

Spooky Pinball Presents
Texas Chainsaw Massacre



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Chapter 1 Game Assembly and Setup

Game Assembly and Setup

Tools Required

You will need the following tools for setup:

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

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

Parts List

Qty.	Part (s)
1	Set of coin door keys
1	Tilt plum bob
1	Back box (head) bolt
4	Pinball legs
4	Pinball leg levelers with nut
8	5/8" headed pinball leg bolts
4	Pinballs
1	Power cable (line cord) for your country's electrical system

Qty.	Part (s)
1	<ul style="list-style-type: none">• Door Servo - 1 x 180 regular servo• Part number: FT-5320m-C004
1	<ul style="list-style-type: none">• Grinder - 1 x 360 Continuous servo• Part number: FT-7135-C003
1	<ul style="list-style-type: none">• Taz/Leatherface - 1 x 360 Continuous servo• Part number: FT-7135-C003
1	<ul style="list-style-type: none">• Backboard Diverter - 1 x 360 non-continuous servo• Part number: FT6335-C001
1	<ul style="list-style-type: none">• TNT/Freezer - 1x mini• Part number: MG90s

Rubber Rings

Qty.	Part
Lower Playfield Rubber Rings	
2	2.5 in
1	2 in
3	3/8 OD
2	3/8 OD
1	1 in
2	3/16 in
Upper Playfield Rubber Rings	
1	1 in

4	3/8 OD
2	3/16 in

Assemble your game

1. Locate the coin door keys inside the leg box.

All the pinballs, a power cord, legs, leg bolts, and head bolt & washer, are in the same package.

2. Please take a minute to inspect to make sure you have all the parts and that they are not damaged.
3. Open the flaps to the game box. Make sure you remove the staples from the flaps so you don't get scratched!

WARNING

DO NOT CUT THE PLASTIC STRAP JUST YET!

- A With some assistance, lay the machine flat on the floor on the side that is marked "Truck this side only." Grab the plastic strap and pull the game from the box. After the game has been removed from the box (and with the assistance of a helper), stand the game back upright on its back. OR
 - B Using your utility knife, carefully cut down the sides of the box that are labeled "Truck this side only," making sure that your knife DOES NOT come in contact with the game cabinet, itself. After both sides are cut you will be able to access the pinball cabinet itself.
4. Thread the leg leveler nut onto each of the levelers. After that is complete then you can thread the leg leveler into the bottom of each of the pinball legs. Begin with all of the levelers adjusted to their lowest positions (threaded all the way in).

Install the pinball legs and back box assembly

1. Using 2 of the 5/8" headed pinball legs bolts per leg, start with either of the front legs. Thread the leg bolts into the corresponding holes on the corners of the front of the cabinet.

Using your ratchet or wrench, tighten adequately to make sure the leg is attached to the machine. With the assistance of a friend or helper slowly tip the game forward until the two front legs are resting on the floor.

Now, as a team, pick up the rear of the cabinet and attach the back two legs in the same fashion as the front. You may want to find a stool or other sturdy support system to rest the game on while attempting this. Once the rear legs bolts are inserted and tightened you can set the game down on its legs.

2. Using your wire cutters, cut the plastic strap that runs the length of the game. ATTENTION! Be careful there is some tension on this strap and it may release with some force.

After the strap is free, now you can lift the back box into position. Be mindful to make sure none of the wiring gets pinched while lifting the back box. Use the clasp on the back box and the cabinet to temporarily hold the back box upright. This should not be used as a permanent fastener.

Using the keys from the parts box, open the coin door and retrieve the back box keys to unlock the back box lock and pivot down the LCD display panel. Now, using the head bolt and washer provided, secure the back box to the base cabinet. At this time thoroughly check for any loose or disconnected connection(s) in your back box. When you are done, reinstall the back glass and engage the lock. Place the back box key back on the hook in the coin door.

⚠ CAUTION

PLEASE USE CAUTION WHEN HANDLING THE PLAYFIELD GLASS!

3. With the coin door open, grasp the lever located at the top right of the door frame and pull it to the left. This will release the mechanism that holds the lock down bar in place. Set the lock down bar aside in order to remove the playfield glass. Now close your coin door to keep it out of the way of the playfield glass. In order to remove the playfield glass, simply slide the glass down the front of the machine. This is tempered glass, so please take care not to hit the edges of it on anything as it may shatter. With the glass safely stored off to the side, you are ready to level the machine

Adjust the pitch and level

1. With your small bubble level you can level the side to side action of your game. Placing the level on the playfield itself will give you the most accurate results.
2. First level the back of the game. With your helper watching the level, crawl under the machine and rotate the leg leveler counterclockwise to make the leveler "longer." Do this until your bubble is between the two lines on your level. Repeat this process for the bottom of the playfield.
3. After that is done, you can use your pitch level to adjust the pitch of the game. The steeper the pitch, the faster the game will play. **Spooky recommends a pitch of 6.5°.** The pitch can be increased by raising the back of the game. This is accomplished by making the leg levelers on the back legs longer.
4. After the proper pitch is established, recheck the level of the playfield.

Install the balls

1. Remove the pinballs from their package. Please take a minute to inspect them for any nicks or scratches. Also, this is a good time to wipe them off before installing them into the game.

2. After you are satisfied that they are acceptable, place them on the lower playfield, and let them naturally fall into the trough. Please install all balls that come with the game .

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.

1. To install the tilt plump bob open the coin door on the front of the game.
2. 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 farther 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.

Power up the game

1. Using the line cord from your supplied parts, plug the female end into the receptacle on the back of the base cabinet, and the male end into your outlet.
2. Turn the switch on (under the bottom of the cabinet, right front side). Please take this moment to check for proper function for the basics of the machine.
3. If the machine does not seem to function properly refer the troubleshooting section in this manual, or contact service@spookypinball.com

⚠ CAUTION

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

Update Instructions

SPOOKY PINBALL SOFTWARE UPDATE INSTRUCTIONS

1. Retrieve the latest code package from the link on the Spooky Support page.
2. Load the file onto a USB flash drive (do not place it inside any folders on the drive).
3. 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.
4. 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.

5. 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 stick and choose in the menu which to install.

Updating the TCM Base Image

Sometimes things go really bad; your game won't load, and the screen remains black, or displays an error, or you'll see a gray BIOS screen, or another issue. This can be a problem with the mini PC, but it might also just be a problem with the software.

This can be fixed by "re-imaging" your mini-pc, which gets you back to a working state so that you can update to the latest code.

To update the TCM base image

1. Download the Texas Chainsaw Massacre base image from the link on the Spooky Support page.
2. Unzip the contents of your download and copy to a new, or freshly formatted USB drive.
3. Safely eject the USB drive after the file transfer completes.
4. 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.

5. You'll see "Clonezilla" and it will take a fair while doing things, so please be patient. Finally you'll see a reboot menu with three options (Power off, Reboot, and CMD). Turn your game off, unplug the USB, and turn the game on again.
6. 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 in this manual.

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.

Routine Maintenance

- 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

Need to report a code bug in Texas Chainsaw Massacre? You can send an email directly to service@spookypinball.com with the subject "Code Bug"

Chapter 2 Game Menu System

Game Menu System

Game Play Settings			
	Min	Max	Default
Balls Per Game	1	5	3
Warnings Before Tilt	0	10	3
Tilt Cooldown	0 se	6 sec	2 sec
Standard Ball Save Time	0 sec	90 sec	10 sec
Multiball Save Time	0 sec	30 sec	15 sec
Eject/Bounce Ball Save Time	0 sec	10 sec	3 sec
Ball Search Start Time	5 sec	30 sec	20 sec
Ball Launch Hold	2 sec	10 sec	5 sec
Allow Start With 1 Ball Missing	off	on	off
Door How Long Hold	1 sec	4 sec	3 sec
Door Magnet Catch Power	5%	50%	50%
Door Sling Adjust	oms	500ms	200ms
Door Magnet	oms	70ms	30ms
Apron Brightness	0%	100%	50%
High Score Entry Time Out	5 sec	60 sec	20 sec
Ball Launch Time Out	5 sec	60 sec	Never
Cook Mode Units	Kelvin/Celcius	Fahrenheit	Fahrenheit

Table 2-1. Game Play Settings

Game Play Settings			
	Min	Max	Default
Grinder Exit Max Time	4sec	16 sec	9 sec
Spot Captive Ball Lock Shots	0	4	3
Pam Shots To Start	1	5	3
Countdown Voice	off	on	on
Countdown From	5 sec	10 sec	10 sec
Countdown Speaker Clock	off	on	on
Door Sticky Ball Time-out	4 sec	20 sec	6 sec
Flip Hold Pauses Timers After	Never/1	10 sec	5 sec
Flip Hold For Status	2 sec	15 sec	3 sec
Status Time Per Screen	2 sec	8 sec	3 sec
Mode Score Beat Time On	2 sec	8 sec	3 sec
Combo Chain Timer	2 sec	20 sec	12 sec
Modes To Light Extra Ball	2	5	4
Loop Combos To Hold Multiplier	2	10	3
Super Gory Mode	off	on	off
Tournament Mode	off	on	off
Risky Shot Ball Save	off	on	off
Risky Save Left Scoop	off	on	off
Risky Save Door Bounce	off	on	off
Risky Save Door Eject	off	on	off

Table 2-1. Game Play Settings

Game Play Settings			
	Min	Max	Default
Risky Save Off Captive Ball	off	on	off
Flipper High Winding Max Time	10 ms	100 ms	50 ms
Spot Advance Hltch-hiker	off	on	off
Spot Advance Cook	0	2	0
Spot Advance Gas Station	0	2	0
Spot Advance Grandpa	0	2	0
Spot Advance Leather-face	0	2	0
Spot Advance Family	0	2	0
Spot Advance Grave	0	2	0
Spot Advance Woods	0	2	0

Table 2-1. Game Play Settings

Audio/Video Settings			
	Min	Max	Default
Attract Mode Music	off	on	off
Attract Mode Sounds	off	on	off
Voice Level	0%	100%	100%
SFX Level	0%	100%	100%
Music Level	0%	100%	35%
Ambience Level	0%	100%	35%

Table 2-2. Audio/Video Settings

Audio/Video Settings			
Music Lowers During Voice	off	on	off
Music Lowers To	0	100%	50%
Speak 'N Switch	off	on	off
Camera X Position	-10 pixel	10 pixel	0 pixel
Camera Y Position	-10 pixel	10 pixel	0 pixel
Camera Size	-10 pixel	10 pixel	0 pixel
Show Credit Dot	off	on	off
Show UI Error Log	off	on	off
Disable 48v On Error	off	on	off

Table 2-2. Audio/Video Settings

Coil Settings			
	Min	Max	Default
Lower Left Flipper	50%	100%	100%
Lower Right Flipper	50%	100%	100%
Upper Left Flipper	50%	100%	100%
Upper Right Flipper	50m%	100%	100%
Left Sling	0 ms	20 ms	5 ms
Right Sling	0 ms	20 ms	5 ms
Trough	0 ms	30ms	16 ms
Auto Launcher	0 ms	20 ms	10 ms
Launch Lowest Power	0 ms	10 ms	8 ms
Launch Highest Power	0 ms	20 ms	13 ms
Right Stop Post	0 ms	15 ms	7 ms

Table 2-3. Coil Settings

Coil Settings			
Rear Diverter	0 ms	20 ms	20 ms
Upper PFVUK	0 ms	25 ms	20 ms
Door Scoop Eject	0 ms	25 ms	15 ms
Door Magnet	0 ms	70 ms	30 ms
Door Magnet Catch Power	5 ms	50 ms	50%
Middle Scoop Eject To Left	0 ms	20 ms	10 ms
Middle Scoop Eject To Right	0 ms	150 ms	40 ms
Drop Target Down	0 ms	25 ms	10 ms
Drop Target Reset Up	0 ms	25 ms	25 ms
Meat Grinder Diverter	0 ms	15 ms	10 ms
Front Scoop Eject	1 ms	7 ms	3 ms
Soft Klocker	1 ms	7 ms	3 ms
Klocker	0 ms	20 ms	7 ms
Shaker	5 ms	20 ms	10 ms

Table 2-3. Coil Settings

Servo Settings			
	Min	Max	Default
Hook Ball Release	0	180	19
Hook Load Ball 1	0	180	37
Hook Load Ball 2	0	180	37
Hook Load Ball 3	0	180	37
Hook Pass Thru	0	180	102
Door Open	0	180	34
Door Closed	0	180	175
Grinder Stopped	0	180	95
Grinder Move Minimum	0	180	85
Leatherface Move Minimum CW	0	100	80
Leatherface Stopped	0	180	90
Leatherface Move Minimum CCW	80	180	95
Freezer Closed	0	180	86
Freezer Open	0	180	130

Table 2-4. Servo Settings

Pricing/Replay Settings			
	Min	Max	Default
Free Play	off	on	on
Credit Type	Coin Count	Pulse Count	Pulse Count
Coins Per Credit	1	8	1
Pulses Per Edge	1	16	1
Pulses Per Credit	1	16	1
Credit For High Score	off	on	off
Match Boost	0%	100	0%
Replay Award	Credit	Extra Ball	Credit
Replay Score	5,000,000	300,000,000	52,000,000
Replay Type	Fixed	Auto Adjust	Auto Adjust
Losing Streak Threshold	0	30	3
Replay Minimum Score	25,000,000	150,000,000	25,000,000
Replay Maximum Score	100,000,000	300,000,000	150,000,000
Replay Backdown Amount	1,000,000	20,000,000	1,000,000
Replay Increase Amount	1,000,000	20,000,000	1,000,000

Table 2-5. Pricing/Replay Settings

Tests	
Switch Test Note: Use <u>Switch Reports</u> to display statistics on switch activations	
Default Switch Screen	<ul style="list-style-type: none"> SWg1: Menu button off "First report on screen" Pressing any switch on cabinet or playfield will display results on LED screen
Stuck Switch Test	

Table 2-6. Tests

Tests		
Default Stuck Switch Test Screen	<ul style="list-style-type: none">Trough 7Trough 6Trough 5Trough 4Trough 3Trough 2Orbit Diverter DetectedTrough 1	<ul style="list-style-type: none">ActiveActiveActiveActiveActiveActiveActiveActive
	Light Test	
	All Inserts On	<ul style="list-style-type: none">Toggles color with green button (Red, Green, Blue, White, Off)
	All Inserts Off	<ul style="list-style-type: none">Turns all inserts off
	Insert Test	<ul style="list-style-type: none">Toggle color of each insert (Red, Green, Blue, White)
	All GI On	<ul style="list-style-type: none">Turns on all GI Bulbs
	ALL GI Off	<ul style="list-style-type: none">Turns off all GI Bulbs
	Apron On	<ul style="list-style-type: none">Turns on apron lights
Apron Off	<ul style="list-style-type: none">Turns off apron lights	
RGB Kit Button	<ul style="list-style-type: none">Cycles RGB lights	
RGB Kit Speakers	<ul style="list-style-type: none">Cycles RGB speaker lights	
RGB Kit Topper	<ul style="list-style-type: none">Cycles RGB topper lights	
RGB Kit All Off	<ul style="list-style-type: none">Turns off all RGB lights	
Coil Test		
	<ul style="list-style-type: none">Lists all coilsHighlights coilsPress green button to fire	
Burn-in Tests		

Table 2-6. Tests

Tests	
Burn-In Select Test	<ul style="list-style-type: none"> • All • Coils • Servos • Insert RGB • Cabinet • Speakers • Mechs Only • Lights Only • Light Kit Serial

Table 2-6. Tests

Utilities	
Update Software From USB	<ul style="list-style-type: none"> • n/a • n/a • No Media
Revert To Local Backup	<ul style="list-style-type: none"> • n/a • n/a • Revert
Read Error Log	<ul style="list-style-type: none"> • n/a • n/a • Open Log
Export Error Log To USB	<ul style="list-style-type: none"> • n/a • n/a • No Media
Clear Error Log & Credit Dot	<ul style="list-style-type: none"> • Green Button Clears Log and Credit
Export Game Settings To USB	<ul style="list-style-type: none"> • n/a • n/a • No Media
Import Game Settings From USB	<ul style="list-style-type: none"> • n/a • n/a • No Media

Table 2-7. Utilities

Utilities	
Export Switch Reports To USB	<ul style="list-style-type: none">• n/a• n/a• No Media
Reset High Scores	<ul style="list-style-type: none">• Green Button Resets Scores
Clear Audits	<ul style="list-style-type: none">• Green Button Clears Audits
Clear Switch Reports	<ul style="list-style-type: none">• Green Button Clears Switch Reports
Reset Internal Timing Data	<ul style="list-style-type: none">• Green Button Resets Timing Data
Reset Default Game Settings	<ul style="list-style-type: none">• Green Button Resets Game Settings
Reset All and Clean Folders	<ul style="list-style-type: none">• Green Button Resets and Cleans Folders
Export Utility Logs to USB	<ul style="list-style-type: none">• Green Button To Execute

Table 2-7. Utilities

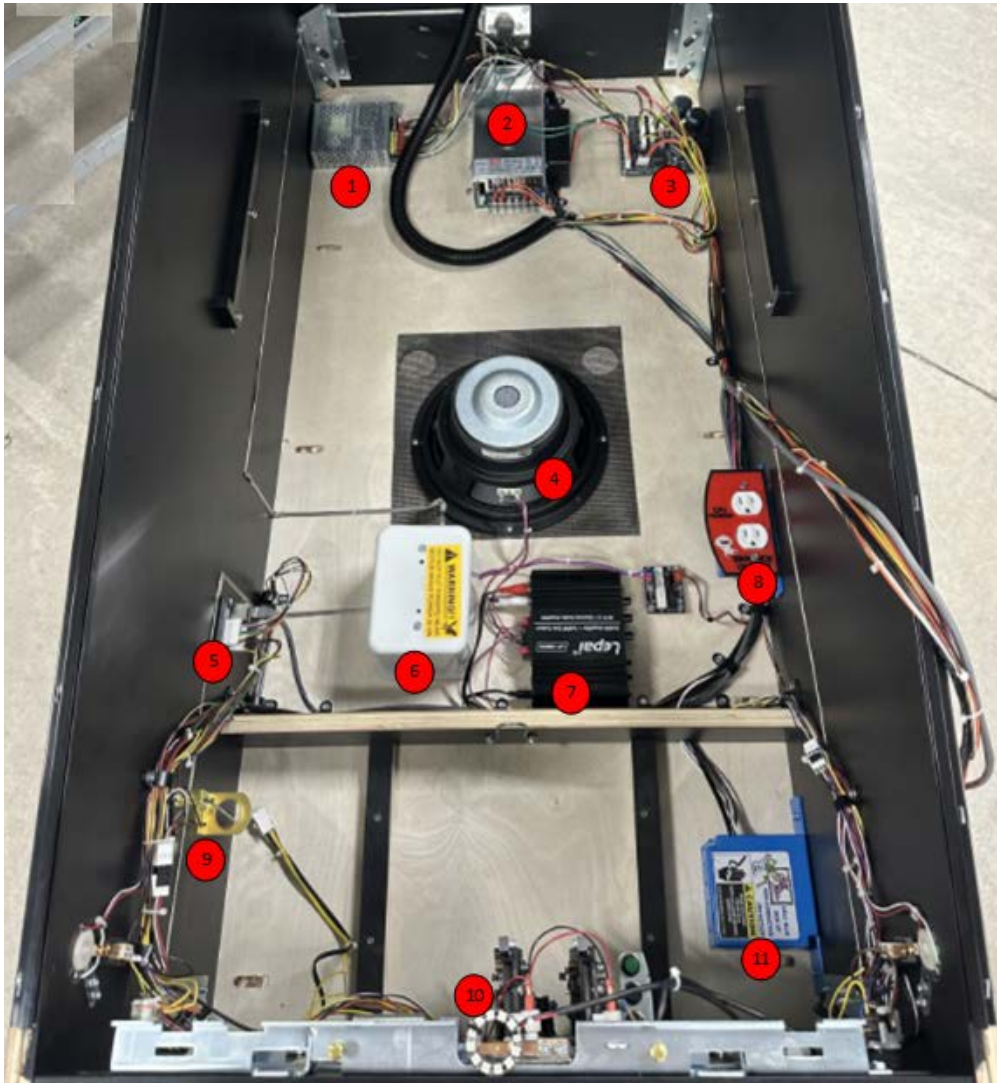
Audits
Coins Inserted
Games Playes
Total Seconds Played
Average Game Length
Total Modes Started
Average Modes Started
Total Modes Completed
Average Modes Completed
Total Hook Multiballs Started
Average Hook Multiballs Started
Total Hook Multiballs Completed
Average Hook Multiballs Completed
Left Lane Drains
Right Lane Drains
Extra Balls Lit
Extra Balls Awarded
Replays Awarded
Replay Backdowns
Replay Increases
High Score Credits Awarded

Table 2-8. Audits

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Chapter 3 Layouts and Schematics

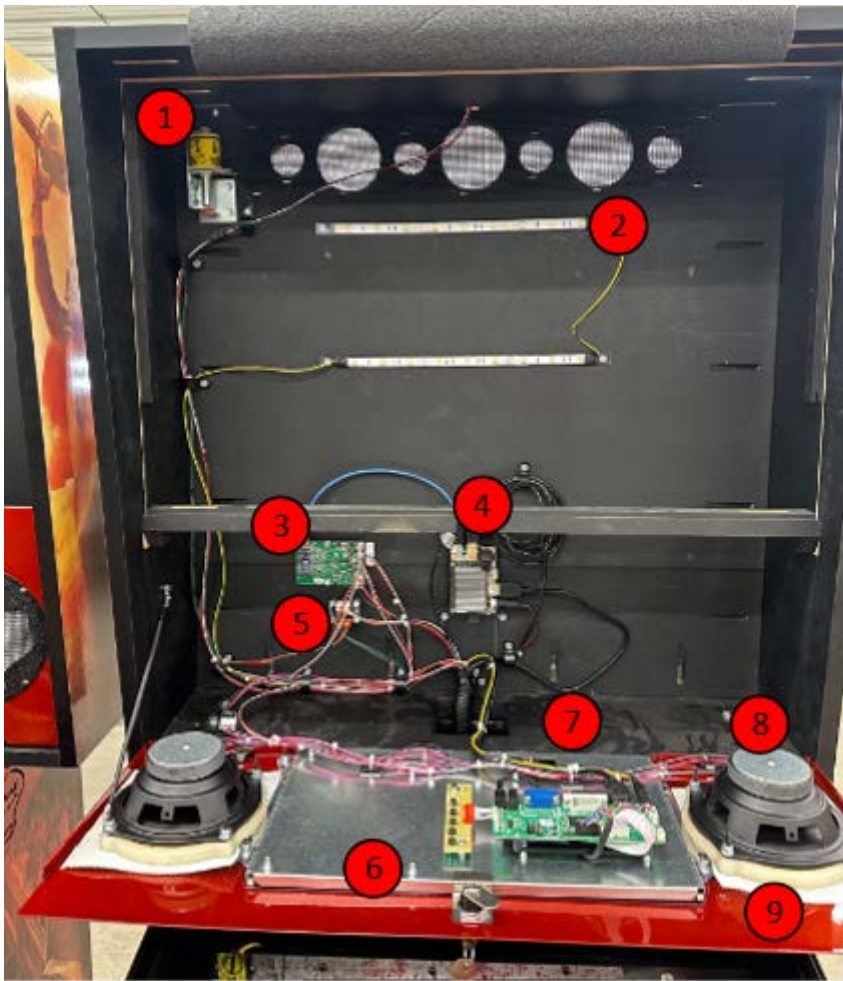
1 Cabinet Components



1	Small Power Supply
2	Large Power Supply
3	Power Splitter Board
4	Subwoofer
5	Cabinet Switch Expander
6	Shaker Motor
7	Amplifier

8	Service Outlet
9	Tilt Bob
10	Action Button/Light
11	Power Switch/Fuse Cover

2 Head Breakdown

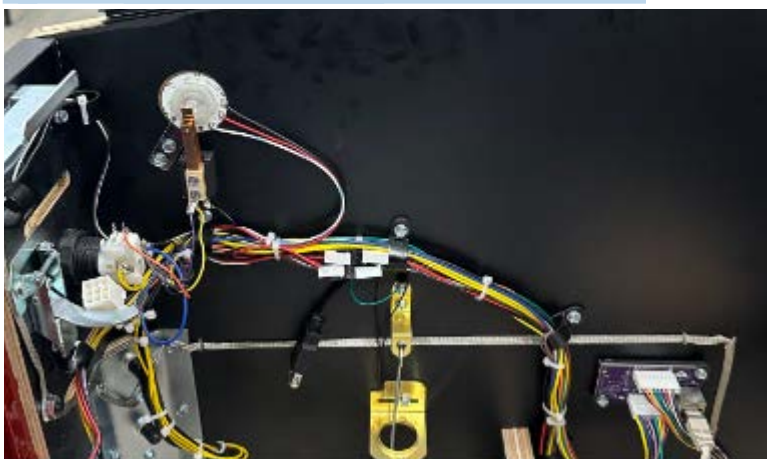


1	Knocker
2	Back Box Lights
3	Topper/Speaker/Flipper LED Board
4	Computer
5	Knocker/Shaker Expansion Board
6	Display
7	Display Driver Board
8	Speaker
9	Speaker LED Kit

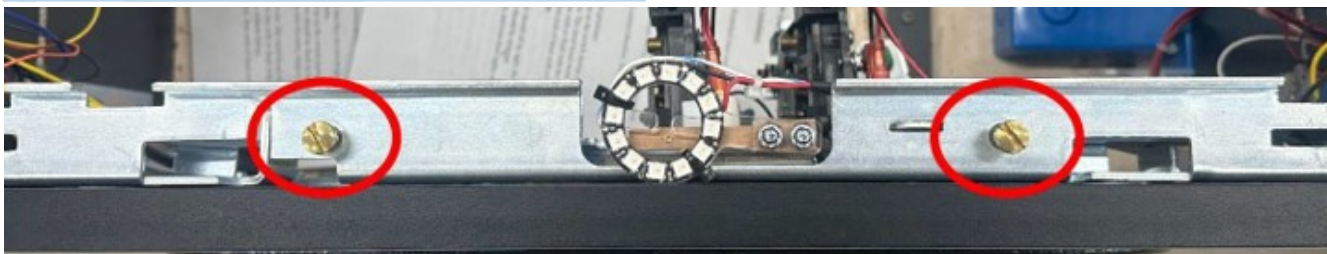
3 Right Inside Cabinet



4 Left Inside Cabinet



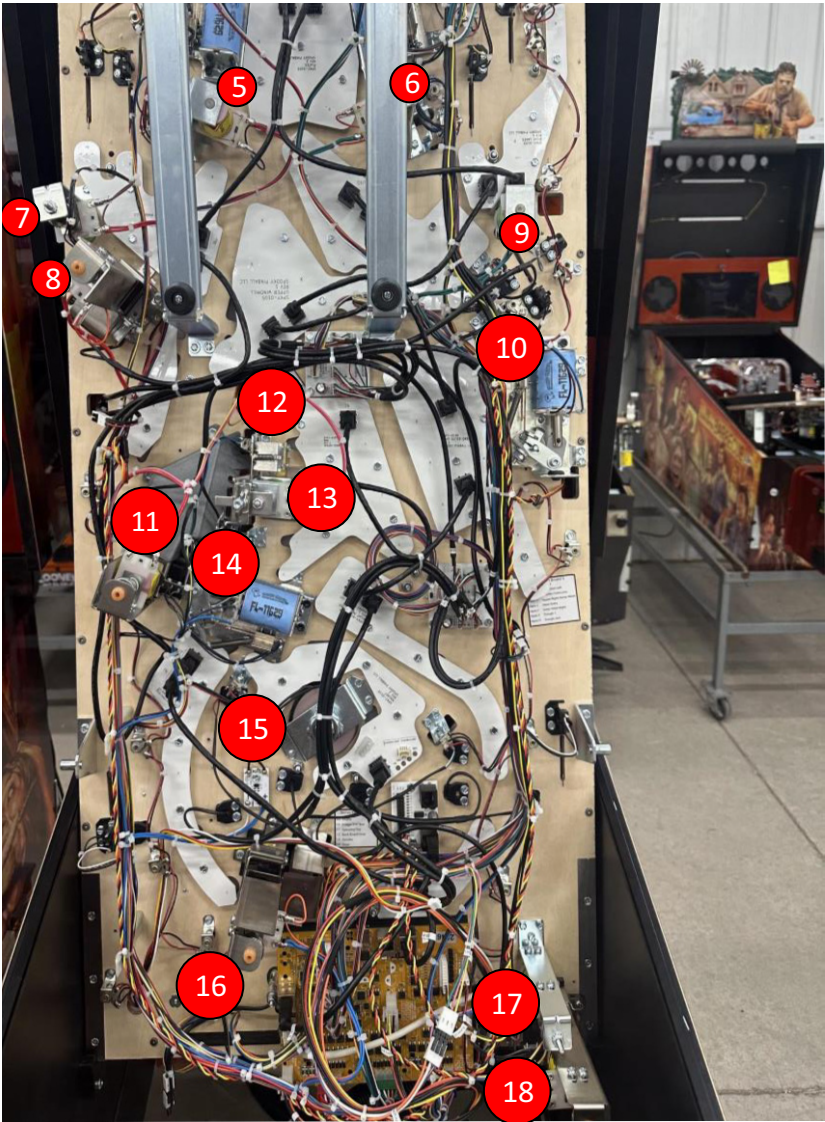
5 Lockbar Receiver



Screw the brass screws in to tighten the lockbar; unscrew

to loosen.

6 Playfield Underside



1	Trough
2	Auto Launch
3	Left Flipper
4	Right Flipper
5	Left Sling
6	Right Sling
7	Rocket Diverter
8	Left Front Scoop
9	TNT Post

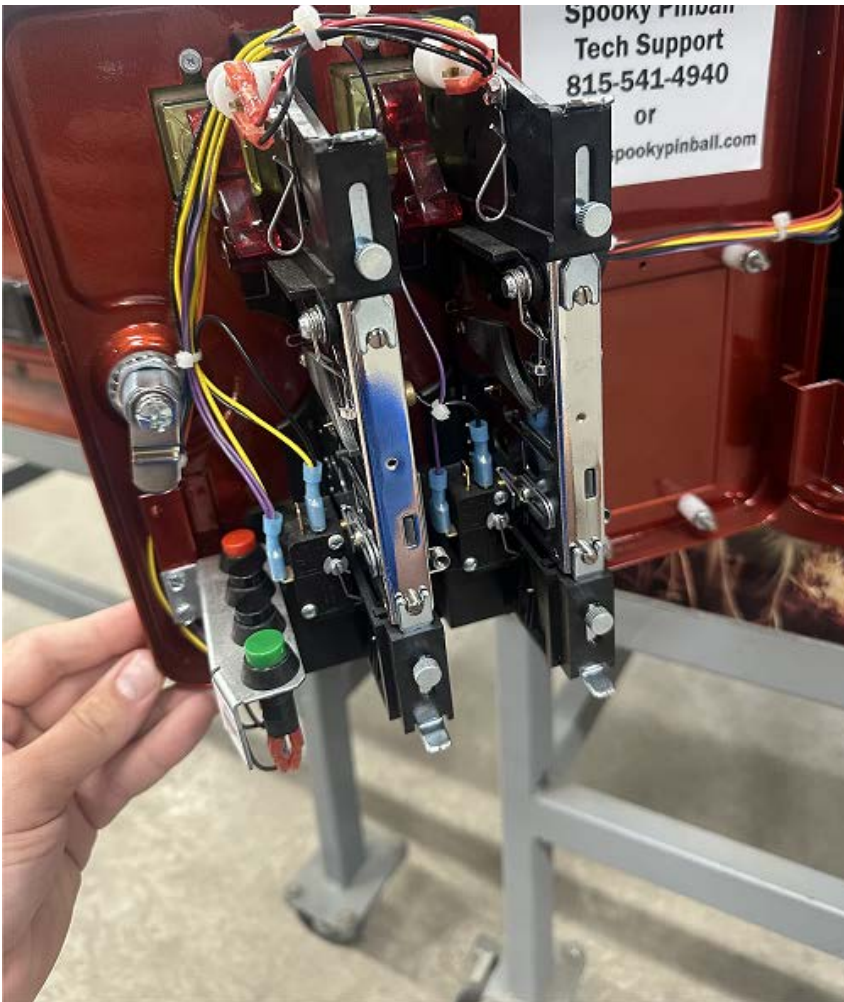
10	Right Flipper
11	Middle Left Scoop
12	Drop Target Knockdown
13	Drop Reset
14	Left Flipper
15	Magnet
16	Back Crate Scoop
17	Back Right Diverter
18	VUK

7 Boards on Playfield Underside



1	Warden
2	Servo Board
3	Opto Board A
4	Opto Board B
5	Magnet Board

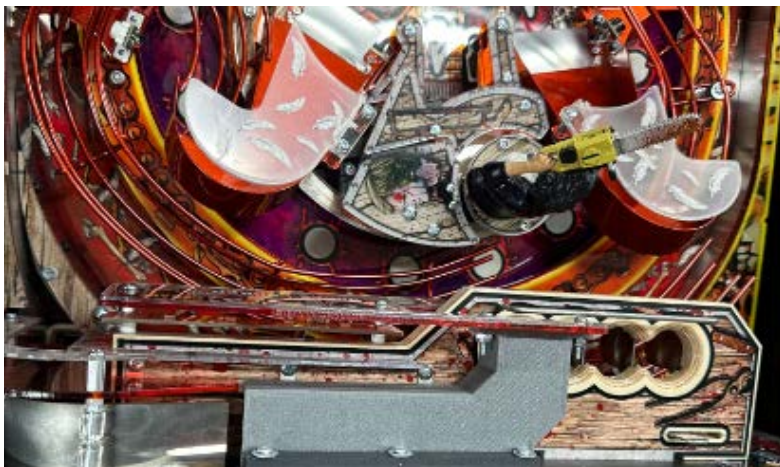
8 Coin Door Wiring



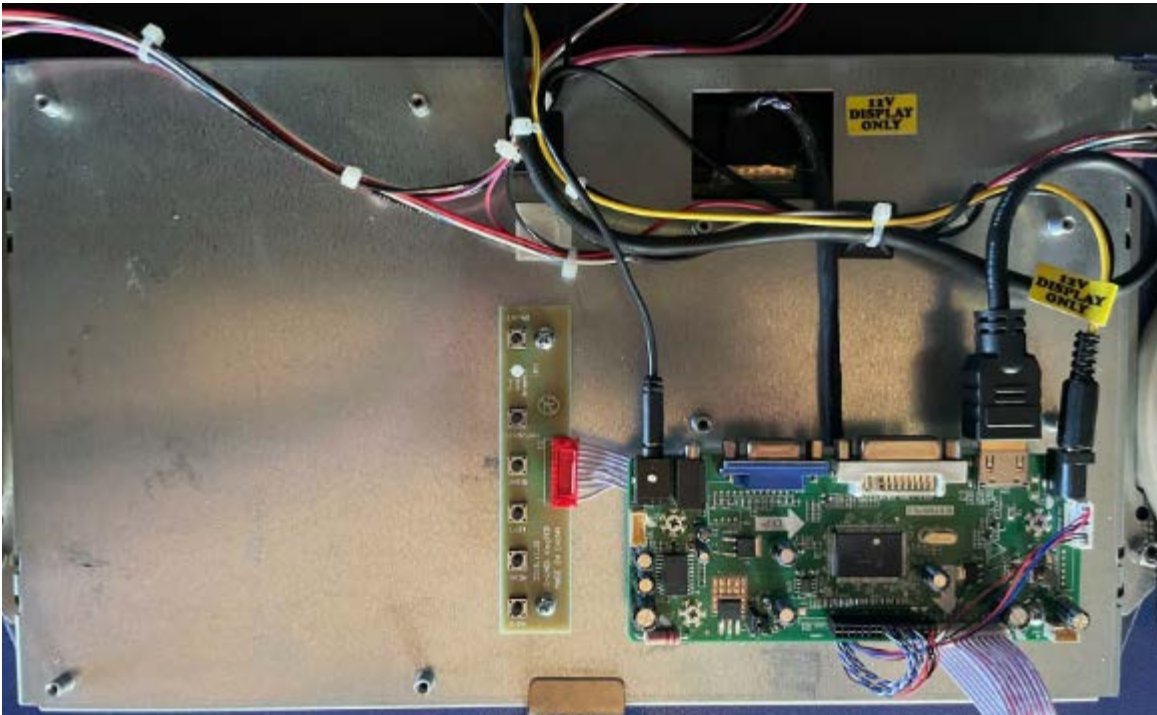
9 Finished Playfield



10 Upper Playfield



11 LCD Display



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 jhd-

ap024U-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:

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

1x Inverter Board

1x LVDS Signal Cable

1x Keyboard With Cable

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

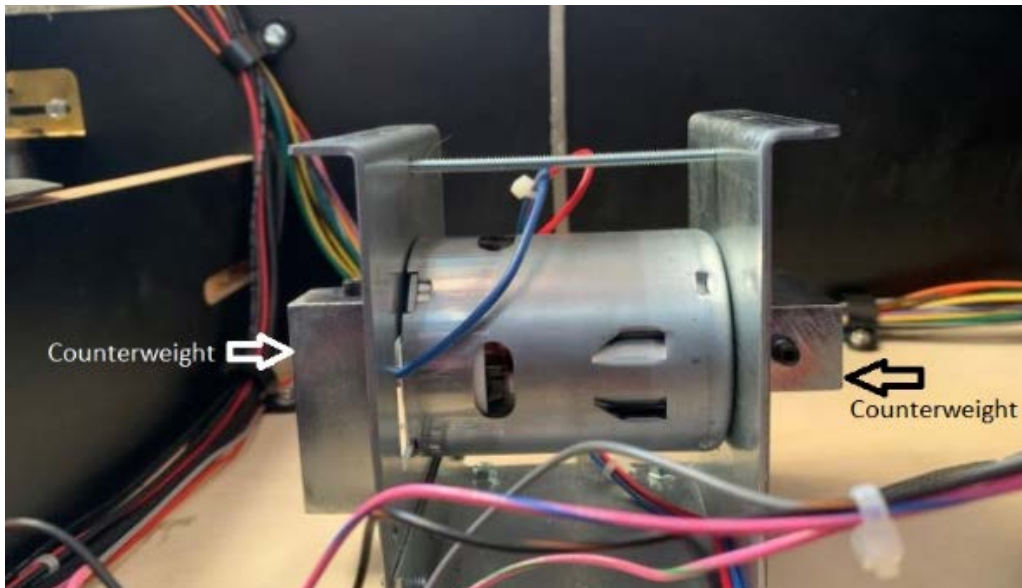
12 Large Power Supply



13 Small Power Supply



14 Shaker Motor



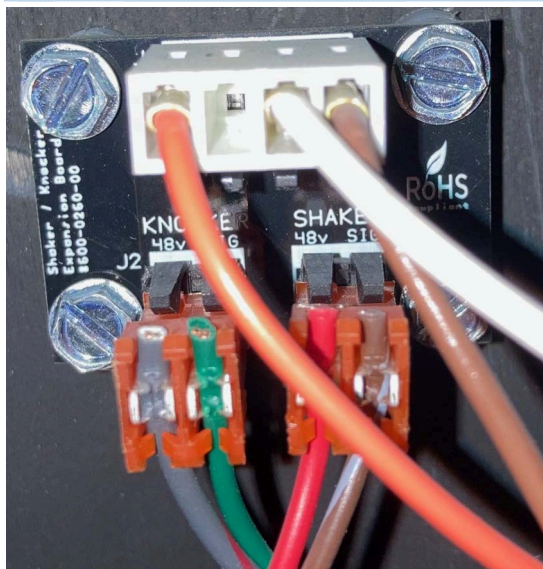
To Adjust Shaker Motor Vibration

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

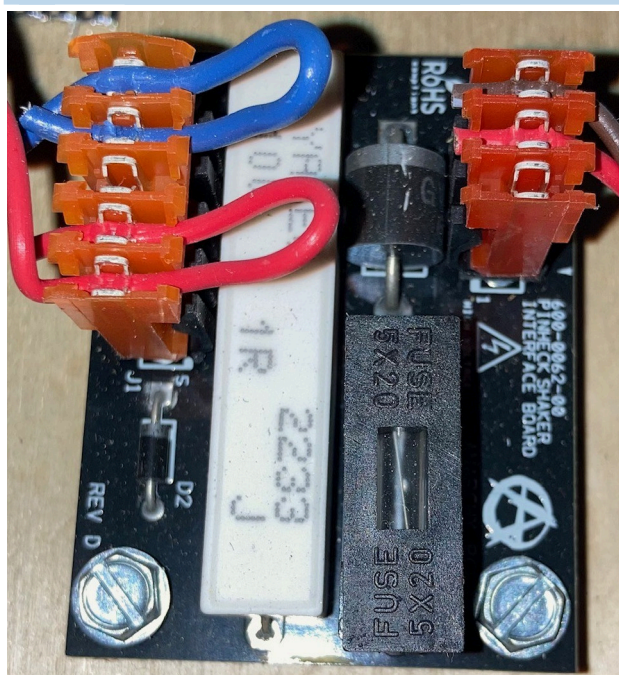
Shaker Motor Settings:

- 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
3. After you have made the adjustments, ensure the hex screws are good and tight.
 4. Replace the protective cover.

15 Shaker Motor Board

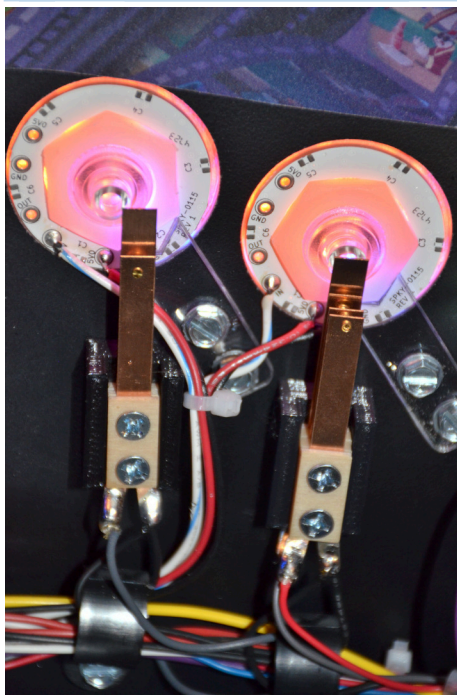


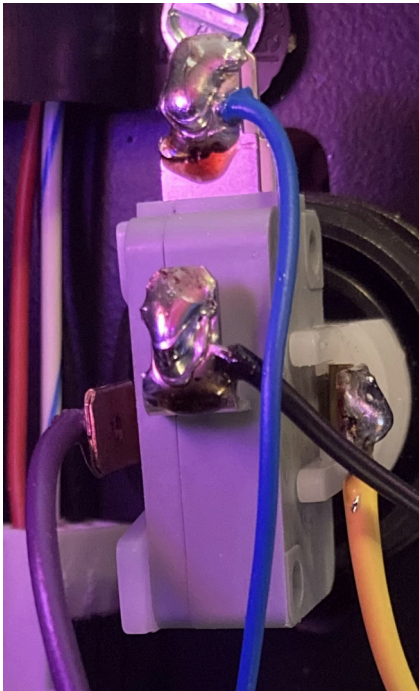
16 Shaker Motor in Cabinet



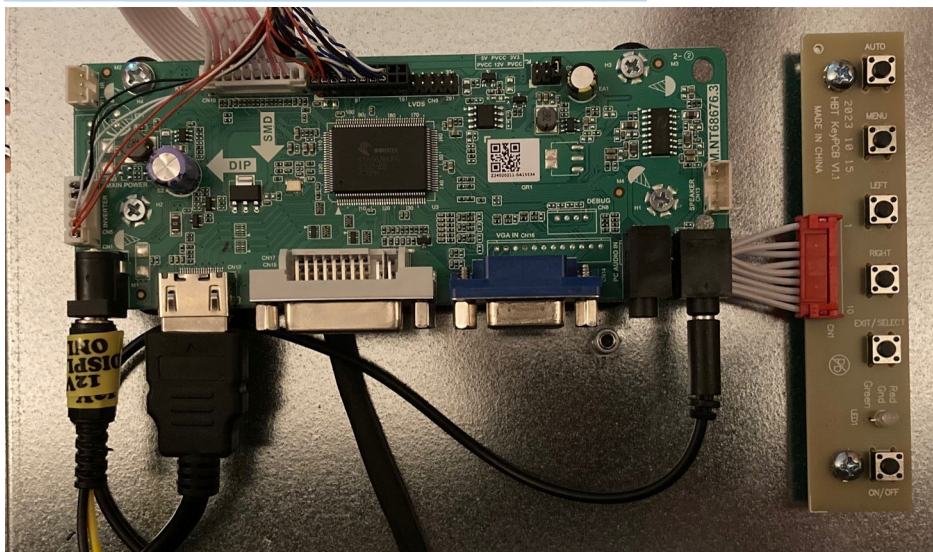
17 Service Outlet

18 Right Flipper Button



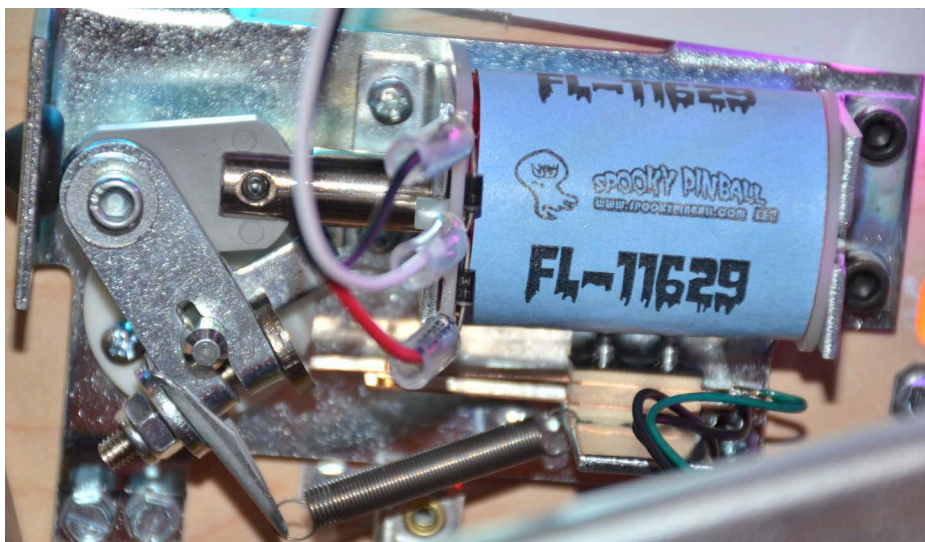
19 Start Button Connection

20 Monitor Control Adjust Board



21 LED Control Board

22 Flipper Detail



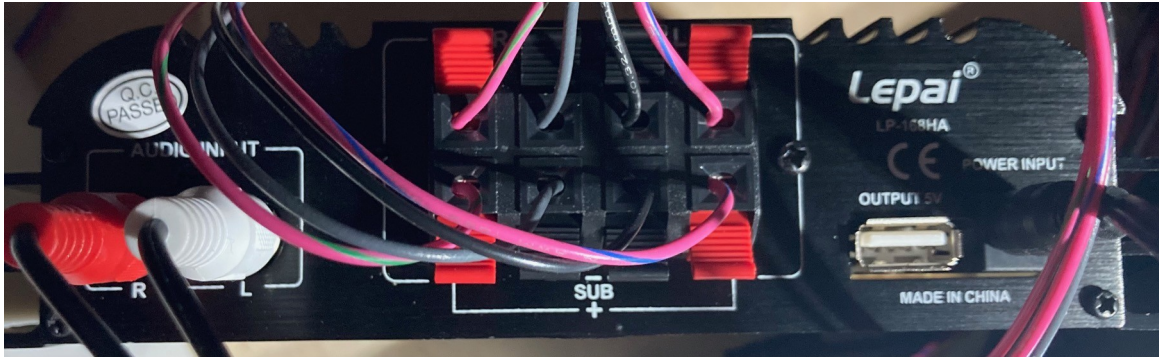
23 Amplifier Front View



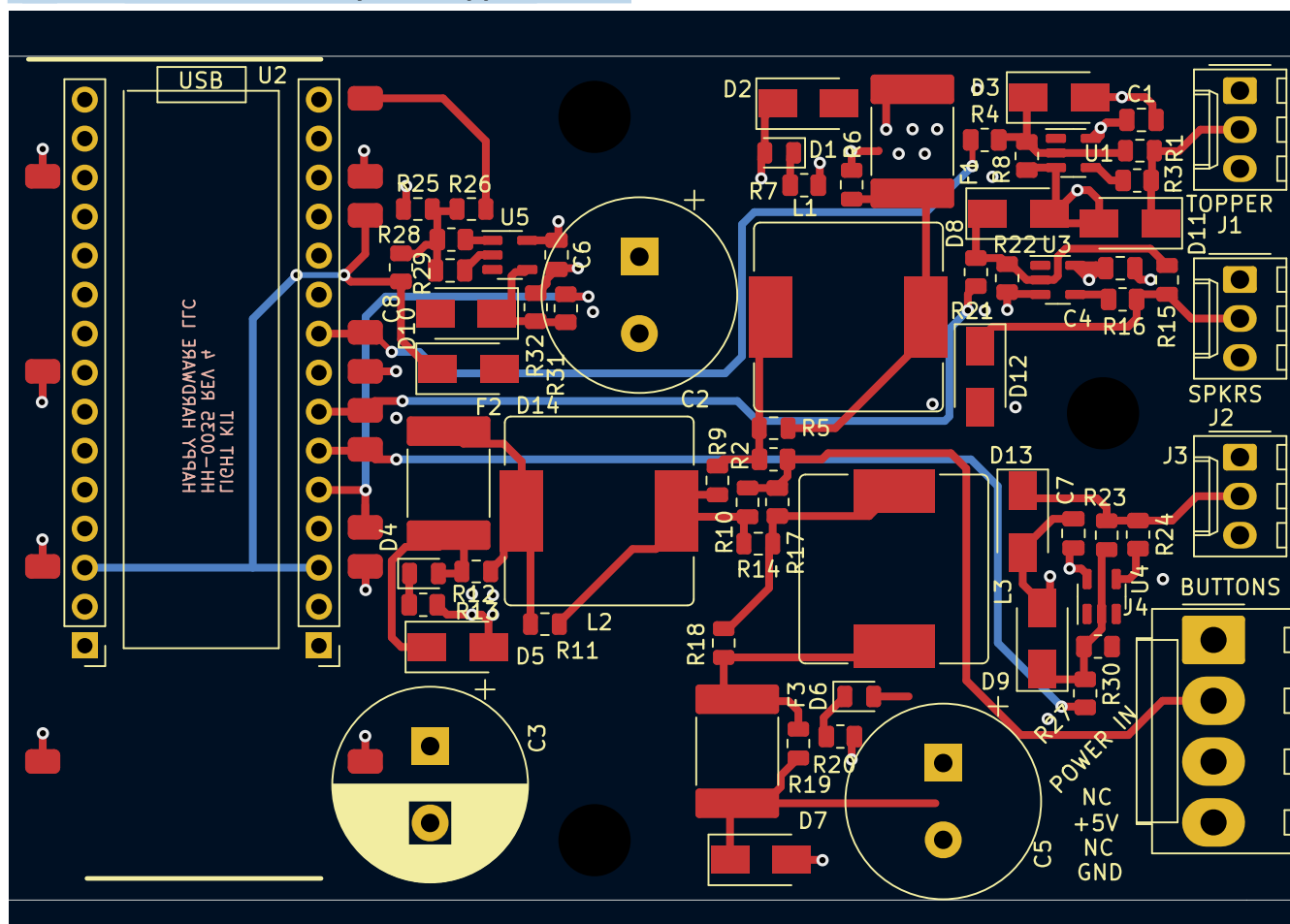
24 Amplifier Top View



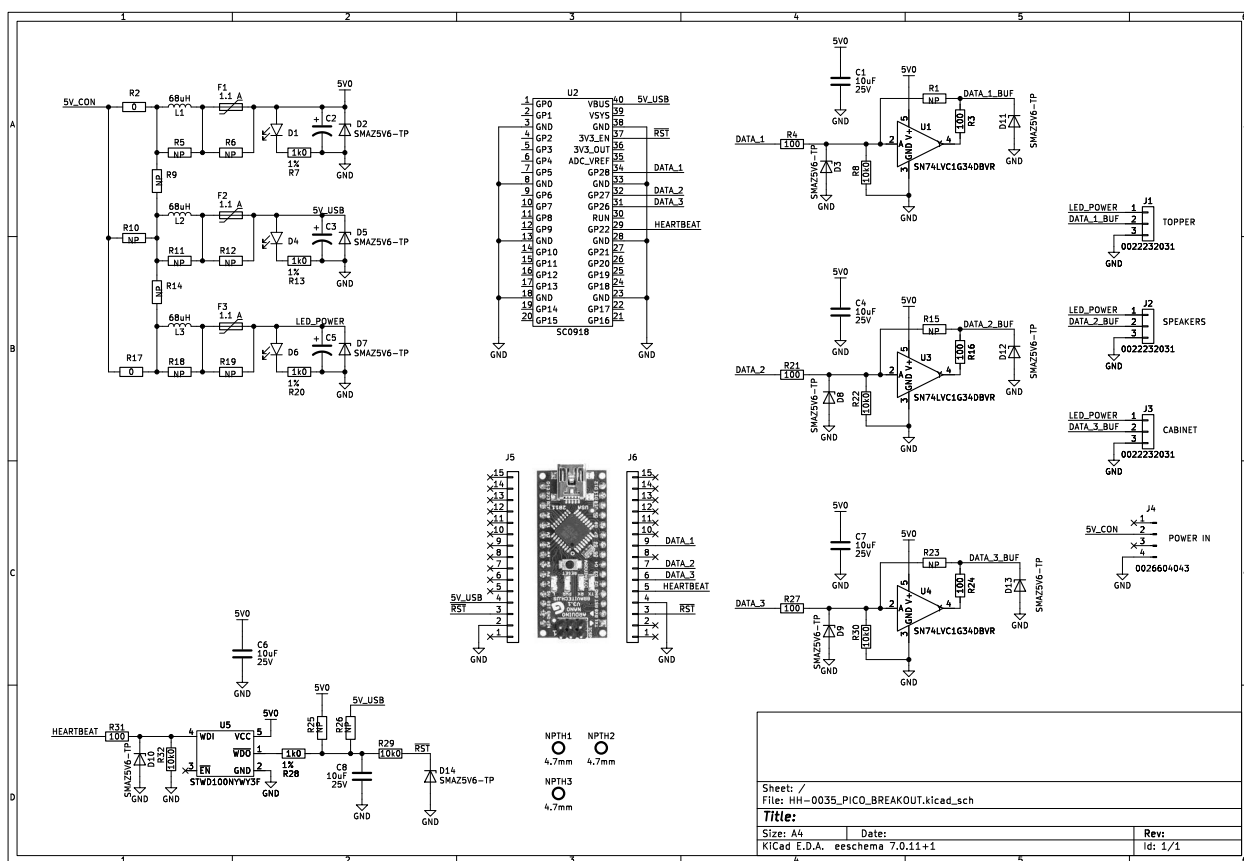
25 Amplifier Rear View



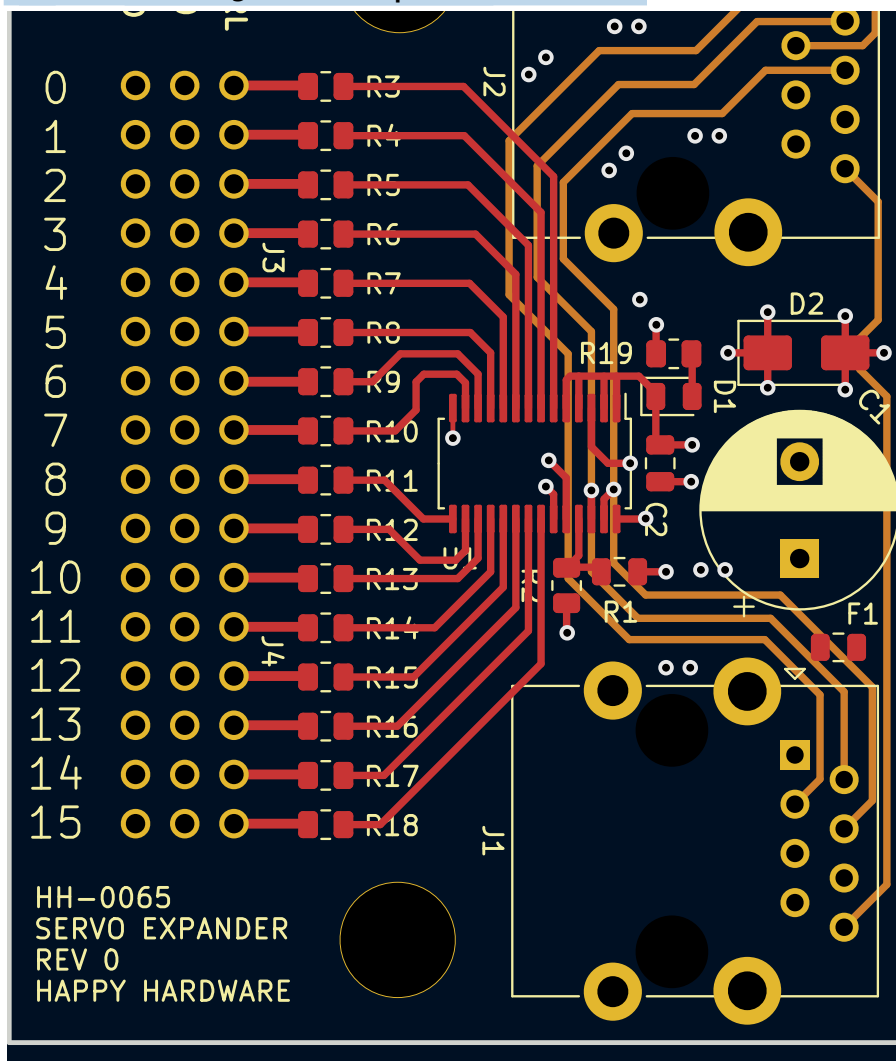
26 HH-0035 PICO Layout (Topper)



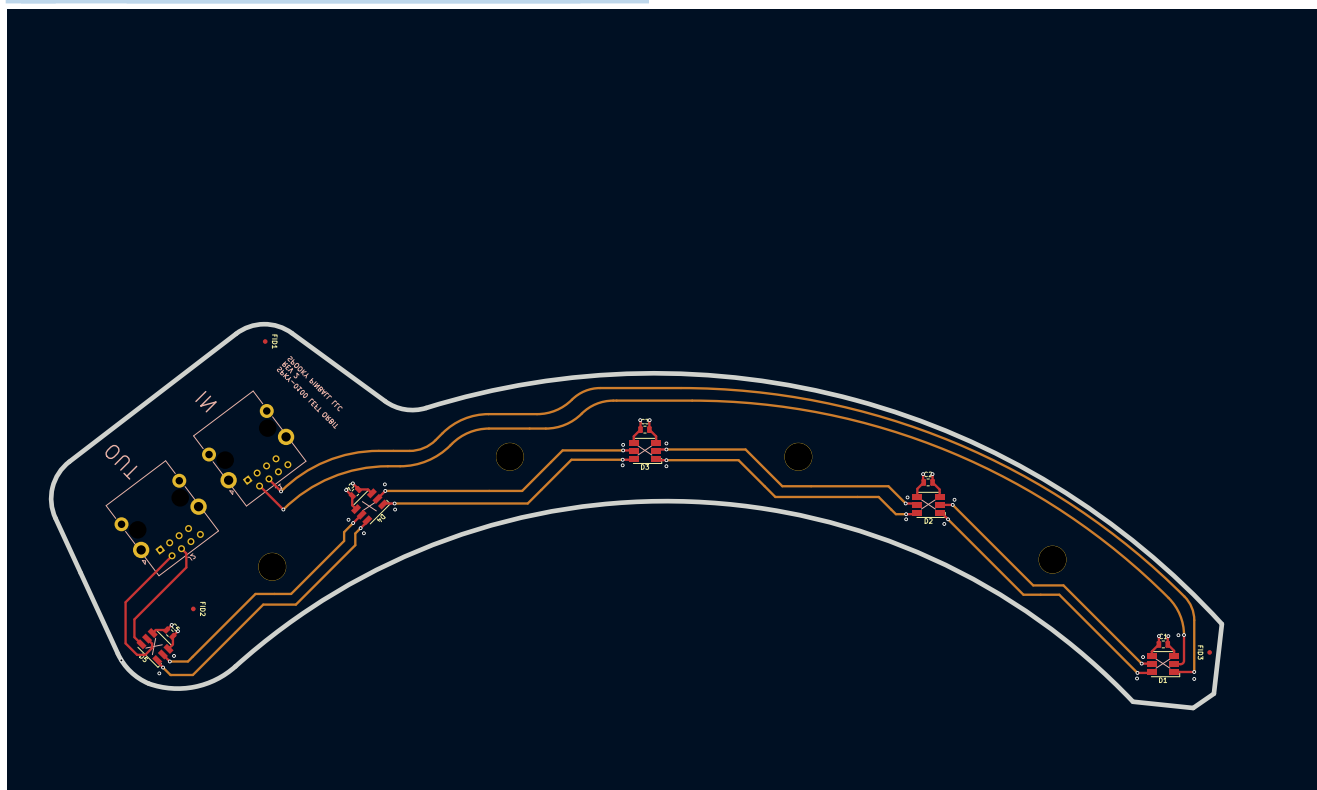
27 HH-0035 PICO Breakout (Topper)



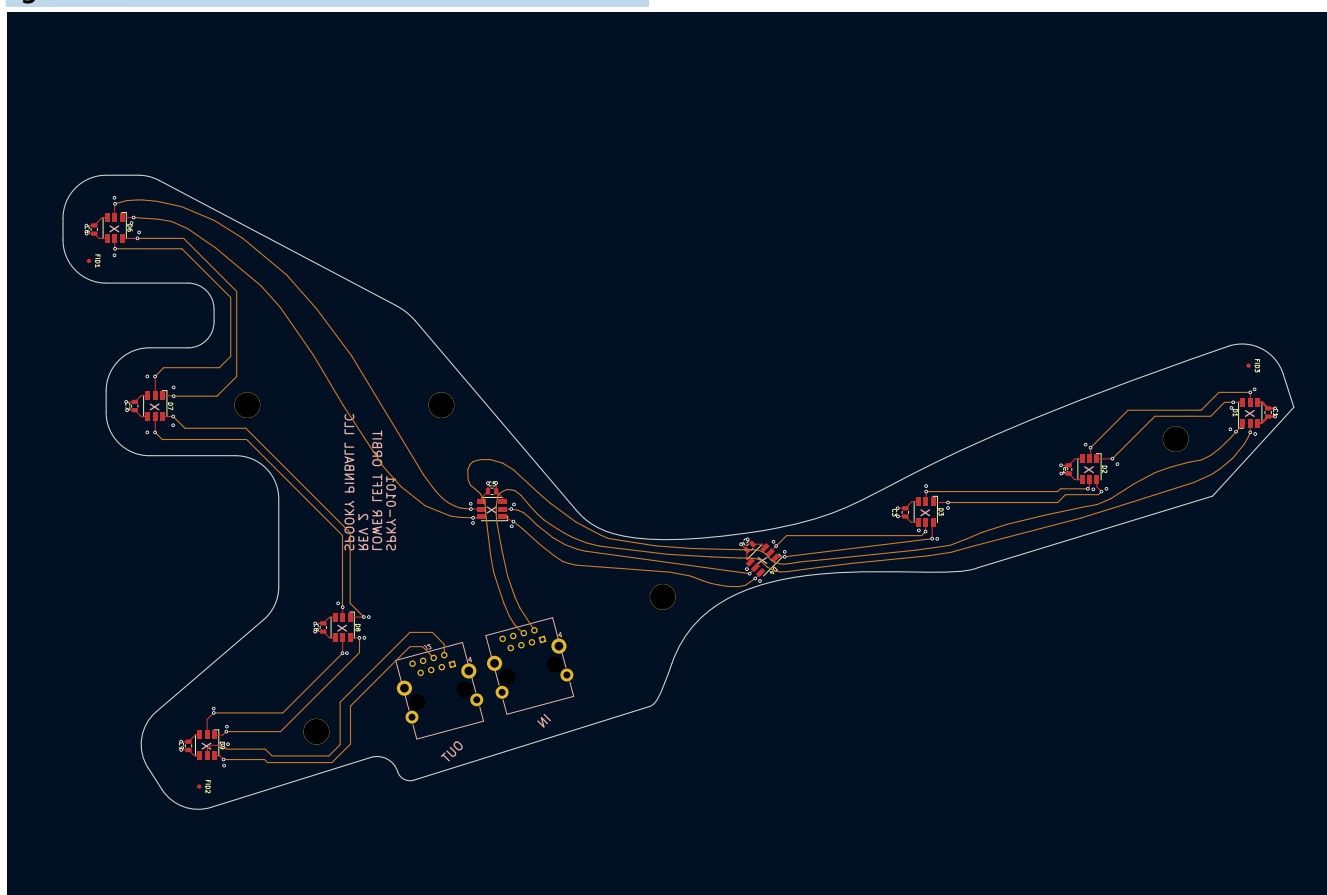
28 HH-0065 SERVO Expander

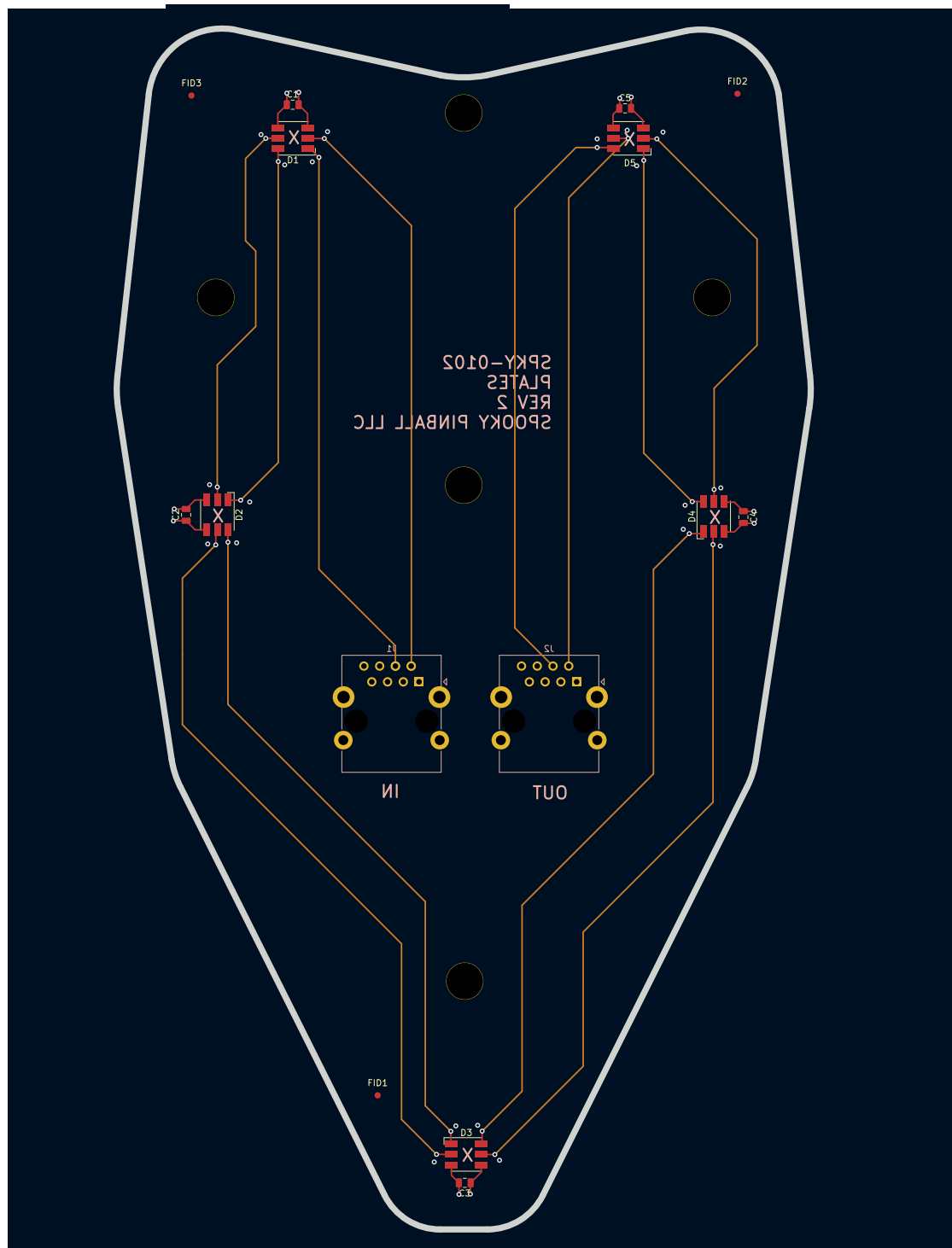


30 SPKY-0100 LEFT ORBIT LAYOUT

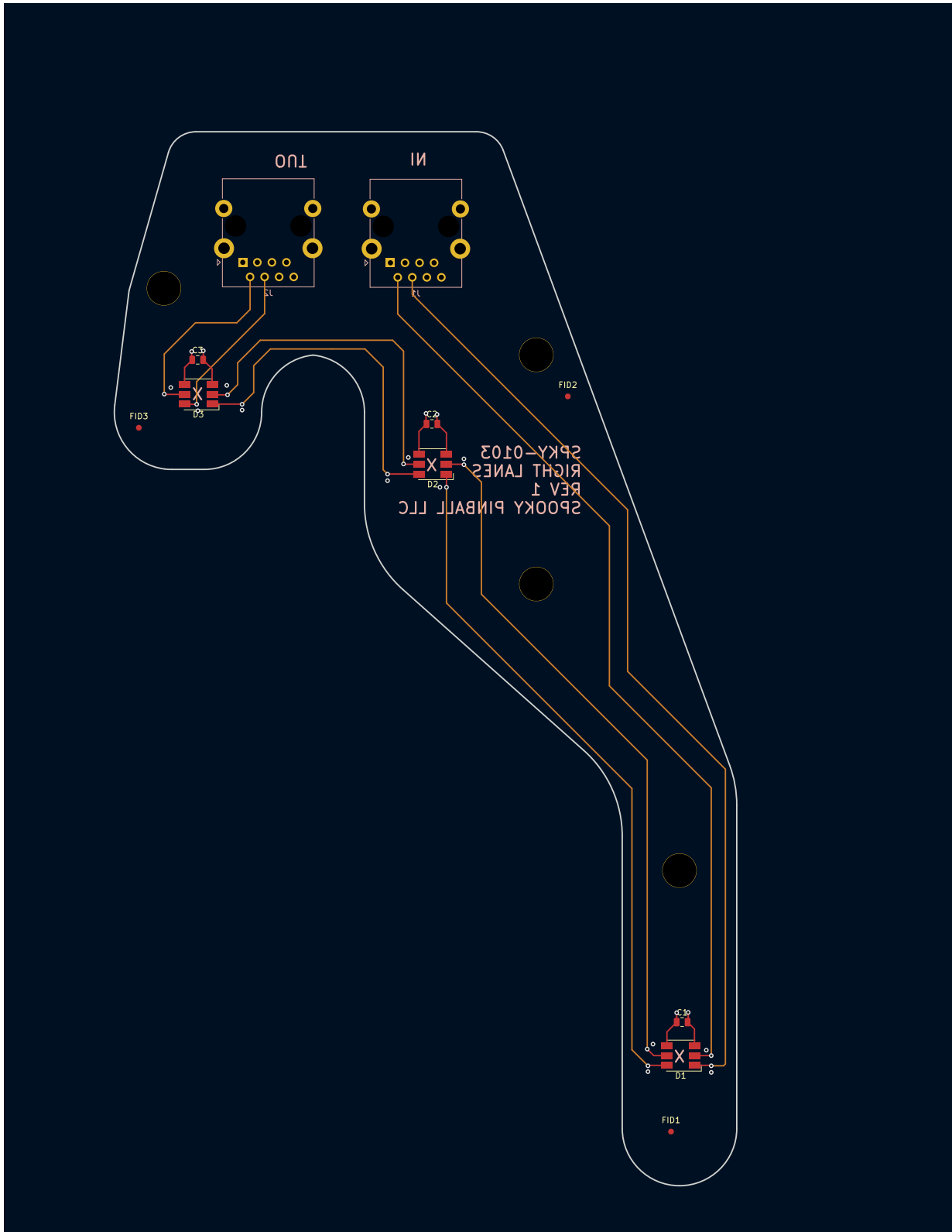


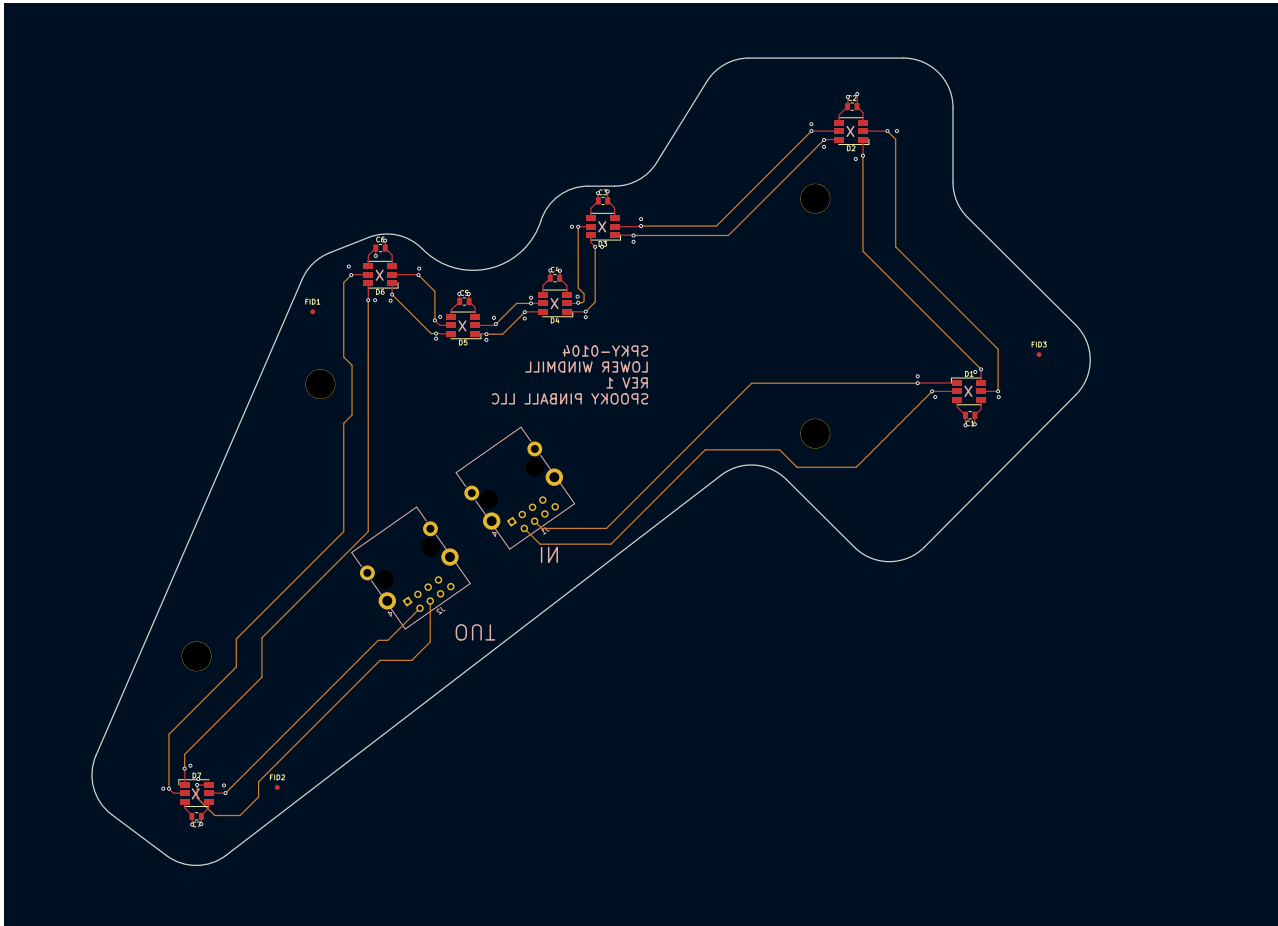
31 SPKY-0101 LOWER LEFT ORBIT LAYOUT



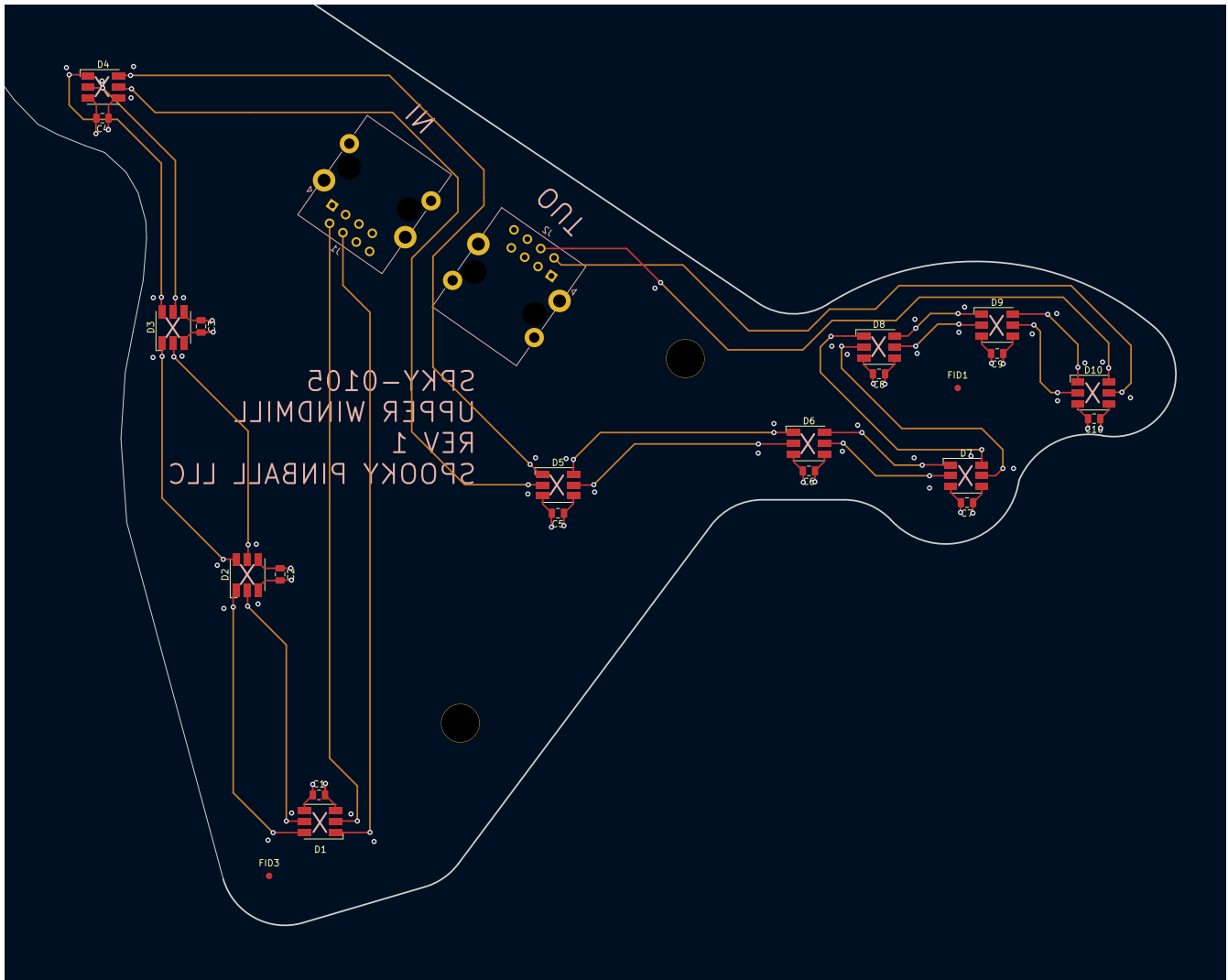


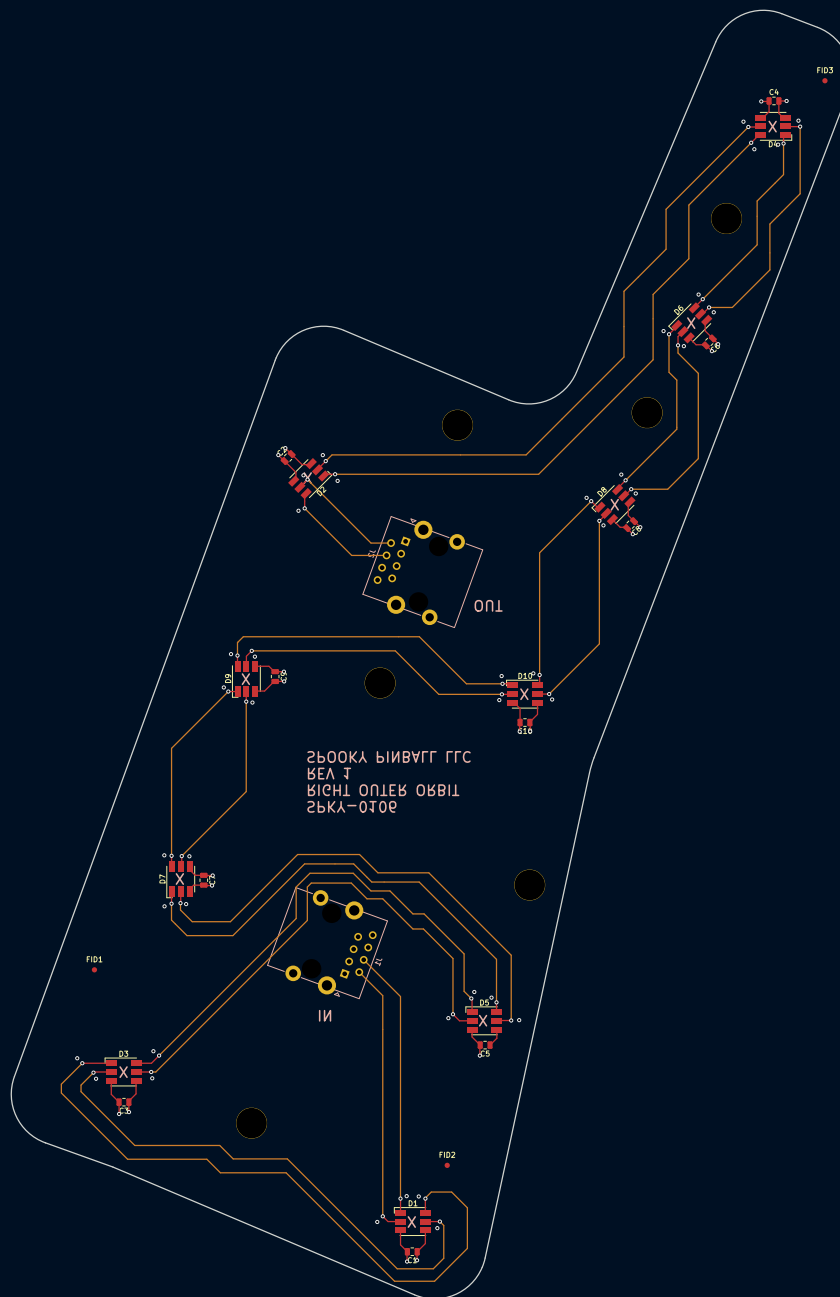
33 SPKY-0103 RIGHT LANES LAYOUT



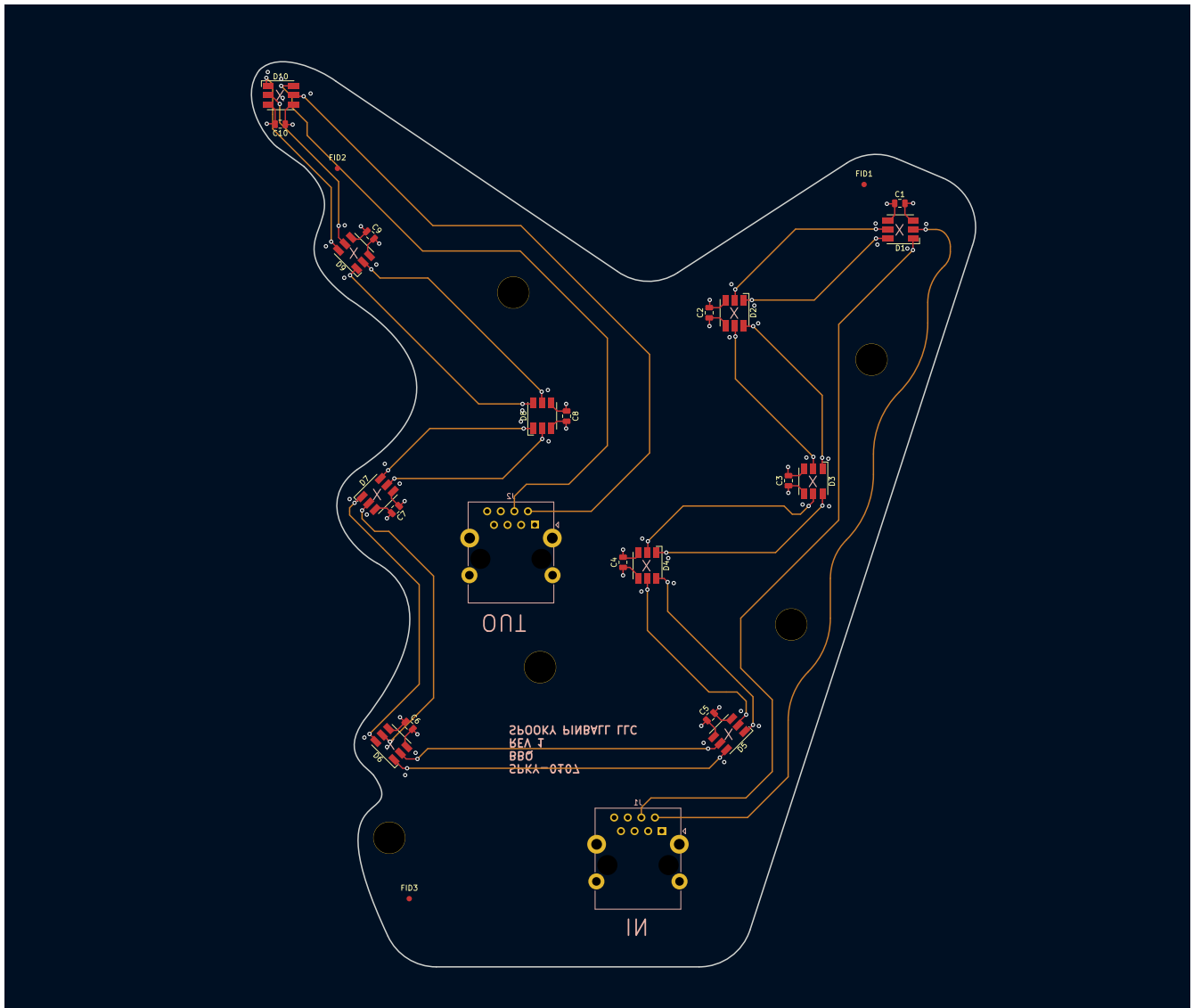


35 SPKY-0105 UPPER WINDMILL LAYOUT



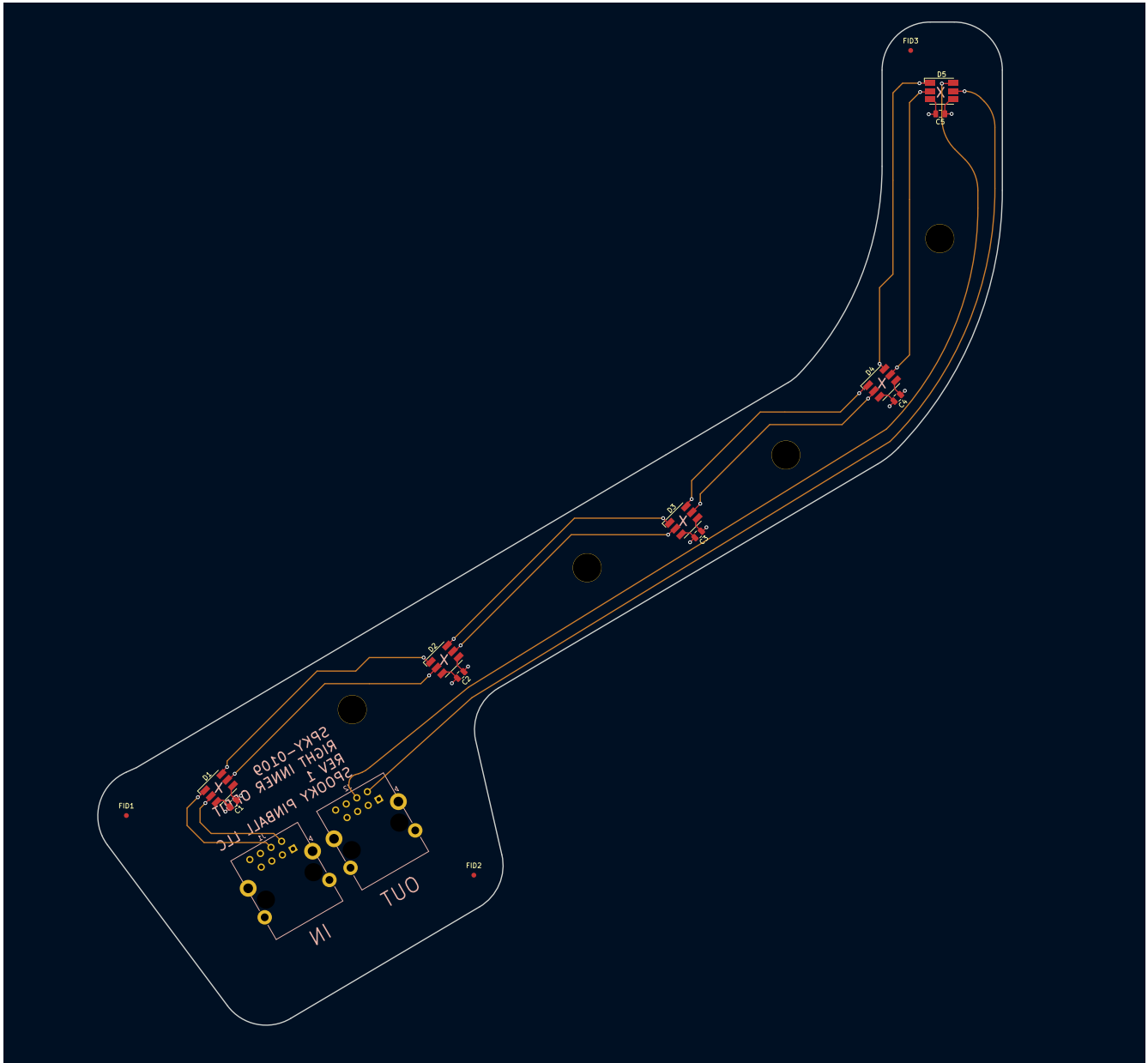


37 SPKY-0107 BBQ LAYOUT

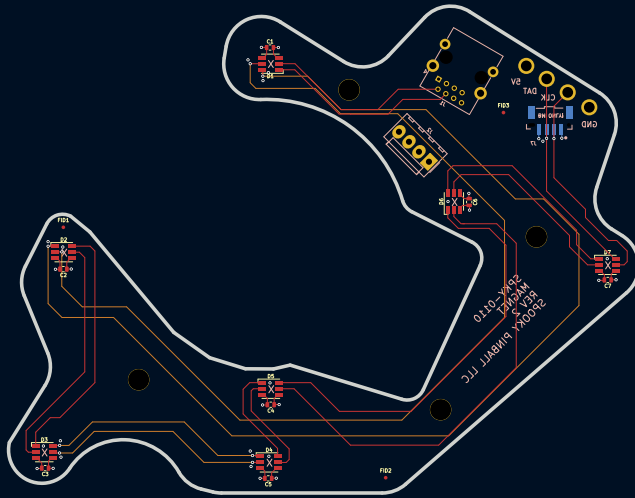




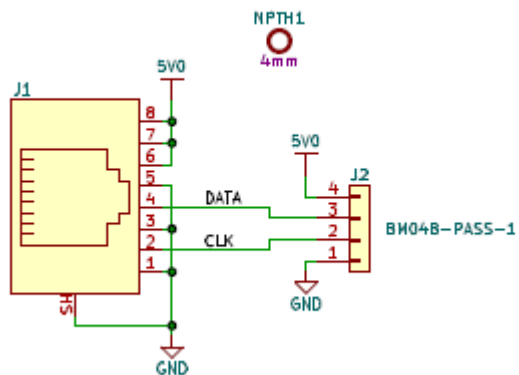
39 SPKY-0109 RIGHT INNER ORBIT LAYOUT



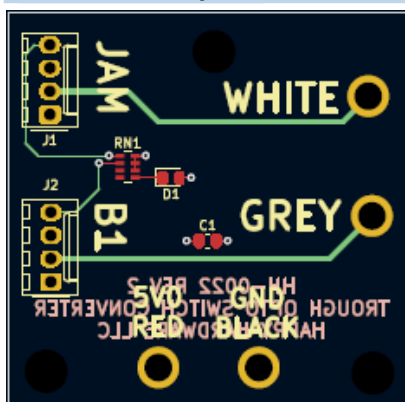
40 SPKY-0110 MAGNET LAYOUT



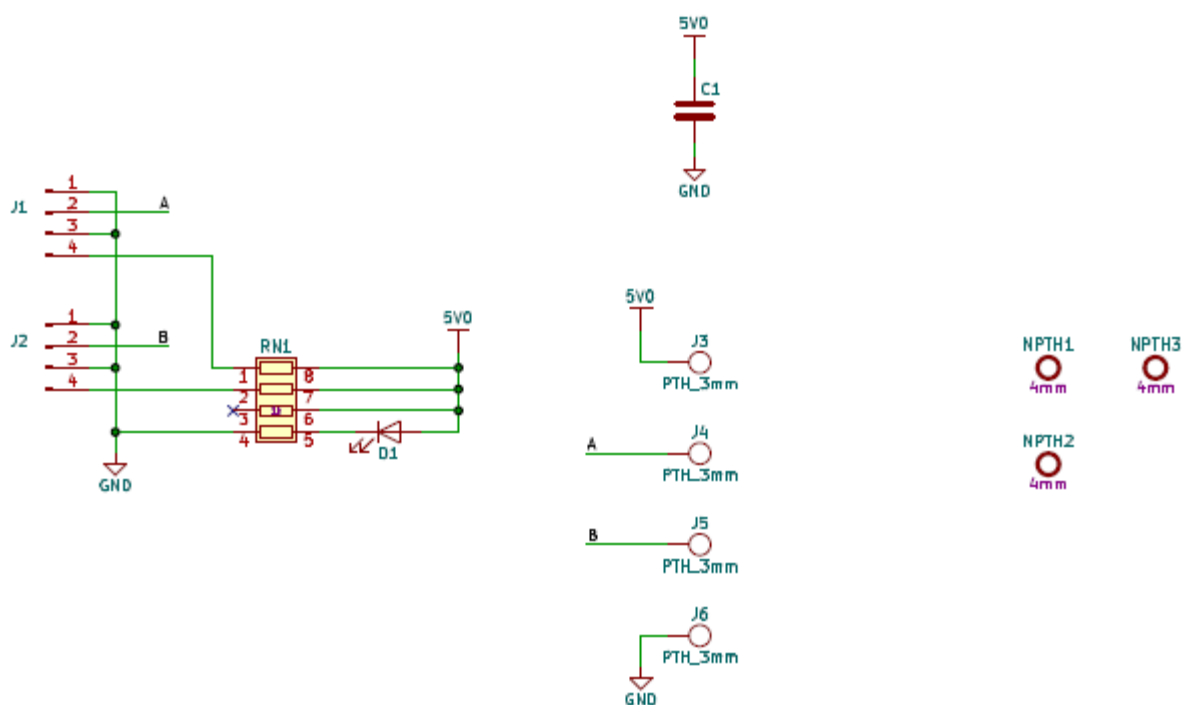
41 HH-0020 LED Harness Converter Schematic



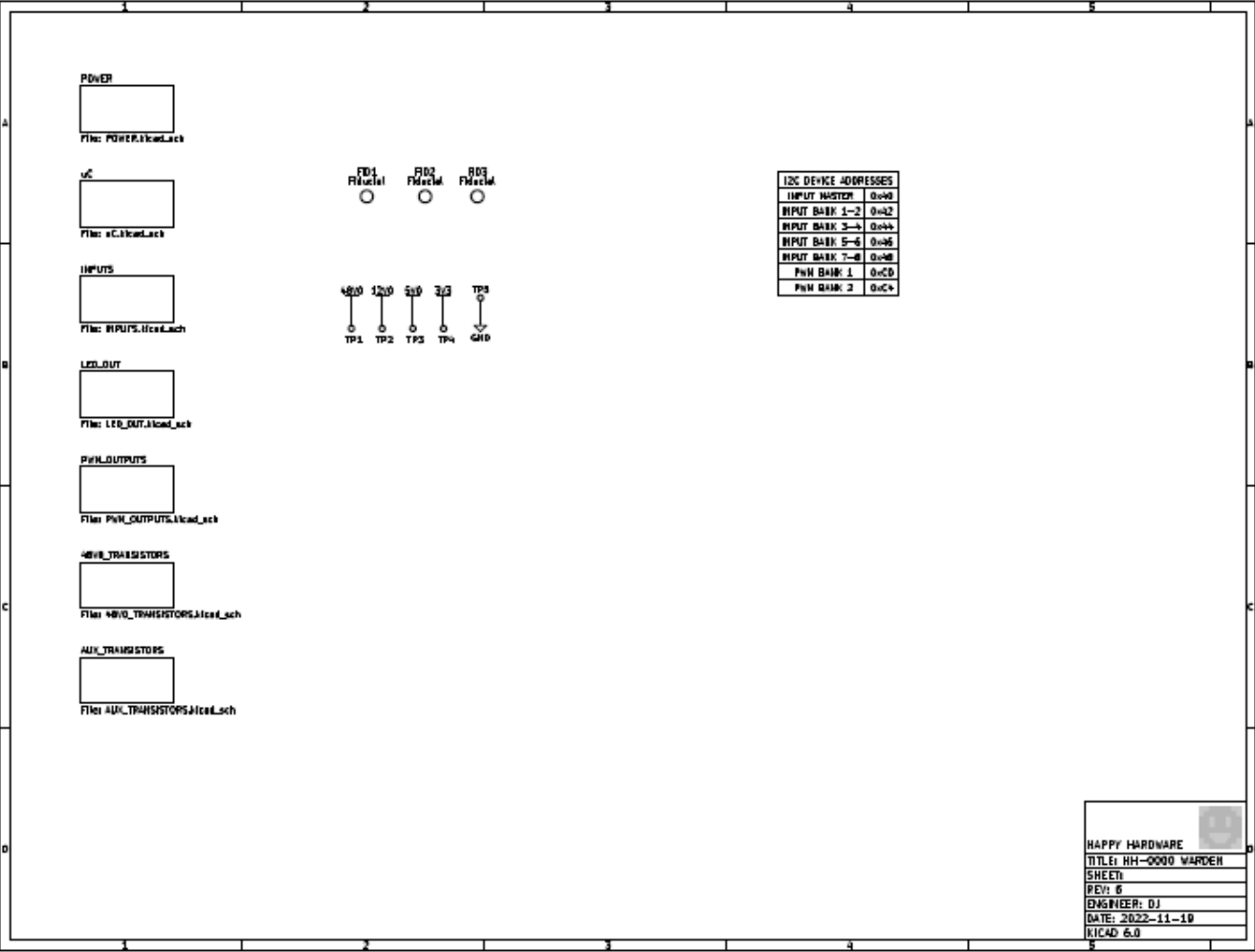
42 HH-0022 Trough Opto-To-Switch Converter Layout



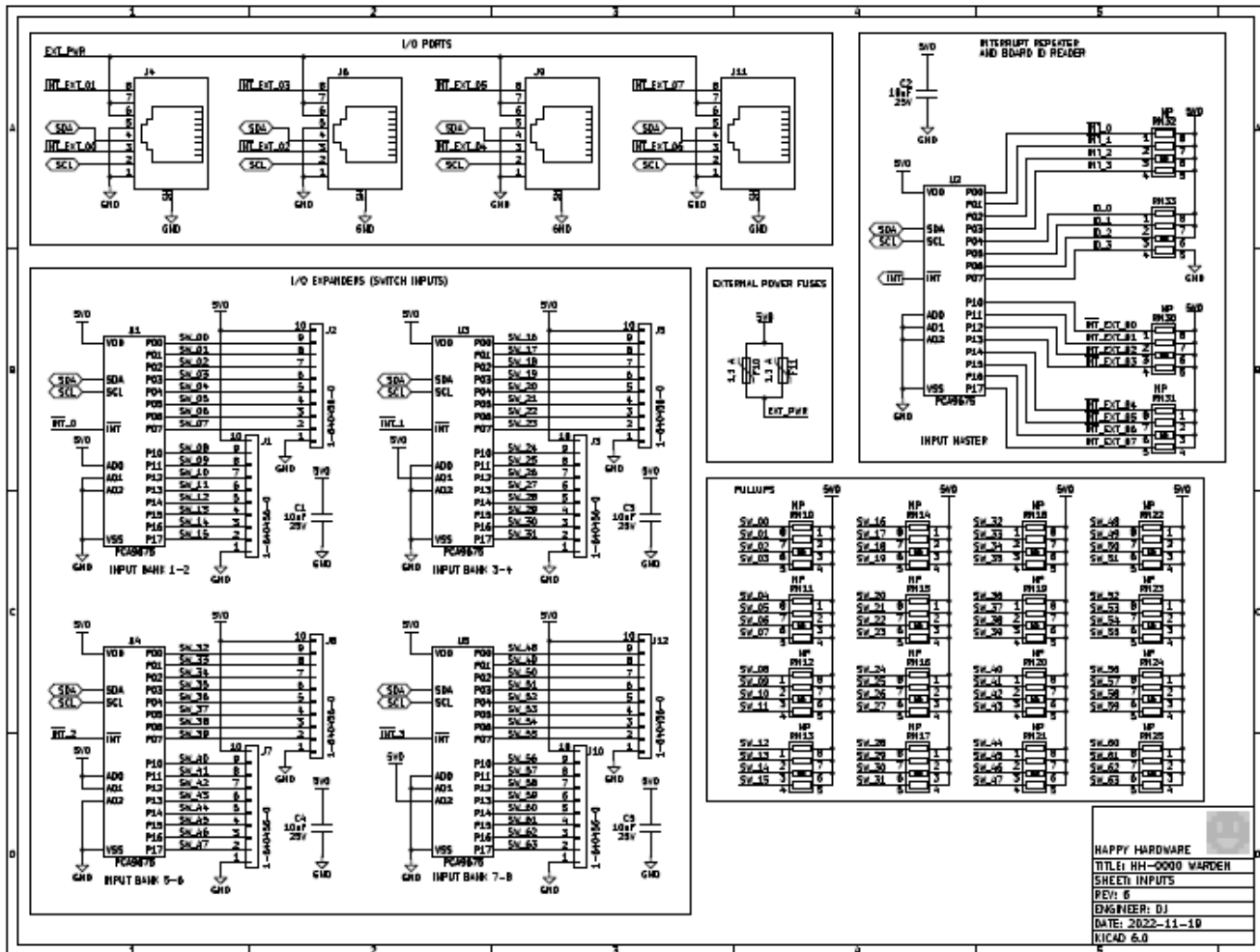
43 HH-0022 Trough Opto-To-Switch Converter Schematic

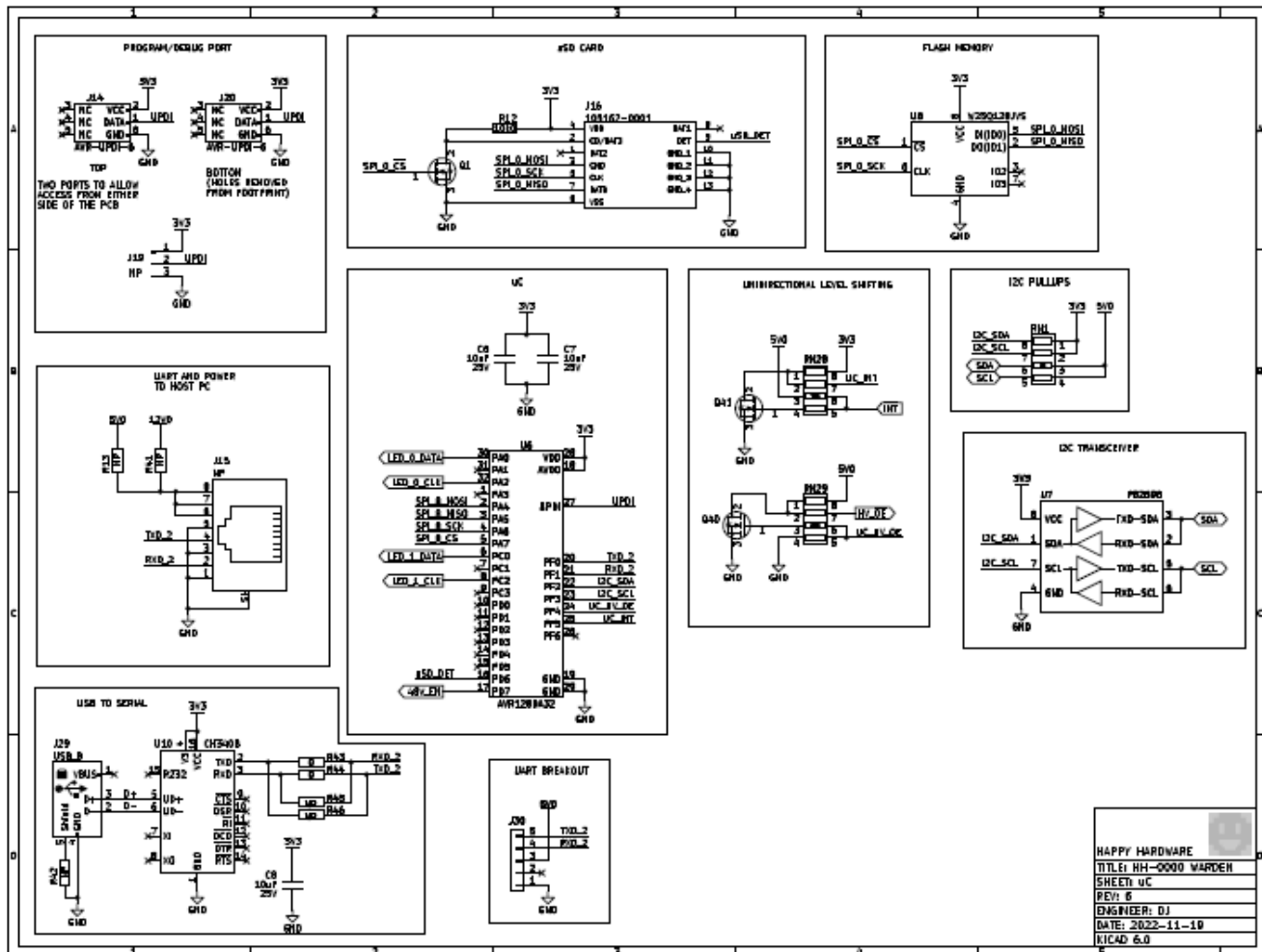


44 HH-0000 Warden Root

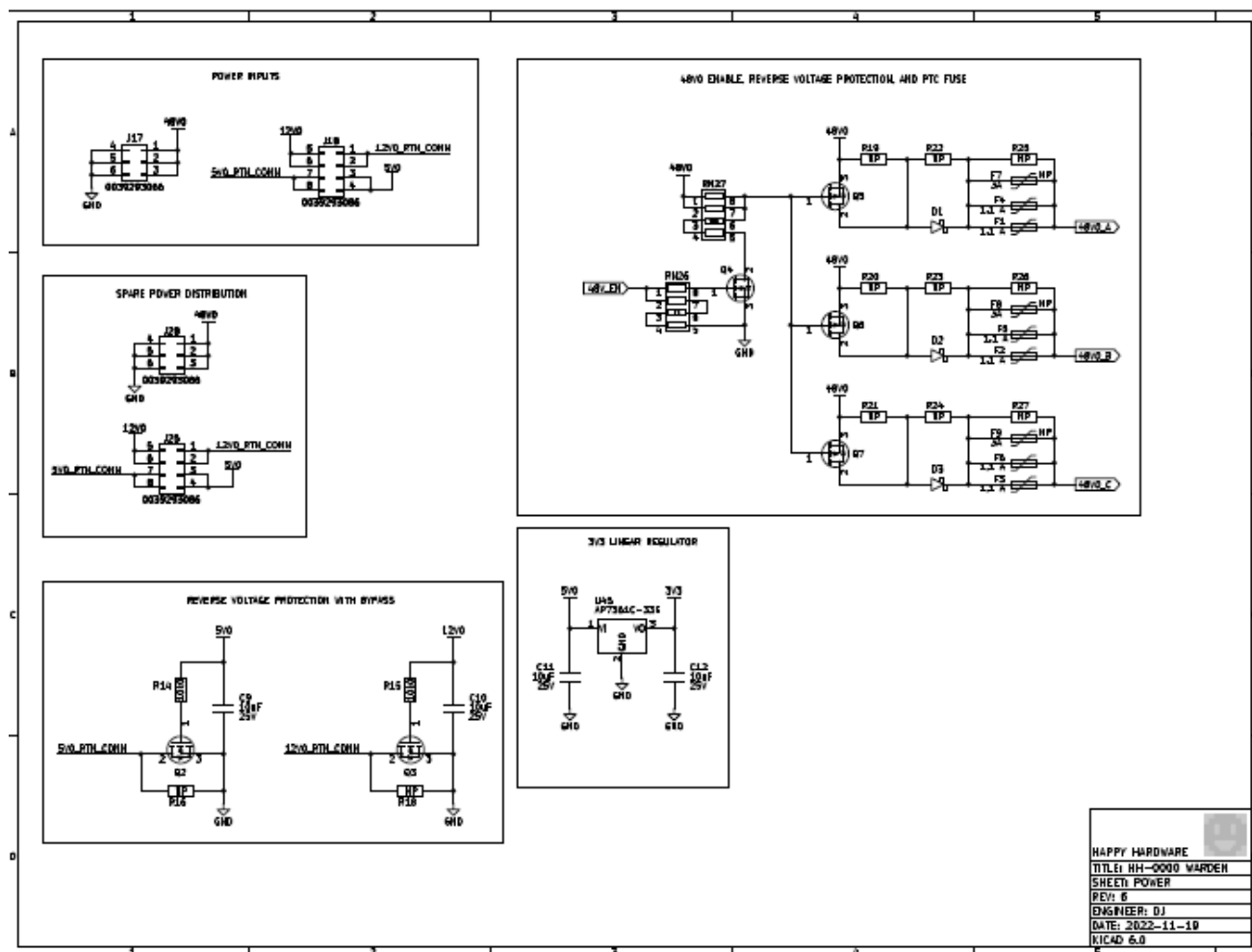


45 HH-0000 Warden Inputs

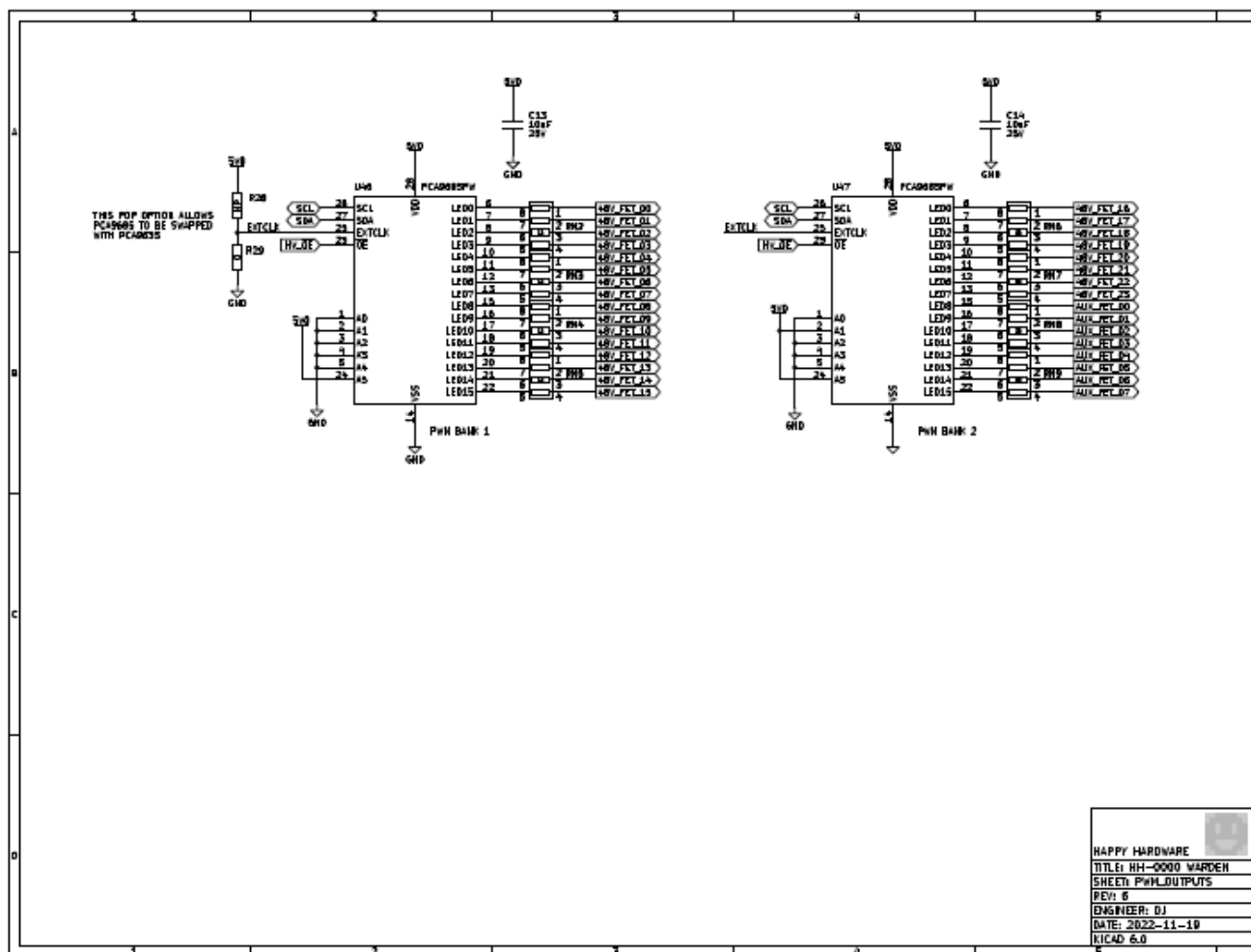




47 HH-0000 Warden Power

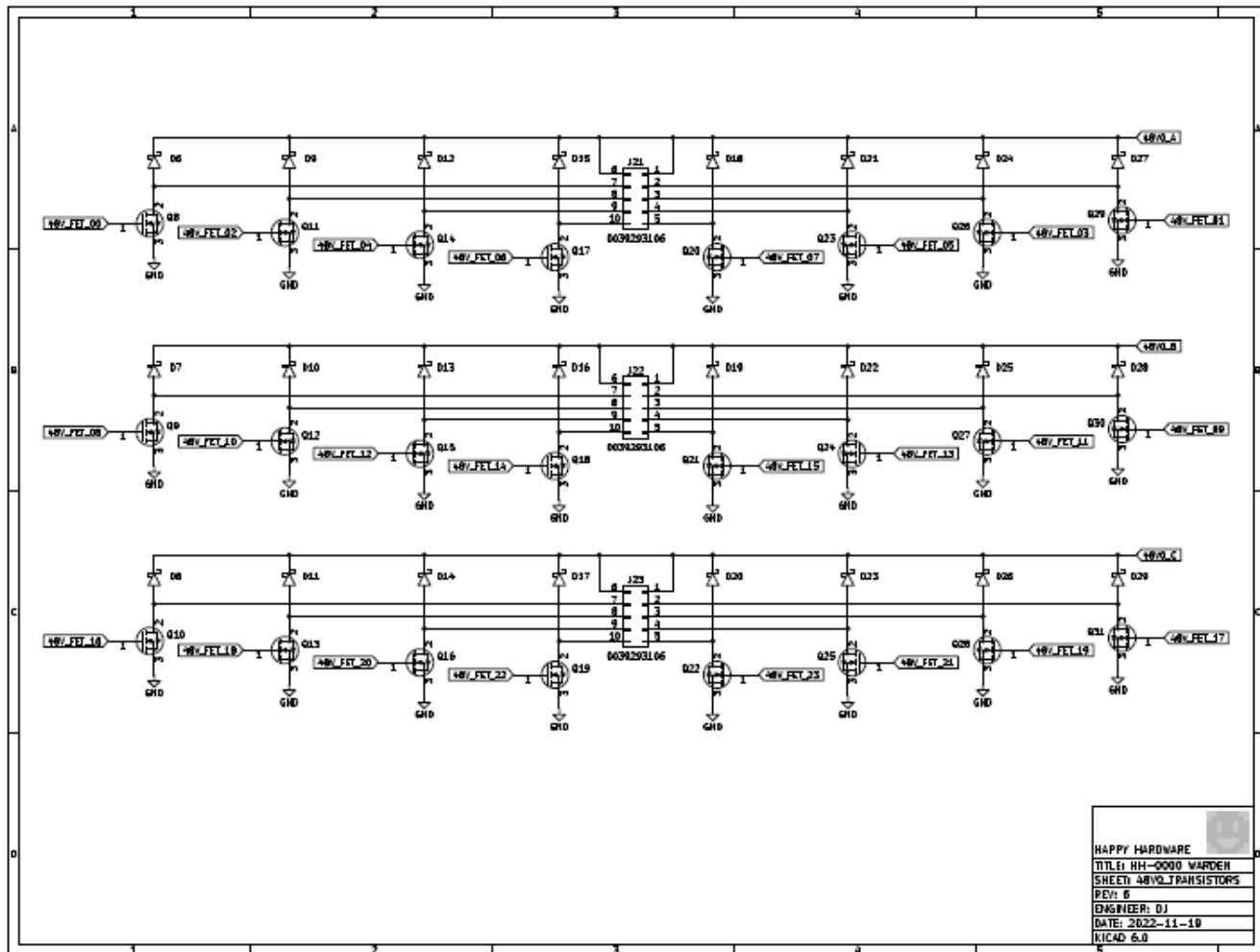


48 HH-0000 Warden PWM Outputs

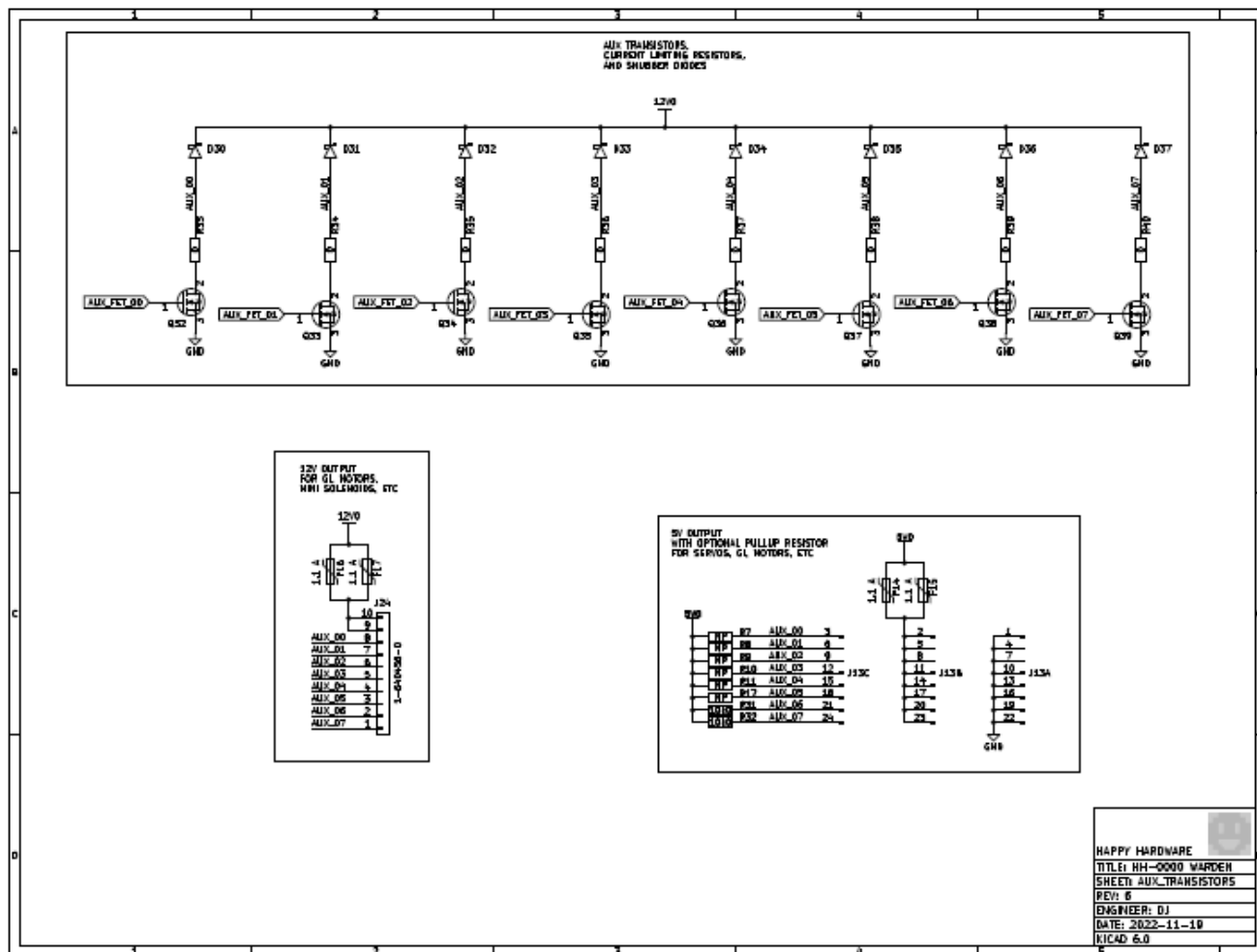




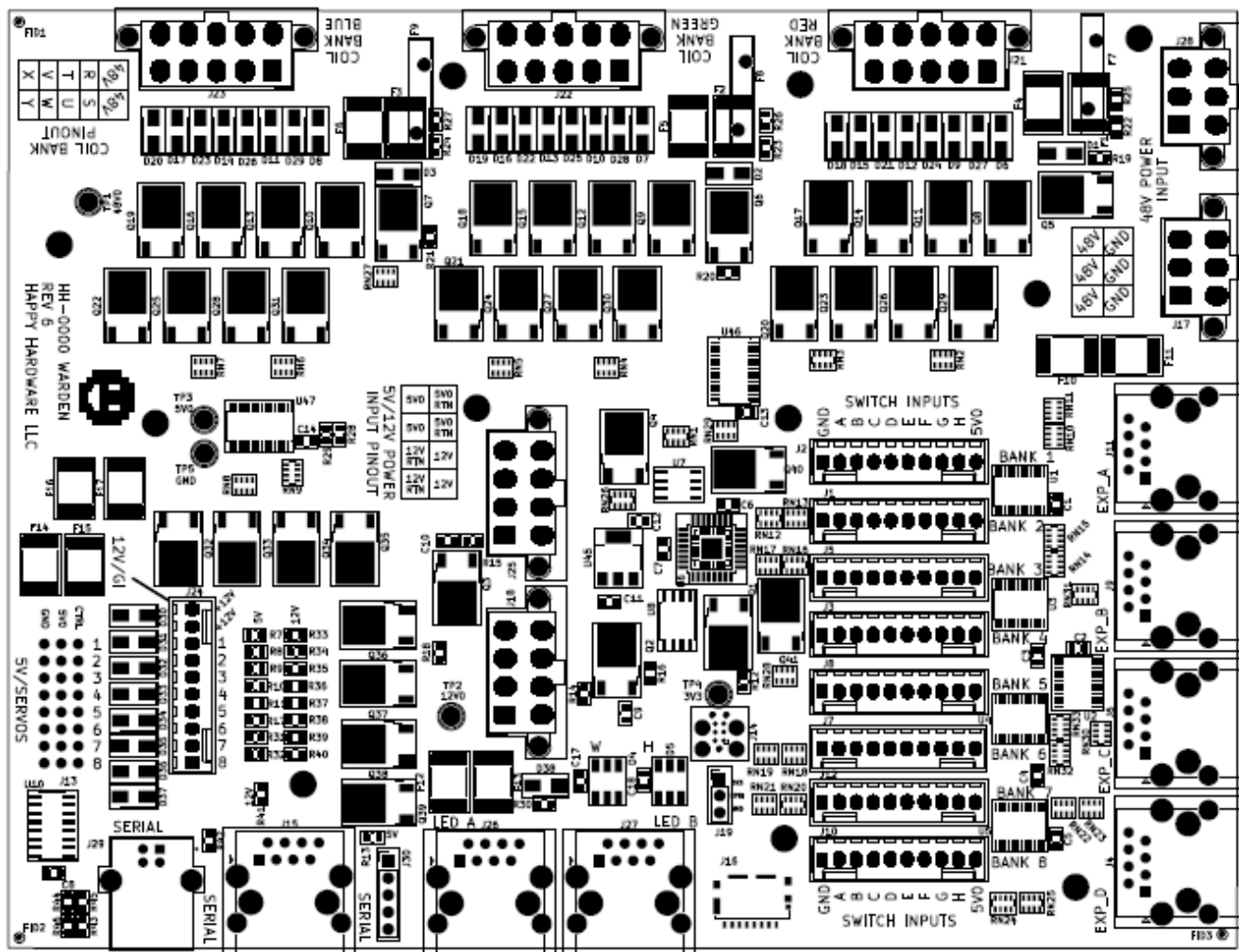
50 HH-0000 Warden 48Vo Transistors



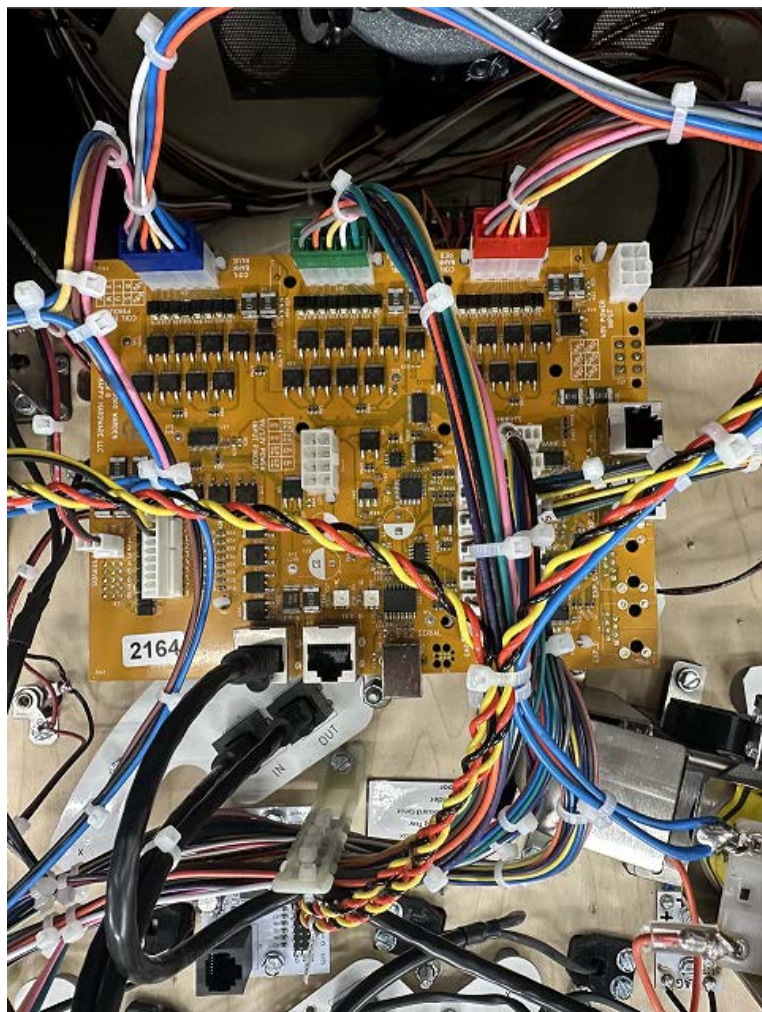
51 HH-0000 Warden AUX Transistors



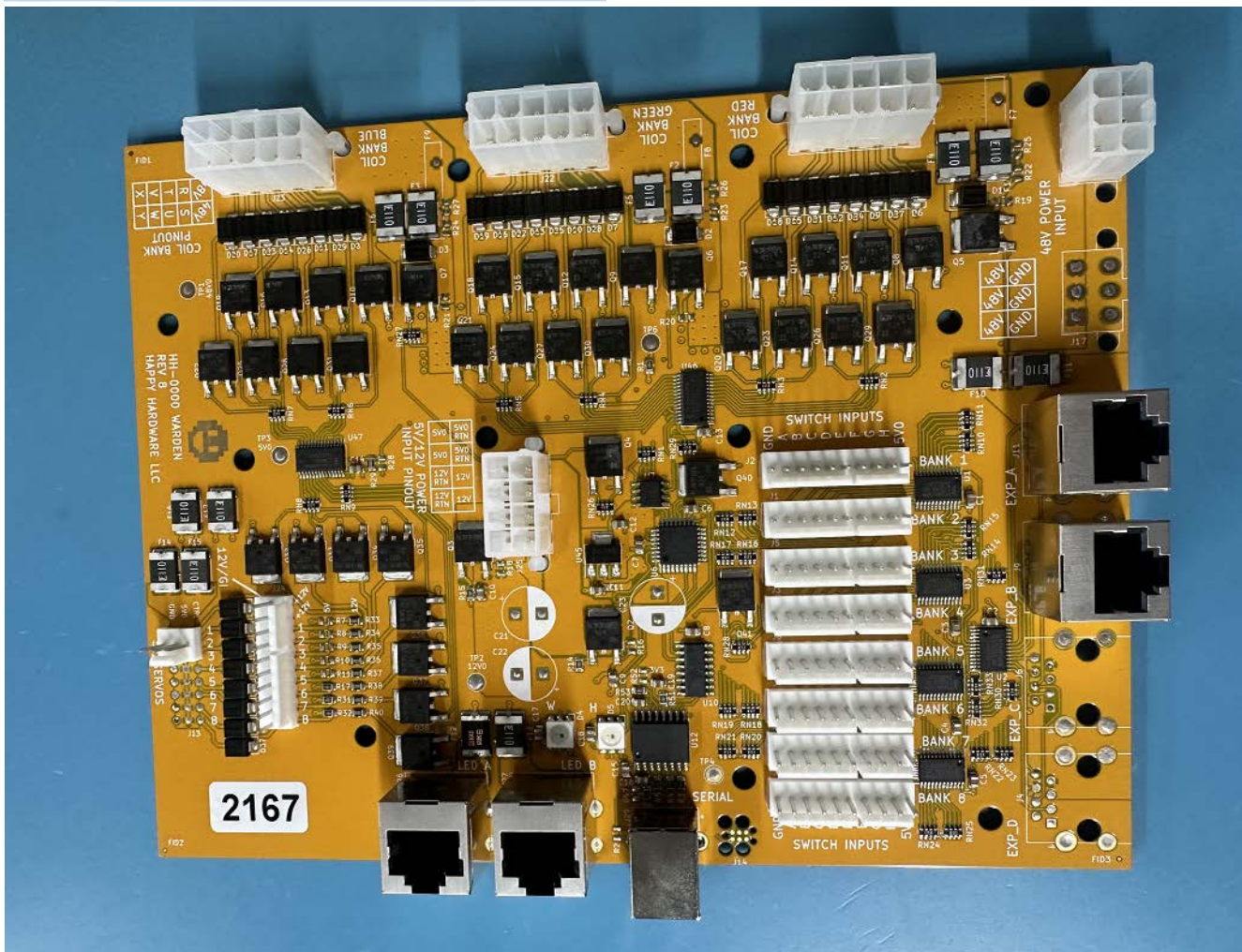
52 HH-0000 Warden Rev 6 Diagram



53 Populated Warden Board



54 Warden Board Out of Game



NOTICE

Need to report a code bug in Texas Chainsaw Massacre? You can send an email directly to service@spookypinball.com with the subject "Code Bug"

Chapter 4

Diagnose a Bad MOSFET on the Warden Board

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 snips
- Insulating tape

CAUTION

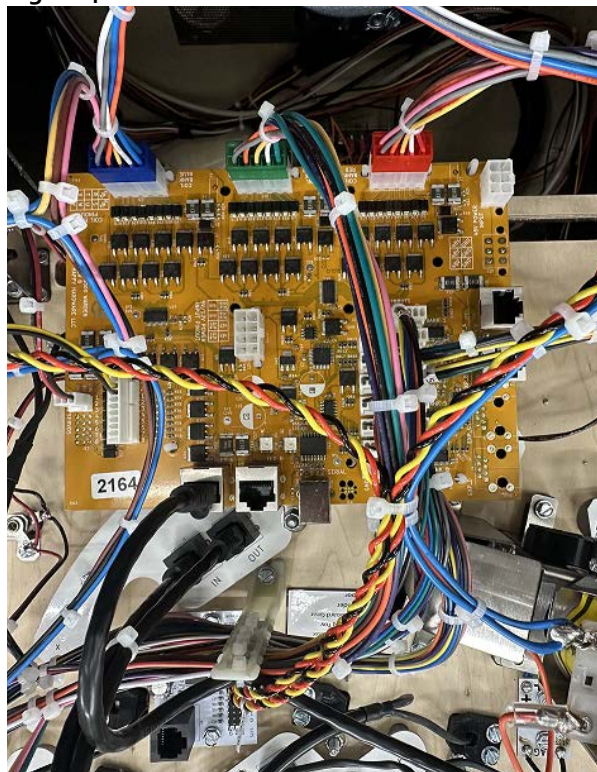
YOU ARE WORKING WITH SENSITIVE ELECTRONIC MATERIALS. PLEASE USE CAUTION!

To diagnose a bad MOSFET

1. Set the multimeter to 20k ohms. If 20k ohms is not available, use the closest available ohms setting.

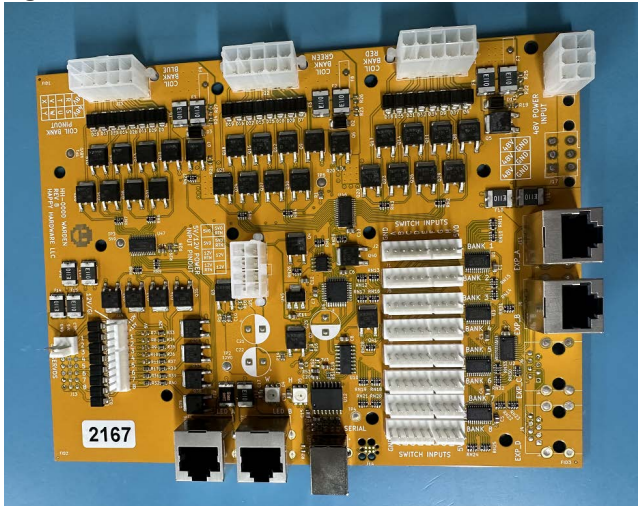
2. Power off and unplug the machine. Carefully unplug all of the coil chains from the main Warden board (Blue, Green, and Red connectors). The connectors are located:
 - underneath the playfield
 - below the drop target mechanism
 - on the left hand side of the playfield

Figure 4-1. Main Warden Board with Connectors



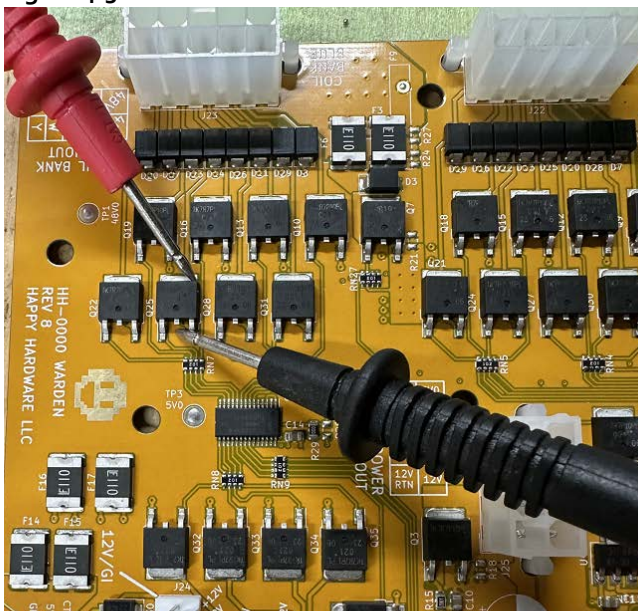
3. To test the MOSFETs, identify the Q8-Q30 MOSFETs on the main Warden board.

Figure 4-2. Main Warden Board - Q8-Q30 MOSFETs



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

Figure 4-3. Main Warden Board with Multimeter



- 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.

4. To identify the coil, use the supplied coil chart to identify the faulty MOSFET to its corresponding coil.
5. 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 5.

⚠ WARNING

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

Email: service@spookypinball.com and advise 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 5c.
- 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.
6. To test the device, power on the machine. It should now function properly, except for the cutout coil that caused the issue.
7. Locate any remaining faulty MOSFETs.

8. If the machine continues not to function correctly, you may have overlooked one faulty MOSFET.
9. Repeat Steps 3 thru 5 for any remaining MOSFETs to identify and isolate the problematic coil.

Spooky Support for Parts

Opt ion #1: Email service@spookypinball.com

Opt ion #2: If you don't receive a reply within 2 business days, call Spooky Support (815-541-4940) to get the parts you need.

Texas Chainsaw Massacre Coil Chart

Red Chain			Green Chain			Blue Chain		
Wire	Coil	MOSFET #	Wire	Coil	MOSFET #	Wire	Coil	MOSFET #
0 Purple	Sling Left	Q8	8 Purple	Lower Right Flipper Main	Q9	16 Purple	Upper Left Flipper Main	Q10
1 White	Lower Left Flipper Main	Q29	9 White	Auto Launch	Q30	17 White	Magnet	Q31
2 Black	Lower Left Flipper Hold	Q11	10 Black	Lower Right Flipper Hold	Q12	18 Black	Upper Right Flipper hold	Q13
3 Yellow	Drop Target Knock-down	Q26	11 Yellow	Knocker	Q27	19 Yellow	VUK	Q28
4 Brown	Divertor (Ball Lock)	Q14	12 Brown	Trough Eject	Q15	20 Brown	Upper Right Flipper Main	Q16
5 Orange	Front Scoop	Q23	13 Orange	Right Sling	Q24	21 Orange	Back Scoop (Door)	Q25
6 Pink	Drop Target Reset	Q17	14 Pink	Shaker	Q18	22 Pink	Right Divertor	Q19
7 Grey	Center Scoop (Left Orbit)	Q20	15 Grey	Right Up Post	Q21	23 Grey	Upper Left Flipper Hold	Q22

Note: Ensure safety precautions are taken, and the machine is disconnected from power during this process. Seek professional assistance if you are not comfortable or experienced in working with electronic components.

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Chapter 5
Switch and Coil Charts

Texas Chainsaw Massacre Switch Chart

Switch Bank for Main Playfield								
Switch Bank 1			Switch Bank 2			Switch Bank 3		
0	NONE	Grey	8	Stand Up Bank Top	Grey	16	Middle Scoop	Grey
1	Trough 7	White	9	Post Lock	White	17	Left Sneakback	White
2	Trough 6	Red	10	Stand Up Bank Bottom	Red	18	Spinner	Red
3	Trough 5	Purple	11	Stand Up Bank Middle	Purple	19	Left Front Scoop	Purple
4	Trough 4	Blue	12	Right Sling	Blue	20	Sling Left	Blue
5	Trough 3	Green	13	Lower Right Flipper EOS	Green	21	Lower Left Flipper EOS	Green
6	Trough 2	Yellow	14	Right Inlane	Yellow	22	Left Inlane	Yellow
7	Shooter Lane	Orange	15	Right Outlane	Orange	23	Left Outlane	Orange
Ground	Ground	Black	Ground	Ground	Black	Ground	Ground	Black
Switch Bank 4			Switch Bank 5			Switch Bank 6 (Upper Board)		
24	Door Scoop	Grey	32	VUK	Grey	H 40	Post Lock Stack	Grey
25	Outer Orbit Left	White	33	Right Orbit	White	G 41	Lower Right Ramp Made	White
26	Back Left Standup	Red	34	Back Right Standup	Red	F 42	Middle Scoop Entry	Red
27	Upper Left Flipper EOS	Purple	35	Upper EOS	Purple	E 43	Orbit Divertor Detect	Purple
28	Middle Scoop Standup Bottom	Blue	36	Captive Ball	Blue	D 44	NONE	Blue
29	Drop Target	Green	37	NONE	Green	C 45	Lower Left Ramp Made	Green
30	Middle Scoop Standup Top	Yellow	38	NONE	Yellow	B 46	Upper Left Ramp Made	Yellow
31	NONE	Orange	39	NONE	Orange	A 47	Corkscrew Exit	Orange
Ground	Ground	Black	Ground	Ground	Black	Ground	Ground	Black
Switch Bank 7 (Lower Board)			Switch Bank 8			Upper Board (Cabinet Expander)		
H 48	Trough Jam	Grey	56	NONE	Grey		Power	NONE
G 49	Trough 1	White	57	NONE	White	80	Lower Right Flipper	Grey

F 50	Inner Right Orbit	Red	58	NONE	Red	81	Action	White
E 51	Door Entry	Purple	59	Spinning Toy Home	Purple	82	Upper Right Flipper	Red
D 52	Upper Right Ramp Made	Blue	60	Lock Enter	Blue	83	Upper Left Flipper	Purple
C 53	Divertor Corkscrew	Green	61	Lock Right	Green	84	Tilt	Blue
B 54	Inner Orbit Left	Yellow	62	Lock Center	Yellow	85	Launch	Green
A 55	Magnet	Orange	63	Lock Left	Orange	86	Lower Left Flipper Button	Yellow
Ground	Ground	Black	Ground	Ground	Black	87	Start	Orange
						Ground	Ground	Black
Lower Board (Cabinet Expander)			GI Bank 1			Servo Expander		
	Power	Yellow	8	NONE	Grey	0-9	NONE	
88	Start Light	Brown	7	NONE	White	10	Fridge/TNT	
89	Action Light	Brown	6	NONE	Red	11	Spinny Toy	
90	Coin left	Red	5	NONE	White	12	Back Board	
91	Enter	Purple	4	NONE	Grey	13	Grinder	
92	Down	Blue	3	NONE	NONE	14	Door	
93	Up	Green	2	GI	NONE			
94	Exit	Yellow	1	Apron Lights	NONE			
95	Cabinet Extra	Orange	Power	Power	Pink			
Ground	Ground	Black						

Texas Chainsaw Massacre Coil Chart

Red Chain			Green Chain			Blue Chain		
Wire	Coil	MOSFET #	Wire	Coil	MOSFET #	Wire	Coil	MOSFET #
0 Purple	Sling Left	Q8	8 Purple	Lower Right Flipper Main	Q9	16 Purple	Upper Left Flipper Main	Q10
1 White	Lower Left Flipper Main	Q29	9 White	Auto Launch	Q30	17 White	Magnet	Q31
2 Black	Lower Left Flipper Hold	Q11	10 Black	Lower Right Flipper Hold	Q12	18 Black	Upper Right Flipper hold	Q13
3 Yellow	Drop Target Knockdown	Q26	11 Yellow	Knocker	Q27	19 Yellow	VUK	Q28
4 Brown	Divertor (Ball Lock)	Q14	12 Brown	Trough Eject	Q15	20 Brown	Upper Right Flipper Main	Q16
5 Orange	Front Scoop	Q23	13 Orange	Right Sling	Q24	21 Orange	Back Scoop (Door)	Q25
6 Pink	Drop Target Reset	Q17	14 Pink	Shaker	Q18	22 Pink	Right Divertor	Q19
7 Grey	Center Scoop (Left Orbit)	Q20	15 Grey	Right Up Post	Q21	23 Grey	Upper Left Flipper Hold	Q22

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