

# Beetlejuice – Maintenance Manual

## Spooky Pinball

May 16, 2026

# Chapter 1

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## 1.1. Game Assembly and Setup

### 1.1.1. Tools Required

You will need the following tools for setup:

- 5/8" socket wrench
- Utility knife
- Wire cutters
- Scissors
- Small bubble level (side-to-side and incline)
- Someone to help you

### 1.1.2. Game Dimensions

- Shipping box (h x w x d) - 66 x 32 x 32 in
- Folded (h x w) - 55 x 29 in
- Setup with topper (h x w x d) - 90 x 29 x 55 in
- Setup without topper (h x w x d) - 75 x 29 x 55 in

### 1.1.3. Parts List

Qty.	Part(s)
1	Set of coin door keys
1	Pre Assembly Note
1	Tilt plumb bob
2	Back box (head) bolt
4	Pinball legs
4	Pinball leg levelers with nut
4	Felt leg protectors
8	5/8" headed pinball leg bolts
6	Pinballs
1	Power cable (line cord) for your country's electrical system
1	Replacement servo
N/A	Sticker replacements

### 1.1.4. Rubber Rings

Playfield Rubber Rings	
Qty.	Ring Size
5	2 ½ in
5	¼ ID
4	3/8 in
2	¼ OD
2	Thick black post cover

#### **Notice**

Need to report a code bug in Beetlejuice? You can send an email directly to [service@spookypinball.com](mailto:service@spookypinball.com) with the subject "Code Bug"

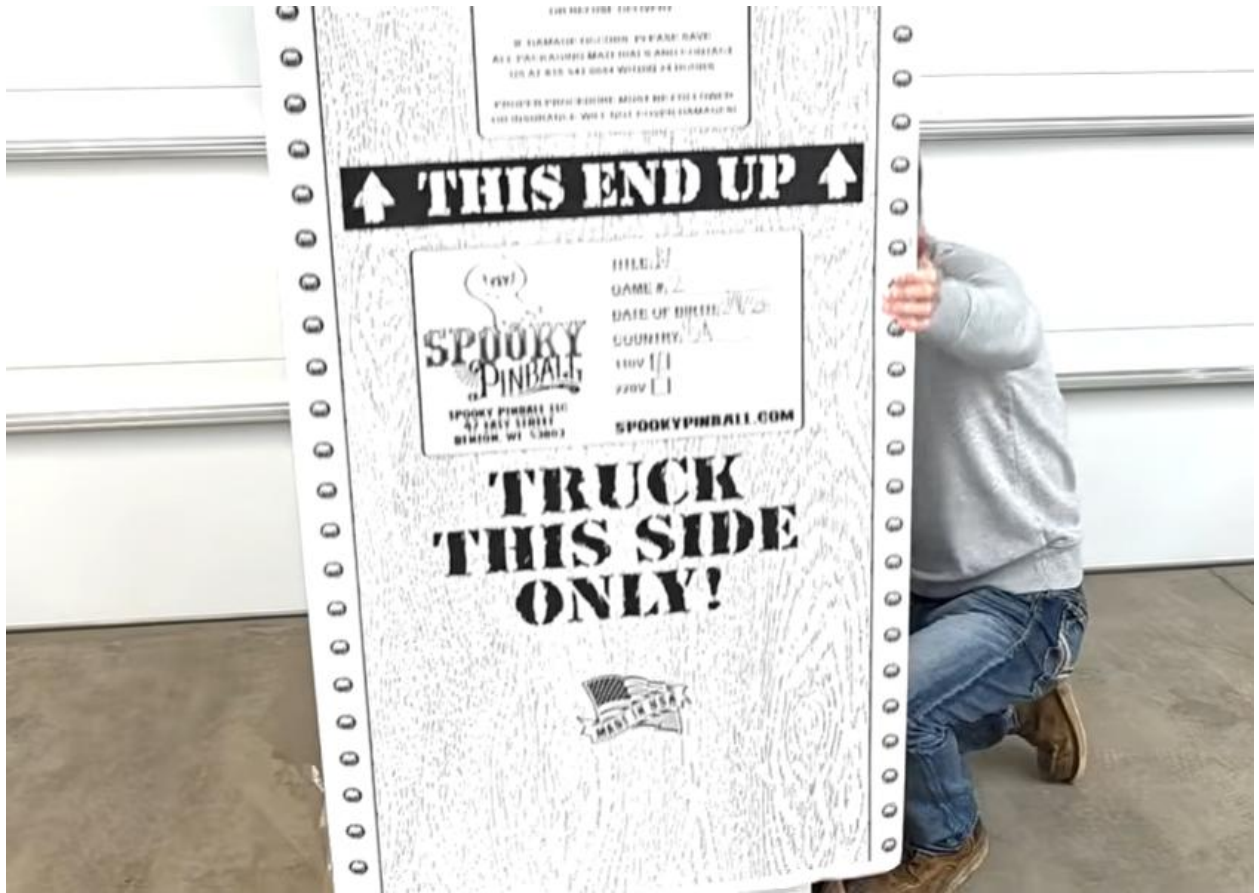
## 1.2. Assemble Your Game

### 1.2.1. Assembly preparations

- i. Note that “TRUCK THIS SIDE” is displayed on the game box. This indicates the bottom of the cabinet rests on the pallet.



- ii. Please take a minute to inspect the box to make sure there is no external damage to the game before opening the box.
- iii. In order to remove the topper from the game, you'll need a pair of wire cutters to cut the two inner straps on the outside of the box that secure the topper to the machine.
- iv. Remove the two hard protective corners from the front and back of the topper.
- v. Remove the topper box. Warning that it is heavy.
- vi. Use the wire cutters to cut the remaining two straps on the outside of the box. **ATTENTION!** Be careful there is some tension on the straps and may release with force.
- vii. Now, slide the box off the game. Kneel down, and from the middle of the box lift straight up. If you do not have the ceiling height to remove the box, cut down the side of the box with a utility knife and “peel” it off.



- viii. Now that the box is off the game, remove the leg box from behind the straps, located on the back side underneath the head. Set it aside for now.



- ix. Cut the remaining two straps that secures the game to the pallet.

**⚠ Warning**

DO NOT CUT THE SHRINK WRAP JUST YET! THE HEAD WILL SLAM TO THE GROUND AND CAUSE SEVERE DAMAGE.



- x. Using your utility knife, gently cut the tape that holds the cardboard around the top of the cabinet. Three separate pieces will need to be removed.



- i. Cut the two corners of the box (where it is taped) that are secured to the pallet. This will help later on, when it is time to set the game down.



### 1.2.2. Install and level the front legs

- i. Locate the leg box that you set to the side earlier. Open the box and remove the 4 legs, 4 leg levelers, 4 felt protectors, AND the set of keys.
- ii. Because they can easily get lost during this process, take the set of keys over to the machine and place one of the keys into the coin door.
- iii. Before the legs go on, you must put on the leg levelers. Starting with the front legs, hand screw the leveler into the whole on the end of the leg and hand tighten. Spooky recommends screwing the levelers all the way into the front legs (note that the back legs will be leveled differently).



- iv. Remove or fold back the protective foam and shrink wrap material from the game to access the leg bolts.
- v. Using a drill or 5/8" socket wrench, remove the leg bolts (4) from the front (left and right side) of the machine.



- vi. Before the front legs are installed on the machine, you need to add the felt protectors. Line up the holes on the felt protector to the corresponding holes on the legs. To ease installation, pre-bend the leveler to the shape of the leg. Repeat for the other front leg.
- vii. Run 2 leg bolts through the aligned holes on the leg and felt protector. Hand tighten before using a drill or wrench to ensure the bolts are TIGHTLY secured.





- i. Repeat the previous step for the second front leg.

**⚠ Caution**

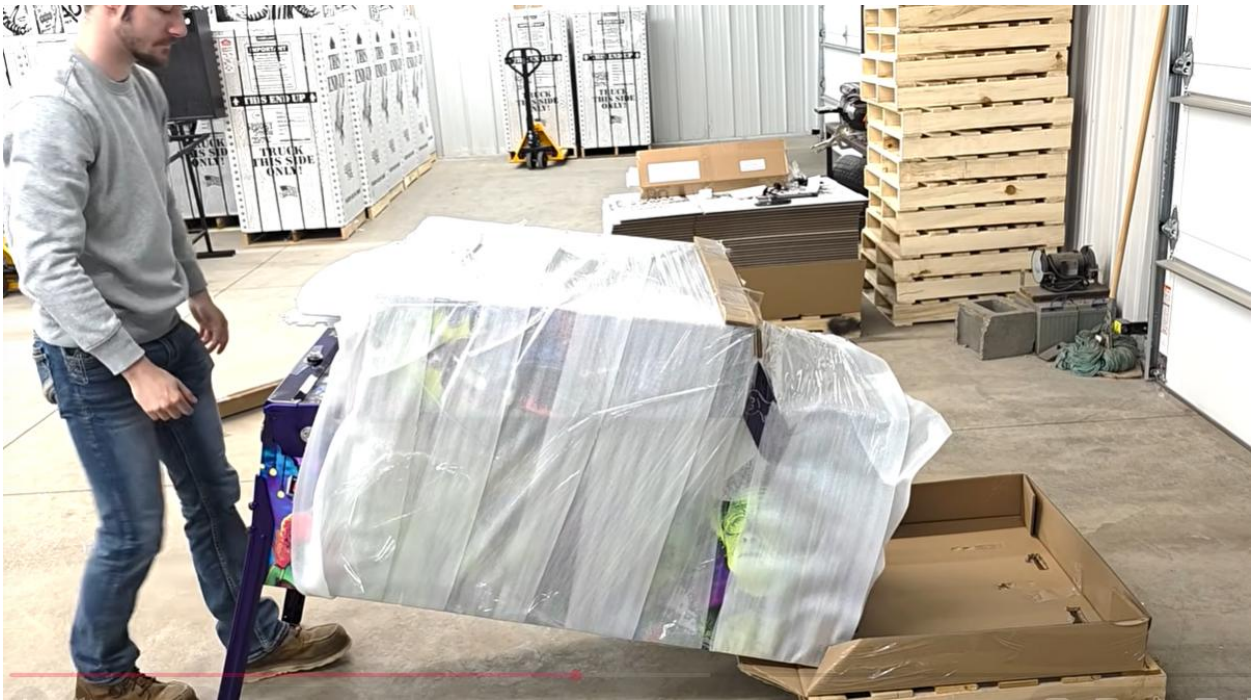
Improperly tightened screws may cause leg movement and long-term damage to the cabinet.

**1.2.3. Install and level the back legs**

- i. Next, you will set the game on its front two legs. Stand between and take hold of the installed legs and lower the game slowly toward you.



- ii. Make sure the top of the machine remains on the pallet.



- iii. It is ideal to have a second person to help you lift the machine, but if you are alone, you will want to lift the back of the machine onto a seat of a chair or stool.



- iv. Remove the leg bolts (4) from the back of the machine.
- v. The process for securing the two legs to the back of the machine are nearly identical. However, to get the desired pitch around 6.8 degrees, Spooky recommends that you set the leg levelers on the back legs at about 7/8" of the way through the leg itself (as opposed to all the way through on the front legs).



- vi. Add the felt leg protectors and properly tighten the leg bolts to both back legs.



- vii. Lift the machine enough so that you can kick the chair or stool from under the machine and set the game down.



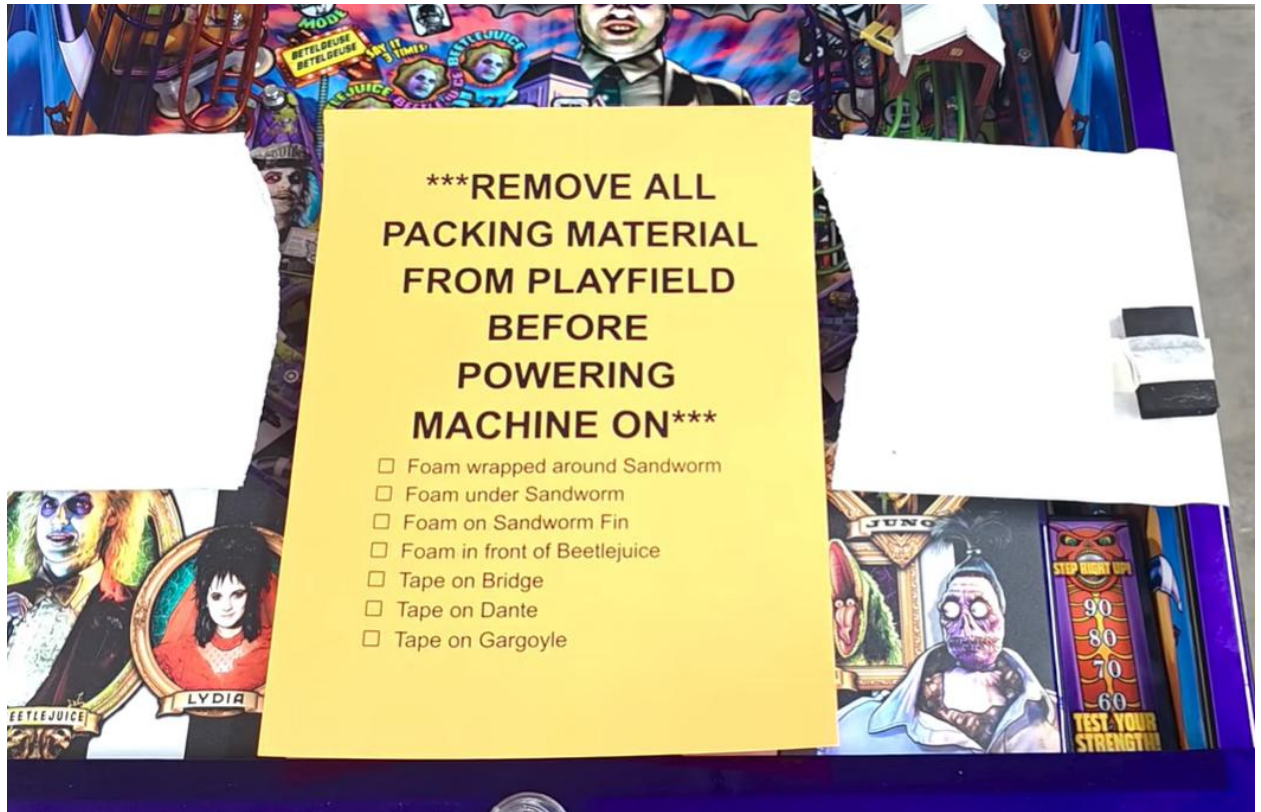
- viii. With a pair of scissors or a utility knife, carefully remove the remaining protective foam and cardboard material from the machine. You do not want to cut into or damage the armor or the decals on the game.



- ix. Peel the plastic protective layers off the topper that comes with your game.
- x. Fold up the head from the game. Make sure to feed the tube filled with wire between the head and the cabinet through the holes as to not crush the tube between the head and the cabinet.
- xi. Make sure the latch on the backside of the game is secured so that the head stays locked.

#### 1.2.4. Access the playfield

- i. Review and remove the “REMOVE ALL PACKING MATERIAL FROM PLAYFIELD” note that is taped to the glass.

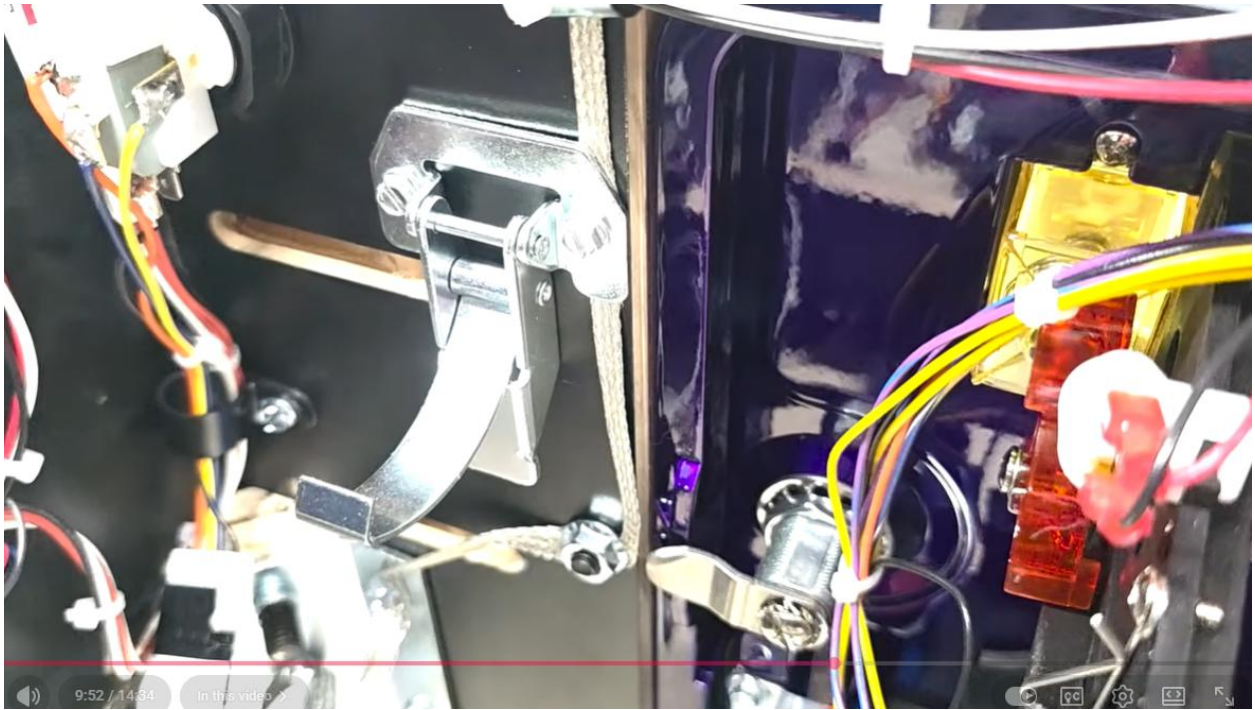


- ii. Then, remove the foam padded protection, two on the left side and two on the right side of the game.

### 1.2.5. Install the pinballs

- i. To install the pinballs, you will first need to remove the lockdown bar and then the glass.
- ii. Locate the set of keys from the leg box and open the coin door (you may have already done this in an earlier step).
- iii. Reach inside the cabinet to unlatch the lockdown bar. The latches are located on the left and right side, on both sides of the frame of the coin door.





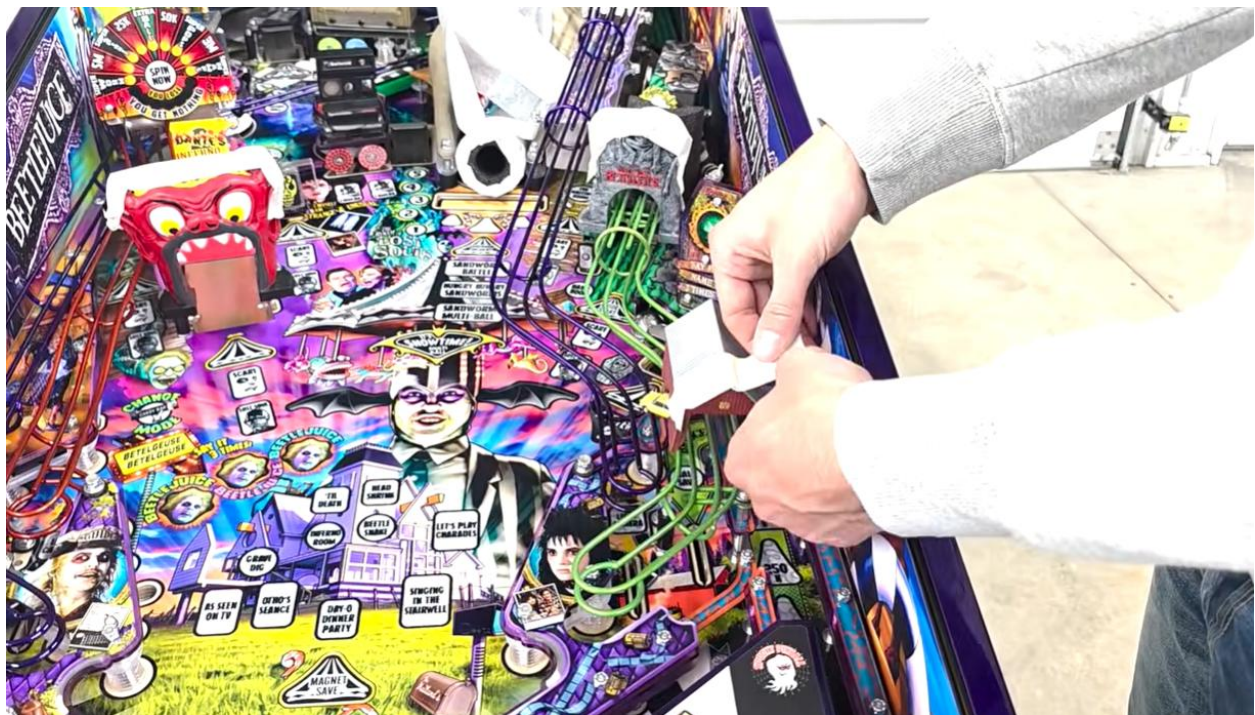
- iv. Lift up the lockdown bar to remove it. Set it aside in a safe place.



- v. Close the coin door and remove the glass by pulling it towards you. Set the glass down on a piece of cardboard or blanket. NEVER set the glass down on concrete.



- vi. Remove all the foam and tape from the mechanisms (Sandworm, Sandworm Fin, Beetlejuice, Bridge, Dante, and Gargoyle BEFORE you turn the game on.



- vii. For the Beetlejuice mechanism, grab hold of Beetlejuice with one hand and fit your index finger into the foam, lift Beetlejuice up and away from the foam. Then, pull the foam out.



- viii. Remove the pinballs from the leg box. Please take a moment to examine them for any nicks or scratches. Also, this is a good time to wipe them off with a microfiber cloth before installing them into the game.
- ix. Place the pinballs on the lower playfield and let them naturally fall into the trough. Please install all 6 balls that come with the game.
- x. **IMPORTANT** Pitch and level **MUST** be followed for the Beetlejuice layout to function properly. The pitch should be set to right around 6.8 degrees.



- xi. The playfield should be level (side-to-side).



- xii. Slide the glass back on, place the lockdown bar on and relatch the lockdown bar (left and right side). Close the coin door.

#### 1.2.6. Power up the game

- i. Locate the power cord in the leg box and plug in the female end into the receptacle on the back of the base cabinet, and the male end into your outlet.
- ii. Turn the switch on (under the bottom of the cabinet, on the right front side). Please take this moment to check for proper function for the basics of the machine.
- iii. If the machine does not seem to function properly refer the troubleshooting section in this manual, or contact [service@spookyinball.com](mailto:service@spookyinball.com)

#### **⚠ CAUTION!**

**YOU ARE WORKING WITH SENSITIVE ELECTRONIC MATERIALS. PLEASE USE CAUTION!**

### 1.2.7. Install the Tilt Bob

The tilt plump bob (hereafter referred to as tilt bob) is a metal cone that when it makes contact with the ring it is inside of, will issue a Tilt Warning. After repeated tilts the machine's coils will shut down and the player will lose their current ball.

- i. To install the tilt plump bob, open the coin door on the front of the game.
- ii. On the inside left of the base cabinet you will find a long metal rod inside a metal closed hoop. Insert the narrow end of the tilt bob onto the metal rod and then tighten the nut on the side of the tilt bob.

The further up the metal rod you go, the less movement will be necessary to tilt the machine. After playing a couple of games you can adjust this to your liking.

### 1.3. Catastrophic Failure

Sometimes things go really bad, your game won't load and the screen will remain black, or show an error, or you'll see a gray BIOS screen or some other issue. This can be a problem with the mini-PC but it might also just be a problem with the software, and this can be fixed by "re-imaging" your mini-PC which will get you back to a working state and then you can update to the latest code as normal.

#### *To Restore the Beetlejuice image*

- i. Download the Restore Image from [https://www.spookypinball.com/game-support/Beetlejuice/Game Restore Instructions](https://www.spookypinball.com/game-support/Beetlejuice/Game%20Restore%20Instructions).
- ii. Unzip the contents of your download and copy to a new, or freshly formatted USB drive.
- iii. Safely eject the USB drive once the file transfer is complete.
- iv. Plug the USB into your game (direct into mini pc or into coin door USB extension is fine) while it is off and turn it on to start the process, it should automatically start.
- v. You'll see "Clonezilla" and it will take a fair while doing things, be patient. Finally, you'll see a reboot menu with three options (Power off, Reboot and CMD), just turn your game off, unplug the USB and turn the game on again.
- vi. It should load the base image and only the service menu will be accessible. You can then download the latest game software version online and install the update following the normal update procedure.

### 1.4. Update instructions

#### *To Update to the latest version of Beetlejuice*

- i. Retrieve the latest code package from the link on the Spooky Support page.
- ii. Load the file onto a USB flash drive (do not place it inside any folders on the drive).
- iii. Safely eject the drive, and insert it into the pinball machine, using either the USB port behind the coin door, or plugging directly into the PC in the head.

- iv. With the game booted and on the attract screen, enter the service menu (green button inside coin door), and navigate to SYSTEM > UPDATE SOFTWARE > (choose your code version). If you do not see your code version there, try unplugging and re-plugging the USB drive, and hit REFRESH in the service menu. When you select the desired version, the game will begin updating, and the play field lights illuminate in yellow. When the update is complete, the play field lights turn green.
- v. Power the game off for a moment. When you turn it back on, the game will take a few minutes to make backups and finalize the update. Allow the game to fully boot into attract mode, otherwise the game will revert back to the previous code version the next time it turns on.  
**Note:** You may keep several versions of code on the USB drive and choose the menu which to install.

## 1.5. Maintaining Your Pinball Machine

Spooky Pinball recommends that you regularly perform select maintenance routines. These maintenance routines focus on the important areas within your machine.

- Remove the glass to visually inspect the playfield for loose connectors, worn rubbers, cracked plastics, and debris that may have collected.
- Eject the pinballs and inspect for ball damage. Replace pinballs, if necessary. Coil dust at the bottom of the cabinet suggests coil stop damage.
- Examine the inside of the cabinet for bulbs and other loose parts.
- Use a pinball to check all playfield switches.
- Review the game audits.
- Run the diagnostics.
- Adjust the tilt bob, if necessary.
- Verify that the latest software version is installed.
- Replace worn or dirty rubber parts.
- Use an ammonia-free glass cleaner to clean the playfield glass.
- Use a non-abrasive cleaner (like NOVUS 1: Clean & Shine) to clean the plastics.

### Notice

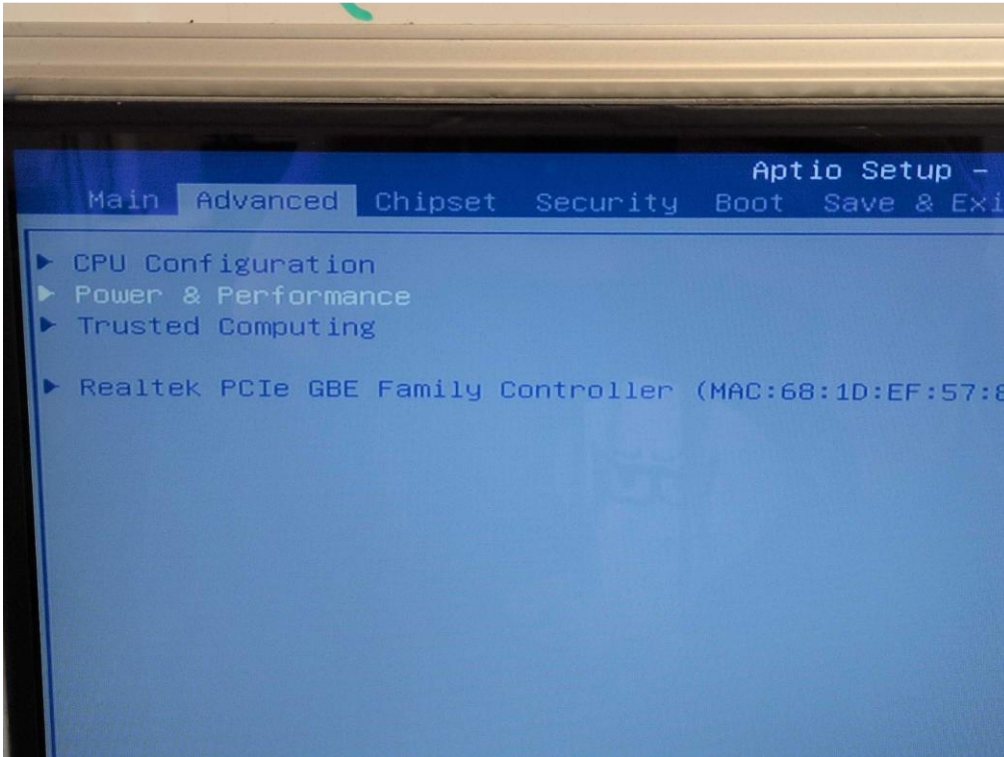
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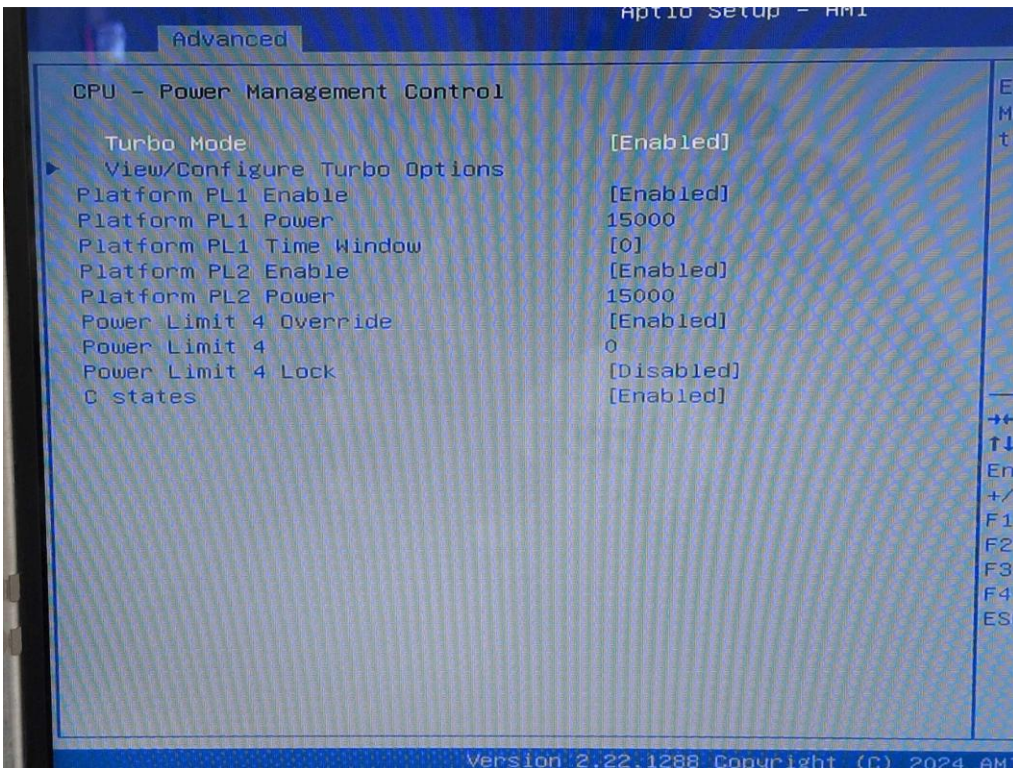
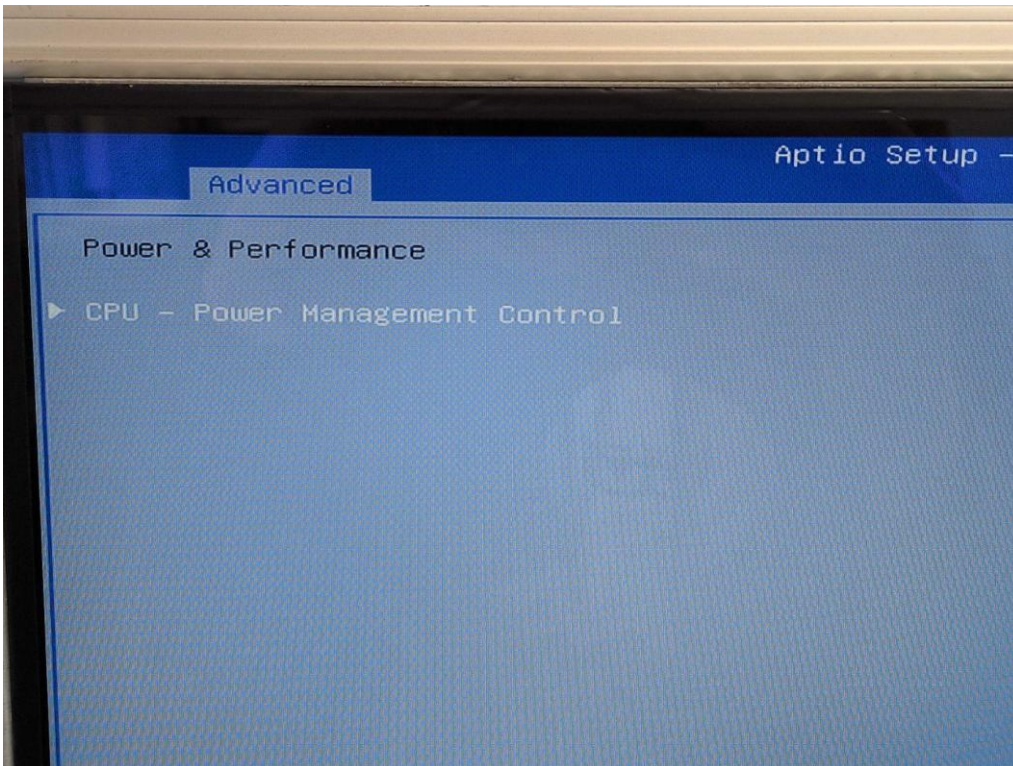
## 1.6. New PC Bring Up BIOS Options

This procedure is helpful if you need to reformat the game's PC, or if you lose the BIOS (Basic Input/Output System) settings due to a power loss or battery failure.

- i. Attach a keyboard, display, and power chord to the PC.

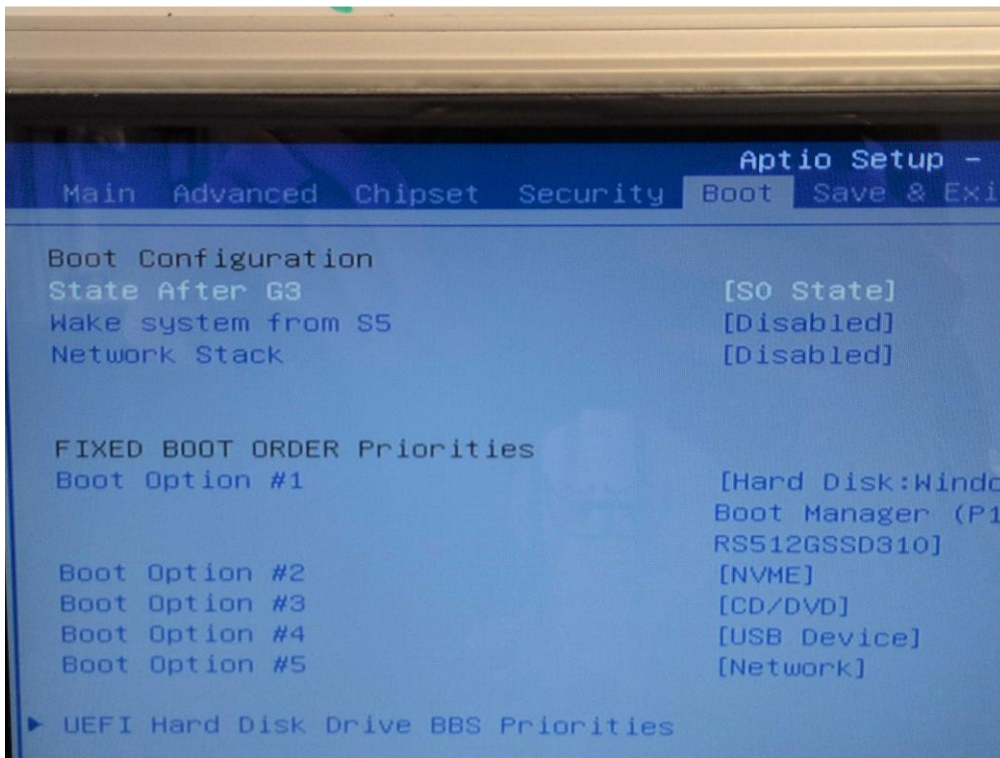
- ii. Press the PC's power button to turn it on. IMMEDIATELY AFTER pressing the power button, repeatedly press the keyboard's Delete key until the BIOS screen appears.
- iii. Operating systems vary, but you should have a similar path to enable Turbo Mode: Advanced > Power & Performance > CPU > Turbo Mode. Set to Enabled.



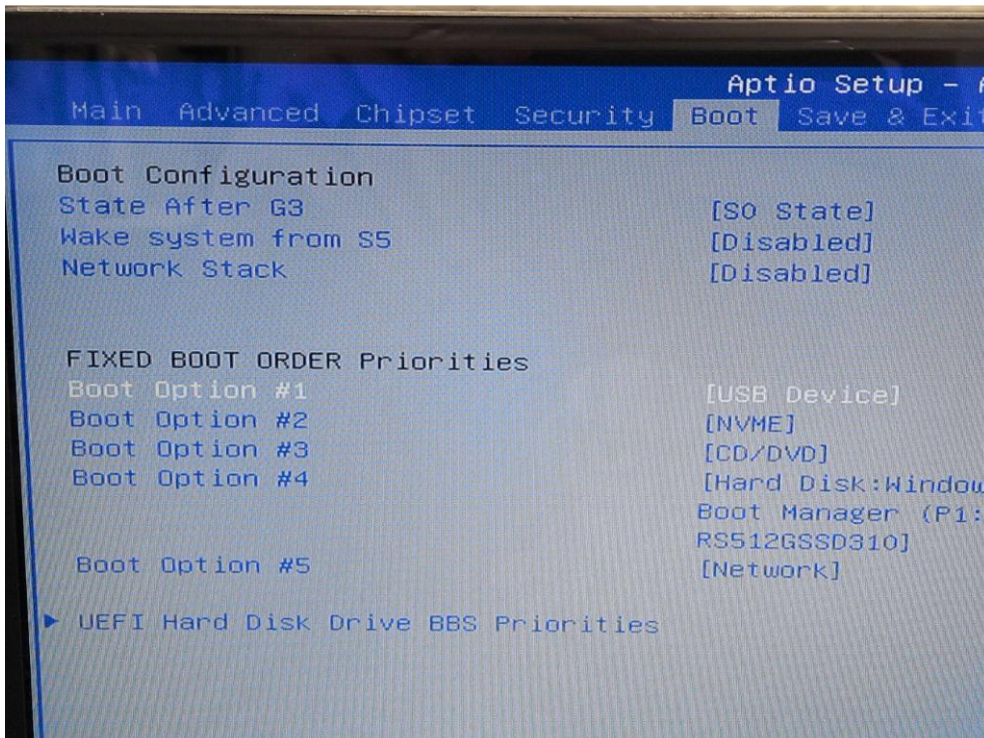


iv. Navigate to the Boot tab.

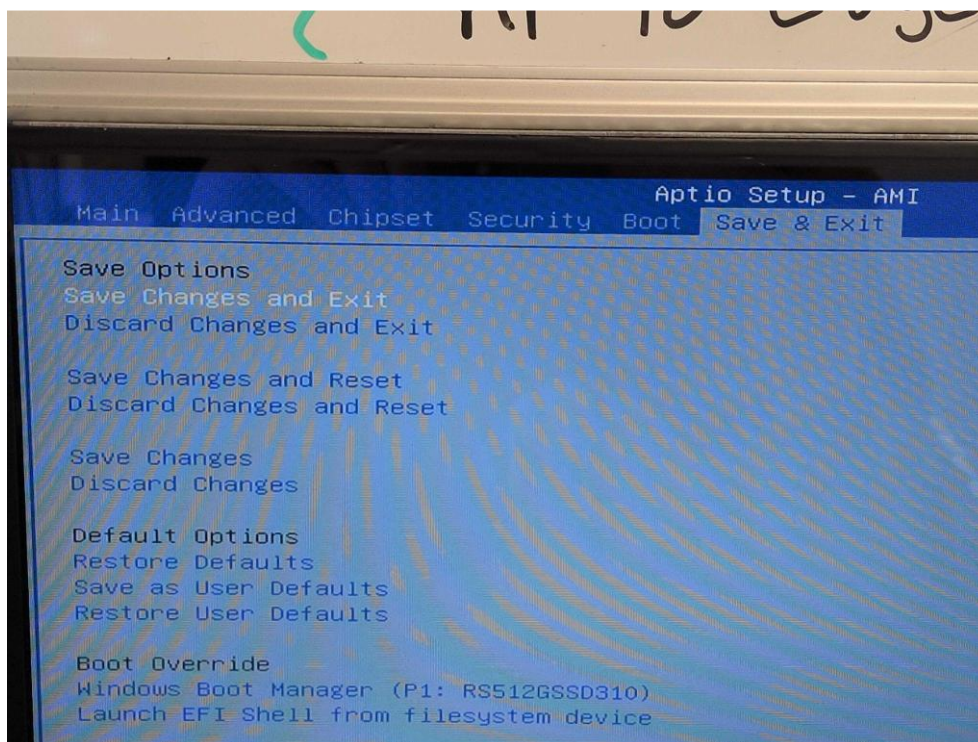
- v. Set the State After G3 setting to SO State. This makes the PC boot when power is applied, instead of having to press the Power button.



- vi. Set Boot Option #1 to USB Device.



- vii. Select the Save & Exit tab > Save Changes and Exit.



# Chapter 2

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## 2. Game Menu Settings Reference

### 2.1. Switch Test

2.1.1. Manually pressing a switch displays its number and name on the screen.

Switch #	Switch Name
0	Left Sling
1	Left Flipper High
2	Left Flipper Low
3	Magnet Save
4	Beetlejuice Kicker
5	Knocker
7	Shaker
48	Drop Knockdown
49	Drop Reset
50	Right Sling
51	Trough Eject
52	Mystery Scoop
53	Right Flipper Low
54	Auto Launch
55	Right Flipper High
56	Bottom Pop Bumper
57	Top Pop Bumper
58	Juno Scoop
59	Lost Souls Scoop
60	Middle Pop Bumper
61	Upper Flipper Low
62	Up Post
63	Upper Flipper High
27	Beetlejuice Magnet

## 2.2. Coil Test and Settings ⚡

### 2.2.1. Adjust pulse/hold power for each coil.

Coil	Setting Name	Min	Max	Default
0 – Left Sling	Left Sling Pulse Power	0	100	55
1 – Left Flipper High	Left Flipper High Pulse Power	0	100	100
	Left Flipper High Hold Power	0	100	0
2 – Left Flipper Low	Left Flipper Low Pulse Power	0	100	100
	Left Flipper Low Hold Power	0	100	100
3 – Magnet Save	Magnet Save Pulse Power	0	100	100
	Magnet Save Pulse Time	0 ms	50 ms	15 ms
	Magnet Save Hold Power	0	10	0
4 – Beetlejuice Kicker	Beetlejuice Kicker Pulse Power	0	100	20
5 – Knocker	Knocker Pulse Power	0	100	80
7 – Shaker	Shaker Pulse Power	0	100	40
	Shaker Hold Power	0	20	20
55 – Right Flipper High	Right Flipper High Pulse Power	0	100	100
	Right Flipper High Hold Power	0	100	0
54 – Auto Launch	Auto Launch Pulse Power	0	100	40
53 – Right Flipper Low	Right Flipper Low Pulse Power	0	100	100
	Right Flipper Low Hold Power	0	100	100
52 – Mystery Scoop	Mystery Scoop Pulse Power	0	100	100
51 – Trough Eject	Trough Eject Pulse Power	0	100	60
50 – Right Sling	Right Sling Pulse Power	0	100	80
49 – Drop Reset	Drop Reset Pulse Power	0	100	100
48 – Drop Knockdown	Drop Knockdown Pulse Power	0	100	100
63 – Upper Flip High	Upper Flipper High Pulse Power	0	100	60
	Upper Flipper High Hold Power	0	100	0
62 – Up Post	Up Post Pulse Power	0	100	65
61 – Upper Flip Low	Upper Flipper Low Pulse Power	0	100	100
	Upper Flipper Low Hold Power	0	100	100

Coil	Setting Name	Min	Max	Default
60 – Middle Pop Bumper	Middle Pop Bumper Pulse Power	0	100	60
59 – Lost Souls Scoop	Lost Souls Scoop Pulse Power	0	100	100
58 – Juno Scoop	Juno Scoop Pulse Power	0	100	100
57 – Top Pop Bumper	Top Pop Bumper Pulse Power	0	100	60
56 – Bottom Pop Bumper	Bottom Pop Bumper Pulse Power	0	100	60
27 – Beetlejuice Magnet	Beetlejuice Magnet Pulse Power	0	100	100
	Beetlejuice Magnet Hold Power	0	100	75

## 2.3. Magnet Save Settings

### 2.3.1. Configure the magnet save behavior and presets.

Setting Name	Description/Notes	Min	Max	Default
Preset A	Preset Magnet Save values (low aggression)	-	-	-
Preset B	Preset Magnet Save values (medium aggression)	-	-	-
Preset C	Preset Magnet Save values (high aggression)	-	-	-
Magnet Save Release Period	Time magnet holds ball before releasing	50 ms	500 ms	200 ms
Magnet Save Pulse Time	Duration of initial magnet activation pulse	0 ms	50 ms	15 ms
Auto Launch Pulse Power	Power used to auto-launch ball after save	0	100	50
Test Magnet Save	Press Green button to activate test cycle	-	-	-

## 2.4. Shaker Settings

### 2.4.1. Enable/disable the shaker motor and set intensity presets.

Setting Name	Description/Notes	Min	Max	Default
Shaker	Enable or disable shaker motor entirely	Off	On	On

Setting Name	Description/Notes	Min	Max	Default
Low Preset	Sets shaker to low intensity	-	-	-
Medium Preset	Sets shaker to medium intensity	-	-	-
High Preset	Sets shaker to high intensity	-	-	-
Shaker Pulse Power	Sets shaker pulse intensity	0	50	20
Shaker Hold Power	Sets shaker hold intensity	0	50	17
Test Shaker	Test shake intensity	-	-	-

## 2.5. Servo Settings

### 2.5.1. Fine-tune position values for all playfield mechanisms.

Setting Name	Description/Notes	Min	Max	Default
<b>RAMP SERVO SETTINGS</b>				
Ramp Servo Up Position	Upper travel limit of ramp servo	0	100	31
Ramp Servo Down Position	Lower travel limit of ramp servo	0	100	65
<b>BEETLEJUICE SERVO SETTINGS</b>				
BJ Servo Up Position	Raised position for BJ figure	0	100	52
BJ Servo Down Position	Lowered/hidden position for BJ figure	0	100	31
BJ Servo Pickup Position	Ball-pickup position for BJ figure	0	100	25
<b>BRIDGE SERVO SETTINGS</b>				
Bridge Servo Up Position	Bridge raised (open) position	0	100	65
Bridge Servo Down Position	Bridge lowered (closed) position	0	100	45
<b>STANDUP BANK SERVO SETTINGS</b>				
Standup Bank Up Position	Targets fully upright	0	100	95
Standup Bank Flush Position	Targets flush with playfield	0	100	52
Standup Bank Down Position	Targets fully down	0	100	23
<b>SANDWORM VERTICAL (Y) SERVO SETTINGS</b>				
Sandworm Y Bottom Position	Sandworm at lowest point	0	100	40
Sandworm Y Eat Ball Position	Sandworm in ball-eat position	0	100	42
Sandworm Y Top Position	Sandworm at highest point	0	100	50
<b>SANDWORM HORIZONTAL (X) SERVO SETTINGS</b>				
Sandworm X Bottom Position	Sandworm far position	0	100	68

Setting Name	Description/Notes	Min	Max	Default
Sandworm X Eat Ball Position	Sandworm in ball-eat position	0	100	64
Sandworm X Top Position	Sandworm near position	0	100	61
<b>COUCH SERVO SETTINGS</b>				
Couch Down Position	Couch in rest/down position	0	100	87
Couch Dance Limit Position	Couch animation travel limit	0	100	50
Couch Dump Position	Couch ball-dump position	0	100	15
Service Couch	Manually actuate couch servo	-	-	-

## 2.6. Lights and Flashers

### 2.6.1. LED insert index reference and flasher test functions.

- CYCLE ALL LEDs/INSERTS – Turns on all game LEDs

INDIVIDUAL LED/INSERT TEST			
#	LED/Insert Name	#	LED/Insert Name
0	Subway	59	Showtime
1	Handbook	60	Sandworm Multiball
2	Right Orbit Arrow	61	Hungry Hungry Sandworms
3	Right Orbit Scare	62	Sandworm Battle
4	Right Orbit Lost Soul	63	Sandworm Incident
5	Coffin	64	Left Orbit Arrow
6	Right Scoop Arrow	65	Left Orbit Scare
7	Mystery	66	Left Orbit Lost Soul
8	Right Wing	67	Passive Sling GI Top
9	Shooter Lane 1 Mil	68	Passive Sling GI Middle
10	Shooter Lane 500K	69	Passive Sling GI Bottom
11	Shooter Lane 250K	70	Change Mode
12	Shooter Lane 100K	71	Left Ramp Arrow
13	Right Outlane Bridge Out	72	Left Ramp Scare
14	Right Inlane Light Camera	73	Left Ramp Lost Soul
15	Right Lane Top GI	74	Left Wing
16	Right Lane Bottom GI	75	Right Beetlejuice
17	Right Sling Bottom GI	76	Middle Beetlejuice
18	Right Sling Top GI	77	Left Beetlejuice
19	Right Apron	78	Left Inlane Light Camera

INDIVIDUAL LED/INSERT TEST			
#	LED/Insert Name	#	LED/Insert Name
20	Left Apron	79	Left Outlane Ball Save
21	Back GI 1	80	Beetle Snake Mode
22	Back GI 2	81	Head Shrink Mode
23	Back GI 3	82	Charades Mode
24	Back GI 4	83	Stairwell Mode
25	Back GI 5	84	Dinner Party Mode
26	Back GI 6	85	Magnet Save Arrow
27	Back GI 7	86	Extra Ball Arrow
28	Back GI 8	87	Shoot Again Arrow
29	Back GI 9	88	Séance Mode
30	Back GI 10	89	TV Mode
31	Lost Soul Spawned	90	Grave Dig Mode
32	Extra Ball Target	91	Inferno Room Mode
33	Knock 1	92	Till Death Mode
34	Knock 2	93	Left Lane GI Top
35	Knock 3	94	Left Sling GI Top
36	Juno Scoop Arrow	95	Left Sling GI Bottom
37	Now Serving Target Left	96	Left Lane GI Bottom
38	Now Serving Target Right	97	Backboard 4
39	Spinner Lost Soul	98	Backboard 3
40	Spinner Scare	99	Backboard 2
41	Spinner Arrow	100	Backboard 1
42	Bottom Pop	101	Wheel 1
43	Middle Pop	102	Wheel 2
44	Top Pop	103	Wheel 3
45	Camera Target Left	104	Wheel 4
46	Camera Target Right	105	Wheel 5
47	Soul 5	106	Wheel 6
48	Soul 4	107	Wheel 7
49	Soul 3	108	Wheel 8
50	Soul 2	109	Wheel 9
51	Soul 1	110	Wheel 10
52	Sandworm Target Bank Left	111	Wheel 11
53	Sandworm Target Bank Middle	112	Wheel 12

INDIVIDUAL LED/INSERT TEST			
#	LED/Insert Name	#	LED/Insert Name
54	Sandworm Target Bank Right	113	Wheel 13
55	Waiting Room	114	Wheel 14
56	Right Ramp Arrow	115	Wheel 15
57	Right Ramp Scare	116	Wheel 16
58	Right Ramp Lost Soul	117	Wheel 17

- TURN ON ALL FLASHERS – Lights all the flashing LEDs in the game

INDIVIDUAL FLASHER TEST	
31	Mystery Scoop
30	Lost Souls Scoop
29	Juno Scoop
28	Camera
26	Coffin
25	Drop Target
24	Marquee

- TOPPER/CABINET LIGHT TEST – Test topper and cabinet LED’s illumination
- GENERAL LIGHTING BEHAVIOR – Selectable shade of white LEDs

## 2.7. Audits

### 2.7.1. Read-only game statistics and reset functions.

AUDITS	
Audit Item	Description
Earnings	Total earnings recorded by game
Total Games Played	Cumulative game count
One Player Games	Games played with 1 player
Two Player Games	Games played with 2 players
Three Player Games	Games played with 3 players
Four Player Games	Games played with 4 players
Total On Time	Total power-on hours
Coil/Servo Activations	Per-coil activation counts
Switch Activations	Per-switch activation counts
Reset High Scores	Clears all high score entries
Clear All Audits	Resets all audit counters to zero

## 2.8. Audio

### 2.8.1. Control all volume levels and attract mode audio behavior.

Setting Name	Description/Notes	Min	Max	Default
Master Volume	Overall output level. Affects all sub-volumes	0	11*	8
Music Volume	Background music level	0	11*	8
Voice Volume	Character callout volume	0	11*	9
SFX Volume	Sound effects level	0	11*	6
Video Volume	Audio track for video clips	0	11*	9
Ducking	Lowers music when voice/SFX plays (0=off, 1=full)	0	100	50
Service Menu SFX	Audio feedback during service menu navigation	Off	On	On
Attract Mode Callouts	Voice callouts during attract mode	Off	On	On
Attract Mode Music	Background music during attract mode	Off	On	On
Attract Mode SFX	Sound effects during attract mode	Off	On	On

\*Master Volume of 11 = 'These go to 11.' Use with caution in noise-sensitive locations.

## 2.9. System Settings

### 2.9.1. Pricing, gameplay rules, replay, and machine configuration.

Setting Name	Description/Notes	Min	Max	Default
<b>PRICING</b>				
Free Play	Disables coin mechanism; all games free	Off	On	On
Credit Cost	Cost per credit (currency units)	\$0.25	\$10	\$1.00
Coin Drop Value	Value of one coin insertion	\$0.25	\$10	\$0.25
Bonus Coins After	Number of paid credits before bonus	2	30	8
Bonus Coins Awarded	Free credits awarded at bonus threshold	0	30	0

Setting Name	Description/Notes	Min	Max	Default
Clear Credits	Remove all credits from machine	—	—	—
Add Credit	Manually add one credit	—	—	—
<b>REPLAY SETTINGS</b>				
Replay Mode	Auto / GC / Fixed / Disabled	—	—	Auto
Replay Score	Score needed to earn replay	10,000,000	1 Billion	100,000,000
Max Replay Score	Ceiling for auto-adjusting replay	100,000,000	1 Billion	1 Billion
Min Replay Score	Floor for auto-adjusting replay	10,000,000	1 Billion	100,000,000
Replay Increase	Amount score increases after replay	10,000,000	1,000,000,000	100,000,000
Replay Backdown	Amount score decreases if not hit	10,000,000	100,000,000	10,000,000
Max Extra Balls	Maximum extra balls earnable per game	0	10	5
<b>ATTRACT</b>				
Attract Mode Callouts	Voice callouts during attract	Off	On	On
Attract Mode Music	Music during attract	Off	On	On
Attract Mode SFX	Sound effects during attract	Off	On	On
Catherine O'Hara Tribute Screen	Display tribute screen in attract	Off	On	On
<b>ADDITIONAL SETTINGS</b>				
Bell Tower High Score Backdown Amount		0	100	1
Knocker	Enable/disable knocker on match/award	Off	On	On
Shaker	Enable/disable shaker (gameplay)	Off	On	On
Registrar Callouts	Enable bureaucratic registrar voice lines	Off	On	Off
Balls Per Game	Number of balls per game	1	5	3
Max Extra Balls	Max extra balls per game	0	10	5
Max Players Per Game	Maximum simultaneous players	1	4	4
Tilt Warnings	Warnings before tilt penalty	0	10	2
Tilt Cooldown	Time after tilt before play resumes	1 Sec	10 Sec	2 Sec
Ball Save Timeout	Duration of ball save on plunge	0 Sec	60 Sec	15 Sec
Multiball Ball Save Timeout	Ball save window during multiball	0 Sec	60 Sec	30 Sec
Chance To Match	Probability of match sequence (0–1)	0	100	50
Autolaunch	Auto-launches ball after idle timeout	Disabled	300 Sec	Disabled
Ball Search Timeout	Seconds before ball search	10 Sec	60 Sec	10 Sec

Setting Name	Description/Notes	Min	Max	Default
	activates			
Forced Ball Search Delay	Delay before forced ball search	Disabled	10 Sec	5 Sec
Reset High Scores	Clears all high score entries	—	—	—
Adult Mode	Enables adult-oriented audio content	Off	On	Off
Beta Tester Mode	Activates unreleased/test features	Off	On	Off
Wifi Software Update	Downloads latest code via Wi-Fi connection	—	—	—
USB Software Update	Updates code from USB flash drive	—	—	—
Write Logs To USB	Exports system logs to USB drive	—	—	—
Restore Factory Defaults	Resets ALL settings to factory values	—	—	—

## 2.10. Feature Settings

### 2.10.1. Gameplay mechanics, SDTM saves, and playfield-specific tuning.

Setting Name	Description/Notes	Min	Max	Default
Ball Lock Steal	Allows player to steal locked balls from opponent	Off	On	Off
Mux Seconds Per Soul	Duration each soul stays active on mux display	1 Sec	30 Sec	10 Sec
Magnet Save Release Period	How long magnet holds ball (see Magnet Save tab)	50 ms	500 ms	200 ms
Magnet Save Pulse Time	Initial magnet activation pulse duration	0 ms	50 ms	15 ms
Test Magnet Save	Press Green button to test magnet save cycle	—	—	—
Test BJ Mech	Manually cycle Beetlejuice figure mechanism	—	—	—
Test Sandworm	Manually cycle Sandworm mechanism	—	—	—
Test Topper	Test topper lighting/motor	—	—	—
Speak and Spook	Enables Beetlejuice ambient speak/scare events	Off	On	On
Attract Mode Fly	Beetlejuice flies in attract mode	Off	On	On
Consume Magnet Save If Ball Save	Uses magnet save even when ball save is active	Off	On	On

Setting Name	Description/Notes	Min	Max	Default
Camera Hurryup Awards Ball Save	Completing camera hurryup grants ball save	Off	On	Off
*Sandworm Targets SDTM Save	SDTM ball save when ball enters Sandworm targets	Off	On	Off
*Juno Scoop SDTM Save	SDTM ball save on Juno Scoop drain angle	Off	On	Off
*Mystery Scoop SDTM Save	SDTM ball save on Mystery Scoop drain angle	Off	On	Off
*Lost Soul's Scoop SDTM Save	SDTM ball save on Lost Souls Scoop drain angle	Off	On	On
*Right Orbit SDTM Save	SDTM ball save on Right Orbit drain angle	Off	On	Off
Bridge Out Drains	Ball can drain through Bridge Out lane	Off	On	On

**\*SDTM = Straight Down The Middle. These settings protect against unfair center drains.**

## 2.11. Network & Updates

### 2.11.1. Wi-Fi management and software update

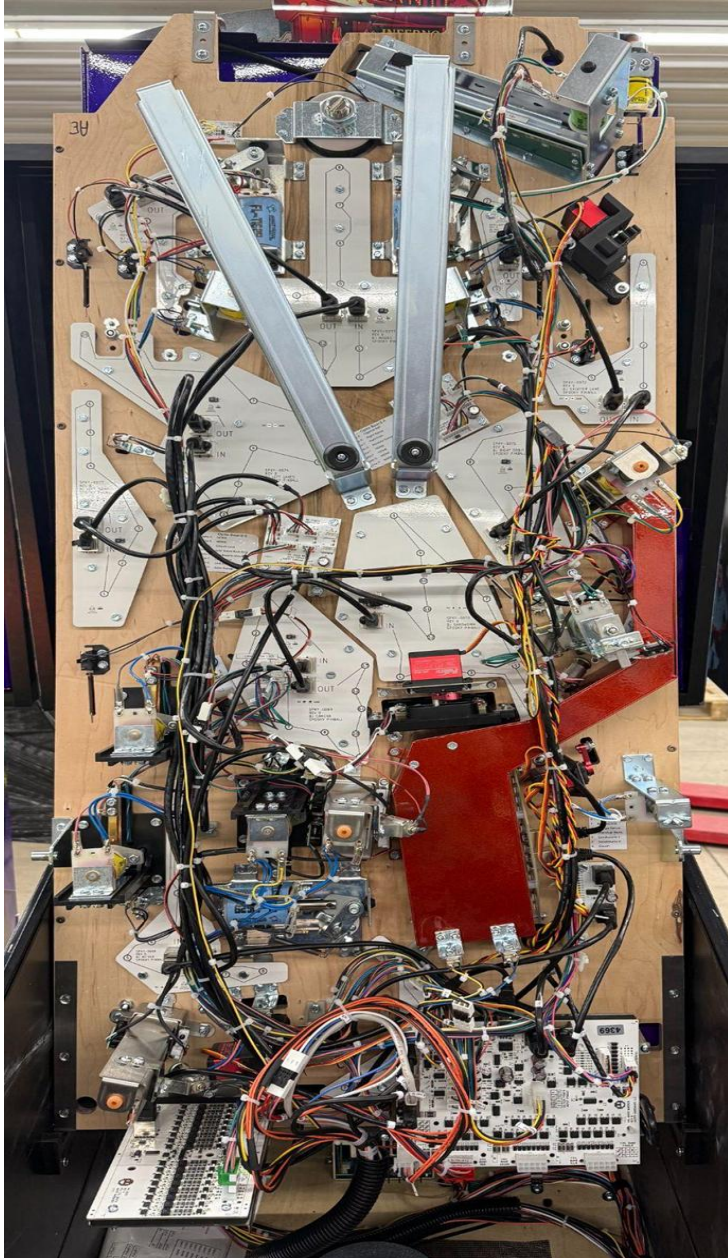
Function	Description/How-To
Check Connection Status	Press Green button to verify current network connection
Scan For Wi-Fi Networks	Press Green button to search for available Wi-Fi networks
Existing Wi-Fi Connections	Press Green button to list previously connected networks
Show Wi-Fi Password Chars	Toggle visibility of password characters (On = visible)
Wi-Fi Software Update	When connected, searches for and downloads latest game code
USB Software Update	Insert USB with code file; press Green to install
Write Logs To USB	Exports all system logs to inserted USB drive

# Chapter 3

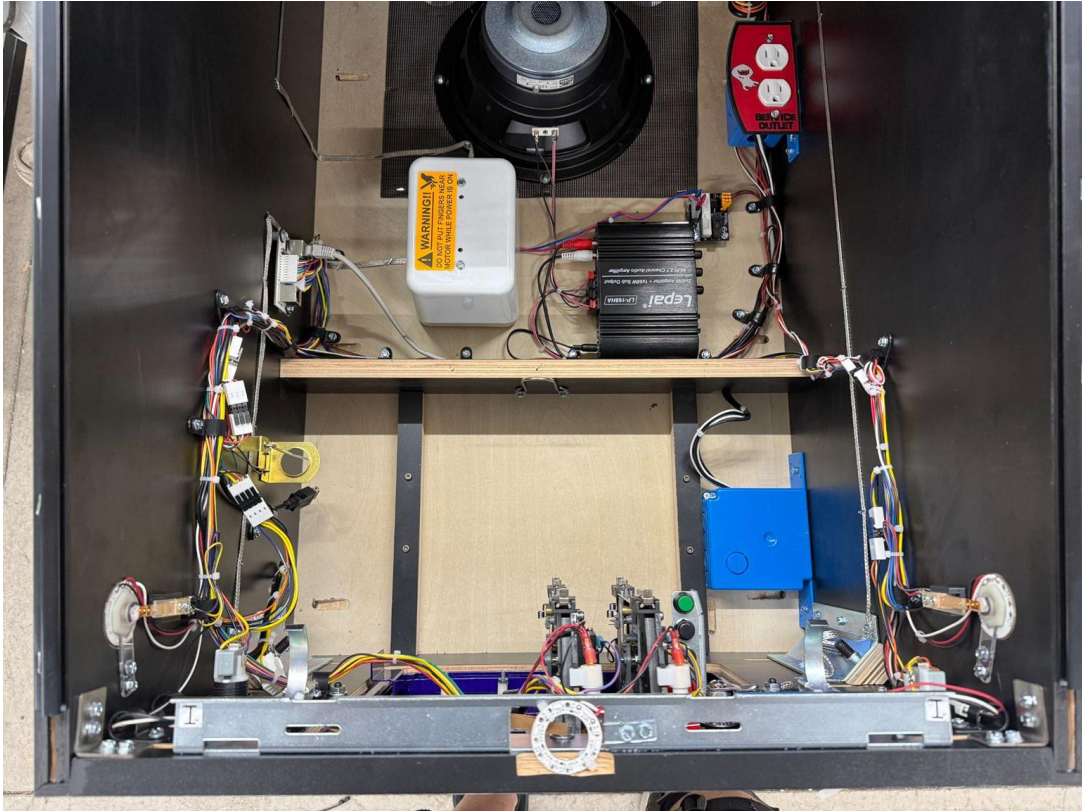
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## 3. Layouts and Schematics

### 3.1. Playfield Underside



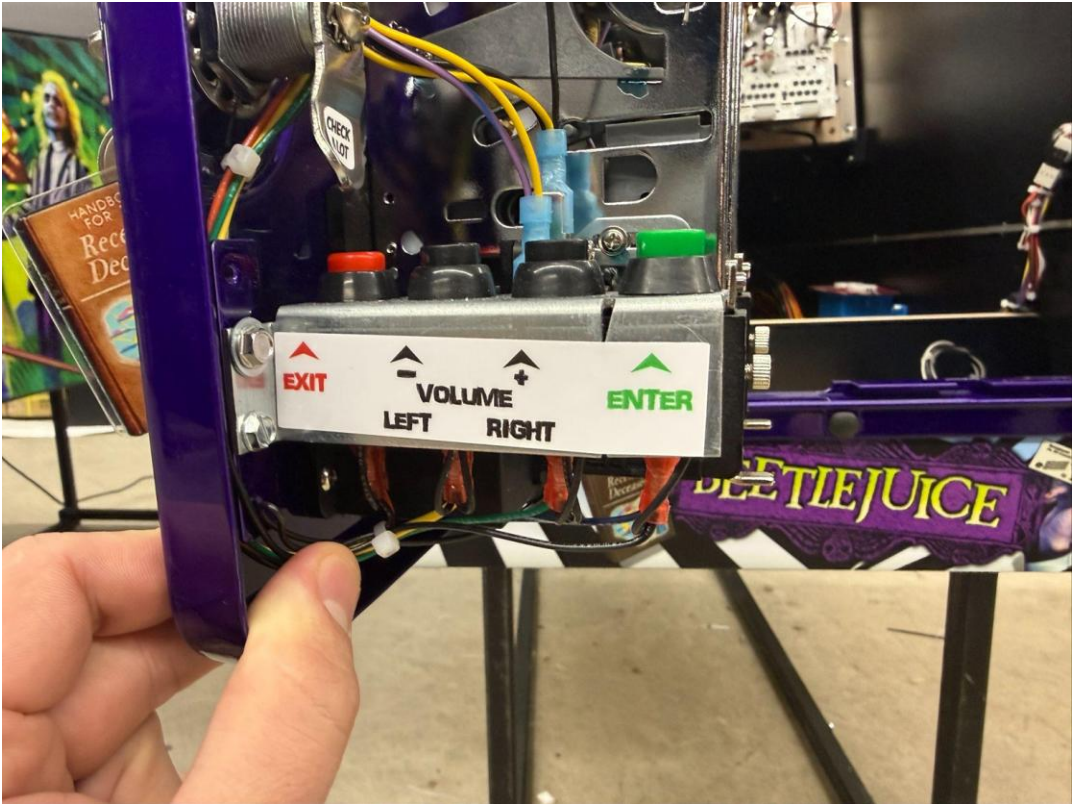
3.2. Cabinet Bottom



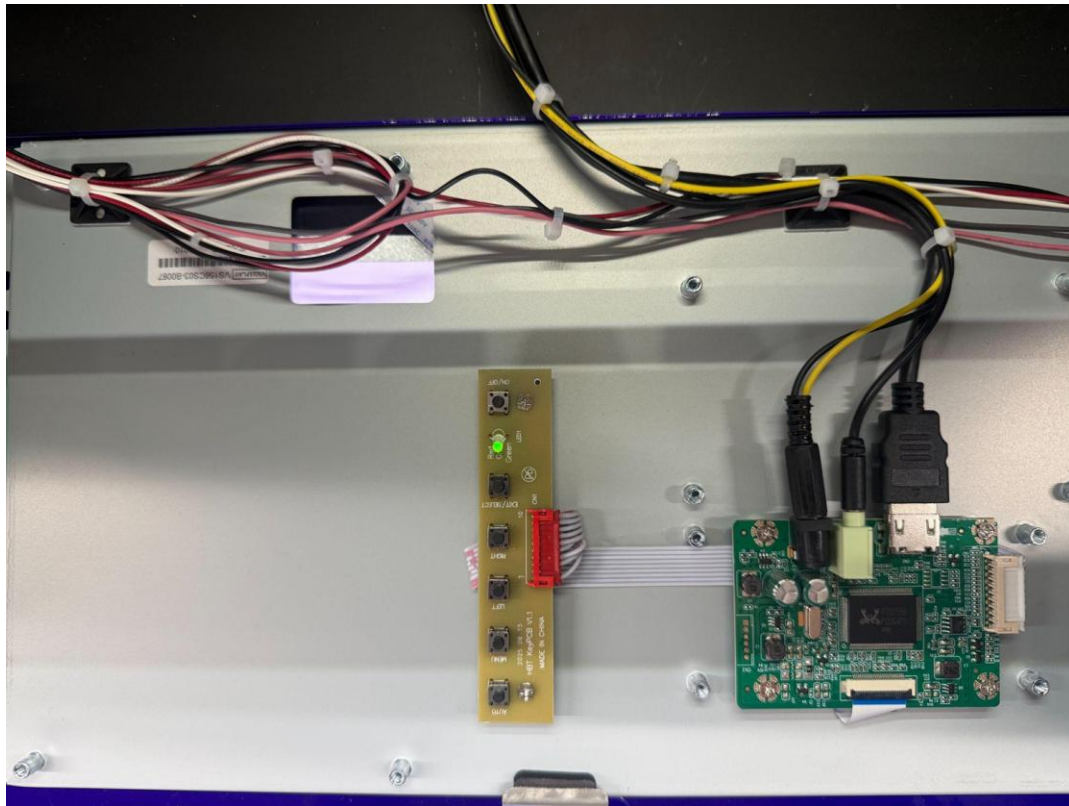
3.3. Coin Door – Angle 1



3.4. Coin Door – Angle 2



## 3.5. LCD Display



### 3.5.1. LCD Display Recommended Settings

(Access using Display Adjustment Panel board to the left of the display's driver board)

Brightness - 40%

Contrast - 80%

Gamma - On

**Note:** Audio jack plugged into left port for UP Board Mini PC)

Screen Size: 27 Inches

Display Resolution Maximum: 1920 x 1080

Display Brand: VSDISPLAY

Connectivity Technology: VGA, DVI, HDMI

Display Type: LCD

About This Item:

Compatible With: 27inch 1920x1080: TPM270WF1-MWN1

HDMI DVI VGA AUDIO LCD Board for LVDS Interface LCD Screen

Video Input: HDMI DVI VGA

Audio Input: HDMI

Audio Output: Speaker Connector

Recommend Power Adapter Spec.

Input Power Adapter: 12Vdc More than 2A.  
(VSDISPLAY Power Adapter, AC 100-240V Input to 12V DC,2A  
Output, Power Supply, US Plug, Fit SC24W-1202000U jhdap024u-  
120200ba-a, Fit for All Types of VSDISPLAY LCD  
Controller Board)

Goes into Standby Mode When No Input Signal Standby Mode  
power usage <1W.

Display Packing List:

1× HD-MI VGA DVI LCD Controller Board M.NT68676.3 (new  
version)

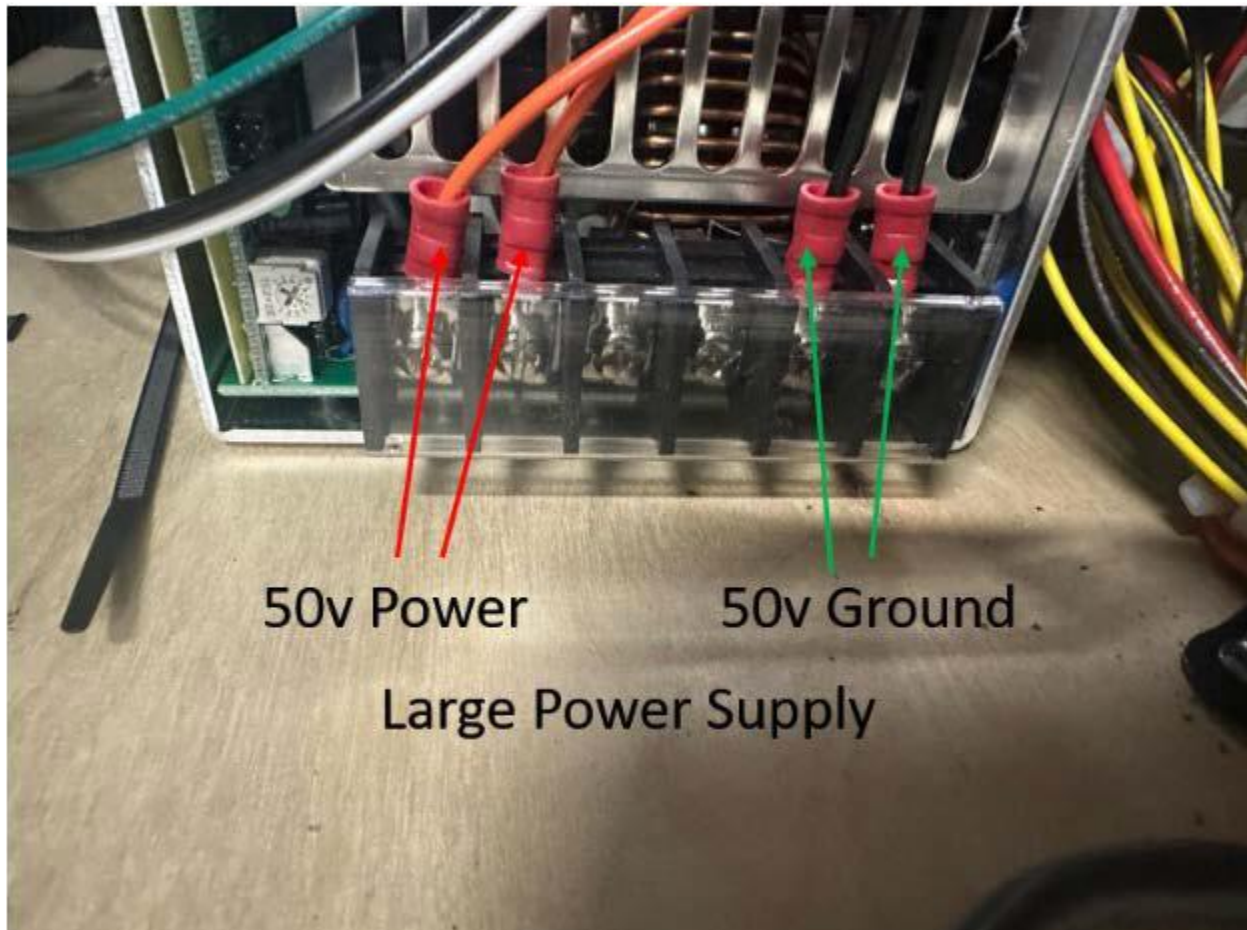
1× Inverter Board

1× LVDS Signal Cable

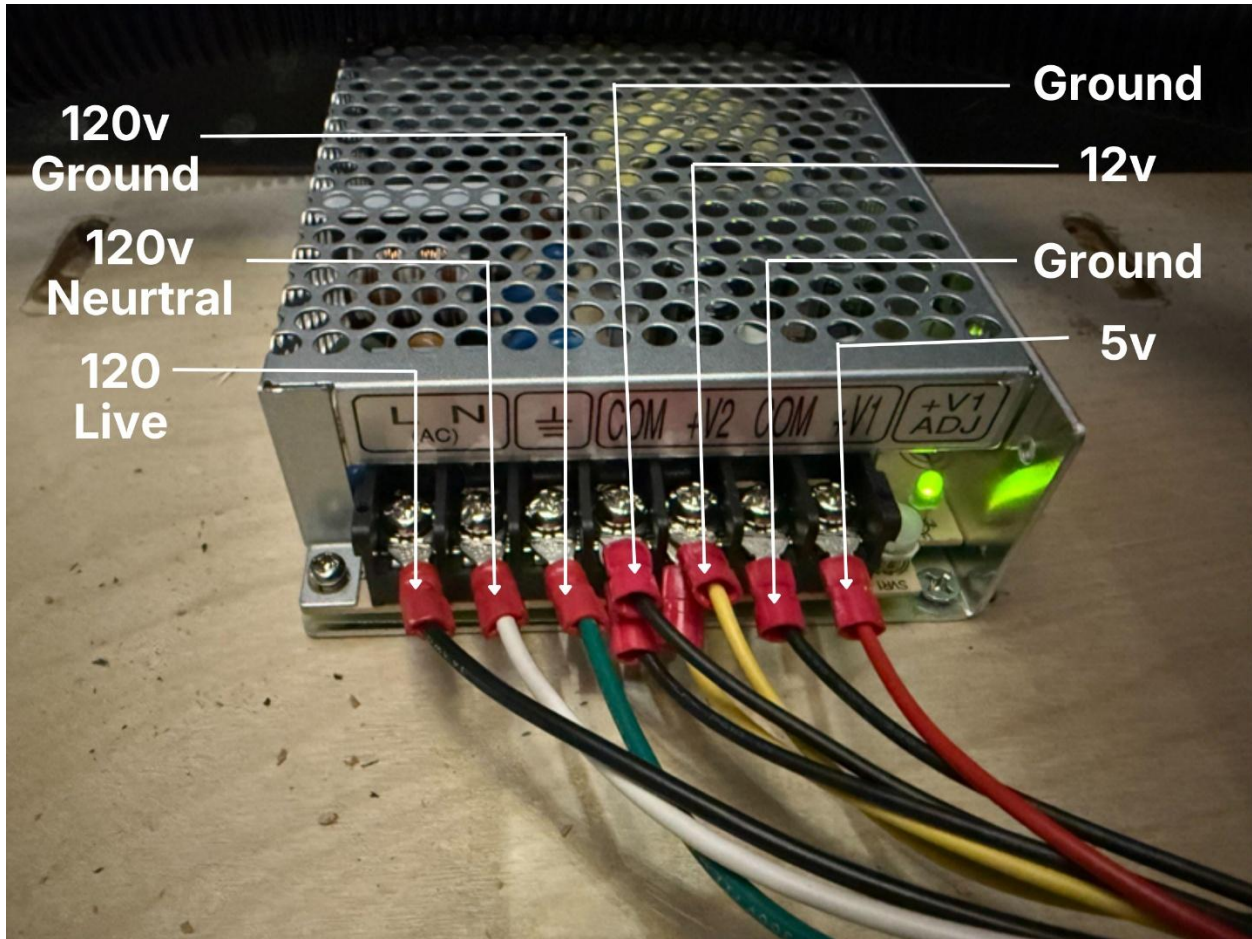
1× Keyboard with Cable

**Note:** There is No Power Adapter in the Display Packing List

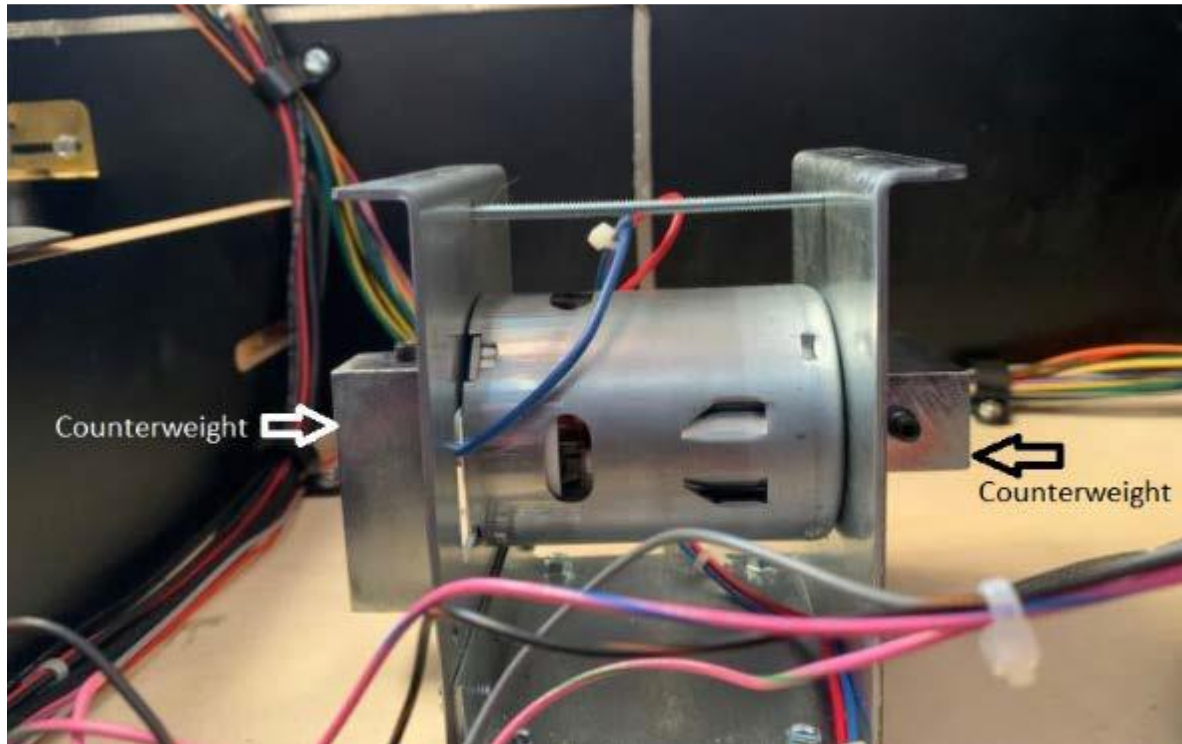
### 3.6. Large Power Supply



### 3.7. Small Power Supply



### 3.8. Shaker Motor



#### 3.8.1. Adjust Shaker Motor Vibration

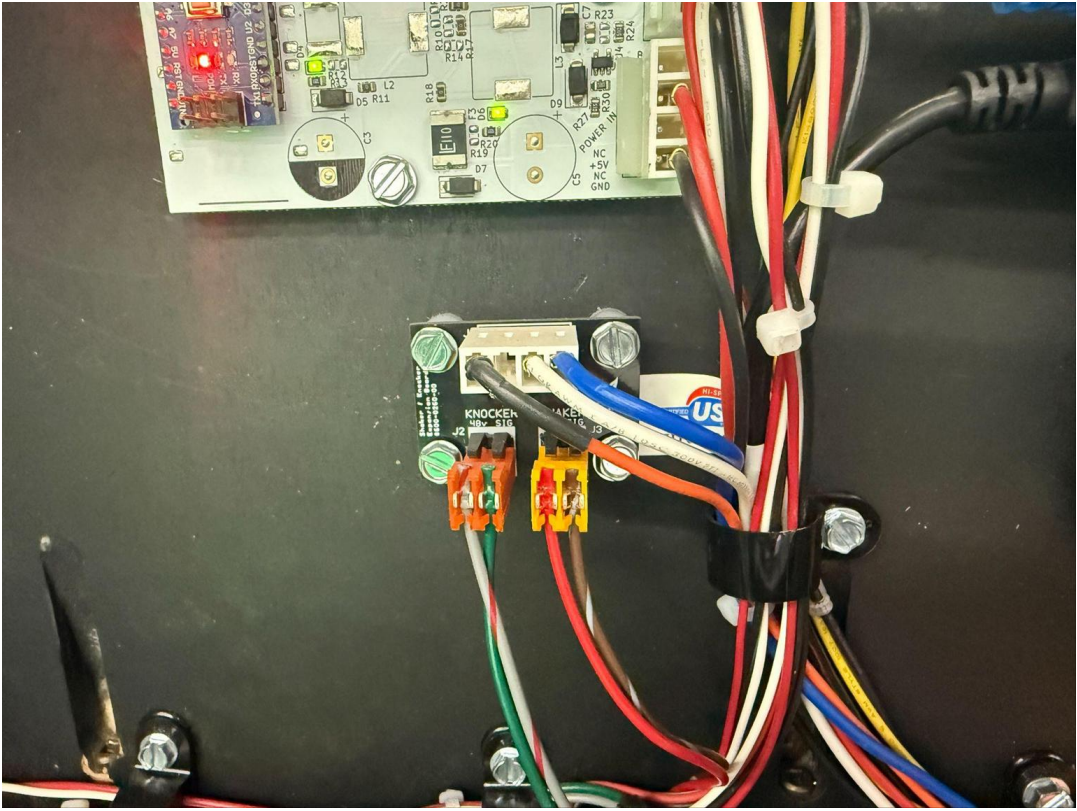
##### *To Adjust Shaker Motor Vibration*

- i. With the shaker motor cover removed, locate the two counterweights on each side held in place with a hex screw.
- ii. Loosen the hex screw. You will be able to rotate the counterweight.

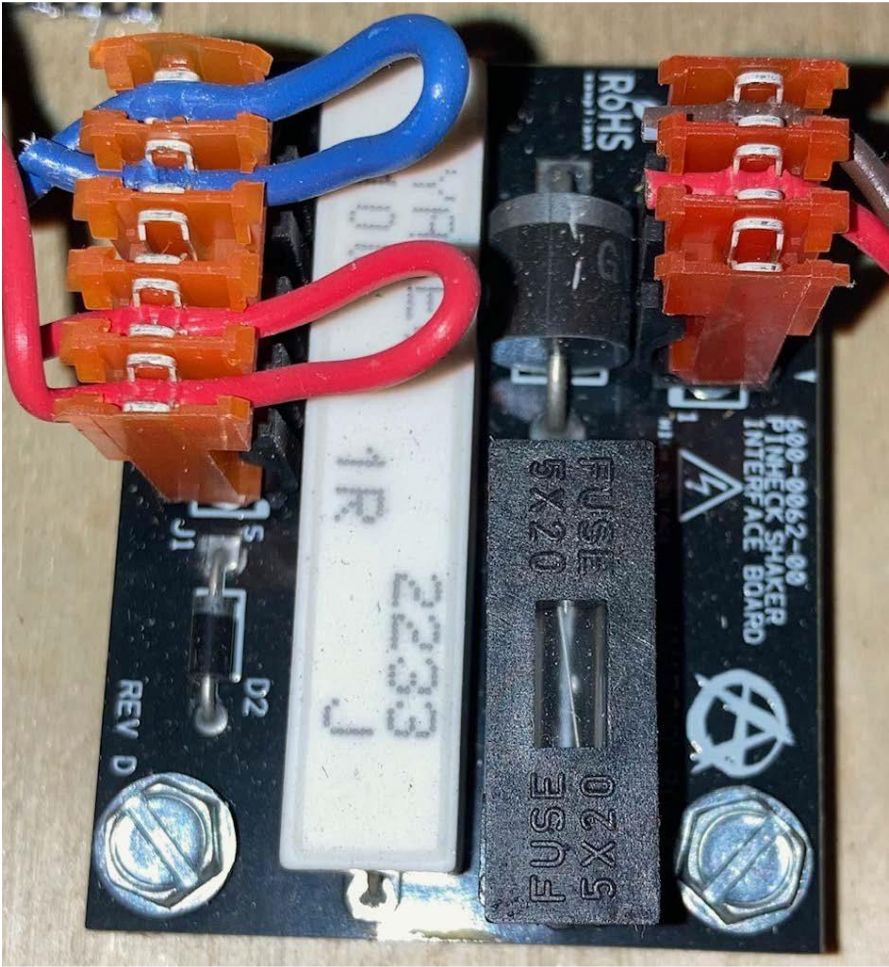
##### **Shaker Motor Settings:**

- Both weights in same direction = Strong Shake
  - One weight at a 90-degree angle as shown in photo = Medium Shake
  - One weight at 180-degree angle from the other counterweight = Low Shake
- iii. After you have made the adjustments, ensure the hex screws are good and tight.
  - iv. Replace the protective cover.

### 3.9. Shaker Motor Board



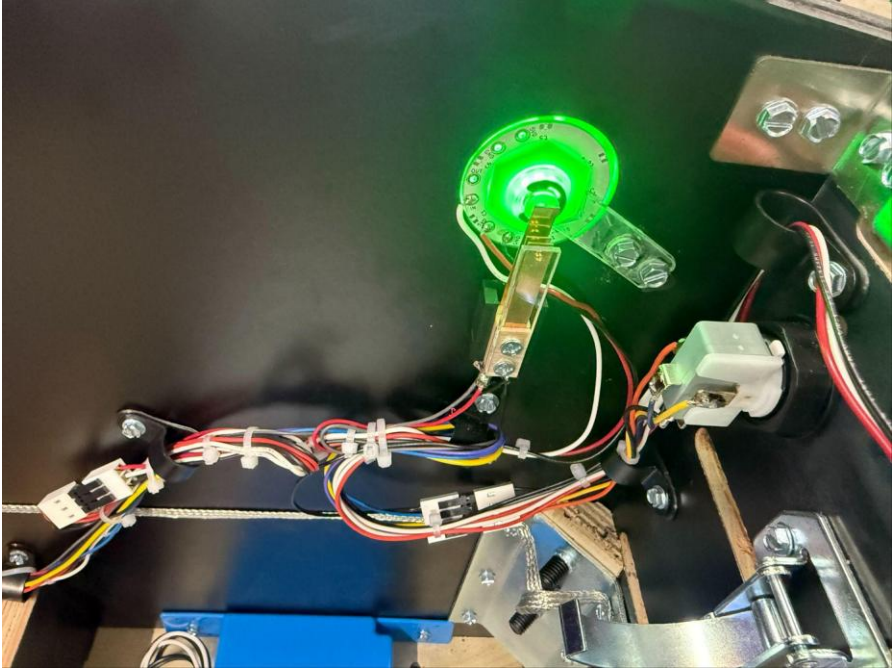
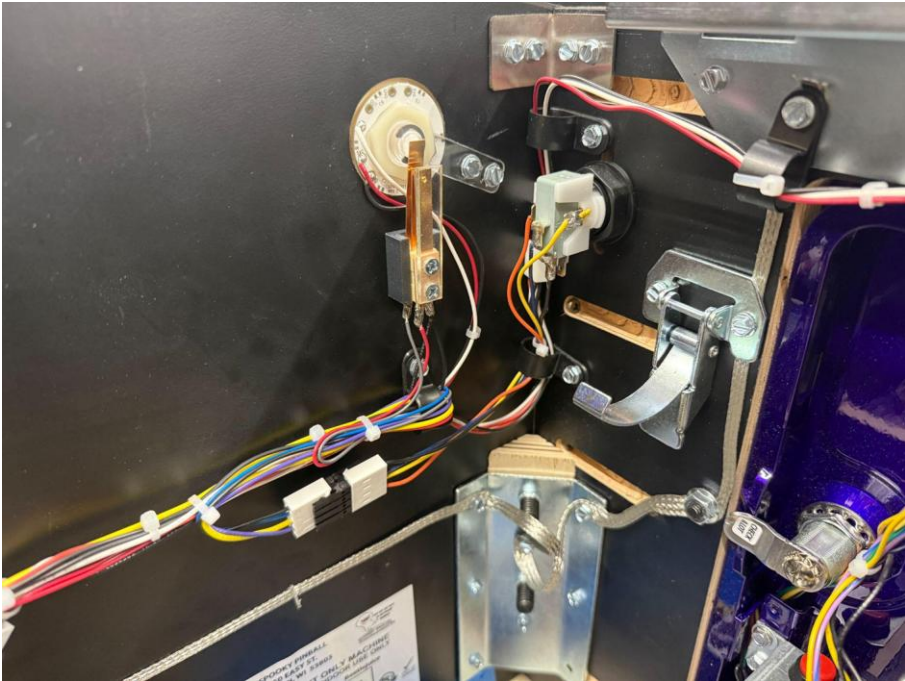
3.10. Shaker Motor in Cabinet



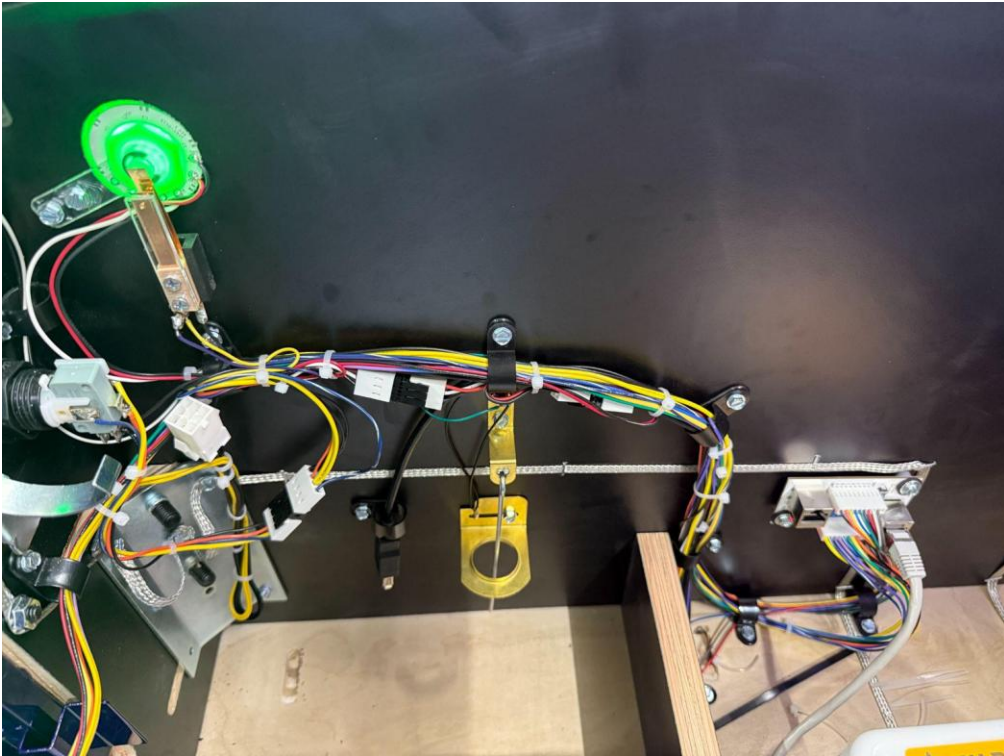
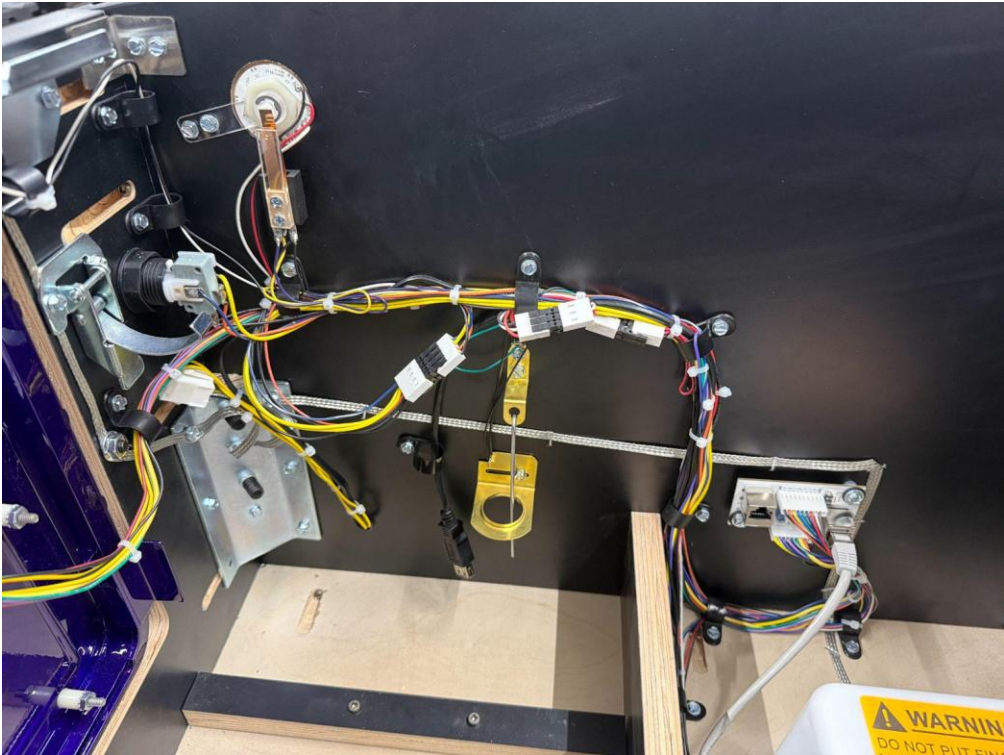
### 3.11. Service Outlet



3.12. Right Side Flipper in Cabinet



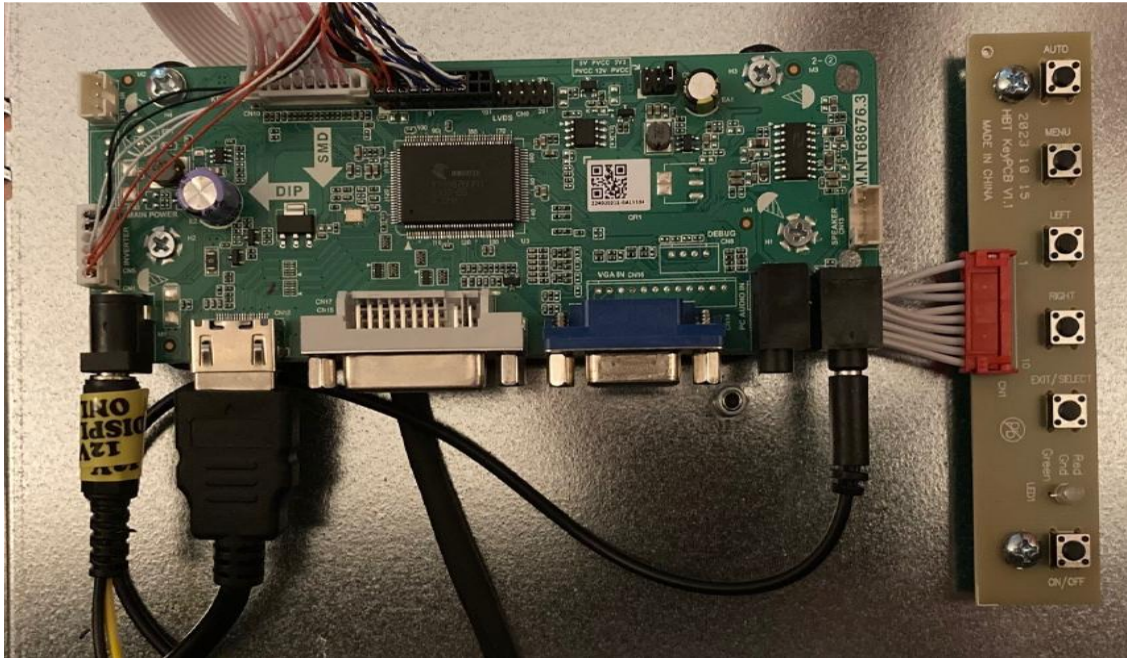
3.13. Left Side Flipper in Cabinet



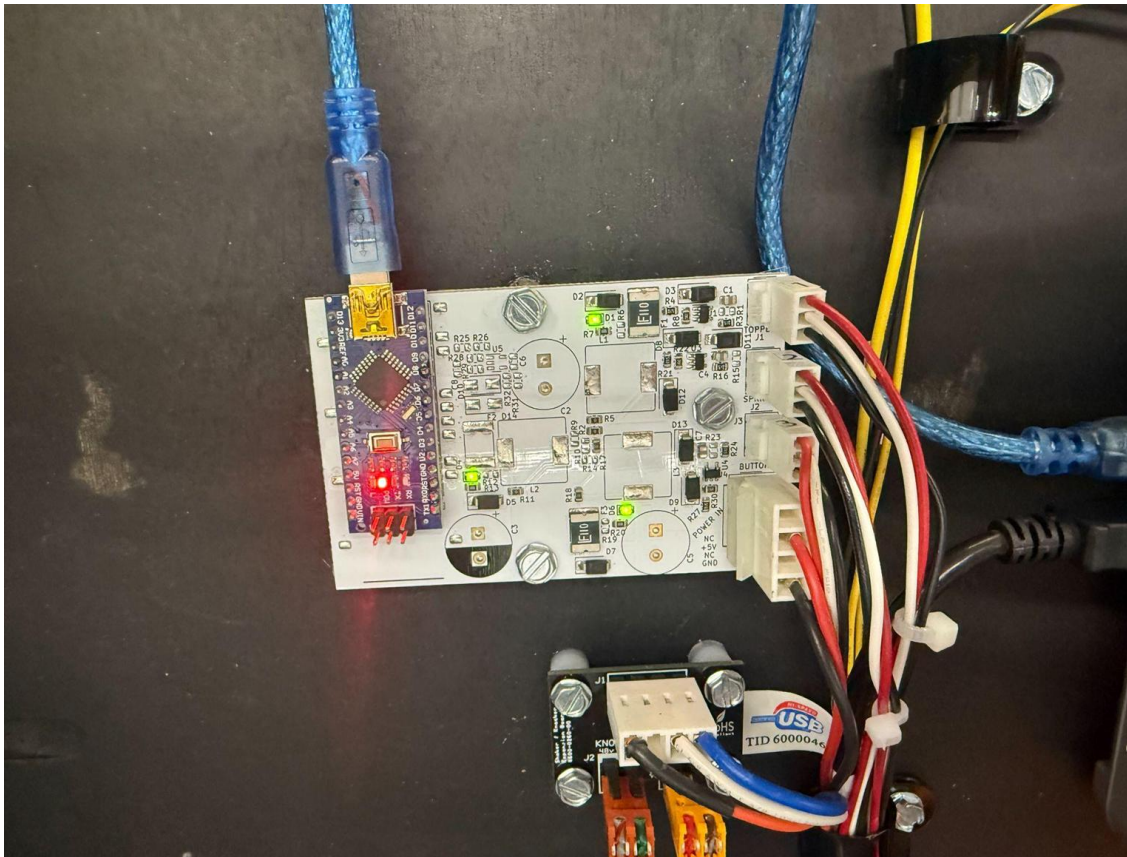
### 3.14. Start Button Connection



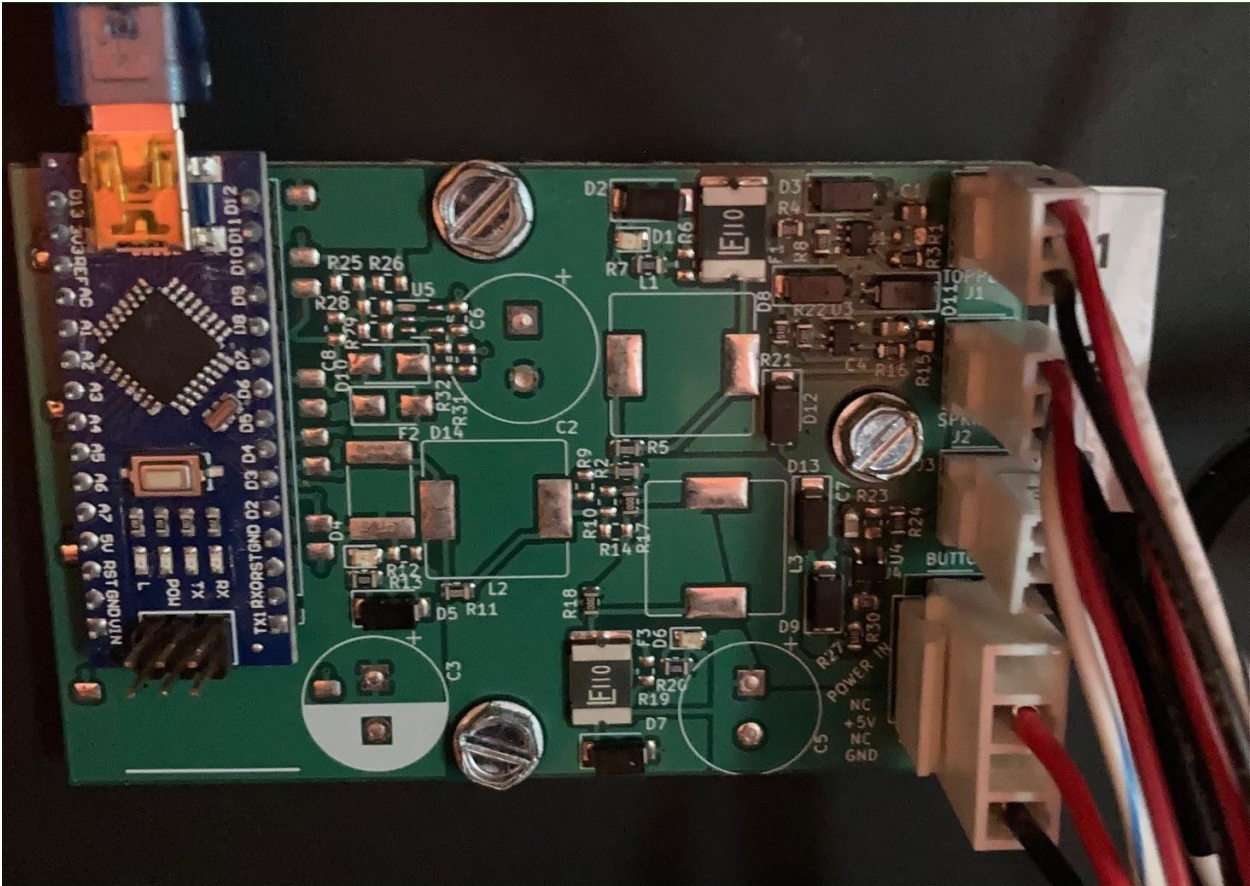
### 3.15. Monitor Control Adjust Board



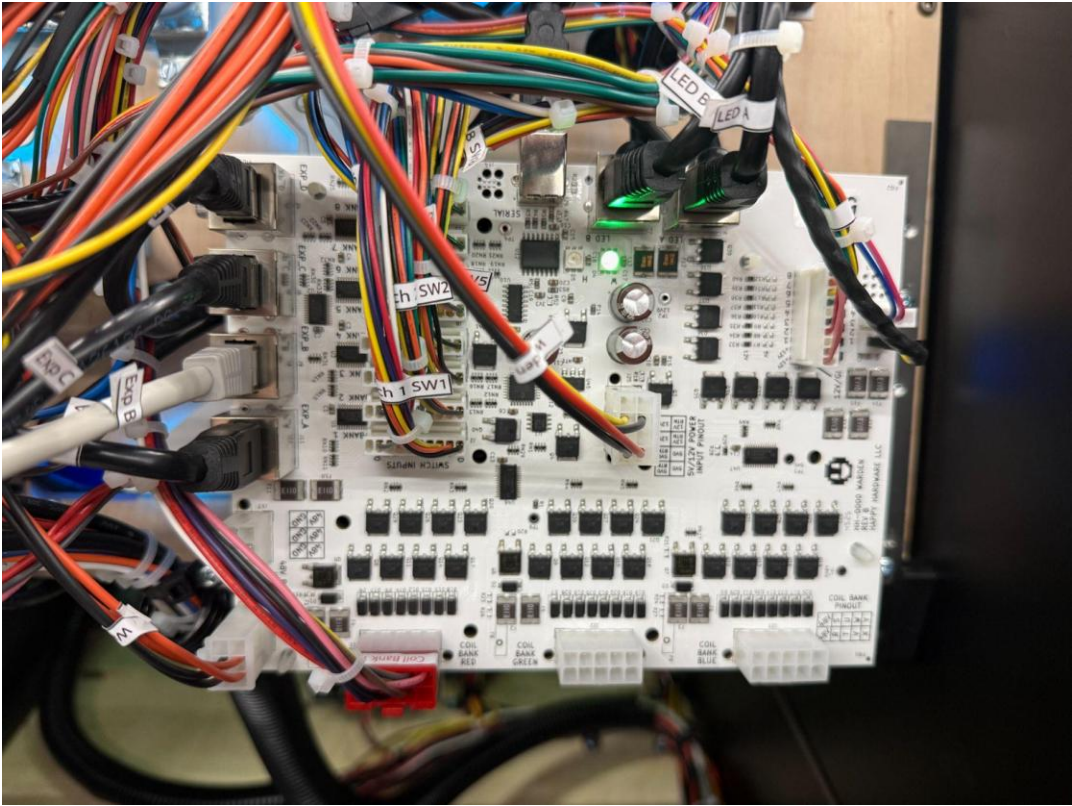
### 3.16. LED Control Board



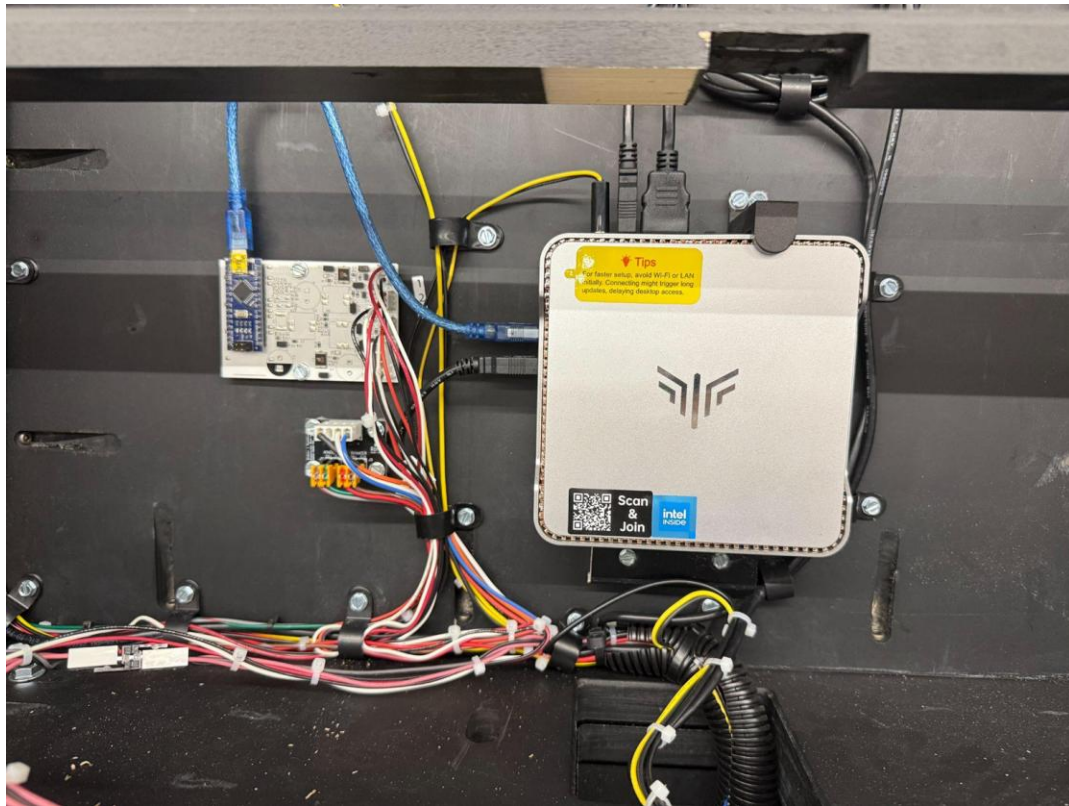
### 3.17. Flipper Detail



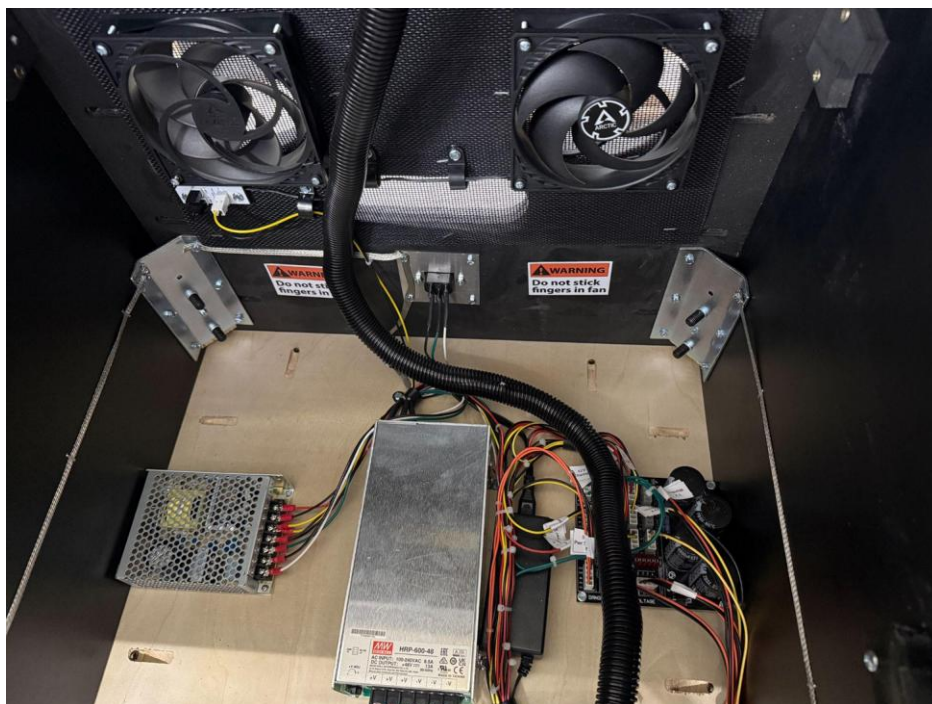
### 3.18. Populated Warden Board



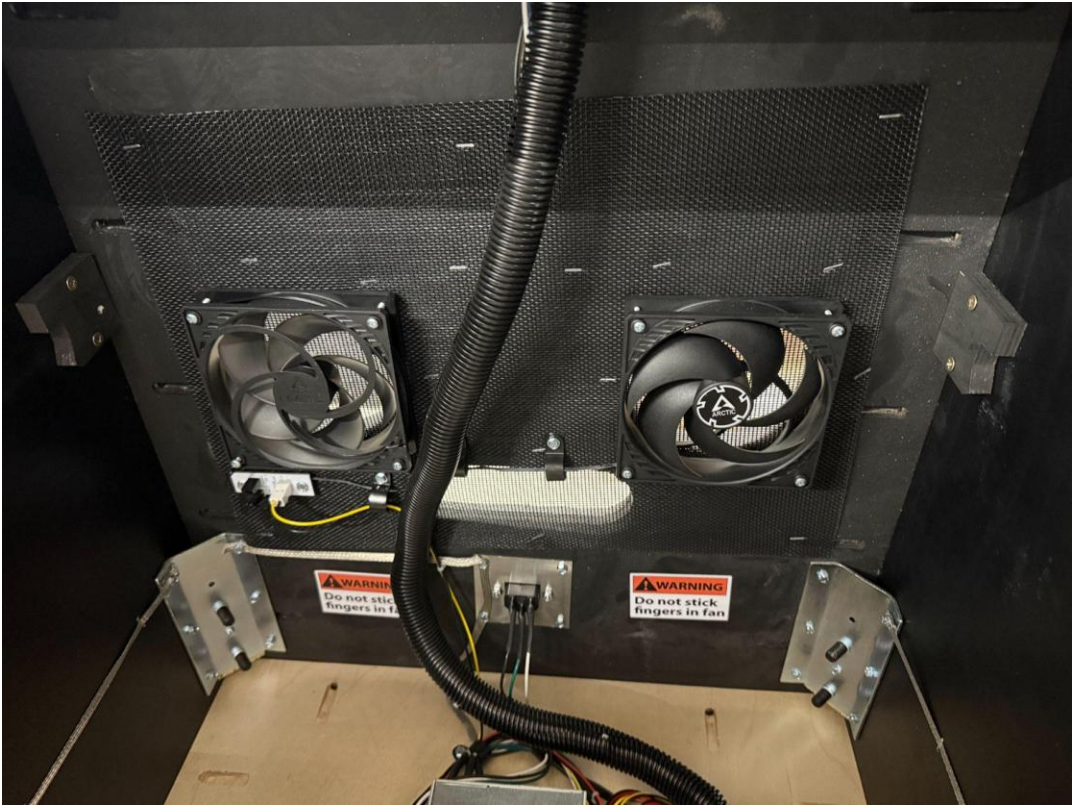
### 3.19. Cabinet Head Inside



### 3.20. Back of Cabinet

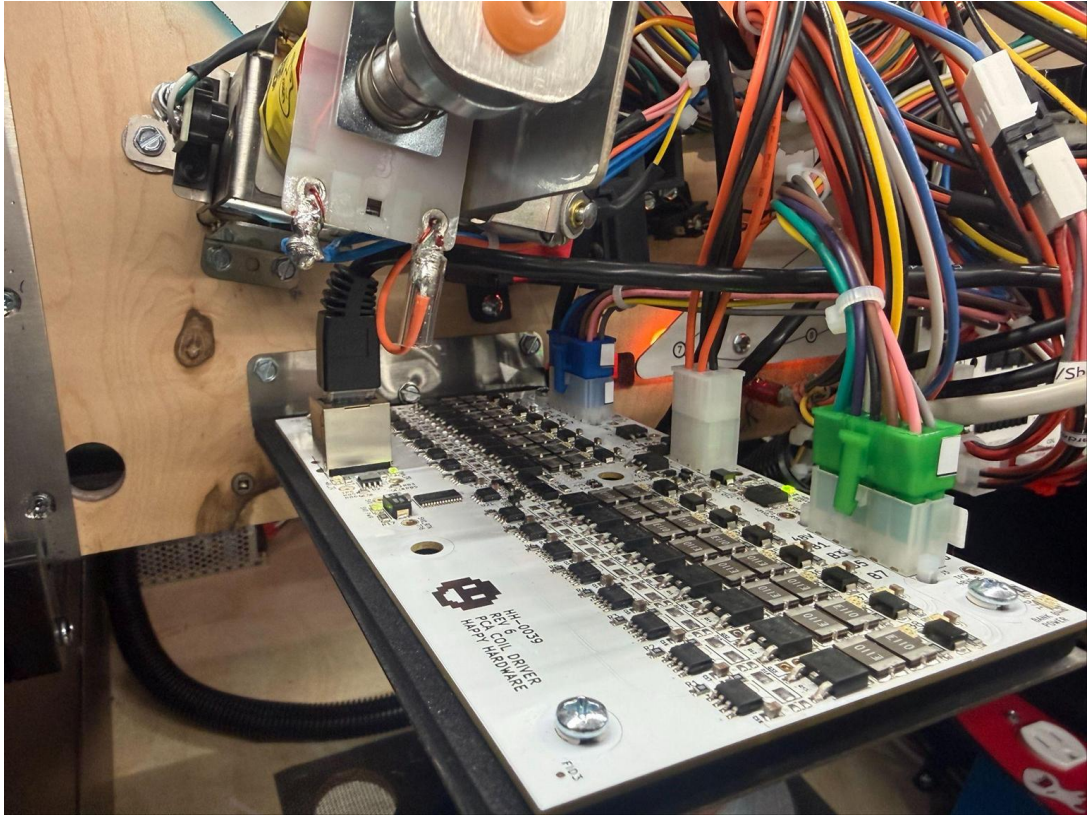


3.21. New Cabinet Fans

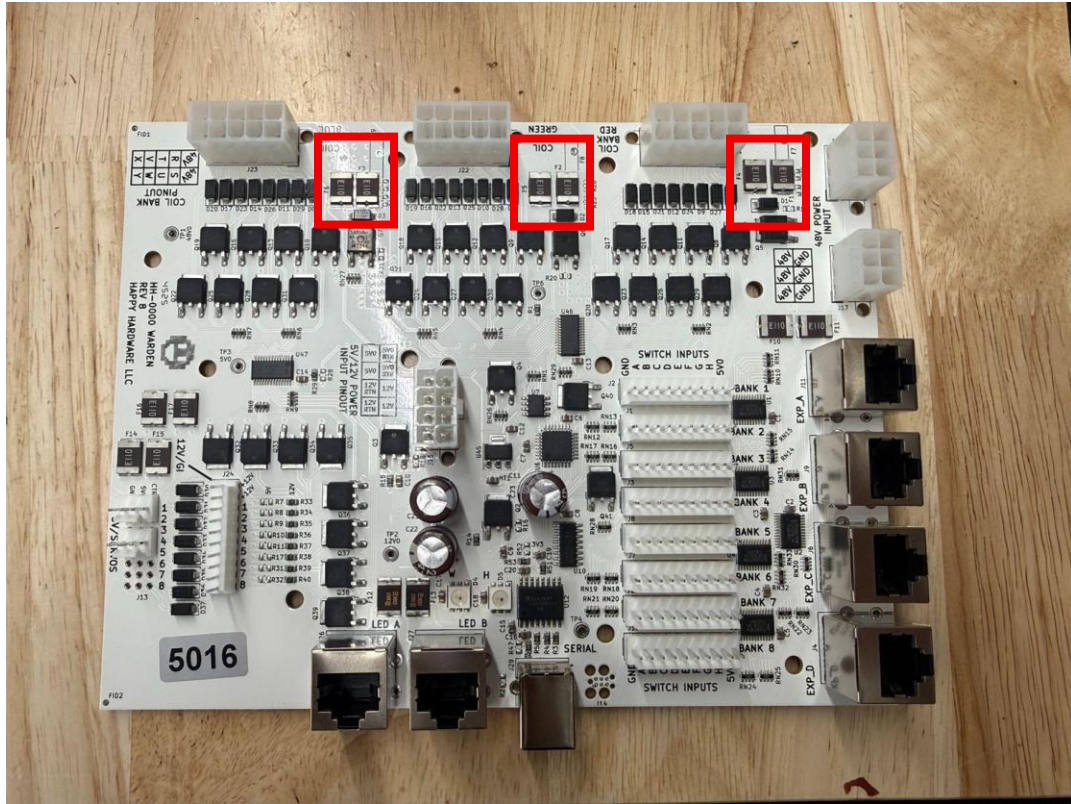


### 3.22. Warden Coil Expander

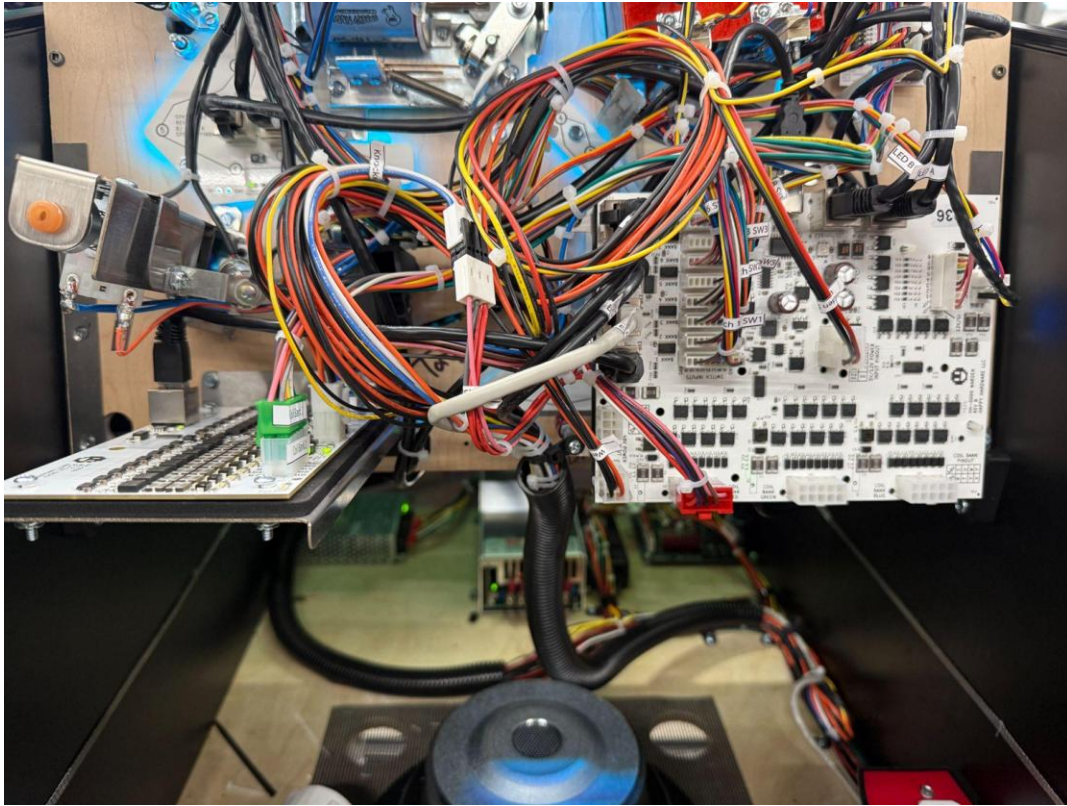




### 3.23. Beetlejuice Board Fuse Locations



### 3.24. Populated Warden Board



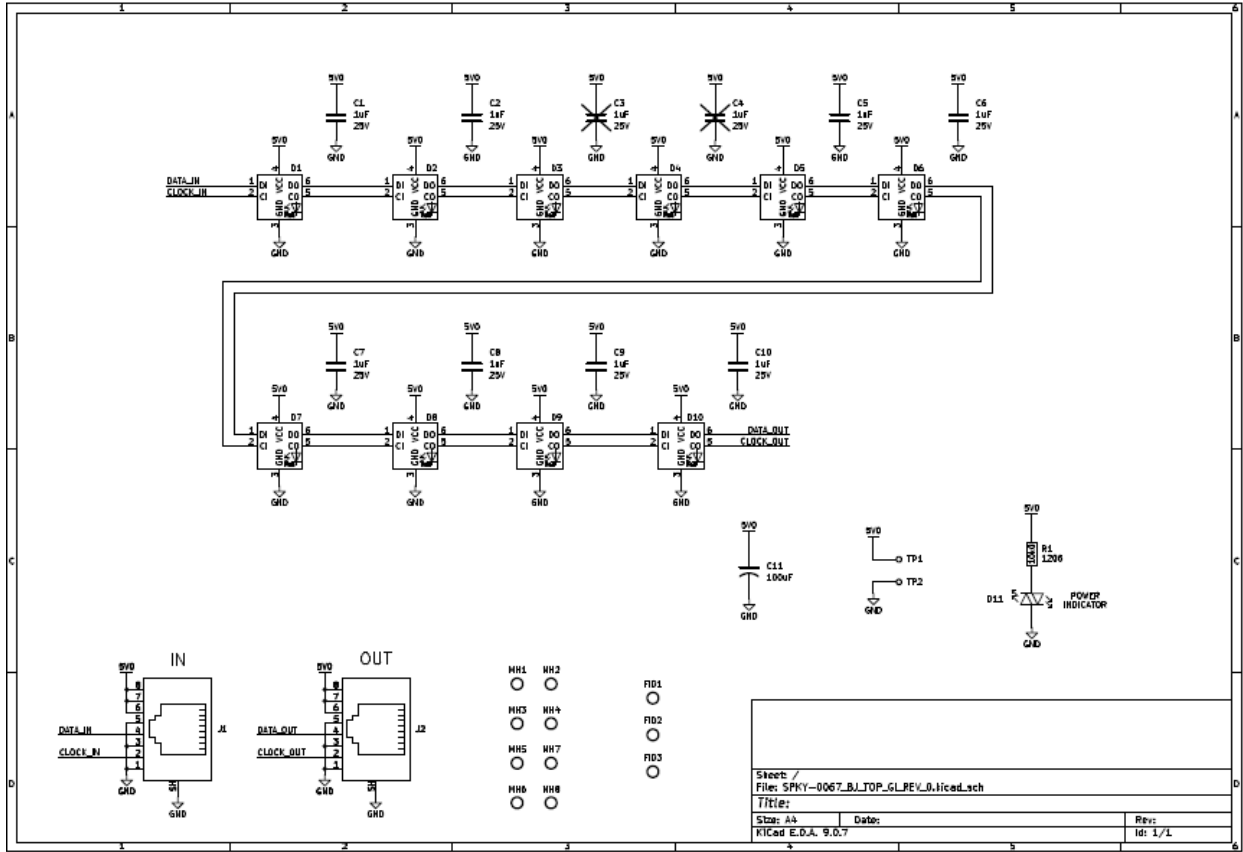
#### Notice

Need to report a code bug in Beetlejuice? You can send an email directly to [service@spookypinball.com](mailto:service@spookypinball.com) with the subject "Code Bug"

### 3.25. Beetlejuice Plastic Chart

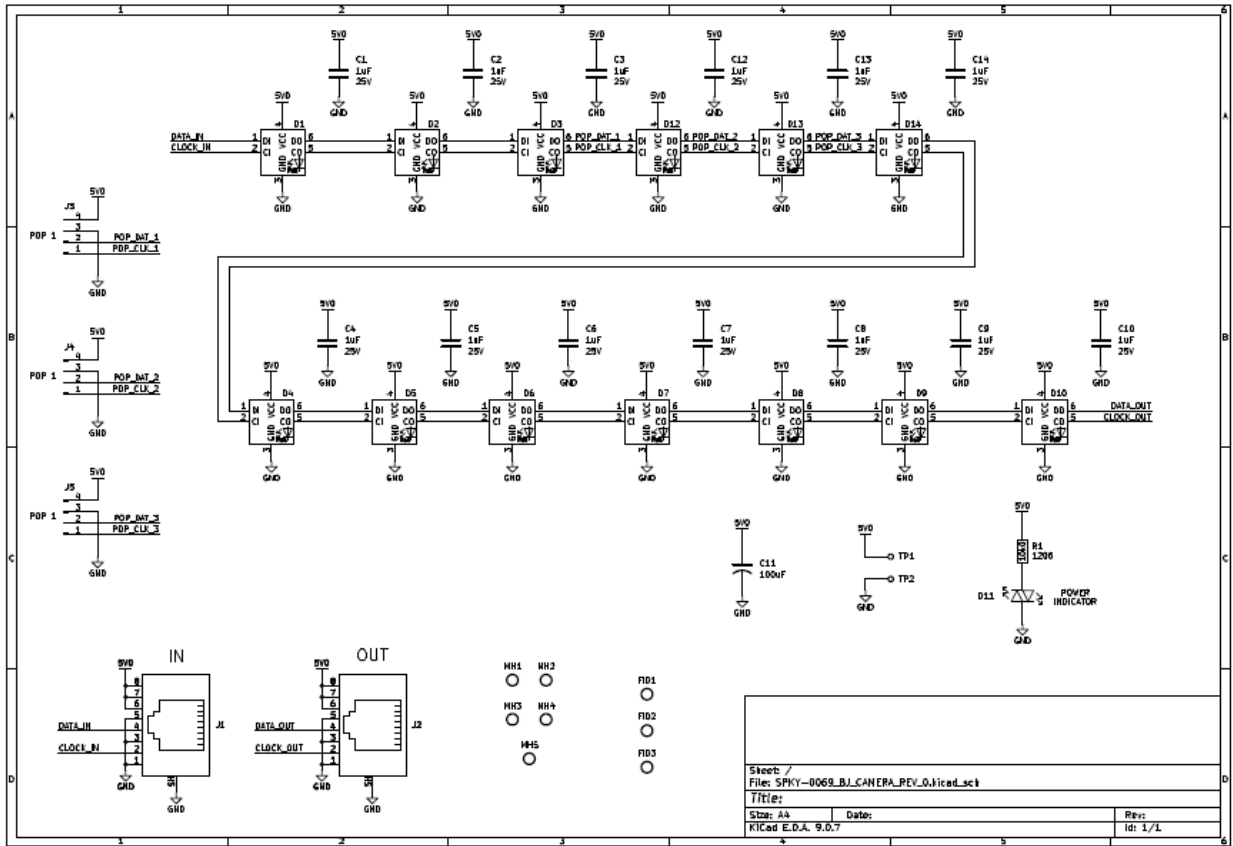


### 3.26. SPKY-0067\_BJ\_TOP\_GI\_REV\_0

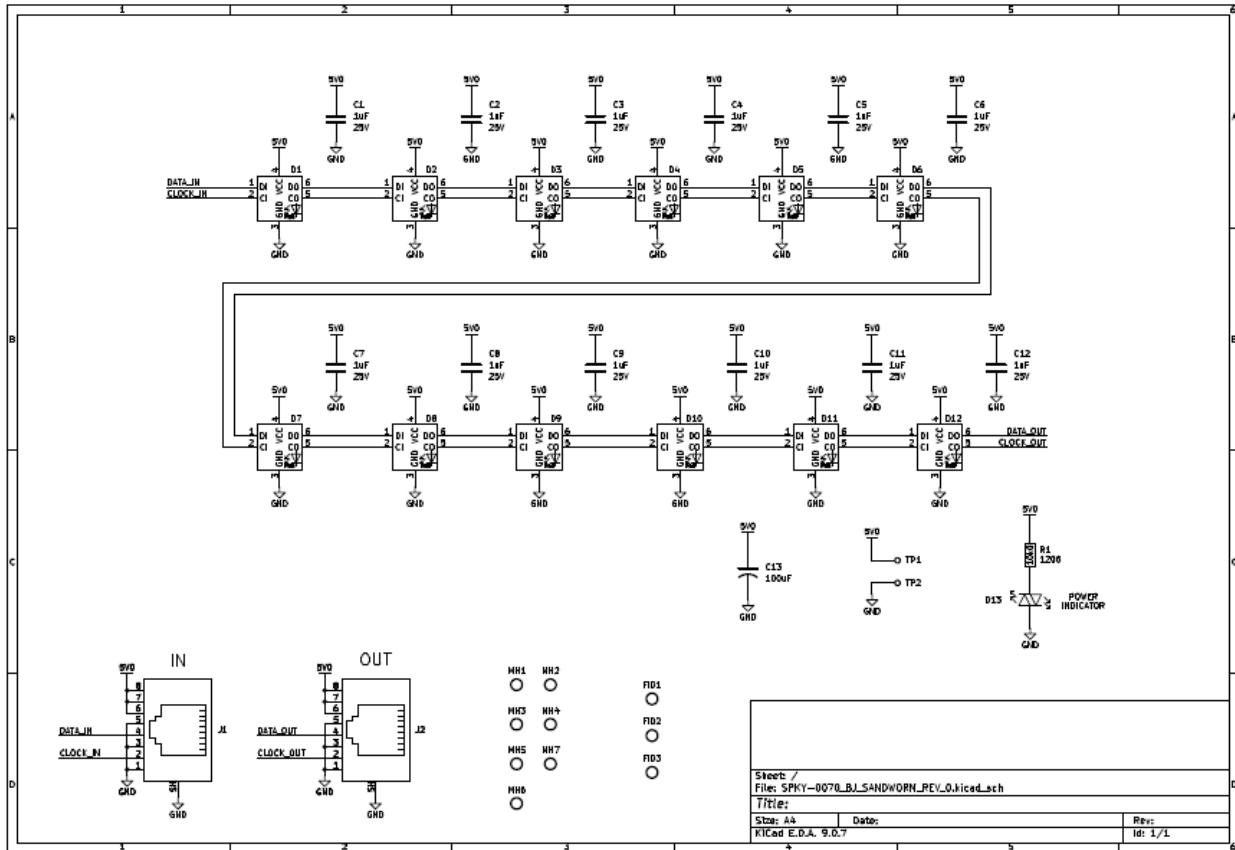




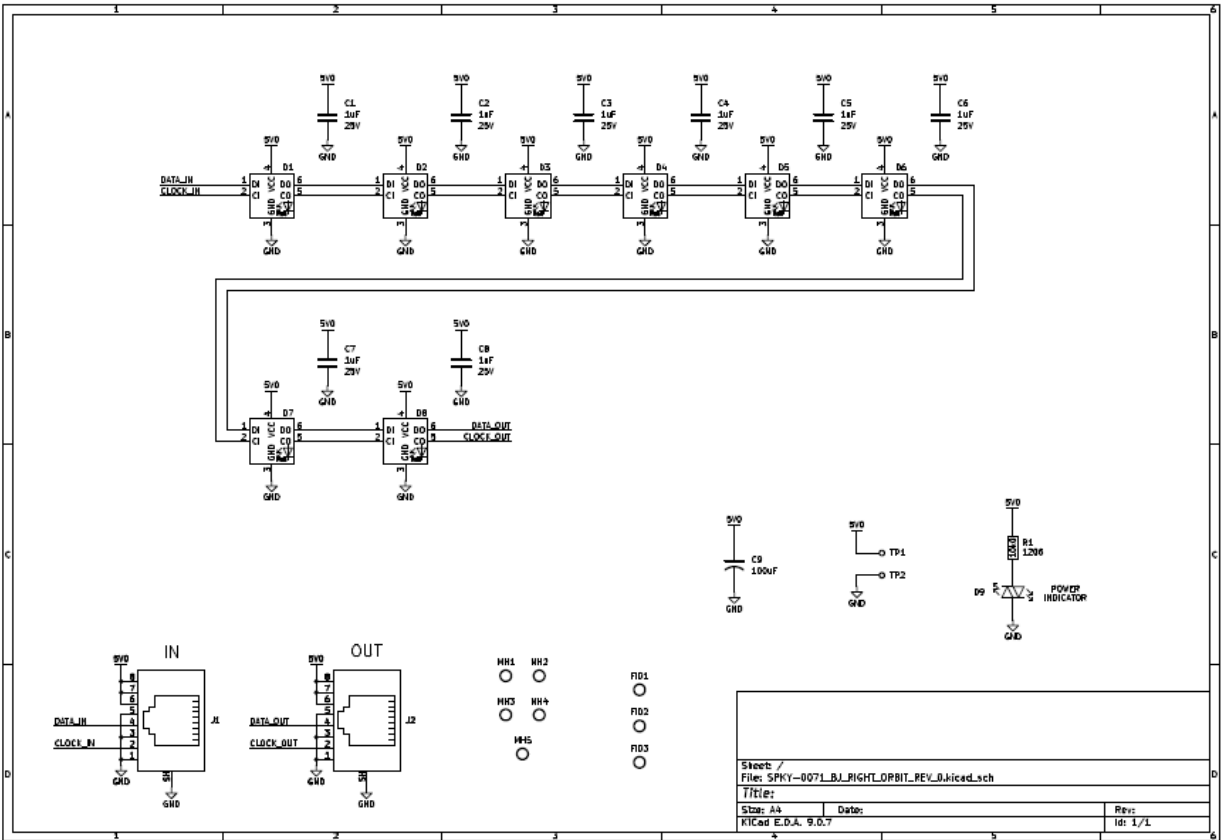
### 3.28. SPKY-0069\_BJ\_CAMERA\_REV\_0



### 3.29. SPKY-0070\_BJ\_SANDWORM\_REV\_0

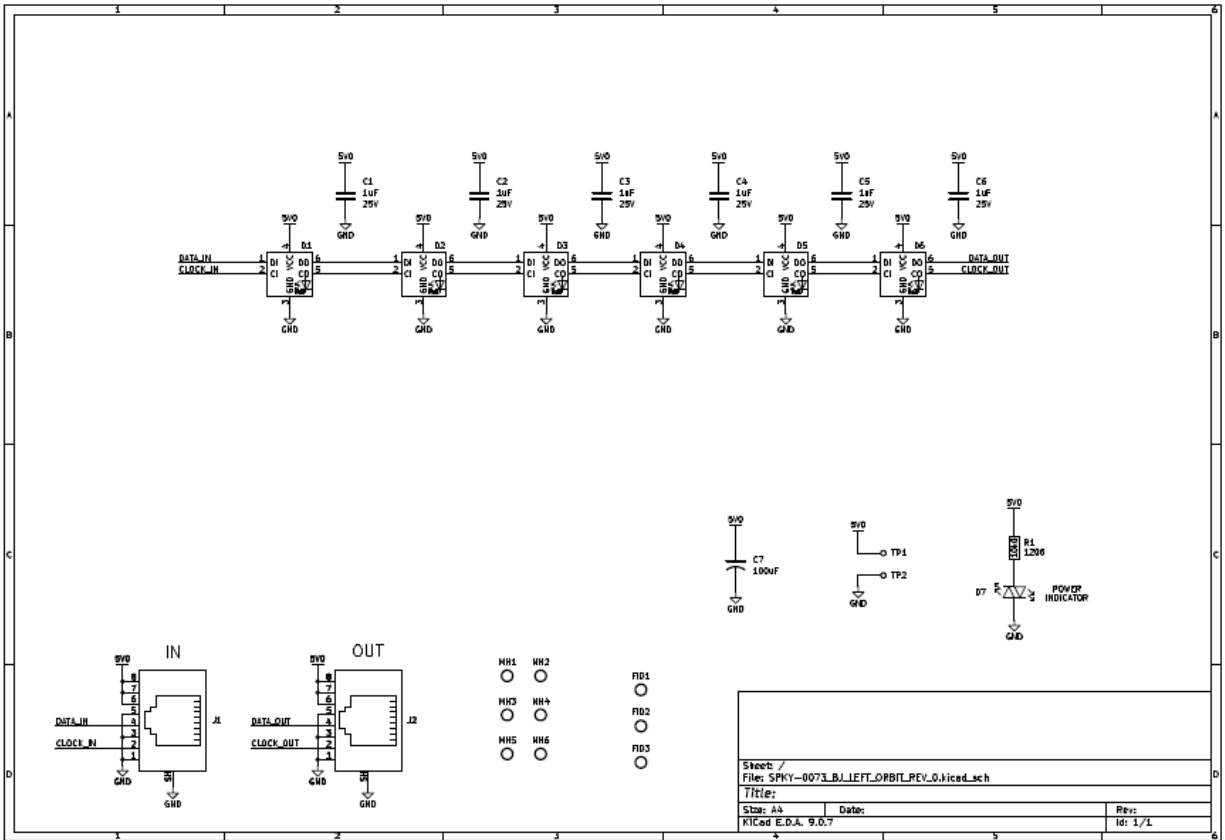


### 3.30. SPKY-0071\_BJ\_RIGHT\_ORBIT\_REV\_0

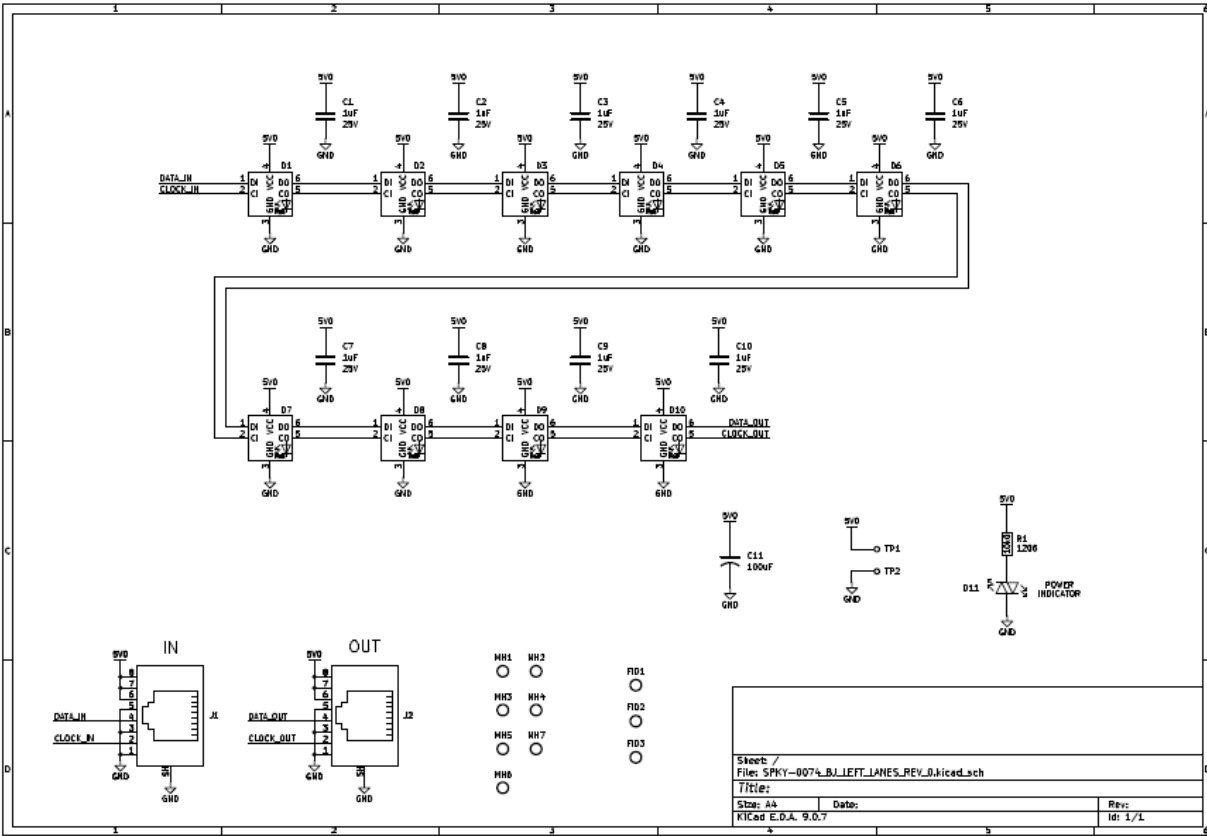




### 3.32. SPKY-0073\_BJ\_LEFT\_ORBIT\_REV\_0

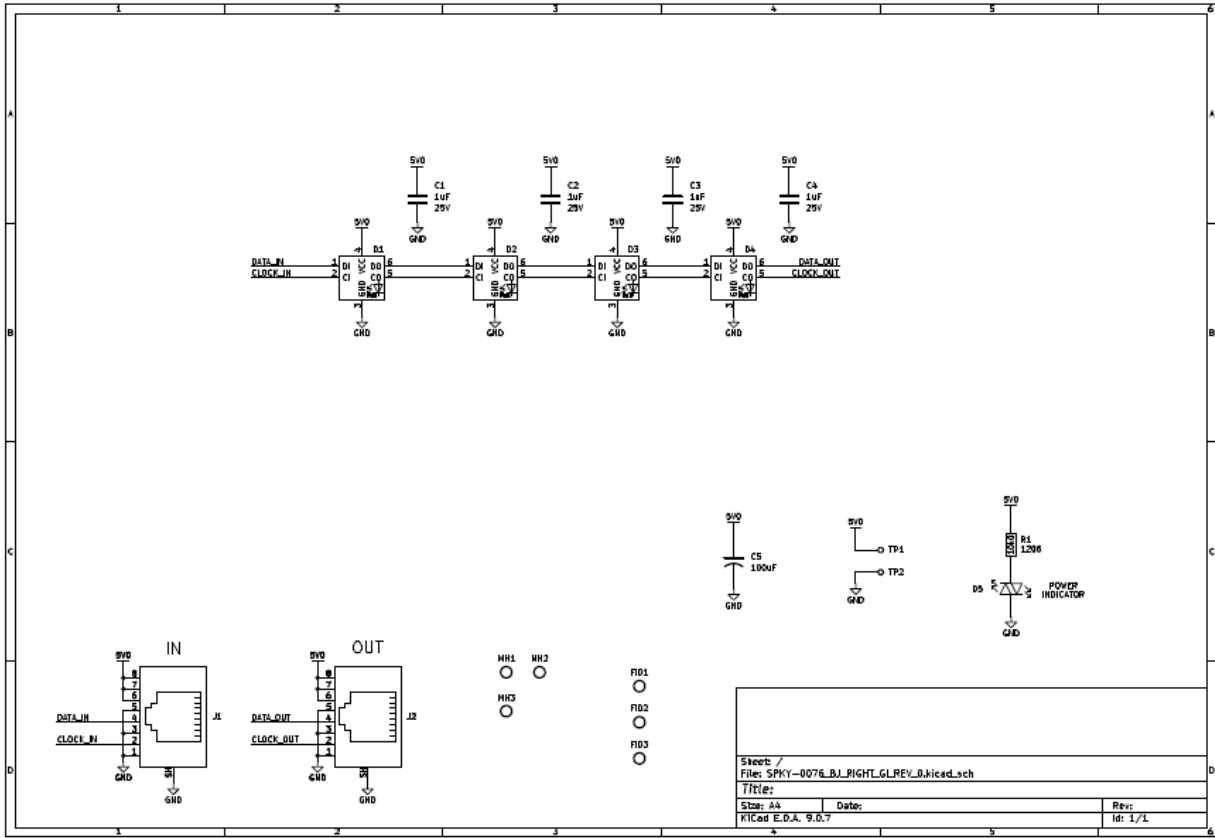


### 3.33. SPKY-0074\_BJ\_LEFT\_LANES\_REV\_0

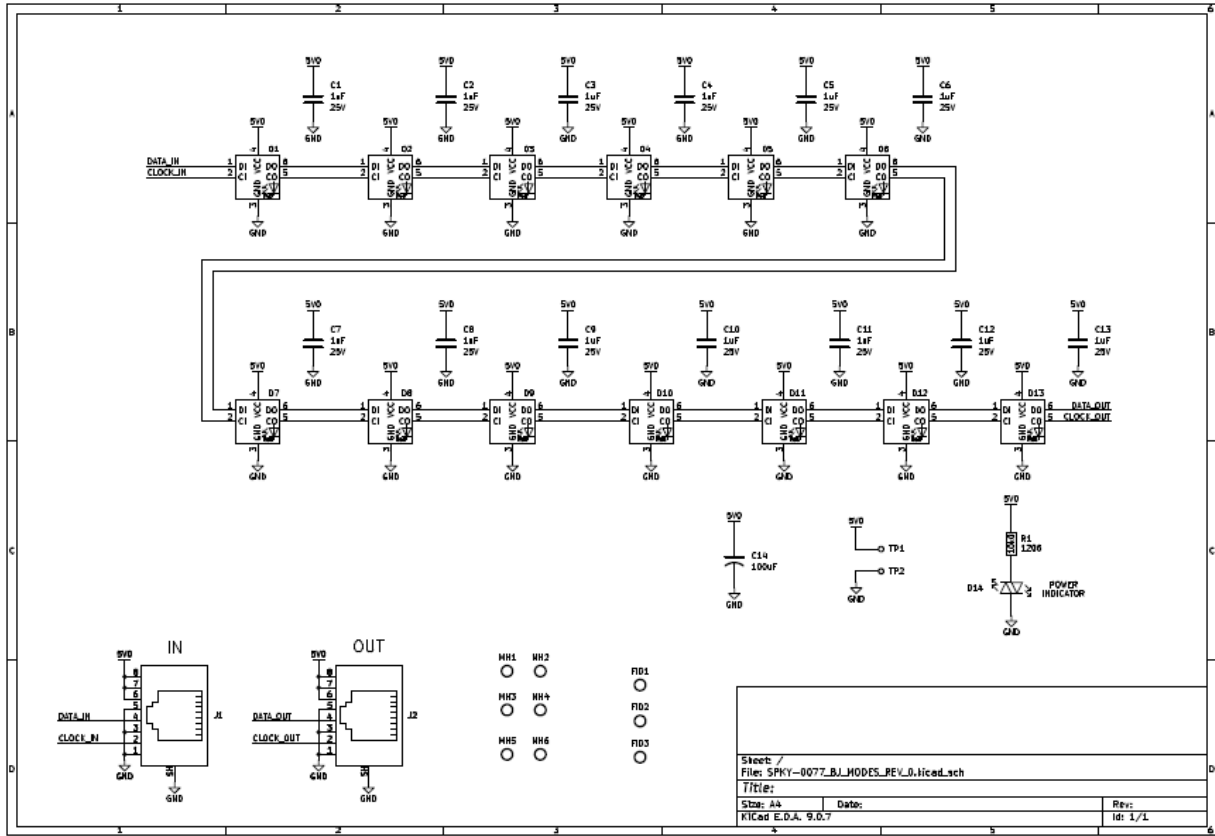




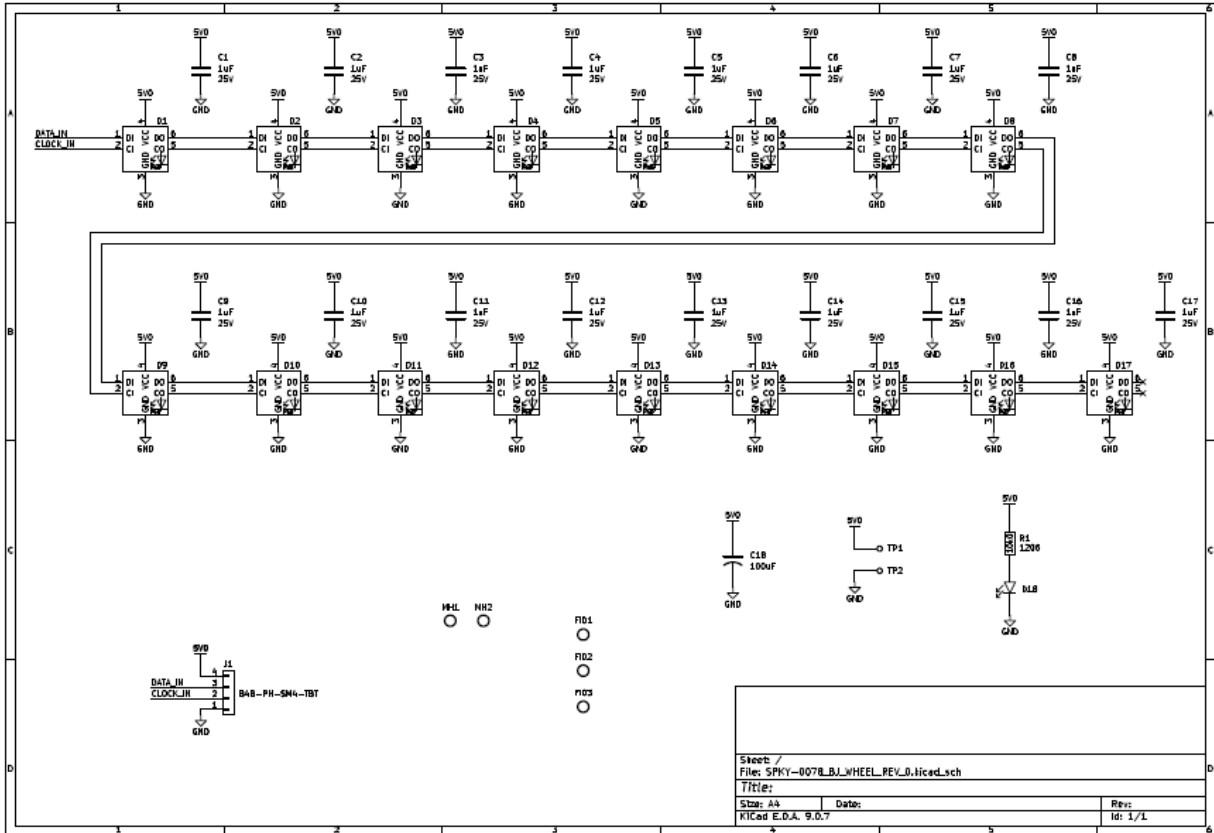
### 3.35. SPKY-0076\_BJ\_RIGHT\_GI\_REV\_0



### 3.36. SPKY-0077\_BJ\_MODES\_REV\_0

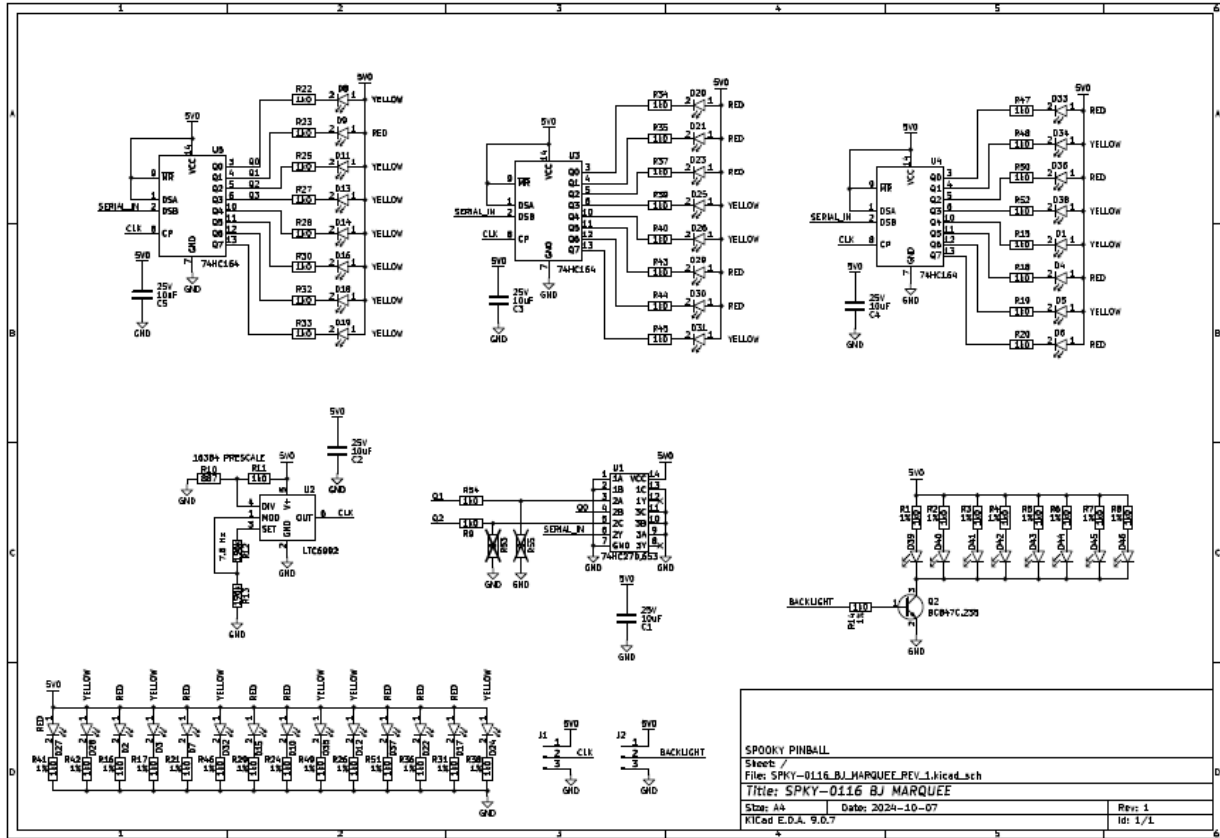


### 3.37. SPKY-0078\_BJ\_WHEEL\_REV\_0

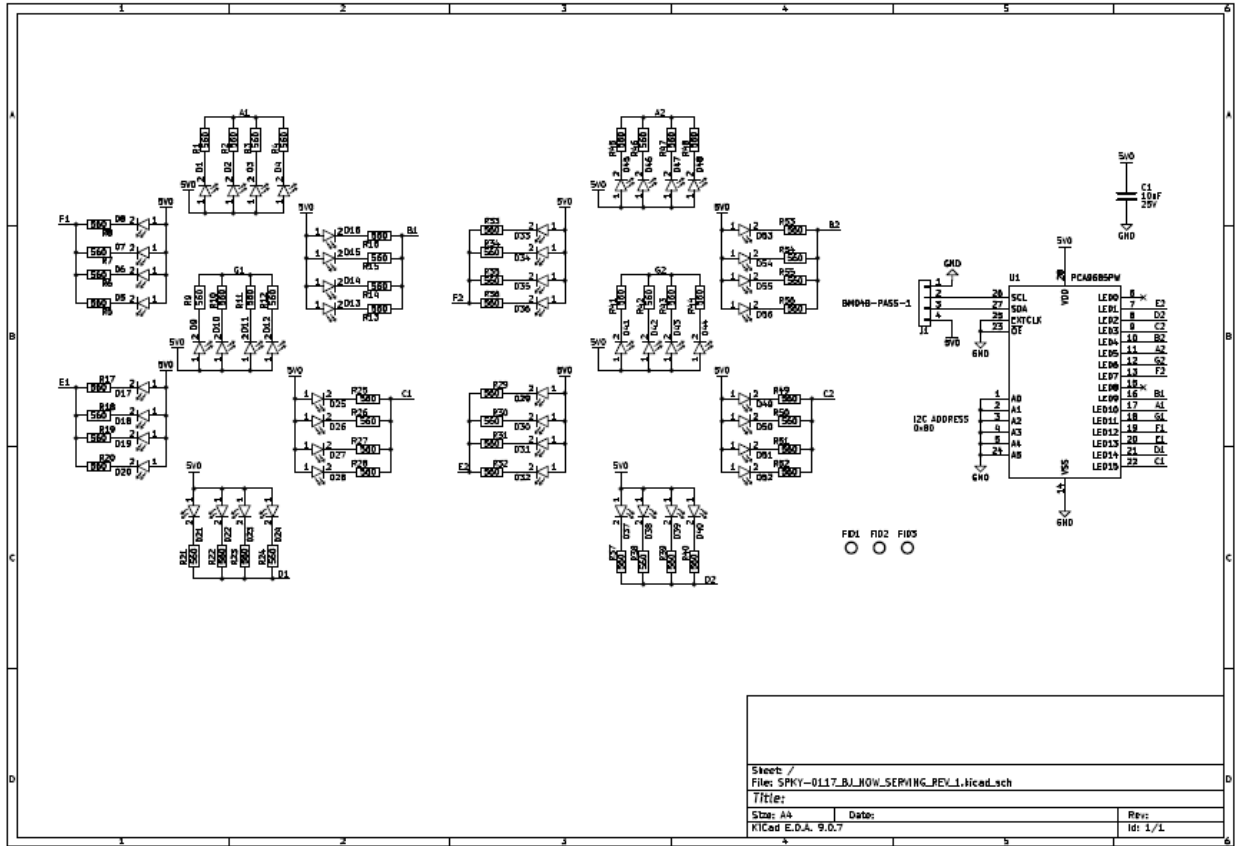




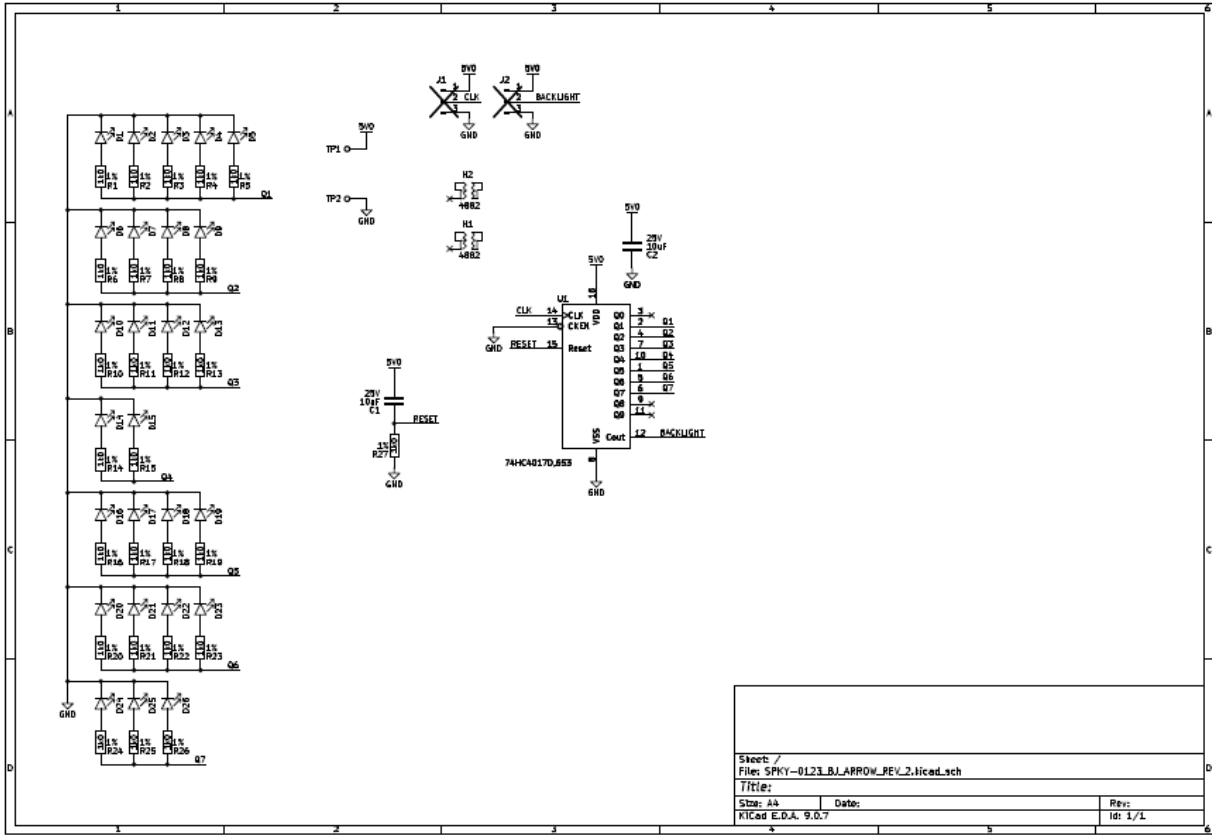
### 3.39. SPKY-0116\_BJ\_MARQUEE\_REV\_1



### 3.40. SPKY-0117\_BJ\_NOW\_SERVING\_REV\_1



### 3.41. SPKY-0123\_BJ\_ARROW\_REV\_2



# Chapter 4

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## 4. Diagnosing a Bad MOSFET on the Warden Board

### 4.1. Tools Required

*The materials you will need to diagnose a bad MOSFET on the Warden Board:*

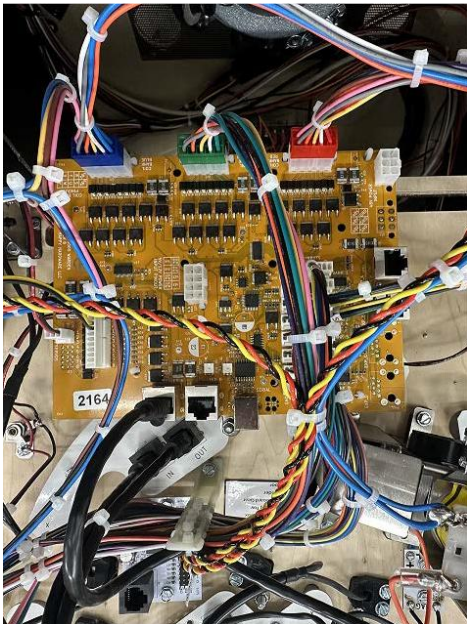
- Multimeter with an ohms setting (preferably set to 20k)
- Chart for reference (see end of document)
- Wire cutters
- Insulating tape

#### **⚠ Caution**

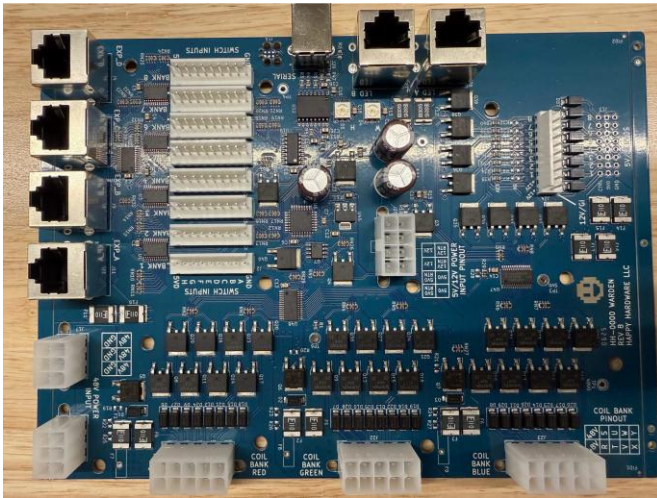
YOU ARE WORKING WITH SENSITIVE ELECTRONIC MATERIALS. PLEASE USE CAUTION!

#### *To diagnose a bad MOSFET*

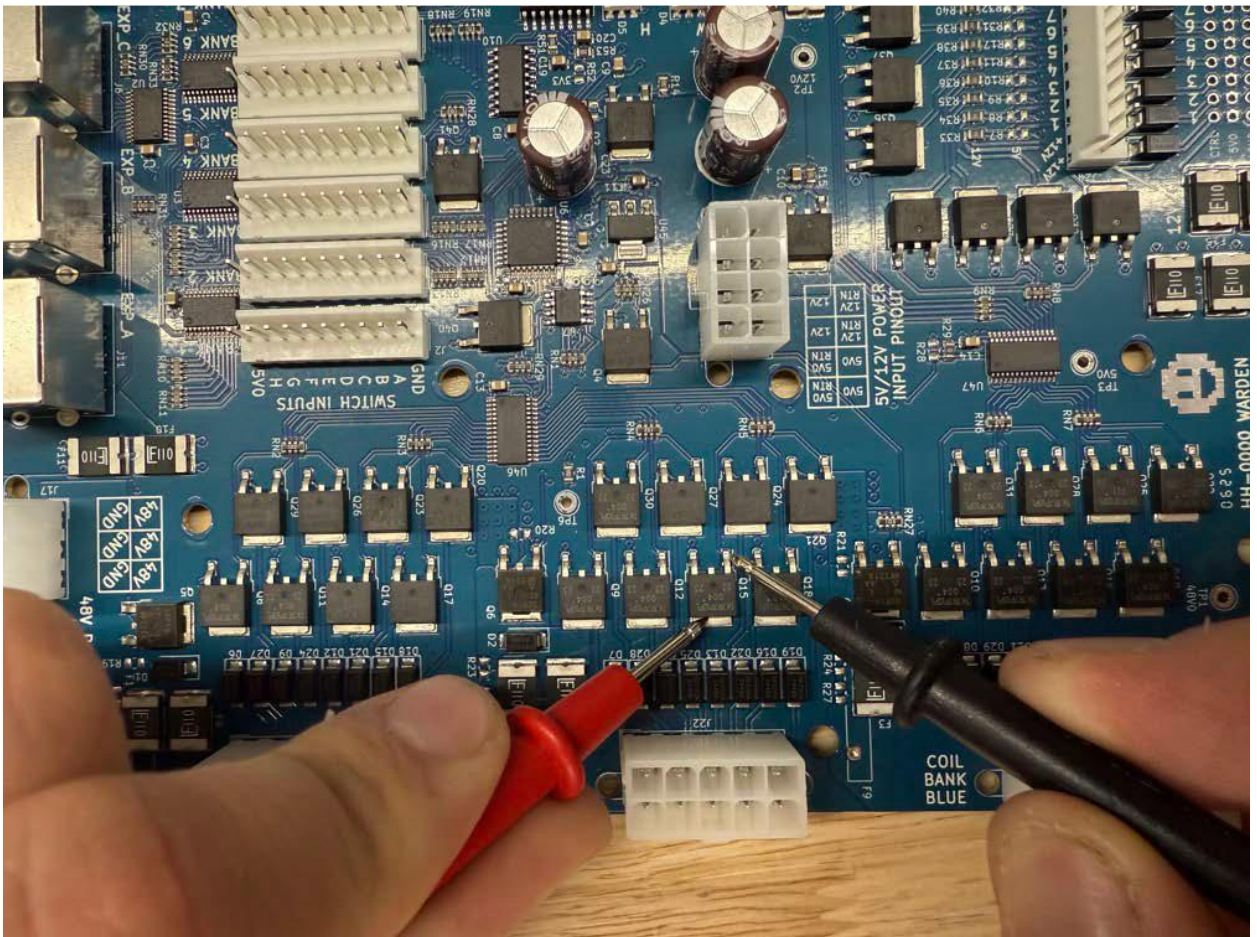
- Set the multimeter to 20k ohms. If 20k ohms is not available, use the closest available ohms setting.
- Power off and unplug the machine. Carefully unplug all of the coil chains from the main Warden board (Blue, Green, and Red connectors). The connectors are located:
  - underneath the playfield
  - below the drop target mechanism
  - on the left-hand side of the playfield



- iii. To test the MOSFETs, identify the (Q8-Q30) MOSFETs on the main Warden board.



- a. Place the multimeter's red prong on the top bar of each MOSFET (Q8-Q30) and the black prong on the bottom right foot.



- b. A functioning MOSFET should display no resistance reading. If there is any reading, it indicates a faulty component. Test all MOSFETs (Q8-Q30) and note the ones that produce a reading.

- iv. To identify a coil, use the supplied coil chart to identify the faulty MOSFET to its corresponding coil.
- v. To isolate the faulty coil, move the coil plunger that is associated with the bad MOSFET by hand to ensure it has full motion. If the plunger is restricted the coil is bad, too. Check all coils associated with tested bad MOSFETS.

**Note:** ONLY continue if you have determined that there is a bad/restricted movement coil from Step V.

**⚠ Warning**

If a bad MOSFET is associated with any other of the coils in the machine, stop here and do not continue.

Email: [service@spookyinball.com](mailto:service@spookyinball.com) and report which MOSFETs are bad on your Warden Board causing certain coils not to function.

Please let support know if you have restricted movement coils since you'll need those parts, too.

- a. Take good pictures of the associated coil wire connections before cutting wires in Step c.
- b. Cut the return wire connected to the identified faulty restricted coil associated with the bad MOSFET. Be careful to cut the return wire only and not the serial power daisy chain wire (Blue, Green, or Red) connecting other coils.
- c. Immediately tape over the cut wire to prevent accidental short circuiting.
- vi. To test the device, power on the machine. It should now function properly, except for the cutout coil that caused the issue.
- vii. Locate any remaining MOSFETs.
- viii. If the machine continues not to function correctly, you may have overlooked one faulty MOSFET.
- ix. Repeat Steps 3 thru 5 for any remaining MOSFETs to identify and isolate the problematic coil.

# Chapter 5

## 5. Switch and Coil Charts

### 5.1. Beetlejuice Switch Chart

Switch Banks for Main Playfield 1 thru 3								
Switch Bank 1			Switch Bank 2			Switch Bank 3		
0	Trough	Grey	8	Shooter Lane	Grey	16	Left 3 bank	Grey
1	Trough	White	9	Far Right Standup	White	17	Middle 3 bank	White
2	Trough	Red	10	Right Drop	Red	18	Right 3 bank	Red
3	Trough	Purple	11	NONE	Purple	19	Passive Sling	Purple
4	Trough	Blue	12	Right Sling	Blue	20	Left Sling	Blue
5	Trough	Green	13	Right Flipper EOS	Green	21	Left Flipper EOS	Green
6	Trough	Yellow	14	Right Inlane	Yellow	22	Left Inlane	Yellow
7	Trough	Orange	15	Right Outlane	Orange	23	Left Outlane	Orange
Ground	Ground	Black	Ground	Ground	Black	Ground	Ground	Black

Switch Banks for Main Playfield 4 thru 6								
Switch Bank 4			Switch Bank 5			Switch Bank 6		
24	Above Pop Standup	Grey	32	NONE	Grey	40	Juno Scoop	Grey
25	Top Pop	White	33	NONE	White	41	Lost Souls Scoop	White
26	Left Orbit	Red	34	NONE	Red	42	Left Ramp	Red
27	Bot Pop	Purple	35	Upper Flipper EOS	Purple	43	Sandworm Mouth	Purple
28	Right Pop	Blue	36	NONE	Blue	44	Lost Souls Back Entrance	Blue
29	L Camera	Green	37	Upper Left Standup	Green	45	Couch Lock	Green
30	R Camera	Yellow	38	Upper Right	Yellow	46	NONE	Yellow

				Standup				
31	NONE	Orange	39	Top Orbit	Orange	47	NONE	Orange
Ground	Ground	Black	Ground	Ground	Black	Ground	Ground	Black
<b>Switch Banks for Main Playfield 7 thru 8</b>								
<b>Switch Bank 7</b>			<b>Switch Bank 8</b>			<b>Intentionally Blank</b>		
48	NONE	Grey	56	NONE	Grey			
49	NONE	White	57	NONE	White			
50	NONE	Red	58	NONE	Red			
51	NONE	Purple	59	NONE	Purple			
52	Sandworm Right	Blue	60	Mystery Scoop	Blue			
53	NONE	Green	61	Right Orbit	Green			
54	Sandworm Left	Yellow	62	Right Ramp	Yellow			
55	Spinner	Orange	63	Captive Ball	Orange			
Ground	Ground	Black	Ground	Ground	Black			

<b>Cabinet Expander Switches</b>					
<b>Upper Board</b>			<b>Lower Board</b>		
	Power	NONE		Power	Yellow
80	Lower Right Flipper	Grey	88	Start Light	Brown
81	Action	White	89	Action Light	Brown
82	Upper Right Flipper	Red	90	Coin Left	Red
83	Upper Left Flipper	Purple	91	Enter	Purple
84	Tilt	Blue	92	Down	Blue
85	Launch	Green	93	Up	Green
86	Lower Left Flipper Button	Yellow	94	Exit	Yellow
87	Start	Orange	95	Cabinet Extra	Orange
Ground	Ground	Black	Ground	Ground	Black

<b>G1 Bank 1 and Servo Expander Switches</b>				
<b>G1 Bank 1</b>			<b>Servo Expander</b>	
8	Mystery Scoop Flasher	Black	0	Right Lift Ramp
7	Lost Souls Scoop Flasher	Orange	1	Beetlejuice
6	Juno Scoop Flasher	Yellow	2	Bridge Servo
5	Camera	Green	3	Standup Bank
4	BJ Lifter Mag – 5v	Blue 2 Pin	4	Sandworm Vertical (Y)
3	Cap Ball	Purple	5	Sandworm Horizontal (X)
2	Drop Target Flasher	Red	6	Couch
1	Marque Sign	Servo Cable	7-15 EMPTY	EMPTY
Power	Power	Pink		

## 5.2. Warden Coil Boards

Warden Coil Board								
Red Chain			Green Chain			Blue Chain		
Wire	Coil	MOSFET#	Wire	Coil#	MOSFET#	Wire	Coil	MOSFET#
Red	Power		Green	Power		Blue	Power	
Red	Power		Green	Power		Blue	Power	
0 Purple	Left Sling	Q8	8 Brown	Empty	Q9	16 Brown	Empty	Q10
1 White	Left Lower Flipper High	Q29	9 Orange	Empty	Q30	17 Orange	Empty	Q31
2 Black	Left Lower Flipper Low	Q11	10 Black	Empty	Q12	18 Black	Empty	Q13
3 Yellow	Magnet	Q26	11 Yellow	Empty	Q27	19 Yellow	Empty	Q28
4 Brown	Beetle Juice kicker	Q14	12 Purple	Empty	Q15	20 Purple	Empty	Q16
5 Orange	NONE	Q23	13 White	Empty	Q24	21 White	Empty	Q25
6 Pink	Knocker	Q17	14 Pink	Empty	Q18	22 Pink	Empty	Q19
7 Grey	Shaker	Q20	15 Grey	Empty	Q21	23 Grey	Empty	Q22

Coil Expander Board							
Coil #	Green Chain – Top Plug		MOSFET#	Coil#	Blue Chain – Bottom Plug		MOSFET#
	Green	Power			Blue	Power	
	Green	Power			Blue	Power	
55	Purple	Lower Right Flipper high	B1	63	Purple	Upper Flipper High	A1
54	White	Auto Launch	B2	62	White	Right Up Post	A2
53	Black	Lower Right Flipper Hold	B3	61	Black	Upper Right Flipper Hold	A3
52	Yellow	Right Scoop	B4	60	Yellow	Beetle Juice Pop (right)	A4
51	Brown	Trough Eject	B5	59	Brown	Lost Souls Scoop	A5
50	Orange	Right Sling	B6	58	Orange	Juno Scoop	A6
49	Pink	Drop Reset	B7	57	Pink	Mrs. Argentina Pop (left)	A7
48	Grey	Drop Knockdown	B8	56	Grey	Juno Pop (bottom)	A8