

METALLICA REMASTERED

SERVICE AND OPERATION MANUAL



WARNING

IMPORTANT HEALTH WARNING: PHOTSENSITIVE SEIZURES - A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns. Even people with no history of seizures of epilepsy may have an undiagnosed condition that can cause "photosensitive epileptic seizures" due to certain visual images, flashing lights or patterns. Symptoms can include lightheadedness, altered vision, eye or face twitching, jerking or shaking of arms or legs, disorientation, confusion, momentary loss of awareness, and loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

IMMEDIATELY STOP PLAYING AND CONSULT A DOCTOR IF YOU EXPERIENCE ANY OF THESE SYMPTOMS.

ATTENTION! IMPORTANT WARRANTY INFORMATION

The electronics system, node network architecture, mechanical devices and associated software control systems in this pinball machine are designed to work with genuine Stern Pinball accessories and devices.

Installation of non-authorized accessories, lamps, LED's, motors or other devices or modification of electro-mechanical devices may damage the system and may void your warranty.

Stern Pinball machines are assembled in Elk Grove Village, Illinois, USA. Stern Pinball has inspected each game element to ensure it meets our quality standards.

Each pinball machine has unique characteristics that make it a one-of-a-kind American made product. Each will have variations in appearance resulting from differences in the machine's particular wood parts, individual printed art and mechanical assemblies. No playfield is perfectly flat and varies depending on the season. Game play will result in playfield dimpling as the harder steel ball contacts the wood and coating; over time multiple dimples will blend to make them less noticeable. Normal plastic insert crazing (tiny stress cracks) and ghosting (small cloudy areas around insert edges) are often seen in pinball machines, due to a combination of plastic mold stress, pushing of inserts into purposely undersized holes, and heating and breaking of inserts' plastic "skin" when the playfield is sanded.

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Games configured for North America operate on 60 cycle electricity only. These games will not operate in countries with 50 cycle electricity (Europe, UK, Australia).



MANUAL #780-50X5-00
METALLICA REMASTERED LE #500-55X6-01
METALLICA REMASTERED PREMIUM #500-55X5-01

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1. SETUP AND MOVING

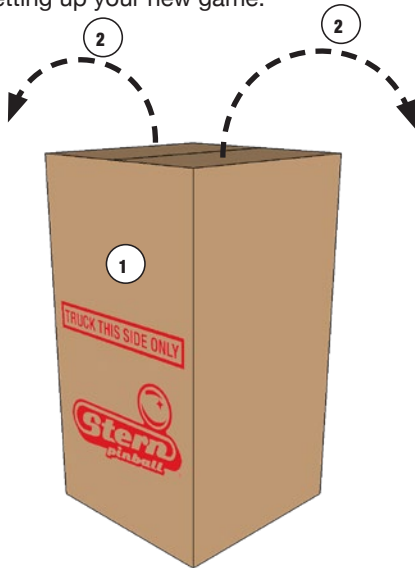
1.1 FIRST-TIME SETUP INSTRUCTIONS

Your brand new Stern Pinball Machine is carefully packed for safety and security. For your safety, exercise caution and use the correct tools and sufficient help when setting up your new game.

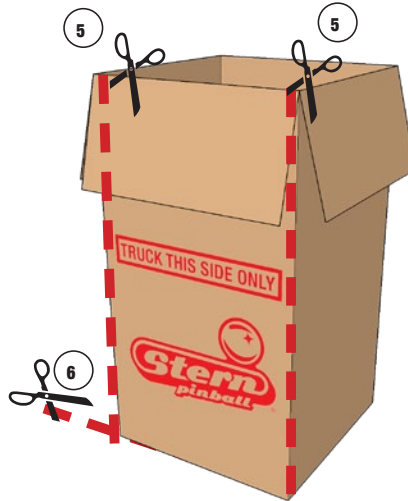
TOOLS REQUIRED

- 5/8" Socket Wrench
- Utility Knife
- Snips
- An Assistant

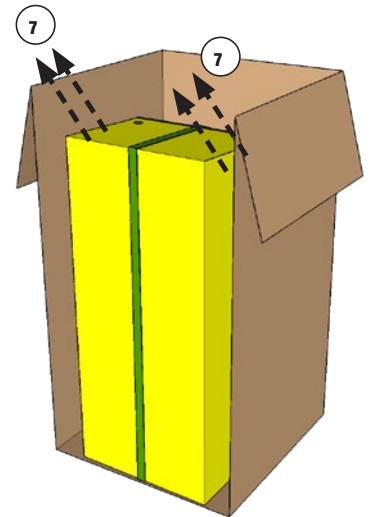
CAUTION: AT LEAST TWO (2) PEOPLE ARE REQUIRED TO MOVE AND MANEUVER THE GAME. USE PROPER MOVING EQUIPMENT AND EXTREME CARE WHILE HANDLING. STERN PINBALL MACHINES WEIGH OVER 250LBS BOXED.



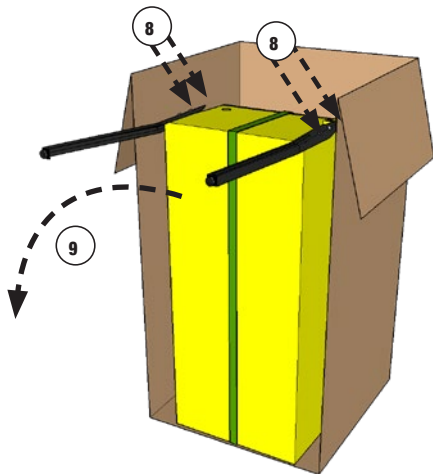
1. Locate the side labeled "TRUCK THIS SIDE ONLY". The bottom of the game faces this side.
2. Open the top box flaps by pulling hard in an upward motion on each flap. If the flaps are taped, cut the tape first, taking care to avoid the box staples.



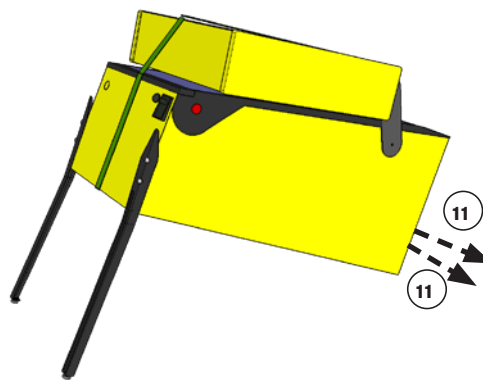
3. Remove the four (4) foam pieces and two (2) narrow box tubes which contain the four (4) identical legs with levelers.
4. DO NOT CUT STRAPPING YET. Keep backbox secured in the down position.
5. With the utility knife, carefully cut down the left and right corners of the box.



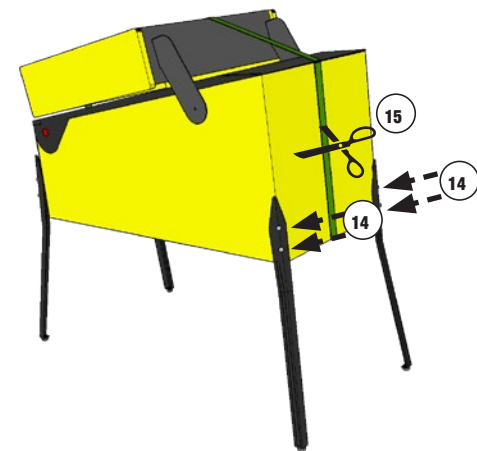
6. Let the face fall forward and remove the entire side by carefully cutting the bottom.
7. With the game still in its folded position, use a 5/8" wrench to loosen and remove the 2 leg bolts on each side of the front cabinet. Ensure the leg levelers are screwed all the way into the legs.



8. Install front legs using the bolts removed from the cabinet. Secure tightly.
9. Have someone help you carefully set the game down on the front legs.



10. Set aside the open box.
11. With a 5/8" socket wrench, loosen and remove the 2 leg bolts on each side of the rear cabinet, 4 total.



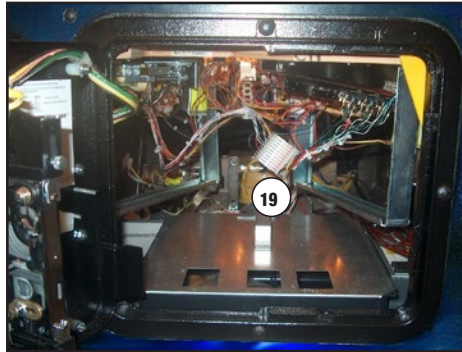
12. Using supports or two people, prop the rear of the cabinet up.
13. Ensure the rear leg levelers are screwed all the way into the legs.
14. Install rear legs using the 4 bolts removed from step 11.



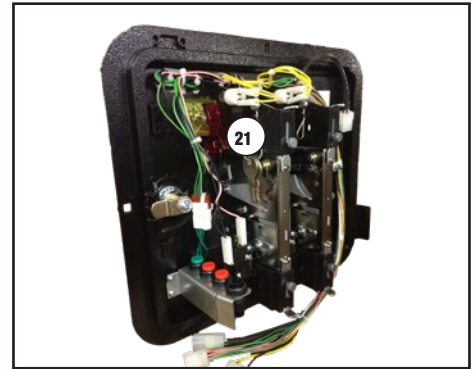
FIRST-TIME SETUP CONTINUED



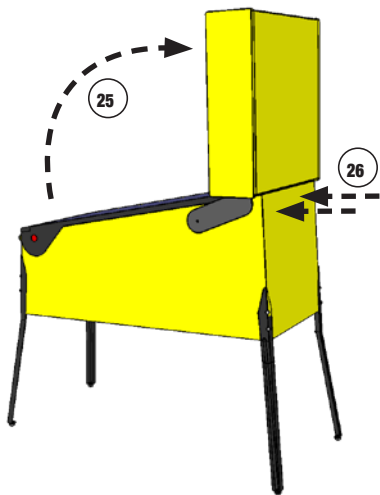
- 15. Cut nylon strapping and remove protective strap corner guards.
- 16. Locate the factory keys, either on the shooter rod or taped to the playfield glass.
- 17. Using snips, cut the tie-wrap securing the keys if required. One set of keys is for the front coin door, the other set of keys is for accessing components in the backbox.



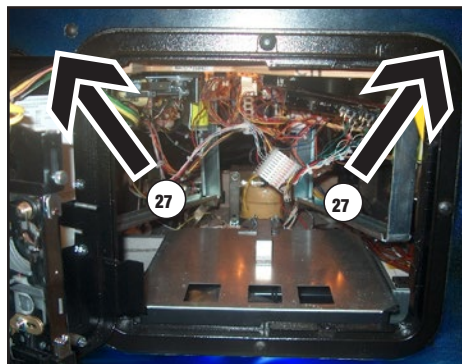
- 18. Open the front coin door.
- 19. Reach into the game and remove the retaining clip at the rear of the cash box.
- 20. Remove the cash box lid by sliding it toward you.



- 21. Store the backbox keys, if desired, on the metal hook located in the coin door.
- 22. Locate and remove the pinballs, plumb bob, and backbox bolts from the cash box.
- 23. Replace the cash box lid and retaining clip for future use.



- 24. Locate the two (2) backbox bolts in the cash box.
- 25. Carefully raise backbox to upright position while ensuring that cables are not pinched.
- 26. Use the 5/8" wrench to install the two (2) backbox bolts to secure the backbox as indicated on the back of the cabinet.



- 27. Reach inside the cabinet and lift the two latches located on either side of the coin door.
- 28. Remove the front top molding.



- 29. Remove the playfield glass by sliding it toward you and carefully place it in a safe location. Remove all playfield shipping tie downs, shipping blocks, and packing foam, and follow any game-specific unpacking instructions included in the playfield, if present.

CAUTION: PLAYFIELD GLASS IS MADE FROM HIGH-STRENGTH TEMPERED GLASS. TEMPERED GLASS IS SENSITIVE TO EXTREME TEMPERATURE SHIFTS AND CORNER NICKS, WHICH CAN CAUSE THE GLASS TO FAIL CATASTROPHICALLY. TAKE CARE TO STORE THE GLASS ON A SOFT, ROOM-TEMPERATURE SURFACE AND PREVENT THE CORNERS FROM BEING DAMAGED.

FIRST-TIME SETUP CONTINUED

30. If pinballs were already installed into the lower ball trough, remove them before lifting the playfield.
31. Grasp the lower arch between the flippers, and firmly but gently pull directly up to raise the playfield 8 to 12 inches.
32. While holding the playfield up, pull the playfield toward you until the two playfield supports are over the front edge of the cabinet.
33. Rest the playfield on the front edge of the cabinet.
34. Raise the playfield and rest it against the backbox.
35. Visually inspect all cabinet cables and connector terminations; ensure no wires or cables are pinched and that cable harnesses are not pulled tight.
36. Locate the plumb bob in the parts bag in the cash box.
37. Slide plumb bob onto the hanger wire. Note: the vertical position of the plumb bob affects tilt sensitivity - higher makes the game more sensitive to tilting.
38. Tighten the thumb screw finger-tight.
39. Install the correct number of pinballs. Refer to the decal on the lock down assembly for the correct number of pinballs.

LOCATING, LEVELING, AND FINAL SETUP

1. Select a location that is indoors, out of direct sunlight, and climate controlled. Excessive moisture/humidity can cause long-term damage to your game.
2. Adjust the front or rear levelers as necessary to position the playfield level bubble, located on the front right of the playfield next to the shooter lane, to float between the two (2) black lines. This will place the playfield at the recommended 6.5° pitch. Playfield angles greater than 6.5° can be achieved by turning out the rear leg leveler(s) for increased difficulty and faster gameplay.
3. Use a pinball to roll down the center of the playfield for side-to-side leveling, or use an external bubble level, digital level, or smartphone level app.
4. Plug into a grounded outlet and check for proper operation through DIAGNOSTICS.
5. Check the coin door: With the door closed, insert coins to verify proper operation.
6. Play game: Check for satisfactory operation and adjust game volume (push the Red Buttons inside the Coin Door).
7. If desired, perform any game diagnostics, game adjustments, and pricing settings at this time.

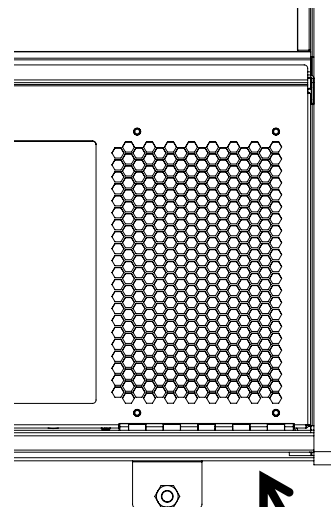


SPIKE PINBALL SOFTWARE UPDATE INSTRUCTIONS

1. Obtain game software update file (filename ends in “.spk”) from www.sternpinball.com or from authorized Stern distributor.
2. Place game software update file (“.spk”) in root directory of a blank FAT32-formatted USB flash drive (NTFS Format will also work)
3. Use backbox power switch to turn off game
4. Plug in USB flash drive to CPU board USB connector (CN20 or CN21). Refer to www.sternpinball.com
5. Turn on game
6. The game will automatically begin software update
7. Select the correct .spk update file from list.
8. Press Enter on the service switches to start update
9. When the display indicates “Update Complete”, turn off game
10. Remove USB flash drive from CPU board
11. Turn game on to complete the update and play pinball!
12. Detailed instructions and troubleshooting tips are available in the game manual, www.sternpinball.com and authorized Stern distributors.

POWER SWITCH

The game’s power switch is located on the right-hand side underneath the backbox.



ON/OFF Switch

1.2 ADJUSTMENTS MENU

STANDARD ADJUSTMENTS

Perform the below steps to review the adjustments.

Enter the Service Menu, then enter the Standard Adjustments Menu.

Press SELECT to access the Service Menu. Press BACK to exit or escape at any time.

Press [>]. Go to the ADJ icon. Press SELECT.

Go to the S.P.I. icon. Press SELECT.

STANDARD ADJUSTMENT #1 appears with the adjustment name flashing. While the adjustment name is flashing press [<] [>] to move between adjustments.

To change the adjustment setting press SELECT. While the adjustment setting is flashing, press [<] [>] repeatedly until the desired setting appears. Press the SELECT button to “install” the change. The adjustment comment (bottom line) will indicate if the factory default setting is selected or will display INSTALLED if the change is not a factory default setting.

ID	Adjustment Name	Default Setting
1	FREE PLAY	NO
2	GAME PRICING	USA 11
3	REPLAY TYPE	AUTO
4	REPLAY PERCENTAGE	10%
5	REPLAY AWARD	CREDIT
6	REPLAY LEVELS	1
7	AUTO REPLAY START	150,000,000
8	DYNAMIC REPLAY START	150,000,000
9	REPLAY LEVEL #1	150,000,000
10	REPLAY LEVEL #2	175,000,000
11	REPLAY LEVEL #3	225,000,000
12	REPLAY LEVEL #4	350,000,000
13	REPLAY BOOST	YES
14	SPECIAL LIMIT	1
15	SPECIAL PERCENTAGE	10%
16	SPECIAL AWARD	CREDIT
17	FREE GAME LIMIT	5
18	EXTRA BALL LIMIT	5
19	EXTRA BALL PERCENTAGE	25%
20	MATCH PERCENTAGE	9%
21	MATCH AWARD	CREDIT
22	BALLS PER GAME	3
23	MAX PLAYERS PER GAME	4
24	TILT WARNINGS	2
25	TILT DEBOUNCE	750
26	CREDIT LIMIT	30
27	REMOVE FRACTIONAL CREDITS	NEVER
28	ALLOW HIGH SCORES	YES
29	HIGH SCORE AWARD	CREDIT
30	GRAND CHAMPION AWARDS	1
31	HIGH SCORE #1 AWARDS	0
32	HIGH SCORE #2 AWARDS	0
33	HIGH SCORE #3 AWARDS	0
34	HIGH SCORE #4 AWARDS	0
35	GRAND CHAMPION SCORE	60,000,000
36	HIGH SCORE #1	50,000,000

37	HIGH SCORE #2	40,000,000
38	HIGH SCORE #3	30,000,000
39	HIGH SCORE #4	25,000,000
40	HSTD INITIALS	3 INITIALS
41	HSTD RESET COUNT	2000
42	LANGUAGE	ENGLISH
43	PLAYER LANGUAGE SELECT	YES
44	CUSTOM MESSAGE	ON
45	KNOCKER VOLUME	NORMAL
46	START GAME ON CREDIT	OFF
47	START BUTTON BEHAVIOR	ALL LOGGED IN
48	GAME RESTART	YES
49	GAME MODE ON START	STANDARD
50	INSIDER LOGIN TIMER	30
51	INSIDER PLAY AGAIN TIMER	20
52	USE INSIDER HOME TEAM	NEVER
53	ENABLE HOME TEAM IN COINPLAY	NO
54	HOME TEAM GUEST RETENTION	UNTIL POWER OFF
55	DISPLAY MESSAGE OF THE DAY	YES
56	START BUTTON ATTRACT MODE ILLUM.	BLINKING
57	ALLOW LEFT+START TO END GAME	ALWAYS
58	BALL SAVE TIME	0:12
59	TARGET GAME TIME	1:45
60	TIMED PLUNGER	OFF
61	FLIPPER BALL LAUNCH	OFF
62	COINDOOR BALL SAVER	NO
63	COMPETITION MODE	NO
64	Q24 OPTION	COIN METER
65	TICKET DISPENSER	NONE
66	PLAYER GAME MODE	YES
67	PLAYER COMPETITION MODE	YES
68	PLAYER CHALLENGE MODE	YES
69	PLAYER COOPERATION MODE	YES

70	DJ MIXER MODE	YES
71	DJ MIXER PLAYLIST MODE	ORDERED PLAYBACK
72	DJ MIXER PLAYLIST REPEAT	YES
73	LOCATION ID	0
74	GAME ID	0
75	TIME FORMAT	12-HOUR
76	PRICING FORMAT	STANDARD
77	CREDIT FORMAT	REDUCED FRACTION
78	COIN INPUT DELAY	30
79	COIN ACCEPTOR	MECHANICAL
80	LOST BALL RECOVERY	YES
81	COIN DOOR DISABLE TILT	NO
82	COIN DOOR OPEN NODEBUS POWER	YES
83	PLAY ATTRACT TUTORIAL VIDEOS	YES
84	FRONT VOLUME KNOB	HEADPHONES VOL. ONLY
85	MUTE IF HEADPHONES DETECTED	YES
86	MUTE KNOCKER IF HP DETECTED	NO
87	DISABLE Q24 KNOCK IF HP DETECTED	NO
88	GI LED BRIGHTNESS	100%
89	GI LED MAX BRIGHTNESS	255
90	INSERT LED BRIGHTNESS	100%
91	INSERT LED MAX BRIGHTNESS	255
92	FLASHER LED BRIGHTNESS	100%
93	FLASHER LED MAX BRIGHTNESS	255
94	CABINET LED BRIGHTNESS	100%
95	LCD DISPLAY BRIGHTNESS	7
96	ATTRACT MODE B.BOX BRIGHTNESS	100%
97	GAME PLAY B.BOX BRIGHTNESS	100%
98	SERVICE MENU B.BOX BRIGHTNESS	5%

FEATURE ADJUSTMENTS

Each table has feature adjustments specific to the characteristics of that game. To access feature adjustments enter the Service Menu and then enter the Adjustments Menu.

Press SELECT to access the Service Menu. Press BACK to exit or escape at any time.

Press [>]. Go to the ADJ icon. Press SELECT.

Go to the game icon. Press SELECT.

FEATURE ADJUSTMENT #1 appears with the adjustment name flashing. With the adjustment name flashing press [<] [>] to move between adjustments. Feature adjustments are changed similarly to standard adjustments using the SELECT button to choose options and the [<] [>] buttons to cycle through available settings.

1.3 GAME PRICING REFERENCE TABLE

Country	ID	Pricing (Credits / Cost)						Unit per Pulse	Coin Door Pulse Settings					
									Left	Center	Right	4th	5th	6th
Australia	1	1/\$1.00 AU	3/\$2.00 AU					\$0.10 AU	2	10	20	50	5	0
	2	1/\$1.00 AU												
	3	1/\$2.00 AU												
	4	1/\$2.00 AU	2/\$4.00 AU	3/\$5.00 AU										
	5	1/\$2.00 AU	2/\$3.00 AU											
Canada	1	1/\$0.50 CN	2/\$0.75 CN	3/\$1.00 CN			\$0.25 CN	1	1	4	8	0	0	
	2	1/\$1.00 CN	3/\$2.00 CN				\$1.00 CN	1	1	2	2	0	0	
China	1	1/5 Yuan	3/10 Yuan				1 Yuan	1	1	1	0	0	0	
	2	1/10 Yuan	2/15 Yuan											
Croatia		1/3 kuna	2/5 kuna				1 kuna	1	2	5	1	0	0	
Denmark	1	1/3 DKr	2/5 DKr				1 DKr	1	5	10	20	0	0	
	2	1/2 DKr	2/4 DKr	3/5 DKr	4/7 DKr	5/9 DKr								7/10 DKr
	3	1/5 DKr												
	4	1/10 DKr												
	5	1/20 DKr												
	6	1/10 DKr	3/20 DKr											
Euro	1	1/EUR 0.50					Electronic EUR 0.10	5	10	20	2	0	0	
	2	1/EUR 0.50	2/EUR 1.00	3/EUR 1.50	5/EUR 2.00									
	3	1/EUR 0.50	3/EUR 1.00											
	4	1/EUR 1.00	2/EUR 2.00	3/EUR 3.00	5/EUR 4.00									
	5	1/EUR 1.00	3/EUR 2.00											
	6	1/EUR 1.00	2/EUR 1.50	3/EUR 2.00										
	7	1/EUR 1.00	3/EUR 2.00	7/EUR 3.00										
	8	1/EUR 1.00	4/EUR 2.00											
	9	2/EUR 1.00	4/EUR 2.00	6/EUR 3.00	9/EUR 4.00									
	10	1/EUR 2.00	2/EUR 3.00	3/EUR 4.00										
	11	1/EUR 2.00	2/EUR 4.00	3/EUR 5.00										
	12	1/EUR 2.00	3/EUR 4.00	7/EUR 6.00										
Indonesia	1	1/20000 Rp	2/40000 Rp	3/50000 Rp	4/60000 Rp	5/80000 Rp	8/100000 Rp	10,000 Rp	0	0	0	0	0	1
	2	1/20000 Rp	2/40000 Rp	4/50000 Rp	5/60000 Rp	6/80000 Rp	10/100000 Rp							
	3	2/20000 Rp	4/40000 Rp	6/50000 Rp	8/60000 Rp	10/80000 Rp	13/100000 Rp							
Japan	1	1/YEN 100					Yen 100	1	1	1	1	0	0	
	2	1/YEN 100	3/YEN 200											
	2	1/YEN 200												
Lithuania		1/2 LTL					1 LTL	1	2	5	0	0	0	
Middle East		1/1 token					1 token	1	1	1	1	0	0	
New Zealand	1	1/\$1 NZ					\$1 NZ	1	1	2	1	0	0	
	2	1/\$1 NZ	3/\$2 NZ											
	3	1/\$2 NZ	2/\$3 NZ											
Norway	1	1/10 Nkr					1 Nkr	1	5	10	20	0	0	
	2	1/10 Nkr	3/20Nkr											
	3	1/20 Nkr												
	4	1/20 Nkr	3/40 Nkr											
	5	1/5 Nkr												
Russia		1/5 RUB					1 RUB	10	5	1	1	0	0	
South Africa	1	1/R2					R 0.50	1	2	4	10	0	0	
	2	1/R3	2/R5											
Sweden	1	1/10 SKr	2/15 SKr	3/20 SKr			1 SKr	1	5	10	2	0	0	
	2	1/5 SKr												
	3	1/10 SKr												
	4	1/20 SKr												
	5	1/10 SKr	3/20 SKr											
Switzerland	1	1/1 SwF	2/2 SwF	3/3 SwF	4/4 SwF	6/5 SwF	1 SwF	1	2	5	1	0	0	
	2	1/2 SwF	2/4 SwF	3/5 SwF										
Taiwan		1/10 TWD					10 TWD	1	1	1	1	0	0	
UK	1	1/2.00					10p	1	5	10	2	20	0	
	2	1/1.00												
	3	1/50p	2/1.00	3/1.50	5/2.00									
	4	1/2.00	2/3.00	4/5.00										
	5	1/1.00	3/2.00											
USA	1	1/\$0.25					\$0.25	1	4	1	1	0	0	
	2	1/\$0.50	2/\$0.75	3/\$1.00										
	3	1/\$0.50												
	5	1/\$0.50	2/\$1.00	3/\$1.50	5/\$2.00									
	7	1/\$0.50	2/\$1.00	4/\$1.50	6/\$2.00									
	8	1/\$0.50	3/\$1.00											
	9	1/\$1.00												
	10	1/\$0.75	2/\$1.50	3/\$2.00										
	11	1/\$1.00	3/\$2.00											
	12	1/\$0.25	2/\$0.50	3/\$0.75	5/\$1.00									
	13	1/\$1.00	2/\$2.00	3/\$3.00	4/\$4.00	7/\$5.00								



1.4 TRANSPORTING THE GAME

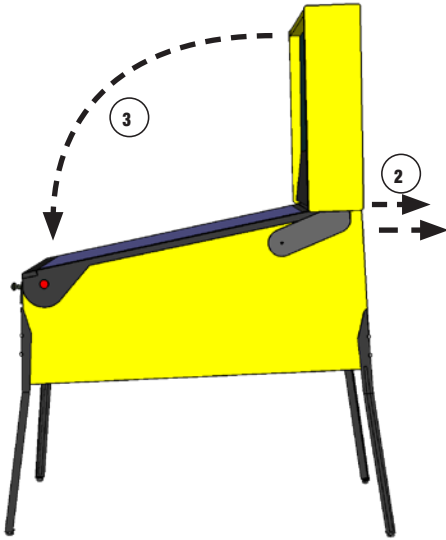
When transporting the game, such as in the back of a truck or with a hand truck, the game's backbox must be secured to prevent damage to the side rails.

1. SECURE THE BACKBOX

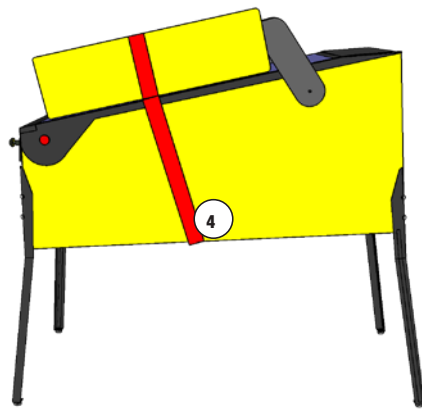
1. Ensure that the pinballs are removed from the playfield, and secure any free-moving mechanisms that may get damaged in transport

TOOLS REQUIRED ⓘ

- STRAP (500LB OR GREATER)
- AN ASSISTANT
- HAND TRUCK



2. Remove the backbox securing bolts
3. Carefully lower the backbox onto the side rails. Use a piece of cardboard or suitable padding between the backbox and the game.

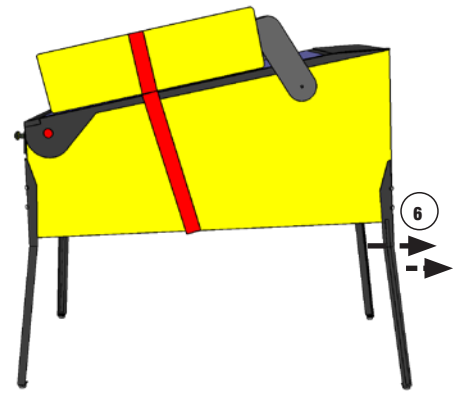


4. Securely strap the back box to the game
5. The game may be transported with the legs on. If the legs must be removed, follow the remaining steps.

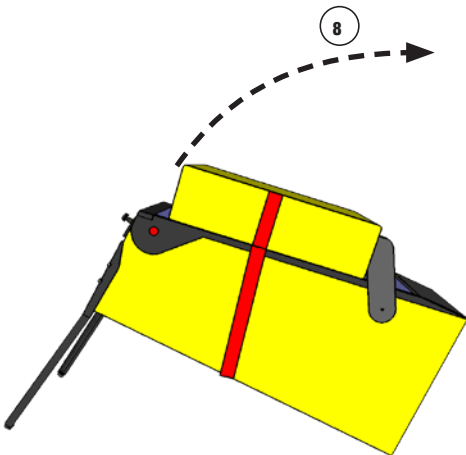
CAUTION ⚠

NEVER TRANSPORT THE GAME IN A MOVING VEHICLE WITH THE BACKBOX RAISED! TWO PEOPLE ARE REQUIRED TO REMOVE THE LEGS!

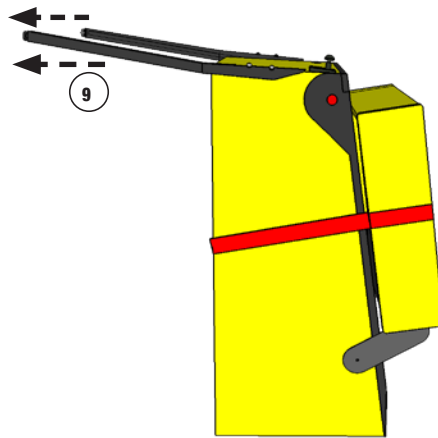
2. REMOVE THE LEGS AND STAND UP



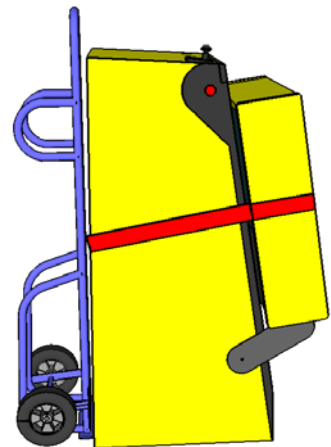
6. Remove the legs, rear legs first. Use a stool or a friend to support the rear of the game.
7. Rest the rear of the game on the ground.



8. Stand the game up on its back.



9. Remove the front two legs.



10. Secure all loose parts and transport with a hand truck in the upright position.

1.5 MAINTENANCE

REGULAR MAINTENANCE - (MONTHLY/500 GAMES)

- Remove the playfield glass
- Enter the software diagnostics menu, start lamp test, then clean and wax the playfield.
 - While cleaning the playfield, identify and repair malfunctioning lights, loose parts, cracked plastics and worn rubber parts.
- While in diagnostics, enter the switch test (Select the "SW" Icon, then "TEST" Icon).
 - Use a pinball to actuate all switches and verify the correct switch registers with the switch test.
 - The game will play a sound to confirm the switch.
- Lift the playfield and inspect all assemblies for loose parts, broken wires or excessive wear. Look at the bottom of the cabinet for any parts that may have worked loose, then find the source.
- Check all coin door mechanisms and bill acceptor (if installed) for proper operation
- Play the game to ensure all coils and features are working
- Check the playfield to ensure it is level and set to the proper pitch using the bubble level on the right side wood rail.
- Check game audits: Replay % and Ball Time and note abnormal values which can indicate problems.
- Ensure game volume is set appropriately for the location.
- Clean both sides of the playfield glass and reinstall.
- Check and clean pinballs and replace if excessively worn or scuffed. Dirty pinballs accelerate game wear.

OVERHAUL MAINTENANCE - (5000 GAMES)

- Verify latest game software is installed
- Check flippers for excessive wear. Excessive flipper sloppiness (vertical or horizontal) or weakness indicates a flipper rebuild is required.
- Clean machine inside and out and check leg levelers for free operation.
- Visual check for loose or broken playfield and cabinet parts and repair as necessary.
- Electrical check: Plug into grounded outlet and check for proper operation through DIAGNOSTICS.
- Replace worn or dirty rubbers.
- Replace pinballs.
- Check all playfield switches with a pinball.
- Check all settings (refer to manual for factory settings).
- Check coin door: With door closed, insert coins to verify proper operation.
- Check for proper adjustment of the plumb bob tilt.
- Play game: Check for satisfactory operation.

COMMON PINBALL TOOLS

- Common nut drivers (1/4", 5/16", 11/32", 3/8")
- Phillips screwdriver
- Standard Allen wrench/Hex key set
- 5/8" Socket with ratchet
- Adjustable wrench (5/8" & 9/16")
- 6" Torpedo Level (or use a pinball)
- Flashlight or headlamp
- Soldering Iron (60w with flat tip), lead-free solder
- Wire cutter
- Wire stripper
- Long nose ("needle nose") pliers

1.6 MAINTENANCE KITS

Description	Part Number
Metallica Remastered LE / Premium Playfield Plastics Kit	803-5000-X6
Metallica Remastered LE / Premium Playfield Decals Kit	802-5000-X6
Metallica Remastered LE Backbox Decal Left	820-90X6-01
Metallica Remastered Premium Backbox Decal Left	820-76X5-01
Metallica Remastered LE Backbox Decal Right	820-90X6-02
Metallica Remastered Premium Backbox Decal Right	820-76X5-02
Metallica Remastered LE Cabinet Decal Left	820-90X6-03
Metallica Remastered Premium Cabinet Decal Left	820-76X5-03
Metallica Remastered LE Cabinet Decal Right	820-90X6-04
Metallica Remastered Premium Cabinet Decal Right	820-76X5-04
Metallica Remastered LE Cabinet Decal Front	820-90X6-05
Metallica Remastered Premium Cabinet Decal Front	820-76X5-05
Metallica Remastered LE Playfield, Bare	830-5100-X6
Metallica Remastered Premium Playfield, Bare	830-5100-X5
Metallica Remastered LE Mirror Backglass	830-8426-X6
Metallica Remastered Premium Translite Backglass	830-8427-X5

1.7 COMMON PARTS

Description	Part Number
8 oz Pinball Playfield wax (Novus # 2)	675-0003-01
Standard Pinball, 1-1/16 in	260-5000-00
Flipper Rebuild Kit Left (Standard)	500-6307-10
Flipper Base Plate Kit Left	515-6617-01
Flipper Rebuild Kit Right	500-6307-00
Flipper Base Plate Kit Right	515-6617-00
Memory Card - SD 16GB	970-0140-16
Memory Card - MicroSD	970-0141-32
Wi-Fi Adapter	509-2013-00

2. SPIKE SYSTEM AND NODE GUIDE

2.1 SPIKE SYSTEM OVERVIEW

The SPIKE Pinball system is a rugged, distributed, and embedded platform custom-designed for the rigors of the pinball machine environment. SPIKE takes advantage of modern technologies to deliver an immersive pinball experience that supports modern features, reduces cabling, and increases serviceability and reliability.

A Stern Pinball machine based on the SPIKE system will have at least two nodes networked together with the SPIKE node bus, a custom industrial pinball control bus that is designed around industry standards and optimized for the pinball environment. The primary CPU node is networked to one or more input/output nodes over standard Category 5 UTP (unshielded twisted pair) ethernet cabling.

There are five primary types of nodes that are found in the game.

- CPU node (Node 0) - The primary node that controls other nodes in the system. Contains the primary game software for the system and provides SPIKE node bus power for other nodes.
- Cabinet 48V node (Node 1) - Specialized node with specific inputs and outputs for coin doors, tilt mechanisms, and other bottom-cabinet devices.
- 48V playfield node - Controls high power devices such as coils and flashers, and also supports a few switch and low-power outputs. Powered by the system 48V power supply.
- Light and switch node - High-density switch and low-power LED outputs, bus-powered from the node bus. These boards contain as many 32 switch inputs and light outputs.
- Node extensions - These sub-nodes add additional low-power input and outputs to a specific Power or I/O node and are connected with simple serial bus.

2.2 NODE BUS CABLING

The SPIKE node bus utilizes standard Ethernet-style RJ45 8-pin modular jacks, and off-the-shelf Category 5e or better ethernet cabling. The node bus is electrically different from Ethernet and does not utilize Ethernet or TCP/IP protocols or signaling standards. SPIKE nodes are not compatible with standard computer networking equipment.

CAUTION: Plugging a SPIKE Node or CPU board into a standard Ethernet port may damage one or both devices and may void your warranty.

2.3 SYSTEM POWER

The SPIKE System is powered from an 48V DC power supply bus. Each SPIKE node converts this voltage to lower voltages required by the node and its specific components. A SPIKE 48V node typically controls high-power outputs such as game coil mechanisms and high-brightness LEDs. These powered nodes are supplied directly with 48V system power. SPIKE standard I/O nodes are low-power nodes that read switch inputs and output to standard-brightness LEDs. Standard I/O nodes use the node bus power, which is supplied by the main CPU node over the node bus modular jack connectors.

2.4 SPIKE NODE ADDRESSES

Each SPIKE node has a unique address ranging from 0 to 15. Not all addresses are used in all games. Nodes can be of the same part number, so the address is specified on the DIP switches on each node. When replacing a node, be certain that the correct address is set. Nodes can have 3-position and 4-position DIP switches. Refer to the appropriate table to set the address for each type of Node. The correct address for a node can be found in the SPIKE node reference section of the manual or in the game diagnostic software. Address 0 is reserved for the backbox CPU node, where the game software resides. Address 1 is reserved for the cabinet node, located inside the coin door. These two nodes do not have DIP switches as their address is not configurable.

Address	1	2	3
8	OFF	OFF	OFF
9	OFF	OFF	ON
10	OFF	ON	OFF
11	OFF	ON	ON
12	ON	OFF	OFF
13	ON	OFF	ON
14	ON	ON	OFF
15	ON	ON	ON

SPIKE node addresses for nodes with 3-position DIP switches. Addresses 0-7 are not used by SPIKE nodes with 3-position DIP switches.

Address	1	2	3	4
8	OFF	OFF	OFF	OFF
9	OFF	OFF	ON	OFF
10	OFF	ON	OFF	OFF
11	OFF	ON	ON	OFF
12	ON	OFF	OFF	OFF
13	ON	OFF	ON	OFF
14	ON	ON	OFF	OFF
15	ON	ON	ON	OFF

SPIKE node addresses for nodes with 4-position DIP switches. Addresses 0-7 are reserved for fixed-function nodes and do not require configuration.

SPIKE SYSTEM AND NODE GUIDE CONTINUED

2.5 SPIKE NODE PROGRAMMING

The SPIKE nodes are smart nodes that have on-board processors and run embedded code. The nodes are programmed automatically by the CPU node whenever software updates are installed to the CPU. When replacing a node, the CPU node will detect and update the node to the latest software with no user intervention. Always replace nodes with the power to the game turned OFF.

2.6 SPIKE SYSTEM TERMINOLOGY

MULTI GENERAL ILLUMINATION LIGHTING

General Illumination Lighting is two or more lights powered by one control source. These are often a number of LEDs connected in parallel and the system controls these as one large LED. A missing LED will not affect these circuits, however a shorted LED can cause the entire string of LEDs to turn off.

SINGLE LIGHTS

Single lights and LEDs are direct-controlled from SPIKE node boards. A common power source is grounded by individual transistors to turn individual LEDs on and off. Groups of LEDs, usually by node connector, share a common power source, so if a group of LEDs is out, check the wiring for the power source.

FLASHERS

SPIKE games treat flashers the same as single LEDs that draw more power. Flashers are controlled from the same circuits that power regular lights.

DRIVERS

A driver is a circuit that controls a high power-device such as a coil, magnet, or motor. Each device has a common 48V power source that is then connected to ground by a dedicated control transistor. Each driver is protected against shorting, static electricity, and over-current conditions. Take caution as 48V is always present on a device even when it is not energized.

OPTOS

Certain types of optical switches (“optos”) require external signal conditioning. For these optos, they will interface to a SPIKE node via an opto signal conditioning board. Other optical switches connect directly to the Spike node board.

CAUTION: *Unless explicitly directed by an Authorized Stern Repair technician, perform ALL work on your pinball machine with the power disabled!*

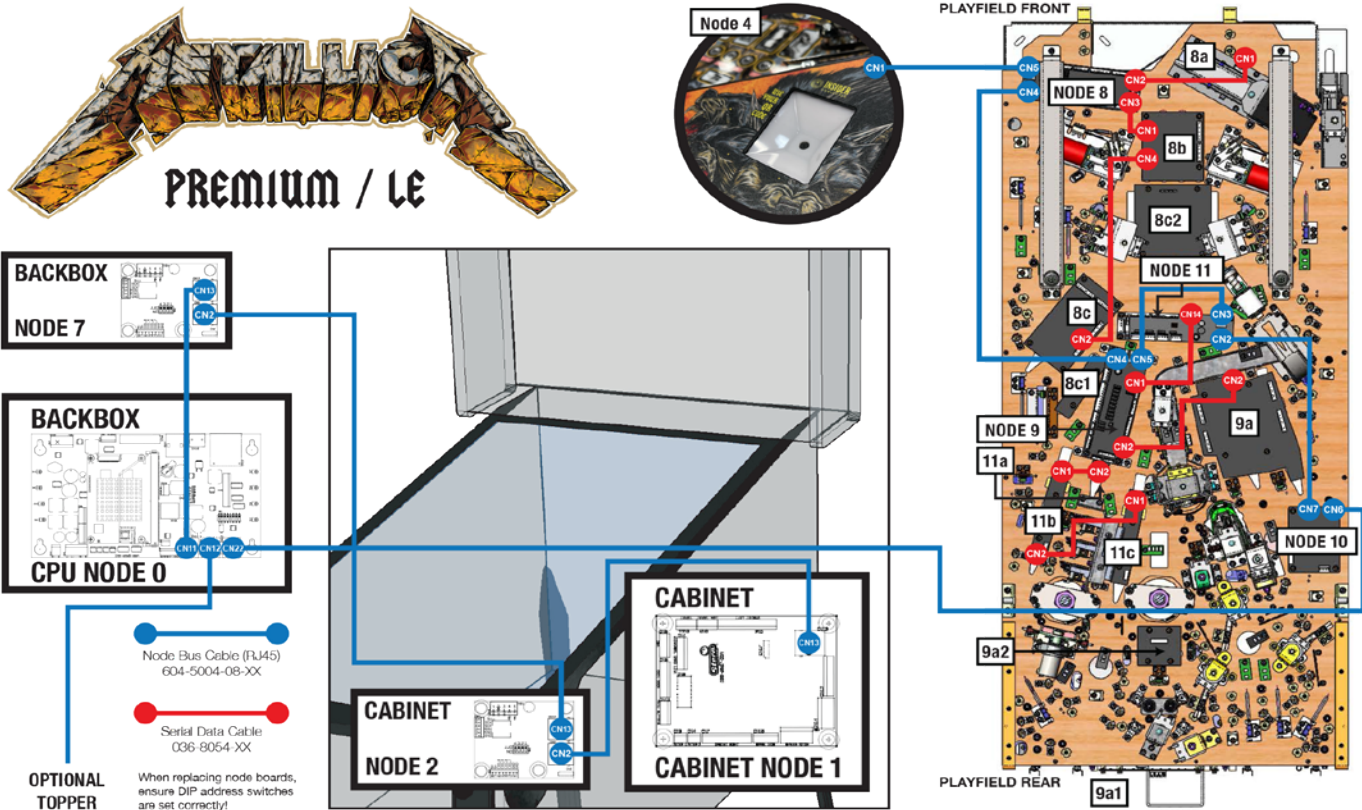
INPUT/OUTPUT PROTECTIONS

SPIKE features built-in short-circuit, static electricity, and other protections to maximize reliability. If an LED, coil or other device shorts, it will be disabled but will not shut down the entire system in most circumstances. Groups of LEDs, coils, and switches often share common power supplies or other circuits, so it is possible that a bad device will affect the group of related devices and require removal or repair to fix the group. The system diagnostics will inform the technician of shorted or otherwise malfunctioning devices whenever possible. While the system is protected against permanent damage, it is strongly recommended to repair or replace these bad components as soon as possible to minimize downtime and maximize game earnings.

2.7 COMMON SPIKE NODE BOARDS

Description	Type	Part Number
SPIKE CPU Node	Node	509-1003-01
Cabinet Node	Node	520-6967-72
Playfield 48V Core-Driver Node	Node	520-1057-00 520-1070-00
Trough Serial Opto Receiver Extension	Extension	520-8516-00
QR Scanner Assembly	Assembly	509-2020-00

3. LIGHT, SWITCH, AND DRIVER REFERENCE



3.1 SPIKE NODE BOARDS

ID	DIP Address	Description	Location	Part Number
Node 0	n/a	SPIKE 2 CPU Node	Backbox	509-1003-01
Node 1	n/a	Cabinet Node	Cabinet	520-6967-72
Node 2	ON-OFF-ON-ON	SPI Node-PWM	Cabinet-Expression	520-5370-72
Node 4	n/a	QR Reader Node	Bottom Arch	509-2020-00
Node 7	OFF-OFF-OFF-ON	SPI Node Board	Backbox-LEDs	520-5370-72
Node 8	OFF-OFF-OFF-OFF	Core - Driver Node Board	Lower Playfield	520-1070-00 520-1057-00
8a	n/a	Trough Serial Opto Receiver Extension	Playfield	520-8516-00
8b	n/a	6W1F Bottom Center LED board	Playfield	520-1086-00
8c	n/a	3W1F1R Mid Left LED Board	Playfield	520-1082-00
8c1	n/a	Center Right LED Board	Playfield	520-8487-00
8c2	n/a	Fuel Gauge LED Board	Playfield	520-5380-00
Node 9	OFF-OFF-ON-OFF	Core - Driver Node Board	Playfield	520-1070-00 520-1057-00
9a	n/a	4RGB6W Top Right LED Board	Playfield	520-1089-00
9a1	n/a	Reel Upper LED Board	Back Panel	520-8611-00
9a2	n/a	6W1R Top Center LED Board	Playfield	520-1085-00
Node 10	n/a	Magnet Sense Board	Playfield	520-1072-01
Node 11	OFF-ON-ON-OFF	4-Coil Driver Node	Playfield	520-6998-72
11a	n/a	2RGB2W Center LED Board	Playfield	520-1081-00
11b	n/a	2RGB2W Center LED Board	Playfield	520-1081-00
11c	n/a	2RGB2W Center LED Board	Playfield	520-1081-00
Node 12	ON-OFF-OFF-OFF	Topper (Optional)	Topper	520-5370-72

3.2 DRIVER REFERENCE

ID	Name	Node	Connector	Ret. Pin	Ret. Wire	Voltage	V + Pin	V+ Color	Location	Type	Address	Part Number
1	Trough	8	CN8	7	ORG GRY	48V	1-4	GRY ORG	Playfield	Coil - 27-1500	8-DR-1	090-5004-ND
2	Auto Plunger	8	CN8	9	ORG WHT	48V	1-4	GRY ORG	Playfield	Coil - 23-800	8-DR-4	090-5001-ND
3	Left Flipper	8	CN8	6	ORG YEL	48V	1-4	GRY ORG	Playfield	Coil - 23-900	8-DR-5	090-5020-30-ND
4	Right Flipper	8	CN8	5	ORG GRN	48V	1-4	GRY ORG	Playfield	Coil - 23-900	8-DR-0	090-5020-30-ND
5	Left Slingshot	8	CN8	11	ORG BLU	48V	1-4	GRY ORG	Playfield	Coil - 26-1200	8-DR-3	090-5044-ND
6	Right Slingshot	8	CN8	10	ORG VIO	48V	1-4	GRY ORG	Playfield	Coil - 26-1200	8-DR-2	090-5044-ND
7	Shaker Motor	1	CN16	1	BLU	48V	5	RED	Cabinet	Motor	1-DR-0	041-5029-04
8	Grave Marker Magnet	8	CN7	3	BRN BLK	48V	1	GRY ORG	Playfield	Coil - 22-650	8-DR-6	511-5065-ND
9	3 Bank Drop	8	CN7	4	YEL BRN	48V	1	GRY ORG	Playfield	Coil - 24-940	8-DR-7	090-5036-ND
10	RT Eject	8	CN7	2	YEL RED	48V	1	GRY ORG	Playfield	Coil - 23-800	8-DR-8	090-5001-ND
11	Left Pop Bumper	9	CN8	10	ORG BLK	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-2	090-5044-ND
12	Right Pop Bumper	9	CN8	11	ORG BRN	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-3	090-5044-ND
13												
14	Hammer	9	CN8	6	YEL VIO	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-5	090-5044-ND
15	Coffin Lock	10	CN3	1	YEL GRN	48V	3	GRY BRN	Playfield	Coil - 26-1200	10-DR-1	090-5044-ND
16	Snake Jaw	9	CN7	4	BLU RED	48V	1	GRY BRN	Playfield	Coil - 32-1250	9-DR-7	090-5060-01-ND
17	Snake Eject	9	CN8	7	YEL GRY	48V	1-4	GRY BRN	Playfield	Coil - 23-800	9-DR-1	090-5001-ND
18	Snake Jaw Latch	9	CN7	2	YEL ORG	48V	1	GRY BRN	Playfield	Coil - 26-1200	9-DR-8	090-5044-ND
19	Bot Pop Bumper	9	CN8	9	ORG RED	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-4	090-5044-ND
20												
21												
22												
23												
24	Coffin Magnet Down	10	CN3	2	ORG BLK	48V	3	GRY BRN	Playfield	Coil - 22-1080	10-DR-0	090-5032-ND
25												
26												
27	Elect Chair Magnet	11	CN5	3	BRN BLK	48V	4	GRY BRN	Playfield	Coil - 22-650	11-DR-0	511-5065-ND
28	Elect Chair	11	CN7	3	YEL BRN	48V	4	GRY BRN	Playfield	Coil - 26-1200	11-DR-1	090-5044-ND
29	Loop Up Post	11	CN9	3	YEL RED	48V	4	GRY BRN	Playfield	Coil - 26-1200	11-DR-2	090-5044-ND
30	Grave Marker Motor	11	CN11	3	BRN RED	48V	4	GRY BRN	Playfield	Motor - 041-5111-00	11-DR-3	511-6968-02(W/CAPS&CBL)
31												
32												
33	Coin Meter	1	CN3	2	BLK	12V	1	RED	Cabinet	Digital Out	1-DR-2	500-9946-00
34	Ticket Meter	1	CN4	2	BLK	12V	1	RED	Cabinet	Digital Out	1-DR-3	500-9946-00
35	Ticket Dispenser	1	CN11	3		12V	1		Cabinet	Digital Out	1-DR-4	

Test for coffin magnet is under Game Specific Tests. It is not found under Coil Test.

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DRIVER REFERENCE CONTINUED

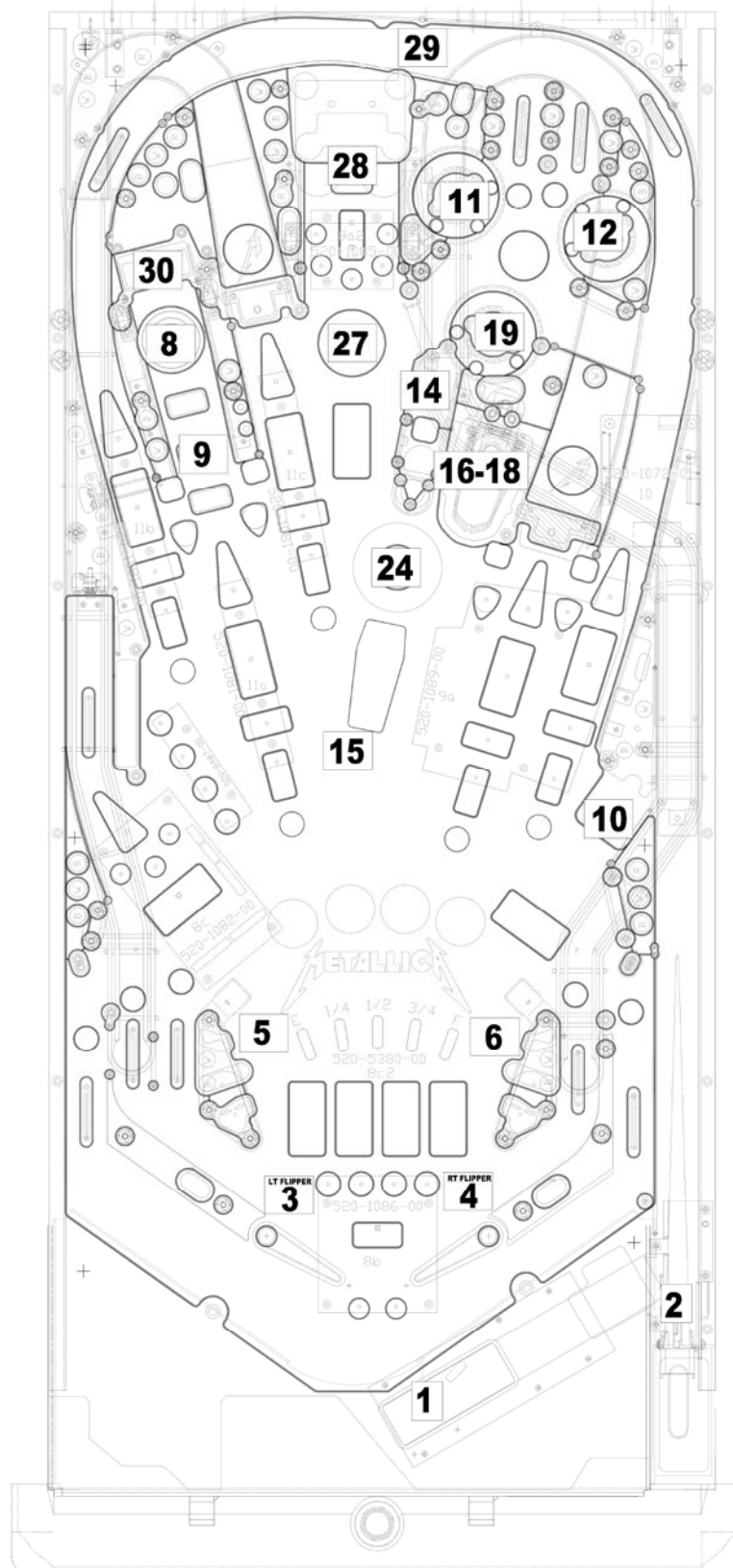


Figure 3.2.1. Playfield driver locations (top view).

3.3 SWITCH REFERENCE

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
1	Left Outlane	8	-	CN11	4	LGN RED	11/12	BLK ORG	Playfield	Rollover	8-SW-17	500-9935-04
2	Left Return Lane-Left	8	-	CN11	5	LGN ORG	11/12	BLK ORG	Playfield	Rollover	8-SW-18	500-9935-04
3	Left Return Lane-Right	8	-	CN11	8	LGN VIO	11/12	BLK ORG	Playfield	Rollover	8-SW-21	500-9935-04
4												
5	Right Return Lane	8	-	CN11	6	LGN YEL	11/12	BLK ORG	Playfield	Rollover	8-SW-19	500-9935-03
6	Right Outlane	8	-	CN11	7	LGN BLU	11/12	BLK ORG	Playfield	Rollover	8-SW-20	500-9935-04
7	Left Slingshot	8	-	CN10	4	GRY BLU	8	BLK GRN	Playfield	Leaf	8-SW-30	180-5231-00
8	Right Slingshot	8	-	CN10	3	GRY VIO	8	BLK GRN	Playfield	Leaf	8-SW-29	180-5231-00
9	Left Flipper Button	8	-	CN9	4	GRY BRN	7	BLK GRN	Cabinet	Leaf	8-SW-25	180-5160-01
10	Right Flipper Button	8	-	CN9	3	GRY RED	7	BLK GRN	Cabinet	Leaf	8-SW-24	180-5160-01
11	Left Flipper EOS	8	-	CN10	6	GRY YEL	9	BLK GRN	Playfield	Leaf	8-SW-16	180-5149-00
12	Right Flipper EOS	8	-	CN10	5	GRY GRN	9	BLK GRN	Playfield	Leaf	8-SW-31	180-5149-00
13												
14												
15	Trough 6	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-32	520-5344-00 tx 520-8516-00 rx
16	Trough 5	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-33	520-5344-00 tx 520-8516-00 rx
17	Trough 4	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-34	520-5344-00 tx 520-8516-00 rx
18	Trough 3	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-35	520-5344-00 tx 520-8516-00 rx
19	Trough 2	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-36	520-5344-00 tx 520-8516-00 rx
20	Trough 1	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-37	520-5344-00 tx 520-8516-00 rx
21	Trough Jam	8	8a	CN14	-	-	-	-	Playfield	Opto	8-SW-38	520-5344-00 tx 520-8516-00 rx
22	Shooter Lane	8	-	CN10	2	GRY WHT	7	BLK GRN	Playfield	Micro	8-SW-28	180-5157-01
23												
24												
25												
26												
27												
28												
29												
30	Fuel Lane	8	-	CN12	2	WHT BRN	10	BLK RED	Playfield	Rollover	8-SW-8	500-9935-04
31	Fuel Lane tgt	8	-	CN12	3	WHT RED	10	BLK RED	Playfield	Leaf, Target	8-SW-9	515-9783-00-00
32	Fuel 2 Bank-Bot	8	-	CN12	4	WHT ORG	10	BLK RED	Playfield	Leaf, Target	8-SW-10	510-7730-00
33	Fuel 2 Bank-Top	8	-	CN12	5	WHT YEL	10	BLK RED	Playfield	Leaf, Target	8-SW-11	510-7730-00
34	Lt Loop Spinner	8	-	CN12	6	WHT GRN	10	BLK RED	Playfield	Opto	8-SW-12	520-8541-00
35	Rt Eject Opto	8	-	CN12	7	WHT BLU	10	BLK RED	Playfield	Opto	8-SW-13	515-0215-00 tx 515-0215-01 rx
36												
37	Grave Tgt-Left	8	-	CN13	2	PNK RED	10	BLK BRN	Playfield	Leaf, Target	8-SW-0	515-9785-00-00
38	Grave Tgt-Right	8	-	CN13	3	PNK ORG	10	BLK BRN	Playfield	Leaf, Target	8-SW-1	515-9785-00-00
39	Drop Tgt- Bot	8	-	CN13	4	PNK YEL	10	BLK BRN	Playfield	Opto	8-SW-2	520-5357-00
40	Drop Tgt- Mid	8	-	CN13	5	PNK GRN	10	BLK BRN	Playfield	Opto	8-SW-3	520-5357-00
41	Drop Tgt- Top	8	-	CN13	6	PNK BLU	10	BLK BRN	Playfield	Opto	8-SW-4	520-5357-00
42	Grave Marker Opto	8	-	CN13	7	PNK VIO	10	BLK BRN	Playfield	Opto	8-SW-5	515-0215-00 tx 515-0215-01 rx
43												
44												

Continued on next page...



LIGHT, SWITCH, AND DRIVER REFERENCE

SWITCH REFERENCE CONTINUED

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
45												
46	Snake Eject	9	-	CN9	3	LGN ORG	7/8	BLK BLU	Playfield	Micro	9-SW-24	180-5209-00
47	Snake Jaw Open	9	-	CN9	4	LGN YEL	7/8	BLK BLU	Playfield	Micro	9-SW-25	180-5209-00
48	Snake Latch	9	-	CN9	5	LGN BLU	7/8	BLK BLU	Playfield	Micro	9-SW-26	180-5010-04
49												
50												
51												
52												
53												
54	-											
55	-											
56	Rt Ramp-Left Tgt	9	-	CN11	4	TAN ORG	11/12	BLK GRY	Playfield	Leaf, Target	9-SW-17	515-9785-00-00
57	Rt Ramp-Right Tgt	9	-	CN11	5	TAN YEL	11/12	BLK GRY	Playfield	Leaf, Target	9-SW-18	515-9785-00-00
58	Rt Ramp Exit Opto	9	-	CN11	6	TAN GRN	11/12	BLK GRY	Playfield	Opto	9-SW-19	511-5815-00 tx 511-5815-01 rx
59	Captive Ball	9	-	CN11	7	TAN BLU	11/12	BLK GRY	Playfield	Leaf, Target	9-SW-20	515-9785-00-00
60	Rt Loop Spinner	9	-	CN11	8	TAN VIO	11/12	BLK GRY	Playfield	Opto	9-SW-21	520-8541-00
61												
62												
63												
64	Left Pop Bumper	9	-	CN10	2	GRY BLK	7/8/9	BLK BLU	Playfield	Leaf	9-SW-28	180-5232-00
65	Right Pop Bumper	9	-	CN10	3	GRY BRN	7/8/9	BLK BLU	Playfield	Leaf	9-SW-29	180-5232-00
66	Bottom Pop Bumper	9	-	CN10	4	GRY RED	7/8/9	BLK BLU	Playfield	Leaf	9-SW-30	180-5232-00
67												
68	Coffin Magnet Down	10	-	CN5	2	WHT BRN	10	BLK WHT	Playfield	Micro	10-SW-8	180-5209-00
69	Coffin Lock 1	10	-	CN5	3	WHT RED	10	BLK WHT	Playfield	Opto	10-SW-9	520-5377-00 tx 520-5378-00 rx
70	Coffin Lock 2	10	-	CN5	4	WHT ORG	10	BLK WHT	Playfield	Opto	10-SW-10	520-5377-00 tx 520-5378-00 rx
71	Coffin Lock 3	10	-	CN5	5	WHT YEL	10	BLK WHT	Playfield	Opto	10-SW-11	520-5377-00 tx 520-5378-00 rx
72												
73												
74	Grave Marker DN	11		CN15	2	WHT BRN	14	BLK WHT	Playfield	Micro	11-SW-4	180-5119-02
75	Grave Marker Up	11		CN15	3	WHT RED	14	BLK WHT	Playfield	Micro	11-SW-5	180-5119-02
76	Electric Chair Opto	11		CN15	4	WHT ORG	14	BLK WHT	Playfield	Opto	11-SW-6	515-0215-00 tx 515-0215-01 rx
77	Electric Chair Tgt	11	-	CN15	5	WHT YEL	14	BLK WHT	Playfield	Leaf, Target	11-SW-7	515-9783-00-00
78	Left Loop	11	-	CN15	6	WHT GRN	14	BLK WHT	Playfield	Rollover	11-SW-8	500-9935-03
79	Right Loop	11	-	CN15	7	WHT BLU	14	BLK WHT	Playfield	Rollover	11-SW-9	500-9935-03
80	Top Lane-Left	11	-	CN15	8	WHT VIO	14	BLK WHT	Playfield	Rollover	11-SW-10	500-9935-04
81	Top Lane-Right	11	-	CN15	9	WHT GRY	14	BLK WHT	Playfield	Rollover	11-SW-11	500-9935-04
82	Lt Ramp Exit Opto	11	-	CN15	10	WHT	14	BLK WHT	Playfield	Opto	11-SW-12	511-5815-00 tx 511-5815-01 rx
83												
84												
85												
86												
87												
88												
89												
90	Lockdown Button	1	-	CN7	8	TAN WHT	5	BLK WHT	Cabinet	Leaf	1-SW-2	180-5218-00
91												
92												

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SWITCH REFERENCE CONTINUED

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
93	Start Button	1	-	CN6	10	GRY	5	BLK WHT	Cabinet	Micro	1-SW-11	500-1060-44-LED
94	Tournament Start Button	1	-	CN6	9	GRY WHT	5	BLK WHT	Cabinet	Micro	1-SW-12	500-6587-06-TL
95												
96	Left Coin	1	-	CN5	9	PNK BRN	3	BLK	Cabinet	Micro	1-SW-16	
97	Right Coin	1	-	CN5	7	PNK ORG	3	BLK	Cabinet	Micro	1-SW-18	
98	Center Coin	1	-	CN5	8	PNK RED	3	BLK	Cabinet	Micro	1-SW-17	
99	Fourth Coin	1	-	CN5	6		-		Cabinet	-	1-SW-19	
100	Fifth Coin	1	-	CN5	5		-		Cabinet	-	1-SW-20	
101	Tilt Pendulum	1	-	CN6	7	WHT	5	BLK WHT	Cabinet	Plumb Bob	1-SW-14	516-0007-00
102	Sixth Coin	1	-	CN9	5		-		Cabinet	-	1-SW-21	
103	Ticket Notch	1	-	CN11	5		-		Cabinet	-	1-SW-8	
104	Slam Tilt	1	-	CN5	4	LGN RED	3	BLK	Cabinet	-	1-SW-22	
105												
106												
107												
108												
109												
110												
C1	DIP 1	0	-	-	-		-		CPU Node		0-SW-0	-
C2	DIP 2	0	-	-	-		-		CPU Node		0-SW-1	-
C3	DIP 3	0	-	-	-		-		CPU Node		0-SW-2	-
C4	DIP 4	0	-	-	-		-		CPU Node		0-SW-3	-
C5	DIP 5	0	-	-	-		-		CPU Node		0-SW-4	-
C6	DIP 6	0	-	-	-		-		CPU Node		0-SW-5	-
C7	DIP 7	0	-	-	-		-		CPU Node		0-SW-6	-
C8	DIP 8	0	-	-	-		-		CPU Node		0-SW-7	-
C9	Service Select	0	-	CN25	4	LGN GRY	6	BLK	Coin Door		0-SW-8	515-1963-00
C10	Service Plus	0	-	CN25	3	LGN VIO	6	BLK	Coin Door		0-SW-9	515-1963-00
C11	Service Minus	0	-	CN25	2	LGN BLU	6	BLK	Coin Door		0-SW-10	515-1963-00
C12	Service Back	0	-	CN25	1	LGN BLK	6	BLK	Coin Door		0-SW-11	515-1963-00
C17	Headphone Detect	0	-	-	-		-		Coin Door		0-SW-16	-
C18	Headphone Kit Cable Detect	0	-	CN3	5	BLK	4	BLK	CPU Node		0-SW-17	-
C19	Volume Encoder 1	0	-	CN3	6	WHT	1	DRAIN	CPU Node		0-SW-18	-
C20	Volume Encoder 2	0	-	CN3	7	GRN	1	DRAIN	CPU Node		0-SW-19	-
C24	Coin Door Interlock	0	-	CN4	1	GRY	4	GRY RED	Backbox		0-SW-23	-

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SWITCH REFERENCE CONTINUED

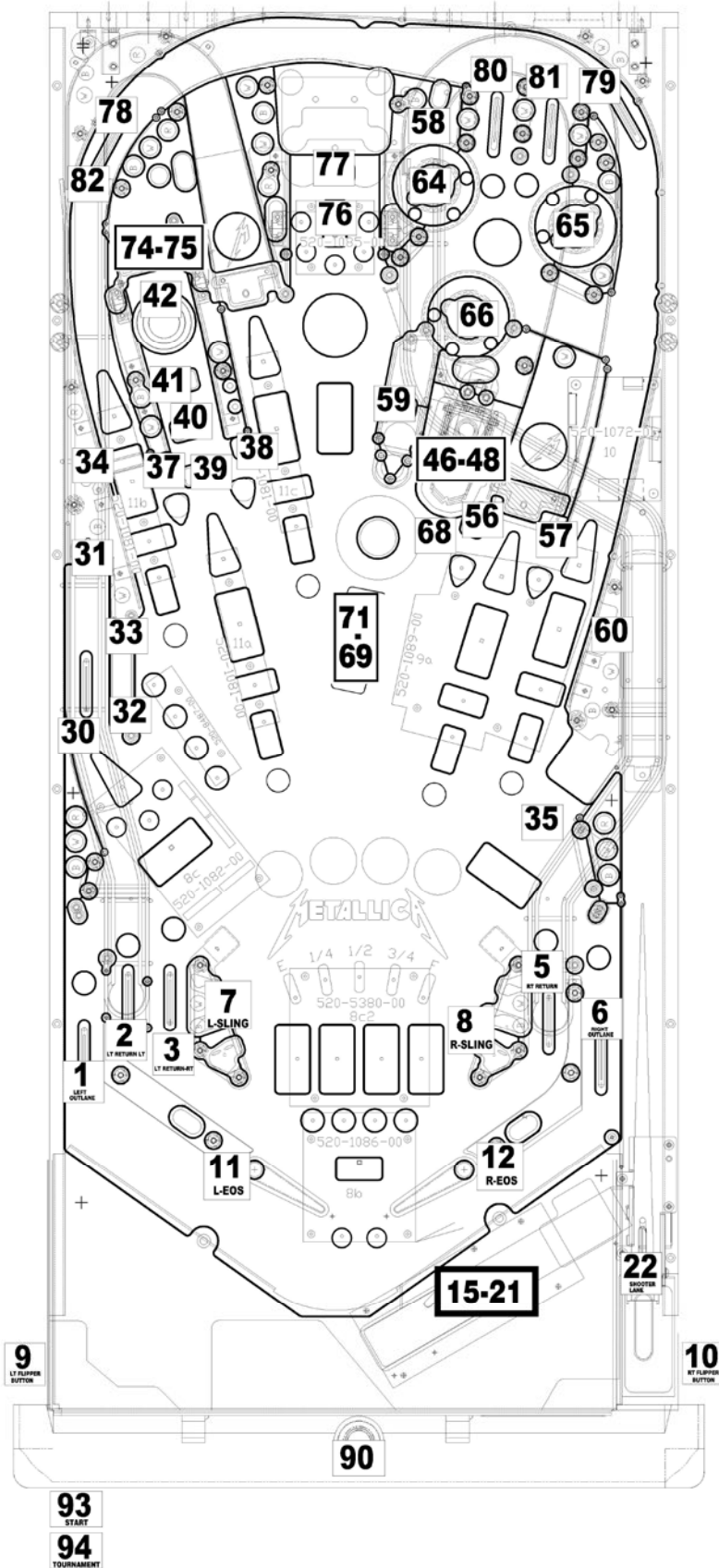


Figure 3.3.1. Playfield switch locations (top view).

3.4 LIGHT REFERENCE

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
1	Coin Enable	1	-	CN8	6	BLK GRY	2	GRY RED	Coin Door	Digital Out		1-LP-0	
2	Start Button	1	-	CN6	3	YEL BRN	1	RED	Cabinet	Feature	White	1-LP-2	113-5071-00
3	Tournament Start	1	-	CN6	2	YEL RED	1	RED	Cabinet	Feature	White	1-LP-3	112-5031-01
4	Lockdown Button-R	1	-	CN7	2	RED WHT	1	RED	Cabinet	Feature	RGB	1-LP-5	520-5333-00
5	Lockdown Button-G	1	-	CN7	3	GRN WHT	1	RED	Cabinet	Feature	RGB	1-LP-4	520-5333-00
6	Lockdown Button-B	1	-	CN7	4	BLU WHT	1	RED	Cabinet	Feature	RGB	1-LP-7	520-5333-00
7													
8													
9													
10													
11	Left Outlane	8	b	CN3	7	BRN RED	1/2/3	RED	Playfield	Feature	White	8-LP-23	520-5307-00
12	Left Return Lane-Left	8	b	CN3	8	BRN ORG	1/2/3	RED	Playfield	Feature	White	8-LP-24	520-5307-00
13	Left Return Lane-Right	8	b	CN3	9	BRN VIO	1/2/3	RED	Playfield	Feature	White	8-LP-25	520-5307-00
14	Right Return Lane	8	b	CN2	6	BRN YEL	1/2	RED	Playfield	Feature	White	8-LP-13	520-5307-00
15	Right Outlane	8	b	CN2	7	BRN BLU	1/2	RED	Playfield	Feature	White	8-LP-14	520-5307-00
16													
17	Fuel Gauge-E	8	c	CN4	2	BRN	1	RED	Playfield	Feature	Red	8-LP-48	520-5380-00
18	Fuel Gauge-1/4	8	c	CN4	3	BRN BLK	1	RED	Playfield	Feature	White	8-LP-49	520-5380-00
19	Fuel Gauge-1/2	8	c	CN4	4	BRN RED	1	RED	Playfield	Feature	White	8-LP-50	520-5380-00
20	Fuel Gauge-3/4	8	c	CN4	5	BRN ORG	1	RED	Playfield	Feature	White	8-LP-51	520-5380-00
21	Fuel Gauge-F	8	c	CN4	6	BRN YEL	1	RED	Playfield	Feature	White	8-LP-52	520-5380-00
22													
23													
24													
25													
26													
27	Left Sling Skull R	8	b	CN3	4	RED ORG	1/2/3	RED	Playfield	Feature	RGB	8-LP-20	520-5333-00
28	Left Sling Skull G	8	b	CN3	5	GRN ORG	1/2/3	RED	Playfield	Feature	RGB	8-LP-21	520-5333-00
29	Left Sling Skull B	8	b	CN3	6	BLU ORG	1/2/3	RED	Playfield	Feature	RGB	8-LP-22	520-5333-00
30	Right Sling Skull R	8	b	CN2	3	RED BRN	1/2	RED	Playfield	Feature	RGB	8-LP-10	520-5333-00
31	Right Sling Skull G	8	b	CN2	4	GRN BRN	1/2	RED	Playfield	Feature	RGB	8-LP-11	520-5333-00
32	Right Sling Skull B	8	b	CN2	5	BLU BRN	1/2	RED	Playfield	Feature	RGB	8-LP-12	520-5333-00
33													
34	Shoot Again Left	8	b	LED1	-	-	-	-	Playfield	Feature	White	8-LP-8	520-1086-00
35	Shoot Again Right	8	b	LED2	-	-	-	-	Playfield	Feature	White	8-LP-9	520-1086-00
36													
37													
38													
39	Grave Marker E.O.L.	8	c	CN4	7	BRN GRN	1	RED	Playfield	Feature	White	8-LP-53	520-5380-00
40	Electric Chair E.O.L.	8	c	CN4	8	BRN BLU	1	RED	Playfield	Feature	White	8-LP-54	520-5380-00
41	Coffin E.O.L.	8	c	CN4	9	BRN VIO	1	RED	Playfield	Feature	White	8-LP-55	520-5380-00
42	Snake E.O.L.	8	c	CN4	10	BRN WHT	1	RED	Playfield	Feature	White	8-LP-56	520-5380-00
43	Guitar Pick-Robert	8	b	LED24	-	-	-	-	Playfield	Feature	White	8-LP-31	520-1086-00
44	Guitar Pick-James	8	b	LED23	-	-	-	-	Playfield	Feature	White	8-LP-30	520-1086-00
45	Guitar Pick-Lars	8	b	LED22	-	-	-	-	Playfield	Feature	White	8-LP-29	520-1086-00
46	Guitar Pick-Kirk	8	b	LED21	-	-	-	-	Playfield	Feature	White	8-LP-28	520-1086-00
47													
48	Fuel Lane-R	8	c	LED30	-	-	-	-	Playfield	Feature	RGB	8-LP-61	520-1082-00
49	Fuel Lane-G	8	c	LED30	-	-	-	-	Playfield	Feature	RGB	8-LP-62	520-1082-00
50	Fuel Lane-B	8	c	LED30	-	-	-	-	Playfield	Feature	RGB	8-LP-63	520-1082-00
51	Fuel Lane Award 1	8	c	LED29	-	-	-	-	Playfield	Feature	White	8-LP-60	520-1082-00
52	Fuel Lane Award 2	8	c	LED28	-	-	-	-	Playfield	Feature	White	8-LP-59	520-1082-00

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LIGHT, SWITCH, AND DRIVER REFERENCE

LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
53	Fuel Lane Award 3	8	c	LED27	-	-	-	-	Playfield	Feature	White	8-LP-58	520-1082-00
54													
55	(F)UEL Target	8	c	CN1	3	ORG BRN	1/2	RED	Playfield	Feature	White	8-LP-32	520-8487-00
56	F(U)EL Target	8	c	CN1	4	ORG RED	1/2	RED	Playfield	Feature	White	8-LP-33	520-8487-00
57	FU(E)L Target	8	c	CN1	5	ORG YEL	1/2	RED	Playfield	Feature	White	8-LP-34	520-8487-00
58	FUE(L) Target	8	c	CN1	6	ORG GRN	1/2	RED	Playfield	Feature	White	8-LP-35	520-8487-00
59													
60	Left Loop Arrow-R	11	b	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-24	520-1081-00
61	Left Loop Arrow-G	11	b	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-25	520-1081-00
62	Left Loop Arrow-B	11	b	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-26	520-1081-00
63	Left Loop Electric Chair-R	11	b	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-27	520-1081-00
64	Left Loop Electric Chair-G	11	b	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-28	520-1081-00
65	Left Loop Electric Chair-B	11	b	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-29	520-1081-00
66	Left Loop Snake	11	b	LED3	-	-	-	-	Playfield	Feature	White	11-LP-30	520-1081-00
67	Left Loop Grave Marker	11	b	LED4	-	-	-	-	Playfield	Feature	White	11-LP-31	520-1081-00
68	Left Loop Hardwired	8	c	CN1	9	ORG GRY	1/2	RED	Playfield	Feature	White	8-LP-38	520-5307-00
69													
70													
71	Grave Lane Target-L	8	c	CN1	7	ORG BLU	1/2	RED	Playfield	Feature	White	8-LP-36	520-5307-00
72	Grave Lane Target-R	8	c	CN1	8	ORG VIO	1/2	RED	Playfield	Feature	White	8-LP-37	520-5307-00
73	Grave Lane Arrow-R	11	a	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-16	520-1081-00
74	Grave Lane Arrow-G	11	a	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-17	520-1081-00
75	Grave Lane Arrow-B	11	a	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-18	520-1081-00
76	Grave Lane Electric Chair-R	11	a	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-19	520-1081-00
77	Grave Lane Electric Chair-G	11	a	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-20	520-1081-00
78	Grave Lane Electric Chair-B	11	a	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-21	520-1081-00
79	Grave Lane Snake	11	a	LED3	-	-	-	-	Playfield	Feature	White	11-LP-22	520-1081-00
80	Grave Lane Grave Marker	11	a	LED4	-	-	-	-	Playfield	Feature	White	11-LP-23	520-1081-00
81	Grave Lane Hardwired	8	c	CN4	11	ORG	1	RED	Playfield	Feature	White	8-LP-57	520-5307-00
82													
83													
84	Left Ramp Arrow-R	11	c	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-32	520-1081-00
85	Left Ramp Arrow-G	11	c	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-33	520-1081-00
86	Left Ramp Arrow-B	11	c	LED1	-	-	-	-	Playfield	Feature	RGB	11-LP-34	520-1081-00
87	Left Ramp Electric Chair-R	11	c	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-35	520-1081-00
88	Left Ramp Electric Chair-G	11	c	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-36	520-1081-00
89	Left Ramp Electric Chair-B	11	c	LED2	-	-	-	-	Playfield	Feature	RGB	11-LP-37	520-1081-00
90	Left Ramp Snake	11	c	LED3	-	-	-	-	Playfield	Feature	White	11-LP-38	520-1081-00
91	Left Ramp Grave Marker	11	c	LED4	-	-	-	-	Playfield	Feature	White	11-LP-39	520-1081-00
92	Left Ramp Hardwired	8	c	CN1	10	ORG WHT	1/2	RED	Playfield	Feature	White	8-LP-39	520-5307-00
93													
94													
95	Electric Chair 1	9	a	CN5	4	ORG BRN	1/2/3	RED	Playfield	Feature	White	9-LP-55	520-1085-00
96	Electric Chair 2	9	a	CN5	5	ORG RED	1/2/3	RED	Playfield	Feature	White	9-LP-56	520-1085-00
97	Electric Chair 3	9	a	CN5	6	ORG YEL	1/2/3	RED	Playfield	Feature	White	9-LP-57	520-1085-00
98	Electric Chair 4	9	a	CN5	7	ORG GRN	1/2/3	RED	Playfield	Feature	White	9-LP-58	520-1085-00
99	Electric Chair 5	9	a	CN5	8	ORG BLU	1/2/3	RED	Playfield	Feature	White	9-LP-59	520-1085-00
100	Multiball-R	9	a	CN5	10	RED GRY	1/2/3	RED	Playfield	Feature	RGB	9-LP-61	520-1085-00
101	Multiball-G	9	a	CN5	11	GRN GRY	1/2/3	RED	Playfield	Feature	RGB	9-LP-62	520-1085-00
102	Multiball-B	9	a	CN5	12	BLU GRY	1/2/3	RED	Playfield	Feature	RGB	9-LP-63	520-1085-00
103													
104	Electric Chair-R	9	a	CN1	5	RED VIO	1/2	RED	Playfield	Feature	RGB	9-LP-13	520-5333-00

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LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
105	Electric Chair-G	9	a	CN1	6	GRN VIO	1/2	RED	Playfield	Feature	RGB	9-LP-14	520-5333-00
106	Electric Chair-B	9	a	CN1	7	BLU VIO	1/2	RED	Playfield	Feature	RGB	9-LP-15	520-5333-00
107													
108													
109	Right Ramp Target-Left	9	a	LED30	-	-	-	-	Playfield	Feature	White	9-LP-45	520-1089-00
110	Right Ramp Target-Right	9	a	LED28	-	-	-	-	Playfield	Feature	White	9-LP-41	520-1089-00
111	Right Ramp Arrow-R	9	a	LED29	-	-	-	-	Playfield	Feature	RGB	9-LP-42	520-1089-00
112	Right Ramp Arrow-G	9	a	LED29	-	-	-	-	Playfield	Feature	RGB	9-LP-43	520-1089-00
113	Right Ramp Arrow-B	9	a	LED29	-	-	-	-	Playfield	Feature	RGB	9-LP-44	520-1089-00
114	Right Ramp Electric Chair-R	9	a	LED25	-	-	-	-	Playfield	Feature	RGB	9-LP-32	520-1089-00
115	Right Ramp Electric Chair-G	9	a	LED25	-	-	-	-	Playfield	Feature	RGB	9-LP-33	520-1089-00
116	Right Ramp Electric Chair-B	9	a	LED25	-	-	-	-	Playfield	Feature	RGB	9-LP-34	520-1089-00
117	Right Ramp Snake	9	a	LED2	-	-	-	-	Playfield	Feature	White	9-LP-9	520-1089-00
118	Right Ramp Grave Marker	9	a	LED1	-	-	-	-	Playfield	Feature	White	9-LP-8	520-1089-00
119	Right Ramp Hardwired	9	a	CN1	3	GRN BRN	1/2	RED	Playfield	Feature	White	9-LP-11	520-5307-00
120													
121													
122	Right Loop Arrow-R	9	a	LED27	-	-	-	-	Playfield	Feature	RGB	9-LP-38	520-1089-00
123	Right Loop Arrow-G	9	a	LED27	-	-	-	-	Playfield	Feature	RGB	9-LP-39	520-1089-00
124	Right Loop Arrow-B	9	a	LED27	-	-	-	-	Playfield	Feature	RGB	9-LP-40	520-1089-00
125	Right Loop Electric Chair-R	9	a	LED26	-	-	-	-	Playfield	Feature	RGB	9-LP-35	520-1089-00
126	Right Loop Electric Chair-G	9	a	LED26	-	-	-	-	Playfield	Feature	RGB	9-LP-36	520-1089-00
127	Right Loop Electric Chair-B	9	a	LED26	-	-	-	-	Playfield	Feature	RGB	9-LP-37	520-1089-00
128	Right Loop Snake	9	a	LED14	-	-	-	-	Playfield	Feature	White	9-LP-21	520-1089-00
129	Right Loop Grave Marker	9	a	LED3	-	-	-	-	Playfield	Feature	White	9-LP-10	520-1089-00
130	Right Loop Hardwired	9	a	CN1	4	GRN RED	1/2	RED	Playfield	Feature	White	9-LP-12	520-7000-00
131													
132													
133	Mystery-R (x2)	8	c	CN3	12	RED YEL	1-7	RED	Playfield	Feature	RGB	8-LP-45	520-5333-00
134	Mystery-G (x2)	8	c	CN3	13	GRN YEL	1-7	RED	Playfield	Feature	RGB	8-LP-46	520-5333-00
135	Mystery-B (x2)	8	c	CN3	14	BLU YEL	1-7	RED	Playfield	Feature	RGB	8-LP-47	520-5333-00
136													
137	Low BB Crank It Up	8	c	CN3	8	BLU GRN	1-7	RED	Playfield	Feature	Blue	8-LP-41	112-5034-05F
138	Low BB Extra Ball	8	c	CN3	9	BLU VIO	1-7	RED	Playfield	Feature	Red	8-LP-42	112-5034-02F
139	Up BB Hardwired	8	c	CN3	10	BLU GRY	1-7	RED	Playfield	Feature	White	8-LP-43	112-5034-08F
140	Up BB Blackened	8	c	CN3	11	BLU WHT	1-7	RED	Playfield	Feature	Violet	8-LP-44	112-5034-09F
141													
142													
143	Top Lane-L	11	-	CN16	11	ORG BRN	1	YEL	Playfield	Feature	White	11-LP-10	520-5307-00
144	Top Lane-R	11	-	CN16	12	ORG RED	1	YEL	Playfield	Feature	White	11-LP-11	520-5307-00
145													
146	Left Pop-R	11	-	CN16	2	RED BRN	1	YEL	Playfield	Feature	RGB	11-LP-1	520-5374-00
147	Left Pop-G	11	-	CN16	3	GRN BRN	1	YEL	Playfield	Feature	RGB	11-LP-2	520-5374-00
148	Left Pop-B	11	-	CN16	4	BLU BRN	1	YEL	Playfield	Feature	RGB	11-LP-3	520-5374-00
149	Right Pop-R	11	-	CN16	5	RED ORG	1	YEL	Playfield	Feature	RGB	11-LP-4	520-5374-00
150	Right Pop-G	11	-	CN16	6	GRN ORG	1	YEL	Playfield	Feature	RGB	11-LP-5	520-5374-00
151	Right Pop-B	11	-	CN16	7	BLU ORG	1	YEL	Playfield	Feature	RGB	11-LP-6	520-5374-00
152	Bottom Pop-R	11	-	CN16	8	RED YEL	1	YEL	Playfield	Feature	RGB	11-LP-7	520-5374-00
153	Bottom Pop-G	11	-	CN16	9	GRN YEL	1	YEL	Playfield	Feature	RGB	11-LP-8	520-5374-00
154	Bottom Pop-B	11	-	CN16	10	BLU YEL	1	YEL	Playfield	Feature	RGB	11-LP-9	520-5374-00
155													
156	Snake	9	a	CN1	8	GRN ORG	1/2	RED	Playfield	Feature	Green	9-LP-16	112-5034-04F

Continued on next page...



LIGHT, SWITCH, AND DRIVER REFERENCE

LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
157													
158													
159	(M)ETALLICA	9	a	CN4	4	YEL BLK	1/2/3	RED	Playfield	Feature	White	9-LP-46	520-8611-00
160	M(E)TALLICA	9	a	CN4	5	YEL BRN	1/2/3	RED	Playfield	Feature	White	9-LP-47	520-8611-00
161	ME(T)ALLICA	9	a	CN4	6	YEL RED	1/2/3	RED	Playfield	Feature	White	9-LP-48	520-8611-00
162	MET(A)LLICA	9	a	CN4	7	YEL ORG	1/2/3	RED	Playfield	Feature	White	9-LP-49	520-8611-00
163	META(L)LICA	9	a	CN4	8	YEL GRN	1/2/3	RED	Playfield	Feature	White	9-LP-50	520-8611-00
164	METAL(L)ICA	9	a	CN4	9	YEL BLU	1/2/3	RED	Playfield	Feature	White	9-LP-51	520-8611-00
165	METALL(I)CA	9	a	CN4	10	YEL VIO	1/2/3	RED	Playfield	Feature	White	9-LP-52	520-8611-00
166	METALLI(C)A	9	a	CN4	11	YEL GRY	1/2/3	RED	Playfield	Feature	White	9-LP-53	520-8611-00
167	METALLIC(A)	9	a	CN4	12	YEL WHT	1/2/3	RED	Playfield	Feature	White	9-LP-54	520-8611-00
168													
169													
170													
171													
172													
173													
174													
175													
176													
177													
178													
179													
180	Coin Door Gl	1	-	CN5	2	YEL	1	YEL-WHT	Coin Door	G.I.	White	1-LP-1	112-5033-08
181	Bottom Gl-WHT (x11)	8	-	CN15	5	WHT BLK	1	YEL BLK	Playfield	G.I.	White	8-LP-0	112-5034-08F 520-7000-00 520-5307-00(Bot Arch)
182	Bottom Gl-RED (x4)	8	-	CN15	6	RED BLK	2	YEL RED	Playfield	G.I.	Red	8-LP-1	112-5034-02F
183	Bottom Gl-BLU (x5)	8	-	CN15	7	BLU BLK	3	YEL BLU	Playfield	G.I.	Blue	8-LP-2	112-5034-05F
184													
185	Top Gl-WHT (x17)	9	-	CN15	5	WHT BLK	1	YEL BLK	Playfield/ Back Panel	G.I.	White	9-LP-0	112-5034-08F
186	Top Gl-RED (x5)	9	-	CN15	6	RED BLK	2	YEL RED	Playfield	G.I.	Red	9-LP-1	112-5034-02F
187	Top Gl-BLU (x6)	9	-	CN15	7	BLU BLK	3	YEL BLU	Playfield	G.I.	Blue	9-LP-2	112-5034-05F
188													
189													
190	72 Seasons Flash	8	b	LED12	-	-	-	-	Playfield	Flash	White	8-LP-19	520-1086-00
191	Fuel Lane Flash	8	c	LED9	-	-	-	-	Playfield	Flash	White	8-LP-40	520-1082-00
192	Coffin Flash (x2)	10	-	CN4	4	ORG YEL	1	RED	Playfield	Flash	Red	10-LP-0	520-8457-00
193	Grave Marker Flash	9	a	CN3	12	BRN	1/2/3	RED	Playfield	Flash	Red	9-LP-30	520-8457-00
194	Left Ramp Flash	9	a	CN3	10	BRN GRY	1/2/3	RED	Playfield	Flash	Red	9-LP-28	520-8457-00
195	Left Loop Flash	9	a	CN3	11	BRN WHT	1/2/3	RED	Playfield	Flash	White	9-LP-29	520-7000-00
196	Multiball Flash	9	a	CN5	9	ORG VIO	1/2/3	RED	Playfield	Flash	White	9-LP-60	520-1085-00
197	Sparky Flash 1	9	a	CN3	6	BRN YEL	1/2/3	RED	Playfield	Flash	White	9-LP-24	113-5045-08
198	Sparky Flash 2	9	a	CN3	7	BRN GRN	1/2/3	RED	Playfield	Flash	White	9-LP-25	113-5045-08
199	Sparky Flash 3	9	a	CN3	8	BRN BLU	1/2/3	RED	Playfield	Flash	White	9-LP-26	113-5045-08
200	Sparky Flash 4	9	a	CN3	9	BRN VIO	1/2/3	RED	Playfield	Flash	White	9-LP-27	113-5045-08
201	Pops Flash	11	-	CN16	13	ORG YEL	1	YEL	Playfield	Flash	White	11-LP-12	520-7000-00
202	Right Ramp Flash	9	a	CN1	9	GRN YEL	1/2	RED	Playfield	Flash	Red	9-LP-17	520-8457-00
203	Snake Flash	11	-	CN16	14	ORG GRN	1	YEL	Playfield	Flash	Green	11-LP-13	113-5045-04

Continued on next page...



LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
204	Left Spotlight	9	a	CN1	11	GRN GRY	1/2	RED	Playfield	Flash	White	9-LP-19	520-8625-00
205	Right Spotlight	9	a	CN1	12	GRN WHT	1/2	RED	Playfield	Flash	White	9-LP-20	520-8625-00
206													
207	Left Sling UV	8	b	CN3	10	YEL BRN	1/2/3	RED	Playfield	Flash	UV	8-LP-26	520-8684-00
208	Right Sling UV	8	b	CN3	11	YEL RED	1/2/3	RED	Playfield	Flash	UV	8-LP-27	520-8684-00
209	Hammer UV	9	a	CN1	10	GRN BLU	1/2	RED	Playfield	Flash	UV	9-LP-18	520-1091-00
210	Sparky Left UV	9	a	CN3	4	BRN RED	1/2/3	RED	Playfield	Flash	UV	9-LP-22	520-1091-00
211	Sparky Right UV	9	a	CN3	5	BRN ORG	1/2/3	RED	Playfield	Flash	UV	9-LP-23	520-1091-00
212	Sparky Face UV	9	a	CN3	13	BRN BLK	1/2/3	RED	Playfield	Flash	UV	9-LP-31	520-1091-00
213													
214													
215													
216													
217													
218													
219													

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
220 - 286	Speaker 1-R - 23-R	7	-	CN1	-	-	-	-	Cabinet	Feature	iRGB	7-LP-1 7-LP-4 - 7-LP-67	511-1135-00
221 - 287	Speaker 1-G - 23-G	7	-	CN1	-	-	-	-	Cabinet	Feature	iRGB	7-LP-0 7-LP-3 - 7-LP-66	511-1135-00
222 - 288	Speaker 1-B - 23-B	7	-	CN1	-	-	-	-	Cabinet	Feature	iRGB	7-LP-2 7-LP-5 - 7-LP-68	511-1135-00
289													
290													
291													
292													
293													
294													
295													
296													
297													
298													
299													
300 - 585	Expressive Lighting L 1-R - 96R	2	a	CN1	-	-	-	-	Cabinet	Feature	iRGB	2-LP-1 2-LP-4 - 2-LP-286	515-2413-00
301 - 586	Expressive Lighting L 1-G - 96G	2	a	CN1	-	-	-	-	Cabinet	Feature	iRGB	2-LP-0 2-LP-3 - 2-LP-285	515-2413-00
302 - 587	Expressive Lighting L 1-B - 96B	2	a	CN1	-	-	-	-	Cabinet	Feature	iRGB	2-LP-2 2-LP-5 - 2-LP-287	515-2413-00

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LIGHT REFERENCE CONTINUED

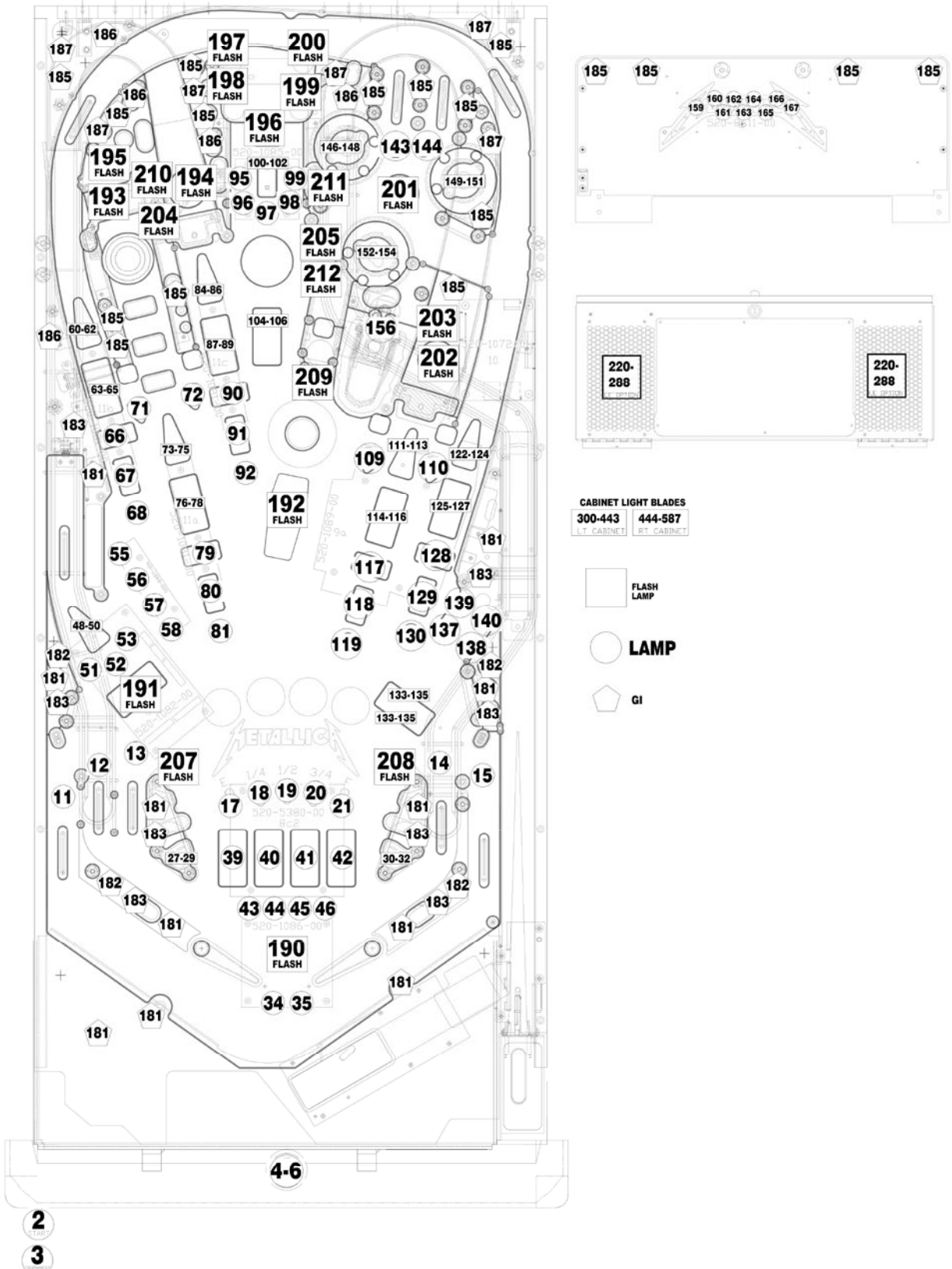


Figure 3.4.1. Playfield light locations (top view).

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LIGHT REFERENCE CONTINUED

588													
589													
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595													
596													
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598													
599													
600	Topper Logo (M1)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-1	
601	Topper Logo (M1)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-0	
602	Topper Logo (M1)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-2	
603	Topper Logo (M2)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-4	
604	Topper Logo (M2)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-3	
605	Topper Logo (M2)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-5	
606	Topper Logo (M3)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-7	
607	Topper Logo (M3)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-6	
608	Topper Logo (M3)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-8	
609	Topper Logo (M4)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-10	
610	Topper Logo (M4)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-9	
611	Topper Logo (M4)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-11	
612	Topper Logo (M5)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-16	
613	Topper Logo (M5)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-15	
614	Topper Logo (M5)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-17	
615	Topper Logo (M6)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-19	
616	Topper Logo (M6)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-18	
617	Topper Logo (M6)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-20	
618	Topper Logo (M7)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-13	
619	Topper Logo (M7)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-12	
620	Topper Logo (M7)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-14	
621	Topper Logo (M8)ETALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-22	
622	Topper Logo (M8)ETALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-21	
623	Topper Logo (M8)ETALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-23	
624	Topper Logo M(E1)TALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-31	
625	Topper Logo M(E1)TALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-30	
626	Topper Logo M(E1)TALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-32	
627	Topper Logo M(E2)TALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-28	
628	Topper Logo M(E2)TALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-27	
629	Topper Logo M(E2)TALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-29	
630	Topper Logo M(E3)TALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-25	
631	Topper Logo M(E3)TALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-24	
632	Topper Logo M(E3)TALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-26	
633	Topper Logo ME(T1)ALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-37	
634	Topper Logo ME(T1)ALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-36	
635	Topper Logo ME(T1)ALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-38	
636	Topper Logo ME(T2)ALLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-34	
637	Topper Logo ME(T2)ALLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-33	
638	Topper Logo ME(T2)ALLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-35	
639	Topper Logo MET(A1)LLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-40	
640	Topper Logo MET(A1)LLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-39	
641	Topper Logo MET(A1)LLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-41	

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LIGHT REFERENCE CONTINUED

642	Topper Logo MET(A2)LLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-43
643	Topper Logo MET(A2)LLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-42
644	Topper Logo MET(A2)LLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-44
645	Topper Logo MET(A3)LLICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-46
646	Topper Logo MET(A3)LLICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-45
647	Topper Logo MET(A3)LLICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-47
648	Topper Logo META(L1)LICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-52
649	Topper Logo META(L1)LICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-51
650	Topper Logo META(L1)LICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-53
651	Topper Logo META(L2)LICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-55
652	Topper Logo META(L2)LICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-54
653	Topper Logo META(L2)LICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-56
654	Topper Logo META(L3)LICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-49
655	Topper Logo META(L3)LICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-48
656	Topper Logo META(L3)LICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-50
657	Topper Logo METAL(L1)ICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-61
658	Topper Logo METAL(L1)ICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-60
659	Topper Logo METAL(L1)ICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-62
660	Topper Logo METAL(L2)ICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-64
661	Topper Logo METAL(L2)ICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-63
662	Topper Logo METAL(L2)ICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-65
663	Topper Logo METAL(L3)ICA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-58
664	Topper Logo METAL(L3)ICA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-57
665	Topper Logo METAL(L3)ICA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-59
666	Topper Logo METALL(I1)CA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-70
667	Topper Logo METALL(I1)CA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-69
668	Topper Logo METALL(I1)CA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-71
669	Topper Logo METALL(I2)CA-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-67
670	Topper Logo METALL(I2)CA-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-66
671	Topper Logo METALL(I2)CA-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-68
672	Topper Logo METALL(C1)A-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-79
673	Topper Logo METALL(C1)A-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-78
674	Topper Logo METALL(C1)A-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-80
675	Topper Logo METALL(C2)A-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-76
676	Topper Logo METALL(C2)A-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-75
677	Topper Logo METALL(C2)A-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-77
678	Topper Logo METALL(C3)A-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-73
679	Topper Logo METALL(C3)A-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-72
680	Topper Logo METALL(C3)A-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-74
681	Topper Logo METALLIC(A1)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-100
682	Topper Logo METALLIC(A1)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-99
683	Topper Logo METALLIC(A1)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-101
684	Topper Logo METALLIC(A2)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-97
685	Topper Logo METALLIC(A2)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-96
686	Topper Logo METALLIC(A2)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-98
687	Topper Logo METALLIC(A3)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-94
688	Topper Logo METALLIC(A3)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-93
689	Topper Logo METALLIC(A3)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-95
690	Topper Logo METALLIC(A4)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-91
691	Topper Logo METALLIC(A4)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-90
692	Topper Logo METALLIC(A4)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-92
693	Topper Logo METALLIC(A5)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-88
694	Topper Logo METALLIC(A5)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-87
695	Topper Logo METALLIC(A5)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-89

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LIGHT REFERENCE CONTINUED

696	Topper Logo METALLIC(A6)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-82	
697	Topper Logo METALLIC(A6)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-81	
698	Topper Logo METALLIC(A6)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-83	
699	Topper Logo METALLIC(A7)-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-85	
700	Topper Logo METALLIC(A7)-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-84	
701	Topper Logo METALLIC(A7)-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-86	
702	Topper Front Left a-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-103	
703	Topper Front Left a-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-102	
704	Topper Front Left a-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-104	
705	Topper Front Left b-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-106	
706	Topper Front Left b-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-105	
707	Topper Front Left b-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-107	
708	Topper Front Left Center a-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-109	
709	Topper Front Left Center a-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-108	
710	Topper Front Left Center a-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-110	
711	Topper Front Left Center b-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-112	
712	Topper Front Left Center b-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-111	
713	Topper Front Left Center b-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-113	
714	Topper Front Right Center a-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-115	
715	Topper Front Right Center a-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-114	
716	Topper Front Right Center a-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-116	
717	Topper Front Right Center b-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-118	
718	Topper Front Right Center b-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-117	
719	Topper Front Right Center b-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-119	
720	Topper Front Right a-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-121	
721	Topper Front Right a-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-120	
722	Topper Front Right a-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-122	
723	Topper Front Right b-R	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-124	
724	Topper Front Right b-G	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-123	
725	Topper Front Right b-B	12	-	CN1	-	-	-	-	Topper	Feature	iRGB	12-LP-125	

4. ELECTRONIC PINOUTS AND SCHEMATICS

4.1 SPIKE-2 CPU NODE 0

509-1003-01

DIRECT SWITCH MAPPING (CN25)

The coin-door diagnostic switches are connected directly to the CPU node via the Cabinet Node. Note that both the CPU and Cabinet nodes are required for diagnostic switch operation.

ID	Name	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
C1	DIP 1	-	-	-	-	-	CPU Node		0-SW-0	-
C2	DIP 2	-	-	-	-	-	CPU Node		0-SW-1	-
C3	DIP 3	-	-	-	-	-	CPU Node		0-SW-2	-
C4	DIP 4	-	-	-	-	-	CPU Node		0-SW-3	-
C5	DIP 5	-	-	-	-	-	CPU Node		0-SW-4	-
C6	DIP 6	-	-	-	-	-	CPU Node		0-SW-5	-
C7	DIP 7	-	-	-	-	-	CPU Node		0-SW-6	-
C8	DIP 8	-	-	-	-	-	CPU Node		0-SW-7	-
C9	Service Select	CN25	1	LGN-GRY	11	BLK-WHT	Coin Door		0-SW-9	180-5192-04
C10	Service Plus	CN25	2	LGN-VIO	11	BLK-WHT	Coin Door		0-SW-10	180-5192-02
C11	Service Minus	CN25	3	LGN-BLU	11	BLK-WHT	Coin Door		0-SW-11	180-5192-02
C12	Service Back	CN25	4	LGN-BLK	11	BLK-WHT	Coin Door		0-SW-12	180-5192-00

CONNECTORS

ID	Connector Type	Description
CN1	5-Pin .156" Header	Backbox 2-channel amplified speaker out
CN2	3-Pin .100" Header	Console Port
CN3	7-Pin .100" Header	Headphone connector
CN4	2-Pin .156"	Cabinet 1-channel amplified speaker out
CN5	7-Pin .100" Header	Line In/Out
CN6	34 Pin 2.00mm Header	LCD display connector
CN7	5-Pin .156" Header	48V supply from main power supply
CN8	6-Pin .100" Header	SPI Serial
CN9	USB	USB connector - for software updates, audit dumps, and expansion modules
CN9	USB	USB connector - for software updates, audit dumps, and expansion modules
CN10	HDMI	HDMI Out
CN11	RJ45	SPIKE node bus - to cabinet node N1
CN12	RJ45	SPIKE node bus - To Topper accessory Kit
CN13	SD CARD	SD Card connector
CN14	5-Pin .100" Header	LCD Backlight
CN15	3-Pin .100" Header	Backbox Light
CN16	4-Pin .100" Header	3.3v / 5v / 12v
CN17	ETHERNET	ETHERNET connector
CN21	SATA Header	SATA connector
CN22	RJ45	SPIKE node bus - to playfield node
CN25	12-Pin .100" Header	Dedicated switch inputs - service, volume switches

COMPONENTS

ID	Name
S1	DIP Switches
S2	Reset Switch
SD CARD (CN13)	For system SD card. Note: only to be removed if instructed to by Stern Service.
BT1	BR1225 3V Lithium battery for game clock between power cycles

STATUS LEDS

LED ID	Name	Color	Description
48V	+48V Supply In	Red	ON: Main system power is connected. OFF: No 48V system power. Check power supply connections, cables, and fuses.
3.3V	+3.3V Logic	Red	ON: Logic power supply is good. OFF: Logic power supply bad, call tech support.
5V	+5V Logic	Red	ON: Logic power supply is good. OFF: Logic power supply bad, call tech support.
12V	+12V Backbox Illumination	Red	ON: Back box LED power good. OFF: Backbox LED power bad, call tech support.
VA	+30V Audio	Red	ON: Audio power supply is good. OFF: Audio power supply off, call tech support.
VNB	+9V Node Bus	Red	Power for the Node bus. ON: Power for node bus good. OFF: Power to node bus not detected, call tech support.
5V (CPU)	+5V Logic	Red	ON: Logic power supply is good. OFF: Logic power supply bad, call tech support.
SDIO ACT	Not Used	Red	Should remain unlit as it is not currently used.
STATUS	CPU Heartbeat, System Status	Red	Double blink ~ 1/2 second: Good, Processor running. OFF: Processor not running, call tech support.
µSD ACT	Activity indicator for micro SD Card	Red	Should blink rapidly when reading or writing to micro SD card.
D23	Netbridge Status	Red	Should blink once every ~1/2 second.

SPIKE-2 CPU NODE 0 CONTINUED

AUDIO PINOUTS

ID	Type	Pin	Description	Minimum Impedance	Max Power (RMS)	Wire Color
CN1	.156" 5-pin Header	1	Speaker Right Ground (-)	4 Ohms	-	BLK-WHT
		2	Speaker Right (+)	4 Ohms	20W	RED-WHT
		3	n/c	-	-	
		4	Speaker Left Ground (-)	4 Ohms	-	BLK-RED
		5	Speaker Left (+)	4 Ohms	20W	RED-BLK
CN3	.100" 7-pin Header	1	n/c	-	-	
		2	L-HP	16 Ohms	15 mW	
		3	R-HP	16 Ohms	15 mW	
		4	n/c	-	-	
		5	Headphone Detect	-	-	
		6	Headphone vol +	-	-	
		7	Headphone vol -	-	-	
CN4	.156" 2-pin Header	1	Woofer Ground (-)	8 Ohms	-	YEL-BLK
		2	Woofer Out (+)	8 Ohms	40W	YEL-WHT
CN5	.100" 7-pin Header	1	n/c	-	-	
		2	L-IN	30K Ohms	0.6VRMS	
		3	R-IN	30K Ohms	0.6VRMS	
		4	n/c	-	-	
		5	L-OUT	10K Ohms	1.5V	
		6	R-OUT	10K Ohms	1.5V	
		7	Woofer Line Out	10K Ohms	1.5V	

COUNTRY CODES (DIP S2)

Country	DIP S2							
	1	2	3	4	5	6	7	8
USA	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Austria	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Australia	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
Belgium	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
Canada 1	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
Canada 2	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
China	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
Croatia	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
Denmark	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
Finland	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
France	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
Germany	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
Greece	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Italy	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
Japan	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
Middle East	ON	ON	ON	OFF	ON	OFF	OFF	OFF
Netherlands	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
New Zealand	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
Norway	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
Portugal	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Russia	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
S. Africa	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
Spain	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
Sweden	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
Switzerland	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
Taiwan	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
United Kingdom	OFF	ON	ON	ON	OFF	OFF	OFF	OFF

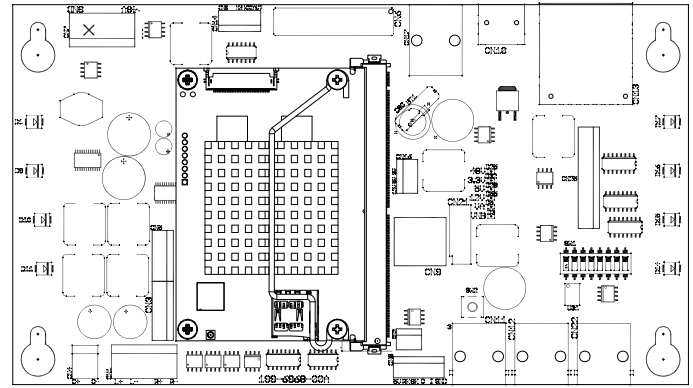


Figure 4.1.1. SPIKE 2 CPU Node connector detail.

COIN DOOR SERVICE SWITCH WIRING

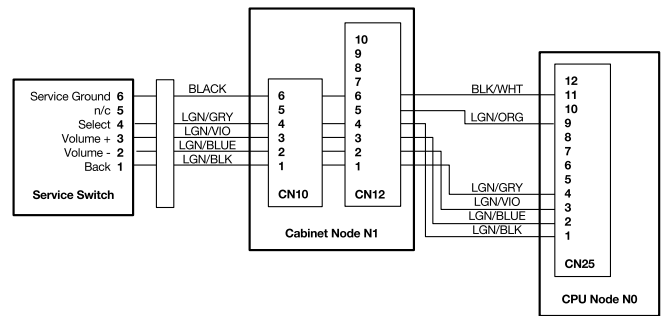
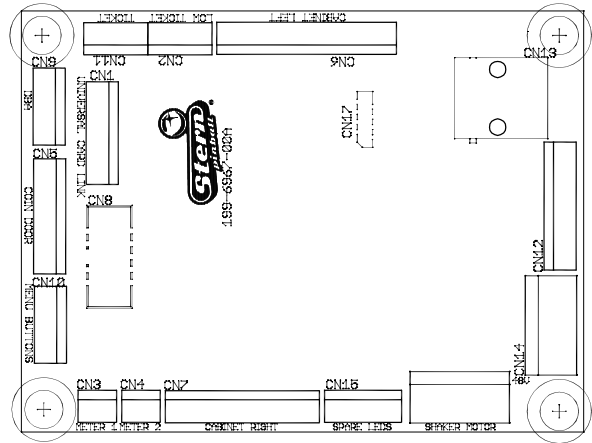


Figure 4.1.2. Service switch wiring. Note that the Cabinet Node must be present and CN10 and CN12 connected for the Coin Door Service Switches to function correctly.

4.2 CABINET NODE 1

520-6967-72

ID	Type	Pin	Description	Wire Color
CN1	.100" 8-Pin Header Universal Card Link	1	12V	-
		2	Coin 1	-
		3	Meter 1	-
		4	N/C	-
		5	Notch	-
		6	Coin Enable	-
		7	Ticket Enable	-
		8	Ground	-
CN2	.100" 5-Pin Header Low Ticket	1	Ground	-
		2	Ticket Low sw.	-
		3	Key	-
		4	Ticket Low	-
		5	5V Out	-
CN3	.100" 3-Pin Header Meter 1	1	Meter 12V (+)	RED
		2	Meter (-)	BLK
		3	N/C	-
CN4	.100" 3-Pin Header Meter 2	1	Meter 12V (+)	RED
		2	Meter (-)	BLK
		3	N/C	-
CN5	.100" 9-Pin Header	1	5V Out	YEL/WHT
		2	Coin LED Out	YEL
		3	Ground	BLK
		4	Slam Tilt In	LGN/RED
		5	Coin 5	PNK/GRN*
		6	Coin 4	PNK/YEL*
		7	Coin 3	PNK/ORN*
		8	Coin 2	PNK/RED*
		9	Coin 1	PNK/BRN*
CN6	.100" 14-Pin Header Cabinet Left	1	5V LED Power	RED
		2	Start 2 LED	YEL-RED
		3	Start 1 LED	YEL-BRN
		4	Spare LED	-
		5	Ground	BLK-WHT
		6	Spare Left	-
		7	Tilt Input	WHT
		8	Door Open	-
		9	Start 2 Switch	GRY-WHT
		10	Start 1 Switch	GRY
		11	N/C	-
		12	N/C	-
		13	N/C	-
		14	N/C	-
CN7	.100" 12-Pin Header Cabinet Right	1	5V LED Power	RED
		2	Plunge 2 LED	RED-WHT
		3	Plunge 1 LED	GRN-WHT
		4	Spare LED 2	BLU-WHT
		5	Ground	BLK-WHT
		6	Spare Right In	-
		7	Plunge 2 Switch	-
		8	Plunge 1 Switch	-
		9	N/C	-
		10	N/C	-
		11	N/C	-
		12	N/C	-
CN8	.100" 10-Pin Header Dual Row Electronic Coin Mech	1	Ground	-
		2	12V	-
		3	Coin 5	-
		4	Coin 6	-
		5	N/C	-
		6	Coin Enable/Inhibit (+)	-
		7	Coin 1	-
		8	Coin 2	-
		9	Coin 3	-
		10	Coin 4	-

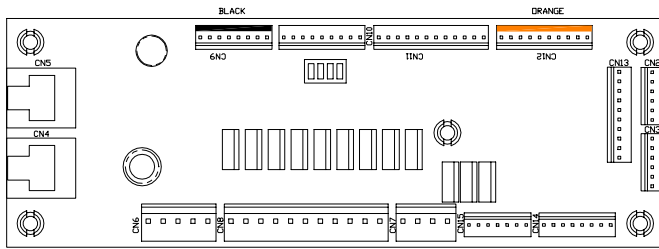


CN9	.100" 6-Pin Header Dollar Bill Acceptor	1	Coin Enable/DBA Inhibit (-)	BLK	
		2	Coin Enable/DBA Inhibit (+)	-	
		3	Key	Key	
		4	DBA 12V	ORG	
		5	Coin 6 / DBA Credit	-	
		6	Ground	BLK-ORG	
CN10	.100" 6-Pin Header Service Switch In	1	Service Back (To Coindoor)	LGN-BLK	
		2	Service Down (To Coindoor)	LGN-BLU	
		3	Service Up (To Coindoor)	LGN-VIO	
		4	Service Select (To Coindoor)	LGN-GRY	
		5	Key	Key	
		6	Service Ground (To Coin-door)	BLK	
CN11	.100" 5-Pin Header Ticket Dispenser	1	12V	RED	
		2	N/C	-	
		3	Ticket Dispenser Enable	WHT	
		4	Ground	BLK	
		5	Ticket Dispenser Notch	BLU	
CN12	.100" 10-Pin Header CPU Direct Switches	1	Service Back (To CPU)	LGN-BLK	
		2	Service Down (To CPU)	LGN-BLU	
		3	Service Up (To CPU)	LGN-VIO	
		4	Service Select (To CPU)	LGN-GRY	
		5	Power Present	LGN-ORG	
		6	Service Ground (To CPU)	BLK-WHT	
		7	N/C	-	
		8	N/C	-	
		9	N/C	-	
		10	N/C	-	
CN14	.156" 5-Pin Header Power Input	1	Ground	BLK	
		2	Key	Key	
		3	N/C	-	
		4	N/C	-	
		5	48VDC In	GRY-YEL	
CN15	.100" 6-Pin Header Spare LED's	1	5V LED Power	-	
		2	Key	Key	
		3	Spare LED 3	-	
		4	Spare LED 4	-	
		5	Spare LED 5	-	
		6	Spare LED 6	-	
CN16	.156" 5-Pin Header Shaker Motor	1	Shaker Motor (-)	BLU	
		2	Shaker Motor (-)	-	
		3	Shaker Motor (+)	-	
		4	Key	Key	
		5	Shaker Motor (+)	RED	
				*Varies by country model	



4.3 LOWER PLAYFIELD 48V DRIVER PINOUT NODE 8

520-1070 / 520-1057-00

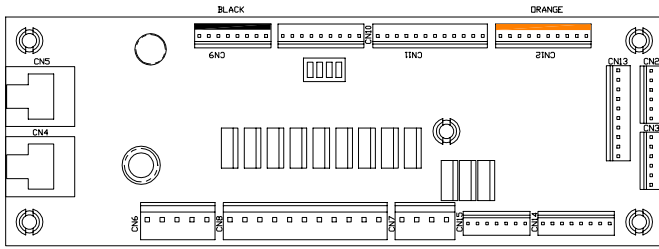


ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 8 - OFF-OFF-OFF-OFF	-
CN4	RJ45	-	SPIKE Node Bus	Multi
CN5	RJ45	-	SPIKE Node Bus	Multi
CN6	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	Key
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN7	.156" 4-Pin Header (White)	1	48V Driver Power	GRY-ORG
		2	8-DR-8 Driver Return	YEL-RED
		3	8-DR-6 Driver Return	BRN-BLK
		4	8-DR-7 Driver Return	YEL-BRN
CN8	.156" 11-Pin Header (White)	1	48V Driver Power	GRY-ORG
		2	48V Driver Power	GRY-ORG
		3	48V Driver Power	GRY-ORG
		4	48V Driver Power	GRY-ORG
		5	8-DR-0 Driver Return	ORG-GRN
		6	8-DR-5 Driver Return	ORG-YEL
		7	8-DR-1 Driver Return	ORG-GRY
		8	8-DR-8 Driver Return	-
		9	8-DR-4 Driver Return	ORG-WHT
		10	8-DR-2 Driver Return	ORG-VIO
		11	8-DR-3 Driver Return	ORG-BLU
CN9	.100" 8-Pin Header (Black)	1	V+	-
		2	V+	-
		3	8-SW-24 Switch	GRY-RED
		4	8-SW-25 Switch	GRY-BRN
		5	8-SW-26 Switch	-
		6	8-SW-27 Switch	-
		7	Ground	BLK-GRN
		8	Ground	-
CN10	.100" 9-Pin Header	1	V+	-
		2	8-SW-28 Switch	GRY-WHT
		3	8-SW-29 Switch	GRY-VIO
		4	8-SW-30 Switch	GRY-BLU
		5	8-SW-31 Switch	GRY-GRN
		6	8-SW-16 Switch	GRY-YEL
		7	Ground	BLK-GRN
		8	Ground	BLK-GRN
		9	Ground	BLK-GRN

CN11	.100" 12-Pin Header	1	V+	-
		2	8-SW-26 Switch	-
		3	8-SW-27 Switch	-
		4	8-SW-17 Switch	LGN-RED
		5	8-SW-18 Switch	LGN-ORG
		6	8-SW-19 Switch	LGN-YEL
		7	8-SW-20 Switch	LGN-BLU
		8	8-SW-21 Switch	LGN-VIO
		9	8-SW-22 Switch	-
		10	8-SW-23 Switch	-
		11	Ground	BLK-ORG
		12	Ground	BLK-ORG
CN12	.100" 10-Pin Header (Orange)	1	V+	RED
		2	8-SW-8 Switch	WHT-BRN
		3	8-SW-9 Switch	WHT-RED
		4	8-SW-10 Switch	WHT-ORG
		5	8-SW-11 Switch	WHT-YEL
		6	8-SW-12 Switch	WHT-GRN
		7	8-SW-13 Switch	WHT-BLU
		8	8-SW-14 Switch	-
		9	8-SW-15 Switch	-
		10	Ground	BLK-RED
CN13	.100" 10-Pin Header	1	V+	RED
		2	8-SW-0 Switch	PNK-RED
		3	8-SW-1 Switch	PNK-ORG
		4	8-SW-2 Switch	PNK-YEL
		5	8-SW-3 Switch	PNK-GRN
		6	8-SW-4 Switch	PNK-BLU
		7	8-SW-5 Switch	PNK-VIO
		8	8-SW-6 Switch	-
		9	8-SW-7 Switch	-
		10	Ground	BLK-BRN
CN14	.100" 8-Pin Header	1	Ground	-
		2	8-LP-7 Driver Return	-
		3	8-LP-6 Driver Return	-
		4	8-LP-5 Driver Return	-
		5	8-LP-4 Driver Return	-
		6	8-LP-3 Driver Return	-
		7	LED V+	-
		8	LED V+	-
CN15	.100" 7-Pin Header	1	LED V+	YEL-BLK
		2	LED V+	YEL-RED
		3	LED V+	YEL-BLU
		4	-	-
		5	8-LP-0 GI Return	WHT-BLK
		6	8-LP-1 GI Return	RED-BLK
		7	8-LP-2 GI Return	BLU-BLK
CN2	.100" 6-Pin Header, Node Extension Bus	1	Ground	BLK
		2	DIN	VIO-BLK
		3	DOUT	VIO-BRN
		4	SCK	VIO-RED
		5	RCK	VIO-ORG
		6	V+	RED
CN3	.100" 6-Pin Header, Node Extension Bus	1	Ground	BLK
		2	DIN	VIO-BLK
		3	DOUT	VIO-BRN
		4	SCK	VIO-RED
		5	RCK	VIO-ORG
		6	V+	RED

4.4 MID PLAYFIELD 48V DRIVER PINOUT NODE 9

520-1070 / 520-1057-00

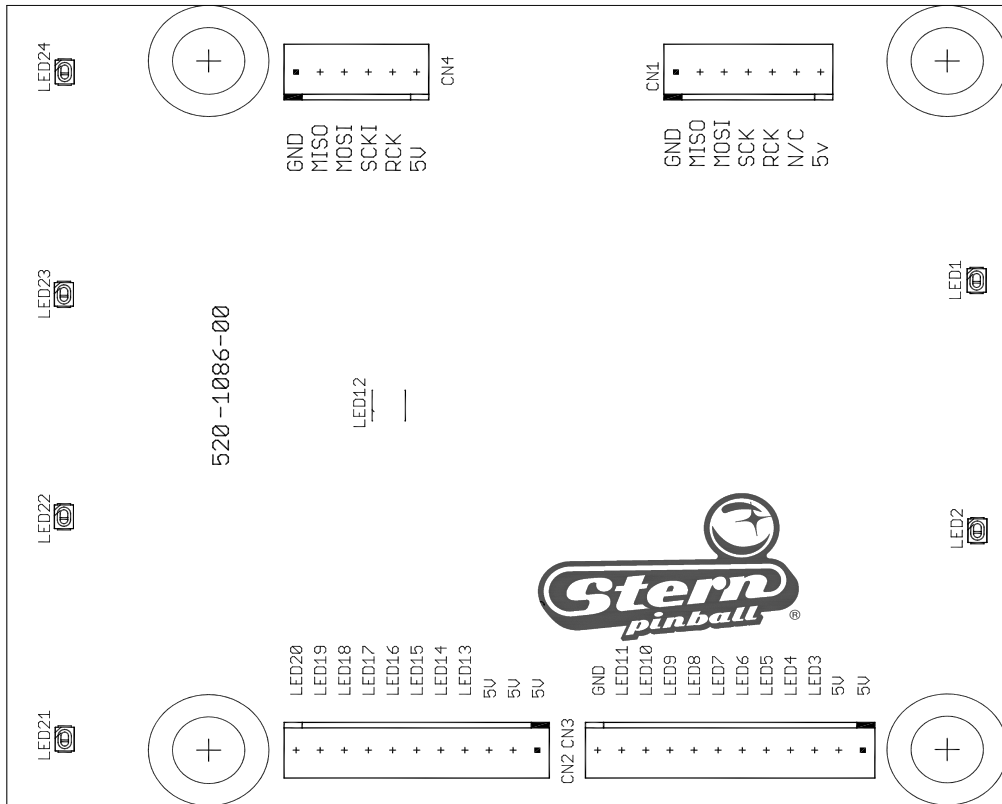


ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 9 - OFF-OFF-ON-OFF	-
CN4	RJ45	-	SPIKE Node Bus	Multi
CN5	RJ45	-	SPIKE Node Bus	Multi
CN6	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	Key
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN7	.156" 4-Pin Header (White)	1	48V Driver Power	GRY-BRN
		2	9-DR-8 Driver Return	YEL-ORG
		3	N/C	-
		4	9-DR-7 Driver Return	BLU-RED
CN8	.156" 11-Pin Header (White)	1	48V Driver Power	GRY-BRN
		2	48V Driver Power	GRY-BRN
		3	48V Driver Power	GRY-BRN
		4	48V Driver Power	GRY-BRN
		5	N/C	-
		6	9-DR-5 Driver Return	YEL-VIO
		7	9-DR-1 Driver Return	YEL-GRY
		8	N/C	-
		9	9-DR-4 Driver Return	ORG-RED
		10	9-DR-2 Driver Return	ORG-BLK
		11	9-DR-3 Driver Return	ORG-BRN
CN9	.100" 8-Pin Header (Black)	1	V+	-
		2	V+	-
		3	9-SW-24 Switch	LGN-ORG
		4	9-SW-25 Switch	LGN-YEL
		5	9-SW-26 Switch	LGN-BLU
		6	N/C	-
		7	Ground	BLK-BLU
		8	Ground	BLK-BLU
CN10	.100" 9-Pin Header	1	V+	-
		2	9-SW-28 Switch	GRY-BLK
		3	9-SW-29 Switch	GRY-BRN
		4	9-SW-30 Switch	GRY-RED
		5	N/C	-
		6	N/C	-
		7	Ground	BLK-BLU
		8	Ground	BLK-BLU
		9	Ground	BLK-BLU

CN11	.100" 12-Pin Header	1	V+	RED
		2	N/C	-
		3	N/C	-
		4	9-SW-17 Switch	TAN-ORG
		5	9-SW-18 Switch	TAN-YEL
		6	9-SW-19 Switch	TAN-GRN
		7	9-SW-20 Switch	TAN-BLU
		8	9-SW-21 Switch	TAN-VIO
		9	N/C	-
		10	N/C	-
		11	Ground	BLK-GRY
		12	Ground	BLK-GRY
CN12	.100" 10-Pin Header (Orange)	1	V+	-
		2	N/C	-
		3	N/C	-
		4	N/C	-
		5	N/C	-
		6	N/C	-
		7	N/C	-
		8	N/C	-
		9	N/C	-
		10	Ground	-
CN13	.100" 10-Pin Header	1	V+	-
		2	N/C	-
		3	N/C	-
		4	N/C	-
		5	N/C	-
		6	N/C	-
		7	N/C	-
		8	N/C	-
		9	N/C	-
		10	Ground	-
CN14	.100" 8-Pin Header	1	Ground	-
		2	N/C	-
		3	N/C	-
		4	N/C	-
		5	N/C	-
		6	N/C	-
		7	LED V+	-
		8	LED V+	-
CN15	.100" 7-Pin Header	1	LED V+	YEL-BLK
		2	LED V+	YEL-RED
		3	LED V+	YEL-BLU
		4	-	-
		5	9-LP-0 GI Return	WHT-BLK
		6	9-LP-1 GI Return	RED-BLK
		7	9-LP-2 GI Return	BLU-BLK
CN2	.100" 6-Pin Header, Node Extension Bus	1	Ground	BLK
		2	DIN	VIO-BLK
		3	DOUT	VIO-BRN
		4	SCK	VIO-RED
		5	RCK	VIO-ORG
		6	V+	RED
CN3	.100" 6-Pin Header, Node Extension Bus	1	Ground	-
		2	DIN	-
		3	DOUT	-
		4	SCK	-
		5	RCK	-
		6	V+	-

4.5 6W1F BOTTOM CENTER LED BOARD 8B

520-1086-00



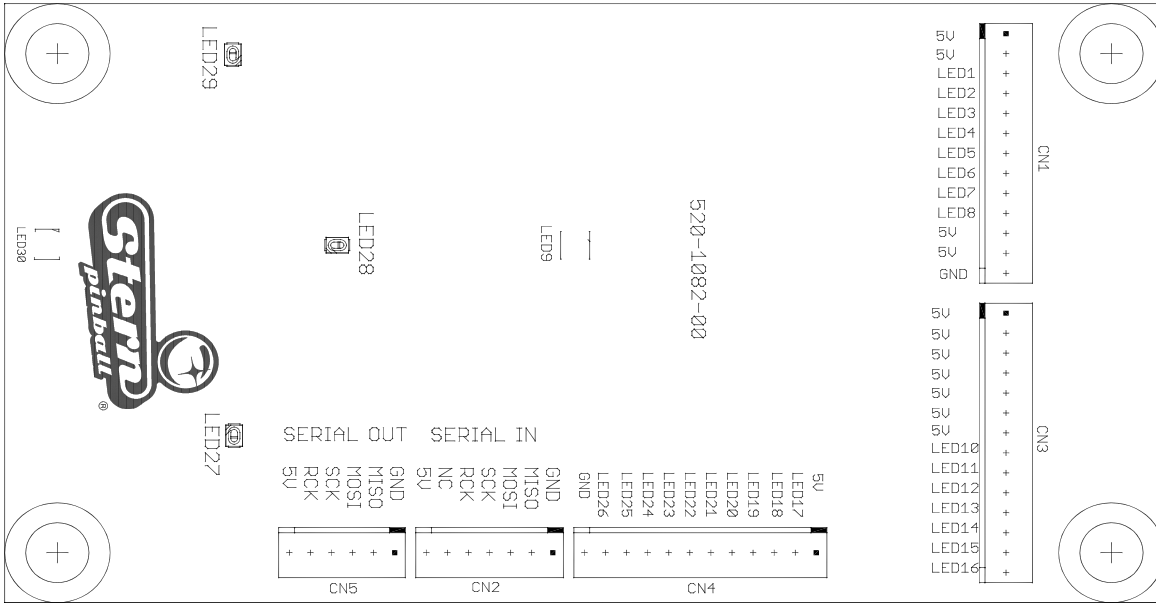
ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	N/C	-
		7	5V	RED
CN2	.100" 12-Pin Header	1	5V	RED
		2	5V	RED
		3	LED3	RED BRN
		4	LED4	GRN BRN
		5	LED5	BLU BRN
		6	LED6	BRN YEL
		7	LED7	BRN BLU
		8	LED8	-
		9	LED9	-
		10	LED10	-
		11	LED11	-
		12	GND	-

ID	Type	Pin	Description	Wire Color
CN3	.100" 11-Pin Header	1	5V	RED
		2	5V	RED
		3	5V	RED
		4	LED13	RED ORG
		5	LED14	GRN ORG
		6	LED15	BLU ORG
		7	LED16	BRN RED
		8	LED17	BRN ORG
		9	LED18	BRN VIO
		10	LED19	YEL BRN
		11	LED20	YEL RED
CN4	.100" 6-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	5V	RED



4.6 3W1F1R MID LEFT LED BOARD 8C

520-1082-00

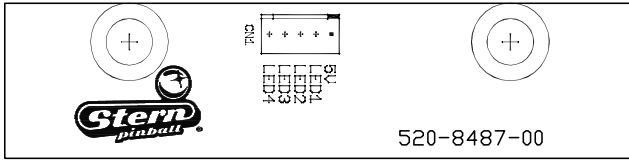


ID	Type	Pin	Description	Wire Color
CN1	.100" 13-Pin Header	1	5V	RED
		2	5V	RED
		3	LED1	ORG BRN
		4	LED2	ORG RED
		5	LED3	ORG YEL
		6	LED4	ORG GRN
		7	LED5	ORG BLU
		8	LED6	ORG VIO
		9	LED7	ORG GRY
		10	LED8	ORG WHT
		11	5V	-
		12	5V	-
		13	GND	-
CN2	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED

ID	Type	Pin	Description	Wire Color
CN3	.100" 14-Pin Header	1	5V	RED
		2	5V	RED
		3	5V	RED
		4	5V	RED
		5	5V	-
		6	5V	-
		7	5V	-
		8	LED10	BLU GRN
		9	LED11	BLU VIO
		10	LED12	BLU GRY
		11	LED13	BLU WHT
		12	LED14	RED YEL
		13	LED15	GRN YEL
		14	LED16	BLU YEL
CN4	.100" 12-Pin Header	1	5V	RED
		2	LED17	BRN
		3	LED18	BRN BLK
		4	LED19	BRN RED
		5	LED20	BRN ORG
		6	LED21	BRN YEL
		7	LED22	BRN GRN
		8	LED23	BRN BLU
		9	LED24	BRN VIO
		10	LED25	BRN WHT
		11	LED26	ORG
		12	GND	-
CN5	.100" 6-Pin Header	1	Ground	-
		2	MISO Output Data	-
		3	MOSI Input Data	-
		4	SCK Serial Clock	-
		5	RCK Register Clock	-
		6	5V	-

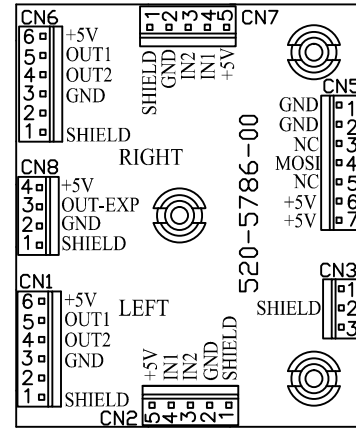


4.7 CENTER RIGHT LED BOARD 8C1 520-8487-00

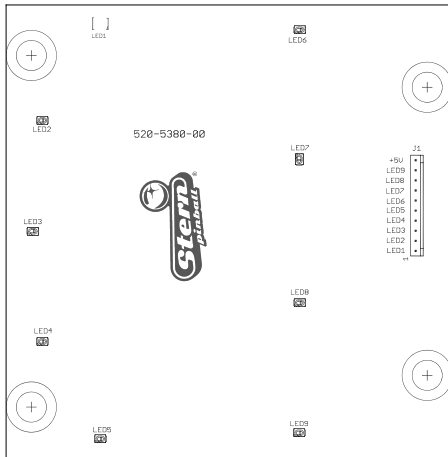


ID	Type	Pin	Description	Wire Color
CN1	.100" 5-Pin Header	1	5V	RED
		2	LED1	ORG BRN
		3	LED2	ORG RED
		4	LED3	ORG YEL
		5	LED4	ORG GRN

4.9 BLADE LIGHTS BOARD 520-5786-00



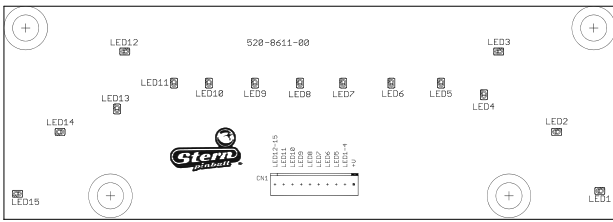
4.8 FUEL GAUGE LED BOARD 8C2 520-5380-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 10-Pin Header	1	LED1	BRN
		2	LED2	BRN BLK
		3	LED3	BRN RED
		4	LED4	BRN ORG
		5	LED5	BRN YEL
		6	LED6	BRN GRN
		7	LED7	BRN BLU
		8	LED8	BRN VIO
		9	LED9	BRN WHT
		10	+5V	RED

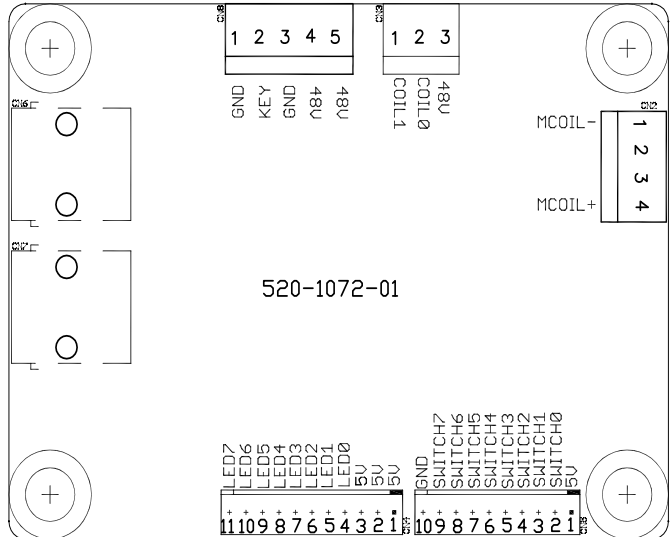
ID	Type	Pin	Description	Wire Color
CN1	.100" 6-Pin Header	1	SHIELD	DRAIN
		2	N/C	-
		3	GND	BLK
		4	OUT2	WHT
		5	OUT1	GRN
		6	+5	RED
CN2	.100" 5-Pin Header	1	SHIELD	DRAIN
		2	GND	BLK
		3	IN2	WHT
		4	IN1	GRN
		5	+5	RED
CN3	.100" 3-Pin Header	1	N/C	-
		2	SHIELD	-
		3	N/C	-
CN5	.100" 7-Pin Header	1	GND	BLK
		2	GND	-
		3	N/C	-
		4	MOSI	GRN
		5	N/C	-
		6	+5	-
		7	+5	RED
CN6	.100" 6-Pin Header	1	SHIELD	DRAIN
		2	N/C	-
		3	GND	BLK
		4	OUT2	WHT
		5	OUT1	GRN
		6	+5	RED
CN7	.100" 5-Pin Header	1	SHIELD	DRAIN
		2	GND	BLK
		3	IN2	WHT
		4	IN1	GRN
		5	+5	RED
CN8	.100" 4-Pin Header	1	SHIELD	-
		2	GND	-
		3	OUT-EXP	-
		4	+5	-

4.10 REEL UPPER LED BOARD 9A1 520-8611-00



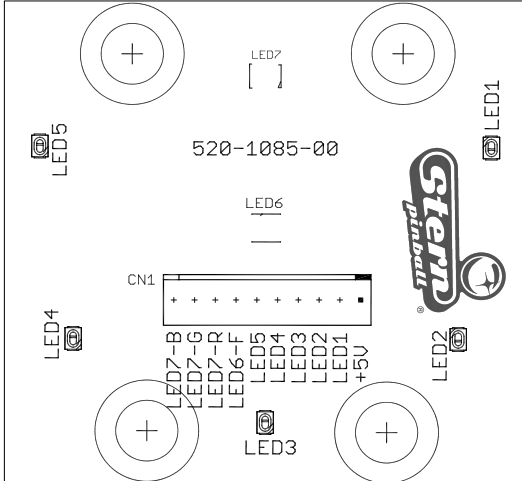
ID	Type	Pin	Description	Wire Color
CN1	.100" 10-Pin Header	1	+V	RED
		2	LED1-4	YEL BLK
		3	LED5	YEL BRN
		4	LED6	YEL RED
		5	LED7	YEL ORG
		6	LED8	YEL GRN
		7	LED9	YEL BLU
		8	LED10	YEL BIO
		9	LED11	YEL GRY
		10	LED12-15	YEL WHT

4.12 MAGNET SENSE BOARD NODE 10 520-1072-01



ID	Type	Pin	Description	Wire Color
CN1	-	-	N/C	-
CN2	.156" 4-Pin Header (White)	1	MCOIL-	BRN ORG
		2	N/C	-
		3	N/C	-
		4	MCOIL+	GRY BRN
CN3	.156" 3-Pin Header	1	COIL1	YEL GRN
		2	COIL0	ORG BLK
		3	48V	GRY BRN
CN4	.100" 11-Pin Header	1	5V	RED
		2	5V	-
		3	5V	-
		4	LED0	ORG YEL
		5	LED1	-
		6	LED2	-
		7	LED3	-
		8	LED4	-
		9	LED5	-
		10	LED6	-
		11	LED7	-
CN5	.100" 14-Pin Header	1	5V	RED
		2	SWITCH0	WHT BRN
		3	SWITCH1	WHT RED
		4	SWITCH2	WHT ORG
		5	SWITCH3	WHT YEL
		6	SWITCH4	-
		7	SWITCH5	-
		8	SWITCH6	-
		9	SWITCH7	-
		10	GND	BLK WHT
CN6	RJ45	-	SPIKE Node Bus	Multi
CN7	RJ45	-	SPIKE Node Bus	Multi

4.11 6W1R TOP CENTER LED BOARD 9A2 520-1085-00

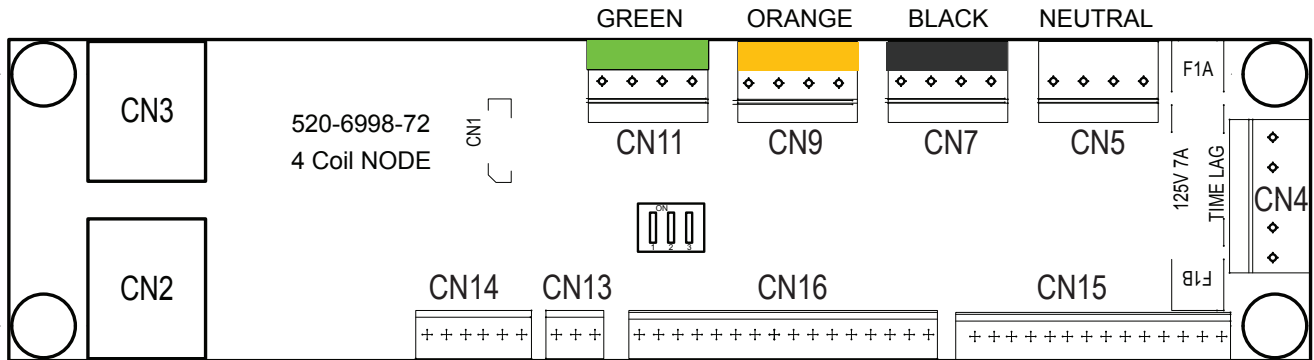


ID	Type	Pin	Description	Wire Color
CN1	.100" 10-Pin Header	1	+5V	RED
		2	LED1	ORG BRN
		3	LED2	ORG RED
		4	LED3	ORG YEL
		5	LED4	ORG GRN
		6	LED5	ORG BLU
		7	LED6-F	ORG VIO
		8	LED7-R	RED GRY
		9	LED7-G	GRN GRY
		10	LED7-B	BLU GRY



4.13 4-COIL DRIVER NODE 11

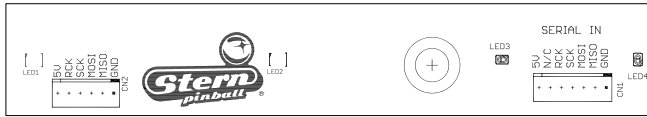
520-6998-72



ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 11 - OFF-ON-ON	
CN1	-	-	N/C	-
CN2	RJ45	-	SPIKE Node Bus	Multi
CN3	RJ45	-	SPIKE Node Bus	Multi
CN4	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	KEY
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN5	.156" 4-Pin Header (White)	1	N/C	-
		2	N/C	-
		3	11-DR-0 Driver Return	BRN-BLK
		4	48V Driver Power	GRY-BLK
CN7	.156" 4-Pin Header (Black)	1	N/C	-
		2	N/C	-
		3	11-DR-1 Driver Return	YEL-BRN
		4	48V Driver Power	GRY-BLK
CN9	.156" 4-Pin Header (Orange)	1	N/C	-
		2	N/C	-
		3	11-DR-2 Driver Return	YEL-RED
		4	48V Driver Power	GRY-BLK
CN11	.156" 4-Pin Header (Green)	1	N/C	-
		2	N/C	-
		3	11-DR-3 Driver Return	BRN-RED
		4	48V Driver Power	GRY-BLK
CN13	.100" 3-Pin Header	1	11-LP-0 GI Return (1A Max)	RED-BLK
		2	GI Ground	-
		3	LED V+	YEL-RED
		4	LED V+	YEL-RED
CN14	.100" 6-Pin Header	1	Ground	BLK
		2	DIN	VIO-BLK
		3	DOUT	VIO-BRN
		4	SCK	VIO-RED
		5	RCK	VIO-ORG
		6	V+	RED

ID	Type	Pin	Description	Wire Color
CN15	.100" 14-Pin Header	1	+5V	RED
		2	11-SW-4 Switch Return	WHT-BRN
		3	11-SW-5 Switch Return	WHT-RED
		4	11-SW-6 Switch Return	WHT-ORG
		5	11-SW-7 Switch Return	WHT-YEL
		6	11-SW-8 Switch Return	WHT-GRN
		7	11-SW-9 Switch Return	WHT-BLU
		8	11-SW-10 Switch Return	WHT-VIO
		9	11-SW-11 Switch Return	WHT-GRY
		10	11-SW-12 Switch Return	WHT
		11	N/C	-
		12	N/C	-
		13	N/C	-
		14	Switch Ground	BLK-WHT
CN16	.100" 16-Pin Header	1	+6V	YEL
		2	11-LP-1 Light Return	RED-BRN
		3	11-LP-2 Light Return	GRN-BRN
		4	11-LP-3 Light Return	BLU-BRN
		5	11-LP-4 Light Return	RED-ORG
		6	11-LP-5 Light Return	GRN-ORG
		7	11-LP-6 Light Return	BLU-ORG
		8	11-LP-7 Light Return	RED-YEL
		9	11-LP-8 Light Return	GRN-YEL
		10	11-LP-9 Light Return	BLU-YEL
		11	11-LP-10 Light Return	ORG-BRN
		12	11-LP-11 Light Return	ORG-RED
		13	11-LP-12 Light Return	ORG-YEL
		14	11-LP-13 Light Return	ORG-GRN
		15	N/C	-
		16	N/C	-
F1	Fuse	7A SB, 125V	n/a	

4.14 2RGB2W CENTER LED BOARD 11A 520-1081-00



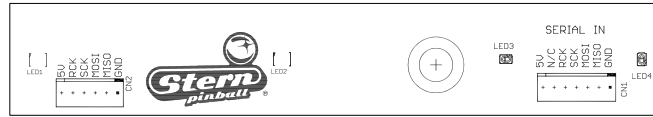
ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED
CN2	.100" 6-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	5V	RED

4.15 2RGB2W CENTER LED BOARD 11B 520-1081-00



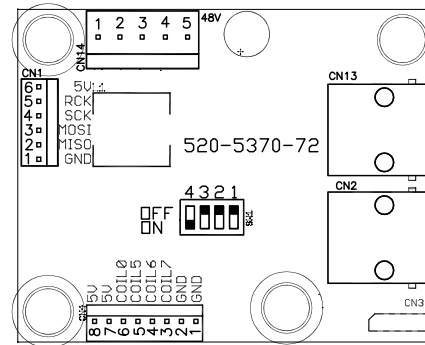
ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED
CN2	.100" 6-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	5V	RED

4.16 2RGB2W CENTER LED BOARD 11C 520-1081-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED

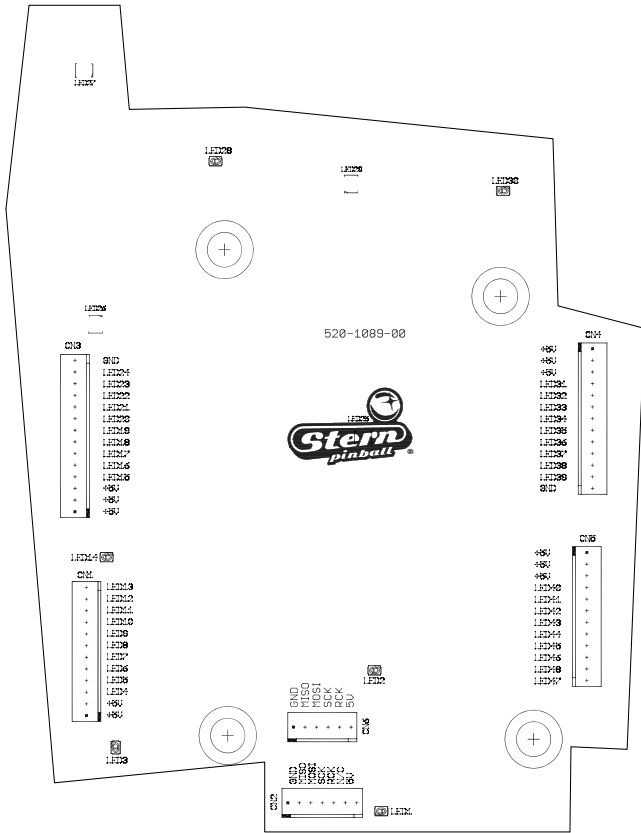
4.17 SPI BOARD NODE 2 & 7 520-5370-72



ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 2- ON-OFF-ON-ON Node 7- OFF-OFF-OFF-ON	-
CN2	RJ45	-	SPIKE Node Bus	Multi
CN13	RJ45	-	SPIKE Node Bus	Multi
CN14	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	Key
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN1	.100" 6-Pin Header, Node Extension Bus	1	Ground	BLK
		2	DIN	-
		3	DOUT	GRN
		4	SCK	-
		5	RCK	-
		6	V+	RED
CN4	.100" 8-Pin Header	1	GND	-
		2	GND	-
		3	COIL 7	-
		4	COIL 6	-
		5	COIL 5	-
		6	COIL 0	-
		7	5V	-
		8	5V	-

4.18 4RGB6W TOP RIGHT LED BOARD 9A

520-1089-00

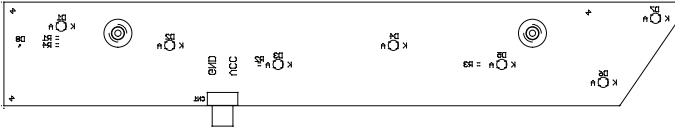


ID	Type	Pin	Description	Wire Color
CN1	.100" 12-Pin Header	1	+5V	RED
		2	+5V	RED
		3	LED4	GRN BRN
		4	LED5	GRN RED
		5	LED6	RED VIO
		6	LED7	GRN VIO
		7	LED8	BLU VIO
		8	LED9	GRN ORG
		9	LED10	GRN YEL
		10	LED11	GRN BLU
		11	LED12	GRN GRY
		12	LED13	GRN WHT
CN2	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	N/C	-
		7	5V	RED

CN3	.100" 14-Pin Header	1	+5V	RED
		2	+5V	RED
		3	+5V	RED
		4	LED15	BRN RED
		5	LED16	BRN ORG
		6	LED17	BRN YEL
		7	LED18	BRN GRN
		8	LED19	BRN BLU
		9	LED20	BRN VIO
		10	LED21	BRN GRY
		11	LED22	BRN WHT
		12	LED23	BRN
		13	LED24	BRN BLK
		14	GND	-
CN4	.100" 13-Pin Header	1	+5V	RED
		2	+5V	-
		3	+5V	-
		4	LED31	YEL BLK
		5	LED32	YEL BRN
		6	LED33	YEL RED
		7	LED34	YEL ORG
		8	LED35	YEL GRN
		9	LED36	YEL BLU
		10	LED37	YEL VIO
		11	LED38	YEL GRY
		12	LED39	YEL WHT
		13	GND	-
CN5	.100" 12-Pin Header	1	+5V	RED
		2	+5V	-
		3	+5V	-
		4	LED40	ORG BRN
		5	LED41	ORG RED
		6	LED42	ORG YEL
		7	LED43	ORG GRN
		8	LED44	ORG BLU
		9	LED45	ORG VIO
		10	LED46	RED GRY
		11	LED47	GRN GRY
		12	LED48	BLU GRY
CN6	.100" 6-Pin Header	1	Ground	-
		2	MISO Output Data	-
		3	MOSI Input Data	-
		4	SCK Serial Clock	-
		5	RCK Register Clock	-
		6	5V	-

4.19 TROUGH SERIAL OPTO TRANSMITTER

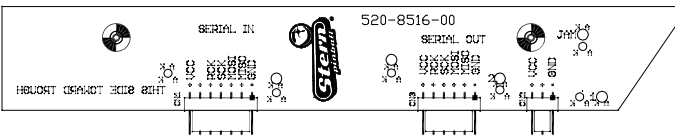
520-5344-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 3-Pin Header	1	Ground	BLK
		2	N/C	-
		3	+5 VDC IN	RED

4.20 TROUGH SERIAL OPTO RECEIVER 8A

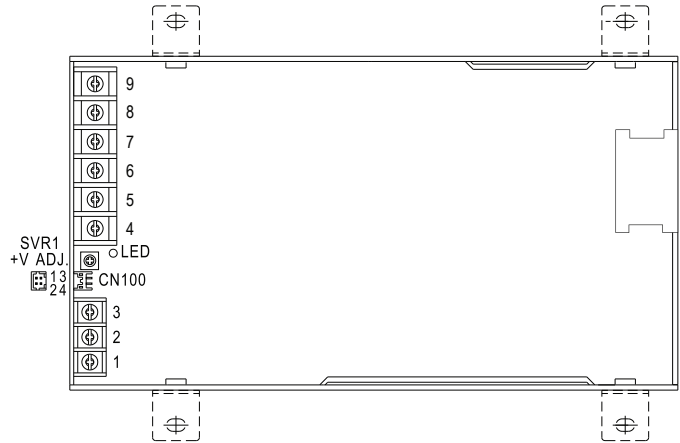
520-8516-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	N/C	-
		7	+5 VDC IN	RED
CN2	.100" 3-Pin Header	1	Ground	BLK
		2	N/C	-
		3	+5 VDC IN	RED
CN3	.100" 6-Pin Header	1	Ground	-
		2	MISO Output Data	-
		3	MOSI Input Data	-
		4	SCK Serial Clock	-
		5	RCK Register Clock	-
		6	V+	-

4.21 MAIN POWER SUPPLY

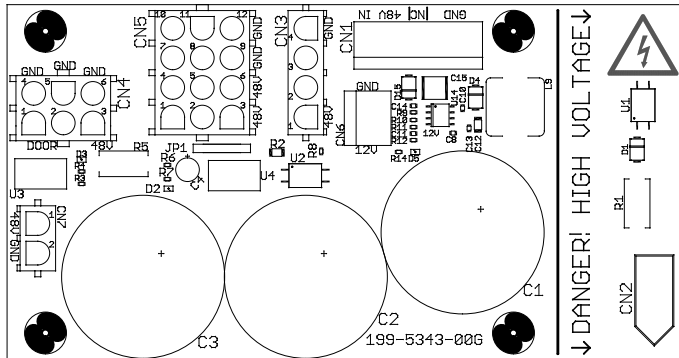
011-5004-00



ID	Type	Pin	Description	Wire Color
CN1	Screw Terminal	1	AC Line Hot In	BLK
		2	AC Line Neutral In	WHT
		3	Earth Ground In	GRN
		4	DC Ground	BLK
		5	DC Ground	BLK
		6	DC Ground	BLK
		7	+48 V System Power	GRY
		8	+48 V System Power	GRY
		9	+48 V System Power	GRY

4.22 POWER DISTRIBUTION BOARD

520-8096-00



ID	Type	Pin	Description	Wire Color
CN1	.156 in 7-Pin Housing Plug: 045-5259-07 Pin: 055-5331-00 Key: 060-5013-00	1	+48 VDC IN	GRY
		2	+48 VDC IN	GRY
		3	+48 VDC IN	GRY
		4	Key (n/c)	-
		5	Ground	BLK
		6	Ground	BLK
		7	Ground	BLK
CN2	.093 in 3-Pos Plug Plug: 045-5003-03 Pin: 055-5013-09	1	Line In (100-240 VAC)	BLK
		2	Neutral	WHT
		3	Earth Ground	GRN
CN3	0.084 in 4-Pos Plug Plug: 045-5200-04 Pin: 055-5033-08	1	+48 VDC to CPU Node	GRY
		2	Door Interlock Switch Status	GRY/RED
		3	Line Voltage Status	VIO
		4	Ground	BLK
CN4	0.084 in 6-Pos Plug Plug: 045-5200-06 Pin: 055-5033-08	1	Door Interlock Switch +48V	GRY
		2	Door Interlock Switch +48V	-
		3	Switched 48V Out (to Node 1)	GRY/YEL
		4	Door Interlock Return Ground	GRY/RED
		5	Door Interlock Return Ground	-
		6	Ground (to Node 1)	BLK
CN5	0.084 in 12-Pos Plug Plug: 045-5200-12 Pin: 055-5033-08	1	Switched 48V Node Power	GRY
		2	Switched 48V Node Power	GRY
		3	Switched 48V Node Power	GRY
		4	Switched 48V Node Power	GRY
		5	Switched 48V Node Power	GRY
		6	Switched 48V Node Power	GRY
		7	Node Ground	BLK
		8	Node Ground	BLK
		9	Node Ground	BLK
		10	Node Ground	BLK
		11	Node Ground	BLK
		12	Node Ground	BLK
CN6	.156 in 3-Pos Plug: 045-5259-03 Pin:055-5331-00 (18awg)	1	Ground	-
		2	Ground	-
		3	+12VDC	-
CN7	.084 2-Pos Plug: 045-5200-02 Pin:055-5033-08	1	+48 VDC to Topper Node	GRY
		2	Ground	BLK

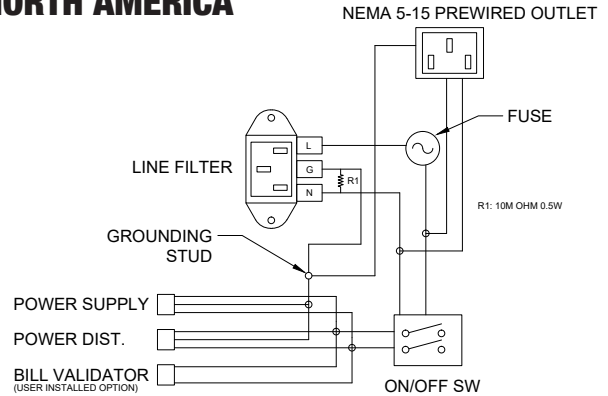
4.23 POWER PLUG WIRING

CAUTION

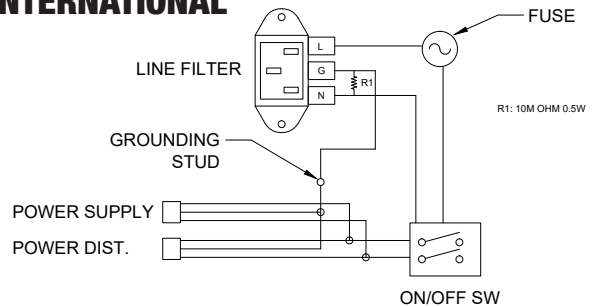
TO MAINTAIN SAFETY, GROUND WIRE FROM LINE FILTER IS TO BE MOUNTED FIRST ON GROUNDING STUD AND SECURED WITH NUT. ALL OTHER GROUNDS MAY THEN BE ATTACHED TO GROUNDING STUD.

REPLACE ALL FUSES WITH CORRECT CURRENT RATINGS!

NORTH AMERICA



INTERNATIONAL



LINE CORDS

Part Number	Description
034-6012-00	Line Cord, 3m, 5-15P USA
034-6012-01	Line Cord, 3m, CEE77P EUROPE
034-6012-02	Line Cord, 3m, BS1363P United Kingdom
034-6012-03	Line Cord, 3m, AS-NZS4417P Australia
034-6012-04	Line Cord, 3m, CEI23-16P Italy
034-6012-05	Line Cord, 3m, SEV1011P Switzerland
034-6012-06	Line Cord, 3m, JIS8303P Japan
034-6012-07	Line Cord, 3m, SI32P Israel
034-6012-08	Line Cord, 3m, BS546P S Africa, India
034-6012-09	Line Cord, 3m, IS6538P S. India

LINE FUSES

Line Voltage (Region)	Fuse Current	Type	Part Number
120V (North America)	8 A	Slow Blow 30G	200-5000-05
220/240v (Europe, Australia, UK)	5 A	Slow Blow 5 x 20mm	200-5003-00

5. PARTS REFERENCE

5.1 PLAYFIELD RUBBER PARTS

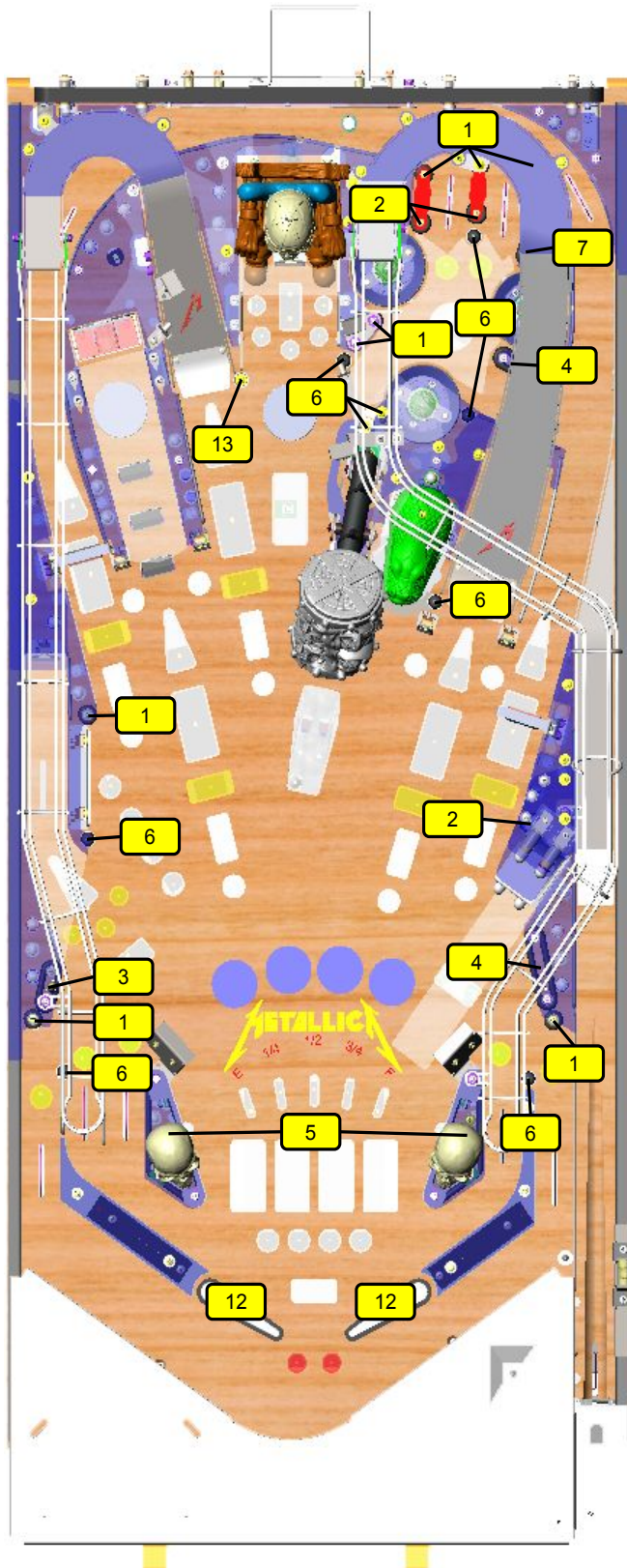


Figure 5.1.1. Rubber o-ring part locations

RUBBER O-RINGS

ID	Qty	Size (ID)	Size (OD)	Durometer	Color	Part Number
1	8	3/16"		50	Black	545-5348-01
2	3	5/16"		50	Black	545-5348-02
3	1	3/4"		50	Black	545-5348-04
4	2	1"		50	Black	545-5348-05
5	2	2"		50	Black	545-5348-08
6	9		7/16"	50	Black	545-5348-17
7	1	7/16"		50	Black	545-5348-18

Figure 5.1.2. Rubber o-ring part numbers and usage. ID: Inner Diameter, OD: Outer Diameter, Durometer: Higher number is firmer, less bounce, and more durable.

ID	Qty	Description	Color	Part Number
11	1	Plunger Tip	Black	545-5276-00
12	2	Flipper Rubber	Black	545-5277-00
13	1	Post Sleeve	Black	545-5308-00
14	5	Bumper Pad (Sub assemblies)	Black	545-5105-00
15	2	Bumper Pad (Flippers)	Black	545-5428-00

Figure 5.1.3. Other rubber part numbers and usage

5.2 RUBBER SIZE CHART

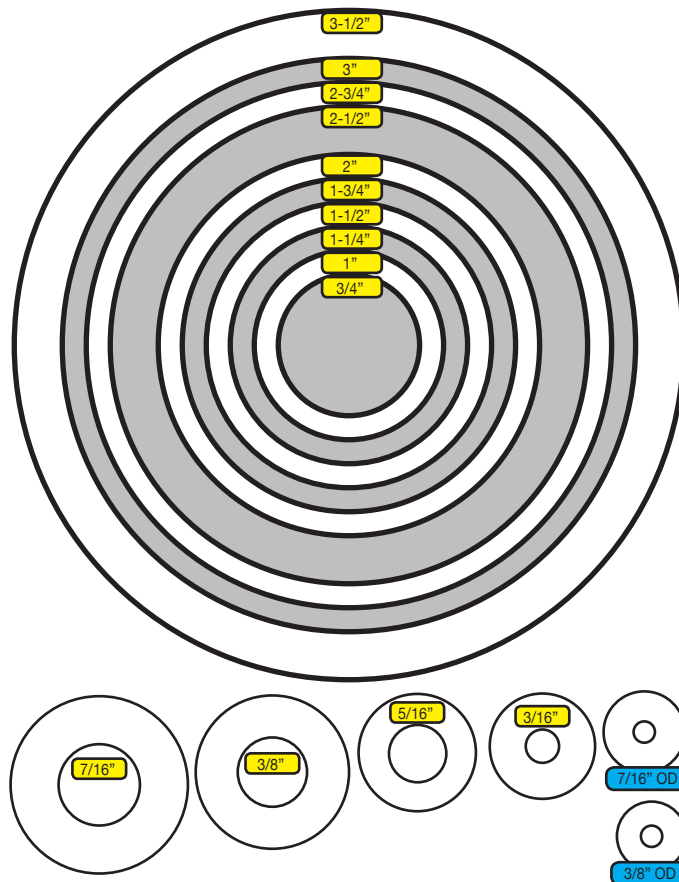


Figure 5.2.1. Rubber ring inner diameter sizing tool. Hold ring up to chart and read largest size on inside of ring. Dimensions are Inner Diameter (ID) unless otherwise noted as Outer Diameter (OD).

5.3 PLAYFIELD ASSEMBLIES, TOP

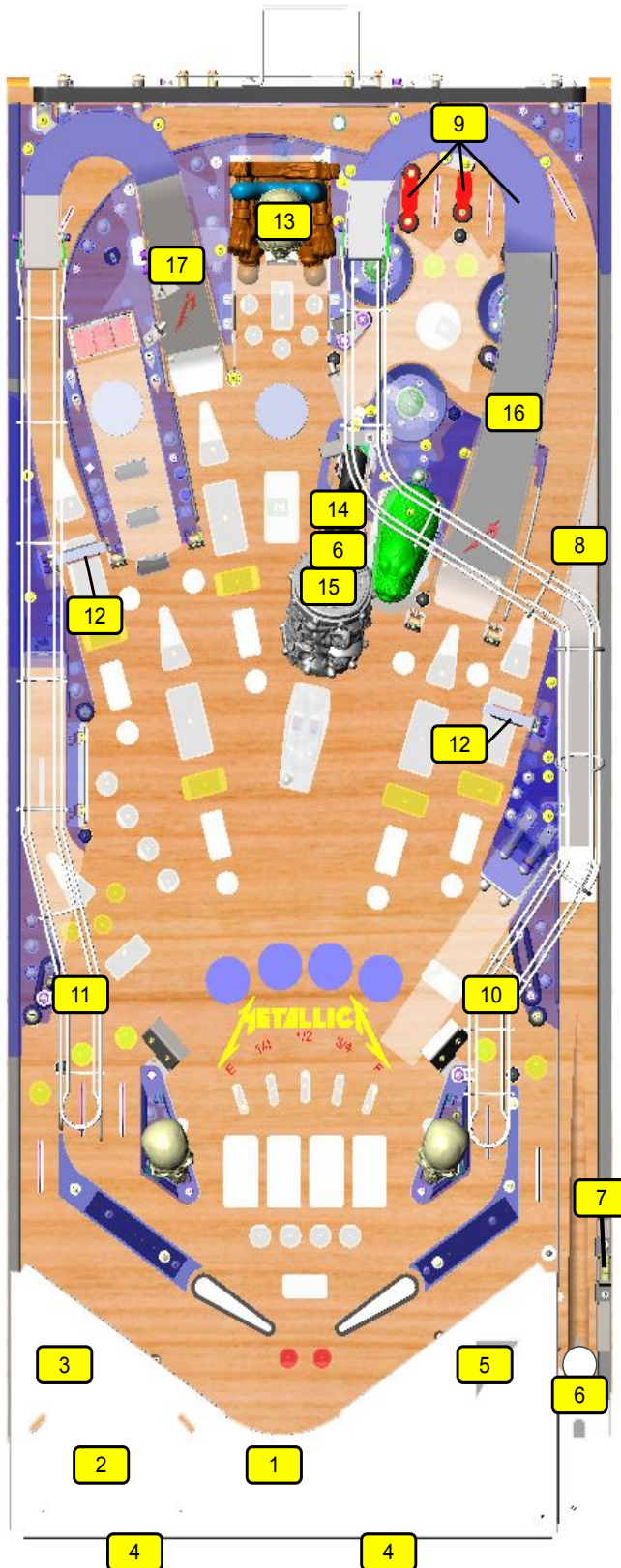
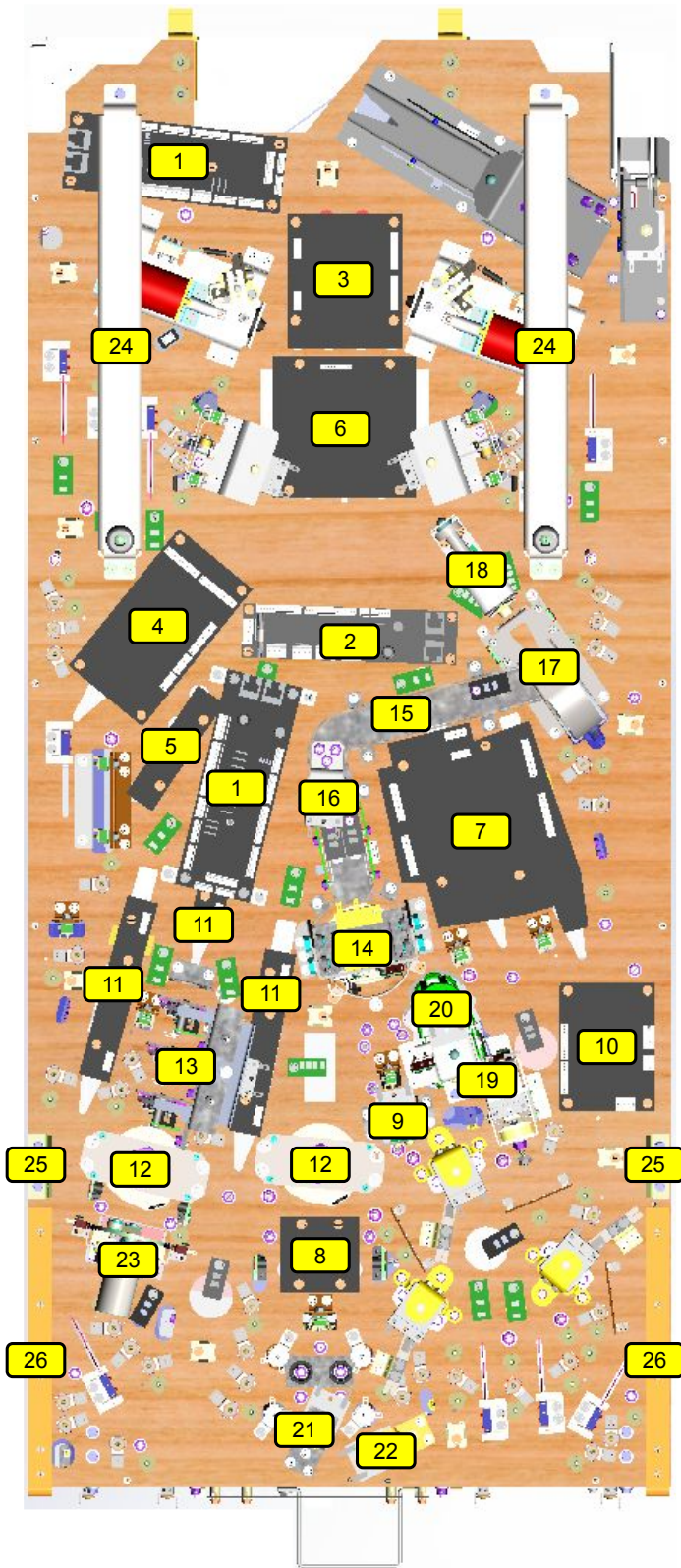


Figure 5.3.1. Major playfield assemblies, Top locations.

ID	Part Number	Description	Qty
1	510-7805-00	Bottom Arch Assembly	1
2	755-51X5-XX	Instructions Card	1
3	755-7669-00	SPI Card	1
4	535-8385-00	Welded Hanger Bracket	1
5	509-2020-00	QR Reader	1
6	260-5000-00	Pinballs	7
7	500-6815-00	Bubble Level Assembly	1
8	510-1087-00	Shooter Lane Ramp - Riveted Assembly	1
9	550-5061-02	Top Lane Plastic Hood - Mini Red	3
10	515-8652-01	Wire Ramp, Right	1
11	515-8653-01	Wire Ramp, Left	1
12	511-3044-00	Spinner Assembly	2
	515-2456-00	Spinner Bracket	1 ea.
	515-2326-00	Spinner Target	1 ea.
13	500-2079-00	Electric Chair Assembly	1
14	511-7481-01	Hammer Assembly	1
15	511-7501-00	Newton Cube Assembly	1
16	500-2657-00	Right Ramp Assembly	1
17	500-2656-00	Left Ramp Assembly	1
18	500-2655-00	Backpanel Assembly (Contains LED Board - 9a1)	1

5.4 PLAYFIELD ASSEMBLIES, BOTTOM



ID	Part Number	Description	Qty
1	520-1070-00 520-1057-00	Core Node Driver Board	2
2	520-6998-72	4-Coil Driver Node	1
3	520-1086-00	LED Board - 8b	1
4	520-1082-00	LED Board - 8c	1
5	520-8487-00	LED Board - 8c1	1
6	520-5380-00	LED Board - 8c2	1
7	520-1089-00	LED Board - 9a	1
8	520-1085-00	LED Board - 9a2	1
9	511-7473-00	Hammer Playfield Assembly	1
10	520-1072-01	Magnet Sense Board	1
11	520-1081-00	LED Board - 11a, 11b, 11c	3
12	511-7596-01	Magnet Assembly	2
13	500-2654-00	3-Bank Inline Drop Target Assembly	1
14	511-7475-01	Disappearing Ball Assembly	1
15	511-7476-01	Disappearing Ball Trough Assembly	1
16	500-2673-00	Disappearing Ball Trough Down Post Assembly	1
17	511-3036-01	Scoop, Left Cutout	1
18	500-5840-00	Scoop Kicker Assembly	1
19	500-9815-00	Snake Coil Assembly	1
	242-5088-00	Nylon Washer	1
	545-5352-00	Nyliner, 3/16" Shaft	1
	270-5001-00	Retaining E-Ring, 3/16" Shaft	1
20	500-9813-00	Snake Head Assembly	1
21	500-2956-00	Electric Chair Kicker Assembly	1
22	500-9914-00	Up Post Assembly	1
23	500-9810-02	Sliding Grave Marker Assembly	1
24	511-7621-00	Support Rail Assembly	2
25	500-5329-03	Pivot Bracket Assembly	2
26	535-5988-01	Edge Slide Bracket	2

Figure 5.4.1. Major playfield assemblies, Bottom locations.

5.5 BACKBOX PARTS

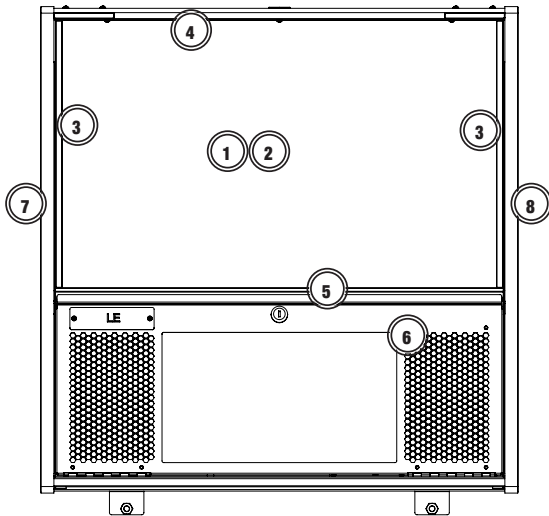


Figure 5.5.1. Backbox external assemblies and components

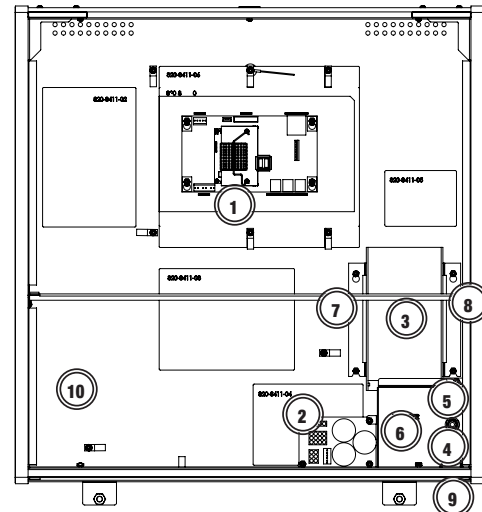


Figure 5.5.2. Backbox internal assemblies and components

EXTERNAL

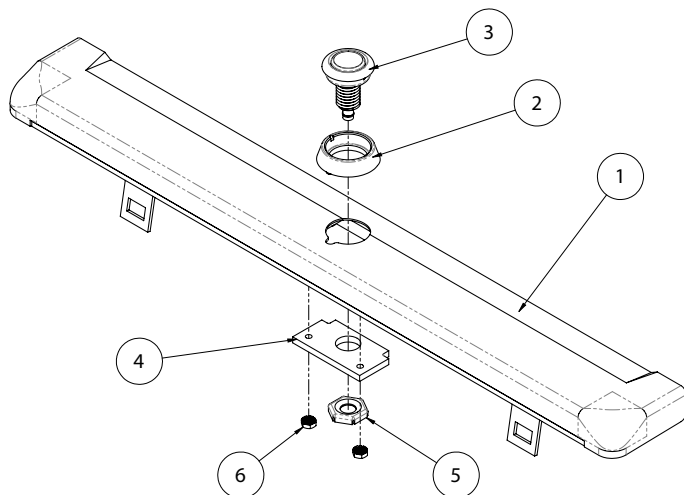
ID	Part Number	Description	Qty
1	660-5052-00	Backglass	1
2	830-8426-X6	Mirror Backglass [LE]	1
	830-8427-X5	Translite Art [Premium]	1
3	545-5018-17	Plastic Extrusion 15-.450"	2
4	545-5018-15	Glass Channel 26"	1
5	545-6313-01	Glass Lift Channel 26"	1
6	500-9996-00	LCD Speaker Panel Assembly	1
7	820-90X6-01	Left Backbox Decal [LE]	1
	820-76X5-01	Left Backbox Decal [Premium]	1
8	820-90X6-02	Right Backbox Decal [LE]	1
	820-76X5-02	Right Backbox Decal [Premium]	1
9	515-9866-00	Backbox Bottom Bracket [Not Labeled]	1

INTERNAL

ID	Part Number	Description	Qty
1	509-1003-01	CPU Node Board	1
2	520-8096-00	Power Distribution Board	1
3	011-5004-00	Power Supply 48V/600W	1
4	205-5001-00	Fuse Holder - Screw In	1
	200-5000-05	8A SB Fuse	1
5	515-9769-00	Utility Outlet (USA)	1
6	535-1162-00	Cover AC, 600W	1
7	535-0879-00	Power Supply Bracket, 600W Left	1
8	535-1161-00	Power Supply Bracket, 600W Right	1
9	180-5001-03	Power Switch	1
10	520-5370-72	Speaker Lights Node Board [LE]	1

5.6 LOCKDOWN BAR ASSEMBLY W/ CENTER BUTTON

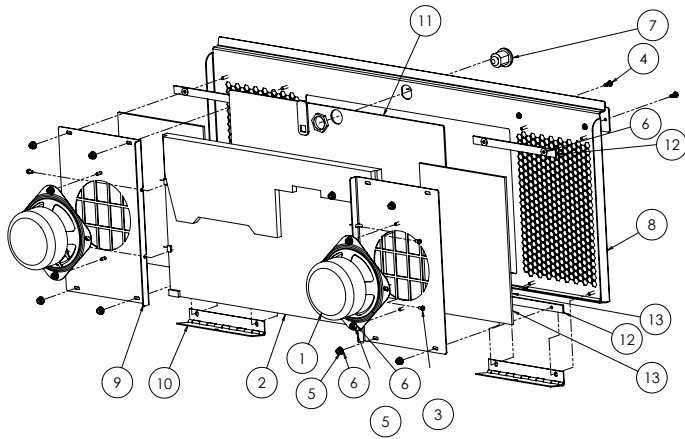
500-2440-12 [LE] & 500-2440-00 [PRE]



ID	Part Number	Description	Qty
1	500-2441-12	FRONT MOLD ASSEMBLY - CENTER BUTTON - RAVEN BLACK [LE]	1
	500-2441-00	FRONT MOLD ASSEMBLY - CENTER BUTTON - WRINKLED BLACK [PREMIUM]	1
2	545-7292-10	SPACER, CENTER BUTTON	1
3	515-7791-00	CENTER BUTTON ASSEMBLY	1
4	545-7291-00	TOP BUTTON BAR	1
5	240-5003-01	PAL NUT	1
6	240-5104-00	8-32 KEPS NUT	2

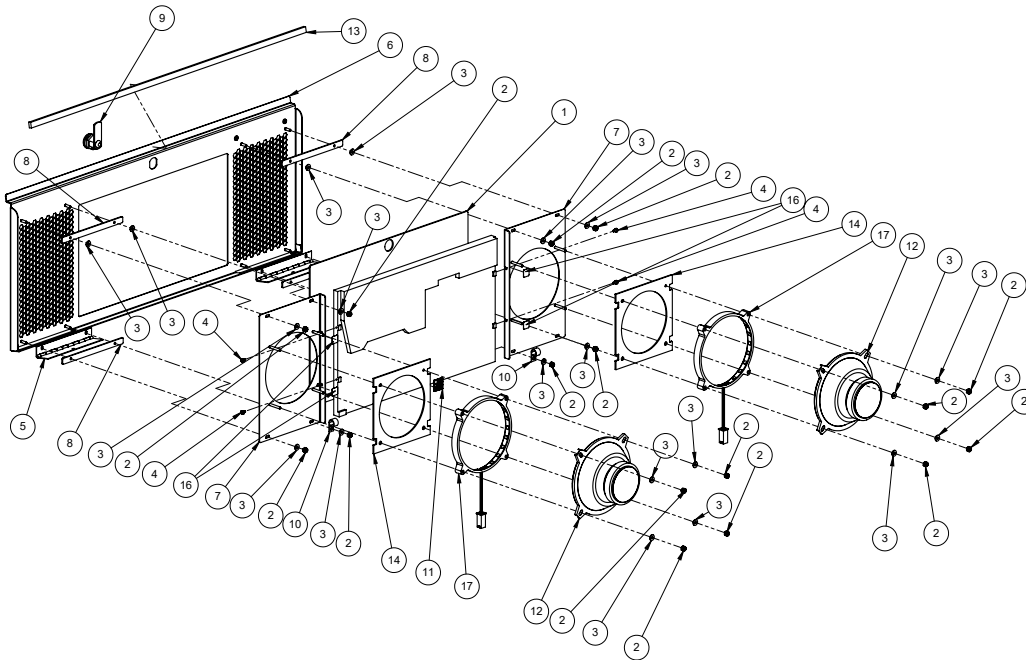
5.7 SPEAKER PANEL PARTS

PREMIUM : 500-9996-00



ID	Part Number	Description	Qty
1	031-5004-02	Speaker	2
2	116-0023-00	1366 x 768 Display LCD Panel	1
	037-1116-00	LCD LVDS Cable	1
	037-1115-00	LCD Back Light Cable [Innolux]	1
	037-1119-00	LCD Back Light Cable [Sharp]	1
3	237-6188-01	Screw, M3x0.5 X 6MM PPH Sems Zinc	4
4	237-6307-06	6-32 X 3/8" Torx Stainless Steel Screw	2
5	240-5005-00	6-32 Nylon Stop Nut	12
6	242-5001-00	#6 Washer	16
7	355-5168-00-00	Nut: Lock w/ Cam	1
8	515-9842-00	Speaker Panel - LCD	1
9	515-9843-00	Speaker Plate	2
10	515-9845-00	Hinge, Speaker Panel, LCD	2
11	545-9877-00	LCD Window	1
12	545-9877-01	Spacer, Small - LCD Speaker Panel	4
13	626-5109-00	Speaker Foam - LCD Panel	2

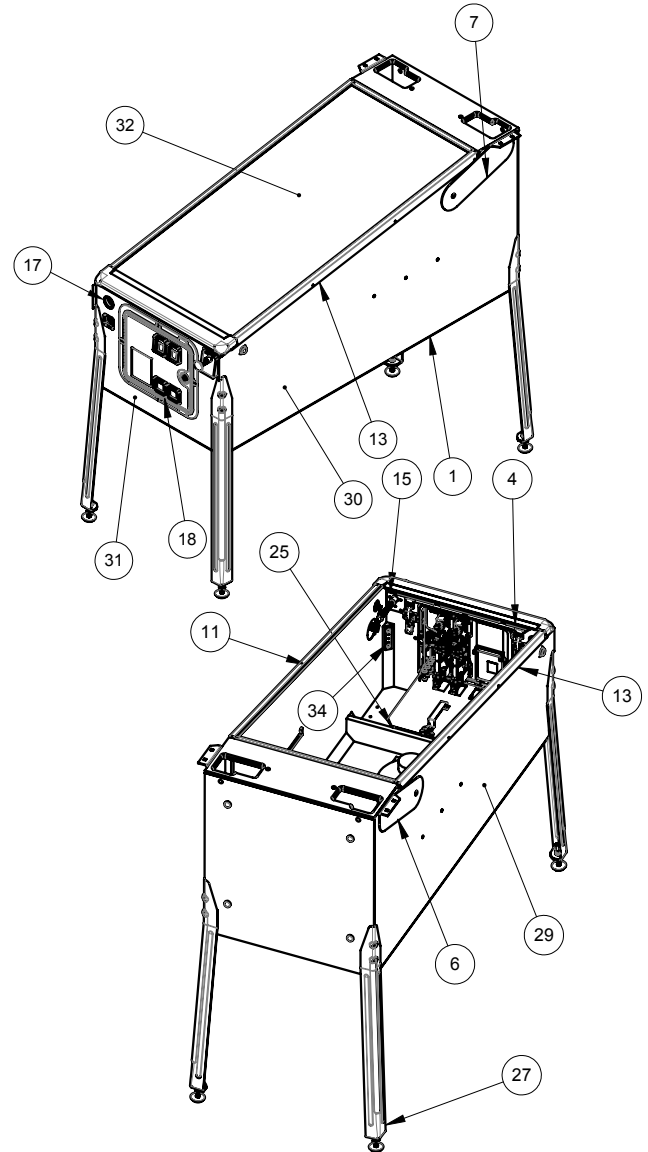
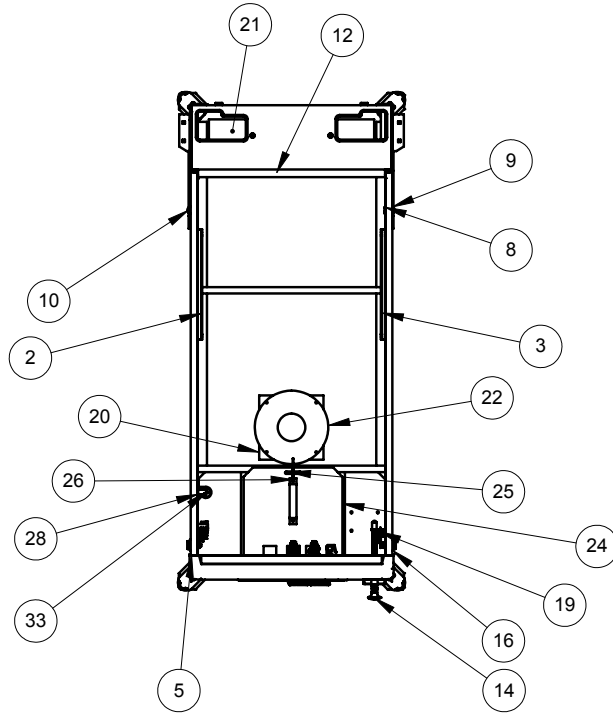
LE : 500-2442-X6



ID	Part Number	Description	Qty
1	545-9877-00	LCD WINDOW	1
2	240-5005-00	6-32 NYLON STOP NUT	16
3	242-5001-00	#6 WASHER	20
4	237-6188-01P	SCREW, M3x0.5 X 6MM PPH SEMS ZINC PATCH	4
5	515-9845-00	HINGE, SPEAKER PANEL, LCD	2
6	515-9842-00	LCD SPEAKER BRACKET - BLACK MINI-TEX	1
7	515-1941-00	SPEAKER PLATE, 5.25" DRIVERS	2
8	545-9877-01	SPACER, SMALL - LCD SPEAKER PANEL	4
9	355-5168-00-00	LOCK ASSEMBLY, BLACK, 5/8"TL + 1.8"LG STRAIGHT CAM	1

ID	Part Number	Description	Qty
10	040-5016-00B	CABLE CLAMP 0.38 BLACK	2
11	040-5002-00	MOUNTING PAD	1
12	031-5017-00	SPEAKER, PREMIUM AUDIO	2
13	626-5001-00	FOAM RUBBER, 3/8" W X 3/16" THK	1
14	546-5027-01	SPEAKER RING, METALLICA REMASTERED	2
15	116-0023-00	1366 x 768 DISPLAY LCD PANEL	1
	037-1116-00	LCD LVDS CABLE	1
	037-1115-00	LCD Back Light Cable [Innolux]	1
	037-1119-00	LCD Back Light Cable [Sharp]	1
16	820-1098-00	DECAL, LIGHT BLOCKER, SPEAKER PANEL	4
17	511-1135-00	ASM, SPEAKER LIGHT RING	2

5.8 CABINET PARTS



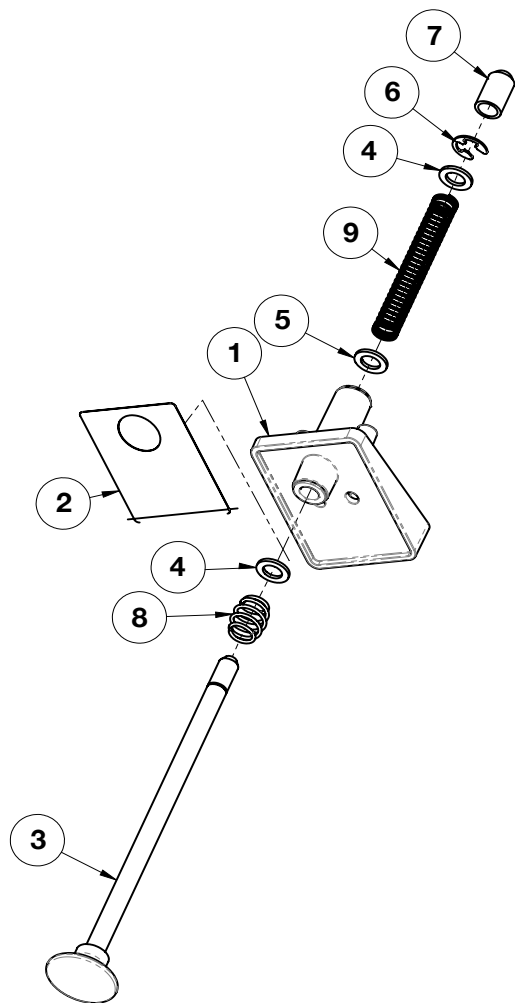
ID	Part Number	Description	Qty
1	525-6026-01	Cabinet Assembly, Single Button	1
2	535-5989-00	Slide & Pivot Bracket - Left Side	1
3	535-5990-00	Slide & Pivot Bracket - Right Side	1
4	535-2051-00	Cabinet Playfield Support Bracket	1
5	500-2440-14	Front Molding Assembly - Raven Black [LE]	1
	500-2440-00	Front Molding Assembly - Wrinkle Black [Premium]	1
6	535-7999-14L	Pivot Hinge, Left - Raven Black [LE]	1
	535-7999-00	Pivot Hinge, Left - Wrinkle Black [Premium]	1
7	535-7999-14R	Pivot Hinge, Right - Raven Black [LE]	1
	535-7999-01	Pivot Hinge, Right - Wrinkle Black [Premium]	1
8	254-5042-00	Spacer Nut, Hex, 1/2"OD, 1/4-20	2
9	242-5084-00	Washer, 1/2" I.D., 3/16" THK	2
10	231-5072-00	1/4-20 X 1/2" Carriage Bolt	2
11	545-5017-00	Plastic Channel	2
12	545-5038-00	Glass Rear Extrusion	1
13	511-5477-00	Side Armor Assembly Left - Raven Black [LE]	1
	511-5477-01	Side Armor Assembly Right - Raven Black [LE]	1
	535-7297-02	Side Armor - Wrinkle Black [Premium]	2
14	500-2604-07	Ball Shooter Assembly - Orange Spring	1
15	535-5027-01	Plunger Support Plate, Notched	1
16	500-1169-32	Flipper Button Assy - Red [LE]	2
	500-1169-38	Flipper Button Assy - White [Premium]	2
17	500-1060-44-LED	Start Button	1
18	501-5018-173	Coin Door 2-Chute No Emboss	1
19	180-5160-01	Flipper Switch, Single	2
20	545-5072-03	Grill - Speaker / Vent	1
21	545-5072-02	Grill - Speaker / Vent	1
22	031-5016-00	Woofer, 8" Round, 4Ω [LE]	1
	031-5007-01	Speaker, Cabinet 8" Round, 4 Ohm [Premium]	1
23	545-5090-00	Cash Box - Plastic	1
24	535-5013-03	Cash Box Cover	1
25	535-7562-00	Cash Box Lock Bracket Wire	1

ID	Part Number	Description	Qty
26	535-7772-00	Hair Pin Clip	1
27	500-5921-14	Leg Assembly - Raven Black [LE]	4
	500-5921-50	Leg Assembly - Wrinkle Black [Premium]	4
28	516-0007-00	Tilt Assembly	1
	535-5029-00	Tilt Plumb Bob	1
29	820-90X6-03	Decal, Cabinet Left, Metallica Remastered LE	1
	820-14X5-03	Decal, Cabinet Left, Metallica Remastered Premium	1
30	820-90X6-04	Decal, Cabinet Right, Metallica Remastered LE	1
	820-14X5-04	Decal, Cabinet Right, Metallica Remastered Premium	1
31	820-90X6-05	Decal, Cabinet Front, Metallica Remastered LE	1
	820-14X5-05	Decal, Cabinet Front, Metallica Remastered Premium	1
32	660-5053-00	High Resolution Glass [LE]	1
	660-5001-00	Playfield Glass [Premium]	1
33	520-6967-72	Cabinet Node Board	1
34	535-2049-00	Corner Brackets For Cabinet Legs	4
	234-5102-00	Screw, 8 X 5/8" SLT HWH AB Zinc	24
35	820-5475-01-X6	Interior Cabinet Decal, Right, Metallica Remastered LE	1
	820-5475-00-X6	Interior Cabinet Decal, Left, Metallica Remastered LE	1
	820-90X6-XX	Cabinet Decal Replacement Set, Speaker Panel	
	820-14X5-XX	Decal Not Included	



5.9 BALL SHOOTER ASSEMBLY

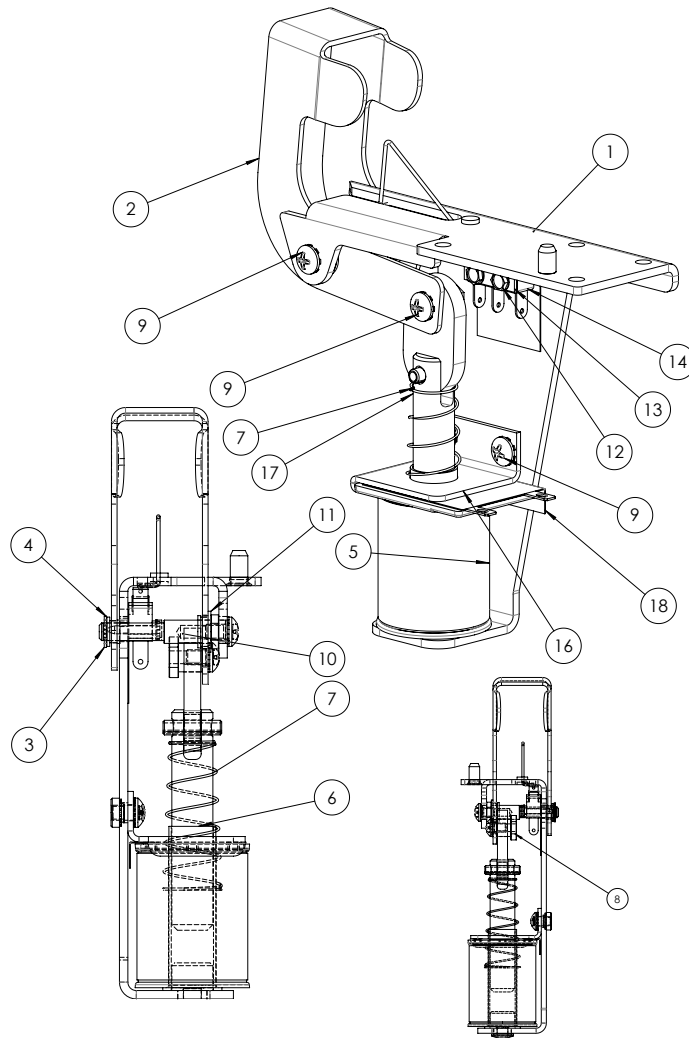
500-2604-07



ID	Part Number	Description	Qty
1	515-2436-01	HOUSING ASSEMBLY	1
2	820-1408-00	DECAL - SHOOTER HOUSING SPI	1
3	515-6557-00	ROD ASSEMBLY	1
4	242-5014-00	WASHER 3/8 ID X 5/8 OD X 1/16"	2
5	242-5637-00	NYLON WASHER 3/8 ID X 5/8 OD X 1/16"	1
6	270-5012-00	RETAINING RING, 3/8"	1
7	545-5276-00	RUBBER TIP	1
8	266-5010-00	COMPRESSED SPRING (SHORT)	1
9	266-5001-07	COMPRESSED SPRING (LONG) - ORANGE	1

5.10 AUTO LAUNCH ASSEMBLY

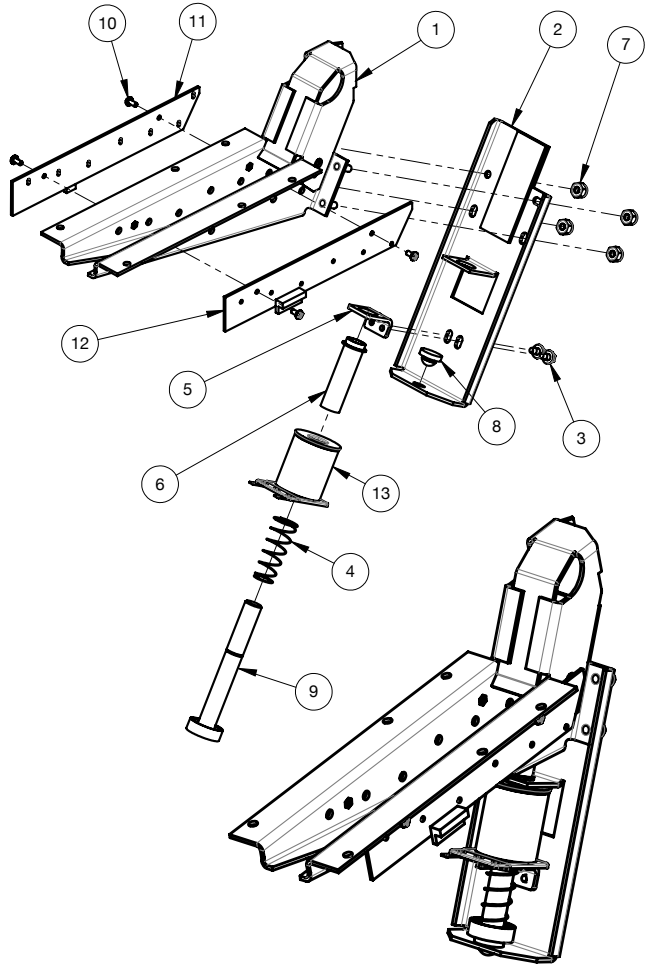
500-9818-02



ID	Part Number	Description	Qty
1	515-9689-01	MAIN BRKT: AUTO-PLUNGER	1
2	535-0728-00	KICKER ARM, AUTO-PLUNGER	1
3	270-5001-00	RETAINING E-RING, 3/16" SHAFT OD	1
4	545-5352-00	NYLINER, 3/16" SHAFT	1
5	090-5001-ND	COIL - 23-800, NO DIODE	1
6	545-5411-00	COIL SLEEVE	1
7	266-5020-00	COMPRESSION SPRING-CONICAL	1
8	530-7834-00	PIN: KICKER ARM, AUTO-PLUNGER	1
9	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
10	530-7835-00	PIVOT, AUTO-PLUNGER	1
11	545-5423-00	NYLINER, 1/4" SHAFT, 4L1-FF	1
12	237-5937-02	SCREW, 2-56 X 1/2" HWH MS	2
13	535-6539-00	SWITCH BODY PROTECT PLATE	1
14	180-5157-01	SHOOTER SWITCH - SHORT ARM	1
15	545-6268-00	FISCHE PAPER	1
16	535-0762-00	COIL BRACKET-AUTOPLUNGER	1
17	515-6304-03	PLUNGER / LINK ASSEMBLY	1
18	545-0762-00	FISCHE PAPER: AUTO-LAUNCHER	1

5.11 BALL TROUGH ASSEMBLY

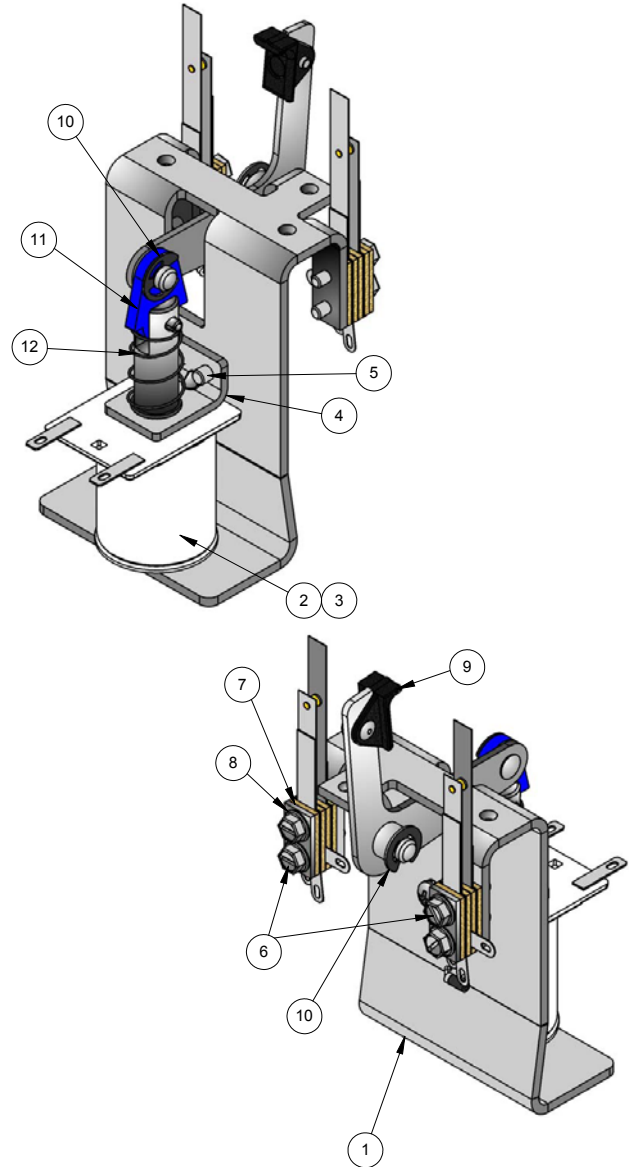
500-9820-01



ID	Part Number	Description	Qty
1	515-7811-00	MAIN BRKT. BALL TROUGH	1
2	515-7812-00	COIL BRACKET, BALL TROUGH	1
3	237-5975-04	SCREW, 8-32 X 1/4" HWH SWAGE SERR	2
4	266-5020-00	COMPRESSION SPRING-CONICAL	1
5	535-5203-03	COIL RETAINING BRACKET	1
6	545-5076-01	COIL SLEEVE	1
7	240-5102-00	8-32 NYLON LOCK NUT	4
8	545-5105-00	RUBBER BUMPER	1
9	515-7309-01	PLUNGER ASSEMBLY	1
10	237-5909-00	SCREW, 4-40 X 1/4" PPH SEMS	4
11	520-5344-00	TROUGH BOARD #1 - ILED TRANSMITTER	1
12	520-8516-00	TROUGH BOARD #2 - RECEIVER	1
13	090-5004-ND	COIL 27-1500 - NO DIODE	1
98*	605-5006-00	SHRINK TUBING 1/8"	.42 FT.
99*	036-5611-11-F5	CABLE TROUGH OPTOS	1

5.12 SLINGSHOT ASSEMBLY

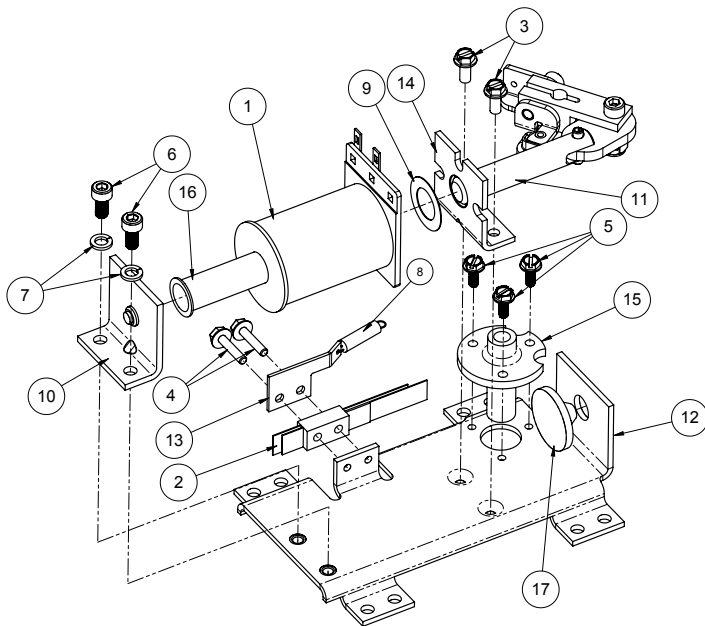
500-9920-01



ID	Part Number	Description	Qty
1	515-5339-01	SLINGSHOT BRACKET ASSEMBLY	1
2	090-5044-ND	COIL 26-1200 - NO DIODE	1
3	545-5031-00	COIL SLEEVE	1
4	535-5203-03	COIL RETAINER BRACKET	1
5	232-5301-00	8-32 X 3/8 PPH MS EXT SEMS ZC	2
6	180-5231-00	SWITCH SLING SHOT 2 LUG CENTER	2
7	535-5045-00	SWITCH PLATE	2
8	237-5976-04	6-32 X 5/8 SLOT SER HWH SW	4
9	515-5340-01	ARM & TIP ASSEMBLY	1
10	270-5002-00	RETAINING RING - 1/4 DIA	2
11	515-5338-00	PLUNGER & LINK ASSEMBLY	1
12	266-5020-00	COMP SPRING CONICAL	1
13	036-5604-00	4" GENERIC JUMPER	2

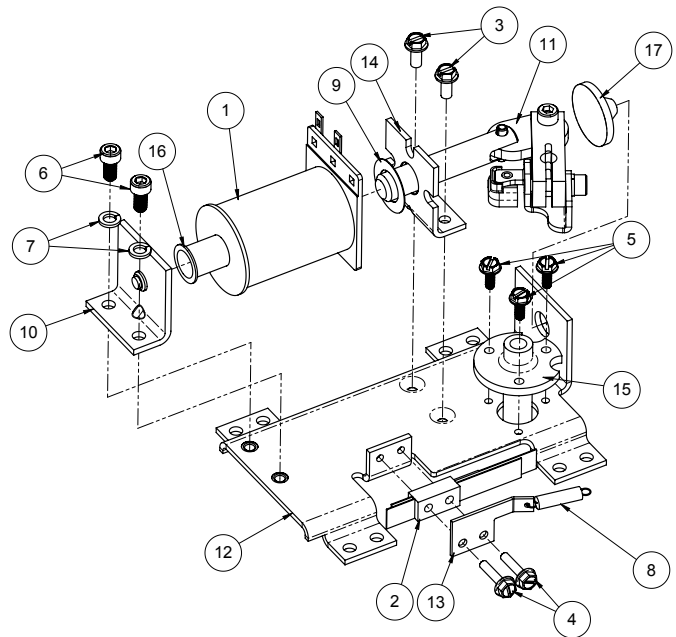
5.13 FLIPPER ASSEMBLY, LEFT

500-6543-13-ND



5.14 FLIPPER ASSEMBLY, RIGHT

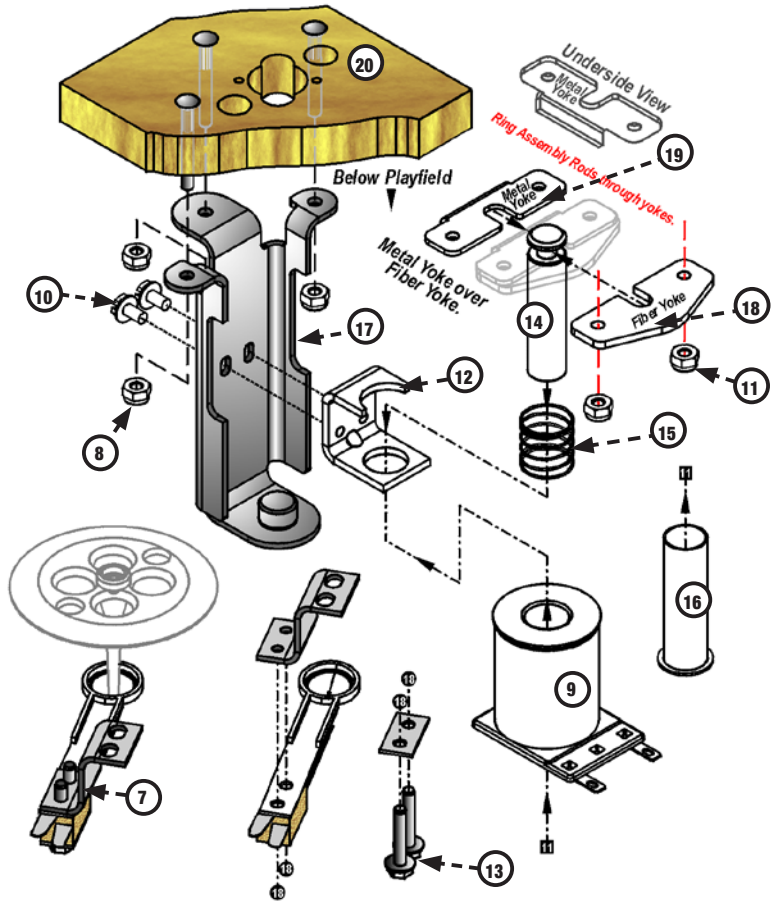
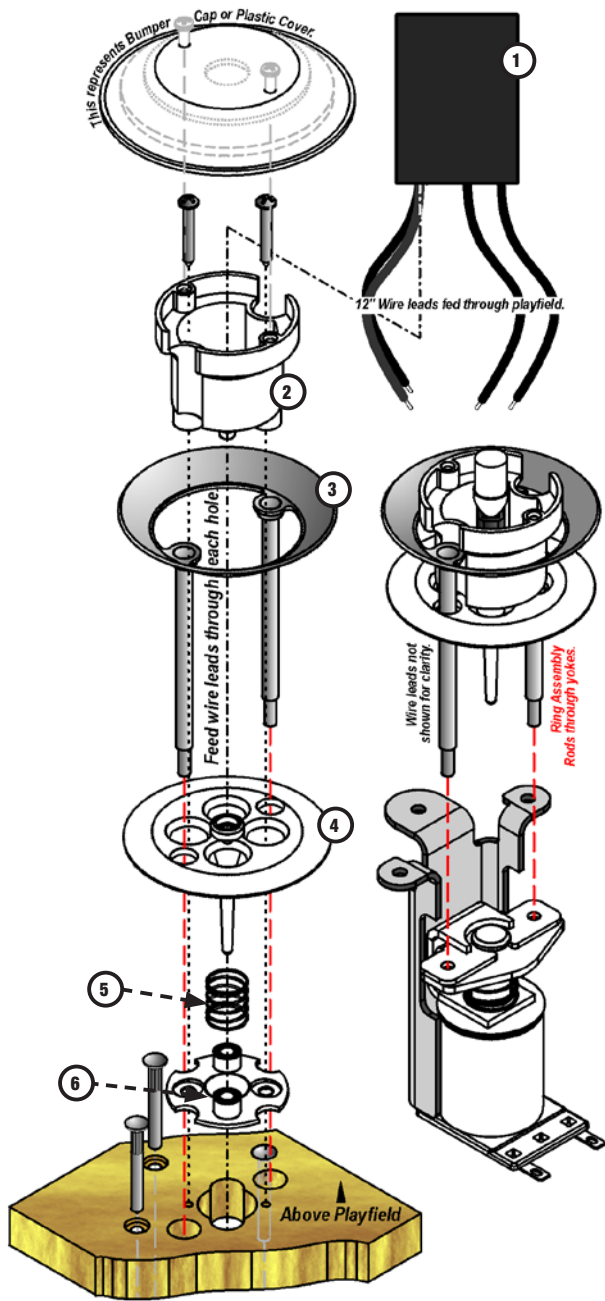
500-6543-03-ND



ID	Part Number	Description	Qty
1	090-5020-30-ND	FLIPPER COIL (23-900)	1
2	180-5149-00	SWITCH, END-OF-STROKE	1
3	237-5975-00	SCREW, 8-32 X 3/8" HWH SWAGE ZN	2
4	237-5976-04	SCREW, 6-32 X 5/8" HWH SWAGE	2
5	237-6388-00	SCREW, 6-32 X 3/8", SLOTTED HWH, TYPE F	3
6	237-6389-00	SCREW, 10-32 X 3/8", SHC	2
7	244-5003-00	#10 LOCK WASHER, SPLIT	2
8	265-5035-00	EXTENSION SPRING	1
9	269-5002-00	SPRING WASHER	1
10	515-6308-01	COIL STOP ASSEMBLY	1
11	515-7203-01	PLUNGER / CRANK ASSEMBLY	1
12	535-7275-01	FLIPPER BASE PLATE, LEFT	1
13	535-7354-01	SWITCH PLATE / SPRING RTN BRKT	1
14	535-7356-00	COIL BRACKET	1
15	545-5070-00	FLIPPER BUSHING	1
16	545-5388-00	COIL SLEEVE	1
17	545-5428-00	RUBBER BUMPER	1
18	515-5133-08-06	FLIPPER BAT AND SHAFT (WHITE)	1
19	545-5277-00	FLIPPER RUBBER	1

ID	Part Number	Description	Qty
1	090-5020-30-ND	FLIPPER COIL (23-900)	1
2	180-5149-00	SWITCH, END-OF-STROKE	1
3	237-5975-00	SCREW, 8-32 X 3/8" HWH SWAGE ZN	2
4	237-5976-04	SCREW, 6-32 X 5/8" HWH SWAGE	2
5	237-6388-00	SCREW, 6-32 X 3/8", SLOTTED HWH, TYPE F	3
6	237-6389-00	SCREW, 10-32 X 3/8", SHC	2
7	244-5003-00	#10 LOCK WASHER, SPLIT	2
8	265-5035-00	EXTENSION SPRING	1
9	269-5002-00	SPRING WASHER	1
10	515-6308-01	COIL STOP ASSEMBLY	1
11	515-7203-00	PLUNGER / CRANK ASSEMBLY	1
12	535-7275-00	FLIPPER BASE PLATE, RIGHT	1
13	535-7354-00	SWITCH PLATE / SPRING RTN BRKT	1
14	535-7356-00	COIL BRACKET	1
15	545-5070-00	FLIPPER BUSHING	1
16	545-5388-00	COIL SLEEVE	1
17	545-5428-00	RUBBER BUMPER	1
18	515-5133-08-06	FLIPPER BAT AND SHAFT (WHITE)	1
19	545-5277-00	FLIPPER RUBBER	1

5.15 POP BUMPER ASSEMBLY



Part Number	Description	Qty
511-5067-BRD	BUMPER/RING TOP ASSY, W/ LED	1
515-6459-04-ND	BUMPER BOTTOM ASSY, NO DIODE	1

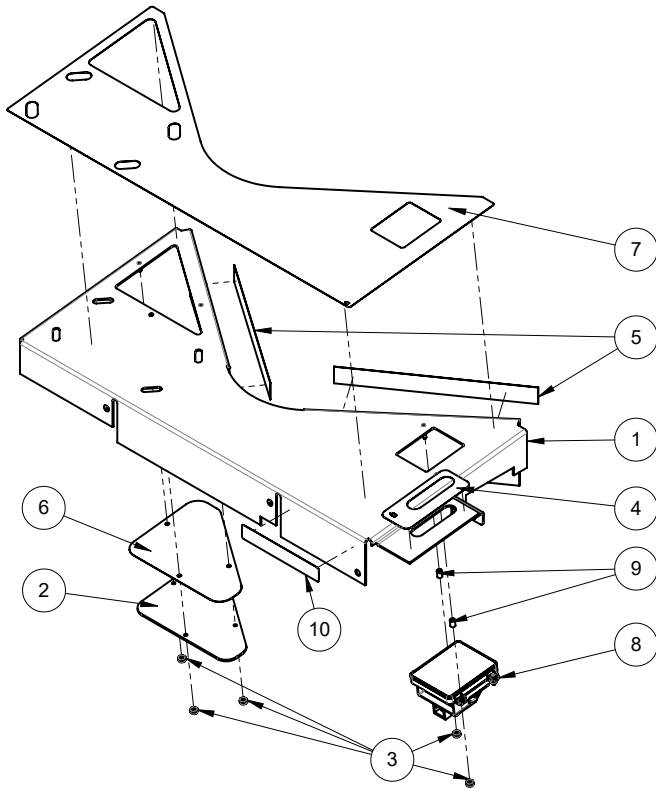
ID	Part Number	Description	Qty
1	511-1982-00	POP BUMPER LED MODULE	1
2	545-5197-00	BUMPER BODY	1
3	515-5085-00	RING AND ROD ASSY	1
4	545-5607-00	BUMPER SKIRT	1
5	266-5048-00	BUMPER SKIRT COMP SPRING	1
6	545-5195-00	BUMPER BASE	1

ID	Part Number	Description	Qty
7	500-9934-00	POP BUMPER SWITCH ASSY-2 - LUG-RIGHT	1
8	240-5005-00	6-32 NYLON STOP NUT	3
9	090-5044-ND	COIL - 26-1200	1
10	237-5976-01	#6-32 X 1/4" SHWH SWAGE ZN	2
11	240-5005-00	#6-32 NYLON STOP NUT	2
12	535-7347-00	METAL YOKE STOP	1
13	234-5101-00	* 8 X 1/2 SLT	6
14	530-5348-00	PLUNGER, POP BUMPER	1
15	266-5047-00	COMPRESSION SPRING, POP BUMPER	1
16	545-5031-00	COIL SLEEVE	1
17	515-5939-00	COIL BRACKET POP BUMPER ASSY	1
18	545-5609-00	FIBER YOKE	1
19	535-7346-00	METAL YOKE	1
20	237-5957-00	#6-32 x 1-3/16" SPIRAL FIN SHANK SCREW	3



5.16 BOTTOM ARCH ASSEMBLY

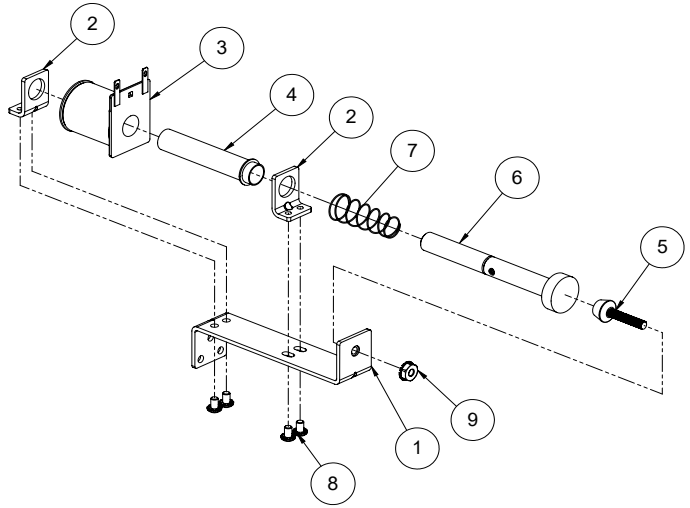
500-2505-XX



ID	Part Number	Description	Qty
1	510-7805-00	BOTTOM ARCH, STEEL W/ SPADE BOLT, QR READY	1
2	830-8502-XX	LEFT SIDE ARCH PLASTIC	1
3	240-5303-00	4-40 NYLON LOCK NUT	5
4	820-97XX-02	METAL ARCH DECAL SET -02	1
5	545-5212-04	MYLAR PROTECT STRIP 7-5/8"	2
6	545-9923-00	COVER, SIGNATURE PROTECTOR, METAL ARCH	1
7	820-97XX-01	METAL ARCH DECAL SET -01	1
8	509-2020-00	QR SCANNER M306 ASSEMBLY	1
9	254-5090-04	PLASTIC SPACER #4 SCREW, 3/16" OD - 9/32" LENGTH	2
10	820-5422-00	WARNING DECAL, BOTTOM ARCH, QR READER	1

5.17 UP POST ASSEMBLY

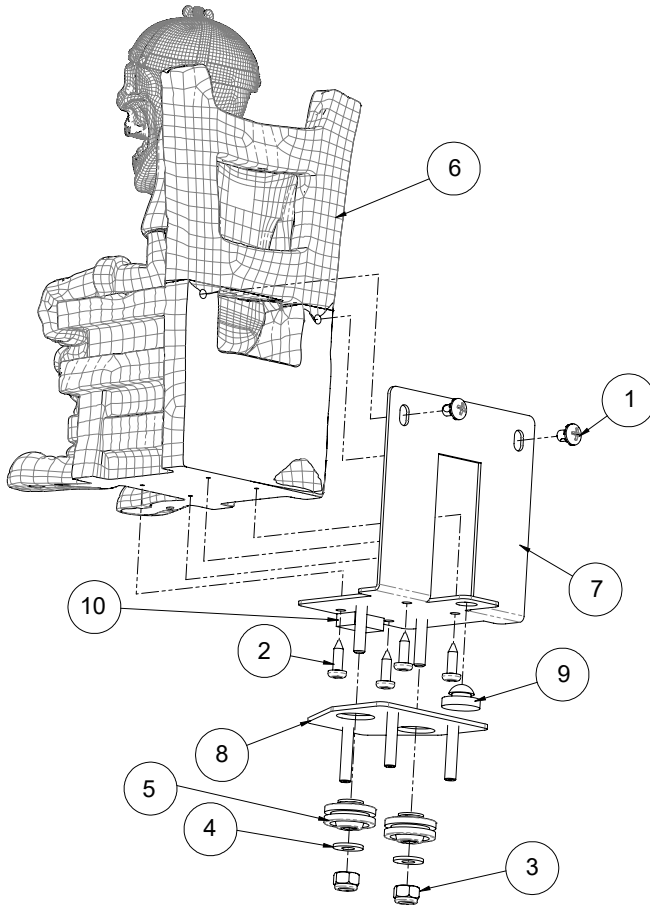
500-9914-00



ID	Part Number	Description	Qty
1	535-9248-00	BRACKET	1
2	535-5203-03	COIL RETAINING BRACKET	2
3	090-5044-ND	COIL 26-1200 - NO DIODE	1
4	545-5847-00	COIL SLEEVE	1
5	280-5014-00	ADJUSTABLE BUMPER/STOP	1
6	515-2073-00	PLUNGER ASSEMBLY, UP-POST, STAINLESS	1
7	266-5020-00	COMPRESSION SPRING-CONICAL	1
8	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
9	240-5208-00	10-32 KEPS NUT	1

5.18 ELECTRIC CHAIR ASSEMBLY

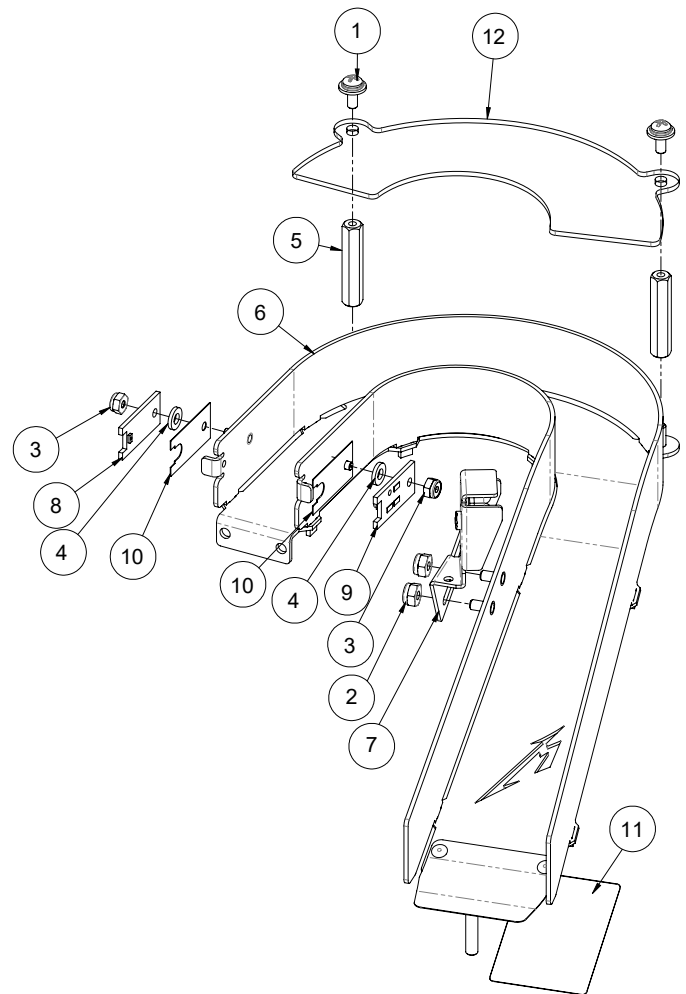
500-2079-00



ID	Part Number	Description	Qty
1	232-5300-00P	SCREW, 8-32 X 1/4" PPH SEMS, PATCH	2
2	237-5805-00	SCREW, #6 X 1/2" PPH AB BLACK	4
3	240-5102-00	8-32 NYLON LOCK NUT	2
4	242-5005-00	#8 WASHER	2
5	280-5035-02	GROMMET ISOLATOR, #8 SCREW FERRULE	2
6	515-7810-01	ELECTRIC CHAIR, METALLICA REMASTERED	1
7	535-3014-00	BRACKET, ELECTRIC CHAIR	1
8	535-4025-00	BRACKET, ELECTRIC CHAIR SUPPORT	1
9	545-5105-00	RUBBER BUMPER	1
10	626-5078-00	3/16" FOAM PAD	1

5.19 LEFT RAMP ASSEMBLY

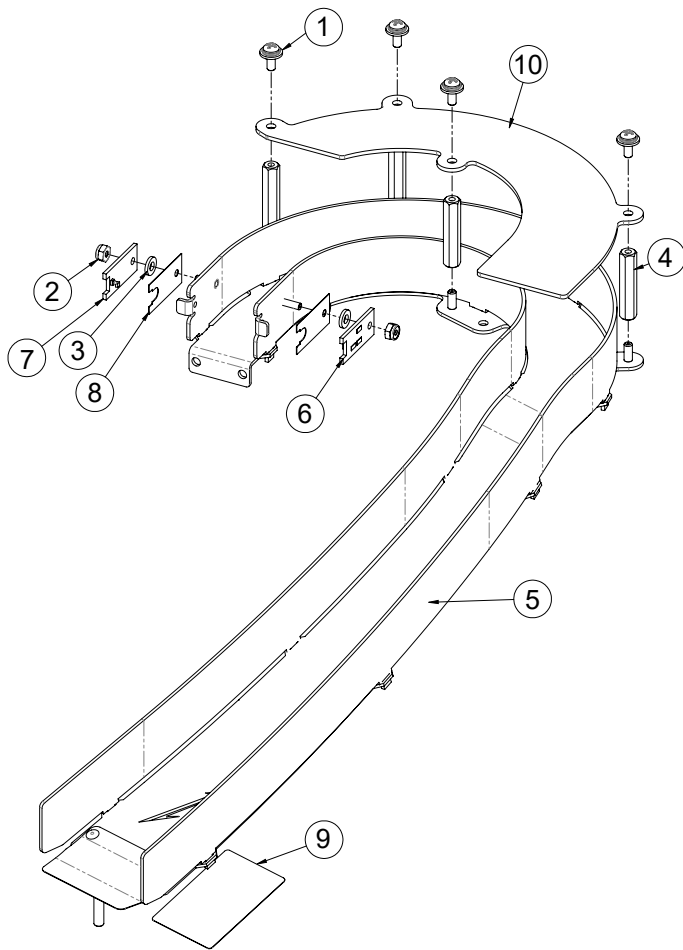
500-2656-00



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	2
2	240-5005-00	6-32 NYLON STOP NUT	2
3	240-5303-00	4-40 NYLON LOCK NUT	2
4	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	2
5	254-5008-11	HEX SPACER - 1 1/4 "	2
6	510-1085-00	ASSEMBLY, RIVETED, LEFT RAMP, METALLICA REMASTERED	1
7	511-9998-00	ASSEMBLY, UV LIGHTS, SPARKY LEFT, METALLICA REMASTERED	1
8	520-8115-00	PCB, IR OPTO EMITTER, ANTI-ROTATION	1
9	520-8116-00	PCB, IR OPTO RECEIVER, ANTI-ROTATION	1
10	523-0033-00	FISCHE PAPER, MINI OPTOS	2
11	830-6920-00	RUBY RED ADHESIVE FILM	1
12	830-8538-25	PLASTIC #25, METALLICA REMASTERED	1

5.20 RIGHT RAMP ASSEMBLY

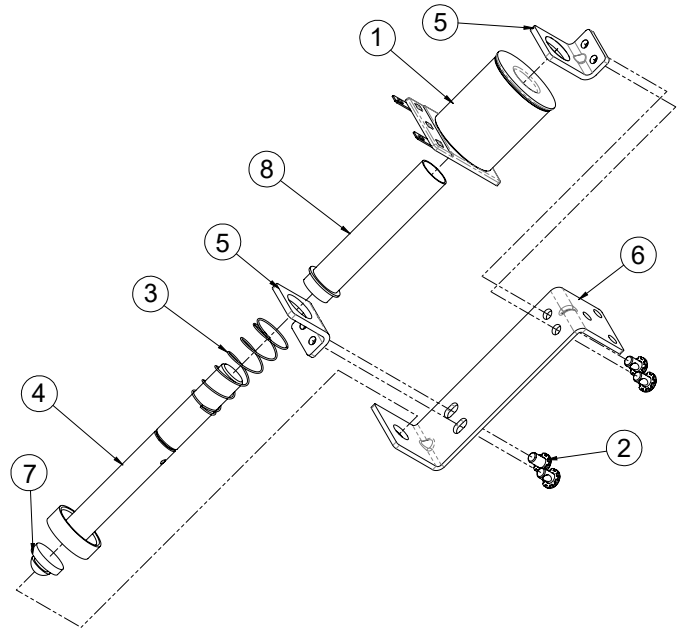
500-2657-00



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	4
2	240-5303-00	4-40 NYLON LOCK NUT	2
3	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	2
4	254-5008-11	HEX SPACER - 1 1/4 "	4
5	510-1086-00	ASSEMBLY, RIVETED, RIGHT RAMP, METALLICA REMASTERED	1
6	520-8115-00	PCB, IR OPTO EMITTER, ANTI-ROTATION	1
7	520-8116-00	PCB, IR OPTO RECEIVER, ANTI-ROTATION	1
8	523-0033-00	FISCHE PAPER, MINI OPTOS	2
9	830-6920-00	RUBY RED ADHESIVE FILM	1
10	830-8538-24	PLASTIC #24, METALLICA REMASTERED	1

5.21 ELECTRIC CHAIR KICKER ASSEMBLY

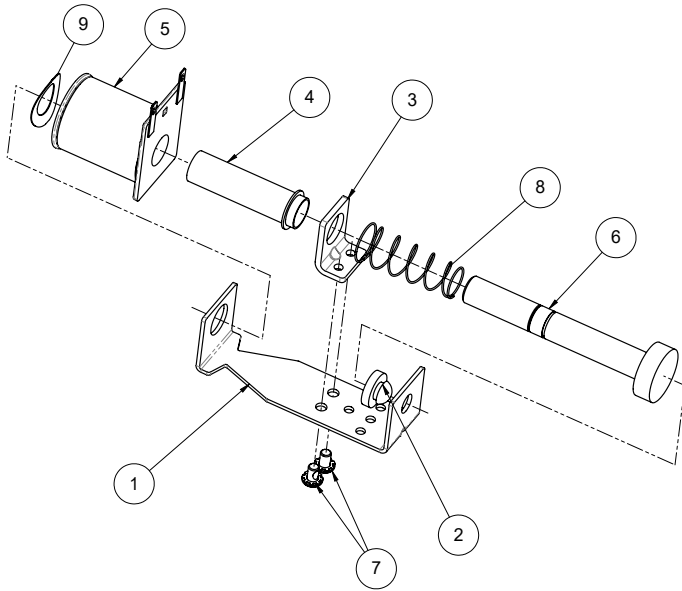
500-2956-00



ID	Part Number	Description	Qty
1	090-5044-ND	COIL 26-1200 - NO DIODE	1
2	232-5300-00P	SCREW, 8-32 X 1/4" PPH SEMS, PATCH	4
3	266-5020-00	COMPRESSION SPRING-CONICAL	1
4	515-6858-00	ASSEMBLY, SOLID PLUNGER	1
5	535-5203-03	COIL RETAINING BRACKET	2
6	535-5183-00	BRACKET, CHAIR KICKER, METALLICA REMASTERED	1
7	545-5105-00	RUBBER BUMPER	1
8	545-5847-00	COIL SLEEVE	1

5.22 SCOOP KICKER ASSEMBLY

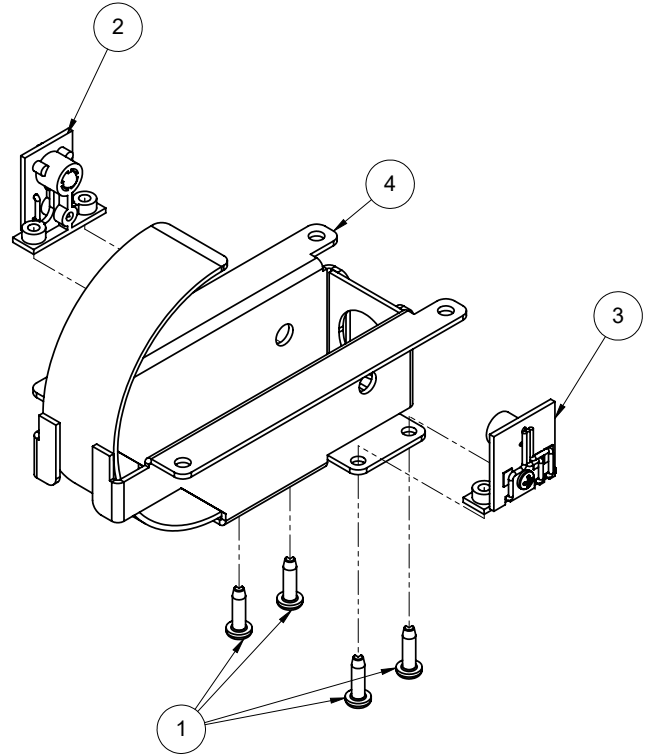
500-5840-00-ND



ID	Part Number	Description	Qty
1	535-6730-01	FRAME - KICK BIG BRKT NOTCHED	1
2	545-5105-00	RUBBER BUMPER	1
3	535-5203-03	COIL RETAINING BRACKET	1
4	545-5076-01	COIL SLEEVE	1
5	090-5001-ND	COIL, 23-800, NO DIODE	1
6	515-7318-00	PLUNGER ASSEMBLY	1
7	232-5300-00P	SCREW SEMS, PPH, 8-32 X 1/4, ZC, PATCH	2
8	266-5020-00	COMPRESSION SPRING CONICAL	1
9	269-5002-00	SPRING WASHER- 17/32 ID X 7/8 X 1/64	1

5.23 SCOOP ASSEMBLY W/ LEFT CUTOUT

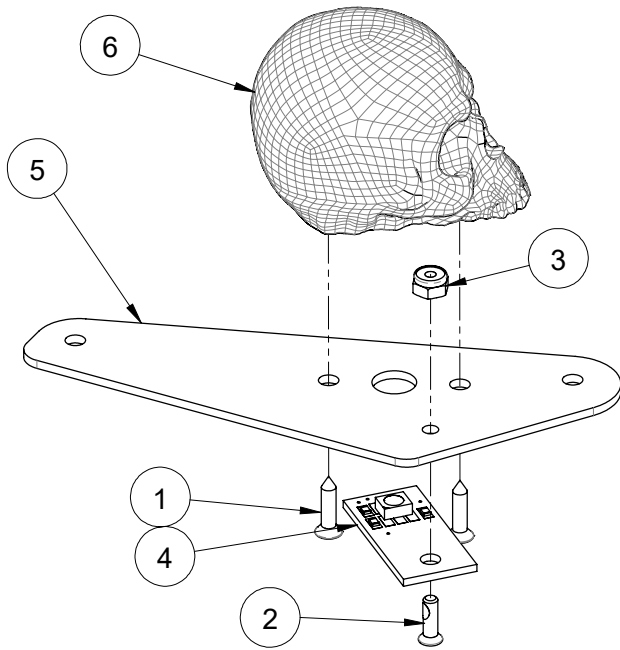
511-3036-01



ID	Part Number	Description	Qty
1	237-5880-02	SCREW, #6 X 1/2 PPH T-25	4
2	515-0215-00	LONG RANGE OPTO EMITTER	1
3	515-0215-01	LONG RANGE OPTO RECEIVER	1
4	515-2430-01	SCOOP, OPTO SCOOP, LEFT CUTOUT	1

5.24 PLASTIC #01 ASSEMBLY

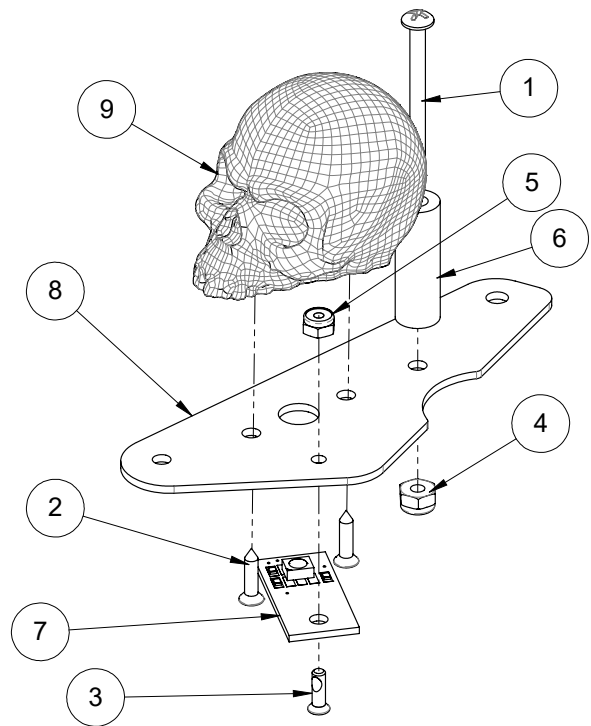
511-4601-01



ID	Part Number	Description	Qty
1	237-5840-00	SCREW, #4 X 1/2" PFH AB	2
2	237-5983-01P	SCREW, 4-40 X 3/8" PFH MS, SS, PATCH	1
3	240-5303-00	4-40 NYLON LOCK NUT	1
4	520-5333-00	SINGLE RGB BOARD	1
5	830-8538-01	PLASTIC #01, METALLICA REMASTERED	1
6	545-7679-00	SKULL, DECORATED, METALLICA REMASTERED	1

5.25 PLASTIC #02 ASSEMBLY

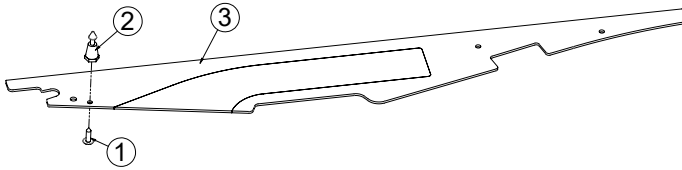
511-4601-02



ID	Part Number	Description	Qty
1	237-5510-00P	SCREW, 6-32 X 1-1/2" PPH MS, PATCH	1
2	237-5840-00	SCREW, #4 X 1/2" PFH AB	2
3	237-5983-01P	SCREW, 4-40 X 3/8" PFH MS, SS, PATCH	1
4	240-5005-00	6-32 NYLON STOP NUT	1
5	240-5303-00	4-40 NYLON LOCK NUT	1
6	254-5000-06	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1-1/8"	1
7	520-5333-00	SINGLE RGB BOARD	1
8	830-8538-02	PLASTIC #02, METALLICA REMASTERED	1
9	545-7679-00	SKULL, DECORATED, METALLICA REMASTERED	1

5.26 PLASTIC 05 ASSEMBLY

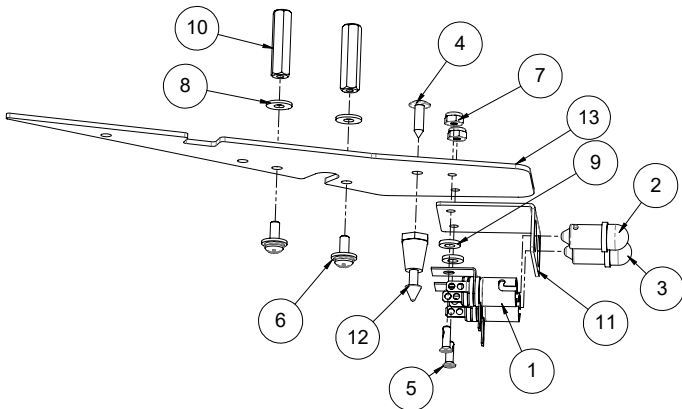
511-4601-05



ID	Part Number	Description	Qty
1	237-5809-00	SCREW, #6 X 1/2" PTH A	1
2	550-5052-01	MINI POST - CLEAR	1
3	830-8538-05	PLASTIC #05, METALLICA REMASTERED	1

5.27 PLASTIC 13 ASSEMBLY

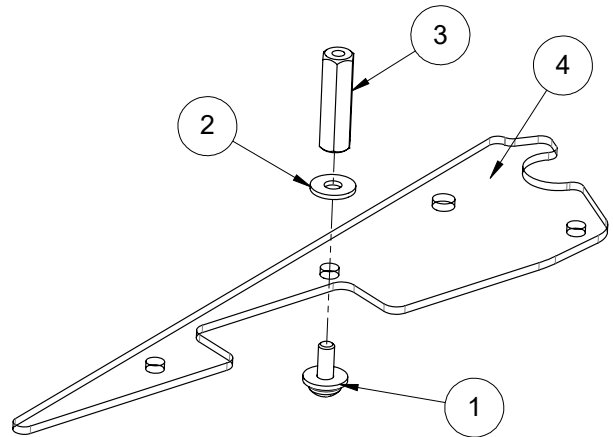
511-4601-13



ID	Part Number	Description	Qty
1	077-5032-00	LAYDOWN SOCKET 3-LUG, 2 BENT	2
2	112-5034-02F	RED, FROSTED	1
3	112-5024-05F	BLUE, FROSTED	1
4	237-5809-00	SCREW, #6 X 1/2" PTH A	1
5	237-5983-01P	SCREW, 4-40 X 3/8" PFH MS, SS, PATCH	2
6	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	2
7	240-5303-00	4-40 NYLON LOCK NUT	2
8	242-5001-00	#6 WASHER	2
9	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	2
10	254-5008-06	HEX SPACER - 1"	2
11	535-0747-01	LED RETAINER BRACKET	1
12	550-5052-01	MINI POST - CLEAR	1
13	830-8538-13	PLASTIC #13, METALLICA REMASTERED	1

5.28 PLASTIC 09 ASSEMBLY

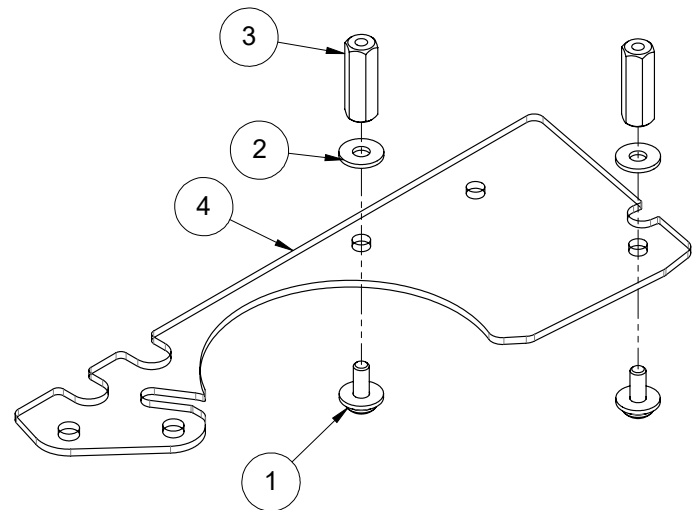
511-4601-09



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	1
2	242-5001-00	#6 WASHER	1
3	254-5008-05	HEX SPACER - 7/8 "	1
4	830-8538-09	PLASTIC #09, METALLICA REMASTERED	1

5.29 PLASTIC 17 ASSEMBLY

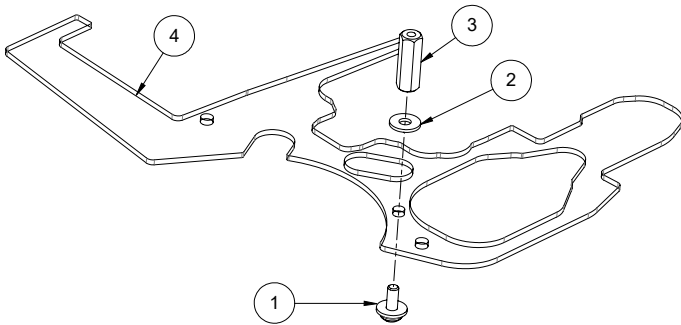
511-4601-17



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	2
2	242-5001-00	#6 WASHER	2
3	254-5008-04	HEX SPACER - 3/4 "	2
4	830-8538-17	PLASTIC #17, METALLICA REMASTERED	1

5.30 PLASTIC 19 ASSEMBLY

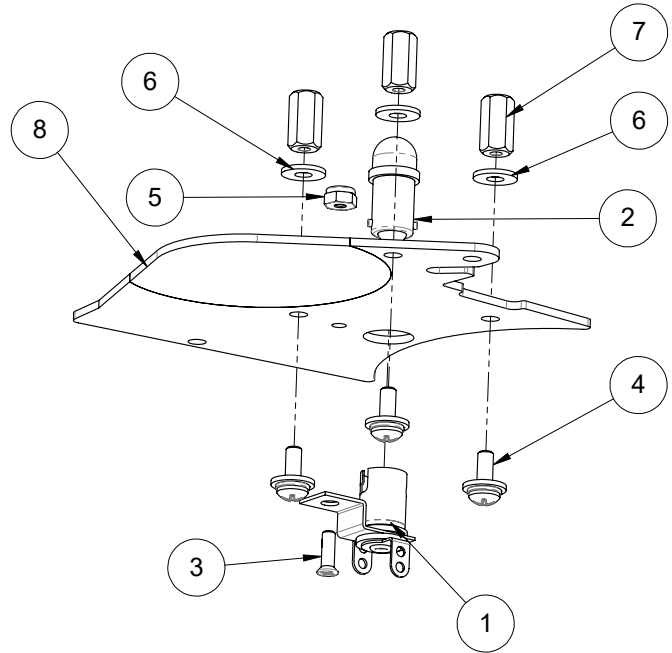
511-4601-19



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	1
2	242-5001-00	#6 WASHER	1
3	254-5008-04	HEX SPACER - 3/4 "	1
4	830-8538-19	PLASTIC #19, METALLICA REMASTERED	1

5.32 PLASTIC 28 ASSEMBLY

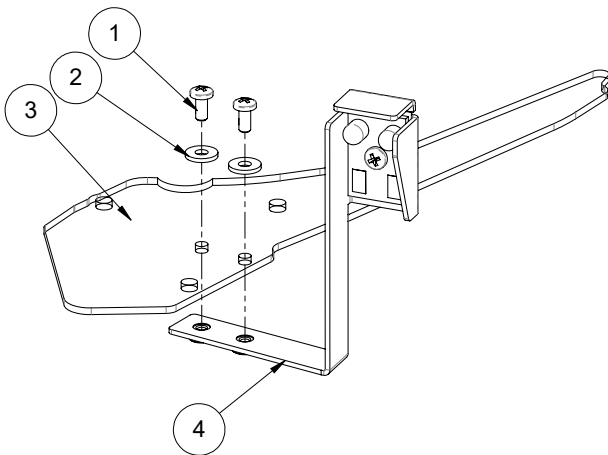
511-4601-28



ID	Part Number	Description	Qty
1	077-5223-00	SOCKET, 2-LUG VERTICAL, SHORT	1
2	112-5034-04F	GREEN, FROSTED	1
3	237-5983-01P	SCREW, 4-40 X 3/8" PFH MS, SS, PATCH	1
4	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	3
5	240-5303-00	4-40 NYLON LOCK NUT	1
6	242-5001-00	#6 WASHER	3
7	254-5008-03	HEX SPACER - 1/2 "	3
8	830-8538-28	PLASTIC #28, METALLICA REMASTERED	1

5.31 PLASTIC 30 ASSEMBLY

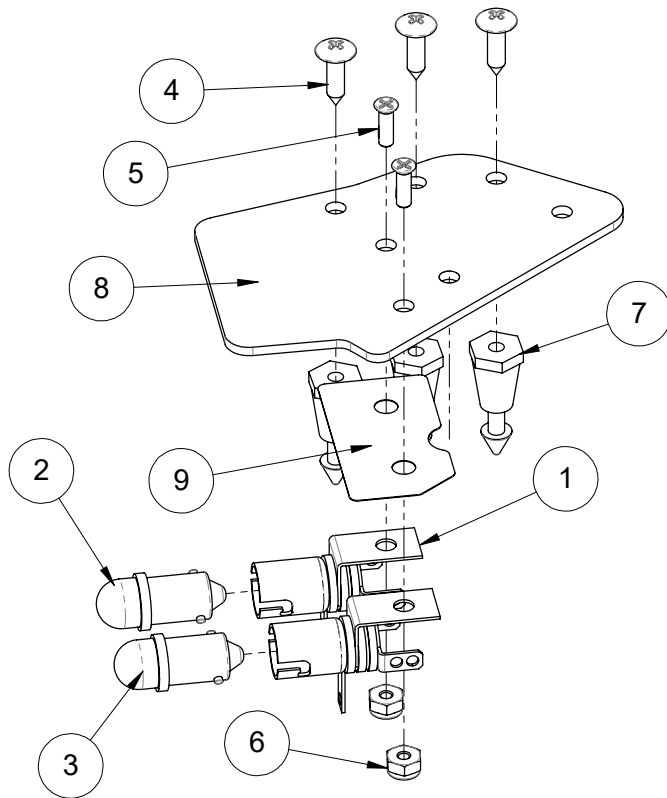
511-4601-30



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4 PPH MS, PATCH	2
2	242-5002-00	#4 FLAT WASHER - 5/16" O.D.	2
3	830-8538-30	PLASTIC #30, METALLICA REMASTERED	1
4	511-5443-00	ASSEMBLY, UV LIGHT, ELECTRIC CHAIR, METALLICA REMASTERED	1

5.33 PLASTIC 50 ASSEMBLY

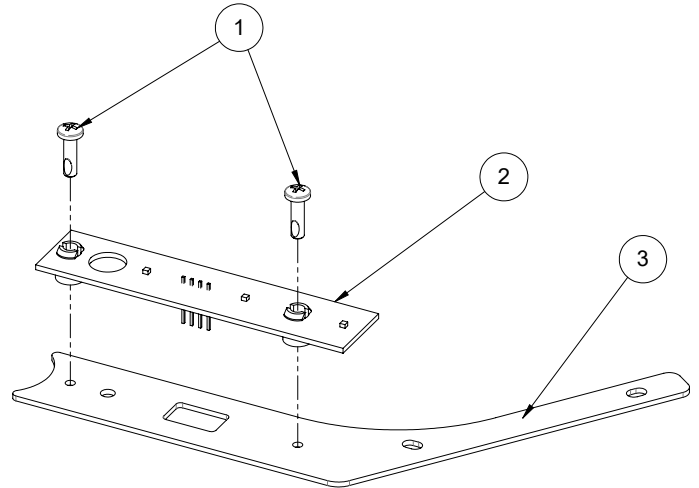
511-4601-50



ID	Part Number	Description	Qty
1	077-5032-00	LAYDOWN SOCKET 3-LUG, 2 BENT	2
2	112-5034-08F	DOUBLE LED, BAYONET BASE - WHITE FROSTED	1
3	112-5034-09F	PURPLE, FROSTED	1
4	237-5809-00	SCREW, #6 X 1/2" PTH A	3
5	237-5983-01P	SCREW, 4-40 X 3/8" PFH MS, SS, PATCH	2
6	240-5303-00	4-40 NYLON LOCK NUT	2
7	550-5052-01	MINI POST - CLEAR	3
8	830-8538-50	PLASTIC #50, METALLICA REMASTERED	1
9	820-1449-00	MYLAR PROTECTOR	1

5.34 RIGHT INLANE BALL GUIDE ASSEMBLY

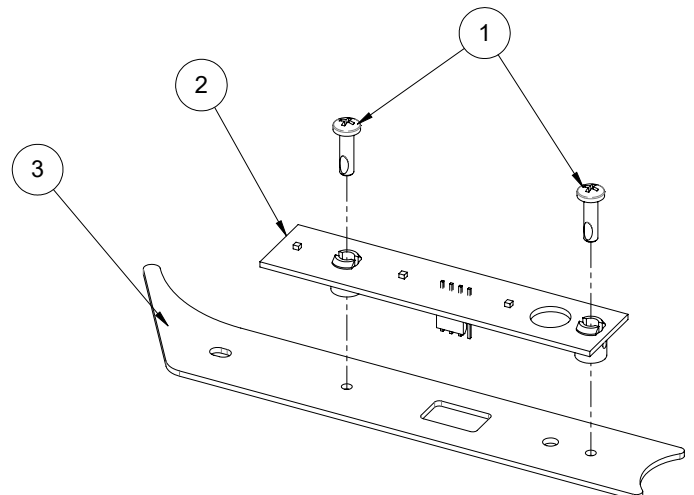
511-4901-00



ID	Part Number	Description	Qty
1	237-5502-00P	SCREW, 6-32 X 1/2" PPH MS ZINC, PATCH	2
2	520-8609-00	PCA INLANE 3 RGB LED BOARD	1
3	535-4017-00	BALL GUIDE, INLANE, LIGHTED	1

5.35 LEFT INLANE BALL GUIDE ASSEMBLY

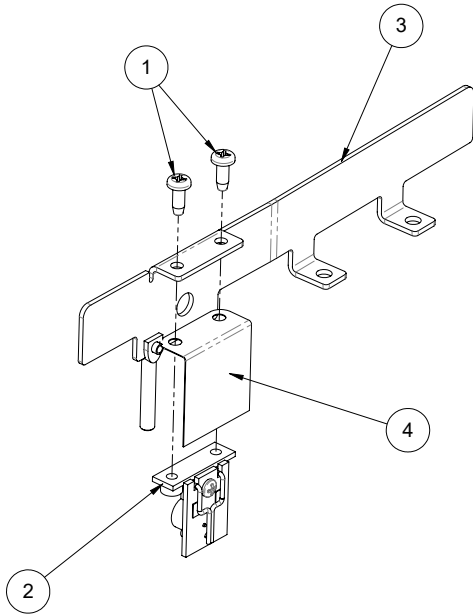
511-4900-00



ID	Part Number	Description	Qty
1	237-5502-00P	SCREW, 6-32 X 1/2" PPH MS ZINC, PATCH	2
2	520-8609-00	PCA INLANE 3 RGB LED BOARD	1
3	535-4016-00	BALL GUIDE, INLANE, LIGHTED	1

5.36 BALL GUIDE 03 ASSEMBLY

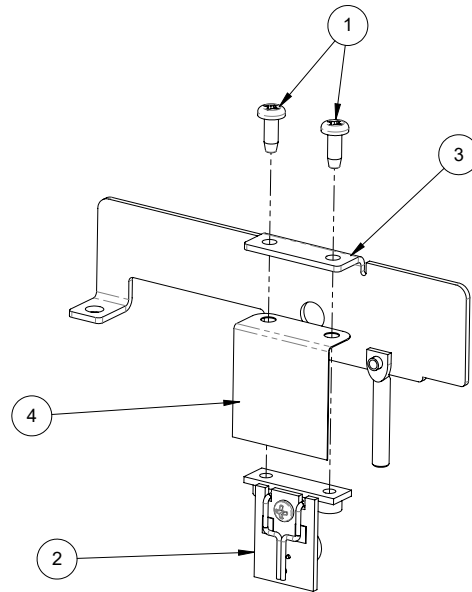
511-5387-03



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	2
2	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
3	535-2877-03	BALL GUIDE #03, METALLICA REMASTERED	1
4	545-6295-00	OPTO INSULATOR PAPER	1

5.38 BALL GUIDE 06 ASSEMBLY

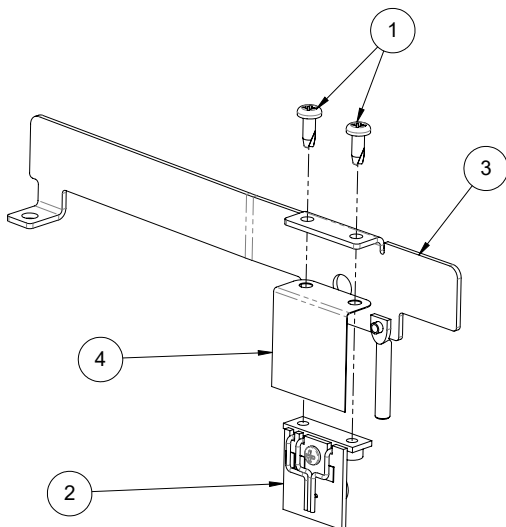
511-5387-06



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	2
2	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
3	535-2877-06	BALL GUIDE #06, METALLICA REMASTERED	1
4	545-6295-00	OPTO INSULATOR PAPER	1

5.37 BALL GUIDE 04 ASSEMBLY

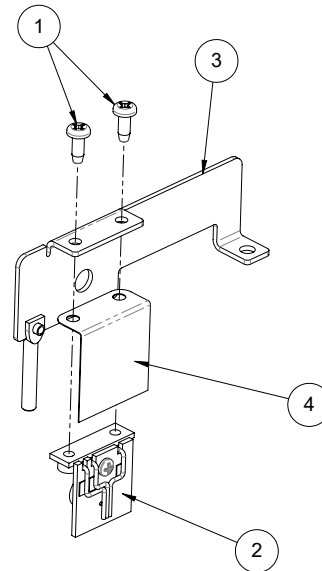
511-5387-04



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	2
2	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
3	535-2877-04	BALL GUIDE #04, METALLICA REMASTERED	1
4	545-6295-00	OPTO INSULATOR PAPER	1

5.39 BALL GUIDE 07 ASSEMBLY

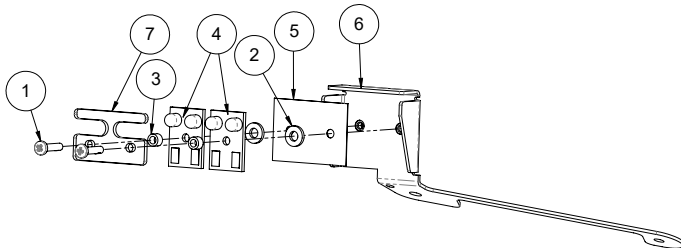
511-5387-07



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	2
2	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
3	535-2877-07	BALL GUIDE #07, METALLICA REMASTERED	1
4	545-6295-00	OPTO INSULATOR PAPER	1

5.40 RIGHT SLINGSHOT UV LIGHT ASSEMBLY

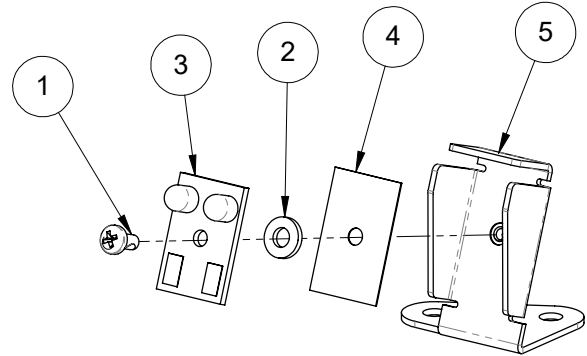
511-5388-00



ID	Part Number	Description	Qty
1	237-5816-00P	SCREW, 4-40 X 1/2" PPH, PATCH	2
2	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	2
3	254-5090-03	PLASTIC SPACER #4 SCREW, 3/16" OD - 1/8" LENGTH	2
4	520-1091-00	PC BOARD, DUAL UV LEDS	2
5	523-0042-02	FISCHE PAPER	1
6	535-9999-00	BRACKET, UV LIGHT, RIGHT SLING SHOT	1
7	830-8538-53	PLASTIC, -53, METALLICA REMASTERED	1

5.42 RIGHT SPARKY UV LIGHT ASSEMBLY

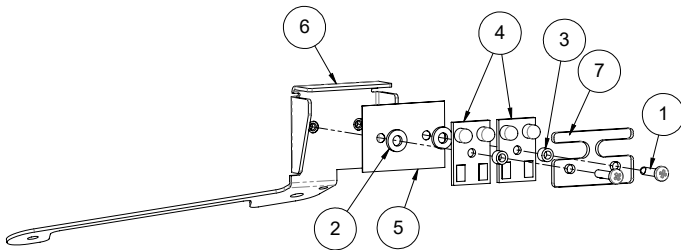
511-5390-00



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4 PPH MS, PATCH	1
2	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	1
3	520-1091-00	PC BOARD, DUAL UV LEDS	1
4	523-0042-00	FISCHE PAPER	1
5	535-5992-00	BRACKET, UV LIGHT, SPARKY, RIGHT	1

5.41 LEFT SLINGSHOT UV LIGHT ASSEMBLY

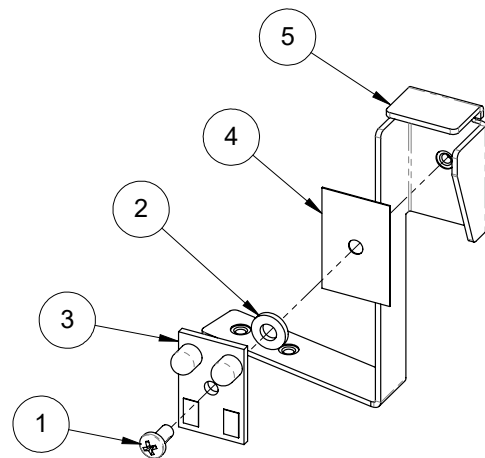
511-5389-00



ID	Part Number	Description	Qty
1	237-5816-00P	SCREW, 4-40 X 1/2" PPH, PATCH	2
2	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	2
3	254-5090-03	PLASTIC SPACER #4 SCREW, 3/16" OD - 1/8" LENGTH	2
4	520-1091-00	PC BOARD, DUAL UV LEDS	2
5	523-0042-02	FISCHE PAPER	1
6	535-9998-00	BRACKET, UV LIGHT, LEFT SLING SHOT	1
7	830-8538-53	PLASTIC, -53, METALLICA REMASTERED	1

5.43 ELECTRIC CHAIR UV LIGHT ASSEMBLY

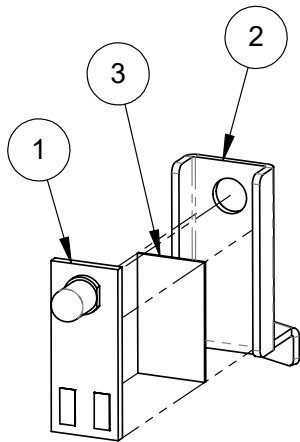
511-5443-00



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4 PPH MS, PATCH	1
2	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	1
3	520-1091-00	PC BOARD, DUAL UV LEDS	1
4	523-0042-00	FISCHE PAPER	1
5	535-5184-00	BRACKET, UV LIGHT, ELECTRIC CHAIR	1

5.44 ELECTRIC CHAIR LEFT SPOTLIGHT ASSEMBLY

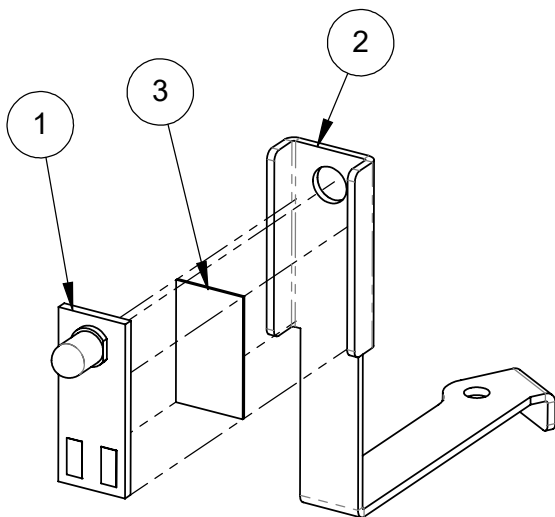
511-5444-00



ID	Part Number	Description	Qty
1	520-8625-00	PCA, SPOTLIGHT 1W HIGH INTENSITY	1
2	535-5185-00	BRACKET, SPOTLIGHT, ELECTRIC CHAIR, LEFT	1
3	626-5136-00	ADHESIVE, SPOTLIGHT BOARD	1

5.45 ELECTRIC CHAIR RIGHT SPOTLIGHT ASSEMBLY

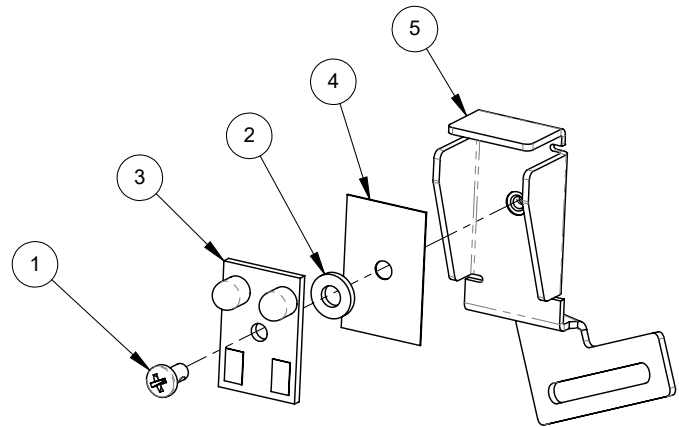
511-5445-00



ID	Part Number	Description	Qty
1	520-8625-00	PCA, SPOTLIGHT 1W HIGH INTENSITY	1
2	535-5186-00	BRACKET, SPOTLIGHT, ELECTRIC CHAIR, RIGHT	1
3	626-5136-00	ADHESIVE, SPOTLIGHT BOARD	1

5.46 LEFT SPARKY UV LIGHT ASSEMBLY

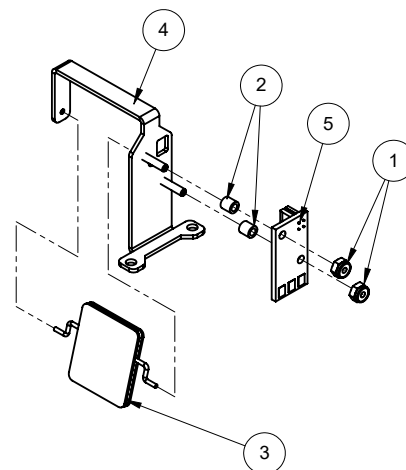
511-9998-00



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4 PPH MS, PATCH	1
2	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	1
3	520-1091-00	PC BOARD, DUAL UV LEDS	1
4	523-0042-00	FISCHE PAPER	1
5	535-5991-00	BRACKET, UV LIGHT, SPARKY, LEFT	1

5.47 REFLECTIVE OPTO SPINNER ASSEMBLY

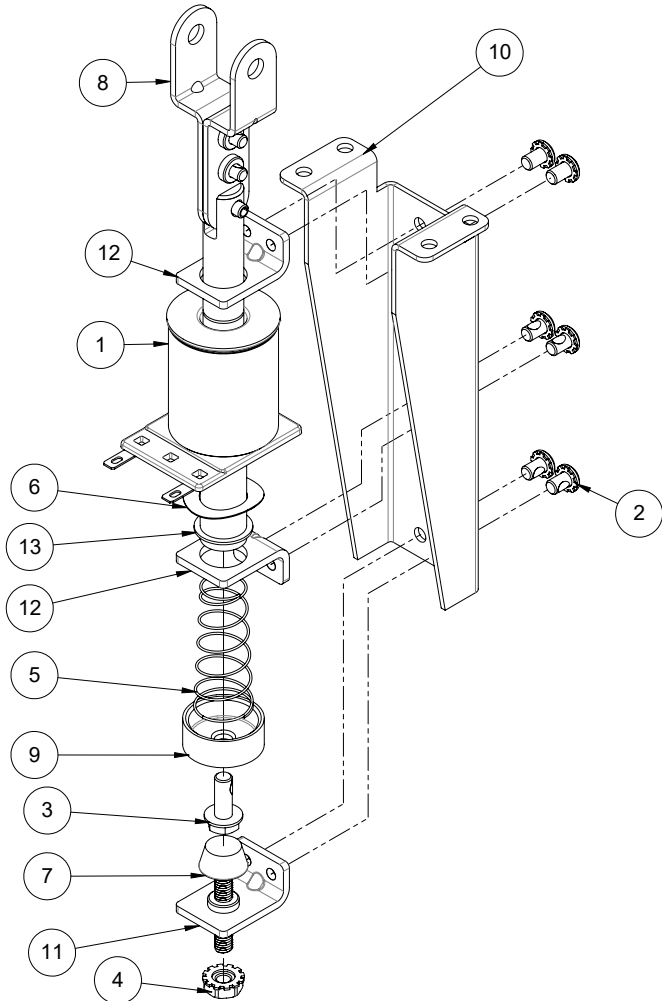
511-3044-00



ID	Part Number	Description	Qty
1	240-5303-00	4-40 NYLON LOCK NUT	2
2	254-5090-01	PLASTIC SPACER #4 SCREW, 3/16" OD - 3/16" LENGTH	2
3	515-2326-00	SPINNER TARGET, REFLECTIVE OPTO	1
	820-1445-12	DECAL SPINNER LEFT (BACK)	1
	820-1445-13	DECAL SPINNER LEFT (FRONT)	1
4	515-2456-00	BRACKET, SPINNER, REFLECTIVE OPTO	1
5	520-8541-00	PCA SPINNER REFLECTIVE OPTIC	1

5.48 PLAYFIELD HAMMER ASSEMBLY

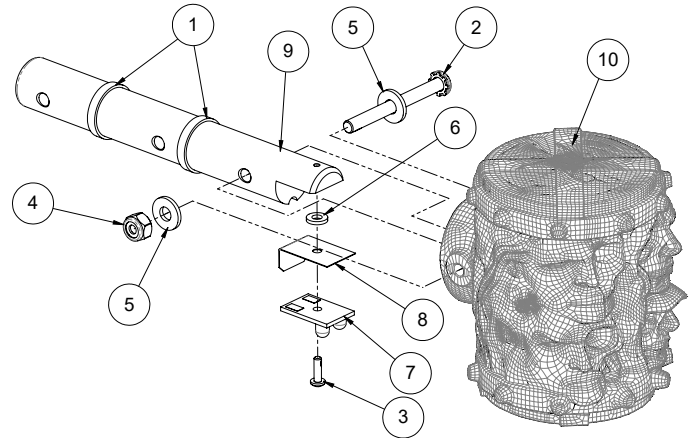
511-7473-00



ID	Part Number	Description	Qty
1	090-5044-ND	COIL 26-1200, COIL NO DIODE	1
2	232-5300-00P	SCREW, 8-32 X 1/4" PPH SEMS, PATCH	6
3	237-5995-00P	SCREW, 10-32 X 1/2" HWH SERR MS ZI, PATCH	1
4	240-5208-00	10-32 KEPS NUT	1
5	266-5020-00	COMPRESSION SPRING CONICAL	1
6	269-5002-00	SPRING WASHER	1
7	280-5014-00	ADJUSTABLE BUMPER STOP	1
8	515-0178-00	HAMMER PLUNGER ASSY	1
9	530-5511-00	PLUNGER HEAD	1
10	535-0690-00	HAMMER LOWER BRACKET	1
11	535-0692-00	COIL RETAINING BRACKET - ADJUSTABLE	1
12	535-5203-03	COIL RETAINING BRACKET	2
13	545-5076-01	COIL SLEEVE	1

5.49 HAMMER ASSEMBLY

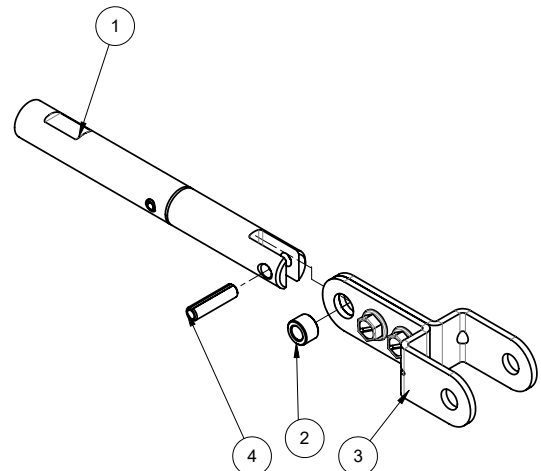
511-7481-01



ID	Part Number	Description	Qty
1	040-5001-02B	CABLE TIE, BLACK	2
2	232-5420-00P	SCREW, 10-32 X 2" PPH SEMS, PATCH	1
3	237-6379-00P	SCREW, 4-40 X 3/8", PPH MS, ZINC, PATCH	1
4	240-5203-00	10-32 NYLON LOCK NUT	1
5	242-5003-00	#10 FLAT WASHER - 1/2" O.D. X .062 THICK	2
6	242-5079-00	WASHER, .150 I.D. X .312 O.D. X .050 THICK	1
7	520-1091-00	PC BOARD, DUAL UV LEDS	1
8	523-0042-01	FISCHE PAPER	1
9	530-7828-01	HAMMER HANDLE, METALLICA REMASTERED	1
10	545-7826-02	HAMMER HEAD, DECORATED, METALLICA REMASTERED	1

5.50 HAMMER PLUNGER ASSY

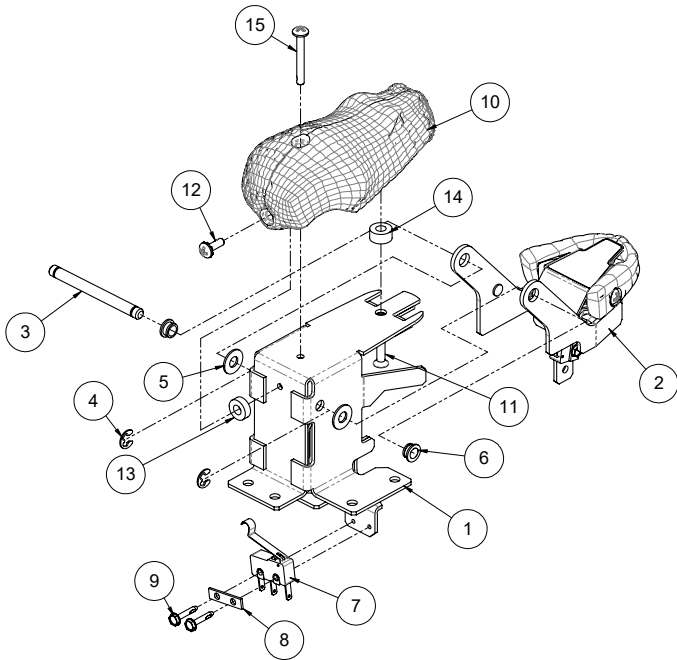
515-0178-00



ID	Part Number	Description	Qty
1	515-9685-00	HAMMER PLUNGER ASSY	1
2	530-5532-00	BUSHING	1
3	511-7488-00	LINK ASSEMBLY	1
4	251-5011-00	ROLL PIN, 5/32 X 5/8	1
*	237-5903-00P	SCREW, 8-32 X 3/8" HWH PATCH	2

5.51 SNAKE HEAD ASSEMBLY

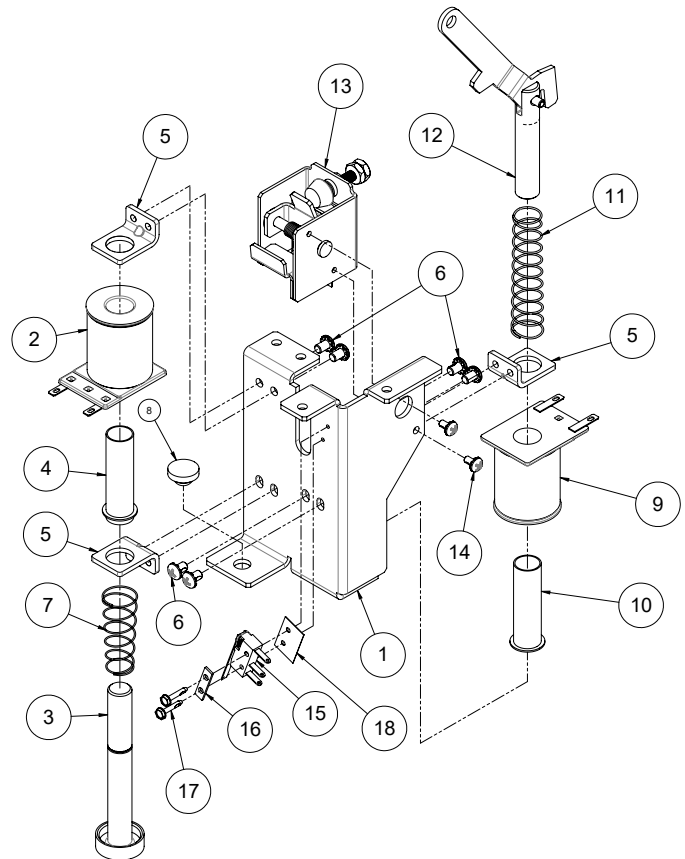
500-9813-00



ID	Part Number	Description	Qty
1	515-9669-00	WELDMNT, SNAKE UPPER JAW, METALLICA	1
2	511-7484-00	ASY SNAKE LOWER JAW, METALLICA	1
3	530-7831-00	PIVOT PIN SNAKE JAW	1
4	270-5001-00	RETAINING E-RING - 3/16" SHAFT OD	2
5	242-5088-00	WASHER, NYLON	2
6	545-5352-00	NYLINER - 3/16" SHAFT	2
7	180-5209-00	SUB MINIATURE SWITCH - SIM. ROLLER	1
8	535-6539-00	SWITCH BODY PROTECT PLATE	1
9	237-5937-02P	SCREW, HWH, 2-56 X 1/2, BLK, PATCH	2
10	545-7828-01	SNAKE HEAD, METALLICA REMASTERED	1
11	237-5918-00P	SCREW, 6-32 X 1/2 PHIL FLAT MS ZINC PATCH	1
12	232-5201-00P	SCREW, 6-32 X 3/8 PPH MS SEMS PATCH	1
13	254-5000-19	NYLON SPACER .175 ID 3/8 OD A .125 B/G	1
14	254-5000-18	NYLON SPACER .175 ID 3/8 OD A .187 B/G	1
15	237-5506-00P	SCREW, 6-32 X 1 PPH MS PATCH	1

5.52 SNAKE COIL ASSEMBLY

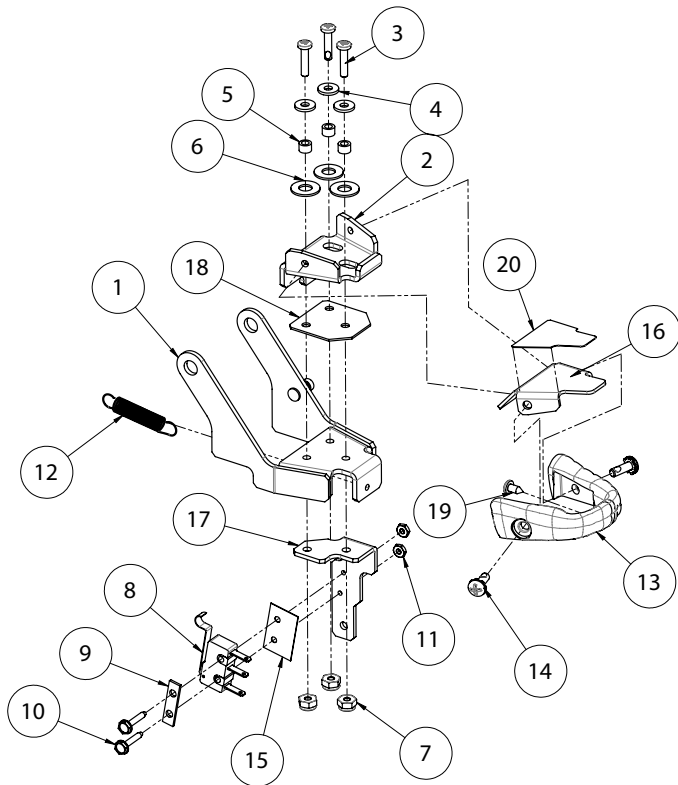
500-9815-00



ID	Part Number	Description	Qty
1	515-9671-00	COIL BRACKET ASSY SNAKE, METALLICA	1
2	090-5001-ND	COIL 23-800 NO DIODE	1
3	515-7309-00	PLUNGER ASSEMBLY	1
4	545-5076-01	COIL SLEEVE	1
5	535-5203-03	COIL RETAINING BRACKET	3
6	232-5300-00P	SCREW, SEMS, PPH, 8-32 X 1/4, ZC, PATCH	6
7	266-5020-00	COMPRESSION SPRING CONICAL	1
8	545-5105-00	RUBBER BUMPER	1
9	090-5044-ND	COIL, 26-1200, COIL NO DIODE	1
10	545-5411-00	COIL SLEEVE	1
11	266-5034-02	COMPRESSION SPRING	1
12	511-7485-00	PLUNGER ASSY SNAKE JAW, METALLICA	1
13	511-7486-00	LATCH COIL ASSY, SNAKE, METALLICA	1
14	232-5200-00P	SCREW, 6-32 X 1/4" PPH SEMS, PATCH	2
15	180-5010-04	MICRO SWITCH 1-1/4 INCH	1
16	535-6539-00	SWITCH BODY PROTECT PLATE	1
17	237-5937-02P	SCREW, 2-56 X 1/2" HWH MS, PATCH	2
18	545-6029-00	INSULATOR, FISH PAPER, SCOOP	1

5.53 SNAKE LOWER JAW ASSEMBLY

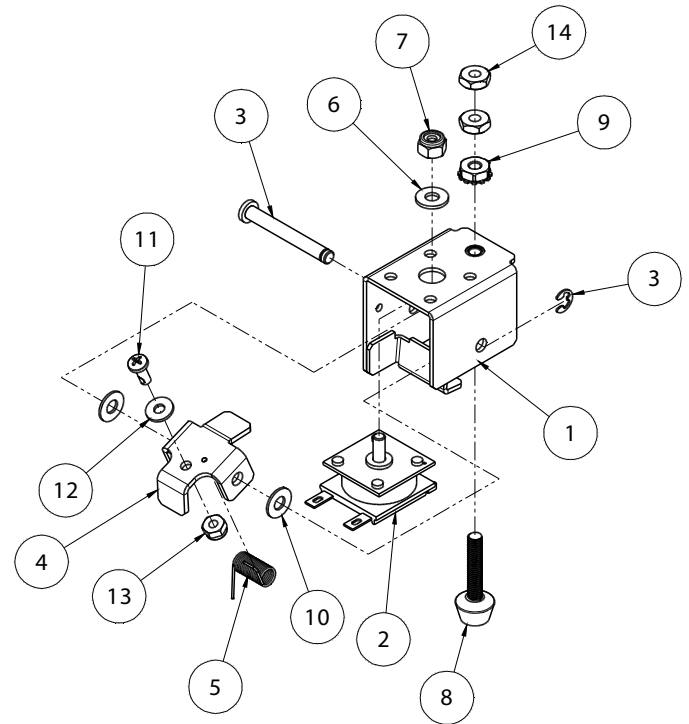
511-7484-00



ID	Part Number	Description	Qty
1	515-9670-00	WELDMENT SNAKE LOWER JAW	1
2	535-0707-00	SLIDING JAW BRKT SNAKE	1
3	237-5816-00P	SCREW, 4-40 X 1/2 PPH MS (ZINC) PATCH	3
4	242-5002-00	#4 FLAT WASHER - 5/16" OD	3
5	254-5062-02	SPACER, #4 ID, 3/16" OD X .125"	3
6	242-5615-00	WASHER, .203 ID X.438 OD X .03THK, ACETAL	3
7	240-5303-00	4-40 NYLON LOCK NUT	3
8	180-5209-00	SUB MINIATURE SWITCH - SIM. ROLLER	1
9	535-6539-00	SWITCH BODY PROTECT PLATE	1
10	237-5937-02P	SCREW, HWH, 2-56 X 1/2, BLK, PATCH	2
11	240-5301-00	2-56 HEX NUT	2
12	265-5071-00	EXTENSION SPRING	1
13	545-7829-02	LOWER JAW SNAKE, METALLICA REMASTERED	1
14	232-5201-00P	SCREW 6-32 X 3/8 PPH MS SEMS PATCH	2
15	545-6029-00	INSULATOR, FISH PAPER, SCOOP	1
16	535-0717-00	LOWER JAW COVER SNAKE, METALLICA	1
17	535-0723-00	SWITCH BRKT, SNAKE LWR JAW, METALLICA	1
18	545-7831-00	GLIDE PLATE SNAKE JAW, METALLICA	1
19	237-5886-00	SCREW, #4 X 1/4 PPH (ZINC)	1
20	820-1445-25	DECAL 25, METALLICA REMASTERED	1

5.54 SNAKE LATCH COIL ASSEMBLY

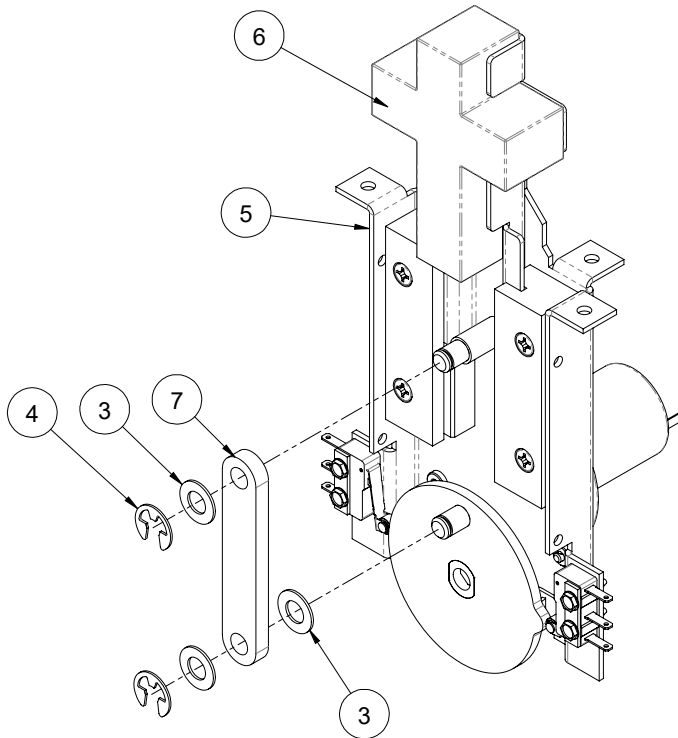
511-7486-00



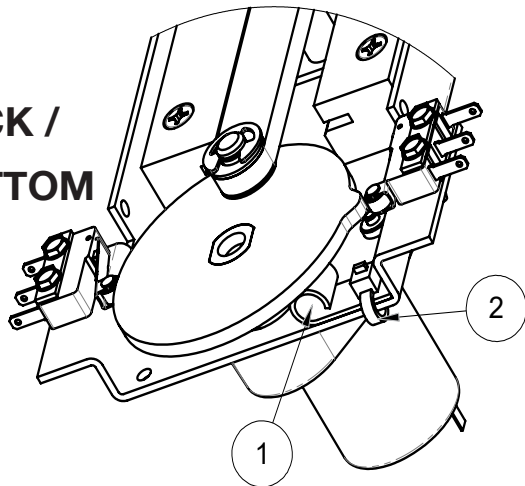
ID	Part Number	Description	Qty
1	515-9686-00	WELDMENT LATCH COIL SNAKE, METALLICA	1
2	090-5060-01-ND	MINI COIL W/ CORE 32-1250	1
3	530-5702-01	CLEVIS PIN W/ RING, 3/16" X 1-1/2"	1
4	535-0709-00	LATCH BRACKET SNAKE JAW, METALLICA	1
5	267-5002-00	TORSION SPRING, REAR VUK DOOR	1
6	242-5005-00	#8 WASHER	1
7	240-5102-00	8-32 NYLON LOCK NUT	1
8	280-5014-00	ADJUSTABLE BUMPER STOP	1
9	240-5208-00	10-32 KEPS NUT	1
10	242-5088-00	NYLON WASHER .195" X .437" X .031"	2
11	237-5012-00P	SCREW, 6-32 X 3/8 PPH 18 8 BLK OX PATCH	1
12	242-5001-00	#6 WASHER	1
13	240-5005-00	6-32 NYLON STOP NUT	1
14	240-5201-00	10-32 HEX NUT	2

5.55 SLIDING GRAVE MARKER ASSEMBLY

500-9810-02



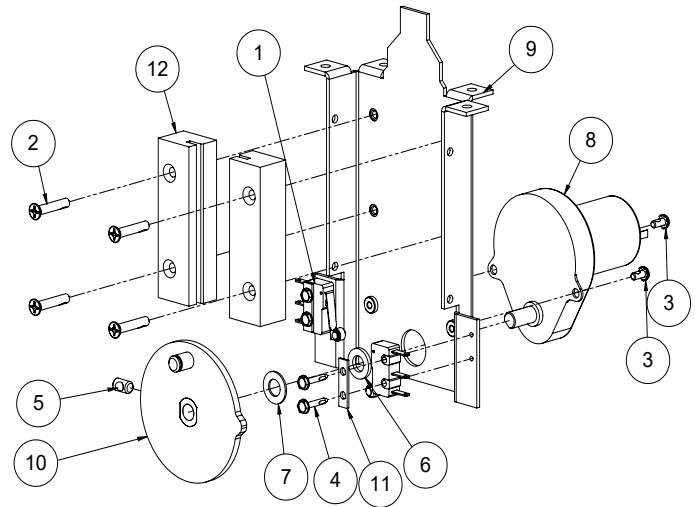
**BACK /
BOTTOM**



ID	Part Number	Description	Qty
1	040-5000-03	1/4" CABLE CLAMP	1
2	040-5001-00	CABLE TIE	1
3	242-5091-00	WASHER, 1/2 X 17/64 X .03 - DT	3
4	270-5002-00	RETAINING RING - 1/4"	2
5	511-7471-01	MOTOR BRACKET ASSEMBLY, GRAVE MARKER, METALLICA REMASTERED	1
6	511-7472-02	SLIDE ASSEMBLY, GRAVE MARKER, METALLICA REMASTERED	1
7	545-7353-00	LINK	1

5.56 GRAVE MARKER MOTOR BRACKET ASSEMBLY

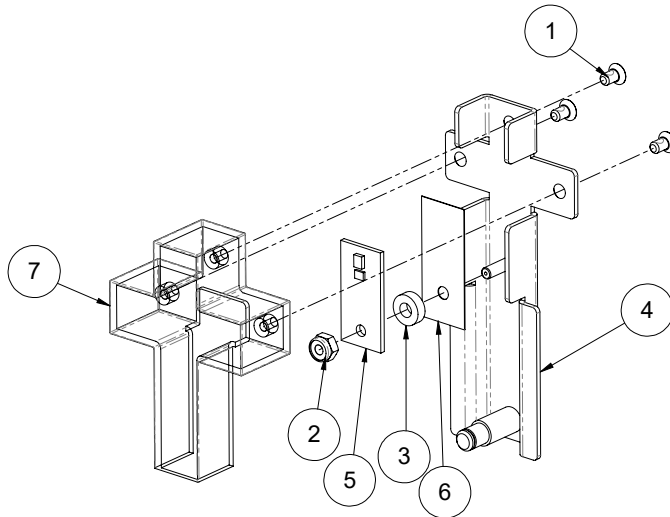
511-7471-01



ID	Part Number	Description	Qty
1	180-5119-02	MICRO SWITCH - LIGHT ACTUATION	2
2	237-5836-00P	SCREW, 6-32 X 3/4" PFH ZINC, PATCH	4
3	237-5909-00P	SCREW, 4-40 X 1/4" PPH SEMS, PATCH	2
4	237-5937-02P	SCREW, 2-56 X 12" HWH MS, PATCH	4
5	237-6092-00P	SET SCREW, 1032 X 5/16, SOCKET CUP PT, PATCH	1
6	242-5072-01	NYLON WASHER, .252 ID X .472 OD	1
7	242-5091-00	WASHER, 1/2 X 17/64 X .03 - DT	1
8	511-6968-00	MOTOR & CONN ASSY, 24 VDC, 12 RPM	1
9	515-9660-00	MOTOR BRACKET - GRAVE MARKER	1
10	515-9661-00	HUB WELDMENT	1
11	535-6539-00	SWITCH BODY PROTECT PLATE	2
12	545-7354-00	GUIDE BLOCK	2

5.57 GRAVE MARKER SLIDE ASSEMBLY

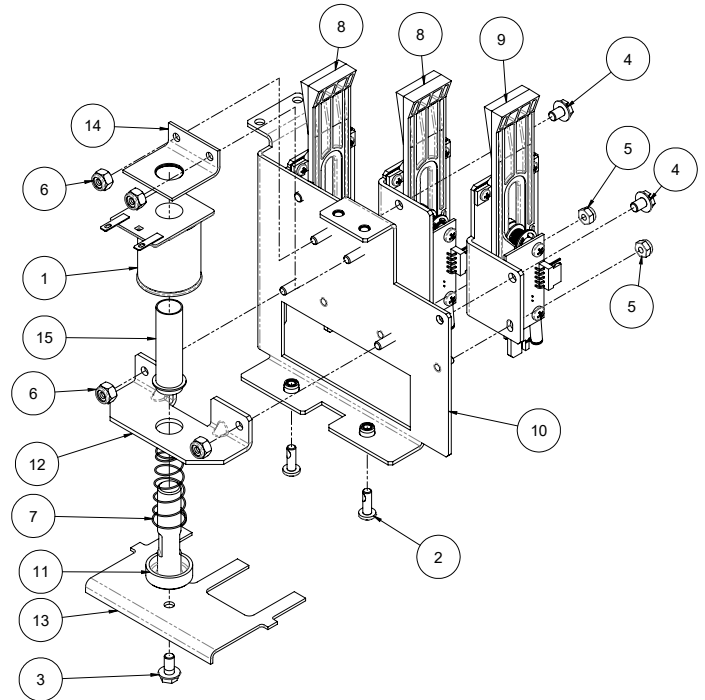
511-7472-02



ID	Part Number	Description	Qty
1	237-5871-01P	6-32 X 0.25 PHFH 82 UC STL ZNC PATCHED	3
2	240-5005-00	6-32 NYLON STOP NUT	1
3	254-5000-19	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/8"	1
4	515-9662-01	BRACKET, GRAVE MARKER, METALLICA REMASTERED	1
5	520-8457-00	PCB, SINGLE FLOOD LED - RED	1
6	523-0041-00	FISCHE PAPER, GRAVE MARKER	1
7	545-7352-01	GRAVE MARKER, TRIMMED & DECORATED, METALLICA REMASTERED	1

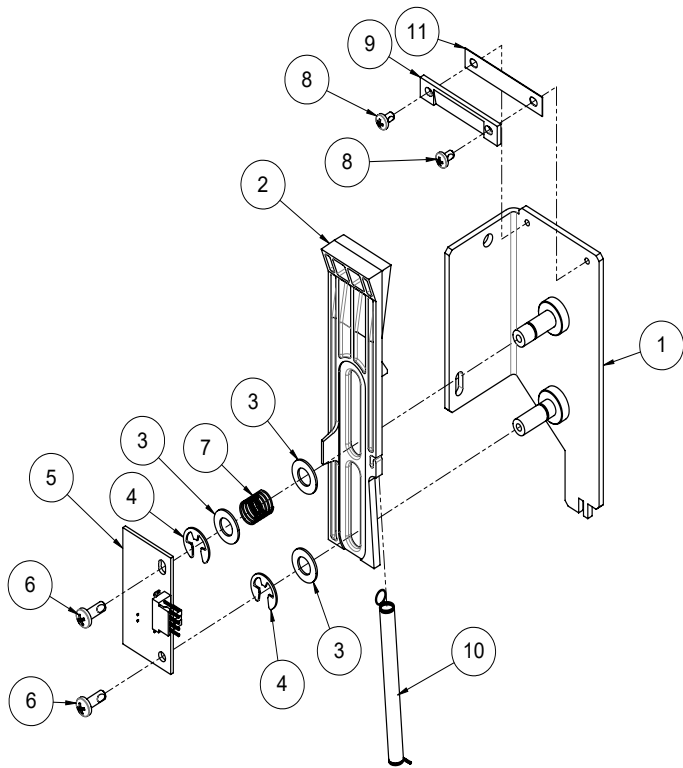
5.58 3-BANK INLINE DROP TARGET ASSEMBLY

500-2654-00



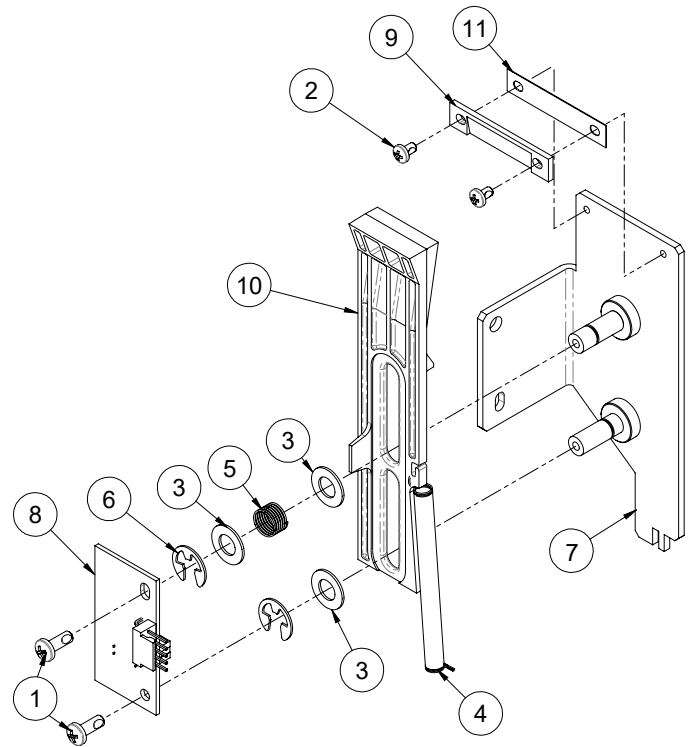
ID	Part Number	Description	Qty
1	090-5036-ND	COIL, 24-940, NO DIODE	1
2	237-5602-00P	SCREW, 8-32 X 1/2" PPH MS ZINC, PATCH	2
3	237-5961-00P	SCREW, 10-32 X 3/8" HWH, PATCH	1
4	237-6178-04	10-32 X 1/4 SHWH SWAGE SCREW	3
5	240-5005-00	6-32 NYLON STOP NUT	3
6	240-5102-00	8-32 NYLON LOCK NUT	4
7	266-5020-00	COMPRESSION SPRING-CONICAL	1
8	511-1986-00	INLINE DROP TARGET MODULE	2
9	511-1986-01	INLINE DROP TARGET MODULE (ALT.)	1
10	515-1982-01	BRACKET, INLINE 3 BANK D.T.	1
11	530-5757-00	PLUNGER - D.T. ASSY.	1
12	535-1934-00	BRACKET, INLINE COIL MOUNT	1
13	535-9801-03	LIFT BRACKET - 3 BANK - INLINE	1
14	535-9959-00	STOP BRACKET	1
15	545-5076-01	COIL SLEEVE	1

5.59 INLINE DROP TARGET MODULE 511-1986-00



ID	Part Number	Description	Qty
1	515-1983-00	BRACKET, INLINE DROP TARGET	1
2	545-6305-00	TARGET - ROLLOVER - BLACK	1
3	242-5091-00	WASHER, 1/2 X 17/64 X .03 - DT	3
4	270-5002-00	RETAINING RING - 1/4"	2
5	520-5357-00	PCB, INLINE DROP TARGET OPTO	1
6	237-5501-00P	SCREW, 6-32 X 3/8" PPH MS ZINC, PATCH	2
7	266-5089-00	SPRING COMPRESSION - DT	1
8	237-5912-00P	SCREW, 4-40 X 3/16" PPH MS, PATCH	2
9	545-6163-01	LEDGE, 1-BANK DROP TARGET	1
10	265-5003-02	TARGET RESET SPRING	1
11	545-6798-00	SHIM - FICHE PAPER - D.T. SINGLE	1

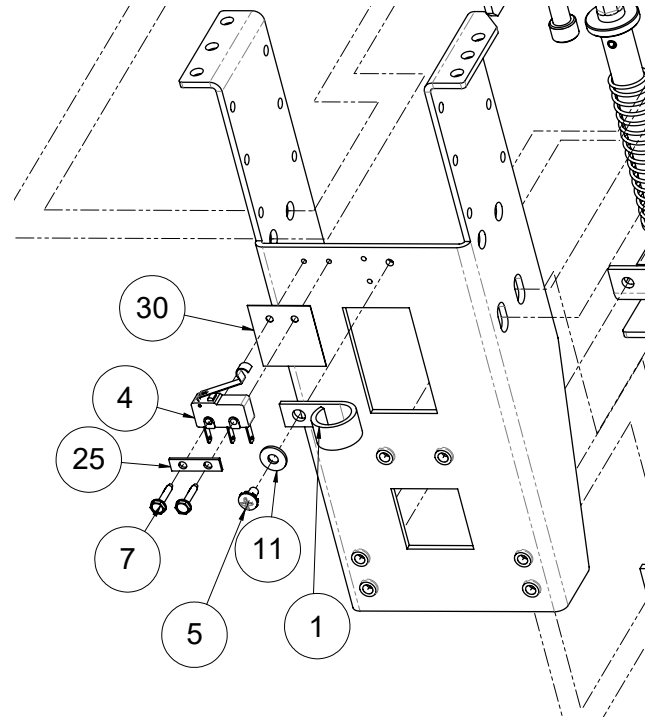
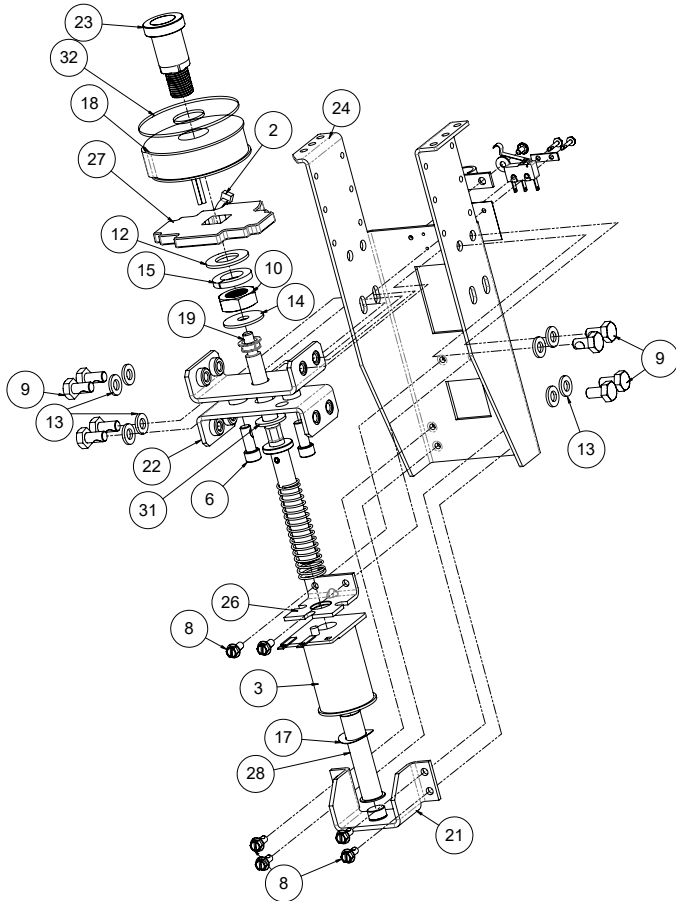
5.60 INLINE DROP TARGET MODULE (ALT.) 511-1986-01



ID	Part Number	Description	Qty
1	237-5501-00P	SCREW, 6-32 X 3/8" PPH MS ZINC, PATCH	2
2	237-5912-00P	SCREW, 4-40 X 3/16" PPH MS, PATCH	2
3	242-5091-00	WASHER, 1/2 X 17/64 X .03 - DT	3
4	265-5003-02	TARGET RESET SPRING	1
5	266-5089-00	SPRING COMPRESSION - DT	1
6	270-5002-00	RETAINING RING - 1/4"	2
7	515-1983-01	BRACKET, INLINE DROP TARGET (ALT.)	1
8	520-5357-00	PCB, INLINE DROP TARGET OPTO	1
9	545-6163-01	LEDGE, 1-BANK DROP TARGET	1
10	545-6305-00	TARGET - ROLLOVER - BLACK	1
11	545-6798-00	SHIM - FICHE PAPER - D.T. SINGLE	1

5.61 DISAPPEARING BALL MAGNET ASSEMBLY

511-7475-01

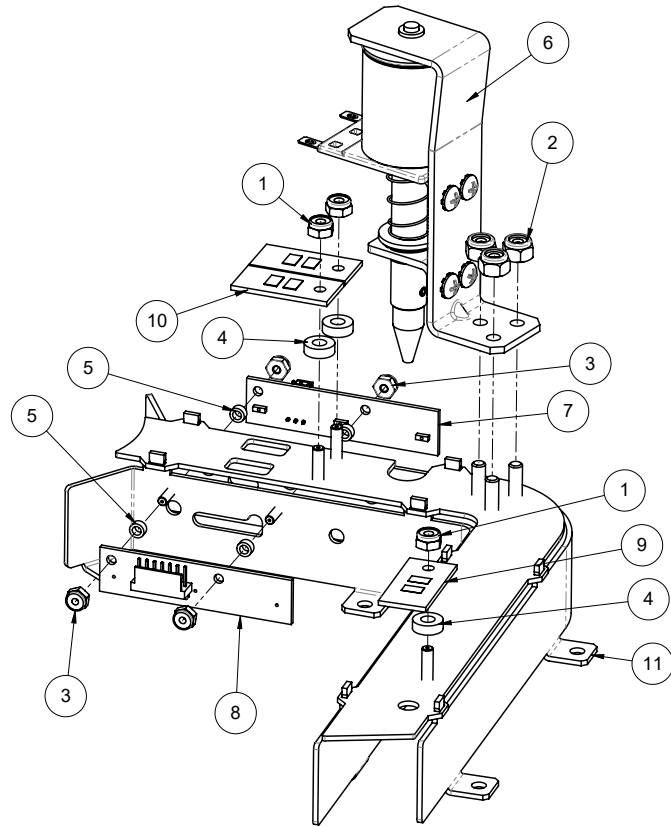


ID	Part Number	Description	Qty
1	040-5000-06	1/2" CABLE CLAMP	1
2	040-5001-02	CABLE TIE, BLACK	1
3	090-5032-ND	COIL - 22-1080 - NO DIODE	1
4	180-5209-00	SUB MINIATURE SWITCH - SIM. ROLLER	1
5	232-5200-00P	SCREW, 6-32 X 1/4" PPH SEMS, PATCH	1
6	237-5861-01P	SCREW, 1/4-20 X 5/8" LG SOC HD CAP, PATCH	2
7	237-5937-02P	SCREW, HWH, 2-56 X 1/2", BLACK, PATCH	2
8	237-5975-00P	SCREW, 8-32 X 3/8" HWH SWAGE ZN, PATCH	6
9	237-6180-05P	BOLT, 1/4-20 X 1/2" HEX HEAD, PATCH	8
10	240-5413-00	JAM HEX NUT 9/16" -18	1
11	242-5001-00	#6 WASHER	1
12	242-5004-00	WASHER, .58 I.D. X 1.06 OD X .07 THK	1
13	242-5008-00	WASHER, 1/4" ID X 1/2" OD X 1/16" THICK	8
14	242-5009-00	WASHER, 1/4" ID X 1" OD X .048" THICK	1
15	244-5007-00	SPLIT LOCKWASHER 9/16	1
16	266-5125-00	SPRING, COMPRESSION	1
17	269-5002-00	SPRING WASHER	1
18	511-7505-00	MAGNET / CONNECTOR ASSY, 22-650	1

ID	Part Number	Description	Qty
19	515-9664-01	LATCHING UP POST SHAFT ASSEMBLY	1
20	515-9666-01	BEARING PLATE, DISAPPEARING BALL, METALLICA REMASTERED	1
21	515-9667-00	PLUNGER STOP ASSEMBLY	1
22	515-9672-00	BEARING PLATE, DISAPPEARING BALL	1
23	515-9690-00	MAGNET CORE, DISAPPEAR BALL	1
24	535-0691-01	DISAPPEARING BALL SUPPORT BRKT, METALLICA REMASTERED	1
25	535-6539-00	SWITCH BODY PROTECT PLATE	1
26	535-7356-00	COIL BRACKET	1
27	544-7669-00	SPACER, DISAPPEARING BALL	1
28	545-5388-00	COIL SLEEVE	1
29	545-5958-00	NYLINER, 3/8" SHAFT, HEAVY GAGE	1
30	545-6268-00	FISCHE PAPER	1
31	545-7834-00	WASHER -THRUST 3/4" OD X 1/16" THICK	1
32	546-5022-00	MAGNET PROTECTOR, METALLICA REMASTERED	1

5.62 DISAPPEARING BALL LOCK TROUGH ASSEMBLY

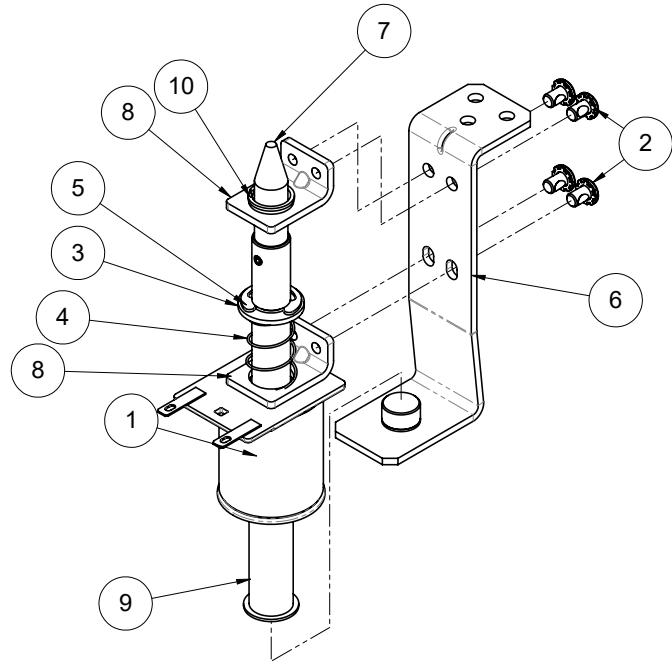
511-7476-01



ID	Part Number	Description	Qty
1	240-5005-00	6-32 NYLON STOP NUT	3
2	240-5102-00	8-32 NYLON LOCK NUT	3
3	240-5303-00	4-40 NYLON LOCK NUT	4
4	254-5000-19	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/8"	3
5	254-5090-08	PLASTIC SPACER #4 SCREW, 3/16" OD - 3/32" LENGTH	4
6	500-2673-00	ASSEMBLY, DOWN POST, TROUGH MOUNT, STRAIGHT LUGS	1
7	520-5377-00	3 OPTO EMITTER PCA	1
8	520-5378-00	3 OPTO RECEIVER PCB	1
9	520-7000-00	SINGLE FLASH LED BOARD	1
10	520-8457-00	PCB, SINGLE FLOOD LED - RED	2
11	515-0179-01	BALL TROUGH, 3 BALL LOCK, METALLICA REMASTERED	1

5.63 DOWN POST ASSEMBLY FOR BALL LOCK TROUGH

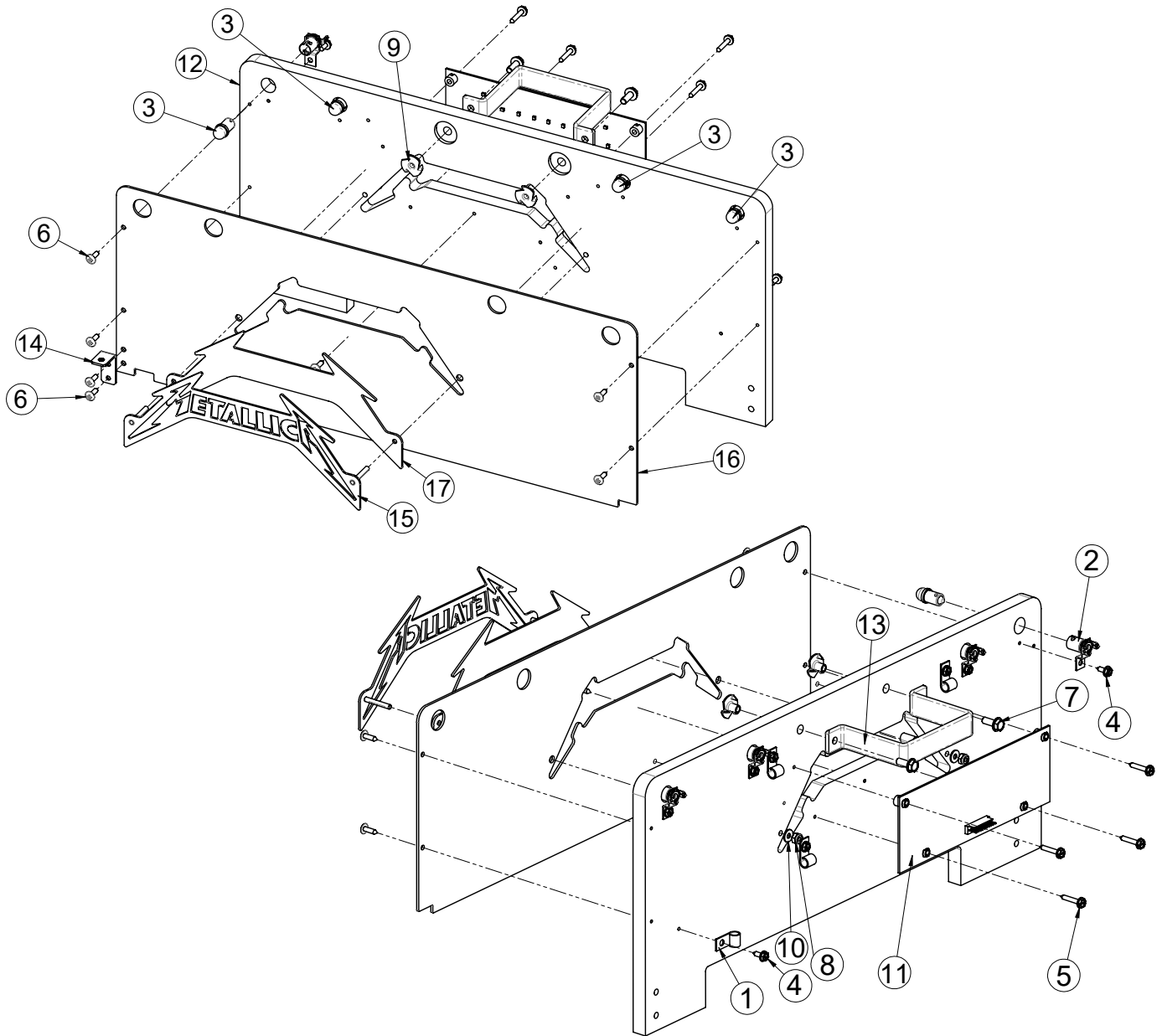
500-2673-00



ID	Part Number	Description	Qty
1	090-5044-ND	COIL 26-1200 COIL NO DIODE	1
2	232-5300-00P	SCREW SEMS, PPH, 8-32 X 1/4, ZC, PATCH	4
3	242-5081-00	WASHER, NYLON .75 OD X .44 ID	1
4	266-5020-00	COMPRESSION SPRING, CONICAL	1
5	270-5005-00	RETAINING E-RING, - 7/16" SHAFT OD	1
6	515-2199-00	DOWN POST BRKT ASM	1
7	515-2850-00	ASSEMBLY, PLUNGER DOWN POST, TROUGH MOUNT	1
8	535-5203-03	COIL RETAINING BRACKET	2
9	545-5031-00	COIL SLEEVE	1
10	545-5418-01	NYLINER, PLASTIC 7/16"	1

5.64 BACKPANEL ASSEMBLY

500-2655-00



ID	Part Number	Description	Qty
1	040-5000-03	1/4" CABLE CLAMP	4
2	077-5223-00	SOCKET, 2-LUG VERTICAL, SHORT	4
3	112-5034-08	DOUBLE LED, BAYONET BASE - WHITE	4
4	234-5000-00	SCREW, #6 X 3/8" HWH	8
5	234-5003-00	SCREW, #6 X 3/4" HWH	4
6	237-5809-00	SCREW, #6 X 1/2" PTH A	7
7	237-5995-00P	SCREW, 10-32 X 1/2" HWH SERR MS ZI, PATCH	2
8	240-5005-00	6-32 NYLON STOP NUT	2
9	240-5204-00	#10-32 T-NUT	2

ID	Part Number	Description	Qty
10	242-5001-00	#6 WASHER	2
11	520-8611-00	LIGHT BOARD, BACK PANEL, METALLICA REMASTERED	1
12	525-9766-00	BACK PANEL, METALLICA REMASTERED	1
13	535-2288-00	HANDLE, BACKPANEL	1
14	535-3011-00	BRACKET, LEFT RAMP SUPPORT, METALLICA REMASTERED	1
15	535-3031-00	FACE PLATE, METALLICA SIGN	1
16	830-8538-21	PLASTIC #21, BACK PANEL	1
17	830-8562-01	BACKING PLATE, METALLICA SIGN	1



6. SPECIFICATIONS

500-55X6-01

SPECIFICATIONS, MECHANICAL, GAME SETUP

Specification	Imperial	Metric
Weight	210 lbs	96 kg
Max dimensions, leg levers extended (h, w, d)	78 x 27.75 x 57 in	198 x 70.5 x 145 cm
Minimum game dimensions (h, w, d)	76 x 27.75 x 57 in	193 x 70.5 x 145 cm
Minimum room dimensions per game (h, w, d)	80 x 36 x 84 in	203 x 91 cm x 214 cm

- (h, w, d) = height, width, depth.

SPECIFICATIONS, MECHANICAL, BOXED

Specification	Imperial	Metric
Weight, boxed (without pallet)	230 lbs	105 kg
Box dimensions (h, w, d)	56.5 x 31 x 31 in	144 x 79 x 79 cm
Minimum dimensions (h, w, d)	76 x 26 x 57 in	193 x 66 x 145 cm

- (h, w, d) = height, width, depth.

SPECIFICATIONS, ELECTRICAL

Specification	North America - 120VAC	International - 240VAC
Line Voltage, Nominal	120 VAC	240 VAC
Line Voltage Range	90 VAC - 250 VAC	90 VAC - 250 VAC
Line Frequency *	60 Hz	50 Hz, 60 Hz
Line Power, Current - attract mode	70 W, 0.6 A @ 120 VAC	70 W, 0.3 A @ 240 VAC
Line Power, Current - nominal	360 W, 3 A @ 120 VAC	360 W, 1.5 A @ 240 VAC
Line Power, Current - peak, <100 ms	540 W, 4.5 A @ 120 VAC	540 W, 2.25 A @ 240 VAC

* NOTE: Games designed for 60hz operation (e.g. North America games) will not function correctly on 50hz power and vice versa.

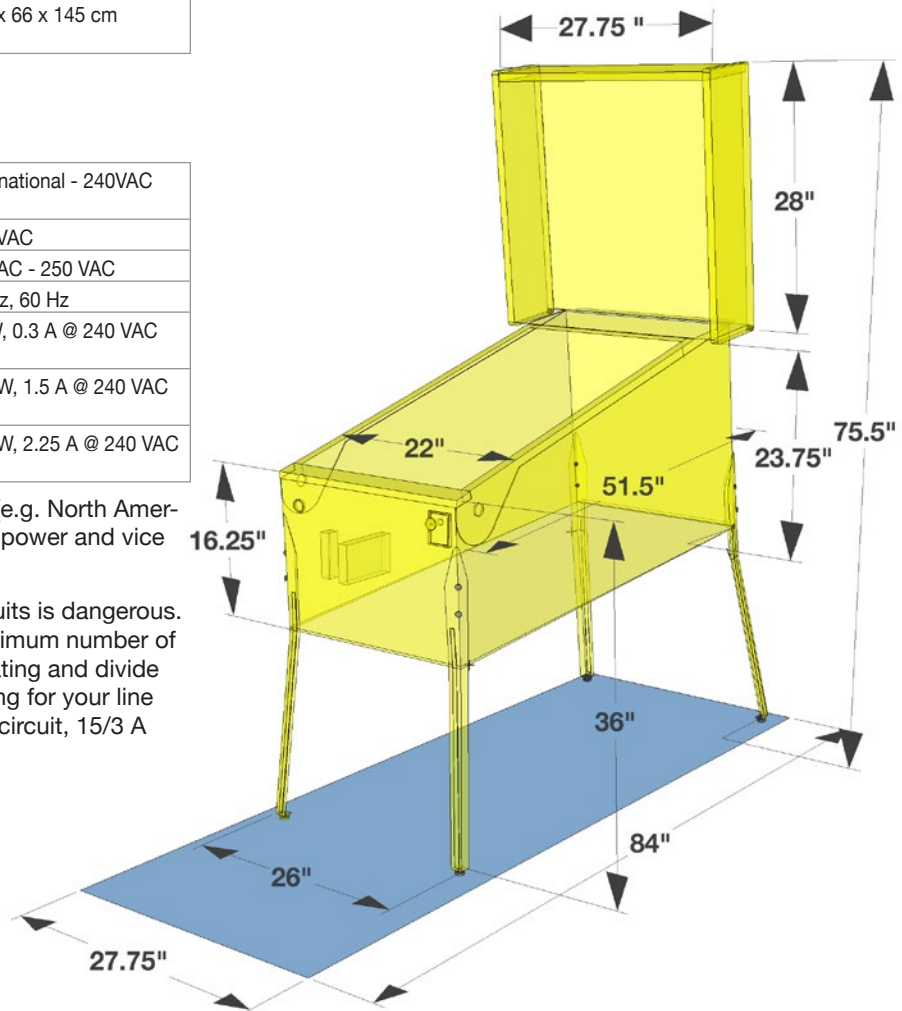
WARNING: Overloading electrical supply circuits is dangerous. Do not overload circuits. To calculate the maximum number of games for a circuit, check circuit amperage rating and divide by the game Nominal Line Power Current rating for your line voltage. For example, a 15A 120V household circuit, 15/3 A (nominal current) = 5 games maximum.

SPECIFICATIONS, ENVIRONMENT

	Minimum	Maximum
Temperature, Operating	32 °F / 0 °C	104 °F / 40 °C
Temperature, Storage	32 °F / 0 °C	104 °F / 40 °C
Relative Humidity, Operating	5%	95% non-condensing
Relative Humidity, Storage	5%	95% non-condensing

- (a) "The appliance has to be placed in a horizontal position."
- (b) If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid hazard.

6.1 GAME DIMENSIONS



6.2 WARRANTY

Stern Pinball machines are assembled in Elk Grove Village, Illinois, USA; each pinball machine has unique characteristics that make it a one-of-a-kind American-made product. Each machine will have variations in appearance resulting from differences in the machine's particular wood parts, individual silk screened art and mechanical assemblies. Stern Pinball has inspected each game element to ensure it meets stringent quality and playability standards.

STERN PINBALL INC LIMITED WARRANTY

For warranty information, please visit:

sternpinball.com/support/warranty

ATTENTION! IMPORTANT WARRANTY INFORMATION

The electronics system, node network architecture, mechanical devices and associated software control systems in this pinball machine are designed to work with genuine Stern Pinball accessories and devices.

Installation of non-authorized accessories, lamps, LED's, motors or other devices or modification of electro-mechanical devices may damage the system and may void your warranty.

820-6617-00

6.3 WARNINGS, COMPLIANCE, AND LEGAL NOTICES

PHOTOSENSITIVE SEIZURES HEALTH WARNING



A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns. Even people with no history of seizures of epilepsy may have an undiagnosed condition that can cause "photosensitive epileptic seizures" due to certain visual images, flashing lights or patterns. Symptoms can include lightheadedness, altered vision, eye or face twitching, jerking or shaking of arms or legs, disorientation, confusion, momentary loss of awareness, and loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

IMMEDIATELY STOP PLAYING AND CONSULT A DOCTOR IF YOU EXPERIENCE ANY OF THESE SYMPTOMS.

PARTS SUBSTITUTIONS



For safety and reliability, substitute parts and equipment modifications are not recommended and may void any and all warranties. Use of Non-Stern Pinball Inc Parts or Modifications of game circuitry may adversely affect game play or game safety. Transport pinball machines with hinged backbox in the down position only! Always take great care when servicing any game. Always read the service manual before replacing or servicing components. Substitutions of parts or equipment modifications may void FCC type acceptance.

Always disconnect the line voltage before servicing. Some parts may remain energized when unplugged. Take great caution when servicing any electrical components.

PERCHLORATE MATERIAL - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate

FCC CLASS A SUBPART J COMPLIANCE



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF INTERFERENCE NOTICE

The cable harness placements, ground strap routing, and other shielding have been designed to keep RF radiation and conduction within levels accepted by FCC rules. To maintain these levels, factory harness position, shielding, and ground straps must be installed in their factory locations should they become disconnected during maintenance.

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