Jim Henson's LABYRINTH™

barrels of fun

October 2025
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OPERATIONS MANUAL

Game Setup • Rules/Shots • Tests/Adjustments • Parts Information • Wiring & Schematics • Maintenance Information

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Jim Henson's™ LABYRINTH™

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Visit our technical support site, https://shop.kollectfun.com/technical-support/, and create an account. In exchanges with Barrels of Fun, be sure to reference the game serial number. For your records, write the game serial number in the manual.

Serial Number _____

Barrels of Fun reserves the rights to make modifications and improvements to its products. The specifications and parts identified in this manual are subject to change without notice.

Acknowledgments

You're holding many, many, **MANY** *hours of work in your hands - a true labor of love. I can honestly say this is my best documentation work.*
Perfection is a goal, not a destination (because you'll never actually get there); but it's such a challenge - and motivation - to get as close as you possibly can to it.
A special, heartfelt ***thanks*** *to everyone who helped make this manual a reality!*

First, and foremost, my Barrels of Fun teammates:

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And, of course, ***all of my love*** *to my family - Debbie, Mandy, Meggan & Brenna - for their endless support for, patience with and understanding of this crazy pinball passion of mine.*

Butch Peel

for Emma

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"You have no power over me."

Section 1

Game Unpacking & Setup

"That's not it. Where did she learn that rubbish? It doesn't even start with 'I wish...'. Ugh!"

Unpacking & Setting Up Your Labyrinth Game

If you need to truck your game, in its shipping carton, on its pallet, lean against the side with the “TRUCK FROM THIS SIDE ONLY” marking (see figure 1-1). As you unpack your game, check all loose parts against the packing lists on this page.

Figure 1-1. The “TRUCK FROM THIS SIDE ONLY” side of the carton.

Tools Required:

Wire cutters or Scissors
Ratchet and 5/8” socket (or 5/8” wrench)
Torpedo bubble level

Leg Box Loose Parts Packing List

4 pinball machine legs, w/levelers and locking nuts
4 felt leg/cabinet protectors
8 leg bolts, w/nylon leg protector washers

Cash Box Loose Parts Packing List

5 steel mirror-finish pinballs
1 Barrels of Fun magnetic pick-up tool
1 Barrels of Fun bottle opener
1 Barrels of Fun polishing cloth
1 spare set (2) of game slingshot plastics
1 plastic game key fob
1 hex key tool (for the backbox roto-lock)
1 tilt bob & thumbscrew

Loose Parts In Shipping Carton

1 set (1 left/1 right) of inner cabinet art blade protectors
1 USA line power cable

Note: If anything is missing from your loose parts, send an email to **support@kollectfun.com** or call for a replacement.

1) Using wire cutters or scissors, cut and remove the shipping bands from the outside of the carton/pallet (see figure 1-2).

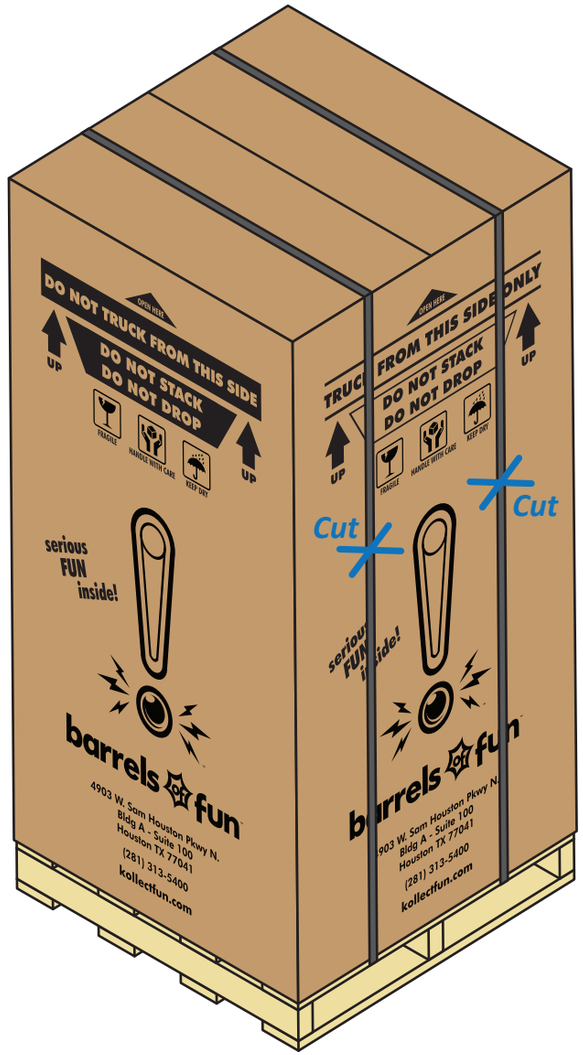


Figure 1-2. Removing straps from the shipping carton/pallet.

CAUTION: When you cut bands, PROTECT YOUR EYES and have helpers/bystanders move away! Sharp ends of the cut strap may whip violently away from the carton!

2) Lift/slide the loose carton straight up and over the pinball machine, still strapped down (see figure 1-3). Cut the two bands holding the game to the pallet.

3) **DO NOT CUT THE NYLON STRAP HOLDING THE BACKBOX TO THE CABINET** at this point. Remove the cardboard corner protectors from the cabinet edges.

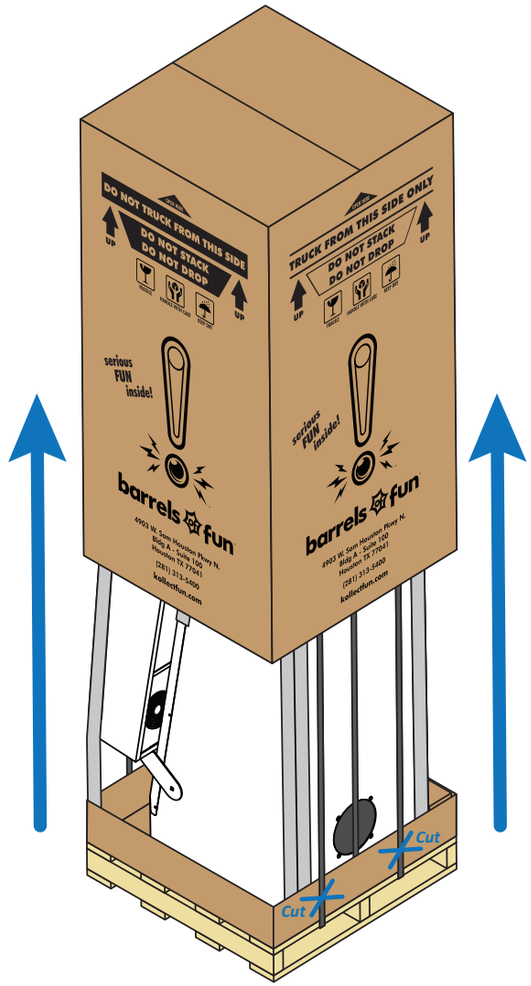


Figure 1-3. Lifting/sliding the carton up, over the game.

4) You can leave the game on its pallet for these next two steps. Locate the leg box, along the right side of the cabinet. Remove all parts from the box; dispose of the packing material. The legs are shipped with leg levelers and locking nuts installed, threaded all the way in. Set two of them aside, as is; these will be the front legs for the game. Prepare the other two legs to use on the back of the game (see figure 1-4): (1) Thread the leveler/ locking nut approximately 2/3 of the way out of each leg. (2) Hold the leveler and thread the locking nut upward until it is against the base of each leg. With the cabinet set up on a level surface, this should provide a playfield pitch of roughly 6.5°, front-to-back.

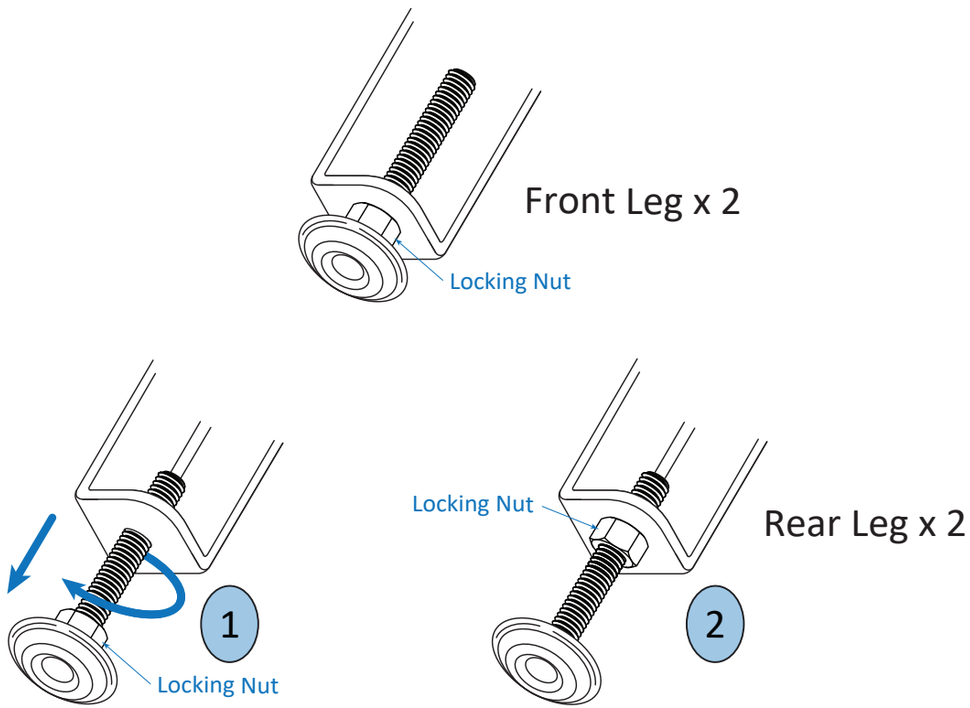


Figure 1-4. Preparing legs for installation.

5) Locate the 8 leg bolts, nylon washers and felt protectors in the loose parts. Add a nylon washer to each leg bolt. Thread two leg bolts through each front leg and a felt protector, then into to the cabinet (see figure 1-5). Use your 5/8" socket (or a 5/8”wrench) to tighten the bolts firmly, while maintaining pressure (in the direction of the blue arrow) on each leg. Alternate tightening the two bolts, as you go, to maintain equal pressure, top and bottom, against each cabinet corner bracket.

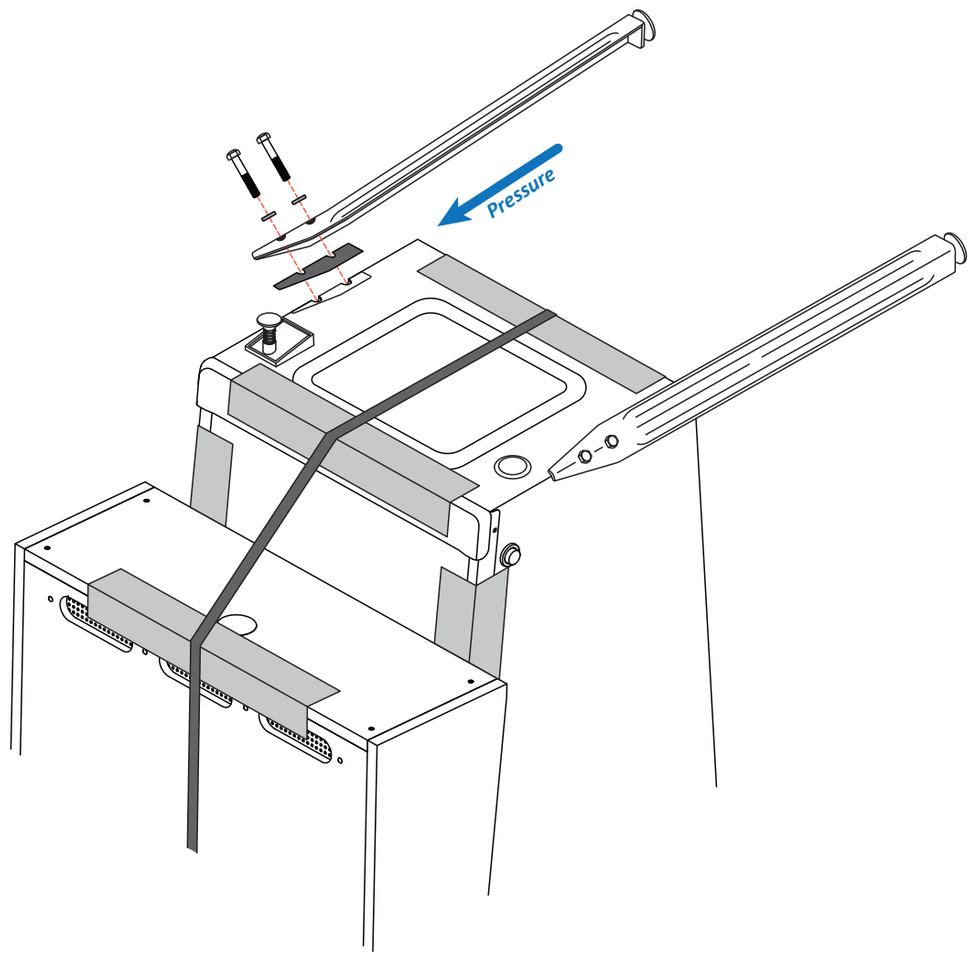
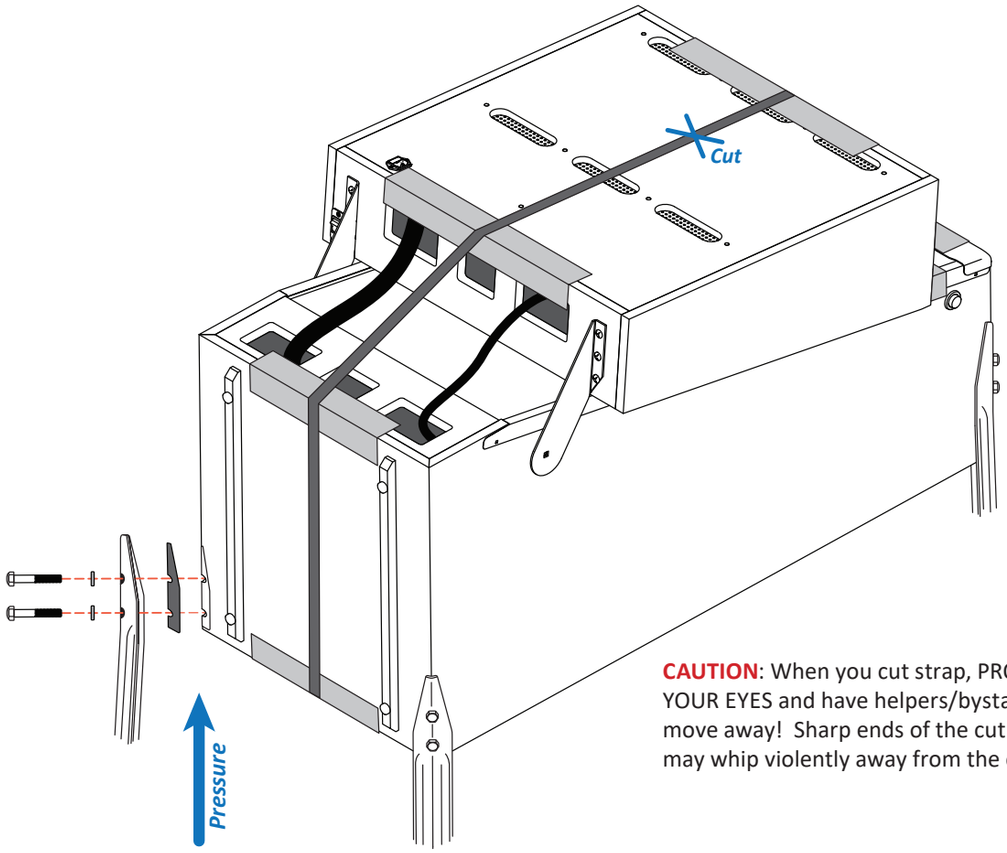


Figure 1-5. Installing the front legs.

6) With the help of at least one other person, carefully tip the game onto its front legs. Lift the rear of the cabinet and pull the pallet out from underneath. Have **two people** hold the back of the cabinet up or place it on a sturdy support. As with the front legs, attach the two rear legs, using the four remaining acorn-head bolts, nylon washers & felt cabinet protectors. Tighten all bolts firmly (again, alternating between the two bolts at each corner), while maintaining upward pressure on the legs (see figure 1-6). Carefully lower the game onto its four legs. Using wire cutters or scissors, cut the nylon strap holding the backbox down.



CAUTION: When you cut strap, PROTECT YOUR EYES and have helpers/bystanders move away! Sharp ends of the cut strap may whip violently away from the carton!

Figure 1-6. Installing the rear legs.

7) Remove the remaining packing material from the game, then (1) raise the backbox to its upright position (see figure 1-7). (2) Ensure that the cables and wires in the neck of the game do not get pinched at any time during this process.

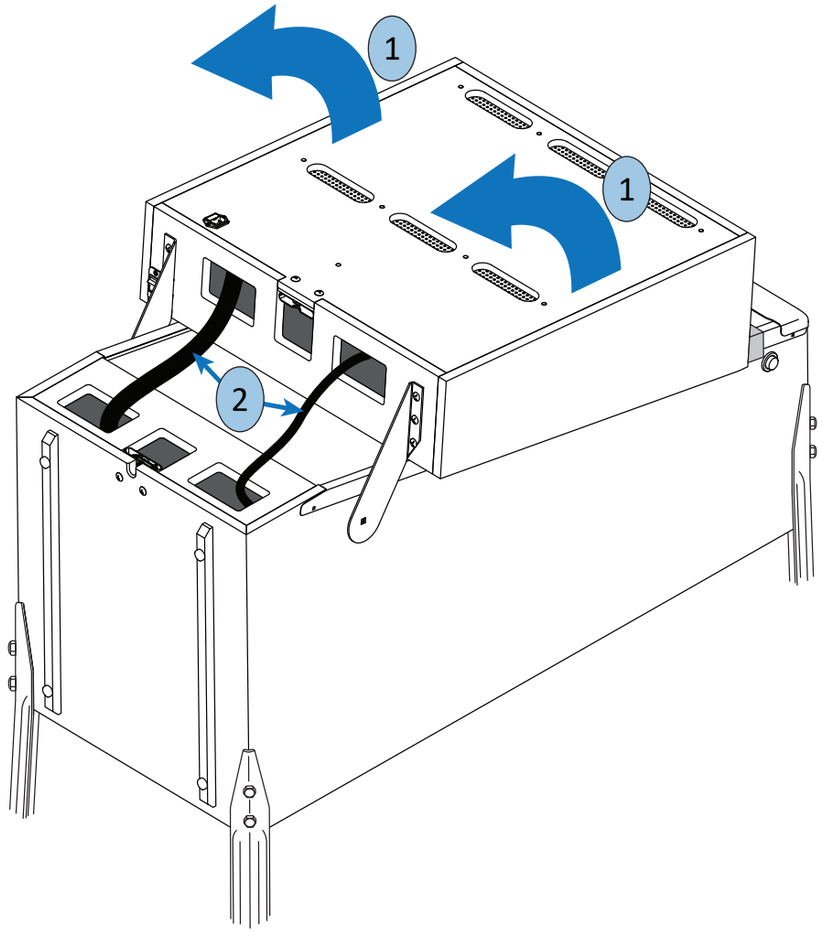


Figure 1-7. Raising the backbox to its upright position.

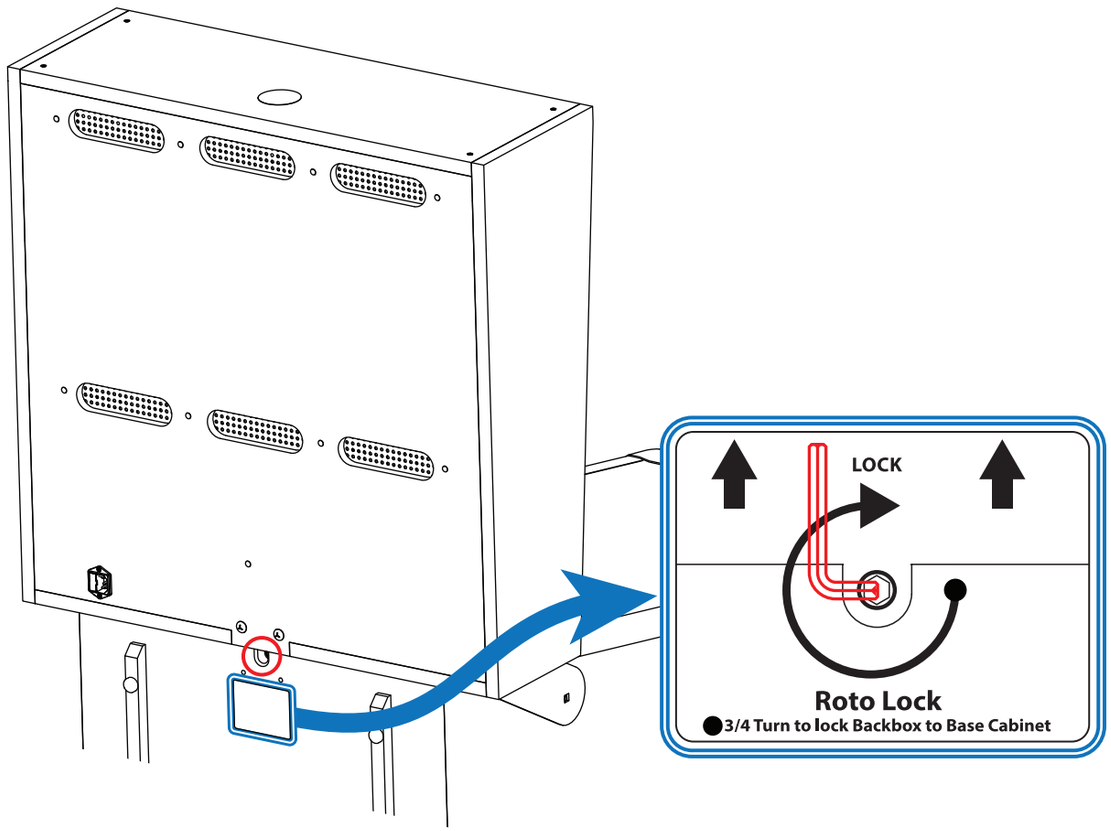


Figure 1-8. Securing the backbox in the upright position.

8) You will find the coin door keys attached to the ball shooter, on the front of the game. Cut them loose with a pair of wire cutters or scissors. Open the coin door, reach inside, remove the hairpin clip holding the cash box to the lower cabinet and remove the cash box from the game. Remove the loose parts from the cash box and compare to the packing list on page 1-2. Retrieve the hex key tool for the backbox.

9) Insert the short end of the hex key tool into the cabinet opening just below the point where the lower cabinet and the backbox come together (red circle in figure 1-8). Follow the directions printed on the decal attached to the back of the cabinet (inset, figure 1-8): rotate the hex key clockwise, 3/4 of a turn. This action securely locks the backbox in the upright position. Remove the hex key tool and store it in the bottom of your lower cabinet for later use.

10) Using at least **two people**, lift the game and move it to the intended play area. **DO NOT SLIDE LEGS ACROSS THE FLOOR.**

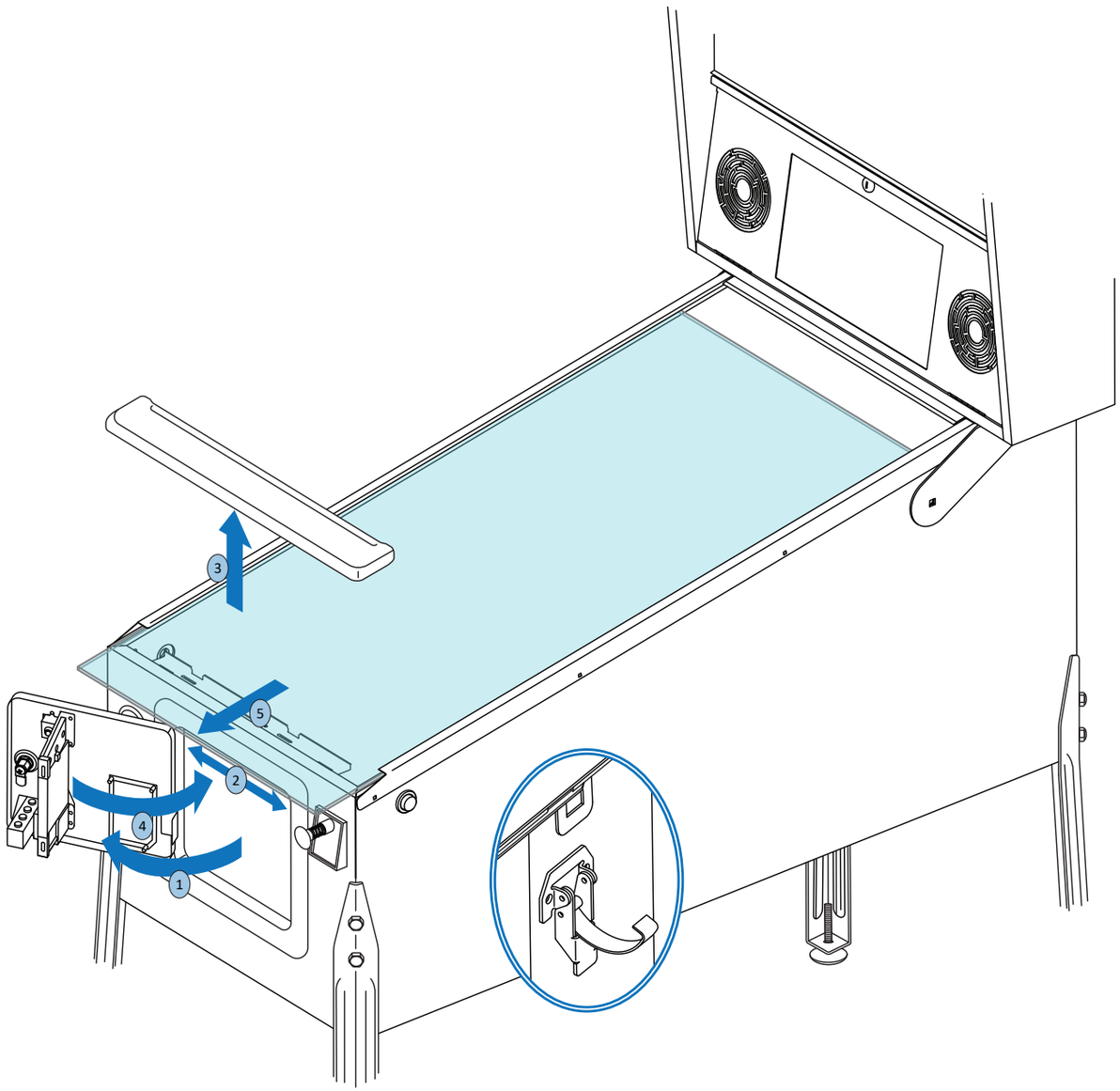


Figure 1-9. Removing the playfield glass.

11) Remove the playfield glass: (1) open the coin door, (2) reach inside the cabinet (left and right) and release/unhook the two trunk latches (inset, figure 1-9) holding the lockdown bar in place, (3) lift the lockdown bar straight up and out, (4) CLOSE AND LOCK THE COIN DOOR (to prevent scratching of playfield glass), then (5) slide the playfield glass off of the front of the cabinet (see figure 1-9). Carefully set the glass aside.

CAUTION: Lay the playfield glass flat or on a padded surface. **NEVER** place the playfield glass, on edge, on a hard surface! Protect and safeguard the edges; they are the weakest part of the glass. Even *minor* shock to the edges could shatter the tempered glass!

12) Once you have the playfield at the proper front-to-back pitch, you need to level the game side-to-side. Place a torpedo bubble level directly onto the playfield surface, low, between the game's flippers, perpendicular to the cabinet side walls. Level the front end of the cabinet (see figure 1-10): (1) Adjust the front leg levelers/nuts, accordingly, to center the bubble. Move the torpedo level as high up the playfield as possible, keeping it perpendicular to the cabinet side walls. (1) Adjust the rear leg levelers/nuts, accordingly, to center the bubble. Keep front-to-back pitch of the playfield in mind, as you level side-to-side. When finished, (2) thread the locking nuts against the underside of all four legs, and tighten them firmly in place.

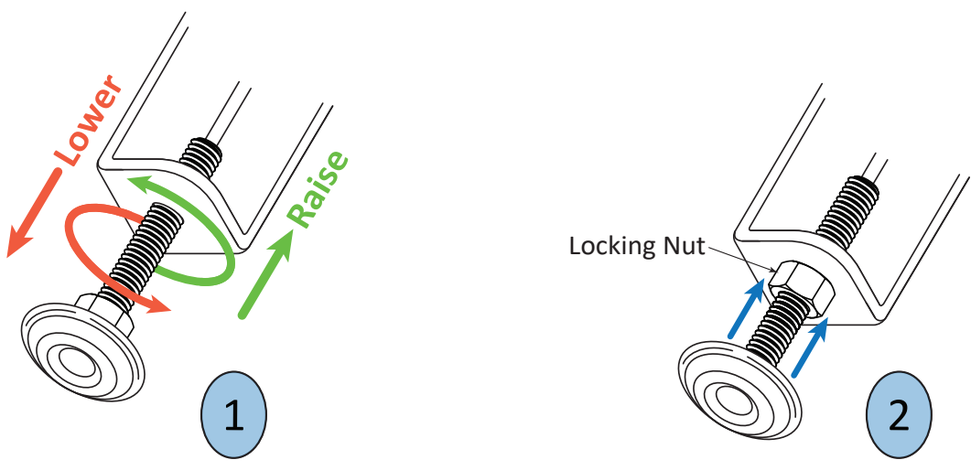


Figure 1-10. Adjusting the leg levelers.

13) Your Labyrinth playfield is designed to rest in four distinct positions in its cabinet for game play, cleaning and/or maintenance. Figure 1-11 shows the playfield in its primary position, ready for game play. When lifting your playfield out of the cabinet, we recommend using the provided protectors to ensure that you do not damage your inner cabinet art blades. Fold the protectors along the pre-scored lines, then slide each protector into the cabinet, between the playfield edge and the inner art blades.

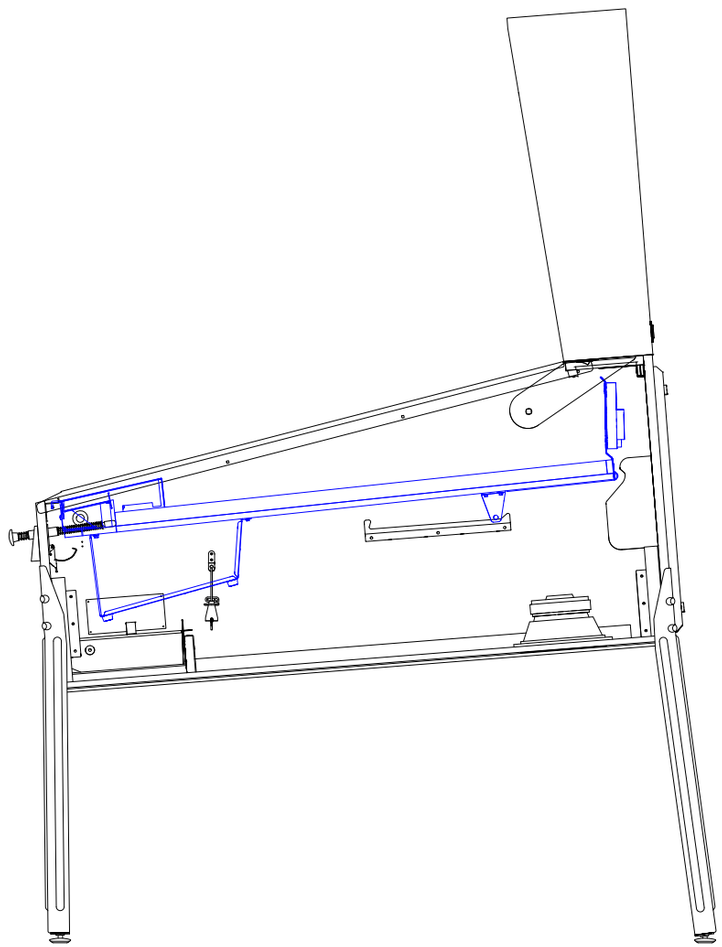


Figure 1-11. Playfield in the cabinet, ready to play.

14) Grasp the playfield under its bottom arch and swing it upward - and slightly outward - until the playfield support brackets underneath are fully visible (figure 1-12). Move the playfield to position 2 (figure 1-13). (1) Pull upward and outward until the first set of support bracket feet reach the top of the lockdown bar receiver; then (2) lower the playfield, resting the first set of rubber feet in the steel channel.

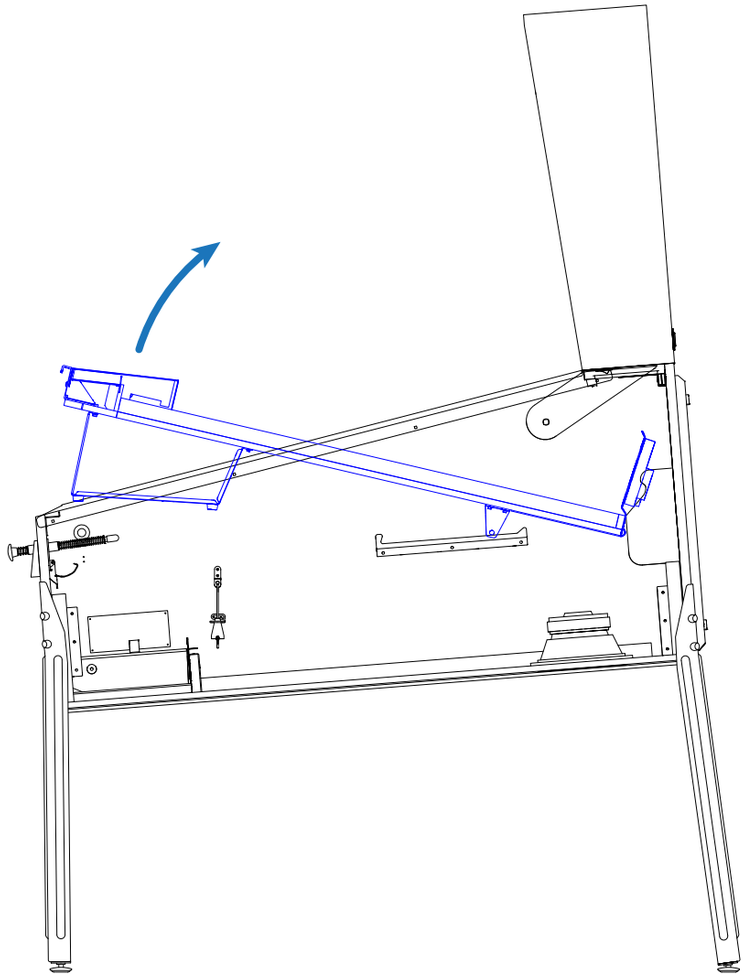


Figure 1-12. Swing the playfield upward/outward.

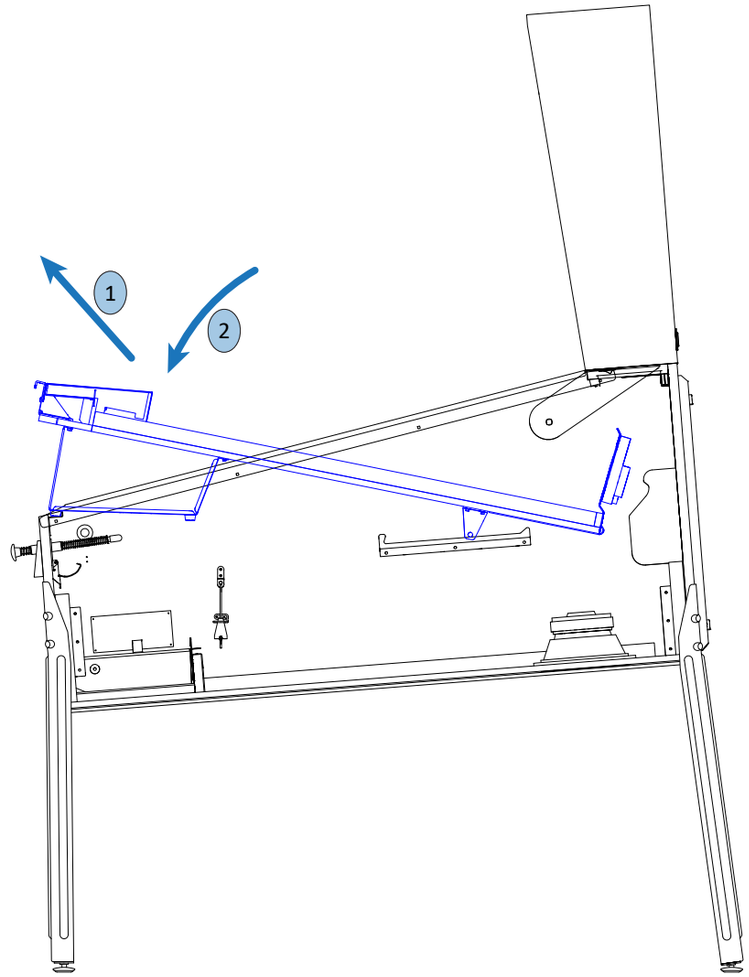


Figure 1-13. Moving the playfield to position 2.

15) Move the playfield from position 2 to 3 (figure 1-14). Grasp the bottom arch or the two support brackets. (1) Pull upward and outward until the second set of support bracket feet reach the top of the lockdown bar receiver; then (2) lower the playfield, resting the second set of rubber feet in the steel channel (red circle, below). Remove any packing material from the playfield surface and/or shipping blocks from behind the back panel of the playfield/lower cabinet interior.

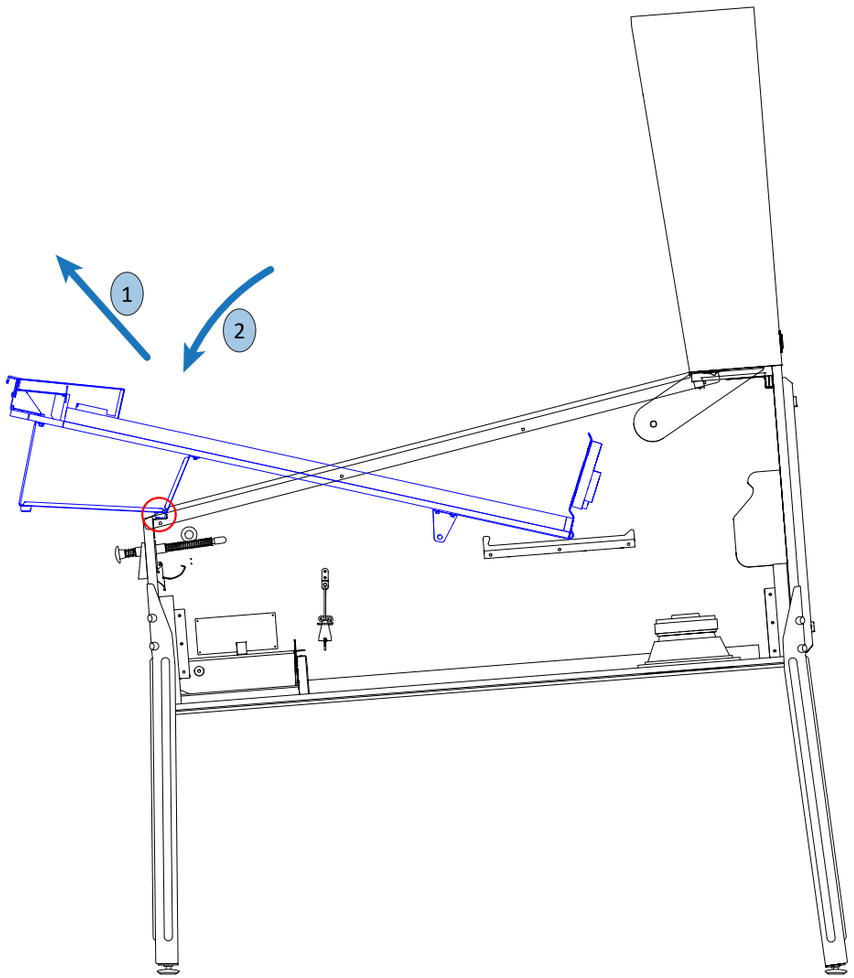


Figure 1-14. Moving the playfield to position 3.

16) **REMOVE ALL FIVE BALLS FROM THE GAME** (no ball in the shooter lane, orbit lock, subway or any playfield eject hole). Move the playfield from position 3 to 4 (figure 1-15). Grasp the two playfield support brackets and pull outward until the playfield slide & pivot support bracket stop is reached on each side (red circle below); then swing the playfield up, carefully resting the bottom arch against the front of the backbox.

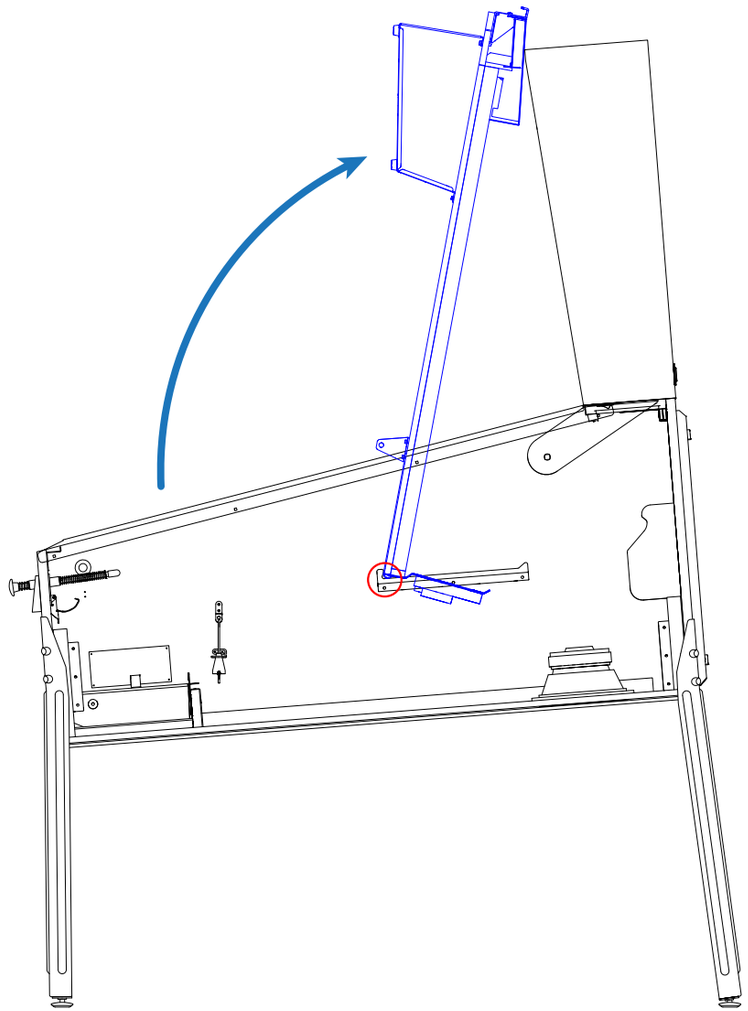


Figure 1-15. Moving the playfield to position 4.

17) Locate the plumb bob w/thumbscrew in the coin box loose parts. The rest of the tilt assembly is mounted to the left sidewall of the cabinet interior, near the front. Loosen the thumbscrew, slide the plumb bob onto the bottom of the hanger wire to the desired height/sensitivity (figure 1-16), then tighten the thumbscrew firmly. Raising the weight higher up the hanger wire makes the tilt mechanism more sensitive; lowering the weight makes it less sensitive. Carefully lower the playfield and slide it straight back into the cabinet, ensuring that the two hanger brackets rest in the slots in the lockdown bar receiver channel.

18) Locate the game's five pinballs in the loose parts. Wipe the balls with a soft rag to remove any anti-rust compounds before use. Place all five balls in the ball trough (drop them onto the playfield, below the flippers, and allow them to drain). Carefully reinstall the playfield glass and lockdown bar by reversing the steps in **11)** above.

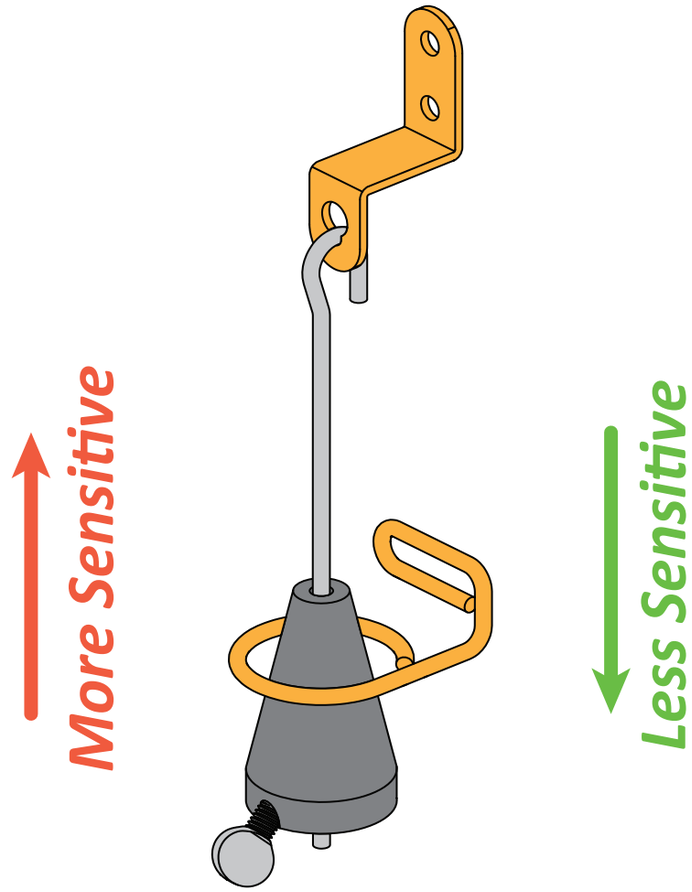


Figure 1-16. Adjusting the plumb bob tilt.

19) Locate the power cord in the loose parts. Plug the female end of the power cord into the exposed IEC receptacle, in the back of the backbox (figure 1-17). Plug the power cord into a grounded wall outlet. **DO NOT CUT THE GROUND LUG OFF OF THE POWER CORD!**

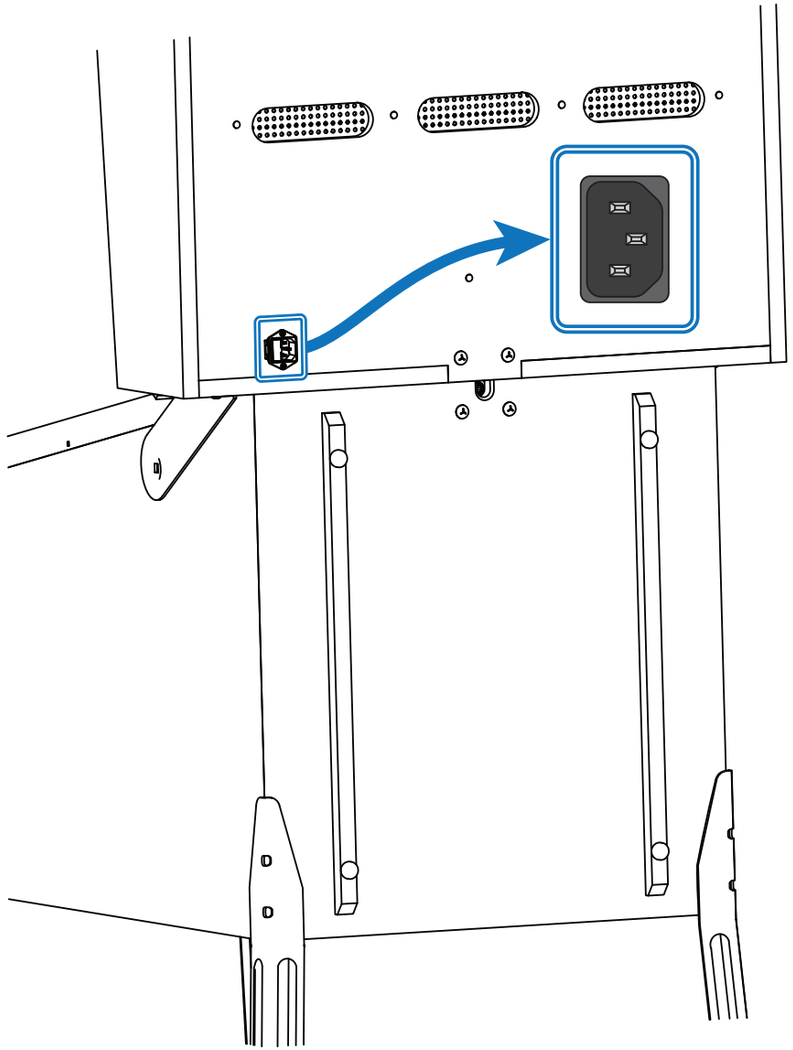


Figure 1-17. Installing the line cord.

20) Power up the game (the on/off switch is located under the right side of the backbox; it rocks in one direction to turn the game on and in the opposite direction to turn it off) and test it for proper operation. Adjust game settings, if necessary (see The Game Menu System, Section 3). ***Your game is ready to play!***

Note: Before transporting the game, use your hex key to unlock the roto-lock (3/4 of a turn, counterclockwise) and the lower the backbox (figure 1-18). Ensure that cables and wires in the neck of the machine do not get pinched or pulled taut as the backbox is laid down. Place a large piece of thick cardboard or a heavy blanket between the top lip of the backbox and the lower cabinet to protect the cabinet side rails. Tie or strap the backbox securely to the cabinet to prevent bouncing during transit.

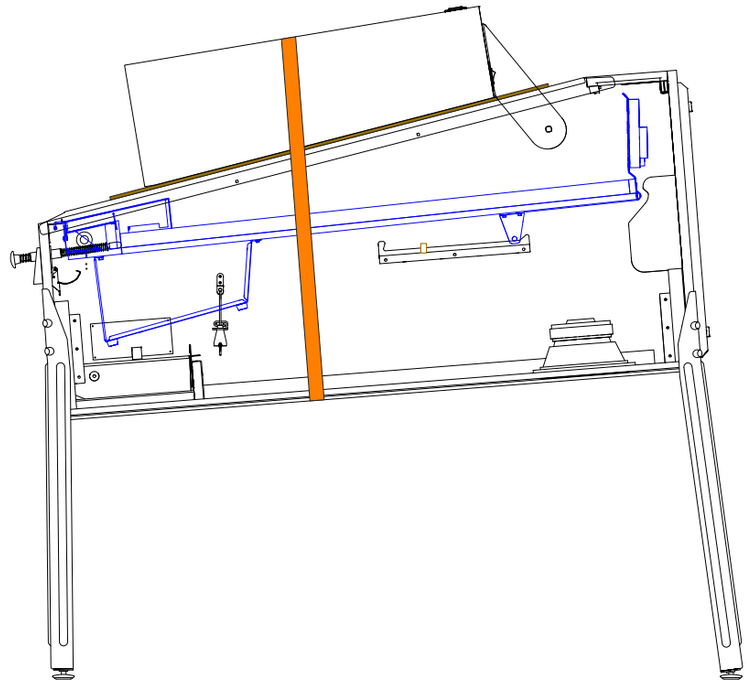


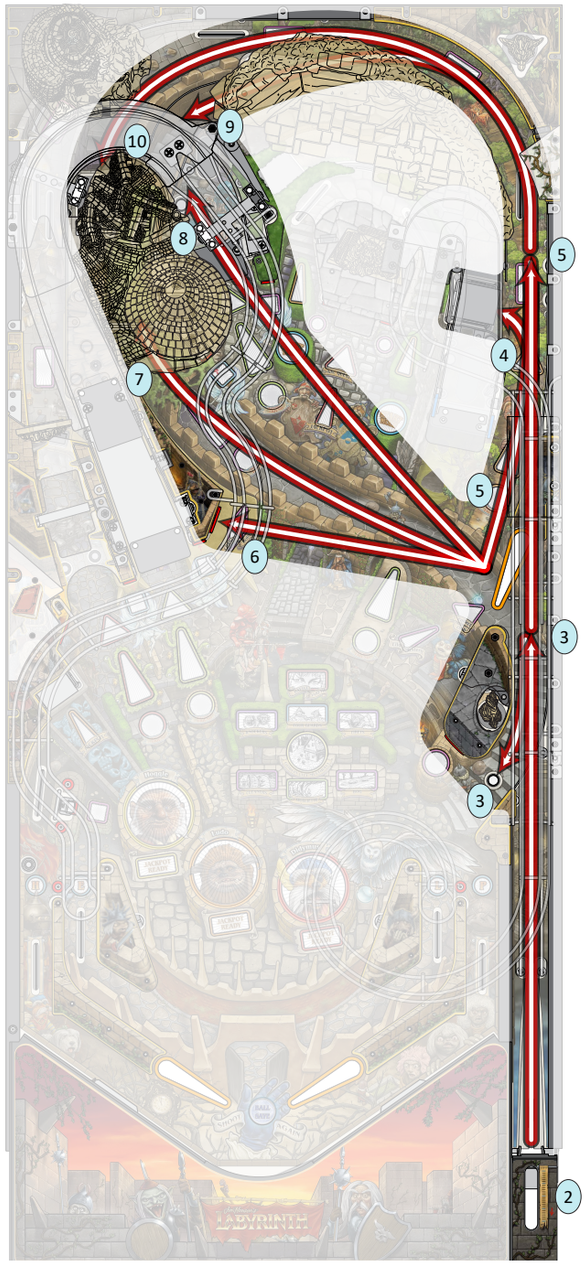
Figure 1-18. Transport game with the backbox lowered and secured.

"Hey! Hey! Her head don't come off!"

Section 2

Game Rules & Shot Maps

"When your thing gets wild,
chilly down, chilly down!"



Plunger Skill Shots

1. The strength with which you plunge the ball affects how - and where - it enters the playfield. This leads to quite a few fun and interesting Labyrinth skill shots.

2. Use the ball shooter gauge, directly above the plunger, as a strength reference when plunging the ball into play.

3. A soft plunge will drop the ball through a "hole" in the shooter wire ramp. The ball falls into the ***Ello*** lane, below the upper flipper, where it is held by an up/down post. ***Ello*** pops out and congratulates you, then the ball is released into the right flipper return lane. Ball 1 award: 200k points.

4. A little stronger plunge will drop the ball off the end of the shooter wire ramp, into the ***Wiseman*** scoop, under the right ramp. Ball 1 award: 250k points. Hit the inner loop (bridge) shot with the upper flipper when the ball is kicked out for a **SUPER** skill shot! Ball 1 award: **1.2M points!**

5. A stronger plunge, yet, will allow the ball to roll up the right orbit a short distance, then back down to feed the upper flipper; make one of the shots below for big points.

6. Shoot the ***Change Mode*** target with the upper flipper. Ball 1 award: 400k points.

7. Hit the inner loop (bridge) shot with the upper flipper. Ball 1 award: 300k points.

8. Shoot the center ramp with the upper flipper. Ball 1 award: 350k points.

9. Plunge the ball hard enough to make the top of the orbit and the ball will drop into the top of the inner loop (bridge) and roll through it - in reverse. This is the ***Egdirb*** skill shot. Ball 1 award: 250k points.

10. Finally, a strong (but not *too* strong!) plunge will drop the ball into the back of the back ***Village*** entry scoop. Be ready for the ball to eject from under the left ramp! Ball 1 award: 400k points.

11. Skill shots increase in value with each ball in the game. Skill shot awards on ball 2 are typically twice the ball 1 awards; on ball 3, they're worth **three** times the ball 1 points!

Qualifying, Changing & Starting Modes

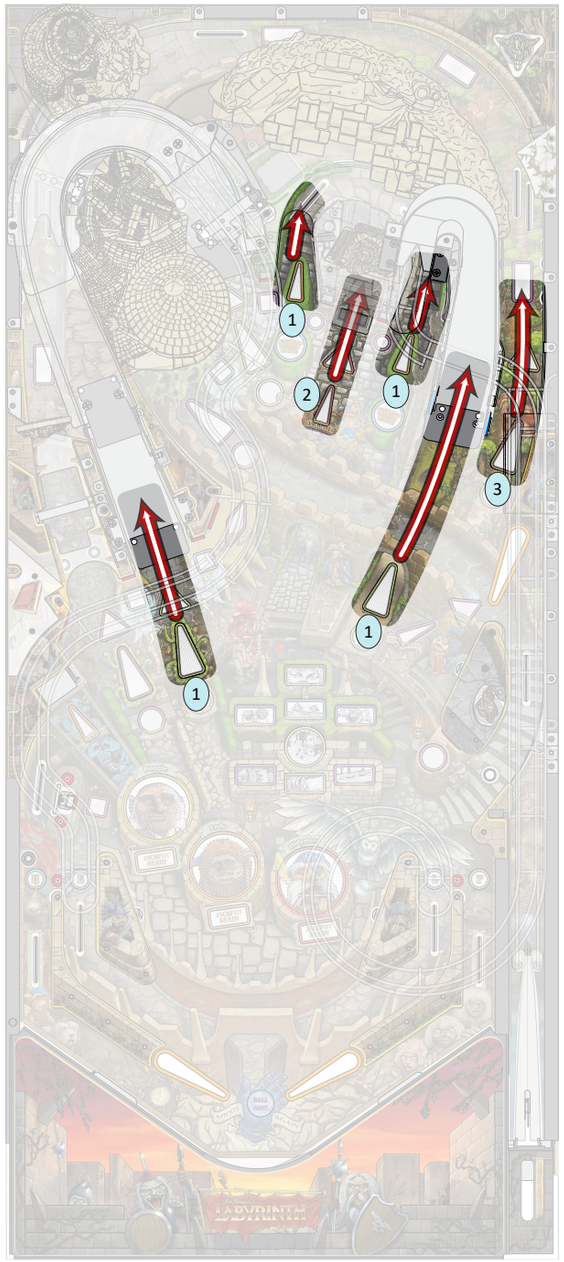
1. There are six Labyrinth modes, three on the upper level (***Knockers***, ***Four Guards*** & ***Fireys***) and three on the lower level (***Cleaners***, ***Oubliette*** & ***Bog***). At the beginning of ball 1, the current (lit) mode will be cycling through the six modes; the initial lit mode is set when a playfield switch is activated by the plunged ball.

2. As long as no mode is currently running, hitting the ***Change Mode*** target will change the lit mode - within the same level.

3. Spell LABYRINTH (on the back panel display) by shooting large white arrow shots, around the playfield. When complete, the ***Start Mode*** inserts, at either side of the Horseshoe, will flash. Shoot the Horseshoe or the ***Wiseman*** scoop (if the drop target is down) to start the currently lit mode.

4. Spelling H-E-L-P on the in/outlanes lights the ***Helping Hands*** scoop; shoot the scoop to finish LABYRINTH (if not already complete) and get an opportunity to move up or down a mode level, until either mode level is complete.

5. There are several adjustments associated with how many LABYRINTH letters are spotted and how many white arrow shots are lit on the playfield as you complete modes (Feature Settings 80-86, pg 3-11).

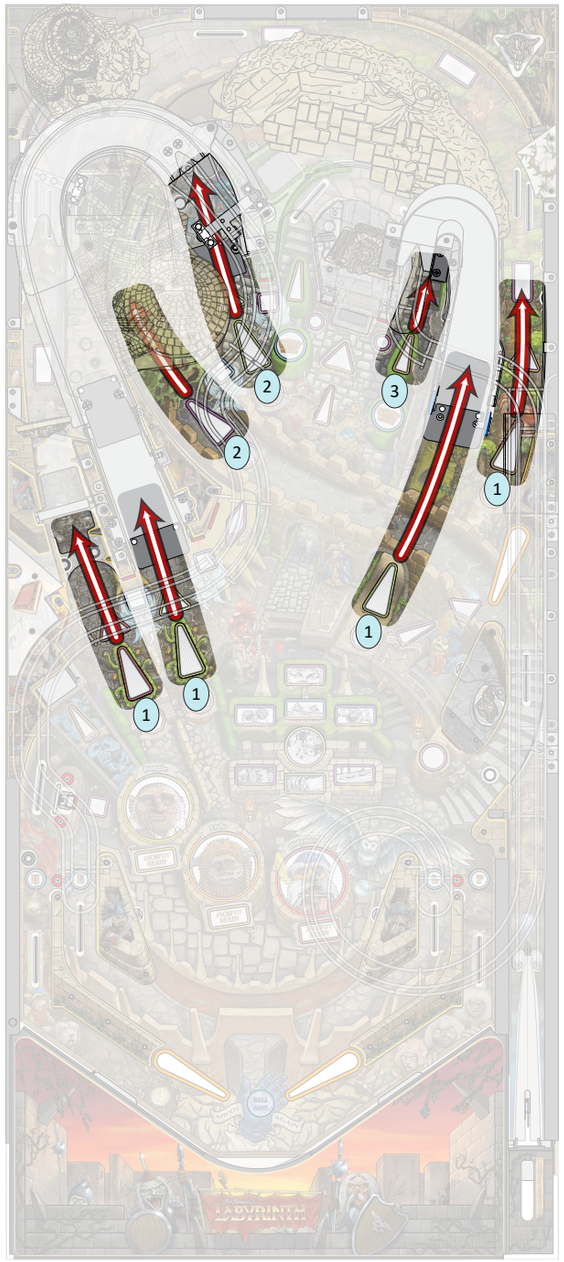


The Knockers Mode

1. ***Knockers*** is a single ball mode. Shoot the left or right ramp yellow arrow - or the flashing arrow on one side or the other of the Horseshoe - to pass the ***Knocker*** ring from one ***Knocker*** to the other.

2. When you hear "Knock, and the door will open", hit the ***Wiseman*** drop target to hold the ***Knocker***'s nose (so he'll reopen his mouth), then shoot the ball into the ***Wiseman*** scoop to place the ring back into his mouth. You have to be quick, or the target will reset and you'll have to start the process over again. This target reset time is adjustable (Feature Setting 41, pg 3-10).

3. After placing the ring back in the ***Knocker***'s mouth, finish shooting the required number of yellow shots - and knock on the door. The right orbit yellow arrow will light. Shoot the right orbit to open the door - and complete the mode; your ball will be diverted into the back ***Village*** entrance as your ***Knockers*** total is displayed.

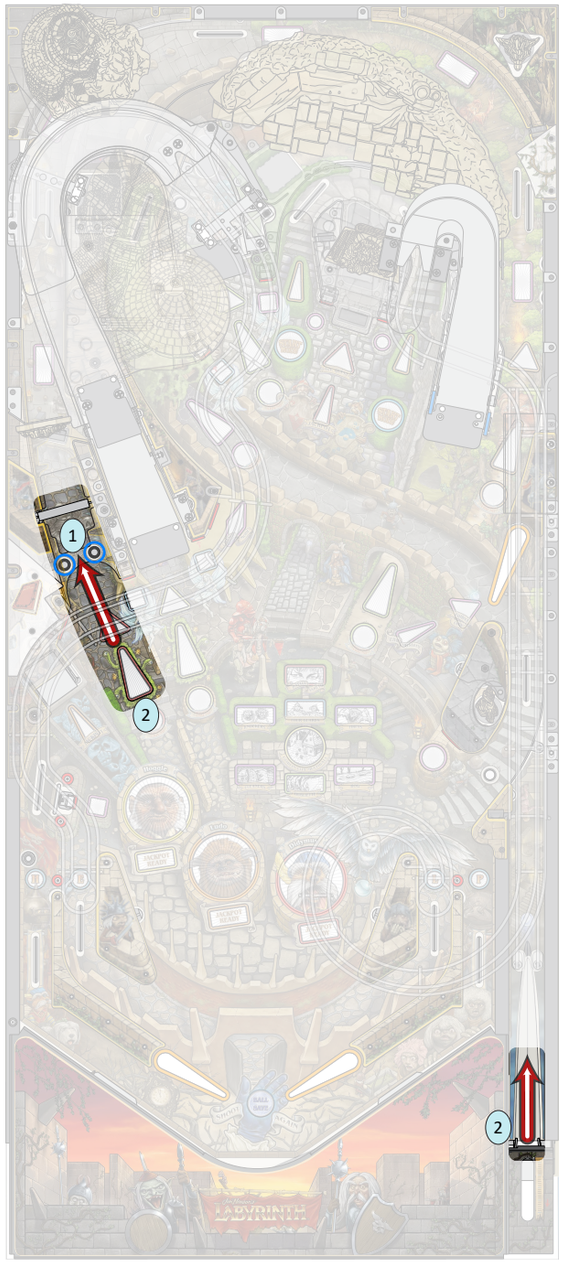


The Four Guards Mode

1. At the start of the ***Four Guards*** mode, four primary shot arrows will be lit: the left/right ramp and the left/right orbit. Two will be red, two will be blue. Hitting any shot will toggle the arrow for that shot red/blue. Choose the correct color (and thereby, the correct "door") by making all four shots the same color.

2. The center ramp and the inner loop (bridge) arrows are also lit, but they are yellow. Shoot either of these to ask the "one question" allowed. The ***Guards*** will confess to the "correct" color - but you can't trust their answer. The game display will show the *REAL* correct answer (and it will be the *opposite* of what the ***Guards*** confessed).

3. Make all of the four primary shot arrows match the correct color (choose the correct "door"), then shoot the right side of the Horseshoe to provide your answer, open the door and end the mode.

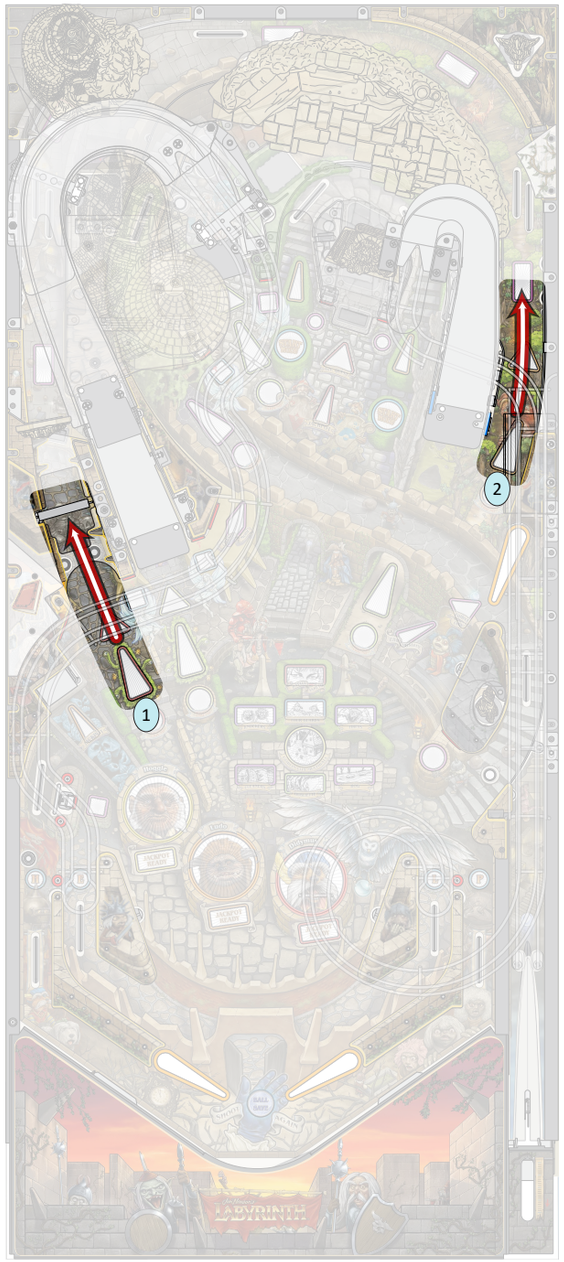


The Fireys Mode

1. The ***Fireys*** mode is a two-ball multiball. A second ball will be auto-plunged onto the playfield, all the way around to the left orbit, where it will be caught by the forks (blue circles) and held. Your first ball will be ejected back into play. If the launched ball does not make it to the forks, you proceed with two-ball multiball, with the forks lit to catch a ball at the first opportunity.

2. Various red arrow shots will be lit around the playfield. Hit the captive ball to "pop the head off" a ***Firey***. The forks will release the trapped ball AND another ball will be auto-launched into play (add-a-ball). Hit a red arrow shot to re-light the forks, trap another ball and shoot it to pop the head off another ***Firey*** - and get another add-a-ball (there is a limit of five add-a-balls)! Pop the heads off five ***Fireys*** to light a roving **Super Jackpot** shot; hit the shot for **BIG** points!

3. Ball save times for the ***Fireys*** mode multiball are adjustable (Feature Settings 27 & 28, pg 3-9).



The Cleaners Mode

1. ***Cleaners*** is a timed, single ball mode. The clock is shown on the backbox display. Shoot the spinner in the left orbit to build the hurry-up value. You can continue to increase the value with several closely spaced spinner shots.

2. Shoot the right orbit to collect the current hurry-up value - but don't wait too long or it'll reset! This reset time is adjustable (Feature Setting 43, pg 3-10).

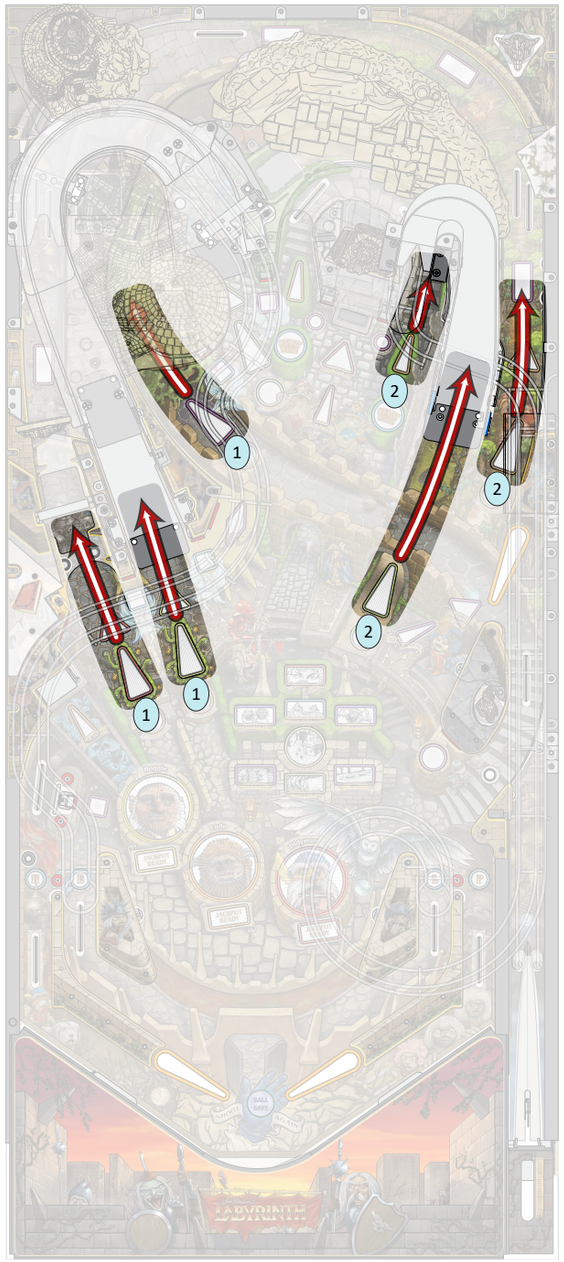
3. The mode ends when the clock reaches the 13th hour (90 seconds, default, but this is adjustable: Feature Setting 42, pg 3-10) OR when you've escaped (collected three hurry-ups).

The Oubliette Mode

1. ***Oubliette*** is a single ball mode. At the beginning of the mode, five arrow shots (doors) will be lit in violet (the left/right Horseshoe shots count as one). Shoot any of the lit shots to open a door - inevitably revealing a *dead end*. *But all is not as it seems in the Labyrinth*. The arrow for the shot you just made will now be flashing.

2. If you shoot a **different** lit arrow, that shot will now become the flashing arrow. Shoot the **same** (flashing) shot a second time - now there's a *secret passage* to proceed through; you escaped! The flashing arrow is no longer lit; one door down! Repeat this process for the other four lit shots (doors) to make it through the ***Oubliette***.

3. The mode ends when you've revealed all five passages OR when your ball drains.



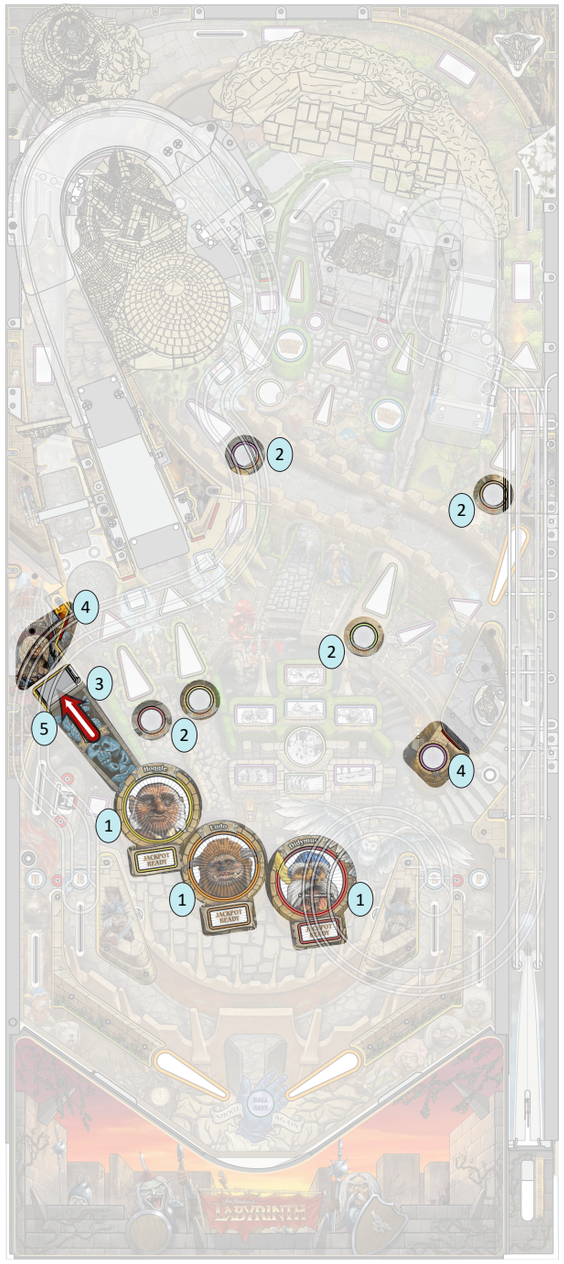
The Bog Mode

1. ***Bog*** is a single ball mode. At the beginning of the mode, the left ramp arrow will be lit in orange. The arrows for the two adjacent shots (the left orbit and the inner loop (bridge) will be lit in green. The goal is to get to the other side of the ***Bog*** safely: make the orange shot (jump to the next safe rock) and avoid the green shots (touch the ***Bog*** - yuck!).

2. Shoot the orange shot and the safe shot will move to the right ramp (the green shots move to the right Horseshoe and right orbit). If you hit one of the green shots, the three arrows will also progress to the right ramp area - but your mode score will suffer AND you will carry the *stench* of the ***Bog*** (smell **BAD**!) with you for the rest of the game. If your final score makes the leader board, it will even carry the *stench* with it!. The sound effects for "*carrying the stench*" for the rest of the game are adjustable (Feature Setting 40, pg 3-10).

3. Continue moving across the ***Bog*** (the sequence for the safe shot is left ramp, right ramp, left orbit, right Horseshoe then right orbit to complete), avoiding the green shots. Score **BIG** points for safely traversing the ***Bog*** - that is, staying "*stench-less*".

4. The mode ends when you reach the ***Bog***'s opposite shore OR when your ball drains.



Friends Basics

1. ***Friends*** (***Hoggle***, ***Ludo*** & ***Sir Didymus***) help the player, in various ways, to progress through the game *and* score more points along the way. Each ***Friend*** has a face and ***Jackpot Ready*** insert on the playfield and a corresponding icon on the backbox display. ***Hoggle***'s color is yellow (he collects Fairies), ***Ludo***'s is orange (he collects rocks) and ***Sir Didymus***' is blue (he collects medals). ***Friends*** have four levels, with increasing values, abilities and awards at each new level.

2. There are five circle ***Advance Friend*** inserts on the playfield. Each ***Friend*** will *always* have one of these inserts lit, in their color, during the game. ***Friends*** must first be "found", indicated by flashing ***Advance Friend*** inserts. Shoot one of these (yellow for ***Hoggle***, orange for ***Ludo***, blue for ***Sir Didymus***) to find a ***Friend***. His face lights up on the playfield and his display icon changes from black and white to color, as a different ***Advance Friend*** shot on the playfield lights, solid, in the same color. Hit this shot to collect an item for that ***Friend***. The lit ***Advance Friend*** insert will change to another shot on the playfield, so you can continue collecting items for your ***Friend***. Items are saved and accumulated throughout the game.

3. Collect 10 items, across all ***Friends***, to light **Extra Ball** at the ***Helping Hands*** scoop.

4. Hitting the ***Junk Lady*** target spots a random ***Friend*** "find" or "collect item" light on the right pillar (***Ello***) target.

5. Once you've collected enough items for a ***Friend***, his ***Jackpot Ready*** insert will flash, along with the ***Helping Hands*** scoop ***Jackpot*** arrow. Shoot the scoop to collect your ***Friend***'s jackpot - and level him up. Collect a jackpot for all three ***Friends*** (one at a time, or all at once) to qualify ***Friend Multiball***.

6. Once he's leveled up, his status will revert to "not found" and a new flashing ***Advance Friend*** insert will appear on the playfield, in his color. Finding this ***Friend*** will be more difficult each time he is leveled up. You will need to shoot a 2-way combo of flashing ***Advance Friend*** shots to find a level 2 ***Friend***, a 3-way combo for level 3 and a 4-way combo for level 4. The number of shots required for ***Friend*** jackpots also increases with each level.

7. There are two ***Friends*** difficulty adjustments (Feature Settings 60 & 61, pg 3-10).

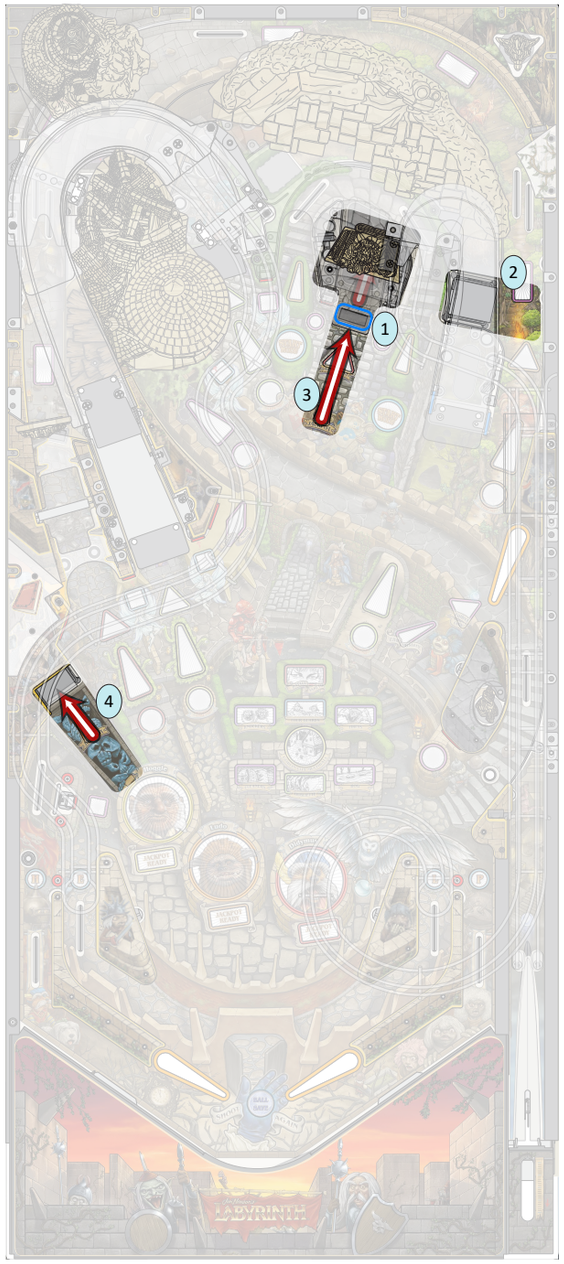
Friends Benefits

1 ***Friends*** (***Hoggle***, ***Ludo*** & ***Sir Didymus***) help the player, in various ways, to progress through the game *and* score more points along the way. Each ***Friend*** provides a new perk every time he is leveled up; a list for each ***Friend*** is provided below.

2 ***Hoggle*** is your *information* ***Friend***.
Level 1 reward: Spell LABYRINTH faster (2 letters per white arrow shot).
Level 2 reward: Light ***Brick Keeper Multiball*** locks easier ("nearest neighbor" targets count).
Level 3 reward: 2x ***Friend*** items.
Level 4 reward: Light ***Collect Orb*** insert (see **Collecting Orbs**).

3 ***Ludo***: is your *points* ***Friend***.
Level 1 reward: 50% increase in all mode scoring.
Level 2 reward: 2x ***Brick Keeper Multiball*** jackpots.
Level 3 reward: 2x ***Friend*** jackpots.
Level 4 reward: Lights ***Collect Orb*** insert (see **Collecting Orbs**).

4 ***Sir Didymus*** is your *support* ***Friend***.
Level 1 reward: Spelling HELP on the in/outlanes activates ***Sir Didymus*** defense post.
Level 2 reward: Once per multiball, shooting the ***Helping Hands*** scoop awards an add-a-ball.
Level 3 reward: Longer ball save times (adds 5 seconds).
Level 4 reward: Light ***Collect Orb*** insert (see **Collecting Orbs**).



Wiseman Quests

1. Knock the ***Wiseman*** drop target (blue square) down, then shoot the ball into the scoop, behind it, to begin a ***Wiseman Quest***. Your randomly selected "quest" is displayed on the backbox display, in the form of a required shot list (such as five ramp shots, five orbit shots or 10 targets).

2. The ball will be ejected from the scoop under the right ramp, into the right orbit.

3. Make all of the required shots, then shoot the ball back into the ***Wiseman*** scoop to complete the quest and "be rewarded".

4. *Every* quest completion increases your ***Bonus Multiplier*** by 1x. Completing *odd-numbered* quests will start ***Friendzy*** (lights all shots to collect items for your ***Friend*** with the lowest item count, adjustable time, Feature Setting 62, pg 3-10). Completing the *second* quest lights **Extra Ball** at the ***Helping Hands*** scoop. Completing the *fourth* quest starts ***Wiseman Multiball*** (shots into the ***Wiseman*** scoop score jackpots). Completing the *sixth* quest lights ***Collect Orb*** insert (see **Collecting Orbs**).

Brick Keeper Multiball

1. Hit the wall target and all four ***Fairy*** targets to light **Ball Lock**. The inserts in front of these targets will be flashing green, initially. Every one you hit will turn solid green.

2. The left orbit triangle insert (**Lock 1**) will begin flashing green; hit the shot to lock the first ball.

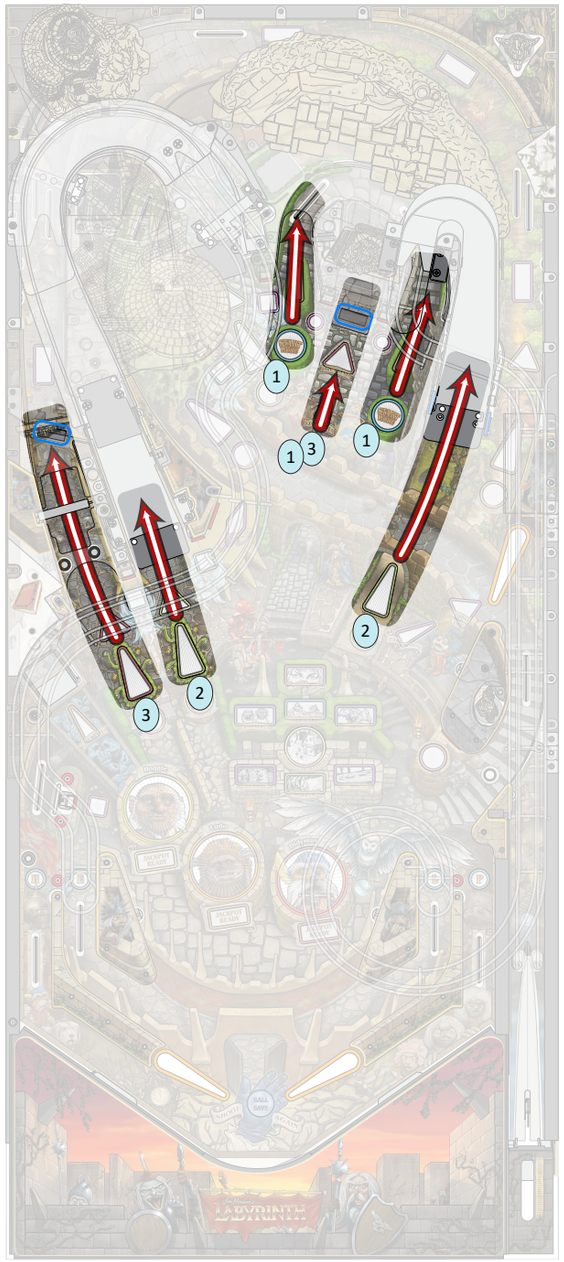
3. The center ramp triangle insert (**Lock 2**) will start flashing; hit the shot to lock ball 2.

4. The right orbit triangle insert (**Start Multiball**) will flash next; shoot the right orbit to start ***Brick Keeper Multiball***.

5. Red shot arrows will be lit around the playfield; hit them to collect jackpots and light the forks (blue circles, left orbit) shot triangle.

6. Shoot the left orbit to catch a ball in the forks. Hit the captive ball up into the spinner to collect a **Super Jackpot**! Repeat this process as many times as you can (each subsequent lighting of the forks for a **Super Jackpot** requires an additional made jackpot shot).

7. ***Brick Keeper Multiball*** ball save time is adjustable (Feature Setting 25, pg 3-9). There is also an adjustment (Feature Setting 01, pg 3-8) to light all ***Brick Keeper Multiball*** locks, automatically, on ball 3 (if the multiball has not been played yet).



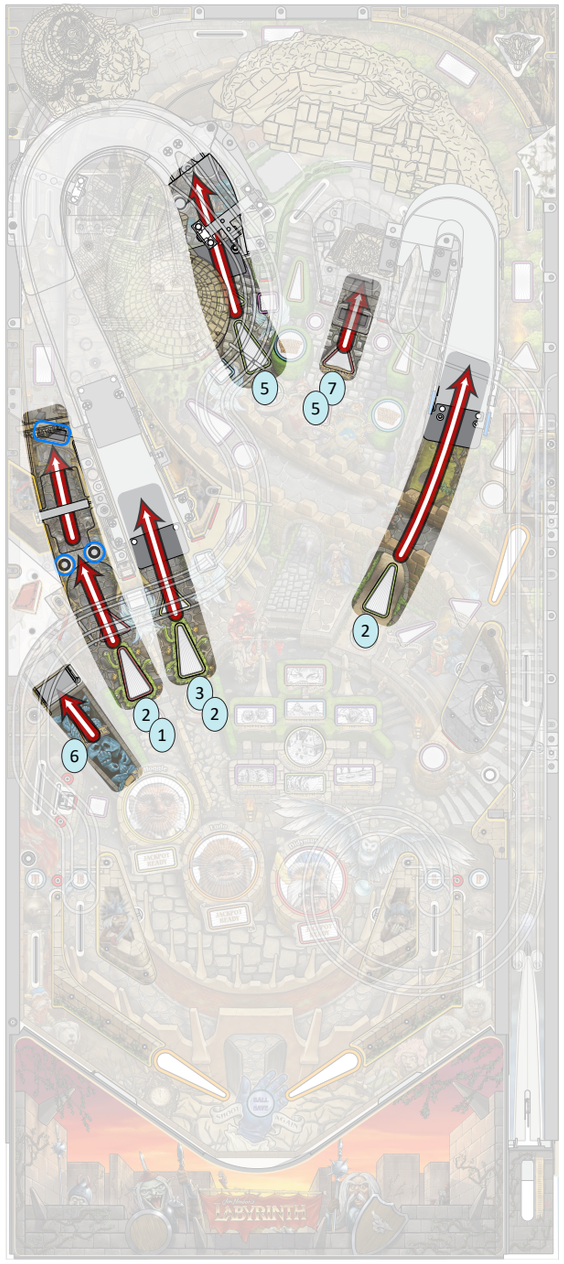
Poisoned Peach Mini-Wizard Mode

1. ***Poisoned Peach*** is a timed, single ball mini-wizard mode. The clock is shown on the backbox display. If your ball drains during the mode, it is immediately auto-launched back into play. ***Poisoned Peach*** is qualified by starting/playing *all three* Labyrinth modes on *either* level (upper *or* lower). The ***Start Mode*** inserts will flash, at either side of the Horseshoe. Shoot the Horseshoe or the ***Wiseman*** scoop to start ***Poisoned Peach***. You are now trapped in a crystal ball and must break ***Jareth***'s spell to escape!

2. Shoot combo shots between the left and right ramps to increase drop target values (combo feature is active while the opposite ramp's arrow is twinkling yellow/white). The ramp combo timeout is adjustable (Feature Setting 44, pg 3-10).

3. The ***Humongous*** (left orbit) and Wiseman drop target shot arrows will be twinkling red/yellow. Shoot either drop target (blue squares) to collect your reward. Repeat the process until you've hit *each* of the drop targets *TWICE* (and thereby, broken the spell). But remember, the clock is ticking!

4. The mode ends when the clock reaches the 13th hour OR when you've broken the spell (hit each drop target twice).



Goblin City Multiball

1. Qualify ***Goblin City Multiball*** by starting/playing all six Labyrinth modes. The multiball is played in three phases: 1. ***Defeat The Gate***, 2. ***Evade Capture*** & 3. ***Counterattack***. Begin ***Goblin City*** phase 1 by shooting the forks shot (blue circles, left orbit) to catch a ball. A new ball will be auto-launched into play.

2. Phase 1, ***Defeat The Gate***, is a single ball mode. Our heroes must alternate between dodging goblin attacks and dealing damage to ***Humongous*** (the giant, robotic, rock gollem, guarding the gate to ***Goblin City***). First, shoot the ramps to dodge, then quickly bash the captive ball up into the ***Humongous*** drop target to damage the behemoth. Repeat this process twice more - ***Humongous*** is defeated.

3. The gate into ***Goblin City*** opens (under the left ramp); make the shot to complete phase 1.

4. Phase 2, ***Evade Capture***, is a three ball multiball; the original ball is ejected and two additional balls are auto-launched into play. Our heroes must find a place to hide and regroup for the big attack. Help them find hiding places by shooting blue shots around the playfield.

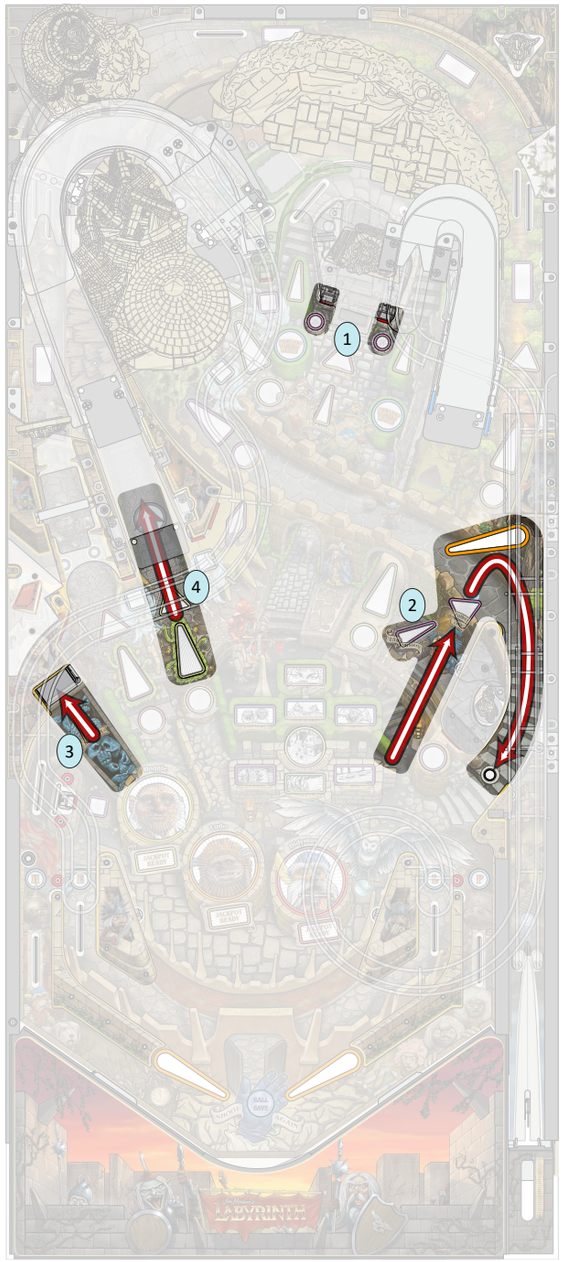
5. Hit four blue shots to light hiding places at the ***Wiseman*** scoop and the center ramp; make the shots to hide two of the balls. If you only have two balls in play and successfully hide them in these two spots, you will still complete phase 2.

6. If you kept three balls in play for the entire multiball, and have successfully hid two of them, the ***Helping Hands*** scoop will light as the third hiding place; shoot the ball into the scoop to complete phase 2, unscathed.

7. If you fail to complete either phase 1 or phase 2, you are given a second chance to try to complete the phase and advance.

8. Phase 3, ***Counterattack***, is a five ball multiball; *every ball in the game* is ejected - or auto-launched - into play! Our heroes unleash an absolute *cavalcade* of rocks against ***Goblin City***! All shots are lit for jackpots; the first made jackpot lights **Super Jackpot** at the ***Wiseman*** scoop (each subsequent lighting of the scoop for a **Super Jackpot** requires an additional made jackpot shot). Keep the chaos going as long as you can; when you are down to one ball, the phase ends. Any modes not completed are reset - so you can try again to successfully finish them all.

9. ***Goblin City Multiball*** ball save times, for all three phases, are adjustable (Feature Settings 30-32, pg 3-9).



Ello Mystery Awards

1. Light the ***Ello Mystery*** insert by hitting the left and right ***Wiseman*** targets. The targets light when they are hit. Mystery awards can be very helpful - and *timely* - in the game. The targets *and* the collect shot *must* be hit in the same ball; that is, neither the lit targets *nor* the ***Ello Mystery*** insert stay lit, from ball-to-ball. Random mystery awards can be limited by activating Tournament Mode (Standard Setting 04, pg 3-5).

2. When lit, shoot the ***Ello*** shot, under the upper right flipper, to collect your random ***Ello Mystery*** award.

3. The third time you complete this process, the award will be a lit **Extra Ball** at the ***Helping Hands*** scoop - as long as the game extra ball limit has not been reached (adjustable, Standard Setting 02, pg 3-5).

4. One of the more valuable mystery awards is qualifying/lighting ***Tea Time Multiball***. Shoot under the left ramp to start the multiball (this shot *can* time out, so don't waste too much time!) The goal is to collect ***Tea Time*** jackpots at the left ramp. Build up jackpots, before collecting, by shooting either orbit shot (multiplies the jackpot value) and/or either Horseshoe shot (increases the jackpot value). ***Tea Time Multiball*** ball save time is adjustable (Feature Setting 29, pg 3-9).

Collecting Orbs

1 Completion of modes, multiballs, quests and ***Friends*** will light ***Collect Orb*** under the upper right flipper. Make the shot for 10M points; several shot arrows on the playfield will light, in rainbow colors. Hit one of these rainbow shots to add a multiplier to your ***Orb*** points. The 13 achievements that light the ***Collect Orb*** shot are listed below.

2 1. The ***Knockers***: Complete the mode (open the door).
2. The ***Four Guards***: Open the door on the first attempt.
3. The ***Fireys***: Collect one **Super Jackpot**.
4. The ***Cleaners***: "Escape" (collect three hurry-ups) with at least 5M points.
5. The ***Oubliette***: Reveal all five passages (escape).
6. The ***Bog***: Get across without touching the ***Bog*** (*stench-less*).
7. ***Hoggle***: Collect level 4 jackpot.
8. ***Ludo***: Collect level 4 jackpot.
9. ***Sir Didymus***: Collect level 4 jackpot.
10. ***Brick Keeper Multiball***: Collect five **Super Jackpot**s (across multiple attempts, if necessary)
11. ***Wiseman*** Quests: Complete six quests.
12 ***Friend*** Multiball: Collect one jackpot.
13. ***Goblin City Multiball***: Collect one **Super Jackpot** in ***Attack*** phase.

3 Light *AND* collect all 13 ***Orbs*** to qualify the ***Battle Jareth*** super wizard mode: pursue Jareth in his castle and say the words to defeat him!


Jim Henson's
LABYRINTH
RULES MAP
Skill Shots
Short plunge to Ello
Medium plunge to scoop
Upper flipper to: target/bridge/ramp
Medium-Hard plunge to the reverse bridge
Medium-Hard plunge into the village
Orbs
Qualified by features marked with an ORB
Collect ORB at Ello for 10 million and a shot multiplier
Friends
Shoot the Colored Circles to Find & Level-Up Friends
Friends award Jackpots, Orbs, and more
Hoggle
Finds Shortcuts!
Perks
Two (2) LABYRINTH Letters per shot
Lock targets count neighbors
2X Friend items
Light ORB!
Ludo
Increases Scores!
Perks
+50% mode scoring
2X Brick Keeper Jackpots
2X Friend Jackpots
Light ORB!
Sir Didymus
Defends You!
Perks
HELP lights Didymus post save
Helping Hands Add-A-Ball during all multiballs
Increased ball save time
Light ORB!
Light Jackpot for All 3 Friends to Qualify
Friend Multiball
Shoot each friend once, then collect Jackpot at scoop. Friend Multiball can be played once per pass through the Labyrinth
Collect 1 Jackpot for an ORB!
Junk Lady
Lights a random friend on the right pillar target
Labyrinth Modes
Shoot White Shots to Spell LABYRINTH, then Shoot the Horseshoe or Wiseman Scoop to Start
UPPER LEVEL
The Knockers
Move the Knocker ring from one Knocker to the other, then knock to open the door
Yellow shots advance mode
Flashing shots are 2x value
Complete Mode for an ORB!
The Four Guards
Choose between red or blue by making all the shots the same color, then shooting the right U-turn
Only one door is correct
Get a clue by shooting a yellow shot!
Choose Correct Door for an ORB!
The Fireys
Grab a Firey by shooting a red shot, lock him in the forks, then shoot the captive ball to pop his head off! The first 5 will Add-A-Ball
Roving Super Jackpot lit after 5 Add-A-Balls
Pop Off 5 Firey Heads for an ORB!
Battle Jareth
Collect all 13 Orbs to qualify
Pursue Jareth in his castle and say the words to defeat him...
Poisoned Peach
Start all 3 modes on a level to qualify
You've been poisoned by Jareth! Shoot both drop targets twice to break out. Combo the ramps to increase value
LOWER LEVEL
The Cleaners
OH NO, The Cleaners! Spinner builds value, the right orbit collects
Hit right orbit 3 times to finish
Escape with 5M Points for an ORB!
The Oubliette
Each shot opens a door. Hitting the same shot again reveals a secret passage
Reveal all passages to escape
Complete 5 Doors for an ORB!
The Bog of Eternal Stench
Smell BAD! Cross the bog by shooting safe orange shots
Avoid the green shots!
Complete 5 Orange Shots for an ORB!
Brick Keeper Multiball
Complete green standups to light locks, then lock 3 Balls
Jackpots light the forks
Lock a ball in the forks
Shoot captive ball for Super Jackpot
Collect 5 Super Jackpots for an ORB!
Goblin City Multiball
Start all 6 Labyrinth modes to qualify
Defeat the Gate: Single Ball Phase
Dodge at ramps, then attack at the left drop target
Evade Capture: 3-Ball Multiball
Evade capture by shooting blue shots. Then hide by locking all balls in play
Counterattack: 5-Ball Multiball
Attack with Ludo's rocks for Jackpots. Collect Super Jackpot at Wiseman
Collect 1 Super Jackpot for an ORB!
Wiseman Quests
Shoot the Wiseman Scoop to Start
Complete quest and shoot the Wiseman for a Bonus Multiplier, Extra Ball, and...
Wiseman Multiball
5-Ball Multiball, Shoot the Wiseman scoop for Jackpot
Friendzy
All shots award items for a friend in need
Complete 6 Quests for an ORB!
Helping Hands
Spell HELP on Inlanes to Light
Completes LABYRINTH and enables you to move UP or DOWN a mode level until one mode level is completed
Ello Mystery
Complete Both Standups Flanking the Wiseman to Qualify
Shoot Ello to collect an award
Tea Time Multiball
Have some tea with the missus!
Collect under left ramp to start multiball
Collect Tea Time Jackpot at left ramp
U-Turn increases value. Orbits multiply value
Awards a Friend Item
Bonus Multiplier
Completes a Quest
Lights Extra Ball
barrels fun

"I ask for so little... Just fear me, love me, do as I say and I will be your slave."

Section 3

The Game Menu System

"It's only forever, not long at all."

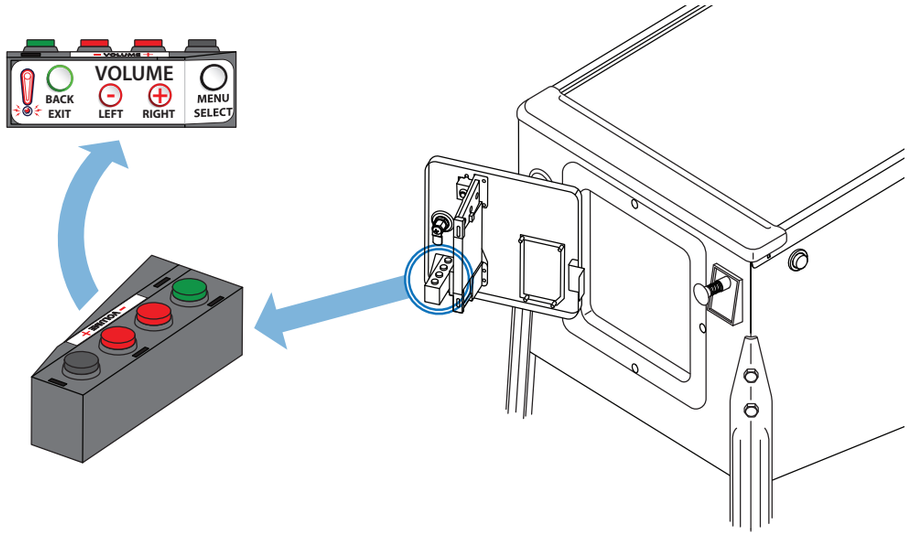


Figure 3-1. Menu system navigation buttons.

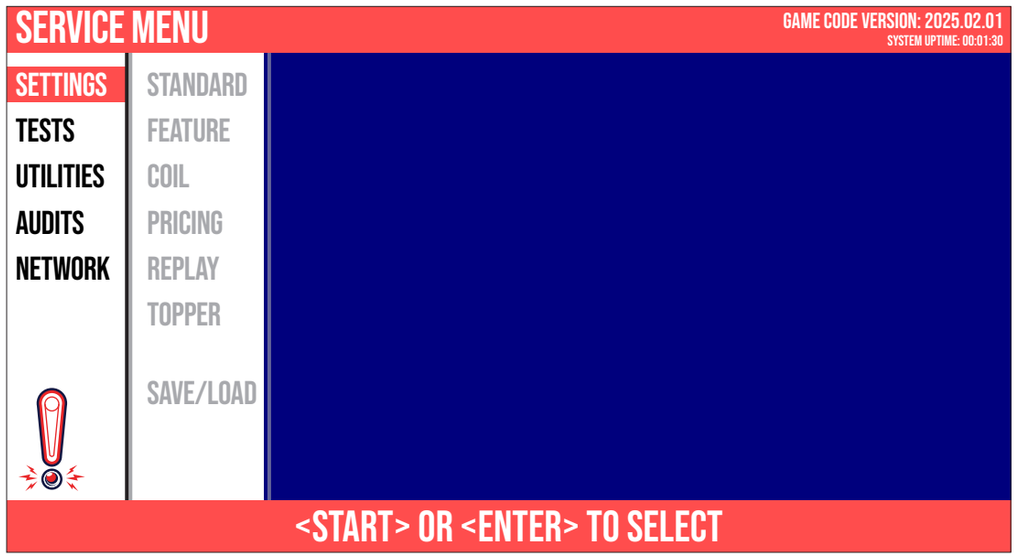


Figure 3-2. The Service Menu screen.

3.1 Menu System Basics

The Labyrinth menu system allows the user or operator of the game to test components and assemblies, personalize rules and track/monitor/manage its play and/or earnings. Four pushbuttons are used to navigate the menu system, adjust settings, enter data, check audits, test components, etc. The buttons are located on the inside of the coin door, mounted to a bracket in the lower left, next to the coin mechanism (circled in figure 3-1).

The buttons are labeled: when the coin door is first opened, the black (**MENU**) button enters the game menu system, the first red (**VOLUME +**) button increases the game volume, the next red (**VOLUME -**) button decreases the game volume and the green (**BACK**) button adds service credits to the game (when it is not on free play). Once you enter the game menu system, the black (**SELECT**) button enters a sub-menu, selects a menu item to change or executes a command. The red (**+ RIGHT** or **- LEFT**) buttons maneuver through menu choices or increase/decrease data values for a selected menu item. The green (**EXIT**) button exits a sub-menu or escapes from a selected menu item - *without saving changes*. Each time you press a button, you will hear an audio response through the game's speakers.

To enter the menu system at any time (after system boot-up), open the coin door and momentarily press the black (**MENU**) button. The ***Service Menu*** screen will instantly appear on the game's backbox display (figure 3-2). The current software version (yyyy.mm.dd) will show in the upper righthand corner; system uptime (total amount of time the game has been powered on) appears under the software version. All of the game LEDs will light up in white to improve visibility above and below the playfield. Use the red (**+** or **-**) buttons to navigate the ***Service Menu*** and select a sub-menu to enter (press the black button again).

Alternatively, the cabinet flipper and start buttons can be used to navigate the menu system. The right & left flipper buttons emulate the red buttons (**+** and **-**, respectively); the start button emulates the black button (**SELECT**). Double-flip (press both flipper buttons, simultaneously) to perform the **EXIT** function.

You can perform quick switch-triggered coil functionality/sensitivity tests while the game is in this ***Service Menu*** state. The flippers (if activated by the flipper buttons), ball poppers, slings, up/down posts, saucer kickers and the shooter lane auto-launch will all kick - exactly the same way they would kick during game play.

Note: When the coin door is opened, the game's safety interlock switch (item 8, pg 4-2 of this manual) disables the 48-Volt power running to the playfield (reminders appear on the game's displays). In order to activate 48-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). As you close the coin door, the interlock switch actuator is pushed back into its normal (unlocked, spring-loaded) position. **CAUTION:** All of the high power coils listed above will be enabled, so coils 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!**

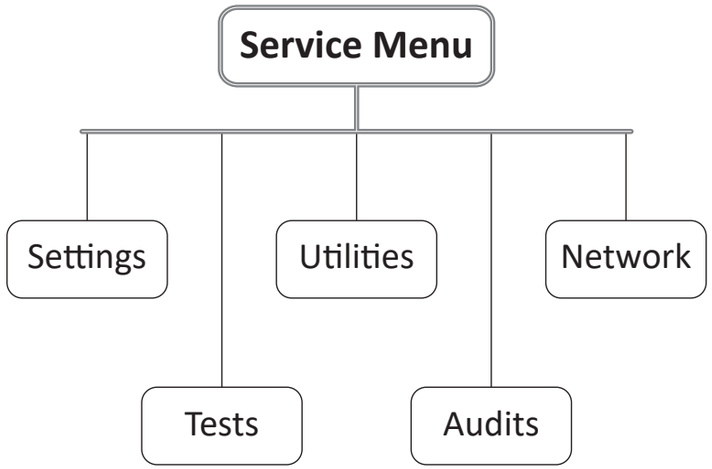


Figure 3-3. Service Menu structure.

3.2 The Service Menu

Figure 3-3 shows how the Labyrinth ***Service Menu*** is organized. There are five sub-menus within the ***Service Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons. A preview of each sub-menu is shown on the right side of the screen; press the black (**SELECT**) button to enter the currently selected sub-menu. To exit the ***Service Menu*** at any time, press the green (**EXIT**) button; the game will immediately return to attract mode.

Settings Menu - adjust system, game-specific, coil, pricing, sound, replay and topper settings, to personalize the game (home use) or optimally configure it for a location/route (commercial use).

Tests Menu - test all critical components and devices in the game for proper operation.

Utilities Menu - perform system functions such resetting settings, audits and high scores or clearing balls from the game. Game burn-in and system information are also available in this menu.

Audits Menu - view, monitor and/or track earnings and game play achievements over a specific time period (since audits were last cleared).

Network Menu - connect your game to a wireless network for easier game code updates.

SETTINGS MENU

3.3 The Settings Menu

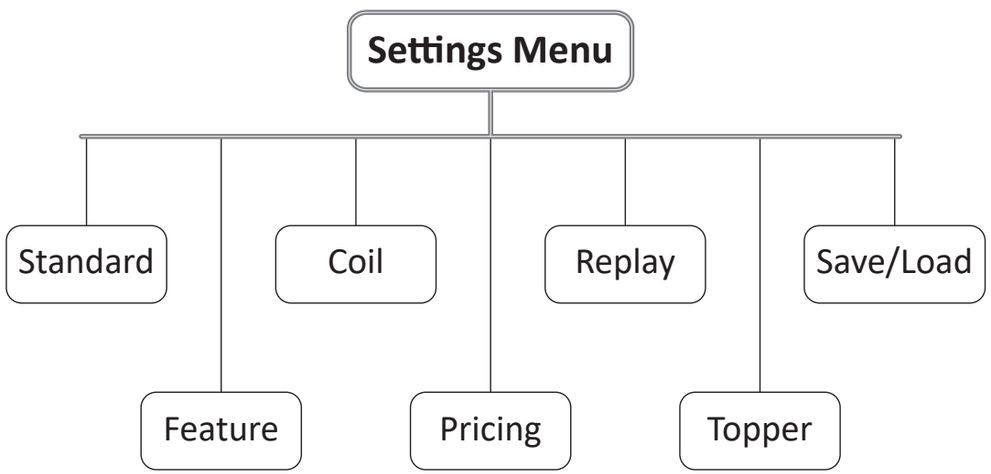


Figure 3-4. The Settings Menu tree.

Figure 3-4 shows the ***Settings Menu*** outline. There are seven items/sub-menus within the ***Settings Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons. A preview of each sub-menu is shown on the right side of the screen; press the black (**SELECT**) button to enter the currently selected sub-menu. To exit the ***Settings Menu*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Service Menu***.

Standard Settings - adjust settings for high-level game controls such as balls per game, ball save timers, tilt warnings, audio levels and GI lighting appearance.

Feature Settings - adjust game-specific features such as ball saves, speech control, mode timers and ball lock difficulties.

Coil Settings - individually adjust strength parameters for the kicking coils used in the game.

Pricing Settings - adjust settings for pricing controls such as free play, match, coin/credit assignments and bonus levels.

Replay Settings - adjust settings such as replay score, award and the range of allowable automatic replay score adjustments.

Topper Settings - adjust topper settings such as attract mode behavior and frequencies of game play interactions (game must have topper installed).

Save/Load Settings - save all of the current settings in a file so you can quickly recall/reload them again at some point in the future.

STANDARD SETTINGS

You can scroll through ***Standard Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Standard Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Balls Per Game***: select the number of balls played in a game.

Default: **3**

Minimum: 1 *Maximum: 10* *Increment: 1*

02. ***Max Extra Balls Per Game***: set the maximum number of extra balls a player can earn in a single game.

Default: **2**

Minimum: 0 *Maximum: 10* *Increment: 1*

03. ***Restart Enabled***: choose how the game reacts to pressing the start button anytime after ball one is complete.

Default: **ON**

Options: *ON*: pressing start button for three seconds ends current game
OFF: start button ignored until current game is over

04. ***Tournament Mode Active***: turn Tournament Mode on or off.

Default: **OFF**

Options: *ON*: the game limits random elements, such as Ello Mystery awards
OFF: random game elements are not limited

05. ***Maximum Initials Length***: specify the maximum number of initials a player can enter after achieving a high score.

Default: **10**

Minimum: 3 *Maximum: 10* *Increment: 1*

20. ***Auto-Launch Ball Timer***: specify how long (in seconds) the game should wait for the player to plunge the ball, at the beginning of a ball or after a ball lock. At the end of this time, the game auto-launches the ball in the shooter lane into play.

Default: **0** *(OFF)*

Minimum: 0 *Maximum: 60* *Increment: 1*

21. ***Default Ball Save Timer***: set the amount of ball save time (in seconds) at start of ball.

Default: **10**

Minimum: 0 *Maximum: 90* *Increment: 1*

22. ***Default Ball Search Timer***: specify how long (in seconds) the game should wait, with no playfield switch activity, before triggering a ball search (a sequential kicking of coils).

Default: **15**

Minimum: 10 *Maximum: 30* *Increment: 1*

23. ***Lost Ball Compensation***: specify whether the game should launch a new ball into play after three failed ball searches or game start attempts.

Default: **ON**

Options: *ON*: launch compensation ball to replace lost/trapped ball
OFF: continue to perform ball searches for lost/trapped ball

24. ***Coin Door Open Ball Save***: specify whether balls that drain if/when the coin door is opened during play are returned to the playfield or not.

Default: **ON**

Options: *ON*: any balls that drain while the coin door is open are returned
OFF: balls that drain while the coin door is open are lost

25. ***Trough Settle Time***: specify how long (in seconds) the game should wait for drained balls to settle in the trough before performing a status ball count.

Default: **1.00**

Minimum: 1.00 *Maximum: 2.00* *Increment: 0.05*

40. ***Tilt Warnings***: set the number of tilt warnings allowed per ball.

Default: **2**

Minimum: 0 *Maximum: 5* *Increment: 1*

41. ***Tilt Settle Time, ms***: specify how long (in milliseconds) the game should wait after a tilt is triggered before another tilt can be detected.

Default: **1,500**

Options: Minimum: 1,000 *Maximum: 20,000* *Increment: 500*

42. ***Allow Tilt In Shooter Lane***: specify whether a tilt can occur when the ball is in the shooter lane or not.

Default: **OFF**

Options: *ON*: tilt is allowed when ball is in shooter lane
OFF: tilt switch is ignored when ball is in shooter lane

50. ***Volume: Main System Volume***: set the desired sound volume, overall, through the game's speaker system. This level affects all component volume levels, equally.

Default: **9**

Minimum: 0 *Maximum: 16* *Increment: 1*

51. ***Volume: Headphone Main Volume***: set the desired sound volume, overall, through the system headphone jack. This level affects all component volume levels, equally.

Default: **8**

Minimum: 0 *Maximum: 16* *Increment: 1*

52. ***Volume: Subwoofer***: set the desired (subwoofer) bass volume level.

Default: **10**

Minimum: 0 *Maximum: 16* *Increment: 1*

53. ***Volume: Effects***: set the desired volume level for sound effects.

Default: **0.50**

Minimum: 0.00 *Maximum: 2.00* *Increment: 0.05*

54. ***Volume: Music***: set the desired volume level for music.

Default: **0.75**

Minimum: 0.00 *Maximum: 2.00* *Increment: 0.05*

55. ***Volume: Voice Callouts***: set the desired volume level for voice callouts.

Default: **0.95**

Minimum: 0.0 *Maximum: 2.0* *Increment: 0.05*

56. ***Volume: Topper Voice***: set the desired volume level for topper voices (topper required).

Default: **1.3**

Minimum: 0.0 *Maximum: 2.0* *Increment: 0.05*

57. ***Voice Callout Ducking Percentage***: specify the percent reduction in voice volume to use during topper scenes (topper required).

Default: **50**

Minimum: 0 *Maximum: 100* *Increment: 5*

58. ***Music Ducking Percentage***: specify the percent reduction in music volume to use when voice callouts are triggered.

Default: **35**

Minimum: 0 *Maximum: 100* *Increment: 5*

59. ***Game End Outro Music***: specify whether music is played when a game ends or not.

Default: **ON**

Options: *ON*: outro music played at the end of a game
OFF: no music played at the end of a game

70. ***Speaker LEDs enabled***: turn speaker LEDs (***155***-***210***) on or off.

Default: **ON**

Options: *ON*: speaker accent LEDs are used
OFF: speaker LEDs are kept off

71. ***GI LED Color Order***: select the color order for the general illumination (GI) RGB LEDs used in your game (use the ***All LED Test*** to verify proper operation).

Default: **1**

Options: *1*: order for GI LEDs is G-R-B
2: order for GI LEDs is R-G-B

72. ***GI Color Style***: select the desired color appearance for the general illumination (GI) lighting on your Labyrinth playfield.

Default: **COOL**

Options: *COOL*: cool white GI lighting
WARM: warm white GI lighting

FEATURE SETTINGS

You can scroll through ***Feature Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Feature Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Consolation Multiball Start***: specify whether or not to automatically light all ***Brick Keeper Multiball*** locks at the beginning of ball 3 - *if the multiball has not been played yet*.

Default: **ON**

Options: *ON*: if not already played, light multiball start for ball three
OFF: do not light multiball start for ball three

02. ***Gameplay Modes Menu Enabled***: specify whether to allow access to the game modes menu in attract mode or not. If enabled, holding the right flipper button in for four seconds brings up a menu, allowing the player to choose from the following game modes: Standard Game, Battle Jareth (challenge), Goblin City (challenge), Cooperative or Barrel Ball (party game). *Related to settings 03-06 (below).*

Default: **ON**

Options: *ON*: game modes menu accessible in attract mode
OFF: game modes menu inaccessible

03. ***Gameplay Modes Freeplay Only***: specify whether to allow access to the game modes menu in attract mode, *when the game requires credits for play*, or not. *Related to settings 02 (above), 04-06 (below), Pricing Setting 01 (pg 3-15).*

Default: **ON**

Options: *ON*: game modes menu inaccessible when game is in pay-for-play state
OFF: game modes menu accessible when game is in pay-for-play state

04. ***Challenge Modes Available In Mode Menu***: specify whether the challenge modes (Battle Jareth & Goblin City) are available in the game modes menu or not. *Related to settings 02 & 03 (above).*

Default: **ON**

Options: *ON*: challenge modes are in game modes menu
OFF: no challenge modes in game modes menu

05. ***Cooperative Mode Is Available In Mode Menu***: specify whether the cooperative mode is available in the game modes menu or not. *Related to settings 02 & 03 (above).*

Default: **ON**

Options: *ON*: cooperative mode is in game modes menu
OFF: no cooperative mode in game modes menu

06. ***Barrel Ball Game Is Available In Mode Menu***: specify whether the Barrel Ball game is available in the game modes menu or not. *Related to settings 02 & 03 (above).*

Default: **ON**

Options: *ON*: Barrel Ball is in game modes menu
OFF: no Barrel Ball in game modes menu

07. ***Red Shots Eliminate Player In Barrel Ball***: specify whether making a red shot in a Barrel Ball game eliminates the current player or not. *Related to settings 02, 03 & 06 (above).*

Default: **ON**

Options: *ON*: making red shot eliminates Barrel Ball player
OFF: making red shot does not eliminate Barrel Ball player

08. ***Barrel Ball Voice Callouts***: specify whether to play voice callouts during Barrel Ball or not. *Related to settings 02, 03 & 06 (above).*

Default: **ON**

Options: *ON*: Tim Kitzrow provides color commentary during Barrel Ball
OFF: no color commentary during Barrel Ball

20. ***General Mode Start Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of a mode.

Default: **10.0**

Minimum: 0.0 *Maximum: 20.0* *Increment: 0.5*

21. ***Helping Hands Eject Save***: set the amount of ball save time (in seconds) to provide when the ball is kicked out of the ***Helping Hands*** scoop.

Default: **2.0**

Minimum: 0.0 *Maximum: 5.0* *Increment: 0.5*

22. ***Left Ramp Eject Save***: set the amount of ball save time (in seconds) to provide when the ball is kicked out from under the left ramp.

Default: **0.0**

Minimum: 0.0 *Maximum: 5.0* *Increment: 0.5*

23. ***U-Turn Save Directions***: select which direction(s) a ball traveling through the horseshoe diverter loop (U-turn) will trigger a U-turn ball save. *Related to setting 24 (below).*

Default: **LEFT ONLY**

Options: *LEFT ONLY*: trigger save only for ball traveling right-to-left
RIGHT ONLY: trigger save only for ball traveling left-to-right
BOTH: trigger save for ball traveling in either direction

24. ***U-Turn Ball Save Time***: set the amount of ball save time (in seconds) to provide when the ball travels through the horseshoe diverter loop (U-turn). *Related to setting 23 (above).*

Default: **0.0**

Minimum: 0.0 *Maximum: 5.0* *Increment: 0.5*

25. ***Brick Keeper MB Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of ***Brick Keeper Multiball***.

Default: **20**

Minimum: 0 *Maximum: 30* *Increment: 1*

26. ***Sir Didymus MB Add-A-Ball Save***: set the amount of ball save time (in seconds) to provide when the add-a-ball feature is triggered during ***Sir Didymus*** multiball.

Default: **5**

Minimum: 0 *Maximum: 10* *Increment: 1*

27. ***Fireys MB Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of ***Fireys*** mode multiball.

Default: **10**

Minimum: 0 *Maximum: 20* *Increment: 1*

28. ***Fireys MB Add-A-Ball Save***: set the amount of ball save time (in seconds) to provide when the add-a-ball feature is triggered during ***Fireys*** mode multiball.

Default: **5**

Minimum: 0 *Maximum: 10* *Increment: 1*

29. ***Tea Time MB Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of ***Tea Time Multiball***.

Default: **15**

Minimum: 0 *Maximum: 30* *Increment: 1*

30. ***Goblin City Phase 1 Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of the ***Goblin City: Defeat The Gate*** phase.

Default: **10**

Minimum: 0 *Maximum: 20* *Increment: 1*

31. ***Goblin City Phase 2 Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of the ***Goblin City: Evade Capture*** phase.

Default: **10**

Minimum: 0 *Maximum: 20* *Increment: 1*

32. ***Goblin City Phase 3 Ball Save***: set the amount of ball save time (in seconds) to provide at the beginning of the ***Goblin City: Counterattack*** phase.

Default: **10**

Minimum: 0 *Maximum: 20* *Increment: 1*

40. ***Eternal Stench Sound Effects***: specify whether or not targets & slings will continue to make flatulation sounds for the remainder of a game if a player touches the ***Bog***.

Default: **OFF**

Options: *ON*: targets & slings continue flatulating after player touches bog
OFF: targets & slings don't continue flatulating after player touches bog

41. ***Knockers Mode Target Reset Time***: set the amount of delay time (in seconds) before the drop target is reset for the scoop shot in ***Knockers*** mode.

Default: **8**

Minimum: 0 *Maximum: 20* *Increment: 1*

42. ***Cleaners Mode Timer***: set the duration (in seconds) of the ***Cleaners*** mode timeout - *if the hurry-up shots are not made.*

Default: **90**

Minimum: 45 *Maximum: 180* *Increment: 5*

43. ***Cleaners Hurry-Up Timer***: set the amount of time (in seconds) required for the ***Cleaners*** mode hurry-up value to reach its minimum value, once the decrease begins.

Default: **15**

Minimum: 5 *Maximum: 20* *Increment: 1*

44. ***Peach Ramp Combo Timeout***: set the amount of time (in seconds) that a combo remains valid, after a made ramp shot, in ***Poisoned Peach*** mode.

Default: **4.0**

Minimum: 3.0 *Maximum: 10.0* *Increment: 0.5*

60. ***Total Friend Items Extra Ball***: specify the number of collected items, across all three ***Friends***, required to light **Extra Ball**.

Default: **10**

Minimum: 0 *Maximum: 30* *Increment: 1*

61. ***Friends Combos Difficulty***: choose the difficulty level for finding ***Friends*** combos and the number of items required to light Jackpot at each ***Friend*** level.

Default: **DEFAULT**

Options: *VERY EASY*: very easy difficulty level
EASY: easy difficulty level
DEFAULT: medium difficulty level
HARD: hard difficulty level
VERY HARD: very hard difficulty level

62. ***Friends Combo Timeout***: set the amount of time (in seconds) that a ***Friends*** combo count remains valid after a qualifying shot has been made.

Default: **7**

Minimum: 2 *Maximum: 15* *Increment: 1*

63. ***Item Frenzy Duration***: set the duration (in seconds) of the ***Friendzy*** item collection mode (***Wiseman Quest*** award).

Default: **30**

Minimum: 15 *Maximum: 60* *Increment: 1*

64. ***Didymus Defense Hold Time***: set the amount of time (in seconds) the ***Didymus*** defense post remains up when triggered.

Default: **0.5**

Minimum: 0.5 *Maximum: 3.0* *Increment: 0.1*

65. ***Didymus Defense Fail Compensation***: specify whether to attempt to return the ball to a player or not if a ball drains after a ***Didymus*** defense activation (game situation-dependent).

Default: **ON**

Options: *ON*: attempt to return drained ball after failed Didymus defense
OFF: no attempted Didymus defense failure compensation

66. ***Free Didymus Defense On Ball Start***: specify whether to attempt to return the ball to a player or not if a ball drains after a ***Didymus*** defense activation (game situation-dependent).

Default: **EVERY BALL**

Options: *EVERY BALL*: Didymus defense auto lit at beginning of every ball
BALL 1: Didymus defense auto lit at beginning of ball one
OFF: Didymus defense only lit when earned by player

80. ***Spell LABYRINTH: Maximum Spotted Letters***: specify the number of ***LABYRINTH*** letters (shown on back panel display) spotted at the beginning of a game.

Default: **8**

Minimum: 0 *Maximum: 9* *Increment: 1*

81. ***Spell LABYRINTH: Spotted Letters Reduce Rate***: specify how many fewer ***LABYRINTH*** letters will be awarded with each successive game mode completion.

Default: **1**

Minimum: 0 *Maximum: 9* *Increment: 1*

82. ***Spell LABYRINTH: Minimum Spotted Letters***: specify the minimum number of ***LABYRINTH*** letters awarded upon completion of a game mode.

Default: **3**

Minimum: 0 *Maximum: 9* *Increment: 1*

83. ***Spell LABYRINTH: Maximum Lit Mode Qualification Shots***: specify the number of ***LABYRINTH*** qualification shots lit at the beginning of a game.

Default: **6**

Minimum: 1 *Maximum: 6* *Increment: 1*

84. ***Spell LABYRINTH: Lit Mode Qualification Shots Reduce Rate***: specify how many fewer ***LABYRINTH*** qualification shots will be lit with each successive game mode completion.

Default: **1**

Minimum: 0 *Maximum: 6* *Increment: 1*

85. ***Spell LABYRINTH: Minimum Lit Mode Qualification Shots***: specify the minimum number of ***LABYRINTH*** qualification shots that will be lit upon completion of a game mode.

Default: **3**

Minimum: 1 *Maximum: 6* *Increment: 1*

86. ***Wiseman Shot Starts Labyrinth Modes (If Mode Is Qualified)***: specify whether a ***Wiseman*** shot (front, back or either) will start a mode or not when a mode is qualified (***Start Mode*** lights are flashing).

Default: **FRONT AND BACK**

Options: *FRONT AND BACK*: front or back Wiseman shot starts qualified mode
DISABLED: Wiseman shot never starts qualified mode
FRONT ONLY: only front Wiseman shot starts qualified mode
BACK ONLY: only back Wiseman shot starts qualified mode

98. ***Inner Orbit Shot Timeout***: set the amount of time (in seconds) that the shot counter remains valid between successive inner loop shots during multiball.

Default: **1.5**

Minimum: 1.0 *Maximum: 3.0* *Increment: 0.5*

99. ***Outer Orbit Shot Timeout***: set the amount of time (in seconds) that the shot counter remains valid between successive full orbit shots during multiball.

Default: **2.0**

Minimum: 1.0 *Maximum: 3.0* *Increment: 0.5*

COIL SETTINGS

You can scroll through ***Coil Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Coil Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Auto-Launch Pulse Time***: specify the desired kick pulse time (in milliseconds) for the ball auto-launch coil (*Coil 16*).

Default: **25**

Minimum: 10 *Maximum: 30* *Increment: 1*

02. ***Auto-Launch Strength***: specify the pulsewidth-modulated strength percentage for the ball auto-launch coil (*Coil 16*) kick pulse.

Default: **62%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

03. ***Trough Eject Pulse Time***: specify the desired kick pulse time (in milliseconds) for the ball auto-launch coil (*Coil 17*).

Default: **20**

Minimum: 10 *Maximum: 40* *Increment: 1*

04. ***Trough Eject Strength***: specify the pulsewidth-modulated strength percentage for the ball auto-launch coil (*Coil 17*) kick pulse.

Default: **87%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

10. ***Lower Left Flipper Pulse Time***: specify the desired kick pulse time (in milliseconds) for the lower left flipper power coil (*Coil 14*).

Default: **22**

Minimum: 15 *Maximum: 40* *Increment: 1*

11. ***Lower Left Flipper Re-Flip MS***: specify the desired re-flip pulse time (in milliseconds) for the lower left flipper power coil (*Coil 14*). Re-flip occurs if the end-of-stroke switch opens (the flipper bat has been knocked down slightly by high-velocity ball contact). *Related to setting 18 (pg 3-13).*

Default: **10**

Minimum: 5 *Maximum: 20* *Increment: 1*

12. ***Lower Left Flipper Secondary Power***: specify the pulsewidth-modulated strength percentage for the lower left flipper power coil (*Coil 14*) follow-through (not to be confused with flipper *hold* power).

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: approx. 12.5*

13. ***Lower Right Flipper Pulse Time***: specify the desired kick pulse time (in milliseconds) for the lower right flipper power coil (*Coil 12*).

Default: **18**

Minimum: 15 *Maximum: 40* *Increment: 1*

14. ***Lower Right Flipper Re-Flip MS***: specify the desired re-flip pulse time (in milliseconds) for the lower right flipper power coil (*Coil 12*). Re-flip occurs if the end-of-stroke switch opens (the flipper bat has been knocked down slightly by high-velocity ball contact). *Related to setting 18 (pg 3-13).*

Default: **10**

Minimum: 5 *Maximum: 20* *Increment: 1*

Coil notes: pg 6-2 Coil tests: pg 3-26

15. ***Lower Right Flipper Secondary Power***: specify the pulsewidth-modulated strength percentage for the lower right flipper power coil (*Coil 12*) follow-through (not to be confused with flipper *hold* power).

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: approx. 12.5*

16. ***Upper Right Flipper Pulse Time***: specify the desired kick pulse time (in milliseconds) for the upper right flipper power coil (***Coil 25***).

Default: **15**

Minimum: 10 *Maximum: 30* *Increment: 1*

17. ***Upper Right Flipper Secondary Power***: specify the pulsewidth-modulated strength percentage for the upper right flipper power coil (***Coil 25***) follow-through (not to be confused with flipper *hold* power).

Default: **25%**

Minimum: 0 *Maximum: 100* *Increment: approx. 12.5*

18. ***Flipper Delay For Coil Re-Fire***: specify the desired re-flip delay time (in milliseconds) for the lower flipper coils. *Related to settings 11 & 14 (pg 3-12).*

Default: **3**

Minimum: 3 *Maximum: 6* *Increment: 1*

30. ***Helping Hands Scoop Eject Pulse Time***: specify the desired kick pulse time (in milliseconds) for the ***Helping Hands*** scoop coil (***Coil 29***).

Default: **19**

Minimum: 10 *Maximum: 25* *Increment: 1*

31. ***Helping Hands Scoop Eject Strength***: specify the pulsewidth-modulated strength percentage for the ***Helping Hands*** scoop coil (***Coil 29***) kick pulse.

Default: **100%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

Coil notes: pg 6-2

32. ***Left Ramp Scoop Eject Pulse Time***: specify the desired kick pulse time (in milliseconds) for the ***Village***/under left ramp scoop coil (***Coil 34***).

Default: **23**

Minimum: 10 *Maximum: 30* *Increment: 1*

33. ***Left Ramp Scoop Eject Strength***: specify the pulsewidth-modulated strength percentage for the ***Village***/under left ramp scoop coil (***Coil 34***) kick pulse.

Default: **100%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

34. ***Right Ramp Scoop Eject Pulse Time***: specify the desired kick pulse time (in milliseconds) for the ***Wiseman***/under right ramp scoop coil (***Coil 23***).

Default: **15**

Minimum: 10 *Maximum: 25* *Increment: 1*

35. ***Right Ramp Scoop Eject Strength***: specify the pulsewidth-modulated strength percentage for the ***Wiseman***/under right ramp scoop coil (***Coil 23***) kick pulse.

Default: **62%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

36. ***Right Ramp Scoop Eject Pulse Boost***: specify the desired boost pulse time (in milliseconds) added to the pulse time for the ***Wiseman***/under right ramp scoop coil (***Coil 23***), after three consecutive failed kickout attempts.

Default: **2**

Minimum: 1 *Maximum: 5* *Increment: 1*

40. ***Right Sling Pulse Time***: specify the desired kick pulse time (in milliseconds) for the right sling coil (*Coil 18*).

Default: **10**

Minimum: 5 *Maximum: 25* *Increment: 1*

Coil tests: pg 3-26

41. ***Right Sling Strength***: specify the pulsewidth-modulated strength percentage for the right sling coil (*Coil 18*) kick pulse.

Default: **62%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

42. ***Left Sling Pulse Time***: specify the desired kick pulse time (in milliseconds) for the left sling coil (*Coil 19*).

Default: **10**

Minimum: 5 *Maximum: 25* *Increment: 1*

43. ***Left Sling Strength***: specify the pulsewidth-modulated strength percentage for the left sling coil (*Coil 19*) kick pulse.

Default: **62%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

44. ***Upper Right Sling Pulse Time***: specify the desired kick pulse time (in milliseconds) for the right sling coil (*Coil 11*).

Default: **15**

Minimum: 10 *Maximum: 25* *Increment: 1*

45. ***Upper Right Sling Strength***: specify the pulsewidth-modulated strength percentage for the right sling coil (*Coil 11*) kick pulse.

Default: **62%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

46. ***Upper Right Sling Disabled***: specify whether the upper right sling coil (*Coil 11*) is disabled or not.

Default: **OFF**

Options: *ON*: upper right sling will never kick
OFF: upper right sling kicks when triggered

Coil notes: pg 6-2 Coil tests: pg 3-26

50. ***Diverter Reset Pulse Time***: specify the desired kick pulse time (in milliseconds) for the Horseshoe diverter reset (up) coil (*Coil 21*).

Default: **14**

Minimum: 8 *Maximum: 30* *Increment: 1*

51. ***Diverter Reset Strength***: specify the pulsewidth-modulated strength percentage for the Horseshoe diverter reset (up) coil (*Coil 21*) kick pulse.

Default: **100%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

52. ***Orbit Fork Reset Pulse Time***: specify the desired kick pulse time (in milliseconds) for the orbit ball catch forks reset (up) coil (*Coil 32*).

Default: **15**

Minimum: 8 *Maximum: 20* *Increment: 1*

53. ***Orbit Fork Reset Strength***: specify the pulsewidth-modulated strength percentage for the orbit ball catch forks reset (up) coil (*Coil 32*) kick pulse.

Default: **100%**

Minimum: 12 *Maximum: 100* *Increment: approx. 12.5*

54. ***Jareth Magnet Activity***: select how active the ***Beggar*** magnet (*Coil 10*) should be during the ***Battle Jareth*** wizard mode.

Default: **FULL**

Options: *FULL*: Beggar magnet used throughout Jareth battle
LOOP ONLY: Beggar magnet triggered only on inner loop rollbacks
25%: Beggar magnet triggered after 25% of target hits scored
50%: Beggar magnet triggered after 50% of target hits scored
75%: Beggar magnet triggered after 75% of target hits scored
DISABLED: Beggar magnet not used at all during Jareth battle

55. ***Knocker Coil Installed***: specify whether a knocker coil is installed in the game or not.

Default: **OFF**

Options: *ON*: knocker coil/assembly installed in game
OFF: no knocker coil/assembly installed in game (as shipped)

PRICING SETTINGS

You can scroll through ***Pricing Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Pricing Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Free Play***: specify whether currency is required to play the game or not.

Default: **ON**

Options: *ON*: no currency/credits required to start a game
OFF: currency/credits required to start a game

02. ***Match Enabled***: specify whether or not to use the end-of-game match feature.

Default: **ON**

Options: *ON*: game plays match sequence & awards free game(s) accordingly
OFF: no match sequence/award

03. ***Target Free Game Percentage***: set the desired award percentage for the match feature. *Related to setting 02 (above).*

Default: **5**

Minimum: 0 *Maximum: 50* *Increment: 1*

04. ***No Credits String***: select the words to show, *when the game is configured for pay-for-play*, and the start button is pressed with no credits. *Related to setting 01 (above).*

Default: **INSERT COIN**

Options: *INSERT COIN*: for coin door coin mech
ADD CREDITS: generic use
SWIPE CARD: for coin door card reader
TAP CARD: for coin door card reader
INSERT CASH: for coin door bill acceptor
NO CREDITS: generic use

20. ***Coins Per Credit***: specify the number of coins required for a credit on the game. *Related to setting 01 (above).*

Default: **1**

Minimum: 1 *Maximum: 8* *Increment: 1*

21. ***Bonus Credit(s) After***: specify the paid credit threshold required for awarding bonus credit(s). *Related to settings 01 (above), 22 (below).*

Default: **1**

Minimum: 0 *Maximum: 50* *Increment: 1*

22. ***Number Of Bonus Credits***: specify the number of bonus credits awarded at the paid credit threshold. *Related to settings 01, 21 (above).*

Default: **0**

Minimum: 0 *Maximum: 50* *Increment: 1*

23. ***Bonus Coin(s) After***: specify the paid coin threshold required for awarding bonus coin(s). *Related to settings 01 (above), 24 (below).*

Default: **1**

Minimum: 0 *Maximum: 50* *Increment: 1*

24. ***Number Of Bonus Coins***: specify the number of bonus coins awarded at the paid coin threshold. *Related to settings 01, 23 (above).*

Default: **0**

Minimum: 0 *Maximum: 50* *Increment: 1*

40. ***Coin 1 Value***: specify the number of coins registered for each coin door switch 1 closure. *Note: this switch is NOT wired, as shipped from the factory. Related to setting 01 (pg 3-15).*

Default: **1**

Minimum: 0 *Maximum: 8* *Increment: 1*

41. ***Coin 2 Value***: specify the number of coins registered for each coin door switch 2 closure. *Note: this switch is NOT wired, as shipped from the factory. Related to setting 01 (pg 3-15).*

Default: **1**

Minimum: 0 *Maximum: 8* *Increment: 1*

42. ***Coin 3 Value***: specify the number of coins registered for each coin door switch 3 closure. *Note: this is the **ONLY** coin door switch wired, as shipped from the factory. Related to setting 01 (pg 3-15).*

Default: **1**

Minimum: 0 *Maximum: 8* *Increment: 1*

43. ***DBV Coin Value***: specify the number of coins registered for each coin door dollar bill acceptor switch closure. *Note: this switch is NOT wired, as shipped from the factory. Related to setting 01 (pg 3-15).*

Default: **1**

Minimum: 0 *Maximum: 8* *Increment: 1*

REPLAY SETTINGS

You can scroll through ***Replay Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Replay Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Replay Score Enabled***: specify whether the game awards a scoring replay or not. *Related to setting 02 (below).*

Default: **ON**

Options: *ON*: scoring replay is awarded
OFF: currency/credits required to start a game

02. ***Replay Score***: set the baseline score (before any automatic adjustments) required for a replay award. *Related to settings 01 (above), 03 (below).*

Default: **30,000,000**

Minimum: 2,500,000 *Maximum: 300,000,000* *Increment: 500,000*

03. ***Replay Award***: select the award for achieving the replay score. *Related to settings 01, 02 (above), 05 (below).*

Default: **CREDIT**

Options: *CREDIT*: award one credit at replay score
EXTRA BALL: award extra ball at replay score
POINTS: award points (*setting 05, below)* at replay score
DISABLED: no award at replay score

04. ***Replay Type***: specify whether to automatically adjust the replay score or not. *Related to settings 01, 02 (above), 06-09 (below).*

Default: **AUTO ADJUST**

Options: *AUTO ADJUST*: adjust replay score up/down, based upon player performance
FIXED: replay score remains constant

05. ***Replay Point Value (If Set)***: specify how many *POINTS* to award when the replay score is achieved. *Related to settings 01 & 03 (above).*

Default: **3,000,000**

Minimum: 0 *Maximum: 15,000,000* *Increment: 1,000,000*

06. ***Replay Backdown Amount***: specify the number of points the replay score automatically reduces when the 'losing streak' threshold is reached. *Related to settings 01 & 04 (above), 08 & 09 (below).*

Default: **30,000,000**

Minimum: 2,500,000 *Maximum: 300,000,000* *Increment: 500,000*

07. ***Replay Increase Amount***: specify the number of points the replay score automatically increases when a scoring replay is awarded. *Related to settings 01 & 04 (above).*

Default: **10,000,000**

Minimum: 1,000,000 *Maximum: 50,000,000* *Increment: 1,000,000*

08. ***Losing Streak Threshold***: specify the required number of consecutive games, *with no scoring replays awarded* (a 'losing streak'), to begin automatically reducing the replay score. *Related to settings 01, 04 & 06 (above).*

Default: **3**

Minimum: 0 *Maximum: 30* *Increment: 1*

09. ***Replay Minimum Score***: specify the desired minimum value for the automatically adjusted replay score. *Related to settings 01, 04, 06 & 08 (above).*

Default: **10,000,000**

Minimum: 2,500,000 *Maximum: 100,000,000* *Increment: 500,000*

TOPPER SETTINGS

You can scroll through ***Topper Settings*** using the red (**+** or **-**) buttons; press the black (**SELECT**) button to select an item you would like to change. Default settings are indicated in green. To customize, use the red (**+** or **-**) buttons to alter the selected data value, then press the black (**SELECT**) button to accept the new value. Press the green (**EXIT**) button to escape from a selected menu item without saving changes. To exit the ***Topper Settings*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

01. ***Topper Enabled***: specify whether the game has a Goblin topper installed or not. *Related to settings 02-33 (below).*

Default: **OFF**

Options: *ON*: topper installed on game
OFF: no topper on game

02. ***Play Scenes During Attract***: specify whether the topper plays scenes during attract mode or not. *Related to settings 01 (above), 03 (below).*

Default: **OFF**

Options: *ON*: topper installed on game
OFF: no topper on game

03. ***Attract Loops Before Next Topper Scene***: specify the desired number of attract loops between topper scenes played. *Related to settings 01 & 02 (above).*

Default: **5**

Minimum: 1 *Maximum: 50* *Increment: 1*

04. ***Dance To Specific Songs***: specify whether or not Goblins dance to specific music tracks during game play. *Related to settings 01 (above), 05 (below).*

Default: **ON**

Options: *ON*: Goblins dance to some songs
OFF: Goblins never dance to songs

05. ***Topper Cool Down Time***: specify the amount of cool down time (in seconds) for the topper, in between performances, during game play. *Related to setting 01 (above).*

Default: **40**

Minimum: 20 *Maximum: 600* *Increment: 5*

10. ***Reaction Percentage: Start With No Credits***: specify the desired topper reaction percentage for pressing the start button with no credits. *Related to setting 01 (above), Pricing Setting 01 (pg 3-15).*

Default: **100%**

Minimum: 0 *Maximum: 100* *Increment: 1*

11. ***Reaction Percentage: Player Start/Added***: specify the desired topper reaction percentage for starting a game or adding a player. *Related to setting 01 (above).*

Default: **40%**

Minimum: 0 *Maximum: 100* *Increment: 1*

12. ***Reaction Percentage: High Score***: specify the desired topper reaction percentage for a player achieving a high score. *Related to setting 01 (above).*

Default: **70%**

Minimum: 0 *Maximum: 100* *Increment: 1*

13. ***Reaction Percentage: Worm Appearance***: specify the desired topper reaction percentage for ***Ello/William***, the worm, appearing. *Related to setting 01 (above).*

Default: **20%**

Minimum: 0 *Maximum: 100* *Increment: 1*

14. ***Reaction Percentage: Orb Is Collected***: specify the desired topper reaction percentage for a player collecting an ***Orb***. *Related to setting 01 (above).*

Default: **70%**

Minimum: 0 *Maximum: 100* *Increment: 1*

Topper test/adjust: pg 3-27

15. ***Reaction Percentage: Oubliette Start***: specify the desired topper reaction percentage for a player starting the ***Oubliette*** mode. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

16. ***Reaction Percentage: Bog Start***: specify the desired topper reaction percentage for a player starting the ***Bog*** mode. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

17. ***Reaction Percentage: Bog Green Shot***: specify the desired topper reaction percentage for a player 'touching' the ***Bog*** mode. *Related to setting 01 (pg 3-18).*

Default: **60%**

Minimum: 0 *Maximum: 100* *Increment: 1*

18. ***Reaction Percentage: Fireys End***: specify the desired topper reaction percentage for a player finishing the ***Fireys*** mode. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

19. ***Reaction Percentage: Four Guards Start***: specify the desired topper reaction percentage for a player starting the ***Four Guards*** mode. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

20. ***Reaction Percentage: Light Goblin City***: specify the desired topper reaction percentage for a player lighting ***Goblin City***. *Related to setting 01 (pg 3-18).*

Default: **100%**

Minimum: 0 *Maximum: 100* *Increment: 1*

21. ***Reaction Percentage: Lock 3 Ready***: specify the desired topper reaction percentage for a player needing one lock to start ***Brick Keeper Multiball***. *Related to setting 01 (pg 3-18).*

Default: **40%**

Minimum: 0 *Maximum: 100* *Increment: 1*

22. ***Reaction Percentage: Multiball (Average)***: specify the desired topper reaction percentage following an 'average' multiball. *Related to setting 01 (pg 3-18).*

Default: **30%**

Minimum: 0 *Maximum: 100* *Increment: 1*

23. ***Reaction Percentage: Multiball (No Jackpots)***: specify the desired topper reaction percentage following a multiball with no jackpots collected. *Related to setting 01 (pg 3-18).*

Default: **80%**

Minimum: 0 *Maximum: 100* *Increment: 1*

24. ***Reaction Percentage: Multiball (Good)***: specify the desired topper reaction percentage following a 'good' multiball. *Related to setting 01 (pg 3-18).*

Default: **80%**

Minimum: 0 *Maximum: 100* *Increment: 1*

25. ***Reaction Percentage: Friendzy Start***: specify the desired topper reaction percentage for a player starting ***Friendzy*** (***Wiseman Quest*** award). *Related to setting 01 (pg 3-18).*

Default: **60%**

Minimum: 0 *Maximum: 100* *Increment: 1*

26. ***Reaction Percentage: Extra Ball Start***: specify the desired topper reaction percentage for a player starting an extra ball. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

Topper test/adjust: pg 3-27

27. ***Reaction Percentage: "Good" Ball***: specify the desired topper reaction percentage following a 'good' ball. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

28. ***Reaction Percentage: "Bad" Ball***: specify the desired topper reaction percentage following a 'bad' ball. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

29. ***Reaction Percentage: Ball 3 Start***: specify the desired topper reaction percentage for a player starting ball three. *Related to setting 01 (pg 3-18).*

Default: **50%**

Minimum: 0 *Maximum: 100* *Increment: 1*

30. ***Reaction Percentage: Ball Save***: specify the desired topper reaction percentage for a triggered ball save, in normal play (not multiball). *Related to setting 01 (pg 3-18), Standard Setting 21 (pg 3-5)*

Default: **30%**

Minimum: 0 *Maximum: 100* *Increment: 1*

31. ***Reaction Percentage: Sir Didymus Defense***: specify the desired topper reaction percentage for a ***Didymus*** defense activation. *Related to setting 01 (pg 3-18).*

Default: **30%**

Minimum: 0 *Maximum: 100* *Increment: 1*

32. ***Reaction Percentage: Ball Search***: specify the desired topper reaction percentage for a triggered ball search. *Related to setting 01 (pg 3-18).*

Default: **100%**

Minimum: 0 *Maximum: 100* *Increment: 1*

33. ***Reaction Percentage: Tilt***: specify the desired topper reaction percentage for a player tilting the game. *Related to setting 01 (pg 3-18).*

Default: **80%**

Minimum: 0 *Maximum: 100* *Increment: 1*

Topper test/adjust: pg 3-27

SAVE/LOAD SETTINGS

The ***Save/Load Settings*** feature allows you to save all of your game's current settings to a file that can be re-loaded at any point in the future; you can name and save up to five settings files. When you enter the ***Save/Load Settings*** menu, the screen in figure 3-5 appears on the backbox display. Use the red (**+** or **-**) buttons to navigate the list of settings; press the black (**SELECT**) button to select/create a settings file.

Selecting an **EMPTY** file slot brings up the file name creation screen (figure 3-6). Use the red (**+** or **-**) buttons to move between letters/numbers, then press the black (**SELECT**) button to add the current character. Use **SPACE** to add a blank space, **BACK** to delete the last character entered and **SAVE** to save the file, when you've finished entering the name. A new file, with all of the game's current settings, is created, under the name provided. Press the green (**EXIT**) button to return to the ***Save/Load Settings*** main screen without saving changes.

Selecting an existing file slot brings up the load or erase file screen (figure 3-7). Use the red (**+** or **-**) buttons to choose which function you'd like to perform: **LOAD** or **ERASE** the current file. Press the black (**SELECT**) button to execute the highlighted command: **LOAD** updates the settings in your game to match the settings in the file; **ERASE** removes the settings file from your ***Save/Load Settings*** main screen. Press the green (**EXIT**) button to return to the ***Save/Load Settings*** main screen without saving changes.

To exit the ***Save/Load Settings*** main screen at any time, press the green (**EXIT**) button; you will immediately return to the ***Settings Menu***.

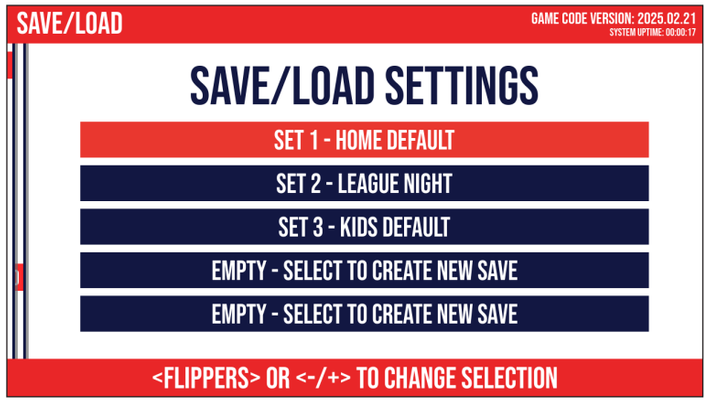


Figure 3-5. Save/Load Settings - sample main screen.

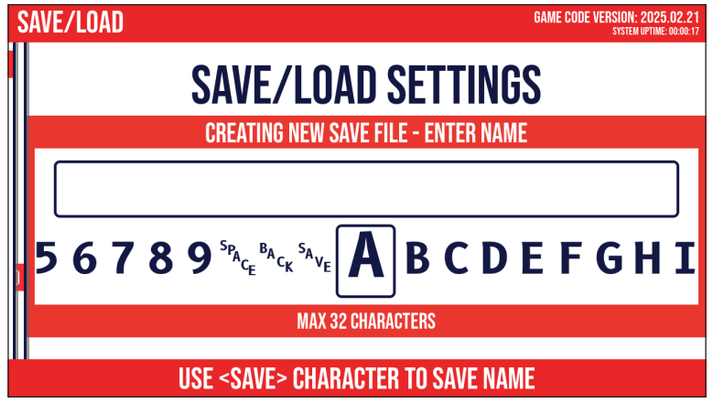


Figure 3-6. Save/Load Settings - create file name.

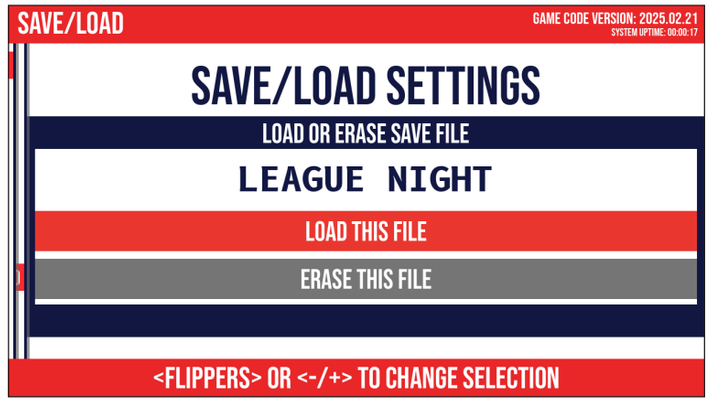


Figure 3-7. Save/Load Settings - load or erase file.

TESTS MENU

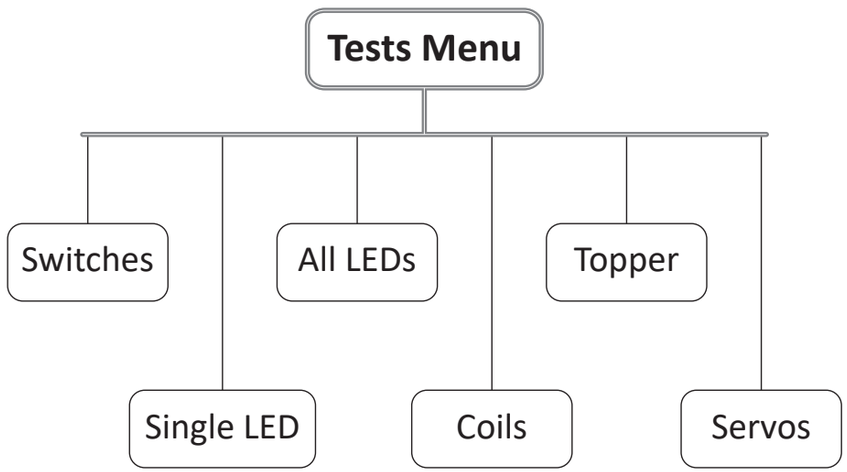


Figure 3-8. The Tests Menu tree.

3.4 The Tests Menu

Figure 3-8 shows the ***Tests Menu*** outline. There are six items/sub-menus within the ***Tests Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons; press the black (**SELECT**) button to enter the currently selected sub-menu. To exit the ***Tests Menu*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Service Menu***.

Switch Test - test all switches in the game.

Individual LED Test - test all lamps in the game, individually.

All LED Test - test all lamps in the game, simultaneously.

Coil Test - test fire all coils in the game, individually.

Topper Test/Adjust - test the Goblin topper or make servo rotation adjustments (game must have topper installed).

Servo Test - test all of the playfield servos, individually.

SWITCH TEST

The ***Switch Test*** allows you to check every switch in the game for proper operation. At the beginning of the test, the screen in figure 3-9 appears on the backbox display. When any switch in the game is activated/made, 1) you hear an audio response through the game's speakers, 2) the red **Last Switch Activated** box provides the switch's number, description, driver board, connector/pin number, wire color and 3) a red crosshairs icon appears on the Labyrinth playfield map (right side of the screen) to indicate the switch's approximate position. You hear a different sound when the switch is deactivated/open, as its icon disappears from the map.

A scrolling list of activated/deactivated switches is displayed under the **Switch Activation History** heading, with their switch number and description, driver board and connector/pin number. Any switches that are closed when the test begins are listed first, by number and description, in the **Switch Activation History**, with an **Already Active** label - and already indicated on the playfield map, as well. As with switches manually activated by the operator during the test, these switches make the 'open' sound if they are deactivated, as their icon disappears from the playfield map.

To exit the ***Switch Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***.

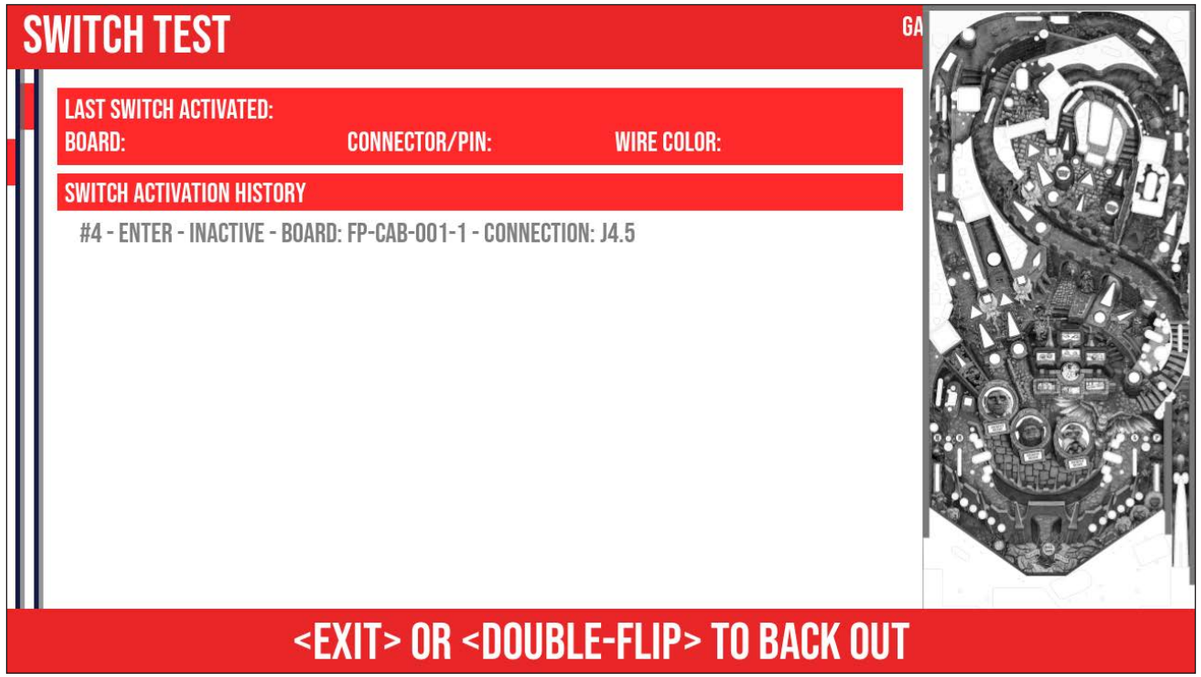


Figure 3-9. Switch Test screen.

Switch locations: pg 4-82 Switch notes: pg 6-2 Switch wiring: pg 4-90

INDIVIDUAL LED TEST

The ***Individual LED Test*** allows you to check all of the controlled LEDs in the game, individually, for proper operation. At the beginning of the test, the screen in figure 3-10 appears on the backbox display. The first LED in the hardware list (***0***, Right Ramp ***Advance Friend***) will be continuously cycling through red, green & blue colors. Use the red (**+** or **-**) buttons to navigate the list of LEDs, in hardware order; the applicable LED will light on the playfield (or the backbox) and continuously cycle through red, green & blue colors. If/when you reach the end of the list (***210***, Right Backbox Speaker 28), and press the red **+** button again, you will wrap back around to the first LED in the list (and vice-versa: pressing the red **-** button at the beginning of the list wraps around to the end of the list).

Press the black (**SELECT**) button to stop the cycling and light the current LED in red. Pressing the black (**SELECT**) button several more times switches the current LED color to a constant green, then blue, then white, then back to cycling R-G-B again. Whatever color/cycle is currently selected will move through the LED hardware list when you press the red (**+** or **-**) buttons (so you can navigate the entire list, lighting each LED in red, green, blue, white or cycling R-G-B).

To exit the ***Individual LED Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***.

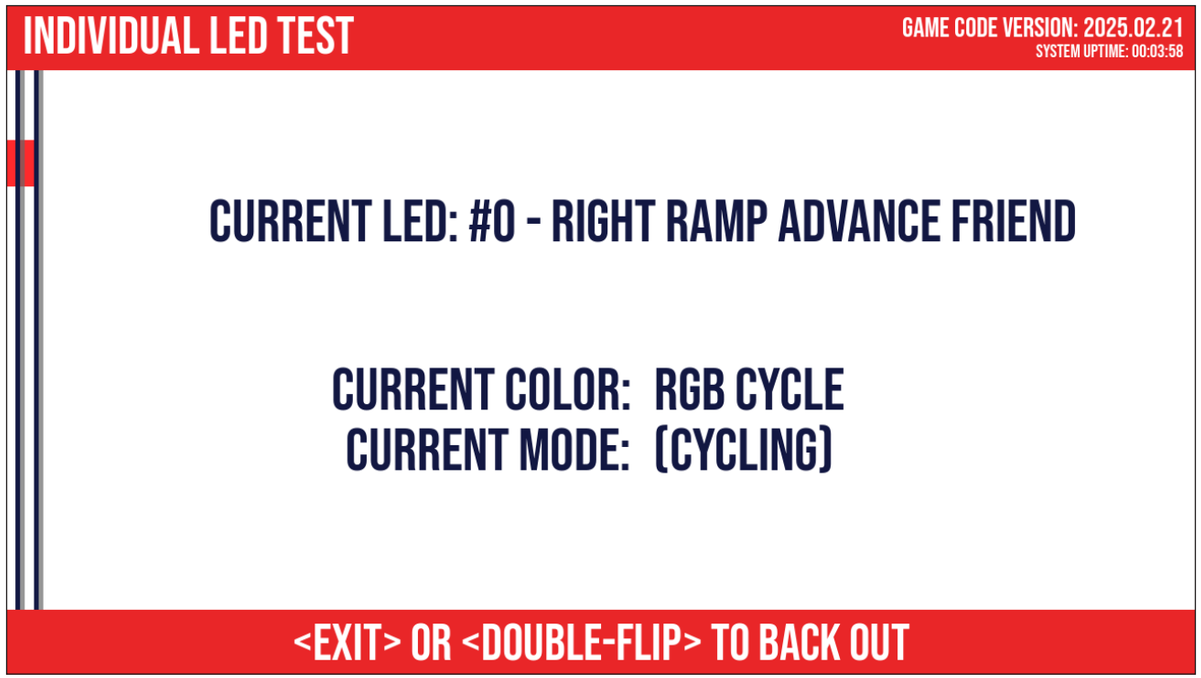


Figure 3-10. Opening Individual LED Test screen.

Lighting locations: pg 4-66 Lighting notes: pg 6-2 Lighting wiring: pg 4-78

ALL LED TEST

The ***All LED Test*** allows you to check all of the controlled LEDs in the game, simultaneously, for proper operation. At the beginning of the test, the screen in figure 3-11 appears on the backbox display. Every controlled LED in the game will be continuously cycling through red, green & blue colors. Use the red (**+** or **-**) buttons to toggle the color order for GI LEDs (primarily under playfield plastics) in the game. Some games use GI boards that have LEDs with reversed red and green pins. The game's software compensates for this reversal via a user setting (see Standard Setting 71, pg 3-7). As you toggle back and forth, you notice that blue is unaffected, but with one of the two color orders, your feature lights and GI lights will be opposite - one set red while the other is green and vice-versa, as the overall intended color changes. Your game was set, at the factory, to use the proper Standard Setting 71, but you can see the differences in this test.

Press the black (**SELECT**) button to stop the cycling and light all LEDs in constant red. Pressing the black (**SELECT**) button several more times switches the all LED color to a constant green, then blue, then white, then back to cycling R-G-B again.

To exit the ***All LED Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***.

Figure 3-11. Opening All LED Test screen.

Lighting locations: pg 4-66 Lighting notes: pg 6-2 Lighting wiring: pg 4-78

COIL TEST

The ***Coil Test*** allows you to check every coil in the game for proper operation. At the beginning of the test, the screen in figure 3-12 appears on the backbox display. The first coil in the hardware list (the light inside the green cabinet start button) is called out on the screen; it will be blinking on and off. This particular LED is actually driven/controlled in the same manner as a coil; hence, it's in the ***Coil Test***. Use the red (**+** or **-**) buttons to navigate through the list of coils, in hardware order. If the current mode is 'RUNNING' - **and** the coin door is closed **or** the game's safety interlock switch (item 8, pg 4-2 of this manual) actuator is pulled out (instructions and **CAUTIONS** on pg 3-2) - the displayed coil will kick continuously, once every two seconds. Press the black (**SELECT**) button to toggle the current mode between kicking (RUNNING) and not kicking (STOPPED) the coil displayed.

To exit the ***Coil Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***.

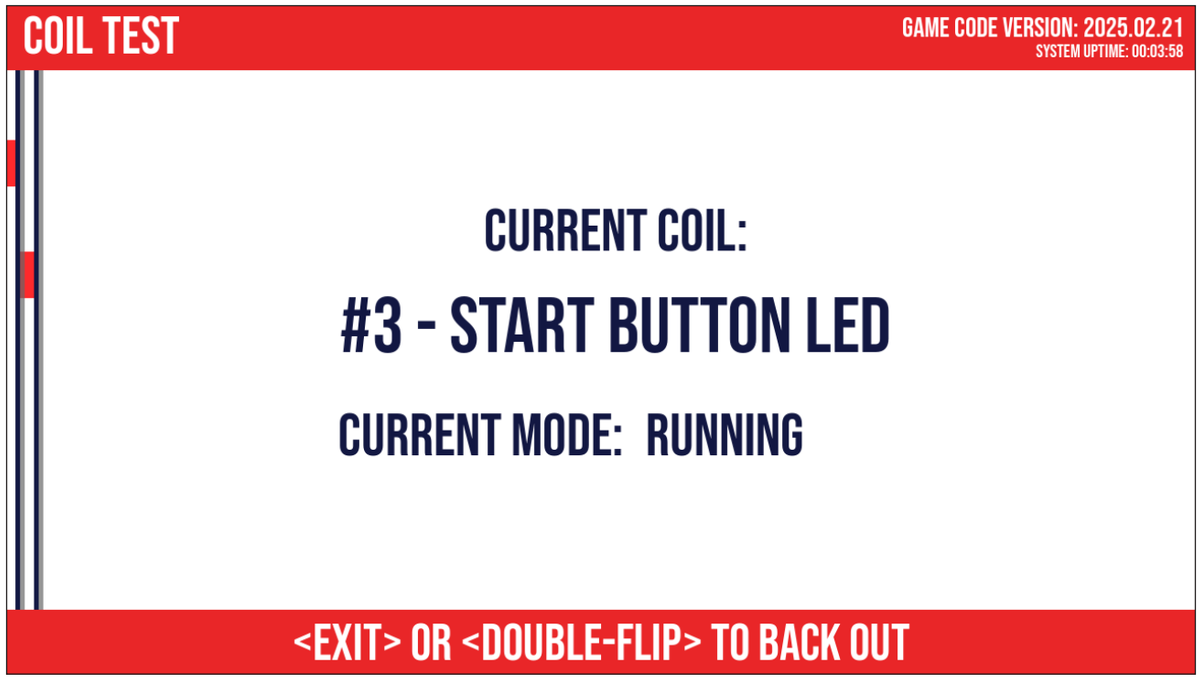


Figure 3-12. Opening Coil Test screen.

Coil locations: pg 4-54 Coil strength adj: pg 3-12 Coil notes: pg 6-2 Coil wiring table: pg 4-128

TOPPER TEST/ADJUST

The ***Topper Test/Adjust*** menu allows you to check all components in your topper for proper operation. When you enter the ***Topper Test/Adjust*** menu, the screen in figure 3-13 appears on the backbox display. Use the red (**+** or **-**) buttons to navigate the menu options; press the black (**SELECT**) button to either test the topper or edit Goblin positions.

Enter ***Topper Testing*** to test the LEDs and servos in the topper (figure 3-14). The two outer Goblins will, simultaneously, spin their heads to the player's far left, then back to center, then to the player's far right, continuously, throughout the entire test. The current position is displayed on the test screen. Ensure the rotating heads never contact the large, stationary figure in the center. All three Goblins' eyes will toggle off and on at each position change of the heads (off at player's left, on at center, off at player's right). The state of the eyes is displayed on the test screen. The RGB LED strip at the front of the topper changes color at each position change of the heads (red at player's left, green at center, blue at player's right). Press the green (**EXIT**) button at any time to exit ***Topper Testing*** and return to the ***Topper Test/Adjust*** menu.

Enter ***Topper Editing*** to change the servo rotation limits for either Goblin's head (figure 3-15). Use the red (**+** or **-**) buttons to adjust the limit SETTING VALUE. Press the black (**SELECT**) button to switch between editing the FORWARD or CENTER position limits. For the left Goblin, **+** increases the value (rotates head further right for both FORWARD and CENTER positions); **-** decreases the value (rotates the head in the opposite direction). For the right Goblin, **+** increases the value (rotates head further right for the FORWARD position and further *left* for the CENTER position); **-** decreases the value (rotates the head in the opposite direction). Press the green (**EXIT**) button to save changes (*Note: there is no 'exit without saving changes' option!*), exit ***Topper Editing*** and return to the ***Topper Test/Adjust*** menu. If you adjust the head rotation limits for **either** Goblin, **at all**, select RUN TOPPER TEST to ensure the rotating heads never contact the large, stationary figure in the center.

To exit the ***Topper Test/Adjust*** menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***.

Figure 3-13. Topper Test/Adjust - main screen.

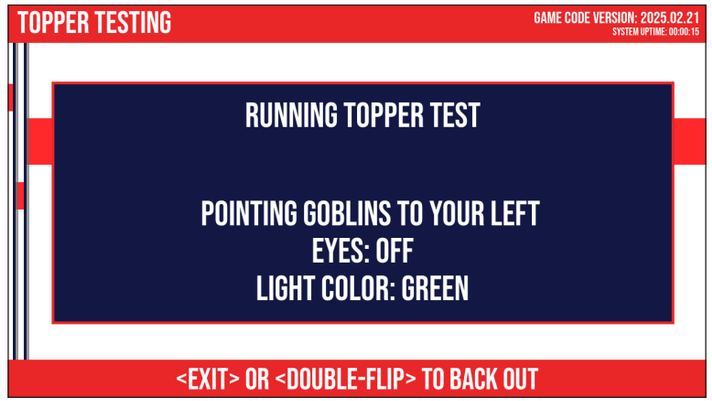


Figure 3-14. Topper Test/Adjust - test servos & lights.

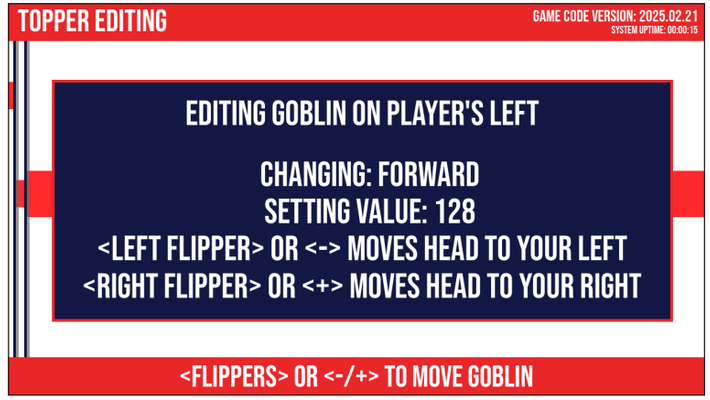


Figure 3-15. Topper Test/Adjust - edit servo limits.

Topper settings: pg 3-18

SERVO TEST

The ***Servo Test*** allows you to check every servo in the game for proper operation. At the beginning of the test, the screen in figure 3-16 appears on the backbox display. The first servo in the hardware list (the Bottom Arch Firey) is called out on the screen; it will be moving in and out once every two seconds. Use the red (**+** or **-**) buttons to navigate through the list of servos, in hardware order. If the current mode is 'RUNNING LOOP', the servo will be activating (in/out or up/down, once every two seconds). Press the black (**SELECT**) button to change the mode to individual control; in this mode, use the red (**+** / **-**) buttons to trigger the in/out or up/down motion, respectively. If Ludo is the currently selected servo, press the black (**SELECT**) button a second time to edit the height value for the Ludo servo extension; use the red (**+** or **-**) buttons to increase or decrease the height, respectively.

To exit the ***Servo Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Tests Menu***. If you made any changes to Ludo's height, they will be saved (*Note: there is no 'exit without saving changes' option!*).

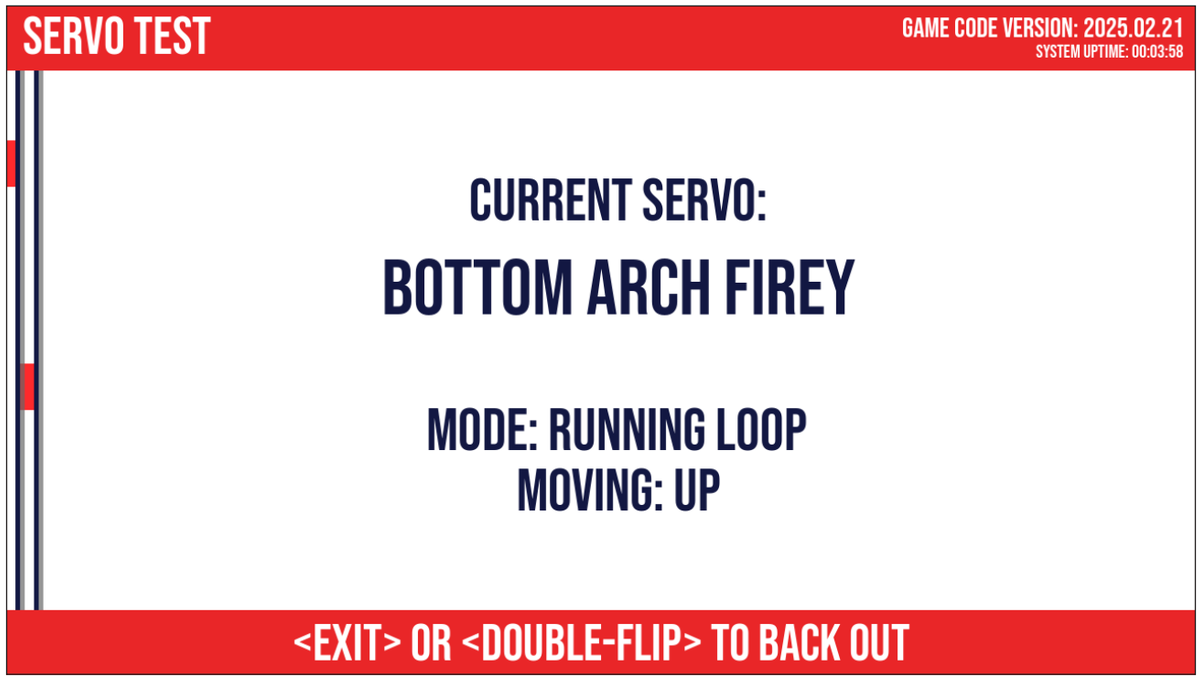


Figure 3-16. Opening Servo Test screen.

Servo locations: pg 4-54 Coil/Servo notes: pg 6-2 Coil/servo wiring table: pg 4-128

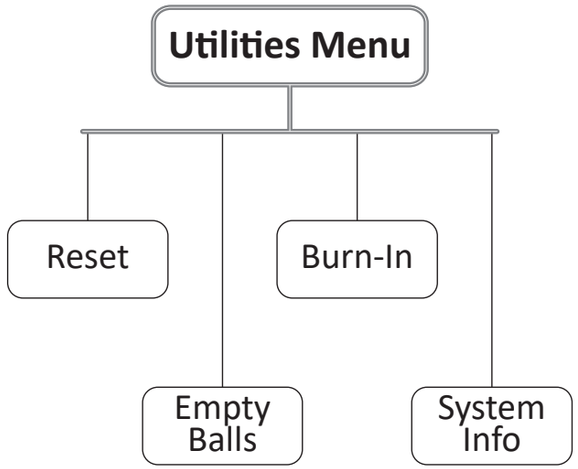


Figure 3-17. The Utilities Menu tree.

3.5 The Utilities Menu

Figure 3-17 shows the ***Utilities Menu*** outline. There are four items/sub-menus within the ***Utilities Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons; press the black (**SELECT**) button to enter the currently selected sub-menu. To exit the ***Utilities Menu*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Service Menu***.

Reset Settings/Data - reset settings, audits, credits, high scores, etc. in the game.

Empty Balls - quickly and easily remove all balls from the game.

Burn-In Test - repeatedly/simultaneously test all critical devices in the game.

System Info - display salient system characteristics/information.

RESET SETTINGS/DATA

The ***Reset Utility*** allows you to reset data values in the game to factory default settings. When you enter the utility, the screen in figure 3-18 appears on the backbox display. Use the red (**+** or **-**) buttons to navigate through the list of resettable categories (below, right). Press the black (**SELECT**) button to select the data category you wish to clear/reset. When you select a category, press the black (**SELECT**) button to confirm the operation (all data in the selected category will be reset to defaults); press the green (**EXIT**) button to escape and return to the ***Reset Utility*** selection screen shown below, without resetting.

To exit the ***Reset Utility*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Utilities Menu***.

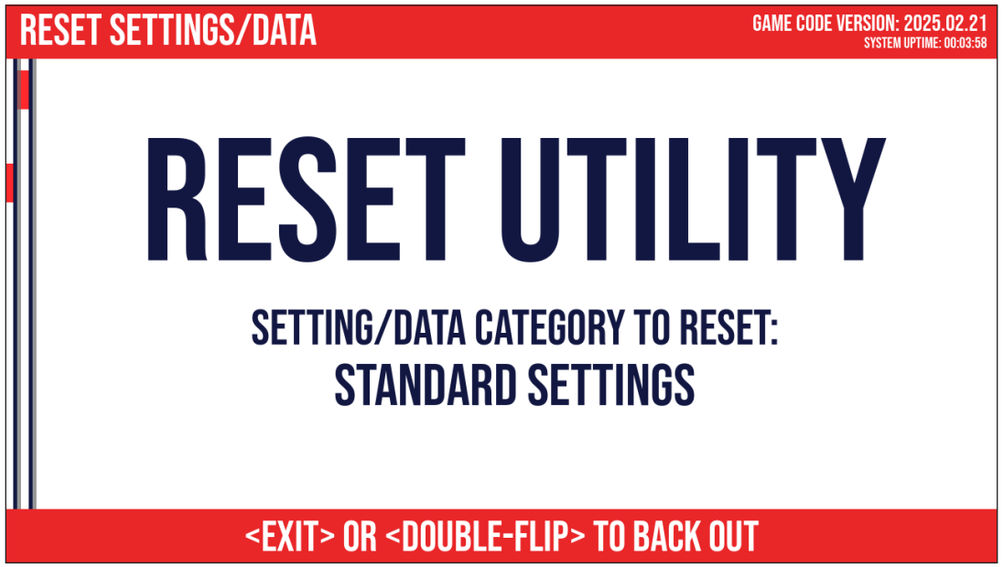


Figure 3-18. Opening Reset Utility screen.

Resettable Setting/Data Categories

Standard Settings
All Settings & Data At Once
Clear Credits
Vanity High Scores
Classic High Scores
Feature Audits
Earnings Audits
Hardware Audits
Servo Settings
Replay Settings
Coil Settings
Pricing Settings
Feature Settings

EMPTY BALLS

The ***Empty Balls*** utility clears all balls from playfield devices, allowing you to quickly and easily remove them from the game. When you enter the utility, the screen in figure 3-19 appears on the backbox display. The number of balls in the trough (0-5) and the trough status (EJECTING or EMPTY) are shown. If the coin door is closed **or** the game's safety interlock switch (item 8, pg 4-2 of this manual) actuator is pulled out (instructions and **CAUTIONS** on pg 3-2), the trough eject coil will kick out a ball once every few seconds. The auto-launch coil then kicks each ejected ball onto the playfield. If a ball falls into a scoop on its way down the playfield, it is ejected. It's up to the user to catch and remove each ball, as it rolls down the playfield. Any ball that makes it back to the trough will be ejected again, in turn. This process continues, indefinitely, until the trough is empty (BALLS IN TROUGH: 0, TROUGH EMPTY).

To exit the ***Empty Balls*** utility at any time, press the green (**EXIT**) button; you will immediately return to the ***Utilities Menu***.

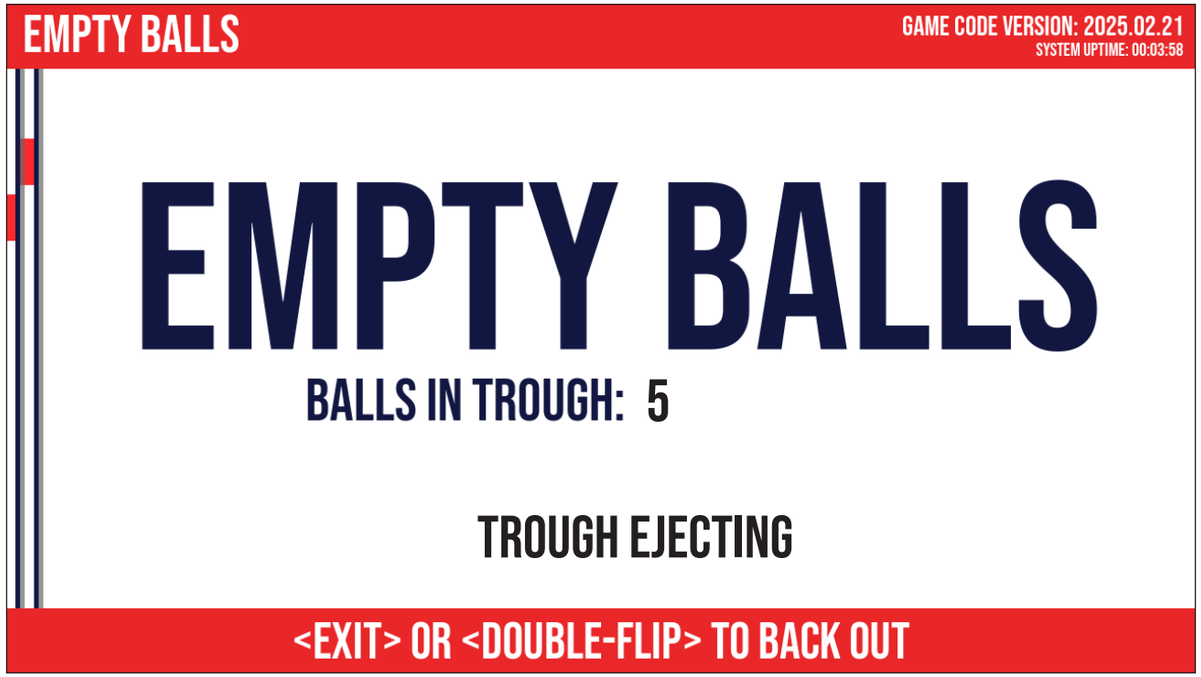


Figure 3-19. Opening Empty Balls screen.

BURN-IN TEST

The ***Burn-In Test*** runs a preset routine to repeatedly and simultaneously exercise all of the critical devices in the game, to ensure reliable, long-term system functionality. When you enter the test, the screen in figure 3-20 appears on the backbox display. The servos in the game are repeatedly cycled and LEDs are lit, in sequence, while sound effects/music continuously play through the game's speakers. Additionally, If the coin door is closed **or** the game's safety interlock switch (item 8, pg 4-2 of this manual) actuator is pulled out (instructions and **CAUTIONS** on pg 3-2), all of the coils in the game will also repeatedly kick, in a repeated loop. The number of completed coil and servo loops are shown on the screen, along with the most recently triggered device from each category.

To exit the ***Burn-In Test*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Utilities Menu***.

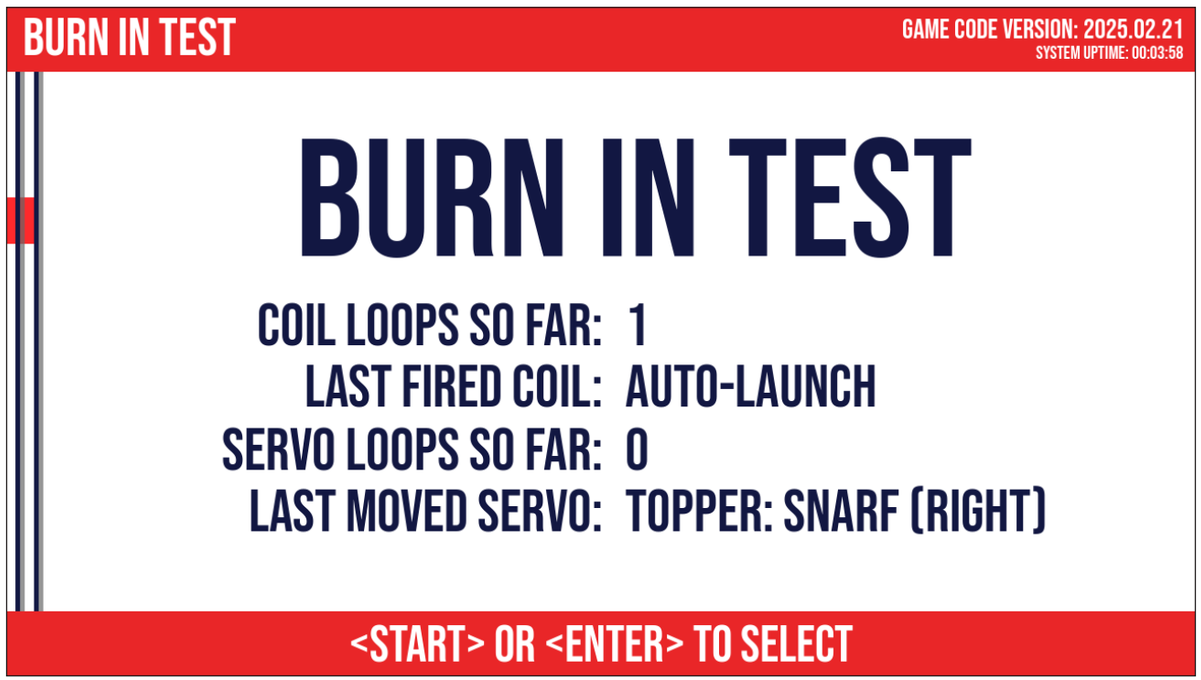


Figure 3-20. Opening Burn-In Test screen.

SYSTEM INFO

The ***System Info*** page allows you to check salient characteristics/information regarding your Labyrinth game. When you select this menu item, a screen similar to the one in figure 3-21 appears on the backbox display. Important data, with respect to your game PCBs, such as board revisions and firmware versions are provided, in a table format.

To exit the ***System Info*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Utilities Menu***.

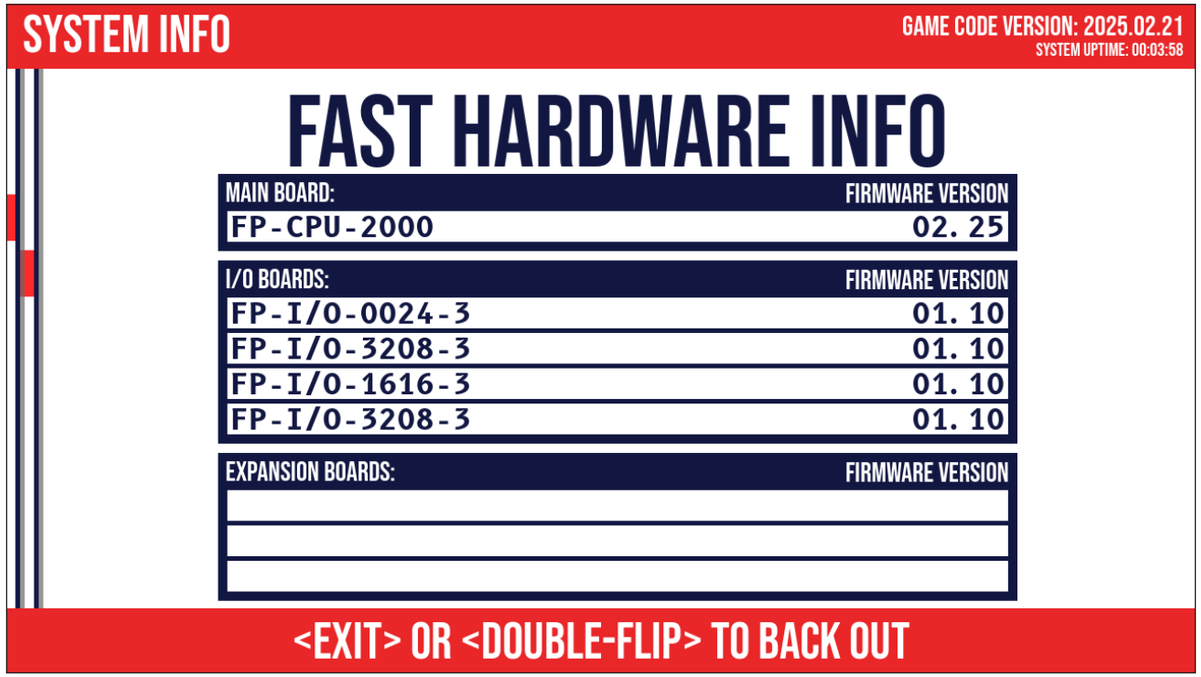


Figure 3-21. System Info screen.

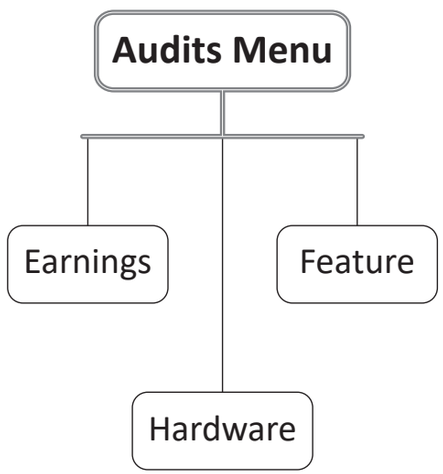


Figure 3-22. The Audits Menu tree.

3.6 The Audits Menu

Figure 3-22 shows the ***Audits Menu*** outline. There are three items within the ***Audits Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons; press the black (**SELECT**) button to enter the currently selected item. To exit the ***Audits Menu*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Service Menu***.

Earnings Audits - view pertinent audits for location games, set up in pay-for-play state.

Hardware Audits - view generic game play audits such as the number of games started, balls played, ramp shots made, flipper flips, game tilts and target hits.

Feature Audits - view game-specific totals such as the number of modes started/finished, multiballs started, jackpots collected and orbs earned.

EARNINGS AUDITS

The ***Earnings Audits*** page allows you to view audits of interest for games set up on location, in a pay-for-play configuration. The complete list is provided below. To clear these audits, use the ***Reset*** function, located in the ***Utilities Menu***.

To exit the ***Earnings Audits*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Audits Menu***.

Games Started With Credits
Games Started Without Credits
Coins Registered By Switch 3 (Default, Wired Slot)
Coins Registered By Switch 2
Coins Registered By Switch 1
Coins Registered By Dollar Bill Validator
Total Coins Inserted
Replays Awarded
Replays - Current Losing Streak
Matches Awarded
Paid Credits
Free Game Credits
Bonus Credits
Free Game Percentage
Service Credits
Total Bonus Coins

HARDWARE AUDITS

The ***Hardware Audits*** page allows you to view audits for game play, such as the number of games started, ramp shots made, tilts and target hits . The complete list is provided below. To clear these audits, use the ***Reset*** function, located in the ***Utilities Menu***.

To exit the ***Hardware Audits*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Audits Menu***.

Forced Resets
Total Games Started
Total Games Finished
Average Game Time
Total Balls Started
Total Balls Finished
Average Ball Time
Number Of Times Tilted
Number Of Times Warned
Left Ramp Shots Made
Left Flipper Flips
Lower Right Flipper Flips
Upper Right Flipper Flips
Left Outlane Drains
Both Switch Outlane Drains
Right Outlane Drains
Wall Target Hits (***Sw 48***)
Change Mode Target Hits (***Sw 54***)
Pillar (***Ello***) Target Hits (***Sw 40***)
Fairy Target 1 (low left) Hits (***Sw 52***)
Fairy Target 2 (low right) Hits (***Sw 53***)
Fairy Target 3 (high left) Hits (***Sw 73***)
Fairy Target 4 (high right) Hits (***Sw 68***)
Wiseman Left Target Hits (***Sw 29***)
Wiseman Right Target Hits (***Sw 28***)
Upper Right Slingshot Hits
Right Slingshot Hits
Left Slingshot Hits

FEATURE AUDITS

The ***Feature Audits*** page allows you to view audits for game-specific totals such as the number of modes started/finished, multiballs started and jackpots collected. The complete list is provided below. To clear these audits, use the ***Reset*** function, located in the ***Utilities Menu***.

To exit the ***Feature Audits*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Audits Menu***.

Wiseman Quests Started
Wiseman Quests Completed
Wiseman Orb Collected
Brick Keeper Balls Locked
Brick Keeper Multiball Started
Brick Keeper Super Jackpots
Average Brick Keeper Super Jackpot Value
Brick Keeper Orb Collected
Tea Time Multiball Started
Tea Time Average Score
Total Modes Lit
Total Modes Started
Total Orbs Lit
Total Orbs Collected
Friend Multiball Started
Friend Multiball Orbs Collected
Hoggle Reached Level 1
Hoggle Reached Level 2
Hoggle Reached Level 3
Hoggle Reached Level 4
Ludo Reached Level 1
Ludo Reached Level 2
Ludo Reached Level 3
Ludo Reached Level 4
Didymus Reached Level 1
Didymus Reached Level 2
Didymus Reached Level 3
Didymus Reached Level 4
Cleaners Started
Cleaners Finished
Cleaners Average Completion Time
Average Incomplete Cleaners Points
Average Complete Cleaners Points
Average Cleaners Points
Cleaners Orb Earned
Bog Started
Bog Finished
Bog Average Completion Time
Average Incomplete Bog Points
Average Complete Bog Points
Average Bog Points
Bog Orb Earned
Fireys Started
Fireys Finished
Fireys Average Time To Orb Earned
Average Fireys Points
Fireys Orb Earned
Oubliette Started
Oubliette Finished
Oubliette Average Completion Time
Average Incomplete Oubliette Points
Average Complete Oubliette Points
Average Oubliette Points
Oubliette Orb Earned
Guards Started
Guards Finished
Guards Average Completion Time
Average Incomplete Guards Points
Average Complete Guards Points
Average Guards Points
Guards Orb Earned
Knockers Started
Knockers Finished
Knockers Average Completion Time
Average Incomplete Knockers Points
Average Complete Knockers Points
Average Knockers Points
Knockers Orb Earned
Goblin City Started
Goblin City Challenge Started
Goblin City: Defeat The Gate Completed
Goblin City: Defeat The Gate Average Score
Goblin City: Hide Completed
Goblin City: Hide Average Score
Goblin City: Battle Played
Goblin City: Attack Average Score
Goblin City: Total Average Score
Goblin City: Orb Collected

NETWORK MENU

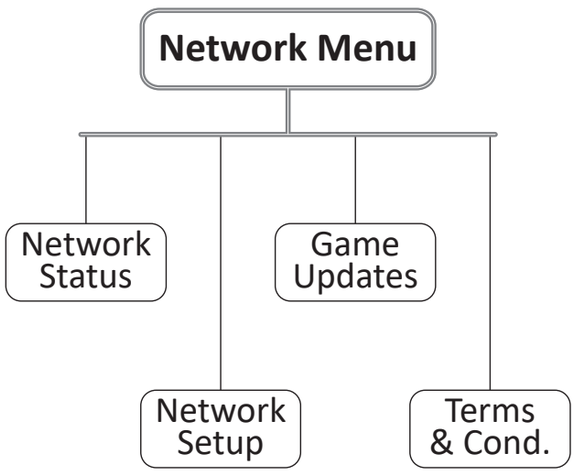


Figure 3-23. The Network Menu tree.

3.7 The Network Menu

Figure 3-23 shows the ***Network Menu*** outline. There are four items within the ***Network Menu***, described below. You can scroll through them using the red (**+** or **-**) buttons; press the black (**SELECT**) button to enter the currently selected item. To exit the ***Network Menu*** at any time, press the green (**EXIT**) button; you will immediately return to the ***Service Menu***.

Network Status - view/verify the status of the game's network connection.

Network Setup - set up a wired or wireless connection between the game and your network router.

Game Updates - check online for (and wirelessly download) available code updates for the game.

Terms & Conditions - read the terms and conditions for use of the network utilities in Labyrinth (use of the wireless networking capabilities in the game constitutes agreement with these terms and conditions).

NETWORK STATUS

The ***Network Status*** page allows you to check the status of the game's wired or wireless network connection. When you select this menu item, a screen similar to the one in figure 3-24 appears on the backbox display. Important details are provided on this page, such as Wi-Fi network name, connection status and internet availability information.

To exit the ***Network Status*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Network Menu***.

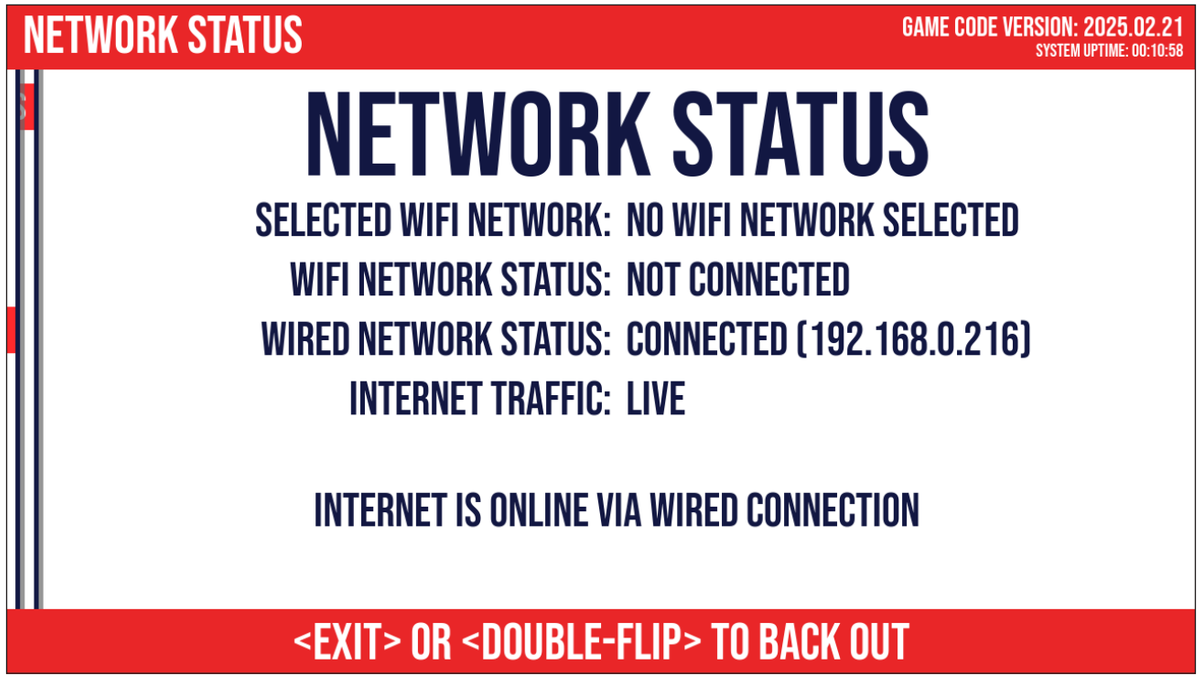


Figure 3-24. Sample Network Status screen.

NETWORK SETUP

The ***Network Setup*** sub-menu provides the tools required to connect your game to a wired or wireless network. When you select this menu item, a screen similar to the one in figure 3-25 appears on the back-box display. Use the red (**+** or **-**) buttons to navigate through the options. Press the black (**SELECT**) button to execute the selected command.

When you perform a Wi-Fi scan, a list of available networks is displayed (figure 3-26); use the coin door buttons to select the network you'd like to connect to. Enter the password for the network (figure 3-27); use the red (**+** or **-**) buttons to move between letters/numbers, then press the black (**SELECT**) button to add the current character. Use **SPACE** to add a blank space, **BACK** to delete the last character entered and **SAVE** to save the password, when you've finished entering it. The wireless connection will be established. You can check and monitor your network connection using the ***Network Status*** page.

To exit the ***Network Setup*** sub-menu at any time, press the green (**EXIT**) button; you will immediately return to the ***Network Menu***.

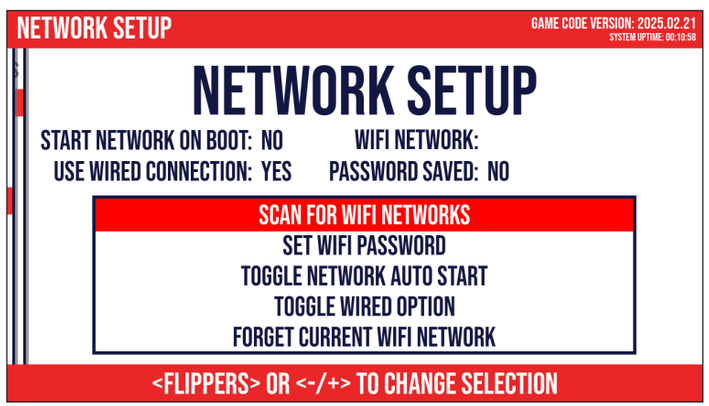


Figure 3-25. Network Setup sub-menu.

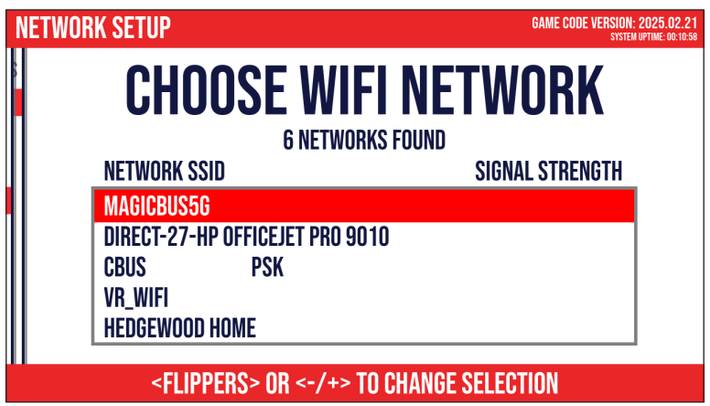


Figure 3-26. Network scan and selection.

Figure 3-27. Entering wireless network password.

GAME UPDATES

The ***Game Updates*** page allows you to check for, then download and install code updates for your Labyrinth game. When you select this menu item, a screen similar to the one in figure 3-28 appears on the backbox display. If there is a new code update available, use the coin door buttons to initiate the download & installation process.

To exit the ***Game Updates*** page at any time, press the green (**EXIT**) button; you will immediately return to the ***Network Menu***.

Figure 3-28. Game Updates page.

TERMS & CONDITIONS

Barrels of Fun Internet Based Services
Terms & Conditions

1. Throughout this document, the following terms apply:
   A. BOF refers to Barrels of Fun, LLC, the manufacturer of this pinball machine.
   B. You/your refers to the owner of this Machine or someone designated by You to setup and/or maintain and/or operate the Machine.
   C. Machine or Game refers to the pinball machine that BOF manufactured and is now in your possession.
   D. Service refers to the internet-connected servers that BOF runs that the Machines connect to in order to determine if product software updates exist and to download said updates.
2. The primary purpose of connecting the Machine to an internet-connected network is so that the Machine can connect to the Service and determine if there are applicable updates for the Machine to download from the Service.
3. Your use of the Service constitutes acceptance of these Terms & Conditions.
4. Setting up Your Machine to connect to the Service is OPTIONAL and VOLUNTARY. It is not required in any way in order that Your Machine provides entertainment and/or earns money.
5. BOF does not warrant that the Service will have 100% availability whether circumstances are within its control or not, nor does BOF warrant that the Service will be available permanently.
6. BOF will attempt to notify You of any scheduled downtime or cessation of the Service via announcements on its website and/or official social media pages, but this is not always possible nor guaranteed.
7. The Service and the Machine's interaction with the Service have been thoroughly tested to ensure smooth operation and any possible error recovery, but BOF does not warrant an error-free experience.
8. Use of the Service does not exercise the Machine in a physical (mechanical or electrical) way; consequently, BOF will not be liable for extraordinary failures that occur coincidentally with the use of the Service apart from issues that would occur under normal operation and possibly be covered under BOF's existing warranty.
9. It is possible, though extremely unlikely, that use of the Service could leave your game in a completely inoperable and/or unrecoverable state (commonly known as "bricked"). In the event that BOF Technical Support cannot help you get Your Machine into a running and operable state again, the sole remedy will be a new solid-state drive (SSD) sent to You by BOF at BOF's expense. No compensation for lost time will be provided by BOF. In the event this is necessary, You agree to send the old unusable SSD back to BOF, also at BOF's expense, if requested by BOF.
10. If the Machine is professionally operated, whether for-profit or otherwise, You alone assume any risks associated with using the Service. As Service use is voluntary, BOF is not responsible for lost revenue related to Service-use downtime.
11. Any bandwidth and/or metered Internet costs that might be associated with using the Service are assumed by You.
12. BOF recommends that the Machine is connected via a NAT/Firewall setup (as is most typical in home and commercial networks in this age). As with connecting anything to the Internet, there are risks associated with this. BOF has taken reasonable measures to ensure the integrity of the Machine being connected to the Internet, but no security is perfect, and BOF cannot warrant 100% intrusion-free operation while connected to the Internet. BOF specifically recommends AGAINST the Machine being directly connected to the Internet (this would be very uncommon).
13. As part of connecting to the Service, the Machine may transmit certain usage information for analysis by BOF, including, but not limited to, Machine audit values, Machine adjustment values, and Machine error logs. Any data transmitted to BOF is done anonymously and does not correlate to You, a user, or user account. Please see our Privacy Policy for more information.
14. These Terms & Conditions are subject to change at any time. If this occurs, the date shown in the disclaimer on all of the network menus will be updated.
15. If You have questions or comments regarding the Terms & Conditions, please contact BOF Technical Support.

    Last update: 15-Dec-2023

Barrels of Fun Internet Based Services
Privacy Policy

1. Throughout this document, the following terms apply:
   A. BOF refers to Barrels of Fun LLC, the manufacturer of this pinball machine.
   B. You/your refers to the owner of this Machine or someone designated by You to setup and/or maintain and/or operate the Machine.
   C. Machine or Game refers to the pinball machine that BOF manufactured and is now in your possession.
   D. Service refers to the internet-connected servers that BOF runs that the Machines connect to in order to determine if product software updates exist and to download said Updates.
2. BOF may collect the following kinds of information from Your Machine:
   A. Audit information, as shown in the various Audits sections of the service menu.
   B. Settings information, as shown in the various Settings sections of the service menu.
   C. Error Logs, as generated by the operating executable (not viewable in game).
3. BOF specifically does NOT collect the following kinds of information:
   A. Any Personally Identifiable information.
4. The information may be transmitted to BOF during a Machine's connection to the Service that checks if new software is available for download by the Machine.
5. The information is stored on computer servers operated by a third party (such as a typical colocation service) under contract by BOF and may be accessed by Playfield and Rules designers to determine if games are, in aggregate, performing as expected in terms of how often various features are achieved, gameplay length, etc. Third Party access is limited to a colocation service in its normal duties of operating Internet-connected computers, and storing and backing up data.
6. Absolutely no information will be shared with any other Third Party for any reason.
7. This Privacy Policy is subject to change at any time. If this occurs, the Machine will notify You before the next time it connects to the Service so that You will have an opportunity to review it and choose whether to continue or not.
8. If you have questions or comments regarding the Privacy Policy, please contact BOF Technical Support.

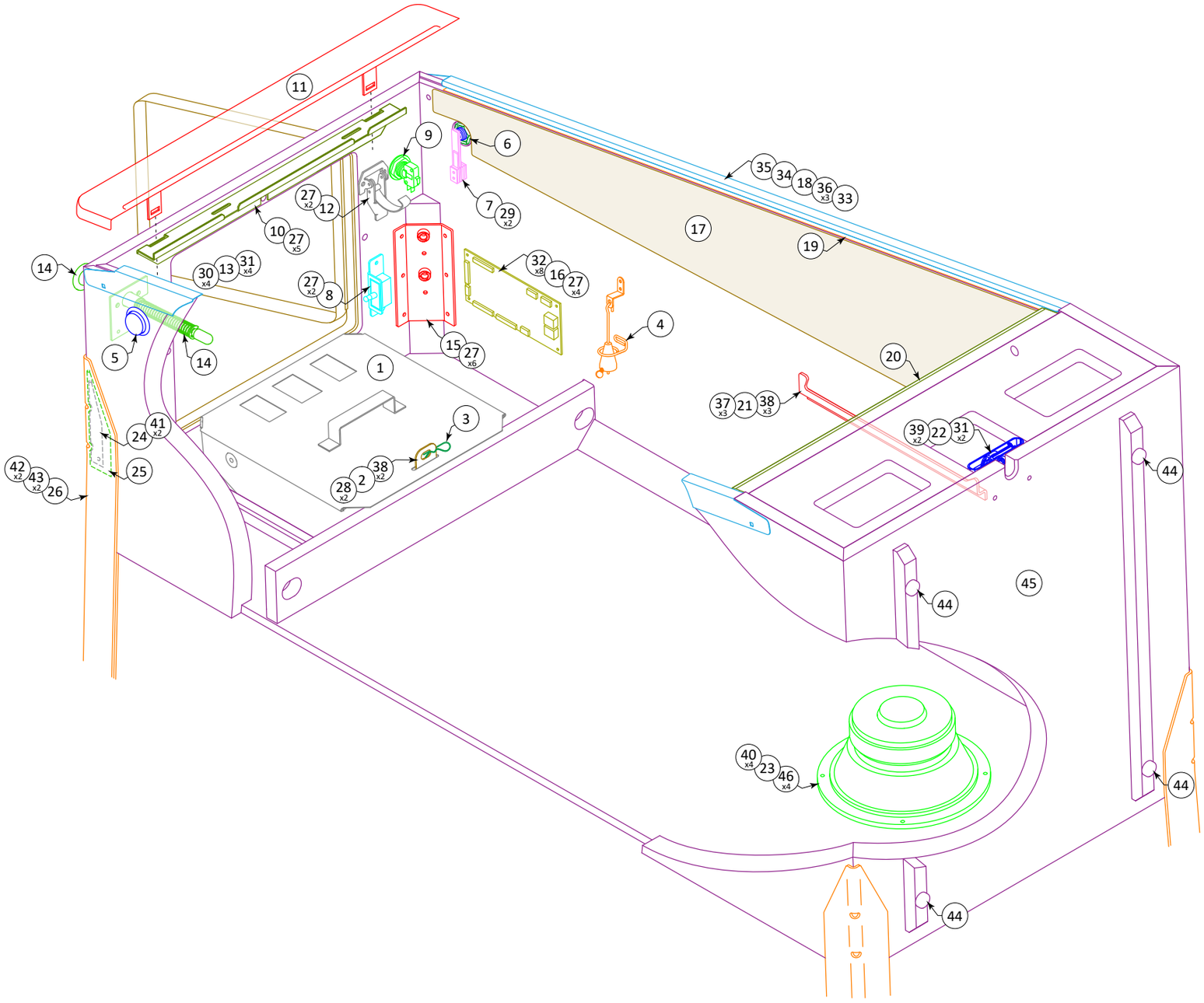
    Last update: 15-Dec-2023

"So, the labyrinth's a piece of cake, is it? Well, let's see how you deal with this little slice..."

Section 4

Game Parts Information

"How you turn my world, you precious thing."


11
9
6
35
34
18
36 x3
33
27 x2
12
7
29 x2
17
19
10
27 x5
32 x8
16
27 x4
14
30 x4
13
31 x4
27 x2
8
4
15
27 x6
5
14
1
20
37 x3
21
38 x3
3
24
41 x2
39 x2
22
31 x2
44
42 x2
43 x2
26
25
38 x2
28 x2
2
45
44
40 x4
23
46 x4
44
44

Labyrinth Lower Cabinet Assembly
ASY-0002-00

Item	Part Number	Description	Qty	Details
1	CBX-0001-00	Pinball Coin Box, Plastic	1	-
	CBX-0002-00	Coin Box Lid Assy	1	-
2	MET-0006-00	Coin Box Lock Brkt	1	-
3	HDW-0000-00	Coin Box Hairpin Clip	1	-
4	KIT-0004-00	Plumb Bob Tilt Assy (***Sw 13***)	1	4-51
5	BUT-0000-13	Clear Flipper Button	1L,1R	-
6	NUT-6000-00	Flipper Button PAL Nut	1L,1R	-
7	SWI-0000-00	Flipper Leaf Switch, Single Contact (***Sws 15***)	1L	-
NS	SWI-0001-00	Flipper Leaf Switch, Double Contact (***Sws 22***, ***23***)	1R	-
8	SUB-00045-00	Coin Door Interlock Switch Assy	1	-
a)	MET-0004-00	Coin Door Interlock Switch Brkt	1	
b)	SWI-0003-00	Coin Door Interlock Switch (***Sw 12***)	1	
9	BUT-0001-00	Start Button Assy, Round, 1.5", Green (***Sw 14***, ***Coil 3***)	1	-
10	MET-0900-00	Lockdown Bar Receiver Assy	1	-
11	MET-0200-01	Lockdown Bar Assy, Ron Burgundy	1	-
NS	FOM-0003-00	Foam Adhesive Strip, Lockdown Bar Seal	1	-
12	MSC-0003-00	Lockdown Bar Trunk Latch	2	-
13	CDR-0001-00	25¢ Coin Door Assy, Single Slot (***Sws 2***, ***4-7***)	1	appendix
14	SUB-0002-01	Ball Shooter Assy	1	4-50
15	MET-0002-00	Cabinet Leg Mtg Brkt	4	-
16	ELE-0024-00	Cabinet I/O Bd, **0024**	1	5-45
17	DEC-0008-00	Labyrinth Cabinet Art Blade, Left	1	-
NS	DEC-0009-00	Labyrinth Cabinet Art Blade, Right	1	-
18	MET-0011-01	Cabinet Side Rail, Ron Burgundy	1L,1R	-
19	PLS-0005-00	Cabinet Side Glass Channel	1L,1R	-
20	PLS-0006-00	Cabinet Rear Glass Channel, Standard	1	-
NS	GLS-0000-00	Standard Playfield Glass, Tempered	1	-
21	MET-5989-00	Playfield Slide & Pivot Support Brkt, Left	1	-
NS	MET-5990-00	Playfield Slide & Pivot Support Brkt, Right	1	-
22	KEY-0200-00	Roto-Lock Latch	1	-
23	SUB-0043-00	Subwoofer Speaker Assy	1	-
a)	AUD-0301-00	Subwoofer Speaker, 8", 4Ω, 200W	1	
b)	MSC-0006-01	Subwoofer Speaker Cover, Round, 8"	1	
c)	PGT-0200-00	Subwoofer Speaker Wiring Pigtail	1	
24	LEG-0200-00	Cabinet Decal Protector Brkt Set (4)	1	
25	LEG-0100-00	Leg/Cabinet Protector Set (4), Felt	1	

Item	Part Number	Description	Qty
26	SUB-0044-00	Cabinet Leg Assy, Ron Burgundy	4
a)	LEG-0000-01	Cabinet Leg, Ron Burgundy	1
b)	LEG-0001-00	Leg Leveler w/Nut, Silver	1
27	SMS-2008-08	#8 x 1/2" HWH SMS	46
28	MAS-0010-06	10-32 x 3/8" PPH MS	2
29	SMS-0006-20	#6 x 1-1/4" PPH SMS	4
30	BLT-5125-20	1/4-20 x 1-1/4" CB, Black	4
31	NUT-5125-00	1/4-20 Flange Nut, Black	6
32	FOM-0001-00	Cork Dot, 3/8", 1/8"TH	8
33	BLT-5108-16	8-32 x 1" CB, Black	2
34	WAS-0008-14	#8 Flat Washer, 7/16"OD	2
35	NUT-5108-00	8-32 Flange Nut, Black	2
36	SMS-0106-08	#6 x 1/2" PPH SMS, Black	6
37	MAS-0110-08	10-32 x 1/2" PPH MS, Black	6
38	HDW-0013-00	Threaded Insert, 10-32 x 25/64", 5mm Drv	8
39	BLT-5125-28	1/4-20 x 1-3/4" CB, Black	2
40	MAS-2008-12	8-32 x 3/4" HWH MS	4
41	WDS-6008-08	#8 x 1/2" PFH SMS	8
42	BLT-3038-44	3/8-16 x 2-3/4" Acorn Head Leg Bolt, Silver	8
43	WAS-5000-00	Nylon Leg/Bolt Protect Washer	8
44	HDW-0009-00	Round Cabinet Glides, 3/4", White	4
45	WOD-0001-00	Lower Cabinet Wood Assy	1
46	NUT-4008-00	8-32, 3-Prong T-Nut, 1/2" Flange	4
NS	DEC-0002-00	Labyrinth Cabinet Decal, Left Side	1
NS	DEC-0003-00	Labyrinth Cabinet Decal, Right Side	1
NS	DEC-0001-00	Labyrinth Cabinet Decal, Front	1
NS	HDW-0004-00	Nylon Captive Cable Clamp, 1/4”	6
NS	HDW-0004-01	Nylon Captive Cable Clamp, 1/2”	1

Assembly Cable(s)

Part Number	Description	Qty
HAR-0011-00	Labyrinth Left Cabinet Switch Harness	1
HAR-0011-01	Labyrinth Right Cabinet Switch Harness	1
HAR-0016-00	Cabinet Subwoofer Harness	1
HAR-0019-01	Backbox To Cabinet DC Power Harness	1

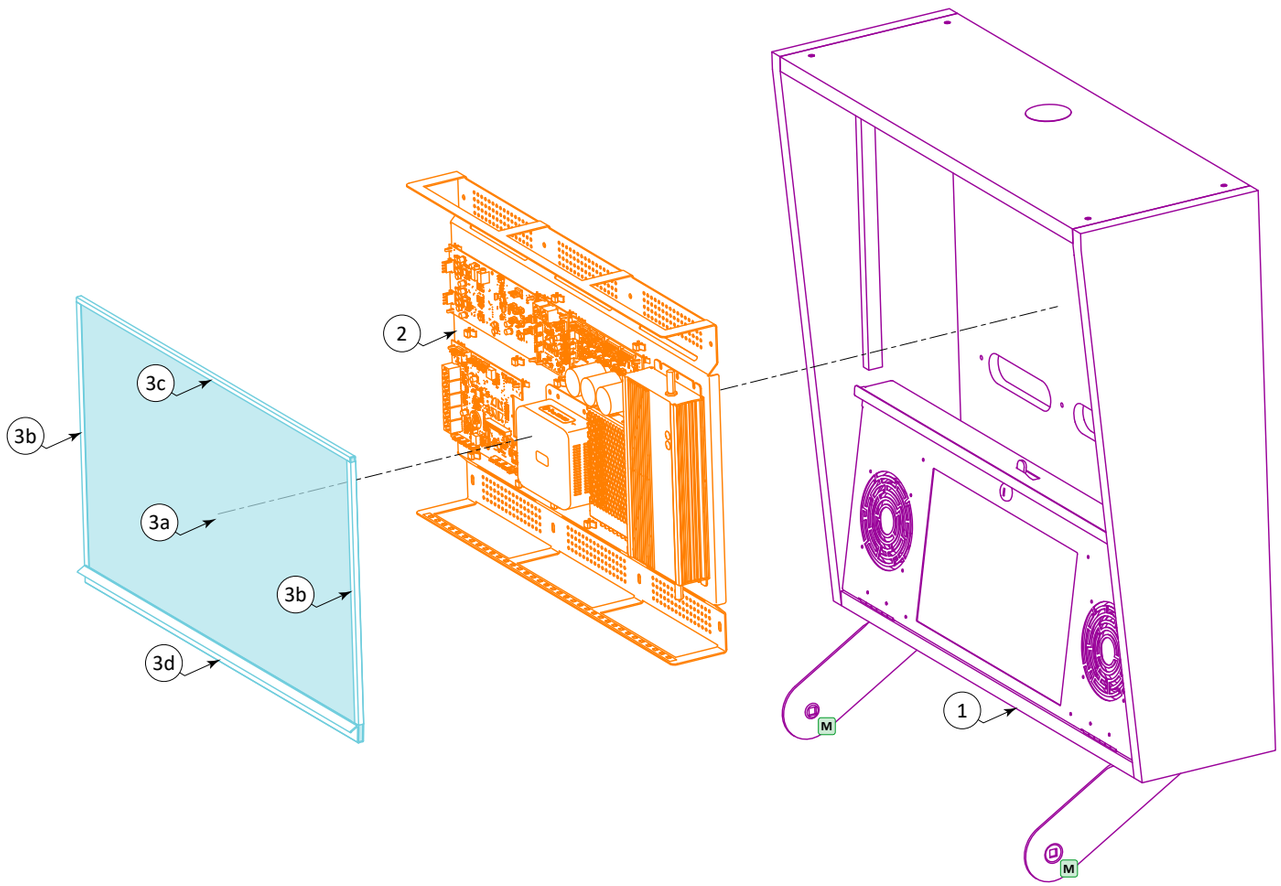
Labyrinth Complete Backbox Assembly
ASY-0013-00

Item	Part Number	Description	Qty	Details
1	ASY-0013-03	Labyrinth Backbox Base Assy	1	4-5
2	ASY-0013-01	Labyrinth Backbox Ground Plane Assy	1	4-48
3	SUB-0052-01	Labyrinth Backglass Assy	1	-
a)	GLS-0001-00	Labyrinth Standard Backglass	1	
or	GLS-0001-01	Labyrinth Alternate Backglass	1	
b)	PLS-0007-01	Backglass Side Channel	2	
c)	PLS-0007-00	Backglass Top Channel	1	
d)	PLS-0008-00	Backglass Lift Channel	1	
NS	WCA-0000-00	AC Power Cord, North America	1	-
or	WCA-0000-01	AC Power Cord, Australia	1	
or	WCA-0000-02	AC Power Cord, Europe	1	

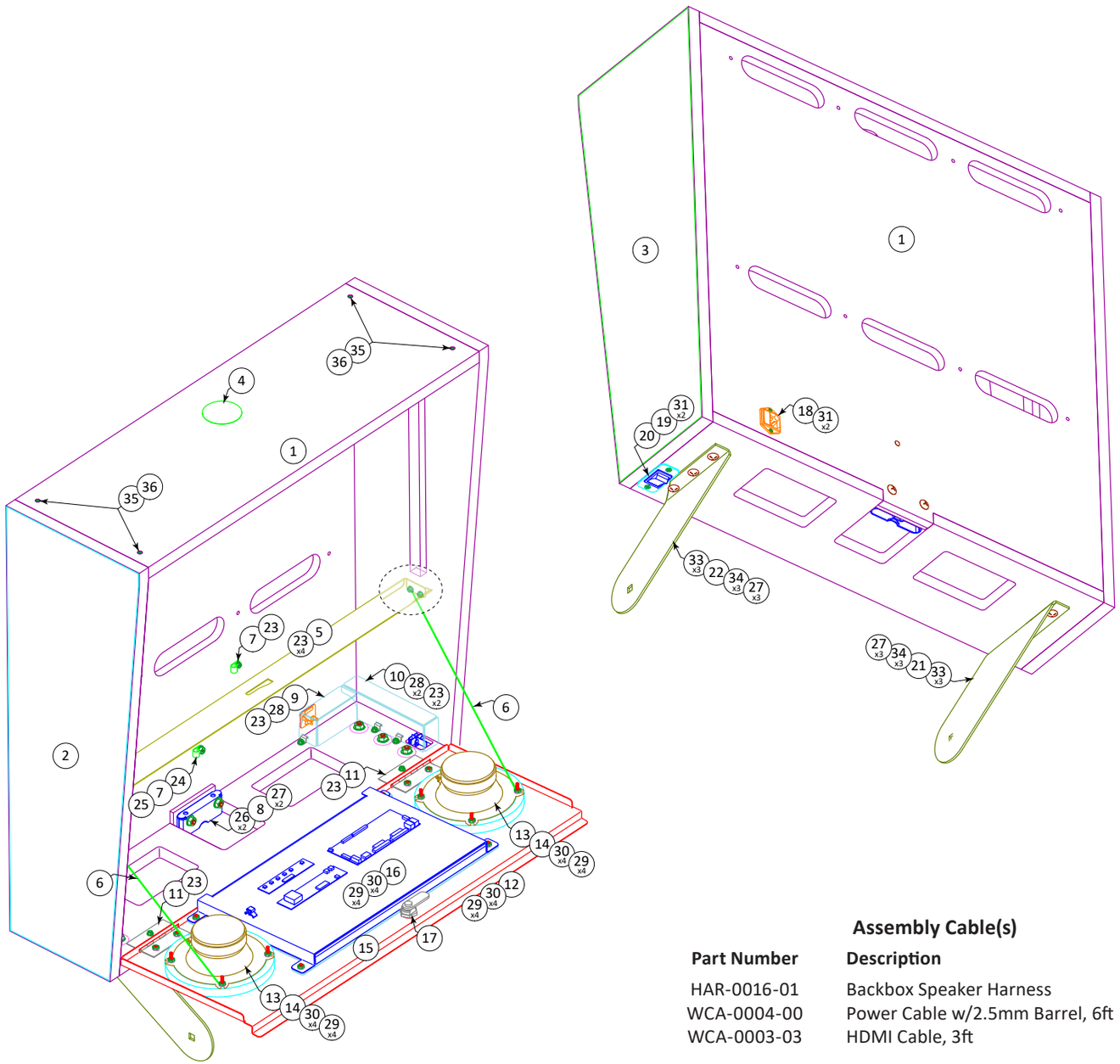
Assembly Mounting Hardware
Lower Cabinet Assy, Top

Location	Part Number	Description	Qty
M	BLT-5138-12	3/8-16 x 3/4" CB, Black	2
	WAS-5000-01	Nylon Washer, 0.53"ID, 0.74"OD, 0.08"TH	2
	MCH-5138-00	3/8-16 x 3/4" SH T-Nut Pivot Bushing, Black	2

Each carriage bolt goes through a backbox hinge, a nylon washer and one side of the cabinet, threading into a pivot bushing, installed from the inside



Labyrinth Backbox Base Assembly
ASY-0013-03



Item	Part Number	Description	Qty
1	WOD-0002-00	Backbox Wood Assy	1
2	DEC-0004-00	Labyrinth Backbox Decal, Left Side	1
3	DEC-0005-00	Labyrinth Backbox Decal, Right Side	1
4	HDW-0008-00	Round Dome Plug, 2", Black Plastic	1
5	MET-0087-00	Backglass Support Brkt	1
6	CBL-0000-00	Speaker Panel Restraint Cable	2
7	HDW-0004-00	Nylon Captive Cable Clamp, 1/4”	2
8	KEY-0201-00	Roto-Lock Receptacle	1
9	PLS-0017-01	Backbox Plastic HV Shield, Short	1
10	PLS-0017-00	Backbox Plastic HV Shield, Long	1
11	HDW-0001-00	Speaker Panel 3" Hinge, Black	2
12	MET-0086-01	Speaker Panel, Ron Burgundy	1
13	SUB-0001-00	Backbox RGB Speaker Ring Assy	2
a)	3DP-0001-00	Speaker Spacer/Ring, Translucent, 3DP	1
b)	LIT-0011-01	Speaker RGB LED Strip & Cable (***155-210***)	1
14	AUD-0300-00	Backbox Mid-range Speaker, 5.25"	2
15	PLS-0009-00	Backbox Display Protector, Clear	1
16	DIS-0000-00	Backbox Display Assy, 15.6"	1
17	KEY-0101-00	Backbox Lock & Keys	1
18	ELE-0001-00	IEC AC Power Inlet	1
19	MET-1014-00	Power Switch Mtg Plate	1
20	SWI-1131-00	Main Power Switch, Rocker	1
21	MET-0012-01	Backbox Hinge Brkt, Left	1
22	MET-0013-01	Backbox Hinge Brkt, Right	1
23	SMS-2008-08	#8 x 1/2" HWH SMS	10
24	BLT-5108-12	8-32 x 3/4" CB, Black	1
25	NUT-5108-00	8-32 Flange Nut, Black	1
26	BLT-5125-28	1/4-20 x 1-3/4" CB, Black	2
27	NUT-5125-00	1/4-20 Flange Nut, Black	8
28	3DP-0037-00	Backbox HV Shield Mtg Clip, 3DP	3
29	NUT-0006-00	6-32 Nylon Lock Nut	16
30	WAS-0006-12	#6 Flat Washer, 3/8"OD	16
31	WDS-6104-08	#4 x 1/2" PFH SMS, Black	4
32	WDS-6008-08	#8 x 1/2" PFH SMS	2
33	BLT-5125-20	1/4-20 x 1-1/4" CB, Black	6
34	WAS-0025-16	1/4" Flat Washer, 1"OD	6
35	HDW-0013-00	Threaded Insert, 10-32 x 25/64", 5mm Drv	4
36	MAS-0110-08	10-32 x 1/2" PPH MS, Black	4

Assembly Cable(s)

Part Number	Description	Qty
HAR-0016-01	Backbox Speaker Harness	1
WCA-0004-00	Power Cable w/2.5mm Barrel, 6ft	1
WCA-0003-03	HDMI Cable, 3ft	1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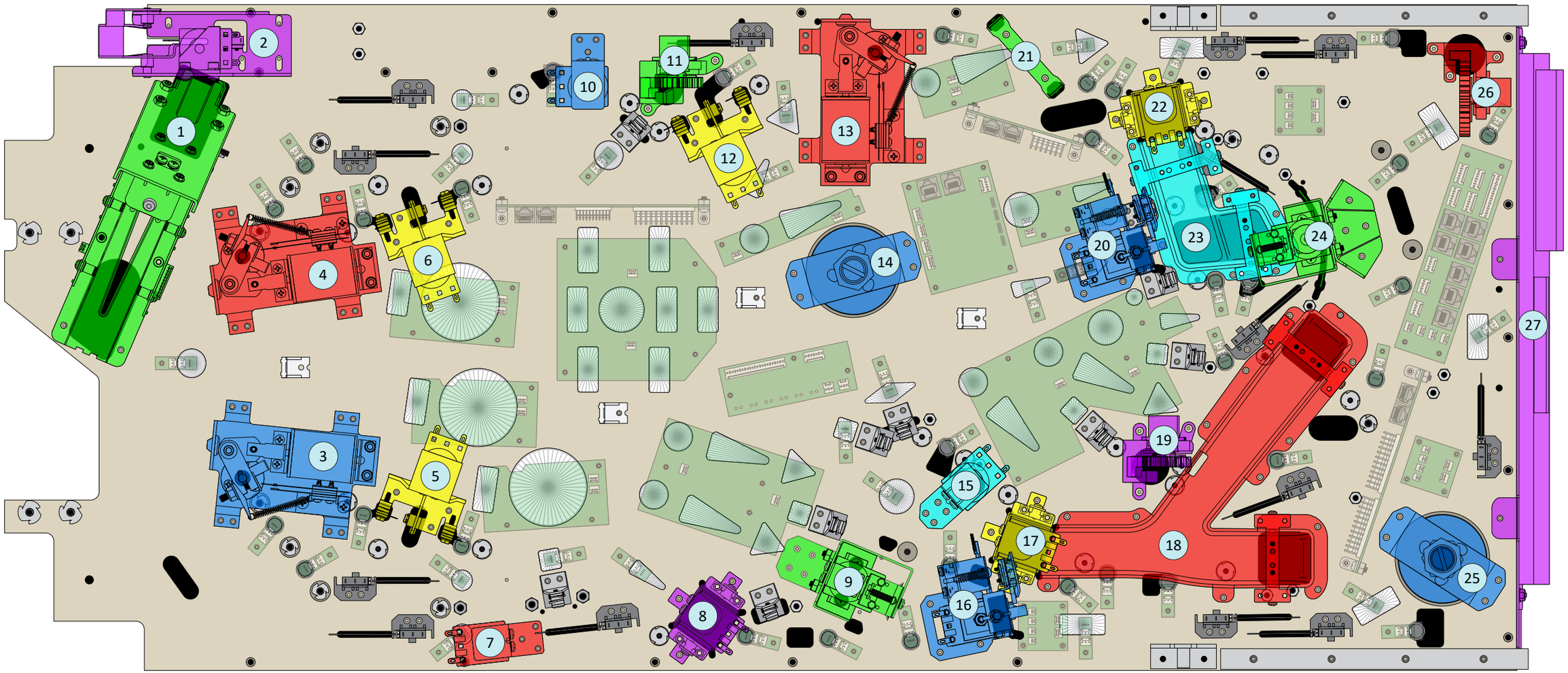
Above-Playfield Assemblies

Item	Assembly PN	Assembly Name	Game Function	Drawing
1	SUB-0033-00	Labyrinth Bottom Arch Assy	Playfield bottom arch	4-42
2	SUB-0034-00	Firey Head Servo Assy, Horiz	Bottom arch ***Firey*** in/out control	4-36
3	SUB-0035-00	Orbit Opto Pair Assy, FAST	Left orbit enter/ball lock switch	4-37
4	SUB-0036-00	Microswitch Spinner Assy	Left orbit spinner	4-40
5	SUB-0011-00	Lift Ramp Top Assy	Left Lift Ramp	4-38
6	SUB-0027-00	Humongous Sculpture Assy	Left orbit playfield toy	4-41
7	SUB-0018-00	Labyrinth Left Ramp Assy	Left ramp	4-45
8	SUB-0019-00	Labyrinth Center Ramp Assy	Center ramp	4-46
9	SUB-0021-00	Wireform Opto Pair Assy	Left ramp made switch	4-47
10	SUB-0020-00	Labyrinth Right Ramp Assy	Right ramp	4-44
11	SUB-0076-00	Labyrinth Back Panel Assy	Playfield back panel & display	4-35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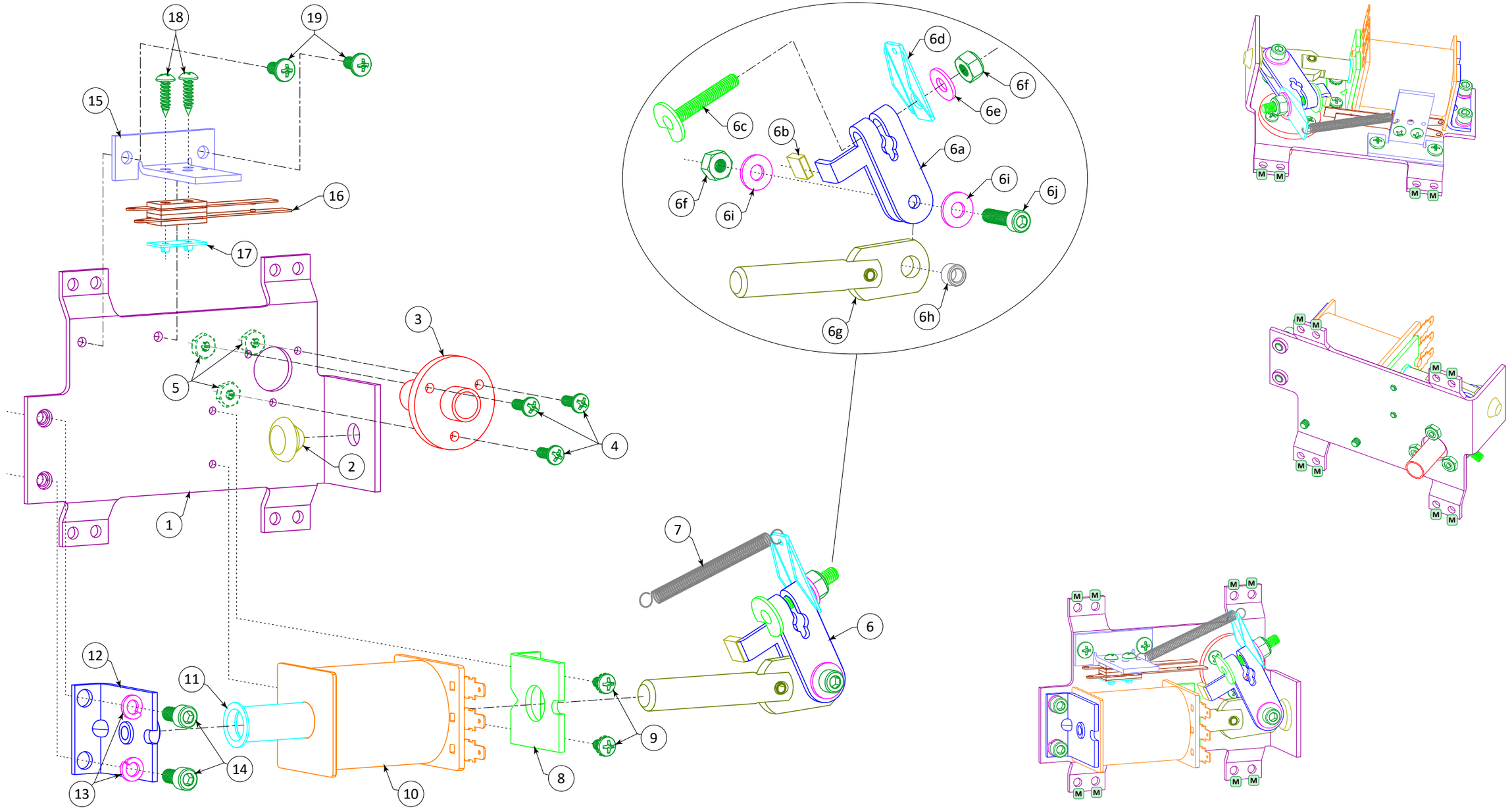
Under-Playfield Assemblies

Item	Assembly PN	Assembly Name	Game Function	Drawing
1	SUB-0007-00	Ball Trough Assy	Ball trough, popper for shooter lane	4-14
2	SUB-0008-00	Auto-Launch Assy	Shooter lane ball auto-launch	4-16
3	SUB-0005-00	Left Flipper Assy	Left flipper	4-10
4	SUB-0005-01	Right Flipper Assy	Right flipper	4-12
5	SUB-0006-00	Left Slingshot Assy	Left slingshot	4-18
6	SUB-0006-01	Right Slingshot Assy	Right slingshot	4-18
7	SUB-0016-00	Up/Down Post Assy, w/Sleeve	Left outlane protect	4-26
8	SUB-0015-00	Scoop Assy, Closed Back	***Helping Hands*** scoop eject	4-25
9	SUB-0009-00	Forks Ball Catch Assy, w/Latch	Left orbit ball catch	4-19
10	SUB-0017-00	Up/Down Post Assy, w/Nylon Tip	***Ello*** ball catch	4-27
11	SUB-0037-00	Ello Figure Servo Assy	***Ello*** figure up/down control	4-31
12	SUB-0006-02	Upper Right Slingshot Assy	Upper right slingshot	4-18
13	SUB-0005-02	Upper Right Flipper Assy	Upper right flipper	4-12
14	MAG-0000-00	Playfield Magnet Assy, Threaded Core	Mid-playfield ball effects	4-30
15	SUB-0012-00	Ramp Lifter Assy	Left ramp up/down actuator	4-21
16	SUB-0013-01	Single, Smart Drop Target, Rt Assy	Left orbit (***Humongous***) drop target/diverter	4-22
17	SUB-0014-01	Scoop Assy, Open Back	***Village*** scoop eject (under left ramp)	4-24
18	SUB-0023-00	Labyrinth Village Subway Assy	***Village*** subway	4-29
19	SUB-0038-00	Ludo Figure Servo Assy	***Ludo*** figure up/down control	4-32
20	SUB-0013-00	Single, Smart Drop Target, Rt Assy	***Wiseman*** subway entry access control	4-22
21	SUB-0039-27	Opto Pair & Brkt Assy, FAST, 2.75"	Right orbit, low switch	4-34
22	SUB-0014-00	Scoop Assy, Open Back	***Wiseman*** scoop eject (right orbit)	4-24
23	SUB-0022-00	Labyrinth Wiseman Subway Assy	***Wiseman*** subway	4-28
24	SUB-0010-00	Horseshoe Diverter Assy, w/Latch	Horseshoe diverter	4-20
25	MAG-0000-00	Playfield Magnet Assy, Threaded Core	Upper left orbit ball catch	4-30
26	SUB-0034-01	Firey Head Servo Assy, Vert	Upper right ***Firey*** up/down control	4-33
27	SUB-0076-00	Labyrinth Back Panel Assy	Playfield back panel & display	4-35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Left Flipper Assembly
SUB-0005-00

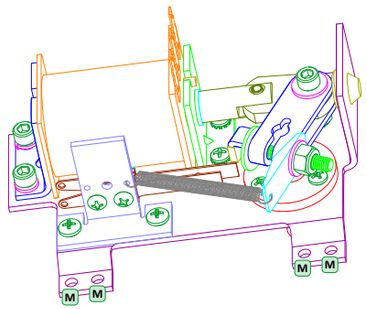
Item	Part Number	Description	Qty
1	MET-0153-00	Flipper Base Assy, Left	1
2	RUB-0200-00	Flipper Bumper Plug, 5/8"	1
3	PLS-7568-00	Flipper Bat Bushing	1
4	MAS-0006-06	6-32 x 3/8” PPH MS	3
5	NUT-0006-00	6-32 Nylon Locknut	3
6	SUB-0058-00	Flipper Crank & Link Assy, Left	1
a)	MET-0154-00	Flipper Crank, Left	1
b)	RUB-0300-08	Heat Shrink Tubing, 1/4"	3/8"
c)	STD-5000-00	10-32 Locking Stud Bolt	1
d)	MET-0152-00	Flipper Pawl Return Spring Brkt	1
e)	WAS-0010-16	#10 Flat Washer, 0.5"OD, 0.042"TH	1
f)	NUT-0010-00	10-32 Nylon Locknut	2
g)	SUB-0057-00	Flipper Coil Plunger & Link Assy	1
h)	MCH-5139-00	Flipper Crank & Link Bushing	1
i)	WAS-5003-00	#10 Flat Washer, 0.203" ID, 0.625"OD, 0.104"TH	2
j)	MAS-4010-12	10-32 x 3/4” SH CS	1
7	SPR-0002-02	Flipper Return Spring, 1.65"	1
8	MET-7695-01	Flipper Coil Retaining Brkt, 0.75", #6 Holes	1
9	MAS-1006-04	6-32 x 1/4” PPH MS, SEMS	2
10	COL-1629-01	FL-11629 (Blue) Flipper Coil, w/Diodes (*Coils 14, 15*)	1
11	PLS-1000-00	2-3/16" Flipper Coil Sleeve, Flush	1
12	MET-1239-00	Flipper Coil Stop Brkt, 7.9mm	1
13	WAS-1010-11	#10 Split Lock Washer	2
14	MAS-4110-06	10-32 x 3/8” SH CS, Black	2
15	MET-0143-01	Flipper EOS Switch Brkt	1
16	SWI-0200-00	Flipper EOS Leaf Switch (*Sw 59*)	1
17	NUT-6105-00	Tinnerman Twin #5 Speednut	1
18	SMS-0005-10	#5 x 5/8” PPH SMS	2
19	MAS-0008-05	8-32 x 5/16” PPH MS	2

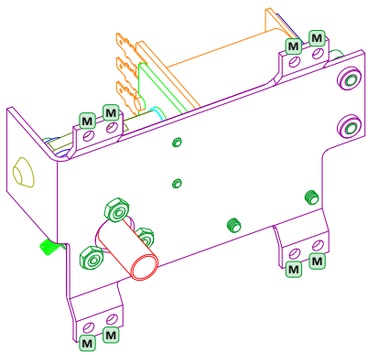
Assembly Mounting Hardware
Playfield, Underside

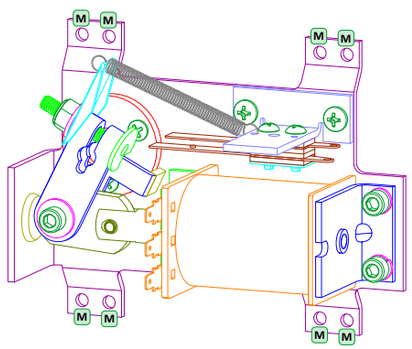
Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	8

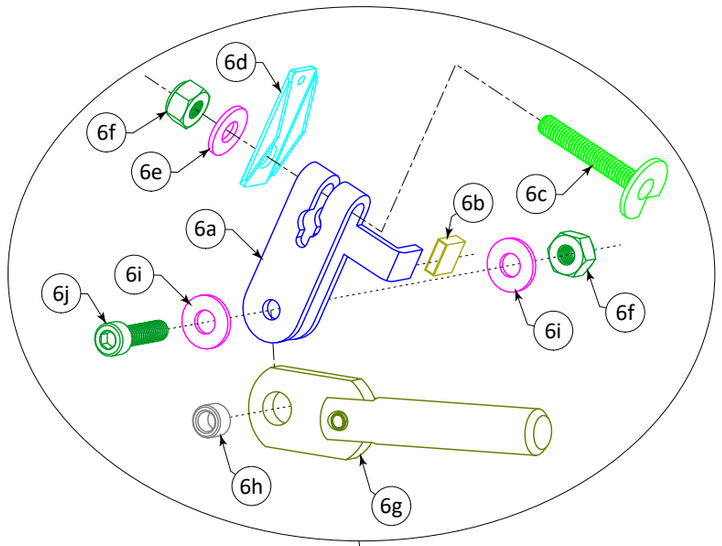
Assembly Cable(s)

Part Number	Description	Qty
PGT-0001-00	Flipper Coil Wiring Pigtail	1
PGT-0101-00	Flipper EOS Switch Wiring Pigtail	1





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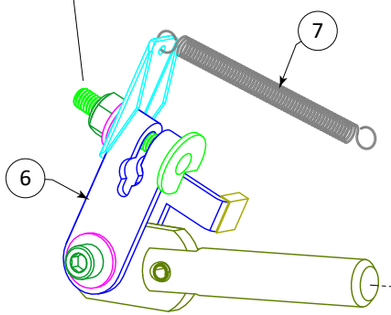
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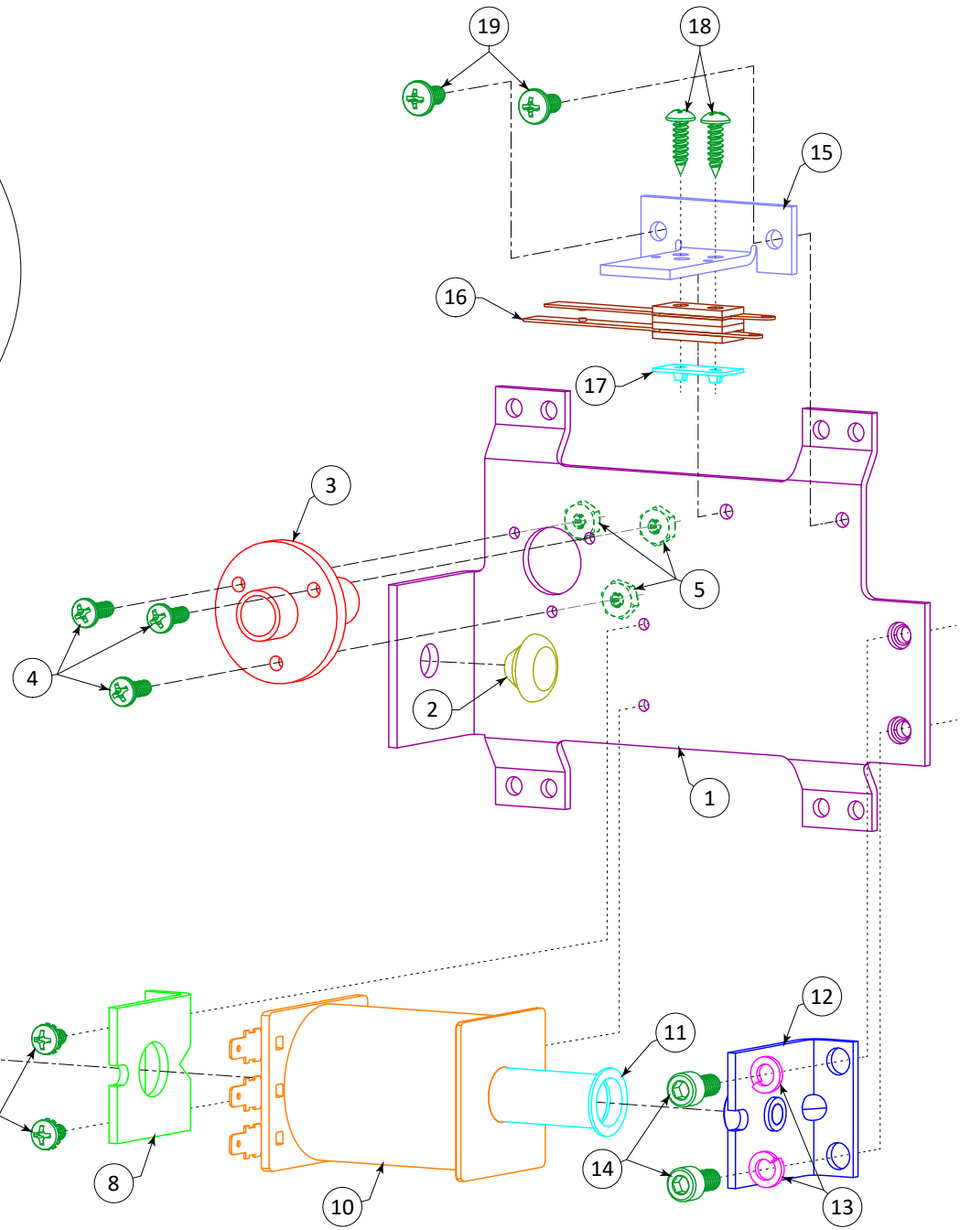
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Right, Upper Right Flipper Assemblies
SUB-0005-01, -02

Item	Part Number	Description	Qty
1	MET-0153-01	Flipper Base Assy, Right	1
2	RUB-0200-00	Flipper Bumper Plug, 5/8"	1
3	PLS-7568-00	Flipper Bat Bushing	1
4	MAS-0006-06	6-32 x 3/8” PPH MS	3
5	NUT-0006-00	6-32 Nylon Locknut	3
6	SUB-0058-01	Flipper Crank & Link Assy, Right	1
a)	MET-0154-01	Flipper Crank, Right	1
b)	RUB-0300-08	Heat Shrink Tubing, 1/4"	3/8"
c)	STD-5000-00	10-32 Locking Stud Bolt	1
d)	MET-0152-00	Flipper Pawl Return Spring Brkt	1
e)	WAS-0010-16	#10 Flat Washer, 0.5"OD, 0.042"TH	1
f)	NUT-0010-00	10-32 Nylon Locknut	2
g)	SUB-0057-00	Flipper Coil Plunger & Link Assy	1
h)	MCH-5139-00	Flipper Crank & Link Bushing	1
i)	WAS-5003-00	#10 Flat Washer, 0.203" ID, 0.625"OD, 0.104"TH	2
j)	MAS-4010-12	10-32 x 3/4” SH CS	1
7	SPR-0002-02	Flipper Return Spring, 1.65"	1
8	MET-7695-01	Flipper Coil Retaining Brkt, 0.75", #6 Holes	1
9	MAS-1006-04	6-32 x 1/4” PPH MS, SEMS	2
10	COL-1629-01	FL-11629 (Blue) Flipper Coil, w/Diodes (*Coils 12, 13, **25**, **26***)	1
11	PLS-1000-00	2-3/16" Flipper Coil Sleeve, Flush	1

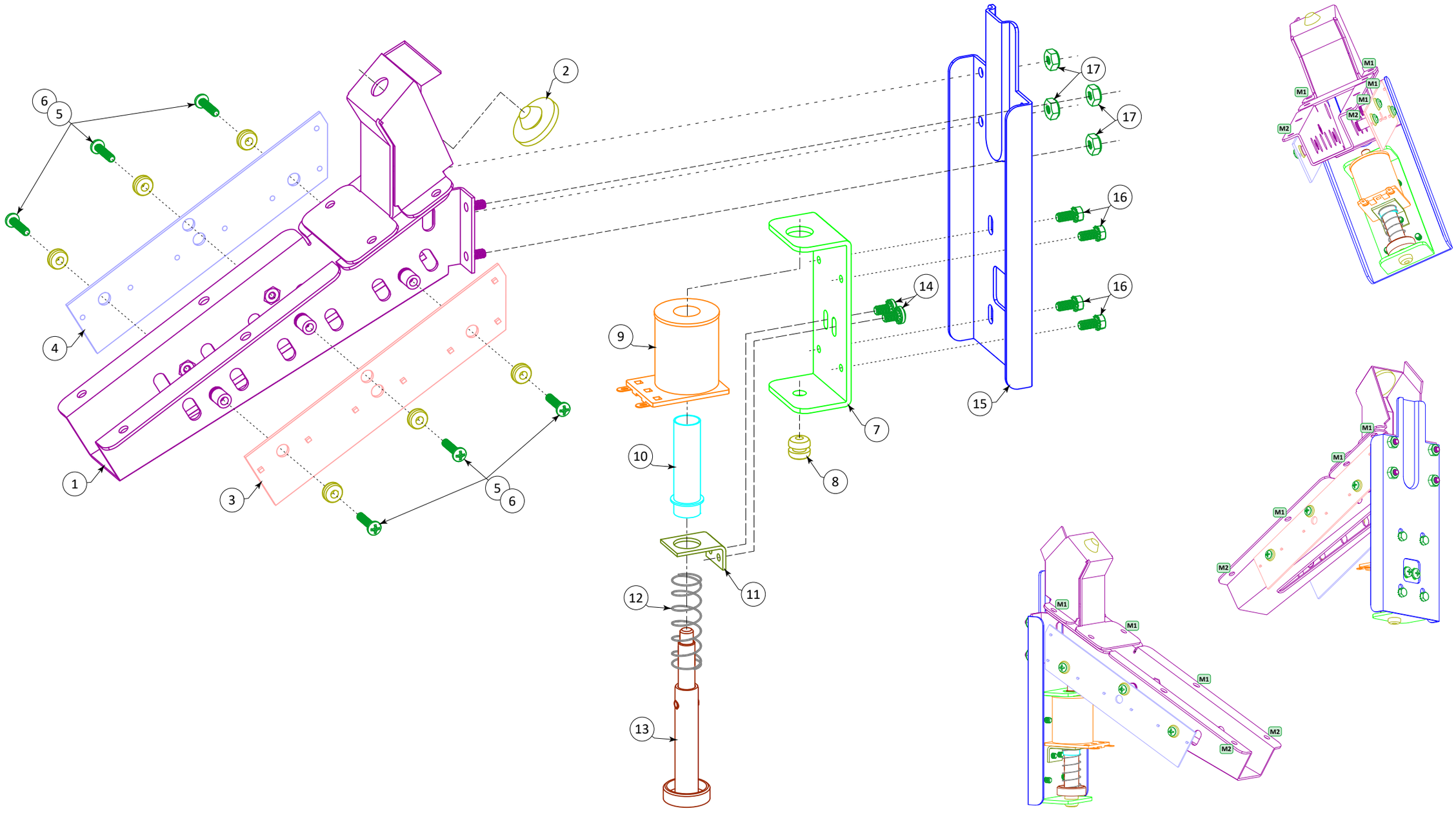
Item	Part Number	Description	Qty
12	MET-1239-00	Flipper Coil Stop Brkt, 7.9mm	1
13	WAS-1010-11	#10 Split Lock Washer	2
14	MAS-4110-06	10-32 x 3/8” SH CS, Black	2
15	MET-0143-01	Flipper EOS Switch Brkt	1
16	SWI-0200-00	Flipper EOS Leaf Switch (*Sws **60**, **43***)	1
17	NUT-6105-00	Tinnerman Twin #5 Speednut	1
18	SMS-0005-10	#5 x 5/8” PPH SMS	2
19	MAS-0008-05	8-32 x 5/16” PPH MS	2

Assembly Mounting Hardware
Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	8

Assembly Cable(s)

Part Number	Description	Qty
PGT-0001-00	Flipper Coil Wiring Pigtail	2
PGT-0101-00	Flipper EOS Switch Wiring Pigtail	2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Ball Trough Assembly
SUB-0007-00

Item	Part Number	Description	Qty
1	MET-1011-03	Welded Ball Trough	1
2	RUB-0203-00	Ball Trough Bumper Plug	1
3	SWI-0221-03	Ball Trough Opto Transmitter/LED PCB (pg 5-15)	1
4	SWI-0220-02	Ball Trough Opto Receiver/Phototransistor PCB (pg 5-14) (***Sws 32-39***)	1
5	RUB-0103-00	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	6
6	MAS-0106-08	6-32 x 1/2” PPH MS, Black	6
7	MET-1010-00	Ball Trough Coil Mtg Brkt	1
8	RUB-0101-00	Rubber Grommet, Tan	1
9	COL-2615-01	26-1500 (Blue) Coil, w/Diode (***Coil 17***)	1
10	PLS-1001-05	2-1/16" Coil Sleeve, 3/16" Offset Flange	1
11	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	1
12	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
13	MCH-0102-00	Plunger Assy, Narrow Nylon Tip, 3.4375"	1
14	MAS-1008-05	8-32 x 5/16” PPH MS, SEMS	2
15	MET-1001-03	Ball Trough Coil Brkt	1
16	MAS-9008-06	8-32 x 3/8" HWH MS, SEMS	4
17	NUT-0008-00	8-32 Nylon Locknut	4

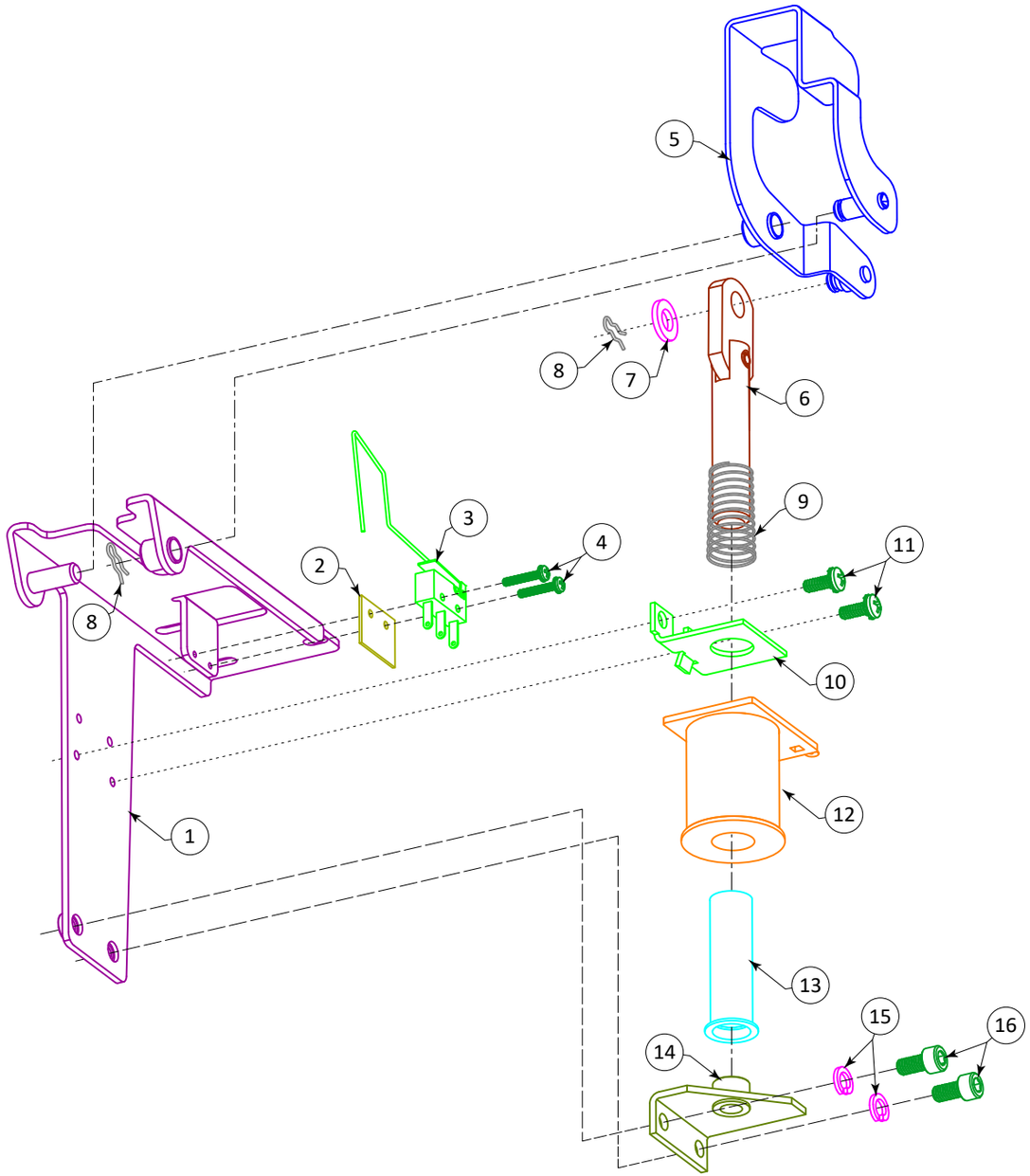
Assembly Mounting Hardware
Playfield, Underside/Top

Location	Part Number	Description	Qty
M1	MAS-0008-10	8-32 x 5/8" PPH MS	4
M2	SMS-2008-08	#8 x 1/2" HWH SMS	2

The four M1 screws are attached from above - the screws run through the playfield and thread into the welded ball trough (item 1)

Assembly Cable(s)

Part Number	Description	Qty
PGT-0004-00	26-1500 Coil Wiring Pigtail	1
HAR-0010-00	Ball Trough Switch Harness	1
HAR-0014-00	Ball Trough 12V Power Cable, 48"	1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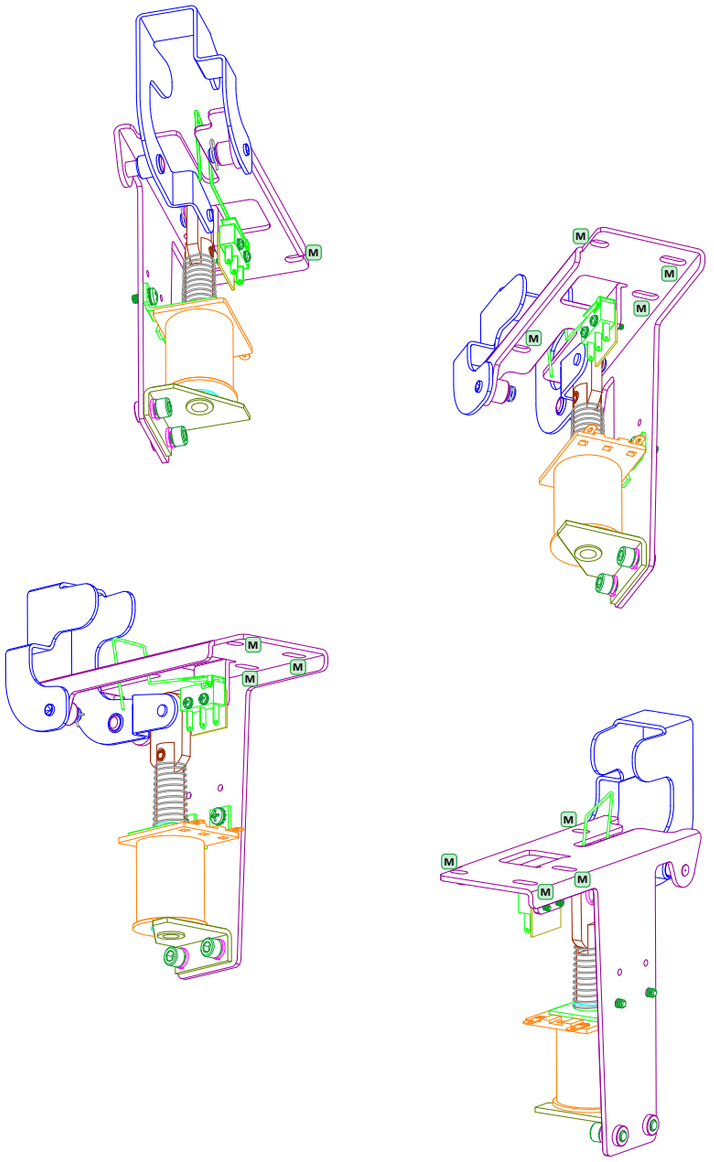


Auto-Launch Assembly
SUB-0008-00

Item	Part Number	Description	Qty
1	MET-0178-00	Auto-Launch Main Brkt	1
2	MSC-0005-00	Fish Paper, Microswitch Protect, 1/2" x 13/16"	1
3	SWI-0104-00	Auto-Launch Microswitch & Wireform (*Sw 39*)	1
4	MAS-1002-08	2-56 x 1/2" PPH MS, SEMS	2
5	MET-0179-00	Auto-Launch Crank Brkt	1
6	SUB-0057-00	Flipper Coil Plunger & Link Assy	1
7	WAS-0025-18	Flat Washer, 0.25” ID, 0.5” OD, 0.059” TH	1
8	HDW-0017-03*	Hairpin Clip, 3/16" Shaft	2
9	SPR-0101-00	Slingshot/Kicker Plunger Return Spring	1
10	MET-8413-00	Auto-Launch Coil Retaining Brkt	1
11	MAS-1006-06	6-32 x 3/8” PPH MS, SEMS	2
12	COL-2380-01	23-800 (Yellow) Coil, w/Diode (*Coil 16*)	1
13	PLS-1003-00	1-3/4” Coil Sleeve, Flush	1
14	MET-0177-00	Auto-Launch Coil Stop Brkt	1
15	WAS-1010-11	#10 Split Lock Washer	2
16	MAS-4110-06	10-32 x 3/8” SH CS, Black	2

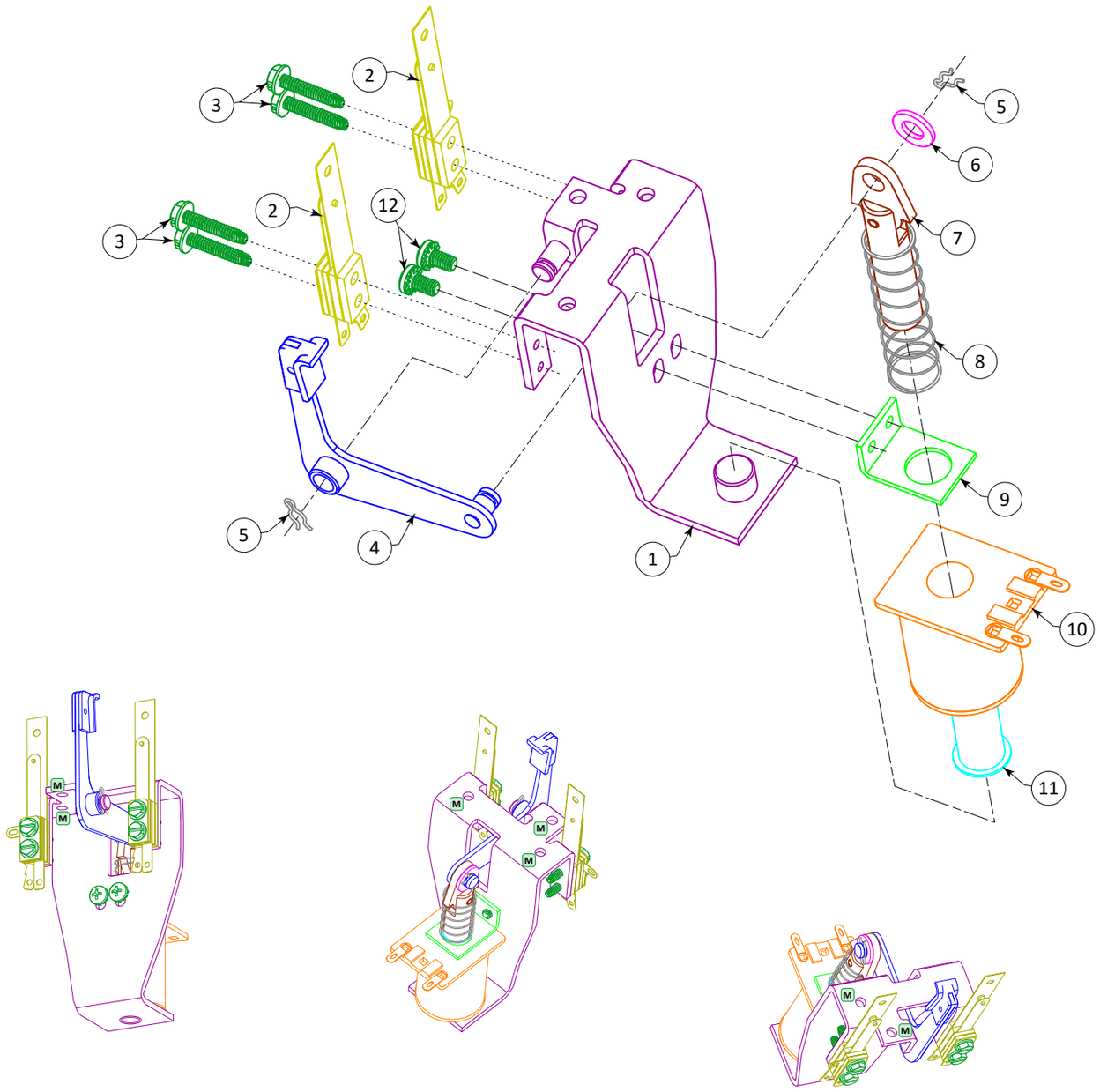
* Early game auto-launch assemblies use 3/16" e-clips (HDW-0002-03) instead of hairpin clips

Assembly Mounting Hardware
Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

Assembly Cable(s)

Part Number	Description	Qty
PGT-0002-00	23-800 Coil Wiring Pigtail	1
PGT-0100-00	Microswitch Wiring Pigtail	1



Slingshot Assemblies

SUB-0006-00, -01, -02

Item	Part Number	Description	Qty
1	MET-5339-00	Slingshot Main Brkt	1
2	SWI-0006-00	Slingshot Leaf Switch (*Sws 58*, *61*, *41*)	2
3	TFS-2006-12	6-32 x 3/4" HWH MS, Thread Cutter	4
4	SUB-2664-00	Slingshot Kicker Crank Assy	1
5	HDW-0017-03	Hairpin Clip, 3/16" Shaft	2
6	WAS-0025-18	Flat Washer, 0.25” ID, 0.5” OD, 0.059” TH	1
7	SUB-0053-00	Slingshot Coil Plunger & Link Assy	1
8	SPR-0101-00	Slingshot/Kicker Plunger Return Spring	1
9	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	1
10	COL-2380-01	23-800 (Yellow) Coil, w/Diode (*Coils 19*, *18*, *11*)	1
11	PLS-1003-00	1-3/4” Coil Sleeve, Flush	1
12	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	2

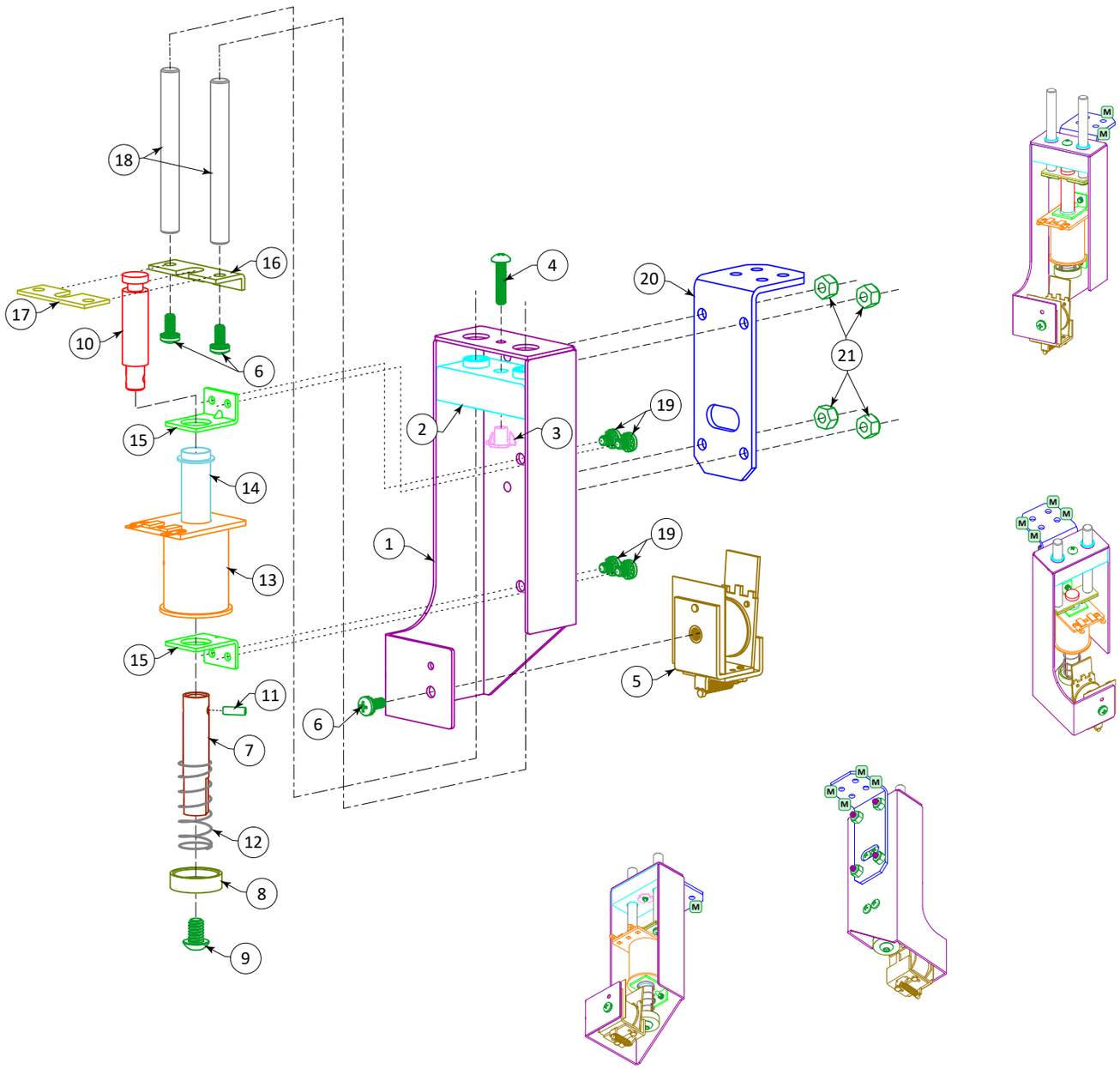
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0002-00	23-800 Coil Wiring Pigtail	1
PGT-0102-00	Slingshot Switch Wiring Pigtail	1



Forks Ball Catch Assembly, w/Latch

SUB-0009-00

Item	Part Number	Description	Qty
1	MET-0055-00	Fork Mech Main Brkt	1
2	3DP-0002-00	Fork Mech Guide Block, 3DP	1
3	NUT-4008-00	8-32, 3-Prong T-Nut, 1/2" Flange	1
4	MAS-0008-12	8-32 x 3/4” PPH MS	1
5	MEC-1100-01	Lock Release Mech, w/Diode (***Coil 30***)	1
6	MAS-1008-06	8-32 x 3/8” PPH MS, SEMS	3
7	MCH-0008-00	Fork Mech Lower Armature	1
8	MCH-0002-00	Plunger Bell Stop, Removable	1
9	MAS-9125-06	1/4-20 x 3/8" Button Head CS, Black	1
10	MCH-0007-00	Fork Mech Upper Armature	1
11	HDW-0016-06	Roll Pin, 1/8" x 3/8"	1
12	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
13	COL-2612-01	26-1200 (Green) Coil, w/Diode (***Coil 32***)	1
14	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
15	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	2
16	MET-0056-00	Fork Mech Yoke Brkt	1
17	MET-0057-00	Fork Mech Yoke Plate	1
18	MCH-0005-01	Fork Mech Rod, One 8-32F Threaded End	2
19	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	4
20	MET-0090-00	Fork Mech Mtg Brkt	1
21	NUT-0008-00	8-32 Nylon Lock Nut	4

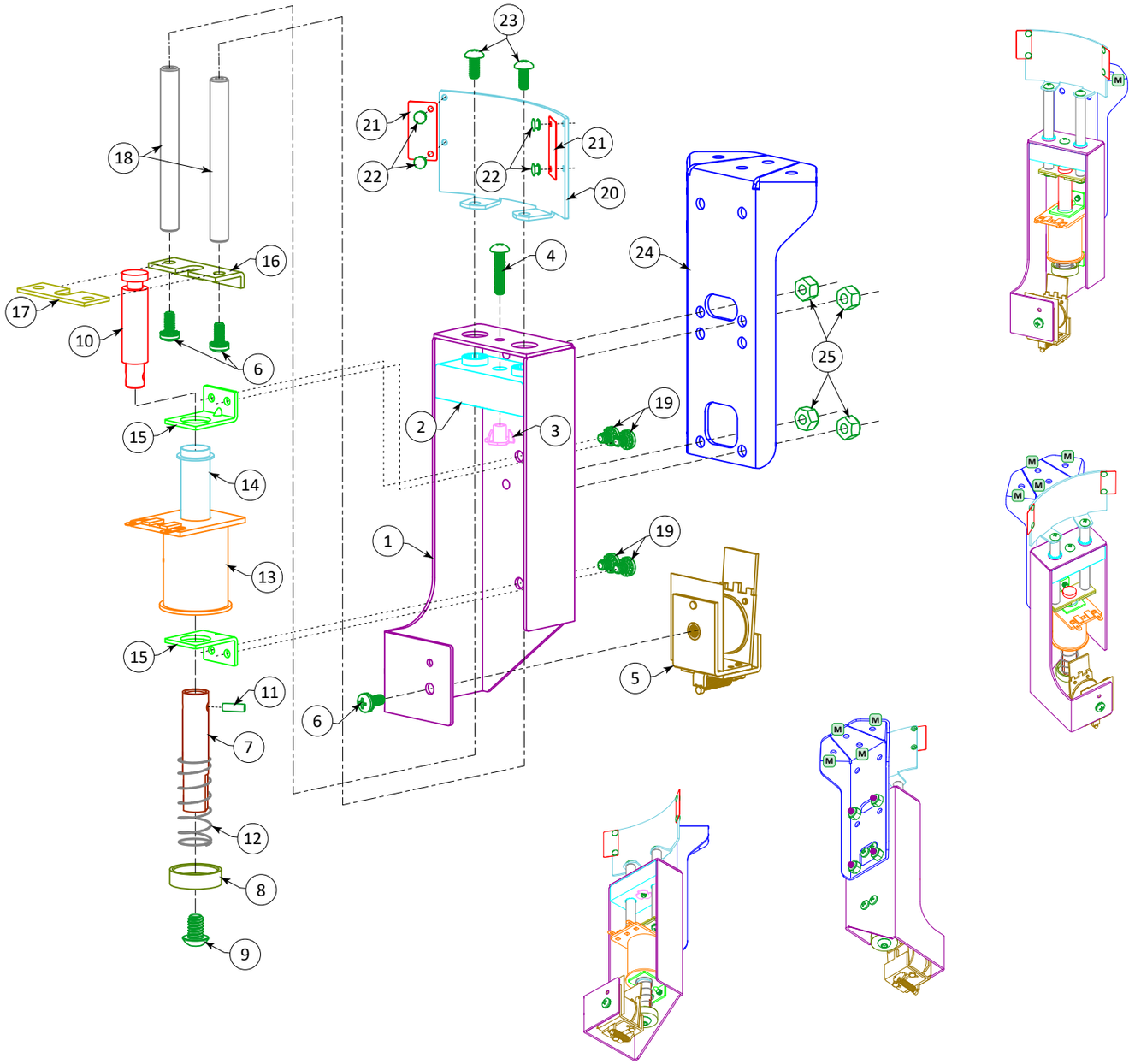
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

Assembly Cable(s)

Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1
PGT-0010-00	Mini Coil Wiring Pigtail	1



Horseshoe Diverter Assembly, w/Latch

SUB-0010-00

Item	Part Number	Description	Qty
1	MET-0055-00	Fork Mech Main Brkt	1
2	3DP-0002-00	Fork Mech Guide Block, 3DP	1
3	NUT-4008-00	8-32, 3-Prong T-Nut, 1/2" Flange	1
4	MAS-0008-12	8-32 x 3/4” PPH MS	1
5	MEC-1100-01	Lock Release Mech, w/Diode (*Coil 20*)	1
6	MAS-1008-06	8-32 x 3/8” PPH MS, SEMS	3
7	MCH-0008-00	Fork Mech Lower Armature	1
8	MCH-0002-00	Plunger Bell Stop, Removable	1
9	MAS-9125-06	1/4-20 x 3/8" Button Head CS, Black	1
10	MCH-0007-00	Fork Mech Upper Armature	1
11	HDW-0016-06	Roll Pin, 1/8" x 3/8"	1
12	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
13	COL-2612-01	26-1200 (Green) Coil, w/Diode (*Coil 21*)	1
14	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
15	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	2
16	MET-0056-00	Fork Mech Yoke Brkt	1
17	MET-0057-00	Fork Mech Yoke Plate	1
18	MCH-0005-00	Fork Mech Rod, 8-32F Threaded Ends	2
19	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	4
20	FLT-0012-00	Horseshoe Diverter Flatrail	1
21	FLT-0012-01	Horseshoe Diverter Side Flap	2
22	RIV-5108-10	1/8" x 5/32" Semi-Tubular Rivet, Oval Head	4
23	MAS-0008-06	8-32 x 3/8” PPH MS	2
24	MET-0054-00	Horseshoe Diverter Mtg Brkt	1
25	NUT-0008-00	8-32 Nylon Lock Nut	4

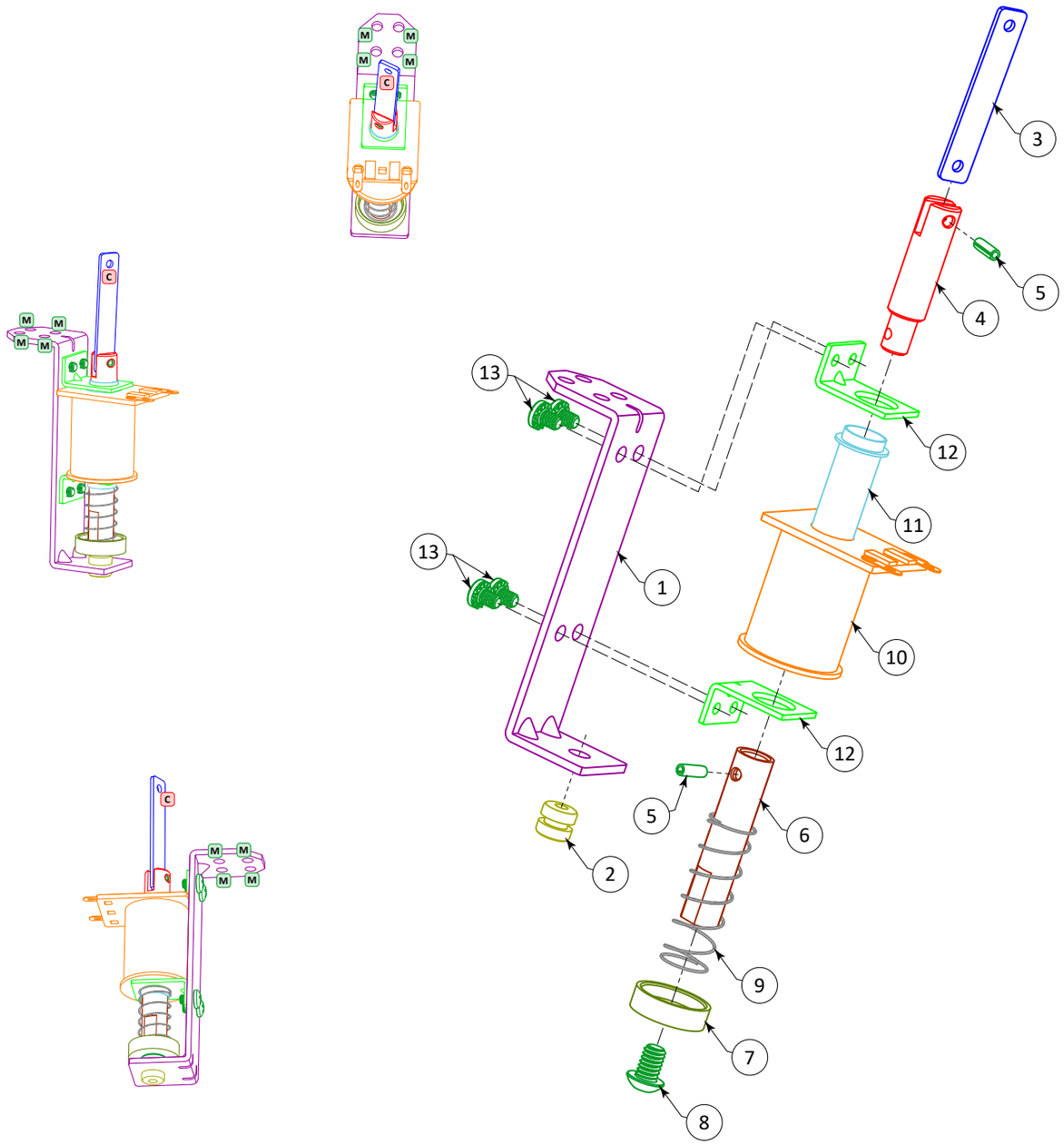
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

Assembly Cable(s)

Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1
PGT-0010-00	Mini Coil Wiring Pigtail	1



Ramp Lifter Assembly

SUB-0012-00

Item	Part Number	Description	Qty
1	MET-0010-00	Ramp Lifter Main Brkt	1
2	RUB-0101-00	Rubber Grommet, Tan	1
3	MET-0067-00	Ramp Lifter Linkage	1
4	MCH-0009-00	Lifting Mech Upper Armature	1
5	HDW-0016-06	Roll Pin, 1/8" x 3/8"	2
6	MCH-0008-00	Fork Mech Lower Armature	1
7	MCH-0002-00	Plunger Bell Stop, Removable	1
8	MAS-9125-06	1/4-20 x 3/8" Button Head CS, Black	1
9	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
10	COL-2612-01	26-1200 (Green) Coil, w/Diode (*Coil 9*)	1
11	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
12	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	2
13	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	4

Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

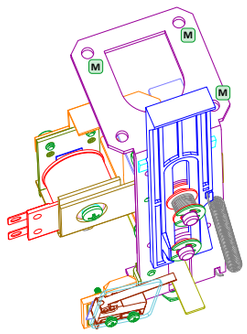
Assembly Cable(s)

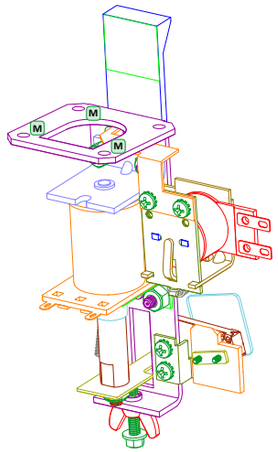
Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1

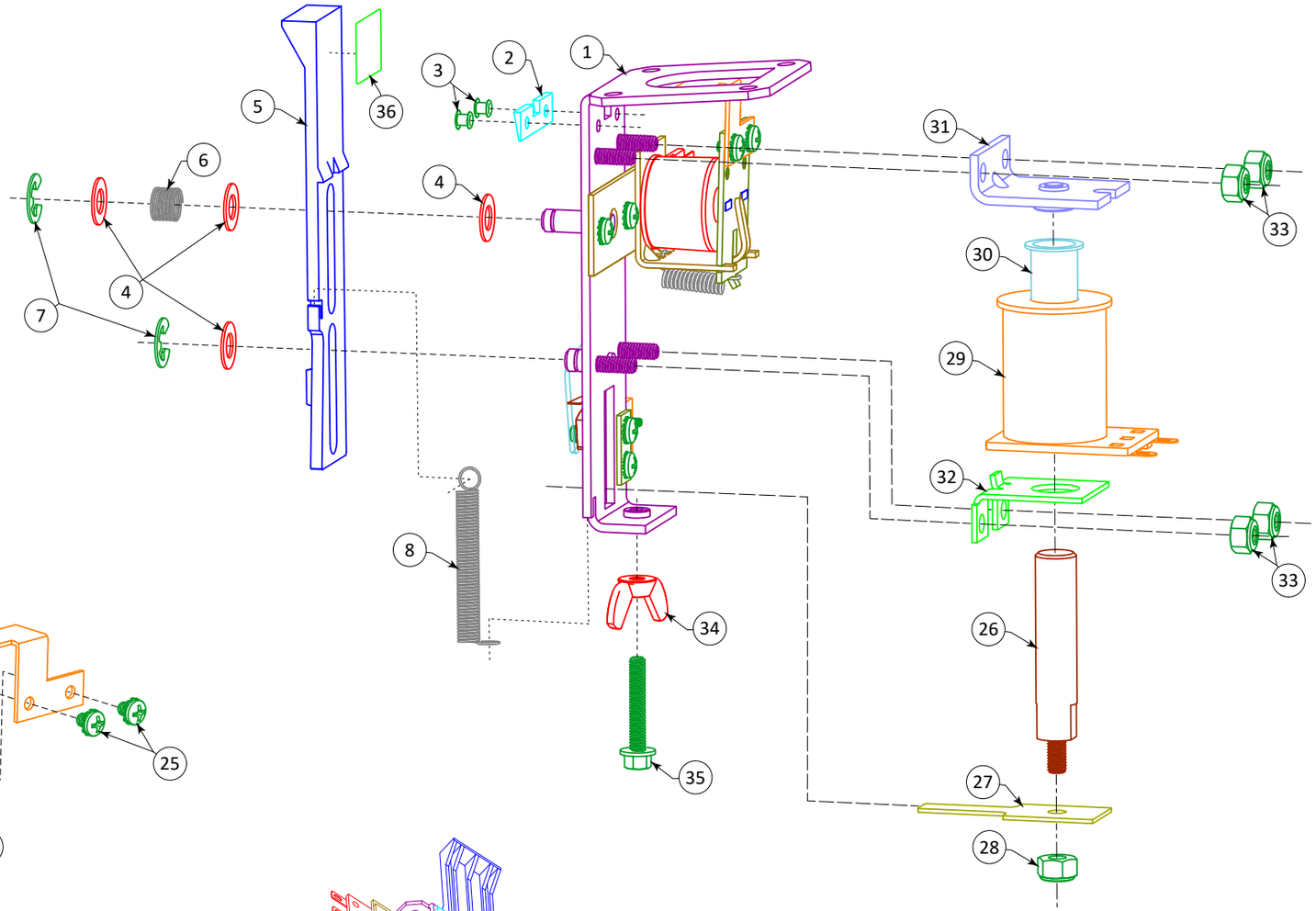
Assembly Connection(s)

Playfield, Top

C — Item 3 above runs through the playfield and connects to the arm of item 1 on the Lift Ramp Top Assy (pg 4-38)



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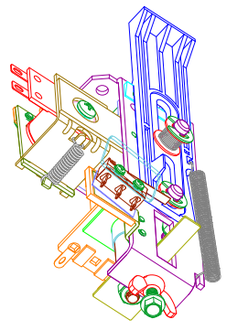
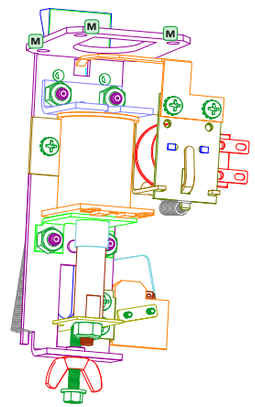
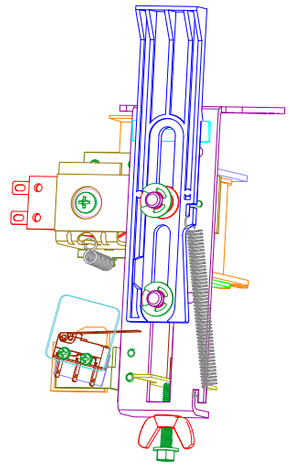


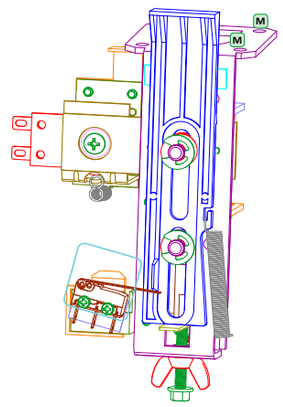
Single, Smart Drop Target, Rt Assemblies

SUB-0013-00, -01

Item	Part Number	Description	Qty
1	MET-0167-00	Single Drop Tgt Main Brkt	1
2	PLS-0023-00	Drop Target Rest, Single	1
3	RIV-5108-13	1/8" x 13/64" Semi-Tubular Rivet, Oval Head	2
4	WAS-5005-00	Drop Tgt Washer, 0.27" ID, 0.5" OD, 0.027" TH	4
5	PLS-0024-00	Drop Tgt, Wedge Top, Black	1
6	SPR-0005-00	Drop Tgt Compression Spring	1
7	HDW-0002-04	E-Clip, 1/4" Shaft	2
8	SPR-0004-00	Drop Tgt Extension Spring	1
9	MAS-1002-10	2-56 x 5/8" PPH MS, SEMS	2
10	PLS-0025-00	Microswitch Shield, Transparent	1
11	SWI-0103-00	Microswitch w/Flat Blade Actuator (***Sws 24***, ***74***)	1
12	MSC-0005-00	Fish Paper, Microswitch Protect, 1/2" x 13/16"	1
13	MET-0169-00	Drop Tgt Microswitch Mtg Brkt	1
14	3DP-0041-00	Microswitch Alignment Guide, 3DP	1
15	MET-0129-01	Microswitch Twin Nut Plate, 2-56	1
16	MET-0172-00	Drop Tgt Knockdown Armature	1
17	MET-0173-00	Drop Tgt Knockdown Armature Residual Plate	1
18	MET-0171-00	Drop Tgt Mini Coil Mtg Brkt/Frame & Eyelet Assy, Rt	1
19	SPR-0006-00	Relay Coil Extension Spring	1
20	COL-2770-01	27-700 Relay Coil, w/Diode (***Coils 24***, ***31***)	1
21	WAS-0308-14	#8 Flat Washer, 7/16" OD, Brass	1
22	WAS-1008-17	#8 Split Lock Washer	1
23	MAS-0308-06	8-32 x 3/8” PPH MS, Brass	1
24	MET-0170-00	Drop Tgt Knockdown Arm, Brass, Rt	1
25	MAS-1006-03	6-32 x 3/16” PPH MS, SEMS	6
26	MCH-0038-00	Drop Tgt Reset Plunger	1
27	MET-0168-00	Drop Tgt Reset Plate, Single	1
28	NUT-0010-00	10-32 Nylon Lock Nut	1
29	COL-2612-01	26-1200 (Green) Coil, w/Diode (***Coils 22***, ***33***)	1
30	PLS-1003-01	2-1/16" Drop Tgt Coil Sleeve, Flush	1
31	MET-1397-00	Drop Tgt Coil Stop	1
32	MET-8413-00	Drop Tgt Coil Retaining Brkt	1
33	NUT-0008-00	8-32 Nylon Lock Nut	4
34	NUT-3008-00	8-32 Wingnut	1
35	MAS-2008-16	8-32 x 1" HWH MS	1
36	DEC-0011-00	Labyrinth Wiseman Drop Tgt Decal (**-00** only)	1







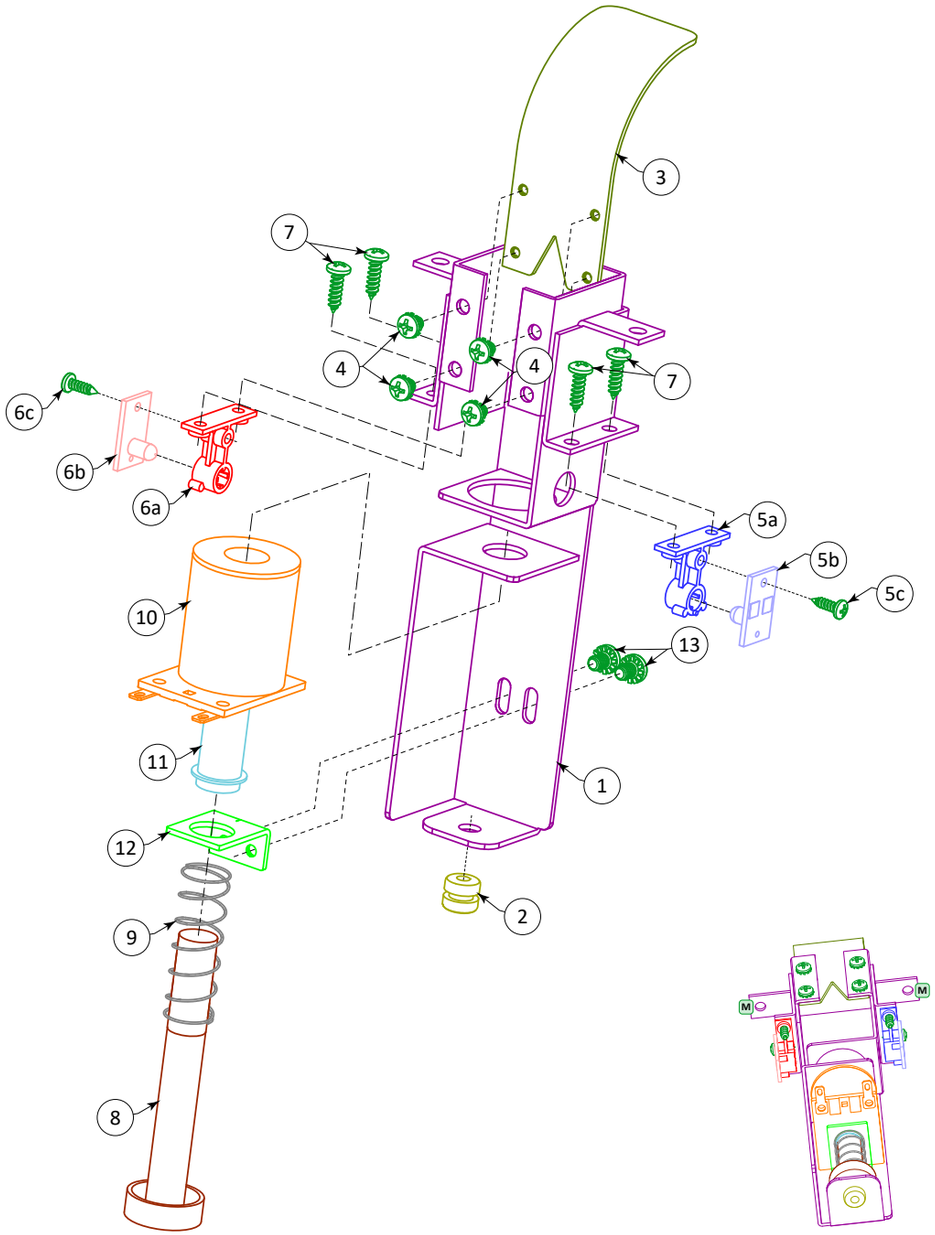
Assembly Mounting Hardware

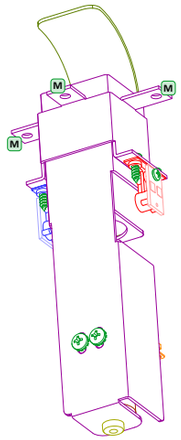
Playfield, Underside

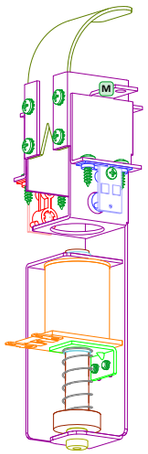
Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1
PGT-0101-00	Mini Coil Wiring Pigtail	1







Scoop Assemblies, Open Back

SUB-0014-00, -01

Item	Part Number	Description	Qty
1	MET-0500-00	Scoop Main Brkt/Weldment	1
2	RUB-0101-00	Rubber Grommet, Tan	1
3	MET-0500-02	Scoop Ball Guide, Open Back	1
4	MAS-1006-03	6-32 x 3/16” PPH MS, SEMS	4
5	SWI-0300-02	Single Phototransistor Opto Assy (***Sws 27***, ***75***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
6	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
7	SMS-0106-08	#6 x 1/2" PPH SMS, Black	4
8	MCH-0101-00	Plunger Assy, Nylon Tip, Cupped, 3.375"	1
9	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
10	COL-2380-01	23-800 (Yellow) Coil, w/Diode (***Coils 23***, ***34***)	1
11	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
12	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	1
13	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	2

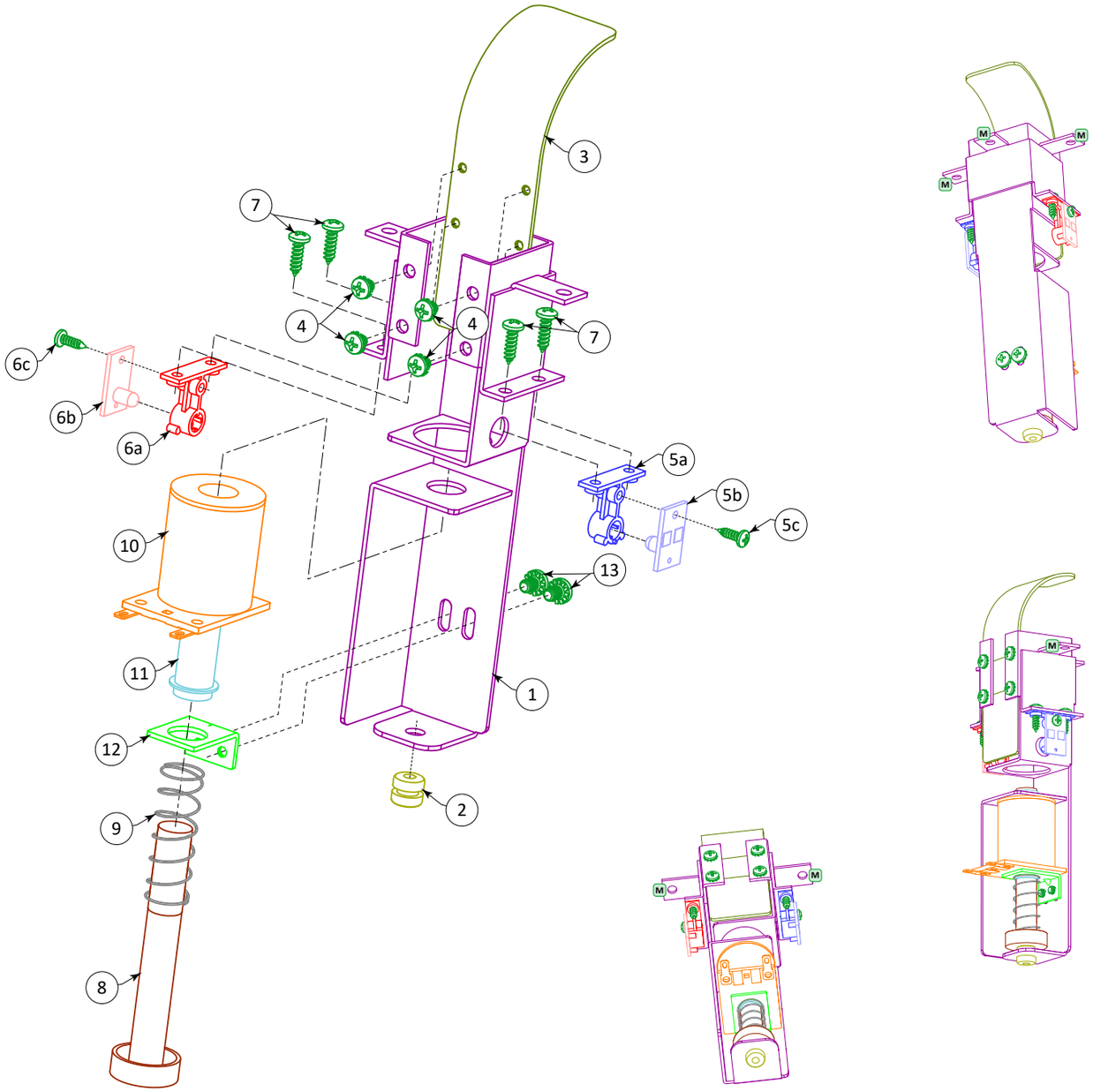
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0002-00	23-800 Coil Wiring Pigtail	1
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1



Scoop Assembly, Closed Back

SUB-0015-00

Item	Part Number	Description	Qty
1	MET-0500-00	Scoop Main Brkt/Weldment	1
2	RUB-0101-00	Rubber Grommet, Tan	1
3	MET-0500-04	Scoop Ball Guide, Closed Back	1
4	MAS-1006-03	6-32 x 3/16” PPH MS, SEMS	4
5	SWI-0300-02	Single Phototransistor Opto Assy (***Sw 50***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
6	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
7	SMS-0106-08	#6 x 1/2" PPH SMS, Black	4
8	MCH-0101-00	Plunger Assy, Nylon Tip, Cupped, 3.375"	1
9	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
10	COL-2380-01	23-800 (Yellow) Coil, w/Diode (***Coil 29***)	1
11	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
12	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	1
13	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	2

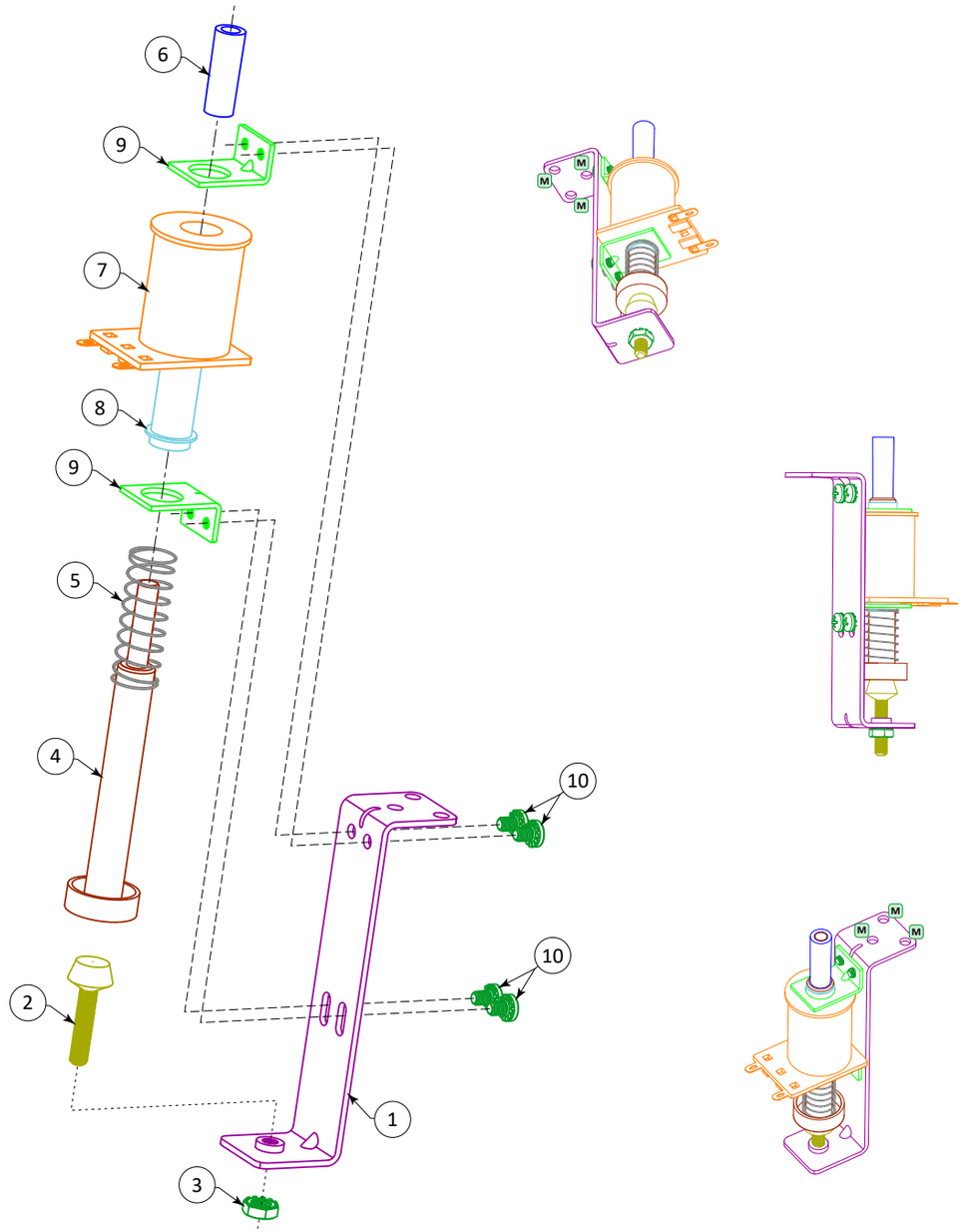
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0002-00	23-800 Coil Wiring Pigtail	1
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1



Up/Down Post Assembly, w/Sleeve

SUB-0016-00

Item	Part Number	Description	Qty
1	MET-0600-00	Up/Down Post Main Brkt	1
2	HDW-0014-00	Adjustable Spindle Stop, w/Rubber Tip	1
3	NUT-1010-00	10-32 KEPS Nut	1
4	MCH-0039-00	Plunger Assy, Steel Tip, 4.187"L	1
5	SPR-0101-00	Slingshot/Kicker Plunger Return Spring	1
6	RUB-0026-58	Tapered Post Sleeve, Black Silicone	1
7	COL-2612-01	26-1200 (Green) Coil, w/Diode (***Coil 28***)	1
8	PLS-1001-00	1-7/8" Coil Sleeve, 3/16" Offset Flange	1
9	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	2
10	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	4

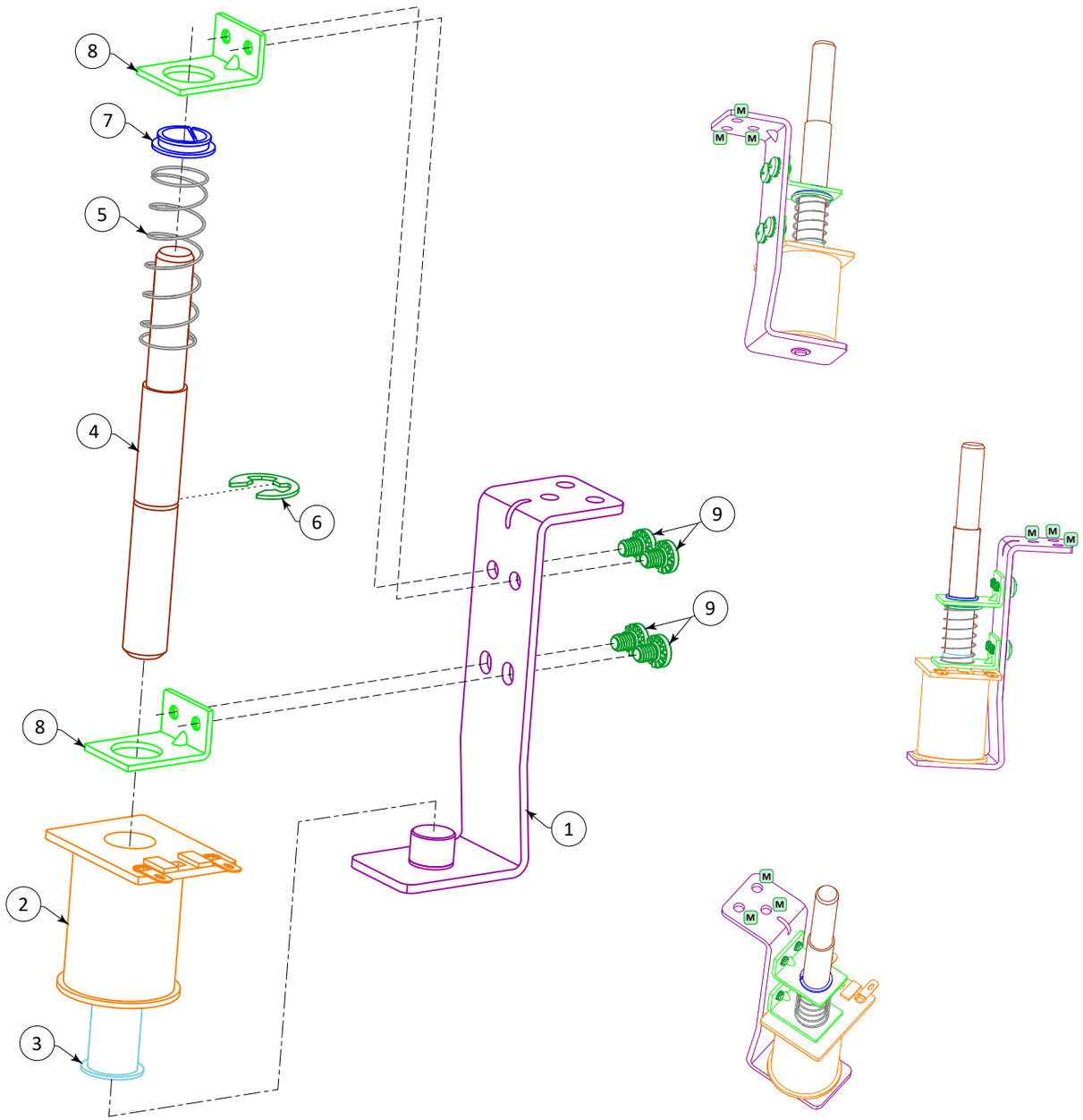
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1



Up/Down Post Assembly, w/3.81" Nylon Plunger

SUB-0017-00

Item	Part Number	Description	Qty
1	MET-0130-10	Up/Down Post Main Brkt, Offset	1
2	COL-2612-01	26-1200 (Green) Coil, w/Diode (*Coil 27*)	1
3	PLS-1003-00	1-3/4" Coil Sleeve, Flush	1
4	MCH-0040-00	Plunger Assy, Nylon Tip, 3.81"L	1
5	SPR-0100-00	Plunger Return Spring, 1-3/4"L	1
6	HDW-0002-07	E-Clip, 7/16" Shaft	1
7	HDW-0010-07	7/16" Nyliner Bearing	1
8	MET-5203-00	Coil Retaining Brkt, 8-32 Tapped	2
9	MAS-1008-04	8-32 x 1/4” PPH MS, SEMS	4

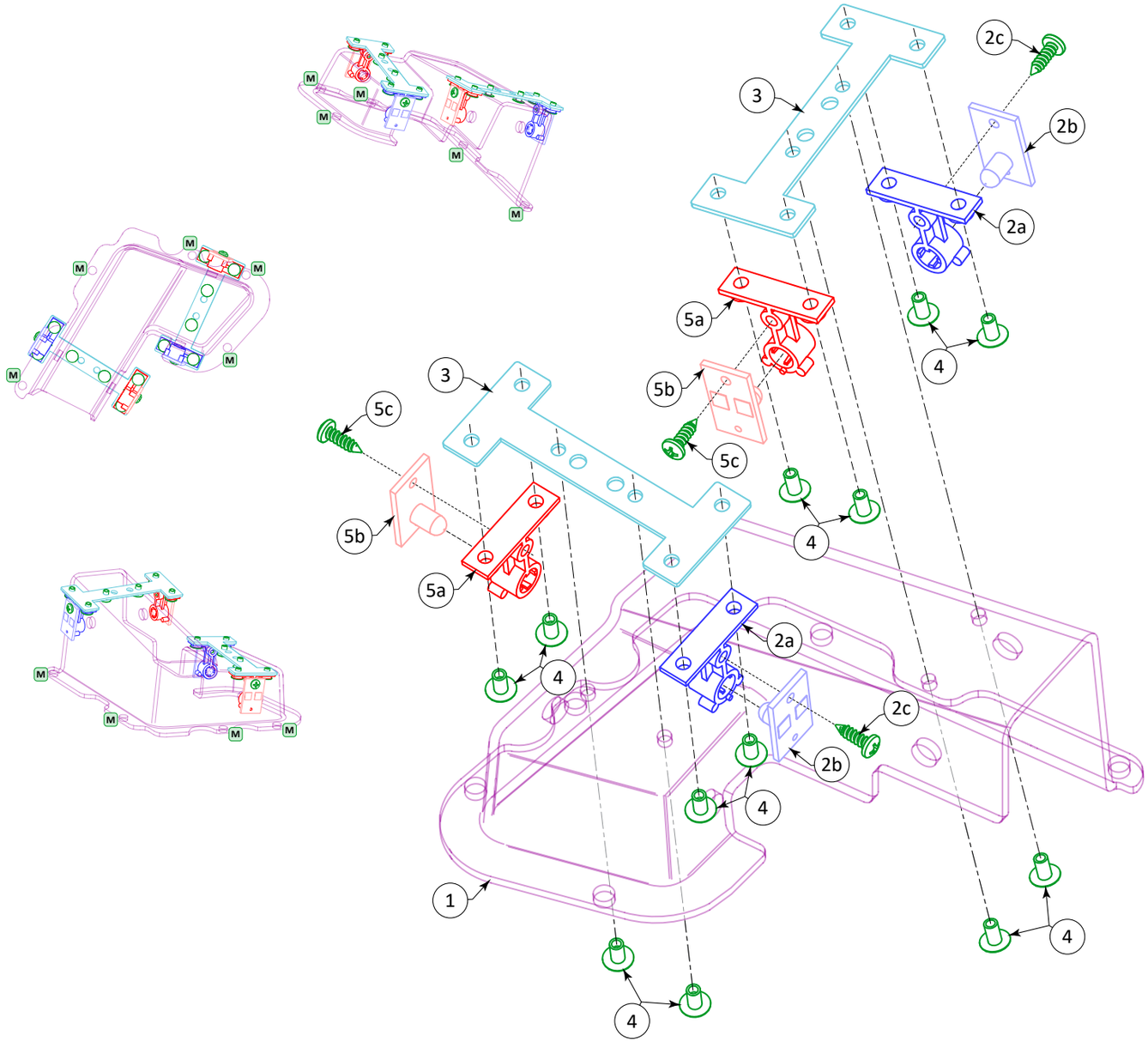
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
PGT-0003-00	26-1200 Coil Wiring Pigtail	1



Labyrinth Wiseman Subway Assembly

SUB-0022-00

Item	Part Number	Description	Qty
1	VAC-0002-00	Labyrinth Wiseman (Right) Subway	1
2	SWI-0300-02	Single Phototransistor Opto Assy (***Sws 25***, ***26***)	2
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
3	MET-0082-00	Subway/Ramp Opto Pair Brkt	2
4	RIV-5108-20	1/8" x 5/16" Semi-Tubular Rivet, Oval Head	12
5	SWI-0300-01	Single IR LED Opto Assy	2
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1

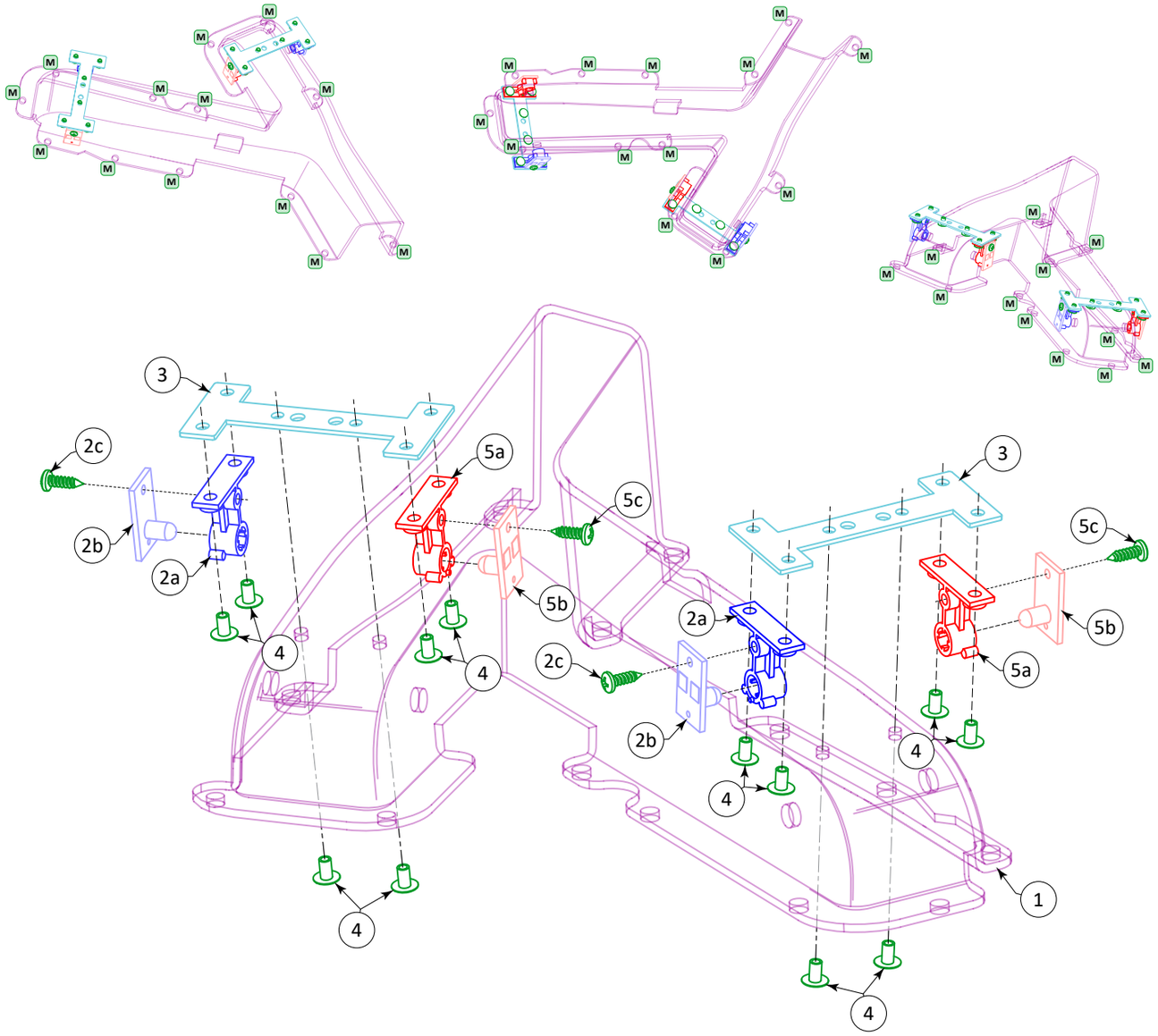
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	5

Assembly Cable(s)

Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	2
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	2



Labyrinth Village Subway Assembly

SUB-0023-00

Item	Part Number	Description	Qty
1	VAC-0001-00	Labyrinth Village (Left) Subway	1
2	SWI-0300-02	Single Phototransistor Opto Assy (***Sws 72***, ***77***)	2
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
3	MET-0082-00	Subway/Ramp Opto Pair Brkt	2
4	RIV-5108-20	1/8" x 5/16" Semi-Tubular Rivet, Oval Head	12
5	SWI-0300-01	Single IR LED Opto Assy	2
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1

Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	13

Assembly Cable(s)

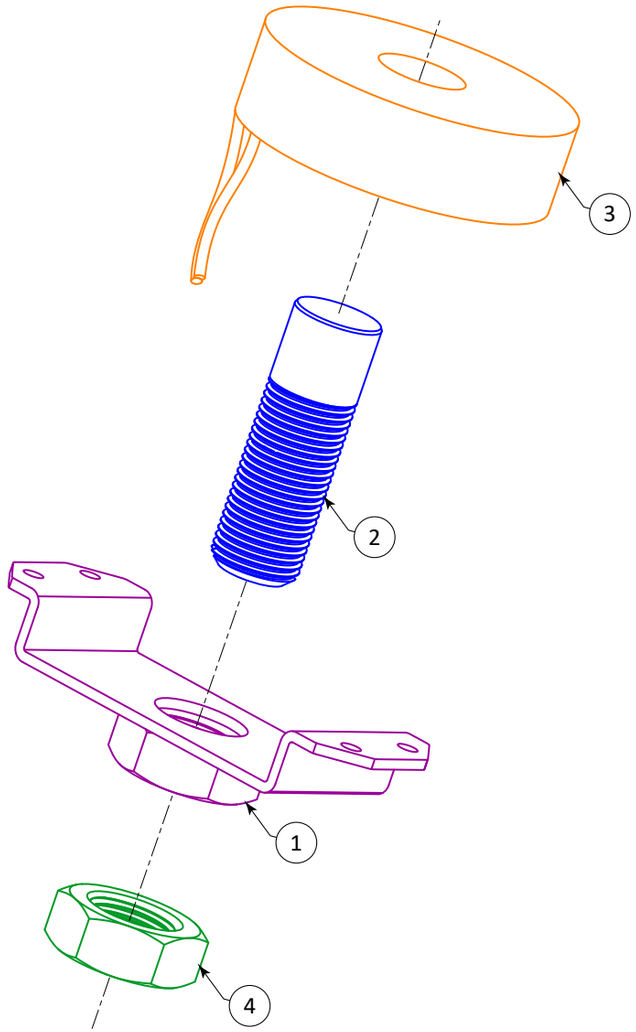
Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	2
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	2

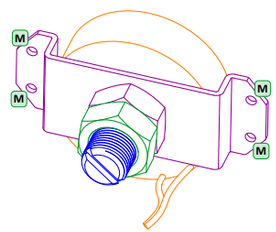
Magnet Assembly
MAG-0000-00

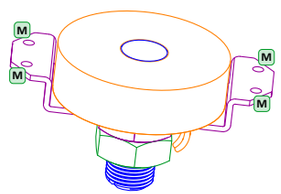
Item	Part Number	Description	Qty
1	MET-6141-03	Playfield Magnet Main Brkt Weldment	1
2	MCH-5320-00	Threaded Magnet Core, 3/4-16	1
3	COL-0197-00	Magnet Coil, w/Thermal Fuse (*Coils 8*, *10*)	1
4	NUT-2075-00	3/4-16 Nut, Low Profile	1

Assembly Mounting Hardware
Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4







Ello Figure Servo Assembly

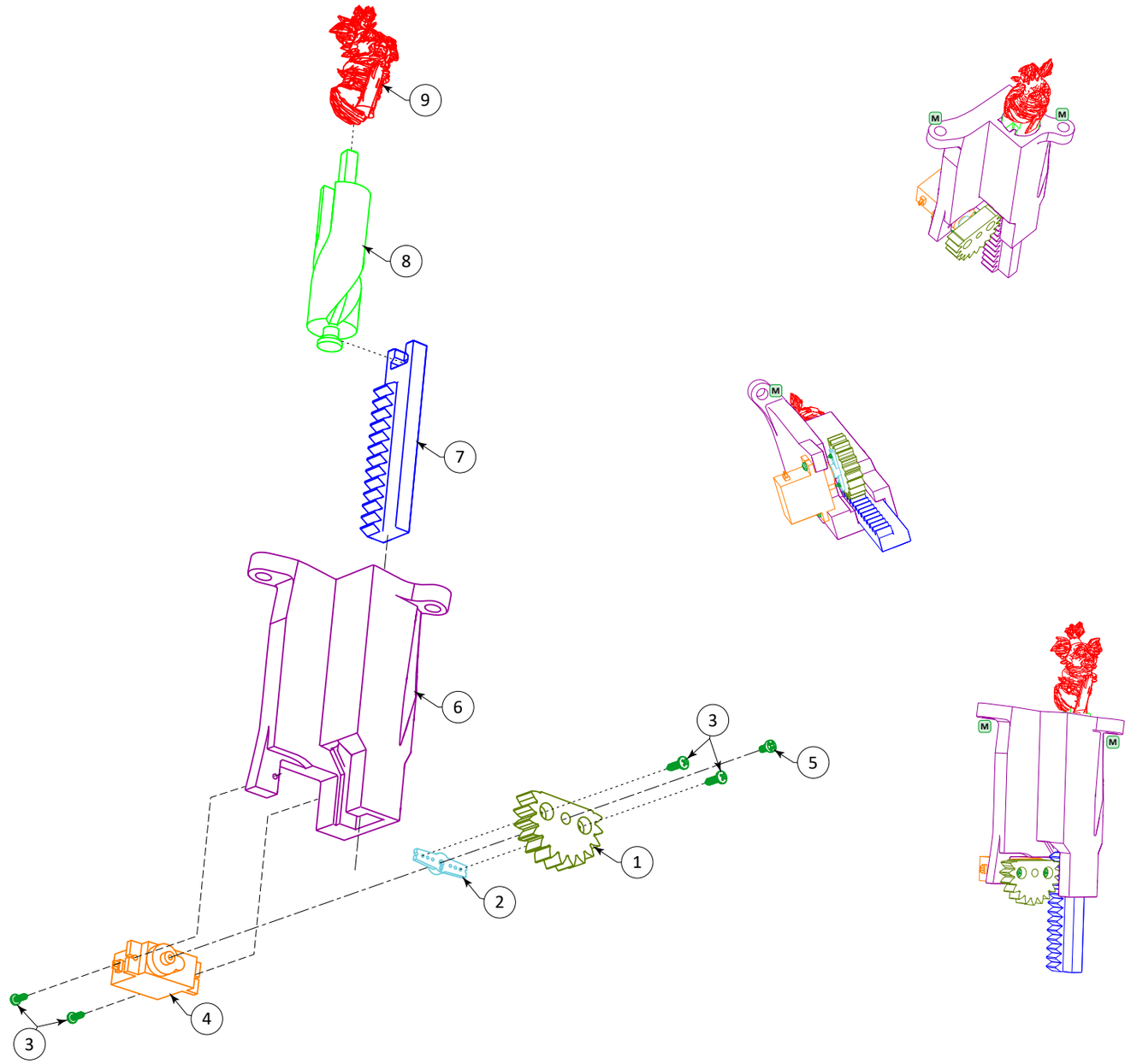
SUB-0037-00

Item	Part Number	Description	Qty
1	3DP-0022-00	Servo Pinion Gear, Small, 3DP	1
2	PLS-0026-02	Servo Horn, Medium 2-End Shape	1
3	SMS-92M2-08	M2 x 8mm PWH SMS, SS	4
4	MTR-0000-00	Motor, Micro Servo 9G (*Servo 44*)	1
5	SMS-92M1-04	M1.6 x 4mm PWH SMS, SS	1
6	3DP-0028-00	Ello Figure Main Brkt, 3DP	1
7	3DP-0029-00	Ello Figure Rack Gear, 3DP	1
8	3DP-0030-00	Ello Figure Helix Lifter, 3DP	1
9	FIG-0008-EL	Labyrinth Ello Sculpture	1

Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	WDS-8006-10	#6 x 5/8" PTH SMS	2



Ludo Figure Servo Assembly

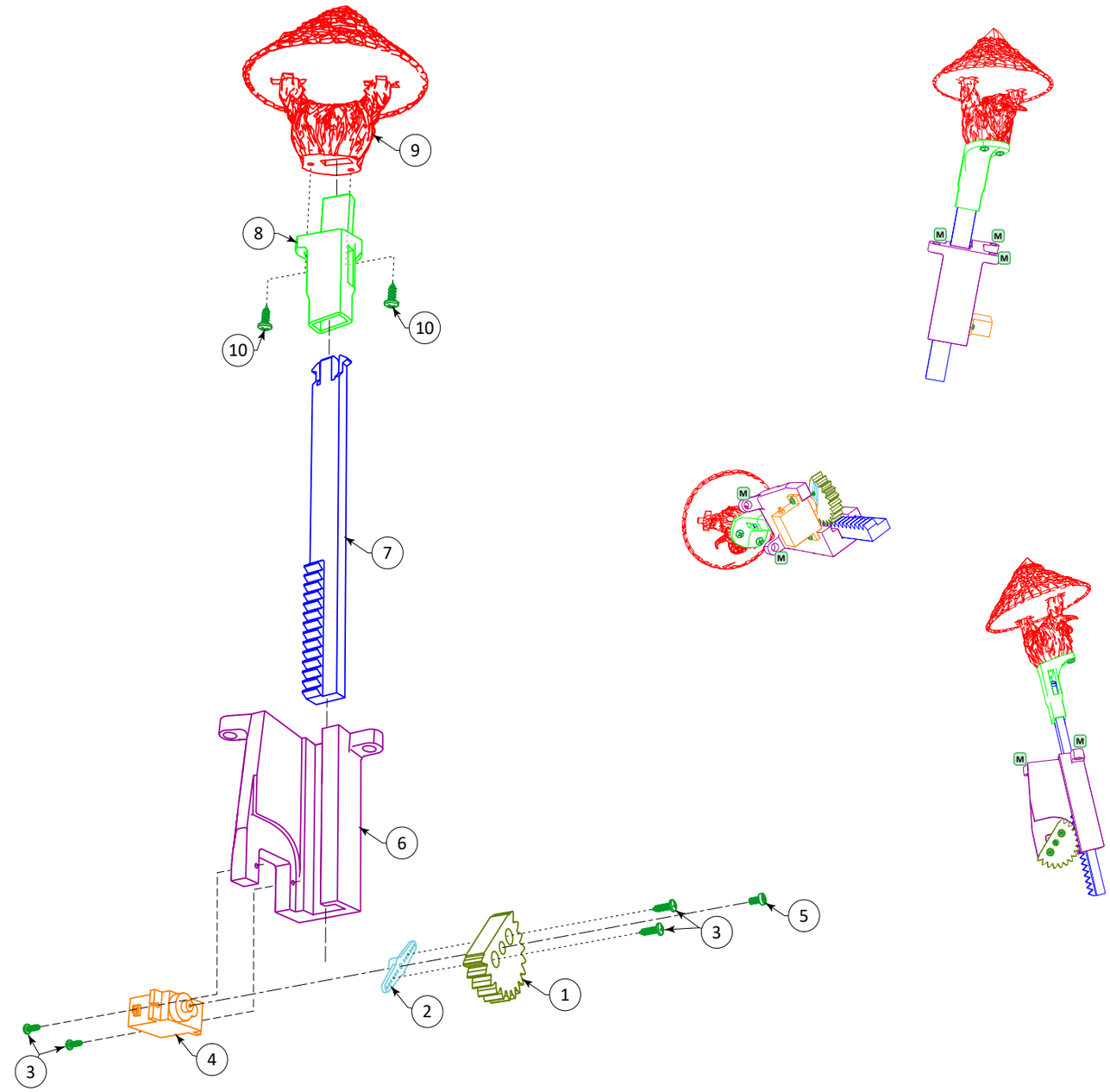
SUB-0038-00

Item	Part Number	Description	Qty
1	3DP-0023-00	Servo Pinion Gear, Medium, 3DP	1
2	PLS-0026-02	Servo Horn, Medium 2-End Shape	1
3	SMS-92M2-08	M2 x 8mm PWH SMS, SS	4
4	MTR-0000-00	Motor, Micro Servo 9G (***Servo 43***)	1
5	SMS-92M1-04	M1.6 x 4mm PWH SMS, SS	1
6	3DP-0025-00	Ludo Figure Main Brkt, 3DP	1
7	3DP-0026-00	Ludo Figure Rack Gear, 3DP	1
8	3DP-0027-00	Ludo Figure Receiver, 3DP	1
9	FIG-0004-LU	Labyrinth Ludo & Rooftop Sculpture	1
10	SMS-0006-06	#6 x 3/8" PPH SMS	2

Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	WDS-8006-10	#6 x 5/8" PTH SMS	3



Firey Head Servo Assembly, Vert

SUB-0034-01

Item	Part Number	Description	Qty
1	3DP-0024-00	Servo Pinion Gear, Large, 3DP	1
2	PLS-0026-04	Servo Horn, Large 4-End Shape	1
3	SMS-92M2-08	M2 x 8mm PWH SMS, SS	4
4	MTR-0000-00	Motor, Micro Servo 9G (*Servo 42*)	1
5	SMS-92M1-04	M1.6 x 4mm PWH SMS, SS	1
6	3DP-0031-00	Vertical Firey Main Brkt, 3DP	1
7	3DP-0032-00	Vertical Firey Rack Gear, 3DP	1
8	FIG-0005-FI	Labyrinth Firey Head Sculpture	1

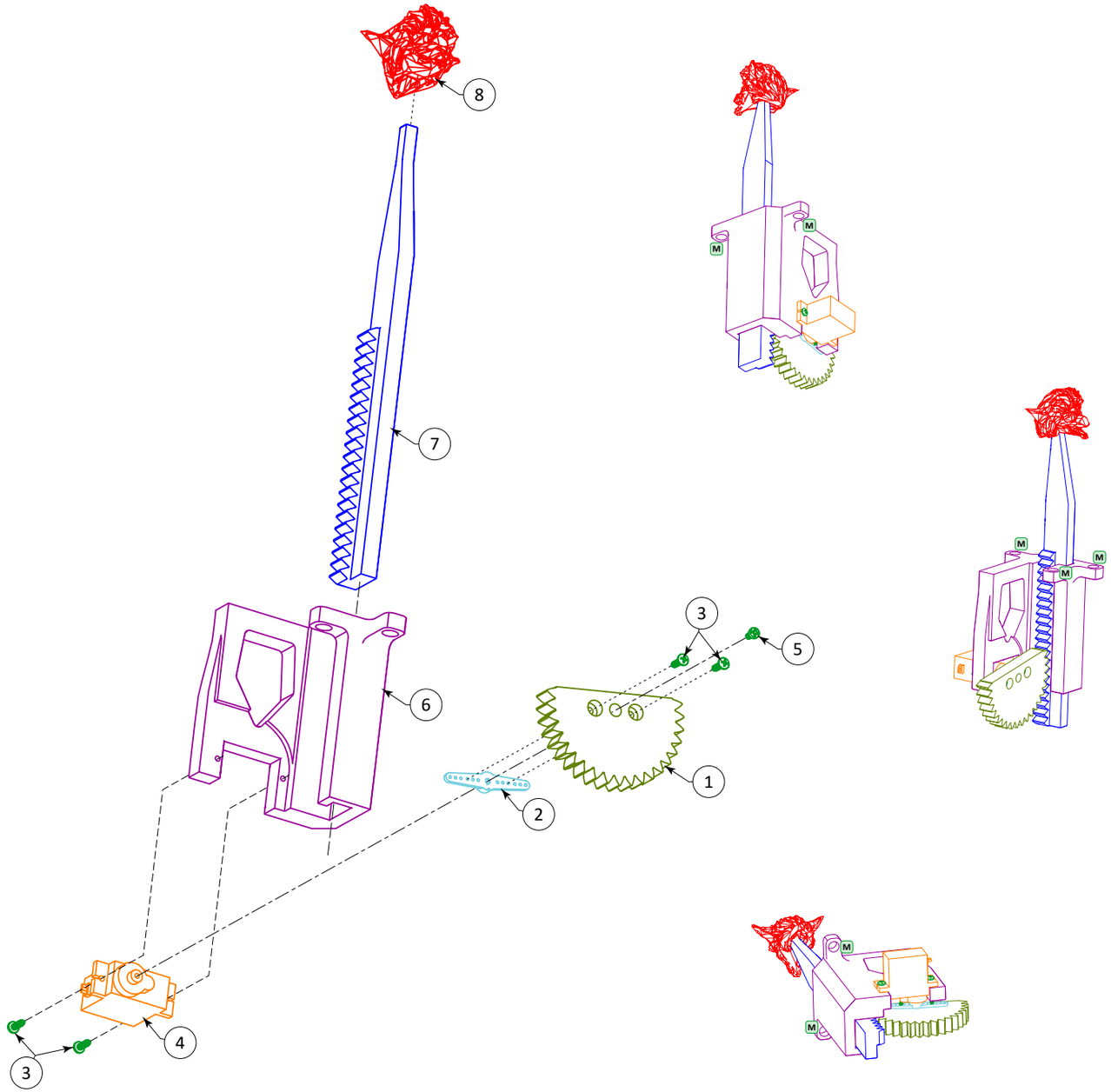
Assembly Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	WDS-8006-10	#6 x 5/8" PTH SMS	3

Assembly Cable(s)

Part Number	Description	Qty
WCA-0005-15	Servo Extension Cable, 150mm	1



Opto Pair & Bracket Assembly, FAST, 2.75"

SUB-0039-27

Item	Part Number	Description	Qty
1	MET-0119-27	Opto Pair Mtg Brkt, 2.75"	1
2	SWI-0310-02	Single Opto Detector/Receiver PCB, FAST (*Sw 44*)	1
3	SWI-0310-01	Single Opto Emitter/Transmitter PCB, FAST	1
4	MAS-0004-03	4-40 x 3/16" PPH MS	2

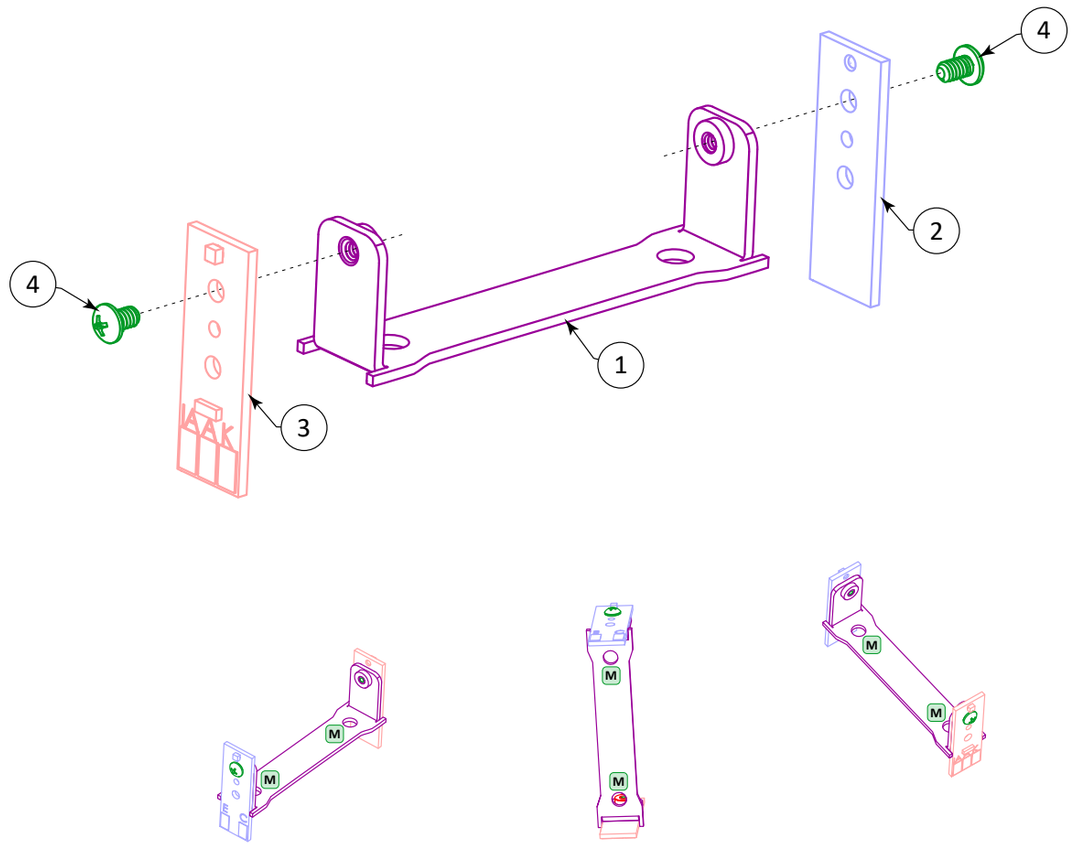
Assembly Mounting Hardware

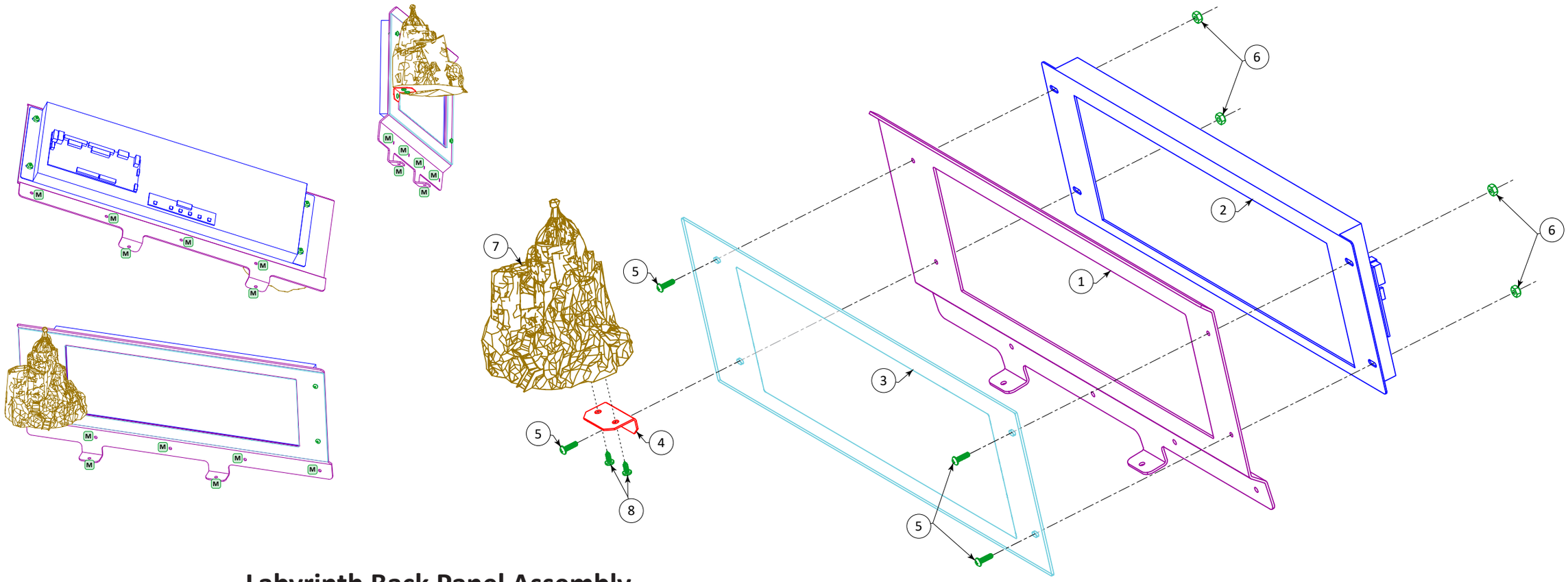
Playfield, Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	2

Assembly Cable(s)

Part Number	Description	Qty
PGT-0311-00	Opto Switch XMT-F Wiring Pigtail	1
PGT-0312-00	Opto Switch RCV-F Wiring Pigtail	1





Labyrinth Back Panel Assembly

SUB-0076-00

Item	Part Number	Description	Qty
1	MET-0076-00	Labyrinth Back Panel Display Brkt	1
2	DIS-0100-00	Playfield Back Panel Display Assy, 14.9"	1
3	PLS-0001-36	Labyrinth Back Panel Display Plastic	1
4	MET-0099-00	Castle Sculpture Mtg Brkt	1
5	MAS-0106-08	6-32 x 1/2" PPH MS, Black	4
6	NUT-0006-00	6-32 Nylon Lock Nut	4
7	FIG-0002-CA	Labyrinth Castle Sculpture	1
8	SMS-0006-06	#6 x 3/8" PPH SMS	2

Assembly Mounting Hardware

Playfield, Back Woodrail & Underside

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	6

Assembly Cable(s)

Part Number	Description	Qty
WCA-0003-06	HDMI Cable, 6ft	1
WCA-0004-00	Power Cable w/2.5mm Barrel, 6ft	1

Firey Head Servo Assembly, Horiz
SUB-0034-00

Item	Part Number	Description	Qty
1	3DP-0023-00	Servo Pinion Gear, Medium, 3DP	1
2	PLS-0026-02	Servo Horn, Medium 2-End Shape	1
3	SMS-92M2-08	M2 x 8mm PWH SMS, SS	4
4	MTR-0000-00	Motor, Micro Servo 9G (*Servo 41*)	1
5	SMS-92M1-04	M1.6 x 4mm PWH SMS, SS	1
6	3DP-0033-00	Horizontal Firey Main Brkt, 3DP	1
7	3DP-0034-00	Horizontal Firey Rack Gear, 3DP	1
8	FIG-0005-FI	Labyrinth Firey Head Sculpture	1

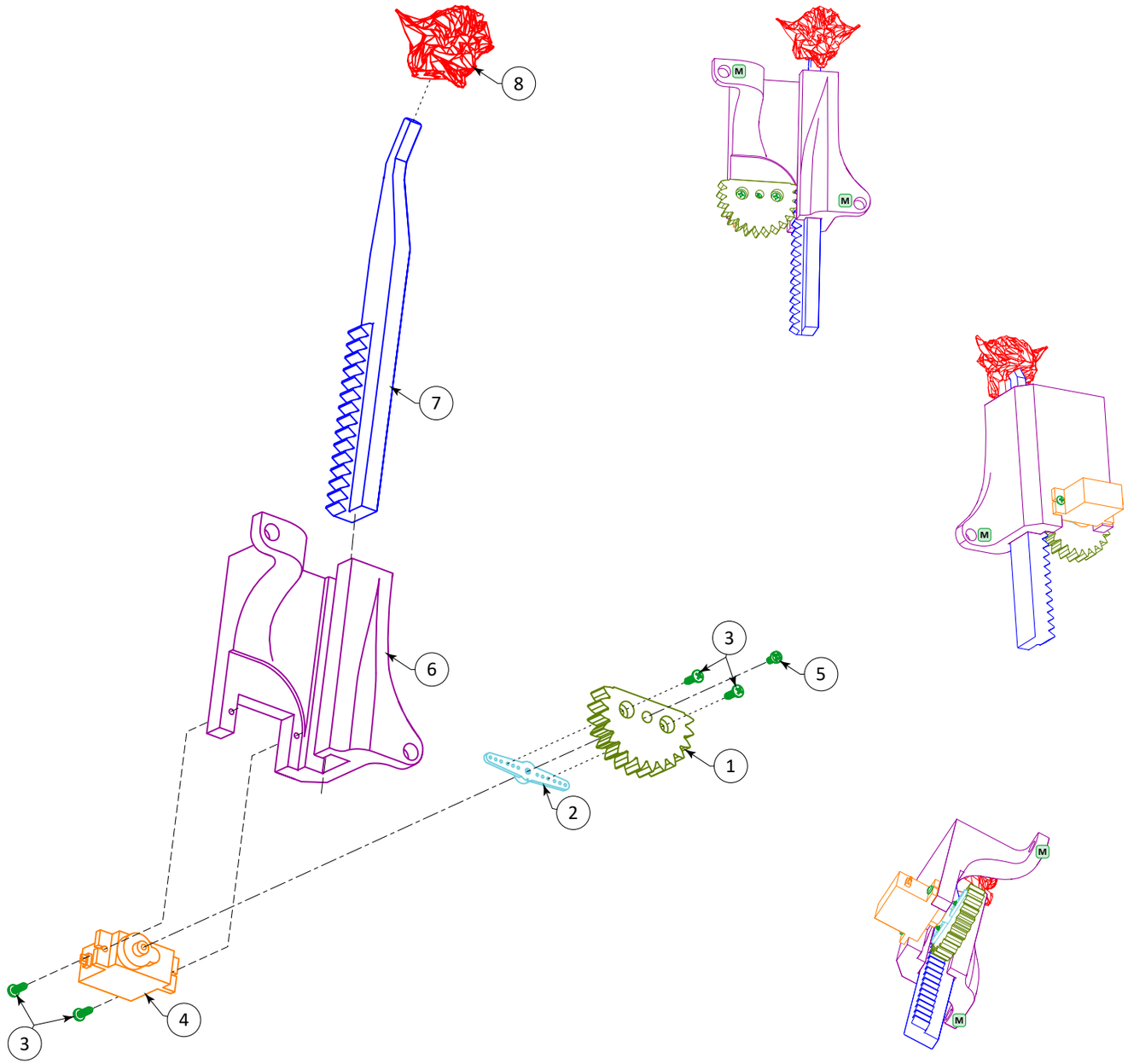
Assembly Mounting Hardware
Playfield Bottom Arch, Underside

Location	Part Number	Description	Qty
M	NUT-0008-01	8-32 Nylon Lock Nut, Low Profile	2

The assembly is mounted to two 8-32 PEM studs, attached to the underside of the bottom arch (pg 4-42); the two lock nuts secure it in place

Assembly Cable(s)

Part Number	Description	Qty
WCA-0005-60	Servo Extension Cable, 600mm	1



Orbit Opto Pair Assembly, FAST
SUB-0035-00

Item	Part Number	Description	Qty
1	3DP-0020-00	Labyrinth Left Orbit Opto Brkt, Right Side, 3DP	1
2	SWI-0310-01	Single Opto Emitter/Transmitter PCB, FAST	1
3	3DP-0019-00	Labyrinth Left Orbit Opto Brkt, Left Side, 3DP	1
4	SWI-0310-02	Single Opto Detector/Receiver PCB, FAST (*Sw 55*)	1
5*	ZIP-0410-00	Zip Tie, 0.1", Natural Nylon, 4"L	2

* zip ties hold emitter & detector PCBs to their mounts

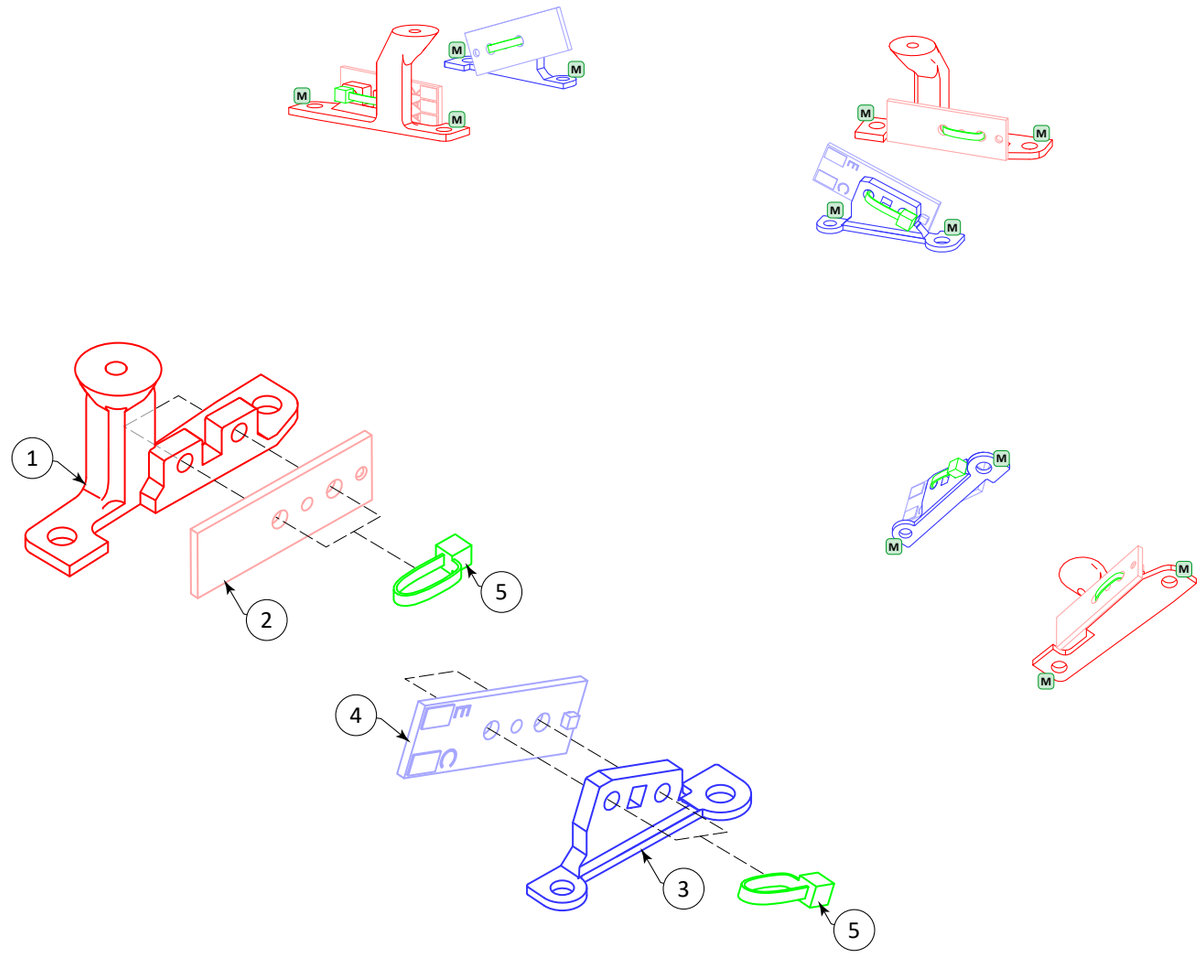
Assembly Mounting Hardware
Playfield, Top

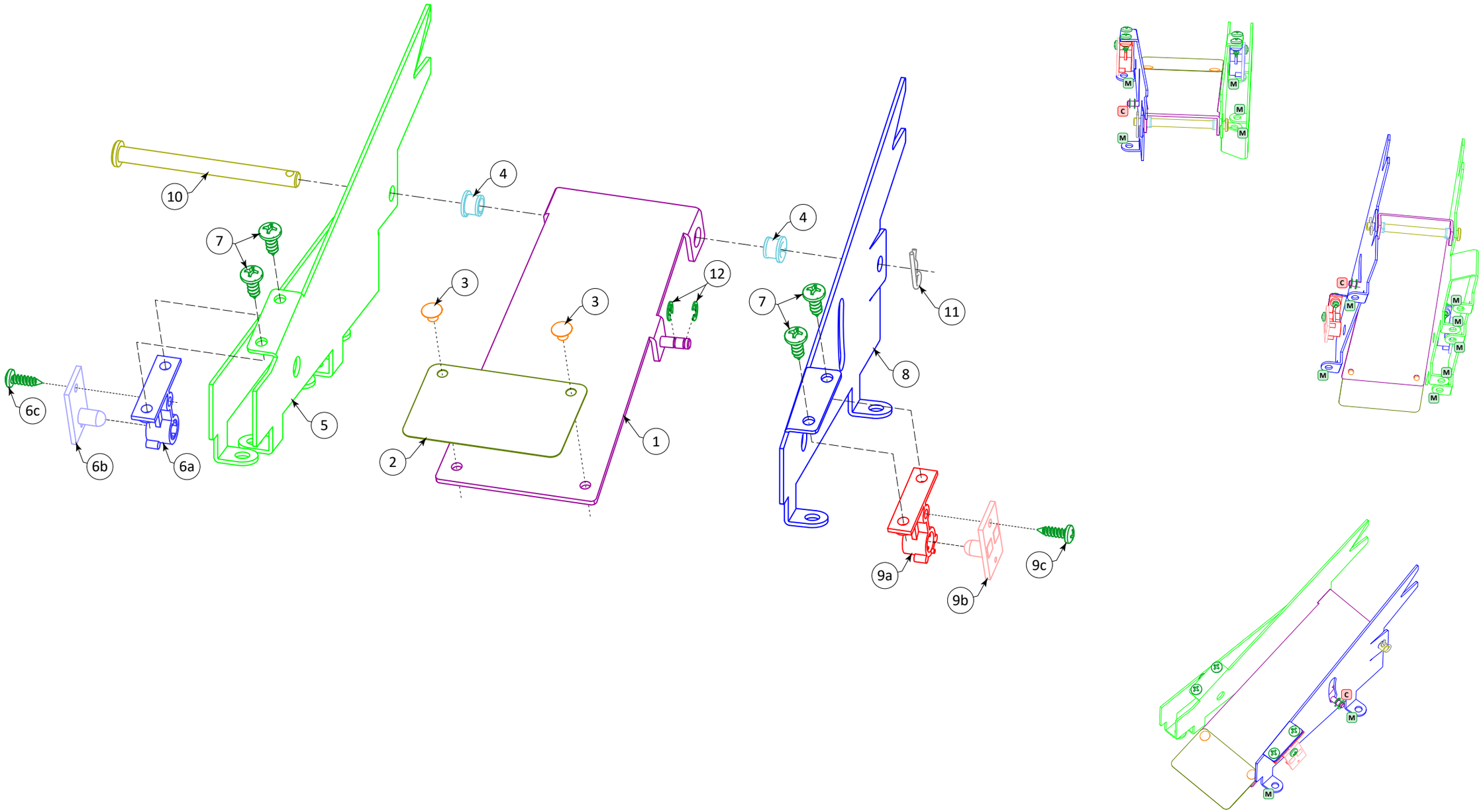
Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

The left bracket screws also hold the spinner (pg 4-40) and one tab of the Full Orbit, Outer Flatrail (item1 on pg 4-120) in place; the right bracket screws also hold two tabs of the Lift Ramp Top Assy (pg 4-38) in place

Assembly Cable(s)

Part Number	Description	Qty
PGT-0311-00	Opto Switch XMT-F Wiring Pigtail	1
PGT-0312-00	Opto Switch RCV-F Wiring Pigtail	1

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Lift Ramp Top Assembly
SUB-0011-00

Item	Part Number	Description	Qty
1	MET-0068-00	Labyrinth Lifting Ramp	1
2	MET-0069-00	Labyrinth Lifting Ramp Flap	1
3	RIV-5108-08	1/8" x 1/8" Semi-Tubular Rivet, Oval Head	2
4	HDW-0010-03	3/16" Nyliner Bearing	2
5	FLT-0016-00	Labyrinth Lift Ramp Flatrail, Left	1
6	SWI-0300-02	Single Phototransistor Opto Assy (***Sw 69***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
7	SMS-0006-06	#6 x 3/8" PPH SMS	4
8	FLT-0005-00	Labyrinth Lift Ramp Flatrail, Right	1
9	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
10	HDW-0015-00	Clevis Pin, 3/16" x 2-1/4"	1
11	HDW-0003-00	Hairpin Cotter Pin, 0.047" x 0.594"	1
12	HDW-0002-02	E-Clip, 1/8" Shaft	2

Assembly Mounting Hardware
Playfield, Top

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	7

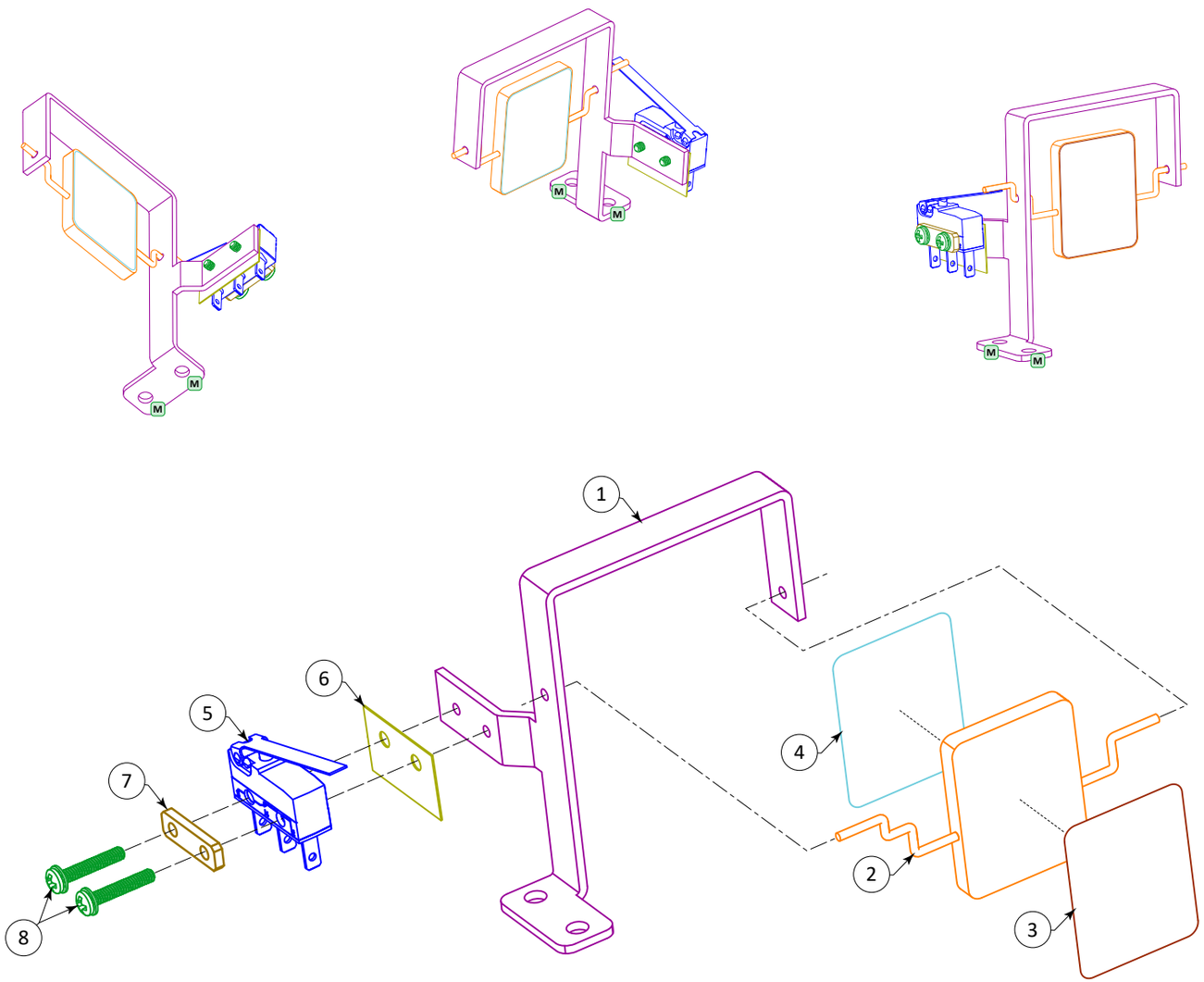
Two of these screws also hold the right brkt of the Orbit Opto Pair Assy (pg 4-37) in place

Assembly Cable(s)

Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1

Assembly Connection(s)
Playfield, Top

C — The Ramp Lifter Assy's linkage (item 3 on pg 4-21) runs through the playfield and connects to the arm of item 1 above, between the two e-clips (items 12 above)



Microswitch Spinner Assembly

SUB-0036-00

Item	Part Number	Description	Qty
1	MET-0174-00	Microswitch Spinner Main Brkt	1
2	MET-0175-00	Microswitch Spinner Target	1
3	DEC-0010-00	Labyrinth Spinner Front Decal	1
4*	DEC-0010-01	Labyrinth Spinner Back Decal	1
5	SWI-0103-00	Microswitch w/Flat Actuator Blade (*Sw 65*)	1
6	MSC-0005-00	Fish Paper, Microswitch Protect, 1/2" x 13/16"	1
7	MET-0109-00	Microswitch Protector Plate	1
8	MAS-1002-08	2-56 x 1/2" PPH MS, SEMS	2

* apply decal to back side of spinner, ***upside down***

Assembly Mounting Hardware

Playfield, Top

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	2

One SMS also holds the left bracket of the Orbit Opto Pair Assy (pg 4-37) in place

Assembly Cable(s)

Part Number	Description	Qty
PGT-0100-00	Microswitch Wiring Pigtail	1

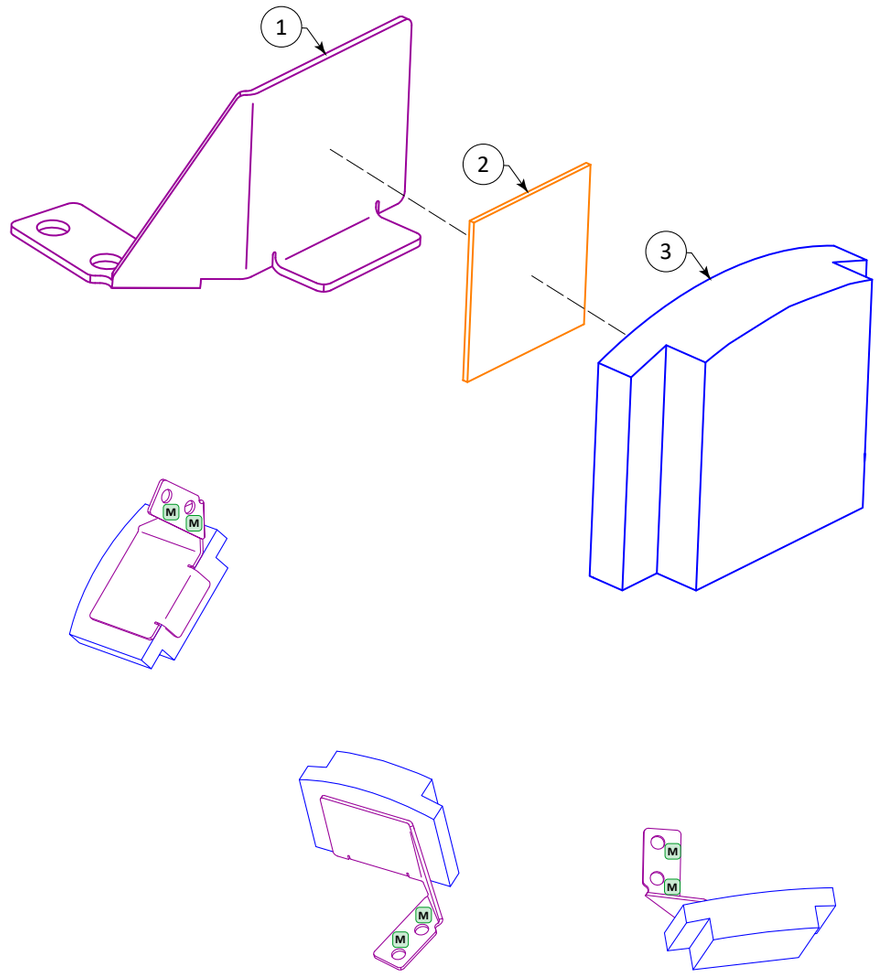
Humongous Sculpture Assembly
SUB-0027-00

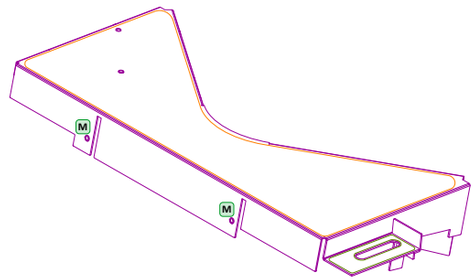
Item	Part Number	Description	Qty
1	MET-0089-00	Humongous Sculpture Brkt	1
2	MSC-0007-00	Two-Sided VHB Tape, 1" Wide	1"
3	FIG-0006-HU	Labyrinth Humongous Sculpture	1

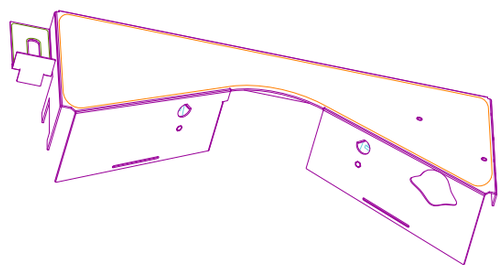
Assembly Mounting Hardware
Playfield, Top (On Left Woodrail)

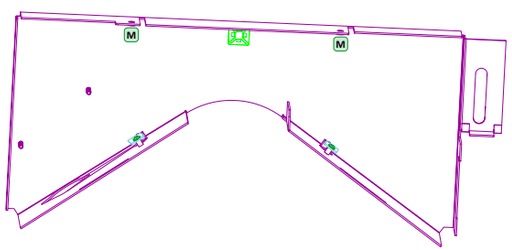
Location	Part Number	Description	Qty
M	WDS-8006-10	#6 x 5/8" PTH SMS	2

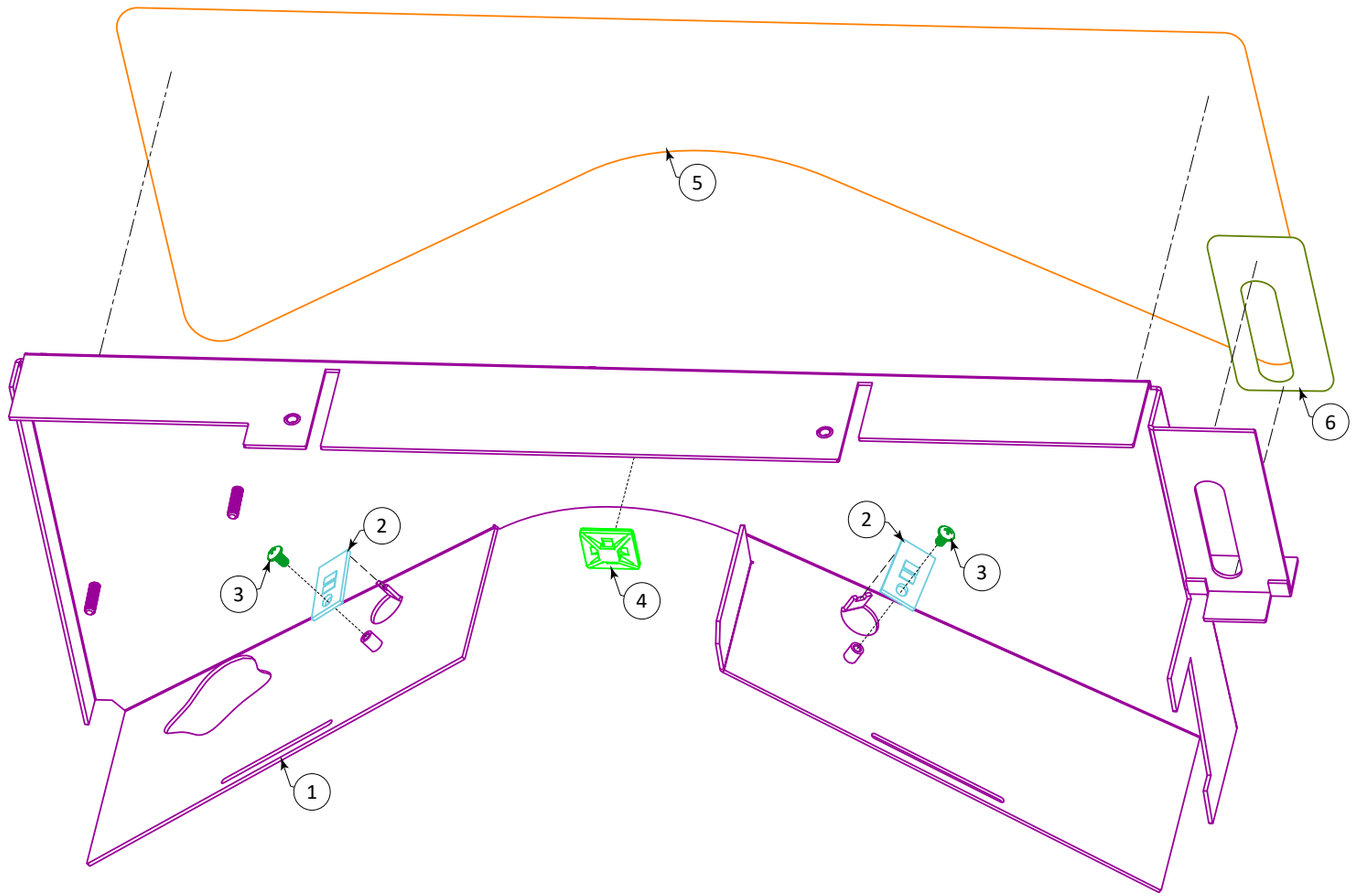
These screws also hold the Spinner/Junk Lady Primary Plastic & plastic protector (items 34 on pg 4-104) in place







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Labyrinth Bottom Arch Assembly
SUB-0033-00

Item	Part Number	Description	Qty
1	MET-0078-00	Labyrinth Powder Coated Bottom Arch	1
2	LIT-0100-00	Warm White 12V Flasher PCB (pg 5-20)	2
3	MAS-0006-04	6-32 x 1/4" PPH MS	2
4	HDW-0018-00	Nylon Zip Tie Mount, Tape, 3/4" Square	1
5	DEC-0006-00	Labyrinth Bottom Arch Decal	1
6	DEC-0007-00	Labyrinth Shooter Gauge Decal	1

Assembly Mounting Hardware
Playfield, Top

	Location	Part Number	Description	Qty
	M	MAS-0010-06	10-32 x 3/8" PPH MS	2

The slots in the front of the arch slide over the two retaining brkts (items 6 on pg 4-122) on the playfield surface; the mtg screws then thread through the two hanger brkts (items 7 on pg 4-122), into the back of the arch

Assembly Cable(s)

Part Number	Description	Qty
PGT-0500-00	Bottom Arch Lighting Wiring Pigtail	1

Labyrinth Right Ramp Assembly
SUB-0020-00

Item	Part Number	Description	Qty
1	MET-0061-00	Labyrinth Right Ramp Weldment	1
2	MET-0071-00	Labyrinth Right Ramp Flap	1
3	RIV-5108-08	1/8" x 1/8" Semi-Tubular Rivet, Oval Head	2
4	SWI-0300-02	Single Phototransistor Opto Assy (***Sw 45***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
5	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
6	3DP-0036-00	Opto Shroud, Left Side, 3DP	1
7	3DP-0036-01	Opto Shroud, Right Side, 3DP	1
8	PLS-0001-08	Labyrinth Right Ramp Airball Protect Plastic	1
9	SMS-0106-08	#6 x 1/2" PPH SMS, Black	4
10	RUB-0102-00	Ball Bumper Pad, 1/8"TH, Blue, Dual Mtg	2
11	MET-0083-00	Rubber Pinch Plate	2
12	MAS-6204-03	4-40 x 3/16" PFH MS, SS	4

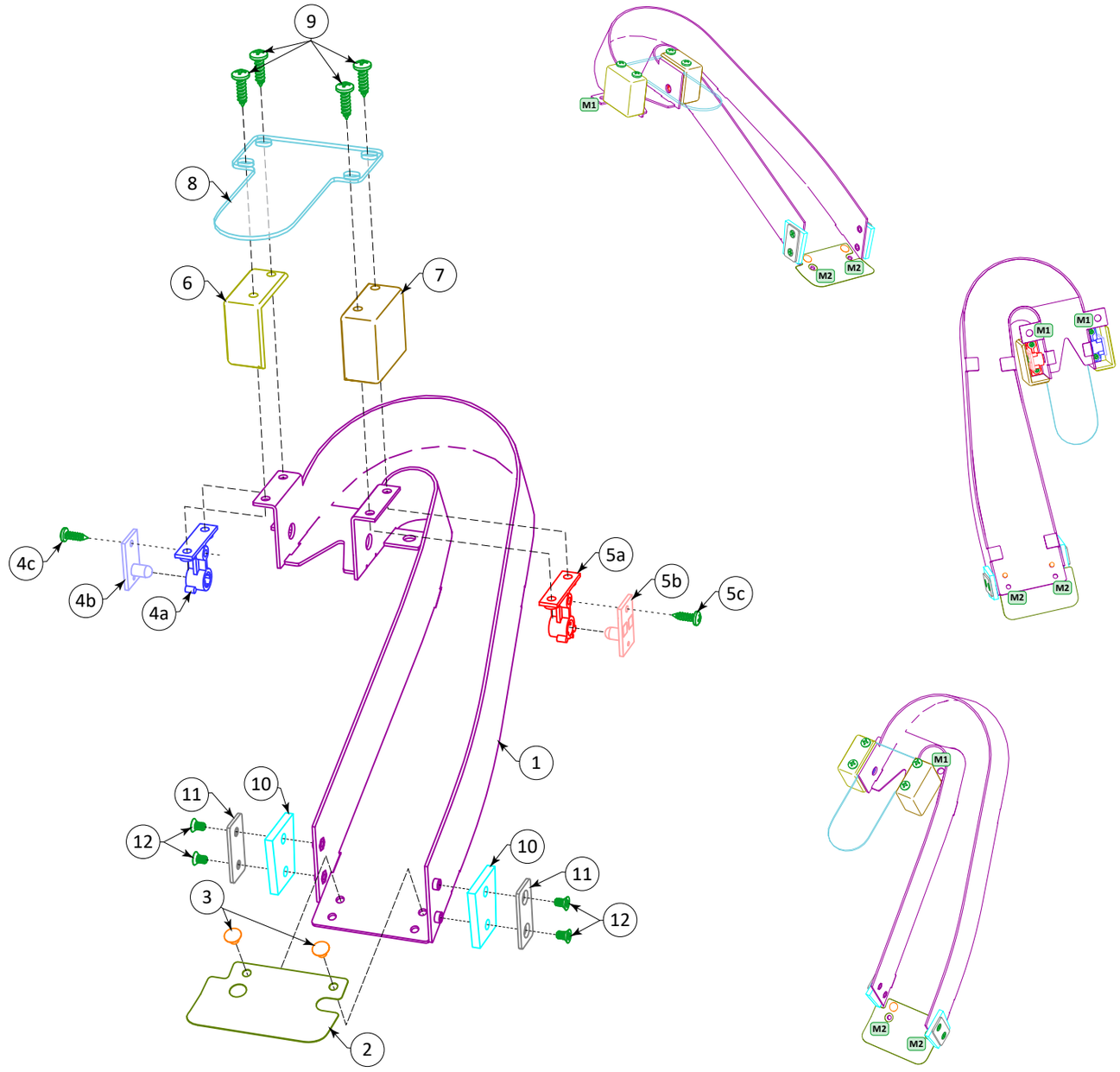
Assembly Mounting Hardware
Playfield, Top

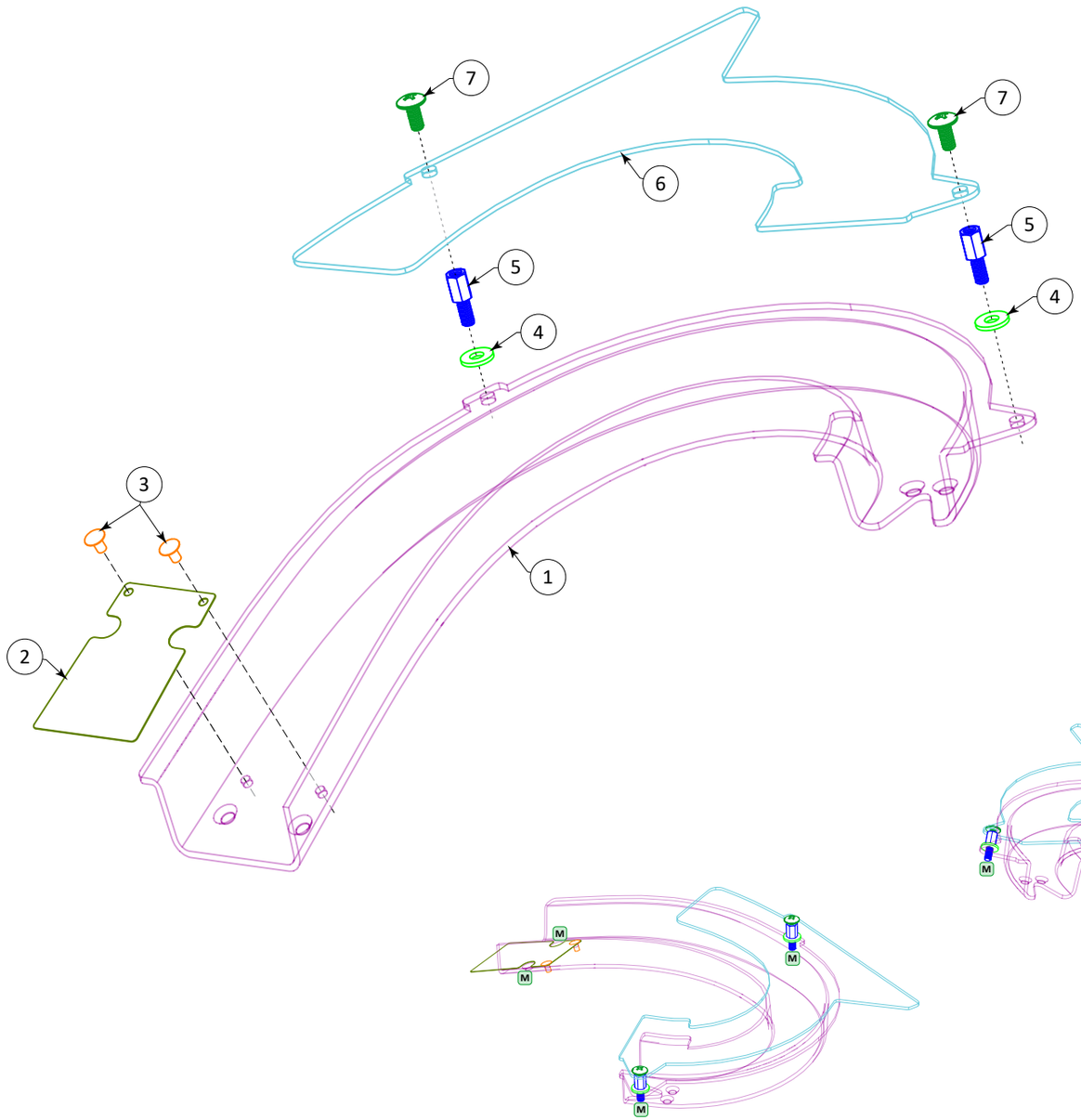
Location	Part Number	Description	Qty
M1	MAS-8008-06	8-32 x 3/8" PTH MS	2
M2	WDS-6004-08	#4 x 1/2" PFH SMS	2

The M1 screws also hold the Right Wire Ramp (item 2 on pg 4-116) in place; one screw threads into a PEM insert on the end of the Right Wire Ramp; the other threads into a previously installed hex spacer support

Assembly Cable(s)

Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1





Labyrinth Left Ramp Assembly

SUB-0018-00

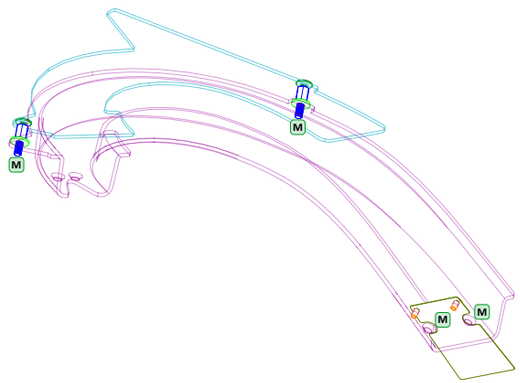
Item	Part Number	Description	Qty
1	VAC-0004-00	Labyrinth Left Ramp	1
2	MET-0070-00	Labyrinth Left Ramp Mid Flap	1
3	RIV-5108-08	1/8" x 1/8" Semi-Tubular Rivet, Oval Head	2
4	WAS-0008-14	#8 Flat Washer, 7/16"OD	2
5	HEX-1188-06	1/4" x 3/8" Hex Spacer, M-F, 8-32	2
6	PLS-0001-31	Labyrinth Left Ramp Airball Protect Plastic	1
7	MAS-8008-06	8-32 x 3/8" PTH MS	2

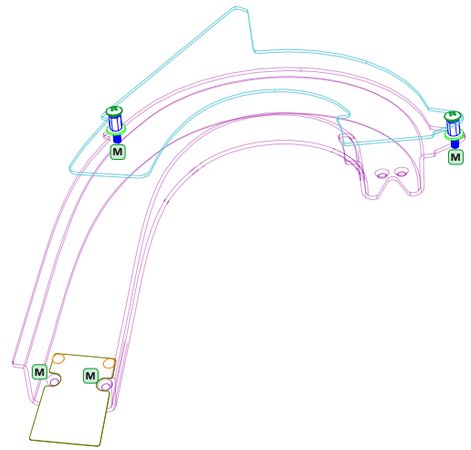
Assembly Mounting Hardware

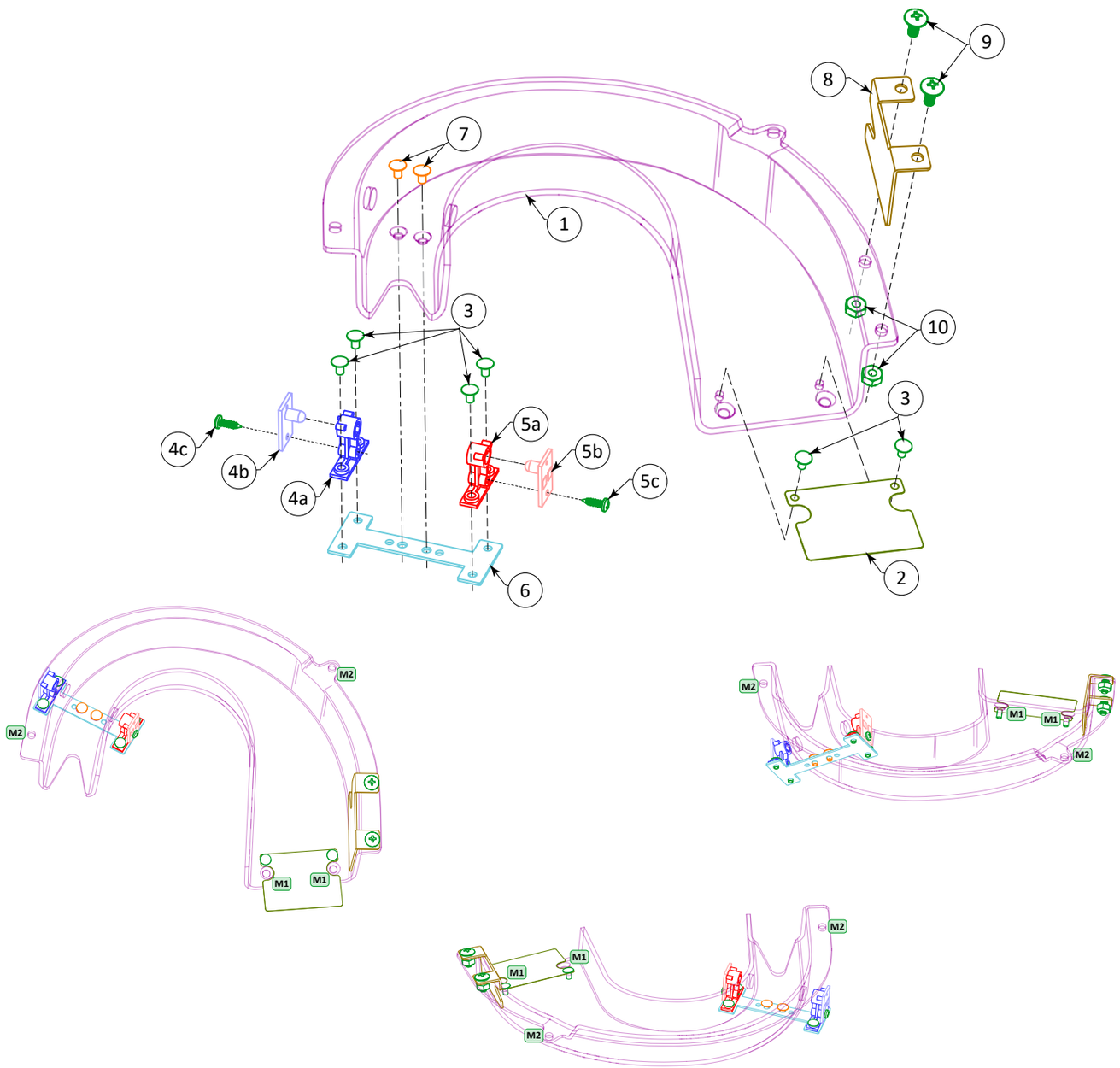
Playfield, Top

Location	Part Number	Description	Qty
M	MAS-6008-04	8-32 x 1/4" PFH MS	2

The two screws thread into the Upper Left Ramp Support Brkt (item 7 on pg 4-110) in place; additionally, the two M-F spacers (items 5 above) act as mtg HW, threading into previously installed hex spacer supports







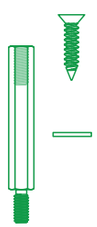
Labyrinth Center Ramp Assembly

SUB-0019-00

Item	Part Number	Description	Qty
1	VAC-0003-00	Labyrinth Center Ramp	1
2	MET-0072-00	Labyrinth Center Ramp Flap	1
3	RIV-5108-20	1/8" x 5/16" Semi-Tubular Rivet, Oval Head	6
4	SWI-0300-02	Single Phototransistor Opto Assy (***Sw 66***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
5	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
6	MET-0082-00	Subway/Ramp Opto Pair Brkt	1
7	RIV-5609-16	9/64" x 1/4" Semi-Tubular Rivet, Flush Head	2
8	FLT-0021-00	Labyrinth Center Ramp Right Protector	1
9	MAS-8008-06	8-32 x 3/8" PTH MS	2
10	NUT-0008-00	8-32 Nylon Lock Nut	2

Assembly Mounting Hardware

Playfield, Top



Location	Part Number	Description	Qty
M1	WDS-6008-12	#8 x 3/4" PFH SMS	2
M2	HEX-1188-26	1/4" x 1-5/8" Hex Spacer, M-F, 8-32	2
	WAS-0008-14	#8 Flat Washer, 7/16"OD	2

The two screws thread through the Center Ramp Shim (item 4 on pg 4-118), then into the playfield surface; the two hex spacers/washers are used to mount the ramp to previously installed hex spacer supports (see pg 4-112)

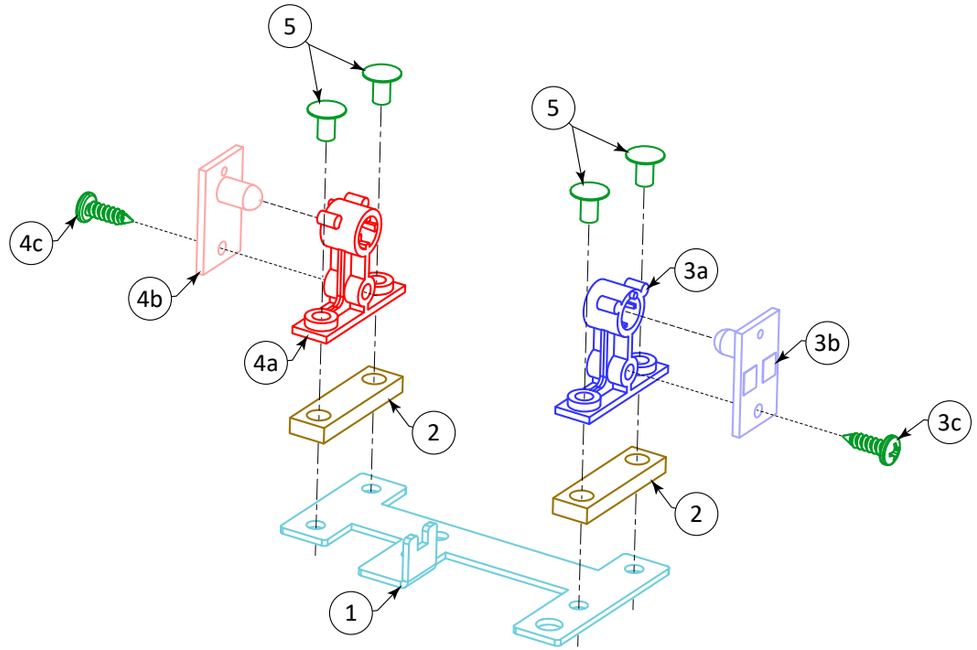
Assembly Cable(s)

Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1

Wireform Opto Pair Assembly

SUB-0021-00

Item	Part Number	Description	Qty
1	MET-0085-00	Wireform Opto Pair Brkt	1
2	3DP-0018-00	Wms Style Opto Spacer, 3DP	2
3	SWI-0300-02	Single Phototransistor Opto Assy (***Sw 67***)	1
a)	PLS-0300-02	Phototransistor Opto Housing, Black	1
b)	SWI-0300-12	Phototransistor Opto PCB, Blue (*QSD124*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
4	SWI-0300-01	Single IR LED Opto Assy	1
a)	PLS-0300-01	IR LED Opto Housing, White	1
b)	SWI-0300-11	IR LED Opto PCB, Green (*QED123*)	1
c)	SMS-0004-06	#4 x 3/8" PPH SMS	1
5	RIV-5108-24	1/8" x 3/8" Semi-Tubular Rivet, Oval Head	4

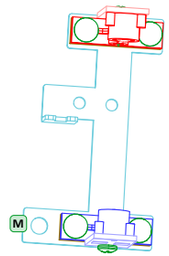


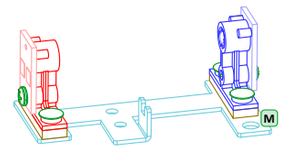
Assembly Mounting Hardware

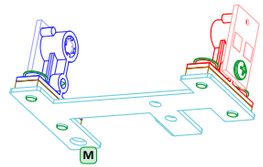
Playfield, Top

Location	Part Number	Description	Qty
M	HEX-1188-16	1/4" x 1" Hex Spacer, M-F, 8-32	1

The hex spacer mounts the bracket to a previously installed hex spacer support (see pg 4-112); the notch in item 1 fits around the bottom ring of the left wire ramp to keep the assembly aligned properly

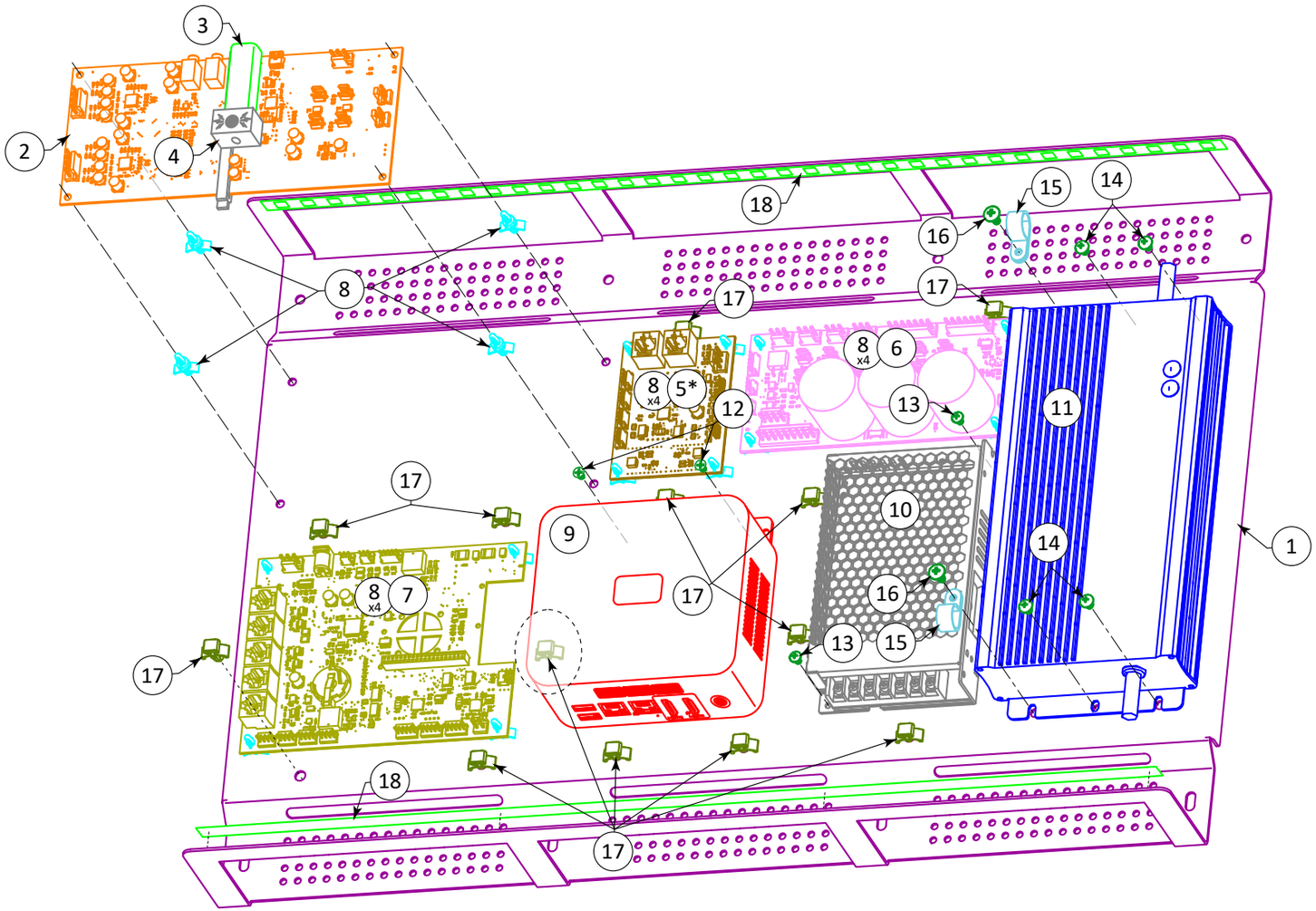






Assembly Cable(s)

Part Number	Description	Qty
PGT-0301-00	Opto Switch XMT-W Wiring Pigtail	1
PGT-0302-00	Opto Switch RCV-W Wiring Pigtail	1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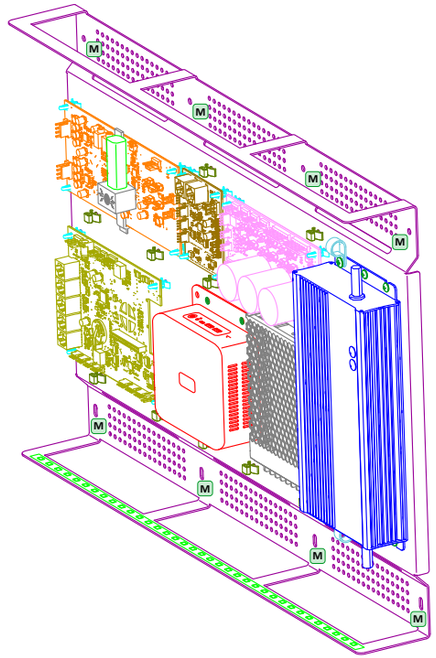
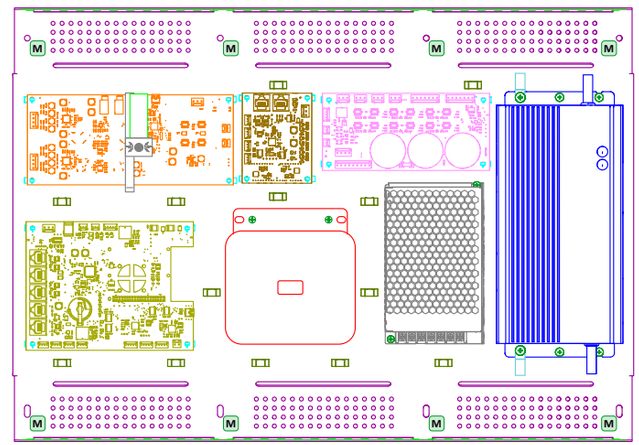




Labyrinth Backbox Ground Plane Assembly

ASY-0013-01

Item	Part Number	Description	Qty	Details
1	MET-0049-00	Backbox Electronics Ground Plane	1	-
2	AUD-0100-00	Audio Interface Bd, **0100**	1	5-36
3	AUD-0200-00	Ground Loop Isolator	1	-
4	3DP-0035-00	Ground Loop Isolator PCB Mtg Brkt, 3DP	1	-
5*	ELE-0071-00	System Expansion Bd (Topper), **0071**	1	5-32
6	ELE-0007-00	Power Filter Bd, **0007** (Games 1-604)	1	5-38
or	ELE-0007-01	Power Filter Bd, **0007** (Games 605 and higher)	1	5-41
7	ELE-2000-00	Neuron Controller Bd, **2000**	1	5-33
8	HDW-0006-00	Nylon Snap-in PCB Support, 1/4"L	16	-
9	COM-0001-00	Mini Computer & Power Cord	1	5-44
10	ELE-0012-01	12VDC Switching Power Supply, 150W	1	-
11	ELE-0048-00	48VDC Switching Power Supply, 480W	1	-
12	MAS-6106-04	6-32 x 1/4” PFH MS, Black	2	-
13	MAS-0006-04	6-32 x 1/4” PPH MS	2	-
14	MAS-0008-04	8-32 x 1/4” PPH MS	4	-
15	HDW-0004-01	Nylon Captive Cable Clamp, 1/2”	2	-
16	MAS-8008-06	8-32 x 3/8" PTH MS	2	-
17	HDW-0007-00	Nylon Snap-in Cable Tie Mount	13	-
18	LIT-0015-00	Backbox 12V White LED Strips & Cable Assy	1	-

* in games with topper

Assembly Mounting Hardware

Backbox, Inside/Back

Location	Part Number	Description	Qty
	BLT-5108-12	8-32 x 3/4" CB	8
	NUT-5108-00	8-32 Flange Nut, Black	8

The eight carriage bolts run through the back panel of the backbox and the ground plane, then the eight flange nuts are installed, inside

Assembly Cable(s)

Part Number	Description	Qty
HAR-0018-00	AC Input Power Harness, Insulated	1
HAR-0017-00	12V Power Supply Main Harness	1
HAR-0017-01	12V Power Supply Audio Bd Harness	1
HAR-0020-00	12V Backbox PCB Power Harness, 18"	1
HAR-0020-00*	12V Backbox PCB Power Harness, 18"	1
WCA-0002-02	USB Type A to Mini Cable, 1ft, Black	2
WCA-0104-00*	CAT5E Ethernet Cable, 2ft, Black	1
AUD-0201-00	Ground Loop Isolator Jumper Cable	1
AUD-0201-01	Ground Loop Isolator Extension Cable	1
HAR-0019-00	Backbox To Playfield DC Power Harness	1
HAR-0019-01	Backbox To Cabinet DC Power Harness	1

* in games with topper

Ball Shooter Assembly

SUB-0002-01

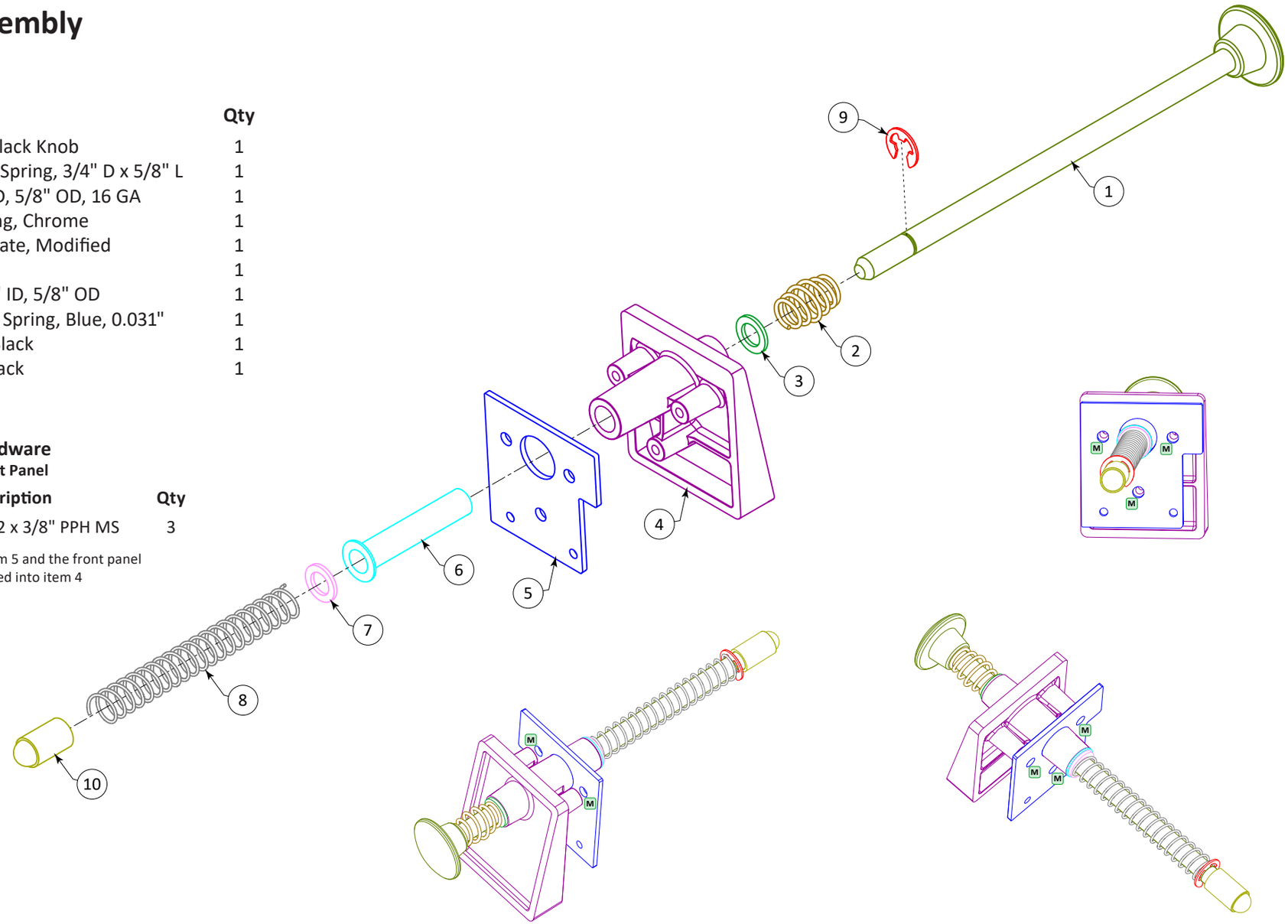
Item	Part Number	Description	Qty
1	SUB-0096-00	Ball Shooter Rod, Black Knob	1
2	SPR-0001-00	Ball Shooter Barrel Spring, 3/4" D x 5/8" L	1
3	WAS-0038-20	Flat Washer, 3/8" ID, 5/8" OD, 16 GA	1
4	MCH-0032-00	Ball Shooter Housing, Chrome	1
5	MET-0093-01	Ball Shooter Mtg Plate, Modified	1
6	PLS-1002-00	Ball Shooter Sleeve	1
7	WAS-0438-20	Nylon Washer, 3/8" ID, 5/8" OD	1
8	SPR-0000-03	Ball Shooter Power Spring, Blue, 0.031"	1
9	HDW-0002-06	E-Clip, 3/8" Shaft, Black	1
10	RUB-0032-58	Ball Shooter Tip, Black	1

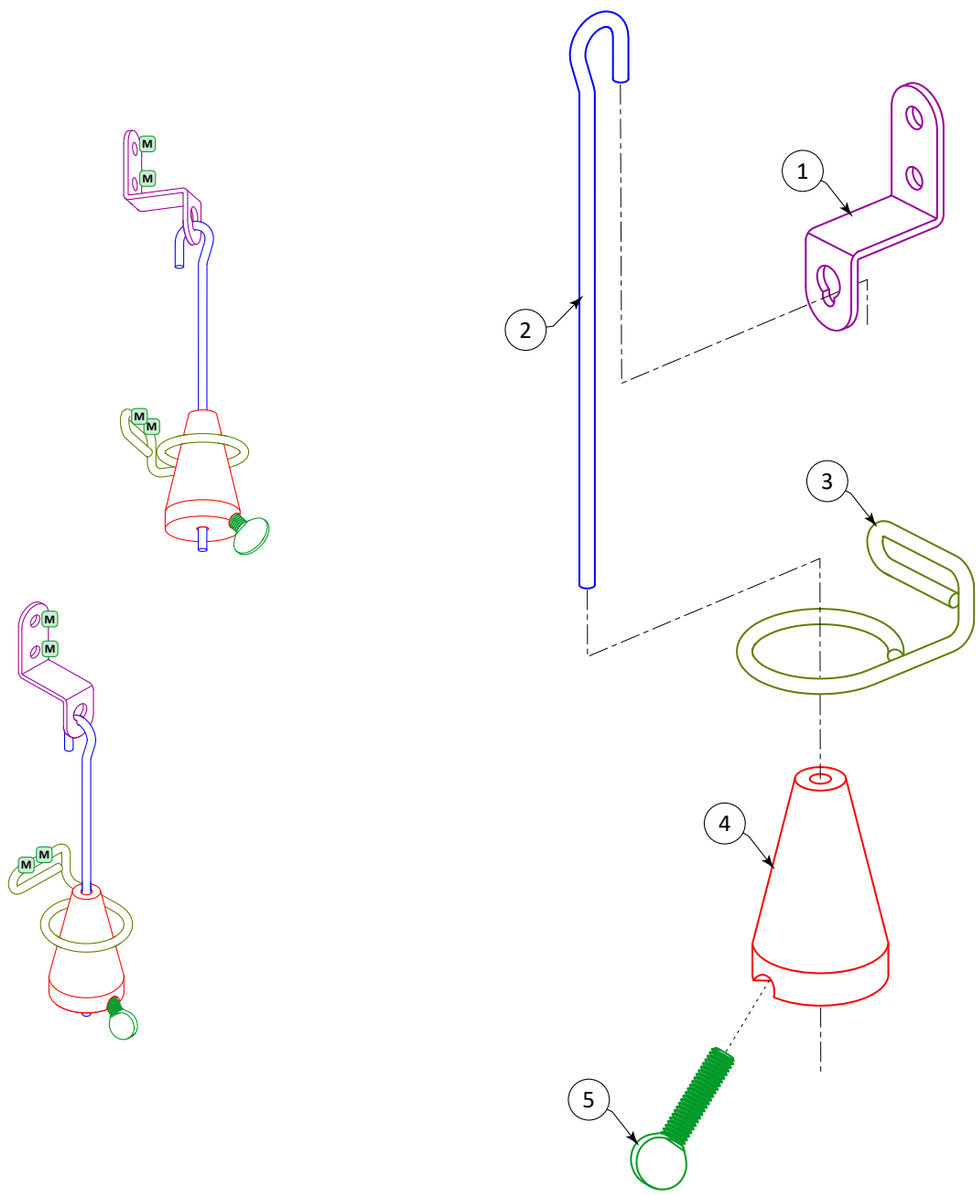
Assembly Mounting Hardware

Lower Cabinet, Through Front Panel

Location	Part Number	Description	Qty
M	MAS-0010-06	10-32 x 3/8" PPH MS	3

The three screws are installed through item 5 and the front panel of the lower cabinet, and threaded into item 4





Plumb Bob Tilt Assembly

KIT-0004-00

Item	Part Number	Description	Qty
1	MET-0165-00	Upper Tilt Contact/Hanger Brkt	1
2	WRF-0004-00	Plumb Bob Hanger Rod	1
3	WRF-0004-01	Lower Tilt Contact/Ring Brkt	1
4	MCH-0036-00	Plumb Bob (*Sw 13*)	1
5	MAS-9010-12	Plumb Bob Thumb Screw, 10-32 x 3/4"	1

Assembly Mounting Hardware

Lower Cabinet, Left Sidewall

Location	Part Number	Description	Qty
M	SMS-2008-08	#8 x 1/2" HWH SMS	4

Coil & Servo Table (1 of 2)

Coil #	Coil Function	Coil Type	Power Source	Drive Details	Fuse(s)	Part Number	Part of Assembly	Drawing
3	Start button LED (lower cabinet, front)	LED	RED, **0024** J1-13, $12V_{CAB}$	WHT, **0024** J1-12	F5	-	BUT-0001-00	4-2
7	Knocker (not factory installed)	-	**0024** J2-1, $48V_2$/HV_2	**0024** J2-4	F7*, F1	-	-	-
8	Orbit magnet (top)	22-675	ORN, **0030** J10-1, $48V_2$/HV_2	BRN → BLK, **0804** J4-1, Q5	F7*, F1	COL-0197-00	MAG-0000-00	4-30
9	Left ramp lifter	26-1200	ORN, **0030** J10-1, $48V_2$/HV_2	RED → ORN-RED, **0804** J4-2, Q2	F7*, F1	COL-2612-01	SUB-0012-00	4-21
10	***Beggar*** magnet (center)	22-675	ORN, **0030** J10-1, $48V_2$/HV_2	RED → BLK, **0804** J4-3, Q6	F7*, F1	COL-0197-00	MAG-0000-00	4-30
11	Upper right slingshot	23-800	ORN, **0030** J10-1, $48V_2$/HV_2	YEL → ORN-YEL, **0804** J4-4, Q3	F7*, F1	COL-2380-01	SUB-0006-02	4-18
12	Right flipper power	FL-11629	WHT, **0030** J5-1, $48V_1$/HV_1	BRN → WHT-BRN, **3208** J4-1, Q7	F7*, F4	COL-1629-01	SUB-0005-01	4-12
13	Right flipper hold	FL-11629	WHT, **0030** J5-1, $48V_1$/HV_1	RED → WHT-RED, **3208** J4-2, Q2	F7*, F4	COL-1629-01	SUB-0005-01	4-12
14	Left flipper power	FL-11629	WHT, **0030** J5-1, $48V_1$/HV_1	ORN → WHT-ORN, **3208** J4-3, Q8	F7*, F4	COL-1629-01	SUB-0005-00	4-10
15	Left flipper hold	FL-11629	WHT, **0030** J5-1, $48V_1$/HV_1	YEL → WHT-YEL, **3208** J4-4, Q3	F7*, F4	COL-1629-01	SUB-0005-00	4-10
16	Ball auto-launch	23-800	WHT, **0030** J5-1, $48V_1$/HV_1	GRN → WHT-GRN, **3208** J4-5, Q9	F7*, F4	COL-2380-01	SUB-0008-00	4-16
17	Ball trough eject	26-1500	WHT, **0030** J5-1, $48V_1$/HV_1	VIO → WHT-VIO, **3208** J4-7, Q4	F7*, F4	COL-2615-01	SUB-0007-00	4-14
18	Right slingshot	23-800	WHT, **0030** J5-1, $48V_1$/HV_1	PNK → WHT-PNK, **3208** J4-8, Q10	F7*, F4	COL-2380-01	SUB-0006-01	4-18
19	Left slingshot	23-800	WHT, **0030** J5-1, $48V_1$/HV_1	BLU → WHT-BLU, **3208** J4-9, Q5	F7*, F4	COL-2380-01	SUB-0006-00	4-18
20	Horseshoe diverter down	27-700	BLU, **0030** J6-1, $48V_1$/HV_1	BRN → BLU-BRN, **1616** J3-1, Q11	F7*, F4	COL-2770-01	SUB-0010-00	4-20
21	Horseshoe diverter up	26-1200	BLU, **0030** J6-1, $48V_1$/HV_1	RED → BLU-RED, **1616** J3-2, Q2	F7*, F4	COL-2612-01	SUB-0010-00	4-20
22	***Wiseman*** drop target up	26-1200	BLU, **0030** J6-1, $48V_1$/HV_1	ORN → BLU-ORN, **1616** J3-3, Q12	F7*, F4	COL-2612-01	SUB-0013-00	4-22
23	***Wiseman*** scoop eject (right orbit)	23-800	BLU, **0030** J6-1, $48V_1$/HV_1	YEL → BLU-YEL, **1616** J3-4, Q3	F7*, F4	COL-2380-01	SUB-0014-00	4-24
24	***Wiseman*** drop target down	27-700	BLU, **0030** J6-1, $48V_1$/HV_1	GRN → BLU-GRN, **1616** J3-6, Q13	F7*, F4	COL-2770-01	SUB-0013-00	4-22
25	Upper right flipper power	FL-11629	BLU, **0030** J6-1, $48V_1$/HV_1	VIO → BLU-VIO, **1616** J3-7, Q4	F7*, F4	COL-1629-01	SUB-0005-02	4-12
26	Upper right flipper hold	FL-11629	BLU, **0030** J6-1, $48V_1$/HV_1	PNK → BLU-PNK, **1616** J3-8, Q14	F7*, F4	COL-1629-01	SUB-0005-02	4-12
27	***Ello*** up/down post	26-1200	BLU, **0030** J6-1, $48V_1$/HV_1	WHT → BLU-WHT, **1616** J3-9, Q5	F7*, F4	COL-2612-01	SUB-0017-00	4-27

* game numbers 605 and above

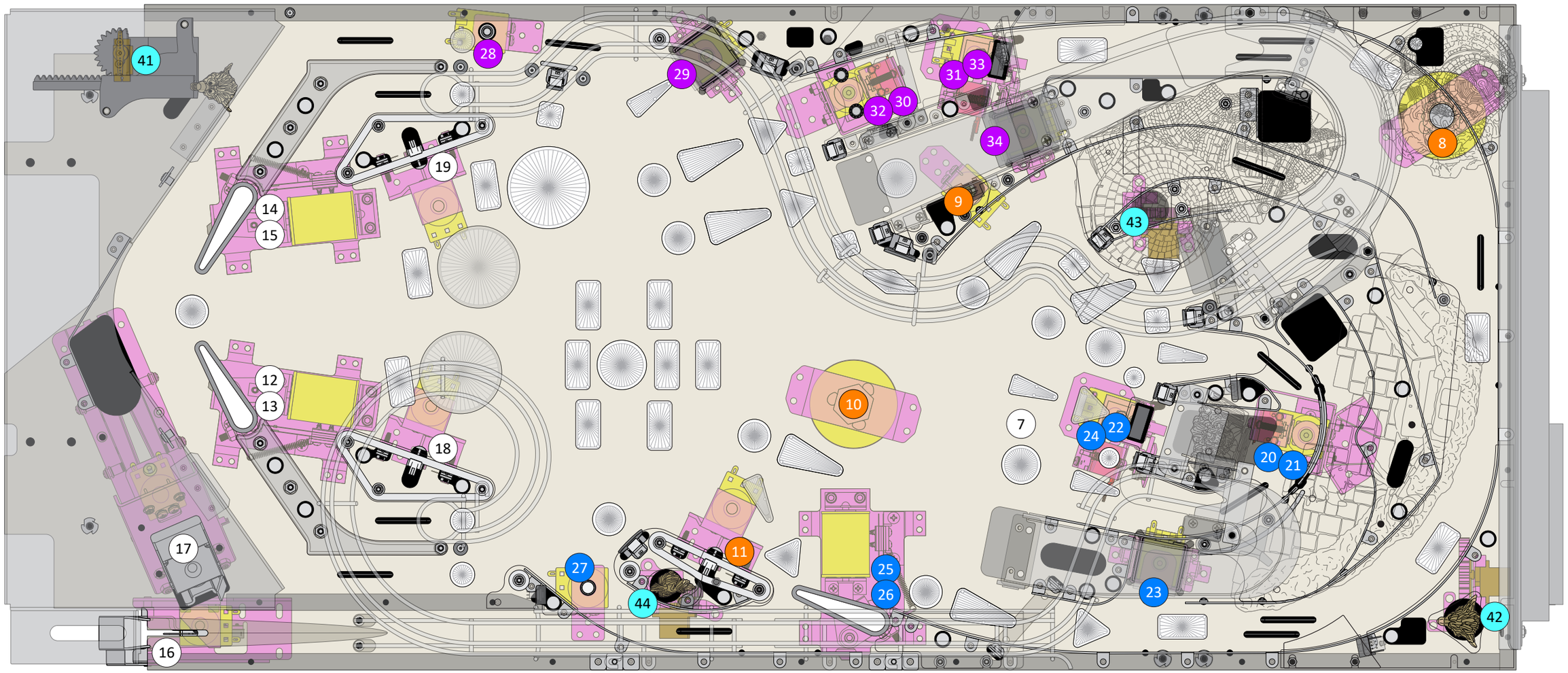
Coil notes: pg 6-2 Coil Locations: pg 4-54 Coil & servo testing: pg 3-26 Coil & servo wiring table: pg 4-128 Coil strength adjustments: pg 3-12

Coil & Servo Table (2 of 2)

Coil #	Coil Function	Coil Type	Power Source	Drive Details	Fuse(s)	Part Number	Part of Assembly	Drawing
28	Left outlane up/down post	26-1200	VIO, **0030** J11-1, 48V$_1$/HV_1	BRN → VIO-BRN, **1616** J4-1, Q15	F7*, F4	COL-2612-01	SUB-0016-00	4-26
29	***Helping Hands*** scoop eject	23-800	VIO, **0030** J11-1, 48V$_1$/HV_1	RED → VIO-RED, **1616** J4-2, Q6	F7*, F4	COL-2380-01	SUB-0015-00	4-25
30	Forks ball catch down	27-700	VIO, **0030** J11-1, 48V$_1$/HV_1	ORN → VIO-ORN, **1616** J4-3, Q16	F7*, F4	COL-2770-01	SUB-0009-00	4-19
31	***Humongous*** drop target down	27-700	VIO, **0030** J11-1, 48V$_1$/HV_1	WHT → VIO-WHT, **1616** J4-4, Q7	F7*, F4	COL-2770-01	SUB-0013-01	4-22
32	Forks ball catch up	26-1200	VIO, **0030** J11-1, 48V$_1$/HV_1	YEL → VIO-YEL, **1616** J4-5, Q17	F7*, F4	COL-2612-01	SUB-0009-00	4-19
33	***Humongous*** drop target up	26-1200	VIO, **0030** J11-1, 48V$_1$/HV_1	BLU → VIO-BLU, **1616** J4-7, Q8	F7*, F4	COL-2612-01	SUB-0013-01	4-22
34	***Village*** scoop eject (under left ramp)	23-800	VIO, **0030** J11-1, 48V$_1$/HV_1	PNK → VIO-PNK, **1616** J4-8, Q18	F7*, F4	COL-2380-01	SUB-0014-01	4-24
35	Not used			**1616** J4-9, Q9				
41	Bottom arch ***Firey*** head out/in (above PF)	Servo	RED, **0071**(PF) J2-2, 6VDC	YEL, **0071**(PF) J2-1	F6	MTR-0000-00	SUB-0034-00	4-36
42	Playfield ***Firey*** head up/down	Servo	RED, **0071**(PF) J5-2, 6VDC	YEL, **0071**(PF) J5-1	F6	MTR-0000-00	SUB-0034-01	4-33
43	***Ludo*** figure up/down	Servo	RED, **0071**(PF) J4-2, 6VDC	YEL, **0071**(PF) J4-1	F6	MTR-0000-00	SUB-0038-00	4-32
44	***Ello*** figure up/down	Servo	RED, **0071**(PF) J3-2, 6VDC	YEL, **0071**(PF) J3-1	F6	MTR-0000-00	SUB-0037-00	4-31
45	***Froggy*** (left) head spin (topper only)	Servo	RED, **0071**(BB) J2-2, 6VDC	WHT, **0071**(BB) J2-1	F2	MTR-0000-00	TOP-0001-00	-
46	***Snarf*** (right) head spin (topper only)	Servo	RED, **0071**(BB) J3-2, 6VDC	WHT, **0071**(BB) J3-1	F2	MTR-0000-00	TOP-0001-00	-

* game numbers 605 and above

Coil notes: pg 6-2 Coil Locations: pg 4-54 Coil & servo testing: pg 3-26 Coil & servo wiring table: pg 4-128 Coil strength adjustments: pg 3-12

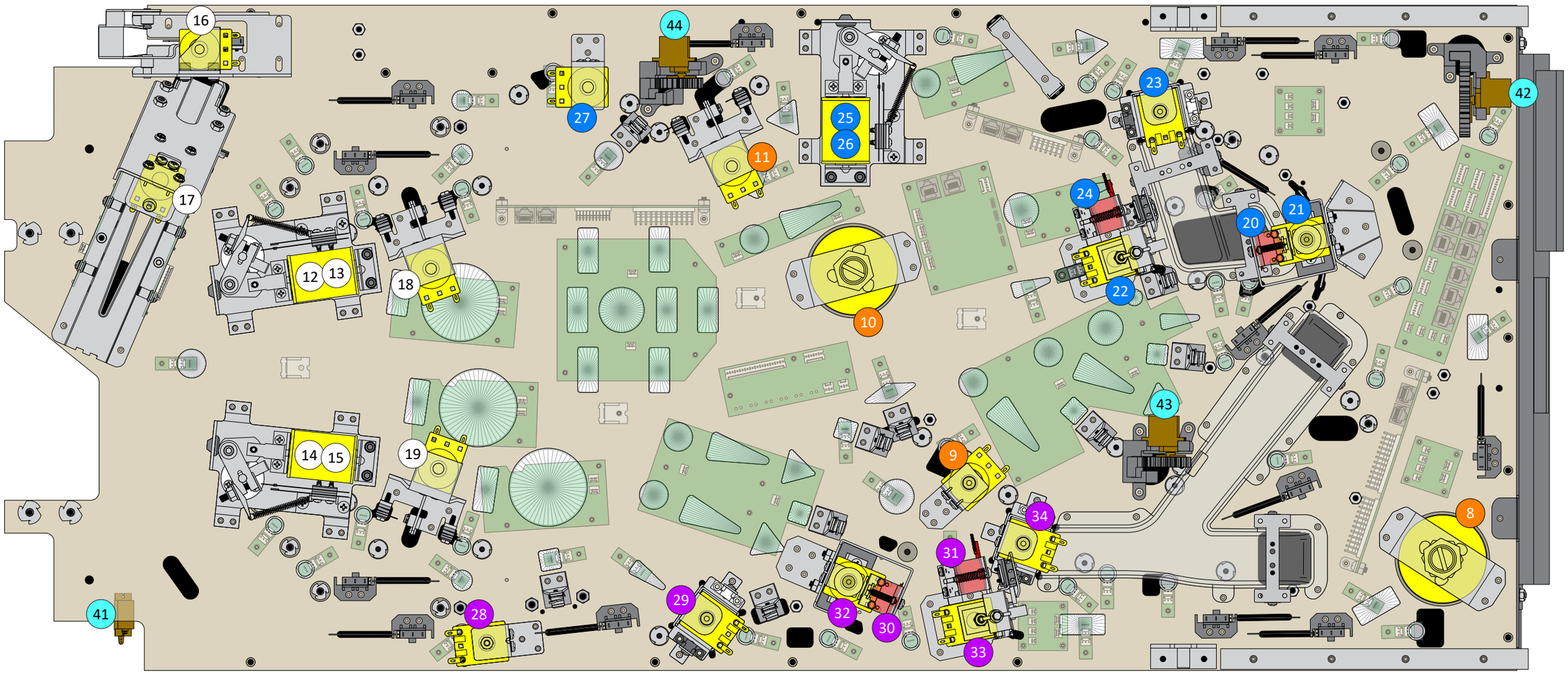


Coil strength adj: pg 3-12 Coil/servo wiring table: pg 4-128 Coil notes: pg 6-2 Coil testing: pg 3-26 Servo testing: pg 3-28

Coil & Servo Locations

Above Playfield

Coil #	Coil Function	Drive PCB, Conn-Pin	Part Number	Part of Assembly	Drawing
3	Start button LED (lower cabinet, front)	**0024** J1-12	-	BUT-0001-00	4-2
8	Orbit magnet (top)	**0804** J3-1	COL-0197-00	MAG-0000-00	4-30
9	Left ramp lifter	**0804** J3-2	COL-2612-01	SUB-0012-00	4-21
10	***Beggar*** magnet (center)	**0804** J3-3	COL-0197-00	MAG-0000-00	4-30
11	Upper right slingshot	**0804** J3-4	COL-2380-01	SUB-0006-02	4-18
12	Right flipper power	**3208** J4-1	COL-1629-01	SUB-0005-01	4-12
13	Right flipper hold	**3208** J4-2	COL-1629-01	SUB-0005-01	4-12
14	Left flipper power	**3208** J4-3	COL-1629-01	SUB-0005-00	4-10
15	Left flipper hold	**3208** J4-4	COL-1629-01	SUB-0005-00	4-10
16	Ball auto-launch	**3208** J4-5	COL-2380-01	SUB-0008-00	4-16
17	Ball trough eject	**3208** J4-7	COL-2615-01	SUB-0007-00	4-14
18	Right slingshot	**3208** J4-8	COL-2380-01	SUB-0006-01	4-18
19	Left slingshot	**3208** J4-9	COL-2380-01	SUB-0006-00	4-18
20	Horseshoe diverter down	**1616** J3-1	COL-2770-01	SUB-0010-00	4-20
21	Horseshoe diverter up	**1616** J3-2	COL-2612-01	SUB-0010-00	4-20
22	***Wiseman*** drop target up	**1616** J3-3	COL-2612-01	SUB-0013-00	4-22
23	***Wiseman*** scoop eject (right orbit)	**1616** J3-4	COL-2380-01	SUB-0014-00	4-24
24	***Wiseman*** drop target down	**1616** J3-6	COL-2770-01	SUB-0013-00	4-22
25	Upper right flipper power	**1616** J3-7	COL-1629-01	SUB-0005-02	4-12
26	Upper right flipper hold	**1616** J3-8	COL-1629-01	SUB-0005-02	4-12
27	***Ello*** up/down post	**1616** J3-9	COL-2612-01	SUB-0017-00	4-27
28	Left outlane up/down post	**1616** J4-1	COL-2612-01	SUB-0016-00	4-26
29	***Helping Hands*** scoop eject	**1616** J4-2	COL-2380-01	SUB-0015-00	4-25
30	Forks ball catch down	**1616** J4-3	COL-2770-01	SUB-0009-00	4-19
31	***Humongous*** drop target down	**1616** J4-4	COL-2770-01	SUB-0013-01	4-22
32	Forks ball catch up	**1616** J4-5	COL-2612-01	SUB-0009-00	4-19
33	***Humongous*** drop target up	**1616** J4-7	COL-2612-01	SUB-0013-01	4-22
34	***Village*** scoop eject (under left ramp)	**1616** J4-8	COL-2380-01	SUB-0014-01	4-24
41	Bottom arch ***Firey*** head out/in	**0071**(PF) J2-1	MTR-0000-00	SUB-0034-00	4-36
42	Playfield ***Firey*** head up/down	**0071**(PF) J5-1	MTR-0000-00	SUB-0034-01	4-33
43	***Ludo*** figure up/down	**0071**(PF) J4-1	MTR-0000-00	SUB-0038-00	4-32
44	***Ello*** figure up/down	**0071**(PF) J3-1	MTR-0000-00	SUB-0037-00	4-31
45	***Froggy*** (left) head spin (topper only)	**0071**(BB) J2-1	MTR-0000-00	-	-
46	***Snarf*** (right) head spin (topper only)	**0071**(BB) J3-1	MTR-0000-00	-	-



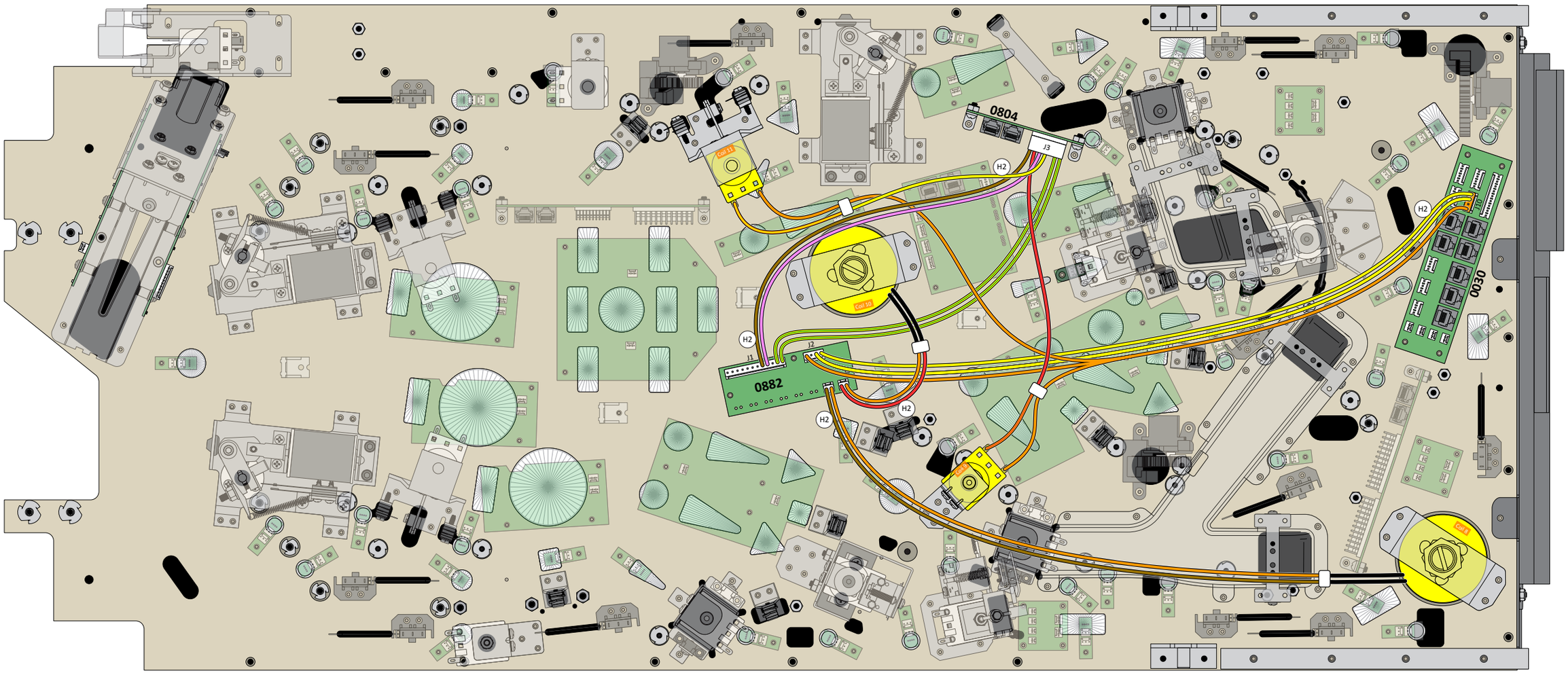
Coil strength adj: pg 3-12 Coil/servo wiring table: pg 4-128 Coil notes: pg 6-2 Coil testing: pg 3-26 Servo testing: pg 3-28

Coil & Servo Locations

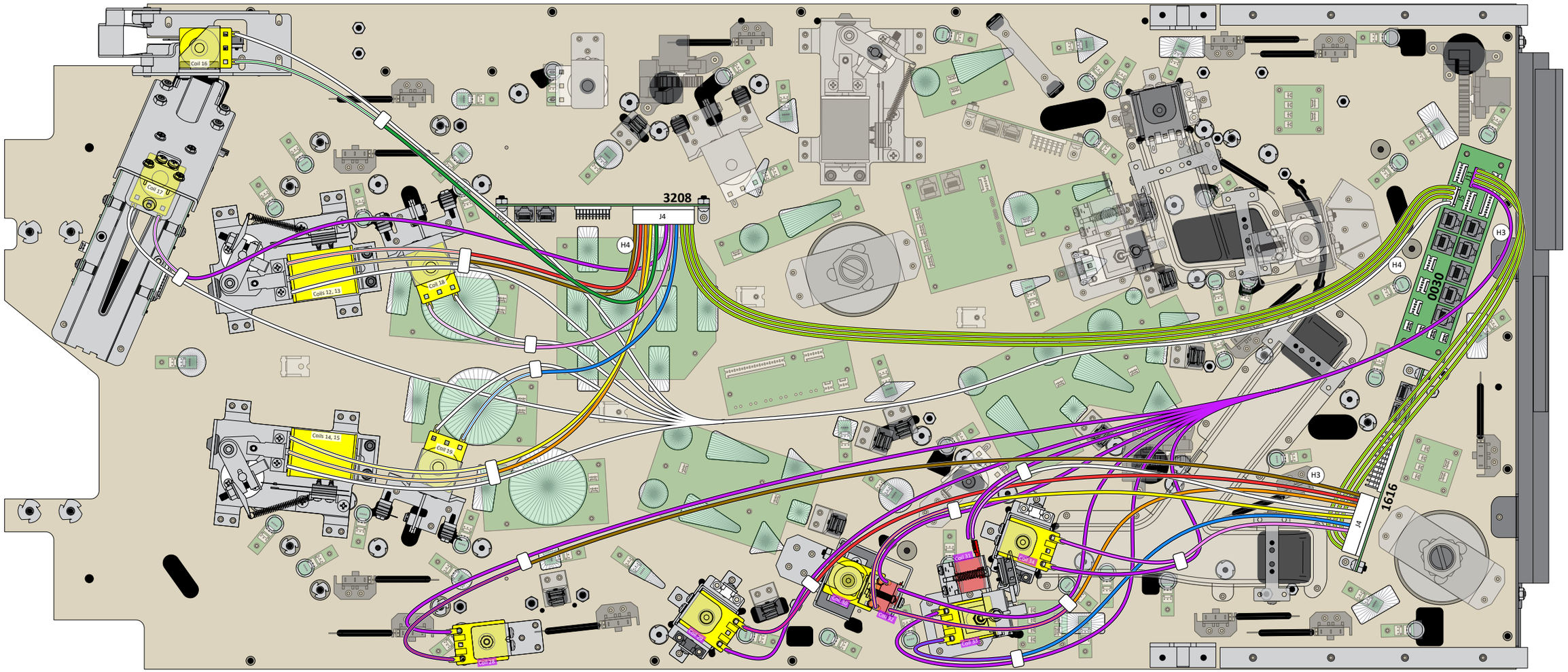
Under Playfield

Coil #	Coil Function	Drive PCB, Conn-Pin	Part Number	Part of Assembly	Drawing
3	Start button LED (lower cabinet, front)	**0024** J1-12	-	BUT-0001-00	4-2
8	Orbit magnet (top)	**0804** J3-1	COL-0197-00	MAG-0000-00	4-30
9	Left ramp lifter	**0804** J3-2	COL-2612-01	SUB-0012-00	4-21
10	***Beggar*** magnet (center)	**0804** J3-3	COL-0197-00	MAG-0000-00	4-30
11	Upper right slingshot	**0804** J3-4	COL-2380-01	SUB-0006-02	4-18
12	Right flipper power	**3208** J4-1	COL-1629-01	SUB-0005-01	4-12
13	Right flipper hold	**3208** J4-2	COL-1629-01	SUB-0005-01	4-12
14	Left flipper power	**3208** J4-3	COL-1629-01	SUB-0005-00	4-10
15	Left flipper hold	**3208** J4-4	COL-1629-01	SUB-0005-00	4-10
16	Ball auto-launch	**3208** J4-5	COL-2380-01	SUB-0008-00	4-16
17	Ball trough eject	**3208** J4-7	COL-2615-01	SUB-0007-00	4-14
18	Right slingshot	**3208** J4-8	COL-2380-01	SUB-0006-01	4-18
19	Left slingshot	**3208** J4-9	COL-2380-01	SUB-0006-00	4-18
20	Horseshoe diverter down	**1616** J3-1	COL-2770-01	SUB-0010-00	4-20
21	Horseshoe diverter up	**1616** J3-2	COL-2612-01	SUB-0010-00	4-20
22	***Wiseman*** drop target up	**1616** J3-3	COL-2612-01	SUB-0013-00	4-22
23	***Wiseman*** scoop eject (right orbit)	**1616** J3-4	COL-2380-01	SUB-0014-00	4-24
24	***Wiseman*** drop target down	**1616** J3-6	COL-2770-01	SUB-0013-00	4-22
25	Upper right flipper power	**1616** J3-7	COL-1629-01	SUB-0005-02	4-12
26	Upper right flipper hold	**1616** J3-8	COL-1629-01	SUB-0005-02	4-12
27	***Ello*** up/down post	**1616** J3-9	COL-2612-01	SUB-0017-00	4-27
28	Left outlane up/down post	**1616** J4-1	COL-2612-01	SUB-0016-00	4-26
29	***Helping Hands*** scoop eject	**1616** J4-2	COL-2380-01	SUB-0015-00	4-25
30	Forks ball catch down	**1616** J4-3	COL-2770-01	SUB-0009-00	4-19
31	***Humongous*** drop target down	**1616** J4-4	COL-2770-01	SUB-0013-01	4-22
32	Forks ball catch up	**1616** J4-5	COL-2612-01	SUB-0009-00	4-19
33	***Humongous*** drop target up	**1616** J4-7	COL-2612-01	SUB-0013-01	4-22
34	***Village*** scoop eject (under left ramp)	**1616** J4-8	COL-2380-01	SUB-0014-01	4-24
41	Bottom arch ***Firey*** head out/in	**0071**(PF) J2-1	MTR-0000-00	SUB-0034-00	4-36
42	Playfield ***Firey*** head up/down	**0071**(PF) J5-1	MTR-0000-00	SUB-0034-01	4-33
43	***Ludo*** figure up/down	**0071**(PF) J4-1	MTR-0000-00	SUB-0038-00	4-32
44	***Ello*** figure up/down	**0071**(PF) J3-1	MTR-0000-00	SUB-0037-00	4-31
45	***Froggy*** (left) head spin (topper only)	**0071**(BB) J2-1	MTR-0000-00	-	-
46	***Snarf*** (right) head spin (topper only)	**0071**(BB) J3-1	MTR-0000-00	-	-

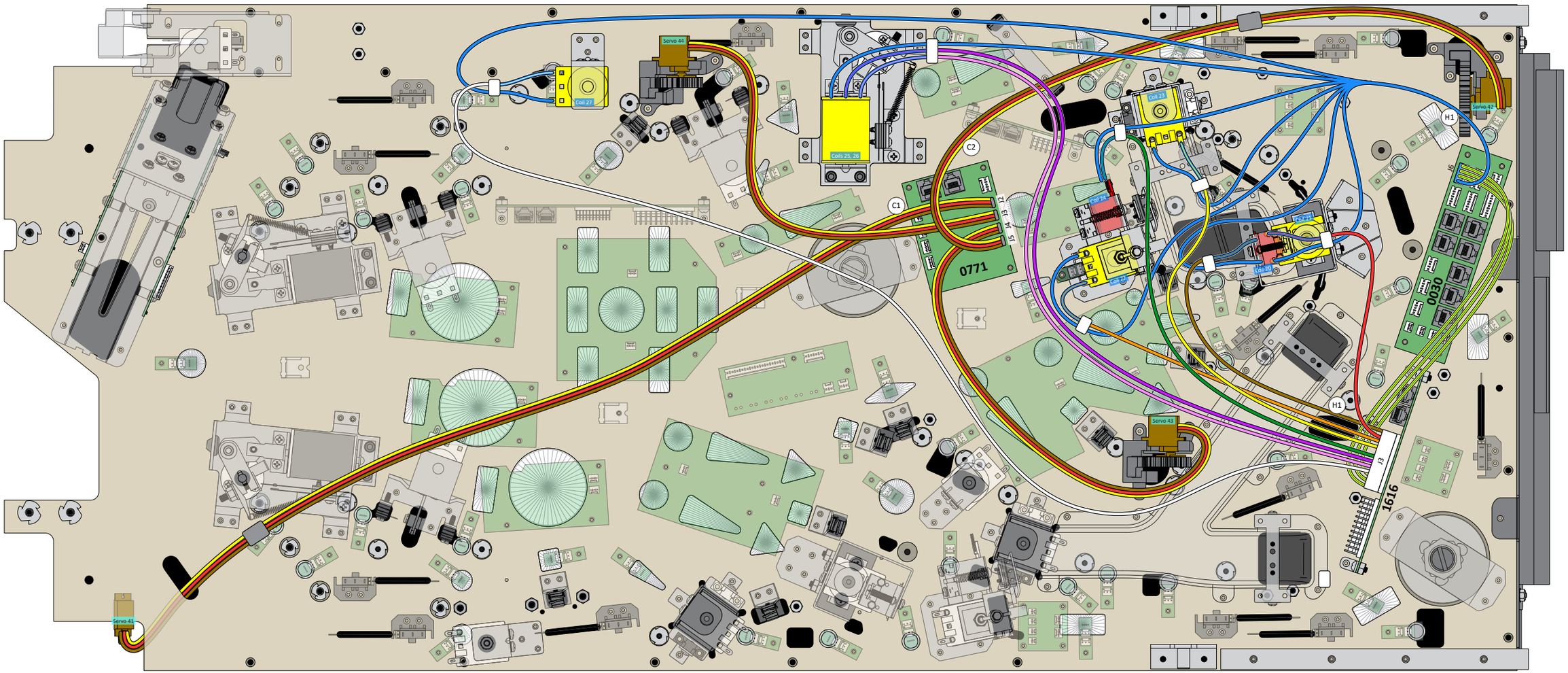
Coil Wiring (Orange Line)



Coil Wiring (Violet & *White* Lines)



Coil (Blue Line) & Servo Wiring

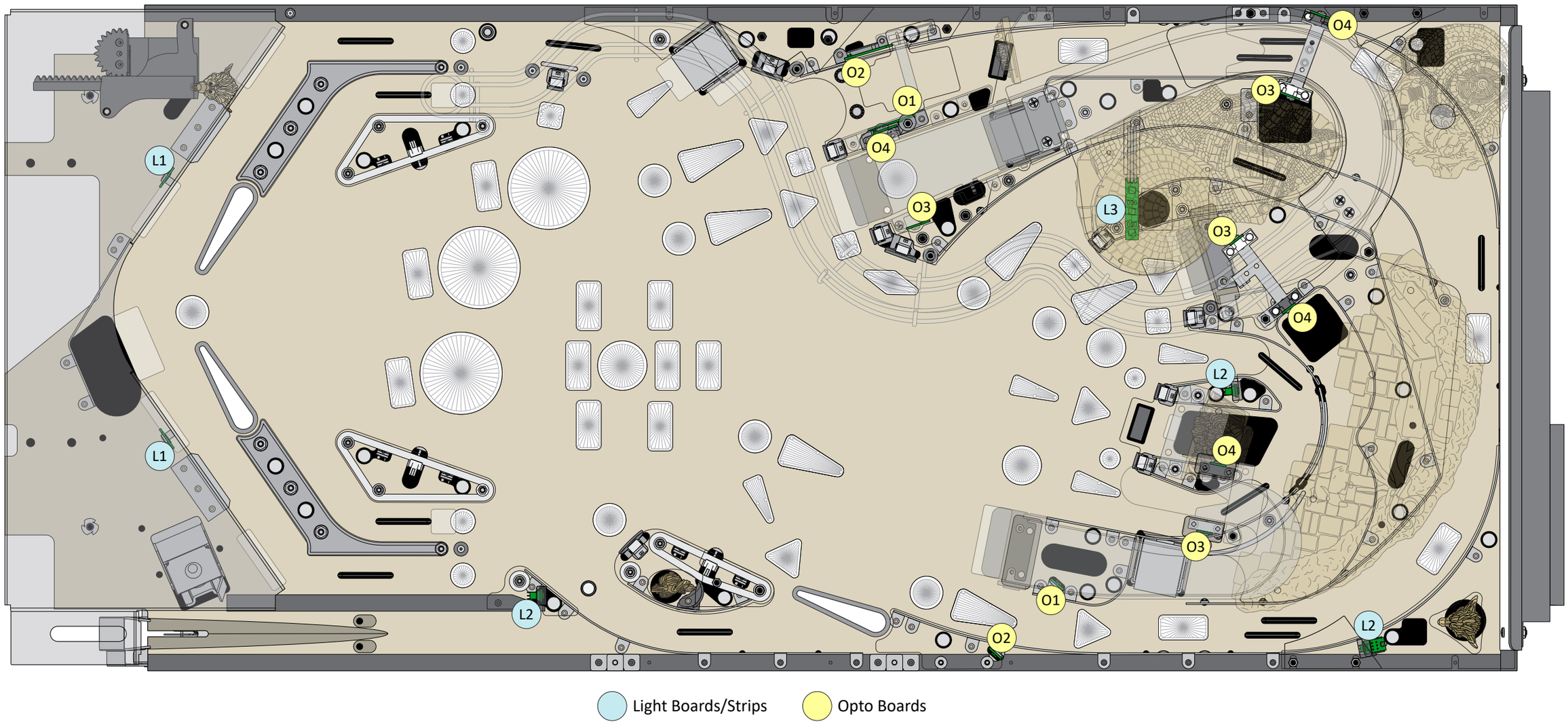


Coil & Servo Wiring

Under Playfield

Wiring Harnesses & Cables

Item	Part Number	Description	Drive Connector	Power Connector	Coils/Servos
H1	HAR-0001-00	Labyrinth Blue Line Coil Harness	**1616** J3	**0030** J6	***Coils 20*** to ***27***
H2	HAR-0002-00	Labyrinth Orange Line Coil Harness	**0804** J3	**0030** J10	***Coils 8*** to ***11***
H3	HAR-0003-00	Labyrinth Violet Line Coil Harness	**1616** J4	**0030** J11	***Coils 28*** to ***34***
H4	HAR-0004-00	Labyrinth White Line Coil Harness	**3208** J4	**0030** J5	***Coils 12*** to ***19***
C1	WCA-0005-60	Servo Extension Cable, 600mm	-	-	***Servo 41***
C2	WCA-0005-15	Servo Extension Cable, 150mm	-	-	***Servo 42***

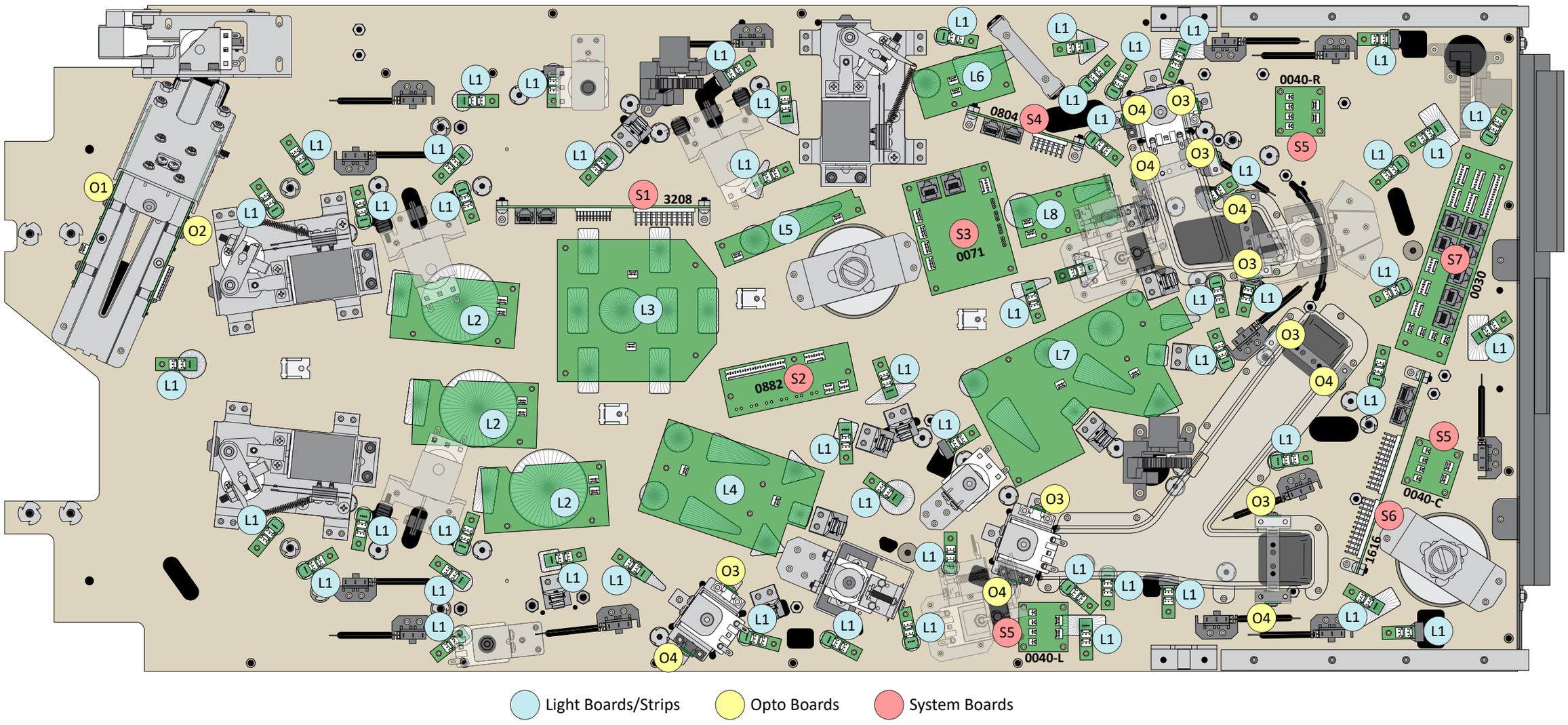

L1
L1
L2
O2
O1
O4
O3
L3
O3
O4
L2
O4
O3
O1
O2
O4
L2
Light Boards/Strips
Opto Boards

Playfield Printed Circuit Boards

Above Playfield

PCB Number(s)	PCB Type	Part Number	Function	Assy Details	PCB Details
L1 (2)	Warm White Flasher Bd, 12V	LIT-0100-00	Lower playfield illumination	4-42	5-20
L2 (3)	Single RGB LED Feature Light Bd	LIT-0006-00*	Sculpture spotlight/illumination	4-69	5-21
L3	RGB LED strip w/cable	LIT-0003-00	***Ludo*** sculpture spotlight/illumination	4-69	-
O1 (2)	Single Opto Transmitter/LED Bd, FAST	SWI-0310-01	Opto transmitters for orbit switches	4-34, 4-37	5-16
O2 (2)	Single Opto Receiver/Phototransistor Bd, FAST	SWI-0310-02	Opto receivers for orbit switches	4-34, 4-37	5-17
O3 (4)	Single Opto Transmitter/LED Bd, Wms	SWI-0300-01	Opto transmitters for ramp switches	4-38, 4-44, 4-46, 4-47	5-18
O4 (4)	Single Opto Receiver/Phototransistor Bd, Wms	SWI-0300-02	Opto receivers for ramp switches	4-38, 4-44, 4-46, 4-47	5-19

* Early games used LIT-0001-03 bds

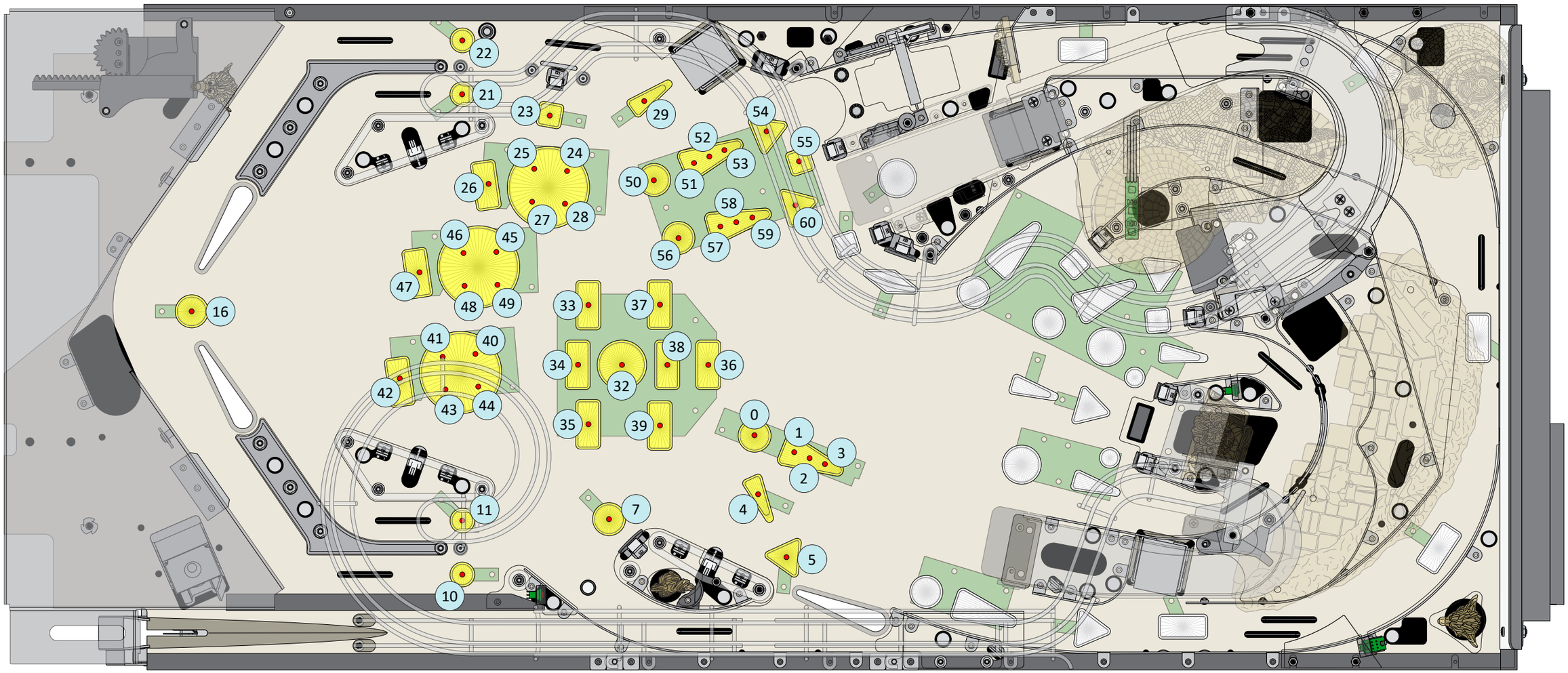

O1
O2
S1
3208
L1
L2
L3
L4
L5
L6
L7
L8
S2
0882
S3
0071
S4
0804
0040-R
S5
S7
0030
0040-C
S6
1616
0040-L
O3
O4
Light Boards/Strips
Opto Boards
System Boards

Playfield Printed Circuit Boards

Under Playfield

PCB Number(s)	PCB Type	Part Number	Function	Assy Details	PCB Details
L1 (53)	Single RGB LED Serial Light Bd	LIT-0006-00*	Feature/insert & general Illumination lights	-	5-21
L2 (3)	Game Specific Multi-light Bd	LIT-0105-00	Labyrinth character face & jackpot feature/insert lights	-	5-26
L3	Game Specific Multi-light Bd	LIT-0104-00	Labyrinth modes feature/insert lights	-	5-25
L4	Game Specific Multi-light Bd	LIT-0103-00	Labyrinth middle left playfield feature/insert lights	-	5-24
L5	Game Specific Multi-light Bd	LIT-0102-00	Labyrinth right ramp ***Advance Friend*** feature/insert lights	-	5-23
L6	Game Specific Multi-light Bd	LIT-0101-00	Labyrinth right orbit ***Advance Friend*** feature/insert lights	-	5-22
L7	Game Specific Multi-light Bd	LIT-0106-00	Labyrinth upper left playfield feature/insert lights	-	5-27
L8	Game Specific Multi-light Bd	LIT-0107-00	Labyrinth right ***Start Mode*** feature/insert lights	-	5-28
S1	System I/O Bd	ELE-3208-00 (**3208**)	Playfield coil drives and switch monitoring	-	5-11
S2	System Harness Adapter Bd	ELE-0882-00 (**0882**)	Playfield magnet drivers	-	5-29
S3	System Expansion Bd (Playfield)	ELE-0071-00 (**0071**(PF))	Playfield servo and LED drivers	-	5-30
S4	System I/O Bd	ELE-0804-00 (**0804**)	Playfield coil drives and switch monitoring	-	5-9
S5 (3)	System Opto Emitter Driver Bd	ELE-0040-00 (**0040-L,C,R**)	Playfield opto transmitter drives	-	5-7
S6	System I/O Bd	ELE-1616-00 (**1616**)	Playfield coil drives and switch monitoring	-	5-5
S7	System Playfield Interchange Bd	ELE-0030-00 (**0030**)	Playfield communications and power distribution	-	5-2
O1	Ball Trough Opto Transmitter/LED Bd	SWI-0221-03	Ball trough switch transmitters	4-14	5-15
O2	Ball Trough Opto Receiver/Phototransistor Bd	SWI-0220-02	Ball trough switch receivers	4-14	5-14
O3 (7)	Single Opto Transmitter/LED Bd, Wms	SWI-0300-01	Assembly opto switch transmitters	4-24, 4-25, 4-28, 4-29	5-18
O4 (7)	Single Opto Receiver/Phototransistor Bd, Wms	SWI-0300-02	Assembly opto switch receivers	4-24, 4-25, 4-28, 4-29	5-19

* early games used LIT-0001-03 (feature) & LIT-0002-02 (GI) bds



Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

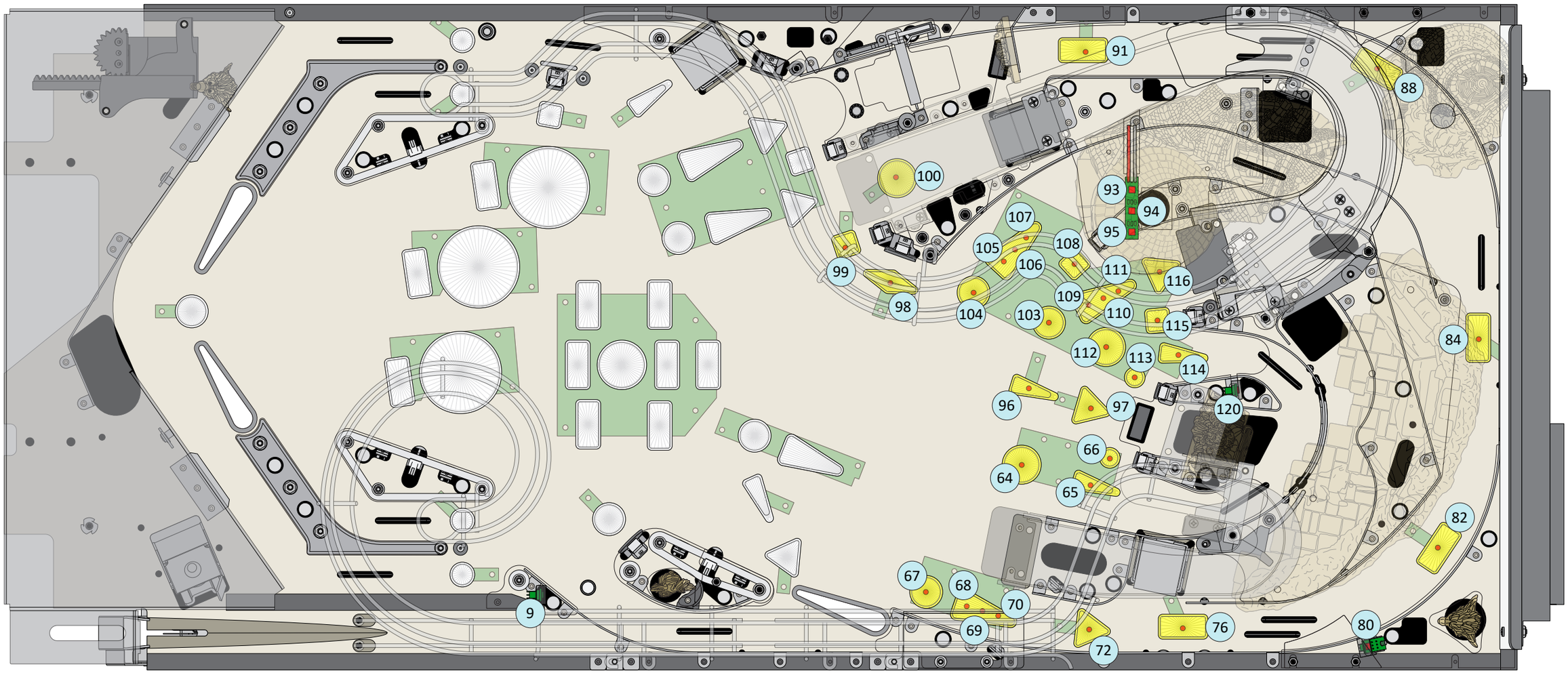
Playfield Feature/Insert/Spot Lighting

Above Playfield (1 of 2)

Light #	Location/Function	Mounted On	Driven By
0	Right ramp ***Advance Friend***	LIT-0102-00	**0071**(PF) J9
1	Right ramp arrow, low	LIT-0102-00	**0071**(PF) J9
2	Right ramp arrow, mid	LIT-0102-00	**0071**(PF) J9
3	Right ramp arrow, high	LIT-0102-00	**0071**(PF) J9
4	***Ello Mystery*** arrow	LIT-0006-00	**0071**(PF) J9
5	***Ello Collect Orb*** triangle	LIT-0006-00	**0071**(PF) J9
7	***Ello*** target	LIT-0006-00	**0071**(PF) J9
10	*HEL****P*** outlane	LIT-0006-00	**0071**(PF) J9
11	*HE****L****P* return lane	LIT-0006-00	**0071**(PF) J9
16	***Ball Save***	LIT-0006-00	**0071**(PF) J9
21	*H****E****LP* return lane	LIT-0006-00	**0071**(PF) J9
22	***H****ELP* outlane	LIT-0006-00	**0071**(PF) J9
23	Wall target (lower left)	LIT-0006-00	**0071**(PF) J9
24	***Hoggle*** face, upper left	LIT-0105-00	**0071**(PF) J9
25	***Hoggle*** face, lower left	LIT-0105-00	**0071**(PF) J9
26	***Hoggle Jackpot Ready***	LIT-0105-00	**0071**(PF) J9
27	***Hoggle*** face, lower right	LIT-0105-00	**0071**(PF) J9
28	***Hoggle*** face, upper right	LIT-0105-00	**0071**(PF) J9
29	***Helping Hands Jackpot***	LIT-0006-00	**0071**(PF) J9
32	***Goblin City Multiball***	LIT-0104-00	**0071**(PF) J10
33	***Cleaners***	LIT-0104-00	**0071**(PF) J10
34	***Oubliette***	LIT-0104-00	**0071**(PF) J10
35	***Bog***	LIT-0104-00	**0071**(PF) J10
36	***Battle Jareth***	LIT-0104-00	**0071**(PF) J10
37	***Knockers***	LIT-0104-00	**0071**(PF) J10

Light #	Location/Function	Mounted On	Driven By
38	***Four Guards***	LIT-0104-00	**0071**(PF) J10
39	***Fireys***	LIT-0104-00	**0071**(PF) J10
40	***Sir Didymus*** face, upper left	LIT-0105-00	**0071**(PF) J10
41	***Sir Didymus*** face, lower left	LIT-0105-00	**0071**(PF) J10
42	***Sir Didymus Jackpot Ready***	LIT-0105-00	**0071**(PF) J10
43	***Sir Didymus*** face, lower right	LIT-0105-00	**0071**(PF) J10
44	***Sir Didymus*** face, upper right	LIT-0105-00	**0071**(PF) J10
45	***Ludo*** face, upper left	LIT-0105-00	**0071**(PF) J10
46	***Ludo*** face, lower left	LIT-0105-00	**0071**(PF) J10
47	***Ludo Jackpot Ready***	LIT-0105-00	**0071**(PF) J10
48	***Ludo*** face, lower right	LIT-0105-00	**0071**(PF) J10
49	***Ludo*** face, upper right	LIT-0105-00	**0071**(PF) J10
50	Left orbit ***Advance Friend***	LIT-0103-00	**0071**(PF) J10
51	Left orbit arrow, low	LIT-0103-00	**0071**(PF) J10
52	Left orbit arrow, mid	LIT-0103-00	**0071**(PF) J10
53	Left orbit arrow, high	LIT-0103-00	**0071**(PF) J10
54	Left orbit triangle	LIT-0103-00	**0071**(PF) J10
55	***Fairy*** target, low left	LIT-0103-00	**0071**(PF) J10
56	Left ramp ***Advance Friend***	LIT-0103-00	**0071**(PF) J10
57	Left ramp arrow, low	LIT-0103-00	**0071**(PF) J10
58	Left ramp arrow, mid	LIT-0103-00	**0071**(PF) J10
59	Left ramp arrow, high	LIT-0103-00	**0071**(PF) J10
60	Left ramp triangle	LIT-0103-00	**0071**(PF) J10

See pg 4-73 for under-playfield feature light bd mounting details



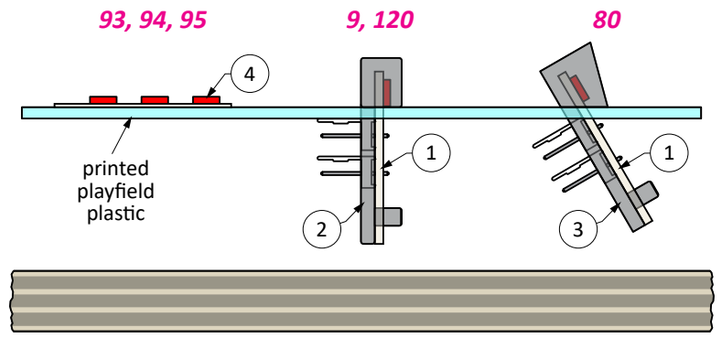
Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

Playfield Feature/Insert/Spot Lighting

Above Playfield (2 of 2)

Light #	Location/Function	Mounted On	Driven By
9	***Ello*** spotlight	LIT-0006-00	**0071**(PF) J9
64	***Start Mode***, right	LIT-0107-00	**0071**(PF) J11
65	Horseshoe arrow, right	LIT-0107-00	**0071**(PF) J11
66	***Wiseman*** target, right	LIT-0107-00	**0071**(PF) J11
67	Right orbit ***Advance Friend***	LIT-0101-00	**0071**(PF) J11
68	Right orbit arrow, low	LIT-0101-00	**0071**(PF) J11
69	Right orbit arrow, mid	LIT-0101-00	**0071**(PF) J11
70	Right orbit arrow, high	LIT-0101-00	**0071**(PF) J11
72	Right orbit triangle	LIT-0006-00	**0071**(PF) J11
76	Right orbit rectangle, low	LIT-0006-00	**0071**(PF) J11
80	***Firey*** spotlight	LIT-0006-00	**0071**(PF) J11
82	Right orbit rectangle, high	LIT-0006-00	**0071**(PF) J11
84	Top orbit rectangle	LIT-0006-00	**0071**(PF) J11
88	Left orbit rectangle, high	LIT-0006-00	**0071**(PF) J11
91	Left orbit rectangle, low	LIT-0006-00	**0071**(PF) J11
93	***Ludo*** spotlight, left	LIT-0003-00 strip	**0071**(PF) J11
94	***Ludo*** spotlight, mid	LIT-0003-00 strip	**0071**(PF) J11
95	***Ludo*** spotlight, right	LIT-0003-00 strip	**0071**(PF) J11
96	***Wiseman Jackpot***	LIT-0006-00	**0071**(PF) J12
97	***Wiseman Advance Quest***	LIT-0006-00	**0071**(PF) J12
98	***Change Mode*** target	LIT-0006-00	**0071**(PF) J12
99	***Fairy*** target, low right	LIT-0006-00	**0071**(PF) J12
100	Under left ramp circle	LIT-0006-00	**0071**(PF) J12
103	Center ramp ***Advance Friend***	LIT-0106-00	**0071**(PF) J12
104	Inner loop ***Advance Friend***	LIT-0106-00	**0071**(PF) J12
105	Inner loop arrow, low	LIT-0106-00	**0071**(PF) J12
106	Inner loop arrow, mid	LIT-0106-00	**0071**(PF) J12
107	Inner loop arrow, high	LIT-0106-00	**0071**(PF) J12
108	***Fairy*** target, high left	LIT-0106-00	**0071**(PF) J12
109	Center ramp arrow, low	LIT-0106-00	**0071**(PF) J12
110	Center ramp arrow, mid	LIT-0106-00	**0071**(PF) J12
111	Center ramp arrow, high	LIT-0106-00	**0071**(PF) J12

Light #	Location/Function	Mounted On	Driven By
112	***Start Mode***, left	LIT-0106-00	**0071**(PF) J12
113	***Wiseman*** target, left	LIT-0106-00	**0071**(PF) J12
114	Horseshoe arrow, left	LIT-0106-00	**0071**(PF) J12
115	***Fairy*** target, high right	LIT-0106-00	**0071**(PF) J12
116	Center ramp triangle	LIT-0106-00	**0071**(PF) J12
120	***Knockers*** spotlight	LIT-0006-00	**0071**(PF) J12



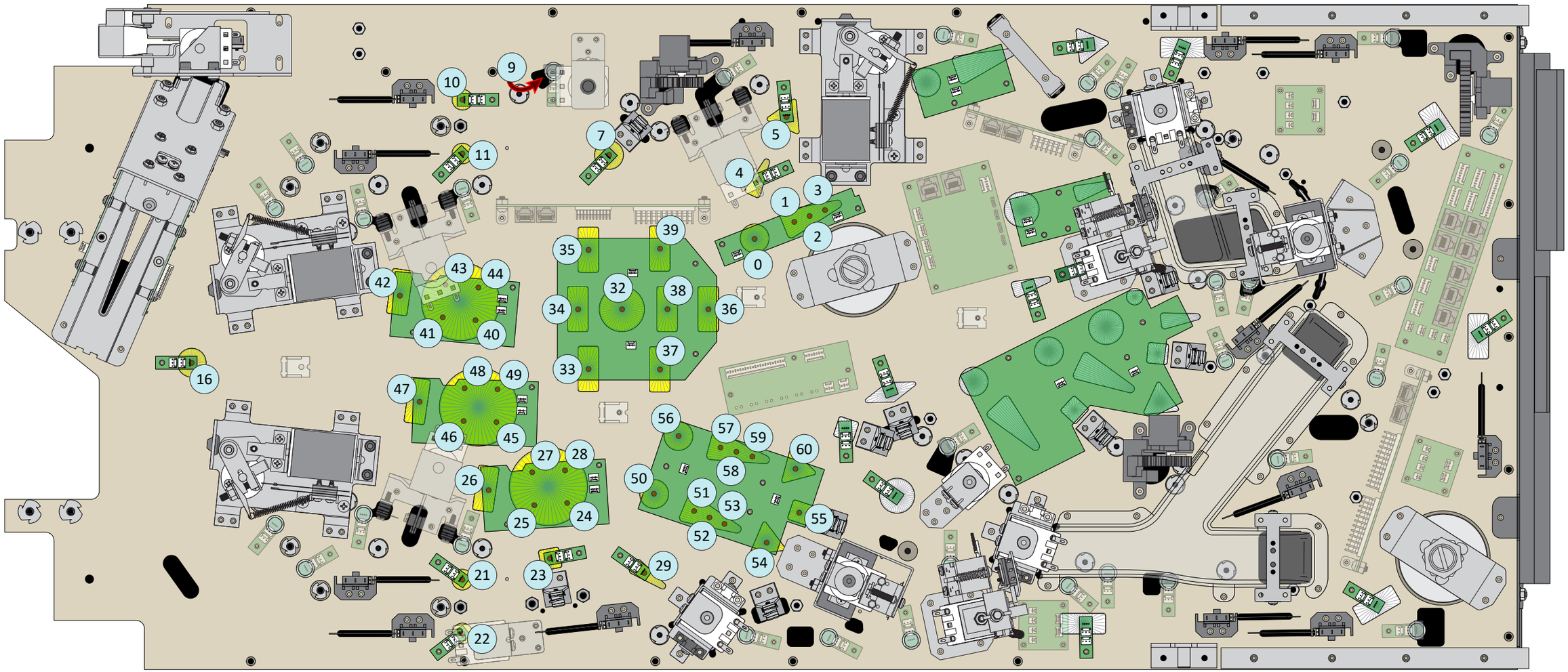
Spotlight Mounting

Playfield, Top

Item	Part Number	Description
1	LIT-0006-00	Single RGB LED Serial Light Bd
2	3DP-0010-00	Spotlight Mount, Vertical, 3DP
3	3DP-0011-00	Spotlight Mount, Angled, 3DP
4	LIT-0003-00	Serial 5050 RGB LED Strip

Spotlight strip attaches to top of playfield plastic
Spotlight mounts slide into slots in playfield plastics

See pg 4-73 for under-playfield feature light bd mounting details



Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

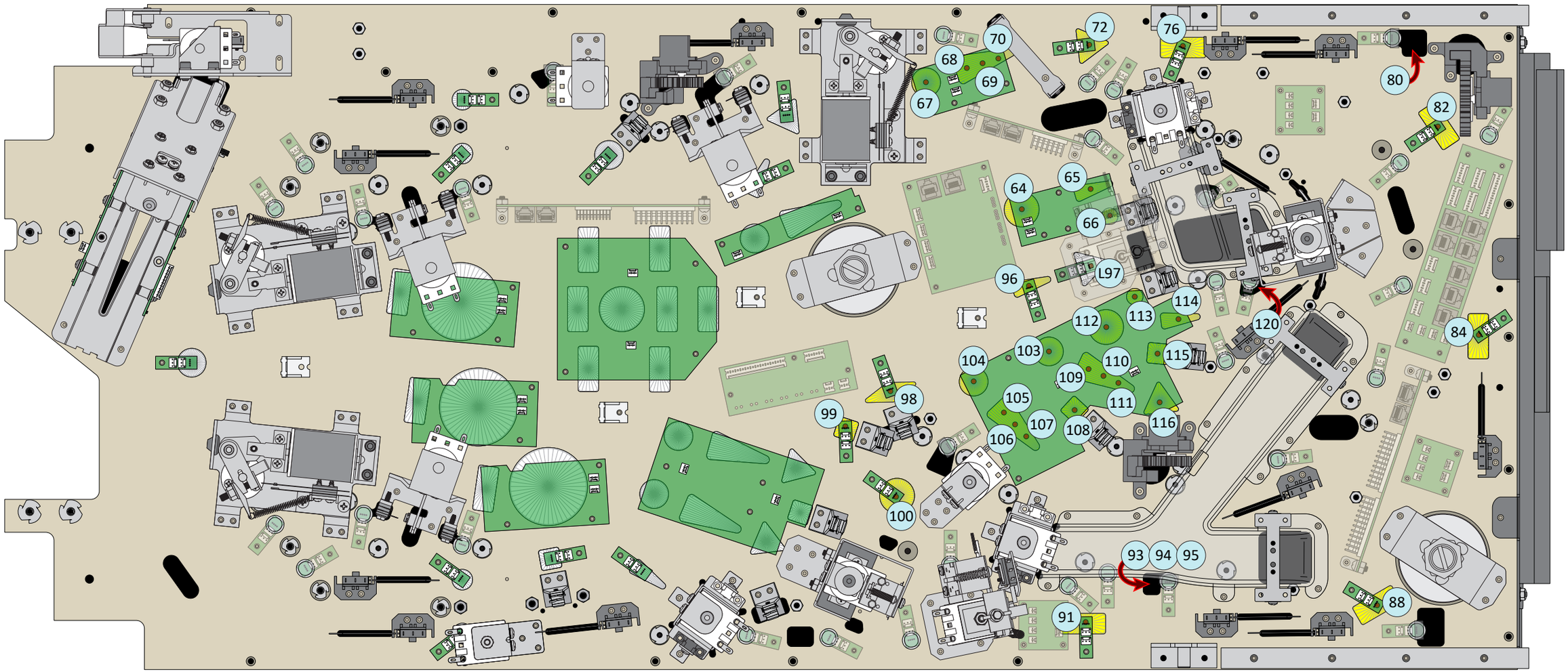
Playfield Feature/Insert/Spot Lighting

Under Playfield (1 of 2)

Light #	Location/Function	Mounted On	Driven By
0	Right ramp ***Advance Friend***	LIT-0102-00	**0071**(PF) J9
1	Right ramp arrow, low	LIT-0102-00	**0071**(PF) J9
2	Right ramp arrow, mid	LIT-0102-00	**0071**(PF) J9
3	Right ramp arrow, high	LIT-0102-00	**0071**(PF) J9
4	***Ello Mystery*** arrow	LIT-0006-00	**0071**(PF) J9
5	***Ello Collect Orb*** triangle	LIT-0006-00	**0071**(PF) J9
7	***Ello*** target	LIT-0006-00	**0071**(PF) J9
9*	***Ello*** spotlight	LIT-0006-00	**0071**(PF) J9
10	*HEL***P** outlane	LIT-0006-00	**0071**(PF) J9
11	*HE***L***P* return lane	LIT-0006-00	**0071**(PF) J9
16	***Ball Save***	LIT-0006-00	**0071**(PF) J9
21	*H***E***LP* return lane	LIT-0006-00	**0071**(PF) J9
22	***H****ELP* outlane	LIT-0006-00	**0071**(PF) J9
23	Wall target (lower left)	LIT-0006-00	**0071**(PF) J9
24	***Hoggle*** face, upper left	LIT-0105-00	**0071**(PF) J9
25	***Hoggle*** face, lower left	LIT-0105-00	**0071**(PF) J9
26	***Hoggle Jackpot Ready***	LIT-0105-00	**0071**(PF) J9
27	***Hoggle*** face, lower right	LIT-0105-00	**0071**(PF) J9
28	***Hoggle*** face, upper right	LIT-0105-00	**0071**(PF) J9
29	***Helping Hands Jackpot***	LIT-0006-00	**0071**(PF) J9
32	***Goblin City Multiball***	LIT-0104-00	**0071**(PF) J10
33	***Cleaners***	LIT-0104-00	**0071**(PF) J10
34	***Oubliette***	LIT-0104-00	**0071**(PF) J10
35	***Bog***	LIT-0104-00	**0071**(PF) J10
36	***Battle Jareth***	LIT-0104-00	**0071**(PF) J10
37	***Knockers***	LIT-0104-00	**0071**(PF) J10
38	***Four Guards***	LIT-0104-00	**0071**(PF) J10
39	***Fireys***	LIT-0104-00	**0071**(PF) J10
40	***Sir Didymus*** face, upper left	LIT-0105-00	**0071**(PF) J10
41	***Sir Didymus*** face, lower left	LIT-0105-00	**0071**(PF) J10
42	***Sir Didymus Jackpot Ready***	LIT-0105-00	**0071**(PF) J10
43	***Sir Didymus*** face, lower right	LIT-0105-00	**0071**(PF) J10
44	***Sir Didymus*** face, upper right	LIT-0105-00	**0071**(PF) J10
45	***Ludo*** face, upper left	LIT-0105-00	**0071**(PF) J10
46	***Ludo*** face, lower left	LIT-0105-00	**0071**(PF) J10
47	***Ludo Jackpot Ready***	LIT-0105-00	**0071**(PF) J10
48	***Ludo*** face, lower right	LIT-0105-00	**0071**(PF) J10
49	***Ludo*** face, upper right	LIT-0105-00	**0071**(PF) J10
50	Left orbit ***Advance Friend***	LIT-0103-00	**0071**(PF) J10
51	Left orbit arrow, low	LIT-0103-00	**0071**(PF) J10
52	Left orbit arrow, mid	LIT-0103-00	**0071**(PF) J10
53	Left orbit arrow, high	LIT-0103-00	**0071**(PF) J10
54	Left orbit triangle	LIT-0103-00	**0071**(PF) J10
55	***Fairy*** target, low left	LIT-0103-00	**0071**(PF) J10
56	Left ramp ***Advance Friend***	LIT-0103-00	**0071**(PF) J10
57	Left ramp arrow, low	LIT-0103-00	**0071**(PF) J10
58	Left ramp arrow, mid	LIT-0103-00	**0071**(PF) J10
59	Left ramp arrow, high	LIT-0103-00	**0071**(PF) J10
60	Left ramp triangle	LIT-0103-00	**0071**(PF) J10

***** lighting PCB mounted entirely above playfield

See pg 4-73 for feature light bd mounting details

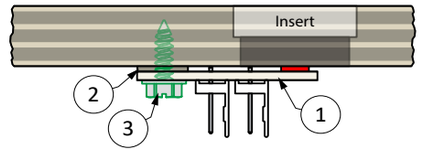


Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

Playfield Feature/Insert/Spot Lighting

Under Playfield (2 of 2)

Light #	Location/Function	Mounted On	Driven By
64	***Start Mode***, right	LIT-0107-00	**0071**(PF) J11
65	Horseshoe arrow, right	LIT-0107-00	**0071**(PF) J11
66	***Wiseman*** target, right	LIT-0107-00	**0071**(PF) J11
67	Right orbit ***Advance Friend***	LIT-0101-00	**0071**(PF) J11
68	Right orbit arrow, low	LIT-0101-00	**0071**(PF) J11
69	Right orbit arrow, mid	LIT-0101-00	**0071**(PF) J11
70	Right orbit arrow, high	LIT-0101-00	**0071**(PF) J11
72	Right orbit triangle	LIT-0006-00	**0071**(PF) J11
76	Right orbit rectangle, low	LIT-0006-00	**0071**(PF) J11
80*	***Firey*** spotlight	LIT-0006-00	**0071**(PF) J11
82	Right orbit rectangle, high	LIT-0006-00	**0071**(PF) J11
84	Top orbit rectangle	LIT-0006-00	**0071**(PF) J11
88	Left orbit rectangle, high	LIT-0006-00	**0071**(PF) J11
91	Left orbit rectangle, low	LIT-0006-00	**0071**(PF) J11
93*	***Ludo*** spotlight, left	LIT-0003-00 strip	**0071**(PF) J11
94*	***Ludo*** spotlight, mid	LIT-0003-00 strip	**0071**(PF) J11
95*	***Ludo*** spotlight, right	LIT-0003-00 strip	**0071**(PF) J11
96	***Wiseman Jackpot***	LIT-0006-00	**0071**(PF) J12
97†	***Wiseman Advance Quest***	LIT-0006-00	**0071**(PF) J12
98	***Change Mode*** target	LIT-0006-00	**0071**(PF) J12
99	***Fairy*** target, low right	LIT-0006-00	**0071**(PF) J12
100	Under left ramp circle	LIT-0006-00	**0071**(PF) J12
103	Center ramp ***Advance Friend***	LIT-0106-00	**0071**(PF) J12
104	Inner loop ***Advance Friend***	LIT-0106-00	**0071**(PF) J12
105	Inner loop arrow, low	LIT-0106-00	**0071**(PF) J12
106	Inner loop arrow, mid	LIT-0106-00	**0071**(PF) J12
107	Inner loop arrow, high	LIT-0106-00	**0071**(PF) J12
108	***Fairy*** target, high left	LIT-0106-00	**0071**(PF) J12
109	Center ramp arrow, low	LIT-0106-00	**0071**(PF) J12
110	Center ramp arrow, mid	LIT-0106-00	**0071**(PF) J12
111	Center ramp arrow, high	LIT-0106-00	**0071**(PF) J12
112	***Start Mode***, left	LIT-0106-00	**0071**(PF) J12
113	***Wiseman*** target, left	LIT-0106-00	**0071**(PF) J12
114	Horseshoe arrow, left	LIT-0106-00	**0071**(PF) J12
115	***Fairy*** target, high right	LIT-0106-00	**0071**(PF) J12
116	Center ramp triangle	LIT-0106-00	**0071**(PF) J12
120*	***Knockers*** spotlight	LIT-0006-00	**0071**(PF) J12



Feature Light Bd Mounting

Playfield, Underside

Item	Part Number	Description
1	LIT-0X0X-00	RGB LED Feature Light Bd
2	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH
3	SMS-2006-08	#6 x 1/2" HWH SMS

† the ***Wiseman*** drop target light bd additionally requires a 3DP-0021-00 spacer, used to insulate the PCB

***** lighting PCB/strip mounted entirely above playfield

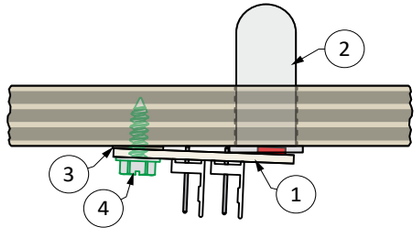
Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

Playfield General Illumination (GI) Lighting

Above Playfield

Light #	Playfield Area	Driven By
*6**	***Ello*** plastic	**0071**(PF) J9
*8**	Shooter lane, high	**0071**(PF) J9
12	Right sling, high	**0071**(PF) J9
13	Right sling, low	**0071**(PF) J9
14	Right return lane, high	**0071**(PF) J9
15	Right return lane, low	**0071**(PF) J9
17	Left return lane, low	**0071**(PF) J9
18	Left return lane, high	**0071**(PF) J9
19	Left sling, low	**0071**(PF) J9
20	Left sling, high	**0071**(PF) J9
61	Left side plastic, low	**0071**(PF) J10
62	Left side plastic, mid	**0071**(PF) J10
63	Left side plastic, high	**0071**(PF) J10
71	Upper right flipper plastic	**0071**(PF) J11
73	Right ramp, right	**0071**(PF) J11
74	Right ramp, left	**0071**(PF) J11
75	Right ramp, high	**0071**(PF) J11

Light #	Playfield Area	Driven By
*77**	***Wiseman*** sculpture, right	**0071**(PF) J11
78	***Knockers*** sculpture, right	**0071**(PF) J11
*79**	***Firey*** plastic, low	**0071**(PF) J11
81	***Firey*** plastic, high	**0071**(PF) J11
83	***Knockers*** sculpture, mid	**0071**(PF) J11
85	***Knockers*** sculpture, left	**0071**(PF) J11
86	Center ramp, high	**0071**(PF) J11
*87**	***Castle*** sculpture	**0071**(PF) J11
*89**	***Village*** sculpture, high	**0071**(PF) J11
90	***Village*** sculpture, mid	**0071**(PF) J11
92	***Village*** sculpture, low	**0071**(PF) J11
101	Left ramp, left	**0071**(PF) J12
*102**	Left ramp, right	**0071**(PF) J12
117	***Wiseman*** sculpture, left	**0071**(PF) J12
118	Center ramp, right	**0071**(PF) J12
*119**	***Wiseman*** sculpture, high	**0071**(PF) J12

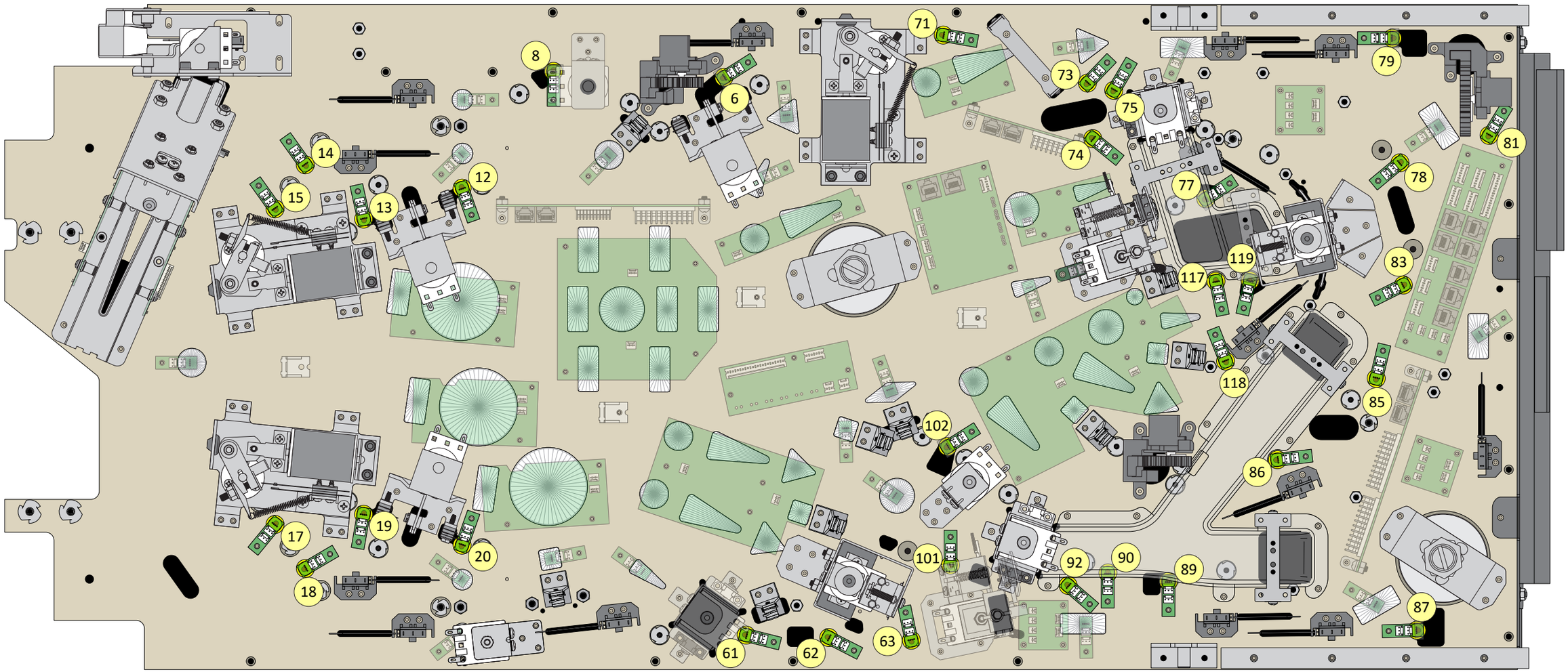


GI Light Bd Mounting

Playfield, Underside

Item	Part Number	Description
1	LIT-0006-00	Single RGB LED Serial Light Bd
2	LIT-0005-00	Clear GI Light Rod
3	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH
4	SMS-2006-08	#6 x 1/2" HWH SMS

* GI lights in noncircular playfield holes additionally require a 3DP-0012-00 clip, used to hold the rod in place



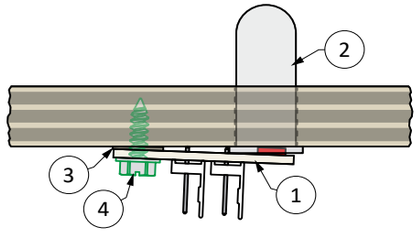
Lighting wiring: pg 4-78 Lighting notes: pg 6-2 Lighting tests: pg 3-24

Playfield General Illumination (GI) Lighting

Under Playfield

Light #	Playfield Area	Driven By
*6**	***Ello*** plastic	**0071**(PF) J9
*8**	Shooter lane, high	**0071**(PF) J9
12	Right sling, high	**0071**(PF) J9
13	Right sling, low	**0071**(PF) J9
14	Right return lane, high	**0071**(PF) J9
15	Right return lane, low	**0071**(PF) J9
17	Left return lane, low	**0071**(PF) J9
18	Left return lane, high	**0071**(PF) J9
19	Left sling, low	**0071**(PF) J9
20	Left sling, high	**0071**(PF) J9
61	Left side plastic, low	**0071**(PF) J10
62	Left side plastic, mid	**0071**(PF) J10
63	Left side plastic, high	**0071**(PF) J10
71	Upper right flipper plastic	**0071**(PF) J11
73	Right ramp, right	**0071**(PF) J11
74	Right ramp, left	**0071**(PF) J11
75	Right ramp, high	**0071**(PF) J11

Light #	Playfield Area	Driven By
*77**	***Wiseman*** sculpture, right	**0071**(PF) J11
78	***Knockers*** sculpture, right	**0071**(PF) J11
*79**	***Firey*** plastic, low	**0071**(PF) J11
81	***Firey*** plastic, high	**0071**(PF) J11
83	***Knockers*** sculpture, mid	**0071**(PF) J11
85	***Knockers*** sculpture, left	**0071**(PF) J11
86	Center ramp, high	**0071**(PF) J11
*87**	***Castle*** sculpture	**0071**(PF) J11
*89**	***Village*** sculpture, high	**0071**(PF) J11
90	***Village*** sculpture, mid	**0071**(PF) J11
92	***Village*** sculpture, low	**0071**(PF) J11
101	Left ramp, left	**0071**(PF) J12
*102**	Left ramp, right	**0071**(PF) J12
117	***Wiseman*** sculpture, left	**0071**(PF) J12
118	Center ramp, right	**0071**(PF) J12
*119**	***Wiseman*** sculpture, high	**0071**(PF) J12

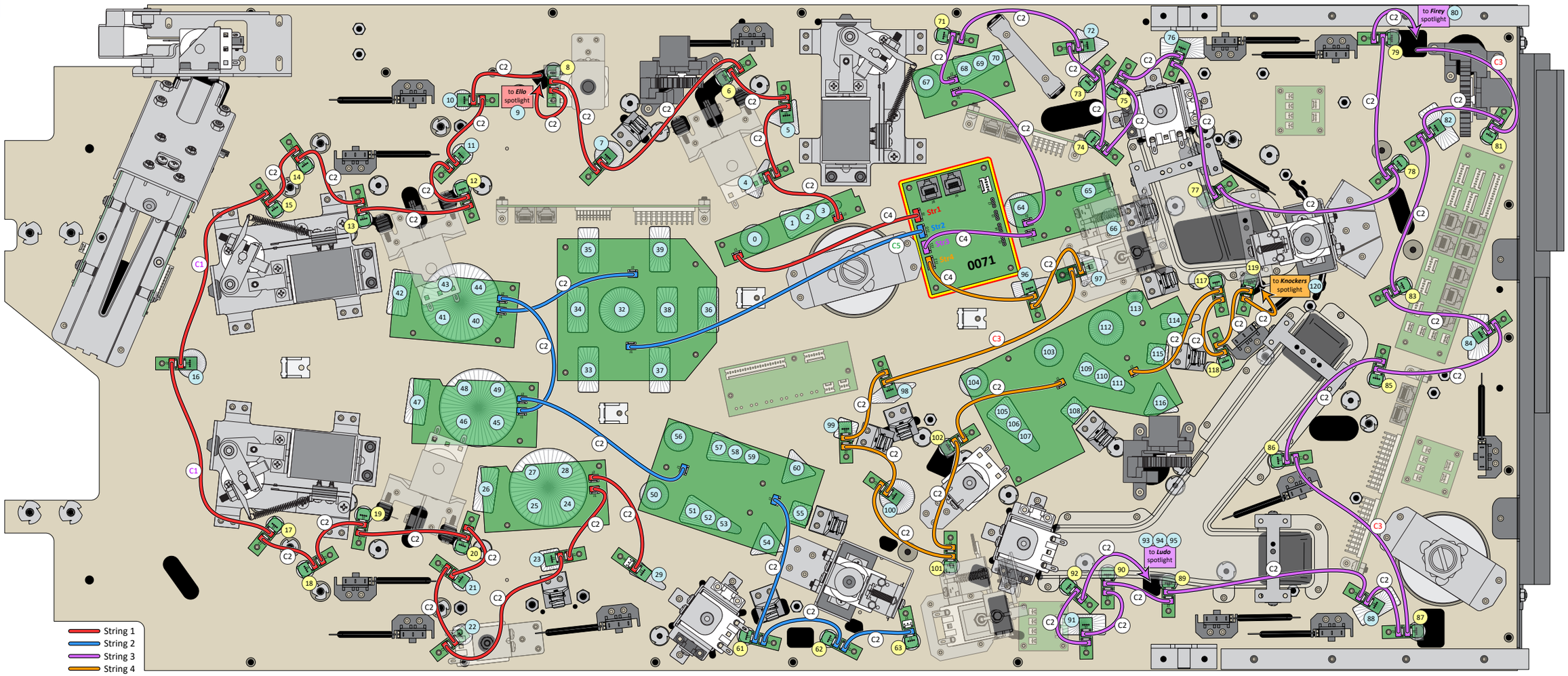


GI Light Bd Mounting

Playfield, Underside

Item	Part Number	Description
1	LIT-0006-00	Single RGB LED Serial Light Bd
2	LIT-0005-00	Clear GI Light Rod
3	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH
4	SMS-2006-08	#6 x 1/2" HWH SMS

* GI lights in noncircular playfield holes additionally require a 3DP-0012-00 clip, used to hold the rod in place


to Ello spotlight
to Firey spotlight
to Knockers spotlight
to Ludo spotlight
0071
Str1
Str2
Str3
Str4
String 1
String 2
String 3
String 4
Feature/Insert Lights
GI Lights
Lighting Cables

Playfield Lighting Wiring

Under Playfield

Playfield Lighting Driver Bd

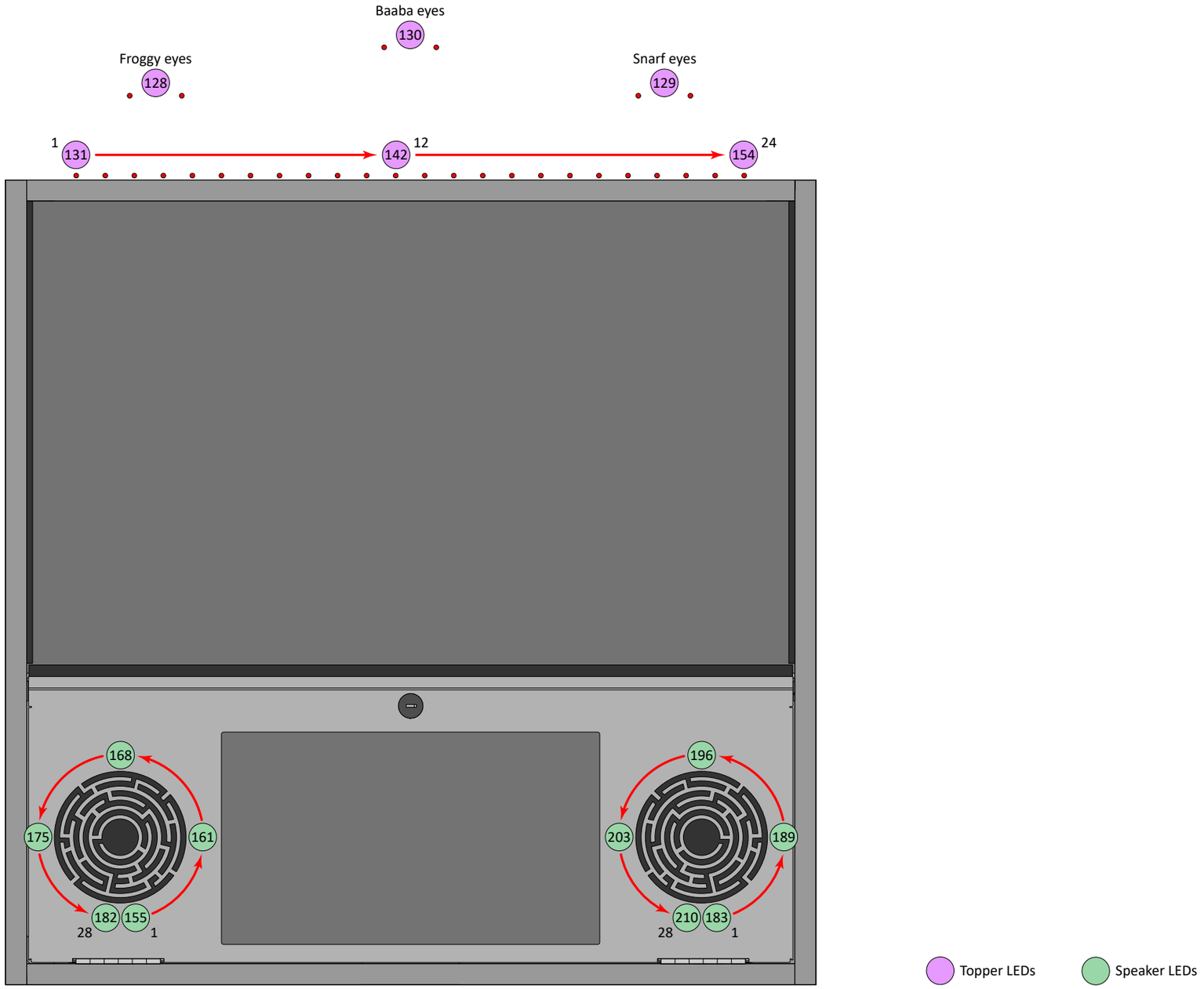
(yellow & red outline)

Part Number	Description	Details
ELE-0071-00 (**0071**(PF))	Playfield Expansion/Driver Bd, Servos & RGB LEDs	5-31

Playfield Lighting Cables

Item	Part Number	Description	Qty
C1	HAR-0022-15	Serial RGB LED Data/Power Cable, 3-pin to 3-pin, 15"	2
C2	HAR-0022-07	Serial RGB LED Data/Power Cable, 3-pin to 3-pin, 7"	58
C3	HAR-0022-11	Serial RGB LED Data/Power Cable, 3-pin to 3-pin, 11"	3
C4	HAR-0021-07	Serial RGB LED Data/Power Cable, 4-pin to 3-pin, 7"	3
C5	HAR-0021-11	Serial RGB LED Data/Power Cable, 4-pin to 3-pin, 11"	1

The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB.


Baaba eyes
130
Froggy eyes
128
Snarf eyes
129
1
131
12
142
24
154
168
175
161
182
155
28
1
196
203
189
210
183
28
1
Topper LEDs
Speaker LEDs

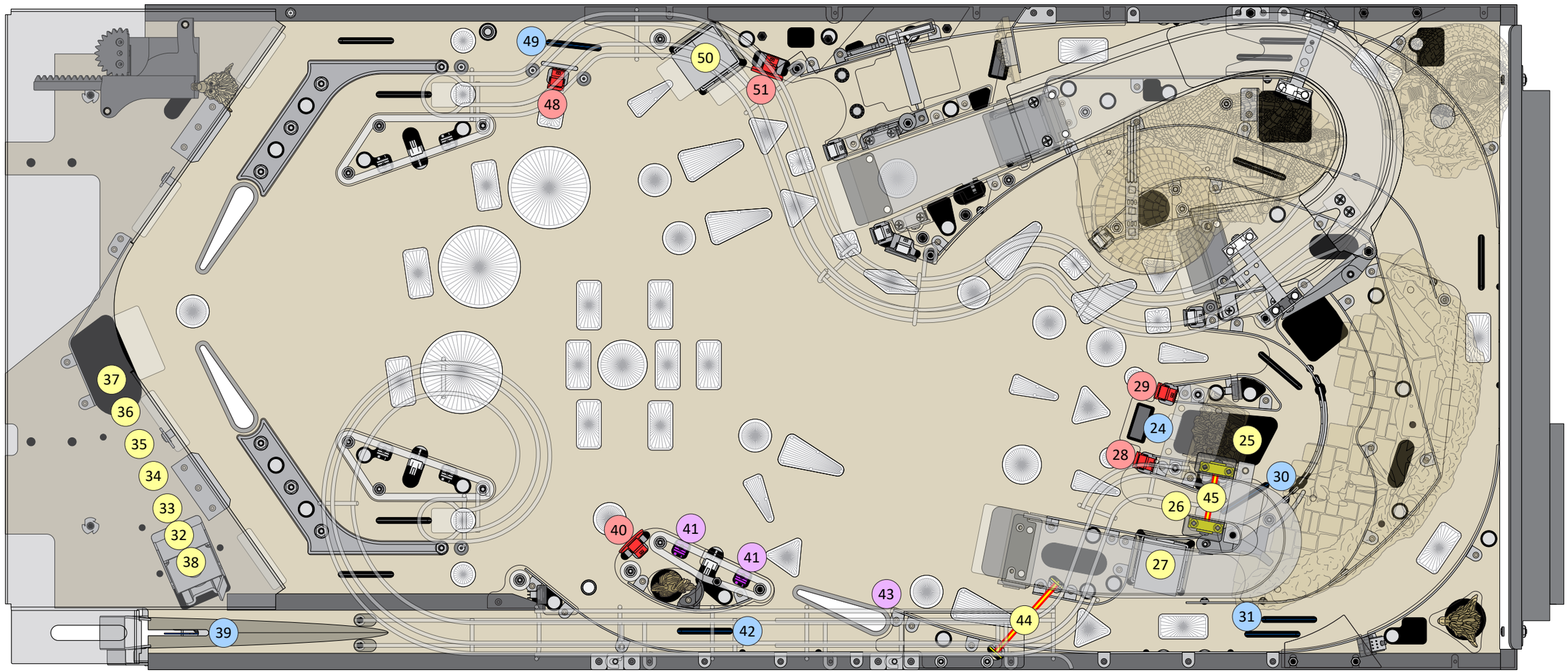
Backbox Feature Lighting

Speaker Panel & Topper

Light #	Location/Function	Driven By
128	***Froggy*** (left) eyes	**0071**(PF) J9
129	***Snarf*** (right) eyes	**0071**(PF) J10
130	***Baaba*** (center) eyes	**0071**(PF) J11
131	Topper Strip 1 (left)	**0071**(Topper) J12
132	Topper Strip 2	**0071**(Topper) J12
133	Topper Strip 3	**0071**(Topper) J12
134	Topper Strip 4	**0071**(Topper) J12
135	Topper Strip 5	**0071**(Topper) J12
136	Topper Strip 6	**0071**(Topper) J12
137	Topper Strip 7	**0071**(Topper) J12
138	Topper Strip 8	**0071**(Topper) J12
139	Topper Strip 9	**0071**(Topper) J12
140	Topper Strip 10	**0071**(Topper) J12
141	Topper Strip 11	**0071**(Topper) J12
142	Topper Strip 12	**0071**(Topper) J12
143	Topper Strip 13	**0071**(Topper) J12
144	Topper Strip 14	**0071**(Topper) J12
145	Topper Strip 15	**0071**(Topper) J12
146	Topper Strip 16	**0071**(Topper) J12
147	Topper Strip 17	**0071**(Topper) J12
148	Topper Strip 18	**0071**(Topper) J12
149	Topper Strip 19	**0071**(Topper) J12
150	Topper Strip 20	**0071**(Topper) J12
151	Topper Strip 21	**0071**(Topper) J12
152	Topper Strip 22	**0071**(Topper) J12
153	Topper Strip 23	**0071**(Topper) J12
154	Topper Strip 24 (right)	**0071**(Topper) J12

Light #	Location/Function	Driven By
155	Left Speaker Strip 1 (bottom)	**2000** J19
156	Left Speaker Strip 2	**2000** J19
157	Left Speaker Strip 3	**2000** J19
158	Left Speaker Strip 4	**2000** J19
159	Left Speaker Strip 5	**2000** J19
160	Left Speaker Strip 6	**2000** J19
161	Left Speaker Strip 7 (right)	**2000** J19
162	Left Speaker Strip 8	**2000** J19
163	Left Speaker Strip 9	**2000** J19
164	Left Speaker Strip 10	**2000** J19
165	Left Speaker Strip 11	**2000** J19
166	Left Speaker Strip 12	**2000** J19
167	Left Speaker Strip 13	**2000** J19
168	Left Speaker Strip 14 (top)	**2000** J19
169	Left Speaker Strip 15	**2000** J19
170	Left Speaker Strip 16	**2000** J19
171	Left Speaker Strip 17	**2000** J19
172	Left Speaker Strip 18	**2000** J19
173	Left Speaker Strip 19	**2000** J19
174	Left Speaker Strip 20	**2000** J19
175	Left Speaker Strip 21 (left)	**2000** J19
176	Left Speaker Strip 22	**2000** J19
177	Left Speaker Strip 23	**2000** J19
178	Left Speaker Strip 24	**2000** J19
179	Left Speaker Strip 25	**2000** J19
180	Left Speaker Strip 26	**2000** J19
181	Left Speaker Strip 27	**2000** J19
182	Left Speaker Strip 28 (bottom)	**2000** J19

Light #	Location/Function	Driven By
183	Right Speaker Strip 1 (bottom)	**2000** J20
184	Right Speaker Strip 2	**2000** J20
185	Right Speaker Strip 3	**2000** J20
186	Right Speaker Strip 4	**2000** J20
187	Right Speaker Strip 5	**2000** J20
188	Right Speaker Strip 6	**2000** J20
189	Right Speaker Strip 7 (right)	**2000** J20
190	Right Speaker Strip 8	**2000** J20
191	Right Speaker Strip 9	**2000** J20
192	Right Speaker Strip 10	**2000** J20
193	Right Speaker Strip 11	**2000** J20
194	Right Speaker Strip 12	**2000** J20
195	Right Speaker Strip 13	**2000** J20
196	Right Speaker Strip 14 (top)	**2000** J20
197	Right Speaker Strip 15	**2000** J20
198	Right Speaker Strip 16	**2000** J20
199	Right Speaker Strip 17	**2000** J20
200	Right Speaker Strip 18	**2000** J20
201	Right Speaker Strip 19	**2000** J20
202	Right Speaker Strip 20	**2000** J20
203	Right Speaker Strip 21 (left)	**2000** J20
204	Right Speaker Strip 22	**2000** J20
205	Right Speaker Strip 23	**2000** J20
206	Right Speaker Strip 24	**2000** J20
207	Right Speaker Strip 25	**2000** J20
208	Right Speaker Strip 26	**2000** J20
209	Right Speaker Strip 27	**2000** J20
210	Right Speaker Strip 28 (bottom)	**2000** J20



Microswitches Leaf Switches Targets Opto Switches

Switch wiring: pg 4-90 Switch notes: pg 6-2 Switch tests: pg 3-23

Playfield Switch Locations

Above Playfield (1 of 2)

Switch #	Switch Function	Switch Type	Part Number	Part of Assembly	Drawing	Source PCB/Connector
24*	***Wiseman*** drop target	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0013-00	4-22	**0804**/J6
25*	***Wiseman*** entry, back	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0022-00	4-28	**0040-R**/J2, **0804**/J6
26*	***Wiseman*** subway	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0022-00	4-28	**0040-R**/J3, **0804**/J6
27*	***Wiseman*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0014-00	4-24	**0040-R**/J4, **0804**/J6
28†	***Wiseman*** target, right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**0804**/J6
29†	***Wiseman*** target, left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**0804**/J6
30	Horseshoe, right	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**0804**/J6
31	Right orbit pair, high	Rollover Microswitch & Wireform, RHM (2, in parallel)	SWI-0100-00	-	-	**0804**/J6
32*	Ball trough #1 (right)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
33*	Ball trough #2	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
34*	Ball trough #3	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
35*	Ball trough #4	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
36*	Ball trough #5	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
37*	Ball trough #6 (left)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
38*	Ball trough jam (in trough chute)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
39	Shooter lane	Auto-Launch Microswitch & Wireform	SWI-0104-00	SUB-0008-00	4-16	**3208**/J8
40†	***Ello*** target	1" Round Standup Tgt, Red, FM	SWI-0401-05	-	-	**3208**/J3
41	Upper right slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-02	4-18	**3208**/J3
42	***Ello*** lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J3
43*	Upper right flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-02	4-12	**3208**/J3
44	Right orbit, low	Opto LED, Phototransistor Assy, FAST	SWI-0310-01, SWI-0310-02	SUB-0039-27	4-34	**0030**/J3, **3208**/J3
45	Right ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0020-00	4-44	**0040-R**/J1, **3208**/J3
48†	Wall target (lower left)	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
49	Left outlane, high	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J6
50*	***Helping Hands*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0015-00	4-25	**0040-L**/J2, **3208**/J6
51†	***Junk Lady*** target	1" Square Standup Tgt, Red, FM	SWI-0401-03	-	-	**3208**/J6

* switch located entirely under playfield

† all standup targets are mounted with an anti-sway plate (MET-0098-00, pg 4-124), underneath the playfield

Microswitches Leaf Switches Targets Opto Switches

Switch wiring: pg 4-90 Switch notes: pg 6-2 Switch tests: pg 3-23

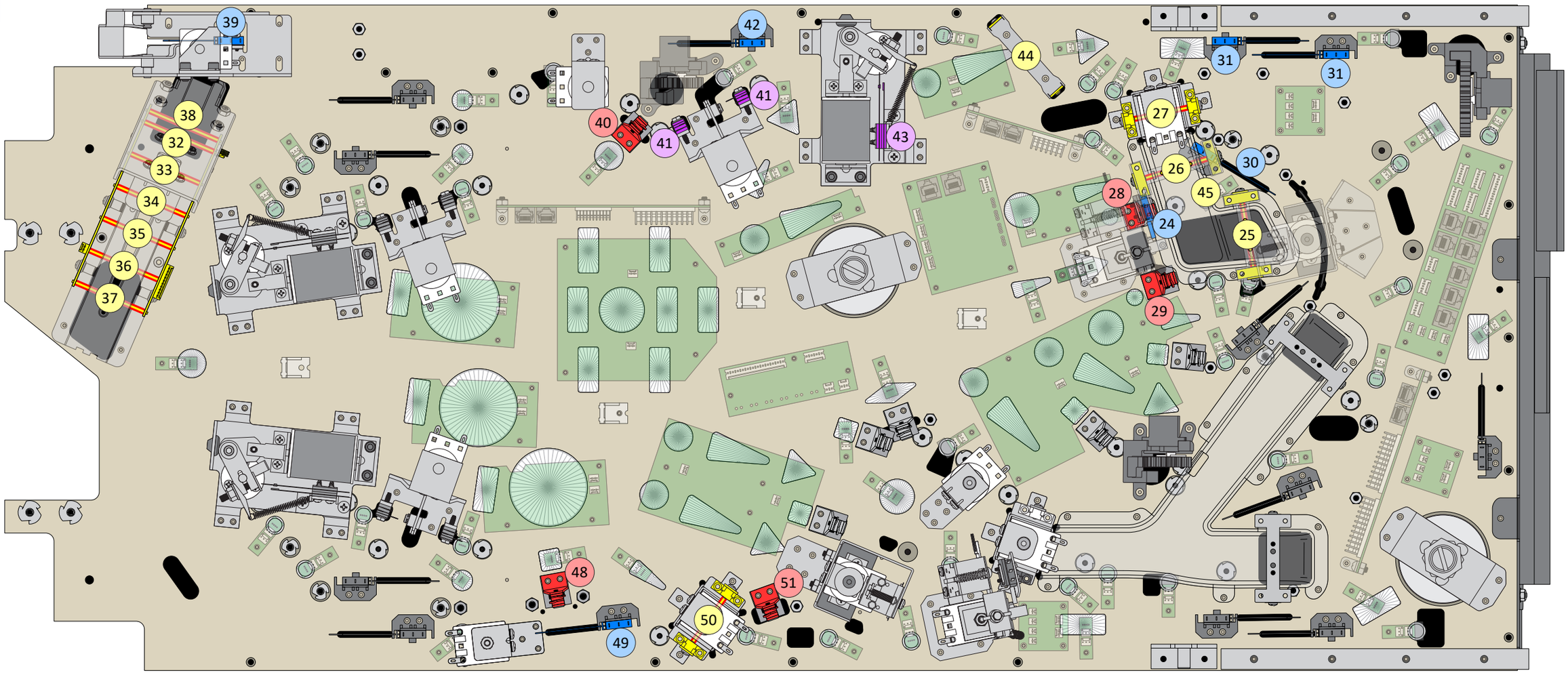
Playfield Switch Locations

Above Playfield (2 of 2)

Switch #	Switch Function	Switch Type	Part Number	Part of Assembly	Drawing	Source PCB/Connector
52†	***Fairy*** target, low left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
53†	***Fairy*** target, low right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
54†	***Change Mode*** target	1" Square Standup Tgt, Red, FM	SWI-0401-03	-	-	**3208**/J6
55	Left orbit, low/ball lock	Opto LED, Phototransistor Assy, FAST, 3DP	SWI-0310-01, SWI-0310-02	SUB-0035-00	4-37	**0030**/J3, **3208**/J6
56	Left outlane, low	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
57	Left return lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
58	Left slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-00	4-18	**3208**/J9
59*	Left flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-00	4-10	**3208**/J9
60*	Right flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-01	4-12	**3208**/J9
61	Right slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-01	4-18	**3208**/J9
62	Right return lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
63	Right outlane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
64	Horseshoe, left	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J7
65	Spinner (left orbit)	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0036-00	4-40	**1616**/J7
66	Center ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0019-00	4-46	**0040-C**/J1, **1616**/J7
67	Left ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0021-00	4-47	**0040-C**/J4, **1616**/J7
68†	***Fairy*** target, high right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**1616**/J7
69	Left ramp enter	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0011-00	4-38	**0040-L**/J3, **1616**/J7
72*	***Village*** entry, side	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0023-00	4-29	**0040-C**/J2, **1616**/J8
73†	***Fairy*** target, high left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**1616**/J8
74*	***Humongous*** drop target	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0013-01	4-22	**1616**/J8
75*	***Village*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0014-01	4-24	**0040-L**/J4, **1616**/J8
76	Inner loop	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J8
77*	***Village*** entry, back	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0023-00	4-29	**0040-C**/J3, **1616**/J8
78	Left orbit pair, high	Rollover Microswitch & Wireform, RHM (2, in parallel)	SWI-0100-00	-	-	**1616**/J8
79	Orbit, top	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J8

* switch located entirely under playfield

† all standup targets are mounted with an anti-sway plate (MET-0098-00, pg 4-124), underneath the playfield



Microswitches Leaf Switches Targets Opto Switches

Switch wiring: pg 4-90 Switch notes: pg 6-2 Switch tests: pg 3-23

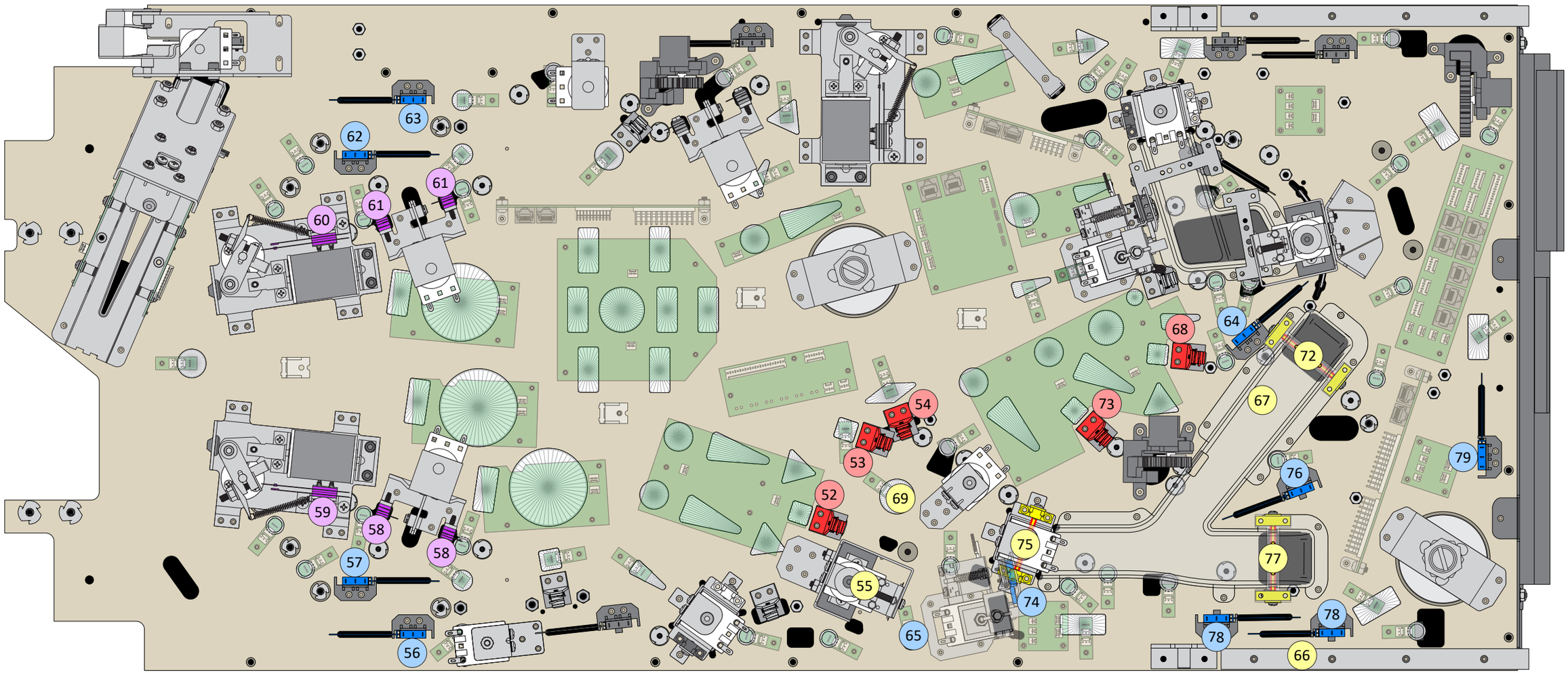
Playfield Switch Locations

Under Playfield (1 of 2)

Switch #	Switch Function	Switch Type	Part Number	Part of Assembly	Drawing	Source PCB/Connector
24	***Wiseman*** drop target	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0013-00	4-22	**0804**/J6
25	***Wiseman*** entry, back	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0022-00	4-28	**0040-R**/J2, **0804**/J6
26	***Wiseman*** subway	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0022-00	4-28	**0040-R**/J3, **0804**/J6
27	***Wiseman*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0014-00	4-24	**0040-R**/J4, **0804**/J6
28†	***Wiseman*** target, right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**0804**/J6
29†	***Wiseman*** target, left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**0804**/J6
30	Horseshoe, right	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**0804**/J6
31	Right orbit pair, high	Rollover Microswitch & Wireform, RHM (2, in parallel)	SWI-0100-00	-	-	**0804**/J6
32	Ball trough #1 (right)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
33	Ball trough #2	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
34	Ball trough #3	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
35	Ball trough #4	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
36	Ball trough #5	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
37	Ball trough #6 (left)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
38	Ball trough jam (in trough chute)	Opto LED, Phototransistor Pair (PCB)	SWI-0221-03, SWI-0220-02	SUB-0007-00	4-15	**3208**/J8
39	Shooter lane	Auto-Launch Microswitch & Wireform	SWI-0104-00	SUB-0008-00	4-16	**3208**/J8
40†	***Ello*** target	1" Round Standup Tgt, Red, FM	SWI-0401-05	-	-	**3208**/J3
41	Upper right slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-02	4-18	**3208**/J3
42	***Ello*** lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J3
43	Upper right flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-02	4-12	**3208**/J3
44	Right orbit, low	Opto LED, Phototransistor Assy, FAST	SWI-0310-01, SWI-0310-02	SUB-0039-27	4-34	**0030**/J3, **3208**/J3
45*	Right ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0020-00	4-44	**0040-R**/J1, **3208**/J3
48†	Wall target (lower left)	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
49	Left outlane, high	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J6
50	***Helping Hands*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0015-00	4-25	**0040-L**/J2, **3208**/J6
51†	***Junk Lady*** target	1" Square Standup Tgt, Red, FM	SWI-0401-03	-	-	**3208**/J6

* switch located entirely above playfield

† all standup targets are mounted with an anti-sway plate (MET-0098-00, pg 4-124), underneath the playfield



Microswitches Leaf Switches Targets Opto Switches

Switch wiring: pg 4-90 Switch notes: pg 6-2 Switch tests: pg 3-23

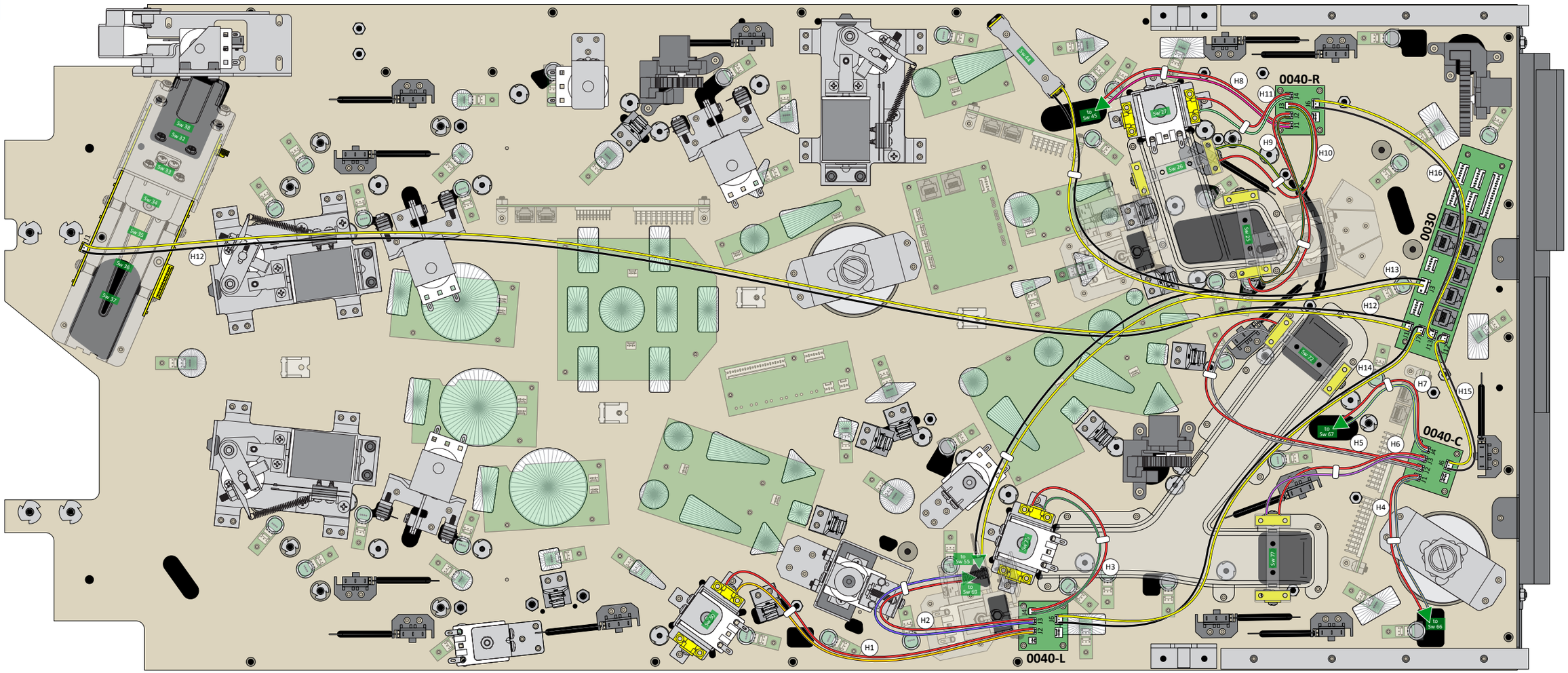
Playfield Switch Locations

Under Playfield (2 of 2)

Switch #	Switch Function	Switch Type	Part Number	Part of Assembly	Drawing	Source PCB/Connector
52†	***Fairy*** target, low left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
53†	***Fairy*** target, low right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**3208**/J6
54†	***Change Mode*** target	1" Square Standup Tgt, Red, FM	SWI-0401-03	-	-	**3208**/J6
55*	Left orbit, low/ball lock	Opto LED, Phototransistor Assy, FAST, 3DP	SWI-0310-01, SWI-0310-02	SUB-0035-00	4-37	**0030**/J3, **3208**/J6
56	Left outlane, low	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
57	Left return lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
58	Left slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-00	4-18	**3208**/J9
59	Left flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-00	4-10	**3208**/J9
60	Right flipper EOS	End of Stroke Leaf Switch	SWI-0200-00	SUB-0005-01	4-12	**3208**/J9
61	Right slingshot pair	Slingshot Leaf Switch (2, in parallel)	SWI-0006-00	SUB-0006-01	4-18	**3208**/J9
62	Right return lane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
63	Right outlane	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**3208**/J9
64	Horseshoe, left	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J7
65*	Spinner (left orbit)	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0036-00	4-40	**1616**/J7
66*	Center ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0019-00	4-46	**0040-C**/J1, **1616**/J7
67*	Left ramp made	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0021-00	4-47	**0040-C**/J4, **1616**/J7
68†	***Fairy*** target, high right	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**1616**/J7
69*	Left ramp enter	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0011-00	4-38	**0040-L**/J3, **1616**/J7
72	***Village*** entry, side	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0023-00	4-29	**0040-C**/J2, **1616**/J8
73†	***Fairy*** target, high left	1/2" Rectangle Standup Tgt, Red, FM	SWI-0401-01	-	-	**1616**/J8
74	***Humongous*** drop target	Microswitch & Flat Actuator Blade	SWI-0103-00	SUB-0013-01	4-22	**1616**/J8
75	***Village*** scoop	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0014-01	4-24	**0040-L**/J4, **1616**/J8
76	Inner loop	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J8
77	***Village*** entry, back	Opto LED, Phototransistor Assy Pair	SWI-0300-01, SWI-0300-02	SUB-0023-00	4-29	**0040-C**/J3, **1616**/J8
78	Left orbit pair, high	Rollover Microswitch & Wireform, RHM (2, in parallel)	SWI-0100-00	-	-	**1616**/J8
79	Orbit, top	Rollover Microswitch & Wireform, RHM	SWI-0100-00	-	-	**1616**/J8

* switch located entirely above playfield

† all standup targets are mounted with an anti-sway plate (MET-0098-00, pg 4-124), underneath the playfield



Opto Switches

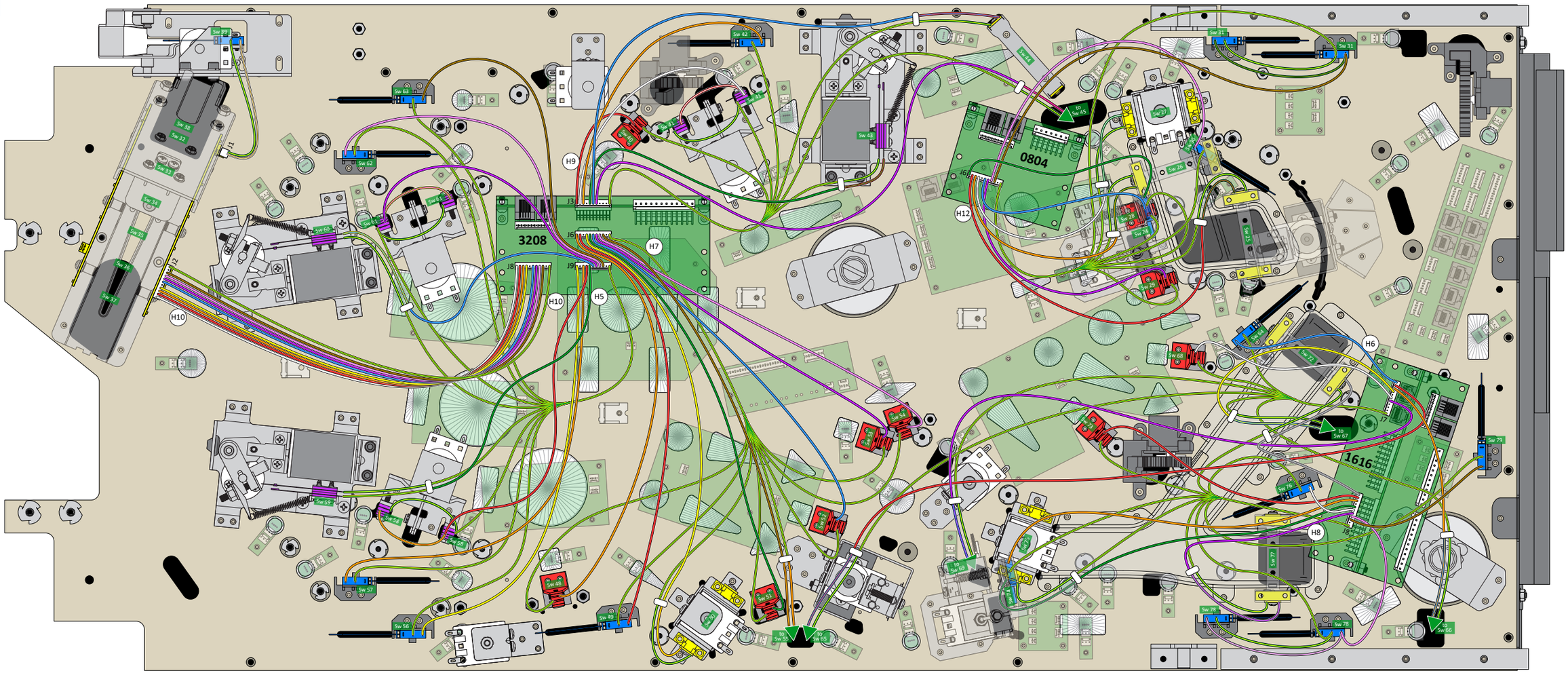
Switch notes: pg 6-2 Switch tests: pg 3-23

Opto Transmitter Wiring

Under Playfield

Wiring Harnesses

Item	Part Number	Description	Source Bd/Connector	Opto Switch(es)
H1	HAR-0013-00	Opto XMT Switch Harness, RED, ORN-YEL, 32"	**0040-L** J2	***Sw 50***
H2	HAR-0013-01	Opto XMT Switch Harness, RED, BLU-VIO, 18.5"	**0040-L** J3	***Sw 69***
H3	HAR-0013-02	Opto XMT Switch Harness, RED, GRY-GRN, 5"	**0040-L** J4	***Sw 75***
H4	HAR-0013-03	Opto XMT Switch Harness, RED, BLU-ORN, 7"	**0040-C** J1	***Sw 66***
H5	HAR-0013-04	Opto XMT Switch Harness, RED, GRY, 9.5"	**0040-C** J2	***Sw 72***
H6	HAR-0013-05	Opto XMT Switch Harness, RED, GRY-VIO, 13.5"	**0040-C** J3	***Sw 77***
H7	HAR-0013-06	Opto XMT Switch Harness, RED, BLU-YEL, 9"	**0040-C** J4	***Sw 67***
H8	HAR-0013-07	Opto XMT Switch Harness, RED, RED-VIO, 25"	**0040-R** J1	***Sw 45***
H9	HAR-0013-08	Opto XMT Switch Harness, RED, GRN-RED, 7.5"	**0040-R** J2	***Sw 25***
H10	HAR-0013-09	Opto XMT Switch Harness, RED, GRN-ORN, 7.5"	**0040-R** J3	***Sw 26***
H11	HAR-0013-10	Opto XMT Switch Harness, RED, GRN-WHT, 7.5"	**0040-R** J4	***Sw 27***
H12	HAR-0014-00	Ball Trough 12V Power Cable, 48"	**0030** J1	***Sws 32*** to ***38***
H13	HAR-0015-00	Opto XMT Switch Y Harness, 12V, 24"	**0030** J3	***Sw 44***, ***Sw 55***
H14	HAR-0014-01	Opto XMT Switch Harness, 12V, 30"	**0030** J7	***Sw 50***, ***Sw 69***, ***Sw 75***
H15	HAR-0014-02	Opto XMT Switch Harness, 12V, 13"	**0030** J12	***Sw 66***, ***Sw 72***, ***Sw 77***, ***Sw 67***
H16	HAR-0014-02	Opto XMT Switch Harness, 12V, 13"	**0030** J13	***Sw 45***, ***Sw 25***, ***Sw 26***, ***Sw 27***



Microswitches Leaf Switches Targets Opto Switches

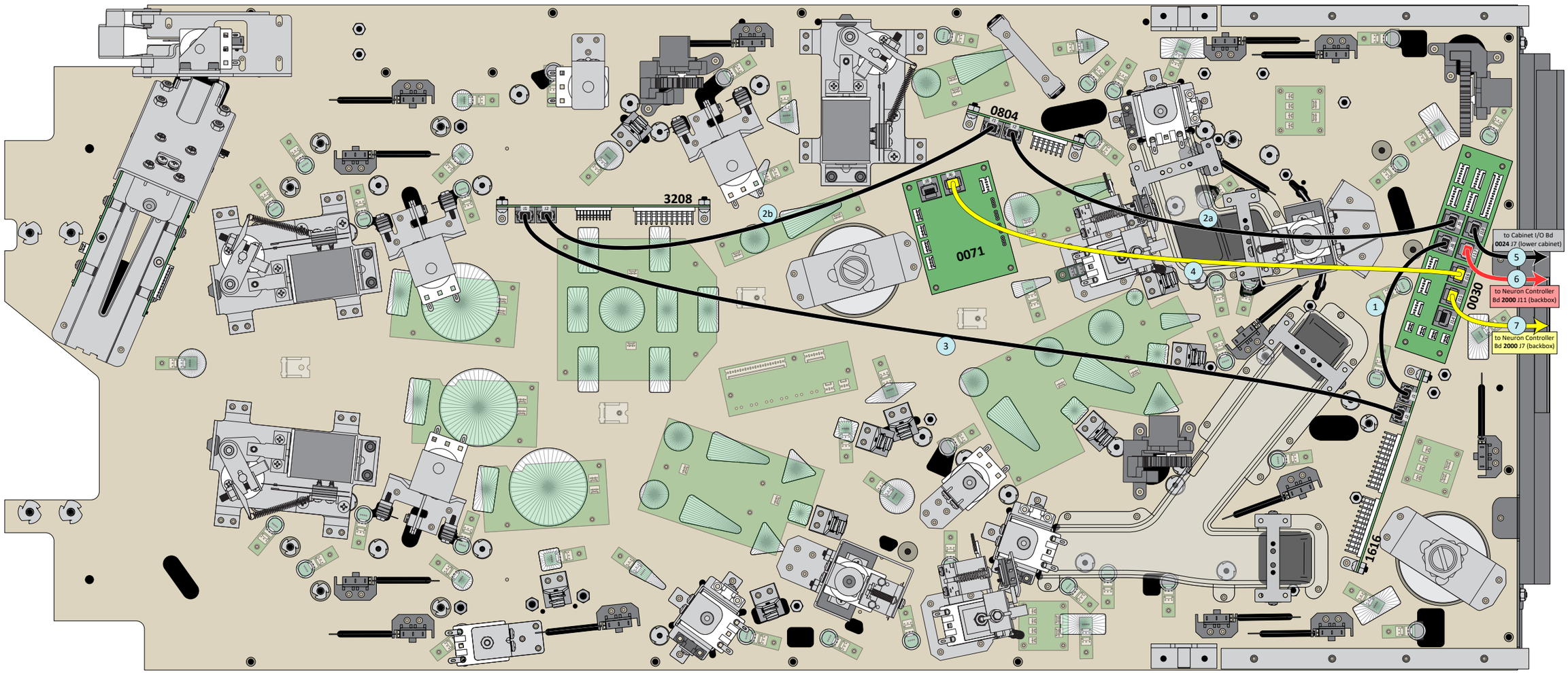
Switch notes: pg 6-2 Switch tests: pg 3-23

Playfield Switch Harnesses/Wiring

Under Playfield

Wiring Harnesses

Item	Part Number	Description	Source Connector	Switches
H5	HAR-0005-00	Labyrinth Lower PF Switch Harness	**3208** J9	***Sws 56*** to ***63***
H6	HAR-0006-00	Labyrinth Upper Left PF, Above Switch Harness	**1616** J7	***Sws 64*** to ***69***
H7	HAR-0007-00	Labyrinth Mid Left PF Switch Harness	**3208** J6	***Sws 48*** to ***55***
H8	HAR-0008-00	Labyrinth Upper Left PF, Below Switch Harness	**1616** J8	***Sws 72*** to ***79***
H9	HAR-0009-00	Labyrinth Mid Right PF Switch Harness	**3208** J3	***Sws 40*** to ***45***
H10	HAR-0010-00	Ball Trough Switch Harness	**3208** J8	***Sws 32*** to ***39***
H12	HAR-0012-00	Labyrinth Upper Right PF Switch Harness	**0804** J6	***Sws 24*** to ***31***


0804
3208
0071
0030
1616
2a
2b
1
3
4
5
6
7
to Cabinet I/O Bd
0024 J7 (lower cabinet)
to Neuron Controller
Bd 2000 J11 (backbox)
to Neuron Controller
Bd 2000 J7 (backbox)

Playfield Communications Wiring

Under Playfield

Labyrinth Communication Cables

Item	Part Number	Description	Connections
1	WCA-0102-00	CAT5E Ethernet Cable, 1ft, Black	**0030** J8 - **1616** J1
2a	WCA-0104-00	CAT5E Ethernet Cable, 2ft, Black	**0030** J9 - **0804** J2
2b	WCA-0104-00	CAT5E Ethernet Cable, 2ft, Black	**0804** J1 - **3208** J2
3	WCA-0106-00	CAT5E Ethernet Cable, 3ft, Black	**1616** J2 - **3208** J1
4	WCA-0106-02	CAT5E Ethernet Cable, 3ft, Yellow	**0030** J16 - **0071** J6
5	WCA-0110-00	CAT5E Ethernet Cable, 5ft, Black	**0030** J18 - **0024**(CAB) J7
6	WCA-0114-01	CAT5E Ethernet Cable, 7ft, Red	**0030** J17 - **2000**(BB) J11
7	WCA-0114-02	CAT5E Ethernet Cable, 7ft, Yellow	**0030** J15 - **2000**(BB) J7
NS	WCA-0120-03	CAT5E Ethernet Cable, 10ft, Purple	**0024**(CAB) J6 - **2000**(BB) J15
NS*	WCA-0104-00	CAT5E Ethernet Cable, 2ft, Black	**2000**(BB) J8 - **0071**(BB) J6

* in backbox of games with topper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2
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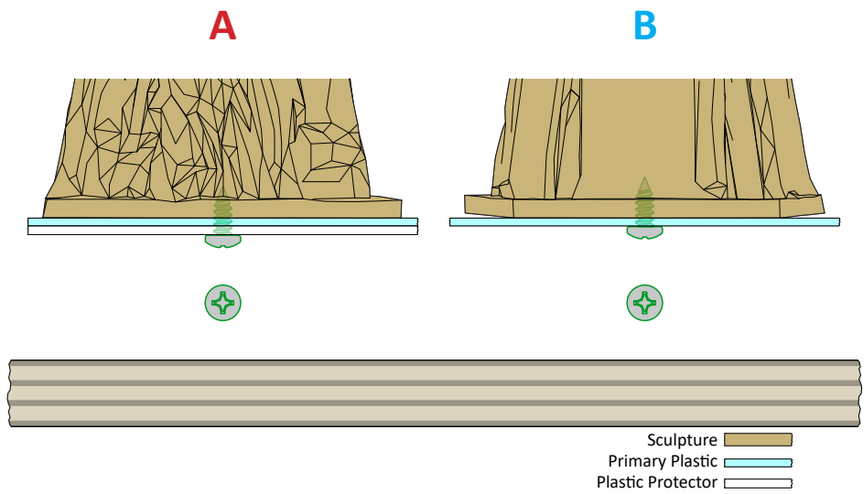
8
5a

Game-Specific Sculptures & Molded Plastics

Stand Alone

Item	Part Number	Description	Mtg HW
1	FIG-0001-WI	Labyrinth Wiseman Sculpture	2 A
3	FIG-0003-VI	Labyrinth Village Sculpture	3 B
7	FIG-0007-DO	Labyrinth Two Doors (Knockers) Sculpture	5 A



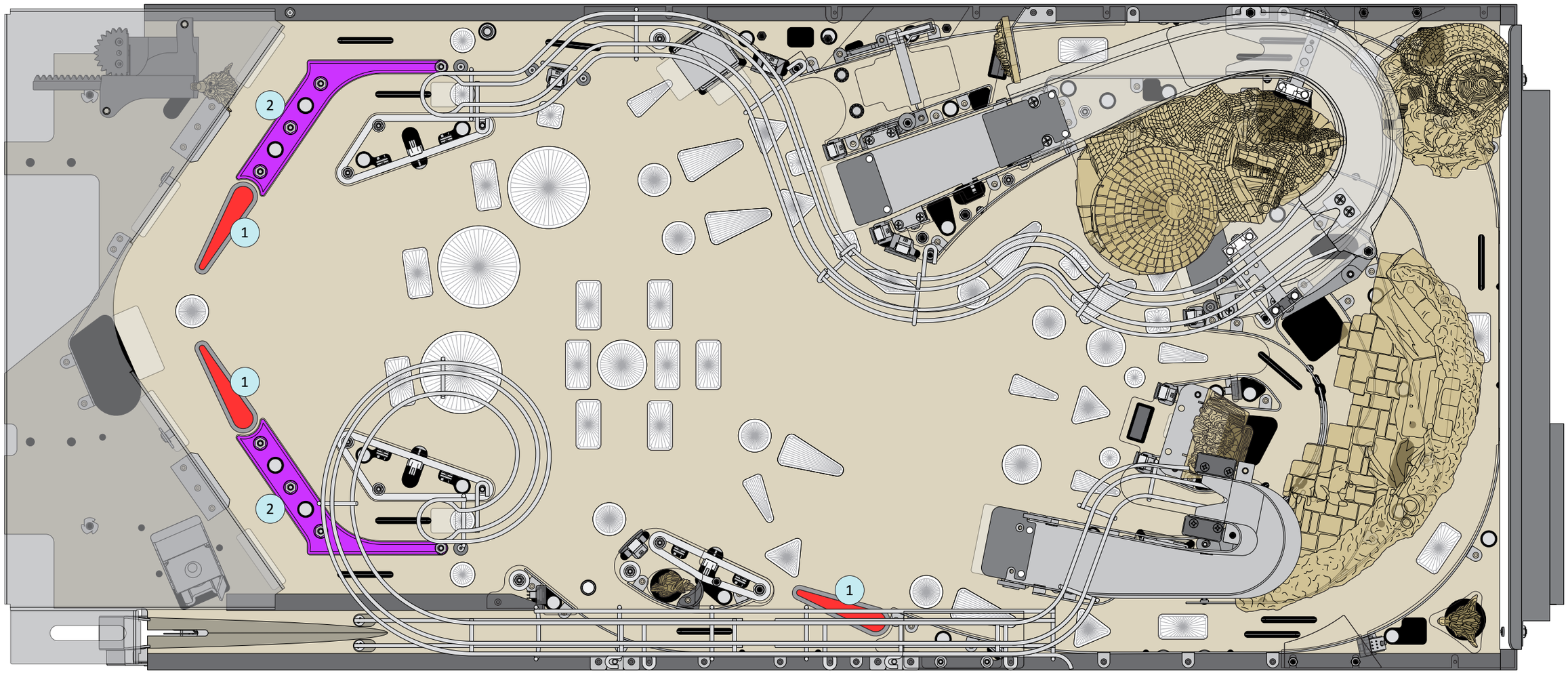
Sculpture Mounting Hardware

Playfield, Top

Configuration	Part Number	Description
A, B	SMS-0006-06	#6 x 3/8" PPH SMS

As Assembly Components

Item	Part Number	Description	Part of Assy	Drawing
2	FIG-0002-CA	Labyrinth Castle Sculpture	SUB-0076-00	4-35
4	FIG-0004-LU	Labyrinth Ludo & Rooftop Sculpture	SUB-0038-00	4-32
5a	FIG-0005-FI	Labyrinth Firey Head Sculpture	SUB-0034-01	4-33
5b	FIG-0005-FI	Labyrinth Firey Head Sculpture	SUB-0034-00	4-36
6	FIG-0006-HU	Labyrinth Humongous Sculpture	SUB-0027-00	4-41
8	FIG-0008-EL	Labyrinth Ello Sculpture	SUB-0037-00	4-31


2
1
1
2
1

Generic Molded Plastic Parts

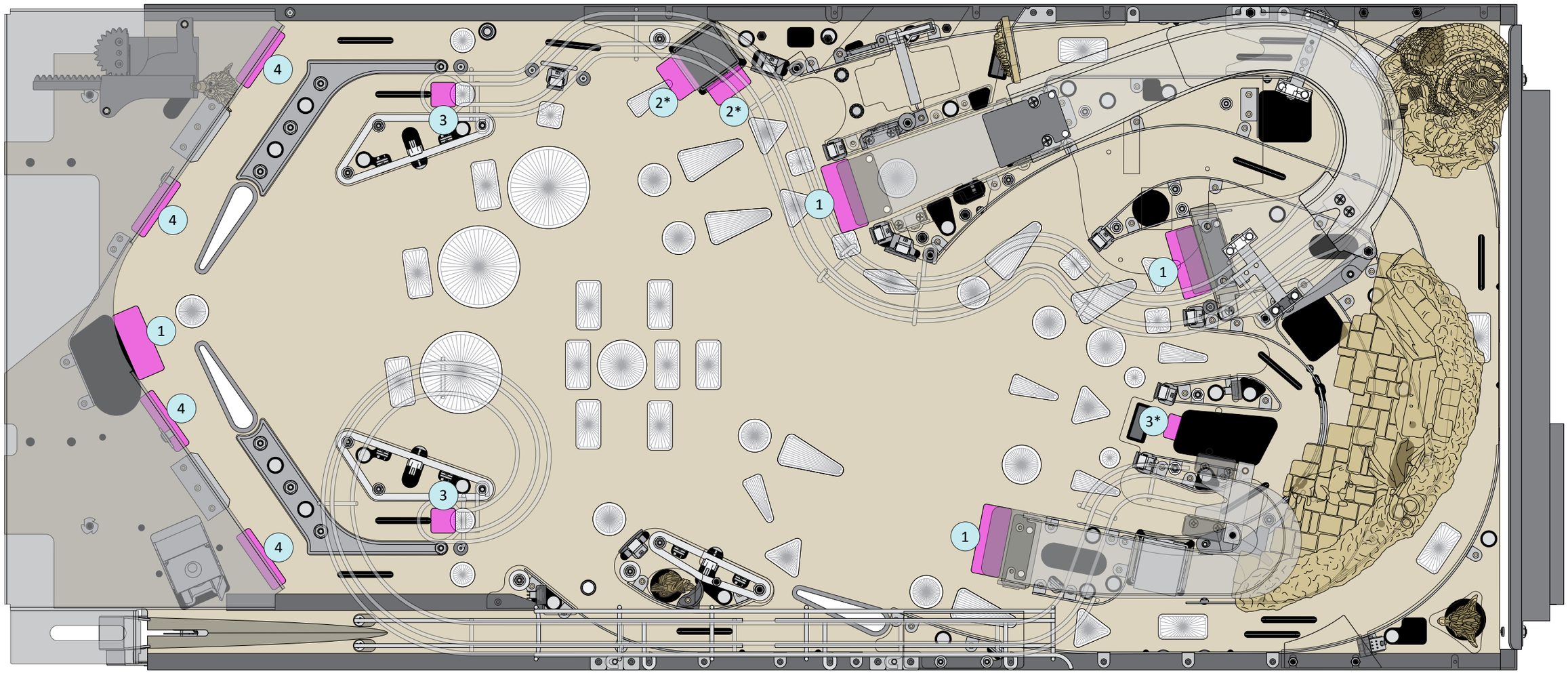
Item	Part Number	Description	Qty
1	FLP-0000-05	Flipper Bat w/Shaft, White	3
2	PLS-9216-13	Flipper Return Guide, Clear Plastic	2


1
2
3
4
5

Playfield Decals

Item	Part Number	Description	Qty	Part of Assy	Drawing
1	DEC-0006-00	Labyrinth Bottom Arch Decal	1	SUB-0033-00	4-42
2	DEC-0007-00	Labyrinth Shooter Gauge Decal	1	SUB-0033-00	4-42
3	DEC-0010-00	Labyrinth Spinner Front Decal	1	SUB-0036-00	4-40
4*	DEC-0010-01	Labyrinth Spinner Back Decal	1	SUB-0036-00	4-40
5	DEC-0011-00	Labyrinth Wiseman Drop Tgt Decal	1	SUB-0013-00	4-22

* decal attached to back side of spinner, ***upside down***


4
4
1
4
4
3
2*
2*
1
1
3*
1
3

Mylar Playfield Protectors

Item	Part Number	Description	Qty
1	DEC-0013-01	Ramp Flap/Outhole Mylar Playfield Protector	4
2*	DEC-0013-02	Scoop Eject Mylar Playfield Protector	2
3	DEC-0013-03	Ball Drop Square Mylar Playfield Protector	2
3*	DEC-0013-03	Ball Drop Square Mylar Playfield Protector	1
4	DEC-0013-04	Bottom Arch Mylar Playfield Protector	4

* protectors are folded over, into playfield holes
All Mylar playfield protectors are clear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36
37
38
Hoggle
Didymus
Ludo

Printed Playfield Plastics

Primary

Item	Part Number	Description	Mtg HW
9	PLS-0000-09	Labyrinth Ello Spotlight Plastic	1 A1, 1 E1
	PLS-0001-10	Labyrinth Ello Spotlight Plastic Protector*	
11	PLS-0000-11	Labyrinth Upper Right Flipper Plastic	2 E4
13	PLS-0000-13	Labyrinth Upper Right Corner Plastic	3 E1, 2 E3
	PLS-0001-14	Labyrinth Upper Right Corner Plastic Protector*	
15	PLS-0000-15	Labyrinth Left Flipper Return Plastic	4 B
	PLS-0001-16	Labyrinth Flipper Return Plastic Protector*	
17	PLS-0000-17	Labyrinth Right Flipper Return Plastic	4 B
	PLS-0001-16	Labyrinth Flipper Return Plastic Protector*	
21	PLS-0000-21	Labyrinth Upper Left Corner Plastic	3 E1, 2 E2
	PLS-0001-22	Labyrinth Upper Left Corner Plastic Protector*	
23	PLS-0000-23	Labyrinth Left Ramp Plastic	1 A1, 2 A2
	PLS-0001-24	Labyrinth Left Ramp Plastic Protector*	
25	PLS-0000-25	Labyrinth Right (Baaba) Sling Plastic	2 A1, 1 C1
	PLS-0001-27	Labyrinth Sling Plastic Protector*	
26	PLS-0000-26	Labyrinth Left (Froggy) Sling Plastic	2 A1, 1 C1
	PLS-0001-27	Labyrinth Sling Plastic Protector*	
28	PLS-0000-28	Labyrinth Ello Plastic	2 A1, 1 A2
	PLS-0001-29	Labyrinth Ello Plastic Protector*	
30	PLS-0000-30	Labyrinth Village Plastic	4 C1
32	PLS-0000-32	Labyrinth Two Doors (Knockers) Plastic	1 A1, 2 C2, 2 C3, 2 D
	PLS-0001-33	Labyrinth Two Doors Plastic Protector*	
34	PLS-0000-34	Labyrinth Spinner/Junk Lady Plastic	1 A1, 4 E1, 2 E1', 1 E2
	PLS-0001-35	Labyrinth Spinner/Junk Lady Plastic Protector*	
36	PLS-0000-36	Labyrinth Hoggle Key Fob Plastic	-
37	PLS-0000-37	Labyrinth Didymus Key Fob Plastic	-
38	PLS-0000-38	Labyrinth Ludo Key Fob Plastic	-

* protectors are slightly larger clear pieces, mounted directly beneath primary plastics

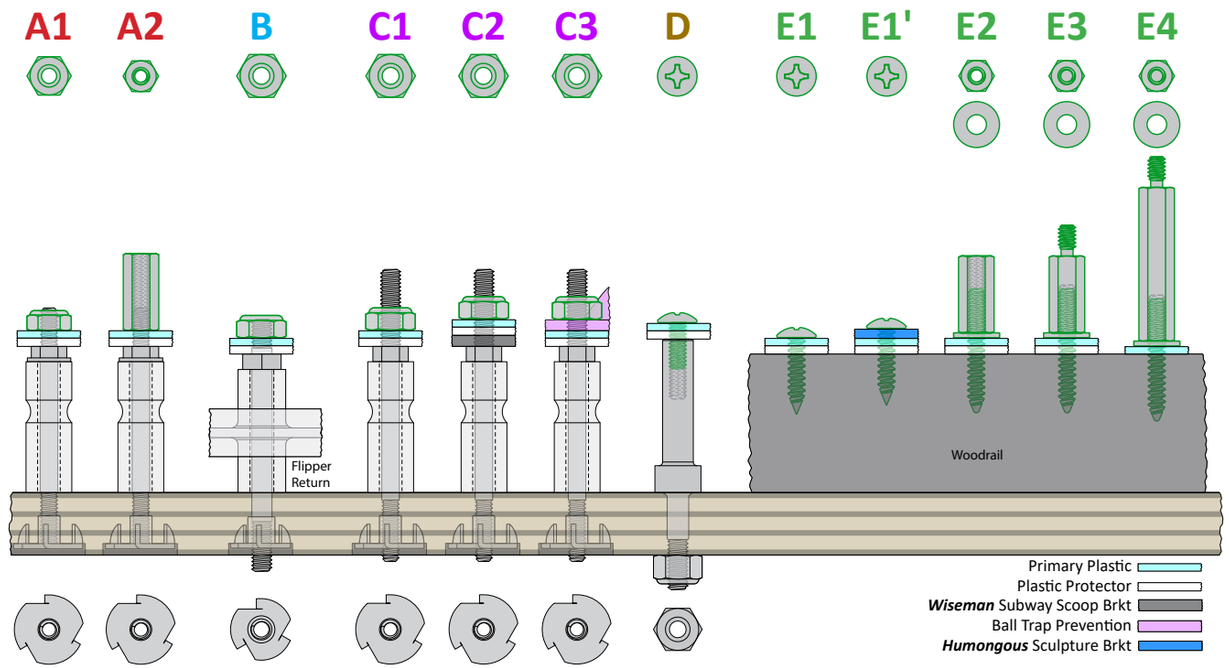
Labyrinth Playfield Printed Plastics Set: PLS-0000-00

Labyrinth Playfield Plastic Protectors Set: PLS-0001-00

Primary Plastics Mounting Hardware

Playfield, Top

Configuration	Part Number	Description
A1	NUT-0006-00	6-32 Nylon Lock Nut
A2	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32
B, C1, C2, C3	NUT-0008-00	8-32 Nylon Lock Nut
D	MAS-8006-06	6-32 x 3/8" PTH MS
E1, E1'	WDS-8006-10	#6 x 5/8" PTH SMS
E2	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32
	WAS-0006-12	#6 Flat Washer, 3/8"OD
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L
E3	HEX-1166-10	1/4" x 5/8" Hex Spacer, M-F, 6-32
	WAS-0006-12	#6 Flat Washer, 3/8"OD
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L
E4	HEX-1166-20	1/4" x 1-1/4" Hex Spacer, M-F, 6-32
	WAS-0006-12	#6 Flat Washer, 3/8"OD
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L

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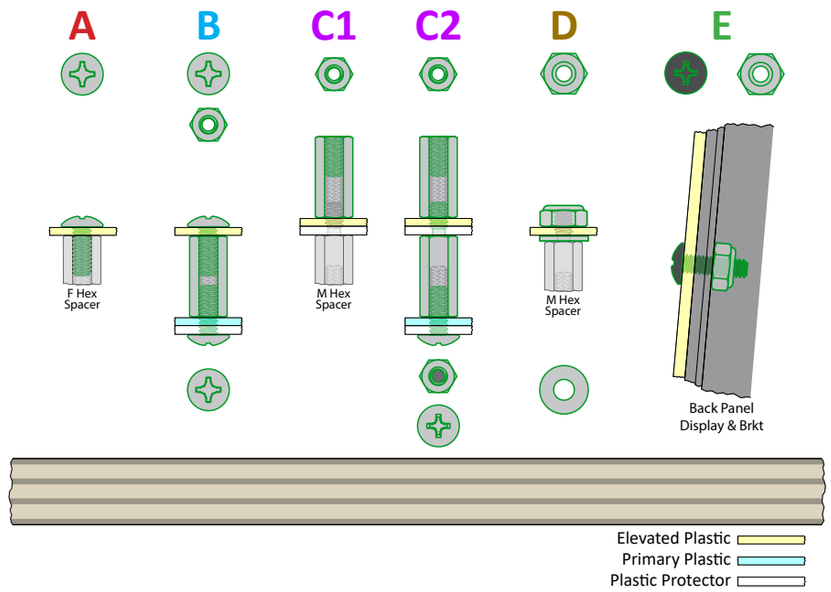
Printed Playfield Plastics
Elevated

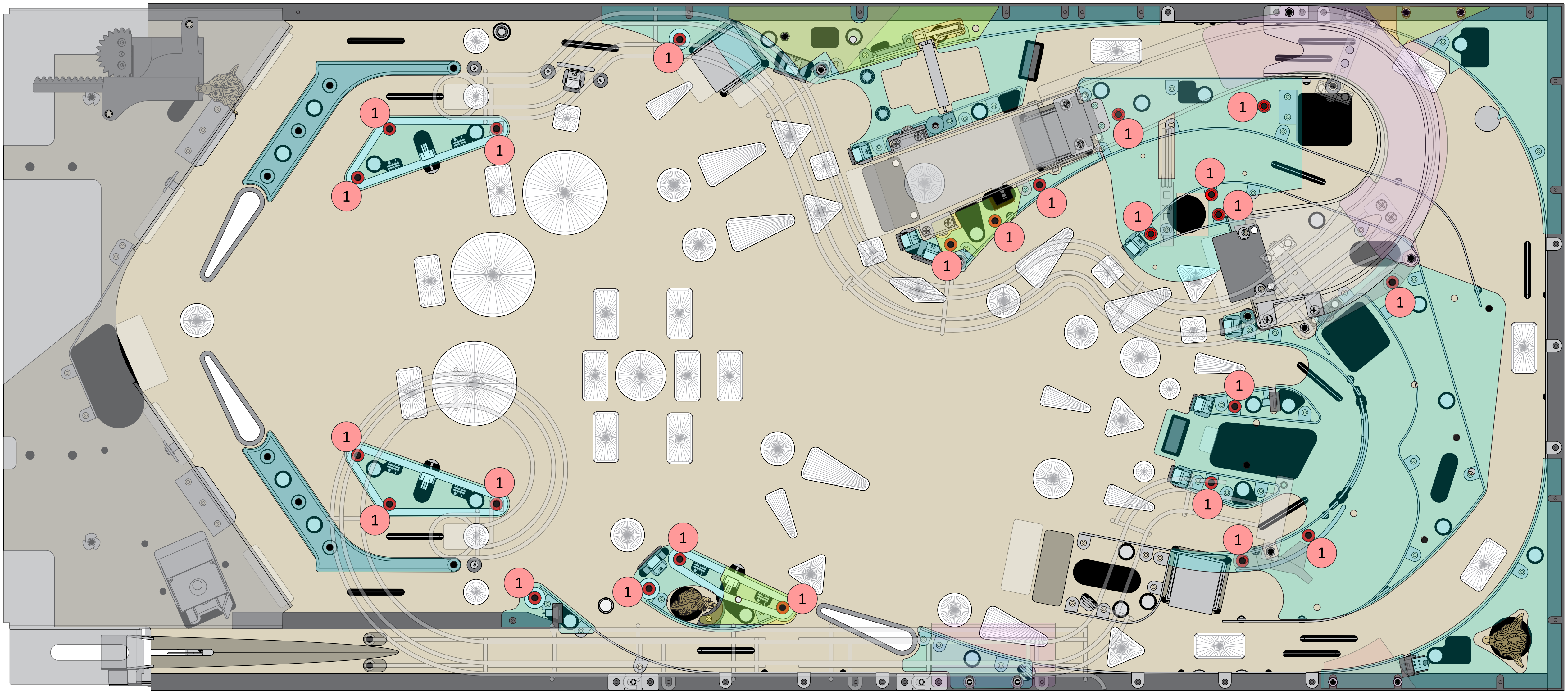
Item	Part Number	Description	Mtg HW
1	PLS-0000-01	Labyrinth Elevated Upper Left Corner Plastic*	2 A
2	PLS-0000-02	Labyrinth Third Level Upper Right Corner Plastic	2 A
3	PLS-0000-03	Labyrinth Elevated Upper Right Corner Plastic	2 C1
4	PLS-0000-04	Labyrinth Third Level Spinner (Book) Plastic	2 A
5	PLS-0000-05	Labyrinth Elevated Ello Plastic*	1 A, 1 B
6	PLS-0000-06	Labyrinth Elevated 90° Bend Plastic*	2 D
7	PLS-0000-07	Labyrinth Elevated Left Ramp Plastic*	2 A
19	PLS-0000-19	Labyrinth Elevated Spinner Plastic	2 C2, 1 B
	PLS-0001-20	Labyrinth Elevated Spinner Plastic Protector*	
36	PLS-0001-36	Labyrinth Back Panel Display Plastic	4 E

* plastic is clear (no artwork)
Labyrinth Playfield Printed Plastics Set: PLS-0000-00
Labyrinth Playfield Plastic Protectors Set: PLS-0001-00

Primary Plastics Mounting Hardware
Playfield, Top

Configuration	Part Number	Description
A	MAS-8006-06	6-32 x 3/8" PTH MS
B	MAS-8006-06 HEX-0166-10	6-32 x 3/8" PTH MS ***(2ea)*** 1/4" x 5/8" Hex Spacer, F-F, 6-32
C1	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32
C2	MAS-8006-06 HEX-1166-10 HEX-0166-10	6-32 x 3/8" PTH MS 1/4" x 5/8" Hex Spacer, M-F, 6-32 1/4" x 5/8" Hex Spacer, F-F, 6-32
D	NUT-0006-00 WAS-0006-12	6-32 Nylon Lock Nut #6 Flat Washer, 3/8"OD
E	MAS-0106-08 NUT-0006-00	6-32 x 1/2" PPH MS, Black 6-32 Nylon Lock Nut

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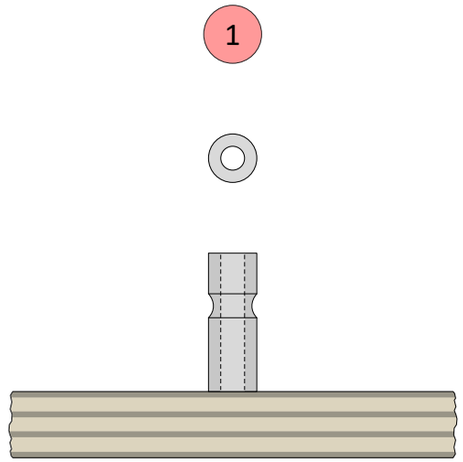
Plastic Playfield Posts

Item	Part Number	Description	Qty
1	POS-5059-01	1-1/16” Slim Plastic Post, Translucent Clear	24

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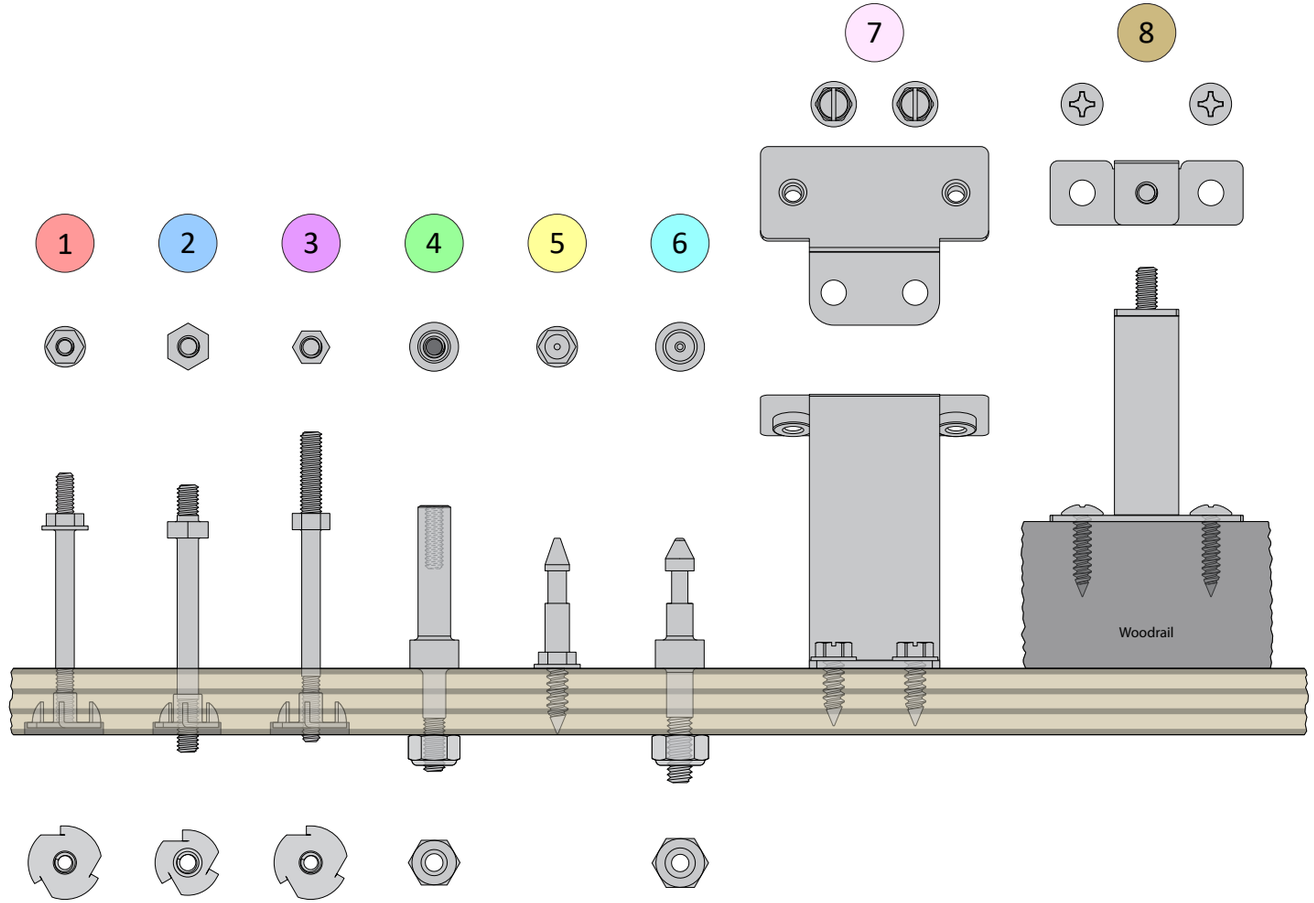
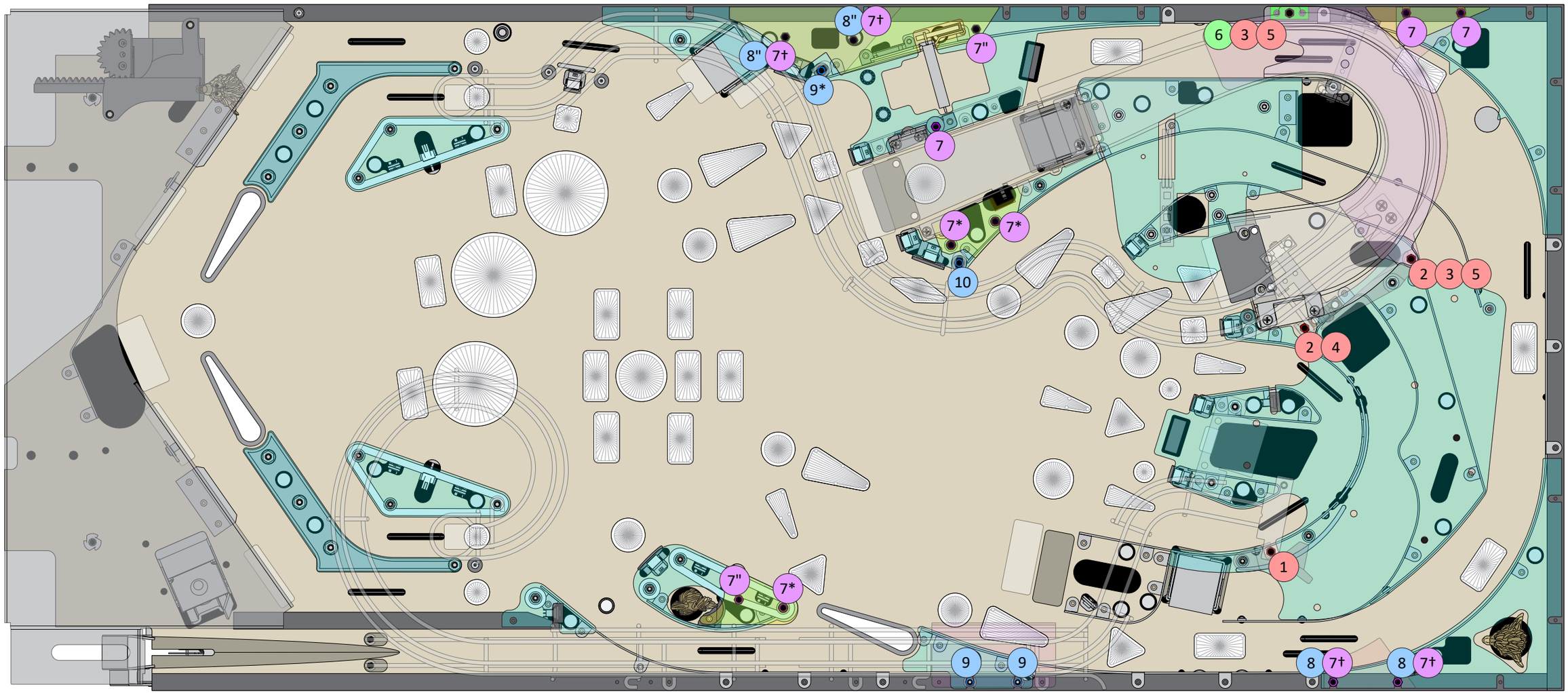
Metal Playfield Posts, Supports & Screws

Item	Part Number	Description	Qty
1	POS-0000-00	6-32/6-32, 1/4" Drv Plastics Fastener Post, 2-1/16"L	13
2	POS-0002-00	8-32/8-32, 5/16" Drv Plastics Fastener Post, 2"L	8
3	POS-0003-00	8-32/6-32, 1/4" Drv Plastics Fastener Post, 2-3/8"L	11
4	POS-4036-01	Sleeve Post, 8-32 Round Base, 6-32 Tapped Top	5
	NUT-0008-00	8-32 Nylon Lock Nut	5
5	POS-5004-00	Steel Mini Post, #8 WS Base	1
6	POS-4660-00	Steel Mini Post, 10-32 Base	4
	NUT-0010-00	10-32 Nylon Lock Nut	4
7	MET-0062-00	Upper Left Ramp Support Brkt	1
	SMS-2008-08	#8 x 1/2" HWH SMS	2
8	MET-0063-00	Wire Ramp Support Brkt	2
	WDS-8006-10	#6 x 5/8" PTH SMS	4

Items 1 & 3 thread through the playfield, into 6-32 T-nuts (NUT-4006-00), installed in the playfield underside (see pg 4-127)

Items 2 thread through the playfield, into 8-32 T-nuts (NUT-4008-00), installed in the playfield underside (see pg 4-127)

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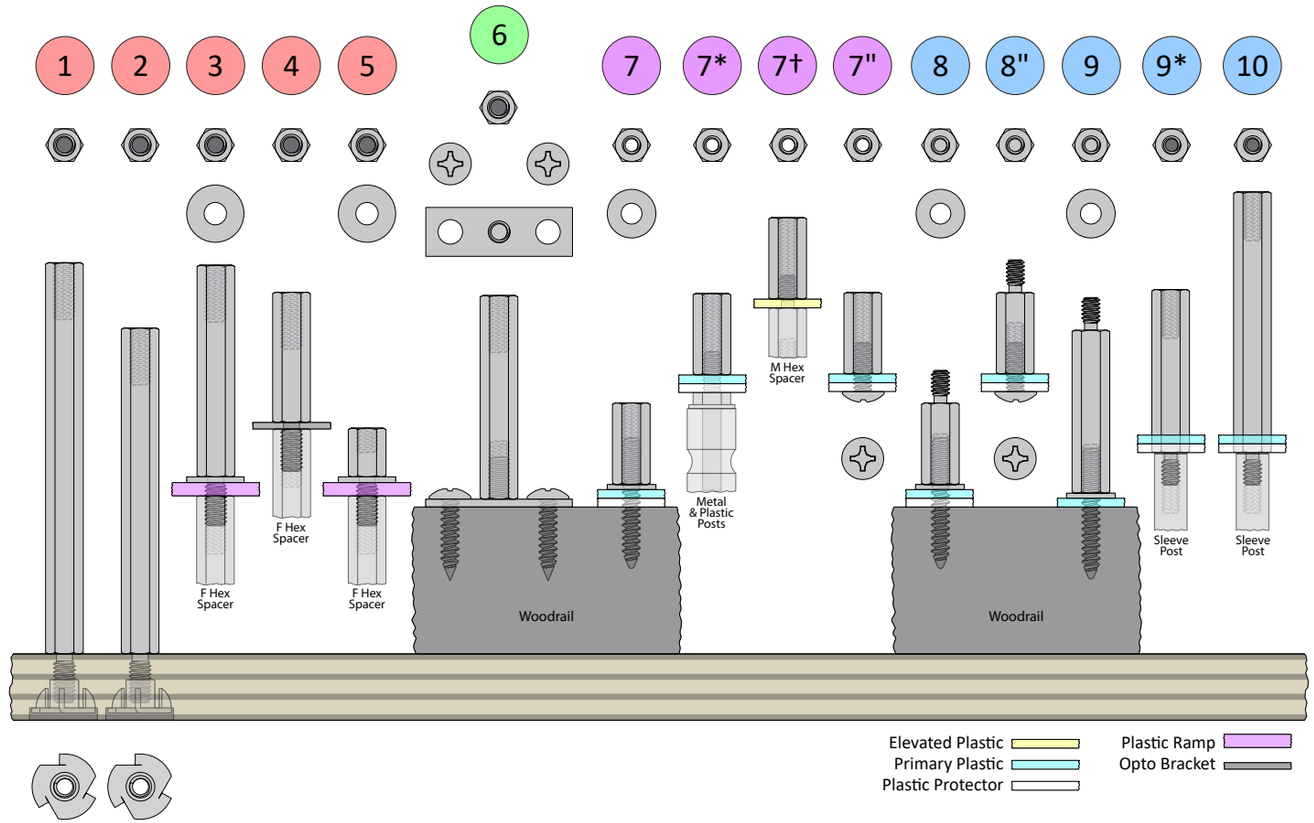
8 7†

Metal Hex Spacers

Item	Part Number	Description	Qty
1	HEX-1188-48	1/4" x 3" Hex Spacer, M-F, 8-32	1
2	HEX-1188-40	1/4" x 2-1/2" Hex Spacer, M-F, 8-32	2
3	HEX-1188-26	1/4" x 1-5/8" Hex Spacer, M-F, 8-32	2
	WAS-0008-14	#8 Flat Washer, 7/16"OD	2
4	HEX-1188-16	1/4" x 1" Hex Spacer, M-F, 8-32	1
5	HEX-1188-06	1/4" x 3/8" Hex Spacer, M-F, 8-32	2
	WAS-0008-14	#8 Flat Washer, 7/16"OD	2
6	HEX-0188-25	1/4" x 1-9/16" Hex Spacer, F-F, 8-32	1
	MET-0088-00	Post Mtg Plate, 8-32 Stud	1
	WDS-8006-10	#6 x 5/8" PTH SMS	2
7	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32	3
	WAS-0006-12	#6 Flat Washer, 3/8"OD	3
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L	3
7*	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32	3
7†	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32	4
7"	HEX-0166-10	1/4" x 5/8" Hex Spacer, F-F, 6-32	2
	MAS-8006-06	6-32 x 3/8" PTH MS	2
8	HEX-1166-10	1/4" x 5/8" Hex Spacer, M-F, 6-32	2
	WAS-0006-12	#6 Flat Washer, 3/8"OD	2
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L	2
8"	HEX-1166-10	1/4" x 5/8" Hex Spacer, M-F, 6-32	2
	MAS-8006-06	6-32 x 3/8" PTH MS	2
9	HEX-1166-20	1/4" x 1-1/4" Hex Spacer, M-F, 6-32	2
	WAS-0006-12	#6 Flat Washer, 3/8"OD	2
	BLT-9006-16	Hanger Bolt, #6 & 6-32, 1"L	2
9*	HEX-1166-20	1/4" x 1-1/4" Hex Spacer, M-F, 6-32	1
10	HEX-1166-32	1/4" x 2" Hex Spacer, M-F, 6-32	1

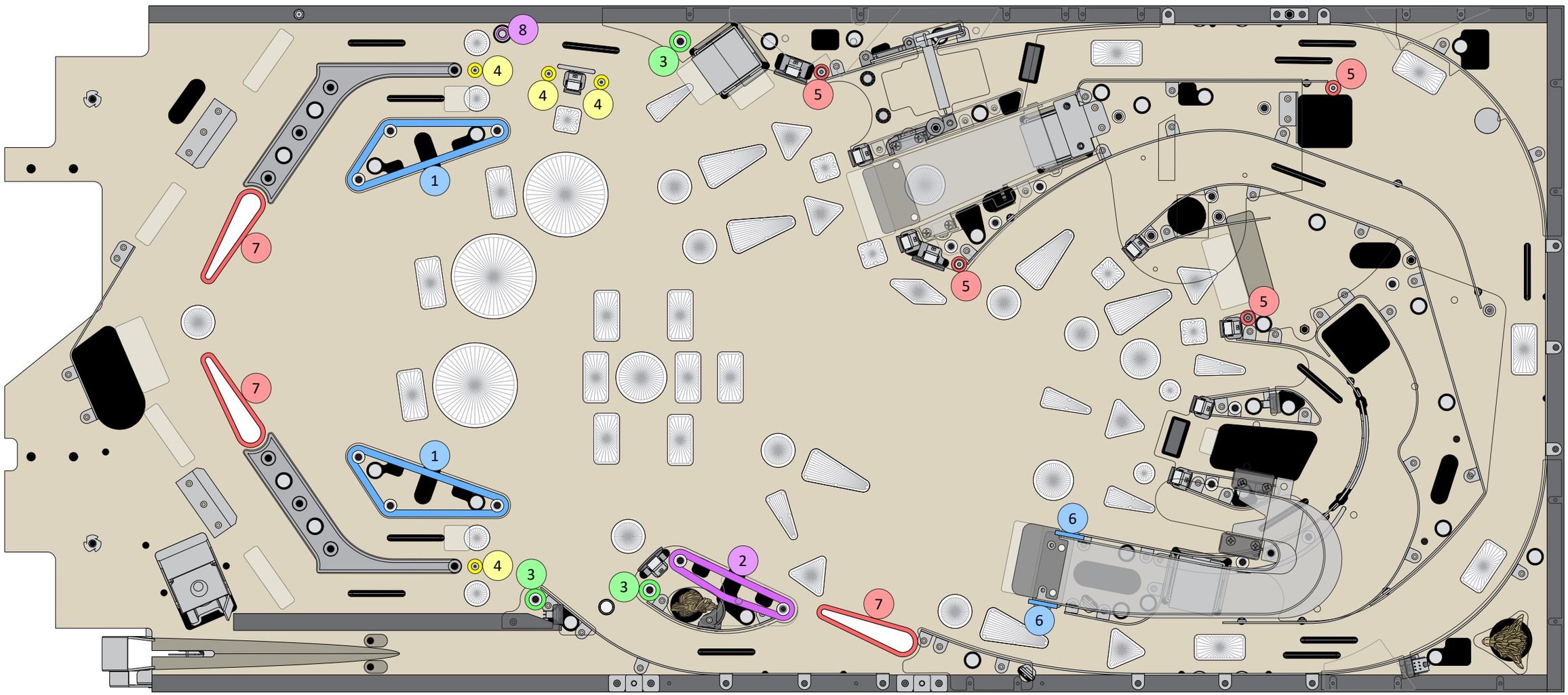


Items 1 & 2 thread through the playfield, into 8-32 T-nuts (NUT-4008-00) previously installed in the playfield underside (see pg 4-127)

Items 3-5 & 7† thread through ramps/plastics/brackets, into/onto the tops of 8-32/6-32 hex spacers previously attached to the playfield surface, a woodrail or another spacer

Items 7* thread onto the tops of 6-32 metal posts that hold clear, slim plastic posts and playfield plastics in place

Items 9* & 10 pass through holes in plastics and thread into the tops of metal sleeve posts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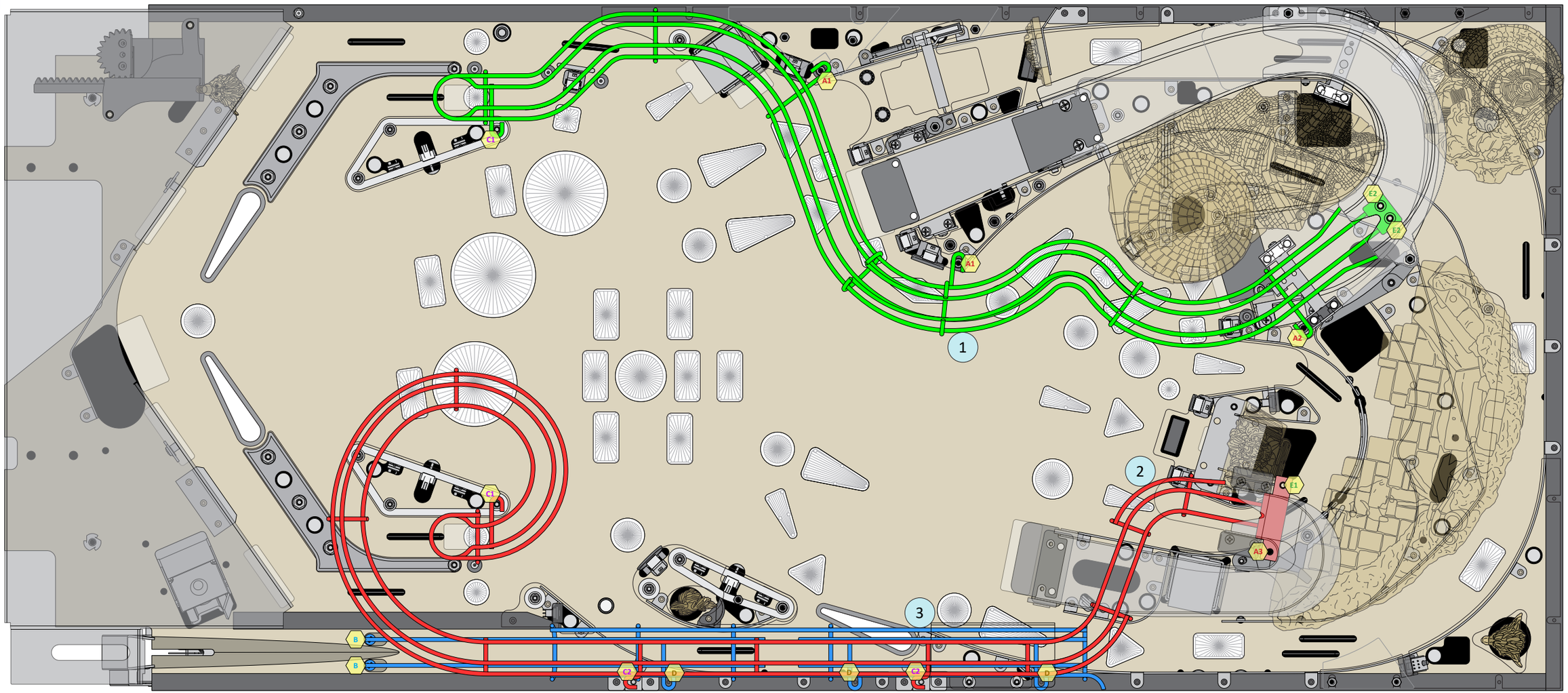
Rubber Rings, Bumpers & Sleeves

Item	Part Number	Description	Qty
1	RUB-0016-70	Silicone Ring, 2-1/2" ID, Clear	2
2	RUB-0014-70	Silicone Ring, 1-3/4" ID, Clear	1
3	RUB-0005-70	3/16" ID Slim Post Silicone, Clear	3
4	RUB-0003-42	7/16" OD Mini Post Silicone, Red	4
5	RUB-0025-42	Post Silicone Sleeve, 1-1/16", Red	4
6	RUB-0102-00	Ball Bumper Pad, 1/8"TH, Blue, Dual Mtg	2
7	RUB-0001-44	Flipper Silicone Ring, 1-1/2", Orange	3
8	RUB-0026-58	Tapered Post Sleeve, Black Silicone	1
NS	RUB-0032-58	Ball Shooter Tip, Black Rubber	1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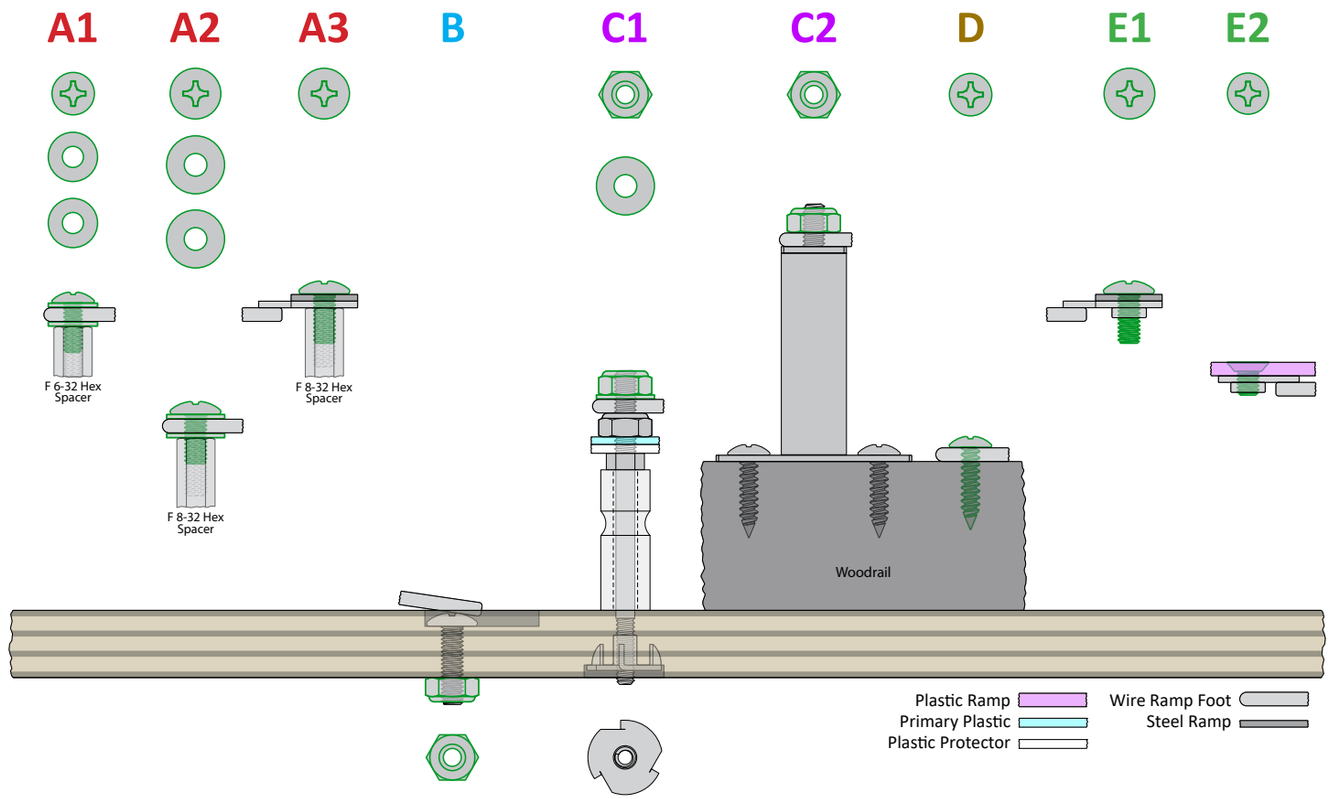
Wire Ramps

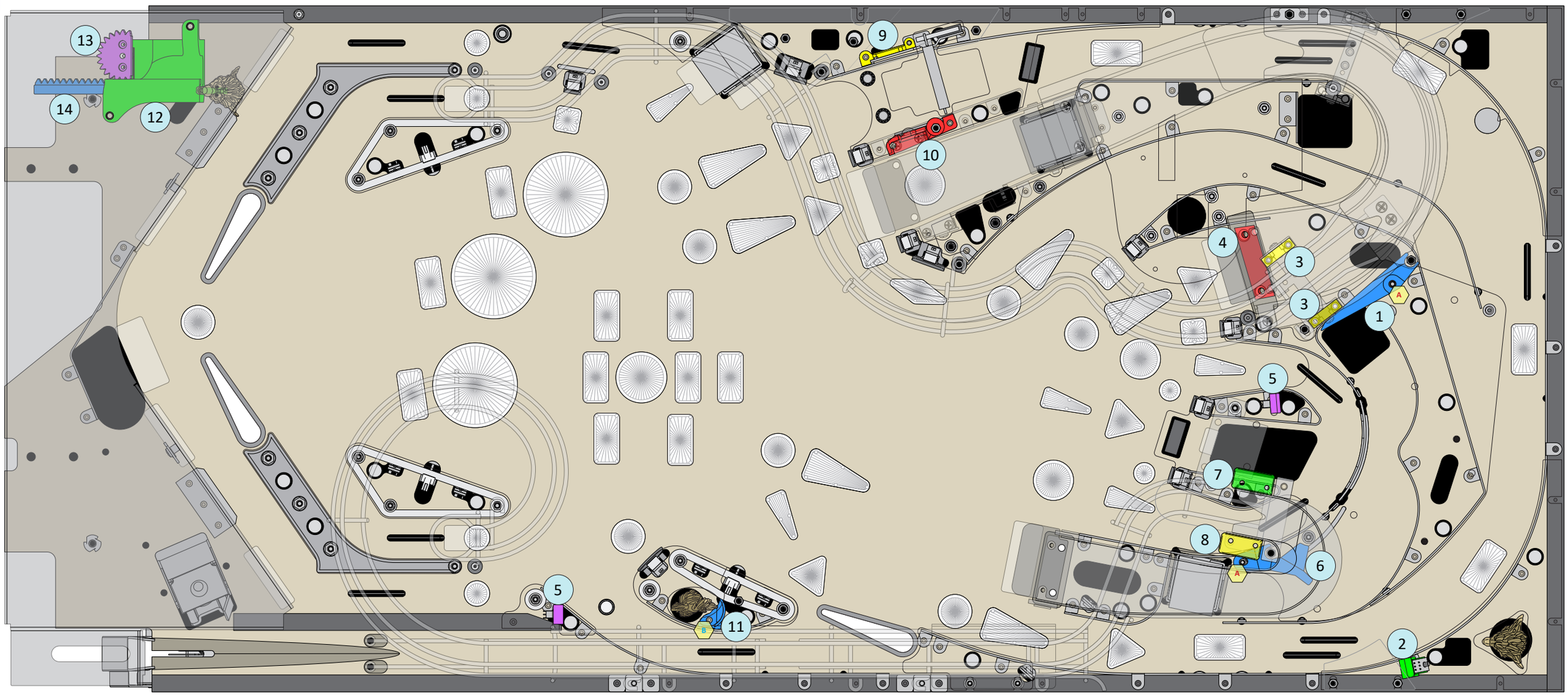
Item	Part Number	Description	Mtg HW
1	WRF-0010-00	Labyrinth Left Wire Ramp	2 A1, 1 A2, 1 C1, 2 E2
2	WRF-0011-00	Labyrinth Right Wire Ramp	1 A3, 1 C1, 2 C2, 1 E1
3	WRF-0014-00	Labyrinth Shooter Lane Wireform	2 B, 3 D

Wire Ramp Mounting Hardware

Playfield, Top & Underside

Configuration	Part Number	Description
A1	MAS-8006-06	6-32 x 3/8" PTH MS
	WAS-0006-12	#6 Flat Washer, 3/8"OD ***(2 ea)***
A2	WAS-0008-14	#8 Flat Washer, 7/16"OD ***(2 ea)***
A3, E1	MAS-8008-06	8-32 x 3/8" PTH MS
B, C2	NUT-0008-00	8-32 Nylon Lock Nut
C1	NUT-0008-00	8-32 Nylon Lock Nut
	WAS-0008-14	#8 Flat Washer, 7/16"OD
D	WDS-8006-10	#6 x 5/8" PTH SMS
E2	MAS-6008-04	8-32 x 1/4" PFH MS

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3D Printed Parts

Stand Alone

Item	Part Number	Description	Mtg HW
1	3DP-0015-00	Labyrinth Center Ramp Ball Trap Prevention, 3DP	1 A
4	3DP-0017-00	Labyrinth Center Ramp Shim, 3DP	*
6	3DP-0014-00	Labyrinth Right Ramp Ball Trap Prevention, 3DP	1 A
11	3DP-0016-00	Labyrinth Ello GI Lamp Shade, 3DP	1 B

* mounting screws for the center ramp run through the 3DP shim, into the playfield surface

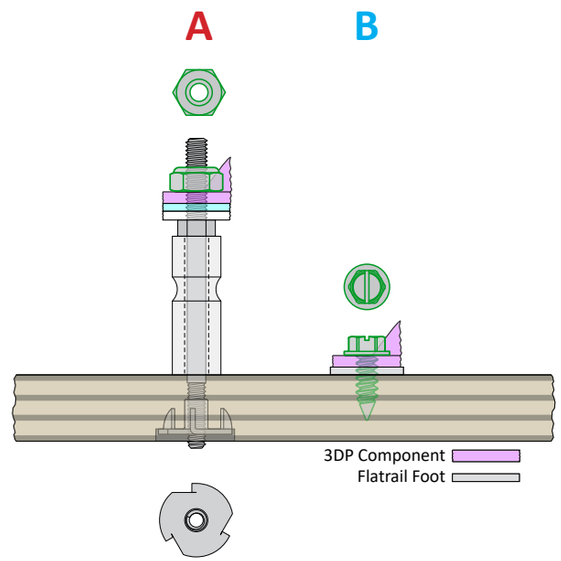
As Assembly Components

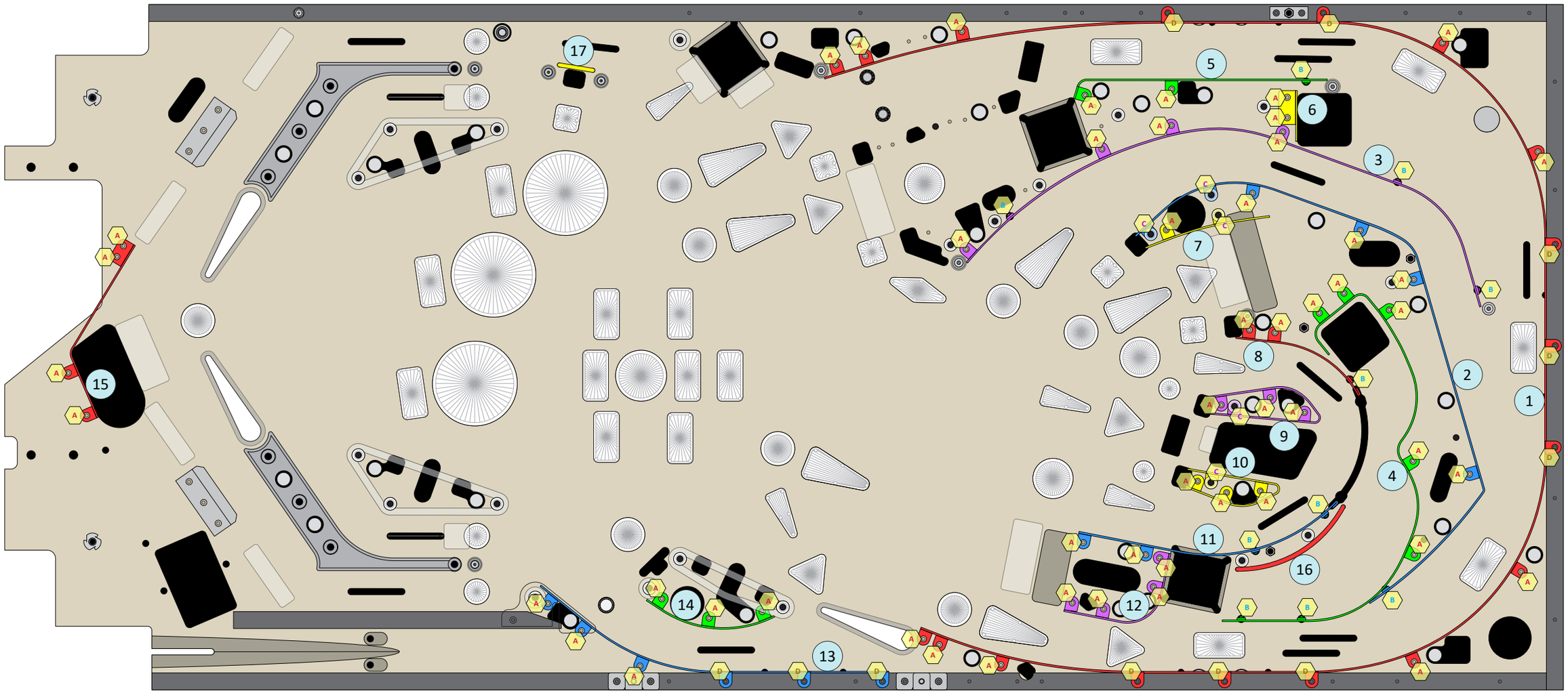
Item	Part Number	Description	Part of Assy	Drawing
2	3DP-0011-00	Spotlight Mount, Angled, 3DP	-	4-69
3	3DP-0018-00	Wms Style Opto Spacer, 3DP	SUB-0021-00	4-47
5	3DP-0010-00	Spotlight Mount, Vertical, 3DP	-	4-69
7	3DP-0036-00	Opto Shroud, Left Side, 3DP	SUB-0020-00	4-44
8	3DP-0036-01	Opto Shroud, Right Side, 3DP	SUB-0020-00	4-44
9	3DP-0019-00	Labyrinth Left Orbit Opto Brkt, Left Side, 3DP	SUB-0035-00	4-37
10	3DP-0020-00	Labyrinth Left Orbit Opto Brkt, Right Side, 3DP	SUB-0035-00	4-37
12	3DP-0033-00	Horizontal Firey Main Brkt, 3DP	SUB-0034-00	4-36
13	3DP-0023-00	Servo Pinion Gear, Medium, 3DP	SUB-0034-00	4-36
14	3DP-0034-00	Horizontal Firey Rack Gear, 3DP	SUB-0034-00	4-36

3D Printed Parts Mounting Hardware

Playfield, Top

Configuration	Part Number	Description
A	NUT-0008-00	8-32 Nylon Lock Nut
B	SMS-2008-08	#8 x 1/2" HWH SMS

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Flatrails & Ball Guide Rails

Item	Part Number	Description	Qty	Mtg HW
1	FLT-0006-00	Labyrinth Full Orbit, Outer Flatrail	1	10 A†, 8 D
2	FLT-0015-00	Labyrinth Inner Loop, Inner Flatrail	1	4 A, 1 B, 2 C
3	FLT-0014-00	Labyrinth Inner Loop, Outer Flatrail	1	4 A, 3 B
4	FLT-0013-00	Labyrinth Subway/Scoop Entrance Flatrail	1	5 A, 2 B
5	FLT-0022-00	Labyrinth Left Orbit, Inner Flatrail	1	2 A, 1 B
6	FLT-0023-00	Labyrinth Left Subway Entrance Flatrail	1	2 A
7	FLT-0018-00	Labyrinth Center Ramp Protector Flatrail	1	1 A, 1 C
8	FLT-0011-00	Labyrinth Left Outer Horseshoe Flatrail	1	2 A, 1 B
9	FLT-0010-00	Labyrinth Left Wiseman Flatrail	1	3 A, 1 C
10	FLT-0009-00	Labyrinth Right Wiseman Flatrail	1	3 A, 1 C
11	FLT-0008-00	Labyrinth Right Outer Horseshoe Flatrail	1	2 A, 2 B
12	FLT-0007-00	Labyrinth Under Right Ramp Flatrail	1	4 A
13	FLT-0003-00	Labyrinth Under Shooter Flatrail	1	3 A, 3 D
14	FLT-0004-00	Labyrinth Ello Flatrail	1	3 A*
15	FLT-0001-00	Outhole Flatrail	1	4 A
16	WRF-0015-00	3.5" Curved Ball Guide Rail	1	-
17	WRF-0012-00	1" Straight Ball Guide Rail, Mini	1	-

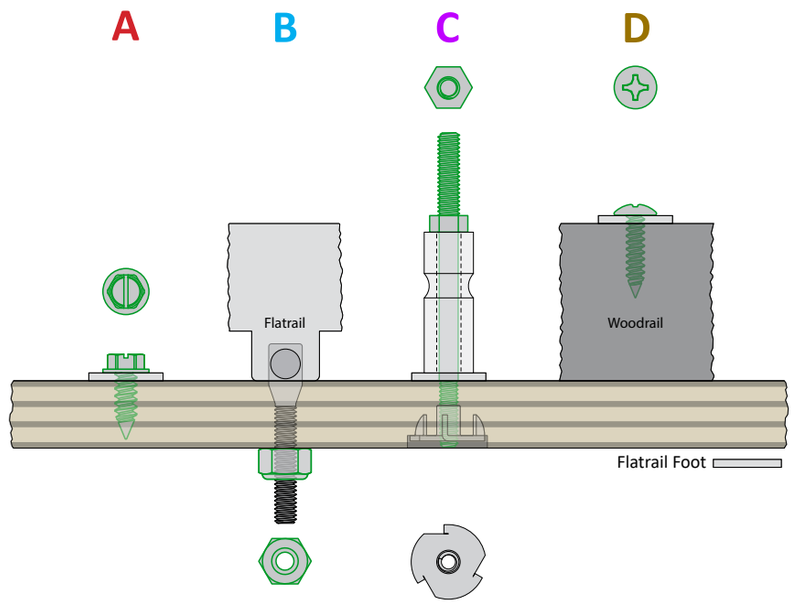
* the center SMS also holds a 3DP GI lamp shade in place (item 11 on pg 4-118)
† one SMS on the left also holds a 3DP opto bracket in place (item 9 on pg 4-118)

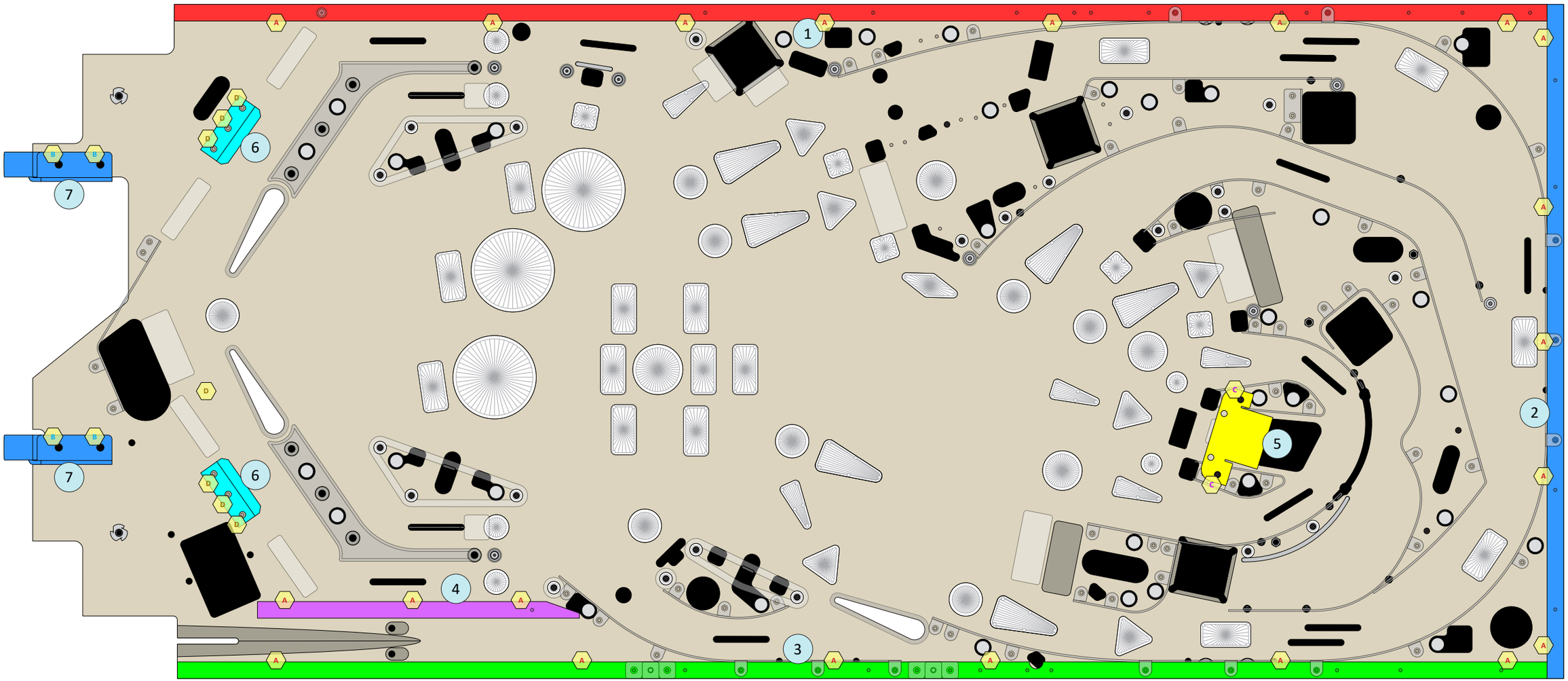
Flatrail Mounting Hardware

Playfield, Top & Underside

Configuration	Part Number	Description
A	SMS-2008-08	#8 x 1/2" HWH SMS
B	NUT-0008-00	8-32 Nylon Lock Nut
C	POS-0003-00† POS-5059-01	8-32/6-32, 1/4" Drv Plastics Fastener Post, 2-3/8"L 1-1/16" Slim Plastic Post, Translucent Clear
D	WDS-8006-10	#6 x 5/8" PTH SMS

† the metal post threads through the plastic post and the playfield, into a 6-32 T-nut (NUT-4006-00), installed in the playfield underside (see pg 4-127)

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Woodrails & Low Brackets

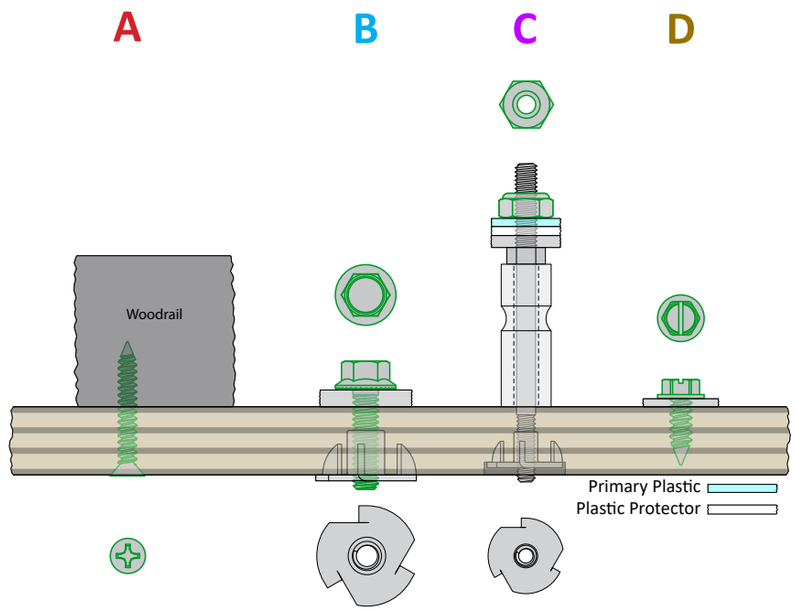
Item	Part Number	Description	Qty	Mtg HW
1	WOD-0010-01	Labyrinth Left Side Woodrail	1	7 A
2	WOD-0010-02	Labyrinth Back Woodrail	1	5 A
3	WOD-0010-03	Labyrinth Right Side Woodrail	1	6 A
4	WOD-0010-04	Labyrinth Shooter Lane Woodrail	1	3 A
5	MET-0060-00	***Wiseman*** Subway Scoop Brkt	1	2 C
6	MET-8394-00	Bottom Arch Retainer Brkt	2	3 D (each brkt)
7	MET-0077-00	Playfield Hanger Brkt	2	2 B (each brkt)

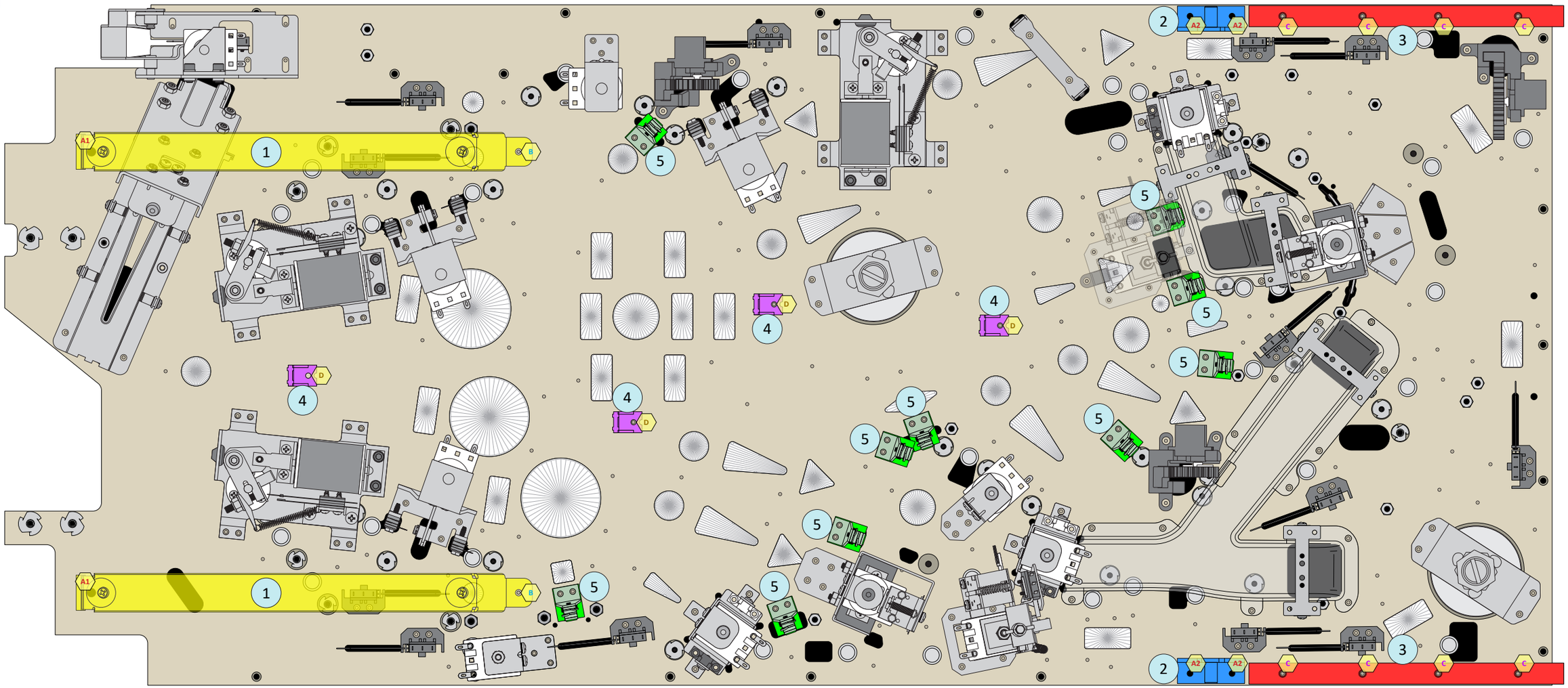
Mtg HW for items 7 thread through the playfield, into 10-24 T-nuts (NUT-4011-00), installed in the playfield underside (see pg 4-127)

Woodrail/Bracket Mounting Hardware

Playfield, Top & Underside

Configuration	Part Number	Description
A	WDS-6006-16	#6 x 1" PFH SMS
B	MAS-2011-12	10-24 x 3/4" HWH MS
C	NUT-0008-00	8-32 Nylon Lock Nut
D	SMS-2008-08	#8 x 1/2" HWH SMS

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Under-Playfield Supports & Brackets

Item	Part Number	Description	Qty	Mtg HW
1	SUB-0095-02	Playfield Service/Support Brkt Assy	2	1 A1, 1 B (each assy)
a)	MET-0095-03	Playfield Service/Support Brkt w/Heat Shrink	1	
b)	RUB-0100-03	Rubber Bumper w/Washer, Unthreaded	2	
c)	MAS-0106-08	6-32 x 1/2" PPH MS, Black	2	
d)	NUT-0006-00	6-32 Nylon Lock Nut	2	
2	MET-5329-03	Playfield Pivot Brkt	2	2 A2 (each brkt)
3	MET-0027-00	Playfield Slide Brkt	2	4 C (each brkt)
4	PLS-0010-00	Nylon Wiring Harness Support, 3-1/2"	4	1 D (each support)
5	MET-0098-00	Standup Target Anti-Sway Plate	10	*

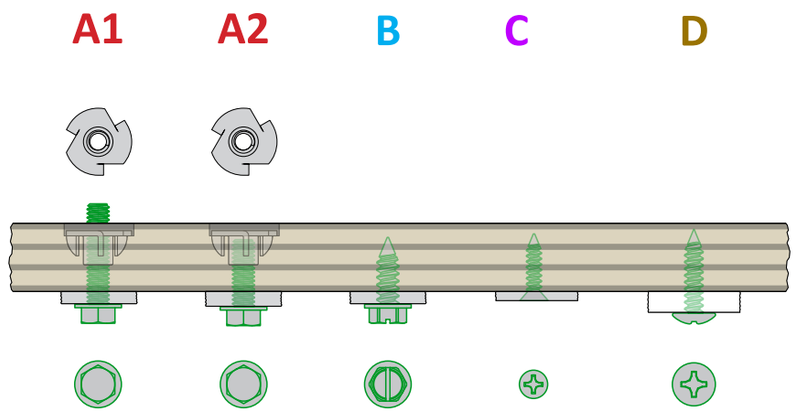
* mounting screws for each target run through the plate, into the playfield surface

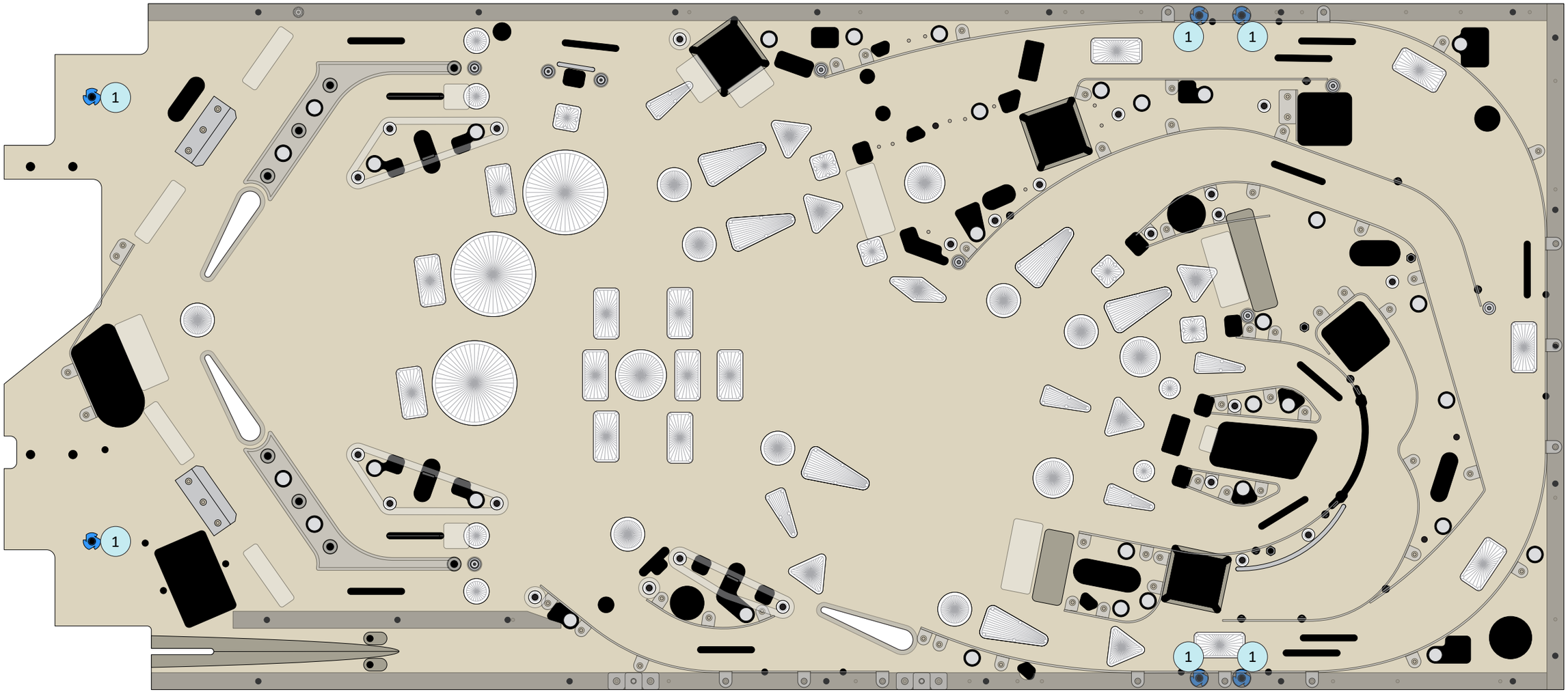
Support/Bracket Mounting Hardware

Playfield, Underside

Configuration	Part Number	Description
A1	MAS-2008-12†	8-32 x 3/4" HWH MS
A2	MAS-2008-08†	8-32 x 1/2" HWH MS
B	SMS-2008-08	#8 x 1/2" HWH SMS
C	WDS-6004-08	#4 x 1/2" PFH SMS
D	WDS-8006-10	#6 x 5/8" PTH SMS

† the MS threads through the playfield, into an 8-32 T-nut (NUT-4008-00), installed in the playfield surface (see pg 4-126)

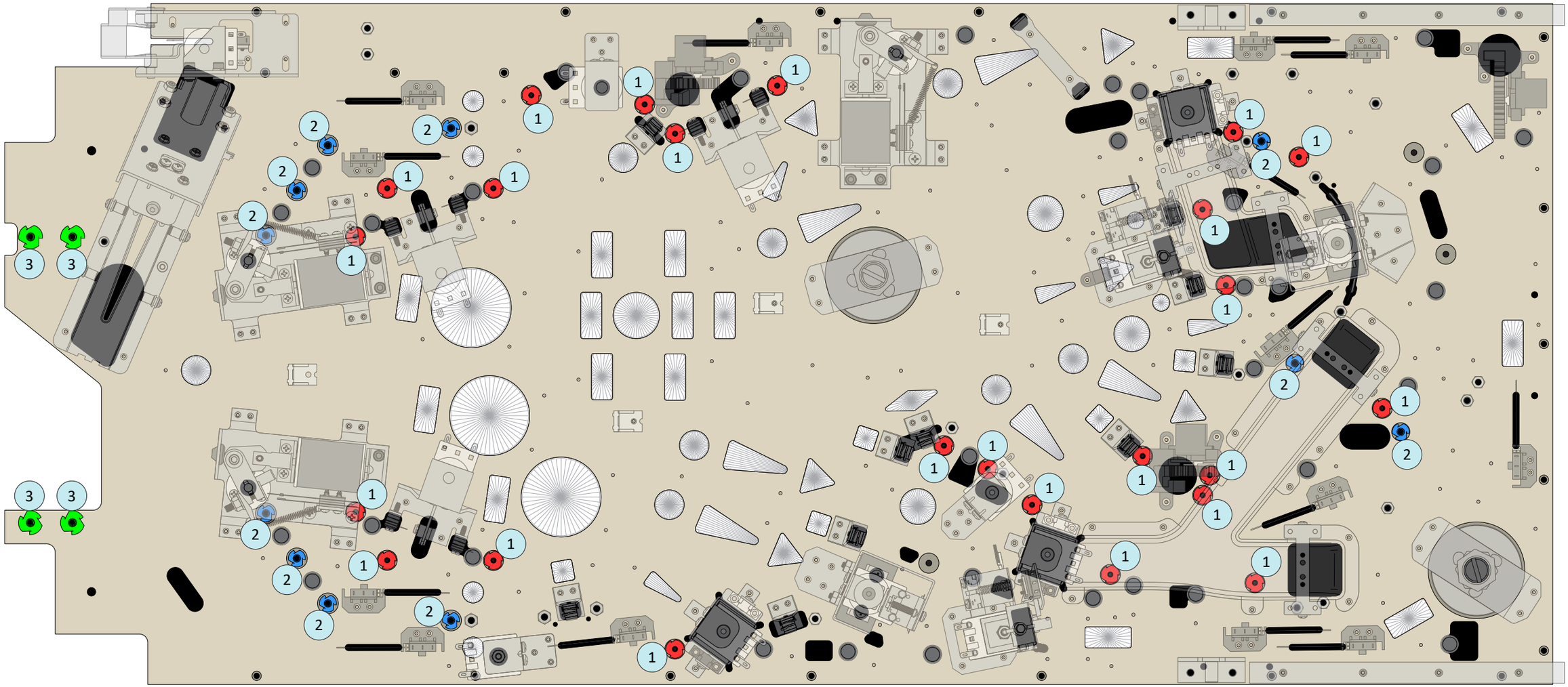




T-Nuts

Above Playfield

Item	Part Number	Description	Qty
1	NUT-4008-00	8-32, 3-Prong T-Nut, 1/2" Flange	6



T-Nuts

Under Playfield

Item	Part Number	Description	Qty
1	NUT-4006-00	6-32, 3-Prong T-Nut, 9/16" Flange	24
2	NUT-4008-00	8-32, 3-Prong T-Nut, 1/2" Flange	11
3	NUT-4011-00	10-24, 3-Prong T-Nut, 3/4" Flange	4

Coil & Servo Wiring Table

by Fuse, Driver Bd/Connector & Source Wire Color

F7, 8A SB* ***F1, 5A SB*** 48V High Power	Drive 8	Drive 9	Drive 10	Drive 11
	0804 J4-1, Q5	**0804 J4-2,** Q2	**0804 J4-3,** Q6	**0804 J4-4,** Q3
	BRN	**RED**	**RED**	**YEL**
0030 J10-1 **ORN**	Top Magnet	Left Ramp Lifter	***Beggar*** Magnet (center)	Upper Right Slingshot

F7, 8A SB* ***F4, 5A SB*** 48V High Power	Drive 12	Drive 13	Drive 14	Drive 15	Drive 16	Drive 17	Drive 18	Drive 19
	3208 J4-1, Q7	**3208 J4-2,** Q2	**3208 J4-3,** Q8	**3208 J4-4,** Q3	**3208 J4-5,** Q9	**3208 J4-7,** Q4	**3208 J4-8,** Q10	**3208 J4-9,** Q5
	BRN	**RED**	**ORN**	**YEL**	**GRN**	**VIO**	**PNK**	**BLU**
0030 J5-1 **WHT**	Right Flipper Power	Right Flipper Hold	Left Flipper Power	Left Flipper Hold	Ball Auto-launch	Ball Trough Eject	Right Slingshot	Left Slingshot

F7, 8A SB* ***F4, 5A SB*** 48V High Power	Drive 20	Drive 21	Drive 22	Drive 23	Drive 24	Drive 25	Drive 26	Drive 27
	1616 J3-1, Q11	**1616 J3-2,** Q2	**1616 J3-3,** Q12	**1616 J3-4,** Q3	**1616 J3-6,** Q13	**1616 J3-7,** Q4	**1616 J3-8,** Q14	**1616 J3-9,** Q5
	BRN	**RED**	**ORN**	**YEL**	**GRN**	**VIO**	**PNK**	**WHT**
0030 J6-1 **BLU**	Horseshoe Diverter Down	Horseshoe Diverter Up	***Wiseman*** Drop Target Up	***Wiseman*** Scoop Eject (right orbit)	***Wiseman*** Drop Target Down	Upper Right Flipper Power	Upper Right Flipper Hold	***Ello*** Up/Down Post

F7, 8A SB* ***F4, 5A SB*** 48V High Power	Drive 28	Drive 29	Drive 30	Drive 31	Drive 32	Drive 33	Drive 34
	1616 J4-1, Q15	**1616 J4-2,** Q6	**1616 J4-3,** Q16	**1616 J4-4,** Q7	**1616 J4-5,** Q17	**1616 J4-7,** Q8	**1616 J4-8,** Q18
	BRN	**RED**	**ORN**	**WHT**	**YEL**	**BLU**	**PNK**
0030 J11-1 **VIO**	Left Outlane Up/Down Post	***Helping Hands*** Scoop Eject	Forks Ball Catch Down	***Humongous*** Drop Target Retract (down)	Forks Ball Catch Up	***Humongous*** Drop Target Reset (up)	***Village*** Scoop Eject (under left ramp)

F6, 2.5A SB 6V Low Power	Drive 41	Drive 42	Drive 43	Drive 44
	0071(PF) J2-1	**0071(PF) J5-1**	**0071(PF) J4-1**	**0071(PF) J3-1**
	YEL	**YEL**	**YEL**	**YEL**
Power Pin →	**0071(PF) J2-2**	**0071(PF) J5-2**	**0071(PF) J4-2**	**0071(PF) J3-2**
RED	Bottom Arch ***Firey*** Head Out/In	Playfield ***Firey*** Head Up/Down	***Ludo*** Figure Up/Down	***Ello*** Figure Up/Down

*(TOPPER **ONLY**)* ***F2, 3A SB*** 6V Low Power	Drive 45	Drive 46
	0071(BB) J2-1	**0071(BB) J3-1**
	WHT	**WHT**
Power Pin →	**0071(BB) J2-2**	**0071(BB) J3-2**
RED	***Froggy*** (left) Head Spin	***Snarf*** (right) Head Spin

Fused power stream diagram: pg 5-49
Coil & servo wiring diagrams: pg 4-58
Coil & servo table: pg 4-52
Coil & servo locations: pg 4-54
Coil strength adjustments: pg 3-12
Coil & servo testing: pg 3-26

* game numbers 605 and higher

*"My brother, canst thou summon up the very **rocks**?"*

"Sure. Rocks friends."

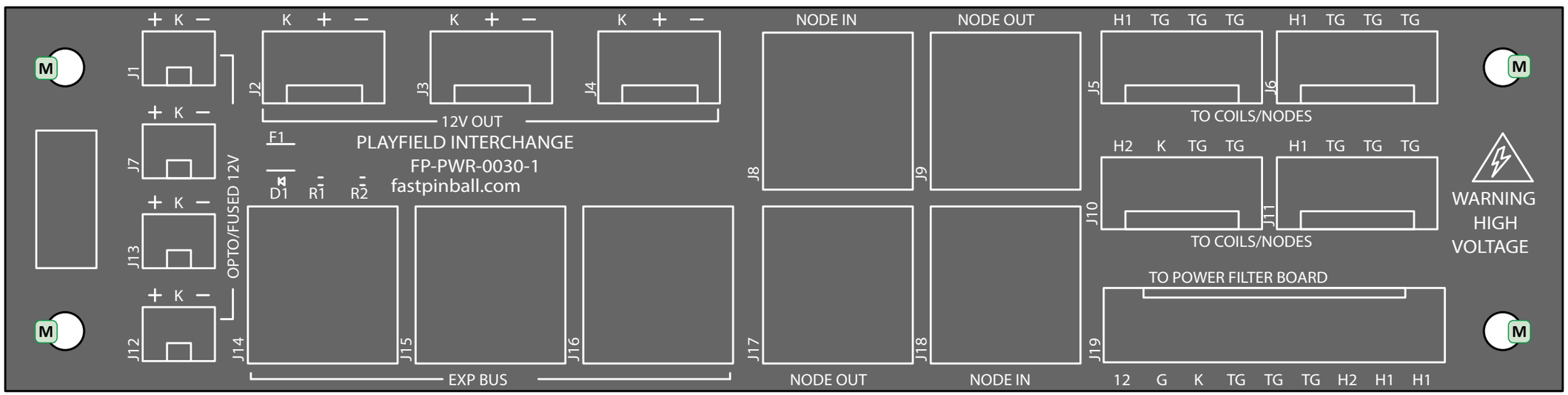
Section 5

Game Wiring & Schematics

*"SMELL **BAD**!"*

Playfield Interchange Bd, 0030

ELE-0030-00 (FP-PWR-0030-1)



PCB Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH	8
	SMS-2006-08	#6 x 1/2" HWH SMS	4

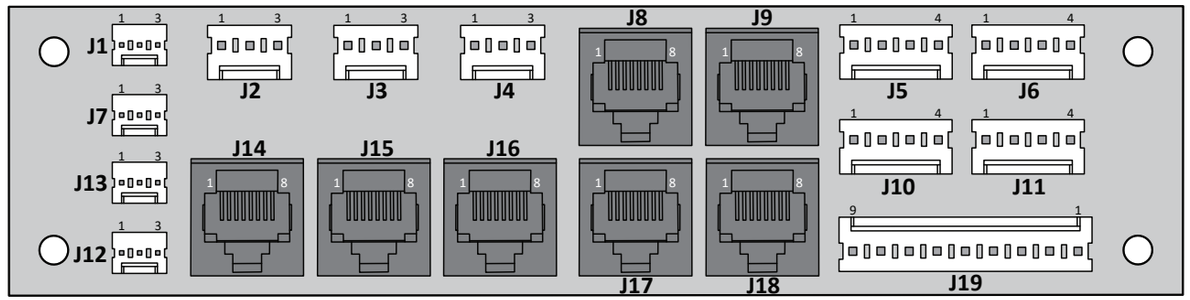
for bd location, see pg 4-64

NOTE: The pinball system PCBs used in your Labyrinth game are designed and manufactured by **FAST Pinball** (https://fastpinball.com/). A few of the boards were revised during the production run of Labyrinth. Depictions of representative boards and pin-by-pin connection details for how they are used in Labyrinth are provided in this section of the manual. For specific board functionality and/or compatibility questions, please contact **FAST Pinball**, at the website address provided above.

Playfield Interchange Bd, 0030

ELE-0030-00 (FP-PWR-0030-1)

Connector Pin-outs



J1 DC Power Output *[Ball Trough Opto Transmitter Bd]*

J1-1	YEL	+12VDC$_{PF}$ (low current) to ball trough opto transmitter PCB, J1-1
J1-2	Not used	
J1-3	BLK	Digital GND to ball trough opto transmitter PCB, J1-3

J2 DC Power Output *[Playfield Expansion Bd (LEDs & Servos),* ***0071****]*

J2-1	Not used	
J2-2	YEL	+12VDC$_{PF}$ (high current) to playfield expansion PCB, **0071** J1-2
J2-3	BLK	Digital GND to playfield expansion PCB, **0071** J1-3

J3 DC Power Output *[Left & Right Orbit, Low (**Sw 44**, **Sw 55**) FAST Opto Emitter Bds (2)]**

J3-1	Not used	
J3-2	YEL x 2	+12VDC$_{PF}$ (high current) to left & right orbit FAST opto emitter PCBs, S1 *IA*
J3-3	BLK x 2	Digital GND to left & right orbit FAST opto emitter PCBs, S3 *K*

J4 DC Power Output *[Warm White 12V Flasher Bds (2, Bottom Arch)]**

J4-1	Not used	
J4-2	YEL	+12VDC$_{PF}$ (high current) to left side warm white 12V flasher PCB, S1 *+12v*
J4-3	BLK	Digital GND to left side warm white 12V flasher PCB, S2 *GND*

J5 WHT Line Coil Power & GND Output *[Playfield Coils & Playfield I/O Bd,* ***3208****]*

J5-1	WHT	+48VDC$_1$ to WHT line playfield coils
J5-2	YEL-GRN	Coil GND to playfield I/O PCB, **3208** J4-10
J5-3	YEL-GRN	Coil GND to playfield I/O PCB, **3208** J4-11
J5-4	YEL-GRN	Coil GND to playfield I/O PCB, **3208** J4-12

J6 BLU Line Coil Power & GND Output *[Playfield Coils & Playfield I/O Bd,* ***1616****]*

J6-1	BLU	+48VDC$_1$ to BLU line playfield coils
J6-2	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J3-10
J6-3	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J3-11
J6-4	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J3-12

J7 DC Power Output *[Opto Emitter Driver Bd,* ***0040-L****]*

J7-1	YEL	+12VDC$_{PF}$ (low current) to opto emitter driver PCB, **0040-L** J6-1
J7-2	Not used	
J7-3	BLK	Digital GND to opto emitter driver PCB, **0040-L** J6-3

J8 Ethernet Comms *[Playfield I/O Bd,* ***1616****]*

1ft black CAT5 cable to/from playfield I/O PCB, **1616** J1

J9 Ethernet Comms *[Playfield I/O Bd,* ***0804****]*

2ft black CAT5 cable to/from playfield I/O PCB, **0804** J2

J10 ORN Line Coil Power & GND Output *[Playfield Coils & Harness Adapter Bd,* ***0882****]*

J10-1	ORN	+48VDC$_2$ to ORN line playfield coils & harness adapter PCB, **0882** J2-1
J10-2	Not used	
J10-3	YEL	Coil GND to harness adapter PCB, **0882** J2-3
J10-4	YEL	Coil GND to harness adapter PCB, **0882** J2-4

*connections run through an additional inline connector

J11 VIO Line Coil Power & GND Output *[Playfield Coils & Playfield I/O Bd, **1616**]*

J11-1	VIO	+48VDC$_1$ to VIO line playfield coils
J11-2	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J4-10
J11-3	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J4-11
J11-4	YEL-GRN	Coil GND to playfield I/O PCB, **1616** J4-12

J12 DC Power Output *[Opto Emitter Driver Bd, **0040-C**]*

J121	YEL	+12VDC$_{PF}$ (low current) to opto emitter driver PCB, **0040-C** J6-1
J12-2	Not used	
J12-3	BLK	Digital GND to opto emitter driver PCB, **0040-C** J6-3

J13 DC Power Output *[Opto Emitter Driver Bd, **0040-R**]*

J13-1	YEL	+12VDC$_{PF}$ (low current) to opto emitter driver PCB, **0040-R** J6-1
J13-2	Not used	
J13-3	BLK	Digital GND to opto emitter driver PCB, **0040-R** J6-3

J14 Ethernet Comms *[Not Used]*

J15 Ethernet Comms *[Neuron Controller Bd, **2000** (Backbox)]*

7ft yellow CAT5 cable to/from neuron controller PCB, **2000**(BB) J7

J16 Ethernet Comms *[System Expansion Bd (Playfield LEDs & Servos), **0071**]*

3ft yellow CAT5 cable to/from system expansion PCB, **0071** J6

J17 Ethernet Comms *[Neuron Controller Bd, **2000** (Backbox)]*

7ft red CAT5 cable to/from neuron controller PCB, **2000**(BB) J11

J18 Ethernet Comms *[Cabinet I/O Bd, **0024** (Lower Cabinet)]*

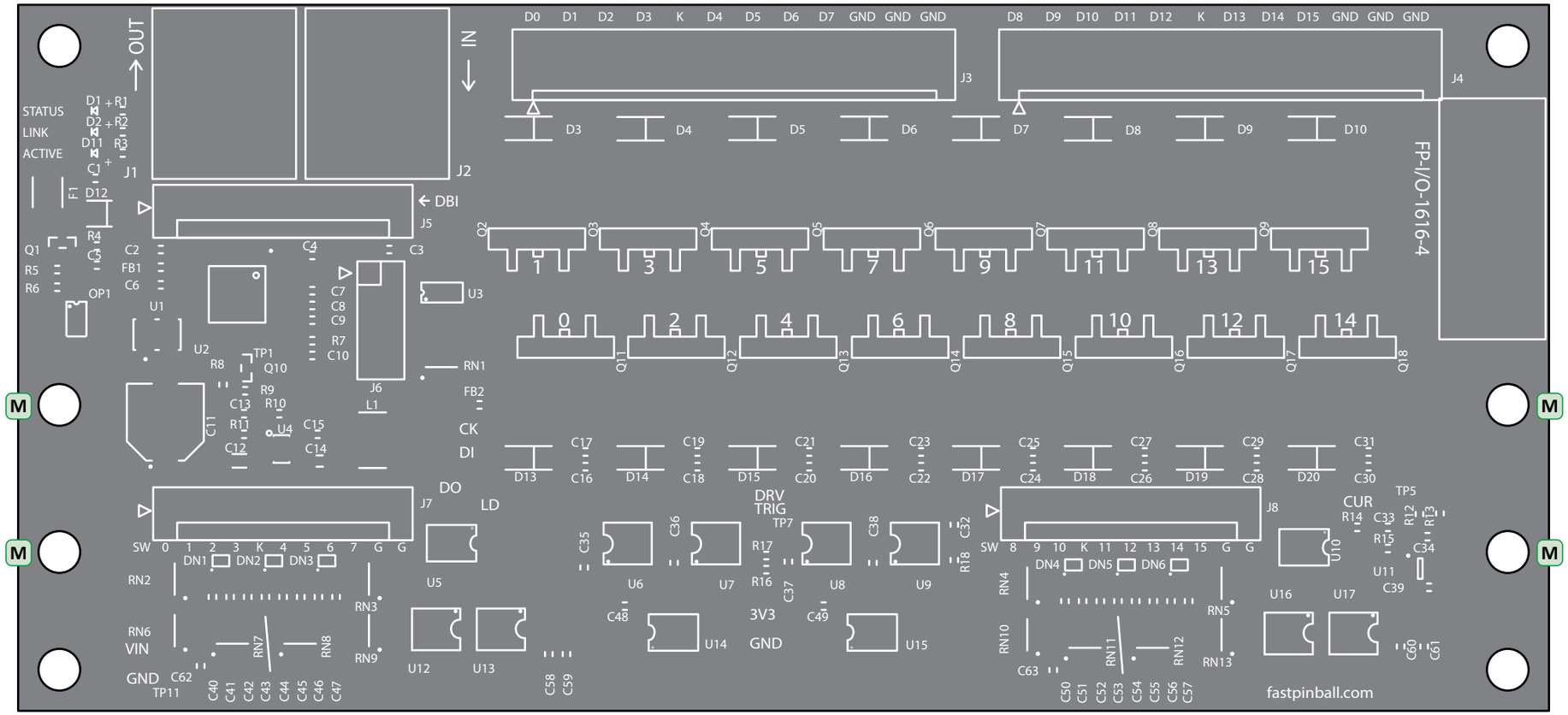
5ft black CAT5 cable to/from cabinet I/O PCB, **0024**(CAB) J7

J19 Playfield DC Power Input *[Power Filter Bd, **0007** (Backbox)]*

J19-1	BLU	+48VDC$_1$ from power filter PCB, **0007**(BB) J12-1
J19-2	BLU	+48VDC$_1$ from power filter PCB, **0007**(BB) J12-2
J19-3	BLU	+48VDC$_2$ from power filter PCB, **0007**(BB) J12-3
J19-4	BLK	Coil GND from power filter PCB, **0007**(BB) J12-4
J19-5	BLK	Coil GND from power filter PCB, **0007**(BB) J12-5
J19-6	BLK	Coil GND from power filter PCB, **0007**(BB) J12-6
J19-7	X	Key
J19-8	BLK	Digital GND from power filter PCB, **0007**(BB) J12-8
J19-9	YEL	+12VDC$_{PF}$ from power filter PCB, **0007**(BB) J12-9

Playfield I/O Bd, 1616

ELE-1616-00 (FP-I/O-1616-4)



PCB Mounting Hardware

Playfield, Underside (Vertical)

Location	Part Number	Description	Qty
M	MET-0091-00	FAST PCB Vertical Mtg Brkt	2
	MAS-8006-06	6-32 x 3/8" PTH MS	4
	NUT-0006-00	6-32 Nylon Lock Nut	4
	SMS-2008-08	#8 x 1/2" HWH SMS	2

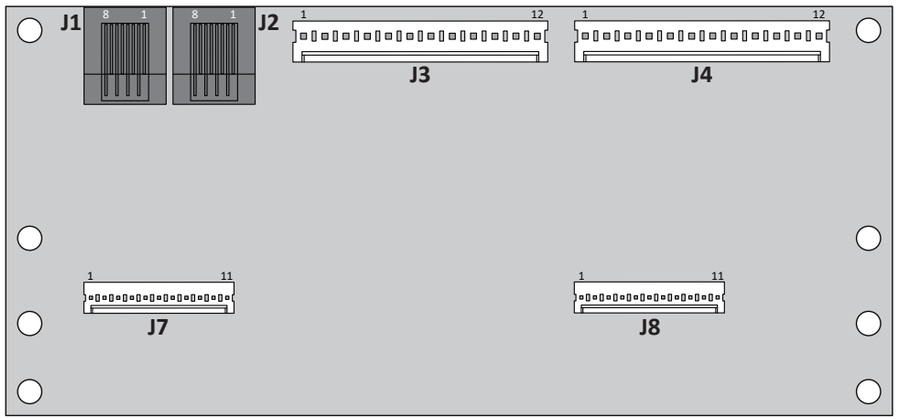
for bd location, see pg 4-64

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Playfield I/O Bd, 1616

ELE-1616-00 (FP-I/O-1616-4)

Connector Pin-outs



J1 Ethernet Comms *[Playfield Interchange Bd,* ***0030****]*

1ft black CAT5 cable to/from playfield interchange PCB, **0030** J8

J2 Ethernet Comms *[Playfield I/O Bd,* ***3208****]*

3ft black CAT5 cable to/from playfield I/O PCB, **3208** J1

J3 BLU Line Coil Triggers & GND *[Playfield Coils & Playfield Interchange Bd,* ***0030****]*

J3-1	BRN → BLU-BRN	Horseshoe diverter down trigger (***Coil 20***)*
J3-2	RED → BLU-RED	Horseshoe diverter up trigger (***Coil 21***)*
J3-3	ORN → BLU-ORN	***Wiseman*** drop target up trigger (***Coil 22***)*
J3-4	YEL → BLU-YEL	***Wiseman*** scoop eject trigger (***Coil 23***)*
J3-5	X	Key
J3-6	GRN → BLU-GRN	***Wiseman*** drop target down trigger (***Coil 24***)*
J3-7	VIO → BLU-VIO	Upper right flipper power trigger (***Coil 25***)*
J3-8	PNK → BLU-PNK	Upper right flipper hold trigger (***Coil 26***)*
J3-9	WHT → BLU-WHT	***Ello*** up/down post trigger (***Coil 27***)*
J3-10	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J6-2
J3-11	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J6-3
J3-12	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J6-4

J4 VIO Line Coil Triggers & GND *[Playfield Coils & Playfield Interchange Bd,* ***0030****]*

J4-1	BRN → VIO-BRN	Left outlane up/down post trigger (***Coil 28***)
J4-2	RED → VIO-RED	***Helping Hands*** scoop eject trigger (***Coil 29***)
J4-3	ORN → VIO-ORN	Forks ball catch down trigger (***Coil 30***)
J4-4	WHT → VIO-WHT	***Humongous*** drop target down trigger (***Coil 31***)
J4-5	YEL → VIO-YEL	Forks ball catch up trigger (***Coil 32***)
J4-6	X	Key
J4-7	BLU → VIO-BLU	***Humongous*** drop target up trigger (***Coil 33***)
J4-8	PNK → VIO-PNK	***Village*** scoop eject trigger (***Coil 34***)
J4-9	Not used	
J4-10	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J11-2
J4-11	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J11-3
J4-12	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J11-4

J7 Direct Switches Input *[Playfield Switches]*

J7-1	BLU	Monitor line to horseshoe, left (***Sw 64***)
J7-2	RED → BLU-RED	Monitor line to spinner (***Sw 65***)*
J7-3	ORN → BLU-ORN	Center ramp made (***Sw 66***) monitor line to opto RCV PCB, S1 *C**
J7-4	YEL → BLU-YEL	Left ramp made (***Sw 67***) monitor line to opto RCV PCB, S1 *C**
J7-5	X	Key
J7-6	WHT	Monitor line to ***Fairy*** target, high right (***Sw 68***)
J7-7	VIO → BLU-VIO	Left ramp enter (***Sw 69***) monitor line to opto RCV PCB, S1 *C**
J7-8	Not used	
J7-9	Not used	
J7-10	Not used	Switch GND
J7-11	YEL-GRN	Common Switch GND to all switches above

J8 Direct Switches Input *[Playfield Switches]*

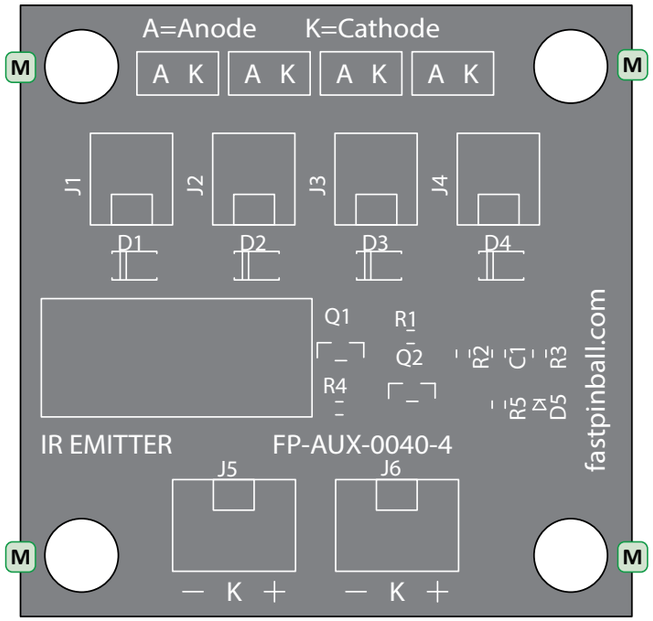
J8-1	GRY	***Village*** entry, side (***Sw 72***) monitor line to opto RCV PCB, S1 *C**
J8-2	RED	Monitor line to ***Fairy*** target, high left (***Sw 73***)
J8-3	ORN	Monitor line to ***Humongous*** drop target (***Sw 74***)
J8-4	X	Key
J8-5	GRN → GRY-GRN	***Village*** scoop (***Sw 75***) monitor line to opto RCV PCB, S1 *C**
J8-6	WHT	Monitor line to inner loop (***Sw 76***)
J8-7	VIO → GRY-VIO	***Village*** entry, back (***Sw 77***) monitor line to opto RCV PCB, S1 *C**
J8-8	PNK → GRY-PNK	Monitor line to left orbit pair, high (***Sw 78***)
J8-9	BRN	Monitor line to orbit, top (***Sw 79***)
J8-10	Not used	Switch GND
J8-11	YEL-GRN	Common Switch GND to all switches above

*connections run through an additional inline connector

NOTE: board circuitry is powered via +12VDC$_{BB}$ from Neuron Controller PCB, through ethernet cable

Opto Emitter Driver Bds, 0040-L, C, R

ELE-0040-00 (FP-AUX-0040-4)



PCB Mounting Hardware
Playfield, Underside

Location	Part Number	Description	Qty
M	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH	8
	SMS-2006-08	#6 x 1/2" HWH SMS	4

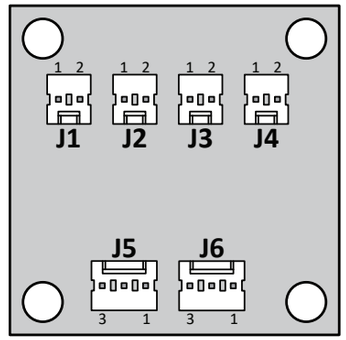
for bd locations, see pg 4-64

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Opto Emitter Driver Bds, 0040-L, C, R

ELE-0040-00 (FP-AUX-0040-4)

Connector Pin-outs



Opto Emitter Driver Bd, 0040-L

J1 Opto Emitter Power Output *[Not Used]*

J2 Opto Emitter Power Output *[**Helping Hands** Scoop (**Sw 50**) Opto XMT Bd]**

J2-1	ORN-YEL	Connection to ***Helping Hands*** scoop opto XMT PCB, S1 *A*
J2-2	RED	Connection to ***Helping Hands*** scoop opto XMT PCB, S2 *K*

J3 Opto Emitter Power Output *[Left Ramp Enter (**Sw 69**) Opto XMT Bd]**

J3-1	BLU-VIO	Connection to left ramp enter opto XMT PCB, S1 *A*
J3-2	RED	Connection to left ramp enter opto XMT PCB, S2 *K*

J4 Opto Emitter Power Output *[**Village** Scoop (**Sw 75**) Opto XMT Bd]**

J4-1	GRY-GRN	Connection to ***Village*** scoop opto XMT PCB, S1 *A*
J4-2	RED	Connection to ***Village*** scoop opto XMT PCB, S2 *K*

J5 DC Power Output *[Not Used]*

J6 DC Power Input *[Playfield Interchange Bd, **0030**]*

J6-1	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J7-1
J6-2	Not used	
J6-3	BLK	Digital GND from playfield interchange PCB, **0030** J7-3

*connections run through an additional inline connector

Opto Emitter Driver Bd, 0040-C

J1 Opto Emitter Power Output *[Center Ramp Made (**Sw 66**) Opto XMT Bd]**

J1-1	BLU-ORN	Connection to center ramp made opto XMT PCB, S1 *A*
J1-2	RED	Connection to center ramp made opto XMT PCB, S2 *K*

J2 Opto Emitter Power Output *[**Village** Entry, Side (**Sw 72**) Opto XMT Bd]**

J2-1	GRY	Connection to ***Village*** entry, side opto XMT PCB, S1 *A*
J2-2	RED	Connection to ***Village*** entry, side opto XMT PCB, S2 *K*

J3 Opto Emitter Power Output *[**Village** Entry, Back (**Sw 77**) Opto XMT Bd]**

J3-1	GRY-VIO	Connection to ***Village*** entry, back opto XMT PCB, S1 *A*
J3-2	RED	Connection to ***Village*** entry, back opto XMT PCB, S2 *K*

J4 Opto Emitter Power Output *[Left Ramp Made (**Sw 67**) Opto XMT Bd]**

J4-1	BLU-YEL	Connection to left ramp made opto XMT PCB, S1 *A*
J4-2	RED	Connection to left ramp made opto XMT PCB, S2 *K*

J5 DC Power Output *[Not Used]*

J6 DC Power Input *[Playfield Interchange Bd, **0030**]*

J6-1	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J12-1
J6-2	Not used	
J6-3	BLK	Digital GND from playfield interchange PCB, **0030** J12-3

Opto Emitter Driver Bd, 0040-R

J1 Opto Emitter Power Output *[Right Ramp Made (**Sw 45**) Opto XMT Bd]**

J1-1	RED-VIO	Connection to right ramp made opto XMT PCB, S1 *A*
J1-2	RED	Connection to right ramp made opto XMT PCB, S2 *K*

J2 Opto Emitter Power Output *[**Wiseman** Entry, Back (**Sw 25**) Opto XMT Bd]**

J2-1	GRN-RED	Connection to ***Wiseman*** entry, back opto XMT PCB, S1 *A*
J2-2	RED	Connection to ***Wiseman*** entry, back opto XMT PCB, S2 *K*

J3 Opto Emitter Power Output *[**Wiseman** Subway (**Sw 26**) Opto XMT Bd]**

J3-1	GRN-ORN	Connection to ***Wiseman*** subway opto XMT PCB, S1 *A*
J3-2	RED	Connection to ***Wiseman*** subway opto XMT PCB, S2 *K*

J4 Opto Emitter Power Output *[**Wiseman** Scoop (**Sw 27**) Opto XMT Bd]**

J4-1	GRN-WHT	Connection to ***Wiseman*** scoop opto XMT PCB, S1 *A*
J4-2	RED	Connection to ***Wiseman*** scoop opto XMT PCB, S2 *K*

J5 DC Power Output *[Not Used]*

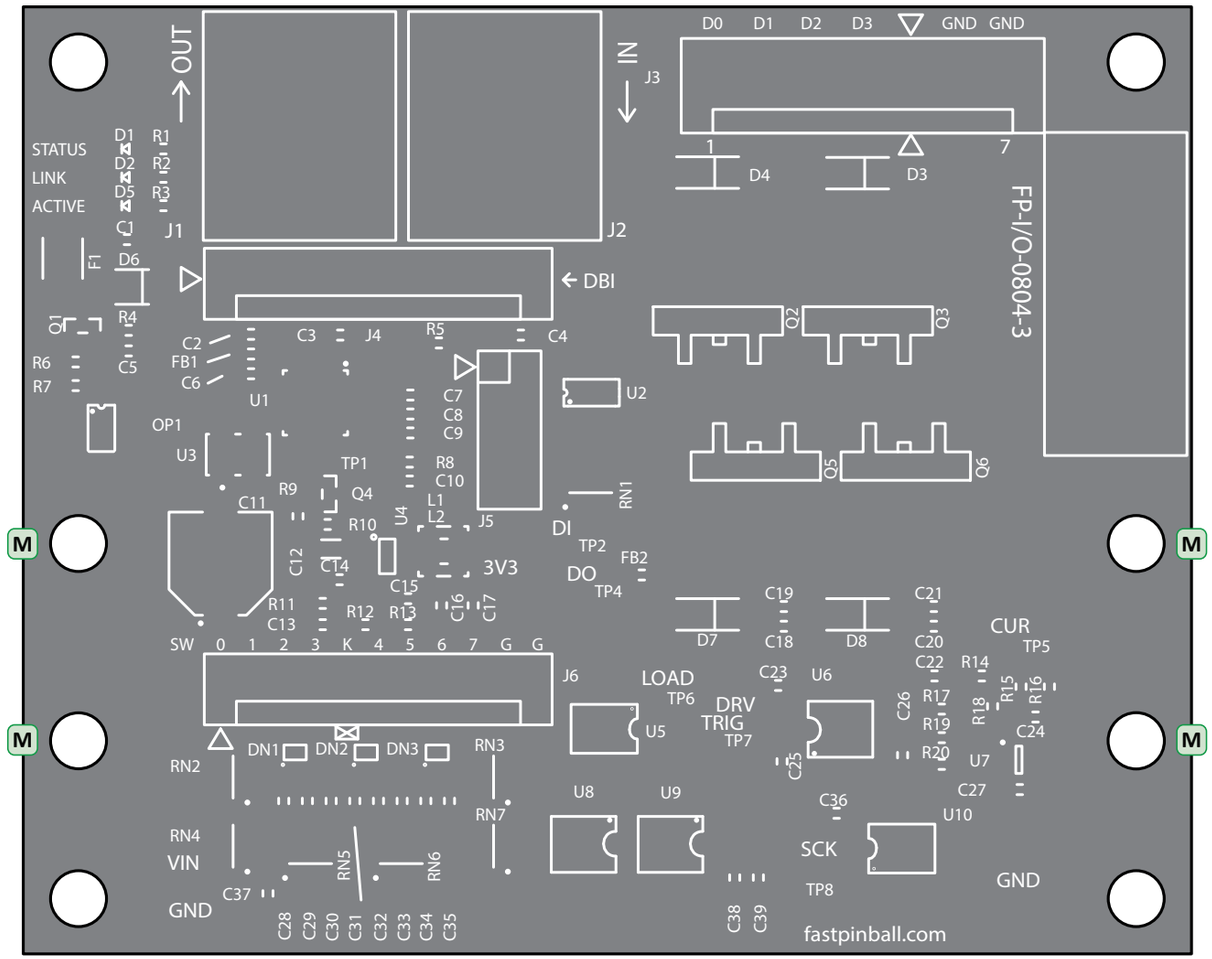
J6 DC Power Input *[Playfield Interchange Bd, **0030**]*

J6-1	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J13-1
J6-2	Not used	
J6-3	BLK	Digital GND from playfield interchange PCB, **0030** J13-3

**connections run through an additional inline connector

Playfield I/O Bd, 0804

ELE-0804-00 (FP-I/O-0804-3)



PCB Mounting Hardware

Playfield, Underside (Vertical)

Location	Part Number	Description	Qty
M	MET-0091-00	FAST PCB Vertical Mtg Brkt	2
	MAS-8006-06	6-32 x 3/8" PTH MS	4
	NUT-0006-00	6-32 Nylon Lock Nut	4
	SMS-2008-08	#8 x 1/2" HWH SMS	2

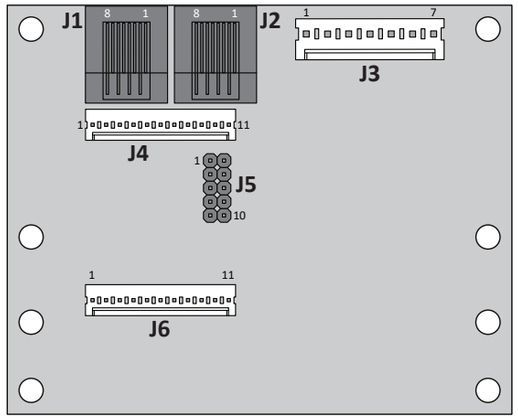
for bd location, see pg 4-64

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Playfield I/O Bd, 0804

ELE-0804-00 (FP-I/O-0804-3)

Connector Pin-outs



J1 Ethernet Comms *[Playfield I/O Bd,* ***3208****]*
2ft black CAT5 cable to/from playfield I/O PCB, **3208** J2

J2 Ethernet Comms *[Playfield Interchange Bd,* ***0030****]*
2ft black CAT5 cable to/from playfield interchange PCB, **0030** J9

J3 ORN Line Coil Triggers & GND *[Playfield Coils & Harness Adapter Bd,* ***0882****]*

J3-1	BRN	Orbit magnet (***Coil 8***) trigger to harness adapter PCB, **0882** J1-8
J3-2	RED → ORN-RED	Left ramp lifter trigger (***Coil 9***)*
J3-3	PNK	***Beggar*** magnet (***Coil 10***) trigger to harness adapter PCB, **0882** J1-9
J3-4	YEL → ORN-YEL	Upper right slingshot trigger (***Coil 11***)*
J3-5	X	Key
J3-6	YEL-GRN	Coil GND from harness adapter PCB, **0882** J1-11
J3-7	YEL-GRN	Coil GND from harness adapter PCB, **0882** J1-12

J4 Daughter Board Interface *[Not Used]*

J5 Programming *[Not Used]*

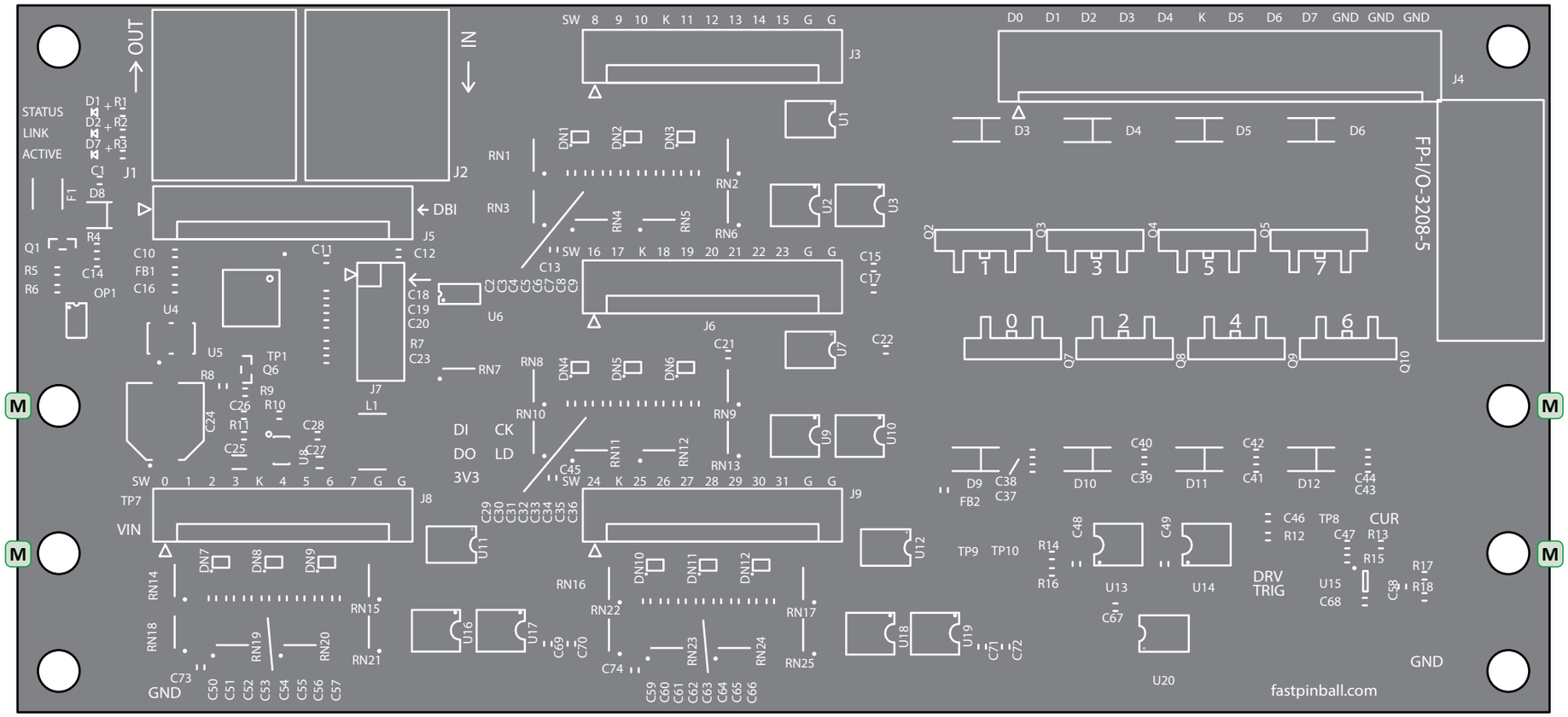
J6 Direct Switches Input *[Playfield Switches]*

J6-1	GRN	Monitor line to ***Wiseman*** drop target (***Sw 24***)
J6-2	RED → GRN-RED	***Wiseman*** entry, back (***Sw 25***) monitor line to opto RCV PCB, S1 *C**
J6-3	ORN → GRN-ORN	***Wiseman*** subway (***Sw 26***) monitor line to opto RCV PCB, S1 *C**
J6-4	WHT → GRN-WHT	***Wiseman*** scoop (***Sw 27***) monitor line to opto RCV PCB, S1 *C**
J6-5	X	Key
J6-6	BLU	Monitor line to ***Wiseman*** target, right (***Sw 28***)
J6-7	VIO	Monitor line to ***Wiseman*** target, left (***Sw 29***)
J6-8	PNK	Monitor line to horseshoe, right (***Sw 30***)
J6-9	BRN → GRN-BRN	Monitor line to right orbit pair, high (***Sw 31***)
J6-10	Not used	Switch GND
J6-11	YEL-GRN	Common Switch GND to all switches above

*connections run through an additional inline connector
NOTE: board circuitry is powered via +12VDC$_{BB}$ from Neuron Controller PCB, through ethernet cable

Playfield I/O Bd, 3208

ELE-3208-00 (FP-I/O-3208-5)



PCB Mounting Hardware

Playfield, Underside (Vertical)

Location	Part Number	Description	Qty
M	MET-0091-00	FAST PCB Vertical Mtg Brkt	2
	MAS-8006-06	6-32 x 3/8" PTH MS	4
	NUT-0006-00	6-32 Nylon Lock Nut	4
	SMS-2008-08	#8 x 1/2" HWH SMS	2

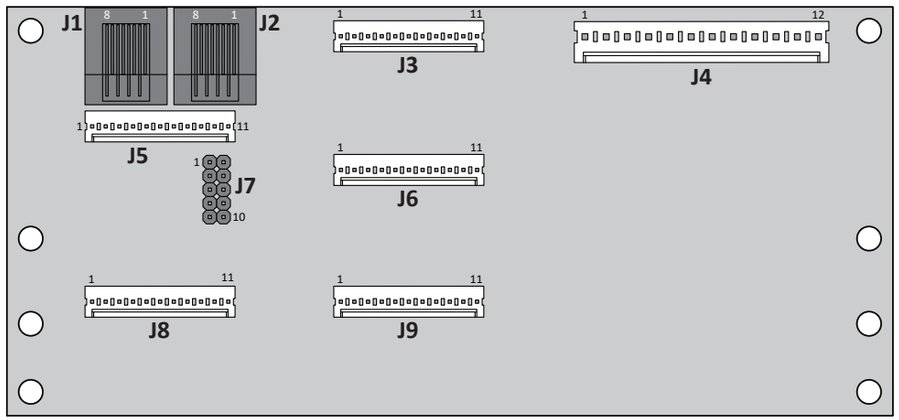
for bd location, see pg 4-64

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Playfield I/O Bd, 3208

ELE-3208-00 (FP-I/O-3208-5)

Connector Pin-outs



J1 Ethernet Comms *[Playfield I/O Bd,* ***1616****]*

3ft black CAT5 cable to/from playfield I/O PCB, **1616** J2

J2 Ethernet Comms *[Playfield I/O Bd,* ***0804****]*

2ft black CAT5 cable to/from playfield I/O PCB, **0804** J1

J3 Direct Switches Input *[Playfield Switches]*

J3-1	RED	Monitor line to ***Ello*** target (***Sw 40***)
J3-2	WHT → RED-WHT	Monitor line to upper right slingshot pair (***Sw 41***)
J3-3	ORN	Monitor line to ***Ello*** lane (***Sw 42***)
J3-4	X	Key
J3-5	GRN → RED-GRN	Monitor line to upper right flipper EOS (***Sw 43***)*
J3-6	BLU → RED-BLU	Right orbit, low (***Sw 44***) monitor line to FAST opto RCV PCB, S2 *C**
J3-7	VIO → RED-VIO	Right ramp made (***Sw 45***) monitor line to opto RCV PCB, S1 *C**
J3-8	Not used	
J3-9	Not used	
J3-10	Not used	Switch GND
J3-11	YEL-GRN	Common Switch GND to all switches above

J4 WHT Line Coil Triggers & GND *[Playfield Coils & Playfield Interchange Bd,* ***0030****]*

J4-1	BRN → WHT-BRN	Right flipper power trigger (***Coil 12***)*
J4-2	RED → WHT-RED	Right flipper hold trigger (***Coil 13***)*
J4-3	ORN → WHT-ORN	Left flipper power trigger (***Coil 14***)*
J4-4	YEL → WHT-YEL	Left flipper hold trigger (***Coil 15***)*
J4-5	GRN → WHT-GRN	Ball auto-launch trigger (***Coil 16***)*
J4-6	X	Key
J4-7	VIO → WHT-VIO	Ball trough eject trigger (***Coil 17***)*
J4-8	PNK → WHT-PNK	Right slingshot trigger (***Coil 18***)*
J4-9	BLU → WHT-BLU	Left slingshot trigger (***Coil 19***)*
J4-10	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J5-2
J4-11	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J5-3
J4-12	YEL-GRN	Coil GND from playfield interchange PCB, **0030** J5-4

J5 Daughter Board Interface *[Not Used]*

J6 Direct Switches Input *[Playfield Switches]*

J6-1	ORN	Monitor line to wall target (***Sw 48***)
J6-2	RED	Monitor line to left outlane, high (***Sw 49***)
J6-3	X	Key
J6-4	YEL → ORN-YEL	***Helping Hands*** scoop (***Sw 50***) monitor line to opto RCV PCB, S1 *C**
J6-5	GRN	Monitor line to ***Junk Lady*** target (***Sw 51***)
J6-6	BLU	Monitor line to ***Fairy*** target, low left (***Sw 52***)
J6-7	VIO	Monitor line to ***Fairy*** target, low right (***Sw 53***)
J6-8	PNK	Monitor line to ***Change Mode*** target (***Sw 54***)
J6-9	BRN → ORN-BRN	Left orbit, low (***Sw 55***) monitor line to FAST opto RCV PCB, S2 *C**
J6-10	Not used	Switch GND
J6-11	YEL-GRN	Common Switch GND to all switches above

*connections run through an additional inline connector

NOTE: board circuitry is powered via +12VDC$_{BB}$ from Neuron Controller PCB, through ethernet cable

J8 Direct Switches Input *[Ball Trough Opto Receiver Bd]*

J8-1	WHT	Ball trough #1 (right) (***Sw 32***) monitor line to ball trough opto receiver PCB, J2-1
J8-2	RED	Ball trough #2 (***Sw 33***) monitor line to ball trough opto receiver PCB, J2-2
J8-3	ORN	Ball trough #3 (***Sw 34***) monitor line to ball trough opto receiver PCB, J2-3
J8-4	YEL	Ball trough #4 (***Sw 35***) monitor line to ball trough opto receiver PCB, J2-4
J8-5	X	Key
J8-6	BLU	Ball trough #5 (***Sw 36***) monitor line to ball trough opto receiver PCB, J2-6
J8-7	VIO	Ball trough #6 (left) (***Sw 37***) monitor line to ball trough opto receiver PCB, J2-7
J8-8	PNK	Ball trough jam (***Sw 38***) monitor line to ball trough opto receiver PCB, J2-8
J8-9	BRN	Shooter lane (***Sw 39***) monitor line to ball trough opto receiver PCB, J2-9
J8-10	Not used	Switch GND
J8-11	YEL-GRN	Common Switch GND to ball trough opto receiver PCB, J2-11

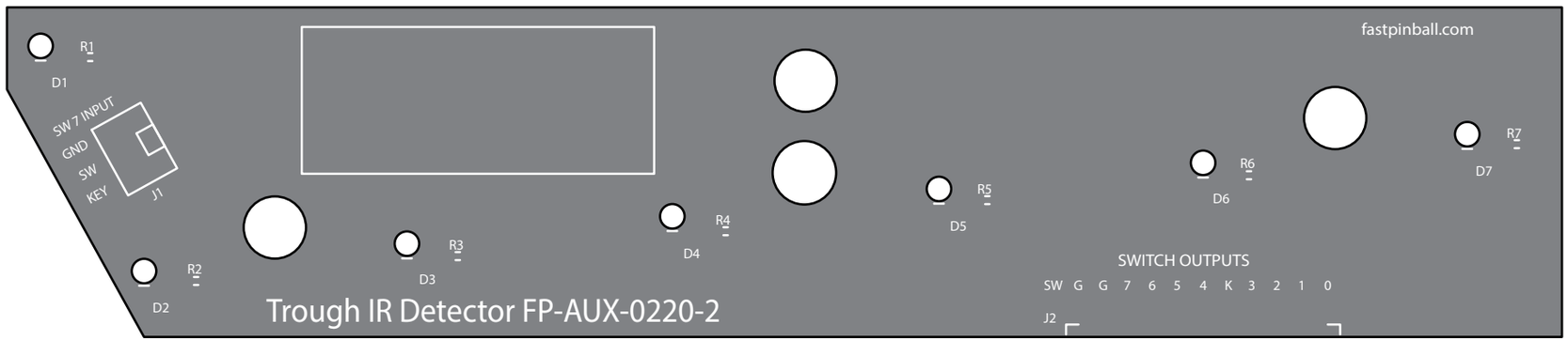
J9 Direct Switches Input *[Playfield Switches]*

J9-1	YEL	Monitor line to left outlane, low (***Sw 56***)
J9-2	X	Key
J9-3	ORN	Monitor line to left return lane (***Sw 57***)
J9-4	RED → YEL-ORN	Monitor line to left slingshot pair (***Sw 58***)
J9-5	GRN → YEL-GRN	Monitor line to left flipper EOS (***Sw 59***)*
J9-6	BLU → YEL-BLU	Monitor line to right flipper EOS (***Sw 60***)*
J9-7	VIO → YEL-VIO	Monitor line to right slingshot pair (***Sw 61***)
J9-8	PNK	Monitor line to right return lane (***Sw 62***)
J9-9	BRN	Monitor line to right outlane (***Sw 63***)
J9-10	Not used	Switch GND
J9-11	YEL-GRN	Common Switch GND to all switches above

*connections run through an additional inline connector

Ball Trough Opto Receiver Bd

SWI-0220-02 (FP-AUX-0220-2)

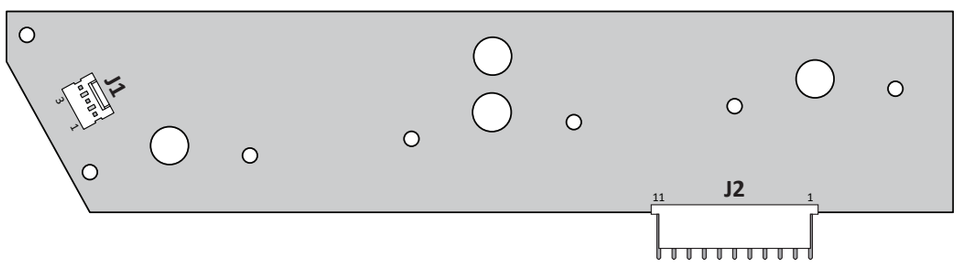


for bd mtg details, refer to the **Ball Trough Assembly**

Ball Trough Opto Receiver Bd

SWI-0220-02 (FP-AUX-0220-2)

Connector Pin-outs



J1 Direct Switch Input *[Shooter Lane Switch]*

J1-1	Not Used	
J1-2	WHT-BRN	Monitor line to shooter lane (***Sw 39***)
J1-3	GRN-YEL	Common Switch GND

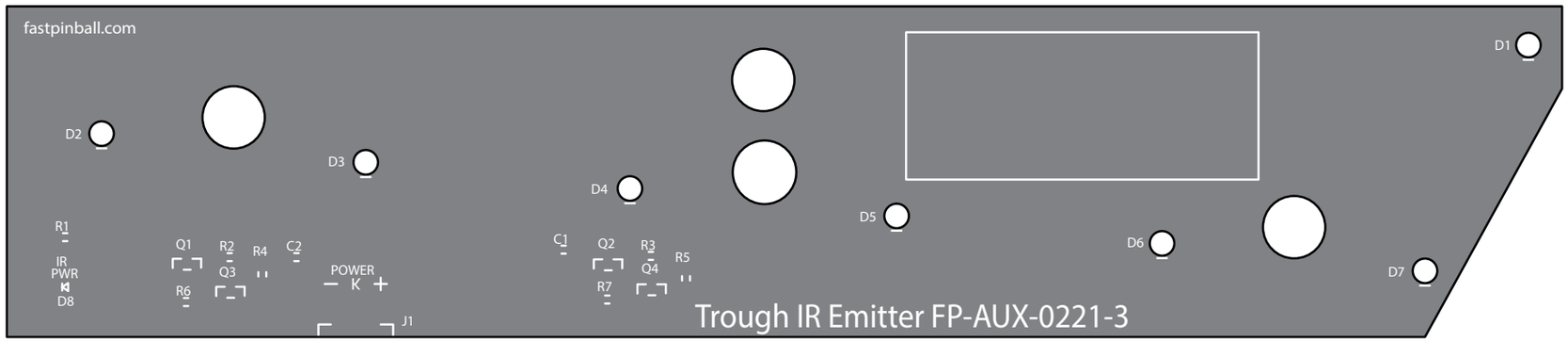
J2 Switch Monitor Lines *[Playfield I/O Bd, **3208**]*

J2-1	WHT	Ball trough #1 (right) (***Sw 32***) monitor line from playfield I/O PCB, **3208** J8-1
J2-2	RED	Ball trough #2 (***Sw 33***) monitor line from playfield I/O PCB, **3208** J8-2
J2-3	ORN	Ball trough #3 (***Sw 34***) monitor line from playfield I/O PCB, **3208** J8-3
J2-4	YEL	Ball trough #4 (***Sw 35***) monitor line from playfield I/O PCB, **3208** J8-4
J2-5	X	Key
J2-6	BLU	Ball trough #5 (***Sw 36***) monitor line from playfield I/O PCB, **3208** J8-6
J2-7	VIO	Ball trough #6 (left) (***Sw 37***) monitor line from playfield I/O PCB, **3208** J8-7
J2-8	PNK	Ball trough jam (***Sw 38***) monitor line from playfield I/O PCB, **3208** J8-8
J2-9	BRN	Shooter lane (***Sw 39***) monitor line from playfield I/O PCB, **3208** J8-9
J2-10	Not used	Switch GND
J2-11	YEL-GRN	Common Switch GND from playfield I/O PCB, **3208** J8-11

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Ball Trough Opto Transmitter Bd

SWI-0221-03 (FP-AUX-0221-3)

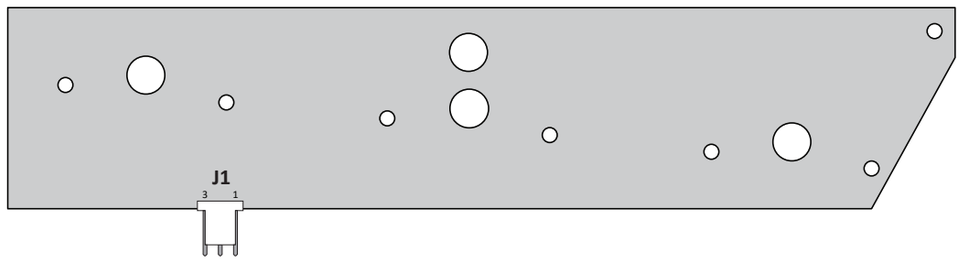


for bd mtg details, refer to the **Ball Trough Assembly**

Ball Trough Opto Transmitter Bd

SWI-0221-03 (FP-AUX-0221-3)

Connector Pin-outs



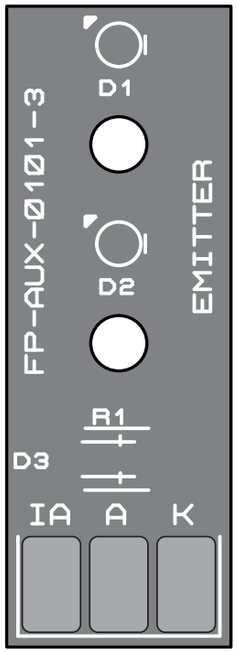
J1 DC Emitter Power (Sws 32-39) Input *[Playfield Interchange Bd,* ***0030****]*

J1-1	YEL	+12VDCPF from playfield interchange PCB, **0030** J1-1
J1-2	Not used	
J1-3	BLK	Digital GND from playfield interchange PCB, **0030** J1-3

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Single Opto Emitter/Transmitter Bd, FAST (2)

SWI-0310-01 (FP-AUX-0101-3)

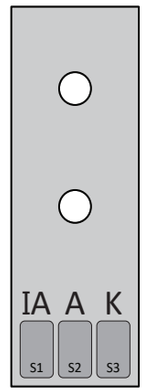


each bd is part of an assembly; see pgs 4-82 to 4-89 for links to mtg details

Single Opto Emitter/Transmitter Bd, FAST (2)

SWI-0310-01 (FP-AUX-0101-3)

Connector Pin-outs



***Sw 44* Opto Emitter Solder Connections** *[Playfield Interchange Bd, **0030**]**

S1 (*IA*)	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J3-2
S2 (*A*)	Not used	
S3 (*K*)	BLK	Digital GND from playfield interchange PCB, **0030** J3-3

***Sw 55* Opto Emitter Solder Connections** *[Playfield Interchange Bd, **0030**]**

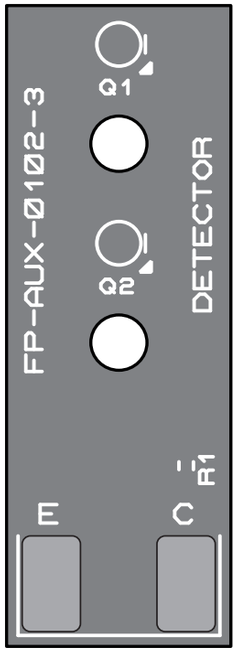
S1 (*IA*)	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J3-2
S2 (*A*)	Not used	
S3 (*K*)	BLK	Digital GND from playfield interchange PCB, **0030** J3-3

*connections run through an additional inline connector

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Single Opto Detector/Receiver Bd, FAST (2)

SWI-0310-02 (FP-AUX-0102-3)

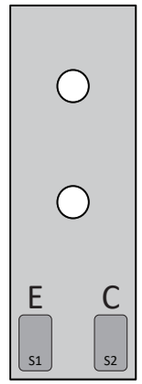


each bd is part of an assembly; see pgs 4-82 to 4-89 for links to mtg details

Single Opto Detector/Receiver Bd, FAST (2)

SWI-0310-02 (FP-AUX-0102-3)

Connector Pin-outs



Opto Detector Solder Connections *[Playfield I/O Bd,* ***3208****]**

S1 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **3208** J3-11
S2 (*C*)	BLU → RED-BLU	Right orbit, low (***Sw 44***) monitor line from playfield I/O PCB, **3208** J3-6

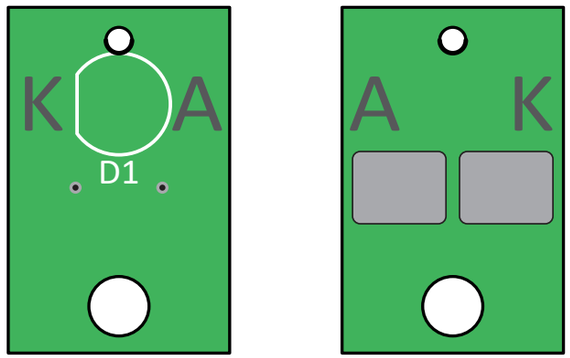
Opto Detector Solder Connections *[Playfield I/O Bd,* ***3208****]**

S1 (*E*)	YEL-GRN → ORN	Common Switch GND from playfield I/O PCB, **3208** J6-11
S2 (*C*)	BRN → ORN-BRN	Left orbit, low (***Sw 55***) monitor line from playfield I/O PCB, **3208** J6-9

***connections run through an additional inline connector

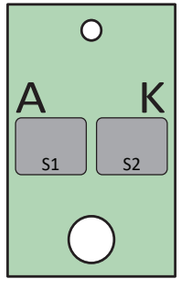
If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Single Opto Emitter/Transmitter Bd, Wms (11)
SWI-0300-01



each bd is part of an assembly; see pgs 4-82 to 4-89 for links to mtg details

Single Opto Emitter/Transmitter Bd, Wms (11)
SWI-0300-01
Connector Pin-outs



***Sw 25* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-R**]**

S1 (*A*)	GRN-RED	Anode connection from opto emitter driver PCB, **0040-R** J2-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-R** J2-2

***Sw 26* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-R**]**

S1 (*A*)	GRN-ORN	Anode connection from opto emitter driver PCB, **0040-R** J3-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-R** J3-2

***Sw 27* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-R**]**

S1 (*A*)	GRN-WHT	Anode connection from opto emitter driver PCB, **0040-R** J4-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-R** J4-2

***Sw 45* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-R**]**

S1 (*A*)	RED-VIO	Anode connection from opto emitter driver PCB, **0040-R** J1-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-R** J1-2

***Sw 50* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-L**]**

S1 (*A*)	ORN-YEL	Anode connection from opto emitter driver PCB, **0040-L** J2-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-L** J2-2

***Sw 66* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-C**]**

S1 (*A*)	BLU-ORN	Anode connection from opto emitter driver PCB, **0040-C** J1-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-C** J1-2

***Sw 67* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-C**]**

S1 (*A*)	BLU-YEL	Anode connection from opto emitter driver PCB, **0040-C** J4-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-C** J4-2

***Sw 69* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-L**]**

S1 (*A*)	BLU-VIO	Anode connection from opto emitter driver PCB, **0040-L** J3-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-L** J3-2

***Sw 72* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-C**]**

S1 (*A*)	GRY	Anode connection from opto emitter driver PCB, **0040-C** J2-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-C** J2-2

***Sw 75* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-L**]**

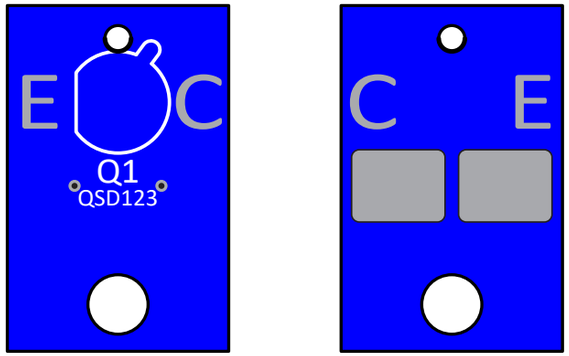
S1 (*A*)	GRY-GRN	Anode connection from opto emitter driver PCB, **0040-L** J4-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-L** J4-2

***Sw 77* Opto Emitter Solder Connections** *[Opto Emitter Driver Bd, **0040-C**]**

S1 (*A*)	GRY-VIO	Anode connection from opto emitter driver PCB, **0040-C** J3-1
S2 (*K*)	RED	Cathode connection from opto emitter driver PCB, **0040-C** J3-2

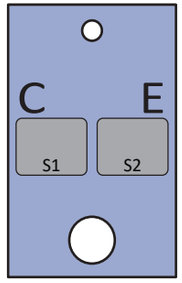
*connections run through an additional inline connector

Single Opto Detector/Receiver Bd, Wms (11)
SWI-0300-02



each bd is part of an assembly; see pgs 4-82 to 4-89 for links to mtg details

Single Opto Detector/Receiver Bd, Wms (11)
SWI-0300-02
Connector Pin-outs



***Sw 25* Opto Detector Solder Connections** *[Playfield I/O Bd, **0804**]**

S1 (*C*)	RED → GRN-RED	Switch monitor line from playfield I/O PCB, **0804** J6-2
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **0804** J6-11

***Sw 26* Opto Detector Solder Connections** *[Playfield I/O Bd, **0804**]**

S1 (*C*)	ORN → GRN-ORN	Switch monitor line from playfield I/O PCB, **0804** J6-3
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **0804** J6-11

***Sw 27* Opto Detector Solder Connections** *[Playfield I/O Bd, **0804**]**

S1 (*C*)	WHT → GRN-WHT	Switch monitor line from playfield I/O PCB, **0804** J6-4
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **0804** J6-11

***Sw 45* Opto Detector Solder Connections** *[Playfield I/O Bd, **3208**]**

S1 (*C*)	VIO → RED-VIO	Switch monitor line from playfield I/O PCB, **3208** J3-7
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **3208** J3-11

***Sw 50* Opto Detector Solder Connections** *[Playfield I/O Bd, **3208**]**

S1 (*C*)	YEL → ORN-YEL	Switch monitor line from playfield I/O PCB, **3208** J6-4
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **3208** J6-11

***Sw 66* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

S1 (*C*)	ORN → BLU-ORN	Switch monitor line from playfield I/O PCB, **1616** J7-3
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J7-11

***Sw 67* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

S1 (*C*)	YEL → BLU-YEL	Switch monitor line from playfield I/O PCB, **1616** J7-4
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J7-11

***Sw 69* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

S1 (*C*)	VIO → BLU-VIO	Switch monitor line from playfield I/O PCB, **1616** J7-7
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J7-11

***Sw 72* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

S1 (*C*)	GRY	Switch monitor line from playfield I/O PCB, **1616** J8-1
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J8-11

***Sw 75* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

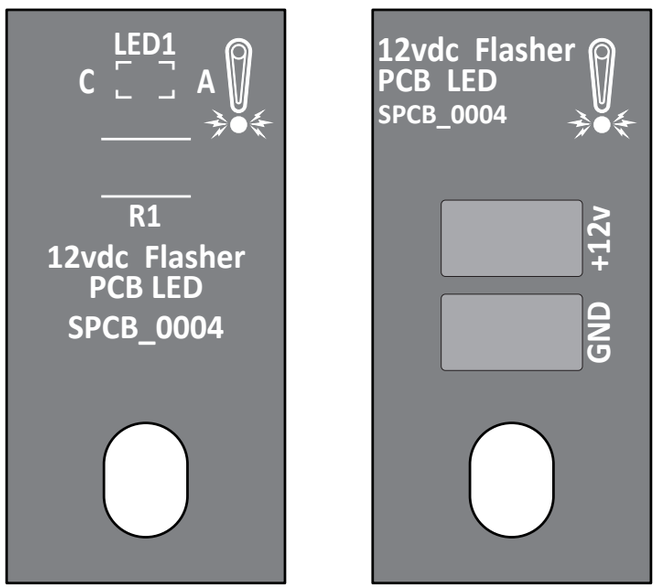
S1 (*C*)	GRN → GRY-GRN	Switch monitor line from playfield I/O PCB, **1616** J8-5
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J8-11

***Sw 77* Opto Detector Solder Connections** *[Playfield I/O Bd, **1616**]**

S1 (*C*)	VIO → GRY-VIO	Switch monitor line from playfield I/O PCB, **1616** J8-7
S2 (*E*)	YEL-GRN → GRN-YEL	Common Switch GND from playfield I/O PCB, **1616** J8-11

*connections run through an additional inline connector

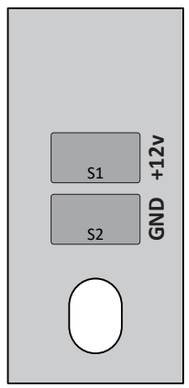
Warm White 12V Flasher Bd (2)
LIT-0100-00



for bd mtg details, refer to the **Bottom Arch assembly**

Warm White 12V Flasher Bd (2)
LIT-0100-00

Connector Pin-outs



Left Bottom Arch Lighting Solder Connections *[Playfield Interchange Bd,* ***0030****]**

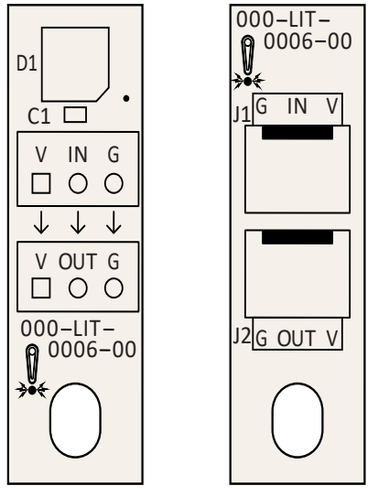
S1 (*+12v*)	YEL	+12VDC from playfield interchange PCB, **0030** J4-2
S2 (*GND*)	BLK	Digital GND from playfield interchange PCB, **0030** J4-3

Right Bottom Arch Lighting Solder Connections *[Warm White 12V Flasher Bd (Bottom Arch, Left)]**

S1 (*+12v*)	YEL	+12VDC from left side bottom arch warm white 12V PCB, S1 *+12V*
S2 (*GND*)	BLK	Digital GND from left side bottom arch warm white 12V PCB, S2 *GND*

*connections run through an additional inline connector

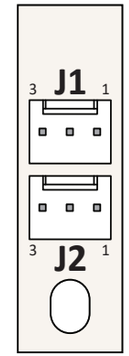
Single RGB LED Serial Light Bd (56)
LIT-0006-00



for bd locations, see pgs 4-62 to 4-64
for feature light bd mtg details, see pg 4-73
for GI light bd mtg details, see pg 4-75

Single RGB LED Serial Light Bd (56)
LIT-0006-00

Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

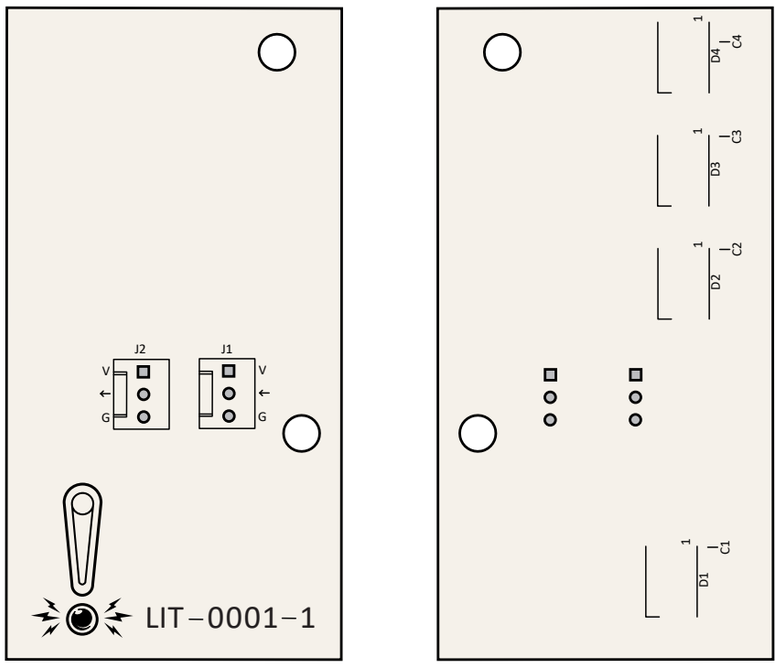
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

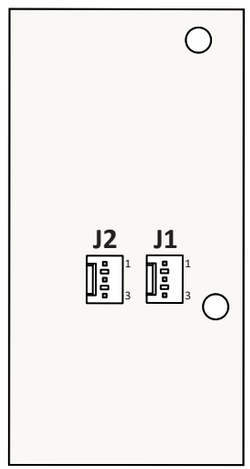
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB. Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Right Orbit Advance Friend Light Bd
LIT-0101-00



for bd location, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Right Orbit Advance Friend Light Bd
LIT-0101-00
Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

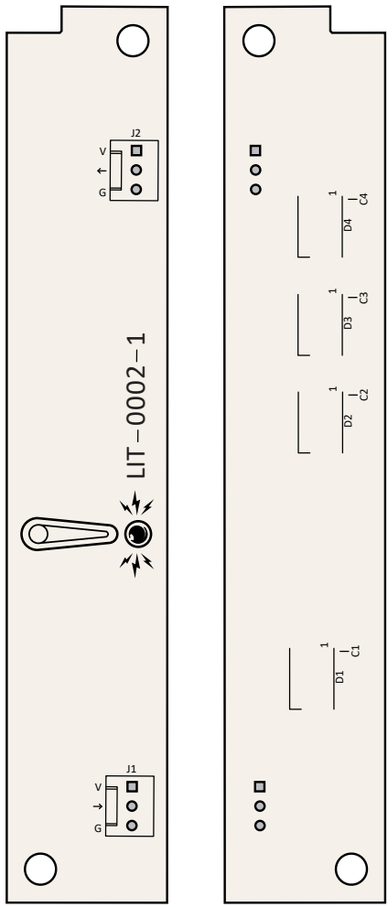
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

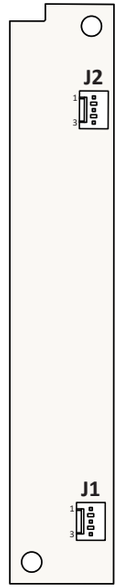
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB.
Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Right Ramp Advance Friend Light Bd
LIT-0102-00



for bd location, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Right Ramp Advance Friend Light Bd
LIT-0102-00
Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

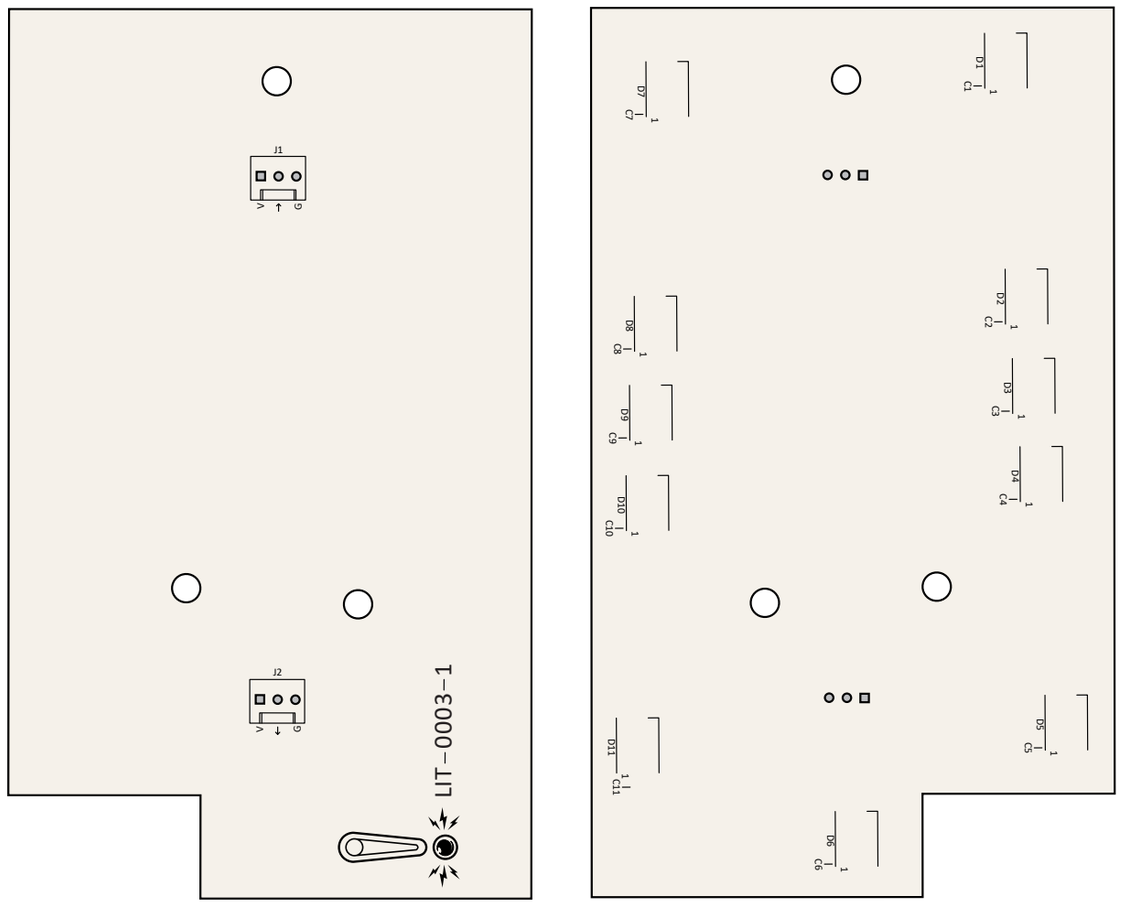
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

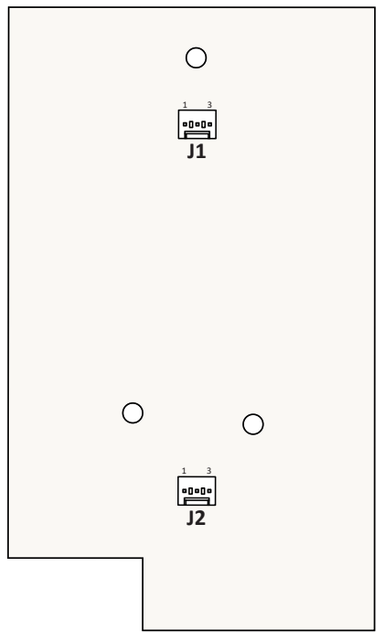
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB. Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Middle Left Playfield Light Bd
LIT-0103-00



for bd location, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Middle Left Playfield Light Bd
LIT-0103-00
Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

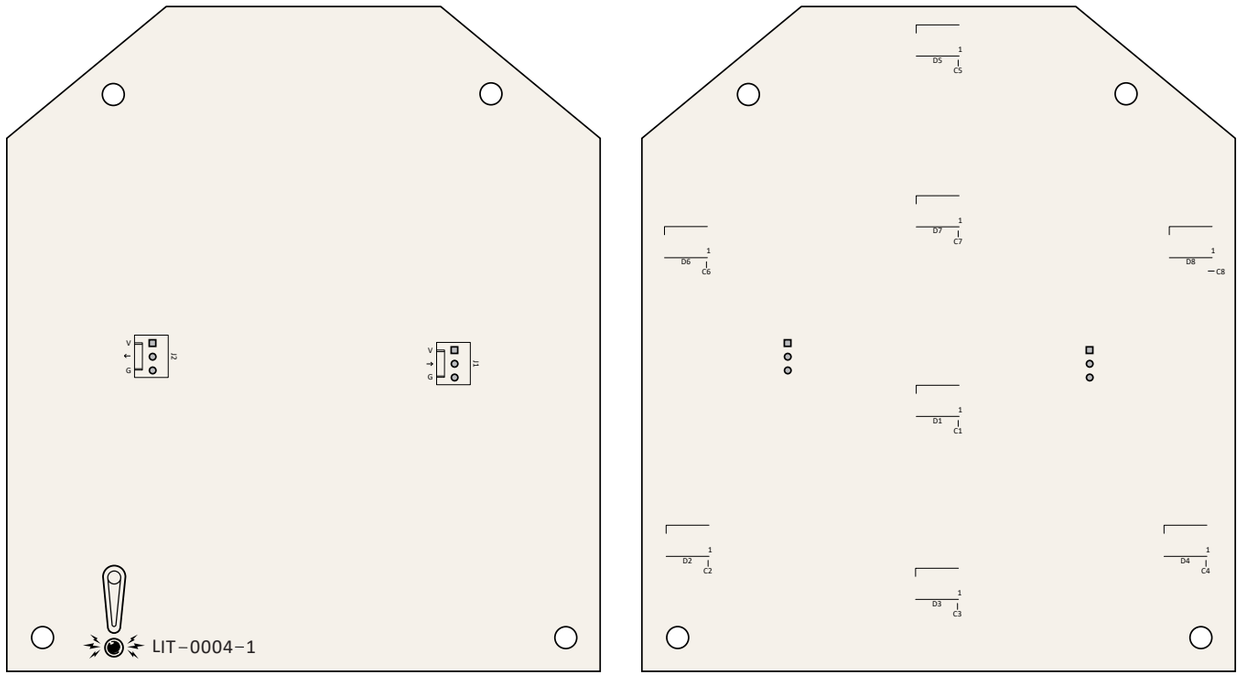
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

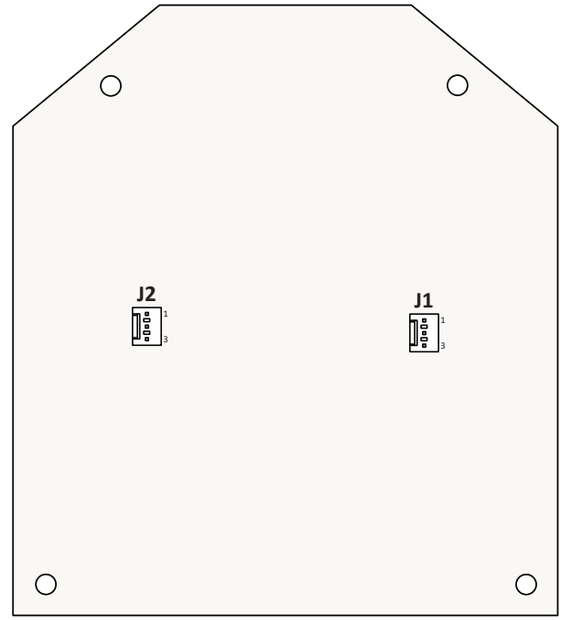
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB.
Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Modes Light Bd
LIT-0104-00



for bd location, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Modes Light Bd
LIT-0104-00
Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

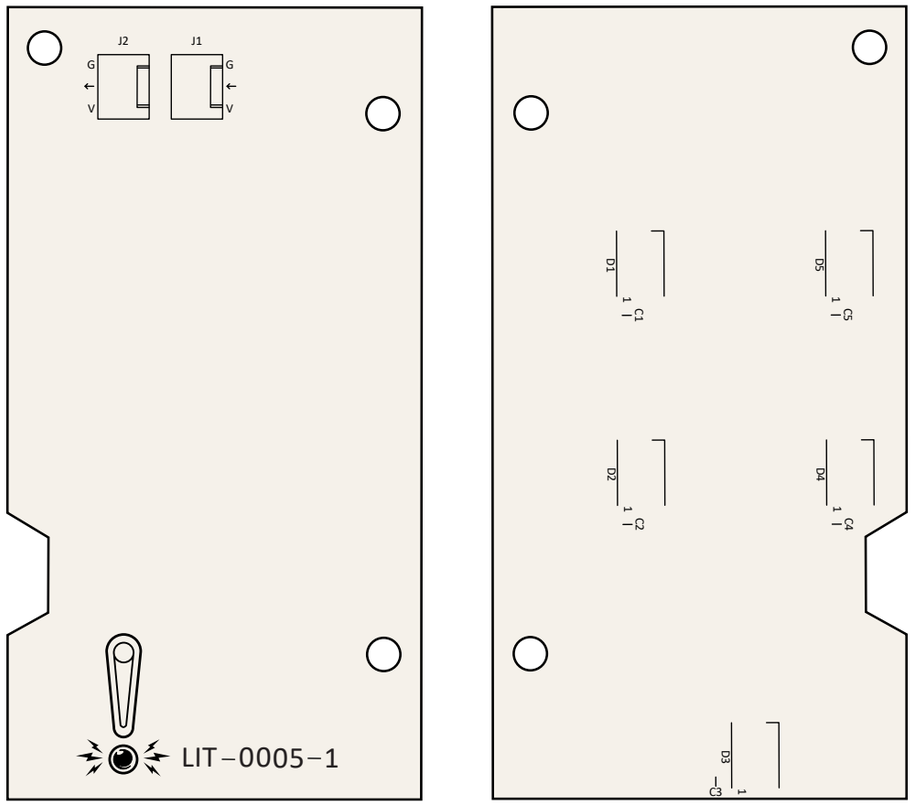
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

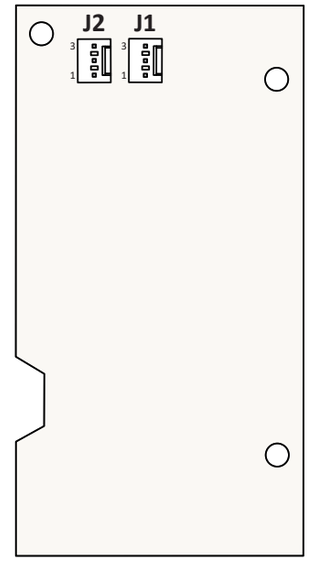
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB. Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Character Face & Jackpot Light Bd (3)
LIT-0105-00



for bd locations, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Character Face & Jackpot Light Bd (3)
LIT-0105-00
Connector Pin-outs



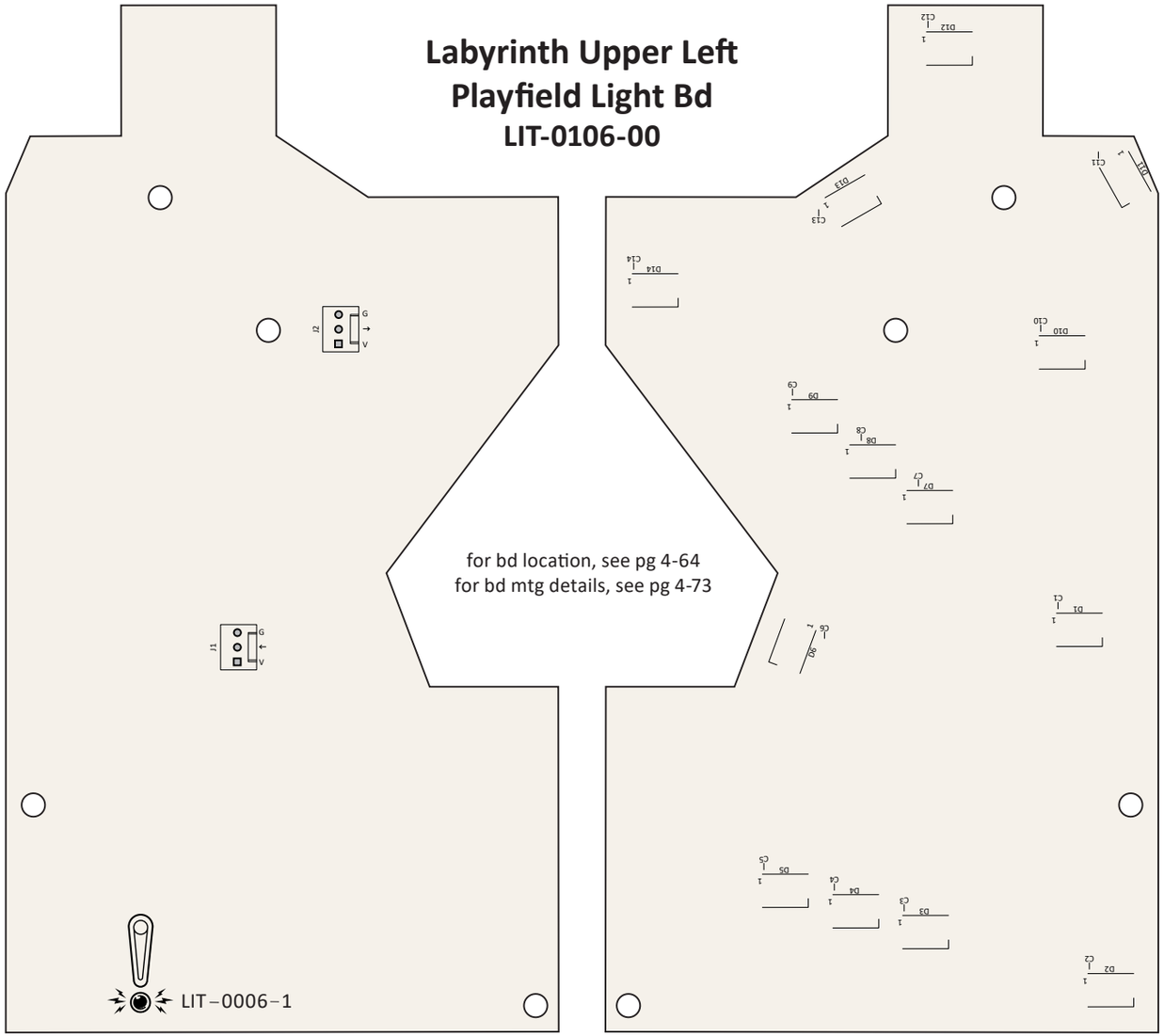
J1 RGB LED Serial String Control Input *[Previous Light Bd]*

J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

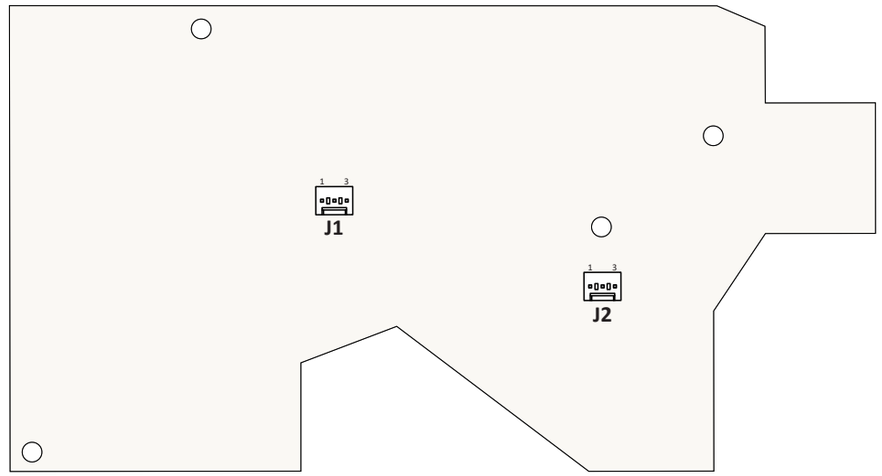
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB.
Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.



Labyrinth Upper Left Playfield Light Bd

LIT-0106-00

Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

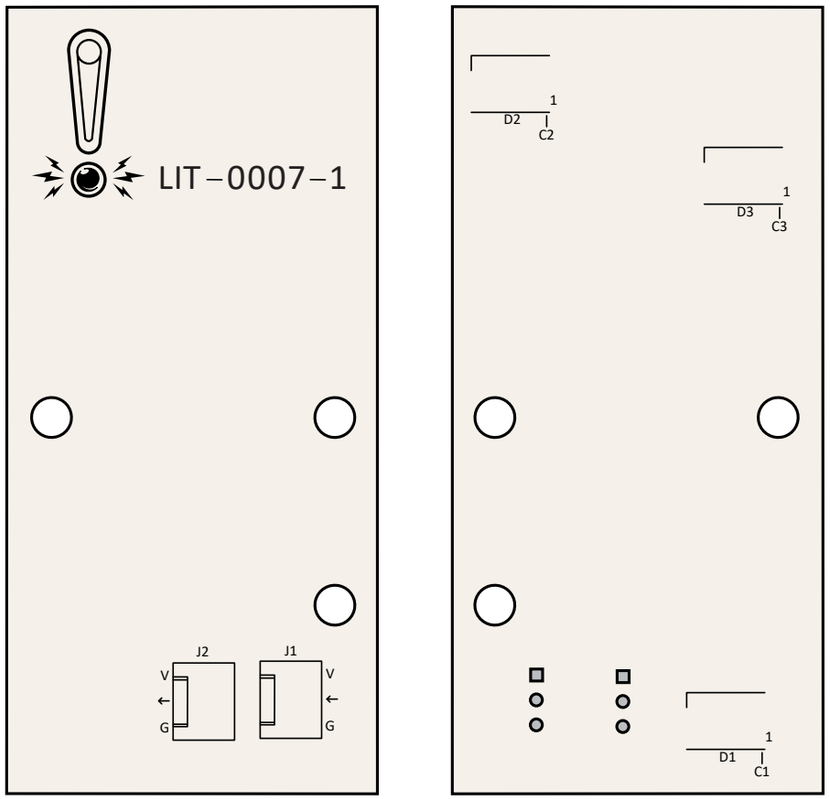
J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

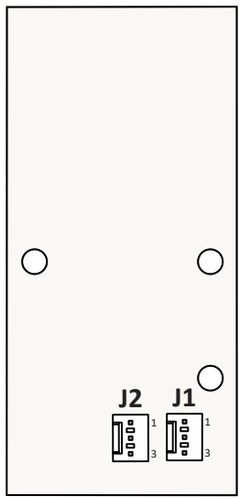
The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB. Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Labyrinth Right Start Mode Light Bd
LIT-0107-00



for bd location, see pg 4-64
for bd mtg details, see pg 4-73

Labyrinth Right Start Mode Light Bd
LIT-0107-00
Connector Pin-outs



J1 RGB LED Serial String Control Input *[Previous Light Bd]*

J1-1	RED	+5VDC from previous serial light PCB, J2-1
J1-2	WHT	RGB LED string data line from previous serial light PCB, J2-2
J1-3	BLK	Common LED GND from previous serial light PCB, J2-3

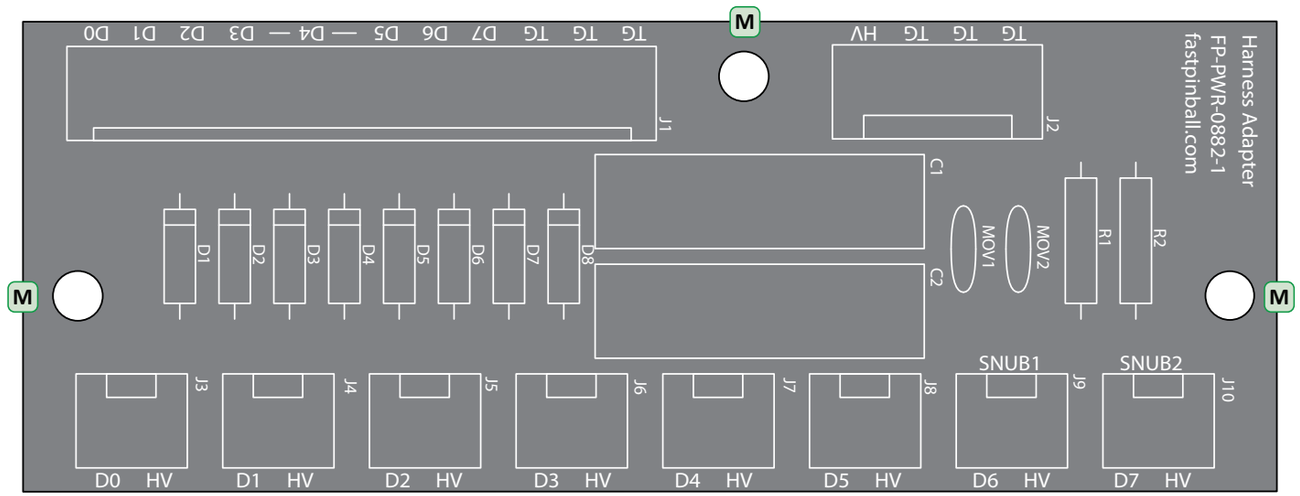
J2 RGB LED Serial String Control Output *[Next Light Bd]*

J2-1	RED	+5VDC to next serial light PCB, J1-1
J2-2	WHT	RGB LED string data line to next serial light PCB, J1-2
J2-3	BLK	Common LED GND to next serial light PCB, J1-3

The Labyrinth playfield is lit by four discrete serial strings (Str1-Str4). Feature/insert & general illumination lights are mixed in each string. The ***input*** connector for each light board is **J1**; the ***output*** connector is **J2**. Consequently, cables between boards in each string run *from* **J2** of the current PCB *to* **J1** of the next PCB and *to* **J1** of the current PCB *from* **J2** of the previous PCB.
Refer to the wiring diagram on pg 4-78 for detailed board connection and cable information for the four serial strings.

Harness Adapter Bd, 0882

ELE-0882-00 (FP-PWR-0882-1)



PCB Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH	6
	SMS-2006-08	#6 x 1/2" HWH SMS	3

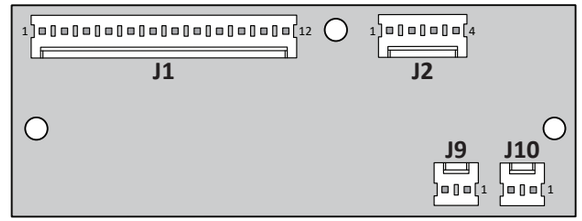
for bd location, see pg 4-64

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Harness Adapter Bd, 0882

ELE-0882-00 (FP-PWR-0882-1)

Connector Pin-outs



J1 Magnet Coil Triggers & GND *[Playfield I/O Bd,* ***0804****]*

J1-1	Not used	
J1-2	Not used	
J1-3	Not used	
J1-4	Not used	
J1-5	Not used	
J1-6	Not used	
J1-7	Not used	
J1-8	BRN	Orbit magnet (***Coil 8***) trigger from playfield I/O PCB, **0804** J3-1
J1-9	PNK	***Beggar*** magnet (***Coil 10***) trigger from playfield I/O PCB, **0804** J3-3
J1-10	Not used	
J1-11	YEL-GRN	Coil GND to playfield I/O PCB, **0804** J3-6
J1-12	YEL-GRN	Coil GND to playfield I/O PCB, **0804** J3-7

J2 Magnet Coil Power & GND *[Playfield Interchange Bd,* ***0030****]*

J2-1	ORN	+48VDC₂ from playfield interchange PCB, **0030** J10-1
J2-2	Not used	
J2-3	YEL	Coil GND from playfield interchange PCB, **0030** J10-3
J2-4	YEL	Coil GND from playfield interchange PCB, **0030** J10-4

J9 Orbit Magnet Control *[Orbit Magnet Coil (Top)]**

J9-1	ORN	+48VDC₂ to orbit magnet
J9-2	BRN	Orbit magnet trigger (***Coil 8***)

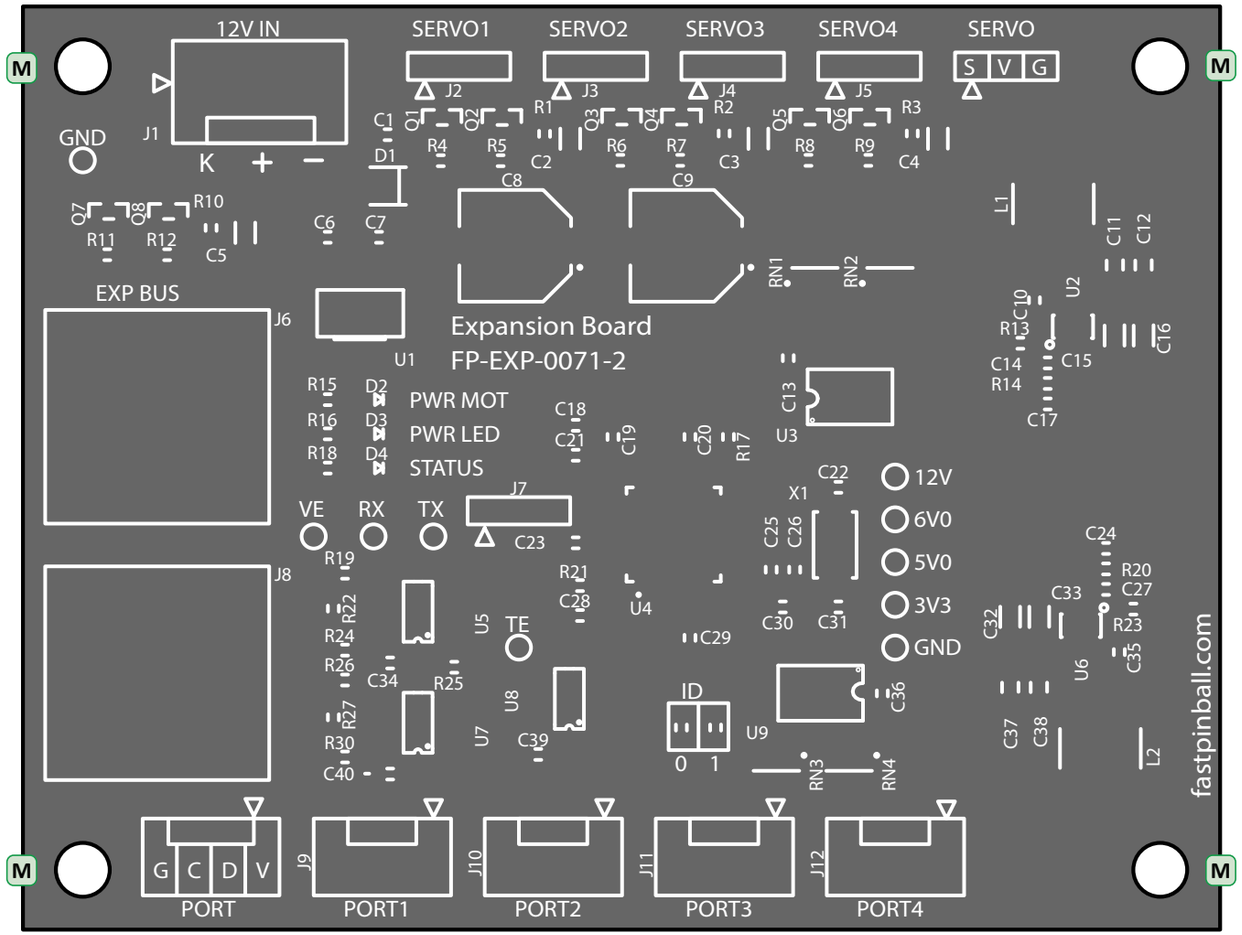
J10 Beggar Magnet Control *[****Beggar*** *Magnet Coil (Center)]**

J10-1	ORN	+48VDC₂ to ***Beggar*** magnet
J10-2	RED	***Beggar*** magnet trigger (***Coil 10***)

*connections run through an additional inline connector

System Expansion Bd, 0071

ELE-0071-00 (FP-EXP-0071-2)



If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

PCB (Playfield) Mounting Hardware

Playfield, Underside

Location	Part Number	Description	Qty
M	FOM-0001-00	Cork Dot, 3/8" x 1/8"TH	8
	SMS-2006-08	#6 x 1/2" HWH SMS	4

for bd location, see pg 4-64

PCB (Topper) Mounting Hardware

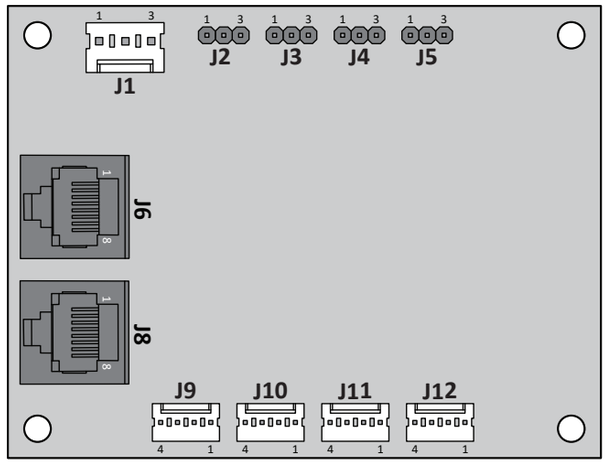
Backbox, Inside

for mtg details & bd location (games with Topper **only**), see item 5 on pg 4-48

System Expansion Bd (Playfield), 0071

ELE-0071-00 (FP-EXP-0071-2)

Connector Pin-outs



J1 DC Power Input *[Playfield Interchange Bd,* ***0030****]*

J1-1	Not used	
J1-2	YEL	+12VDC$_{PF}$ from playfield interchange PCB, **0030** J2-2
J1-3	BLK	Digital GND from playfield interchange PCB, **0030** J2-3

J2 Servo Control *[Bottom Arch* ***Firey*** *Sculpture Servo]**

J2-1	YEL	Bottom arch ***Firey*** out/in control signal (***Servo 41***)
J2-2	RED	+6VDC to bottom arch ***Firey*** servo
J2-3	BRN	Common Servo GND

J3 Servo Control *[****Ello*** *Sculpture Servo]*

J3-1	YEL	***Ello*** up/down control signal (***Servo 44***)
J3-2	RED	+6VDC to ***Ello*** servo
J3-3	BRN	Common Servo GND

*connections run through an additional inline connector

J4 Servo Control *[****Ludo*** *Sculpture Servo]*

J4-1	YEL	***Ludo*** up/down control signal (***Servo 43***)
J4-2	RED	+6VDC to ***Ludo*** servo
J4-3	BRN	Common Servo GND

J5 Servo Control *[Playfield* ***Firey*** *Sculpture Servo]**

J5-1	YEL	Playfield ***Firey*** up/down control signal (***Servo 42***)
J5-2	RED	+6VDC to playfield ***Firey*** servo
J5-3	BRN	Common Servo GND

J6 Ethernet Comms *[Playfield Interchange Bd,* ***0030****]*

3ft yellow CAT5 cable to/from playfield interchange PCB, **0030** J16

J8 Ethernet Comms *[Not Used]*

J9 RGB LED Serial String 1 Control *[Lower Playfield RGB LED PCBs]*

J9-1	RED	+5VDC to RGB LED string 1
J9-2	WHT	RGB LED string1 data line (***0-29***)
J9-3	Not used	
J9-4	BLK	Common LED GND

J10 RGB LED Serial String 2 Control *[Lower, Mid Playfield RGB LED PCBs]*

J10-1	RED	+5VDC to RGB LED string 2
J10-2	WHT	RGB LED string 2 data line (***32-63***)
J10-3	Not used	
J10-4	BLK	Common LED GND

J11 RGB LED Serial String 3 Control *[Upper Playfield RGB LED PCBs]*

J11-1	RED	+5VDC to RGB LED string 3
J11-2	WHT	RGB LED string 3 data line (***64-95***)
J11-3	Not used	
J11-4	BLK	Common LED GND

J12 RGB LED Serial String 4 Control *[Upper, Mid Playfield RGB LED PCBs]*

J12-1	RED	+5VDC to RGB LED string 4
J12-2	WHT	RGB LED string 4 data line (***96-120***)
J12-3	Not used	
J12-4	BLK	Common LED GND

Playfield RGB LED string wiring: pg 4-78

System Expansion Bd (Topper), 0071*

J1 DC Power Input *[Power Filter Bd,* ***0007****]*

J1-1	Not used	
J1-2	YEL	+12VDC$_{BB}$ from power filter PCB, **0007** J3-2
J1-3	BLK	Digital GND from power filter PCB, **0007** J3-3

J2 Servo Control *[***Froggy*** (Left Goblin) Sculpture Servo (Topper)]*

J2-1	WHT	***Froggy*** spin control signal (***Servo 45***)
J2-2	RED	+6VDC to ***Froggy*** servo
J2-3	BLK	Common Servo GND

J3 Servo Control *[***Snarf*** (Right Goblin) Sculpture Servo (Topper)]*

J3-1	WHT	***Snarf*** spin control signal (***Servo 46***)
J3-2	RED	+6VDC to ***Snarf*** servo
J3-3	BLK	Common Servo GND

J4 Servo Control *[Not Used]*

J5 Servo Control *[Not Used]*

J6 Ethernet Comms *[Neuron Controller Bd,* ***2000****]*

2ft black CAT5 cable to/from Neuron controller PCB, **2000** J8

J8 Ethernet Comms *[Not Used]*

J9 RGB LED Serial String 1 Control *[***Froggy*** (Left Goblin) Sculpture Eyes (Topper)]*

J9-1	GRY	+5VDC to ***Froggy*** RGB LED eyes
J9-2	GRY-BLU/L	***Froggy*** RGB LED eyes data line (***128***)
J9-3	Not used	
J9-4	GRY-BLU/M	Common LED GND

J10 RGB LED Serial String 2 Control *[***Snarf*** (Right Goblin) Sculpture Eyes (Topper)]*

J10-1	GRY-BLU	+5VDC to ***Snarf*** RGB LED eyes
J10-2	GRY-BLU/M	***Snarf*** RGB LED eyes data line (***129***)
J10-3	Not used	
J10-4	GRY-BLU/S	Common LED GND

J11 RGB LED Serial String 3 Control *[***Baaba*** (Center Goblin) Sculpture Eyes (Topper)]*

J11-1	GRY-BLU	+5VDC to ***Baaba*** RGB LED eyes
J11-2	GRY-BLU/M	***Baaba*** RGB LED eyes data line (***130***)
J11-3	Not used	
J11-4	GRY-BLU/S	Common LED GND

J12 RGB LED Serial String 4 Control *[Front Accent Lighting (Topper)]*

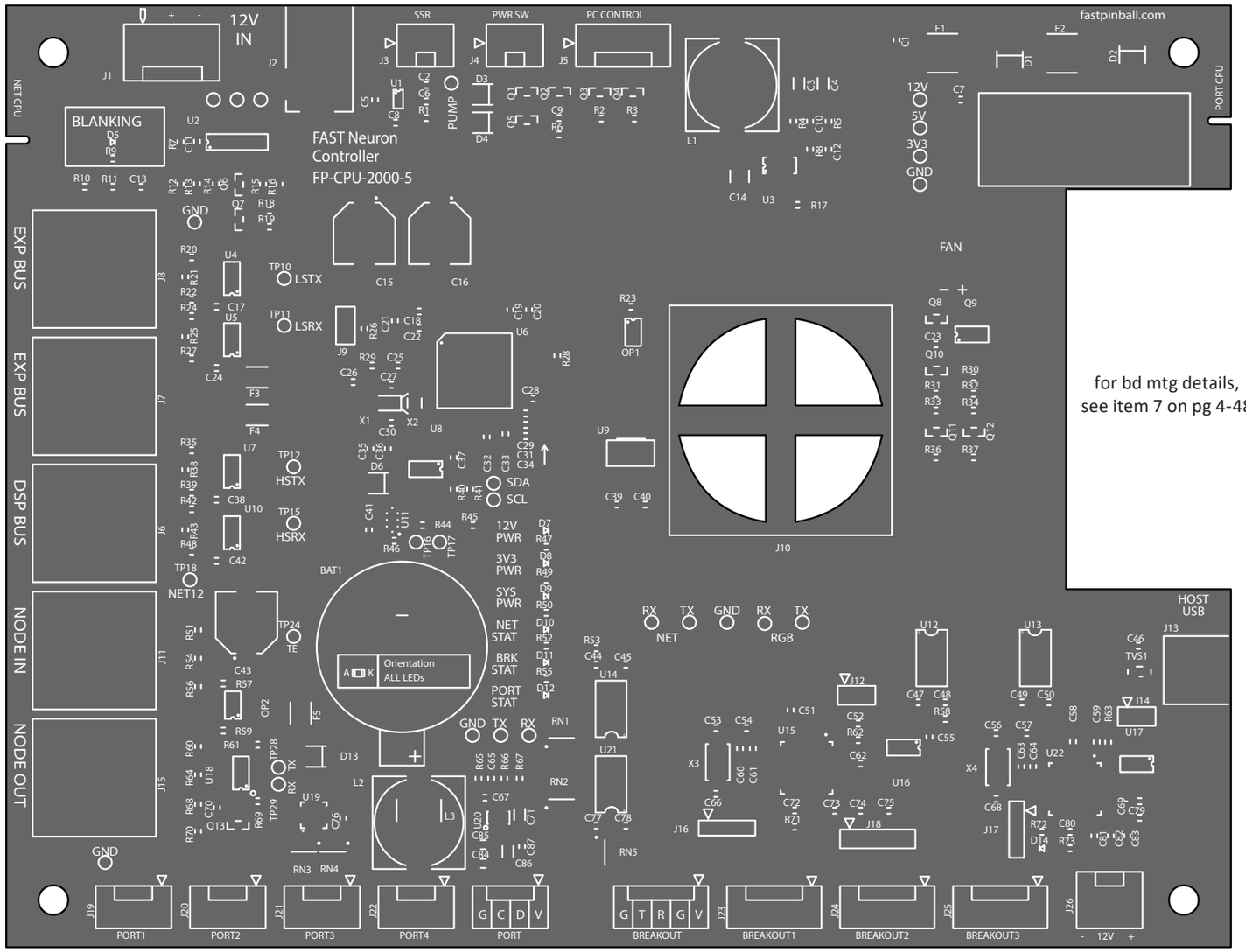
J12-1	GRY	+5VDC to front accent RGB LED string
J12-2	GRY-BLU/X	front accent RGB LED string data line (***131-154***)
J12-3	Not used	
J12-4	GRY-BLU/M	Common LED GND

Topper test/adjust: pg 3-27

*in backbox of games with topper

Neuron Controller Bd, 2000

ELE-2000-00 (FP-CPU-2000-5)

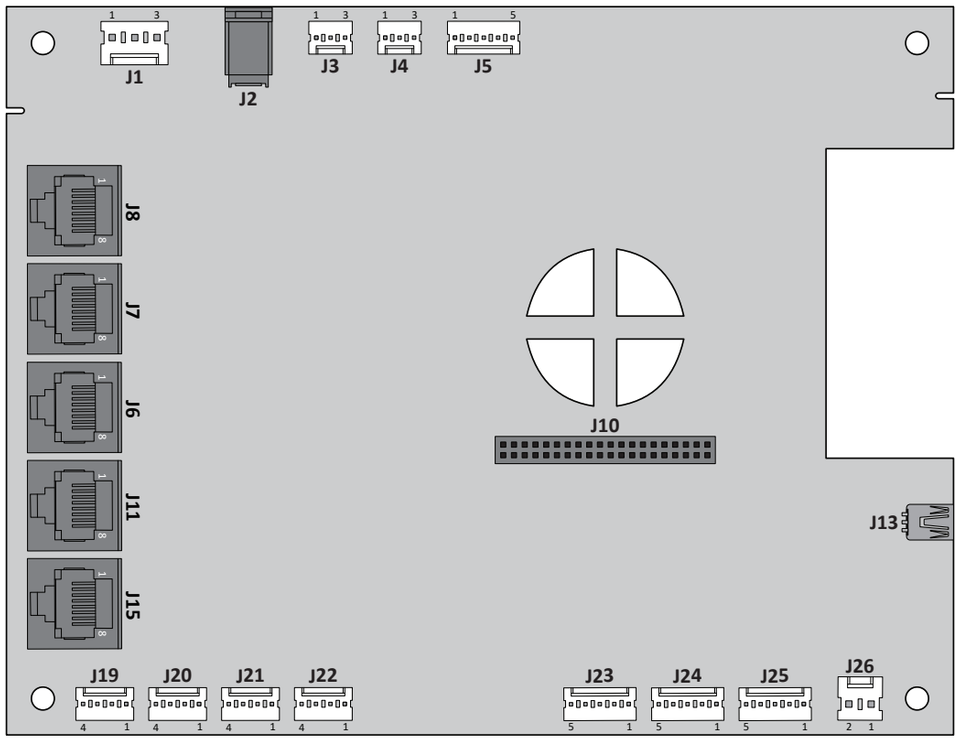


If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Neuron Controller Bd, 2000

ELE-2000-00 (FP-CPU-2000-5)

Connector Pin-outs



J1 DC Power Input *[Power Filter Bd,* ***0007****]*

J1-1	Not used	
J1-2	YEL	+12VDC$_{BB}$ from power filter PCB, **0007** J1-2
J1-3	BLK	Digital GND from power filter PCB, **0007** J1-3

J2 DC Power Input Jack *[Not Used]*

J3 Soft Start Relay *[Not Used]*

J4 Main Power Switch *[Not Used]*

J5 Host PC Control *[Not Used]*

J6 Ethernet Comms *[Not Used]*

J7 Ethernet Comms *[Playfield Interchange Bd,* ***0030*** *(Playfield)]*

7ft yellow CAT5 cable to/from playfield interchange PCB, **0030**(PF) J15

***J8 Ethernet Comms** [System Expansion Bd (Topper), **0071**]**
2ft black CAT5 cable to/from System Expansion PCB, **0071**(BB) J6

***J10 Raspberry Pi Port** [Not Used]*

***J11 Ethernet Comms** [Playfield Interchange Bd, **0030** (Playfield)]*
7ft red CAT5 cable to/from playfield interchange PCB, **0030**(PF) J17

***J13 USB Comms** [Mini Computer]*
1ft Mini USB to USB Type A cable to/from mini computer USB port

***J15 Ethernet Comms** [Cabinet I/O Bd, **0024** (Lower Cabinet)]*
10ft purple CAT5 cable to/from cabinet I/O PCB, **0024**(CAB) J6

***J19 RGB LED Serial String 1 Control** [Left Backbox Speaker LED String]*

J19-1	YEL	+5VDC to left backbox speaker LED string, S1
J19-2	WHT	Data to left backbox speaker LED string, S2 (***155-182***)
J19-3	Not used	
J19-4	BLK	Digital GND to left backbox speaker LED string, S3

***J20 RGB LED Serial String 2 Control** [Right Backbox Speaker LED String]*

J20-1	YEL	+5VDC to right backbox speaker LED string, S1
J20-2	WHT	Data to right backbox speaker LED string, S2 (***183-210***)
J20-3	Not used	
J20-4	BLK	Digital GND to right backbox speaker LED string, S3

***J21 RGB LED Serial String 3 Control** [Not Used]*

***J22 RGB LED Serial String 4 Control** [Not Used]*

***J23 Breakout Monitoring** [Not Used]*

***J24 Breakout Monitoring** [Not Used]*

***J25 Breakout Monitoring** [Not Used]*

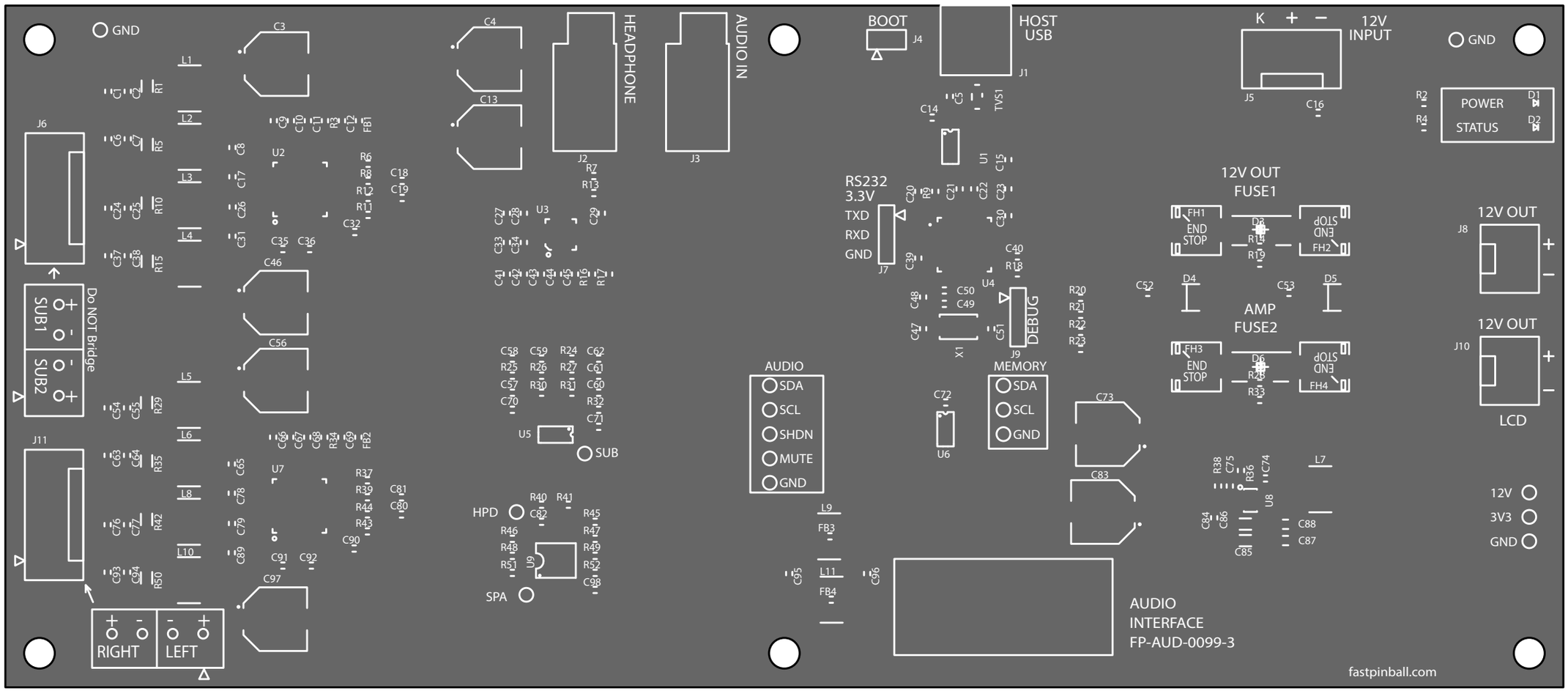
***J26 DC Power Output** [Top & Bottom Backglass LED Strings]*

J26-1	2 x RED	+12VDC$_{BB}$ to top & bottom backglass LED strings, S1
J26-2	2 x BLK	Digital GND to top & bottom backglass LED strings, S2

*used only in games with topper

Audio Interface Bd, 0100

AUD-0100-00 (FP-AUD-0099-3)



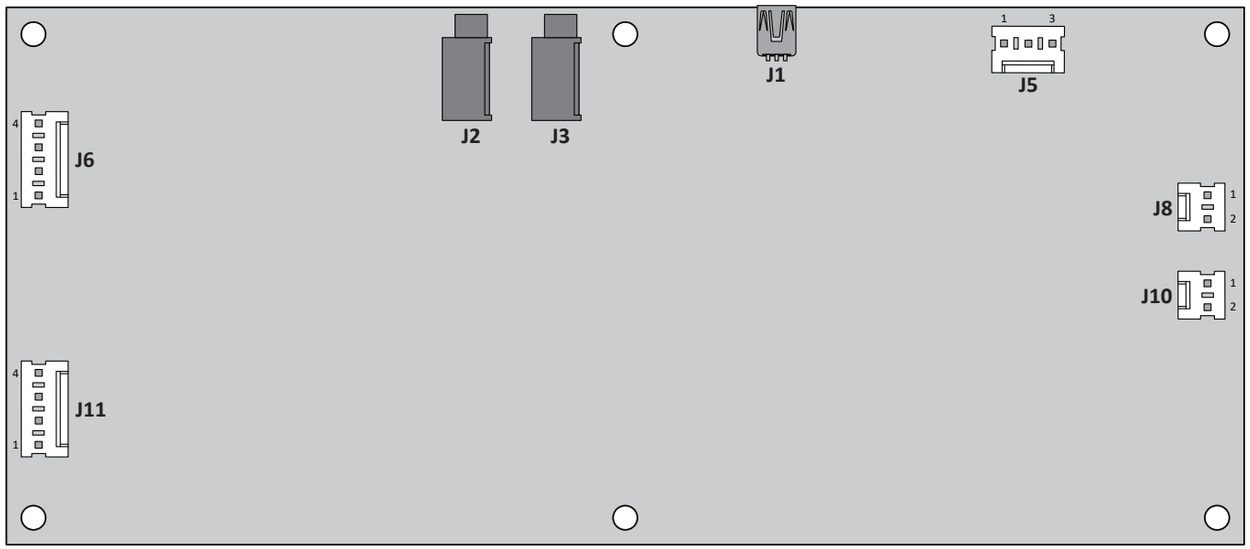
for bd mtg details, see item 2 on pg 4-48

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Audio Interface Bd, 0100

AUD-0100-00 (FP-AUD-0099-3)

Connector Pin-outs



J1 USB Comms *[Mini Computer]*

1ft Mini USB to USB Type A cable to/from mini computer USB port

J2 Headphone Audio Output Jack *[Not Used]*

J3 Audio Input Jack *[Mini Computer]*

1ft audio cable (w/ 3.5mm jacks) from mini computer audio out (headphones) port, through ground loop isolator (AUD-0200-00)

J5 DC Power Input *[12V Power Supply]*

J5-1	Not used	
J5-2	YEL	+12VDC from 12V power supply
J5-3	BLK	Digital GND from 12V power supply

J6 Subwoofer Outputs *[Subwoofer Speaker (Lower Cabinet)]*

J6-1	BLU	+ to subwoofer speaker (CAB)
J6-2	BLK	- to subwoofer speaker (CAB)
J6-3	Not used	
J6-4	Not used	

J8 DC Power Output *[Backbox Speaker Panel LCD Screen]*

J8-1	RED	+12VDC$_{AUD}$ to spkr panel LCD screen (BB) pwr plug
J8-2	BLK	Digital GND to spkr panel LCD screen (BB) pwr plug

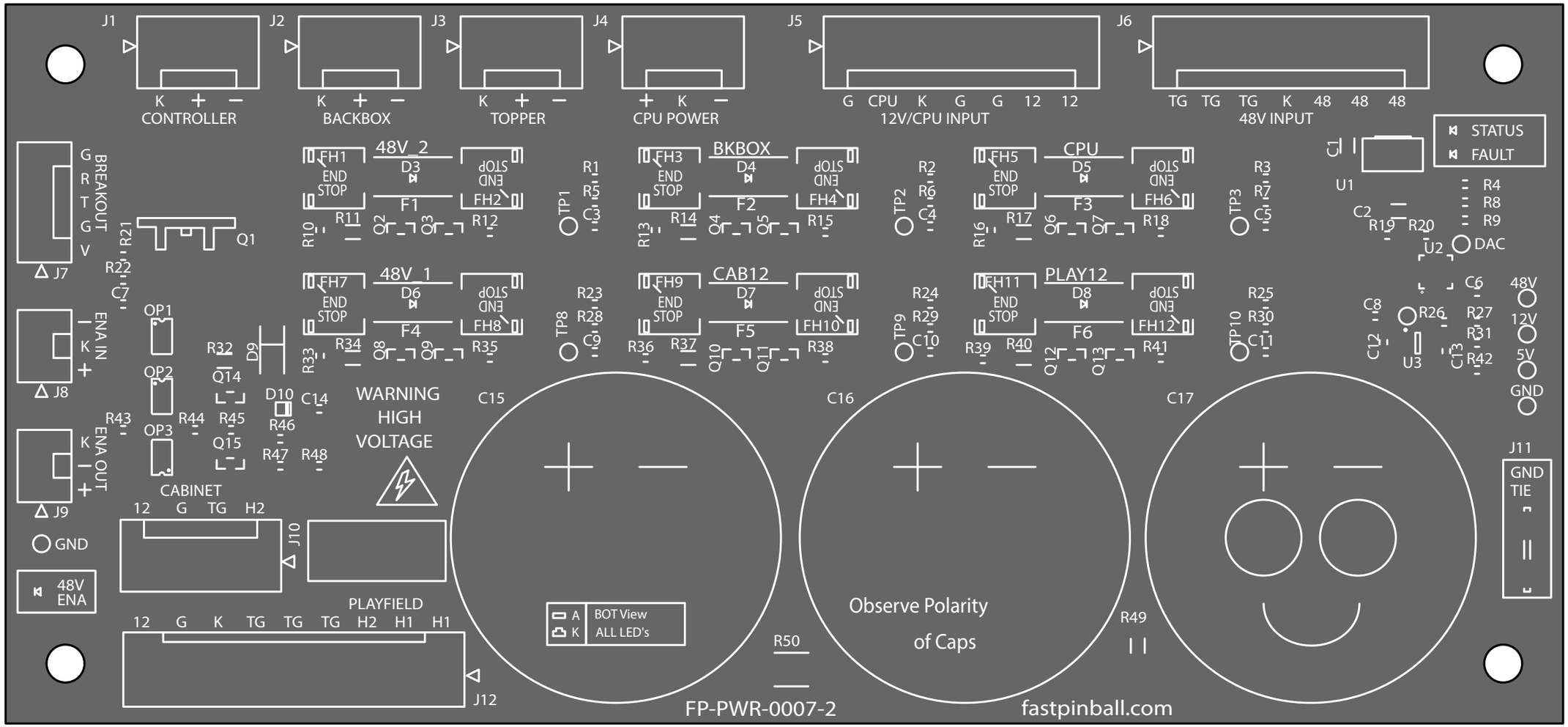
J10 DC Power Output *[Playfield Back Panel LCD Screen]*

J10-1	RED	+12VDC$_{AUD}$ to back panel LCD screen (PF) pwr plug
J10-2	BLK	Digital GND to back panel LCD screen (PF) pwr plug

J11 Backbox Speaker Outputs *[Left & Right Backbox Speakers]*

J11-1	BLU	+ to left backbox speaker, S1
J11-2	BLK	- to left backbox speaker, S2
J11-3	BLK	- to right backbox speaker, S2
J11-4	BLU	+ to right backbox speaker, S1

Power Filter Bd, 0007 (game numbers 1 to 604)
ELE-0007-00 (FP-PWR-0007-2)



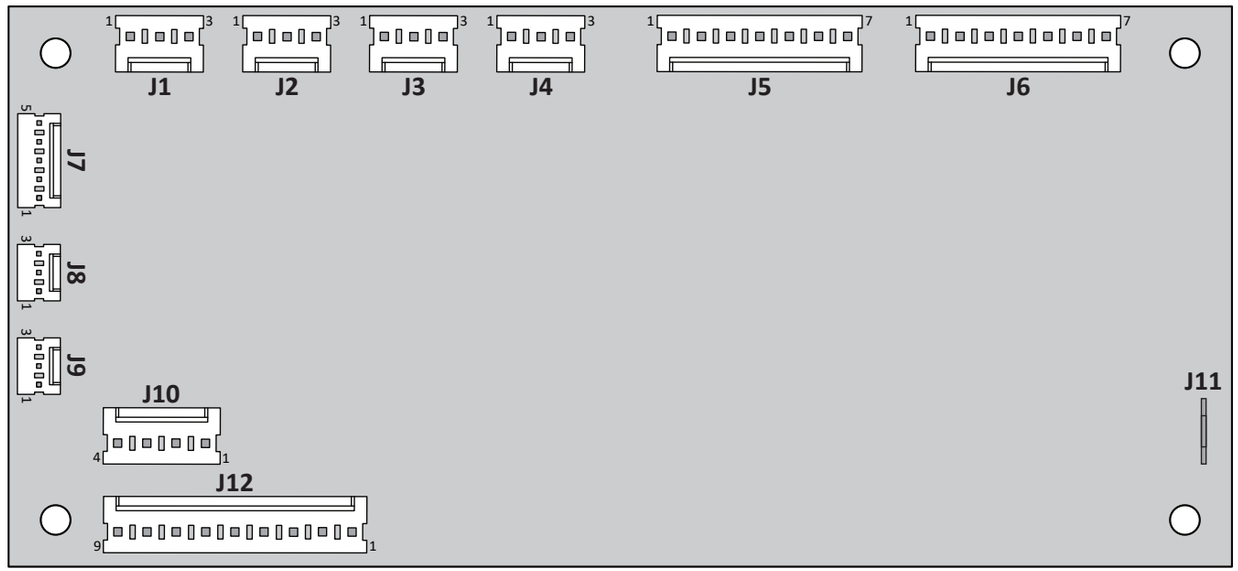
for bd mtg details, see item 6 on pg 4-48

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Power Filter Bd, 0007 (game numbers 1 to 604)

ELE-0007-00 (FP-PWR-0007-2)

Connector Pin-outs



***J1* Controller DC Power Output** *[Neuron Controller Bd, **2000**]*

J1-1	X	Key
J1-2	YEL	+12VDC$_{BB}$ to Neuron controller PCB, **2000** J1-2
J1-3	BLK	Digital GND to Neuron controller PCB, **2000** J1-3

***J2* Backbox DC Power Output** *[Not Used]*

***J3* Topper DC Power Output** *[System Expansion Bd (Topper), **0071**]**

J3-1	X	Key
J3-2	YEL	+12VDC$_{BB}$ to system expansion PCB, **0071**(BB) J1-2
J3-3	BLK	Digital GND to system expansion PCB, **0071**(BB) J1-3

*used only in games with topper

***J4* CPU DC Power Output** *[Mini Computer]*

J4-1	RED	+12VDC$_{CPU}$ to mini computer pwr plug
J4-2	X	Key
J4-3	BLK	Digital GND to mini computer pwr plug

***J5* DC Power Input** *[12V Power Supply]*

J5-1	BLK	Digital GND from 12V power supply
J5-2	YEL	+12VDC from 12V power supply
J5-3	X	Key
J5-4	BLK	Digital GND from 12V power supply
J5-5	BLK	Digital GND from 12V power supply
J5-6	YEL	+12VDC from 12V power supply
J5-7	YEL	+12VDC from 12V power supply

J6 DC Power Input *[48V Power Supply]*

J6-1	Not used	
J6-2	Not used	
J6-3	BLK	Coil GND from 48V power supply
J6-4	X	Key
J6-5	Not used	
J6-6	Not used	
J6-7	RED	+48VDC from 48V power supply (through 100V, 12A diode)

J7 Breakout Monitoring *[Not Used]*

J8 Enable Input *[Coin Door 48V Disable Switch (Lower Cabinet)]*

J8-1	BLK	to coin door 48V disable switch (CAB), NO2 lug
J8-2	X	Key
J8-3	BLK	to coin door 48V disable switch (CAB), COM2 lug

J9 Enable Status *[Not Used]*

J10 DC Power Output *[Cabinet I/O Bd,* ***0024*** *(Lower Cabinet)]*

J10-1	BLU	+48VDC$_2$ to cabinet I/O PCB, **0024**(CAB) J3-1
J10-2	BLK	Coil GND to cabinet I/O PCB, **0024**(CAB) J3-2
J10-3	BLK	Digital GND to cabinet I/O PCB, **0024**(CAB) J3-3
J10-4	YEL	+12VDC$_{CAB}$ to cabinet I/O PCB, **0024**(CAB) J3-4

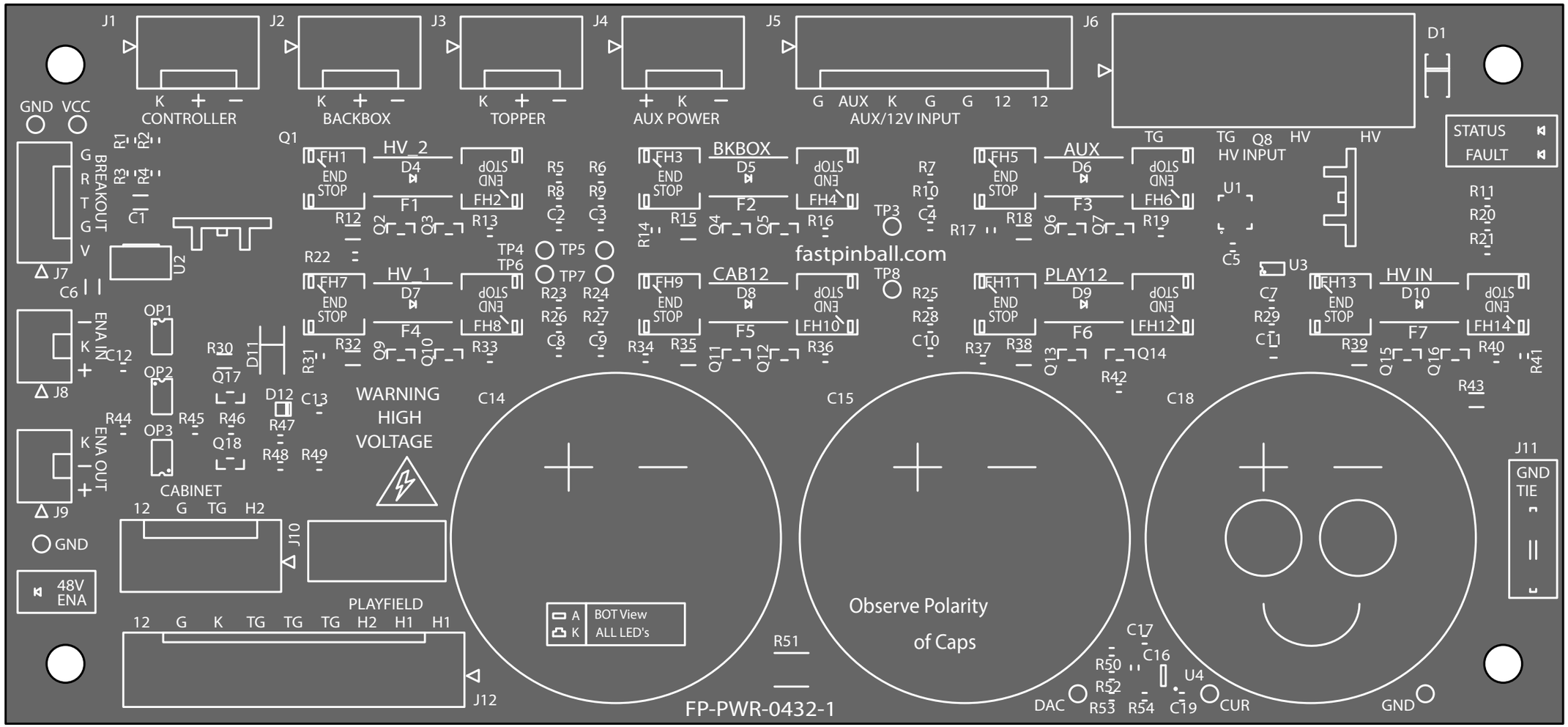
J11 GND Lug *[Backbox GND Plane & 48V Power Supply]*

GND wire from backbox GND plane & 48V power supply case

J12 Playfield DC Power Input *[Playfield Interface Bd,* ***0030*** *(Playfield)]*

J12-1	BLU	+48VDC$_1$ to playfield interface PCB, **0030**(PF) J19-1
J12-2	BLU	+48VDC$_1$ to playfield interface PCB, **0030**(PF) J19-2
J12-3	BLU	+48VDC$_2$ to playfield interface PCB, **0030**(PF) J19-3
J12-4	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-4
J12-5	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-5
J12-6	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-6
J12-7	X	Key
J12-8	BLK	Digital GND to playfield interface PCB, **0030**(PF) J19-8
J12-9	YEL	+12VDC$_{PF}$ to playfield interface PCB, **0030**(PF) J19-9

Power Filter Bd, 0007 (game numbers 605 and higher)
ELE-0007-01 (FP-PWR-0432-1)



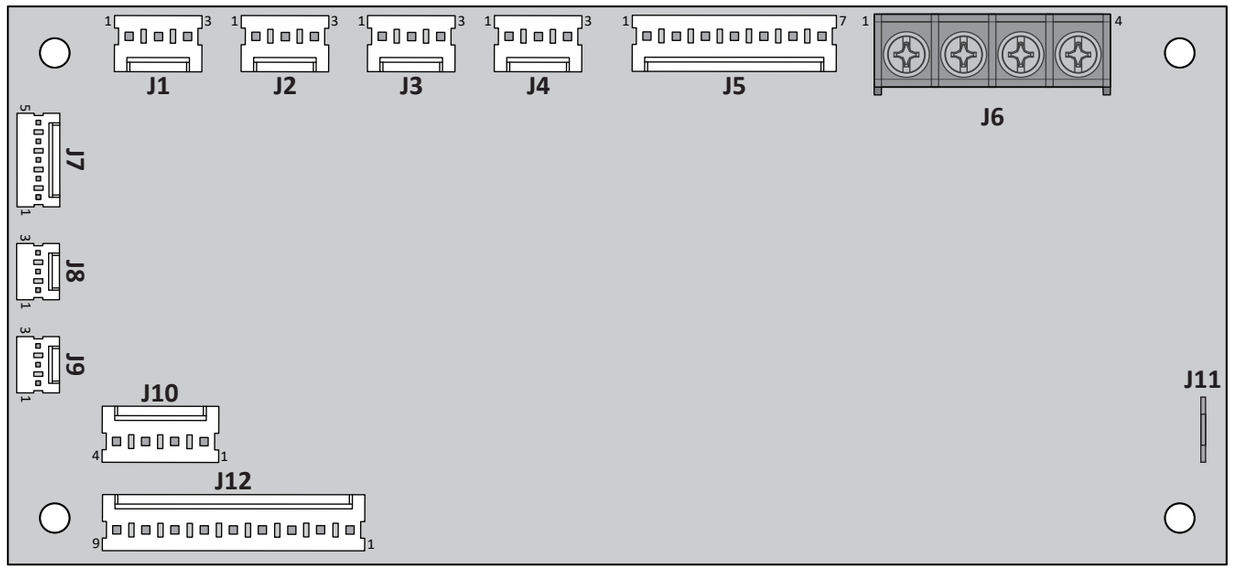
for bd mtg details, see item 6 on pg 4-48

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Power Filter Bd, 0007 (game numbers 605 and higher)

ELE-0007-01 (FP-PWR-0432-1)

Connector Pin-outs



***J1* Controller DC Power Output** *[Neuron Controller Bd, **2000**]*

J1-1	X	Key
J1-2	YEL	+12VDC$_{BB}$ to Neuron controller PCB, **2000** J1-2
J1-3	BLK	Digital GND to Neuron controller PCB, **2000** J1-3

***J2* Backbox DC Power Output** *[Not Used]*

***J3* Topper DC Power Output** *[System Expansion Bd (Topper), **0071**]**

J3-1	X	Key
J3-2	YEL	+12VDC$_{BB}$ to system expansion PCB, **0071**(BB) J1-2
J3-3	BLK	Digital GND to system expansion PCB, **0071**(BB) J1-3

***J4* AUX DC Power Output** *[Mini Computer]*

J4-1	RED	+12VDC$_{CPU}$ to mini computer pwr plug
J4-2	X	Key
J4-3	BLK	Digital GND to mini computer pwr plug

***J5* DC Power Input** *[12V Power Supply]*

J5-1	BLK	Digital GND from 12V power supply
J5-2	YEL	+12VDC from 12V power supply
J5-3	X	Key
J5-4	BLK	Digital GND from 12V power supply
J5-5	BLK	Digital GND from 12V power supply
J5-6	YEL	+12VDC from 12V power supply
J5-7	YEL	+12VDC from 12V power supply

*used only in games with topper

J6 DC Power Input (Screw Terminals) *[48V Power Supply]*

J6-T1	Not used	
J6-T2	BLK	Coil GND from 48V power supply
J6-T3	Not used	
J6-T4	RED	+48VDC from 48V power supply

J7 Breakout Monitoring *[Not Used]*

J8 Enable Input *[Coin Door 48V Disable Switch (Lower Cabinet)]*

J8-1	BLK	to coin door 48V disable switch (CAB), NO2 lug
J8-2	X	Key
J8-3	BLK	to coin door 48V disable switch (CAB), COM2 lug

J9 Enable Status *[Not Used]*

J10 DC Power Output *[Cabinet I/O Bd,* ***0024*** *(Lower Cabinet)]*

J10-1	BLU	$+48VDC_2$ to cabinet I/O PCB, **0024**(CAB) J3-1
J10-2	BLK	Coil GND to cabinet I/O PCB, **0024**(CAB) J3-2
J10-3	BLK	Digital GND to cabinet I/O PCB, **0024**(CAB) J3-3
J10-4	YEL	$+12VDC_{CAB}$ to cabinet I/O PCB, **0024**(CAB) J3-4

J11 GND Lug *[Backbox GND Plane & 48V Power Supply]*

GND wire from backbox GND plane & 48V power supply case

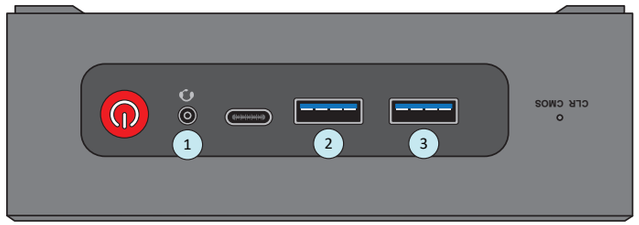
J12 Playfield DC Power Input *[Playfield Interface Bd,* ***0030*** *(Playfield)]*

J12-1	BLU	$+48VDC_1$ to playfield interface PCB, **0030**(PF) J19-1
J12-2	BLU	$+48VDC_1$ to playfield interface PCB, **0030**(PF) J19-2
J12-3	BLU	$+48VDC_2$ to playfield interface PCB, **0030**(PF) J19-3
J12-4	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-4
J12-5	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-5
J12-6	BLK	Coil GND to playfield interface PCB, **0030**(PF) J19-6
J12-7	X	Key
J12-8	BLK	Digital GND to playfield interface PCB, **0030**(PF) J19-8
J12-9	YEL	$+12VDC_{PF}$ to playfield interface PCB, **0030**(PF) J19-9

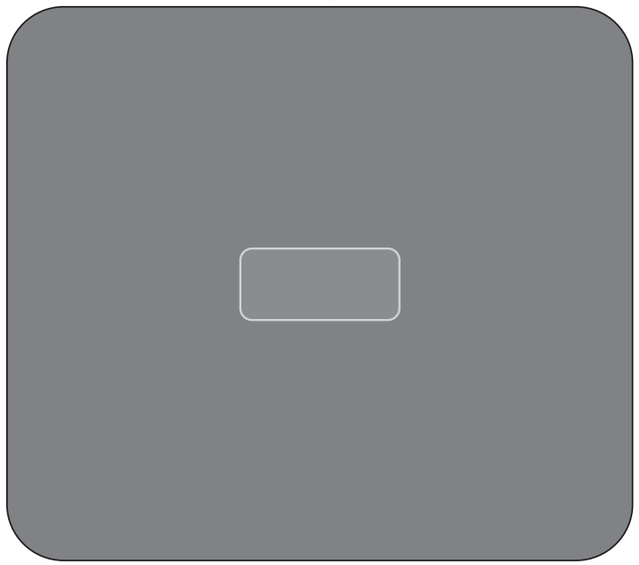
Mini Computer

COM-0001-00

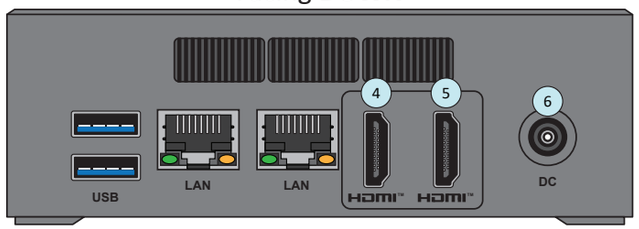
Connections (as oriented in the backbox)



Facing **UP**



Facing **DOWN**



Facing **UP**:

1 ***Headphones Jack*** *[Audio Interface Bd, **0100**]*
1ft audio cable (w/ 3.5mm jacks) to audio interface PCB, **0100** J3, through ground loop isolator (AUD-0200-00)

2 ***USB 3.0 Port*** *[Neuron Controller Bd, **2000**]*
1ft USB Type A to Mini USB cable to/from Neuron controller PCB, **2000** J13

3 ***USB 3.0 Port*** *[Audio Interface Bd, **0100**]*
1ft USB Type A to Mini USB cable to/from audio interface PCB, **0100** J1

Facing **DOWN**:

4 ***HDMI Port 1*** *[Playfield Back Panel LCD Screen]*
6ft HDMI cable to playfield back panel LCD screen

5 ***HDMI Port 2*** *[Backbox Speaker Panel LCD Screen]*
3ft HDMI cable to backbox speaker panel LCD screen

6 ***DC Power Input*** *[Power Filter Bd, **0007**]*
+12VDC$_{CPU}$ power cable from power filter PCB, **0007** J4

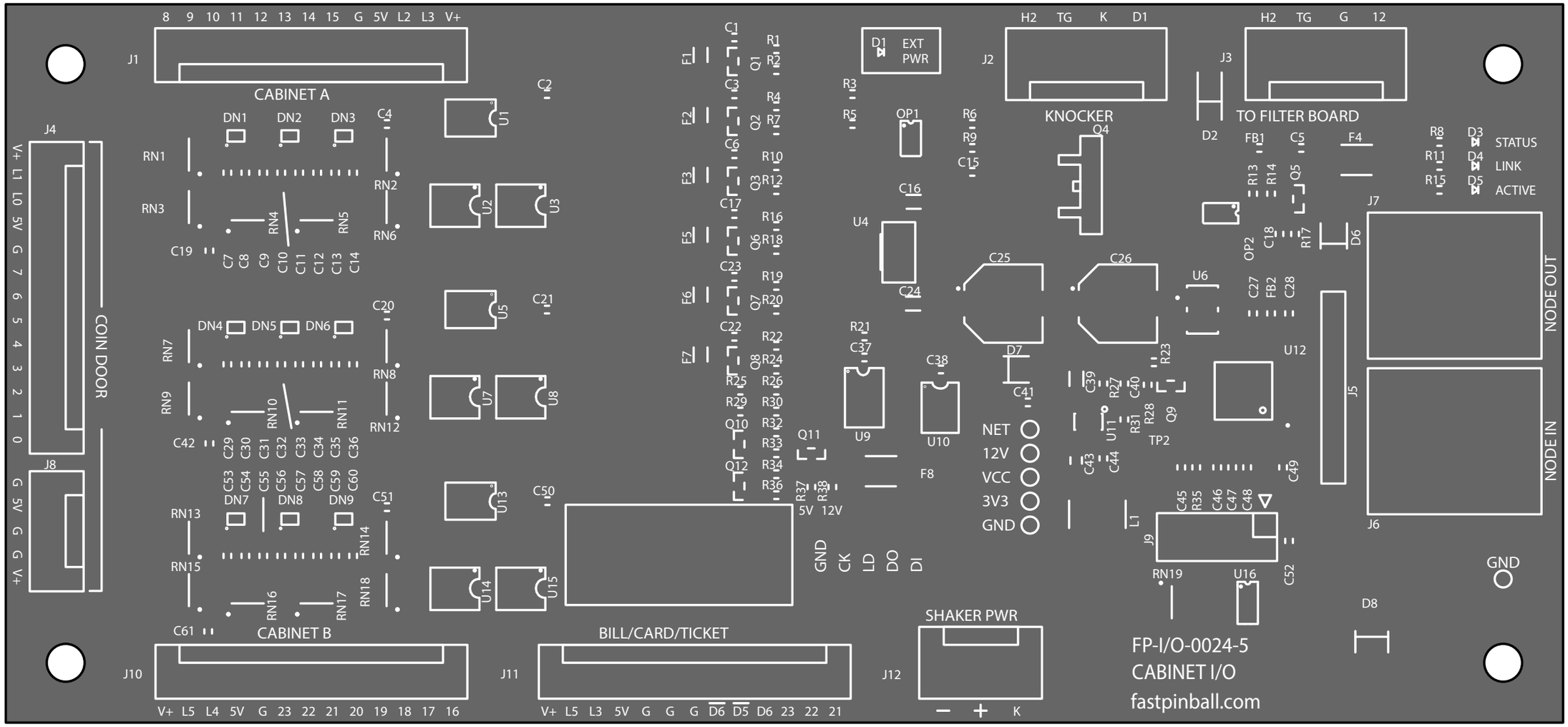
All other connections are unused.

Note: USB cables running to 2 and 3 may be swapped ***or*** plugged into any of the mini computer's four USB 3.0 ports.

for mini computer mtg details, see item 9 on pg 4-48

Cabinet I/O Bd, 0024

ELE-0024-00 (FP-I/O-0024-5)



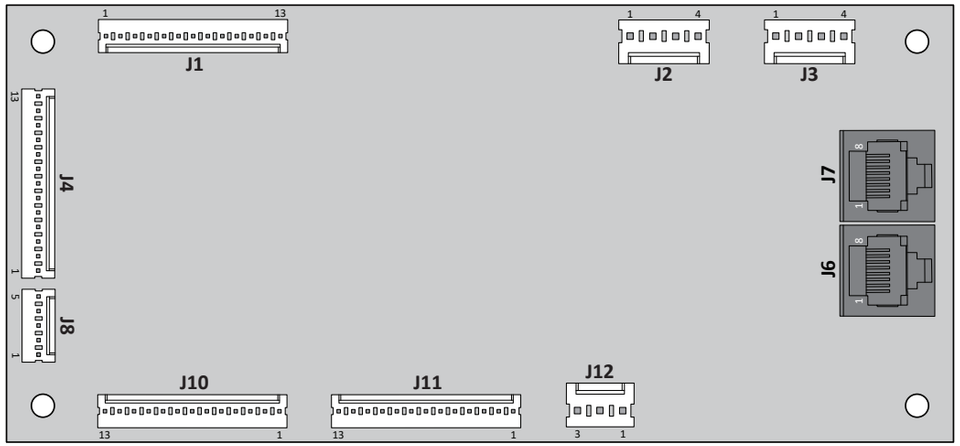
for bd mtg details, see item 16 on pg 4-2

If you have specific board functionality and/or compatibility questions, please see note on **pg 5-2**.

Cabinet I/O Bd, 0024

ELE-0024-00 (FP-I/O-0024-5)

Connector Pin-outs



J1 Cabinet, Left Side *[Cabinet Switches & Lights]*

J1-1	Not used	
J1-2	Not used	
J1-3	Not used	
J1-4	Not used	
J1-5	PNK	Monitor line to coin door open (***Sw 12***)
J1-6	BLU	Monitor line to plumb bob tilt (***Sw 13***)
J1-7	VIO	Monitor line to Start button (***Sw 14***)
J1-8	GRN	Monitor line to left flipper (***Sw 15***)
J1-9	YEL-GRN	Common Switch GND to all switches above
J1-10	Not used	+5VDC
J1-11	Not used	
J1-12	WHT	Cabinet Start button LED trigger (***Coil 3***)
J1-13	RED	+12VDC$_{CAB}$ to cabinet Start button LED

J2 Knocker Control *[Not Used]*

J3 Cabinet DC Power Input *[Power Filter Bd, **0007** (Backbox)]*

J3-1	BLU	+48VDC$_2$ from power filter PCB, **0007**(BB) J10-1
J3-2	BLK	Coil GND from power filter PCB, **0007**(BB) J10-2
J3-3	BLK	Digital GND from power filter PCB, **0007**(BB) J10-3
J3-4	YEL	+12VDC$_{CAB}$ from power filter PCB, **0007**(BB) J10-4

J4 Coin Door *[Coin Door Lights & Switches]*

J4-1	Not used	
J4-2	Not used	
J4-3	GRY-RED	Monitor line to coin entry (***Sw 2***)
J4-4	Not used	
J4-5	PNK-YEL	Monitor line to Select menu button (***Sw 4***), diag btns PCB, J1-4
J4-6	PNK-BRN	Monitor line to Back/Exit menu button (***Sw 5***), diag btns PCB, J1-1
J4-7	PNK-RED	Monitor line to Down/+/Left menu button (***Sw 6***), diag btns PCB, J1-2
J4-8	PNK-ORN	Monitor line to Up/-/Right menu button (***Sw 7***), diag btns PCB, J1-3
J4-9	BLK-GRY	Common Switch & LED GND, diag btns PCB, J1-6
J4-10	Not used	+5VDC
J4-11	Not used	
J4-12	Not used	
J4-13	YEL-WHT	+12VDC$_{CAB}$ to coin door coin entry lights

J6 Ethernet Comms *[Neuron Controller Bd,* ***2000****]*
10ft purple CAT5 cable to/from Neuron controller PCB, **2000** J15

J7 Ethernet Comms *[Playfield Interchange Bd,* ***0030****]*
5ft black CAT5 cable to/from playfield interchange PCB, **0030** J18

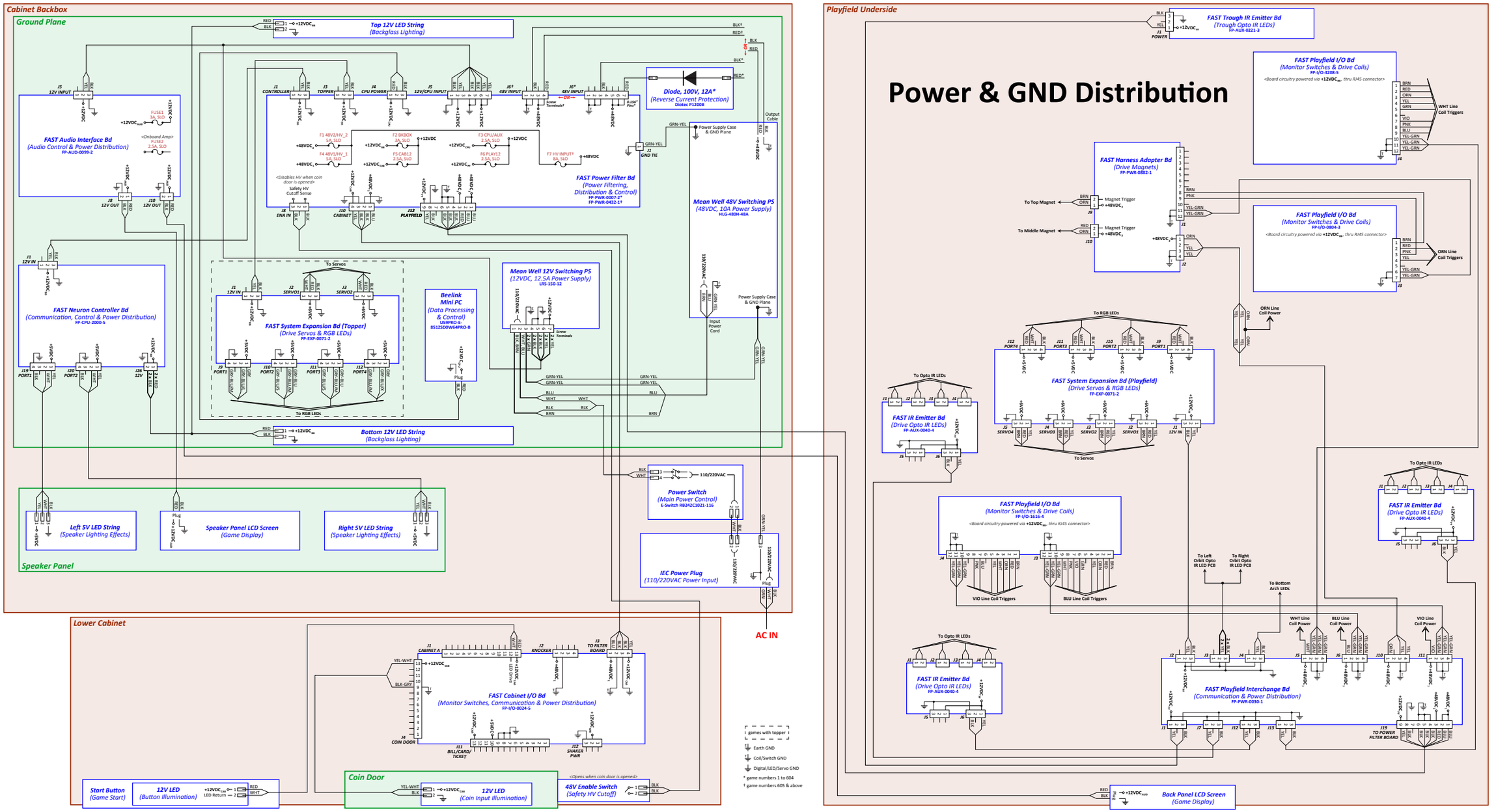
J8 Coin Door *[Not Used]*

J10 Cabinet, Right Side *[Cabinet Switches]*

J10-1	Not used	
J10-2	Not used	
J10-3	Not used	
J10-4	Not used	
J10-5	Not used	
J10-6	Not used	
J10-7	VIO	Monitor line to right flipper (***Sw 22***)
J10-8	VIO-WHT	Monitor line to upper right flipper (***Sw 23***)
J10-9	GRN-YEL	Common Switch GND to both switches above
J10-10	Not used	+5VDC
J10-11	Not used	
J10-12	Not used	
J10-13	Not used	+12VDC$_{CAB}$

J11 Dollar Bill Validator/Card Reader/Ticket *[Not Used]*

J12 Shaker Motor Power *[Not Used]*


Cabinet Backbox
Ground Plane
Top 12V LED String
(Backglass Lighting)
FAST Audio Interface Bd
(Audio Control & Power Distribution)
FP-AUD-0099-2
FAST Power Filter Bd
(Power Filtering, Distribution & Control)
FP-PWR-0007-2*
FP-PWR-0432-1†
Diode, 100V, 12A*
(Reverse Current Protection)
Diotec P1200B
Mean Well 48V Switching PS
(48VDC, 10A Power Supply)
HLG-480H-48A
Mean Well 12V Switching PS
(12VDC, 12.5A Power Supply)
LRS-150-12
FAST Neuron Controller Bd
(Communication, Control & Power Distribution)
FP-CPU-2000-5
FAST System Expansion Bd (Topper)
(Drive Servos & RGB LEDs)
FP-EXP-0071-2
Beelink
Mini PC
(Data Processing & Control)
US9PRO-E-8512SD0W64PRO-B
Bottom 12V LED String
(Backglass Lighting)
Power Switch
(Main Power Control)
E-Switch RB242C1021-116
IEC Power Plug
(110/220VAC Power Input)
AC IN
Speaker Panel
Left 5V LED String
(Speaker Lighting Effects)
Speaker Panel LCD Screen
(Game Display)
Right 5V LED String
(Speaker Lighting Effects)
Lower Cabinet
FAST Cabinet I/O Bd
(Monitor Switches, Communication & Power Distribution)
FP-I/O-0024-5
Start Button
(Game Start)
12V LED
(Button Illumination)
Coin Door
12V LED
(Coin Input Illumination)
48V Enable Switch
(Safety HV Cutoff)
Playfield Underside
Power & GND Distribution
FAST Trough IR Emitter Bd
(Trough Opto IR LEDs)
FP-AUX-0221-3
FAST Playfield I/O Bd
(Monitor Switches & Drive Coils)
FP-I/O-3208-5
FAST Harness Adapter Bd
(Drive Magnets)
FP-PWR-0882-1
FAST Playfield I/O Bd
(Monitor Switches & Drive Coils)
FP-I/O-0804-3
FAST System Expansion Bd (Playfield)
(Drive Servos & RGB LEDs)
FP-EXP-0071-2
FAST IR Emitter Bd
(Drive Opto IR LEDs)
FP-AUX-0040-4
FAST Playfield I/O Bd
(Monitor Switches & Drive Coils)
FP-I/O-1616-4
FAST Playfield Interchange Bd
(Communication & Power Distribution)
FP-PWR-0030-1
Back Panel LCD Screen
(Game Display)
games with topper
Earth GND
Coil/Switch GND
Digital/LED/Servo GND
* game numbers 1 to 604
† game numbers 605 & above

Fused Power Stream

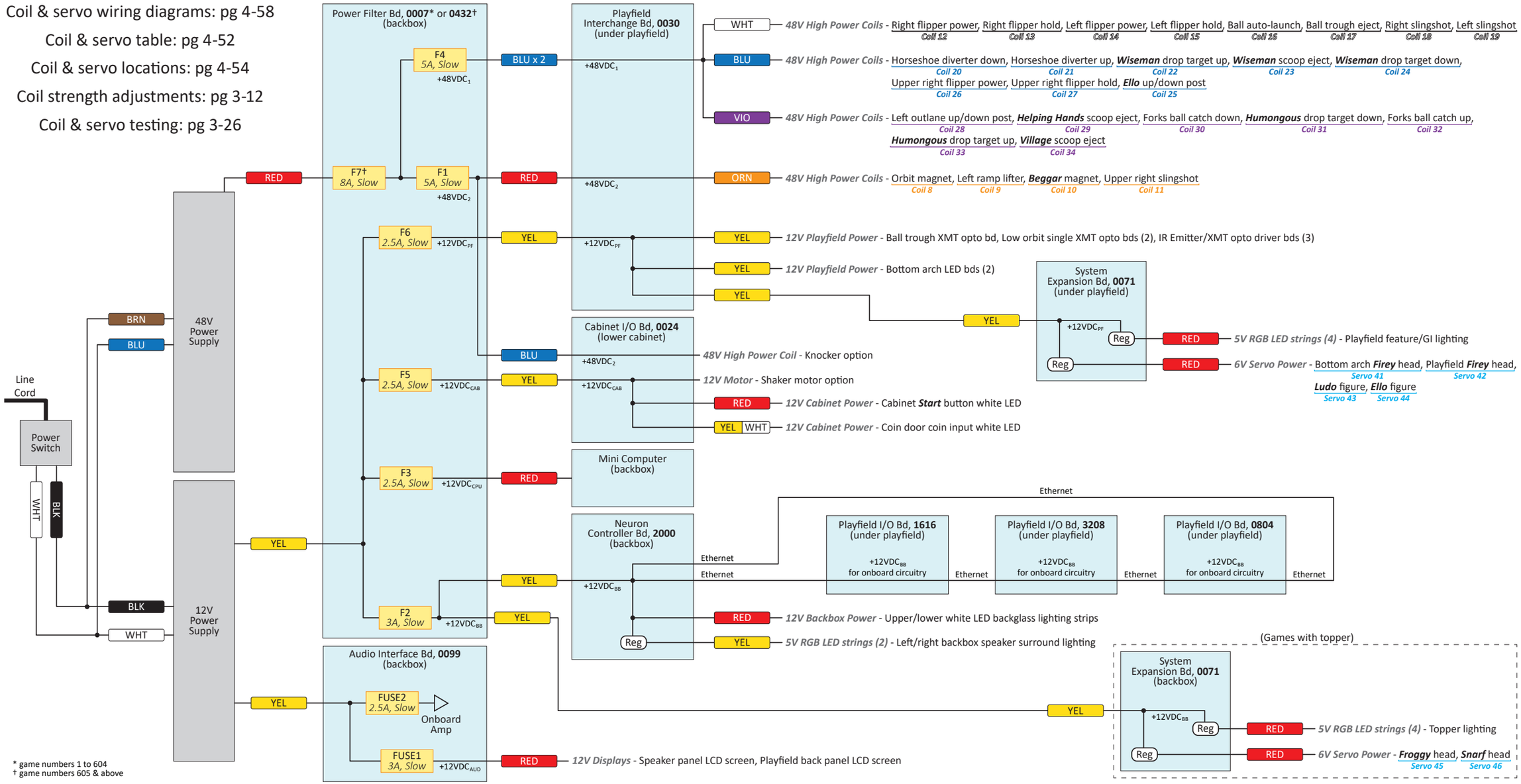
Coil & servo wiring diagrams: pg 4-58

Coil & servo table: pg 4-52

Coil & servo locations: pg 4-54

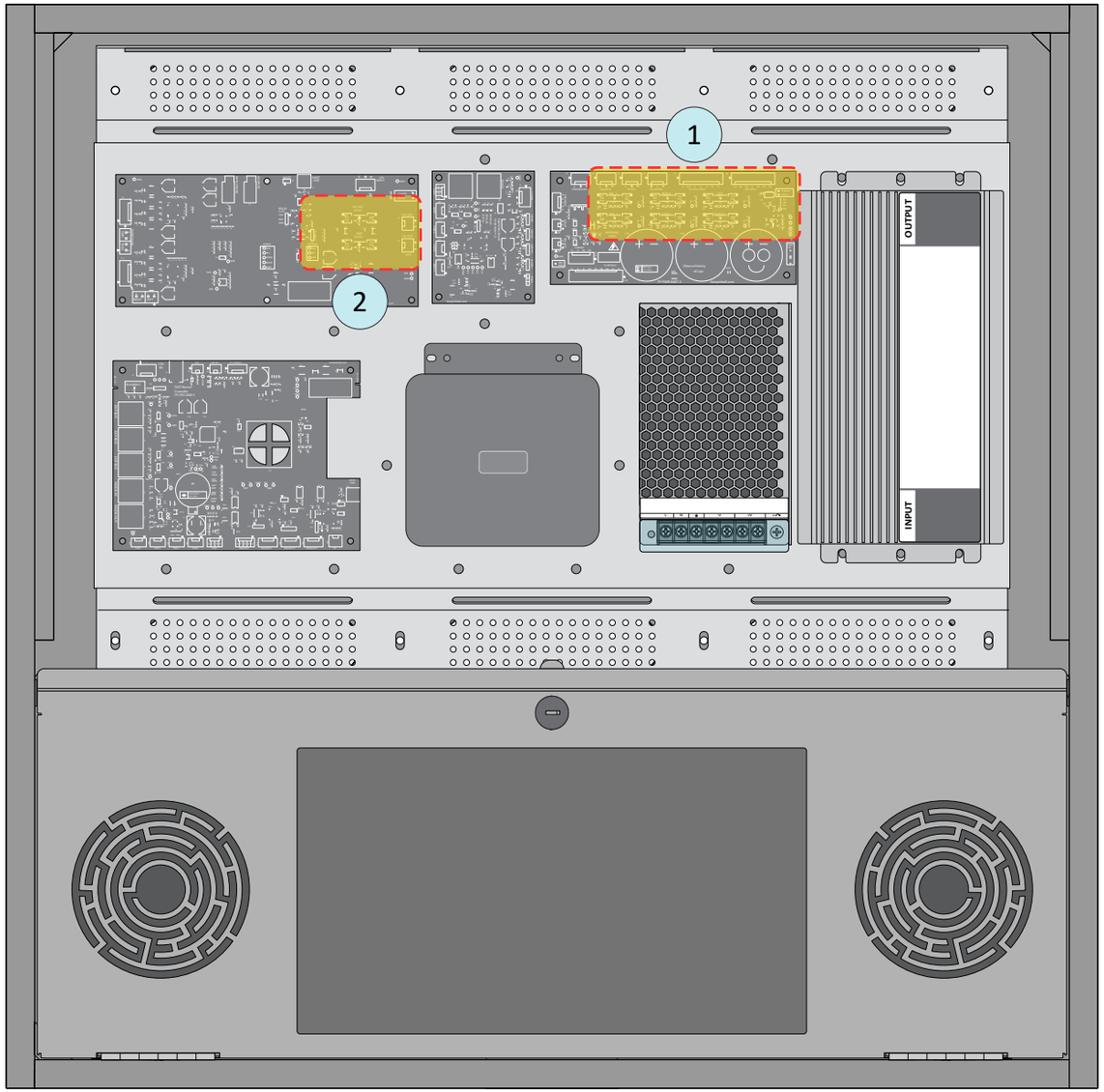
Coil strength adjustments: pg 3-12

Coil & servo testing: pg 3-26



* game numbers 1 to 604
† game numbers 605 & above

Fuse Locations

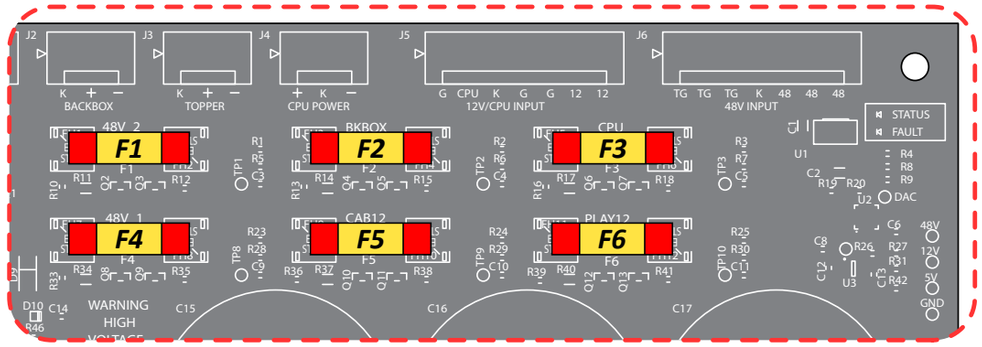


In Backbox

Fuse Information

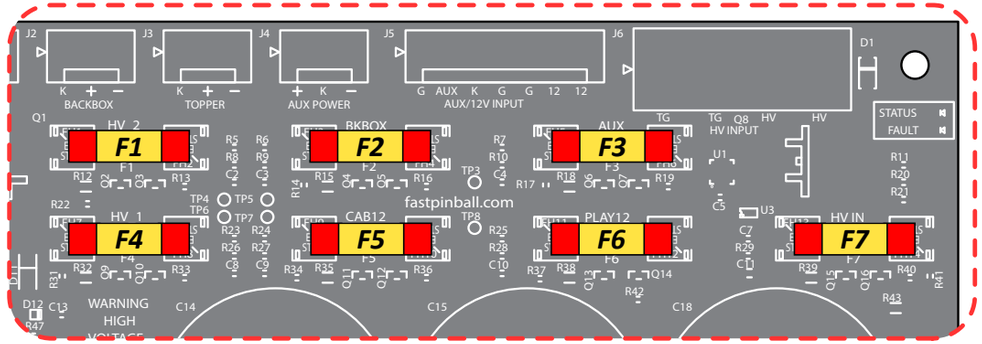
1

Power Filter Board, **0007** (FP-PWR-0007-2)*



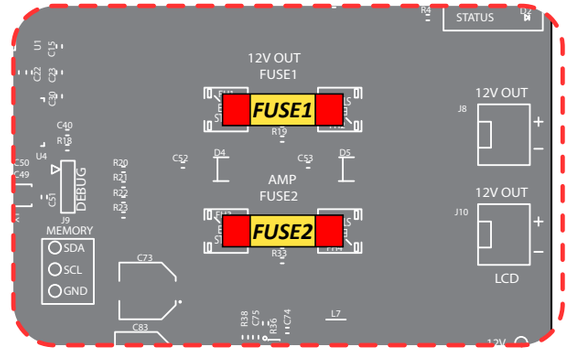
or

Power Filter Board, **0007** (FP-PWR-0432-1)†



2

Audio Interface Board, **0100**



Fuse Identifier(s)	Description	Part Number
F7	Fuse, Time Delay, 8A, 250V, 5mm x 20mm	FUS-5080-00
F1, F4	Fuse, Time Delay, 5A, 250V, 5mm x 20mm	FUS-5050-00
F2, FUSE1	Fuse, Time Delay, 3A, 250V, 5mm x 20mm	FUS-5030-00
F3, F5, F6, FUSE2	Fuse, Time Delay, 2.5A, 250V, 5mm x 20mm	FUS-5025-00

* game numbers 1-604
† game numbers 605 and above

"You're horrible!"

*"No, I ain't. I'm **Hoggle**."*

Section 6

Game Maintenance Information

"You remind me of the babe."

6.1 Labyrinth Lamp, Switch & Coil Notes

Lamps

Your Labyrinth game uses LEDs for ***all*** forms of playfield, backbox, cabinet and coin door illumination and their supply voltages vary; most run on +5VDC, but several require +12VDC. The terms 'LED', 'lamp' & 'light' are used interchangeably in this manual. In areas where more light is required, multiple LEDs are used together (connected in parallel or series) to avoid higher source voltages. As a general rule **on the playfield**, source voltage is +5VDC (RED wire) for feature & GI lights and +12VDC (YEL wire) for flashers. Unfortunately, wiring is somewhat less standardized with Labyrinth backbox, cabinet and coin door lights. At any rate, we all know that ***every*** rule has its exception(s), so *always* reference PCB pin-outs, in **Section 5** of this manual, if there are doubts regarding *any* lamp's source voltage.

Each controlled lamp is assigned a unique numerical identifier. Lamp identifiers are used throughout this manual - in tables, assembly drawings, PCB pin-outs, etc. - to call out specific lights. Feature and GI lamp references are highlighted in bold italic magenta (***0-3***, ***10***).

Most lights in the game are color-changing, RGB LEDs. They are comprised of three discrete LEDs (one red, one green, one blue) in a single package. The radiated RGB color is the summation of the red, green and blue component intensities (each range from 0 to 255; 0 = none, 255 = maximum). RGB lamp tests allow you to vary these component intensities to ensure that each of the three discrete LEDs in an RGB package is functioning properly.

Switches

Your Labyrinth game incorporates a wide variety of switch types, including infrared optos, leaf switches, microswitches. Switch references in this manual are highlighted in bold italic green (***Sw 44***, ***Sw 55***). Switch identifiers are used throughout this manual - in tables, assembly drawings, PCB pin-outs, etc. - to call out specific switches. The terms 'XMT, 'transmitter', 'emitter' and 'IR LED' are used interchangeably in this manual for the emitter side of an opto; likewise, 'RCV', 'receiver', 'detector' and 'phototransistor' are used for the detector side of an opto.

Most of the switches that are part of an assembly in your Labyrinth game are "connectorized". That is, there is a connector added, near the assembly, in between the switch and its wiring harness to the monitoring PCB. Opto switches actually have ***two*** added connectors: one in the transmitter half of the wiring and the other in the receiver half. These connectors allow you to remove most assemblies, in one piece, by simply unplugging their wiring, then unscrewing them from the playfield.

See pg 6-6 for details on the **Switch History Overlay** feature - a very useful troubleshooting tool for switch issues.

Note: When adjusting a switch, the best method for testing it is to roll a pinball over it, through it or into it.

Lighting Illustrations & Tables	Switch Illustrations & Tables	Coil & Servo Illustrations & Tables	Tests	Adjustments
Feature lamps: pg 4-66	Playfield: pg 4-82	Coil & servo table: pg 4-52	Lamp testing: pg 3-24	Lighting adjustments: pg 3-7
GI lamps: pg 4-74	Lower cabinet: pg 4-2	Coil & servo locations: pg 4-54	Switch testing: pg 3-23	Coil strength adjustments: pg 3-12
Lighting wiring: pg 4-78	Switch wiring: pg 4-90	Coil & servo wiring table: pg 4-128	Coil testing: pg 3-28	

Coils

There are many solenoids/coils and servos used in the Labyrinth game. Coils are numbered based upon their associated drive PCBs, mounted under the playfield. All coils are run off the high voltage (+48VDC) lines; the servos in the game are powered by +6VDC. Coil kicking strength is controlled by changing the length of the initial kick pulse, followed by pulse width modulating (PWM) of the coil's trigger line; basically turning it ON and OFF very quickly. Solenoid/coil references in this manual are highlighted in bold italic colors, corresponding to their drive power line (***Coil 8***, ***Coil 12***, ***Coil 20***, ***Coil 28***). Servo references are highlighted in bold italic cyan (***Servo 41***). Coil & servo identifiers are used throughout this manual - in tables, assembly drawings, PCB pin-outs, etc. - to call out specific coils and servos.

All assembly coils in your Labyrinth game are "connectorized". That is, there is a connector added, near the assembly, in between the coil and its power/control wiring. Assemblies with two coils have two independent connectors: one for each coil. These connectors allow you to remove the assemblies, in one piece, by simply unplugging their wiring, then unscrewing them from the playfield.

Hyperlinks

Hyperlinks to lamp/switch/coil (and other) info are used throughout the electronic (PDF) version of this manual. Some hyperlinks are invisible graphics (such as connectors in tables or callouts in playfield illustrations), others are linked to words embedded in text blocks (phrases or descriptors), and still others are linked to actual page number references (pg X-XX, like those at the bottom of this page). If you suspect something might have a hyperlink associated with it, hover your mouse over the words, graphic or area. If the mouse arrow becomes a pointing index finger, you've found a hyperlink. Click the link to instantly navigate to another piece of related documentation in the manual.

Lighting Illustrations & Tables
Feature lamps: pg 4-66
GI lamps: pg 4-74
Lighting wiring: pg 4-78

Switch Illustrations & Tables
Playfield: pg 4-82
Lower cabinet: pg 4-2
Switch wiring: pg 4-90

Coil & Servo Illustrations & Tables
Coil & servo table: pg 4-52
Coil & servo locations: pg 4-54
Coil & servo wiring table: pg 4-128

Tests
Lamp testing: pg 3-24
Switch testing: pg 3-23
Coil testing: pg 3-28

Adjustments
Lighting adjustments: pg 3-7
Coil strength adjustments: pg 3-12

6.2 Updating Game Software

Over the lifetime of your Labyrinth game, it may become necessary for you to manually update its software - to add new game features or fix small bugs in the system. Below are instructions for computers running the Windows operating system.

1) Barrels of Fun game updates require a ***USB drive, 8-64GB in size,*** formatted ***FAT32***. Note: if the drive is larger, it must be formatted ***NTFS***.

2) Download the latest, zipped ***Labyrinth*** update file from the BoF website (**shop.kollectfun.com/code-update/**) to your computer.

3) Unzip the ***Labyrinth*** update file, ***lab.fun***, to your computer hard drive - anywhere other than the USB drive.

4) Copy the ***lab.fun*** file from your computer to the USB drive.

5) Right-click the USB drive icon in the File Explorer view and select '**Eject**', to ensure the file is finished copying.

6) With the game powered up and in attract mode, unlock and lower the backbox speaker panel (the key is hanging on a hook, on the backside of the coin door).

7) Remove the backglass from the game - grasp the plastic lift channel at the bottom, slide upward, then carefully pull the backglass out, bottom first. Set it aside, in a safe place.

8) Locate the Beelink mini PC (item 9 on pg 4-48), in the center of the backbox.

9) Insert the USB drive into an empty USB port on the mini PC's left side, bottom (see pg 5-44). The screen in figure 6-1 appears on the backbox display, then an update progress bar appears across the bottom (figure 6-2).

10) When the game update is complete, the display lets you know - and instructs you to remove the USB drive (figure 6-3). The game then automatically reboots, running the updated code. You can verify the game software version by pressing the black (**MENU**) diagnostics button, inside the coin door. The software version is displayed in the upper righthand corner of the screen. Press the green (**EXIT**) diagnostics button to return to attract mode.

11) Replace the backglass - grasp the plastic lift channel, insert the top first, slide it upward, then drop the bottom into the backglass support bracket.

12) Fold the speaker panel back up, lock it closed and return the key to the hook on the backside of the coin door.

Figure 6-1. Initial code update screen.

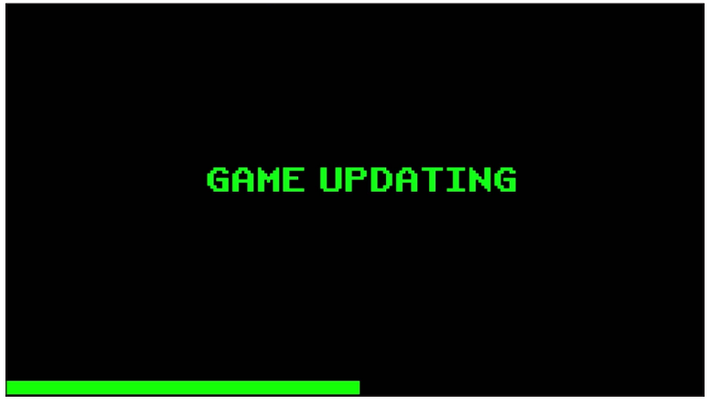


Figure 6-2. Update screen with progress bar.

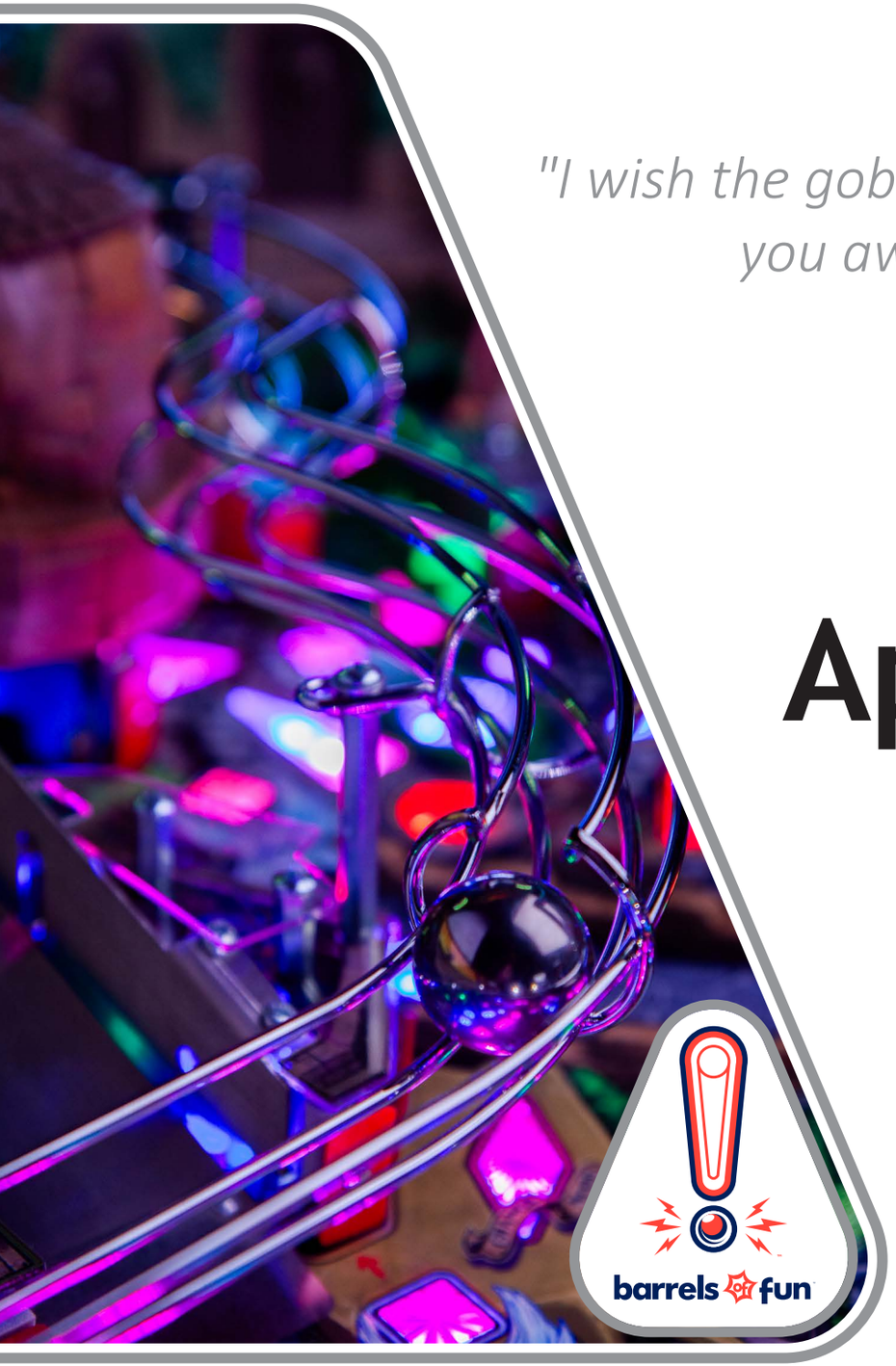
Figure 6-3. Update complete screen.

6.3 The Switch History Overlay

For those times when you're not sure a switch is working reliably - or at all - in certain game modes or situations, your Labyrinth game is equipped with a very useful troubleshooting tool: the **Switch History Overlay** (figure 6-4). Hold the left flipper button in, then press the red **-/LEFT** diagnostics button, inside the coin door, to toggle the overlay on/off. A box showing the **Trough Status** appears top, center on the screen, along with a scrolling 27-**Switch History** window down the right side. The overlay can be activated and used in test mode *or during game play* - as shown below, the information is superimposed right over the normal display.

Trough Status provides all pertinent information associated with the trough and shooter lane: ball counts, switch levels, eject/auto-launch progress and ball save state. **Switch History** instantly registers and displays all of the playfield switches (cabinet and flipper EOS switches are ignored), in the order they are activated; the most recent 27 switch triggers are shown in the window. The overlay is a great troubleshooting tool for switch-related game play concerns and issues - give it a test drive on your game today!

Figure 6-4. Screen with switch history overlay.



*"I wish the goblins **would** come and take you away! Right **now**!"*

Appendices

*"I have been generous up 'til now. I **can** be cruel."*

25¢ Coin Door Assembly, Single Slot

BoF PN: *CDR-0001-00*

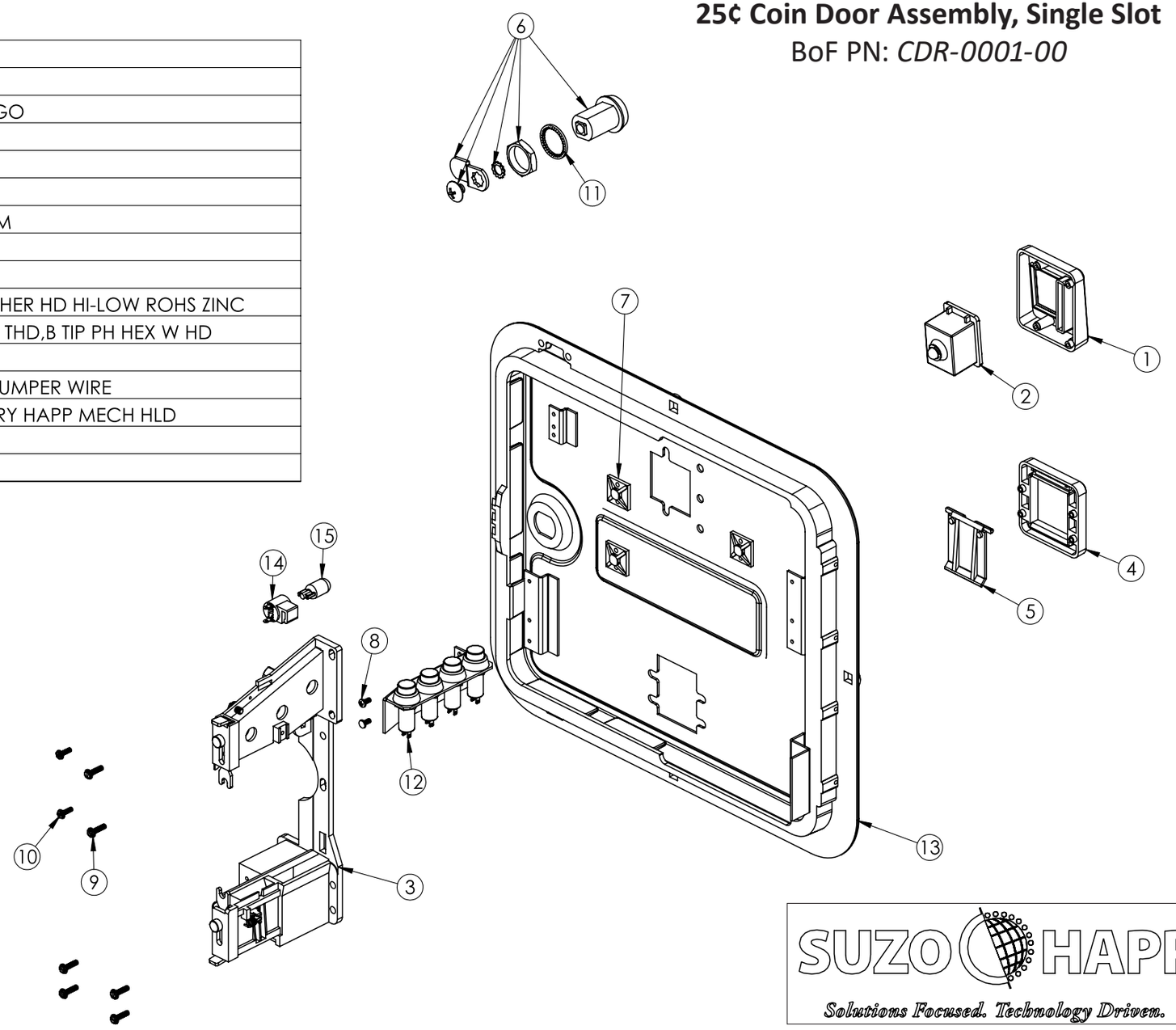
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	42-0231-00D	ENTRY BEZEL, IL, PLASTIC
2	1	42-0930-00	REJECT BT ASSY YL W/UNIV FINGER LOGO
3	1	42-7355-00D	MECH HOLDER
4	1	42-0232-00D	RETURN BEZEL, IL, PLASTIC
5	1	42-0119-00D	RETURN DOOR FLAP, PLASTIC
6	1	42-0641-00	LOCK ASSY 7/8 W/1 1/8" STRAIGHT CAM
7	3	43-0127-00	TIE PLATE
8	2	43-0022-00	SCREW, 4-40 X .25 PH. PN. HD
9	6	48-1000-00	SCREW, F/BEZEL,LONG 6 X 12 HEX WASHER HD HI-LOW ROHS ZINC
10	2	43-1003-00	SCREW,SPL F/PLAST, #4 X .42/.39 SPL HI THD,B TIP PH HEX W HD
11	1	42-0254-02	LOCKWASHER, F/LOCK 3/4" INTERNAL
12	1	96-0436-04	HARNESS ASSY W/DIODE, 4 BUTTONS, JUMPER WIRE
13	1	42-1072-00	WELLS DR & FRAME ASY PINBALL 1 ENTRY HAPP MECH HLD
14	1	42-0351-00D	LAMP HOLDER
15	1	91-1319-00	LAMP #555 6.3V

ITEMS NOT SHOWN:

90-1013-00 - TIE WRAP - 3,

S-11136 CABLE TIE 5" LENGTH .14WIDTH 40LB NATURAL

Note: Suzo-Happ parts and numbers are listed above.



SUZO HAPP

Solutions Focused. Technology Driven.

Acronyms & Abbreviations

3DP	3D printed
A	ampere
AC	Alternating Current
Adj	adjustable
Assy	assembly
Aux	auxiliary
BB	backbox
Bd	board
bidir	bidirectional
BLK	black
BLU	blue
BoF	Barrels of Fun
brkt	bracket
BRN	brown
CB	carriage bolt
CAB	lower cabinet
CAT5E	category 5E ethernet
CCW	counterclockwise
CMOS	Complementary Metal-Oxide Semiconductor
COM	Common (wrt switch lugs)
CP	cup point (wrt screws)
CPU	Central Processing Unit
CS	Cap Screw (wrt screws)
ctrl	control
CW	clockwise
DBA	Dollar Bill Acceptor
DBV	Dollar Bill Validator
DC	Direct Current
diam	diameter
DIP	Dual Inline Package
Diff	differential
DPDT	double pole, double throw (wrt switches)
DPST	double pole, single throw (wrt switches)
Drv	drive
DT	drop target
dwg	drawing
ea	each
Elect	electrolytic
EOS	end of stroke (wrt flippers)
F-F	Female - Female
FB	Fast Blow (wrt fuses)
FCC	Federal Communications Commission
FH	Flat Head (wrt screws)
FM	front mount (wrt targets, switches)
F-M	Female - Male
ft	feet
ga	gauge (wrt wire)
GB	gigabyte
GI	General Illumination
GND	ground
GP	general purpose
GRN	green
GRY	gray
HH	Hex Head (wrt screws)
HP	high power (wrt coils/solenoids)
HSTD	high score to date
HV	high voltage
HW	hardware
HWH	Hex Washer Head (wrt screws)
IC	Integrated Circuit
ID	Inside Diameter (wrt washers)
IEC	International Electrotechnical Commission
I/O	Input/Output
IP	Internet Protocol
IR	infrared
ISO	International Organization for Standardization
J	joule
kΩ	kilo ohm
kHz	kilohertz
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LF	lower flipper (wrt coils/solenoids)
Lg	large
LHM	left hand mount
LP	low power (wrt coils/solenoids)
LSM	left side mount (wrt switches)
Lt	left
mA	milliampere
MB	multiball
MCU	microcontroller unit
M-F	Male - Female
MHz	megahertz
MLCC	Multi-Layer Ceramic Capacitor
MOV	Metal Oxide Varistor
M-M	Male - Male
mm	millimeter
MOSFET	Metal-Oxide Semiconductor Field-Effect Transistor
MS	Machine Screw
Mtg	mounting
N/A	not applicable
N/C	no connection
nF	nanofarad
nm	nanometer
NO	normally open (wrt switches)
NPN	Negative - Positive - Negative (wrt transistors)
NS	not shown
ns	nanosecond
Ω	ohm
OD	Outside Diameter (wrt washers)
ORN	orange
OS	operating system
PCB	Printed Circuit Board
PDF	portable document format
pcs	pieces
PEM	brand name threaded insert
PEM Stud	brand name threaded stud
pF	picofarad
PF	playfield
PFH	Phillips Flat Head (wrt screws)
pkg	package
PLM	plum
PPH	Phillips Pan Head (wrt screws)
PN	part number
PNK	pink
pos	position
PTH	Phillips Truss Head (wrt screws)
PWH	Phillips Washer Head (wrt screws)
PWM	pulse width modulation (or modulated)
Qty	quantity
RCV	receive (wrt optos)
RED	red
rev	revision
RF	Radio Frequency
RGB	red, green, blue
RHM	right hand mount
Rnd	round
RSM	right side mount (wrt switches)
Rt	right
RX	receiver
SAE	Society of Automotive Engineers
SB	Slow Blow (wrt fuses)
SH	Socket Head (wrt screws)
SEMS	integral star lock washer
SMD	Surface-Mounted Device
SMS	Sheet Metal Screw
SMT	Surface Mount Technology
SOIC-	Small-Outline Integrated Circuit (IC pkg)
SP	solenoid power (driver PCB)
SPDT	Single Pole, Double Throw (wrt switches)
SPST	Single Pole, Single Throw (wrt switches)
SS	stainless steel (wrt hardware)
TAN	tan
term	terminal
Tgt	target
TH	Truss Head (wrt screws)
TH	thickness (wrt washers)
TO-	Transistor Outline (transistor pkg)
µF	microfarad
UF	upper flipper (wrt coils/solenoids)
USB	Universal Serial Bus
V	volt
VHB	very high bond (wrt tape)
VIO	violet
W	watt
Wi-Fi	wireless fidelity (wrt networks)
wrt	with respect to
WS	Wood Screw
w/	with
WHT	white
XMT	transmit (wrt optos)
YEL	yellow
'	feet
“	inch

Barrels of Fun, LLC Limited Manufacturer's Warranty

Barrels of Fun, LLC ("Barrels") warrants to the Reseller that each Pinball Machine delivered to the Reseller is free from defects in workmanship and free from defects in materials, pursuant to the terms and conditions set forth in this Limited Warranty.

COVERAGE:

Barrels machines are assembled in the USA; each machine has unique characteristics that make them one-of-a-kind. Machines may have variations in appearance resulting from differences in the machine's wood parts, printed art and mechanical assemblies. Each machine has been inspected to ensure that it meets our quality and playability standards. The Limited Warranty covers defective workmanship and materials, as follows, to original purchaser of Machine:

1. All parts of the Pinball Machine, excluding standard plastic, bumper post, rubber rings and wear & tear parts, for 1 year from the date of invoice or shipment by Reseller.
2. The LCD monitor(s) for 6 months from the date of invoice or shipment by Reseller.
3. Playfields are not covered under warranty as they are considered a wear & tear part.

CONDITIONS:

1. The original purchaser must register the Limited Manufacturer's Warranty by completing the Product Registration Form on the Barrels Website (*shop.kollectfun.com*) within fifteen days of purchase or invoice.
2. In the event of a warranty for the above Coverage to apply, the Original Purchaser must open a trouble ticket on *shop.kollectfun.com* or call 281-313-5400 EXT 103. Service-related questions can also be sent via e-mail to **support@kollectfun.com**.
3. Defective parts need to be sent to Barrels at the purchaser's expense, if the defective parts cannot be removed, the entire Pinball Machine will need to be returned to the Reseller for repair or replacement. All parts returned must be properly packaged with an RMA tag/Trouble ticket then returned freight prepaid to the Barrels facility.
4. Any modification of the Pinball Machine or its software, improper repairs or attempts at repairs with non-Barrels parts will void the Limited Warranty.

EXCLUSIONS:

1. The Limited Warranty does not cover service, labor, or shipping and handling.
2. Damage, wear, and/or breakage not caused by defective materials or workmanship shall not be covered by the Limited Warranty.
3. Damage incurred during shipping and handling shall not be covered by the Limited Warranty.

DISCLAIMER OF IMPLIED WARRANTY:

The Limited Warranty, as set forth in this document, is the **only** warranty. ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE WARRANTY OF MERCHANTABILITY IS DISCLAIMED. THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS DISCLAIMED.

DISCLAIMER OF DAMAGES:

This Warranty does not apply to any parts damaged due to improper handling or due to improper installation, usage or alteration. In no event shall the Seller be held liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages or any other losses incurred by the customer regarding the purchase of a Barrels product.

WARNINGS & NOTICES

WARNING

FOR SAFETY AND RELIABILITY, substitute parts and equipment modifications are not recommended. Use of non-BoF 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.

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 BoF equipment, logos, designs, publications, assemblies and games (or game feature not deemed to be public domain), whether manufactured with BoF 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 hazard.

Notice

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 BoF 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 BoF for advice or write us a note on your Game Registration Card. Be sure that the card bears your game's serial number.

FOR SERVICE…

CALL your authorized Distributor

or VISIT our support site:
https://shop.kollectfun.com/technical-support/

Barrels of Fun, LLC
4903 Sam Houston Pkwy N, Suite A100
Houston, TX 77041

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