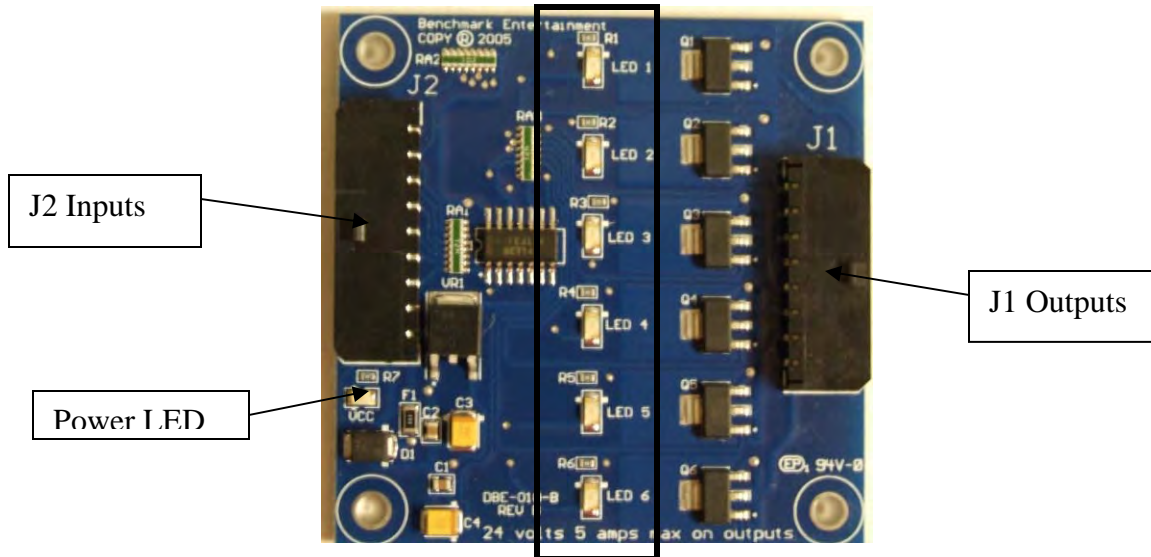
J2

RS 485 Termination  
Jumper

No Jumper Required

## Electronic Components

High Current Driver PCB



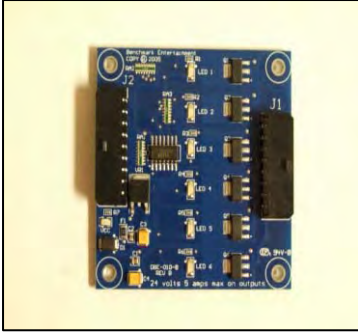
LEDs turn ON only when the output is active

## Game Specifications

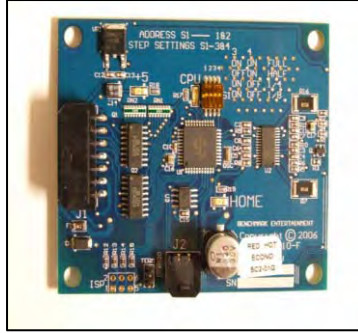
Key numbers		
Weight		
Dimensions-set-up	H- 94.5" W- 59.5" D- 37.5"	
Power consumption		
Fuses	2-5 amp in power supply	F5L 250 volt FB
Ticket dispensers	2 Benchmark Intelli triple	
Ball- Number/Size	7	



## Parts



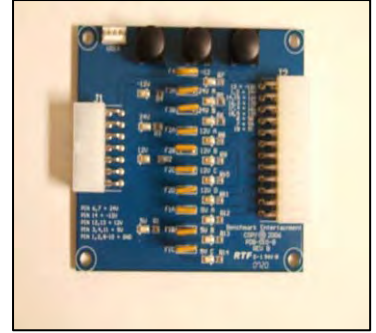
High Current PCB



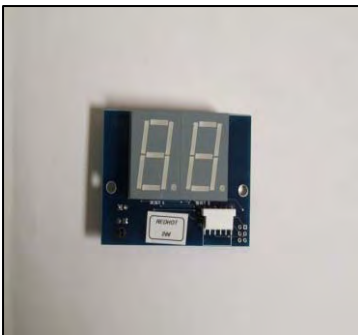
Stepper controller board



Main CPU



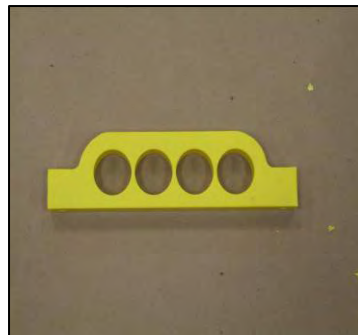
Power Distribution PCB



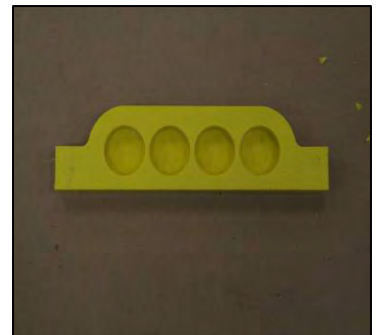
2 Digit Credit Display



Jackpot 5 Digit Display



Bottom bracket



Top bracket



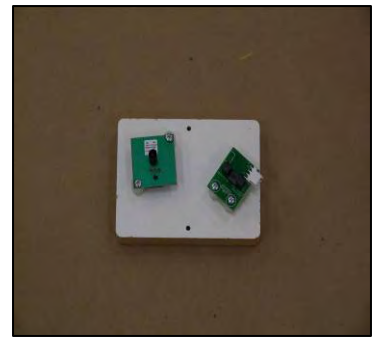
Coin Chute and Mechs



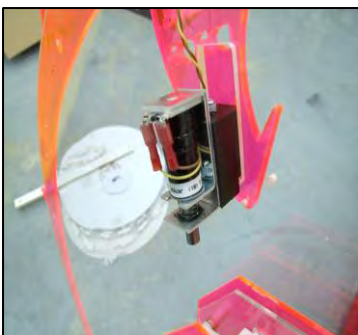
Control Panel



Ball Assembly



Optical Receivers



Solenoid Assembly



Wheel Support Pipes