

# Frogger™



## **OWNERS AND SERVICE MANUAL INNOVATIVE CONCEPTS IN ENTERTAINMENT INC.**

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# SAFETY AND WARNINGS

## BEFORE YOU BEGIN

WARNING: WHEN INSTALLING THIS GAME, A GROUNDED A.C. RECEPTACLE MUST BE USED. FAILURE TO DO SO COULD RESULT IN INJURY TO YOURSELF OR OTHERS. FAILURE TO USE A GROUNDED RECEPTACLE COULD ALSO CAUSE IMPROPER GAME OPERATION, OR DAMAGE TO THE ELECTRONICS. DO NOT DEFEAT OR REMOVE THE GROUNDING PRONG ON THE POWER CORD FOR THE SAME REASON AS GIVEN ABOVE. USING AN IMPROPERLY GROUNDED GAME COULD VOID YOUR WARRANTY. HAVE A QUALIFIED ELECTRICIAN CHECK YOUR A.C. RECEPTACLE TO BE SURE THE GROUND IS FUNCTIONING PROPERLY. DO NOT WASH YOUR GAME WITH A PRESSURE WASHER.

AVERTISSEMENT: lors de l'installation de ce jeu, la terre AC réceptacle doit être utilisé. Ne pas le faire pourrait entraîner un préjudice à vous ou à d'autres. Le non-recours à la terre réceptacle pourrait également causer une mauvaise opération de jeu, ou les dommages causés à l'électronique. NE PAS détériorer ou de retirer la broche de terre sur le cordon d'alimentation pour la même raison, comme indiqué ci-dessus. Indûment l'aide d'un jeu de la terre pourrait annuler votre garantie. Ont un électricien qualifié de vérifier votre réceptacle AC pour s'assurer que le sol fonctionne correctement. Ne lavez pas votre jeu avec une laveuse à pression.

## INSTALLATION

The game comes ready to play with just a few simple things to keep in mind.

1. Plug the game into the A.C. outlet and turn on power to the game. The switch for the game is located on a power module on the outside rear of the game.

THIS GAME IS DESIGNED TO DISSIPATE STATIC ELECTRICITY THROUGH THE GROUNDING PLANE OF THE GAME. IF THE A.C. GROUND DOES NOT WORK, THE GAME COULD DISCHARGE STATIC ELECTRICITY THROUGH THE GAME CIRCUITRY, WHICH COULD CAUSE DAMAGE.

2. Make sure the game is level after installation. It is necessary to make sure the game is level for safety concerns.
3. Check that the A.C. voltage rating on the back of the game matches the A.C. voltage of your location.

THE POWER SUPPLY IS NOT VOLTAGE ADJUSTABLE. TO OPERATE THE GAME AT VOLTAGES OTHER THAN THOSE IT WAS DESIGNED FOR. PLEASE CONTACT OUR SERVICE DEPARTMENT FOR VOLTAGE CONVERSION INFORMATION.

## WARNING

DO NOT remove any of the components on the main board (e.g. compact flash and eproms) while the game is powered on. This may cause permanent damage to the parts and the main board. Removing any main board component part while powered on will void the warranty.

Ne retirez pas l'un des composants sur la carte principale (par exemple Compact Flash et EPROMs), tandis que le jeu est sous tension. Cette mai causer des dommages permanents aux parties et la carte principale. Suppression de tout bord principal élément sous tension alors que annulera la garantie.

**NOTE: THIS GAME IS INTENDED FOR INDOOR USE ONLY.**  
**ON THE BACK PANEL OF THE GAME: WARNING: SHOCK HAZARD - DO NOT OPEN. REFER SERVICING TO SERVICE PERSONNEL.**

**REMARQUE: CE JEU EST DESTINÉ POUR USAGE À L'INTÉRIEUR SEULEMENT.**  
**SUR LE PANNEAU ARRIÈRE DU JEU: AVERTISSEMENT: RISQUE DE CHOC - NE PAS OUVRIR. RÉPARATION À UN PERSONNEL DE SERVICE.**

## **Game Introduction**

30 years has passed since Frogger's first release back in 1981. It is one of the most popular and recognizable video games ever made. Frogger has returned as a video redemption game. This two player interactive kid's game has quick coin game appeal and collections to back it up! Combined with the very best video technology and graphics on a 42" high definition monitor with awesome eye catching cabinetry brings you the highest earning video redemption game ever.

### **Game play:**

Just like the original game the object is to get from one side to the other without getting hit and in addition to this collect as many bugs as possible along the way. The player earns tickets for bugs eaten along the way and if they make it to the other side, a nice pile of bonus tickets await! Pressing the start button begins the action. The player must time it right because once the frog begins to hop, you cannot stop it!

# Game Setup

## Access to the Program Settings:

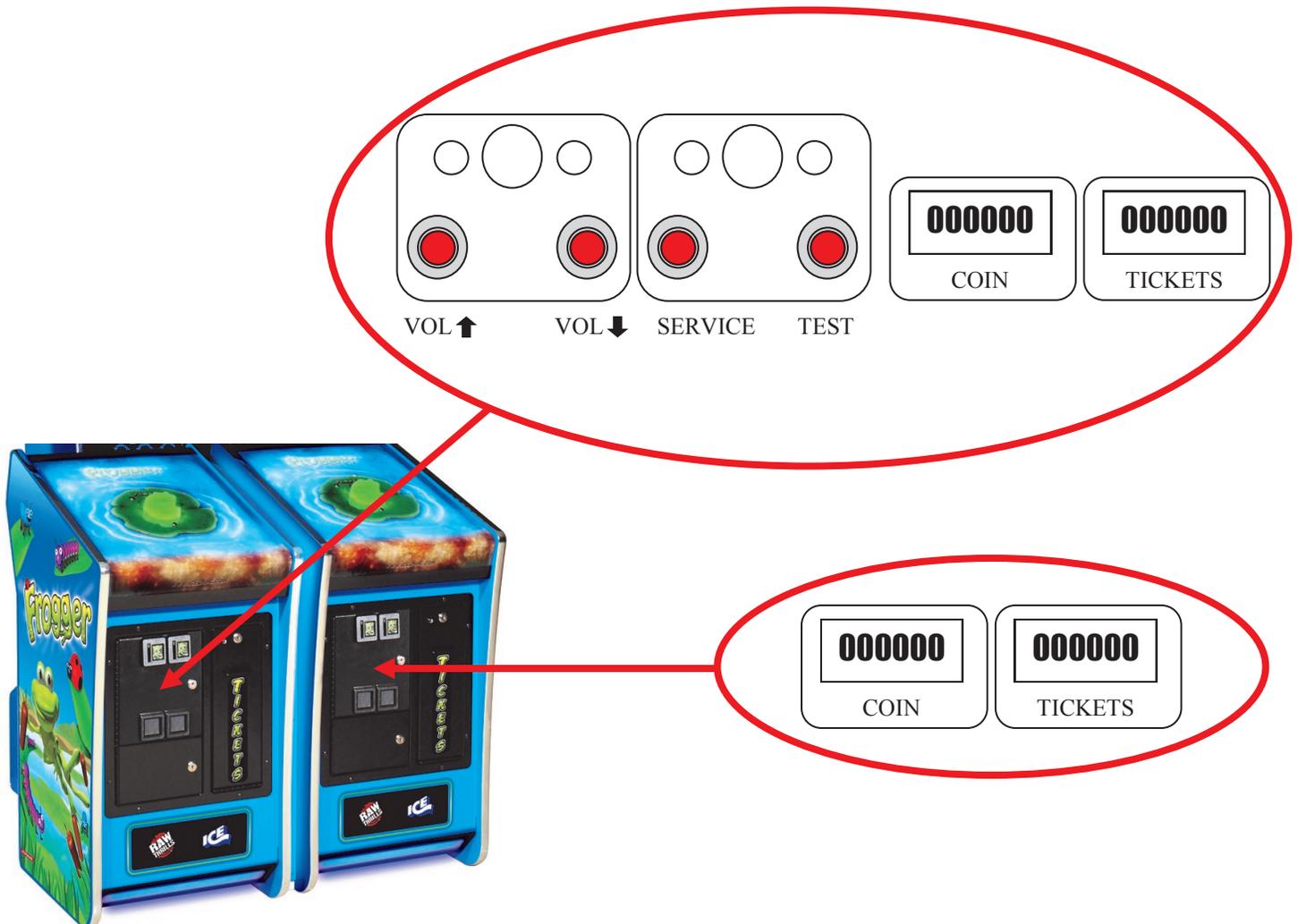
Located in the upper coin door are the programming buttons. To access the program settings press “test” button. Press the VOL with the arrow up button to move the cursor up and press the VOL with the arrow down button to move the cursor down. To select a option press the “test” button again.

## Access to the Meters:

Located in both of the upper coin doors are the coin and ticket meters. There is a set of meters in both. The left most meter is how many coins the game has validated on that side while the right meter shows how many tickets the game has paid out on that side.

## Adjusting the Volume Levels:

Located in the right upper coin door are the volume controls for the game. Pressing the left most button will increase the total volume level while pressing the next button to the right will decrease the total volume level. To adjust just the attract volume you need to enter the programming mode and adjust the attract volume from there. You can control the game and attract volumes separately only from the program mode.



# Game Setup

## Programming Version .89

Main Menu:

Diagnostics

Switch Test

*Tests various switches used in the game.*

Dip Switch Test

*Shows current dip switch settings on I/O board.*

Monitor Test

*Shows various screens to test your monitor.*

Lamp Test

Marquee Lamps (Fireflies)

*Turns on and off fireflies pcb boards.*

Podium Lamps (Floor lights in podium)

*Turns on and off bottom lights in podium.*

Start Lamps (Start buttons)

*Turns on and off start buttons.*

LED Test

Toggle/Blink

*Not used.*

Sound Test

Music

*Turns on and off music.*

Sound

*Plays various sounds.*

100Hz

*Plays a continuous 100 hertz tone.*

1000Hz

*Plays a continuous 1000 hertz tone.*

Pan Center

Pan Left

Pan Right

Coin Meter Test

*Advances the coin meter one number.*

Ticket Dispenser Test

Advance One Ticket left side

Advance Ten Ticket left side

Advance One Ticket right side

Advance Ten Ticket right side

Watchdog Test

*Tests the function of the watchdog.*

Coin Adjustments \*\* SEE NEXT PAGE

Payout Adjustments \*\* SEE NEXT PAGE

Audits

Resets

Volume

Attract Volume

# Game Setup

## Programming Continued

Main Menu:

### Coin Adjustments

Free Play	Off/On	Off
Coin Lockout	Off/On	Off
Currency Type	Coin/Dollars/Swipe	Coins
Coin Value	0.250	0.250
Coins to play		1
Frogs per game		1
Coins per swipe		2

### Payout Adjustments

Ticket use	Off/On	On
Fixed tickets	Off/On	Off
Fixed tickets per frog		10
Payout percent	20-80 by 5 % increments	40
Ticket Value	.01	.01
Minimum tickets	1	1
Maximum tickets	2500	2500
Boost bonus	Off/On	On

Your BONUS value is determined by how your coin and payout adjustments are set. Coin value, Payout percent, ticket value, coins required to start a game, how many frogs you give them and bonus boost will change the bonus value.

### Coin/Token Suggested Settings

.25 Coin Value  
40% Payout  
0.01 Ticket Value  
1 Coin to Play  
1 Frog per Game  
Bonus Boost is On

Gives you a 500 Bonus  
Average Ticket payout 10

### Card Swipe Suggested Settings

1.00 Coin Value  
40% Payout  
0.01 Ticket Value  
1 Coin to Play  
2 Frog per Game  
Bonus Boost is On

Gives you a 1000 Bonus  
Average Ticket payout 40

With Bonus Boost on the player will average 75 games before winning the bonus.  
With Bonus Boost off the player will average 150 games before winning the bonus.

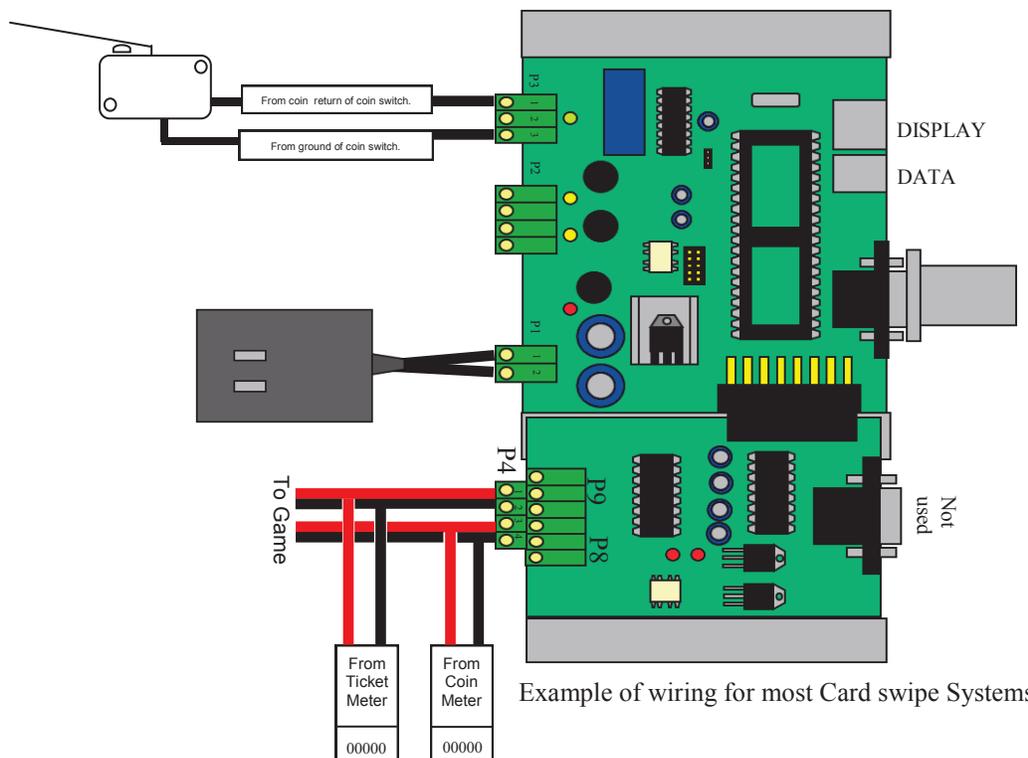
# Game Setup

## Card Swipe Installation Example

There are many card swipe systems available today. The following information is general and you should refer to your installation instructions that has been included with your card swipe system for specific details. If your game was not ordered with blank coin doors then you can order replacement blank coin doors from our Service Department. The wire that went to the coin switches will need to be hooked up to your card swipe system to inform the game to start when a card is swiped and accepted. Most card swipe systems use a Normally open relay to accomplish this. The coin wires have two wires connected to it, one being a ground and the other the coin line. Connect the coin line to one side of the normally open relay connection on your card swipe unit and then connect the ground wire from the coin switch to the other side of it. Now when the relay is activated, it will connect the coin line to ground just like the coin switch would and give the game a credit.

This game has one ticket dispenser per side and a single meter to count the tickets paid out. It is recommended to splice into the meter lines. The red wire has a constant 12 volts of DC current to it and the black wire is switched to ground for every ticket that is dispensed. Be sure when splicing your card reader to the meter that you match the “+ meter” label to the red wire and the “- meter” label to the black wire. See below for details.

On some card systems the coin meter also needs to be spliced into. The red wire has a constant 12 volts of DC and the black wire is switched to ground for every coin accepted. Be sure when splicing your card reader to the coin meter that you match the “+ meter” label to the red wire and the “- meter” label to the black wire. See below for details. On some swipe models you can attach more than one station per board. In systems that do not support this, you will need to install one system per station.



# Game Maintenance

## Marquee Removal

Remove both the upper and lower back doors and put aside. Unplug the 6 pin, 4 pin and A/C harnesses located in the upper section of the cabinet. Remove the four mounting bolt, washers and nuts. The top assembly can be removed as shown below.



## Control Panel Removal

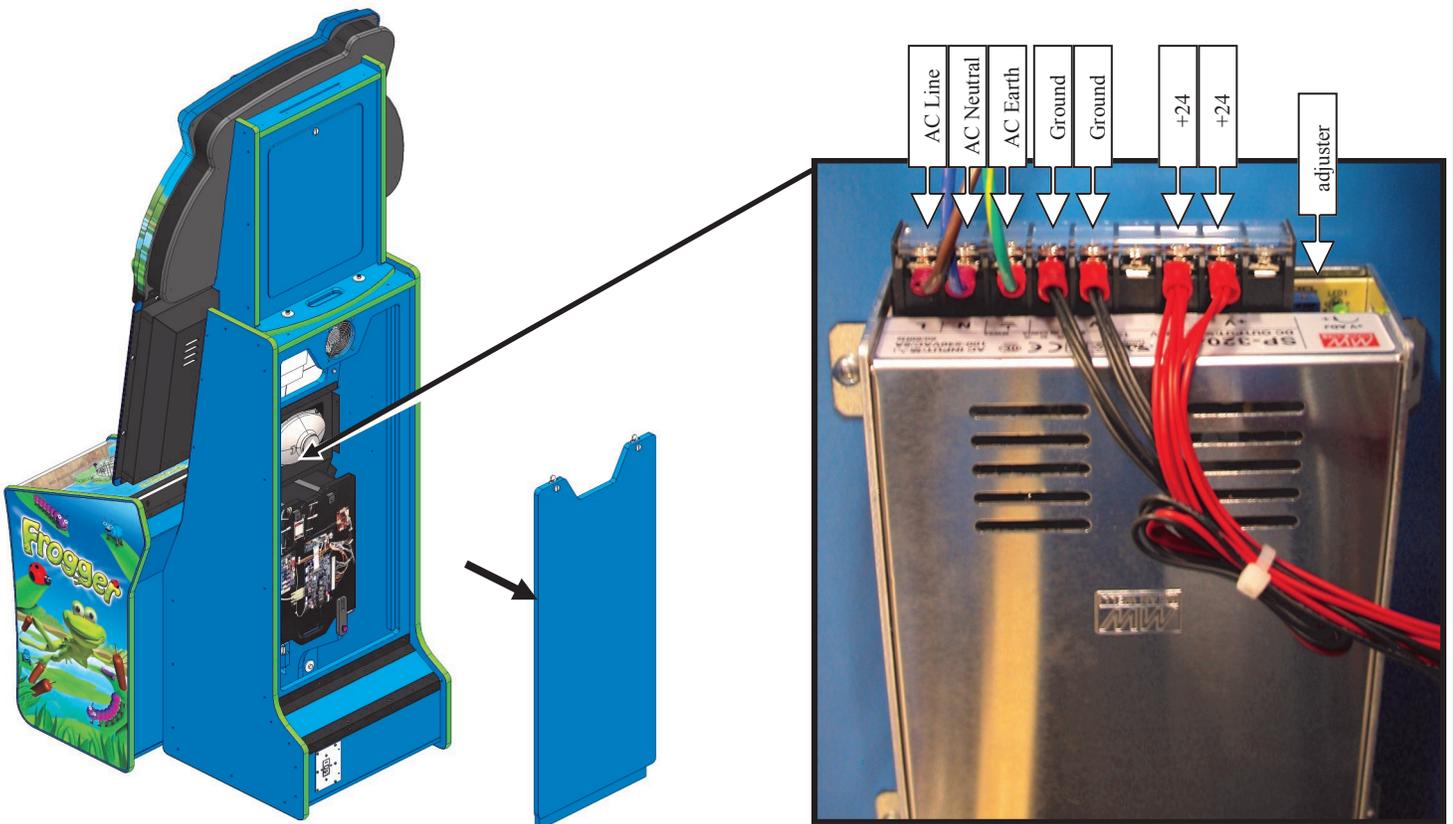
The control panel is attach to the podium by six 5/32 Allen security mounting bolts. Remove the six mounting bolts and put aside. Now remove the upper and lower brackets and put aside. Slide the control panel back and out. Make sure you disconnect the A/C and switch harness to the control panel before fully removing.



# Game Maintenance

## Monitor Power supply Removal

The monitor uses a 24 volt DC power supply at 13 amps. It is located in the back of the game. To access remove the back door and put aside. The power supply is mounted on the wall on the left side.



## AC Power Information

The games main fuse is accessed through the back of the game at the power mod. Above the power cord is a small panel that contains the main fuse. The value of the fuse for 110 volt users is 6 AMPS at 250Volt type slow blow. The value of the fuse for 220 users is 3 AMPS at 250Volt type slow blow.



# Game Maintenance

## PC Access and Removal

The PC is located behind the circuit board. The circuit board and PC are mounted onto the back drawer assembly. Remove the lower back cabinet door. At the bottom of the cabinet and underneath the circuit boards is a large thumb screw. Remove the large thumb screw and put aside. The back drawer assembly can be pulled back. There is a handle at the bottom of the drawer assembly to pull on. To remove the PC, disconnect all wiring to the PC and undo the mounting straps.



## Restoring Software

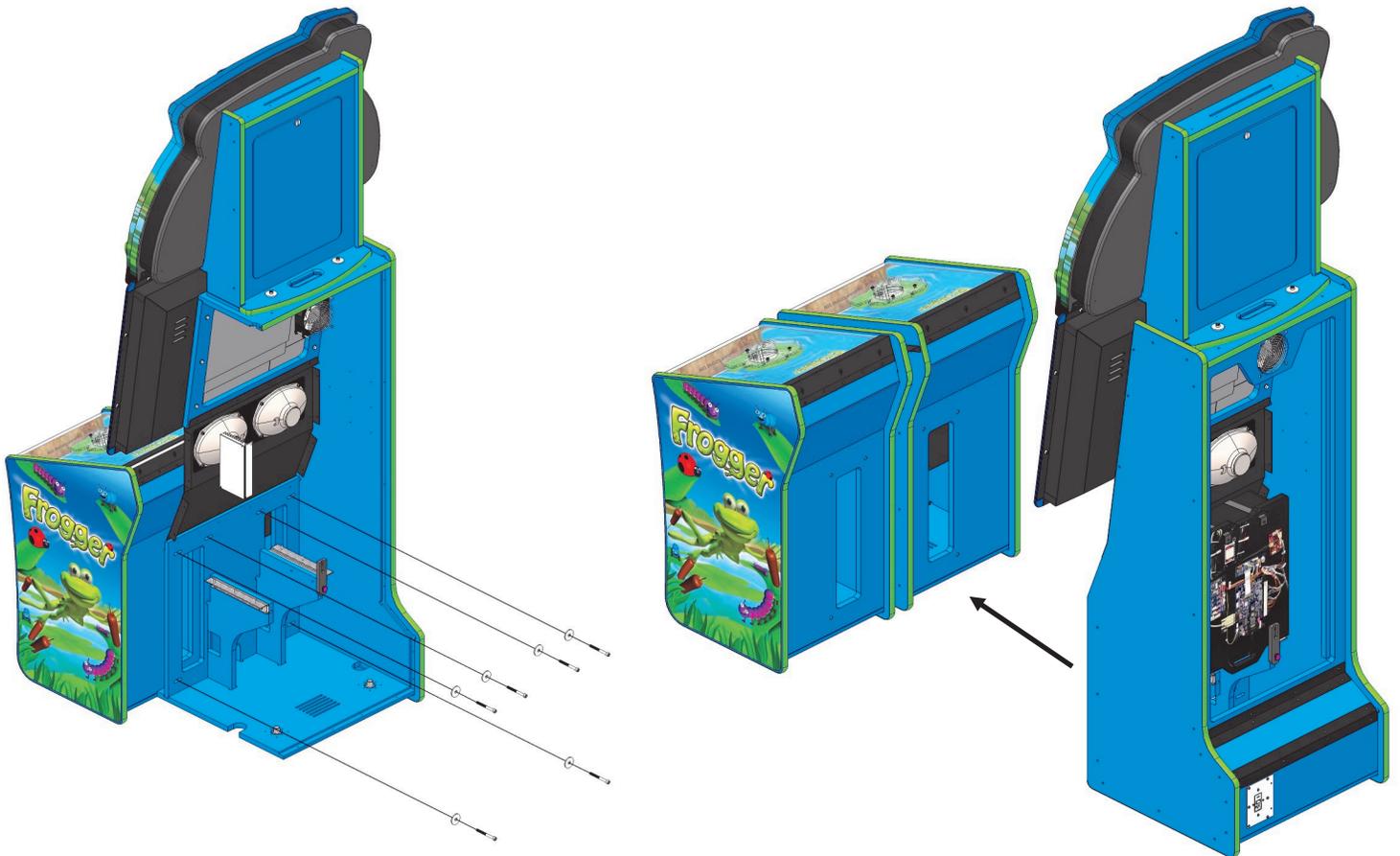
To use a restore disc you must access the PC and insert the DVD into the computer's DVD drive. To access the pc follow the instructions under "PC Access and Removal". You will need to do this with the power on. Press the "open" button located on the DVD drive. Insert the DVD disc into the DVD drive with the label side facing up. Now press the open button again to close the DVD drive's door or slightly push in the drawer and it will close automatically. Turn off the game and wait 5 seconds. Turn the game back on and in a short time the screen will warn you that it is going to write over your hard drive. If you wish to not continue turn off the game now. It will count down and begin installing the software. This should be done if you experienced data corruption, replaced the hard drive, received updated software or told to do so by ICE technical representative.

# Game Maintenance

## Podium Removal

**\*\*\* WARNING \*\*** With the removal of the podiums the main cabinet will become top heavy and fall forward damaging the monitor assembly and possibly cause bodily injury. It is recommended to have two or more people available to prevent the main cabinet from falling forward.

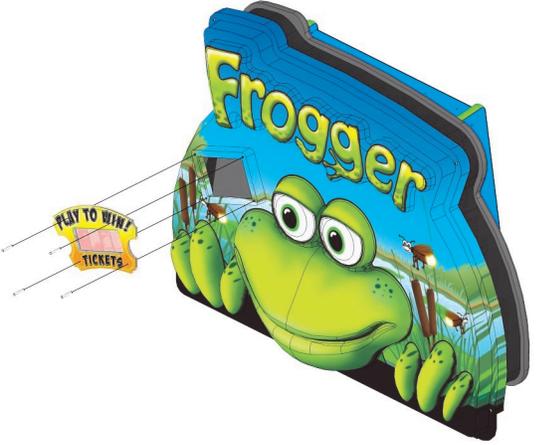
It might become necessary to remove the front podiums from the main cabinet in order to fit the game through some doors. There are three 1/4 " Allen bolts in each podium that hold them to the cabinet. They are accessed through the back of the game. Remove the lower back door of the cabinet to access them. Remove the bolts. They are shown below. The left side of the cabinet has been removed for clarity. Disconnect in each podium one 5 pin harness, one A/C wire, one 15 pin harness, and 1 grounding wire per podium. The podium can be pulled away from the cabinet. The two podiums themselves cannot be separated from each other.



# Game Maintenance

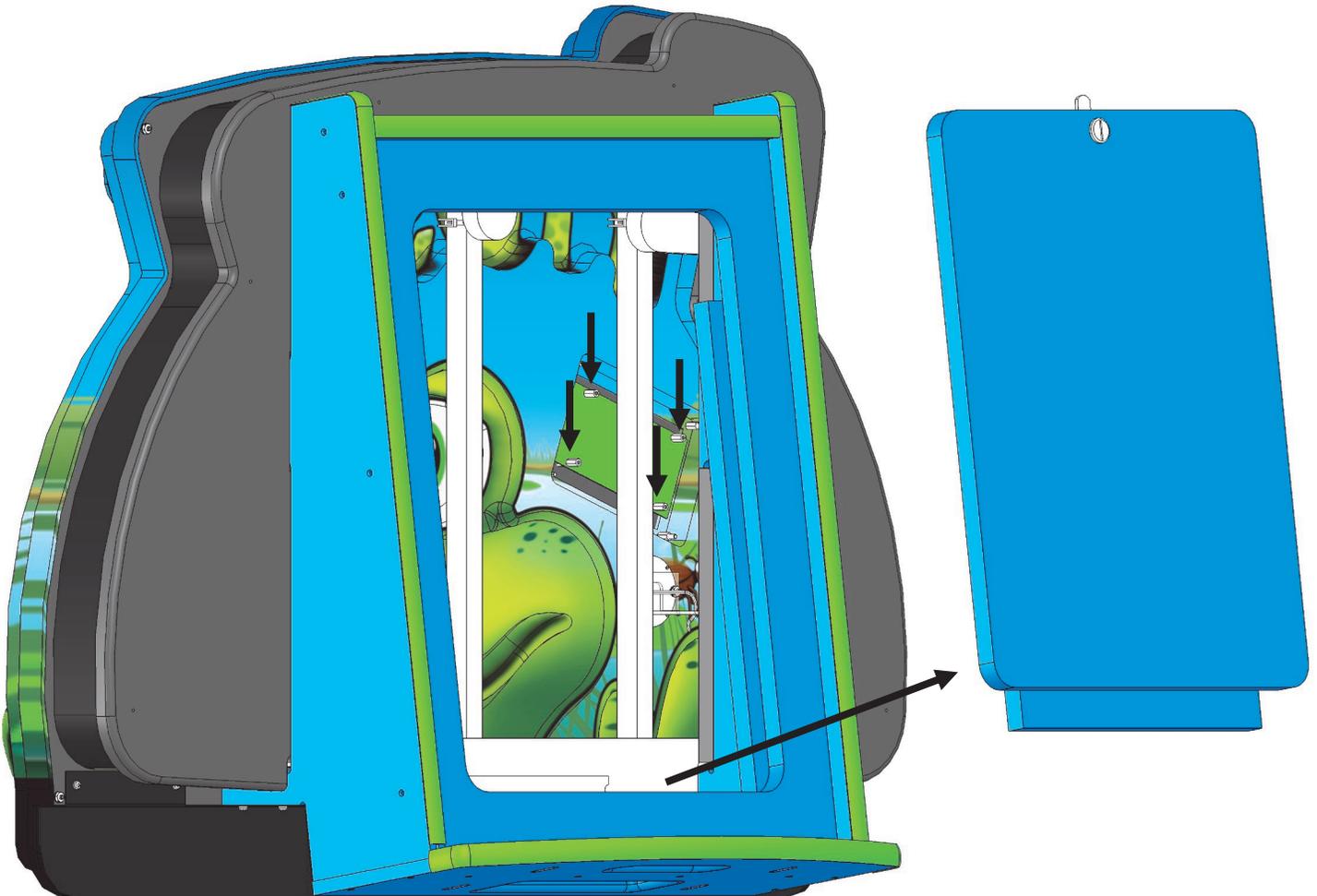
## Marquee Bonus Ticket Display Assembly Removal

To remove the bonus ticket display assembly remove the four mounting bolts that hold it to the marquee cover. This is only required if you need to replace the front plastic or lens. It is not necessary to remove the entire assembly to replace the display board. It is recommended to follow the information in "Marquee Bonus Display board Removal" instructions instead. See Bonus Ticket display assembly towards the back of the manual.



## Marquee Bonus Display Board Removal

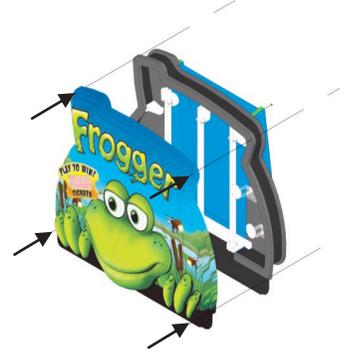
It is not necessary to remove the front marquee cover to replace the bonus display board. Remove the upper back door and set aside. Locate the four plastic 1/4" stand off nuts and remove. Disconnect wire harness to board. Assemble in reverse.



# Game Maintenance

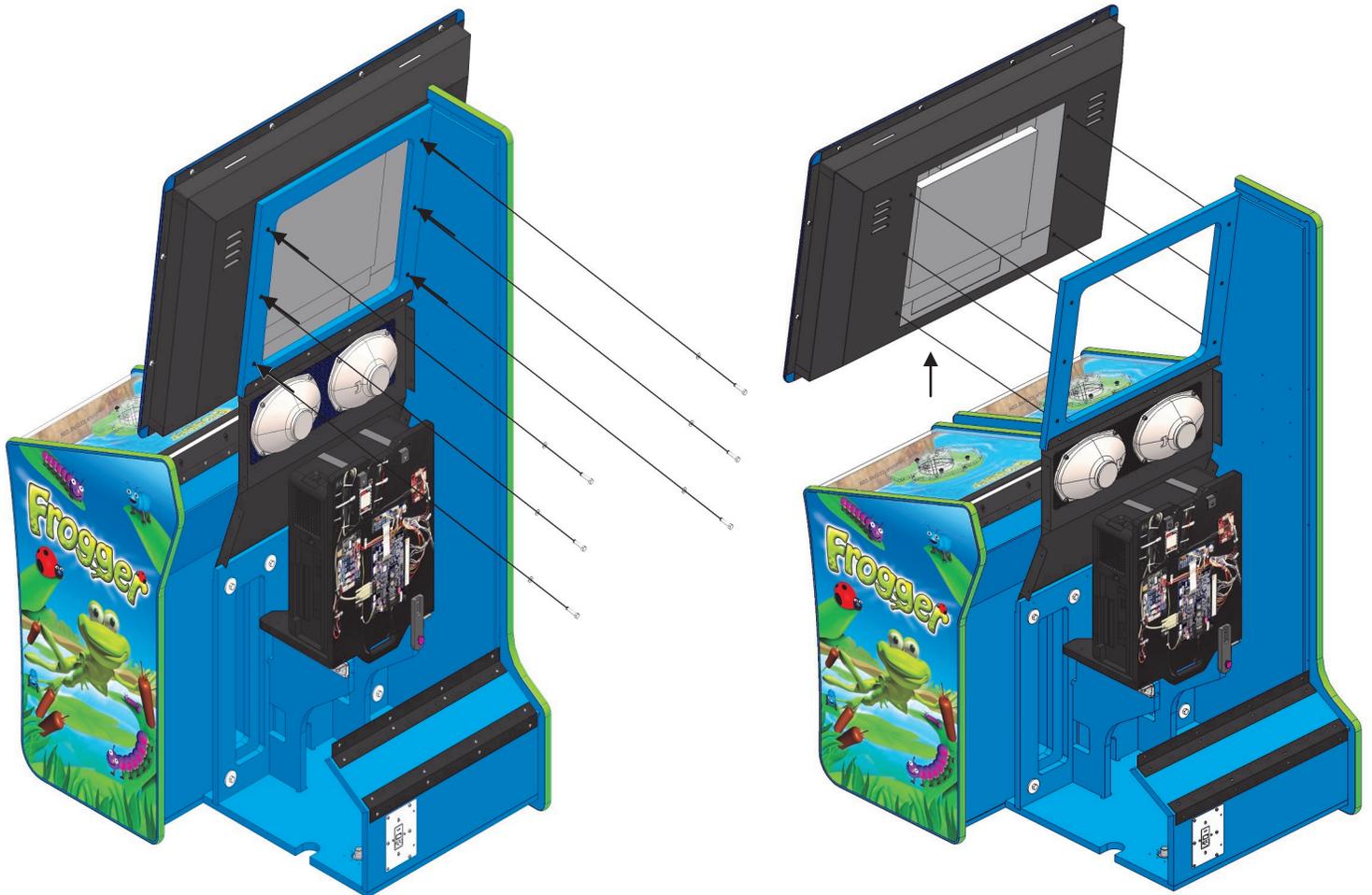
## Marquee Cover Removal

In order to replace either the Firefly lights or the PLL bulbs used in the marquee of the game, it is necessary to remove the front marquee graphic. The marquee is held attached to the cabinet by 4 bolts with nuts. Once removed, the marquee cover lifts up and out. You can now access both items. See picture to the right.



## Monitor Removal

It is recommended that three people, one on each side of the monitor and one person to remove the mounting hardware in order to safely remove the assembly from the cabinet. Start by removing the lower back door of the main cabinet and set it aside. Disconnect both the VGA cable and both the Red and Black wires going to the monitor's power supply. They are attached to the power supply with Philips screws. The Red wire is +24 volts and the Black wire is DC ground. Now remove the six 1/4 hex mounting bolts shown below. The monitor assembly can now be removed from the cabinet.



# Game Repair

## CAUTION

This game uses complex electronic components that are very sensitive to static electricity. Observe precautions below before handling these electronics. Failure to do so may void the warranty and damage electronic assemblies.

Before servicing electronics, turn off AC power to the game. Wait for capacitors to discharge.

DO NOT remove any of the components on the PCBA boards (e.g. compact flash and EPROMS) while the game is powered on. This may cause permanent damage to the parts and the main board.

Before touching or handling electronic assemblies, discharge static electricity on your body. To discharge this static, begin by connecting the line cord to a grounded outlet. Don't turn on the game. Next, touch the safety ground stud of the power supply chassis.

Store electronic assemblies in an anti-static area. Use anti-static bags to store or transport the game circuit boards.

Don't remove or connect electronic assemblies when cabinet power is on. Otherwise, you'll damage electronic assemblies and void the game's warranty.

After you complete maintenance or service, replace all ground wires, shields, safety covers and install and tighten ground and mounting screw. A bad connection to ground will result in sporadic operation of your game.

## SERVICE: Theory of Operation and Repair

In the event your game is not functioning correctly please refer to the following few pages for information on how the game functions and tests that you can perform. It is recommended that when you determine that a board is found defective that a authorized warranty service center repair your PCBA. Warranty requests will be voided if repairs are attempted by unauthorized personal.

### Theory of Operation:

Upon power up the monitor will display a brief message informing you no signal is found and then display the post screen of the PC. The PC will display on the monitor information about where it is during the loading process. During the load process the game will check for the presences of the I/O board and security hasp. Once loaded, the game will be in attract mode showing you game play and you will hear attract audio if enabled. There are four boards located in the back of the game. The main board is the Jamma I/O board with an additional circuit board added to increase its input and output capabilities. The main I/O board handles the coin inputs, the test button, the service button, volume control buttons, ticket notch lines, player start buttons, start lamp relay controls, coin meters, ticket meters, and bottom podium lights. It also amplifies the audio.

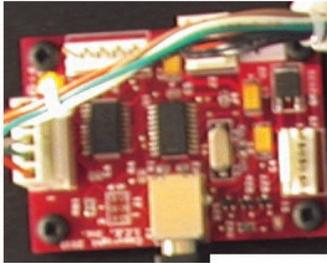
A small USB display board drives the bonus display. There is a watchdog board that both listens for a heartbeat from the PC and distributes power throughout the cabinet. The board has a few LEDs to indicate correct power and function. LED2 labeled as D2 on the board will light when there is +5 volts of DC power. If not lit check the fuse at F1. It is a 2 amp fuse. LED3 labeled D3 on the board will light when there is +12 volts of DC power. If not lit check the fuse labeled F2. It is a 5 amp fuse. LED8 labeled D8 on the board will be on when the PC is on and running correctly. LED 5 labeled D5 should be off and will only light when the PC is reset for a watchdog occurrence. When the watchdog is first powered, LED7 labeled D7 will blink yellow a few times and then stay off while LED 6 labeled D6 on the board will flash green to indicate a heartbeat.

The display board during power up will display dancing line pattern lighting every segment until the pc establishes communication with it. If communication is lost between the PC and display board the display board will continue to show the last value sent.

# Game Repair

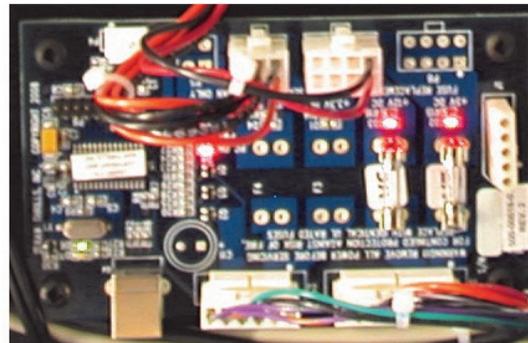
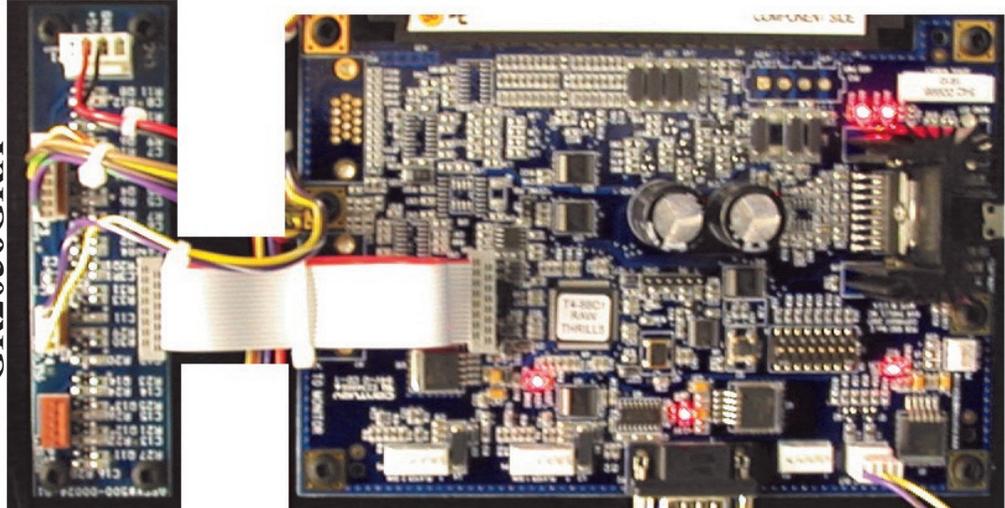
## Back Circuit Board Identification and Part Numbers

**USB DISPLAY BOARD  
GR2035X**



**MAIN I/O BOARD  
DN2034GRX**

**I/O EXPANSION BOARD  
GR2036GRX**

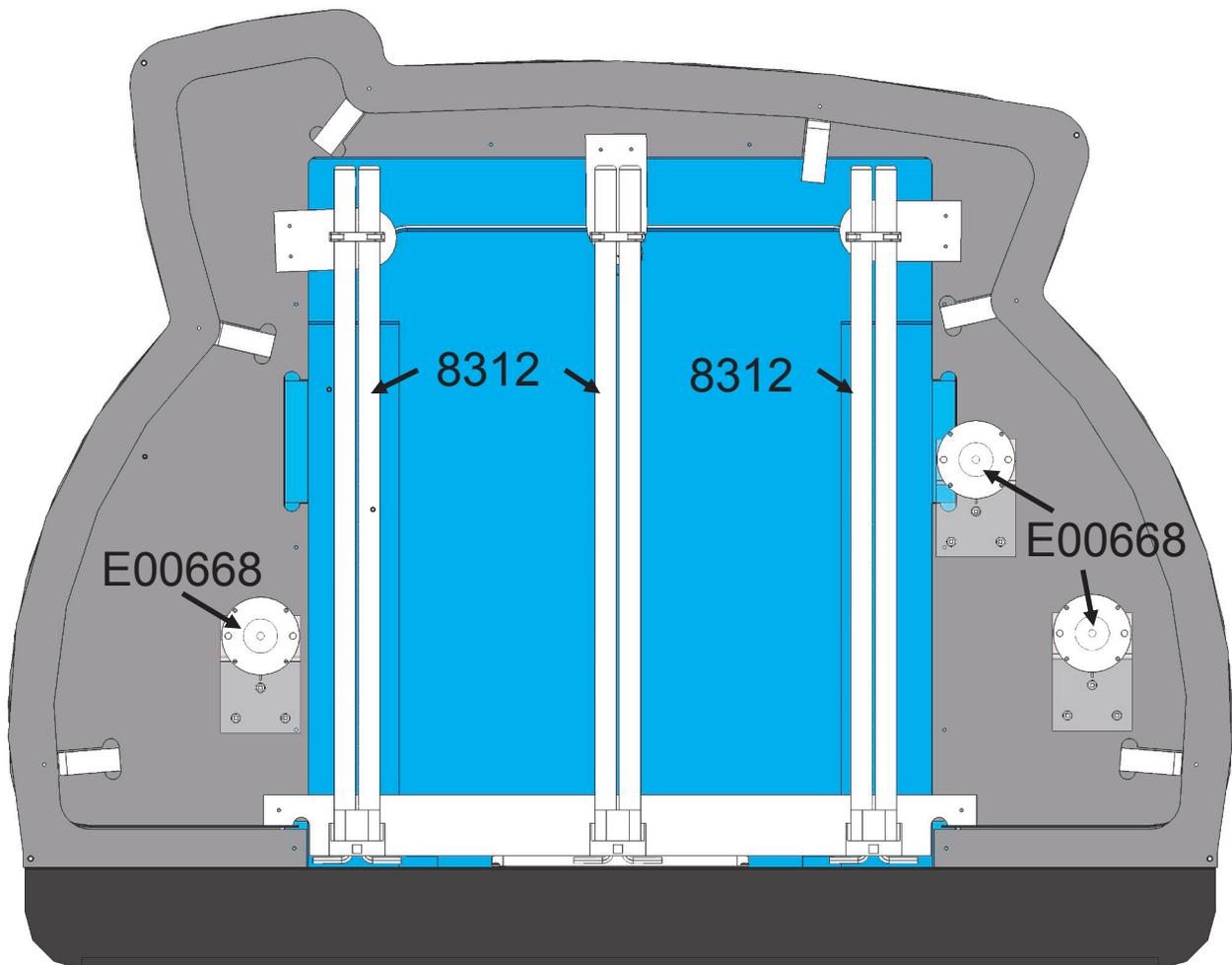


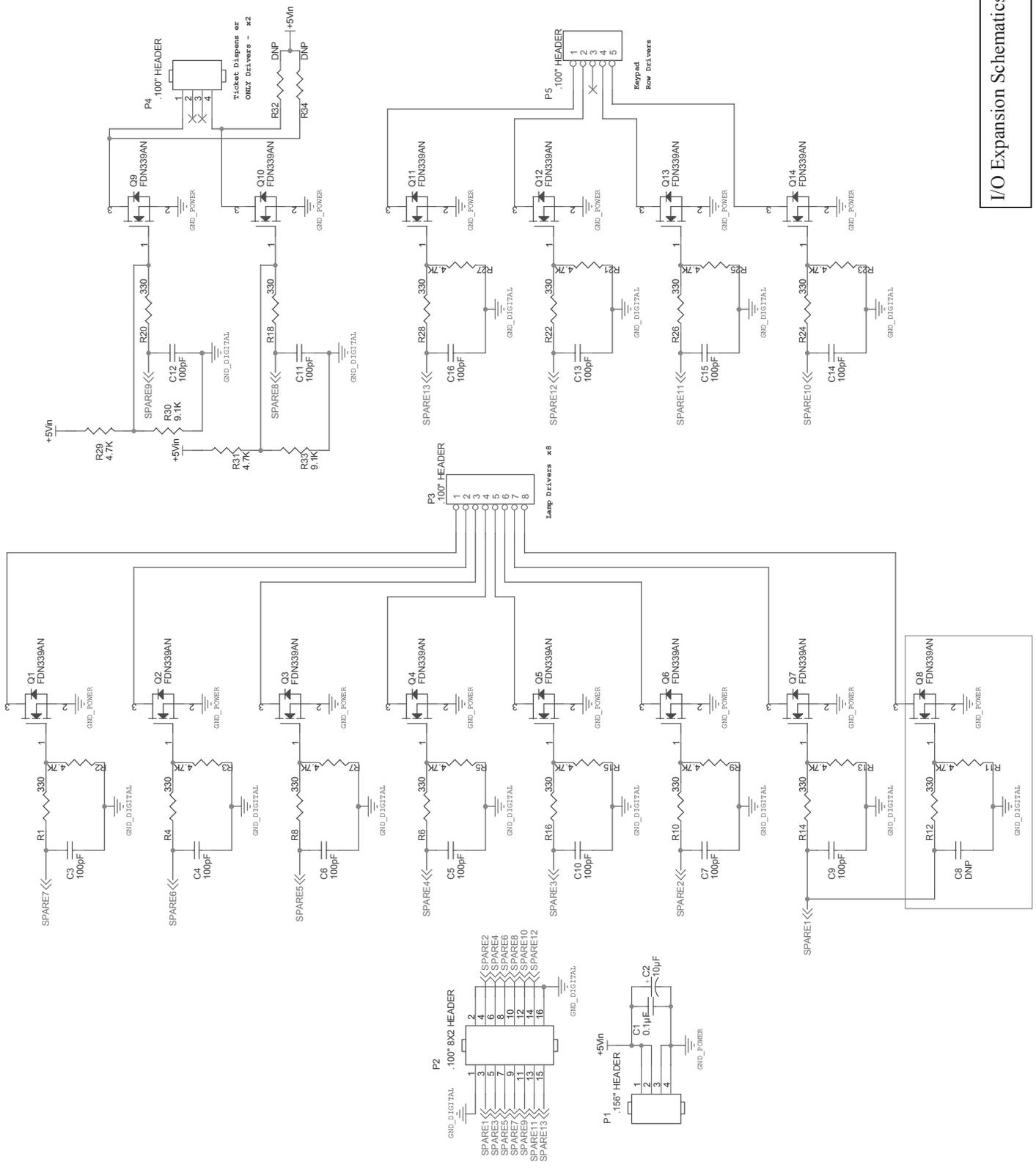
**WATCH DOG BOARD  
GR2015**

# Game Repair



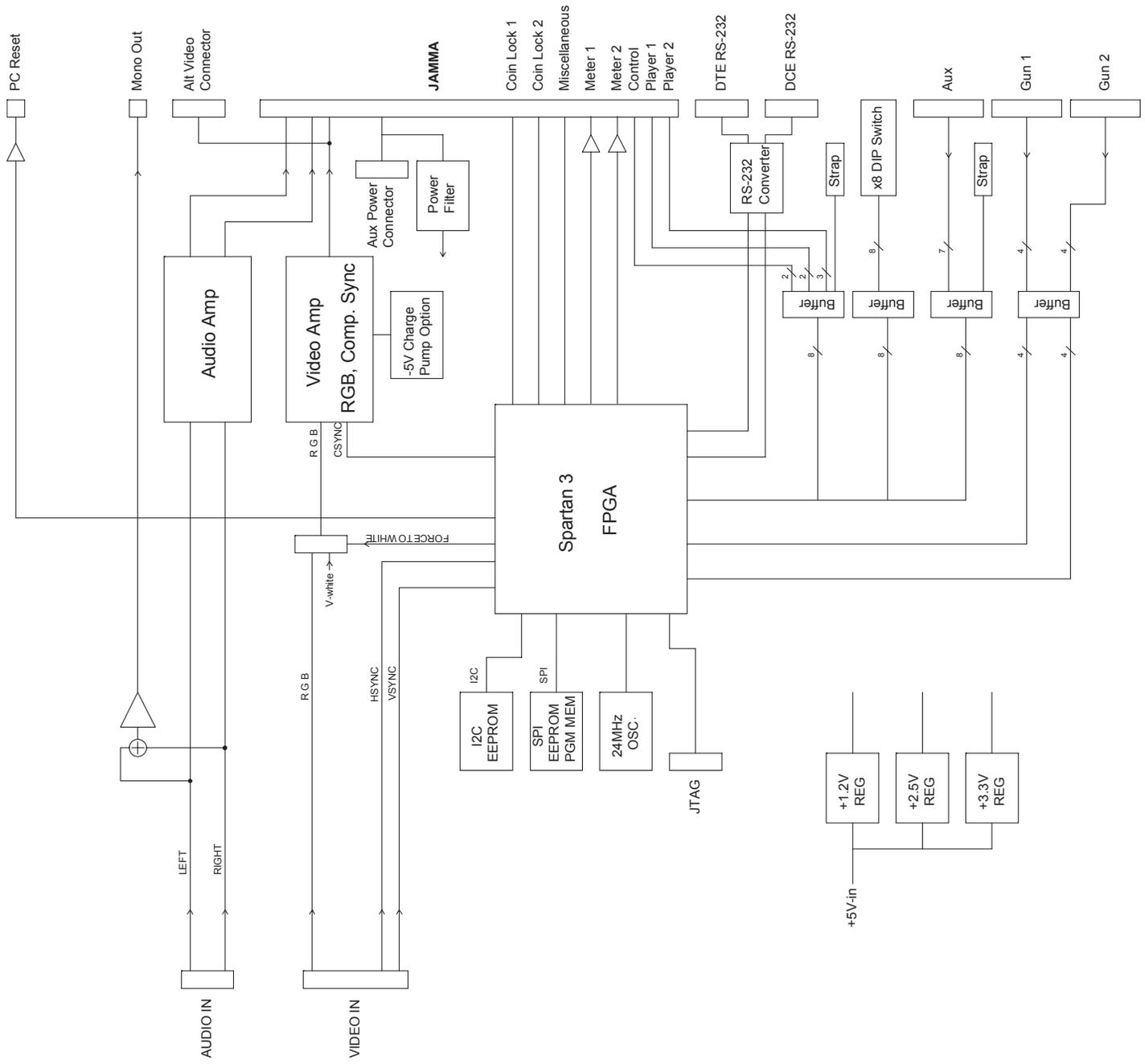
E00414BGRX

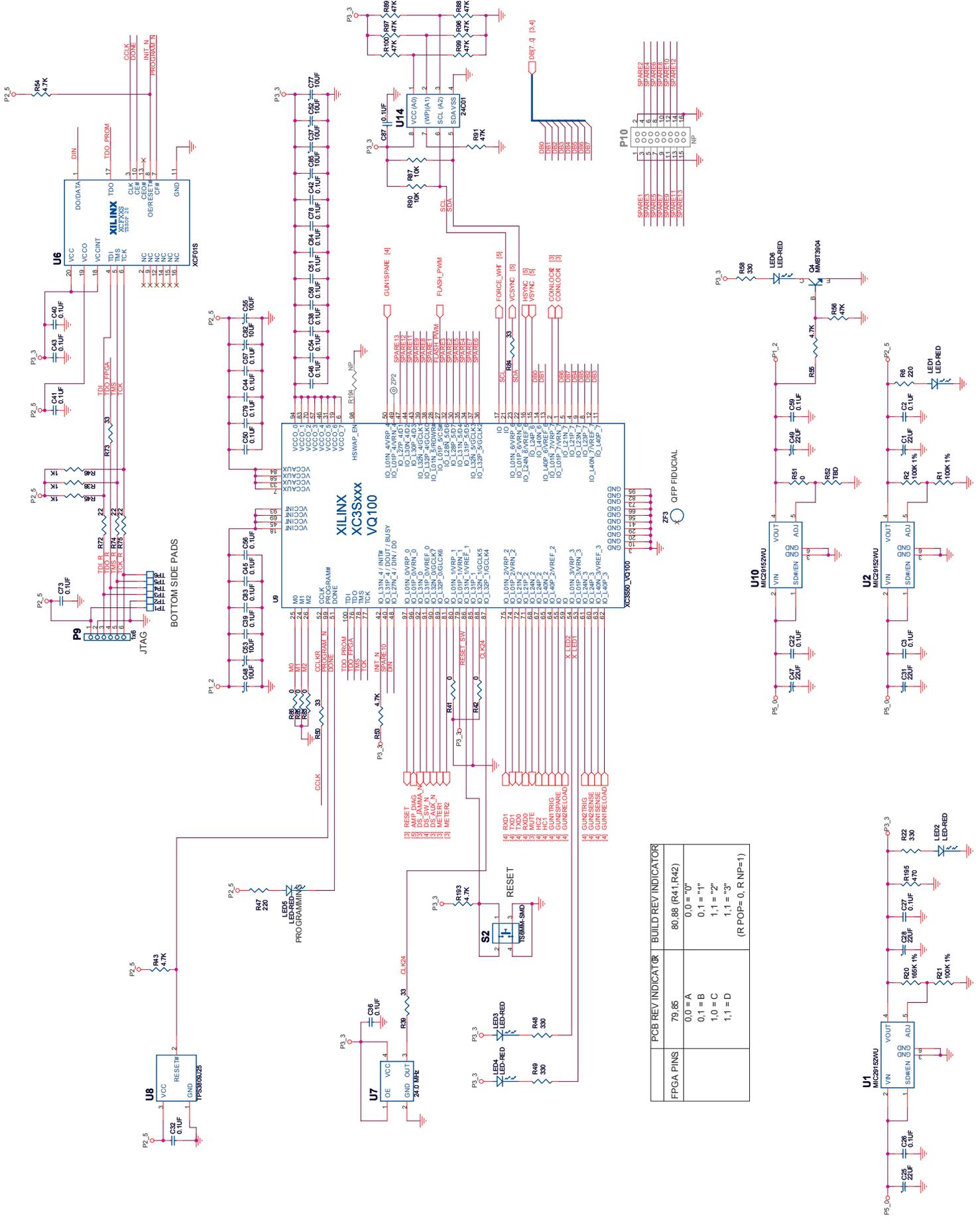




I/O Expansion Schematics

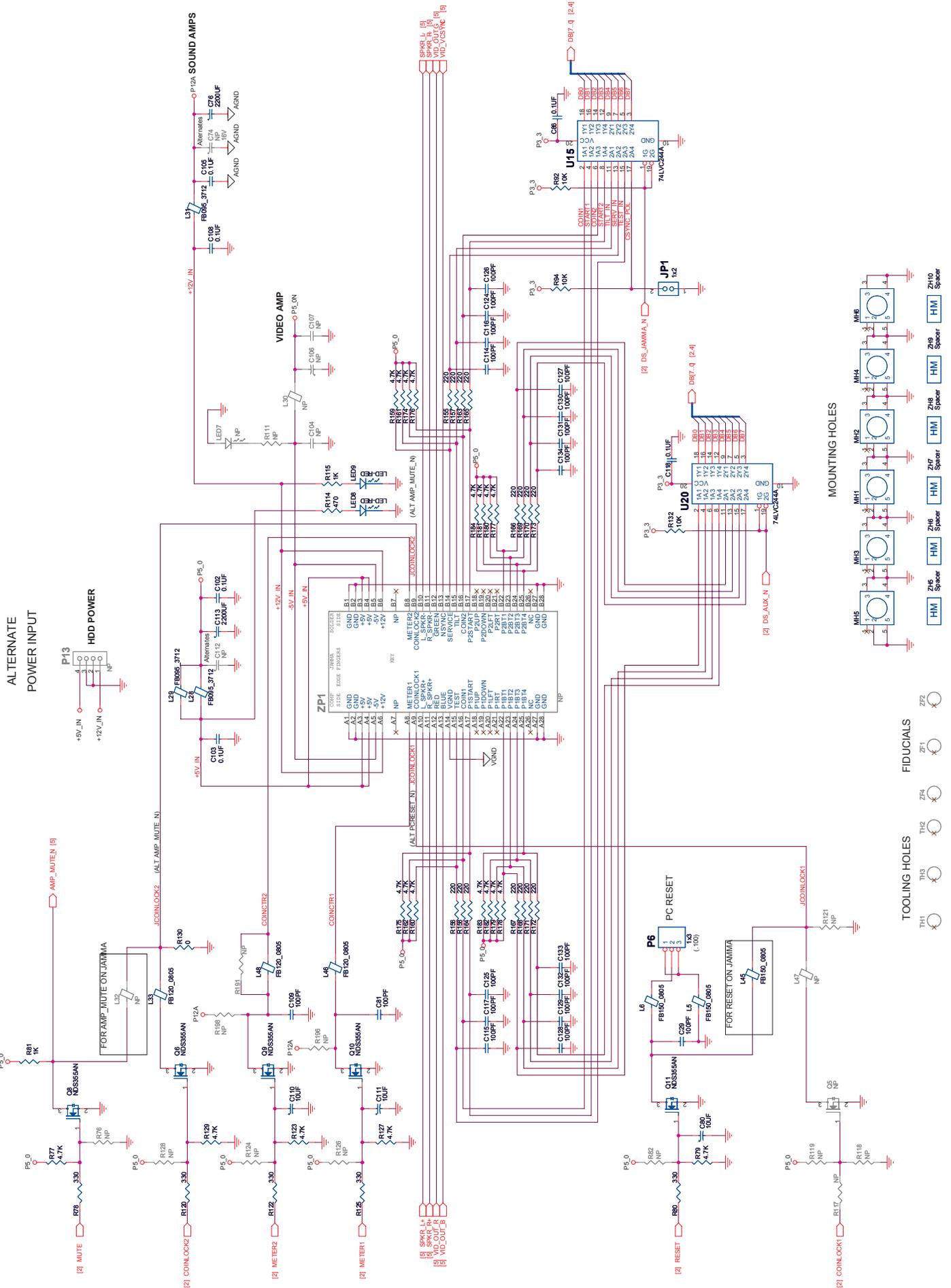
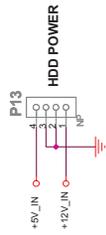




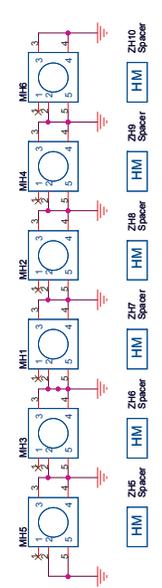


PCB REV INDICATOR	BUILD REV INDICATOR
FPGA PINS	80 88 (R41,R42)
	0.0 = "0"
	0.1 = A
	0.1 = B
	0.1 = "1"
	1.1 = C
	1.1 = "2"
	1.1 = "3"
	1.1 = D
	(R POP=0, R NP=1)

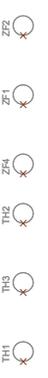
ALTERNATE  
POWER INPUT

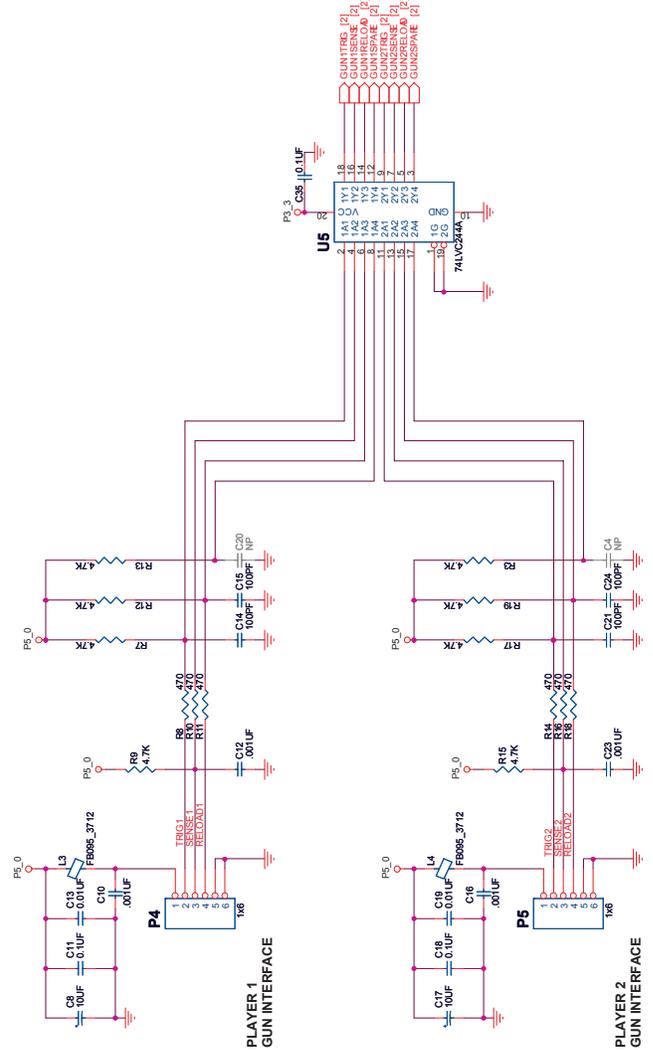
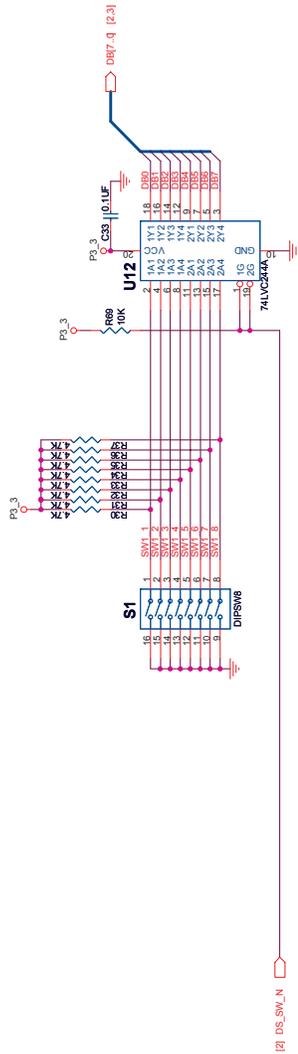
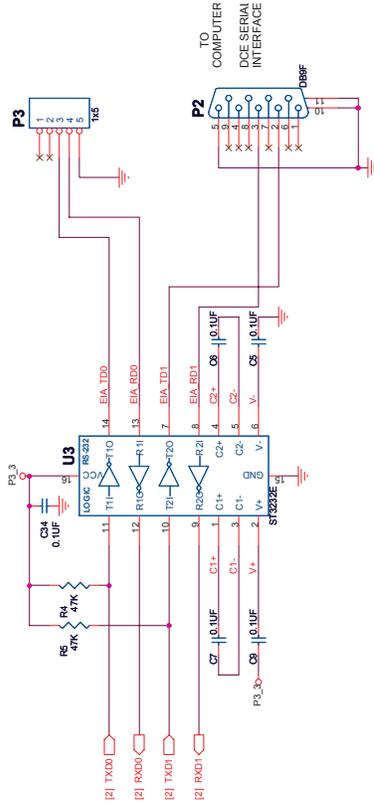
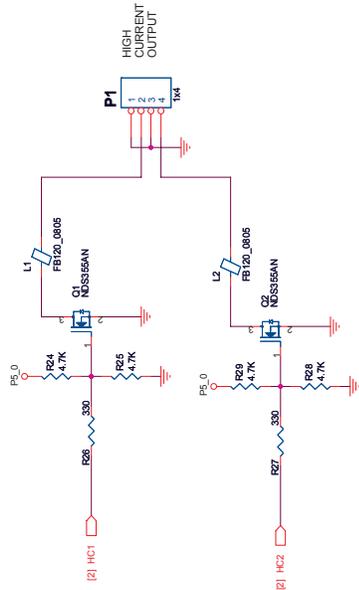


MOUNTING HOLES



TOOLING HOLES

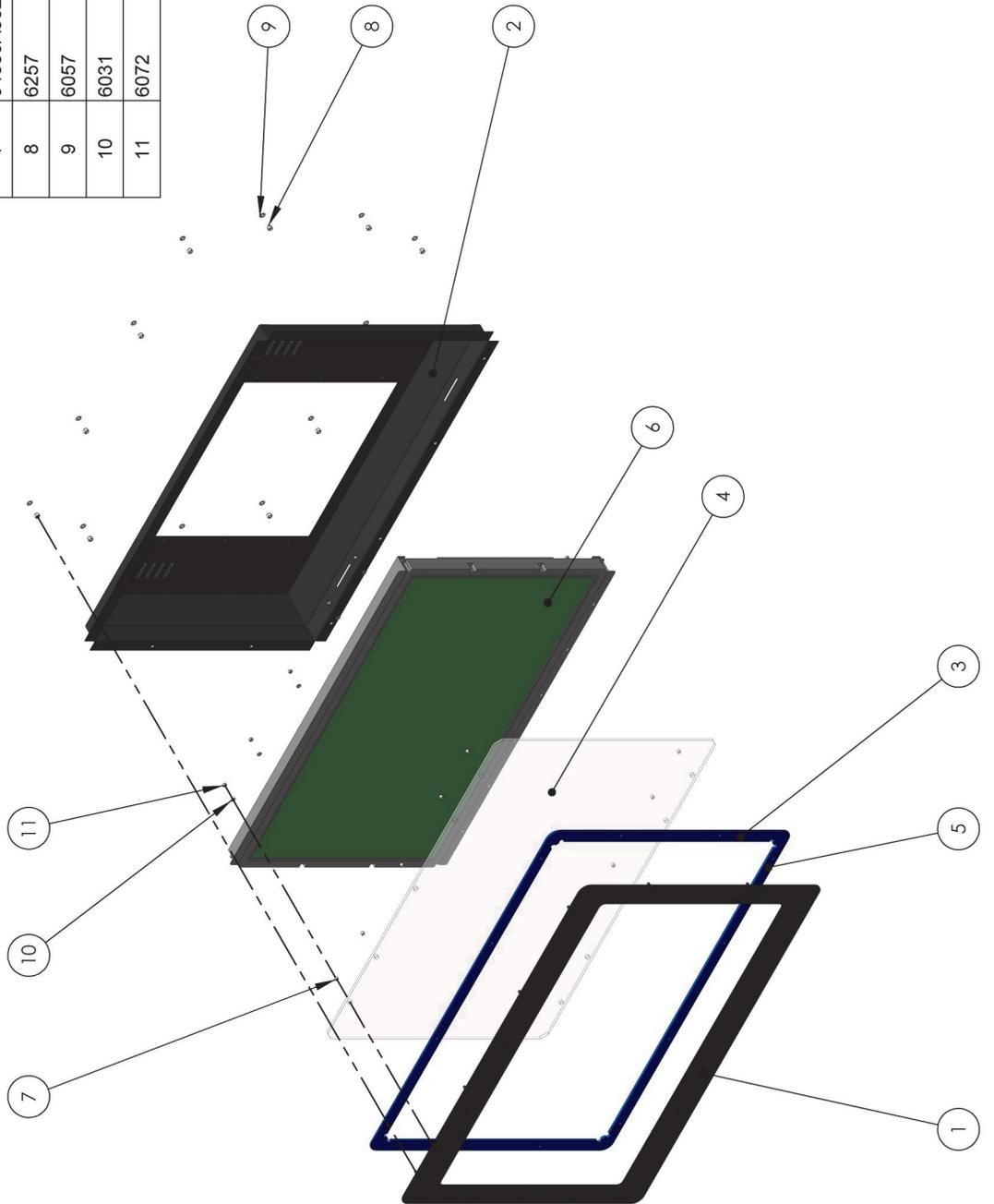




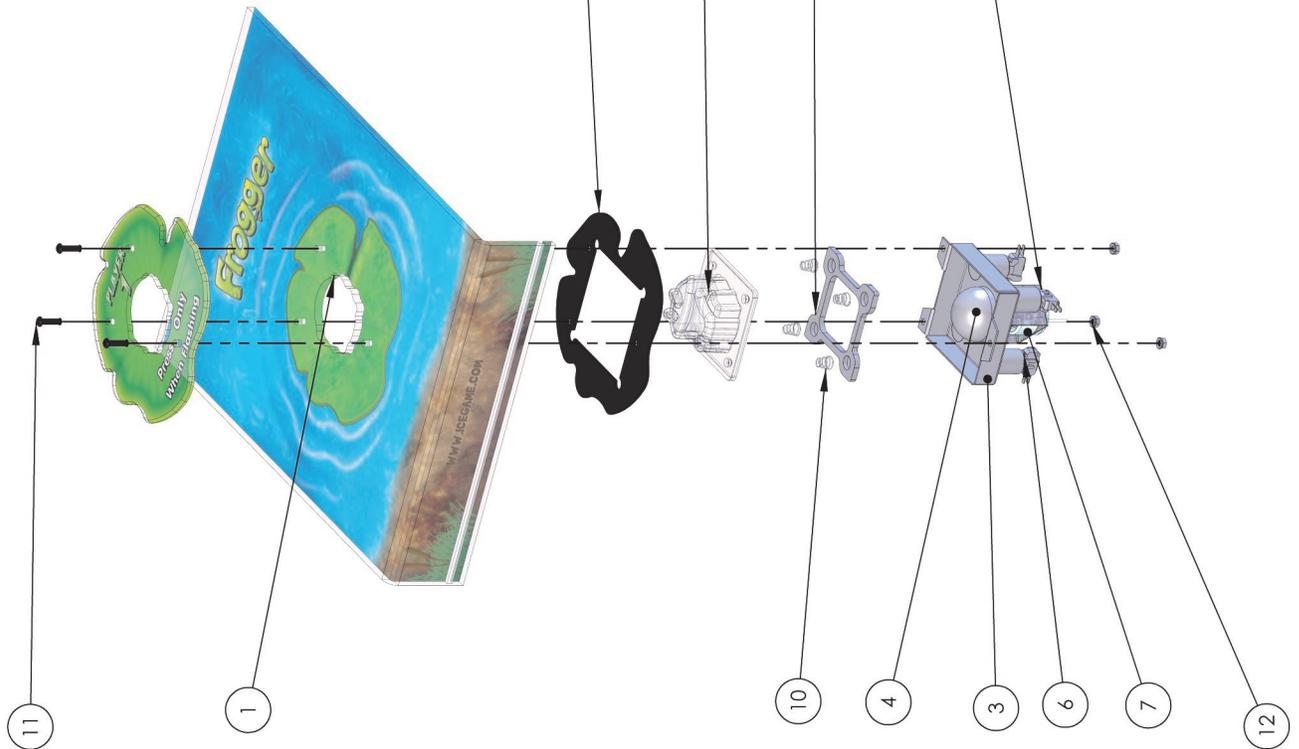




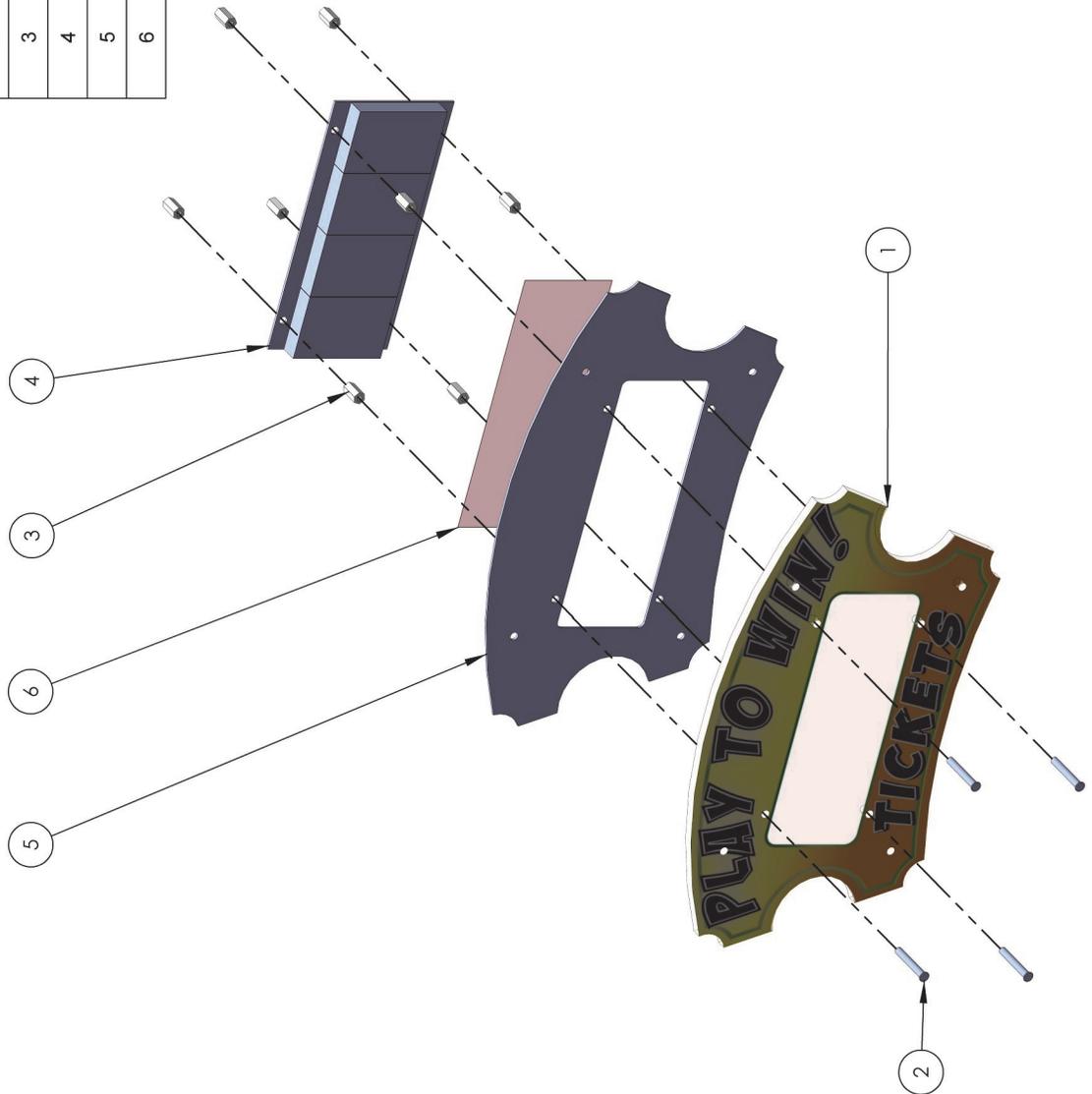
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GR1002	MONITOR BEZEL	1
2	GR1003	MONITOR HOUSING	1
3	GR3046	MONITOR L&R ACCENT EDGE	2
4	GR3027	MONITOR L&R ACCENT EDGE	1
5	GR3047	MONITOR TOP&BOTTOM EDGE	2
6	42LCD MONITOR	42in LCD MONITOR	1
7	94639A352	NYLON SPACER OD3/8 X ID.192 X H.25	10
8	6257	HJNUT 0.25-20	12
9	6057	1/4 X 1/2 X .062 FLAT WASHER	12
10	6031	#8 FLAT WASHER (ZINC)	10
11	6072	8-32 NYLOCK NUT	10



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GR7012	PODIUM COVER	1
2	GR3043	LILY PAD LIGHT BLOCKER	1
3	DN2006R-1	XXXXX	1
4	8980	LED BULB RED CLUSTER	1
5	GR1017	PODIUM BUTTON LIGHT BRACKET	1
6	DN2006R-2	XXXXX	4
7	SH2130X	ASY (2D BULB SOCKET)	1
8	GR3044	SPRING HOLDER	1
9	GR3008	FROG BUTTON	1
10	1692K23		4
11	PC60622	1/4-20 x 1.00" LG. BSHCS	3
12	PC60614	025-20 KEP NUT	3
13	GR7013	LILY PAD	1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GR7030	MARQUEE TICKET	1
2	6300	8/32 x 1 1/4 PEM STUD FH 832-20	4
3	6446	8-32 x 1/2 HH SPACER	8
4	SG2032	4 DIGIT LED BOARD	1
5	GR3092	MARQUEE TICKET COVER	1
6	RED FILTER TAPE	PSA RED FILTER	1





**GR7027P  
Marquee**

**GR7030  
Bonus  
Tickets**

**GR7001  
Cabinet  
Right  
(not visible)**

**GR7004  
Lily Pad  
Left**

**GR7005  
Lily Pad  
Right**

**GR7012  
Control  
Panel  
(2 per game)**

**GR7000  
Cabinet  
Side Left**

**GR7002  
Ticket  
Door**

**GR7003  
Company  
Logos**

# SERVICE PARTS

## HARNESSE ASSEMBLIES

GR2050HX	Main Harness
GR2051HX	Podium Harness
GR2061LX	AC Harness
GR2062LX	AC relay harness
GR2063LX	AC to podium
GR2064LX	AC to computer

## ELECTRICAL ASSEMBLIES

2111	Relay solid state
8993	LED Bulb green cluster
8312	PL-L 40W bulb
E00414BGRX	24 LED Blue tape strip
E00382	Bulb CF27W
E00599	USB A/B cable 6'
E00668	LED used in Marquee
E02247	9 Pin serial cable 6'
GR2000	Frogger computer
GR2014	Security Dongle
GR2015	Watchdog PCB
GR2035X	USB Display interface
GR2036X	I/O Expansion
HH5005CL	Ticket Dispenser
CX8384X	Work Horse 5 ballast
SG2032X	Marquee display board
MON42LCD	42" LCD panel
MON42/47ORCH	A/D board
MON42/47PS	Power supply for monitor

## DECALS

GR7000	Podium Left
GR7001	Podium Right
GR7002	Ticket door
GR7003	Kick plate logo
GR7004	Lily pad (Player 1)
GR7012	Control Panel
GR7030	Bonus Tickets
GR7027	Marquee cover

## MECHANICAL ASSEMBLIES

GR1002-P800	Monitor Bezel
GR1003-P800	Monitor Housing
GR3027	Monitor Cover Glass



# WARRANTY POLICY

I.C.E. Inc warrants all components in new machines to be free of defects in materials and workmanship for the period listed below:

- 180 days on Main PCB's, Computers & Motors
- 1 year on all LCD monitor panels
- 90 days on all other electronic and mechanical components
- 30 days on all I.C.E. repairs and parts purchases

I.C.E. Inc shall not be obligated to furnish a warranty request under the following conditions:

- Equipment or parts have failed through normal wear and tear
- Equipment has been subjected to unwarranted stress, abuse or neglect
- Equipment has been damaged as a result of arbitrary repair/modification

Products will only be covered under warranty by obtaining an I.C.E. authorized RMA #. To obtain an RMA # please provide I.C.E. tech support with the game serial # or original I.C.E. invoice # and a detailed description of the failure or fault symptoms.

I.C.E. Inc will assume no liability whatsoever for costs associated with labor or travel time to replace defective parts. All defective warranty covered components will be replaced with new or factory refurbished components equal to OEM specifications.

I.C.E. Inc will cover domestic UPS ground, or comparable shipping costs during the warranty period. International or expedited shipments are available for an additional charge. To obtain credit defective parts must be returned to I.C.E. Inc, at the customer's expense, within 30 days. After 30 days a 15% re-stocking fee will apply to all returns.

ICE distributors are independent, privately owned and operated. In their judgment, they may sell parts and/or accessories other than those manufactured by I.C.E. Inc. We cannot be responsible for the quality, suitability or safety of any non-I.C.E. part or modification (including labor) that is performed by such a distributor.

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