

# PINBALL MACHINE OWNERS MANUAL





# Jersey Jack Pinball

## Limited Manufacturer's Warranty

### **Congratulations on purchasing your new JJP Pinball**

Each JJP Pinball machine is handmade, and as such, each machine is one of a kind and has variations in appearance resulting from differences in the machine's particular wood parts, individually printed art and mechanical assemblies. We use the finest materials and processes available to build each machine, however there are certain things outside of our control. Over time, your machine can show signs of wear, which is normal. Refer to your Service Manual for further guidance and instructions on the proper operation and maintenance of your machine.

**What is covered on the game? *Our Limited Warranty covers only the items listed below ("Covered Parts")*** from the date the machine is shipped to JJP's authorized distributors (or directly to the original owner), for the period of time indicated (the "Warranty Period"):

1. Printed circuit boards (game logic). Warranty Period – Sixty (60) Days.
2. LCD monitor. Warranty Period - Two Hundred Seventy (270) Days.

**What is not covered on the game? *JJP's Limited Warranty does not cover anything other than the Covered Parts during the Warranty Period.*** JJP's Limited Warranty also does not cover claims for Covered Parts arising from misuse, abuse, alteration or modification, rust, warping, damage caused by electrical surge, intrusion of any liquid, fire, theft, acts of God, improper repair, installation, testing and improper electrical connections, or damage caused by converting game from one region to another.

**Who is entitled to Limited Warranty coverage?** The original owner and no one else.

**What will JJP do?** During the Warranty Period If a Covered Part fails, JJP will replace or repair the part at its discretion.

**What must I do?** You must register your JJP Machine within 7 days of delivery to activate your warranty. Register on-line at [www.jerseyjackpinball.com](http://www.jerseyjackpinball.com) under Support>Register Your Game.

**Who do I contact for replacement parts?** Contact your selling distributor for replacement parts. If you bought directly from Jersey Jack Pinball, please open a service ticket at the Jersey Jack Pinball website under Support>Support Form, enter all fields and a brief description of the problem.

**Advance Replacement Parts and RMA's** (Return Manufacturer Authorization): Some items will require a valid credit card number on file prior to shipping and will be assigned an RMA number. If the RMA item is not returned within 30 days, the credit card will be charged and the RMA item will be treated as a sale item.

**Statutory Warranties:** This Limited Warranty is distinct from any statutory rights under any mandatory consumer protection laws of your state or country applicable to you. It is intended to grant you specific rights and does not limit the rights you may have under applicable statutory product warranty provisions. You may have other rights based on local laws during or after the Warranty Period. These rights are not excluded by this Limited Warranty.

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**Limitations:** Implied warranties, including those of fitness for a particular purpose and merchantability (an unwritten warranty that the product is fit for ordinary use) are excluded. Some states do not allow the exclusion or limitations of implied warranties, so the above may not apply to you.

In no event shall JJP be liable for any indirect, special, incidental, consequential, or similar damages (including, but not limited to, lost profits or revenue, inability to use the product, or other associated equipment, the cost of substitute equipment, and claims by third parties) resulting from the use of this product. Some states do not allow the exclusion or limitations of incidental or consequential damages, so the above may not apply to you.

Rev. 3.2021

**TOY STORY 4**



# WARNINGS & NOTICES

## **WARNING**

**FOR SAFETY AND RELIABILITY**, substitute parts and equipment modifications are not recommended. Use of non-Jersey Jack Pinball® parts or modifications of game circuitry, may adversely affect game play, or may cause injuries. Substitute parts or equipment modifications may void FCC/Canada Type Acceptance.

**PROLONGED EXPOSURE to high volume levels through the** cabinet headphone jack can lead to irreversible hearing loss.

**BECAUSE THIS GAME IS PROTECTED** by Federal copyright, trademark and patent laws, unauthorized game conversions may be illegal under Federal law.

**THIS 'CONVERSION' PRINCIPLE ALSO APPLIES** to unauthorized facsimiles of Jersey Jack Pinball® equipment, logos, designs, publications, assemblies and games (or game feature not deemed to be public domain), whether manufactured with Jersey Jack Pinball® components or not.

**IF THE LINE CORD IS DAMAGED**, it must be replaced with a cord provided by the game manufacturer (or an equivalent) in order to avoid a shock hazard.

## **Notice**

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## **WARNING**

**NOTE:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## **RF Interference Notice**

CABLE HARNESS PLACEMENTS and ground strap routing on this game have been designed to keep RF radiation and conduction within levels accepted by the FCC Rules.

TO MAINTAIN THESE LEVELS, reposition harnesses and reconnect ground straps to their original placements, if they become disconnected during maintenance.

**FCC/CANADA STICKER.** Check the back of your game to verify that an FCC/Canada-certification sticker was attached to your game at the factory. All Games that leave the Jersey Jack Pinball® plant have been tested and found to comply with FCC/Canada Rules. Because the sticker is proof of this fact, legal repercussions to the owner and distributor may result if the sticker is missing. If you receive a game that has no FCC/Canada sticker, call Jersey Jack Pinball® for advice or write us a note on your Game Registration Card. Be sure that the card bears your game's serial number.

***CAUTION:*** Transport this game **ONLY** with the hinged backbox **DOWN!**

**TOY STORY 4**



# TOY STORY 4

## DOCUMENT REVISION HISTORY

Version 1.0 (Rev 6)	May 2022	Initial Release of Document
Version 1.1	August 2022	Bookmarks, Text Updates
Version 1.2	September 2022	Schematics, QA Fixes
Version 1.3	July 2023	QA Fixes

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FOR SERVICE CALL YOUR AUTHORIZED DISTRIBUTOR

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# UNPACKING & SETUP INSTRUCTIONS FOR YOUR JERSEY JACK PINBALL MACHINE.

1. If game has been shipped on a pallet or skid, cut straps holding game to skid. Cut the two packing straps that go completely around the box.  
**CAUTION! Hold straps as they are being cut so as to avoid pressure release!**

2. Open the flaps on the top of the box. Inside the top of the box remove the top cover. This will expose the legs for the game along with the leg levelers and the pinball utility wrench.



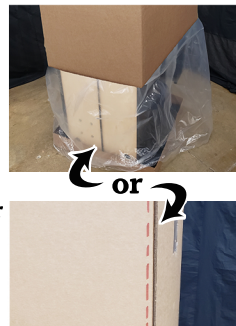
3. Remove the legs and the other parts placing them in a safe location. After removing the parts from the top of the packing tray, remove the packing tray from the top of the package.

4. Remove the spacer box from the top off the game. **CAUTION! On CE games the spacer box may hold topper parts for the game. Remove with caution.**

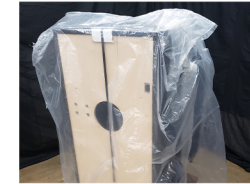
5. At the 4 inside corners of the box are located cardboard stiffener/spacer pieces. These need to be pulled straight up and out of the box.



6. Determine, in your location, if you can slide the entire box sleeve up and off the game. If possible do this. If, due to a low ceiling, this is not possible, do the following. Cut the box using a box cutter or a sharp knife, the length of the box, from top to bottom. You can find dotted lines on the box for the safe location to do this. These lines are located on one corner of the box. **DO NOT CUT** any other location than the lines as damage to your game may result! Cut through the cardboard and then unwrap the cardboard from the game.



7. Remove the protective plastic bag that covers the game.  
**CAUTION! SUFFOCATION DANGER! DO NOT LEAVE THIS BAG WHERE IT COULD BE FOUND BY SMALL CHILDREN OR PETS!**



8. **DO NOT CUT THE STRAP THAT IS AROUND THE GAME AT THIS TIME!**

This strap secures the head during setup. Removing this strap could cause the game to become unstable and unexpectedly fall! Leave the game standing upright on the carton base.



9. Take the levelers from step 3 and thread them into bottom of the 4 legs. Thread them all the way into the legs.



10. Using the pinball utility wrench, remove/unthread the leg bolts (4) from the cabinet top. Place one leg in each corner position and reuse the leg bolts to secure to the cabinet. Use the utility wrench to tighten the legs.



11. Tip/lower the game onto its front legs.





12. **WARNING! HEAVY LIFTING REQUIRED!**

The next step requires heavy lifting. 2 people to lift the game are recommended with a 3rd person to place a support under the game. Keep children and small pets away from the game during this operation!



**DO NOT ATTEMPT THIS OPERATION ALONE!**

Find a suitable support that can hold the back end of the game when it is lifted and raised into position. Place 1 person on each side of the game and lift the back end of the cabinet. Slide a suitable support under the rear of the game and rest the game on it. Bolt the 2 remaining legs on to the back end of the game. Lift the back end of the game and remove the support. The game should now be standing on 4 legs. Make sure the leg bolts are tight with the utility wrench.

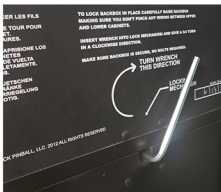


13. Cut the strap that is wrapped around the game. Use caution when cutting the strap as it could fly off.



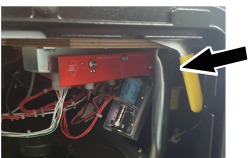
14. The keys to the game are tied to the front shooter rod. Cut the tie wrap to free the keys and discard the tie wrap. Use the keys to open the front cash box door of the game.

15. A wrench came packed by the legs of the game. Place the wrench in the rear lock of the cabinet. Raise the head of the game into position. Turn the wrench until the backbox is firmly locked into its upright position.



**CAUTION! Failure to lock the backbox in position can result in serious injury! Make sure that you cannot move the raised head after it is locked in position!**

16. Inside the cashbox door, at the top of the opening is a lever. Slide the lever to the left. While holding the lever to the left, remove the front hand protector molding by pulling straight up.



17. With the molding removed, slide the glass forward and out of the game. Carefully place the glass on a carpeted/soft surface.

**CAUTION! The glass is tempered and could explode if placed on end on a hard surface!**

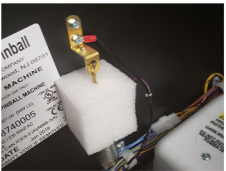


18. Firmly grasp the bottom arch and pull up on the playfield. Pull the playfield toward you and rest it on the cabinet front edge. (see pic 1)

- Remove the packing foam from the playfield. (see pic 2)
- Remove the packing foam from the back board top edge. (see pic 3)
- Slightly raise and push the playfield back into its normal game position.



19. Inside the cashbox door, along the left side of the cabinet, is a plumb bob that detects tilted operation of the game. It has a white piece of shipping foam that locks it into place. Remove the shipping foam by turning it until the slot in it can be pulled around the wire of the tilt.



**Adjusting the plumb bob:**

Using the wingnut underneath the plumb bob weight, adjust the tilt mechanism to the desired sensitivity. Raising the weight higher up the hanger wire makes the tilt mechanism more sensitive; lowering the weight makes it less sensitive. With the game leveled and set to the desired playfield incline, the plumb bob weight should hang in the center of the metal contact ring. If the weight is not centered, loosen the screws holding the contact ring to adjust.

20. Inside the cashbox are the pinballs. Take them out of their protective plastic and gently clean them with a soft rag. Place the pinballs inside the open top of the game. They will roll to the bottom return area.



21. Carefully place the glass back into the channels of the game and slide it all the way forward. Move the locking lever to the left and replace the front hand protector/molding. Move the lever to the right and lock it into position.



22. Remove the power cord from the cashbox. The receptacle for the cord is located in the right rear of the game. If the cover for the receptacle is in place, loosen the screws and move the cover. Plug the power cord into the receptacle. Place cord in slot at exit. This is a strain relief. Replace the cover once the power cord is plugged in.



23. Place the cashbox back into the game and close and lock the coin door.



24. Plug in the game. The power switch is located under the game on the front right corner. Flip the power switch on. Your game should take a few minutes to boot up and come to life!



70-100004-02



# SETTING UP BLUETOOTH & WIFI

To set up Bluetooth you will need to access the Player Menu.

The Player Menu can be accessed by holding the right flipper for several seconds while the game is in attract mode (not during a game).

\*On the LE & CE models, Bluetooth pairing can be accessed directly by pushing the button on the headphone jack panel next to the coin door.



Select Bluetooth setup (using the flippers to move selection) and hit start button.



Once in Bluetooth menu it will attempt to scan for Bluetooth devices. Make sure your device is in pairing mode. Once the Bluetooth device shows up in the list select it with start button, and the Bluetooth should pair the devices and start working.

If the device does not pair exit out of Bluetooth setup and retry. Make sure your device is in pairing mode. Due to the nature of Bluetooth this may take several attempts.

Enabling WIFI allows you to download game updates.  
To set up WIFI you will need to access the Diagnostics Menu.

The Diagnostics Menu can be accessed opening the coin door.

- open coin door
- hit enter button to enter diagnostics
- go to **FULL MENU**
- go to **SETTINGS**
- go to **NETWORK SETTINGS**
- go to **WIFI**
- go to **SET WIFI NETWORK**



When setting up your network be sure to read the JJP terms of service and agree to them in order to connect to your pinball machine to WIFI.

While in SET WIFI NETWORK select your network from the available list.

After your network is set, go to SET WIFI PASSWORD in menu and enter your wifi password.

Finally go to CONNECT TO WIFI in menu to connect to the internet.



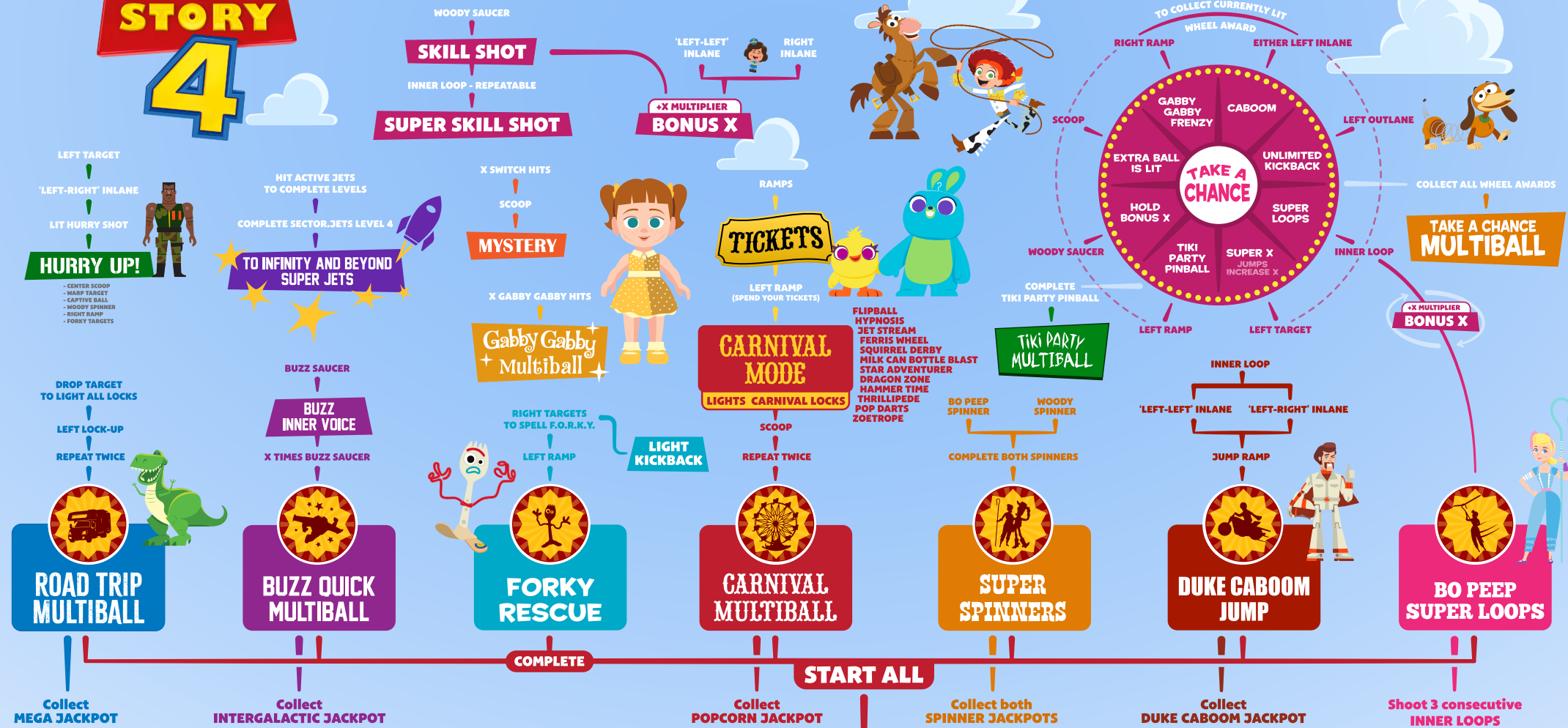
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# Disney · PIXAR Toy Story 4

## PINBALL GAME RULES

JERSEY JACK  
PINBALL



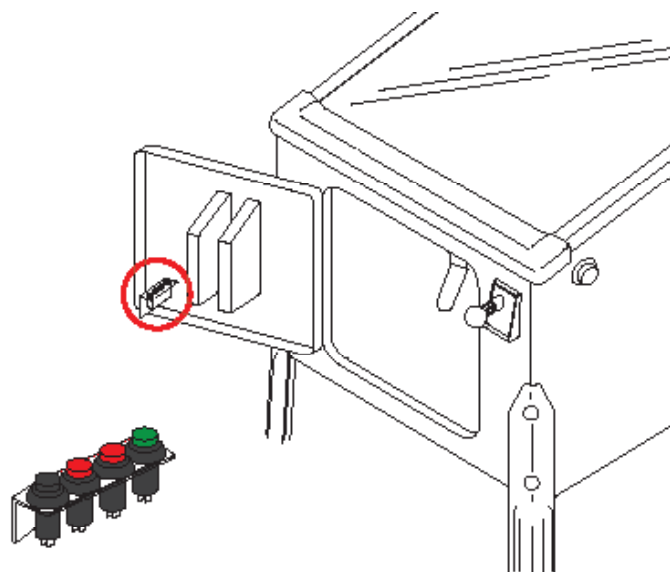
MEET ME AT THE CAROUSEL





# The Toy Story 4 Menu System





# Menu System Basics

The TS4 menu system allows the user or operator of the game to test the performance of its components and assemblies, personalize its rules and track, monitor or manage its play and/or earnings. Four pushbuttons are used to navigate the menu system, make adjustments, enter data, check components, trigger tests, etc. The buttons are located on the inside of the coin door, mounted to a bracket nearest its outside edge (circled).

The buttons are labeled: black is **Enter**, red next to it is **Up/+**, next red is **Down/-** and green is **Back/Escape**. Each time you press a button, you will hear an audio response through the game's speakers. Use **Enter** to enter a sub-menu, select a menu item to change or execute a command. Use **Up/+** or **Down/-** to maneuver through menu choices or increase/decrease data values for a selected menu item. Use **Back/Escape** to exit a sub-menu or escape from a selected menu item without saving changes. Each sub-menu screen contains specific instructions for button use and/or visual cues superimposed over the button illustrations in the lower left corner of the LCD screen.

To enter the menu system at any time (after system boot-up), open the coin door and momentarily press **Enter**. The main menu screen will instantly appear on the game's LCD monitor. The current date and time will be displayed in the lower right hand corner of the screen, along with the version of software the game is running. All of the RGB LEDs and GI/flasher LEDs in the game will light up in white to improve visibility above and below the playfield.

Note: When the coin door is opened, the game's safety interlock switch disables the 70-volt power running to the playfield. In order to activate 70-volt devices in any of the diagnostics tests, you must either close the coin door or pull the safety interlock switch's actuator out (it will "click" and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position. **CAUTION:** Most of the high power coils will be enabled, so slingshots, pop bumpers, VUKs and flippers (if activated by the flipper buttons) will kick a ball around as it rolls down the playfield - or fire when trigger switches are closed by any means. **So please be careful with your fingers and tools on the playfield surface! If you lift the playfield for any reason, please be careful around high power coil lugs, as they present a shock hazard!**



TS4 menu system's main menu screen.





Operator Presets screen.

From the main menu screen, you can access the game's **Test Report**. From this screen, you can also readily jump into the **Difficulty Presets, Customization & Operator Presets** sub-menus to quickly customize your game. **Full Menu** gives you access to device/component tests, game settings, audits, utilities, presets, reports and resets. Simply move up/down in the list of menu icons, using **Up/+** and **Down/-**, then press **Enter** to select the sub-menu you'd like to explore. To exit the menu system and return to game play, press **Back/Escape** from the Main Menu screen. Specific details for each **Full Menu** item are included later in this section.

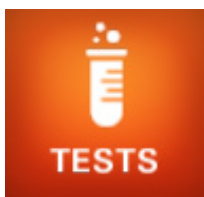
The **Difficulty Presets** sub-menu provides a quick shortcut to the **Difficulty Presets** branch of the **Install Presets** menu item. This sub-menu allows you to quickly change the rules/settings for your game, making it easier or more challenging to play. See page B-58 for additional information.

The **Customization** sub-menu provides a quick shortcut to the **Customization** branch of the **Utilities** menu item. This sub-menu allows you to add, edit or remove custom messages and/or graphics that display on the 27" LCD monitor, during the game's attract mode. See page 54 for additional information.

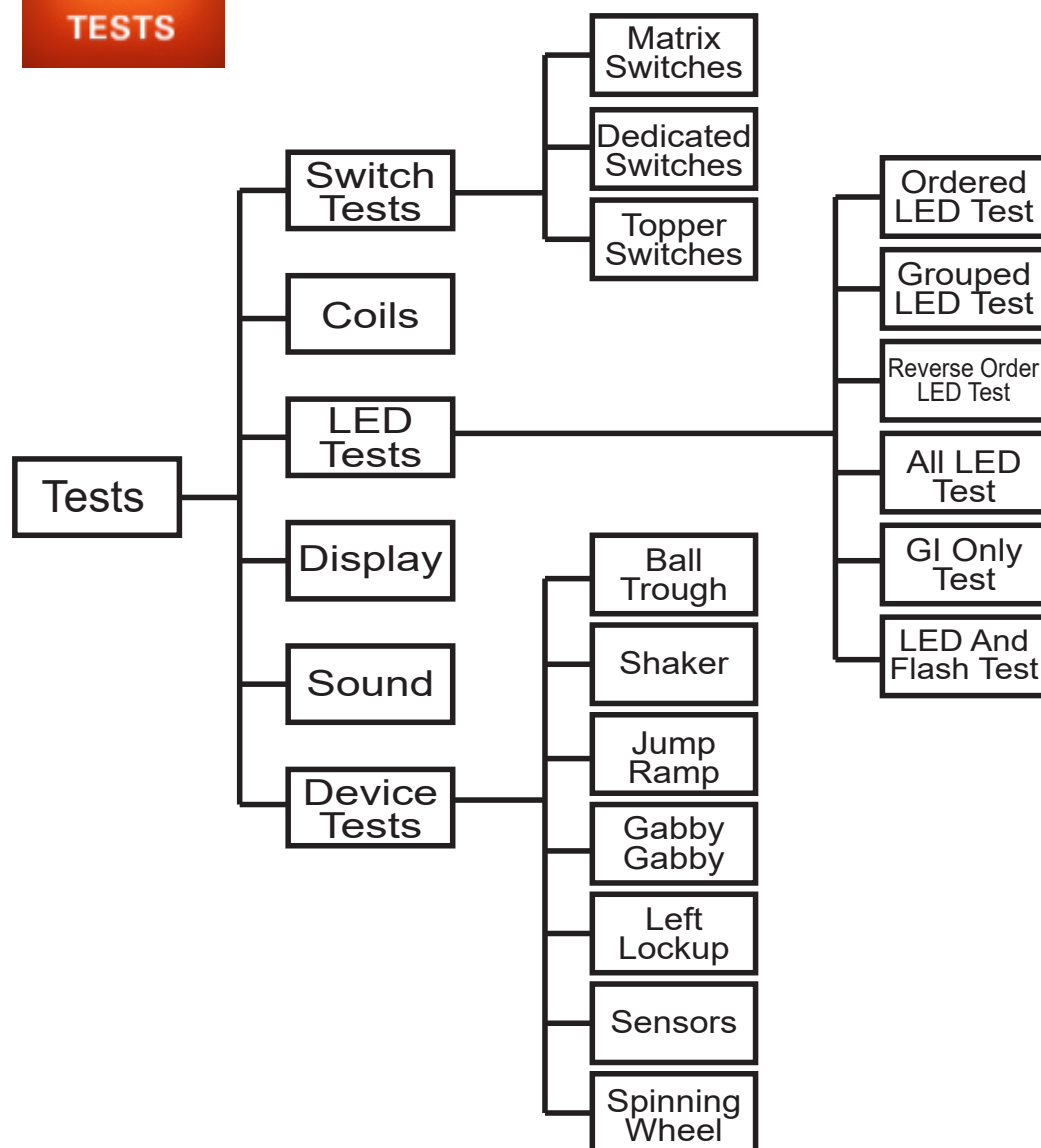
When you enter the **Operator Presets** sub-menu, the LCD monitor will display the screen shown. This sub-menu allows you to quickly change a group of predefined settings, designed to make your TS4 game more approachable to new players. In short, the changing this group of settings will make the special features in the game more accessible to casual, street pinball players. **Paid Play** settings are intended for TS4 games being operated in a pay-per-play setup, on location. **Free Play** settings are intended for TS4 games in the home (or operated in a pay-for-entry location).

Each **Operator Presets** sub-menu page shows a table of the settings affected by the selection, so you can quickly and easily compare the preset value, the current value and the default value.





# Tests



Tests menu tree.

The **Tests** menu allows the user to test all major components and assemblies in the game for proper operation.

**Switch Tests** - test all matrixed or dedicated switches in the game. A screen will be displayed for the selected group (**Matrixed Switches** or **Dedicated Switches**) showing the status of every switch within the group. As you manually open or close switches, the status for each is updated on the screen and you hear an audio response through the game's speakers. In **Single Switch** test, you can scroll through the entire list of switches and repeatedly open or close any single switch. The **Switch History** screen displays the 24 most recent inactive-to-active switch transitions.

**Coils** - test virtually any coil, magnet, motor or light in the game. A screen will be displayed, listing all of the coils, magnets, motors and lights in the game that can be energized. You can auto-cycle through the list one at a time, or repeatedly/manually trigger a single device.

**LED Tests** - test the RGB LEDs in the game (feature and GI lighting). **Ordered LED Test** - you can step through the list of RGB LEDs, one at a time, in hardware order, and test the color-producing capability of each. **Grouped LED Test** - you can step through the list of RGB LEDs, one at a time, in grouped order, and test the color-producing capability of each. **Rev Order LED Test** - basically the same as the **Ordered LED Test**, except the LEDs are listed in reverse hardware order. **All LED Test** - all LEDs (RGB and GI) will light at once, allowing you to test the color-producing capability of the entire chain at one time. **GI Only Test** - allows you to test the color-producing capability of LEDs used for GI purposes. **LED And Flash Test** - allows you to test the functionality of all CPU-controlled lighting in the game at one time.

**Display** - test the basic colors and alignment of images on the game's LCD monitor. You can step through several fundamental colors on the screen and superimpose a grid on it to check for proper centering and alignment of displayed images.


**Sound** - test the game's sound system for proper balance and operation with sound effects, voices, music and a wide variety of tones and sweeps.

**Device Tests** - test all of the major game devices/assemblies (**Ball Trough, Spotlight, Sensors, Record Test, Camera**) for proper operation. A specific screen will be displayed for each device, allowing the user to repeatedly exercise it and ensure that it is functioning correctly.





To exit the **Matrixed Switch Test** at any time, press the **Back/Escape** button.



MATRIXISED SWITCHES

Active switch

Inactive switch (n/o)

Inactive opto (n/o)

Inactive reflective (n/o)

Inactive proximity (n/o)

Unused

Bad switch

Inactive switch (n/c)

Inactive opto (n/c)

Inactive reflective (n/c)

Inactive proximity (n/c)

Unused-closed

	Drive 1 J201-1	Drive 2 J201-2	Drive 3 J201-3	Drive 4 J201-4	Drive 5 J201-5	Drive 6 J201-6	Drive 7 J201-7	Drive 8 J201-9	Drive 9 J202-1	Drive 10 J202-2	Drive 11 J202-3	Drive 12 J202-4	Drive 13 J202-5	Drive 14 J202-6	Drive 15 J202-8	Drive 16 J202-9			
	GRN	BLK	GRN	BLK	GRN	RED	GRN	ORN	GRN	YEL	GRN	GRY	BLU	GRN	VIO	GRN	BLU	GRY	VIO
Return 1 J200-1	6-Ball Trough #5	Shooter Lane	FORK(Y) Target	Rigger Kicker	Inner Loop Made	Jump Ramp Up	Left Sling Hi	not used	Gabby	not used	Lockup #1 (Bot)	Wheel Opto Inner	not used	not used	not used	not used			
WHT BLK	01	09	17	25	33	41	49	57	65	73	81	89	97	105	113	121			
Return 2 J200-2	6-Ball Trough #4	Right Outlane	FORK(Y) Target	Captive Ball Target	Jet Target	Right Loop Enter	Left Sling Lo	not used	Left Ramp Made #2	not used	Lockup #2	Wheel Opto Middle	not used	not used	not used	not used			
WHT BRN	02	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122			
Return 3 J200-3	6-Ball Trough #3	Right Inlane	FO(R)K(Y) Target	not used	Inner Loop Target	not used	Left Inlane (right)	not used	Right Spinner	not used	Lockup #3 (top)	Wheel Opto Outer	not used	not used	not used	not used			
WHT RED	03	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123			
Return 4 J200-4	6-Ball Trough #2	Right Sling Lo	(F)ORK(Y) Target	Right Target	Left Sauser Kicker	not used	Left Inlane (left)	not used	Upper Playfield Ramp	not used	not used	not used	not used	not used	not used	not used			
WHT ORN	04	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124			
J200-5	6-Ball Trough #1 (right)	Right Sling Hi	(F)ORK(Y) Target	Bottom Bumper	Left Ramp Diverted	not used	Left Outlane (Kickback)	not used	Left Ramp Enter	not used	not used	not used	not used	not used	not used	not used			
WHT YEL	05	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125			
Return 6 J200-6	6-Ball Trough Jam	not used	not used	Right Bumper	not used	not used	Left Target	not used	Center Scoop VUK	not used	not used	not used	not used	not used	not used	not used			
WHT GRN	06	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126			
Return 7 J200-7	6-Ball Trough #6 (left)	not used	not used	Top Bumper	Right Ramp Made	not used	not used	not used	Inner Loop Spinner	not used	not used	not used	not used	not used	not used	not used			
WHT BLU	07	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127			
Return 8 J200-8	not used	not used	not used	Left Bumper	Drop Target	not used	not used	not used	Left Ramp Made #1	not used	not used	not used	not used	not used	not used	test something			
WHT VIO	08	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128			

Last switch edges #006, 6-Ball Trough Jam J201-1 (GRN/BLK) - J200-6 (WHT/GRN)


ESC

+

Press START to toggle playfield display, + to activate shaker (if installed)

Apr 26, 2022 - 01:51:18 PM

Tov Story 4 - Version 01.00-CE



**TOY STORY 4** 9





# Dedicated Switch Test

When you enter the **Dedicated Switch Test**, the LCD monitor will display the screen shown. The four dedicated switch strings are shown, grouped by their common ground wire. Each square in each string corresponds to a specific switch; the color of the square represents the current state of that switch.

Active switches, regardless of their type, are displayed in bright green squares. Inactive opto switches are displayed in light tan (if normally unblocked) or dark tan (if normally blocked) squares; all other inactive switches are displayed in bright blue (if normally open) or navy blue (if normally closed) squares. Bad switches (switches that have been inactive for approximately 60 balls played) are displayed in red squares. Unused positions in the matrix are represented by gray squares; any unused position that is registering active (an error) is represented by a brown square.

Wire colors and I/O Board connector/pin numbers are shown for each string of switches.

You can simultaneously test as many switches as you like, or repeatedly test a single switch, observing the results on the screen. The game also provides an audible response each time the state of a switch changes.

To exit the **Dedicated Switch Test** at any time, press the **Back/Escape** button.



Dedicated Switch Test screen.





# Single Switch Test

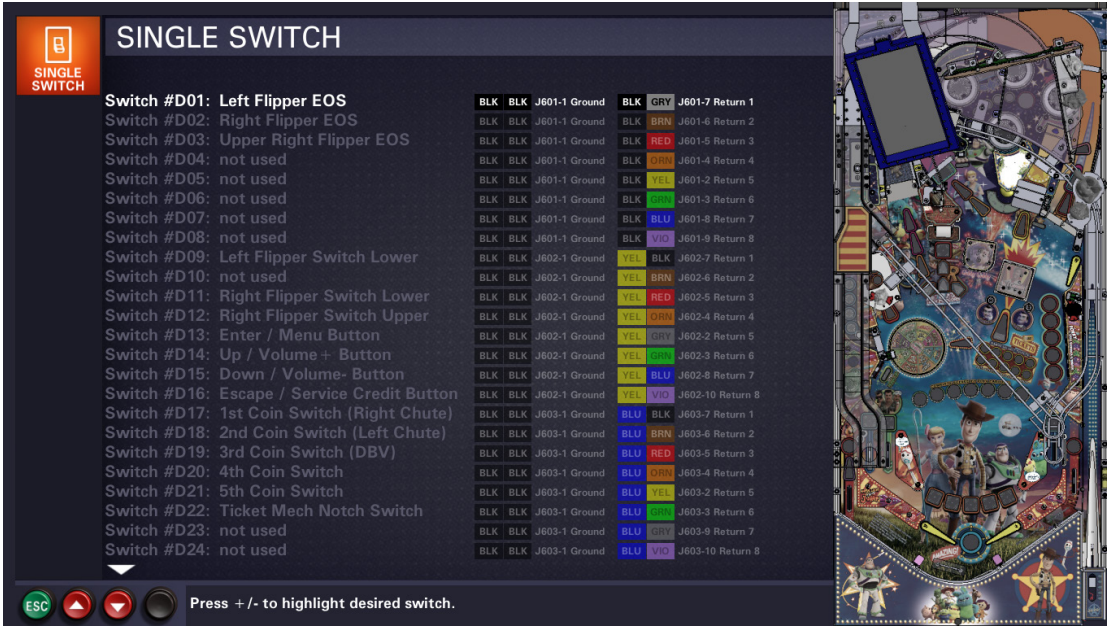
When you enter the **Single Switch Test**, the LCD monitor will display the screen shown. The entire list of dedicated and matrixed switches is shown alongside a window highlighting the location/state of the currently selected switch on the game’s playfield. The switch is displayed as a small, blinking square; the color of the square represents its current state.

An active switch, regardless of its type, is displayed as a bright green square. An inactive opto switch is displayed as a light tan (if normally unblocked) or dark tan (if normally blocked) square; any other inactive switch is displayed as a bright blue (if normally open) or navy blue (if normally closed) square. A bad switch (a switch that has been inactive for approximately 60 balls played) is displayed as a red square. Unused positions in the matrix are not displayed in the playfield window.

All switch driver (column) and return (row) numbers are shown, along with corresponding wire colors and I/O Board connector/pin numbers.

You can scroll through the list of matrixed switches, using the **Up/+** and **Down/-** buttons, and select any switch to test. You can then repeatedly open or close the selected switch, observing the results in the playfield window. The game also provides an audible response each time the state of the switch changes. Note: When adjusting a switch, the best method for testing it is to roll a pinball over it, through it or into it.

To exit the **Single Switch Test** at any time, press the **Back/Escape** button.



Single Switch Test screen.





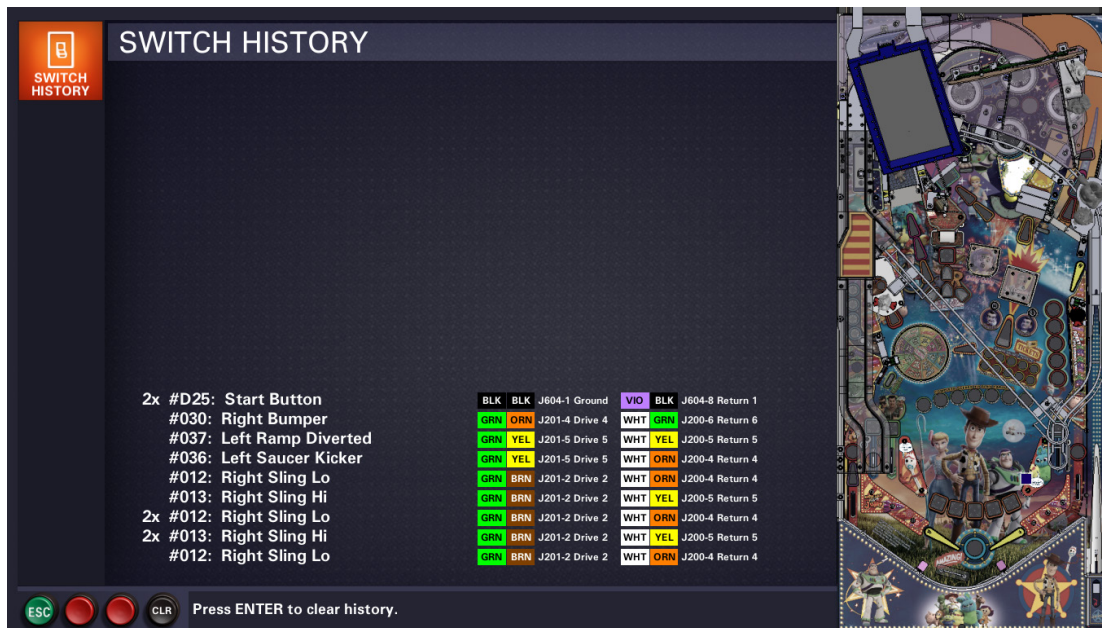
# Switch History Test

When you enter the **Switch History Test**, the LCD monitor will display the screen shown. A list of the 24 most recent dedicated and/or matrixed switch inactive-to-active transitions is shown alongside a window depicting the game's playfield.

All switch driver (column) and return (row) numbers are shown, along with corresponding wire colors and I/O Board connector/pin numbers.

You can clear the **Switch History Test** listing by pressing the **Enter** button.

To exit the **Switch History Test** screen at any time, press the **Back/Escape** button.



Switch History Test screen.





# Coils Test

When you enter the **Coils Test**, the LCD monitor will display the screen shown. The entire list of coils, magnets, motors and lights is shown alongside a window highlighting the location of the currently selected device on the game’s playfield. The device is displayed as a small, white, blinking square. Note: Devices in the list that cannot be activated in the **Coils Test** are highlighted in blue text (these devices have their own specific tests).

Coil number, power/trigger wire colors, I/O Board connectors/pins, drive transistor, in-line fuses and supply voltage level are provided for each device in the list.

There are three different modes for triggering a device: **RUNNING**, **REPEAT** and **MANUAL**. The current mode is highlighted in green text at the top of the screen; you change the current mode by pressing the **Enter** button. In **RUNNING** mode, the game automatically cycles through the list, triggering each device once. In **REPEAT** mode, you scroll through the list (using the **Up/+** and **Down/-** buttons) and select a specific device; the game then repeatedly triggers it. In **MANUAL** mode, you select a specific device in the list and trigger it yourself using the **Start** button on the front of the cabinet.

Note: When the coin door is opened, the game’s safety interlock switch disables the 70-volt power running to the playfield. In order to activate 70-volt devices in the **Coils Test**, you must either close the coin door or pull the safety interlock switch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

To exit the **Coils Test** at any time, press the **Back/Escape** button.



Coils Test screen.





# Ordered LED Test

When you enter the **Ordered LED Test**, the LCD monitor will display the screen shown. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected LED on the game's playfield. The LED is represented in the window by a small, white, blinking circle, while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color *white*. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

For this test, the RGB LEDs are listed in hardware order (the order that the RGB LED boards are physically connected to controller boards, under the playfield). In this regard, the TS4 RGB LED string can be considered one long chain. The **Ordered LED Test** allows you to step through and test this entire chain, one LED at a time.

To exit the **Ordered LED Test** at any time, press the **Back/Escape** button.



Ordered LED Test screen.





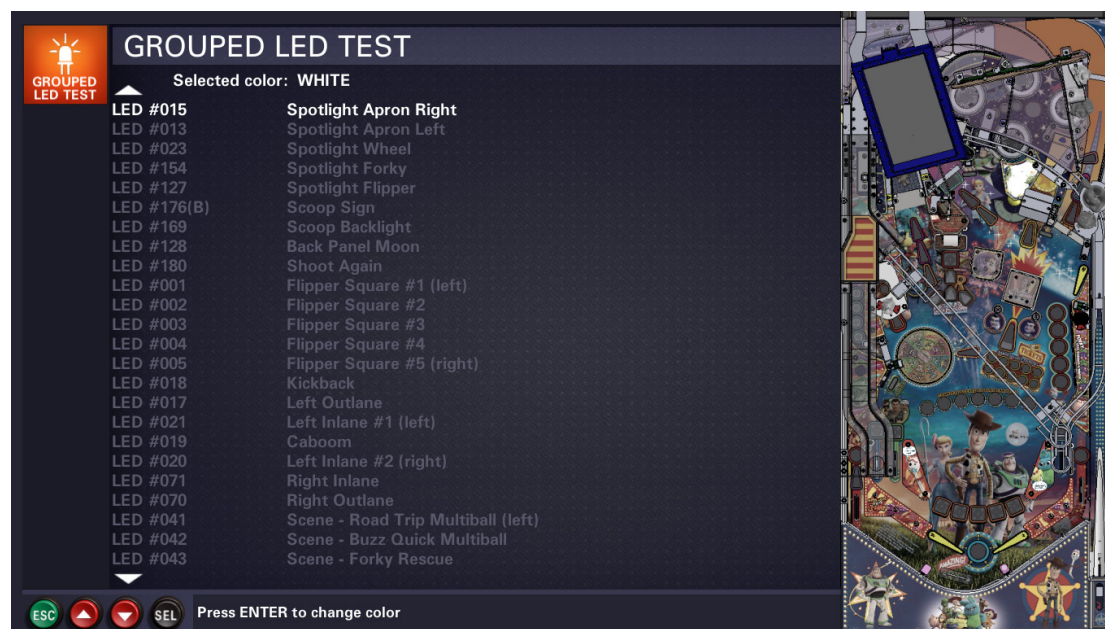
# Grouped LED Test

When you enter the **Grouped LED Test**, the LCD monitor will display the screen shown. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected light on the game's playfield. The light is displayed in the window as a small, white, blinking circle while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color white. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

For this test, the RGB LEDs are listed in logical/grouped order. The TS4 RGB LED string is one long chain. The **Grouped LED Test** allows you to step through and test the entire string of RGB LEDs, in groups, in logical order (words spelled in order), as they are associated on the playfield. The test begins with the LEDs in the lowest portion of the main playfield and progresses upward.

To exit the **Grouped LED Test** at any time, press the **Back/Escape** button.



Grouped LED Test screen.





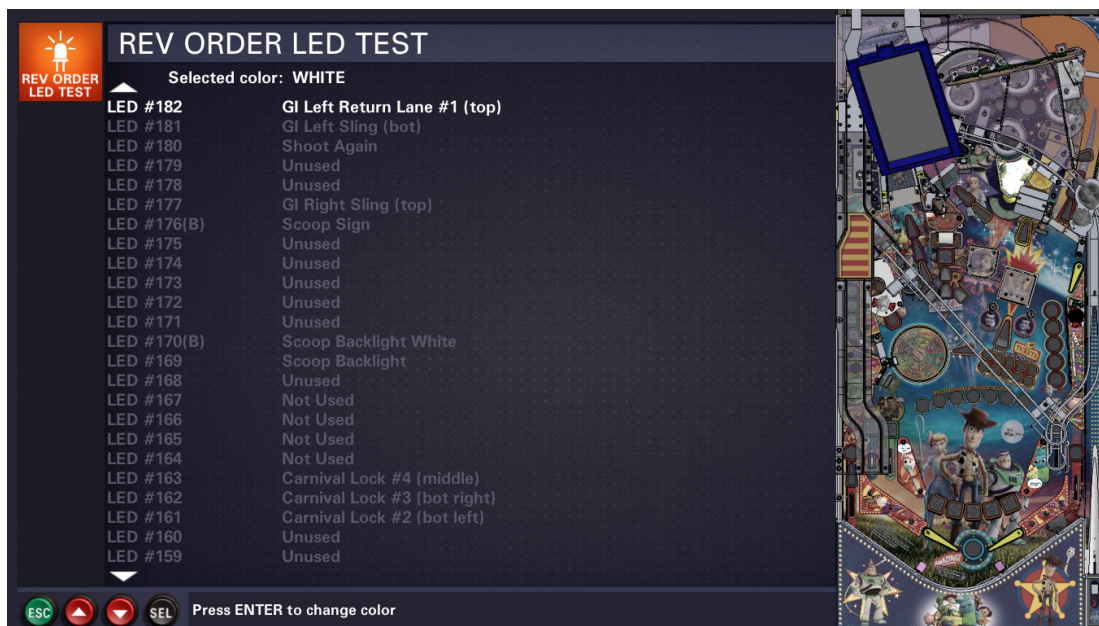
# Reverse Order LED Test

When you enter the **Reverse Order LED Test**, the LCD monitor will display the screen shown. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected LED on the game's playfield. The LED is represented in the window by a small, white, blinking circle, while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color white. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

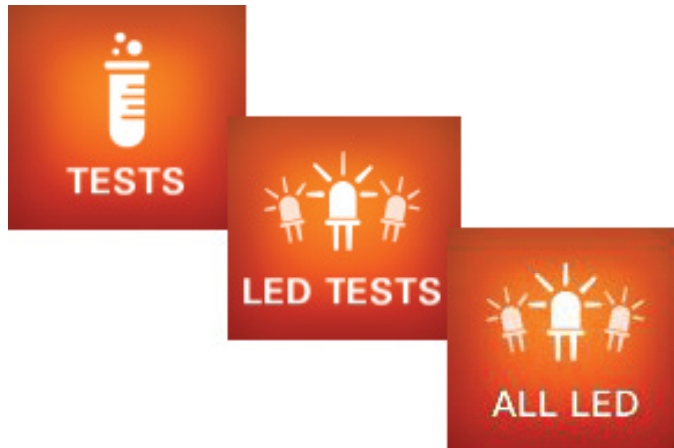
For this test, the RGB LEDs are listed in reverse hardware order (the reverse order that the RGB LED boards are physically connected to controller boards, under the playfield). The **Reverse Order LED Test** allows you to step through and test this entire chain, in reverse order, one LED at a time.

To exit the **Reverse Order LED Test** at any time, press the **Back/Escape** button.



Reverse Order LED Test screen.

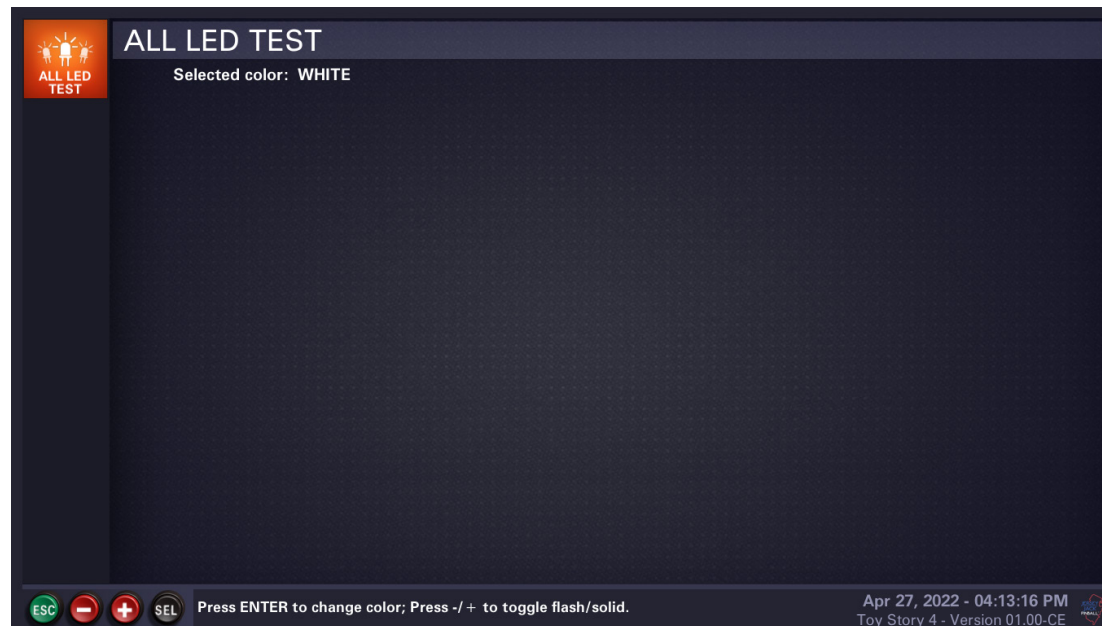




# All LED Test

When you enter the **All LED Test**, the LCD monitor will display the screen shown. The entire chain of RGB LEDs is lit at once. Initially, the LEDs are white and not flashing. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the LED string between flashing and constant-on.

To exit the **All LED Test** at any time, press the **Back/Escape** button.



All LED Test screen.

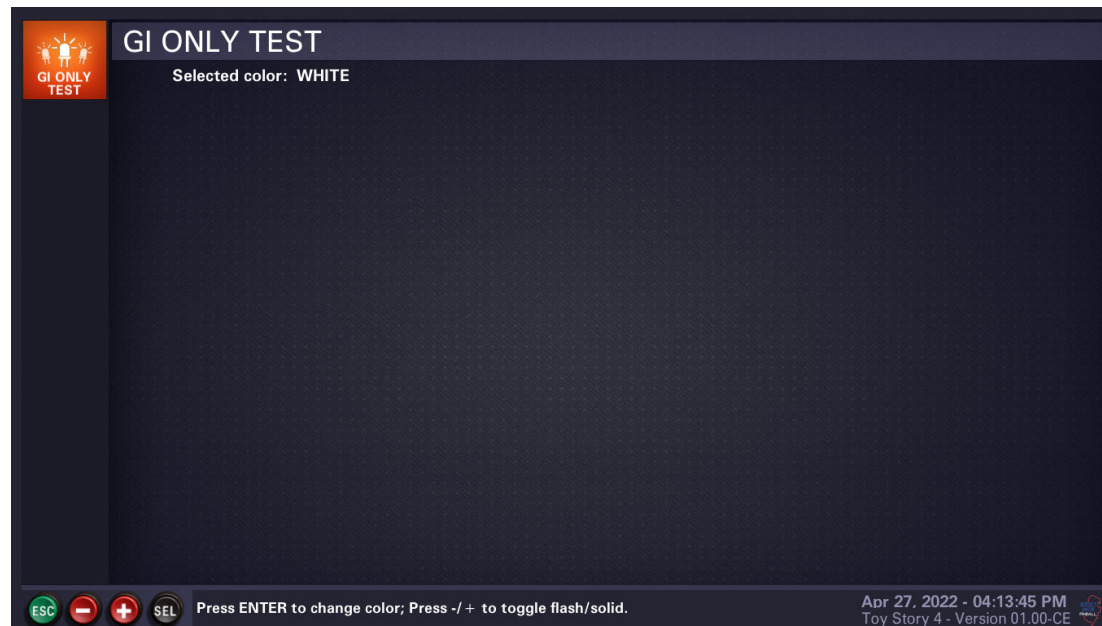




# GI Only Test

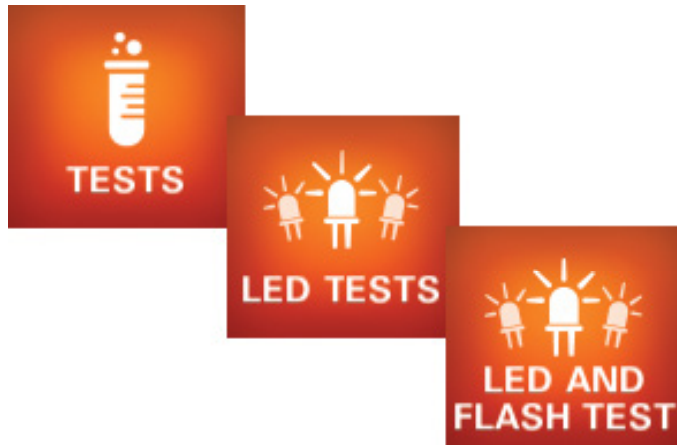
When you enter the **GI Only Test**, the LCD monitor will display the screen shown. All LEDs used for general illumination are lit at once. Initially, the LEDs are white and not flashing. You can change the GI color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the GI LEDs between flashing and constant-on.

To exit the **GI Only Test** at any time, press the **Back/Escape** button.



GI Only Test screen.

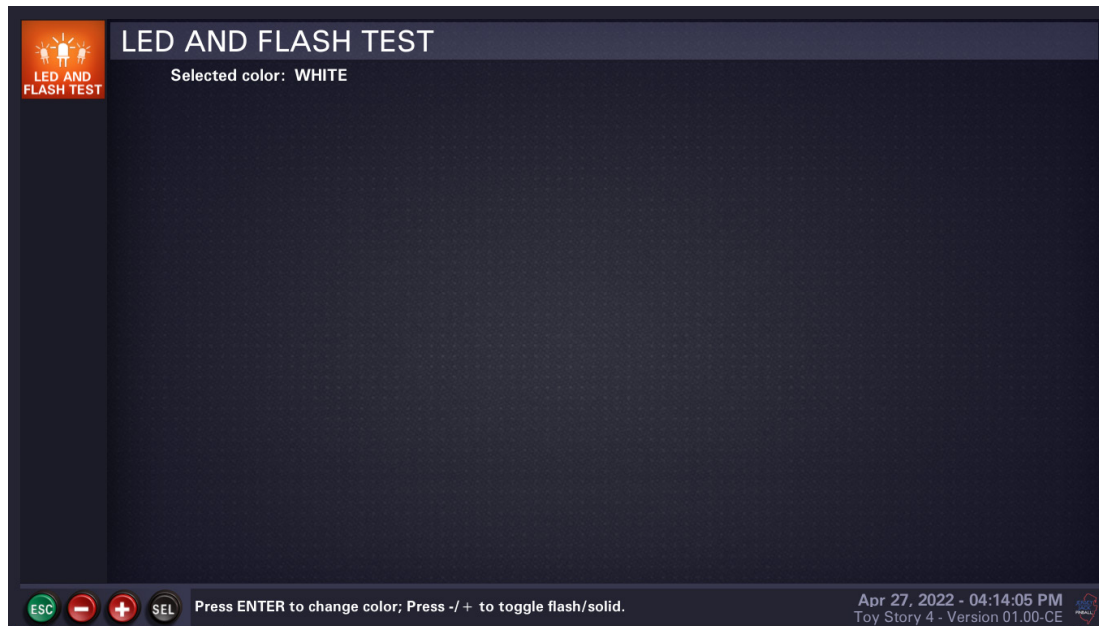




# LED And Flash Test

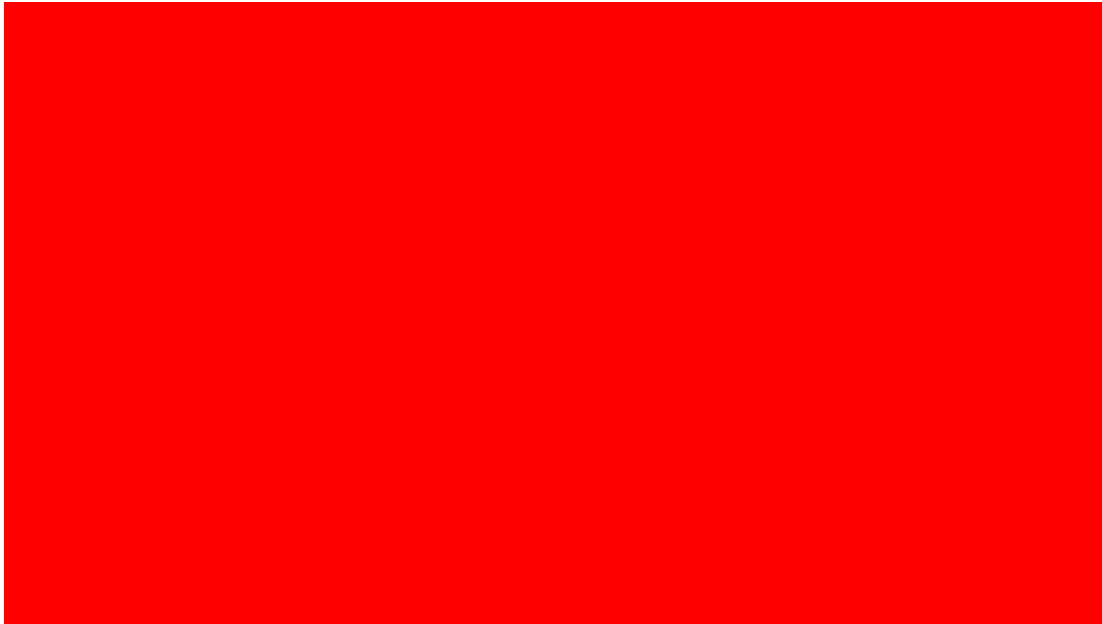
When you enter the **LED And Flash Test**, the LCD monitor will display the screen shown. All RGB LEDs and GI LEDs are lit at once. All CPU-controlled lights (spotlights, Start button light, etc.) are flashing. Initially, the RGB and GI LEDs are white and not flashing. You can change the color of the RGB LEDs to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the RGB and GI LEDs between flashing and constant-on.

To exit the **LED And Flash Test** at any time, press the **Back/Escape** button.



LED And Flash Test screen.





Display Test screens.

# Display Test

When you enter the **Display Test**, the LCD monitor will display an edge-to-edge red screen, as shown at left. You can change the full-screen color to green, blue then white by pressing the **Up/+**, **Down/-** or **Enter** button three times. Pressing one of these buttons again will fill the screen with a white grid against a black background; once more will change the grid to black against a white background.

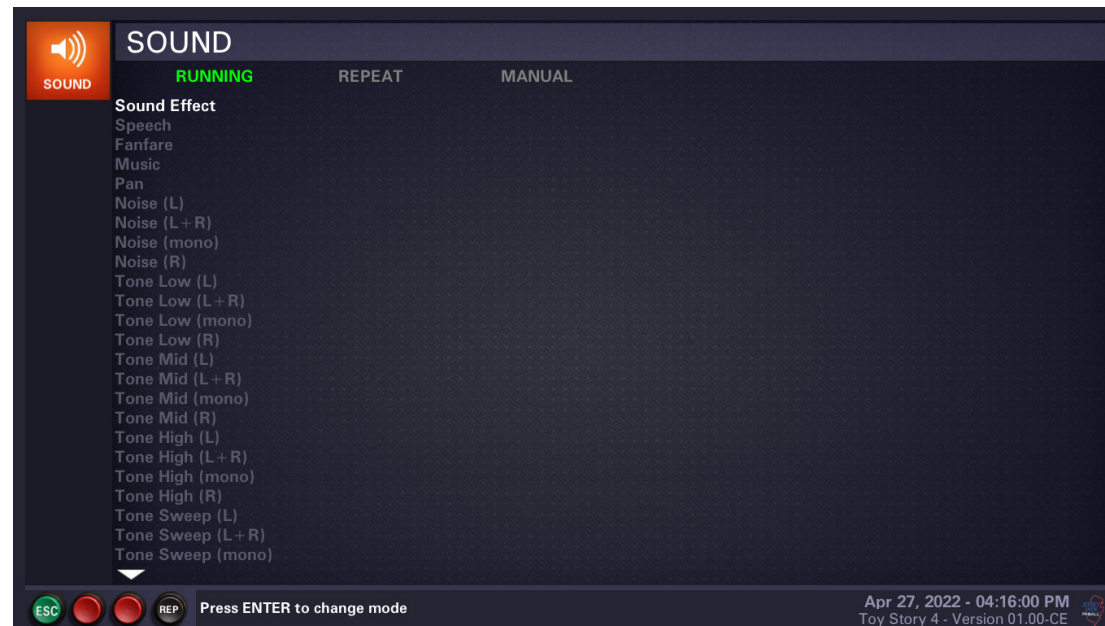
The color screens allow you to test the LCD monitor's color saturation performance, from edge to edge. The grids allow you to test image alignment on the monitor.

To exit the **Display Test** at any time, press the **Back/Escape** button.





# Sound Test



Sound Test screen.

When you enter the **Sound Test**, the LCD monitor will display the screen shown. The list of programmed test sounds is displayed.

There are three different modes for testing sounds: **RUNNING**, **REPEAT** and **MANUAL**. The current mode is highlighted in green text at the top of the screen; you change the current mode by pressing the **Enter** button. In **RUNNING** mode, the game automatically cycles through the list, playing each sound once. In **REPEAT** mode, you scroll through the list (using the **Up/+** and **Down/-** buttons) and select a specific sound; the game then repeatedly plays it. In **MANUAL** mode, you select a specific sound in the list and trigger it yourself using the **Start** button on the front of the cabinet.

To exit the **Sound Test** at any time, press the **Back/Escape** button.





# Ball Trough Test

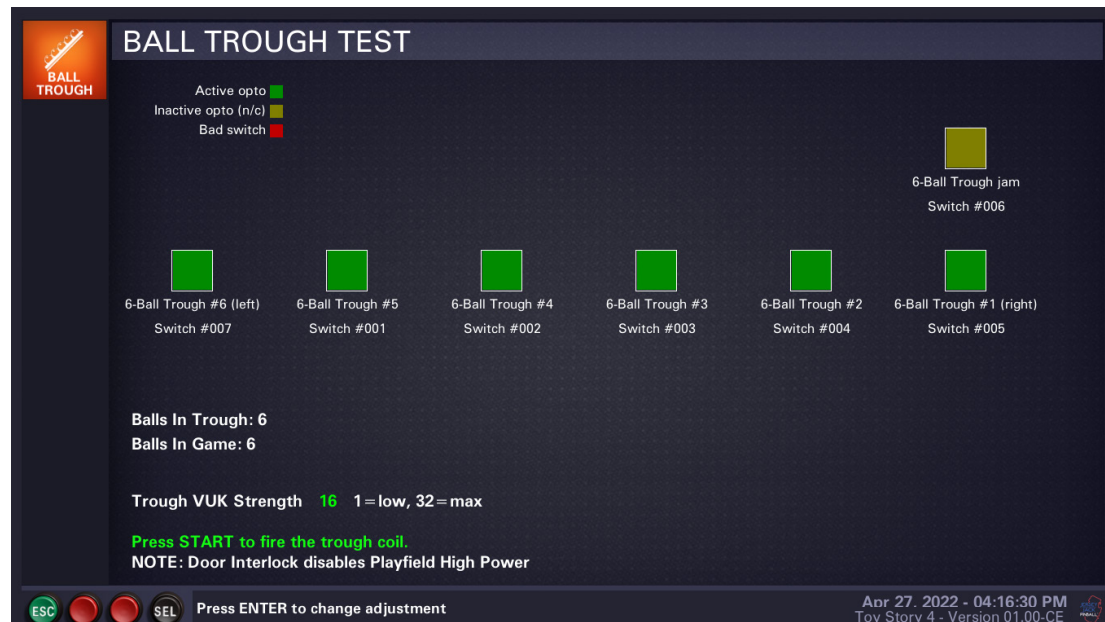
When you enter the **Ball Trough Test**, the LCD monitor will display the screen shown. The squares on the screen represent the current states of the seven opto switch transmitter/receiver pairs in the ball trough mechanism, under the lower part of the playfield. There are six opto switches in the bottom of the trough (labeled “#1” to “#6”) and one higher, in the neck of the trough VUK (labeled “jam”). A green square represents a blocked opto switch, typically caused by a ball in that position. A tan square represents an unblocked opto switch (no ball in that position). A red square represents a bad switch (a switch that has been inactive for approximately 60 balls played). For reference, corresponding matrixed switch numbers are shown under each square.

You can use the **Start** button to fire the trough VUK. The rightmost ball in the trough will be kicked into the shooter lane, then auto-launched up the playfield. Most of the high power coils will be enabled, so slingshots, pop bumpers, VUKs and flippers (if activated by the flipper buttons) will kick a ball around as it rolls down the playfield - **so be careful with your fingers!** You can empty the trough, one ball at a time (catching each one before it returns to the trough), and test all of the opto switches in the process.

Note: When the coin door is opened, the game’s safety interlock switch disables the 70-volt power running to the playfield. To allow coils to function in the **Ball Trough Test**, you must either close the coin door or pull the safety interlock switch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

Press **Enter** to adjust the trough VUK strength setting. Use the **Up/+** and **Down/-** buttons to alter the highlighted strength value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from the VUK strength adjustment function without saving changes.

To exit the **Ball Trough Test** at any time, press the **Back/Escape** button.



Ball Trough Test screen.



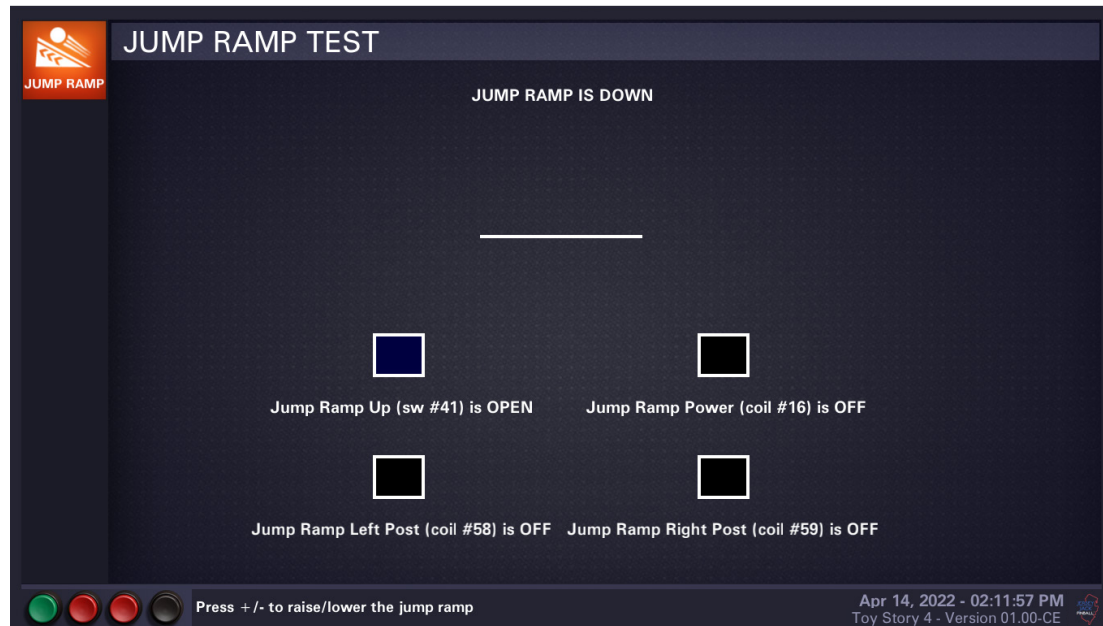


# Jump Ramp Test

The jump ramp test can be used to test the Caboom Jump Ramp feature and the Benson up posts. When you enter the Jump Ramp Test, the LCD monitor will display the screen shown. Each of the squares represents the current state of a switch or coil used as part of the Jump Ramp game feature. The top left squares show the state of the Jump Ramp Up switch. The upper right square shows the state of the Jump Ramp Power Coil that is used to raise the jump ramp. The bottom squares show the state of the Jump Ramp Left and Jump Ramp Right coils that raise the Benson Posts. A green square indicates that the switch is closed or the coil is activated; a transparent square indicates the switch is open or the coil is off.

To test the Jump Ramp feature, press the **Up/+ button** to energize all three coils. This should cause the Caboom Jump Ramp and the two Benson posts to raise and stay up. Press the **Down/- button** to turn off all three coils. This should allow the jump ramp and Benson posts to release and drop flush with the playfield. When the ramp is up, the Jump Ramp Up switch should be closed (green); when the ramp is down, the Jump Ramp Up switch should be open (clear). When up, the jump ramp should be able to hold the ramp up to support the ball rolling over the ramp and to the upper playfield. When down, the ramp should be flush to the playfield and not cause the ball to hop when rolled over.

Note: When the coin door is opened, the game's safety interlock switch (the upper switch inside the coin door) disables the 70-volt power running to the playfield. To allow coils to function in the Jump Ramp Test, you must either close the coin door or pull the safety interlock switch's actuator out (it will "click" and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position. To exit the Jump Ramp Test at any time, press the **Back/Escape button**.



Jump Ramp Test screen.



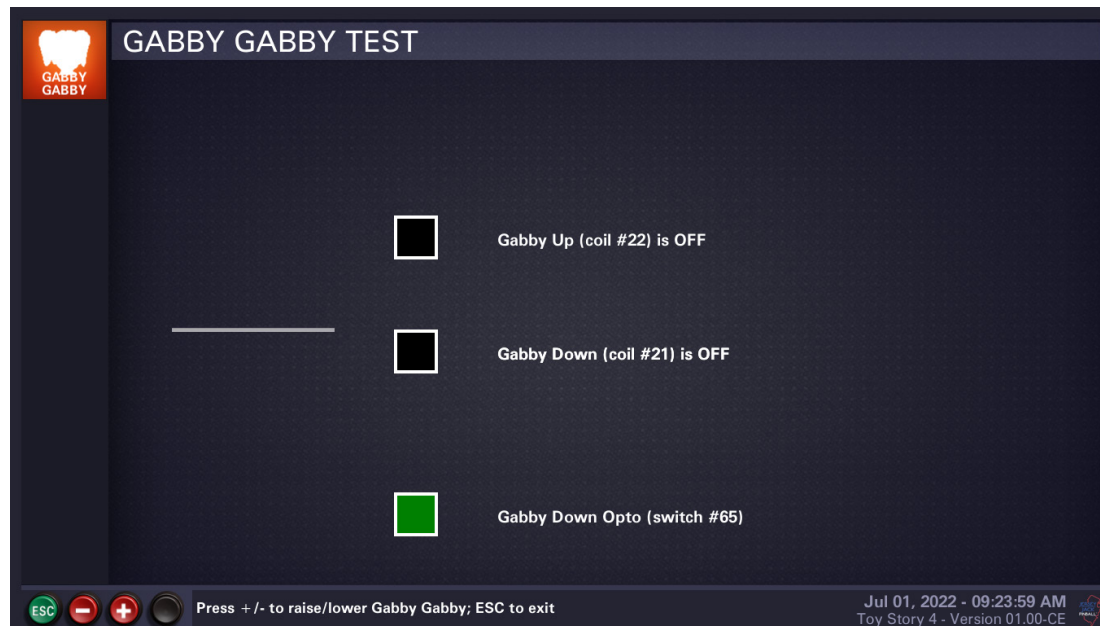


# Gabby Gabby Test

The Gabby Gabby test can be used to test the Gabby Gabby target feature at the center of the playfield. When you enter the Gabby Gabby Test, the LCD monitor will display the screen shown. The top two squares represent the current state of the gabby up and down coils. These will turn red when the coils are active and are clear when the coils are off. The bottom square represents the state of the Gabby opto. This square will be green when the opto is active (blocked) and light tan when the opto is inactive (not blocked).

To test the Gabby Gabby feature, press the **Up/+ button** to energize the Gabby Up coil. This should cause Gabby Gabby raise and stay up. The coil should only activate long enough to raise Gabby. Press the **Down/- button** to energize the Gabby Down coil and allow Gabby Gabby to return to the down position. The Gabby Down coil should only activate long enough to release the Gabby Gabby mechanism. When Gabby Gabby is up, the Gabby Switch should be inactive (light tan). When Gabby Gabby is down, the Gabby Down Opto Switch should be active (green)

Note: When the coin door is opened, the game's safety interlock switch (the upper switch inside of the coin door) disables the 70-volt power running to the playfield. To allow coils to function in the Gabby Gabby Test, you must either close the coin door or pull the safety interlockswitch's actuator out (it will "click" and lock in place). When you close the coin door, the interlockswitch actuator will be pushed back into its normal (unlocked) position. To exit the Gabby Gabby Test at any time, press the **Back/Escape button**.



Gabby Gabby Test screen.





# Left Lockup Test

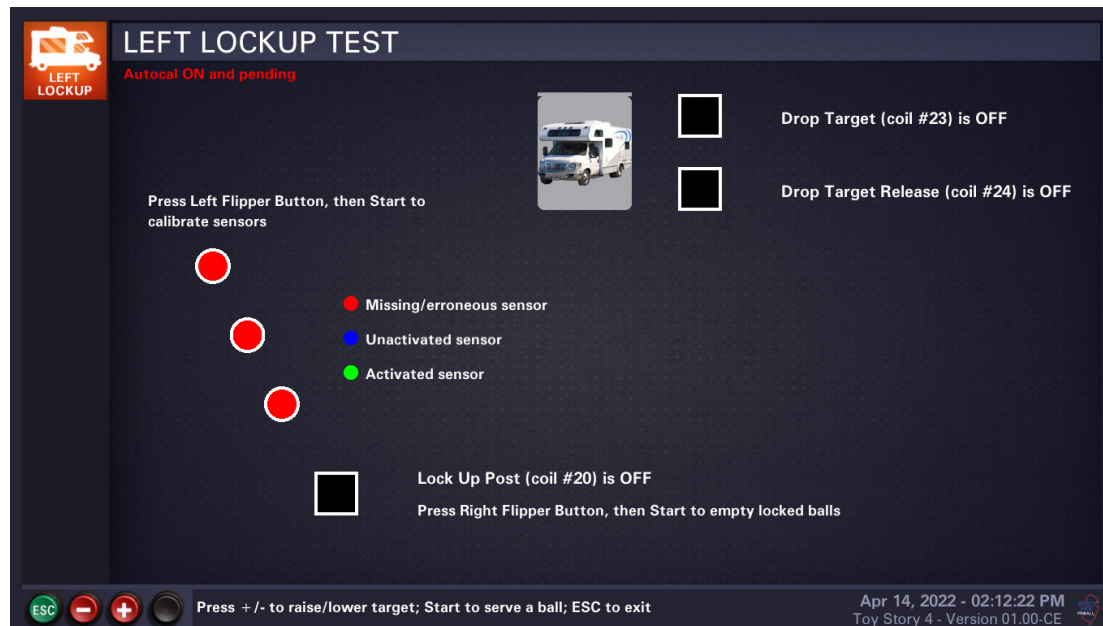
This test is used to check the operation of the Left Lockup (or RV Lockup) system. This includes the Drop Target coil, Drop Target Release coil. The Lockup #1, Lockup #2, Lockup #3 sensors and the Lock Up Post coil.

When you enter the Left Lockup Test, the LCD monitor will display the screen shown. The top right area shows the status of the drop target. The squares will show green when the coils are active and clear when the coils are off. When the RV graphic is shown, the drop target should be up. To test the drop target, press the **UP/+ button** to activate the Drop Target coil and raise the drop target. Press the **DOWN/- button** to activate the Drop Target Release coil and lower the drop target. The coils should only activate long enough to move the drop target.

The left three circles show the status of the Lockup sensors. This section functions similar to the Sensor Test. A Green circle indicates an active sensor (ball detected). A blue circle indicates an unactivated sensor (ball not detected). A red circle indicates an error with the sensor. The sensors should be calibrated before testing or if any sensors show red circles. You can calibrate the sensors by holding the left flipper and then pressing the start button. The test will ask you to verify that all of the balls have been removed from the sensor area. Pressing the start button again will begin the calibration. To test the sensors, use the **DOWN/- button** to lower the drop target. Then, roll a ball into the lockup area. The circles should show green as a ball passes by the sensors.

The bottom square indicates the status of the Lock Up Post coil. This square will show green when the coil is active and clear when the coil is inactive. When a ball is seen at the Lockup #1 sensor, the Lock Up Post coil will activate and pull the post down, releasing the ball.

Note: When the coin door is opened, the game's safety interlock switch (located inside of the coin door) disables the 70-volt power running to the playfield. To allow coils to function in the Left Lockup Test, you must either close the coin door or pull the safety interlock switch's actuator out (it will "click" and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position. To exit the Left Lockup Test at any time, press the **Back/Escape button**.



Left Lockup Test screen.





# Sensor Test & Calibration

When you enter the **Sensors Test**, the LCD monitor will display the screen shown. The three circles represent the sensors in the Left Lock RV playfield feature. These sensors are used in place of traditional switches.

With no ball above the sensor, the sensor will display a blue circle on the test screen, if a ball is placed above the sensor, the sensor will display a green circle on the test screen. Each sensor can be tested this way.

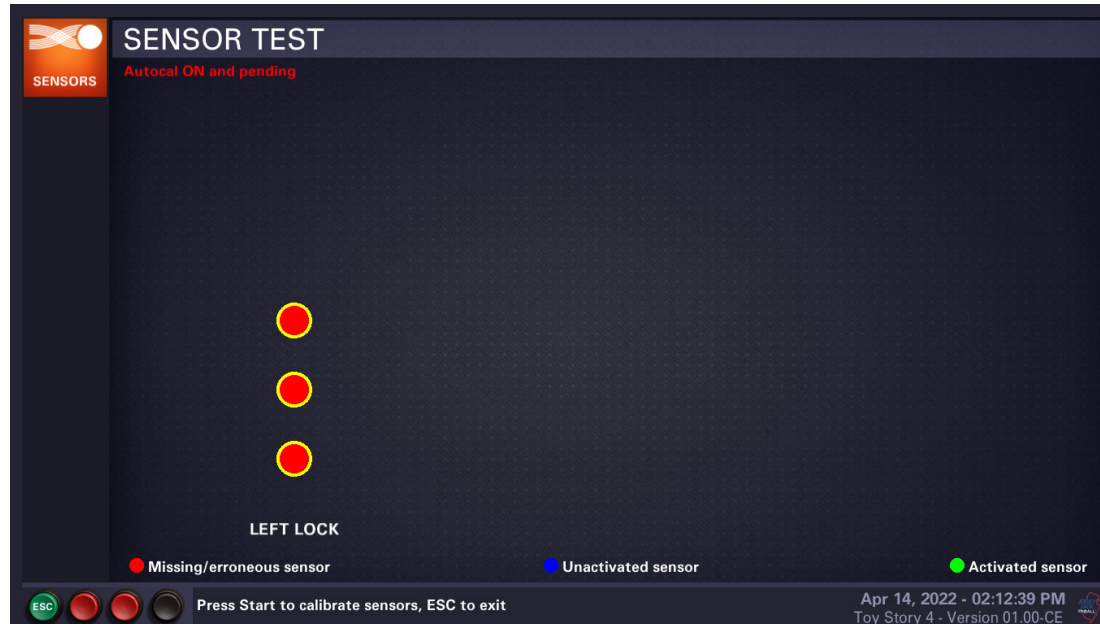
**Sensor Calibration:** If any of the sensors are red or not detecting the balls correctly, a re-calibration of the sensors will need to be performed.

Remove all the balls from all the sensor areas.

While still in the Sensor Test, press the START button. The sensor values should change and even fluctuate.

Re-test the sensors to ensure proper operation if the sensors are still not working properly, rerun the calibration process again until the sensors are working properly.

To exit the **Sensors Test** at any time, press the **Back/Escape** button.



Sensors Test screen.



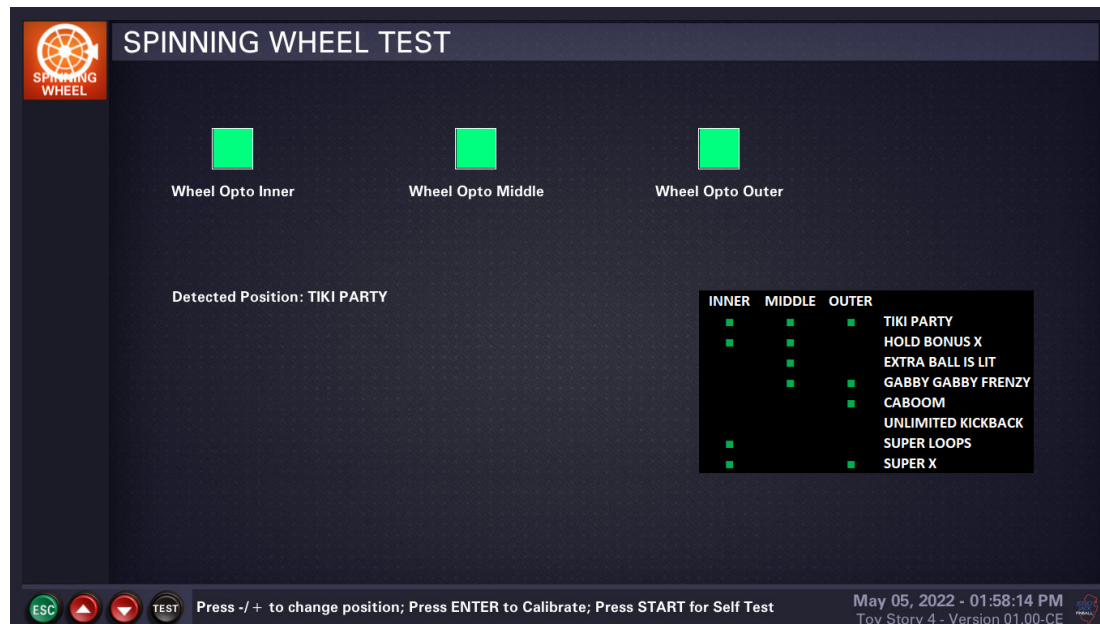


# Spinning Wheel Test

This test is used to check the operation of the Take a Chance spinning wheel playfield feature. When you enter the Spinning Wheel Test, the LCD monitor will display the screen shown. The top three squares represent the current state of the optos on the spinning wheel mechanism. These will turn green when the optos are active (blocked) and are clear when optos are inactive (not blocked). The game uses the state of these three optos to determine the current position of the wheel and the direction it is spinning. The Detected Position shows the wheel award position that the game has detected. The chart shown on the bottom right of the monitor lists the opto states for each of the eight wheel award positions.

To test the Spinning Wheel, press the **Start button** to activate the Self Test. This will start the wheel spinning for about 90 seconds. The wheel will spin at different speeds and directions. Once the Self Test is complete, the monitor will show Test Passed or Test Failed. You can manually test the wheel by pressing the **UP/+ or Down/- buttons**. These will cause the wheel to spin for a few revolutions and then stop on the next or previous award shown on the chart. You can also carefully turn the wheel by hand to verify that the correct optos are lit at each of the eight awards on the wheel

To exit the **Spinning Wheel Test** at any time, press the **Back/Escape** button.



Spinning Wheel Test screen.



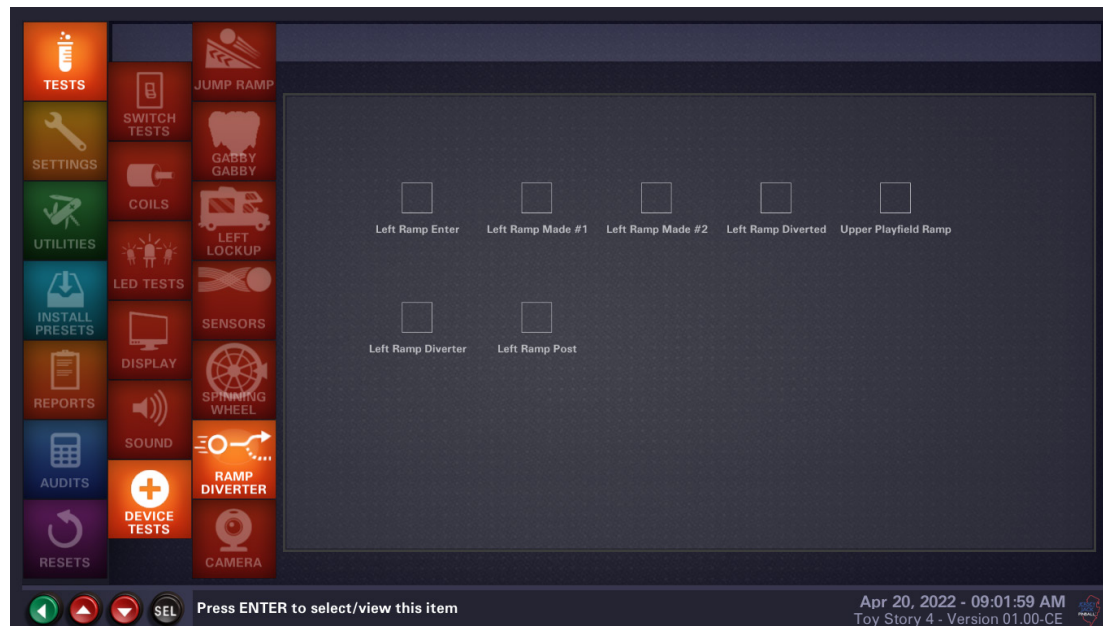


# Ramp Diverter Test

When you enter the Ramp Diverter Test, the LCD monitor will display the screen shown. Each of the Switches squares (at the top of the screen) represents the current state of a switch used as part of the Ramp Diverter game feature. The left three squares show the state of the three opto switches on the left ramp. The fourth square shows the state of the micro switch at the exit of the diverter on the ramp. The rightmost square shows the state of the opto on the upper playfield ramp, past the Star Adventurer entrance. A green square indicates an activated opto, microswitch or target switch (ball present); a transparent square indicates an open opto, microswitch (no ball present).

Each of the Coils squares (mid-screen) represents the current state of a coil used as part of the Ramp Diverter game feature. The left square shows the state of the Left Ramp Diverter coil and the right square shows the state of the Left Ramp Post coil. An orange square indicates a triggered coil; a transparent square indicates a coil at rest. The Coil squares will also indicate when the magnet coil is cooling with the word “COOL”. Note: The magnet coil cannot be triggered while it is cooling.

*(Instructions continue on following page)*



Ramp Diverter Test screen.



# Ramp Diverter Test



Fig. 1

To test the Ramp Diverter feature, use the **Start button** to kick a ball out of the trough (**fig 1**). It will be kicked onto the playfield by the auto-launch assembly. Catch it as it comes back down the playfield and roll it up the left ramp. The first time going up the ramp, the ball will roll around the ramp, activating the ramp entrance and made switches (the switch squares will briefly turn green). As the ball approaches the diverter, the Left Ramp Diverter coil will kick (its square will turn orange), deflecting the ball to the right return lane (**fig 2**). The second time going up the left ramp, the ball will not divert. The output from the ramp should alternate each time the ball is rolled up the left ramp. The diverter coil will go into COOL mode as soon as needed to prevent the coil from overheating while testing (**fig 3**).

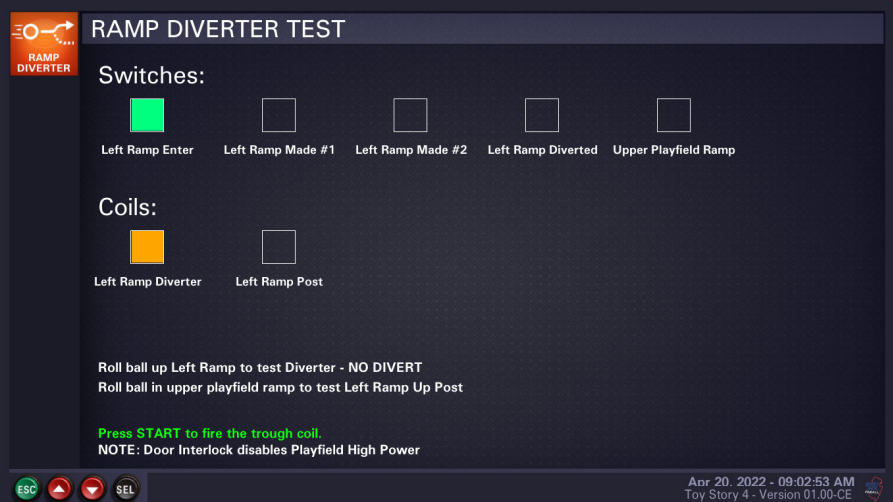


Fig. 2

You can test the Left Ramp Post feature, by rolling the ball on the upper playfield through the Star Adventurer entrance. The ball should trigger the Upper Playfield Ramp switch, the Left Ramp Made #1 and Left Ramp Made #2 switches. When the Left Ramp Made #1 switch is triggered, the Left Ramp Post coil should fire (its square will turn orange) and raise the post to trap the ball on the ramp (**fig 3**). After a few seconds, the coil will turn off and lower the post to release the ball. The Left Ramp Post coil will go into COOL mode as needed to prevent the coil from overheating while testing.

Note: When the coin door is opened, the game’s safety interlock switch (the upper switch inside of the coin door) disables the 70-volt power running to the playfield. To allow coils to function in the Ramp Diverter Test, you must either close the coin door or pull the safety interlockswitch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlockswitch actuator will be pushed back into its normal (unlocked) position.

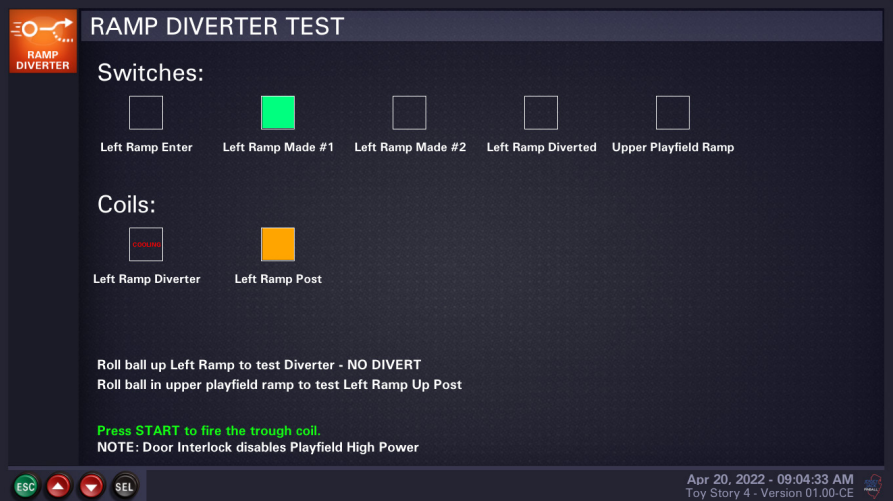
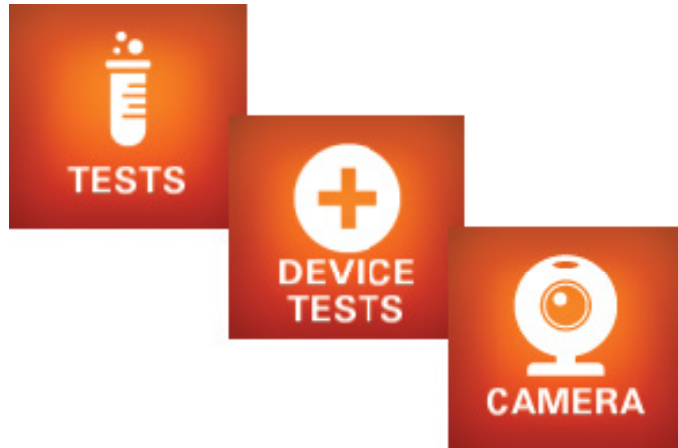


Fig. 3

To exit the **Ramp Diverter Test** at any time, press the **Back/Escape** button.



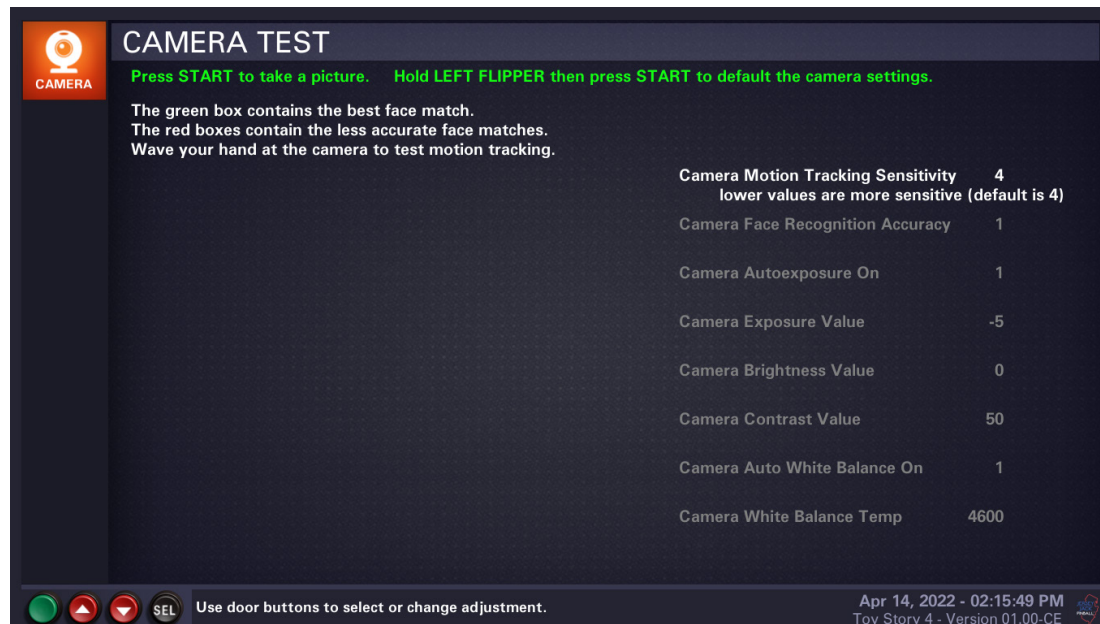


# Camera Test

When you enter the **Camera Test**, the LCD monitor will display a screen similar to that shown. A large window on the left side of the screen will show what the game's camera (in the lower, center area of the backbox) currently "sees". Within that window, a green box will be placed around (what the software determines to be) the "best match" for a person's face. Red boxes will be placed around (what the software determines to be) "less accurate" face matches. You can wave your hand around to test motion detection. When the software recognizes your hand moving, the words "MOTION DETECTED" will appear, in green, in the center of the screen.

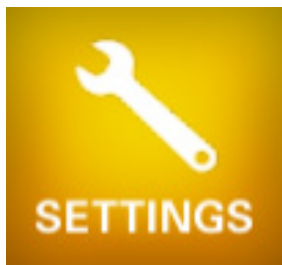
You select a sensitivity control to adjust (motion tracking or face recognition) with the **Up/+** and **Down/-** buttons. The currently selected control will be highlighted in white text. To make a change, press the **Enter** button, then use the **Up/+** and **Down/-** buttons to specify a new numeric value. You are providing relative sensitivity levels for the software to use to recognize faces and detect motion. The game software will apply these levels to the camera image data during game play in order to implement special features. Once you're finished adjusting a numerical value, press the **Enter** button once again to apply the change. To cancel the change, press the **Back/Escape** button.

To exit the **Camera Test** at any time, press the **Back/Escape** button.

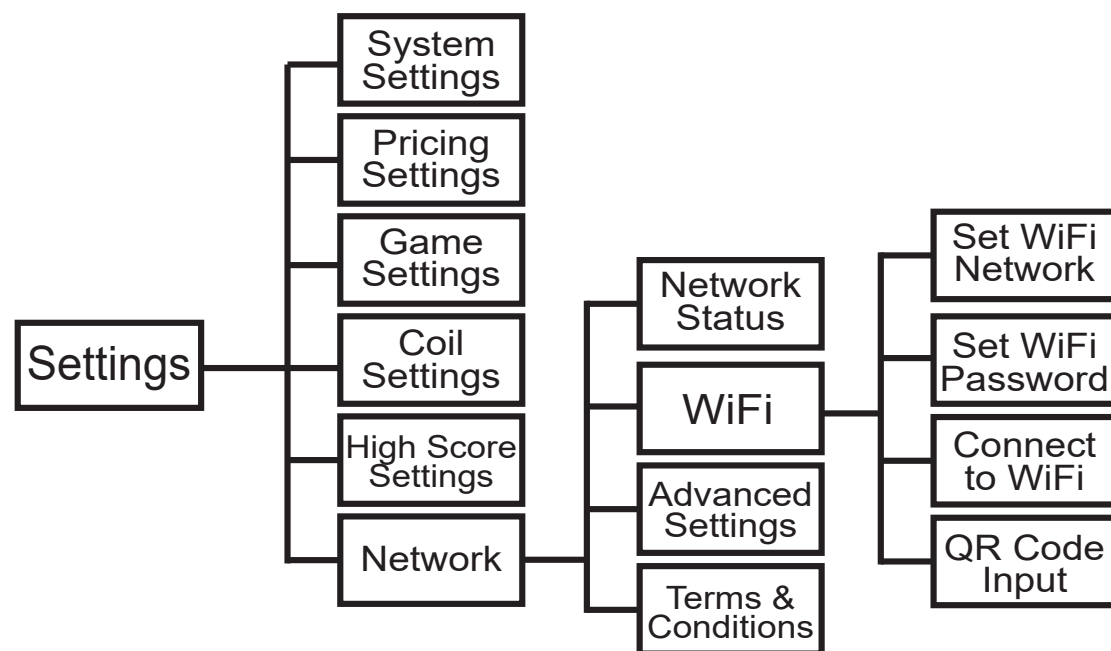


Camera Test screen.





# Settings



Settings menu tree.

The **Settings** menu allows the user to adjust system, pricing, game, coil and high score settings, to personalize the game (home use) or optimally configure it for a location or route (commercial use).

**System Settings** - adjust settings for high-level game controls such as balls per game, ball save time, tilt warnings, audio levels, match percentage and replay/scoring awards.

**Pricing Settings** - adjust settings for pricing controls such as free play, accepted currency, coin door specifics and pricing tiers/levels.

**Game Settings** - adjust game-specific settings such as Jackpot difficulties, Kickback & Extra Ball relight frequencies, and Mode, Bonus & Multiball difficulties.

**Coil Settings** - adjust kicking strength for virtually every coil in the game.

**High Score Settings** - adjust settings related to high scores such as whether the game will record them, what the award for high score will be, multiple player initials and default high scores.

**Network Settings** - adjust settings related to the WiFi and online game connectivity features





To exit the **System Settings** menu at any time, press the **Back/Escape** button.

**Game Play Type:** specify how the game will end: after a designated number of balls played or a designated amount of time.

Default: BALLS

**Ball Play Type:** specify how extra balls will be played during a game. With the BALLS IN PLAY option, extra balls will be played immediately after the ball on which they are earned. With the BALLS IN RESERVE option, earned extra balls will be held until the end of the game, with players continuing to take turns playing one ball at a time until all balls in reserve have been played.

Default: BALLS IN PLAY

**Balls Per Game:** specify the number of balls each player gets to play within a single game.

Default: 3 balls

**Time Per Game:** specify how long a game will last.

Default: 45 seconds





**Timed Game Over Type:** specify how a timed game will end.  
*INSTANT DEATH:* game ends when timer reaches zero. Default: INSTANT DEATH  
*SUDDEN DEATH:* game ends when timer reaches zero and the ball in play drains.  
*SUDDEN TIMER:* game ends when timer reaches zero and the Sudden Death Timer reaches zero.

**Sudden Death Timer:** specify the amount of sudden death time.  
*2-15:* 2-15 seconds Default: 10 seconds

**Ball Save Time:** specify the time, from ball launch, up to which the game will Auto-Launch a replacement ball into play, if a player’s ball drains for any reason (except a tilt).  
*OFF:* ball save feature disabled Default: 6 seconds  
*1-20:* 1-20 seconds

**Money-In Auto-Start:** specify whether the game will begin immediately when a credit equivalent, in money, has been inserted or not.  
*ON:* begin game immediately Default: OFF  
*OFF:* do not begin immediately

**Auto-Launch Timeout:** specify whether the game will auto-launch a served ball from the shooter lane, after a designated period of time or not.  
*30, 60, 90:* 30, 60 & 90 second auto-lanch Default: OFF  
*OFF:* never auto-launch a served ball

**Flipper Auto-Launch:** specify whether the flipper buttons can be used to launch a served ball into play or not.  
*LEFT FLIPPER:* left button launches ball Default: OFF  
*RIGHT FLIPPER:* right button launches ball  
*EITHER FLIPPER:* either button launches ball  
*BOTH FLIPPERS:* both buttons, simultaneously pressed, launch ball  
*OFF:* flipper buttons don't launch ball

**Competition Mode:** specify whether the game will give random awards and allow carry-over features during gameplay or not.  
*ON:* no random awards or carry-over features Default: OFF  
*OFF:* allow random awards and carry-over features

**Chase Ball:** specify whether or not a chase ball will be auto-launched into play when ball search cannot locate the ball in play.  
*ON:* use a chase ball Default: ON  
*OFF:* do not use a chase ball

**Game Restart:** specify how the game responds to the start button being pressed in the middle of a game already in progress.  
*NEVER:* never restart the game Default: NEVER  
*SLOW:* restart the game only if the start button is held in for 1/2 second or more

**Player Addable:** specify when a new player can join a game already in progress. This setting is only available when *BALLS IN RESERVE* is selected as the **Ball Play Type** above.  
*ALWAYS:* new player can join anytime Default: *BEFORE LAST BALL*  
*BEFORE LAST BALL:* new player can only join before last ball begins

**LED Brightness:** specify the intensity level of LEDs under the playfield inserts.  
*LOW:* lowest intensity Default: NORMAL  
*LOWER:* low-medium intensity  
*NORMAL:* medium intensity  
*HIGH:* highest intensity

**Match Percentage:** specify the desired percentage of games, on average, that will be awarded a match at the end.  
*OFF:* no match feature Default: 5%  
*1-20:* 1-20%

**Special Award:** specify the award for scoring a Special during a game.  
*FREE GAME:* a free game Default: FREE GAME  
*EXTRA BALL:* an extra ball  
*POINTS:* a predefined number of points



TEST REPORT

**Display Error Dot:** specify whether to display an error dot on the LCD screen when the game detects a potential problem or not.

- YES: display an error dot Default: NO
- NO: do not display an error dot

**Test Report at Power On:** specify whether or not to display a Test Report Message on the LCD screen, at power on, when the game detects a potential problem.

- YES: display a Test Report Message Default: YES
- NO: do not display a Test Report Message

STATUS REPORT

**Status Report Start Time:** specify how long the player has to hold a flipper down before a game Status Report is displayed.

- 6-10: 6-10 seconds Default: 6 seconds

**Status Report Display Time:** specify how long each page of the Status Report is displayed.

- 6-20: 6-20 seconds Default: 6 seconds

KNOCKER

**Knocker Strength:** specify the knocker's kick strength.

- NORMAL: normal kick strength Default: NORMAL
- LOW: low kick strength

**Knocker Control:** specify whether to allow the knocker to kick or not.

- ON: always use the knocker Default: ON
- OFF: disable the knocker
- SOMETIMES: occasionally use the knocker

EXTRA BALLS

**Game Extra Ball Limit:** specify the maximum number of extra balls that can be won in any game.

- 1-9: 1-9 extra balls Default: Unlimited
- Unlimited: unlimited extra balls
- No Extra Balls: no extra balls

**Stacked Extra Ball Limit:** specify the maximum number of extra balls that can be stacked by a player at any time during a game.

- 1-9: 1-9 extra balls Default: Unlimited
- Unlimited: unlimited extra balls
- No Extra Balls: no extra balls

TILT

**Tilt Warning Type:** specify whether tilt warnings accumulate per ball or per game.

- PER BALL: accumulate per ball Default: PER GAME
- PER GAME: accumulate per game

**Tilt Warnings:** specify the number of warnings issued before the game tilts.

- 0-10: 0-10 warnings Default: 2 warnings

SOUND

**Master Volume:** specify the overall volume level for the game.

- 0-50: 0-50 level Default: 26 level

**Front Panel Headphone Volume:** specify the headphone volume level for the game.

- 0-50: 0-50 level Default: 26 level

**Front Panel Volume Control:** specify whether the cabinet front controls will change the master volume level or not.

- ON: controls change master volume Default: W/FREE PLAY
- OFF: controls do not change master volume
- W/FREE PLAY: controls only change master volume in free play

**Volume Effect Intensity:** specify the intensity of volume effects (multiplies volume units).

- 1-5: 1-5 Default: 1

**Maximum Volume Effect:** specify how extra-loud the game can get, in volume units.

- 1-20: 0-50 level Default: 5 units
- OFF: not used



**Music Mix:** Specify the gain for the music in the game.  
0-125: 0-125 Default: 75

**Speech Mix:** Specify the gain for the speech sounds in the game.  
0-125: 0-125 Default: 75

**Fanfare Mix:** Specify the gain for the fanfares in the game.  
0-125: 0-125 Default: 75

**FX Mix:** Specify the gain for the sound effects (FX) in the game.  
0-125: 0-125 Default: 75

**Attract Mode Sounds:** Specify whether the game will play sounds during attract mode or not.  
ON: Play sounds Default: ON  
OFF: Do not play sounds

**Attract Mode Music:** specify whether the game will play music during attract mode or not.  
ON: Play music Default: OFF  
OFF: Do not play music

**Attract Mode Motion Sounds:** Specify whether the game will play attract mode sounds when motion is detected by the camera or not.  
ON: play attract mode sounds Default: ON  
OFF: do not play attract mode sounds

**REPLAY AWARDS**

**Replay:** Specify whether the game will use the automatic replay award system or not.  
AUTO: use automatic replay award system Default: OFF  
OFF: no replay awards

**Replay Percent:** specify the desired replay percentage (Replay: AUTO only).  
1-30: 1-30% Default: 10%

**Replay Levels:** specify the number of scoring levels for replay awards (Replay: AUTO only). These Replay Scores will be set by the game. If configured, Replay Scores 2, 3 & 4 will be set at 2X, 3X & 4X the first Replay Score.  
1-4: 1-4 levels Default: 1 level

**Replay Award:** specify the award for achieving any replay level (Replay: AUTO only).  
FREE GAME: a free game Default: FREE GAME  
EXTRA BALL: an extra ball  
LIGHT SPECIAL: light the Special shot on the playfield  
AUDIT: no award, just record in Audits

**Replay Boost:** specify whether to temporarily boost replay levels (when achieved) or not (Replay: AUTO only).  
ON: use replay boost Default: ON  
OFF: no replay boost

**Replay Score:** displays the current replay score, which is adjusted automatically by the game.

**SCORE AWARDS**

**Score Award Levels:** specify the number of score award levels. With the score award system, you can configure up to four fixed score Levels, along with specific awards for reaching each of those levels. You can also define and employ Score Award Boosts, if desired.  
0-4: 0-4 levels Default: 0 levels

**Score Level 1:** specify 1st score award level (Score Award Levels: 1-4 only).  
100000-1000000: 100,000-1,00,000 points Default: 500,000 points

**Score Level 2:** specify 2nd score award level (Score Award Levels: 2-4 only).  
1000000-2000000: 1,000,000-2,000,000 points Default: 1,500,000 points

**Score Level 3:** specify 3rd score award level (Score Award Levels: 3-4 only).  
2000000-4000000: 2,000,000-4,000,000 points Default: 2,500,000 points

**Score Level 4:** specify 4th score award level (Score Award Levels: 4 only).  
4000000-8000000: 4,000,000-8,000,000 points Default: 5,000,000 points



**Score Award 1:** specify award for achieving score level 1 (Score Award Levels: 1-4 only).  
*FREE GAME:* a free game Default: EXTRA BALL  
*EXTRA BALL:* an extra ball  
*LIGHT SPECIAL:* light the Special shot on the playfield  
*AUDIT:* no award, just record in Audits

**Score Award 2:** specify award for achieving score level 2 (Score Award Levels: 2-4 only).  
*FREE GAME:* a free game Default: EXTRA BALL  
*EXTRA BALL:* an extra ball  
*LIGHT SPECIAL:* light the Special shot on the playfield  
*AUDIT:* no award, just record in Audits

**Score Award 3:** specify award for achieving score level 3 (Score Award Levels: 3-4 only).  
*FREE GAME:* a free game Default: EXTRA BALL  
*EXTRA BALL:* an extra ball  
*LIGHT SPECIAL:* light the Special shot on the playfield  
*AUDIT:* no award, just record in Audits

**Score Award 4:** specify award for achieving score level 4 (Score Award Levels: 4 only).  
*FREE GAME:* a free game Default: EXTRA BALL  
*EXTRA BALL:* an extra ball  
*LIGHT SPECIAL:* light the Special shot on the playfield  
*AUDIT:* no award, just record in Audits

**Score Award Boost:** specify whether to temporarily boost score levels (when achieved) or not (Score Award Levels: 1-4 only).  
*OFF:* no score level boost Default: OFF  
*10000-500000:* 10,000-500,000 point boost

**MONITOR**  
**Width Scale:** the width extent of the game’s LCD screen, in pixels (1000 is the maximum).  
**Height Scale:** the height extent of the game’s LCD screen, in pixels (1000 is the maximum).

**X Offset:** the left offset for the game’s LCD screen, in pixels.  
**Y Offset:** the top offset for the game’s LCD screen, in pixels.

**Player Menu**  
**Menu Enabled:** Enable or disable the player menu

**Bluetooth Enable:** Enable or disable the bluetooth menu

**Camera Enable:** Enable or disable the camera

**Competition Enable:** Enable or disable the competition menu



# Pricing Settings



When you enter the **Pricing Settings** menu, the LCD monitor will display the screen shown. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes.

To exit the **Pricing Settings** menu at any time, press the **Back/Escape** button.

## GENERAL

**Free Play:** specify whether the game will play for free or not.

- YES:* play for free Default: YES
- NO:* require currency for play

**Currency:** specify currency for the game to accept. Default values and currency labels under COIN DOOR and PRICING SCHEME headings change with different types of currency. Values and labels shown below are for Dollars currency.

- Dollars (\$):* Dollars Default: Dollars
- Euros (€):* Euros
- Pounds (£):* Pounds
- Yen (¥):* Yen
- Krone (kr):* Krone
- Krona (kr):* Krona
- Coins:* coins
- Tokens:* tokens
- Swipes:* card swipes through a reader
- Bills:* bills through a bill acceptor
- Frankens (Fr):* Frankens

**Money Limit:** specify the maximum amount of money the game can accept at any time.

- \$0.00:* Unlimited dollar amount Default: \$0.00
- \$0.01-\$100,000.00:* \$0.01-\$100,000.00

**Credit Limit:** specify the maximum number of credits the game can hold at any time.

- 0:* Unlimited credits Default: 0
- 1-100:* 1-100 credits



Pricing Settings screen.



COIN DOOR

**Coin Switch 1 Pulse Amount:** specify the amount of currency represented by one pulse from coin switch 1.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$0.25

**Coin Switch 2 Pulse Amount:** specify the amount of currency represented by one pulse from coin switch 2.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$0.25

**Coin Switch 3 Pulse Amount:** specify the amount of currency represented by one pulse from coin switch 3.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$0.25

**Coin Switch 4 Pulse Amount:** specify the amount of currency represented by one pulse from coin switch 4.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$0.25

**Coin Switch 5 Pulse Amount:** specify the amount of currency represented by one pulse from coin switch 5.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$0.25

**Card Reader Installed:** specify whether a card reader is installed in the game or not.

*YES:* card reader installed                      Default: NO

*NO:* no card reader installed

PRICING SCHEME

**Pricing Levels:** specify the number of desired pricing levels (or tiers).

*1-10:* 1-10 levels                      Default: 1 level

**Tier 1 Cost:** specify cost for pricing tier 1.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$1.00

**Tier 1 Credits:** specify the number of credits for pricing tier 1.

*1-100:* 1-100 credits                      Default: 1 credit

**Tier 2 Cost:** specify cost for pricing tier 2.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$2.00

**Tier 2 Credits:** specify the number of credits for pricing tier 2.

*1-100:* 1-100 credits                      Default: 2 credits

**Tier 3 Cost:** specify cost for pricing tier 3.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$3.00

**Tier 3 Credits:** specify the number of credits for pricing tier 3.

*1-100:* 1-100 credits                      Default: 3 credits

**Tier 4 Cost:** specify cost for pricing tier 4.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$4.00

**Tier 4 Credits:** specify the number of credits for pricing tier 4.

*1-100:* 1-100 credits                      Default: 4 credits

**Tier 5 Cost:** specify cost for pricing tier 5.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$5.00

**Tier 5 Credits:** specify the number of credits for pricing tier 5.

*1-100:* 1-100 credits                      Default: 5 credits

**Tier 6 Cost:** specify cost for pricing tier 6.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$6.00

**Tier 6 Credits:** specify the number of credits for pricing tier 6.

*1-100:* 1-100 credits                      Default: 6 credits

**Tier 7 Cost:** specify cost for pricing tier 7.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$7.00

**Tier 7 Credits:** specify the number of credits for pricing tier 7.

*1-100:* 1-100 credits                      Default: 7 credits

**Tier 8 Cost:** specify cost for pricing tier 8.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$8.00

**Tier 8 Credits:** specify the number of credits for pricing tier 8.

*1-100:* 1-100 credits                      Default: 8 credits

**Tier 9 Cost:** specify cost for pricing tier 9.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$9.00

**Tier 9 Credits:** specify the number of credits for pricing tier 9.

*1-100:* 1-100 credits                      Default: 9 credits

**Tier 10 Cost:** specify cost for pricing tier 10.

*\$0.01-\$100,000.00:* \$0.01-\$100,000.00                      Default: \$10.00

**Tier 10 Credits:** specify the number of credits for pricing tier 10.

*1-100:* 1-100 credits                      Default: 10 credits



# Game Settings

When you enter the **Game Settings** menu, the LCD monitor will display the screen shown. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes.

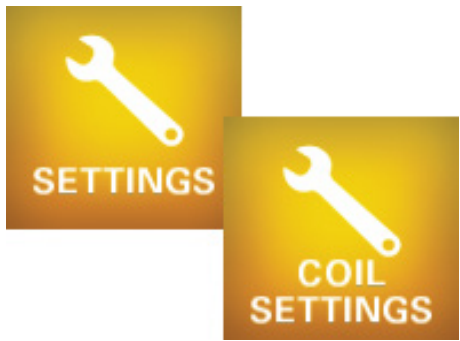
To exit the **Game Settings** menu at any time, press the **Back/Escape** button.

Please check game software for detailed setting descriptions!



Game Settings screen.





# Coil Settings

When you enter the **Coil Settings** menu, the LCD monitor will display the screen shown. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes.

From the **Coil Settings** menu, virtually every single coil strength in the game is adjustable. This feature allows the owner/operator to fine tune game play and operation for specific uses.

**CAUTION:** Be careful when adjusting the values in this menu; making certain coils too strong can result in breakage or excessive wear on certain parts of the game.

To exit the **Coil Settings** menu at any time, press the **Back/Escape** button.

Please refer to the next three pages for a listing of the coil settings and their default values.



Coil Settings screen.





# COIL SETTINGS

## JUMP RAMP

Left Flipper Strength For Jump	24	10 = low, 32 = max
Jump Ramp Fire Time	64	
Jump Ramp Fire Intensity	24	
Jump Ramp Hold Intensity	12	

## TROUGH

Trough VUK Strength	16
Auto-launch Strength	24
Trough: Restrict Kickout on Error	YES

## GENERAL

Kickouts: Restrict Kickout on Error	YES
Maximum Shaker Strength	MEDIUM

## FLIPPERS

Left Flipper Strength	20
Left Flipper Hold Strength	16
Right Flipper Strength	22
Right Flipper Hold Strength	16
Upper Right Flipper Strength	22
Upper Right Flipper Hold Strength	16

## BUMPERS

Left Bumper Strength	24
Right Bumper Strength	24
Bottom Bumper Strength	24
Top Bumper Strength	24



GREEN = default    RED = changed    GRAY = disabled







# COIL SETTINGS



## SLINGSHOTS

Left Slingshot Strength	35	pulse length in milliseconds
Right Slingshot Strength	35	

## KICKBACK

Kickback Strength	6
Kickback Delay	60

## LOCKUPS / KICKERS / EJECTS

Buzz Saucer Kicker Strength	8
Skill Shot Saucer Kicker Strength	10
Center Scoop VUK Kicker Strength	10
1-Ball kick time	250
2-Ball kick time	200
3-Ball kick time	180

## LOCKUP DROP TARGET

Drop Target Reset Strength	16
----------------------------	----

## GABBY GABBY MECH

Gabby Gabby up time	100
Gabby Gabby down time	64

## LEFT RAMP UP POST

Left Ramp Up-Post Fire Time	250
Left Ramp Up-Post Fire Intensity	32
Left Ramp Up-Post Hold Intensity	32

## LEFT RAMP DIVERTER

Left Ramp Diverter Fire Time	100
------------------------------	-----



GREEN = default   RED = changed   GRAY = disabled

Aug 09, 2022 - 09:51:15 AM  
Toy Story 4 - Version 01.00-CE







# COIL SETTINGS



Center Scoop VUK Kicker Strength	10
1-Ball kick time	250
2-Ball kick time	200
3-Ball kick time	180

## LOCKUP DROP TARGET

Drop Target Reset Strength	16
----------------------------	----

## GABBY GABBY MECH

Gabby Gabby up time	100
Gabby Gabby down time	64

## LEFT RAMP UP POST

Left Ramp Up-Post Fire Time	250
Left Ramp Up-Post Fire Intensity	32
Left Ramp Up-Post Hold Intensity	32

## LEFT RAMP DIVERTER

Left Ramp Diverter Fire Time	100
Left Ramp Diverter Fire Intensity	32
Left Ramp Diverter Hold Intensity	6

## BENSON POSTS

Left Benson Post Fire Time	100
Left Benson Post Fire Intensity	32
Left Benson Post Hold Intensity	32
Right Benson Post Fire Time	100
Right Benson Post Fire Intensity	32
Right Benson Post Hold Intensity	32

Diverter hold intensity (1 = weak, 32 = full)



GREEN = default   RED = changed   GRAY = disabled

Aug 09, 2022 - 09:51:51 AM  
Toy Story 4 - Version 01.00-CE







# High Score Settings

When you enter the **High Score Settings** menu, the LCD monitor will display the screen shown. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes.

To exit the **High Score Settings** menu at any time, press the **Back/Escape** button.

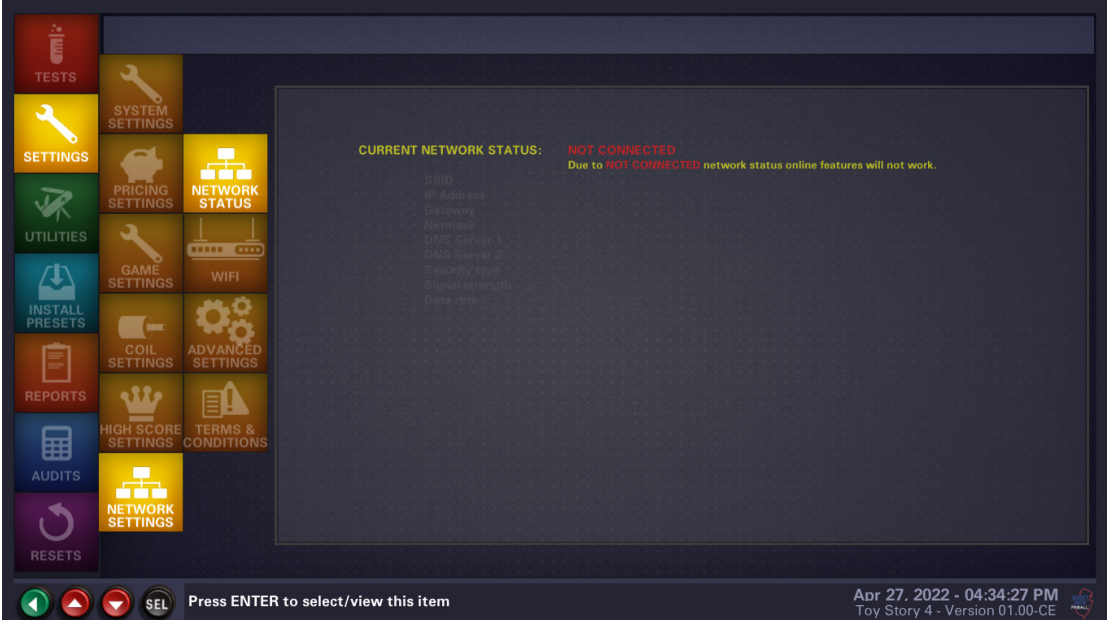


High Score Settings screen.



# Network Settings

Use the **NetWork Settings** utility to configure your games wireless internet connection and check for software updates.See page III (located after the Table of Contents) for more information on how to setup your WIFI connection.



Network Settings screen.



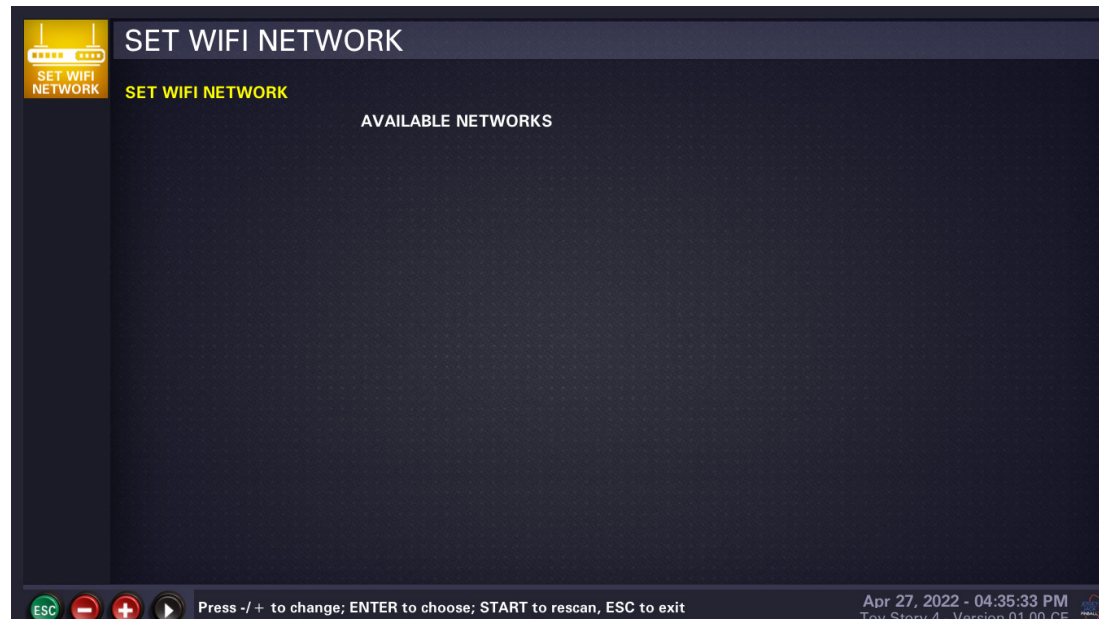


# Set WIFI Network

When you enter **Set WIFI Network Settings**, the LCD monitor will display the screen shown. Set WIFI Network is used to scan available WIFI networks.

Press the black **Enter** button to scan for available networks.  
Use the red **Up/+** and **Down/-** buttons to highlight the network you want to connect to. Select your network with the black **Enter** button.

Use the green **Back/Escape** button to Exit.



Set WIFI NetWork utility screen.





# Set WIFI Password

When you enter **Set WIFI Password Settings**, the LCD monitor will display the screen shown. Set WIFI Password is used to input the network password.

Use flipper buttons to change the character set.

Use black **Enter** button and green **Back/Escape** button to move cursor between characters.

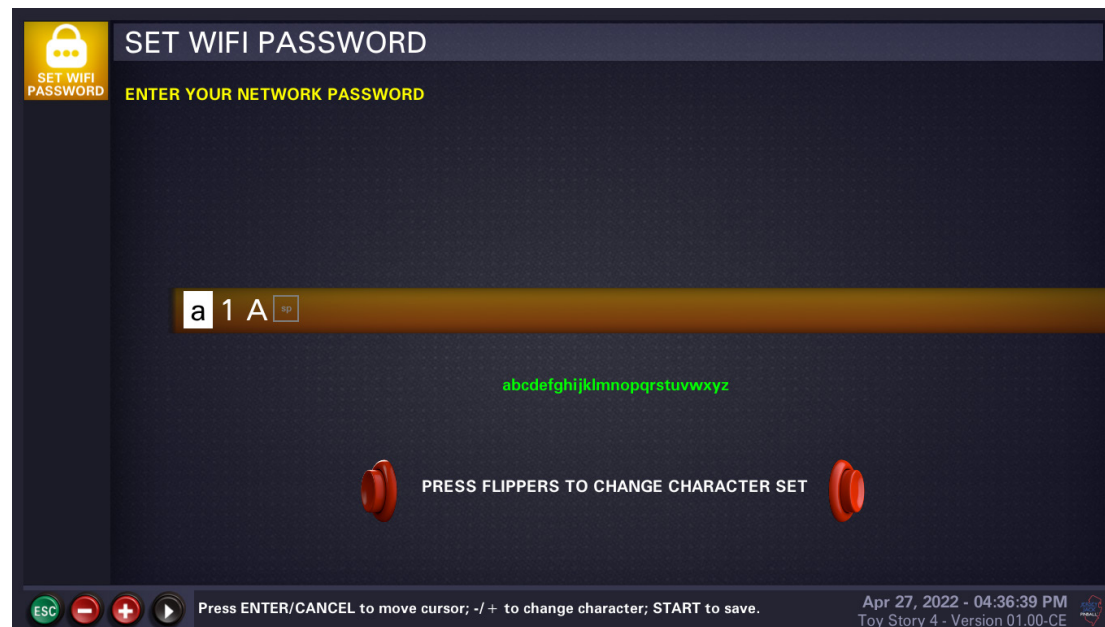
Use red **Up/+** and **Down/-** buttons to change characters within a character set.

Press “Start Button” to save password once you’re finished.

Press the black **Enter** button to scan for available networks.

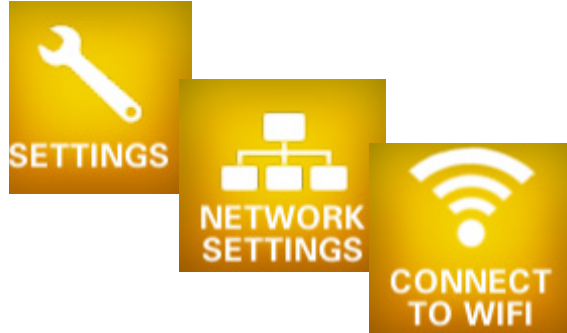
Use the red **Up/+** and **Down/-** buttons to highlight the network you want to connect to. Select your network with the black **Enter** button.

Use the green **Back/Escape** button to Exit.



Set WIFI Password Utility Screen.



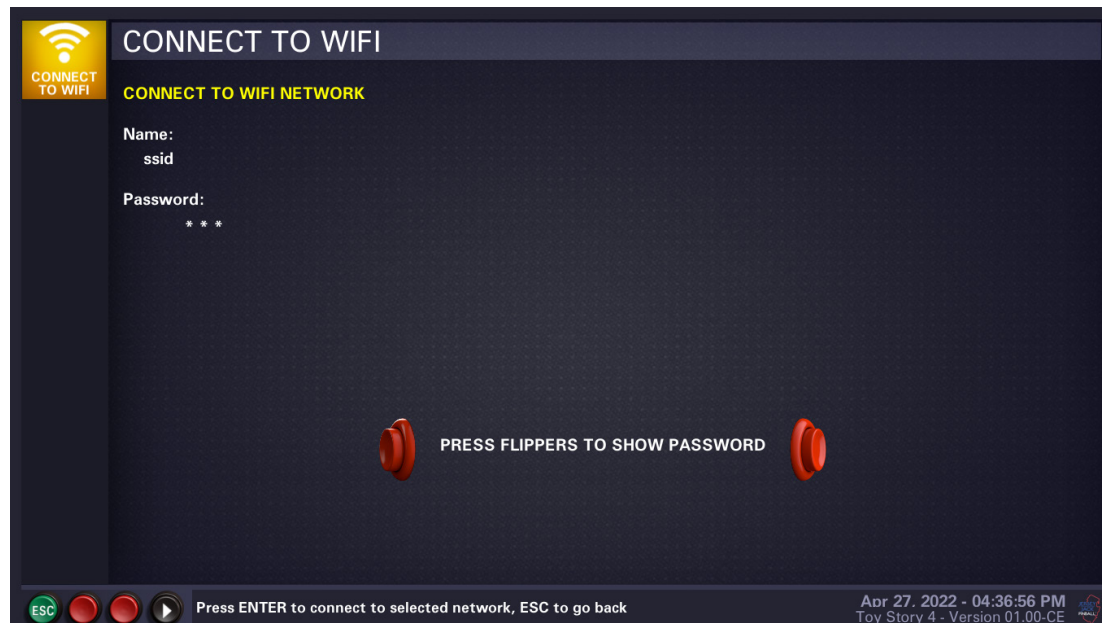


# Connect to WIFI

When you enter **Connect to WIFI Settings**, the LCD monitor will display the screen shown. Connect to WIFI Settings is used to connect to the network.

Use black **Enter** button to connect to the WIFI Network.  
Connected to Network “xxx” will be shown once connected to the network.

Use the green **Back/Escape** button to Exit.



Connect to WIFI utility screen.



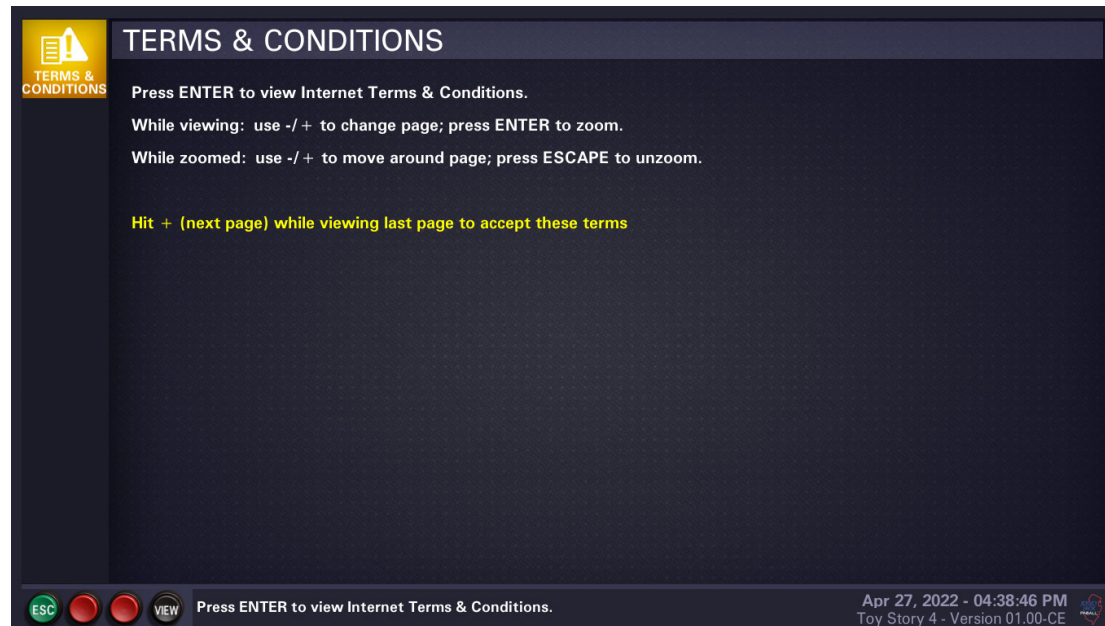


# Terms & Conditions

When you enter **Terms and Conditions**, the LCD monitor will display the screen shown.

Use red **Up/+** and **Down/-** buttons to scroll through the different T&C pages. Once all pages are viewed, “Terms Accepted” will be displayed.

Use the green **Back/Escape** button to Exit.



Terms and Conditions Utility Screen.





# Utilities

The **Utilities** menu allows the user to manage and maintain the game by setting the internal clock, entering messages/graphics and through commonly-used routines like burn-in and software update. There are also utility screens to save/restore settings and view this manual.

**Software Update** - Update your game software via WIFI or USB update methods.

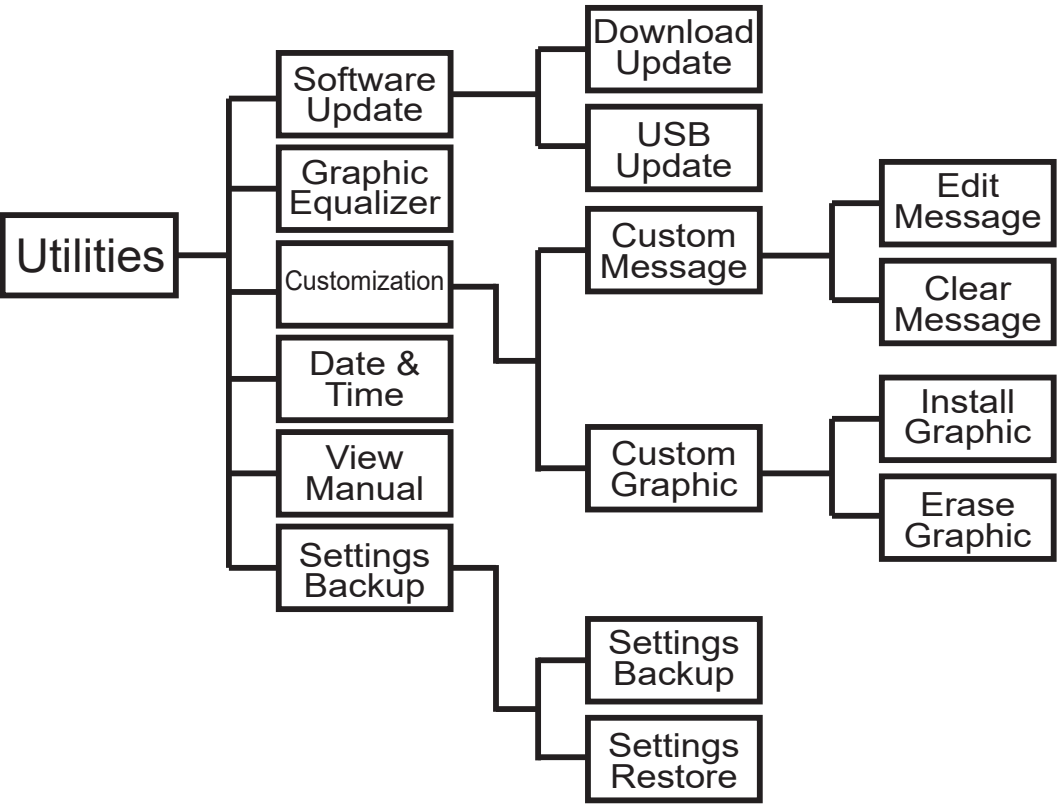
**Graphic Equalizer** - Fine tune your audio experience by adjusting the output frequency ranges.

**Customization** - customize your game: enter/modify a message for the game to display in attract mode (**Custom Message > Edit Message**), clear an existing message (**Custom Message > Clear Message**), upload/select an image (**Custom Graphic > Install Graphic**) for the game to display in attract mode or erase a previously uploaded graphic with the **Custom Graphic > Erase Graphic** utility.

**Date & Time** - adjust the system date and time.

**View Manual** - display/navigate the PDF version of the TS4 manual on the game’s LCD screen.

**Settings Backup** - backup (**Settings Backup**) and/or restore (**Settings Restore**) settings, audits, replay information and custom message for the game.



Utilities menu tree.





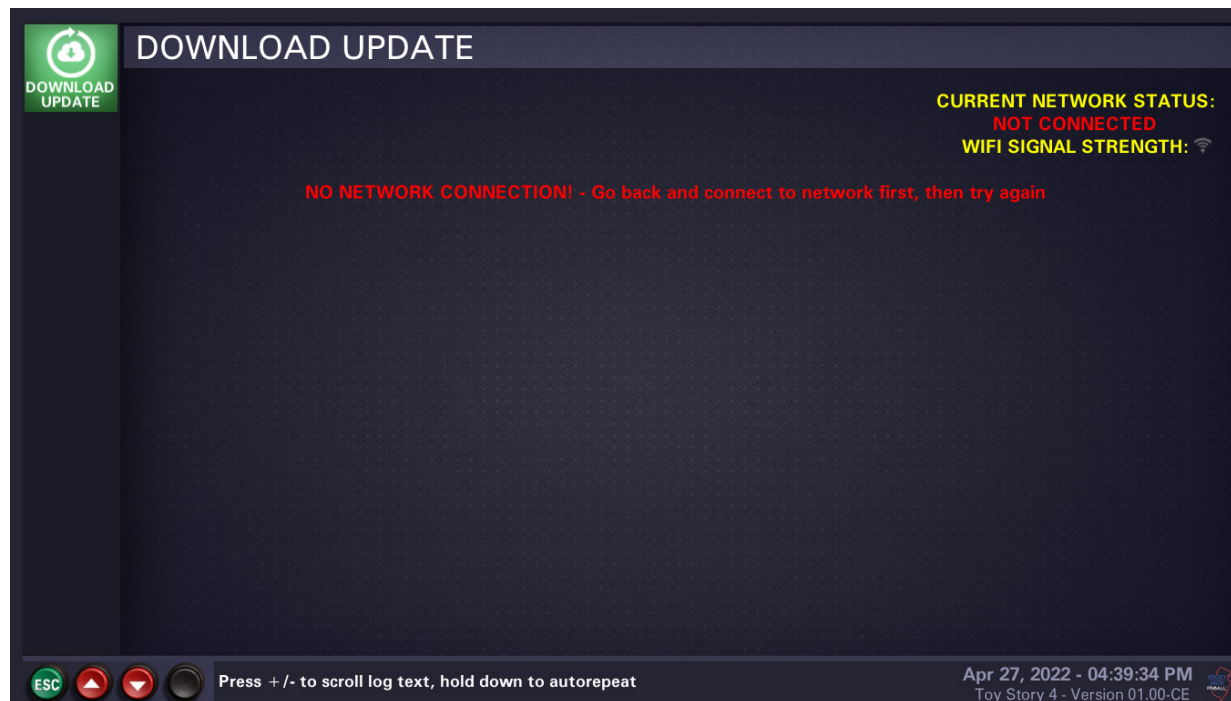
# Download Update

When you enter **Download Update Settings**, the LCD monitor will display the screen shown. Download Update Settings is used to update the game code.

Once entered, the current software version will be displayed along with any available updates.

Use black **Enter** button to highlight the available update and follow the onscreen instructions.

Use the green **Back/Escape** button to Exit.



Download Update utility screens.





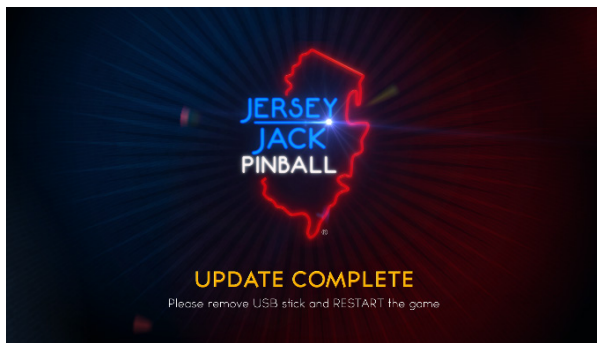
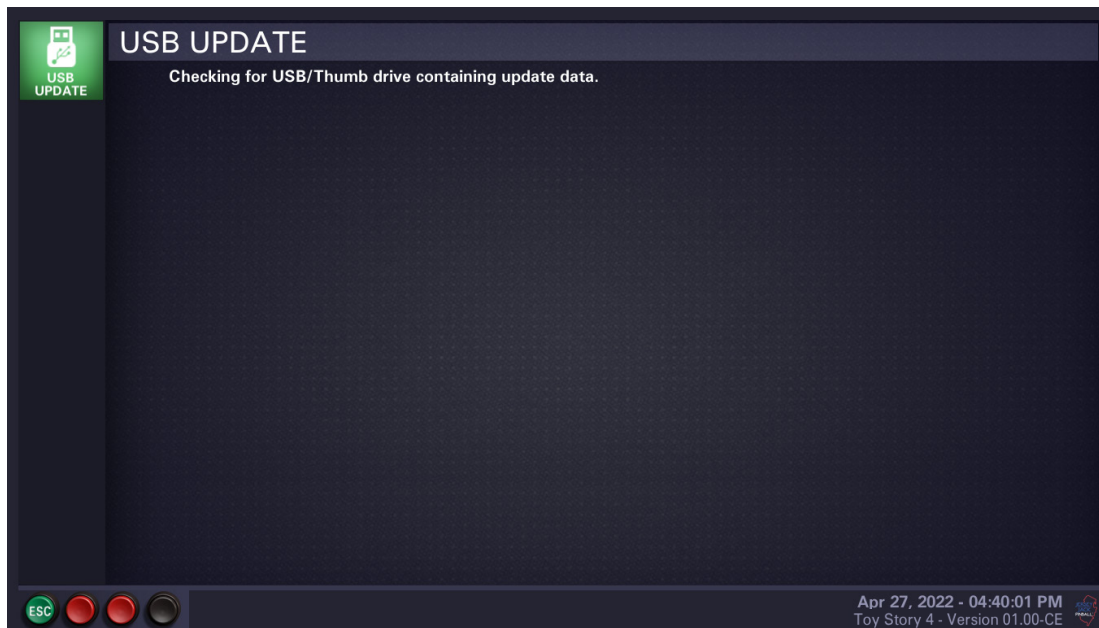
# USB Update

Use the **USB Update** utility to apply a TS4 delta software update to your game. Note: The update must be downloaded from the JJP® support website (<https://www.jerseyjackpinball.com/support/>), using a separate computer. Copy the “toystory\_update” folder from your computer onto an empty USB memory stick (i.e. it should be the only folder on the stick). Power up the game, open the coin door, and use the diagnostics buttons to enter the **USB Update** utility; the LCD monitor will display the screen shown.

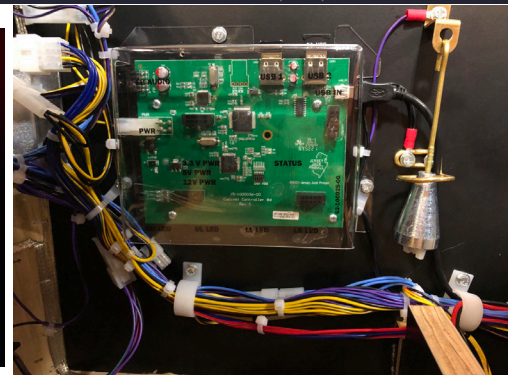
Find the **Cabinet Controller Board**, located to the inside-left from the coin door. Remove either the WiFi or Bluetooth USB dongle, located along the top edge of the board. Insert your USB update stick into the open port, the USB Update screen should display that the update is ready to begin.

To attempt the USB delta update, press the **Enter** button. The game’s playfield will go dark for approximately 15-30 seconds (depending upon the size of the update); the LCD monitor will display the bottom, left screen. You can abort the update process by pressing the **Back/Escape** button. When the delta update is complete, the LCD monitor will prompt you to remove the USB stick and restart the game. Power the game down, remove your USB stick from the Cabinet Controller Board and replace the previously removed WiFi or Bluetooth dongle, then power the game back up again. Once the game has rebooted, verify that the delta update installed successfully by re-entering the TS4 Menu System. The installed software version is displayed in the lower, right hand corner of most menu system screens.

To exit the **USB Update** utility, press the **Back/Escape** button.

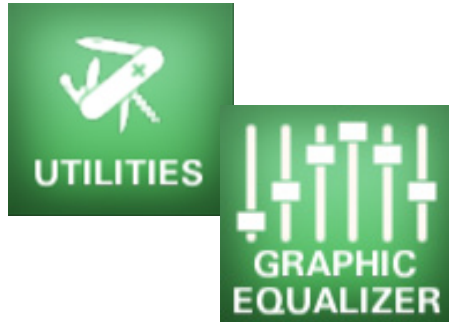


USB Update utility screens.



Cabinet Control Board (pn: 62-100025-00)





# Graphic Equalizer



Graphic Equalizer utility screen.

You can use the Graphic Equalizer to balance the in-game audio to your listening preferences.

There are multiple presets available for audio output to different gaming environments. Use the +/- buttons to change the audio preset, either flipper button to play sample audio, and both flipper buttons to change how the audio is visualized on the LCD screen.





# Edit Message

Use the **Custom Message** utility to enter a message that will be displayed on the LCD monitor, periodically, during the game's attract mode. The message is entered or modified using the **Edit Message** utility.

When you enter the **Edit Message** utility, the LCD monitor will display the screen shown. To move the cursor around in the message, use the **Back/Escape** (move left) and **Enter** (move right) buttons. Use the **Up/+** and **Down/-** buttons to change the highlighted character, then press the **Start** button to save your custom message, as displayed on the screen.

To exit the **Edit Message** utility, move the cursor to the position shown (The upper left hand corner), then press the **Back/Escape** button. Note: The **Start** button moves the cursor to this position after saving the message.



Edit Message utility screen.



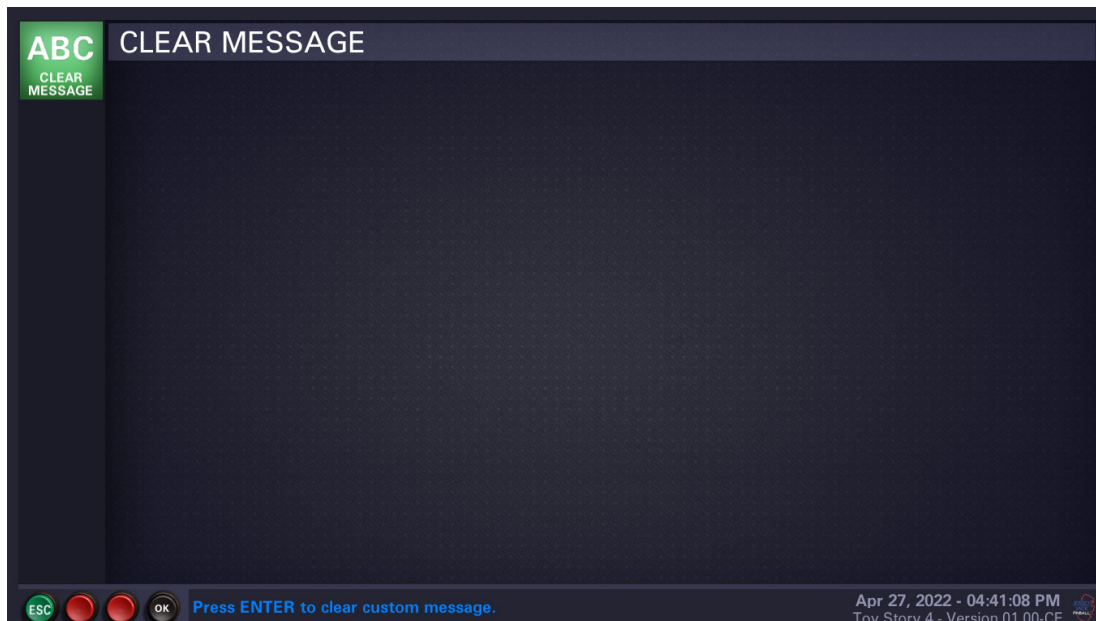


# Clear Message

Use the **Clear Message** utility to delete a previously entered custom message.

When you enter the **Clear Message** utility, the LCD monitor will display the screen shown. To clear the current custom message, press the **Enter** button. You will be prompted to hit the **Start** button to confirm and complete the operation.

To exit the **Clear Message** utility at any time, press the **Back/Escape** button.



Clear Message utility screen.





# Install Graphic

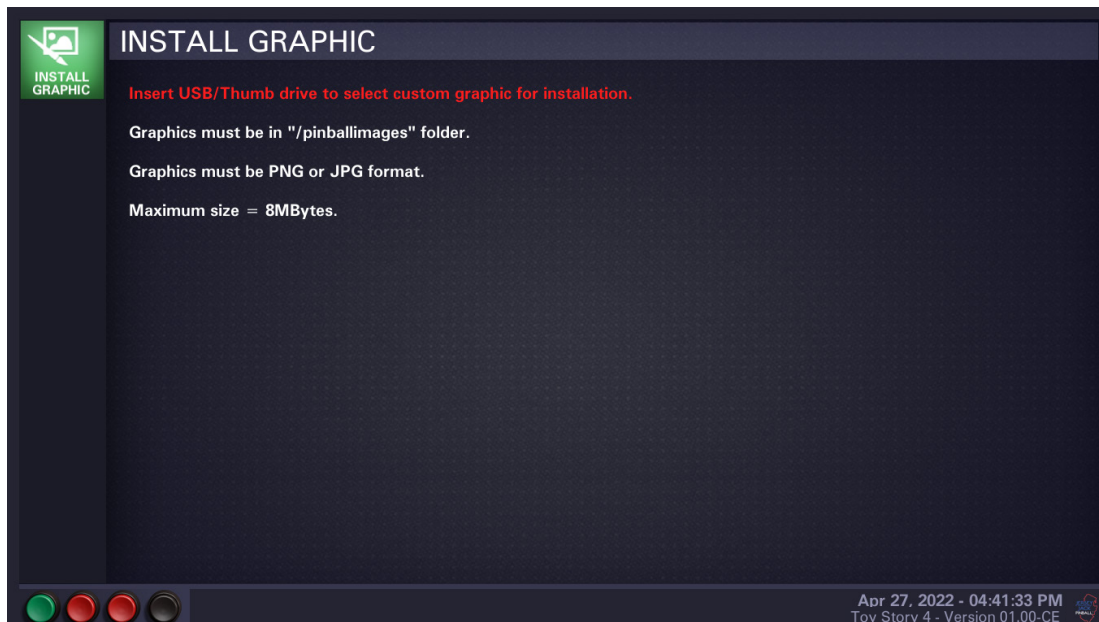
Use the **Custom Graphic** utility to install an image that will be displayed on the LCD monitor, periodically, during the game's attract mode. The custom image is uploaded or changed using the **Install Graphic** utility.

Note: The image must be loaded onto a USB memory stick, using a separate computer. It must be in PNG or JPG format and under 2MB in size. Create a folder named "pinballimages" in the root directory of the USB stick, then copy your graphic(s) into the folder. Power up the game, open the coin door, and use the diagnostics buttons to enter the **Install Graphic** utility; the LCD monitor will display the screen shown on the left.

Locate the end of the USB extension cable, just inside the open coin door. Fully insert the USB stick into the connector at the end of the cable (if your USB stick is equipped with an "in-use" light, it will illuminate). A screen will come up automatically, showing a listing of the available graphics in your USB stick's "pinballimages" folder.

Use the **Up/+** and **Down/-** buttons to select the graphic you wish to install, then press the **Enter** button to complete the operation.

To exit the **Install Graphic** utility at any time, press the **Back/Escape** button.



Install Graphic utility screens.



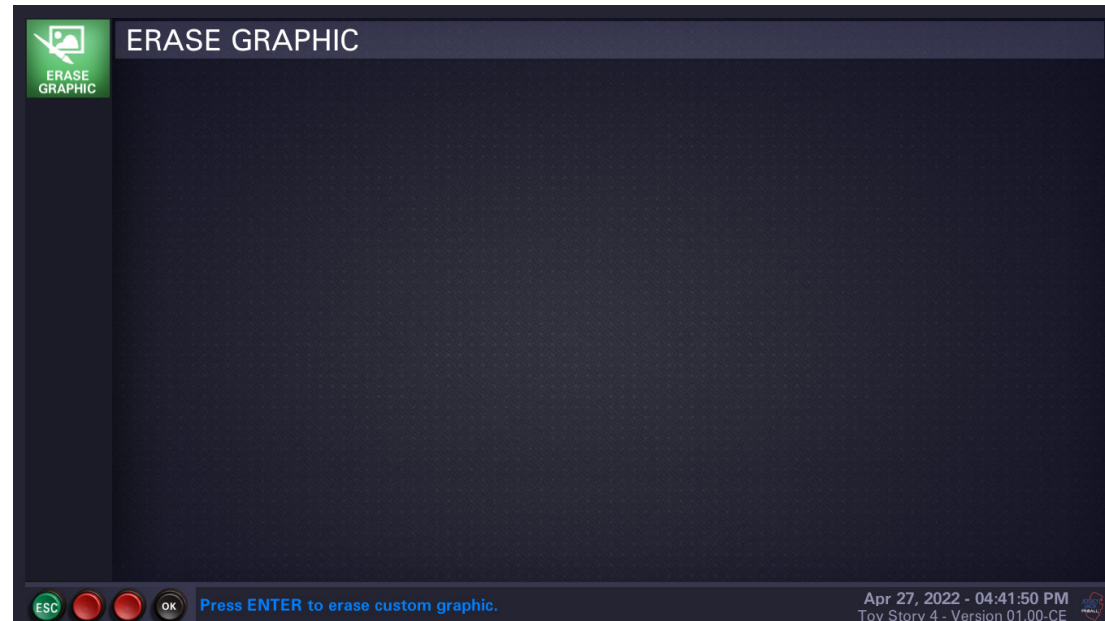


# Erase Graphic

Use the **Erase Graphic** utility to delete a previously installed custom graphic.

When you enter the **Erase Graphic** utility, the LCD monitor will display the screen shown. To clear the current custom graphic, press the **Enter** button. You will be prompted to hit the **Start** button to confirm and complete the operation.

To exit the **Erase Graphic** utility at any time, press the **Back/Escape** button.

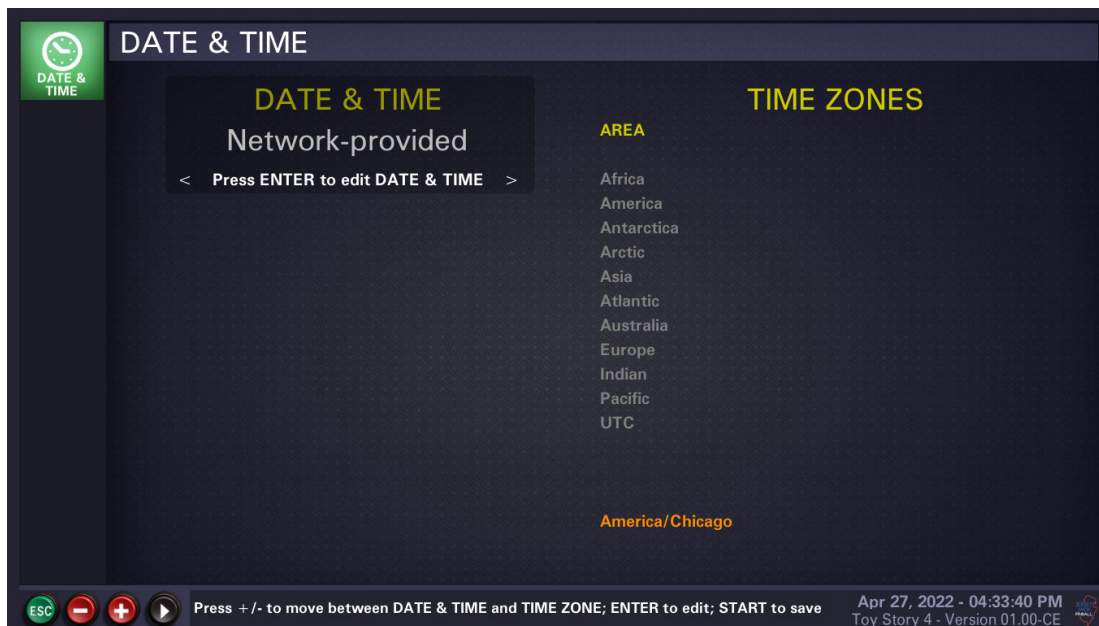


Erase Graphic utility screen.





# Date & Time



Date & Time utility screen.

When you enter the **Date & Time** utility, the LCD monitor will display the screen shown. To maneuver to the portion of the display that requires adjustment, use the **Back/Escape** (left) and **Enter** (right) buttons. Use the **Up/+** and **Down/-** buttons to alter the highlighted value, then press the **Start** button to save the time and date, as displayed on the screen.

To exit the **Date & Time** utility, move the cursor to the position shown, then press the **Back/Escape** button. Note: The **Start** button moves the cursor to this position after saving the time/date.

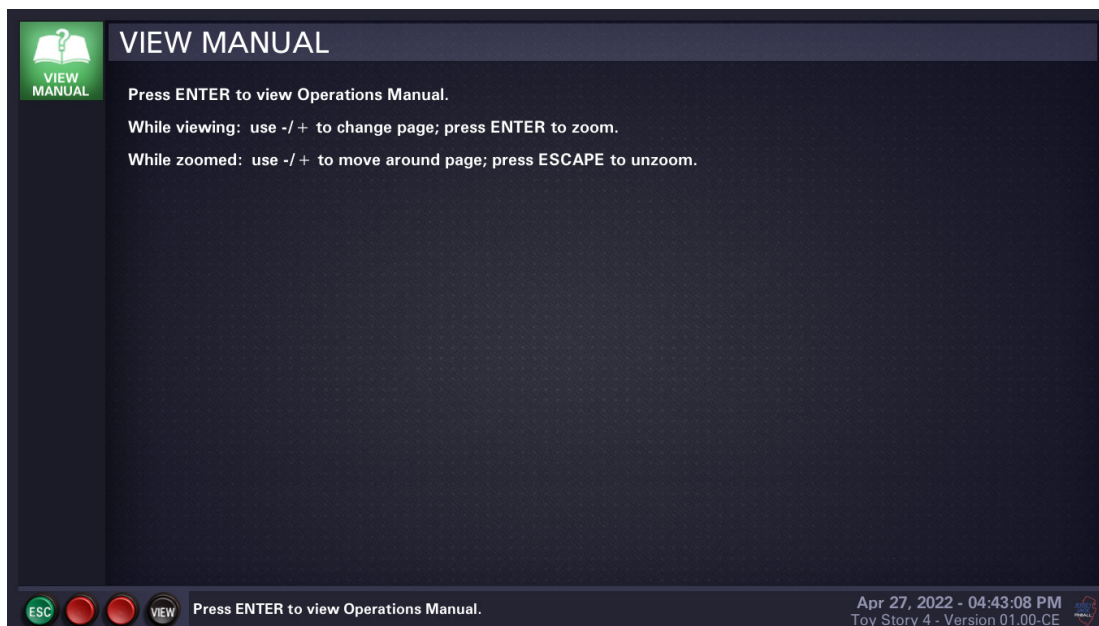




# View Manual

When you enter the **View Manual** utility, the LCD monitor will display the screen shown. To view the TS4 Operations Manual (this document), press the **Enter** button. While viewing, use the **Up/+** and **Down/-** buttons to move from page to page; use the **Enter** button to zoom in on the current page. When zoomed in, use the **Up/+** and **Down/-** buttons to move around the current page; use the **Back/Escape** button to cancel the zoom function.

To exit the **View Manual** utility, press the **Back/Escape** button while in the viewing mode.



View Manual utility screen.





# Settings Backup

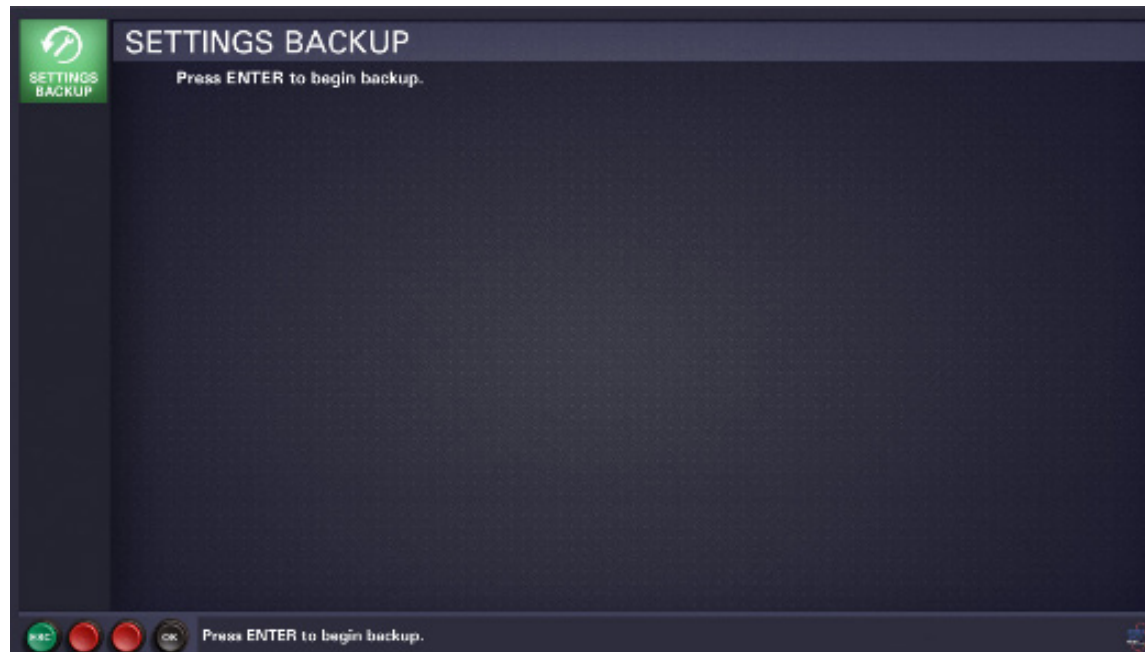
The **Settings Backup** & **Settings Restore** utilities allow you to quickly and easily backup & restore your game's settings, audits, reports, replay information and custom message. Your settings will be stored on a USB memory stick.

When you enter the **Settings Backup** utility, the LCD monitor will display the screen shown in figure B39. Locate the end of the USB extension cable, just inside the open coin door. Fully insert a USB stick into the connector at the end of the cable (if your USB stick is equipped with an "in-use" light, it will illuminate).

Note: The saved settings file is unique to each game (allowing you to use the same USB stick to backup settings for several different games, without fear of overwriting anything). The file is also time- and date-stamped, using the game's internal clock.

Press the **Enter** button to perform the backup. If there is an existing settings file for the game on the USB stick, you will be prompted to hit the **Start** button to confirm and complete overwriting the backup.

To exit the **Settings Backup** utility, press the **Back/Escape** button.



Settings Backup utility screen.





# Settings Restore

The **Settings Backup** & **Settings Restore** utilities allow you to quickly and easily backup & restore your game's settings, audits, reports, replay information and custom message. Your settings will be restored from a USB memory stick.

When you enter the **Settings Restore** utility, the LCD monitor will display the screen shown in figure B40. Locate the end of the USB extension cable, just inside the open coin door. Fully insert the USB stick containing your settings file into the connector at the end of the cable (if your USB stick is equipped with an "in-use" light, it will illuminate).

Note: The saved settings file is unique to each game (so you can use the same USB stick to backup settings for several different games, without fear of overwriting anything). The file is also time- and date-stamped, using the game's internal clock.

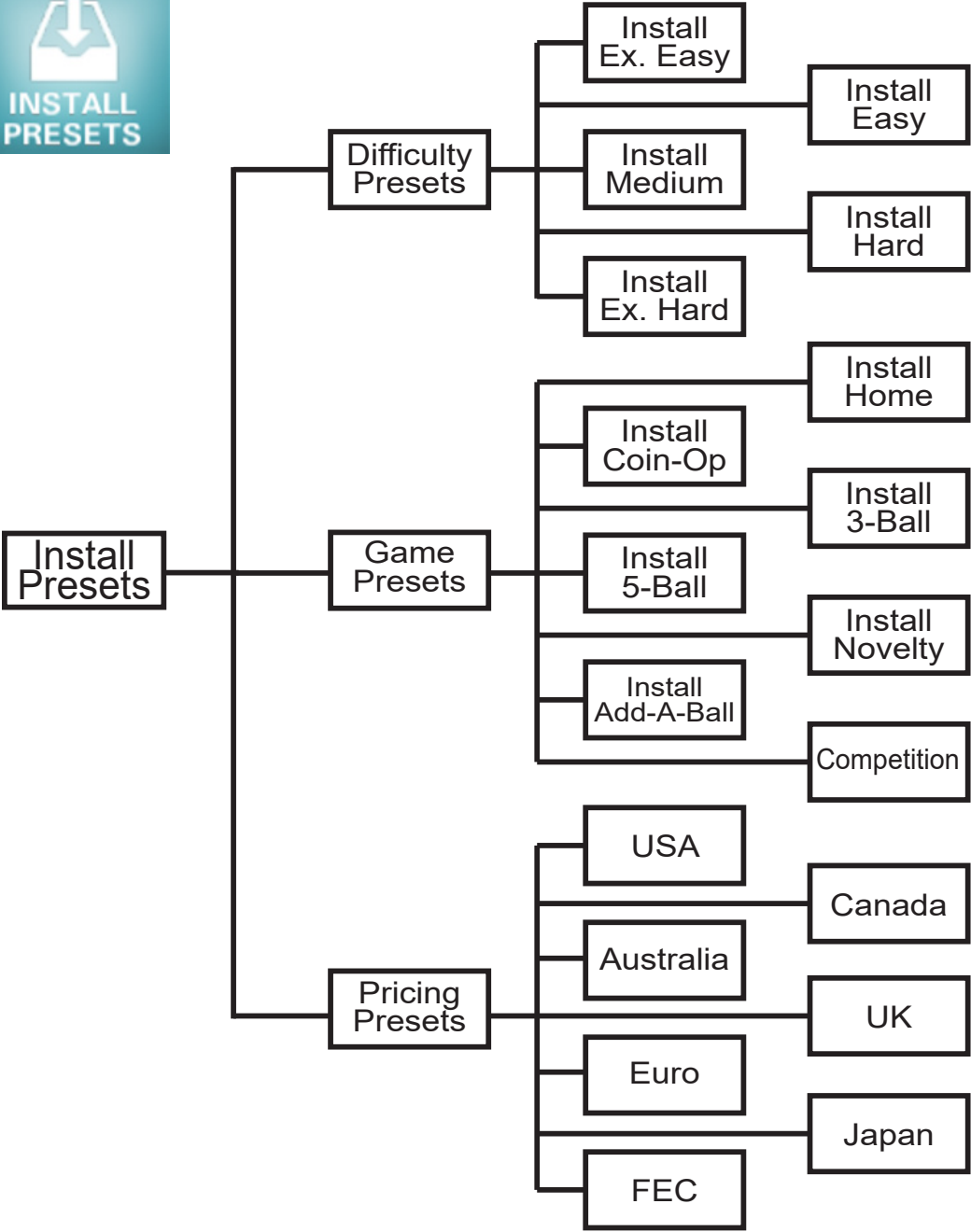
If a settings file for the game is found on the USB stick, its date and time will be displayed as shown. Press the **Enter** button to perform the settings restore operation.

To exit the **Settings Restore** utility, press the **Back/Escape** button.



Settings Restore utility screen.





Install Presets menu tree.

# Install Presets

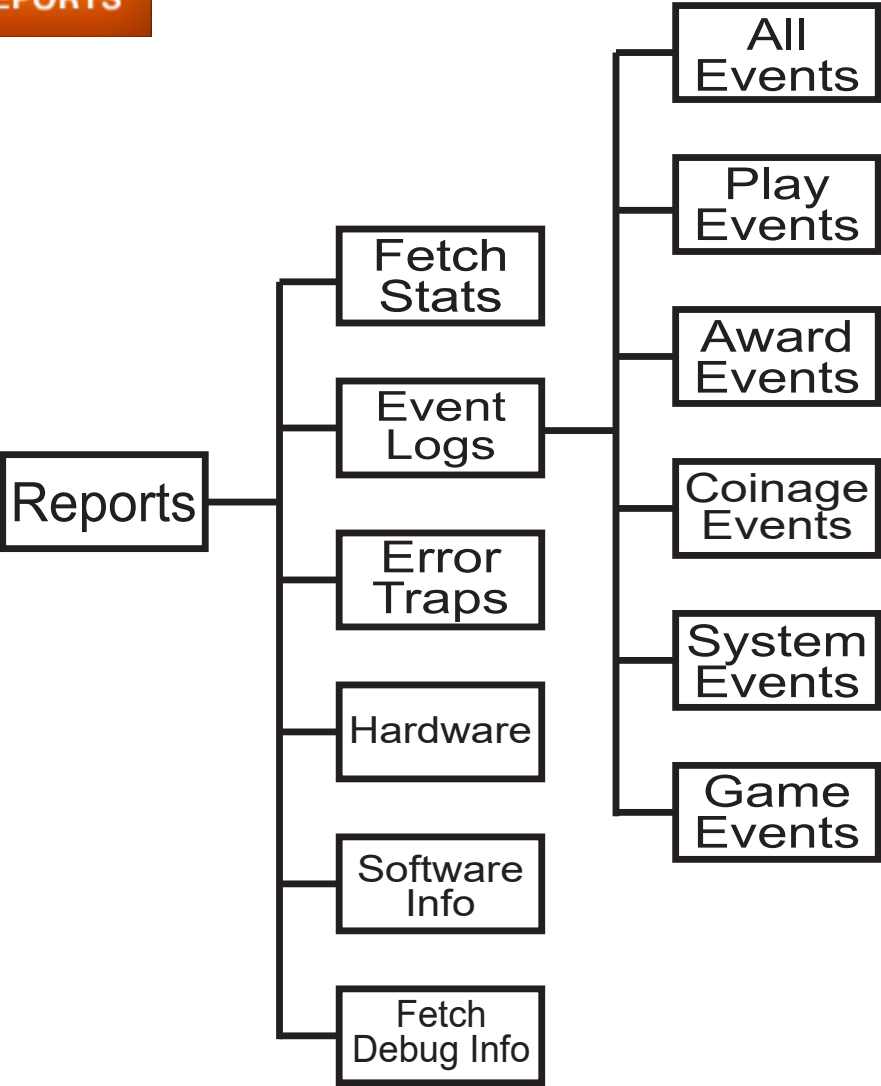
The **Install Presets** menu allows the user to quickly make *quantum*, predefined changes to game play settings (as opposed to changing settings individually, in other sub-menus).

**Difficulty Presets** - change a predefined group of game/system settings to quickly make the game easier or more difficult to play. The difficulty level options are listed.

**Game Presets** - change a predefined group of game/system settings to quickly configure the game to play in one of the standard modes listed.

**Pricing Presets** - change a predefined group of pricing settings to quickly configure the game to accept coinage from one of the countries listed.





Reports menu tree.

# Reports

The **Reports** menu allows the user to view logs and graphs of events of interest in the game including bad switch alerts, device errors, game power-ups, service credits, game statistics, awards, etc.

**Fetch Stats** - Export game statistics to a USB drive for records or detailed, offline analysis.

**Event Logs** - View logs for various system events including when the power was cycled on the game, when the game was started, when the coin door was opened, when service credits were added, when game awards were earned, etc.

**Error Traps** - View the contents of the game’s error log.

**Hardware** - Information about the game’s hardware.

**Software Info** - Information pertaining to the game’s software.

**Fetch Debug Info** - Export debug information to a USB drive for software dev usage.

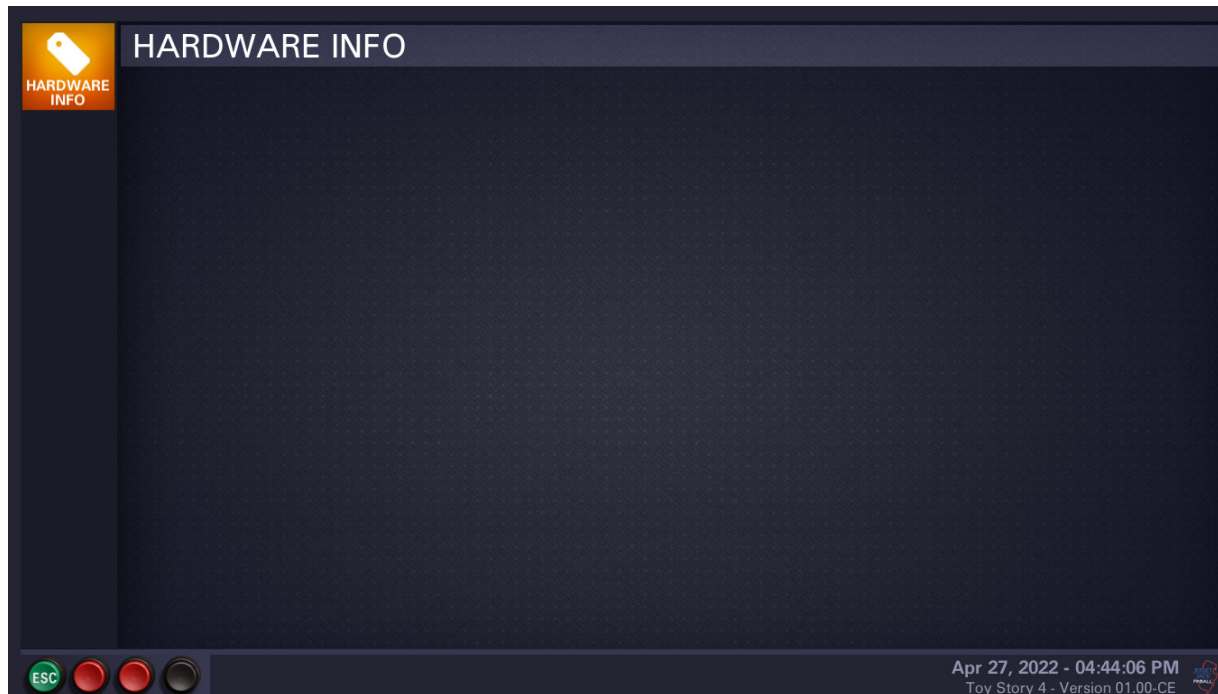




# Hardware Info

Use the **Hardware Info** report to view your game's hardware characteristics such as serial number, firmware revision levels, motherboard type, available RAM, processor speed & solid state disk size. When you enter the **Hardware Info** utility, the LCD monitor will display the screen shown.

To exit the **Hardware Info** utility at any time, press the **Back/Escape** button.



Hardware Info utility screen.





# Hardware Detect

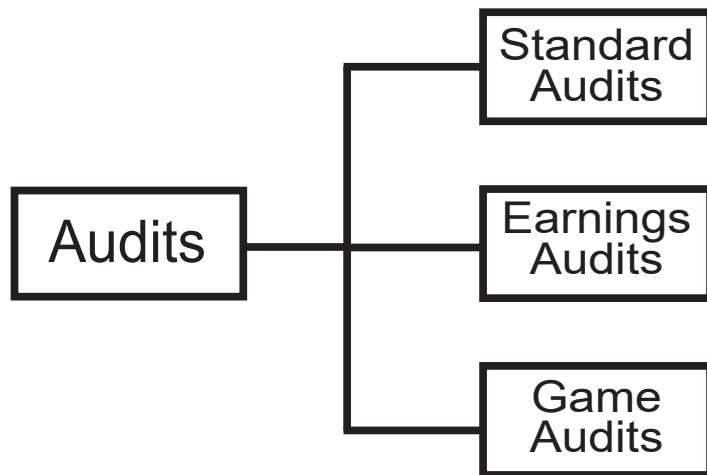
Use the **Hardware Detect** report to scan for missing or improperly configured devices.

To exit the **Hardware Detect** utility at any time, press the **Back/Escape** button.



Hardware Info utility screen.





Audits menu tree.

# Audits

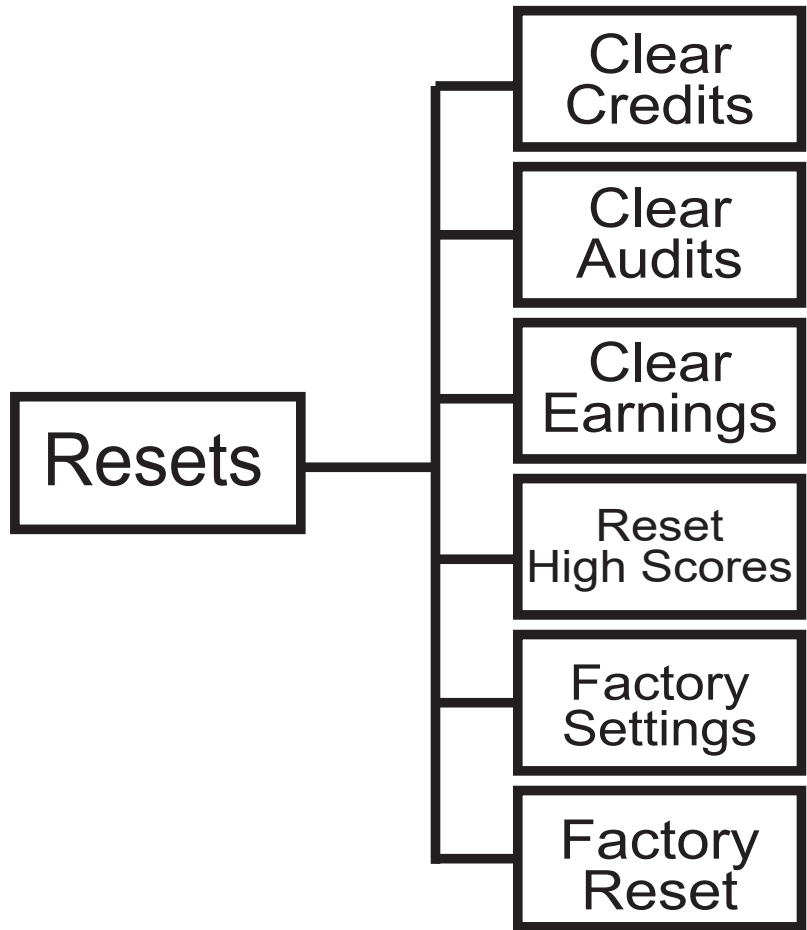
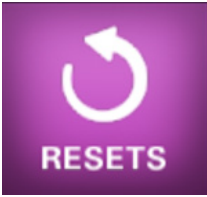
The **Audits** menu allows the user to view, monitor and/or track game usage and earnings over a specific time period (since audits were last cleared and over the lifetime of the game).

**Standard Audits** - view game-related totals such as free plays, 1-, 2-, 3- & 4-player games started, extra balls, replays, matches, etc.

**Earnings Audits** - view totals for paid credits, free plays, service credits, pricing tier purchases and coins accepted in each slot.

**Game Audits** - view totals for various shots made (targets hit or switches closed) and modes started and/or completed in the game.





Resets menu tree.

# Resets

The **Resets** menu allows the user to quickly clear game audits/earnings information and high scores from a single menu.

**Clear Credits** - clear credits from the game.

**Clear Audits** - reset audits data.

**Clear Earnings** - reset earnings data.

**Reset High Scores** - reset high scores to default values (see **High Score Settings** in Section B.3).

**Factory Settings** - reset all software-adjustable settings to the values they originally were given at the factory.

**Factory Reset** - reset factory settings (as above) plus reset audits and alarm counters.

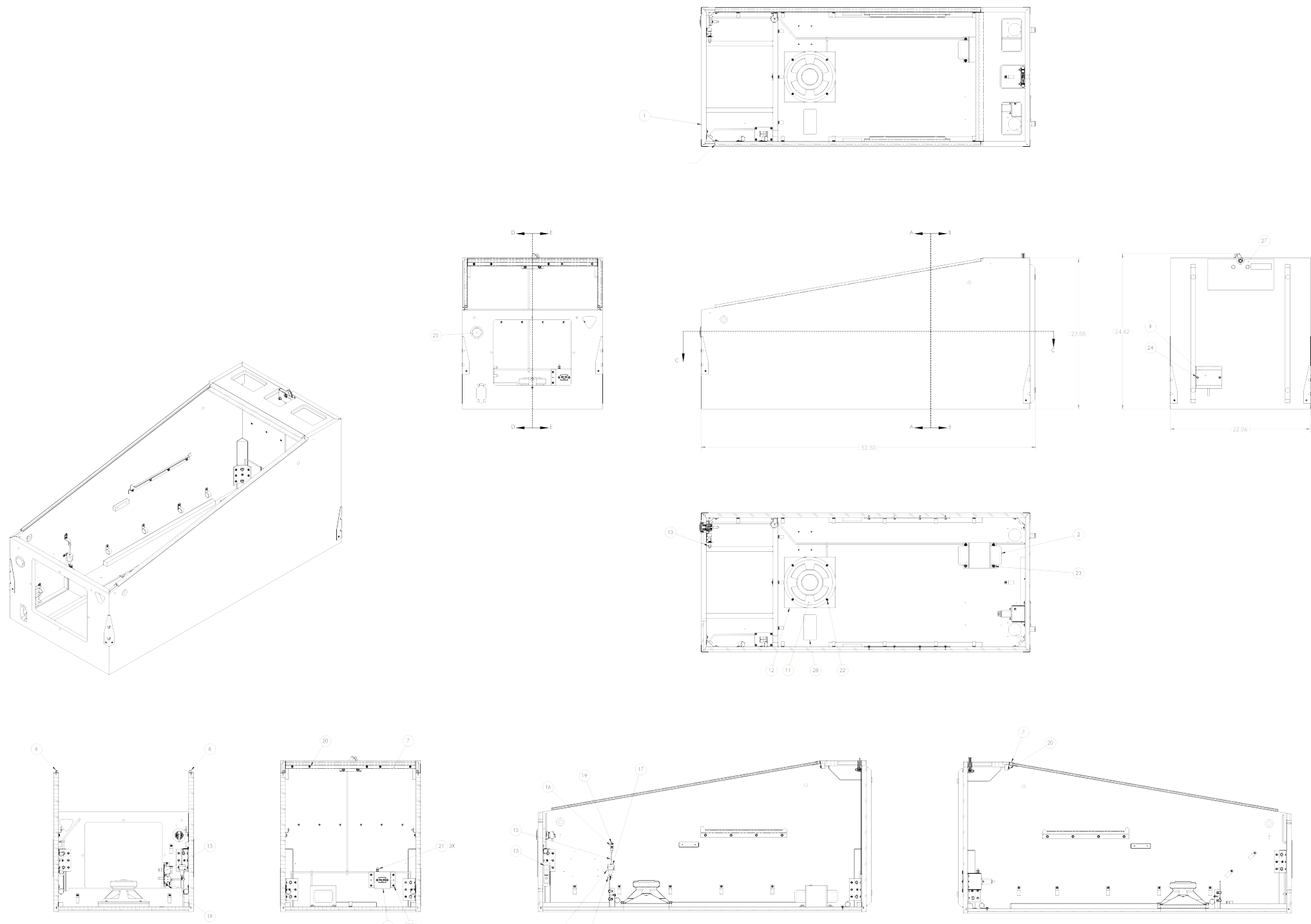


# Game Parts Information





# LOWER CABINET BASE ASSEMBLY





# LOWER CABINET BASE ASSEMBLY

## 50-005040-02

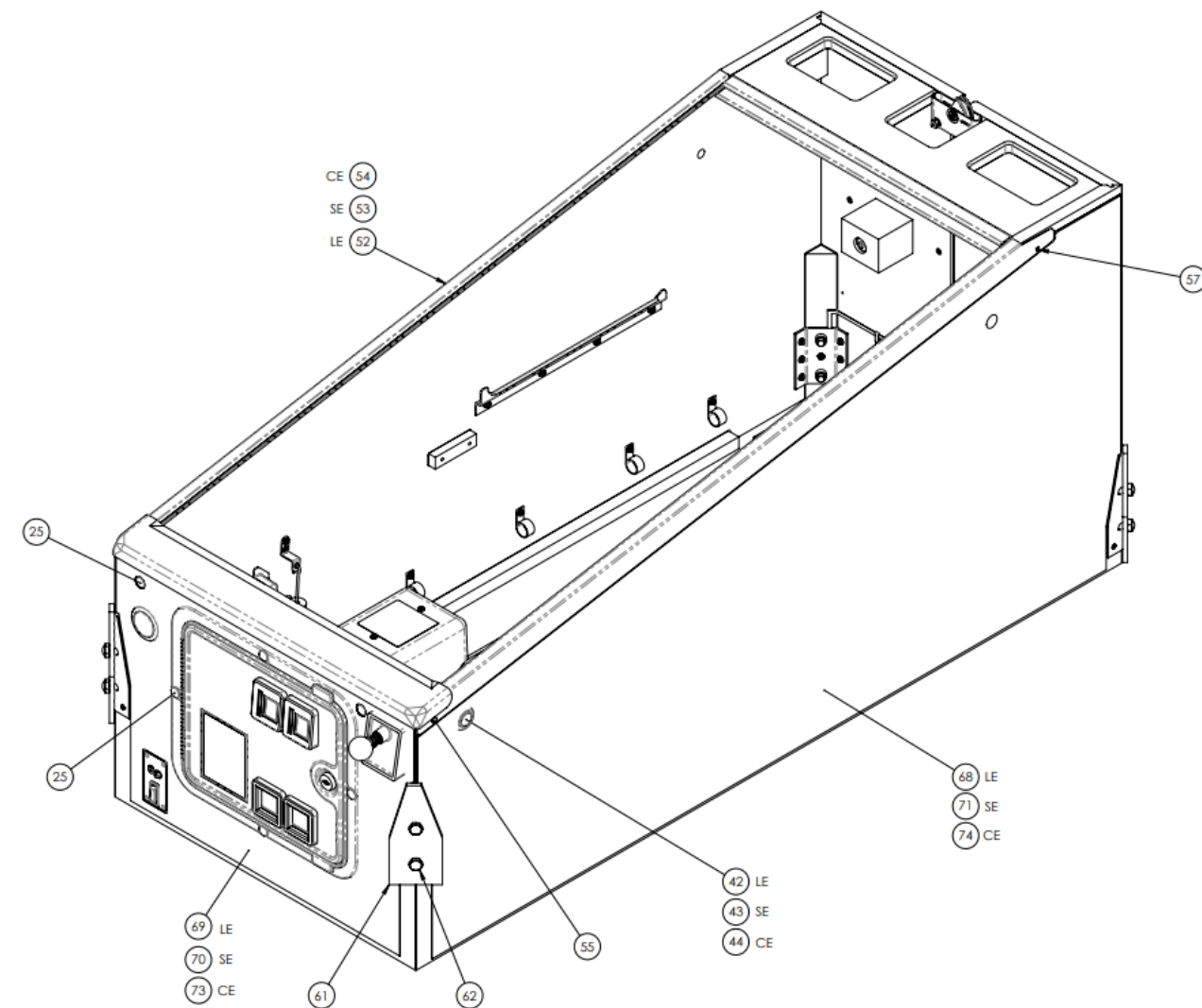
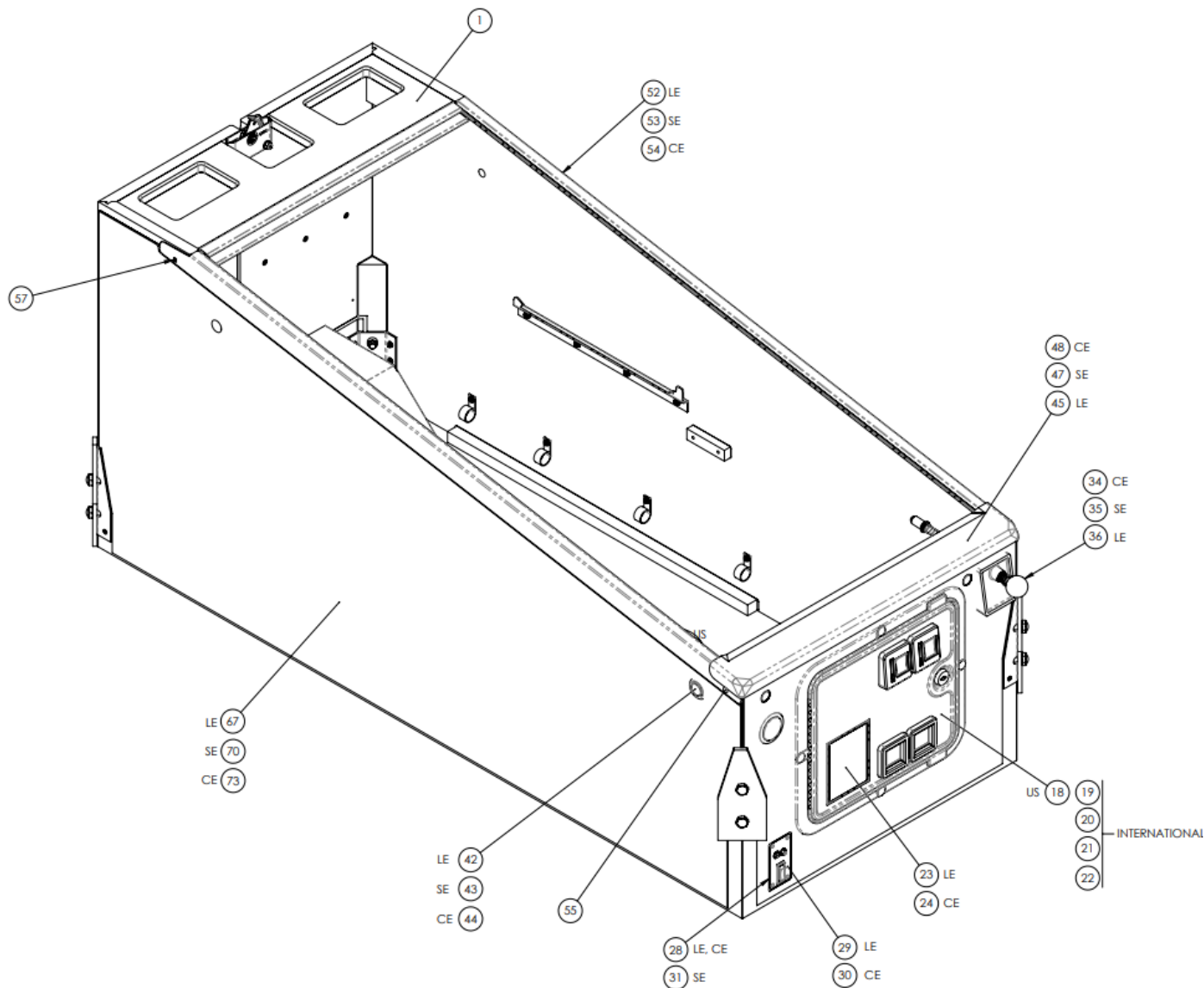
Item	Part Number	Description	Qty	Pg.	Item	Part Number	Description	Qty	Pg.
1	51-100190-00	Cabinet Wood Assy Standard	1	-	18	91-003406-00	#6-32 Wing Nut, Nylon	1	-
2	16-005000-02	Main Transformer	1	-	19	82-009008-08	#8x1/2" AB Special HWH Phillips SMS	10	-
3	19-009027-02	Transformer Secondary Cable, Backbox PCB's	1	-	20	82-002108-08	#8 HWH Phillips SMS, Black	5	-
4	30-000118-20	Poly Tubing, Split, Black, 1-1/4"	52 IN.	-	21	91-001008-00	#8-32 Keps Nut, Zinc Plated	3	-
5	30-000051-08	8" Wire Tie, Natural	3	-	22	80-002008-20	8-32 X 1-1/4" HWH Phillips MS, Serrated	4	-
6	30-008000-00	Cabinet Side Glass Channel	2	-	23	80-002025-10	#1/4-20 x 5/8" HWH Phillips MS, Serrated, Zinc	4	-
7	30-008001-02	Cabinet Rear Glass Channel	1	-	24	80-002008-16S	8-32 x 1.0", HWH MS Slotted	2	-
8	51-005023-00	Line Filter Box Assy	1	-	25	18-007023-04	Start Button Switch Assy, Recessed, Yellow	1	-
9	10-000010-01	Line Cord Cover Plate	1	-	26	19-009028-01	Power Box AC Input Cable, Backbox PCB's	1	-
10	19-003052-55	Ground Jumper Cable, 18AWG, GRN	1	-	27	62-100031-00	Decal, Backbox Outside Info	1	-
11	51-006004-01	Subwoofer Speaker & Cable Assy	1	-	28	72-100060-00	Warning, Void Warranty Label	1	-
12	05-003007-00	Subwoofer Mtg Panel	1	-					
13	51-000035-00	Door & Interlock Switch Assy	1	-					
14	13-003008-00	Tilt Contact Wire Form Brkt	1	-					
15	13-003009-00	Tilt Hanger Wire	1	-					
16	10-000086-00	Tilt Hanger Wire Brkt	1	-					
17	11-000028-00	Plumb Bob	1	-					

### LEGS

10-000031-17	LE Ultramarine Blue
10-000031-13	CE Rancher Red

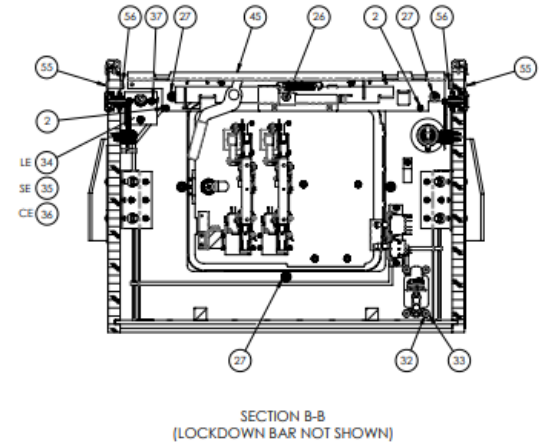
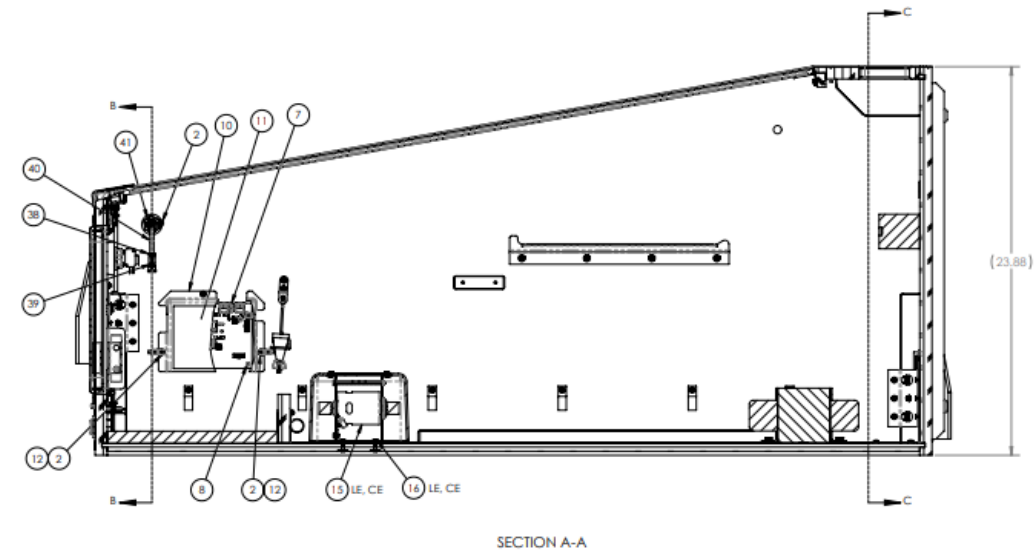
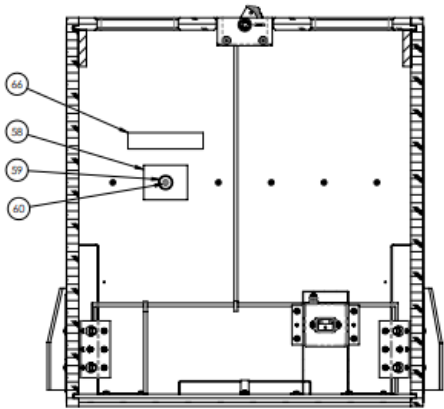
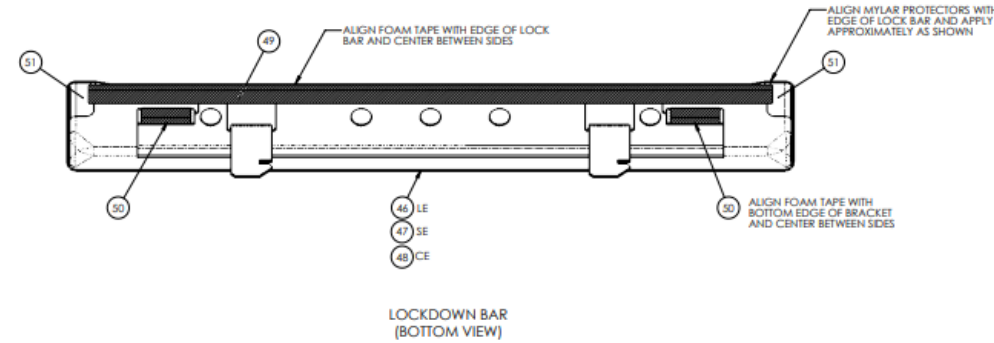
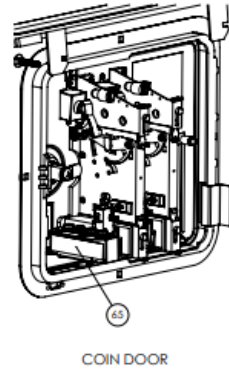
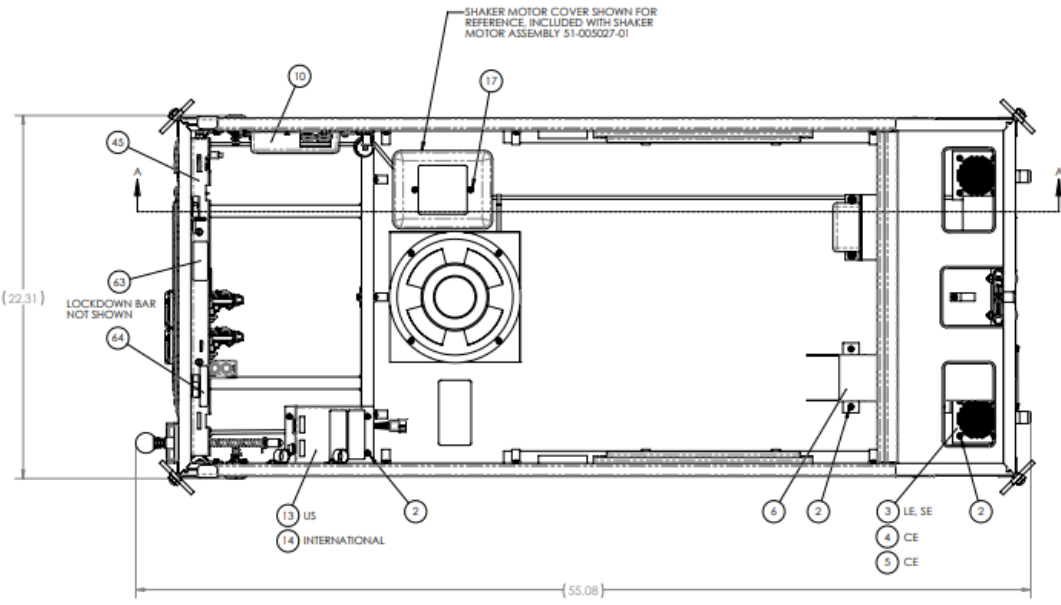


# TS4 LOWER CABINET ASSEMBLY





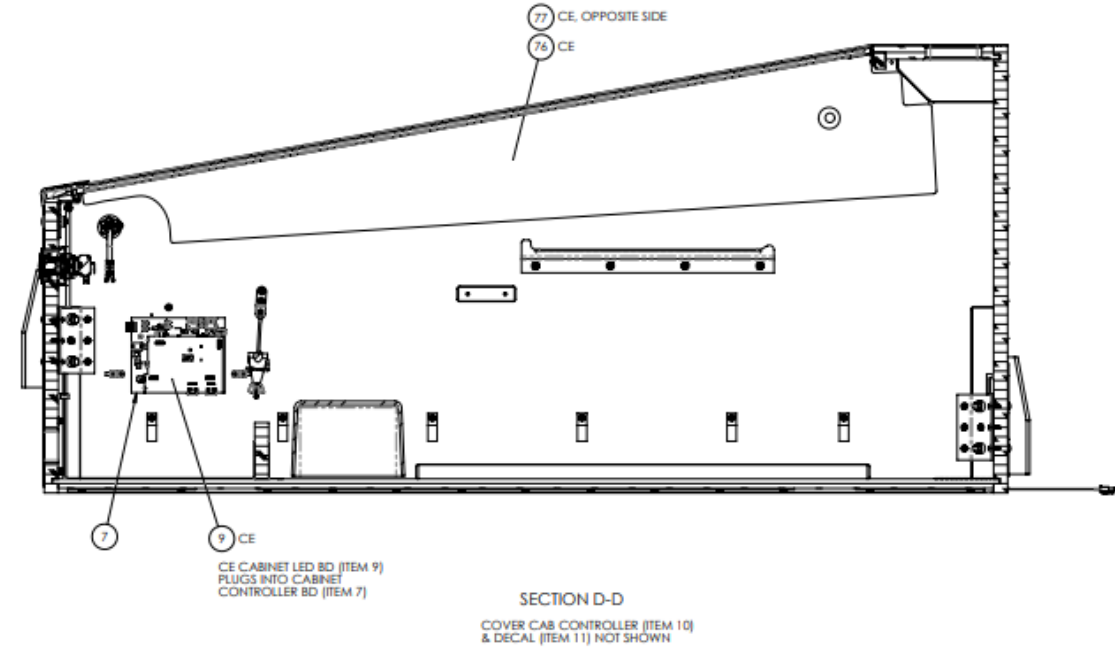
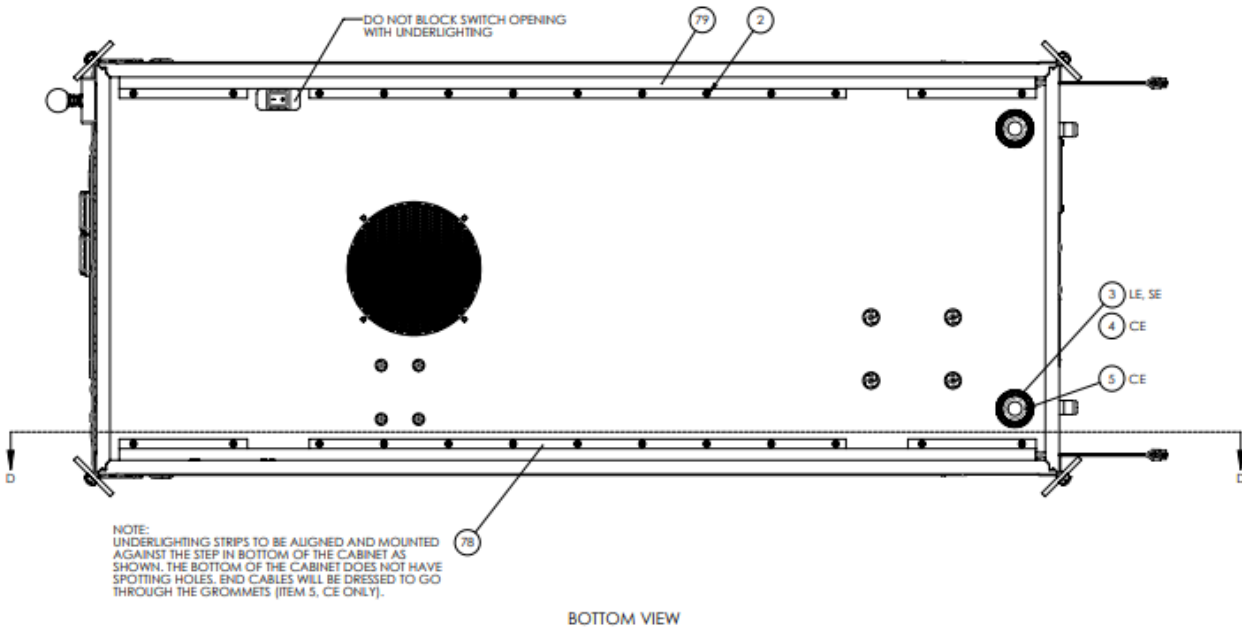
# TS4 LOWER CABINET ASSEMBLY





# TS4 LOWER CABINET ASSEMBLY

50-100032-02  
TOY STORY LOWER CABINET ASSY CE





# TS4 LOWER CABINET ASSEMBLY

Item	Part Number	Description	LE	CE	Intl	Item	Part Number	Description	LE	CE	Intl
1	50-005040-02	LOWER CABINET BASE ASSY STANDARD	1	1	1	31	10-000197-01	CABINET HEADPHONE BD CVR PLATE	X	X	
2	82-009008-08	#8X1/2" AB SPECIAL HWH PHILLIPS SMS	23	49		32	91-000008-00	8-32 NYLON STOP NUT THIN	4	4	4
3	10-000003-01	CABINET VENT GRILL	2	X		33	92-000008-00	#8 FLAT WASHER, .19 ID, .443 OD, .06 TH	4	4	4
4	10-000003-02	VENT GRILL WITH GROMMET	X	2		34	51-000092-12	BALL SHOOTER ASSY, TS, LE	1	X	
5	25-100008-00	GROMMET .75 ID, 1.38 OD, .06 MATERIAL	X	2		35	51-000092-11	BALL SHOOTER ASSY, TS, SE	X	X	
6	30-000125-00	LINE FILTER BOX ASSY COVER	1	1	1	36	51-000092-13	BALL SHOOTER ASSY, TS, CE	X	1	
7	15-100036-00	CABINET CONTROLLER BD, 480 MPS	1	1	1	37	80-002010-08	#10-32 X 1/2" HWH MS, SERRATED	3	3	3
8	82-000004-10	#4 x 5/8" PPH SMS	4	4	4	38	10-000022-01	CURVED SWITCH PLATE	2	2	2
9	15-100042-00	CE CABINET LED BD, 2-RAIL	X	1		39	82-002006-20	#6 X 1-1/4" HWH SMS	4	4	4
10	30-100066-00	COVER CAB CONTROLLER	1	1	1	40	51-006000-00	CABINET FLIPPER SWITCHES & CABLE ASSY	1	1	1
11	62-100025-00	DECAL COVER CAB CONTROLLER	1	1	1	41	91-000001-10	FLIPPER BUTTON PAL NUT, HEX	2	2	2
12	30-000050-06	6" WIRE TIE, SCREW DOWN	2	2	2	42	30-000009-10	FLIPPER BUTTON, ULTRA BLUE	2	X	
13	51-006001-02	CABINET POWER BOX & CABLE ASSY US 7/30	1	1	X	43	30-000009-04	FLIPPER BUTTON, YELLOW	X	X	
14	51-006001-11	CABINET POWER BOX & CABLE ASSY INTL	X	X	1	44	30-000009-02	FLIPPER BUTTON, RED	X	2	
15	51-005027-01	SHAKER MOTOR ASSEMBLY	1	1		45	10-008001-10	LOCKDOWN BAR RECEIVER ASSY	1	1	1
16	80-002008-10	#8-32 x 5/8" HWH PHILLIPS MS, SERRATED	4	4		46	10-000027-14	LOCKDOWN BAR, STANDARD, ULTRAMARINE BLUE	1	X	
17	80-002008-04	#8-32 x 1/4" HWH PHILLIPS SERRATED	2	2		47	10-000027-13	LOCKDOWN BAR, STANDARD, ZINC YELLOW	X	X	
18	40-000006-20	STANDARD USA COIN DOOR ASSY, 12V, NO HEADPHONE	1	1	X	48	10-000027-10	LOCKDOWN BAR, STANDARD, RANCHER RED	X	1	
19	40-000011-74	STANDARD EUROPEAN COIN DOOR ASSY NO HEADPHONE	X	X	1	49	61-009003-00	FOAM ADHESIVE TAPE, LOCKDOWN BAR SEAL	21in	21in	21in
20	19-003011-00	EUROPEAN COIN DOOR CABLE	X	X	1	50	61-009003-01	FOAM ADHESIVE TAPE, QUICK-RECOVERY, 1/2" X 3/16"	4in	4in	4in
21	15-000017-00	EUROPEAN COIN DOOR BD	X	X	1	51	62-100066-00	MYLAR SIDE RAIL PROTECTOR	2	2	2
22	83-000006-04	6-32 x 1/4" PPH SCREW, TYPE 25 THREAD CUTTER	X	X	1	52	51-100107-19	ASSY: SIDE RAIL, ULTRAMARINE BLUE	2	X	
23	62-100057-05	DECAL, COIN DOOR, TS	1	X		53	51-100107-18	ASSY: SIDE RAIL, ZINC YELLOW	X	X	
24	62-100058-05	DECAL, COIN DOOR, TS, CE	X	1		54	51-100107-15	ASSY: SIDE RAIL, RANCHER RED	X	2	
25	81-005125-20	#1/4 - 20 x 1-1/4" CARRIAGE BOLT, BLACK	6	6	6	55	81-005108-16	#8-32 x 1" CARRIAGE BOLT, BLACK OXIDE	2	2	2
26	91-000025-01	1/4-20 NYLON STOP NUT, ZINC PLATED	1	1	1	56	91-001008-00	#8-32 KEPS NUT, ZINC PLATED	2	2	2
27	91-002025-00	#1/4-20 FLANGE NUT	5	5	5	57	82-006104-08	#4 x 1/2" PFH SMS, BLACK	2	2	2
28	51-100113-00	CAB BT AND HDPHONE JACK ASSY	1	1		58	72-000004-16	FOAM SHIPPING BLOCK, BACK PANEL PROTECT, SCREW-IN, 1-HOLE	1	1	1
29	62-100057-15	DECAL, HEADPHONE JACK, TS	1	X		59	92-000008-02	FLAT FENDER WASHER .188 I.D. x .750 O.D.	1	1	1
30	62-100058-15	DECAL, HEADPHONE JACK, TS, CE	X	1		60	80-000008-44	8-32 X 2-3/4" PPH MS, ZINC PLATED	1	1	1



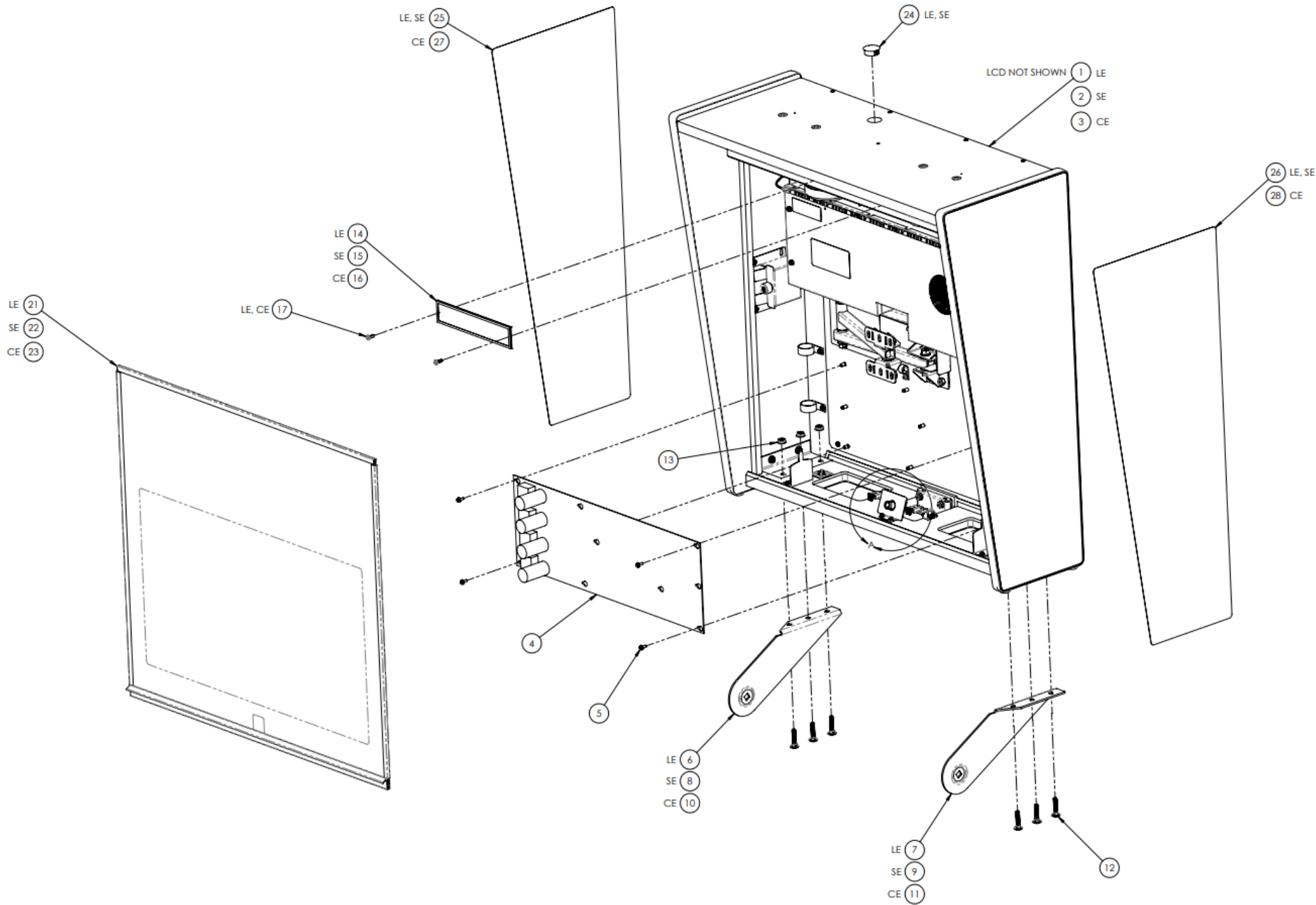
# TS4 LOWER CABINET ASSEMBLY cont.

Item	Part Number	Description	LE	CE	Intl
61	70-009003-00	HEAVY, FELT CABINET PROTECTORS	4	4	4
62	90-003038-40	LEG BOLT, ACORN HEAD, 3/8-16X2-3/4"	8	8	8
63	62-000034-10	DECAL, CAUTION HIGH VOLTAGE UNDER PLAYFIELD, SHORT	1	1	1
64	62-000034-11	DECAL, INSTALL 6 BALLS	1	1	1
65	62-100028-00	DECAL, BACK - + ENTER	1	1	1
66	72-100054-00	CAUTION LABEL, STOP BLOCK	1	1	1
67	61-100013-01	TS CABINET DECAL, LEFT, LE	1	X	
68	61-100013-02	TS CABINET DECAL, RIGHT, LE	1	X	
69	61-100013-03	TS CABINET DECAL, FRONT, LE	1	X	
70	61-100016-01	TS CABINET LEFT DECAL - SE	X	X	
71	61-100016-02	TS CABINET RIGHT DECAL - SE	X	X	
72	61-100016-03	TS CABINET FRONT DECAL - SE	X	X	
73	30-100092-01	TS CE CABINET RAD-CAL, LEFT	X	1	
74	30-100092-02	TS CE CABINET RAD-CAL, RIGHT	X	1	
75	30-100092-03	TS CE CABINET RAD-CAL, FRONT	X	1	
76	61-100018-01	TS CE SIDE BLADE, LEFT	X	1	
77	61-100018-02	TS CE SIDE BLADE, RIGHT	X	1	
78	51-100145-01	UNDERLIGHT LED STRIP WITH MOUNTING ASM LEFT	X	1	
79	51-100145-02	UNDERLIGHT LED STRIP WITH MOUNTING ASM RIGHT	X	1	
80	19-003115-02	CABINET HEADPHONE BD JUMPER	1	1	1
81	19-003100-10	USB CABLE, 2.0 A TO MINI-B, M-M, SHIELDED, 10FT	1	1	1
82	19-100168-00	UNDER CABINET LIGHTING HARNESS	X	1	
83	15-000055-00	BLUETOOTH 4.0 DONGLE	1	1	1
84	15-100028-00	USB WiFi DONGLE	1	1	1



TOY STORY BACKBOX ASSY

50-100033-XX



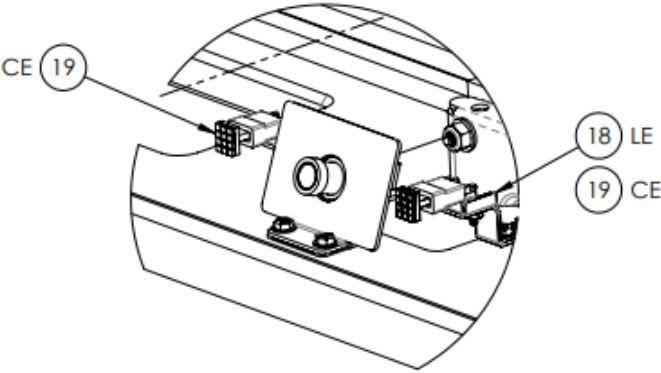
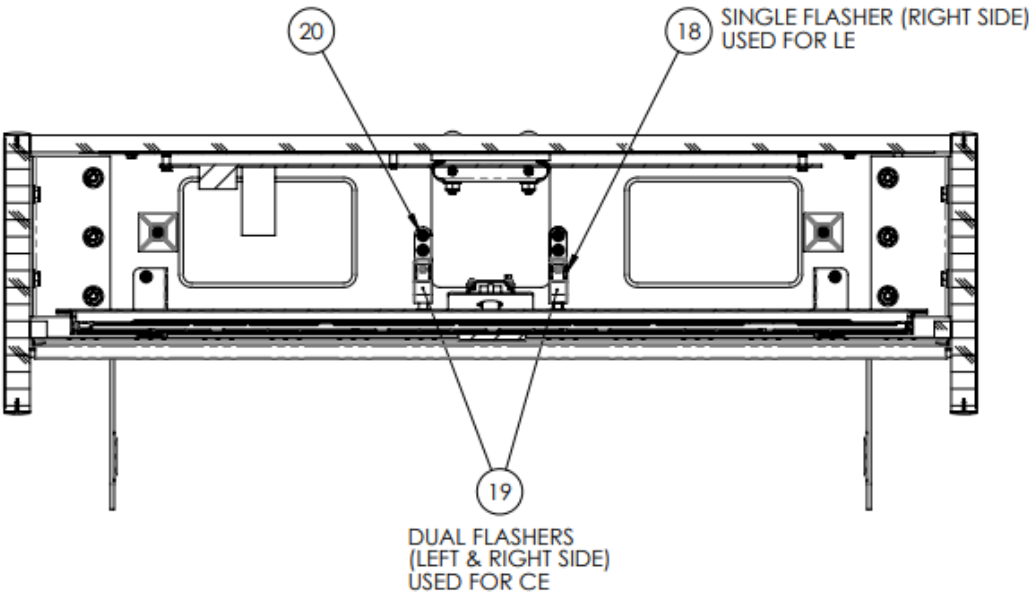


# TOY STORY BACKBOX ASSY

50-100033-XX

Item	Part Number	Description	LE	CE
1	51-100259-06	BACKBOX BASE ASSY, BLUE T MOLDING	1	-
2	51-100259-04	BACKBOX BASE ASSY, YELLOW T MOLDING	-	-
3	51-100259-10	BACKBOX BASE ASSY, RED CHROME T MOLDING	-	1
4	15-004001-07	I/O PCB ASSY, TS	1	1
5	80-002006-06	#6-32 x 3/8" HWH MS	4	4
6	42-007001-36	BACKBOX LEFT MTG HINGE, ULTRAMARINE BLUE	1	-
7	42-007001-37	BACKBOX RIGHT MTG HINGE, ULTRAMARINE BLUE	1	-
8	42-007001-34	BACKBOX LEFT MTG HINGE, ZINC YELLOW	-	-
9	42-007001-35	BACKBOX RIGHT MTG HINGE, ZINC YELLOW	-	-
10	42-007001-29	BACKBOX LEFT MTG HINGE, RANCHER RED	-	1
11	42-007001-28	BACKBOX RIGHT MTG HINGE, RANCHER RED	-	1
12	81-005125-20	#1/4 - 20 x 1-1/4" CARRIAGE BOLT, BLACK	6	6
13	91-002025-00	#1/4-20 FLANGE NUT	6	6
14	10-100088-00TS	JERSEY JACK PINBALL NAME PLATE, LE STAINLESS	1	-
15	30-000114-01	JERSEY JACK PINBALL NAME PLATE, STD	-	-
16	10-100088-10TS	JERSEY JACK PINBALL NAME PLATE, CE STAINLESS	-	1
17	80-000108-08	8-32 X 1/2" PPH MS, BLACK OXIDE	2	2
18	51-100272-00	ASSEMBLY, SINGLE FLASHER, BACKBOX	1	-
19	51-100272-01	ASSEMBLY, DUAL FLASHER, BACKBOX	-	1
20	82-009008-08	#8X1/2" AB SPECIAL HWH PHILLIPS SMS	2	4
21	51-100169-00	TS PRINTED BACKGLASS ASSY, LE	1	-
22	51-100169-01	TS PRINTED BACKGLASS ASSY, SE	-	-
23	51-100169-02	TS PRINTED BACKGLASS ASSY, CE	-	1
24	30-000093-01	BUTTON PLUG, 1.0" BLACK	1	-
25	61-100013-04	TS BACKBOX DECAL, LEFT, SE/LE	1	-
26	61-100013-05	TS BACKBOX DECAL, RIGHT, SE/LE	1	-
27	30-100092-04	TS BACKBOX RAD-CAL, LEFT, CE	-	1
28	30-100092-05	TS BACKBOX RAD-CAL, RIGHT, CE	-	1
29	15-100014-00	TS GAME SECURITY DONGLE	1	1

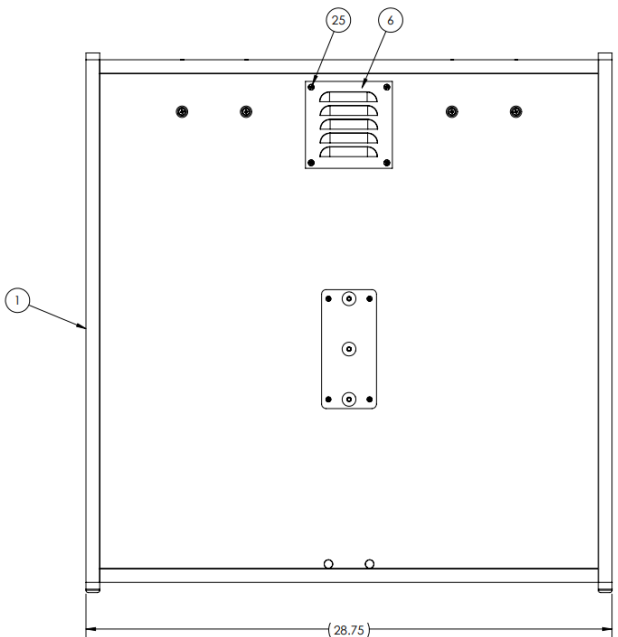
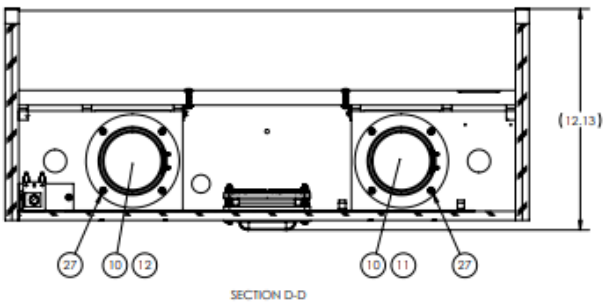
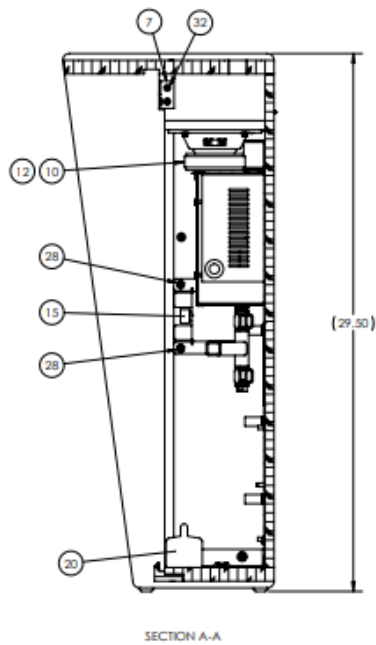
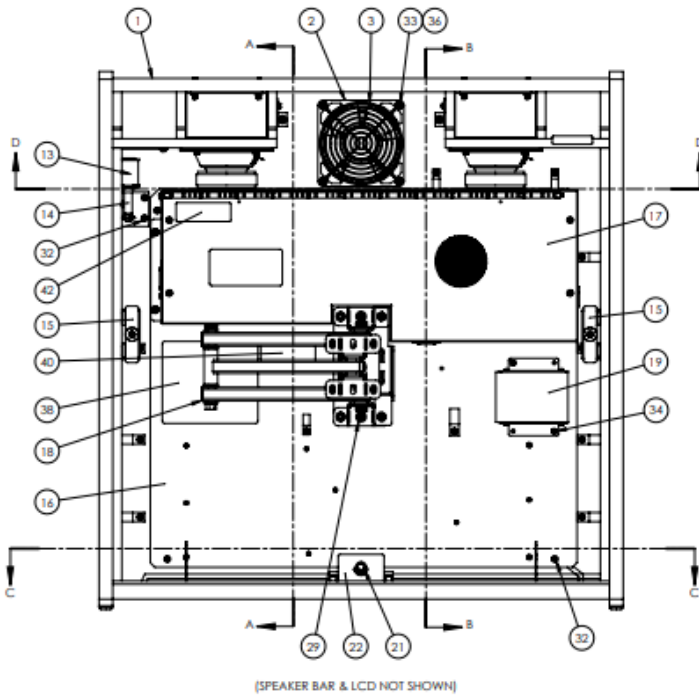
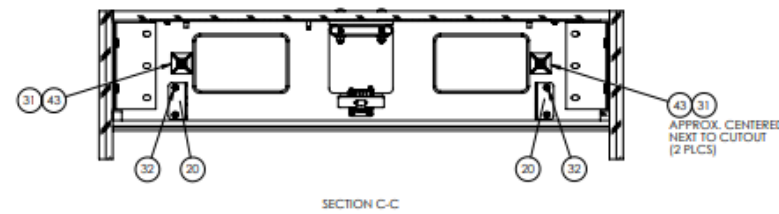
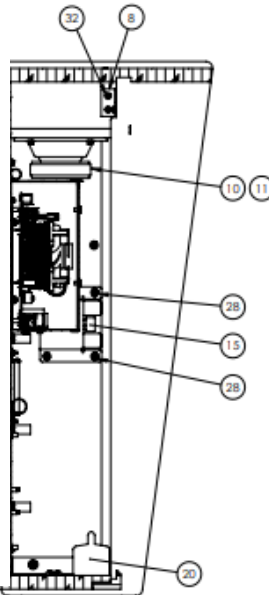
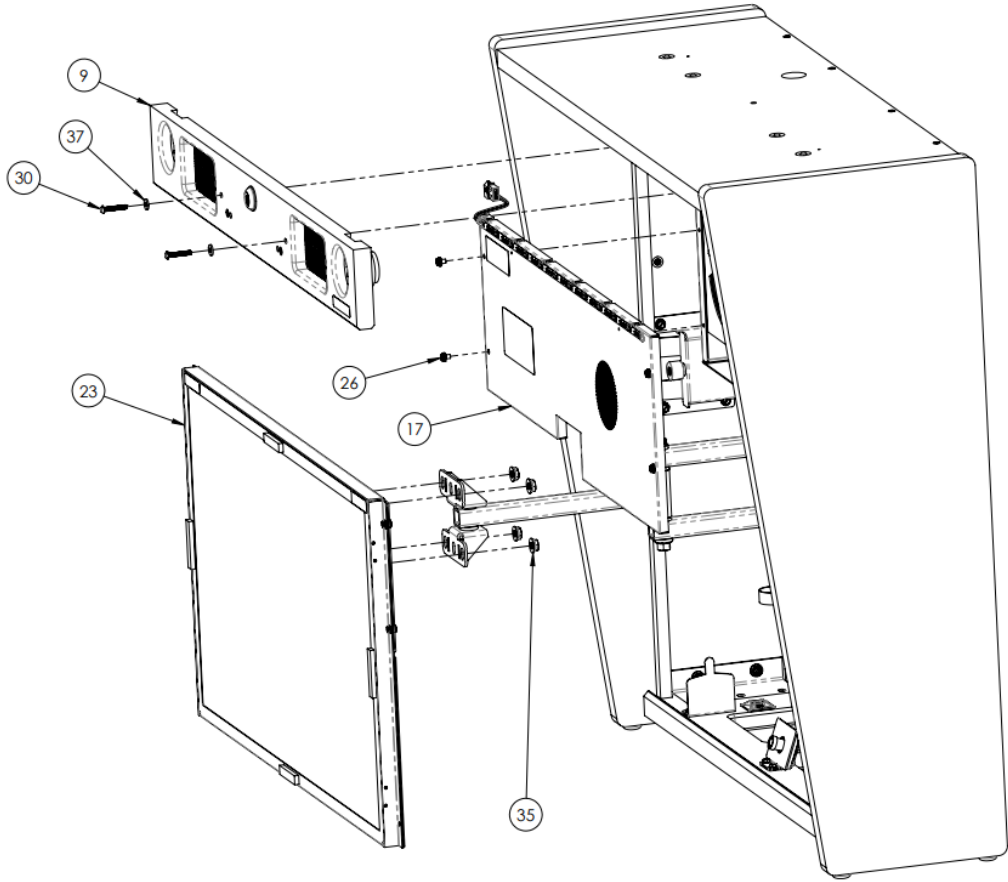
PLACE BACKBOX FLASHER DRILL TEMPLATE IN CENTER CUTOUT AND USE TO MARK LOCATIONS OF FLASHER BRACKET MOUNTING HOLES. DRILL 3/32" DIAMETER HOLES AND INSTALL SINGLE OR DUAL FLASHERS.





BACKBOX BASE ASSY

50-100028-00





BACKBOX BASE ASSY

50-100028-00

Item	Part Number	Description	Qty
1	51-100191-00	BACKBOX WOOD ASSY, STANDARD	1
2	23-005004-02	FAN, 12VDC MOTOR, 120MM, 25MM WIDE	1
3	10-000110-01	FAN GUARD, 4.69in	1
4	19-000030-22	CRIMP PIN, FEMALE, 22-30AWG, 2.54MM	2
5	30-002105-03	HOUSING, FEMALE, 3-PIN, 2.54MM, W/RAMP	1
6	10-000234-00	BACKBOX VENT HOLE COVER, LOUVERED	1
7	10-000207-00	SPEAKER PANEL MTG BRKT, LEFT	1
8	10-000207-01	SPEAKER PANEL MTG BRKT, RIGHT	1
9	51-100051-00	BACKBOX SPEAKER BAR & CABLE ASSY 2/19	1
10	17-006003-00	5.25" MIDRANGE SPEAKER 8 OHM	2
11	19-003116-10	SPEAKER BAR CABLE, RIGHT	1
12	19-003116-11	SPEAKER BAR CABLE, LEFT	1
13	51-006014-25	KNOCKER & CABLE ASSY, VERTICAL MOUNT, 25"	1
14	11-000011-00	KNOCKER PLUNGER ASSY	1
15	51-100050-00	ASSEMBLY, MAGNET LATCH	2
16	51-100041-01	BACKBOX MOUNT PCB ASSY	1
17	51-100238-00	ASSEMBLY, EMI SHIELD LID W/ LED STRIP, 2021 MOBO	1
18	51-100040-00	27" LCD PIVOT/SWING ASSY	1
19	51-005044-03	BACKBOX MOUNT SOLID STATE DRIVE ASSY 120GB	1
20	10-100077-00	SCREEN BRACE	2
21	51-005041-00	USB CAMERA ASSY	1
22	30-000094-00	USB CAMERA COVER	1

Item	Part Number	Description	Qty
23	51-100021-00	27" LCD MONITOR ASSY, BACKBOX PCB'S	1
24	61-009004-01	FOAM ADHESIVE TAPE MEDIUM DENSITY 3/8 x 3/16	8in
25	80-000108-32	#8-32 x 2" PPH MS, BLACK OXIDE	4
26	80-002008-04	#8-32 x 1/4" HWH PHILLIPS SERRATED	4
27	80-002008-08	8-32 X 1/2" HWH PHILLIPS MS, SERRATED, ZINC PLATED	8
28	80-002010-06	10-32 x 3/8" HWH PHILLIPS MS, SERRATED, ZINC PLATED	6
29	80-002025-12	1/4-20 x 3/4" HWH PHILLIPS MS, SERRATED, ZINC PLATED	3
30	80-008108-16	8-32 X 1" TP TORX MS, BLACK	2
31	82-006008-08	#8 X 1/2" PFH SMS, 82 DEG CA, ZINC PLATED	2
32	82-009008-08	#8X1/2" AB SPECIAL HWH PHILLIPS SMS	17
33	91-000008-00	8-32 NYLON STOP NUT THIN	4
34	91-001006-00	#6-32 KEPS NUT, ZINC PLATED	2
35	91-002025-00	#1/4-20 FLANGE NUT	4
36	92-000008-00	#8 FLAT WASHER, .19 ID, .443 OD, .06 TH	4
37	92-000108-00	#8 FLAT WASHER, BLACK	2
38	62-100044-00	IO FUSING VALUE DECAL	1
39	62-100012-00	LCD PULL HERE, DECAL	2
40	62-000034-08	DECAL WARNING FIRE	1
41	62-000034-03	DECAL, WARNING, SHOCK HAZARD, SMALL	1
42	62-000034-02	DECAL WARNING SHOCK HAZARD LARGE	2
43	30-000115-06	1.1" CABLE TIE MOUNT, #6 SCREW, WHITE	2
44	30-000051-08	8" WIRE TIE, NATURAL	11
45	16-005001-00	GROUND LOOP ISOLATOR	1

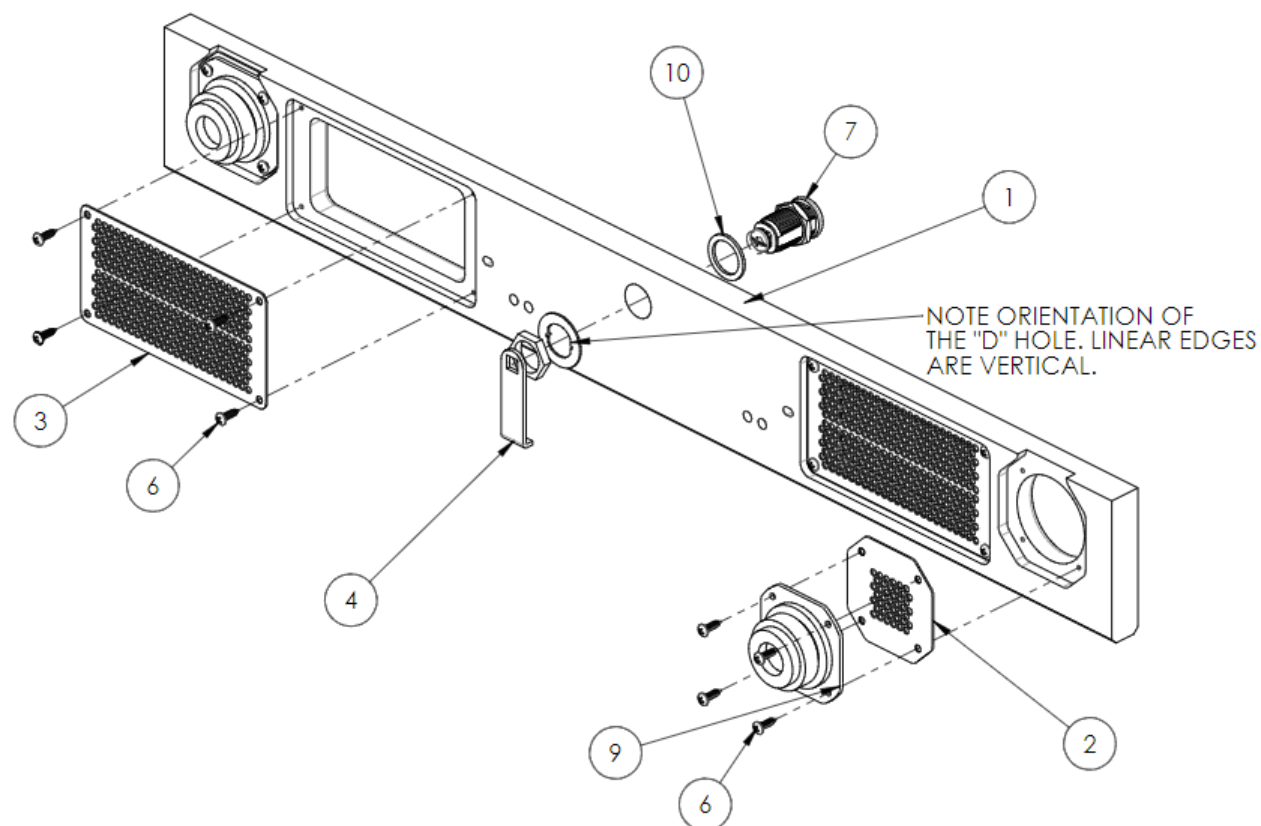


BACKBOX MOUNT PCB BASE ASSY 2021  
51-100041-02

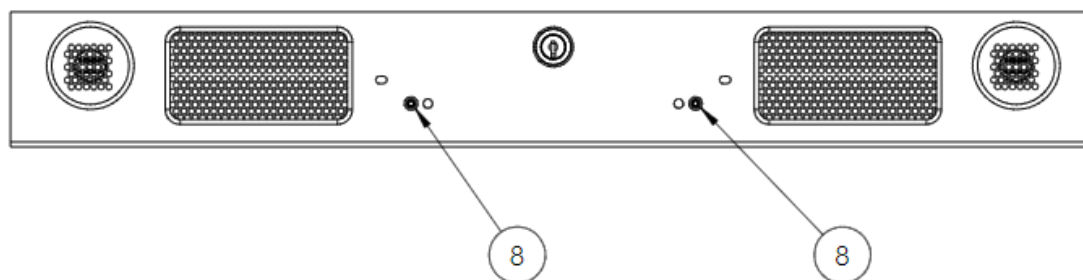


Item	Part Number	Description	Qty
1	10-100082-00	Backbox PEM Plate	1
2	10-100295-00	Backbox PCB's EMI Shield	1
3	51-100177-01	B560M Computer Assembly	1
4	15-004002-01	Sound Amplifier PCB, Analog In	1
5	16-000013-00	ATX Power Supply, 450 Watts	1
6	30-000108-02	Locking Grommet, 1-1/2"	1
7	25-009013-00	PCB Chassis CPU Grommet 1"	1
8	30-000049-08	Nylon Cable Clamp, 1/2"	1
9	30-000049-12	Nylon Cable Clamp, 3/4"	1
10	SUPPLIED W/ ATX	6-32 x 1/4" HWH Phillips SMS Serr	4
11	80-002006-06	#6-32 x 3/8" HWH MS	11
12	91-001008-00	#8-32 Keps Nut, Zinc Plated	4
13	91-000006-00	6-32 Nylon Locknut, Zinc, Thin	2
14	30-008005-00	Plastic Edge Trim w/ Adhesive	7"
15	19-003043-01	3.5mm Audio Cable, M-M 3ft	1
16	19-003072-03	27" LCD Power Cable, Backbox PCB's	1
17	19-003100-01	USB Cable 2.0 A to Mini-B, Shld 1ft	1
18	19-003127-03	Adapter Cable, DVI-D to HDMI, 3ft	1
19	19-009015-02	Sound Amp BD Input Power Cable	1
20	19-100002-00	ATX Power Cable, 093 to C-13"	1
21	30-000051-08	8" Wire Tie, Natural	2





FRONT VIEW



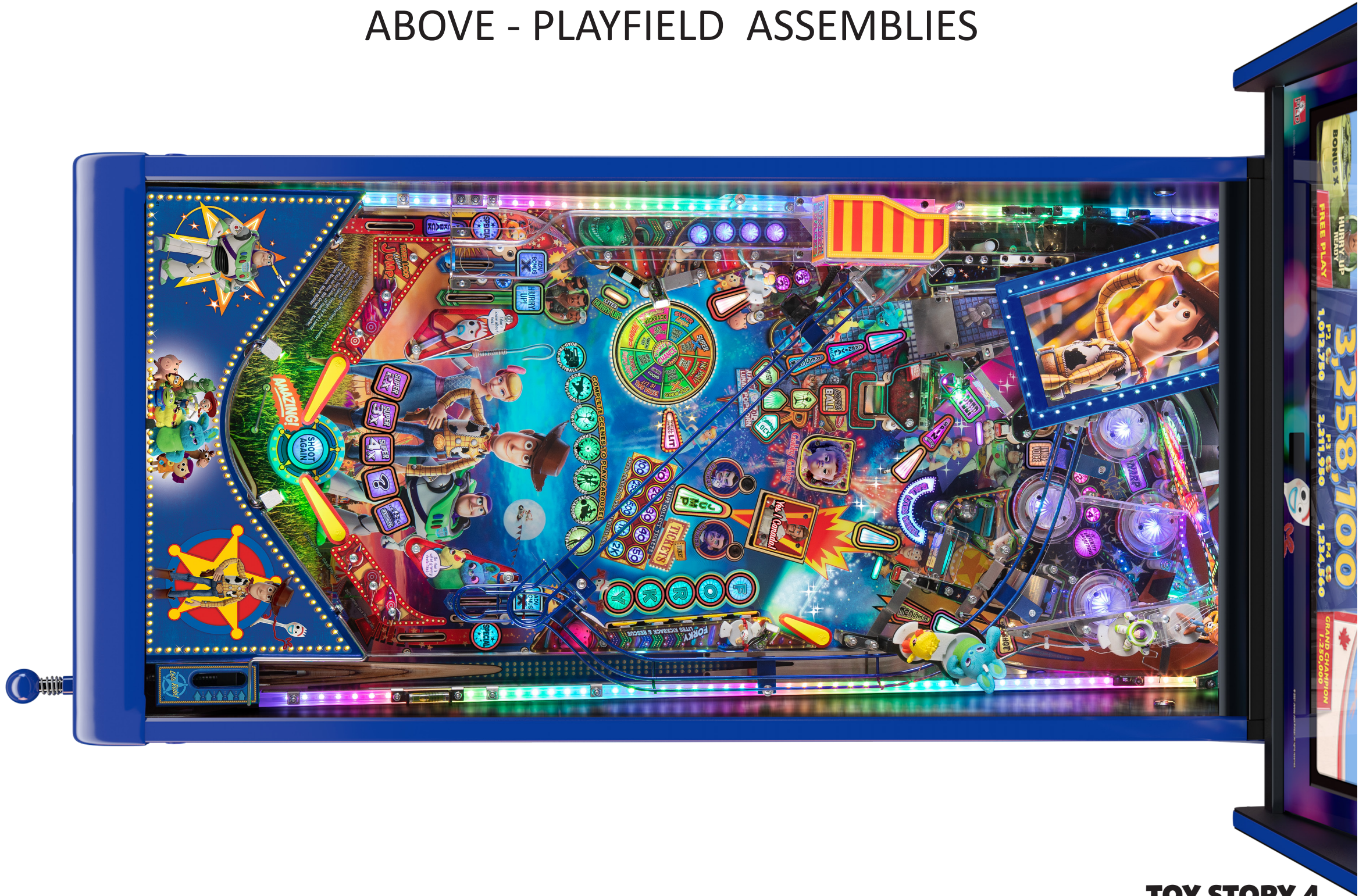
INSERT ITEM 9 FROM FRONT AS SHOWN

## BACKBOX SPEAKER BAR ASSY. 51-100051-00

Item	Part Number	Description	Qty
1	05-100014-00	Speaker Bar Front Panel	1
2	10-000002-10	Tweeter Speaker Grill	2
3	10-000002-11	Mid-Range Speaker Grill	2
4	10-000224-00	Cam, Lock	1
5	109-475M-100	Capacitor 4.7MF, 100V, 20%	2
6	82-000106-08	#6 x 1/2" SMS	16
7	51-005012-02	Lock Assy. 1 1/8" 1 1/4" Cam	1
8	91-005008-00	#8-32 Hex Drive	2
9	17-006000-00	Sound Bar 2" Dome Tweeter	2
10	30-100074-00	Washer	1

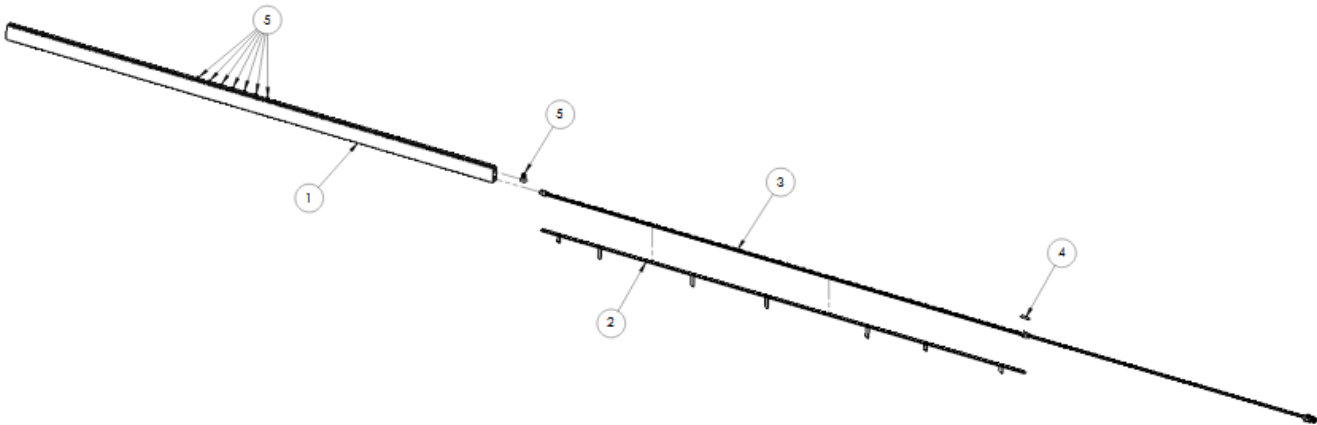


# ABOVE - PLAYFIELD ASSEMBLIES

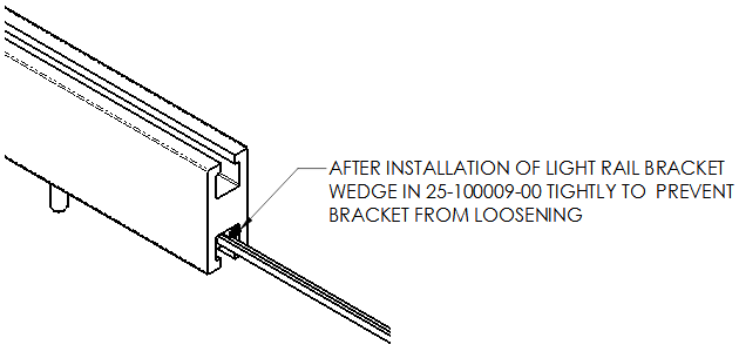
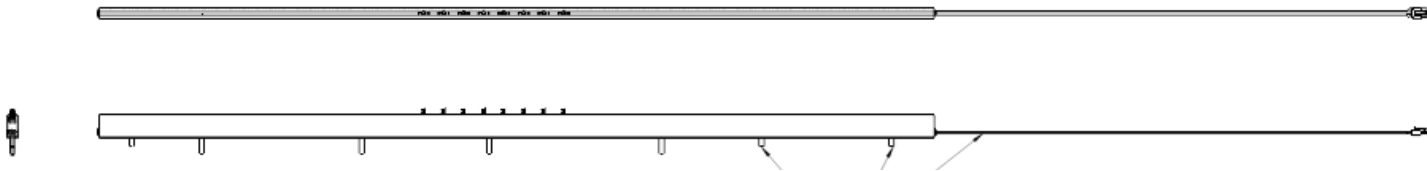




LEFT HOT RAIL ASSY  
51-100240-00

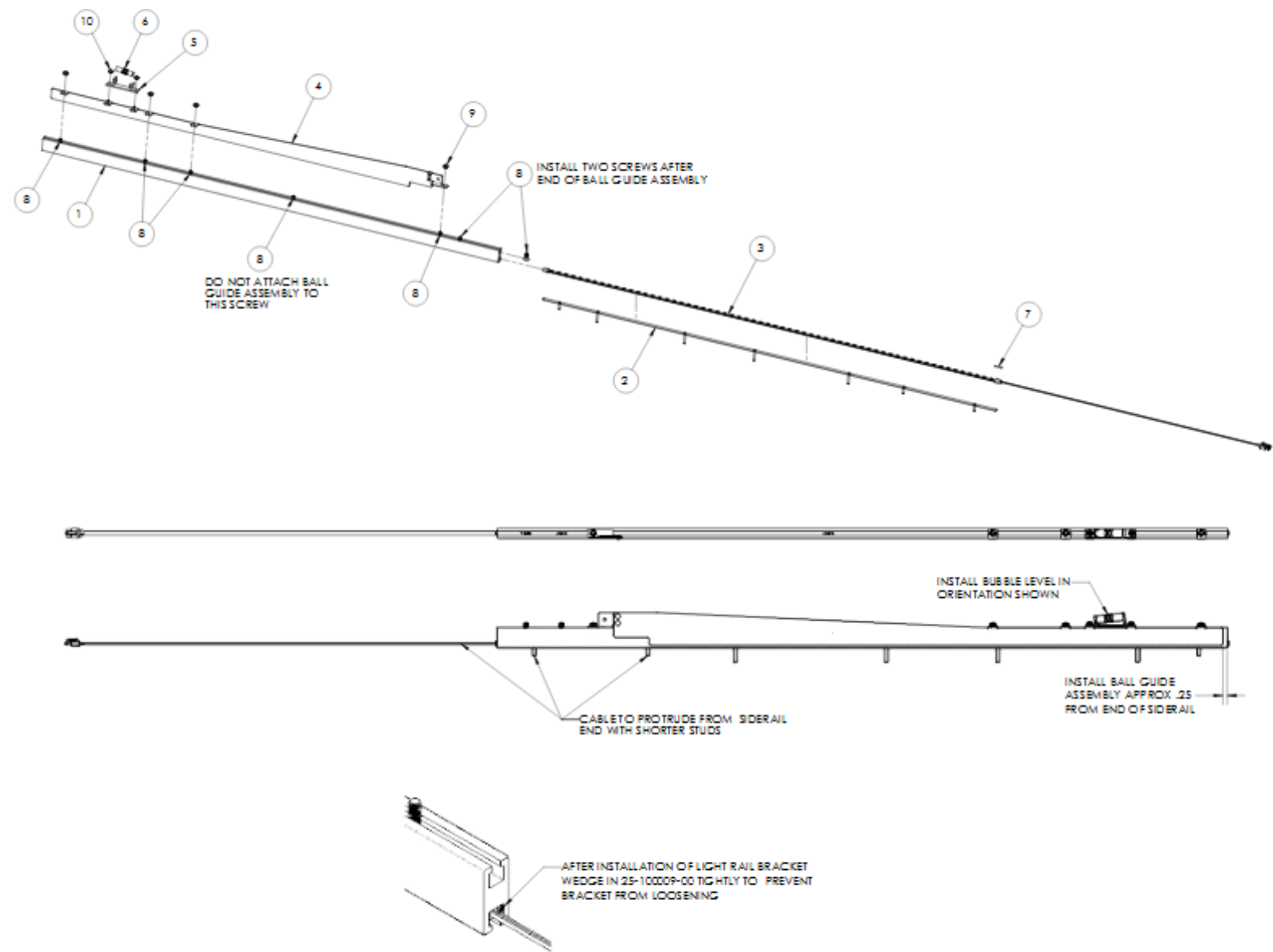


Item	Part Number	Description	Qty
1	30-100030-00	Extrusion, Siderail 41.75 inch	1
2	10-100166-01	Bracket, Light Rail, Long	1
3	51-100102-01	Assy, Light Rail Bracket, Long RGB	1
4	25-100009-00	Plug Rubber Tapered	1
5	85-009008-08	8-32 x 1/2" Screw	8





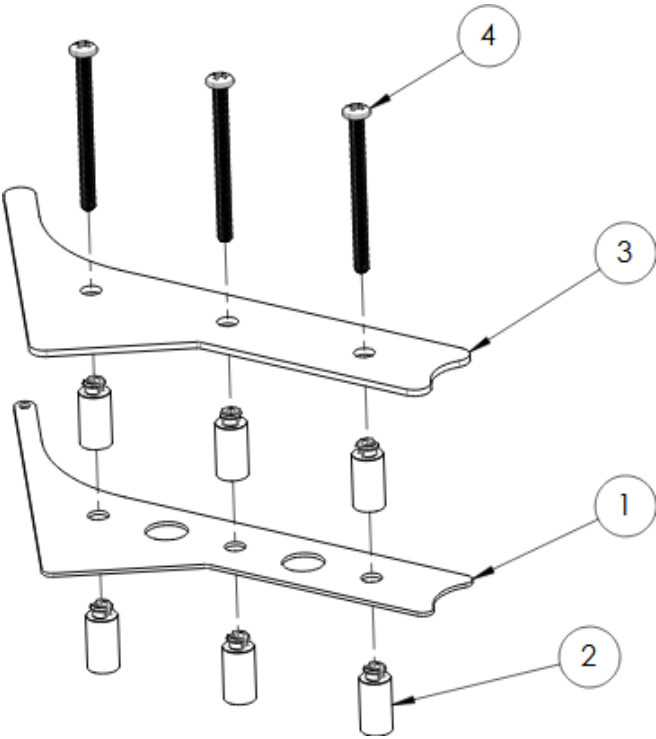
RIGHT HOT RAIL ASSY  
51-100240-01



Item	Part Number	Description	Qty
1	30-100030-00	Extrusion, Siderail 41.75 inch	1
2	10-100166-01	Bracket, Light Rail, Long	1
3	51-100102-01	Assy, Light Rail Bracket, Long RGB	1
4	51-100149-00	TS Ball Guide Assy 1	1
5	30-000087-00	Playfield Bubble Lvl Bracket	1
6	30-000087-01	Playfield Bubble Lvl Vial	1
7	25-100009-00	Plug Rubber Tapered	1
8	85-009008-08	8-32 x 1/2" Screw	7
9	91-000008-00	8-32 Nylon Stop Nut Thin	4
10	91-000006-00	6-32 Nylon Stop Nut	2

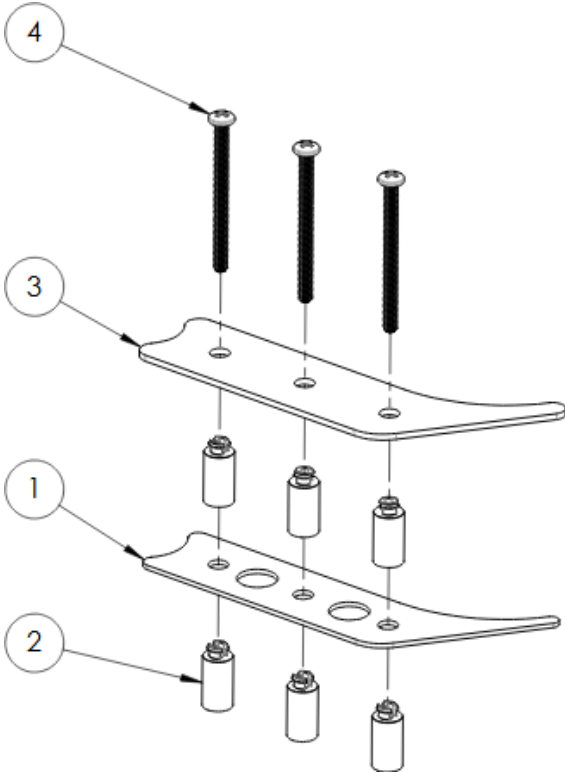


**TS RETURN LANE ASSY, LEFT**  
**51-100239-00**



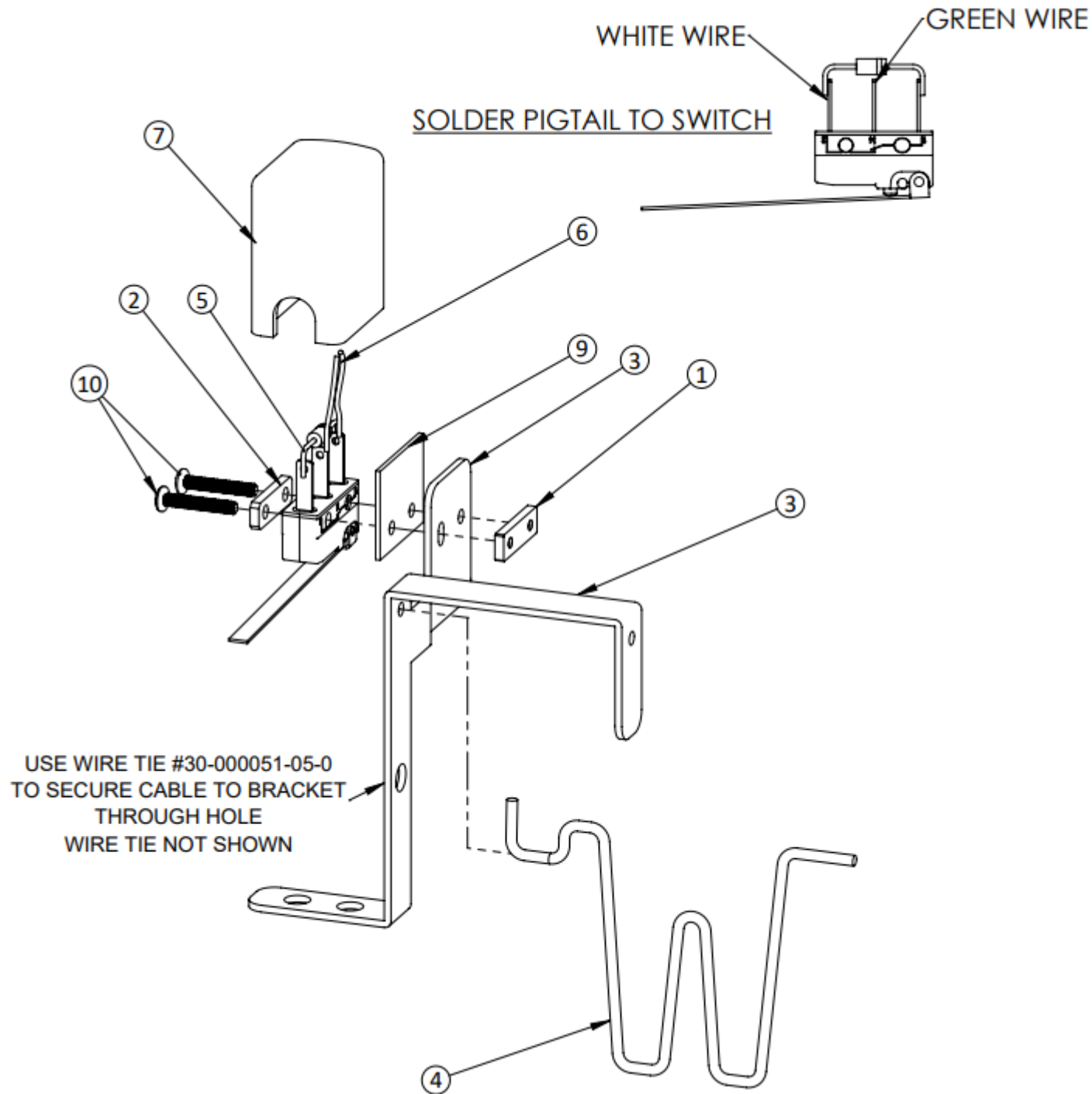
Item	Part Number	Description	Qty
1	10-100293-00	Plate, Return Lane, Left, TS	1
2	30-000083-04	Nylon Round Spacer, Snap In, Blk	6
3	30-100111-01	TS Playfield Plastic, Left Return Ln	1
4	80-000008-32	8-32 x 2" PPH MS, Zinc	3

**TS RETURN LANE ASSY, RIGHT**  
**51-100239-01**



Item	Part Number	Description	Qty
1	10-100292-00	Plate, Return Lane, Right, TS	1
2	30-000083-04	Nylon Round Spacer, Snap In, Blk	6
3	30-100111-02	TS Playfield Plastic, Right Return Ln	1
4	80-000008-32	8-32 x 2" PPH MS, Zinc	3



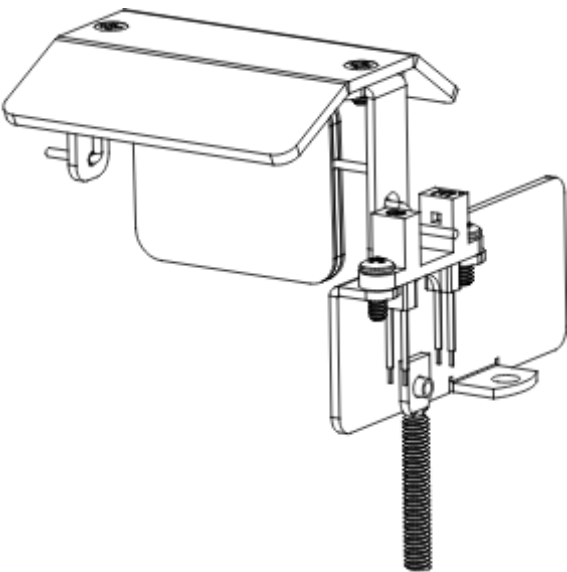
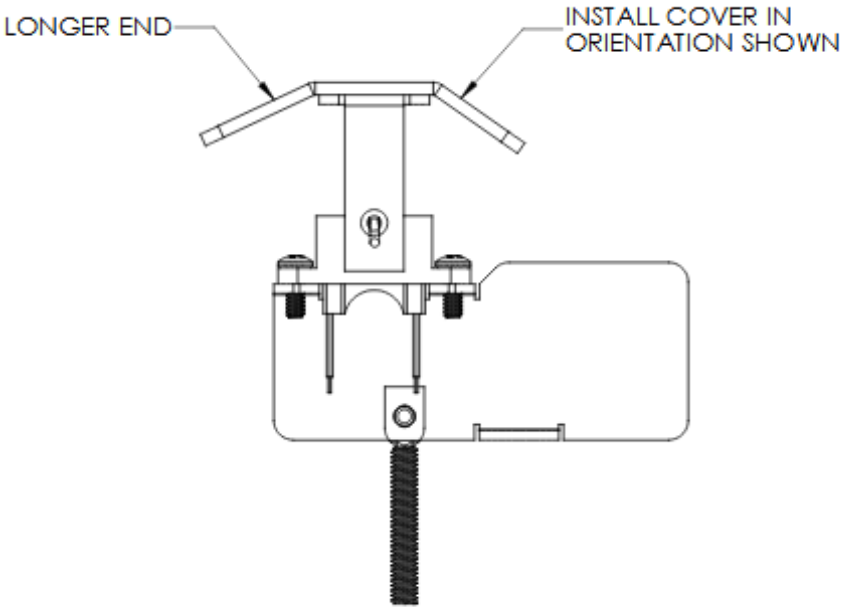
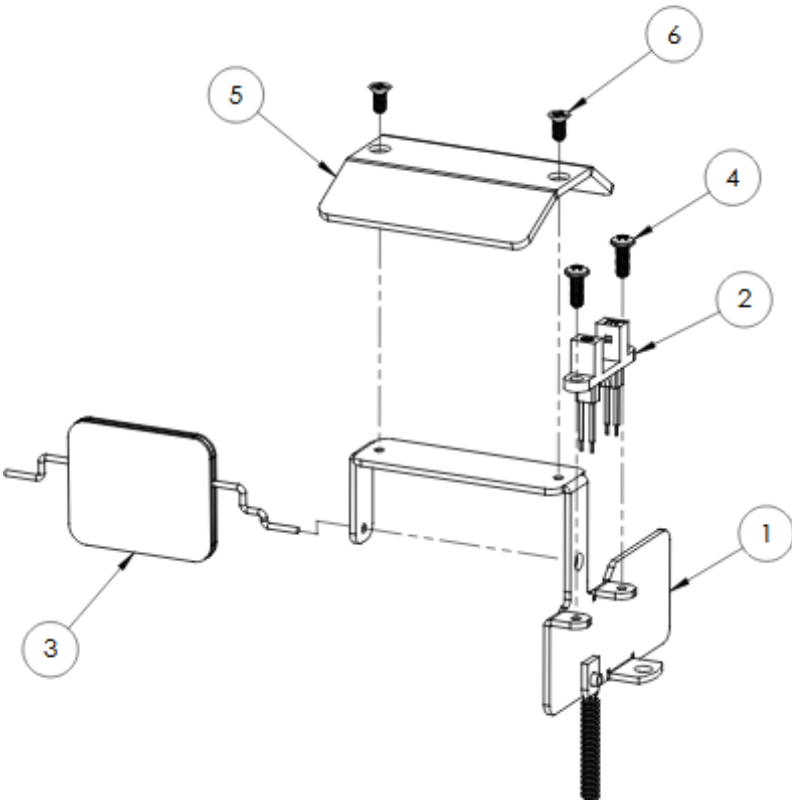


**ASSY, ROLL UNDER GATE**  
**51-100178-00**

Item	Part Number	Description	Qty
1	10-000024-00	Microswitch Nut Plate, 2-56	1
2	10-000024-01	Microswitch Protector Plate, #2	1
3	10-100227-00	Bracket, Roll Under Switch	1
4	13-100030-00	Wire, Roll Under Gate	1
5	18-003002-00	1-Bank Drop Tgt Switch & Wireform	1
6	19-100157-00	Pigtail Switch, Roll Under	1
7	25-007001-02	Viny Microswitch Cover Black	1
8	30-000051-05-0	5.6" Wire Tie Black	1
9	70-009002-00	Microswitch Insulator, Fish Paper	1
10	80-000002-08	#2-56 Pan Head 0.5in Length	2



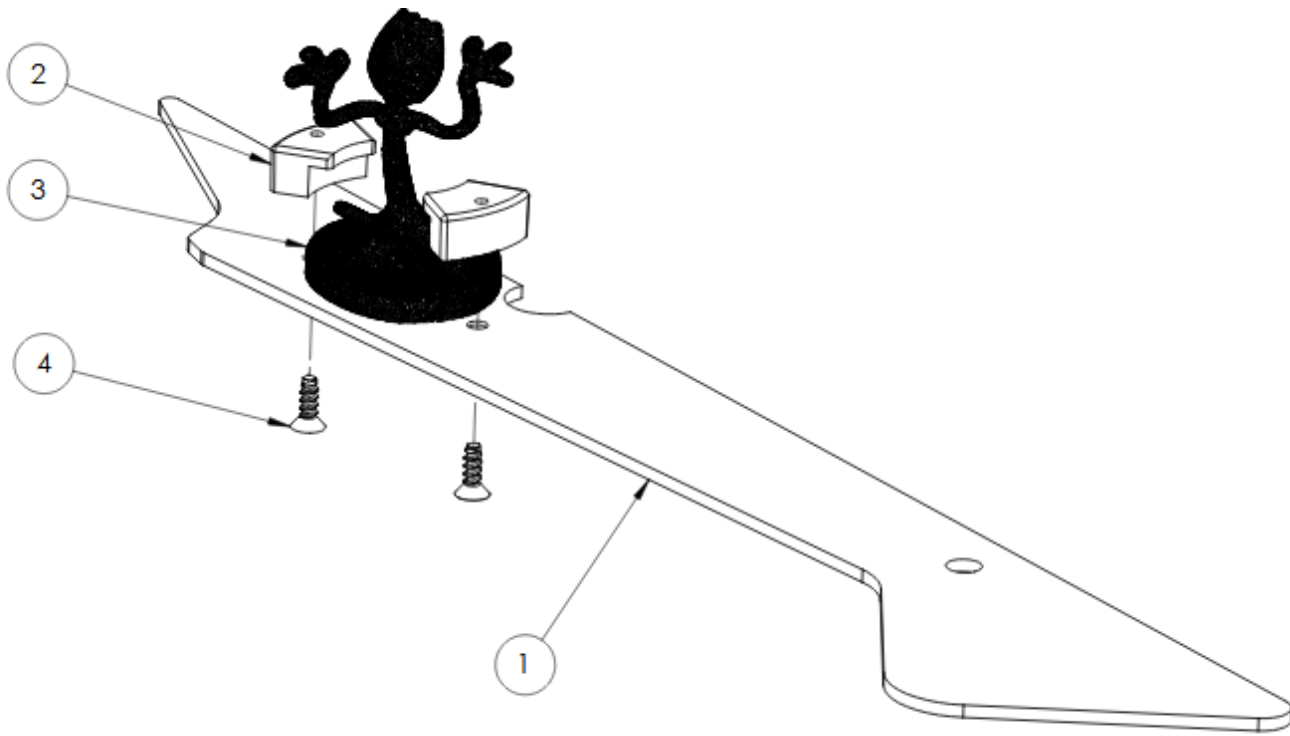
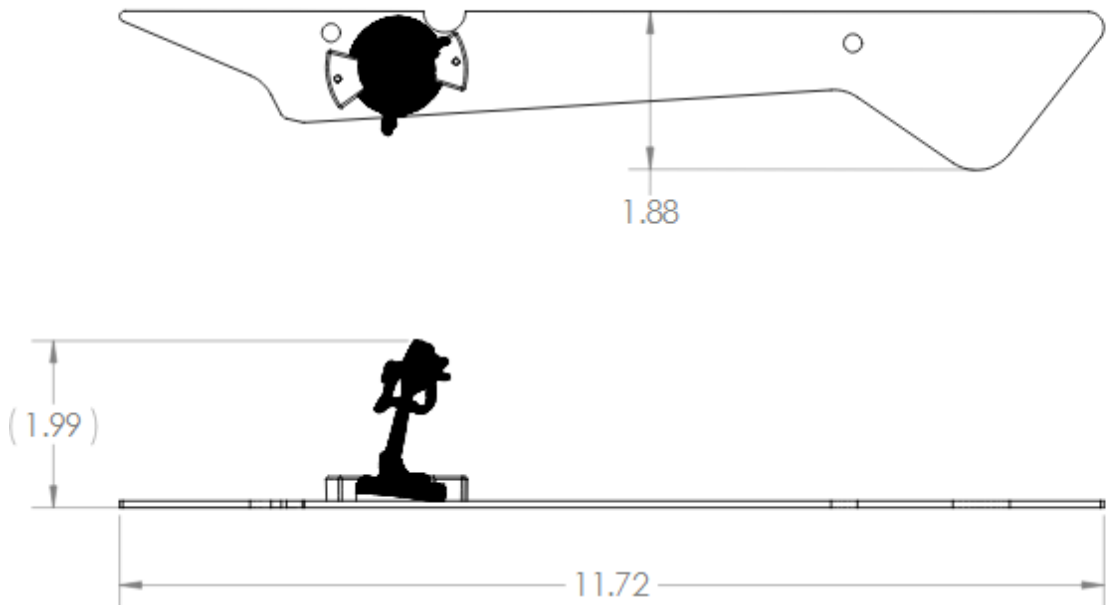
ASSY, FLATRAIL SPINNER  
51-100188-00



Item	Part Number	Description	Qty
1	12-100036-00	Brkt, Flatrail Spinner	1
2	18-005003-00	U Shaped Opto, OPB812W	1
3	10-100008-00	Spinner Target Assembly	1
4	80-000004-05	#4-40 x 5/16" L PPH MS	2
5	30-100115-00	Cover, Spinner Bracket	1
6	80-006004-04	Screw, Flathead Phillips #4-40x.25	2
7	19-000013-22R	Crimp Pin, Female, 22-28AWG, MFJ	4



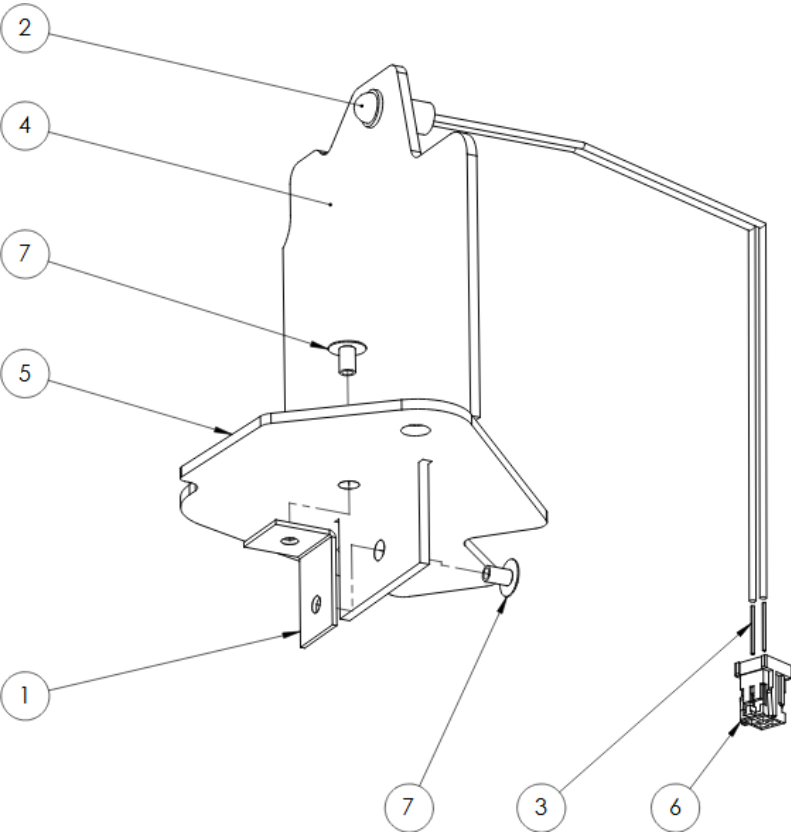
FORKY PLASTIC ASSEMBLY  
51-100274-01



Item	Part Number	Description	Qty
1	30-100111-12	TS Playfield Plastic, Forky Locater	1
2	30-100127-04	Hold Down Figurine BO-FO	2
3	32-100012-04	TS Forky Sculpture	1
4	83-006204-05	#4 x 5/16" PFH Stainless 82° CA	2

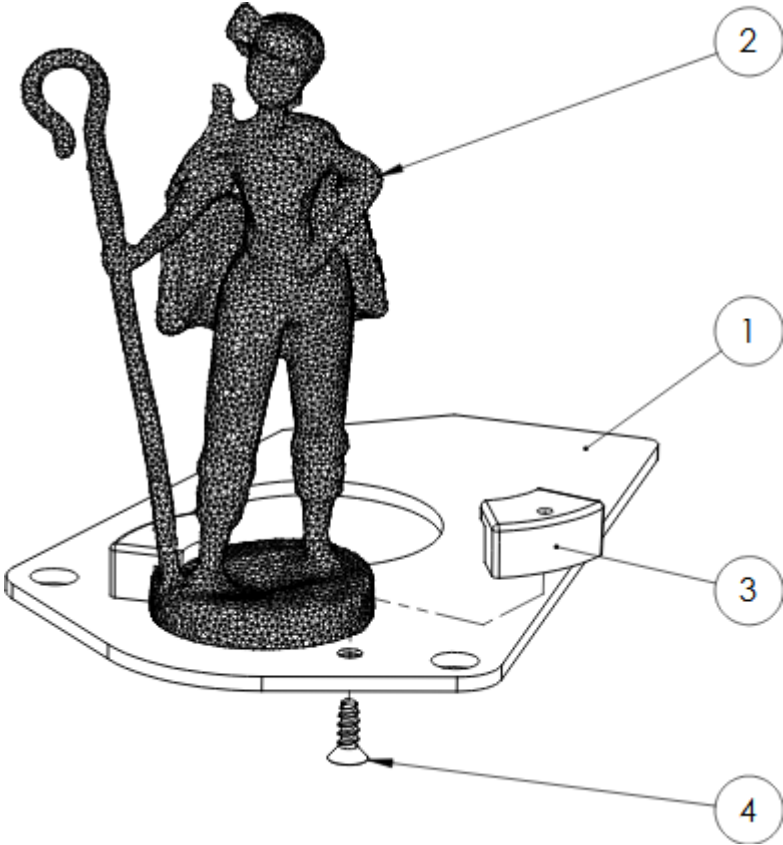


**CURIO CABINET PLASTIC ASSY**  
**51-100274-00**



Item	Part Number	Description	Qty
1	10-000227-01	PF Sign Mounting Bracket, 90°	1
2	19-100042-00	WW Camera LED Cable Assy Red	1
3	19-000020-24S	Crimp Pin, Female, 24-28AWG	2
4	30-100111-14	Curio Cabinet Vertical	1
5	30-100111-13	Curio Cabinet Base Plastic	1
6	30-002513-04	Socket,Female,4-PIN,2 rows,2.5mm	1
7	93-000002-00	1/8" x 3/16" Semi Tubular Rivet	2

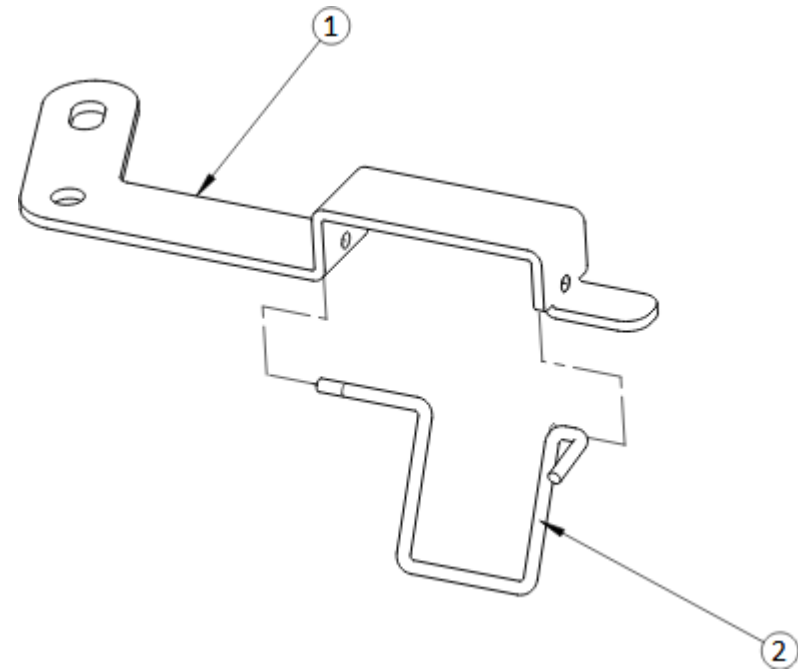
**BO PEEP PLASTIC ASSY**  
**51-100274-02**



Item	Part Number	Description	Qty
1	30-100111-21	TS PF Plastic - Bo Mount	1
2	32-100012-03	Bo Peep Sculpture	1
3	30-100127-04	Hold Down Figurine BO-FO	2
4	83-006204-05	#4 x 5/16" PFH Stainless 82° CA	2

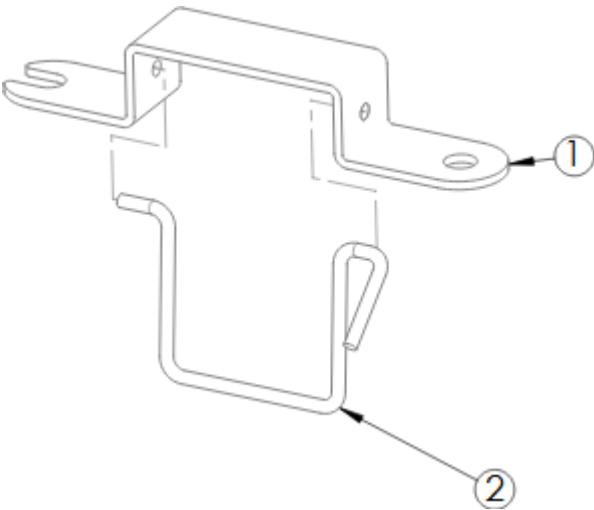


ASSEMBLY, WIRE GATE EXIT RIGHT  
51-100197-00



Item	Part Number	Description	Qty
1	10-100241-00	Bracket, Wire Gate	1
2	13-100048-00	Wireform, Gate, Ball Settling 1.58"	1

ASSEMBLY, WIRE GATE SPINNER  
51-100198-00



Item	Part Number	Description	Qty
1	10-100242-00	Bracket Wiregate 2.5"	1
2	13-003022-00	One Way Gate Wireform, 1.61"	1



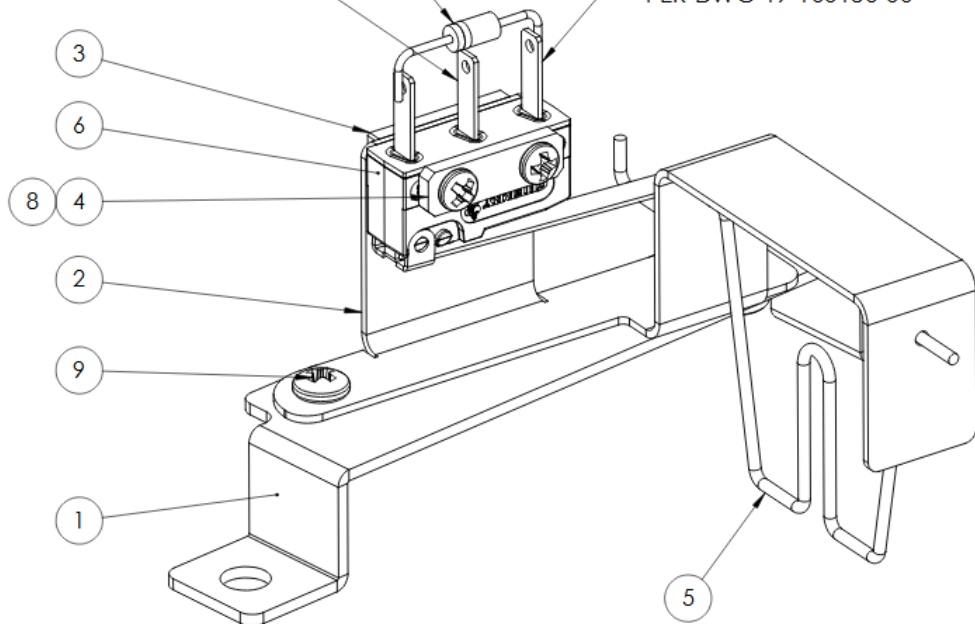
## ASSEMBLY, ROLL UNDER SWITCH

**51-100284-00**

NOTE TERMINAL & BAND ORIENTATION

SOLDER GREEN/YELLOW WIRE  
PER DWG 19-100156-00

SOLDER WHITE/BLACK WIRE  
PER DWG 19-100156-00



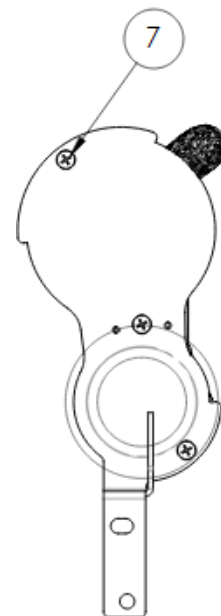
NOTE: SWITCH COVER REMOVED FOR CLARITY  
AND HARNESS SOLDERING DETAIL

NOTE: 19-100156-00 NOT SHOWN

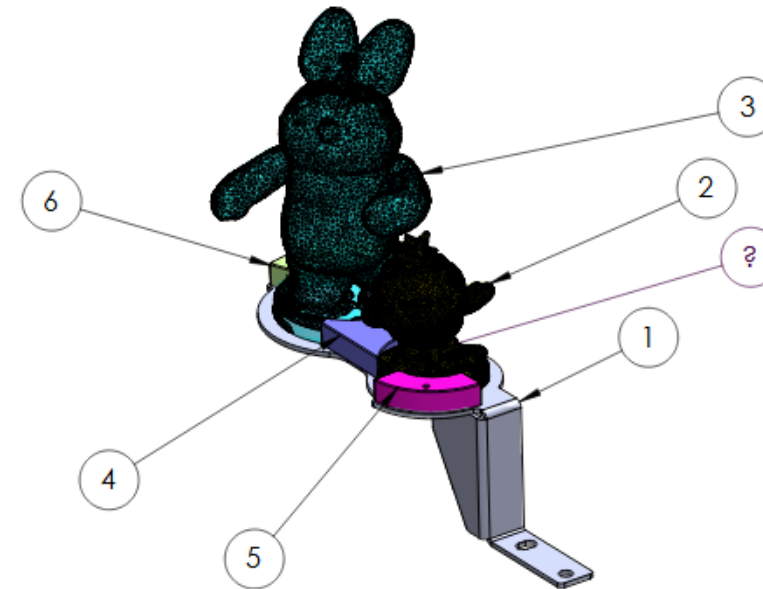
Item	Part Number	Description	Qty
1	10-100332-00	Bracket, Mounting, RollUnder Assy	1
2	10-100124-00	SLSH Left Ramp Return Switch Brkt	1
3	10-000024-00	Microswitch Nut Plate 2-56	1
4	10-000024-01	Microswitch Protector Plate #2	1
5	13-100009-00	SLSH Left Ramp Return Switch Wire	1
6	18-003003-00	Microswitch & Wireform 3 Ball Lock	1
7	19-100156-00	Microswitch Pigtail, 18-inch	1
8	80-000002-07	2-56 x 7/16" PPH MS	2
9	80-000004-03	#4-40 x 3/16"L PPH MS	2

## ASSEMBLY, DUCKY-BUNNY

**51-100267-00**



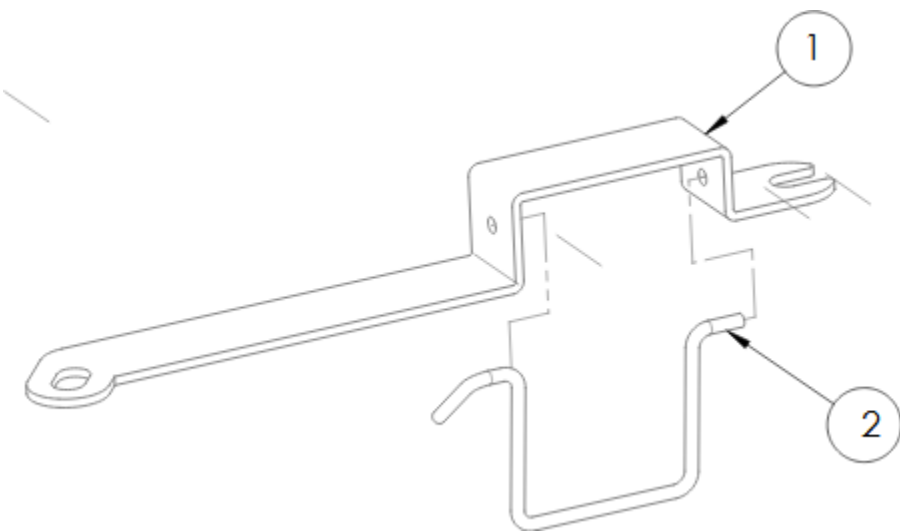
BOTTOM VIEW



Item	Part Number	Description	Qty
1	10-100300-00	TS Figurine Mtg Brkt, Right Side	1
2	32-100012-05	TS Ducky Sculpture	1
3	32-100012-06	TS Bunny Sculpture	1
4	30-100127-03	Hold Down DU-BU Center	1
5	30-100127-01	Hold Down Figurine DU	1
6	30-100127-02	Hold Down Figurine BU	1
7	83-006204-05	#4 x 5/16" PFH Stainless 82° CA	2

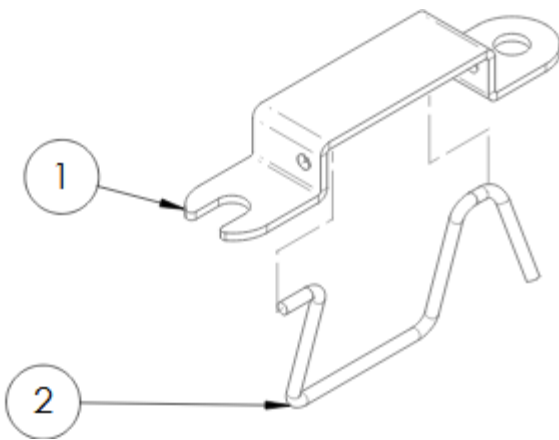


ASSEMBLY, DROP TARGET WIRE GATE  
51-100200-00



Item	Part Number	Description	Qty
1	10-100244-00	Bracket, Wire Gate Angled	1
2	13-003022-00	One Way Gate Wireform, 1.61"	1

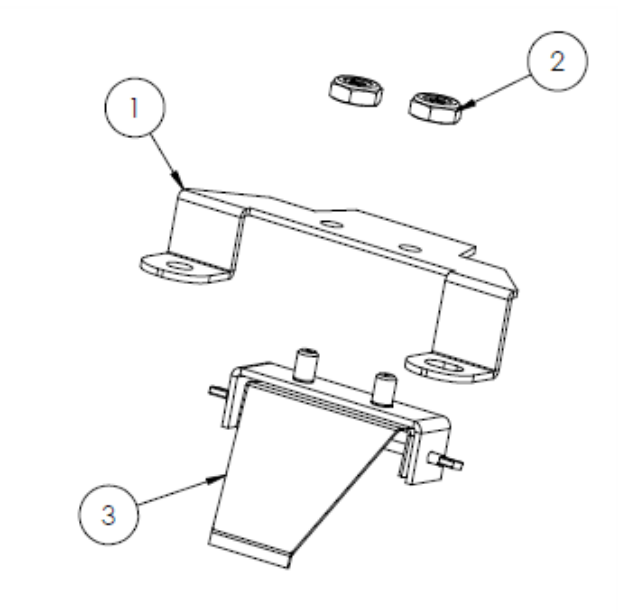
ASSEMBLY, WIRE GATE LEFT LANE  
51-100201-00



Item	Part Number	Description	Qty
1	10-100245-00	Bracket, Wire Gate Staggered	1
2	13-003022-00	One Way Gate Wireform, 1.61"	1

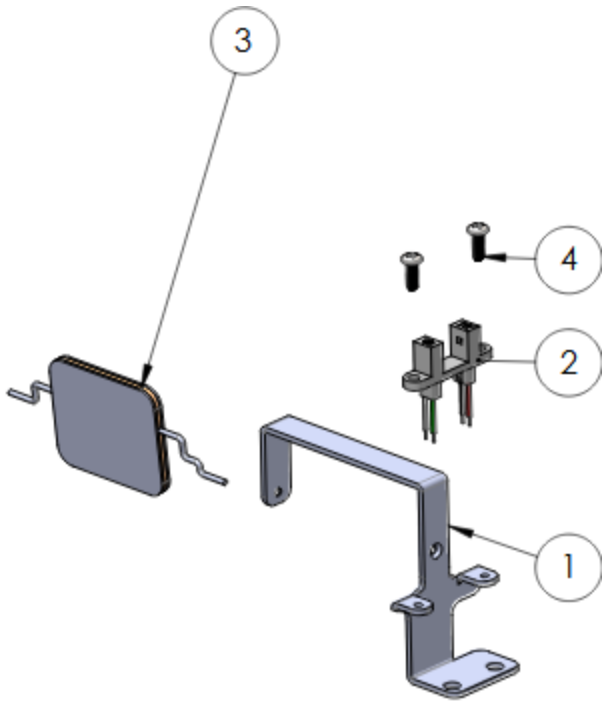


**FLAP GATE ASSY**  
**51-100079-00**



Item	Part Number	Description	Qty
1	10-100137-00	Flap Gate Mtg Brkt	1
2	91-000006-00	6-32 Nylon Stop Nut	2
3	51-000085-10	Flap Gate Pem Brkt Assy	1

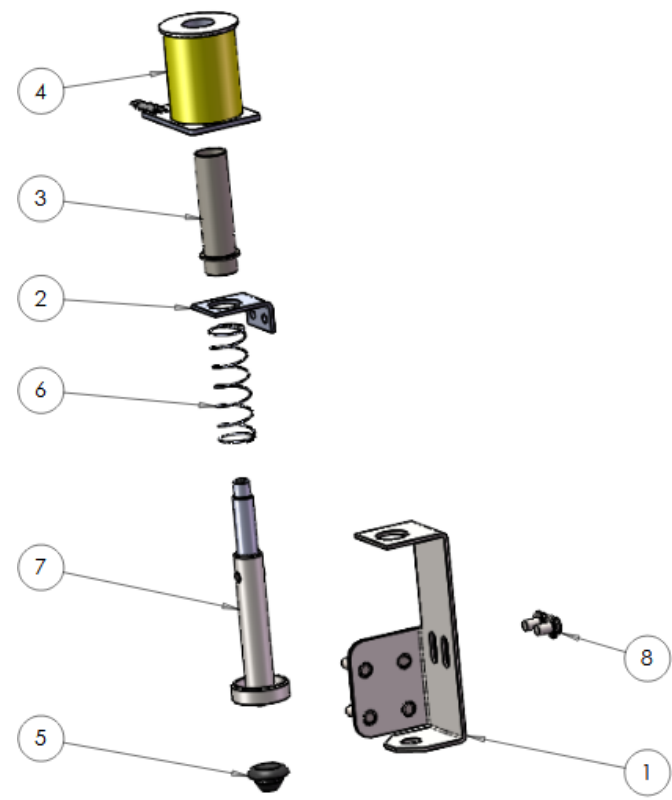
**ASSY, SPINNER OPTO STAND ALONE**  
**51-100189-00**



Item	Part Number	Description	Qty
1	10-100235-00	Brkt, Spinner Stand Alone	1
2	18-005003-00	U-Shaped Opto, OPB812W	1
3	10-100008-00	Spinner Target Assembly	1
4	80-000004-05	#4-40 x 5/16" L PPH MS	2

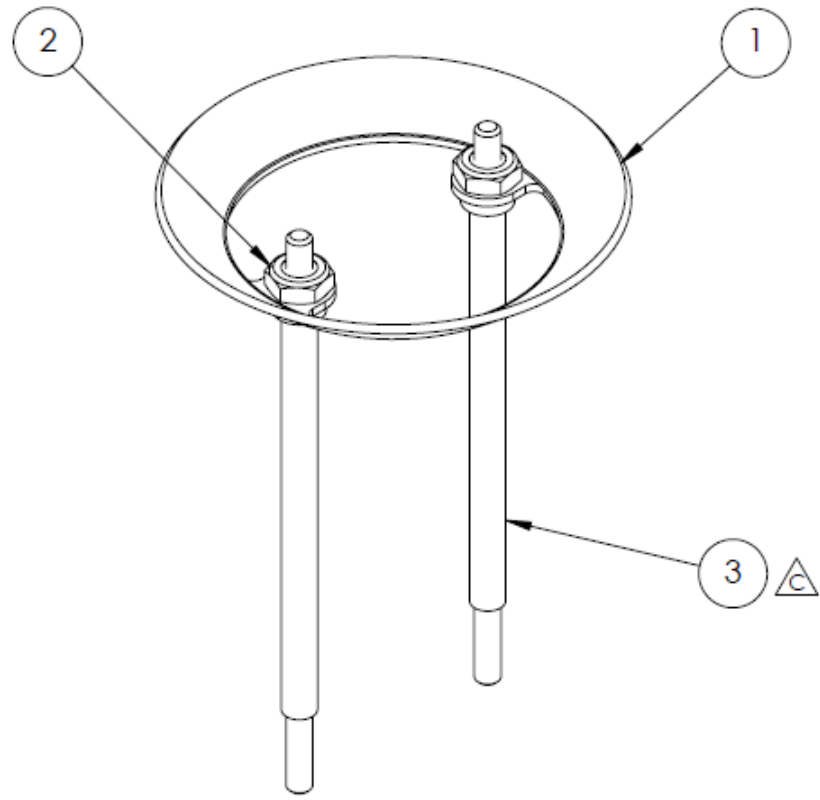


ASSY, NARROW KICK BACK  
51-100194-00



Item	Part Number	Description	Qty
1	10-005007-02	Bracket, Narrow Kickback	1
2	10-007000-00	Coil Retaining Bracket "T" Type	1
3	30-000014-30-1	1-7/8" Coil Tubing Flanged	1
4	23-000003-00	23-800 Standard Coil	1
5	25-009001-00	Rubber Bumper Plug Black	1
6	13-007005-00	VUK Plunger Return Spring	1
7	11-005012-00	Laser Kick Plunger Assy	1
8	80-002008-04	#8-32 x 1/4" HWH Phillips Serr	2
9	19-100150-00	Coil Pigtail, 2-LUG, 4"	1 (Not Shown)

POP BUMPER RING ASSY.  
11-005004-01



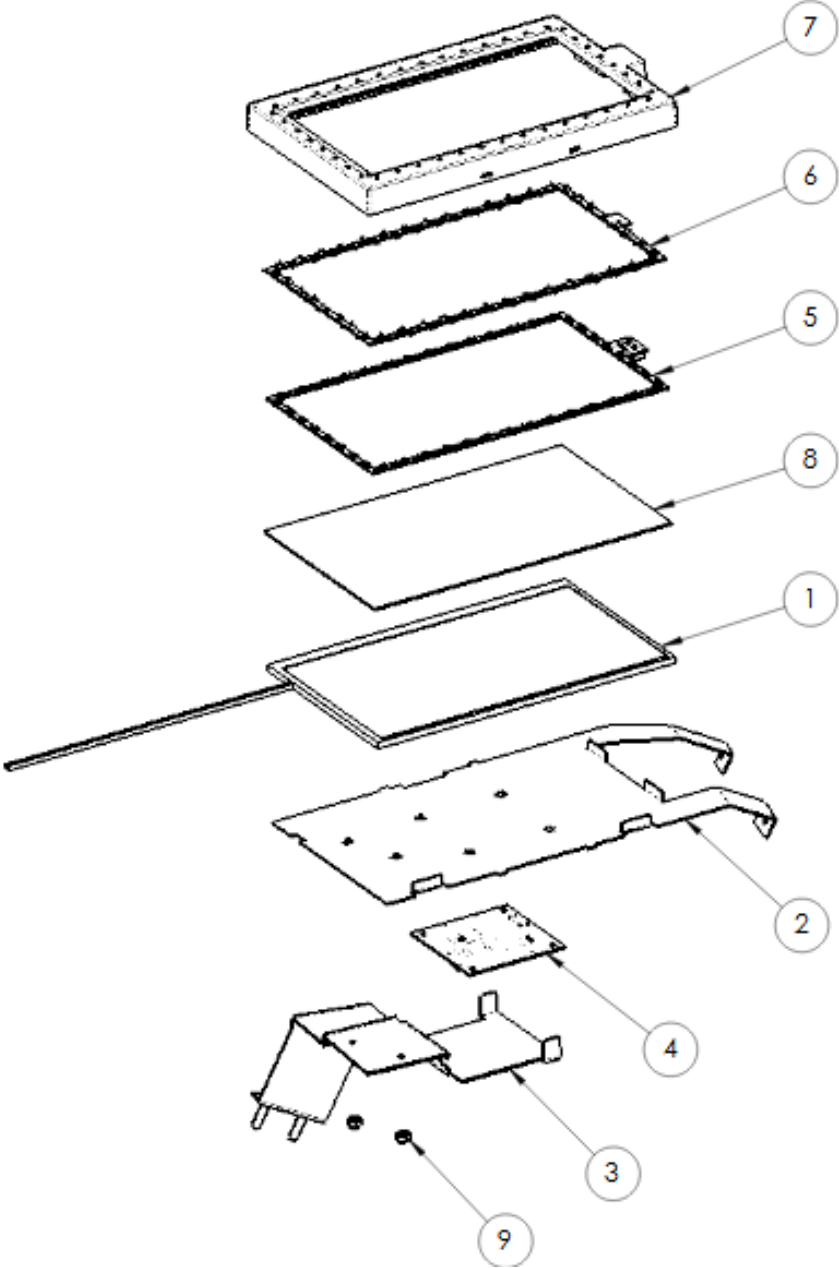
Item	Part Number	Description	Qty
1	11-000005-00	Pop Bumper Ring	1
2	91-000006-00	6-32 Nylon Stop Nut	2
3	11-100000-00	Bumper Rod	2



**ASSY, 10" LCD, TS**  
**51-100187-XX**

Item	Part Number	Description	Qty
1	17-100002-00	TFT 10 Inch (1024x600)	1
2	10-100233-00	Mounting Brkt, 10 inch LCD	1
3	10-100233-01	Mounting Brkt, 10 inch LCD Btm	1
4	15-100035-01	10 inch TFT Driver Board, H-HDMI	1
5	15-100033-01	TFT Frame LED Board	1
6	30-100085-00	Lens Plate 10 inch LCD	1
7	30-100085-X1	Bezel, 10 inch LCD TS	1
8	30-100085-02	Clear Screen Cover, 10 inch LCD	1
9	91-000008-00	8-32 Nylon Stop Nut Thin	2

Assy Number	Description	Item 7 Number
51-100187-00	ASSY, 10" LCD, TS, LE (ULTRAMARINE BLUE)	30-100085-11
51-100187-02	ASSY, 10" LCD, TS, CE (RED CHROME)	30-100085-31

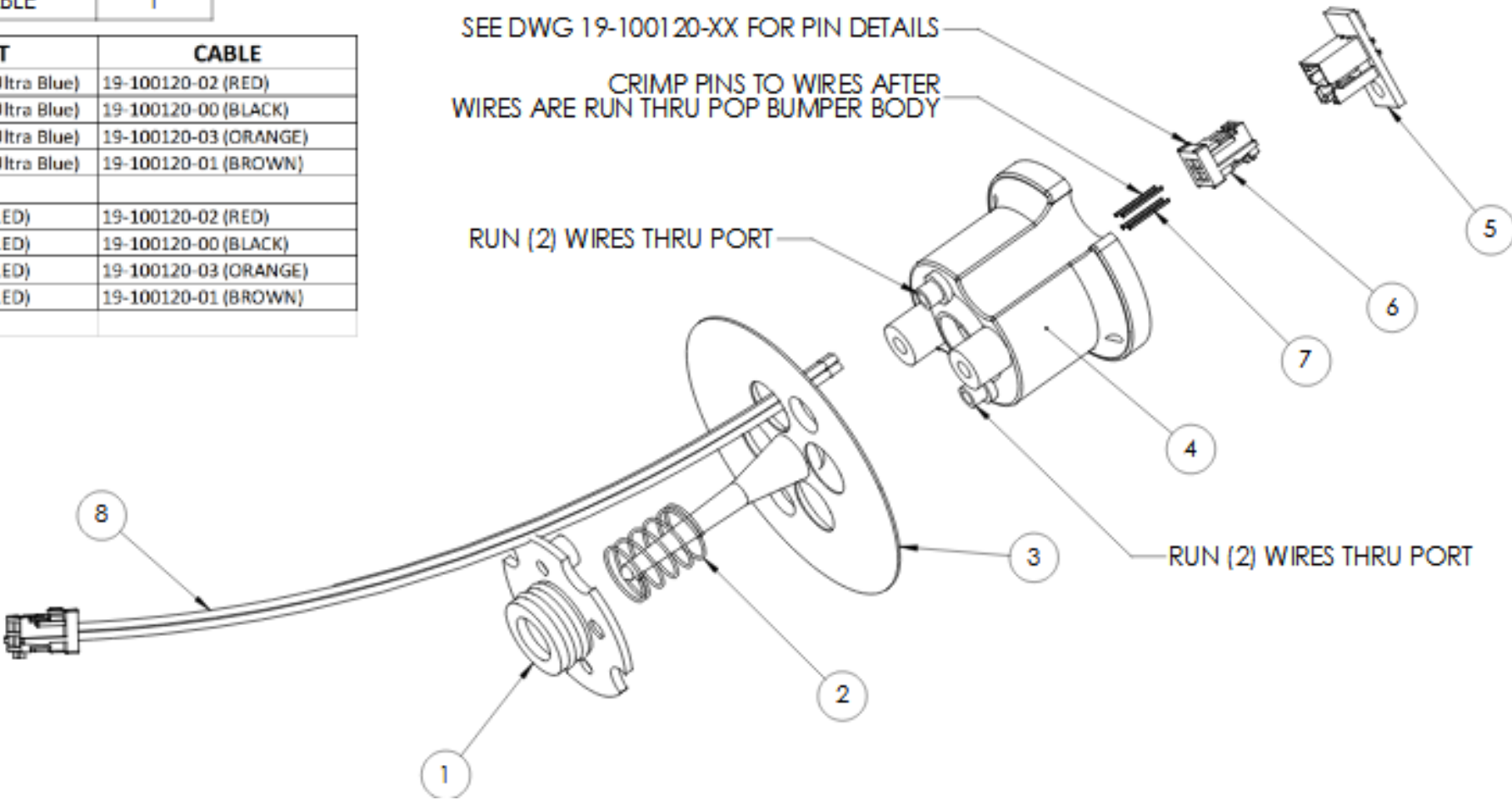




**TS POP BUMPER ASSY**  
**51-100172-XX**

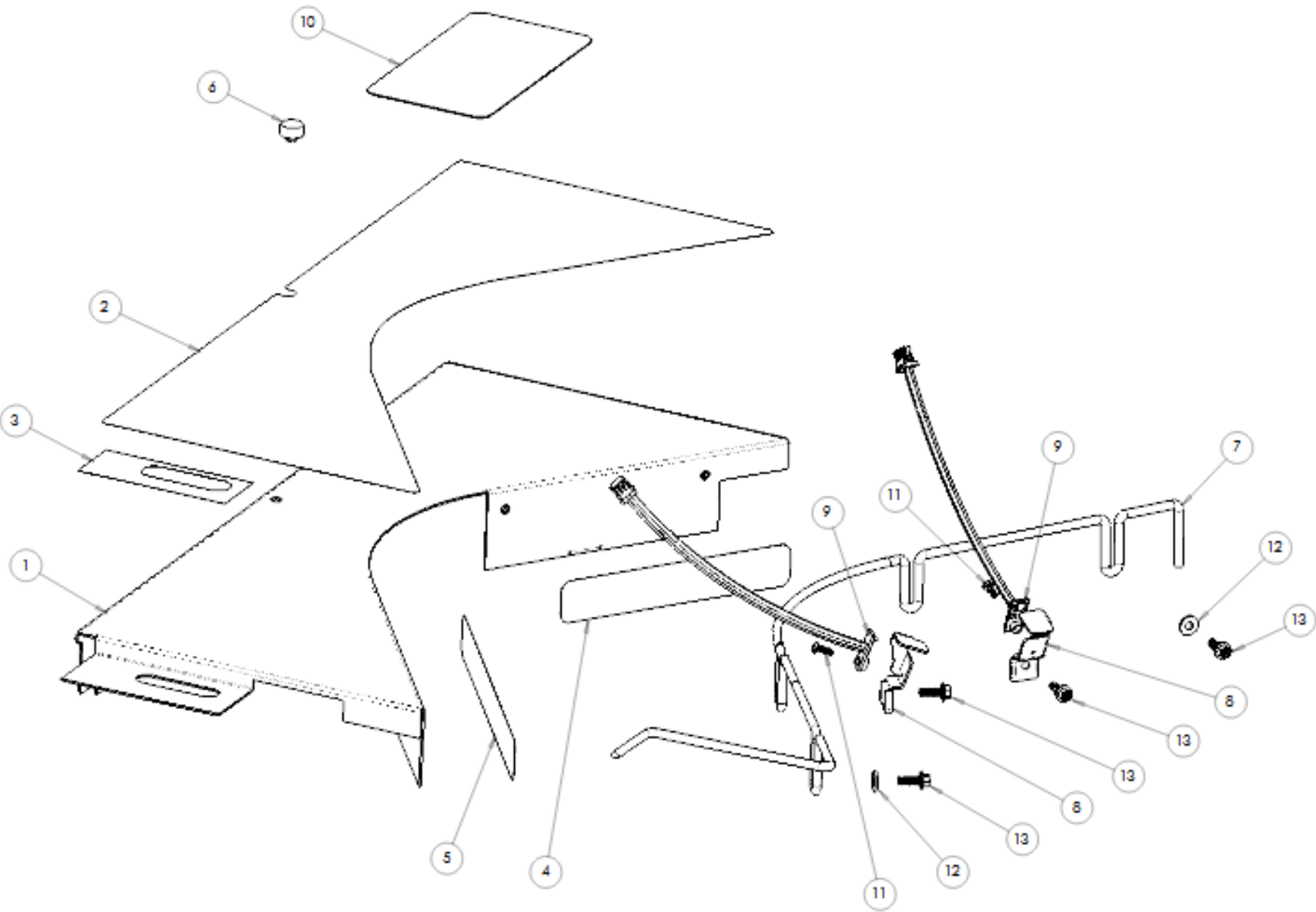
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	30-000003-09	POP BUMPER BASE, WHITE	1
2	13-007003-00	POP BUMPER SKIRT SPRING	1
3	30-000004-XX	Pop Bumper Skirt	1
4	30-000005-09	POP BUMPER BODY, WHITE	1
5	15-004251-05	RGB GI PCB ASSY, T LED FP, 5V	1
6	30-002513-04	SOCKET, FEMALE, 4-PIN, 2 ROWS, 2.5MM	1
7	19-000020-24S	CRIMP PIN, FEMALE, 24-28AWG	4
8	19-100120-XX	POP BUMPER RGB LED CABLE	1

ASSY NUMBER	DESCRIPTION	SKIRT	CABLE
51-100172-00	TS TOP POP BUMPER ASSY, LE	30-000004-10 (Ultra Blue)	19-100120-02 (RED)
51-100172-01	TS BOTTOM POP BUMPER ASSY, LE	30-000004-10 (Ultra Blue)	19-100120-00 (BLACK)
51-100172-02	TS RIGHT POP BUMPER ASSY, LE	30-000004-10 (Ultra Blue)	19-100120-03 (ORANGE)
51-100172-03	TS LEFT POP BUMPER ASSY, LE	30-000004-10 (Ultra Blue)	19-100120-01 (BROWN)
51-100172-20	TS TOP POP BUMPER ASSY, CE	30-000004-02 (RED)	19-100120-02 (RED)
51-100172-21	TS BOTTOM POP BUMPER ASSY, CE	30-000004-02 (RED)	19-100120-00 (BLACK)
51-100172-22	TS RIGHT POP BUMPER ASSY, CE	30-000004-02 (RED)	19-100120-03 (ORANGE)
51-100172-23	TS LEFT POP BUMPER ASSY, CE	30-000004-02 (RED)	19-100120-01 (BROWN)



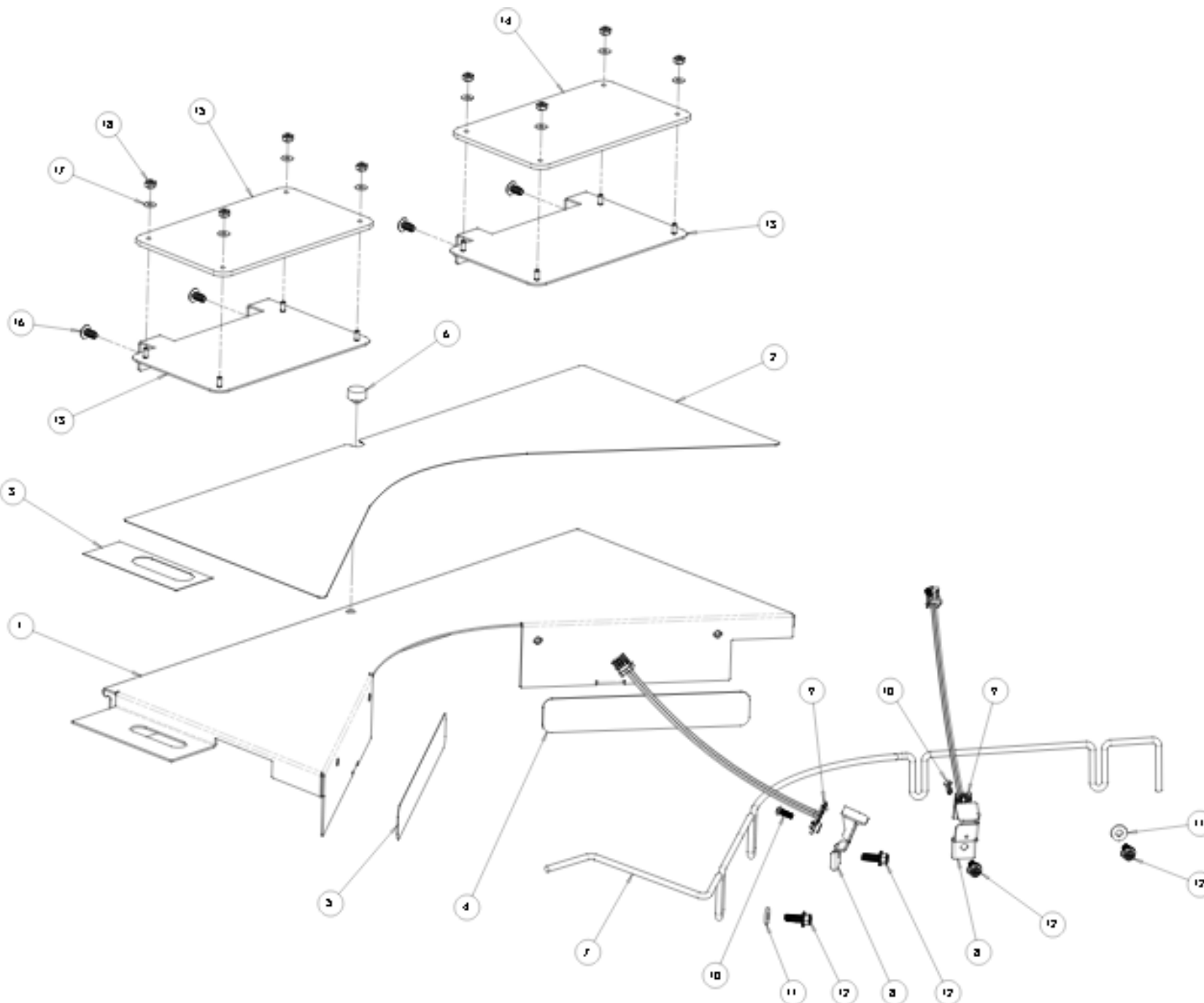


TS BOTTOM ARCH ASSY, LE  
52-100017-00



Item	Part Number	Description	Qty
1	10-100022-05	Bottom Arch, Ultramarine Blue	1
2	62-100057-01	TS Bottom Arch Decal	1
3	62-100057-04	TS Shooter Lane Decal	1
4	62-100069-01	Bottom Arch Mylar, Left	1
5	62-100069-02	Bottom Arch Mylar, Right	1
6	25-009014-00	Bottom Arch Rubber Plug	1
7	13-000014-00	DI Bottom Arch Wire Rail	1
8	10-100182-00	Brkt: LED Board Tray	2
9	51-100235-00	RGBW Floodlight & Cable Assy	2
10	11-100072-01	TS Magnetic Rule Card	1
11	80-000004-06	4-40 x 3/8" PPH MS, Zinc	2
12	92-000008-00	#8 Flat Washer	2
13	80-002008-08	8-32 x 1/2" HWH Phillips, Serr, Zinc	4



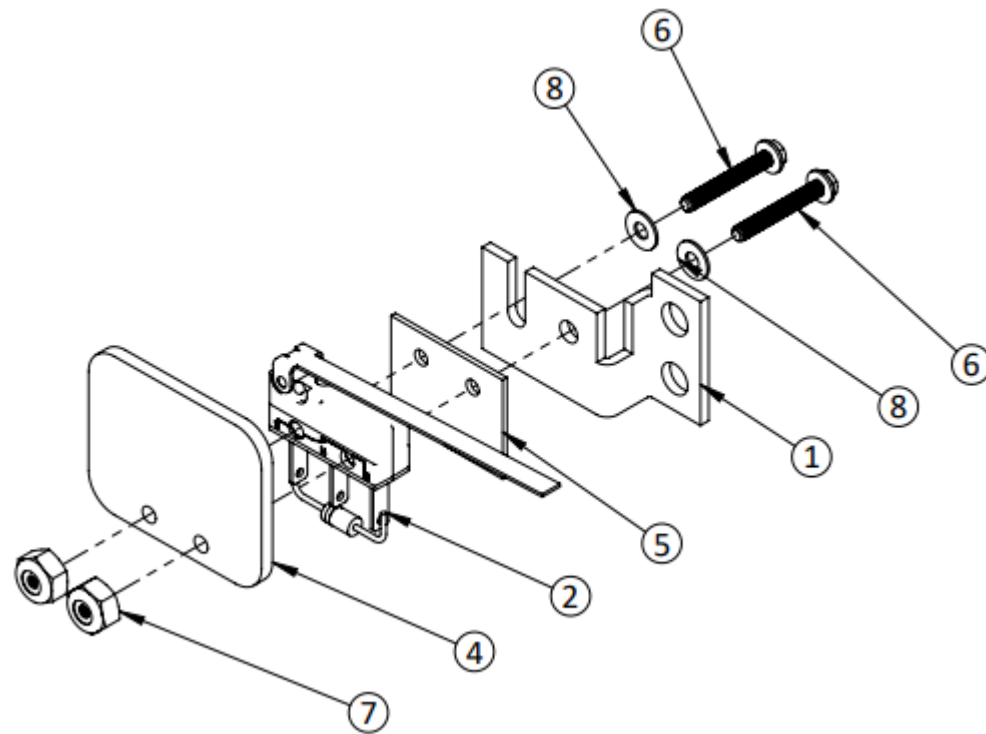


## TS BOTTOM ARCH ASSY, CE 52-100017-02

Item	Part Number	Description	Qty
1	10-100022-03	Bottom Arch, Rancher Red	1
2	62-100058-01	TS Bottom Arch Decal, CE	1
3	62-100058-04	TS Shooter Lane Decal, CE	1
4	62-100069-01	Bottom Arch Mylar, Left	1
5	62-100069-02	Bottom Arch Mylar, Right	1
6	25-009014-00	Bottom Arch Rubber Plug	1
7	13-000014-00	DI Bottom Arch Wire Rail	1
8	10-100182-00	Brkt: LED Board Tray	2
9	51-100235-00	RGBW Floodlight & Cable Assy	2
10	80-000004-06	4-40 x 3/8" PPH MS, Zinc	2
11	92-000008-00	#8 Flat Washer	2
12	80-002008-08	8-32 x 1/2" HWH Phillips, Serr, Zinc	4
13	10-000217-78	CE Arch Card Holder Brkt, Red	2
14	30-000120-03	WW Acrylic Rule Card Blank, CE	1
15	30-000120-04	TS Acrylic Rule Card, CE	1
16	80-007008-06	8-32 x 3/8" Phillips TH MS	4
17	92-000104-00	#4 Flat Washer, Black	8
18	91-000104-00	4-40 Nylon Stop Nut, Black	8

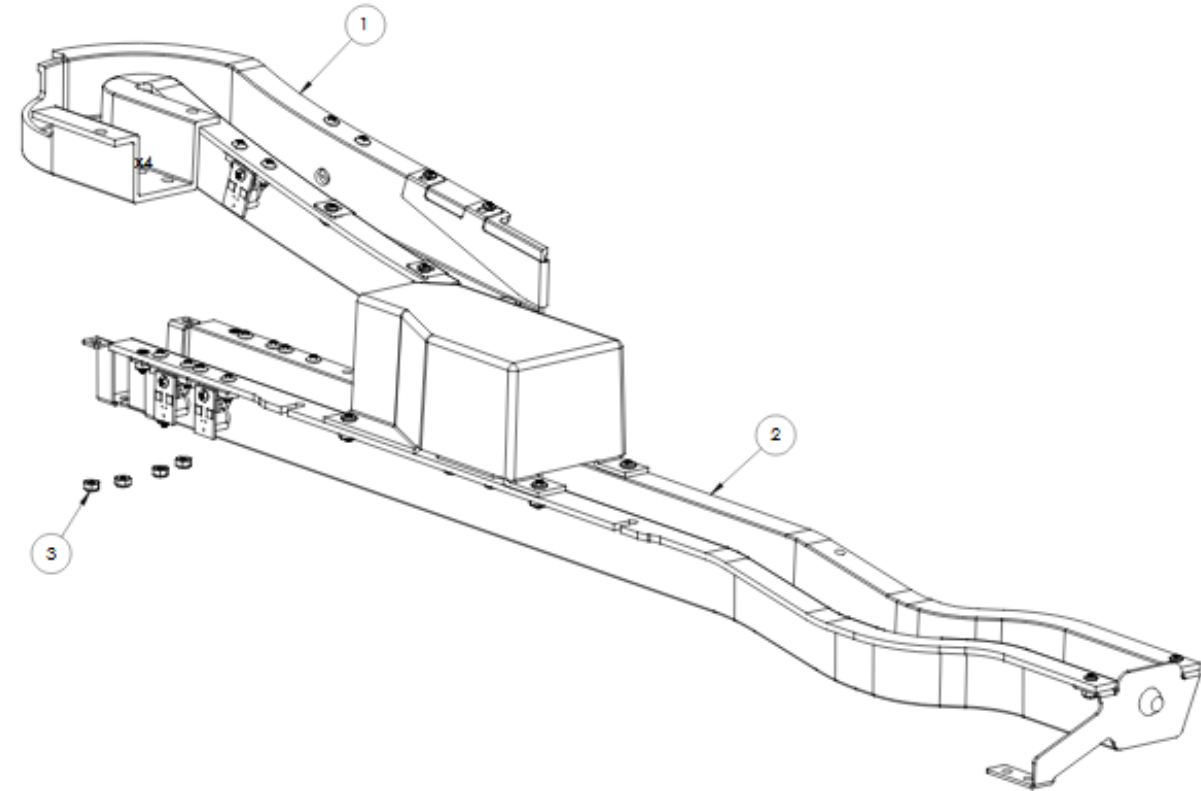


**1-Bank Drop Tgt Switch Assy**  
**18-007010-00**



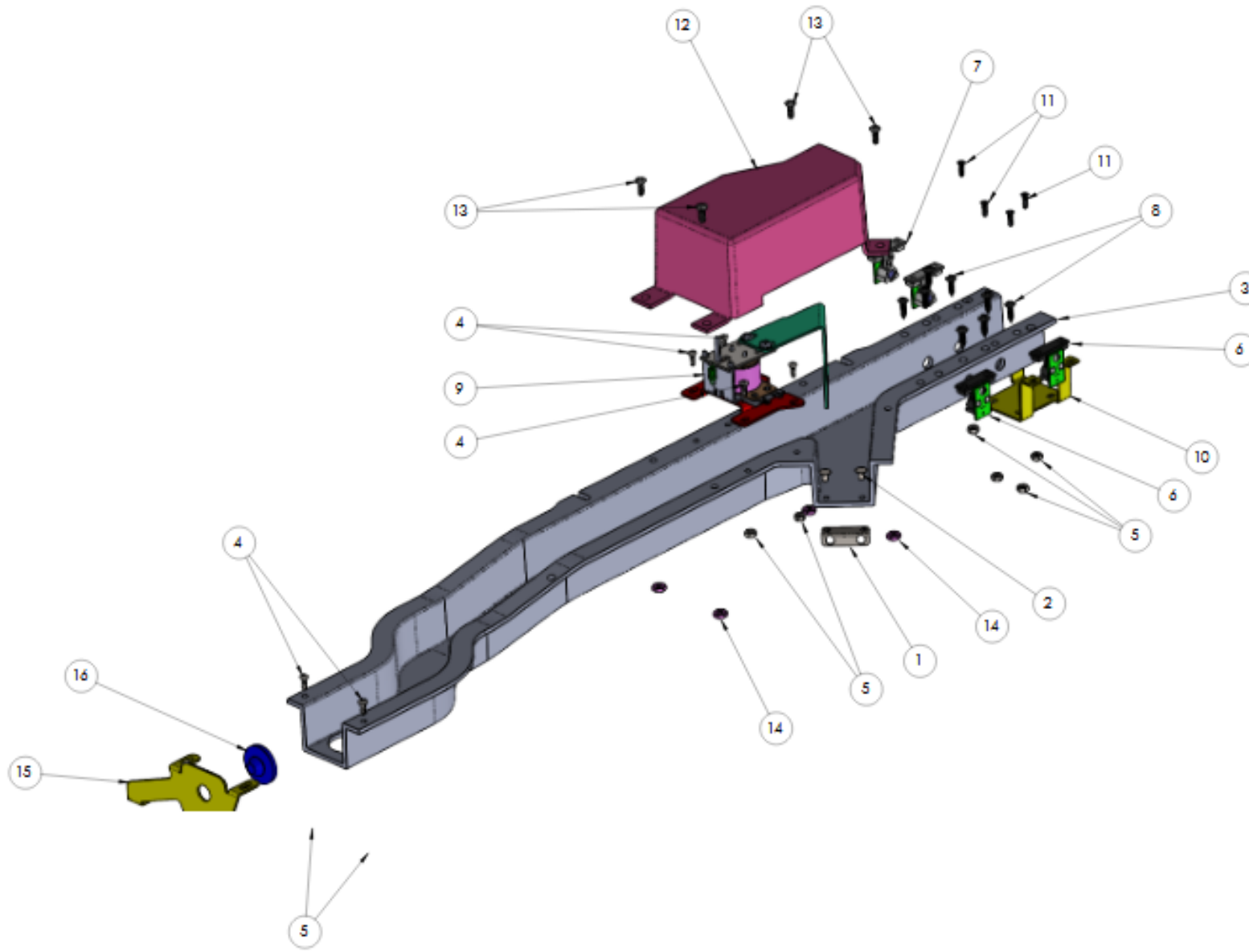
Item	Part Number	Description	Qty
1	10-000029-00	1-Bank Drop Target Switch Brkt	1
2	18-003002-00	1-Bank Drop Tgt Microswitch & Wireform	1
3	19-100155-00	Microswitch Pigtail, 6"	1
4	30-000023-00	1-Bank Drop Tgt Switch Acutator Guide	1
5	70-009002-00	Microswitch Insulator, Fish Paper	1
6	80-002002-10	2-56 x 5/8" HWH MS	2
7	91-000002-00	2-56 Nylon Lockup, Zinc Plated	2
8	92-000002-00	#2 Safe Flat Washer, Zinc Plated	2

**TS LEFT RAMP ASSEMBLY**  
**51-100159-00**



Item	Part Number	Description	Qty
1	51-100207-00	TS Left Vacu Ramp PC2 Assy	1
2	51-100206-00	TS Left Vacu Ramp PC1 Assy	1
3	91-000004-00	#4-40 Nylon Stop Nut	4
4	80-006104-06	4-40 x 3/8" PFH MS 82° CA, Black	4
5	92-000104-00	#4 Flat Washer, 0.125" ID 0.344" OD 0.05 TH Blk	2

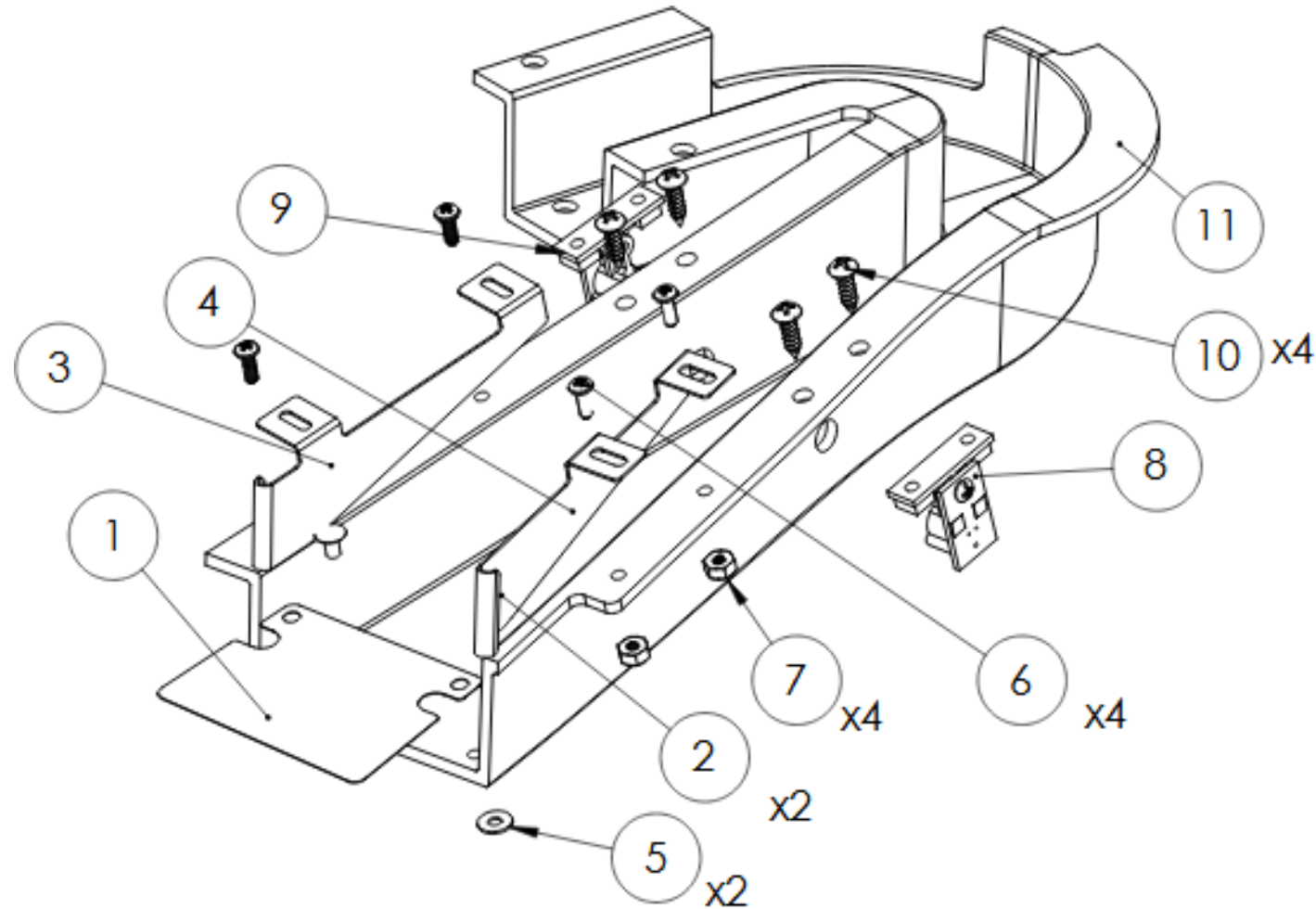




## TS LEFT VACU RAMP PC1 ASM 51-100206-00

Item	Part Number	Description	Qty
1	10-000219-00	Wire Ramp End Mtg Brkt	1
2	93-000000-00	1/8" x 7/32" Semi-Tubular Rivet	2
3	31-100007-00	TS Left Vacu Ramp	1
4	80-000004-05	#4-40 x 5/16"L PPH MS	6
5	91-000004-00	#4-40 Nylon Stop Nut	10
6	15-005004-00	VUK Opto PCB Assy, Receiver	2
7	15-005004-01	VUK Opto PCB Assy, Transmitter	2
8	82-000106-08	#6 x 1/2" PPH SMS, Black	8
9	51-100174-00	TS Left Ramp Diverter	1
10	10-100249-00	Left Ramp Joining Plate	1
11	80-006104-06	4-40 x 3/8" PFH MS, 82° CA, Black	4
12	31-100008-00	Cover Ramp Diverter TS	1
13	80-000106-06	6-32 x 3/8 PPH Black	4
14	91-000006-00	6-32 Nylon Stop Nut	4
15	10-100211-00	TS Left Vacu Ramp Bumper Brkt	1
16	25-009001-01	Ball Trough Bumper Plug	1

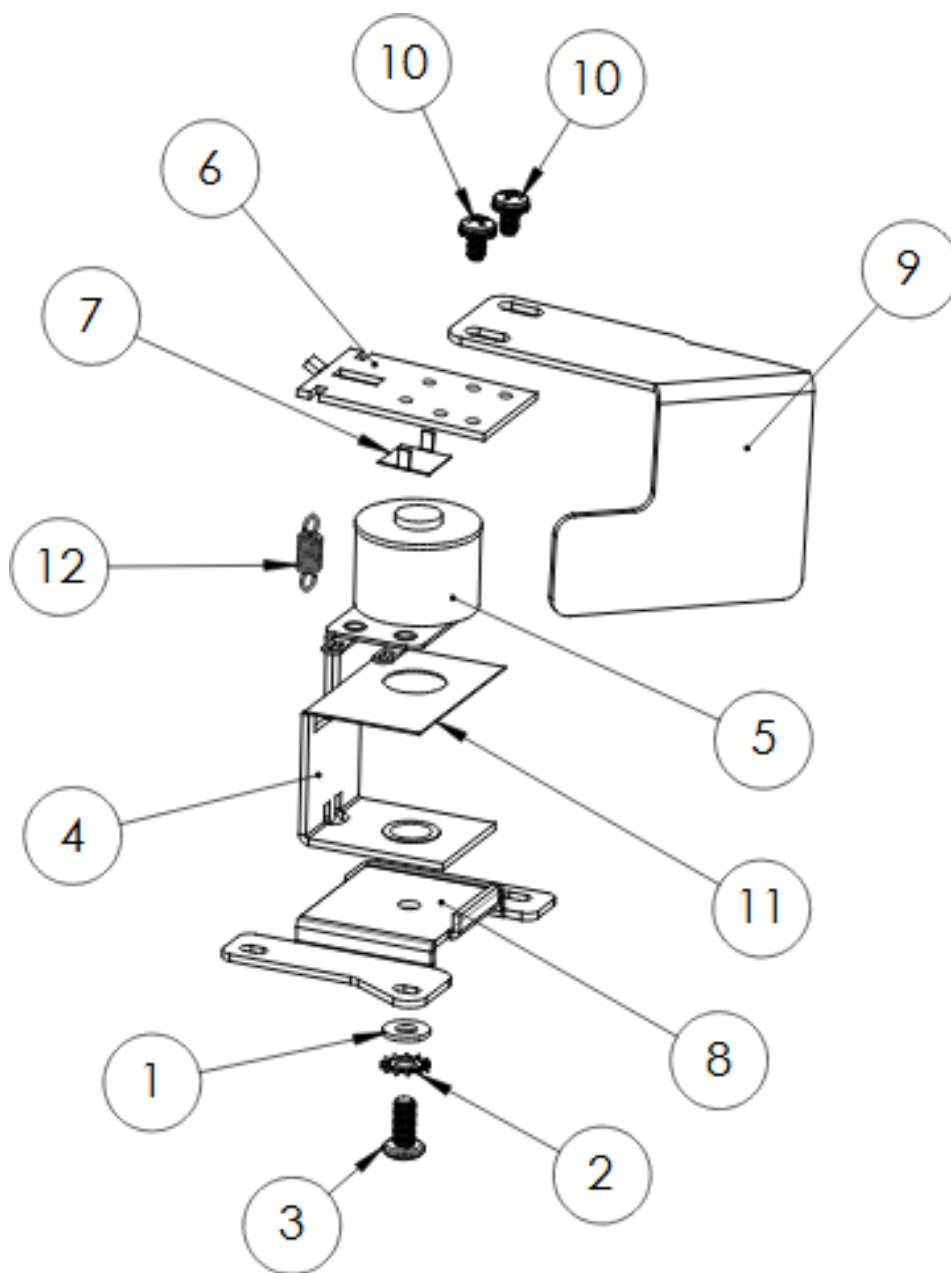




**TS LEFT VACU RAMP PC2 ASM**  
**51-100207-00**

Item	Part Number	Description	Qty
1	11-100047-00	TS Left Ramp Flap	1
2	93-000000-00	1/8" x 7/32" Semi-Tubular Rivet	2
3	10-100207-00	Slsh Right Ramp Left Protector	1
4	10-100208-00	Slsh Right Ramp Right Protector	1
5	92-000004-00	#4 Flat Washer	2
6	80-000004-05	#4-40 x 5/16" L PPH MS	4
7	91-000004-00	#4-40 Nylon Stop Nut	4
8	15-005004-00	VUK Opto PCB Assy, Receiver	1
9	15-005004-01	VUK Opto PCB Assy, Transmitter	1
10	82-000106-08	#6 x 1/2" PPH SMS, Black	4
11	31-100007-01	TS Left Vacu Ramp PC2	1



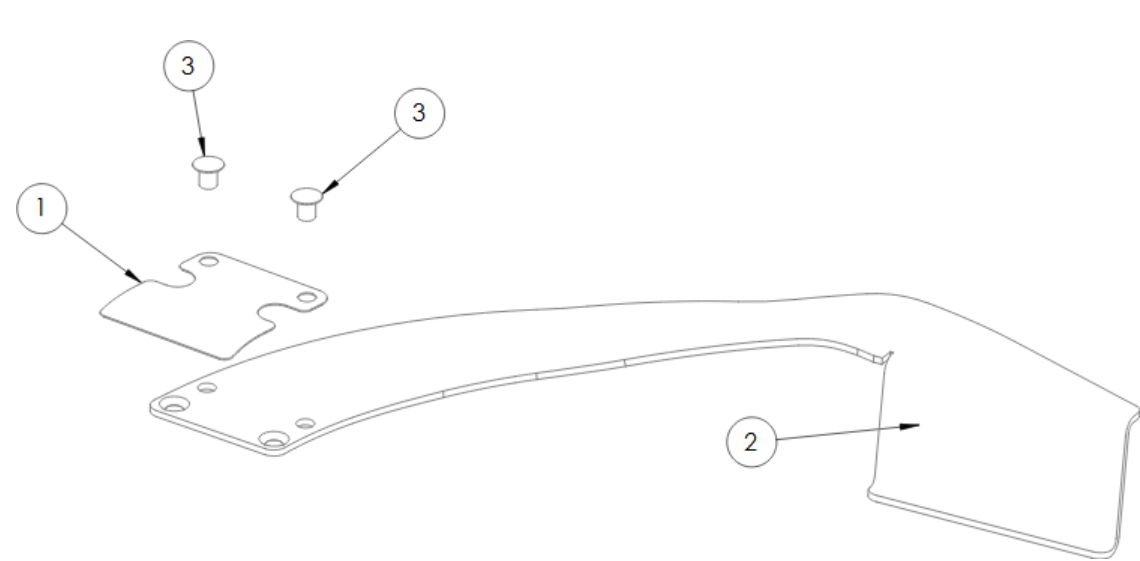


## TS LEFT RAMP DIVERTER 51-100174-00

Item	Part Number	Description	Qty
1	92-000308-00	#8 Flat Washer, 0.172"ID 0.375"OD	1
2	92-003108-00	#8 Ext-Tooth Lock-Washer, .168/.381	1
3	80-000308-06	#8-32 x 3/8" PPH MS, Brass	1
4	10-000213-09	Trap Door Latch Trip Coil Frame Assy	1
5	23-003008-01	26-600 Mini Coil Assy, .0313" Core	1
6	10-000213-06	Trap Door Latch Coil Armature	1
7	10-000213-07	Residual Armature Plate	1
8	10-100219-00	Left Ramp Mount Bracket	1
9	10-100220-00	Ramp Exit Diverter Arm	1
10	80-001006-04	6-32 x 1/4 PPH MS, Sems, Zinc	2
11	70-009001-01	Narrow Coil Insulator Fish Paper	1
12	13-007029-24	Mini Coil Spring, 24oz Tension	1
13	19-100151-00	Coil Pigtail, 2 lug, 18-inch	1
14	19-100169-00	Braided Cable Sleeve, 9.53mm	1
15	30-000051-05-0	5.6" Wire Tie, Black	2

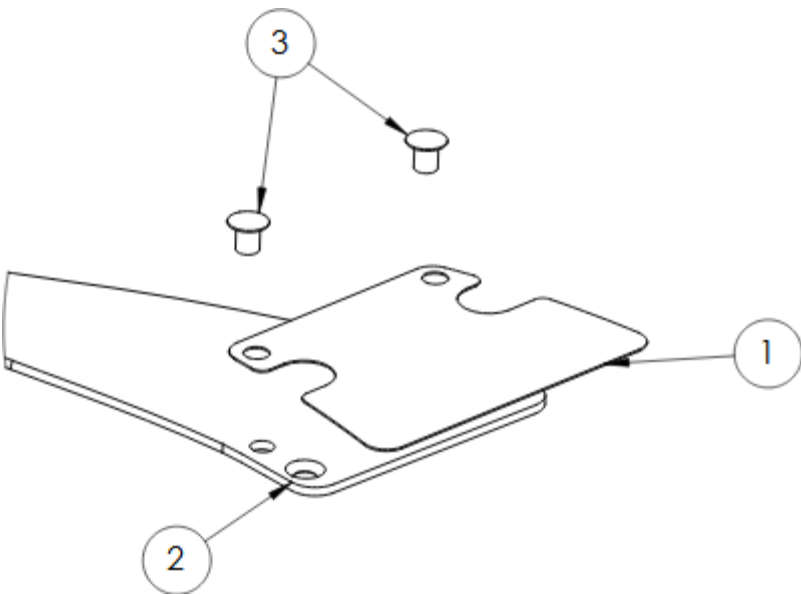


TS BALL GUIDE TRANSITION 1 ASSY  
51-100152-00



Item	Part Number	Description	Qty
1	11-100045-00	Ball Guide Transition 1 ASM	1
2	12-100029-00	Ball Guide Transition 1 SHTMTL	1
3	93-000003-00	1/8" x 5/32" Semi-Tubular Rivet	2

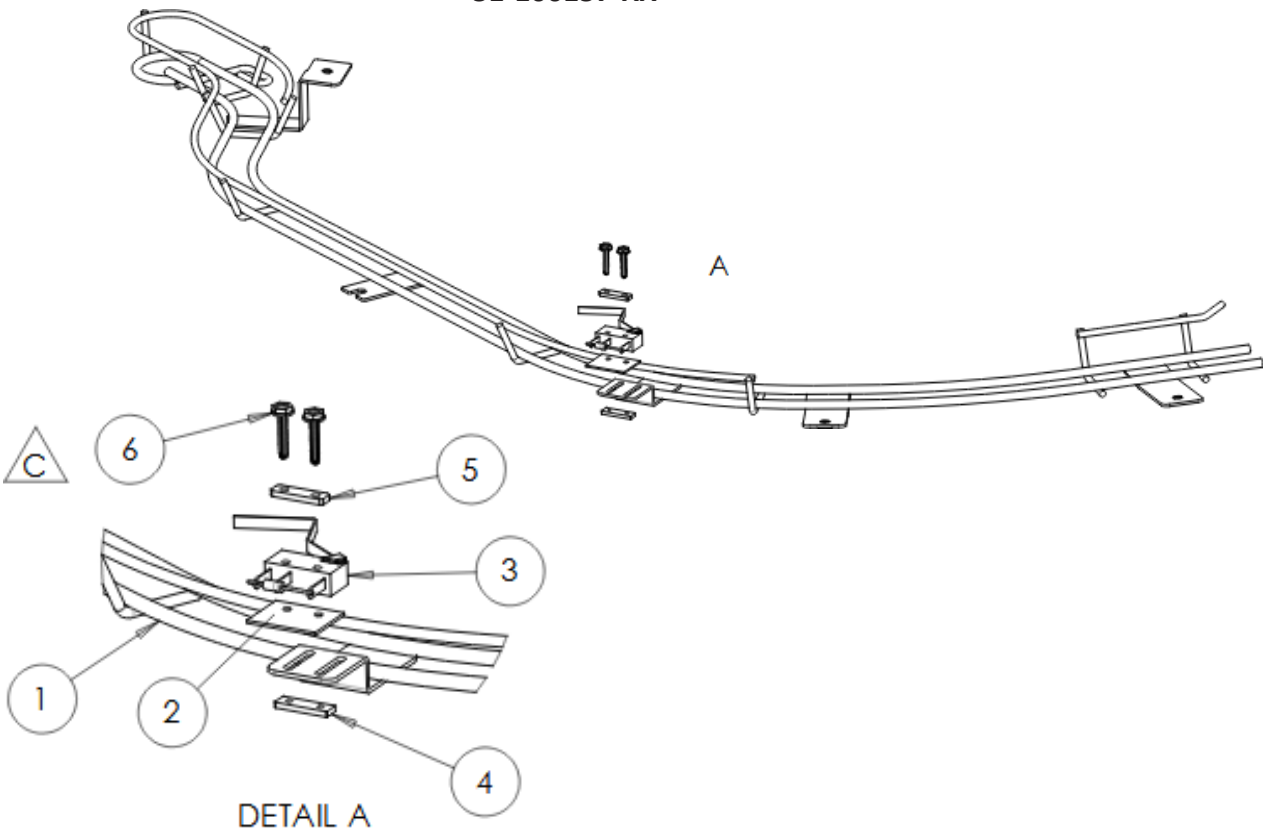
TS BALL GUIDE TRANSITION 2 ASSY  
51-100153-00



Item	Part Number	Description	Qty
1	11-100046-00	Ball Guide Transition 2 Ramp Flap	1
2	12-100030-00	Ball Guide Transition 2 SHTMTL	1
3	93-000003-00	1/8" x 5/32" Semi-Tubular Rivet	2



**TS WIRE RAMP 1 ASSEMBLY**  
**51-100157-XX**

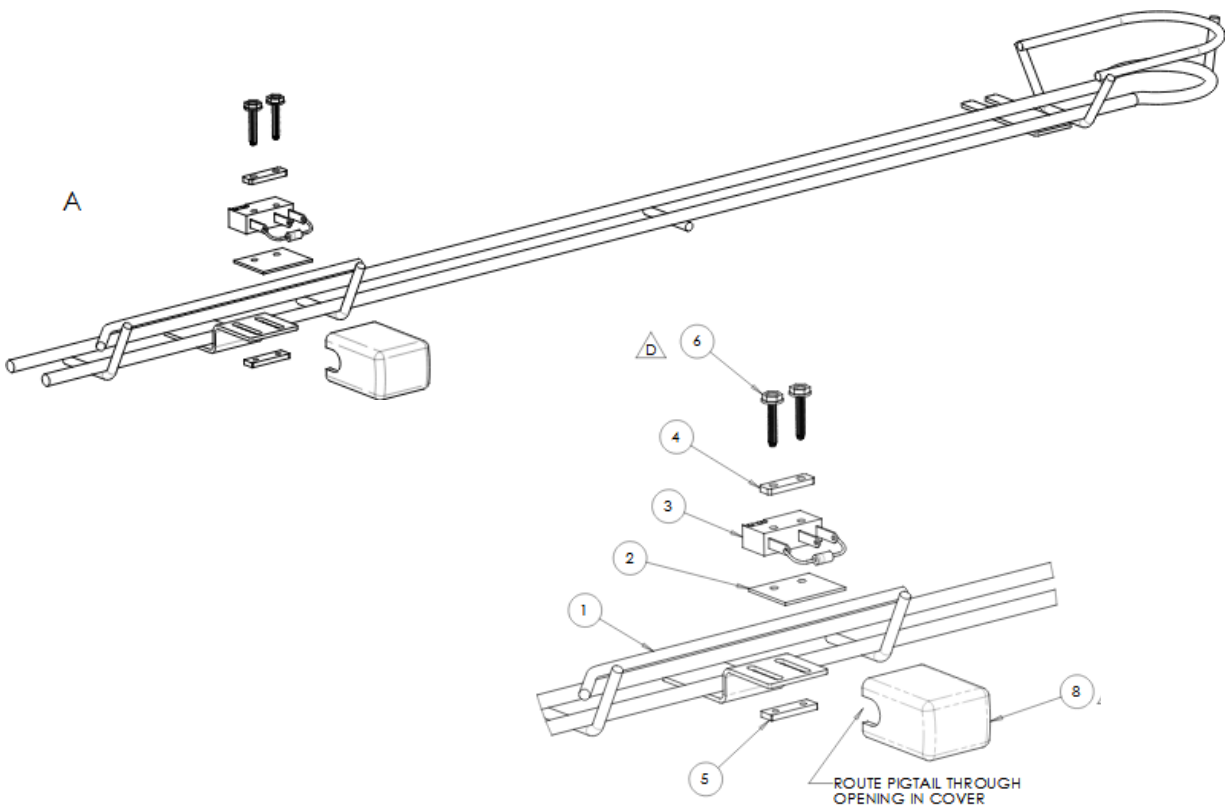


Item	Part Number	Description	Qty
1	13-100022-XX	TS Wire Ramp 1	1
2	70-009002-00	Microswitch Insulator, Fish Paper	1
3	18-003017-00	Ramp/Subway Switch & Wireform	1
4	10-000024-00	Microswitch Nut Plate, 2-56	1
5	10-000024-01	Microswitch Protector Plate, #2	1
6	80-002102-08	2-56 x 1/2" HWH MS, Black	2
7	19-100158-00	Microswitch Pigtail, uFIT 3.0, 18in	1

LE Wire Ramps = -02

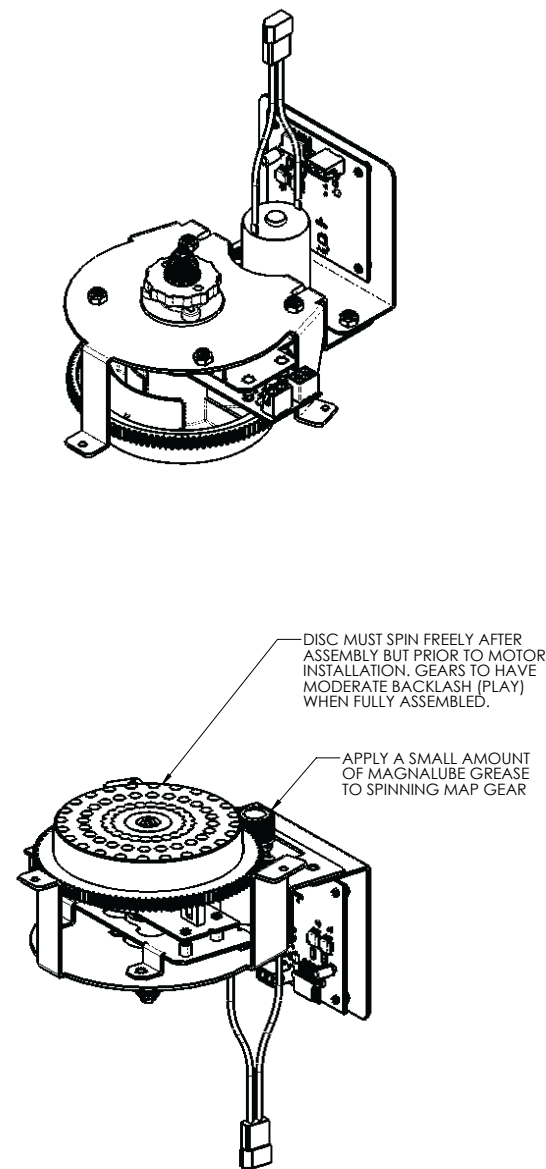
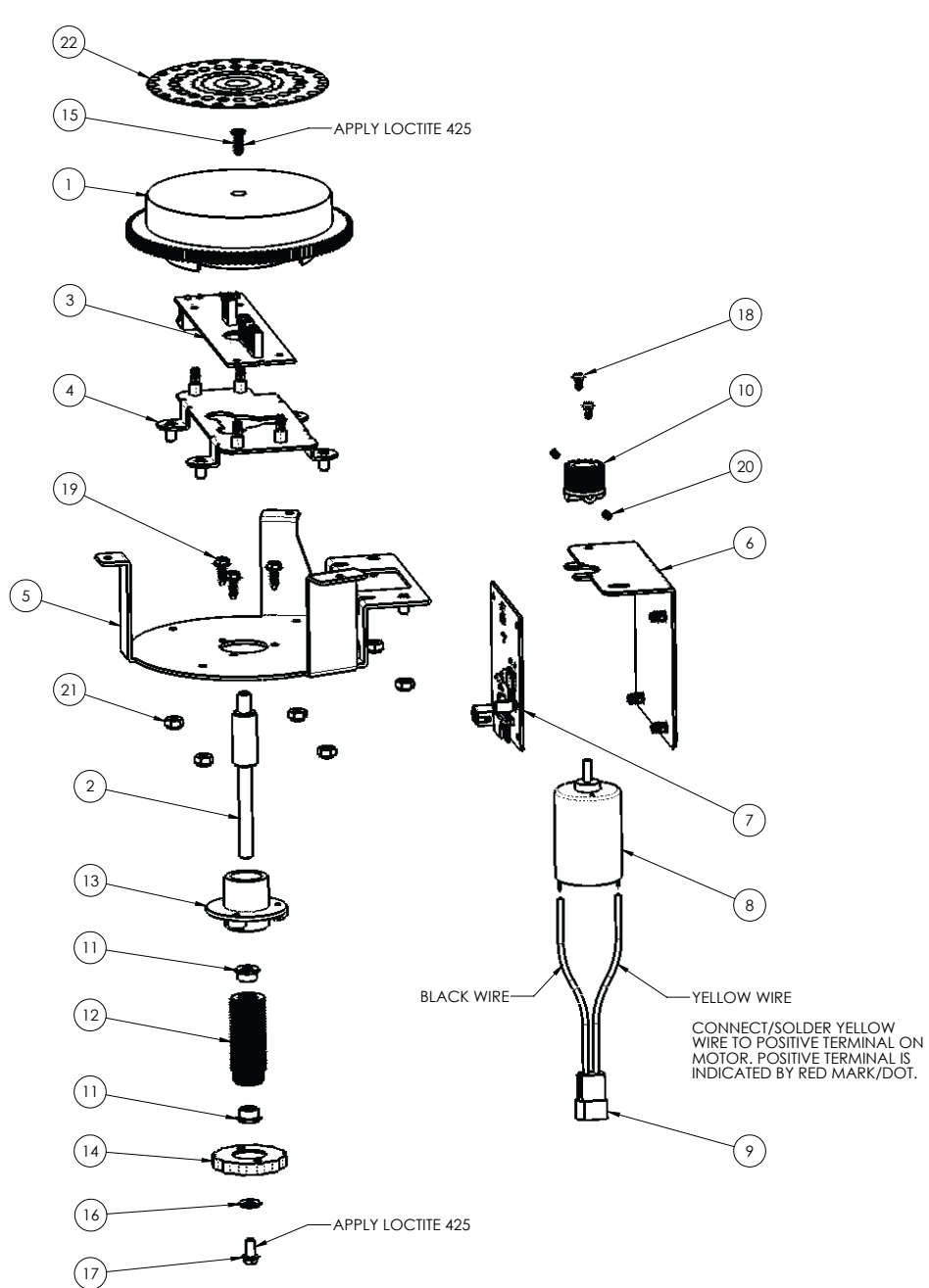
CE Wire Ramps = -03

**TS WIRE RAMP 2 ASSEMBLY**  
**51-100158-XX**



Item	Part Number	Description	Qty
1	13-100023-XX	TS Wire Ramp 2	1
2	70-009002-00	Microswitch Insulator, Fish Paper	1
3	18-003017-00	Ramp/Subway Switch & Wireform	1
4	10-000024-01	Microswitch Protector Plate, #2	1
5	10-000024-00	Microswitch Nut Plate, 2-56	1
6	80-002102-08	2-56 x 1/2" HWH MS, Black	2
7	19-100156-00	Microswitch Pigtail, 18-inch	1
8	25-007001-02	Vinyl Switch Cover w/ Cut Out	1
9	30-000051-05-0	5.6" Wire Tie, Black	3
10	19-100169-00	Braided Cable Sleeving, pet, 9.53mm	1

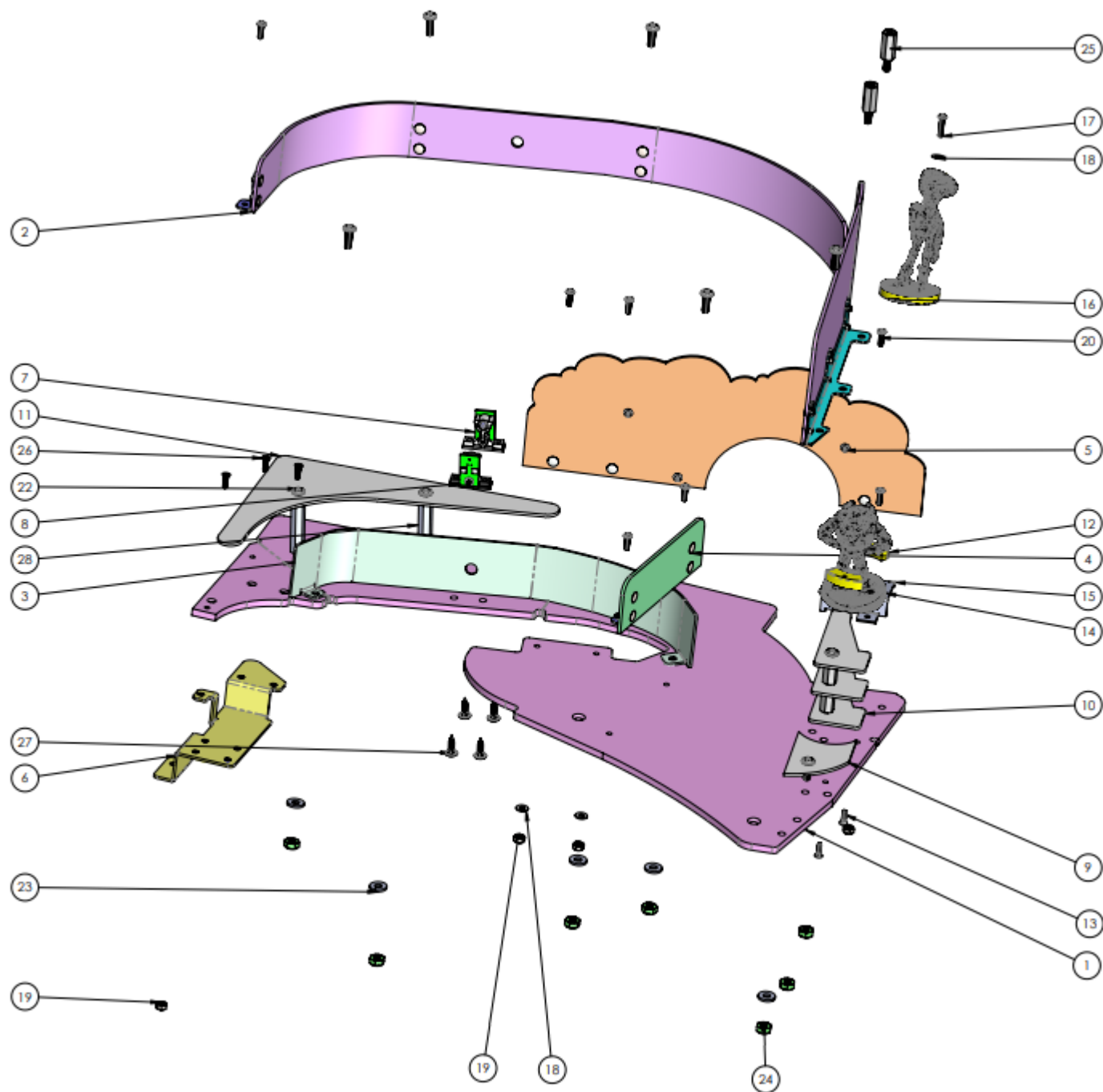




## SPINNING DISC ASSY 8 POS 51-100168-00

Item	Part Number	Description	Qty
1	30-100082-00	Disc, 115 tooth, 24 DP, 14.5 PA, 8 POS	1
2	11-100051-00	Spinning Map Axle	1
3	15-100032-00	Spinning Disc Opto Bd, 8 Position	1
4	10-100212-00	Spinning Opto Mtg Brkt	1
5	10-100214-00	Mounting Brkt Main Spinning Disc	1
6	10-100213-00	Spinning Disc Motor Mtg Plate	1
7	15-100031-00	Quad-State Motor Controller Bd	1
8	23-005012-00	12VDC Motor, 4200 RPM	1
9	19-009035-05	Spinning Map Single Motor Cable	1
10	30-000121-10	Spinning Map Gear, 18 Tooth, 24 DP, 14.5 PA	1
11	96-000003-04	Sleeve Bearing, Flgd, Oil-Emb, 1/4" Shaft, 1/4" L	2
12	10-000254-11	Spinning Map Adj Screw	1
13	30-000121-11	Spinning Gland Nut	1
14	30-000121-12	Spinning Jam Nut	1
15	80-006208-08	8-32 x 1/2" PFS MS, 100° CA	1
16	92-000008-00	#8 Flat Washer, .19 ID, .443 OD, .06 TH	1
17	80-002008-06	8-32 x 3/8" HWH Phillips MS, Serrated	1
18	80-0000M3-06	M3 x 6MM PPH MS	2
19	82-009008-08	#8 x 1/2" AB Special HWH Phillips SMS	3
20	85-004006-04	6-32 x 1/4" Set Screw, Cup Point, Black	2
21	91-000008-00	8-32 Nylon Stop Nut Thin	6
22	62-100053-00	TS Spinning Disc Decal	1





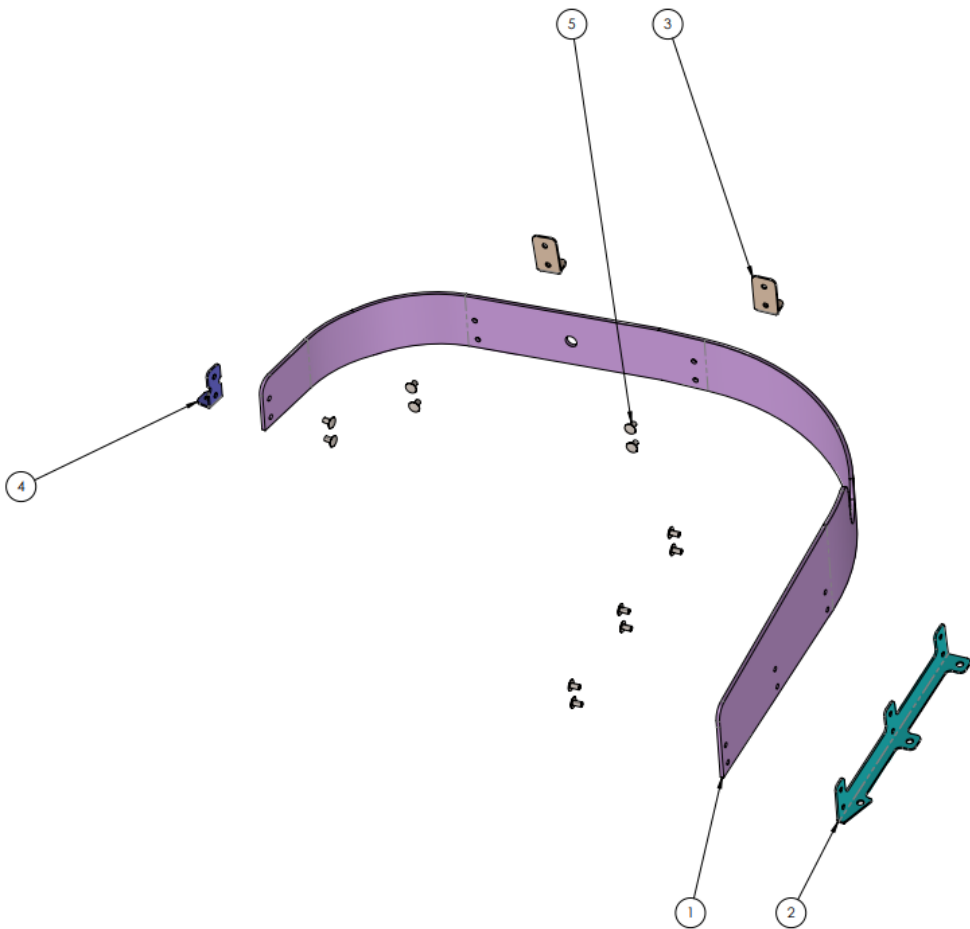
## TS UPPER PLAYFIELD ASSEMBLY 51-100179-00

Item	Part Number	Description	Qty
1	30-100088-00	Base Plate Upper PLFD TS	1
2	51-100255-00	Flatrail Back Up TS	1
3	12-100041-00	Flatrail Front Upper PLFD TS	1
4	51-100257-00	Flatrail Front Left Up TS	1
5	51-100184-00	TS Star Adventurer	1
6	10-100238-02	Brkt Upper PLFD MTG LF TS	1
7	15-005004-01	VUK Opto PCB Assy, Transmitter	1
8	15-005004-00	VUK Opto PCB Assy, Receiver	1
9	30-100111-28	TS PF Plastic - Buzz Ball Trap	1
10	30-100111-29	TS PF Plastic - Woody Ball Trap	3
11	30-100111-27	TS PF Plastic - Upper PF Cover	1
12	30-100127-05	Hold Down Figurine BZ	2
13	83-006204-06	#4 x 3/8" PFH Thread Screw, 82°	2
14	32-100012-00	TS Buzz Sculpture	1
15	10-100240-00	Brkt: Angled Char Riser Mtg, RU PF	1
16	32-100012-01	TS Woody Sculpture	1
17	80-000004-08	4-40 x 1/2" PPH MS	1
18	92-000004-00	#4 Flat Washer	4
19	91-000004-00	#4-40 Nylon Stop Nut	7
20	80-000004-06	4-40 x 3/8" PPH MS	7
21	19-003073-24	Opto Cable 24"	1
22	80-000008-08	#8-32 1/2" PPH MS Zinc Plated	11
23	92-000008-00	#8 Flat Washer, .19id .443od, .06th	5
24	91-000008-00	8-32 Nylon Stop Nut, Thin	7
25	95-001518-12	5/16"-2" Hex Spacer MF 8-32 Zinc	4
26	80-006104-06	4-40 x 3/8" PFH MS, 82° CA, Black	3
27	82-007006-08	#6 x 1/2" TH SMS	4
28	95-001508-26	5/16" x 1-5/8" Hex Spacer FF 8-32 Zinc	2

Not  
Shown

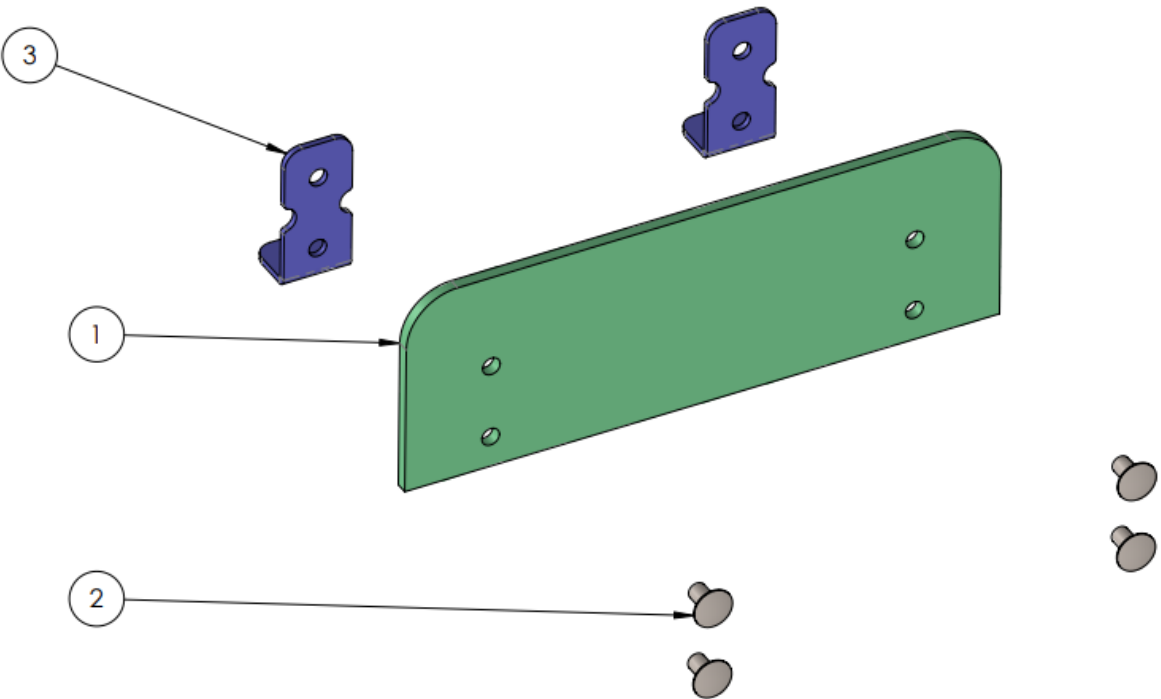


**FLATRAIL BACK UP TS**  
**51-100255-00**



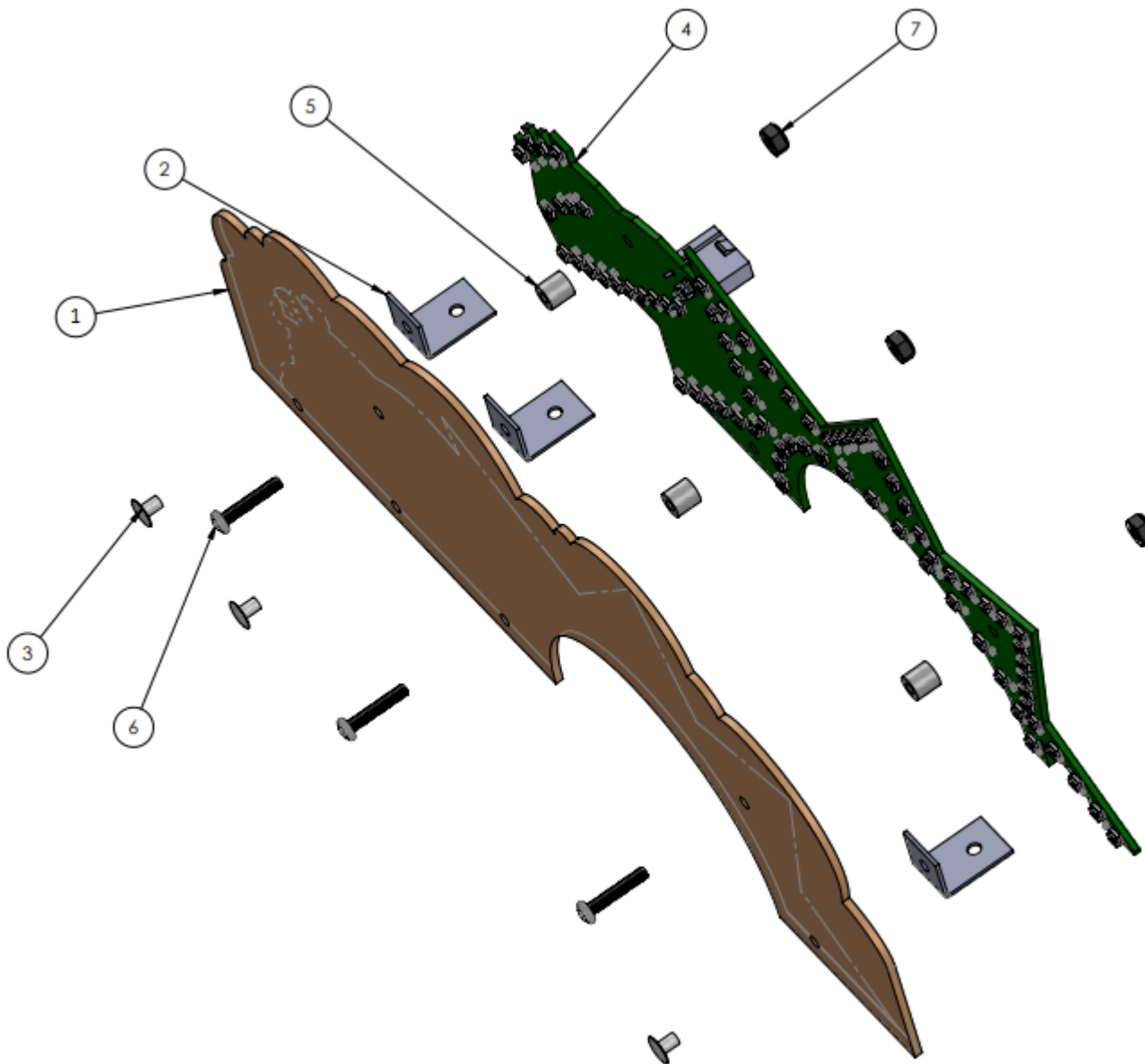
Item	Part Number	Description	Qty
1	30-100088-01	Flat Rail Rear Upper PLFD TS	1
2	10-100238-05	Brkt Mtg Flatrail Rear RT Upper PF	1
3	10-100238-04	Brkt Mtg Flatrail Rear Mid Upper PF	2
4	10-100238-03	Brkt Mtg Flatrail Rear Upper End PF	1
5	93-000000-00	1/8" x 7/32" Semi-Tubular Rivet, TH	12

**FLATRAIL FRONT LEFT UP TS**  
**51-100257-00**



Item	Part Number	Description	Qty
1	30-100088-03	Flat Rail Front Left Upper PLFD TS	1
2	93-000000-00	1/8" x 7/32" Semi-Tubular Rivet, TH	4
3	10-100238-03	Brkt Mtg Flatrail Rear Upper End PF	2





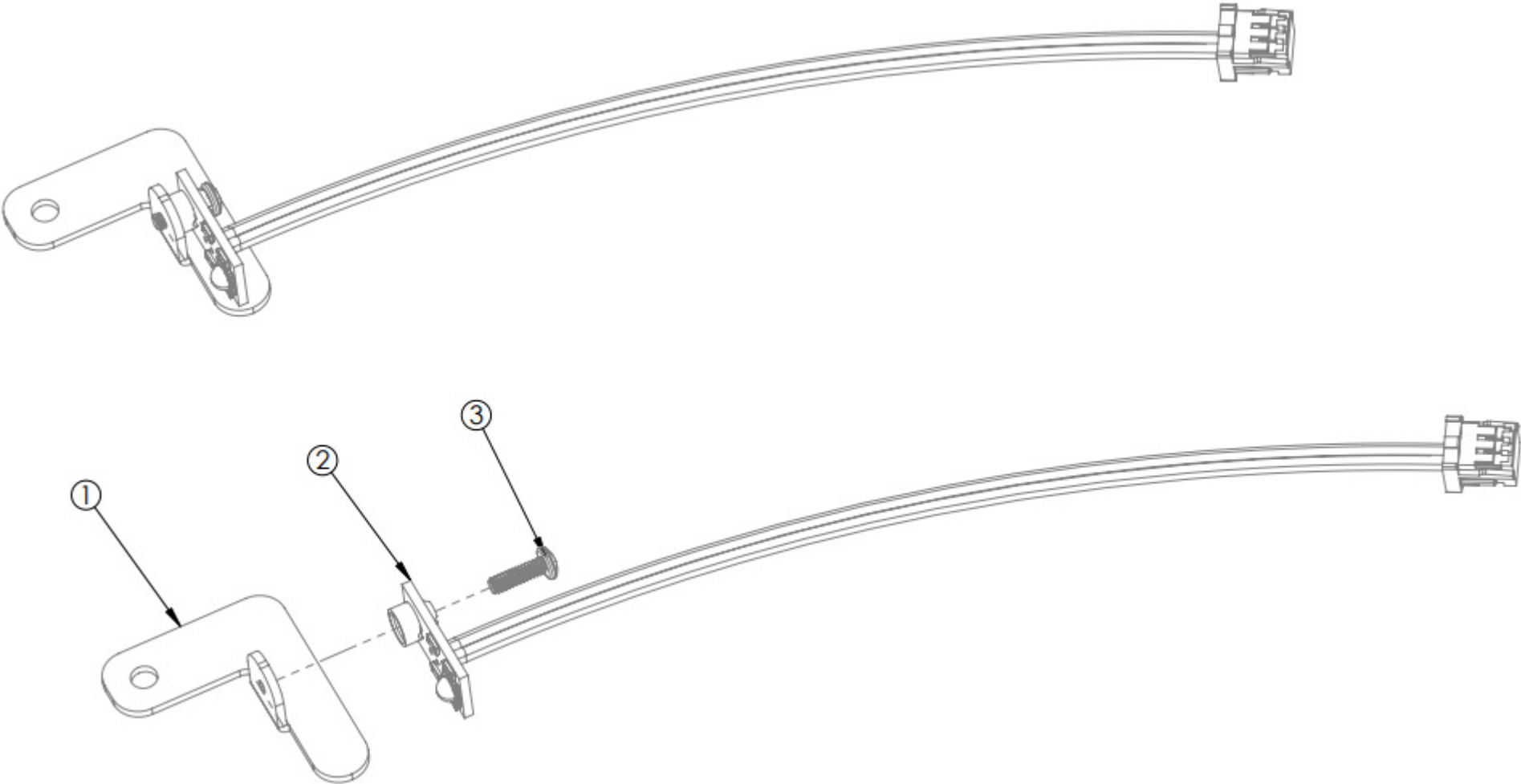
**TS STAR ADVENTURER**  
**51-100184-00**

Item	Part Number	Description	Qty
1	30-100084-00	TS Star Adventure Face	1
2	10-000227-01	Playfield Sign Mtg Brkt, 90 deg	3
3	93-000002-00	1/8" x 3/16" Semi Tubular Rivet	3
4	15-100033-00	TS Star Adventur LED BD	1
5	94-005204-08	#4x1/4" Round Spacer, 1/4"OD Nylon	3
6	80-000004-10	4-40 x 5/8" PPH MS	3
7	91-000104-00	4-40 Nylon Stop Nut, Blk	3

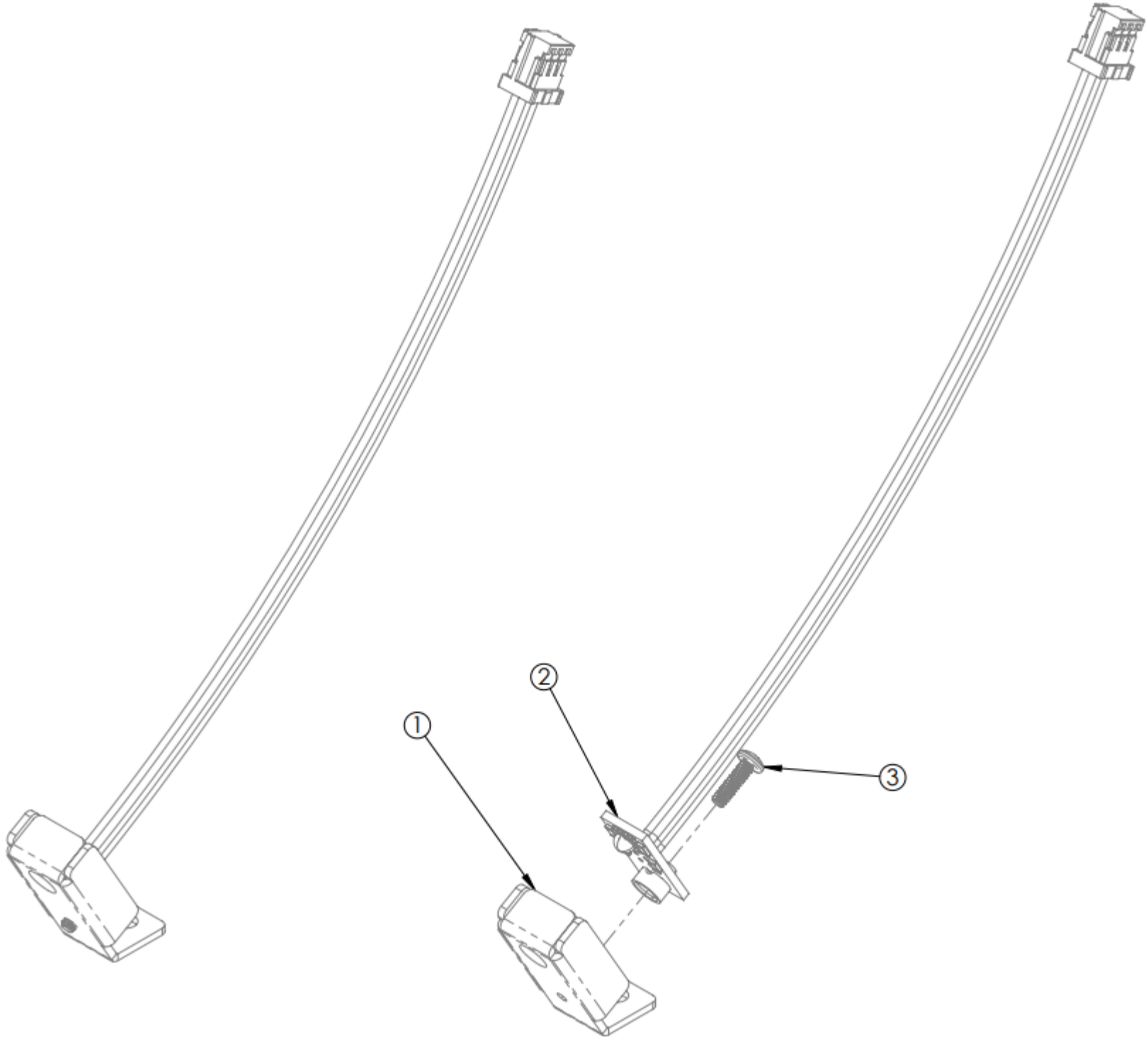


FLOODLIGHT ASSY, .75 OFFSET BRACKET  
51-100275-00

Item	Part Number	Description	Qty
1	10-100305-00	Bracket PCB RGB Mount, .75 Offset	1
2	51-100235-00	RGBW Floodlight & Cable Assy	1
3	80-00004-06	4-40 x 3/8" PPH MS, Zinc	1



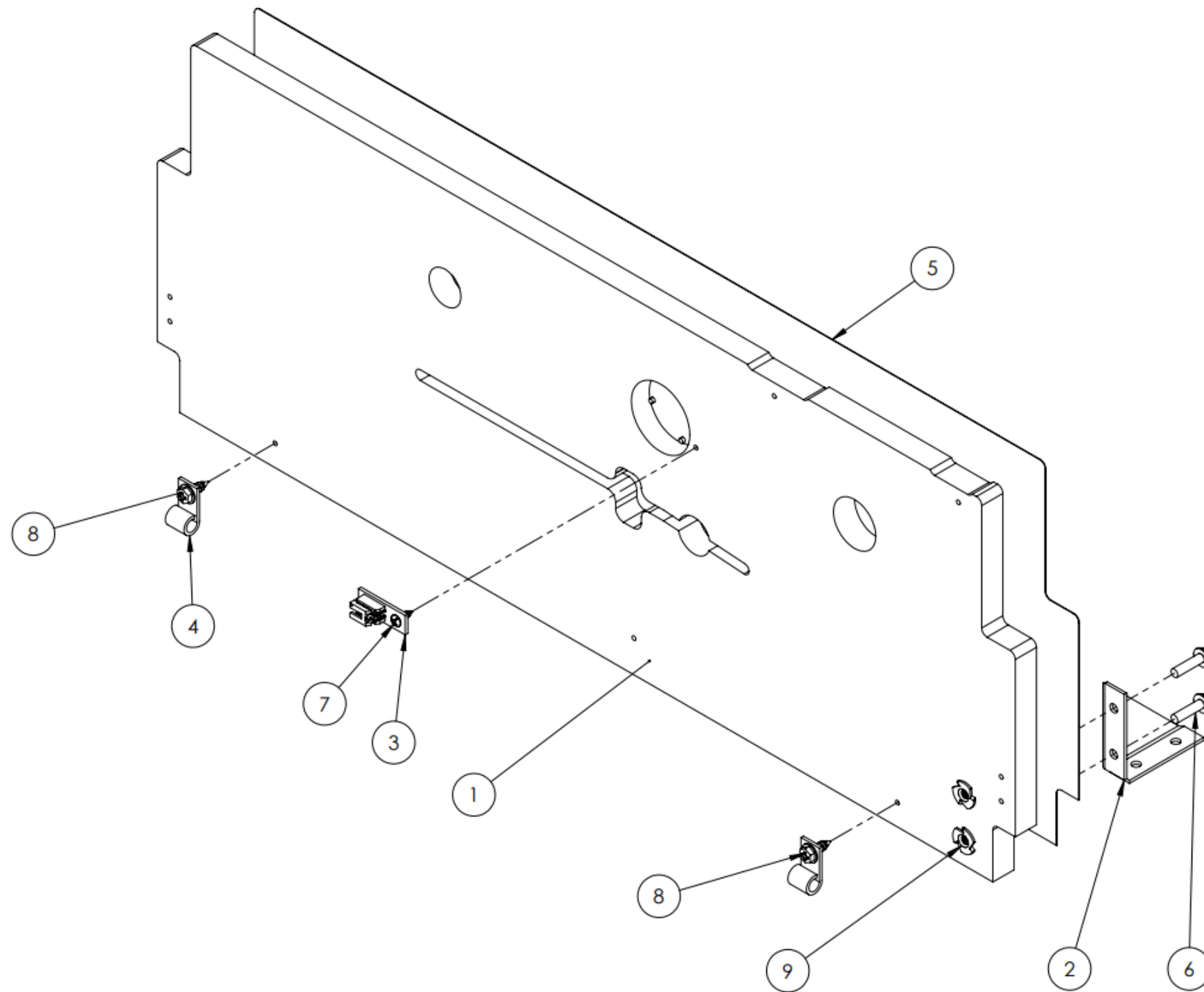




**FLOODLIGHT ASSY, 120 DEGREE BRACKET**  
**51-100276-00**

Item	Part Number	Description	Qty
1	10-100304-00	Bracket PCB RGB, 120 Degrees	1
2	51-100235-00	RGBW Floodlight & Cable Assy	1
3	80-00004-06	4-40 x 3/8" PPH MS, Zinc	1





## TS BACK PANEL ASSY 52-000079-00

Item	Part Number	Description	Qty
1	05-100030-00	Panel, Wood Back, TS	1
2	10-000162-00	Back Panel Support Brkt	1
3	15-100007-02	White GI, 5050 TLED, Right Angle	1
4	30-000049-04	Nylon Cable Clamp Open 1/4"	2
5	62-100052-00	TS Back Panel Decal	1
6	80-002008-10	#8-32 x 5/8" HWH Phillips MS, Serr	2
7	82-000004-06	#4 x 3/8" PPH SMS	1
8	82-009008-08	#8 x 1/2" AB Special HWH Phillips SMS	2
9	91-004008-00	8-32 x 1/4" T-Nut, 3 Prong with 1/2" Flange	2

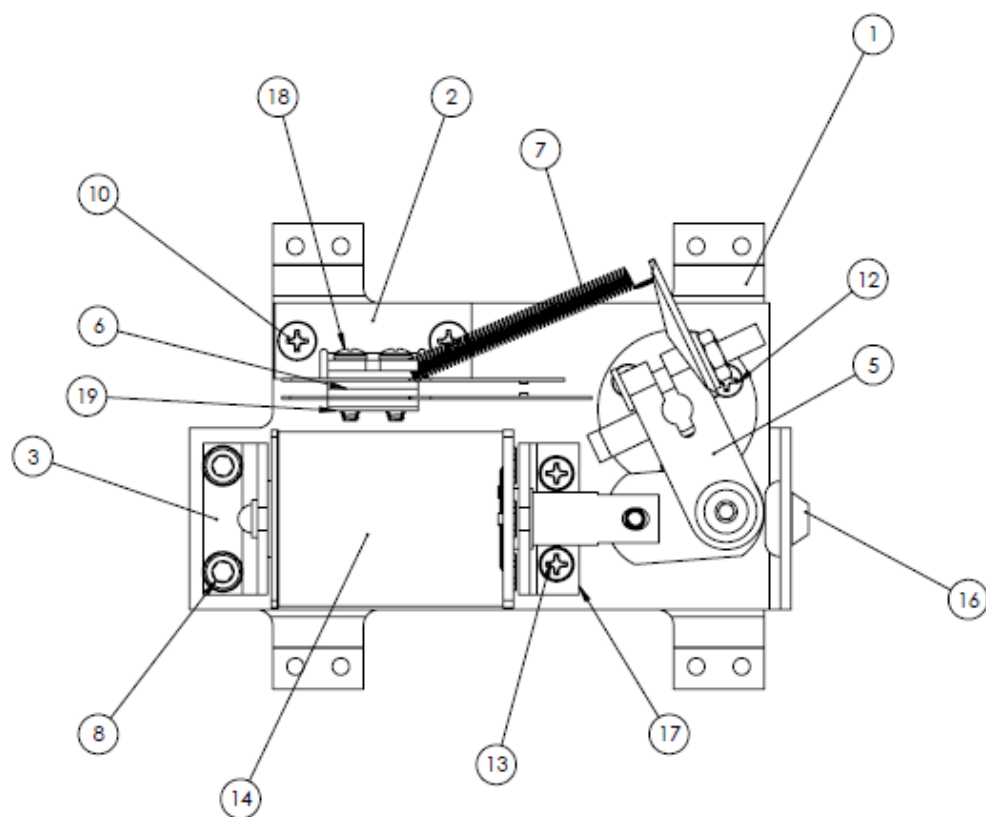


# UNDER - PLAYFIELD ASSEMBLIES

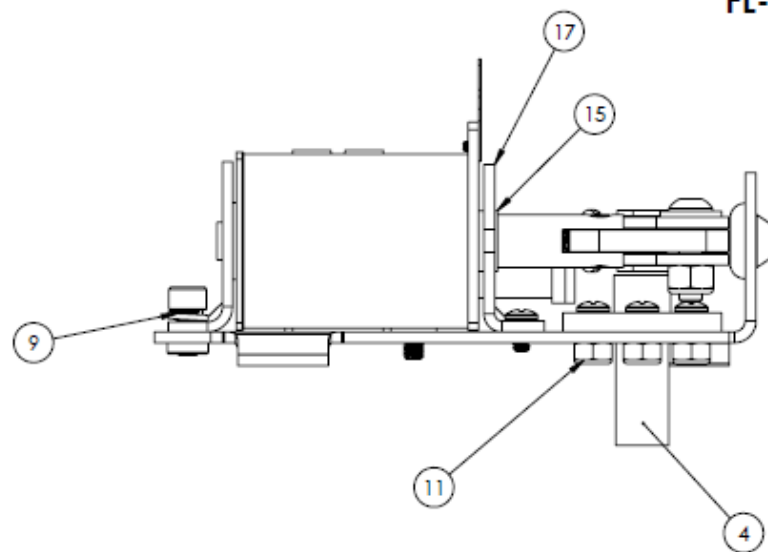
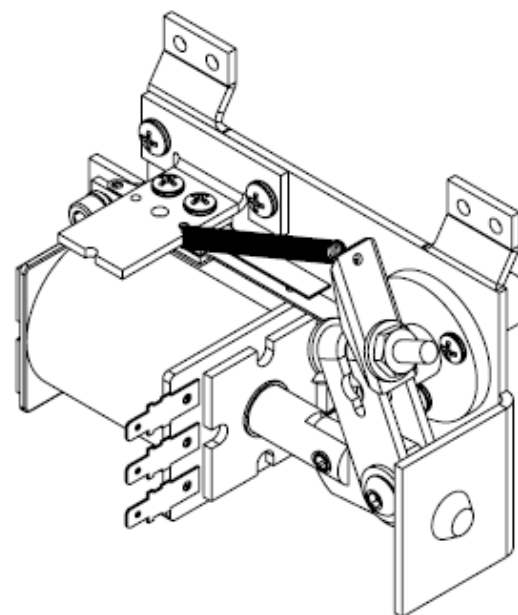


## LEFT FLIPPER ASSEMBLY

52-010122-00



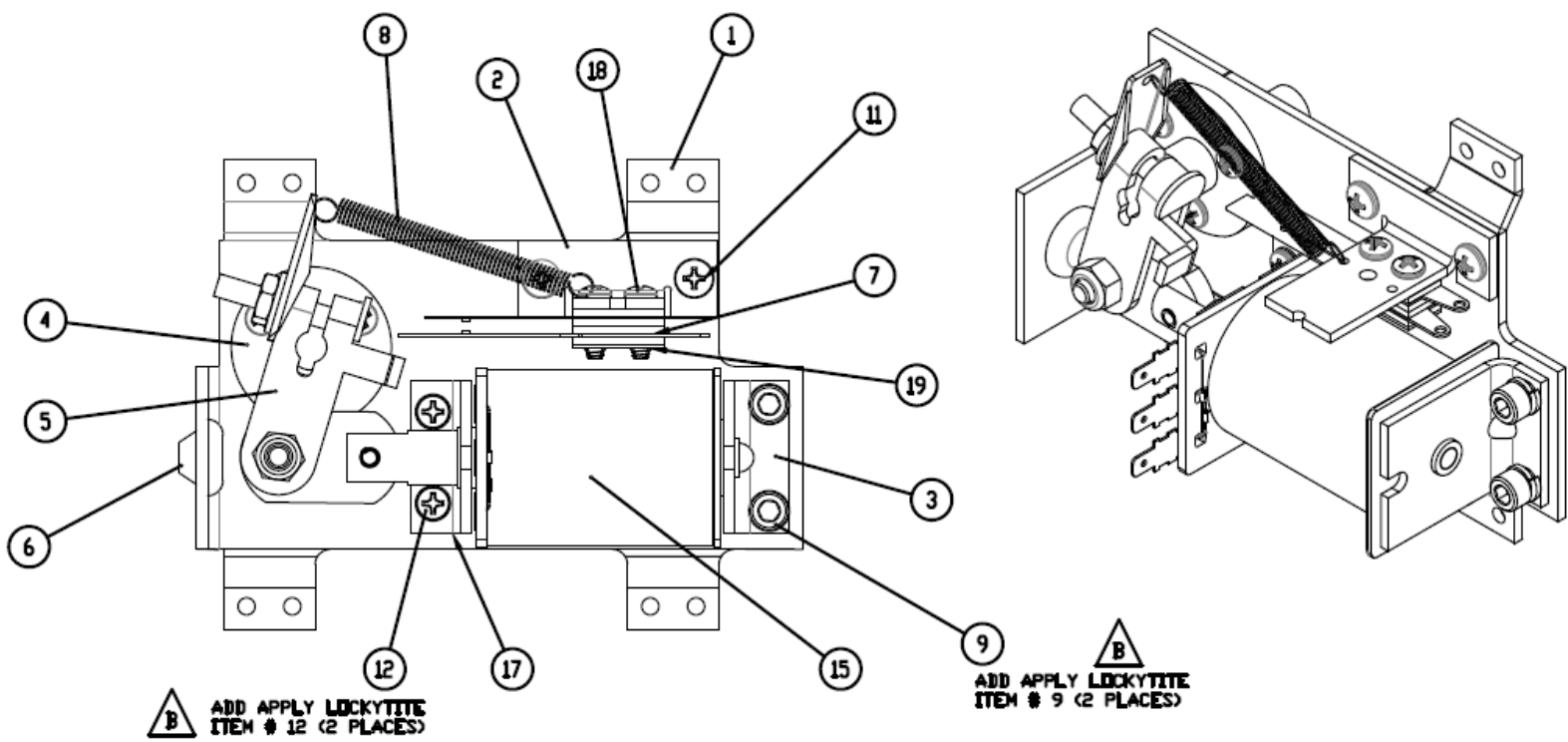
52-000122-00 SHOWN  
FL-11629



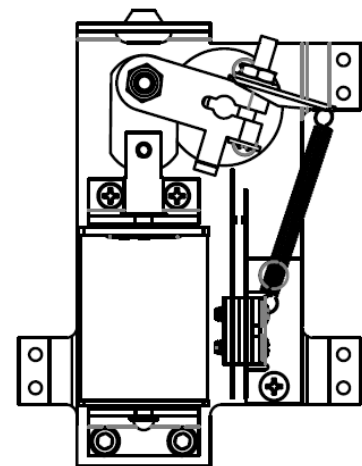
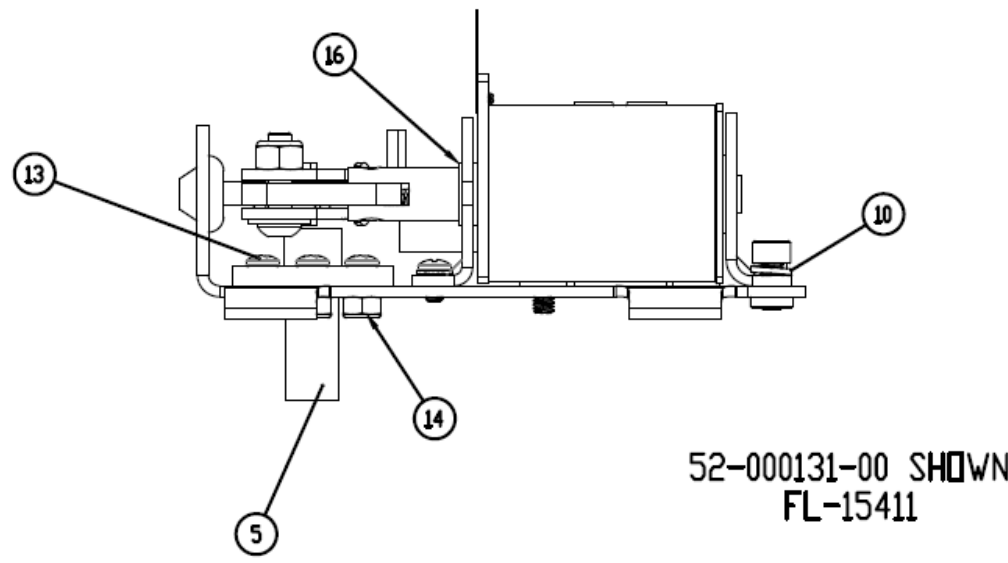
Item	Part Number	Description	Qty
1	10-005002-00	FLIPPER BASE PLATE- LEFT	1
2	10-000018-00	END OF STROKE SWITCH BRKT	1
3	10-007001-00	FLIPPER COIL STOP BRKT	1
4	30-009002-00	FLIPPER BUSHING	1
5	51-005018-01	FLIPPER CRANK & LINK ASSY, LEFT	1
6	18-000001-00	END OF STROKE LEAF SWITCH	1
7	13-007001-00	FLIPPER RETURN SPRING	1
8	90-004010-06	10-32 x 3/8" SH CS	2
9	92-001010-00	#10 SPLIT LOCK WASHER	2
10	80-000008-05	8-32 x 5/16" PPH MS	2
11	91-000006-00	6-32 NYLON STOP NUT	3
12	80-000006-06	6-32 x 3/8" PPH MS	3
13	80-001006-04	6-32 x 1/4" PPH MS SEMS	2
14	23-002002-00	FL-11629 FLIPPER COIL	1
15	30-000014-35	2-3/16" COIL TUBING, STRAIGHT	1
16	25-009001-00	RUBBER BUMPER PLUG, BLACK	1
17	10-007002-01	FLIPPER COIL CEN BRKT, 1 WAY	1
18	82-000006-08	#6 x 1/2" PPH SMS	2
19	91-006000-00	TINNERMAN NUT, LEAF SW STACK	1



RIGHT FLIPPER ASSEMBLY  
52-010131-00

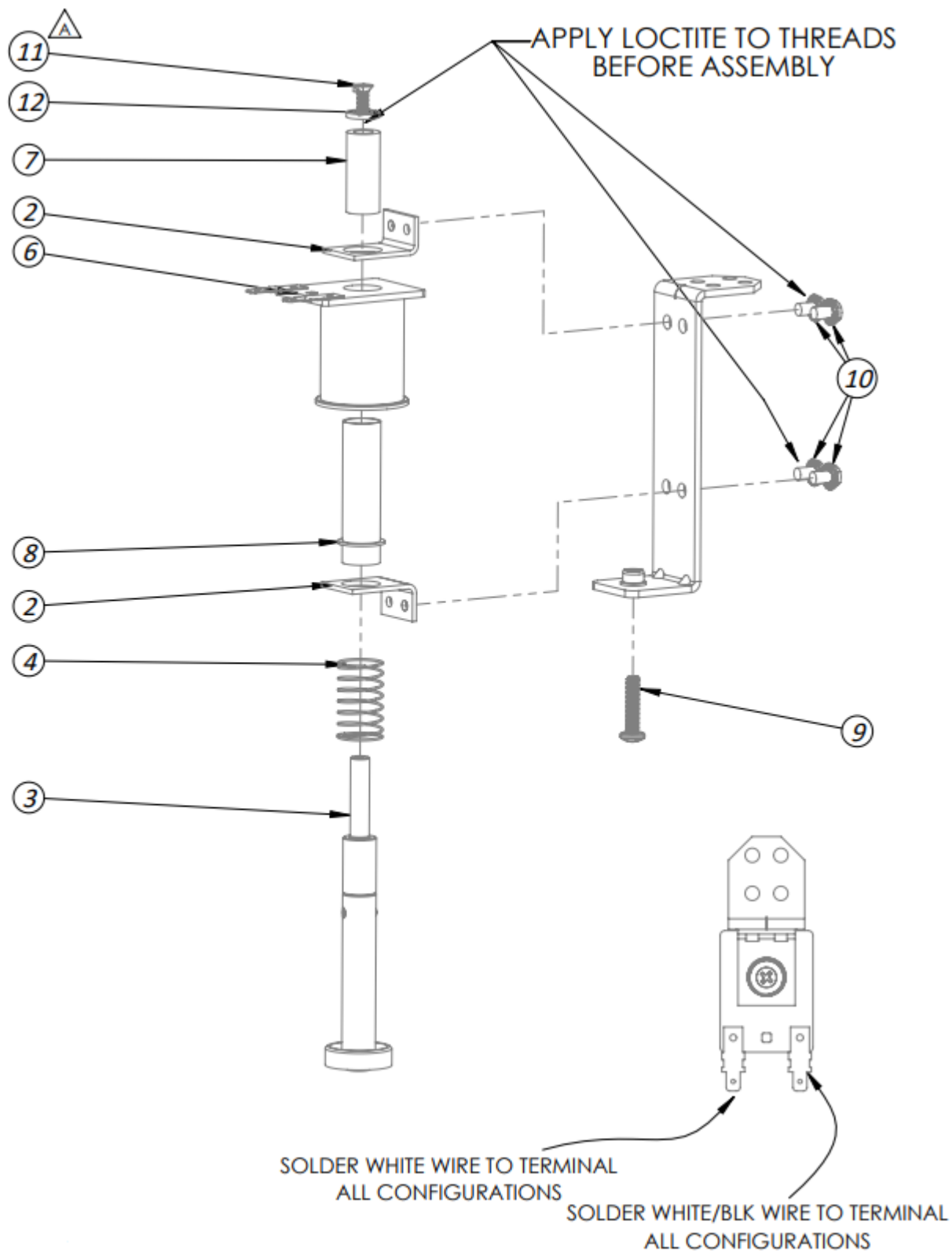


Item	Part Number	Description	Qty
1	10-005001-00	FLIPPER BASE PLATE- RIGHT	1
2	10-000018-00	END OF STROKE SWITCH BRKT	1
3	10-007001-00	FLIPPER COIL STOP BRKT	1
4	30-009002-00	FLIPPER BUSHING	1
5	51-005018-00	FLIPPER CRANK & LINK ASSY, RIGHT	1
6	25-009001-00	RUBBER BUMPER PLUG, BLACK	1
7	18-000001-00	END OF STROKE LEAF SWITCH	1
8	13-007001-00	FLIPPER RETURN SPRING	1
9	90-004010-06	10-32 x 3/8" SH CS	2
10	92-001010-00	#10 SPLIT LOCK WASHER	2
11	80-000008-05	8-32 x 5/16" PPH MS	2
12	80-001006-04	6-32 x 1/4"PPH MS SEMS	2
13	80-000006-06	6-32 x 3/8" PPH MS	3
14	91-000006-00	6-32 NYLON STOP NUT	3
15	23-002003-00	FL-15411 FLIPPER COIL	1
16	30-000014-35	2-3/16" COIL TUBING, STRAIGHT	1
17	10-007002-01	FLIPPER COIL CEN BRKT, 1 WAY	1
18	82-000006-08	#6 x 1/2" PPH SMS	2
19	91-006000-00	TINNERMAN NUT, LEAF SW STACK	1

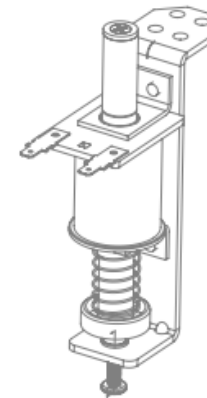


52-000131-14  
RIGHT FLIPPER ASSEMBLY,  
MOD-UL, FL-15411

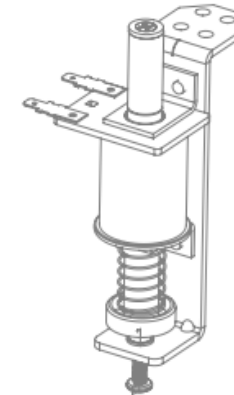




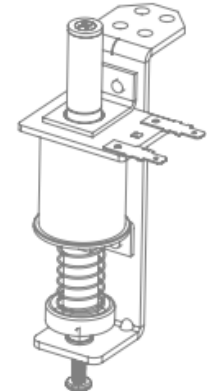
## ASSEMBLY, UP DOWN POST 51-100173-XX



51-100173-00  
(Center)



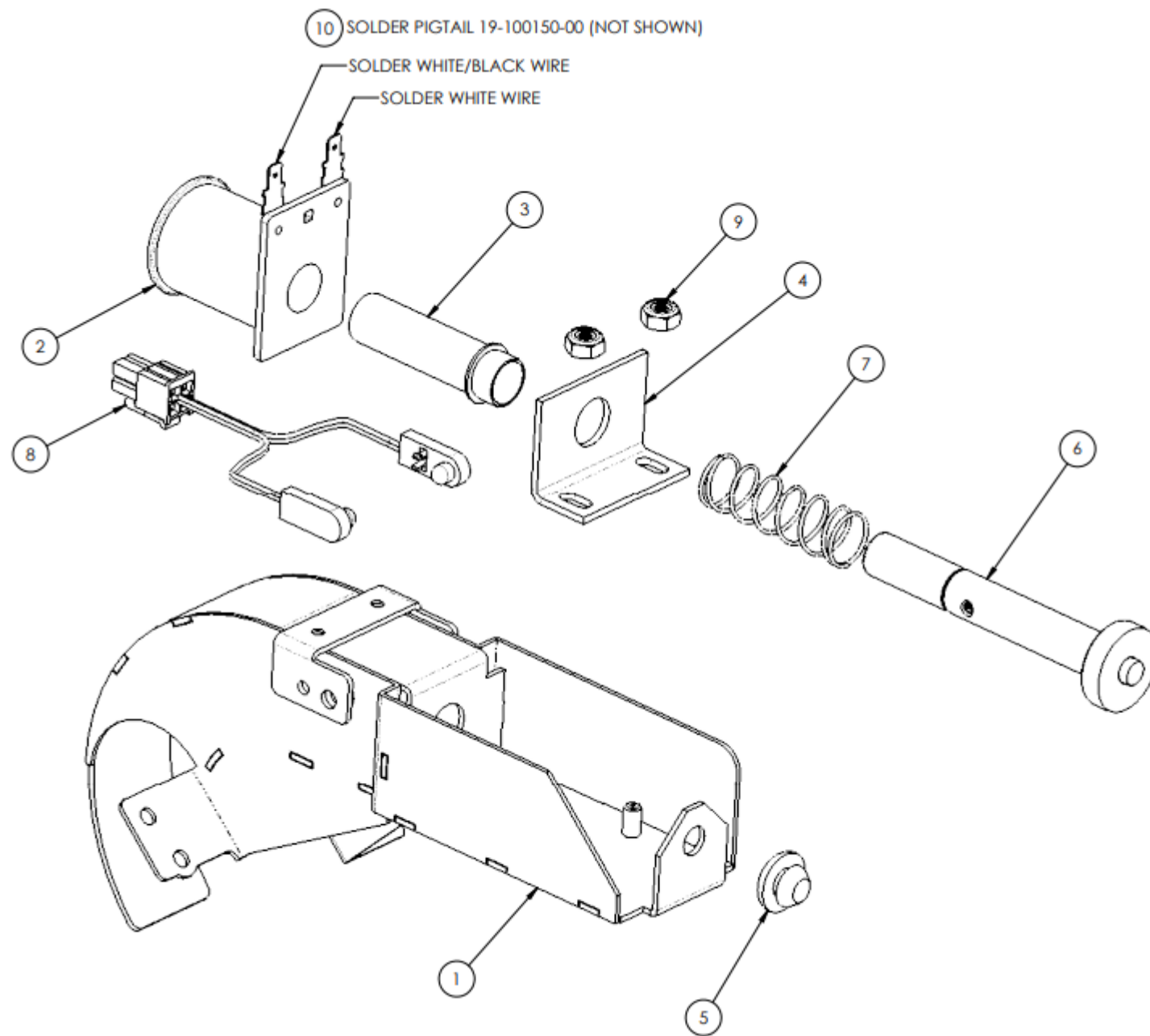
51-100173-01  
(Left)



51-100173-02  
(Right)

Item	Part Number	Description	Qty
1	10-005027-00	Disappearing Post Coil Bracket	1
2	10-007000-00	Coil Retaining Bracket "T" Type	2
3	11-100049-00	Assy Locking Up Down Post Plunger	1
4	13-007002-00	Pop Bumper Spring	1
5	19-100150-00	Coil Pigtail, 2-Lug 4"	1
6	23-000015-00	26-1500 Standard Coil	1
7	25-006002-00	Post Rubber Sleeve 1-1/16" Black	1
8	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
9	80-000308-12	#8-32 x 3/4" PPH MS Brass	1
10	80-002008-04	#8-32 x 1/4" HWH Phillips Serrated	4
11	80-006106-06U	6-32 x 3/8" PFH MS, Undercut	1
12	92-100007-00	Washer #6 C'Sink	1

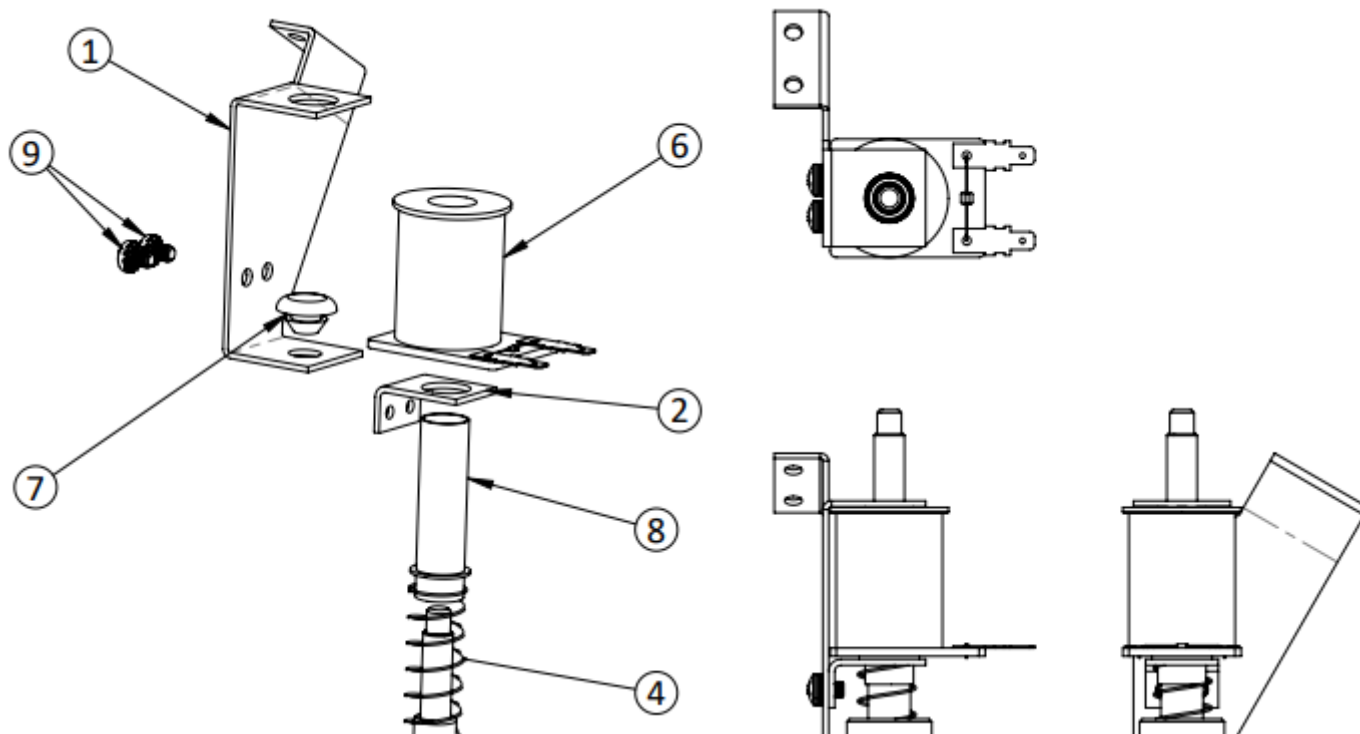




## ASSY SCOOP 45 DEG 51-100163-00

Item	Part Number	Description	Qty
1	10-100247-00	Brkt Scoop 45 Deg Mtg	1
2	23-000003-00	23-800 Standard Coil	1
3	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
4	10-007014-02	Coil Centering Brkt, 5/8", Slotted 1.56"w	1
5	25-009001-00	Rubber Bumper Plug, Black	1
6	11-005001-00	Bell Armature Assembly	1
7	13-007005-00	VUK Plunger Return Spring	1
8	18-007025-24	Opto Pair Assy, OPB100-EZ/SZ, 24" Cable	1
9	91-000008-00	8-32 Nylon Stop Nut Thin	2
10	19-100150-00	Coil Pigtail, 2-Lug, 4"	1

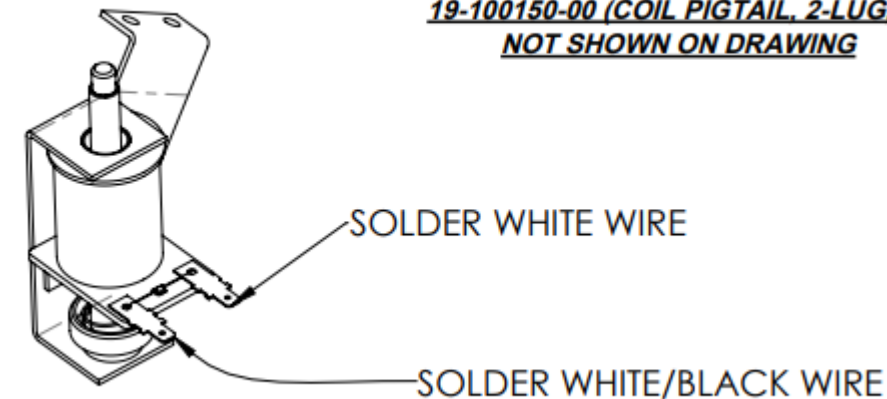




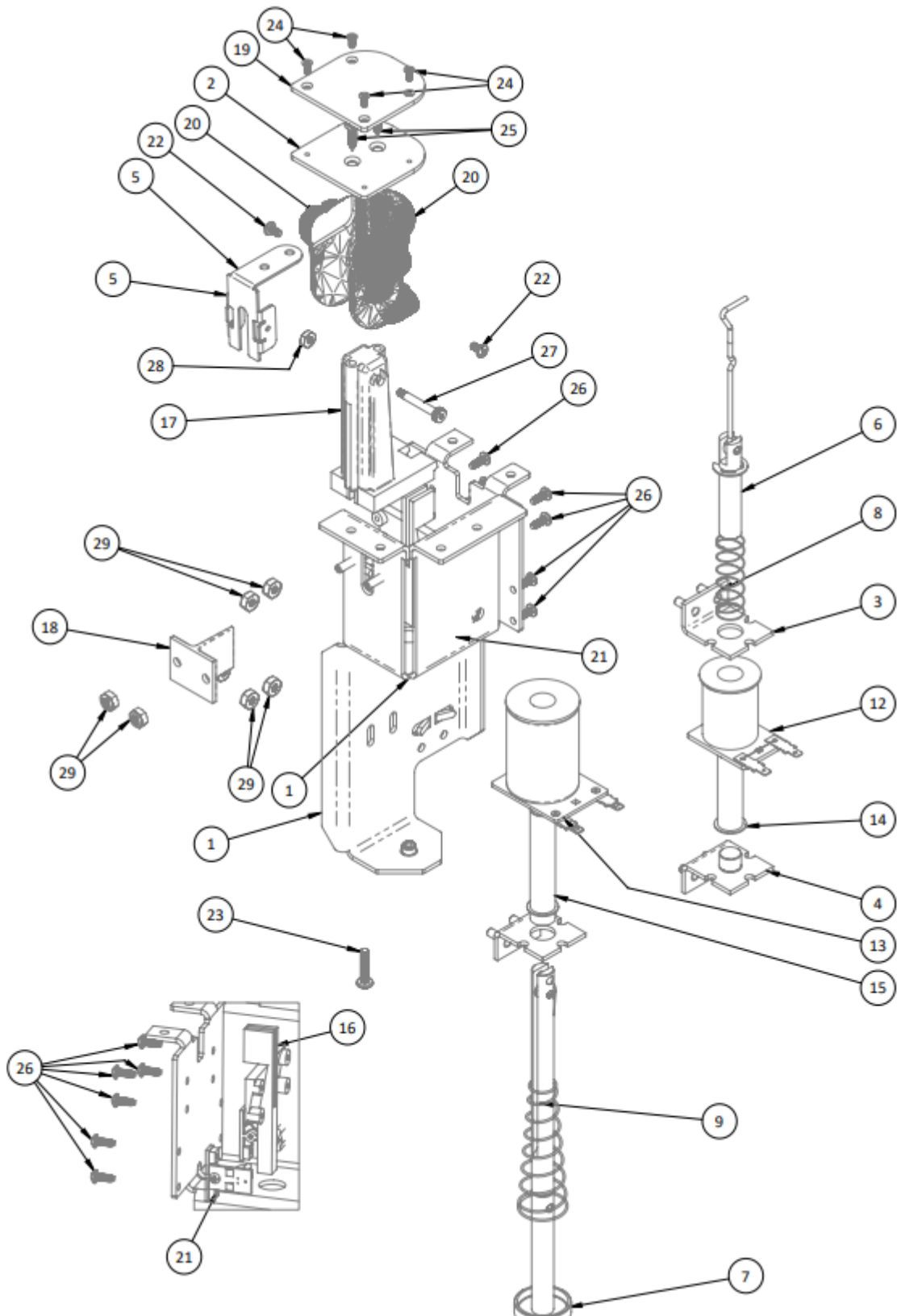
## 60 DEG BALL KICKER ASSY, RIGHT MOUNT, W/ PIGTAIL 51-100249-00

Item	Part Number	Description	Qty
1	10-000262-00	60 Deg Ball Kicker Coil Mtg Brkt	1
2	10-007000-00	Coil Retaining Bracket "T" Type	1
3	11-005012-00	Laser Kick Plunger Assy	1
4	13-007002-00	Pop Bumper Spring	1
5	19-100150-00	Coil Pigtail, 2-Lug, 4"	1
6	23-0003-00	Coil Sub Assembly	1
7	25-009001-00	Rubber Bumper Plug, Black	1
8	30-000014-30-01	1-7/8" Coil Tubing, Flanged	1
9	80-001008-04	#8-32 x 1/4" PPH MS, SEMS, Zinc	2

**SOLDER PIGTAIL TO LEADS**  
**19-100150-00 (COIL PIGTAIL, 2-LUG, 4")**  
**NOT SHOWN ON DRAWING**



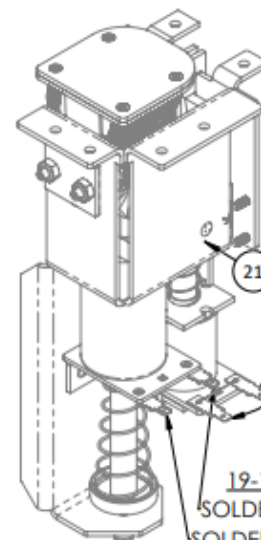




## ASSEMBLY, GABBY GABBY TARGET

51-100147-00

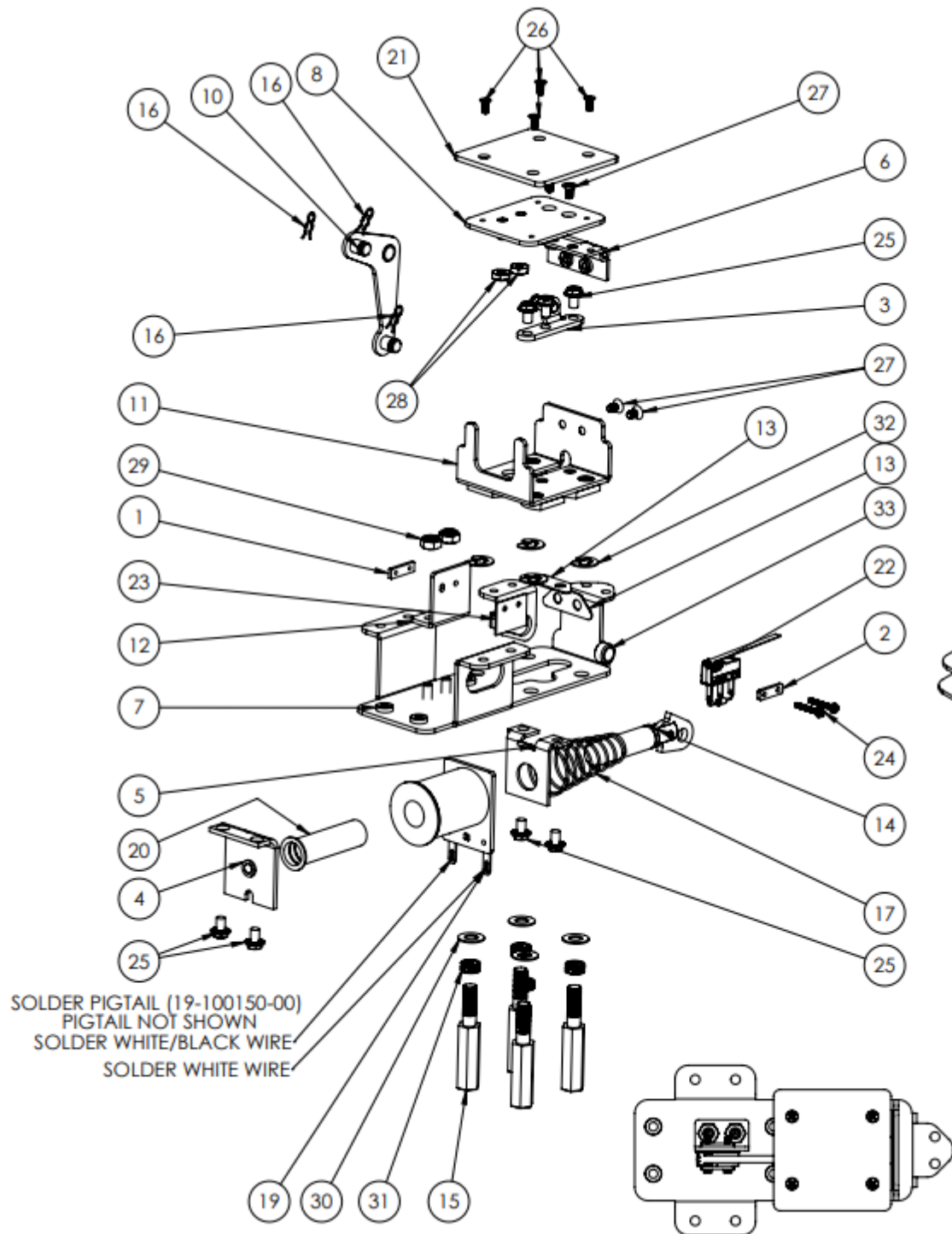
Item	Part Number	Description	Qty
1	10-100192-00	Bracket, Main Target	1
2	10-100193-00	Plate Target Top	1
3	10-100200-00	Coil Centering Bracket With Studs	2
4	10-100201-00	Coil Stop Bracket With Studs	1
5	10-100234-00	Bracket, Sculpt Mount	1
6	11-100038-00	Assembly, Release Plunger	1
7	11-100040-00	Plunger Assembly Base	1
8	13-007005-00	VUK Plunger Return Spring	1
9	13-100026-00	Spring, Comp, Conical 3 inch LG	1
10	19-100150-00	Coil Pigtail, 2-Lug, 4"	1
11	19-100152-00	Coil Pigtail, 2-Lug, Key-2, 4"	1
12	23-000010-00	26-1200 Standard Coil	1
13	23-100002-00	25-1800 Single Winding Flipper Coil	1
14	30-000014-28	1 3/4" Coil Tubing, Straight	1
15	30-000014-42-1	1 7/8" Coil Tubing, Flanged	1
16	30-100070-00	Guide Release	1
17	30-100071-00	Pop Up Catch	1
18	10-100380-00	Guide, Gabby Mech	1
19	30-100117-00	Plastic, Gabby Cover	1
20	32-100011-00	Pop Up Head	1
21	51-100243-00	Opto PCB Pair w/Cable	1
22	80-000006-04	6-32 x 1/4" PPH MS, Zinc Plated	2
23	80-000308-12	#8-32 x 3/4" PPH MS, Zinc Plated	1
24	80-006004-04	4-40 x 1/4" PFH MS, 82deg CA, Zinc	4
25	82-006008-10	#8 x 5/8" PFH SMS, 82deg CA, Zinc	2
26	83-000006-06	#6-32 x 3/8" PPH Type 25 TCS	8
27	85-000006-14	6-32 x .156" x .875" SH Shoulder Bolt	1
28	91-000006-00	6-32 Nylon Locknut, Zinc Plated, Thin	1
29	91-000008-00	8-32 Nylon Stop Nut, Thin	8



SOLDER PIGTAIL TO LEADS  
 19-100150-00 (COIL PIGTAIL, 2-LUG, 4") NOT SHOWN ON DRAWING  
 SOLDER WHITE WIRE  
 SOLDER WHITE/BLACK WIRE

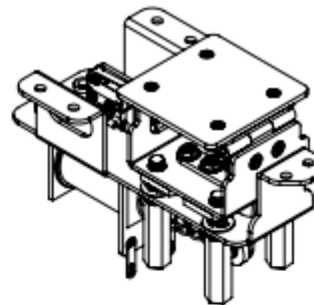
SOLDER PIGTAIL TO LEADS  
 19-100152-00 (COIL PIGTAIL, 2-LUG, KEY 2, 4") NOT SHOWN ON DRAWING  
 SOLDER WHITE WIRE  
 SOLDER WHITE/BLACK WIRE



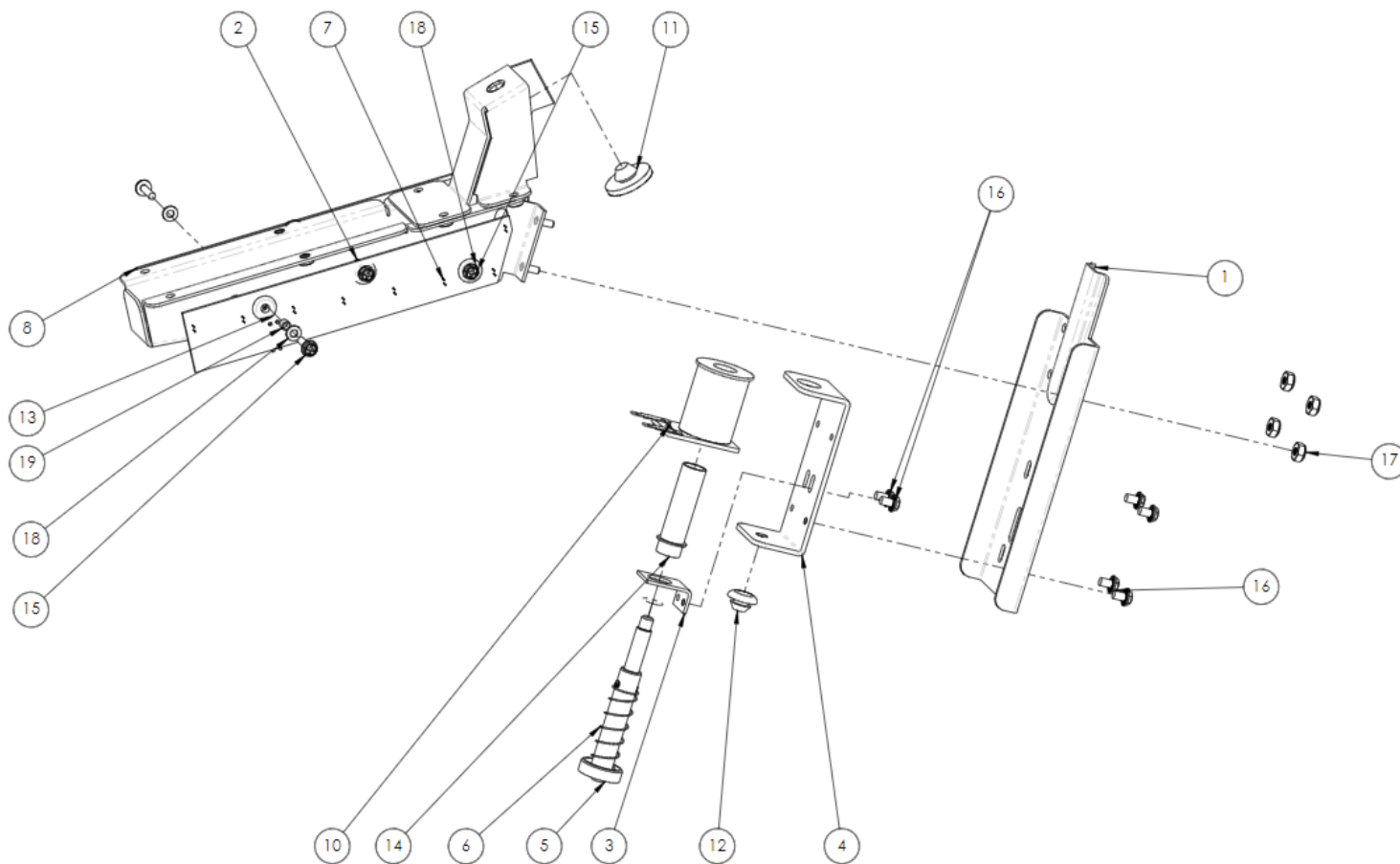


## ASSEMBLY RAMP MECH 51-100209-00

Item	Part Number	Description	Qty
1	10-000024-00	Microswitch Nut Plate, 2-56	1
2	10-000024-01	Microswitch Protector Plate, #2	1
3	10-000043-20	Inline Kicker Crank Mtg Bracket	1
4	10-007001-00	Flipper Coil Stop Brkt	1
5	10-007009-00	Top Coil Mtg Bracket	1
6	10-100225-00	Hinge, Ramp	1
7	10-100251-00	Bracket, Coil Mount	1
8	10-100252-00	Plate, Ramp Top	1
9	10-100252-01	Bracket, Ramp Support	1
10	10-100253-00	Arm, Ramp Mech	1
11	10-100254-00	Bracket, Adjustment Tray	1
12	10-100255-00	Bracket, Switch Mount	1
13	10-100310-00	Shim Hinge	2
14	11-005003-01	Slingshot Plunger & Link Assy, 2-1/8"	1
15	11-100054-00	Post, Adjuster Screw	4
16	13-009002-00	Hairpin Clip	3
17	13-100026-00	Spring Slap Ramp	1
18	19-100150-00	Coil Pigtail, 2-Lug, 4"	1
19	23-000014-00	26-1400 Standard Coil	1
20	30-000014-28	1 3/4" Coil Tubing, Straight	1
21	30-100087-00	Plastic, Ramp Cover	1
22	51-100273-00	Switch & Cable Assy, 1.8" Blade Actuator	1
23	70-009002-00	Microswitch Insulator, Fish Paper	1
24	80-002002-10	2-56 x 5/8" HWH MS	2
25	80-002008-04	#8-32 x 1/4" HWH Phillips Serrated	7
26	80-006004-04	4-40 x 1/4" PFH MS, 82deg CA, Zinc	4
27	80-006006-04	6-32 x 1/4" PFH MS, 82deg CA, Zinc	4
28	91-000006-00	6-32 Nylon Locknut, Zinc Plated, Thin	2
29	91-000008-00	8-32 Nylon Stop Nut Thin	2
30	92-000008-01	Flat Fender Washer, 0.255" ID 0.49" OD .030"	4
31	92-100008-00	Wave Spring, Stacked, .25 Shaft, .15 Height	4
32	94-004012-08	1/4" Retaining Ring, Heavy Duty	4
33	94-100007-00	.375" OD, .25" ID Spacer, Hardened Steel	1





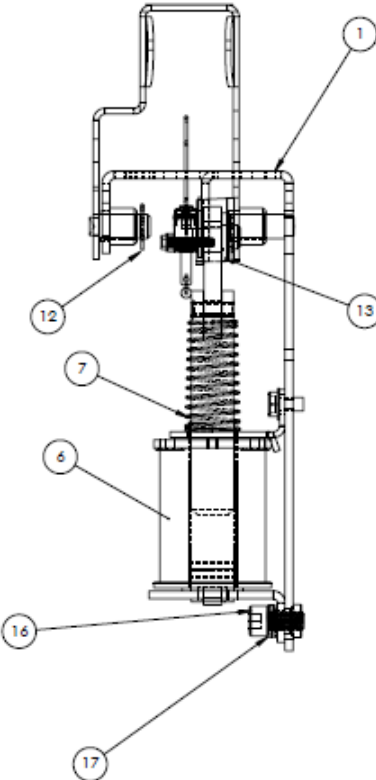
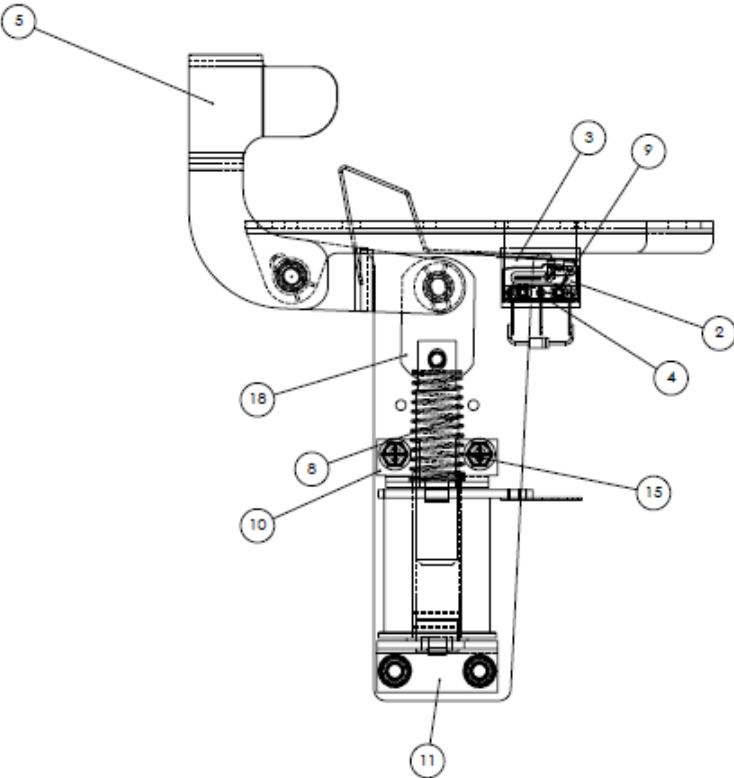
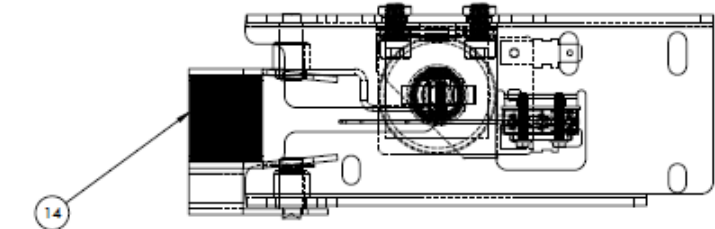


## 6 - BALL TROUGH ASSY 51-100022-00

Item	Part Number	Description	Qty
1	10-005010-01	Coil Bracket	1
2	10-005010-00	Main Bracket	1
3	10-007000-00	Coil Retaining Bracket	1
4	10-007006-00	Coil Mounting Brkt	1
5	11-005012-00	Plunger Assy.	1
6	13-007005-00	Spring	1
7	15-100002-00	Transmitter Board	1
8	15-100004-00	Reciever Board	1
9	19-009019-00	Power Cable (Not Shown)	1
10	23-000010-00	26-1200 Coil	1
11	25-009001-01	Bumper Plug, Blue	1
12	25-009001-00	Bumper Plug, Black	1
13	25-009006-00	Rubber Grommet	6
14	30-000014-30-1	1 7/8" Coil Sleeve	1
15	80-002006-10	#6 x 5/8" MS	6
16	80-002008-14	#8-32 x 1/4" MS	6
17	91-000008-00	8-32 Nylon Stop Nut	4
18	92-000006-00	#6 Flat Washer	6
19	94-003002-00	Bushing	6



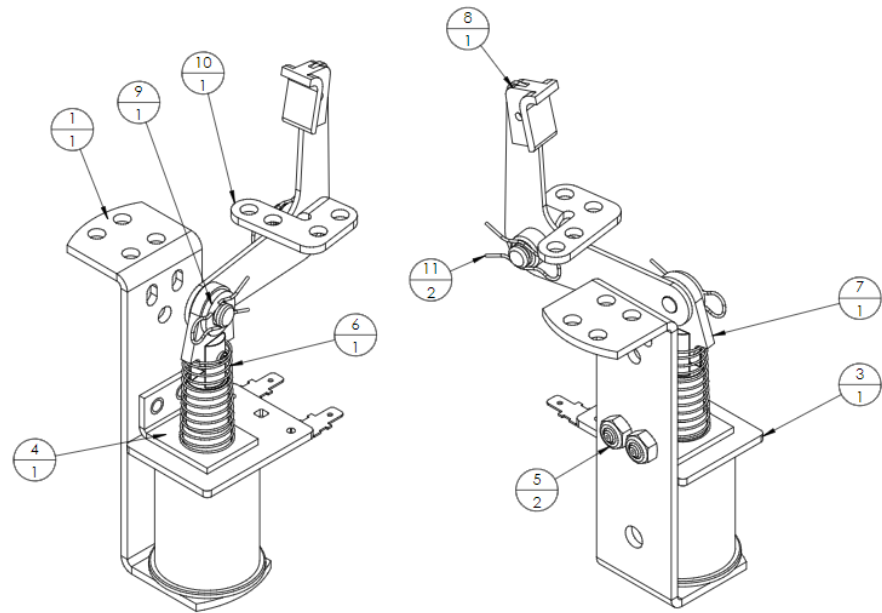
**AUTO-LAUNCH ASSY**  
**51-000026-00**



Item	Part Number	Description	Qty
1	10-005009-00	Coil Bracket	1
2	18-003001-00	Microswitch	1
3	70-009002-00	Fish Paper	1
4	10-000024-01	Protector Plate	1
5	10-000028-00	Crank Bracket	1
6	23-000003-00	23-800 Coil	1
7	30-000014-28	1 3/4" Coil Sleeve	1
8	13-007004-00	Spring	1
9	80-002102-08	2-56 x 1/2" MS	2
10	10-007009-00	Centering Bracket	1
11	10-007005-00	Coil Stop	1
12	13-009002-00	Hairpin Clip	2
13	95-002651-20-67	Flat Washer	1
14	62-000002-00	Decal	1
15	80-002006-04	6-32 x 1/4" MS	2
16	90-004010-06	10-32 x 3/8" CS	2
17	92-001010-00	#10 Split Lock Washer	2
18	11-005000-00	Plunger, Link Assy.	1

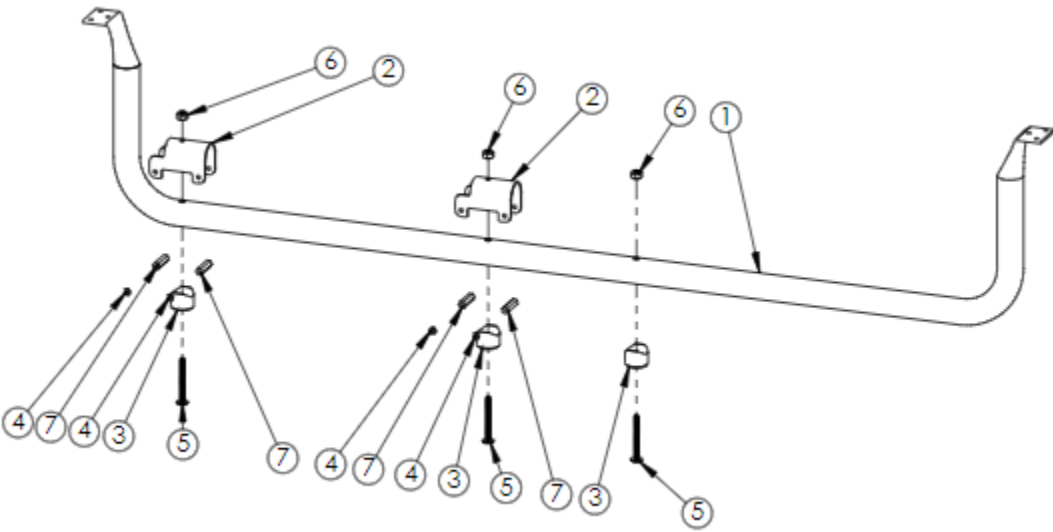


**SLINGSHOT ASSY**  
**51-000003-00**



Item	Part Number	Description	Qty
1	10-005004-00	Coil Bracket	1
2	30-000014-28	2 1/16" Coil Sleeve	1
3	23-000003-00	23-800 Coil	1
4	10-007000-01	Centering Bracket	1
5	91-000006-00	6-32 Nylon Stop Nut	2
6	13-007004-00	Spring	1
7	11-005003-00	Plunger, Link Assy.	1
8	10-000042-00	Crank Assy.	1
9	95-002651-20-67	Flat Washer	1
10	10-000043-00	Crank Mounting Brkt	1
11	13-009002-00	Hairpin Clip	2

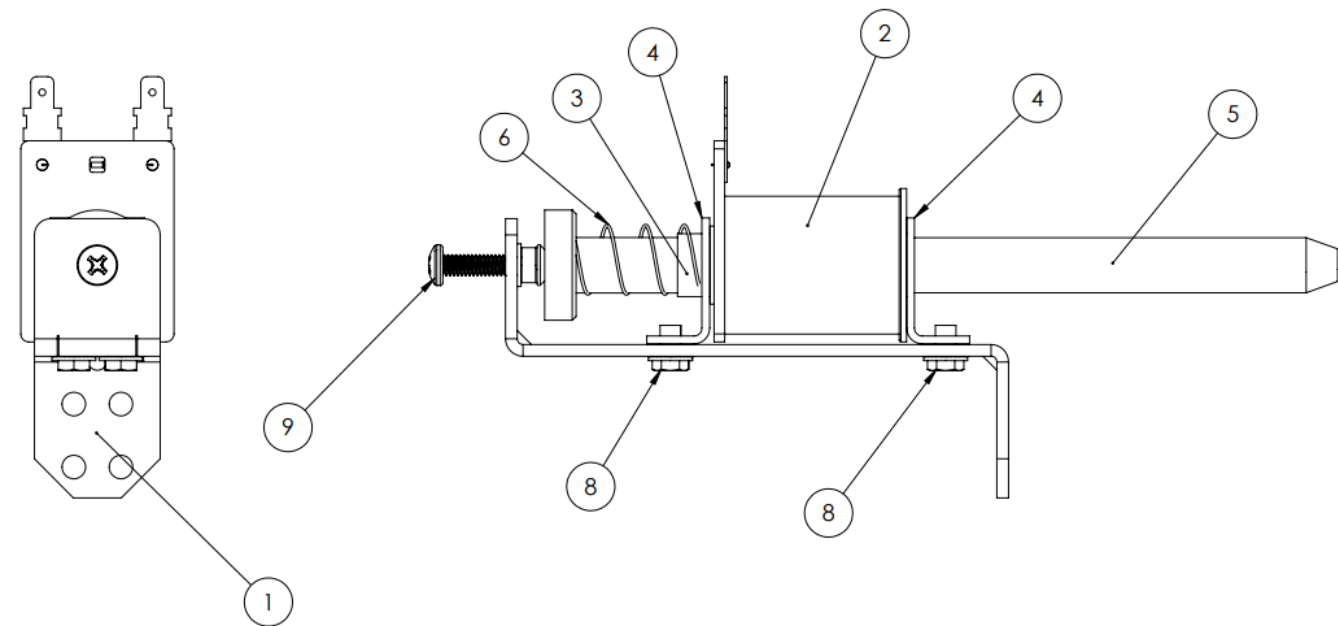
**PLAYFIELD SUPPORT ASSY.**  
**51-100001-00**



Item	Part Number	Description	Qty
1	10-000093-00	Support Tube	1
2	10-000280-00	Foot Bracket	2
3	25-009008-00	Rubber Spacers	1
4	80-000006-04	6-32 x 5/16" MS	8
5	80-007010-28	10-24 x 1 3/4" MS	3
6	91-000011-00	#10-24 Nylon Stop Nut	3
7	94-001406-16	#6-32 Female Hex Spacer	4

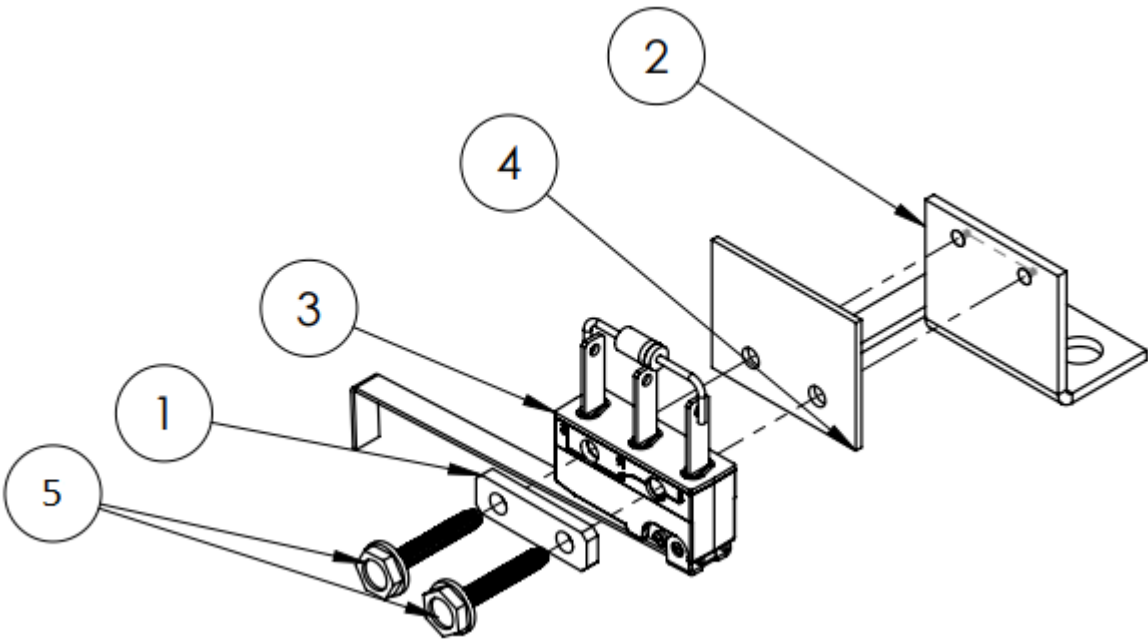


UP POST ASSEMBLY, RAMP  
51-100195-00



Item	Part Number	Description	Qty
1	10-005027-00	Disappearing Post Coil Brkt	1
2	23-000010-00	26-1200 Standard Coil	1
3	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
4	10-007000-00	Coil Retaining Bracket "T" Type	2
5	11-100053-00	Up Post Plunger, Ramp	1
6	13-007005-00	VUK Plunger Return Spring	1
7	19-100150-00	Coil Pigtail, 2-Lug, 4"	1
8	80-002008-04	#8-32 x 1/4" HWH Phillips Serrated	4
9	80-000308-12	#8-32 x 3/4" PPH MS, Brass	1

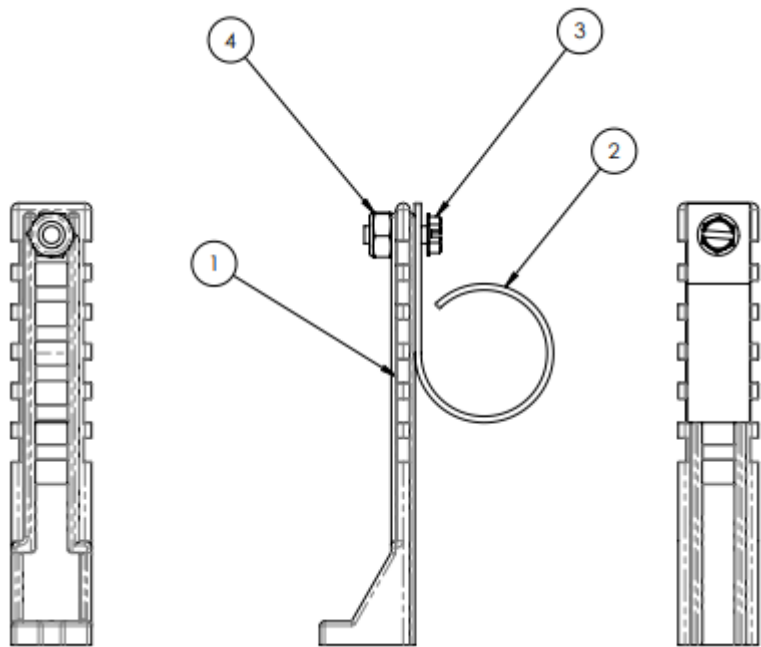
ASSY, ANGLED POPPER SWITCH  
51-100196-00



Item	Part Number	Description	Qty
1	10-000024-01	Microswitch Protector Plate #2	1
2	10-000044-00	Microswitch & Wireform Mtg Brkt, Right	1
3	18-100004-00	Microswitch, Angled Popper	1
4	70-009002-00	Microswitch Insulator, Fish Paper	1
5	80-002102-08	2-56 x .5 HWH Trilobular Serr Blk	2

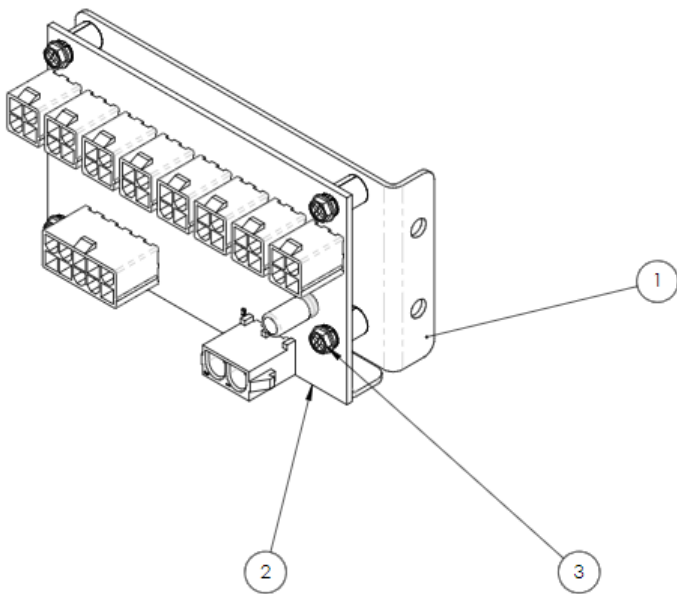


**ASSY LADDER AND CLAMP 1.00 DIA**  
 51-100212-16



Item	Part Number	Description	Qty
1	30-000033-01	Nylon Cable Ladder, 3.5"	1
2	30-000049-16	Nylon Cable Clamp, Open 1"	1
3	80-002008-08	8-32 x 1/2" HWH Phillips MS, Serr	1
4	91-000008-00	8-32 Nylon Stop Nut Thin	1

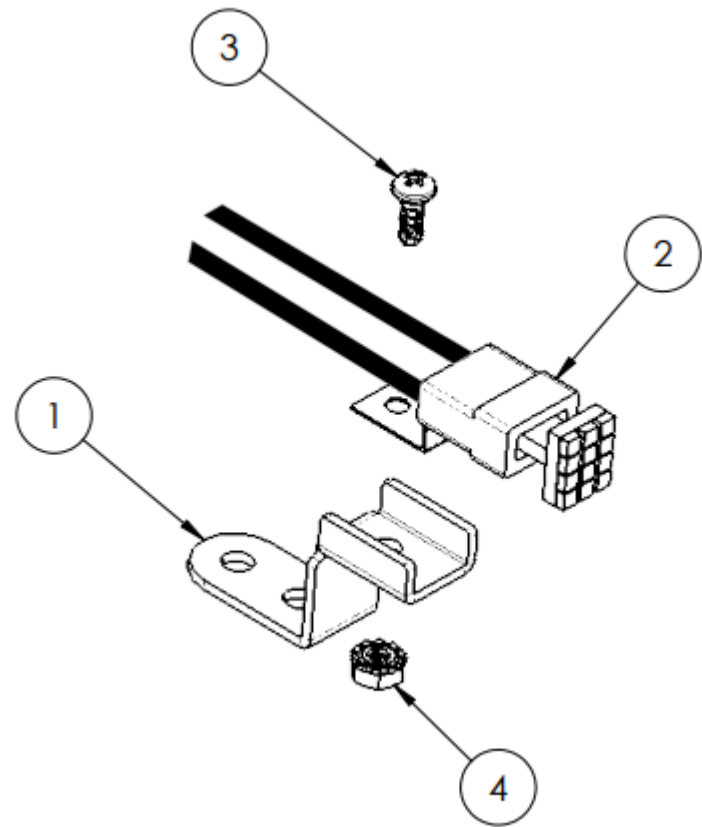
**OPTO BOARD ASSY**  
 52-100008-00



Item	Part Number	Description	Qty
1	10-005020-00	Mounting Bracket	1
2	15-100005-00	OPTO Board	1
3	80-002104-08	4-40 x 1/2" MS	4

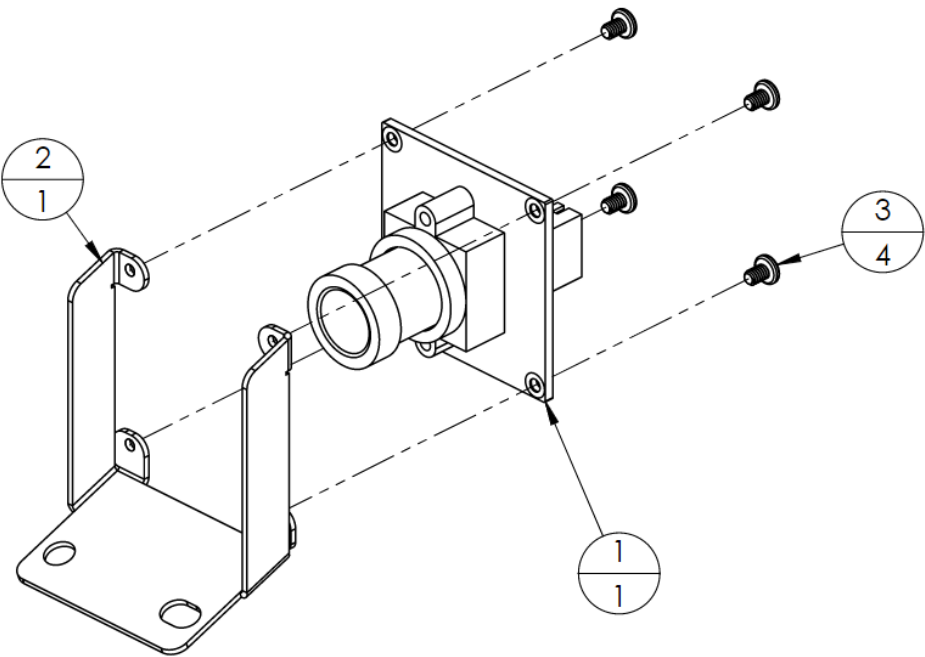


ASSEMBLY, SINGLE FLASHER BACKBOX  
51-100272-00



Item	Part Number	Description	Qty
1	10-100318-00	Bracket, Spotlight, Backbox	1
2	51-100291-01	Single Backglass Flasher Cable Assy	1
3	80-000004-05	#4-40 x 5/16" L PPH MS	1
4	91-001004-00	4-40 Keps Nut, Zinc Plated	1

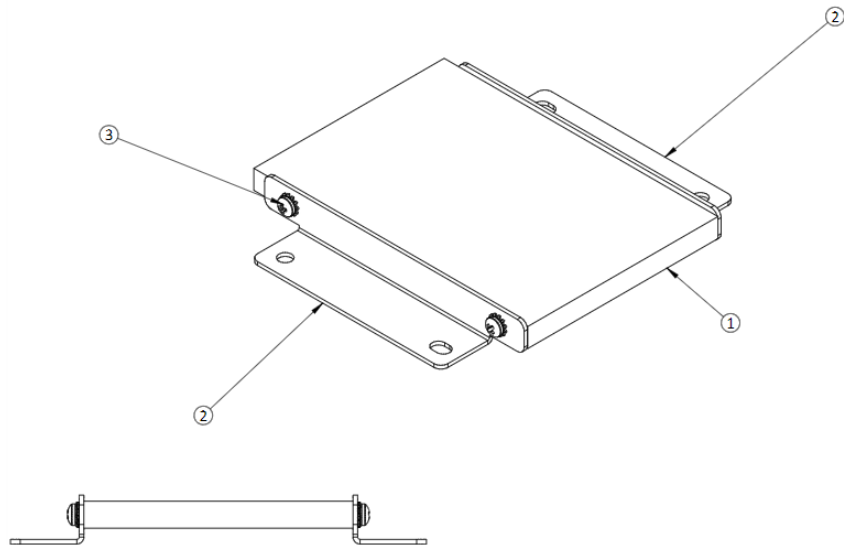
USB CAMERA ASSY.  
51-005041-00



Item	Part Number	Description	Qty
1	15-005034-00	USB Camera, 1 MP, 720P	1
2	10-000226-00	Bracket	1
3	80-000002-04	2-56 x 1/4" MS	4

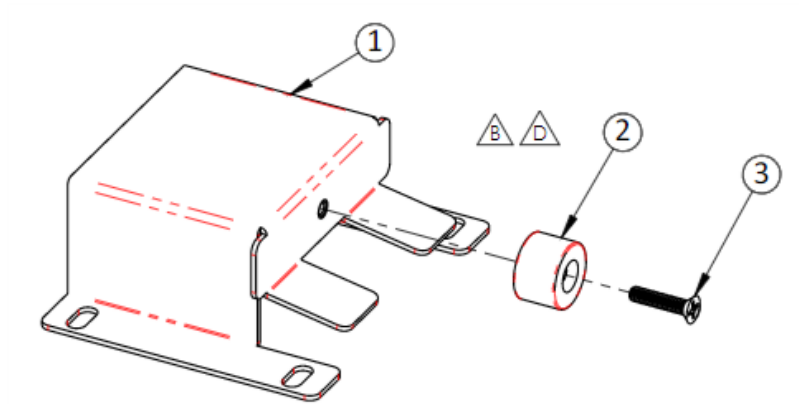


SSD BACKBOX MOUNT  
51-005044-03



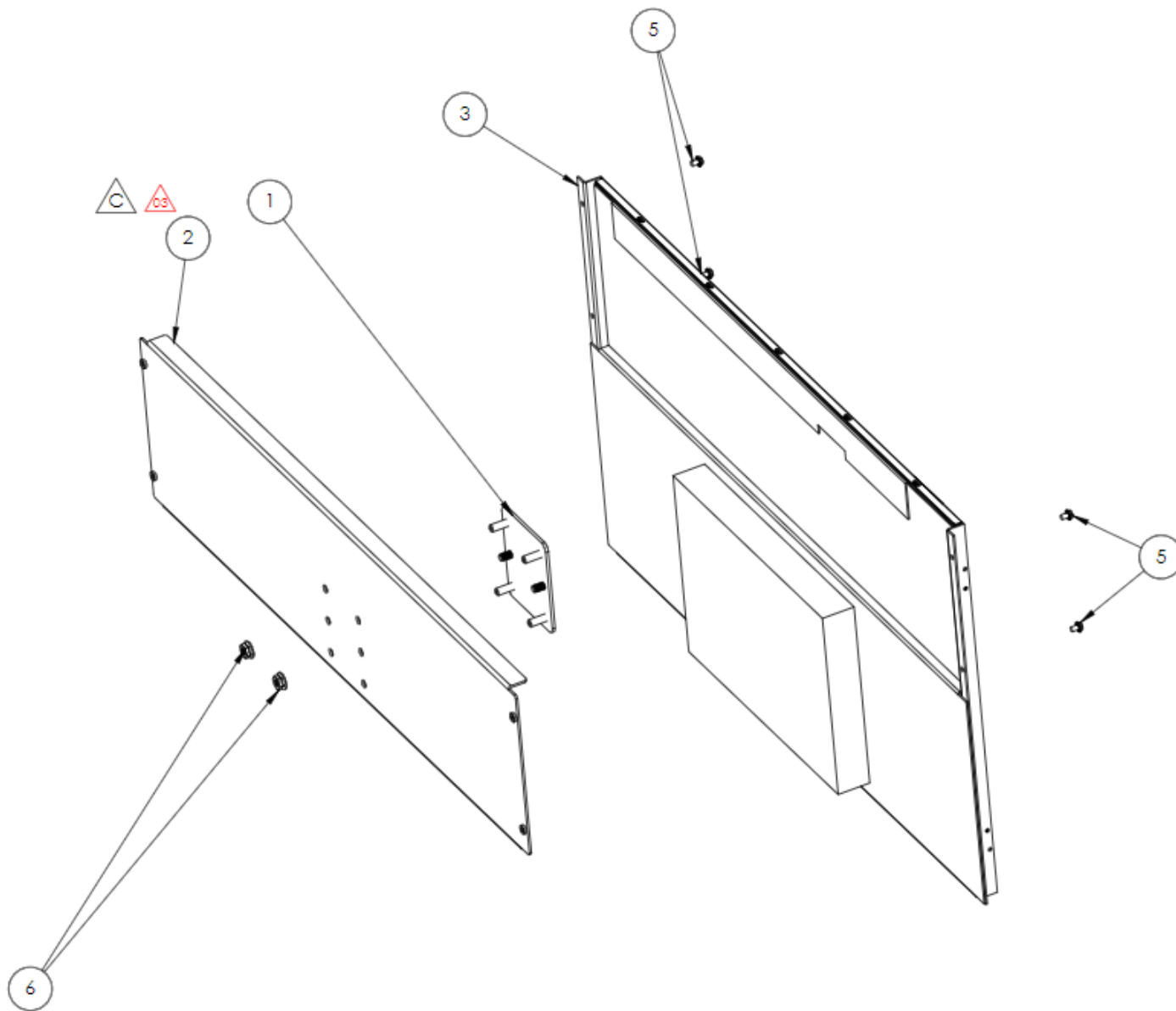
Item	Part Number	Description	Qty
1	15-000003-03	Solid State Drive	1
2	10-000209-00	SSD Mounting Bracket	2
3	80-001003-03	M3 x 5MM	4

MONITOR MAGNETIC LATCH  
51-100050-00



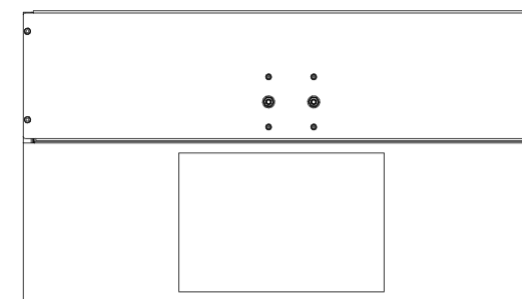
Item	Part Number	Description	Qty
1	10-100065-00	Bracket Screen Lock	1
2	23-100003-00	Magnet	1
3	80-006008-12	#8-32 x 3/4" MS	1



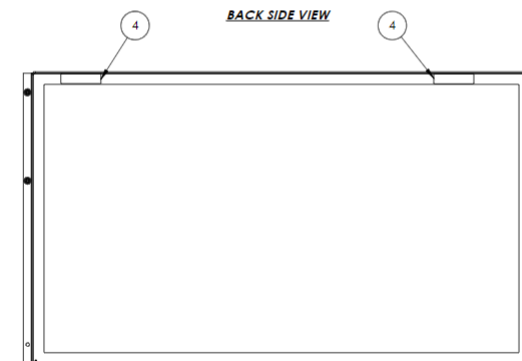


## 27" LCD MONITOR ASSY 51-100021-00

Item	Part Number	Description	Qty
1	10-000206-07	27" LCD MTG Plate	1
2	10-100069-00	27" LCD MTG Bracket	1
3	17-000000-02	27" LCD Panel	1
4	62-100012-00	PULL HERE Decal	2
5	80-002006-04	#8-32 x 1/4" MS	4
6	91-002025-00	#1/4" - 20 Flange Nut	2



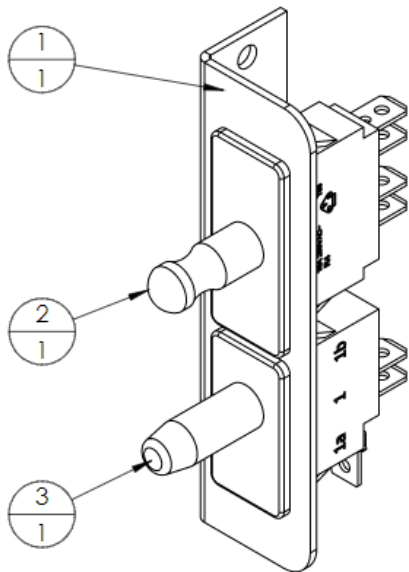
*BACK SIDE VIEW*



*FRONT SIDE VIEW*

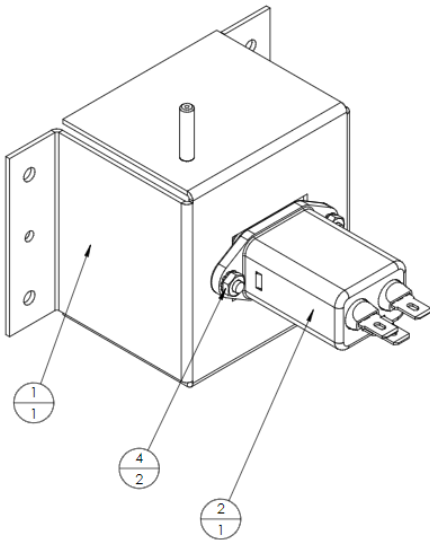


**DOOR & INTERLOCK SWITCH ASSY.**  
**51-000035-00**

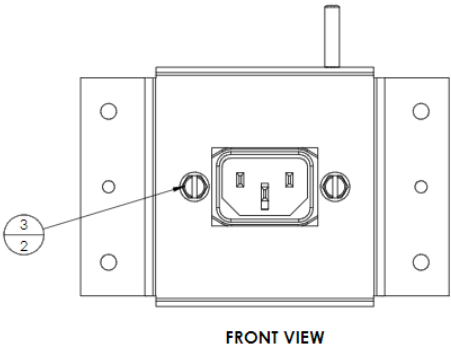


Item	Part Number	Description	Qty
1	10-000089-01	Mounting Bracket	1
2	18-003007-01	Coil Interlock Switch	1
3	18-003008-00	Coin Door Switch	1

**LINE FILTER BOX ASSY.**  
**51-005023-00**



Item	Part Number	Description	Qty
1	10-000009-00	Mounting Bracket	1
2	22-000000-01	Line Filter with Resistor	1
3	80-002006-06	#6-32 x 3/8" MS	2
4	91-001006-00	#6-32 Keps Nut	2

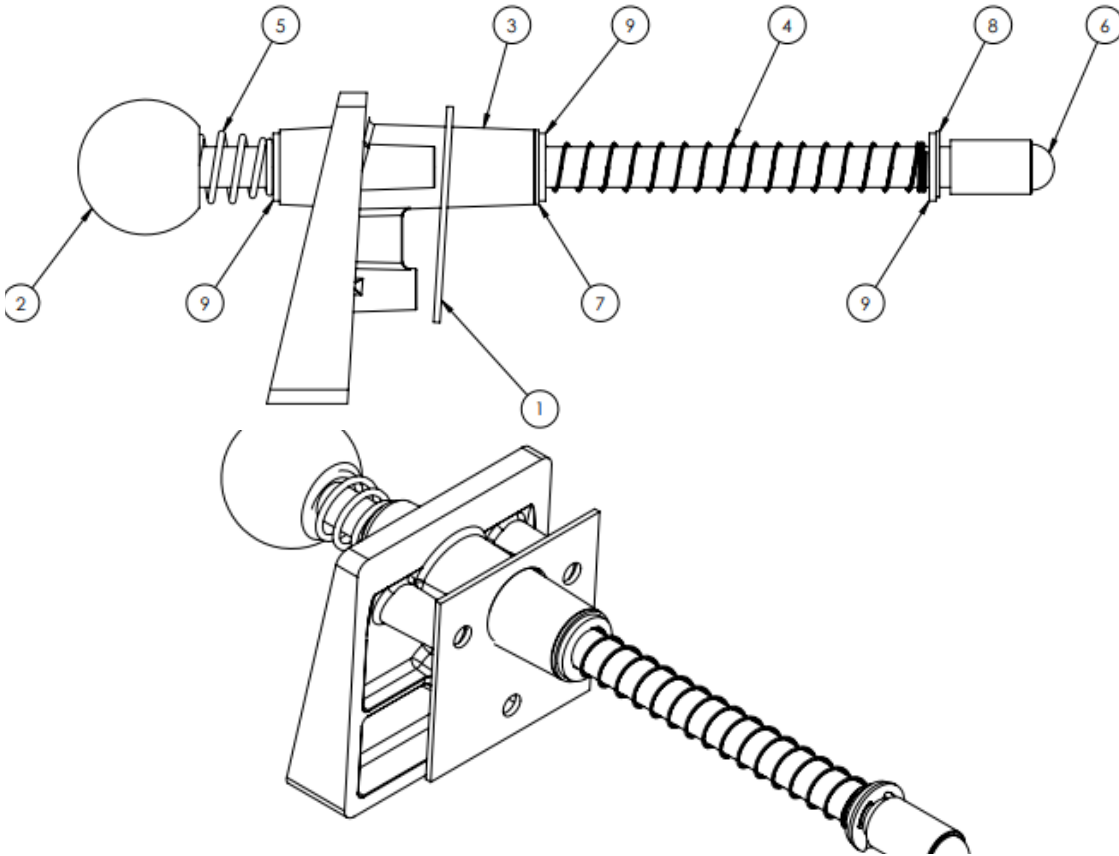




BALL SHOOTER ASSEMBLY

LE = 51-000092-12

CE = 51-000092-13

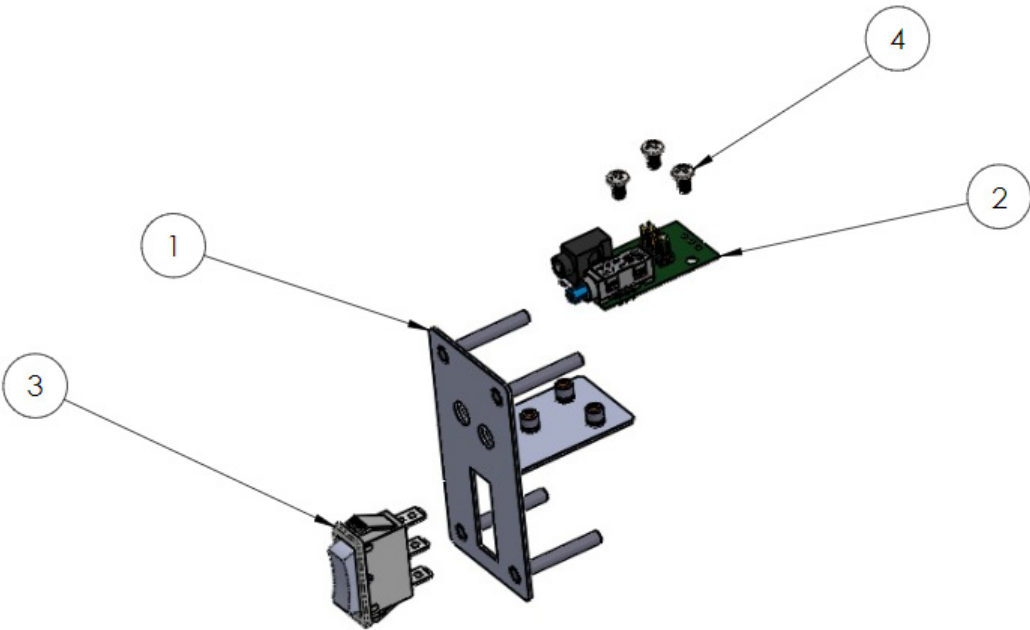


Item	Part Number	Description	Qty
1	10-000025-00	Ball Shooter Cabinet MTG Plate	1
2	11-XXXXXX-XX	Shooter Rod	1
3	14-000001-XX	Ball Shooter Housing	1
4	13-007007-06	Ball Shooter Power Spring, Silver, 0.035"	1
5	13-007006-00	Ball Shooter Outer Spring	1
6	25-009003-00	Ball Shooter Tip-Rubber	1
7	30-000021-00	Shooter Sleeve	1
8	94-004011-12	3/8" Shaft E-Clip	1
9	95-002564-58-16	25/64" x 5/8" x 16 Gauge Flat Washer	3

51-000092-12	BALL SHOOTER ASSY, TS, LE	11-000007-11	14-000001-25
51-000092-13	BALL SHOOTER ASSY, TS, CE	11-100061-00	14-000001-21

HEADPHONE & BLUETOOTH ASSY.

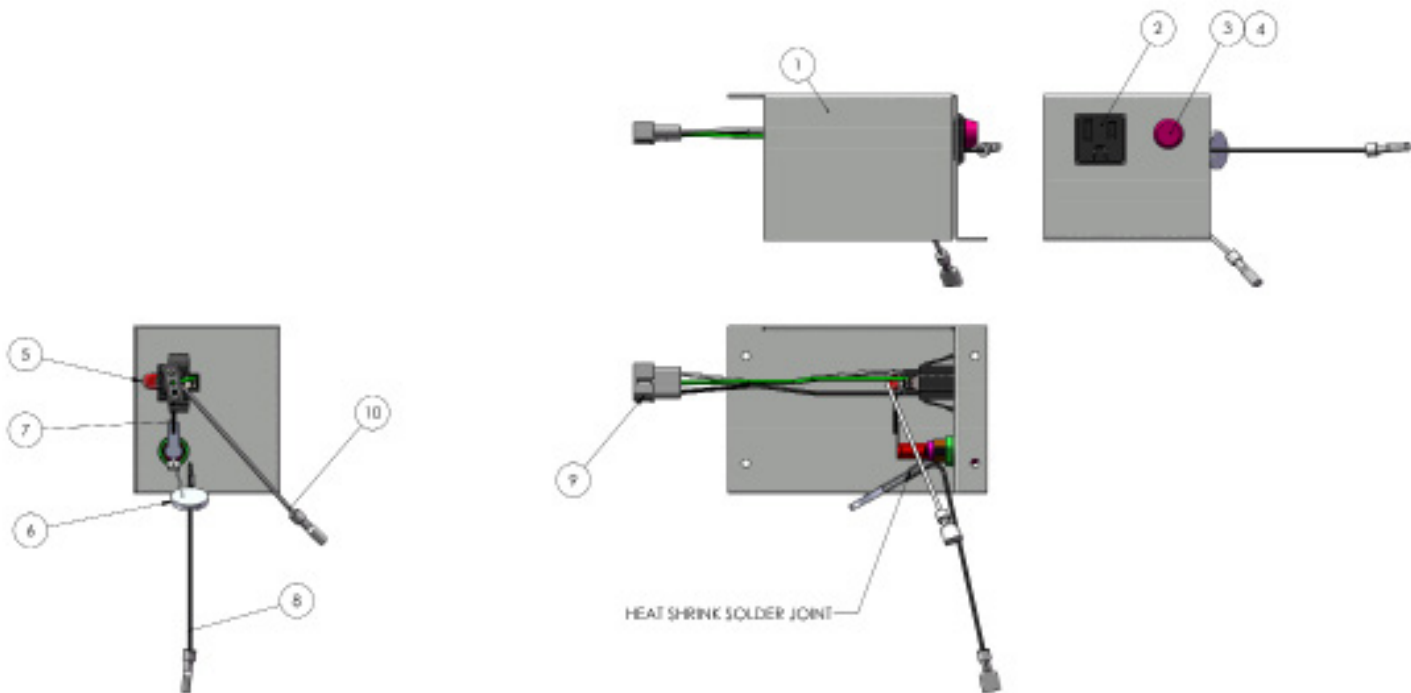
51-100113-00



Item	Part Number	Description	Qty
1	10-100168-00	Mounting Plate	1
2	15-100025-00	PCB	1
3	18-003006-01	Volume Switch	1
4	80-000006-04	6-32 x 1/4" MSS	3
5	19-003115-01	Harness (Not Shown)	1



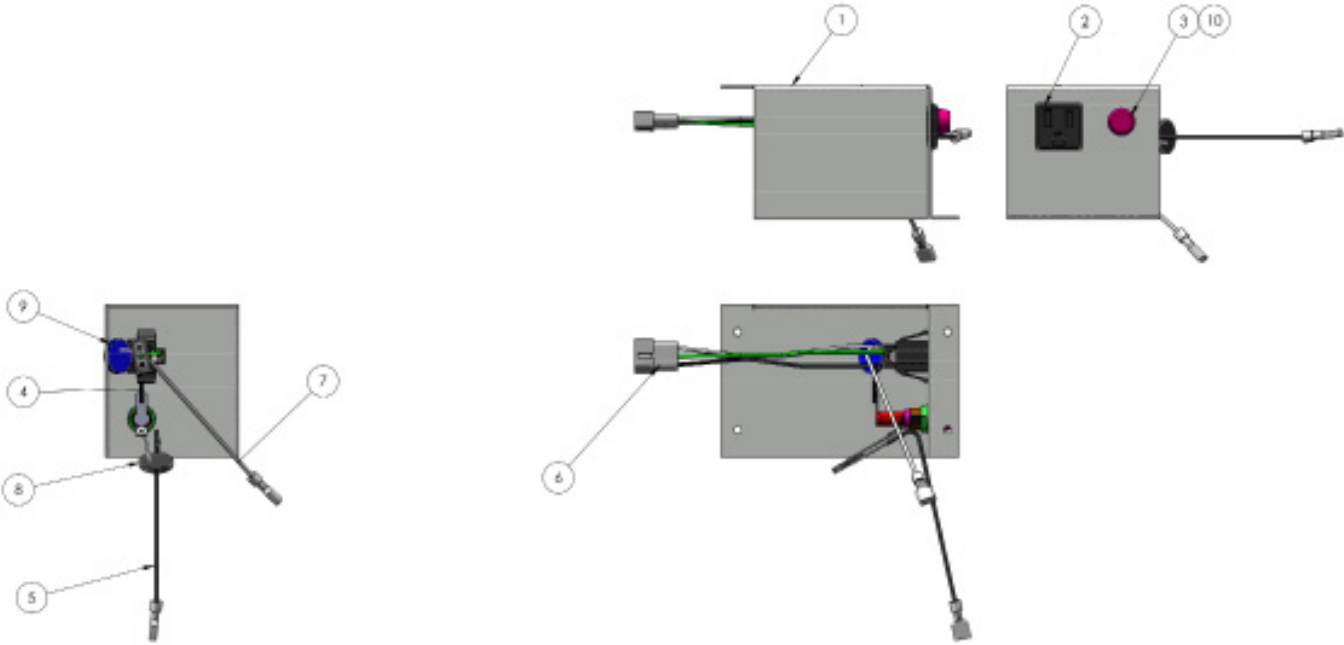
CABINET POWER BOX ASSY U.S.  
51-006001-02



Item	Part Number	Description	Qty
1	10-000008-01	Power Box	1
2	22-000001-00	Service Outlet	1
3	22-008000-00	Line Fuse Holder	1
4	170-000110-SR	Fuse Slow Blow 10A 125V	1
5	180-000001-00	Thermistor	1
6	180-000000-00	Varistor	1
7	19-001000-18	Wire, 18 AWG, Black	1
8	19-003052-00	Jump Wire 18AWG, Black	1
9	19-100115-00	Cabinet Power Cable	1
10	19-003053-00	Jump Wire 18AWG, White	1



CABINET POWER BOX ASSY INT  
51-006001-11



Item	Part Number	Description	Qty
1	10-000008-01	Power Box	1
2	22-000001-00	Service Outlet	1
3	22-008000-00	Line Fuse Holder	1
4	19-001000-18	Wire 18AWG, Black	1
5	19-003052-00	Jump Wire 18AWG, Black	1
6	19-100115-00	Cabinet Power Cable	1
7	19-003053-00	Jump Wire, 18 AWG, White	1
8	180-000002-00	European Varistor	1
9	180-000003-01	European Thermistor	1
10	170-000205-SR	Fuse Slow Blow 5A 250V	1








# Reference Diagrams & Schematics





# PLAYFIELD RUBBERS

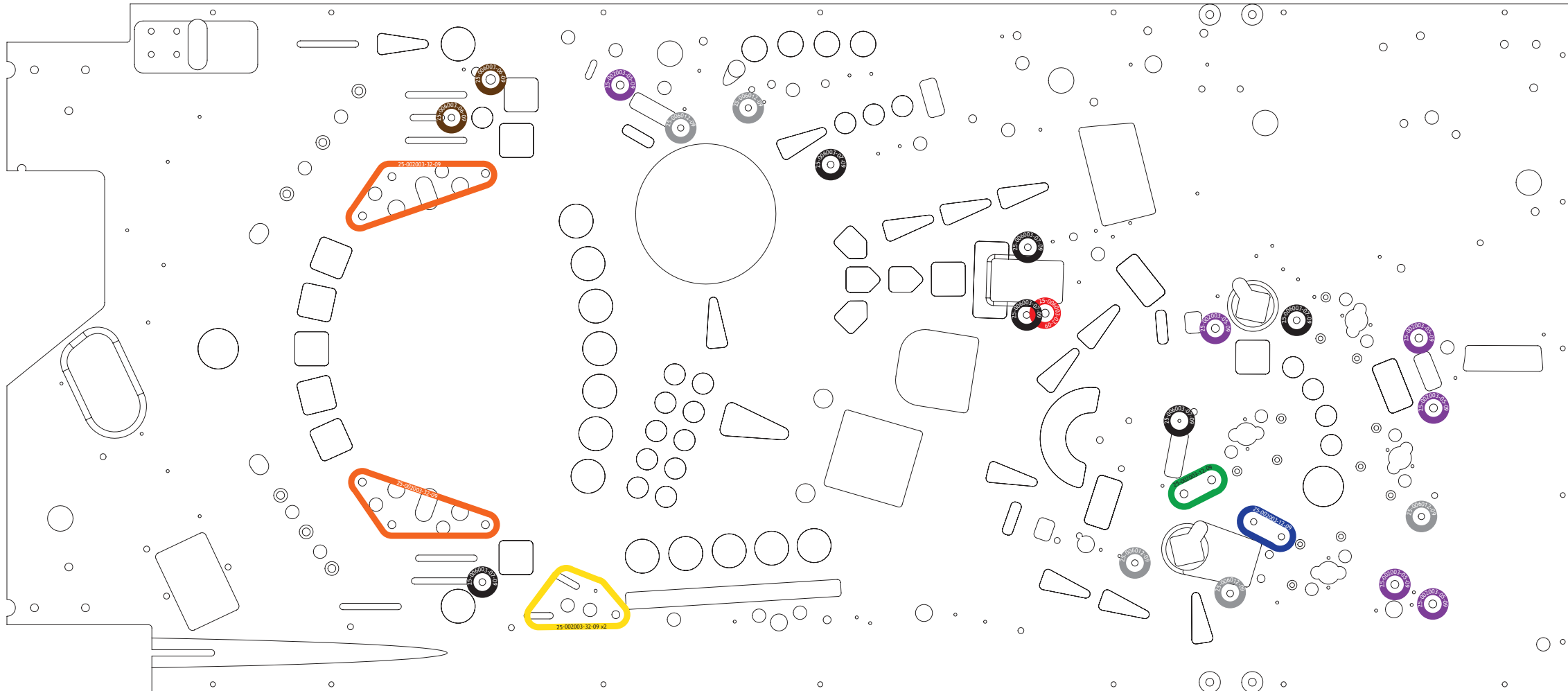
**x6**  25-002003-05-09  
5/16", White


**x1**  25-002003-07-09  
7/16", White


**x1**  25-002003-12-09  
3/4", White


**x2**  25-002003-24-09  
1-1/2", White


**x2**  25-002003-32-09  
2", White



**x1**  25-006003-03-09  
3/16" Post, White

**x2**  25-006003-06-09  
3/8" Post, White

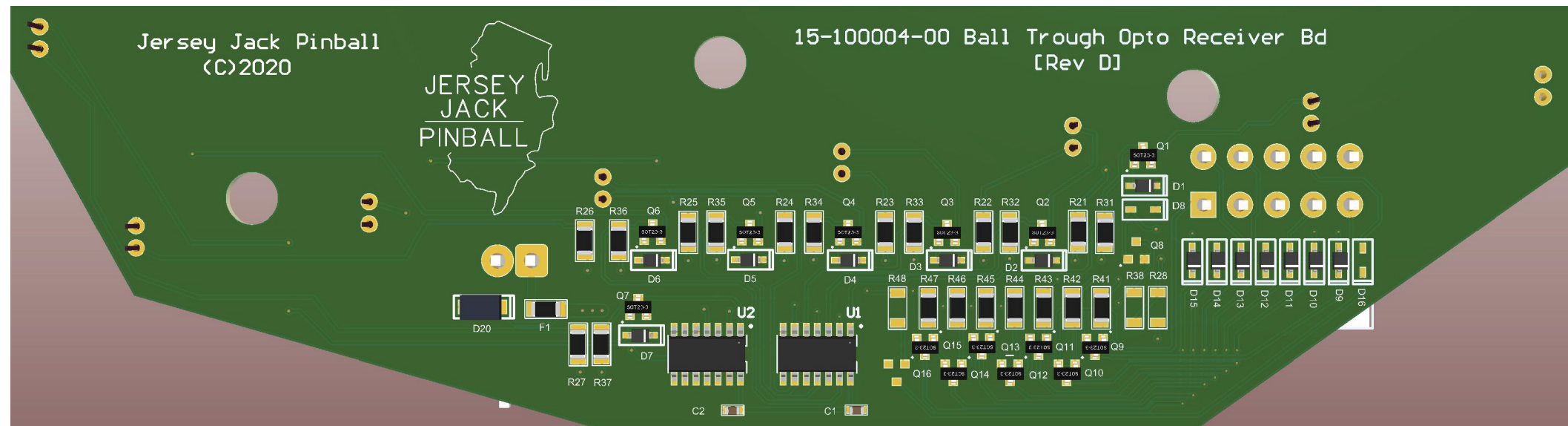
**x6**  25-006003-07-09  
7/16" OD Post, White

**x5**  25-006012-09  
1-1/16" Polyurethane Sleeve,  
White



## 6-Ball Trough Opto Receiver Board

15-100004-00



### J1 Switch Inputs

Pin

1	Black / Green	Column 1 From I/O Board J201-1
2	White / Blue	Row 7 from I/O Board J200-7
3	White / Black	Row 1 from I/O Board J200-1
4	White / Brown	Row 2 from I/O Board J200-2
5	White / Red	Row 3 from I/O Board J200-3
6	White / Orange	Row 4 from I/O Board J200-4
7	White / Yellow	Row 5 from I/O Board J200-5
8	White / Green	Row 6 from I/O Board J200-6
9	White / Violet	Row 8 from I/O Board J200-8
10	Key	

### J2 Power Input

Pin

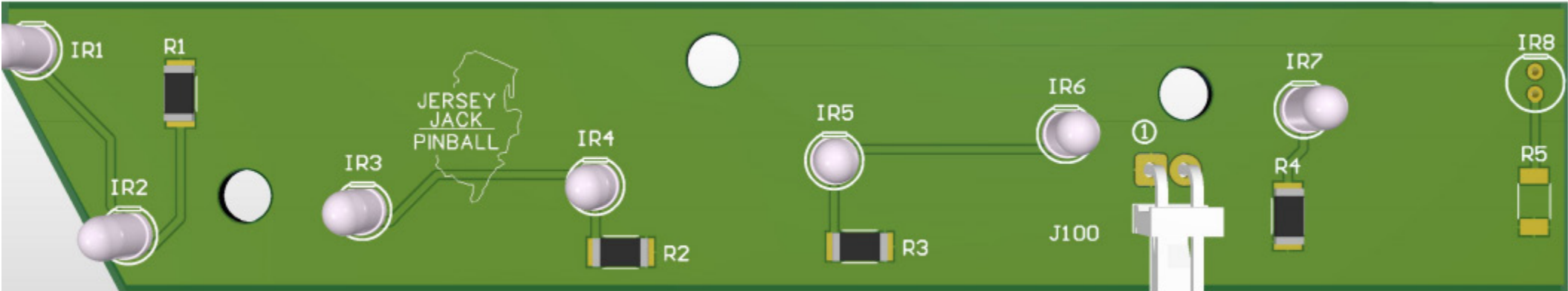
1	Black	Ground from ATX Power Supply
2	Red	+5VDC from ATX Power Supply





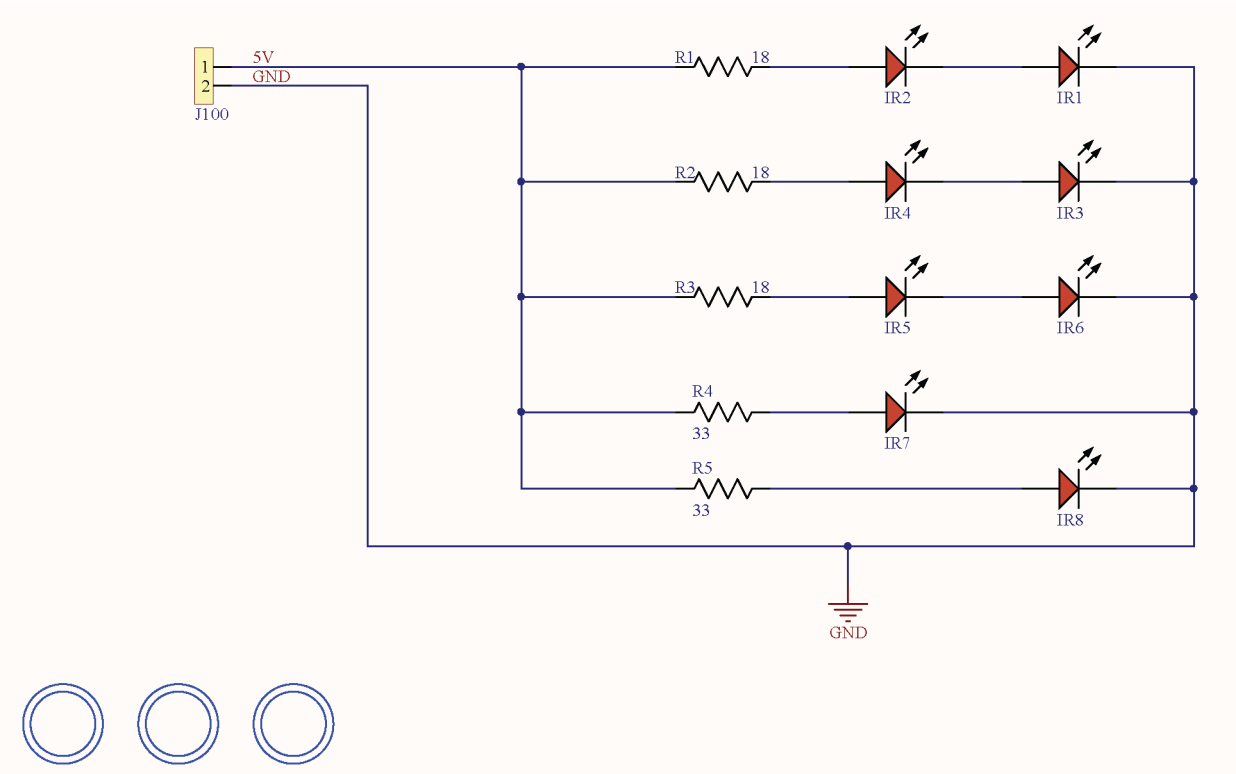


6-Ball Trough Opto Transmitter Board  
15-100002-00



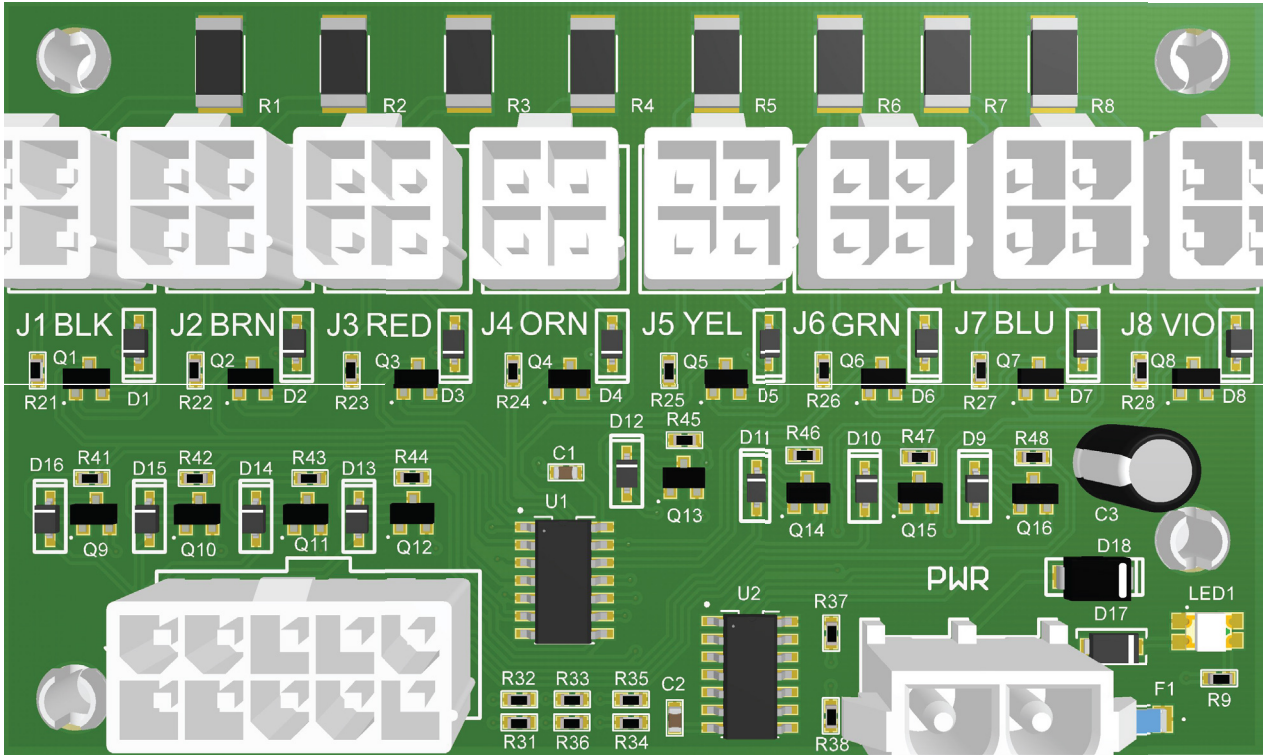
J100 Power Input

- Pin
- |   |       |                              |
|---|-------|------------------------------|
| 1 | Black | Ground from ATX Power Supply |
| 2 | Red   | +5VDC from ATX Power Supply  |





Opto IO Board  
15-100005-00



J9 Switch Inputs

Pin	
1	Black / Green
2	White / Blue
3	White / Black
4	White / Brown
5	White / Red
6	White / Orange
7	White / Yellow
8	White / Green
9	White / Violet
10	Key

Column 1 From I/O Board J201-1
Row 7 from I/O Board J200-7
Row 1 from I/O Board J200-1
Row 2 from I/O Board J200-2
Row 3 from I/O Board J200-3
Row 4 from I/O Board J200-4
Row 5 from I/O Board J200-5
Row 6 from I/O Board J200-6
Row 8 from I/O Board J200-7

J1 - J8 OPTO Inputs

Pin	
1	5 VDC
2	5 VDC
3	Ground
4	Input

Power Input

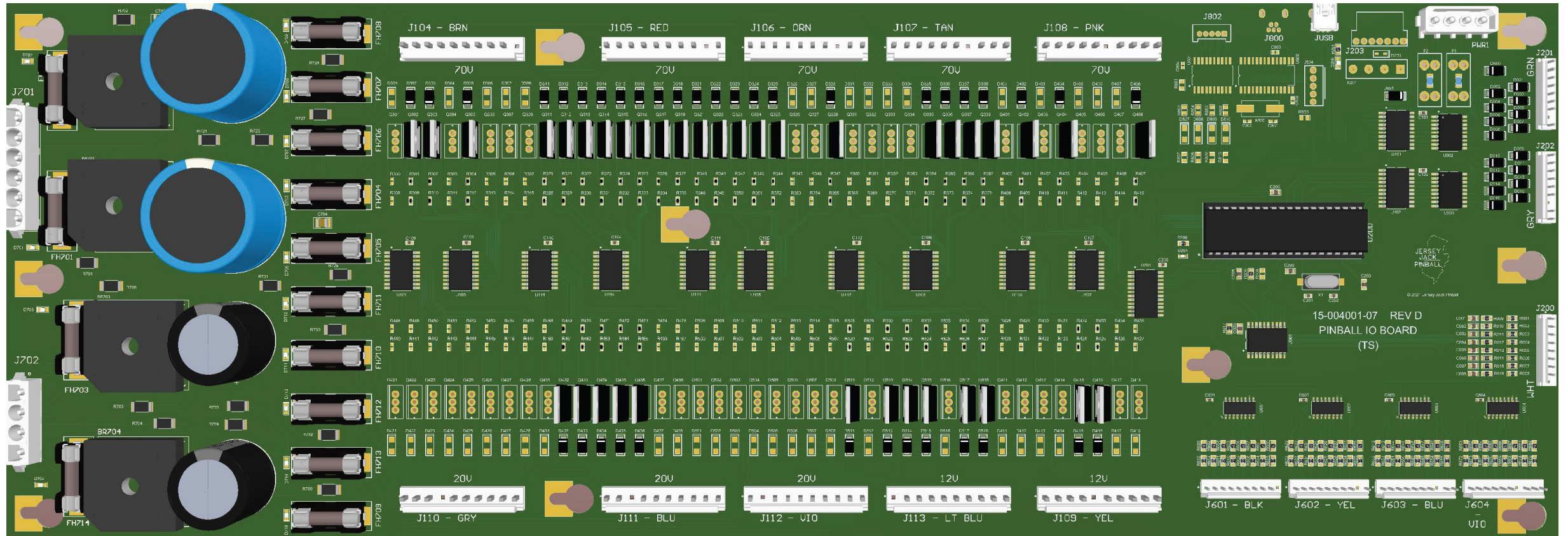
Pin	
1	Red +5VDC from ATX Power Supply
2	Black Ground from ATX Power Supply







**PINBALL IO Bd (TS)**  
**15-004001-07**

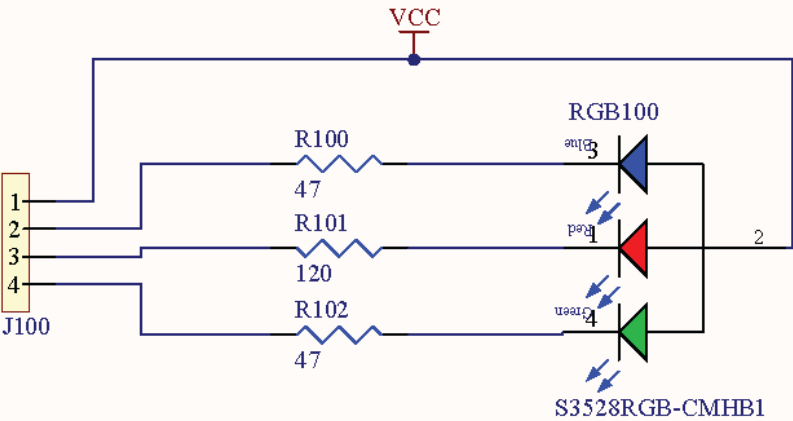
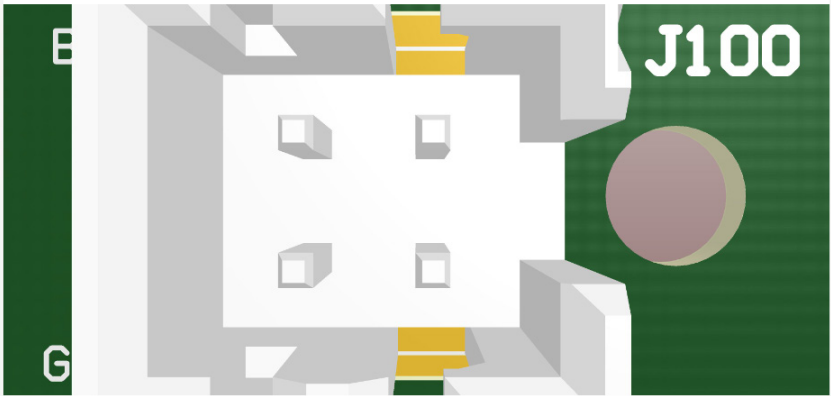








RGB GI PCB Assembly  
15-004251-05

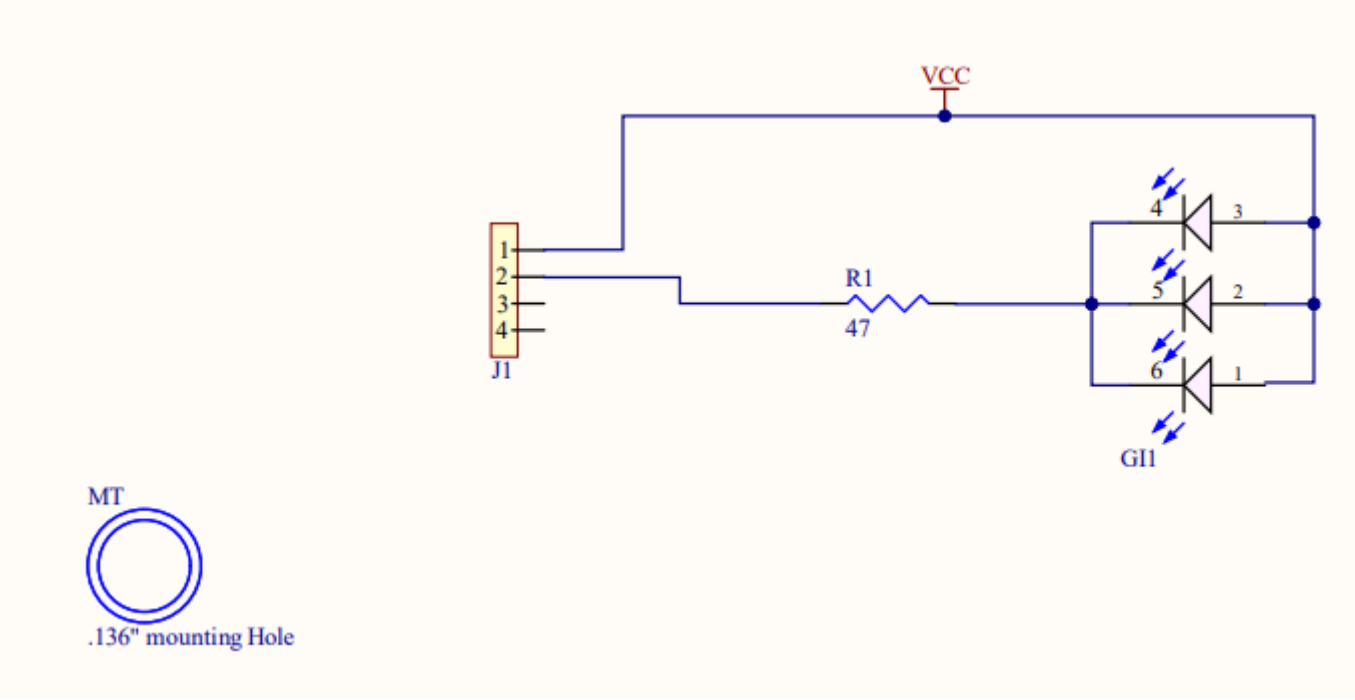
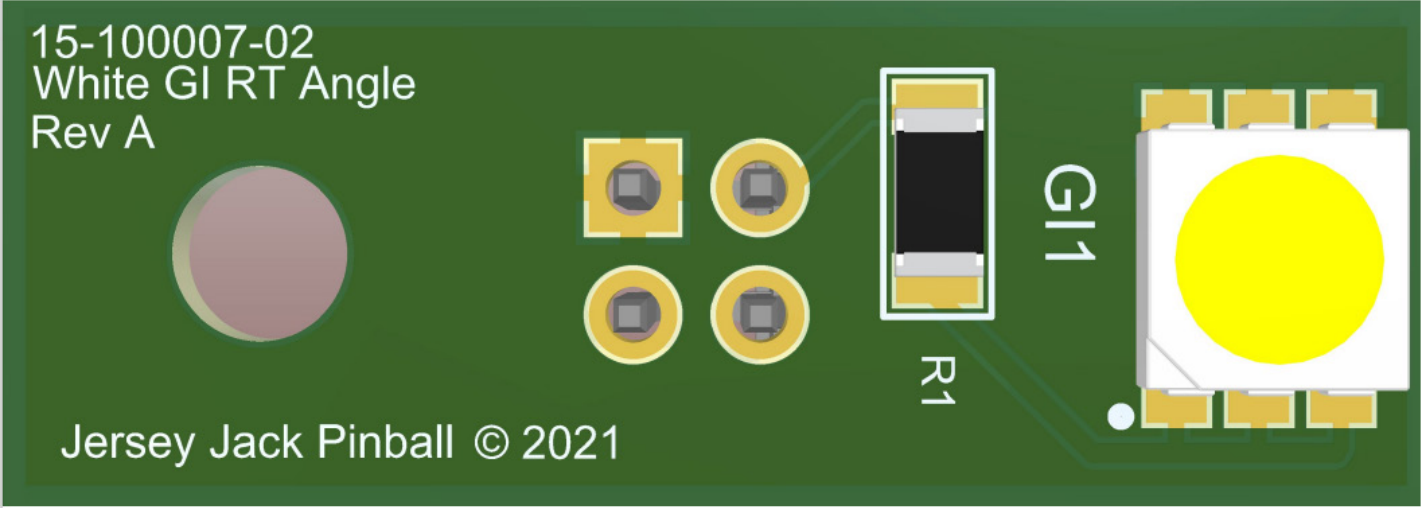


J100

- Pin
- 1 +5VDC from a Main RGB LED Board
  - 2 Blue Return to a Main RGB Board
  - 3 Red Return to a Main RGB Board
  - 4 Green Return to a Main RGB Board

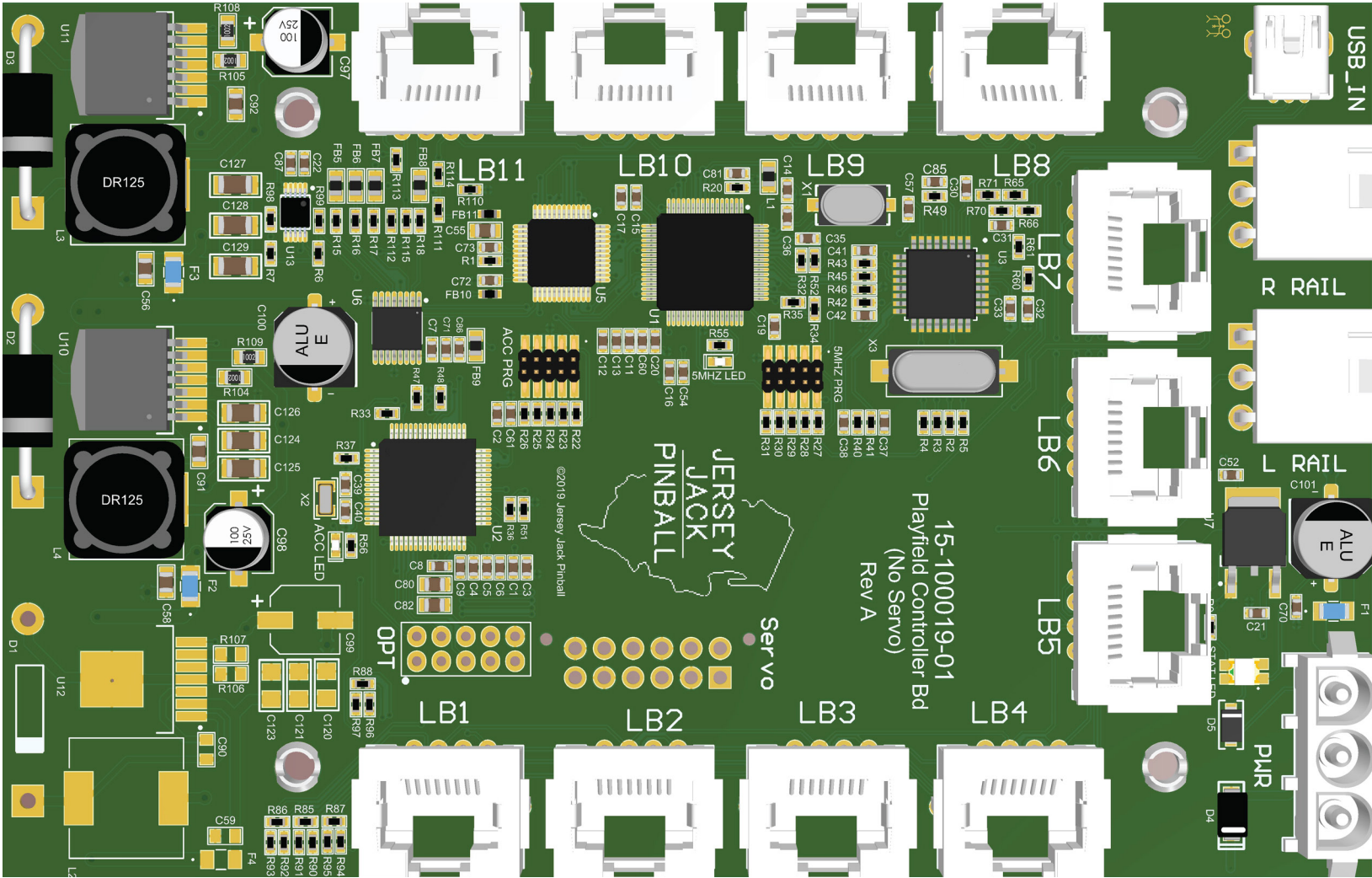


White GI 5050 TLED RT Angle  
15-100007-02





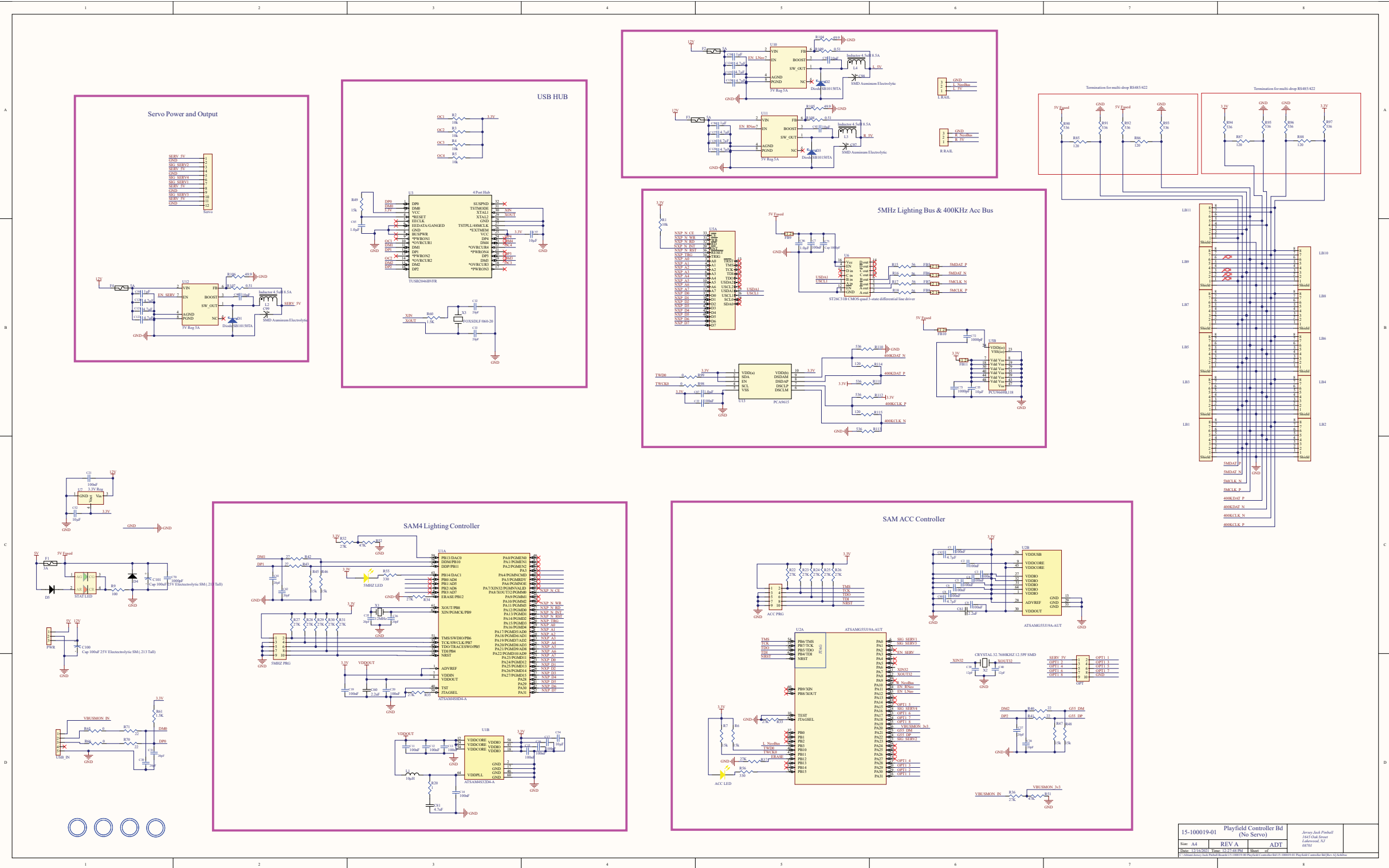
Playfield Controller Board  
15-100019-01



Power Input

- Pin
- |   |        |                               |
|---|--------|-------------------------------|
| 1 | Red    | +5VDC from ATX Power Supply   |
| 2 | Yellow | +12 VDC from ATX Power Supply |
| 3 | Black  | Ground from ATX Power Supply  |

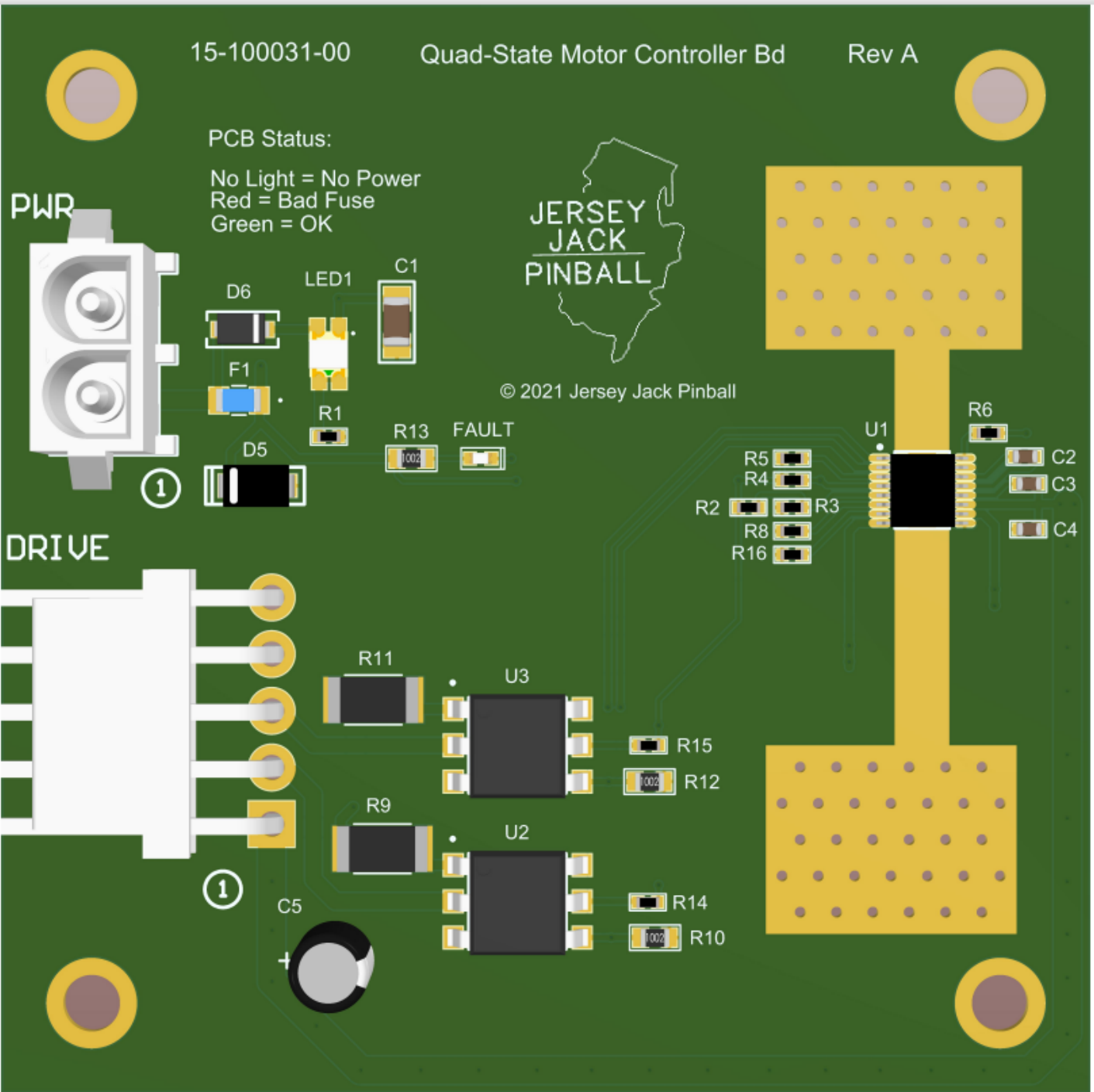




15-100019-01	Playfield Controller Bd (No Servo)	Arvin Jack Pinball 1441 Oak Street Lakewood, NJ 08701
Rev: A4	REV A	ADT
Temp: 13.7 (25.7) Temp: 13.7 (25.7) Rev: A4	Sheet: 1 of 1	Sheet: 1 of 1



Quad State Motor Controller Bd  
15-100031-00

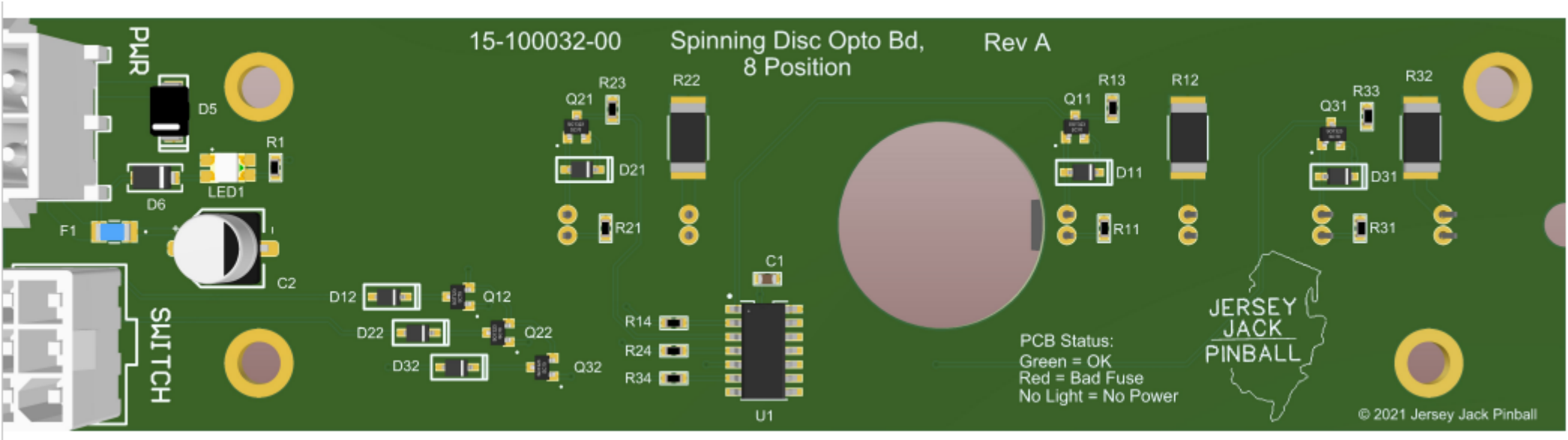








Spinning Disc Opto Bd, 8 Position  
15-100032-00

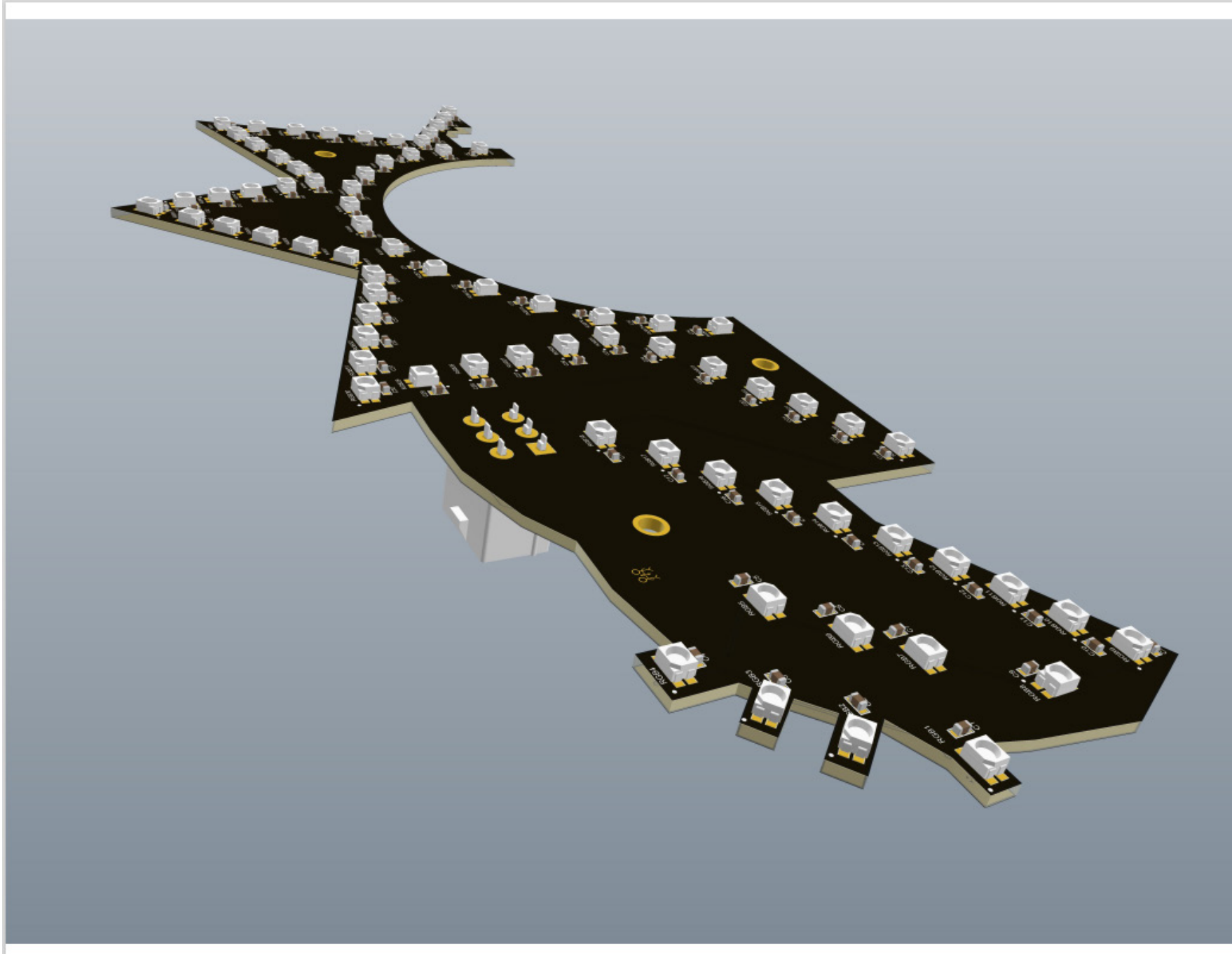




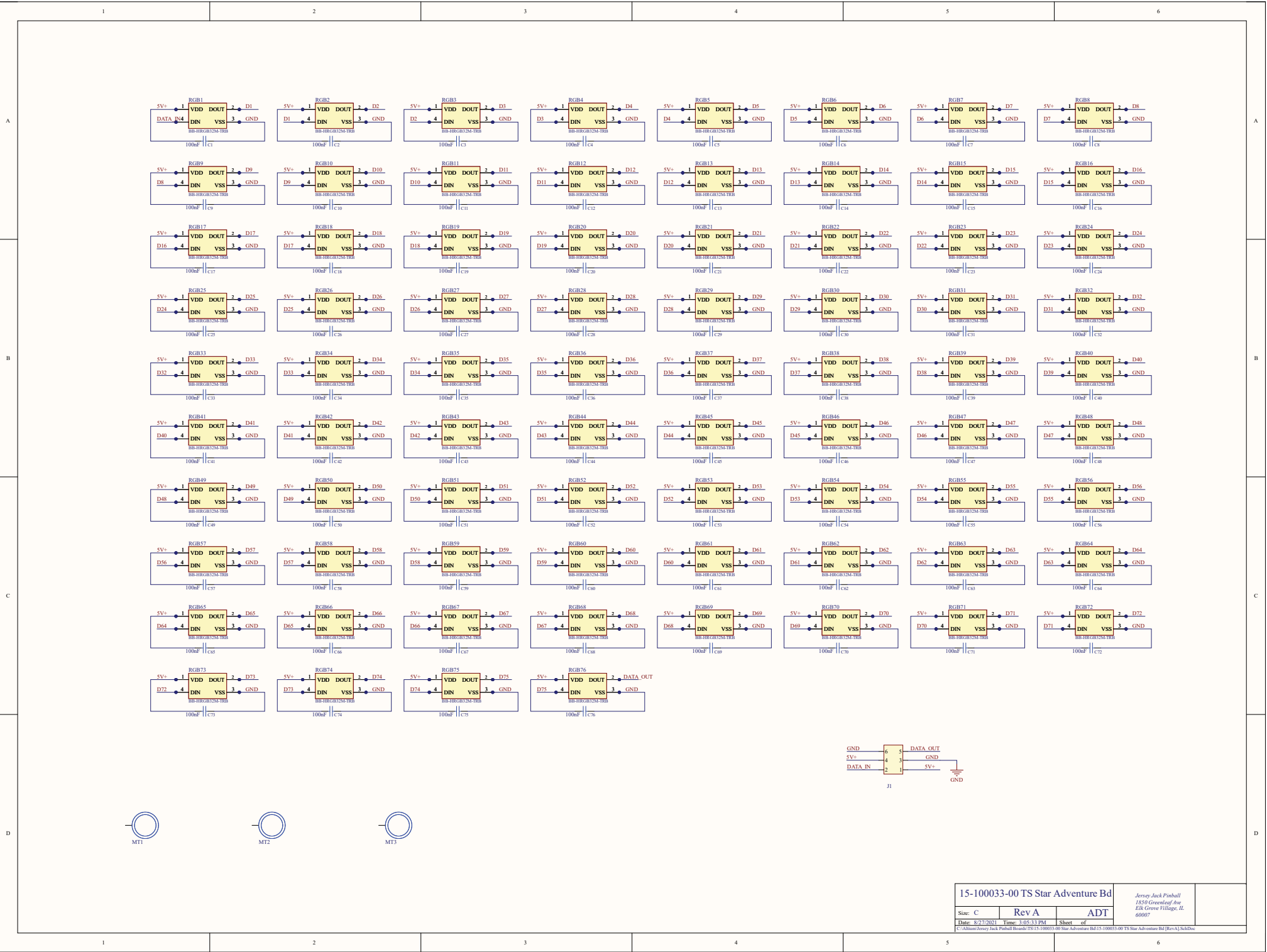




TS Star Adventure Bd  
15-100033-00

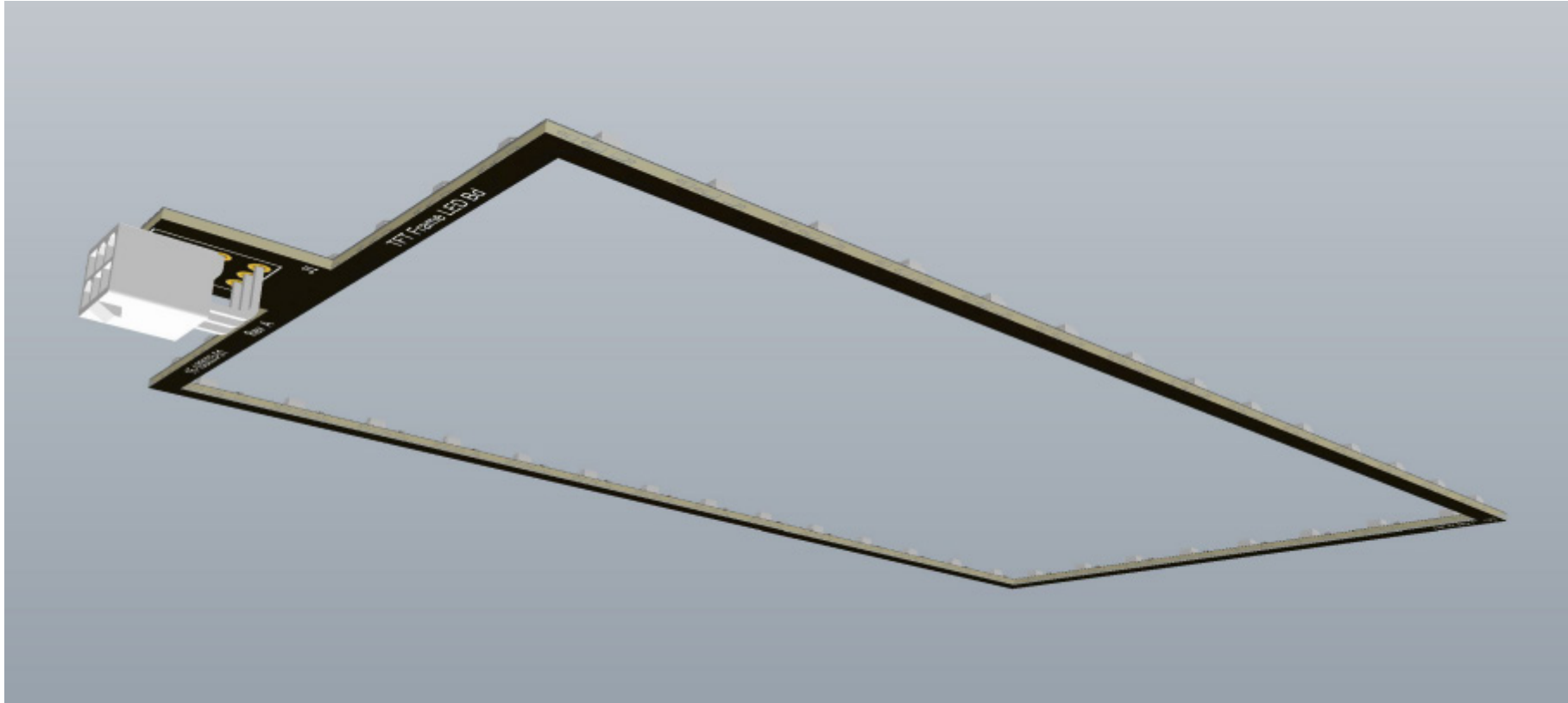




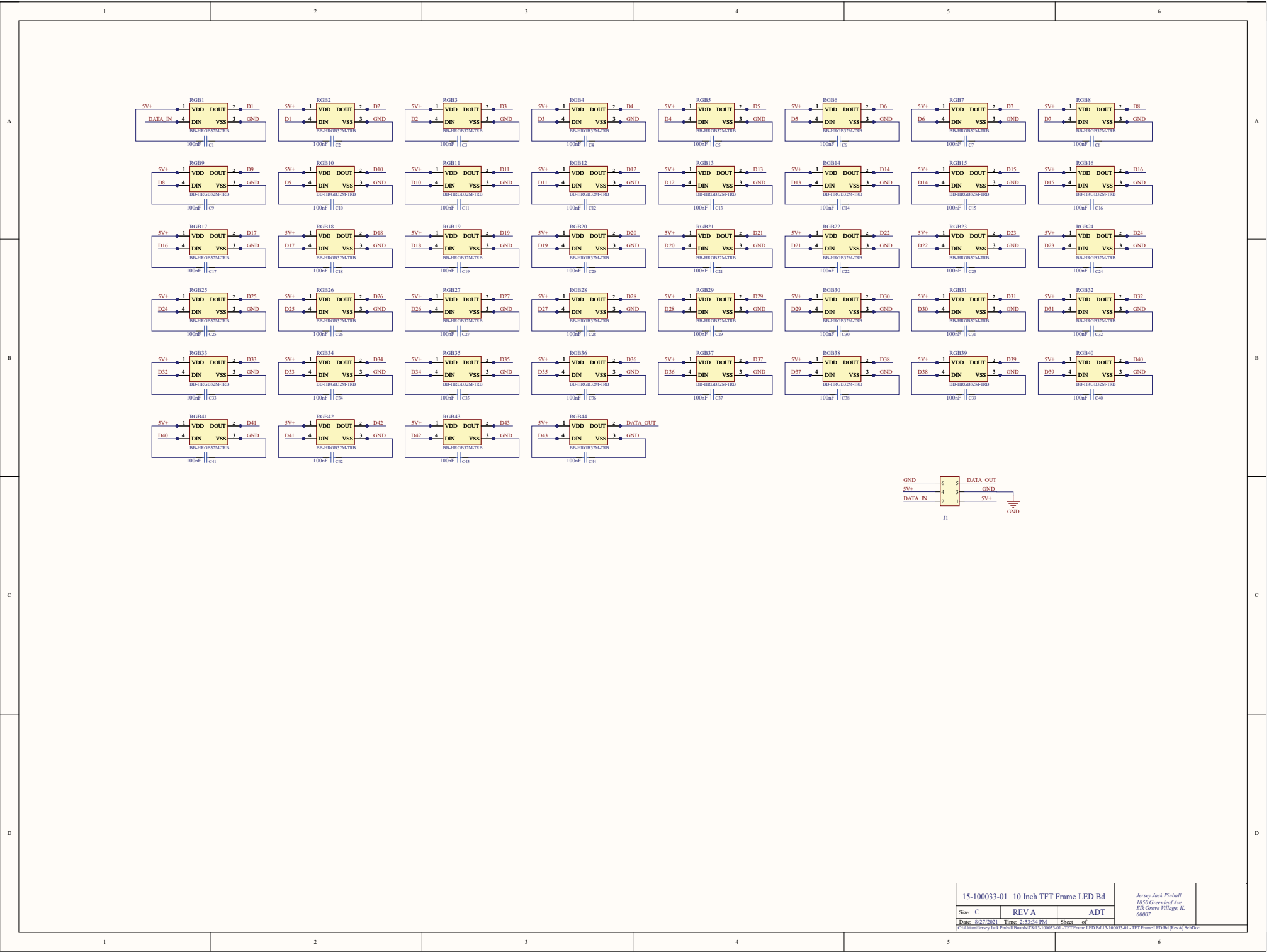




TFT Frame LED Board  
15-100033-01



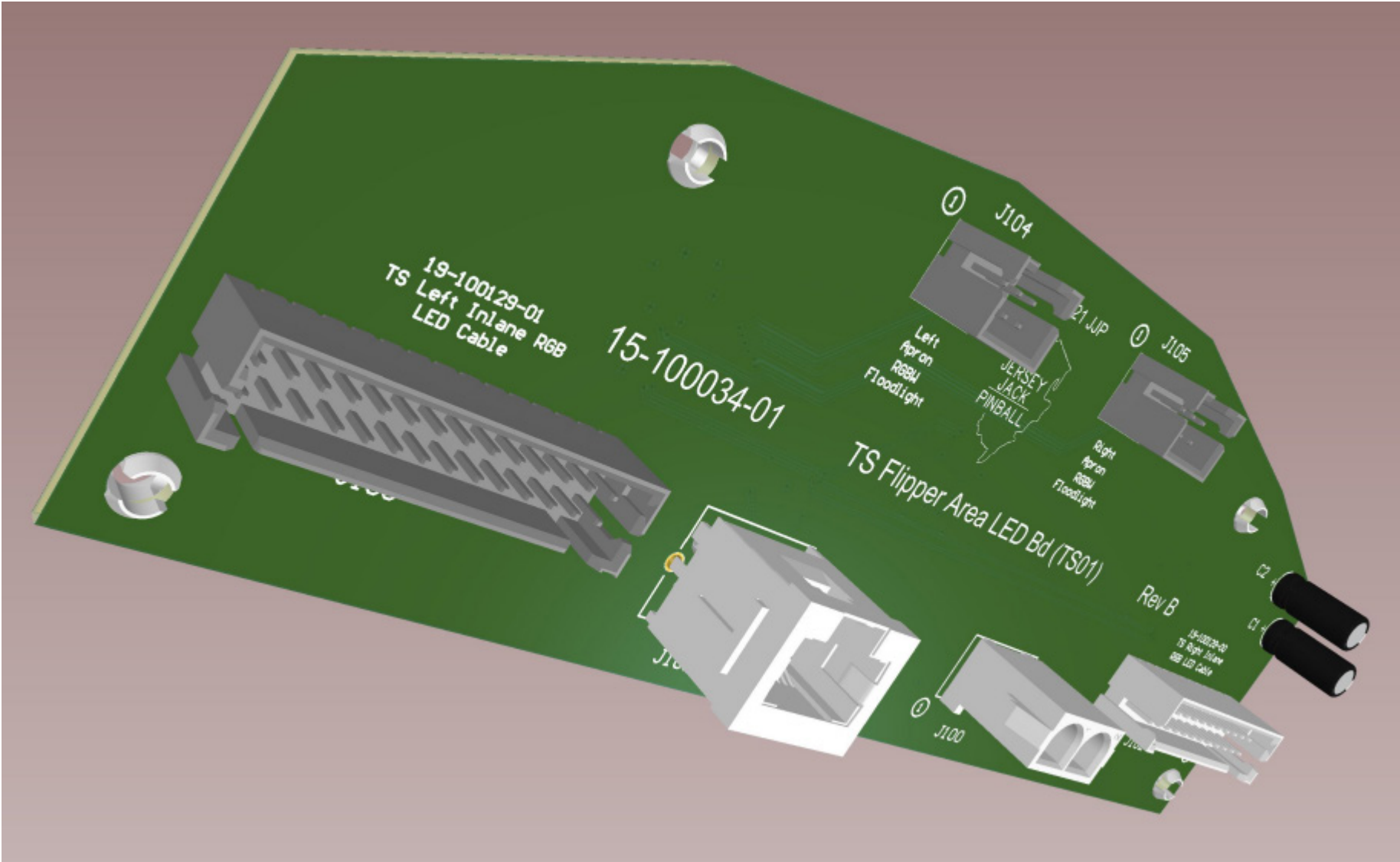




TFT Frame LED Board  
15-100033-01



TS Flipper Area LED Bd  
15-100034-01



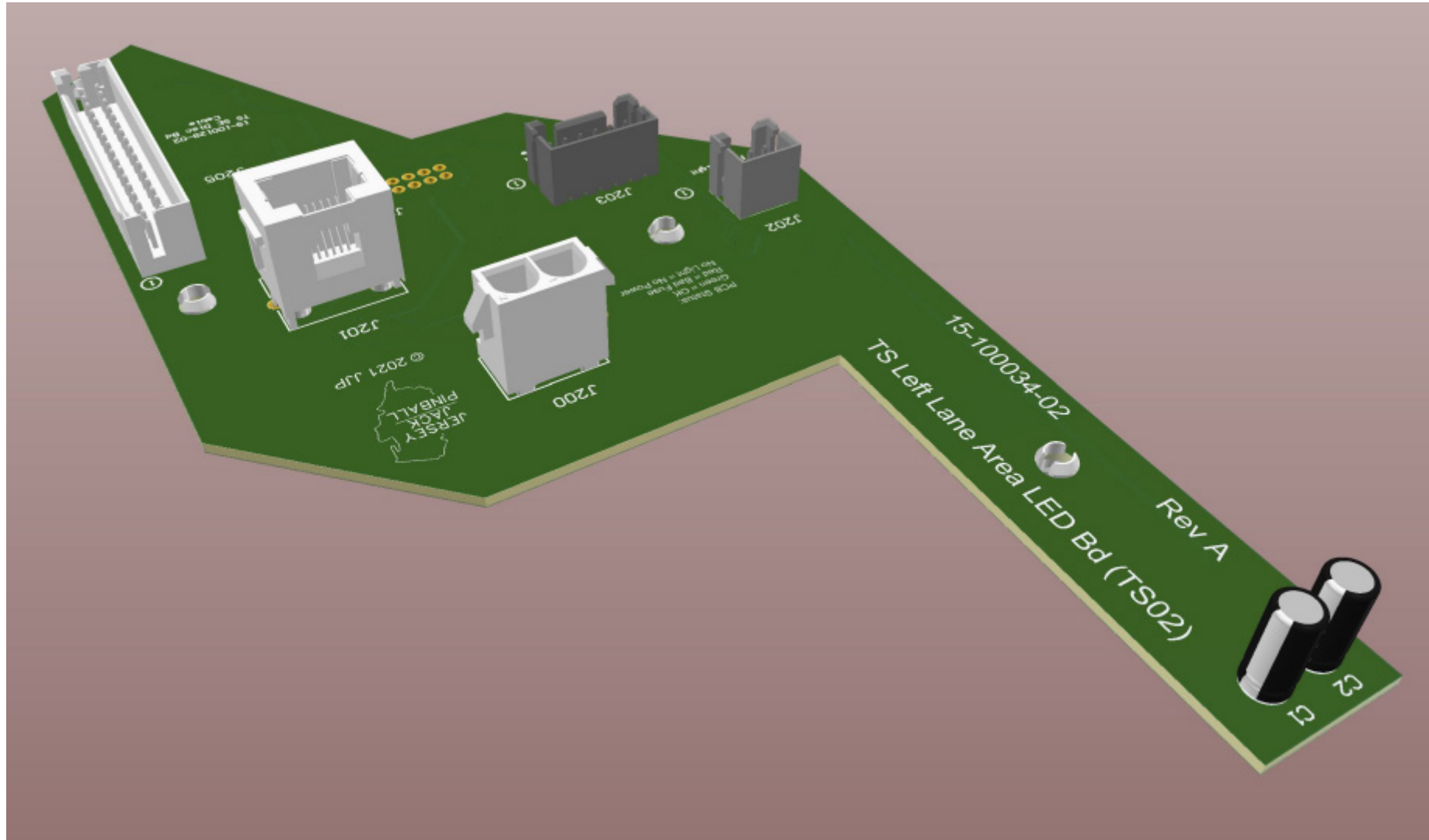


# TS Flipper Area LED Bd

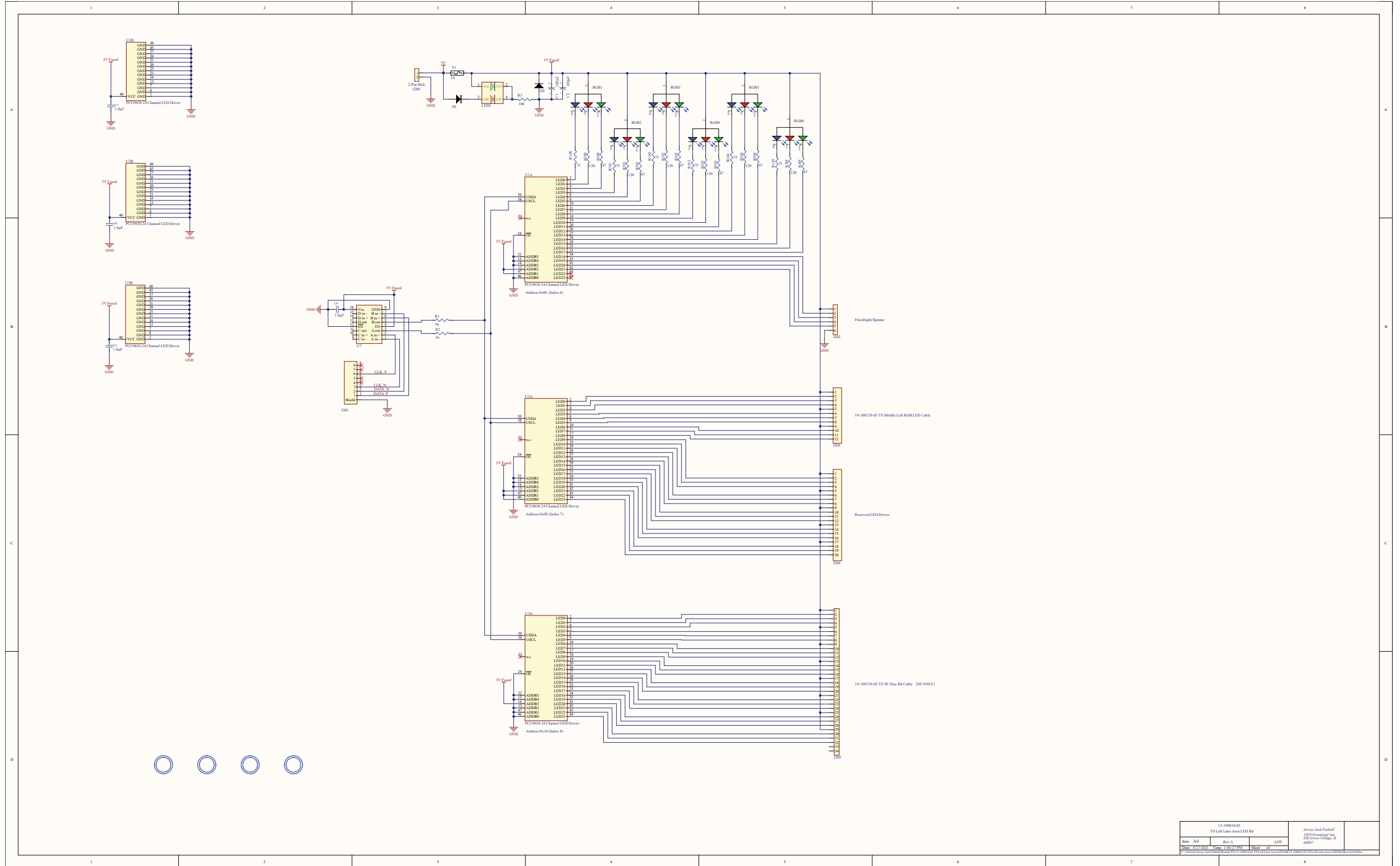
## 15-100034-01



TS Left Lane Area LED Bd  
15-100034-02

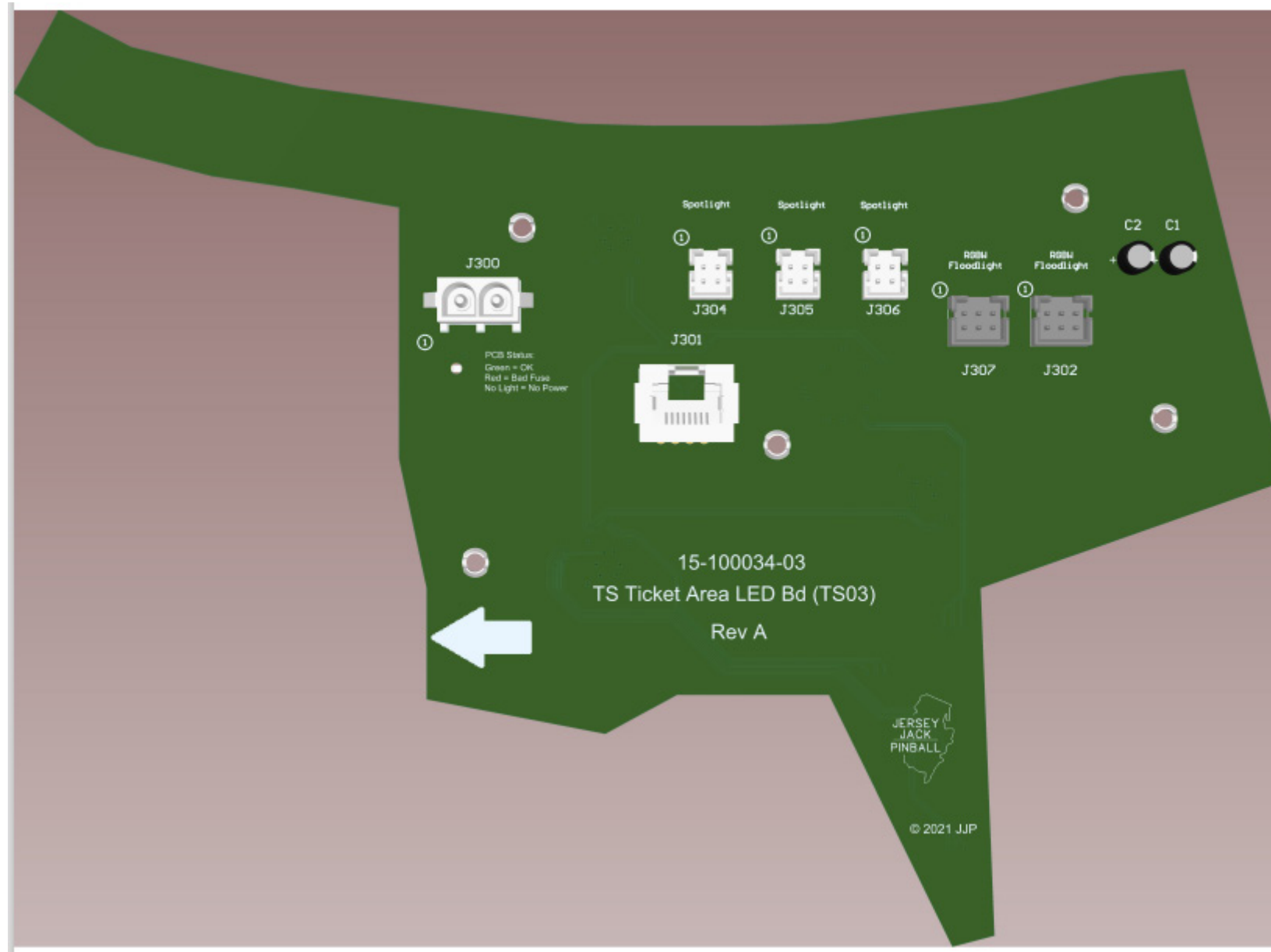




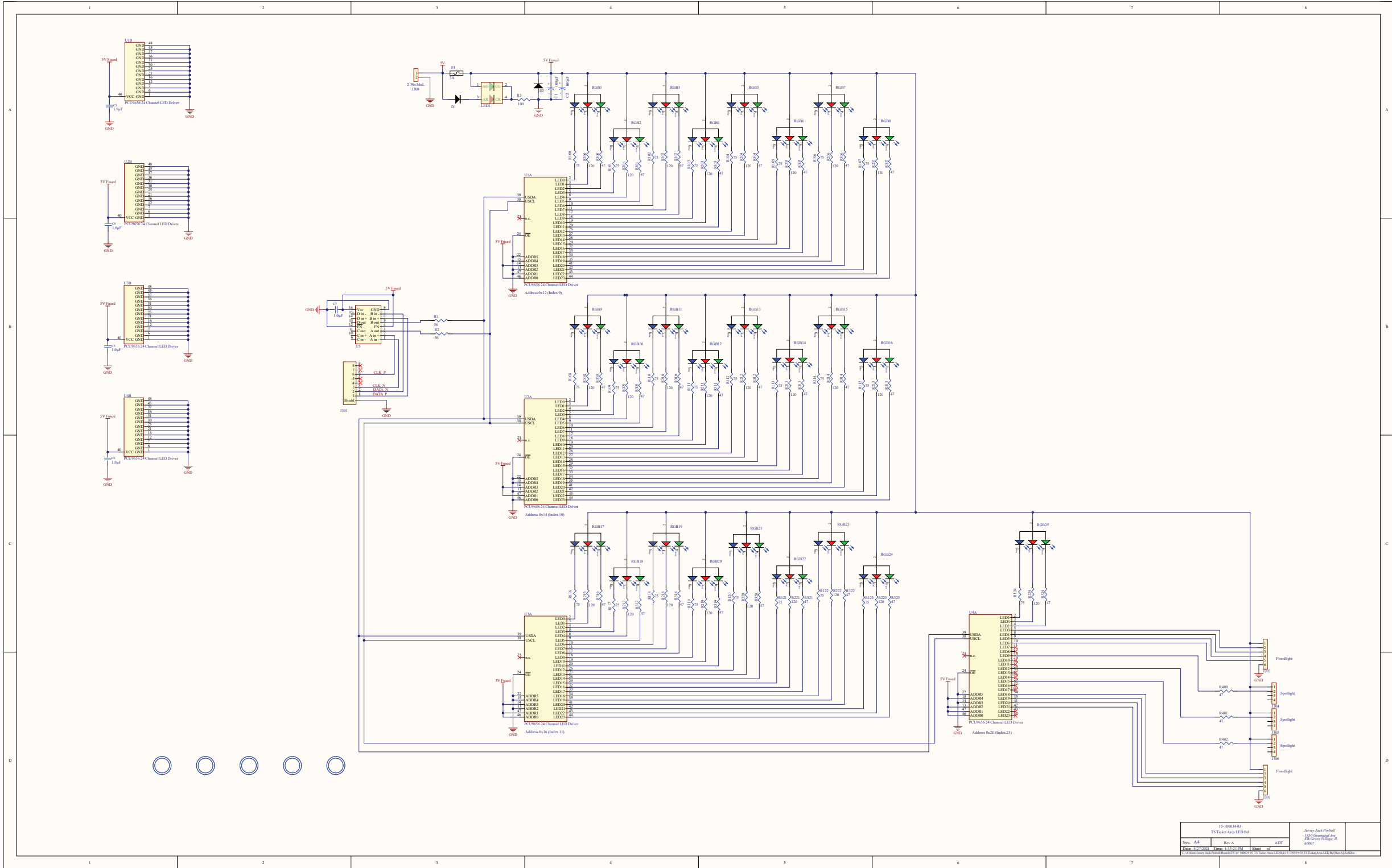




TS Ticket Area LED Bd  
15-100034-03

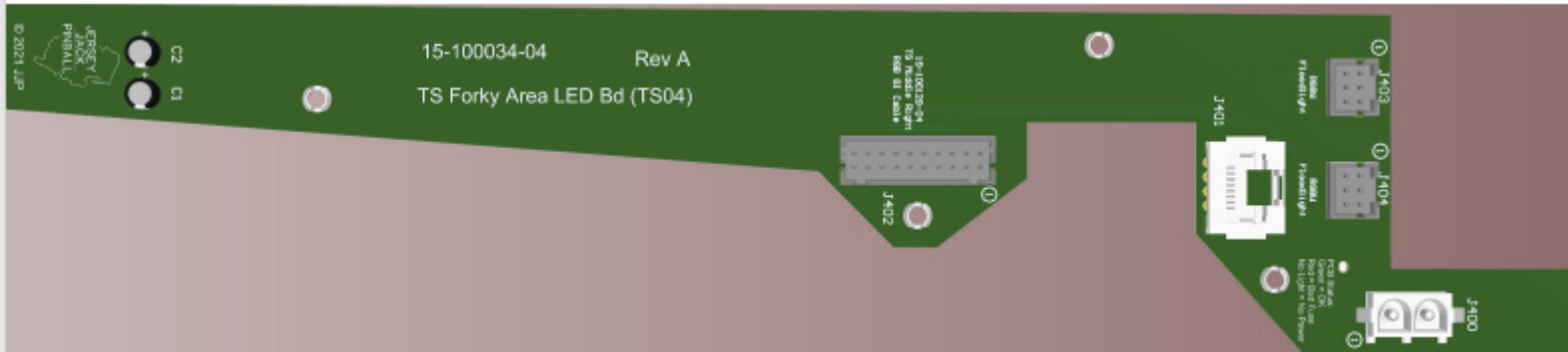








TS Forky Area LED Bd  
15-100034-04

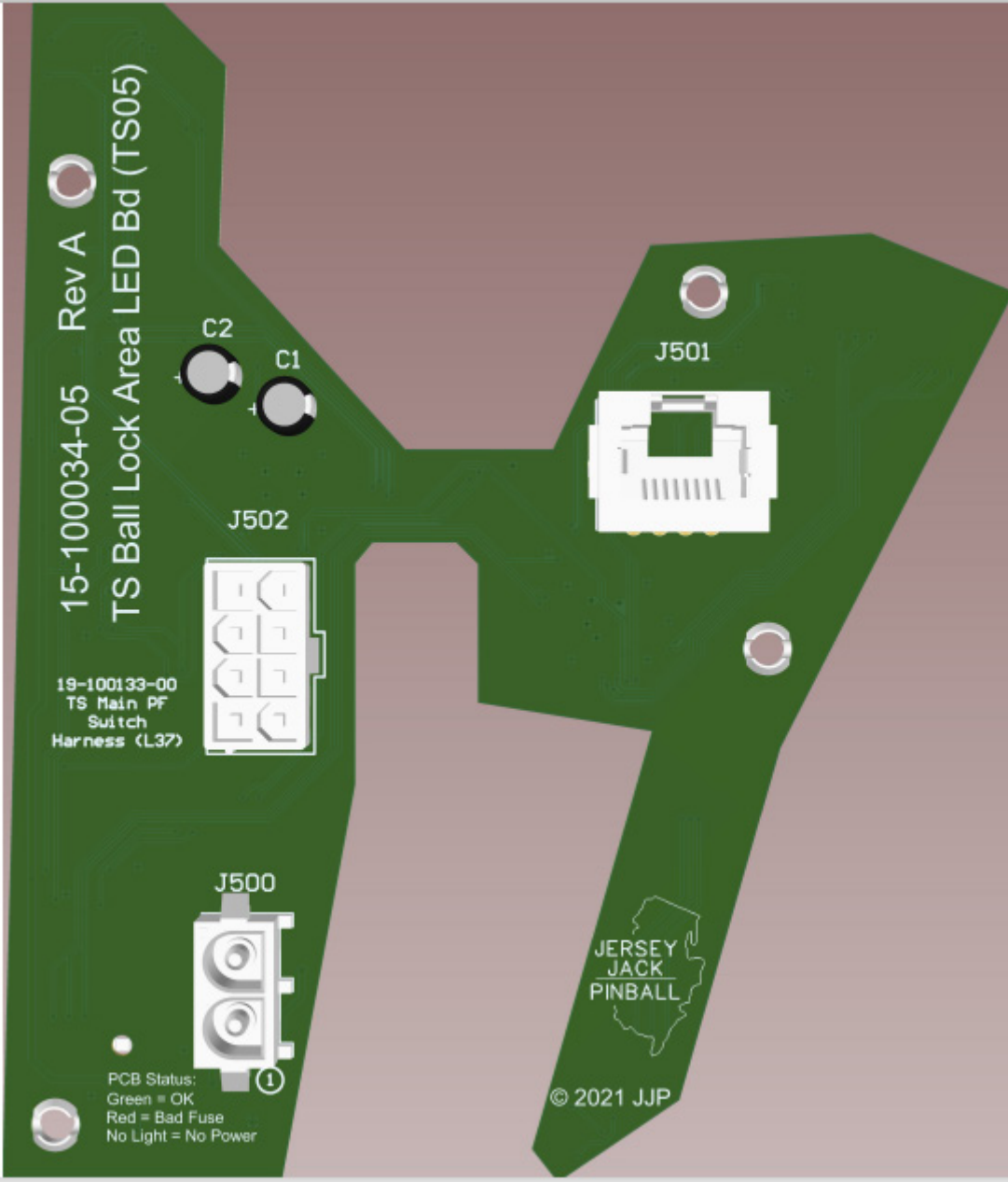




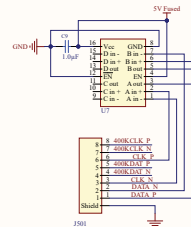
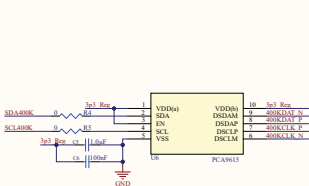
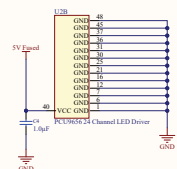
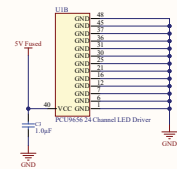




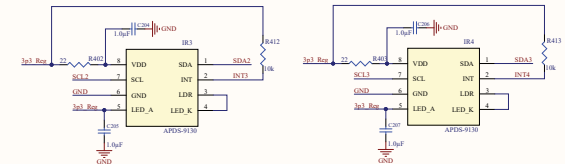
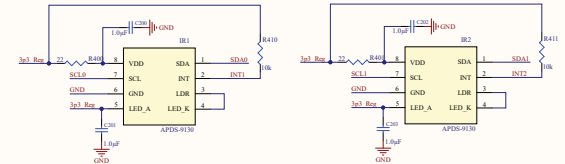
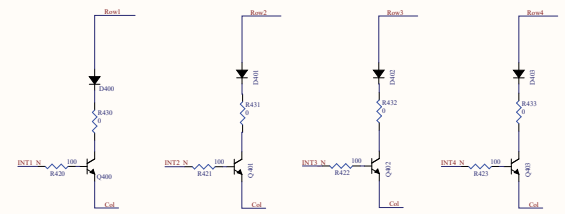
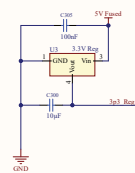
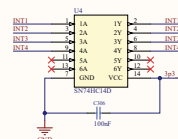
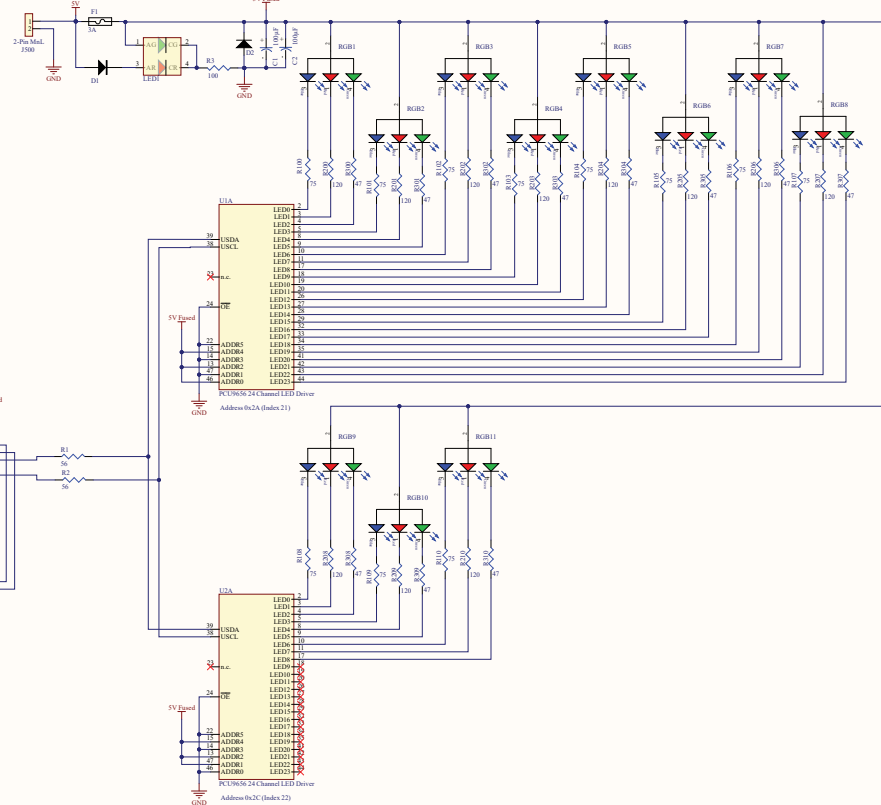
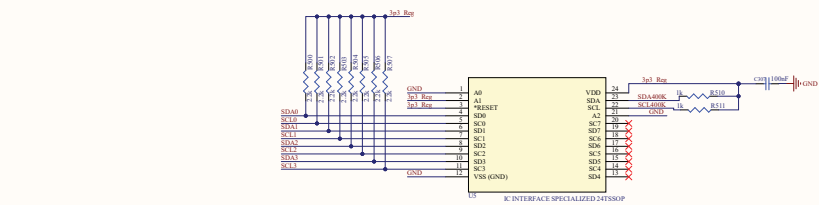
TS Ball Lock Area LED Bd  
15-100034-05







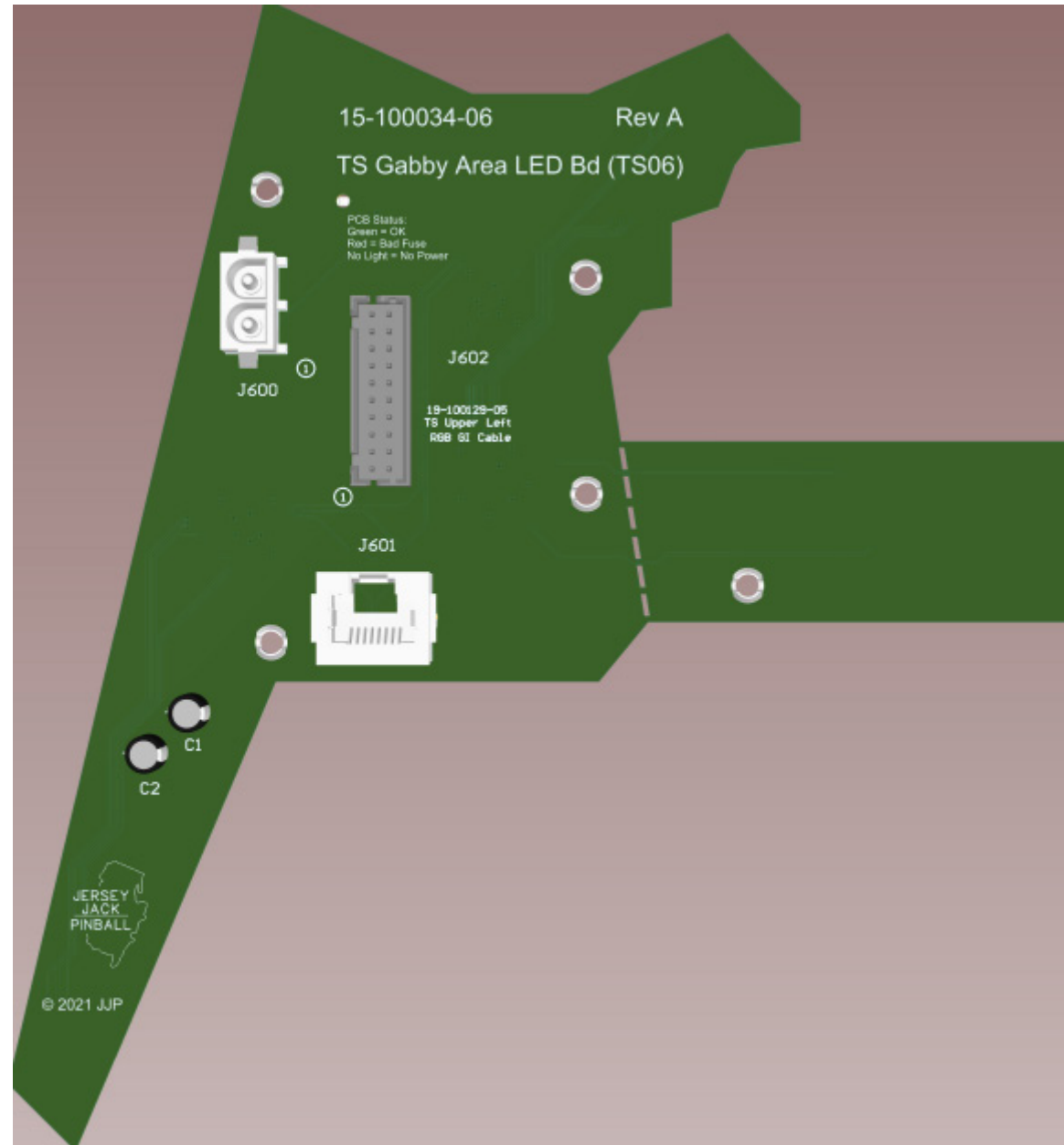
To: 19-100133-00 TS Main PF Switch Harness (L37)



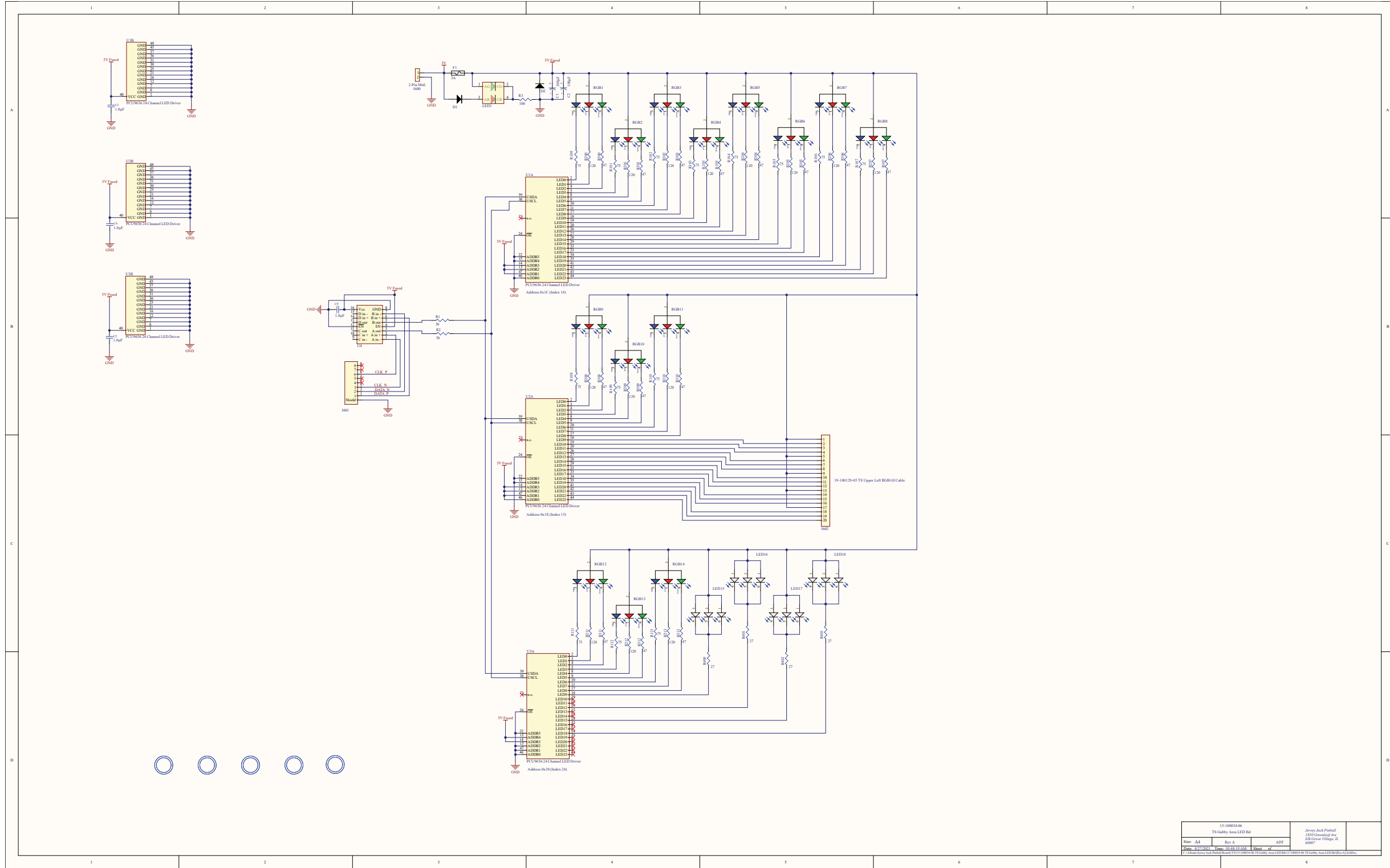
15-100034-05 TS Ball Lock Area LED Bd			<i>Jersey Jack Pinball</i> 1850 Greenleaf Ave Elk Grove Village, IL 60007
Size: A4	Rev A	ADT	
Date: 8/27/2021	Time: 11:10:34 AM	Sheet of	
C:\A:\non-Jersey Jack Pinball Boards\15-1-100034-05 TS Ball Lock Area LED Bd\15-100034-05 TS Ball Lock Area LED Bd [Rev A].SchDoc			



TS Gabby Area LED Bd  
15-100034-06



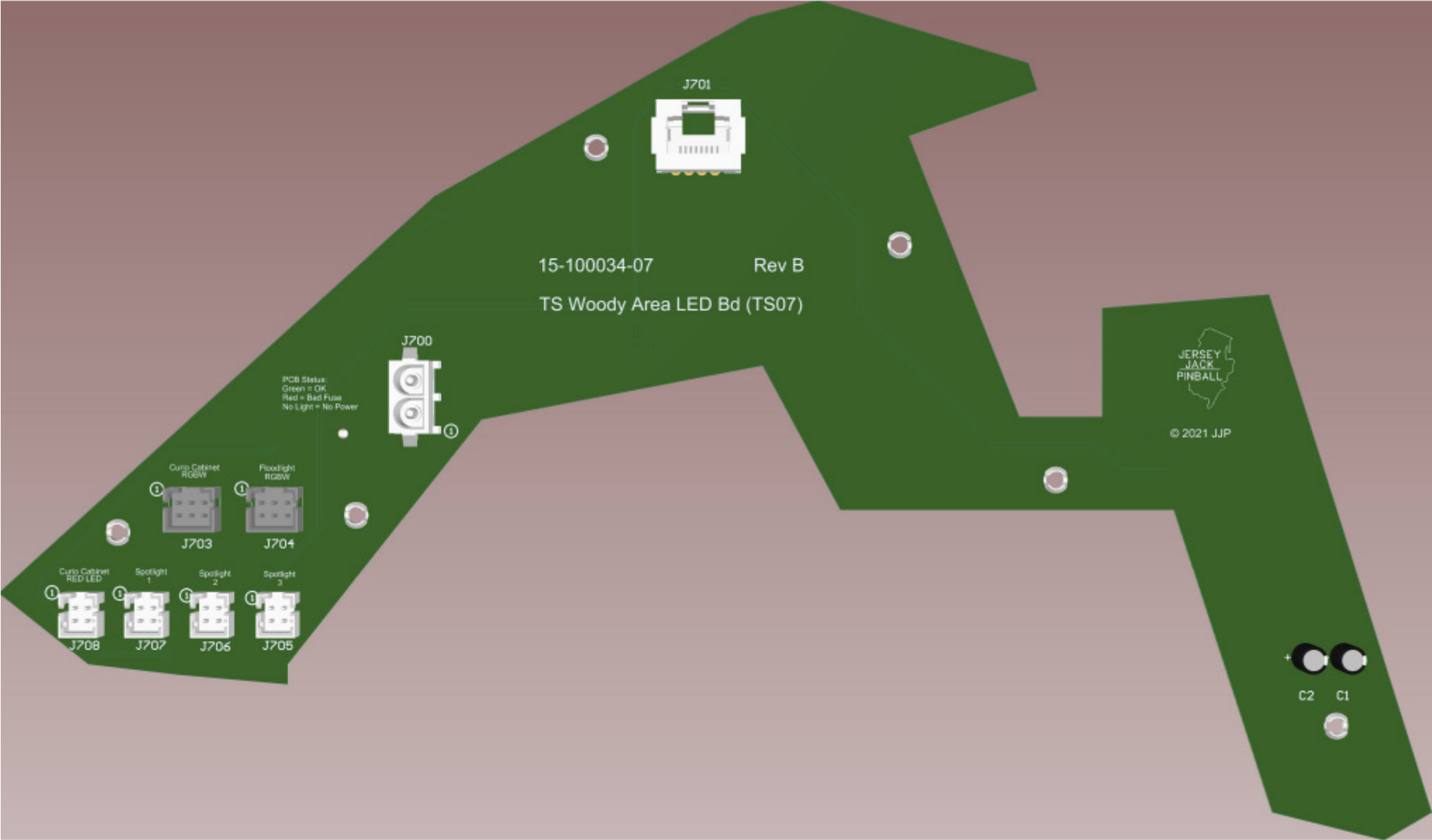




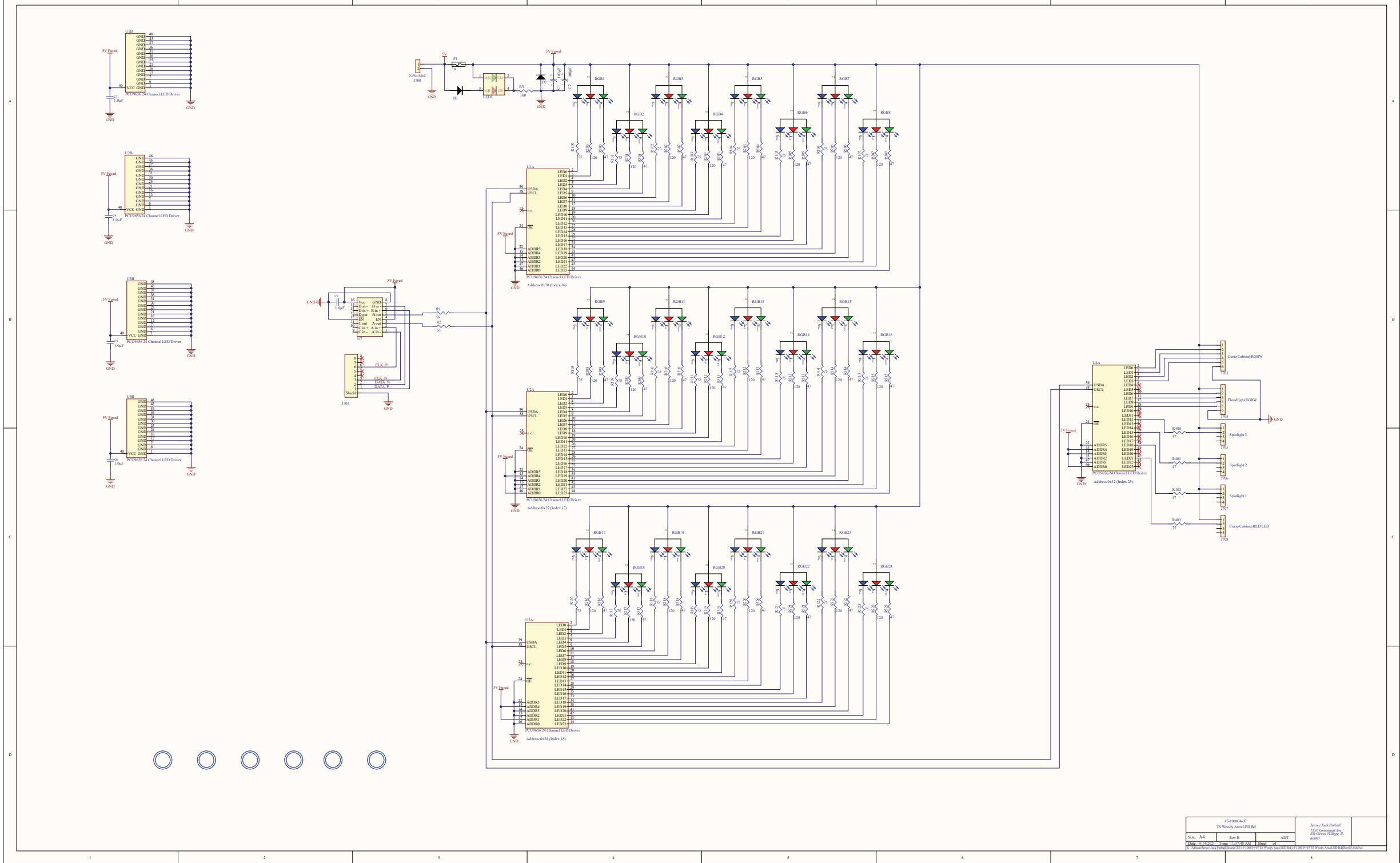
TS Gabby Area LED Bd  
15-100034-06



TS Woody Area LED Bd  
15-100034-07



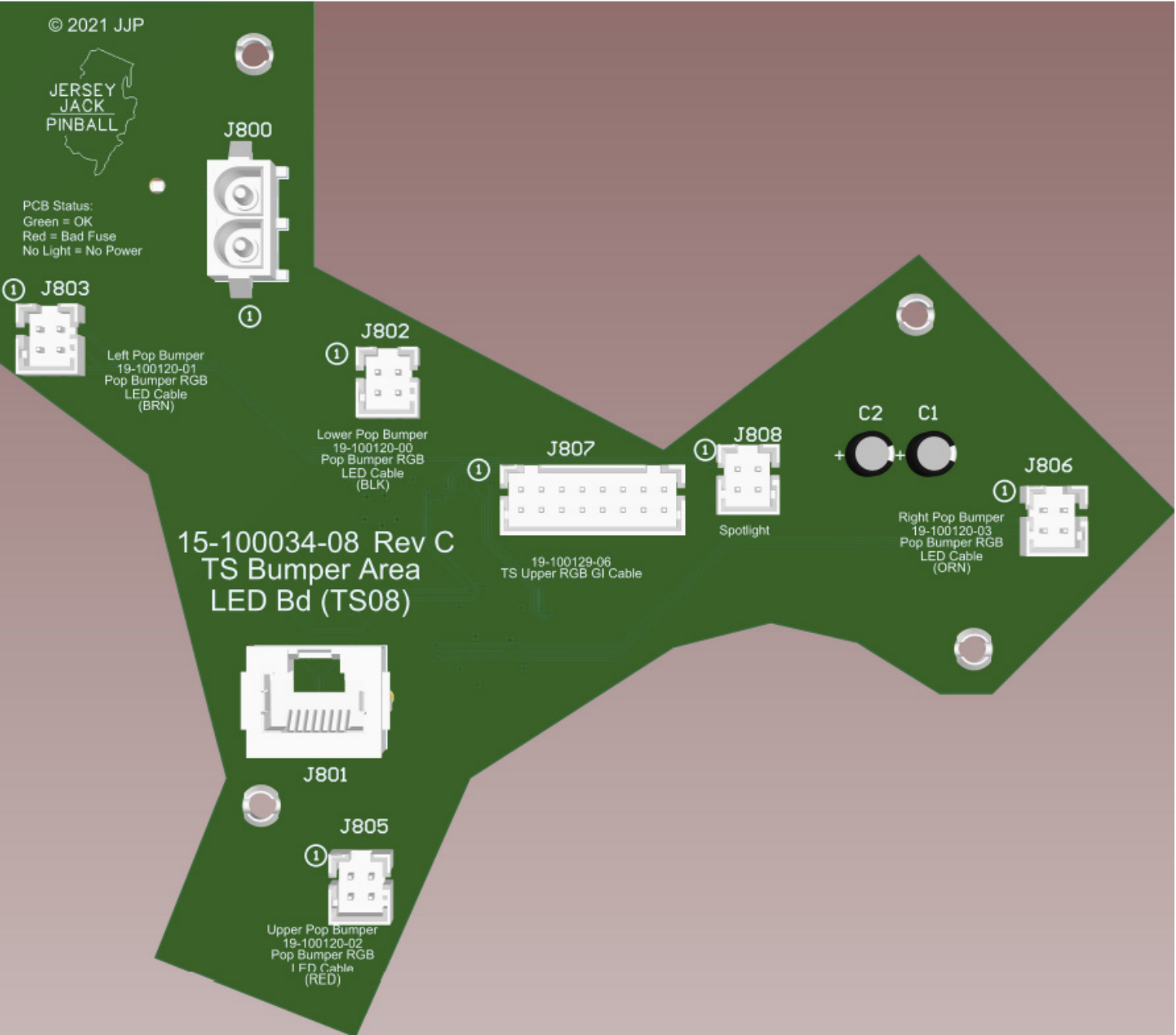




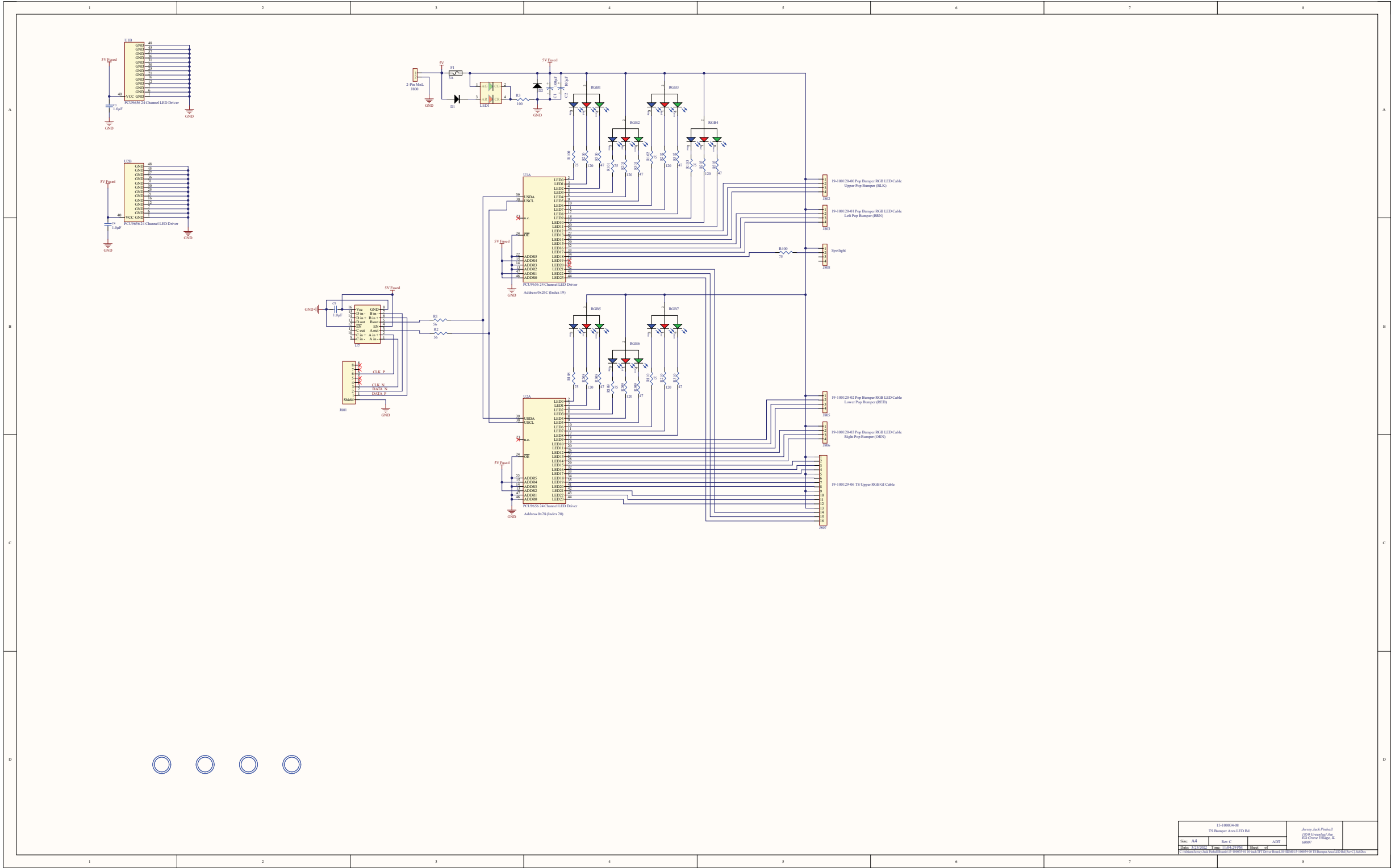
TS Woody Area LED Bd  
15-100034-07



TS Bumper Area LED Bd  
15-100034-08







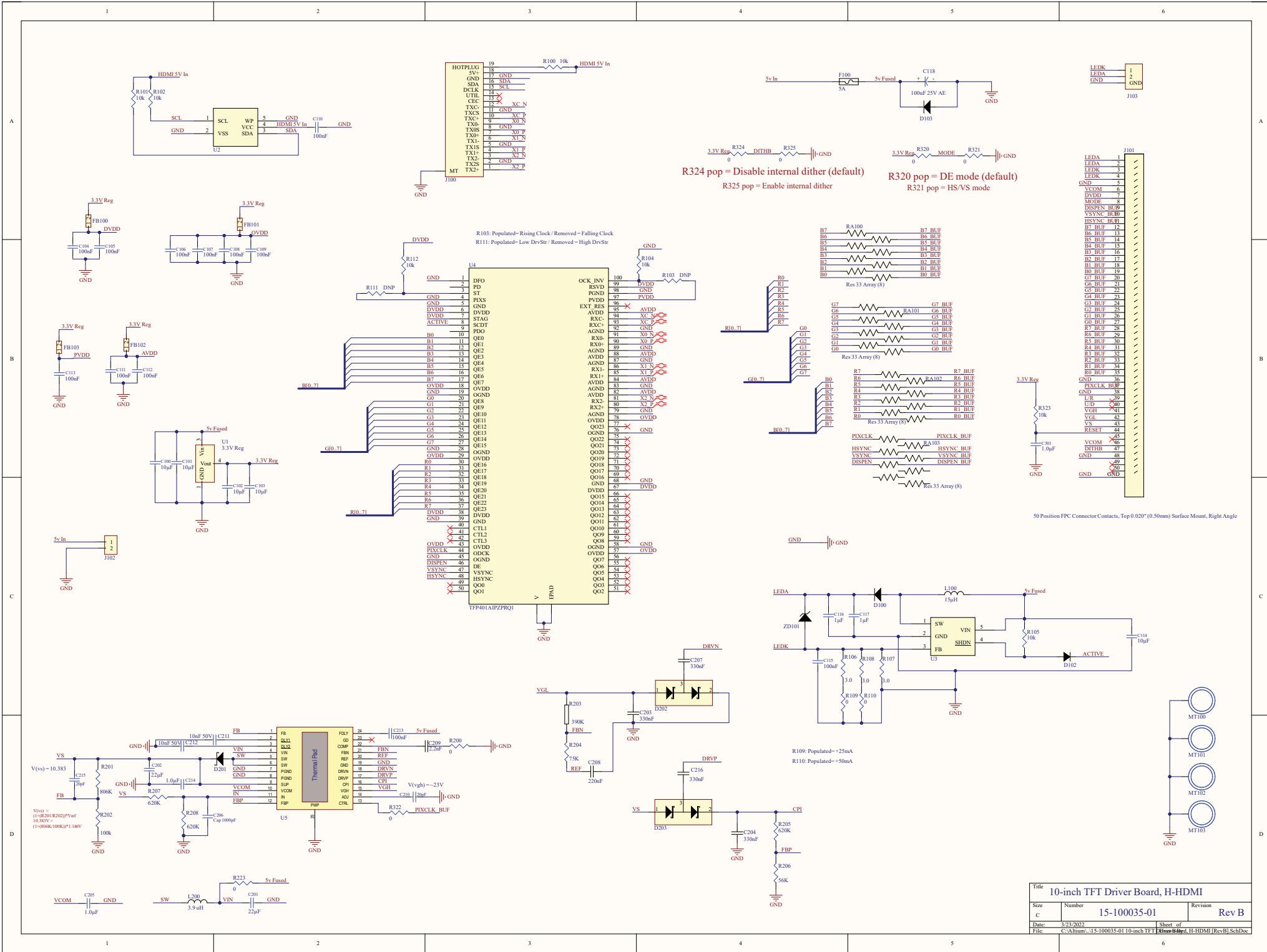
TS Bumper Area LED Bd  
15-100034-08

15-100034-08 TS Bumper Area LED Bd			Jerry Jack Prohall 1850 Greenleaf Ave EB Grove Village, IL 60007	
Size: A4	Rev C		ADT	
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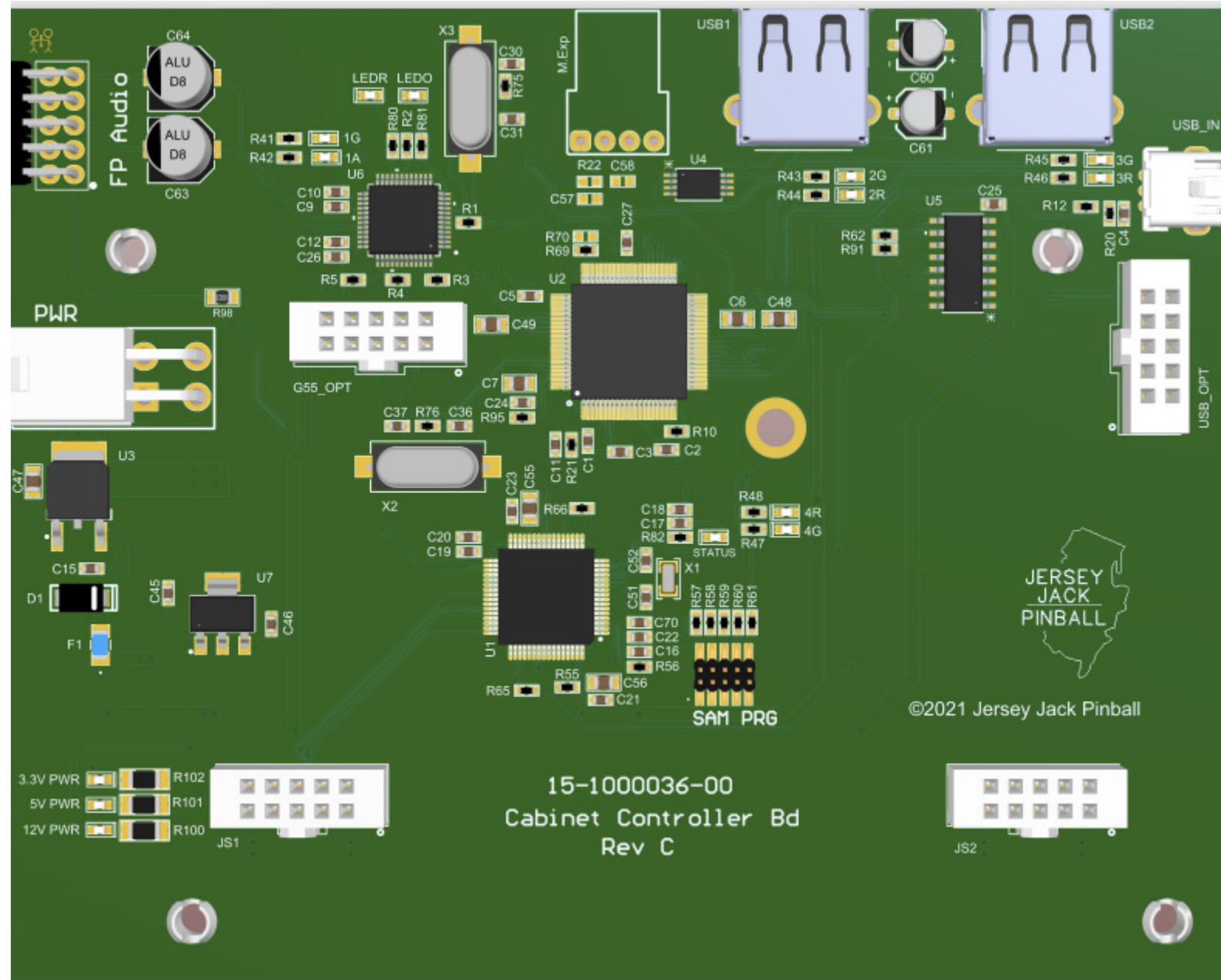




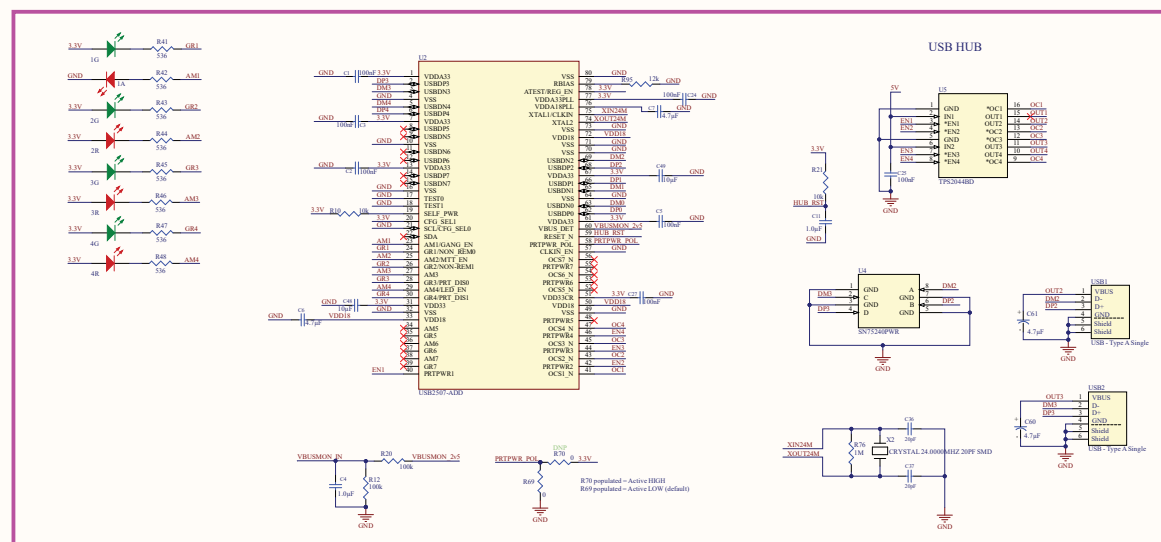
10-inch TFT Driver Bd, H-HDMI  
15-100035-01



Cabinet Controller Bd  
15-100036-00



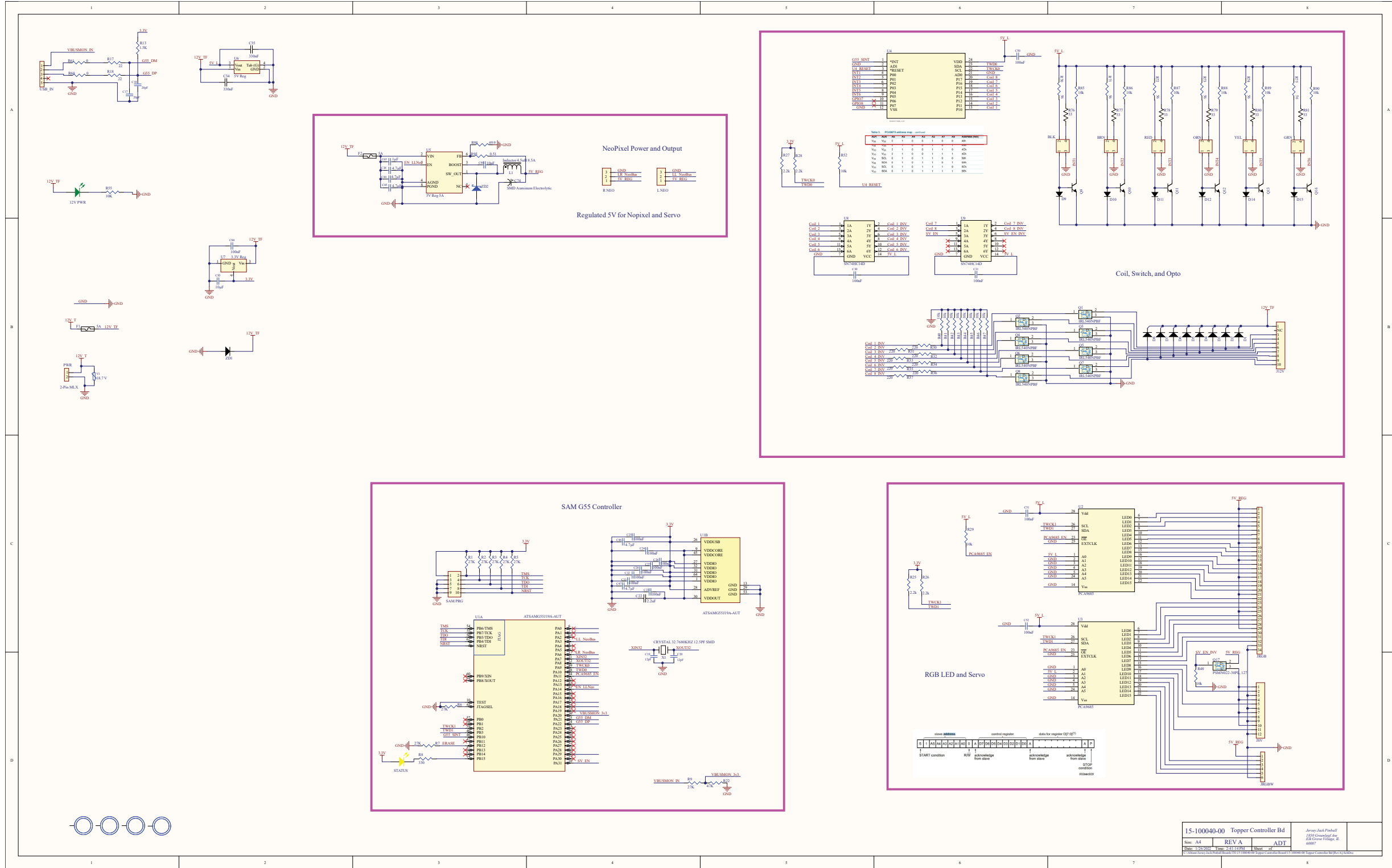






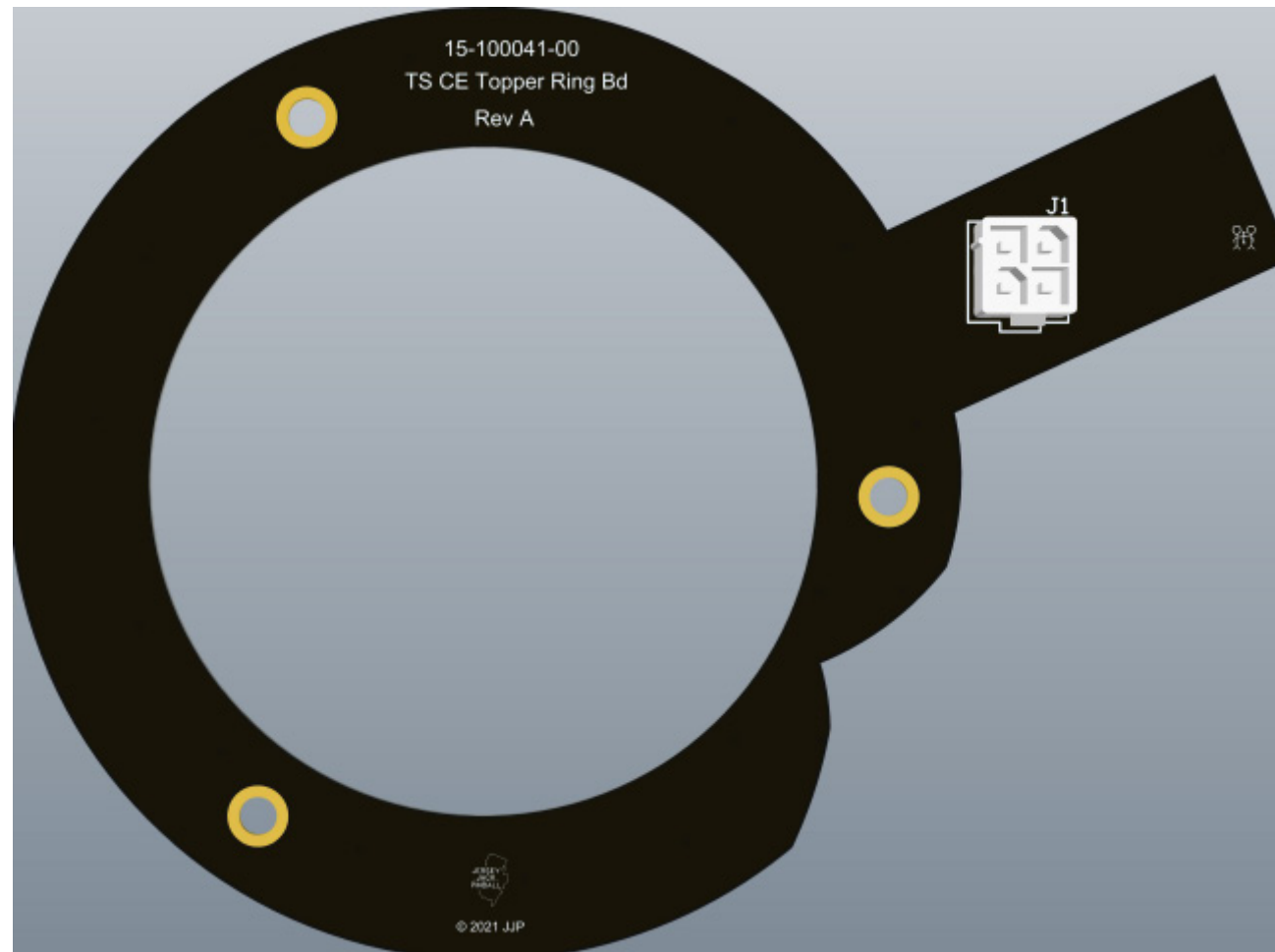
**Topper Controller Board**  
**15-100040-00**



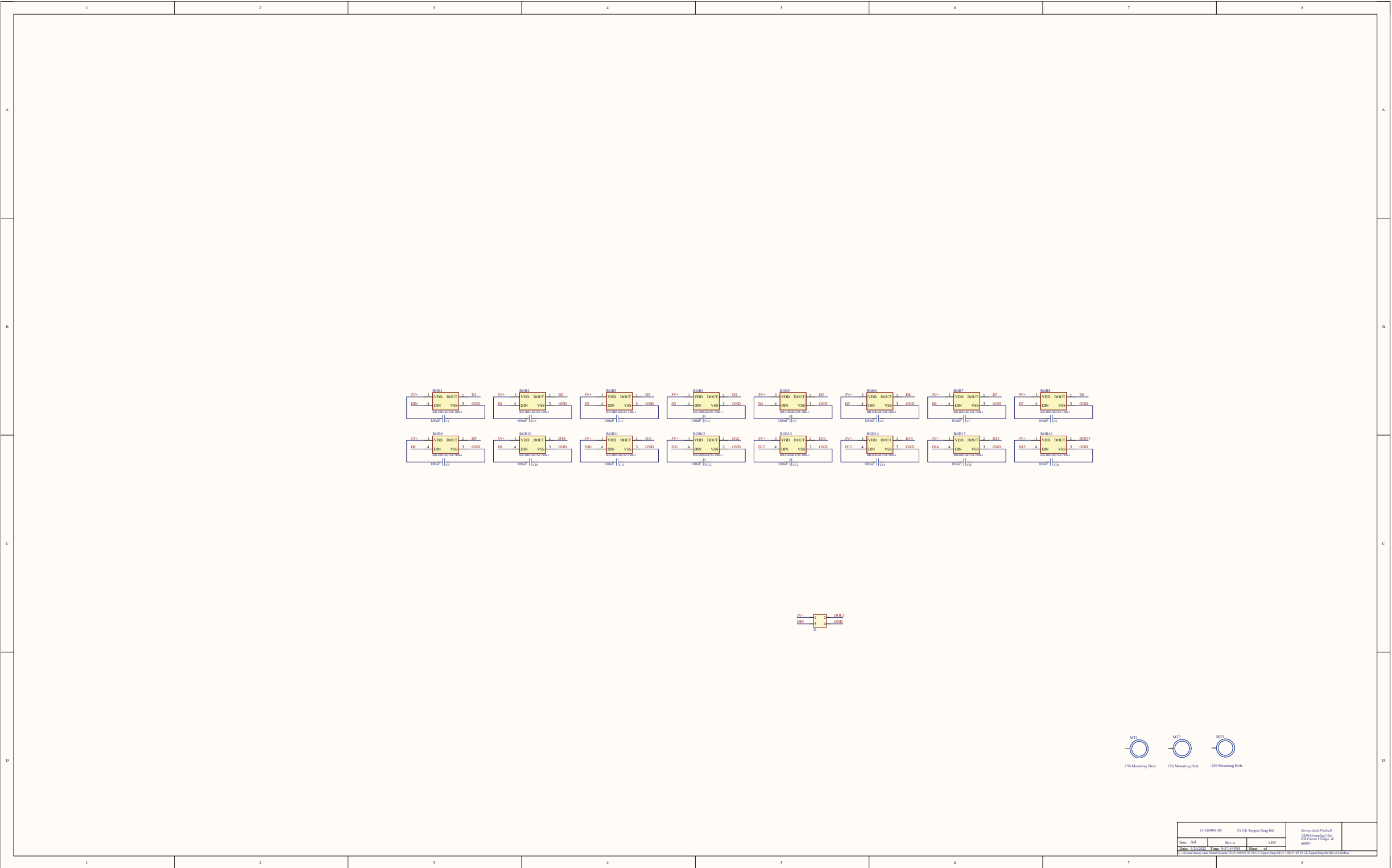




TS CE Topper Ring Bd  
15-100041-00





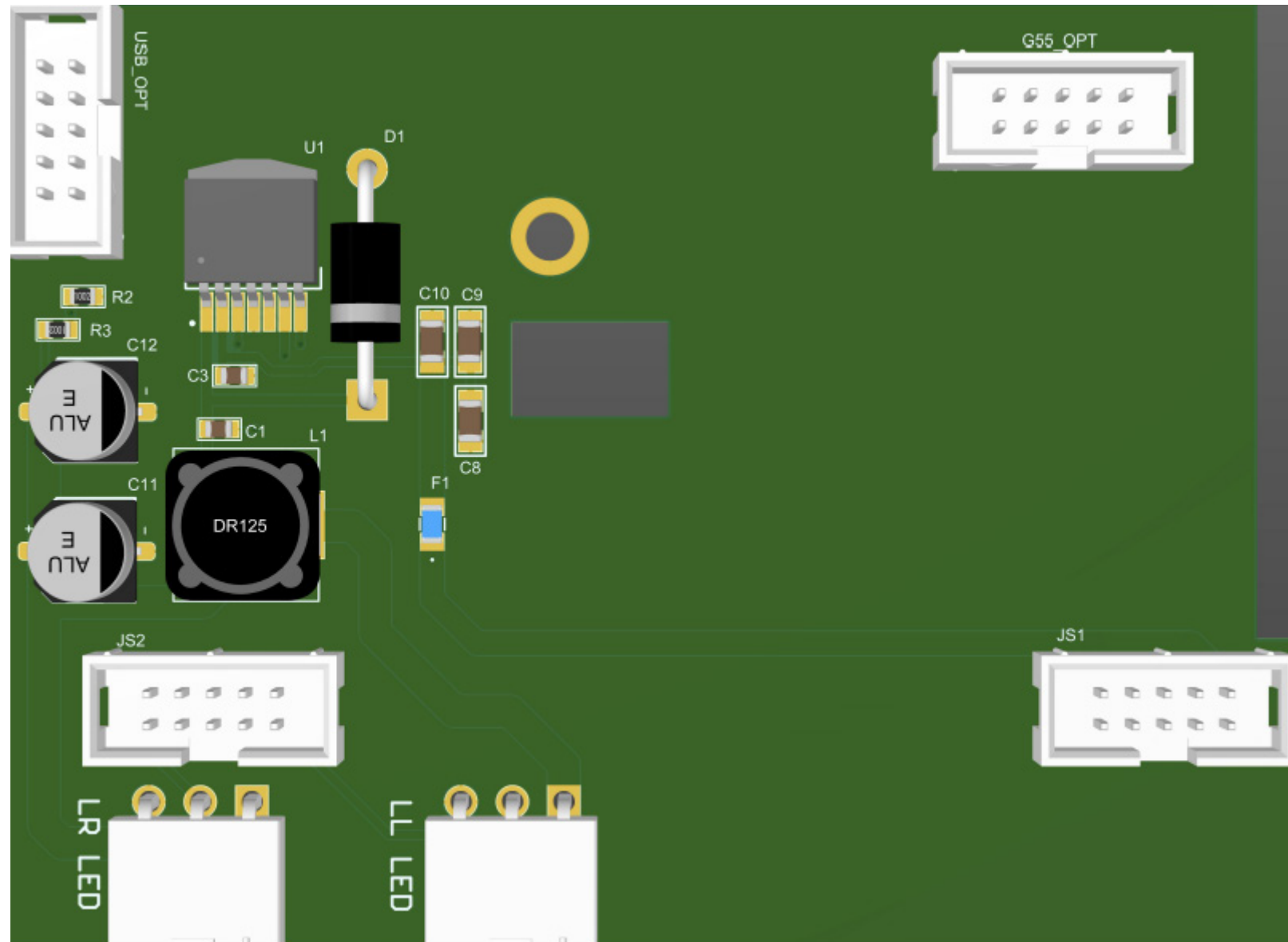


TS CE Topper Ring Bd  
15-100041-00

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CE Cabinet LED Db, 2-Rail  
15-100042-00

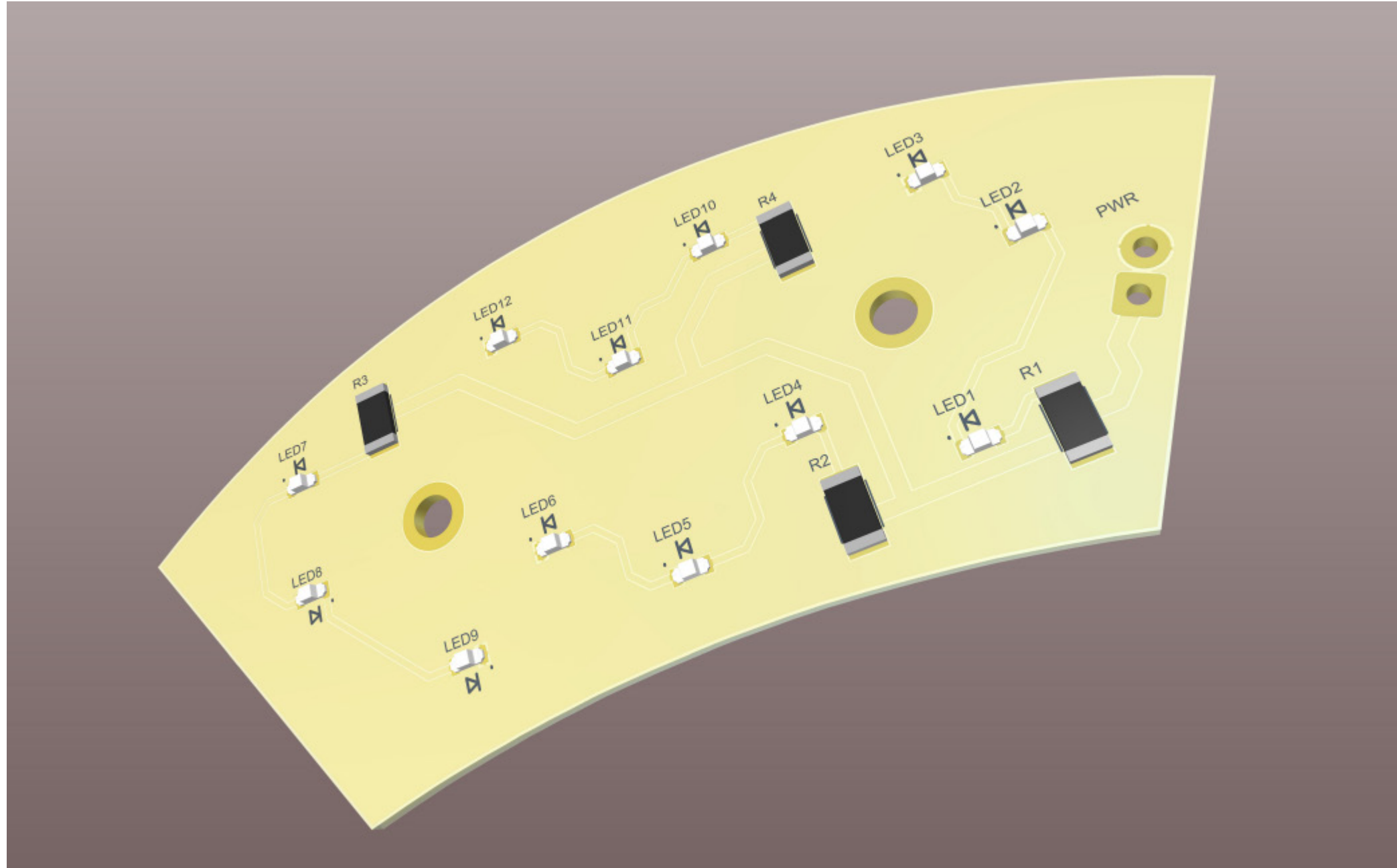




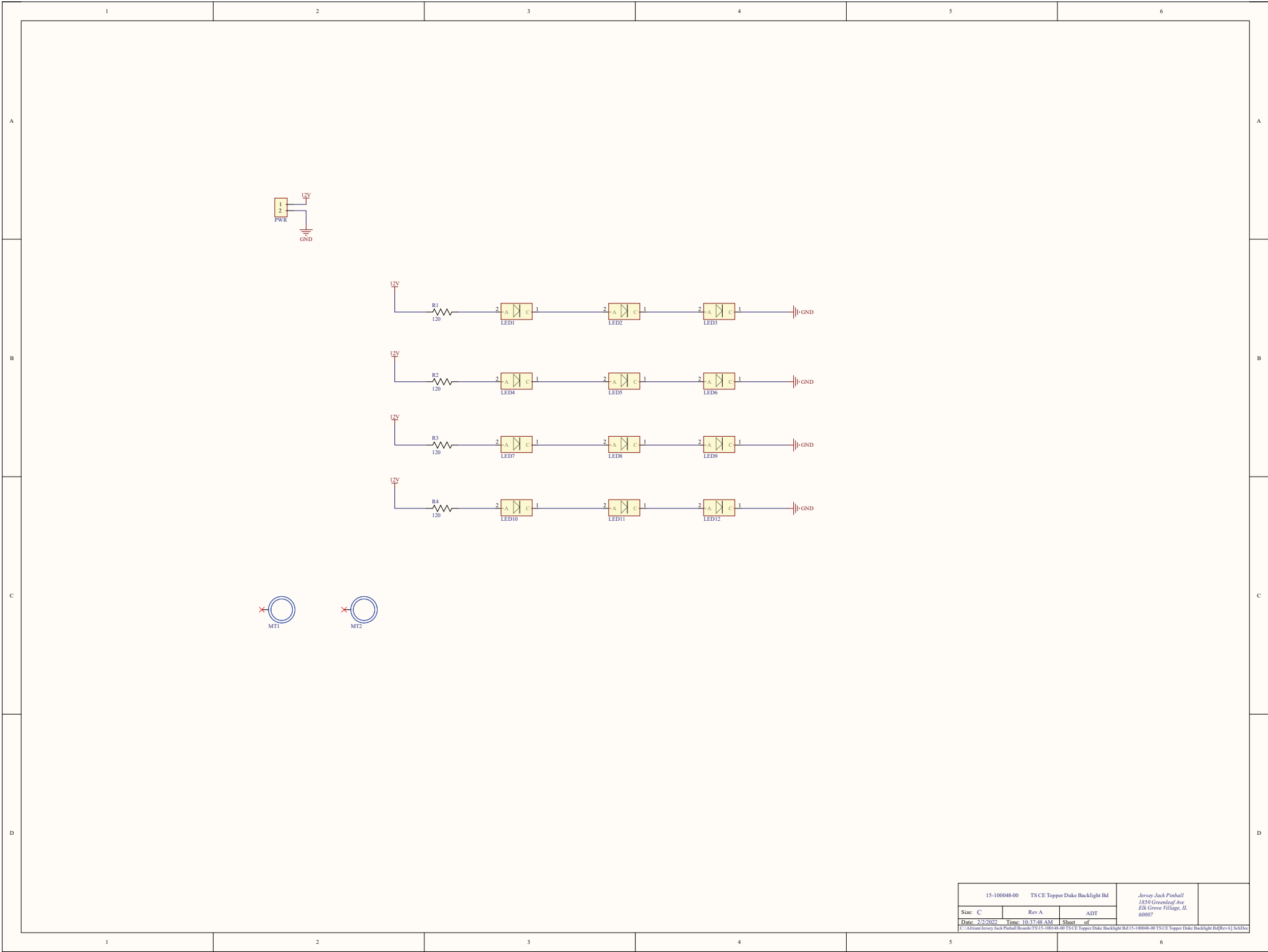




TS CE Topper Duke Backlight Bd  
15-100048-00





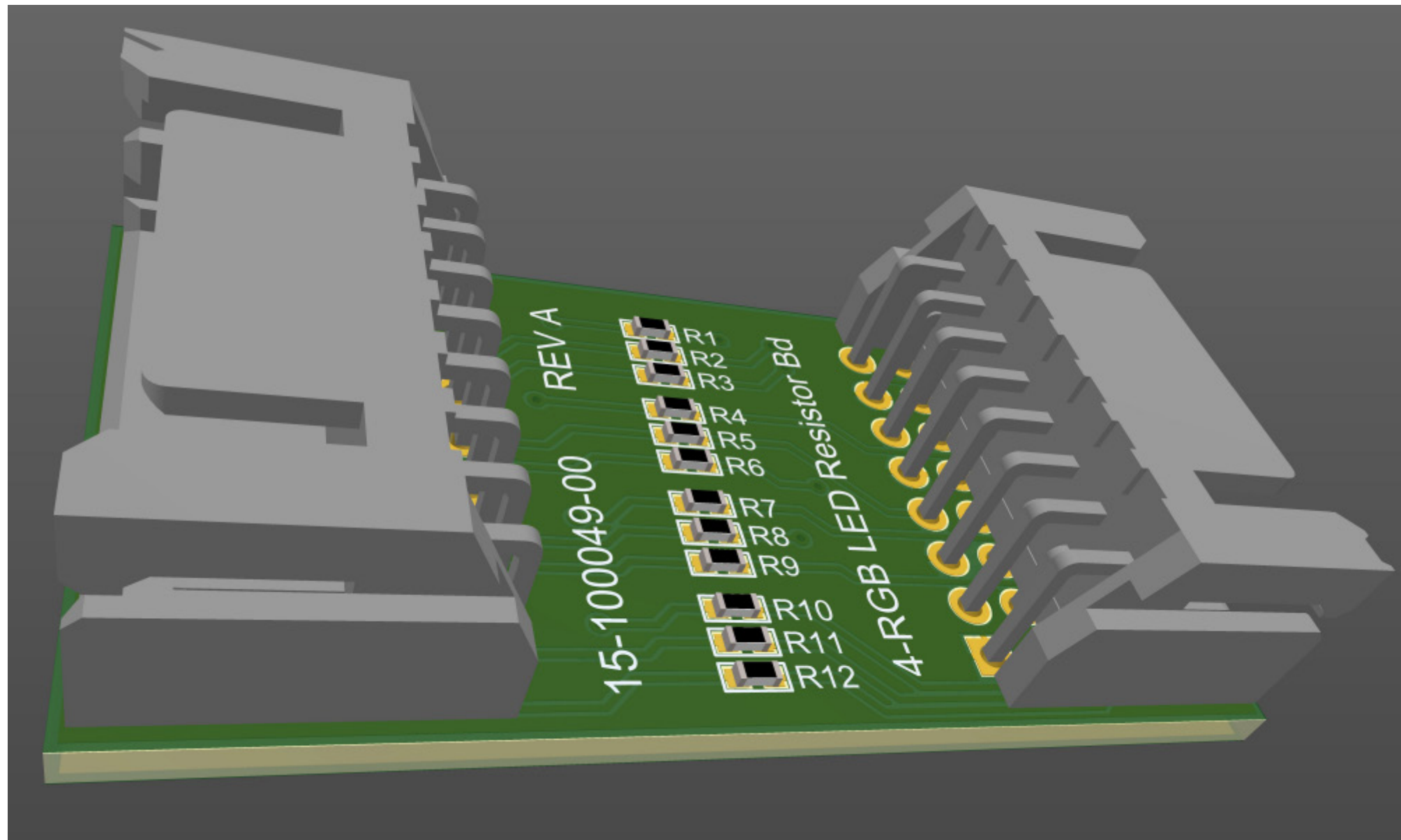


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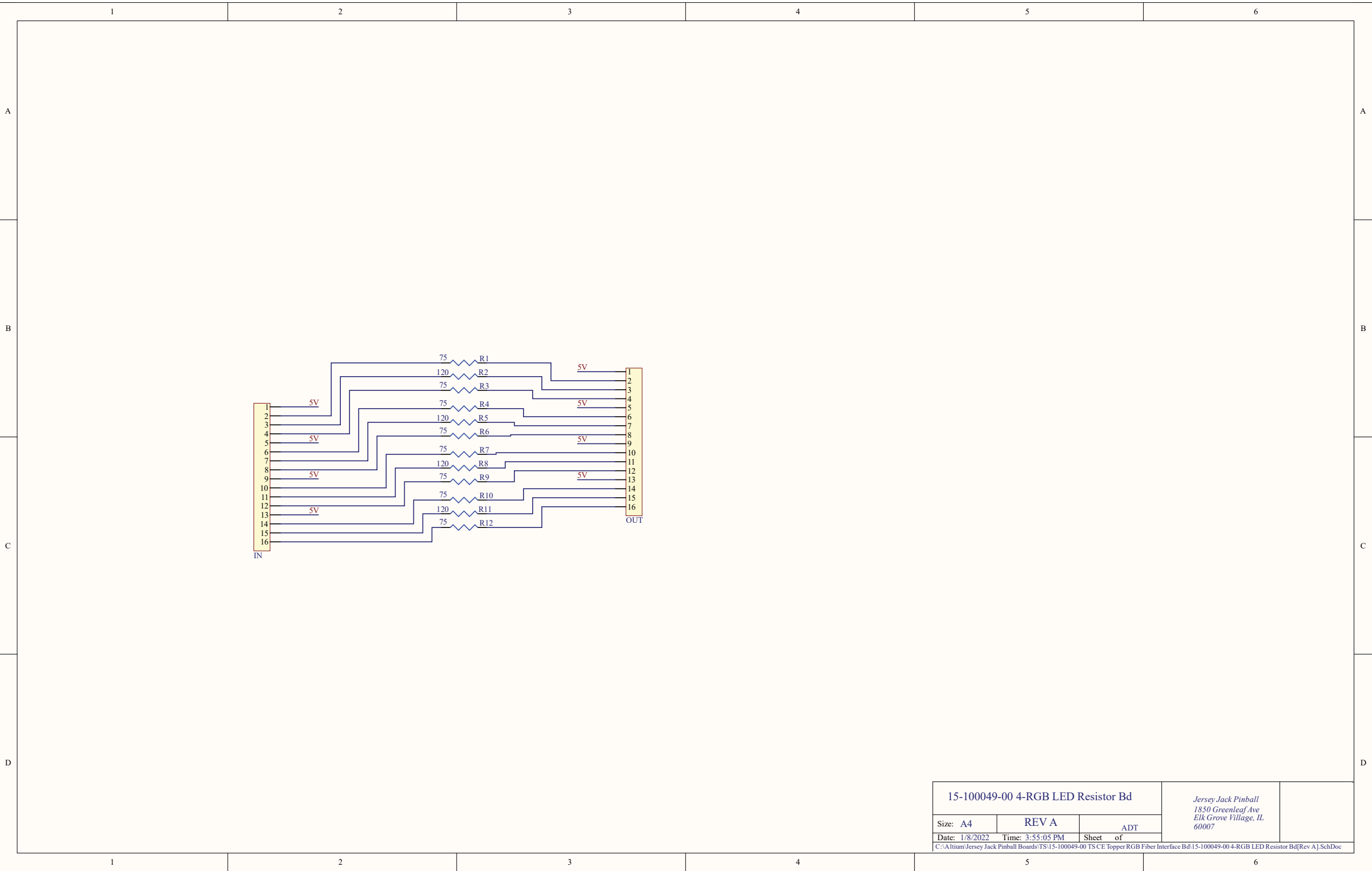
TS CE Topper Duke Backlight Bd  
15-100048-00



RBG LED Resistor Bd  
15-100049-00







RBG LED Resistor Bd  
15-100049-00



# Matrix Switch Wiring Table



**MATRIXED SWITCHES**

## MATRIXED SWITCHES

Active switch Inactive switch (n/o) Inactive opto (n/o) Inactive reflective (n/o) Inactive proximity (n/o) Unused   
Bad switch Inactive switch (n/c) Inactive opto (n/c) Inactive reflective (n/c) Inactive proximity (n/c) Unused-closed

	Drive 1 J201-1	Drive 2 J201-2	Drive 3 J201-3	Drive 4 J201-4	Drive 5 J201-5	Drive 6 J201-6	Drive 7 J201-7	Drive 8 J201-9	Drive 9 J202-1	Drive 10 J202-2	Drive 11 J202-3	Drive 12 J202-4	Drive 13 J202-5	Drive 14 J202-6	Drive 15 J202-8	Drive 16 J202-9
	GRN BLK	GRN BRN	GRN RED	GRN ORN	GRN YEL	GRN GRY	GRN BLU	GRN VIO	GRY BLK	GRY BRN	GRY RED	GRY ORN	GRY YEL	GRY GRN	GRY BLU	GRY VIO
Return 1 J200-1	6-Ball Trough #5 01	Shooter Lane 09	FORK(Y) Target 17	Right Saucer Kicker 25	Inner Loop Made 33	Jump Ramp Up 41	Left Sling Hi 49	not used 57	Gabby 65	not used 73	Lockup #1 (bot) 81	Wheel Opto Inner 89	not used 97	not used 105	not used 113	not used 121
Return 2 J200-2	6-Ball Trough #4 02	Right Outlane 10	FOR(K)Y Target 18	Captive Ball Target 26	Jet Target 34	Right Loop Enter 42	Left Sling Lo 50	not used 58	Left Ramp Made #2 66	not used 74	Lockup #2 82	Wheel Opto Middle 90	not used 98	not used 106	not used 114	not used 122
Return 3 J200-3	6-Ball Trough #3 03	Right Inlane 11	FO(R)KY Target 19	not used 27	Inner Loop Target 35	not used 43	Left Inlane (right) 51	not used 59	Right Spinner 67	not used 75	Lockup #3 (top) 83	Wheel Opto Outer 91	not used 99	not used 107	not used 115	not used 123
Return 4 J200-4	6-Ball Trough #2 04	Right Sling Lo 12	F(O)RKY Target 20	Right Target 28	Left Saucer Kicker 36	not used 44	Left Inlane (left) 52	not used 60	Upper Playfield Ramp 68	not used 76	not used 84	not used 92	not used 100	not used 108	not used 116	not used 124
Return 5 J200-5	6-Ball Trough #1 (right) 05	Right Sling Hi 13	(F)ORKY Target 21	Bottom Bumper 29	Left Ramp Diverted 37	not used 45	Left Outlane (kickback) 53	not used 61	Left Ramp Enter 69	not used 77	not used 85	not used 93	not used 101	not used 109	not used 117	not used 125
Return 6 J200-6	6-Ball Trough jam 06	not used 14	not used 22	Right Bumper 30	not used 38	not used 46	Left Target 54	not used 62	Center Scoop VUK 70	not used 78	not used 86	not used 94	not used 102	not used 110	not used 118	not used 126
Return 7 J200-7	6-Ball Trough #6 (left) 07	not used 15	not used 23	Top Bumper 31	Right Ramp Made 39	not used 47	not used 55	not used 63	Inner Loop Spinner 71	not used 79	not used 87	not used 95	not used 103	not used 111	not used 119	not used 127
Return 8 J200-8	not used 08	not used 16	not used 24	Left Bumper 32	Drop Target 40	not used 48	not used 56	not used 64	Left Ramp Made #1 72	not used 80	not used 88	not used 96	not used 104	not used 112	not used 120	test something 128

Last switch edge: #006, 6-Ball Trough jam  
J201-1 (GRN/BLK) - J200-6 (WHT/GRN)



Press START to toggle playfield display, + to activate shaker (if installed)

Apr 26, 2022 - 01:51:18 PM  
Toy Story 4 - Version 01.00-CE





# Dedicated Switch Wiring Table



## DEDICATED SWITCHES

### DEDICATED SWITCHES

Ground J601-1	BLK	BLK	
Return 1 J601-7	BLK	GRY	Left Flipper EOS D01
Return 2 J601-6	BLK	BRN	Right Flipper EOS D02
Return 3 J601-5	BLK	RED	Upper Right Flipper EOS D03
Return 4 J601-4	BLK	ORN	not used D04
Return 5 J601-2	BLK	YEL	not used D05
Return 6 J601-3	BLK	GRN	not used D06
Return 7 J601-8	BLK	BLU	not used D07
Return 8 J601-9	BLK	VIO	not used D08

Ground J602-1	BLK	BLK	
Return 1 J602-7	YEL	BLK	Left Flipper Switch Lower D09
Return 2 J602-6	YEL	BRN	not used D10
Return 3 J602-5	YEL	RED	Right Flipper Switch Lower D11
Return 4 J602-4	YEL	ORN	Right Flipper Switch Upper D12
Return 5 J602-2	YEL	GRY	Enter / Menu Button D13
Return 6 J602-3	YEL	GRN	Up / Volume + Button D14
Return 7 J602-8	YEL	BLU	Down / Volume- Button D15
Return 8 J602-10	YEL	VIO	Escape / Service Credit Button D16

Ground J603-1	BLK	BLK	
Return 1 J603-7	BLU	BLK	1st Coin Switch (Right Chute) D17
Return 2 J603-6	BLU	BRN	2nd Coin Switch (Left Chute) D18
Return 3 J603-5	BLU	RED	3rd Coin Switch (DBV) D19
Return 4 J603-4	BLU	ORN	4th Coin Switch D20
Return 5 J603-2	BLU	YEL	5th Coin Switch D21
Return 6 J603-3	BLU	GRN	Ticket Mech Notch Switch D22
Return 7 J603-9	BLU	GRY	not used D23
Return 8 J603-10	BLU	VIO	not used D24

Ground J604-1	BLK	BLK	
Return 1 J604-8	VIO	BLK	Start Button D25
Return 2 J604-6	VIO	BRN	Coin Door Open D26
Return 3 J604-5	VIO	RED	Plumb Bob Tilt D27
Return 4 J604-4	VIO	ORN	Bluetooth D28
Return 5 J604-2	VIO	YEL	not used D29
Return 6 J604-3	VIO	GRN	Headphone Panel Volume Down D30
Return 7 J604-9	VIO	BLU	Headphone Panel Volume Up D31
Return 8 J604-10	VIO	GRY	Headphone Panel Jack Sense D32

- Active switch
- Bad switch
- Inactive switch (n/o)
- Inactive switch (n/c)
- Inactive opto (n/o)
- Inactive opto (n/c)
- Inactive reflective (n/o)
- Inactive reflective (n/c)
- Inactive proximity (n/o)
- Inactive proximity (n/c)
- Unused position
- Unused but closed (error)



Apr 14, 2022 - 02:02:16 PM  
Toy Story 4 - Version 01.00-CE





# 70 Volt Coil Table

	Drive 1		Drive 2		Drive 3		Drive 4		Drive 5		Drive 6		Drive 7		Drive 8	
70V Power	J104-9, Q308		J104-8, Q307		J104-7, Q306		J104-6, Q305		J104-5, Q304		J104-4, Q303		J104-3, Q302		J104-2, Q301	
F704	BRN	BLK	BRN	GRY	BRN	RED	BRN	ORN	BRN	YEL	BRN	GRN	BRN	BLU	BRN	VIO
J104-1							Right Pop Bumper				Top Pop Bumper		Knocker			
BRN	1		2		3		4		5		6		7		8	

	Drive 9		Drive 10		Drive 11		Drive 12		Drive 13		Drive 14		Drive 15		Drive 16	
70V Power	J105-10, Q318		J105-8, Q317		J105-7, Q316		J105-6, Q315		J105-5, Q314		J105-4, Q313		J105-3, Q312		J105-2, Q311	
F705	RED	BLK	RED	BRN	RED	GRY	RED	ORN	RED	YEL	RED	GRN	RED	BLU	RED	VIO
J105-1	Right Flipper Power		Right Flipper Hold		Upper Right Flipper Power		Upper Right Flipper Hold		Trough VUK		Auto Launch		Kickback		Jump Ramp Power	
RED	9		10		11		12		13		14		15		16	

	Drive 17		Drive 18		Drive 19		Drive 20		Drive 21		Drive 22		Drive 23		Drive 24	
70V Power	J106-10, Q328		J106-9, Q327		J106-7, Q326		J106-6, Q325		J106-5, Q324		J106-4, Q323		J106-3, Q322		J106-2, Q321	
F706	ORN	BLK	ORN	BRN	ORN	RED	ORN	GRY	ORN	YEL	ORN	GRN	ORN	GRY	ORN	VIO
J603-1	Left Jet Saucer Kick						Lock Up Post		Gabby Down		Gabby Up		Drop Target		Drop Target Release	
ORN	17		18		19		20		21		22		23		24	

	Drive 25		Drive 26		Drive 27		Drive 28		Drive 29		Drive 30		Drive 31		Drive 32	
70V Power	J107-10, Q338		J107-9, Q337		J107-7, Q336		J107-6, Q335		J107-5, Q334		J107-4, Q333		J107-3, Q332		J107-2, Q331	
F707	TAN	BLK	TAN	BRN	TAN	RED	TAN	ORN	TAN	YEL	TAN	GRN	TAN	BLU	TAN	VIO
J107-1	Bottom Pop Bumper		Right Jet Saucer Kicker		Left Flipper Power		Left Flipper Hold									
TAN	25		26		27		28		29		30		31		32	

	Drive 33		Drive 34		Drive 35		Drive 36		Drive 37		Drive 38		Drive 39		Drive 40	
70V Power	J108-10, Q408		J108-9, Q407		J108-8, Q406		J108-7, Q405		J108-5, Q404		J108-4, Q403		J108-3, Q402		J108-2, Q401	
F708	PNK	BLK	PNK	BRN	PNK	RED	PNK	ORN	PNK	YEL	PNK	GRN	PNK	BLU	PNK	VIO
J108-1	Left Pop Bumper								Center Scoop VUK				Left Ramp Diverter			
PNK	33		34		35		36		37		38		39		40	



# 20 Volt Coil & Motor Table

20V Power F710	Drive 49		Drive 50		Drive 51		Drive 52		Drive 53		Drive 54		Drive 55		Drive 56	
	J110-2, Q421		J110-3, Q422		J110-5, Q423		J110-6, Q424		J110-7, Q425		J110-8, Q426		J110-9, Q427		J110-10, Q428	
	PLM	BLK	PLM	BRN	PLM	RED	PLM	ORN	PLM	YEL	PLM	GRN	PLM	BLU	PLM	GRY
J110-1																
PLM	49		50		51		52		53		54		55		56	
20V Power F711	Drive 57		Drive 58		Drive 59		Drive 60		Drive 61		Drive 62		Drive 63		Drive 64	
	J111-2, Q431		J111-4, Q432		J111-5, Q433		J111-6, Q434		J111-7, Q435		J111-8, Q436		J111-9, Q437		J111-10, Q438	
	BLU	BLK	BLU	BRN	BLU	GRY	BLU	ORN	BLU	YEL	BLU	GRN	BLU	GRY	BLU	VIO
J111-1			Jump Ramp Left Post		Jump Ramp Right Post		Right Slingshot		Left Slingshot		Left Ramp Post					
BLU	57		58		59		60		61		62		63		64	
20V Power F712	Drive 65		Drive 66		Drive 67		Drive 68		Drive 69		Drive 70		Drive 71		Drive 72	
	J112-3, Q501		J112-4, Q502		J112-5, Q503		J112-6, Q504		J112-7, Q505		J112-8, Q506		J112-9, Q507		J112-10, Q508	
	VIO	BLK	VIO	BRN	VIO	RED	VIO	ORN	VIO	YEL	VIO	GRN	VIO	BLU	VIO	GRY
J112-1																
VIO	65		66		67		68		69		70		71		72	

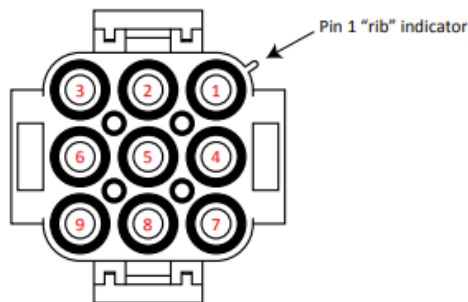
# 12 Volt Motor, Relay & Light Table

12V Power F709	Drive 41		Drive 42		Drive 43		Drive 44		Drive 45		Drive 46		Drive 47		Drive 48	
	J109-2, Q 411		J109-3, Q412		J109-4, Q413		J109-6, Q414		J109-7, Q415		J109-8, Q416		J109-9, Q417		J109-10, Q418	
	YEL	BLK	YEL	BRN	YEL	RED	YEL	ORN	YEL	GRY	YEL	GRN	YEL	BLU	YEL	VIO
J109-1									Wheel Motor Drive 1		Wheel Motor Drive 2					
YEL	41		42		43		44		45		46		47		48	
12V Power F713	Drive 73		Drive 74		Drive 75		Drive 76		Drive 77		Drive 78		Drive 79		Drive 80	
	J113-3, Q511		J113-4, Q512		J113-5, Q513		J113-6, Q514		J113-7, Q515		J113-8, Q516		J113-9, Q517		J113-10, Q518	
	LT BLU	BLK	LT BLU	BRN	LT BLU	RED	LT BLU	ORN	LT BLU	YEL	LT BLU	GRN	LT BLU	GRY	LT BLU	VIO
J113-2	Shaker Motor				Ticket Mech Motor Drive		Right Backglass		Left Backglass				Start Button Light		Flash Bulb Topper	
LT BLU	73		74		75		76		77		78		79		80	

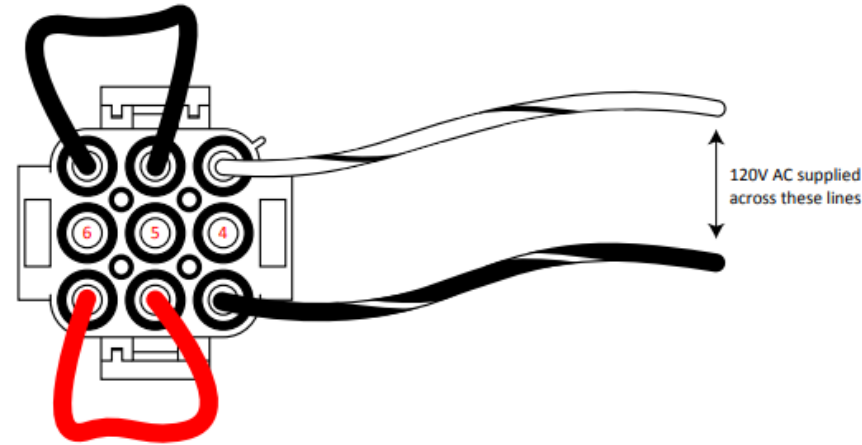


## Supply Voltage Conversion

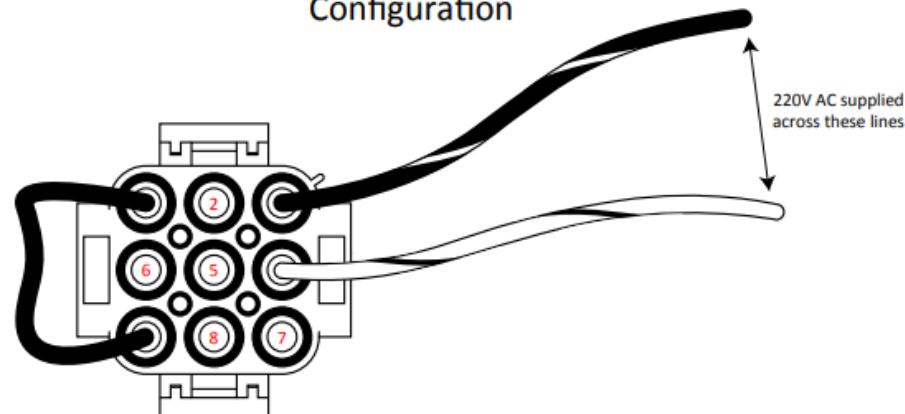
### Voltage Conversion Connector Pin-out



### 120V AC Input Configuration



### 220V AC Input Configuration



If you need to convert your game to a different supply voltage than it was wired for at the factory, locate the 9-pin connector at the input of the transformer, in the bottom of the lower cabinet, see illustration to the left.

**Power the game down** and disconnect the 9-pin connector (it has locking tabs on each side). Looking at the back of the jumpered connector (the end with the wires protruding), locate the pin 1 "rib" indicator and orient the connector so that it is in the upper right hand corner, as shown opposite. The red numbers show pin numbers for the entire connector.

Look at the illustration for the desired configuration and compare it to the current configuration. Using a 0.084" pin extractor, remove all pins that require repositioning by pushing them out of the back of the connector, from the front. You can reuse existing wires as long as they were not damaged during the removal process. Fashion new, short jumper wires, as needed.

Using the appropriate illustration for reference, insert the jumper pins all the way into the connector, in the proper positions, from the back side, until they lock in place.

For a 120V supply voltage, connect the AC inputs across pins 1 & 7. Next, jumper pins 2 & 3 together with a short piece of black wire. Lastly, jumper pins 8 & 9 together with a short piece of orange wire.

For a 220V supply voltage, connect the AC inputs across pins 1 & 4. Then jumper pins 3 & 9 together with a short piece of black wire.

**Note:** Your game has an ATX power supply. This power supply may have a voltage selection slide switches on its back panels that must be in the proper position (120V or 220V) before applying power to the game.



# FUSE INFORMATION

## Power Box - Line Fuse

US 10 AMP Slow Blow, 125 Volt, .25" X 1.25", 3AG  
EURO 5 AMP Slow Blow, 250 Volt, .25" X 1.25", 3AG

## Amplifier

FS1 5 AMP Fast Blow, 250 Volt, 5X20mm

## I/O Board

702 10 AMP Slow Blow, 250 Volt, 5 X 20 mm  
701 10 AMP Slow Blow, 250 Volt, 5 X 20 mm  
703 6.3 AMP Slow Blow, 250 Volt, 5 X 20 mm  
714 4 Amp Slow Blow, 250 Volt, 5 X 20 mm  
708 5 AMP Slow Blow, 250 Volt, 5 X 20 mm  
707 6.3 AMP Slow Blow, 250 Volt, 5 X 20 mm  
706 6.3 AMP Slow Blow, 250 Volt, 5 X 20 mm  
704 5 AMP Slow Blow, 250 Volt, 5 X 20 mm  
705 7 AMP Slow Blow, 250 Volt, 5 X 20 mm  
711 4 AMP Slow Blow, 250 Volt, 5 X 20 mm  
710 4 AMP Slow Blow, 250 Volt, 5 X 20 mm  
712 4 AMP Slow Blow, 250 Volt, 5 X 20 mm  
712 3.15 AMP SLow Blow, 250 Volt, 5 X 20 mm  
709 3.15 AMP Slow Blow, 250 Volt, 5 X 20 mm  
F1 2 AMP Mini Blade, 32 Volt  
F2 2 AMP Mini Blade, 32 Volt



# TS4 FUSED POWER STREAM

