

PULP FICTION™

February 2024
PFP-16-MANUAL



Play Mechanix™

Operations Manual

Game Assembly, Rules & Menu System • Parts Information • Wiring & Schematics • Maintenance Information

Chicago Gaming Company, 4616 West 19th Street, Cicero, IL 60804 Telephone: (708) 780-0070

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PULP FICTION™



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Visit our customer support help desk, <https://www.chicago-gaming.com/support/helpdesk>, and register your game. Be sure to include the game serial number. For your records, write the game serial number in the manual.

Serial Number _____

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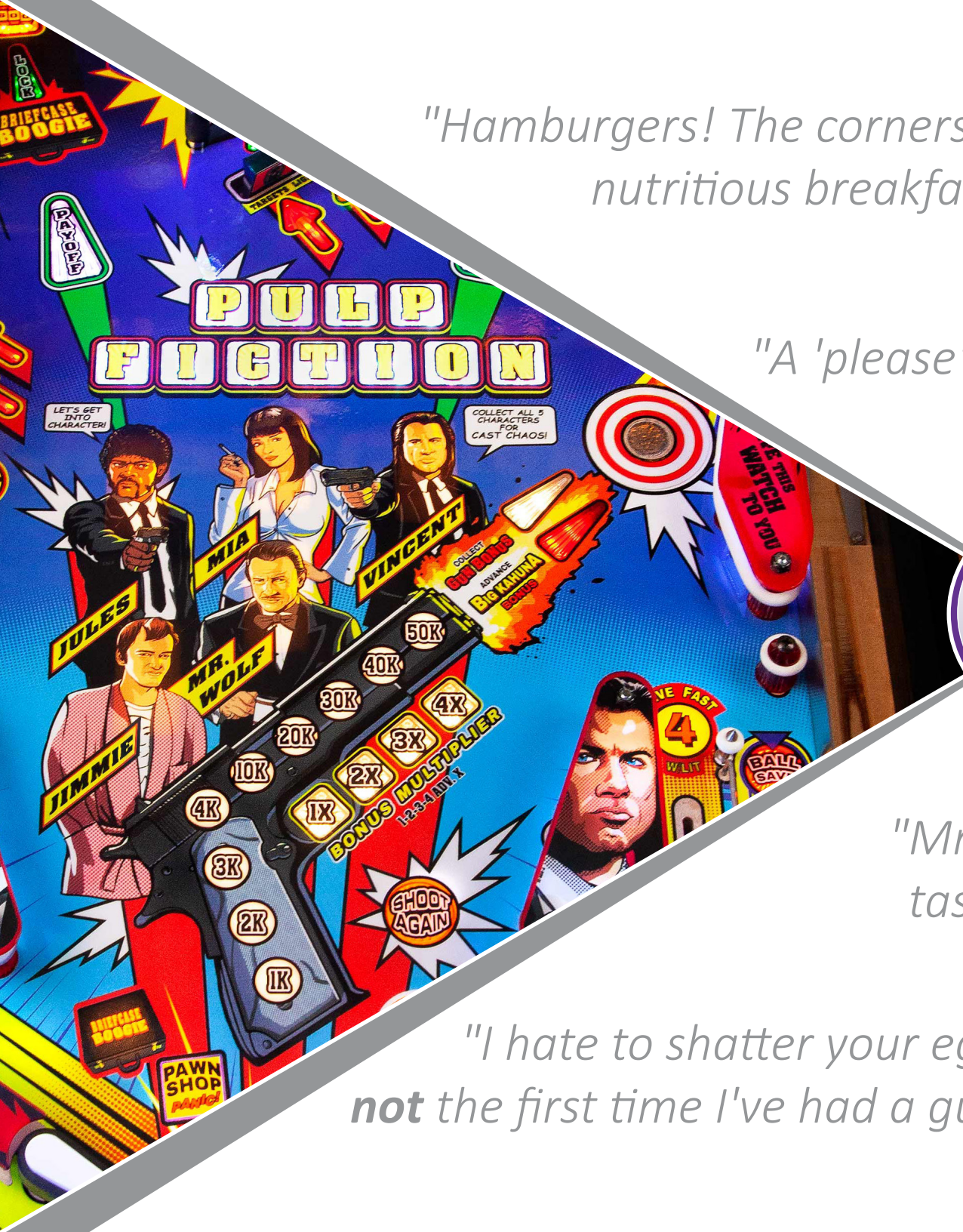
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"Hamburgers! The cornerstone of any nutritious breakfast."

"A 'please' would be nice."



"Mmm, this *is* a tasty burger!"

"I hate to shatter your ego, but this is *not* the first time I've had a gun pointed at me."

Section 1

Game Assembly, Rules & Menu System



1.1 Unpacking Your Pulp Fiction Game

1) Using wire cutters or scissors, remove all shipping bands from the outside of the carton, noting the side with the “TRUCK THIS SIDE ONLY” marking (see figure 1-1). With a utility knife and needle-nose pliers, carefully cut the tape and remove all staples along the seams of the carton’s top flaps, then fold them open (see figure 1-2). As you unpack your game, check all loose parts against the packing lists on this page.



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



Figure 1-2. Opening the shipping carton.

Tools Required:

Wire cutters or Scissors
 Needle-nose pliers
 Utility knife
 1/4" nutdriver
 Ratchet and 5/8" socket (or 5/8" wrench)
 Torpedo bubble level

Loose Parts Packing List

4 pinball machine legs, with levelers and locking nuts
 1 printed game manual
 1 Pulp Fiction LE signed certificate of authenticity (LE only)

Cash Box Loose Parts Packing List

1 USA line power cable
 1 line cord cover and 2 screws
 4 steel mirror-finish pinballs
 assorted plastic game key fobs
 2 instructions/pricing cards
 1 optional plastic plug, PIN-PLM-018PLUG (see pg 4-9 for details)

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

If you wish to save your shipping carton:

2) With the help of at least one other person, carefully tip the carton over and lay it on its “TRUCK THIS SIDE ONLY” side (see figure 1-3a). Using the nylon strap as a handle (**DO NOT PULL ON THE GAME'S BALL SHOOTER!**), slide the game and packing materials out of the carton.

Note: You may need to spread a blanket or some other form of cushion under the game to protect the floor.

3) **DO NOT CUT THE NYLON STRAP** holding the backbox down at this point. Remove the foam padding from the corners of the game and carefully stand it upright again (as it was in the carton during shipping).

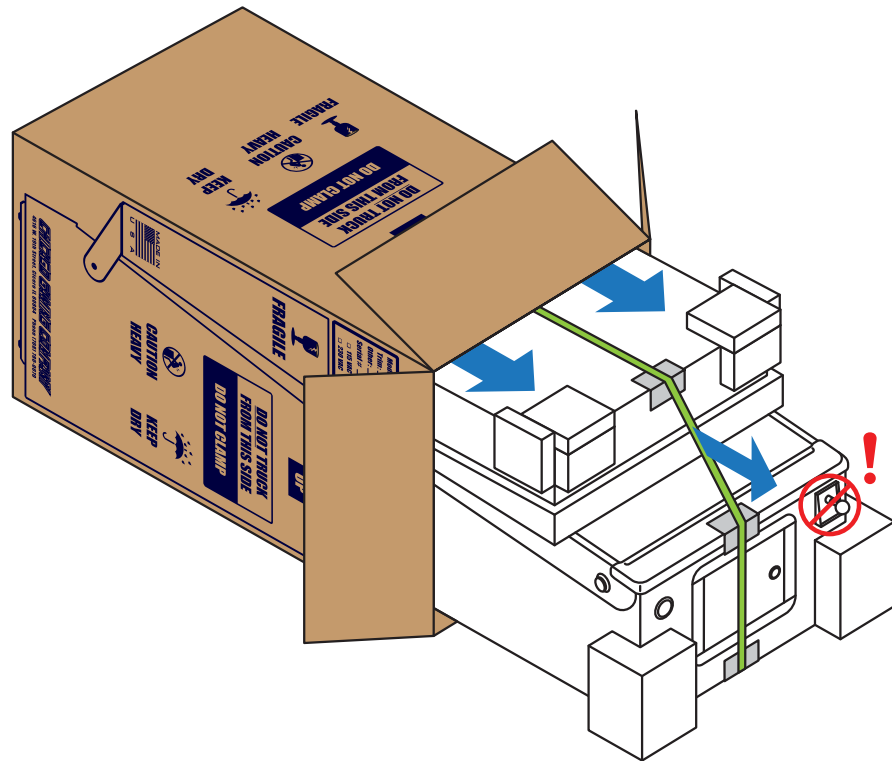
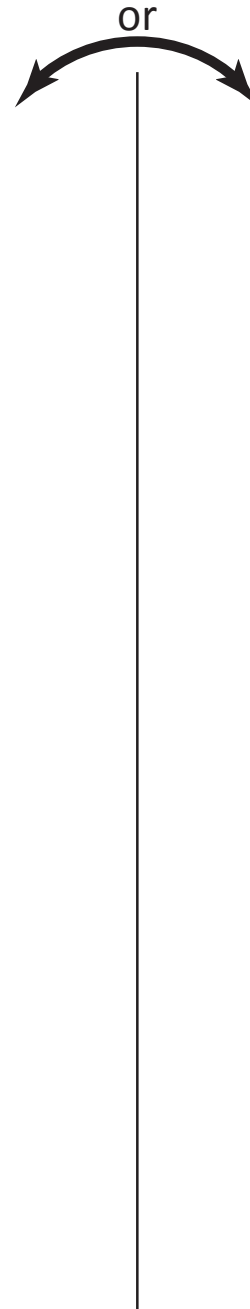


Figure 1-3a. Sliding the game out of the carton.



If you do not wish to save your shipping carton:

2) Using a utility knife, remove the “TRUCK THIS SIDE ONLY” side of the shipping carton (see figure 1-3b). Carefully cut down the ① left and ② right sides of the box. Let the flap fall to the floor, then ③ cut across the bottom edge (taking care not to damage the floor).

3) **DO NOT CUT THE NYLON STRAP** holding the backbox down at this point. Remove the foam padding from the corners of the game.

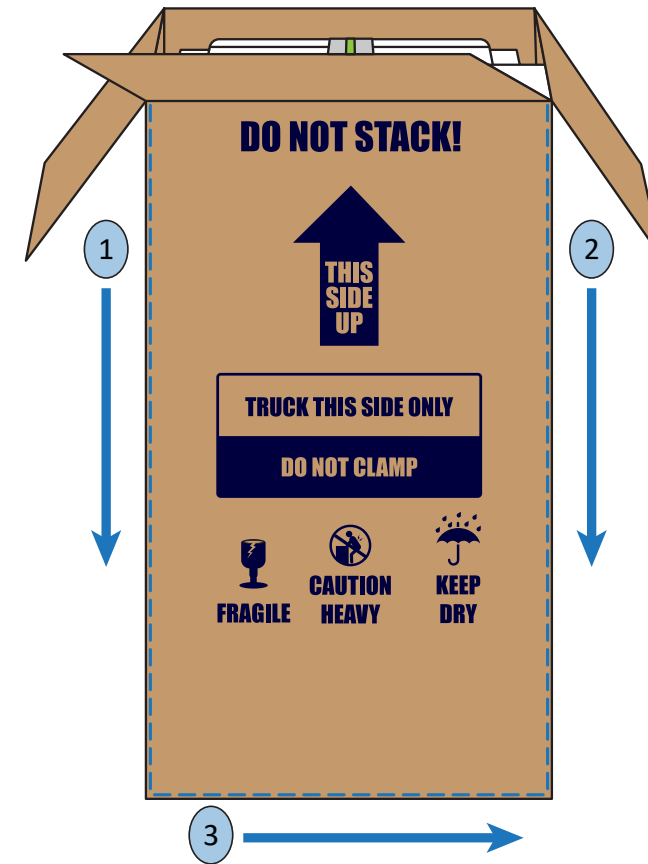


Figure 1-3b. Removing the “TRUCK THIS SIDE ONLY” side of the carton.

4) Locate the game's four legs; remove their packing material. Prepare each leg as shown in figure 1-4: **1** Thread the locking nut all the way down, next to the foot of the leveler. **2** Hand thread the leveler/nut into each leg until the locking nut is against the base of the leg. With the cabinet set up on a perfectly level surface, this should provide a playfield pitch of approximately 6.5°, front-to-back.

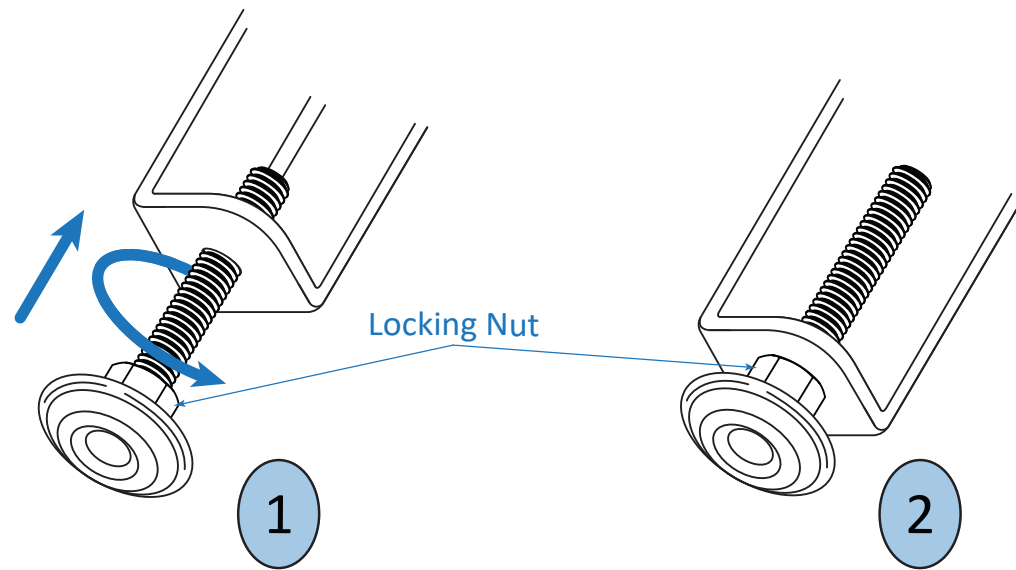


Figure 1-4. Preparing a leg for installation.

5) Using a 5/8" socket and ratchet (or a 5/8" wrench), remove the eight acorn-head leg bolts from the lower cabinet (two at each corner). Thread two leg bolts through each front leg and attach it to the cabinet (see figure 1-5). Use your 5/8" socket 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 against each cabinet corner.

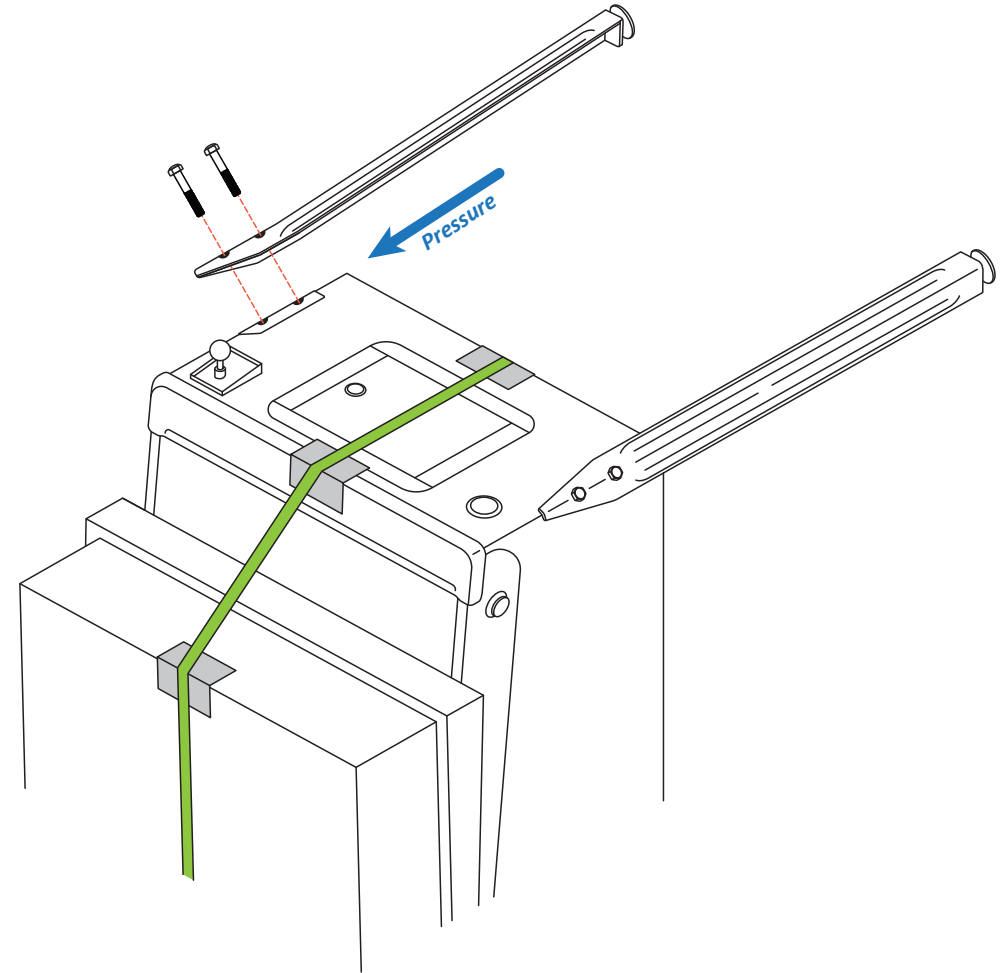


Figure 1-5. Installing the front legs.

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 have **two people** hold it or place it on a sturdy support. As with the front legs, attach the two rear legs, using the four remaining acorn-head bolts. 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: PROTECT YOUR EYES** and have helpers/bystanders move away! The sharp ends of the cut strap may whip violently away from the game!). Unscrew and remove the two wing bolts & washers (red arrows, below) holding the backbox support shipping cleat to the back of the game. Save the wing bolts & washers for later use (inset close-up, below).

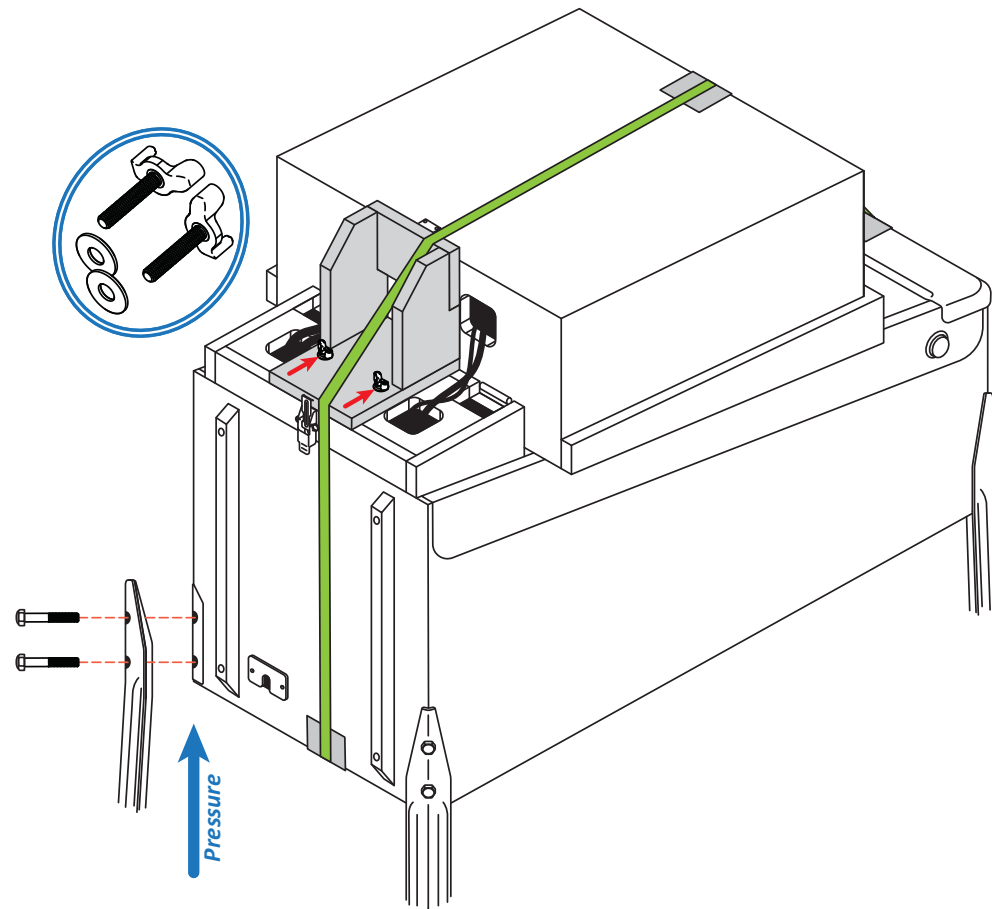


Figure 1-6. Installing the rear legs.

7) Remove the cleat and the other packing material from the game, then 1 raise the backbox to its upright position (see figure 1-7). Ensure that the cables and wires in the neck of the game do not get pinched at any time during this process. 2 Engage the toggle latch on the back of the cabinet (inset close-up, below) to hold the backbox in place until the next step.

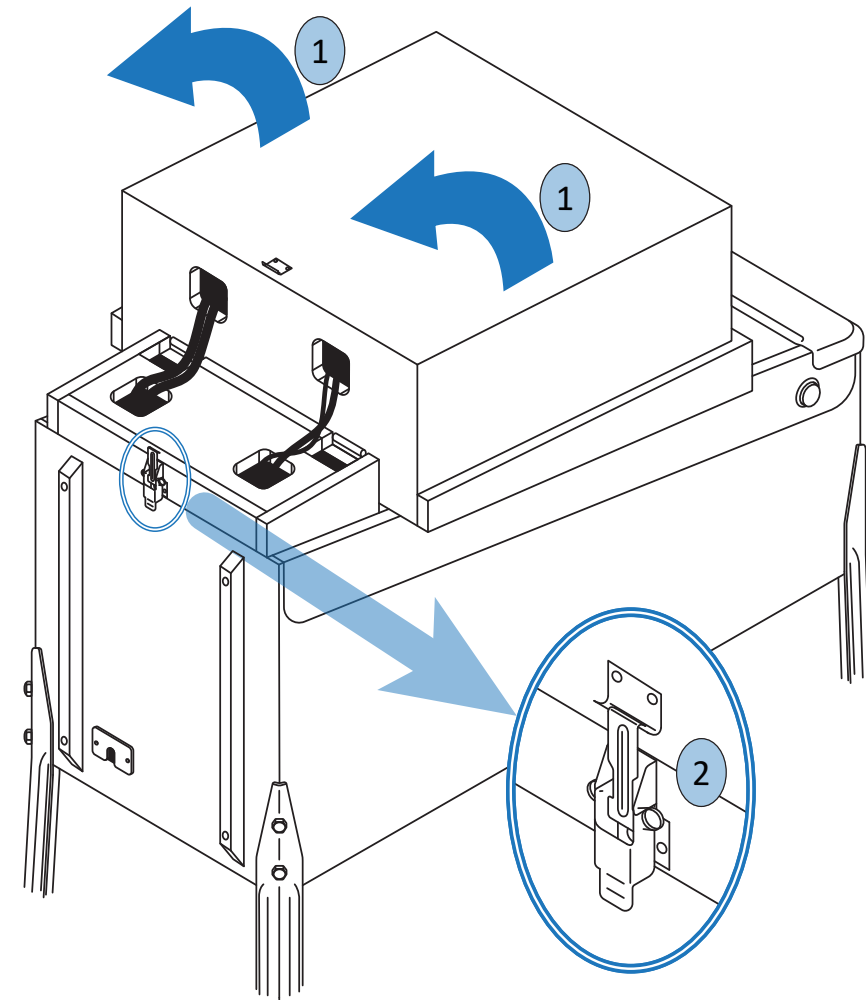


Figure 1-7. Raising the backbox to its upright position.

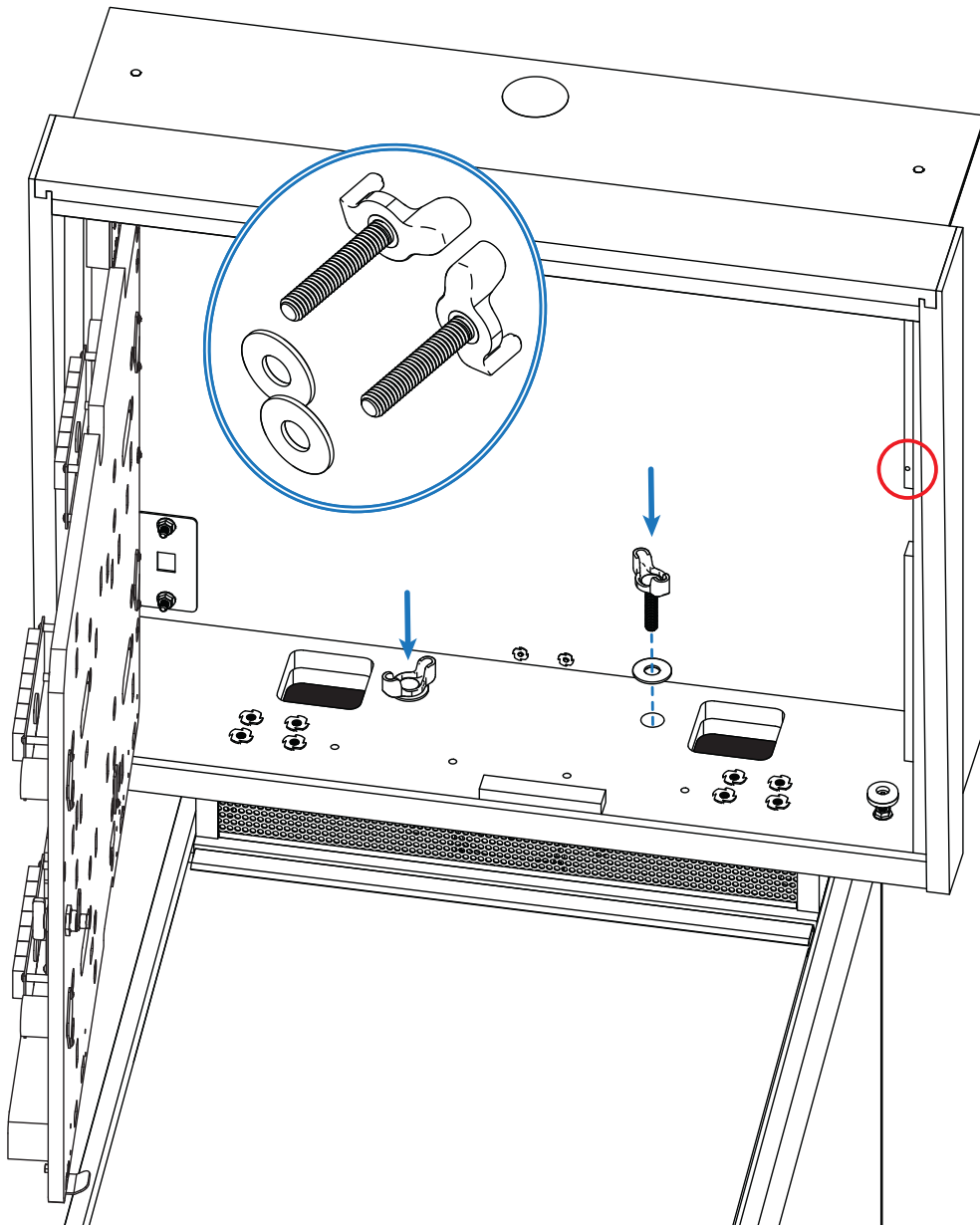


Figure 1-8. Securing the backbox in the upright position.

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 two backbox wing bolts and washers (inset close-up, figure 1-8) used to hold the backbox shipping cleat in place.

9) Retrieve the backbox keys from the hook on the back of the coin door. Unlock the backbox, then carefully lift the backglass up and out of the game; set it safely aside. Locate the shipping screw & washer holding the insert door closed and remove it. It will be located directly above the insert door latch (red circled area in figure 1-8). Save the screw and washer to reuse when moving your Pulp Fiction game with the backbox lowered. Unlatch and open the insert door. Insert the wingbolts through the washers, then into the two holes in the base of the backbox; thread them into the T-nuts in the cabinet neck assembly, then firmly hand-tighten them down.

10) Close and re-latch the insert door, then remove all shipping material from the five alphanumeric displays. Carefully slide the backglass back into the backbox, re-lock the backbox, then return the backbox keys to the hook on the back of the coin door. Using at least **two people**, lift the game and move it to the intended play area. **DO NOT SLIDE LEGS ACROSS THE FLOOR.**

11) Remove the playfield glass: ① open the coin door, ② slide the yellow lockdown bar lever to the left, 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. Shock to the edges could shatter the tempered glass!

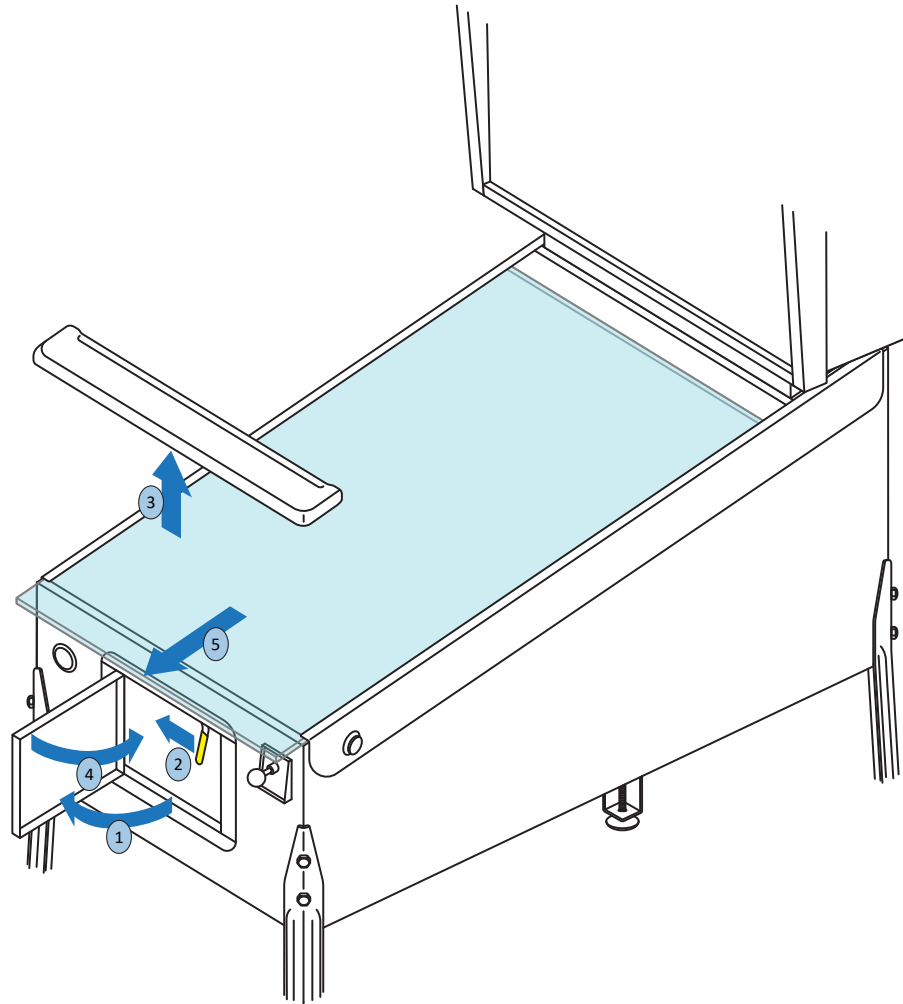


Figure 1-9. Removing the playfield glass.

12) A bubble level (figure 1-10) is attached to the playfield's right woodrail, next to the ball shooter lane, to indicate the optimal pitch of the playfield (front-to-back) for game play. Adjust the levelers/nuts on the game's rear legs, equally, until the top of the bubble in the level is just touching the second reference line, as shown in figure 1-10. This will provide a playfield pitch angle of 6.5°.

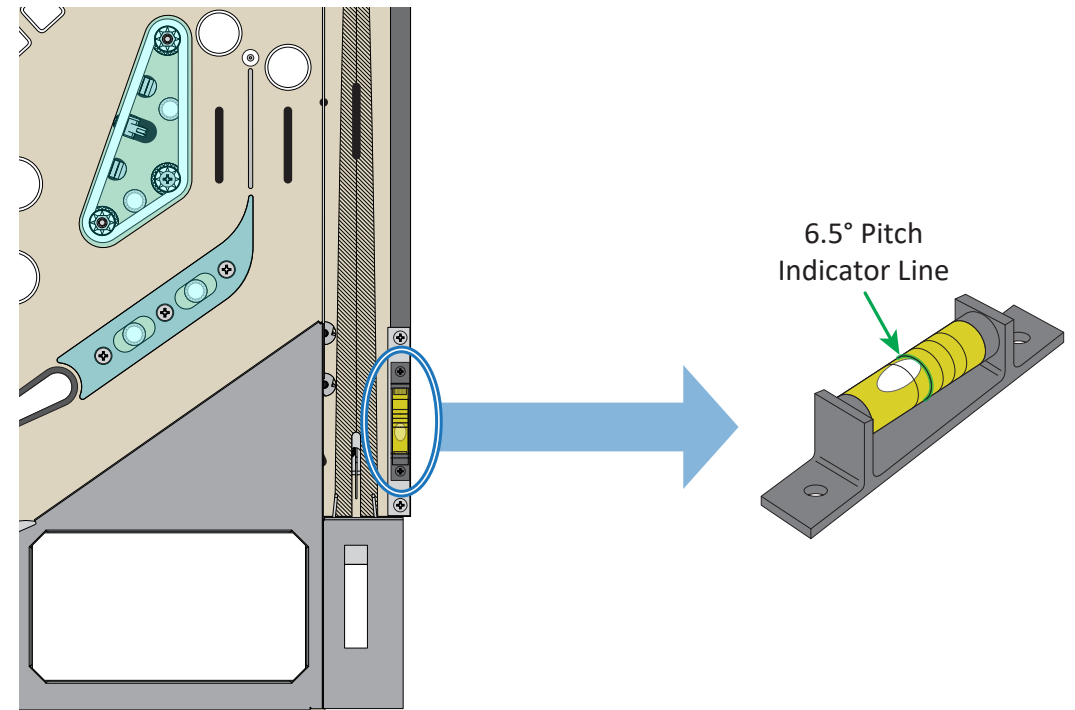


Figure 1-10. Playfield pitch bubble level.

13) 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 1-11): 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 front leg levelers/nuts, accordingly, to center the bubble. Keep an eye on the playfield pitch bubble, to ensure that your adjustments are not affecting front-to-back pitch of the playfield. When finished, ② thread the locking nuts against the underside of all four legs, and tighten them firmly in place.

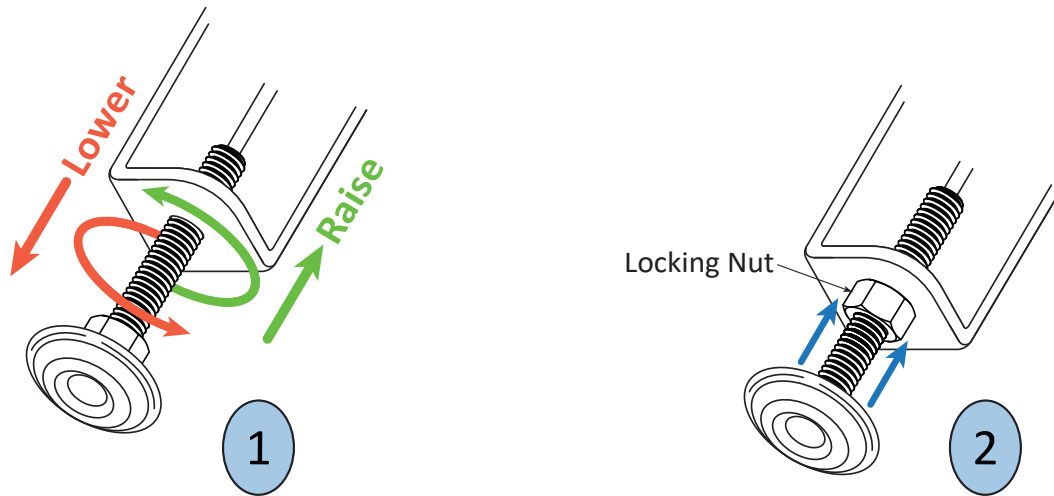


Figure 1-11. Adjusting the leg levelers.

14) Your Pulp Fiction playfield is designed to rest in four distinct positions in its cabinet for game play, cleaning and/or maintenance. Figure 1-12 shows the playfield in its primary position, ready to play.

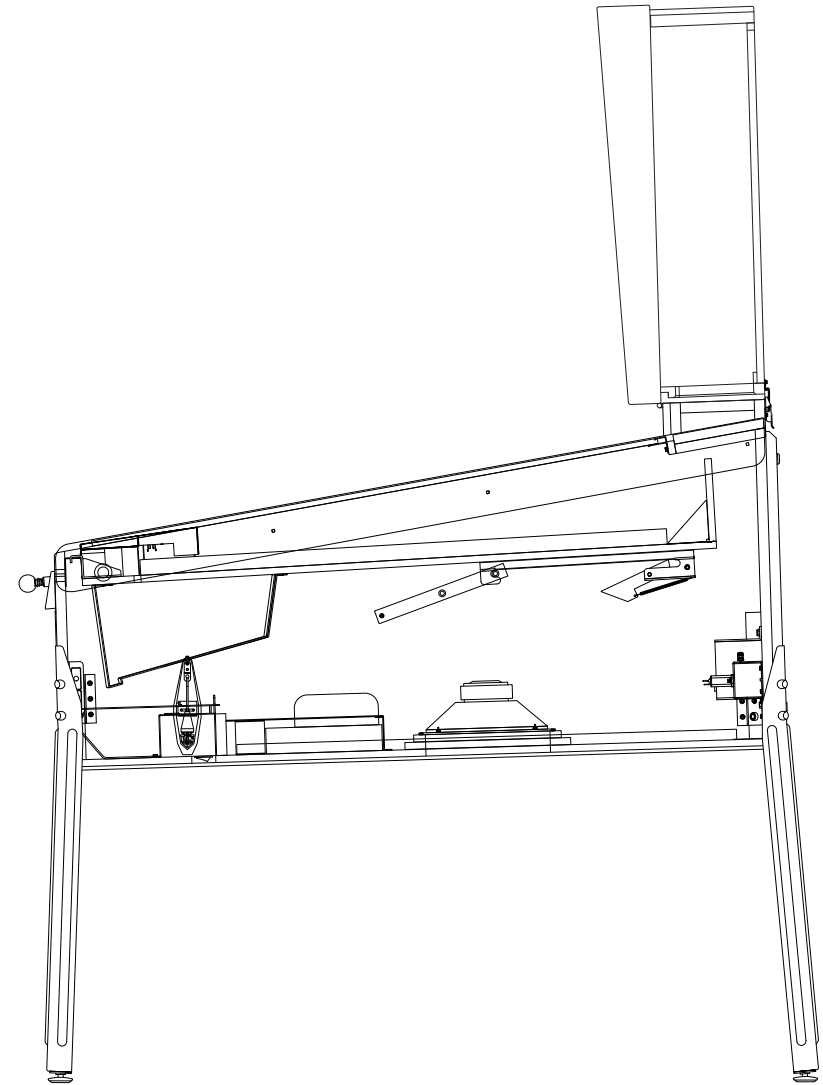


Figure 1-12. Playfield in the cabinet, ready to play.

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

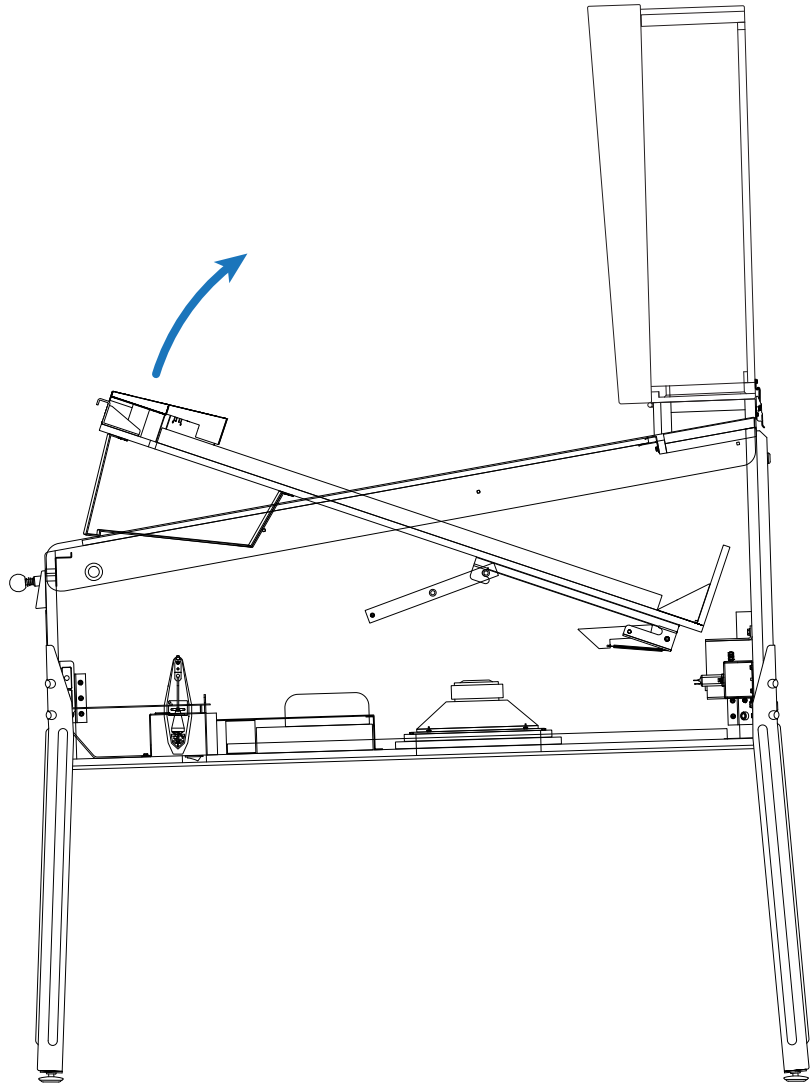


Figure 1-13. Swing the playfield upward.

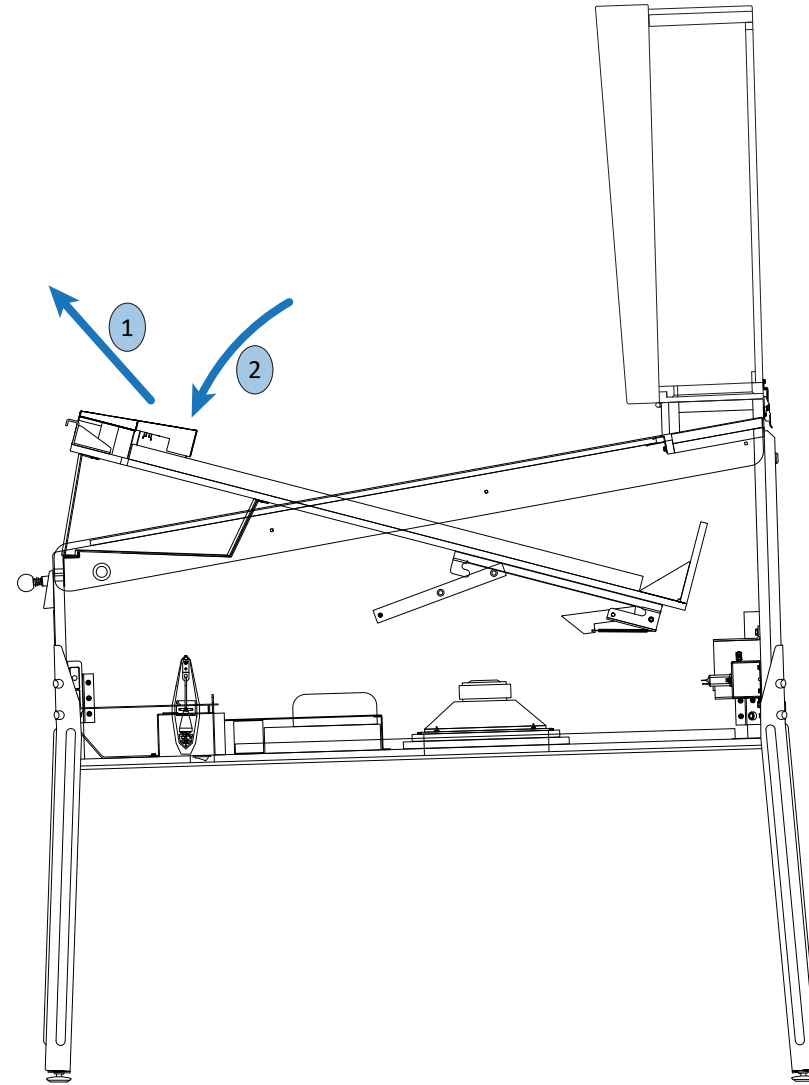


Figure 1-14. Moving the playfield to position 2.

16) Move the playfield from position 2 to 3 (figure 1-15). Pull it upward and outward until you reach the stops on either side (you will hear a distinct "click" on each side); again, lower the playfield, resting the support brackets on top of the channel/cabinet front. Remove any packing material from the playfield surface and/or shipping blocks from behind the back panel of the playfield/lower cabinet interior.

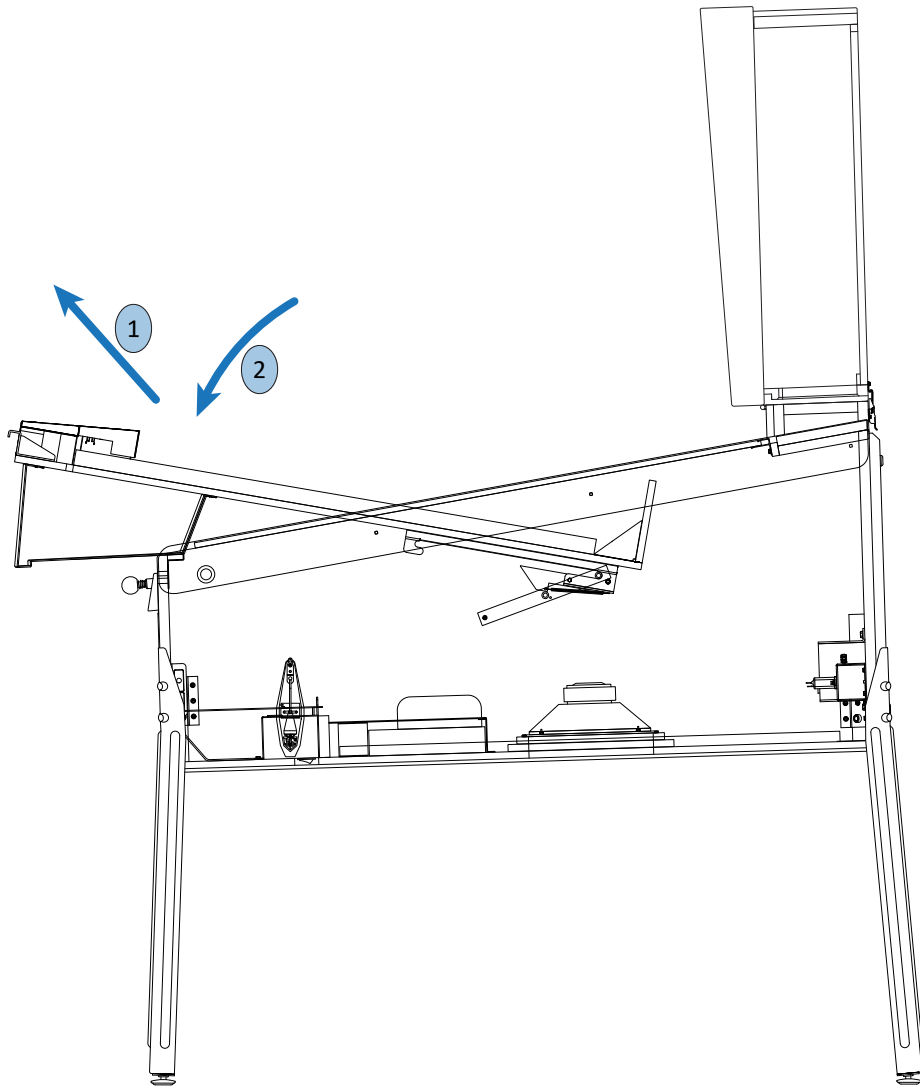


Figure 1-15. Moving the playfield to position 3.

17) REMOVE ALL FOUR BALLS FROM THE GAME (no ball in the shooter lane, back panel lock, subway or any playfield eject hole). Move the playfield from position 3 to 4 (figure 1-16). Grasp the two playfield support brackets and pull the playfield outward and upward a bit until the playfield support/slide locks **ON BOTH SIDES** click in place, then swing the playfield up, carefully resting the bottom arch against the front of the backbox.

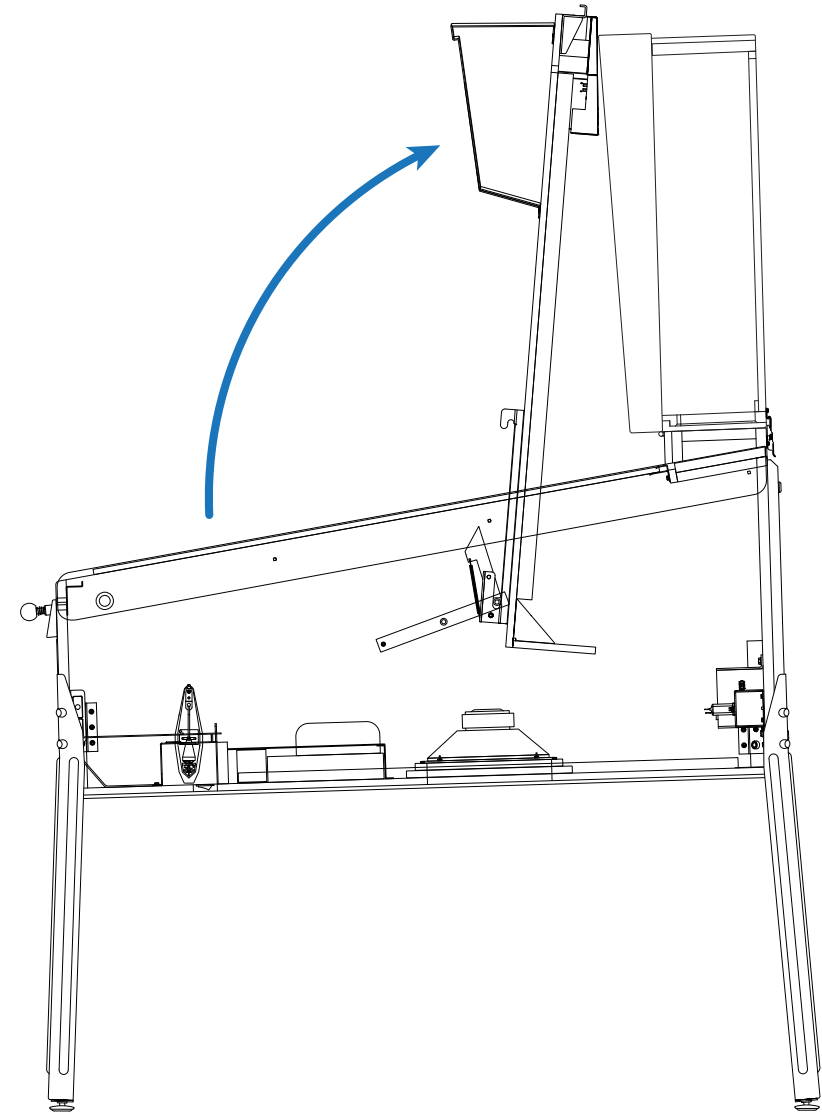


Figure 1-16. Moving the playfield to position 4.

18) Locate the plumb bob assembly (figure 1-17), mounted to the left sidewall of the cabinet interior, near the front. Squeeze the ends of the tinnerman clip underneath the plumb bob weight, then slide it up or down to adjust the tilt mechanism to the desired sensitivity. Raising the weight higher up the hanger wire makes the tilt mechanism more sensitive; lowering the weight makes it less sensitive. 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.

19) Locate the game's four pinballs in the loose parts. Wipe the balls with a soft rag to remove any anti-rust compounds before use. Place all four 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.

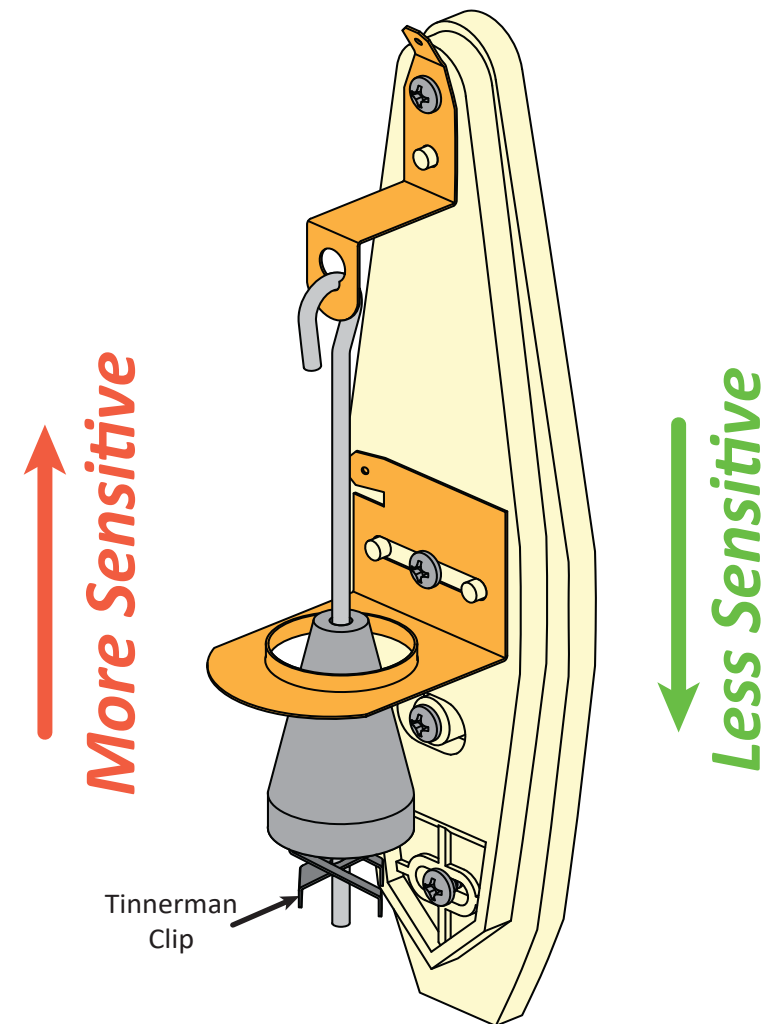


Figure 1-17. Plumb bob tilt assembly.

20) Locate the power cord, line cord cover and screws in the loose parts. Plug the female end of the power cord into the exposed IEC receptacle, inside the back of the machine. Using a #2 Phillips screwdriver, install the line cord cover plate on the rear of the lower cabinet (figure 1-18) and plug the power cord into a grounded wall outlet. **DO NOT CUT THE GROUND LUG OFF OF THE POWER CORD!**

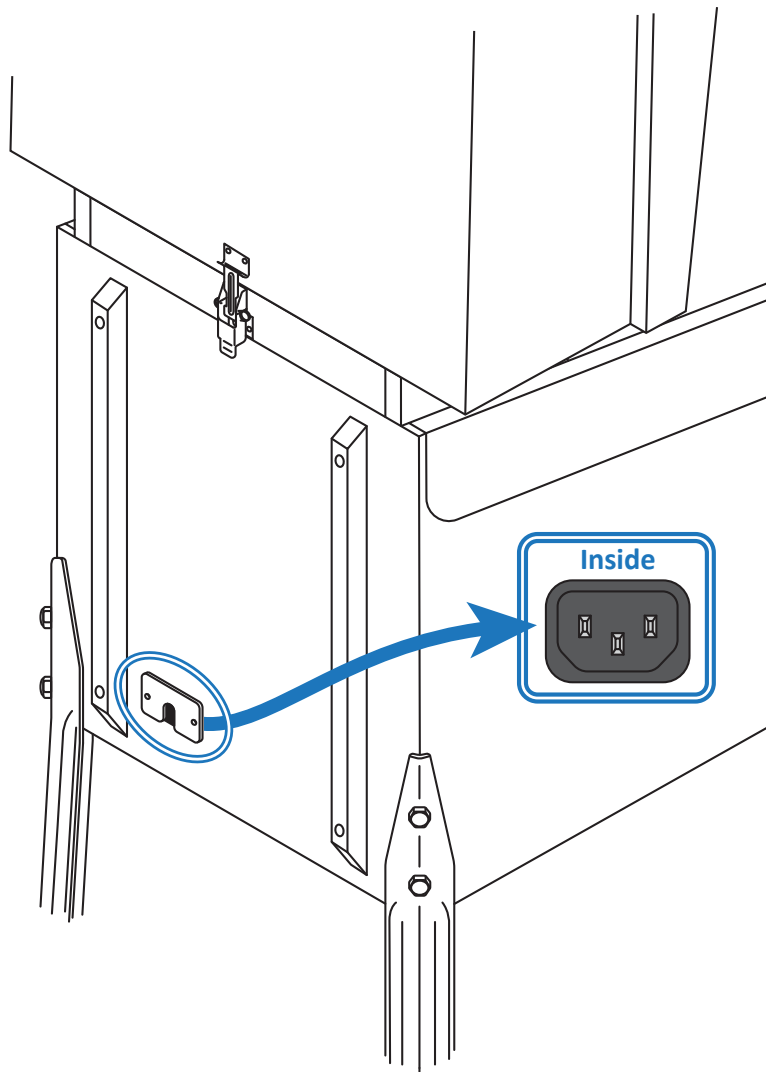


Figure 1-18. Line cord cover location.

21) Power up the game (the on/off switch is located under the cabinet, just behind the right front leg; it rocks in one direction to turn the game on and in the reverse direction to turn it off) and test it for proper operation. Adjust game settings as appropriate (see Game Menu System, Section 1.3). ***Your game is ready to play!***

Note: Before transporting the game, remove the backglass and re-install the backbox insert door shipping screw and washer. Re-install the backglass, lock the backbox (return the key to the coin door hook), then lower the backbox (figure 1-19). 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 the piece of foam used when the game was shipped) 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 it from bouncing during transit.

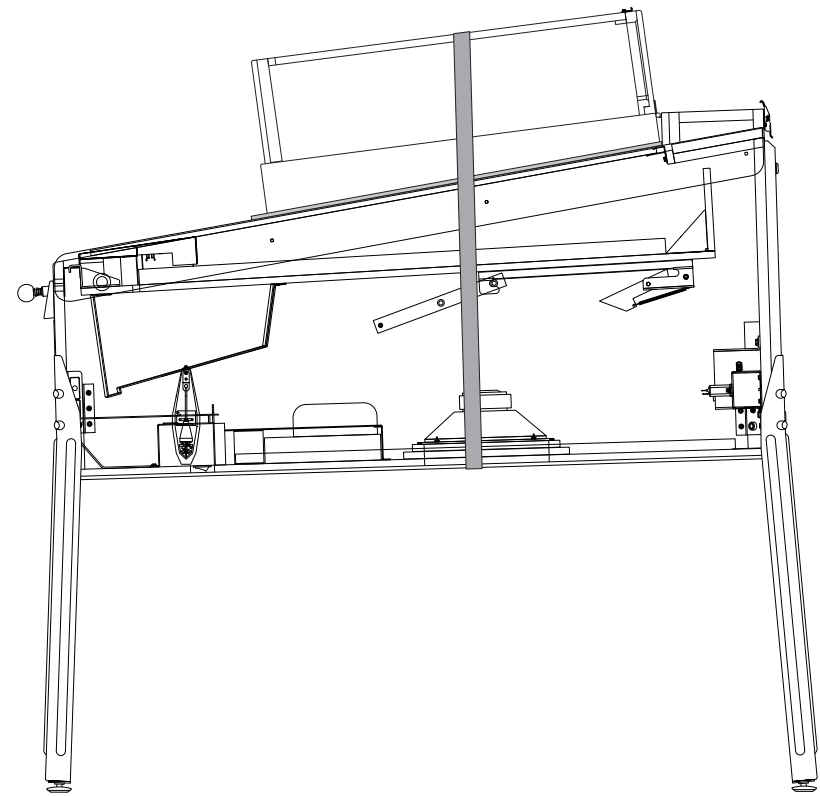


Figure 1-19. Transport game with the backbox lowered and secured.



1.2 Pulp Fiction Rules/Shot Maps

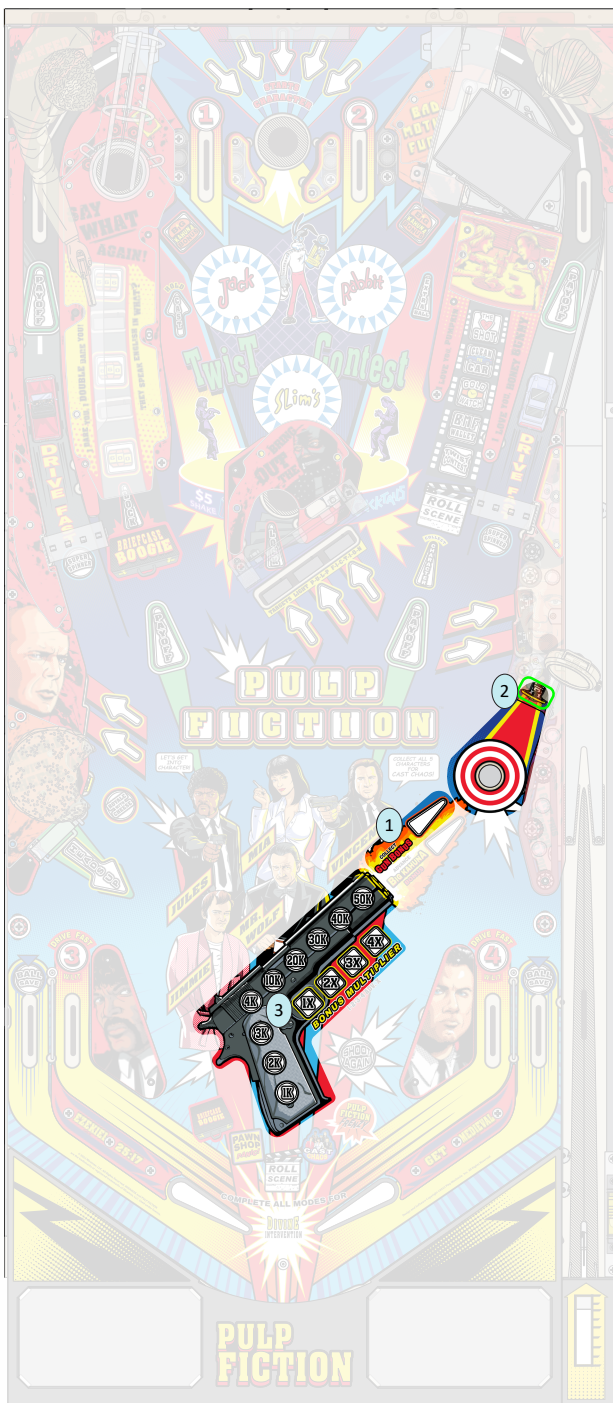
The Plunger Skill Shot

- 1 The strength with which you plunge the ball affects how it bounces around at the top of the playfield. In fact, if you plunge the ball too lightly, it won't even reach the top of the playfield; it'll just roll weakly back down the right orbit!
- 2 Use the ball shooter gauge, directly above the plunger, as a strength reference when plunging the ball into play.
- 3 There are five arrow inserts above the top **Starts Character** saucer. The center arrow is blue; the two arrows on either side are amber. As you prepare to plunge the ball, the arrows will light, one at a time, in a repeated sequence: leftmost, rightmost, left, right, center (cycle time is adjustable). At the end of this sequence, all of the arrows are lit.
- 4 The moving arrow sequence will stop when the ball drops into the saucer. Skill Shot points are awarded for plunging the ball into the top center saucer *when **all arrows are lit** - a cool 100k!*
- 5 Depending upon the outcome of your skill shot attempt, there is a consolation - or **bonus** - for successfully dropping the plunged ball into the **Starts Character** saucer: a randomly selected character insert will light and that character will start (see pg 1-21).



The 1-2-3-4 Rollover Lanes & Royale with Cheese Hurry Up

- 1 When a ball rolls through any unlit **1-2-3-4** lane, the lane insert will light. You can then use the flipper buttons to move the lit lane(s) around to help you in lighting all four of them.
- 2 Each time you complete the **1-2-3-4** lanes, the **Royale with Cheese** target insert lights and a Hurry Up bonus countdown timer (adjustable) starts. The **Bonus Multiplier** also advances once with each completion (**1X, 2X, 3X, 4X, 5X, 6X** and light **Extra Ball** (adjustable), **7X, 8X, 9X, 10X**).
- 3 Hit the **Royale with Cheese** target (green outline) before the countdown times out; you'll score the current Hurry Up value, light the **Collect Gun Bonus** insert (see pg 1-15) and light both orbit **Super Spinner** inserts. Shoot the orbit spinners for really big points!



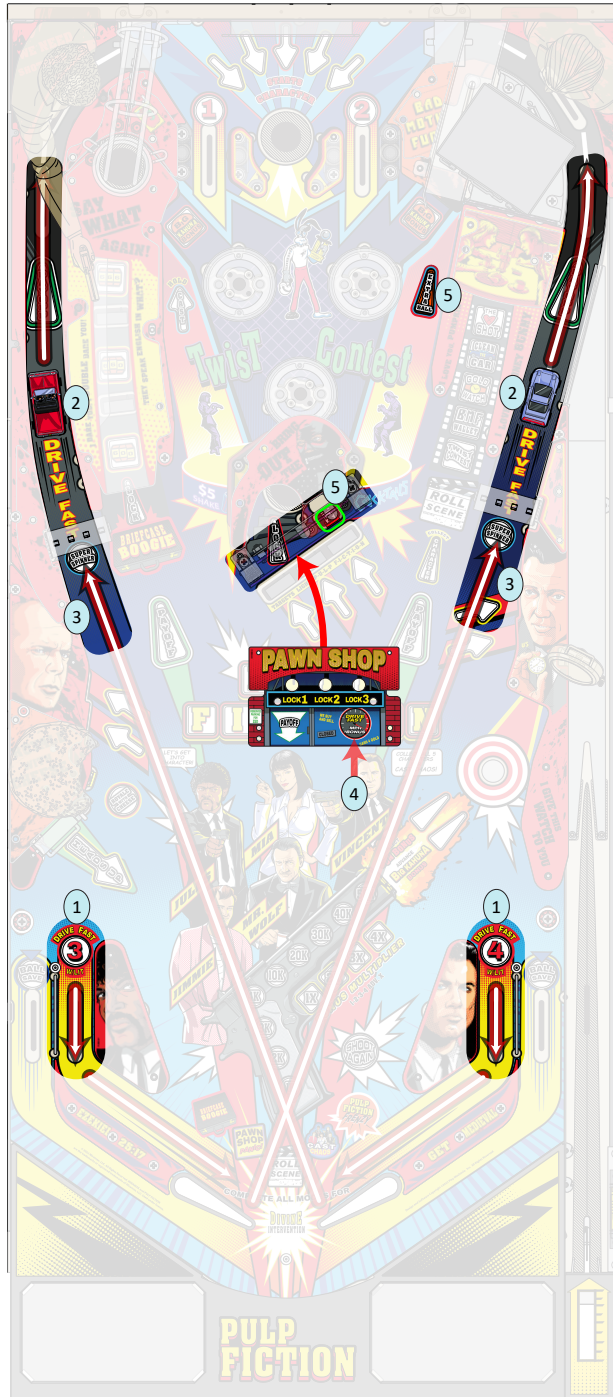
Collecting the Gun Bonus

- 1 When the **Gun Bonus** is qualified, the **Collect Gun Bonus** insert is lit (see pg 1-14 for details).
- 2 Shoot the Bullseye Magnet trigger target (green outline) to collect the **Gun Bonus**. The Bullseye Magnet will catch the ball, hold it for a few seconds, then release it.
- 3 Hitting the target collects the **Gun Bonus**: the string of bonus points lit in the gun playfield artwork, multiplied by the current **Bonus Multiplier** (and the **Big Kahuna Bonus** multiplier, as applicable; see pg 1-16). The **Gun Bonus** points string and **Bonus Multiplier** are both cleared (reset to zero) once collected.



The Big Kahuna Bonus

- 1 Each of the two **Big Kahuna Bonus** targets (green outlines) will light when hit.
- 2 When you've hit both targets, the **Advance Big Kahuna Bonus** insert will light.
- 3 Shoot the Bullseye Magnet trigger target (blue outline) to advance the **Big Kahuna Bonus**. The Bullseye Magnet will catch the ball, hold it for a few seconds, then release it.
- 4 All playfield scores are doubled (**2X**) until the current ball drains. Increase the score multiplier (**3X, 4X, 5X, 6X** (max **X** is adjustable)) by repeating the above sequence before the ball drains! The current **Big Kahuna Bonus** multiplier is displayed on the **Big Kahuna Bonus** sign in the center of the back panel. The sign flashes while the score multiplier feature is active.



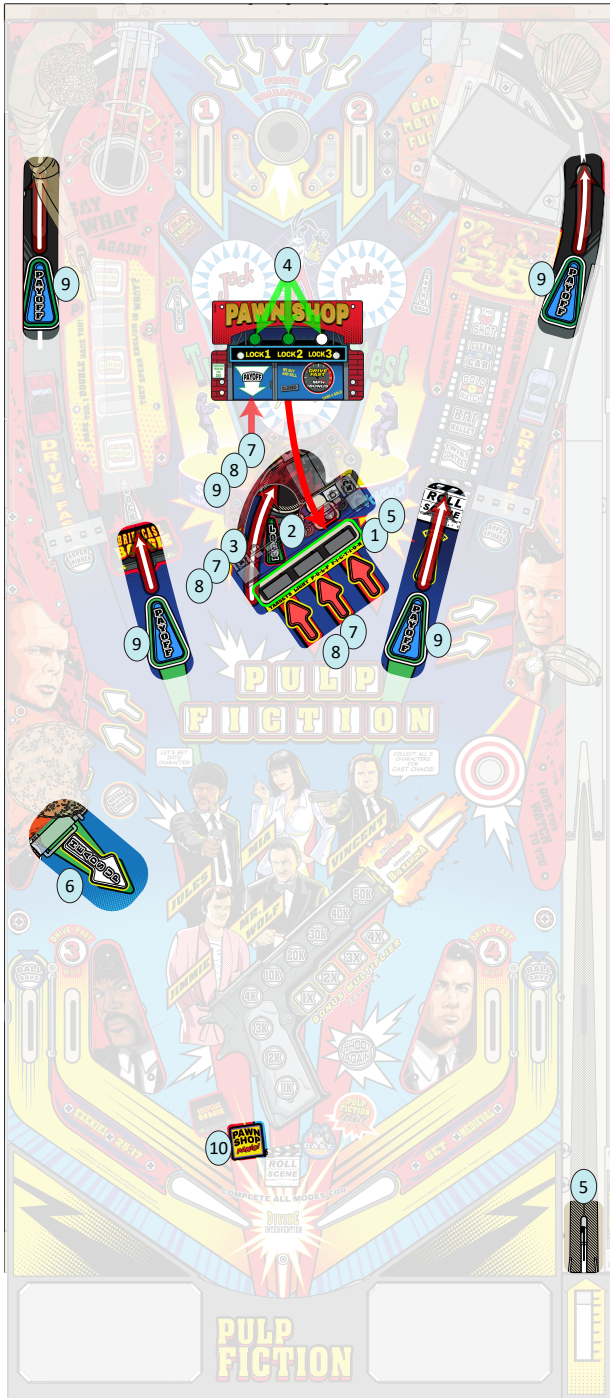
The Drive Fast MPH Bonus

- 1 A lit **3** or **4** flipper return lane triggers the *Drive Fast MPH Bonus* feature.
- 2 When the ball rolls through a lit flipper return lane, the opposite orbit *Drive Fast* insert lights (a red car in left orbit; a lavender car in right orbit) for 10 seconds (adjustable). The **3** lane lights the right orbit *Drive Fast* insert; the **4** lane lights the left orbit *Drive Fast* insert.
- 3 Shoot the lit *Drive Fast* orbit for a quick 20k points. The controlled gates at the top of the playfield open, looping the ball right back at you, via the opposite orbit lane.
- 4 The *Pawn Shop* sign's *Drive Fast MPH Bonus* indicator lights (when the drop target in front of it is down) and the bonus value builds - 1 MPH for each spin of either orbit spinner, while the *Drive Fast* feature is active. The *Drive Fast* timeout resets again for 5 seconds (adjustable) - and the shot value increases by 20k points, up to a maximum of 100k. Orbit shots in rapid succession increase the *Drive Fast MPH Bonus* value even faster!
- 5 Shoot the *Drive Fast Bonus* collect target (green outline) to collect your accumulated *Drive Fast MPH Bonus* value. Use the spinners to increase the speed to over 146 MPH (adjustable) - *before* collecting the bonus - to light *Extra Ball*.



Briefcase Boogie Multiball

- 1 The three inline "combination" drop targets (green outlines) are up at the beginning of a game. Knock down the inline drop targets to "unlock" the briefcase. Your drop target progress will be "remembered", from ball-to-ball.
- 2 The **Briefcase Boogie Lock** insert will begin flashing.
- 3 Shoot the **Briefcase Boogie** inline drop target lane to lock the ball. The ball will drop into the popper and get kicked up into the back panel ball lock trough. It will remain there in preparation for multiball play.
- 4 The **Lock1** LED in the **Briefcase Boogie** multiball sign will light (the current number of locked balls is always displayed in the **Briefcase Boogie** sign).
- 5 A new ball will be served into the shooter lane.
- 6 Shoot the next two balls into the briefcase lock popper to begin **Briefcase Boogie** multiball. The three balls are released from the back panel lock, one at a time, returning to play by way of the steel chute alongside the rotating briefcase toy. The **Briefcase Boogie** objective achieved insert will light.
- 7 During **Briefcase Boogie** multiball play, four of the five **Payoff** arrows (all except the briefcase popper lane) will be flashing red. Make one of these shots to collect 25k points. The collected shot will turn solid red.
- 8 The **Payoff** arrow insert for the briefcase popper lane will flash red. Shoot the briefcase popper lane to collect another 25k points and advance to the next bonus level. Next, the four **Payoff** arrows will flash yellow. Hit two of the shots (50k each) to re-light the briefcase popper lane **Payoff** (for 50k and bonus advance). Shoot the briefcase popper lane again to advance to green **Payoff** arrows, worth 75k each. However, you must now make three **Payoff** shots to re-light the briefcase popper lane **Payoff**. Lock all remaining balls, via the briefcase popper lane, to qualify for the blue **Super Payoff** bonus! The fun and rising stakes continue as long as you can keep at least two balls in play.
- 9 You must collect at least one **Super Payoff** to light the **Briefcase Boogie** objective achieved insert.
- 10 When your multiball ends, the three drop targets will reset. You'll need to "unlock" the briefcase (knock all three drop targets down) again in order to lock the three balls and begin another **Briefcase Boogie** multiball.



Pawn Shop Panic Multiball

- 1 "Open" the **Pawn Shop** by knocking down all three "front door" drop targets (green outline).
- 2 The **Pawn Shop Lock** insert will light.
- 3 Shoot the ball into the **Pawn Shop** scoop to lock the ball. The ball will drop into the under-playfield subway and roll to the subway lock trough. It will remain there in preparation for multiball play.
- 4 The **Lock1** LED in the **Pawn Shop** multiball sign will light (the current number of locked balls is always displayed in the **Pawn Shop** sign).
- 5 A new ball will be served into the shooter lane. The **Pawn Shop** "front door" drop target bank will be reset (up).
- 6 Repeat this process to lock the next two balls in the **Pawn Shop** scoop and begin **Pawn Shop Panic** multiball. The three balls are released from the subway lock, one at a time, returning to play by way of the subway popper, through the **Heads Up** gate under the **Royale with Cheese** playfield plastic.
- 7 During **Pawn Shop Panic** multiball play, the "front door" drop targets will be reset with their red arrow inserts flashing. Hit any one of the drop targets to collect bonus points; the drop target bank will reset. Repeat this process twice more to flash the **Pawn Shop** sign **Payoff** arrow red. Shoot all remaining balls into the **Pawn Shop** scoop to collect your payoff and advance to the next level of bonus scoring. Locked balls will be kicked out of the subway, back into play.
- 8 Repeat the process of hitting flashing drop targets (flashes the **Pawn Shop** sign **Payoff** arrow yellow) and re-locking remaining balls in the **Pawn Shop** scoop (collects payoff and advances scoring level) once, then again (flashes the **Pawn Shop** sign **Payoff** arrow green and collects payoff) to qualify for the blue **Super Payoff** scoring level.
- 9 When the locked balls are kicked out of the subway, shoot the five **Super Payoff** shots (flashing blue) as many times as possible for BIG points! Keep racking up the points as long as you can keep at least two balls in play!
- 10 You must collect at least one **Super Payoff** to light the **Pawn Shop Panic** objective achieved insert.



Outlane Ball Save

- 1 During each ball, you have the opportunity to earn a **Ball Save**, via either of the two outlanes.
- 2 Shooting the **Roll Scene** saucer access drop target (green outline) once will light the left outlane **Ball Save** insert.
- 3 Shooting the drop target a second time will light the right outlane **Ball Save**.
- 4 If your ball rolls down a lit outlane, a replacement ball is served into play immediately. Once you've used an outlane **Ball Save**, the associated insert will go out. You can earn and use two saves per ball. The flipper buttons will not move **Ball Save** lights, but if a single outlane is lit, the light will alternate left/right with each slingshot trigger. **Ball Save** lights do not carry over to the next ball.



Starting, Collecting & Holding Characters

- 1 Shoot the ball into the **Starts Character** saucer to start one of the five characters in the center of the playfield. The character that is lit when the ball lands in the saucer will flash *and* deliver a classic line from the movie. The bonus awarded for starting a character is 3k points per lit arrow, above the saucer (15k if all five are lit, adjustable).
- 2 The **Roll Scene** saucer access drop target (green outline) will drop and the **Collect Character** insert will light.
- 3 Shoot the ball into the **Roll Scene** saucer to collect the currently flashing character or shoot the **Starts Character** saucer again to start/flash additional characters. Then a single shot into the **Roll Scene** saucer collects all of the started/flashing characters at once, multiplying the award by the number of characters actively started (up to 5X!).
- 4 The **Hold Cast** insert will light each time you collect one or more characters. It will stay lit until the end of the current ball (adjustable). Shooting the upper left standup target (blue outline) will hold/save all of the currently collected characters for the next ball, to improve your chances of completing the cast. Characters not held will reset with the next ball.
- 5 Collecting all five characters (completing the cast) begins **Cast Chaos** (see pg 1-24).



Roll Scene

- 1 When the **Roll Scene** feature is available, the **Roll Scene** insert will be lit.
- 2 Shoot the **Roll Scene** saucer access drop target to qualify the **Roll Scene** feature. You'll immediately hear the director call for "quiet on the set" and one of the lower four inserts in the **Roll Scene** lane (adjustable) will light. The lit scene will cycle/change with each slingshot or jet bumper kick.
- 3 Shoot the ball into the **Roll Scene** saucer to begin the currently lit **Pulp Fiction** scene. A 40-second (adjustable) countdown timer begins in the Credit/Match window of the backglass. Shoot the scene objective shots (see pg 1-23) to build up bonus scoring. In the final 10 seconds of any scene, you can collect your BIG bonus points by shooting the ball back into the **Roll Scene** saucer (located behind the drop target).



Roll Scene Objectives

- 1 ***Twist Contest:*** the jet bumpers will be flashing; hit them as many times as you can before the timer runs out. We'll see how bad you want to win that dance contest!
- 2 ***BMF Wallet:*** the seven red arrow targets (green outlines) will be flashing; shoot them as many times as you can before the timer runs out.
- 3 ***Gold Watch:*** the magnet target inserts will be lit and the Captain Koons plastic will be flashing. Shoot the Bullseye Magnet trigger target (blue outline) as many times as you can before the timer runs out.
- 4 ***Clean The Car:*** both ***Super Spinner*** inserts will be flashing; shoot the left and right orbit spinners as many times (and as *hard*) as you can before the timer runs out.
- 5 ***The Shot:*** ***The Shot*** scene will only be available *after* all of the other four scenes are completed. The ***Roll Scene*** lane inserts will be scrolling, in a repeating sequence, "leading" the player to the ***Roll Scene*** saucer access drop target (red outline); three additional balls will be served into play. There is no timer associated with this scene; shoot the ***Roll Scene*** drop target as many times as you can - while keeping at least two balls in play. Each time you hit the target, the award increases - as the ***Roll Scene*** lane ***Payoff*** insert flashes different colors, accordingly (red, yellow, green, blue, then RGB).
- 6 The ***Roll Scene*** objective achieved insert will light at the end of ***The Shot*** multiball.



Cast Chaos

- 1 **Cast Chaos** is a four-ball multiball, so when it is qualified, three additional balls will be served into play. The five character inserts will be lit.
- 2 The five **Payoff** arrows will be strobing in a multi-color pattern.
- 3 Shoot the **Payoff** shots around the playfield. When you hit a **Payoff** shot, you will hear a voice callout from one of the cast members and score 100k points; the associated **Payoff** insert will turn white.
- 4 When you hit all five **Payoff** shots, the red and blue arrow inserts above the **Starts Character** saucer begin to flash. Shoot a ball into the saucer to collect the **Cast Chaos Super Payoff** - 500k points!
- 5 The **Cast Chaos** objective achieved insert will light at the end of **Cast Chaos** multiball.



Pulp Fiction Frenzy

- 1 Shoot the seven red arrow targets (green outlines) to advance the **PULP FICTION** inserts one letter. You need to hit *all* targets in any bank (left two-bank, center three bank or right two-bank) - or *all* targets in *multiple* banks (difficulty adjustment) - to collect a letter.
- 2 When you've finished spelling **PULP FICTION**, the five lights in the **Pawn Shop** sign will cycle, indicating where to shoot next: into the **Pawn Shop** scoop.
- 3 Shoot the ball into the **Pawn Shop** scoop (you *may* have to clear the way by knocking down a drop target or two) to begin **Pulp Fiction Frenzy**. A four-ball multiball begins (three additional balls are served into play).
- 4 All inserts on the playfield (except the **PULP FICTION** letters) will light. Your objective is to hit as many playfield switches (targets, spinners, slingshots, jet bumpers, etc.) as you can, scoring 5k points per switch! You're spelling **PULP FICTION** again - and with every ten switch closures you advance one letter.
- 5 When you've finished spelling **PULP FICTION** (110 switches, adjustable), the five lights in the **Pawn Shop** sign will cycle again. Shoot a ball into the **Pawn Shop** scoop to collect the **Pulp Fiction Payoff** - 500k points! Keep the multiball going and repeat the process of hitting switches, spelling **PULP FICTION** and shooting a ball into the **Pawn Shop** scoop to collect the **Super Payoff**!
- 6 The **Pulp Fiction Frenzy** objective achieved insert will light at the end of **Pulp Fiction Frenzy** multiball.



Divine Intervention Wizard Mode

- 1 Complete all five primary game objectives to qualify the **Divine Intervention** wizard mode. The five objective achieved inserts (bottom, center) will be lit; the **Divine Intervention** insert will be flashing.
- 2 The insert strings leading to the **Roll Scene** saucer and the **Briefcase Boogie** ball popper will be strobing upward, in sequence. Make either shot to begin **Divine Intervention**. The playfield will go dark - only the **Divine Intervention** insert will be lit.
- 3 Stage 1: a four-ball multiball begins; the **Briefcase Boogie** objective achieved insert, **Payoff** arrow, inline drop target inserts and sign **Lock** lights will all flash. Shoot the **Briefcase Boogie** lane three times to knock the inline drop targets down and light their inserts solid. Shoot the lane three more times to light the three **Locks** solid in the **Briefcase Boogie** sign. The **Briefcase Boogie** objective achieved insert will light solid - Stage 1 complete!
- 4 Stage 2: four-ball multiball renews; the **Pawn Shop Panic** objective achieved insert, sign **Payoff** arrow and **Lock** lights will all flash. Make three shots into the **Pawn Shop** scoop to light the three **Locks** solid in the **Pawn Shop** sign. The **Pawn Shop Panic** objective achieved insert will light solid - Stage 2 complete!
- 5 Stage 3: four-ball multiball renews; the **Roll Scene** objective achieved insert, **Payoff** arrow and scene inserts will all flash. Hit the **Roll Scene** saucer access drop target five times to light the five scene inserts solid. The **Roll Scene** objective achieved insert will light solid - Stage 3 complete!
- 6 Stage 4: four-ball multiball renews; the **Cast Chaos** objective achieved insert, **Starts Character** saucer arrows and character inserts will all flash. Shoot the **Starts Character** saucer five times to light the five saucer arrows - and character inserts - solid. The **Cast Chaos** objective achieved insert will light solid - Stage 4 complete!
- 7 Stage 5: four-ball multiball renews; the **PULP** letter inserts in the center of the playfield will light solid. The **Pulp Fiction Frenzy** objective achieved insert, the seven red arrows inserts and the **FICTION** letter inserts will all flash. Shoot each of the seven red arrow targets (green outlines - left two-bank, center three bank or right two-bank) to advance the **FICTION** inserts, one letter at a time. The **Pulp Fiction Frenzy** objective achieved insert will light solid - Stage 5 complete!
- 8 Stage 6: *no more multiball renewal*; the gun inserts, **Collect Gun Bonus** and **Advance Kahuna Bonus** arrows - and the Captain Koons plastic - will all flash. Keep one ball alive long enough to shoot the Bullseye Magnet trigger target (blue outline). The Bullseye Magnet will catch the ball - Stage 6 complete!

Complete all six **Divine Intervention** Stages and you'll **DOUBLE** your score!

1.3 The Game Menu System

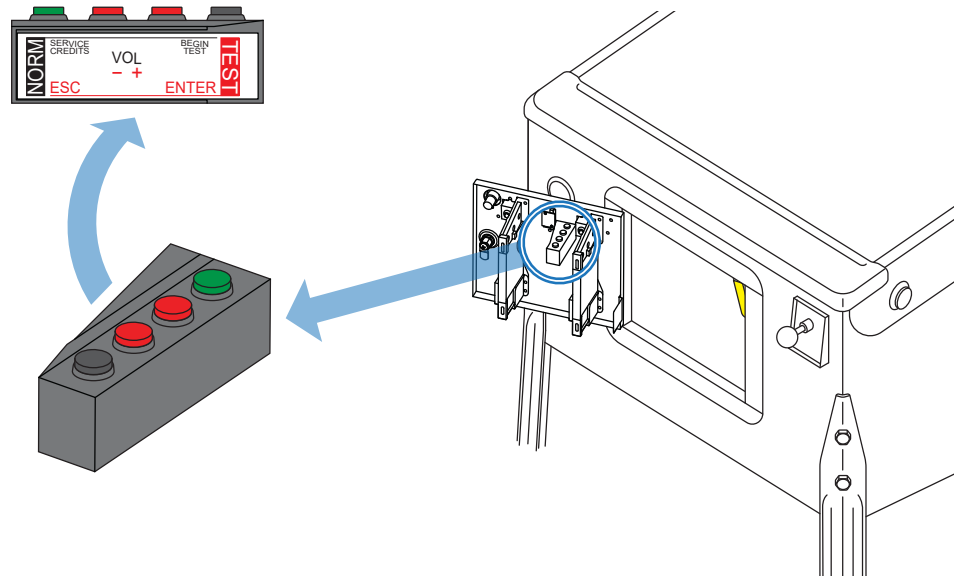


Figure 1-20. Menu system navigation buttons.

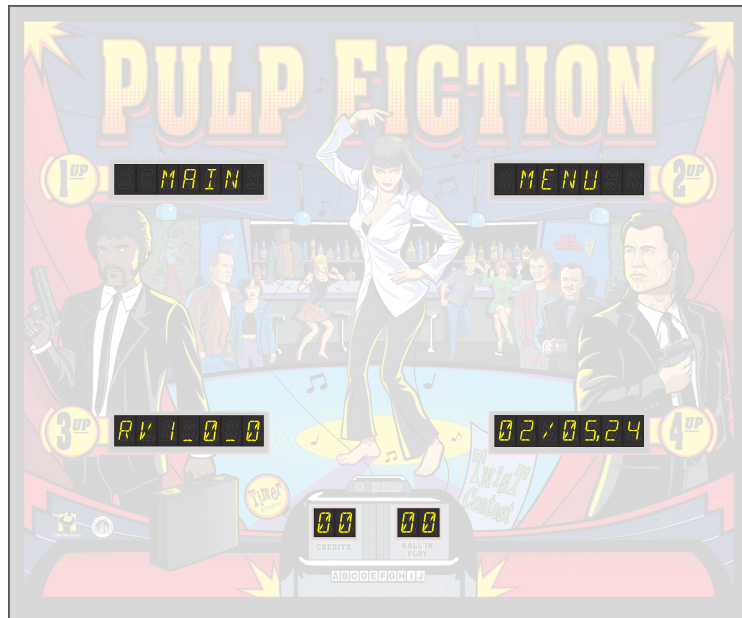


Figure 1-21. Displays - Main Menu indicators.

The Pulp Fiction 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 upper center, between the coin mechanisms (circled in figure 1-20).

The buttons are labeled: the black labels describe each button's function in **NORM** mode (game attract or play mode). The black (**BEGIN TEST**) button enters the game menu system, the first red (**VOL +**) button increases the game volume, the next red (**VOL -**) button decreases the game volume and the green (**SERVICE CREDITS**) button adds service credits to the game (when it is not on free play). The red labels describe each button's function while in **TEST** mode (the game menu system). The black (**ENTER**) button enters a sub-menu, selects a menu item to change or executes a command. The red (**+** or **-**) buttons maneuver through menu choices or increase/decrease data values for a selected menu item. The green (**ESC**) 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 (**BEGIN TEST**) button. The Main Menu indicators will instantly appear in the game's backbox alphanumeric displays (figure 1-21). The current software revision & date (mm/ddyy) will show in the Player 3 & 4 displays, respectively. All of the GI LEDs on the playfield and in the backbox will light up in white to improve visibility above and below the playfield. Use the red (**+** or **-**) buttons to navigate the Main Menu and select a sub-menu to enter (by pressing the black button again).

You can perform quick switch-triggered coil functionality/sensitivity tests while the game is in this Main Menu state. The flippers (if activated by the flipper buttons), ball poppers, jet bumpers, 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 (the upper switch on item 9, pg 2-2 of this manual) disables the 70-Volt power running to the playfield. In order to activate 70-Volt devices in the Main Menu state or 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!**

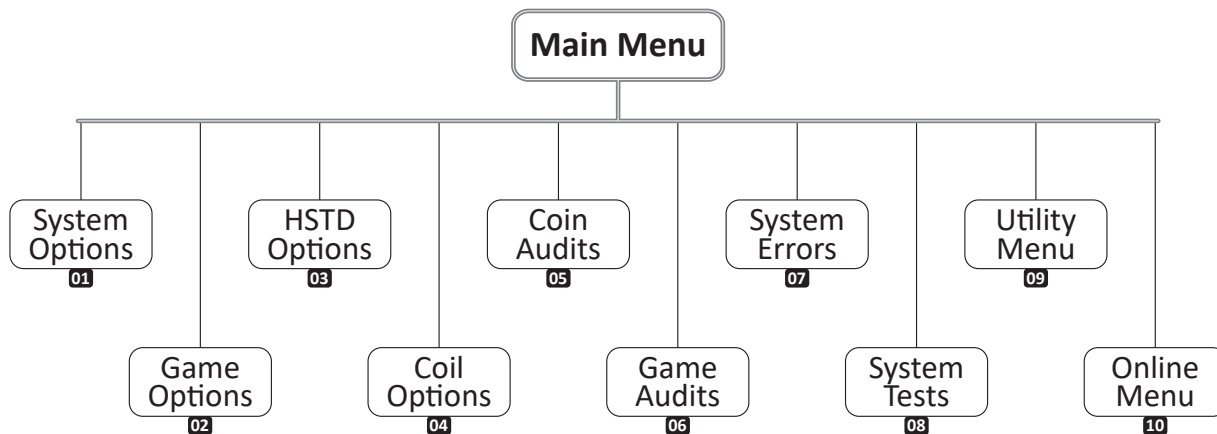
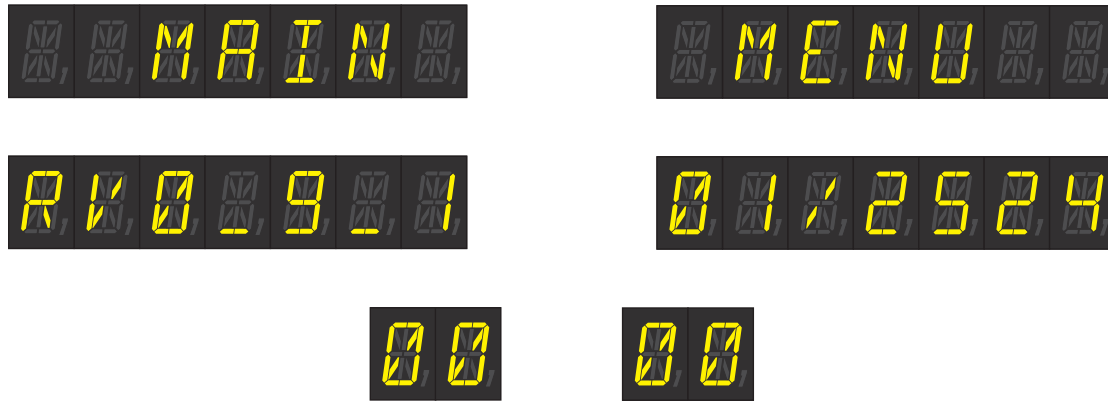


Figure 1-22. Main menu structure.

1.4 The Main Menu

Figure 1-22 shows how Pulp Fiction's Main Menu is organized. There are ten sub-menus within the Main Menu, described below. You can scroll through them using the red (+ or -) buttons; press the black (**BEGIN TEST**) button to enter any sub-menu. To exit the Main Menu at any time, press the green (**ESC**) button; the game will immediately return to attract mode.

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

Game Options - adjust game-specific features such as ball saves, speech control, mode timers & ball lock difficulties and enable/disable playfield devices.

HSTD Options - adjust high score to date settings such as awards, reset interval and backup scores.

Coil Options - individually adjust strengths of the kicking coils used in the game.

Coin Audits - view, monitor and/or track earnings over a specific time period (since audits were last cleared or over the lifetime of the game).

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

System Errors - view the log of system errors and irregularities.

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

Utility Menu - perform system functions such as resetting audits and high scores, setting the date and time or clearing credits from the game.

Online Menu - view online connectivity settings for the game, such as IP & HW addresses.



1.5 System Options

You can scroll through System Options using the red (+ or -) buttons; press the black (**BEGIN TEST**) button to select an item you would like to change. Default settings are indicated with a lit comma segment in the right-most digit of the value display (player 4). If you'd like to return a setting to its default value, simply press the game's Start button; the setting will instantly change to default. To customize, use the red (+ or -) buttons to alter the selected data value, then press the black (**BEGIN TEST**) button to accept the new value. Press the green (**ESC**) button to escape from a selected menu item without saving changes. To exit the System Options menu at any time, press the green (**ESC**) button; you will immediately return to the Main Menu.

01.01 Pricing Preset: select a pricing scheme for the game.

Default: **USA 11** **PRICING** **PRESET**

- Options: USA 1: 25¢ per play
- USA 2: 1 play for 50¢, 2 plays for 75¢, 3 plays for \$1.00
- USA 3: 50¢ per play
- USA 5: 50¢ per play, 5 plays for \$2.00
- USA 7: 50¢ per play, 4 plays for \$1.50, 6 plays for \$2.00
- USA 8: 50¢ per play, 3 plays for \$1.00
- USA 9: \$1.00 per play
- USA 10: 75¢ per play, 3 plays for \$2.00
- USA 11: \$1.00 per play, 3 plays for \$2.00
- USA 12: 25¢ per play, 5 plays for \$1.00
- USA 13: \$1.00 per play, 7 plays for \$5.00
- AUS 1: \$1.00 per play, 3 plays for \$2.00
- AUS 2: \$1.00 per play

01.01 Pricing Preset (cont.)

- Options: AUS 3: \$2.00 per play
- AUS 4: \$2.00 per play, 3 plays for \$5.00
- AUS 5: \$3.00 per play, 2 plays for \$5.00, 5 plays for \$10.00
- AUS 6: \$2.00 per play, 2 plays for \$3.00
- CAN 1: 50¢ per play, 2 plays for 75¢, 3 plays for \$1.00
- CAN 2: \$1.00 per play, 3 plays for \$2.00
- HRV 1: 3 per play, 2 plays for 5
- DNK 1: 3 per play, 2 plays for 5
- DNK 2: 2 per play, 3 plays for 5, 7 plays for 10
- EUR 1: 0.50 per play
- EUR 2: 0.50 per play, 5 plays for 2.00
- EUR 3: 0.50 per play, 3 plays for 1.00
- EUR 4: 0.50 per play, 6 plays for 2.00
- EUR 5: 0.50 per play, 3 plays for 1.00, 7 plays for 2.00

01.01 Pricing Preset (cont.)

Options: *EUR 6*: 2 plays for 0.50

EUR 7: 1.00 per play, 5 plays for 4.00

EUR 8: 1.00 per play, 3 plays for 2.00

EUR 9: 1.00 per play, 2 plays for 1.50, 3 plays for 2.00

EUR 10: 1.00 per play, 3 plays for 2.00, 7 plays for 3.00

EUR 11: 1.00 per play, 4 plays for 2.00

EUR 12: 2 plays for 1.00, 9 plays for 4.00

JPN 1: 100 per play

JPN 2: 100 per play, 3 plays for 200

NZL 1: \$1.00 per play

NZL 2: \$1.00 per play, 3 plays for \$2.00

NOR 1: 10 per play

NOR 2: 10 per play, 3 plays for 20

NOR 3: 20 per play

NOR 4: 20 per play, 3 plays for 40

RUS 1: 5 per play

ZAF 1: 2.00 per play

ZAF 2: 3.00 per play, 2 plays for 5.00

SWE 1: 10 per play, 2 plays for 15, 3 plays for 20

SWE 2: 5 per play

CHE 1: 1 per play, 6 plays for 5

CHE 2: 1 per play, 3 plays for 2, 9 plays for 5

TWN 1: \$10.00 per play

GBR 1: 3 plays for 1.00, 7 plays for 2.00

GBR 2: 4 plays for 1.00

GBR 3: 0.50 per play, 5 plays for 2.00

GBR 4: 0.30 per play, 4 plays for 1.00

GBR 5: 1.00 per play, 3 plays for 2.00

GBR 6: 3 plays for 2.00

TOKEN: 1 per play

SWIPE: 1 per play

TAP: 1 per play

CUSTOM: custom pricing (per options **01.02** through **01.11**)

01.02 Left Coin Units: enter the value for one pulse of the left coin switch.

Default: 1 **L COIN** **UNITS**
 Minimum: 1 Maximum: 255 Increment: 1

01.03 Right Coin Units: enter the value for one pulse of the right coin switch.

Default: 1 **R COIN** **UNITS**
 Minimum: 1 Maximum: 255 Increment: 1

01.04 Dollar Bill Validator Units: enter the value for one pulse of the dollar bill validator.

Default: 1 **DBV** **UNITS**
 Minimum: 1 Maximum: 255 Increment: 1

01.05 Currency Type: select the currency type for the game.

Default: **USA DOLLAR** **CURR** **TYPE**

Options: *USA DOLLAR*: USA dollar
AUS DOLLAR: Australian dollar
CAN DOLLAR: Canadian dollar
HRV KUNA: Croatian kuna
DNK KRONER: Danish kroner
EU EURO: European Union euro
JPN YEN: Japanese yen
NZL DOLLAR: New Zealand dollar
NOR KRONE: Norwegian krone
RUS RUBLE: Russian ruble
ZAF RAND: South African rand
SWE KRONA: Swedish krona
SWISS FRANC: Swiss franc
TWN DOLLAR: Taiwanese dollar
GBR POUND: Great Britain pound
GENERIC TOKEN: generic token
GENERIC SWIPE: card swipe
GENERIC TAP: card tap

01.06 Units / Currency: select the number of units per currency type.

Default: 4 **UNITS** **/ CURR**
 Minimum: 1 Maximum: 19 Increment: 1

01.07 Units / Credit: select the number of units required for a credit.

Default: 4 **UNITS** **/ CREDIT**
 Minimum: 1 Maximum: 20 Increment: 1

01.08 Units Bonus 1: enter the number of uninterrupted units required for the first credit bonus (specified via option **01.09**).

Default: OFF UNITS BONUS 1

Options: Minimum: 2 Maximum: 800 Increment: 1

OFF: first credit bonus disabled

01.09 Bonus 1 Credits: enter the number of credits awarded at the Units Bonus 1 above.

Default: 0 BONUS 1 CREDITS

Minimum: 0 Maximum: 20 Increment: 1

01.10 Units Bonus 2: enter the number of uninterrupted units required for the second credit bonus (specified via option **01.11**).

Default: OFF UNITS BONUS 2

Options: Minimum: 2 Maximum: 800 Increment: 1

OFF: second credit bonus disabled

01.11 Bonus 2 Credits: enter the number of credits awarded at the Units Bonus 2 above.

Default: 0 BONUS 2 CREDITS

Minimum: 0 Maximum: 20 Increment: 1

01.12 Free Play: specify whether currency is required to play or not.

Default: NO FREE PLAY

Options: YES: no currency/credits required to start a game

NO: currency/credits required to start a game

01.13 Maximum Credits: enter the maximum number of credits allowed on the game.

Default: 20 MAXIMUM CREDITS

Minimum: 10 Maximum: 99 Increment: 1

01.14 Display Brightness: select the desired brightness for the alphanumeric displays. The displays will change intensity, accordingly, as you alter this setting.

Default: HIGH DISPLAY BRIGHT

Options: LOW: displays at lowest intensity

MEDIUM: displays at medium intensity

HIGH: displays at highest intensity

01.15 Lamp Ramping: select the speed that each feature LED's intensity will be ramped up and down (incandescent lamp emulation) as it is turned on and off in game play. The **Gun Bonus** lights will cycle on the playfield, accordingly, as you alter this setting.

Default: NORMAL LAMP RAMP

Options: OFF: disable lamp ramp feature

SLOW: slow lamp ramping

NORMAL: normal lamp ramping

FAST: fast lamp ramping

01.16 Lamp Brightness: set the desired brightness for the playfield feature lights. The non-RGB feature lamps will light and change intensity, accordingly, as you alter this setting.

Default: 255 LAMP BRIGHT

Minimum: 25 Maximum: 255 Increment: 5

01.17 GI Brightness: enter the desired brightness for the playfield GI lights. The GI will change intensity, accordingly, as you alter this setting.

Default: 255 G.I. BRIGHT

Minimum: 150 Maximum: 255 Increment: 5

01.18 GI Color: select the desired color temperature for the playfield GI lights. The GI will change color, accordingly, as you alter this setting and/or the custom RGB options below.

Default: WARM G.I. COLOR

Options: WARM: warm white GI color

COOL: cool white GI color

CUSTOM: custom RGB GI color (per options **01.19** through **01.21**)

01.19 Custom GI Red: enter the desired red intensity for custom playfield GI lights.

Default: 255 G.I. RED

Minimum: 0 Maximum: 255 Increment: 1

01.20 Custom GI Green: enter the desired green intensity for custom playfield GI lights.

Default: 160 **G I** **GREEN**
 Minimum: 0 Maximum: 255 Increment: 1

01.21 Custom GI Blue: enter the desired blue intensity for custom playfield GI lights.

Default: 15 **G I** **BLUE**
 Minimum: 0 Maximum: 255 Increment: 1

01.22 Sound Volume - Game: set the desired sound volume for game play.

Default: 8 **SND VOL** **GAME**
 Minimum: 0 Maximum: 32 Increment: 1

01.23 Sound Volume - Attract Mode: set the desired sound volume for attract mode. This setting can also be changed, in attract mode, via the red coin door volume buttons.

Default: 1 **SND VOL** **ATTRACT**
 Minimum: 0 Maximum: 32 Increment: 1

01.24 Sound Balance - Music: set the desired balance for music during game play.

Default: 30 **SND BAL** **MUSIC**
 Minimum: 0 Maximum: 32 Increment: 1

01.25 Sound Balance - Backbox: set the desired balance for the backbox speaker.

Default: 28 **SND BAL** **B BOX**
 Minimum: 0 Maximum: 32 Increment: 1

01.26 Sound Balance - Cabinet: set the desired balance for the cabinet speaker.

Default: 32 **SND BAL** **CABINET**
 Minimum: 0 Maximum: 32 Increment: 1

01.27 Minimum Volume: set the desired balance for the cabinet speaker.

Default: 0 **VOLUME** **MINIMUM**
 Minimum: 0 Maximum: 5 Increment: 1

01.28 Attract Mode Sounds: select the desired frequency of attract mode sounds.

Default: **SOME** **ATTRACT** **SOUNDS**
 Options: **SOME**: play some attract mode sounds
ALWAYS: play frequent attract mode sounds
OFF: disable attract mode sounds

01.29 Number of Balls: select the number of balls played in a game.

Default: 3 **NUM** **BALLS**
 Minimum: 1 Maximum: 5 Increment: 1

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

Default: 3 **TILT** **WARNING**
 Minimum: 0 Maximum: 10 Increment: 1

01.31 Maximum Extra Balls: set the maximum number of extra balls a player can accumulate at any point in a game.

Default: 2 **MAXIMUM** **EX BALL**
 Minimum: 0 Maximum: 20 Increment: 1

01.32 Maximum Extra Balls Per Ball: set the maximum number of extra balls that can be awarded per ball.

Default: 2 **MAXIMUM** **EB/BALL**
 Minimum: 0 Maximum: 20 Increment: 1

01.33 Replay System: select the desired replay system for the game.

Default: **FIXED** **REPLAY** **SYSTEM**
 Options: **AUTO** %: adjust replay levels automatically (per options **01.34** through **01.36**)
FIXED: replay levels are fixed (per options **01.37** through **01.41**)

01.34 Auto Replay Percentage: set the desired automatic replay percentage.

Default: 5 **REPLAY** **PERCENT**
 Minimum: 0 Maximum: 20 Increment: 1

01.35 Auto Replay Start: set the desired automatic replay starting score.

Default: 2,500,000 REPLAY START
Minimum: 0 Maximum: 9,900,000 Increment: 100,000

01.36 Auto Replay Levels: specify the desired number of automatic replay levels.

Default: 1 REPLAY LEVELS
Minimum: 1 Maximum: 4 Increment: 1

01.37 Fixed Replay Boost: set the desired replay score boost.

Default: 100,000 REPLAY BOOST
Options: Minimum: 100,000 Maximum: 3,000,000 Increment: 100,000
OFF: replay score boost disabled

01.38 Fixed Replay Level 1: set the desired first replay level.

Default: 2,500,000 REPLAY LEVEL 1
Minimum: 0 Maximum: 9,900,000 Increment: 100,000

01.39 Fixed Replay Level 2: set the desired second replay level.

Default: 0 REPLAY LEVEL 2
Minimum: 0 Maximum: 9,900,000 Increment: 100,000

01.40 Fixed Replay Level 3: set the desired third replay level.

Default: 0 REPLAY LEVEL 3
Minimum: 0 Maximum: 9,900,000 Increment: 100,000

01.41 Fixed Replay Level 4: set the desired fourth replay level.

Default: 0 REPLAY LEVEL 4
Minimum: 0 Maximum: 9,900,000 Increment: 100,000

01.42 Replay Award: specify the award for reaching a replay level.

Default: CREDIT REPLAY AWARD
Options: CREDIT: achieving a replay level awards a credit (a free game)
BALL: achieving a replay level awards an extra ball
AUDIT: achieving a replay level awards nothing, but still tracked in audits

01.43 Match Feature: set the desired award percentage for the match feature.

Default: 5 MATCH FEATURE
Options: Minimum: 1 Maximum: 20 Increment: 1
OFF: match feature disabled

01.44 Display Custom Message: specify whether or not to display a custom message in attract mode.

Default: YES DISPLAY CUSTOM
Options: YES: display custom message
NO: no custom message

01.45 Set Custom Message: enter a custom message to display in attract mode.

Default: <blank> SET CUSTOM

01.46 Game Restart: choose how the game reacts to pressing the start button anytime after ball one is complete.

Default: SLOW GAME RESTART
Options: NEVER: ignore start button until current game is over
SLOW: restart game if start button is held in longer than 1/2 second
INSTANT: instantly restart game

01.47 8-Bit Reset: enable/disable periodic resetting of the game's 8-bit LED controller ICs.

Default: ENABLE 8-BIT RESET
Options: ENABLE: enable 8-bit controller resets
DISABLE: disable 8-bit controller resets

1.6 Game Options

You can scroll through Game Options using the red (+ or -) buttons; press the black (**BEGIN TEST**) button to select an item you would like to change. Default settings are indicated with a lit comma segment in the right-most digit of the value display (player 4). If you'd like to return a setting to its default value, simply press the game's Start button; the setting will instantly change to default. To customize, use the red (+ or -) buttons to alter the selected data value, then press the black (**BEGIN TEST**) button to accept the new value. Press the green (**ESC**) button to escape from a selected menu item without saving changes. To exit the Game Options menu at any time, press the green (**ESC**) button; you will immediately return to the Main Menu.

02.01 Ball Save: set the amount of ball save time (in seconds) at ball launch.

Default: 7

Options: Minimum: 1 Maximum: 30 Increment: 1

OFF: disable the ball launch ball save feature

02.02 Ball Save - 3-Ball: set the amount of ball save time (in seconds) for 3-ball multiball.

Default: 10

Options: Minimum: 1 Maximum: 30 Increment: 1

OFF: disable the 3-ball multiball ball save feature

02.03 Ball Save - 4-Ball: set the amount of ball save time (in seconds) for 4-ball multiball.

Default: 15

Options: Minimum: 1 Maximum: 30 Increment: 1

OFF: disable the 4-ball multiball ball save feature

02.04 Safety - Magnet: set the amount of ball save time (in seconds) after a magnet catch and throw.

Default: 1.5

Options: Minimum: 0.1 Maximum: 5.0 Increment: 0.1

OFF: disable the magnet safety feature

02.05 Safety - Subway: set the amount of ball save time (in seconds) after a *Pawn Shop* subway kickout.

Default: 2.5

Options: Minimum: 0.1 Maximum: 5.0 Increment: 0.1

OFF: disable the subway safety feature

02.06 Safety - Briefcase: set the amount of ball save time (in seconds) after a briefcase lock (back panel) release.

Default: 3.0 SAFETY CASE
Options: Minimum: 0.1 Maximum: 5.0 Increment: 0.1
OFF: disable the briefcase safety feature

02.07 Safety - Right Eject: set the amount of ball save time (in seconds) after a **Roll Scene** saucer kickout.

Default: 2.0 SAFETY R EJECT
Options: Minimum: 0.1 Maximum: 5.0 Increment: 0.1
OFF: disable the **Roll Scene** safety feature

02.08 Flipper Plunger: specify whether pressing the right flipper button auto-launches a ball in the shooter lane or not.

Default: NO FLIPPER PLUNGER
Options: NO: flipper buttons cannot auto-launch ball
YES: flipper buttons auto-launch ball

02.09 Timed Plunger: select the desired time limit (in seconds) that 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: OFF TIMED PLUNGER
Options: Minimum: 1 Maximum: 300 Increment: 1
OFF: disable the timed plunger feature

02.10 Idle Time: select the desired idle time limit (in seconds) that 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, clears the ball locks and returns to attract mode.

Default: OFF IDLE TIME
Options: Minimum: 1 Maximum: 600 Increment: 1
OFF: disable the idle time feature

02.11 Super Skill Shot Timeout: set the length (in seconds) of the ball launch Super Skill Shot timer.

Default: 3 S SKILL TIMEOUT
Options: Minimum: 1 Maximum: 15 Increment: 1
OFF: disable the Super Skill Shot feature

02.12 Royale w/Cheese Timeout: set the length (in seconds) of the **Royale with Cheese** timer (pg 1-14).

Default: 10 W CHEESE TIMEOUT
Minimum: 1 Maximum: 40 Increment: 1

02.13 Drive Fast MPH Bonus Timeout: specify how long (in seconds) the **Drive Fast** feature lasts, when triggered, for building up the **MPH Bonus** with repeated spinner shots (pg 1-17).

Default: 10 DRV FST TIMEOUT
Minimum: 1 Maximum: 30 Increment: 1

02.14 Drive Fast MPH Bonus Reset: set the length of time (in seconds) that the **Drive Fast** feature timeout is reset to when a lit spinner is hit again (pg 1-17). Note that the timeout is only reset to this value if it is greater than the existing timeout period.

Default: 5 DRV FST RESET
Minimum: 1 Maximum: 15 Increment: 1

02.15 Extra Ball - Drive Fast MPH Bonus: set the **Drive Fast MPH Bonus** speed required to light **Extra Ball** (pg 1-17).

Default: 146 EX BALL MPH
Options: Minimum: 50 Maximum: 200 Increment: 1
DISABLE: disable the **Drive Fast MPH Bonus Extra Ball** feature

02.16 Saucer Cycle: enter the desired time (in seconds) that each light stays lit during a cycle of the arrows above the **Starts Character** saucer. Note: during plunger skill shots, this value is divided by two.

Default: 0.75 SAUCER CYCLE

Minimum: 0.25 Maximum: 4.75 Increment: 0.25

02.17 Character Start: select the desired scoring behavior for the **Starts Character** saucer. With the **FIXED** option, the point value scored for every **Starts Character** saucer shot is constant: 9k. With the **MULTI** option, the point value scored is 3k multiplied by the number of lit arrows above the saucer when it is triggered.

Default: MULTI CHAR START

Options: **FIXED**: 9k points for every **Starts Character** shot

MULTI: 3k x number of lit arrows for **Starts Character** shot

02.18 Cast Hold Timeout: set the length of time (in seconds) that the **Hold Cast** insert will stay lit after collecting one or more characters (pg 1-21).

Default: BALLEND CASTHLD TIMEOUT

Options: Minimum: 1 Maximum: 60 Increment: 1

BALLEND: **Hold Cast** stays lit until the end of the current ball

02.19 Briefcase Boogie Multiball Difficulty: choose the difficulty level for qualifying and starting **Briefcase Boogie** multiball (pg 1-18).

Default: MEDIUM CASE DIFF

Options: **EASY**: easy to begin **Briefcase Boogie** multiball

MEDIUM: medium difficulty to begin **Briefcase Boogie** multiball

HARD: difficult to begin **Briefcase Boogie** multiball

02.20 Pawn Shop Panic Multiball Difficulty: choose the difficulty level for qualifying and starting **Pawn Shop Panic** multiball (pg 1-19).

Default: MEDIUM P SHOP DIFF

Options: **EASY**: easy to begin **Pawn Shop Panic** multiball

MEDIUM: medium difficulty to begin **Pawn Shop Panic** multiball

HARD: difficult to begin **Pawn Shop Panic** multiball

02.21 Virtual Locks: specify whether to utilize virtual ball locks or not.

Default: OFF VIRTUAL LOCKS

Options: **ON**: all locks are virtual (no balls held in locks)

OFF: all locks are physical (balls held in locks)

02.22 Lock Count Reset: with respect to lock difficulty progression, specify whether the consecutive multiball counter resets with every ball or not.

Default: NO LCK CNT RESET

Options: **YES**: reset multiball counter every ball

NO: do not reset multiball counter every ball

02.23 Pulp Fiction Frenzy Difficulty: choose the difficulty level for qualifying and starting **Pulp Fiction Frenzy** (pg 1-25).

Default: EASY P FICT DIFF

Options: **EASY**: easy to begin **Pulp Fiction Frenzy**

MEDIUM: medium difficulty to begin **Pulp Fiction Frenzy**

HARD: difficult to begin **Pulp Fiction Frenzy**

02.24 Pulp Fiction Frenzy Shots: enter the number of shots required to complete a **Pulp Fiction Frenzy** stage toward lighting the Super Payoff (pg 1-25).

Default: 110 FRENZY SHOTS

Minimum: 11 Maximum: 220 Increment: 11

02.25 Roll Scene Start: select the desired scene selection behavior for the **Roll Scene** saucer (pg 1-22). This setting determines which scene will light first when the **Roll Scene** access drop target is hit. Scenes are then cycled with jet bumper and/or slingshot kicks, in **Roll Scene** lane insert order, from bottom to top. The currently lit scene begins when the **Roll Scene** saucer is triggered. Note that **The Shot** is only available after all 4 of the other scenes have been played.

Default: RANDOM ROLL SC START

Options: **TWIST**: first scene to light is **Twist Contest**

WALLET: first scene to light is **BMF Wallet**

GOLD-W: first scene to light is **Gold Watch**

CLEAN: first scene to light is **Clean the Car**

RANDOM: first scene to light is random

02.26 Roll Scene Time: specify the amount of time (in seconds) for **Roll Scene** scene timer to run (pg 1-22). The collect portion of the timer is always the final 10 seconds.

Default: 40 ROLL SC TIME
Minimum: 15 Maximum: 60 Increment: 1

02.27 Extra Ball Level: specify which **Gun Bonus Multiplier** level will also light **Extra Ball** when the **1-2-3-4** lanes are completed (pg 1-14).

Default: 6X EX BALL LEVEL

- Options: 2X: light **Extra Ball** with **2X** multiplier
3X: light **Extra Ball** with **3X** multiplier
4X: light **Extra Ball** with **4X** multiplier
5X: light **Extra Ball** with **5X** multiplier
6X: light **Extra Ball** with **6X** multiplier
7X: light **Extra Ball** with **7X** multiplier
8X: light **Extra Ball** with **8X** multiplier
9X: light **Extra Ball** with **9X** multiplier
10X: light **Extra Ball** with **10X** multiplier
OFF: **Gun Bonus Multiplier Extra Ball** disabled

02.28 Big Kahuna Bonus Max X: specify the maximum allowed playfield multiplier for the **Big Kahuna Bonus** (pg 1-16).

Default: 6X KAHUNA MAX X

- Options: 3X: max multiplier of 3X
4X: max multiplier of 4X
5X: max multiplier of 5X
6X: max multiplier of 6X

02.29 PULP FICTION Inserts Color: specify what color temperature to use for the **PULP FICTION** insert lights in the center of the playfield. The **PULP FICTION** inserts will light and change color, accordingly, as you alter this setting and/or the custom RGB options below.

Default: WARM P FICT COLOR

- Options: WARM: warm white **PULP FICTION** lights
CUSTOM: custom RGB **PULP FICTION** lights (per options **02.30** through **02.32**)

02.30 PULP FICTION Inserts Red: enter the desired red intensity for the **PULP FICTION** insert lights.

Default: 255 P FICT RED
Minimum: 0 Maximum: 255 Increment: 1

02.31 PULP FICTION Inserts Green: enter the desired green intensity for the **PULP FICTION** insert lights.

Default: 140 P FICT GREEN
Minimum: 0 Maximum: 255 Increment: 1

02.32 PULP FICTION Inserts Blue: enter the desired blue intensity for the **PULP FICTION** insert lights.

Default: 20 P FICT BLUE
Minimum: 0 Maximum: 255 Increment: 1

02.33 Speech Control: choose whether the speech callouts in the game include profanity or if profanity is "bleeped" out.

Default: CLEAN SPEECH CONTROL

- Options: CLEAN: profanity "bleeped" out of callouts
PROFANE: callouts include profanity

02.34 Competition Mode: specify whether the game plays in competition mode or not.

Default: NO 

Options: NO: options below return to "pre-competition mode" states

YES: game randomness is removed by changing the following **Game Options**:

01 Ball Save -> OFF, **04 Safety - Magnet** -> OFF, **05 Safety - Subway** -> OFF,
06 Safety - Briefcase -> OFF, **07 Safety - Right Eject** -> OFF, **08 Flipper Plunger** -> NO,
09 Timed Plunger -> OFF, **10 Idle Time** -> OFF, **15 Drive Fast MPH Bonus** -> DISABLE,
17 Character Start -> FIXED, **21 Virtual Locks** -> ON, **27 Extra Ball Level** -> OFF,
36 Coin Door Ball Save -> YES, **37 Coin Door Ball Save** -> YES, **38 Disable Shaker** -> YES

Note that the above settings are only temporarily (and internally) changed, while the game is set to play in **Competition Mode**. That is, your existing **Game Options** settings are not affected by changing this setting.

02.35 Coin Door Ball Save: specify whether to allow a ball save when the coin door is opened with a ball in play or not.

Default: NO 

Options: NO: no ball save if coin door is opened

YES: allow ball save if coin door is opened


02.36 Coin Door Tilt Disable: specify whether to disable the tilt switch when the coin door is opened with a ball in play or not.

Default: NO 

Options: NO: tilt active when coin door is opened

YES: tilt disabled when coin door is opened

02.37 Disable Shaker: specify whether to disable the shaker motor ([Coil 44](#)) or not (LE only).

Default: NO 

Options: NO: use the shaker motor (LE only)

YES: disable the shaker motor (LE only)

02.38 Disable '6' Drop Targets: specify whether to disable the three inline ("Briefcase combination") drop targets ([Coils 3-5](#)) or not. If disabled, the drop targets will be compensated for in software.

Default: NO 

Options: NO: use the 3 inline drop targets

YES: disable the 3 inline drop targets

02.39 Disable Roll Scene Drop Target: specify whether to disable the **Roll Scene** access drop target ([Coil 16](#)) or not. If disabled, the drop target will be compensated for in software.

Default: NO 

Options: NO: use the **Roll Scene** drop target

YES: disable the **Roll Scene** drop target

02.40 Disable Drop Target 3-Bank: specify whether to disable the drop target 3-bank ([Coil 14](#)) (blocking the **Pawn Shop** entrance) or not. If disabled, the drop targets will be compensated for in software.

Default: NO 

Options: NO: use the drop target 3-bank

YES: disable the drop target 3-bank



1.7 HSTD Options

You can scroll through High Score to Date (HSTD) Options using the red (+ or -) buttons; press the black (BEGIN TEST) button to select an item you would like to change. Default settings are indicated with a lit comma segment in the right-most digit of the value display (player 4). If you'd like to return a setting to its default value, simply press the game's Start button; the setting will instantly change to default. To customize, use the red (+ or -) buttons to alter the selected data value, then press the black (BEGIN TEST) button to accept the new value. Press the green (ESC) button to escape from a selected menu item without saving changes. To exit the HSTD Options menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

03.01 HSTD Enable: specify whether or not the game will maintain & display a HSTD table of the four highest scores.

Default: ON  

Options: ON: maintain & display HSTD table
OFF: no HSTD table kept

03.02 HSTD Award: select the award for achieving a score in the HSTD table.

Default: CREDIT  

Options: CREDIT: game credit(s) awarded
NONE: no award for HSTD

03.03 Champion HSTD: specify whether the "highest" HSTD (Champion score) will be maintained and displayed or not. This score is not cleared with a HSTD Reset.

Default: ON  

Options: ON: maintain & display Champion score
OFF: no Champion score kept

03.04 Champion Credits: select the number of credits awarded for a Champion score.

Default: 1  

Options: Minimum: 1 Maximum: 10 Increment: 1
NONE: no award for Champion score

03.05 HSTD 1 Credits: select the number of credits awarded for HSTD score number 1.

Default: 1 

Options: Minimum: 1 Maximum: 10 Increment: 1

NONE: no award for 1st HSTD score

03.06 HSTD 2 Credits: select the number of credits awarded for HSTD score number 2.

Default: 1 

Options: Minimum: 1 Maximum: 10 Increment: 1

NONE: no award for 2nd HSTD score

03.07 HSTD 3 Credits: select the number of credits awarded for HSTD score number 3.

Default: 1 

Options: Minimum: 1 Maximum: 10 Increment: 1

NONE: no award for 3rd HSTD score

03.08 HSTD 4 Credits: select the number of credits awarded for HSTD score number 4.

Default: 1 

Options: Minimum: 1 Maximum: 10 Increment: 1

NONE: no award for 4th HSTD score

03.09 HSTD Reset: select the number of games between automatic HSTD table resets.

Default: OFF 

Options: Minimum: 250 Maximum: 20,000 Increment: 250

OFF: never automatically reset the HSTD table

03.10 Champion Backup: select the backup Champion score. The Champion score is set to this value with a Champion Reset.

Default: 3,400,000 

Minimum: 0 Maximum: 9,000,000 Increment: 100,000

03.11 HSTD 1 Backup: select the backup HSTD 1 score. The HSTD 1 score is set to this value with a HSTD Reset or a Champion Reset.

Default: 3,100,000 

Minimum: 0 Maximum: 9,000,000 Increment: 100,000

03.12 HSTD 2 Backup: select the backup HSTD 2 score. The HSTD 2 score is set to this value with a HSTD Reset or a Champion Reset.

Default: 3,000,000 

Minimum: 0 Maximum: 9,000,000 Increment: 100,000

03.13 HSTD 3 Backup: select the backup HSTD 3 score. The HSTD 3 score is set to this value with a HSTD Reset or a Champion Reset.

Default: 2,800,000 

Minimum: 0 Maximum: 9,000,000 Increment: 100,000

03.14 HSTD 4 Backup: select the backup HSTD 4 score. The HSTD 4 score is set to this value with a HSTD Reset or a Champion Reset.

Default: 2,600,000 

Minimum: 0 Maximum: 9,000,000 Increment: 100,000



1.8 Coil Options

You can scroll through Coil Options using the red (+ or -) buttons; press the black (BEGIN TEST) button to select an item you would like to change. Default settings are indicated with a lit comma segment in the right-most digit of the value display (player 4). If you'd like to return a setting to its default value, simply press the game's Start button; the setting will instantly change to default. To customize, use the red (+ or -) buttons to alter the selected data value, then press the black (BEGIN TEST) button to accept the new value. Press the green (ESC) button to escape from a selected menu item without saving changes. To exit the Coil Options menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

04.01 Flipper Power: select the coil strength for the left and right flippers (Coils 29-32).

Default: 220 FLIPPER POWER
Minimum: 75 Maximum: 255 Increment: 1

04.02 Trough Power: select the coil strength for the main ball trough popper (Coil 12).

Default: 215 TROUGH POWER
Minimum: 75 Maximum: 255 Increment: 1

04.03 Shooter Power: select the coil strength for the shooter lane ball auto-launch (Coil 11).

Default: 215 SHOOTER POWER
Minimum: 75 Maximum: 255 Increment: 1

04.04 Jet Power: select the coil strength for the three jet bumpers (Coils 34-36).

Default: 215 JET POWER
Minimum: 75 Maximum: 255 Increment: 1

04.05 Sling Power: select the coil strength for the left and right slingshots (Coils 1, 10).

Default: 215 SLING POWER
Minimum: 75 Maximum: 255 Increment: 1

04.06 Saucer Power: select the coil strength for the Starts Character saucer eject (Coil 15).

Default: 182 SAUCER POWER
Minimum: 75 Maximum: 255 Increment: 1

04.07 Right Eject Power: select the coil strength for the *Roll Scene* saucer eject ([Coil 9](#)).

Default: 182 R EJECT POWER
 Minimum: 75 Maximum: 255 Increment: 1

04.08 Popper Power: select the coil strength for the Briefcase ball lock load popper ([Coil 2](#)).

Default: 255 POPPER POWER
 Minimum: 75 Maximum: 255 Increment: 1

04.09 Subway Power: select the coil strength for the *Pawn Shop* (subway) return popper ([Coil 8](#)).

Default: 210 SUBWAY POWER
 Minimum: 75 Maximum: 255 Increment: 1

04.10 Single Drop Target Power: select the coil strength for reset of the four single drop targets (three inline "*Briefcase* combination" and *Roll Scene* access) ([Coils 3-5, 16](#)).

Default: 185 S DROP POWER
 Minimum: 75 Maximum: 255 Increment: 1

04.11 3-Bank Drop Target Power: select the coil strength for reset of the drop target 3-bank (blocking the *Pawn Shop* entrance) ([Coil 14](#)).

Default: 185 3 BANK POWER
 Minimum: 75 Maximum: 255 Increment: 1



1.9 Coin Audits

You can scroll through and check Coin Audits using the red (+ or -) buttons. To exit the Coin Audits menu at any time, press the green (ESC) button; you will immediately return to the Main Menu. To reset these audits, see the Utility Menu.

05.01 Left Coins: view the number of coins accepted through the left coin slot (since the last Coin Audits Reset).



05.02 Right Coins: view the number of coins accepted through the right coin slot (since the last Coin Audits Reset).



05.03 Dollar Bill Validator Units: view the number of units that have been accepted by the dollar bill validator (since the last Coin Audits Reset).



05.04 Paid Credits: view the number of paid credits the game has accepted (since the last Coin Audits Reset).



05.05 Service Credits: view the number of service credits added to the game (since the last Coin Audits Reset).



05.06 Lifetime Credits: view the number of lifetime paid credits the game has accepted. This total is not cleared with a Coin Audits Reset.



05.07 Total Up Time: view the total amount of time (days, hours, minutes, seconds) the game has been powered up and operating.



A horizontal LED display with eight segments. The first two segments are blank, and the remaining six segments show the letters 'M', 'A', 'I', 'N' in a yellow, seven-segment font.

A horizontal LED display with eight segments. The first two segments are blank, and the remaining six segments show the letters 'M', 'E', 'N', 'U' in a yellow, seven-segment font.

A horizontal LED display with eight segments. The first two segments are blank, and the remaining six segments show the letters 'G', 'A', 'M', 'E' in a yellow, seven-segment font.

A horizontal LED display with eight segments. The first two segments are blank, and the remaining six segments show the letters 'A', 'U', 'D', 'I', 'T', 'S' in a yellow, seven-segment font.

A horizontal LED display with four segments showing the number '00' in a yellow, seven-segment font.

A horizontal LED display with four segments showing the number '06' in a yellow, seven-segment font.

1.10 Game Audits

You can scroll through and check Game Audits using the red (+ or -) buttons. To exit the Game Audits menu at any time, press the green (ESC) button; you will immediately return to the Main Menu. To reset these audits, see the Utility Menu.

06.01 Total Starts: view the total number of games started.

Two horizontal LED displays. The first shows 'TOTAL' and the second shows 'STARTS' in a yellow, seven-segment font.

06.02 Game Overs: view the total number of games that ended normally.

Two horizontal LED displays. The first shows 'GAME' and the second shows 'OVERS' in a yellow, seven-segment font.

06.03 1-Player Games: view the total number of 1-Player games played.

Two horizontal LED displays. The first shows '1PLAYER' and the second shows 'GAMES' in a yellow, seven-segment font.

06.04 2-Player Games: view the total number of 2-Player games played.

Two horizontal LED displays. The first shows '2PLAYER' and the second shows 'GAMES' in a yellow, seven-segment font.

06.05 3-Player Games: view the total number of 3-Player games played.

Two horizontal LED displays. The first shows '3PLAYER' and the second shows 'GAMES' in a yellow, seven-segment font.

06.06 4-Player Games: view the total number of 4-Player games played.

Two horizontal LED displays. The first shows '4PLAYER' and the second shows 'GAMES' in a yellow, seven-segment font.

06.07 Total Plays: view the total number of plays.

Two horizontal LED displays. The first shows 'TOTAL' and the second shows 'PLAYS' in a yellow, seven-segment font.

06.08 Lifetime Plays: view the total number of lifetime plays. This total is not cleared with a Game Audits Reset.

Two horizontal LED displays. The first shows 'LIFETIME' and the second shows 'PLAYS' in a yellow, seven-segment font.

06.09 **Play Time**: view the total amount of time (days, hours, minutes, seconds) the game has been played.

PLAY TIME
d010h07 m51s43

06.10 **Average Play Time**: view the average game length (minutes, seconds).

AVERAGE P TIME
m06s48

06.11 **Total Balls**: view the total number of balls played.

TOTAL BALLS

06.12 **Average Ball Time**: view the average ball length (minutes, seconds).

AVERAGE B TIME
m02s16

06.13 **Center Drains**: view the total number of drains between the flippers.

CENTER DRAINS

06.14 **Right Drains**: view the total number of right outlane drains.

RIGHT DRAINS

06.15 **Left Drains**: view the total number of left outlane drains.

LEFT DRAINS

06.16 **Replay Awards**: view the total number of replays awarded.

REPLAY AWARDS

06.17 **Match Awards**: view the total number of matches awarded.

MATCH AWARDS

06.18 **HSTD Awards**: view the total number of HSTD scores achieved.

HSTD AWARDS

06.19 **Extra Balls**: view the total number of extra balls earned.

EXTRA BALLS

06.20 **Replay Level 1**: view the total number of level 1 replays earned.

REPLAY LEVEL 1

06.21 **Replay Level 2**: view the total number of level 2 replays earned.

REPLAY LEVEL 2

06.22 **Replay Level 3**: view the total number of level 3 replays earned.

REPLAY LEVEL 3

06.23 **Replay Level 4**: view the total number of level 4 replays earned.

REPLAY LEVEL 4

06.24 **Game Aborts**: view the total number of aborted games.

GAME ABORTS

06.25 **Total Tilts**: view the total number of tilts triggered.

TOTAL TILTS

06.26 Burn-In Time: view the total amount of burn-in time (days, hours, minutes, seconds).

BURN-IN TIME
1000h05 m12s20

06.27 High Score Reset Count: view the current count toward the next automatic HSTD Reset.

HSRESET COUNT

06.28 Kahuna 2X Reached: view the total number of times Kahuna 2X has been reached.

KAHUN2X REACHED

06.29 Kahuna 3X Reached: view the total number of times Kahuna 3X has been reached.

KAHUN3X REACHED

06.30 Kahuna 4X Reached: view the total number of times Kahuna 4X has been reached.

KAHUN4X REACHED

06.31 Kahuna 5X Reached: view the total number of times Kahuna 5X has been reached.

KAHUN5X REACHED

06.32 Kahuna 6X Reached: view the total number of times Kahuna 6X has been reached.

KAHUN6X REACHED

1.11 System Errors

You can scroll through and view System Errors using the red (+ or -) buttons. To exit the System Errors menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

07.01 Watchdog Reboots: view the number of watchdog-generated system reboots.

07.02 Exceptions: view the number of exceptions thrown by the CPU.

07.03 SPI Inc: view the number of times the SPI system received an incomplete packet.

07.04 SPI Header: view the number of SPI corrupt headers detected.

07.05 SPI Checks: view the number of SPI data checksum failures detected.

07.06 PIC I2C: view the number of I²C communication errors detected.

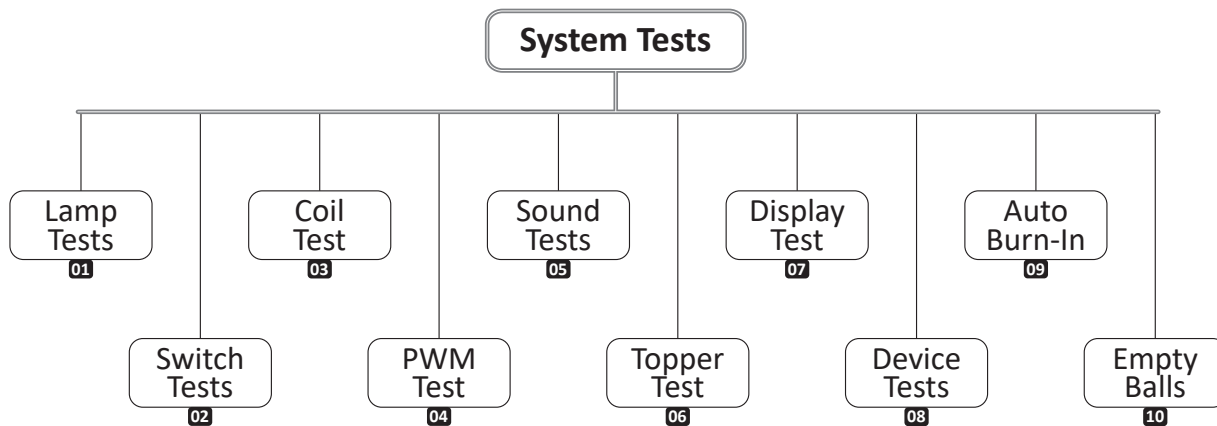
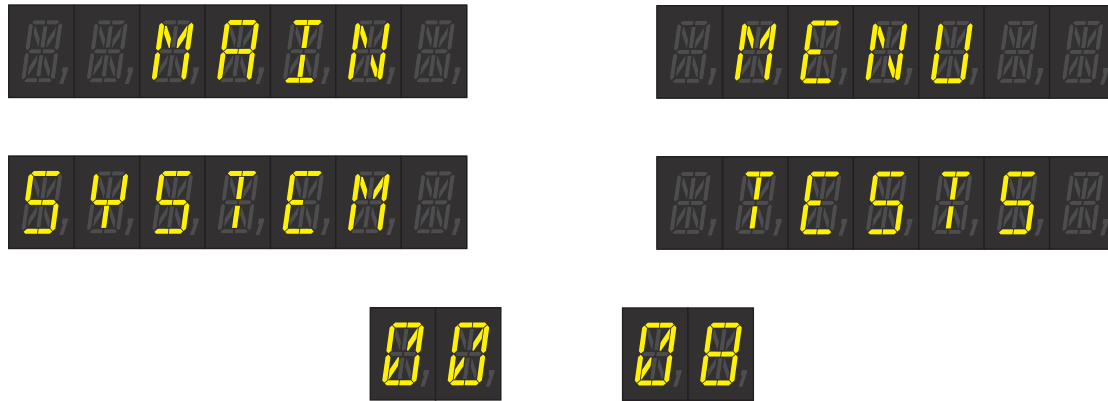


Figure 1-23. System Tests menu structure.

1.12 System Tests

Figure 1-23 shows how the System Tests menu is organized. There are ten items/sub-menus within the System Tests menu, described below. You can scroll through them using the red (+ or -) buttons; press the black (BEGIN TEST) button to enter any test sub-menu. To exit the System Tests menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

Lamp Tests - test all lamps in the game, individually or by group.

Switch Tests - test all switches (edges or levels) in the game and view switch errors.

Coil Test - sequentially or individually test fire every coil in the game.

PWM Test - perform pulse width modulation test on applicable lamps in the game.

Sound Tests - test the sound system and speakers in the game.

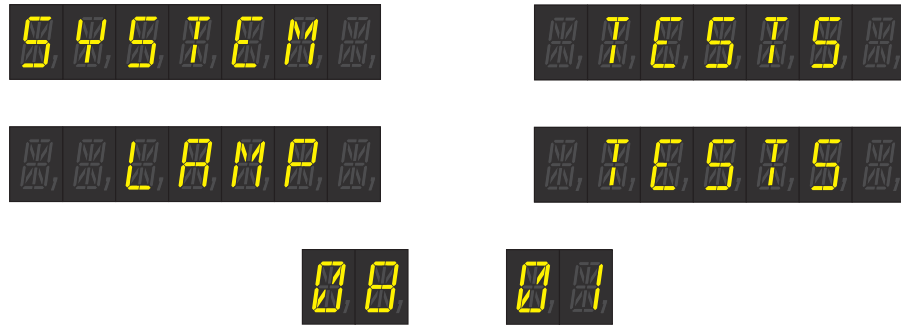
Topper Test - auto cycle the topper character twist motors (LE only).

Display Test - auto cycle or step-through the alphanumeric displays test.

Device Tests - test complex, interdependent devices in the game for proper operation.

Auto Burn-In - run a preset routine to exercise all of the critical devices in the game, repeatedly, to test for reliable, long-term system operation.

Empty Balls - clear all balls loaded in ball locks, saucers, poppers and ball troughs.



Lamp Tests

There are six tests in the Lamp Tests sub-menu (figure 1-24). You can scroll through them using the red (+ or -) buttons; press the black (**BEGIN TEST**) button to enter any test. To exit the Lamp Tests menu at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu. See pg 4-2 for some general notes regarding the lamps in your Pulp Fiction game.

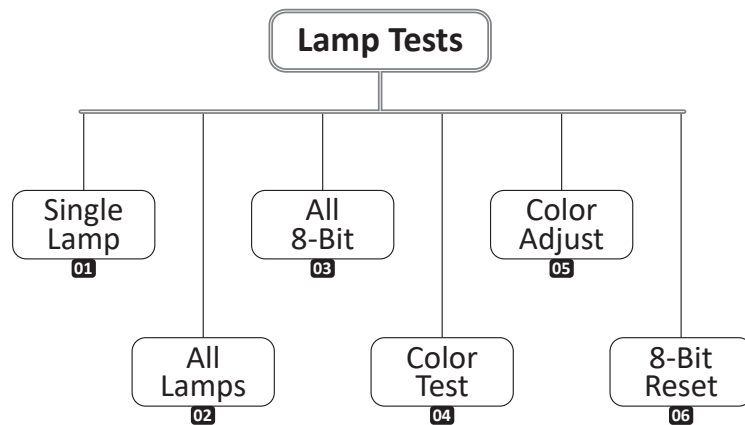


Figure 1-24. Lamp Tests sub-menu structure.

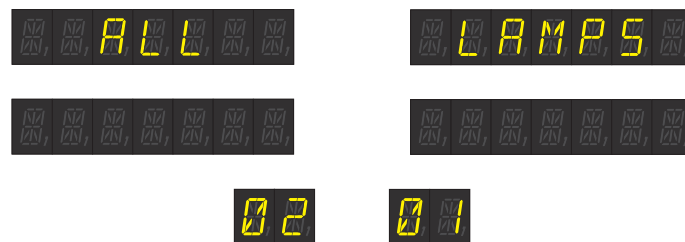


01.01 Single Lamp Test: the game displays show the information above at the beginning of the Single Lamp test. The Credits display provides the lamp location (in test order: Playfield, Coin door, Backbox then Topper) and type (in test order: Lamps then Flashers); the Ball in Play display shows the light number; the Player 3 & 4 displays provide a brief lamp description. One lamp on the playfield will begin blinking: **L00** (**Ball Save** outlane, left).

Use the black (**BEGIN TEST**) button to toggle the current light between blinking and constant ON. Use the red (+ or -) buttons to navigate the list of game lamps, in order, to ensure they function properly. You can rapidly move through the list of lamps by holding either red (+ or -) button down.

RGB lights are tested by color component in this test. That is, you will step through each RGB light one *full intensity* color at a time: blue, green then red. To exit the Single Lamp test at any time, press the green (**ESC**) button; you will immediately return to the Lamp Tests sub-menu.

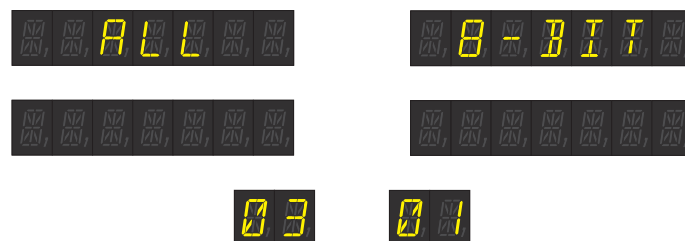
Lamp/Flasher/GI Illustrations & Tables:
 Playfield, pg 2-78
 Backbox/Insert Door, pg 2-92
 Topper (LE only), pg 2-93
 Coin Door, pg 2-64



01.02 All Lamps Test: the game displays show the information above at the beginning of the All Lamps test. Every lamp in the game will begin blinking.

Use the black (**BEGIN TEST**) button to toggle the lights between blinking and constant ON/OFF. If you press the button when the lights are OFF, they will stay OFF. Conversely, if you press the button when the lights are ON, they'll remain ON. When not blinking, you can use the red **+** button to turn all lamps ON and the red **-** button to turn all lamps OFF.

For this test, RGB lights are tested "full ON". That is, all three components (blue, green & red) will be at full intensity; the result is a cool white color. To exit the All Lamps test at any time, press the green (**ESC**) button; you will immediately return to the Lamp Tests sub-menu.



01.03 All 8-Bit Test: the game displays show the information above at the beginning of the All 8-Bit test. Every light in the game controlled by 8-bit ICs will begin blinking. Note: 8-bit controlled lights are identified in the game lighting tables.

For this test, RGB lights are tested "full ON". That is, all three components (blue, green & red) will be at full intensity; the result is a cool white color. To exit the All 8-Bit test at any time, press the green (**ESC**) button; you will immediately return to the Lamp Tests sub-menu.



01.04 Color Test: the game displays show the information above at the beginning of the Color Test. Every RGB light in the game will be ON, full intensity red. Every two seconds the lights change full intensity color (and repeat), in the following order: red, green, blue, red+green, red+blue, green+blue, red+green+blue. The Player 4 display shows the current color/combination.

To stop on any color/combination, press the black (**BEGIN TEST**) button. When stopped, use the red (**+** or **-**) buttons to move through colors/combinations or the black (**BEGIN TEST**) button to return to auto cycling.

To exit the Color Test at any time, press the green (**ESC**) button; you will immediately return to the Lamp Tests sub-menu.



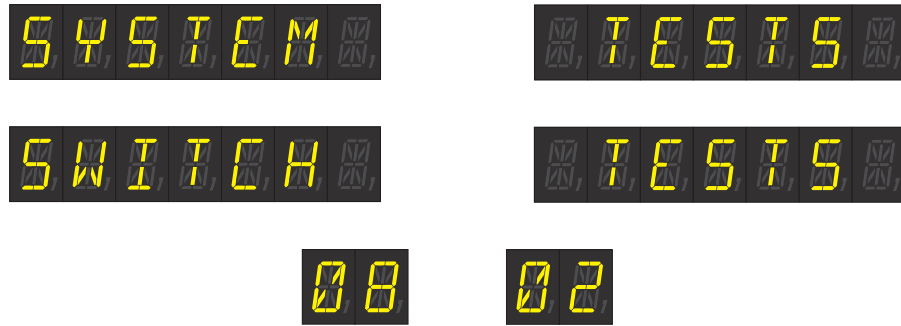
01.05 Color Adjust Test: the game displays show the information above at the beginning of the Color Adjust test. Every RGB light in the game will be ON, full intensity red. Every two seconds the lights change full intensity color (and repeat), in the following order: red, green, blue, red+green, red+blue, green+blue, red+green+blue. The Player 3 & 4 displays show the color being adjusted and its current intensity (0-255), respectively.

Use this test to experiment with and/or view different RGB colors. You can adjust each color component's intensity (red, green, blue) as well as the overall RGB brightness. Use the black (**BEGIN TEST**) button to switch between color components and brightness; use the red (+ or -) buttons to fine-tune values. The game's RGB lights update, accordingly, as you change settings.

To exit the Color Adjust test at any time, press the green (**ESC**) button; you will immediately return to the Lamp Tests sub-menu.



01.06 8-Bit Reset: the game displays show the information above when you initiate an 8-Bit Reset. The 8-bit lighting controller ICs are immediately reset. There is no user interaction with this function; once the chips are reset, you are returned to the Lamp Tests sub-menu.



Switch Tests

There are three tests in the Switch Tests sub-menu (figure 1-25). You can scroll through them using the red (+ or -) buttons; press the black (**BEGIN TEST**) button to enter any test. To exit the Switch Tests menu at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu. See pg 4-2 for some general notes regarding the switches in your Pulp Fiction game.

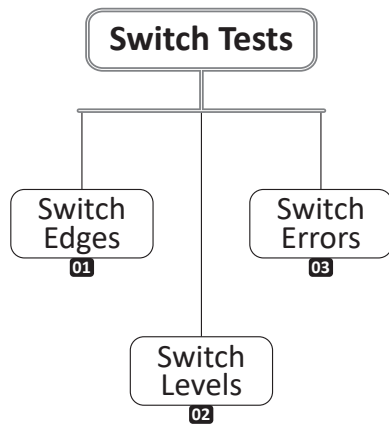


Figure 1-25. Switch Tests sub-menu structure.



02.01 Switch Edges Test: the game displays show the information above left at the beginning of the Switch Edges test. When any switch in the game is activated/made, 1) you will hear an audio response through the game's speakers, 2) the Ball in Play display will show the switch's number and 3) a brief description of the activated switch will appear in the Player 3 & 4 displays ('Left inlane (3)' switch example, above right). If the switch is momentarily activated, the information remains in the displays for approximately 2 seconds. If the switch remains closed, the information will remain in the displays until the switch opens **OR** another switch is activated (then that switch's information will be displayed). In any case, you will also hear a switch deactivated/open sound when any closed switch reopens.

To exit the Switch Edges test at any time, press the green (**ESC**) button; you will immediately return to the Switch Tests sub-menu.

Switch Illustrations & Tables:
 Playfield, pg 2-94
 Lower Cabinet, pg 2-2
 Coin Door, pg 2-64



02.02 *Switch Levels Test*: the game displays show the information above left at the beginning of the Switch Levels test - as long as at least one ball is in the trough. The test then continuously cycles through all of the made switches in the game, in numerical order, one per second. For each one, 1) an audio response is generated, 2) the Ball in Play display shows the switch's number and 3) the Player 3 & 4 displays show a brief switch description. If no switches are made, the displays will remain blank (above right).

To exit the Switch Levels test at any time, press the green (ESC) button; you will immediately return to the Switch Tests sub-menu.



02.03 *Switch Errors*: the game displays show the information above when you enter the Switch Errors sub-menu, assuming there are no switch errors. If there are errors to report, the displays will continuously cycle through the list of switches that need to be inspected and tested for proper operation.

To exit the Switch Errors test at any time, press the green (ESC) button; you will immediately return to the Switch Tests sub-menu.



Coil Test

The Coil Test is used to exercise all of the solenoids/coils in the game. See pg 4-2 for some general notes regarding the coils in your Pulp Fiction game. Note: when the coin door is open, the game's safety interlock switch (the upper switch on item 9, pg 2-2 of this manual) disables the 70-Volt power running to the playfield. In order to activate the 70-Volt coils in this test, 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: If you lift the playfield for any reason, please be careful around high power coil lugs, as they present a shock hazard!**



03 Coil Test: the game displays show the information above at the beginning of the Coil Test. The game then continuously cycles through all of the coils, kicking them one at a time, in numerical order. The left sling is **Coil 1** in the game, so it is the first to kick. To pause the cycle and repeatedly kick a coil, press the black (**BEGIN TEST**) button while the coil's info is shown in the backbox displays. Once the cycling is paused, you can use the red (+ or -) buttons to scroll through the list, manually, to repeatedly kick any coil in the game. Press the black (**BEGIN TEST**) button again to resume cycling.

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

Coil Illustrations & Tables:
 Coil Locations, pg 2-70
 Coil & Motor Table, pg 2-68
 Coil Wiring, pg 2-132
 Coil Strength Adjustments, pg 1-41

PWM

TEST

00

04

00

04

PWM Test

The Pulse Width Modulation (PWM) Test is used to check for positive power/intensity control over every dimmable light in the game, in predefined groups.

PWM

TEST

PLAYFIELD

RIGHT

04

01

04 PWM Test: the game displays show the information above at the beginning of the PWM Test. The game then continuously cycles through groups of dimmable lights in the game, in the following order: 1) playfield GI, right, 2) playfield GI center, 3) playfield GI left, 4) backbox GI, 5) playfield feature lamps. To pause the cycle and repeatedly blink one group of lamps, press the black (**BEGIN TEST**) button while the group's info is shown in the backbox displays. Once the cycling is paused, you can use the red (+ or -) buttons to scroll through the list, manually, to repeatedly blink any group of dimmable lights in the game. Press the black (**BEGIN TEST**) button again to resume cycling.

To exit the PWM Test at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu.

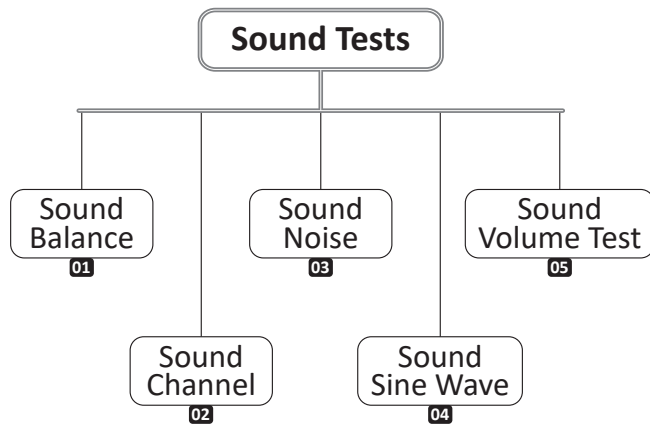
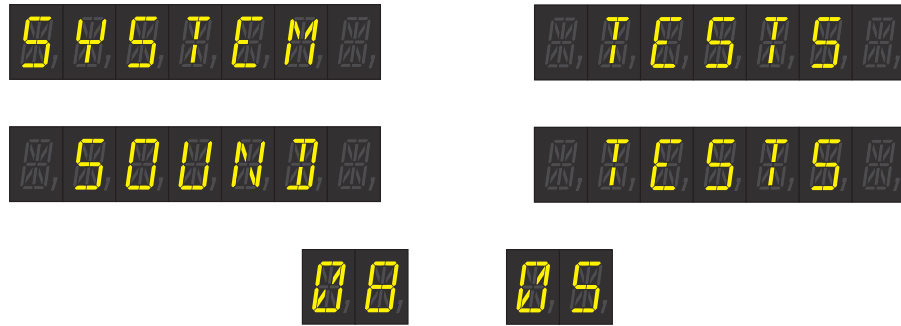
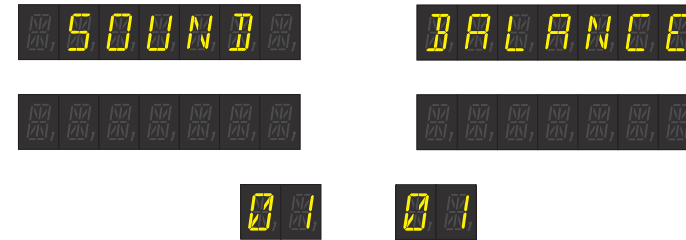


Figure 1-26. Sound Tests sub-menu structure.

Sound Tests

There are five tests in the Sound Tests sub-menu (figure 1-26). You can scroll through them using the red (+ or -) buttons; press the black (BEGIN TEST) button to enter any test. To exit the Sound Tests menu at any time, press the green (ESC) button; you will immediately return to the System Tests menu.

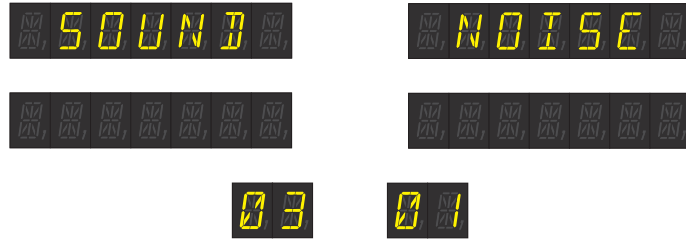


05.01 *Sound Balance Test:* the game displays show the information above during the Sound Balance test. A continuous stream of music, callouts and sound effects plays through the game's speakers so you can check the balance between the different sound types *and* the balance between the backbox/neck and cabinet speakers.

To exit the Sound Balance test at any time, press the green (ESC) button; you will immediately return to the Sound Tests sub-menu.



05.02 *Sound Channel Test:* the game displays show the information above during the Sound Channel test. A voice is played through the "left" channel (the backbox/neck speaker), then through the "right" channel (the cabinet speaker). There is no user interaction with this test; once the channel signals have been sent, you are returned to the Sound Tests sub-menu.



05.03 Sound Noise Test: the game displays show the information above during the Sound Noise test. A white noise signal is continuously played through the game's speakers.

To exit the Sound Noise test at any time, press the green (**ESC**) button; you will immediately return to the Sound Tests sub-menu.



05.04 Sound Sine Wave Test: the game displays show the information above during the Sound Sine Wave test. A sine wave signal, with ever-increasing frequency, is played through the game's speakers. There is no user interaction with this test; once the sine wave reaches its maximum frequency, you are returned to the Sound Tests sub-menu.



05.05 Sound Volume Test: the game displays show the information above during the Sound Volume Test. A white noise signal is continuously played through the game's speakers. The volume level is then incrementally reduced approximately every 5 seconds. When the lowest level has been reached, the test begins again at the initial volume level.

To exit the Sound Volume Test at any time, press the green (**ESC**) button; you will immediately return to the Sound Tests sub-menu.

A horizontal LED display with seven segments showing the word "TOPPER" in yellow.

A horizontal LED display with five segments showing the word "TEST" in yellow.

A horizontal LED display with six segments showing the word "MIA" in yellow.

A horizontal LED display with six segments showing "0x00" in yellow.

A small LED display showing the number "08" in yellow.

A small LED display showing the number "06" in yellow.

Topper Test (LE only)

The Topper Test is used to check the two character "twist" motors (and their respective magnetic home switches) for proper operation. This test will only function in a Pulp Fiction Limited Edition game, with a topper.

A horizontal LED display with seven segments showing the word "TOPPER" in yellow.

A horizontal LED display with five segments showing the word "TEST" in yellow.

A horizontal LED display with six segments showing the word "MIA" in yellow.

A horizontal LED display with six segments showing "0x00" in yellow.

A small LED display showing the number "06" in yellow.

A small LED display showing the number "01" in yellow.

06 *Topper Test*: the game displays show the information above at the beginning of the Topper Test. Beginning with Mia, the game will turn each character in one direction, in several distinct steps, return to home position, then repeat the process in the opposite direction. The character motor under test is displayed in the Player 3 display; the motor's rotational steps position is shown in the Player 4 display. When a motor is activated, the headlights of the car on the corresponding side of the topper will illuminate: left car for Mia, right car for Vincent. Also, when a character is in its home position, the corresponding side of the **Jack Rabbit Slim's** sign will illuminate: **Jack** for Mia, **Slim's** for Vincent. The test cycles back and forth, between the two motors, indefinitely.

To exit the Topper Test at any time, press the green (**ESC**) button; the motor currently under test will spin back to its home position as you are returned to the System Tests menu.

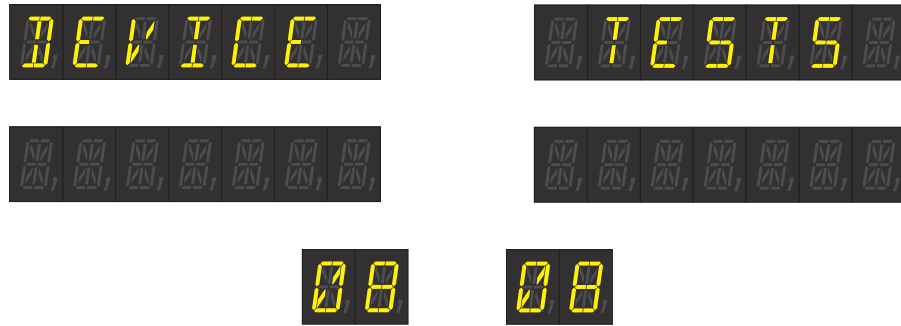
Display Test

The Display Test is used to simultaneously check the five alphanumeric displays in the backbox for proper operation.



07 *Display Test*: the game displays show the information above left at the beginning of the Display Test. Starting with 0s, the game simultaneously cycles identical numbers through all of the displays' digits (0s, 1s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, then *s). Odd numbers show commas in the thousands and millions digit positions (see above right); even numbers do not. After the all *s stage, the game individually tests the seven digits of each display, in order, from left-to-right (starting with the leftmost digit of the Player 1 display). All 17 segments are lit for each digit, in turn, all the way through the Credits and Ball in Play displays; then the entire sequence begins again, with 0s in all displays. To pause the cycle at any time, press the black (**BEGIN TEST**) button. Once paused, you can use the red (+ or -) buttons to scroll forward or backward to any point in the sequence. Press the black (**BEGIN TEST**) button again to resume cycling.

To exit the Display Test at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu.



Device Tests

There are six tests in the Device Tests sub-menu (figure 1-27). You can scroll through them using the red (+ or -) buttons; press the black (BEGIN TEST) button to enter any test. To exit the Device Tests menu at any time, press the green (ESC) button; you will immediately return to the System Tests menu.

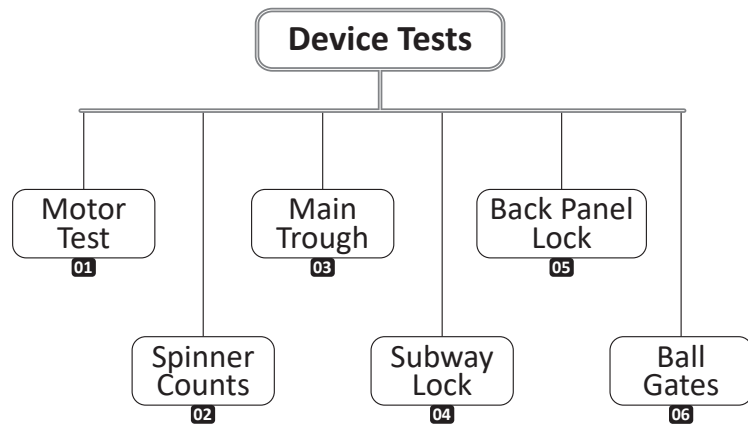
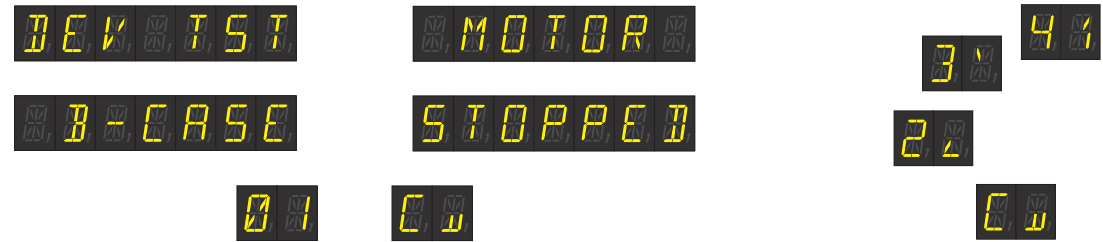


Figure 1-27. Device Tests sub-menu structure.

08.01a Motor Test - Briefcase: the game displays show the information above left at the beginning of the Briefcase Motor Test. The briefcase will be in the closed/home position, facing the player. The Ball in Play display shows a rough animation of the position, with a 'C' for 'closed'. Use the red - button to rotate it in a CW direction (displays, below left) or the red + button to rotate it CCW (displays, below right). When you release either button, the briefcase will stop and the displays will again look similar to above left. The Ball in Play animation changes as the briefcase rotates, using the two U-shaped opto switches in the briefcase assembly (*Sw 18, Sw 19*) to detect - and display - four discrete rotational positions. In the C position, *Sw 18 & Sw 19* are both unblocked; in position 2, only *Sw 19* is blocked; in position 3, *Sw 18 & Sw 19* are both blocked; in position 4, only *Sw 18* is blocked. When the briefcase reaches its rotational limits (all the way CW (facing the Vince sculpture) **OR** all the way CCW (home): facing the player), it will automatically stop. Press the black (BEGIN TEST) button to move to the Mia Motor Test.

To exit the Motor Test at any time, press the green (ESC) button; all motors will spin back to their respective home positions as you are returned to the Device Tests sub-menu.





08.01b *Motor Test - Mia*: the game displays show the information above center at the beginning of the Mia Motor Test. This test will only function in a Pulp Fiction Limited Edition game, with a topper. Use the red - button to rotate Mia in a CW direction (displays, above left) or the red + button to rotate her CCW (displays, above right). When Mia's motor is active, the left car headlights will illuminate; when Mia is in (or passing through) her home position, the *Jack* portion of the *Jack Rabbit Slim's* sign will illuminate. When you release either button, Mia will stop and the displays will again look like above center. Press the black (**BEGIN TEST**) button to move to the Vincent Motor Test.

To exit the Motor Test at any time, press the green (**ESC**) button; all motors will spin back to their respective home positions as you are returned to the Device Tests sub-menu.



08.01c *Motor Test - Vincent*: the game displays show the information above center at the beginning of the Vincent Motor Test. This test will only function in a Pulp Fiction Limited Edition game, with a topper. Use the red - button to rotate Vincent in a CW direction (displays, above left) or the red + button to rotate him CCW (displays, above right). When Vincent's motor is active, the right car headlights will illuminate; when Vincent is in (or passing through) his home position, the *Slim's* portion of the *Jack Rabbit Slim's* sign will illuminate. When you release either button, Vincent will stop and the displays will again look like above center. Press the black (**BEGIN TEST**) button to go back to the Briefcase Motor Test.

To exit the Motor Test at any time, press the green (**ESC**) button; all motors will spin back to their respective home positions as you are returned to the Device Tests sub-menu.



08.02 *Spinner Counts*: the game displays show the information above at the beginning of the Spinner Counts test. You can test your game's spinners (manually or by hitting them with a flipped ball) for proper operation - measured in number of spins. The cumulative left & right spinner counts are provided in the Player 3 & 4 displays, respectively. You also hear a sound through the game's speakers each time either spinner switch is activated. If you wish to use the flippers during this test, you must either close the coin door or pull the safety interlock switch's actuator out. Use the black (**BEGIN TEST**) button to clear both counts.

To exit the Spinner Counts test at any time, press the green (**ESC**) button; you will immediately return to the Device Tests sub-menu.



08.03 *Main Trough Test*: the game displays show the information above left at the beginning of the Main Trough test - with all balls in the trough. To run this test, you must either close the coin door or pull the safety interlock switch's actuator out. The Player 3 display provides a representation of what the trough and shooter lane switches are reading. The five leftmost positions show what the trough optos (**Sws 5-1**, ball trough 4 through 1 and jam, left-to-right) register; the two rightmost positions show what the two switches in the shooter lane (**Sw 33**, low, on the left and **Sw 64**, upper, on the right) read. A 'ball' is depicted (sometimes very briefly!) in any of these positions when the switch is made. A sound is also played through the game's speakers for every switch closure. Use the game's Start button to kick the ball with the small triangle under it (ball trough 1); the Player 4 display identifies the kicking coil (the trough popper). As the ball kicks into the shooter lane, the ball trough jam switch flashes, then the ball is shown in the shooter lane, low position. The remaining three balls in the trough move one position to the right, as the kick triangle moves to the shooter lane - indicating the auto-launch is now the active kicking coil; the Player 4 display is updated accordingly (above right). Hit the Start button to fire the auto-launch and send the ball up onto the playfield; as it passes over the shooter lane, upper switch, it will flash. The kick triangle moves back to the trough popper - and you see the ball re-enter the main trough as it drains from the playfield. Use this test to troubleshoot a wide variety of main trough/auto-launch switch and coil issues.

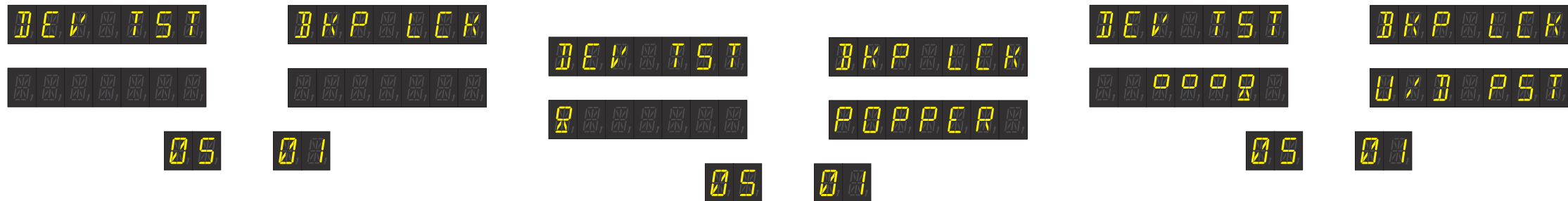
To exit the Main Trough test at any time, press the green (**ESC**) button; you will immediately return to the Device Tests sub-menu. Back out to the Main Menu level to automatically return all balls to the main trough.



08.04 Subway Lock Test: the game displays show the information above left at the beginning of the Subway (Pawn Shop)Lock test - with no balls in the lock. To run this test, you must either close the coin door or pull the safety interlock switch's actuator out. The Player 3 display provides a representation of what the subway lock trough and popper switches are reading. The right-most five positions show what the subway trough optos (*Sw 6-10*, subway lock 1 through 4 and entry, left-to-right) register; the leftmost position shows what the subway popper opto (*Sw 11*) reads. A 'ball' is depicted (sometimes very briefly!) in any of these positions when the switch is made. A sound is also played through the game's speakers for every switch closure.

Drop all four balls through the Pawn Shop scoop, into the subway (the entry switch will flash each time - as will the trough optos, one at a time - until the ball comes to rest at the up/down post), and the displays will update accordingly (above center). Use the game's Start button to release the ball (pull in the subway disappearing - or up/down - post) with the small triangle under it (subway lock 1); the Player 4 display identifies the active coil. When released, the ball drops into the subway popper (and is shown in the Player 3 leftmost position). The remaining three balls in the lock trough move one position to the left, as the kick triangle moves to the subway popper - indicating it is now the active coil; the Player 4 display is updated accordingly (above right). Hit the Start button to fire the subway popper and send the ball up to the playfield surface, onto the right flipper. The active coil triangle moves back to the subway up/down post. Use this test to troubleshoot a wide variety of subway lock trough/ popper switch and coil issues.

To exit the Subway Lock test at any time, press the green (**ESC**) button; you will immediately return to the Device Tests sub-menu. Back out to the Main Menu level to automatically return all balls to the main trough.

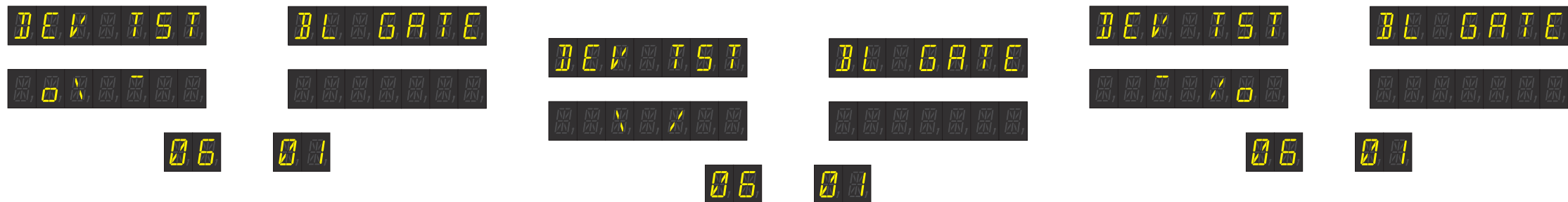


08.05 Back Panel Lock Test: the game displays show the information above left at the beginning of the Back Panel (Briefcase) Lock test - with no balls in the lock. To run this test, you must either close the coin door or pull the safety interlock switch's actuator out. The Player 3 display provides a representation of what the lock load popper and back panel lock switches are reading. The leftmost position shows what the lock load popper opto ([Sw 12](#)) reads; the rightmost five positions show what the back panel lock trough optos ([Sws 16-13](#), back panel lock 4 through 1, left-to-right) and the lock release chute microswitch ([Sw 52](#), lock exit, rightmost) register. A 'ball' is depicted (sometimes very briefly!) in any of these positions when the switch is made. A sound is also played through the game's speakers for every switch closure.

Roll a ball into the lock load popper; the displays will update (above center). Use the game's Start button to fire the ball with the small triangle under it (in the lock load popper) and send it up through the popper wireform, into the back panel lock trough; the Player 4 display identifies the coil the Start button controls. As the ball rolls down the lock trough, the optos will flash, in turn, until the ball comes to rest at the disappearing - or up/down - post. The active coil triangle then moves to the up/down post position. If you roll the other three balls into the popper (one at a time) and fire them up into the lock trough, the displays will update accordingly (above right).

Hit the Start button to pull in the back panel up/down post and release the ball in lock position 1. The ball rolls out of the trough and down the lock release chute (flashing the lock exit switch along the way). The remaining three balls in the lock trough move one position to the right. The up/down post remains the active coil - unless a ball is rolled into the popper, then the triangle moves to that position. Use this test to troubleshoot a wide variety of lock load popper/back panel trough switch and coil issues.

To exit the Back Panel Lock test at any time, press the green (**ESC**) button; you will immediately return to the Device Tests sub-menu. Back out to the Main Menu level to automatically return all balls to the main trough.



08.06 *Ball Gate Test*: the game displays show the information above center at the beginning of the Ball Gate test. The Player 3 display provides an animation of the two controlled ball gates at the top of the playfield, along with representations of what the four left and right orbit switches are reading. The leftmost two positions show what the left orbit switches (*Sw 63*, left orbit, bottom & *Sw 59*, left orbit, top) read; the rightmost two positions show what the right orbit switches (*Sws 48*, right orbit, top & *Sw 62*, right orbit, bottom) register. Both gates in the above center displays are 'closed'. A 'ball' is depicted (sometimes very briefly!) in any of these positions when the switch is made. A sound is also played through the game's speakers for every switch closure. If you wish to use the flippers during this test (or kick out balls that fall into the **Starts Character** saucer), you must either close the coin door or pull the safety interlock switch's actuator out.

When a ball quickly rolls up the left orbit (successfully hitting both left orbit switches), the opposite side (right) gate opens (displays, above left), allowing the ball to roll across the top of the playfield, then down the right orbit. Conversely, a ball rolled up the right orbit opens the left gate (displays, above right) and rolls down the left orbit. In both cases, the four microswitches in the ball's path flash in the Player 3 display, when hit, and the appropriate gate is shown as 'open'. After each ball roll attempt, the gates physically close - and return to their 'closed' representation in the Player 3 display (above center). Use this test to troubleshoot a wide variety of controlled ball gate coil and orbit switch issues

To exit the Ball Gate test at any time, press the green (ESC) button; you will immediately return to the Device Tests sub-menu.

Auto Burn-In Test

The Auto 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.

09 *Auto Burn-In*: the game displays show the information above when you begin an Auto Burn-In session. The game cycles through a preset routine to simultaneously fire coils, flash lights, run motors, exercise displays, play sounds, etc. - indefinitely. The session runs until you exit. The Player 3 & 4 displays provide a **cumulative** Burn-In elapsed time (viewable in Game Audits, clearable with the Reset Game Audits utility). That is, each new session adds to the total amount of Burn-In time the game has logged.

To exit the Burn-In test at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu.

Empty Balls Test

The Empty Balls test clears all balls from playfield devices, allowing the user to quickly and easily remove them from the game.

10 *Empty Balls*: the game displays show the information above when you enter the Empty Balls test. While in this test, the game will continually empty every ball lock, saucer, popper and ball trough on the playfield, kicking the balls out onto the playfield surface for the user to retrieve. Kicking ceases when all balls are rolling down the playfield - or out of the game completely.

To exit the Empty Balls test at any time, press the green (**ESC**) button; you will immediately return to the System Tests menu.



1.13 The Utility Menu

You can scroll through the Utility Menu using the red (+ or -) buttons; press the black (BEGIN TEST) button to select a task you would like to perform. Use the red (+ or -) buttons, as necessary, to confirm, then press the black (BEGIN TEST) button to perform the task. Press the green (ESC) button to escape from a selected task without executing. To exit the Utility Menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

09.01 **Reset Options:** reset options to factory defaults.



09.02 **Reset Game Audits:** clear game audits.



09.03 **Reset Coin Audits:** clear coin audits.



09.04 **Reset HSTD:** Reset the HSTD table to backup score values.



09.05 **Reset Champion:** reset the Champion Score and the HSTD table to backup values.



09.06 **Reset Factory:** reset all options to factory defaults, clear all game and coin audits, reset the HSTD table and Champion Score to backup values.



09.07 **Clear Credits:** clear credits from the game.



09.08 **Clear Feature Audits:** clear detailed, internal scoring feature audits.



09.09 **Set Date & Time:** set the game date and time.



A digital display showing the word "MAIN" in yellow, centered between two sets of four empty square icons.A digital display showing the word "MENU" in yellow, centered between two sets of four empty square icons.A digital display showing the word "ONLINE" in yellow, centered between two sets of four empty square icons.A digital display showing the word "MENU" in yellow, centered between two sets of four empty square icons.A digital display showing the number "00" in yellow.A digital display showing the number "10" in yellow.

1.14 The Online Menu

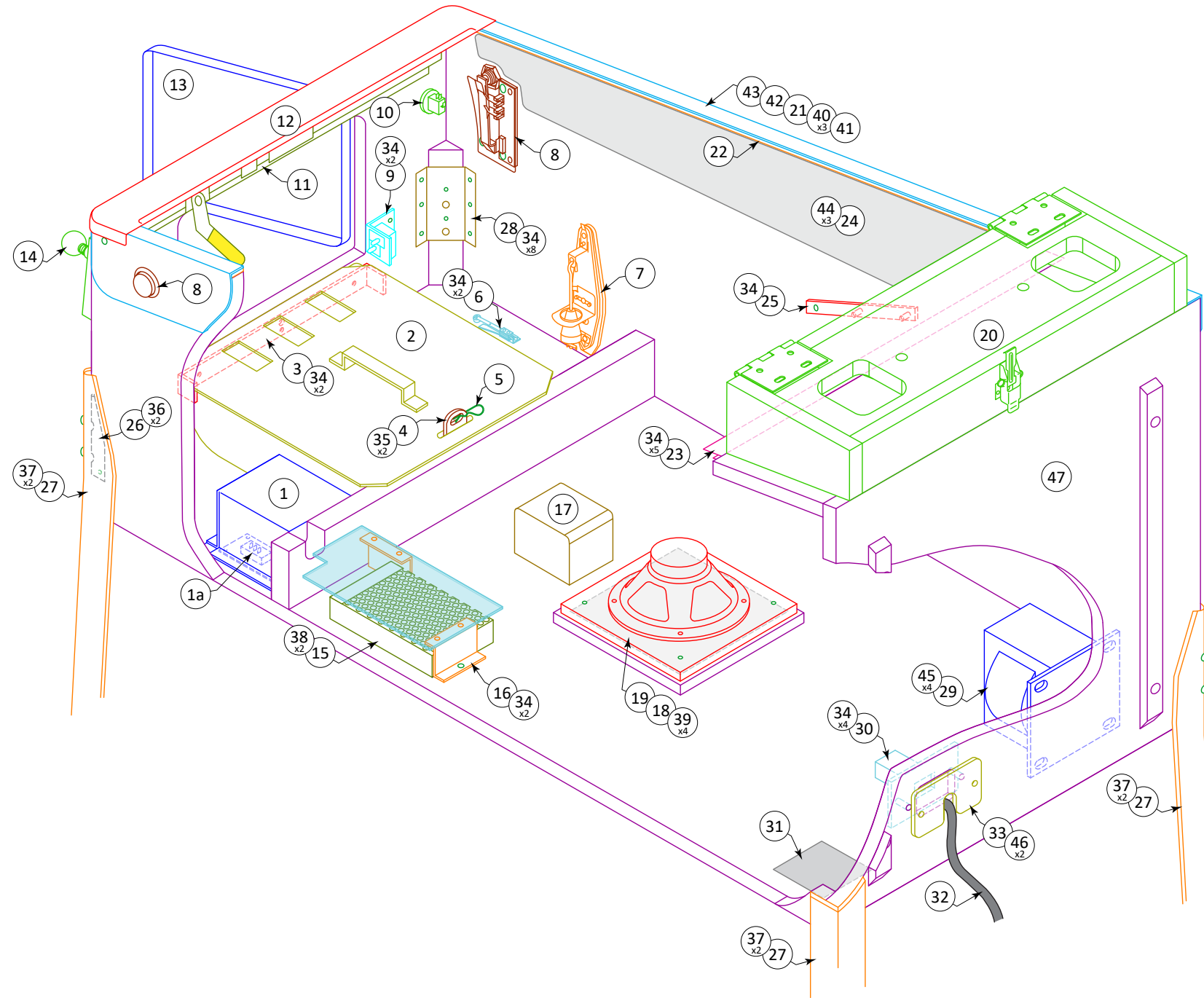
You can scroll through the Online Menu using the red (+ or -) buttons. To exit the Online Menu at any time, press the green (ESC) button; you will immediately return to the Main Menu.

10.01 Display IP Address: display the game's IP address.

A digital display showing the word "DISPLAY" on the left and "IP ADDR" on the right, both in yellow.

10.02 Display Hardware Address: display the game's hardware address.

A digital display showing the word "DISPLAY" on the left and "HW ADDR" on the right, both in yellow.

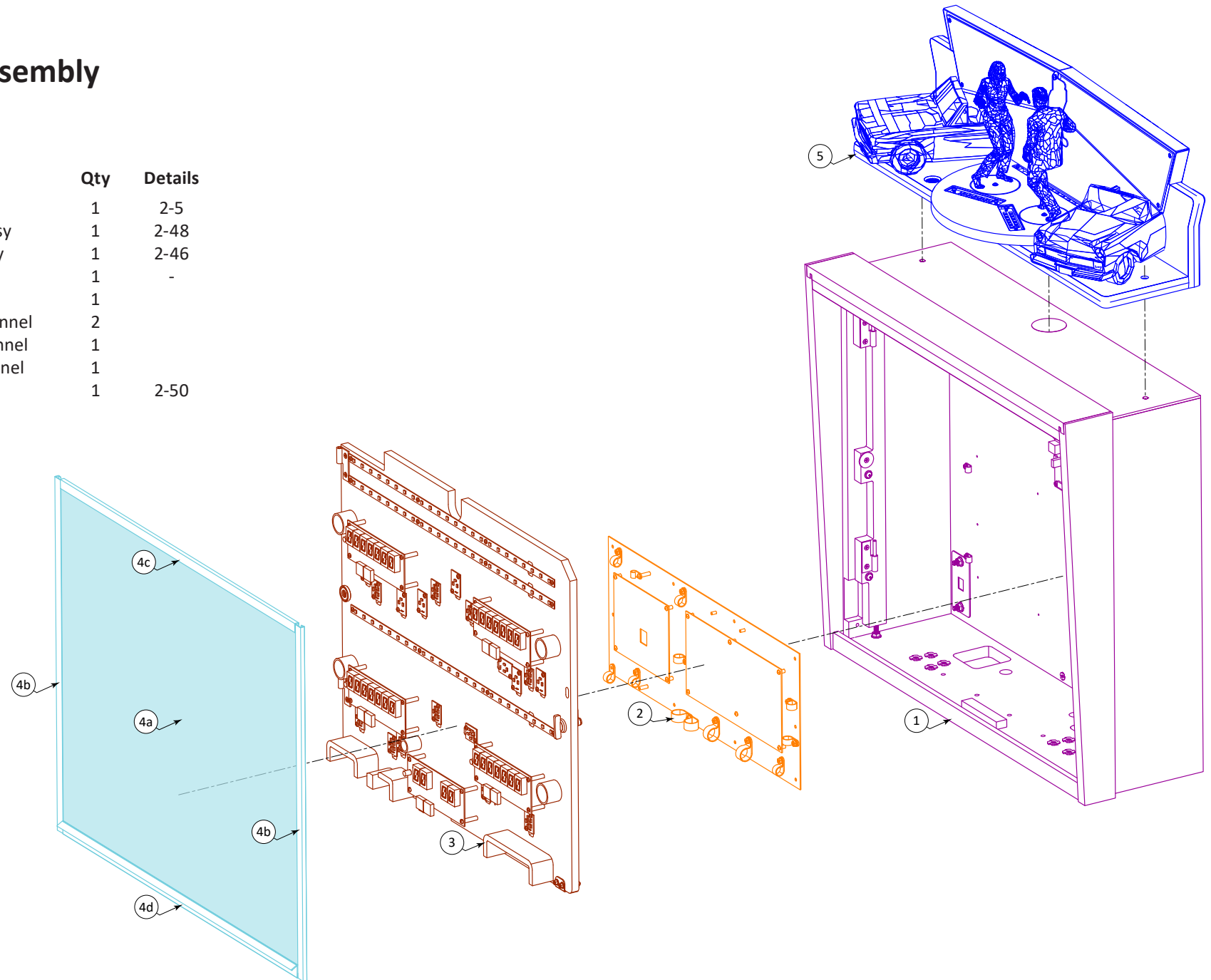


PFP Lower Cabinet Assembly PFP-SUB-21000CB

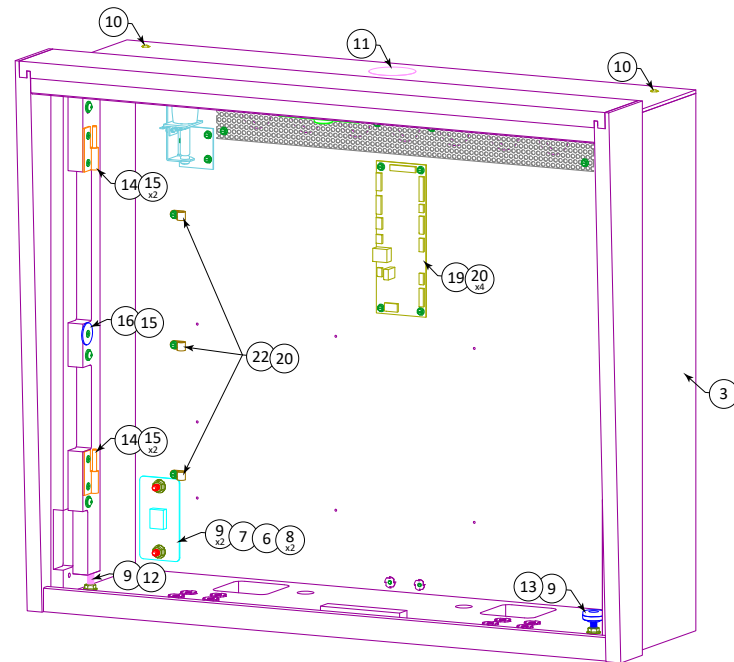
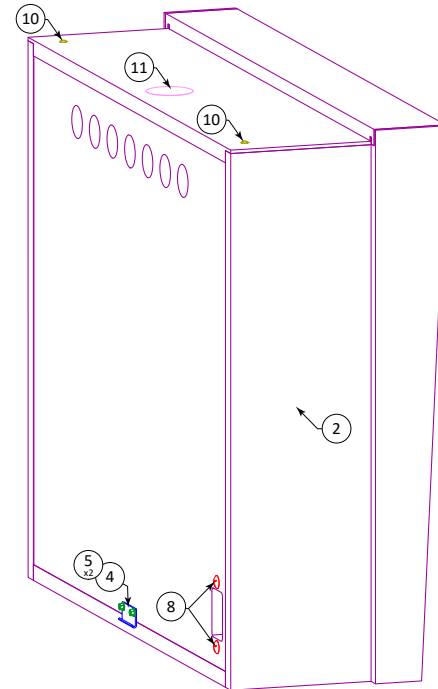
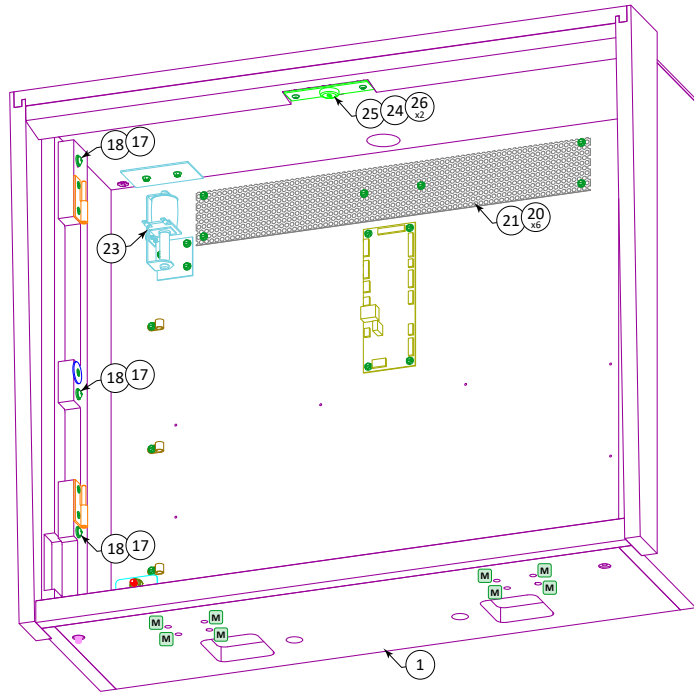
Item	Part ID	Description	Qty	Details	Item	Part ID	Description	Qty
1	PIN-SUB-POWRBOX	Power Interface Assy	1	2-61	26	MM-MLS-LEGSPCR	Cabinet Decal Protect Brkt	4
a)	000-SWC-ALCONOF	On/Off Rocker Switch	1	2-61	27	PIN-SUB-19514	Cabinet Leg Assy, Chrome	4
2	PIN-03-76261	Pinball Coin Box, Plastic	1	-	28	PIN-01-11400	Cabinet Leg Mtg Brkt	4
	PIN-A-17431	Coin Box Cover Assy	1	-	29	PIN-TRF-PTRANS	Pinball Transformer	1
3	PIN-01-63891	Coin Box Nest Brkt	1	-	30	PIN-SUB-INLET	Line In Filter Assy	1
4	PIN-01-14016	Coin Box Lock Brkt	1	-	31	PIN-03-86032	Cabinet Vent Screen, Square, 2-1/2"	1L,1R
5	PIN-HDW-CASHPIN	Coin Box Hairpin Clip	1	-	32	PIN-CBL-ACPOWER	Line Power Cable, USA	1
6	PIN-A-17195	Cabinet Slam Tilt Assy <i>(Sw 75)</i>	1	-	33	PIN-MLS-INLTCVR	Line In Cover Plate	1
7	PIN-04-10346-C	Plumb Bob Tilt Assy <i>(Sw 66)</i>	1	2-62	34	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	71
8	PIN-SUB-168836	Yellow Flipper Button Assy <i>(Sws 68-71)</i>	1L,1R	2-60	35	FSM-083-PPH075C	8-32 x 3/4" PPH MS	2
9	PIN-SUB-12676	Door & Interlock Switch Assy	1	-	36	FSS-N06-PFH050C	#6 x 1/2" PFH SMS	8
a)	PIN-01-12676	Door & Interlock Switch Brkt	1	-	37	FSM-381-HAH250C	3/8-16 x 2-1/2" Acorn Head Leg Bolt	8
b)	PIN-56431519000	Safety Interlock Switch	1	-	38	FSM-063-PPH037C	6-32 x 3/8" PPH MS	2
c)	PIN-56430926800	Coin Door Switch <i>(Sw 67)</i>	1	-	39	FSM-083-HFH100C	8-32 x 1" HWH MS, Serrated	4
10	Op PIN-20-966316	Start Button Assy, Round, Yellow <i>(Sw 65)</i>	1	-	40	FSS-N04-PFH050C	#4 x 1/2" PFH SMS	6
11	PIN-SUB-A16773	Lockdown Bar Receiver Assy	1	2-58	41	FSM-083-OCB112A	8-32 x 1-1/8" Carriage Bolt, Black	2
12	PIN-SUB-12615SS	Lockdown Bar Assy, Stainless	1	2-60	42	FWF-203-047032C	Flat Washer, 11/64" ID, 7/16" OD, 22 ga	2
13	SE,LE PIN-SUB-SSCNDOR	Stainless Steel Coin Door Assy <i>(Sws 65, 72, 74, 76-79)</i>	1	2-64	43	FNT-083-KEC0000	8-32 Keps Nut	2
	Op PIN-HAP-COINDOR	25¢ Standard USA Coin Door Assy <i>(Sws 72-74, 76-79)</i>	1	appendix	44	FSS-N05-PFH037C	#5 x 3/8" PFH SMS	6
14	PFP-SUB-SHOOTSS	PFP Ball Shooter Assy	1	2-57	45	FSM-252-HHH075C	1/4-20 x 3/4" HH MS	4
15	000-ELE-RS15012	Switching Power Supply, 12V, 150W	1	-	46	FSM-083-PPH100A	8-32 x 1" PPH MS, Black	2
16	PIN-SUB-PSCOVER	Power Supply Cover Assy	1	-	47	PFP-CCC-CABINET	Retro Lower Cabinet Wood Assy	1
17	LE PIN-SUB-SHAKER2	Shaker Motor Assy	1	2-63	NS	PFP-ART-CABLEFT	PFP Cabinet Decal, Left Side	1
18	000-SUB-8IN4OHM	Subwoofer Speaker, 8", 4Ω, 190W & Adapter	1	-	NS	PFP-ART-CABRGT	PFP Cabinet Decal, Right Side	1
19	PIN-PLS-CABGRIL	Subwoofer Screen, Square, 9"	1	-	NS	PFP-ART-CABFRNT	PFP Cabinet Decal, Front	1
20	PFP-SUB-SPKRBOX	Cabinet Neck Assy	1	2-54	NS	PIN-PWH-195621	Playfield Stay Arm Assy	1
21	PIN-MLS-ARMORLS	Cabinet Side Rail, Wide, Left	1	-	a)	PIN-SUB-195621	Playfield Stay Arm w/Decal	1
	PIN-MLS-ARMORRS	Cabinet Side Rail, Wide, Right	1	-	b)	FSM-083-PPH025C	8-32 x 1/4" PPH MS	1
22	PIN-03-71351	Cabinet Side Glass Channel	1L,1R	-	c)	PIN-02-3179	Playfield Stay Arm Spacer	1
23	PIN-03-8091	Cabinet Rear Glass Channel, Standard	1	-	d)	FSM-103-PPH100C	10-32 x 1" PPH MS	1
NS	PIN-08-7028T	Standard Playfield Glass, Tempered	1	-	e)	PIN-01-12352	Playfield Stay Arm Rest Brkt	1
24	LE PIN-MLS-RETMIRL	Retro Cabinet Mirror Blade, Left	1	-	NS	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	12
	LE PIN-MLS-RETMIRR	Retro Cabinet Mirror Blade, Right	1	-	NS	000-PLM-NC75CLP	Non-Captive Cable Clamp, 3/4"	6
25	PIN-PWH-11408	Playfield Support Brkt Assy	1L,1R	-				
a)	PIN-01-11408	Playfield Support Brkt	1	-				
b)	PIN-02-43291	3/8-16 Pivot Nut	2	-				
c)	FSM-381-OCB125A	3/8-16 x 1-1/4" Carriage Bolt, Black	2	-				

PFP Complete Backbox Assembly PFP-SUB-21000BB

Item	Part ID	Description	Qty	Details
1	PFP-SUB-RETROBB	Retro Backbox Assy	1	2-5
2	PFP-SUB-PCBPLAT	Ground Plane & PCBs Assy	1	2-48
3	PFP-SUB-21000IN	Backbox Insert Door Assy	1	2-46
4	PFP-SUB-MIRGLAS	Mirrored Backglass Assy	1	-
a)	PFP-ART-MIRGLAS	PFP Mirrored Backglass	1	
b)	PIN-03-757823	Retro Backglass Side Channel	2	
c)	PIN-03-757827	Retro Backglass Top Channel	1	
d)	PIN-03-804527	Retro Backglass Lift Channel	1	
5	LE PFP-SUB-TOPPER	PFP Topper Assy	1	2-50



Retro Backbox Assembly PFP-SUB-RETROBB

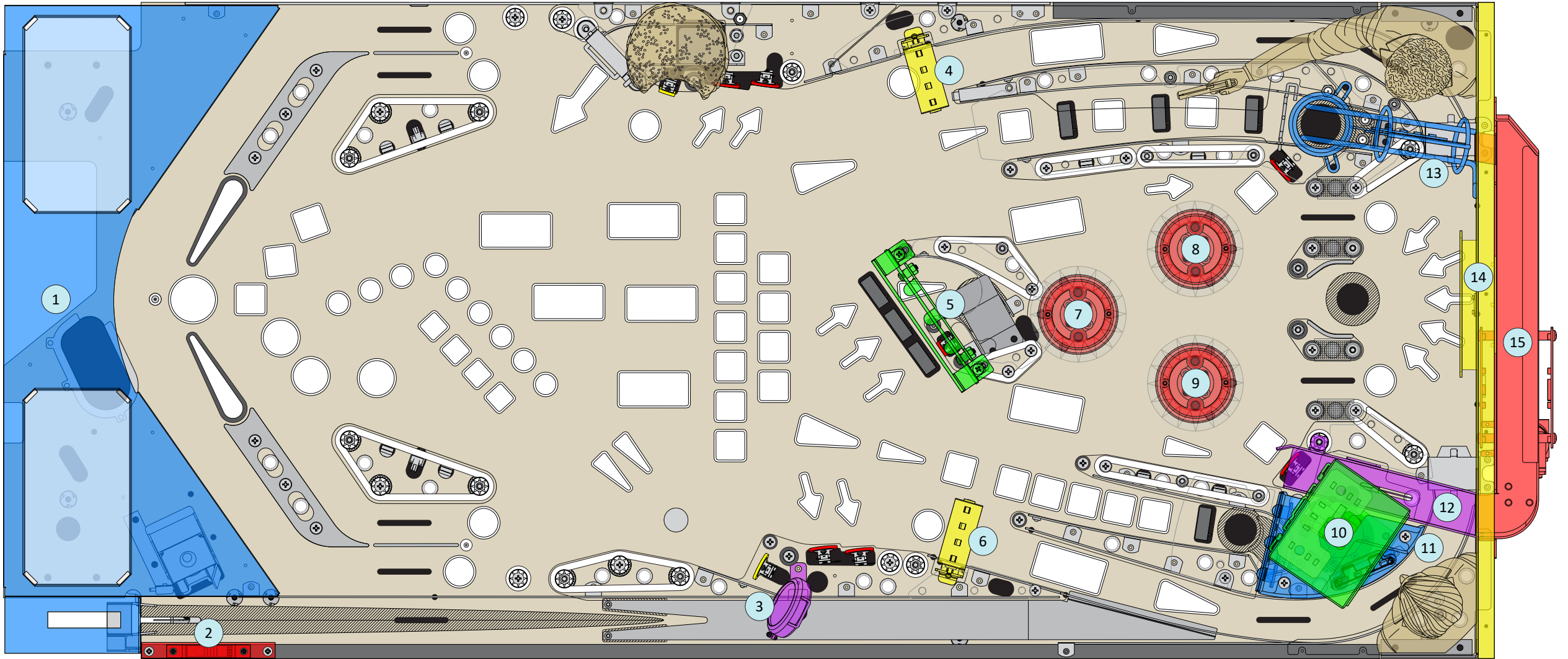


Item	Part ID	Description	Qty	Details
1	PFP-CCC-BACKBOX	Retro Backbox Wood Assy	1	-
2	PFP-ART-BBLEFT	PFP Backbox Decal, Left Side	1	-
3	PFP-ART-BBRIGHT	PFP Backbox Decal, Right Side	1	-
4	PIN-20-9347C	Backbox Toggle Catch	1	-
5	FSM-083-HWH075C	8-32 x 3/4" HWH MS	2	-
6	000-CTR-ENETCPL	Ethernet Coupler, Panel Mount	1	-
7	PIN-MLS-BBENET	Backbox Ethernet Panel	1	-
8	FSM-252-OCB125A	1/4-20 x 1-1/4" Carriage Bolt, Black	2	-
9	FNT-252-FLC0000	1/4-20 Flange Nut	4	-
10	SE,Op 000-PLM-025PLUG	Plastic Plug, 1/4" Hole	2	-
11	SE,Op 000-PLM-200PLUG	Plastic Plug, 2" Hole	1	-
12	FSM-252-ASS175A	1/4-20 x 1-3/4" CP, Set Screw, Black	1	-
13	PIN-HDW-BBINLVL	Backbox Insert Door Leveler	1	-
14	PIN-HNG-RETROBB	Backbox Insert Door Hinge (Male Half)	2	-
15	FSM-083-PFH075C	8-32 x 3/4" PFH MS	5	-
16	FWF-025-100WW06	Countersunk Washer, 1/4"ID, 1"OD	1	-
17	FSM-103-PPH150A	10-32 x 1-1/2" PPH MS, Black	3	-
18	FWF-N10-SAEA000	#10 SAE Flat Washer, Black	3	-
19	LE PIN-PCB-TOPPER3	Topper3 Bd	1	-
20	SE,Op FSS-N08-HWH050C	#8 x 1/2" HWH SMS	9	-
	LE FSS-N08-HWH050C	#8 x 1/2" HWH SMS	13	-
22	000-PLM-NC25CLP	Non-Captive Cable Clamp, 1/4"	3	-
23	PIN-SUB-B106861	Knocker Assy	1	2-49
24	PIN-20-9637	Backglass Lock Assy	1	-
25	PIN-01-9519	Backglass Lock Mtg Plate	1	-
26	FSM-083-TPH075A	8-32 x 3/4" Tamper-Resistant MS, Black	2	-

Assembly Mounting Hardware Cabinet Neck Assy, Top

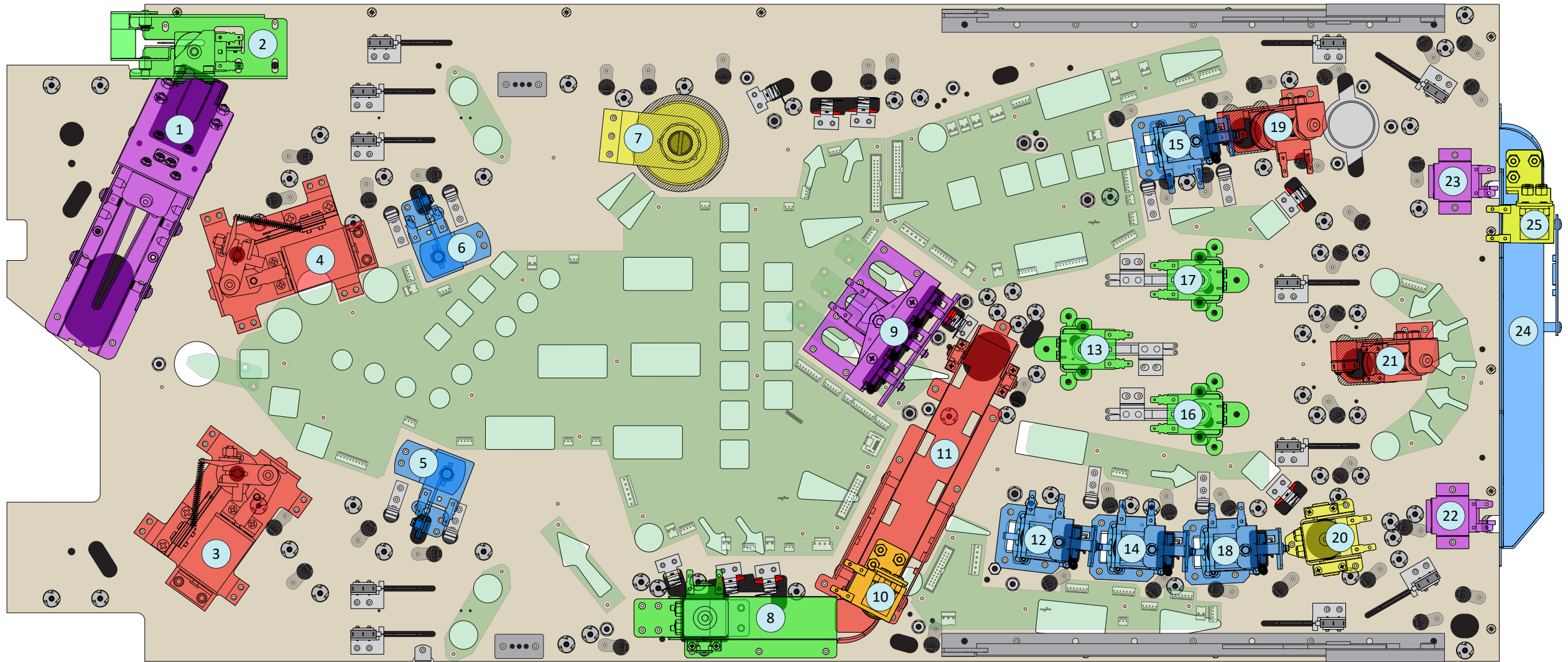
Location	Part ID	Description	Qty
 M	FSM-252-HHH100A	1/4-20 x 1" HH MS, Black	8

The machine screws go through the two Cabinet Neck Assy hinges (item 6, pg 2-54) and thread into backbox 1/4-20 T-nuts, from underneath



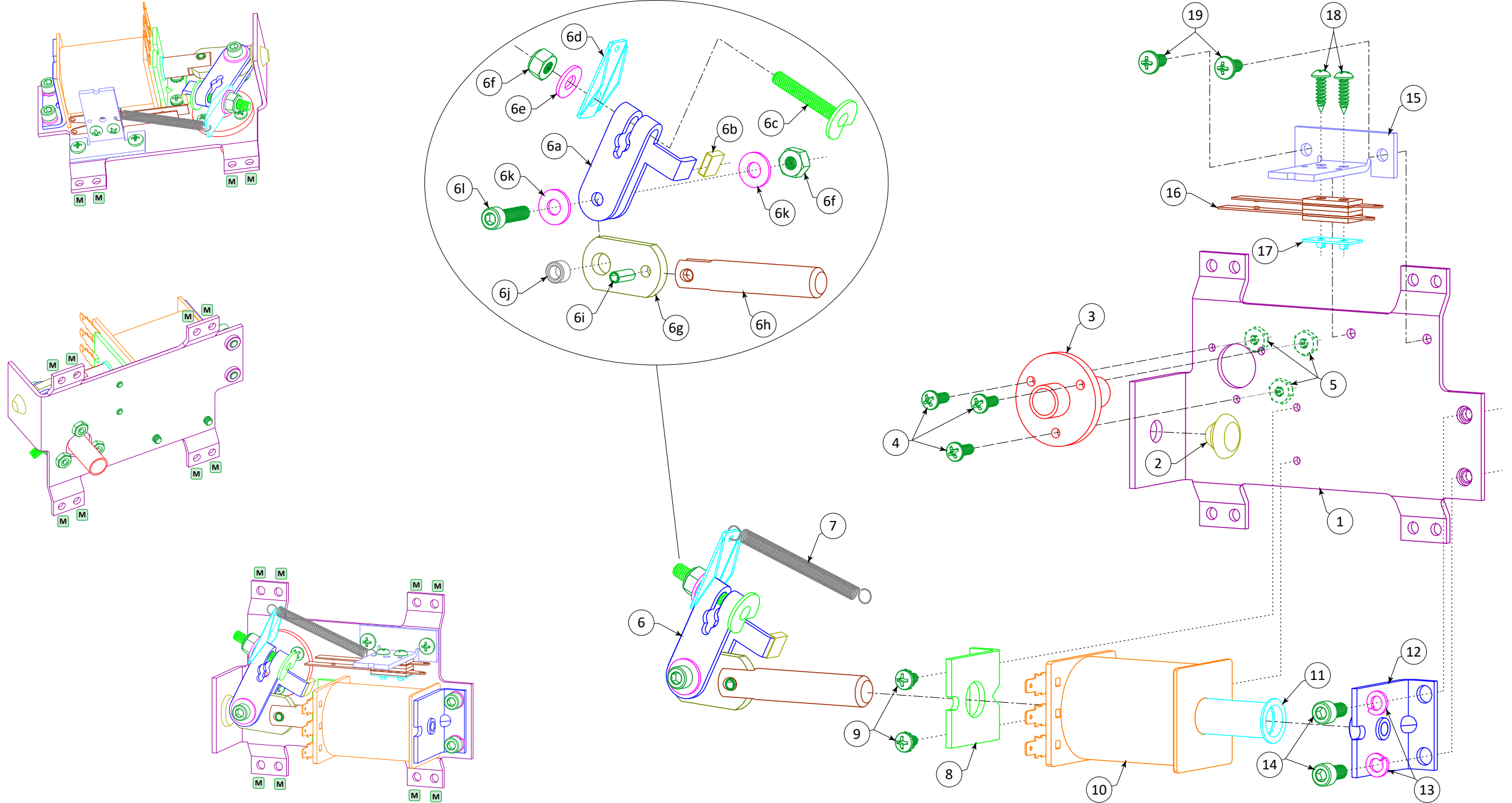
Above-Playfield Assemblies

Item	Assembly ID	Assembly Name	Game Function	Drawing
1	PF-P-SUB-LOWARCH	PF Bottom Arch Assy	Playfield bottom arch	2-44
2	PIN-PWH-10621	Playfield Bubble Level & HW	Playfield pitch indicator	-
	a) PIN-20-9691	Bubble Level Vial		
	b) PIN-03-8633	Bubble Level Plastic Brkt		
	c) FSS-N06-PTH050A	#6 x 1/2" PTH SMS, Black (2)		
	c) PIN-01-10621	Ball Strike Plate, Shooter Lane		
	d) FSS-N06-PTH050C	#6 x 1/2" PTH SMS (2)		
3	PF-P-SUB-WATCH	PF Gold Watch Assy	Lighted gold watch playfield toy	2-39
4	PF-P-SUB-SPINNER	Magnet Spinner Assy	Left orbit spinner	2-38
5	PF-P-SUB-PWNSHOP	PF Pawn Shop Sign Assy	Pawn shop sign & lock status	2-36
6	PF-P-SUB-SPINNER	Magnet Spinner Assy	Right orbit spinner	2-38
7	PIN-SUB-RTJETWH	Retro Jet Bumper Top Assy	Center jet bumper	2-14
8	PIN-SUB-RTJETWH	Retro Jet Bumper Top Assy	Left jet bumper	2-14
9	PIN-SUB-RTJETWH	Retro Jet Bumper Top Assy	Right jet bumper	2-14
10	PF-P-SUB-BFCMECH	Briefcase Assy	Turning briefcase playfield toy	2-41
11	PF-P-SUB-CASELOK	Briefcase Molded Base Assy	Briefcase base, sign & lock status	2-35
12	PF-P-SUB-EXITRMP	Briefcase Lock Exit Chute Assy	Ball release chute for briefcase lock	2-40
13	PF-P-SUB-POPRTUB	Ball Popper Wireform Assy	Briefcase lock wireform	2-37
14	PF-P-SUB-BACKPNL	PF Back Panel Assy	Playfield backdrop	2-42
15	PF-P-SUB-BKBDRMP	Back Panel Ball Lock Assy	Briefcase back panel lock	2-32



Under-Playfield Assemblies

Item	Assembly ID	Assembly Name	Game Function	Drawing
1	PFP-SUB-A199631	Ball Trough Assy	Ball trough, popper for shooter lane	2-16
2	PFP-SUB-A210221	Auto-Launch Assy	Shooter lane ball auto-launch	2-18
3	PIN-A-15849L2	Left Flipper Assy	Left flipper	2-12
4	PIN-A-15849R2	Right Flipper Assy	Right flipper	2-10
5	PIN-SUB-A17811	Slingshot Assy	Left slingshot	2-20
6	PIN-SUB-A17811	Slingshot Assy	Right slingshot	2-20
7	PIN-SUB-10197	Playfield Magnet Assy, Threaded Core	Gun "bullseye" magnet	2-34
8	PFP-SUB-3BALPOP	Ball Popper & Trough Assy	Ball return from subway	2-22
9	PFP-SUB-3BANKDT	3-Bank Drop Target Assy	Pawn Shop subway/lock access targets	2-26
10	PFP-SUB-DISPOST	Disappearing Post Assy	Subway lock ball release	2-28
11	PFP-SUB-SUBBRAMP	Subway Ball Lock Assy	Pawn Shop subway/lock	2-30
12	PFP-SUB-1BNKDRP	Single Drop Target Assy, Retractable	Briefcase "combination" inline target	2-24
13	PIN-SUB-A94152	Jet Bumper Bottom Assy	Center jet bumper	2-15
14	PFP-SUB-1BNKDRP	Single Drop Target Assy, Retractable	Briefcase "combination" inline target	2-24
15	PFP-SUB-1BNKDRP	Single Drop Target Assy, Retractable	Roll Scene saucer access target	2-24
16	PIN-SUB-A94152	Jet Bumper Bottom Assy	Left jet bumper	2-15
17	PIN-SUB-A94152	Jet Bumper Bottom Assy	Right jet bumper	2-15
18	PFP-SUB-1BNKDRP	Single Drop Target Assy, Retractable	Briefcase "combination" inline target	2-24
19	PIN-SUB-A22449	Angled Ball Eject Assy	Roll Scene saucer eject	2-29
20	PFP-SUB-OPTOPOP	Ball Popper Assy	Popper to load briefcase ball lock	2-21
21	PIN-SUB-A22449	Angled Ball Eject Assy	Starts Character saucer eject	2-29
22	PIN-SUB-A177961	Controlled Gate Coil Assy	Top left ball gate	2-23
23	PIN-SUB-A177961	Controlled Gate Coil Assy	Top right ball gate	2-23
24	PFP-SUB-BKBDRMP	Back Panel Ball Lock Assy	Briefcase lock	2-32
25	PFP-SUB-DISPOST	Disappearing Post Assy	Briefcase lock ball release	2-28




Right Flipper Assembly PIN-A-15849R2

Item	Part ID	Description	Qty
1	B-13104-R	Flipper Base Assy, Right	1
2	PIN-23-6577	Bumper Plug, 5/8"	1
3	PIN-03-7568	Flipper Bat Bushing	1
4	FSM-063-PPH037C	6-32 x 3/8" PPH MS	3
5	FNT-063-ESNA000	6-32 Elastic Stop Nut	3
6	A-15848-R	Flipper Crank & Link Assy, Right	1
a)	01-11764-R	Flipper Crank, Right	1
b)	RM-23-06	Heat Shrink Tubing, 1/4"	3/8"
c)	4700-00107-B	10-32 Locking Stud Bolt	1
d)	01-9376	Flipper Return Spring Brkt	1
e)	4700-00023-00	#10 Flat Washer, 5/8" x 13/64" x 16ga	1
f)	FNT-103-ESNA000	10-32 Elastic Stop Nut	2
ghi)	PIN-A-15847	Flipper Coil Plunger & Link Assy	1
g)	03-8753	Flipper Link	1
h)	02-4219	Flipper Plunger	1
i)	PIN-20-93701	5/32" x 7/16" Roll Pin	1
j)	02-4676	Flipper Crank & Link Bushing	1
k)	4700-00107-00	#10 Flat Washer, 5/8" x 13/64" x 12ga	2
l)	4010-01086-14	10-32 x 7/8" SH CS	1
7	PIN-10-364	Drop Target/Flipper Return Spring	1
8	01-7695-1	Flipper Coil Retaining Brkt	1

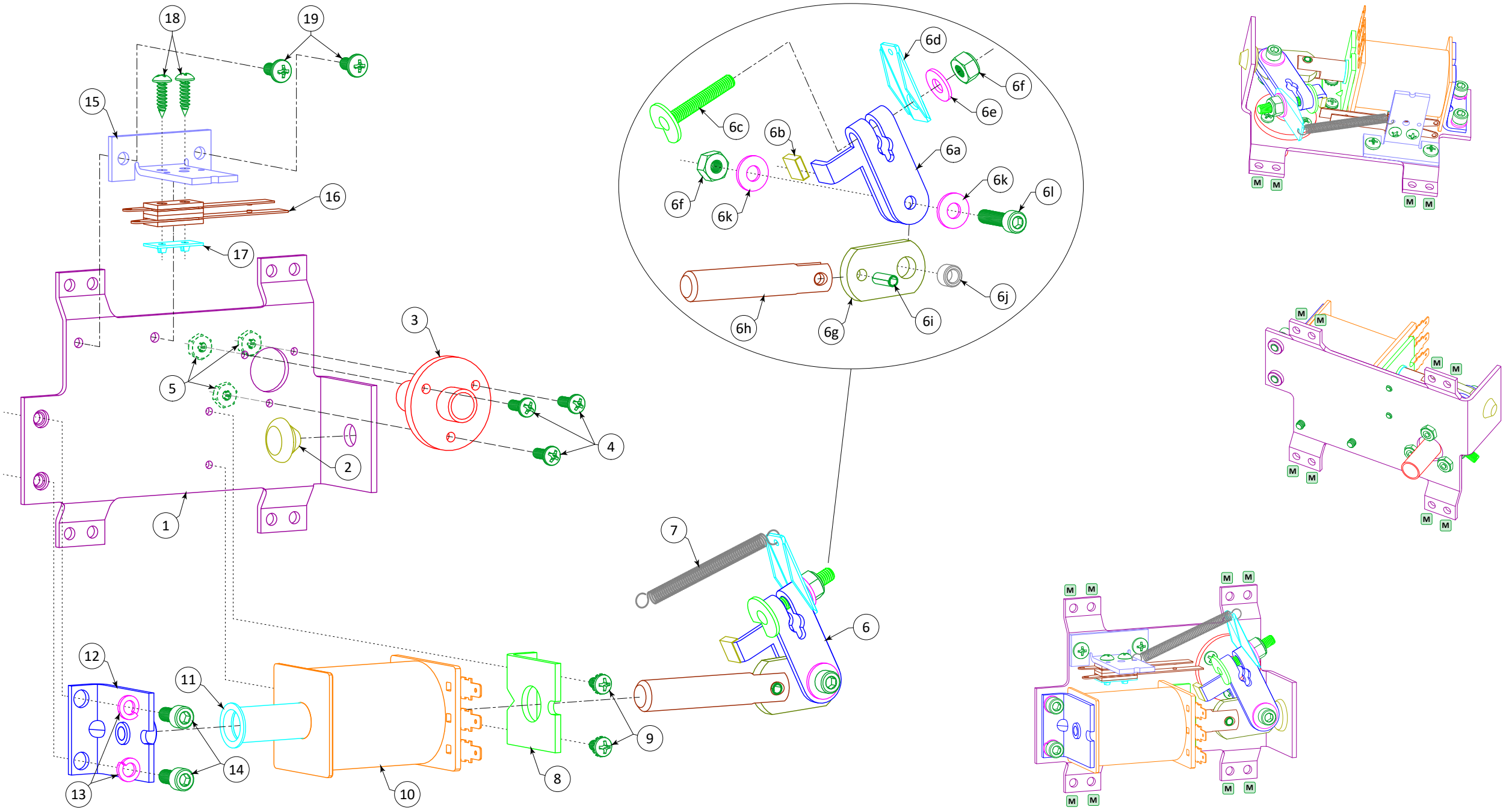
Item	Part ID	Description	Qty
9	FSM-063-PSM025C	6-32 x 1/4" PPH MS, SEMS	2
10	PIN-FL-11629	FL-11629 (Blue) Flipper Coil <i>(Coils 29, 30)</i>	1
11	PIN-03-70665	2-3/16" Flipper Coil Sleeve	1
12	PIN-A-12390	Flipper Coil Stop Brkt	1
13	FWL-N10-000C000	#10 Split Lock Washer	2
14	FSM-103-SHH037A	10-32 x 3/8" SH CS, Black	2
15	01-9375	Flipper EOS Switch Brkt	1
16	SW-1A-194	Flipper EOS Leaf Switch <i>(Sw 32)</i>	1
17	PIN-20-6516	Tinnerman Switch Stack Speednut	1
18	4105-01019-10	#5 x 5/8" PPH SMS	2
19	4008-01005-05	8-32 x 5/16" PPH MS	2

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	8

Assembly Cable(s)

Part ID	Description	Qty
PPF-CBL-LOWRTSW	Lower Right Switch Cable	1



Left Flipper Assembly PIN-A-15849L2

Item	Part ID	Description	Qty
1	B-13104-L	Flipper Base Assy, Left	1
2	PIN-23-6577	Bumper Plug, 5/8"	1
3	PIN-03-7568	Flipper Bat Bushing	1
4	FSM-063-PPH037C	6-32 x 3/8" PPH MS	3
5	FNT-063-ESNA000	6-32 Elastic Stop Nut	3
6	A-15848-L	Flipper Crank & Link Assy, Left	1
a)	01-11764-L	Flipper Crank, Left	1
b)	RM-23-06	Heat Shrink Tubing, 1/4"	3/8"
c)	4700-00107-B	10-32 Locking Stud Bolt	1
d)	01-9376	Flipper Return Spring Brkt	1
e)	4700-00023-00	#10 Flat Washer, 5/8" x 13/64" x 16ga	1
f)	FNT-103-ESNA000	10-32 Elastic Stop Nut	2
ghi)	PIN-A-15847	Flipper Coil Plunger & Link Assy	1
g)	03-8753	Flipper Link	1
h)	02-4219	Flipper Plunger	1
i)	PIN-20-93701	5/32" x 7/16" Roll Pin	1
j)	02-4676	Flipper Crank & Link Bushing	1
k)	4700-00107-00	#10 Flat Washer, 5/8" x 13/64" x 12ga	2
l)	4010-01086-14	10-32 x 7/8" SH CS	1
7	PIN-10-364	Drop Target/Flipper Return Spring	1
8	01-7695-1	Flipper Coil Retaining Brkt	1

Item	Part ID	Description	Qty
9	FSM-063-PSM025C	6-32 x 1/4" PPH MS, SEMS	2
10	PIN-FL-11629	FL-11629 (Blue) Flipper Coil <i>(Coils 31, 32)</i>	1
11	PIN-03-70665	2-3/16" Flipper Coil Sleeve	1
12	PIN-A-12390	Flipper Coil Stop Brkt	1
13	FWL-N10-000C000	#10 Split Lock Washer	2
14	FSM-103-SHH037A	10-32 x 3/8" SH CS, Black	2
15	01-9375	Flipper EOS Switch Brkt	1
16	SW-1A-194	Flipper EOS Leaf Switch <i>(Sw 25)</i>	1
17	PIN-20-6516	Tinnerman Switch Stack Speednut	1
18	4105-01019-10	#5 x 5/8" PPH SMS	2
19	4008-01005-05	8-32 x 5/16" PPH MS	2

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	8



Assembly Cable(s)

Part ID	Description	Qty
PPF-CBL-LOWLFSW	Lower Left Switch Cable	1

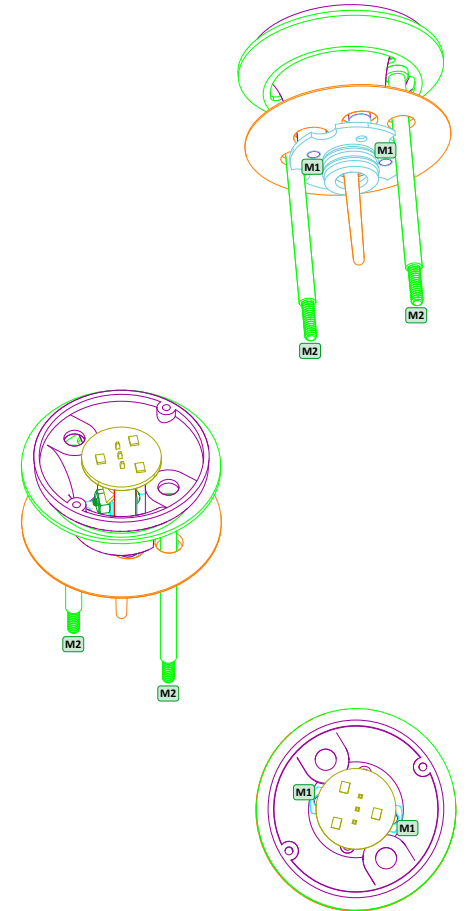
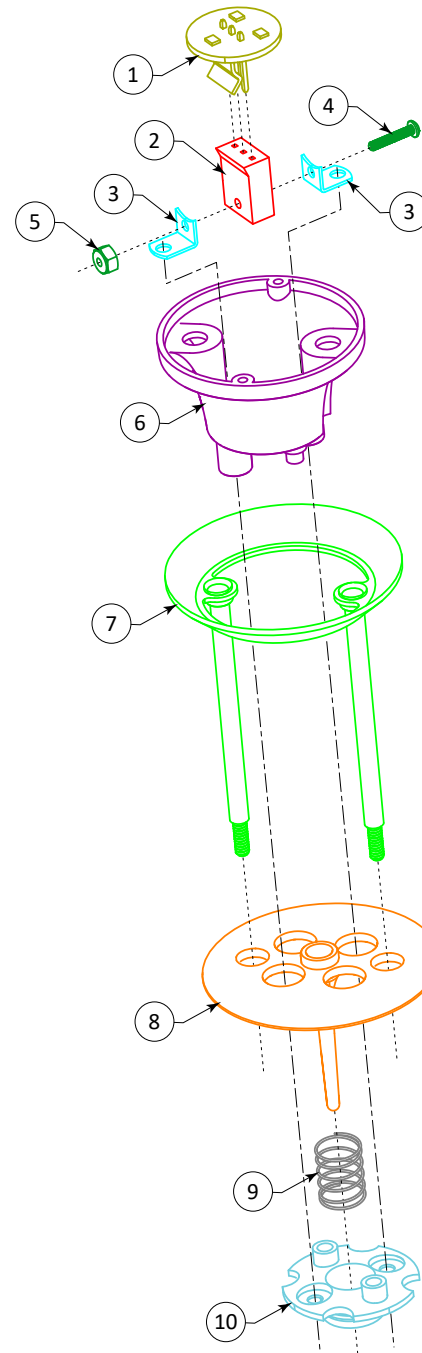
Retro Jet Bumper Top Assembly PIN-SUB-RTJETWH

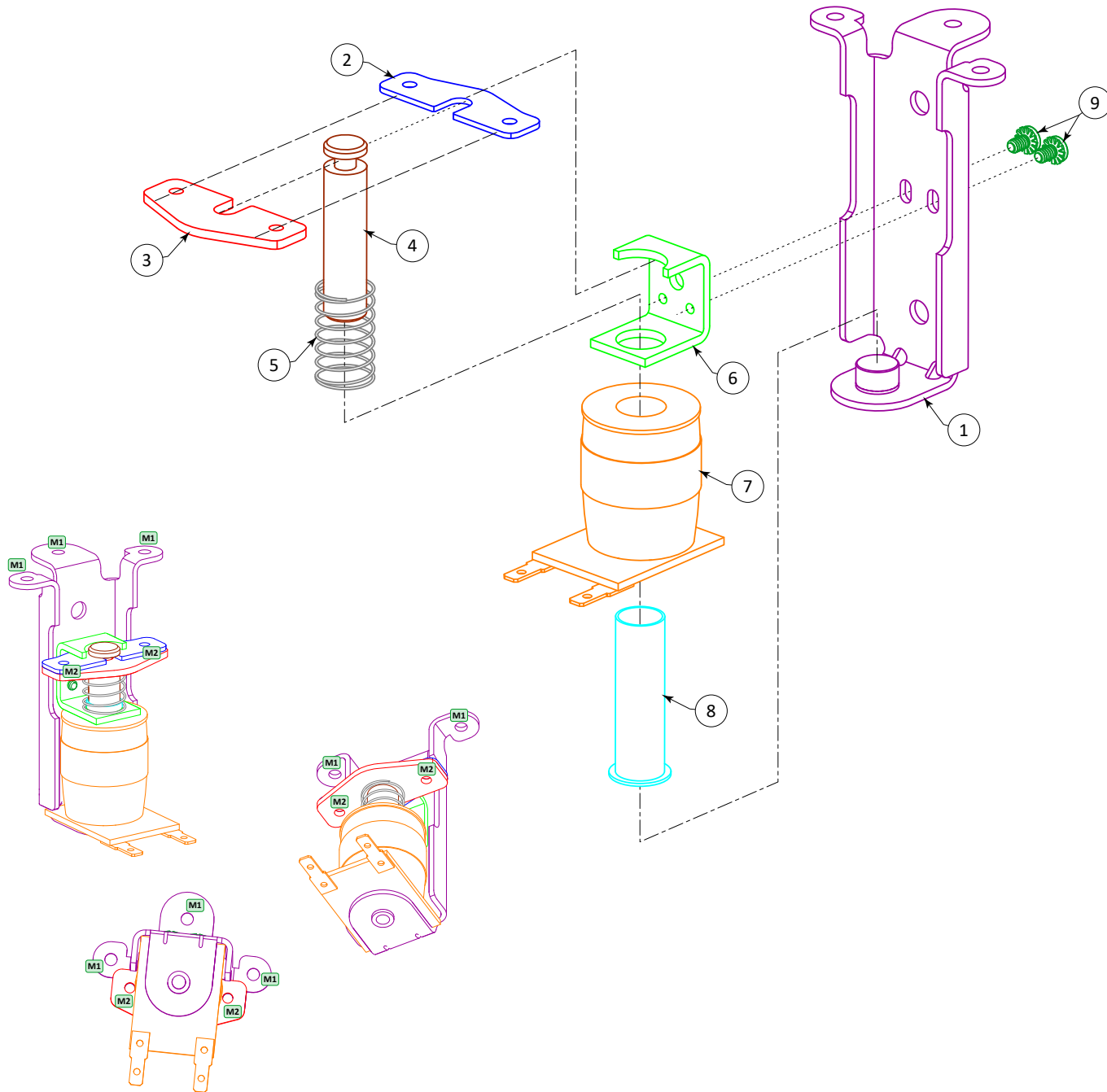
Item	Part ID	Description	Qty
1	PIN-PCB-5VFLASH	Jet Bumper LED PCB (pg 3-59) (L78-80)	1
2	000-CNR-2603403	Receptacle w/Friction Lock, 3-Pin, 3.96mm	1
3	PIN-MLS-LSKTBRK	Jet Bumper Receptacle L Brkt	2
4	FSM-025-PPH050C	2-56 x 1/2" PPH MS	1
5	FNT-025-ESNA000	2-56 Elastic Stop Nut	1
6	PIN-03-9675	Jet Bumper Body, Retro, White	1
7	PIN-A-4754	Jet Bumper Ring & Rod Assy	1
8	PIN-03-60354	Jet Bumper Wafer, Red	1
9	PIN-10-7	Jet Bumper Wafer Spring	1
10	PIN-03-6009A5	Jet Bumper Base, White	1

Assembly Mounting Hardware Playfield, Top

Location	Part ID	Description	Qty
 M1	FSS-N06-PPH075C	#6 x 3/4" PPH SMS	2
 M2	FNT-063-ESNA000	6-32 Elastic Stop Nut	2

Item 7 threads through holes in the playfield and attaches to items 2 & 3 of the PIN-SUB-A94152 assembly (see pg 2-15), under the playfield, with the two M2 nuts





Jet Bumper Bottom Assembly PIN-SUB-A94152

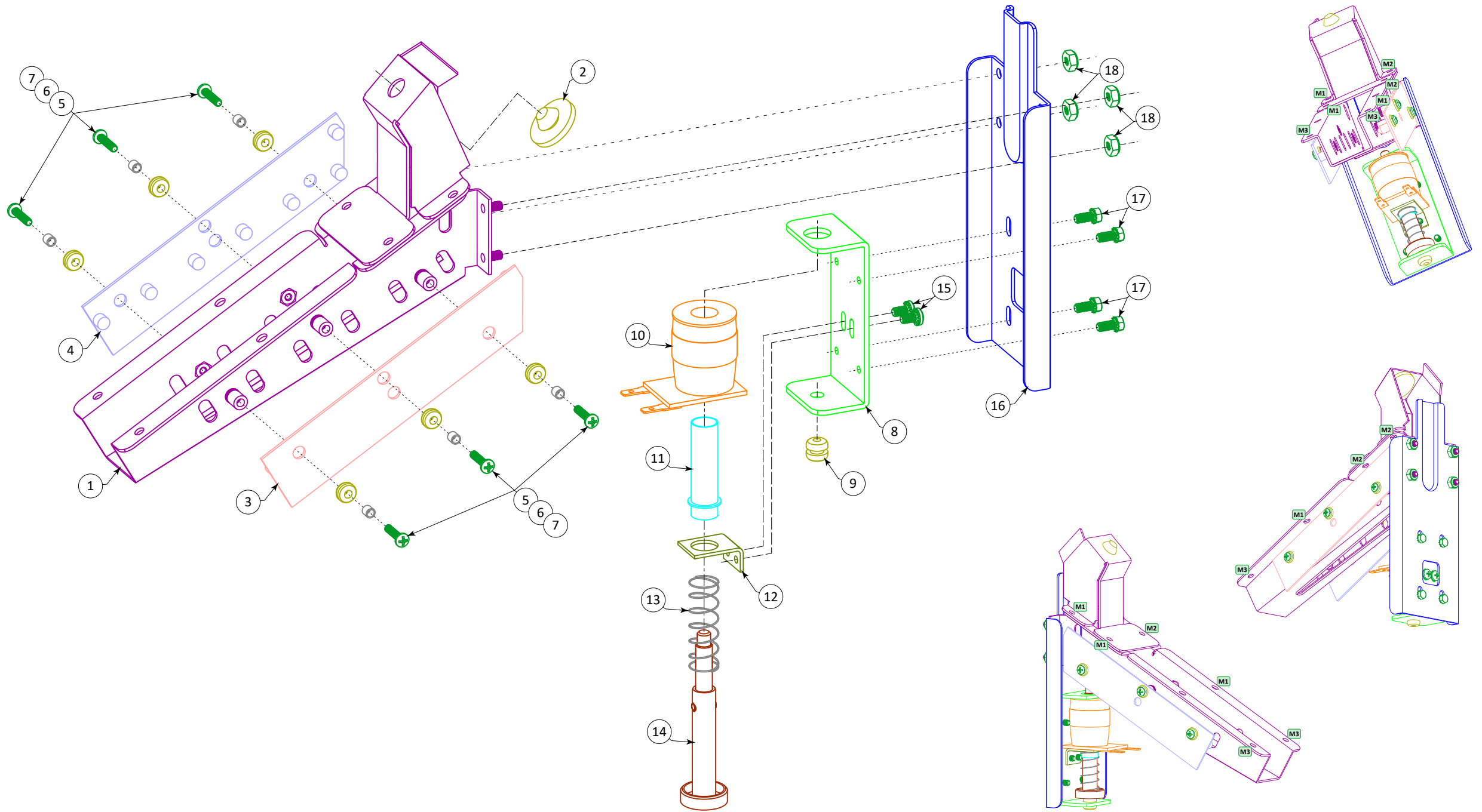
Item	Part ID	Description	Qty
1	PIN-04-10888	Jet Bumper Main Brkt	1
2	PIN-01-5492	Jet Bumper Yoke, Steel	1
3	PIN-01-5493	Jet Bumper Yoke, Bakelite	1
4	PIN-02-34061	Jet Bumper Plunger	1
5	PIN-10-326	Jet Bumper Plunger Return Spring	1
6	PIN-01-1747	Jet Bumper Coil Retaining Brkt	1
7	PIN-AE-261200	26-1200 (Green) Coil <i>(Coils 34-36)</i>	1
8	PIN-03-7066	1-3/4" Coil Sleeve	1
9	FSM-063-PSM025C	6-32 x 1/4" PPH MS, SEMS	2

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
M1	FSM-063-NSS125C	6-32 Spiral Shank Screw Nail, 1-1/4"	3
	FNT-063-ESNA000	6-32 Elastic Stop Nut	3
M2	FNT-063-ESNA000	6-32 Elastic Stop Nut	2




The three M1 screw nails are driven through the playfield, from above; the three M1 nuts attach under the playfield

The two M2 nuts are used to attach items 2 & 3 to the ends of item 7 of the PIN-SUB-RTJETWH assembly (see pg 2-14)



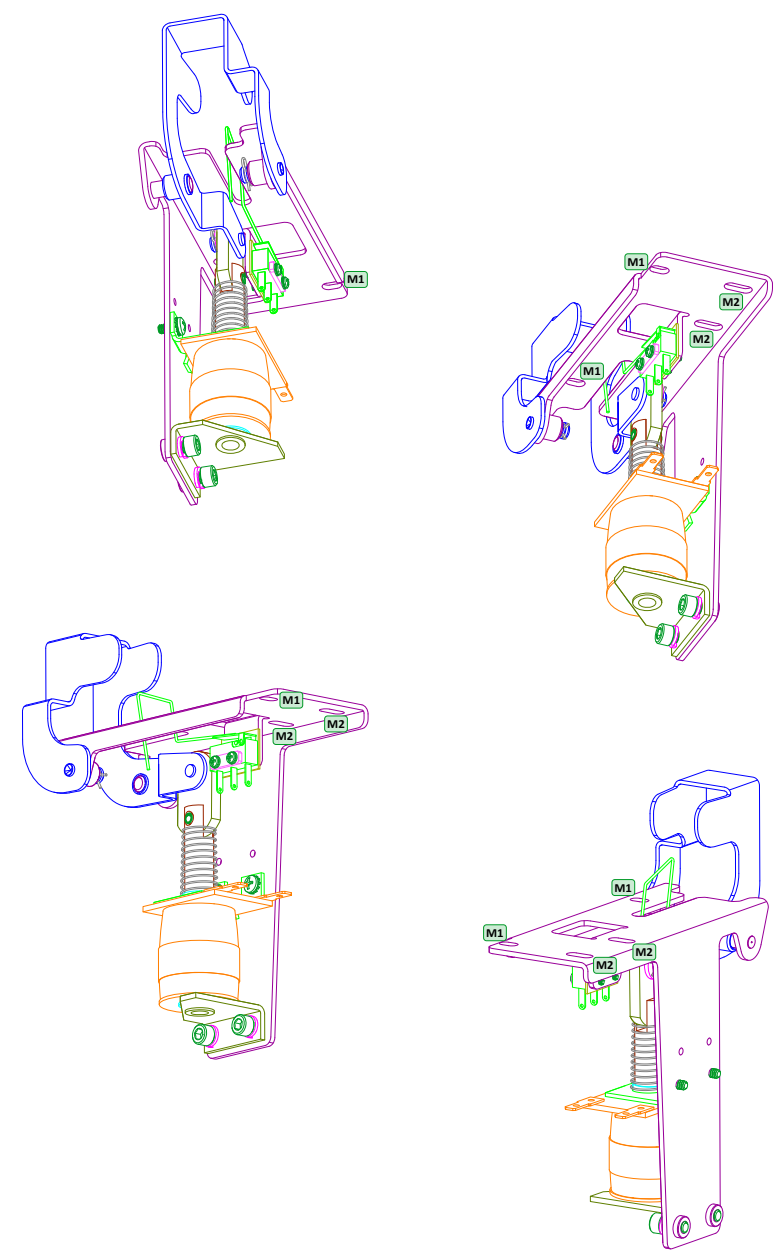
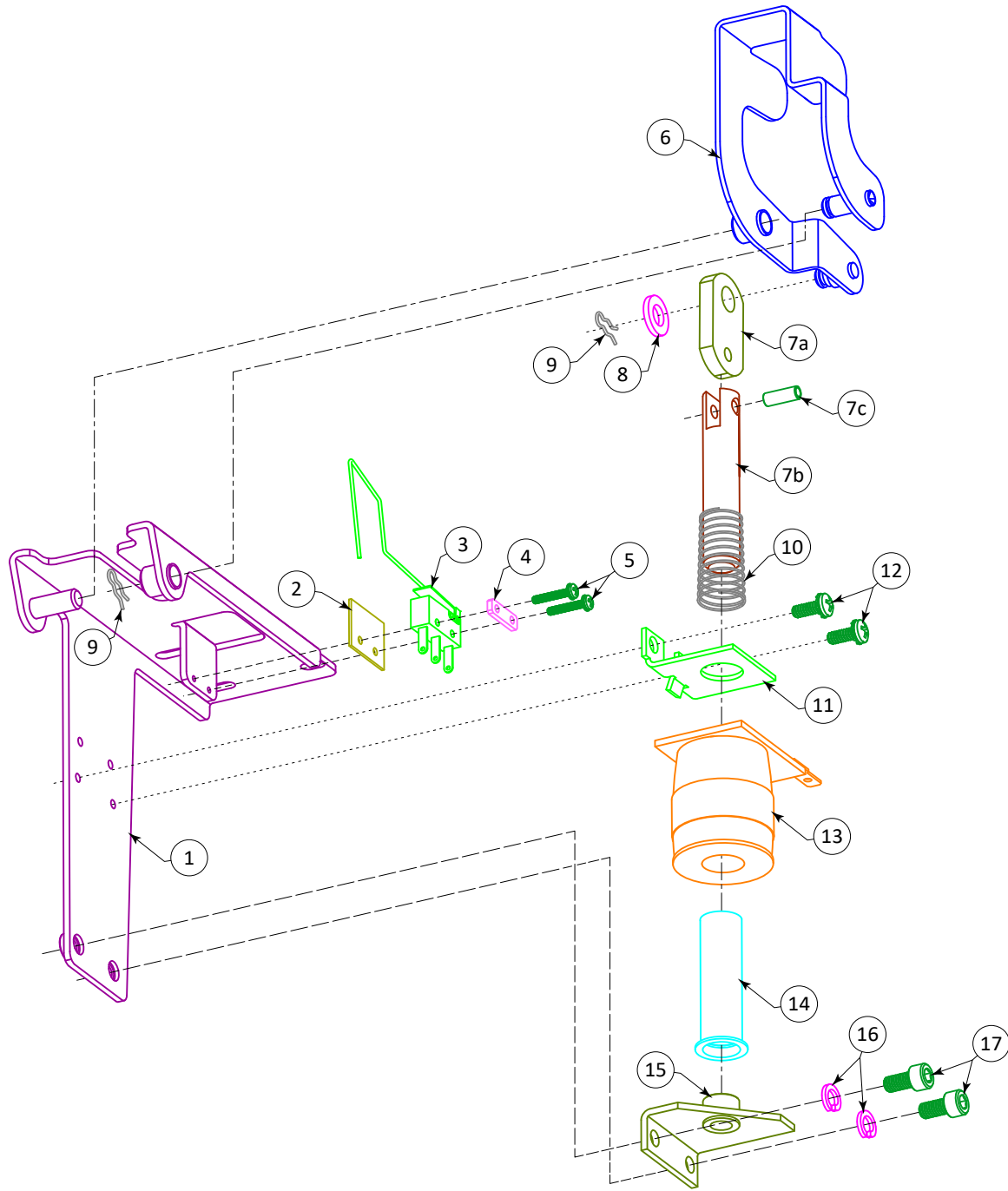
Ball Trough Assembly PFP-SUB-A199631

Item	Part ID	Description	Qty
1	PIN-A-168092	Welded Ball Trough	1
2	PIN-23-6702	Ball Trough Bumper Plug	1
3	PIN-PCB-TRHEMT1	Ball Trough Opto Transmitter/LED PCB (pg 3-47)	1
4	PIN-PCB-TRHDET1	Ball Trough Opto Receiver/Phototransistor PCB (pg 3-48) <i>(Sws 1-5)</i>	1
5	PIN-23-6626	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	6
6	PIN-02-4975	Ball Trough PCB Metal Bushing	6
7	FSM-063-PPH063C	6-32 x 5/8" PPH MS	6
8	PIN-01-11586	Ball Trough Coil Mtg Brkt	1
9	PIN-23-6420	Rubber Grommet	1
10	PIN-AE-261500	26-1500 (Blue) Coil <i>(Coil 12)</i>	1
11	PIN-03-70675	2-1/16" Coil Sleeve, 3/16" Flange	1
12	PIN-01-8508T	Coil Retaining Brkt, Tapped	1
13	PIN-10-135	Plunger Return Spring	1
14	PIN-A-63062	Armature Plunger Assy	1
15	FSM-083-PSM031C	8-32 x 5/16" PPH MS, SEMS	2
16	PIN-01-11587	Ball Trough Coil Brkt	1
17	FSM-083-HHS037C	8-32 x 3/8" HH MS, SEMS	4
18	FNT-083-ESNA000	8-32 Elastic Stop Nut	4

Assembly Mounting Hardware Playfield, Underside/Top				
Location	Part ID	Description	Qty	
 M1	FSM-083-HFH100C	8-32 x 1" HWH MS, Serrated	3	
	FWF-172-047059C	Flat Washer, 11/64" ID, 7/16" OD, 16 ga	3	
 M2	FSM-083-HFH100C	8-32 x 1" HWH MS, Serrated	2	
 M3	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2	

The three M1 screws/washers and two M2 screws are attached from above - the screws run through the playfield and thread into the welded ball trough (item 1)
The two M2 screws are also used to attach the passive ball stop gate to the top of the playfield (item 8 on pg 2-126)



Assembly Cable(s)			
Part ID	Description	Qty	
PIN-CBL-COIOB2	2-Pin Coil Cable, ORN-BRN	1	
PIN-CBL-TROUGH	Trough Opto PCBs Cable	1	



Auto-Launch Assembly PFP-SUB-A210221

Item	Part ID	Description	Qty
1	CC-04-102115	Auto-Launch Main Brkt	1
2	PIN-01-8600	Microswitch Insulator, Fish Paper	1
3	PIN-56471269368	Auto-Launch Microswitch & Wireform <i>(Sw 33)</i>	1
4	PIN-01-15218	Microswitch Protector Plate, #2	1
5	FSM-025-PPH050C	2-56 x 1/2" PPH MS, Zinc	2
6	CC-04-102104	Auto-Launch Crank Brkt	1
7	PIN-A-15847	Flipper Coil Plunger & Link Assy	1
a)	03-8753	Flipper Link	1
b)	PIN-02-42191	Flipper Plunger	1
c)	PIN-20-93701	5/32" x 7/16" Roll Pin	1
8	FWF-036-050059C	Flat Washer, 0.361" ID, 0.5" OD, 0.05" TH	1
9	PIN-12-6227	Hairpin Clip	2
10	PIN-10-128	Slingshot Plunger Return Spring	1
11	PIN-01-8413	Auto-Launch Coil Retaining Brkt	1
12	FSM-063-PSM037C	6-32 x 3/8" PPH MS, SEMS	2
13	PIN-AE-23800	23-800 (Yellow) Coil <i>(Coil 11)</i>	1
14	PIN-03-7066	1-3/4" Coil Sleeve	1
15	CC-04-10461	Auto-Launch Coil Stop Brkt	1
16	FWL-N10-000C000	#10 Split Lock Washer	2
17	FSM-103-SHH037C	10-32 x 3/8" SH CS	2

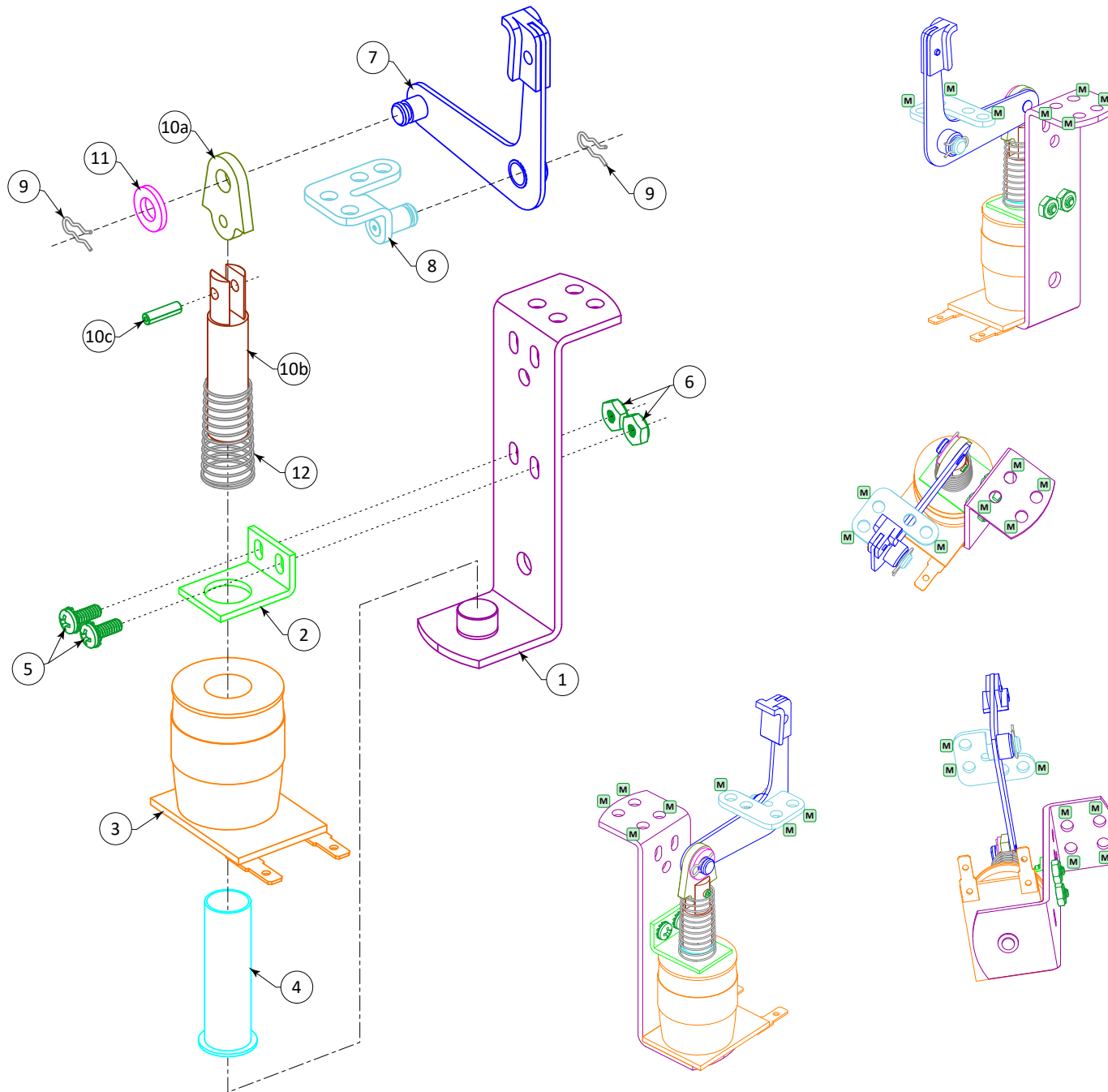
Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M1	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2
 M2	FSM-083-HFH063C	8-32 x 5/8" HWH MS, Serrated	2

The two M2 screws thread through the playfield, into 8-32 T-nuts (FNT-083-TES025), installed in the playfield topside (see pg 2-130)

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COIOB2	2-pin Coil Cable, ORN-BRN	1
PIN-CBL-TGTSW12	Target/Switch Cable, 12"	1



Slingshot Assembly PIN-SUB-A17811

Item	Part ID	Description	Qty
1	PIN-A-17808	Slingshot Main Brkt	1
2	PIN-01-8508S	Coil Retaining Brkt, Slotted	1
3	PIN-AE-261200	26-1200 (Green) Coil (Coils 1, 10)	1
4	PIN-03-7066	1-3/4\"/>	
5	FSM-063-PSM037C	6-32 x 3/8\"/>	
6	FNT-063-ESNA000	6-32 Elastic Stop Nut	2
7	PIN-A-12664	Slingshot Kicker Crank Assy	1
8	PIN-A-17810	Slingshot Kicker Crank Mtg Brkt	1
9	PIN-12-6227	Hairpin Clip	2
10	PIN-A-5103	Slingshot Coil Plunger & Link Assy	1
a)	PIN-03-8085	Slingshot Link	1
b)	PIN-02-2364	Slingshot Plunger	1
c)	PIN-20-87165	1/8\"/>	
11	FWF-265-050067C	Flat Washer, 0.265\"/>	
12	PIN-10-128	Slingshot Plunger Return Spring	1

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
M	FSS-N08-HWH050C	#8 x 1/2\"/>	

Part ID	Assembly Cable(s) Description	Qty
PIN-CBL-COIOV	2-pin Coil Cable, ORN-VIO (Coil 1)	1


Ball Popper Assembly

PFP-SUB-OPTOPOP

Item	Part ID	Description	Qty
1	PIN-MLS-BALLPOP	Ball Popper Main Brkt	1
2	PIN-23-6420	Rubber Grommet	1
3	PIN-A-16908	Opto LED Assy, RTV	1
a)	PIN-03-85061	White Opto Base	1
b)	PIN-PCB-OPTOLED	Opto LED PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
4	PIN-A-16909	Opto Phototransistor Assy, RTV <i>(Sw 12)</i>	1
a)	PIN-03-8506	Black Opto Base	1
b)	PIN-PCB-OPTONPN	Opto Phototransistor PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
5	FSS-N06-PPH037C	#6 x 3/8" PPH SMS	4
6	PIN-03-7067	1-7/8" Coil Sleeve, 3/16" Flange	1
7	PIN-AE-23800	23-800 (Yellow) Coil <i>(Coil 2)</i>	1
8	PIN-04-103222	Coil Retaining Brkt, 8-32 Studs	1
9	PIN-10-135	Plunger Return Spring	1
10	PIN-04-10291	Bell Armature Assy w/Hole	1
11	FNT-083-ESNA000	8-32 Elastic Stop Nut	2
12	PIN-03-8561	Ball Popper Cup	1
13	FST-063-PFH037C	#6 x 3/8" PFH Tap Tite MS	1

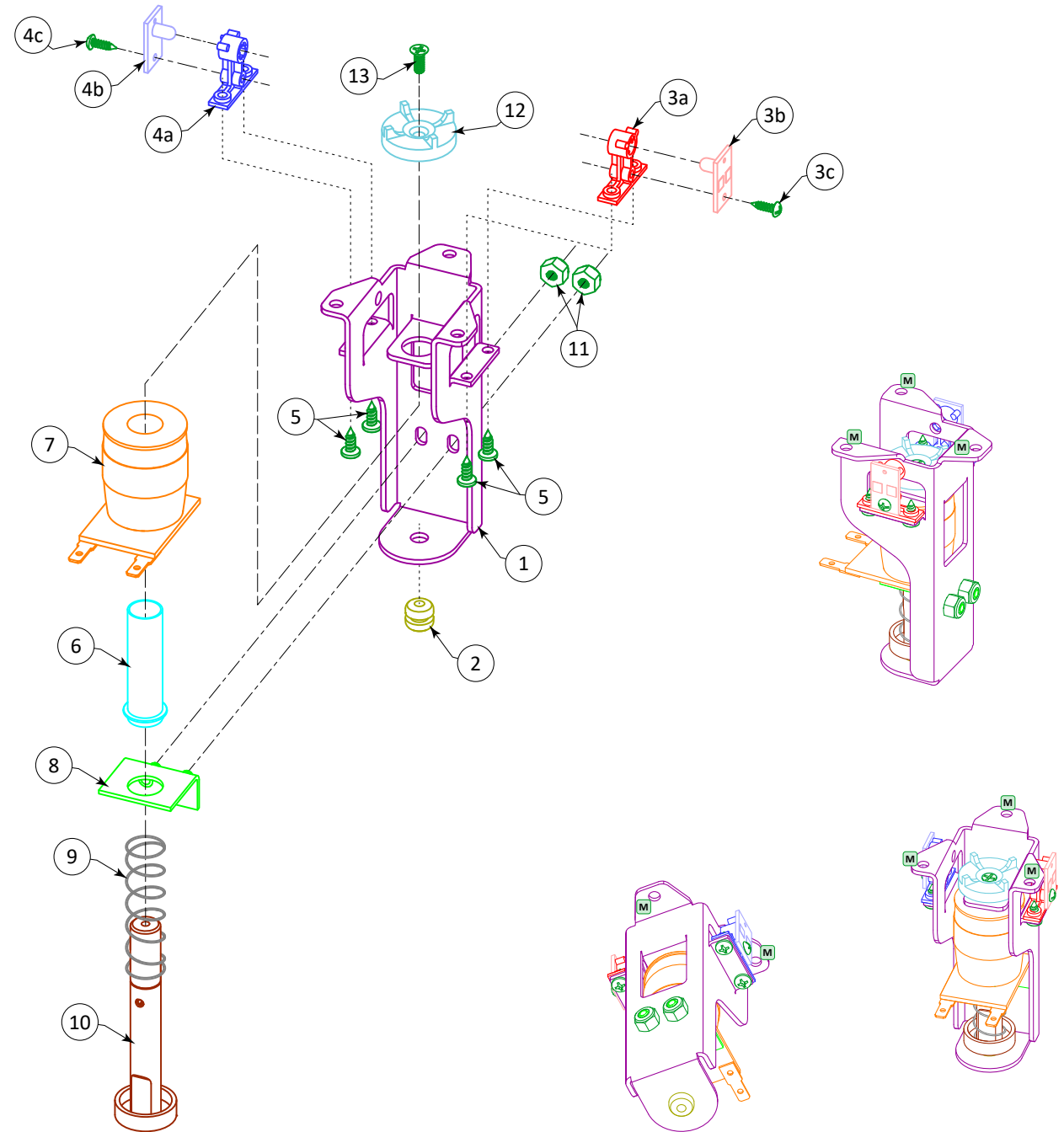
Assembly Mounting Hardware

Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	3

Assembly Cable(s)

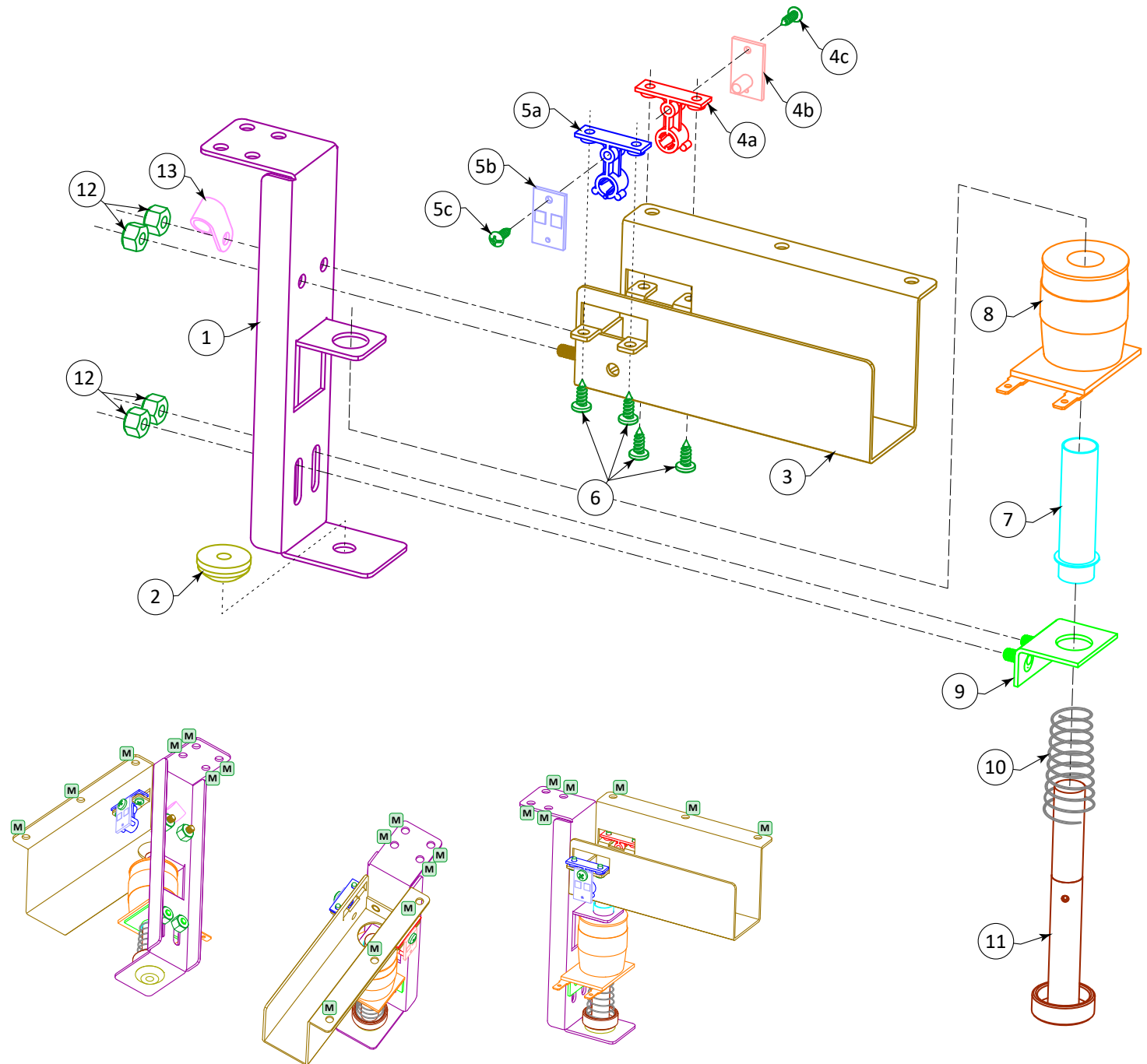
Part ID	Description	Qty
AFM-CBL-OPTOSW	Single Opto Pair Cable	1



Ball Popper & Trough Assembly


PF-P-SUB-3BALPOP

Item	Part ID	Description	Qty
1	PF-P-MLS-PWNPOP	Ball Popper & Trough Main Brkt	1
2	PIN-PLM-CLBMP31	Coil Bumper, 5/16"	1
3	PF-P-MLS-POPTRGH	Ball Popper Trough	1
4	PIN-A-16908	Opto LED Assy, RTV	1
a)	PIN-03-85061	White Opto Base	1
b)	PIN-PCB-OPTOLED	Opto LED PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
5	PIN-A-16909	Opto Phototransistor Assy, RTV <i>(Sw 11)</i>	1
a)	PIN-03-8506	Black Opto Base	1
b)	PIN-PCB-OPTONPN	Opto Phototransistor PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
6	FSS-N06-PPH037C	#6 x 3/8" PPH SMS	4
7	PIN-03-7067	1-7/8" Coil Sleeve, 3/16" Flange	1
8	PIN-AE-23800	23-800 (Yellow) Coil <i>(Coil 8)</i>	1
9	PIN-04-103222	Coil Retaining Brkt, 8-32 Studs	1
10	PIN-10-135	Plunger Return Spring	1
11	PIN-515730901	Bell Armature Assy, Cupped	1
12	FNT-083-ESNA000	8-32 Elastic Stop Nut	4
13	000-PLS-NC25CLP	Non-Captive Cable Clamp, 1/4"	1



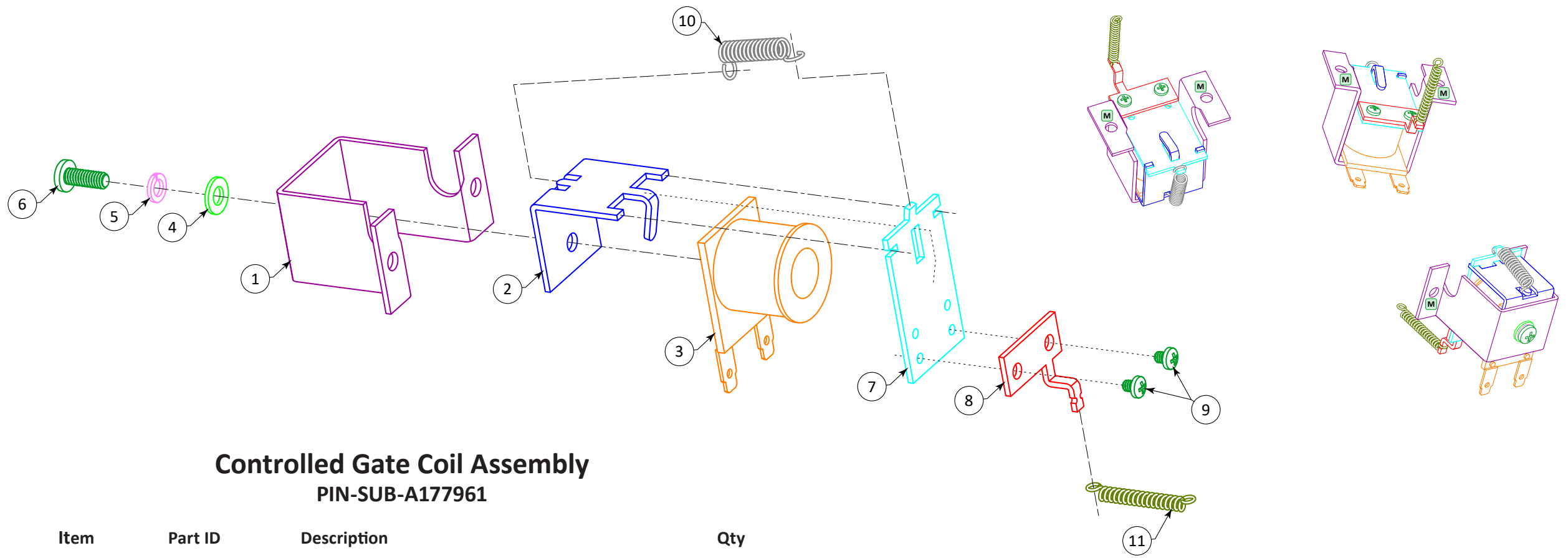
Assembly Mounting Hardware

Playfield, Underside

Location	Part ID	Description	Qty
	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	7

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COILOV3	3-Pin Coil Cable, ORN-VIO	1
AFM-CBL-OPTOSW	Single Opto Pair Cable	1




Controlled Gate Coil Assembly PIN-SUB-A177961

Item	Part ID	Description	Qty
1	PIN-01-12348	Controlled Gate Coil Mtg Brkt	1
2	PIN-A-6892	Coil Frame & Eyelet Assy	1
3	PIN-A-14406	A-14406 Mini Coil <i>(Coils 51, 52)</i>	1
4	FWF-172-047062R	#8 Flat Washer, 0.172" ID, 0.437" OD, 0.06" TH, Brass	1
5	FWL-N08-000C000	#8 Split Lock Washer	1
6	FSM-083-PRH047R	8-32 x 7/16" PPH MS, Brass	1
7	PIN-A-11146	Coil Armature Plate	1
8	PIN-01-8391	Gate Coil Actuator Arm	1
9	FSM-063-PSM018C	6-32 x 3/16" PPH MS, SEMS	2
10	PIN-10-120	Mini Coil Armature Spring	1
11*	PIN-10-194	Controlled Gate Actuator Spring	1

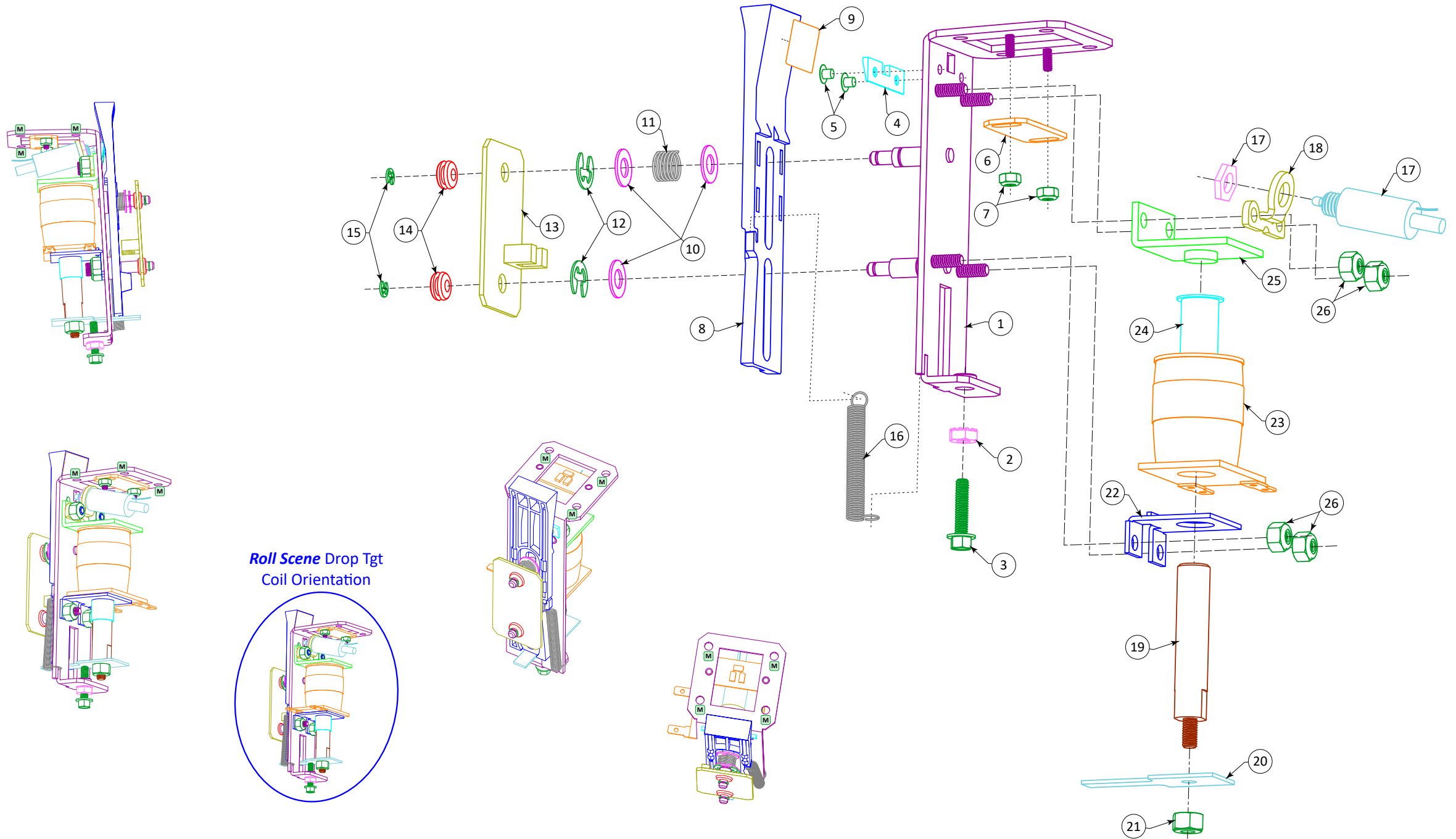
* The other end of the actuator spring runs through a notch in the playfield and attaches to item 6c (left gate) or 7c (right gate) on pg 2-126

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2

Assembly Cable(s)


Part ID	Description	Qty
PIN-CBL-BGATES	Controlled Gates Coil Cable	1



Single Drop Target Assembly, Retractable PFP-SUB-1BNKDRP

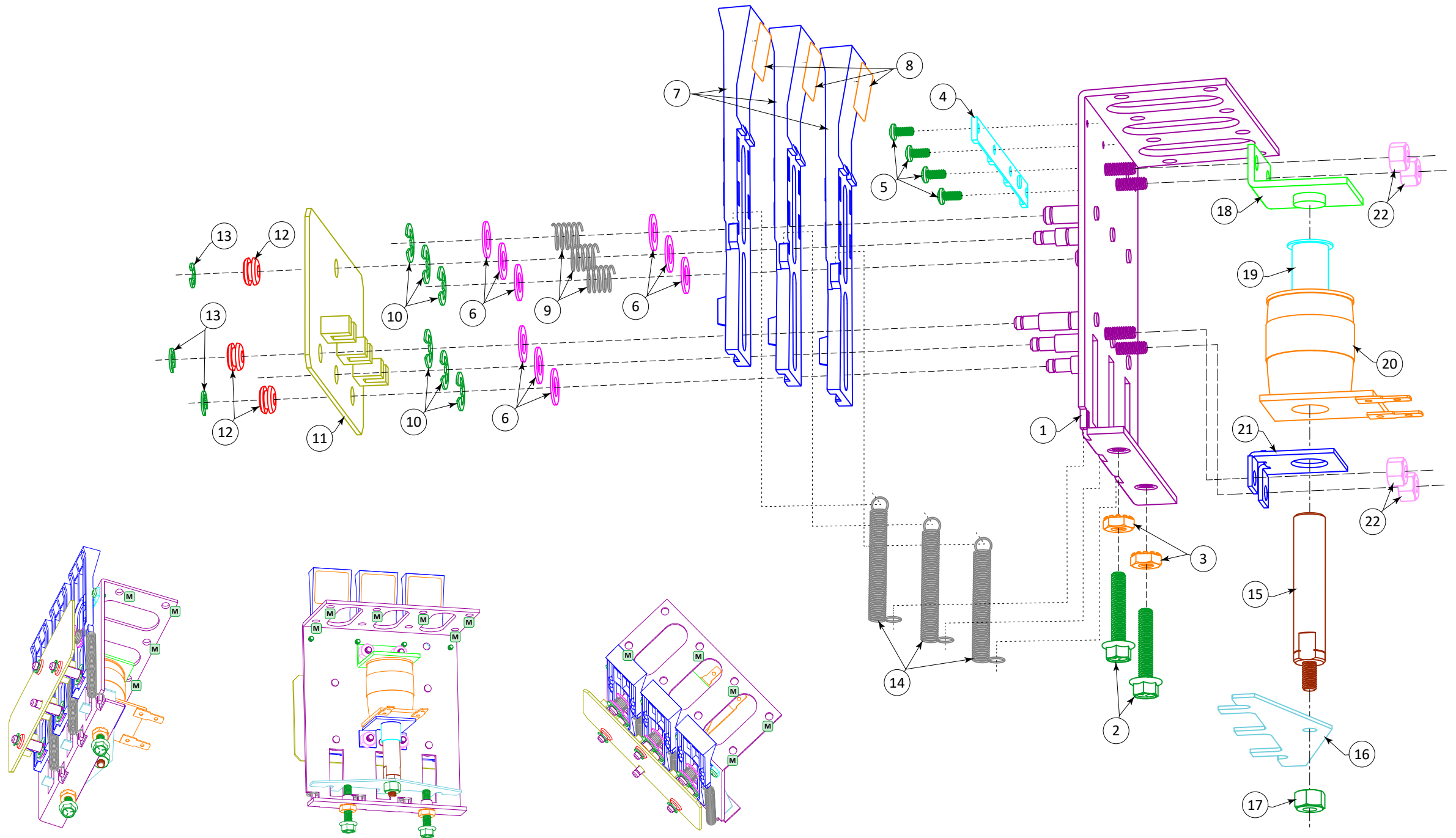
Item	Part ID	Description	Qty
1	PIN-MLS-DRPTGBL	Single Drop Tgt Main Brkt, w/LED PCB Studs	1
2	FNT-083-KEC0000	8-32 Keps Nut	1
3	FSM-083-HWH075C	8-32 x 3/4" HWH MS	1
4	PIN-03-8034	Drop Tgt Rest, Single	1
5	RIV-125-218000C	Tube Rivet, 1/8" x 7/32"	2
6	PIN-PCB-DROPLMP	Single Drop Tgt LED PCB (pg 3-33) (GG) (L60-62, 70)	1
7	FNT-044-ESNA000	4-40 Elastic Stop Nut	2
8	PIN-PLM-DRPTGBK	Drop Tgt, Angled Wedge Top, Black	1
9	PFP-ART-ROLLTGT	PF Roll Scene Drop Tgt Decal	1
or	PFP-ART-INLDRPB	PF Briefcase Bottom Drop Tgt Decal	1
or	PFP-ART-INLDRPC	PF Briefcase Center Drop Tgt Decal	1
or	PFP-ART-INLDRPT	PF Briefcase Top Drop Tgt Decal	1
10	FWF-265-050032C	Flat Washer, 0.265" ID, 0.5" OD, 0.032" TH	3
11	PIN-10-392	Drop Tgt Compression Spring	1
12	FER-025-000000A	E-Clip, 1/4" Shaft, Black	2
13	PIN-PCB-DROPTO	Drop Tgt Opto Bd, Single (pg 3-54) (Sws 49-51, 61)	1
14	PIN-23-6626	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	2
15	FER-018-000000A	E-Clip, 3/16" Shaft, Black	2
16	PIN-10-433	Single Drop Tgt Extension Spring	1
17	PIN-A-DTSNOID	Drop Tgt Retract Solenoid & Nut (Coils 54-57)	1
18	PIN-MLS-DRPCLBK	Drop Tgt Retract Solenoid Mtg Brkt	1
19	PIN-02-39721	Drop Tgt Reset Plunger	1
20	PIN-01-10380	Drop Tgt Reset Plate, Single	1
21	FNT-103-ESNA000	10-32 Elastic Stop Nut	1
22	PIN-01-84131	Drop Tgt Coil Retaining Brkt	1
23	PIN-AE-261500	26-1500 (Blue) Coil (Coils 3-5, 16)	1
24	PIN-03-70664	2-3/32" Coil Sleeve	1
25	PIN-A-11397	Drop Tgt Coil Stop Brkt	1
26	FNT-083-ESNA000	8-32 Elastic Stop Nut	4

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	4

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COIOLOV	2-pin Coil Cable, ORN-VIO (Coils 3-5)	3
PIN-CBL-COIOLOB2	2-Pin Coil Cable, ORN-BRN (Coil 16)	1
PFP-CBL-DROPTGT	Single Drop Target PCB Cable (Coils 54-57) (L60-62, 70) (Sws 49-51, 61)	4



3-Bank Drop Target Assembly PFP-SUB-3BANKDT

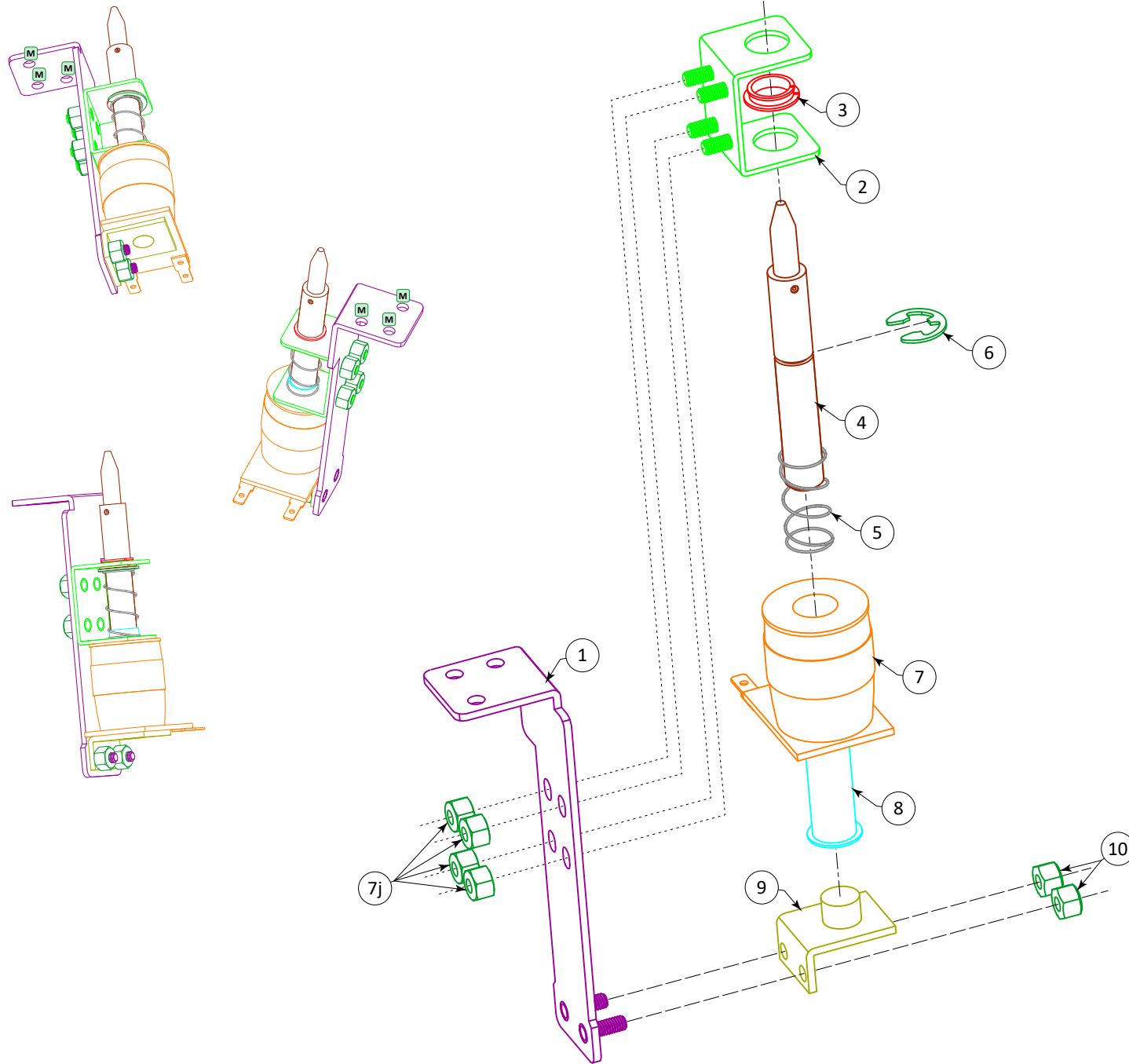
Item	Part ID	Description	Qty
1	PIN-MLS-3DROPBK	3-Bank Drop Tgt Main Brkt	1
2	FSM-103-HWH100C	10-32 x 1" HWH MS	2
3	FNT-102-KEC0000	10-32 KEPS Nut	2
4	PIN-03-83343	Drop Tgt Rest, 3-Bank	1
5	FSM-044-PPH025C	4-40 x 1/4" PPH MS	4
6	FWF-265-050067C	Flat Washer, 0.265" ID, 0.5" OD, 0.067" TH	9
7	PIN-PLM-DRPTGBK	Drop Tgt, Angled Wedge Top, Black	3
8	PFP-ART-GIMPTGT	PF Gimp Drop Tgt Decal	3
9	PIN-10-392	Drop Tgt Compression Spring	3
10	FER-025-000000A	E-Clip, 1/4" Shaft, Black	6
11	PIN-PCB-DROP3TR	Drop Tgt Opto PCB, 3-Bank (pg 3-56) <i>(Sws 20-22)</i>	1
12	PIN-23-6626	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	3
13	FER-018-000000A	E-Clip, 3/16" Shaft, Black	3
14	PIN-10-364	Drop Tgt/Flipper Return Spring	3
15	PIN-02-39721	Drop Tgt Reset Plunger	1
16	PIN-01-11769	Drop Tgt Reset Plate, 3-Bank	1
17	FNT-103-ESNA000	10-32 Elastic Stop Nut	1
18	PIN-A-11397	Drop Tgt Coil Stop Brkt	1
19	PIN-03-70664	2-3/32" Coil Sleeve	1
20	PIN-AE-23800	23-800 (Yellow) Coil <i>(Coil 14)</i>	1
21	PIN-01-84131	Drop Tgt Coil Retaining Brkt	1
22	FNT-083-ESNA000	8-32 Elastic Stop Nut	4

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	6

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COIOB2	2-Pin Coil Cable, ORN-BRN	1
PFP-CBL-3BANKDT	3-Bank Drop Tgt Opto PCB Cable	1



Disappearing Post Assembly PFP-SUB-DISPOST

Item	Part ID	Description	Qty
1	PFP-MLS-LOCKRLS	Disappearing Post Main Brkt	1
2	PFP-MLS-LCKCBKT	Disappearing Post Guide Brkt	1
3	PIN-20-87905	7/16" Nyliner Bearing	1
4	PFP-MLM-LOCKREL	Disappearing Post Plunger & Post Assy	1
5	PIN-10-135	Plunger Return Spring	1
6	FER-018-000000A	E-Clip, 7/16" Shaft, Black	1
7	PIN-AE-261200	26-1200 (Green) Coil <i>(Coils 6, 13)</i>	1
8	PIN-03-7066	1-3/4" Coil Sleeve	1
9	PIN-A-61367	Coil Stop Brkt, EM	1
10	FNT-083-ESNA000	8-32 Elastic Stop Nut	6

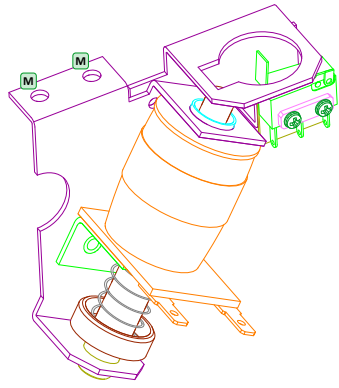
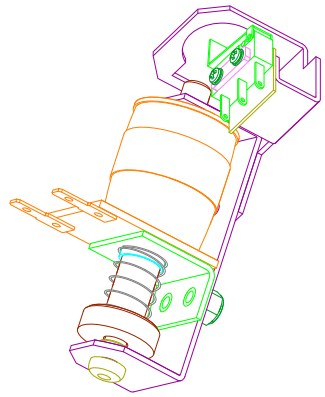
Assembly Mounting Hardware Playfield, Underside/Back Panel, Behind

Location	Part ID	Description	Qty
M	FNT-083-ESNA000	8-32 Elastic Stop Nut	3

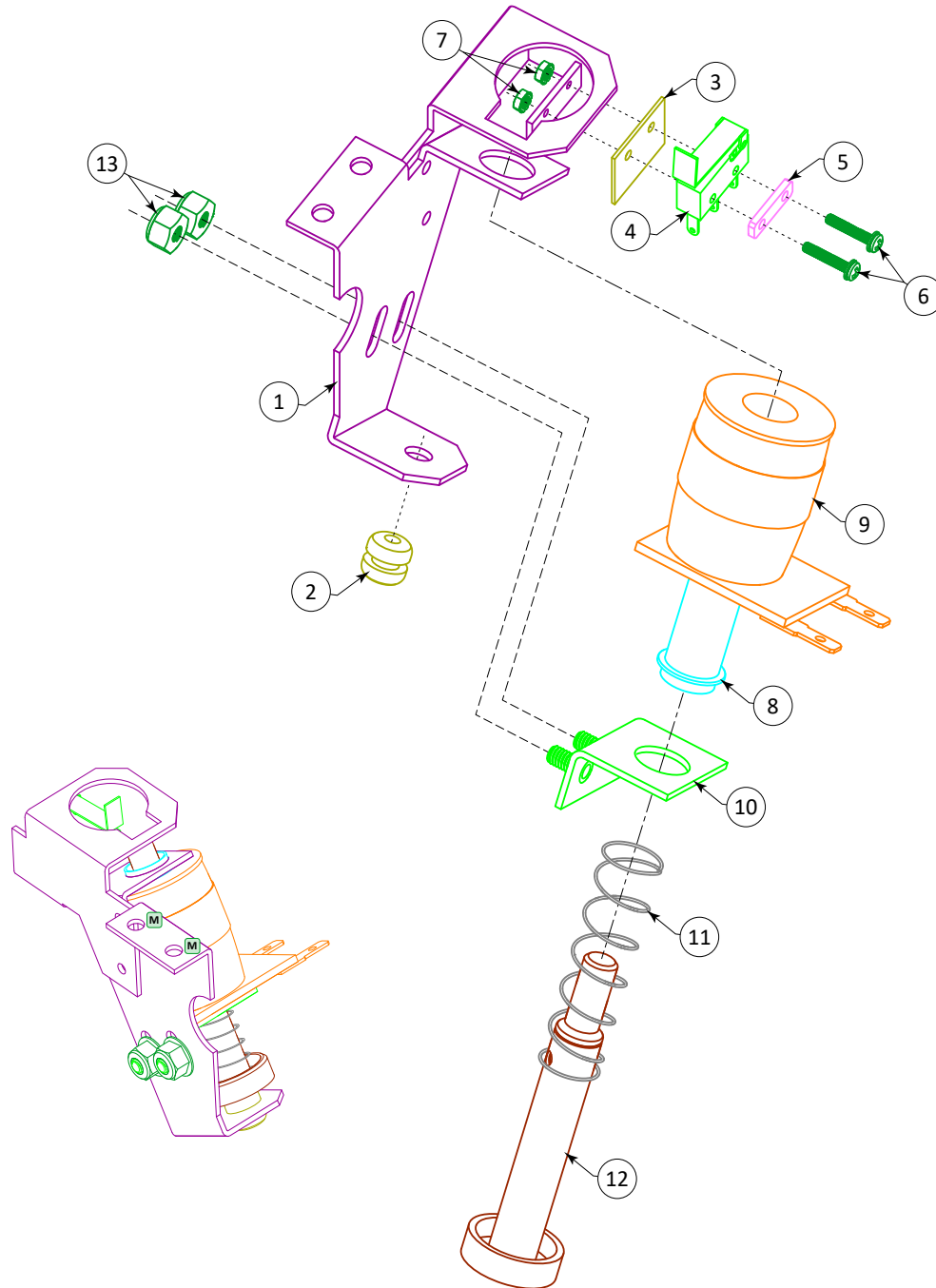
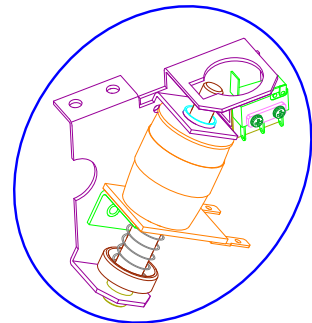
The 3 nuts are installed on threaded ball trough studs (item 1 on pg 2-30 or item 1 on pg 2-32)

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COIOV	2-pin Coil Cable, ORN-VIO <i>(Coil 6)</i>	1
PIN-CBL-COIOB2	2-pin Coil Cable, ORN-BRN <i>(Coil 13)</i>	1



Starts Character Eject
Coil Orientation



Angled Ball Eject Assembly PIN-SUB-A22449

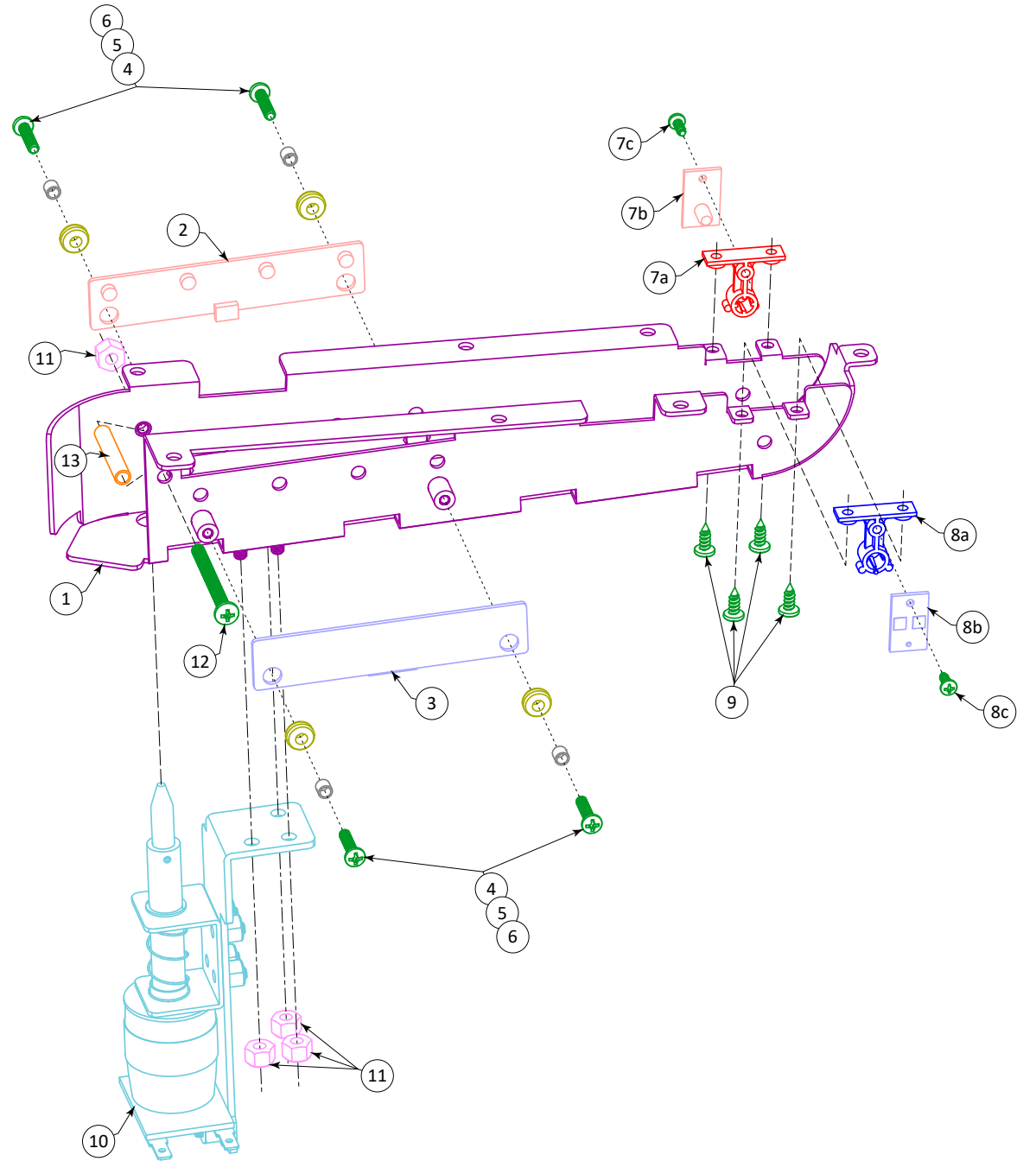
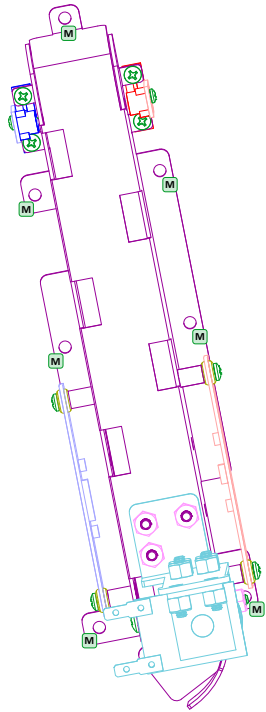
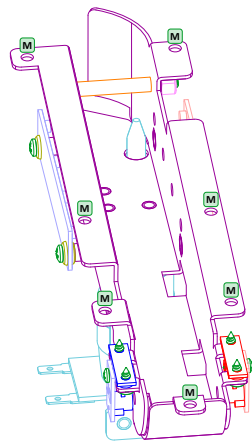
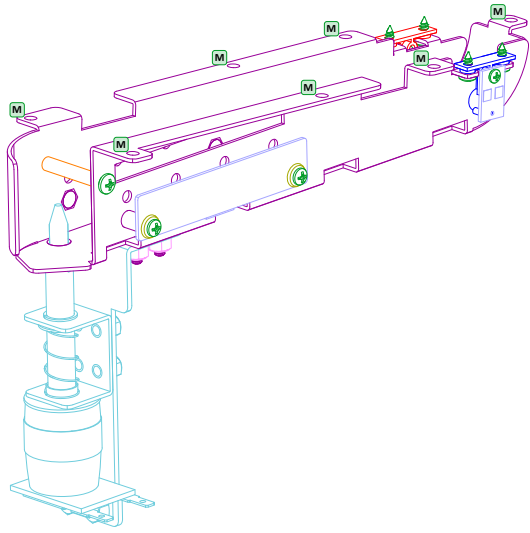
Item	Part ID	Description	Qty
1	MB-04-1070221	Angled Ball Eject Main Brkt	1
2	PIN-23-6420	Rubber Grommet	1
3	PIN-01-8600	Microswitch Insulator, Fish Paper	1
4	PIN-56471269366	Microswitch w/L Actuator Blade <i>(Sws 39, 55)</i>	1
5	PIN-01-15218	Microswitch Protector Plate, #2	1
6	FSM-025-PPH050C	2-56 x 1/2" PPH MS	2
7	FNT-025-KEC0000	2-56 KEPS Nut	2
8	PIN-03-70675	2-1/16" Coil Sleeve, 3/16" Flange	1
9	PIN-AE-302000	30-2000 (Tan) Coil <i>(Coils 9, 15)</i>	1
10	PIN-04-103222	Coil Retaining Brkt, 8-32 Studs	1
11	PIN-10-135	Plunger Return Spring	1
12	PIN-A-15371	Armature Plunger Assy	1
13	FNT-083-ESNA000	8-32 Elastic Stop Nut	2

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2

Assembly Cable(s)


Part ID	Description	Qty
PIN-CBL-TGTSW6	Target/Switch Cable, 6" <i>(Sw 39)</i>	1
PIN-CBL-TGTSW15	Target/Switch Cable, 15" <i>(Sw 55)</i>	1



Subway Ball Lock Assembly PFP-SUB-SUBRAMP

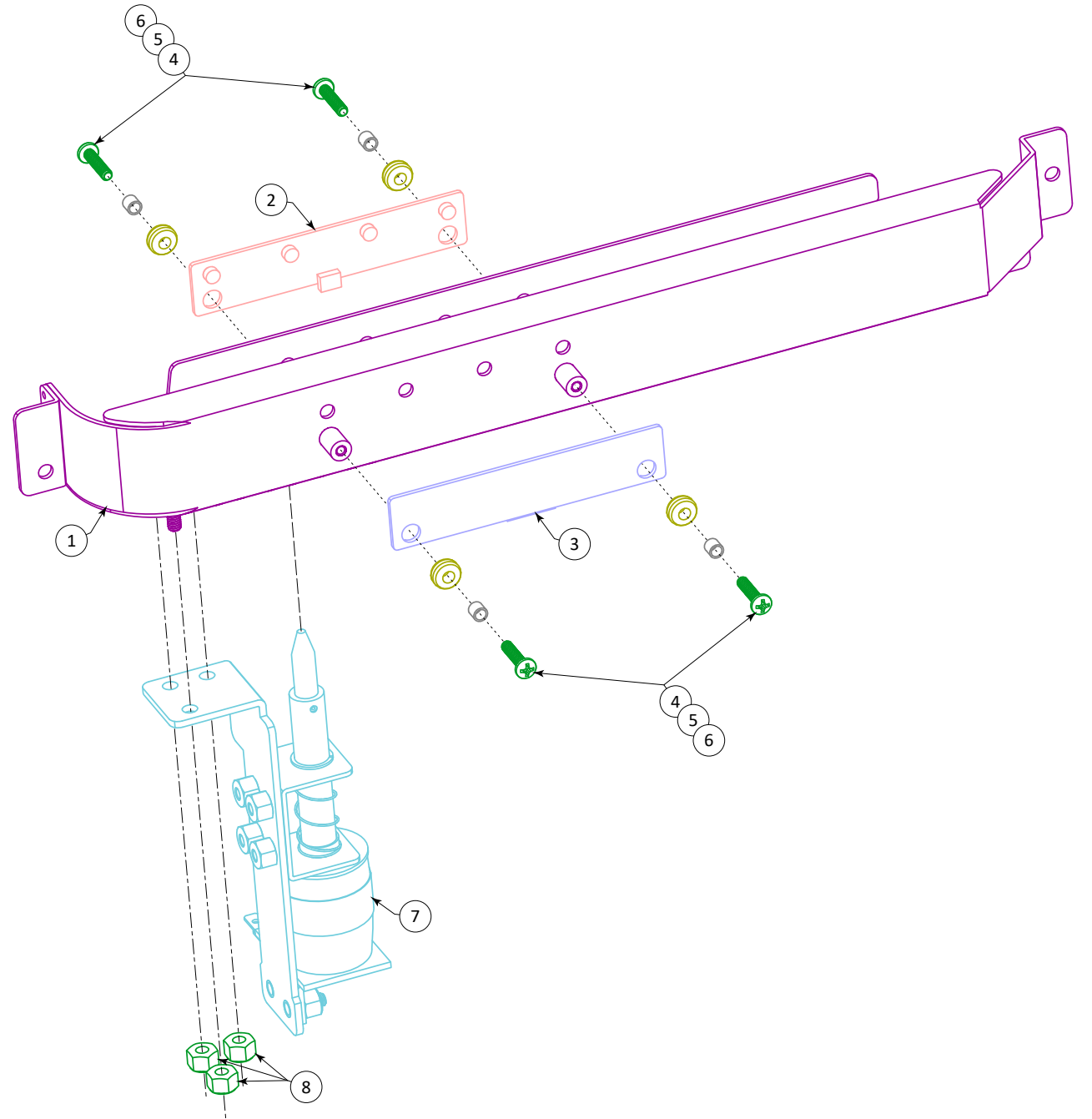
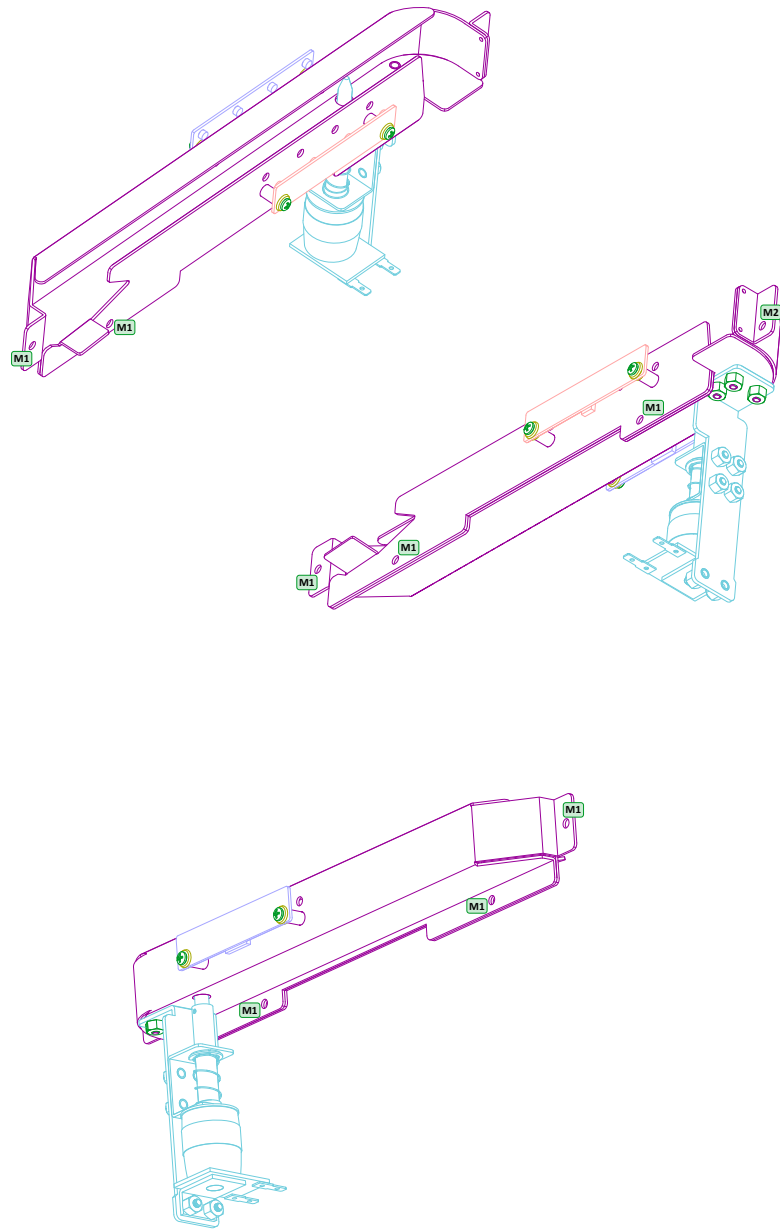
Item	Part ID	Description	Qty
1	PFP-MLS-PWNTRGH	PF Subway Lock Ball Trough	1
2	PFP-PCB-IR4EMIT	4-Opto Transmitter/LED PCB (pg 3-50)	1
3	PFP-PCB-IR4DECT	4-Opto Receiver/Phototransistor PCB (pg 3-51) <i>(Sws 6-9)</i>	1
4	PIN-23-6626	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	4
5	PIN-02-4975	Ball Trough PCB Metal Bushing	4
6	FSM-063-PPH063C	6-32 x 5/8" PPH MS	4
7	PIN-A-16908	Opto LED Assy, RTV	1
a)	PIN-03-85061	White Opto Base	1
b)	PIN-PCB-OPTOLED	Opto LED PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
8	PIN-A-16909	Opto Phototransistor Assy, RTV <i>(Sw 10)</i>	1
a)	PIN-03-8506	Black Opto Base	1
b)	PIN-PCB-OPTONPN	Opto Phototransistor PCB	1
c)	FSS-N04-PPH037C	#4 x 3/8" PPH SMS	1
9	FSS-N06-PPH037C	#6 x 3/8" PPH SMS	4
10	PFP-SUB-DISPOST	Disappearing Post Assy (pg 2-28) <i>(Coil 6)</i>	1
11	FNT-083-ESNA000	8-32 Elastic Stop Nut	4
12	FSM-083-PPH175C	8-32 x 1-3/4" PPH MS	1
13	FWC-N08-031N125	#8 Round Nylon Spacer, 1-1/4", 5/16" OD	1

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	7

Assembly Cable(s)



Part ID	Description	Qty
PIN-CBL-COILOV	2-pin Coil Cable, ORN-VIO	1
PFP-CBL-SUBOPTO	4-Opto PCBs Cable <i>(Sws 6-9)</i>	1
AFM-CBL-OPTOSW	Single Opto Pair Cable <i>(Sw 10)</i>	1



Back Panel Ball Lock Assembly PFP-SUB-BKBDRMP

Item	Part ID	Description	Qty
1	PFP-MLS-BRFTRGH	PF Back Panel Lock Ball Trough	1
2	PFP-PCB-IR4EMIT	4-Opto Transmitter/LED PCB (pg 3-50)	1
3	PFP-PCB-IR4DECT	4-Opto Receiver/Phototransistor PCB (pg 3-51) <i>(Sws 13-16)</i>	1
4	PIN-23-6626	Rubber Grommet, 3/16" ID, 3/8" OD, 3/16" TH	4
5	PIN-02-4975	Ball Trough PCB Metal Bushing	4
6	FSM-063-PPH063A	6-32 x 5/8" PPH MS, Black	4
7	PFP-SUB-DISPOST	Disappearing Post Assy (pg 2-28) <i>(Coil 13)</i>	1
8	FNT-083-ESNA000	8-32 Elastic Stop Nut	3

Assembly Mounting Hardware Back Panel, Behind

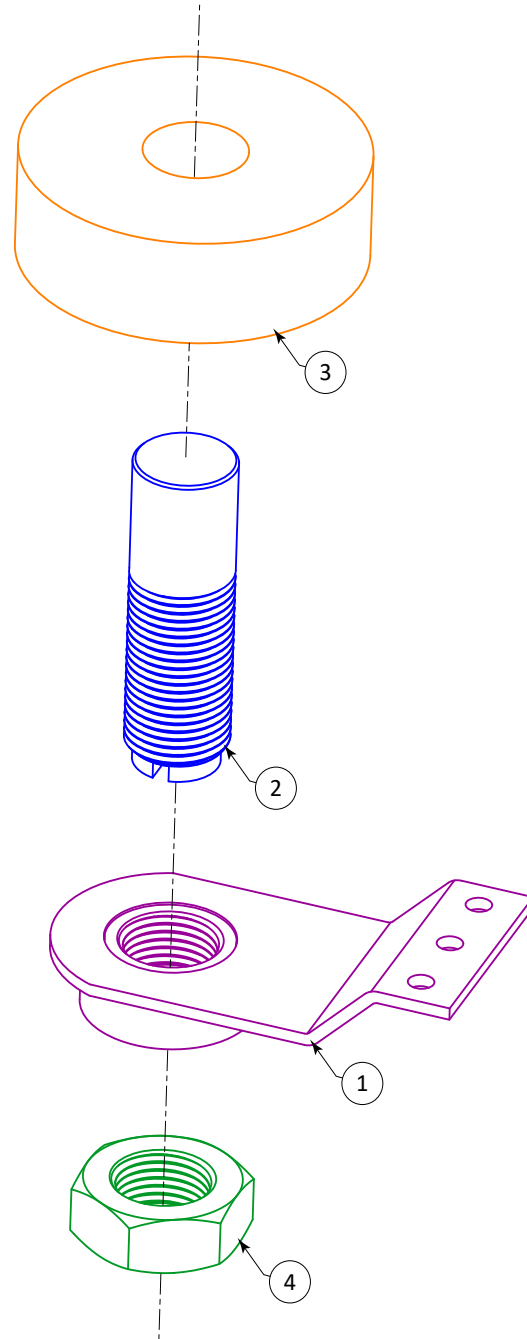
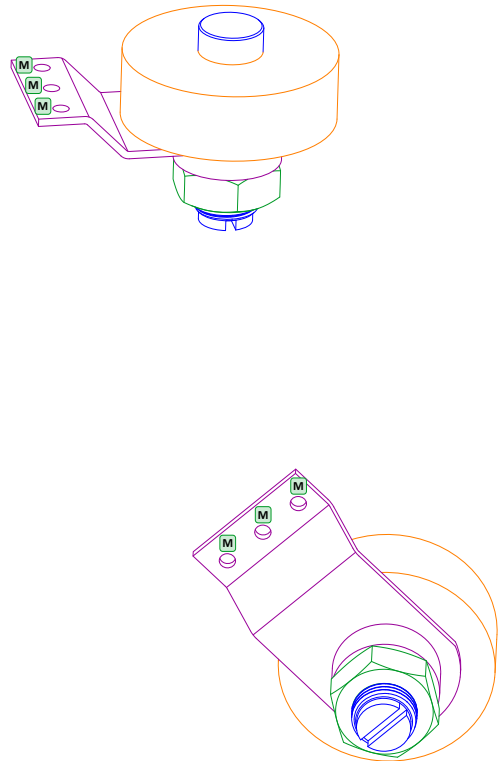
Location	Part ID	Description	Qty
 M1	FSM-083-HFH063C	8-32 x 5/8" HWH MS, Serrated	3
 M2	FSM-083-HFH075C	8-32 x 3/4" HWH MS, Serrated	1

The three M1 screws are threaded through the back panel, from behind, into 8-32 T-nuts (FNT-083-TE5025), installed in the front of the panel (item 2 on pg 2-42)

The M2 screw threads through the back panel wood, from behind, into the right side mounting tab of the ball release chute (item 1 on pg 2-40)

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-COIOB2	2-pin Coil Cable, ORN-BRN	1
PFP-CBL-BRFOPTO	4-Opto PCBs Cable	1

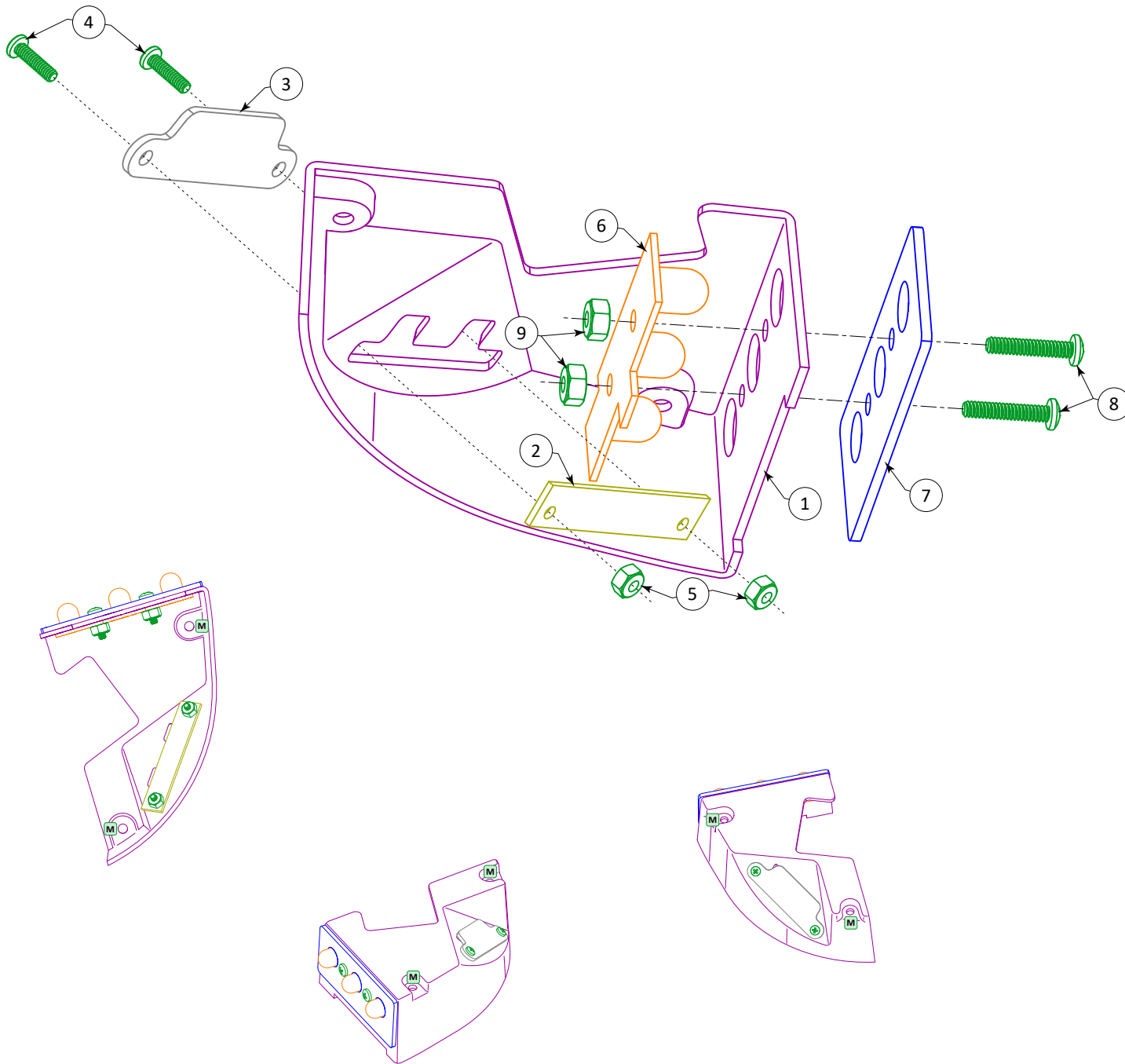


Playfield Magnet Assembly, Threaded Core PIN-SUB-10197

Item	Part ID	Description	Qty
1	PIN-A-16460	Playfield Magnet Brkt, Threaded	1
2	PIN-MLS-MAGCORE	Playfield Magnet Core, Threaded	1
3	PIN-20-10197	Magnet Coil, w/Thermal Fuse <i>(Coil 33)</i>	1
4	FNT-751-HEXNUT	3/4"-16 Hex Jam Nut	1

Assembly Mounting Hardware Playfield, Underside

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	3



Briefcase Molded Base Assembly PFP-SUB-CASELOK

Item	Part ID	Description	Qty
1	PFP-PLM-CASELOK	PF Molded Briefcase Base	1
2	PFP-PCB-SPOTVIN	4-LED Spotlight PCB (pg 3-45) <i>(GS) (L92)</i>	1
3	PFP-PLS-LOCKCVR	Vince Spotlight Cover	1
4	FSM-044-PPH050A	4-40 x 1/2" PPH MS, Black	2
5	FNT-044-ESNA000	4-40 Elastic Stop Nut	2
6	PFP-PCB-LOCK123	PF Briefcase Sign LED PCB (pg 3-39) <i>(GM) (L88-90)</i>	1
7	PFP-ART-P00018	PF Briefcase Boogie Sign Plastic	1
8	FSM-083-PPH037A	8-32 x 3/8" PPH MS, Black	2
9	FNT-083-ESNA000	8-32 Elastic Stop Nut	2

Assembly Mounting Hardware Playfield, Top

Location	Part ID	Description	Qty
 M	FSM-083-PPH037A	8-32 x 3/8" PPH MS, Black	2

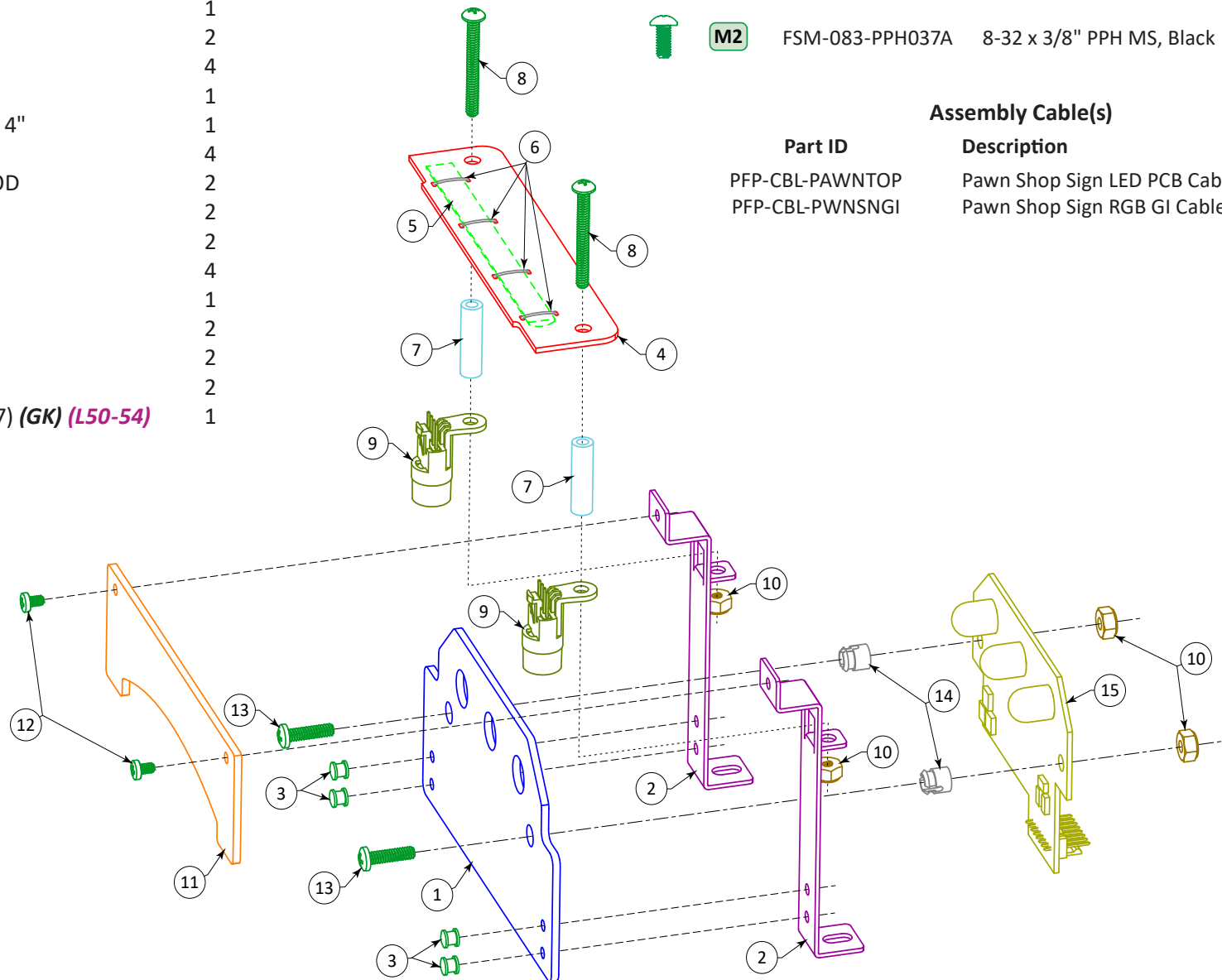
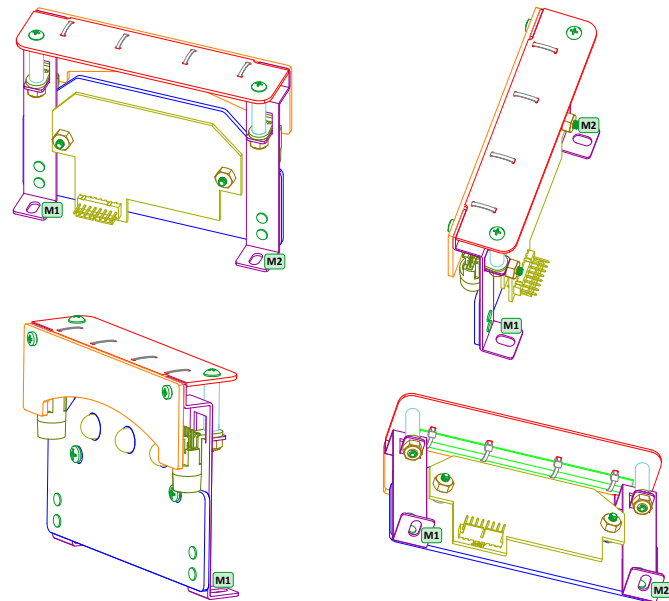
Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-BRFLOCK	Briefcase Sign/Spotlight Ctrl Cable	1

PF Pawn Shop Sign Assembly

PFP-SUB-PWNSHOP

Item	Part ID	Description	Qty
1	PFP-ART-P00023	PF Pawn Shop Sign Plastic	1
2	PFP-MLS-PWNSIGN	Playfield Sign Mtg Brkt	2
3	RIV-125-188000A	Tube Rivet, 1/8" x 3/16", Black	4
4	PFP-PLS-PWNROOF	PF Pawn Shop Roof Plastic (<i>PSS</i>)	1
5	PIN-SUB-RGB3SEG	RGB LED Strip & Cable, 3 Segments, 4"	1
6	000-PLM-4CBTBLK	4" Cable Tie, Black	4
7	FWC-N06-025B087	#6 Round Nylon Spacer, 7/8", 1/4" OD	2
8	FSM-063-PPH125A	6-32 x 1-1/4" PPH MS, Black	2
9	PIN-LMP-LEDRGB	GI LED Assy, RGB (<i>G17, G18</i>)	2
10	FNT-063-ESNA000	6-32 Elastic Stop Nut	4
11	PFP-ART-P00024	PF Pawn Shop Marquee Plastic	1
12	FSM-044-PPH018A	4-40 x 3/16" PPH MS, Black	2
13	FSM-063-PPH063A	6-32 x 5/8" PPH MS, Black	2
14	000-PLM-SR6018	#6 Round Snap-in Spacer, 3/16"	2
15	PFP-PCB-PAWNSHP	PF Pawn Shop Sign LED PCB (pg 3-37) (<i>GK</i>) (<i>L50-54</i>)	1

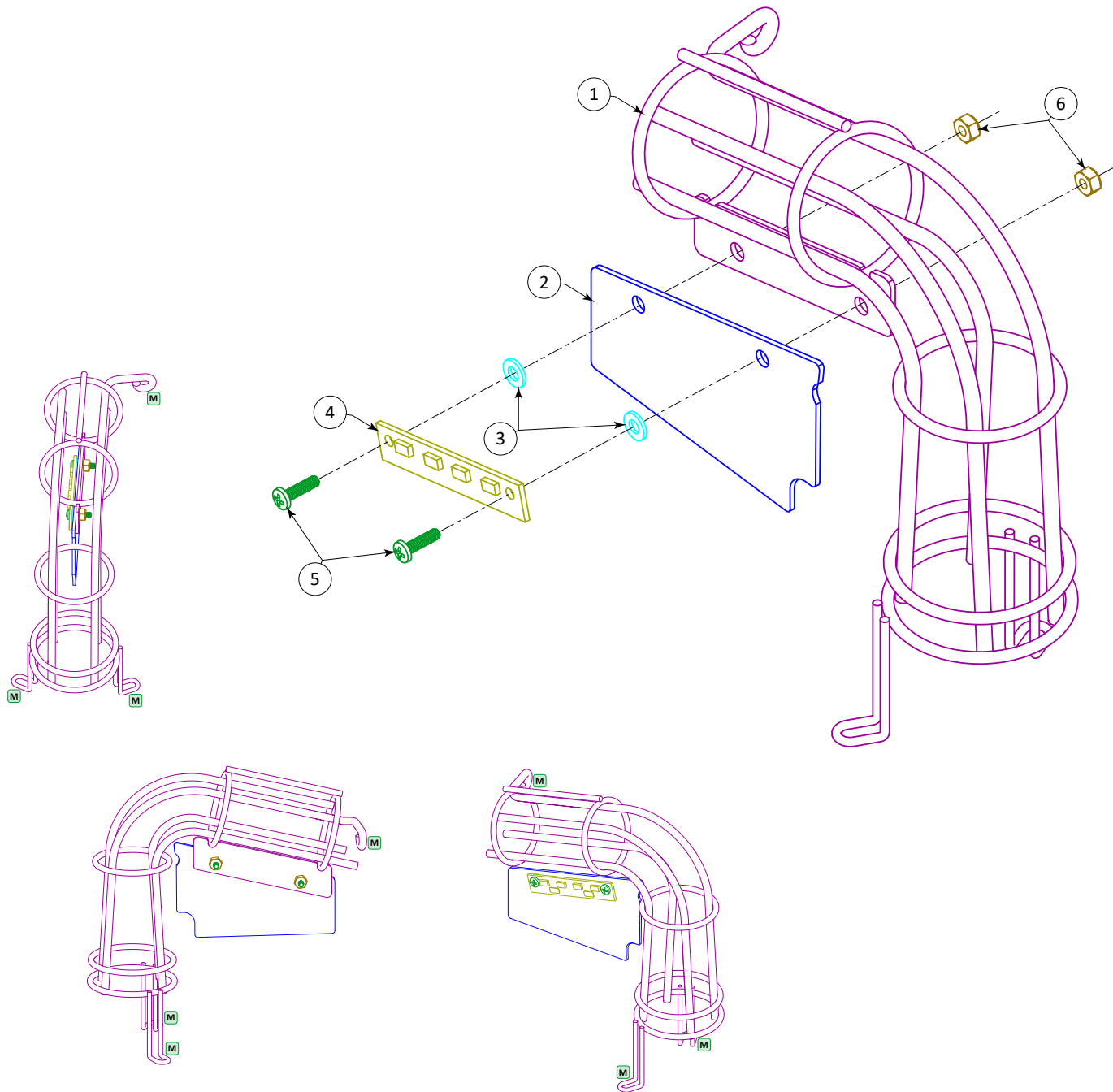


Assembly Mounting Hardware Playfield, Top

Location	Part ID	Description	Qty
M1	FNT-083-ESN172A	8-32 Elastic Stop Nut, Black, Low Profile	1
M2	FSM-083-PPH037A	8-32 x 3/8" PPH MS, Black	1

Assembly Cable(s)


Part ID	Description	Qty
PFP-CBL-PAWNTOP	Pawn Shop Sign LED PCB Cable	1
PFP-CBL-PWNSNGI	Pawn Shop Sign RGB GI Cable	1



Ball Popper Wireform Assembly PFP-SUB-POPRTUB

Item	Part ID	Description	Qty
1	PFP-MWF-POPRTUB	PF Ball Popper Wireform, Red	1
2	PFP-ART-P0002	PF Ball Popper Wireform Plastic	1
3	FWN-014-031N003	#6 nylon washer	2
4	PFP-PCB-SPOTJUL	4-LED Spotlight PCB (pg 3-41) (GO) (L91)	1
5	FSM-044-PPH050C	4-40 x 1/2" PPH MS	2
6	FNT-044-ESNA000	4-40 Elastic Stop Nut	2

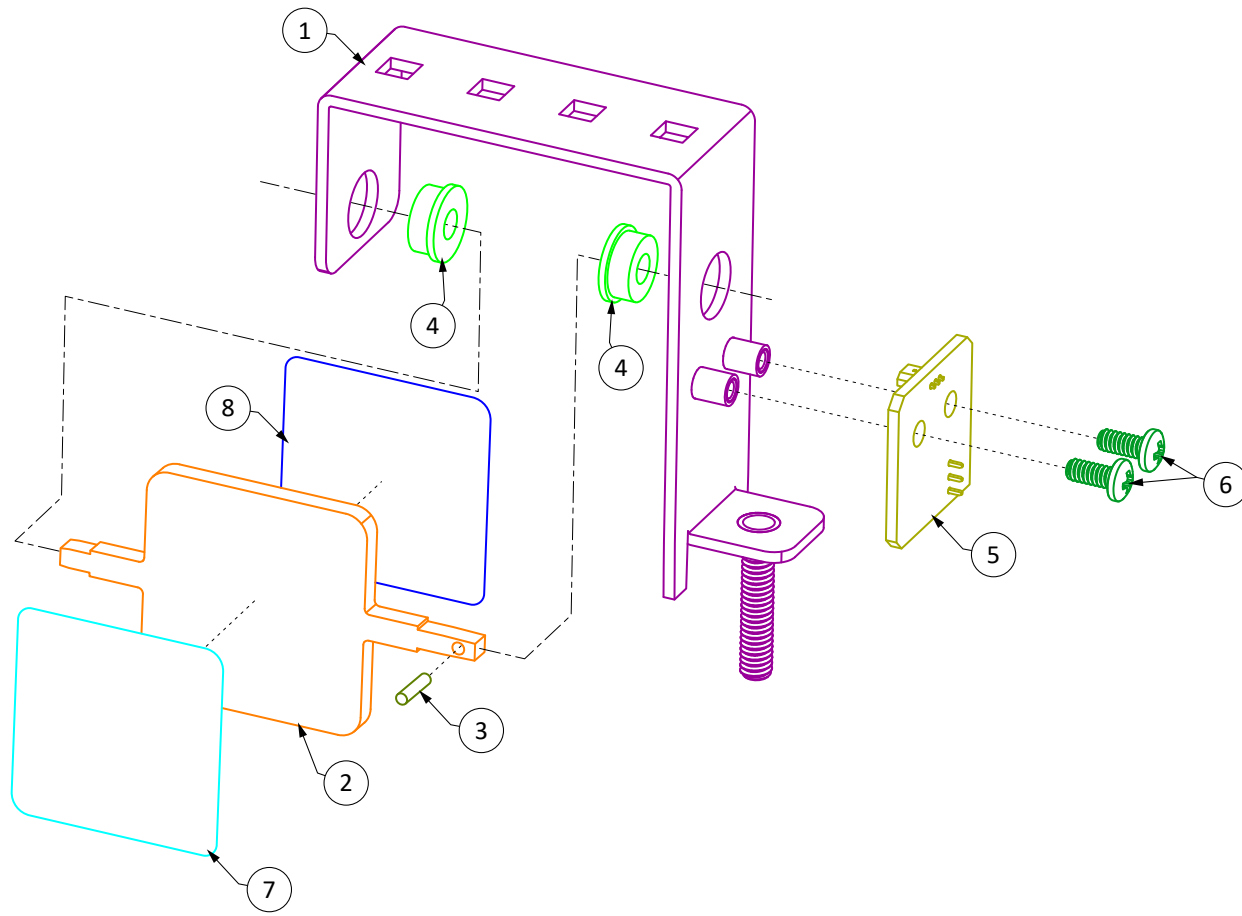
Assembly Mounting Hardware Playfield, Top/Back Panel, Front

Location	Part ID	Description	Qty
 M	FSM-083-HFH075C	8-32 x 3/4" HWH MS, Serrated	3
	FWF-172-047059C	Flat Washer, 11/64" ID, 7/16" OD, 16 ga	3

The screws thread through the playfield or back panel, into 8-32 T-nuts (FNT-083-TES025), installed in the playfield underside (see pg 2-131) or behind the back panel (item 2 on pg 2-42)

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-1LAMP24	Single Light Ctrl Cable, 24"	1



Magnet Spinner Assembly PFP-SUB-SPINNER

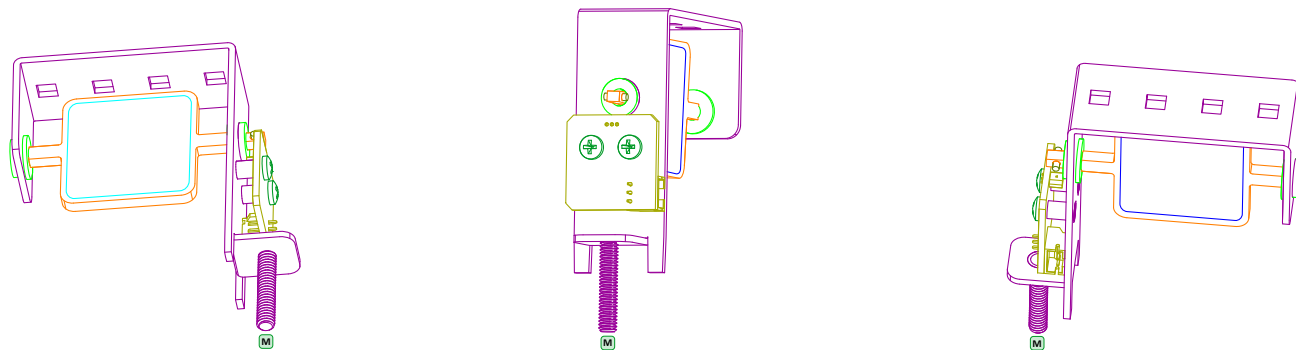
Item	Part ID	Description	Qty
1	PIN-MLS-SPINBKT	Magnet Spinner Brkt	1
2	PIN-MLS-SPINNER	Magnet Spinner Target	1
3	PIN-MSC-SPINMAG	Magnet Spinner Magnet	1
4	PIN-HDW-F6842HS	4 x 9 x 4mm Flanged Mini Bearing	2
5	PIN-PCB-SPINHAL	Spinner Hall Effect PCB (pg 3-53) <i>(Sws 41, 42)</i>	1
6	FSM-044-PPH031C	4-40 x 5/16" PPH MS	2
7*	PFP-ART-SPNHRTF	PF Large Heart Spinner Decal	1
8*	PFP-ART-SPNHRTB	PF Small Heart Spinner Decal	1

* install decal on back side of spinner (wrt playfield orientation), *upside down*

Assembly Mounting Hardware Playfield, Top

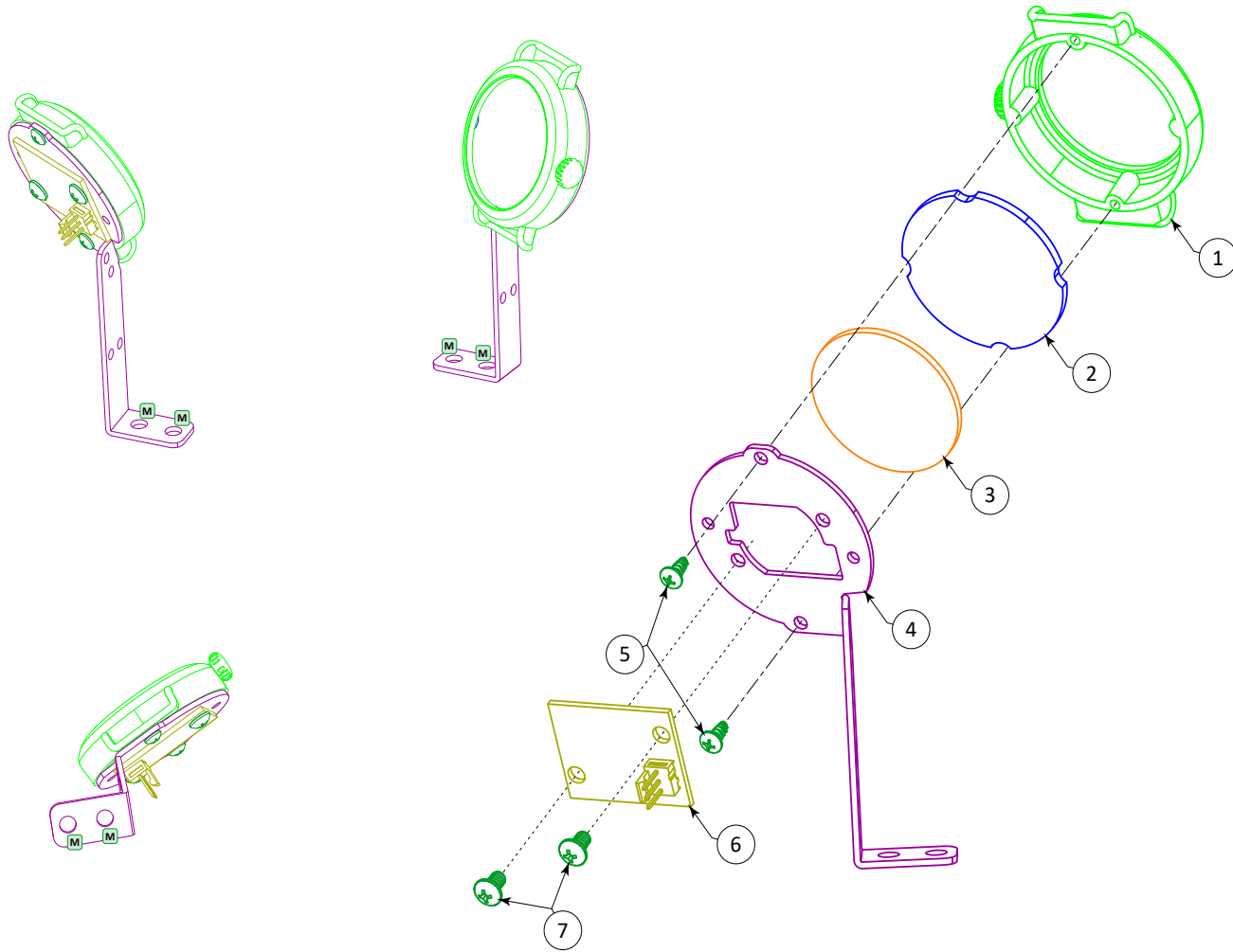
Location	Part ID	Description	Qty
M	FNT-083-ESNA000	8-32 Elastic Stop Nut	1
	FWF-172-047059C	Flat Washer, 11/64" ID, 7/16" OD, 16 ga	1

The threaded stud on item 1 runs through the playfield - the washer & nut attach to it, under the playfield



Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-SPINNER	Magnet Spinner PCB Cable	1



PF Gold Watch Assembly PFP-SUB-WATCH

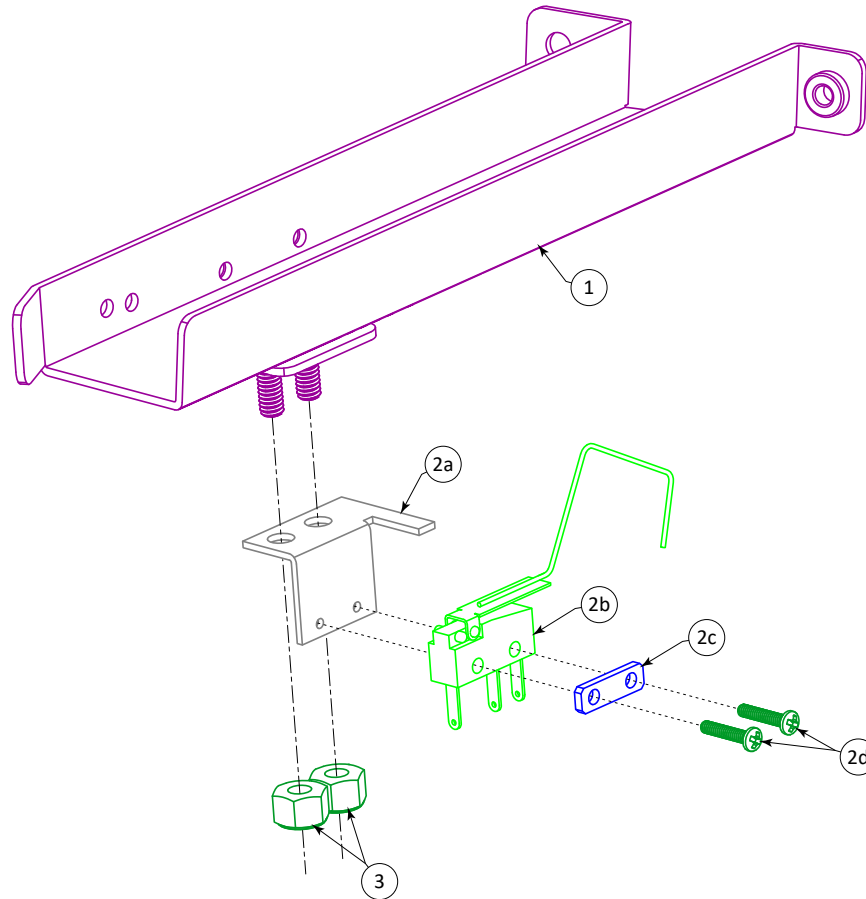
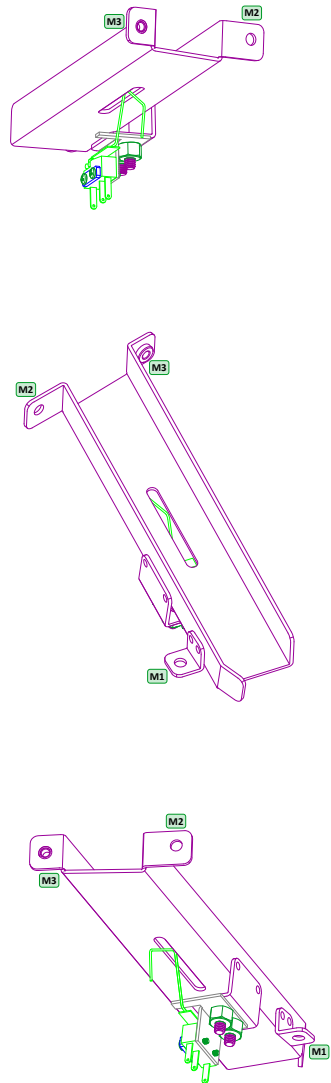
Item	Part ID	Description	Qty
1	PFP-PLM-WATCH	PF Molded Gold Watch Sculpture	1
2	PFP-ART-WTCHBAK	PF Gold Watch Toy Crystal Plastic	1
3	PFP-ART-P00032	PF Gold Watch Toy Face Plastic	1
4	PFP-MLS-WTCHBKT	PF Gold Watch Mtg Brkt	1
5	FST-044-PPH025C	4-40 x 1/4" PPH Tap Tite MS	2
6	PIN-PCB-GILEDS	Gold Watch Toy Flasher PCB (pg 3-58) (F09)	1
7	FST-063-PPH025A	6-32 x 1/4" PPH MS, Black	2

Assembly Mounting Hardware Playfield, Top

Location	Part ID	Description	Qty
M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2

Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-WATCH	Gold Watch Flasher PCB Cable	1



Briefcase Lock Exit Chute Assembly PFP-SUB-EXITRMP

Item	Part ID	Description	Qty
1	PFP-MLS-BRFRELR	PF Briefcase Chute	1
2	PIN-A-17813	Rollover Microswitch Assy, LSM	1
a)	PIN-01-12356	Microswitch Mtg Brkt, Left	1
b)	PIN-56471269319	Rollover Microswitch & Wireform (Sw 52)	1
c)	PIN-01-15218	Microswitch Protector Plate, #2	1
d)	FSM-025-PPH043C	2-56 x 7/16" PPH MS	2
3	FNT-083-ESNA000	8-32 Elastic Stop Nut	2

Assembly Mounting Hardware Playfield, Top/Back Panel, Front

Location	Part ID	Description	Qty
M1	FNT-083-ESNA172	8-32 Elastic Stop Nut, Low Profile	1
M2	FSM-083-HFH063C	8-32 x 5/8" HWH MS, Serrated	1
M3	FSM-083-HFH075C	8-32 x 3/4" HWH MS, Serrated	1

The M2 screw threads through the back panel, into an 8-32 T-nut (FNT-083-TES025), installed behind the panel (item 2 on pg 2-42)

The M3 screw threads into the chute **from behind**, through the back panel lock ball trough (item 1 on pg 2-32) and the back panel wood

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-TGTSW15	Target/Switch Cable, 15"	1




Briefcase Assembly

PFP-SUB-BFCMECH

Item	Part ID	Description	Qty
1	PFP-PLM-CASETOP	PF Briefcase Top, Molded	1
2	PFP-PLM-CASECAM	PF Briefcase Top Cam, Molded	1
3	FNT-009-PUSHNUT	Push-On Retaining Ring, 3/32" OD	4
4	PFP-MLS-CASEMNT	PF Briefcase Mtg Brkt	1
5	PFP-MWF-CASHING	Briefcase Hinge Pin	1
6	PFP-PLM-CASEBOT	PF Briefcase Bottom, Molded	1
7	FSM-063-PPH025C	6-32 x 1/4" PPH MS	2
8	FSM-063-PPH075C	6-32 x 3/4" PPH MS	2
9	PFP-PCB-BFCLAMP	PF Briefcase Flasher PCB (pg 3-52) (F06-08)	1
10	PIN-INS-503312	Rectangle Insert, Orange SB, 1.5" x 0.75"	1
11	PIN-INS-503316	Rectangle Insert, Yellow SB, 1.5" x 0.75"	2
12	PIN-PLS-LAMPMTG	Briefcase PCB Mtg Plastic	1
13	FNT-063-ESNA000	6-32 Elastic Stop Nut	2
14	PFP-MLS-BFCMTSP	PF Briefcase/Motor Support Brkt	1
15	PIN-14-HT12188	Motor, 12V (Coil 53)	1
16	FSM-M03-PPH13C	M3 x 13mm PPH MS	6
17	PFP-PCB-BCOPTO0	Single Opto Interrupter PCB (pg 3-53) (Sws 18, 19)	2
18	FSM-063-PPH018C	6-32 x 3/16" PPH MS	4
19	PFP-MLS-ENCODER	PF Briefcase Motor Encoder	1
20	FSM-103-AAS025A	10-32 x 1/4" Set Screw, CP, Black	2
21	PFP-HDW-SLV037	Sleeve Bearing, 3/8", 1/4" Shaft, 1/2" Flange	1
22	FWC-025-063C043	Flat Washer, 0.25" ID, 0.625" OD, 0.043" TH	1
23	FER-025-000000A	E-Clip, 1/4" Shaft, Black	1

Assembly Mounting Hardware

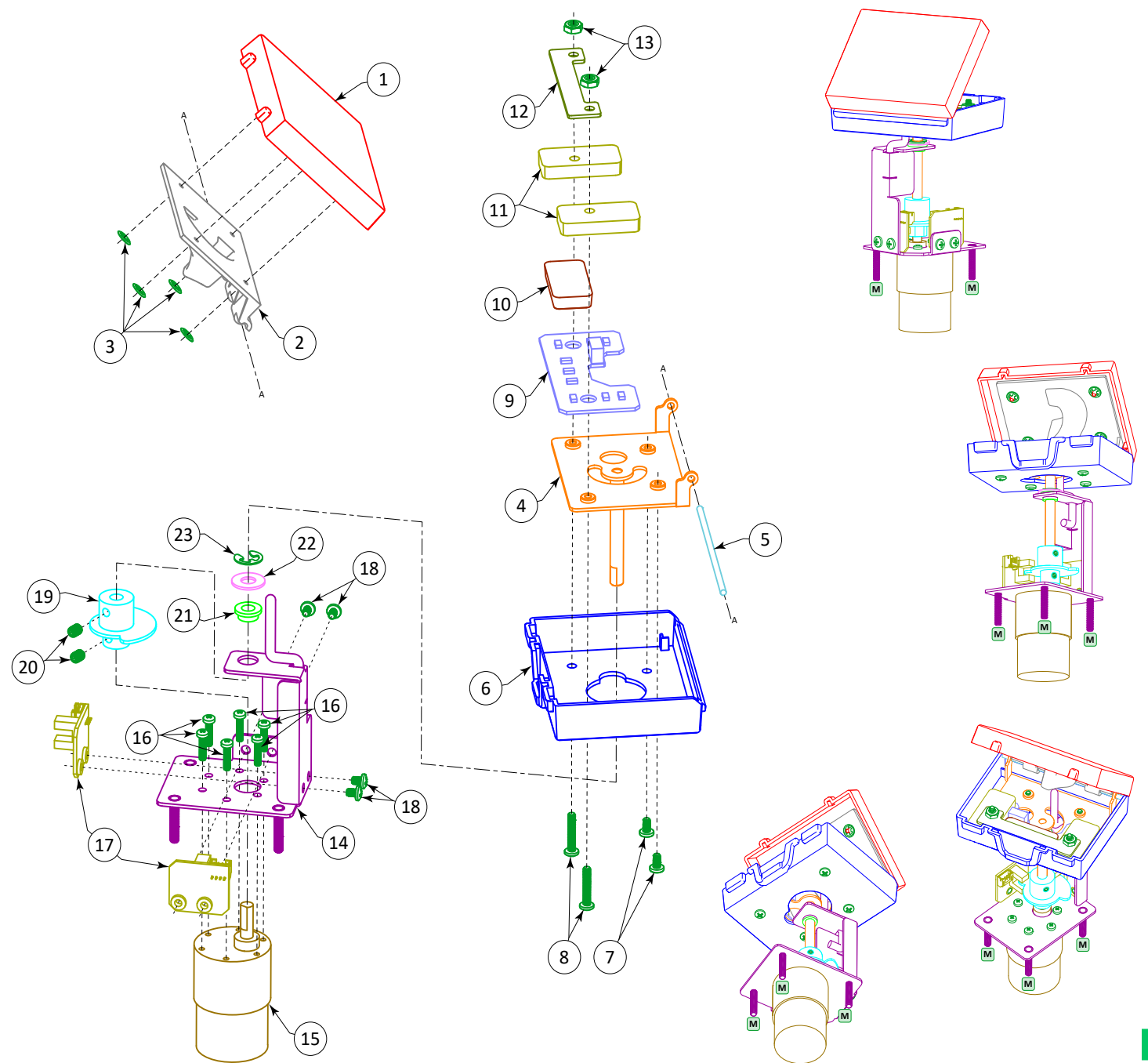
Playfield, Top

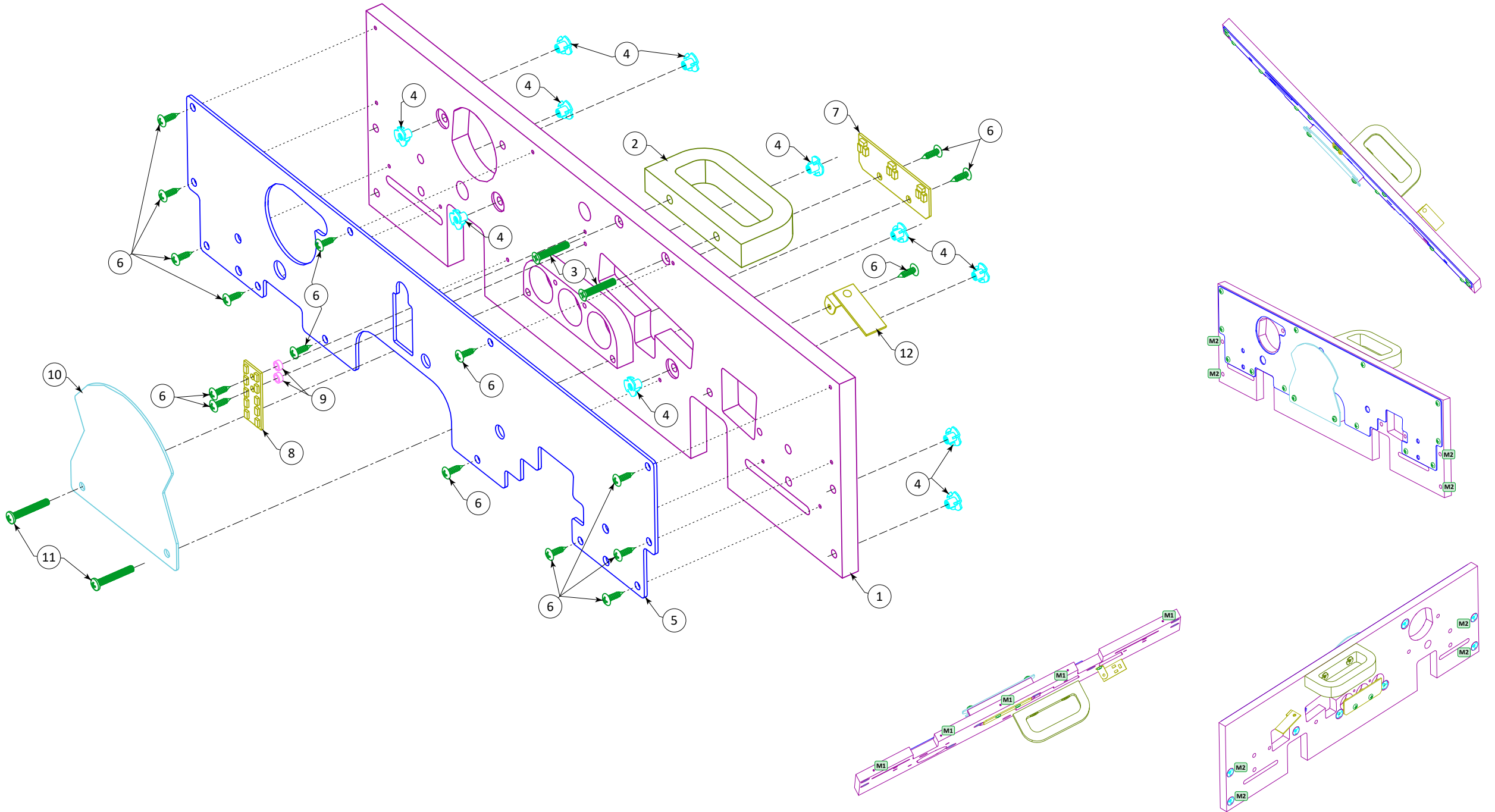
Location	Part ID	Description	Qty
  	FWF-172-047059C	Flat Washer, 11/64" ID, 7/16" OD, 16 ga	3
	FNT-083-ESNA000	8-32 Elastic Stop Nut	3

The threaded studs on item 10 run through the playfield - the washers & nuts attach to them, under the playfield

Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-BRFMECH	Briefcase Flasher & Motor Ctrl Cable	1
PFP-CBL-MTROPTO	Briefcase Motor Opto PCBs Cable	1







PF Back Panel Assembly PFP-SUB-BACKPNL

Item	Part ID	Description	Qty
1	PFP-CCC-BACKPNL	PF Back Panel Wood	1
2	PFP-CCC-BPHANDL	Back Panel Wooden Handle Assy	1
3	FSM-083-PFH100C	8-32 x 1" PFH MS	2
4	FNT-083-TES025	8-32 T-Nut, 1/4" Barrel	11
5	PFP-ART-P0001	PF Back Panel Plastic	1
6	FSS-N06-PTH050A	#6 x 1/2" PTH SMS, Black	17
7	PFP-PCB-BKAHUNA	PF Big Kahuna Bonus 3-LED PCB (pg 3-38) (GL) (L94-96)	1
8	PFP-PCB-KAHUNFL	PF Big Kahuna Bonus Flasher LED PCB (pg 3-42) (GP) (F10)	1
9	FWC-018-027N009	M01 x 0.090" Nylon Spacer	2
10	PFP-ART-P00026	PF Big Kahuna Bonus Sign Plastic	1
11	FSM-083-PPH100A	8-32 x 1" PPH MS, Black	2
12	PIN-SUB-THFLBKT	Thin Flasher & Brkt Assy	1
a)	PIN-PCB-THINFLS	Game Set Flasher PCB (pg 3-43) (GQ) (F11)	1
b)	PIN-MLS-LMPMTGB	Thin Flasher Mtg Brkt	1
c)	RIV-125-156000C	Tube Rivet, 1/8" x 5/32"	1

Assembly Mounting Hardware Playfield, Top

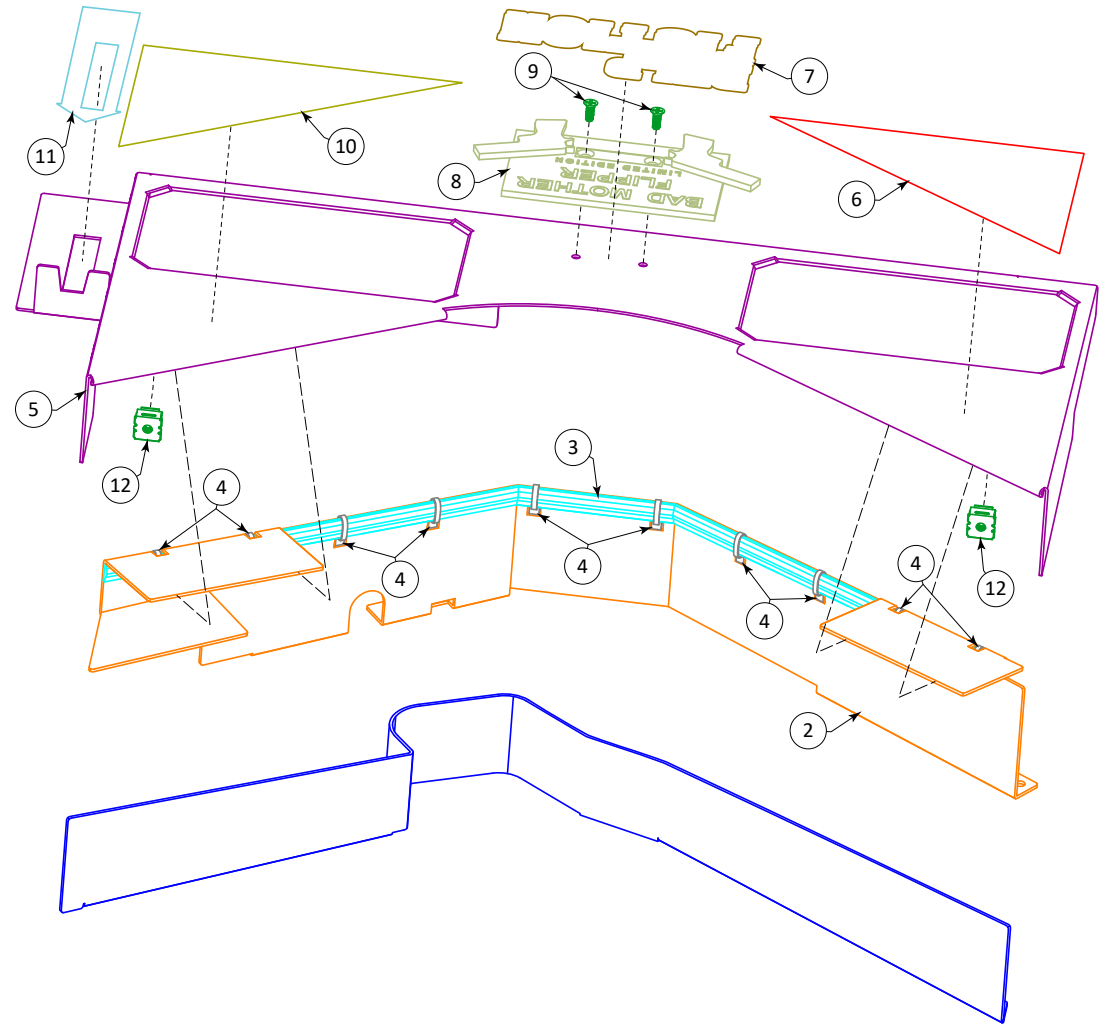
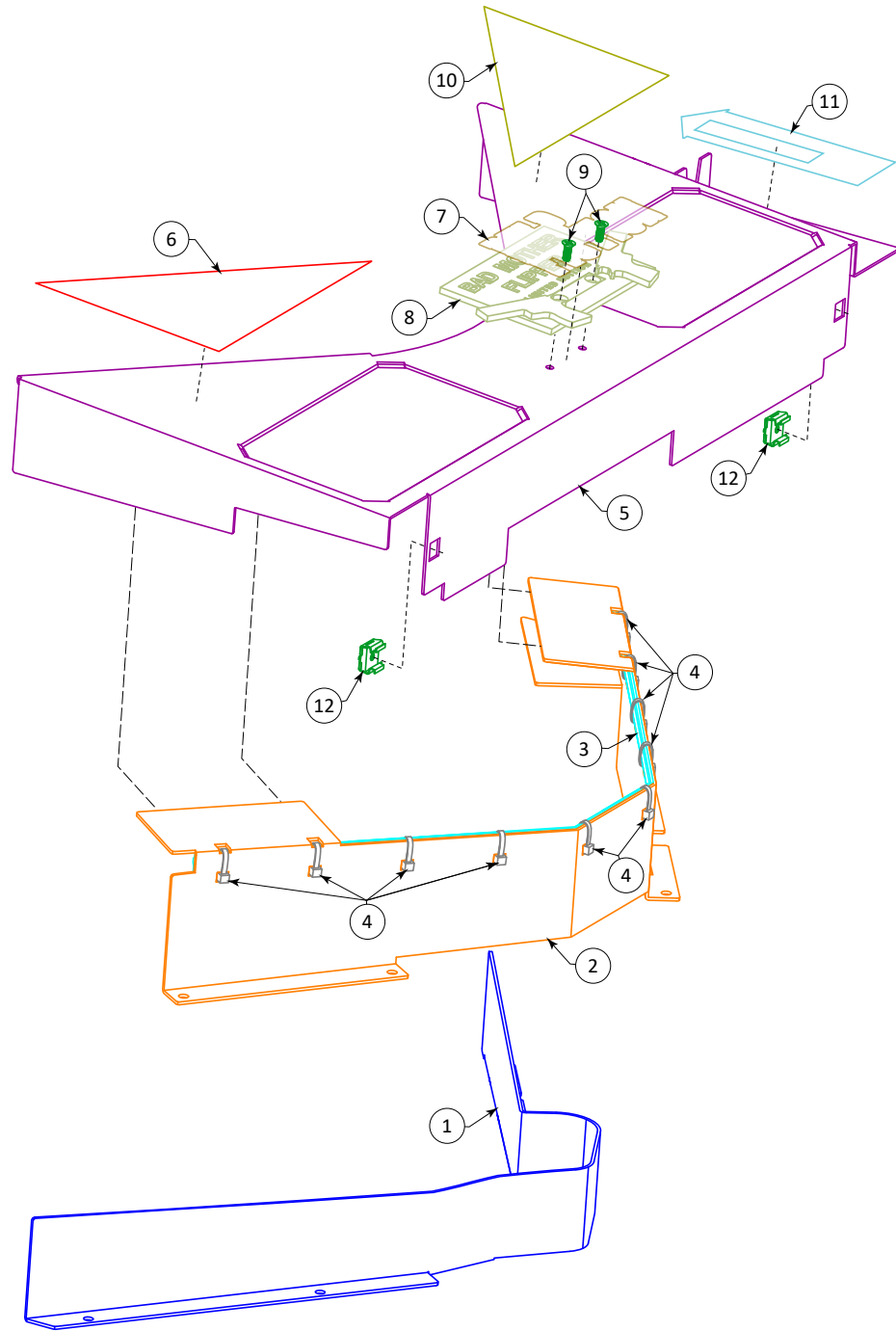
Location	Part ID	Description	Qty
 M1	FSS-N06-PFH125C	#6 x 1-1/4 PFH SMS	5
 M2	FSM-083-HFH063C	8-32 x 5/8" HWH MS, Serrated	4

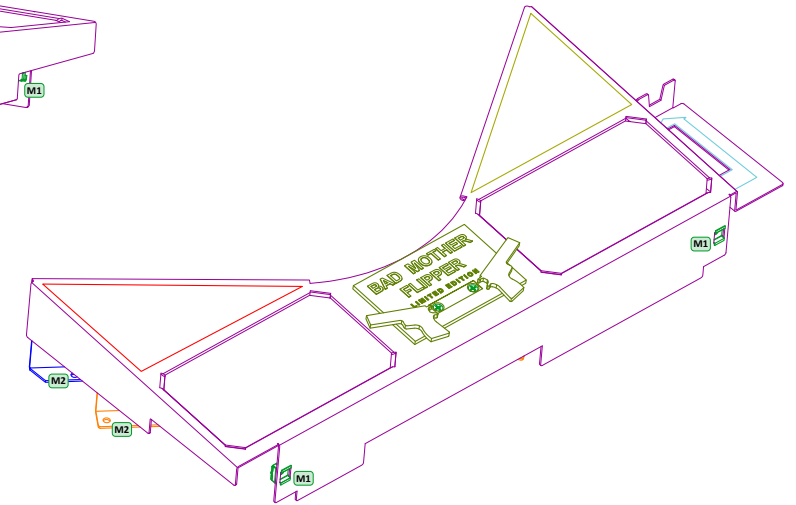
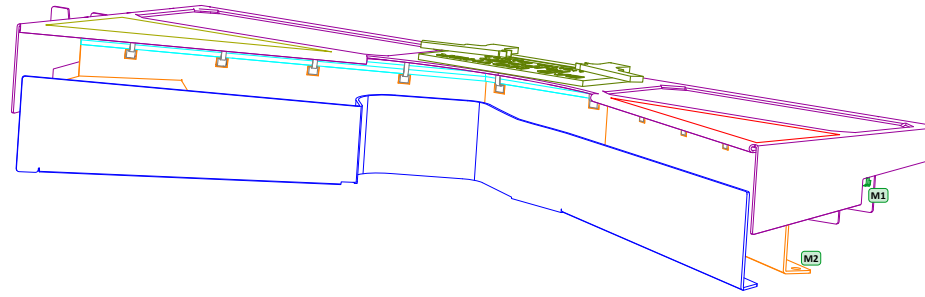
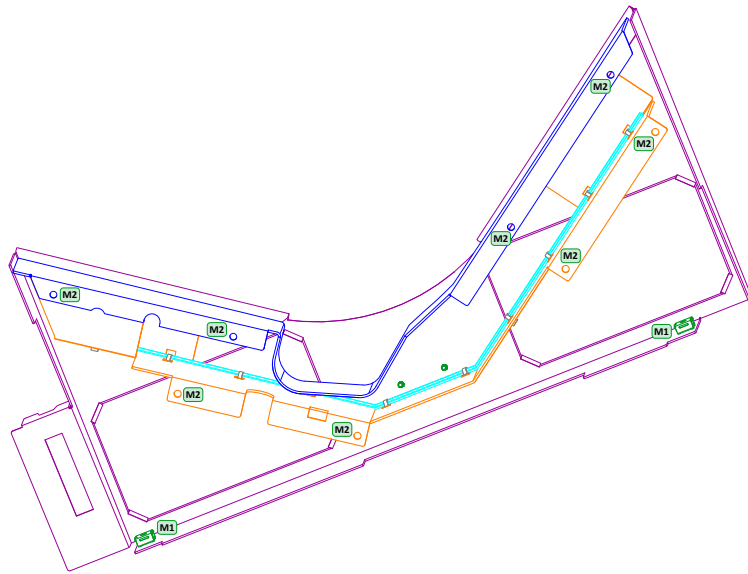
The five M1 screws are installed through the bottom of the playfield, into the back panel

The four M2 screws are threaded through the back panel, into two support brackets that attach to the playfield surface (item 18 on pg 2-124)

Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-BPANEL	Back Panel Light/Flasher Ctrl Cable	1
PFP-CBL-ARWLMP5	Arrow Inserts/Back Panel Flasher Ctrl Cable	1







PF Bottom Arch Assembly PFP-SUB-LOWARCH

Item	Part ID	Description	Qty
1	PFP-MLS-ARCGIDE	PF Bottom Arch Ball Guide	1
2	PFP-MLS-ARCLGHT	PF Bottom Arch Light Support	1
3	PIN-SUB-RGB3SEG	3-Segment RGB LED Strip, w/Connector (BA)	1
4	000-PLM-4CBTBLK	4" Cable Tie, Black	10
5	PFP-MLS-LOWARCH	PF Bottom Arch Cover	1
6	PFP-ART-LALEFT	PF Bottom Arch Left Decal	1
7 SE,Op	PFP-ART-LALOGO	PF Bottom Arch Center Decal	1
8 LE	PFP-MLC-LEMEDAL	PF Bad Mother Flipper Medallion, LE	1
9 LE	FSM-063-PFH037C	6-32 x 3/8" PFH MS	2
10	PFP-ART-LARIGHT	PF Bottom Arch Right Decal	1
11	PFP-ART-SHOOTER	PF Shooter Gauge Decal	1
12	FNT-083-CAGENUT	8-32 Cage Nut	2

Assembly Mounting Hardware Playfield, Top

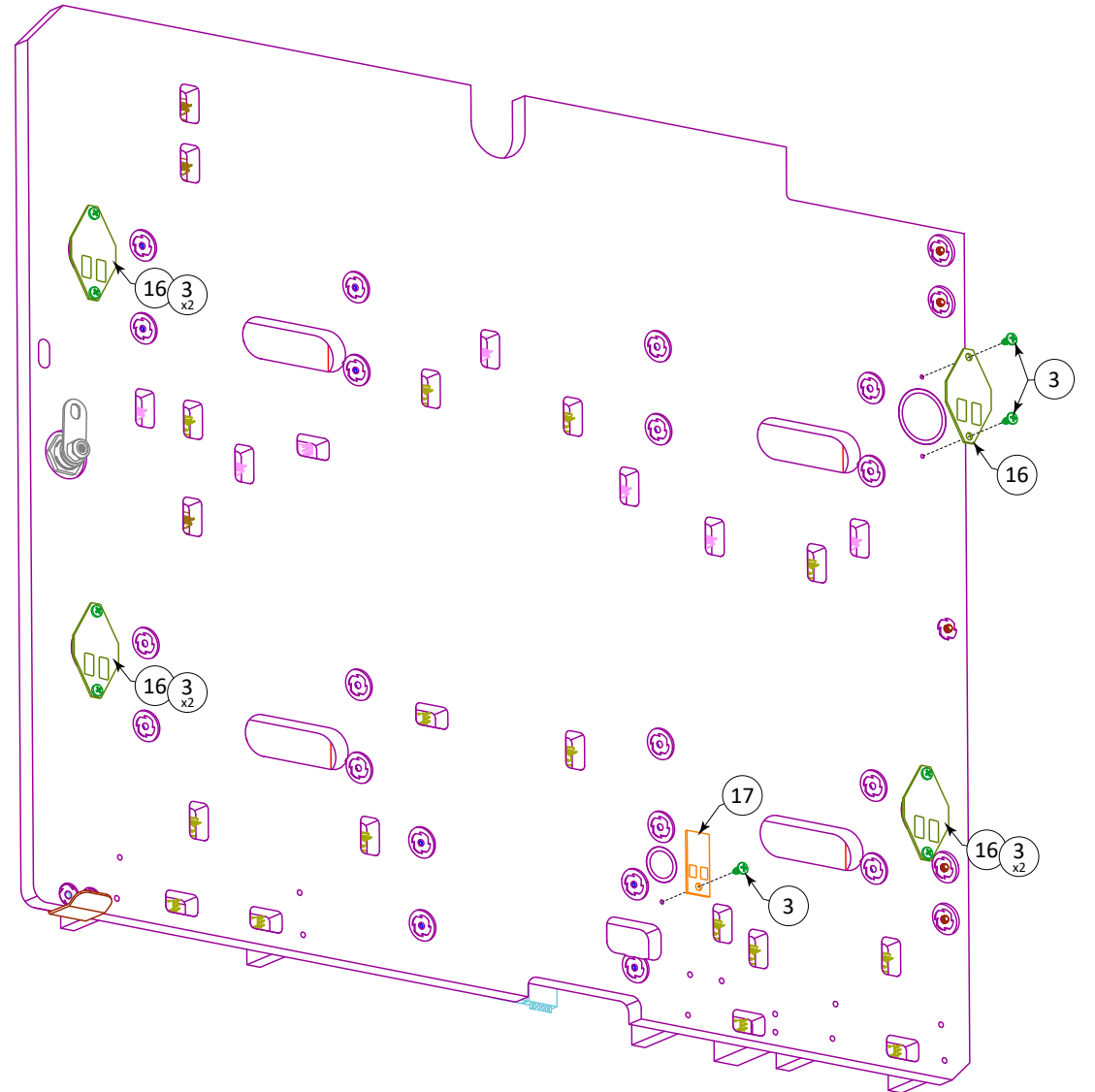
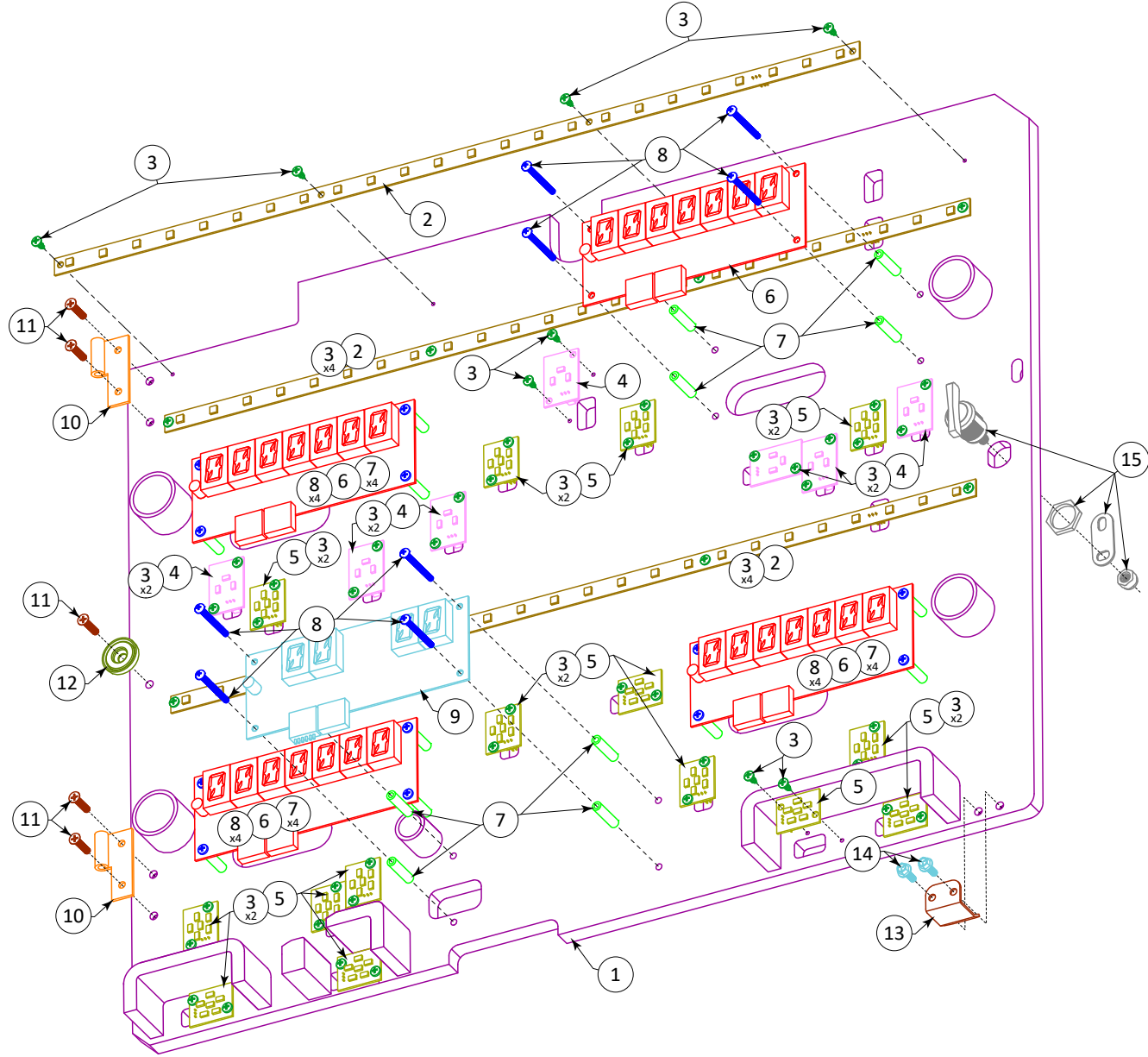
Location	Part ID	Description	Qty
 M1	FSM-083-HWH050C	8-32 x 1/2" HWH MS	2
 M2	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	8

The two folded front edges of item 5 slide over the two extended tabs of item 2 to secure the front edge of the bottom arch

The two M1 screws are installed through the playfield hanger brackets (items 16 & 17 on pg 2-124), then into the two cage nuts (item 12) in the back of the bottom arch cover (item 5)

Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-RGBGI3	Bottom Arch Cable	1



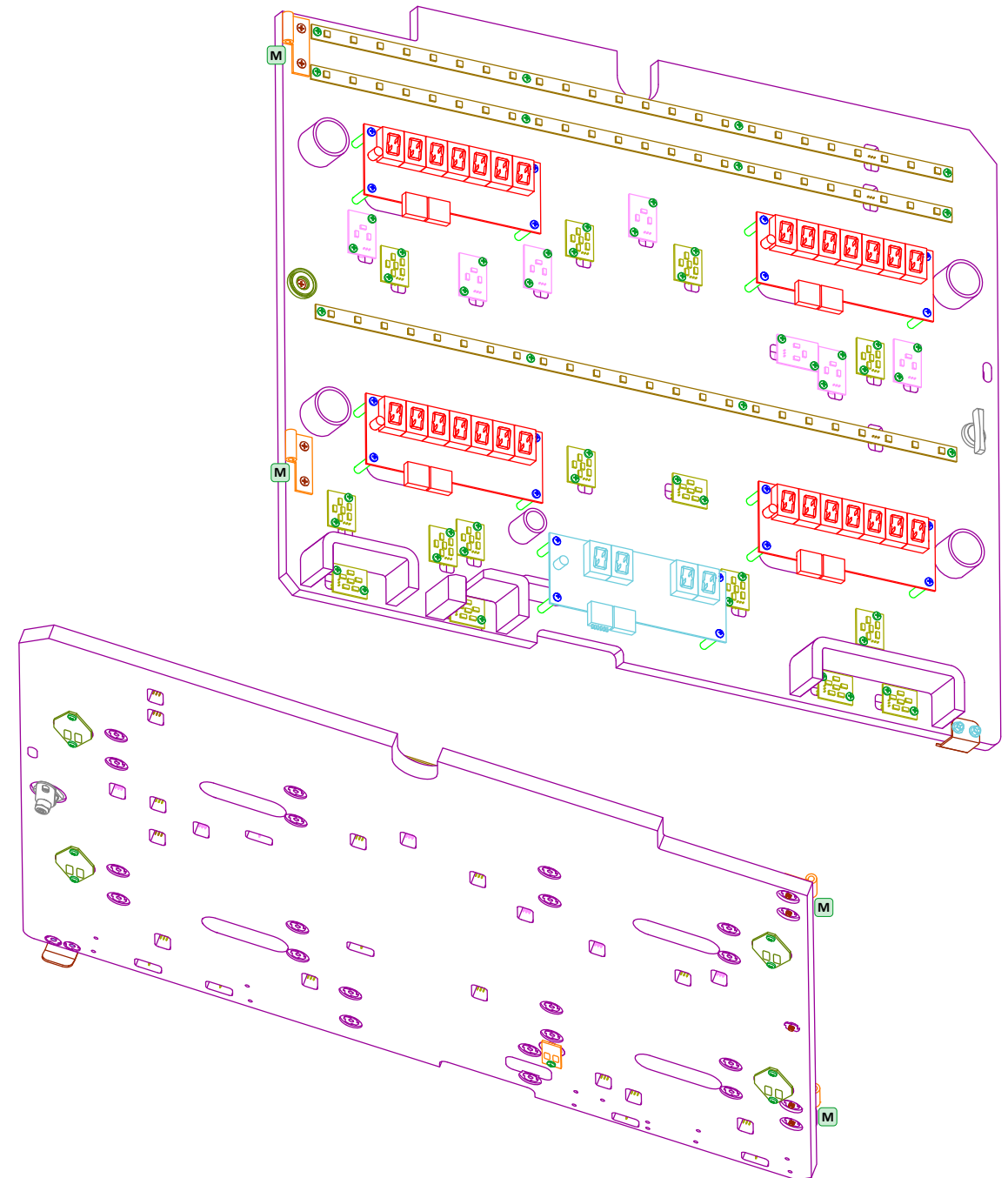
Backbox Insert Door Assembly PFP-SUB-21000IN

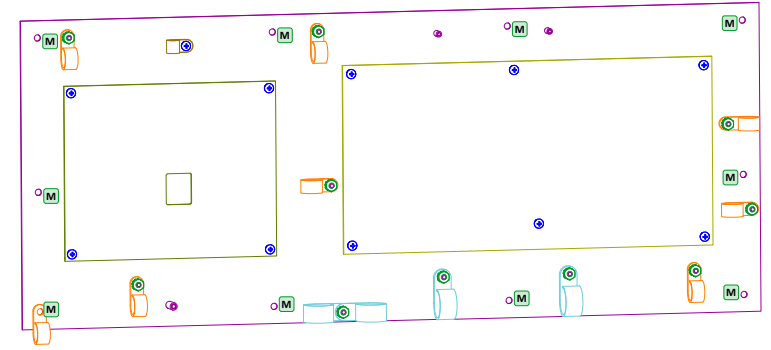
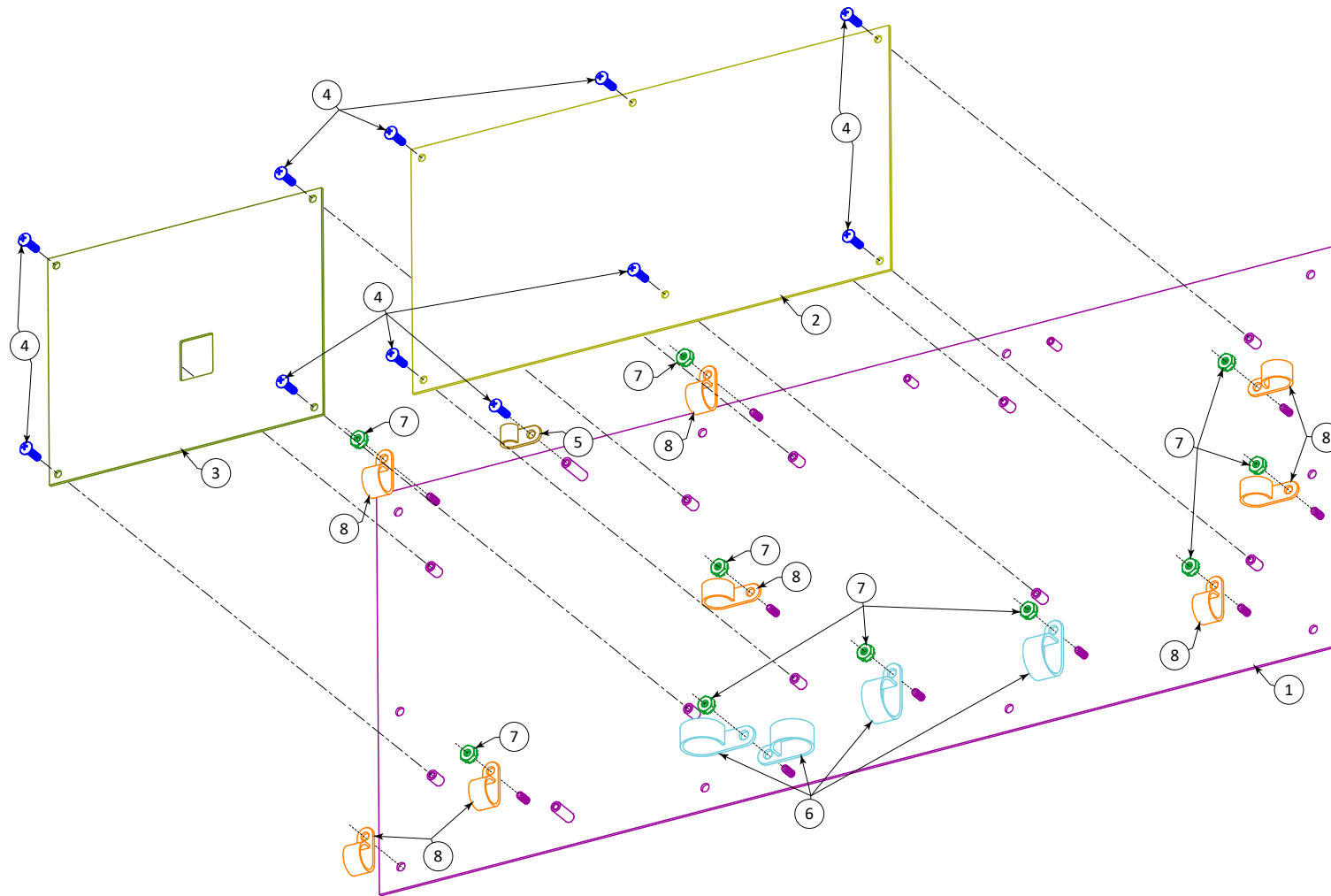
Item	Part ID	Description	Qty
1	PFP-CCC-BBINSRT	Retro BB Insert Door Wood Assy	1
2	000-PCB-24LEDBR	24-LED PCB (pg 3-60)	3
3	FSS-N06-PPH037C	#6 x 3/8" PPH SMS	65
4	PIN-PCB-BBFLASH	Backbox Flasher Bd (pg 3-61) (BL00-BL04, BL07, BL08)	7
5	PIN-PCB-GILEDS	Backbox Feature/GI LED Bd (pg 3-58) (BL06, BL10, BL11, BL17, BL18)	15
6	PIN-PCB-7DIGDSP	7-Digit Display Bd (pg 3-79)	4
7	FWC-N06-038N100	#6 Round Nylon Spacer, 1", 3/8" OD	20
8*	FSM-063-PPH150C	6-32 x 1-1/2" PPH MS	20
9	PIN-PCB-4DIGDSP	Credit/BiP Display Bd (pg 3-76)	1
10†	PIN-HNG-RETROBB	Backbox Insert Door Hinge (Female Half)	2
11*	FSM-083-PFH075C	8-32 x 3/4" PFH MS	5
12	PFP-MSC-BBMAGNT	BB Insert Door Magnet, 1" x 1/4"	1
13	PIN-MLS-STRKPLT	BB Insert Door Strike Plate	1
14*	FSM-083-HWH050C	8-32 x 1/2" HWH MS	2
15	000-LCK-THMB63	Keyless Lock, 5/8"	1
16	PIN-PCB-LRGFLSH	Large Flasher Bd (pg 3-61) (BL12-BL15)	4
17	PIN-PCB-THINFLS	Thin Flasher Bd (pg 3-62) (BL16)	1

* All 6-32 & 8-32 screws thread into existing 6-32/8-32 T-nuts (FNT-063-TE5025/FNT-083-TE5025), pre-installed in item 1

† The male half of each insert door hinge is installed in the Retro Backbox Assy (item 14, pg 2-5) and used for Insert Door Assy mounting **(M)**

Assembly Cable(s)		
Part ID	Description	Qty
PFP-CBL-DISP10	Credit/BiP to 7-Digit Display Interconnect Cable	2
PFP-CBL-DISP12	7-Digit to 7-Digit Display Interconnect Cable	2
000-CBL-1MCAT6S	CAT6 Ethernet Cable, 1m, Shielded	1
PFP-CBL-BBINSRT	PF Backbox Insert Door Lighting/Power Cable	1





Ground Plane & PCBs Assembly PFP-SUB-PCBPLAT

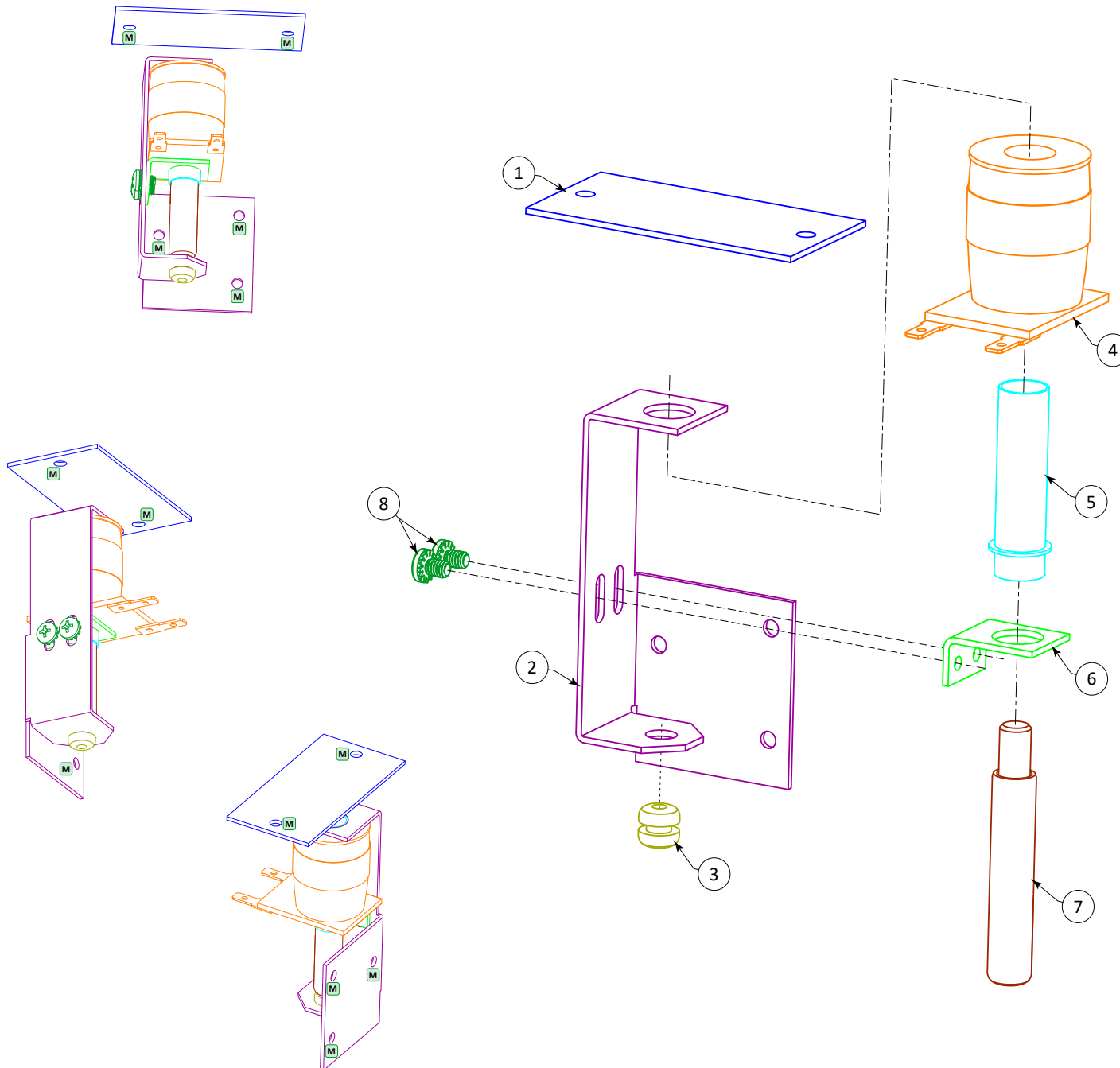
Item	Part ID	Description	Qty
1	PIN-MLS-PCBPLAT	Backbox PCB Ground Plane Assy	1
2	PIN-PCB-SOLPOWR	Solenoid Power Bd (pg 3-70)	1
3	PIN-SUB-CONTRLR	Pinball Controller Bd Assy (pg 3-64)	1
4	FSM-063-PPH050C	6-32 x 1/2" PPH MS	11
5	000-PLM-NC25CLP	Non-Captive Cable Clamp, 1/4"	1
6	000-PLM-NC75CLP	Non-Captive Cable Clamp, 3/4"	4
7	FNT-063-KEC0000	6-32 KEPS Nut	10
8	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	8

Assembly Mounting Hardware Inside Backbox, Back Panel

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	10

Assembly Cable(s)

Part ID	Description	Qty
PIN-CBL-CNLRPWR	Pinball Controller Bd Power Cable	1
000-CBL-05MCAT5	CAT5e Ethernet Cable, 1/2m, Shielded	1
000-CBL-05MCAT6	CAT6 Ethernet Cable, 1/2m. Ultra Slim	1



Kocker Assembly PIN-SUB-B106861

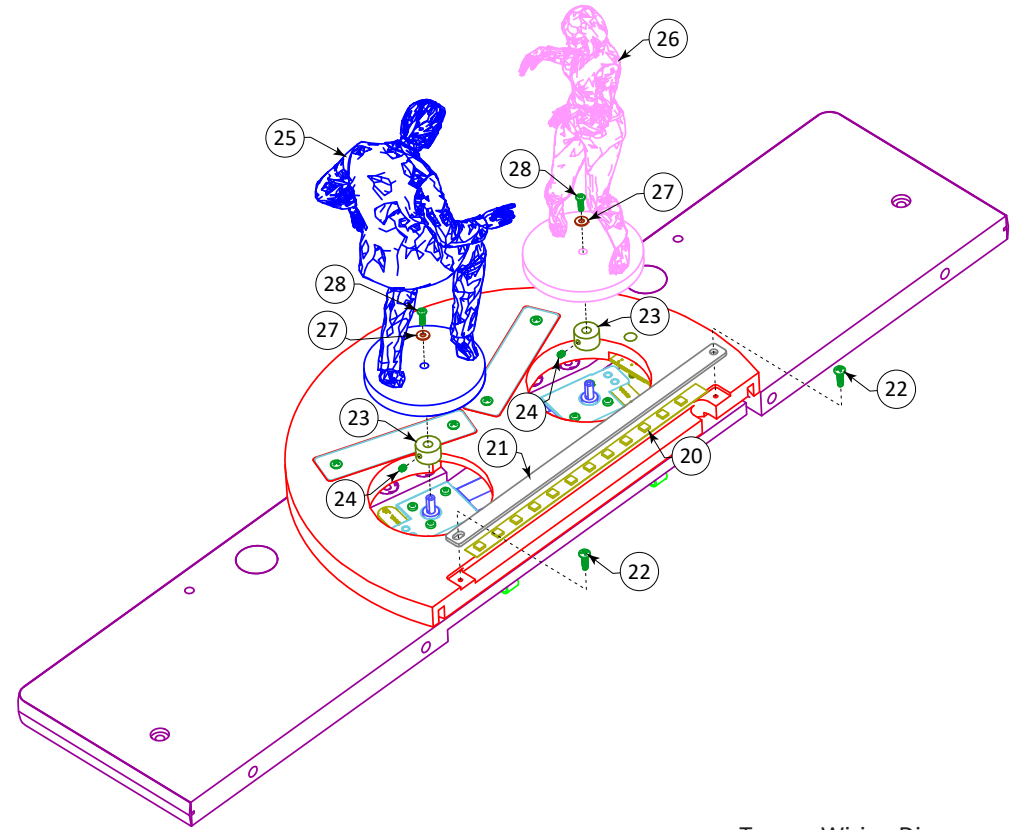
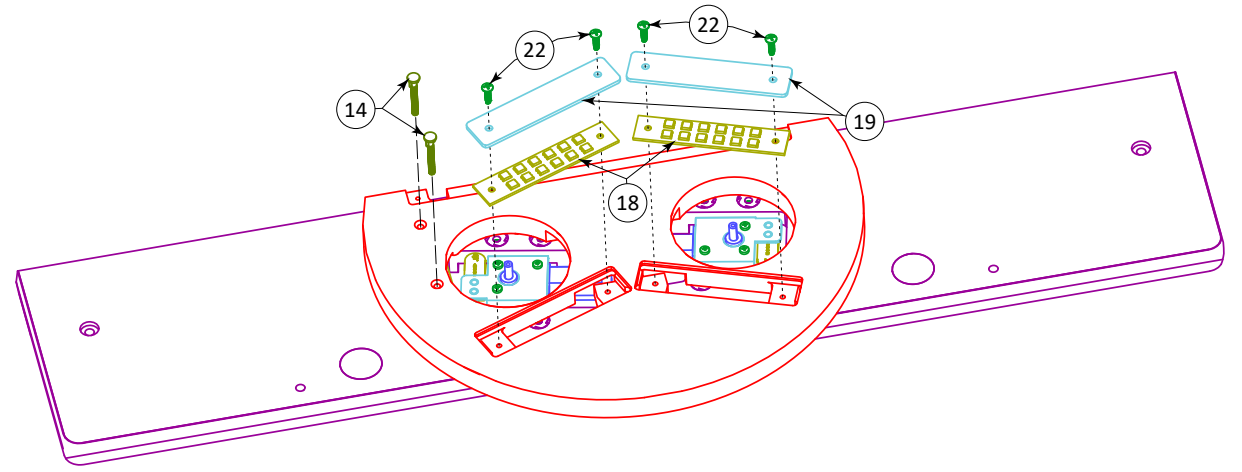
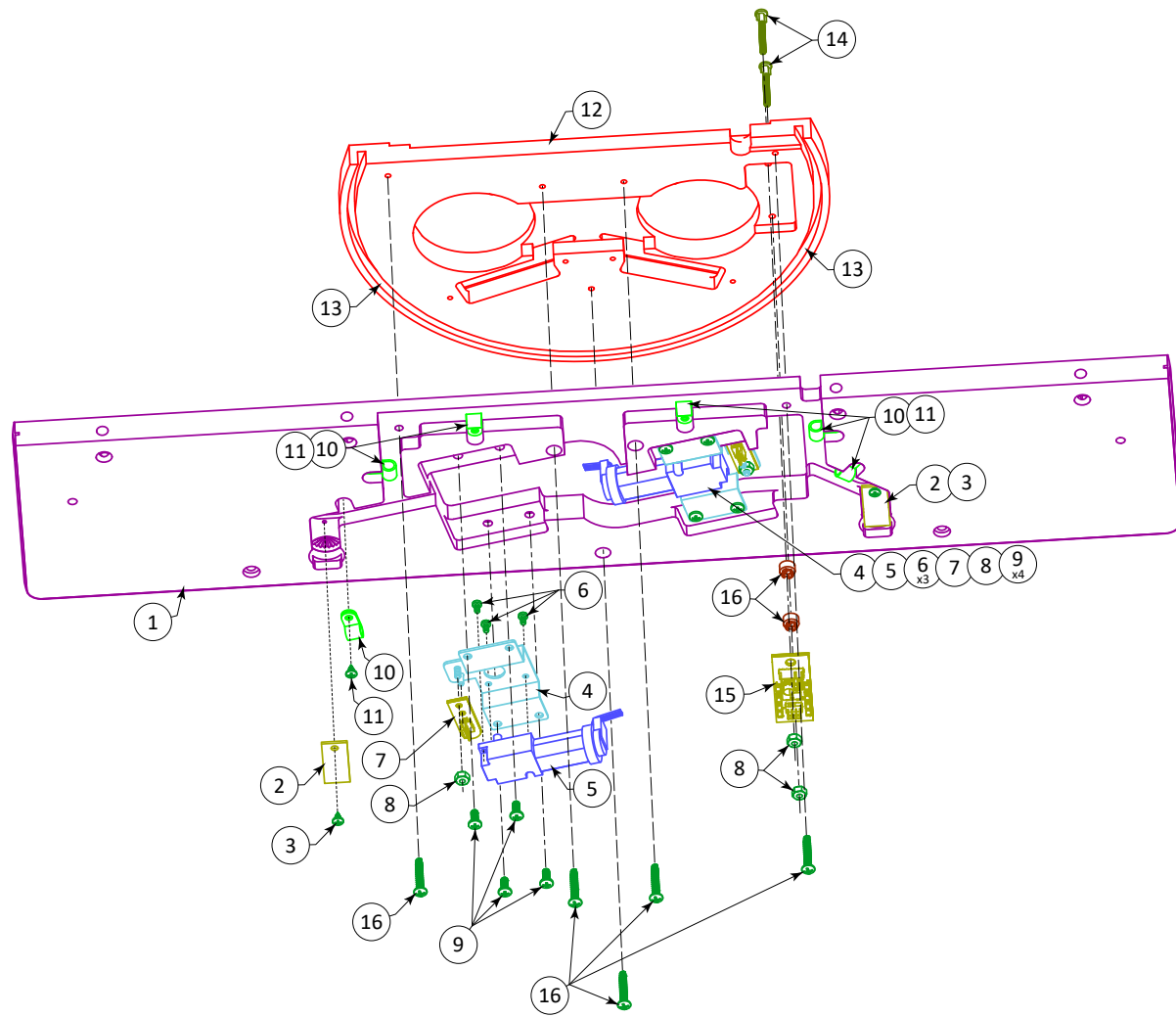
Item	Part ID	Description	Qty
1	PIN-01-7525	Kocker Strike Plate	1
2	PIN-01-11273	Kocker Main Brkt	1
3	PIN-23-6420	Rubber Grommet	1
4	PIN-AE-23800	23-800 (Yellow) Coil (Coil 7)	1
5	PIN-03-70675	2-1/16" Coil Sleeve, 3/16" Flange	1
6	PIN-01-8508T	Coil Retaining Brkt, 8-32 Holes	1
7	PIN-A-5387	Kocker Plunger Assy	1
8	FSM-083-PSM025C	8-32 x 1/4" PPH MS, SEMS	2

Assembly Mounting Hardware Backbox, Inside

Location	Part ID	Description	Qty
 	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	5

Assembly Cable(s)

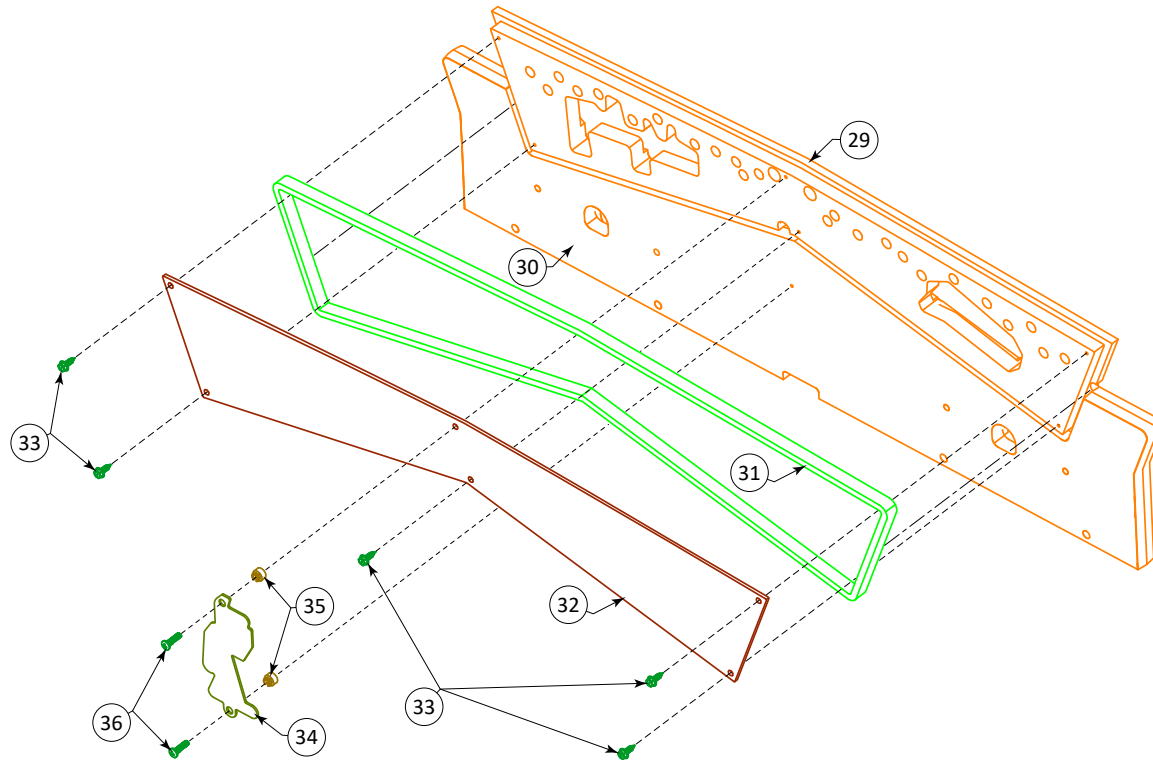
Part ID	Description	Qty
PIN-CBL-KNOCKER	2-Pin Coil Cable, 0.156", ORN-BLU	1



PFP Topper Assembly (LE only)

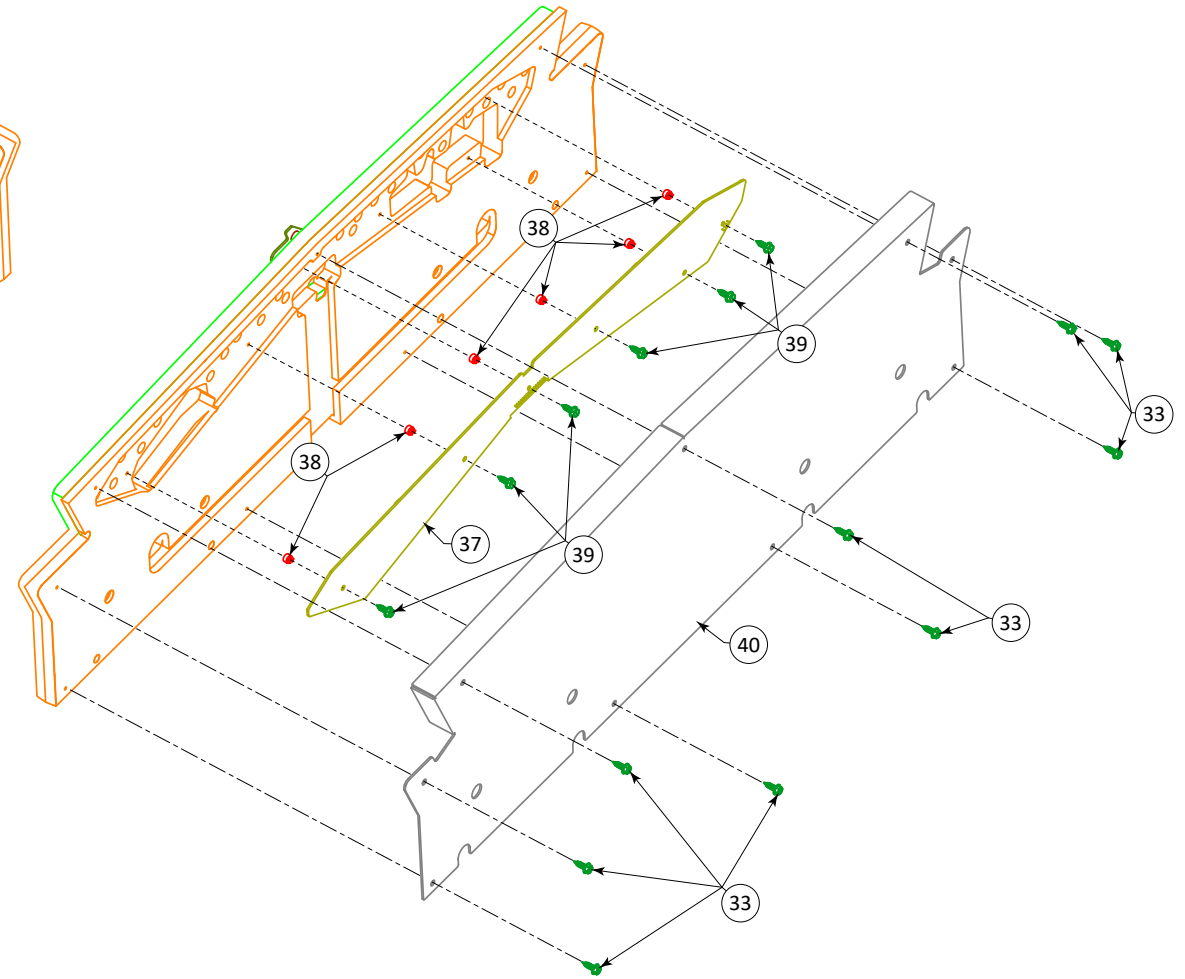
PFP-SUB-TOPPER (Base Assy)

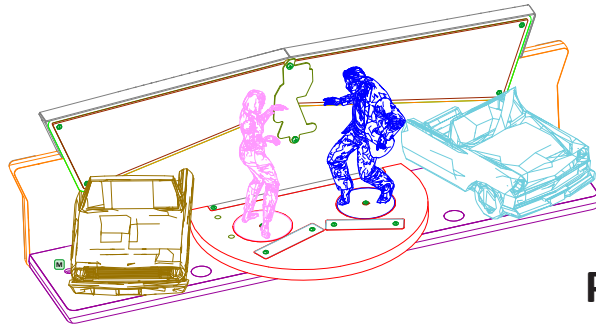
Item	Part ID	Description	Qty
1	PFP-CCC-TOPBASE	PF Topper Base Wood Assy	1
2	PIN-PCB-THINFLS	Thin Flasher Bd (pg 3-62) <i>(TL17, TL18)</i>	2
3	FSS-N06-PPH025C	#6 x 1/4" PPH SMS	2
4	PFP-MLS-TPMTBRK	PF Topper Motor Brkt	2
5	PIN-MTR-WOG34A	Worm Gear Motor, 12V, 30RPM	2
6	FSM-M03-PPH12C	M3 x 12mm PPH MS	6
7	PIN-PCB-HALLEFF	Hall Effect Bd (pg 3-91)	2
8	FNT-063-ESNA000	6-32 Elastic Stop Nut	4
9	FSM-083-HWH050C	8-32 x 1/2" HWH MS	8
10	000-PLM-NC25CLP	Non-Captive Cable Clamp, 1/4"	6
11	HW	Clamp Mtg SMS	6
12	PFP-PLS-TOPSTGE	PF Topper Stage	1
13	AFM-CBL-SPKLITE	RGB LED Strip, w/Cable & Connector <i>(TL15)</i>	1
14	FSM-063-NSS125C	6-32 Spiral Shank Screw Nail, 1-1/4"	2
15	CC-PCB-HBRIDGE	H Bridge Bd (pg 3-89) <i>(Coil 61, Coil 62)</i>	1
16	000-PLM-SR6018	#6 Round Snap-in Spacer, 3/16"	2
17	HW	Stage Mtg SMS	5
18	MB-PCB-RGBTOPR	Topper 12-RGB LED Bd (pg 3-90) <i>(TL00, TL01)</i>	2
19	PIN-PLS-RGBLENS	LED PCB Cover, Clear	2
20	PIN-LMP-WWSTRIP	Warm White LED Strip, 10" <i>(TL16)</i>	1
21	PIN-PLS-TOPCVSH	LED Strip Cover, Clear	1
22	FSS-N06-PPH050C	#6 x 1/2" PPH SMS	6
23	PIN-HDW-COLLAR5	Set Screw Collar, 5mm ID, 13mm OD	2
24	HW	8-32 CP Set Screw	2
25	PFP-PLM-TOPVINC	PF Topper Vince Sculpture	1
26	PFP-PLM-TOPMIA	PF Topper Mia Sculpture	1
27	HW	Sculpture Mtg Washer	2
28	HW	Sculpture Mtg Screw	2



PFP Topper Assembly (LE only)
PFP-SUB-TOPPER (Back Panel Assy)

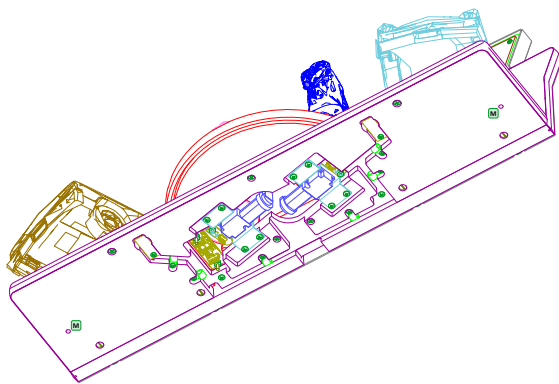
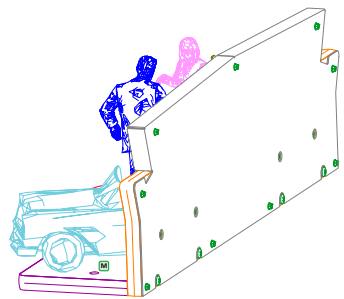
Item	Part ID	Description	Qty
29	PFP-CCC-TOPBACK	PF Topper Back Panel Wood	1
30	PFP-ART-TOPDCAL	PF Topper Jack Rabbit Slim's Front Decal	1
31	PFP-LMP-TOPNEON	PF Topper Sign Neon Edge RGB Light Strip (TL14)	1
32	PFP-ART-TOPJACK	PF Topper Jack Rabbit Slim's Plastic	1
33	FSS-N06-PFH062A	#6 x 5/8" PFH SMS, Black	14
34	PFP-ART-TOPRABB	PF Topper Jack Rabbit Slim Character Plastic	1
35	FWC-N06-025N025	#6 Round Nylon Spacer, 1/4", 1/4" OD	2
36	FSS-N06-PPH062A	#6 x 5/8" PPH SMS, Black	2
37	PFP-PCB-TOPLITE	Jack Rabbit Slim's Sign Bd (pg 3-88) (TL02-TL07, TL10-TL13)	1
38	FWC-018-027N009	M01 x 0.090" Nylon Spacer	6
39	FSS-N06-PFH050C	#6 x 1/2" PFH SMS	6
40	PFP-MLS-LEDCOVR	PF Topper Edge/Back Cover	1





PFP Topper Assembly (LE only) PFP-SUB-TOPPER (Overall Assy)

Item	Part ID	Description	Qty
41	FNT-252-CDN4739	1/4-20 Cross Dowel Nut, 0.472"	4
42	FSM-252-PPH150A	1/4-20 x 1-1/2" PPH MS, Black	4
43	PFP-PLM-TOPCARR	PF Topper Right Car Sculpture	1
44	PFP-ART-LICSMIA	PF Topper Mia Car License Plate Decal	1
45	PFP-PLM-TOPCARL	PF Topper Left Car Sculpture	1
46	PFP-ART-LICSVNC	PF Topper Vince Car License Plate Decal	1
47	PIN-MLS-TARBRKT	Target Mtg Brkt	4
48	PFP-PCB-HLITE	Topper Car Headlight Bd (pg 3-91) (TL08, TL09)	4
49	HW	Headlight Bd mtg HW	8
50	HW	Brkt mtg HW	8
51	HW	Car mtg HW	6
52	PIN-TAP-2INSPVC	2-sided tape	1




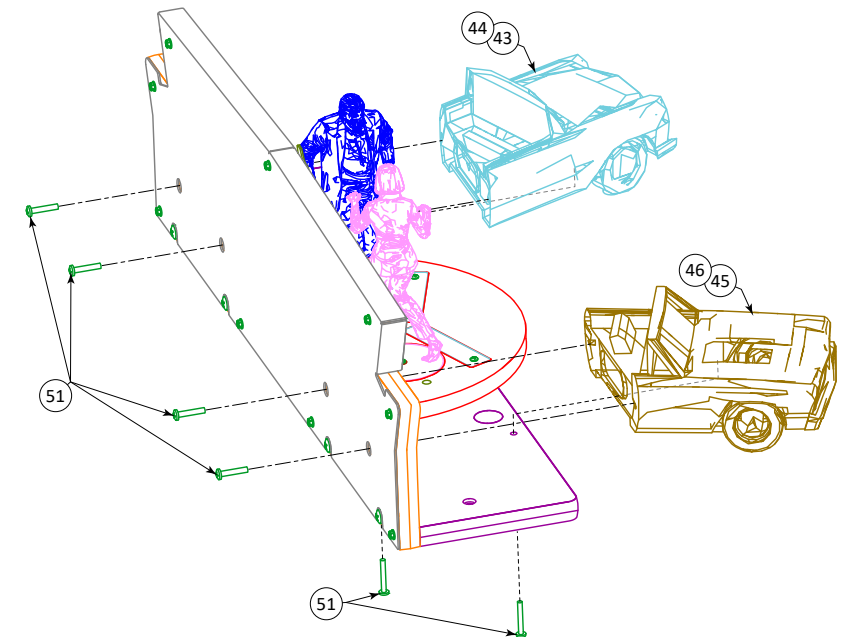
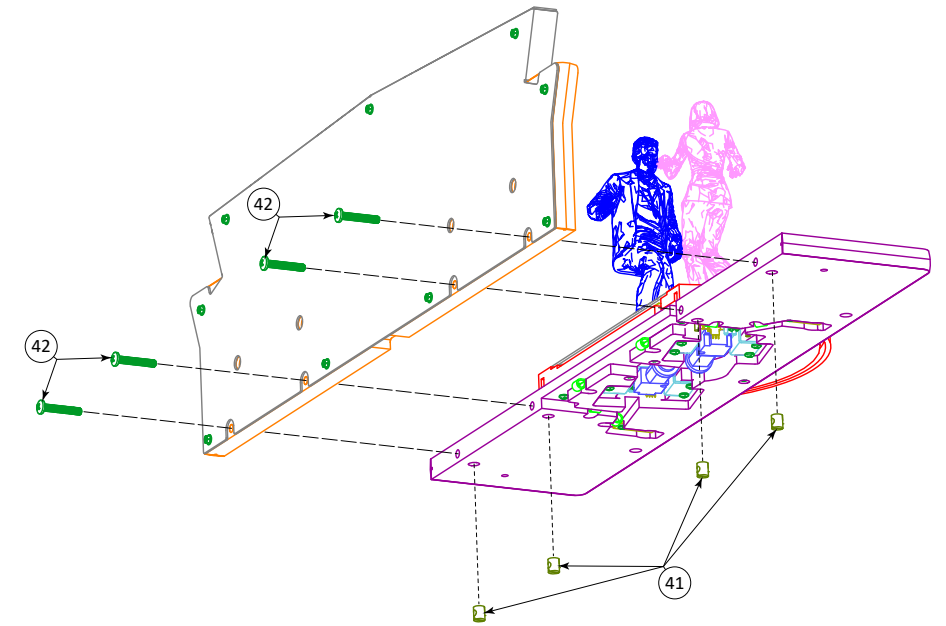
Topper Wiring Diagram: pg 3-92

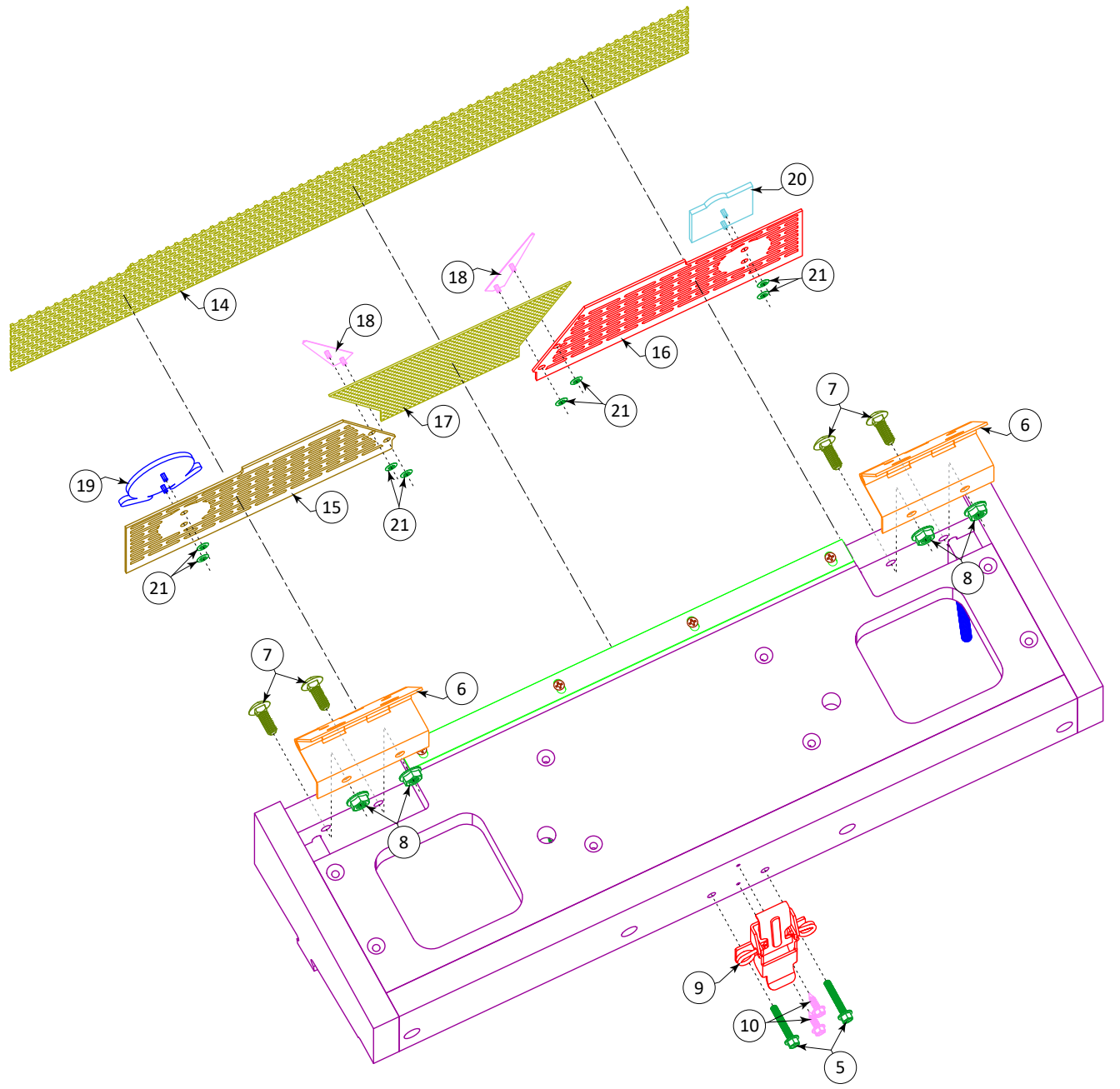
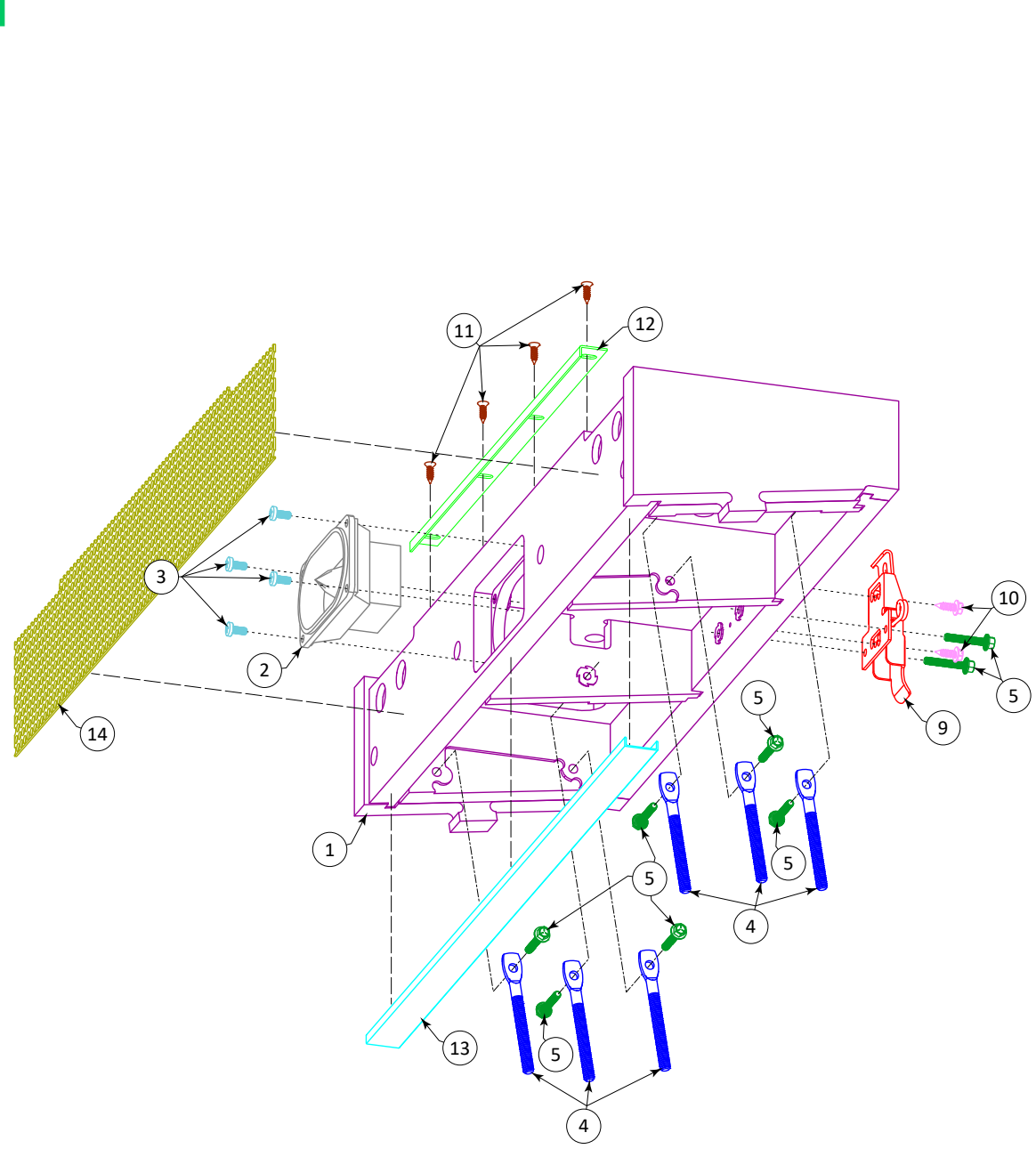
Assembly Cable(s)

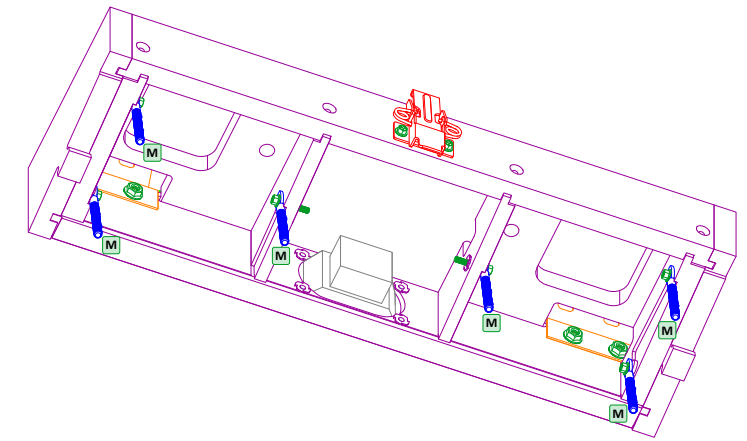
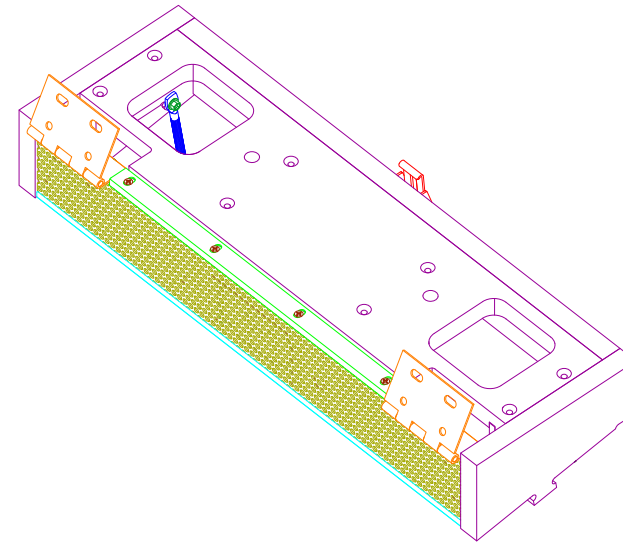
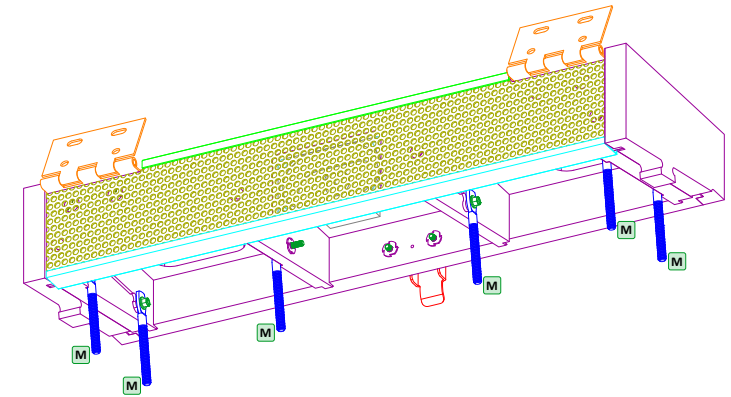
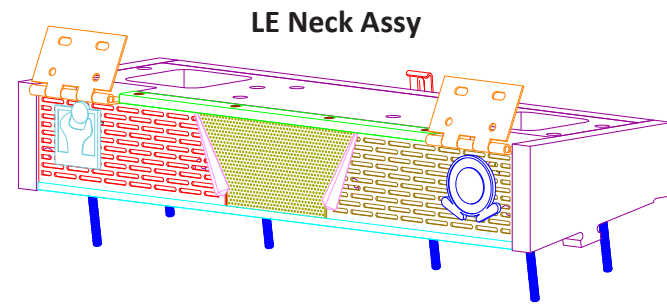
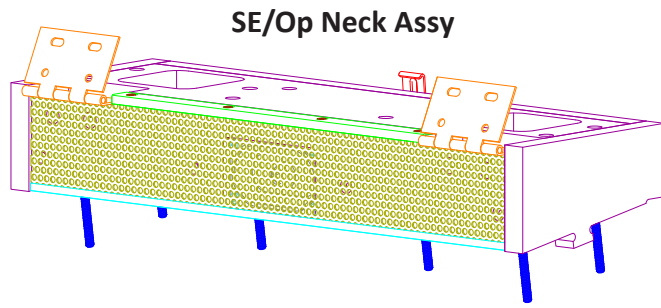
Part ID	Description	Qty
PFP-CBL-TOPBACK	PF Topper Back Panel Cable	1
PFP-CBL-TOPMTR	PF Topper Motor Cable	1
PFP-CBL-TOPSTGE	PF Topper Stage Cable	1

Assembly Mounting Hardware Backbox, Top Panel

Location	Part ID	Description	Qty
	FSM-103-PPH150A	10-32 x 1-1/2" PPH MS, Black	2
	FWF-N10-037A005	#10 Flat Washer, 3/8" OD, Black	2








Cabinet Neck Assembly PFP-SUB-SPKRBOX

Item	Part ID	Description	Qty	
1	PFP-CCC-NECK	Retro Cabinet Neck Wood Assy	1	
2	000-SPK-W231286	Retro Cabinet Neck Speaker	1	
3*	FSM-083-PPH037A	8-32 x 3/8" PPH MS, Black	4	
4	FSM-252-HLB200C	1/4-20 x 2" Hanger Lag Bolt	6	
5*	FSM-083-HFH100C	8-32 x 1" HWH MS, Serrated	8	
6	000-HNG-CTRLPNL	Backbox Hinge	2	
7	FSM-252-OCB075A	1/4-20 x 3/4" Carriage Bolt, Black	4	
8	FNT-252-FLC0000	1/4-20 Flange Nut	4	
9	PIN-20-9347	Backbox Toggle Latch	1	
10	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2	
11	FSS-N06-PFH050C	#6 x 1/2" PFH SMS	4	
12	PFP-MLS-GRILBRK	Neck Grill Channel, Top	1	
13	PFP-PLS-SPKTRM	Neck Grill Channel, Bottom	1	
14	SE,Op	PIN-MLS-RTRSPGR	PF SE Neck Speaker Grill	1
15	LE	PFP-MLS-GRILLFT	PF LE Neck Speaker Grill, Left	1
16	LE	PFP-MLS-GRILRGT	PF LE Neck Speaker Grill, Right	1
17	LE	PFP-MLS-GRILCNT	PF LE Neck Speaker Grill, Center	1
18	LE	PFP-PLM-GRILTRM	PF LE Speaker Grill Trim	2
19	LE	PIN-MLC-CGCSEMBM	PF LE CGC Cast Emblem	1
20	LE	PIN-MLC-PLYSEMBM	PF LE PM Cast Emblem	1
21	LE	FNT-009-PUSHNUT	Push-On Retaining Ring, 3/32" OD	8

Assembly Mounting Hardware Lower Cabinet, Under Backbox Shelf

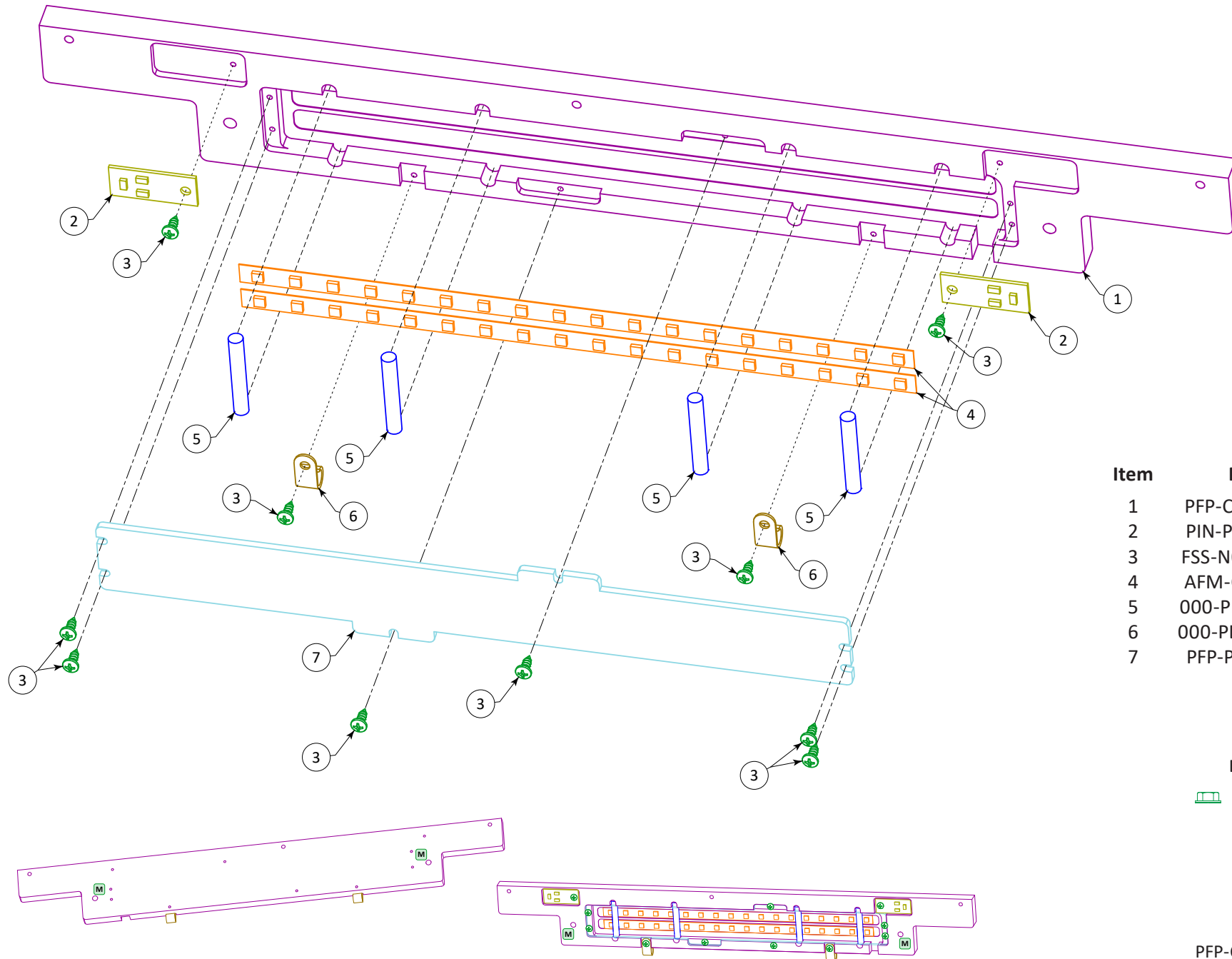
Location	Part ID	Description	Qty
 M	FNT-252-FLC0000	1/4-20 Flange Nut	6

The six hanger lag bolts (item 4) go through the lower cabinet's backbox shelf; the six flange nuts are then threaded onto the bolts, underneath

Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-SPEAKER	Cabinet Neck Speaker Cable	1

* All 8-32 screws thread into existing 8-32 T-nuts (FNT-083-TE5025), pre-installed in item 1



Cabinet Light Box Assembly PFP-SUB-LIGHTBX

Item	Part ID	Description	Qty
1	PFP-CCC-LITEBOX	Cabinet Light Box Wood	1
2	PIN-PCB-THINFLS	Thin Flasher Bd (pg 3-62) <i>(BL05, BL09)</i>	2
3	FSS-N06-PPH037C	#6 x 3/8" PPH SMS	10
4	AFM-CBL-SPKLITE	RGB LED Strip, w/Cable & Connector <i>(CLB)</i>	2
5	000-PLS-025RODC	Clear, PETG Light Box Rod	4
6	000-PLM-NC25CLP	Non-Captive Cable Clamp, 1/4"	2
7	PFP-PLS-LITEBOX	Cabinet Light Box Plastic Cover	1

Assembly Mounting Hardware

Lower Cabinet, Under Neck

Location	Part ID	Description	Qty
M	FNT-252-FLC0000	1/4-20 Flange Nut	2

The assembly attaches to the two center hanger lag bolts holding the Cabinet Neck Assy to the lower cabinet (item 4 on pg 2-54)

Part ID	Assembly Cable(s) Description	Qty
PFP-CBL-CHARFLS	Sculptures Overhead Lighting Cable	1



PFP Ball Shooter Assembly

PFP-SUB-SHOOTSS

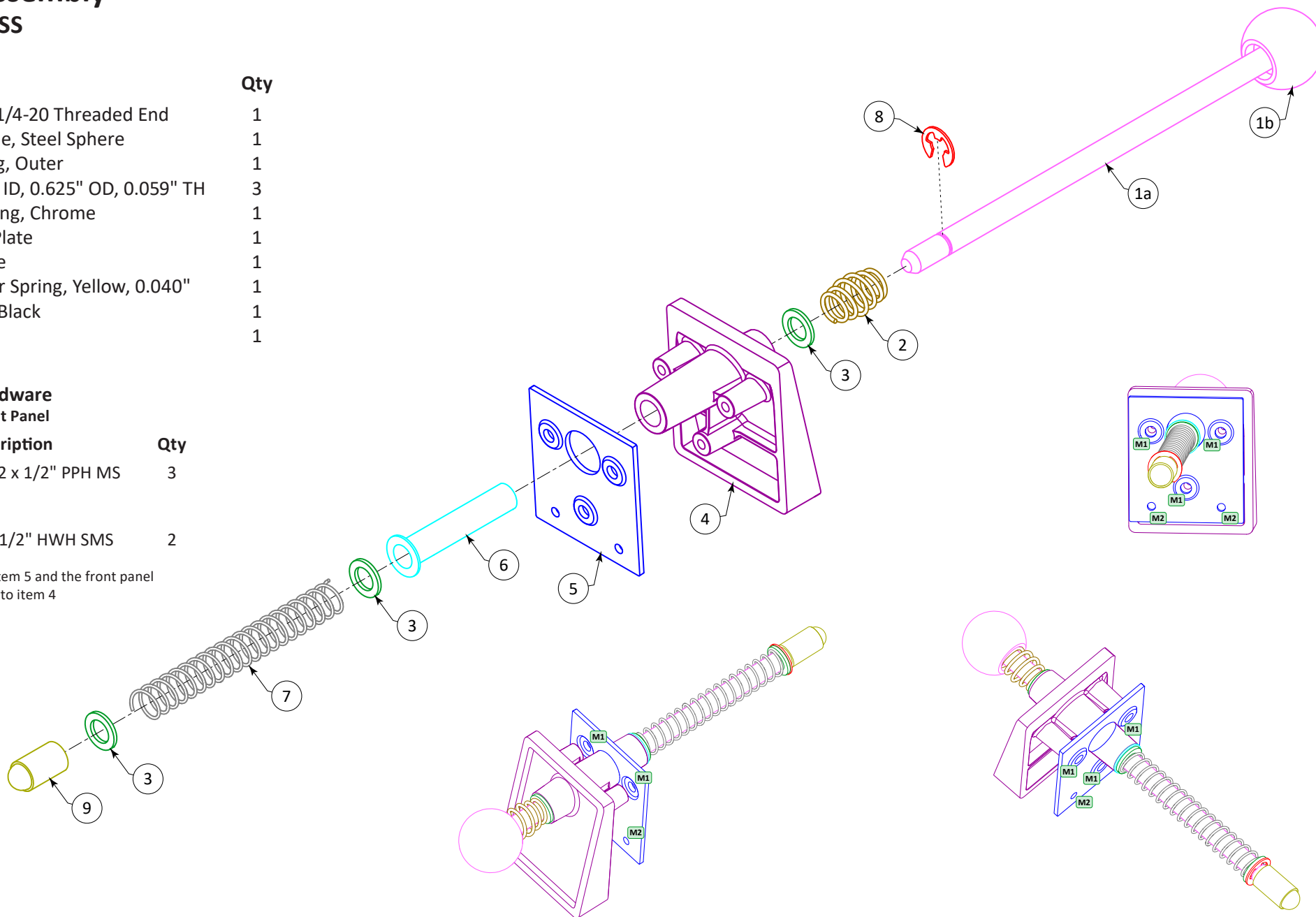
Item	Part ID	Description	Qty
1 a)	PIN-MLM-SHOTROD	Ball Shooter Rod, 1/4-20 Threaded End	1
b)	PIN-MLM-BLSHOOT	Ball Shooter Handle, Steel Sphere	1
2	PIN-10-149	Ball Shooter Spring, Outer	1
3	FWF-039-062C059	Flat Washer, 0.39" ID, 0.625" OD, 0.059" TH	3
4	PIN-21-66451	Ball Shooter Housing, Chrome	1
5	PIN-MLS-PLNGPLT	Ball Shooter Mtg Plate	1
6	PIN-03-7357	Ball Shooter Sleeve	1
7	PIN-10-1488	Ball Shooter Power Spring, Yellow, 0.040"	1
8	FER-037-000000A	E-Clip, 3/8" Shaft, Black	1
9	PIN-23-6327	Ball Shooter Tip	1

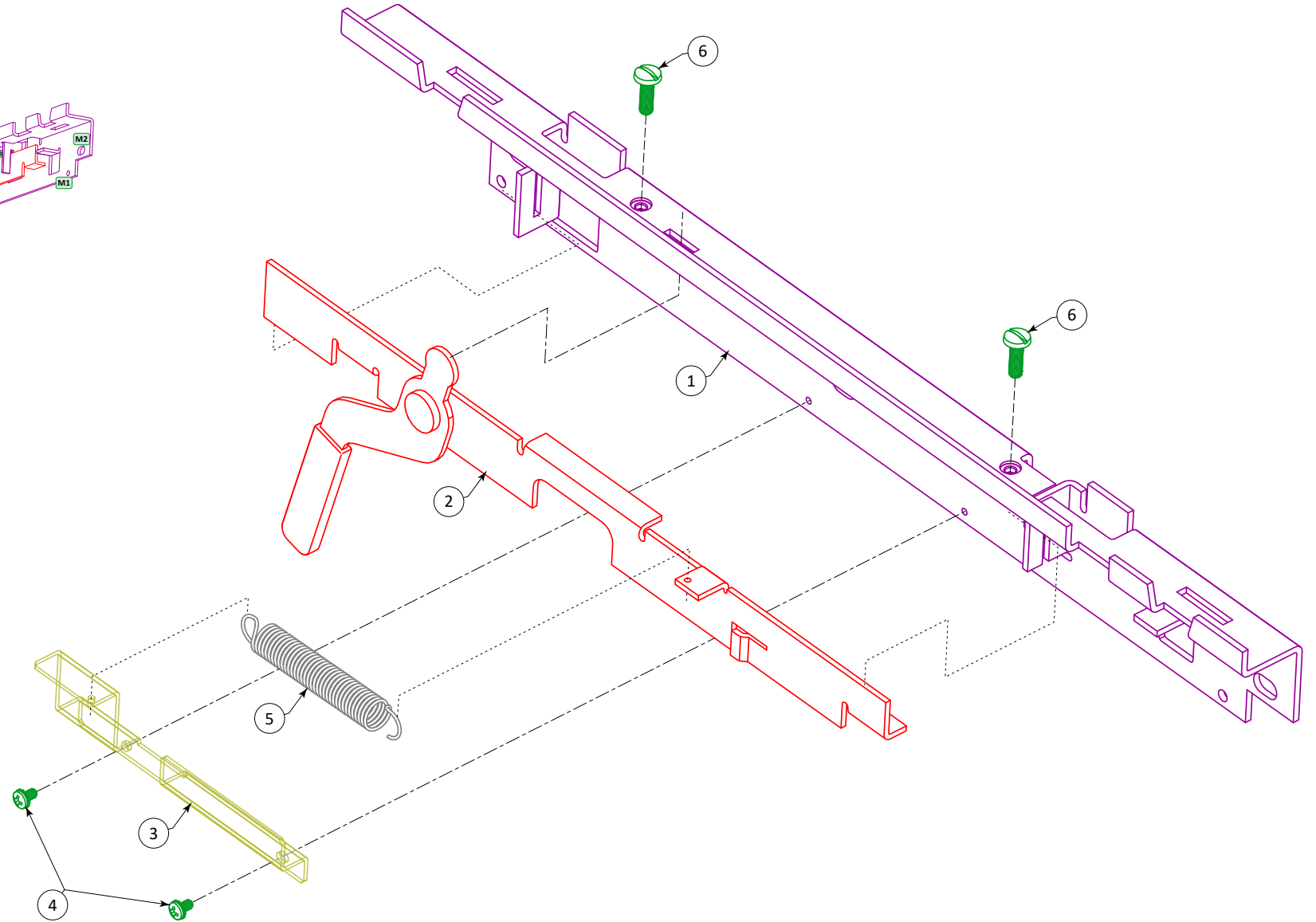
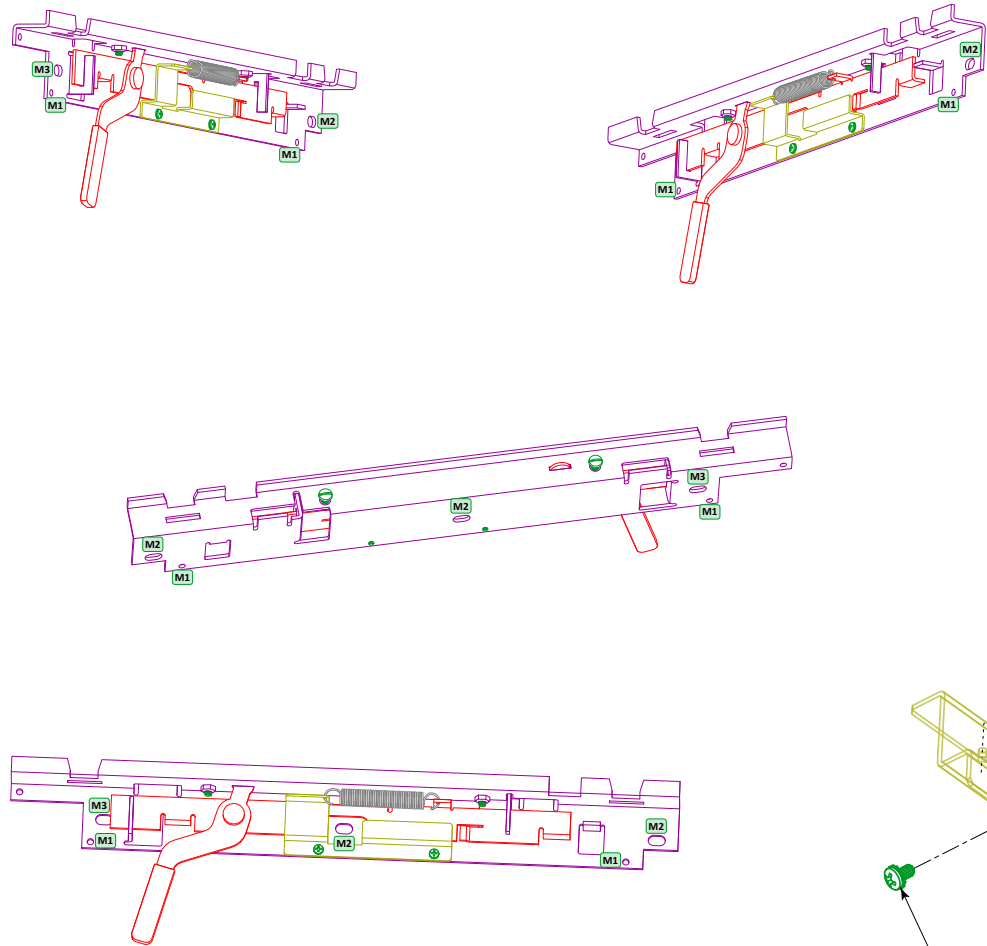
Assembly Mounting Hardware

Lower Cabinet, Through Front Panel

Location	Part ID	Description	Qty
 M1	FSM-103-PPH050C	10-32 x 1/2" PPH MS	3
 M2	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2

The three M1 screws are installed through item 5 and the front panel of the lower cabinet, then into item 4








Lockdown Bar Receiver Assembly PIN-SUB-A16773

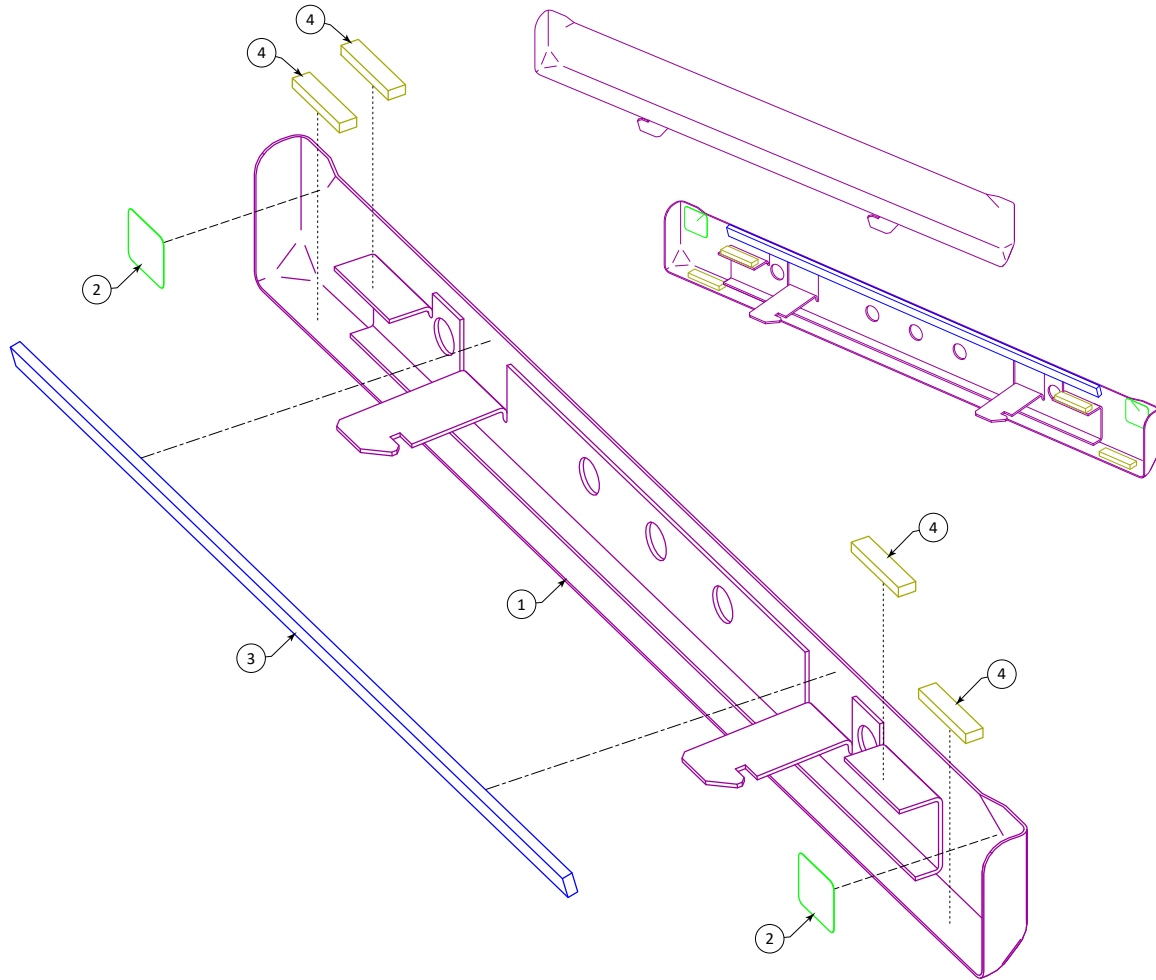
Item	Part ID	Description	Qty
1	PIN-A-167741	Lockdown Bar Receiver Main Brkt Assy	1
2	PIN-04-12371	Lockdown Bar Lever Assy	1
3	PIN-01-11569	Lockdown Bar Lever Support Brkt	1
4	FSM-063-PSM025C	6-32 x 1/4" PPH MS, SEMS	2
5	PIN-10-458	Lockdown Bar Receiver Spring	1
6	FSM-103-SBH063R	10-32 x 5/8" Slot Head MS, Brass	2

Assembly Mounting Hardware Lower Cabinet, Front Panel, Inside

Location	Part ID	Description	Qty
 M1	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	2
 M2	FSM-252-OCB150A	1/4-20 x 1-1/2" Carriage Bolt, Black	2
	FNT-252-FLC0000	1/4-20 Flange Nut	2
 M3 *	FSM-252-OCB112A	1/4-20 x 1-1/8" Carriage Bolt, Black	1
	FNT-252-FLC0000	1/4-20 Flange Nut	1

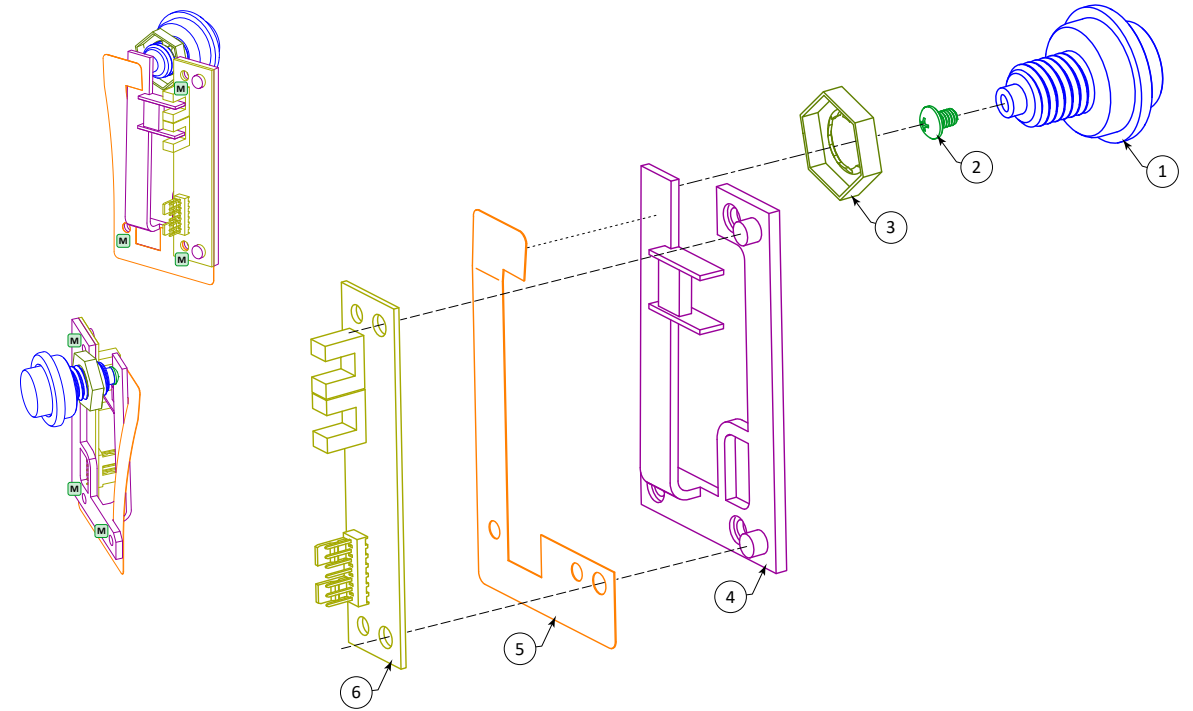
The M2 & M3 bolts are installed from the outside, through holes in the front panel of the lower cabinet

*The M3 bolt & nut are only used on the Op edition game, as part of the mtg HW for the Op edition coin door (the top, center mtg bolt, washer & nut for the Stainless Steel Coin Door Assy (pg 2-67) are used at mtg point M3 for SE and LE games)



Lockdown Bar Assembly, Stainless
PIN-SUB-12615SS

Item	Part ID	Description	Qty
1	PIN-D-12615SS	Lockdown Bar, Standard	1
2	PIN-PLS-RTNMYR	Clear Mylar Siderail Protector	2
3	000-FOM-038STRP	Foam Adhesive Tape, 3/8" x 3/16" TH	20"
4	000-FOM-038STRP	Foam Adhesive Tape, 3/8" x 3/16" TH	4 x 2"



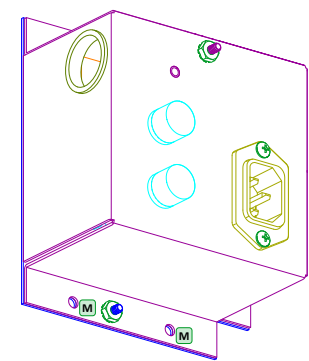
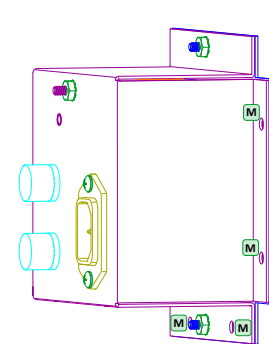
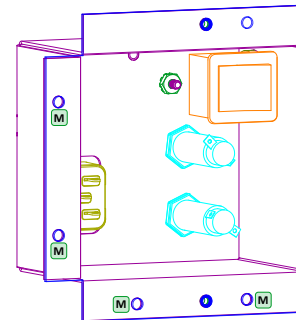
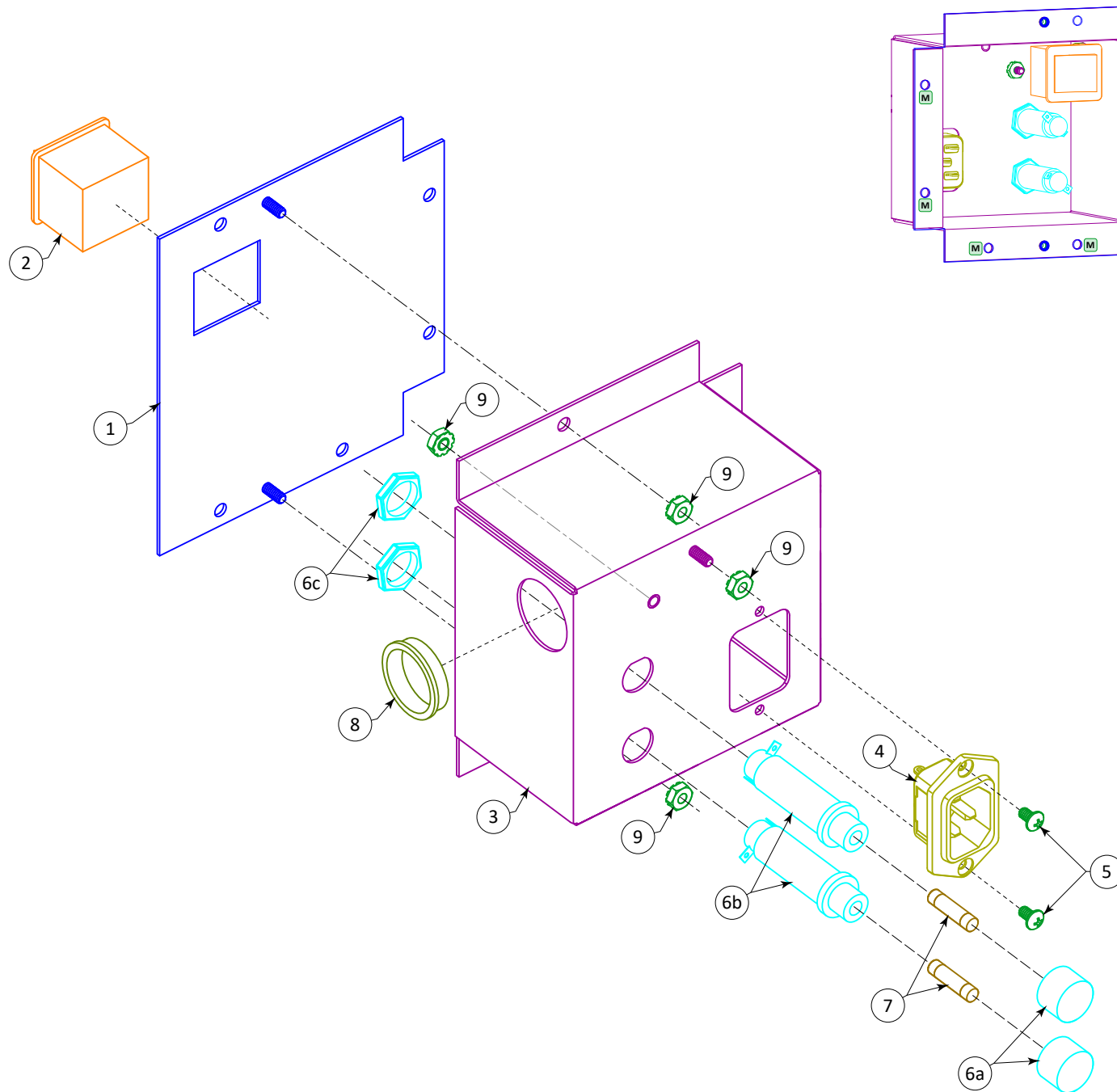
Flipper Button Assembly, Yellow
PIN-SUB-168836

Item	Part ID	Description	Qty
1	PIN-A-168836	Flipper Button, Yellow, w/Spring	1
3	FSM-083-PPH025C	8-32 x 1/4" PPH MS	1
3	PIN-20-9222	PAL Nut, 5/8"	1
4	PIN-03-90011	Flipper Opto Interrupter	1
5	PIN-01-143481	Flipper Opto Interrupter Spring Steel	1
6	PIN-PCB-FLIPBTN	Flipper Opto PCB (pg 3-63) <i>(Sws 68-71)</i>	1

Item 1 installs through cabinet side rail and sidewall; item 3 threads onto it, inside the cabinet

Assembly Mounting Hardware
Lower Cabinet, Left & Right Sidewalls

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	3



Power Interface Assembly PIN-SUB-POWRBOX

Item	Part ID	Description	Qty
1	PIN-MLS-SWCHPLT	Power Switch Mtg Plate	1
2	000-SWC-ALCONOF	Rocker Switch, DPST, 16A	1
3	PIN-MLS-SWCHBOX	Power Interface Box	1
4	000-ELE-IECOUTL	IEC C13 Outlet (Female)	1
5	FSM-063-PPM025C	6-32 x 1/4" PPH MS	2
6	000-ELE-PNLFUSE	5mm Panel Mount Fuse Holder	2
a)	-	Fuse Holder Cap	1
b)	-	Fuse Holder Housing	1
c)	-	Fuse Holder Mtg Nut	1
7	000-FUS-5M5ASLO	Fuse, Time Delay, 5A, 125V, 5mm x 20mm	2
8	000-PLM-100SBUS	1" Nylon Bushing, Shorty	1
9	FNT-063-KEC0000	6-32 Keps Nut	4

Assembly Mounting Hardware Lower Cabinet, Floor

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	4


Assembly Cable(s)

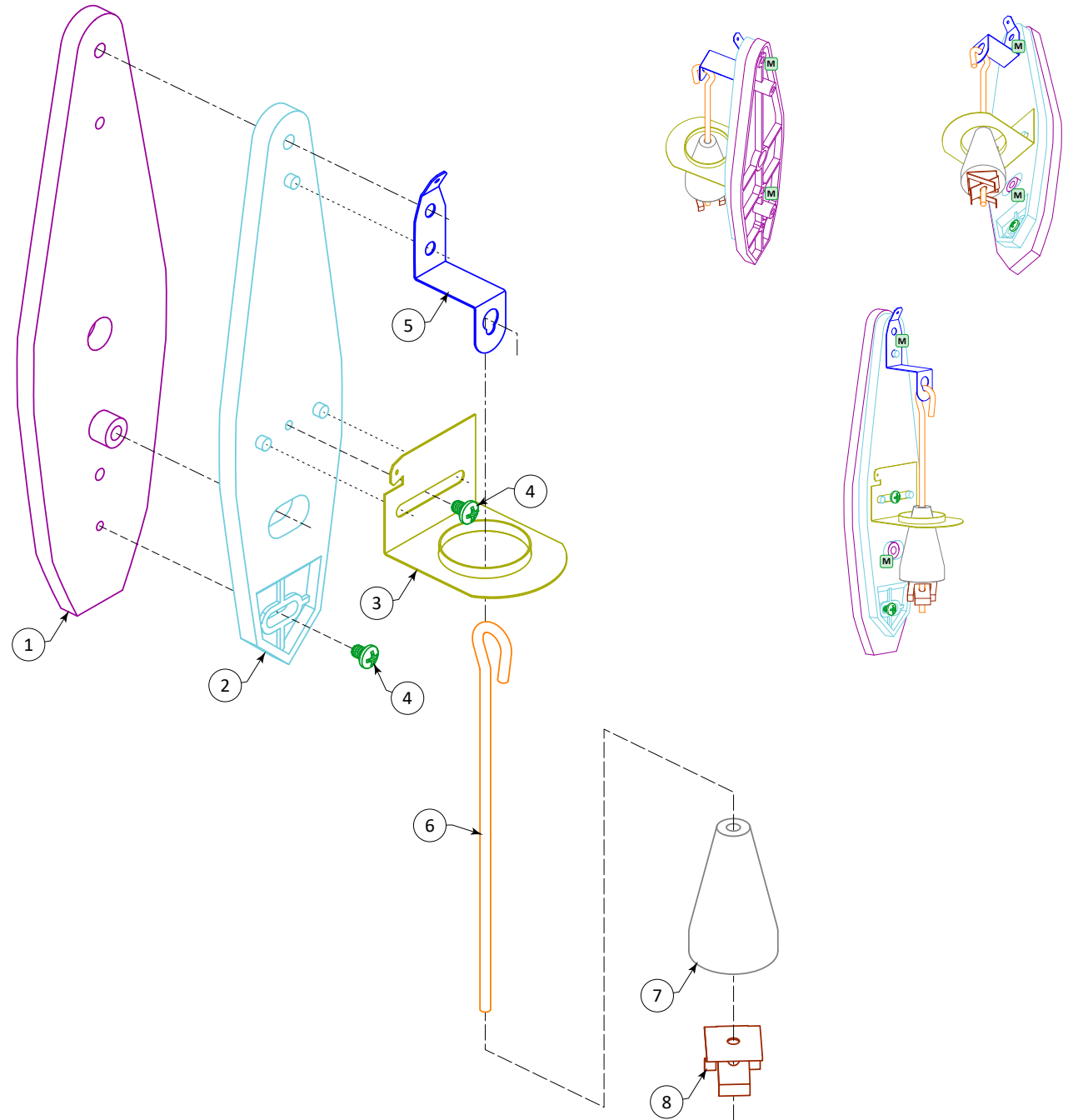
Part ID	Description	Qty
PIN-CBL-ACPOWER	Cabinet AC Power Cable	1

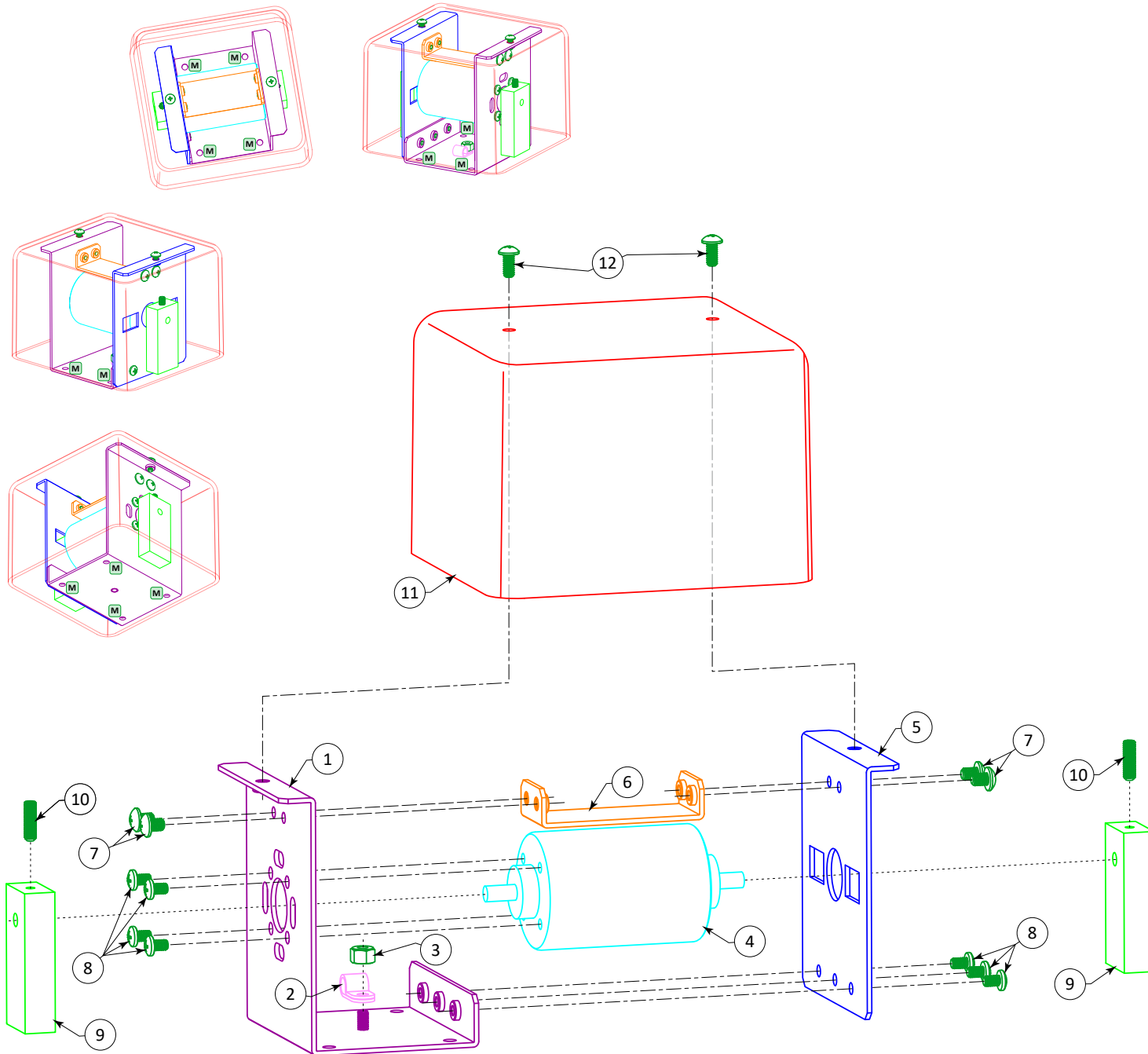
Plumb Bob Tilt Assembly PIN-04-10346-C

Item	Part ID	Description	Qty
1	A-15360	Plumb Bob Tilt Main Brkt	1
2	04-10346-B	Plumb Bob Tilt Pendulum Brkt	1
3	04-10346-C3	Lower Plumb Bob Tilt Contact Brkt	1
4	FSM-063-PPH025C	6-32 x 1/4" PPH MS	2
5	01-3444	Upper Plumb Bob Tilt Contact Brkt	1
6	04-10346-C5	Plumb Bob Tilt Hanger Wireform	1
7	PIN20-6502A	Plumb Bob (Sw 66)	1
8	FNT-N06-TINMSP	#6 Tinnerman Spring Clip	1

Assembly Mounting Hardware Lower Cabinet, Left Sidewall

Location	Part ID	Description	Qty
 M	FSS-N06-PPH100C	#6 x 1" PPH SMS	2





Shaker Motor Assembly (LE only) PIN-SUB-SHAKER2

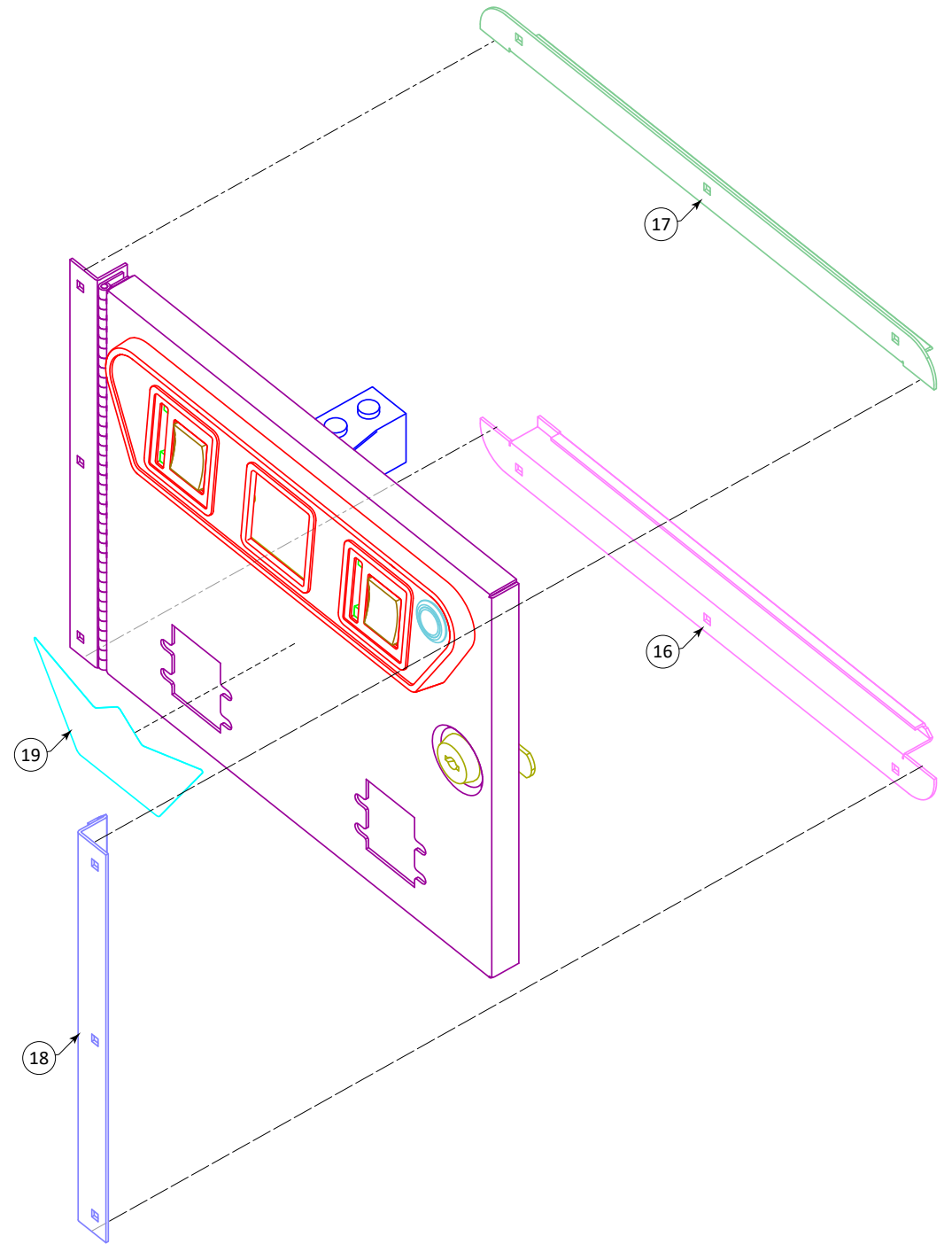
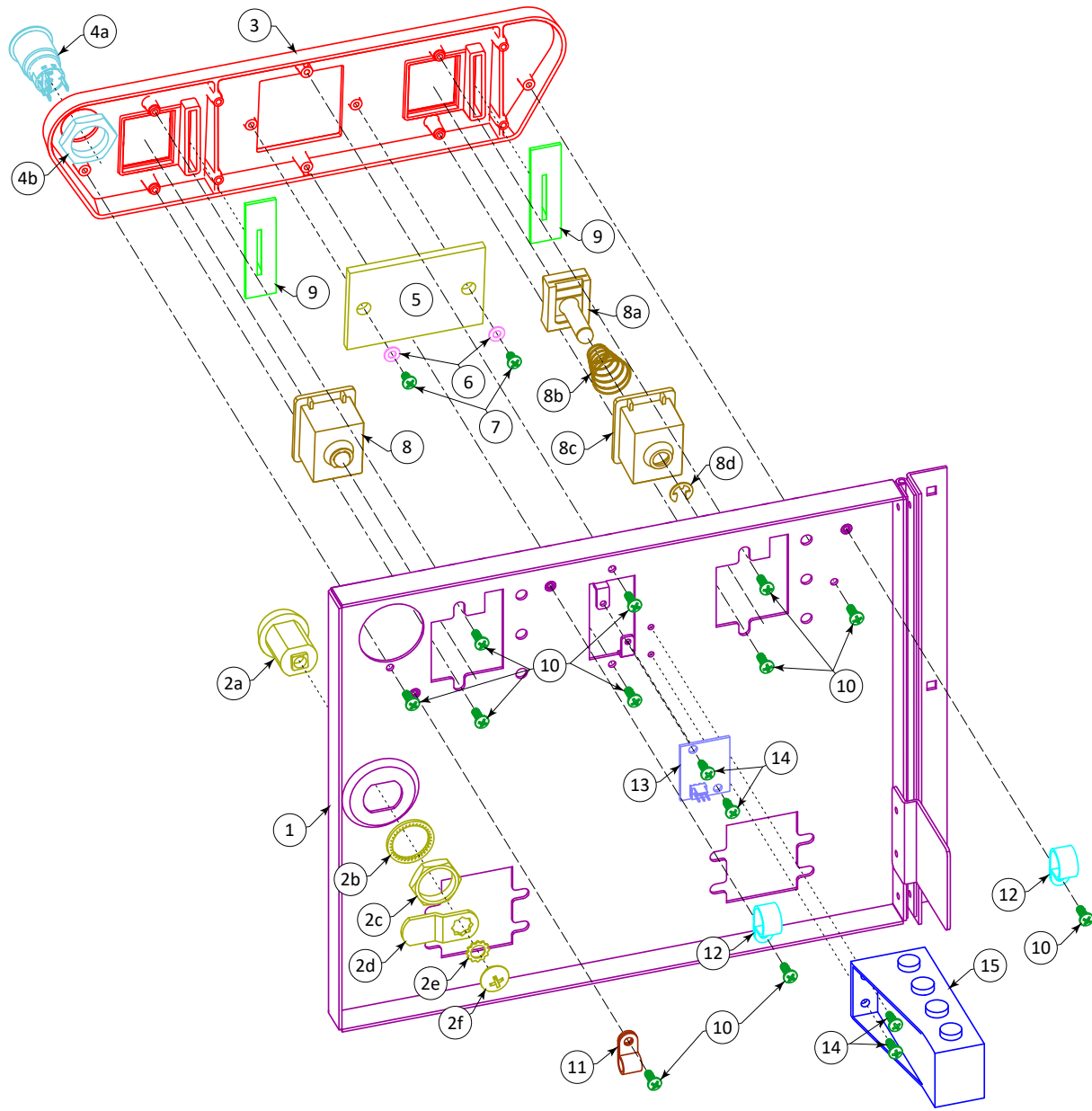
Item	Part ID	Description	Qty
1	PIN-MLS-SHKBRK1	Main Shaker Motor Brkt	1
2	000-PLM-25CLMP	Captive Cable Clamp, 1/4"	1
3	FNT-083-ESNA000	8-32 ESN	1
4	PIN-MTR-KINMORE	Shaker Motor <i>(Coil 44)</i>	1
5	PIN-MLS-SHKBRK2	Shaker Motor Support Brkt	1
6	PIN-MLS-SHKSUP2	Shaker Motor Brace	1
7	FSM-103-PPH025C	10-32 x 1/4" PPH MS	4
8	FSM-083-PPH025C	8-32 x 1/4" PPH MS	7
9	PIN-MLS-SHKRWHT	Shaker Motor Eccentric Weight	2
10	FSM-103-AAS063C	10-32 x 5/8" Set Screw, CP	2
11	PIN-545-524100	Shaker Motor Cover	1
12	FSM-083-PPH037K	8-32 x 3/8" PPH MS w/Patch	2
NS	PIN-LBL-SHKWRN	Shaker Motor Warning Label	1

Assembly Mounting Hardware Lower Cabinet, Floor

Location	Part ID	Description	Qty
 M	FSS-N08-HWH050C	#8 x 1/2" HWH SMS	5

Assembly Cable(s)

Part ID	Description	Qty
MM-CBL- SHAKERS	Shaker Motor Cable	1

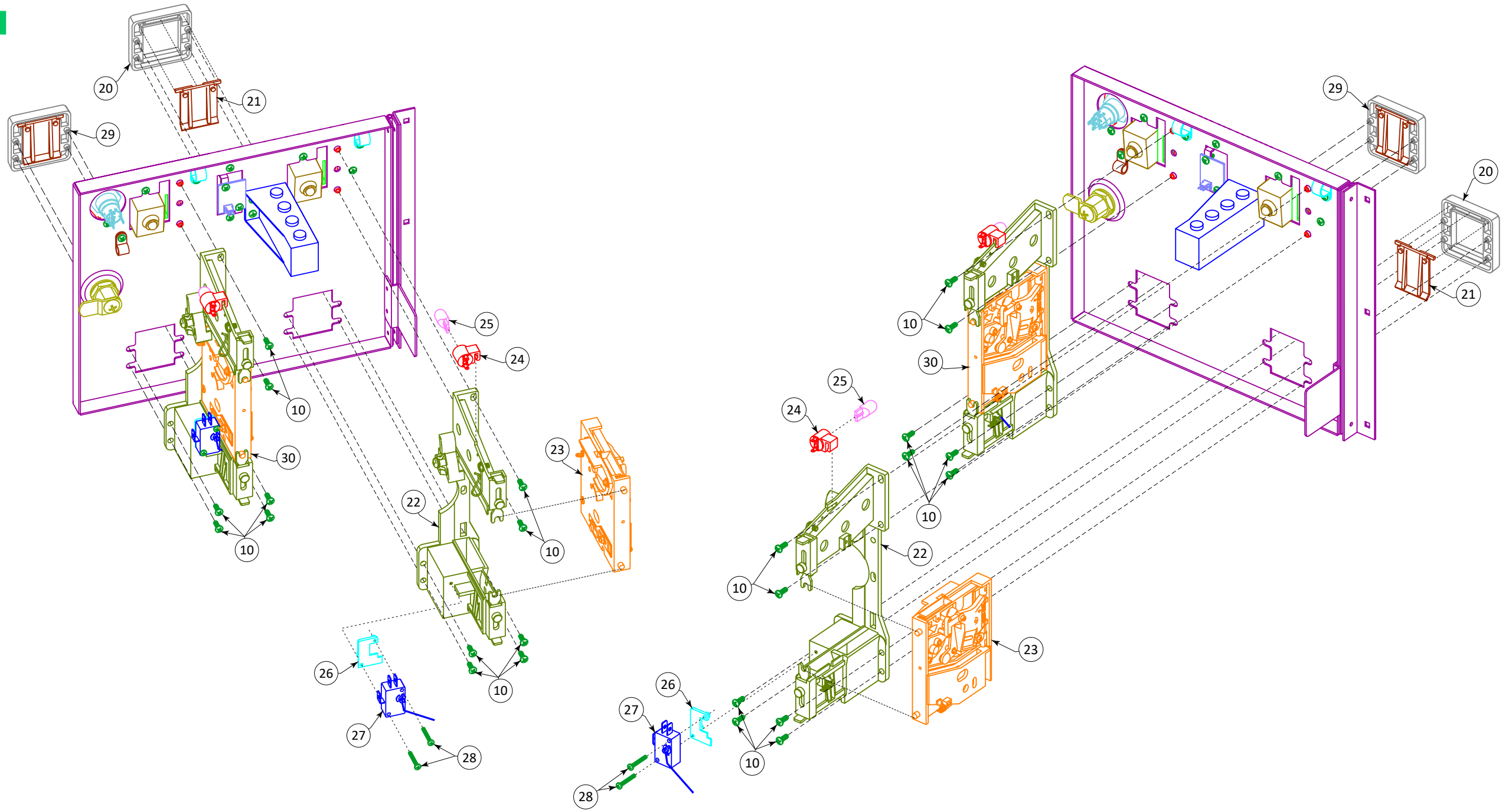


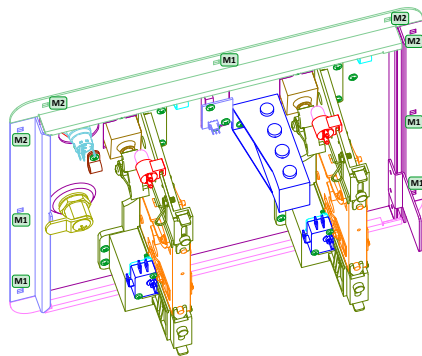
Stainless Steel Coin Door Assembly

PIN-SUB-SSCNDOR (Door, Hinge & Frame Assy)

Item	Part ID	Description	Qty
1	PFP-SUB-DORFRAM	Stainless Steel Coin Door & Hinge Assy	1
2	000-LCK-CH751	Coin Door Lock Assy, 7/8", Keyed CH751	1
3	PIN-MLC-COINBZL	Retro Coin Mechanism Bezel	1
4	PIN-CPP-STRTBUT	Retro Start Button Assy (CL01)/(Sw 65)	1
5	PFP-ART-CDINSRT	Pulp Fiction Coin Door Art Plastic	1
6	FWF-N06-SAEC000	#6 Flat Washer	2
7	FSM-063-PPH025C	6-32 x 1/4" PPH MS	2
8	PIN-42-051705D	Coin Reject Button Assy, Yellow	2
NS	PIN-ART-CDINSRT	Reject Button Insert Art (In Button)	2
9	PIN-42-124720	Coin Entry Restrictor, Yellow	2
10	FSM-063-PPH037C	6-32 x 3/8" PPH MS	11
11	000-PLM-NC25CLP	Non-Captive Cable Clamp, 1/4"	1
12	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	2
13	PIN-PCB-GILEDS	Coin Door Art GI LED PCB (pg 3-58) (CL00)	1
14	FST-063-PPH037C	6-32 x 3/8" PPH Tap Tite MS	4
15	PIN-SUB-DIAGBTN	Coin Door Diagnostic Buttons Assy (Sws 76-79)	1
16	PIN-MLS-CDRBZBT	Stainless Steel Door Frame, Bottom	1
17	PIN-MLS-CDRBZTP	Stainless Steel Door Frame, Top	1
18	PIN-MLS-CDRBZRT	Stainless Steel Door Frame, Right Side	1
19	PFP-PLS-CDDECAL	PF Coin Door Crown Decal	1

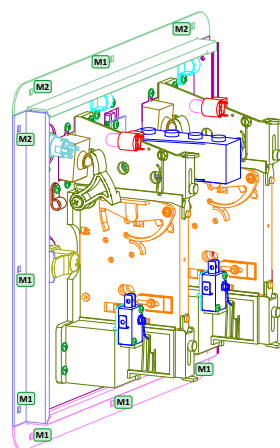
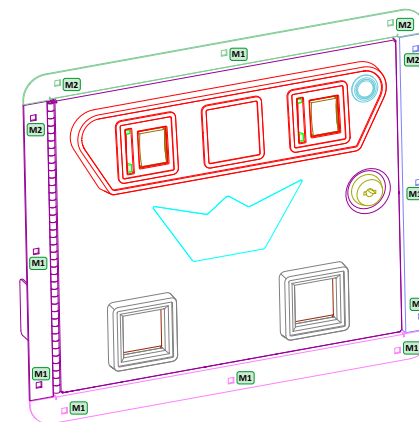
For Op Edition coin door details/parts, see appendix





Stainless Steel Coin Door Assembly PIN-SUB-SSCNDOR (Coin Mechs, Holders & Returns)

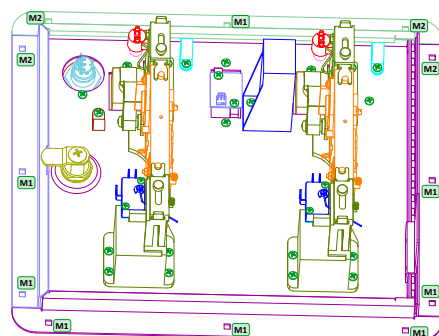
Item	Part ID	Description	Qty
10	FSM-063-PPH037C	6-32 x 3/8" PPH MS	12
20	PIN-MLC-RTNBZL	Retro Coin Return Bezel	2
21	PIN-PLM-COINFLP	Retro Coin Return Flap	2
22	PIN-42-735500	Coin Mechanism Holder Assy	2
23	PIN-42-3079100	Coin Mechanism, 25¢	2
24	PIN-42-035100	Coin Door Lamp Holder	2
25	PIN-LMP-COINDOR	T3-1/4 Wedge Base Bulb, 12V, 1-LED (CLOO)	2
26	PIN-42-328600D	Coin Door Coin Switch Mtg Brkt	2
27	PIN-42-708700	Coin Door Crouzet Switch (Sw 72, Sw 74)	2
28	FSS-N04-PPH075C	#4 x 3/4" PPH SMS	4
29	-	One set of items 20 & 21, assembled	-
30	-	One set of items 22-28, assembled	-



Assembly Mounting Hardware Lower Cabinet, Front Panel

Location	Part ID	Description	Qty
M1	FSM-083-OCB100A	8-32 x 1" Carriage Bolt, Black	8
	FWF-172-047059C	#8 Flat Washer	8
	FNT-083-KEC0000	8-32 KEPS Nut	8
M2	FSM-083-OCB075A	8-32 x 3/4" Carriage Bolt, Black	4
	FNT-083-KEC0000	8-32 KEPS Nut	4

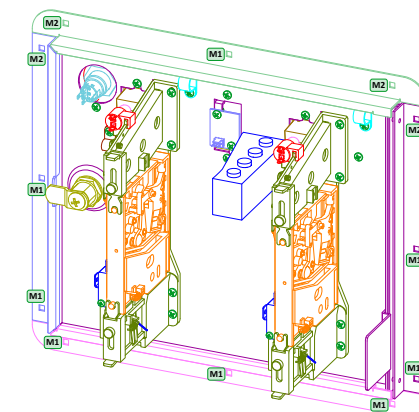
All carriage bolts are installed from the outside, through holes in the front panel of the lower cabinet
The top, center M1 bolt is also used as mtg HW for the Lockdown Bar Receiver Assy (pg 2-59)



Assembly Cable(s)

Part ID	Description	Qty
PFP-CBL-COINDOR	Stainless Steel Coin Door Cable	1

For Op Edition coin door details/parts, see appendix



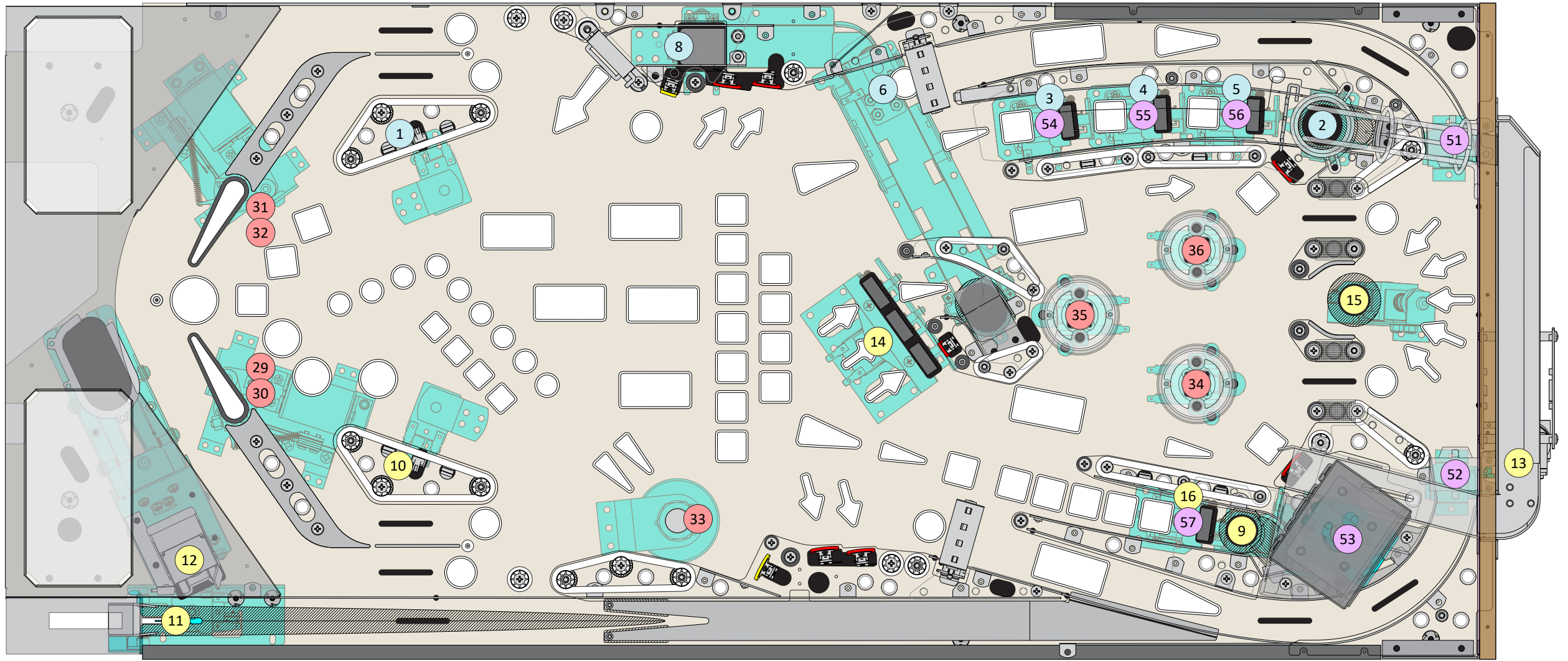
Coil & Motor Table (1 of 2)

Coil #	Coil Function	Coil Type	Power Source	Drive Details	Fuse	Part ID	Part of Assembly	Drawing
1	Left slingshot	26-1200	ORN-WHT, SP J116-11, 70VHP	VIO-WHT, SP J116-1, Q101	F103	PIN-AE-261200	PIN-SUB-A17811	2-20
2	Briefcase ball lock load popper	23-800	ORN-BLK, SP J116-12, 70VHP	VIO-RED, SP J116-2, Q102	F103	PIN-AE-23800	PFP-SUB-OPTOPOP	2-21
3	Drop target (left, bottom) reset	26-1500	ORN-BLK, SP J116-12, 70VHP	VIO-ORN, SP J116-3, Q103	F103	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
4	Drop target (left, center) reset	26-1500	ORN-BLK, SP J116-12, 70VHP	VIO-YEL, SP J116-4, Q104	F103	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
5	Drop target (left, top) reset	26-1500	ORN-BLK, SP J116-12, 70VHP	VIO-GRN, SP J116-6, Q105	F103	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
6	Pawn Shop (subway) ball lock release	26-1200	ORN-WHT, SP J116-11, 70VHP	VIO-BLU, SP J116-7, Q106	F103	PIN-AE-261200	PFP-SUB-SUBBRAMP	2-30/2-28
7	Knocker (backbox)	23-800	ORN, SP J115-1, 70VHP	BLU, SP J115-2, Q107	F103	PIN-AE-23800	PIN-SUB-B106861	2-49
8	Pawn Shop (subway) return popper	23-800	ORN-WHT, SP J116-11, 70VHP	VIO-BLK, SP J116-9, Q108	F103	PIN-AE-23800	PFP-SUB-3BALPOP	2-22
9	Roll Scene saucer eject	30-2000	ORN-VIO, SP J113-12, 70VLP	BRN-BLK, SP J113-1, Q109	F107	PIN-AE-302000	PIN-SUB-A22449	2-29
10	Right slingshot	26-1200	ORN-GRN, SP J113-11, 70VLP	BRN-RED, SP J113-2, Q110	F102	PIN-AE-261200	PIN-SUB-A17811	2-20
11	Ball auto-launch	23-800	ORN-GRN, SP J113-11, 70VLP	BRN-ORN, SP J113-4, Q111	F102	PIN-AE-23800	CC-SUB-A210221	2-18
12	Ball trough popper	26-1500	ORN-GRN, SP J113-11, 70VLP	BRN-YEL, SP J113-5, Q112	F102	PIN-AE-261500	PFP-SUB-A199631	2-16
13	Briefcase (back panel) ball lock release	26-1200	ORN-GRN, SP J113-11, 70VLP	BRN-GRN, SP J113-6, Q113	F102	PIN-AE-261200	PFP-SUB-BKBDRMP	2-32/2-28
14	3-bank drop target reset	23-800	ORN-GRN, SP J113-11, 70VLP	BRN-BLU, SP J113-7, Q114	F102	PIN-AE-23800	PFP-SUB-3BANKDT	2-26
15	Starts Character saucer eject	30-2000	ORN-VIO, SP J113-12, 70VLP	BRN-VIO, SP J113-8, Q115	F107	PIN-AE-302000	PIN-SUB-A22449	2-29
16	Drop target (right) reset	26-1500	ORN-VIO, SP J113-12, 70VLP	BRN-WHT, SP J113-9, Q116	F107	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
29	Right flipper power	FL-11629	ORN-RED, SP J119-7/8, 70VFLR	GRY-RED, SP J119-5, Q124	F116	PIN-FL-11629	PIN-A-15849R2	2-10
30	Right flipper hold	FL-11629	ORN-RED, SP J119-7/8, 70VFLR	GRY-BLK, SP J119-4, Q131	F116	PIN-FL-11629	PIN-A-15849R2	2-10
31	Left flipper power	FL-11629	ORN-YEL, SP J119-9/10, 70VFLL	GRY-YEL, SP J119-2, Q125	F115	PIN-FL-11629	PIN-A-15849L2	2-12
32	Left flipper hold	FL-11629	ORN-YEL, SP J119-9/10, 70VFLL	GRY-WHT, SP J119-1, Q132	F115	PIN-FL-11629	PIN-A-15849L2	2-12
33	Bullseye (gun) magnet	Magnet	ORN-BRN, SP J120-1/2, 70VFUL	GRY-BLU, SP J120-10, Q126	F118	PIN-20-10197	PIN-PWH-10197	2-34
34	Right jet bumper	26-1200	ORN-BLU, SP J120-3/4, 70VFUR	GRY-ORN, SP J120-8, Q134	F117	PIN-AE-261200	PIN-SUB-A94152	2-15
35	Center jet bumper	26-1200	ORN-BLU, SP J120-3/4, 70VFUR	GRY-BRN, SP J120-7, Q128	F117	PIN-AE-261200	PIN-SUB-A94152	2-15
36	Left jet bumper	26-1200	ORN-BLU, SP J120-3/4, 70VFUR	GRY-GRN, SP J120-6, Q136	F117	PIN-AE-261200	PIN-SUB-A94152	2-15
41	Not used			SP J109-3, Q133				
42	Not used			SP J109-2, Q135				
43	Not used			SP J109-1, Q137				
44	Shaker motor (lower cabinet, LE only)	Motor	YEL-ORN, SP J114-1(+), 12VUR	BLU, SP J114-3(-), Q138	F105/F106	-	PIN-SUB-SHAKER2	2-63
51/F14	Controlled left gate	A-14406 Mini	RED, PF MB JB41-1, 12V	BLU-ORN, PF MB JB41-4	FB	PIN-A-14406	PIN-PWH-A177961	2-23
52/F13	Controlled right gate	A-14406 Mini	RED, PF MB JB41-1, 12V	BLU-RED, PF MB JB41-3	FB	PIN-A-14406	PIN-PWH-A177961	2-23

Coil & Motor Table (2 of 2)

Coil #	Coil Function	Coil Type	Power Source	Drive Details	Fuse	Part ID	Part of Assembly	Drawing
53	Briefcase motor	Motor	YEL, PF MB , JB7-5, 12V	GRN-WHT/BLK, PF MB JB7-5+/6-	FB	PIN-14-HT12188	PFP-SUB-BFCMECH	2-41
54/F15	Drop tgt retract (inline, bottom)	Tube Solenoid	YEL, PF MC JC25-7, 12V	BLU, PF MC JC25-6	FC	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
55/F16	Drop tgt retract (inline, center)	Tube Solenoid	YEL, PF MC JC26-7, 12V	BLU, PF MC JC26-6	FC	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
56/F17	Drop tgt retract (inline, top)	Tube Solenoid	YEL, PF MC JC27-7, 12V	BLU, PF MC JC27-6	FC	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
57/F18	Drop tgt retract (Roll Scene)	Tube Solenoid	YEL, PF MB JB39-7, 12V	BLU, PF MB JB39-6	FB	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
61	Mia motor (topper, LE only)	Motor	RED, BB Topper3 Bd, J5-1, 5V	BRN/VIO, BB HBrg Bd, J6-4+/3-	-	PIN-MTR-WOG34A	PFP-SUB-TOPPER	2-50
62	Vince motor (topper, LE only)	Motor	RED, BB Topper3 Bd, J5-1, 5V	GRN/YEL, BB HBrg Bd, J6-2+/1-	-	PIN-MTR-WOG34A	PFP-SUB-TOPPER	2-50

(Coil wiring table on pg 2-132)

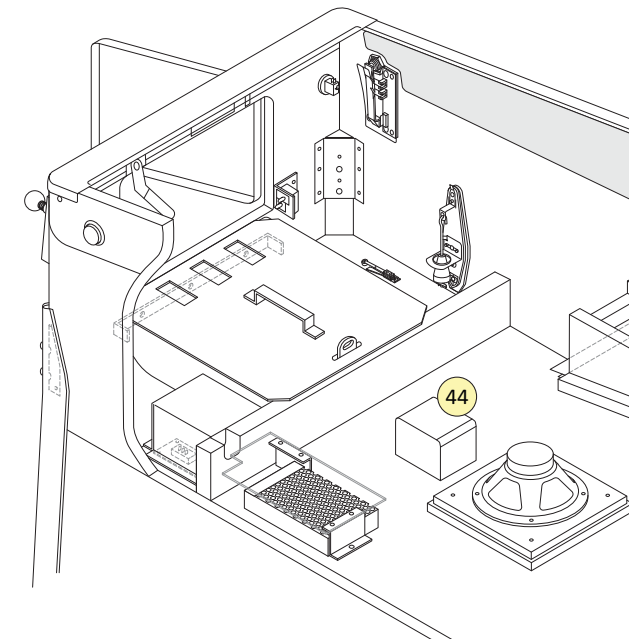
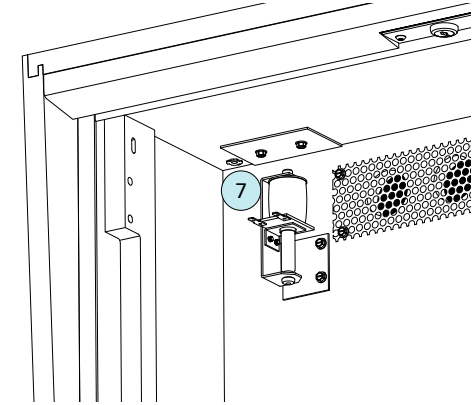


-  Solenoid Power Bd, HP
-  Solenoid Power Bd, LP
-  Solenoid Power Bd, Flippers
-  Multi-function Bds

Coil Locations

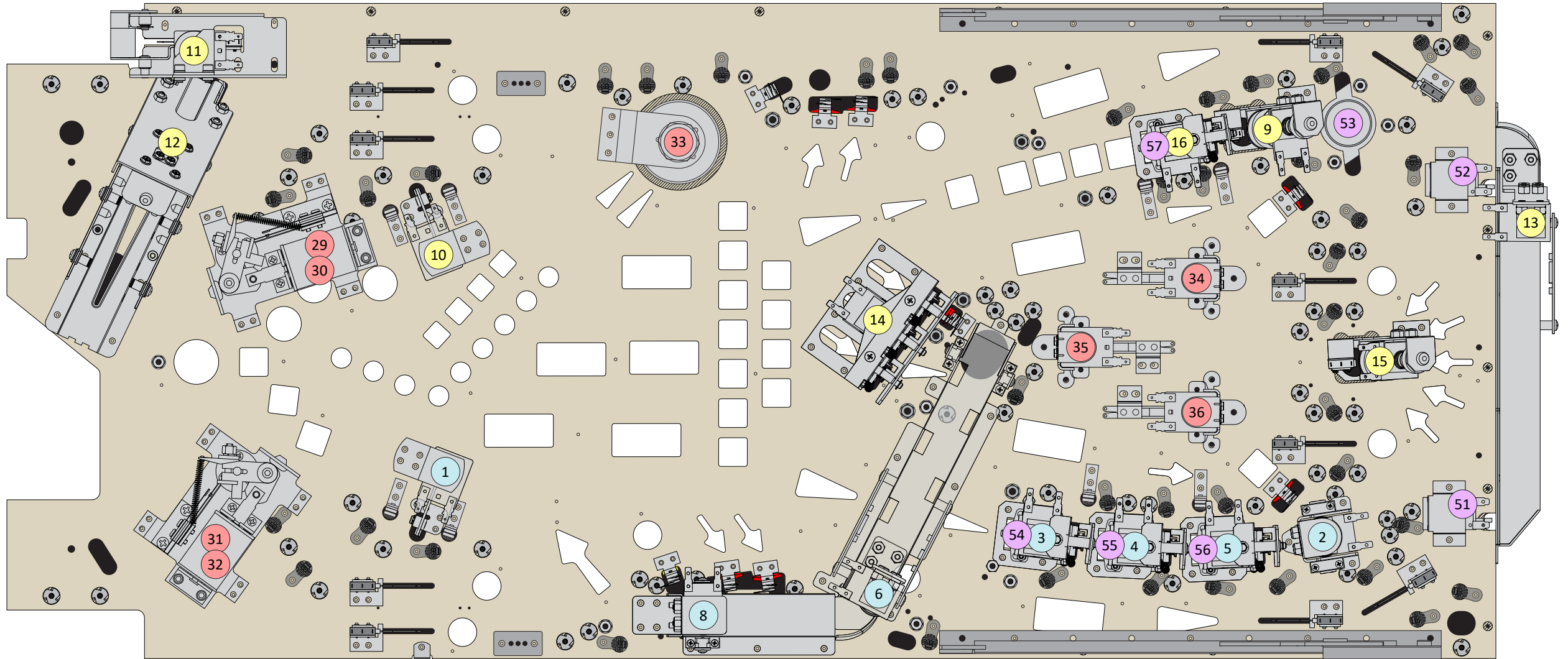
Above Playfield

Coil #	Coil Function	Drive PCB-Conn	Part ID	Part of Assembly	Drawing
1	Left slingshot	SP-J116	PIN-AE-261200	PIN-SUB-A17811	2-20
2	Briefcase ball lock load popper	SP-J116	PIN-AE-23800	PFP-SUB-OPTOPOP	2-21
3	Drop target (left, bottom) reset	SP-J116	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
4	Drop target (left, center) reset	SP-J116	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
5	Drop target (left, top) reset	SP-J116	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
6	Pawn Shop (subway) ball lock release	SP-J116	PIN-AE-261200	PFP-SUB-SUBRAMP	2-30/2-28
7	Knocker (in backbox)	SP-J115	PIN-AE-23800	PIN-SUB-B106861	2-49
8	Pawn Shop (subway) return popper	SP-J116	PIN-AE-23800	PFP-SUB-3BALPOP	2-22
9	Roll Scene saucer eject	SP-J113	PIN-AE-302000	PIN-SUB-A22449	2-29
10	Right slingshot	SP-J113	PIN-AE-261200	PIN-SUB-A17811	2-20
11	Ball auto-launch	SP-J113	PIN-AE-23800	CC-SUB-A210221	2-18
12	Ball trough popper	SP-J113	PIN-AE-261500	PFP-SUB-A199631	2-16
13	Briefcase (back panel) ball lock release	SP-J113	PIN-AE-261200	PFP-SUB-BKBDRMP	2-32/2-28
14	3-bank drop target reset	SP-J113	PIN-AE-23800	PFP-SUB-3BANKDT	2-26
15	Starts Character saucer eject	SP-J113	PIN-AE-302000	PIN-SUB-A22449	2-29
16	Drop target (right) reset	SP-J113	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
29	Right flipper power	SP-J119	PIN-FL-11629	PIN-A-15849R2	2-10
30	Right flipper hold	SP-J119	PIN-FL-11629	PIN-A-15849R2	2-10
31	Left flipper power	SP-J119	PIN-FL-11629	PIN-A-15849L2	2-12
32	Left flipper hold	SP-J119	PIN-FL-11629	PIN-A-15849L2	2-12
33	Bullseye Magnet	SP-J120	PIN-20-10197	PIN-PWH-10197	2-34
34	Right jet bumper	SP-J120	PIN-AE-261200	PIN-SUB-A94152	2-15
35	Center jet bumper	SP-J120	PIN-AE-261200	PIN-SUB-A94152	2-15
36	Left jet bumper	SP-J120	PIN-AE-261200	PIN-SUB-A94152	2-15
44	Shaker motor (in lower cabinet, LE only)	SP-J114	PIN-MTR-KINMORE	PIN-SUB-SHAKER2	2-63
51/F14	Controlled left gate	PF MB -JB41	PIN-A-14406	PIN-PWH-A177961	2-23
52/F13	Controlled right gate	PF MB -JB41	PIN-A-14406	PIN-PWH-A177961	2-23
53	Briefcase motor	PF MB -JB7	PIN-14-HT12188	PFP-SUB-BFCMECH	2-41
54/F15	Drop tgt retract (inline, bottom)	PF MC -JC25	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
55/F16	Drop tgt retract (inline, center)	PF MC -JC26	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
56/F17	Drop tgt retract (inline, top)	PF MC -JC27	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
57/F18	Drop tgt retract (Roll Scene)	PF MB -JB39	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
61	Vince motor (topper, LE only)	Topr H Brg Bd, J6	PIN-MTR-W0G34A	PFP-SUB-TOPPER	2-50
62	Mia motor (topper, LE only)	Topr H Brg Bd, J6	PIN-MTR-W0G34A	PFP-SUB-TOPPER	2-50



Coil wiring table: pg 2-132

Coil testing: pg 1-54

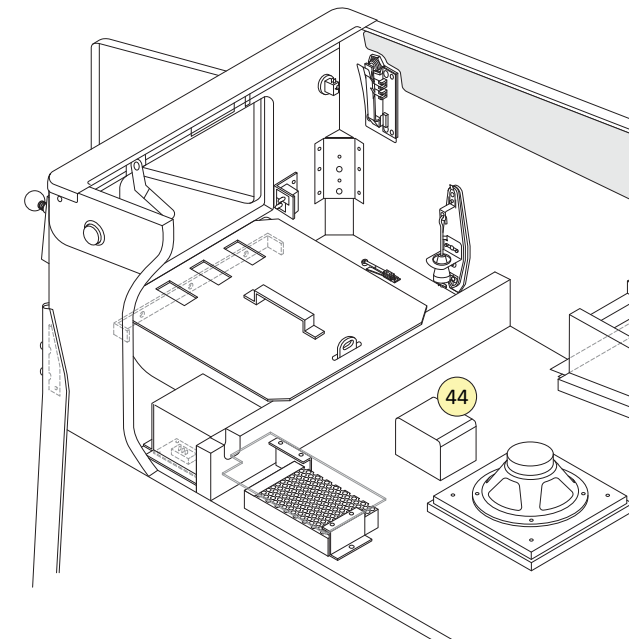
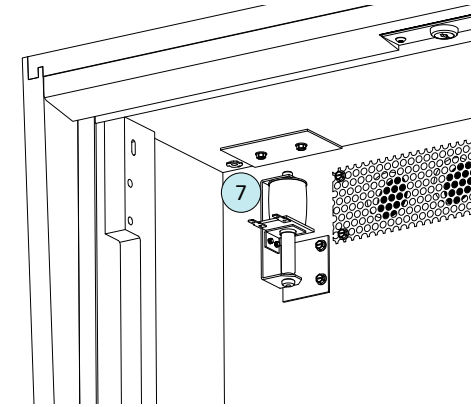


-  Solenoid Power Bd, HP
-  Solenoid Power Bd, LP
-  Solenoid Power Bd, Flippers
-  Multi-function Bds

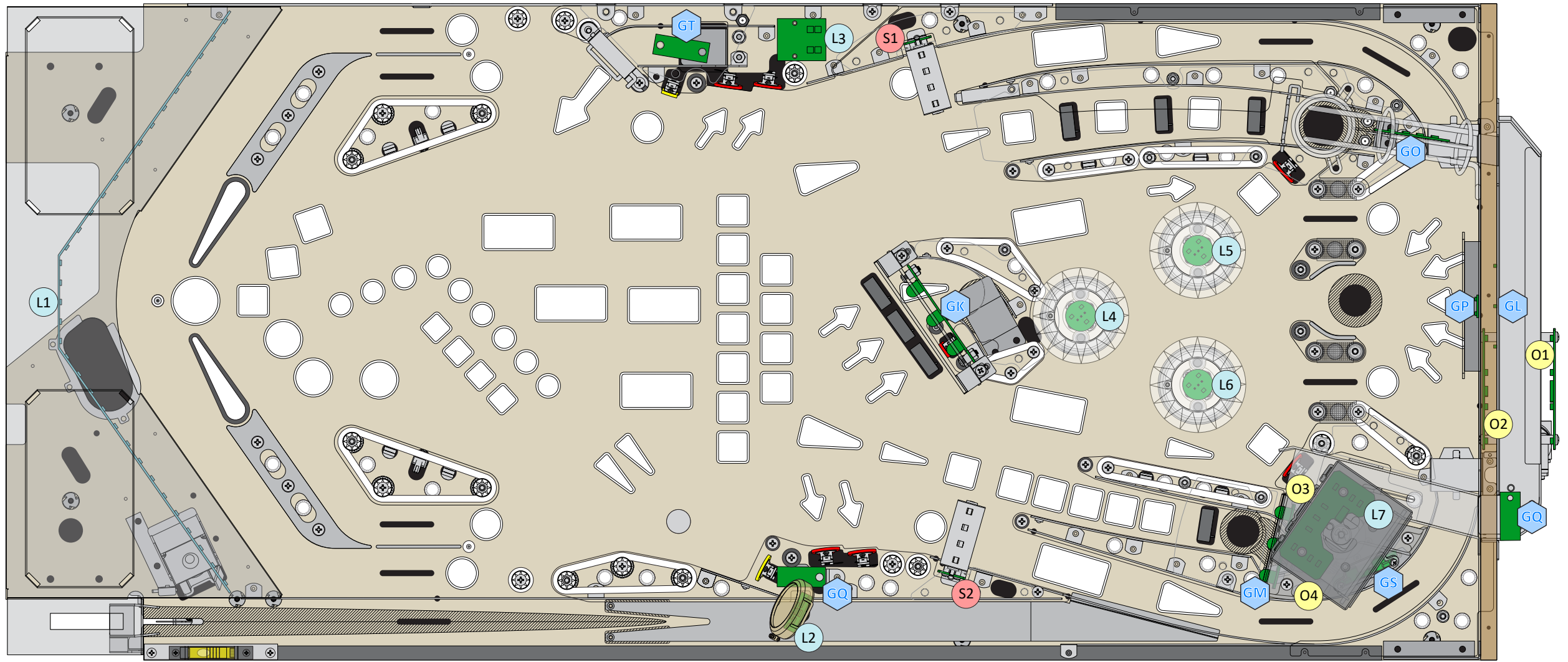
Coil Locations






Under Playfield

Coil #	Coil Function	Drive PCB-Conn	Part ID	Part of Assembly	Drawing
1	Left slingshot	SP-J113	PIN-AE-261200	PIN-SUB-A17811	2-20
2	Briefcase ball lock load popper	SP-J113	PIN-AE-23800	PFP-SUB-OPTOPOP	2-21
3	Drop target (left, bottom) reset	SP-J113	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
4	Drop target (left, center) reset	SP-J113	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
5	Drop target (left, top) reset	SP-J120	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
6	Pawn Shop (subway) ball lock release	SP-J116	PIN-AE-261200	PFP-SUB-SUBRAMP	2-30/2-28
7	Knocker (in backbox)	SP-J115	PIN-AE-23800	PIN-SUB-B106861	2-49
8	Pawn Shop (subway) return popper	SP-J116	PIN-AE-23800	PFP-SUB-3BALPOP	2-22
9	Roll Scene saucer eject	SP-J120	PIN-AE-302000	PIN-SUB-A22449	2-29
10	Right slingshot	SP-J113	PIN-AE-261200	PIN-SUB-A17811	2-20
11	Ball auto-launch	SP-J116	PIN-AE-23800	CC-SUB-A210221	2-18
12	Ball trough popper	SP-J116	PIN-AE-261500	PFP-SUB-A199631	2-16
13	Briefcase (back panel) ball lock release	SP-J116	PIN-AE-261200	PFP-SUB-BKBDRMP	2-32/2-28
14	3-bank drop target reset	SP-J116	PIN-AE-23800	PFP-SUB-3BANKDT	2-26
15	Starts Character saucer eject	SP-J116	PIN-AE-302000	PIN-SUB-A22449	2-29
16	Drop target (right) reset	SP-J120	PIN-AE-261500	PFP-SUB-1BNKDRP	2-24
29	Right flipper power	SP-J119	PIN-FL-11629	PIN-A-15849R2	2-10
30	Right flipper hold	SP-J119	PIN-FL-11629	PIN-A-15849R2	2-10
31	Left flipper power	SP-J119	PIN-FL-11629	PIN-A-15849L2	2-12
32	Left flipper hold	SP-J119	PIN-FL-11629	PIN-A-15849L2	2-12
33	Bullseye magnet	SP-J120	PIN-20-10197	PIN-PWH-10197	2-34
34	Right jet bumper	SP-J113	PIN-AE-261200	PIN-SUB-A94152	2-15
35	Center jet bumper	SP-J113	PIN-AE-261200	PIN-SUB-A94152	2-15
36	Left jet bumper	SP-J113	PIN-AE-261200	PIN-SUB-A94152	2-15
44	Shaker motor (in lower cabinet, LE only)	SP-J114	PIN-MTR-KINMORE	PIN-SUB-SHAKER2	2-63
51/F14	Controlled left gate	PF MB -JB41	PIN-A-14406	PIN-PWH-A177961	2-23
52/F13	Controlled right gate	PF MB -JB41	PIN-A-14406	PIN-PWH-A177961	2-23
53	Briefcase motor	PF MB -JB7	PIN-14-HT12188	PFP-SUB-BFCMECH	2-41
54/F15	Drop tgt retract (inline, bottom)	PF MC -JC25	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
55/F16	Drop tgt retract (inline, center)	PF MC -JC26	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
56/F17	Drop tgt retract (inline, top)	PF MC -JC27	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
57/F18	Drop tgt retract (Roll Scene)	PF MB -JB39	PIN-A-DTSNOID	PFP-SUB-1BNKDRP	2-24
61	Vince motor (topper, LE only)	Topr H Brg Bd, J6	PIN-MTR-W0G34A	PFP-SUB-TOPPER	2-50
62	Mia motor (topper, LE only)	Topr H Brg Bd, J6	PIN-MTR-W0G34A	PFP-SUB-TOPPER	2-50



Coil wiring table on pg 2-132

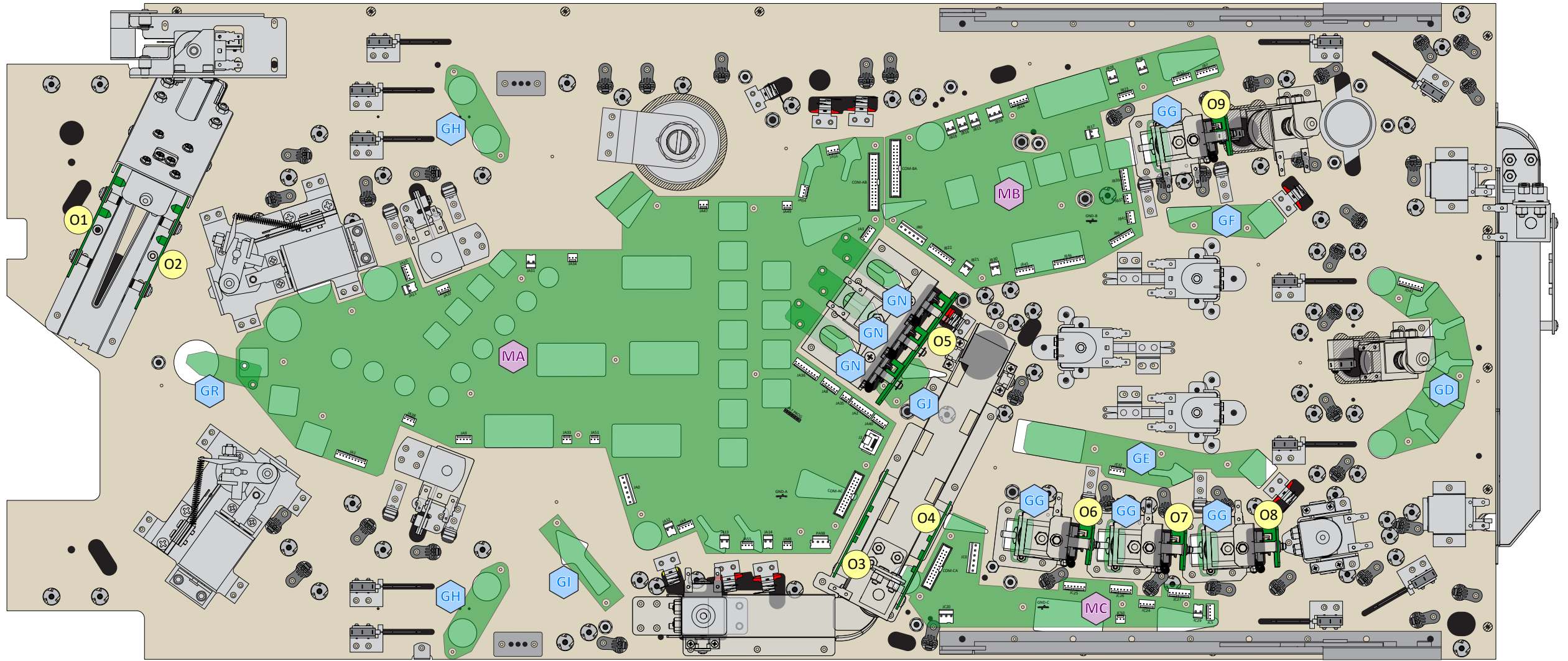


-  Multi-function Boards
-   Light Boards/Strips
-  Opto Boards
-  Specialty Boards

Playfield Printed Circuit Boards

Above Playfield

PCB ID(s)	PCB Type	Part ID	Function	Assy Details	PCB Details
GK	Game Set 5-LED Sign Bd K	PFP-PCB-PAWNSHP	Pawn Shop ball lock status	2-36	3-37
GL	Game Set 3-LED Sign Bd L	PFP-PCB-BKAHUNA	Big Kahuna Burger sign bonus lights	2-42	3-38
GM	Game Set 3-LED Sign Bd M	PFP-PCB-LOCK123	Briefcase ball lock status	2-35	3-39
GO	Game Set 4-LED Spotlight Bd O	PFP-PCB-SPOTJUL	Jules sculpture spotlight	2-37	3-41
GP	Game Set Flasher Bd P	PFP-PCB-KAHUNFL	Big Kahuna Burger sign flasher	2-42	3-42
GQ (2)	Game Set Flasher Bd Q	PIN-PCB-THINFLS	Playfield feature flashers	-	3-43
GS	Game Set 4-LED Spotlight Bd S	PFP-PCB-SPOTVIN	Vince sculpture spotlight	2-35	3-45
GT	Game Set Flasher Bd T	PFP-PCB-BRGRFLS	Royale w/Cheese sculpture flasher	-	3-46
L1	RGB LED strip w/connector	PIN-SUB-RGB3SEG	Lower playfield illumination/effects	2-44	-
L2	Gold Watch Toy Flasher Bd	PIN-PCB-GILEDS	Gold Watch illumination/flasher	2-39	3-58
L3	4-RGB LED GI Bd Assy	MB-SUB-POPRLD	Left side playfield general illumination	-	3-60
L4-L6	Jet Bumper LED Bd	PIN-PCB-5VFLASH	Jet bumper illumination	2-14	3-59
L7	Briefcase Toy Flasher Bd	PFP-PCB-BFCLAMP	Briefcase interior illumination	2-41	3-52
O1	4-Opto Receiver/Phototransistor Bd	PFP-PCB-IR4DECT	Back panel ball lock switch receivers	2-32	3-51
O2	4-Opto Transmitter/LED Bd	PFP-PCB-IR4EMIT	Back panel ball lock switch transmitters	2-32	3-50
O3, O4	Single Opto Interrupter Bd	PFP-PCB-BCOPTO0	Turning briefcase position switches	2-41	3-53
S1, S2	Spinner Hall Effect Bd	PIN-PCB-SPINHAL	Magnet spinner switches	2-38	3-53



Multi-function Boards

Light Boards

Opto Boards

Specialty Boards

Playfield Printed Circuit Boards

Under Playfield

PCB ID(s)	PCB Type	Part ID	Function	Assy Details	PCB Details
MA	Game Set Multi-function Bd A	PFP-PCB-PLAYFLD	Middle playfield switches, minor coils, feature/insert lights	-	3-2
MB	Game Set Multi-function Bd B	PFP-PCB-UPRIGHT	Upper right playfield switches, minor coils, feature/insert lights	-	3-16
MC	Game Set Multi-function Bd C	PFP-PCB-UPPLEFT	Upper left playfield switches, minor coils, feature/insert lights	-	3-24
GD	Game Set 7-LED Bd D	PFP-PCB-TOPSKIL	Top eject saucer feature/insert lights	-	3-30
GE	Game Set 3-LED Bd E	PFP-PCB-3LAMP	Left jet bumper area feature/insert lights	-	3-31
GF	Game Set 2-LED Bd F	PFP-PCB-2LMPEXB	Right jet bumper area feature/insert lights	-	3-32
GG (4)	Game Set Single Drop Tgt LED Bd G	PFP-PCB-DROPLMP	Drop target feature/insert lights	2-24	3-33
GH (2)	Game Set Dual Insert LED Bd H	PIN-PCB-RETURNL	In/outlane feature/insert lights	-	3-34
GI	Game Set Insert Flasher LED Bd I	PFP-PCB-HEADSUP	Heads Up arrow feature/insert flasher	-	3-35
GJ	Game Set Single Insert LED Bd J	PIN-PCB-SNGLMP	Pawn Shop Lock feature/insert light	-	3-36
GN (3)	Game Set Single Insert Extension LED Bd N	PIN-PCB-LAMPCAN	3-bank drop tgt feature/insert lights	-	3-40
GR	Game Set Flasher Extension LED Bd R	PIN-PCB-FLSHCAN	Divine Intervention insert flasher	-	3-44
O1	Ball Trough Opto Transmitter/LED Bd	PIN-PCB-TRHEMT1	Ball trough switch transmitters	2-16	3-47
O2	Ball Trough Opto Receiver/Phototransistor Bd	PIN-PCB-TRHDET1	Ball trough switch receivers	2-16	3-48
O3	4-Opto Receiver/Phototransistor Bd	PFP-PCB-IR4DECT	Subway ball lock switch receivers	2-30	3-51
O4	4-Opto Transmitter/LED Bd	PFP-PCB-IR4EMIT	Subway ball lock switch transmitters	2-30	3-50
O5	Drop Tgt Opto Bd, 3-Bank	PIN-PCB-DROP3TR	3-bank drop target switches	2-26	3-56
O6-O9	Drop Tgt Opto Bd, Single	PIN-PCB-DROPTO	Single drop target switches	2-24	3-54



Playfield Feature/Insert Lighting

Above Playfield (1 of 2)

Light #	Location/Function	Mounted On	Driven By	Light #	Location/Function	Mounted On	Driven By
L00	Ball Save outlane, left	PIN-PCB-RETURNL	MA/JA33	L30	Royale With Cheese	PFP-PCB-PLAYFLD	-
L01	3 (left inlane)	PIN-PCB-RETURNL	MA/JA33	L31	Left 2-target bank, bottom arrow	PFP-PCB-PLAYFLD	-
L02	Briefcase Boogie played	PFP-PCB-PLAYFLD	-	L32	Left 2-target bank, top arrow	PFP-PCB-PLAYFLD	-
L03	Pawn Shop Panic played	PFP-PCB-PLAYFLD	-	L33*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L04	Roll Scene played	PFP-PCB-PLAYFLD	-	L34*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L05	Cast Chaos played	PFP-PCB-PLAYFLD	-	L35*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L06	Pulp Fiction Frenzy played	PFP-PCB-PLAYFLD	-	L36*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L07	Shoot Again	PFP-PCB-PLAYFLD	-	L37*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L08	1K (gun bonus)	PFP-PCB-PLAYFLD	-	L38*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L09	2K (gun bonus)	PFP-PCB-PLAYFLD	-	L39*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L10	3K (gun bonus)	PFP-PCB-PLAYFLD	-	L40*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L11	4K (gun bonus)	PFP-PCB-PLAYFLD	-	L41*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L12	10K (gun bonus)	PFP-PCB-PLAYFLD	-	L42*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L13	20K (gun bonus)	PFP-PCB-PLAYFLD	-	L43*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L14	30K (gun bonus)	PFP-PCB-PLAYFLD	-	L44	Right 2-target bank, bottom arrow	PFP-PCB-PLAYFLD	-
L15	40K (gun bonus)	PFP-PCB-PLAYFLD	-	L45	Right 2-target bank, top arrow	PFP-PCB-PLAYFLD	-
L16	50K (gun bonus)	PFP-PCB-PLAYFLD	-	L50	Lock 1 (Pawn Shop sign) - green	PFP-PCB-PAWNSHP	MA/JA36
L17	1X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L51	Lock 2 (Pawn Shop sign) - green	PFP-PCB-PAWNSHP	MA/JA36
L18	2X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L52	Lock 3 (Pawn Shop sign) - green	PFP-PCB-PAWNSHP	MA/JA36
L19	3X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L53*	Payoff arrow (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L20	4X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L54	Drive Fast MPH Bonus (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L21	4 (right inlane)	PIN-PCB-RETURNL	MA/JA34	L94	1X (Big Kahuna Bonus sign) - red	PFP-PCB-BKAHUNA	MB/JB45
L22	Ball Save outlane, right	PIN-PCB-RETURNL	MA/JA34	L95	2X (Big Kahuna Bonus sign) - red	PFP-PCB-BKAHUNA	MB/JB45
L23	Advance Big Kahuna Bonus arrow	PFP-PCB-PLAYFLD	-	L96	3X (Big Kahuna Bonus sign) - red	PFP-PCB-BKAHUNA	MB/JB45
L24	Collect Gun Bonus arrow	PFP-PCB-PLAYFLD	-	F00	Divine Intervention flasher	PIN-PCB-FLSHCAN	MA/JA57
L25	Jules character	PFP-PCB-PLAYFLD	-	F01	Heads Up arrow flasher	PFP-PCB-HEADSUP	MA/JA51
L26	Mia character	PFP-PCB-PLAYFLD	-	F06	Briefcase interior flasher 1	PFP-PCB-BFCLAMP	MB/JB7
L27	Jimmie character	PFP-PCB-PLAYFLD	-	F07	Briefcase interior flasher 2	PFP-PCB-BFCLAMP	MB/JB7
L28	Vincent character	PFP-PCB-PLAYFLD	-	F08	Briefcase interior flasher 3	PFP-PCB-BFCLAMP	MB/JB7
L29	Mr. Wolf character	PFP-PCB-PLAYFLD	-	F10	When Flashing Big Kahuna Bonus sign flasher	PFP-PCB-KAHUNFL	MB/JB45

* RGB LED † 8-Bit Ctrl

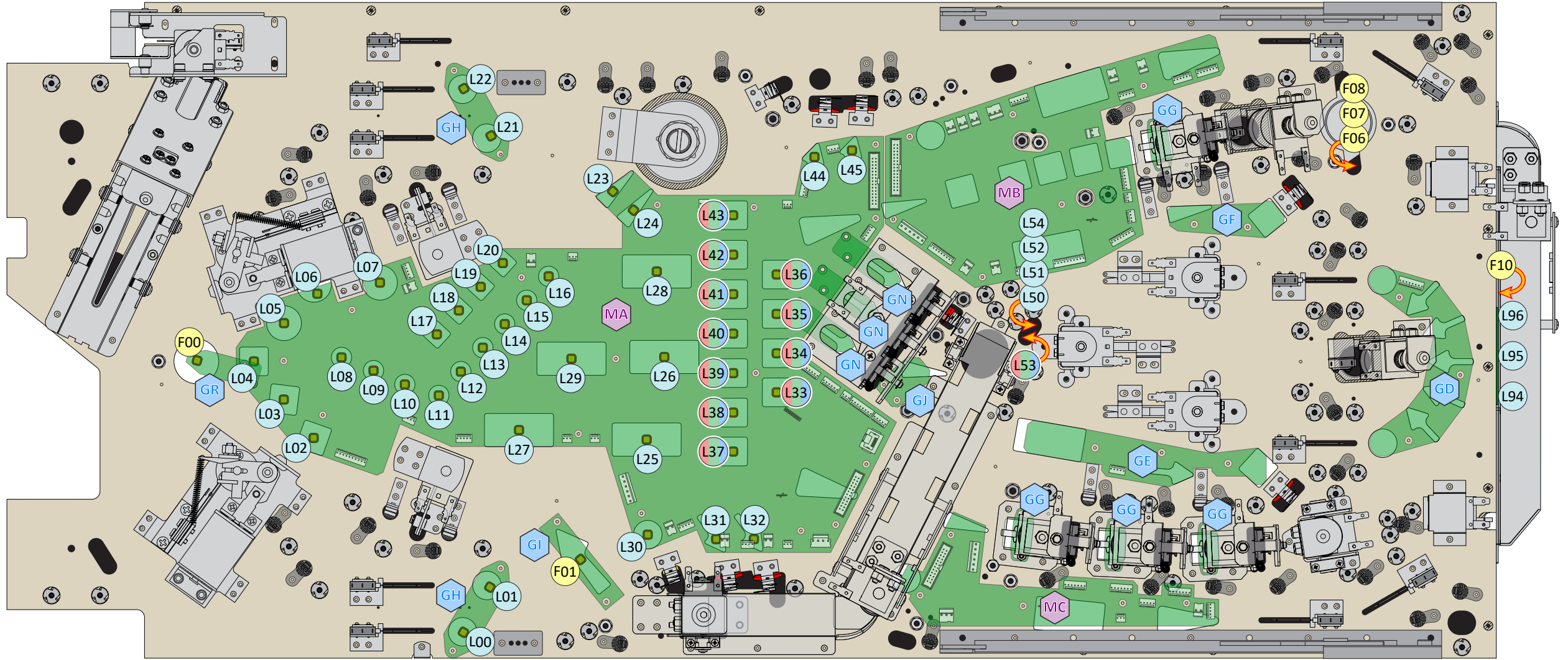


Playfield Feature/Insert Lighting

Above Playfield (2 of 2)

Light #	Location/Function	Mounted On	Driven By	Light #	Location/Function	Mounted On	Driven By
L46	3-bank drop target, left arrow	PIN-PCB-LAMPCAN	MA/JA58	L77	Big Kahuna Bonus , left	PFP-PCB-3LAMP	MA/JA40
L47	3-bank drop target, center arrow	PIN-PCB-LAMPCAN	MA/JA59	L78	Right jet bumper	PIN-LMP-GILEDWW	MB/JB22
L48	3-bank drop target, right arrow	PIN-PCB-LAMPCAN	MA/JA60	L79	Center jet bumper	PIN-LMP-GILEDWW	MB/JB22
L49	Lock arrow (under Pawn Shop)	PIN-PCB-SNGLMP	MA/JA35	L80	Left jet bumper	PIN-LMP-GILEDWW	MB/JB22
L55	Super Spinner (left orbit)	PFP-PCB-UPPLEFT	-	L81	Starts Character saucer arrow 1 (left, red)	PFP-PCB-TOPSKIL	MB/JB46
L57*	Payoff arrow (left orbit)	PFP-PCB-UPPLEFT	-	L82	Starts Character saucer arrow 2 (red)	PFP-PCB-TOPSKIL	MB/JB46
L58*†	Payoff arrow (inline DTs)	PFP-PCB-PLAYFLD	MC/SPI-CA	L83	Starts Character saucer arrow 3 (center, blue)	PFP-PCB-TOPSKIL	MB/JB46
L59	Briefcase Boogie Lock arrow (inline DTs)	PFP-PCB-UPPLEFT	-	L84	Starts Character saucer arrow 4 (red)	PFP-PCB-TOPSKIL	MB/JB46
L60	6 (inline DT, bottom)	PIN-PCB-DROPLMP	MC/JC25	L85	Starts Character saucer arrow 5 (right, red)	PFP-PCB-TOPSKIL	MB/JB46
L61	6 (inline DT, center)	PIN-PCB-DROPLMP	MC/JC26	L86	1 (top left lane)	PFP-PCB-TOPSKIL	MB/JB46
L62	6 (inline DT, top)	PIN-PCB-DROPLMP	MC/JC27	L87	2 (top right lane)	PFP-PCB-TOPSKIL	MB/JB46
L63*†	Payoff arrow (Roll Scene lane)	PFP-PCB-PLAYFLD	-	L88	Lock 1 (briefcase sign) - green	PIN-PCB-LOCK123	MB/JB44
L64	Collect Character arrow (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L89	Lock 2 (briefcase sign) - green	PIN-PCB-LOCK123	MB/JB44
L65	Roll Scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L90	Lock 3 (briefcase sign) - green	PIN-PCB-LOCK123	MB/JB44
L66	Twist Contest scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L91	Jules sculpture spotlight	PIN-PCB-SPOTJUL	MC/JC50
L67	BMF Wallet scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L92	Vince sculpture spotlight	PIN-PCB-SPOTVIN	MB/JB44
L68	Gold Watch scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	F02	Royale w/Cheese sculpture flasher	PIN-PCB-BRGRFLS	MA/JA48
L69	Clean The Car scene (Roll Scene lane)	PIN-PCB-UPRIGHT	-	F03	Bullseye Magnet flasher	PIN-PCB-THINFLS	MA/JA47
L70	The Shot scene (Roll Scene lane)	PFP-PCB-DROPLMP	MB/JB39	F04	Mia dancing silhouette flasher	PFP-PCB-3LAMP	MA/JA40
L71	Super Spinner (right orbit)	PFP-PCB-UPRIGHT	-	F05	Vince dancing silhouette flasher	PFP-PCB-UPRIGHT	-
L73*	Payoff arrow (right orbit)	PFP-PCB-UPRIGHT	-	F09	Gold watch toy flasher	PIN-PCB-GILEDS	MA/JA49
L74	Extra Ball arrow	PFP-PCB-2LMPEXB	MB/JB37	F11	Briefcase lock exit flasher	PIN-PCB-THINFLS	MB/JB46
L75	Big Kahuna Bonus , right	PFP-PCB-2LMPEXB	MB/JB37	F19	Drive Fast red car flasher (left orbit)	PFP-PCB-UPPLEFT	-
L76	Hold Cast arrow	PFP-PCB-3LAMP	MA/JA40	F20	Drive Fast lavender car flasher (right orbit)	PFP-PCB-UPRIGHT	-

* RGB LED † 8-Bit Ctrl



Playfield Feature/Insert Lighting

Under Playfield (1 of 2)

Light #	Location/Function	Mounted On	Driven By	Light #	Location/Function	Mounted On	Driven By
L00	Ball Save outlane, left	PIN-PCB-RETURNL	MA/JA33	L30	Royale With Cheese	PFP-PCB-PLAYFLD	-
L01	3 (left inlane)	PIN-PCB-RETURNL	MA/JA33	L31	Left 2-target bank, bottom arrow	PFP-PCB-PLAYFLD	-
L02	Briefcase Boogie played	PFP-PCB-PLAYFLD	-	L32	Left 2-target bank, top arrow	PFP-PCB-PLAYFLD	-
L03	Pawn Shop Panic played	PFP-PCB-PLAYFLD	-	L33*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L04	Roll Scene played	PFP-PCB-PLAYFLD	-	L34*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L05	Cast Chaos played	PFP-PCB-PLAYFLD	-	L35*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L06	Pulp Fiction Frenzy played	PFP-PCB-PLAYFLD	-	L36*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L07	Shoot Again	PFP-PCB-PLAYFLD	-	L37*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L08	1K (gun bonus)	PFP-PCB-PLAYFLD	-	L38*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L09	2K (gun bonus)	PFP-PCB-PLAYFLD	-	L39*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L10	3K (gun bonus)	PFP-PCB-PLAYFLD	-	L40*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L11	4K (gun bonus)	PFP-PCB-PLAYFLD	-	L41*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L12	10K (gun bonus)	PFP-PCB-PLAYFLD	-	L42*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L13	20K (gun bonus)	PFP-PCB-PLAYFLD	-	L43*†	PULP FICTION	PFP-PCB-PLAYFLD	-
L14	30K (gun bonus)	PFP-PCB-PLAYFLD	-	L44	Right 2-target bank, bottom arrow	PFP-PCB-PLAYFLD	-
L15	40K (gun bonus)	PFP-PCB-PLAYFLD	-	L45	Right 2-target bank, top arrow	PFP-PCB-PLAYFLD	-
L16	50K (gun bonus)	PFP-PCB-PLAYFLD	-	L50	Lock 1 (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L17	1X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L51	Lock 2 (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L18	2X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L53	Lock 3 (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L19	3X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L53*	Payoff arrow (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L20	4X (gun bonus multiplier)	PFP-PCB-PLAYFLD	-	L54	Drive Fast MPH Bonus (Pawn Shop sign)	PFP-PCB-PAWNSHP	MA/JA36
L21	4 (right inlane)	PIN-PCB-RETURNL	MA/JA34	L94	1X (Big Kahuna Bonus sign)	PFP-PCB-BKAHUNA	MB/JB45
L22	Ball Save outlane, right	PIN-PCB-RETURNL	MA/JA34	L95	2X (Big Kahuna Bonus sign)	PFP-PCB-BKAHUNA	MB/JB45
L23	Advance Big Kahuna Bonus arrow	PFP-PCB-PLAYFLD	-	L96	3X (Big Kahuna Bonus sign)	PFP-PCB-BKAHUNA	MB/JB45
L24	Collect Gun Bonus arrow	PFP-PCB-PLAYFLD	-	F00	Divine Intervention flasher	PIN-PCB-FLSHCAN	MA/JA57
L25	Jules character	PFP-PCB-PLAYFLD	-	F01	Heads Up arrow flasher	PFP-PCB-HEADSUP	MA/JA51
L26	Mia character	PFP-PCB-PLAYFLD	-	F06	Briefcase interior flasher 1	PFP-PCB-BFCLAMP	MB/JB7
L27	Jimmie character	PFP-PCB-PLAYFLD	-	F07	Briefcase interior flasher 2	PFP-PCB-BFCLAMP	MB/JB7
L28	Vincent character	PFP-PCB-PLAYFLD	-	F08	Briefcase interior flasher 3	PFP-PCB-BFCLAMP	MB/JB7
L29	Mr. Wolf character	PFP-PCB-PLAYFLD	-	F10	When Flashing Big Kahuna Bonus sign flasher	PFP-PCB-KAHUNFL	MB/JB45

* RGB LED † 8-Bit Ctrl

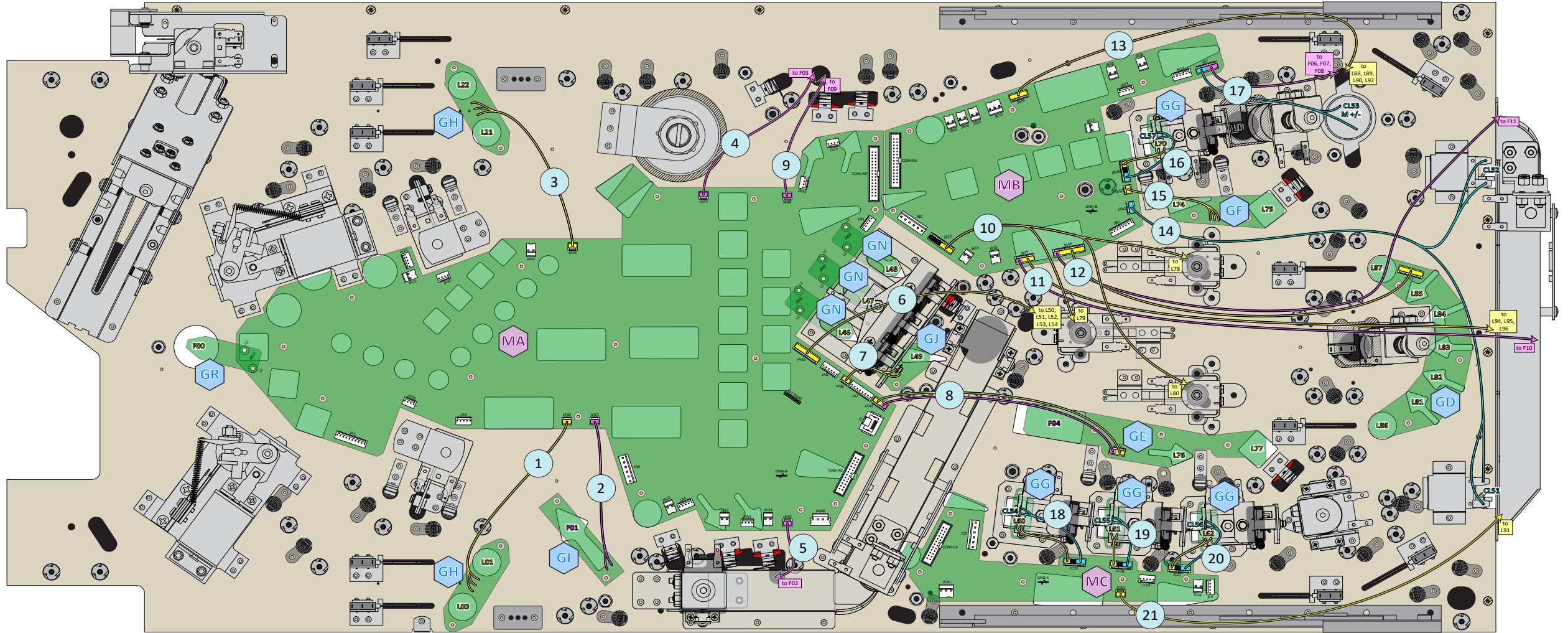


Playfield Feature/Insert Lighting

Under Playfield (2 of 2)

Light #	Location/Function	Mounted On	Driven By	Light #	Location/Function	Mounted On	Driven By
L46	3-bank drop target, left arrow	PIN-PCB-LAMPCAN	MA/JA58	L77	Big Kahuna Bonus , left	PFP-PCB-3LAMP	MA/JA40
L47	3-bank drop target, center arrow	PIN-PCB-LAMPCAN	MA/JA59	L78	Right jet bumper	PIN-LMP-GILEDWW	MB/JB22
L48	3-bank drop target, right arrow	PIN-PCB-LAMPCAN	MA/JA60	L79	Center jet bumper	PIN-LMP-GILEDWW	MB/JB22
L49	Lock arrow (under Pawn Shop)	PIN-PCB-SNGLMP	MA/JA35	L80	Left jet bumper	PIN-LMP-GILEDWW	MB/JB22
L55	Super Spinner (left orbit)	PFP-PCB-UPPLEFT	-	L81	Starts Character saucer arrow 1 (left, red)	PFP-PCB-TOPSKIL	MB/JB46
L57*	Payoff arrow (left orbit)	PFP-PCB-UPPLEFT	-	L82	Starts Character saucer arrow 2 (red)	PFP-PCB-TOPSKIL	MB/JB46
L58*†	Payoff arrow (inline DTs)	PFP-PCB-PLAYFLD	MC/SPI-CA	L83	Starts Character saucer arrow 3 (center, blue)	PFP-PCB-TOPSKIL	MB/JB46
L59	Briefcase Boogie Lock arrow (inline DTs)	PFP-PCB-UPPLEFT	-	L84	Starts Character saucer arrow 4 (red)	PFP-PCB-TOPSKIL	MB/JB46
L60	6 (inline DT, bottom)	PIN-PCB-DROPLMP	MC/JC25	L85	Starts Character saucer arrow 5 (right, red)	PFP-PCB-TOPSKIL	MB/JB46
L61	6 (inline DT, center)	PIN-PCB-DROPLMP	MC/JC26	L86	1 (top left lane)	PFP-PCB-TOPSKIL	MB/JB46
L62	6 (inline DT, top)	PIN-PCB-DROPLMP	MC/JC27	L87	2 (top right lane)	PFP-PCB-TOPSKIL	MB/JB46
L63*†	Payoff arrow (Roll Scene lane)	PFP-PCB-PLAYFLD	-	L88	Lock 1 (briefcase sign)	PIN-PCB-LOCK123	MB/JB44
L64	Collect Character arrow (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L89	Lock 2 (briefcase sign)	PIN-PCB-LOCK123	MB/JB44
L65	Roll Scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L90	Lock 3 (briefcase sign)	PIN-PCB-LOCK123	MB/JB44
L66	Twist Contest scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L91	Jules sculpture spotlight	PIN-PCB-SPOTJUL	MC/JC50
L67	BMF Wallet scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	L92	Vince sculpture spotlight	PIN-PCB-SPOTVIN	MB/JB44
L68	Gold Watch scene (Roll Scene lane)	PFP-PCB-UPRIGHT	-	F02	Royale w/Cheese sculpture flasher	PIN-PCB-BRGRFLS	MA/JA48
L69	Clean The Car scene (Roll Scene lane)	PIN-PCB-UPRIGHT	-	F03	Bullseye Magnet flasher	PIN-PCB-THINFLS	MA/JA47
L70	The Shot scene (Roll Scene lane)	PFP-PCB-DROPLMP	MB/JB39	F04	Mia dancing silhouette flasher	PFP-PCB-3LAMP	MA/JA40
L71	Super Spinner (right orbit)	PFP-PCB-UPRIGHT	-	F05	Vince dancing silhouette flasher	PFP-PCB-UPRIGHT	-
L73*	Payoff arrow (right orbit)	PFP-PCB-UPRIGHT	-	F09	Gold watch toy flasher	PIN-PCB-GILEDS	MA/JA49
L74	Extra Ball arrow	PFP-PCB-2LMPEXB	MB/JB37	F11	Briefcase lock exit flasher	PIN-PCB-THINFLS	MB/JB46
L75	Big Kahuna Bonus , right	PFP-PCB-2LMPEXB	MB/JB37	F19	Drive Fast red car flasher (left orbit)	PFP-PCB-UPPLEFT	-
L76	Hold Cast arrow	PFP-PCB-3LAMP	MA/JA40	F20	Drive Fast lavender car flasher (right orbit)	PFP-PCB-UPRIGHT	-

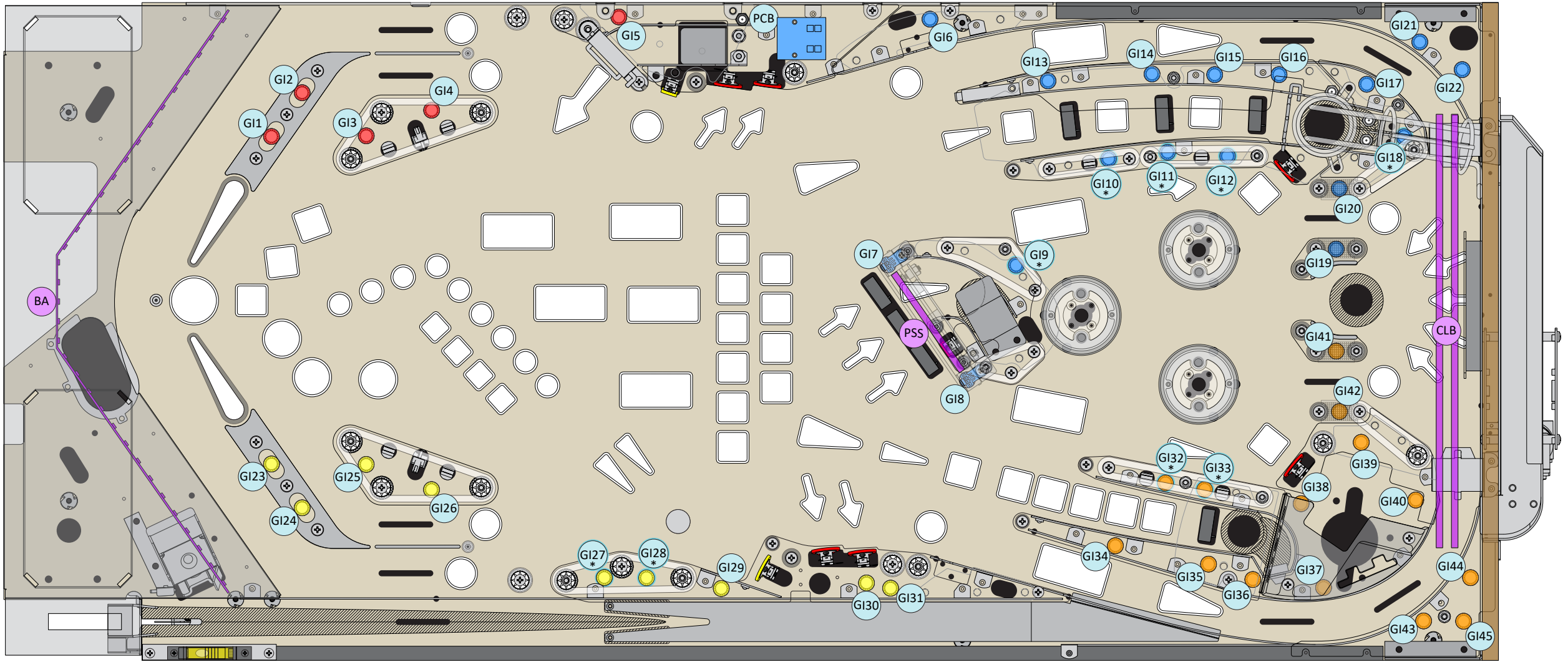
* RGB LED † 8-Bit Ctrl



Playfield Feature/Insert Light, Flasher & Coil Cables/Wiring

Under Playfield

Cable Number	Part ID	Description	Cable Connects To:	Source PCB/Connector	Pin-out Details
1	PIN-CBL-2LAMP7	Dual Light Ctrl Cable, 7"	GH PCB - L00 & L01 insert lights	MA/JA33	3-14
2	PIN-CBL-FLASH8	Single Flasher Ctrl Cable, 8"	GI PCB - F01 insert flasher	MA/JA51	3-14
3	PIN-CBL-2LAMP7	Dual Light Ctrl Cable, 7"	GH PCB - L21 & L22 insert lights	MA/JA34	3-14
4	PIN-CBL-FLASH8	Single Flasher Ctrl Cable, 8"	GQ PCB - F03 Bullseye Magnet flasher	MA/JA47	3-14
5	PIN-CBL-FLASH8	Single Flasher Ctrl Cable, 8"	GT PCB - F02 Royale w/Cheese flasher	MA/JA48	3-14
6	PFP-CBL-PAWNTOP	PF Pawn Shop Sign Ctrl Cable	GK PCB - Pawn Shop sign lights (JK57)	MA/JA36	3-14
7	PIN-CBL-1LAMP3	Single Light Ctrl Cable, 3"	GJ PCB - L49 insert light	MA/JA35	3-14
8	PFP-CBL-3LAMP	Light/Flasher PCB E Ctrl Cable	GE PCB - insert lights/flashers (JE32)	MA/JA40	3-14
9	PFP-CBL-WATCH	Gold Watch Flasher PCB Cable	Watch toy PCB - F09 flasher	MA/JA49	3-14
10	PFP-CBL-JTLMPSW	Jet Bumpers Light/Switch Ctrl Cable	Terminal strip for L78, L79 & L80 jet bumper lights	MB/JB22	3-22
11	PFP-CBL-BPANEL	Back Panel Light/Flasher Ctrl Cable	GL, GP PCBs - Big Kahuna sign lights, flasher	MB/JB45	3-23
12	PFP-CBL-ARWLMPS	Light/Flasher Ctrl Cable	GD, GQ PCBs - insert lights (JD42), F11 highlight flasher	MB/JB46	3-23
13	PFP-CBL-BRFLOCK	Briefcase Sign/Spotlight Ctrl Cable	GM, GS PCBs - briefcase sign lights & L92 spotlight	MB/JB44	3-22
14	PFP-CBL-BGATES	Controlled Gates Coil Cable	Top right (Coil 52) & left (Coil 51) gate coils	MB/JB41	3-22
15	PIN-CBL-2LAMP4	Dual Light Ctrl Cable, 4"	GF PCB - insert lights	MB/JB37	3-22
16	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	L70 insert light & Roll Scene DT retract coil (Coil 57)	MB/JB39	3-22
17	PFP-CBL-BRFMECH	Briefcase Flasher & Motor Ctrl Cable	Briefcase flasher PCB (F06-F08) & motor	MB/JB7	3-21
18	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	L60 insert light & bottom inline DT retract coil (Coil 54)	MC/JC25	3-29
19	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	L61 insert light & center inline DT retract coil (Coil 55)	MC/JC26	3-29
20	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	L62 insert light & top inline DT retract coil (Coil 56)	MC/JC27	3-29
21	PIN-CBL-1LAMP24	Single Light Ctrl Cable, 24"	GO PCB - L91 spotlight	MC/JC50	3-29

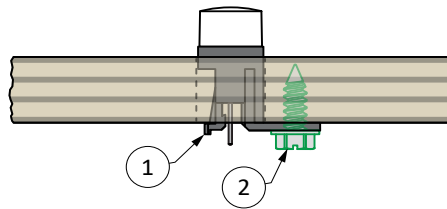


Playfield General Illumination (GI) Lighting

Above Playfield

GI #(s)	Playfield Area	Source PCB/Connector	Test Lamp #
GI1, GI2	Left flipper return lane	MA/JA38 (GI2L)	L98
GI3, GI4	Left slingshot	MA/JA38 (GI2L)	L98
GI5	Left side of playfield, low	MA/JA38 (GI2L)	L98
GI6	Left side of playfield, high	MA/JA55 (GI2U)	L98
GI7, GI8	Pawn Shop sign	MA/JA55 (GI2U)	L98
GI9*	Pawn Shop area	MA/JA55 (GI2U)	L98
GI10*, GI11*, GI12*	Inline drop targets lane, right	MA/JA55 (GI2U)	L98
GI13-GI16	Inline drop targets lane, left	MA/JA55 (GI2U)	L98
GI17, GI18*	Briefcase popper area	MA/JA55 (GI2U)	L98
GI19, GI20	Top left lane dividers	MA/JA55 (GI2U)	L98
GI21, GI22	Upper left corner of playfield	MA/JA55 (GI2U)	L98

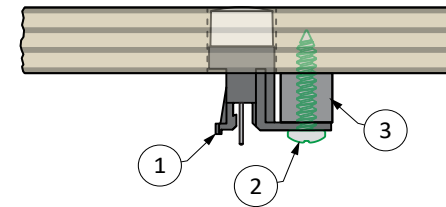
GI #(s)	Playfield Area	Source PCB/Connector	Test Lamp #
GI23, GI24	Right flipper return lane	MA/JA37 (GI1L)	L97
GI25, GI26	Right slingshot	MA/JA37 (GI1L)	L97
GI27*, GI28*, GI29-GI31	Right side of playfield	MA/JA37 (GI1L)	L97
GI32*, GI33*	Roll Scene lane, left	MA/JA54 (GI1U)	L97
GI34-GI36	Roll Scene lane, right	MA/JA54 (GI1U)	L97
GI37-GI40	Rotating briefcase area	MA/JA54 (GI1U)	L97
GI41, GI42	Top right lane dividers	MA/JA54 (GI1U)	L97
GI43-GI45	Upper right corner of playfield	MA/JA54 (GI1U)	L97
PCB	Left side plastics	MA/JA55 (GI2U)	L98
CLB	Cabinet light box (LED strip)	MA/JA56 (GI3)	L99
PSS	Pawn Shop sign (LED strip)	MA/JA56 (GI3)	L99
BA	Bottom arch (LED strip)	MA/JA56 (GI3)	L99



Default Mount

GI1-GI6, GI13-GI17, GI19-GI26, GI29-GI31, GI34-GI45
Playfield, Underside

Item	Part ID	Description
1	PIN-LMP-LEDRGB	GI LED Assy, RGB
2	FSS-N08-HWH050C	#8 x 1/2" HWH SMS

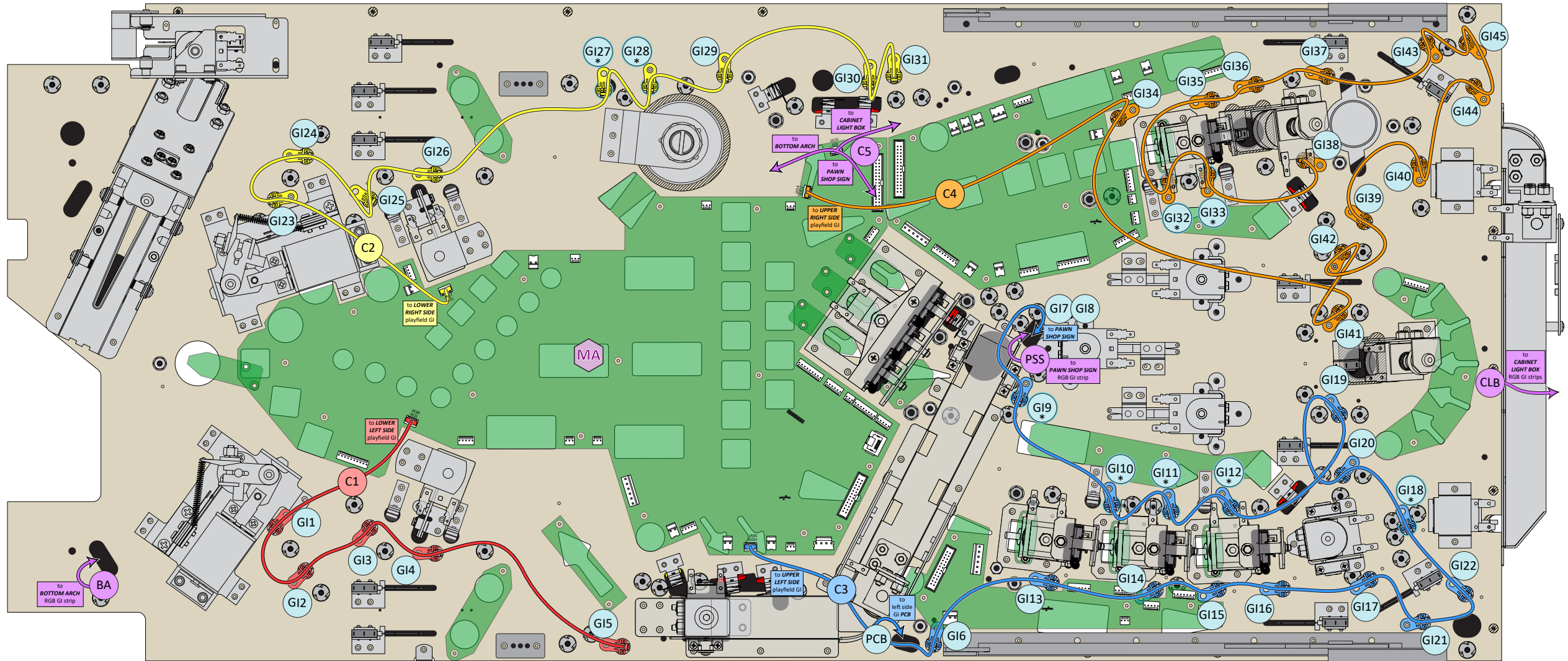


* Flush Mount

GI9-GI12, GI18, GI27, GI28, GI32, GI33
Playfield, Underside

Item	Part ID	Description
1	PIN-LMP-LEDRGB	GI LED Assy, RGB
2	FSS-N06-PPH075C	#6 x 3/4" PPH SMS
3	FWC-019-037N037	#10 Round Nylon Spacer, 3/8"

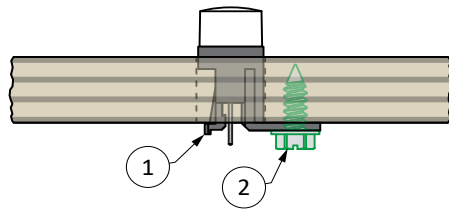
Note: All playfield GI lighting is RGB, 8-bit controlled



Playfield General Illumination (GI) Lighting

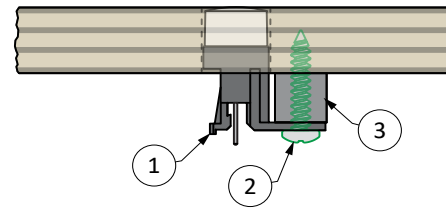
Under Playfield

GI #(s)	Playfield Area	Source PCB/Connector	Test Lamp #	GI #(s)	Playfield Area	Source PCB/Connector	Test Lamp #
GI1, GI2	Left flipper return lane	MA/JA38 (GI2L)	L98	GI23, GI24	Right flipper return lane	MA/JA37 (GI1L)	L97
GI3, GI4	Left slingshot	MA/JA38 (GI2L)	L98	GI25, GI26	Right slingshot	MA/JA37 (GI1L)	L97
GI5	Left side of playfield, low	MA/JA38 (GI2L)	L98	GI27*, GI28*, GI29-GI31	Right side of playfield	MA/JA37 (GI1L)	L97
GI6	Left side of playfield, high	MA/JA55 (GI2U)	L98	GI32*, GI33*	Roll Scene lane, left	MA/JA54 (GI1U)	L97
GI7, GI8	Pawn Shop sign	MA/JA55 (GI2U)	L98	GI34-GI36	Roll Scene lane, right	MA/JA54 (GI1U)	L97
GI9*	Pawn Shop area	MA/JA55 (GI2U)	L98	GI37-GI40	Rotating briefcase area	MA/JA54 (GI1U)	L97
GI10*, GI11*, GI12*	Inline drop targets lane, right	MA/JA55 (GI2U)	L98	GI41, GI42	Top right lane dividers	MA/JA54 (GI1U)	L97
GI13-GI16	Inline drop targets lane, left	MA/JA55 (GI2U)	L98	GI43-GI45	Upper right corner of playfield	MA/JA54 (GI1U)	L97
GI17, GI18*	Briefcase popper area	MA/JA55 (GI2U)	L98	PCB	Left side plastics	MA/JA55 (GI2U)	L98
GI19, GI20	Top left lane dividers	MA/JA55 (GI2U)	L98	CLB	Cabinet light box (LED strip)	MA/JA56 (GI3)	L99
GI21, GI22	Upper left corner of playfield	MA/JA55 (GI2U)	L98	PSS	Pawn Shop sign (LED strip)	MA/JA56 (GI3)	L99
				BA	Bottom arch (LED strip)	MA/JA56 (GI3)	L99



Default Mount

GI1-GI6, GI13-GI17, GI19-GI26, GI29-GI31, GI34-GI45
Playfield, Underside



* Flush Mount

GI9-GI12, GI18, GI27, GI28, GI32, GI33
Playfield, Underside

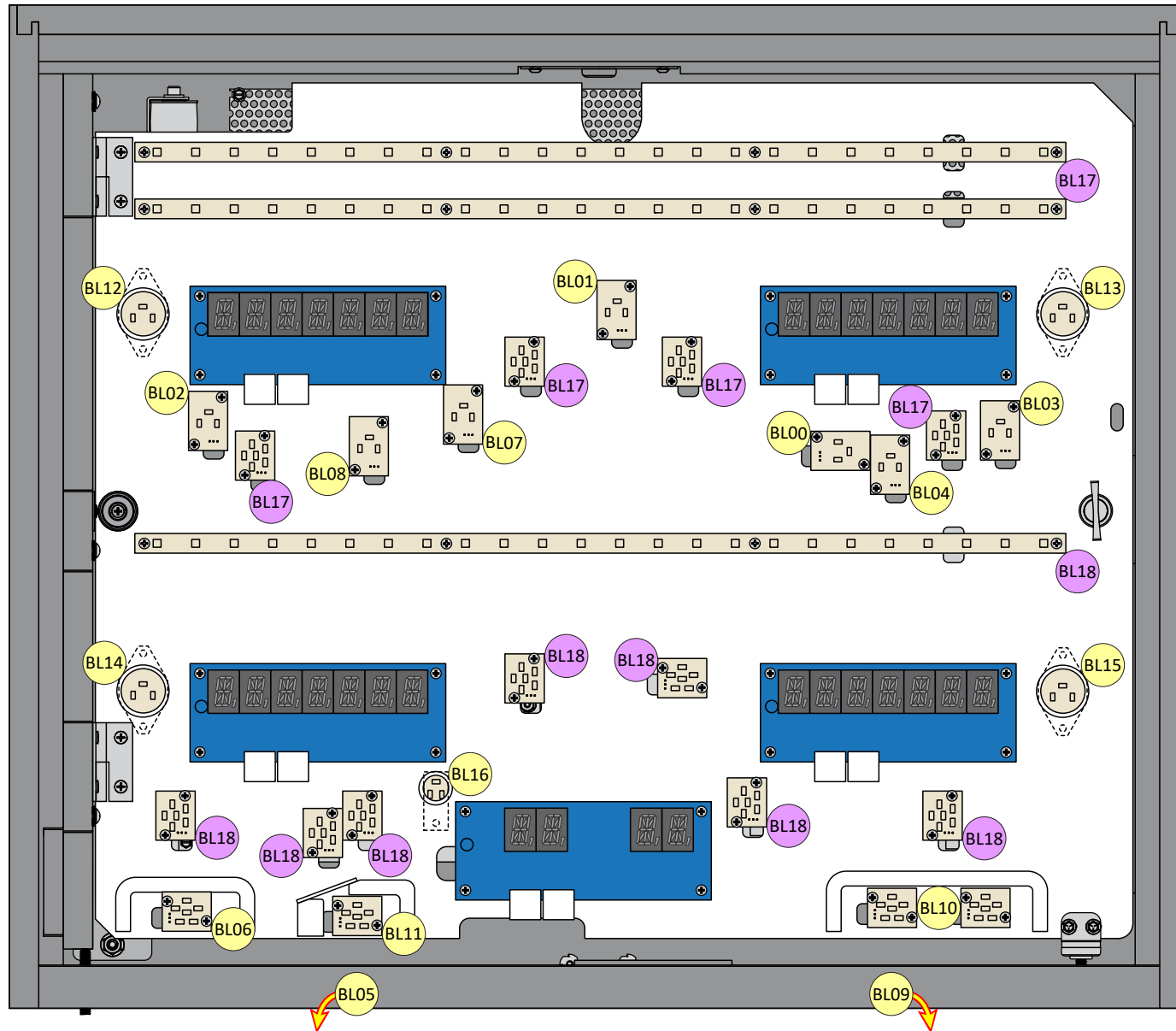
Item	Part ID	Description
1	PIN-LMP-LEDRGB	GI LED Assy, RGB
2	FSS-N08-HWH050C	#8 x 1/2" HWH SMS

Item	Part ID	Description
1	PIN-LMP-LEDRGB	GI LED Assy, RGB
2	FSS-N06-PPH075C	#6 x 3/4" PPH SMS
3	FWC-019-037N037	#10 Round Nylon Spacer, 3/8"

Note: All playfield GI lighting is RGB, 8-bit controlled

Playfield GI Cables

Item	Part ID	Description
C1	PFP-CBL-PFGILL	PF RGB GI Cable, Lower Left
C2	PFP-CBL-PFGILR	PF RGB GI Cable, Lower Right
C3	PFP-CBL-PFGIUL	PF RGB GI Cable, Upper Left
C4	PFP-CBL-PFGIUR	PF RGB GI Cable, Upper Right
C5	PFP-CBL-RGBGI3	PF 12V RGB GI Cable



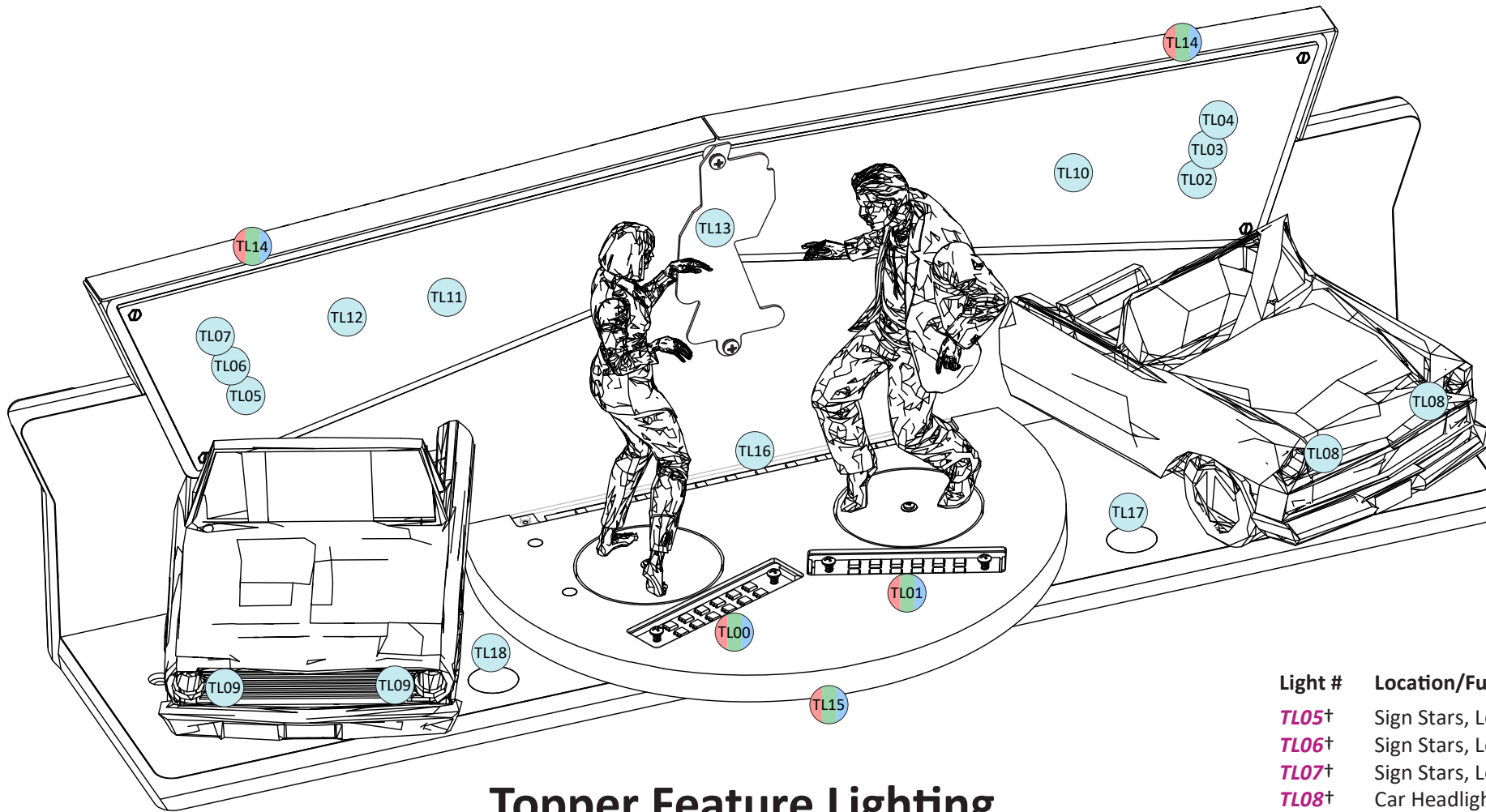
Backbox Feature & GI Lighting

Insert Door

Light #	Location/Function	Part ID	Driven By
BL00	Jimmie Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL01	Mia Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL02	Jules Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL03	Vince Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL04	Mr. Wolf Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL05 †	Jules Sculpture Overhead Flasher	PIN-PCB-THINFLS	Contrlr/J4
BL06	Match Backglass Light	PIN-PCB-GILEDS	Contrlr/J4
BL07	Marsellus Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL08	Butch Backglass Flasher	PIN-PCB-BBFLASH	Contrlr/J4
BL09 †	Vince Sculpture Overhead Flasher	PIN-PCB-THINFLS	Contrlr/J4
BL10	Game Over Backglass Light (2 bds)	PIN-PCB-GILEDS	Contrlr/J4
BL11	Tilt! Backglass Light	PIN-PCB-GILEDS	Contrlr/J4
BL12 *	Player 1^{UP} Backglass Flasher	PIN-PCB-LRGFLSH	Sol Drvr/J118
BL13 *	Player 2^{UP} Backglass Flasher	PIN-PCB-LRGFLSH	Sol Drvr/J118
BL14 *	Player 3^{UP} Backglass Flasher	PIN-PCB-LRGFLSH	Sol Drvr/J118
BL15 *	Player 4^{UP} Backglass Flasher	PIN-PCB-LRGFLSH	Sol Drvr/J118
BL16 *	Timer Backglass Flasher	PIN-PCB-THINFLS	Contrlr/J8
BL17	Upper Backglass GI String (2 bds)	000-PCB-24LEDBR	Contrlr/J8
	Upper Backglass GI String (4 bds)	PIN-PCB-GILEDS	
BL18	Lower Backglass GI String (1 bd)	000-PCB-24LEDBR	Contrlr/J8
	Lower Backglass GI String (7 bds)	PIN-PCB-GILEDS	

* Mounted to the back side of the Insert Door

† Mounted in Cabinet Light Box (pg 2-56), under Cabinet Neck Assy



Topper Feature Lighting (LE only)

Light #	Location/Function	Part ID	Driven By
TL00 *†	Mia Accent Light (left)	MB-PCB-RGBTOPR	Topr3/J7
TL01 *†	Vince Accent Light (right)	MB-PCB-RGBTOPR	Topr3/J7
TL02 †	Sign Stars, Right Ch1	PFP-PCB-TOPLITE	Topr3/J8
TL03 †	Sign Stars, Right Ch2	PFP-PCB-TOPLITE	Topr3/J8
TL04 †	Sign Stars, Right Ch3	PFP-PCB-TOPLITE	Topr3/J8

Light #	Location/Function	Part ID	Driven By
TL05 †	Sign Stars, Left Ch1	PFP-PCB-TOPLITE	Topr3/J8
TL06 †	Sign Stars, Left Ch2	PFP-PCB-TOPLITE	Topr3/J8
TL07 †	Sign Stars, Left Ch3	PFP-PCB-TOPLITE	Topr3/J8
TL08 †	Car Headlights, Right (2 bds)	PFP-PCB-HLITE	Topr3/J8
TL09 †	Car Headlights, Left (2 bds)	PFP-PCB-HLITE	Topr3/J8
TL10 †	Slim's Sign	PFP-PCB-TOPLITE	Topr3/J11
TL11 †	Rabbit Sign	PFP-PCB-TOPLITE	Topr3/J11
TL12 †	Jack Sign	PFP-PCB-TOPLITE	Topr3/J11
TL13 †	Rabbit Character (center)	PFP-PCB-TOPLITE	Topr3/J11
TL14 *†	Neon Sign Border Strip	PFP-LMP-TOPNEON	Topr3/J12
TL15 *†	Stage Edge Light Strip	AFM-CBL-SPKLITE	Topr3/J13
TL16 †	Background Light Strip	PIN-LMP-WWSTRIP	Topr3/J14
TL17	Vince Flasher (right)	PIN-PCB-THINFLS	Topr3/J4
TL18	Mia Flasher (left)	PIN-PCB-THINFLS	Topr3/J4

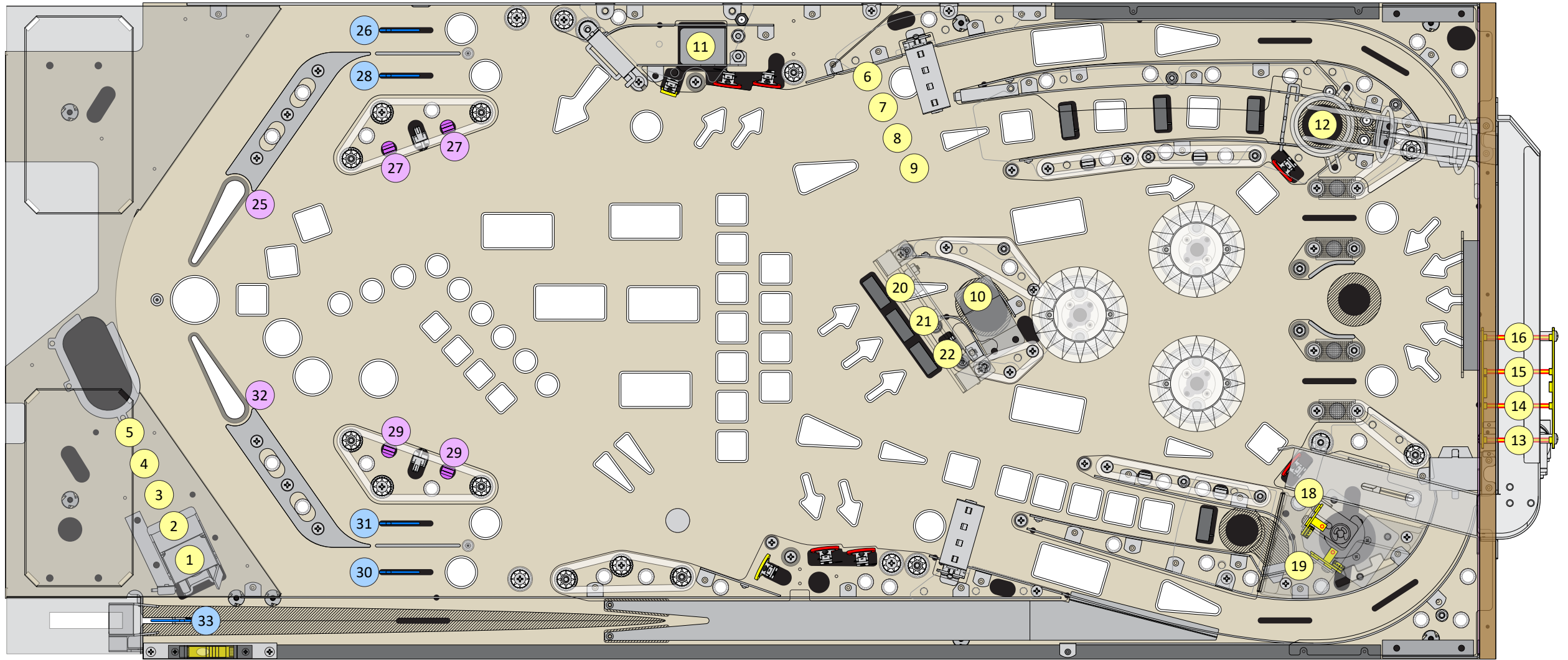
* RGB Lighting

† 8-Bit Ctrl

Lamp Tests: pg 1-49

Lamp Notes: pg 4-2

Topper Wiring Diagram: pg 3-92



● Microswitches ● Leaf Switches ● Targets ● Opto Switches ● Magnetic Switches

Switch Tests: pg 1-52

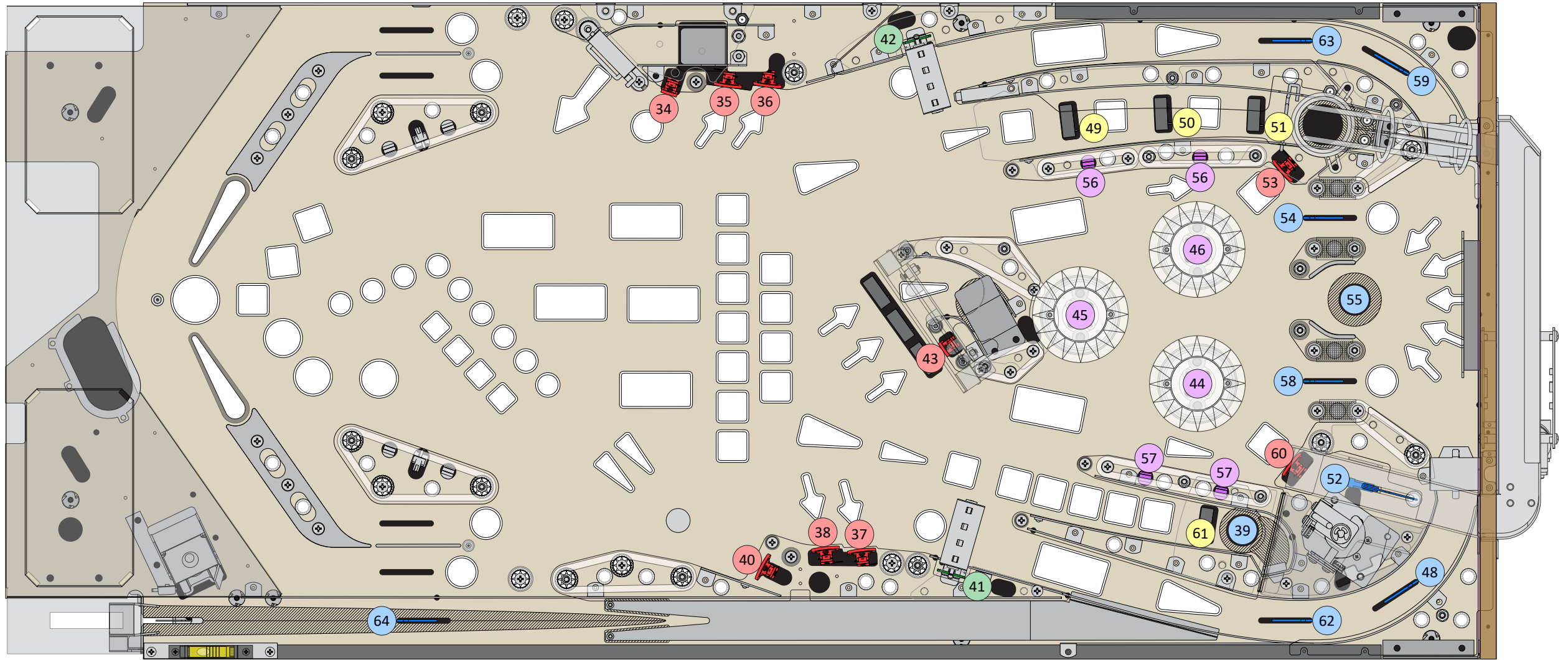
Switch Notes: pg 4-2

Playfield Switch Locations

Above Playfield (1 of 2)

Switch Number	Switch Function	Switch Type	Part ID	Part of Assembly	Drawing	Source PCB/Connector
1*	Ball trough jam (in trough chute)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
2*	Ball trough #1 (right)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
3*	Ball trough #2	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
4*	Ball trough #3	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
5*	Ball trough #4 (left)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
6*	Pawn Shop (subway) lock #1 (left)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
7*	Pawn Shop (subway) lock #2	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
8*	Pawn Shop (subway) lock #3	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
9*	Pawn Shop (subway) lock #4 (right)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
10*	Pawn Shop (subway) entry	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-SUBRAMP	2-30	MA/JA3
11*	Pawn Shop (subway) return popper	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-3BALPOP	2-22	MA/JA4
12*	Briefcase ball lock load popper	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-OPTOPOP	2-21	MC/JC5
13	Briefcase (back panel) lock #1 (right)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
14	Briefcase (back panel) lock #2	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
15	Briefcase (back panel) lock #3	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
16	Briefcase (back panel) lock #4 (left)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
18	Turning briefcase position (left)	U-Shaped Opto (PCB)	PFP-PCB-BCOPTO0	PFP-SUB-BFCMECH	2-41	MB/JB52
19	Turning briefcase position (right)	U-Shaped Opto (PCB)	PFP-PCB-BCOPTO0	PFP-SUB-BFCMECH	2-41	MB/JB52
20*	3-bank drop target, left	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
21*	3-bank drop target, center	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
22*	3-bank drop target, right	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
25*	Left flipper EOS	End of Stroke Leaf Switch	SW-1A-194	PIN-A-15849L2	2-12	MA/JA9
26	Left outlane (Ball Save)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA9
27	Left slingshot pair	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MA/JA9
28	Left inlane (3)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA9
29	Right slingshot pair	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MA/JA10
30	Right outlane (Ball Save)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA10
31	Right inlane (4)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA10
32*	Right flipper EOS	End of Stroke Leaf Switch	SW-1A-194	PIN-A-15849R2	2-10	MA/JA10
33	Shooter lane, low	Auto-Launch Microswitch & Wireform	PIN-56471269368	CC-SUB-A210221	2-18	MA/JA11

* switch located entirely under playfield



● Microswitches ● Leaf Switches ● Targets ● Opto Switches ● Magnetic Switches

Switch Tests: pg 1-52

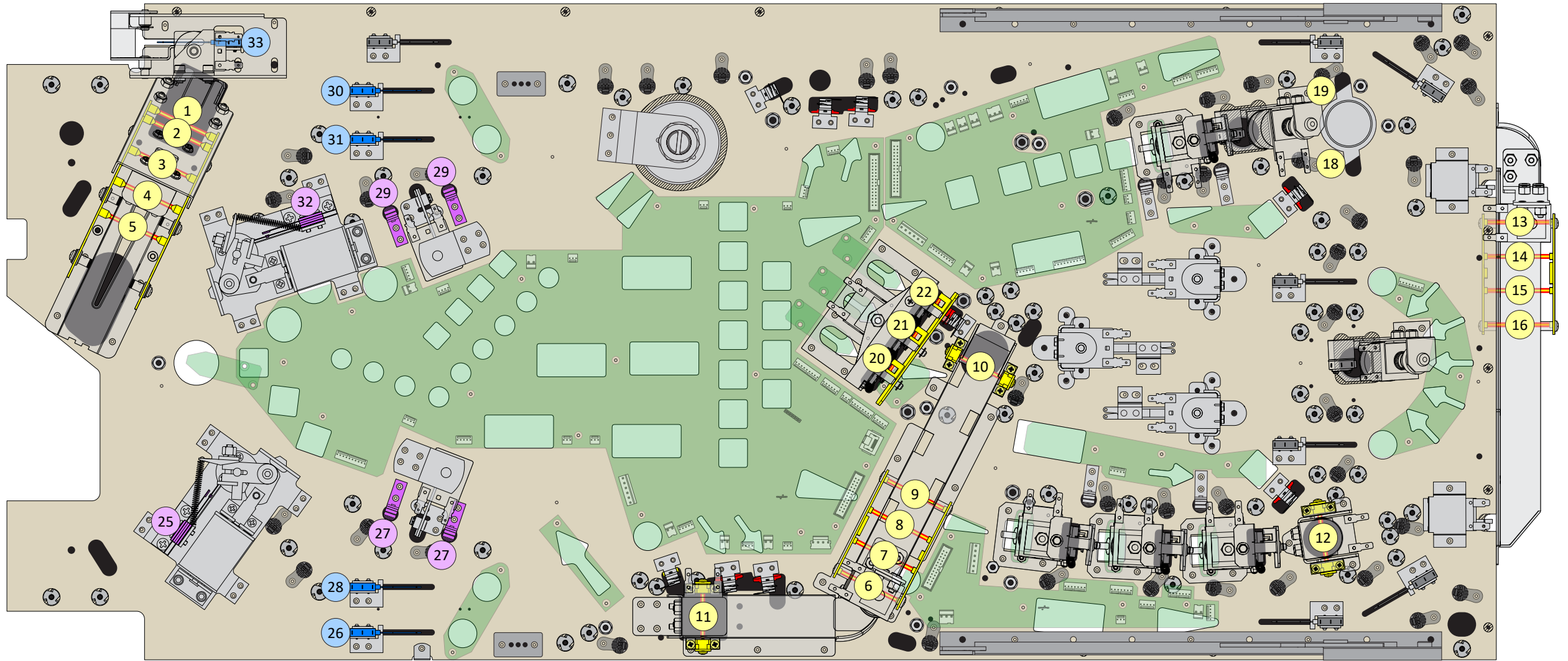
Switch Notes: pg 4-2

Playfield Switch Locations

Above Playfield (2 of 2)

Switch Number	Switch Function	Switch Type	Part ID	Part of Assembly	Drawing	Source PCB/Connector
34	Royale w/Cheese target	Oblong Standup Tgt, Yellow, FM	PIN-A-185306	-	-	MA/JA12
35	Left 2-target bank, bottom	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MA/JA13
36	Left 2-target bank, top	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MA/JA14
37	Right 2-target bank, top	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB15
38	Right 2-target bank, bottom	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB16
39	Roll Scene saucer	Microswitch w/L Actuator Blade	PIN-56471269366	PIN-SUB-A22449	2-29	MB/JB17
40	Bullseye Magnet trigger target	Round Standup Tgt, 100° Anti-Loft, Yellow, FM	PIN-A-146916A	-	-	MB/JB18
41	Right spinner	Magnet Spinner PCB	PIN-PCB-SPINHAL	PFP-SUB-SPINNER	2-38	MB/JB19
42	Left spinner	Magnet Spinner PCB	PIN-PCB-SPINHAL	PFP-SUB-SPINNER	2-38	MC/JC20
43	Drive Fast MPH Bonus collect target	Oblong Standup Tgt, Red, RM	PIN-A-168164	-	-	MB/JB21
44*	Right jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
45*	Center jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
46*	Left jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
48	Right orbit, top	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MB/JB23
49*	6 inline drop target (bottom)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC25
50*	6 inline drop target (center)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC26
51*	6 inline drop target (top)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC27
52	Briefcase lock exit	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813	2-40	MB/JB28
53	Big Kahuna Bonus target, left	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MC/JC29
54	Top left lane (1)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
55	Starts Character saucer	Microswitch w/L Actuator Blade	PIN-56471269366	PIN-SUB-A22449	2-29	MB/JB30
56	Jet bumpers rubber, left	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MC/JC24
57	Jet bumpers rubber, right	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MB/JB23
58	Top right lane (2)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MB/JB23
59	Left orbit, top	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
60	Big Kahuna Bonus target, right	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB38
61*	Roll Scene drop target	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MB/JB39
62	Right orbit, bottom	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-178131 (RSM)	-	MB/JB23
63	Left orbit, bottom	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
64	Shooter lane, upper	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA31

* switch located entirely under playfield



● Microswitches ● Leaf Switches ● Targets ● Opto Switches ● Magnetic Switches

Switch Tests: pg 1-52

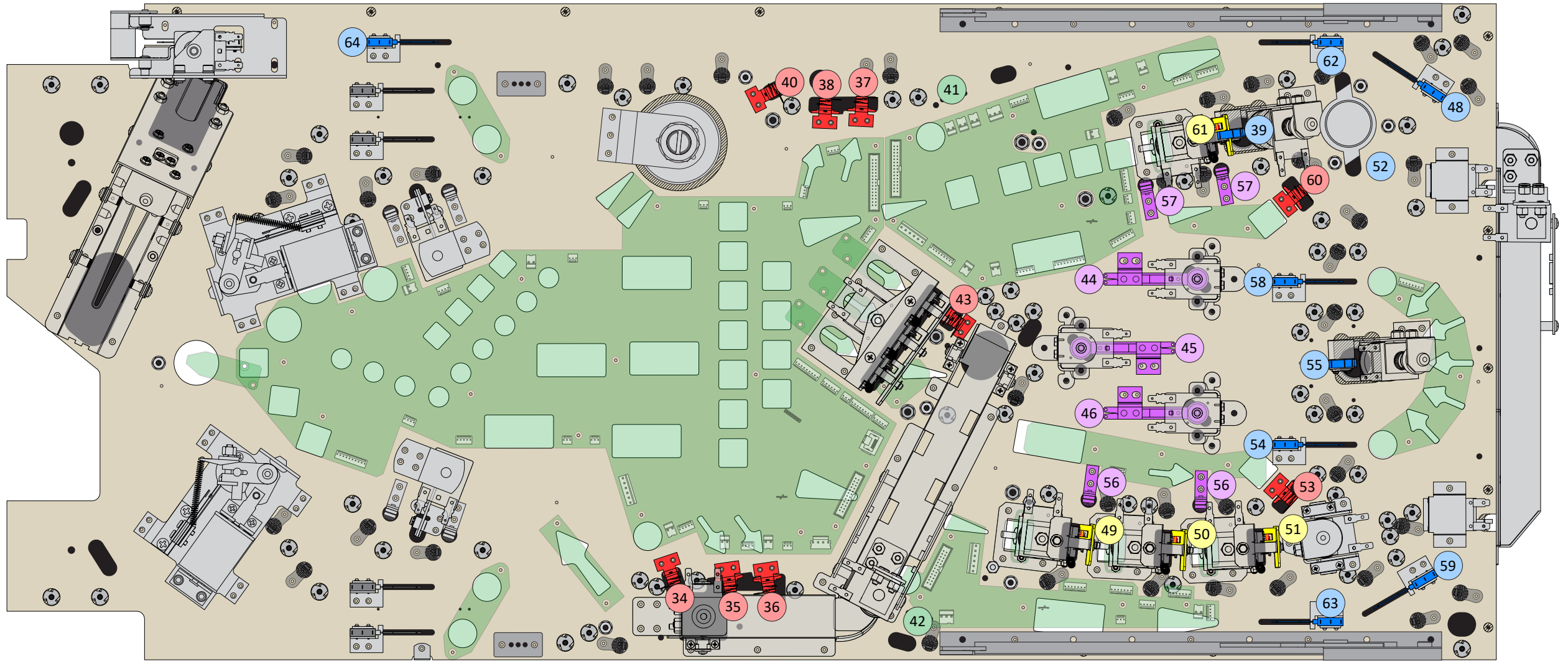
Switch Notes: pg 4-2

Playfield Switch Locations

Under Playfield (1 of 2)

Switch Number	Switch Function	Switch Type	Part ID	Part of Assembly	Drawing	Source PCB/Connector
1	Ball trough jam (in trough chute)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
2	Ball trough #1 (right)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
3	Ball trough #2	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
4	Ball trough #3	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
5	Ball trough #4 (left)	Opto LED, Phototransistor Pair (PCB)	PIN-PCB-TRHEMT1, PIN-PCB-TRHDET1	PFP-SUB-A199631	2-16	MA/JA1
6	Pawn Shop (subway) lock #1 (left)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
7	Pawn Shop (subway) lock #2	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
8	Pawn Shop (subway) lock #3	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
9	Pawn Shop (subway) lock #4 (right)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-SUBRAMP	2-30	MA/JA2
10	Pawn Shop (subway) entry	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-SUBRAMP	2-30	MA/JA3
11	Pawn Shop (subway) return popper	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-3BALPOP	2-22	MA/JA4
12	Briefcase ball lock load popper	Opto LED, Phototransistor Assy Pair	PIN-A-16908, PIN-A-16909	PFP-SUB-OPTOPOP	2-21	MC/JC5
13	Briefcase (back panel) lock #1 (right)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
14	Briefcase (back panel) lock #2	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
15	Briefcase (back panel) lock #3	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
16	Briefcase (back panel) lock #4 (left)	Opto LED, Phototransistor Pair (PCB)	PFP-PCB-IR4EMIT, PFP-PCB-IR4DECT	PFP-SUB-BKBDRMP	2-32	MB/JB6
18*	Turning briefcase position (left)	U-Shaped Opto (PCB)	PIN-PCB-BCOPTOO	PFP-SUB-BFCMECH	2-41	MB/JB52
19*	Turning briefcase position (right)	U-Shaped Opto (PCB)	PIN-PCB-BCOPTOO	PFP-SUB-BFCMECH	2-41	MB/JB52
20	3-bank drop target, left	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
21	3-bank drop target, center	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
22	3-bank drop target, right	U-Shaped Opto (PCB)	PIN-PCB-DROP3TR	PFP-SUB-3BANKDT	2-26	MA/JA8
25	Left flipper EOS	End of Stroke Leaf Switch	SW-1A-194	PIN-A-15849L2	2-12	MA/JA9
26	Left outlane (Ball Save)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA9
27	Left slingshot pair	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MA/JA9
28	Left inlane (3)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA9
29	Right slingshot pair	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MA/JA10
30	Right outlane (Ball Save)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA10
31	Right inlane (4)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA10
32	Right flipper EOS	End of Stroke Leaf Switch	SW-1A-194	PIN-A-15849R2	2-10	MA/JA10
33	Shooter lane, low	Auto-Launch Microswitch & Wireform	PIN-56471269368	CC-SUB-A210221	2-18	MA/JA11

* switch located entirely above playfield



Microswitches Leaf Switches Targets Opto Switches Magnetic Switches

Switch Tests: pg 1-52

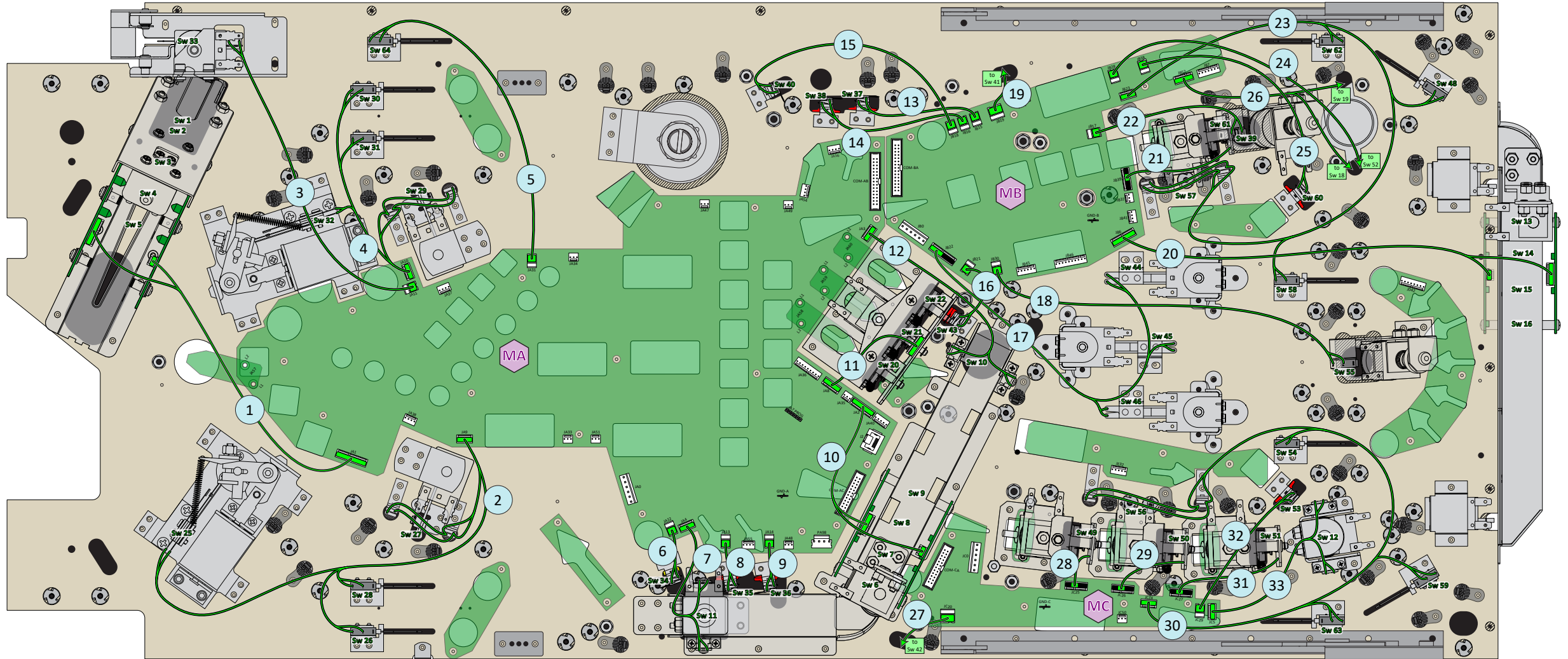
Switch Notes: pg 4-2

Playfield Switch Locations

Under Playfield (2 of 2)

Switch Number	Switch Function	Switch Type	Part ID	Part of Assembly	Drawing	Source PCB/Connector
34	Royale w/Cheese target	Oblong Standup Tgt, Yellow, FM	PIN-A-185306	-	-	MA/JA12
35	Left 2-target bank, bottom	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MA/JA13
36	Left 2-target bank, top	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MA/JA14
37	Right 2-target bank, top	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB15
38	Right 2-target bank, bottom	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB16
39	Roll Scene saucer	Microswitch w/L Actuator Blade	PIN-56471269366	PIN-SUB-A22449	2-29	MB/JB17
40	Bullseye Magnet trigger target	Round Standup Tgt, 100° Anti-Loft, Yellow, FM	PIN-A-146916A	-	-	MB/JB18
41*	Right spinner	Magnet Spinner PCB	PIN-PCB-SPINHAL	PFP-SUB-SPINNER	2-38	MB/JB19
42*	Left spinner	Magnet Spinner PCB	PIN-PCB-SPINHAL	PFP-SUB-SPINNER	2-38	MC/JC20
43	Drive Fast MPH Bonus collect target	Oblong Standup Tgt, Red, RM	PIN-A-168164	-	-	MB/JB21
44	Right jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
45	Center jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
46	Left jet bumper	Jet Bumper Leaf Switch & Actuator	SW-11A-37-1	PIN-A-120303	-	MB/JB22
48	Right orbit, top	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MB/JB23
49	6 inline drop target (bottom)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC25
50	6 inline drop target (center)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC26
51	6 inline drop target (top)	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MC/JC27
52*	Briefcase lock exit	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813	2-40	MB/JB28
53	Big Kahuna Bonus target, left	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MC/JC29
54	Top left lane (1)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
55	Starts Character saucer	Microswitch w/L Actuator Blade	PIN-56471269366	PIN-SUB-A22449	2-29	MB/JB30
56	Jet bumpers rubber, left	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MC/JC24
57	Jet bumpers rubber, right	Upright Leaf Switch Assy, FM (2, in parallel)	PIN-A-17800	-	-	MB/JB23
58	Top right lane (2)	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MB/JB23
59	Left orbit, top	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
60	Big Kahuna Bonus target, right	Round Standup Tgt, Red, FM	PIN-A-146914	-	-	MB/JB38
61	Roll Scene drop target	U-Shaped Opto (PCB)	PIN-PCB-DROPTO	PFP-SUB-1BNKDRP	2-24	MB/JB39
62	Right orbit, bottom	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-178131 (RSM)	-	MB/JB23
63	Left orbit, bottom	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MC/JC24
64	Shooter lane, upper	Rollover Microswitch & Wireform	PIN-56471269319	PIN-A-17813 (LSM)	-	MA/JA31

* switch located entirely above playfield

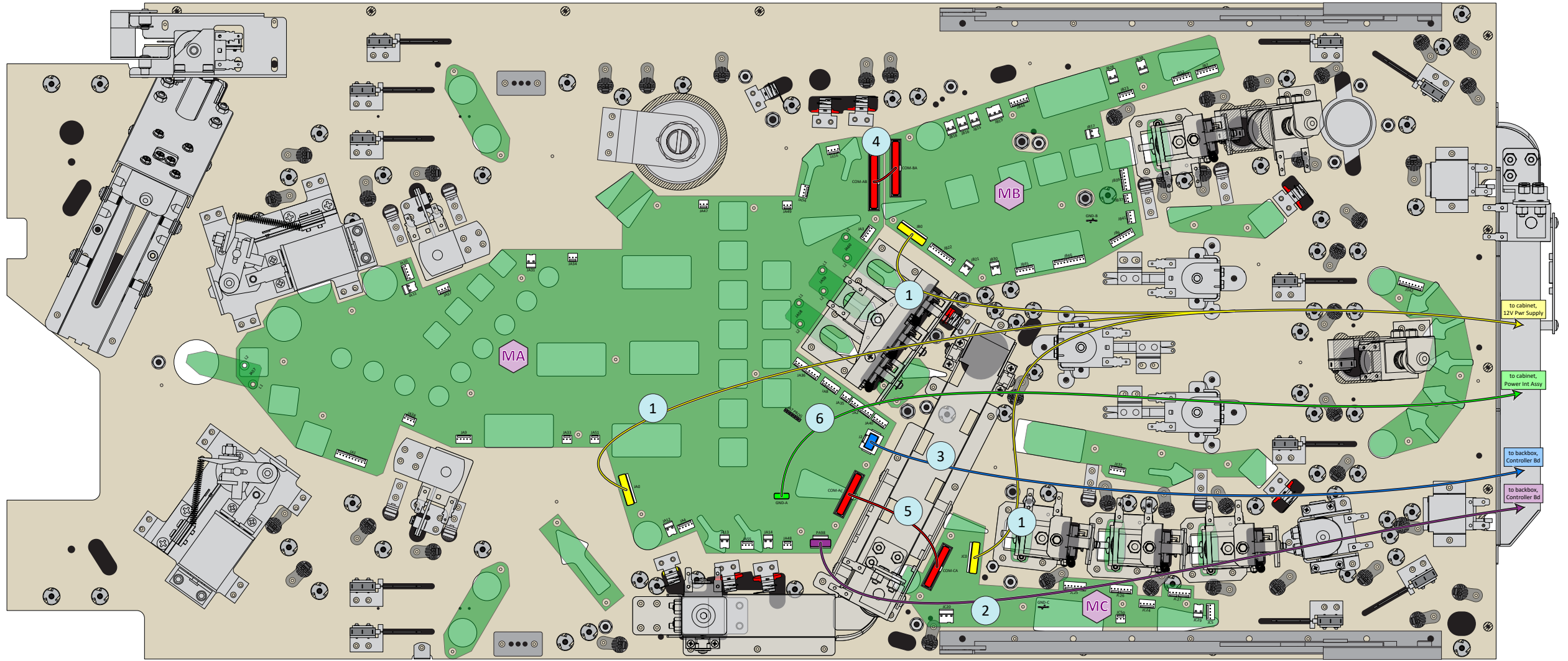


Playfield Switch Cables/Wiring

Under Playfield

Cable Number	Part ID	Description	Cable Connects To:	Source PCB/Connector	Pin-out Details
1	PFP-CBL-TROUGH	Ball Trough Opto PCBs Cable	Sw 1-5 ball trough opto XMT & RCV PCBs	MA/JA1	3-13
2	PFP-CBL-LOWLFSW	Lower Left Switch Cable	Sw 27 sling switches, Sw 26 & 28 microswitches, Sw 25 flipper EOS switch	MA/JA9	3-13
3	PIN-CBL-TGTSW12	Target/Switch Cable, 12"	Sw 33 auto-launch assembly microswitch	MA/JA11	3-13
4	PFP-CBL-LOWRTSW	Lower Right Switch Cable	Sw 29 sling switches, Sw 30 & 31 microswitches, Sw 32 flipper EOS switch	MA/JA10	3-13
5	PIN-CBL-TGTSW9	Target/Switch Cable, 9"	Sw 64 microswitch	MA/JA31	3-14
6	PIN-CBL-TGTSW6	Target/Switch Cable, 6"	Sw 34 oblong yellow standup target	MA/JA12	3-14
7	AFM-CBL-OPTOSW	Single Opto Pair Cable	Sw 11 ball popper single opto XMT & RCV PCBs	MA/JA4	3-13
8	PIN-CBL-TGTSW4	Target/Switch Cable, 4"	Sw 35 round red standup target	MA/JA13	3-14
9	PIN-CBL-TGTSW4	Target/Switch Cable, 4"	Sw 36 round red standup target	MA/JA14	3-14
10	PFP-CBL-SUBOPTO	4-Opto PCBs Cable	Sw 6-9 subway lock opto XMT & RCV PCBs	MA/JA2	3-13
11	PFP-CBL-3BANKDT	3-Bank Drop Tgt Opto PCB Cable	Sw 20-22 3-bank drop target opto PCB	MA/JA8	3-13
12	AFM-CBL-OPTOSW	Single Opto Pair Cable	Sw 10 single opto XMT & RCV PCBs	MA/JA3	3-13
13	PIN-CBL-TGTSW6	Target/Switch Cable, 6"	Sw 37 round red standup target	MB/JB15	3-21
14	PIN-CBL-TGTSW6	Target/Switch Cable, 6"	Sw 38 round red standup target	MB/JB16	3-21
15	PIN-CBL-TGTSW9	Target/Switch Cable, 9"	Sw 40 round yellow standup target	MB/JB18	3-22
16	PIN-CBL-TGTSW6	Target/Switch Cable, 6"	Sw 43 oblong red standup target	MB/JB21	3-22
17	PFP-CBL-JTLMPSW	Jet Bumpers Light/Switch Ctrl Cable	Sw 44-46 jet bumper switches	MB/JB22	3-22
18	PIN-CBL-TGTSW15	Target/Switch Cable, 15"	Sw 55 angled ball eject microswitch	MB/JB30	3-22
19	PFP-CBL-SPINNER	Magnet Spinner PCB Cable	Sw 41* magnet spinner PCB	MB/JB19	3-22
20	PFP-CBL-BRFOPTO	4-Opto PCBs Cable	Sw 13-16 back panel lock opto XMT & RCV PCBs	MB/JB6	3-21
21	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	Sw 61 single drop target opto PCB	MB/JB39	3-22
22	PIN-CBL-TGTSW6	Target/Switch Cable, 6"	Sw 39 angled ball eject microswitch	MB/JB17	3-22
23	PFP-CBL-UPSWRGT	Four Switch Cable	Sw 48, 58 & 62 microswitches, Sw 57 standup leaf switches	MB/JB23	3-22
24	PIN-CBL-TGTSW15	Target/Switch Cable, 15"	Sw 52* briefcase lock exit chute microswitch	MB/JB28	3-22
25	PIN-CBL-TGTSW9	Target/Switch Cable, 9"	Sw 60 round red standup target	MB/JB38	3-22
26	PFP-CBL-MTROPTO	Briefcase Motor Opto PCBs Cable	Sw 18* & 19* turning briefcase opto PCBs, left & right	MB/JB52	3-23
27	PFP-CBL-SPINNER	Magnet Spinner PCB Cable	Sw 42* magnet spinner PCB	MC/JC20	3-28
28	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	Sw 49 single drop target opto PCB	MC/JC25	3-29
29	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	Sw 50 single drop target opto PCB	MC/JC26	3-29
30	PFP-CBL-UPSWLF	Four Switch Cable	Sw 54, 59 & 63 microswitches, Sw 56 standup leaf switches	MC/JC24	3-28
31	PFP-CBL-DROPTGT	Single Drop Target PCB Cable	Sw 51 single drop target opto PCB	MC/JC27	3-29
32	PIN-CBL-TGTSW9	Target/Switch Cable, 9"	Sw 53 round red standup target	MC/JC29	3-29
33	AFM-CBL-OPTOSW	Single Opto Pair Cable	Sw 12 ball popper single opto XMT & RCV PCBs	MC/JC5	3-28

* switch located entirely above playfield



Playfield PCB Control Cables/Wiring

Under Playfield

Cable Number	Part ID	Description	Cable function	Source PCB/Connector	Destination PCB/Connector	Pin-out Details
1	PFP-CBL-PFPOWER	PF PCB Power Supply Cable	MA/MB/MC power supply	Cabinet, 12V Power Supply	MA/JA0, MB/JB0, MC/JC0	3-13
2	MM-CBL-WTCHDOG	Watchdog Cable	Watchdog monitoring	BB, Pinball Controller Bd	MA/PA98	3-15
3	000-CBL-2MCAT6S	CAT6 Ethernet Cable, 2m, Shielded	Communications/control	BB, Pinball Controller Bd	MA/J2	3-15
4	PFP-CBL-COMAB	PF PCB Interconnect Ribbon Cable	MA to MB interconnect	MA/COM-AB	MB/COM-BA	3-23
5	PFP-CBL-COMAC	PF PCB Interconnect Ribbon Cable	MA to MC interconnect	MA/COM-AC	MC/COM-CA	3-29
6	PIN-CBL-PFGND	Playfield Grounding Cable	GND to playfield PCBs	Cabinet, Power Interface Assy	MA/GND-A	-



Game-Specific Sculptures & Molded Plastics

Stand Alone

Item	Part ID	Description	Mtg HW
1*	PFP-PLM-CBURGER	PF Royale w/Cheese Burger Sculpture	2 B (through Royale w/Cheese plastic, washer & GT flasher PCB - F02)
3*	PFP-PLM-PFJULES	PF Jules Character Sculpture	2 C (through back panel)
4*	PFP-PLM-PFVINCE	PF Vince Character Sculpture	2 C (through back panel)
5	PFP-03-96765JK	PF Retro Jet Bumper Cap, Jack	2 A (into jet bumper body)
6	PFP-03-96765RB	PF Retro Jet Bumper Cap, Rabbit	2 A (into jet bumper body)
7	PFP-03-96765SL	PF Retro Jet Bumper Cap, Slim's	2 A (into jet bumper body)

* These sculptures were manufactured with molded-in, threaded inserts for mtg HW to attach to

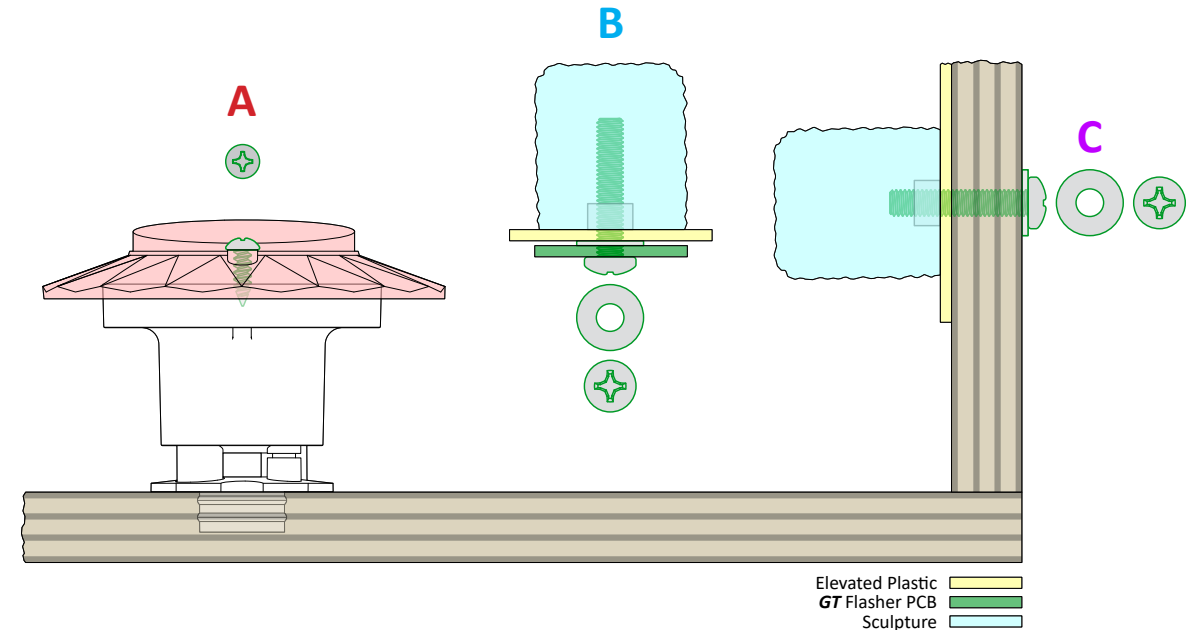
Mounting Hardware

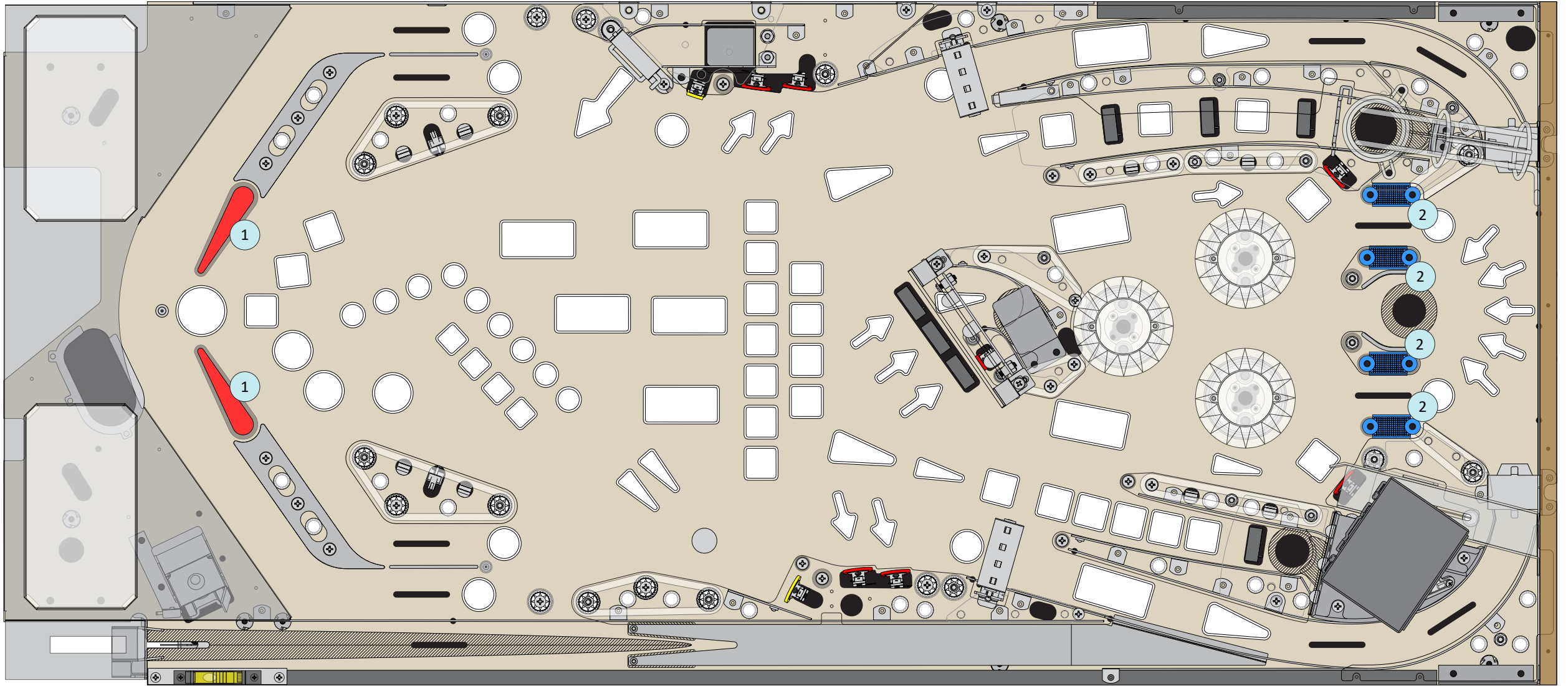
Playfield, Top/Back Panel, Front

Fastener	Part ID	Description
A	FSS-N04-PPH037C	#4 x 3/8" PPH SMS
B	FSM-103-PPH100C FWC-019-037N003	10-32 x 1" PPH MS #10 Nylon Washer, 3/8" (under PCB)
C	FSM-103-PPH100C FWF-N10-037C005	10-32 x 1" PPH MS #10 Flat Washer, 3/8"

As Assembly Components

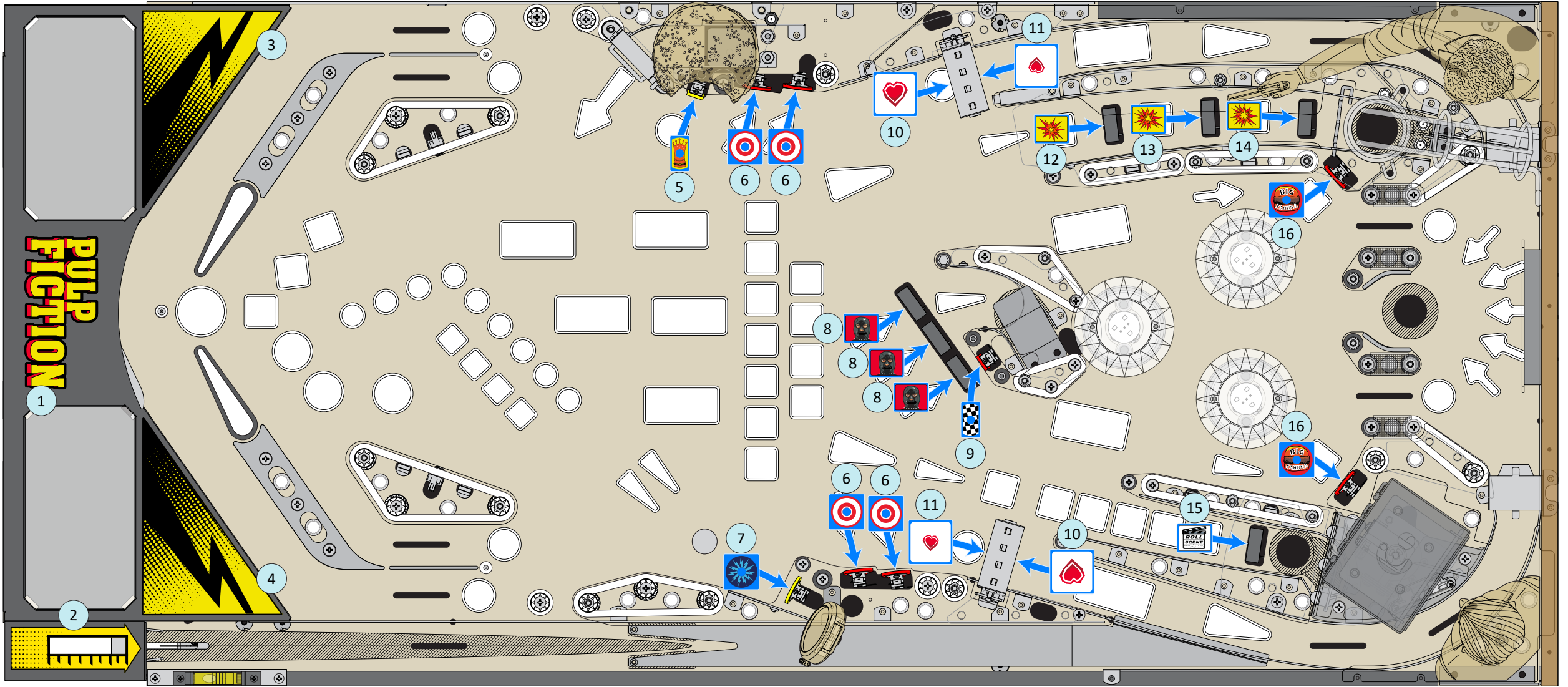
Item	Part ID	Description	Part of Assy	Drawing
2	PFP-PLM-WATCH	PF Molded Gold Watch Sculpture	PFP-SUB-WATCH	2-39
8	PFP-PLM-CASELOK	PF Molded Briefcase Base	PFP-SUB-CASELOK	2-35
9	PFP-PLM-CASEBOT	PF Briefcase Bottom, Molded	PFP-SUB-BFCMECH	2-41
10	PFP-PLM-CASETOP	PF Briefcase Top, Molded	PFP-SUB-BFCMECH	2-41





Generic Molded Plastic Parts

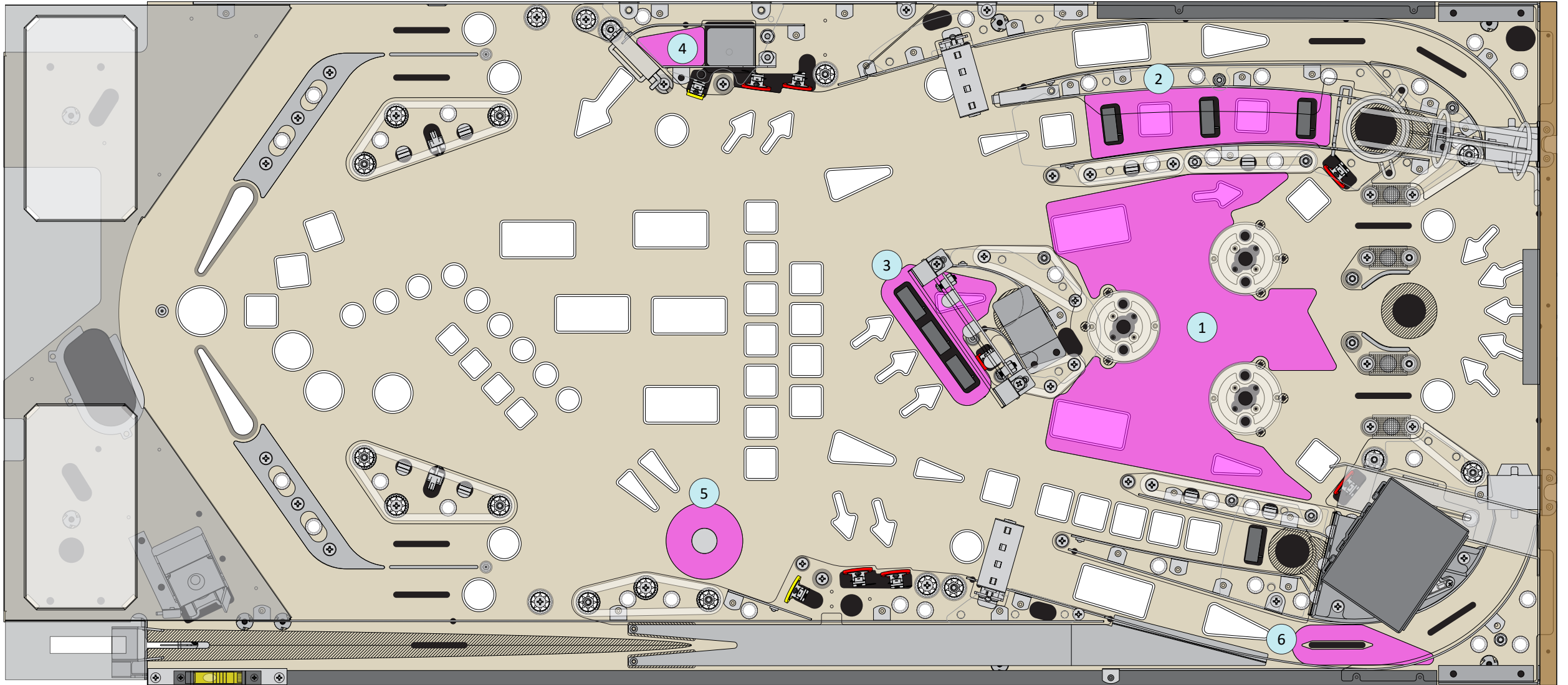
Item	Part ID	Description	Qty
1	PIN-20-101105	Flipper Bat w/Shaft, White	2
2	PIN-03-83189	Lane Guide, Double-Sided, Red, 1-3/4"	4



Game Decals

Item		Part ID	Description	Qty	Part of Assy	Drawing
1	SE,Op	PFP-ART-LALOGO	PF Bottom Arch Center Decal	1	PFP-SUB-LOWARCH	2-44
2		PFP-ART-SHOOTER	PF Shooter Gauge Decal	1	PFP-SUB-LOWARCH	2-44
3		PFP-ART-LALEFT	PF Bottom Arch Left Decal	1	PFP-SUB-LOWARCH	2-44
4		PFP-ART-LARIGHT	PF Bottom Arch Right Decal	1	PFP-SUB-LOWARCH	2-44
5		PFP-ART-ROYLTGT	PF Royale w/Cheese Tgt Decal	1	-	-
6		PFP-ART-BULLTGT	PF Bullseye Tgt Decal	4	-	-
7		PFP-ART-MGNTTGT	PF Magnet Trigger Tgt Decal	1	-	-
8		PFP-ART-GIMPTGT	PF Gimp Drop Tgt Decal	3	PFP-SUB-3BANKDT	2-26
9		PFP-ART-MPHTGT	PF Checkered Flag Tgt Decal	1	-	-
10*		PFP-ART-SPNHRTF	PF Large Heart Spinner Decal	2	PFP-SUB-SPINNER	2-38
11*		PFP-ART-SPNHRTB	PF Small Heart Spinner Decal	2	PFP-SUB-SPINNER	2-38
12		PFP-ART-INLDRPB	PF Briefcase Bottom Drop Tgt Decal	1	PFP-SUB-1BNKDRP	2-24
13		PFP-ART-INLDRPC	PF Briefcase Center Drop Tgt Decal	1	PFP-SUB-1BNKDRP	2-24
14		PFP-ART-INLDRPT	PF Briefcase Top Drop Tgt Decal	1	PFP-SUB-1BNKDRP	2-24
15		PFP-ART-ROLLTGT	PF Roll Scene Drop Tgt Decal	1	PFP-SUB-1BNKDRP	2-24
16		PFP-ART-KHNATGT	PF Big Kahuna Bonus Tgt Decal	2	-	-
NS	SE,LE	PFP-PLS-CDDECAL	PF Coin Door Crown Decal	1	PIN-SUB-SSCNDOR	2-64

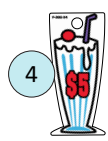
* install decal on back side of spinners (wrt playfield orientation), *upside down*



Mylar Playfield Protectors

Item	Part ID	Description
1	PFP-PLS-JETMYLR	Jet Bumper Area Mylar Playfield Protector
2	PFP-PLS-DRPMYLR	Briefcase Drop Targets Mylar Playfield Protector
3	PFP-PLS-3BKMYLR	Pawn Shop Drop Targets Mylar Playfield Protector
4	PFP-PLS-SUBMYLR	Subway Return Mylar Playfield Protector
5	PFP-PLS-MAGMYLR	Magnet Mylar Playfield Protector
6	PFP-MLS-ORBMYLR	Right Orbit Switch Mylar Playfield Protector

All Mylar playfield protectors are clear



Printed Playfield Plastics

Primary

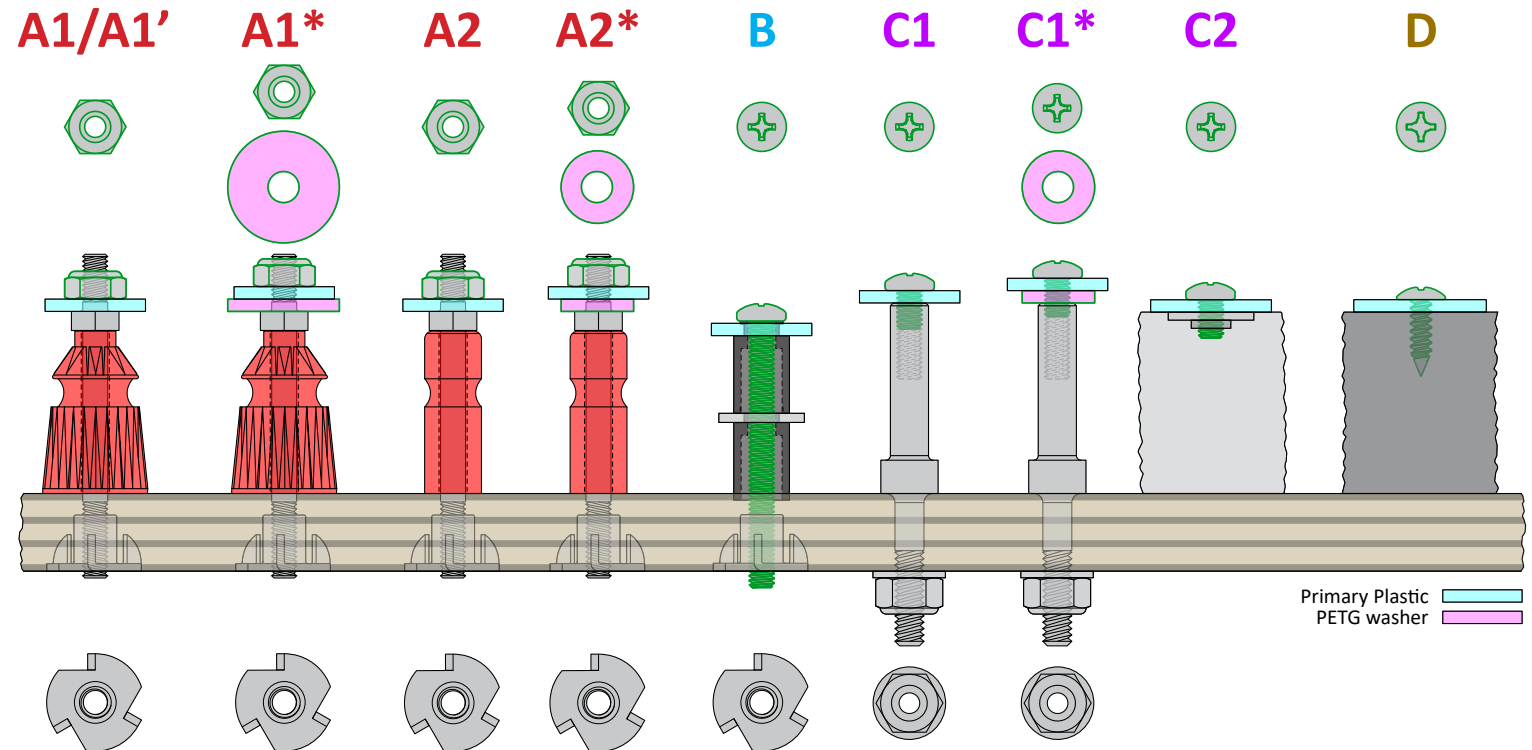
Item	Part ID	Description	Mtg HW	Item	Part ID	Description	Mtg HW
4	PFP-ART-P0004	PF \$5 Shake Key Fob Plastic	-	25	PFP-ART-P00025	PF Left Flipper Return Lane Plastic	3 B
7	PFP-ART-P0007	PF Left Briefcase Popper Lane Plastic	1 A1, 1 C2	27	PFP-ART-P00027	PF Left Sling (Jules) Plastic	2 A1*
8	PFP-ART-P0008	PF Left Lane Divider Plastic	1 A2, 1 A2* (top)	28	PFP-ART-P00028	PF Pawn Shop Plastic	2 A2, 1 C1*
9	PFP-ART-P0009	PF Right Briefcase Popper Lane Plastic	2 A2, 1 C1*	29	PFP-ART-P00029	PF Upper Left Side Plastic	1 C2, 2 D
10	PFP-ART-P00010	PF Right Lane Divider Plastic	1 A2, 1 A2* (top)	30	PFP-ART-P00030	PF Right Flipper Return Lane Plastic	3 B
11	PFP-ART-P00011	PF Briefcase Popper Plastic	2 A1	31	PFP-ART-P00031	PF Right Sling (Vince) Plastic	2 A1*
12	PFP-ART-P00012	PF Lower Left Side (Butch) Plastic	2 A1, 1 A2, 1 C2	32A	PFP-ART-P00032A	PF Gold Watch Key Fob Plastic	-
13	PFP-ART-P00013	PF Right Side (Captain Koons) Plastic	3 A1, 1 C1*, 1 C2	33	PFP-ART-P00033	PF Briefcase Area Plastic	1 A1, 1 A1' (bottom)
15	PFP-ART-P00015	PF Red Apple Cigarettes Key Fob Plastic	-				
20	PFP-ART-P00020	PF Roll Scene Lane Plastic	2 A2, 2 C1*, 1 C2				
21	PFP-ART-P00021	PF Upper Right Corner Plastic	2 D				
22	PFP-ART-P00022	PF Jack Rabbit Slim Key Fob Plastic	-				

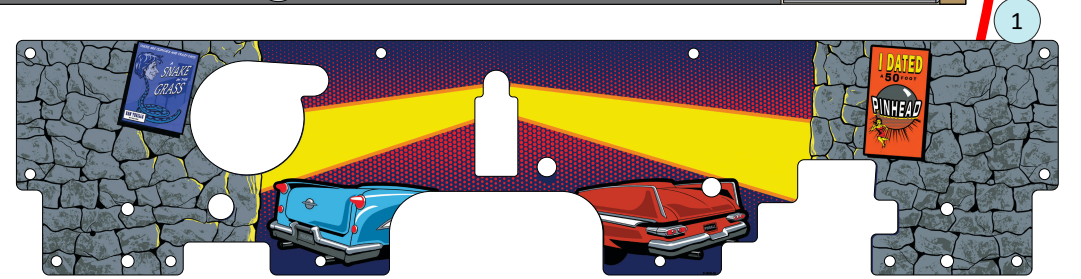
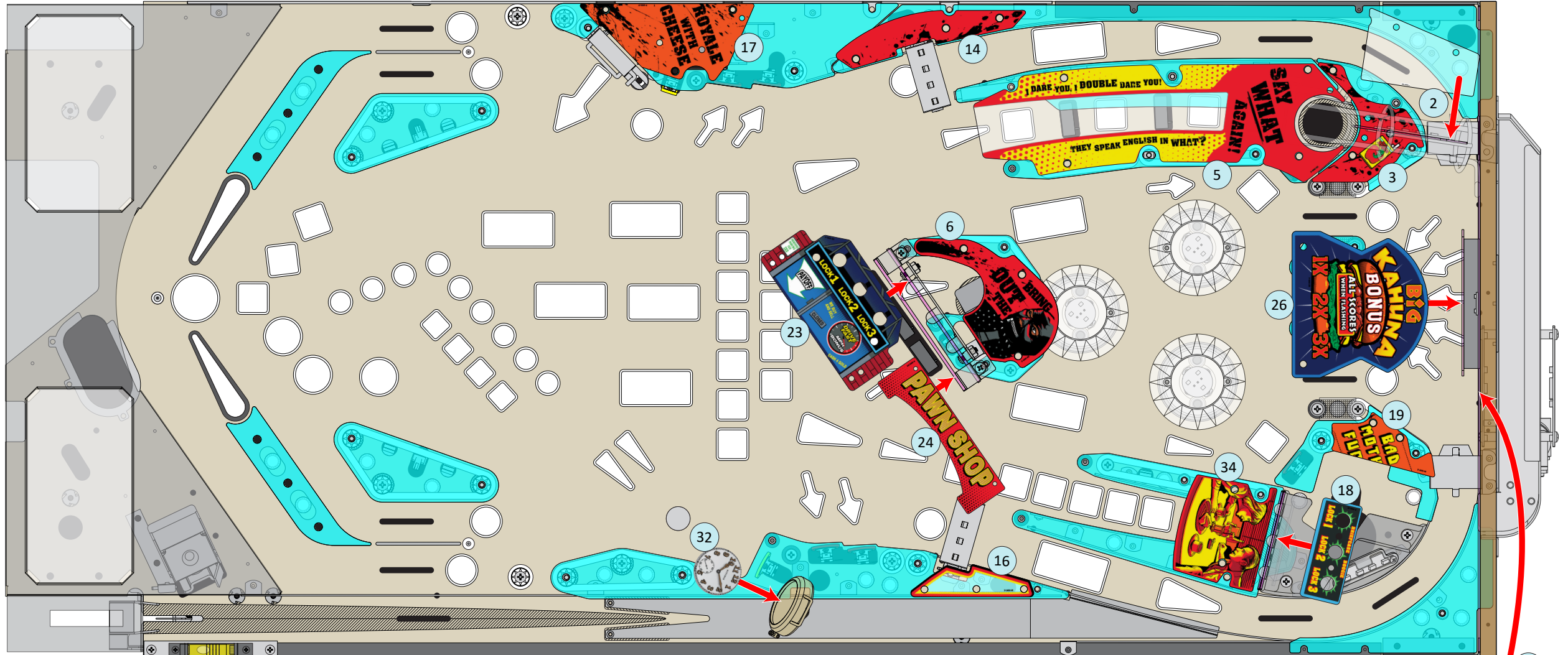
Mtg HW for item B2 threads through the playfield, into an 8-32 T-nut (FNT-083-TE5025), installed in the playfield underside (see pg 2-131)

Primary Plastics Mounting Hardware

Playfield, Top

Fastener	Part ID	Description
A1/A2	FNT-083-ESN172A	8-32 Elastic Stop Nut, Black, Low Profile
A1'	FNT-083-ESNA172	8-32 Elastic Stop Nut, Low Profile
A1*	FNT-083-ESN172A FWC-N08-113P008	8-32 Elastic Stop Nut, Black, Low Profile Clear PETG Washer, 1-1/8" OD
A2*	FNT-083-ESN172A FWC-N08-062P008	8-32 Elastic Stop Nut, Black, Low Profile Clear PETG Washer, 5/8" OD
B	FSM-083-PPH175A PIN-03-92553	8-32 x 1-3/4" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.54" (2 ea)
C1/C2	FSM-083-PPH037A	8-32 x 3/8" PPH MS, Black
C1*	FSM-083-PPH037A FWC-N08-062P008	8-32 x 3/8" PPH MS, Black Clear PETG Washer, 5/8" OD
D	FSS-N06-PTH050A	#6 x 1/2" PTH SMS, Black





Printed Playfield Plastics

Elevated

Item	Part ID	Description	Mtg HW
3	PFP-ART-P0003	PF Elevated Briefcase Popper Plastic	3 C
5	PFP-ART-P0005	PF Briefcase Popper Lane Cover Plastic	4 C
6	PFP-ART-P0006	PF Elevated Pawn Shop Plastic	3 A
14	PFP-ART-P00014	PF Elevated Left Spinner Plastic	3 B1
16	PFP-ART-P00016	PF Elevated Right Spinner Plastic	3 B1
17	PFP-ART-P00017	PF Elevated Royale w/Cheese Plastic	1 B1 , 2 B2
19	PFP-ART-P00019	PF Elevated Briefcase Area Plastic	2 B1
34	PFP-ART-P00034	PF Elevated Roll Scene Lane Plastic	2 B1

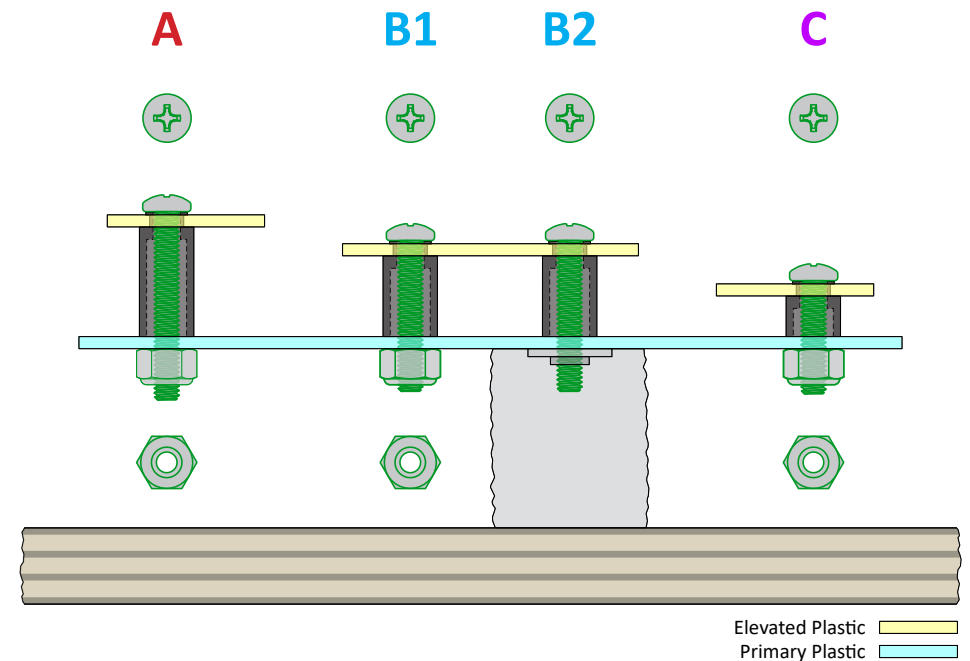
As Assembly Components

Item	Part ID	Description	Part of Assy	Drawing
1	PFP-ART-P0001	PF Back Panel Plastic	PFP-SUB-BACKPNL	2-42
2	PFP-ART-P0002	PF Briefcase Popper Wireform Plastic	PFP-SUB-POPRTUB	2-37
18	PFP-ART-P00018	PF Briefcase Boogie Lock Sign Plastic	PFP-SUB-CASELOK	2-35
23	PFP-ART-P00023	PF Pawn Shop Lock Sign Plastic	PFP-SUB-PWNSHOP	2-36
24	PFP-ART-P00024	PF Pawn Shop Marquee Plastic	PFP-SUB-PWNSHOP	2-36
26	PFP-ART-P00026	PF Big Kahuna Bonus Sign Plastic	PFP-SUB-BACKPNL	2-42
32	PFP-ART-P00032	PF Gold Watch Toy Face Plastic	PFP-SUB-WATCH	2-39

Elevated Plastics Mounting Hardware

Playfield, Top

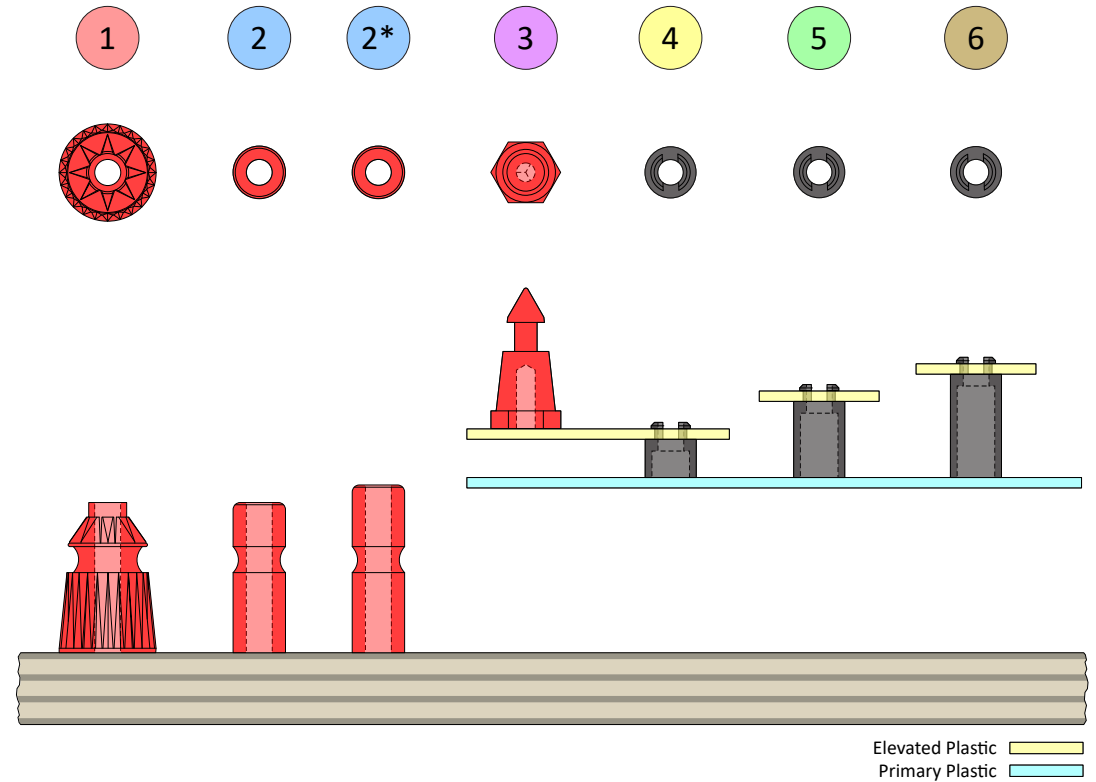
Fastener	Part ID	Description
A	FSM-083-PPH125A PIN-03-92555 FNT-083-ESNA000	8-32 x 1-1/4" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.733" 8-32 Elastic Stop Nut
B1	FSM-083-PPH100A PIN-03-92553 FNT-083-ESNA000	8-32 x 1" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.54" 8-32 Elastic Stop Nut
B2	FSM-083-PPH100A PIN-03-92553	8-32 x 1" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.54"
C	FSM-083-PPH075A PIN-03-92553 FNT-083-ESNA000	8-32 x 3/4" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.26" 8-32 Elastic Stop Nut

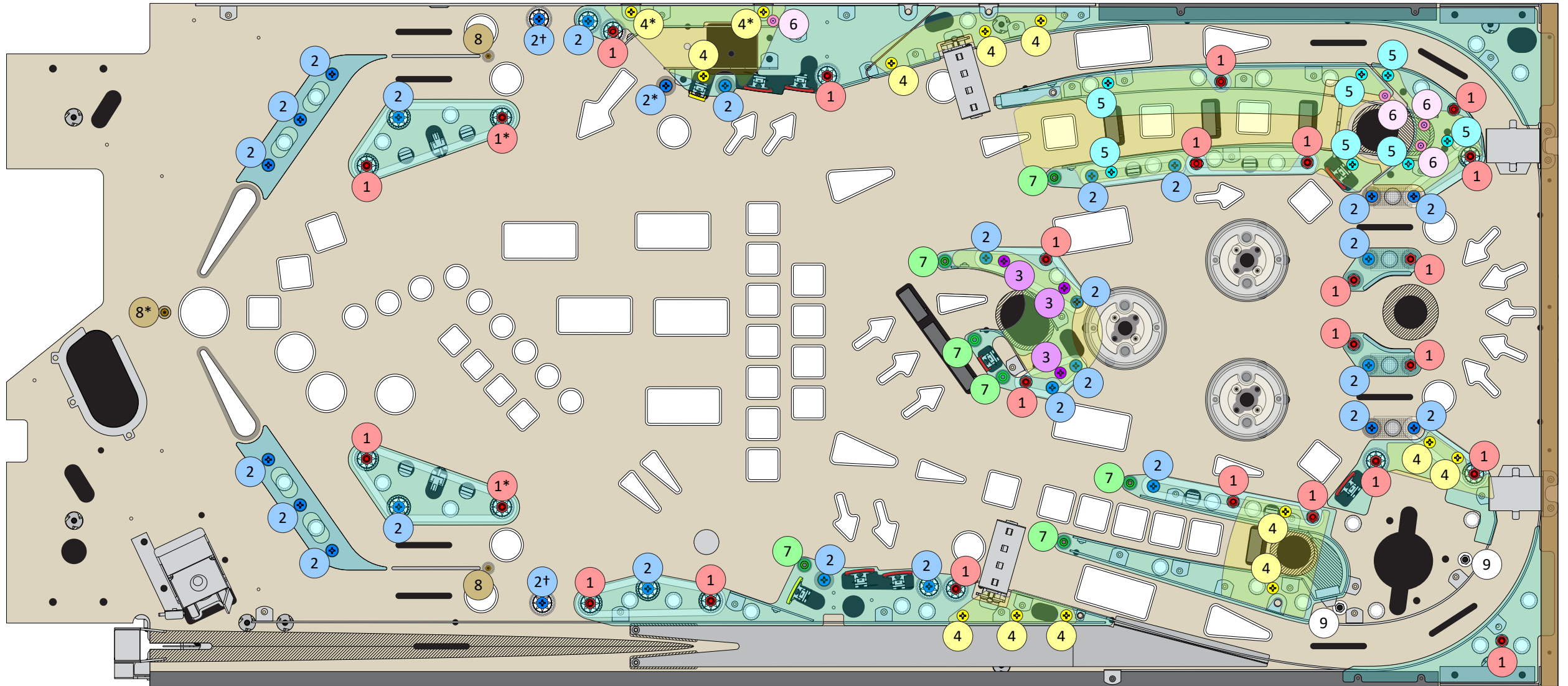




Plastic Playfield Posts, Spacers & Supports

Item	Part ID	Description	Qty
1	PIN-03-83199	Single Star Plastic Post, Translucent Red	19
2	PIN-03-93579	1-1/16" Slim Plastic Post, Translucent Red	22
2*	PIN-03-83659	1-3/16" Slim Plastic Post, Translucent Red	7
3	PIN-03-80449	Mini Plastic Post, Translucent Red	4
4	PIN-03-92551	#8 Nylon Round Spacer, Snap-In, Black, 0.26"	7
5	PIN-03-92553	#8 Nylon Round Spacer, Snap-In, Black, 0.54"	25
6	PIN-03-92555	#8 Nylon Round Spacer, Snap-In, Black, 0.733"	3



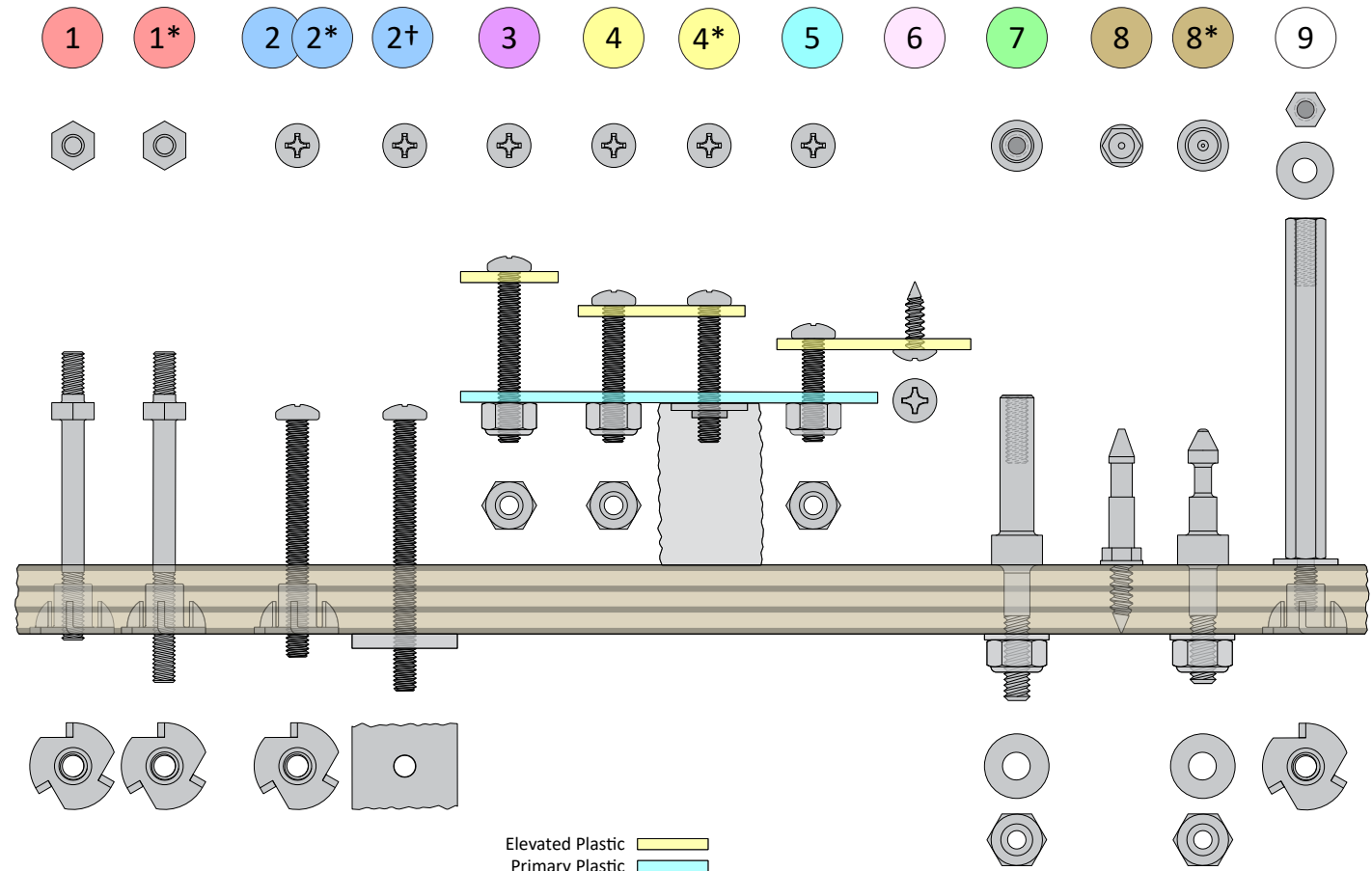


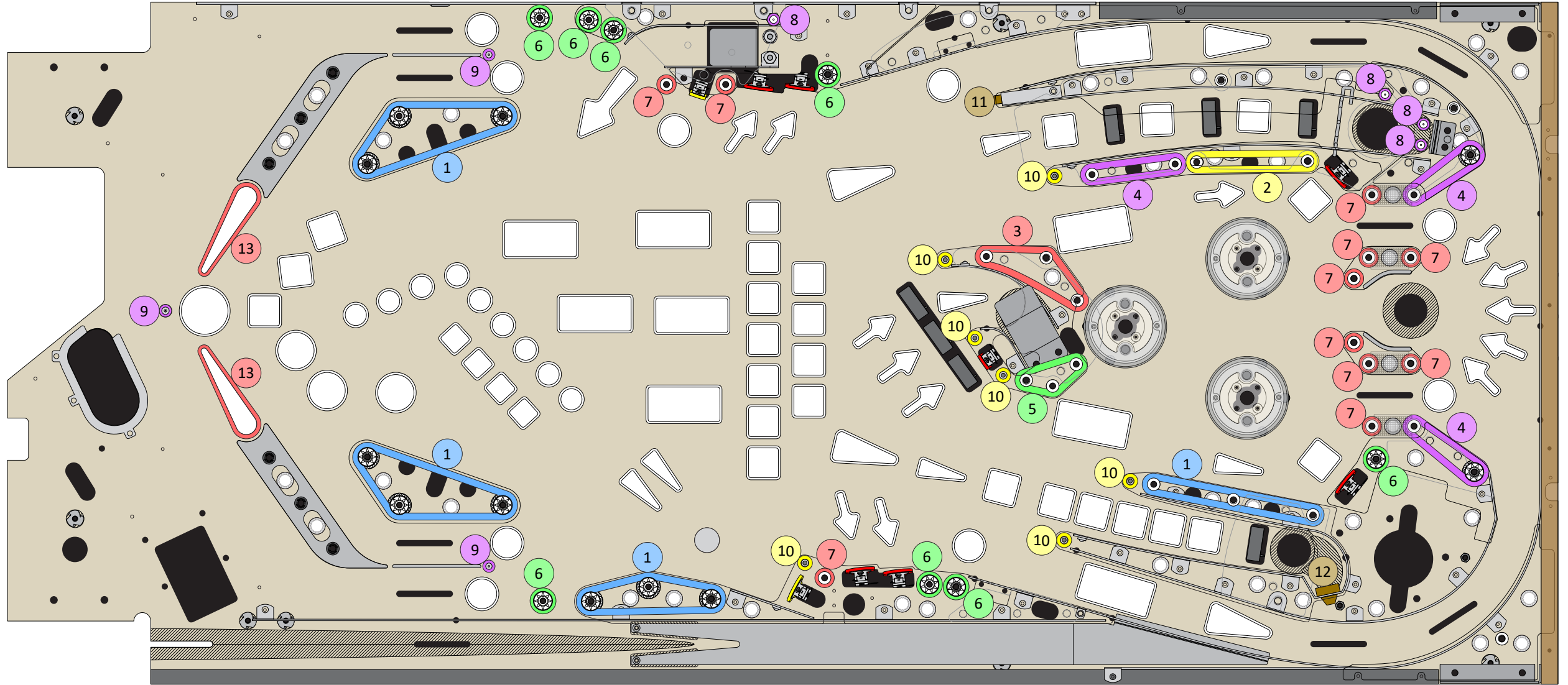
Metal Playfield Posts, Screws & Hex Spacers

Item	Part ID	Description	Qty
1	PIN-02-44252	8-32/8-32 Plastics Fastener Post, 2-1/16"	23
1*	PIN-02-44254	8-32/8-32 Plastics Fastener Post, 2-3/8"	2
2	FSM-083-PPH175A	8-32 x 1-3/4" PPH MS, Black	26
2*	FSM-083-PPH175C	8-32 x 1-3/4" PPH MS	1
2†	FSM-083-PPH200A	8-32 x 2" PPH MS, Black	2
3	FSM-083-PPH125A	8-32 x 1-1/4" PPH MS, Black	3
	FNT-083-ESNA000	8-32 Elastic Stop Nut	3
4	FSM-083-PPH100A	8-32 x 1" PPH MS, Black	11
	FNT-083-ESNA000	8-32 Elastic Stop Nut	11
4*	FSM-083-PPH100A	8-32 x 1" PPH MS, Black	2
5	FSM-083-PPH075A	8-32 X 3/4" PPH MS, Black	7
	FNT-083-ESNA000	8-32 Elastic Stop Nut	7
6	FSS-N06-PTH050C	#6 x 1/2" PTH SMS	4
7	PIN-02-5222	Sleeve Post, 10-32, 8-32 Tapped Top	7
	FWF-N10-037C005	#10 Flat Washer, 3/8"	7
	FNT-103-ESNA000	10-32 Elastic Stop Nut	7
8	PIN-02-3905	Steel Mini Post, #8 WS	2
8*	PIN-02-4003	Steel Mini Post, 8-32	1
9	PIN-02-529540	1/4" x 2-1/2" Hex Spacer, M-F, 8-32	2
	FWF-172-047059C	Flat Washer, 11/64" ID, 7/16" OD, 16 ga	2

Items 1, 1*, 2, 2* & 9 thread through the playfield, into 8-32 T-nuts (FNT-083-TE5025), installed in the playfield underside (see pg 2-131)

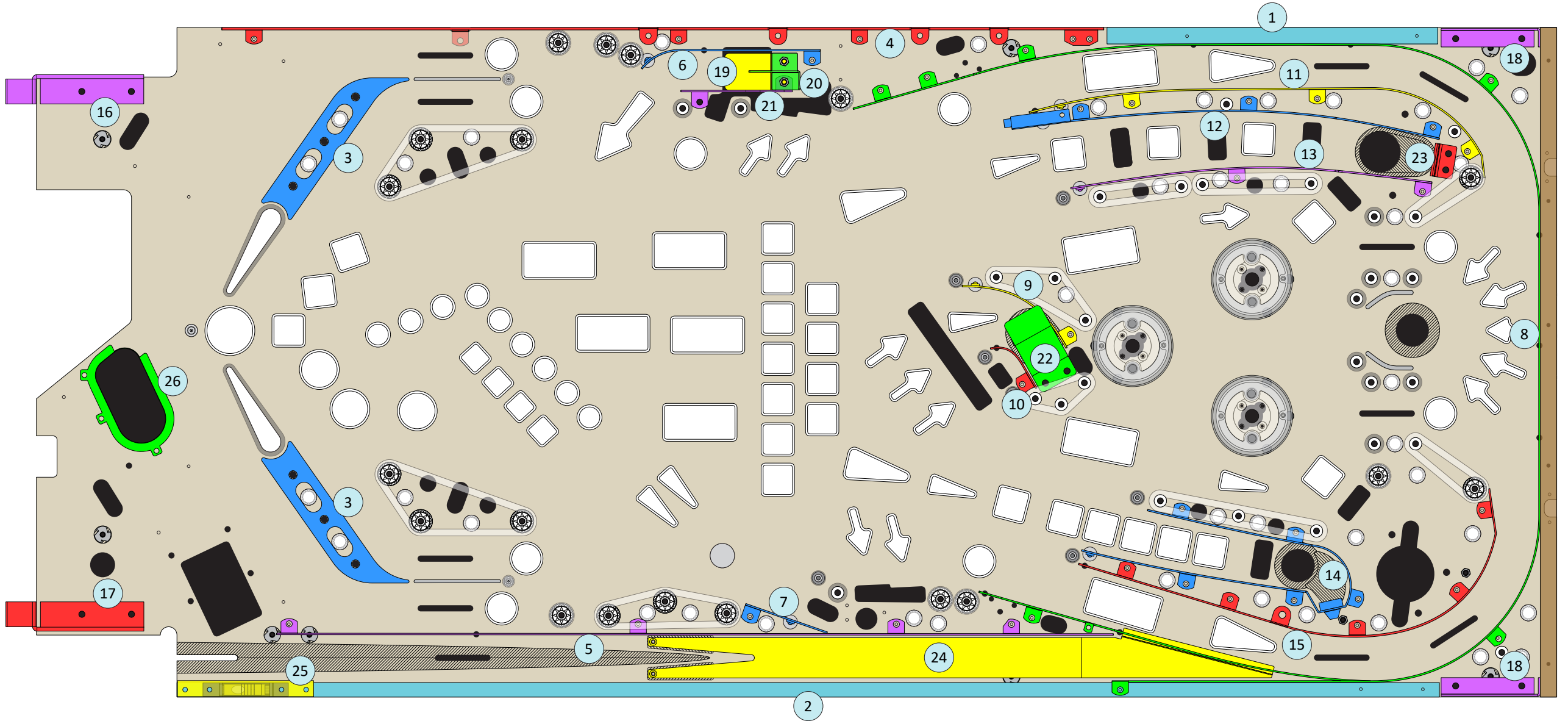
Items 2† thread through slots in the playfield, into brackets, installed in the playfield underside (item 2 on pg 2-128)





Rubber Rings, Bumpers & Sleeves

Item	Part ID	Description	Qty
1	PIN-23-6306	Rubber Ring, 2-1/2" ID, White	4
2	PIN-23-6305	Rubber Ring, 2" ID, White	1
3	PIN-23-6304	Rubber Ring, 1-1/2" ID, White	1
4	PIN-23-6303	Rubber Ring, 1-1/4" ID, White	3
5	PIN-23-6302	Rubber Ring, 1" ID, White	1
6	PIN-23-6300	5/16" ID Star Post Rubber, White	8
7	PIN-23-6641	3/16" ID Slim Post Rubber, Black	11
8	PIN-23-66941	7/16" OD Mini Post Rubber, Black	4
9	PIN-23-6535	7/16" OD Mini Post Rubber, White	3
10	PIN-23-6556	Post Rubber Sleeve, 1-1/16", Black	7
11	PIN-23-67662	Ball Guide Bumper Pad, Blue, Dual Mtg	1
12	PIN-23-6823	Rectangle Bumper Plug, Blue	1
13	PIN-23-6695	Flipper Rubber Ring, 1-1/2", Black	2
NS	PIN-23-6327	Ball Shooter Tip, Black	1



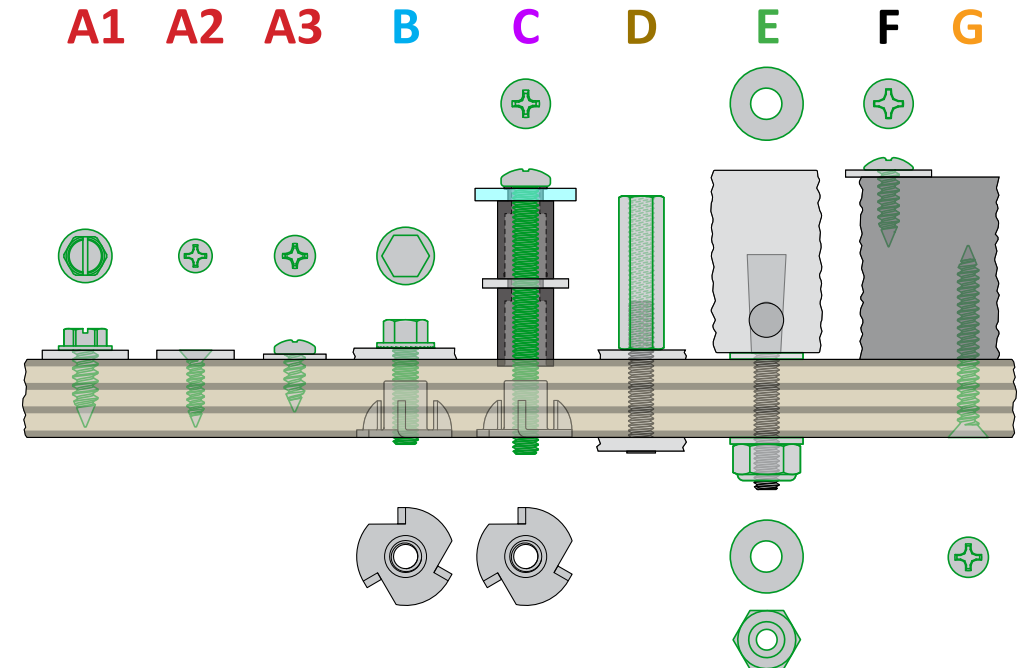
Woodrails, Ball Guide Rails, Brackets & Ball Deflectors

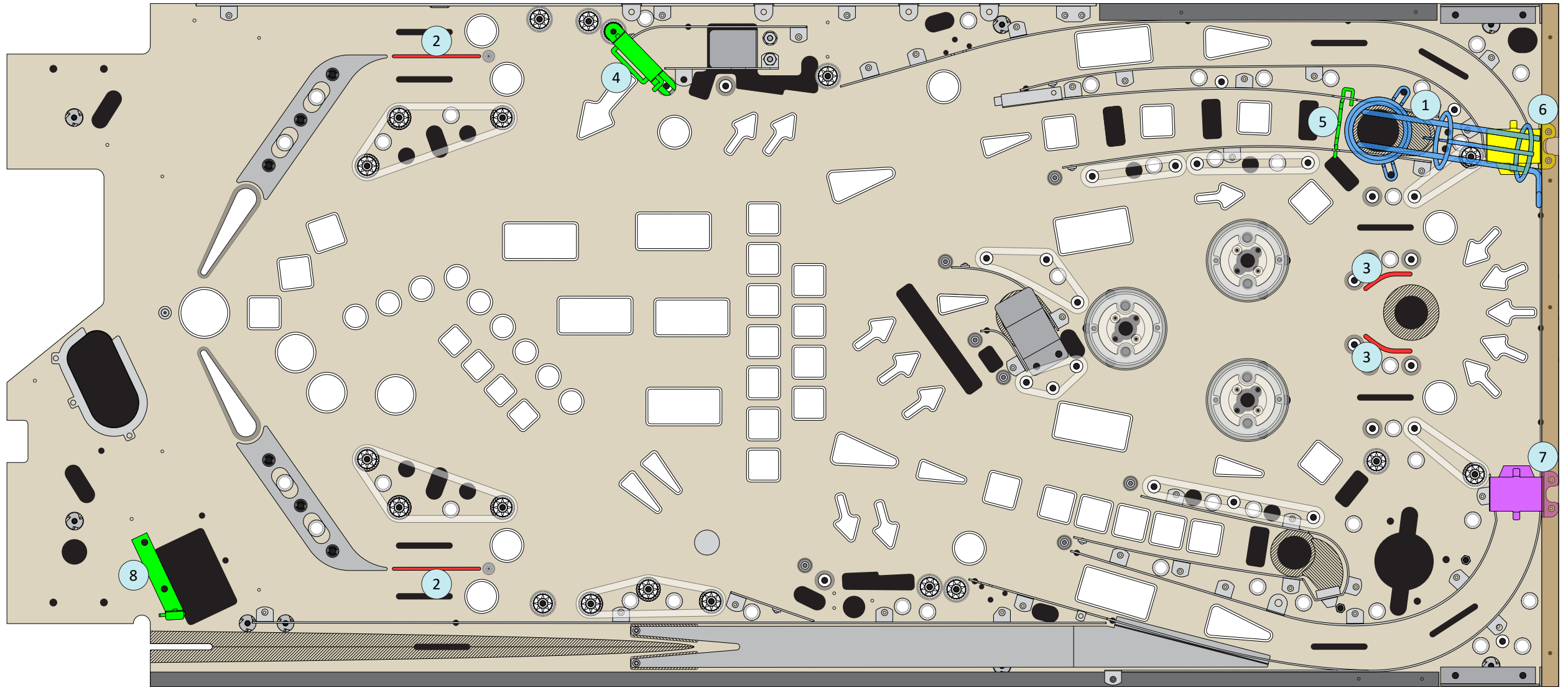
Item	Part ID	Description	Qty	Mtg HW
1	PFP-CCC-LFTRAIL	PF Left Side Playfield Woodrail, w/Black Vinyl	1	3 G
2	PFP-CCC-RGTRAIL	PF Right Side Playfield Woodrail, w/Black Vinyl	1	6 G
3	PFP-MLS-FLIPPGD	PF Flipper Return Guide	2	3 C (each guide)
4	PFP-CCC-LFTRAIL	PF Left Side Ball Guide Rail	1	6 A1 (1 under PF)
5	PFP-MLS-SHOOTGD	PF Shooter Lane Ball Guide Rail	1	4 A1
6	PFP-MLS-SNORKGD	PF Subway Eject Ball Guide Rail	1	1 A1 , 1 E
7	PFP-MLS-MGNTBLG	PF Magnet Trigger Target Ball Guide Rail	1	1 A1 , 1 E
8	PFP-MLS-REARGD	PF Main Orbit, Outer Ball Guide Rail	1	6 A1 , 1 F
9	PFP-MLS-CENTLGD	PF Pawn Shop, Left Ball Guide Rail	1	1 A1 , 1 E
10	PFP-MLS-CENTRGD	PF Pawn Shop, Right Ball Guide Rail	1	1 A1
11	PFP-MLS-LFTLNGD	PF Left Orbit, Inner Ball Guide Rail	1	3 A1 , 1 E
12	PFP-SUB-DRTGDLF	PF Ball Popper Lane, Left Ball Guide Rail Assy	1	3 A1 , 1 E (no washer under)
a)	PFP-MLS-DRTGDLF	PF Ball Popper Lane, Left Ball Guide Rail	1	
b)	PIN-23-6766	Ball Guide Bumper Pad, Blue	1	
c)	PIN-04-10253	Ball Guide Bumper Retaining Brkt	1	
d)	FSM-044-ABH025A	4-40 x 1/4" MS, Black	1	
13	PFP-MLS-DRTGDRT	PF Ball Popper Lane, Right Ball Guide Rail	1	2 A1 , 1 E (no washer under)
14	PFP-MLS-EJCTGDE	PF Roll Scene Lane Ball Guide Rail	1	5 A1 , 1 E
15	PFP-MLS-RGTLNGD	PF Right Orbit, Inner Ball Guide Rail	1	5 A1
16	PIN-01-140032	Playfield Hanger Brkt, Top Mnt, Left	1	2 B
17	PIN-01-140031	Playfield Hanger Brkt, Top Mnt, Right	1	2 B
18	PIN-01-12569	Back Panel Support Brkt	2	2 B (each brkt)
19	PFP-MLS-POPEJGD	PF Subway Return Ball Deflector Brkt	1	
20 w/	PFP-MLS-SCPSPT	PF Subway Return Top Brkt	1	2 D
21	PFP-MLS-SNRKGD	PF Subway Return Side Brkt	1	1 B
22	PFP-MLS-PWNKNC	PF Pawn Shop Ball Deflector Brkt	1	2 B
23	PFP-MLS-POPKNCK	PF Ball Popper Ball Deflector Brkt	1	2 B
24	PFP-MLS-SHOTRMP	PF Shooter Lane Ramp	1	2 A2
25	PIN-01-10621	Ball Strike Plate, Shooter Lane	1	2 F
26	PIN-MLS-DRANGRD	Outhole Protector	1	3 A3

Mtg HW for items 16-18, 22, 23 & the lower end of item 21 thread through the playfield, into 8-32 T-nuts (FNT-083-TES025), installed in the playfield underside (see pg 2-131); the upper end of item 21 is held down with one of the mtg spacers for items 19 & 20

Mounting Hardware Playfield, Top & Underside

Fastener	Part ID	Description
A1	FSS-N08-HWH050C	#8 x 1/2" HWH SMS
A2	FSS-N04-PFH050C	#4 x 1/2" PFH SMS
A3	FSS-N06-PPH037C	#6 x 3/8" PPH SMS
B	FSM-083-HFH062C	8-32 x 5/8" HWH MS, Serrated
C	FSM-083-PPH175A PIN-03-92553	8-32 x 1-3/4" PPH MS, Black #8 Nylon Round Spacer, Snap-In, Black, 0.54" (2 ea)
D	PIN-02-5469	1/4" x 1" Hex Spacer, F-F, 8-32
E	FWF-203-047032C FWF-172-047059C FNT-083-ESNA000	Flat Washer, 11/64" ID, 7/16" OD, 22 ga (above) Flat Washer, 11/64" ID, 7/16" OD, 16 ga (under) 8-32 Elastic Stop Nut
F	FSS-N06-PTH050C	#6 x 1/2" PTH SMS
G	FSS-N06-PFH125C	#6 x 1-1/4" PFH SMS





Wireforms, Ball Guide Wires & Ball Gates

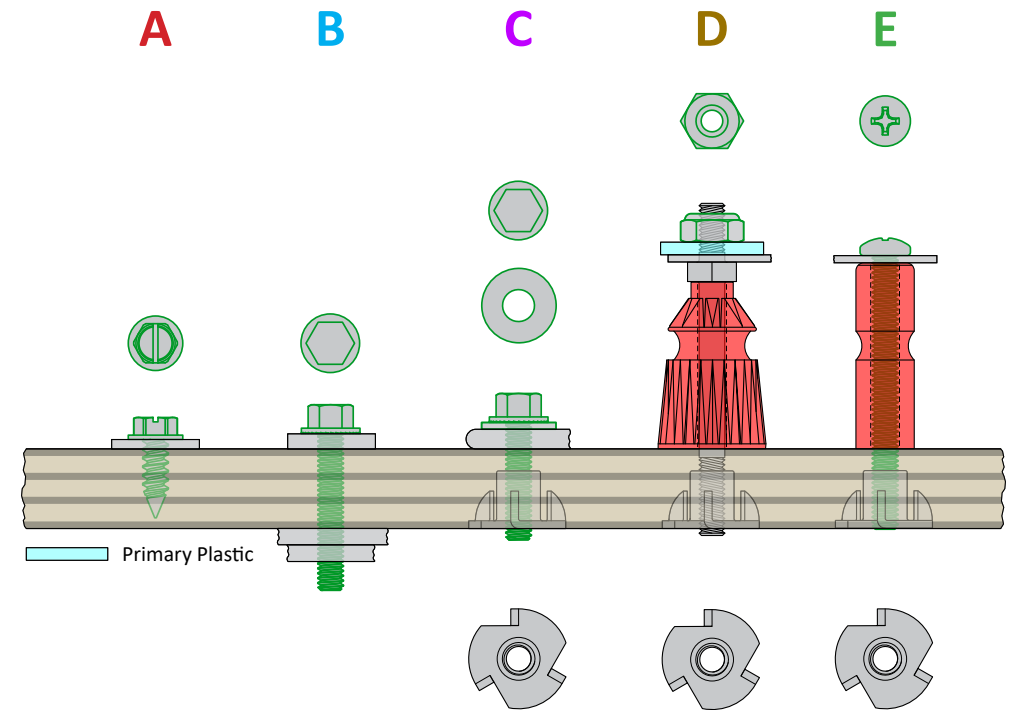
Item	Part ID	Description	Qty	Mtg HW
1	PFP-MWF-POPRTUB	PF Ball Popper Wireform	1	3 C (1 through back panel)
2	PFP-MWF-LANEGD	Ball Guide Wire, Straight, 2.5"	2	-
3	PFP-MWF-EJCTGD	Ball Guide Wire, Curved, 1.5"	2	-
4	PFP-SUB-EJCT1WY	One-Way Ball Gate Assy, 1.5"	1	1 D, 1 E
a)	PFP-MLS-GATEBKT	One-Way Ball Gate Brkt, 1.5"	1	
b)	PPF-MWF-EJCT1WY	One-Way Ball Gate Wire, 1.5"	1	
5	PFP-MWF-POP1WAY	One-Way W Ball Gate Wire, 1"	1	-
6	PIN-A-177971	Controlled Ball Gate Assy, Left	1	2 A
a)	PIN-01-123472	Controlled Ball Gate Brkt	1	
b)	PIN-01-6935	Controlled Ball Gate Spring Steel Flap	1	
c)	PIN-12-66571L	Controlled Ball Gate Wireform, Left	1	
d)	PIN-12-68821	Hinge Pin Wire, 1.75"	1	
7	PIN-A-177972	Controlled Ball Gate Assy, Right	1	2 A
a)	PIN-01-123472	Controlled Ball Gate Brkt	1	
b)	PIN-01-6935	Controlled Ball Gate Spring Steel Flap	1	
c)	PIN-12-66571R	Controlled Ball Gate Wireform, Right	1	
d)	PIN-12-68821	Hinge Pin Wire, 1.75"	1	
8	PIN-MLS-PSBALOK	Passive Ball Stop Gate	1	2 B

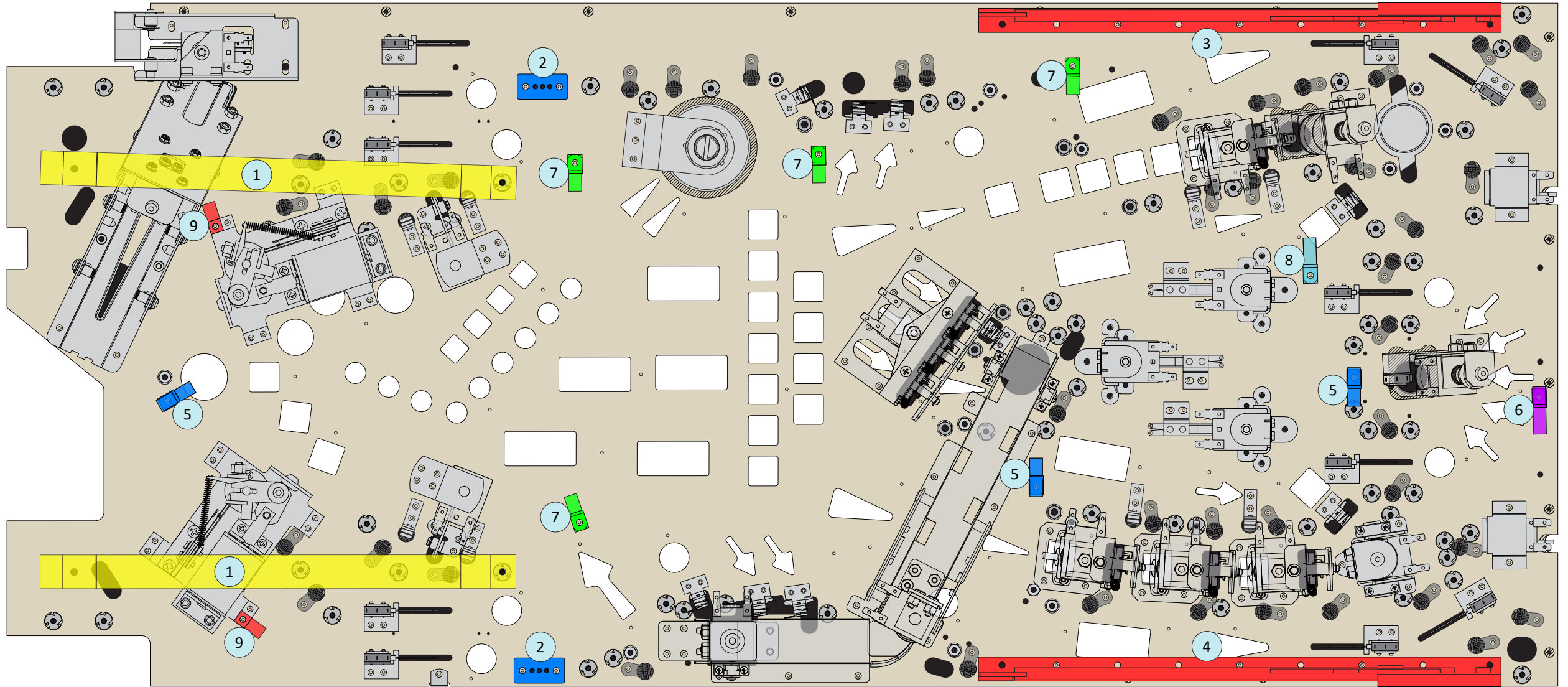
Mtg HW for items 1 & 4 thread through the playfield and/or back panel, into 8-32 T-nuts (FNT-083-TE5025), installed in the playfield underside (see pg 2-131) and/or behind the back panel (see pg 2-42)

Mtg screws for item 8 thread through the playfield, into the welded ball trough (item 1 on pg 2-16)

Mounting Hardware Playfield, Top

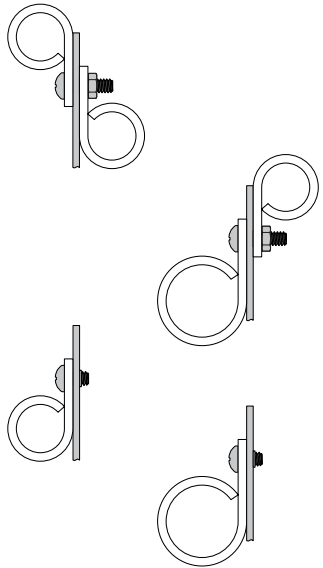
Fastener	Part ID	Description
A	FSS-N08-HWH050C	#8 x 1/2" HWH SMS
B	FSM-083-HFH100C	8-32 x 1" HWH MS, Serrated
C	FSM-083-HFH075C FWF-172-047059C	8-32 x 3/4" HWH MS, Serrated Flat Washer, 11/64" ID, 7/16" OD, 16 ga
D	FNT-083-ESN172A	8-32 Elastic Stop Nut, Black, Low Profile
E	FSM-083-PPH175C	8-32 x 1-3/4" PPH MS





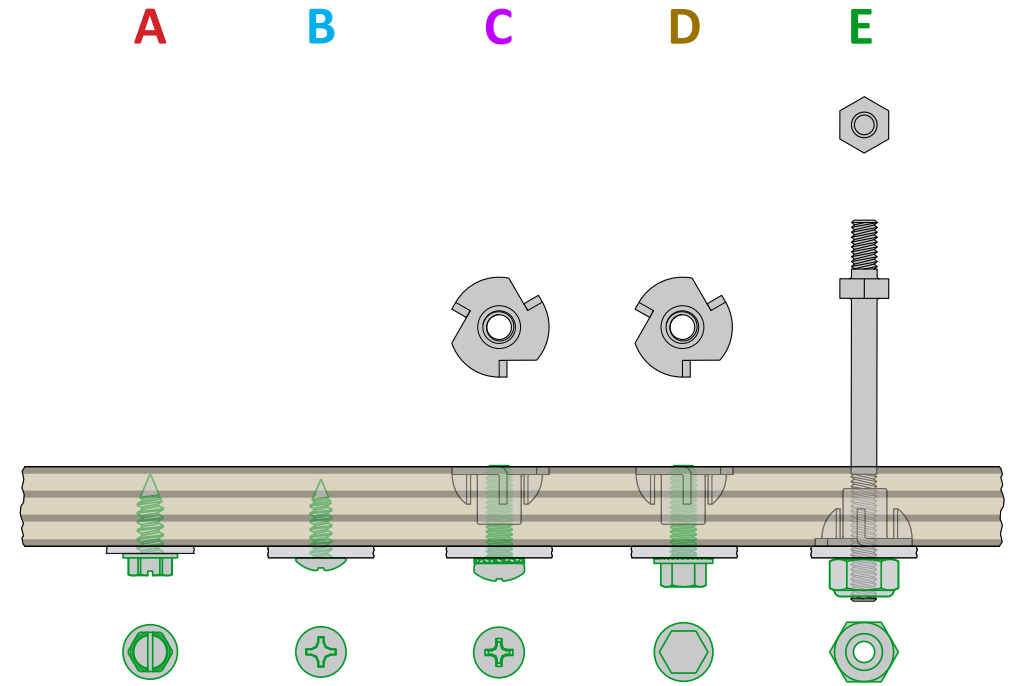
Under-Playfield Supports & Brackets

Item	Part ID	Description	Qty	Mtg HW
1	PIN-01-11781	Playfield Service/Support Brkt	2	1 D , 1 E (each brkt)*
2	PFM-MLS-ADJPLAT	Outlane Post Adjustment Plate	2	2 A (each plate)
3	PIN-A-1774912	Playfield Slide Assy, Right	1	3 B , 2 C
	PIN-10-439	Playfield Slide Spring	1	
4	PIN-A-1774911	Playfield Slide Assy, Left	1	3 B , 2 C
	PIN-10-439	Playfield Slide Spring	1	
5	PIN-01-12350	Wiring Harness Support	3	1 A (each support)
	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	3	
	FSM-063-PPH050C	6-32 x 1/2" PPH MS	3	
	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	3	
	FNT-063-HEXNUT	6-32 Hex Nut	3	
6	PIN-01-12350	Wiring Harness Support	1	1 A
	000-PLM-NC75CLP	Non-Captive Cable Clamp, 3/4"	1	
	FSM-063-PPH050C	6-32 x 1/2" PPH MS	1	
	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	1	
	FNT-063-HEXNUT	6-32 Hex Nut	1	
7	PIN-01-12350	Wiring Harness Support	4	1 A (each support)
	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	4	
	FSM-063-PPH025C	6-32 x 1/4" PPH MS	4	
8	PIN-01-12350	Wiring Harness Support	1	1 A
	000-PLM-NC75CLP	Non-Captive Cable Clamp, 3/4"	1	
	FSM-063-PPH025C	6-32 x 1/4" PPH MS	1	
9	000-PLM-NC50CLP	Non-Captive Cable Clamp, 1/2"	2	1 A (each clamp)



Mounting Hardware Playfield, Underside

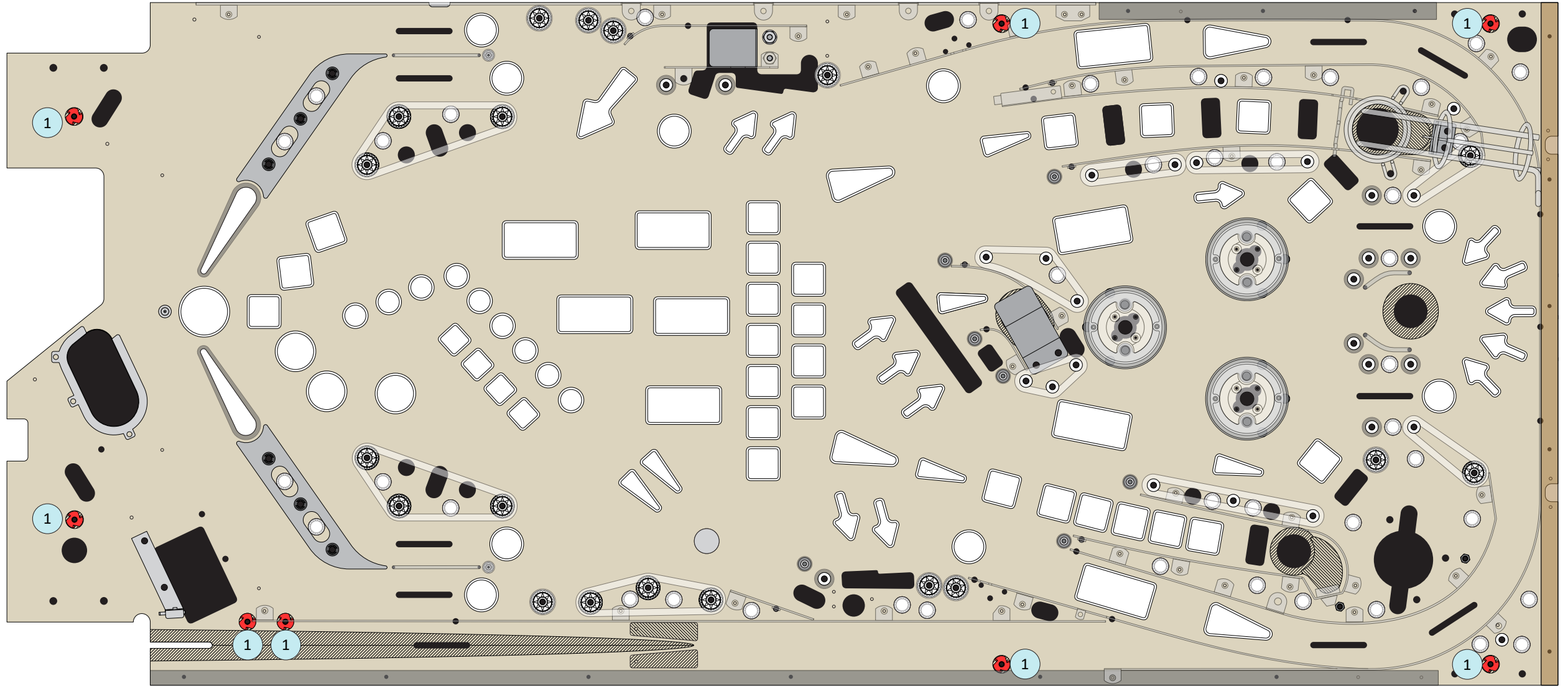
Fastener	Part ID	Description
A	FSS-N08-HWH050C	#8 x 1/2" HWH SMS
B	FSS-N06-PTH050C	#6 x 1/2" PTH SMS
C	FSM-083-PSM062C	8-32 x 5/8" PPH MS, SEMS
D	FSM-083-HFH062C	8-32 x 5/8" HWH MS, Serrated
E	FNT-083-ESNA000	8-32 Elastic Stop Nut



* MS mtg HW for one end of item 1 threads through the playfield, into an 8-32 T-nut (FNT-083-TES025), installed in the playfield topside (see pg 2-130); the other end attaches to the bottom of one of the slingshot posts, threaded through an 8-32 T-nut, installed in the playfield underside

MS mtg HW for items 3 & 4 thread through the playfield, into 8-32 T-nuts (FNT-083-TES025), installed in the playfield topside (see pg 2-130)

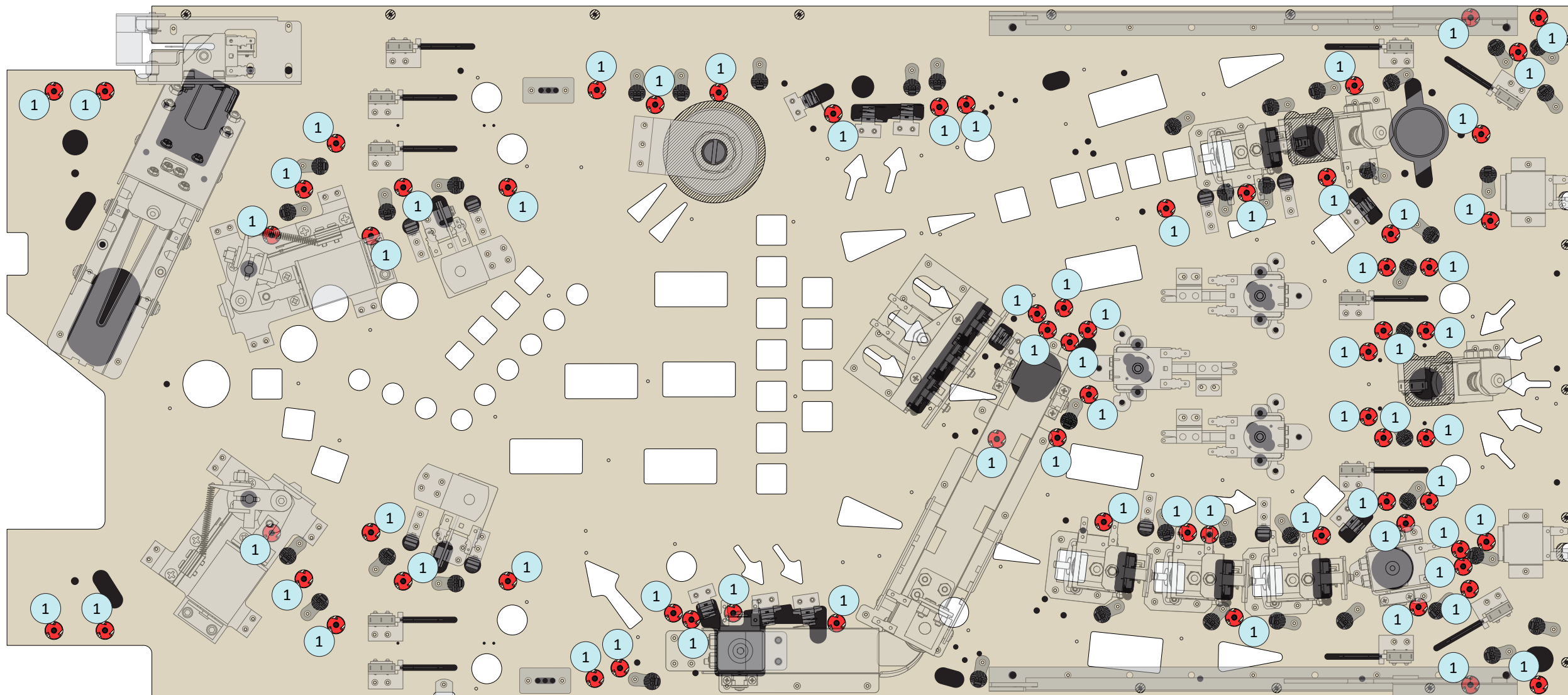
SMS mtg HW for the flipper base plate is shared as mtg HW for item 9



T-Nuts

Above Playfield

Item	Part ID	Description	Qty
1	FNT-083-TES025	8-32 x 1/4" T-Nut, 1/2" Flange	8



T-Nuts

Under Playfield

Item	Part ID	Description	Qty
1	FNT-083-TES025	8-32 x 1/4" T-Nut, 1/2" Flange	69

Coil Wiring Table

by Solenoid Power Bd Fuse, Connector & Source Wire Color

F103, 4A SB	Drive 1		Drive 6		Drive 8	
	J116-1, Q101		J116-7, Q106		J116-9, Q108	
70V High Power	VIO	WHT	VIO	BLU	VIO	BLK
J116-11	Left Slingshot		Pawn Shop (subway) Lock Release		Pawn Shop (subway) Return Popper	
ORN	WHT					

F103, 4A SB	Drive 2		Drive 3		Drive 4		Drive 5	
	J116-2, Q102		J116-3, Q103		J116-4, Q104		J116-6, Q105	
70V High Power	VIO	RED	VIO	ORN	VIO	YEL	VIO	GRN
J116-12	Briefcase Ball Lock Load Popper		Drop Target Reset (left, bottom)		Drop Target Reset (left, center)		Drop Target Reset (left, top)	
ORN	BLK							

F103, 4A SB	Drive 7
	J115-2, Q107
70V High Power	BLU
J115-1	Knocker
ORN	

F102, 4A SB	Drive 10		Drive 11		Drive 12		Drive 13		Drive 14	
	J113-2, Q110		J113-4, Q111		J113-5, Q112		J113-6, Q113		J113-7, Q114	
70V Low Power	BRN	RED	BRN	ORN	BRN	YEL	BRN	GRN	BRN	BLU
J113-11	Right Slingshot		Ball Auto-launch		Ball Trough Popper		Briefcase (back panel) Ball Lock Release		3-Bank Drop Target Reset	
ORN	GRN									

F107, 4A SB	Drive 9		Drive 15		Drive 16	
	J113-1, Q109		J113-8, Q115		J113-9, Q116	
70V Low Power	BRN	BLK	BRN	VIO	BRN	WHT
J113-12	Roll Scene Saucer Eject		Starts Character Saucer Eject		Drop Target Reset (right)	
ORN	VIO					

F115, 4A SB	Drive 31		Drive 32	
	J119-2, Q125		J119-1, Q132	
70V Lower Flipper	GRY	YEL	GRY	WHT
J119-9/10	Left Flipper Power		Left Flipper Hold	
ORN	YEL			

F116, 4A SB	Drive 29		Drive 30	
	J119-5, Q124		J119-4, Q131	
70V Lower Flipper	GRY	RED	GRY	BLK
J119-7/8	Right Flipper Power		Right Flipper Hold	
ORN	RED			

F118, 4A SB	Drive 33	
	J120-10, Q126	
70V Upper Flipper	GRY	BLU
J120-1/2	Bullseye Magnet	
ORN	BRN	

F117, 4A SB	Drive 34		Drive 35		Drive 36	
	J120-8, Q134		J120-7, Q128		J120-6, Q136	
70V Upper Flipper	GRY	ORN	GRY	BRN	GRY	GRN
J120-3/4	Right Jet Bumper		Center Jet Bumper		Left Jet Bumper	
ORN	BLU					

F105, 3A FB F106, 3A FB	Drive 44	
	J114-3, Q138	
12V Shaker	BLU	
J114-1	Shaker Motor (LE only)	
YEL	ORN	

Fused power stream diagram: pg 3-93

Coil & motor table: pg 2-68

Coil & motor locations: pg 2-70

Coil strength adjustments: pg 1-41

Coil testing: pg 1-54



*"I think it's like a wax museum
with a pulse."*

*"Did you just order a
five-dollar shake?"*



*"Would you give a guy a
foot massage?"*

*"Now, if you'll excuse me, I'm
going to go home and have a heart attack."*

Section 3

Game Wiring & Schematics





PF Game Set Multi-function Bd A (MA)
PFP-PCB-PLAYFLD

Component(s)
 C4, C7, C22-C24, C51-C59, C64-C68, C70, C94,
 C172, C216-C224, C226-C272, C279, C280, C282,
 C284, C287, C289, C291, C293-C309, C482-C484,
 C486, CP3, CP4, CP8, CP18, CP27, CP37, CP42, CP43
 C25, C92, C166, C167, C274, C275, C283,
 C286, C288, C290, C292, C361-C368
 C31
 C93, C171, C278
 C95, C178, C277
 C97, C179, C276
 C98-C106, C443-C481
 C273
 C285
 C485
 CR33_1_P, CR33_2_P,
 CR33_3_P, CR34_1_U, CR34_2_U, CR34_3_U,
 CR35_1_L, CR35_2_L, CR35_3_L, CR36_1_P,
 CR36_2_P, CR36_3_P, CR37_1_F, CR37_2_F,
 CR37_3_F, CR38_1_I, CR38_2_I, CR38_3_I,
 CR39_1_C, CR39_2_C, CR39_3_C, CR40_1_T,
 CR40_2_T, CR40_3_T, CR41_1_I, CR41_2_I,
 CR41_3_I, CR42_1_O, CR42_2_O, CR42_3_O,
 CR43_1_N, CR43_2_N, CR43_3_N, CR54, CR55,
 CR57-CR62, CR58_1-CR58_3, CR63_1-CR63_3
 CRA02-CRA20, CRA23-CRA32, CRA44, CRA45,
 CRB02-CRB20, CRB23-CRB32, CRB44, CRB45,
 CRC02-CRC20, CRC23-3CRC2, CRC44, CRC45,
 CRD25-CRD29, CRE25-CRE29, CRF25-CRF29
 D6, D94-D112, D114-D121
 D221
 FB1
 GND-A1
 GND-A2
 L2, L18, L23, L24
 Q1, Q4, Q5
 Q2
 Q3
 R1-R3, R323-R325, R329-R331,
 R335-R337, R550
 R4
 R43, R45, R318, R586, R588, R590, R597, R599, R600
 R44, R90, R160, R162, R164, R165, R175,
 R176-R178, R188, R192, R195, R200, R208,
 R475, R549, R551-R559, R570-R572, R577,
 R587, R595, R596, R643-R645

Description
 Capacitor, MLCC, 0603 SMD, 0.1µF, 25V, X5R, 10%
 Capacitor, MLCC, 0805 SMD, 10µF, 16V, X5R, 10%
 Capacitor, Elect, Radial SMD, 1000µF, 25V, 20%
 Capacitor, MLCC, 0603 SMD, 18pF, 50V, COG/NPO, 5%
 Capacitor, MLCC, 0603 SMD, 0.47µF, 16V, X5R, 10%
 Capacitor, MLCC, 0603 SMD, 8200pF, 50V, X7R, 10%
 Capacitor, MLCC, 0603 SMD, 0.047µF, 16V, X7R, 10%
 Capacitor, MLCC, 0603 SMD, 100pF, 16V, X7R, 10%
 Capacitor, MLCC, 0603 SMD, 0.01µF, 25V, X7R, 10%
 Not Populated
 LED, RGB, SMD
 LED, Warm White, PLCC2 SMD
 Diode, TVS, SM ESC, 5.5VWVM, 20VC
 Diode, GP, DO-214AC SMA, 100V, 1A
 Ferrite Bead, 1812 SMD, 680Ω @ 100MHz, 4A, 28mΩ
 Quick Connect Male, Through Hole, 1/4"
 Not Populated
 Inductor, SMD, 4.7µH, 4.1A, 23.4mΩ, 30%
 MOSFET, SOT-23-3 SMD, N-Ch, 60V, 115mA
 MOSFET, TO-252-3 SMD, P-Ch, 55V, 18A
 MOSFET, SOT-23F SMD, P-Ch, 20V, 6A
 Resistor, 0603 SMD, 100Ω, 0.1W, 5%
 Resistor, 0603 SMD, 100kΩ, 0.1W, 5%
 Not Populated
 Resistor, 0603 SMD, 10kΩ, 0.1W, 5%

Component(s)
 R91, R578
 R92, R479, R579
 R153, R154, R156, R157, R171-R174, R187,
 R190, R193, R194, R198, R204, R567-R569, R575
 R155, R158, R159, R161, R163, R191, R320-R322,
 R326-R328, R332-R334, R561-R564,
 R566, R593, R594
 R189, R565, R634, R636, R638, R640
 R317, R319, R589, R591, R598
 R477
 R576
 R580, R583, R592
 R601, R604, R605, R607, R608
 R606
 R609
 R635, R637, R639, R641
 RA02-RA20, RA23-RA32, RA44, RA45,
 RB02-RB20, RB23-RB32, RB44, RB45,
 RC02-RC20, RC23-RC32, RC44, RC45,
 RD25-RD29, RE25-RE29, RF25-RF29
 R642
 RL02-RL20, RL23, RL24, RL30-RL32,
 RL44, RL45
 RL25-RL29
 R_33_1_B, R_33_2_B, R_33_3_B, R_33_1_G,
 R_33_2_G, R_33_3_G, R_34_1_B, R_34_2_B,
 R_34_3_B, R_34_1_G, R_34_2_G, R_34_3_G,
 R_35_1_B, R_35_2_B, R_35_3_B, R_35_1_G,
 R_35_2_G, R_35_3_G, R_36_1_B, R_36_2_B,
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 R_43_2_G, R_43_3_G, R_58_1_B, R_58_2_B,
 R_58_3_B, R_58_1_G, R_58_2_G, R_58_3_G,
 R_63_1_B, R_63_2_B, R_63_3_B, R_63_1_G,
 R_63_2_G, R_63_3_G, R603

Description
 Resistor, 0603 SMD, 124Ω, 0.1W, 1%
 Resistor, 0603 SMD, 22.1kΩ, 0.1W, 1%
 Resistor, 0603 SMD, 4.7kΩ, 0.1W, 5%
 Resistor, 0603 SMD, 1kΩ, 0.1W, 5%
 Resistor, 0603 SMD, 120Ω, 0.33W, 5%
 Resistor, 0805 SMD, 0Ω, 0.125W, 5%
 Resistor, 0603 SMD, 160kΩ, 0.1W, 1%
 Resistor, 0603 SMD, 2.2kΩ, 0.1W, 5%
 Resistor, 0603 SMD, 180Ω, 0.1W, 5%
 Resistor, 0805 SMD, 330Ω, 0.125W, 5%
 Resistor, 0805 SMD, 412Ω, 0.125W, 1%
 Resistor, 1206 SMD, 787Ω, 0.25W, 1%
 Resistor, 0805 SMD, 10Ω, 0.125W, 5%
 Resistor, 0603 SMD, 200kΩ, 0.1W, 5%
 Resistor, 1206 SMD, 62Ω, 0.25W, 5%
 Resistor, 1206 SMD, 30Ω, 0.25W, 1%
 Resistor, 0805 SMD, 150Ω, 0.125W, 5%

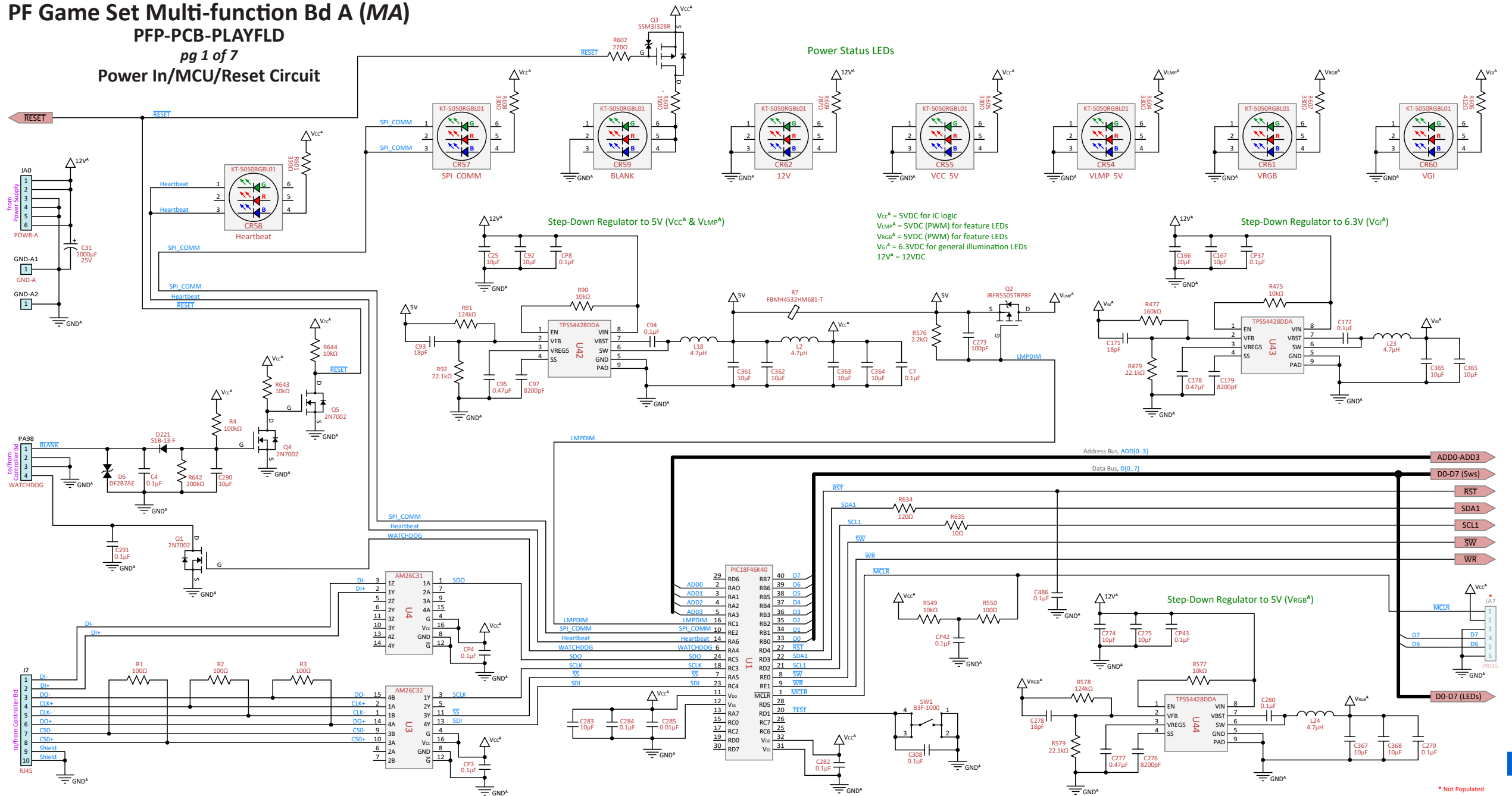
Component(s)	Description
R_33_1_R, R_33_2_R, R_33_3_R, R_34_1_R, R_34_2_R, R_34_3_R, R_35_1_R, R_35_2_R, R_35_3_R, R_36_1_R, R_36_2_R, R_36_3_R, R_37_1_R, R_37_2_R, R_37_3_R, R_38_1_R, R_38_2_R, R_38_3_R, R_39_1_R, R_39_2_R, R_39_3_R, R_40_1_R, R_40_2_R, R_40_3_R, R_41_1_R, R_41_2_R, R_41_3_R, R_42_1_R, R_42_2_R, R_42_3_R, R_43_1_R, R_43_2_R, R_43_3_R, R_58_1_R, R_58_2_R, R_58_3_R, R_63_1_R, R_63_2_R, R_63_3_R, R602	Resistor, 0805 SMD, 220Ω, 0.125W, 5%
SW1	Switch, Tactile, SPST-NO, 50mA, 24VDC
U1	PIC, Microcontroller, 8-Bit, 64MHz, 64K, 40-PDIP
U3	IC, 0/4 Receiver, 16-TSSOP SMD
U4	IC, 4/0 Driver, 16-SOIC SMD
U5-U7	IC, LED Drvr, 16 Outputs, 28-TSSOP SMD
U8-U10	IC, Decoder, 1x3:8, 16-TSSOP SMD
U11-U17	IC, Flip Flop, D-Type, 8 Bit, 20-TSSOP SMD
U18-U21	Latch, Transparent, 3-Ch, 3-State, 20-TSSOP SMD
U22, U40	Inverter, 6-Ch, 14-TSSOP SMD, Schmitt Trigger
U23-U29	Power Switch/Drvr, 1:1, 7NPN, 16-SOIC SMD
U30-U39, U41	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 5.8A
U42-U44	IC, Buck Sw Reg, 1 Output, 4A, 8-PwrSOIC SMD
COM-AB	Hdr w/Friction Lock, Male, 30-Pin, 2-Row, 2.54mm
COM-AC	Hdr w/Friction Lock, Male, 24-Pin, 2-Row, 2.54mm
JA0	Hdr w/Friction Lock, Male, 6-Pin, 3.96mm
JA1	Hdr w/Friction Lock, Male, 10-Pin, 2.54mm
JA2	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm
JA3, JA4, JA9, JA10, JA40	Hdr w/Friction Lock, Male, 5-Pin, 2.54mm
JA7	Not Populated
JA8	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm
JA11-JA14, JA31	Hdr w/Friction Lock, Male, 2-Pin, 3.96mm
JA43-JA45, JA47-JA49, JA51	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm
JA36	Hdr w/Friction Lock, Male, 9-Pin, 2.54mm
JA37, JA38, JA54-JA56	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm
JA57_1, JA57_2, JA58_1, JA58_2, JA59_1, JA59_2, JA60_1, JA60_2	Standoff, 4-40 Thread, 0.219" D, 1/16" H
J2	RJ45/Ethernet Jack, Through Hole, 8P8C, Shielded
PA98	Hdr w/Friction Lock, Male, 4-Pin, 3.96mm

PF Game Set Multi-function Bd A (MA)

FFP-PCB-PLAYFLD

pg 1 of 7

Power In/MCU/Reset Circuit



Power Status LEDs

VccA = 5VDC for IC logic
 VLMPA = 5VDC (PWM) for feature LEDs
 VGrA = 5VDC (PWM) for feature LEDs
 VGrA = 6.3VDC for general illumination LEDs
 12V* = 12VDC

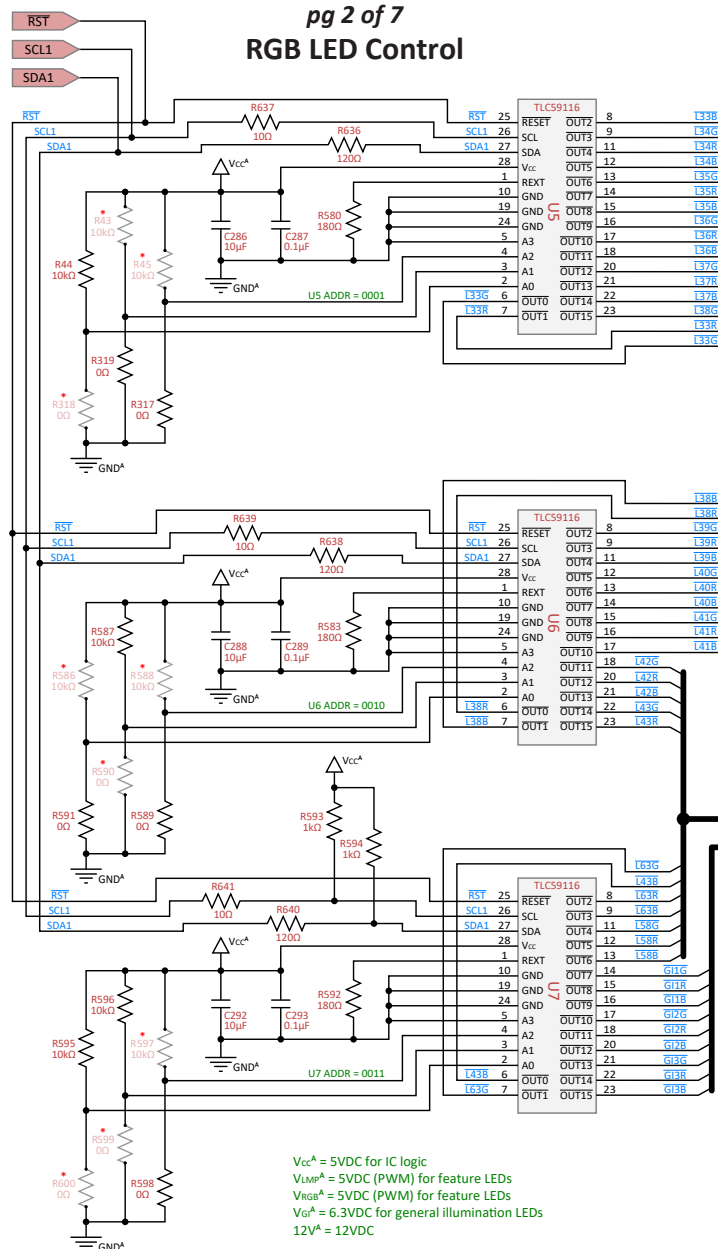
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PF Game Set Multi-function Bd A (MA)

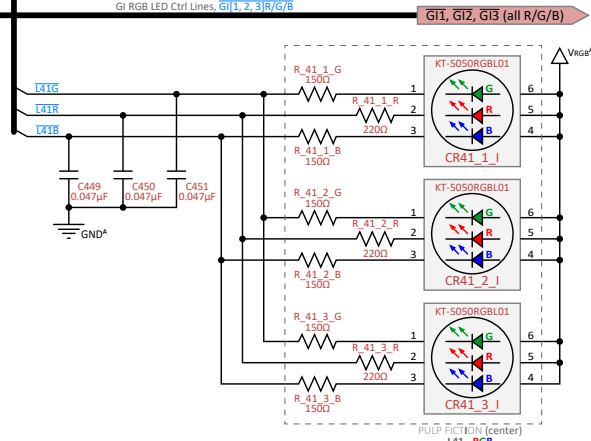
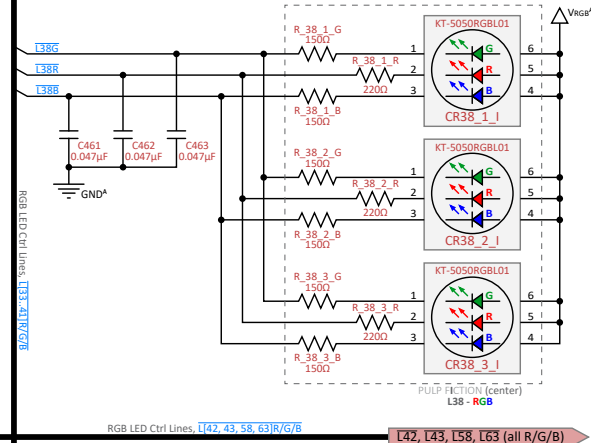
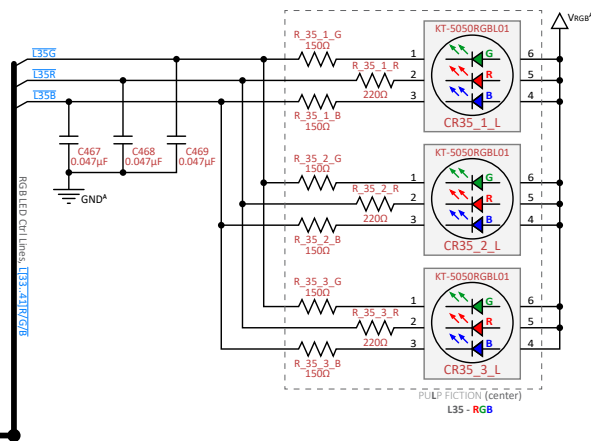
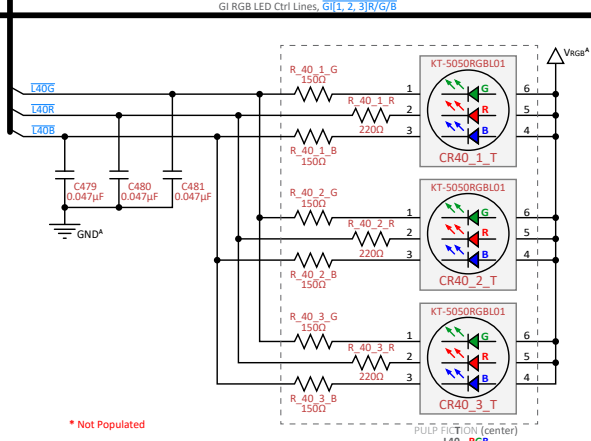
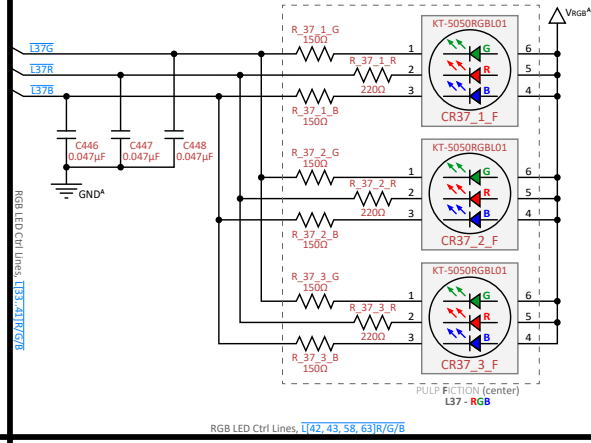
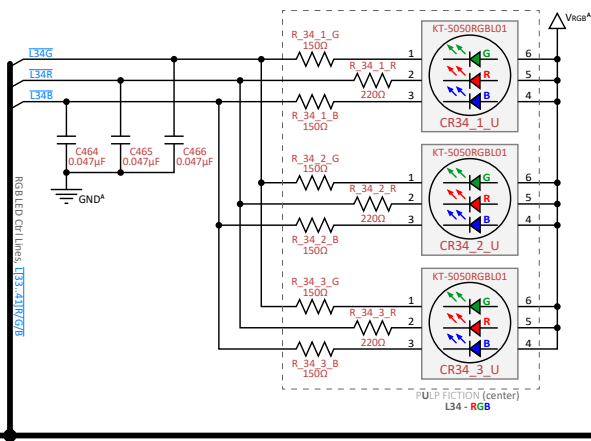
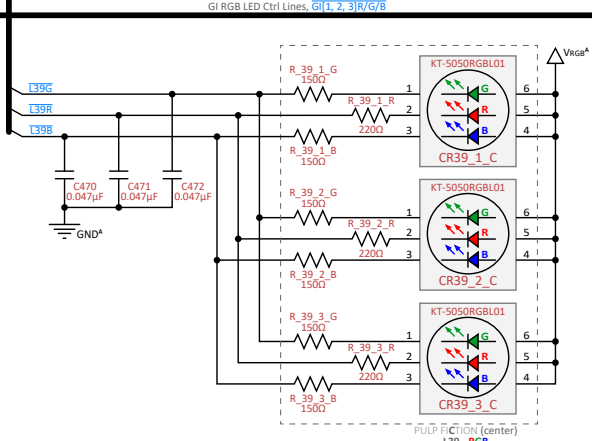
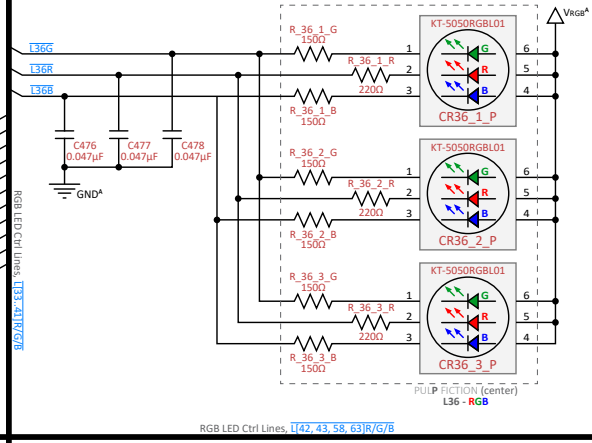
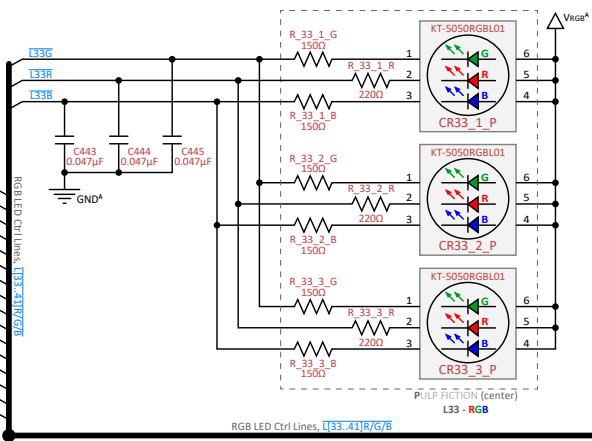
PFP-PCB-PLAYFLD

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RGB LED Control



$V_{cc}^A = 5VDC$ for IC logic
 $V_{Lamp}^A = 5VDC$ (PWM) for feature LEDs
 $V_{RGB}^A = 5VDC$ (PWM) for feature LEDs
 $V_{G}^A = 6.3VDC$ for general illumination LEDs
 $12V^A = 12VDC$



* Not Populated

PF Game Set Multi-function Bd A (MA)

PFP-PCB-PLAYFLD

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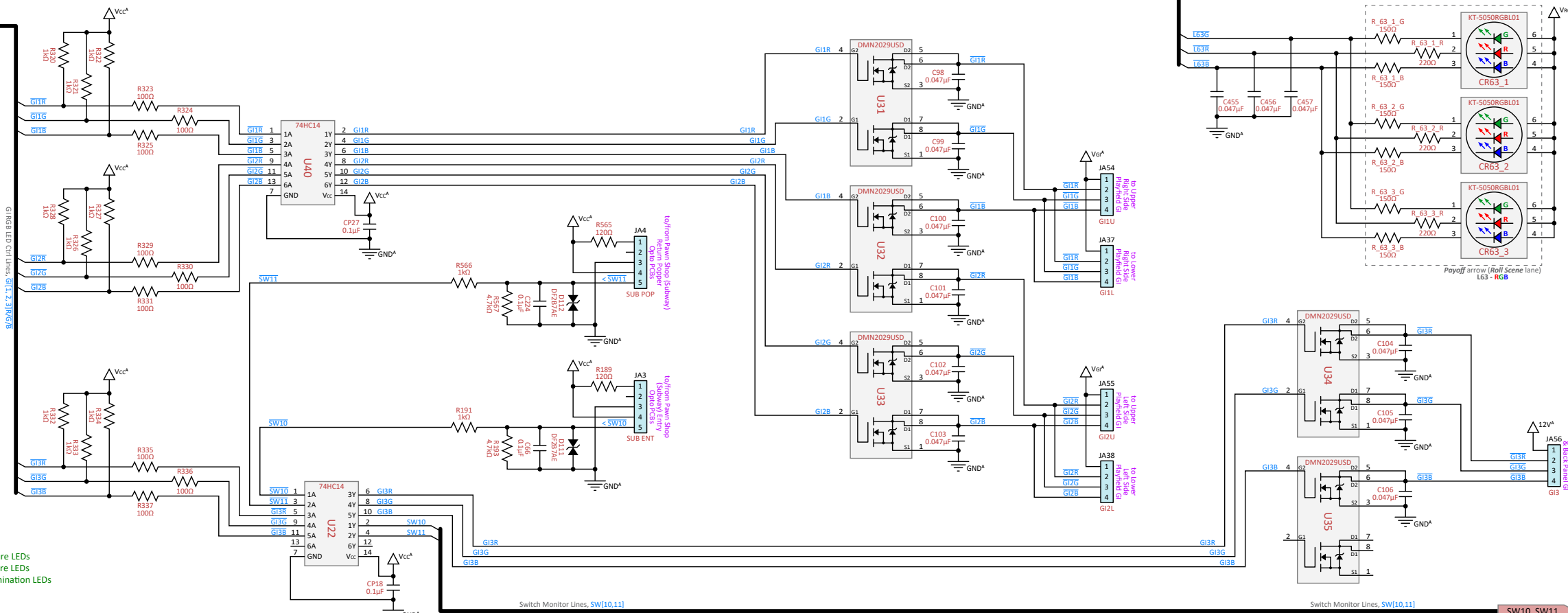
RGB LEDs, GI Outputs

L42, L43, L58, L63 (all R/G/B)

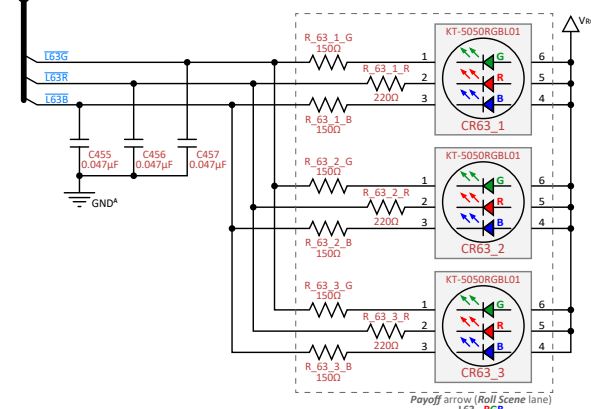
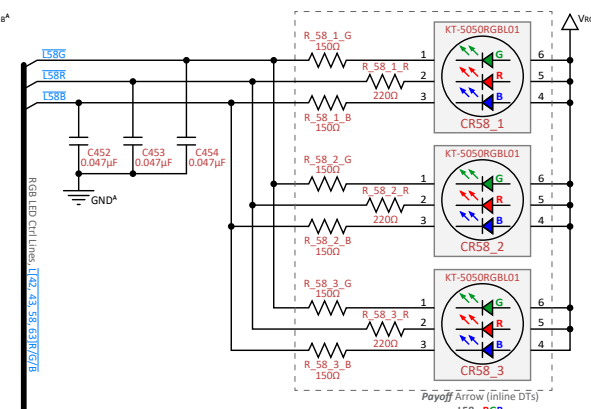
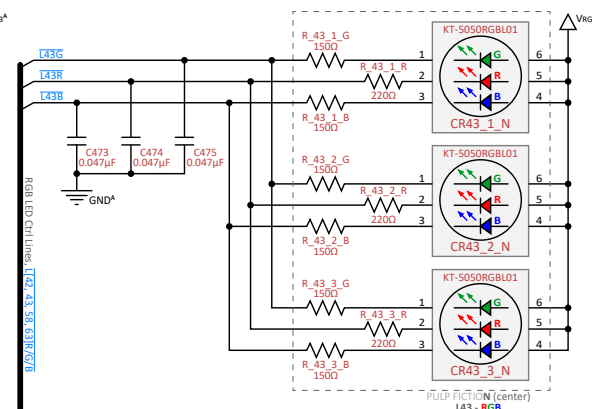
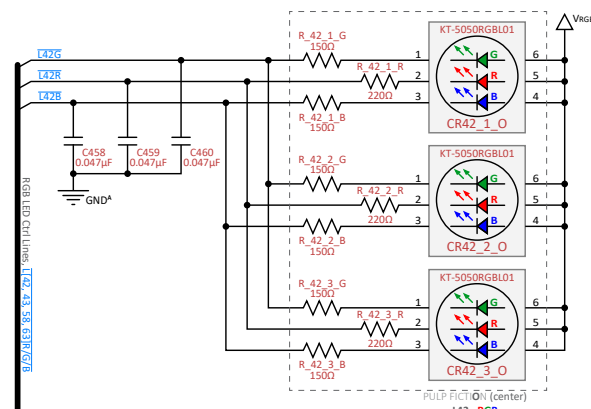
RGB LED Ctrl Lines: L42, 43, 58, 63R/G/B

G1, G2, G3 (all R/G/B)

RGB LED Ctrl Lines: L42, 43, 58, 63R/G/B



Vcc^A = 5VDC for IC logic
 V_{LMP}^A = 5VDC (PWM) for feature LEDs
 V_{REG}^A = 5VDC (PWM) for feature LEDs
 V_{GI}^A = 6.3VDC for general illumination LEDs
 12V^A = 12VDC



Switch Monitor Lines: SW[10,11]

Switch Monitor Lines: SW[10,11]

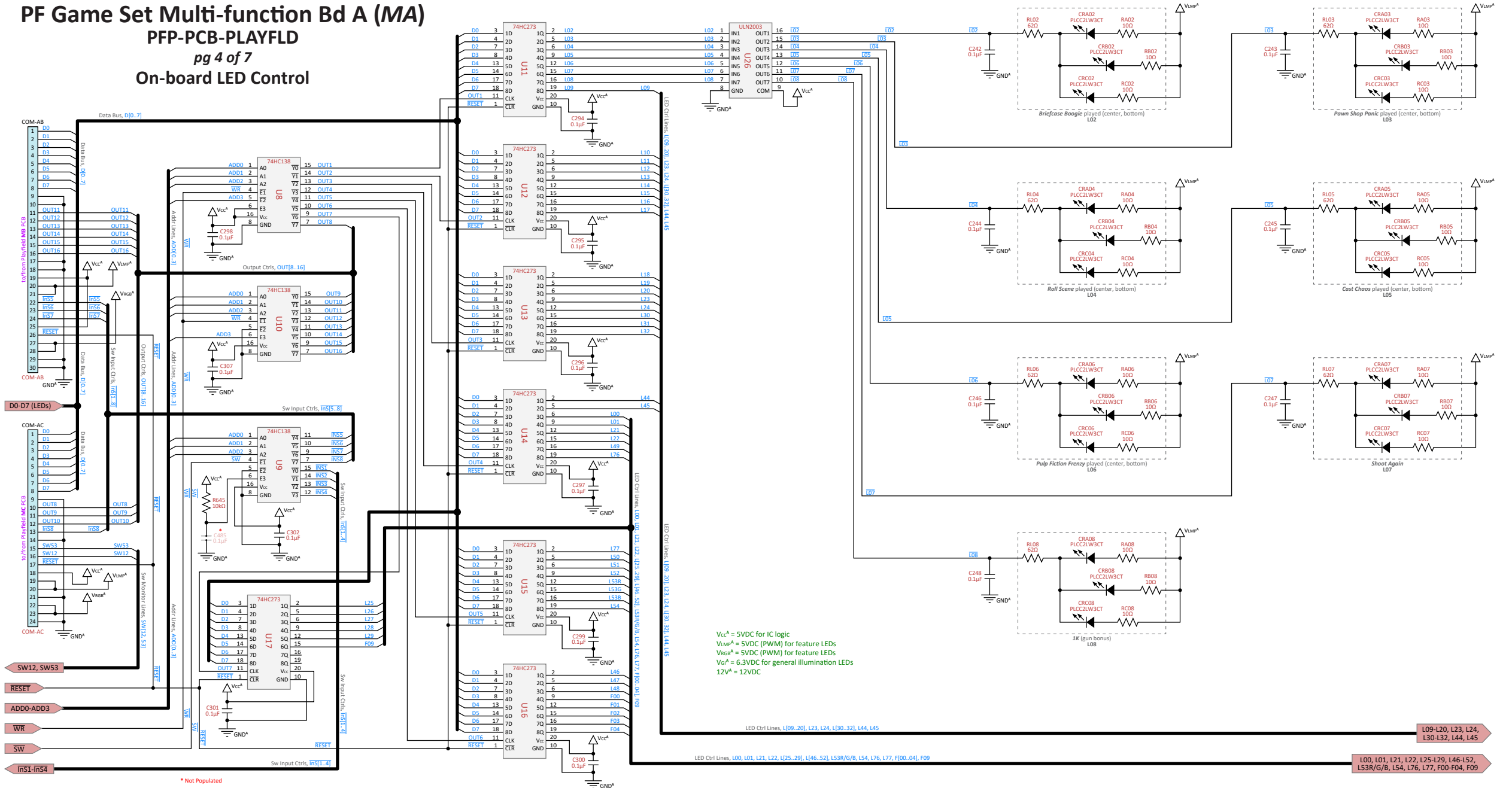
SW10, SW11

PF Game Set Multi-function Bd A (MA)

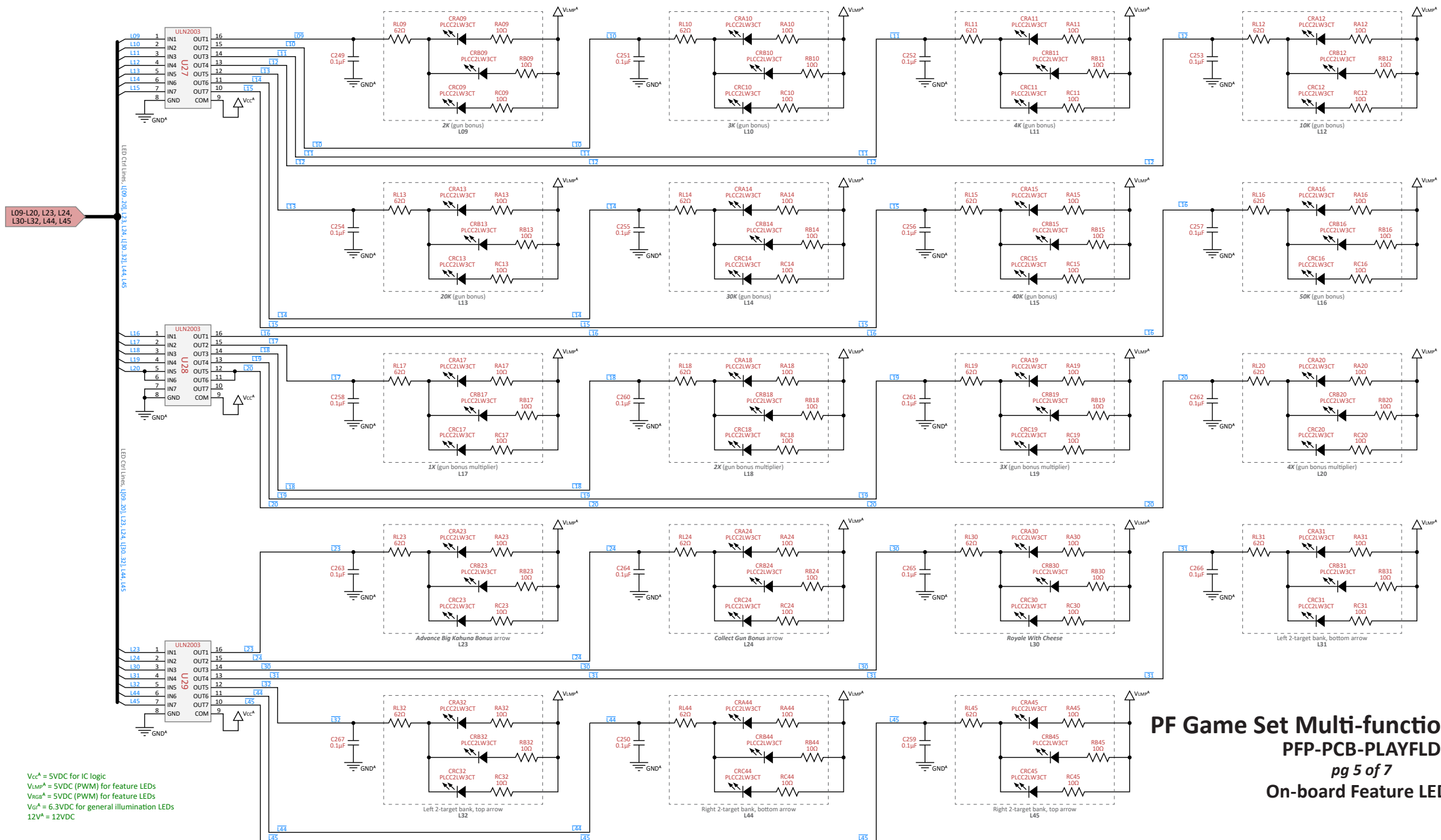
PFP-PCB-PLAYFLD

pg 4 of 7

On-board LED Control

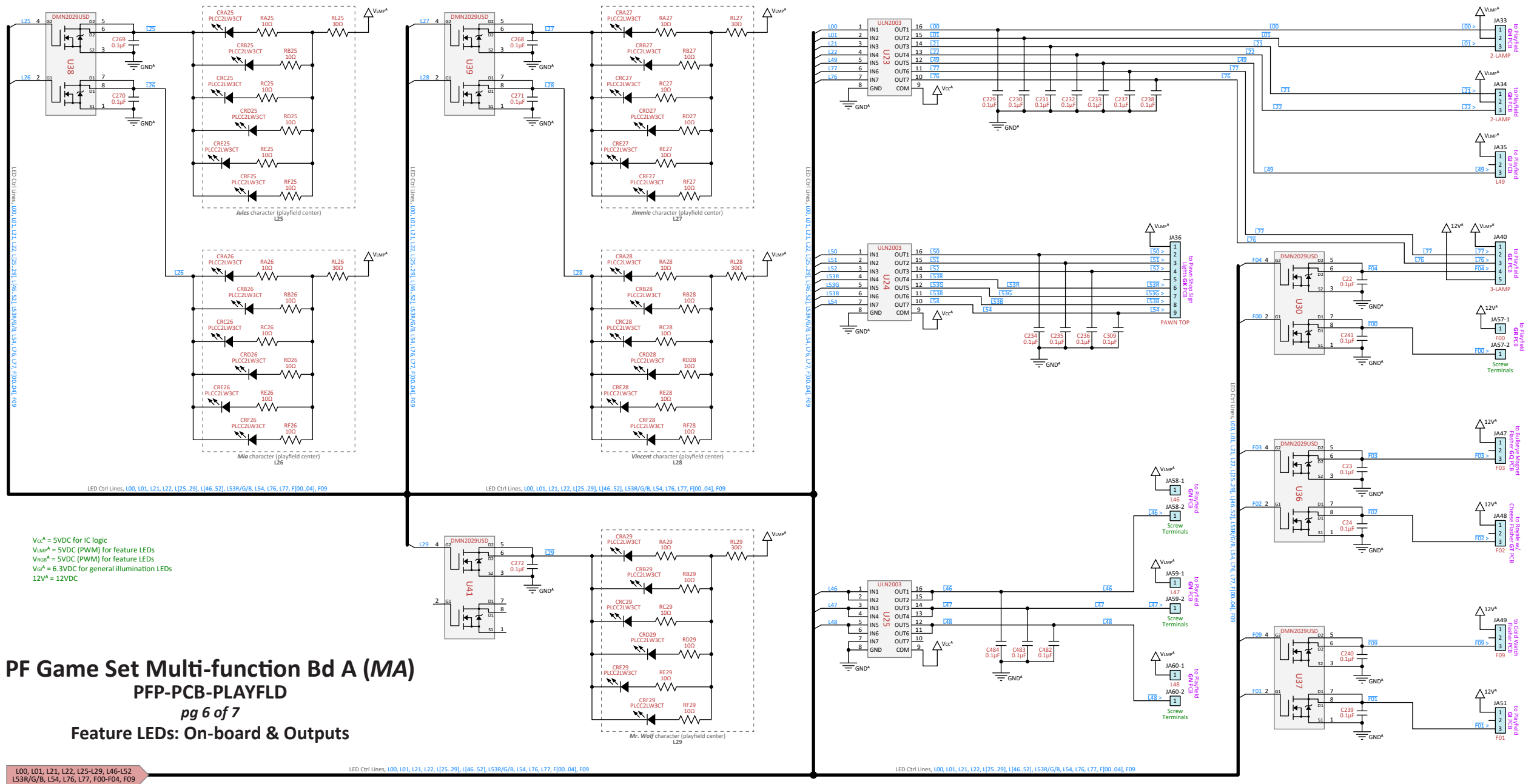


* Not Populated



V_{cc}^A = 5VDC for IC logic
V_{LAMP+}^A = 5VDC (PWM) for feature LEDs
V_{ICCA}^A = 5VDC (PWM) for feature LEDs
V_{ICV}^A = 6.3VDC for general illumination LEDs
12V^A = 12VDC

PF Game Set Multi-function Bd A (MA) PFP-PCB-PLAYFLD pg 5 of 7 On-board Feature LEDs



V_{cc}^A = 5VDC for IC logic
 V_{Lamp}^A = 5VDC (PWM) for feature LEDs
 V_{Kit}^A = 5VDC (PWM) for feature LEDs
 V_{IR}^A = 6.3VDC for general illumination LEDs
 12V^A = 12VDC

PF Game Set Multi-function Bd A (MA)
PFP-PCB-PLAYFLD
 pg 6 of 7
Feature LEDs: On-board & Outputs

LED Ctrl Lines: L00, L01, L21, L22, L25-L29, L46-L52, L53R/G/B, L54, L76, L77, F00-F04, F09

LED Ctrl Lines: L00, L01, L21, L22, L25-L29, L46-L52, L53R/G/B, L54, L76, L77, F00-F04, F09

LED Ctrl Lines: L00, L01, L21, L22, L25-L29, L46-L52, L53R/G/B, L54, L76, L77, F00-F04, F09

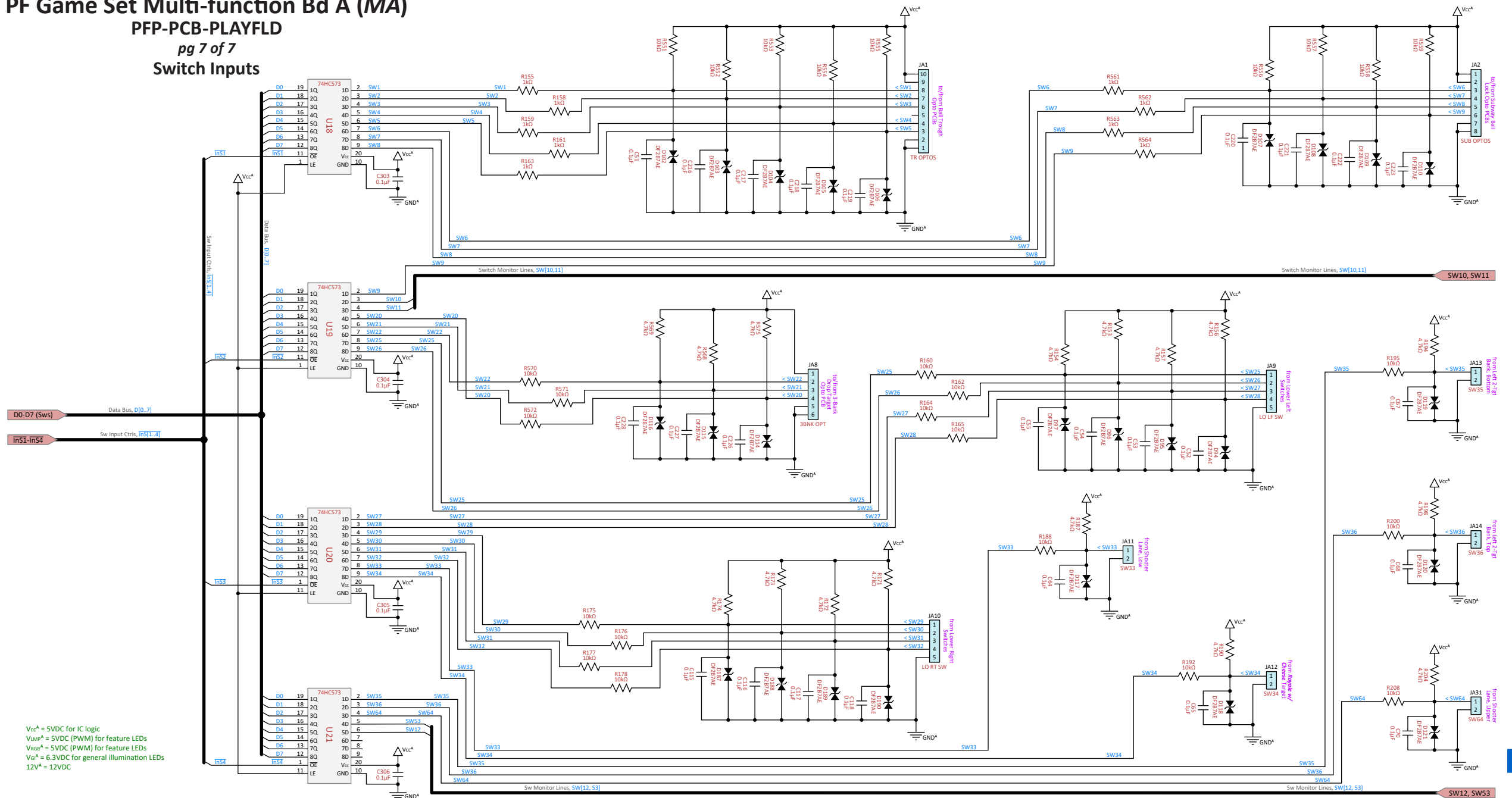
LED Ctrl Lines: L00, L01, L21, L22, L25-L29, L46-L52, L53R/G/B, L54, L76, L77, F00-F04, F09

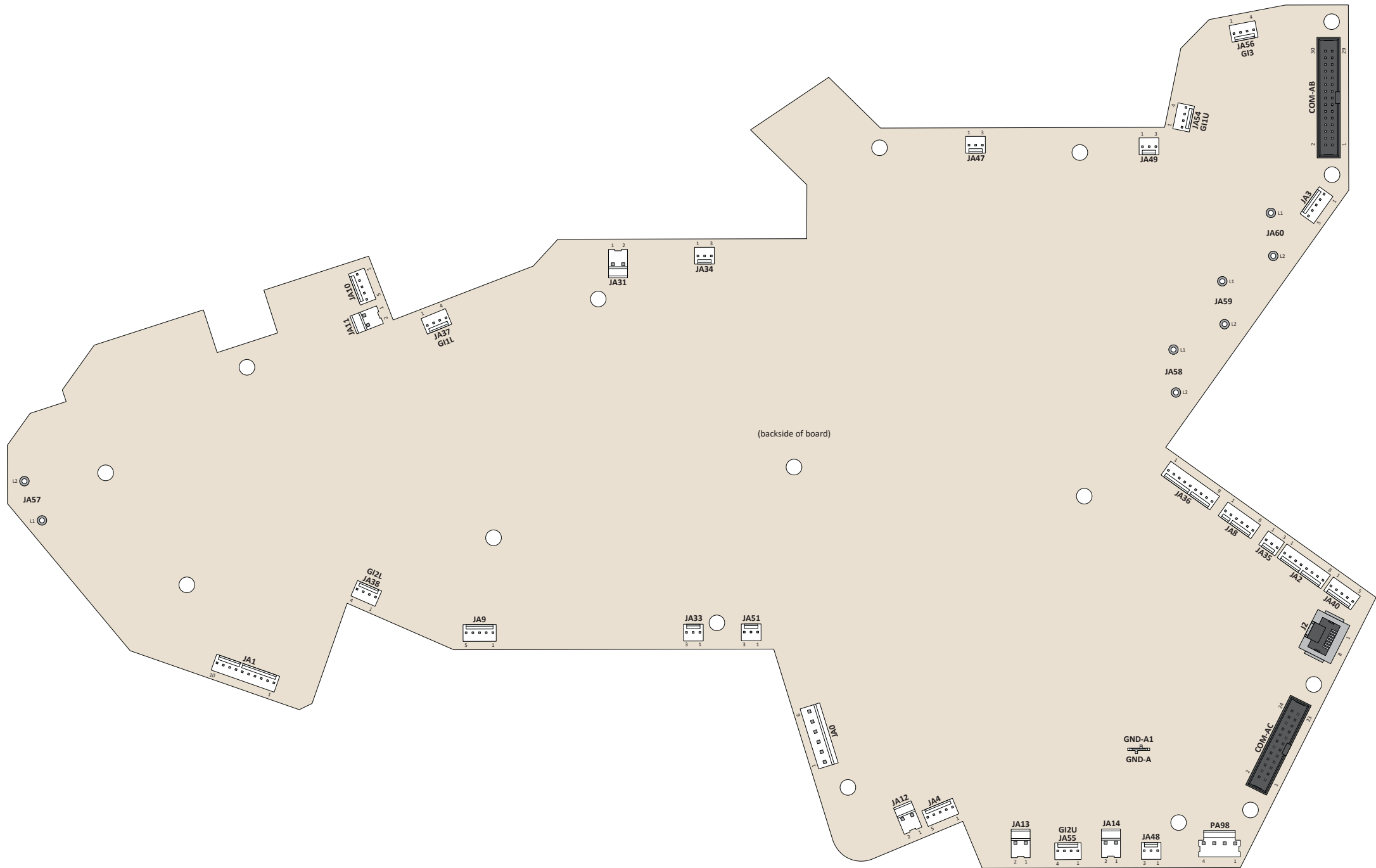
PF Game Set Multi-function Bd A (MA)

PFPCB-PLAYFLD

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Switch Inputs





PF Game Set Multi-function Bd A (MA)

PFP-PCB-PLAYFLD

Connector Pin-outs

JA0 Power In [Switching Power Supply]

JA0-1	YEL	+12VDC from power supply
JA0-2	YEL	+12VDC from power supply
JA0-3	BLK	GND from power supply
JA0-4	BLK	GND from power supply
JA0-5	BLK	GND from power supply
JA0-6	Not used	+12VDC from power supply

JA1 Switches 1-5 Connections [Ball Trough Opto Bds]

JA1-1	BLK	GND to ball trough opto XMT PCB, J2-1
JA1-2	BLK	GND to ball trough opto RCV PCB, J1-2
JA1-3	GRN-RED	Sw 5 monitor line, opto RCV PCB, J1-7
JA1-4	GRN-ORN	Sw 4 monitor line, opto RCV PCB, J1-6
JA1-5	Not used	
JA1-6	GRN-YEL	Sw 3 monitor line, opto RCV PCB, J1-5
JA1-7	GRN-BLU	Sw 2 monitor line, opto RCV PCB, J1-4
JA1-8	GRN-WHT	Sw 1 monitor line, opto RCV PCB, J1-3
JA1-9	RED	+5VDC to ball trough opto RCV PCB, J1-1
JA1-10	RED	+5VDC to ball trough opto XMT PCB, J2-3

JA2 Switches 6-9 Connections [Pawn Shop (Subway) Lock Opto Bds]

JA2-1	RED	+5VDC to subway lock opto XMT PCB, J2-3
JA2-2	RED	+5VDC to subway lock opto RCV PCB, J1-1
JA2-3	WHT-ORN	Sw 6 monitor line, opto RCV PCB, J1-2
JA2-4	WHT-YEL	Sw 7 monitor line, opto RCV PCB, J1-3
JA2-5	WHT-GRN	Sw 8 monitor line, opto RCV PCB, J1-4
JA2-6	WHT-BLU	Sw 9 monitor line, opto RCV PCB, J1-5
JA2-7	BLK	GND to subway lock opto XMT PCB, J2-1
JA2-8	BLK	GND to subway lock opto RCV PCB, J1-6

JA3 Switch 10 Connection [Subway Entry Opto Bds]

JA3-1	WHT	+5VDC to subway entry opto XMT PCB, A solder pad
JA3-2	Not used	
JA3-3	BLK	GND to subway entry opto XMT PCB, K solder pad
JA3-4	RED	+5VDC to subway entry opto RCV PCB, C solder pad
JA3-5	GRY	Sw 10 monitor line, opto RCV PCB, E solder pad

JA4 Switch 11 Connection [Subway Return Ball Popper Opto Bds]

JA4-1	WHT	+5VDC to ball popper opto XMT PCB, A solder pad
JA4-2	Not used	
JA4-3	BLK	GND to ball popper opto XMT PCB, K solder pad
JA4-4	RED	+5VDC to ball popper opto RCV PCB, C solder pad
JA4-5	GRY	Sw 11 monitor line, opto RCV PCB, E solder pad

JA7 Programming Header [Not Used]

JA8 Switches 20-22 Connections [3-Bank Drop Tgts]

JA8-1	RED	+5VDC to 3-bank drop tgt opto PCB, J30A-1
JA8-2	WHT-ORN	Sw 22 monitor line, 3-bank drop tgt opto PCB, J30A-2
JA8-3	WHT-YEL	Sw 21 monitor line, 3-bank drop tgt opto PCB, J30A-3
JA8-4	WHT-GRN	Sw 20 monitor line, 3-bank drop tgt opto PCB, J30A-4
JA8-5	BLK	GND to 3-bank drop tgt opto PCB, J30A-5
JA8-6	BLK	GND to 3-bank drop tgt opto PCB, J30A-6

JA9 Switches 25-28 Connections [Lower Left Switches]

JA9-1	WHT-ORN	Monitor line to Sw 25 leaf switch
JA9-2	WHT-YEL	Monitor line to Sw 26 microswitch
JA9-3	WHT-GRN	Monitor line to Sw 27 leaf switches (2)
JA9-4	WHT-BLU	Monitor line to Sw 28 microswitch
JA9-5	BLK	GND to all lower left switches

JA10 Switches 29-32 Connections [Lower Right Switches]

JA10-1	WHT-GRN	Monitor line to Sw 29 leaf switches (2)
JA10-2	WHT-YEL	Monitor line to Sw 30 microswitch
JA10-3	WHT-BLU	Monitor line to Sw 31 microswitch
JA10-4	WHT-ORN	Monitor line to Sw 32 leaf switch
JA10-5	BLK	GND to all lower right switches

JA11 Switch 33 Connection [Auto-Launch Assy]

JA11-1	WHT	Monitor line to Sw 33 microswitch
JA11-2	BLK	GND to Sw 33 microswitch

Switch inputs schematic: pg 3-11

Light/flasher outputs schematic: pg 3-10

JA12 Switch 34 Connection [Royale w/Cheese Tgt]

JA12-1	WHT	Monitor line to Sw 34 target
JA12-2	BLK	GND to Sw 34 target

JA13 Switch 35 Connection [Left 2-Tgt Bank, Bottom Tgt]

JA13-1	WHT	Monitor line to Sw 35 target
JA13-2	BLK	GND to Sw 35 target

JA14 Switch 36 Connection [Left 2-Tgt Bank, Top Tgt]

JA14-1	WHT	Monitor line to Sw 36 target
JA14-2	BLK	GND to Sw 36 target

JA31 Switch 64 Connection [Shooter Lane, Upper]

JA31-1	WHT	Monitor line to Sw 64 microswitch
JA31-2	BLK	GND to Sw 64 microswitch

JA33 Lights 00, 01 Connections [Game Set Bd GH]

JA33-1	GRY-BLK	L00 ctrl line, GH PCB, L00 solder pad (S1)
JA33-2	RED	+5VDC PWM to GH PCB, VLMP solder pad (S2)
JA33-3	GRY-WHT	L01 ctrl line, GH PCB, L01 solder pad (S3)

JA34 Lights 21, 22 Connections [Game Set Bd GH]

JA34-1	GRY-BLK	L21 ctrl line, GH PCB, L21 solder pad (S1)
JA34-2	RED	+5VDC PWM to GH PCB, VLMP solder pad (S2)
JA34-3	GRY-WHT	L22 ctrl line, GH PCB, L22 solder pad (S3)

JA35 Light 49 Connection [Game Set Bd GJ]

JA35-1	RED	+5VDC PWM to GJ PCB, VLMP solder pad (S1)
JA35-2	Not used	
JA35-3	GRY-BLK	L49 ctrl line, GJ PCB, L49 solder pad (S3)

JA36 Lights 50-54 Connections [Sign Over Pawn Shop]

JA36-1	RED-WHT	+5VDC PWM to GK PCB, JK57-1
JA36-2	GRY-ORN	L50 ctrl line, GK PCB, JK57-2
JA36-3	GRY-YEL	L51 ctrl line, GK PCB, JK57-3
JA36-4	GRY-GRN	L52 ctrl line, GK PCB, JK57-4
JA36-5	Not used	
JA36-6	RED	L53 red ctrl line, GK PCB, JK57-5
JA36-7	GRN	L53 green ctrl line, GK PCB, JK57-6
JA36-8	BLU	L53 blue ctrl line, GK PCB, JK57-7
JA36-9	GRY-WHT	L54 ctrl line, GK PCB, JK57-8

JA37 RGB GI Connection [GI String 1, Lower Right]

JA37-1	WHT-RED	+6.3VDC to GI string 1, lower right
JA37-2	RED	Red ctrl line to GI string 1, lower right
JA37-3	GRN	Green ctrl line to GI string 1, lower right
JA37-4	BLU	Blue ctrl line to GI string 1, lower right

JA38 RGB GI Connection [GI String 2, Lower Left]

JA38-1	WHT-RED	+6.3VDC to GI string 2, lower left
JA38-2	RED	Red ctrl line to GI string 2, lower left
JA38-3	GRN	Green ctrl line to GI string 2, lower left
JA38-4	BLU	Blue ctrl line to GI string 2, lower left

JA40 Lights 76, 77, Flasher 04 Connections [Game Set Bd GE]

JA40-1	RED	+5VDC PWM to GE PCB, JE32-1
JA40-2	GRY-ORN	L77 ctrl line, GE PCB, JE32-2
JA40-3	GRY-YEL	L76 ctrl line, GE PCB, JE32-3
JA40-4	BLU-GRN	F04 ctrl line, GE PCB, JE32-4
JA40-5	YEL	+12VDC to GE PCB, JE32-5

JA47 Flasher 03 Connection [Behind Magnet Target]

JA47-1	YEL	+12VDC to GQ PCB, 12V solder pad (S1)
JA47-2	Not used	
JA47-3	BLU-BLK	F03 ctrl line, GQ PCB, F03 solder pad (S3)

JA48 Flasher 02 Connection [Under Cheeseburger]

JA48-1	YEL	+12VDC to GT PCB, 12V solder pad (S1)
JA48-2	Not used	
JA48-3	BLU-BLK	F02 ctrl line, GT PCB, F02 solder pad (S3)

JA49 Flasher 09 Connection [Gold Watch Assy]

JA49-1	YEL	+12VDC to watch flasher PCB, JL-1
JA49-2	Not used	
JA49-3	BLU	F09 ctrl line, watch flasher PCB, JL-3

JA51 Flasher 01 Connection [Game Set Bd GI]

JA51-1	YEL	+12VDC to GI PCB, 12V solder pad (S1)
JA51-2	Not used	
JA51-3	BLU-BLK	F01 ctrl line, GI PCB, F01 solder pad (S3)

JA54 RGB GI Connection [GI String 1, Upper Right]

JA54-1	WHT-RED	+6.3VDC to GI string 1, upper right
JA54-2	RED	Red ctrl line to GI string 1, upper right
JA54-3	GRN	Green ctrl line to GI string 1, upper right
JA54-4	BLU	Blue ctrl line to GI string 1, upper right

JA55 RGB GI Connection [GI String 2, Upper Left]

JA55-1	WHT-RED	+6.3VDC to GI string 2, upper left
JA55-2	RED	Red ctrl line to GI string 2, upper left
JA55-3	GRN	Green ctrl line to GI string 2, upper left
JA55-4	BLU	Blue ctrl line to GI string 2, upper left

JA56 12V RGB GI Connection [Cabinet Light Box/Pawn Shop Sign/Bottom Arch]

JA56-1	YEL	+12VDC to cabinet light box/pawn shop sign/bottom arch conns, P1
JA56-2	RED	Red ctrl line to cabinet light box/pawn shop sign/bottom arch conns, P4
JA56-3	GRN	Green ctrl line to cabinet light box/pawn shop sign/bottom arch conns, P2
JA56-4	BLU	Blue ctrl line to cabinet light box/pawn shop sign/bottom arch conns, P3

JA57 Flasher 00 Direct Connection [Game Set Bd GR]

JA57-Lug1	-	+12VDC to GR PCB, J13
JA57-Lug2	-	F00 ctrl line, GR PCB, J14

JA58 Light 46 Direct Connection [Game Set Bd GN]

JA58-Lug1	-	+5VDC PWM to GN PCB, J15
JA58-Lug2	-	L46 ctrl line, GN PCB, J16

JA59 Light 47 Direct Connection [Game Set Bd GN]

JA59-Lug1	-	+5VDC PWM to GN PCB, J17
JA59-Lug2	-	L47 ctrl line, GN PCB, J18

JA60 Light 48 Direct Connection [Game Set Bd GN]

JA60-Lug1	-	+5VDC PWM to GN PCB, J19
JA60-Lug2	-	L48 ctrl line, GN PCB, J20

COM-AB Comms Interface [Game Set Bd MB]

30-pin, GRY, 4" ribbon cable to/from **MB** PCB, COM-BA

COM-AC Comms Interface [Game Set Bd MC]

24-pin, GRY, 4" ribbon cable to/from **MC** PCB, COM-CA

J2 Ethernet Comms [Pinball Controller Bd (Backbox)]

2m CAT5 ethernet cable to/from Pinball Controller PCB, J5

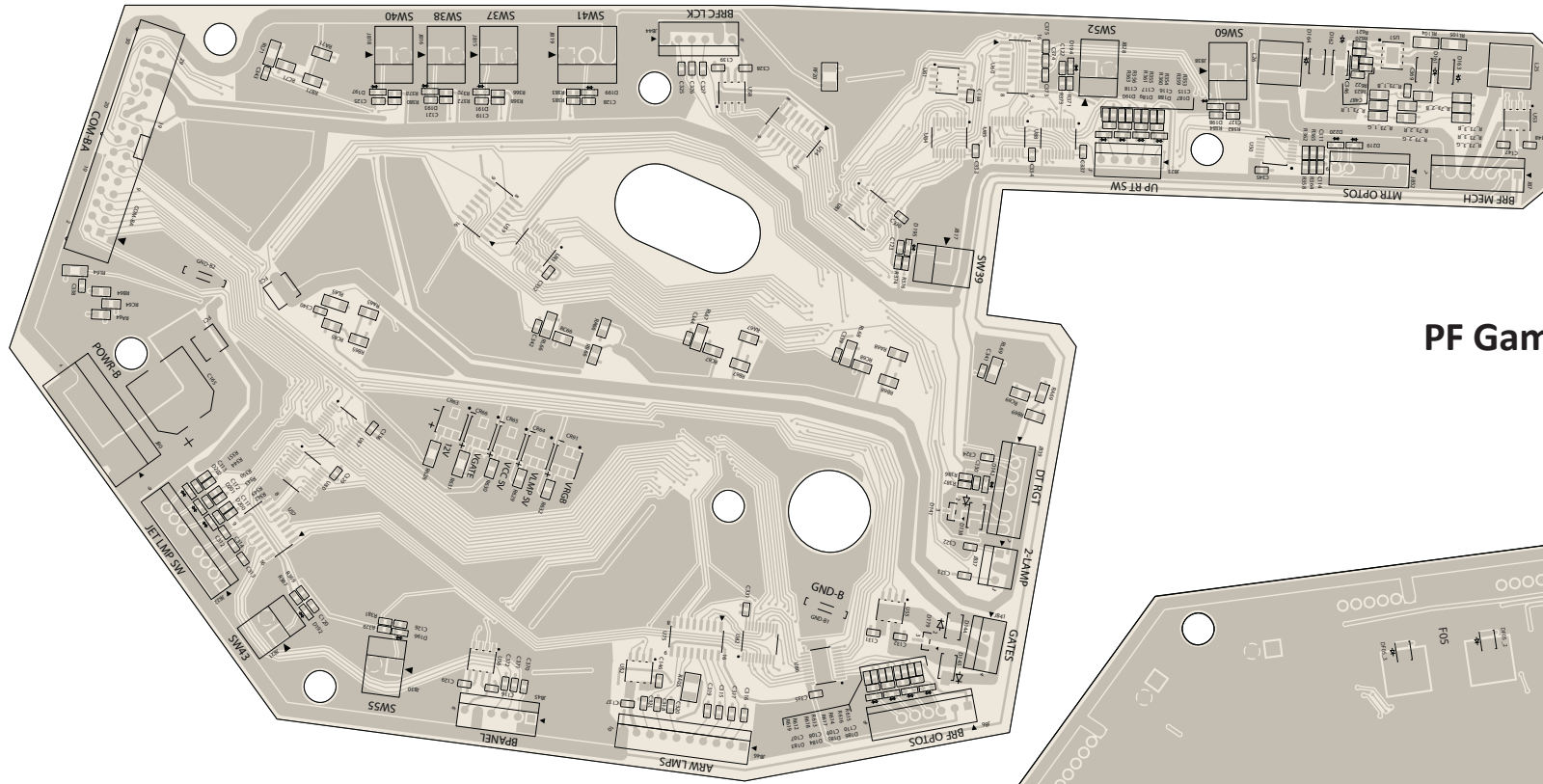
PA98 Watchdog Monitor Connection [Pinball Controller Bd (Backbox)]

PA98-1	BLU	Reset signal from Pinball Controller PCB, J7-1
PA98-2	BLK	GND from Pinball Controller PCB, J7-2
PA98-3	BLK	GND from Pinball Controller PCB, J7-3
PA98-4	VIO	Watchdog signal to Pinball Controller PCB, J7-4

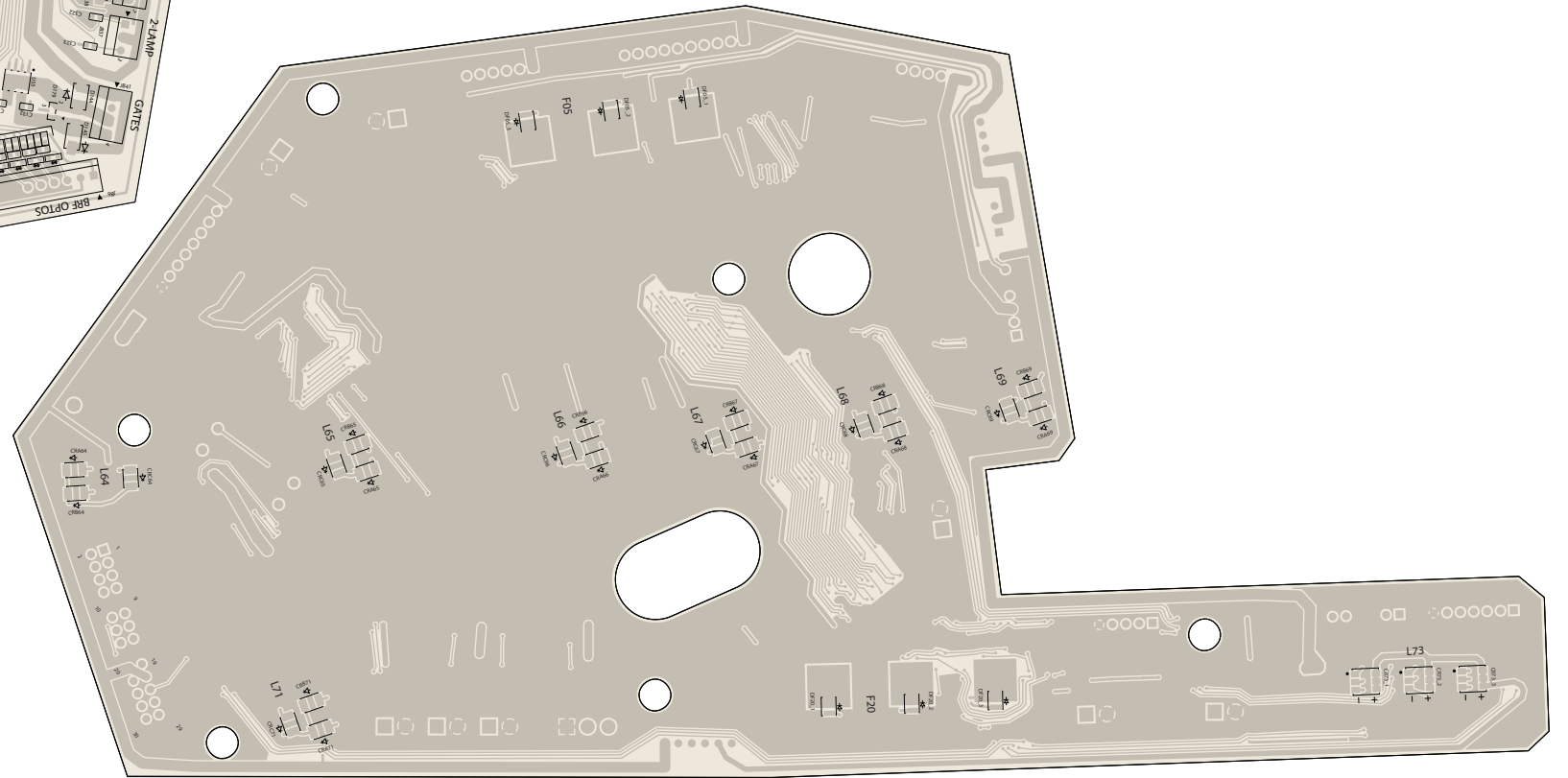
GND-A1 Ground [Power Interface Box (Lower Cabinet)]

GRN ground cable from power interface box post

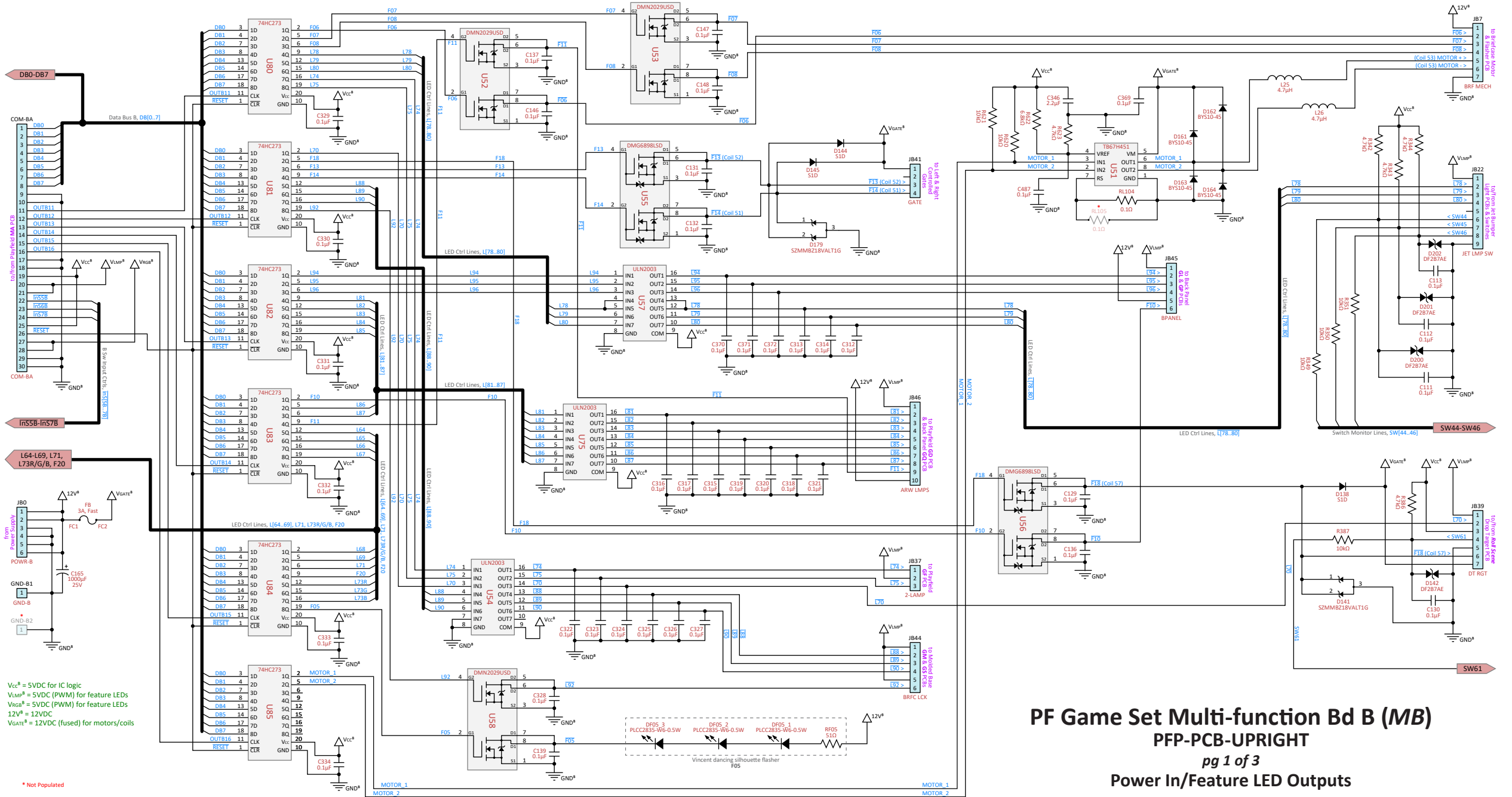
GND-A2 Ground [Not Used]



**PF Game Set Multi-function Bd B (MB)
PFP-PCB-UPRIGHT**



Component(s)	Description	Component(s)	Description
C107-C123, C125-C132, C136-C139, C146-C148, C311-C329, C330,-C345, C369-C375, C487	Capacitor, MLCC, 0603 SMD, 0.1μF, 25V, X5R, 10%	U50	Inverter, 6-Ch, 14-TSSOP SMD, Schmitt Trigger
C165	Capacitor, Elect, Radial SMD, 1000μF, 25V, 20%	U51	Brushed Motor Drvr, 8-SOIC SMD, 50V, 3A
C346	Capacitor, MLCC, 0603 SMD, 2.2μF, 16V, X5R, 10%	U52, U53, U58, U61	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 5.8A
CR63-CR66, CR73_1-CR73_3, CR91	LED, RGB, SMD	U54, U57, U59, U60, U75	Power Switch/Drvr, 1:1, 7NPN, 16-SOIC SMD
CRA64-CRA69, CRA71, CRB64-CRB69, CRB71,	LED, Warm White, PLCC2 SMD	U55, U56	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 9.5A
CRC64-CRC69, CRC71	Diode, GP, DO-214AC SMA, 200V, 1A	U80-U85	IC, Flip Flop, D-Type, 8 Bit, 20-TSSOP SMD
D138, D144, D145	Diode, TVS, SOT-23-3 SMD, 14.5VWVM, 25VC	U86-U88	Latch, Transparent, 3-Ch, 3-State, 20-TSSOP SMD
D141, D179	Diode, TVS, SM ESC, 5.5VWVM, 20VC	COM-BA	Hdr w/Friction Lock, Male, 30-Pin, 2-Row, 2.54mm
D142, D183-D202, D219, D220	Diode, Schottky, DO-214AC SMA, 45V, 1.5A	JB0	Hdr w/Friction Lock, Male, 6-Pin, 3.96mm
D161-D164	LED, White, 2835 SMD, 0.5W	JB6	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm
DF05_1-DF05_3, DF20_1-DF20_3	Fuse, Fast, 3A, 250V, 5mm x 20mm	JB7, JB39	Hdr w/Friction Lock, Male, 7-Pin, 2.54mm
FB	Fuse Clip, Through Hole, 5mm	JB15-JB18, JB21, JB28, JB30, JB38	Hdr w/Friction Lock, Male, 2-Pin, 3.96mm
FC1, FC2	Fuse Connect Male, Through Hole, 1/4"	JB19	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm
GND-B1	Not Populated	JB22	Hdr w/Friction Lock, Male, 9-Pin, 2.54mm
GND-B2	Inductor, SMD, 4.7μH, 4.1A, 23.4mΩ, 30%	JB23	Hdr w/Friction Lock, Male, 5-Pin, 2.54mm
L25, L26	Resistor, 0603 SMD, 4.7kΩ, 0.1W, 5%	JB37	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm
R342-R344, R353-R356, R364-R367, R370, R371,	Resistor, 0603 SMD, 10kΩ, 0.1W, 5%	JB41	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm
R374, R378, R379, R382, R383, R386, R623	Resistor, 0603 SMD, 1kΩ, 0.1W, 5%	JB44, JB45, JB52	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm
R349-R351, R359-R361, R363, R368, R369, R372,	Resistor, 0603 SMD, 6.8kΩ, 0.1W, 5%	JB46	Hdr w/Friction Lock, Male, 10-Pin, 2.54mm
R373, R376, R380, R381, R384, R385, R387,	Resistor, 1206 SMD, 787Ω, 0.25W, 1%		
R612-R615, R620, R621	Resistor, 0805 SMD, 330Ω, 0.125W, 5%		
R358, R362, R616-R619	Resistor, 0805 SMD, 10Ω, 0.125W, 5%		
R622	Resistor, 1210 SMD, 51Ω, 0.5W, 5%		
R628, R631	Resistor, 1206 SMD, 62Ω, 0.25W, 5%		
R629, R630, R632	Resistor, 1210 SMD, 0.1Ω, 0.5W, 1%		
RA64-RA69, RA71, RB64-RB69, RB71	Not Populated		
RC64-RC69, RC71	Resistor, 0805 SMD, 150Ω, 0.125W, 5%		
RF05, RF20	Resistor, 0805 SMD, 220Ω, 0.125W, 5%		
RL64-RL69, RL71			
RL104			
RL105			
R_73_1_B, R_73_2_B, R_73_3_B,			
R_73_1_G, R_73_2_G, R_73_3_G			
R_73_1_R, R_73_2_R, R_73_3_R			

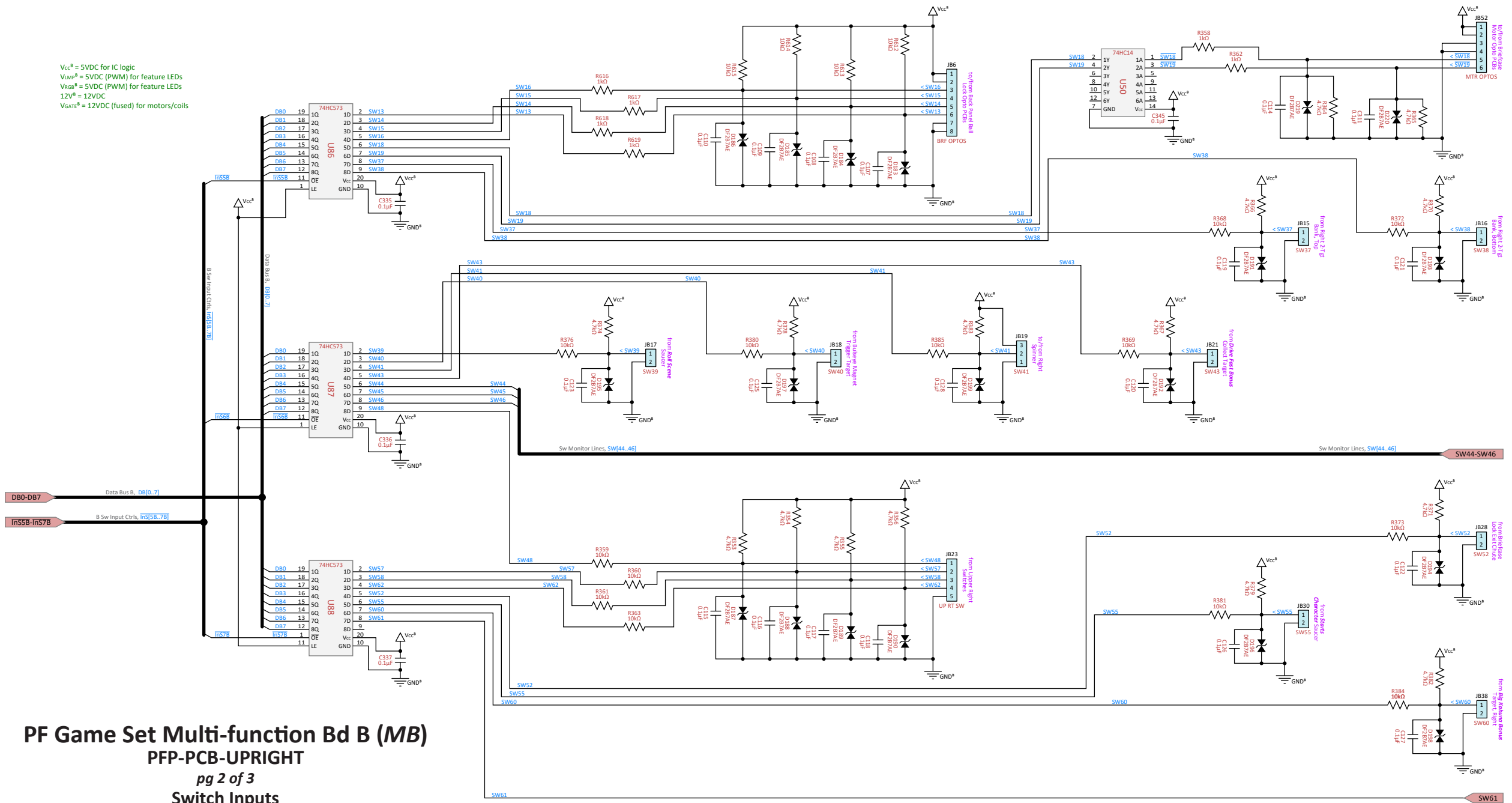


Vcc[#] = 5VDC for IC logic
 V_{Lamp}[#] = 5VDC (PWM) for feature LEDs
 V_{Gate}[#] = 5VDC (PWM) for feature LEDs
 12V[#] = 12VDC
 V_{Gate}[#] = 12VDC (fused) for motors/coils

* Not Populated

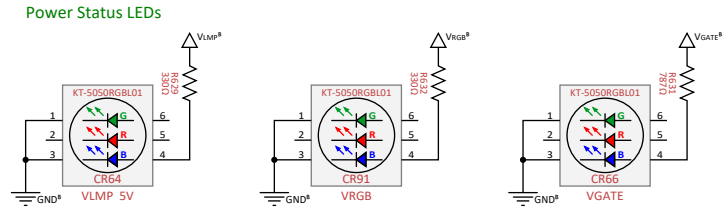
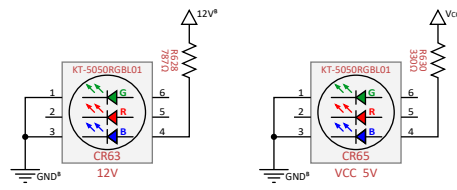
PF Game Set Multi-function Bd B (MB)
PFPCB-UPRIGHT
 pg 1 of 3
Power In/Feature LED Outputs

$V_{cc}^A = 5VDC$ for IC logic
 $V_{MTP}^B = 5VDC$ (PWM) for feature LEDs
 $V_{MGB}^B = 5VDC$ (PWM) for feature LEDs
 $12V^B = 12VDC$
 $V_{MTR}^B = 12VDC$ (fused) for motors/coils

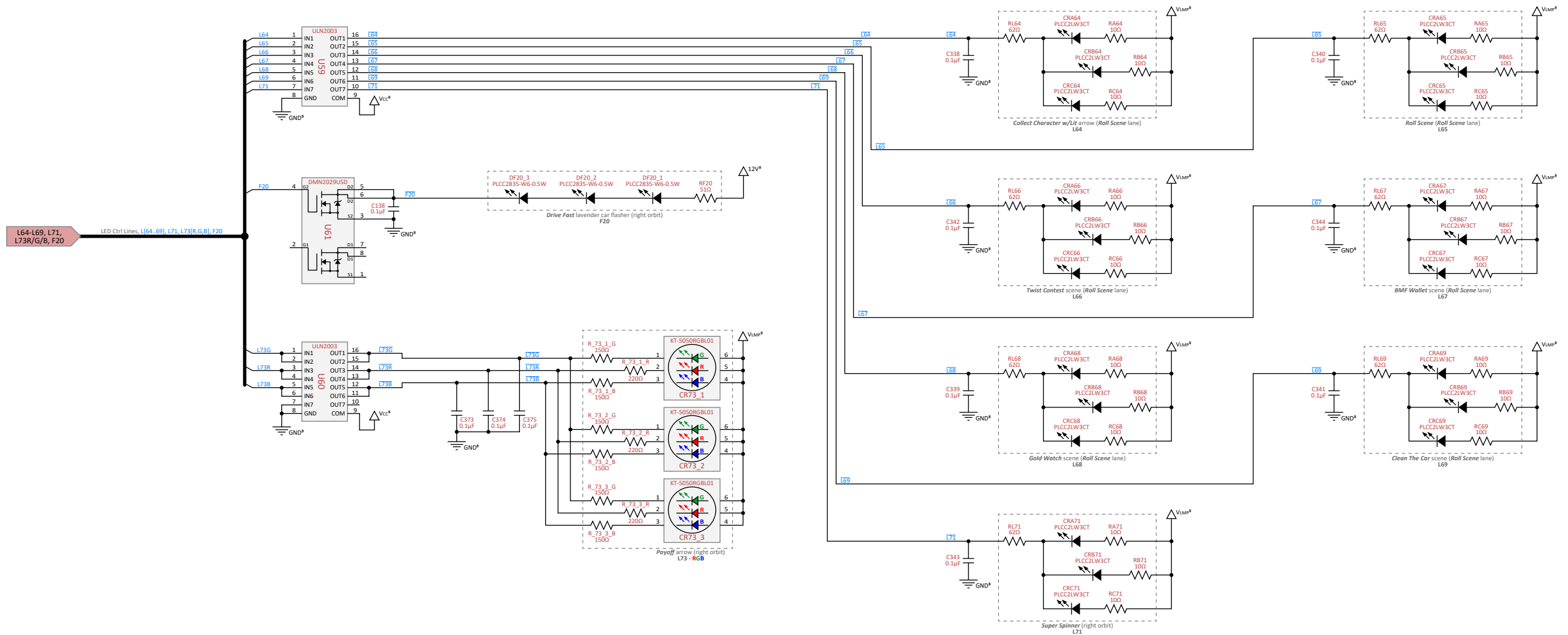


PF Game Set Multi-function Bd B (MB)
PFP-PCB-UPRIGHT
 pg 2 of 3
Switch Inputs

PF Game Set Multi-function Bd B (MB) PFP-PCB-UPRIGHT pg 3 of 3 On-board Feature LEDs



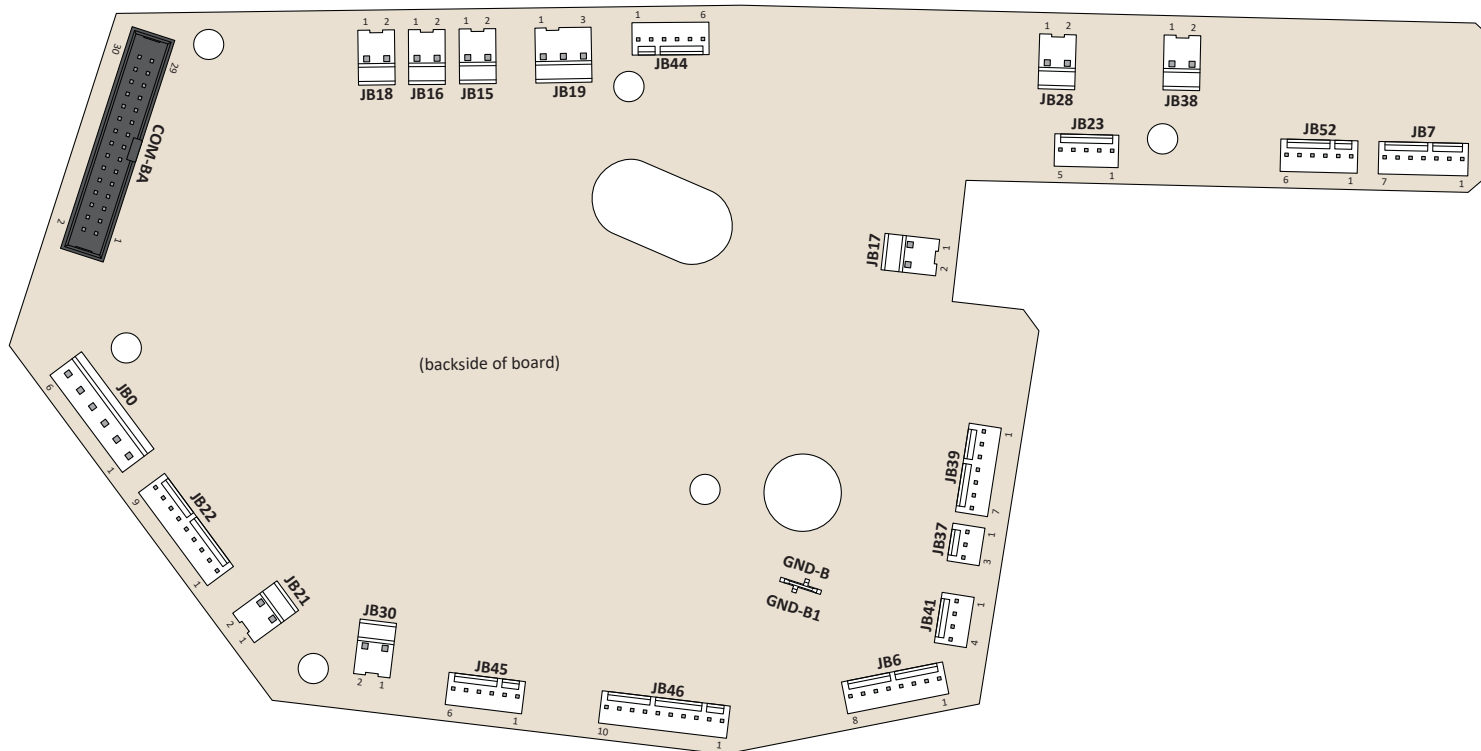
V_{CC}[®] = 5VDC for IC logic
 V_{LMP}[®] = 5VDC (PWM) for feature LEDs
 V_{RG8}[®] = 5VDC (PWM) for feature LEDs
 12V[®] = 12VDC
 V_{GATE}[®] = 12VDC (fused) for motors/coils



PF Game Set Multi-function Bd B (MB)

PFP-PCB-UPRIGHT

Connector Pin-outs



JB0 Power In [Switching Power Supply]

JB0-1	YEL	+12VDC from power supply
JB0-2	YEL	+12VDC from power supply
JB0-3	BLK	GND from power supply
JB0-4	BLK	GND from power supply
JB0-5	BLK	GND from power supply
JB0-6	Not used	+12VDC from power supply

JB6 Switches 13-16 Connections [Briefcase (Back Panel) Lock Opto Bds]

JB6-1	RED	+5VDC to briefcase lock opto XMT PCB, J2-1
JB6-2	RED	+5VDC to briefcase lock opto RCV PCB, J1-1
JB6-3	WHT-ORN	Sw 13 monitor line, opto RCV PCB, J1-2
JB6-4	WHT-YEL	Sw 14 monitor line, opto RCV PCB, J1-3
JB6-5	WHT-GRN	Sw 15 monitor line, opto RCV PCB, J1-4
JB6-6	WHT-BLU	Sw 16 monitor line, opto RCV PCB, J1-5
JB6-7	BLK	GND to briefcase lock opto XMT PCB, J2-3
JB6-8	BLK	GND to briefcase lock opto RCV PCB, J1-6

JB7 Flashers 06-08, Motor Connections [Briefcase Assy]

JB7-1	YEL	+12VDC to briefcase flasher PCB, J1-1
JB7-2	BLU-RED	F06 ctrl line, briefcase flasher PCB, J1-2
JB7-3	BLU-ORN	F07 ctrl line, briefcase flasher PCB, J1-3
JB7-4	BLU-YEL	F08 ctrl line, briefcase flasher PCB, J1-4
JB7-5	GRN-WHT	Motor + (fused) to briefcase motor (red dot) (Coil 53)
JB7-6	GRN-BLK	Motor - to briefcase motor (Coil 53)
JB7-7	Not used	GND

JB15 Switch 37 Connection [Right 2-Tgt Bank, Top Tgt]

JB15-1	WHT	Monitor line to Sw 37 target
JB15-2	BLK	GND to Sw 37 target

JB16 Switch 38 Connection [Right 2-Tgt Bank, Bottom Tgt]

JB16-1	WHT	Monitor line to Sw 38 target
JB16-2	BLK	GND to Sw 38 target

Switch inputs schematic: pg 3-19

Light/flasher outputs schematic: pg 3-18

JB17 Switch 39 Connection [Roll Scene Saucer]

JB17-1	WHT	Monitor line to Sw 39 microswitch
JB17-2	BLK	GND to Sw 39 microswitch

JB18 Switch 40 Connection [Bullseye Magnet Trigger Tgt]

JB18-1	WHT	Monitor line to Sw 40 target
JB18-2	BLK	GND to Sw 40 target

JB19 Switch 41 Connection [Right Spinner]

JB19-1	BLK	GND to right magnet spinner PCB, J1-1
JB19-2	WHT-BLK	Sw 41 monitor line, right magnet spinner PCB, J1-2
JB19-3	YEL	+12VDC to right magnet spinner PCB, J1-3

JB21 Switch 43 Connection [Drive Fast Bonus Collect Tgt]

JB21-1	WHT	Monitor line to Sw 43 microswitch
JB21-2	BLK	GND to Sw 43 microswitch

JB22 Lights 78-80, Switches 44-46 Connections [Jet Bumpers]

JB22-1	WHT-RED	+5VDC PWM to all jet bumper lights (term strip)
JB22-2	GRY-VIO	L78 ctrl line, right jet bumper (term strip)
JB22-3	GRY-GRN	L79 ctrl line, center jet bumper (term strip)
JB22-4	GRY-YEL	L80 ctrl line, left jet bumper (term strip)
JB22-5	Not Used	
JB22-6	WHT-VIO	Sw 44 monitor line, right jet bumper
JB22-7	WHT-GRN	Sw 45 monitor line, center jet bumper
JB22-8	WHT-YEL	Sw 46 monitor line, left jet bumper
JB22-9	BLK	GND to all jet bumper switches

JB23 Switches 48, 57, 58, 62 Connections [Upper Right Switches]

JB23-1	WHT-ORN	Monitor line to Sw 48 microswitch
JB23-2	WHT-YEL	Monitor line to Sw 57 leaf switches (2)
JB23-3	WHT-GRN	Monitor line to Sw 58 microswitch
JB23-4	WHT-BLU	Monitor line to Sw 62 microswitch
JB23-5	BLK	GND to all upper right switches

JB28 Switch 52 Connection [Briefcase Lock Exit Chute]

JB28-1	WHT	Monitor line to Sw 52 microswitch
JB28-2	BLK	GND to Sw 52 microswitch

JB30 Switch 55 Connection [Starts Character Saucer]

JB30-1	WHT	Monitor line to Sw 55 microswitch
JB30-2	BLK	GND to Sw 55 microswitch

JB37 Lights 74, 75 Connections [Game Set Bd GF]

JB37-1	GRY-BLK	Ctrl line to L74, GF PCB, L74 solder pad (S1)
JB37-2	RED	+5VDC PWM to GF PCB, VLMP solder pad (S2)
JB37-3	GRY-WHT	Ctrl line to L75, GF PCB, L75 solder pad (S3)

JB38 Switch 60 Connection [Big Kahuna Bonus Tgt, Right]

JB38-1	WHT	Monitor line to Sw 60 target
JB38-2	BLK	GND to Sw 60 target

JB39 Light 70, Switch 61, Retract Coil Connections [Roll Scene Drop Tgt]

JB39-1	RED-WHT	+5VDC PWM to Roll Scene drop tgt opto PCB, J1-1
JB39-2	GRY	L70 ctrl line, Roll Scene drop tgt opto PCB, J1-2
JB39-3	RED	+5VDC to Roll Scene drop tgt opto PCB, J1-3
JB39-4	WHT	Sw 61 monitor line, Roll Scene drop tgt opto PCB, J1-4
JB39-5	BLK	GND to Roll Scene drop tgt opto PCB, J1-5
JB39-6	BLU	Drop tgt retract trigger, Roll Scene drop tgt opto PCB, J1-7 (Coil 57)
JB39-7	YEL	+12VDC (fused) to Roll Scene drop tgt opto PCB, J1-8

JB41 Gate Coils Connections [Controlled Left & Right Gates]

JB41-1	RED	+12VDC (fused) to left & right controlled gate coils
JB41-2	Not Used	
JB41-3	BLU-RED	Gate open trigger, right controlled gate coil (Coil 52)
JB41-4	BLU-ORN	Gate open trigger, left controlled gate coil (Coil 51)

JB44 Lights 88-90, 92 Connections [Briefcase Molded Base]

JB44-1	RED	+5VDC PWM to GM PCB, JM44-1
JB44-2	GRY-VIO	L88 ctrl line, GM PCB, JM44-2
JB44-3	GRY-BLK	L89 ctrl line, GM PCB, JM44-3
JB44-4	GRY-WHT	L90 ctrl line, GM PCB, JM44-4
JB44-5	RED	+5VDC PWM to GS PCB, VLMP solder pad (S1)
JB44-6	GRY-BLU	L92 ctrl line, GS PCB, L92 solder pad (S3)

JB45 Lights 94-96, Flasher 10 Connections [Back Panel]

JB45-1	RED	+5VDC PWM to GL PCB, <i>VLMP</i> solder pad (S1)
JB45-2	GRY-ORN	L94 ctrl line, GL PCB, <i>L94</i> solder pad (S2)
JB45-3	GRY-YEL	L95 ctrl line, GL PCB, <i>L95</i> solder pad (S3)
JB45-4	GRY-GRN	L96 ctrl line, GL PCB, <i>L96</i> solder pad (S4)
JB45-5	YEL	+12VDC to GP PCB, <i>12V</i> solder pad (S1)
JB45-6	BLU-RED	F10 ctrl line, GP PCB, <i>F10</i> solder pad (S3)

JB46 Lights 81-87, Flasher 11 Connections [Game Set Bd GD, Behind Back Panel]

JB46-1	RED	+5VDC PWM to GD PCB, JD42-1
JB46-2	GRY-ORN	L81 ctrl line, GD PCB, JD42-2
JB46-3	GRY-YEL	L82 ctrl line, GD PCB, JD42-3
JB46-4	GRY-GRN	L83 ctrl line, GD PCB, JD42-4
JB46-5	GRY-BLU	L84 ctrl line, GD PCB, JD42-5
JB46-6	GRY-VIO	L85 ctrl line, GD PCB, JD42-6
JB46-7	GRY-WHT	L86 ctrl line, GD PCB, JD42-7
JB46-8	GRY-BLK	L87 ctrl line, GD PCB, JD42-8
JB46-9	BLU-YEL	F11 ctrl line, GQ PCB, <i>F11</i> solder pad (S1)
JB46-10	YEL	+12VDC to GQ PCB, <i>12V</i> solder pad (S3)

JB52 Switches 18, 19 Connections [Briefcase Assy]

JB52-1	RED-VIO	+5VDC to left motor opto PCB, J1-1
JB52-2	RED-YEL	+5VDC to right motor opto PCB, J1-1
JB52-3	BLK	GND to left motor opto PCB, J1-3
JB52-4	BLK	GND to right motor opto PCB, J1-3
JB52-5	GRY-VIO	Sw 18 monitor line, left motor opto PCB, J1-2
JB52-6	GRY-YEL	Sw 19 monitor line, right motor opto PCB, J1-2

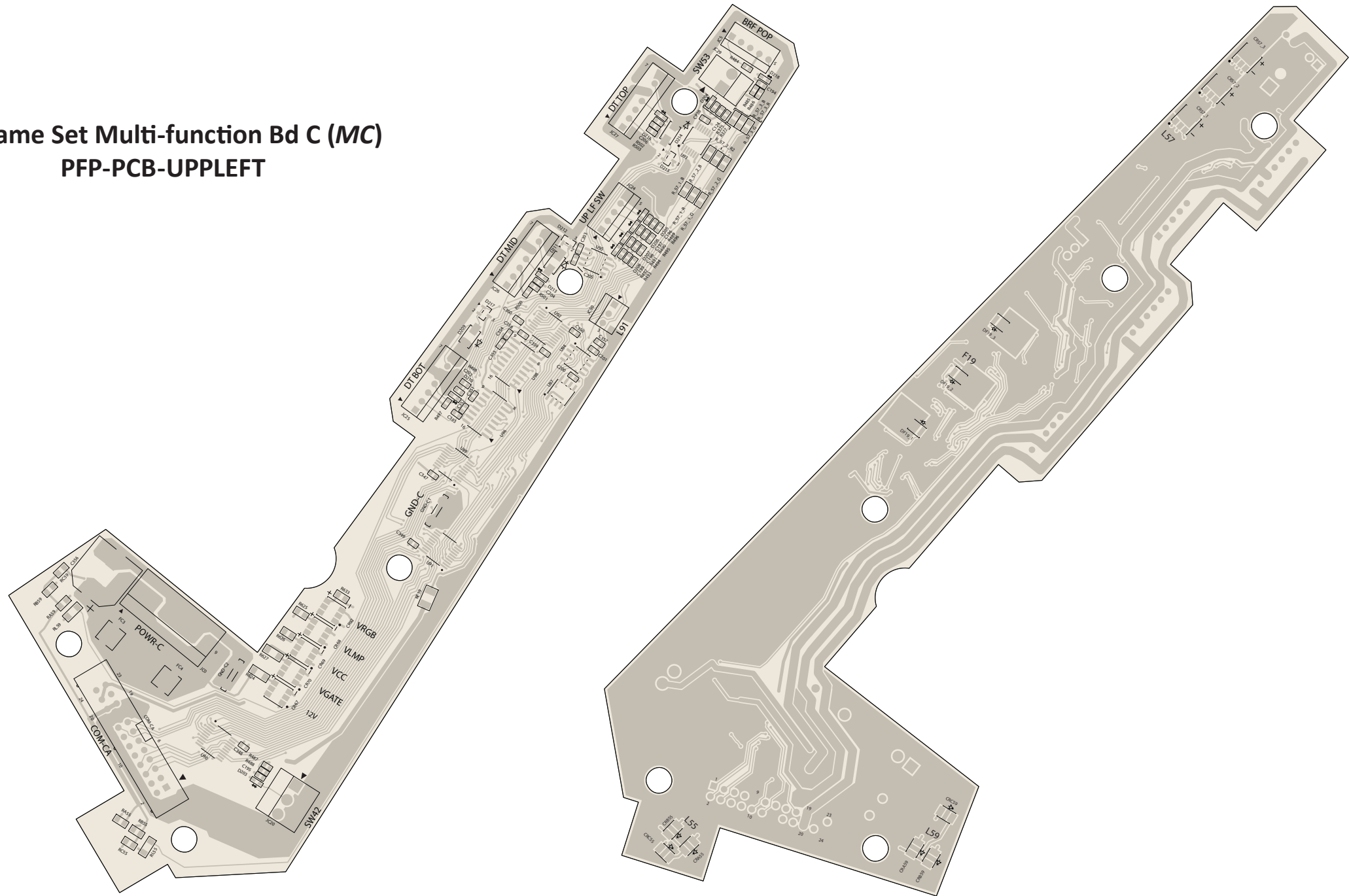
COM-BA Comms Interface [Game Set Bd MA]

30-pin, GRY, 4" ribbon cable to/from **MA** PCB, COM-AB

GND-B1 Ground [Not Used]

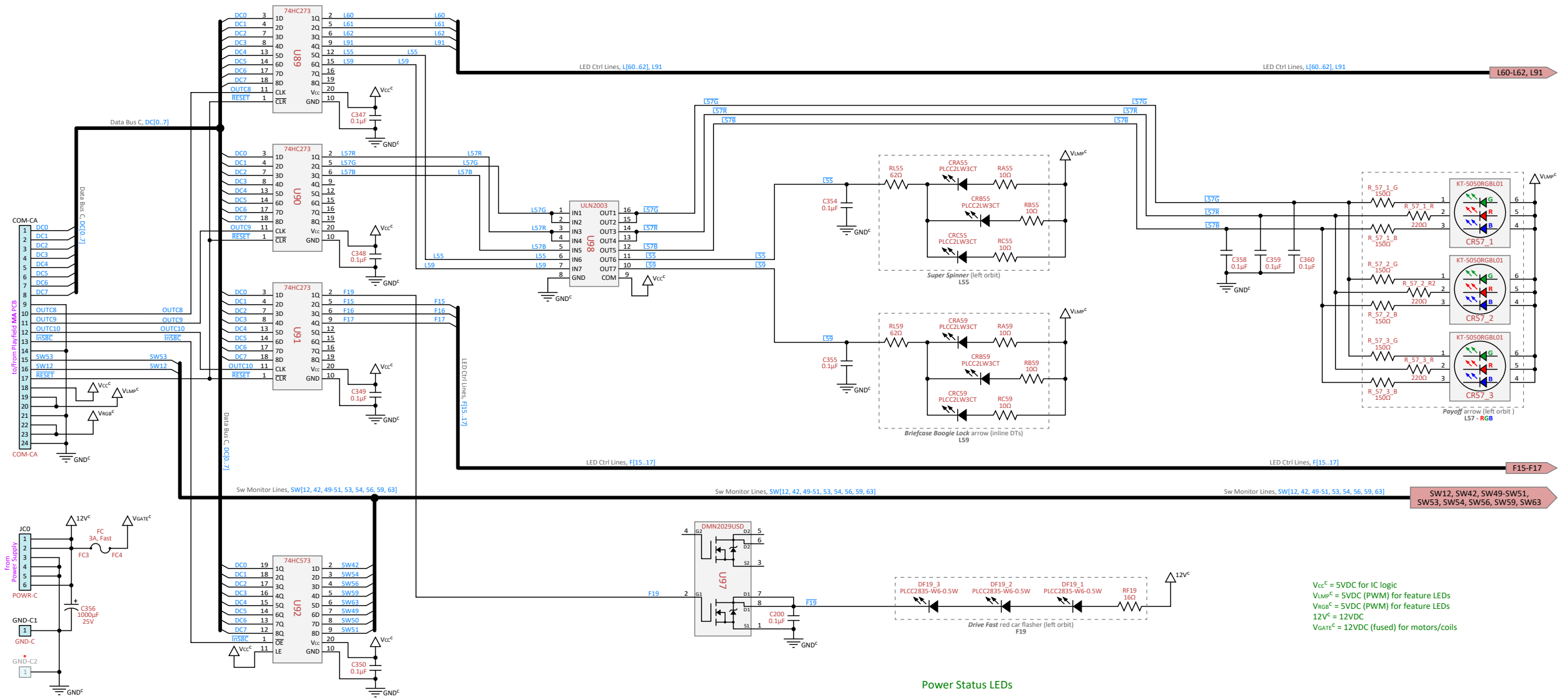
GND-B2 Ground [Not Used]

PF Game Set Multi-function Bd C (MC) PFP-PCB-UPPLEFT



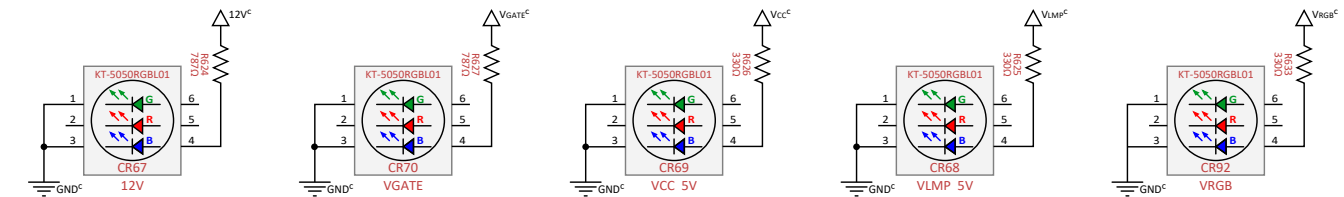
Component(s)	Description
C124, C194-C206, C347-C355, C357-C360, CP38 C356	Capacitor, MLCC, 0603 SMD, 0.1μF, 25V, X5R, 10%
CR57_1-CR57_3, CR67-CR70, CR92	Capacitor, Elect, Radial SMD, 1000μF, 25V, 20%
CRA55, CRA59, CRB55, CRB59, CRC55, CRC59	LED, RGB, SMD
D203-D208, D210, D213, D216, D218	LED, Warm White, PLCC2 SMD
D209, D211, D214	Diode, TVS, SM ESC, 5.5VWVM, 20VC
D212, D215, D217	Diode, GP, DO-214AC SMA, 200V, 1A
DF19_1-DF19_3	Diode, TVS, SOT-23-3 SMD, 14.5VWVM, 25VC
FC	LED, White, 2835 SMD, 0.5W
FC3, FC4	Fuse, Fast, 3A, 250V, 5mm x 20mm
GND-C1	Fuse Clip, Through Hole, 5mm
GND-C2	Quick Connect Male, Through Hole, 1/4"
R375, R486, R487, R489-R492, R497, R500, R502	Not Populated
R377, R488, R493-R496, R498, R501, R503	Resistor, 0603 SMD, 4.7kΩ, 0.1W, 5%
R484	Resistor, 0603 SMD, 10kΩ, 0.1W, 5%
R485	Resistor, 0603 SMD, 120Ω, 0.33W, 5%
R624, R627	Resistor, 0603 SMD, 1kΩ, 0.1W, 5%
R625, R626, R633	Resistor, 1206 SMD, 787Ω, 0.25W, 1%
RA55, RA59, RB55, RB59, RC55, RC59	Resistor, 0805 SMD, 330Ω, 0.125W, 5%
RF19	Resistor, 0805 SMD, 10Ω, 0.125W, 5%
RL55, RL59	Resistor, 1210 SMD, 16Ω, 0.5W, 5%
R_57_1_B, R_57_2_B, R_57_3_B,	Resistor, 1206 SMD, 62Ω, 0.25W, 5%
R_57_1_G, R_57_2_G, R_57_3_G	Resistor, 0805 SMD, 150Ω, 0.125W, 5%
R_57_1_R, R_57_2_R2, R_57_3_R	Resistor, 0805 SMD, 220Ω, 0.125W, 5%

Component(s)	Description
U89-U91	IC, Flip Flop, D-Type, 8 Bit, 20-TSSOP SMD
U92	Latch, Transparent, 3-Ch, 3-State, 20-TSSOP SMD
U93	Inverter, 6-Ch, 14-TSSOP SMD, Schmitt Trigger
U94, U95	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 9.5A
U96, U98	Power Switch/Drv, 1:1, 7NPN, 16-SOIC SMD
U97	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 5.8A
COM-CA	Hdr w/Friction Lock, Male, 24-Pin, 2-Row, 2.54mm
JC0	Hdr w/Friction Lock, Male, 6-Pin, 3.96mm
JC5, JC24	Hdr w/Friction Lock, Male, 5-Pin, 2.54mm
JC20	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm
JC25-JC27	Hdr w/Friction Lock, Male, 7-Pin, 2.54mm
JC29	Hdr w/Friction Lock, Male, 2-Pin, 3.96mm
JC50	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm



Vcc^c = 5VDC for IC logic
 VLMP^c = 5VDC (PWM) for feature LEDs
 VRGB^c = 5VDC (PWM) for feature LEDs
 12V^c = 12VDC
 VGATE^c = 12VDC (fused) for motors/coils

PF Game Set Multi-function Bd C (MC)
PPF-PCB-UPPLEFT
 pg 1 of 2
Power, On-board Feature LEDs



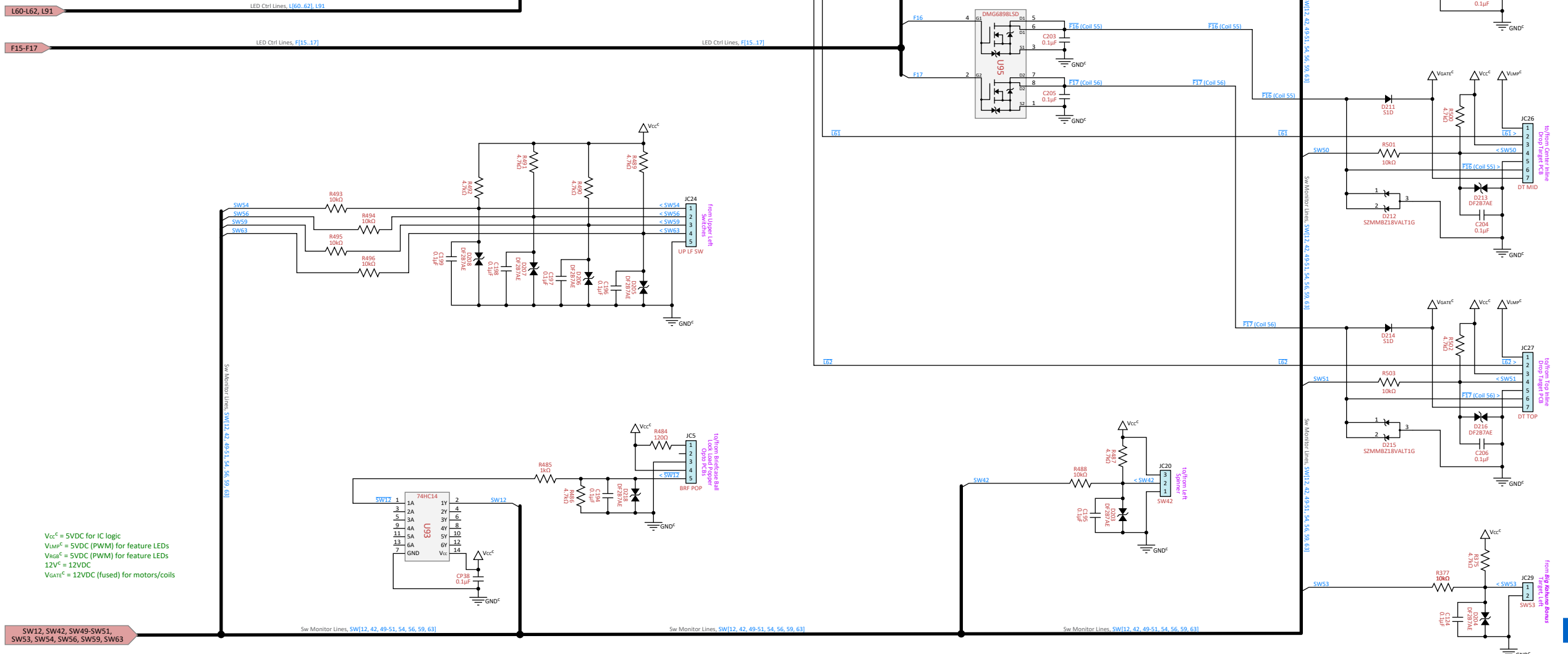
* Not Populated

PF Game Set Multi-function Bd C (MC)

PFP-PCB-UPPLEFT

pg 2 of 2

Switch Inputs, LED Outputs



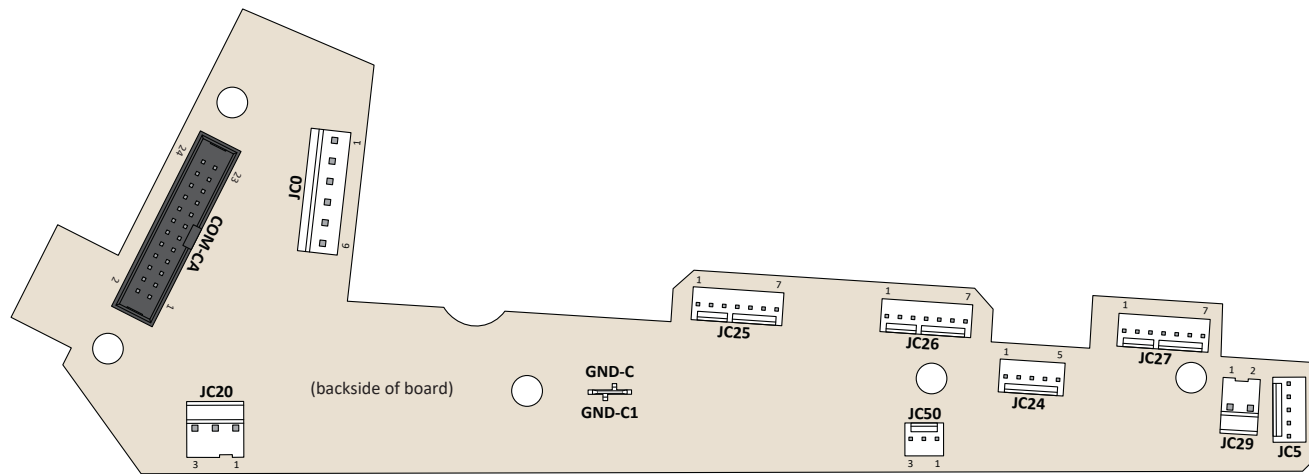
Vcc^c = 5VDC for IC logic
 V_{LMP}^c = 5VDC (PWM) for feature LEDs
 V_{IGP}^c = 5VDC (PWM) for feature LEDs
 12V^c = 12VDC
 V_{GATE}^c = 12VDC (fused) for motors/coils

SW12, SW42, SW49-SW51, SW53, SW54, SW56, SW59, SW63

Sw Monitor Lines: SW12, 42, 49-51, 54, 56, 59, 63

Sw Monitor Lines: SW12, 42, 49-51, 54, 56, 59, 63

Sw Monitor Lines: SW12, 42, 49-51, 54, 56, 59, 63



PF Game Set Multi-function Bd C (MC)

PFP-PCB-UPPLEFT

Connector Pin-outs

JC0 Power In [Switching Power Supply]

JC0-1	YEL	+12VDC from power supply
JC0-2	YEL	+12VDC from power supply
JC0-3	BLK	GND from power supply
JC0-4	BLK	GND from power supply
JC0-5	BLK	GND from power supply
JC0-6	Not used	+12VDC from power supply

JC5 Switch 12 Connection [Briefcase Ball Popper Opto Bds]

JC5-1	WHT	+5VDC to ball popper opto XMT PCB, A solder pad
JC5-2	Not used	
JC5-3	BLK	GND to ball popper opto XMT PCB, K solder pad
JC5-4	RED	+5VDC to ball popper opto RCV PCB, C solder pad
JC5-5	GRY	Sw 12 monitor line, opto RCV PCB, E solder pad

JC20 Switch 42 Connection [Left Spinner]

JC20-1	BLK	GND to left magnet spinner PCB, J1-1
JC20-2	WHT-BLK	Sw 42 monitor line, left magnet spinner PCB, J1-2
JC20-3	YEL	+12VDC to left magnet spinner PCB, J1-3

JC24 Switches 54, 56, 59, 63 Connections [Upper Left Switches]

JC24-1	WHT-VIO	Monitor line to Sw 54 microswitch
JC24-2	WHT-GRY	Monitor line to Sw 56 leaf switches (2)
JC24-3	WHT-YEL	Monitor line to Sw 59 microswitch
JC24-4	WHT-BLK	Monitor line to Sw 63 microswitch
JC24-5	BLK	GND to all upper left switches

JC25 Light 60, Switch 49, Retract Coil Connections [Bottom Inline Drop Tgt]

JC25-1	RED-WHT	+5VDC PWM to bottom inline drop tgt opto PCB, J1-1
JC25-2	GRY	L60 ctrl line, bottom inline drop tgt opto PCB, J1-2
JC25-3	RED	+5VDC to bottom inline drop tgt opto PCB, J1-3
JC25-4	WHT	Sw 49 monitor line, bottom inline drop tgt opto PCB, J1-4
JC25-5	BLK	GND to bottom inline drop tgt opto PCB, J1-5
JC25-6	BLU	Drop tgt retract trigger, bottom inline drop tgt opto PCB, J1-7 (Coil 54)
JC25-7	YEL	+12VDC (fused) to bottom inline drop tgt opto PCB, J1-8

JC26 Light 61, Switch 50, Retract Coil Connections [Center Inline Drop Tgt]

JC26-1	RED-WHT	+5VDC PWM to center inline drop tgt opto PCB, J1-1
JC26-2	GRY	L61 ctrl line, center inline drop tgt opto PCB, J1-2
JC26-3	RED	+5VDC to center inline drop tgt opto PCB, J1-3
JC26-4	WHT	Sw 50 monitor line, center inline drop tgt opto PCB, J1-4
JC26-5	BLK	GND to center inline drop tgt opto PCB, J1-5
JC26-6	BLU	Drop tgt retract trigger, center inline drop tgt opto PCB, J1-7 (Coil 55)
JC26-7	YEL	+12VDC (fused) to center inline drop tgt opto PCB, J1-8

JC27 Light 62, Switch 51, Retract Coil Connections [Top Inline Drop Tgt]

JC27-1	RED-WHT	+5VDC PWM to top inline drop tgt opto PCB, J1-1
JC27-2	GRY	L62 ctrl line, top inline drop tgt opto PCB, J1-2
JC27-3	RED	+5VDC to top inline drop tgt opto PCB, J1-3
JC27-4	WHT	Sw 51 monitor line, top inline drop tgt opto PCB, J1-4
JC27-5	BLK	GND to top inline drop tgt opto PCB, J1-5
JC27-6	BLU	Drop tgt retract trigger, top inline drop tgt opto PCB, J1-7 (Coil 56)
JC27-7	YEL	+12VDC (fused) to top inline drop tgt opto PCB, J1-8

JC29 Switch 53 Connection [Big Kahuna Bonus Tgt, Left]

JC29-1	WHT	Monitor line to Sw 53 target
JC29-2	BLK	GND to SW53 target

JC50 Light 91 Connection [Game Set Bd GO]

JC50-1	RED	+5VDC PWM to GO PCB, <i>VLMP</i> solder pad (S1)
JC50-2	Not used	
JC50-3	GRY-RED	L91 ctrl line, GO PCB, <i>L91</i> solder pad (S3)

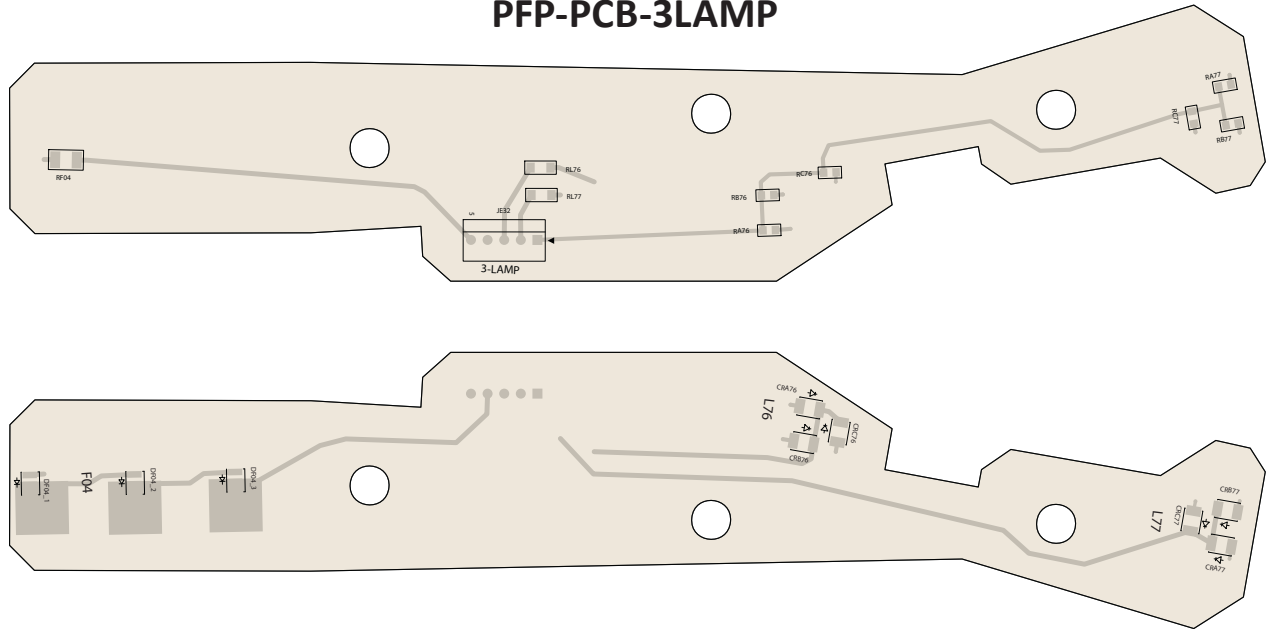
COM-CA Comms Interface [Game Set Bd MA]

24-pin, GRY, 4" ribbon cable to/from **MA** PCB, COM-AC

GND-C1 Ground [Not Used]

GND-C2 Ground [Not Used]

PF Game Set Bd E (GE) PFP-PCB-3LAMP

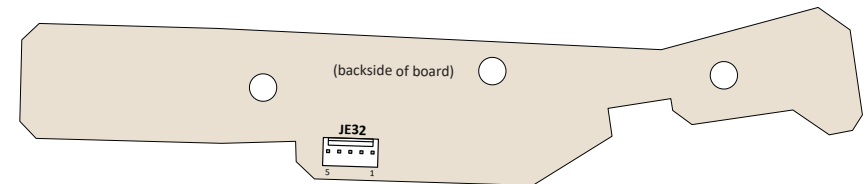
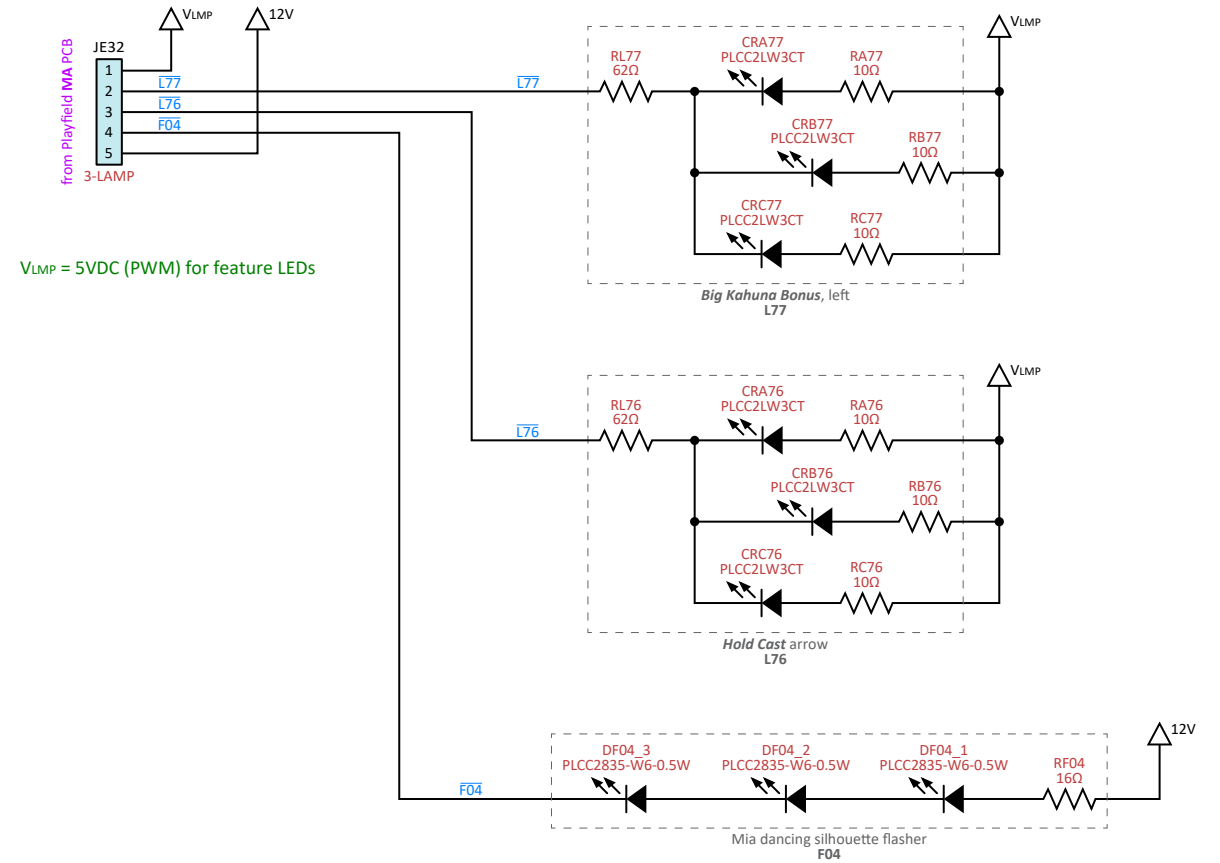


Component(s)

CRA76, CRA77, CRB76, CRB77, CRC76, CRC77
DF04_1-DF04_3
RA76, RA77, RB76, RB77, RC76, RC77
RF04
RL76, RL77
JE32

Description

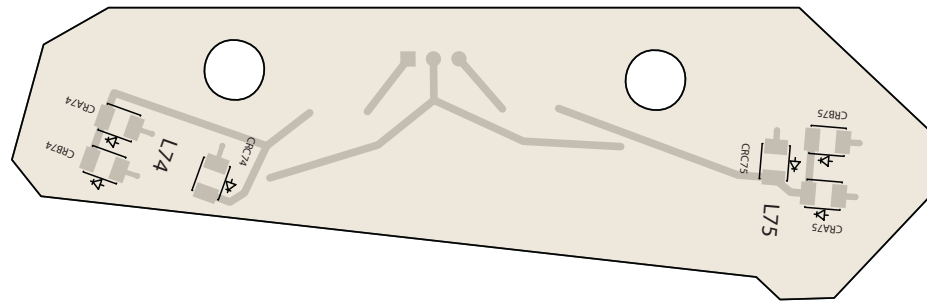
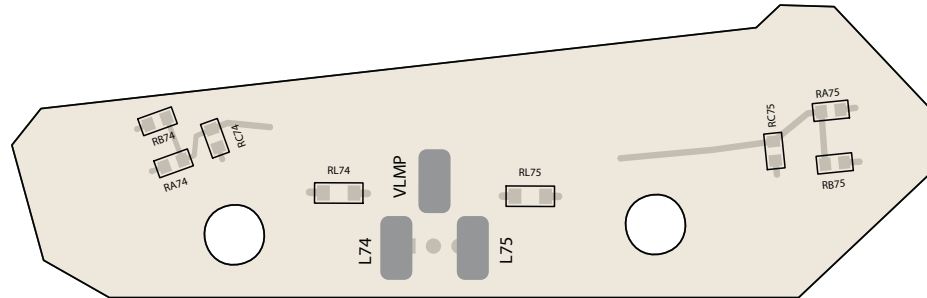
LED, Warm White, PLCC2 SMD
LED, White, 2835 SMD, 0.5W
Resistor, 0805 SMD, 10Ω, 0.125W, 5%
Resistor, 1210 SMD, 16Ω, 0.5W, 5%
Resistor, 1206 SMD, 62Ω, 0.25W, 5%
Hdr w/Friction Lock, Male, 5-Pin, 2.54mm



JE32 Lights 76, 77, Flasher 04 Connections [Game Set Bd MA]

JE32-1	RED	+5VDC PWM from MA PCB, JA40-1
JE32-2	GRY-ORN	L77 ctrl line, MA PCB, JA40-2
JE32-3	GRY-YEL	L76 ctrl line, MA PCB, JA40-3
JE32-4	BLU-GRN	F04 ctrl line, MA PCB, JA40-4
JE32-5	YEL	+12VDC from MA PCB, JA40-5

PF Game Set Bd F (GF) PFP-PCB-2LMPEXB

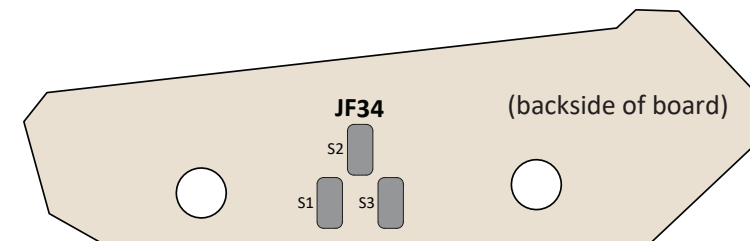
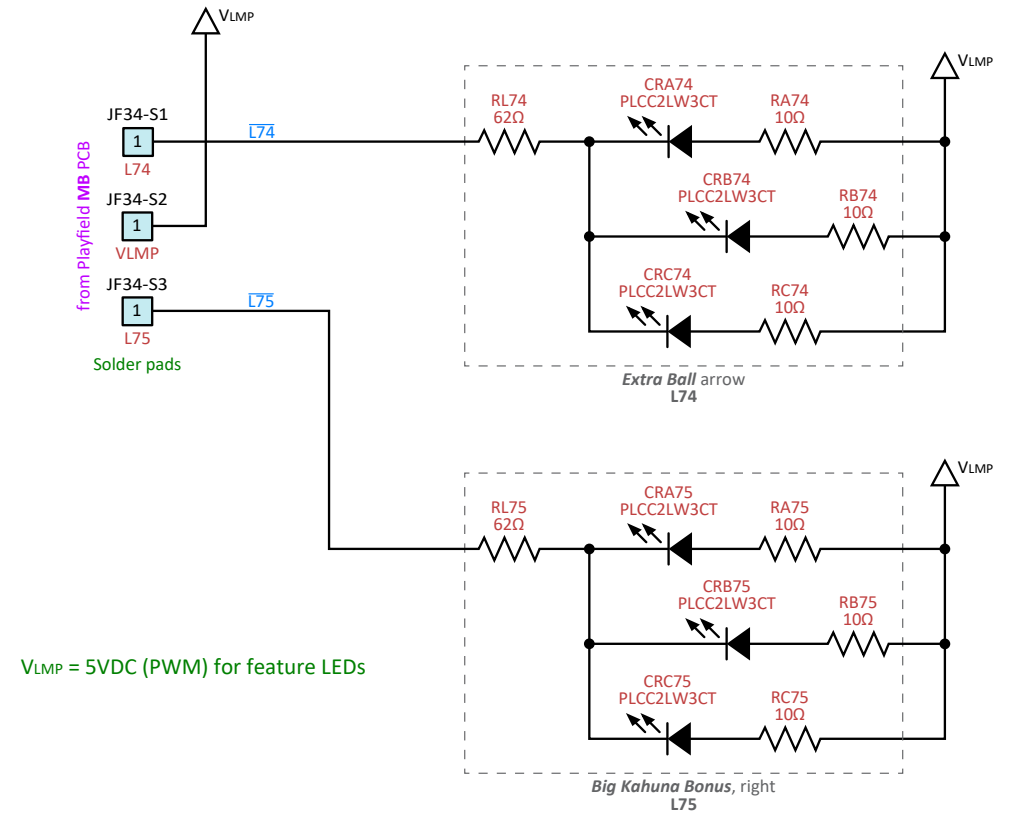


Component(s)

CRA74, CRA75, CRB74, CRB75, CRC74, CRC75
RA74, RA75, RB74, RB75, RC74, RC75
RL74, RL75

Description

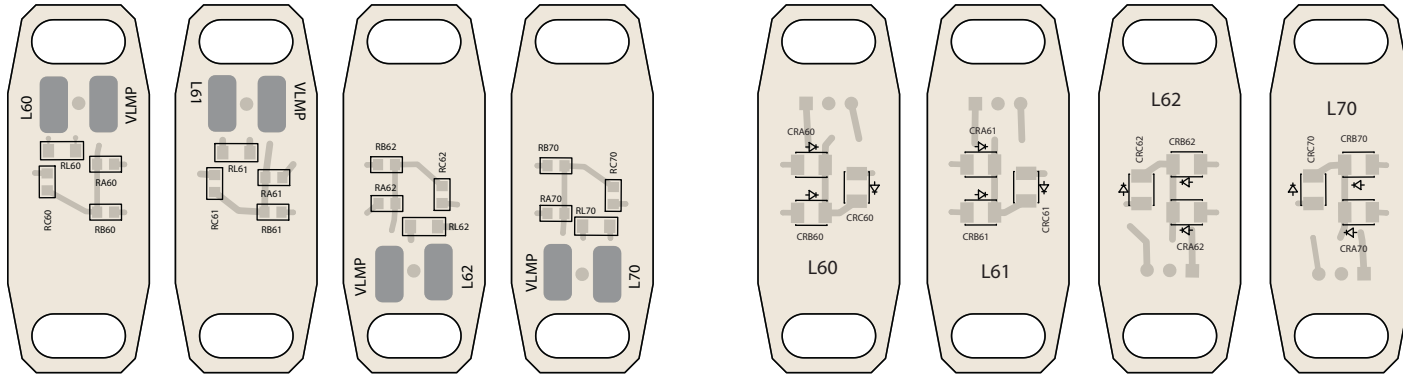
LED, Warm White, PLCC2 SMD
Resistor, 0805 SMD, 10Ω, 0.125W, 5%
Resistor, 1206 SMD, 62Ω, 0.25W, 5%



JF34 Lights 74, 75 Connections [Game Set Bd MB]

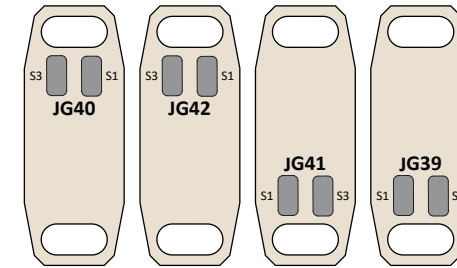
JF34-S1 (L74)	GRY-BLK	L74 ctrl line, MB PCB, JB37-1
JF34-S2 (VLMP)	RED	+5VDC PWM from MB PCB, JB37-2
JF34-S3 (L75)	GRY-WHT	L75 ctrl line, MB PCB, JB37-3

PF Game Set Bd G (GG), 4 ea PFP-PCB-DROPLMP



Component(s)
 CRA60-CRA62, CRA70, CRB60-CRB62, CRB70,
 CRC60-CRC62, CRC70
 RA60-RA62, RA70, RB60-RB62, RB70,
 RC60-RC62, RC70
 RL60-RL62, RL70

Description
 LED, Warm White, PLCC2 SMD
 Resistor, 0805 SMD, 10Ω, 0.125W, 5%
 Resistor, 1206 SMD, 62Ω, 0.25W, 5%



(backside of boards)

JG40 Light 60 Connection [Bottom Inline Drop Tgt PCB]

JG40-S1 (VLMP)	WHT-YEL	+5VDC PWM from bottom inline DT opto PCB, J3-S1(+) solder pad
JG40-S2	Not Used	
JG40-S3 (L60)	BLK	L60 ctrl line from bottom inline DT opto PCB, J3-S2 solder pad

JG42 Light 61 Connection [Center Inline Drop Tgt PCB]

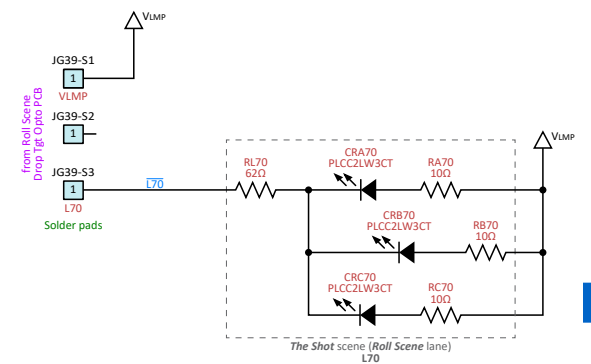
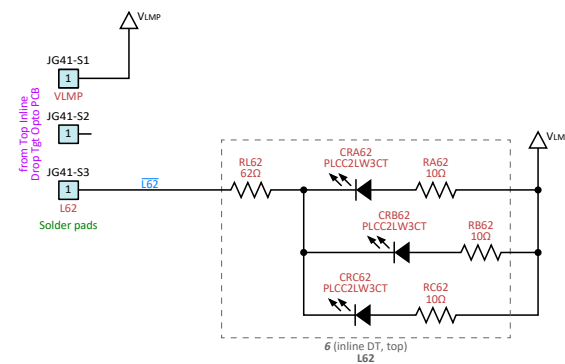
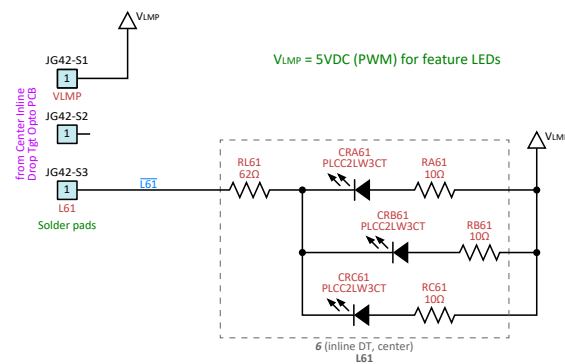
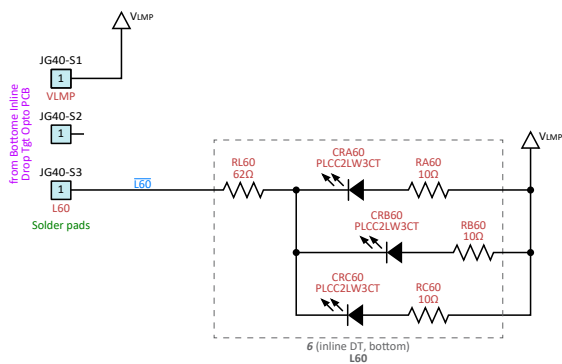
JG42-S1 (VLMP)	WHT-YEL	+5VDC PWM from center inline DT opto PCB, J3-S1(+) solder pad
JG42-S2	Not Used	
JG42-S3 (L61)	BLK	L61 ctrl line from center inline DT opto PCB, J3-S2 solder pad

JG41 Light 62 Connection [Top Inline Drop Tgt PCB]

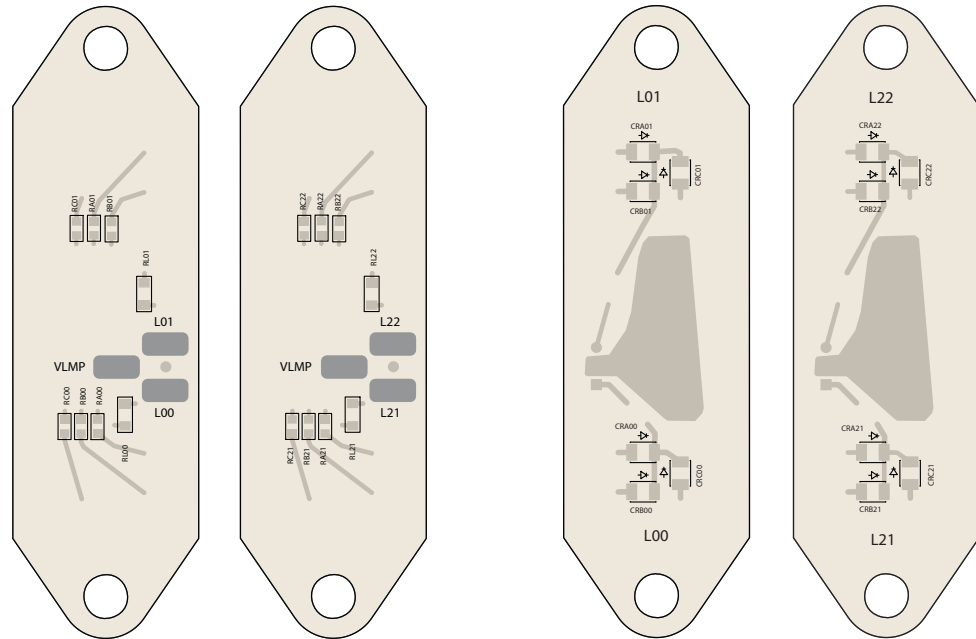
JG41-S1 (VLMP)	WHT-YEL	+5VDC PWM from top inline DT opto PCB, J3-S1(+) solder pad
JG41-S2	Not Used	
JG41-S3 (L62)	BLK	L62 ctrl line from top inline DT opto PCB, J3-S2 solder pad

JG39 Light 70 Connection [Roll Scene Drop Tgt PCB]

JG39-S1 (VLMP)	WHT-YEL	+5VDC PWM from Roll Scene DT opto PCB, J3-S1(+) solder pad
JG39-S2	Not Used	
JG39-S3 (L70)	BLK	L70 ctrl line from Roll Scene DT opto PCB, J3-S2 solder pad



PF Game Set Bd H (GH), 2 ea PIN-PCB-RETURNL

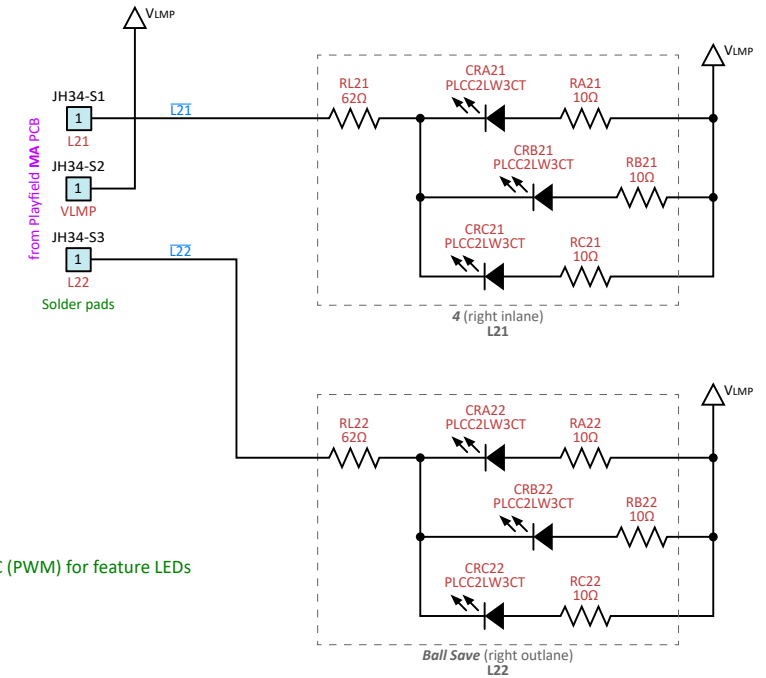
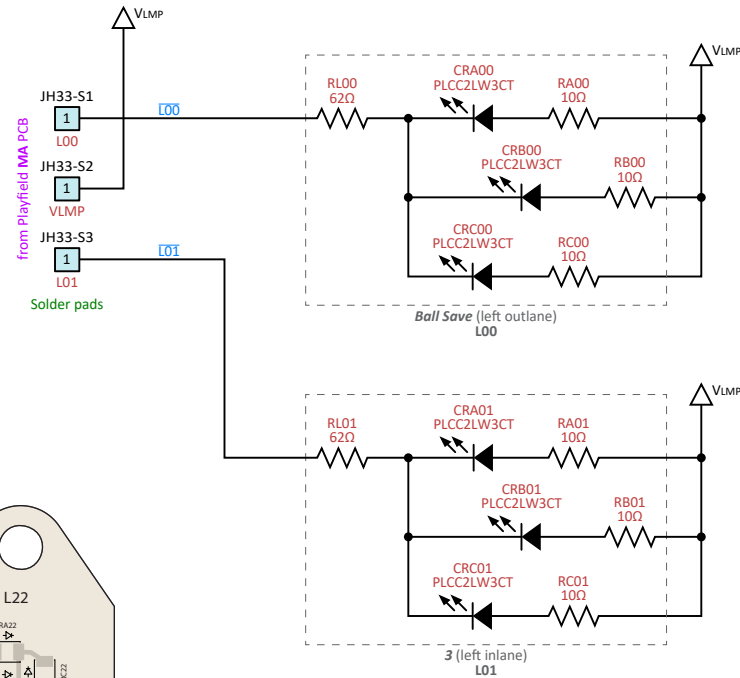


Component(s)

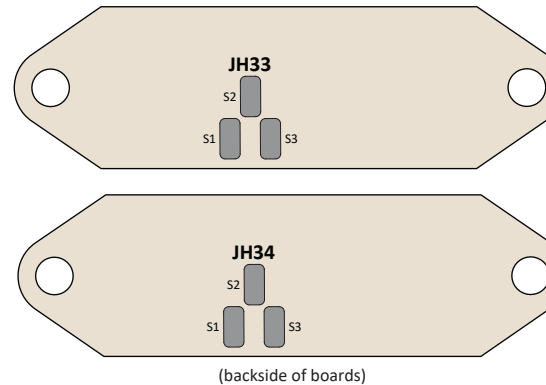
CRA00, CRA01, CRA21, CRA22, CRB00, CRB01, CRB21, CRB22, CRC00, CRC01, CRC21, CRC22
RA00, RA01, RA21, RA22, RB00, RB01, RB21, RB22, RC00, RC01, RC21, RC22
RL00, RL01, RL21, RL22

Description

LED, Warm White, PLCC2 SMD
Resistor, 0805 SMD, 10Ω, 0.125W, 5%
Resistor, 1206 SMD, 62Ω, 0.25W, 5%



VLMP = 5VDC (PWM) for feature LEDs



(backside of boards)

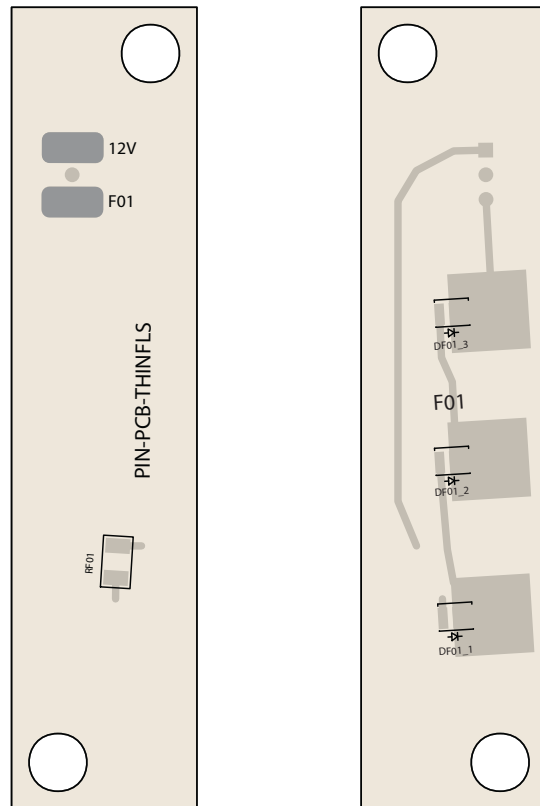
JH33 Lights 00, 01 Connections [Game Set Bd MA]

JH33-S1 (L00)	GRY-BLK	L00 ctrl line, MA PCB, JA33-1
JH33-S2 (VLMP)	RED	+5VDC PWM from MA PCB, JA33-2
JH33-S3 (L01)	GRY-WHT	L01 ctrl line, MA PCB, JA33-3

JH34 Lights 21, 22 Connections [Game Set Bd MA]

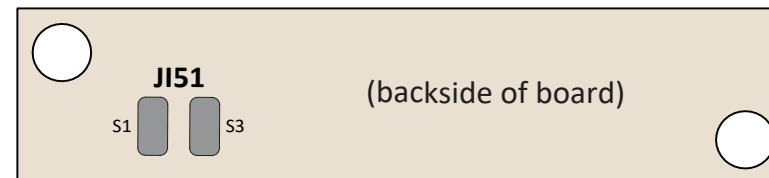
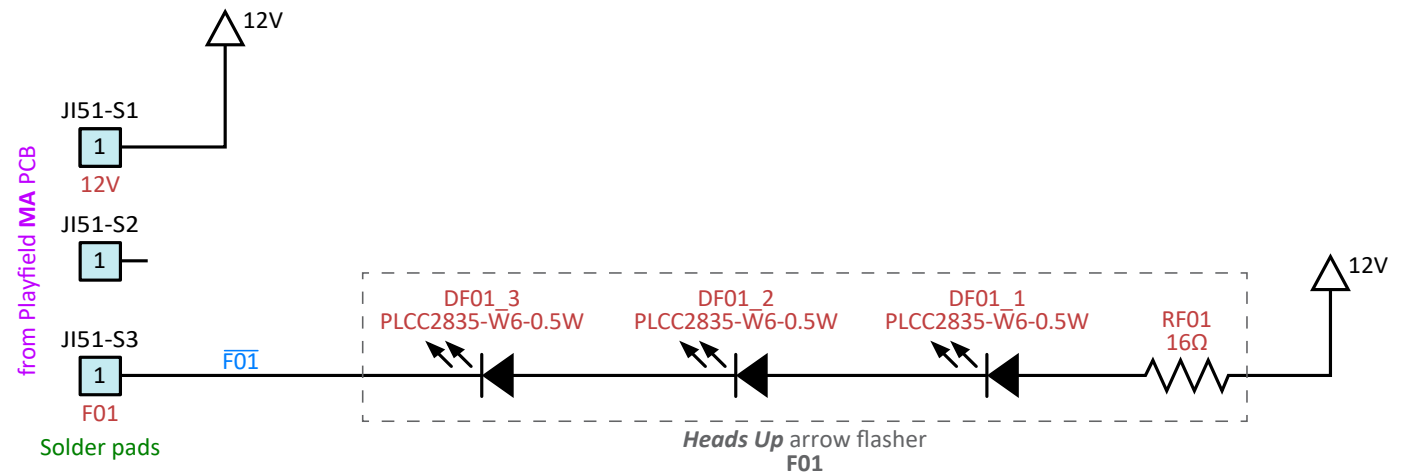
JH34-S1 (L21)	GRY-BLK	L21 ctrl line, MA PCB, JA34-1
JH34-S2 (VLMP)	RED	+5VDC PWM from MA PCB, JA34-2
JH34-S3 (L22)	GRY-WHT	L22 ctrl line, MA PCB, JA34-3

PF Game Set Bd I (GI) PFP-PCB-HEADSUP



Component(s)
DF01_1-DF01_3
RF01

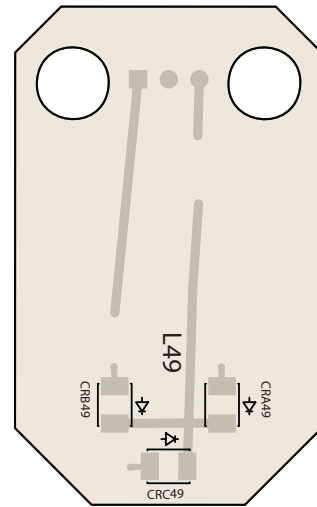
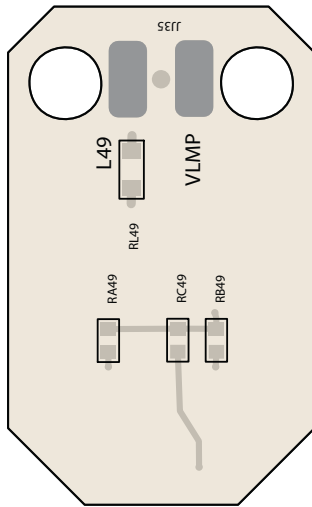
Description
LED, White, 2835 SMD, 0.5W
Resistor, 1210 SMD, 16Ω, 0.5W, 5%



JI51 Flasher 01 Connection [Game Set Bd MA]

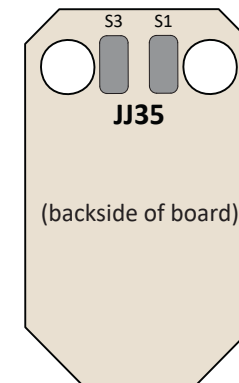
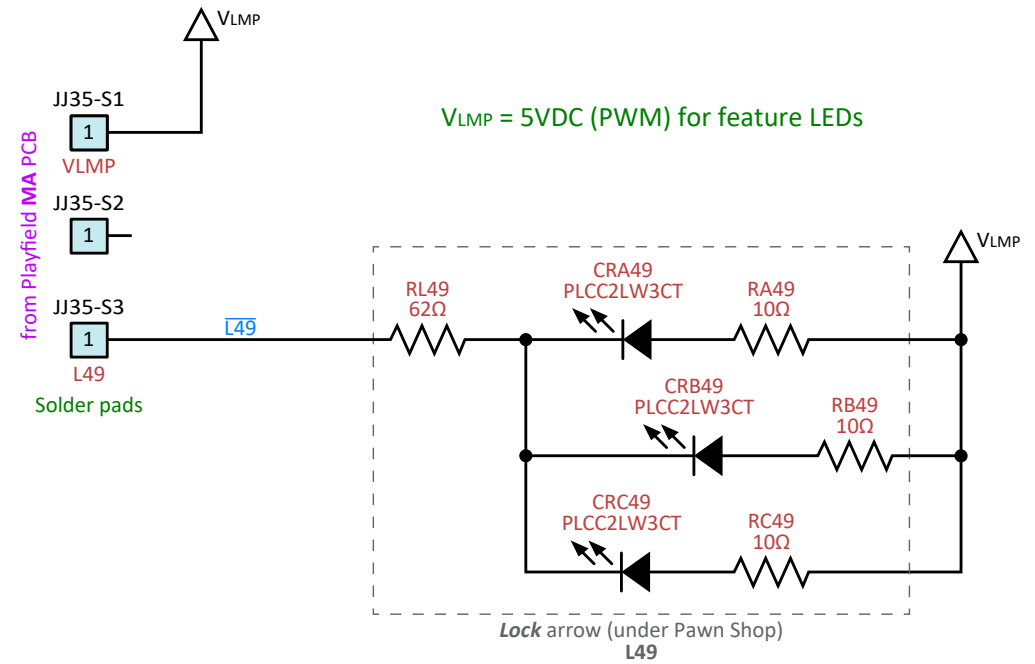
JI51-S1 (12V)	YEL	+12VDC from MA PCB, JA51-1
JI51-S2	Not Used	
JI51-S3 (F01)	BLU-BLK	F01 ctrl line, MA PCB, JA51-3

PF Game Set Bd J (GJ) PIN-PCB-SNGLMP



Component(s)
CRA49, CRB49, CRC49
RA49, RB49, RC49
RL49

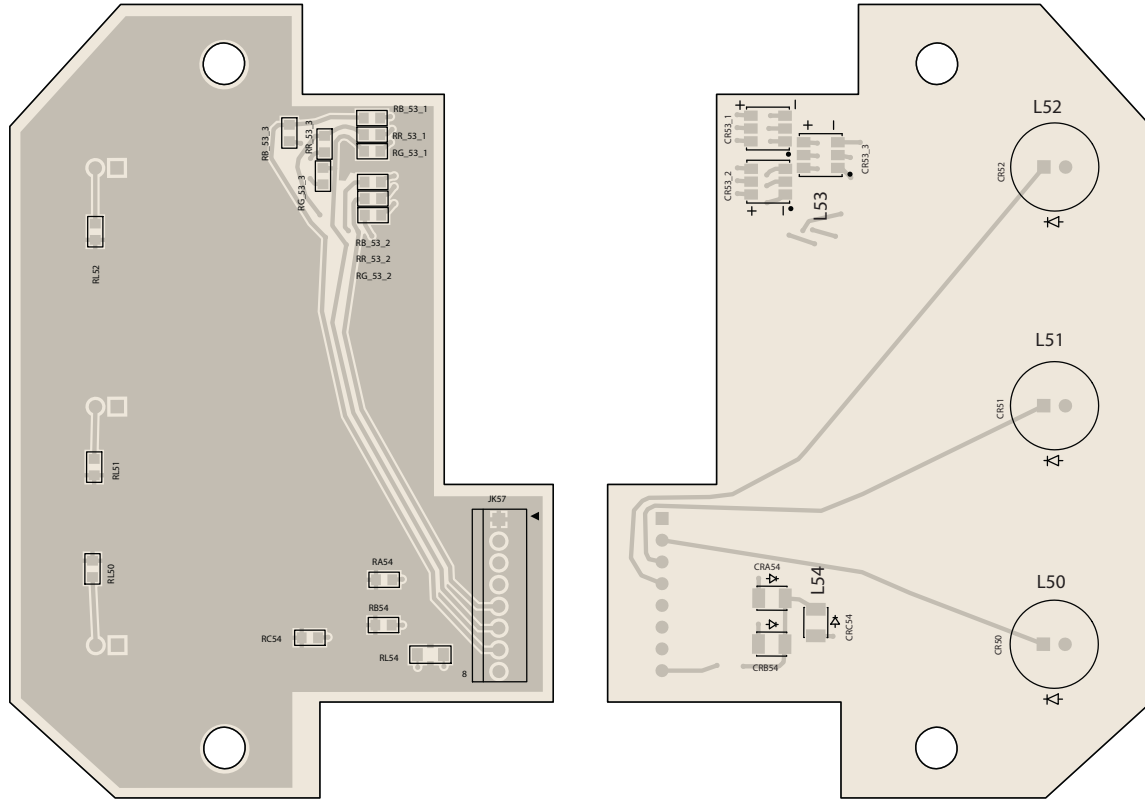
Description
LED, Warm White, PLCC2 SMD
Resistor, 0805 SMD, 10Ω, 0.125W, 5%
Resistor, 1206 SMD, 62Ω, 0.25W, 5%



JJ35 Light 49 Connection [Game Set Bd MA]

JJ35-S1 (VLMP)	RED	+5VDC PWM from MA PCB, JA35-1
JJ35-S2	Not Used	
JJ35-S3 (L49)	GRY-BLK	L49 ctrl line, MA PCB, JA35-3

PF Game Set Bd K (GK) PFP-PCB-PAWNSHP



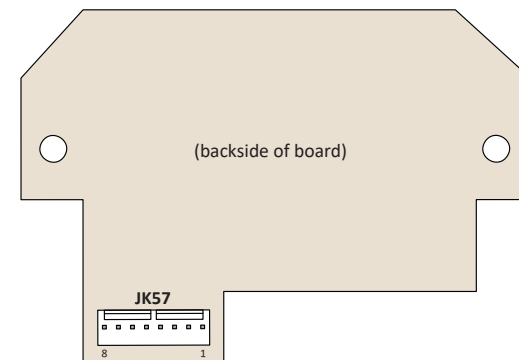
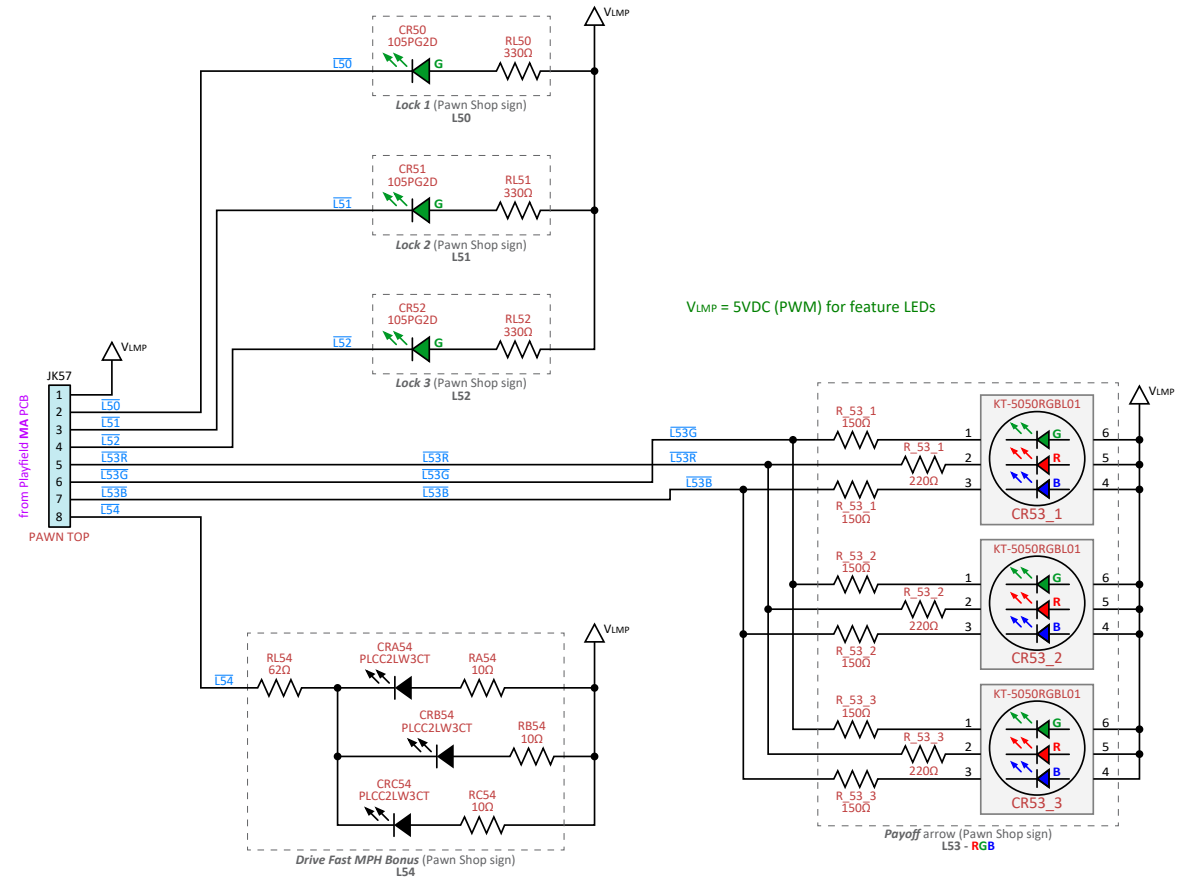
Component(s)

CR50-CR52
CR53_1-CR53_3
CRA54, CRB54, CRC54
RA54, RB54, RC54
RL54
RB_53_1, RB_53_2, RB_53_3,
RG_53_1, RG_53_2, RG_53_3
RL50-RL52
RR_53_1, RR_53_2, RR_53_3
JK57

Description

LED, 10mm, Green, Diffused Lens
LED, RGB, SMD
LED, Warm White, PLCC2 SMD
Resistor, 0805 SMD, 10Ω, 0.125W, 5%
Resistor, 1206 SMD, 62Ω, 0.25W, 5%

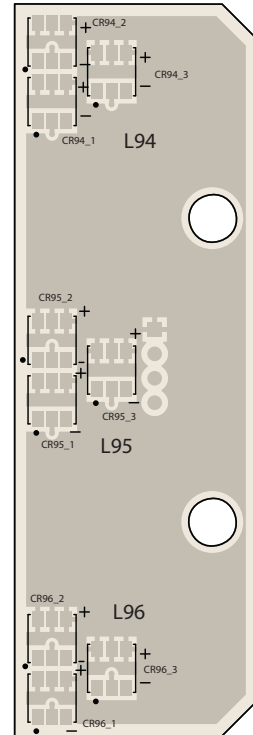
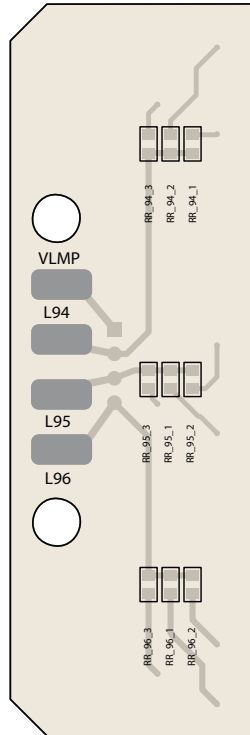
Resistor, 0805 SMD, 150Ω, 0.125W, 5%
Resistor, 0805 SMD, 330Ω, 0.125W, 5%
Resistor, 0805 SMD, 220Ω, 0.125W, 5%
Hdr w/Friction Lock, Male, 8-Pin, 2.54mm



JK57 Lights 50-54 Connections [Game Set Bd MA]

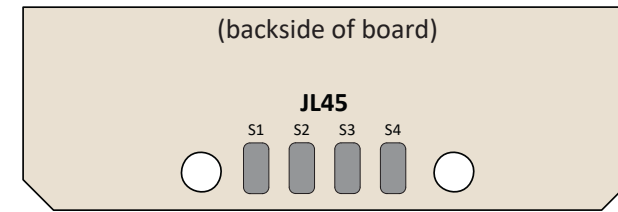
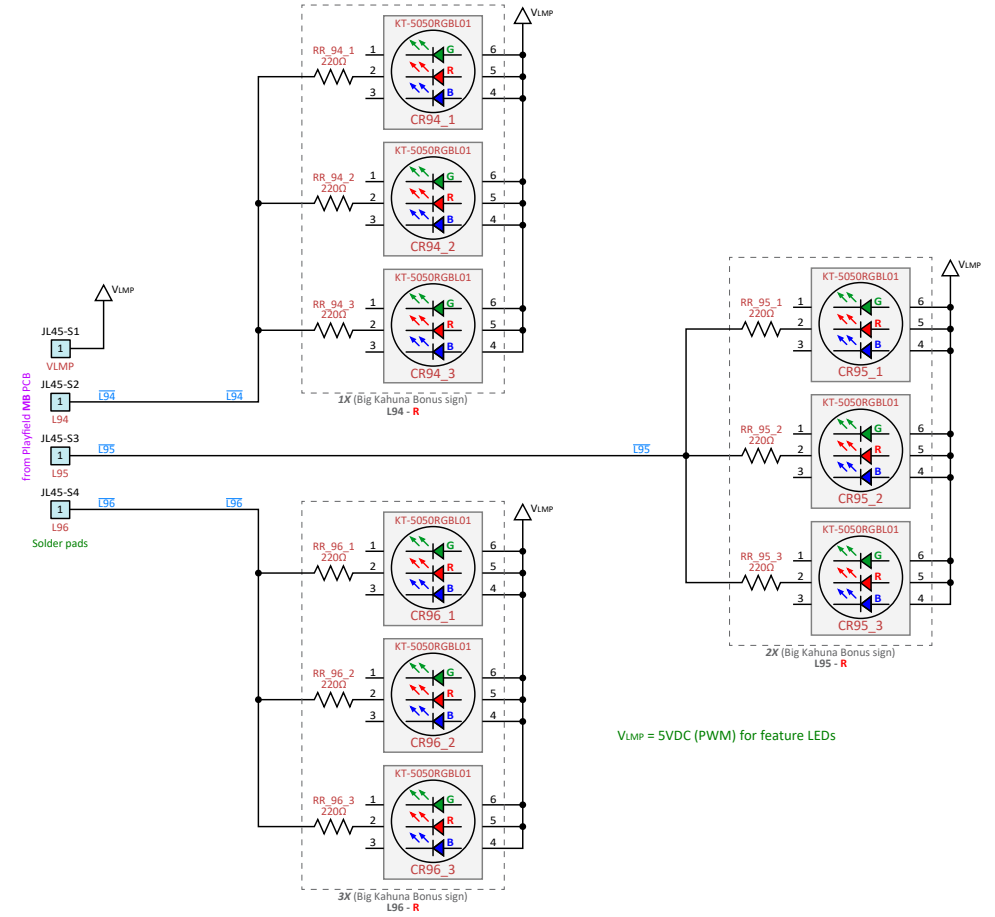
JK57-1	RED-WHT	+5VDC PWM from MA PCB, JA36-1
JK57-2	GRY-ORN	L50 ctrl line, MA PCB, JA36-2
JK57-3	GRY-YEL	L51 ctrl line, MA PCB, JA36-3
JK57-4	GRY-GRN	L52 ctrl line, MA PCB, JA36-4
JK57-5	RED	L53 red ctrl line, MA PCB, JA36-6
JK57-6	GRN	L53 green ctrl line, MA PCB, JA36-7
JK57-7	BLU	L53 blue ctrl line, MA PCB, JA36-8
JK57-8	GRY-WHT	L54 ctrl line, MA PCB, JA36-9

PF Game Set Bd L (GL) PFP-PCB-BKAHUNA



Component(s)
 CR94_1-CR94_3, CR95_1-CR95_3, CR96_1-CR96_3
 RR_94_1-RR_94_3, RR_95_1-RR_95_3,
 RR_96_1-RR_96_3

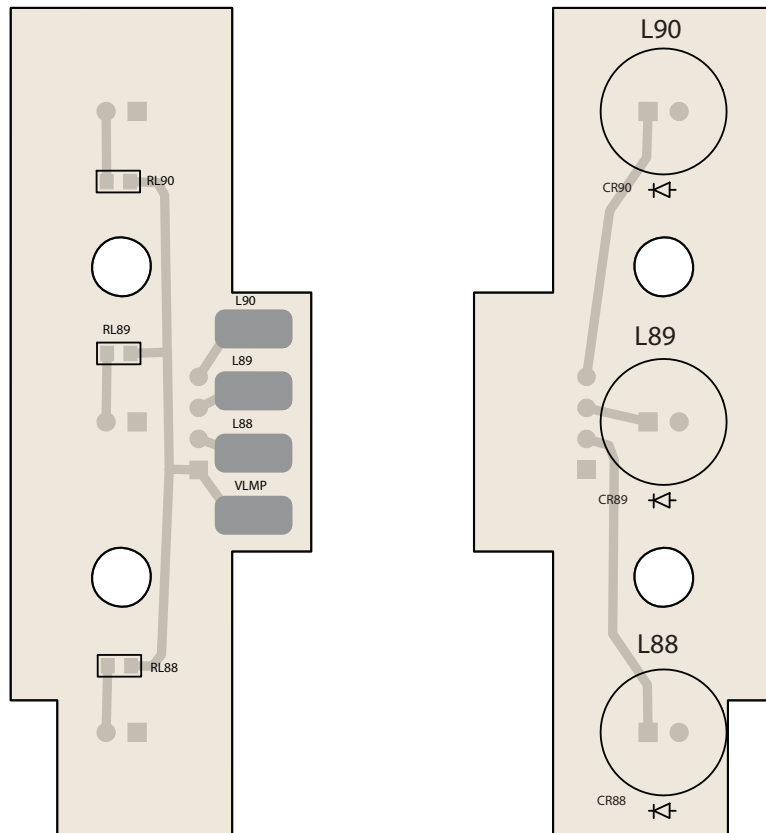
Description
 LED, RGB, SMD
 Resistor, 0805 SMD, 220Ω, 0.125W, 5%



JL45 Lights 94-96 Connections [Game Set Bd MB]

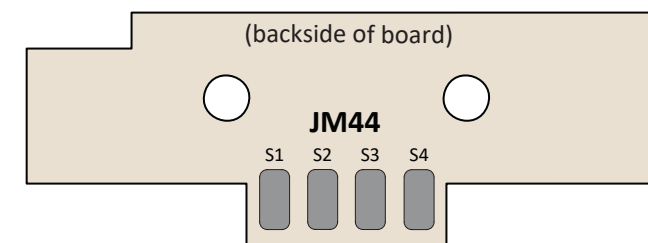
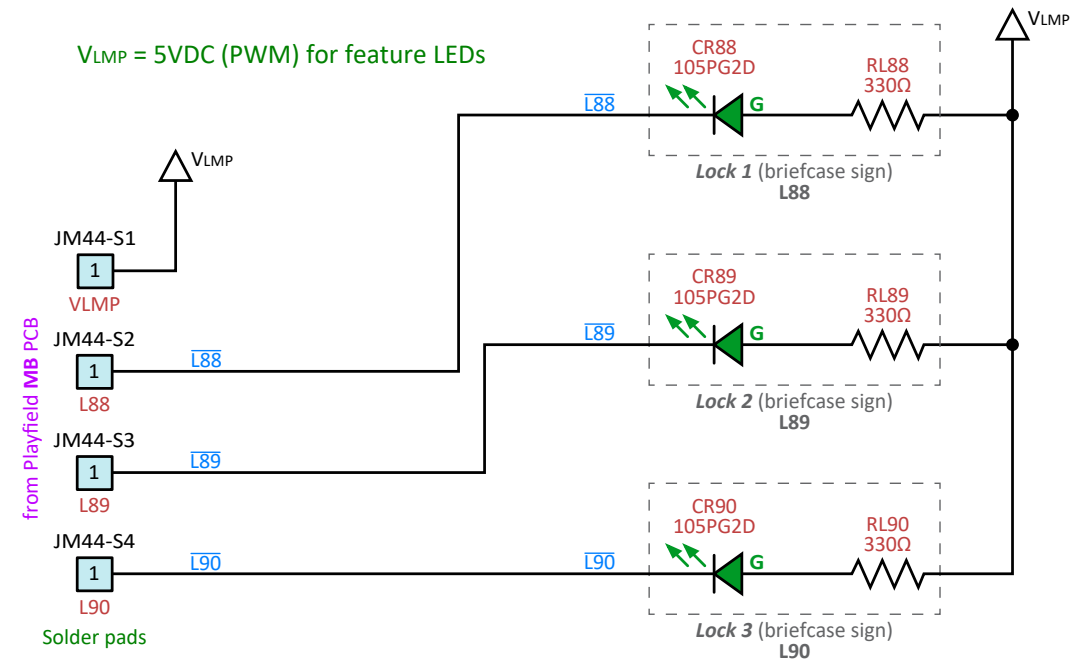
JL45-S1 (VLMP)	RED	+5VDC PWM from MB PCB, JB45-1
JL45-S2 (L94)	GRY-ORN	L94 ctrl line, MB PCB, JB45-2
JL45-S3 (L95)	GRY-YEL	L95 ctrl line, MB PCB, JB45-3
JL45-S4 (L96)	GRY-GRN	L96 ctrl line, MB PCB, JB45-4

PF Game Set Bd M (GM) PFP-PCB-LOCK123



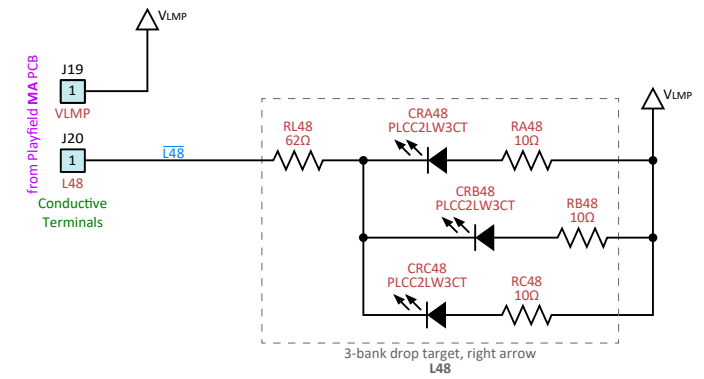
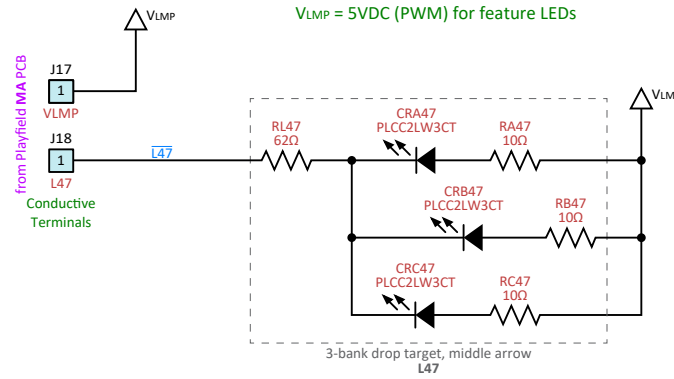
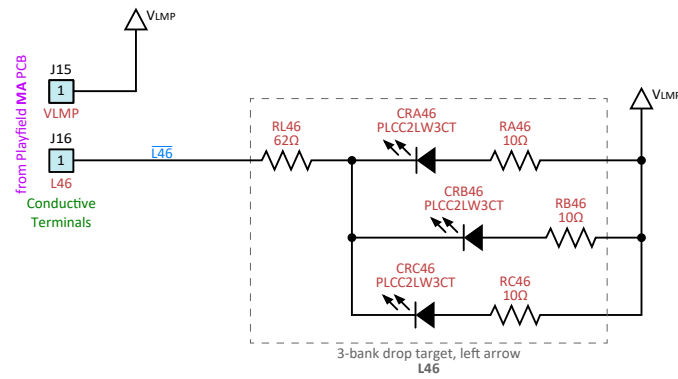
Component(s)
CR88-CR90
RL88-RL90

Description
LED, 10mm, Green, Diffused Lens
Resistor, 0805 SMD, 330Ω, 0.125W, 5%

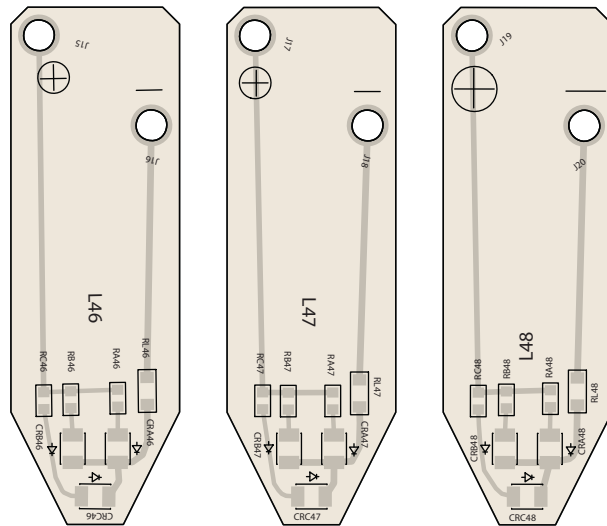


JM44 Lights 88-90 Connections [Game Set Bd MB]

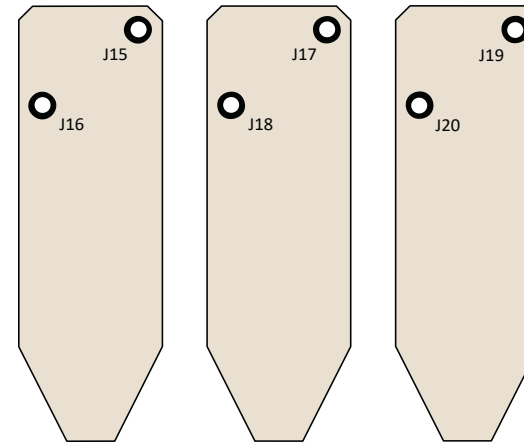
JM44-S1 (VLMP)	RED	+5VDC PWM from MB PCB, JB44-1
JM44-S2 (L88)	GRY-VIO	L88 ctrl line, MB PCB, JB44-2
JM44-S3 (L89)	GRY-BLK	L89 ctrl line, MB PCB, JB44-3
JM44-S4 (L90)	GRY-WHT	L90 ctrl line, MB PCB, JB44-4



**PF Game Set Bd N (GN), 3 ea
PIN-PCB-LAMPCAN**



Component(s)	Description
CRA46-CRA48, CRB48-CRB48, CRC46-CRC48	LED, Warm White, PLCC2 SMD
RA46-RA48, RB46-RB48, RC46-RC48	Resistor, 0805 SMD, 10Ω, 0.125W, 5%
RL46-RL48	Resistor, 1206 SMD, 62Ω, 0.25W, 5%



(backside of boards)

J15/J16 Light 46 Direct Connection [Game Set Bd MA]

- J15 - +5VDC PWM from MA PCB, JA58-Lug1
- J16 - L46 ctrl line, MA PCB, JA58-Lug2

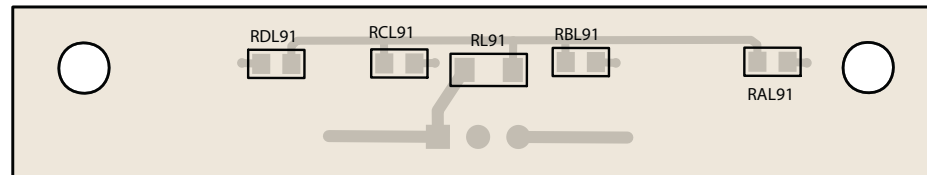
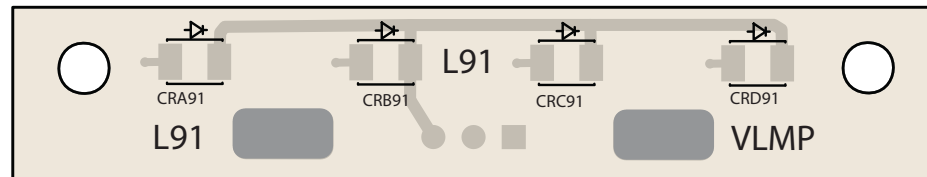
J17/J18 Light 47 Direct Connection [Game Set Bd MA]

- J17 - +5VDC PWM from MA PCB, JA59-Lug1
- J18 - L47 ctrl line, MA PCB, JA59-Lug2

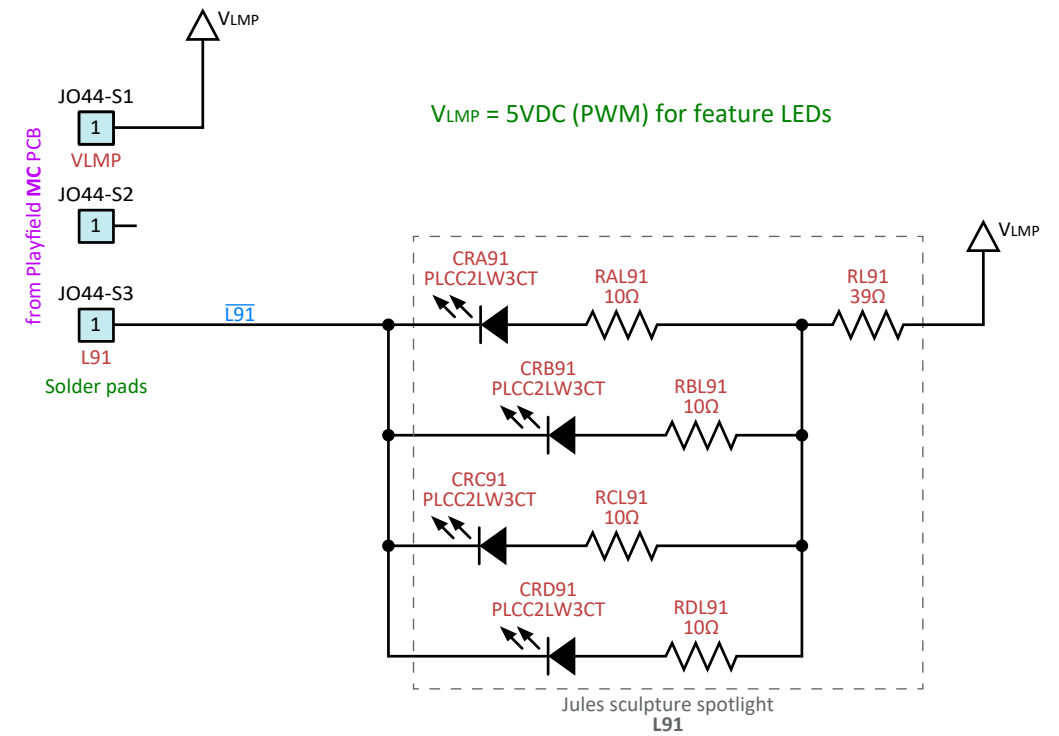
J19/J20 Light 48 Direct Connection [Game Set Bd MA]

- J19 - +5VDC PWM from MA PCB, JA60-Lug1
- J20 - L48 ctrl line, MA PCB, JA60-Lug2

PF Game Set Bd O (GO) PFP-PCB-SPOTJUL



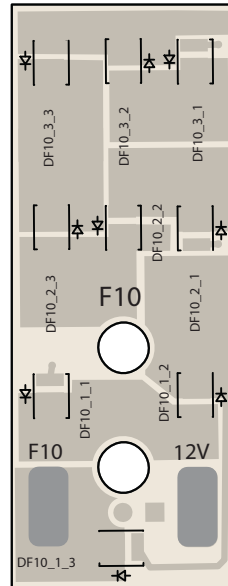
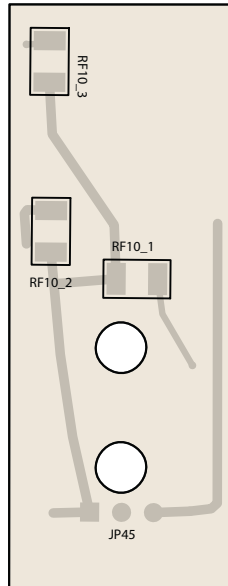
Component(s)	Description
CRA91, CRB91, CRC91, CRD91	LED, Warm White, PLCC2 SMD
RAL91, RBL91, RCL91, RDL91	Resistor, 0805 SMD, 10Ω, 0.125W, 5%
RL91	Resistor, 1206 SMD, 39Ω, 0.25W, 5%



JO44 Light 91 Connection [Game Set Bd MC]

JO44-S1 (VLMP)	RED	+5VDC PWM from MC PCB, JC50-1
JO44-S2	Not Used	
JO44-S3 (L91)	GRY-RED	L91 ctrl line, MC PCB, JC50-3

PF Game Set Bd P (GP) PFP-PCB-KAHUNFL

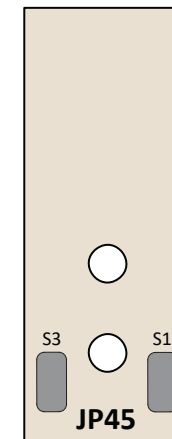
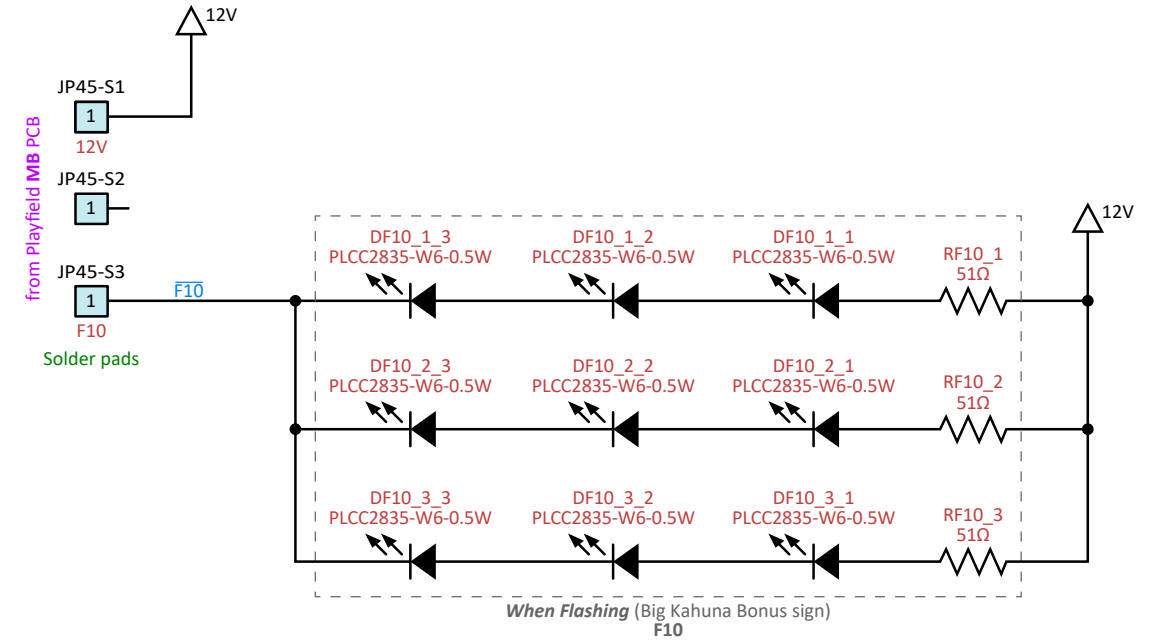


Component(s)

DF10_1_1-DF10_1_3, DF10_2_1-DF10_2_3,
DF10_3_1-DF10_3_3
RF10_1-RF10_3

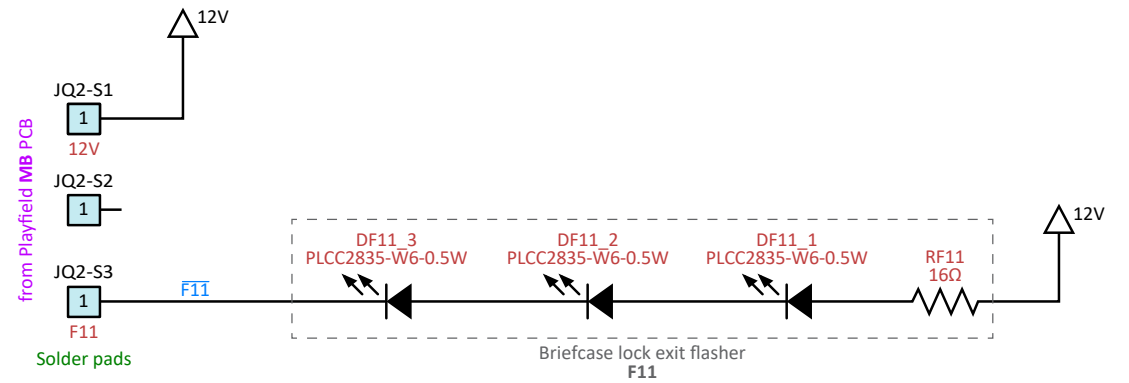
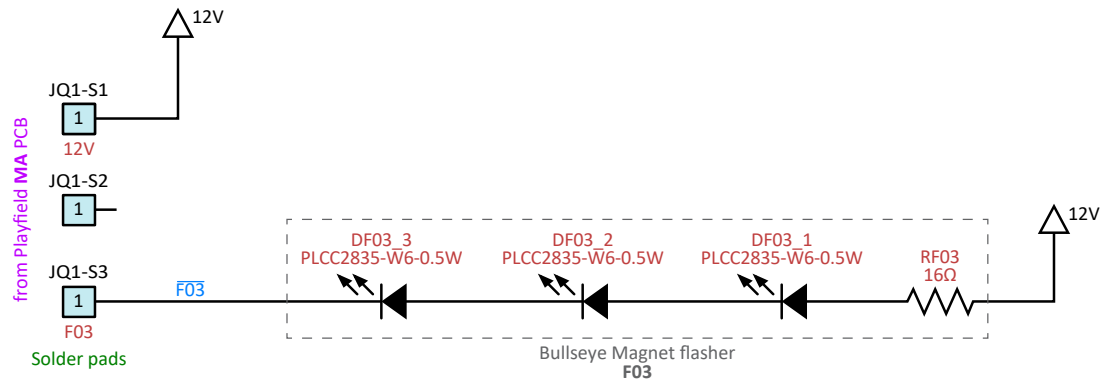
Description

LED, White, 2835 SMD, 0.5W
Resistor, 1210 SMD, 51Ω, 0.5W, 5%

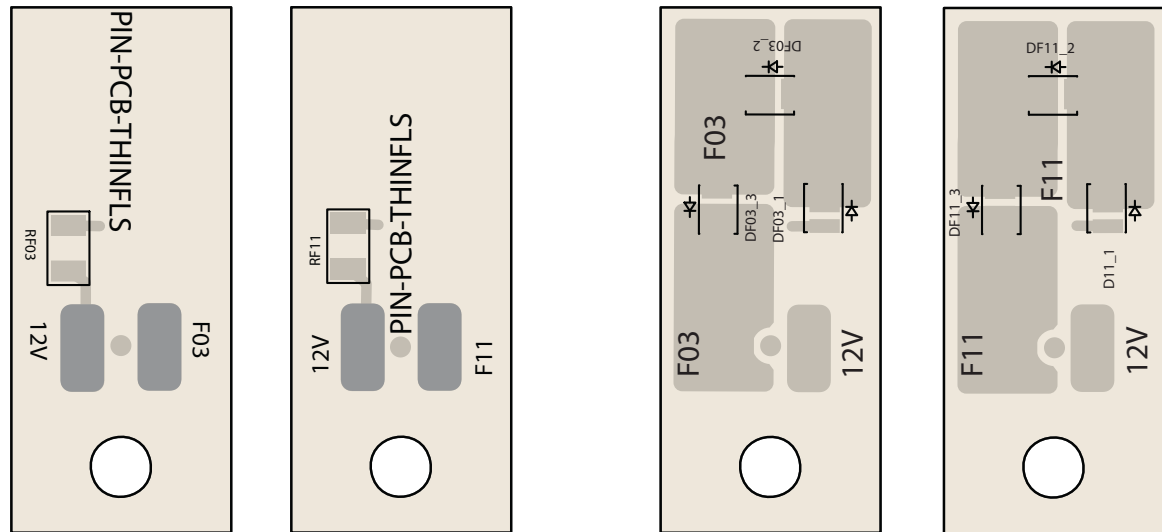


JP45 Flasher 10 Connection [Game Set Bd MB]

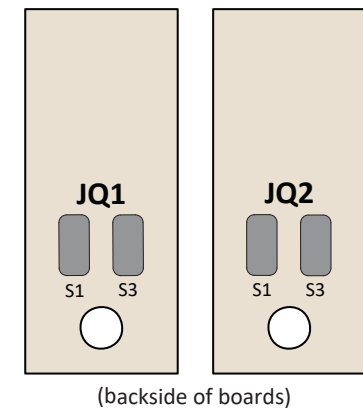
JP45-S1 (12V)	YEL	+12VDC from MB PCB, JB45-5
JP45-S2	Not Used	
JP45-S3 (F10)	BLU-RED	F10 ctrl line, MB PCB, JB45-6



**PF Game Set Bd Q (GQ), 2 ea
PIN-PCB-THINFLS**



Component(s)	Description
DF03_1-DF03_3, DF11_1-DF11_3	LED, White, 2835 SMD, 0.5W
RF03, RF11	Resistor, 1210 SMD, 16Ω, 0.5W, 5%

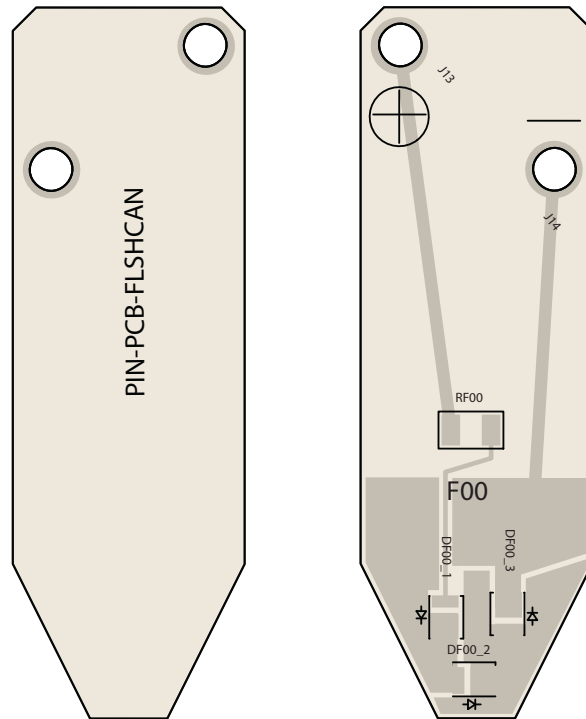


- JQ1 Flasher 03 Connection [Game Set Bd MA]**
- JQ1-S1 (12V) YEL +12VDC from MA PCB, JA47-1
 - JQ1-S2 Not Used
 - JQ1-S3 (F03) BLU-BLK **F03** ctrl line, MA PCB, JA47-3
- JQ2 Flasher 11 Connection [Game Set Bd MB]**
- JQ2-S1 (12V) YEL +12VDC from MB PCB, JB46-10
 - JQ2-S2 Not Used
 - JQ2-S3 (F11) BLU-YEL **F11** ctrl line, MB PCB, JB46-9

Mounting Hardware:

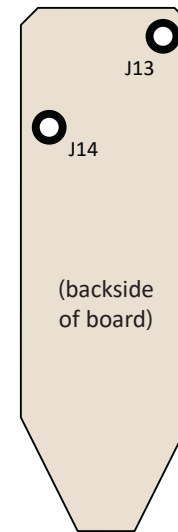
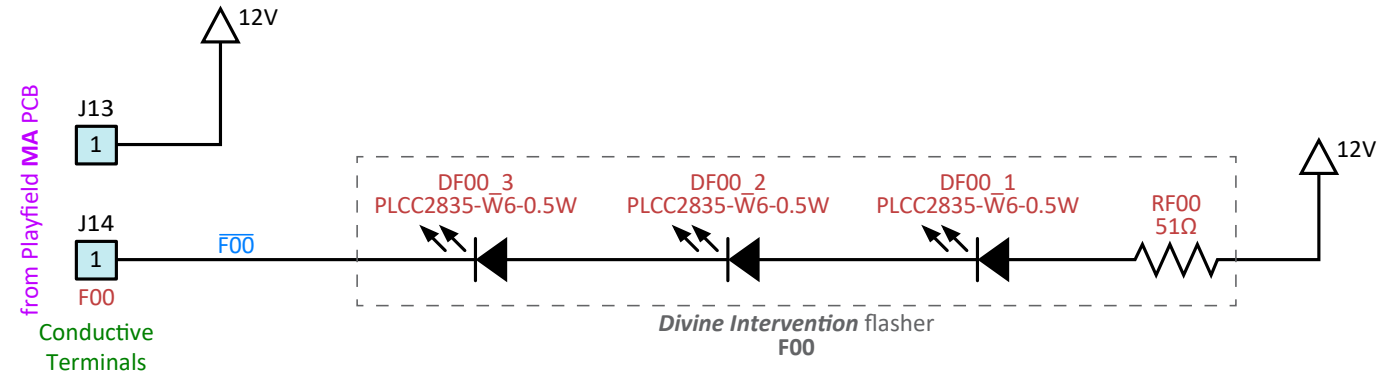
Part ID	Description
PIN-MLS-LMPMTGB	Lighting PCB Mtg Brkt
RIV-125-156000C	Tube Rivet, 1/8" x 5/32"
FSS-N06-HWH037C	#6 x 3/8" HWH SMS

**PF Game Set Bd R (GR)
PIN-PCB-FLSHCAN**



Component(s)
DF00_1-DF00_3
RF00

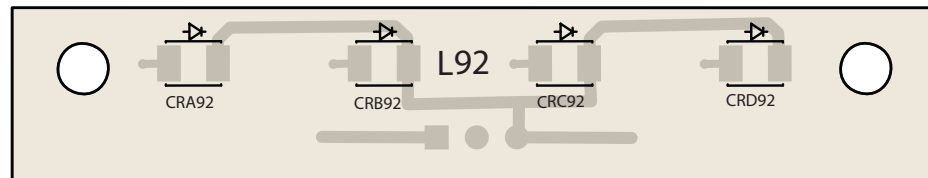
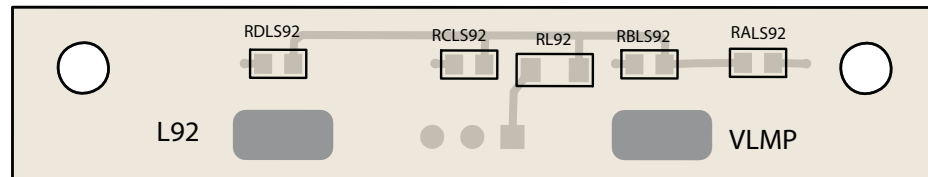
Description
LED, White, 2835 SMD, 0.5W
Resistor, 1210 SMD, 51Ω, 0.5W, 5%



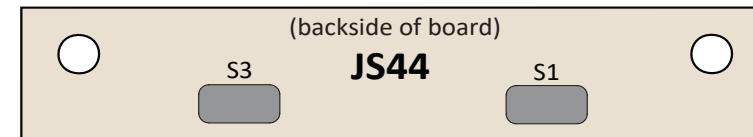
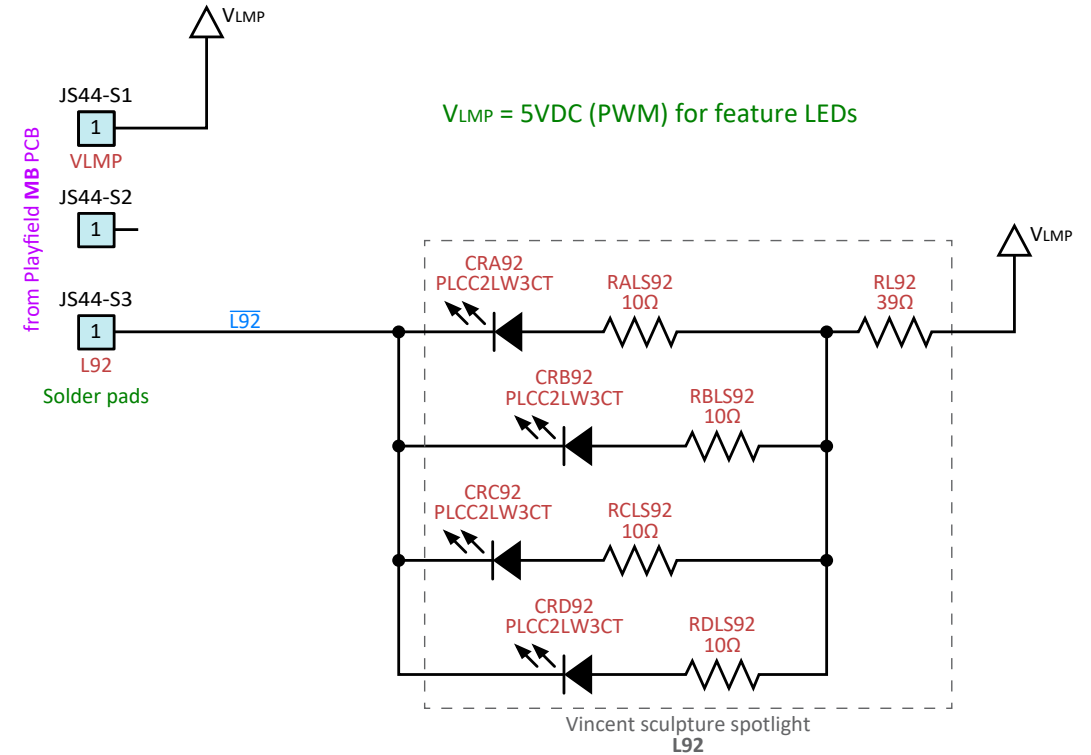
J13/J14 Flasher 00 Direct Connection [Game Set Bd MA]

- J13 - +12VDC from MA PCB, JA57-Lug1
- J14 - F00 ctrl line, MA PCB, JA57-Lug2

PF Game Set Bd S (GS) PFP-PCB-SPOTVIN



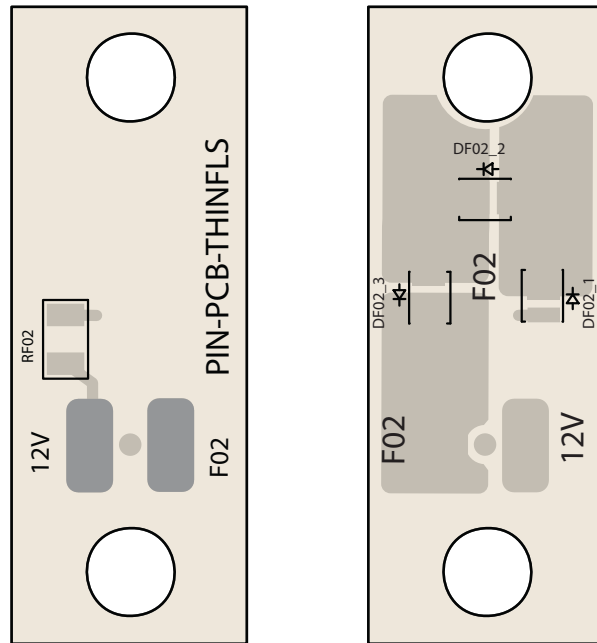
Component(s)	Description
CRA92, CRB92, CRC92, CRD92	LED, Warm White, PLCC2 SMD
RALS92, RBLS92, RCLS92, RDLS92	Resistor, 0805 SMD, 10Ω, 0.125W, 5%
RL92	Resistor, 1206 SMD, 39Ω, 0.25W, 5%



JS44 Light 92 Connection [Game Set Bd MB]

JS44-S1 (VLMP)	RED	+5VDC PWM from MB PCB, JB44-5
JS44-S2	Not Used	
JS44-S3 (L92)	GRY-BLU	L92 ctrl line, MB PCB, JB44-6

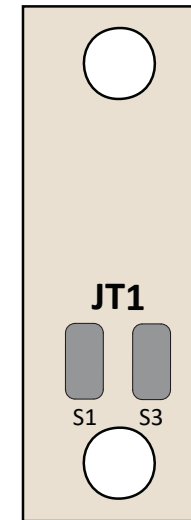
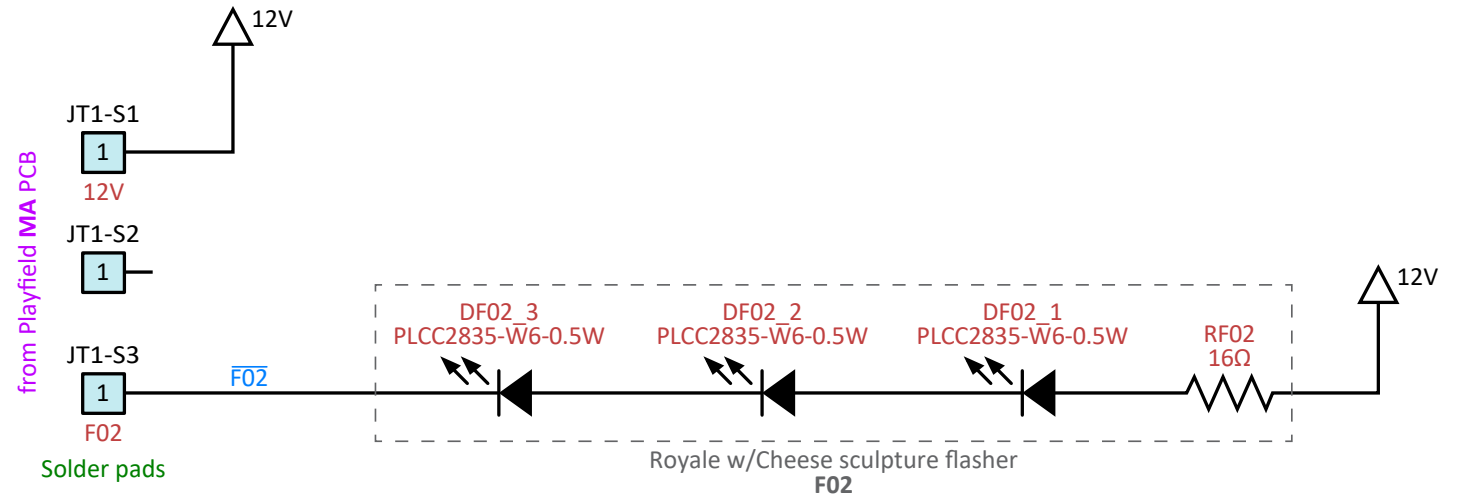
PF Game Set Bd T (GT) PFP-PCB-BRGRFLS



Component(s)	Description
DF02_1-DF02_3	LED, White, 2835 SMD, 0.5W
RF02	Resistor, 1210 SMD, 16Ω, 0.5W, 5%

Mounting Hardware:

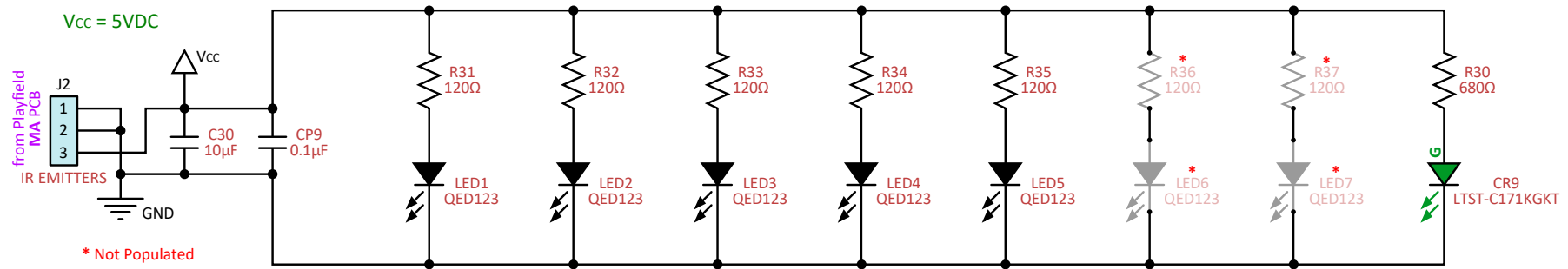
Part ID	Description	Qty
FWC-019-037N003	#10 Nylon Washer, 3/8"	2
FSM-103-PPH100C	10-32 x 1" PPH MS	2



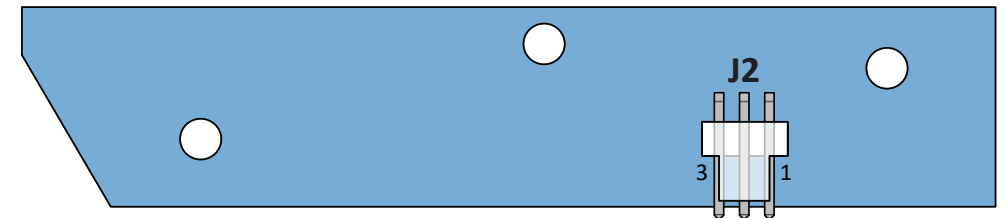
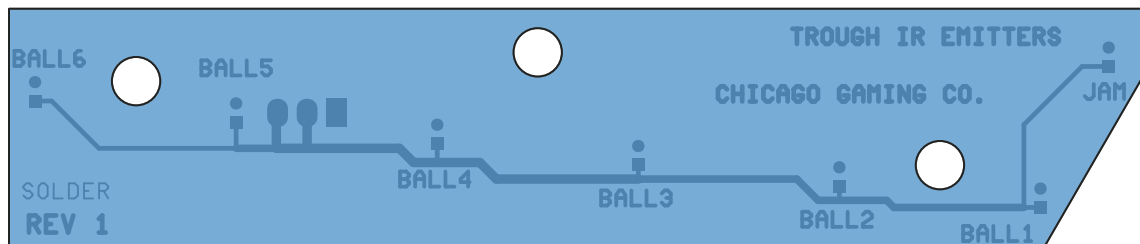
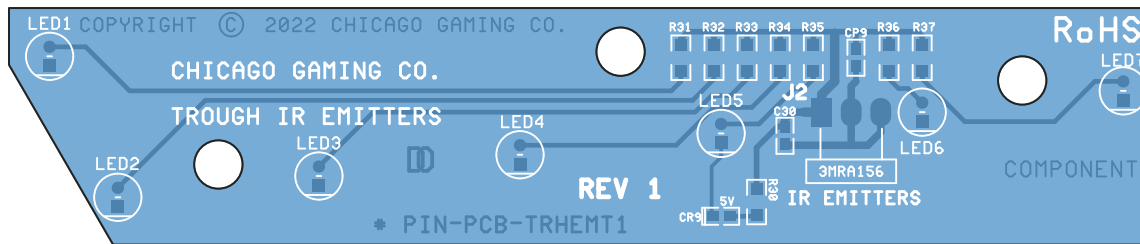
(backside of board)

JT1 Flasher 02 Connection [Game Set Bd MA]

JT1-S1 (12V)	YEL	+12VDC from MA PCB, JA48-1
JT1-S2	Not Used	
JT1-S3 (F02)	BLU-BLK	F02 ctrl line, MA PCB, JA48-3



Ball Trough Opto Transmitter/LED PCB PIN-PCB-TRHEMT1 (Populated for 4 balls)



J2 Ball Trough Opto XMT Connections [Game Set Bd MA]

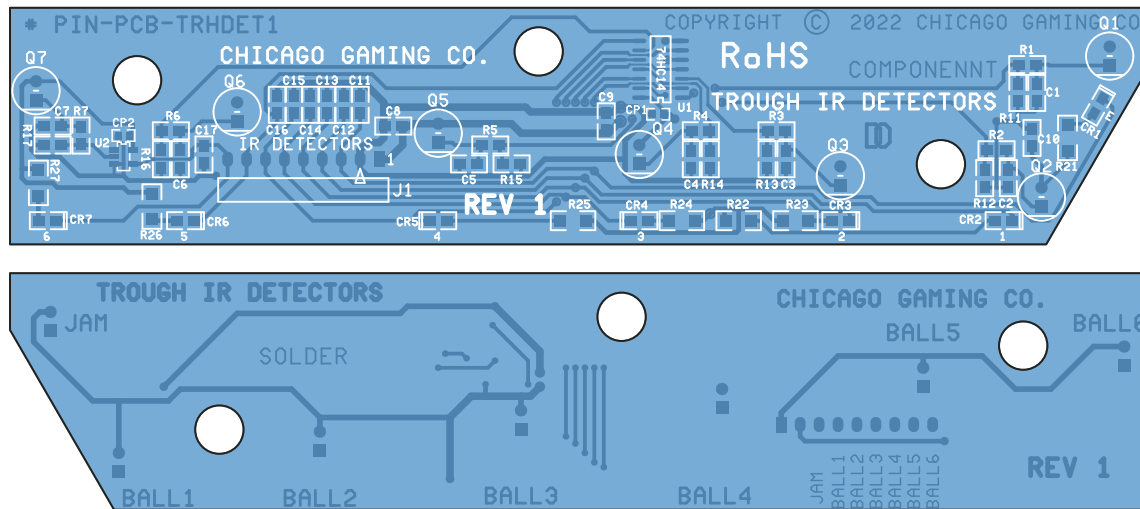
J2-1	BLK	GND from MA PCB, JA1-1
J2-2	Not used	GND
J2-3	RED	+5VDC from MA PCB, JA1-10

Component(s)	Description
C30	Capacitor, MLCC, 0805 SMD, 10µF, 25V, X5R, 10%
CP9	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, X5R, 10%
CR9	LED, 0805 SMD, Green, 571nm, 2V
LED1-LED5	LED, Infrared, Through Hole, T 1 3/4
LED6, LED7	Not Populated
R30	Resistor, 1206 SMD, 680Ω, 0.25W, 5%
R31-R35	Resistor, 1206 SMD, 120Ω, 0.25W, 5%
R36, R37	Not Populated
J2	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm, Rt Angle

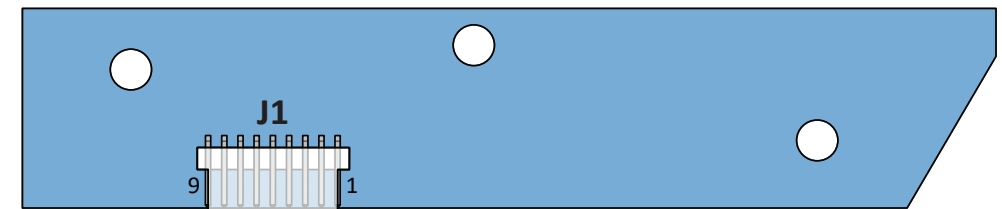
Ball Trough Opto Receiver/Phototransistor PCB

PIN-PCB-TRHDET1

(Populated for 4 balls)



Component(s)	Description
C1-C5, C10-C17	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, X5R, 10%
CP1, CP2	Capacitor, MLCC, 0603 SMD, 0.1µF, 25V, X5R, 10%
C6, C7	Not Populated
C8, C9	Capacitor, MLCC, 0805 SMD, 22µF, 25V, X5R, 10%
CR1-CR5	LED, 0805 SMD, Green, 571nm, 2V
CR6, CR7	Not Populated
Q1-Q5	Phototransistor, 880nm, Through Hole, T 1 3/4
Q6, Q7	Not Populated
R1-R5	Resistor, 0805 SMD, 1kΩ, 0.125W, 5%
R11-R15	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R21-R25	Resistor, 1206 SMD, 680Ω, 0.25W, 5%
R6, R7, R16, R17, R36, R37	Not Populated
U1	Inverter, 6-Ch, 14-SOIC SMD, Schmitt Trigger
U2	Not Populated
J1	Hdr w/Friction Lock, Male, 9-Pin, 2.54mm, Rt Angle



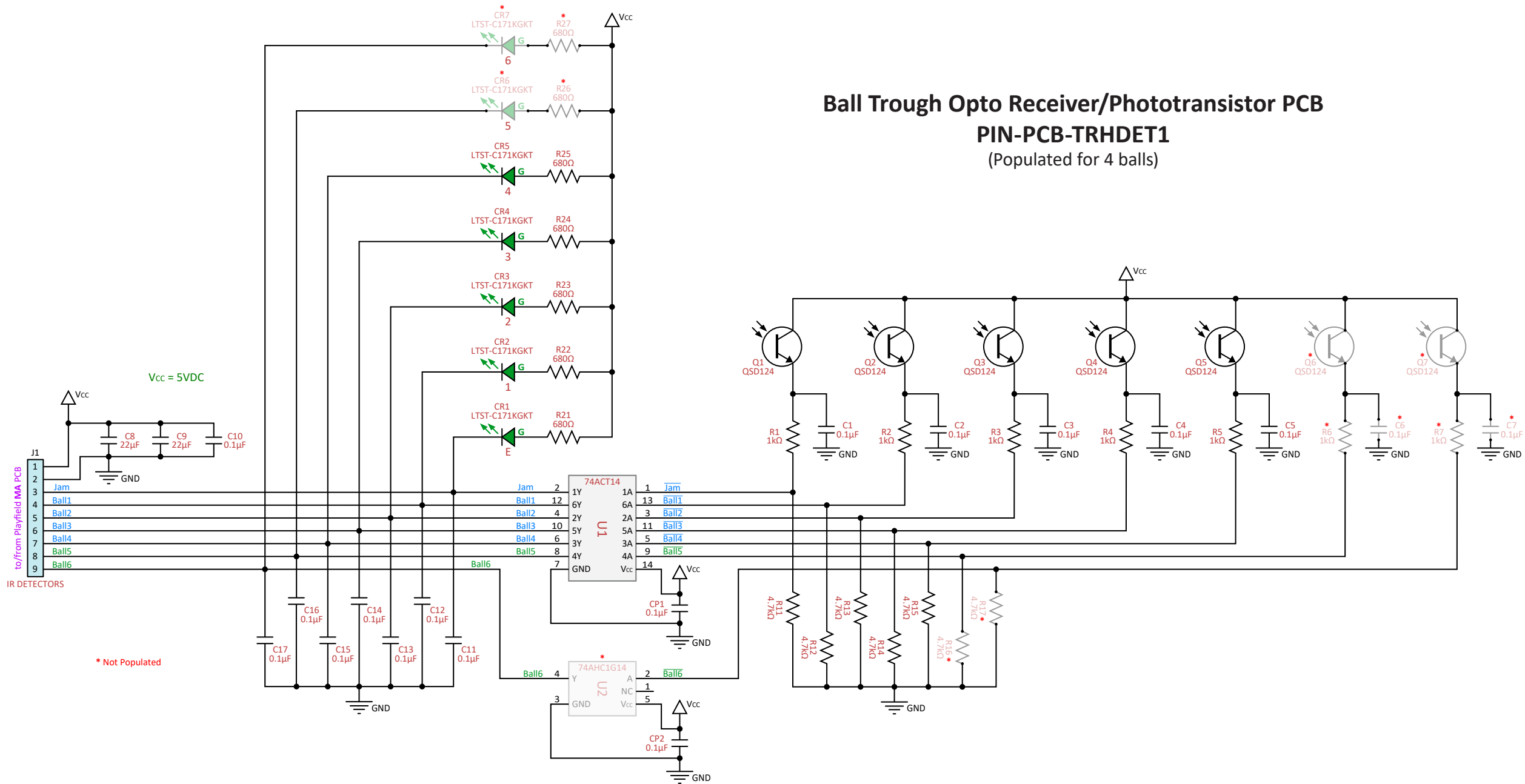
J1 Ball Trough Opto RCV Connections [Game Set Bd MA]

J1-1	RED	+5VDC from MA PCB, JA1-9
J1-2	BLK	GND from MA PCB, JA1-2
J1-3	GRN-WHT	Sw 1 monitor line, MA PCB, JA1-8
J1-4	GRN-BLU	Sw 2 monitor line, MA PCB, JA1-7
J1-5	GRN-YEL	Sw 3 monitor line, MA PCB, JA1-6
J1-6	GRN-ORN	Sw 4 monitor line, MA PCB, JA1-4
J1-7	GRN-RED	Sw 5 monitor line, MA PCB, JA1-3
J1-8	Not used	
J1-9	Not used	

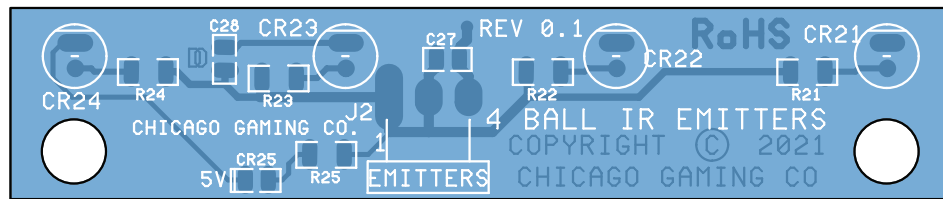
Ball Trough Opto Receiver/Phototransistor PCB

PIN-PCB-TRHDET1

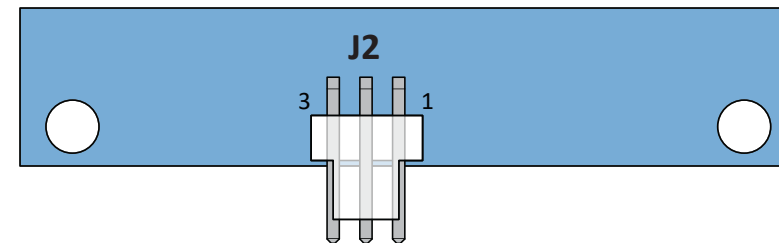
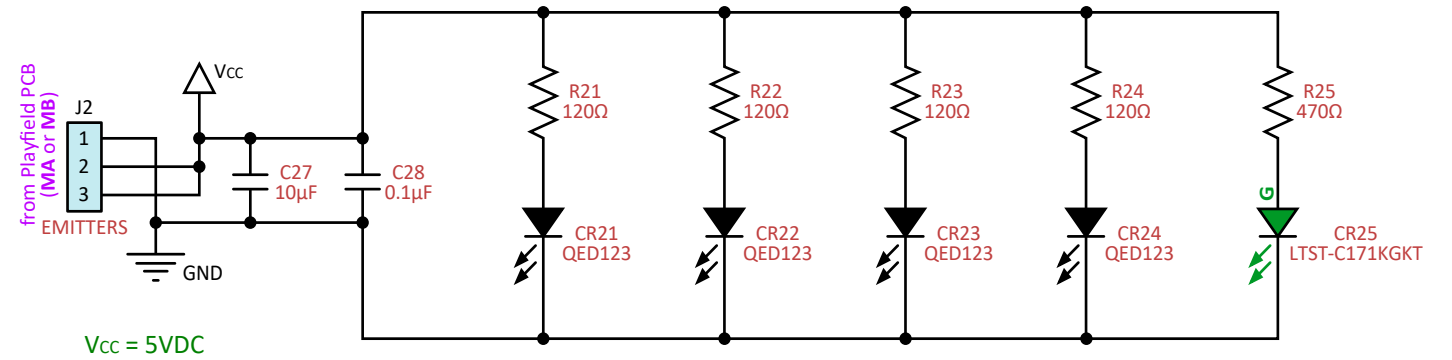
(Populated for 4 balls)



4-Opto Transmitter/LED Bd, 2 ea PFP-PCB-IR4EMIT



Component(s)	Description
C27	Capacitor, MLCC, 0805 SMD, 10µF, 25V, X5R, 10%
C28	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, X5R, 10%
CR21-CR24	LED, Infrared, Through Hole, T 1 3/4
CR25	LED, 0805 SMD, Green, 571nm, 2V
R21-R24	Resistor, 1206 SMD, 120Ω, 0.25W, 5%
R25	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
J2	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm, Rt Angle



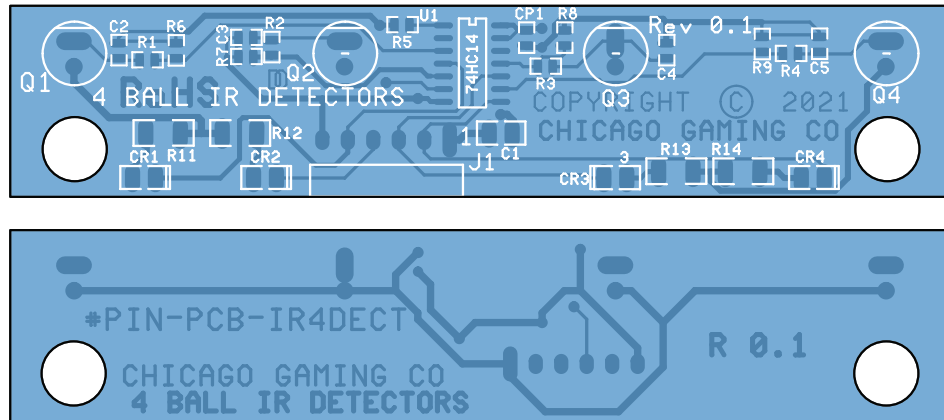
J2 Pawn Shop (Subway) Ball Lock Opto XMT Connections [Game Set Bd MA]

J2-1	BLK	GND from MA PCB, JA2-7
J2-2	Not used	+5VDC
J2-3	RED	+5VDC from MA PCB, JA2-1

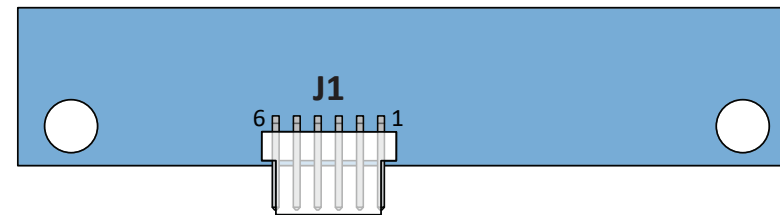
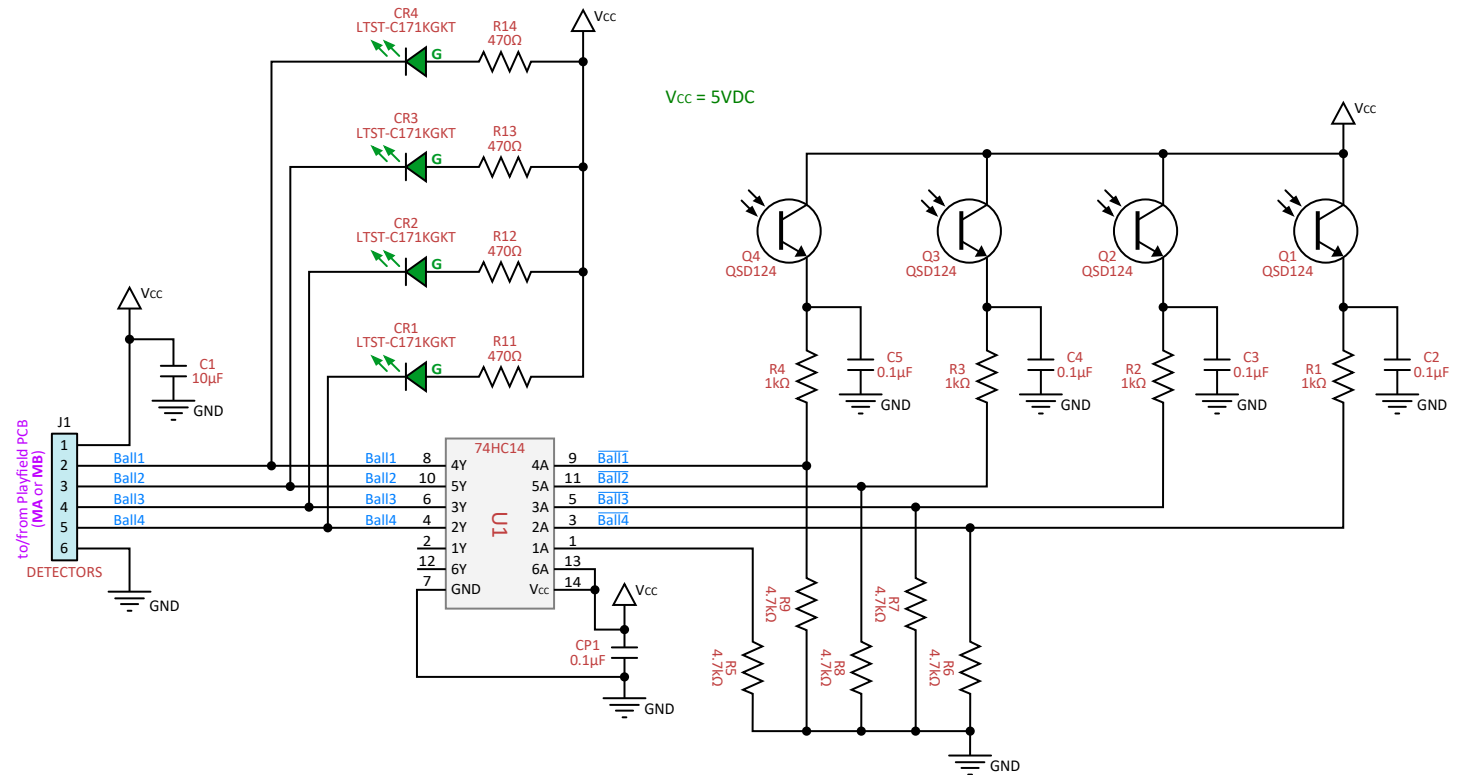
J2 Briefcase (Back Panel) Ball Lock Opto XMT Connections [Game Set Bd MB]

J2-1	BLK	GND from MB PCB, JB6-7
J2-2	Not used	+5VDC
J2-3	RED	+5VDC from MB PCB, JB6-1

4-Opto Receiver/Phototransistor Bd, 2 ea PFP-PCB-IR4DECT



Component(s)	Description
C1	Capacitor, MLCC, 0805 SMD, 10µF, 25V, X5R, 10%
C2-C5, CP1	Capacitor, MLCC, 0603 SMD, 0.1µF, 25V, X5R, 10%
CR1-CR4	LED, 0805 SMD, Green, 571nm, 2V
Q1-Q4	Phototransistor, 880nm, Through Hole, T 1 3/4
R1-R4	Resistor, 0603 SMD, 1kΩ, 0.125W, 5%
R5-R9	Resistor, 0603 SMD, 4.7kΩ, 0.125W, 5%
R11-R14	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
U1	Inverter, 6-Ch, 14-SOIC SMD, Schmitt Trigger
J1	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm, Rt Angle



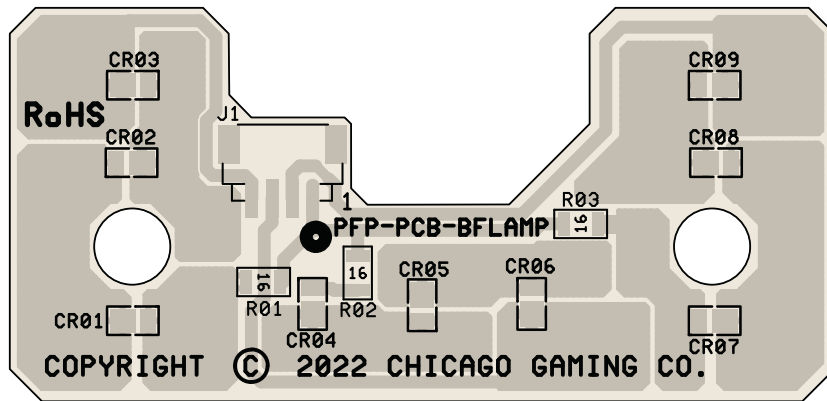
J1 Pawn Shop (Subway) Lock Opto RCV Connections [Game Set Bd MA]

J1-1	RED	+5VDC from MA PCB, JA2-2
J1-2	WHT-ORN	Sw 6 monitor line, MA PCB, JA2-3
J1-3	WHT-YEL	Sw 7 monitor line, MA PCB, JA2-4
J1-4	WHT-GRN	Sw 8 monitor line, MA PCB, JA2-5
J1-5	WHT-BLU	Sw 9 monitor line, MA PCB, JA2-6
J1-6	BLK	GND from MA PCB, JA2-8

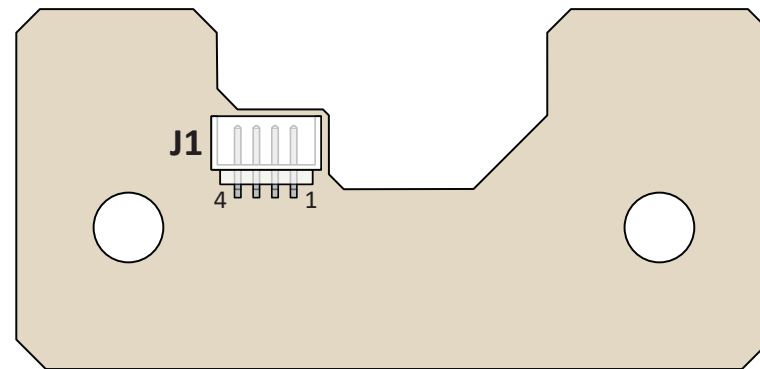
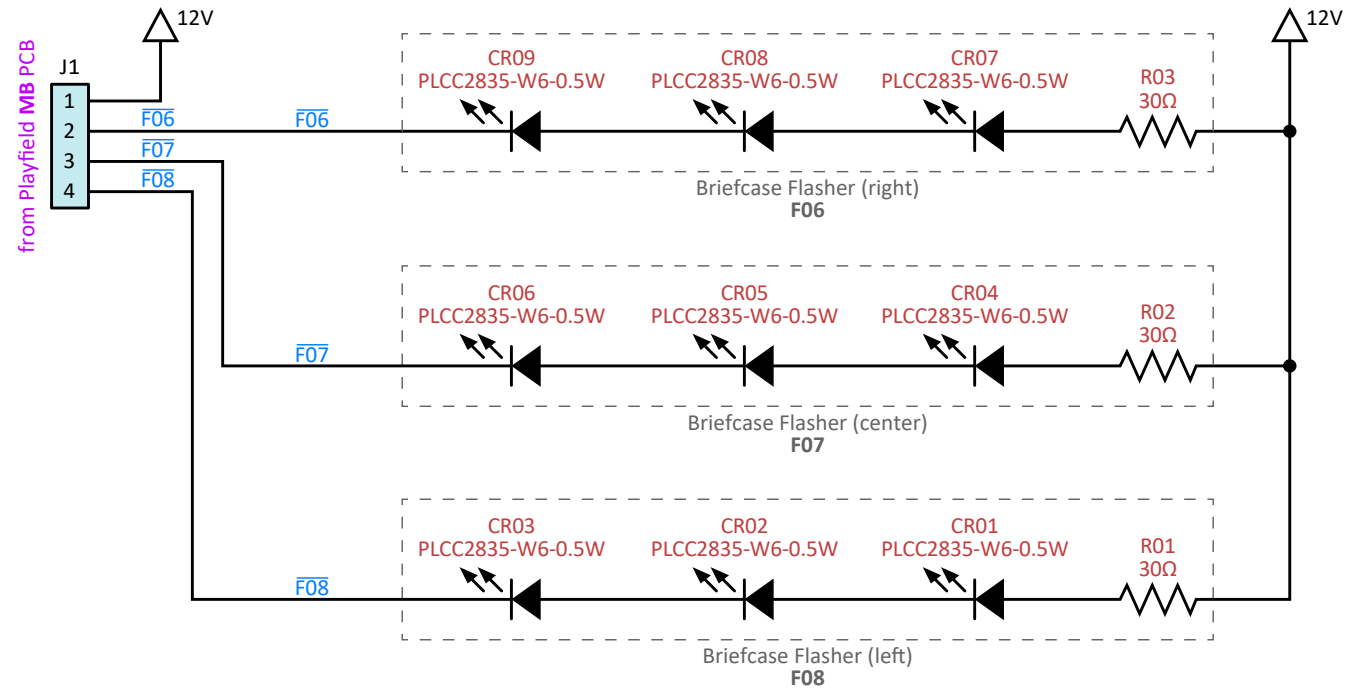
J1 Briefcase (Back Panel) Lock Opto RCV Connections [Game Set Bd MB]

J1-1	RED	+5VDC from MB PCB, JB6-2
J1-2	WHT-ORN	Sw 13 monitor line, MB PCB, JB6-3
J1-3	WHT-YEL	Sw 14 monitor line, MB PCB, JB6-4
J1-4	WHT-GRN	Sw 15 monitor line, MB PCB, JB6-5
J1-5	WHT-BLU	Sw 16 monitor line, MB PCB, JB6-6
J1-6	BLK	GND from MB PCB, JB6-8

Briefcase Flasher Bd PFP-PCB-BFCLAMP



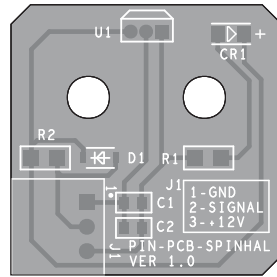
Component(s)	Description
CR01-CR09	LED, White, 2835 SMD, 0.5W
R01-R03	Resistor, 1210 SMD, 30Ω, 0.5W, 5%
J1	Hdr w/Friction Lock, SMD, Male, 4-Pin, 2mm, Rt Angle



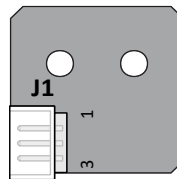
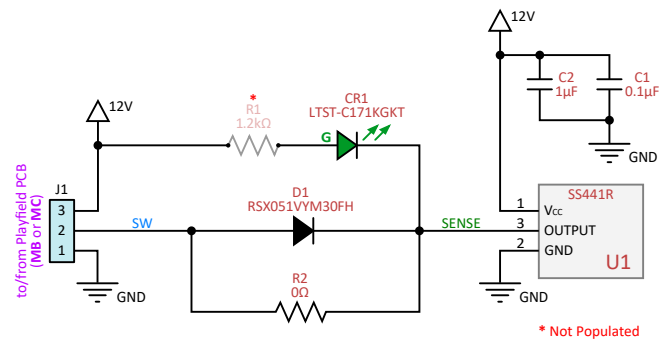
J1 Flashers 06-08 Connections [Game Set Bd MB]

J1-1	YEL	+12VDC from MB PCB, JB7-1
J1-2	BLU-RED	F06 ctrl line, MB PCB, JB7-2
J1-3	BLU-ORN	F07 ctrl line, MB PCB, JB7-3
J1-4	BLU-YEL	F08 ctrl line, MB PCB, JB7-4

Spinner Hall Effect Bd, 2 ea PIN-PCB-SPINHAL



Component(s)	Description
C1	Capacitor, MLCC, 0603 SMD, 0.1μF, 25V, X7R, 10%
C2	Capacitor, MLCC, 0603 SMD, 1μF, 16V, X7R, 10%
CR1	LED, 0805 SMD, Green, 571nm, 2V
D1	Diode, Schottky, TUMD2M SMD, 30V, 500mA
R1	Not Populated
R2	Resistor, 0805 SMD, 0Ω, 0.125W
U1	Hall Effect Switch, Unipolar, Open Collector, TO-92-3
J1	Hdr w/Friction Lock, Male, 3-Pin, 2mm, Rt Angle



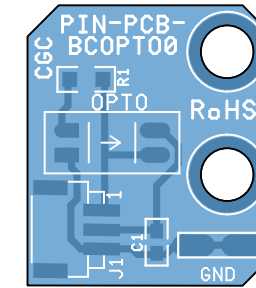
J1 Switch 41 Connection [Game Set Bd MB]

J1-1	BLK	GND from MB PCB, JB19-1
J1-2	WHT-BLK	Sw 41 monitor line, MB PCB, JB19-2
J1-3	YEL	+12VDC from MB PCB, JB19-3

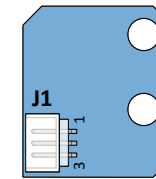
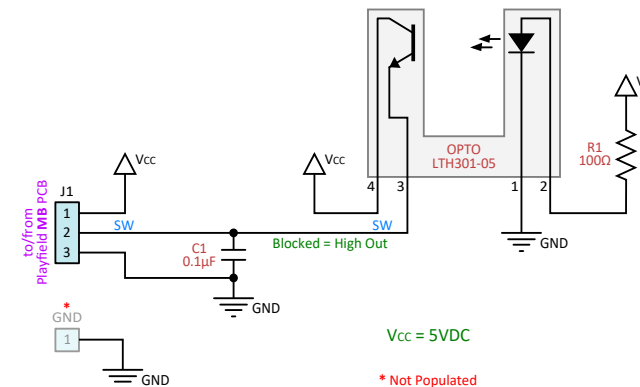
J1 Switch 42 Connection [Game Set Bd MC]

J1-1	BLK	GND from MC PCB, JC20-1
J1-2	WHT-BLK	Sw 42 monitor line, MC PCB, JC20-2
J1-3	YEL	+12VDC from MC PCB, JC20-3

Single Opto Interrupter Bd, 2 ea PFP-PCB-BCOPT00



Component(s)	Description
C1	Capacitor, MLCC, 0805 SMD, 0.1μF, 25V, X5R, 10%
GND	Not Populated
N1, N2	Standoff, 6-32 Thread, 9/32" D, 1/16" H
OPTO	U-Shaped Opto Sensor, 0.236", Through-Beam
R1	Resistor, 1206 SMD, 100Ω, 0.25W, 5%
J1	Hdr w/Friction Lock, SMD, Male, 3-Pin, 2mm, Rt Angle



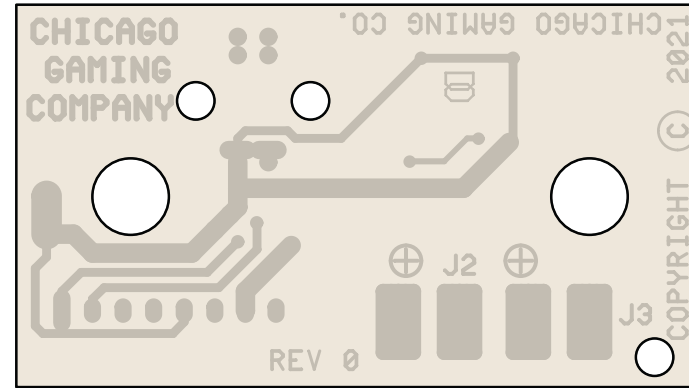
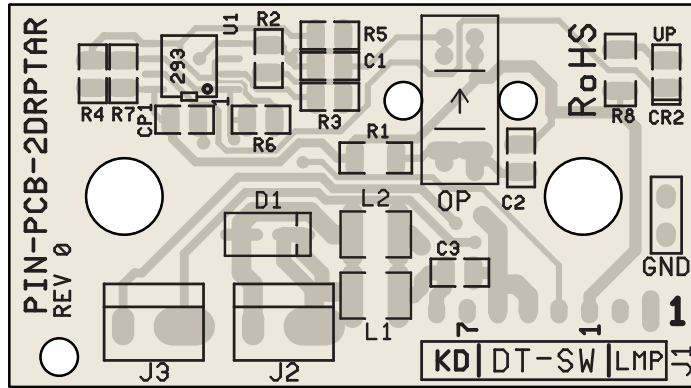
J1 Switch 18 Connection [Game Set Bd MB]

J1-1	RED-VIO	+5VDC from MB PCB, JB52-1
J1-2	GRY-VIO	Sw 18 monitor line, MB PCB, JB52-5
J1-3	BLK	GND from MB PCB, JB52-3

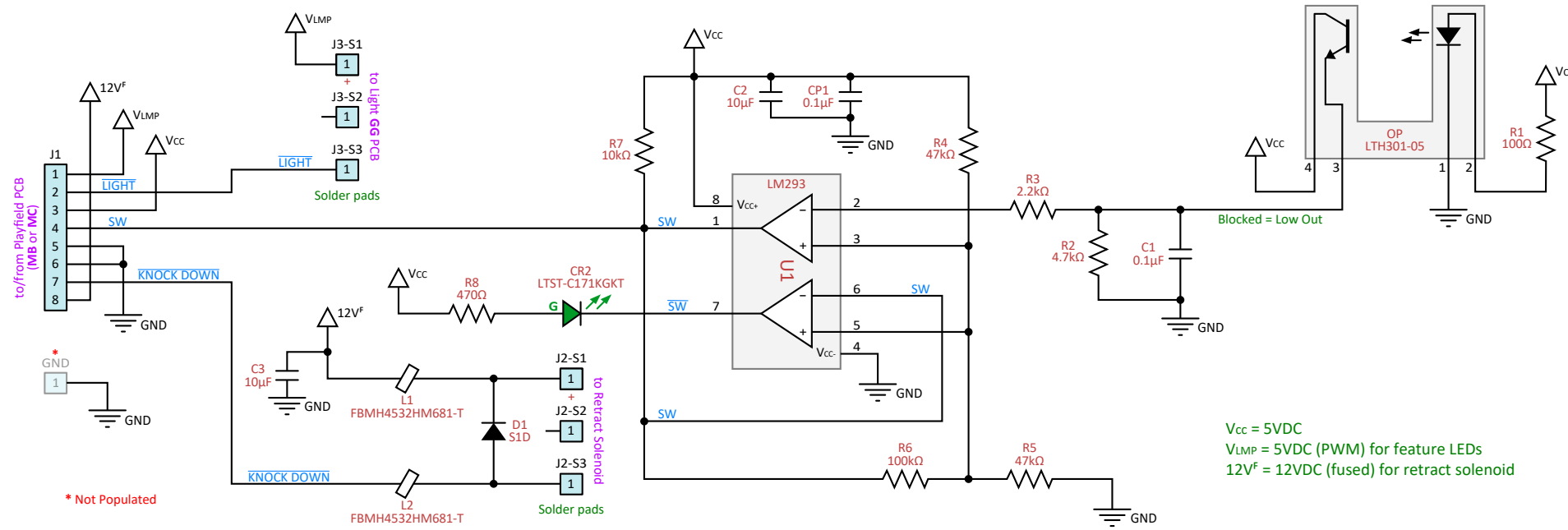
J1 Switch 19 Connection [Game Set Bd MB]

J1-1	RED-YEL	+5VDC from MB PCB, JB52-2
J1-2	GRY-YEL	Sw 19 monitor line, MB PCB, JB52-6
J1-3	BLK	GND from MB PCB, JB52-4

Drop Tgt Opto Bd, Single, 4 ea PIN-PCB-DROPTO



Component(s)	Description
C1, CP1	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, X5R, 10%
C2, C3	Capacitor, MLCC, 0805 SMD, 10µF, 25V, X5R, 10%
CR2	LED, 0805 SMD, Green, 571nm, 2V
D1	Diode, GP, DO-214AC SMA, 200V, 1A
GND	Not Populated
L1, L2	Ferrite Bead, 1812 SMD, 4A, 680Ω @ 100MHz
OP	U-Shaped Opto Sensor, 0.236", Through-Beam
R1	Resistor, 1206 SMD, 100Ω, 0.25W, 5%
R2	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R3	Resistor, 0805 SMD, 2.2kΩ, 0.125W, 5%
R4, R5	Resistor, 0805 SMD, 47kΩ, 0.125W, 5%
R6	Resistor, 0805 SMD, 100kΩ, 0.125W, 5%
R7	Resistor, 0805 SMD, 10kΩ, 0.25W, 5%
R8	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
U1	IC, Dual Comparator, GP, Open-Collector, 8-SOIC SMD
J1	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm, Rt Angle



J1 Light 70, Switch 61, Retract Coil Connections [Game Set Bd MB]

J1-1	RED-WHT	+5VDC PWM from MB PCB, JB39-1
J1-2	GRY	L70 ctrl line, MB PCB, JB39-2
J1-3	RED	+5VDC from MB PCB, JB39-3
J1-4	WHT	Sw 61 monitor line, MB PCB, JB39-4
J1-5	BLK	GND from MB PCB, JB39-5
J1-6	Not used	
J1-7	BLU	Drop tgt retract, MB PCB, JB39-7 (Coil 57)
J1-8	YEL	+12VDC (fused) from MB PCB, JB39-8

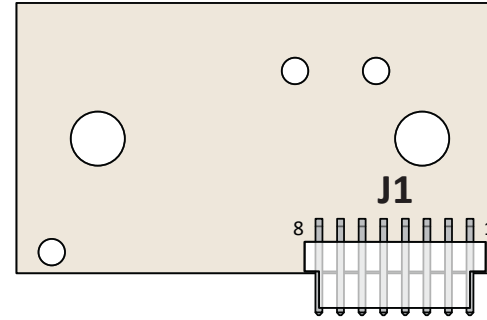
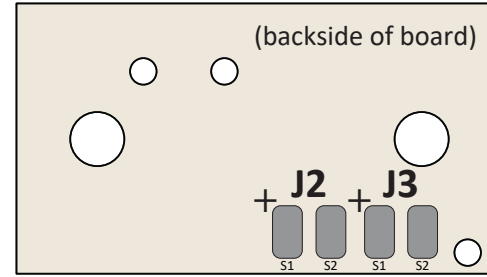
J2 Retract Coil Solder Connections [DT Retract Tube Solenoid]

J2-S1 (+)	YEL*	+12V (fused) to DT tube solenoid
J2-S2	YEL*	Trigger to DT tube solenoid (Coil 57)

*polarity is not important wrt the two YEL tube solenoid wires

J3 Light 70 Solder Connections [DT Game Set Bd GG]

J3-S1 (+)	YEL-WHT	+5VDC PWM to DT GG PCB, <i>VLMP</i> solder pad (S1)
J3-S2	BLK	L70 ctrl line to DT GG PCB, <i>L70</i> solder pad (S2)



**Drop Tgt Opto Bd, Single
PIN-PCB-DROPTO
Connector Pin-outs**

J1 Light 61, Switch 50, Retract Coil Connections [Game Set Bd MC]

J1-1	RED-WHT	+5VDC PWM from MC PCB, JC26-1
J1-2	GRY	L61 ctrl line, MC PCB, JC26-2
J1-3	RED	+5VDC from MC PCB, JC26-3
J1-4	WHT	Sw 50 monitor line, MC PCB, JC26-4
J1-5	BLK	GND from MC PCB, JC26-5
J1-6	Not used	
J1-7	BLU	Drop tgt retract, MC PCB, JC26-7 (Coil 55)
J1-8	YEL	+12VDC (fused) from MC PCB, JC26-8

J2 Retract Coil Solder Connections [DT Retract Tube Solenoid]

J2-S1 (+)	YEL*	+12V (fused) to DT tube solenoid
J2-S2	YEL*	Trigger to DT tube solenoid (Coil 55)

*polarity is not important wrt the two YEL tube solenoid wires

J3 Light 61 Solder Connections [DT Game Set Bd GG]

J3-S1 (+)	YEL-WHT	+5VDC PWM to DT GG PCB, <i>VLMP</i> solder pad (S1)
J3-S2	BLK	L61 ctrl line to DT GG PCB, <i>L61</i> solder pad (S2)

J1 Light 60, Switch 49, Retract Coil Connections [Game Set Bd MC]

J1-1	RED-WHT	+5VDC PWM from MC PCB, JC25-1
J1-2	GRY	L60 ctrl line, MC PCB, JC25-2
J1-3	RED	+5VDC from MC PCB, JC25-3
J1-4	WHT	Sw 49 monitor line, MC PCB, JC25-4
J1-5	BLK	GND from MC PCB, JC25-5
J1-6	Not used	
J1-7	BLU	Drop tgt retract, MC PCB, JC25-7 (Coil 54)
J1-8	YEL	+12VDC (fused) from MC PCB, JC25-8

J2 Retract Coil Solder Connections [DT Retract Tube Solenoid]

J2-S1 (+)	YEL*	+12V (fused) to DT tube solenoid
J2-S2	YEL*	Trigger to DT tube solenoid (Coil 54)

*polarity is not important wrt the two YEL tube solenoid wires

J3 Light 60 Solder Connections [DT Game Set Bd GG]

J3-S1 (+)	YEL-WHT	+5VDC PWM to DT GG PCB, <i>VLMP</i> solder pad (S1)
J3-S2	BLK	L60 ctrl line to DT GG PCB, <i>L60</i> solder pad (S2)

J1 Light 62, Switch 51, Retract Coil Connections [Game Set Bd MC]

J1-1	RED-WHT	+5VDC PWM from MC PCB, JC27-1
J1-2	GRY	L62 ctrl line, MC PCB, JC27-2
J1-3	RED	+5VDC from MC PCB, JC27-3
J1-4	WHT	Sw 51 monitor line, MC PCB, JC27-4
J1-5	BLK	GND from MC PCB, JC27-5
J1-6	Not used	
J1-7	BLU	Drop tgt retract, MC PCB, JC27-7 (Coil 56)
J1-8	YEL	+12VDC (fused) from MC PCB, JC27-8

J2 Retract Coil Solder Connections [DT Retract Tube Solenoid]

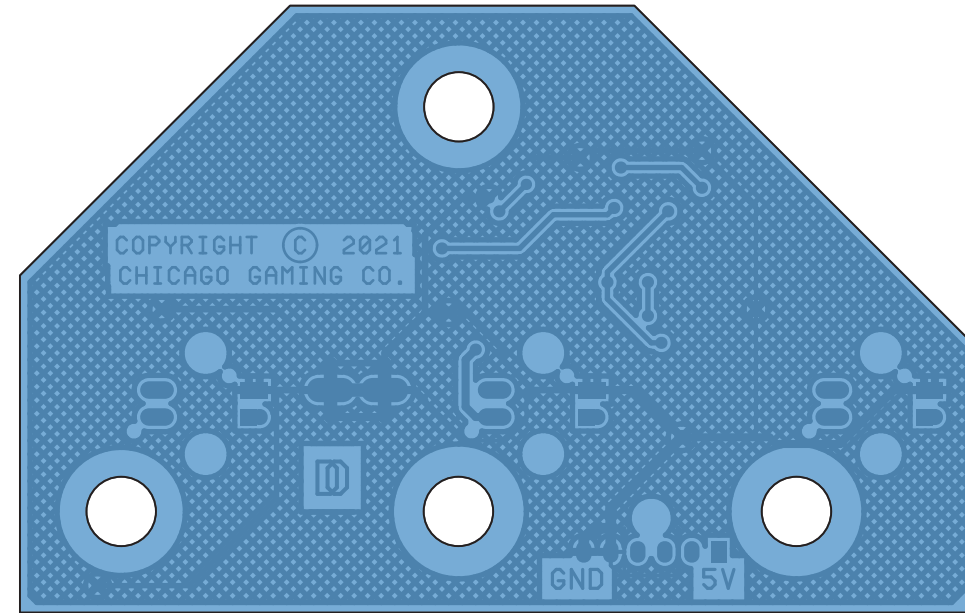
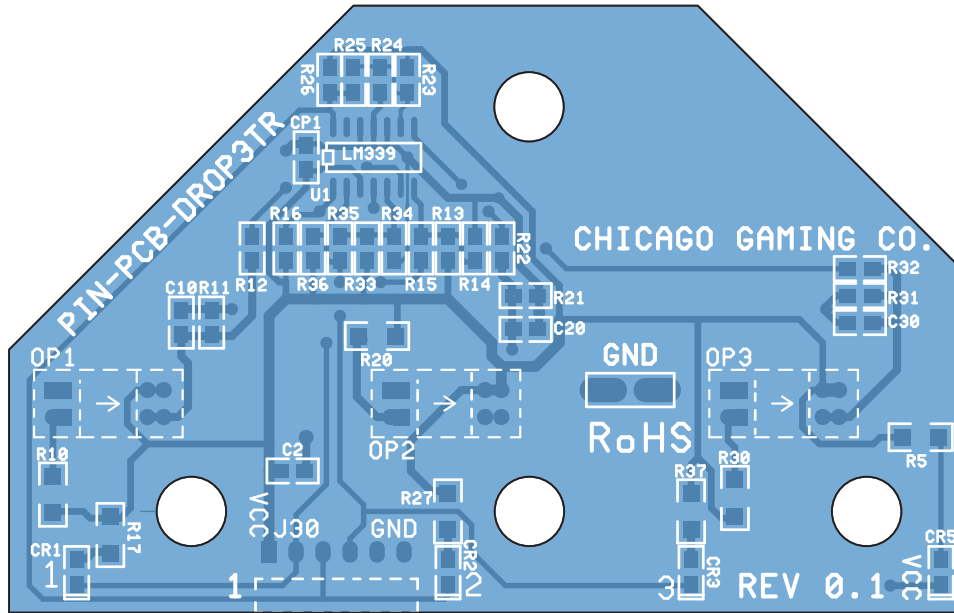
J2-S1 (+)	YEL*	+12V (fused) to DT tube solenoid
J2-S2	YEL*	Trigger to DT tube solenoid (Coil 56)

*polarity is not important wrt the two YEL tube solenoid wires

J3 Light 62 Solder Connections [DT Game Set Bd GG]

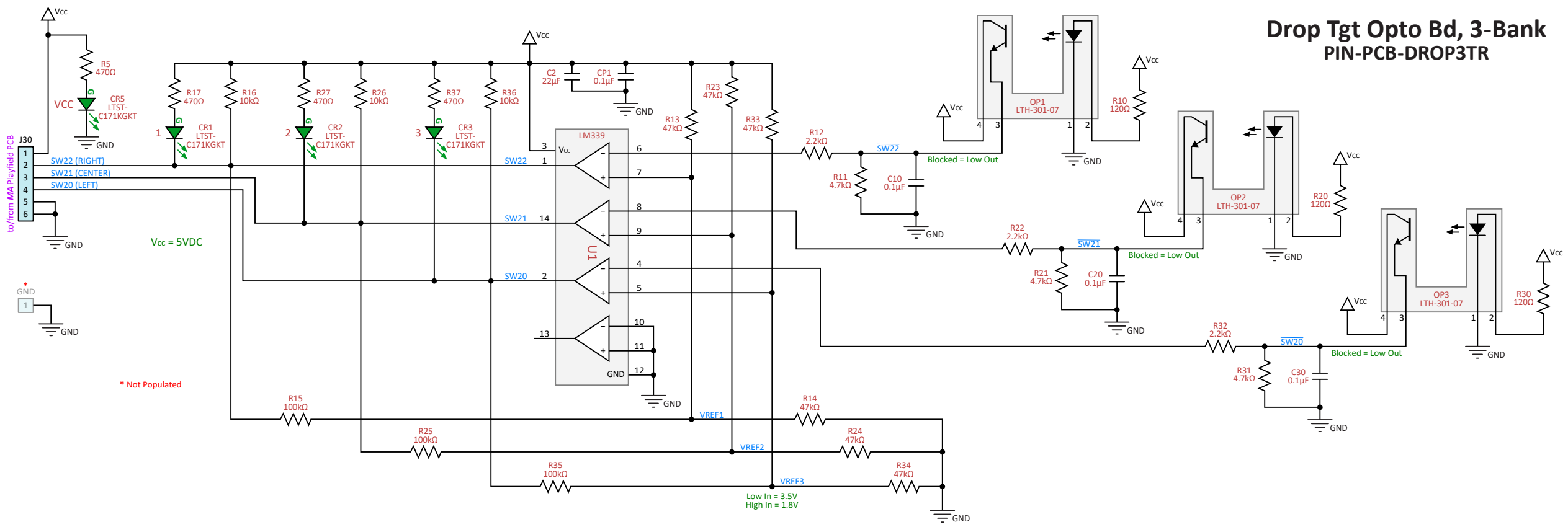
J3-S1 (+)	YEL-WHT	+5VDC PWM to DT GG PCB, <i>VLMP</i> solder pad (S1)
J3-S2	BLK	L62 ctrl line to DT GG PCB, <i>L62</i> solder pad (S2)

Drop Tgt Opto Bd, 3-Bank PIN-PCB-DROP3TR

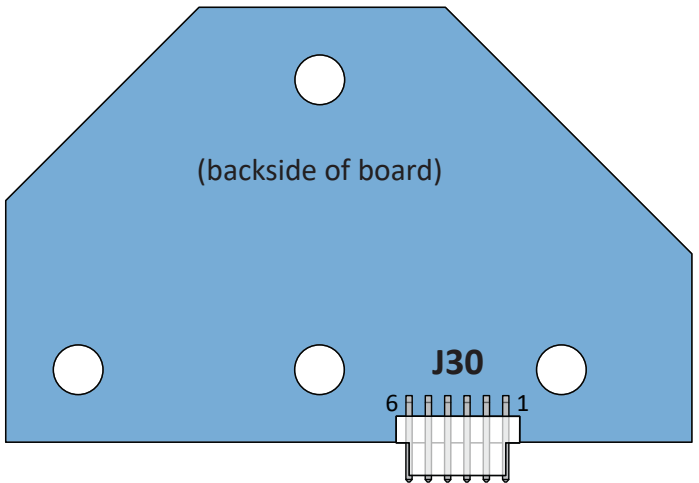


Component(s)	Description
C2	Capacitor, MLCC, 0805 SMD, 22µF, 16V, X5R, 20%
CP1, C10, C20, C30	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V
CR1-CR3, CR5	LED, 0805 SMD, Green, 571nm, 2V
GND	Not Populated
OP1-OP3	U-Shaped Opto Sensor, 0.2", Through-Beam
R5, R17, R27, R37	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
R10, R20, R30	Resistor, 1206 SMD, 120Ω, 0.25W, 5%
R11, R21, R31	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R12, R22, R32	Resistor, 0805 SMD, 2.2kΩ, 0.125W, 5%
R13, R14, R23, R24, R33, R34	Resistor, 0805 SMD, 47kΩ, 0.125W, 5%
R15, R25, R35	Resistor, 0805 SMD, 100kΩ, 0.125W, 5%
R16	Resistor, 0805 SMD, 10kΩ, 0.25W, 5%
R26, R36	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%
U1	IC, Quad Comparator, Diff, Open-Collector, 14-SOIC SMD
J30	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm, Rt Angle

Drop Tgt Opto Bd, 3-Bank PIN-PCB-DROP3TR



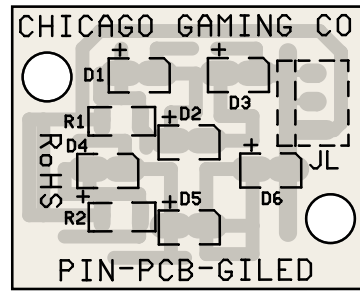
* Not Populated



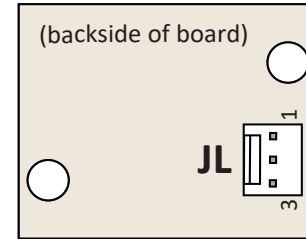
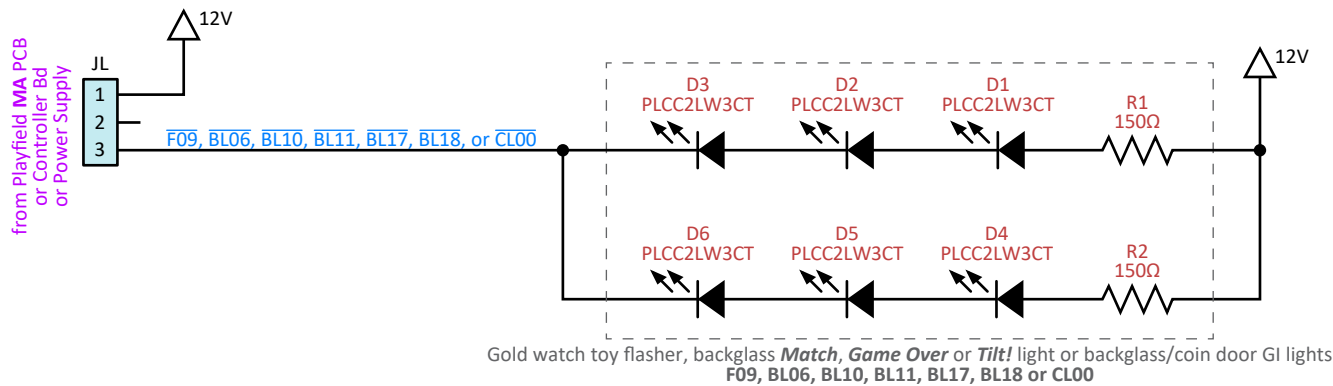
J30 Switches 20-22 Connections [Game Set Bd MA]

J30-1	RED	+5VDC from MA PCB, JA8-1
J30-2	WHT-ORN	Sw 22 monitor line, MA PCB, JA8-2
J30-3	WHT-YEL	Sw 21 monitor line, MA PCB, JA8-3
J30-4	WHT-GRN	Sw 20 monitor line, MA PCB, JA8-4
J30-5	BLK	GND from MA PCB, JA8-5
J30-6	BLK	GND from MA PCB, JA8-6

Gold Watch Toy Flasher Bd PIN-PCB-GILED



Component(s)	Description
D1-D6	LED, Warm White, PLCC2 SMD
R1, R2	Resistor, 1206 SMD, 150Ω, 0.25W, 5%
JL	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm



JL Flasher 09 Connection [Game Set Bd MA]

JL-1	YEL	+12VDC from MA PCB, JA49-1
JL-2	Not used	
JL-3	BLU	F09 ctrl line, MA PCB, JA49-3

JL BLight 06 Connection [Pinball Controller Bd]

JL-1	YEL	+12VDC from Pinball Controller PCB, J4-6
JL-2	Not used	
JL-3	WHT-VIO	BL06 ctrl line, Pinball Controller PCB, J4-10

JL BLight 10 Connection (2bds) [Pinball Controller Bd]

JL-1	YEL	+12VDC from Pinball Controller PCB, J4-6
JL-2	Not used	
JL-3	GRY-RED	BL10 ctrl line, Pinball Controller PCB, J4-14

JL BLight 11 Connection [Pinball Controller Bd]

JL-1	YEL	+12VDC from Pinball Controller PCB, J4-6
JL-2	Not used	
JL-3	GRY-ORN	BL11 ctrl line, Pinball Controller PCB, J4-15

JL BLight 17, Upper Backglass GI Connection (4 bds) [Pinball Controller Bd]

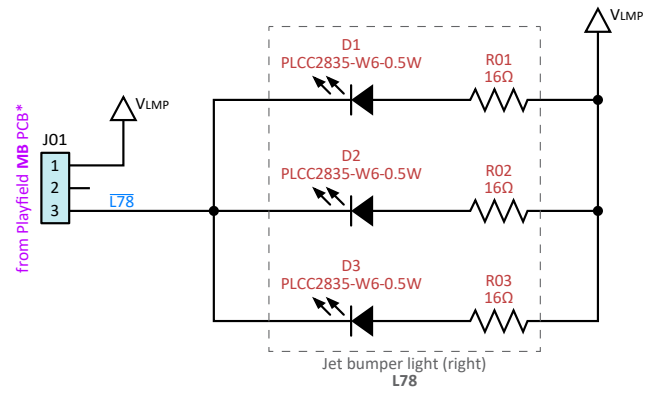
JL-1	YEL	+12VDC from Pinball Controller PCB, J8-2
JL-2	Not used	
JL-3	BLK-GRY	BL17 ctrl line, Pinball Controller PCB, J8-4

JL BLight 18, Lower Backglass GI Connection (7 bds) [Pinball Controller Bd]

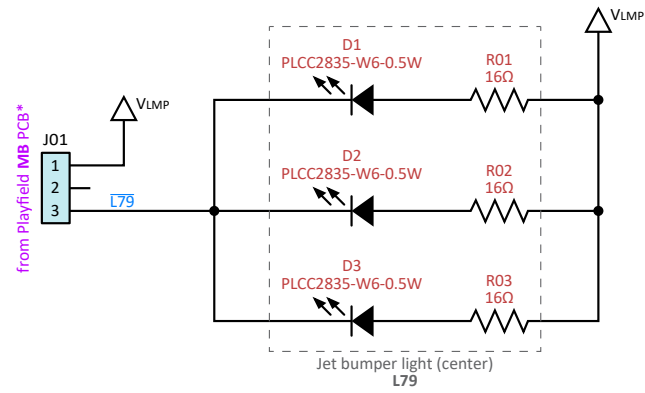
JL-1	YEL	+12VDC from Pinball Controller PCB, J8-1
JL-2	Not used	
JL-3	BLK-WHT	BL18 ctrl line, Pinball Controller PCB, J8-5

JL CLight 00 Connection [Cabinet Power Supply & Pinball Controller Bd]

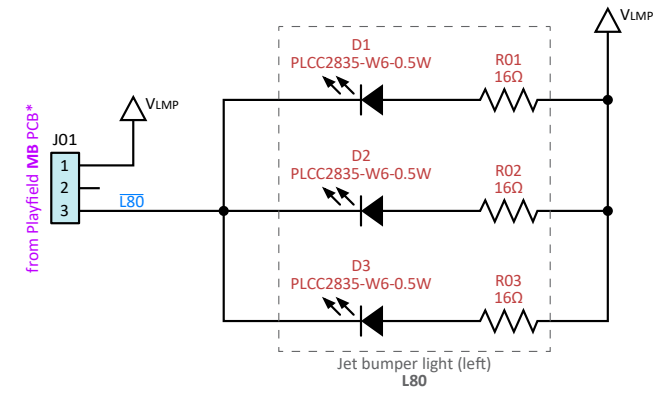
JL-1	YEL	+12VDC from Power Supply, through DBV conn, P5, then coin door conn, P2
JL-2	Not used	
JL-3	YEL-WHT	CL00 ctrl line, Pinball Controller PCB, J3-13, through coin door conn, P1



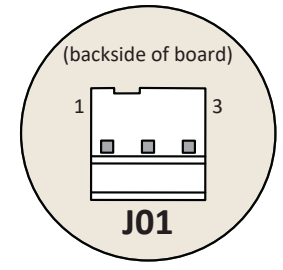
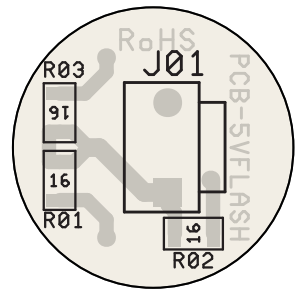
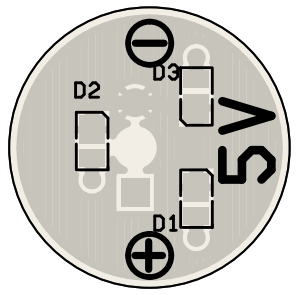
V_{LMP} = 5VDC (PWM) for feature LEDs



* through a soldered terminal strip, under playfield



Jet Bumper LED Bd, 3 ea PIN-PCB-5VFLASH



Component(s)	Description
D1-D3	LED, White, 2835 SMD, 0.5W
R01-R03	Resistor, 1210 SMD, 16Ω, 0.5W, 5%
J01	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm

J01 Light 78 Connection [Game Set Bd MB]

J01-1	WHT-RED	+5VDC PWM from MB PCB, JB22-1, via term strip
J01-2	Not Used	
J01-3	GRY-VIO	L78 ctrl line, MB PCB, JB22-2, via term strip

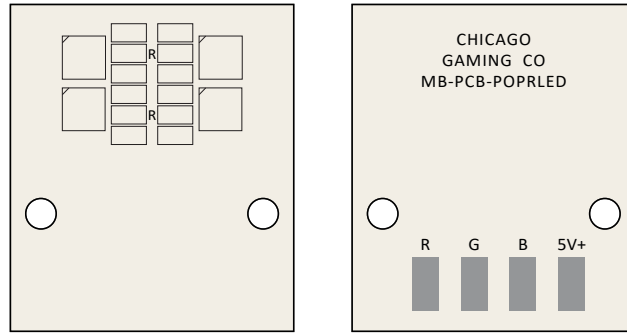
J01 Light 79 Connection [Game Set Bd MB]

J01-1	WHT-RED	+5VDC PWM from MB PCB, JB22-1, via term strip
J01-2	Not Used	
J01-3	GRY-GRN	L79 ctrl line, MB PCB, JB22-3, via term strip

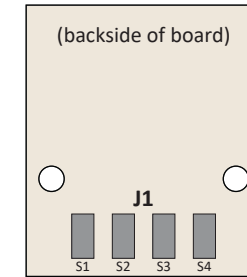
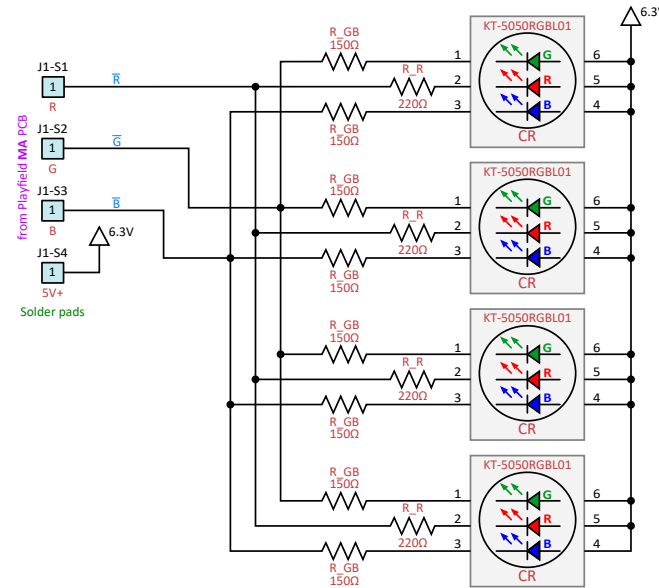
J01 Light 80 Connection [Game Set Bd MB]

J01-1	WHT-RED	+5VDC PWM from MB PCB, JB22-1, via term strip
J01-2	Not Used	
J01-3	GRY-YEL	L80 ctrl line, MB PCB, JB22-4, via term strip

4-RGB LED GI Bd Assy MB-SUB-POPRED



Component(s)	Description	Qty
CR	LED, RGB, SMD	4
R_GB	Resistor, 0805 SMD, 150Ω, 0.125W, 5%	8
R_R	Resistor, 0805 SMD, 220Ω, 0.125W, 5%	4
Cable	8" Cable, w/4-Pin, 2.54mm Connector	1



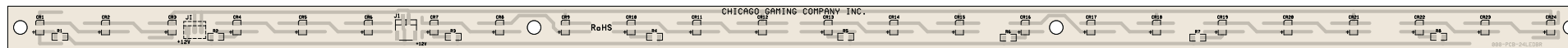
J1 RGB GI Connection (Under Butch Plastic) [Game Set Bd MA]

J1-S1 (R)	RED	GI string 2 red ctrl line from MA PCB, JA55-2
J1-S2 (G)	GRN	GI string 2 green ctrl line from MA PCB, JA55-3
J1-S3 (B)	BLU	GI string 2 blue ctrl line from MA PCB, JA55-4
J1-S4 (5V+)	WHT-RED	+6.3VDC from MA PCB, JA55-1

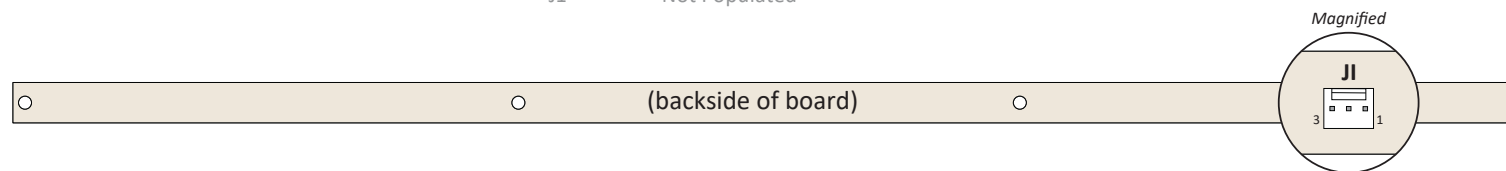
Mounting Hardware:

Part ID	Description	Qty
FWC-N06-025N025	#6 Round Nylon Spacer, 1/4", 1/4" OD	2
FSS-N06-HWH062C	#6 x 5/8" HWH SMS	2

24-LED GI Bd, 3 ea 000-PCB-24LEDBR



Component(s)	Description
CR1-CR24	LED, Warm White, PLCC2 SMD
R1-R8	Resistor, 1206 SMD, 120Ω, 0.25W, 5%
J1	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm
J1	Not Populated

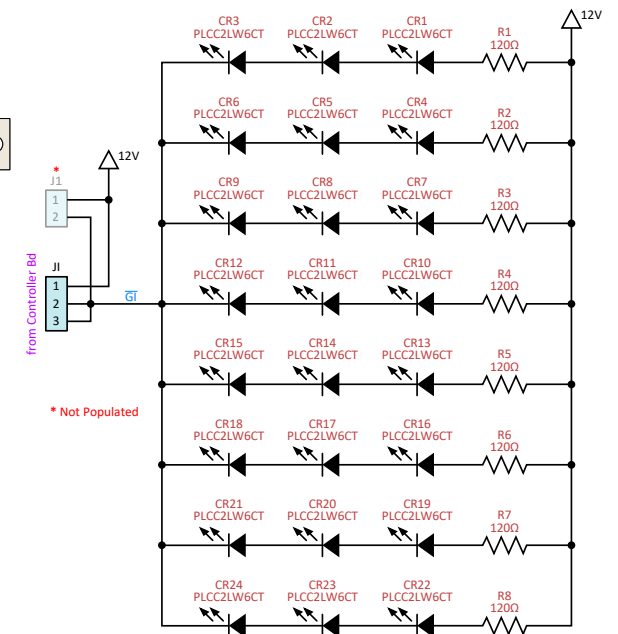


J1 Upper Backglass GI Connection (2 bds) [Pinball Controller Bd]

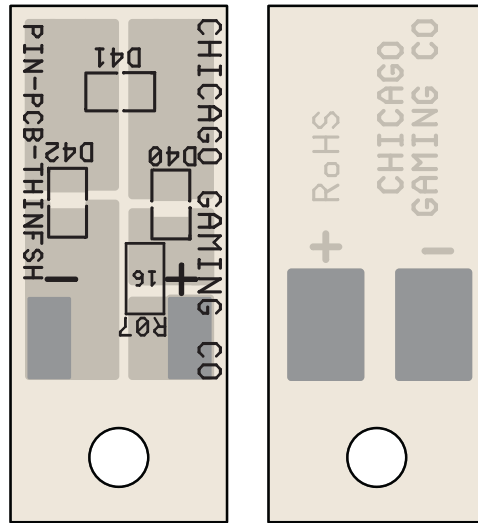
J1-1	YEL	+12VDC from Pinball Controller PCB, J8-2
J1-2	Not Used	
J1-3	BLK-GRY	BL17 ctrl line, Pinball Controller PCB, J8-4

J1 Lower Backglass GI Connection [Pinball Controller Bd]

J1-1	YEL	+12VDC from Pinball Controller PCB, J8-1
J1-2	Not Used	
J1-3	BLK-WHT	BL18 ctrl line, Pinball Controller PCB, J8-5



Thin Flasher Bd, 5 ea PIN-PCB-THINFLS



J1 BLight 05 Connection [Pinball Controller Bd]

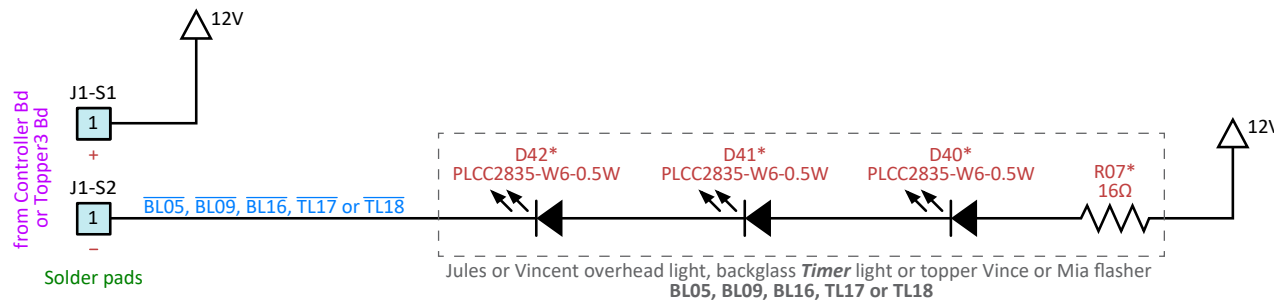
J1-S1 (+) YEL +12VDC from Pinball Controller PCB, J4-6, via cab light box conn, P1
 J1-S2 (-) BLU-RED **BL05** ctrl line, Pinball Controller PCB, J4-9, via cab light box conn, P4

J1 BLight 09 Connection [Pinball Controller Bd]

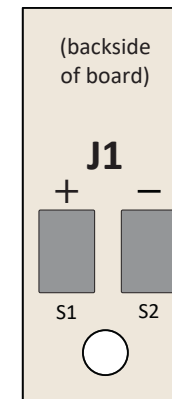
J1-S1 (+) YEL +12VDC from Pinball Controller PCB, J4-6, via cab light box conn, P1
 J1-S2 (-) BLU-BLK **BL09** ctrl line, Pinball Controller PCB, J4-13, via cab light box conn, P2

Component(s)	Description
D40-D42*	LED, White, 2835 SMD, 0.5W
R07*	Resistor, 1210 SMD, 16Ω, 0.5W, 5%

*actual component numbers will vary, from board-to-board



*actual component numbers will vary, from board-to-board



J1 BLight 16 Connection [Pinball Controller Bd]

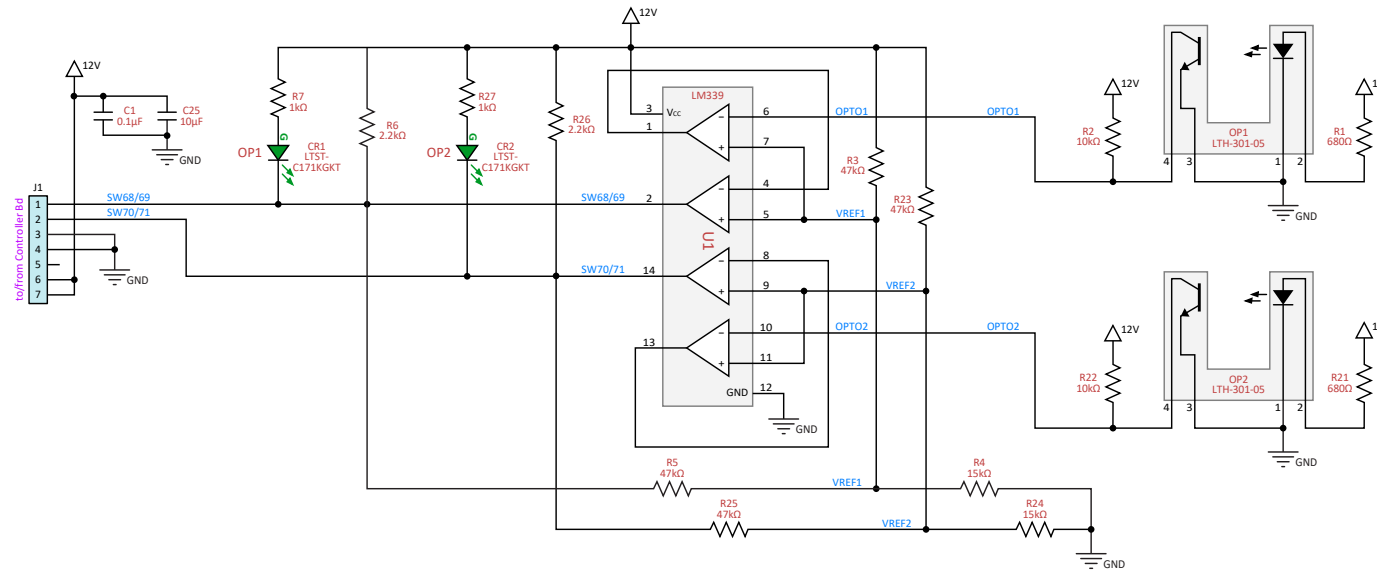
J1-S1 (+) YEL +12VDC from Pinball Controller PCB, J8-1
 J1-S2 (-) BLK-RED **BL16** ctrl line, Pinball Controller PCB, J8-3

J1 TLight 17 Connection (LE only) [Topper3 Bd]

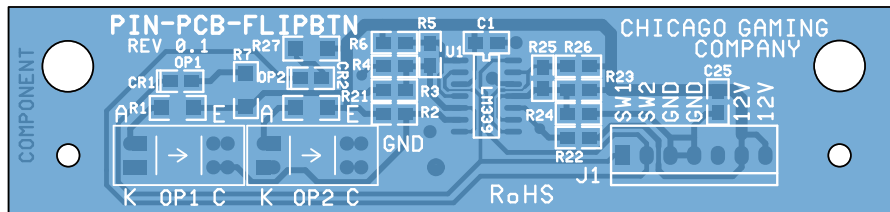
J1-S1 (+) YEL +12VDC from Topper3 PCB, J4-1
 J1-S2 (-) BLU-RED **TL17** ctrl line, Topper3 PCB, J4-3

J1 TLight 18 Connection (LE only) [Topper3 Bd]

J1-S1 (+) YEL +12VDC from Topper3 PCB, J4-2
 J1-S2 (-) BLU-BLK **TL18** ctrl line, Topper3 PCB, J4-4



Flipper Opto Bd, 2 ea PIN-PCB-FLIPBTN



J1 Left Flipper Opto (Switches 68, 70) Connections [Pinball Controller Bd]

J1-1	BLU-GRY	Sw 68 monitor line, Pinball Controller PCB, J2-6
J1-2	BLU-RED	Sw 70 monitor line, Pinball Controller PCB, J2-4
J1-3	Not Used	GND
J1-4	BLK	GND from Pinball Controller PCB, J2-2, via coin door sw
J1-5	Not Used	
J1-6	YEL	+12VDC from Pinball Controller PCB, J3-12, via start btn
J1-7	Not Used	+12VDC

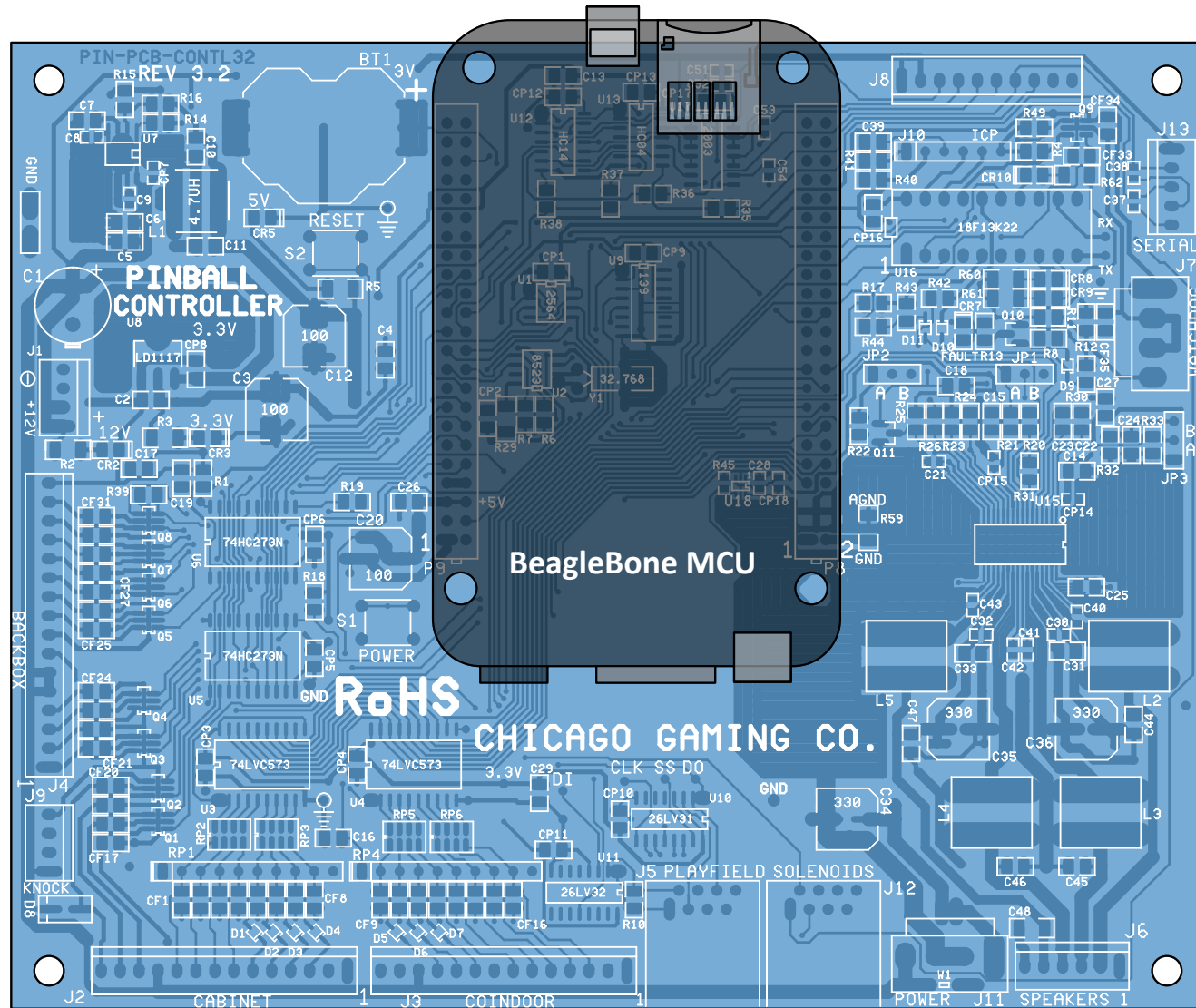
J1 Right Flipper Opto (Switches 69, 71) Connections [Pinball Controller Bd]

J1-1	BLU-VIO	Sw 69 monitor line, Pinball Controller PCB, J2-5
J1-2	BLU-ORN	Sw 71 monitor line, Pinball Controller PCB, J2-3
J1-3	Not Used	GND
J1-4	BLK	GND from Pinball Controller PCB, J3-14
J1-5	Not Used	
J1-6	YEL	+12VDC from Pinball Controller PCB, J2-11
J1-7	Not Used	+12VDC

Component(s)	Description
C1	Capacitor, MLCC, 0805 SMD, 0.1μF, 25V
C25	Capacitor, MLCC, 0805 SMD, 10μF, 16V, 10%
CR1, CR2	LED, 0805 SMD, Green, 571nm, 2V
OP1, OP2	U-Shaped Opto Sensor, 0.236", Through-Beam
R1, R21	Resistor, 1206 SMD, 680Ω, 0.25W, 5%
R2, R22	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%
R3, R5, R23, R25	Resistor, 0805 SMD, 47kΩ, 0.125W, 5%
R4, R24	Resistor, 0805 SMD, 15kΩ, 0.125W, 5%
R6, R26	Resistor, 0805 SMD, 2.2kΩ, 0.125W, 5%
R7, R27	Resistor, 1206 SMD, 1kΩ, 0.25W, 5%
U1	IC, Quad Comparator, Diff, Open-Collector, 14-SOIC SMD
J1	Hdr w/Friction Lock, Male, 7-Pin, 2.54mm

Pinball Controller Bd PIN-PCB-CONTL31

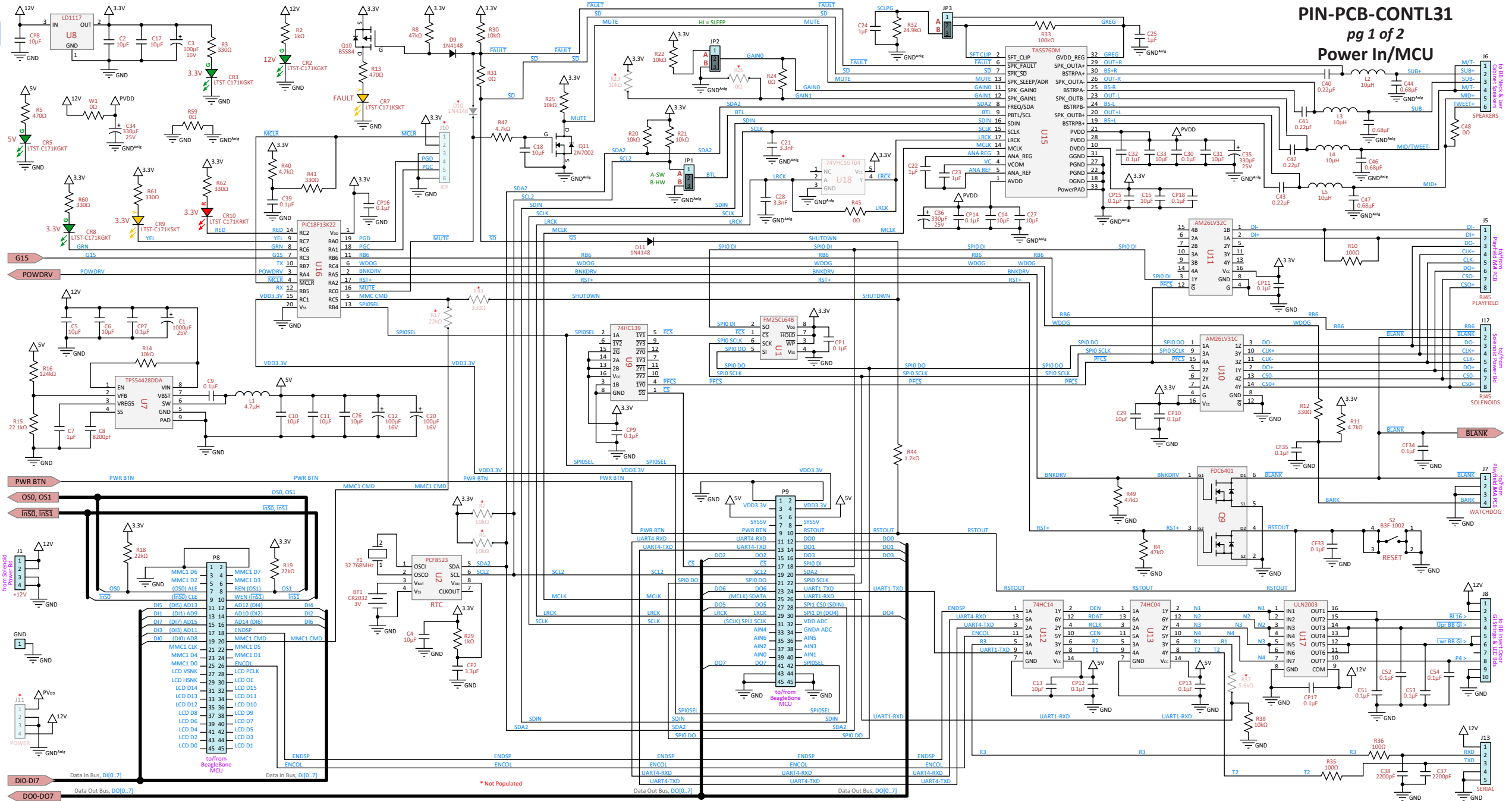
(PIN-SUB-CONTRLR Shown w/BeagleBone MCU Bd Installed)



Component(s)	Description
BT1	CR2032 Coin Cell Battery, 3V
CP1, CP3-CP6, CP9-CP13, CP16, CP17, CF1-CF31, CF33-CF35, C39	Capacitor, MLCC, 0805 SMD, 0.1µF, 16V, 10%
CP2	Capacitor, MLCC, 0805 SMD, 3.3µF, 16V, 10%
CP7, C9	Capacitor, MLCC, 0603 SMD, 0.1µF, 16V, 10%
CP8, C2, C10, C11,	Capacitor, MLCC, 0805 SMD, 10µF, 25V, 10%, X7R
C14, C15, C17-C19, C26, C27, C29, C31, C33	Capacitor, MLCC, 0603 SMD, 0.1µF, 25V, 10%, X7R
CP14, CP15, CP18, C30, C32, C51-C54	Capacitor, Elect, Radial, 1000µF, 25V, 20%
C1	Capacitor, Elect, Radial SMD, 100µF, 16V, 20%
C3, C12, C20	Capacitor, MLCC, 0805 SMD, 10µF, 16V, 10%
C4-C6, C13, C16	Capacitor, MLCC, 0805 SMD, 1µF, 16V, 10%
C7	Capacitor, MLCC, 0805 SMD, 8200pF, 25V, 10%
C8	Capacitor, MLCC, 0603 SMD, 3.3nF, 25V, 10%
C21, C28	Capacitor, MLCC, 0805 SMD, 1µF, 25V, 10%, X7R
C22-C25	Capacitor, Elect, Radial SMD, 330µF, 25V, 20%
C34-C36	Capacitor, MLCC, 0603 SMD, 2200pF, 25V, 10%
C37, C38	Capacitor, MLCC, 0805 SMD, 0.68µF, 50V, 10%
C40-C43	Resistor, 1206 SMD, 0Ω, 0.25W, 5%
C44-C47	LED, 0805 SMD, Green, 571nm, 2V
C48	LED, 0805 SMD, Yellow, 587nm, 2V
CR2, CR3, CR5, CR8	LED, 0805 SMD, Red, 631nm, 2V
CR7, CR9	Diode, GP, SOD-323 SMA, 75V, 300mA
CR10	Diode, GP, DO-214AC SMA, 200V, 1A
D1-D7, D9, D11	Not Populated
D8	Quick Connect Male, Through Hole, 1/4"
D10	Inductor, SMD, 4.7µH, 4.1A, 24mΩ, 30%
GND	Inductor, SMD, 10µH, 5.4A, 29mΩ, 20%
L1	MOSFET Array, SSOT-6 SMD, 2N-Ch, 20V, 3A
L2-L5	MOSFET, SOT-23 SMD, P-Ch, 50V, 130mA
Q1-Q9	MOSFET, SOT-23-3 SMD, N-Ch, 60V, 115mA
Q10	Resistor, 0805 SMD, 200kΩ, 0.125W, 5%
Q11	Resistor, 1206 SMD, 1kΩ, 0.25W, 5%
R1	Resistor, 1206 SMD, 330Ω, 0.25W, 5%
R2, R29	Resistor, 0805 SMD, 47kΩ, 0.125W, 5%
R3, R60-R62	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
R4, R8, R39, R49	Not Populated
R5	Resistor, 0805 SMD, 100Ω, 0.125W, 5%
R6, R7, R17, R23, R26, R37, R43	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R10, R35, R36	Resistor, 0805 SMD, 330Ω, 0.125W, 5%
R11, R40, R42	Resistor, 0805 SMD, 470Ω, 0.125W, 5%
R12, R41	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%
R13	Resistor, 0805 SMD, 22.1kΩ, 0.125W, 1%
R14, R20, R21	
R15	

Component(s)	Description
R16	Resistor, 0805 SMD, 124kΩ, 0.125W, 1%
R18, R19	Resistor, 0805 SMD, 22kΩ, 0.125W, 5%
R22, R25, R30, R38	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%
R24	Resistor, 0805 SMD, 0Ω, 0.125W, 5%
R31	Resistor, 0805 SMD, 0Ω, 0.25W, 5%
R32	Resistor, 0805 SMD, 24.9kΩ, 0.125W, 1%
R33	Resistor, 0805 SMD, 100kΩ, 0.125W, 1%
R44	Resistor, 0805 SMD, 1.2kΩ, 0.125W, 5%
R45	Resistor, 0603 SMD, 0Ω, 0.125W, 5%
R59	Resistor, 1206 SMD, 0Ω, 0.25W, 5%
RP1, RP4	Resistor Pack, 10 x 4.7kΩ
RP2, RP3, RP5, RP6	Resistor Pack, 4 x 10kΩ
S1, S2	Switch, Tactile, SPST-NO, 50mA, 24VDC
U1	IC, Ferroelectric RAM, 64kBit, SPI, 20MHz, 8-SOIC SMD
U2	IC, Real Time Clock, I ² C, 2-Wire Serial, 8-SOIC SMD
U3, U4	IC, D-Type Trans Latch, Tri-State, 8:8, 20-TSSOP SMD
U5, U6	IC, Flip Flop, D-Type, 8 Bit, 20-SOIC SMD
U7	IC, Buck Sw Reg, 1 Output, 4A, 8-PwrSOIC SMD
U8	Voltage Reg, Fixed, 3.3V, 800mA, SOT-223 SMD
U9	IC, Decoder, Dual 1x2:4, 16-SOIC SMD
U10	IC, 4/0 Driver, RS422/RS485, 16-SOIC SMD
U11	IC, 4/0 Receiver, RS422/RS485, 16-SOIC SMD
U12	IC, Hex CMOS Schm Trig Inverter, SOIC-14 SMD
U13	IC, Hex Inverter, 14-SOIC SMD
U15	IC, Audio Amp, Stereo, Class D, 55.2W, 32-HTSSOP SMD
U16	PIC, Microcontroller, 8-bit, 64MHz, 8K, SOIC-28 SMD
U17	Power Switch/Drvr, 1:1, 7NPN, 16-SOIC SMD
U18	Not Populated
W1	Wire Jumper
Y1	Crystal, 32.768MHz, Through Hole, 20ppm, 12.5pF, 30kΩ
JP1-JP3	Hdr, Male, 3-Pin, 2.54mm
J1, J9	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm
J2, J3	Hdr w/Friction Lock, Male, 14-Pin, 2.54mm
J4	Hdr w/Friction Lock, Male, 16-Pin, 2.54mm
J5, J12	RJ45/Ethernet Jack, Through Hole, 8P8C, Rt Angle
J6	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm
J7	Hdr w/Friction Lock, Male, 6-Pin, 3.96mm
J8	Hdr w/Friction Lock, Male, 10-Pin, 2.54mm
J10, J11	Not Populated
J13	Hdr w/Friction Lock, Male, 5-Pin, 2.54mm
P8, P9	Hdr, Female, 2 Rows, 46-pin, 2.54mm
BeagleBoard MCU	BeagleBone Black MCU Bd (PN: 000-ELE-BEAGLEB)

Pinball Controller Bd PIN-PCB-CONTL31 pg 1 of 2 Power In/MCU



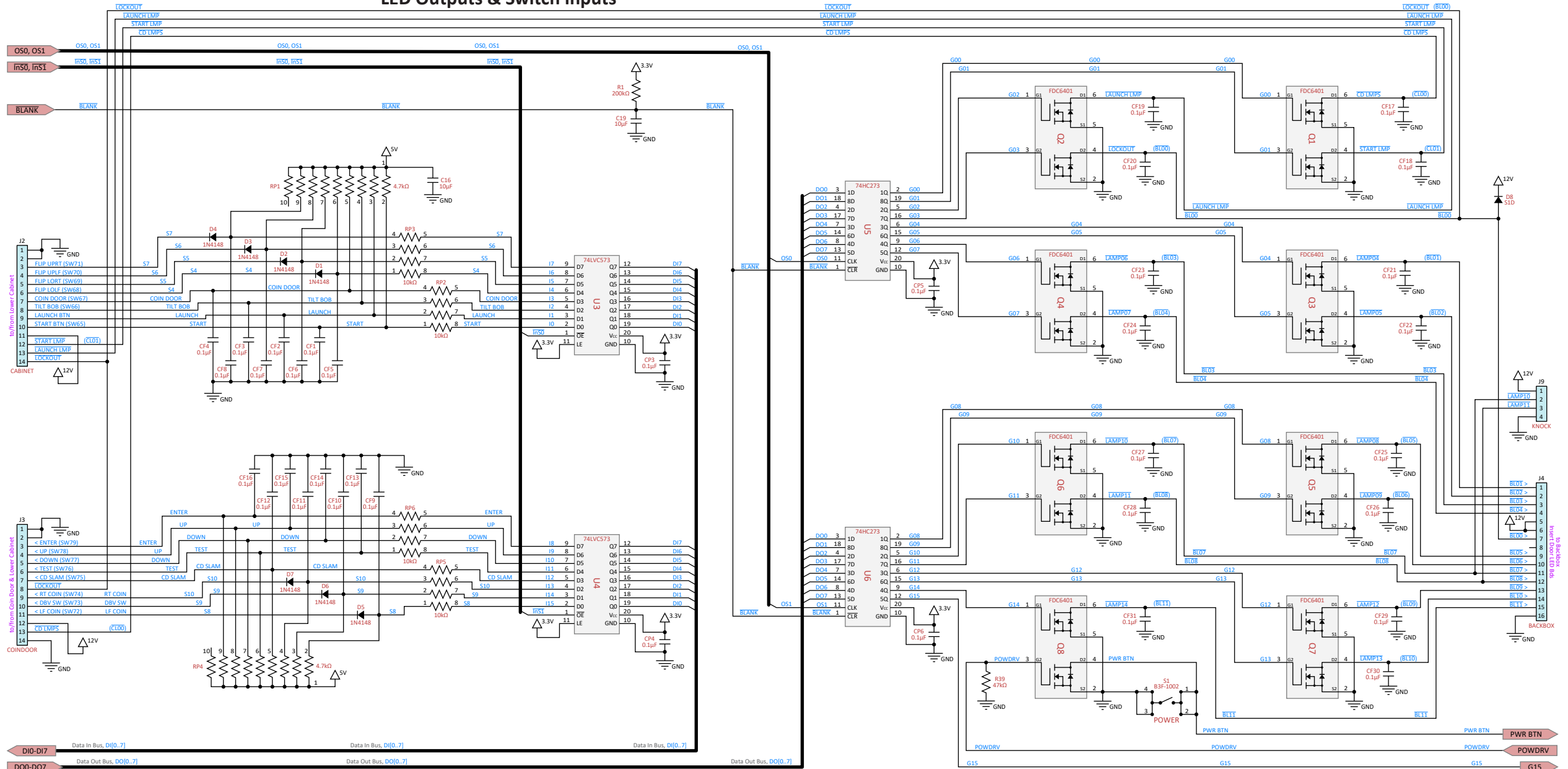
* Not Populated

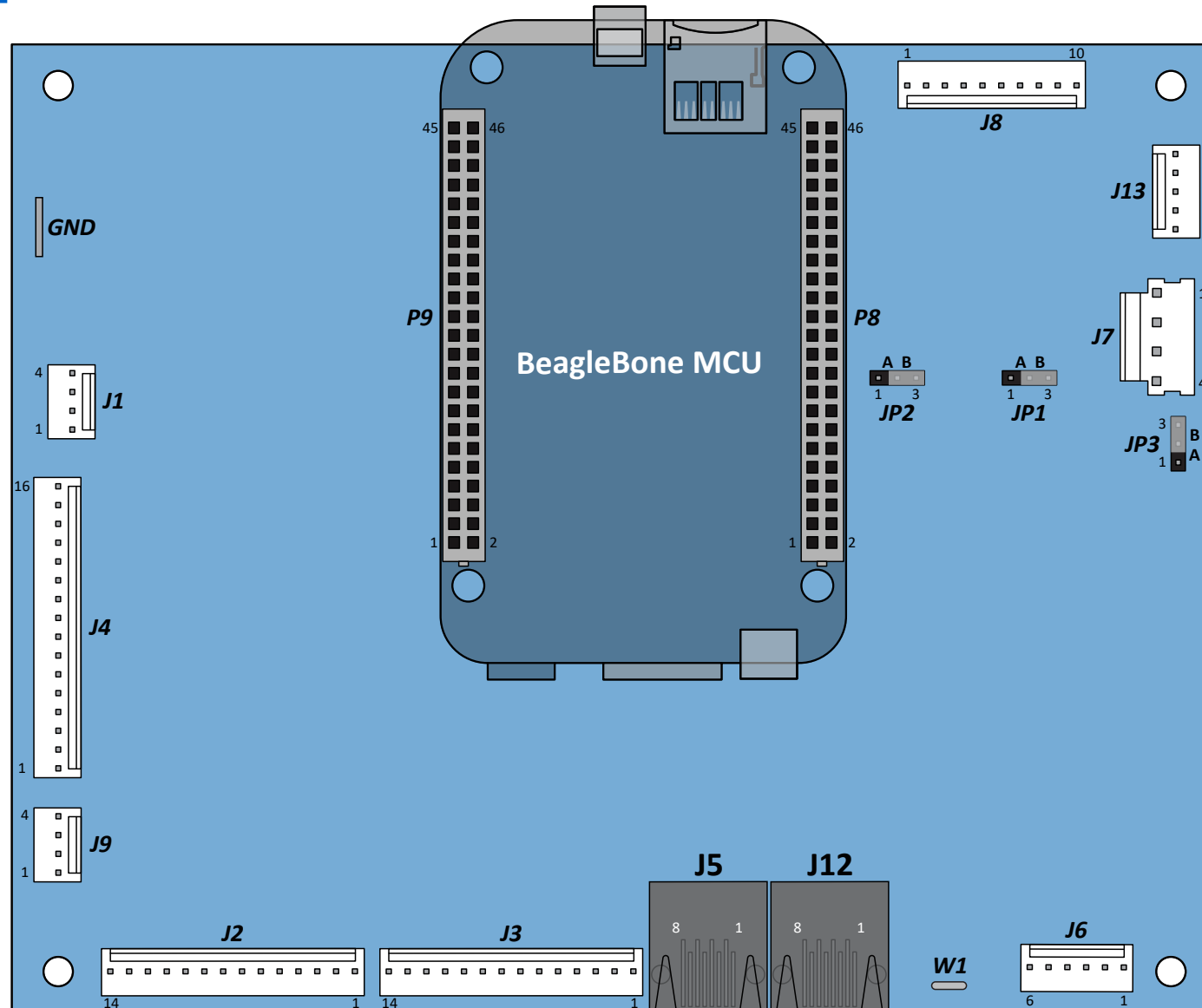
Pinball Controller Bd

PIN-PCB-CONTL31

pg 2 of 2

LED Outputs & Switch Inputs





Pinball Controller Bd Assy

PIN-SUB-CONTRLR

Connector Pin-outs

J1 DC Power In [Solenoid Power Bd]

J1-1	YEL	+12VDC from Solenoid Power PCB, J102-1
J1-2	YEL	+12VDC from Solenoid Power PCB, J102-2
J1-3	BLK	GND from Solenoid Power PCB, J102-3
J1-4	BLK	GND from Solenoid Power PCB, J102-4

J2 Switch & Light Connections [Lower Cabinet]

J2-1	BLK	GND to plumb bob tilt, then start button
J2-2	BLK	GND to coin door sw, then left flipper opto PCB, J11-4
J2-3	BLU-ORN	Upr right flip sw (Sw 71) monitor line, right flipper opto PCB, J11-2
J2-4	BLU-RED	Upr left flip sw (Sw 70) monitor line, left flipper opto PCB, J11-2
J2-5	BLU-VIO	Lwr right flip sw (Sw 69) monitor line, right flipper opto PCB, J11-1
J2-6	BLU-GRY	Lwr left flip sw (Sw 68) monitor line, left flipper opto PCB, J11-1
J2-7	WHT-BRN	Coin door sw monitor line (Sw 67)
J2-8	WHT-YEL	Plumb bob tilt monitor line (Sw 66)
J2-9	Not used	
J2-10	WHT-ORN	Start button monitor line (Sw 65)
J2-11	YEL	+12VDC to right flipper opto PCB, J11-6
J2-12	ORN-WHT	Start button light ctrl line (CL01)
J2-13	Not used	
J2-14	Not used	

J3 Switch & Light Connections [Coin Door & Lower Cabinet]

J3-1	BLK	GND to DBV conn, P8, then coin door conn, P3
J3-2	BLK	GND to cabinet slam tilt sw, then coin door conn, P12
J3-3	GRY-BRN	Enter btn (Sw 79) monitor line, through coin door conn, P11
J3-4	GRY-RED	+ btn (Sw 78) monitor line, through coin door conn, P9
J3-5	GRY-ORN	- btn (Sw 77) monitor line, through coin door conn, P8
J3-6	GRY-GRN	Back btn (Sw 76) monitor line, through coin door conn, P7
J3-7	GRN-BLK	Cab slam tilt sw (Sw 75) monitor line, then coin door conn, P13
J3-8	Not used	
J3-9	GRY-BLU	Right coin sw (Sw 74) monitor line, through coin door conn, P6
J3-10	BRN	DBV sw (Sw 73) monitor line, DBV conn, P7, then coin door conn, P5
J3-11	GRY-VIO	Left coin sw (Sw 72) monitor line, through coin door conn, P4
J3-12	YEL	+12VDC to start btn, then left flipper opto PCB, J11-6
J3-13	YEL-WHT	Coin door coin entry/ Pulp Fiction PCB lights ctrl line (CL00)
J3-14	BLK	GND to right flipper opto PCB, J11-4

J4 Blights 00-11 Connections [Backbox Insert Door]

J4-1	WHT-RED	Ctrl line to BL01 , Mia LED PCB, J1-3
J4-2	WHT-ORN	Ctrl line to BL02 , Jules LED PCB, J1-3
J4-3	WHT-YEL	Ctrl line to BL03 , Vince LED PCB, J1-3
J4-4	WHT-GRN	Ctrl line to BL04 , Mr. Wolf LED PCB, J1-3
J4-5	YEL	+12VDC to Jules, Butch, Marsellus, Mia, Jimmie, Mr. Wolf, Vince LED PCBs, J1-1
J4-6	YEL	+12VDC to cab light box conn, P1, then Match, Tilt!, Game Over LED PCBs, J1-1
J4-7	WHT-BLU	Ctrl line to BL00 , Jimmie LED PCB, J1-3
J4-8	Not used	
J4-9	BLU-RED	Ctrl line to BL05 , Jules sculpture overhead flasher, via cab light box conn, P4
J4-10	WHT-VIO	Ctrl line to BL06, Match LED PCB, J1-3
J4-11	WHT-BRN	Ctrl line to BL07 , Marsellus LED PCB, J1-3
J4-12	WHT-BLK	Ctrl line to BL08 , Butch LED PCB, J1-3
J4-13	BLU-BLK	Ctrl line to BL09 , Vince sculpture overhead flasher, via cab light box conn, P2
J4-14	GRY-RED	Ctrl line to BL10, Game Over LED PCBs (2), J1-3
J4-15	GRY-ORN	Ctrl line to BL11, Tilt! LED PCB, J1-3
J4-16	Not used	GND

J5 Ethernet Comms [Game Set Bd MA (Playfield)]

2m CAT5 ethernet cable to/from **MA** PCB, J2

J6 Speaker Connections [Backbox Neck & Lower Cabinet]

J6-1	Not used	
J6-2	BRN-RED	Subwoofer drive + (bottom of lower cabinet)
J6-3	BRN-BLK	Subwoofer drive - (bottom of lower cabinet)
J6-4	GRY-BLK	Mid-Range/Tweeter drive - (backbox neck), through speakers conn, P3
J6-5	GRY	Mid-Range drive + (not used), through speakers conn, P2
J6-6	GRY-YEL	Tweeter drive + (backbox neck), through speakers conn, P1

J7 Watchdog Monitor Connection [Game Set Bd MA (Playfield)]

J7-1	BLU	Reset signal to MA PCB, PA98-1
J7-2	BLK	GND to MA PCB, PA98-2
J7-3	BLK	GND to MA PCB, PA98-3
J7-4	VIO	Watchdog signal from MA PCB, PA98-4

J8 Backglass GI Strings, BLight 16 Connections [Backbox Insert Door]

J8-1	YEL	+12VDC to player 3^{UP} LED PCB, J1-S1, lower backglass GI PCBs, J1-1 (8 PCBs, wired in parallel), Timer LED PCB, J1-S1, & player 4^{UP} LED PCB, J1-S1
J8-2	YEL	+12VDC to player 1^{UP} LED PCB, J1-S1, upper backglass GI PCBs, J1-1 (6 PCBs, wired in parallel), player 2^{UP} LED PCB, J1-S1
J8-3	BLK-RED	Ctrl line to BL16, Timer LED PCB, J1-S3
J8-4	BLK-GRY	Ctrl line to BL17 , upper backglass GI LED PCBs, J1-3 (6 PCBs, wired in parallel)
J8-5	BLK-WHT	Ctrl line to BL18 , lower backglass GI LED PCBs, J1-3 (8 PCBs, wired in parallel)
J8-6	Not used	
J8-7	Not used	
J8-8	Not used	
J8-9	Not used	
J8-10	Not used	

J9 Knock [Not Used]

J10 Programming Header [Not Used]

J11 Power Out [Not Used]

J12 Ethernet Comms [Backbox Bds]

CAT5 ethernet splitter, then 1/2m cables to/from Solenoid Power PCB, J107, Credit/BiP Display PCB, J1, Topper3 PCB, J15 (LE only)

J13 Serial Connection [Not Used]

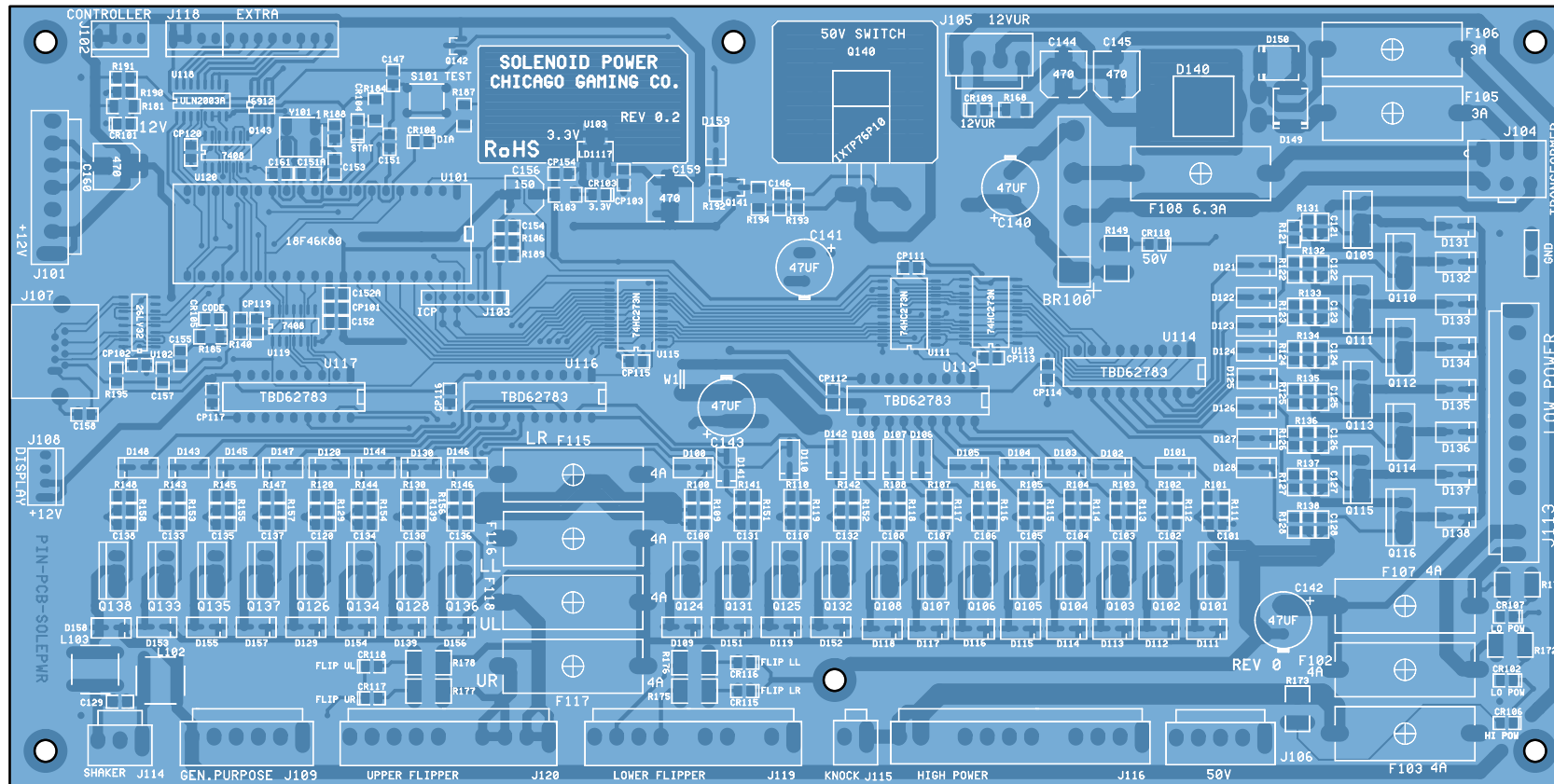
P8, P9 MCU I/O Connections [Beagle Bone MCU]

GND Ground [Not Used]

JP1, JP2, JP3 Functionality Select Jumpers [Installed As Shown]

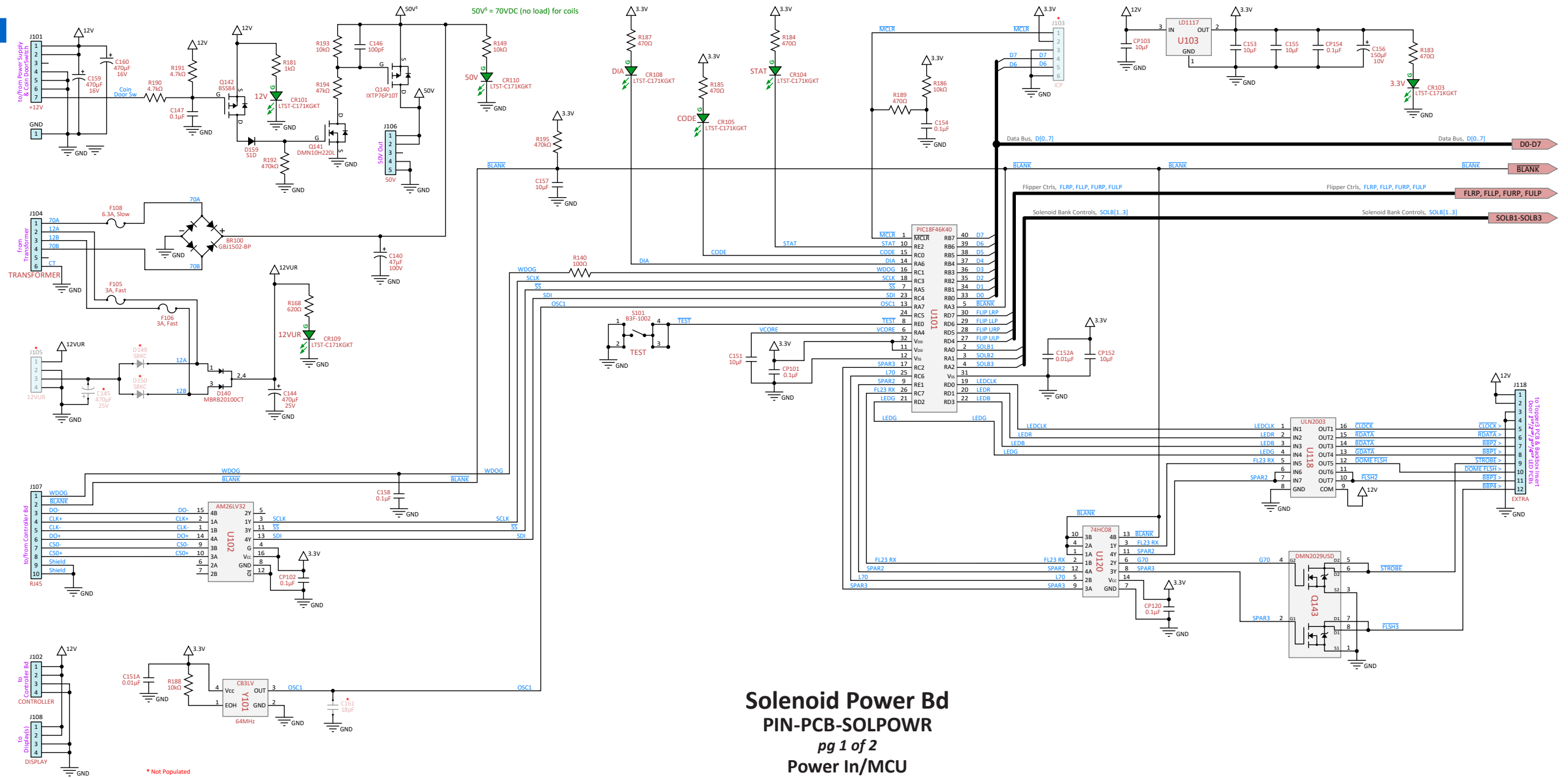
JP1/JP2/JP3 jumper PN: 000-CTR-0100JMP

Solenoid Power Bd PIN-PCB-SOLPOWR



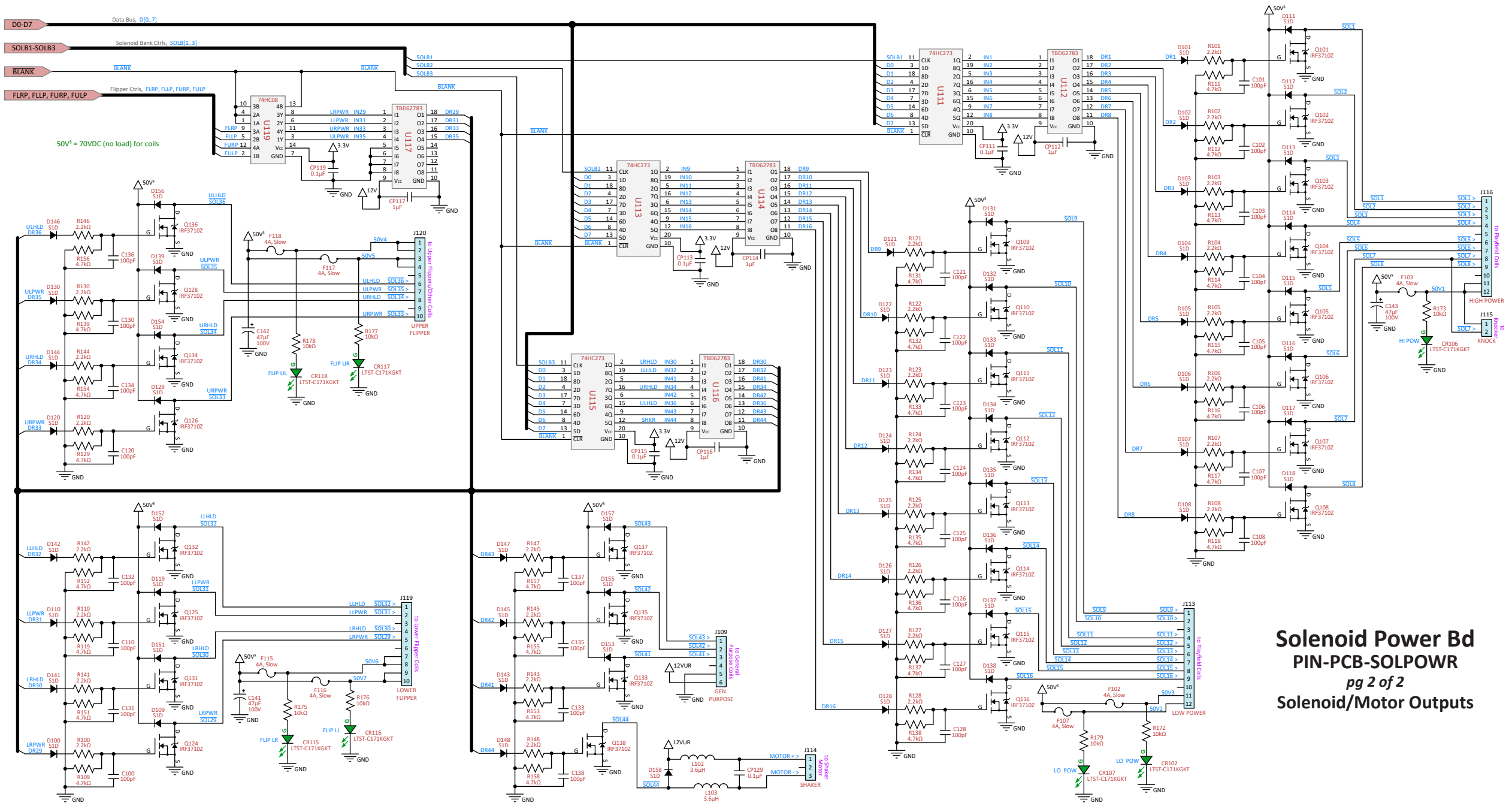
Component(s)	Description	Component(s)	Description
BR100	Bridge Rectifier, 1 Phase, 200V, 15A, Through Hole GBJ	C156	Capacitor, Elect, Radial SMD, 150µF, 10V, 20%
CP101, CP102, CP111, CP113, CP115, CP119, CP120, CP154, C129, C147, C154, C158	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, 10%	C161	Not Populated
CP103, C151-C153, C155, C157	Capacitor, MLCC, 0805 SMD, 10µF, 16V, 10%	CR101-CR110, CR115-CR118	LED, 0805 SMD, Green, 571nm, 2V
CP112, CP114, CP116, CP117	Capacitor, MLCC, 0805 SMD, 1µF, 25V, 10%	D100-D139, D141-D148, D151-D159	Diode, GP, DO-214AC SMA, 200V, 1A
C100-C108, C110, C120-C128, C130-C138, C146	Capacitor, MLCC, 0805 SMD, 100pF, 100V, 10%	D140	Diode Array, 1 Pair, Schottky, D ² Pak SMD, 100V, 20A
C140-C143	Capacitor, Elect, Radial, 47µF, 100V, 20%	D149, D150	Not Populated
C159, C160	Capacitor, Elect, Radial SMD, 470µF, 16V, 20%	F102, F103, F107, F115-F118	Fuse, Time Delay, 4A, 250V, 5mm x 20mm
C144	Capacitor, Elect, Radial SMD, 470µF, 25V, 20%	F105, F106	Fuse, Fast, 3A, 250V, 5mm x 20mm
C145	Not Populated	F108	Fuse, Time Delay, 6.3A, 250V, 5mm x 20mm
C151A, C152A	Capacitor, MLCC, 0805 SMD, 0.01µF, 16V, 10%	GND	Quick Connect Male, Through Hole, 1/4"
		L101, L102	Inductor, SMD, 3.6µH, 4.9A, 22mΩ, 30%
		Q101-Q116, Q124-Q126, Q128, Q131-Q138	MOSFET, TO-220-3, N-Ch, 100V, 59A

Component(s)	Description
Q140	MOSFET, TO-220-3, P-Ch, 100V, 76A
Q141	MOSFET, SOT-23-3 SMD, N-Ch, 100V, 1.4A
Q142	MOSFET, SOT-23 SMD, P-Ch, 50V, 130mA
Q143	MOSFET Array, 8-SOIC SMD, 2N-Ch, 20V, 5.8A
Q3	MOSFET, SOT-23F SMD, P-Ch, 20V, 6A
R100-R108, R110, R120-R128, R130, R141-R148 R100, R111-R119, R129, R131-R139, R151-R158, R190, R191	Resistor, 0805 SMD, 2.2kΩ, 0.125W, 5%
R140	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R149, R172, R173, R175-R179	Resistor, 0805 SMD, 100Ω, 0.125W, 5%
R168	Resistor, 2512 SMD, 10kΩ, 1W, 5%
R181	Resistor, 1206 SMD, 620Ω, 0.25W, 5%
R183-R185, R187	Resistor, 1206 SMD, 1kΩ, 0.25W, 5%
R186, R188, R193	Resistor, 1206 SMD, 470Ω, 0.25W, 5%
R189	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%
R192, R195	Resistor, 0805 SMD, 470Ω, 0.125W, 5%
R194	Resistor, 0805 SMD, 470kΩ, 0.125W, 5%
S101	Resistor, 1206 SMD, 47kΩ, 0.125W, 5%
U101	Switch, Tactile, SPST-NO, 50mA, 24VDC
U102	PIC, Microcontroller, 8-Bit, 64MHz, 64K, 40-PDIP
U103	IC, 0/4 Receiver, RS422/RS485, 16-SOIC SMD
U111, U113, U115	Voltage Reg, Fixed, 3.3V, 800mA, SOT-223 SMD
U112, U114, U116, U117	IC, Flip Flop, D-Type, 8 Bit, 20-SOIC SMD
U118	Power Switch/Drvr, 1:1, P-Ch, 500mA, 18-DIP
U119, U120	Power Switch/Drvr, 1:1, 7NPN, 16-SOIC SMD
Y101	IC, AND Gate, 4-Ch, 2-Inp, 14-TSSOP SMD
J101	Crystal, 64MHz, HCMOS, 4-SMD, 3.3V
J102, J108	Hdr w/Friction Lock, Male, 7-Pin, 3.96mm
J103, J105	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm
J104	Not Populated
J106	Hdr w/Locking Ramp, Male, 2 Rows, 6-Pin, 4.20mm
J107	Hdr w/Friction Lock, Male, 5-Pin, 3.96mm
J109	RJ45/Ethernet Jack, Through Hole, 8P8C, Shielded, Rt Angle
J113, J116	Hdr w/Friction Lock, Male, 6-Pin, 3.96mm
J114	Hdr w/Friction Lock, Male, 12-Pin, 3.96mm
J115	Hdr w/Friction Lock, Male, 3-Pin, 3.96mm
J118	Hdr w/Friction Lock, Male, 2-Pin, 3.96mm
J119, J120	Hdr w/Friction Lock, Male, 12-Pin, 2.54mm
	Hdr w/Friction Lock, Male, 10-Pin, 3.96mm

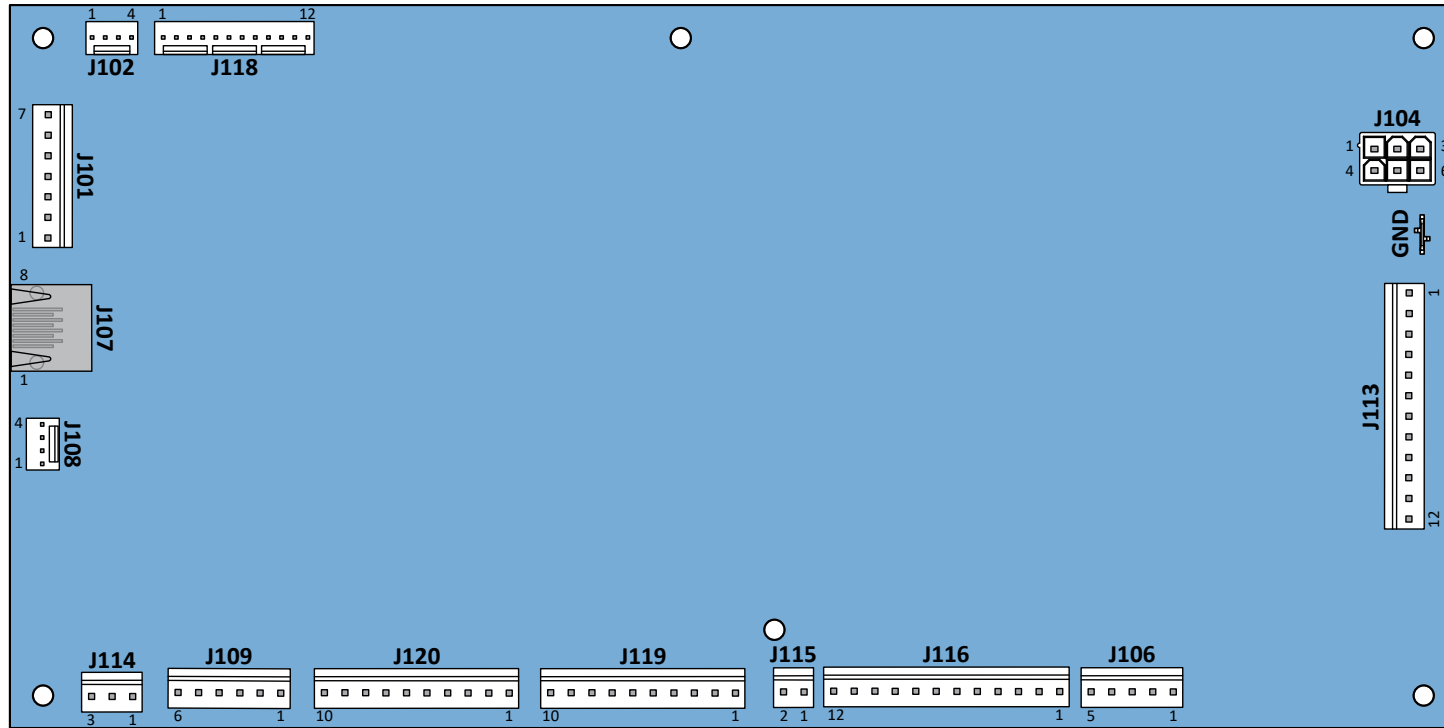


Solenoid Power Bd
PIN-PCB-SOLPOWR
 pg 1 of 2
 Power In/MCU

* Not Populated



Solenoid Power Bd
PIN-PCB-SOLPOWR
 pg 2 of 2
Solenoid/Motor Outputs



Solenoid Power Bd
PIN-PCB-SOLPOWR
Connector Pin-outs

J101 DC Power In [Switching Power Supply/Coin Door Switch]

J101-1	YEL	+12VDC from power supply
J101-2	YEL	+12VDC from power supply
J101-3	Not used	
J101-4	BLK	GND from power supply
J101-5	BLK	GND from power supply
J101-6	BLK	GND from power supply
J101-7	VIO	Coin door high power sw monitor line

J102 Controller Power Out [Pinball Controller Bd]

J102-1	YEL	+12VDC to Pinball Controller PCB, J1-1
J102-2	YEL	+12VDC to Pinball Controller PCB, J1-2
J102-3	BLK	GND to Pinball Controller PCB, J1-3
J102-4	BLK	GND to Pinball Controller PCB, J1-4

J103 IC Programming Header [Not Used]

J104 Transformer (AC) In [Transformer]

J104-1	BLK-YEL	55VAC from transformer secondary	across
J104-2	BLU-WHT	24VAC from transformer secondary	
J104-3	BLU-WHT	24VAC from transformer secondary	
J104-4	BLK-RED	55VAC from transformer secondary	
J104-5	Not used		
J104-6	BLU	Transformer, center tap	

J105 12V, Unregulated Out [Not Used]

J106 50V Out [Not Used]

J107 Ethernet Comms [Pinball Controller Bd]

1/2m CAT5 ethernet cable to/from Pinball Controller PCB, J12, through backbox splitter

J108 Display Power Out [Credit/BiP Display Bd]

J108-1	YEL	+12VDC to Credit/BiP Display PCB, J2-1
J108-2	Not used	+12VDC
J108-3	Not used	GND
J108-4	BLK	GND to Credit/BiP Display PCB, J2-4

J109 General Purpose Coils [Not Used]

J113 Low Power Coils [Playfield Solenoids]

J113-1	BRN-BLK	Roll Scene saucer eject trigger (Coil 9)
J113-2	BRN-RED	Right slingshot trigger (Coil 10)
J113-3	Not used	
J113-4	BRN-ORN	Ball auto-launch trigger (Coil 11)
J113-5	BRN-YEL	Ball trough popper trigger (Coil 12)
J113-6	BRN-GRN	Briefcase (back panel) ball lock release trigger (Coil 13)
J113-7	BRN-BLU	3-bank drop target reset trigger (Coil 14)
J113-8	BRN-VIO	Starts Character saucer eject trigger (Coil 15)
J113-9	BRN-WHT	Drop target (right) reset trigger (Coil 16)
J113-10	Not used	
J113-11	ORN-GRN	+70VDC (low power) to coils 10-14
J113-12	ORN-VIO	+70VDC (low power) to coils 9, 15 & 16

J114 Shaker Motor [Cabinet Shaker Motor - LE only]

J114-1	YEL-ORN	Shaker motor + (source, unregulated +12VDC) (Coil 44)
J114-2	Not used	
J114-3	BLU	Shaker motor - (trigger)

J115 Knocker Coil [Backbox Knocker]

J115-1	ORN	+70VDC (high power) to coil 7
J115-2	BLU	Knocker trigger (Coil 7)

J116 High Power Coils [Playfield Solenoids]

J116-1	VIO-WHT	Left slingshot trigger (Coil 1)
J116-2	VIO-RED	Briefcase ball lock load popper trigger (Coil 2)
J116-3	VIO-ORN	Drop target (left, bottom) reset trigger (Coil 3)
J116-4	VIO-YEL	Drop target (left, center) reset trigger (Coil 4)
J116-5	Not used	
J116-6	VIO-GRN	Drop target (left, top) reset trigger (Coil 5)
J116-7	VIO-BLU	Pawn Shop (subway) ball lock release trigger (Coil 6)
J116-8	Not used	
J116-9	VIO-BLK	Pawn Shop (subway) return popper trigger (Coil 8)
J116-10	Not used	
J116-11	ORN-WHT	+70VDC (high power) to coils 1, 6 & 8
J116-12	ORN-BLK	+70VDC (high power) to coils 2-5

J118 Extra Backbox Connections [Topper3 Bd & Backglass Player Up Lights]

J118-1	Not used	+12VDC
J118-2	YEL	+12VDC to Topper3 PCB, J9-1 (LE only)
J118-3	BLK	GND to Topper3 PCB, J9-2 (LE only)
J118-4	Not used	GND
J118-5	Not used	
J118-6	Not used	
J118-7	GRY-GRN	Ctrl line to BL13 , player 2^{UP} backbox LED PCB, J1-S3
J118-8	GRY-YEL	Ctrl line to BL12 , player 1^{UP} backbox LED PCB, J1-S3
J118-9	Not used	
J118-10	Not used	
J118-11	GRY-BLU	Ctrl line to BL14 , player 3^{UP} backbox LED PCB, J1-S3
J118-12	GRY-VIO	Ctrl line to BL15 , player 4^{UP} backbox LED PCB, J1-S3

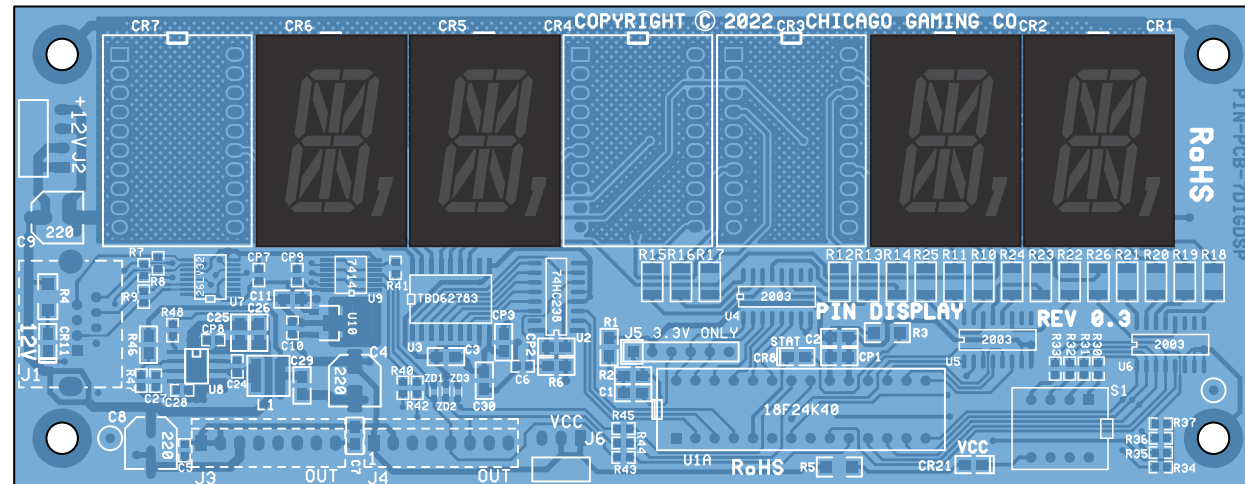
J119 Lower Flipper Coils [Flipper Solenoids]

J119-1	GRY-WHT	Left flipper hold trigger (Coil 32)
J119-2	GRY-YEL	Left flipper power trigger (Coil 31)
J119-3	Not used	
J119-4	GRY-BLK	Right flipper hold trigger (Coil 30)
J119-5	GRY-RED	Right flipper power trigger (Coil 29)
J119-6	Not used	
J119-7	ORN-RED	+70VDC (flipper LR) to right flipper coils 29 & 30
J119-8	ORN-RED	+70VDC (flipper LR) jumped to J119-7 above
J119-9	ORN-YEL	+70VDC (flipper LL) to left flipper coils 31 & 32
J119-10	ORN-YEL	+70VDC (flipper LL) jumped to J119-9 above

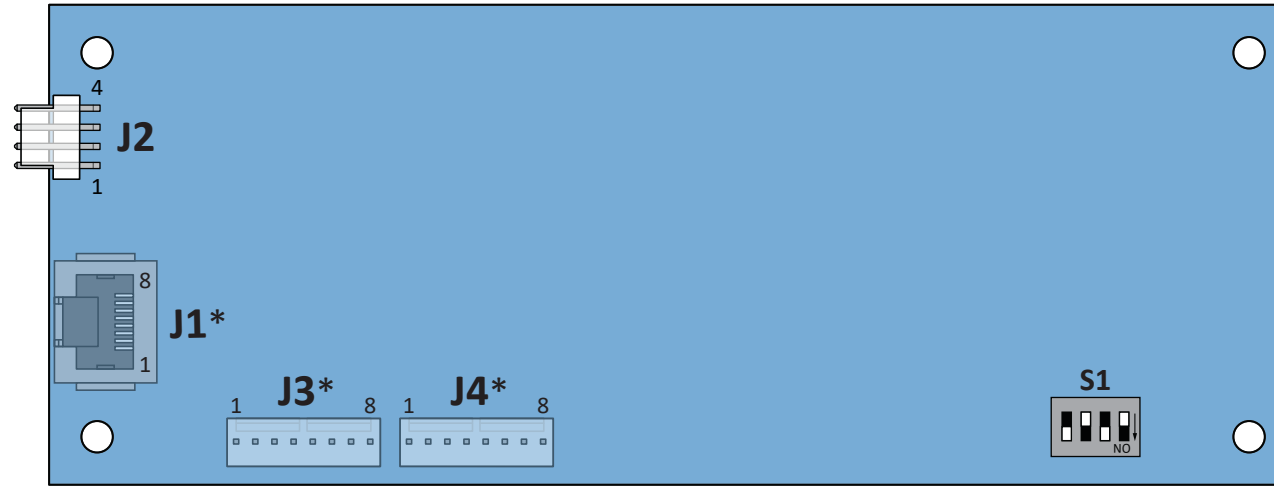
J120 Upper Flipper/Other Coils [Playfield Solenoids]

J120-1	ORN-BRN	+70VDC (flipper UL) jumped to J120-2 below
J120-2	ORN-BRN	+70VDC (flipper UL) to coil 33
J120-3	ORN-BLU	+70VDC (flipper UR) jumped to J120-4 below
J120-4	ORN-BLU	+70VDC (flipper UR) to coils 34-36
J120-5	Not used	
J120-6	GRY-GRN	Left jet bumper trigger (Coil 36)
J120-7	GRY-BRN	Center jet bumper trigger (Coil 35)
J120-8	GRY-ORN	Right jet bumper trigger (Coil 34)
J120-9	Not used	
J120-10	GRY-BLU	Bullseye (gun) magnet trigger (Coil 33)

Credit/BIp Display Bd PIN-PCB-4DIGDSP (w/17-Segment Digits Installed)



Component(s)	Description	Component(s)	Description
C1, C7, CP1-CP3	Capacitor, MLCC, 0805 SMD, 0.1μF, 25V, 10%	R34-R37	Resistor, 0603 SMD, 2kΩ, 0.125W, 5%
C10, C24, CP7-CP9	Capacitor, MLCC, 0603 SMD, 0.1μF, 25V, 10%	R40-R42	Resistor, 0603 SMD, 68Ω, 0.125W, 5%
C2, C3, C11	Capacitor, MLCC, 0805 SMD, 10μF, 25V, 10%	R43-R45	Resistor, 0603 SMD, 10Ω, 0.125W, 5%
C4, C8, C9	Capacitor, Elect, Radial SMD, 220μF, 16V, 20%	R46	Resistor, 0805 SMD, 124kΩ, 0.125W, 1%
C5, C6	Capacitor, MLCC, 0603 SMD, 1μF, 25V, 10%	R47	Resistor, 0603 SMD, 22.1kΩ, 0.125W, 1%
C25, C26	Capacitor, MLCC, 0805 SMD, 10μF, 16V, 10%	R48	Resistor, 0603 SMD, 10kΩ, 0.125W, 1%
C27	Capacitor, MLCC, 0603 SMD, 1μF, 16V, 10%	S1	DIP Switch Bank, 4-Pos, SPST, Through Hole, 2.54mm
C28	Capacitor, MLCC, 0603 SMD, 8200pF, 25V	U1	PIC, Microcontroller, 8-bit, 64MHz, 64K, 28-SPDIP
C29, C30	Capacitor, MLCC, 0805 SMD, 22μF, 16V, 10%	U2	IC, Decoder/Demultiplexer, 3:8, 16-SOIC SMD
CR1, CR2, CR5, CR6	17-Seg LED Display Module, Common Cathode	U3	Power Switch/Drv, 1:1, P-Ch, 500mA, 18-SOIC SMD
CR3, CR4, CR7	Not Populated	U4-U6	Power Switch/Drv, 1:1, 7NPN, 16-SOIC SMD
CR8, CR11, CR21	LED, 0805 SMD, Green, 571nm, 2V	U7	IC, RS-422 Interface, SSOP-16 SMD
L1	Inductor, SMD, 4.7μH, 5.9A, 40mΩ, 20%	U8	Volt Reg, Adj, SO-PowerPad-8 SMD, 4.5-18V, 4A
R1, R6	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%	U9	IC, Hex CMOS Schm Trig Inverter, SOIC-14 SMD
R2	Resistor, 0805 SMD, 330Ω, 0.125W, 5%	U10	Voltage Reg, Fixed, 3.3V, 100mA, SOT-89-3 SMD
R3	Resistor, 1206 SMD, 620Ω, 0.25W, 5%	ZD1-ZD3	Diode, TVS, SOD-923 SMD, 5.5VWVM, 20VC
R4	Resistor, 1206 SMD, 1.2kΩ, 0.25W, 5%	J1	RJ45/Ethernet Jack, Through Hole, 8P8C, Shielded
R5	Resistor, 1206 SMD, 560Ω, 0.25W, 5%	J2	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm, Rt Angle
R7-R9	Not Populated	J3, J4	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm
R10-R26	Resistor, 1210 SMD, 22Ω, 0.5W, 5%	J5, J6	Not Populated
R30-R33	Resistor, 0603 SMD, 1.8kΩ, 0.125W, 5%		



*connector mounted on backside of board

Credit/BiP Display Bd

PIN-PCB-4DIGDSP

Connector Pin-outs

J1 Ethernet Comms [Pinball Controller Bd]

1m CAT6 ethernet cable to/from Pinball Controller PCB, J12, through backbox splitter

J2 DC Power In [Solenoid Power Bd]

J2-1	YEL	+12VDC from Solenoid Power PCB, J108-1
J2-2	Not used	
J2-3	Not used	
J2-4	BLK	GND from Solenoid Power PCB, J108-4

J3 Power/Comms [Player 3 7-Digit Display Bd]

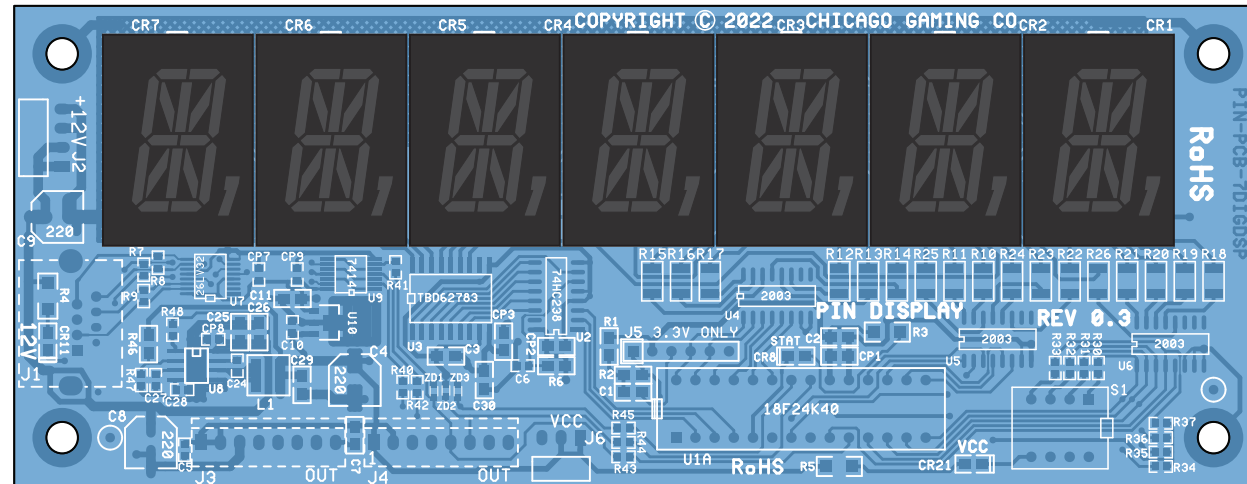
J3-1	YEL	+12VDC to Player 3 7-Digit Display PCB, J4-1
J3-2	YEL	+12VDC to Player 3 7-Digit Display PCB, J4-2
J3-3	BLK	GND to Player 3 7-Digit Display PCB, J4-3 (and cable shield)
J3-4	BLK	GND to Player 3 7-Digit Display PCB, J4-4
J3-5	BRN	Data/control line to Player 3 7-Digit Display PCB, J4-5
J3-6	BLU	Data/control line to Player 3 7-Digit Display PCB, J4-6
J3-7	VIO	Data/control line to Player 3 7-Digit Display PCB, J4-7
J3-8	Not used	GND

J4 Power/Comms [Player 4 7-Digit Display Bd]

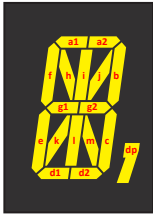
J4-1	YEL	+12VDC to Player 4 7-Digit Display PCB, J4-1
J4-2	YEL	+12VDC to Player 4 7-Digit Display PCB, J4-2
J4-3	BLK	GND to Player 4 7-Digit Display PCB, J4-3 (and cable shield)
J4-4	BLK	GND to Player 4 7-Digit Display PCB, J4-4
J4-5	BRN	Data/control line to Player 4 7-Digit Display PCB, J4-5
J4-6	BLU	Data/control line to Player 4 7-Digit Display PCB, J4-6
J4-7	VIO	Data/control line to Player 4 7-Digit Display PCB, J4-7
J4-8	Not used	GND

S1 Functionality Select DIP Switches [Set As Shown]

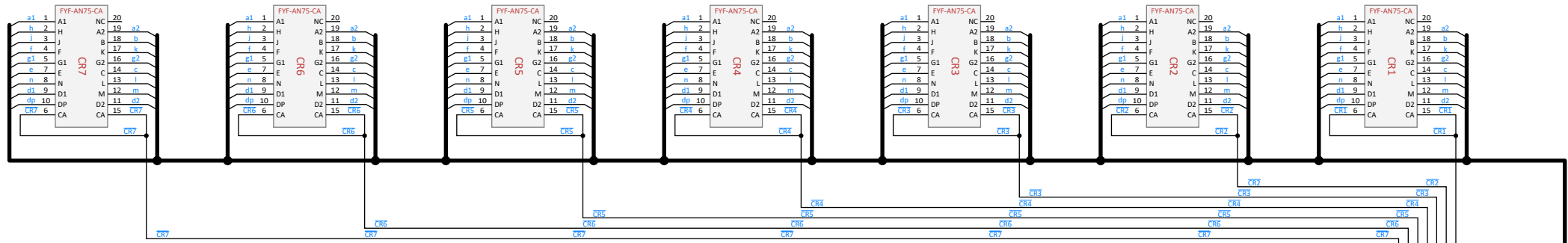
7-Digit Display Bd, 4 ea PIN-PCB-7DIGDSP (w/17-Segment Digits Installed)



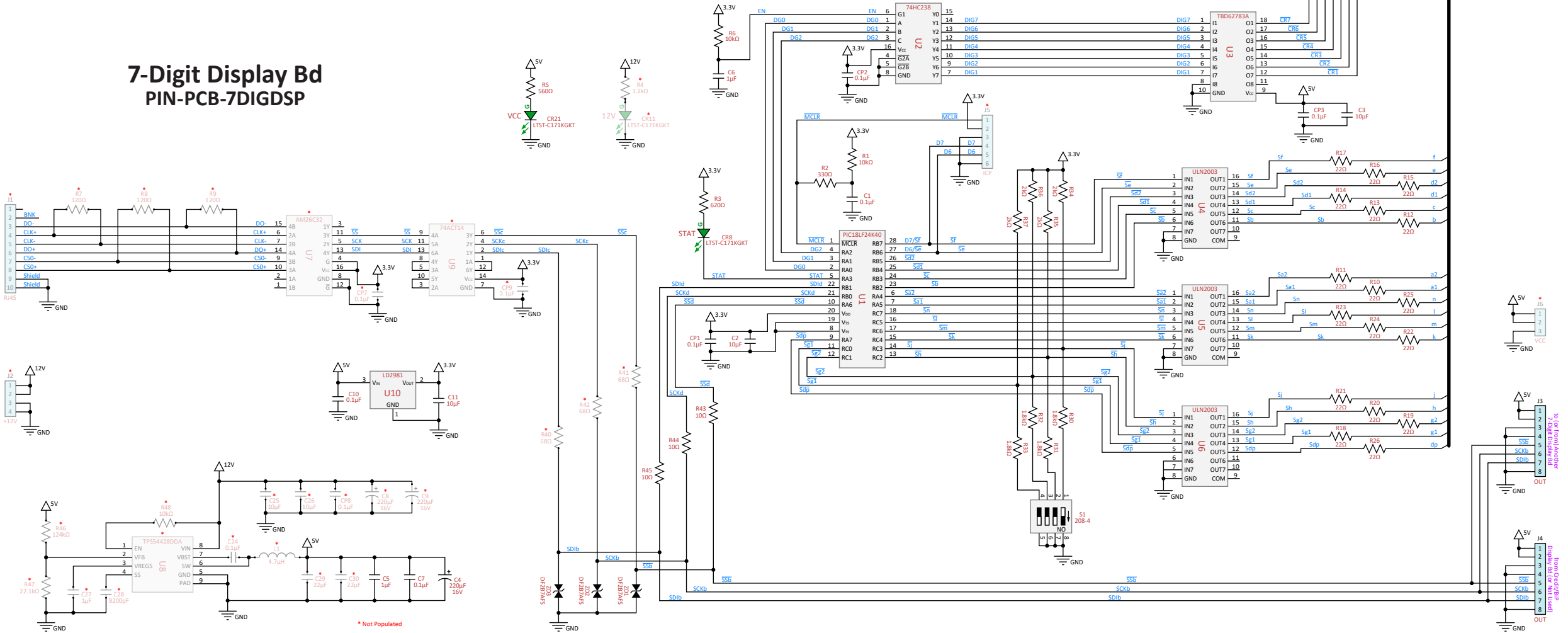
Component(s)	Description	Component(s)	Description
C1, C7, CP1-CP3	Capacitor, MLCC, 0805 SMD, 0.1μF, 25V, 10%	R10-R26	Resistor, 1210 SMD, 22Ω, 0.5W, 5%
C10	Capacitor, MLCC, 0603 SMD, 0.1μF, 25V, 10%	R30-R33	Resistor, 0603 SMD, 1.8kΩ, 0.125W, 5%
C2, C3, C11	Capacitor, MLCC, 0805 SMD, 10μF, 25V, 10%	R34-R37	Resistor, 0603 SMD, 2kΩ, 0.125W, 5%
C4	Capacitor, Elect, Radial SMD, 220μF, 16V, 20%	R40-R42	Resistor, 0603 SMD, 68Ω, 0.125W, 5%
C5, C6	Capacitor, MLCC, 0603 SMD, 1μF, 25V, 10%	R43-R45	Resistor, 0603 SMD, 10Ω, 0.125W, 5%
C8, C9, C24-C30, CP7-CP9	Not Populated	S1	DIP Switch Bank, 4-Pos, SPST, Through Hole, 2.54mm
CR1-CR7	17-Seg LED Display Module, Common Cathode	U1	PIC, Microcontroller, 8-bit, 64MHz, 64K, 28-SPDIP
CR8, CR21	LED, 0805 SMD, Green, 571nm, 2V	U2	IC, Decoder/Demultiplexer, 3:8, 16-SOIC SMD
CR11	Not Populated	U3	Power Switch/Drvr, 1:1, P-Ch, 500mA, 18-SOIC SMD
L1	Not Populated	U4-U6	Power Switch/Drvr, 1:1, 7NPN, 16-SOIC SMD
R1, R6	Resistor, 0805 SMD, 10kΩ, 0.125W, 5%	U7-U9	Not Populated
R2	Resistor, 0805 SMD, 330Ω, 0.125W, 5%	U10	Voltage Reg, Fixed, 3.3V, 100mA, SOT-89-3 SMD
R3	Resistor, 1206 SMD, 620Ω, 0.25W, 5%	ZD1-ZD3	Diode, TVS, SOD-923 SMD, 5.5VWMM, 20VC
R4, R7-R9, R46-R48	Not Populated	J1, J2, J5, J6	Not Populated
R5	Resistor, 1206 SMD, 560Ω, 0.25W, 5%	J3, J4	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm



Segment Designators



7-Digit Display Bd PIN-PCB-7DIGDSP



7-Digit Display Board

Display Board for 7-Digit Display

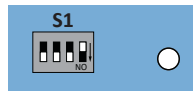
Player 1 Display:

J3 Power/Comms [Player 3 7-Digit Display Bd]

J3-1	YEL	+12VDC from Player 3 7-Digit Display PCB, J3-1
J3-2	YEL	+12VDC from Player 3 7-Digit Display PCB, J3-2
J3-3	BLK	GND from cable shield/ Player 3 7-Digit Display PCB, J3-3
J3-4	BLK	GND from Player 3 7-Digit Display PCB, J3-4
J3-5	BRN	Data/control line from Player 3 7-Digit Display PCB, J3-5
J3-6	BLU	Data/control line from Player 3 7-Digit Display PCB, J3-6
J3-7	VIO	Data/control line from Player 3 7-Digit Display PCB, J3-7
J3-8	Not used	GND

J4 Power/Comms [Not Used]

S1 Functionality Select DIP Switches [Set For Player 1]



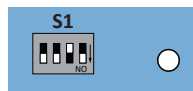
Player 2 Display:

J3 Power/Comms [Player 4 7-Digit Display Bd]

J3-1	YEL	+12VDC from Player 4 7-Digit Display PCB, J3-1
J3-2	YEL	+12VDC from Player 4 7-Digit Display PCB, J3-2
J3-3	BLK	GND from cable shield/ Player 4 7-Digit Display PCB, J3-3
J3-4	BLK	GND from Player 4 7-Digit Display PCB, J3-4
J3-5	BRN	Data/control line from Player 4 7-Digit Display PCB, J3-5
J3-6	BLU	Data/control line from Player 4 7-Digit Display PCB, J3-6
J3-7	VIO	Data/control line from Player 4 7-Digit Display PCB, J3-7
J3-8	Not used	GND

J4 Power/Comms [Not Used]

S1 Functionality Select DIP Switches [Set For Player 2]



Player 3 Display:

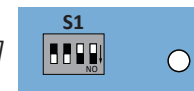
J3 Power/Comms [Player 1 7-Digit Display Bd]

J3-1	YEL	+12VDC to Player 1 7-Digit Display PCB, J3-1
J3-2	YEL	+12VDC to Player 1 7-Digit Display PCB, J3-2
J3-3	BLK	GND to cable shield/Player 1 7-Digit Display PCB, J3-3
J3-4	BLK	GND to Player 1 7-Digit Display PCB, J3-4
J3-5	BRN	Data/control line to Player 1 7-Digit Display PCB, J3-5
J3-6	BLU	Data/control line to Player 1 7-Digit Display PCB, J3-6
J3-7	VIO	Data/control line to Player 1 7-Digit Display PCB, J3-7
J3-8	Not used	GND

J4 Power/Comms [Credit/BiP Display Bd]

J4-1	YEL	+12VDC from Credit/BiP Display PCB, J3-1
J4-2	YEL	+12VDC from Credit/BiP Display PCB, J3-2
J4-3	BLK	GND from cable shield/ Credit/BiP Display PCB, J3-3
J4-4	BLK	GND from Credit/BiP Display PCB, J3-4
J4-5	BRN	Data/control line from Credit/BiP Display PCB, J3-5
J4-6	BLU	Data/control line from Credit/BiP Display PCB, J3-6
J4-7	VIO	Data/control line from Credit/BiP Display PCB, J3-7
J4-8	Not used	GND

S1 Functionality Select DIP Switches [Set For Player 3]



Player 4 Display:

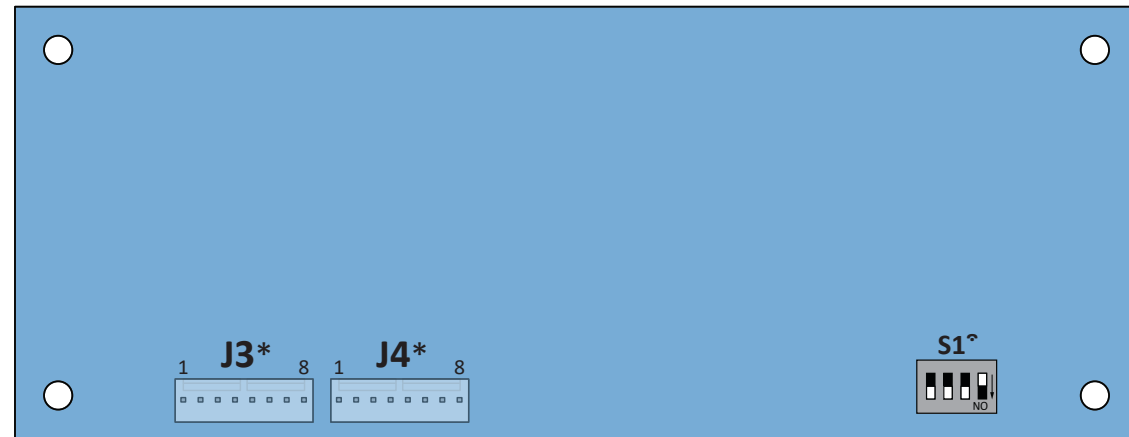
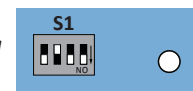
J3 Power/Comms [Player 2 7-Digit Display Bd]

J3-1	YEL	+12VDC to Player 2 7-Digit Display PCB, J3-1
J3-2	YEL	+12VDC to Player 2 7-Digit Display PCB, J3-2
J3-3	BLK	GND to cable shield/ Player 2 7-Digit Display PCB, J3-3
J3-4	BLK	GND to Player 2 7-Digit Display PCB, J3-4
J3-5	BRN	Data/control line to Player 2 7-Digit Display PCB, J3-5
J3-6	BLU	Data/control line to Player 2 7-Digit Display PCB, J3-6
J3-7	VIO	Data/control line to Player 2 7-Digit Display PCB, J3-7
J3-8	Not used	GND

J4 Power/Comms [Credit/BiP Display Bd]

J4-1	YEL	+12VDC from Credit/BiP Display PCB, J4-1
J4-2	YEL	+12VDC from Credit/BiP Display PCB, J4-2
J4-3	BLK	GND from cable shield/ Credit/BiP Display PCB, J4-3
J4-4	BLK	GND from Credit/BiP Display PCB, J4-4
J4-5	BRN	Data/control line from Credit/BiP Display PCB, J4-5
J4-6	BLU	Data/control line from Credit/BiP Display PCB, J4-6
J4-7	VIO	Data/control line from Credit/BiP Display PCB, J4-7
J4-8	Not used	GND

S1 Functionality Select DIP Switches [Set For Player 4]



*connector mounted on backside of board

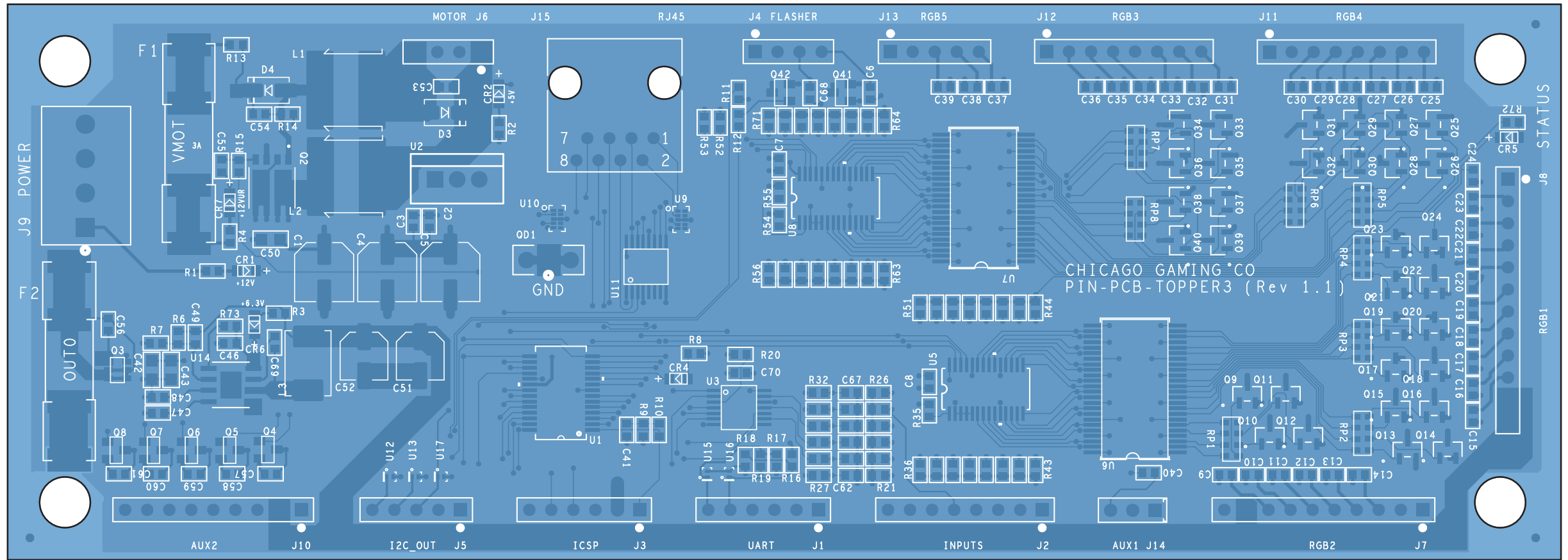
*set for Player 1 display

7-Digit Display Bd

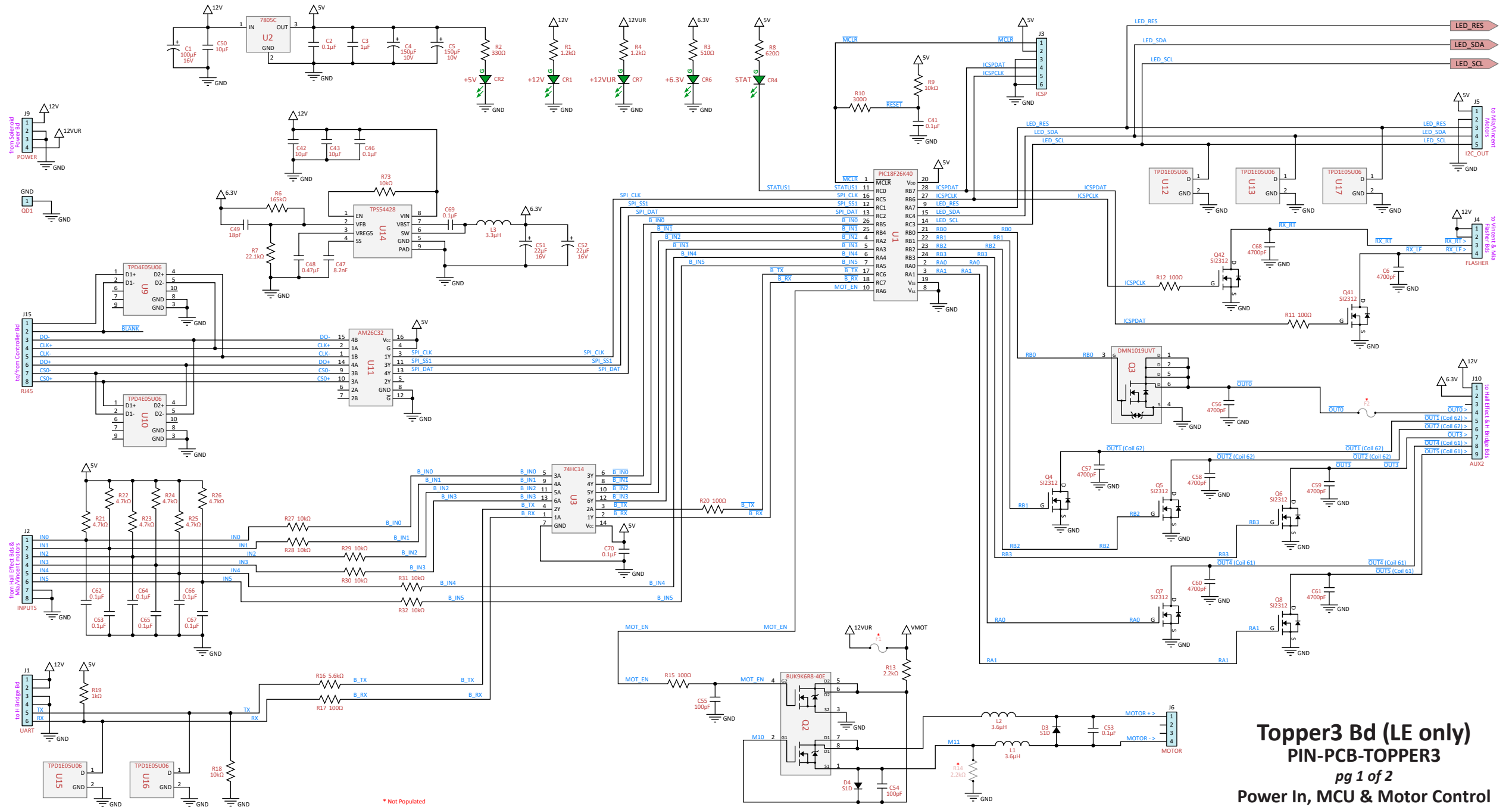
PIN-PCB-7DIGDSP

Connector Pin-outs

Topper3 Bd (LE only) PIN-PCB-TOPPER3

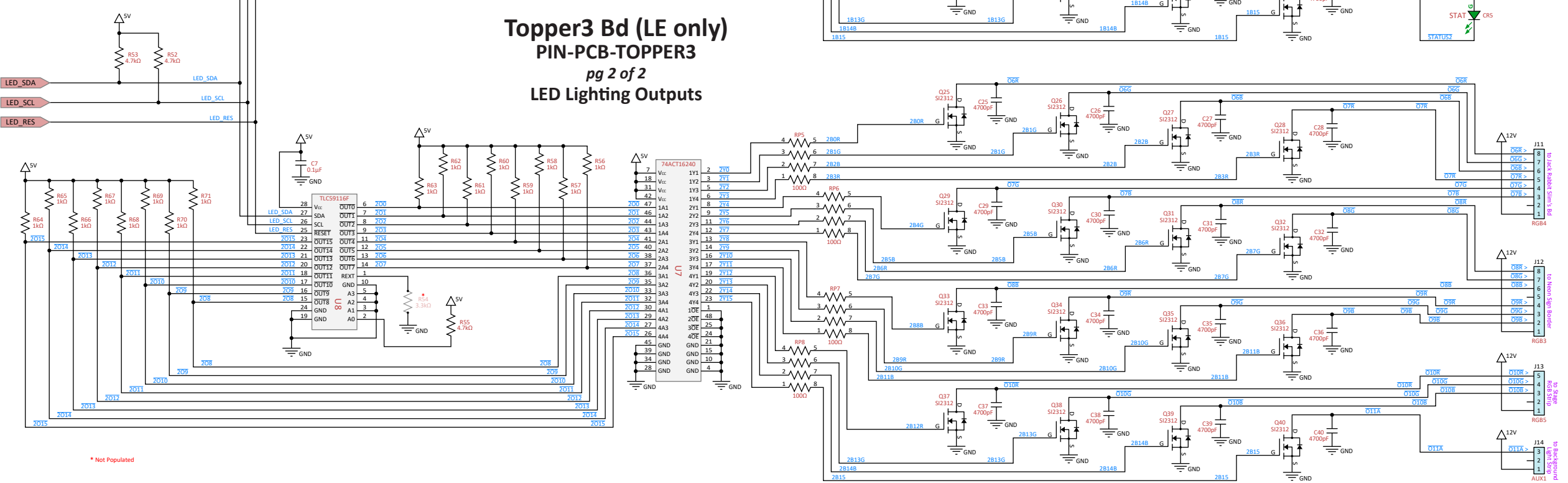
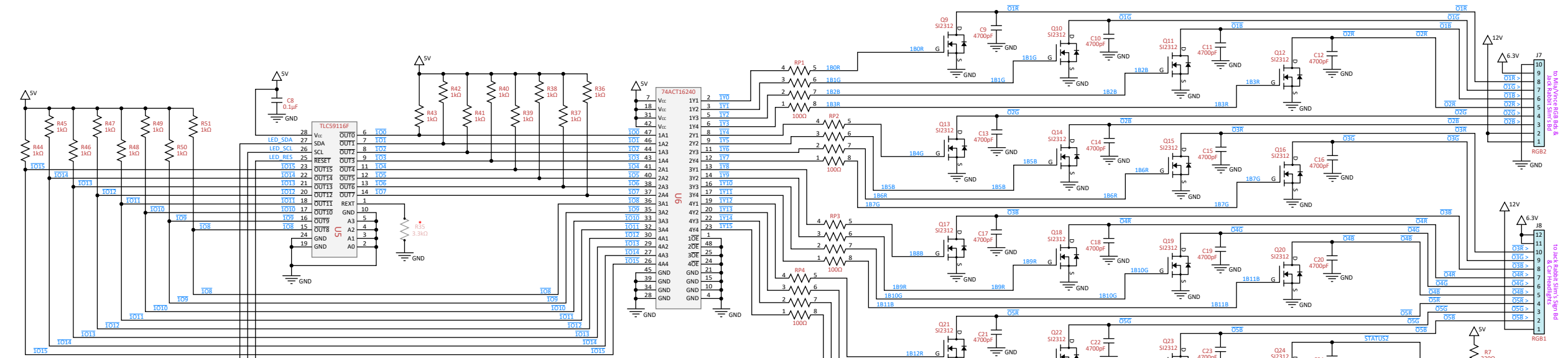


Component(s)	Description	Component(s)	Description
C1	Capacitor, Elect, Radial SMD, 100µF, 16V	R9, R18, R27-R32	Resistor, 0603 SMD, 10kΩ, 0.1W, 5%
C2, C41, C46, C53, C62-C67, C70	Capacitor, MLCC, 0603 SMD, 0.1µF, 25V	R11, R12, R15, R17, R20	Resistor, 0603 SMD, 100Ω, 0.1W, 1%
C3	Capacitor, MLCC, 0603 SMD, 1µF, 16V	R13	Resistor, 0603 SMD, 2.2kΩ, 0.1W, 5%
C4, C5	Capacitor, Elect, Radial SMD, 150µF, 10V	R14, R35, R54	Not Populated
C6, C9-C40, C56-C61, C68	Capacitor, MLCC, 0603 SMD, 4700pF	R16	Resistor, 0603 SMD, 5.6kΩ, 0.1W, 5%
C7, C8	Capacitor, MLCC, 0603 SMD, 0.1µF	R19, R36-R51, R56-R71, R73	Resistor, 0603 SMD, 1kΩ, 0.1W, 5%
C42, C43, C50	Capacitor, MLCC, 0805 SMD, 10µF, 16V	R21-R26, R52, R53, R55	Resistor, 0603 SMD, 4.7kΩ, 0.1W, 5%
C47	Capacitor, MLCC, 0603 SMD, 8.2nF, 25V	RP1-RP8	Resistor Pack, 4 x 100Ω
C48	Capacitor, MLCC, 0603 SMD, 0.47µF, 16V	U1	PIC, Microcontroller, 8-bit, 64MHz, 64K, SOIC-28 SMD
C49	Capacitor, MLCC, 0603 SMD, 18pF, 25V	U2	Volt Reg, 5V, 1A, TO-220
C51, C52	Capacitor, Elect, Radial SMD, 22µF, 16V	U3	IC, Hex CMOS Schm Trig Inverter, SOIC-14 SMD
C54, C55	Capacitor, MLCC, 0603 SMD, 100pF	U5, U8	IC, LED Driver, FM+ I2C Bus, TSSOP-28 SMD
C69	Capacitor, MLCC, 0603 SMD, 0.1µF, 25V	U6, U7	IC, 16 Output Tri-State Line Drvr, SSOP-48 SMD
CR1, CR2, CR4-CR7	LED, Green, 0805 SMD	U9, U10	IC, Quad TVS Diode, USON-10 SMD
D3, D4	Diode, GP, DO-214AC SMD, 200V, 1A	U11	IC, RS-422 Interface, SSOP-16 SMD
F1, F2	Not Populated	U12, U13, U15-U17	Diode, TVS, 2-X1SON SMD, 5.5VWVM, 14VC
L1, L2	Inductor, 3.6µH, 4.9A, SMD, 30%	U14	Volt Reg, Adj, SO-PowerPad-8 SMD, 4.5-18V, 4A
L3	Inductor, 3.3µH, 8A, SMD, 20%	J1	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm
Q2	MOSFET Array, SOT-1205 SMD, 2N-Ch, 40V, 40A	J2, J11, J12	Hdr w/Friction Lock, Male, 8-Pin, 2.54mm
Q3	MOSFET, TSOT-26-6 SMD, N-Ch, 12V, 10A	J3	Hdr, Male, 6-Pin, 2.54mm
Q4-Q42	MOSFET, SOT-23-3 SMD, N-Ch, 20V, 5A	J4, J6	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm
QD1	Quick Connect Male, Through Hole, 1/4"	J5, J13	Hdr w/Friction Lock, Male, 5-Pin, 2.54mm
R1, R4	Resistor, 0603 SMD, 1.2kΩ, 0.1W, 5%	J7	Hdr w/Friction Lock, Male, 10-Pin, 2.54mm
R2, R10, R72	Resistor, 0603 SMD, 330Ω, 0.1W, 5%	J8	Hdr w/Friction Lock, Male, 12-Pin, 2.54mm
R3	Resistor, 0603 SMD, 510Ω, 0.1W, 5%	J9	Hdr w/Friction Lock, Male, 4-Pin, 3.96mm
R6	Resistor, 0603 SMD, 165kΩ, 0.1W, 1%	J10	Hdr w/Friction Lock, Male, 9-Pin, 2.54mm
R7	Resistor, 0603 SMD, 22.1kΩ, 0.1W, 1%	J14	Hdr w/Friction Lock, Male, 3-Pin, 2.54mm
R8	Resistor, 0603 SMD, 620Ω, 0.1W, 5%	J15	Hdr, RJ45 Ethernet, Through Hole, Low Profile, Rt Angle



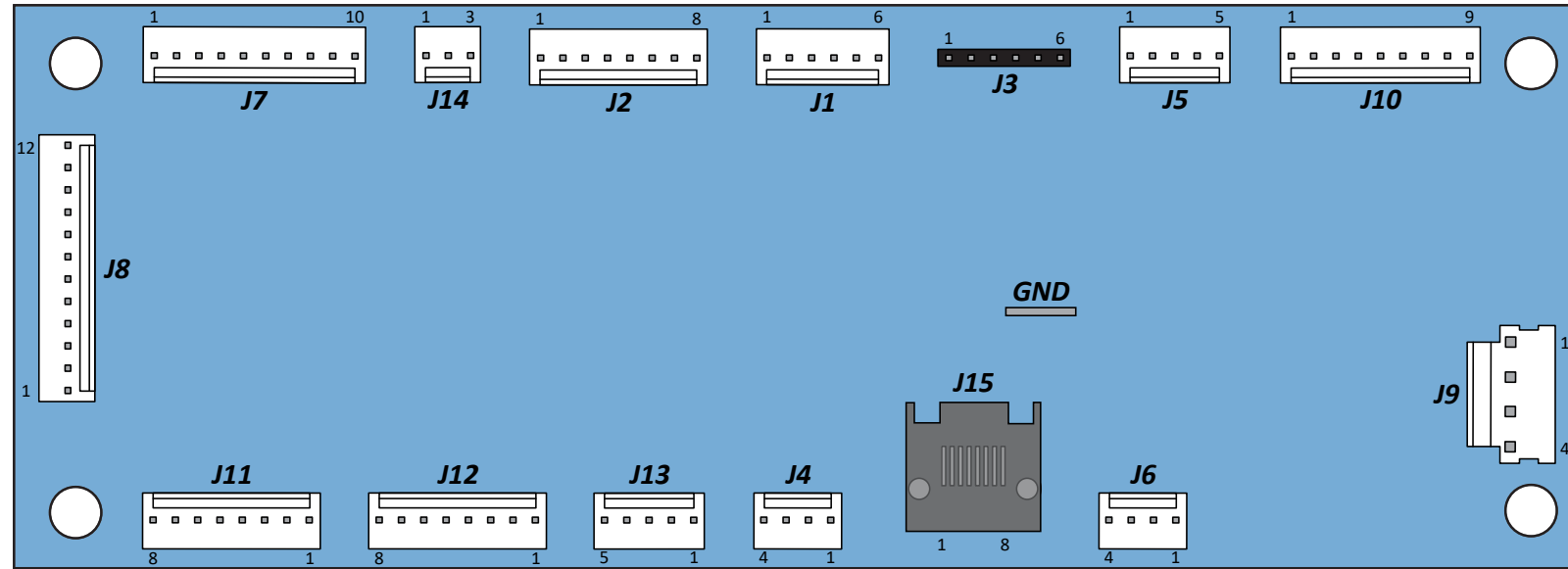
* Not Populated

Topper3 Bd (LE only)
PIN-PCB-TOPPER3
 pg 1 of 2
 Power In, MCU & Motor Control



Topper3 Bd (LE only)
PIN-PCB-TOPPER3
 pg 2 of 2
LED Lighting Outputs

* Not Populated



Topper3 Bd (LE only)

PIN-PCB-TOPPER3

Connector Pin-outs

J1 H Bridge Power [H Bridge Bd]

J1-1	YEL	+12VDC to H Bridge PCB, J1-1
J1-2	Not used	+12VDC
J1-3	BLK	GND to H Bridge PCB, J1-2
J1-4	Not used	GND
J1-5	Not used	
J1-6	Not used	

J2 Motor Control [Mia/Vince Motors & Hall Effect Bds]

J2-1	ORN	Vince motor A, Ribbon-5
J2-2	BLU	Vince motor B, Ribbon-6
J2-3	GRY	Mia motor A, Ribbon-5
J2-4	WHT	Mia motor B, Ribbon-6
J2-5	WHT-ORN	Vince sense from Vince Hall effect PCB, J1-3
J2-6	WHT-VIO	Mia sense from Mia Hall effect PCB, J1-3
J2-7	BLK	GND to Vince Hall effect PCB, J1-4
J2-8	BLK	GND to Mia Hall effect PCB, J1-4

J3 ICSP Interface [Not Used]

J4 TLights 17, 18 Connections [Mia/Vince Flasher Bds]

J4-1	YEL	+12VDC to Vince flasher PCB, + solder pad (S1)
J4-2	YEL	+12VDC to Mia flasher PCB, + solder pad (S1)
J4-3	BLU-RED	Ctrl line to TL17 , Vince flasher PCB, - solder pad (S3)
J4-4	BLU-BLK	Ctrl line to TL18 , Mia flasher PCB, - solder pad (S3)

J5 Motor Power [Mia/Vince Motors]

J5-1	RED	+5VDC to Mia/Vince motors, Ribbon-4
J5-2	BLK	GND to Mia/Vince motors, Ribbon-3
J5-3	Not used	
J5-4	Not used	
J5-5	Not used	

J6 Motor Interface [Not Used]

J7 TLights 00, 01 Connections [Mia/Vince RGB Accent Bds]

J7-1	YEL	+12VDC to Vince RGB PCB, 12V solder pad (S1)
J7-2	YEL	+12VDC to Mia RGB PCB, 12V solder pad (S1)
J7-3	BLU	Blue ctrl line to TL01 , Vince RGB PCB, B solder pad (S4)
J7-4	GRN	Green ctrl line to TL01 , Vince RGB PCB, G solder pad (S3)
J7-5	RED	Red ctrl line to TL01 , Vince RGB PCB, R solder pad (S2)
J7-6	BLU-WHT	Blue ctrl line to TL00 , Mia RGB PCB, B solder pad (S4)
J7-7	GRN-WHT	Green ctrl line to TL00 , Mia RGB PCB, G solder pad (S3)
J7-8	RED-WHT	Red ctrl line to TL00 , Mia RGB PCB, R solder pad (S2)
J7-9	Not used	+6.3VDC
J7-10	BLK	GND to Topper Sign LED PCB, J1-2

J8 TLights 02-09 Connections [Jack Rabbit Slim's Sign Bd & Car Lights]

J8-1	YEL	+12VDC to Jack Rabbit Slim's Sign PCB, J1-1
J8-2	RED-BLU	Ctrl line to TL09 , left car headlight PCBs (2), - solder pad (S2)
J8-3	RED-YEL	Ctrl line to TL08 , right car headlight PCBs (2), - solder pad (S2)
J8-4	Not used	
J8-5	GRY-BRN	Ctrl line to TL05 , Jack Rabbit Slim's Sign PCB, J1-5
J8-6	GRY-BLU	Ctrl line to TL06 , Jack Rabbit Slim's Sign PCB, J1-3
J8-7	GRY-GRN	Ctrl line to TL07 , Jack Rabbit Slim's Sign PCB, J1-4
J8-8	GRY-YEL	Ctrl line to TL02 , Jack Rabbit Slim's Sign PCB, J1-7
J8-9	GRY-ORN	Ctrl line to TL03 , Jack Rabbit Slim's Sign PCB, J1-8
J8-10	GRY-RED	Ctrl line to TL04 , Jack Rabbit Slim's Sign PCB, J1-9
J8-11	Not used	+6.3VDC
J8-12	WHT-RED	+6.3VDC to left & right car headlight PCBs (4), + solder pad (S1)

J9 DC Power In [Solenoid Power Bd]

J9-1	YEL	+12VDC from Solenoid Power PCB, J118-2
J9-2	BLK	GND from Solenoid Power PCB, J118-3
J9-3	Not used	GND
J9-4	Not used	

J10 Motor Controls [H Bridge & Hall Effect Bds]

J10-1	YEL	+12VDC to Vince Hall effect PCB, J1-1
J10-2	Not used	+6.3VDC
J10-3	Not used	
J10-4	Not used	
J10-5	WHT-BLU	Vince motor CW ctrl to H Bridge PCB, J1-4 (Coil 62)
J10-6	WHT-GRN	Vince motor CCW ctrl to H Bridge PCB, J1-3 (Coil 62)
J10-7	Not used	
J10-8	WHT-YEL	Mia motor CW ctrl to H Bridge PCB, J1-6 (Coil 61)
J10-9	WHT-RED	Mia motor CCW ctrl to H Bridge PCB, J1-5 (Coil 61)

J11 TLights 10-13 Connections [Jack Rabbit Slim's Sign Bd]

J11-1	Not used	+12VDC
J11-2	Not used	
J11-3	GRY	Ctrl line to TL13 , Jack Rabbit Slim's Sign PCB, J1-6
J11-4	GRY-BLK	Ctrl line to TL12 , Jack Rabbit Slim's Sign PCB, J1-10
J11-5	GRY-WHT	Ctrl line to TL11 , Jack Rabbit Slim's Sign PCB, J1-11
J11-6	Not used	
J11-7	GRY-VIO	Ctrl line to TL10 , Jack Rabbit Slim's Sign PCB, J1-12
J11-8	Not used	

J12 TLight 14 Connection [Neon Sign RGB Border Strip]

J12-1	YEL	+12VDC to neon sign RGB strip, 12V solder pad
J12-2	Not used	
J12-3	Not used	
J12-4	Not used	
J12-5	Not used	
J12-6	BLU	Blue ctrl line to TL14 , neon sign RGB strip, B solder pad
J12-7	GRN	Green ctrl line to TL14 , neon sign RGB strip, G solder pad
J12-8	RED	Red ctrl line to TL14 , neon sign RGB strip, R solder pad

J13 TLight 15 Connection [Stage RGB Border Strip]

J13-1	YEL	+12VDC to stage RGB strip, 12V solder pad
J13-2	Not used	
J13-3	BLU	Blue ctrl line to TL15 , stage RGB strip, B solder pad
J13-4	GRN	Green ctrl line to TL15 , stage RGB strip, G solder pad
J13-5	RED	Red ctrl line to TL15 , stage RGB strip, R solder pad

J14 TLight 16 Connection [Background Light Strip]

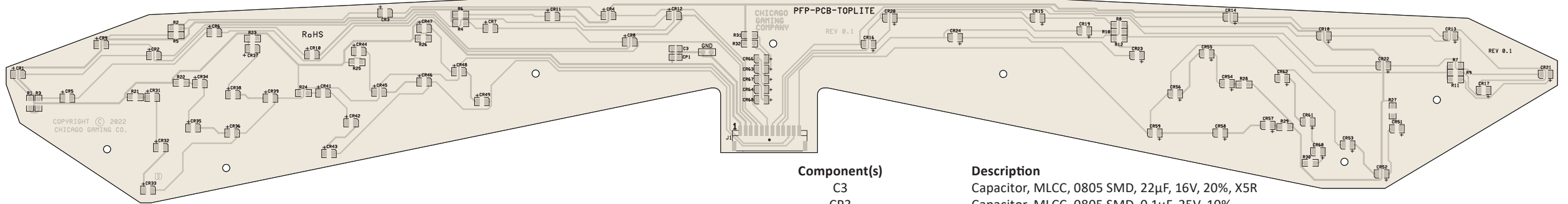
J14-1	YEL	+12VDC to background light strip, 12V solder pad
J14-2	Not used	
J14-3	GRY-BLK	Ctrl line to TL16 , background light strip, LIGHT solder pad

J15 Ethernet Comms [Pinball Controller Bd]

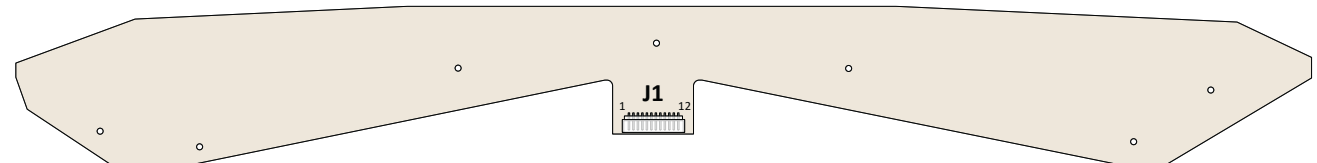
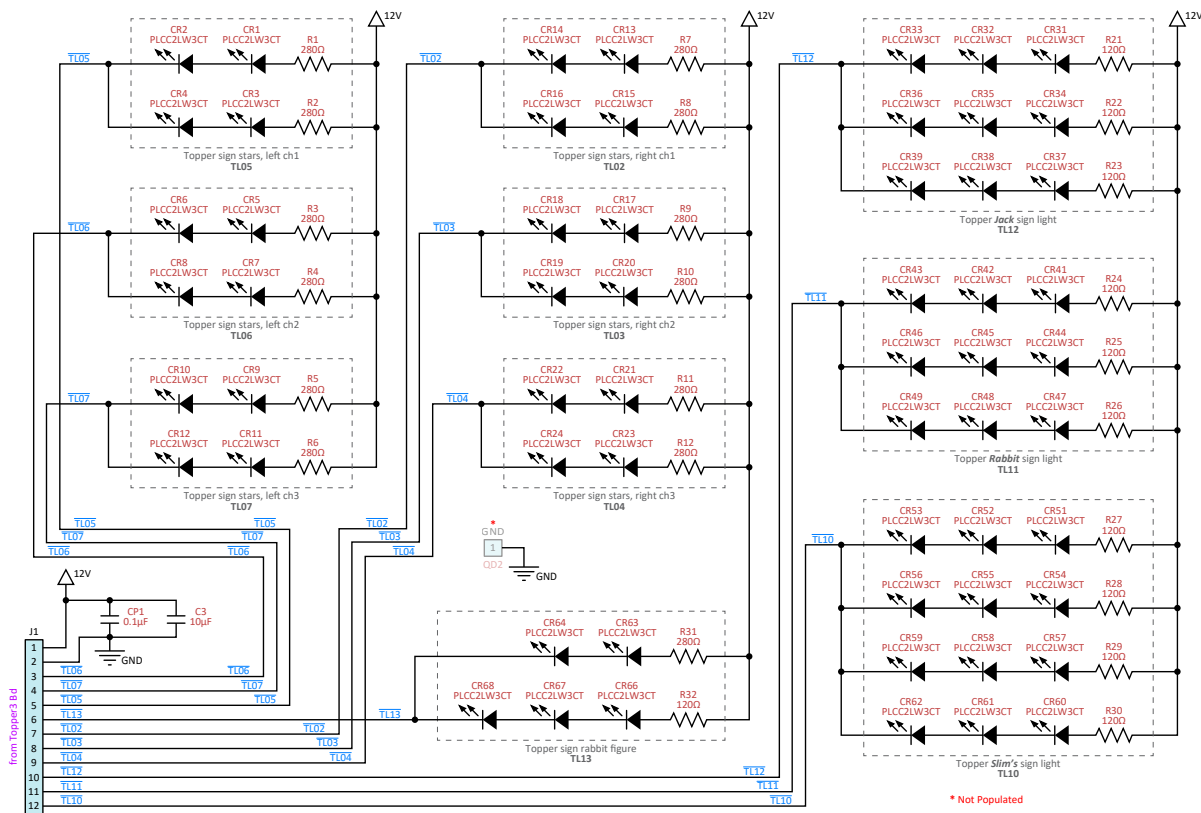
1/2m CAT5 ethernet cable to/from Pinball Controller PCB, J12, through backbox splitter

GND Ground [Not Used]

Jack Rabbit Slim's Sign Bd (LE only) PFP-PCB-TOPLITE



Component(s)	Description
C3	Capacitor, MLCC, 0805 SMD, 22µF, 16V, 20%, X5R
CP3	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V, 10%
CR1-CR24, CR31-CR39, CR41-CR49, CR51-CR64, CR66-CR68	LED, Warm White, PLCC2 SMD
QD2	Quick Connect Male, Through Hole, 1/4"
R1-R12, R31 R21-R30, R32	Resistor, 1206 SMD, 280Ω, 0.25W, 5%
J1	Resistor, 1206 SMD, 120Ω, 0.25W, 5%
	Hdr w/Friction Lock, SMD, Male, 12-Pin, 2mm, Rt Angle

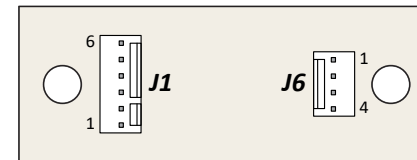
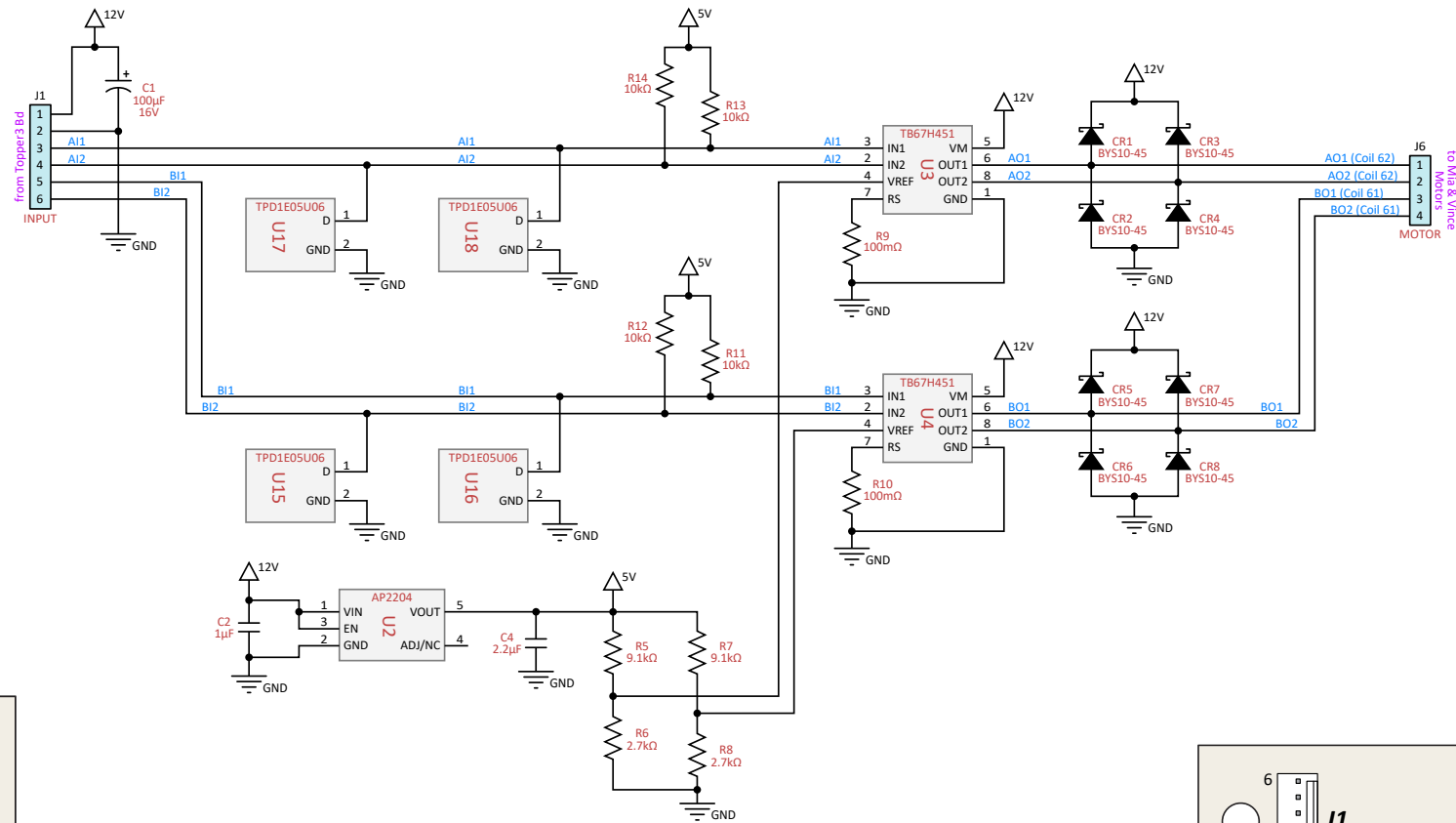
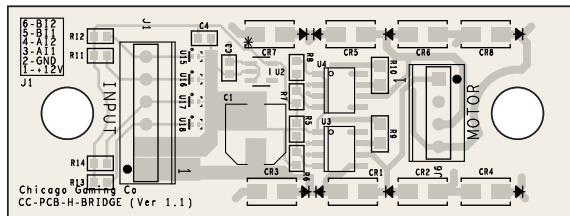


J1 Tlights 02-07, 10-13 Connections [Topper3 Bd]

J1-1	YEL	+12VDC from Topper3 PCB, J8-1
J1-2	BLK	GND from Topper3 PCB, J7-10
J1-3	GRY-BLU	TL06 ctrl line, Topper3 PCB, J8-6
J1-4	GRY-GRN	TL07 ctrl line, Topper3 PCB, J8-7
J1-5	GRY-BRN	TL05 ctrl line, Topper3 PCB, J8-5
J1-6	GRY	TL13 ctrl line, Topper3 PCB, J11-3
J1-7	GRY-YEL	TL02 ctrl line, Topper3 PCB, J8-8
J1-8	GRY-ORN	TL03 ctrl line, Topper3 PCB, J8-9
J1-9	GRY-RED	TL04 ctrl line, Topper3 PCB, J8-10
J1-10	GRY-BLK	TL12 ctrl line, Topper3 PCB, J11-4
J1-11	GRY-WHT	TL11 ctrl line, Topper3 PCB, J11-5
J1-12	GRY-VIO	TL10 ctrl line, Topper3 PCB, J11-7

* Not Populated

H Bridge Bd (LE only) CC-PCB-HBRIDGE



Component(s)

Description

C1	Capacitor, Elect, Radial SMD, 100µF, 16V, 20%
C3	Capacitor, MLCC, 0603 SMD, 1µF, 16V, X7R, 10%
C4	Capacitor, MLCC, 0603 SMD, 2.2µF, 10V, X7R, 10%
CR1-CR8	Diode, Schottky, DO-214AC SMA SMD, 45V, 1.5A
R5, R7	Resistor, 0603 SMD, 9.1kΩ, 0.1W, 1%
R6, R8	Resistor, 0603 SMD, 2.7kΩ, 0.1W, 1%
R9, R10	Resistor, 0805 SMD, 100mΩ, 0.333W, 1%
R11-R14	Resistor, 0603 SMD, 10kΩ, 0.1W, 1%
U2	Linear Voltage Reg, SOT-23-5 SMD, 5V, 150mA
U3, U4	Brushed Motor Drvr, 8-SOIC SMD, 50V, 3A
U15-U18	Diode, TVS, 2-X1SON SMD, 5.5VWMM, 14VC
J1	Hdr w/Friction Lock, Male, 6-Pin, 2.54mm
J6	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm

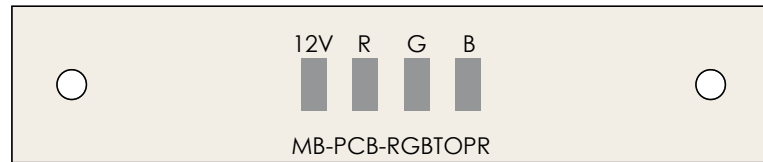
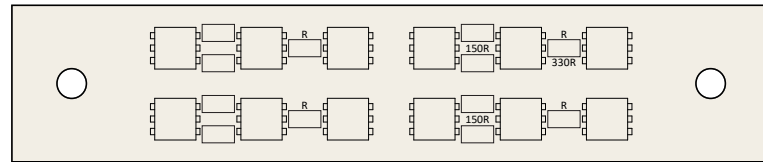
J1 Inputs [Topper3 Bd]

J1-1	YEL	+12VDC from Topper3 PCB, J1-1
J1-2	BLK	GND from Topper3 PCB, J1-3
J1-3	WHT-GRN	Vince motor, CCW (Coil 62)
J1-4	WHT-BLU	Vince motor, CW (Coil 62)
J1-5	WHT-RED	Mia motor, CCW (Coil 61)
J1-6	WHT-YEL	Mia motor, CW (Coil 61)

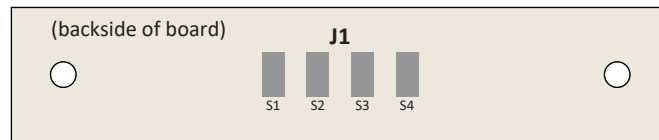
J6 Motors Connections [Mia/Vince Motors]

J6-1	YEL	M- to Vince motor, Ribbon-2 (Coil 62)
J6-2	GRN	M+ to Vince motor, Ribbon-1 (Coil 62)
J6-3	VIO	M- to Mia motor, Ribbon-2 (Coil 61)
J6-4	BRN	M+ to Mia motor, Ribbon-1 (Coil 61)

Topper 12-RGB LED Bd, 2 ea (LE only) MB-PCB-RGBTOPR



Component(s)	Description	Qty
CR	LED, RGB, SMD	12
150R	Resistor, 0805 SMD, 150Ω, 0.125W, 5%	8
330R (R)	Resistor, 0805 SMD, 330Ω, 0.125W, 5%	4

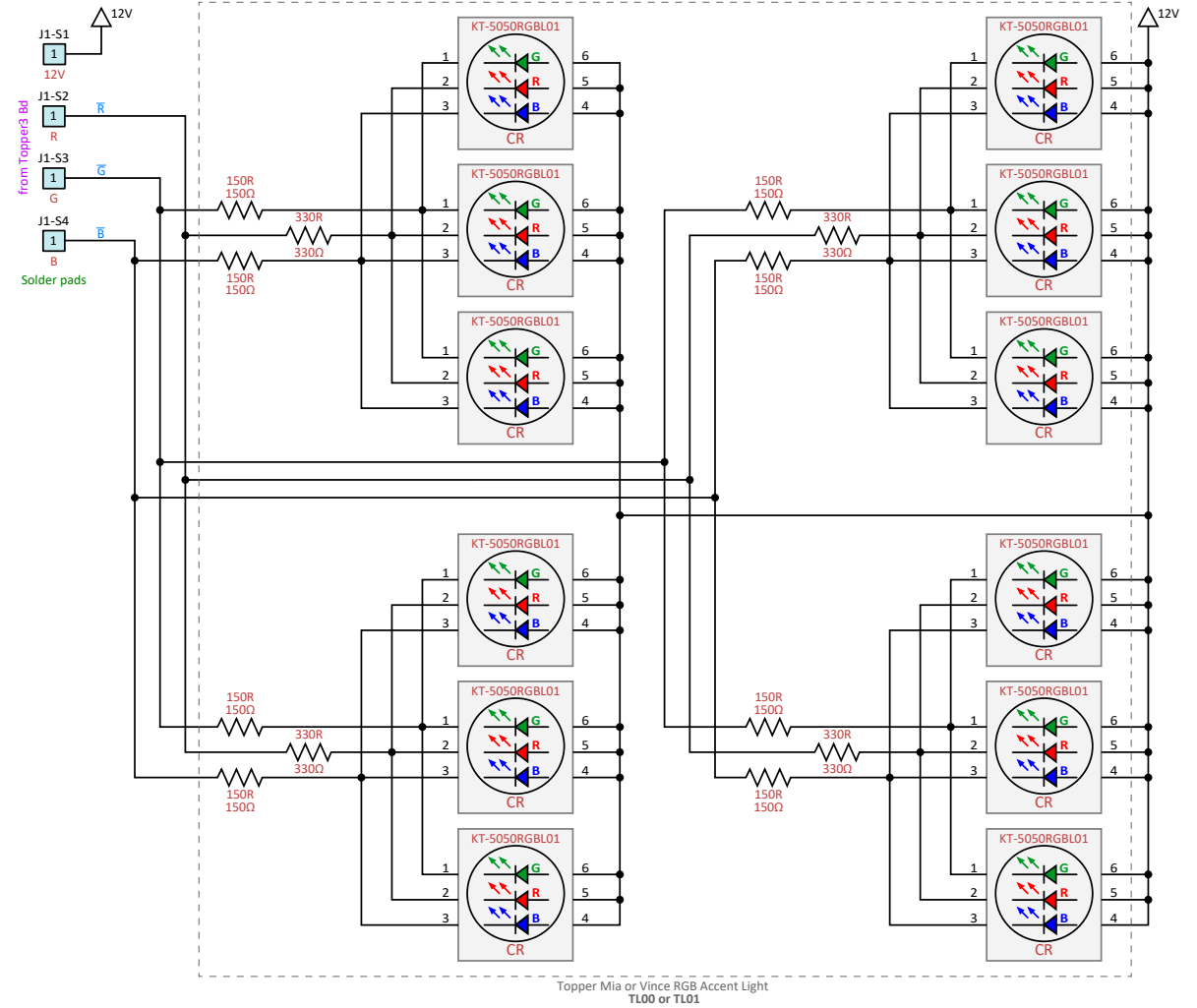


J1 TLight 00 Connection [Topper3 Bd]

J1-S1 (12V)	YEL	+12VDC from Topper3 PCB, J7-2
J1-S2 (R)	RED-WHT	TL00 red ctrl line from Topper3 PCB, J7-8
J1-S3 (G)	GRN-WHT	TL00 green ctrl line from Topper3 PCB, J7-7
J1-S4 (B)	BLU-WHT	TL00 blue ctrl line from Topper3 PCB, J7-6

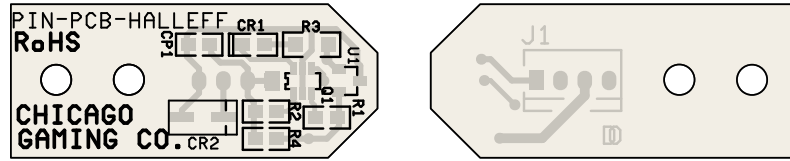
J1 TLight 01 Connection [Topper3 Bd]

J1-S1 (12V)	YEL	+12VDC from Topper3 PCB, J7-1
J1-S2 (R)	RED	TL01 red ctrl line from Topper3 PCB, J7-5
J1-S3 (G)	GRN	TL01 green ctrl line from Topper3 PCB, J7-4
J1-S4 (B)	BLU	TL01 blue ctrl line from Topper3 PCB, J7-3

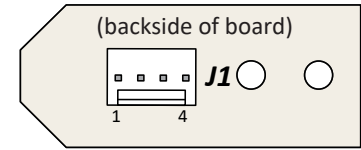
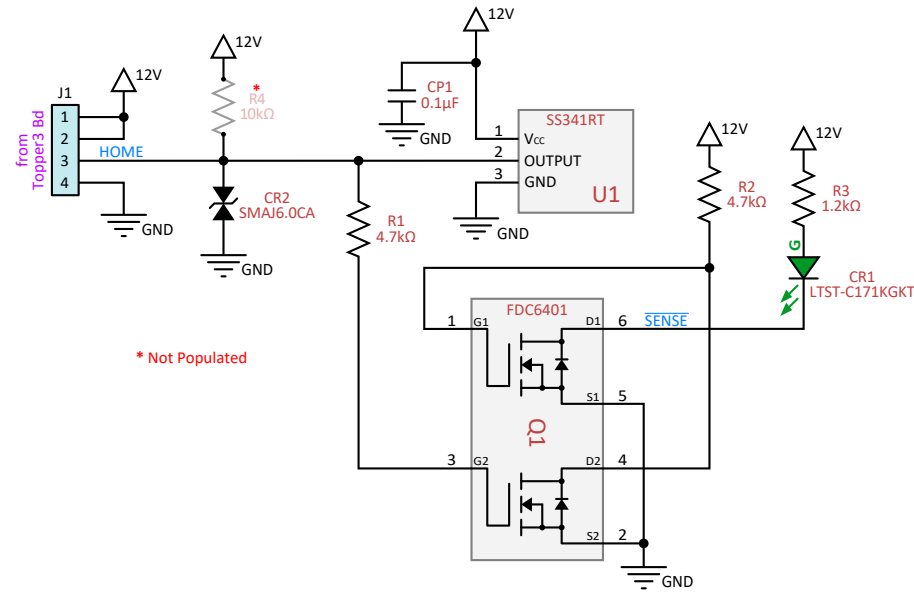


Hall Effect Bd, 2 ea (LE only)

CC-PCB-HALL



Component(s)	Description
U1	Hall Effect Switch, Unipolar, Open Collector, SOT-23-3 SMD
CP1	Capacitor, MLCC, 0805 SMD, 0.1µF, 25V
CR1	LED, 0805 SMD, Green, 571nm, 2V
CR2	Diode, TVS, DO-214AC SMA, 6VWM, 10.3VC
Q1	MOSFET Array, SSOT-6 SMD, 2N-Ch, 20V, 3A
R1, R2	Resistor, 0805 SMD, 4.7kΩ, 0.125W, 5%
R3	Resistor, 1206 SMD, 1.2kΩ, 0.25W, 5%
R4	Not Populated
J1	Hdr w/Friction Lock, Male, 4-Pin, 2.54mm



J1 Vince Motor Home Switch Connection [Topper3 Bd]

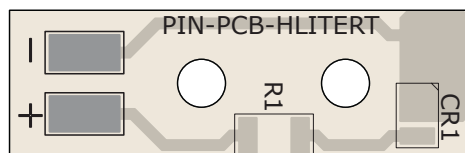
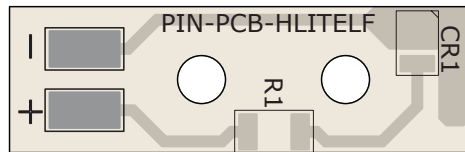
J1-1	YEL	+12VDC from Topper3 PCB, J10-1
J1-2	YEL	+12VDC to Mia Hall Effect PCB, J1-1
J1-3	WHT-ORN	Vince home sw sense, Topper3 PCB, J2-5
J1-4	BLK	GND from Topper3 PCB, J2-7

J1 Mia Motor Home Switch Connection [Topper3 Bd]

J1-1	YEL	+12VDC from Vince Hall Effect PCB, J1-2
J1-2	Not used	+12VDC
J1-3	WHT-VIO	Mia home sw sense, Topper3 PCB, J2-6
J1-4	BLK	GND from Topper3 PCB, J2-8

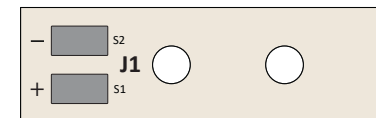
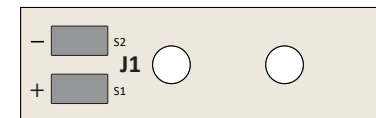
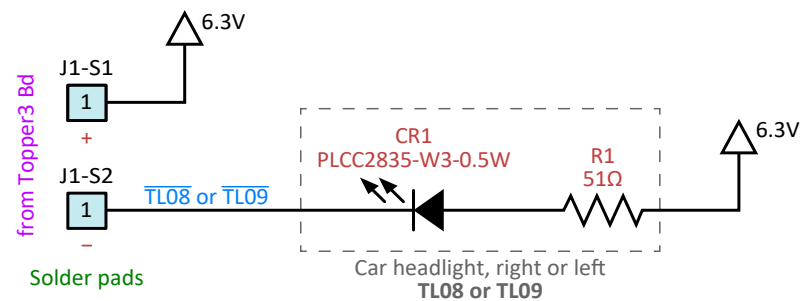
Topper Car Headlight Bd, 2 pair (LE only)

PIN-PCB-HLITE



Left, Right (1 pair)

Component(s)	Description
CR1	LED, White, 2835 SMD, 0.5W
R1	Resistor, 1210 SMD, 51Ω, 0.5W, 5%



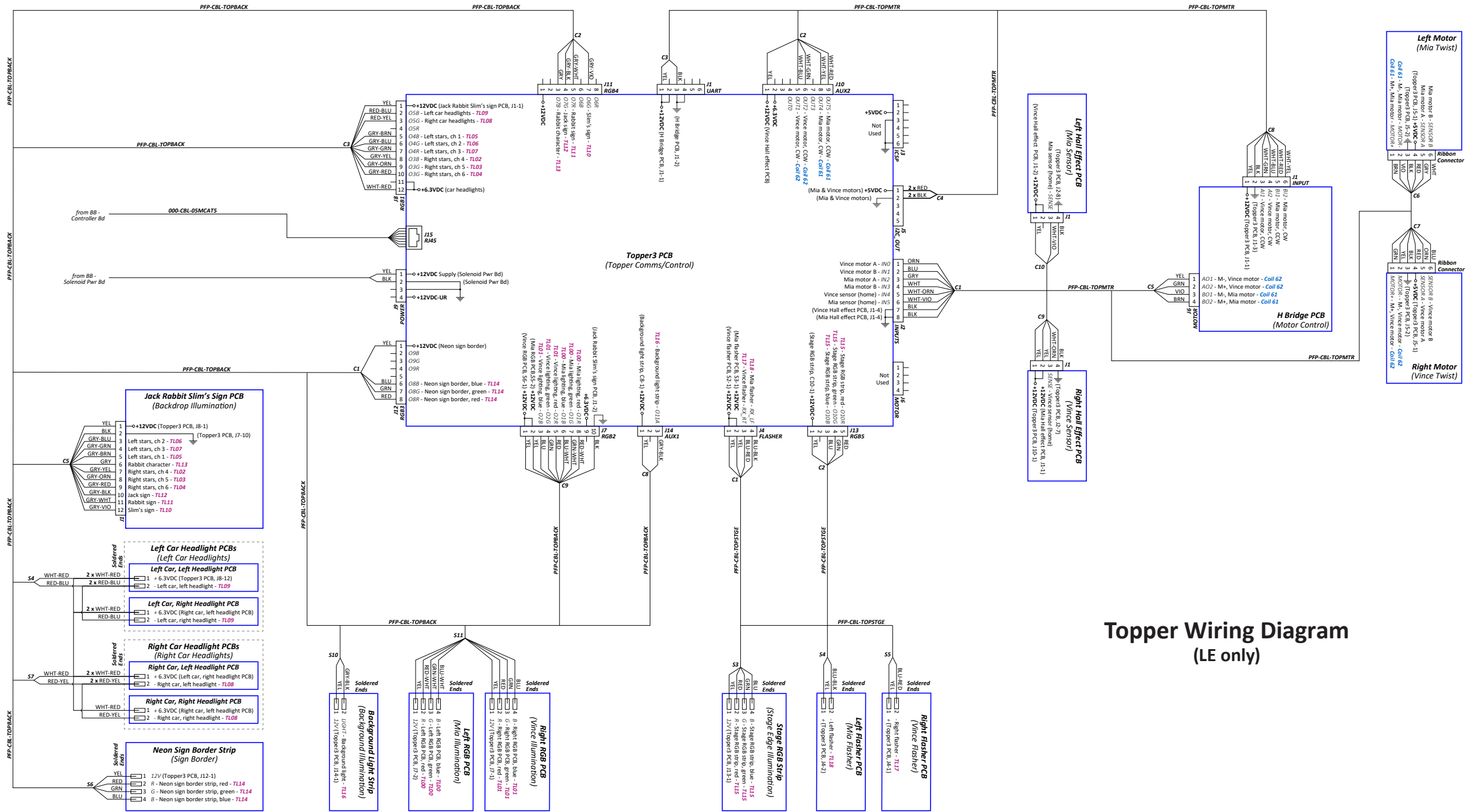
Left, Right (1 pair)

J1 TLight 08 Connections (2 bds) [Topper3 Bd]

J1-S1 (+)	WHT-RED	+6.3VDC from left car headlight PCB, J1-S1
J1-S2 (-)	RED-YEL	TL08 ctrl line, Topper3 PCB, J8-3

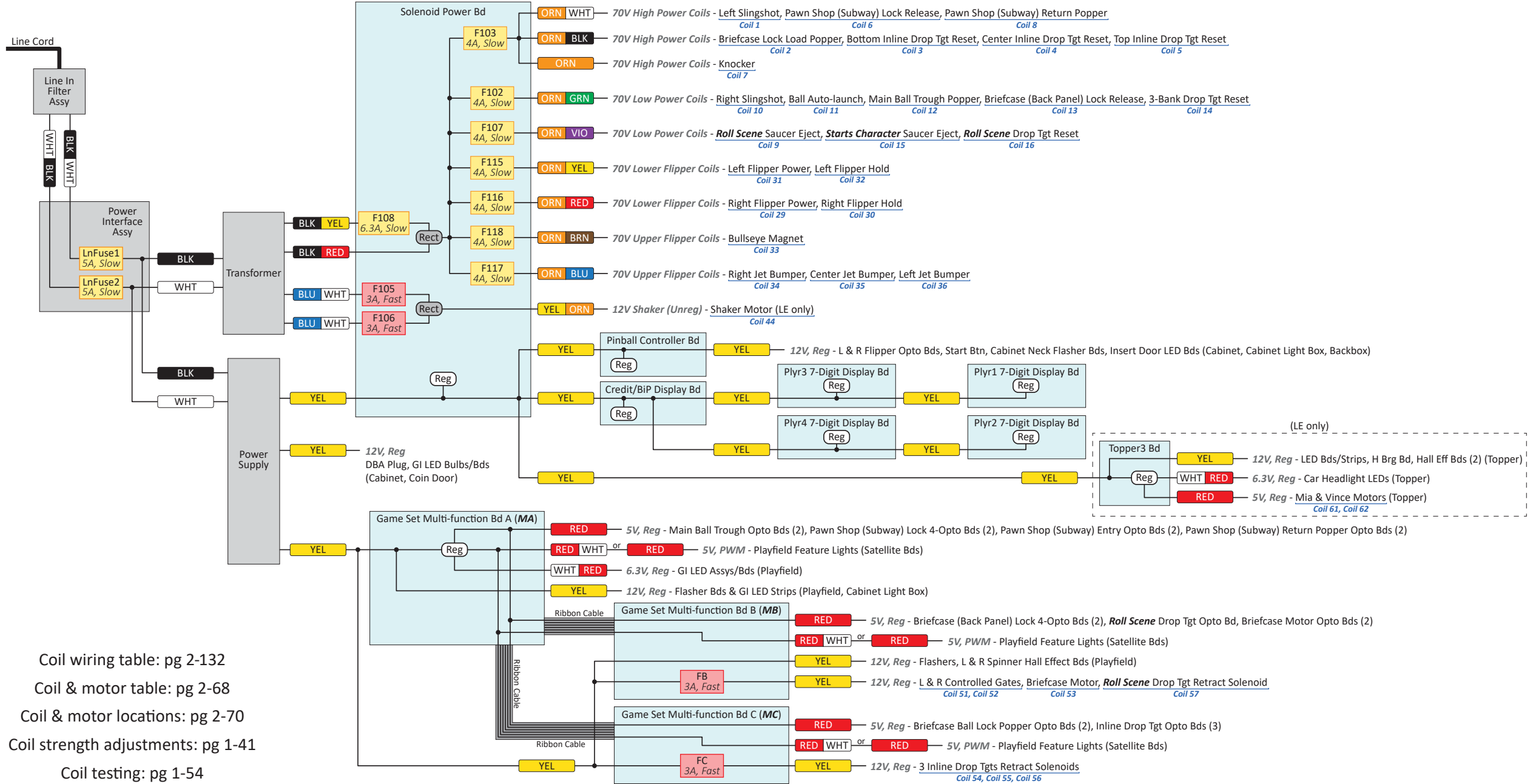
J1 TLight 09 Connections (2 bds) [Topper3 Bd]

J1-S1 (+)	WHT-RED	+6.3VDC from Topper3 PCB, J8-12
J1-S2 (-)	RED-BLU	TL09 ctrl line, Topper3 PCB, J8-2



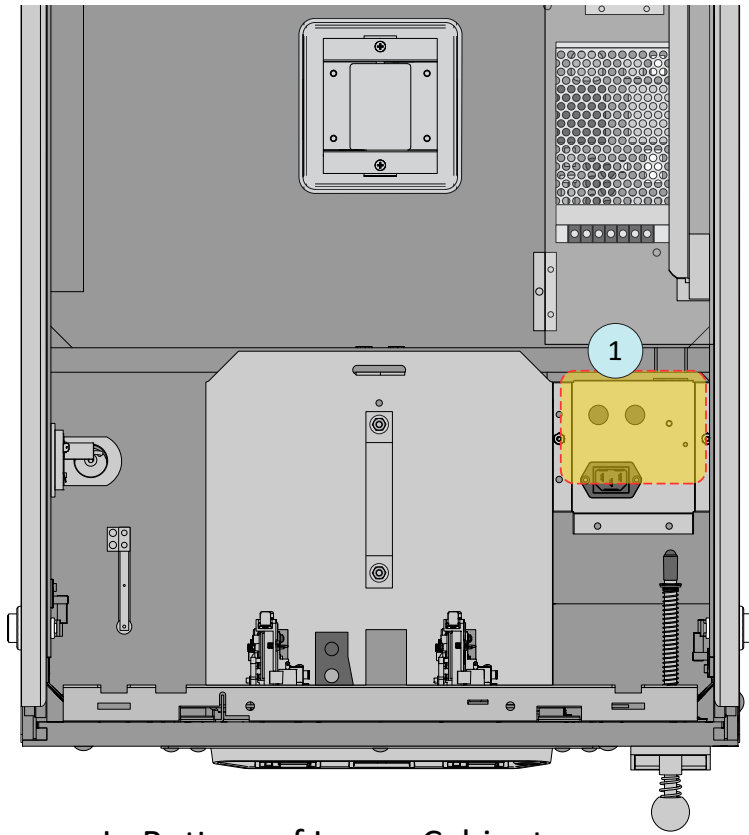
Topper Wiring Diagram (LE only)

Fused Power Stream

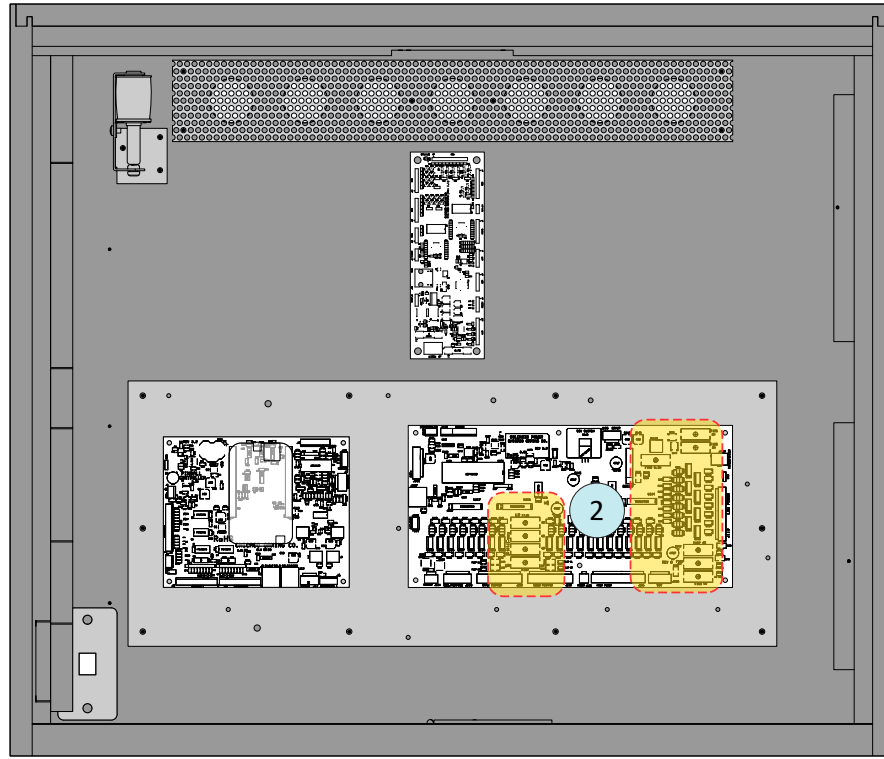


- Coil wiring table: pg 2-132
- Coil & motor table: pg 2-68
- Coil & motor locations: pg 2-70
- Coil strength adjustments: pg 1-41
- Coil testing: pg 1-54

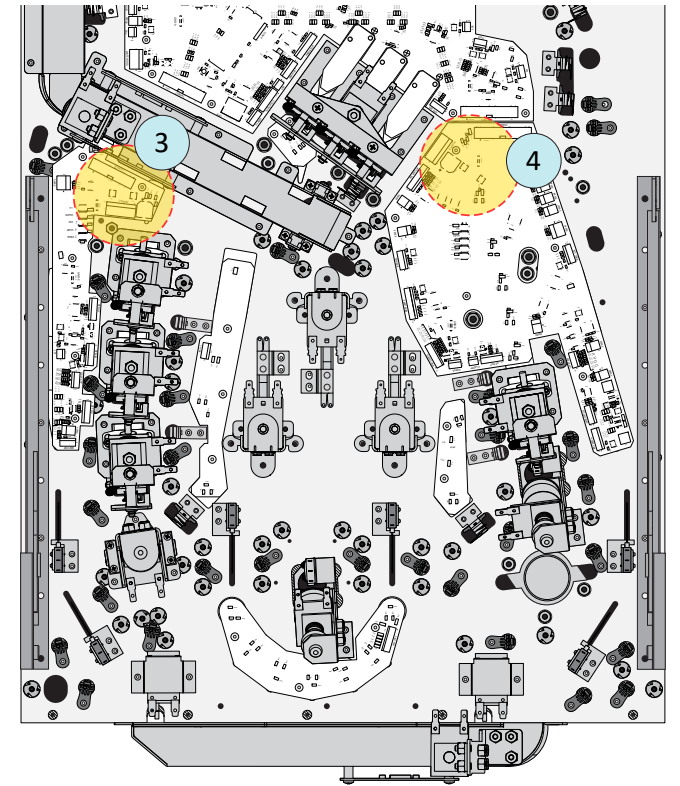
Fuse Locations



In Bottom of Lower Cabinet



In Backbox

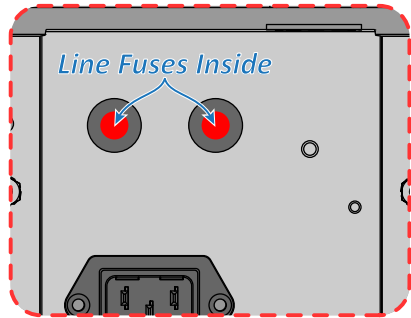


Under Playfield

Fuse Information

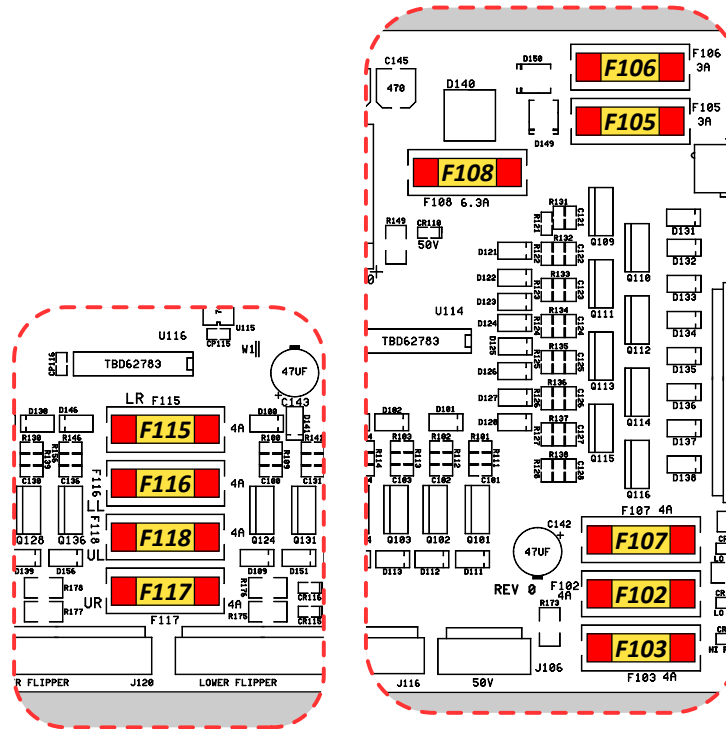
1

Power Interface Assembly



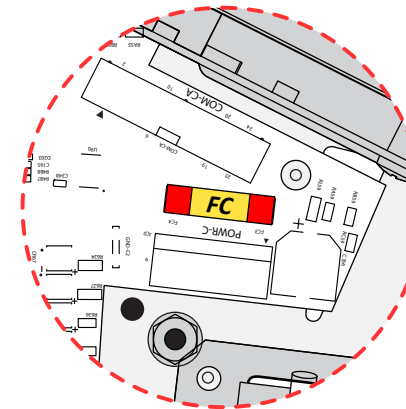
2

Solenoid Power Board



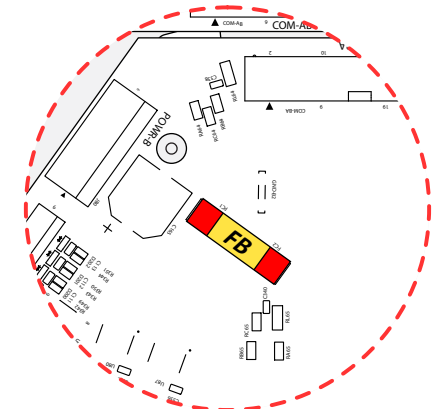
3

Game Set Multi-function Board C (MC)



4

Game Set Multi-function Board B (MB)



Fuse Identifier(s)

Line Fuses (2)*
 F102, F103, F107, F115-F118
 F105, F106, FB, FC
 F108

Description

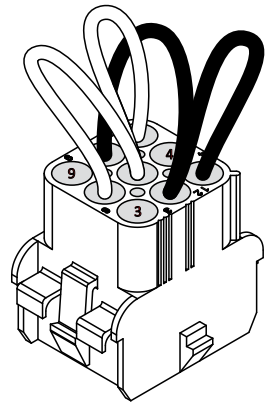
Fuse, Time Delay, 5A, 250V, 5mm x 20mm
 Fuse, Time Delay, 4A, 250V, 5mm x 20mm
 Fuse, Fast, 3A, 250V, 5mm x 20mm
 Fuse, Time Delay, 6.3A, 250V, 5mm x 20mm

Part ID

000-FUS-5M5ASLO
 000-FUS-5M4ASLO
 000-FUS-5M3AFST
 000-FUS-5M63ASL

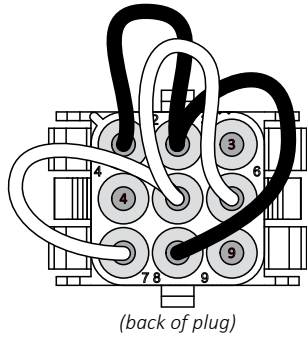
* see pg 2-61 for details

**Voltage Conversion
Plug Pin-out**

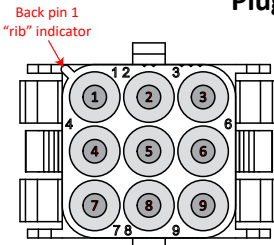


**115VAC Line Voltage
Plug Configuration**

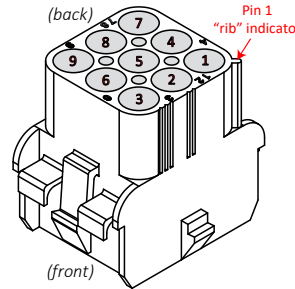
PN: PIN-CBL-VOLT120



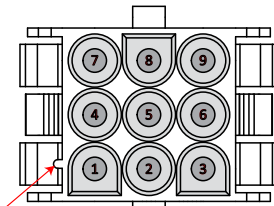
(back of plug)



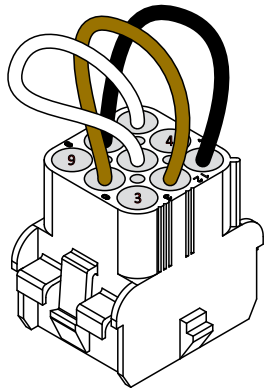
(back of plug)



(back)

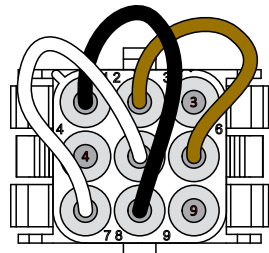


(front of plug)

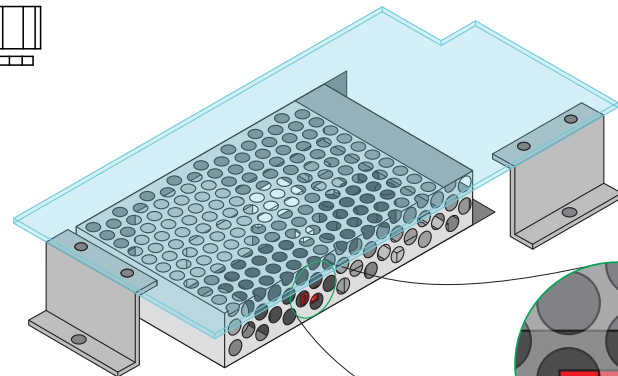


**230VAC Line Voltage
Plug Configuration**

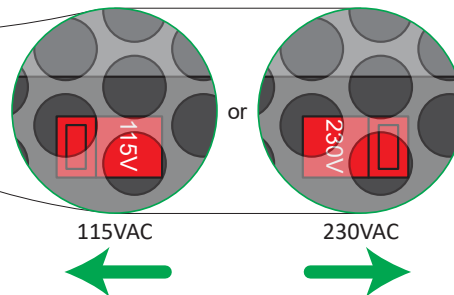
PN: PIN-CBL-VOLT240



(back of plug)



**Power Supply Line
Voltage Selection Switch**



Supply Voltage Conversion

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

Power the game down and unplug the AC line cord from the wall. Disconnect the 9-pin plug (it has locking tabs on each side). Looking at the back of the jumpered plug (the end with the wires protruding), locate the pin 1 “rib” indicator and orient the plug so that it is in the upper left hand corner, as shown opposite. The red numbers indicate pin numbers for the plug.

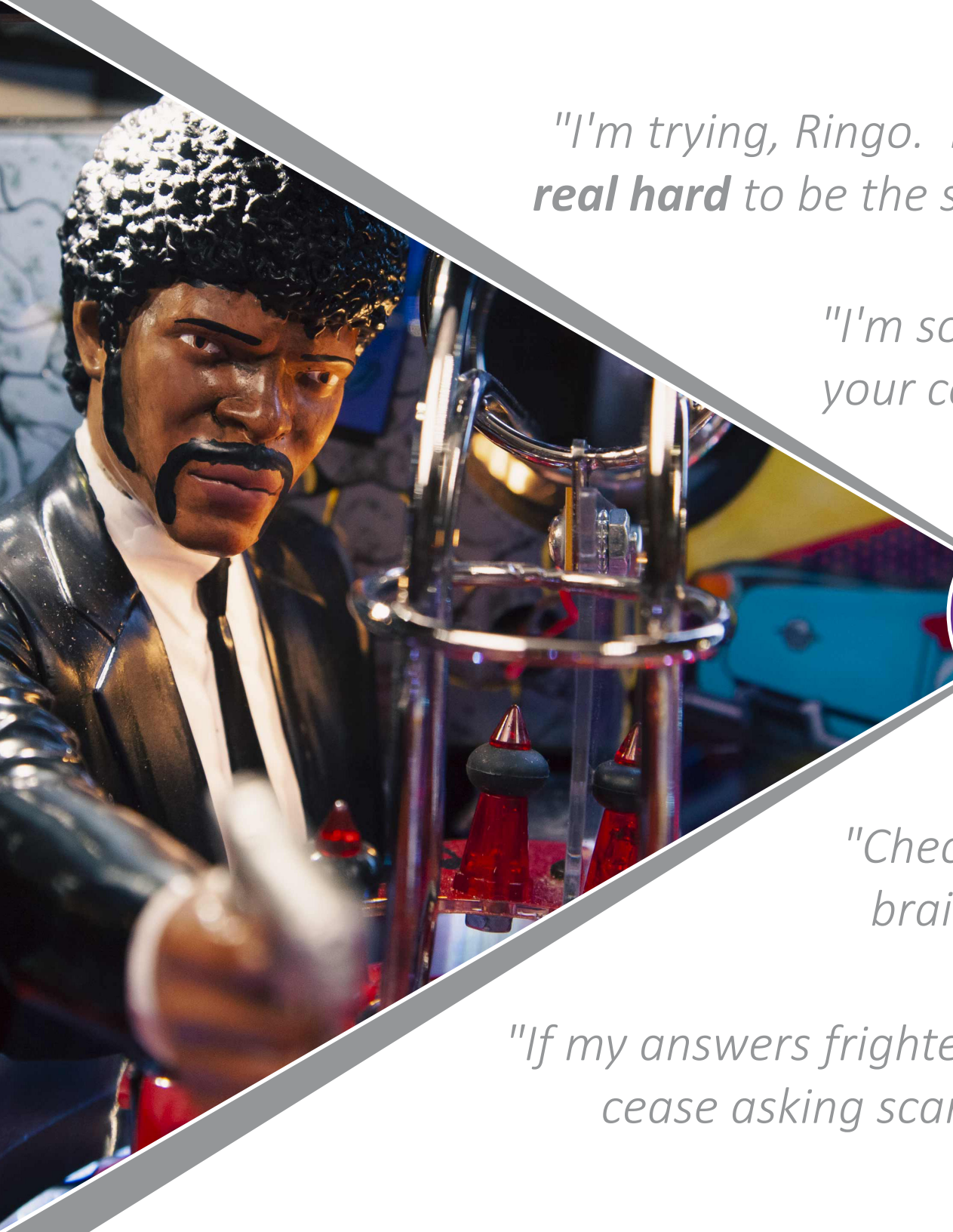
Look at the illustration for the desired configuration (115VAC or 230VAC) and compare it to your current configuration. Using a 0.084” pin extractor, remove all pins that require repositioning by pushing them out of the back of the plug, from the front. You can reuse existing wires as long as they were not damaged during the removal process. Fashion new, short jumper wires, as needed. Alternatively, you can order the appropriate plug from CGC, using the part numbers shown opposite.

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

For 115V line voltage, jump pins 1, 2 & 8 together with two short black wires (two wires crimped together at pin 2). Then jump pins 5, 6 & 7 together with two short white wires (two wires crimped together at pin 5).

For 230V line voltage, jump pins 1 & 8 with a short black wire. Then jump pins 2 & 6 together with a short brown wire. Lastly, jump pins 5 & 7 together with a short white wire.

Your Pulp Fiction game also uses a switching, modular supply (item 15, pg 2-2) for PCB logic voltages, LEDs and 12VDC coil/motor power. This switching power supply has a line voltage selection slide switch on its side panel that must be in the proper position (115V or 230V) before powering up the game. Using a small slot screwdriver, slide the voltage selection switch toward the back of the game to select 115V **or** toward the front of the game to select 230V.



*"I'm trying, Ringo. I'm trying
real hard to be the shepherd."*

*"I'm sorry, did I break
your concentration?"*



*"Check out the big
brain on Brett!"*

*"If my answers frighten you, you should
cease asking scary questions."*

Section 4

Game Maintenance Information



4.1 Pulp Fiction Lamp, Switch & Coil Notes

Lamps

Your Pulp Fiction game uses LEDs for *all* forms of playfield, backbox, cabinet and coin door illumination and their supply voltages vary; most run on +5VDC or +6.3VDC, but many 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 - or both) to avoid higher source voltages. As a general rule **on the playfield**, source voltage is +5VDC (RED wire) for feature lights, +6.3VDC (RED-WHT wire) for GI lights and +12VDC (YEL wire) for flashers. In contrast, virtually all backbox, cabinet and coin door lights - GI, feature lamps & flashers - require +12VDC (YEL wire). We all know that *every* rule has its exception(s), so always reference PCB schematics and/or pin-outs, in **Section 3** of this manual, if there are doubts regarding *any* lamp's source voltage.

Each game lamp is assigned a unique identifier, consisting of two letters followed by a two-digit number. The first letter provides location information (**P** for playfield, **B** for backbox, **T** for topper, **C** for coin door). The second letter designates the lamp type (**L** for feature/GI light, **F** for flasher). Lamp identifiers are used throughout this manual - in tables, assembly drawings, PCB schematics & pin-outs, etc. - to call out specific lamps. Feature lamp and flasher references are highlighted in bold italic magenta (***L50-L54, F09***). GI lamp references are highlighted in bold italic brown (***G11-19***). Note: the **P** prefix is intentionally omitted from playfield lamp identifiers in this manual to match screened labels on the playfield PCBs.

Many 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. Most of the LEDs in the game are also dimmable. Brightness is controlled either individually, by 8-bit controller ICs, or globally, through pulse width modulation (PWM) of the source voltage.

Switches

Your Pulp Fiction game incorporates a wide variety of switch types, including infrared optos, Hall Effect (magnetic) switches, leaf switches, microswitches. Switch references in this manual are highlighted in bold italic green (***Sw 6, Sw 10***). Switch identifiers are used throughout this manual - in tables, assembly drawings, PCB schematics & pin-outs, etc. - to call out specific switches. Note: When adjusting a switch, the best method for testing it is to roll a pinball over it, through it or into it.

Coils

There are many solenoids/coils and motors used in the Pulp Fiction game. Coils are numbered based upon their associated drive transistors. Most of these are located on the Solenoid Power Board (in the backbox), but a few of the coils are driven by playfield multi-function PCBs (mounted to the backside of the playfield). Most coils are run off the high voltage (+70VDC) lines; however, there are a few coils and motors in the game that are powered by +12VDC. Coil kicking strength is controlled by 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 blue (***Coil 2***). Coil identifiers are used throughout this manual - in tables, assembly drawings, PCB schematics & pin-outs, etc. - to call out specific coils and motors.

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 schematics and pin-out tables), 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.

Lamp/Flasher/GI Illustrations & Tables:

Playfield, pg 2-78
Backbox/Insert Door, pg 2-92
Topper (LE only), pg 2-93
Coin Door, pg 2-64

Switch Illustrations & Tables:

Playfield, pg 2-94
Lower Cabinet, pg 2-2
Coin Door, pg 2-64

Coil table: pg 2-68
Coil locations, pg 2-70
Coin Door, pg 2-64

Lamp Tests: pg 1-49
Switch Tests: pg 1-52
Coil Testing: pg 1-54

Lamp adjustments: pg 1-31, pg 1-37
Coil strength adjustments: pg 1-41

4.2 Updating Game Software

Over the lifetime of your Pulp Fiction 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 Windows and Macintosh operating systems.

- 1) CGC game updates require a **Class 10 microSD Card, 8GB or larger** and a **microSD USB adapter**. These are available from Amazon.com; examples are provided below:
Card Only: <https://amzn.to/2BI2vQr> Adapter Only: <https://amzn.to/28OUIWv>
- 2) Download the latest Pulp Fiction update file from the Chicago Gaming Company website.

Windows OS Instructions

- 3) Unzip the update file on your computer.
- 4) Download and install Win32 Disk Imager (<https://sourceforge.net/projects/win32diskimager/>).
- 5) Insert the microSD card into your computer, using an adapter if necessary. **WARNING: All data on the microSD will be erased during this process!**
- 6) Open Win32 Disk Imager application. Under **Device**, select the microSD card you inserted (figure 4-1). **Be careful not to select an external hard drive or any other device, as it will be overwritten!**

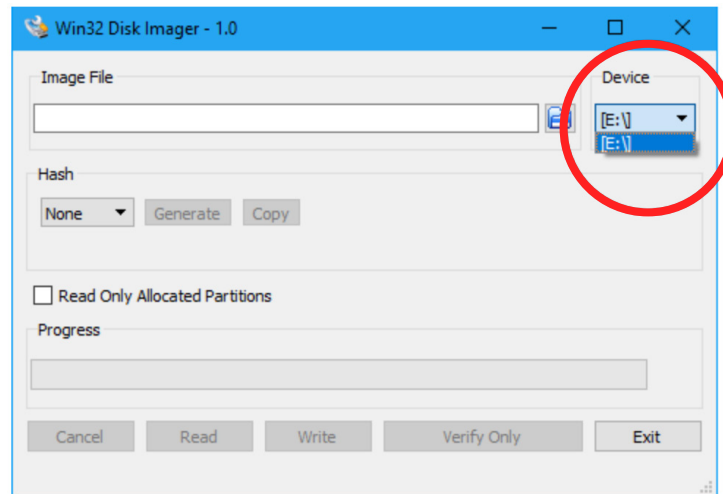


Figure 4-1. Win32 Disk Imager - Device selection.

or

Macintosh OS Instructions

- 3) Get Extractor from the Mac App Store (<https://itunes.apple.com/us/app/extractor-unarchive-rar-zip/id971826370?mt=12>). Alternatively, you can try the free Unarchiver application (<http://the-unarchiver.en.softonic.com/mac>).
- 4) Launch Extractor and select the update file you downloaded; unzip the file. When it's done, you'll see the Pulp Fiction **.img** file on your desktop. Figure 4-2 shows what Get Info looks like for the unzipped image file.

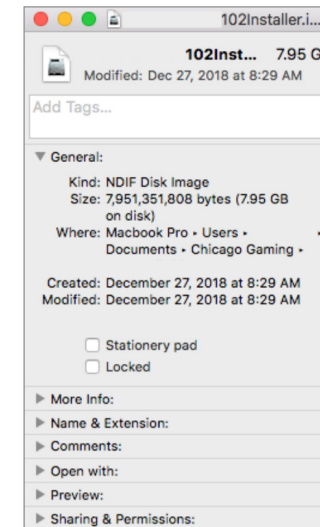


Figure 4-2. Get Info for update image file.

Windows OS Instructions

7) Click the file folder icon in the Win32 Disk Imager window, then locate and select the unzipped Pulp Fiction .img file on your computer (figure 4-3).

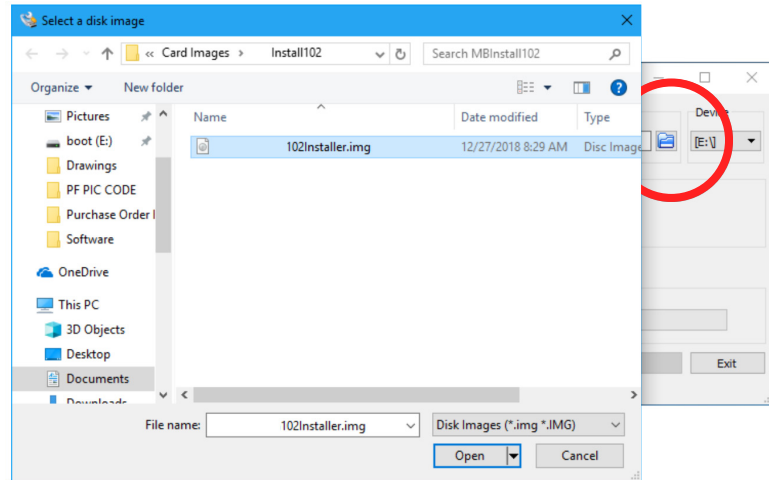


Figure 4-3. Win32 Disk Imager - Locate & Select image file.

8) Click the 'Write' button (figure 4-4) to begin writing the image file to the microSD card. The process will take approximately 10 minutes.

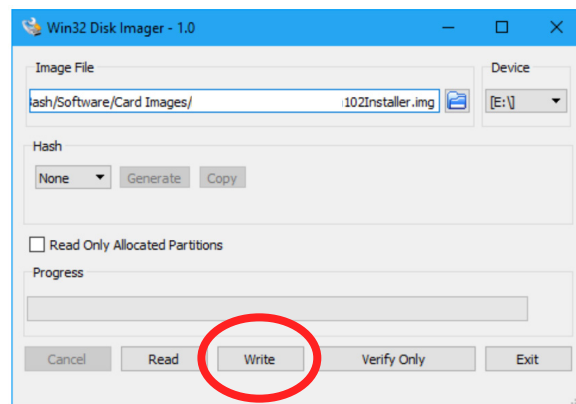


Figure 4-4. Win32 Disk Imager - Write to microSD card.

or

Macintosh OS Instructions

5) Download the ApplePi-Baker application (<https://www.tweaking4all.com/software/macosx-software/applepi-baker-v2/>). Insert the microSD card into your Mac, using an adapter if necessary. **WARNING: All data on the microSD will be erased during this process!**

6) Launch ApplePi-Baker and enter your admin password (this is required each time you launch the app). After you've entered your password, the app's main screen will come up. On the left side, in the Pi-Crust section, select the SD card that you inserted (figure 4-5).

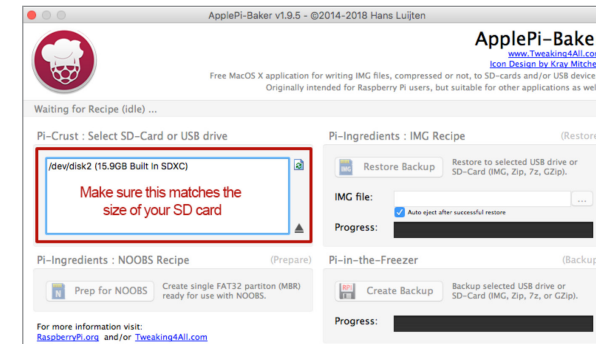


Figure 4-5. ApplePi-Baker - Crust selection.

7) On the right side, in the Pi-Ingredients section, tap the '...' button to open the File Browser and select/open the Pulp Fiction .img file (figure 4-6).

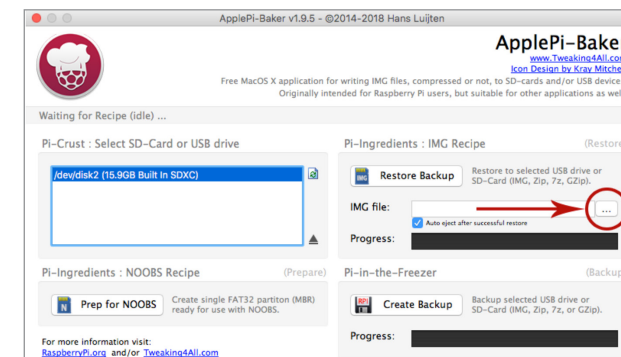


Figure 4-6. ApplePi-Baker - Ingredients selection.

Windows OS Instructions

9) When complete, you will see a 'Write Successful' notification (figure 4-7). Close Win32 Disk Imager and remove the microSD card from your computer.

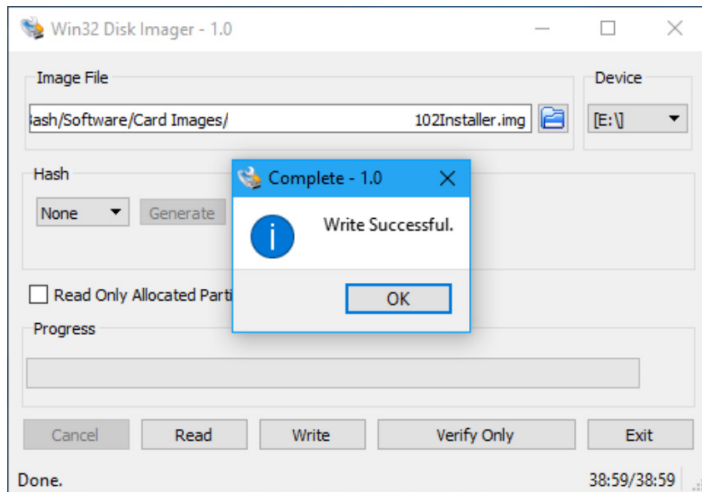
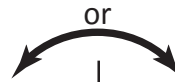


Figure 4-7. Win32 Disk Imager - Write completed.



or

Macintosh OS Instructions

8) Press 'Restore Backup' to begin the SD card write process; an estimated time and progress bar will be shown in the app window (figure 4-8).

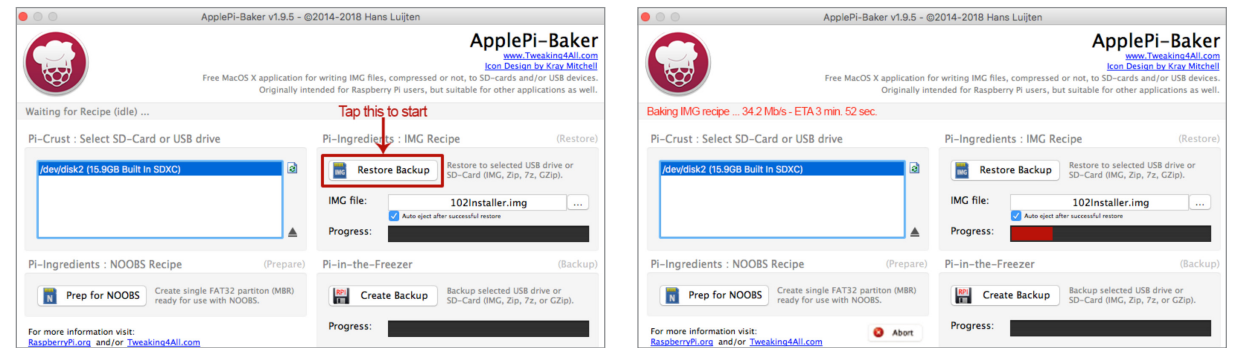


Figure 4-8. ApplePi-Baker - Restore to microSD card.

9) When complete, you will see a 'Apple-Pi Ready' notification (figure 4-9). Close the app and remove the microSD card from your Mac.

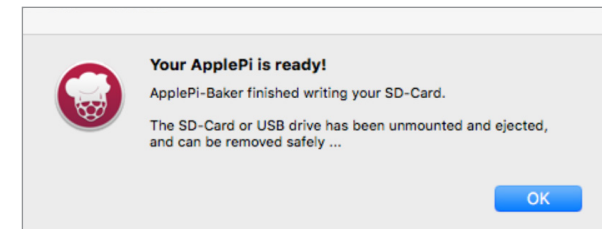


Figure 4-9. ApplePi-Baker - Write completed.

10) With the power off, remove the game's backglass, open the insert door and install the microSD card in the slot at the top of the BeagleBone board (figure 4-10), with the label facing the back of the game. The card will slide in and click-lock in place.

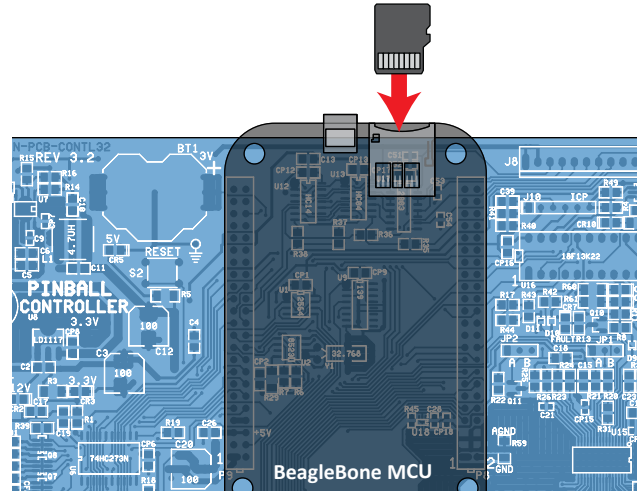


Figure 4-10. Inserting the microSD card into the BeagleBone board.

11) Turn the game on. After system power up, you will see that the new version is preparing to install - with a countdown timer in the Ball in Play (figures 4-11 & 4-12) display. If you wish to abort the update (before the timer reads 00), press the green (**ESC**) button, inside the coin door.

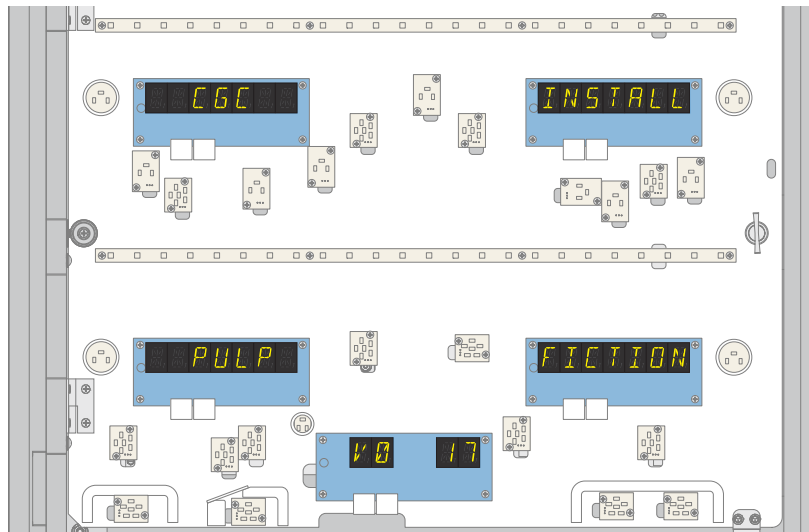


Figure 4-11. Displays - Initial software update notification.

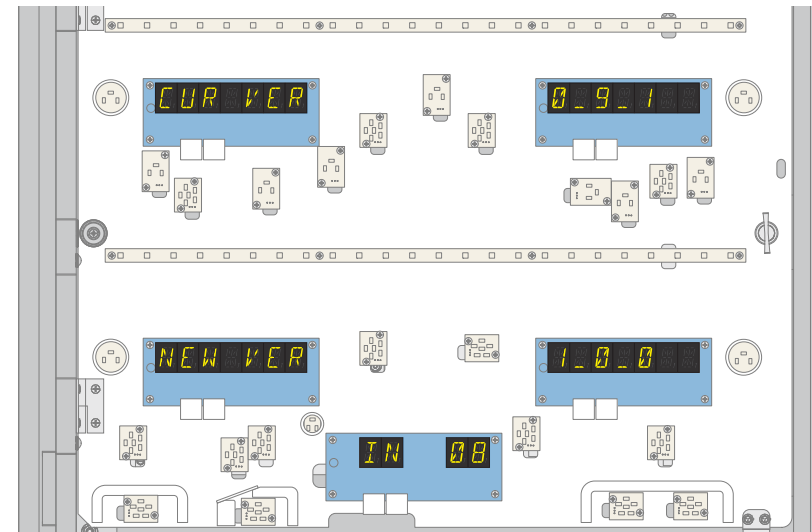


Figure 4-12. Displays - Current/new software versions.

12) When the countdown timer reaches 00, the displays change (figure 4-13) and software installation begins. The Player 2 display shows the new software version; the Credit and Ball in Play displays show mini "clock faces", with "hands" repeatedly going around in circles; the backbox **Timer** flasher (red circle, below) slowly blinks ON and OFF; the Player 3 and 4 displays serve as a "progress bar", showing how the install is proceeding. When complete, the displays will change again (figure 4-14) to indicate that install verification is in progress; the **Timer** flasher will continue to blink - **DO NOT POWER THE GAME OFF YET!**

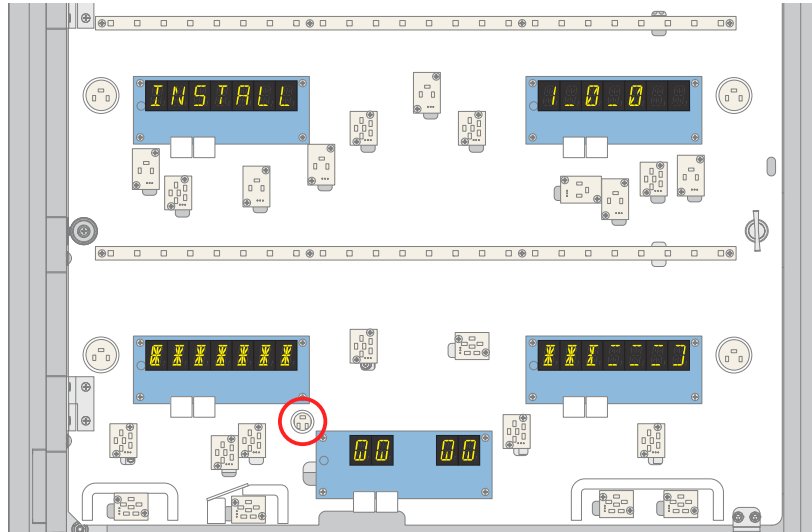


Figure 4-13. Displays - Installation in progress.

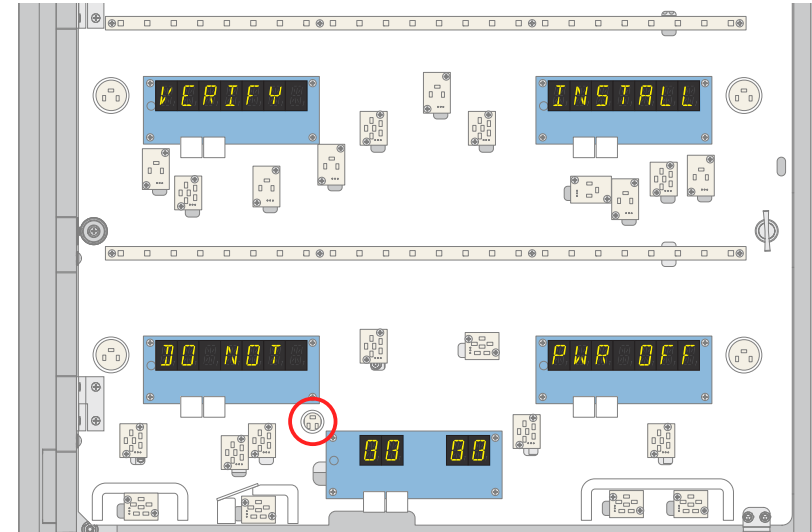


Figure 4-14. Displays - Install verification process.

13) When the verification process is complete, the displays will change again to show the result of the install (figure 4-15) and provide instructions for finishing up (figure 4-16). These notifications will alternate indefinitely. Power the game down and remove the microSD card from the BeagleBone board. Depress the top of the card - it will click-unlock; then slide the card straight up and out. Power the game ON. **Note:** you can verify the current software version at any time by entering the game's Main Menu - open the coin door and press the black (**BEGIN TEST**) button.

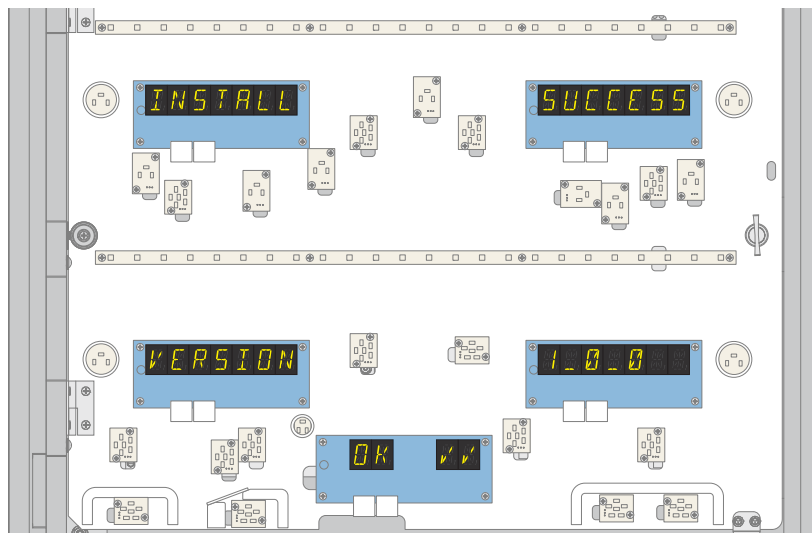


Figure 4-15. Displays - Successful install.

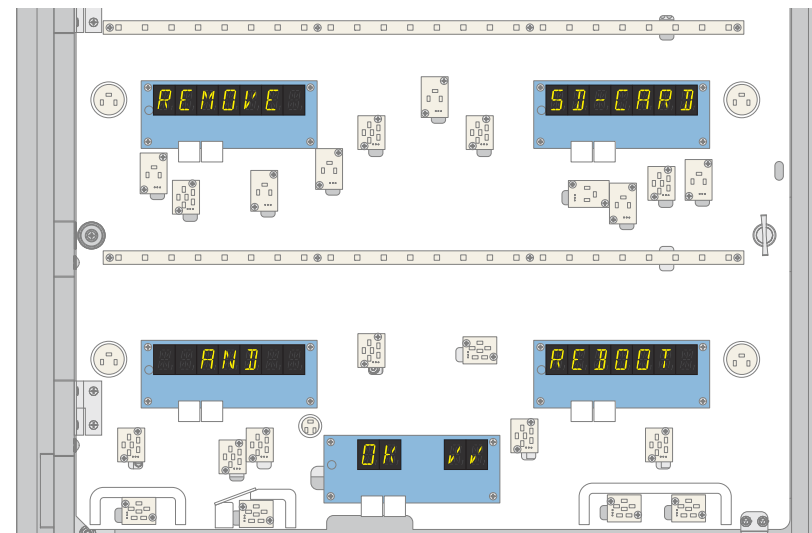


Figure 4-16. Displays - Reboot instructions.

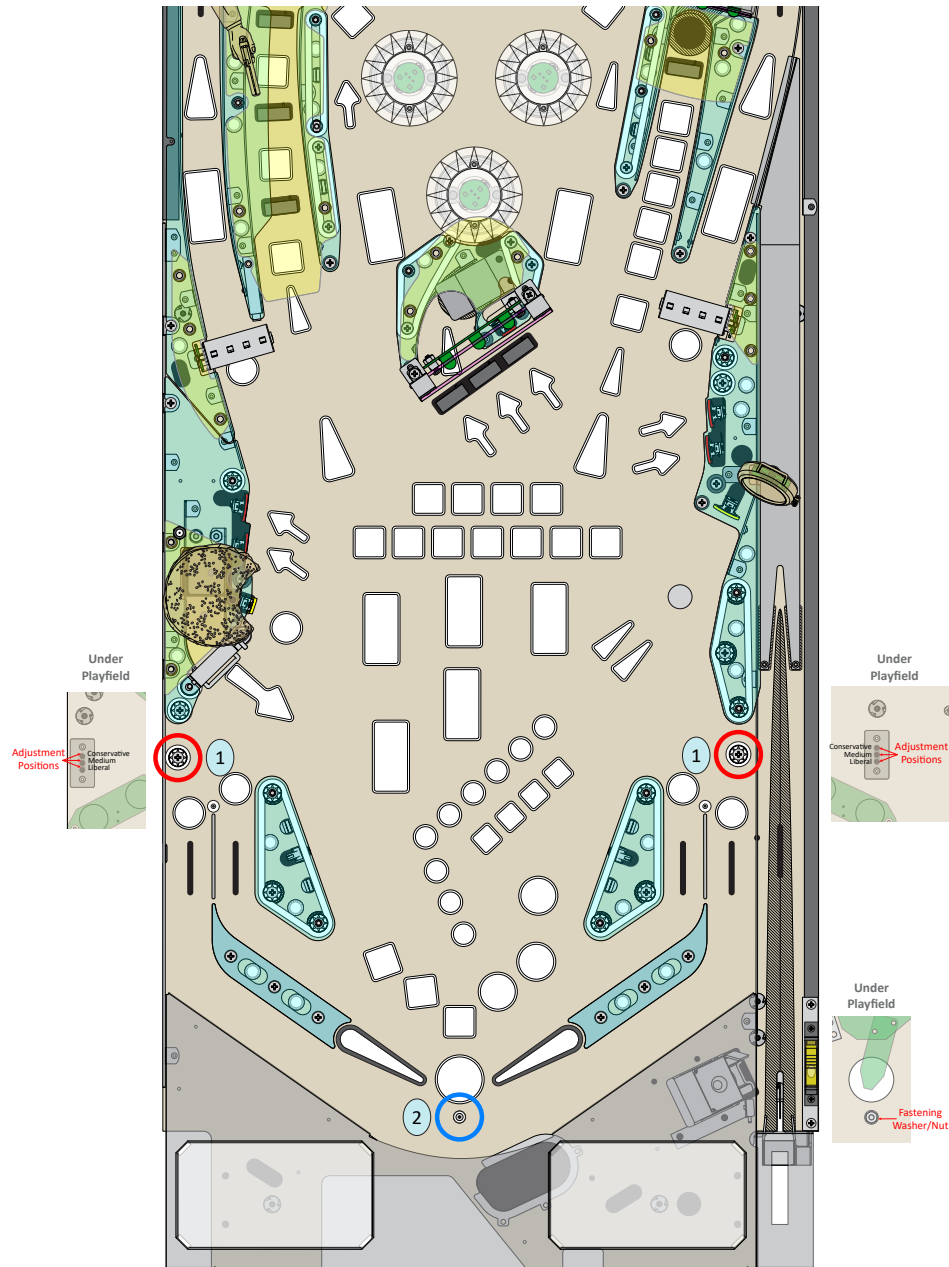


Figure 4-17. Pulp Fiction playfield adjustable posts.

4.3 Playfield Post Adjustments

Preparations: Ensure that all four pinballs are safely in the main ball trough, under the bottom arch (not in the shooter lane, back panel lock, subway or any eject hole). Power down the game and remove the playfield glass (see pg 1-7). Pull the playfield up and out of the cabinet, to position 3 (shown on pg 1-10 of this manual).

Tools Required:

#2 Phillips screwdriver
 11/32" wrench
 pair of pliers
 small hammer
 small slot screwdriver

You can make several post adjustments on the Pulp Fiction playfield to make your game play either more liberally or more conservatively.

- 1 There are two slotted mounting holes in the playfield for a star post, near the left and right outlanes (circled in red in figure 4-17). A plate is mounted under each slot (on the back of the playfield), with three threaded holes for the star post's machine screw. The posts can be repositioned in these three holes (or removed altogether) to make the game play more or less liberally/conservatively. The most conservative post positions are the highest (furthest from the player) of the three holes (making it easier for the ball to get to the outlanes). When the posts are moved lower (closer to the player), the game will play more liberally (making it more difficult for the ball to get to the outlanes). The most conservative adjustment is to remove the posts altogether. See the star post repositioning, removal and/or installation instructions on the following page.
- 2 The steel mini post between the flippers (circled in blue in figure 4-17) acts as a "straight-down-the-middle" shield during game play. It comes installed in the playfield, from the factory. However, the post is optional and is designed to be safely removed, if you'd like to make the game more challenging. See the mini post removal and/or installation instructions on the following page.

To remove a star post from a playfield slot: The outlane, adjustable star posts on Pulp Fiction are each held in place by a 1-3/4", 8-32 PPH machine screw. The machine screws are threaded through steel plates mounted under the playfield. From above, use the #2 Phillips screwdriver to unthread the machine screw from the steel plate, then carefully pull the post and screw straight up, out of the playfield slot.

To install a star post in a playfield slot: Slide the PPH machine screw through the center of the star post, then insert it through the playfield mounting slot, from above. Carefully align the threads of the screw with the desired hole in the mounting plate, under the playfield, and begin threading it, by hand, into the plate (slowly turning it in a CW direction, keeping the screw perpendicular to the playfield surface). Once the screw is started, use the #2 Phillips screwdriver to firmly tighten the post down to the playfield surface; to keep the post from spinning and scratching the playfield clearcoat, use your free hand to hold the post as you tighten the screw. **DO NOT OVERTIGHTEN!**

To reposition a star post in a playfield slot: The outlane, adjustable star posts on Pulp Fiction are each held in place by a 1-3/4", 8-32 PPH machine screw. The machine screws are threaded through steel plates mounted under the playfield. From above, use the #2 Phillips screwdriver to unthread the machine screw from the steel plate, then carefully pull the post and screw straight up, out of the playfield slot. Insert the screw back through the playfield mounting slot, from above. Carefully align the threads of the screw with the desired hole in the mounting plate, under the playfield, and begin threading it, by hand, into the plate (slowly turning it in a CW direction, keeping the screw perpendicular to the playfield surface). Once the screw is started, use the screwdriver to firmly tighten the post down to the playfield surface; to keep the post from spinning and scratching the playfield clearcoat, use your free hand to hold the post as you tighten the screw. **DO NOT OVERTIGHTEN!**

To remove the center mini post: The first step is to remove the post's rubber ring. Firmly grasp it and pull it straight up, off of the top of the post. The mini post extends through the playfield and is fastened down with a #8 washer and an 8-32 elastic stop nut under the playfield. Wrap the metal post, above the playfield, with masking tape or a soft towel to avoid scratching it during removal. Firmly grasp the wrapped post (through the padding material) with your pliers while using the 11/32" wrench, from below, to loosen and remove the stop nut. Be ready to catch the #8 washer, underneath, when the nut comes loose! **CAREFULLY and LIGHTLY TAP** the exposed, threaded end of the post, from below, with the hammer, until it is flush with the bottom of the playfield. Then, from above, **CAREFULLY and SLOWLY** "unthread" the post (turning it CCW) from the playfield hole, by hand. **DO NOT PULL THE POST OUT!** Locate the plastic plug in your game accessory bag (PIN-PLM-018PLUG) and install it in the hole: from above, line the plug up with the playfield hole, then firmly press it in, by hand, until its top lip is flush with the playfield surface. **TIP:** Put the washer over the bottom of the post, hand-tighten the elastic stop nut onto the post threads, and slide the rubber ring back onto the post. Store this "mini post assembly" in the game cabinet, on either side (or inside) the coin box, in case you decide to re-install it at some later time.

To install the center mini post: If the plastic plug has been installed in the playfield hole, it will need to be removed. **DO NOT ATTEMPT TO PRY THE PLUG OUT FROM ABOVE!** Locate the mounting hole **underneath** the playfield. Insert your small slot screwdriver into the hole, from below, and **LIGHTLY TAP** it with your hammer, slowly pushing the plug up through the top of the playfield. When the plug has sufficiently backed out of the hole a bit, pull it straight up and out of the hole, **BY HAND** (to protect your playfield from damage). Carefully insert the threaded end of the mini post into the playfield mounting hole, from above. "Thread" it (turning it CW) straight down into the hole, by hand, as far as possible. If you cannot get the large base of the post all the way down to the playfield surface, locate the mounting hole underneath the playfield. If a few threads of the post are protruding from the hole, put the washer over the end of the post, carefully align the threads of the stop nut with the post end and begin threading it (slowly turning CW), by hand, onto the post end. If no post threads are visible below the playfield, **CAREFULLY and LIGHTLY TAP** on the top of the post until several threads are visible below. Wrap the metal post, above the playfield, with masking tape or a soft towel to avoid scratching it during installation. Firmly grasp the post (through the padding material) with your pliers while using the 11/32" wrench, from below, to firmly install the post in the playfield (pulling it completely down into the hole, as the nut tightens). When done, the large post base will be all the way down, against the playfield surface level and firmly held in place - you should not be able to wiggle the post **at all** by hand. **DO NOT OVERTIGHTEN!** Lastly, install the post rubber ring, by sliding it over the top of the mini post. **TIP:** Store the plastic plug in the game cabinet, on either side (or inside) the coin box, in case you decide to remove the center post at some later time.

4.4 Operator Notifications

Your machine continuously monitors all of its switches to ensure that the game plays, as designed. If, after a predefined number of games played (this number varies, depending upon the switch and its purpose/likelihood of being hit), the state of any switch has not changed, the game software will flag it and bring it to the operator's attention the next time he/she powers up the game or enters the games' menu system. The mechanism for this notification is the Game Issues Report.

More on this subject in a future release of the manual...



*"You don't have to tell me how good my coffee is, OK? I'm the one who **buys** it; I know how good it is."*

Appendices

"They call it a 'Royale with cheese'."



*"Zed's dead, baby.
Zed's dead."*



*"Because you **are** a character doesn't mean that you **have** character."*

25¢ Standard USA Coin Door Assembly

CGC Part ID: *PIN-HAP-COINDOR*

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	42-0231-00D	ENTRY BEZEL, IL, PLASTIC
2	2	42-0517-05D	REJECT BUTTON ASSY. YELLOW W/HAPP .25 INSERT
3	2	42-3371-00	PLASTIC MECH HOLDER W/2 METAL CLIPS & SW NO LAMP
4	2	42-0232-00D	RETURN BEZEL, IL, PLASTIC
5	2	42-1247-20	NEW COIN ENTRY RESTRICTOR WITH 2 TEETH
6	2	42-0119-00D	RETURN DOOR FLAP, PLASTIC
7	1	42-0641-00	LOCK ASSY 7/8 W/1-1/8"W/1/8" OFFSET DOUBLE BITTED KD
8	2	43-0022-00	SCREW, 4-40 X .25 PH. PN. HD
9	12	48-1000-00	SCREW, F/BEZEL, LONG 6 X 12 HEX WASHER HD HI-LOW RO
10	4	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	42-0612-20	PINBALL COIN DOOR, 2 ENTRY, BRKT. UPSTACKER MEI VAL
13	1	891-1701-016	FRAME STD DRII S2000 NOTCH BLK
14	4	92000A215	SCREW, PAN HD, M4 X 5MM LG
15	1	891-0100-4016	BLANKING PLATE DBV (BLACK) LARGE OPENING
16	4	42-0082-00	NUT, KEPS 8-32
17	4	890-1051-00	SPACER .20 X.375 DIA X .500 L RICHCO SS10-4
18	1	03-7655-6	CABLE CLAMP, 3/8" DIA.
19	1	43-0127-00	TIE PLATE
20	1	95-0278-00	DANGER LABEL FOR COIN DOORS ELECTRIC SHOCK
21	1	RBM-798	BRKT ASSY 4 BUTTONS FOR PINBALL DOOR
22	2	42-0351-00D	LAMP HOLDER
23	2	42-3079-100	COIN MECH HAPP "PRO MECH" .25 CENT USA
24	2	91-10WB-121W	LED T3 1/4 WEDGE BASE 12V SINGLE LED WHITE

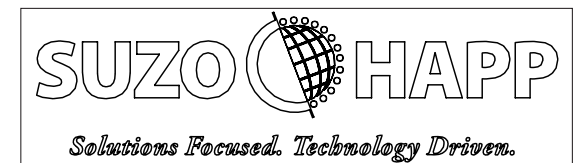
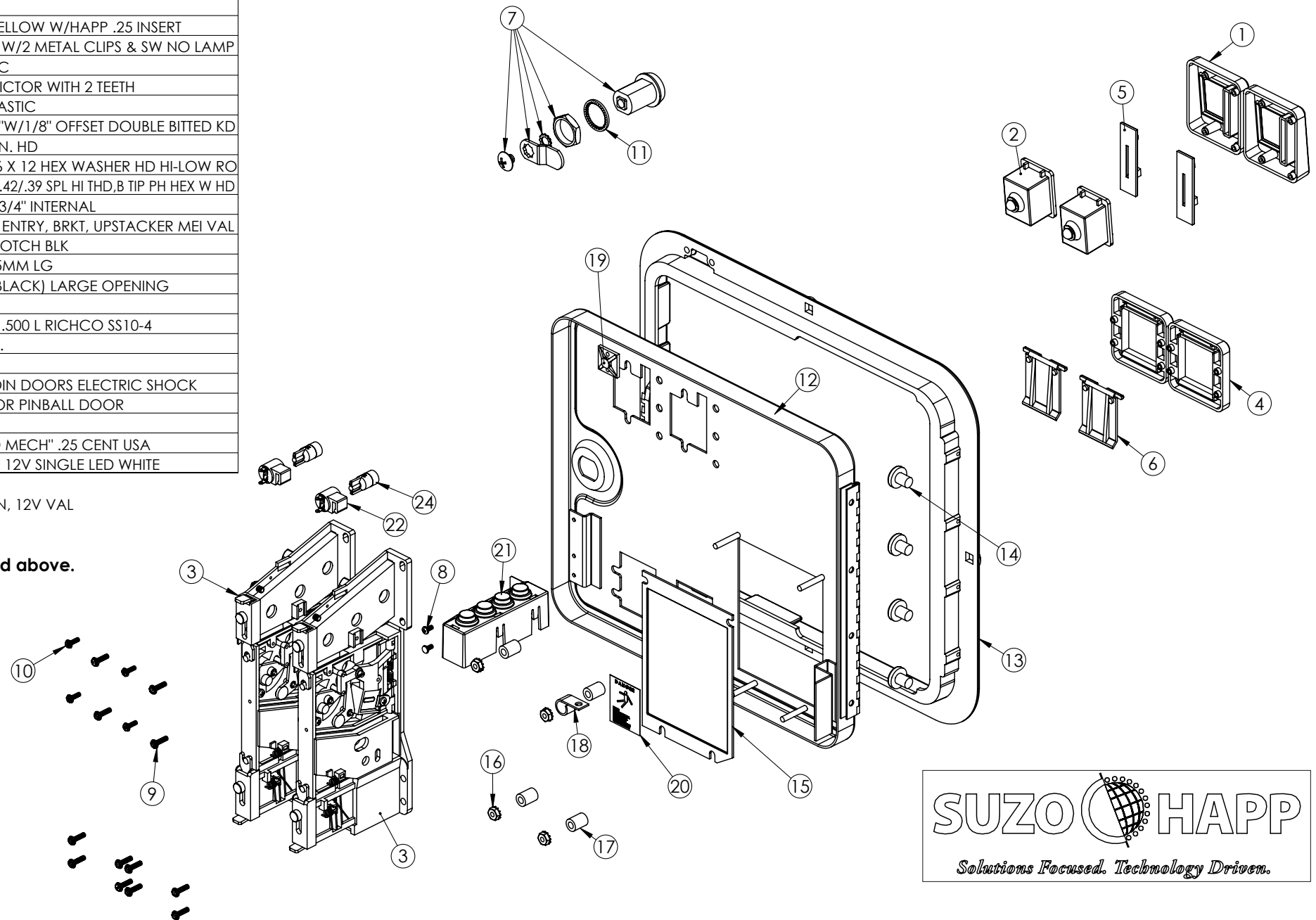
ITEMS NOT SHOWN:

96-1779-00 HARNESS, PINBALL DOOR, 2 SLOT COIN, 12V VAL

90-1013-00 (TIE WRAP), QTY 3

S-11136 CABLE TIE QTY 1

Note: Suzo-Happ parts and numbers are listed above.



Standard European Coin Door Assembly

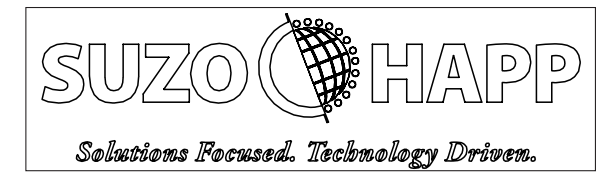
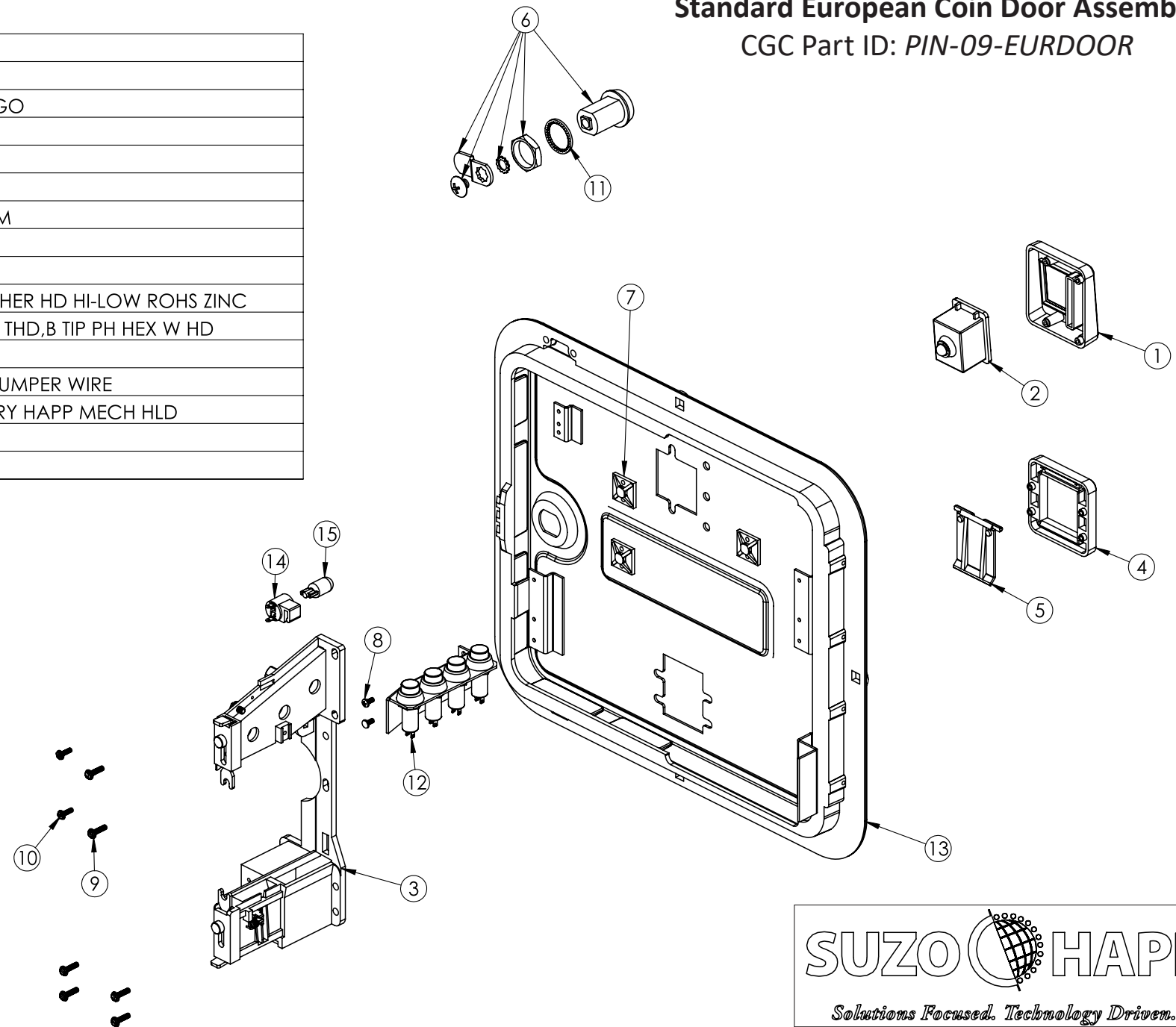
CGC Part ID: *PIN-09-EURDOOR*

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.



Acronyms & Abbreviations

A	ampere	FM	front mount (wrt targets, switches)	mm	millimeter	SAE	Society of Automotive Engineers
AC	Alternating Current	F-M	Female - Male	MOSFET	Metal-Oxide Semiconductor Field-Effect Transistor	SB	Slow Blow (wrt fuses)
Adj	adjustable	ft	feet	MS	Machine Screw	SD	Secure Digital
Assy	assembly	ga	gauge (wrt wire)	Mtg	mounting	SE	Special Edition
Aux	auxiliary	GB	gigabyte	N/A	not applicable	SED	Special Edition, DBV Ready (Op)
BB	backbox	GI	General Illumination	N/C	no connection	SH	Socket Head (wrt screws)
Bd	board	GND	ground	nF	nanofarad	SEMS	integral star lock washer
bidir	bidirectional	GP	general purpose	nm	nanometer	SMD	Surface-Mounted Device
BiP	ball in play	GRN	green	NPN	Negative - Positive - Negative (wrt transistors)	SMS	Sheet Metal Screw
BLK	black	GRY	gray	NS	Not Shown	SMT	Surface Mount Technology
BLU	blue	HH	Hex Head (wrt screws)	ns	nanosecond	SOIC-	Small-Outline Integrated Circuit (IC pkg)
brkt	bracket	HP	high power (wrt coils/solenoids)	Ω	ohm	SP	solenoid power (driver PCB)
BRN	brown	HSTD	high score to date	OD	Outside Diameter (wrt washers)	SPDT	Single Pole, Double Throw (wrt switches)
CAT5	category 5 ethernet	HW	hardware	Op	Operator Edition (same as SED)	SPST	Single Pole, Single Throw (wrt switches)
CAT6	category 6 ethernet	HWH	Hex Washer Head (wrt screws)	ORN	orange	TAN	tan
CCW	counterclockwise	IC	Integrated Circuit	OS	operating system	term	terminal
CGC	Chicago Gaming Company	ID	Inside Diameter (wrt washers)	PCB	Printed Circuit Board	Tgt	target
CMOS	Complementary Metal-Oxide Semiconductor	ID	identifier	PDF	portable document format	TH	Truss Head (wrt screws)
CP	cup point (wrt screws)	IEC	International Electrotechnical Commission	pcs	pieces	TH	thickness (wrt washers)
CPU	Central Processing Unit	I/O	Input/Output	PEM	brand name threaded insert	TO-	Transistor Outline (transistor pkg)
CS	Cap Screw (wrt screws)	IP	Internet Protocol	PEM Stud	brand name threaded stud	μ F	microfarad
ctrl	control	IR	infrared	pF	picofarad	UF	upper flipper (wrt coils/solenoids)
CW	clockwise	ISO	International Organization for Standardization	PF	Pulp Fiction	USB	Universal Serial Bus
DBA	Dollar Bill Acceptor	J	joule	PF	playfield	V	volt
DBV	Dollar Bill Validator	k Ω	kilo ohm	PFH	Phillips Flat Head (wrt screws)	VIO	violet
DC	Direct Current	kHz	kilohertz	PFP	Pulp Fiction Pinball	W	watt
diam	diameter	LCD	Liquid Crystal Display	pkg	package	wrt	with respect to
DIP	Dual Inline Package	LE	Limited Edition	PLM	plum	WS	Wood Screw
Diff	differential	LED	Light-Emitting Diode	PPH	Phillips Pan Head (wrt screws)	w/	with
DPDT	double pole, double throw (wrt switches)	LF	lower flipper (wrt coils/solenoids)	PNK	pink	WHT	white
DPST	double pole, single throw (wrt switches)	Lg	large	pos	position	XMT	transmit (wrt optos)
Drv	drive	LP	low power (wrt coils/solenoids)	PWM	pulse width modulation (or modulated)	YEL	yellow
DT	drop target	LSM	left side mount (wrt switches)	Qty	quantity	'	feet
dwg	drawing	Lt	left	Rcv	receive (wrt optos)	"	inch
ea	each	mA	milliampere	RED	red		
Elect	electrolytic	MB	multiball	rev	revision		
EOS	end of stroke (wrt flippers)	MCU	microcontroller unit	RF	Radio Frequency		
ESN	Elastic Stop Nut	M-F	Male - Female	RGB	red, green, blue		
F-F	Female - Female	MHz	megahertz	Rnd	round		
FB	Fast Blow (wrt fuses)	MLCC	Multi-Layer Ceramic Capacitor	RSM	right side mount (wrt switches)		
FCC	Federal Communications Commission	MOV	Metal Oxide Varistor	Rt	right		
FH	Flat Head (wrt screws)	M-M	Male - Male	RX	receiver		

Music Trademark/Licensing Information

“Comanche”

Written and performed by **The Revels**
Published by Downey Record Productions and Fine Gold Music

“Jungle Boogie”

Performed by **Kool & The Gang**
Universal Music Enterprises, a Division of UMG Recordings, Inc.

“JUNGLE BOOGIE”

Written by **Robert Spike Mickens, Robert E. Bell, Richard Westfield, Claydes Smith, Ronald Bell, George Brown and Dennis Thomas**
© 1973 Warner-Tamerlane Publishing Corp. (BMI), Old River (BMI), Claydes Smith Heirs Pub Designee (BMI), Uranus Nine Inc Pub Designee (BMI), Attitudes In Music, Inc. Pub Designee (BMI), Kharana Music Publishing (ASCAP) and WC Music Corp. (ASCAP)
All rights on behalf of itself and Kharana Music Publishing administered by WC Music Corp.
All rights on behalf of itself and Attitudes In Music, Inc. Pub Designee, Claydes Smith Heirs Pub Designee, Old River and Uranus Nine Inc Pub Designee administered by Warner-Tamerlane Publishing Corp.
ALL RIGHTS RESERVED. USED BY PERMISSION.

“Misirlou”

Written and performed by **Dick Dale & the Del-Tones**

“Misirlou” (Instrumental & Original Greek Lyric Version)

Written by **Nicholas Roubanis**
(100%) EMI Grove Park Music, Inc. (BMI)

“Son of a Preacher Man”

Performed by **Dusty Springfield**
Courtesy of Atlantic Recording Corp.
By arrangement with Warner Music Group
Universal Music Enterprises, a Division of UMG Recordings, Inc.

“Son of a Preacher Man”

Written by **John Hurley and Ronnie Wilkins**
(100%) Sony/ATV Tree Publishing (BMI)

“You Never Can Tell”

Performed by **Chuck Berry**
Universal Music Enterprises, a Division of UMG Recordings, Inc.

CGC Limited Manufacturer's Warranty for Pinball Machines

Chicago Gaming Company (CGC) manufactures a number of different products. This warranty pertains only to pinball machines (Product).

What does this warranty cover?

CGC warrants to the holder of a valid proof of purchaser that the Product is free from defects in material and workmanship when installed and used normally and in accordance with operation instructions. The purchaser must promptly notify CGC of any claims within the warranty period. The warranty period begins on the date of invoice from the authorized dealer or distributor.

CGC, at its sole discretion, will be liable to repair or replace components which are returned to CGC during the warranty period. CGC will repair or replace any covered part at no charge, exclusive of shipping and handling charges or any labor to install the part. Unless instructed otherwise, all defective products must be properly packaged and returned to CGC, freight prepaid.

The Limited Warranty covers:

1. Electronic components including the controller board, CPU board, playfield board, power supply board, solenoid driver boards and LCD controller board;
2. Mechanical and other components that fail due to defects in materials or workmanship excluding normal wear and tear;
3. All cosmetic issues must be reported within 30 days of receipt of game.

The Limited Warranty will not cover:

1. Labor or service calls necessary to replace any part;
2. Any part replacement which is a result of improper installation, shipping or handling damage, negligence, misuse, alteration, modification, abuse, or rust of any kind;
3. Any damage caused by an electrical surge or by intrusion of any liquid, repairs by persons other than our authorized service personnel, fire, theft, acts of God (such as a flood or earthquake), and/or improper electrical connection/modifications.

Length of Warranty:

<i>Game Version</i>	<i>Electronics</i>	<i>Mechanical & Other Components</i>
Pulp Fiction - LE	24 months	12 months
Pulp Fiction - SE	12 months	6 months
Pulp Fiction - SED (Op)	12 months	6 months

How do I obtain warranty support?

If something goes wrong, contact the dealer from whom you purchased your Product. In most cases your dealer will be able to correct the problem, but if they are not able to do so, you should contact the CGC service department by opening a Help Desk ticket at www.chicago-gaming.com/support/helpdesk.

State Law Rights:

This warranty gives the purchaser specific legal rights, and you may also have other rights, which vary from state-to-state.

Exclusive Agreement:

This limited warranty is the exclusive and complete agreement between the purchaser and CGC. It supersedes all other written or oral communications related to this Product. There are no other warranties that CGC provides for this Product. All responsibilities in regards to the Products and CGC are exclusively expressed. There are no other express warranties. No one is authorized to make modifications to this limited warranty and the purchaser should not rely on any such modification.

Limitations:

Any implied warranties are excluded. CGC in no event will be liable for any indirect, special, incidental, consequential, or similar damages. This includes, but is not limited to, the loss of profits or revenue, inability to use the Product, or other associated equipment, the cost of substitute equipment, and claims by a third party resulting from the use of this Product.

WARNINGS & NOTICES

WARNING

FOR SAFETY AND RELIABILITY, substitute parts and equipment modifications are not recommended. Use of non-CGC 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 CGC equipment, logos, designs, publications, assemblies and games (or game feature not deemed to be public domain), whether manufactured with CGC 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

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WARNING

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

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

RF Interference Notice

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

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

FCC/CANADA STICKER. Check the back of your game to verify that an FCC/Canada-certification sticker was attached to your game at the factory. All Games that leave the CGC 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 CGC 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://www.chicago-gaming.com/support/helpdesk>

4616 W. 19th Street
Cicero, IL 60804

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