

Beetlejuice – Maintenance Manual

Spooky Pinball

Version: 1.0

April 08, 2026

1. Game Assembly and Setup

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

1.2. 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

1.3. 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

1.4. 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 with the subject "Code Bug"

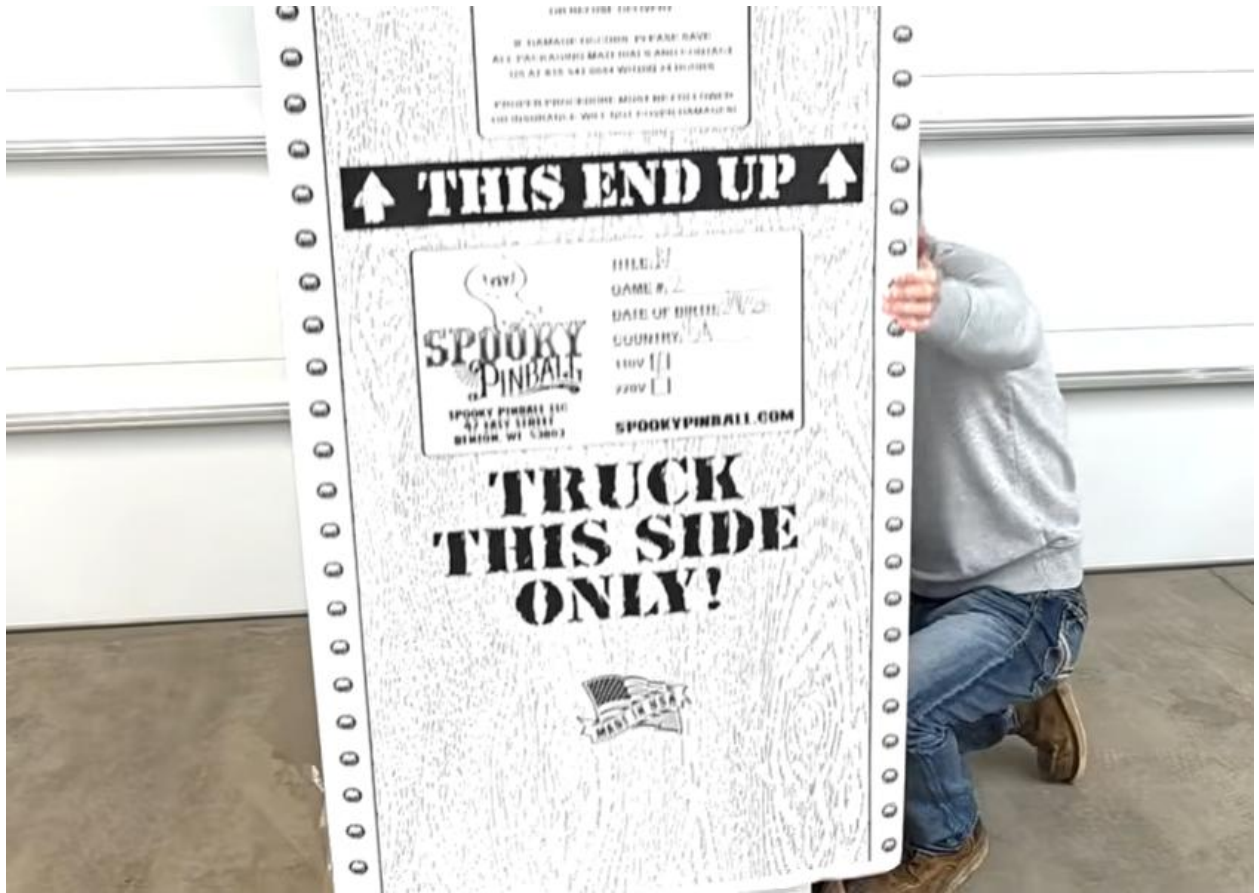
1.5. Assemble Your Game

1.5.1. 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.



1.5.2. 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

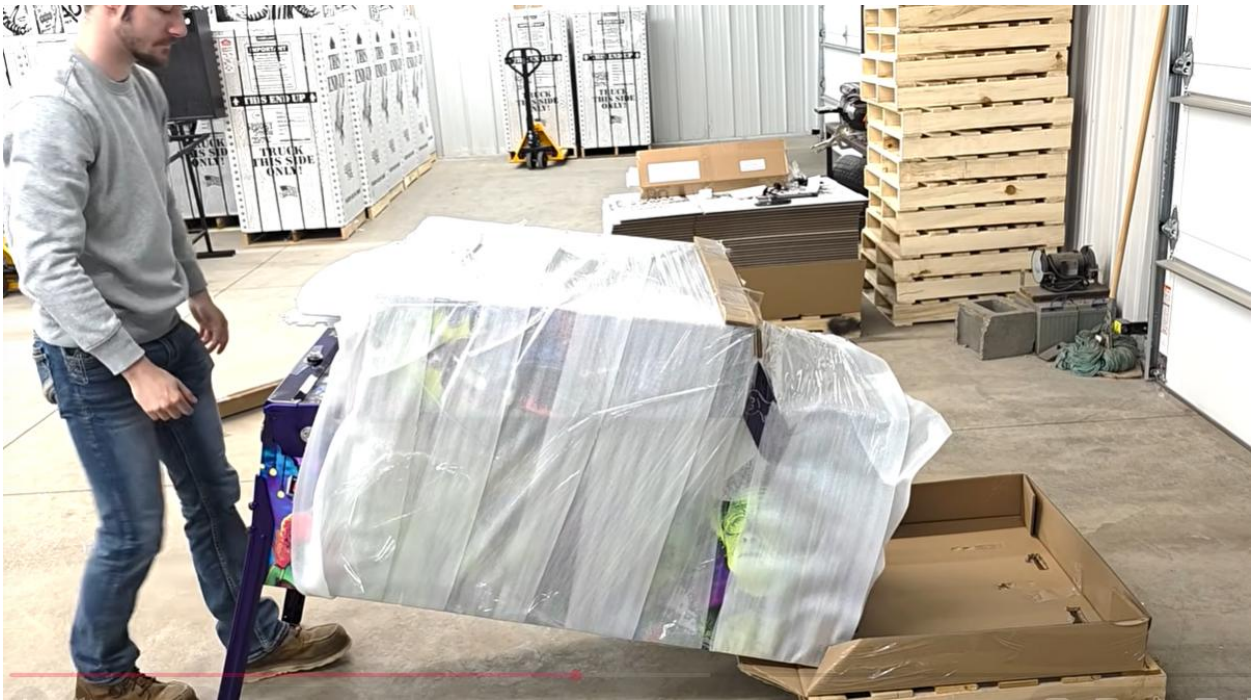
Improperly tightened screws may cause leg movement and long-term damage to the cabinet.

1.5.3. 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.



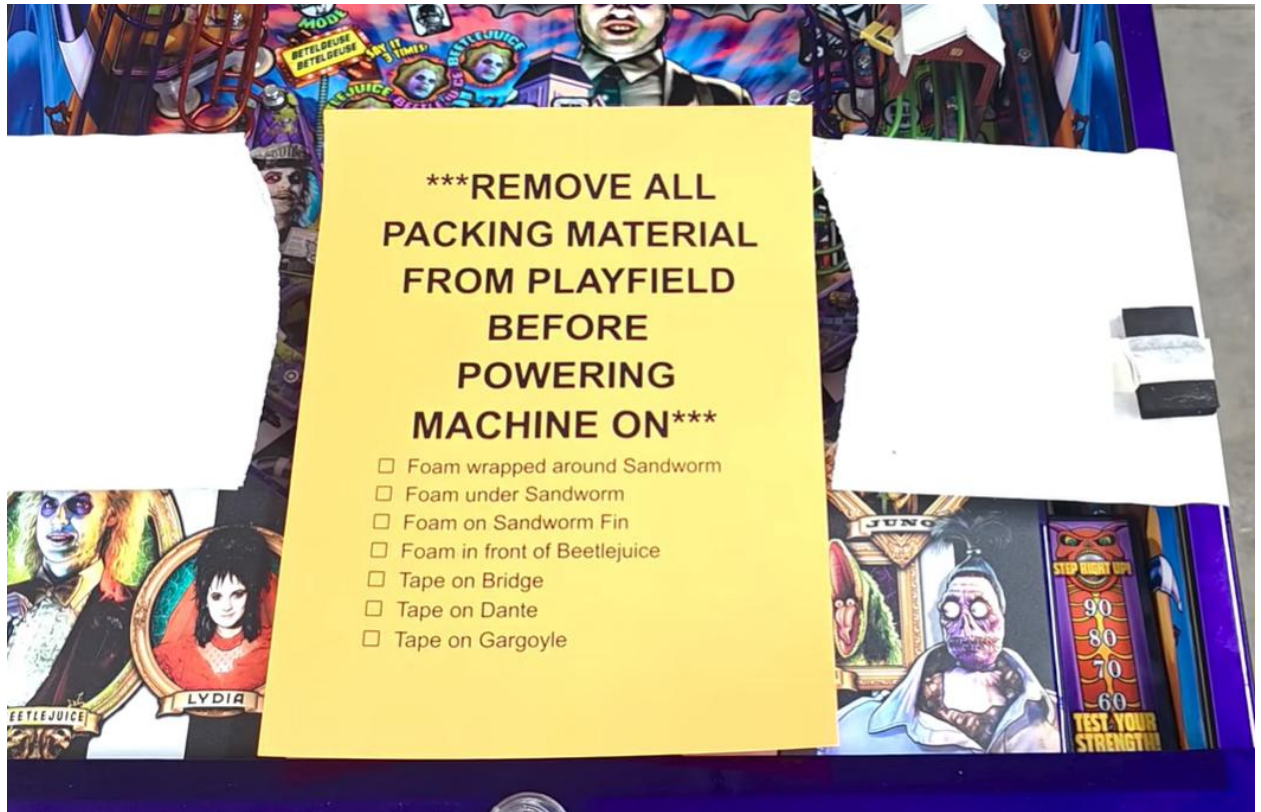
- viii. With a pair of scissors or a utility knife, carefully remove the remaining protective foam and cardboard material from the machine. You do not want to cut into or damage the armor or the decals on the game.



- 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.

1.5.4. Access the playfield

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

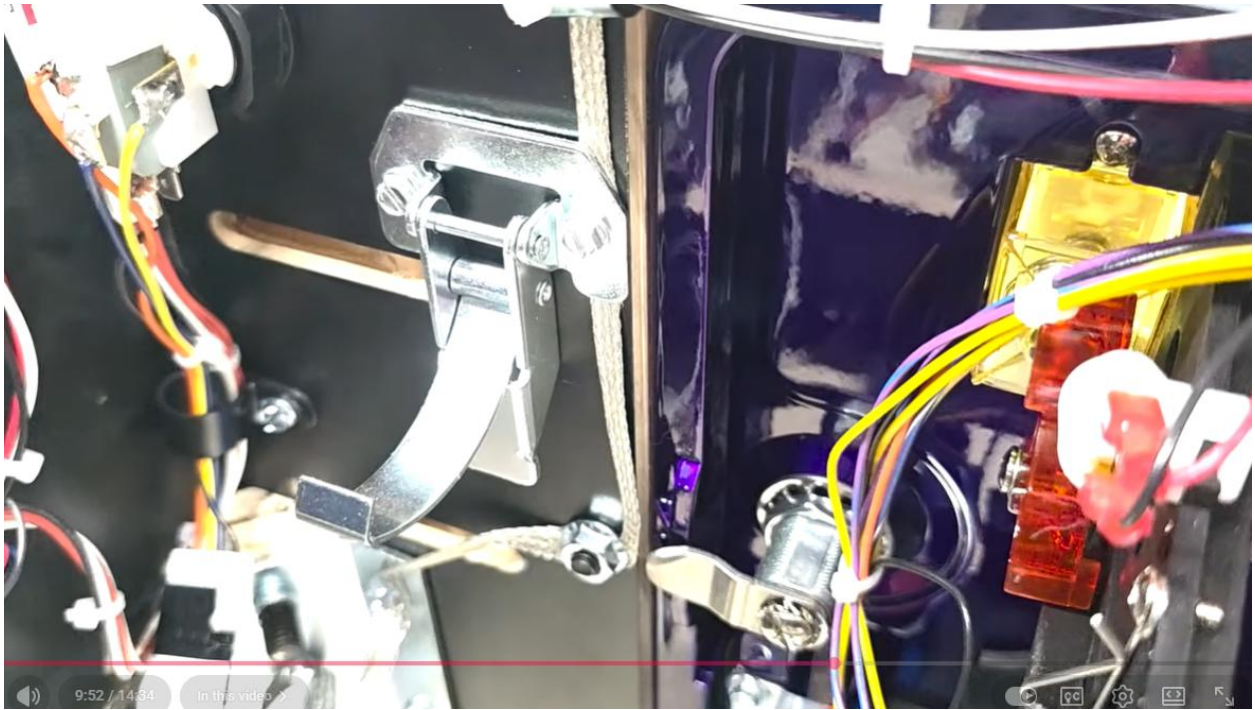


- ii. Then, remove the foam padded protection, two on the left side and two on the right side of the game.

1.5.5. 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.





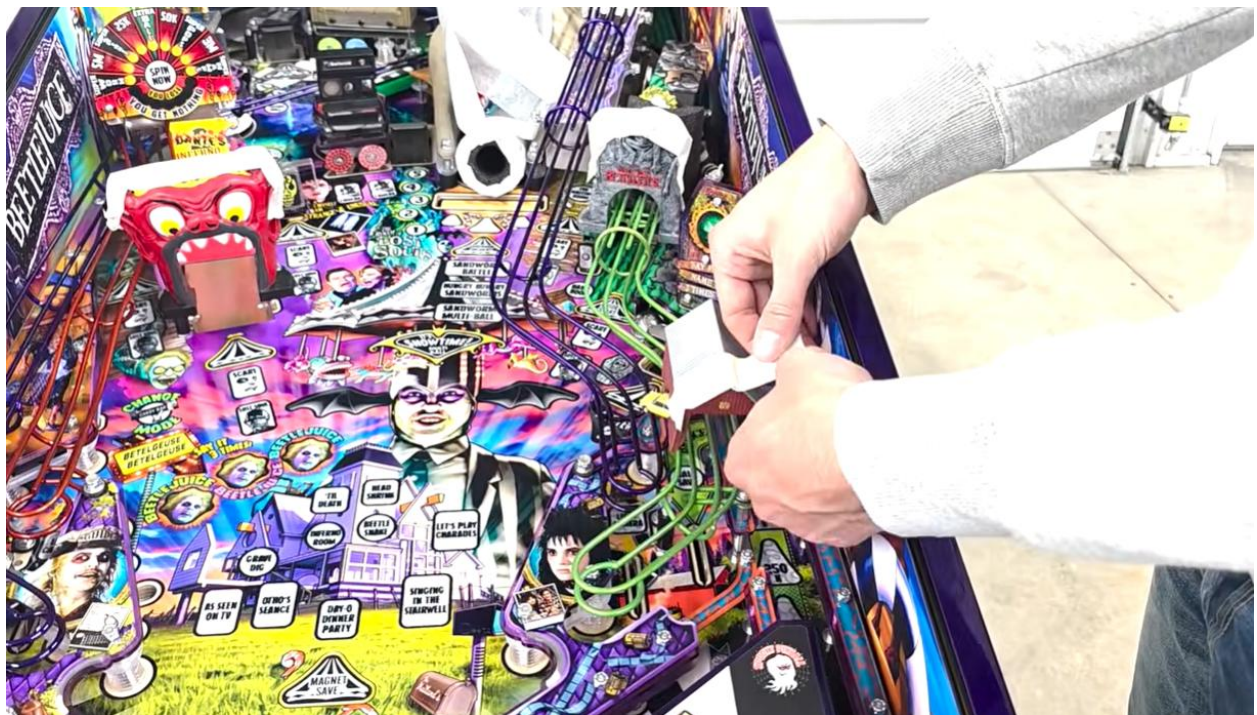
iv. Lift up the lockdown bar to remove it. Set it aside in a safe place.



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.

1.5.6. 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

⚠ CAUTION!

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

1.5.7. 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.

1.6. 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.

1.7. 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.

1.8. 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.

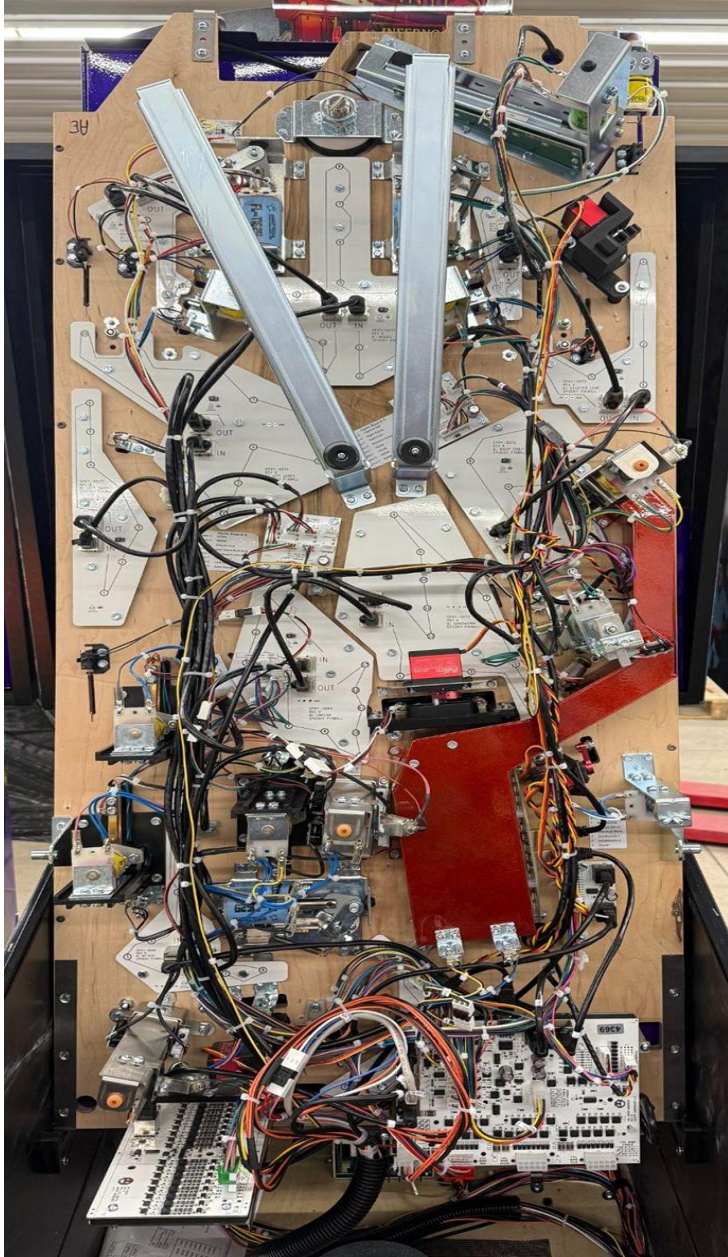
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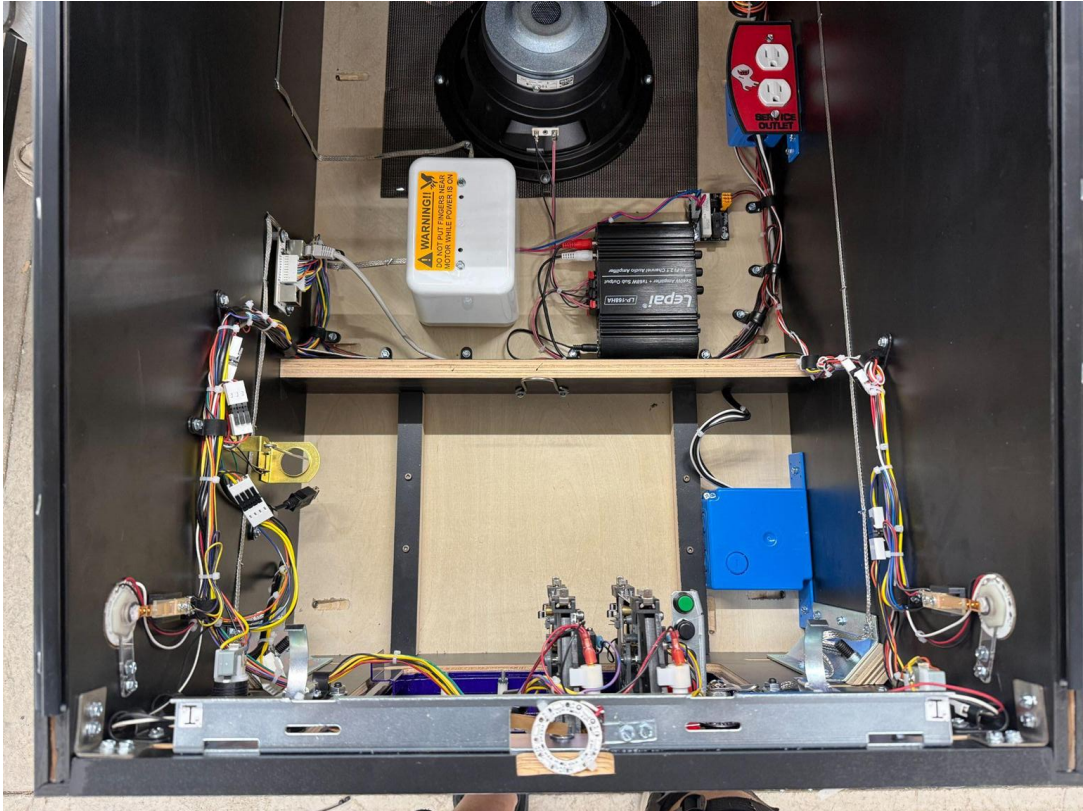
Chapter 2

2. Layouts and Schematics

2.1. Playfield Underside



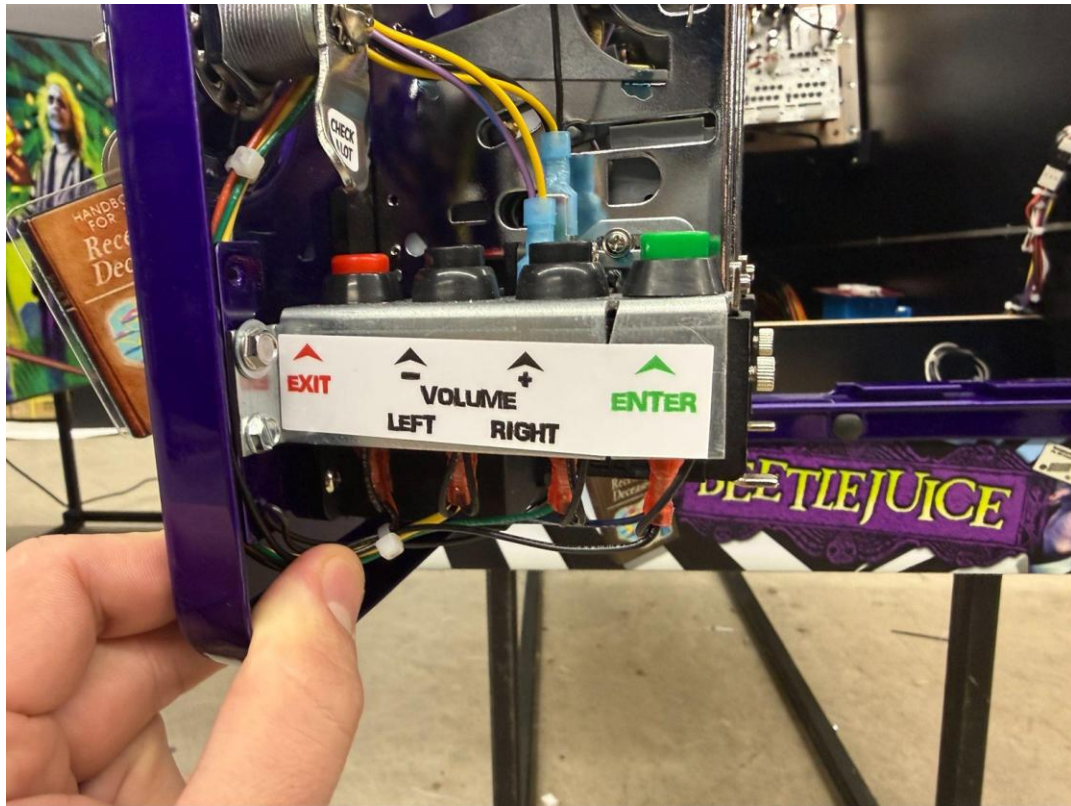
2.2. Cabinet Bottom



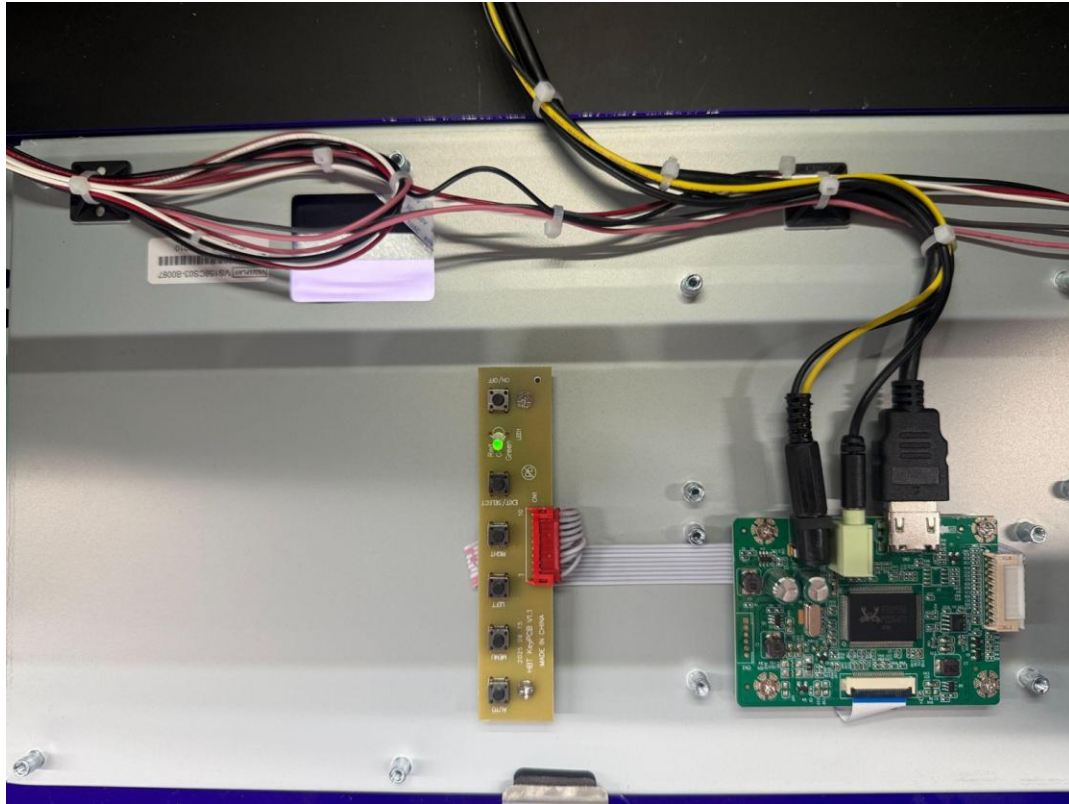
2.3. Coin Door - Angle 1



2.4. Coin Door - Angle 2



2.5. LCD Display



2.5.1. 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: TPM27oWF1-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)

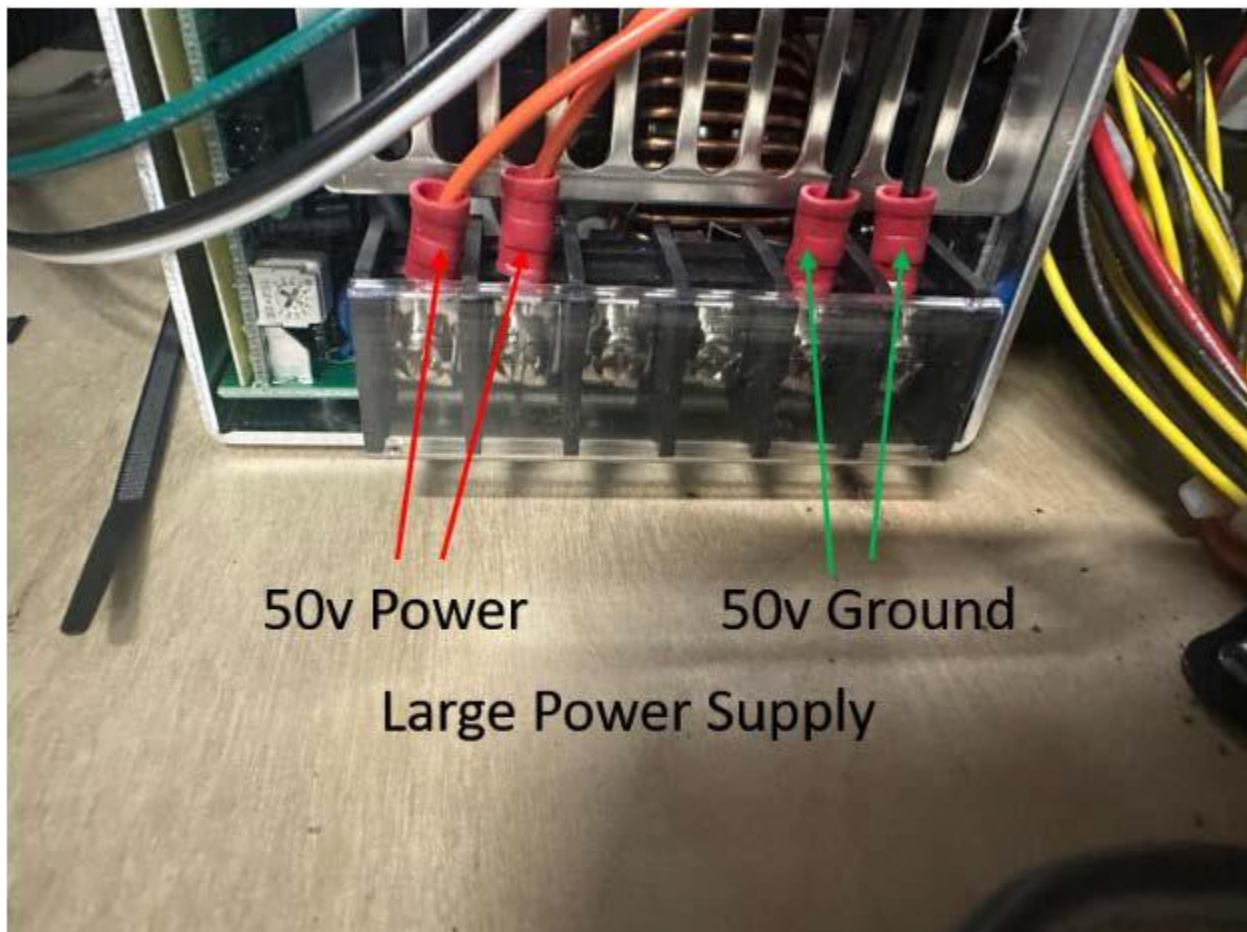
1× Inverter Board

1× LVDS Signal Cable

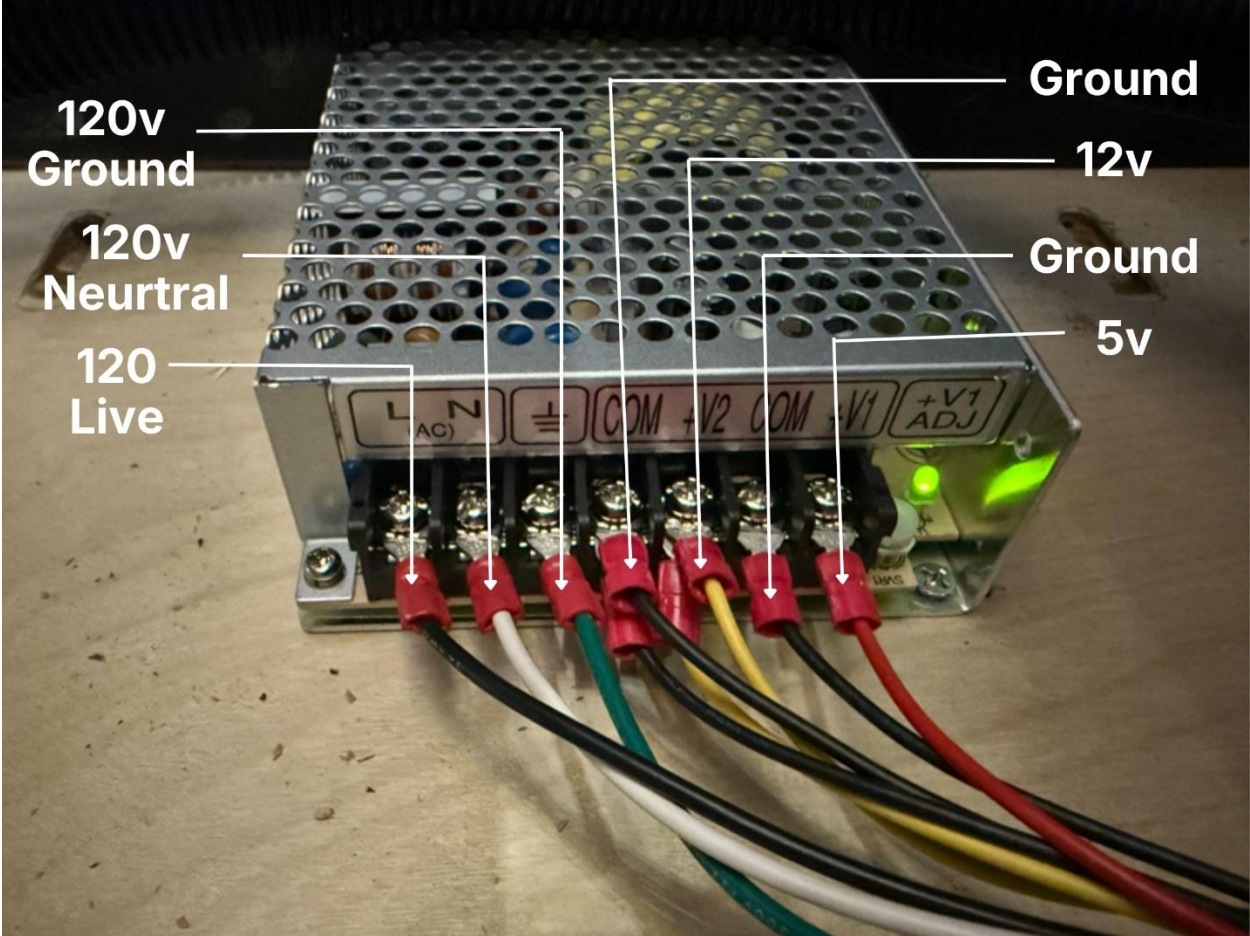
1× Keyboard with Cable

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

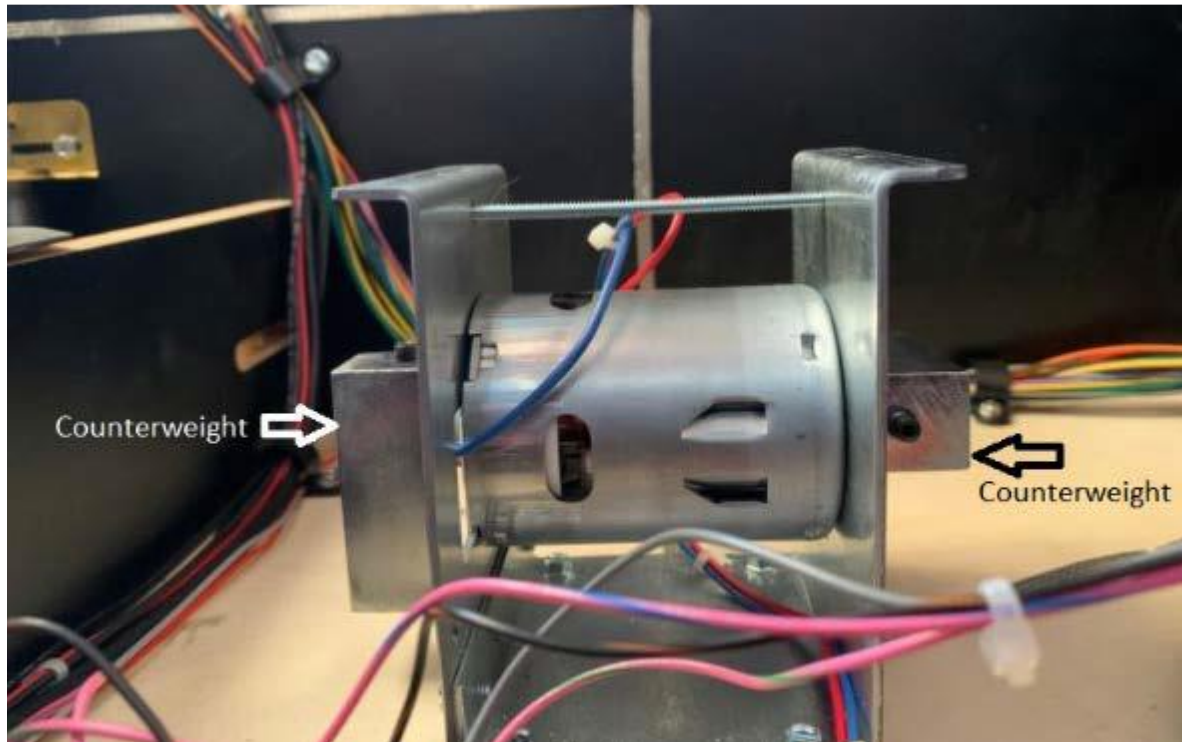
2.6. Large Power Supply



2.7. Small Power Supply



2.8. Shaker Motor



2.8.1. Adjust Shaker Motor Vibration

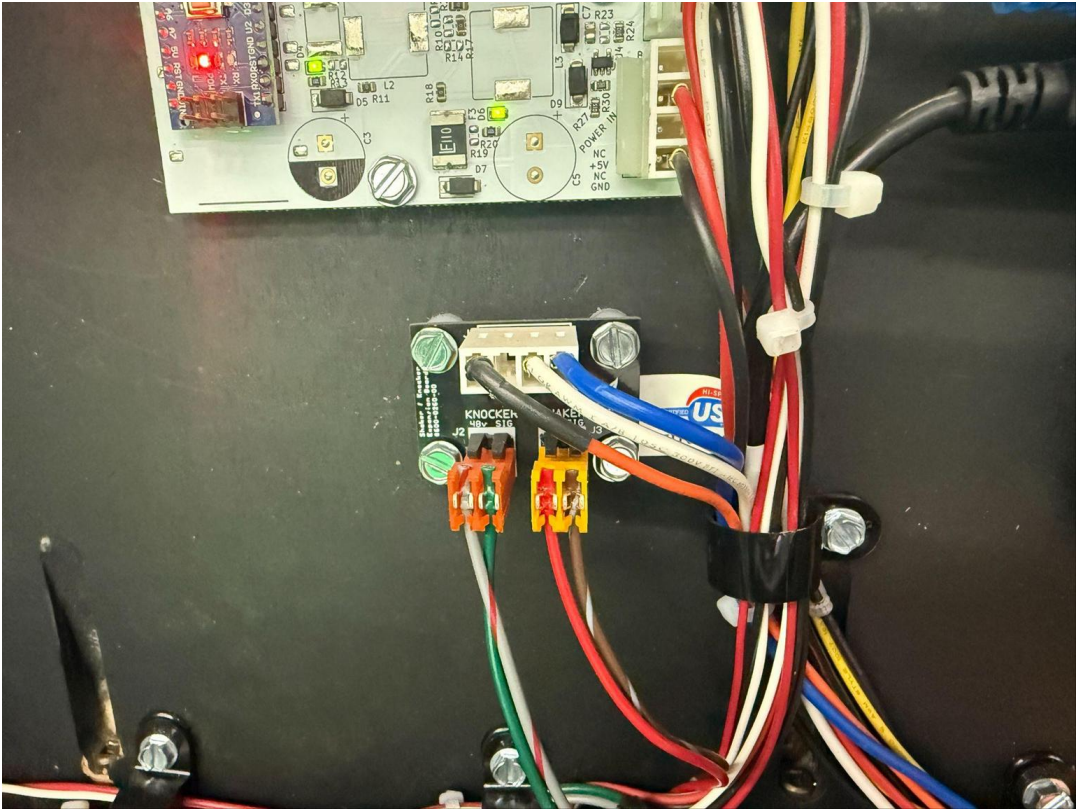
To Adjust Shaker Motor Vibration

- 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.

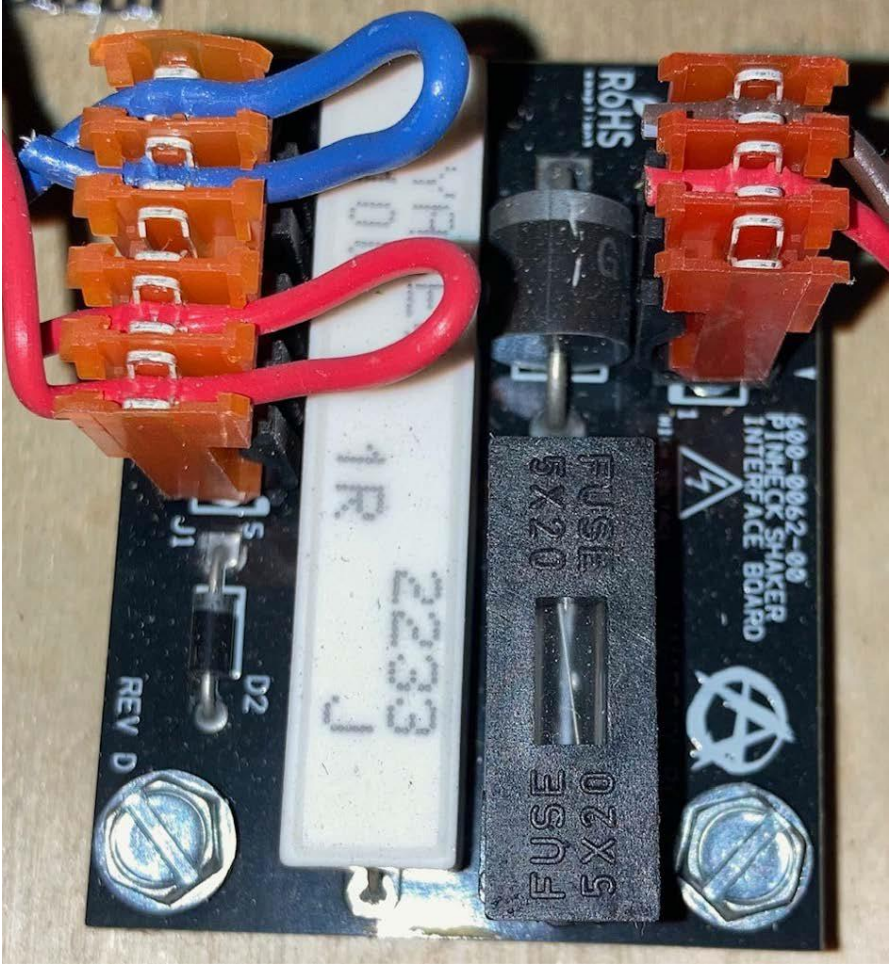
Shaker Motor Settings:

- 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.

2.9. Shaker Motor Board



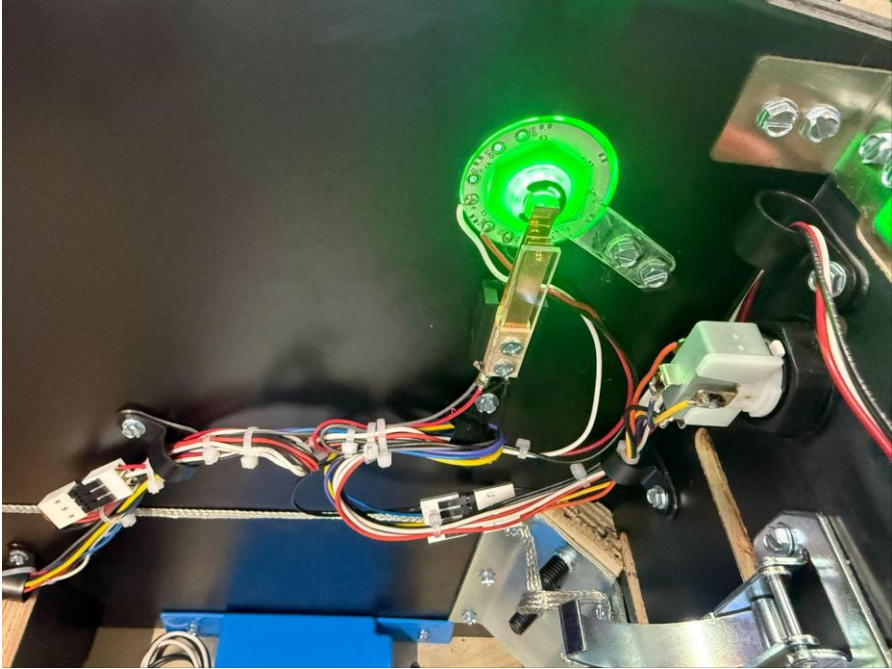
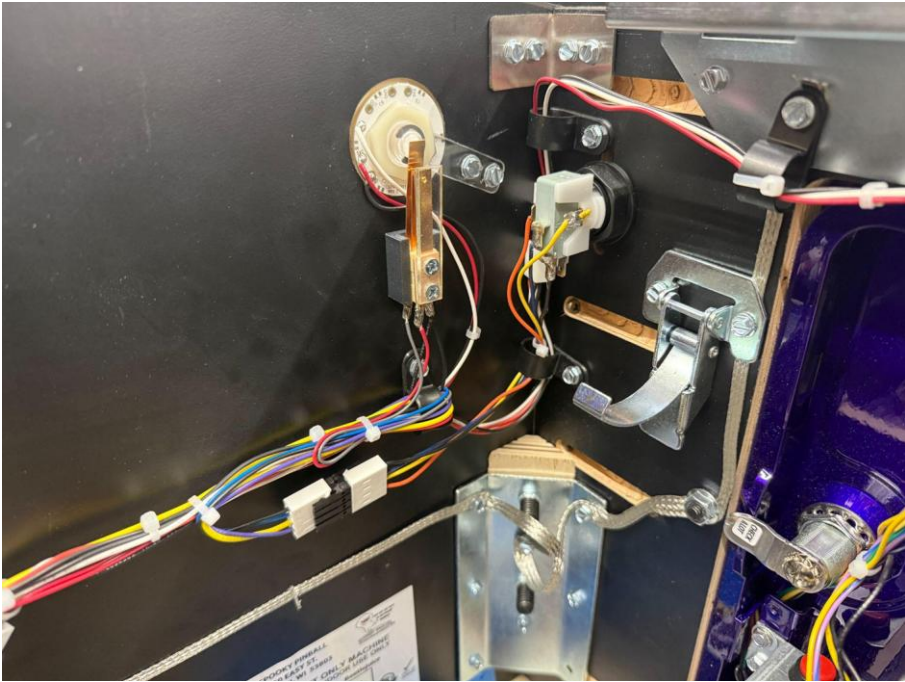
2.10. Shaker Motor in Cabinet



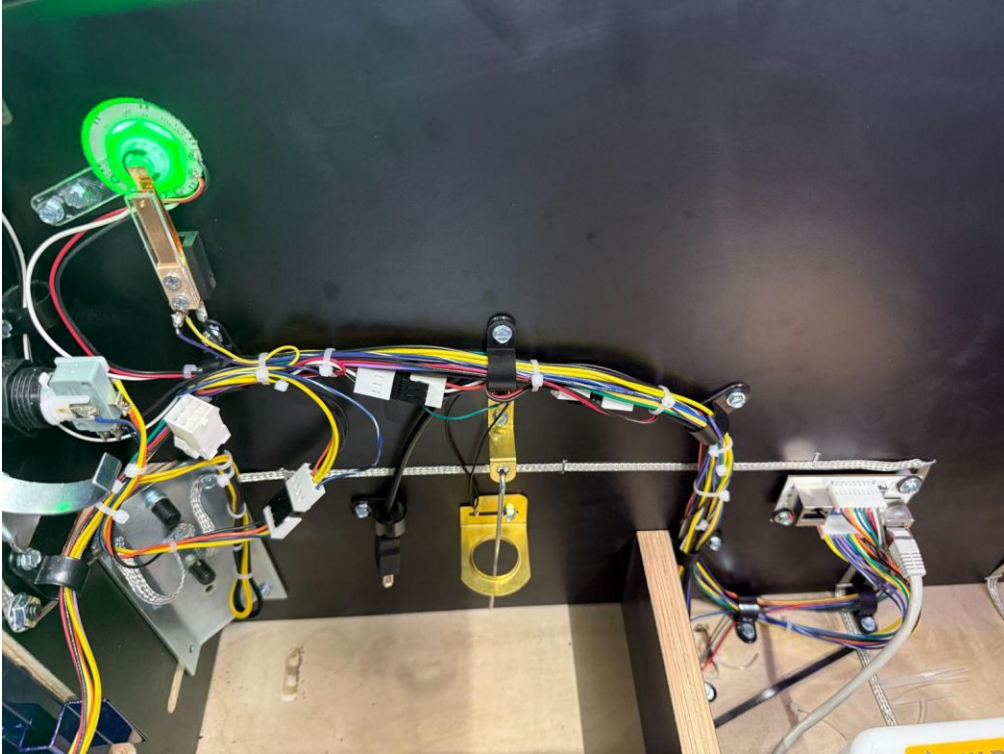
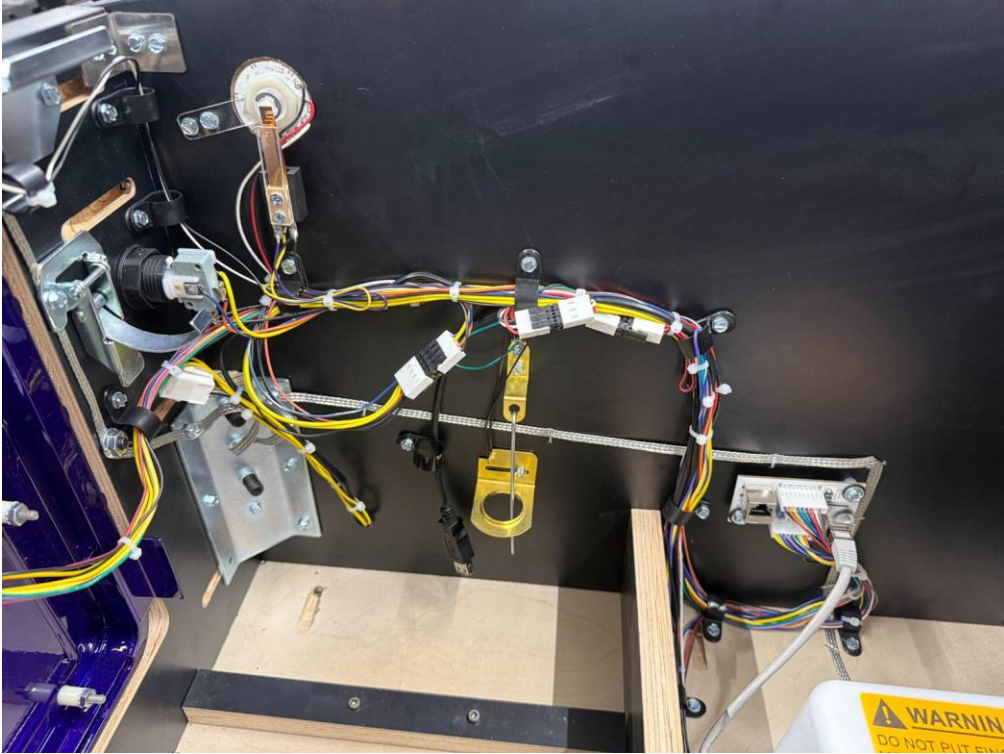
2.11. Service Outlet



2.12. Right Side Flipper in Cabinet



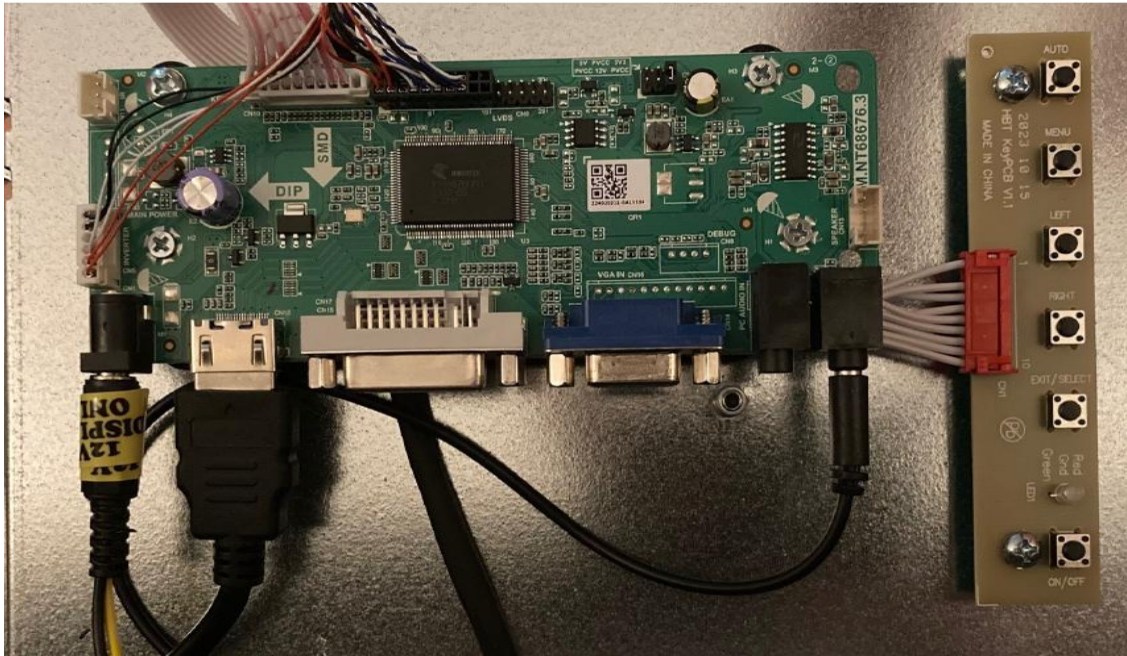
2.13. Left Side Flipper in Cabinet



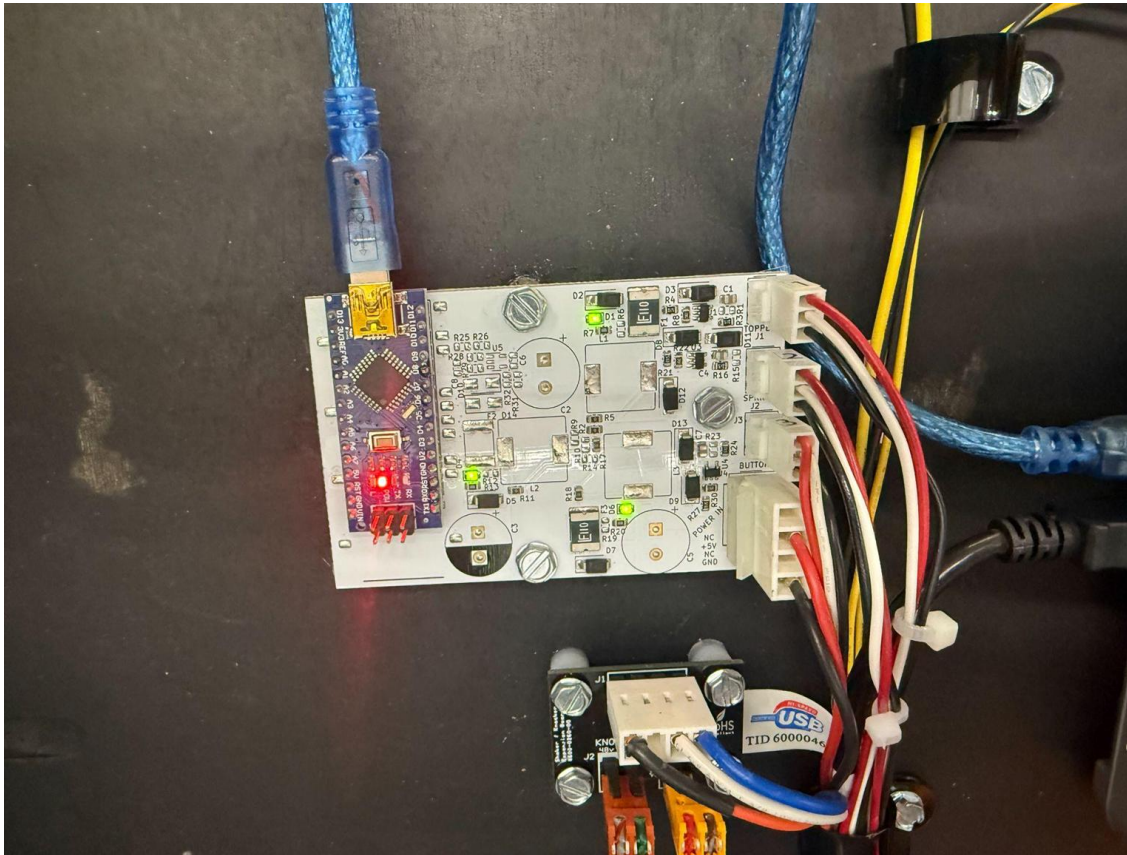
2.14. Start Button Connection



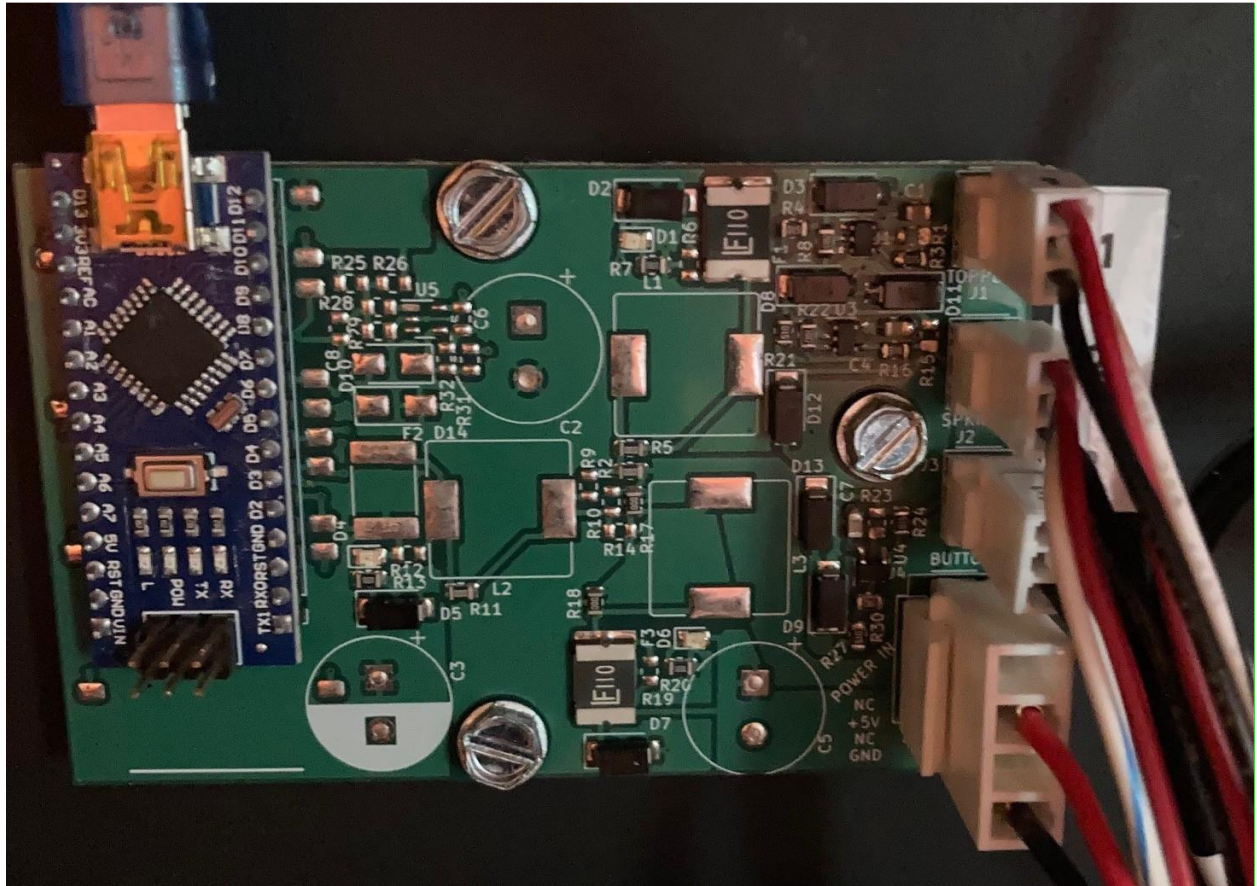
2.15. Monitor Control Adjust Board



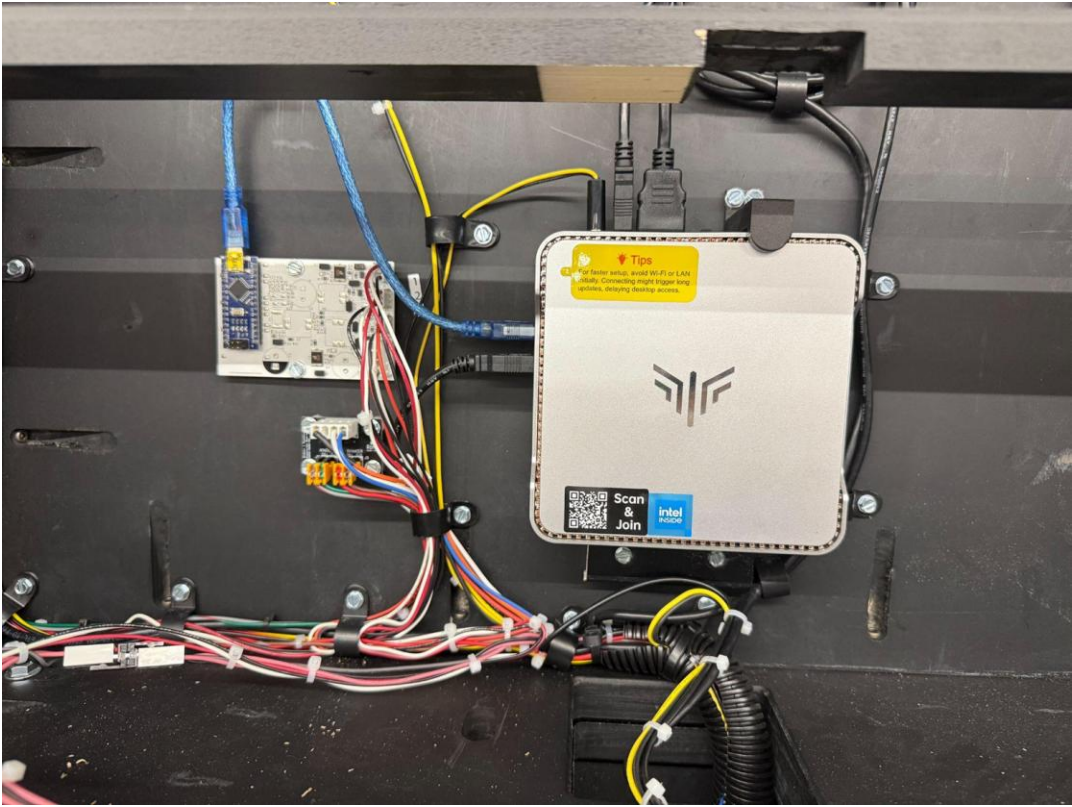
2.16. LED Control Board



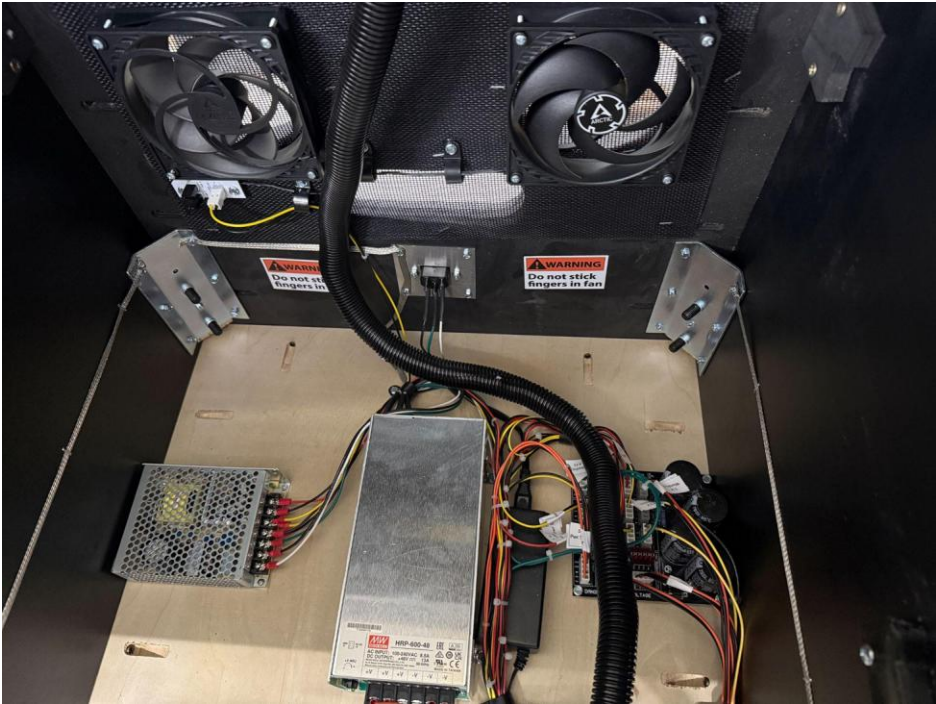
2.17. Flipper Detail



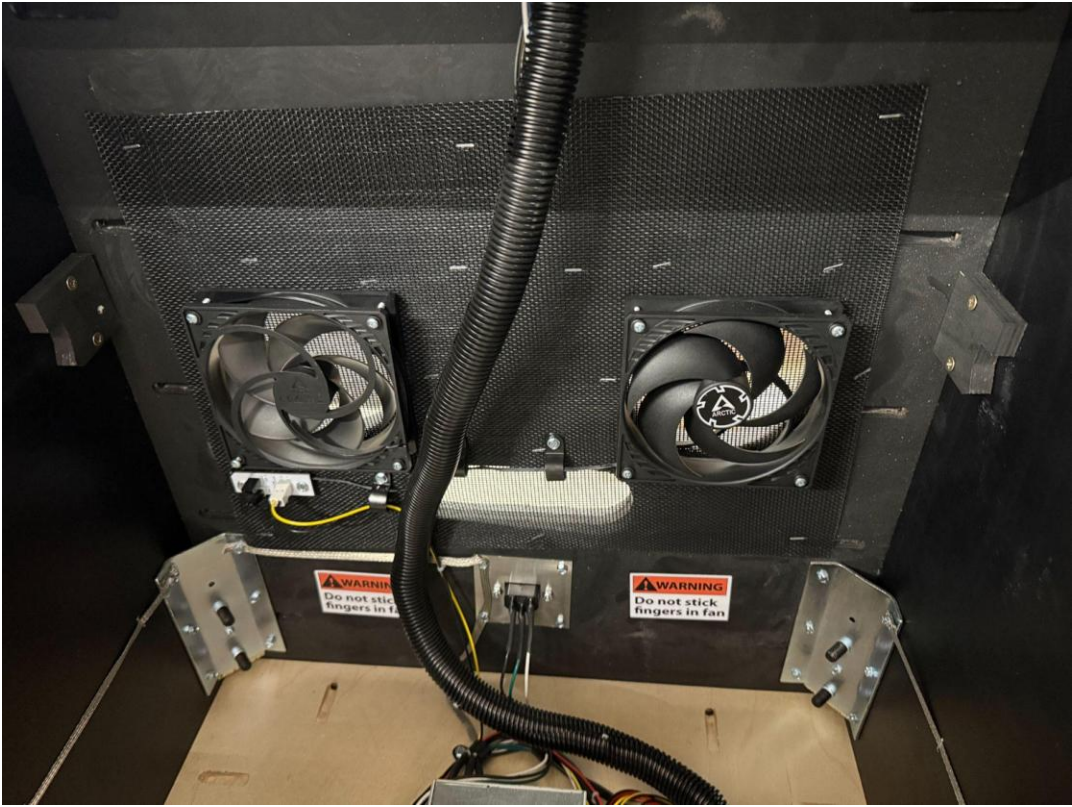
2.19. Cabinet Head Inside



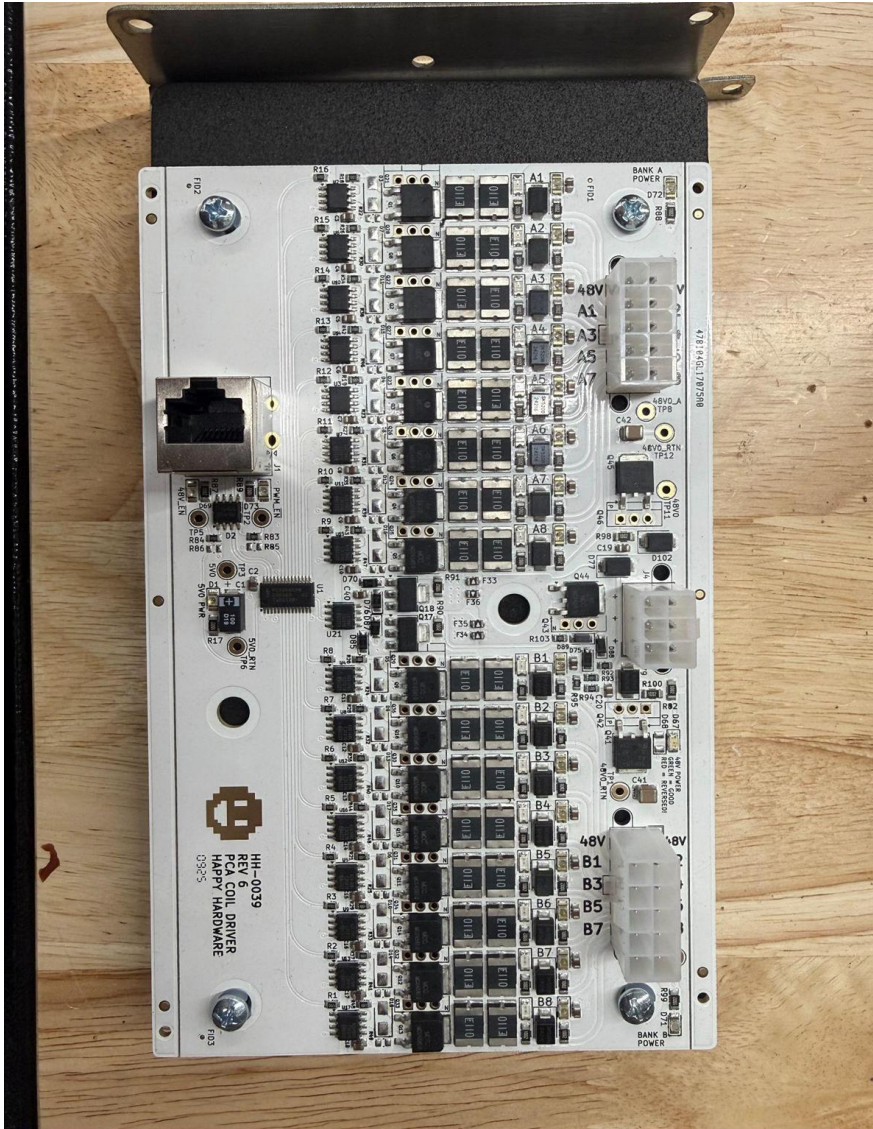
2.20. Back of Cabinet

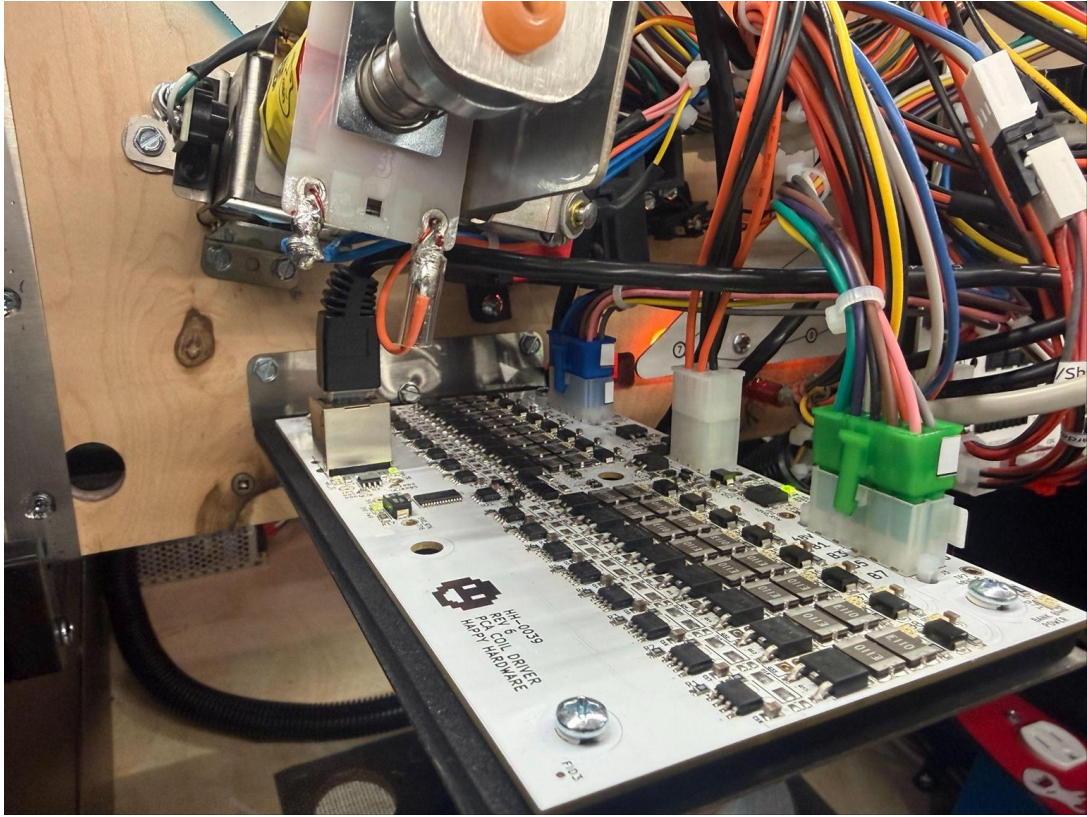


2.21. New Cabinet Fans

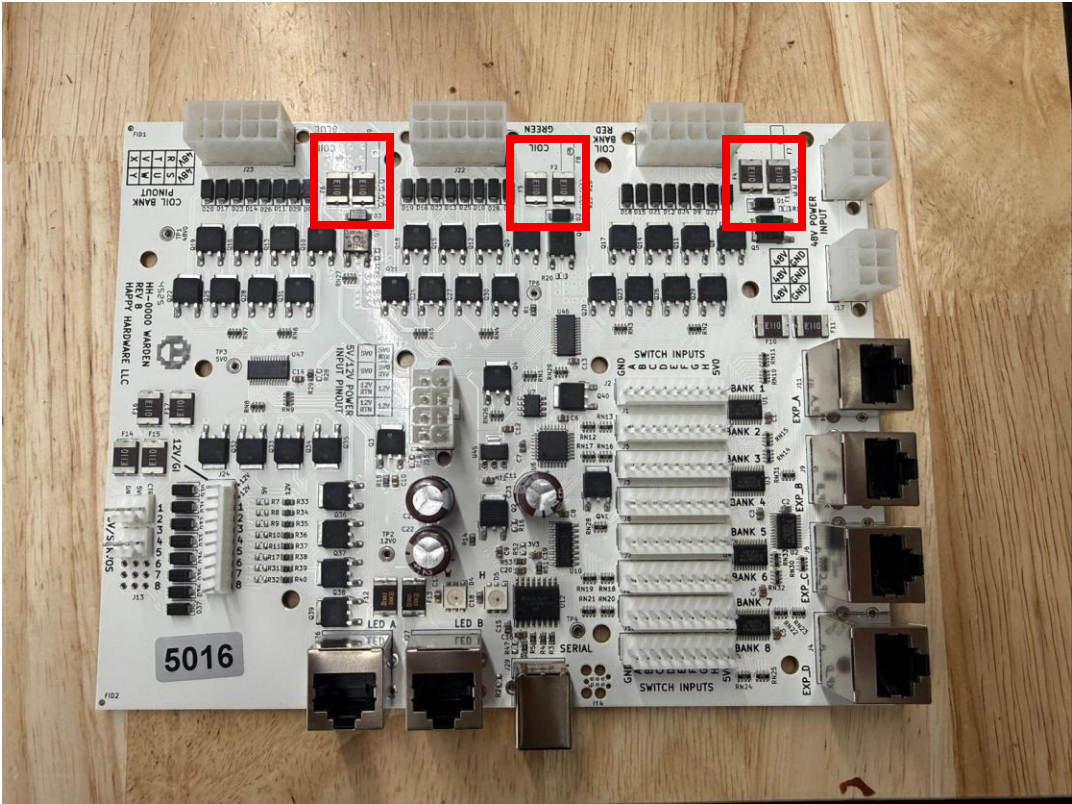


2.22. Warden Coil Expander

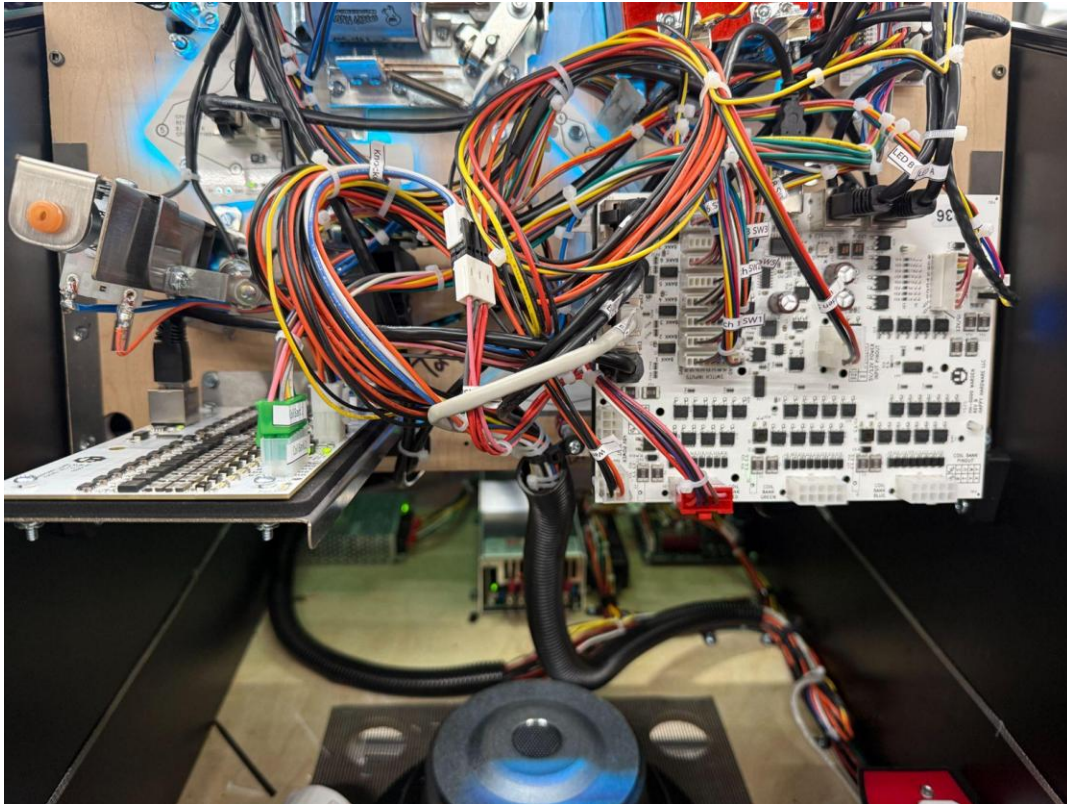




2.23. Beetlejuice Board Fuse Locations



2.24. Populated Warden Board



Notice

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Chapter 3

3. Diagnosing a Bad MOSFET on the Warden Board

3.1. Tools Required

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

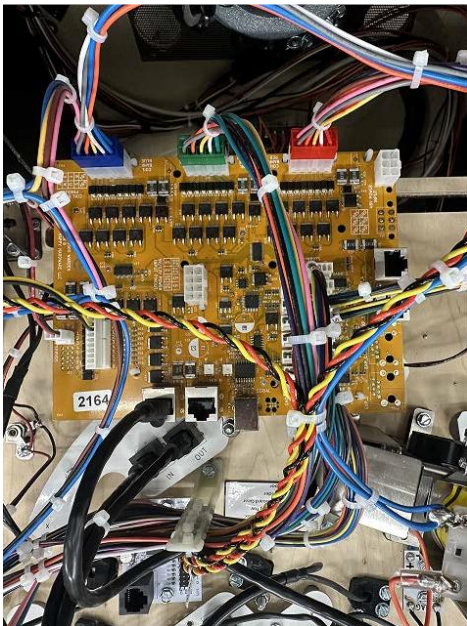
- Multimeter with an ohms setting (preferably set to 20k)
- Chart for reference (see end of document)
- Wire cutters
- Insulating tape

⚠ Caution

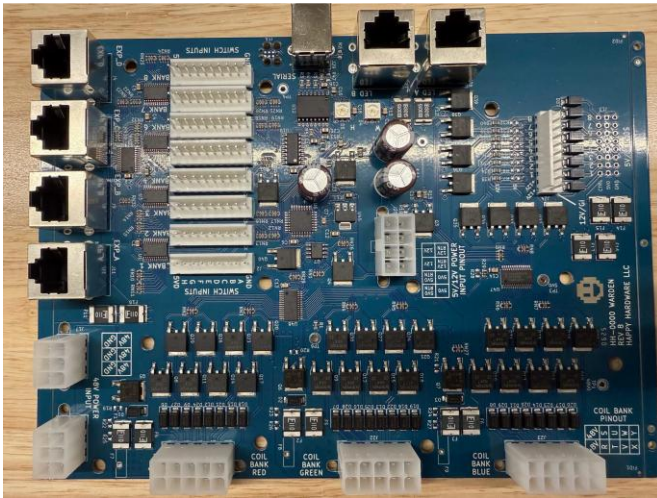
YOU ARE WORKING WITH SENSITIVE ELECTRONIC MATERIALS. PLEASE USE CAUTION!

To diagnose a bad MOSFET

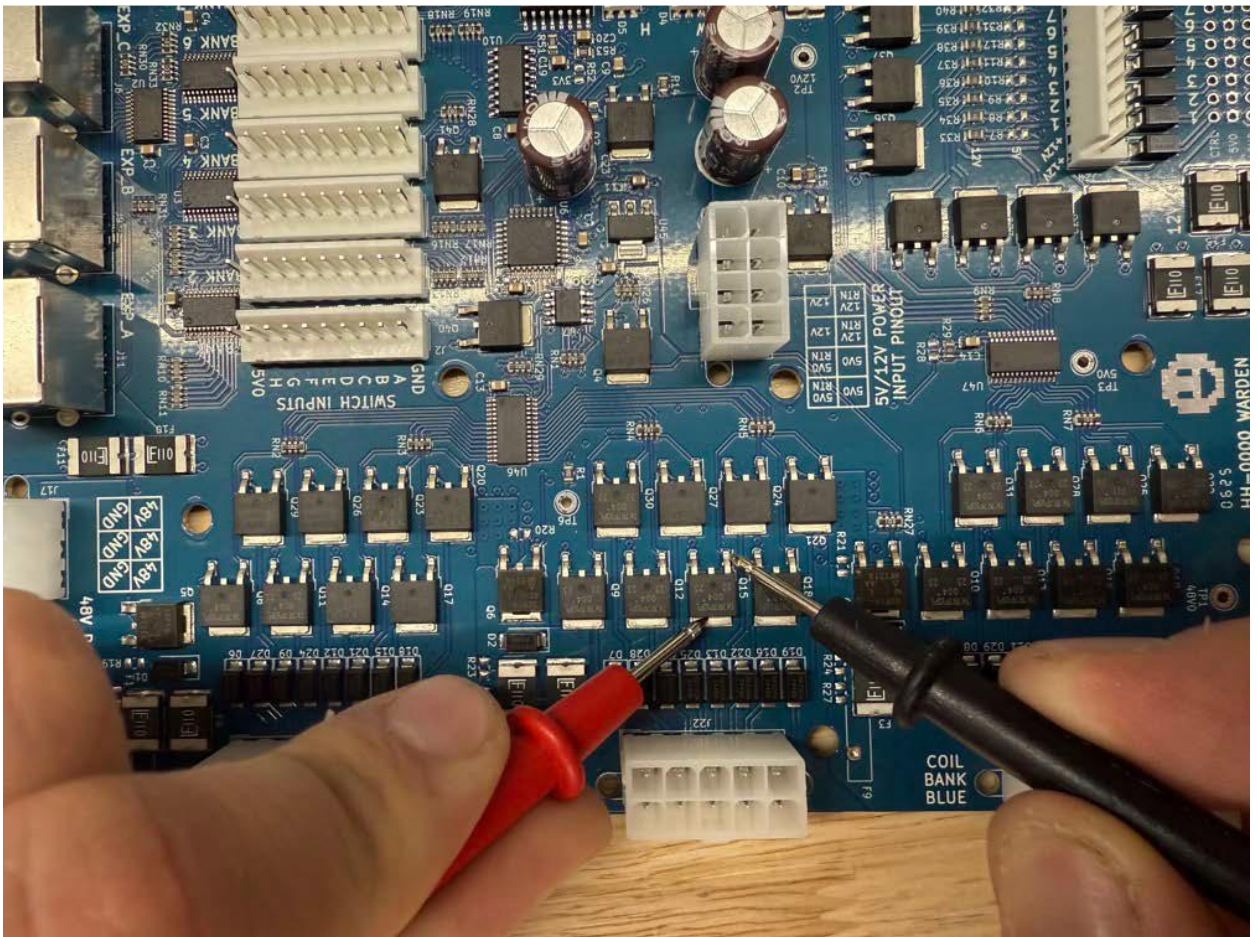
- Set the multimeter to 20k ohms. If 20k ohms is not available, use the closest available ohms setting.
- Power off and unplug the machine. Carefully unplug all of the coil chains from the main Warden board (Blue, Green, and Red connectors). The connectors are located:
 - underneath the playfield
 - 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 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 4

4. Switch and Coil Charts

4.1. 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	Yellow	38	Upper	Yellow	46	NONE	Yellow

	Camera			Right Standup				
31	NONE	Orange	39	Top Orbit	Orange	47	NONE	Orange
Ground	Ground	Black	Ground	Ground	Black	Ground	Ground	Black
Switch Banks for Main Playfield 7 thru 8								
Switch Bank 7			Switch Bank 8			Intentionally Blank		
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			

Cabinet Expander Switches

Upper Board			Lower Board		
	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

G1 Bank 1 and Servo Expander Switches

G1 Bank 1			Servo Expander	
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		

4.2. 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