

THE UNCANNY X-MEN

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 will 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 #780-50Y5-00
THE UNCANNY X-MEN PRO #500-55Y5-01
1-800-KICKERS - service@sternpinball.com
www.sternpinball.com - [facebook.com/sternpinball](https://www.facebook.com/sternpinball)

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1. SETUP AND MOVING

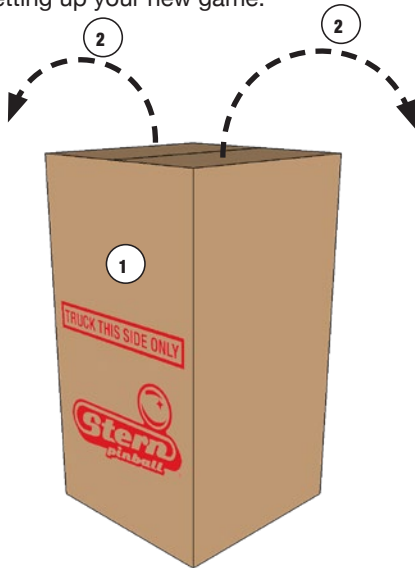
1.1 FIRST-TIME SETUP INSTRUCTIONS

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.

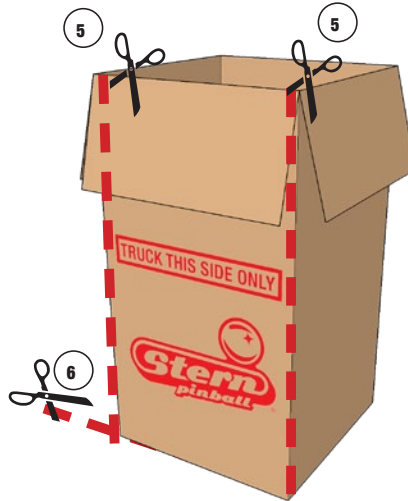
TOOLS REQUIRED

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

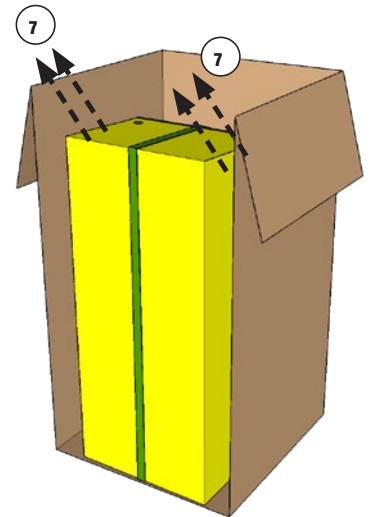
CAUTION: AT LEAST TWO (2) PEOPLE ARE REQUIRED TO MOVE AND MANEUVER THE GAME. USE PROPER MOVING EQUIPMENT AND EXTREME CARE WHILE HANDLING. STERN PINBALL MACHINES WEIGH OVER 250LBS BOXED.



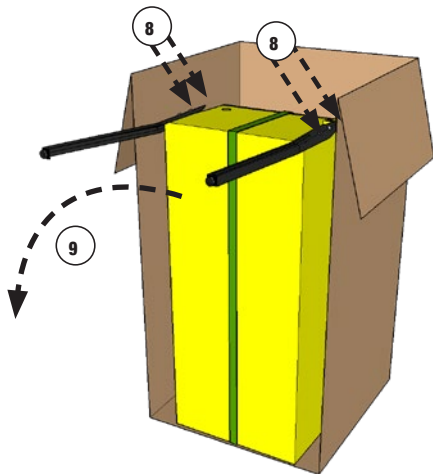
1. Locate the side labeled "TRUCK THIS SIDE ONLY". The bottom of the game faces this side.
2. Open the top box flaps by pulling hard in an upward motion on each flap. If the flaps are taped, cut the tape first, taking care to avoid the box staples.



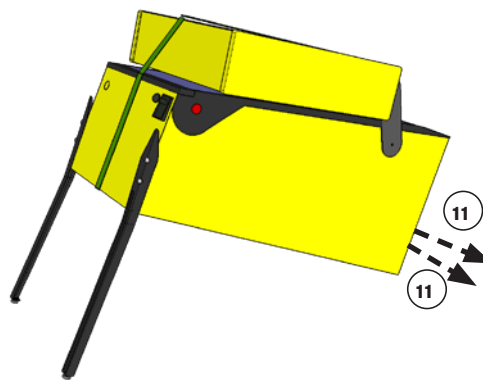
3. Remove the four (4) foam pieces and two (2) narrow box tubes which contain the four (4) identical legs with levelers.
4. DO NOT CUT STRAPPING YET. Keep backbox secured in the down position.
5. With the utility knife, carefully cut down the left and right corners of the box.



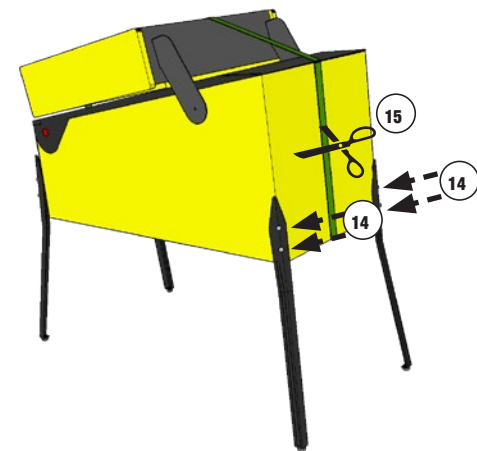
6. Let the face fall forward and remove the entire side by carefully cutting the bottom.
7. With the game still in its folded position, use a 5/8" wrench to loosen and remove the 2 leg bolts on each side of the front cabinet. Ensure the leg levelers are screwed all the way into the legs.



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.



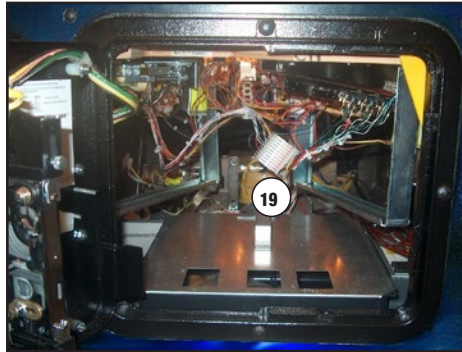
12. Using supports or two people, prop the rear of the cabinet up.
13. Ensure the rear leg levelers are screwed all the way into the legs.
14. Install rear legs using the 4 bolts removed from step 11.



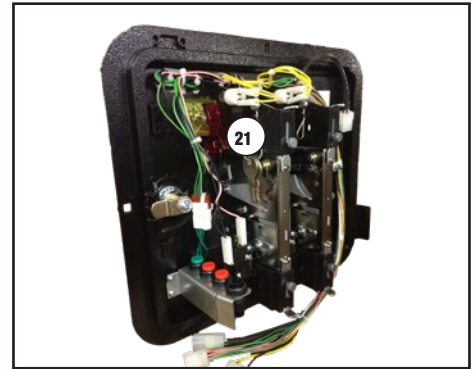
FIRST-TIME SETUP CONTINUED



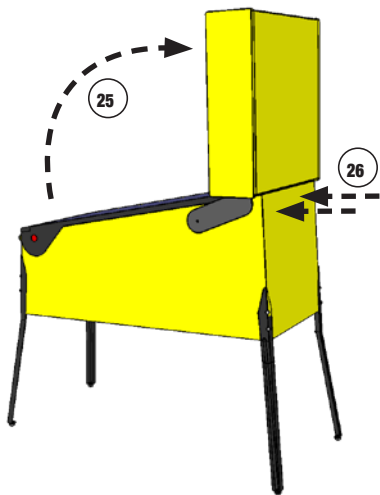
- 15. Cut nylon strapping and remove protective strap corner guards.
- 16. Locate the factory keys, either on the shooter rod or taped to the playfield glass.
- 17. Using snips, cut the tie-wrap securing the keys if required. One set of keys is for the front coin door, the other set of keys is for accessing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



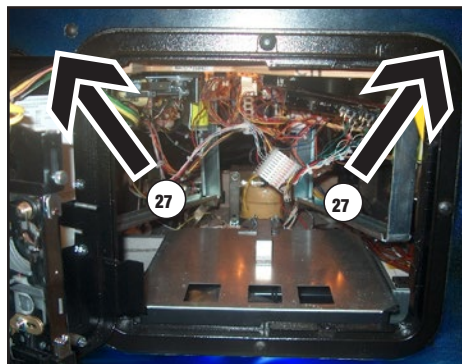
- 18. Open the front coin door.
- 19. Reach into the game and remove the retaining clip at the rear of the cash box.
- 20. Remove the cash box lid by sliding it toward you.



- 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.

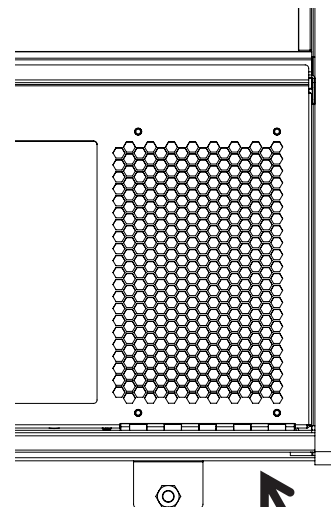


SPIKE PINBALL SOFTWARE UPDATE INSTRUCTIONS

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
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

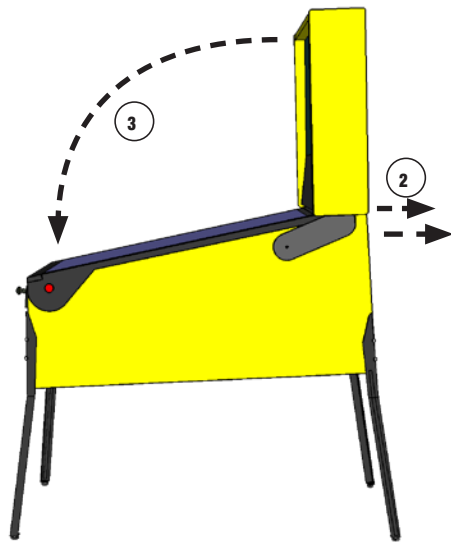
TOOLS REQUIRED

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

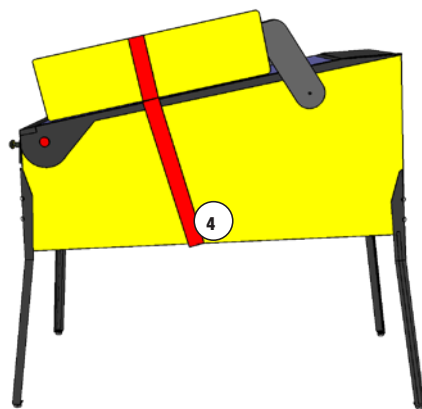
CAUTION

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

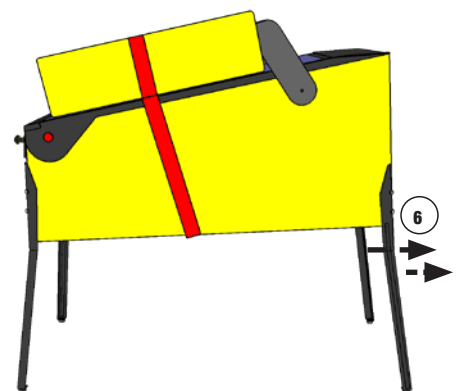
2. REMOVE THE LEGS AND STAND UP



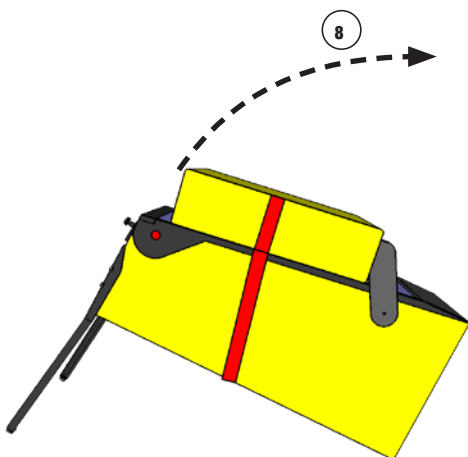
2. Remove the backbox securing bolts
3. Carefully lower the backbox onto the side rails. Use a piece of cardboard or suitable padding between the backbox and the game.



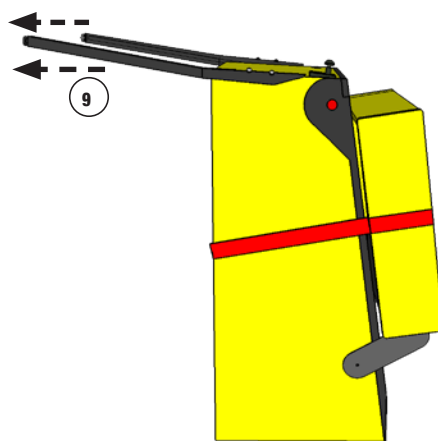
4. Securely strap the back box to the game
5. The game may be transported with the legs on. If the legs must be removed, follow the remaining steps.



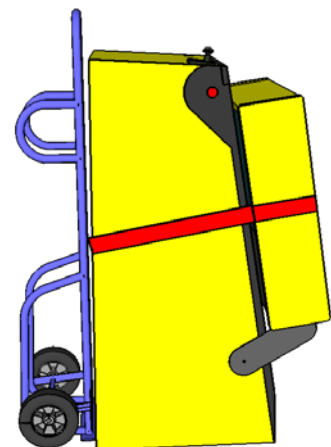
6. Remove the legs, rear legs first. Use a stool or a friend to support the rear of the game.
7. Rest the rear of the game on the ground.



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
The Uncanny X-Men Playfield Plastics Kit	803-5000-Y5
The Uncanny X-Men Playfield Decals Kit	802-5000-Y5
The Uncanny X-Men Backbox Decal Left	820-76Y5-01
The Uncanny X-Men Backbox Decal Right	820-76Y5-02
The Uncanny X-Men Cabinet Decal Left	820-76Y5-03
The Uncanny X-Men Cabinet Decal Right	820-76Y5-04
The Uncanny X-Men Cabinet Decal Front	820-76Y5-05
The Uncanny X-Men Playfield, Bare	830-5100-Y5
The Uncanny X-Men Translite	830-8427-Y5

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 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.

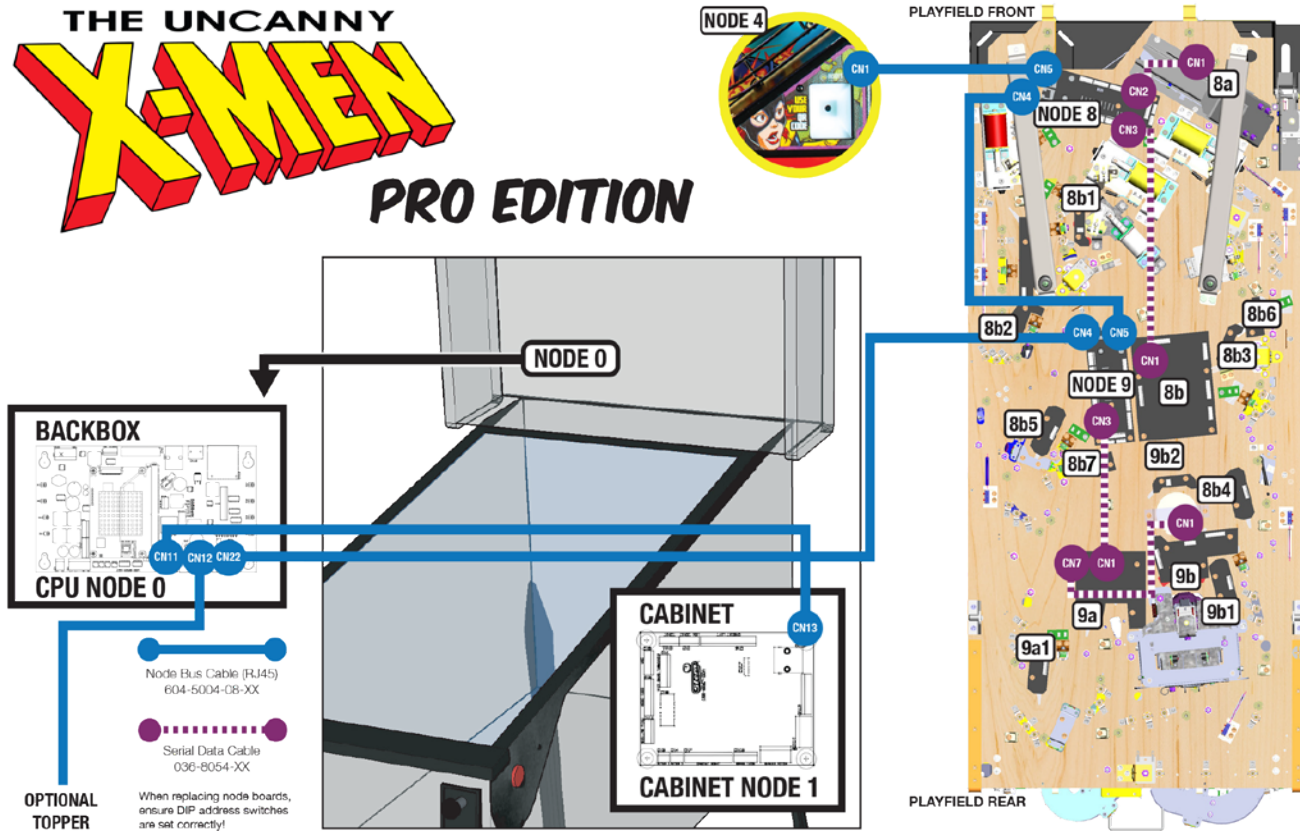
2.7 COMMON SPIKE NODE BOARDS

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

3. LIGHT, SWITCH, AND DRIVER REFERENCE



PRO EDITION



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 4	n/a	QR Reader Node	Bottom Arch	509-2020-00
Node 8	OFF-OFF-OFF-OFF	Core - Driver Node	Lower Playfield	520-1070-00 / 520-1057-00
8a	n/a	Trough Serial Opto Receiver Extension	Playfield	520-8516-00
8b	n/a	10 Wht - 1 Red Center Mid LED Board	Playfield	520-8635-00
8b1	n/a	3 Wht - Center Mid LED Board	Playfield	520-8634-00
8b2	n/a	4 Wht - 2 FL Bottom Left LED Board	Playfield	520-8638-00
8b3	n/a	3 Wht - Center Mid LED Board	Playfield	520-8634-00
8b4	n/a	1 Wht - 2 Red T LED Board	Playfield	520-8633-00
8b5	n/a	1 Wht - 2 Red T LED Board	Playfield	520-8633-00
8b6	n/a	2 Wht - LED Board	Playfield	520-8626-00
8b7	n/a	2 Wht - LED Board	Playfield	520-8626-00
Node 9	OFF-OFF-ON-OFF	Core - Driver Node	Playfield	520-1070-00 / 520-1057-00
9a	n/a	3 Wht - 5 Red Top Center LED Board	Playfield	520-8637-00
9a1	n/a	1 Wht - 2 Red T LED Board	Playfield	520-8633-00
9b	n/a	7 Wht - Top Left LED Board	Playfield	520-8636-00
9b1	n/a	1 Wht - 2 Red T LED Board	Playfield	520-8633-00
9b2	n/a	3 Wht - Center Mid LED Board	Playfield	520-8634-00
Node 12	ON-OFF-OFF-OFF	Topper (Optional)	Topper	

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 - 22-1080	8-DR-5	090-5032-ND
4	Right Flipper	8	CN8	5	ORG GRN	48V	1-4	GRY ORG	Playfield	Coil - 22-1080	8-DR-0	090-5032-ND
5	Right Pop Bumper	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	DR Flipper	8	CN7	3	YEL BLK	48V	1	GRY ORG	Playfield	Coil - 23-900	8-DR-6	090-5020-30-ND
9	Right Return Up Post	8	CN7	4	YEL BRN	48V	1	GRY ORG	Playfield	Coil - 26-1200	8-DR-7	090-5044-ND
10	Left Pop Bumper	9	CN8	9	ORG RED	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-4	090-5044-ND
11	Sentinel Jaw	9	CN8	10	ORG BLK	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-2	500-7051-08(W/ CONN) 090-5091-00
12	Sentinel Mouth	9	CN8	11	ORG BRN	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-3	500-7051-09(W/ CONN) 090-5091-00
13												
14	Magnet	9	CN8	5	BRN RED	48V	1-4	GRY BRN	Playfield	Coil - 22-650	9-DR-0	511-5065-ND
15												
16	Cerebro	9	CN7	3	YEL GRN	48V	1	GRY BRN	Playfield	Coil - 26-1200	9-DR-6	090-5044-ND
17	Diverter	9	CN8	7	YEL VIO	48V	1-4	GRY BRN	Playfield	Coil - 26-1200	9-DR-1	090-5044-ND
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
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	

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DRIVER REFERENCE CONTINUED

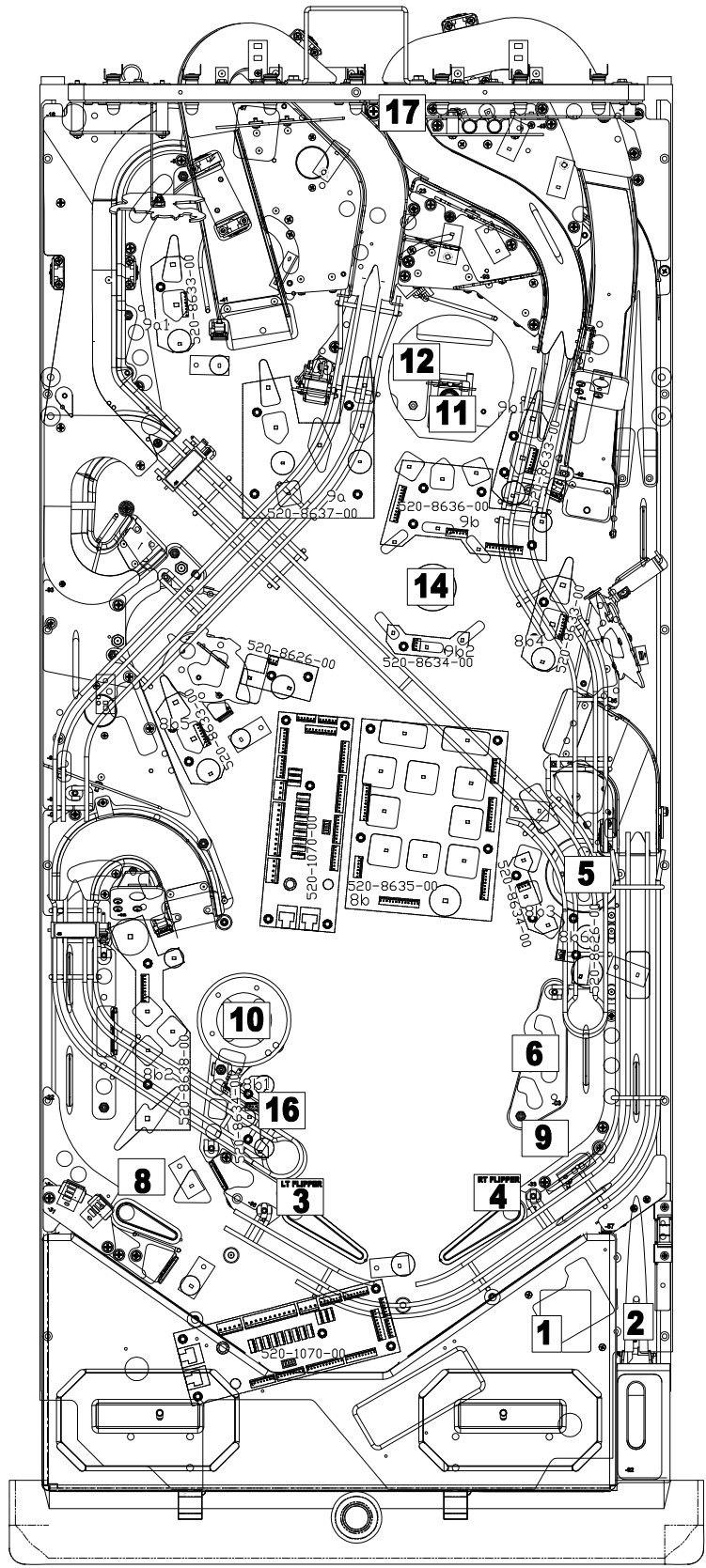


Figure 3.2.1. Playfield driver locations (top view).

3.3 SWITCH REFERENCE

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
1	DR Bottom Return	8	-	CN11	4	LGN RED	11/12	BLK ORG	Playfield	Rollover	8-SW-17	500-9935-04
2	Left Return Lane	8	-	CN11	5	LGN ORG	11/12	BLK ORG	Playfield	Rollover	8-SW-18	180-5010-04
3	DR Top Return	8	-	CN11	8	LGN VIO	11/12	BLK ORG	Playfield	Rollover	8-SW-21	500-9935-04
4	DR Flipper Tgt	8	-	CN11	9	LGN GRY	11/12	BLK ORG	Playfield	Rollover	8-SW-22	515-9783-00-00
5	Right Return Lane	8	-	CN11	6	LGN YEL	11/12	BLK ORG	Playfield	Rollover	8-SW-19	500-9935-04
6	Right Outlane	8	-	CN11	7	LGN BLU	11/12	BLK ORG	Playfield	Rollover	8-SW-20	500-9935-03
7												
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	180-5164-01
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	DR Left Flipper Button	8	-	CN9	6	VIO	7	BLK VIO	Playfield	Leaf	8-SW-27	180-5164-01
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	DR Flipper EOS	8	-	CN12	8	PNK BLK	10	BLK RED	Playfield	Leaf	8-SW-14	180-5149-00
24	Right Outlane Drain	8	-	CN11	10	LGN WHT	11/12	BLK ORG	Playfield	Leaf, Target	8-SW-23	500-9935-04
25												
26												
27												
28												
29												
30	DR Tgt	8	-	CN12	2	WHT BRN	10	BLK RED	Playfield	Leaf, Target	8-SW-8	515-9784-00-00
31	DR 10pt Sw	8	-	CN12	3	WHT RED	10	BLK RED	Playfield	Leaf	8-SW-9	180-5231-00
32	DR Ramp Tgt	8	-	CN12	4	WHT ORG	10	BLK RED	Playfield	Leaf, Target	8-SW-10	515-9785-00-00
33	Drain Tgt	8	-	CN12	5	WHT YEL	10	BLK RED	Playfield	Leaf, Target	8-SW-11	515-9783-00-00
34	DR Ramp Exit	9	-	CN12	2	WHT BRN	10	BLK WHT	Playfield	Micro	9-SW-8	180-5010-04
35	Spinner Opto	8	-	CN12	7	WHT BLU	10	BLK RED	Playfield	Opto	8-SW-13	520-8541-00
36												
37												
38	Kitty Sneak-In	8	-	CN13	2	PNK RED	10	BLK BRN	Playfield	Leaf, Target	8-SW-0	500-9935-04
39	Kitty Sneak-In Tgt	8	-	CN13	6	PNK BLU	10	BLK BRN	Playfield	Leaf, Target	8-SW-4	515-9783-00-00
40	XJET Tgt	8	-	CN13	7	PNK VIO	10	BLK BRN	Playfield	Leaf, Target	8-SW-5	515-9785-00-00
41	XJET Lane Opto	8	-	CN13	8	PNK GRY	10	BLK BRN	Playfield	Opto	8-SW-6	515-0215-00 tx 520-8116-00 rx (511-5815-01 w/ cable)
42												
43	Left Loop Ramp Exit	9	-	CN12	4	WHT ORG	10	BLK WHT	Playfield	Micro	9-SW-10	180-5010-04

Continued on next page...



SWITCH REFERENCE CONTINUED

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
44	X Mansion Ramp Exit Opto	8	-	CN13	3	PNK ORG	10	BLK BRN	Playfield	Opto	8-SW-1	515-0215-00 tx 520-8068-00 rx (511-2739-01 w/ cable)
45	X Mansion Tgt	8	-	CN13	4	PNK YEL	10	BLK BRN	Playfield	Leaf, Target	8-SW-2	515-9784-00-00
46												
47	Right Pop Bumper	8	-	CN10	4	GRY BLU	10	BLK WHT	Playfield	Leaf	8-SW-30	180-5232-00
48	Left Pop Bumper	9	-	CN12	3	WHT RED	10	BLK WHT	Playfield	Leaf	9-SW-9	180-5232-00
49												
50	Left Ramp Tgt	9	-	CN13	2	PNK RED	10	BLK BRN	Playfield	Leaf, Target	9-SW-0	515-9785-00-00
51	Left Loop Opto	9	-	CN13	3	PNK ORG	10	BLK BRN	Playfield	Opto	9-SW-1	515-0215-00 tx 515-0215-01 rx
52	Right Center Ramp Exit Opto	9	-	CN13	4	PNK YEL	10	BLK BRN	Playfield	Opto	9-SW-2	515-0215-00 tx 515-0215-01 rx
53	Left Ramp Exit Opto	9	-	CN13	5	PNK GRN	10	BLK BRN	Playfield	Opto	9-SW-3	515-0215-00 tx 515-0215-01 rx
54												
55	Right Ramp Tgt	9	-	CN13	7	PNK VIO	10	BLK BRN	Playfield	Leaf, Target	9-SW-5	515-9785-00-00
56	Upper Shooter Lane	9	-	CN13	8	PNK GRY	10	BLK BRN	Playfield	Rollover	9-SW-6	500-9935-04
57												
58												
59	Right Ramp Exit Opto	9	-	CN10	2	GRY BLK	7/8/9	BLK BLU	Playfield	Opto	9-SW-28	515-0215-00 tx 515-0215-01 rx
60	Right Center Ramp Enter	9	-	CN10	3	GRY BRN	7/8/9	BLK BLU	Playfield	Rollover	9-SW-29	500-9935-04
61	Left Center Ramp Exit	9	-	CN10	4	GRY RED	7/8/9	BLK BLU	Playfield	Micro	9-SW-30	180-5010-04
62												
63	Left Cent Ramp Entrance	9	-	CN10	5	GRY ORG	7/8/9	BLK BLU	Playfield	Micro	9-SW-31	180-5010-04
64												
65												
66												
67	Sentinel Head	9	-	CN11	4	TAN ORG	11/12	BLK GRY	Playfield	Micro	9-SW-17	180-5010-04
68												
69	Sentinel Jaw Open Opto	9	-	CN11	6	TAN GRN	11/12	BLK GRY	Playfield	Opto	9-SW-19	515-0215-00 tx 515-0215-01 rx
70	Sentinel Kick Tgt	9	-	CN11	7	TAN BLU	11/12	BLK GRY	Playfield	Micro	9-SW-20	180-5010-04
71												
72												
73												
74												
75												
76												
77												
78	Beasts Lab Tgt	9	-	CN9	6	LGN VIO	7/8	BLK BLU	Playfield	Leaf, Target	9-SW-27	515-9785-00-00
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												

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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
89												
90	Lockdown Button	1	-	CN7	8	TAN WHT	5	BLK WHT	Cabinet	Leaf	1-SW-2	180-5218-00
91												
92												
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

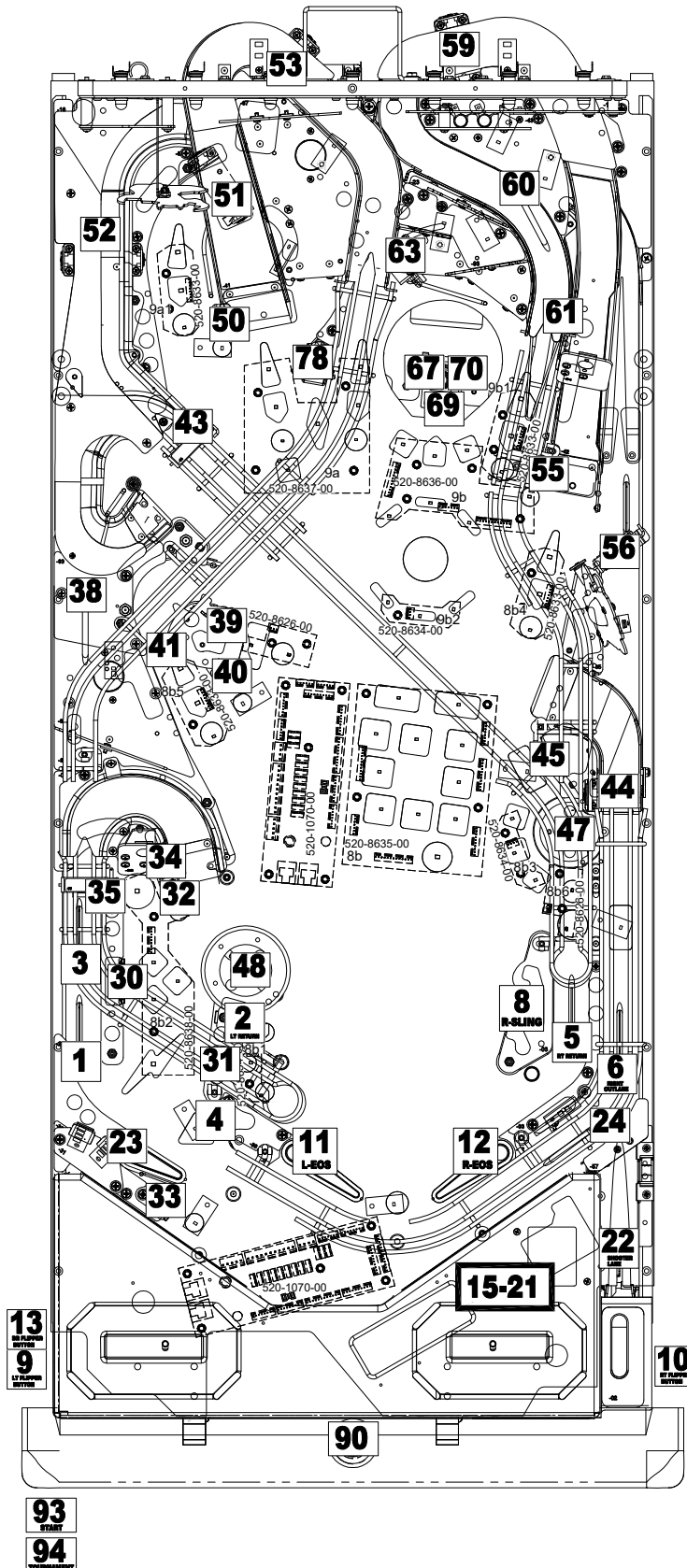


Figure 3.3.1. Playfield switch locations (top view).

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	DR Target Top	8	b	CN4	6	BLU RED	1	RED	Playfield	Feature	White	8-LP-45	520-8638-00
12	DR Target Mid	8	b	CN4	7	BLU YEL	1	RED	Playfield	Feature	White	8-LP-46	520-8638-00
13	DR Target Bot	8	b	CN4	8	BLU GRN	1	RED	Playfield	Feature	White	8-LP-47	520-8638-00
14	DR Ramp Target	8	b	CN4	5	ORG GRN	1	RED	Playfield	Feature	White	8-LP-44	520-8638-00
15	DR Flip Target	8	b	CN3	9	GRN VIO	1/2/3/4	RED	Playfield	Feature	White	8-LP-37	520-5307-00
16	Drain Target	8	b	CN3	10	GRN GRY	1/2/3/4	RED	Playfield	Feature	White	8-LP-38	520-5307-00
17	Left Return Top	8	b	CN3	6	GRN RED	1/2/3/4	RED	Playfield	Feature	White	8-LP-34	520-8634-00
18	Left Return Mid	8	b	CN3	7	GRN YEL	1/2/3/4	RED	Playfield	Feature	White	8-LP-35	520-8634-00
19	Left Return Bot	8	b	CN3	8	GRN BLU	1/2/3/4	RED	Playfield	Feature	White	8-LP-36	520-8634-00
20	Shoot Again	8	b	CN3	11	GRN	1/2/3/4	RED	Playfield	Feature	White	8-LP-39	520-5307-00
21	DR Ramp BB-Cerebro	8	b	CN3	12	GRN WHT	1/2/3/4	RED	Playfield	Feature	White	8-LP-40	520-5307-00
22													
23													
24	XJET Arrow-R	8	b	CN8	2	RED BRN	1	RED	Playfield	Feature	RGB	8-LP-21	520-8633-00
25	XJET Arrow-G	8	b	CN8	3	GRN BRN	1	RED	Playfield	Feature	RGB	8-LP-22	520-8633-00
26	XJET Arrow-B	8	b	CN8	4	BLU BRN	1	RED	Playfield	Feature	RGB	8-LP-23	520-8633-00
27	XJET Sentinel-R	8	b	CN8	5	RED ORG	1	RED	Playfield	Feature	RGB	8-LP-24	520-8633-00
28	XJET Sentinel-G	8	b	CN8	6	GRN ORG	1	RED	Playfield	Feature	RGB	8-LP-25	520-8633-00
29	XJET Sentinel-B	8	b	CN8	7	BLU ORG	1	RED	Playfield	Feature	RGB	8-LP-26	520-8633-00
30	XJET Combo	8	b	CN8	8	RED YEL	1	RED	Playfield	Feature	White	8-LP-27	520-8633-00
31													
32	Kitty Sneak-In Target	8	b	CN8	11	RED VIO	1	RED	Playfield	Feature	White	8-LP-30	520-8626-00
33	STC	8	b	CN8	12	RED GRY	1	RED	Playfield	Feature	White	8-LP-31	520-8626-00
34	XJET Target	8	b	CN8	10	RED BLU	1	RED	Playfield	Feature	White	8-LP-29	520-5307-00
35													
36													
37													
38	Wizard Mode 1	8	b	LED9	-	-	-	-	Playfield	Feature	White	8-LP-16	520-8635-00
39	Wizard Mode 2	8	b	LED10	-	-	-	-	Playfield	Feature	White	8-LP-17	520-8635-00
40	Mode 1	8	b	LED8	-	-	-	-	Playfield	Feature	White	8-LP-15	520-8635-00
41	Mode 2	8	b	LED7	-	-	-	-	Playfield	Feature	White	8-LP-14	520-8635-00
42	Mode 3	8	b	LED6	-	-	-	-	Playfield	Feature	White	8-LP-13	520-8635-00
43	Mode 4	8	b	LED4	-	-	-	-	Playfield	Feature	White	8-LP-11	520-8635-00
44	Mode 5	8	b	LED5	-	-	-	-	Playfield	Feature	White	8-LP-12	520-8635-00
45	Mode 6	8	b	LED3	-	-	-	-	Playfield	Feature	White	8-LP-10	520-8635-00
46	Mode 7	8	b	LED2	-	-	-	-	Playfield	Feature	White	8-LP-9	520-8635-00
47	Mode 8	8	b	LED1	-	-	-	-	Playfield	Feature	White	8-LP-8	520-8635-00
48	Future-R	8	b	LED11	-	-	-	-	Playfield	Feature	RGB	8-LP-18	520-8635-00
49	Future-G	8	b	LED11	-	-	-	-	Playfield	Feature	RGB	8-LP-19	520-8635-00
50	Future-B	8	b	LED11	-	-	-	-	Playfield	Feature	RGB	8-LP-20	520-8635-00
51													

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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
52													
53													
54	X-Mansion	8	b	CN5	4	BRN RED	1/2/3	RED	Playfield	Feature	White	8-LP-48	520-5307-00
55													
56	Right Pop Top	8	b	CN5	6	BRN GRN	1/2/3	RED	Playfield	Feature	White	8-LP-50	520-8634-00
57	Right Pop Mid	8	b	CN5	7	BRN VIO	1/2/3	RED	Playfield	Feature	White	8-LP-51	520-8634-00
58	Right Pop Bot	8	b	CN5	8	BRN GRY	1/2/3	RED	Playfield	Feature	White	8-LP-52	520-8634-00
59	Right Return	8	b	CN5	10	BRN YEL	1/2/3	RED	Playfield	Feature	White	8-LP-54	520-8626-00
60	Right Outlane	8	b	CN5	11	BRN BLU	1/2/3	RED	Playfield	Feature	White	8-LP-55	520-5307-00
61	Extra Ball	8	b	CN5	5	BRN ORG	1/2/3	RED	Playfield	Feature	White	8-LP-49	520-8626-00
62													
63	Left Loop Arrow-R	9	a	CN4	2	RED VIO	1	RED	Playfield	Feature	RGB	9-LP-26	520-8633-00
64	Left Loop Arrow-G	9	a	CN4	3	GRN VIO	1	RED	Playfield	Feature	RGB	9-LP-27	520-8633-00
65	Left Loop Arrow-B	9	a	CN4	4	BLU VIO	1	RED	Playfield	Feature	RGB	9-LP-28	520-8633-00
66	Left Loop Sentinel-R	9	a	CN4	5	RED GRY	1	RED	Playfield	Feature	RGB	9-LP-29	520-8633-00
67	Left Loop Sentinel-G	9	a	CN4	6	GRN GRY	1	RED	Playfield	Feature	RGB	9-LP-30	520-8633-00
68	Left Loop Sentinel-B	9	a	CN4	7	BLU GRY	1	RED	Playfield	Feature	RGB	9-LP-31	520-8633-00
69	Left Loop Combo	9	a	CN4	8	ORG BLU	1	RED	Playfield	Feature	White	9-LP-32	520-8633-00
70													
71													
72	Left Ramp Target	9	a	CN3	2	ORG BRN	1	RED	Playfield	Feature	White	9-LP-33	520-5307-00
73	Left Ramp Arrow-R	9	a	LED4	-	-	-	-	Playfield	Feature	RGB	9-LP-11	520-8637-00
74	Left Ramp Arrow-G	9	a	LED4	-	-	-	-	Playfield	Feature	RGB	9-LP-12	520-8637-00
75	Left Ramp Arrow-B	9	a	LED4	-	-	-	-	Playfield	Feature	RGB	9-LP-13	520-8637-00
76	Left Ramp Sentinel-R	9	a	LED5	-	-	-	-	Playfield	Feature	RGB	9-LP-14	520-8637-00
77	Left Ramp Sentinel-G	9	a	LED5	-	-	-	-	Playfield	Feature	RGB	9-LP-15	520-8637-00
78	Left Ramp Sentinel-B	9	a	LED5	-	-	-	-	Playfield	Feature	RGB	9-LP-16	520-8637-00
79	Left Ramp Combo	9	a	LED1	-	-	-	-	Playfield	Feature	White	9-LP-8	520-8637-00
80	Left Ramp Cerebro	9	a	LED2	-	-	-	-	Playfield	Feature	White	9-LP-9	520-8637-00
81													
82													
83	Beasts Lab-R	9	a	LED6	-	-	-	-	Playfield	Feature	RGB	9-LP-17	520-8637-00
84	Beasts Lab-G	9	a	LED6	-	-	-	-	Playfield	Feature	RGB	9-LP-18	520-8637-00
85	Beasts Lab-B	9	a	LED6	-	-	-	-	Playfield	Feature	RGB	9-LP-19	520-8637-00
86													
87													
88	Lt Center Ramp Arrow-R	9	a	LED8	-	-	-	-	Playfield	Feature	RGB	9-LP-23	520-8637-00
89	Lt Center Ramp Arrow-G	9	a	LED8	-	-	-	-	Playfield	Feature	RGB	9-LP-24	520-8637-00
90	Lt Center Ramp Arrow-B	9	a	LED8	-	-	-	-	Playfield	Feature	RGB	9-LP-25	520-8637-00
91	Lt Center Ramp Sentinel-R	9	a	LED7	-	-	-	-	Playfield	Feature	RGB	9-LP-20	520-8637-00
92	Lt Center Ramp Sentinel-G	9	a	LED7	-	-	-	-	Playfield	Feature	RGB	9-LP-21	520-8637-00
93	Lt Center Ramp Sentinel-B	9	a	LED7	-	-	-	-	Playfield	Feature	RGB	9-LP-22	520-8637-00
94	Lt Center Combo	9	a	LED3	-	-	-	-	Playfield	Feature	White	9-LP-10	520-8637-00
95													
96													
97													
98													
99	Sentinel Mid	9	b	LED2	-	-	-	-	Playfield	Feature	White	9-LP-41	520-8636-00
100													
101													
102													

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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
103													
104	Magnet 1	9	b	LED4	-	-	-	-	Playfield	Feature	White	9-LP-43	520-8636-00
105	Magnet 2	9	b	LED5	-	-	-	-	Playfield	Feature	White	9-LP-44	520-8636-00
106	Magnet 3	9	b	LED6	-	-	-	-	Playfield	Feature	White	9-LP-45	520-8636-00
107	Magnet 4	9	b	CN4	4	BRN BLK	1/2/3	RED	Playfield	Feature	White	9-LP-47	520-8634-00
108	Magnet 5	9	b	CN4	5	BRN RED	1/2/3	RED	Playfield	Feature	White	9-LP-48	520-8634-00
109	Magnet 6	9	b	CN4	6	BRN ORG	1/2/3	RED	Playfield	Feature	White	9-LP-49	520-8634-00
110													
111													
112													
113	Rt Center Ramp Arrow-R	9	b	CN3	5	RED BRN	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-56	520-8633-00
114	Rt Center Ramp Arrow-G	9	b	CN3	6	GRN BRN	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-57	520-8633-00
115	Rt Center Ramp Arrow-B	9	b	CN3	7	BLU BRN	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-58	520-8633-00
116	Rt Center Ramp Sentinel-R	9	b	CN3	8	RED ORG	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-59	520-8633-00
117	Rt Center Ramp Sentinel-G	9	b	CN3	9	GRN ORG	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-60	520-8633-00
118	Rt Center Ramp Sentinel-B	9	b	CN3	10	BLU ORG	1/2/3/4	RED	Playfield	Feature	RGB	9-LP-61	520-8633-00
119	Rt Center Combo	9	b	CN3	11	ORG VIO	1/2/3/4	RED	Playfield	Feature	White	9-LP-62	520-8633-00
120													
121	Right Ramp Target	9	b	LED7	-	-	-	-	Playfield	Feature	White	9-LP-46	520-8636-00
122													
123	Right Ramp BB-Cerebro	9	b	CN4	10	BRN VIO	1/2/3	RED	Playfield	Feature	White	9-LP-53	520-5307-00
124	Right Ramp Arrow-R	8	b	CN6	3	RED WHT	1/2	RED	Playfield	Feature	RGB	8-LP-56	520-8633-00
125	Right Ramp Arrow-G	8	b	CN6	4	GRN WHT	1/2	RED	Playfield	Feature	RGB	8-LP-57	520-8633-00
126	Right Ramp Arrow-B	8	b	CN6	5	BLU WHT	1/2	RED	Playfield	Feature	RGB	8-LP-58	520-8633-00
127	Right Ramp Sentinel-R	8	b	CN6	6	RED BLK	1/2	RED	Playfield	Feature	RGB	8-LP-59	520-8633-00
128	Right Ramp Sentinel-G	8	b	CN6	7	GRN BLK	1/2	RED	Playfield	Feature	RGB	8-LP-60	520-8633-00
129	Right Ramp Sentinel-B	8	b	CN6	8	BLU BLK	1/2	RED	Playfield	Feature	RGB	8-LP-61	520-8633-00
130	Right Ramp Combo	8	b	CN6	9	ORG GRY	1/2	RED	Playfield	Feature	White	8-LP-62	520-8633-00
131													
132													
133													
134													
135													
136													
137	Backpanel Colosus	9	-	CN14	6	ORG BLU	7/8	YEL	Playfield	Feature	White	9-LP-3	520-5307-00
138	Backpanel Beasts Lab	9	-	CN14	4	ORG YEL	7/8	YEL	Playfield	Feature	White	9-LP-5	520-5307-00
139	Backpanel Explosion	9	-	CN14	3	ORG RED	7/8	YEL	Playfield	Feature	White	9-LP-6	520-5307-00
140	Backpanel Cyclops	9	-	CN14	2	ORG BRN	7/8	YEL	Playfield	Feature	White	9-LP-7	520-5307-00
141	Left Ramp Backpanel	9	-	CN14	5	ORG GRN	7/8	YEL	Playfield	Feature	White	9-LP-4	520-5307-00
142	Right Ramp Backpanel	9	a	CN3	8	ORG WHT	1	RED	Playfield	Feature	White	9-LP-39	520-5307-00
143													
144	DR Flood-R (x2)	8	-	CN14	6	RED BRN	7/8	YEL	Playfield	Feature	RGB	8-LP-3	520-5333-00
145	DR Flood-G (x2)	8	-	CN14	5	GRN BRN	7/8	YEL	Playfield	Feature	RGB	8-LP-4	520-5333-00
146	DR Flood-B (x2)	8	-	CN14	4	BLU BRN	7/8	YEL	Playfield	Feature	RGB	8-LP-5	520-5333-00
147													
148													
149													
150	Coin Door GI	1	-	CN5	2	YEL	1	YEL-WHT	Coin Door	G.I.	White	1-LP-1	112-5033-08
151	Bottom GI-WHT (x15)	8	-	CN15	5	WHT BLK	1	YEL BLK	Playfield	G.I.	White	8-LP-0	112-5034-08F 520-7000-00 (Bot Arch)
152	Bottom GI-RED (x6)	8	-	CN15	6	RED BLK	2	YEL RED	Playfield	G.I.	Red	8-LP-1	112-5034-02F

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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
153	Bottom GI-BLU (x8)	8	-	CN15	7	BLU BLK	3	YEL BLU	Playfield	G.I.	Blue	8-LP-2	112-5034-05F
154													
155	Top GI-WHT (x12)	9	-	CN15	5	WHT BLK	1	YEL BLK	Playfield/ Back Pnl	G.I.	White	9-LP-0	112-5034-08F 520-5307-00
156	Top GI-RED (X10)	9	-	CN15	6	RED BLK	2	YEL RED	Playfield/ Back Pnl	G.I.	Red	9-LP-1	112-5034-02F
157	Top GI-BLU (x12)	9	-	CN15	7	BLU BLK	3	YEL BLU	Playfield/ Back Pnl	G.I.	Blue	9-LP-2	112-5034-05F
158													
159													
160													
161	DR Spinner Flash	8	b	CN4	3	ORG YEL	1	RED	Playfield	Flash	White	8-LP-42	520-8638-00
162	Danger Room Flash	8	b	CN4	4	ORG GRN	1	RED	Playfield	Flash	White	8-LP-43	520-8638-00
163													
164	Left Pop Flash	8	b	CN3	5	ORG BRN	1/2/3/4	RED	Playfield	Flash	White	8-LP-33	520-8059-00
165	Right Pop Flash	8	b	CN5	9	BRN WHT	1/2/3	RED	Playfield	Flash	White	8-LP-53	520-8059-00
166													
167	Sentinel Finger Flash	8	b	CN8	13	ORG VIO	1	RED	Playfield	Flash	White	8-LP-32	520-8457-00
168	Sentinel Hand Flash	8	b	CN6	10	ORG WHT	1/2	RED	Playfield	Flash	White	8-LP-63	520-8457-00
169													
170	Wolverine Flash	9	b	CN4	9	BRN BLU	1/2/3	RED	Playfield	Flash	White	9-LP-52	520-7000-00
171													
172													
173	Beasts Lab Flash	9	a	CN3	3	ORG RED	1	RED	Playfield	Flash	White	9-LP-34	520-7000-00
174													
175	Sentinel Eye Left	9	b	CN4	7	BRN YEL	1/2/3	RED	Playfield	Flash	Red	9-LP-50	520-8457-00
176	Sentinel Eye Right	9	b	CN4	8	BRN GRN	1/2/3	RED	Playfield	Flash	Red	9-LP-51	520-8457-00
177													
178	Right Sling Flash	8	-	CN14	3	BRN ORG	7/8	YEL	Playfield	Flash	White	8-LP-6	520-7000-00
179	Right Sentinel Spot	8	-	CN14	2	BRN RED	7/8	YEL	Playfield	Flash	White	8-LP-7	520-7000-00
180	Left Sentinel Spot	9	b	CN4	11	BRN WHT	1/2/3	RED	Playfield	Flash	White	9-LP-54	520-7000-00
181													
182	Sentinel Left Flash	9	b	LED1	-	-	-	-	Playfield	Flash	White	9-LP-40	520-8636-00
183	Sentinel Right Flash	9	b	LED3	-	-	-	-	Playfield	Flash	White	9-LP-42	520-8636-00
184													
185													
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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
202													
203													
204													
205													
206													
207													
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209													
210													
211													
212													
213													
214													
215													
216													
217													
218													
219													
220	Speaker 1-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-1	511-1135-00
221	Speaker 1-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-0	511-1135-00
222	Speaker 1-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-2	511-1135-00
223	Speaker 2-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-4	511-1135-00
224	Speaker 2-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-3	511-1135-00
225	Speaker 2-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-5	511-1135-00
226	Speaker 3-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-7	511-1135-00
227	Speaker 3-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-6	511-1135-00
228	Speaker 3-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-8	511-1135-00
229	Speaker 4-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-10	511-1135-00
230	Speaker 4-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-9	511-1135-00
231	Speaker 4-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-11	511-1135-00
232	Speaker 5-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-13	511-1135-00
233	Speaker 5-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-12	511-1135-00
234	Speaker 5-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-14	511-1135-00
235	Speaker 6-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-16	511-1135-00
236	Speaker 6-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-15	511-1135-00
237	Speaker 6-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-17	511-1135-00
238	Speaker 7-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-19	511-1135-00
239	Speaker 7-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-18	511-1135-00
240	Speaker 7-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-20	511-1135-00
241	Speaker 8-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-22	511-1135-00
242	Speaker 8-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-21	511-1135-00
243	Speaker 8-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-23	511-1135-00
244	Speaker 9-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-25	511-1135-00
245	Speaker 9-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-24	511-1135-00
246	Speaker 9-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-26	511-1135-00
247	Speaker 10-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-28	511-1135-00
248	Speaker 10-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-27	511-1135-00
249	Speaker 10-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-29	511-1135-00
250	Speaker 11-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-31	511-1135-00
251	Speaker 11-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-30	511-1135-00
252	Speaker 11-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-32	511-1135-00

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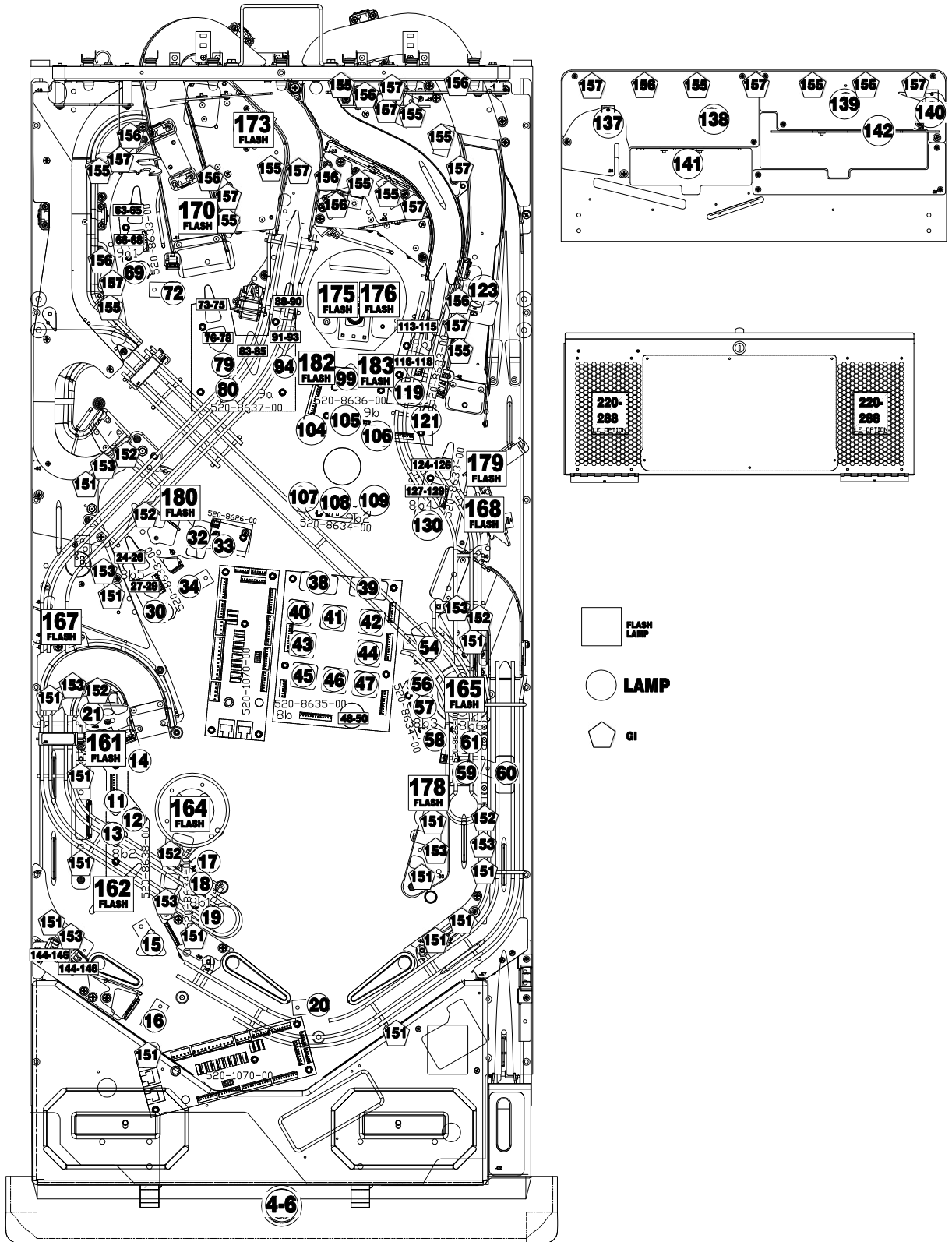


LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
253	Speaker 12-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-34	511-1135-00
254	Speaker 12-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-33	511-1135-00
255	Speaker 12-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-35	511-1135-00
256	Speaker 13-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-37	511-1135-00
257	Speaker 13-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-36	511-1135-00
258	Speaker 13-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-38	511-1135-00
259	Speaker 14-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-40	511-1135-00
260	Speaker 14-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-39	511-1135-00
261	Speaker 14-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-41	511-1135-00
262	Speaker 15-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-43	511-1135-00
263	Speaker 15-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-42	511-1135-00
264	Speaker 15-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-44	511-1135-00
265	Speaker 16-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-46	511-1135-00
266	Speaker 16-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-45	511-1135-00
267	Speaker 16-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-47	511-1135-00
268	Speaker 17-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-49	511-1135-00
269	Speaker 17-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-48	511-1135-00
270	Speaker 17-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-50	511-1135-00
271	Speaker 18-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-52	511-1135-00
272	Speaker 18-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-51	511-1135-00
273	Speaker 18-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-53	511-1135-00
274	Speaker 19-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-55	511-1135-00
275	Speaker 19-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-54	511-1135-00
276	Speaker 19-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-56	511-1135-00
277	Speaker 20-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-58	511-1135-00
278	Speaker 20-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-57	511-1135-00
279	Speaker 20-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-59	511-1135-00
280	Speaker 21-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-61	511-1135-00
281	Speaker 21-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-60	511-1135-00
282	Speaker 21-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-62	511-1135-00
283	Speaker 22-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-64	511-1135-00
284	Speaker 22-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-63	511-1135-00
285	Speaker 22-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-65	511-1135-00
286	Speaker 23-R	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-67	511-1135-00
287	Speaker 23-G	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-66	511-1135-00
288	Speaker 23-B	7	-	CN1	-	-	-	-	Cabinet	Feature	RGB	7-LP-68	511-1135-00
289													

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LIGHT REFERENCE CONTINUED



- 2 START
- 3 STOP

Figure 3.4.1. Playfield light locations (top view).



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

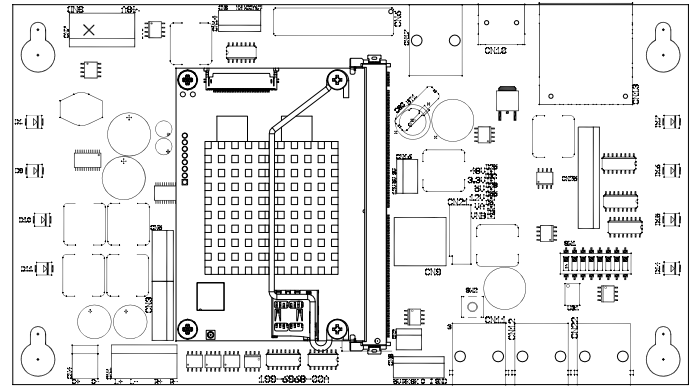


Figure 4.1.1. SPIKE 2 CPU Node connector detail.

COIN DOOR SERVICE SWITCH WIRING

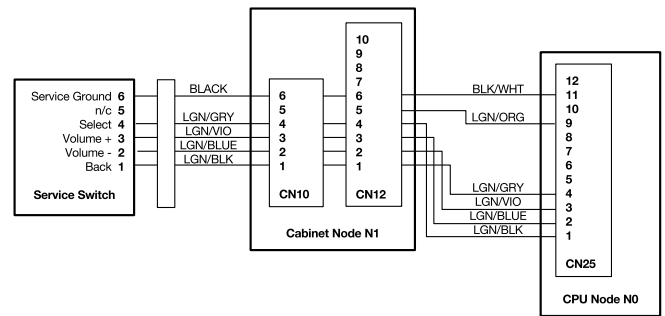
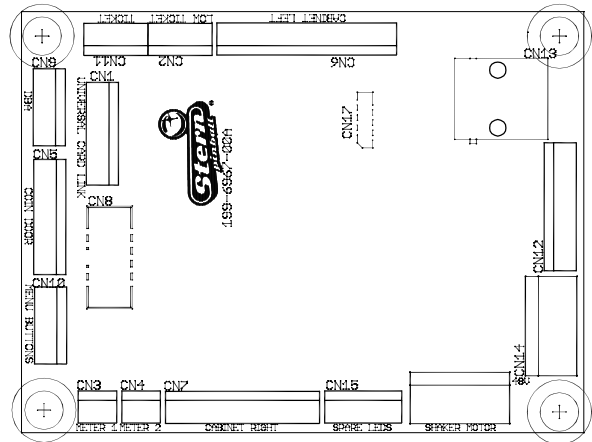


Figure 4.1.2. Service switch wiring. Note that the Cabinet Node must be present and CN10 and CN12 connected for the Coin Door Service Switches to function correctly.

4.2 CABINET NODE 1

520-6967-72

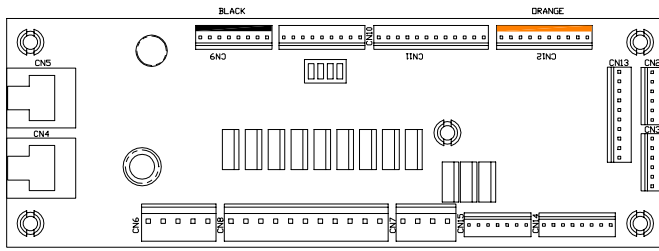
ID	Type	Pin	Description	Wire Color
CN1	.100" 8-Pin Header Universal Card Link	1	12V	-
		2	Coin 1	-
		3	Meter 1	-
		4	N/C	-
		5	Notch	-
		6	Coin Enable	-
		7	Ticket Enable	-
		8	Ground	-
CN2	.100" 5-Pin Header Low Ticket	1	Ground	-
		2	Ticket Low sw.	-
		3	Key	-
		4	Ticket Low	-
		5	5V Out	-
CN3	.100" 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
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 Coindoor)	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

520-1070-00 / 520-1057-00

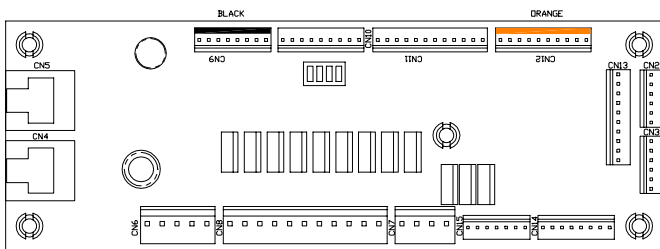


ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 8 - OFF-OFF-OFF-OFF	-
CN4	RJ45	-	SPIKE Node Bus	Multi
CN5	RJ45	-	SPIKE Node Bus	Multi
CN6	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	Key
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN7	.156" 4-Pin Header (White)	1	48V Driver Power	GRY-OG
		2	8-DR-8 Driver Return	-
		3	8-DR-6 Driver Return	YEL-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	VIO
		7	Ground	BLK-GRN
		8	Ground	BLK-VIO
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	LGN-GRY
		10	8-SW-23 Switch	LGN-WHT
		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	-
		7	8-SW-13 Switch	WHT-BLU
		8	8-SW-14 Switch	PNK-BLK
		9	8-SW-15 Switch	-
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	-
		6	8-SW-4 Switch	PNK-BLU
		7	8-SW-5 Switch	PNK-VIO
		8	8-SW-6 Switch	PNK-GRY
		9	8-SW-7 Switch	-
		10	Ground	BLK-BRN
CN14	.100" 8-Pin Header	1	Ground	-
		2	8-LP-7 Driver Return	BRN-RED
		3	8-LP-6 Driver Return	BRN-ORG
		4	8-LP-5 Driver Return	BLU-BRN
		5	8-LP-4 Driver Return	GRN-BRN
		6	8-LP-3 Driver Return	RED-BRN
		7	LED V+	YEL
		8	LED V+	YEL
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 UPPER PLAYFIELD 48V DRIVER PINOUT NODE 9

520-1070-00 / 520-1057-00

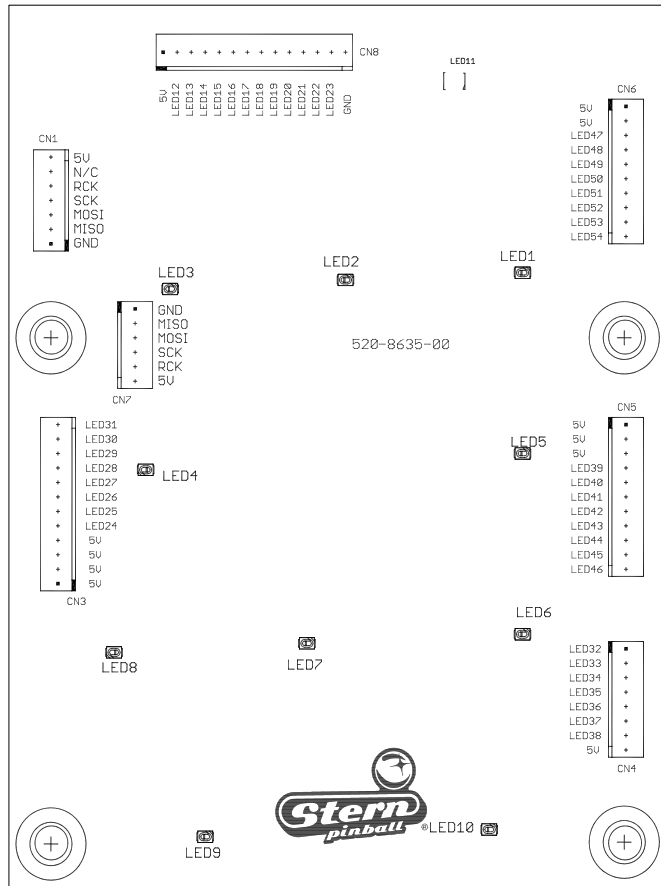


ID	Type	Pin	Description	Wire Color
SW1	Address DIP	-	Node 9 - OFF-OFF-ON-OFF	-
CN4	RJ45	-	SPIKE Node Bus	Multi
CN5	RJ45	-	SPIKE Node Bus	Multi
CN6	.156" 5-Pin Header Node Power	1	Ground	BLK
		2	Key	Key
		3	N/C	-
		4	N/C	-
		5	48VDC In	GRY
CN7	.156" 4-Pin Header (White)	1	48V Driver Power	GRY-BRN
		2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

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

4.5 CENTER MID LED BOARD 8B

520-8635-00

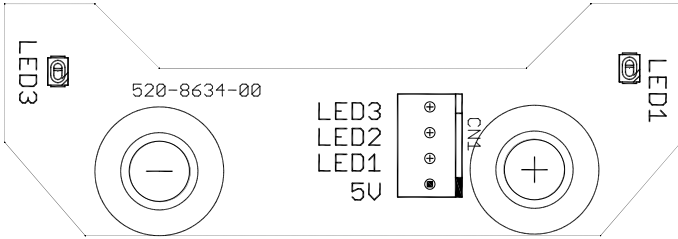


ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	+5 VDC IN	RED
CN3	.100" 12-Pin Header	1	5V	RED
		2	5V	RED
		3	5V	RED
		4	5V	-
		5	LED24	ORG BRN
		6	LED25	GRN RED
		7	LED26	GRN YEL
		8	LED27	GRN BLU
		9	LED28	GRN VIO
		10	LED29	GRN GRY
		11	LED30	GRN
		12	LED31	GRN WHT

CN4	.100" 8-Pin Header	1	5V	RED
		2	LED32	-
		3	LED33	ORG YEL
		4	LED34	ORG GRN
		5	LED35	ORG BLU
		6	LED36	BLU RED
		7	LED37	BLU YEL
		8	LED38	BLU GRN
CN5	.100" 11-Pin Header	1	5V	RED
		2	5V	RED
		3	5V	RED
		4	LED39	BRN RED
		5	LED40	BRN ORG
		6	LED41	BRN GRN
		7	LED42	BRN VIO
		8	LED43	BRN GRY
		9	LED44	BRN WHT
		10	LED45	BRN YEL
		11	LED46	BRN BLU
CN6	.100" 10-Pin Header	1	5V	RED
		2	5V	RED
		3	LED47	RED WHT
		4	LED48	GRN WHT
		5	LED49	BLU WHT
		6	LED50	RED BLK
		7	LED51	GRN BLK
		8	LED52	BLU BLK
		9	LED53	ORG GRY
		10	LED54	ORG WHT
CN7	.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	+5 VDC IN	RED
CN8	.100" 14-Pin Header	1	5V	RED
		2	LED12	RED BRN
		3	LED13	GRN BRN
		4	LED14	BLU BRN
		5	LED15	RED ORG
		6	LED16	GRN ORG
		7	LED17	BLU ORG
		8	LED18	RED YEL
		9	LED19	-
		10	LED20	RED BLU
		11	LED21	RED VIO
		12	LED22	RED GRY
		13	LED23	ORG VIO
		14	GND	-

4.6 CENTER MID RIGHT LED BOARD 8B1

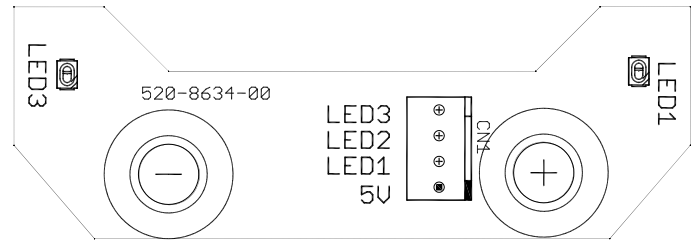
520-8634-00



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

4.8 CENTER MID BOARD 8B3

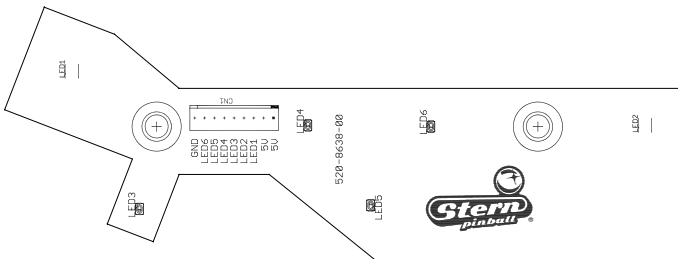
520-8634-00



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

4.7 BOTTOM LEFT BOARD 8B2

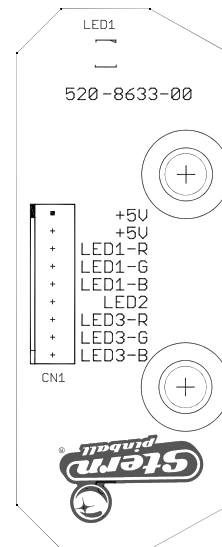
520-8638-00



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

4.9 T LED BOARD 8B4

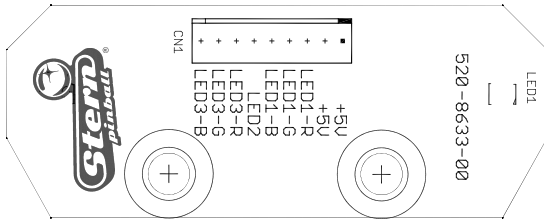
520-8633-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 9-Pin Header	1	5V	RED
		2	5V	-
		3	LED1-R	RED WHT
		4	LED1-G	GRE WHT
		5	LED1-B	BLU WHT
		6	LED2	ORG GRY
		7	LED3-R	RED BLK
		8	LED3-G	GRE BLK
		9	LED3-B	BLU BLK

4.10 T LED BOARD 8B5

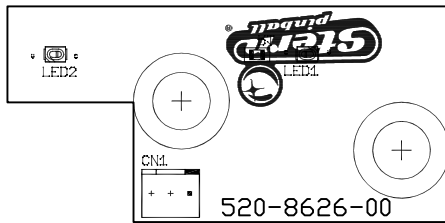
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ID	Type	Pin	Description	Wire Color
CN1	.100" 9-Pin Header	1	5V	RED
		2	5V	-
		3	LED1-R	RED BRN
		4	LED1-G	GRE BRN
		5	LED1-B	BLU BRN
		6	LED2	RED YEL
		7	LED3-R	RED ORG
		8	LED3-G	GRN ORG
		9	LED3-B	BLU ORG

4.11 LED BOARD 8B6

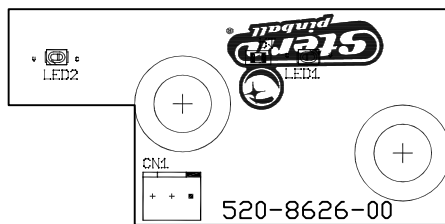
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ID	Type	Pin	Description	Wire Color
CN1	.100" 3-Pin Header	1	5V	RED
		2	LED1	BRN ORG
		3	LED2	BRN YEL

4.12 LED BOARD 8B7

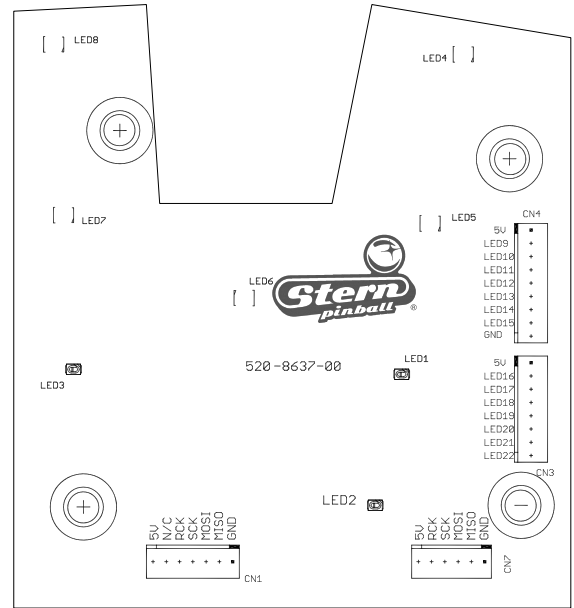
520-8626-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 3-Pin Header	1	5V	RED
		2	LED1	RED GRY
		3	LED2	RED VIO

4.13 TOP CENTER LED BOARD 9A

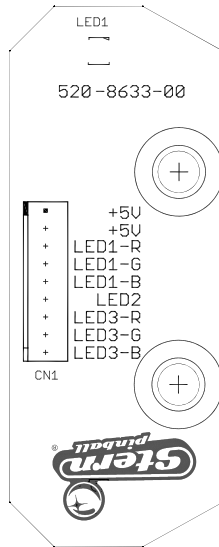
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ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED
CN3	.100" 8-Pin Header	1	5V	RED
		2	LED16	ORG BRN
		3	LED17	ORG RED
		4	LED18	-
		5	LED19	-
		6	LED20	-
		7	LED21	-
		8	LED22	ORG WHT
CN4	.100" 9-Pin Header	1	5V	RED
		2	LED9	RED VIO
		3	LED10	GRN VIO
		4	LED11	BLU VIO
		5	LED12	RED GRY
		6	LED13	GRN GRY
		7	LED14	BLU GRY
		8	LED15	ORG BLU
		9	GND	N/C
CN7	.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

4.14 T LED BOARD 9A1

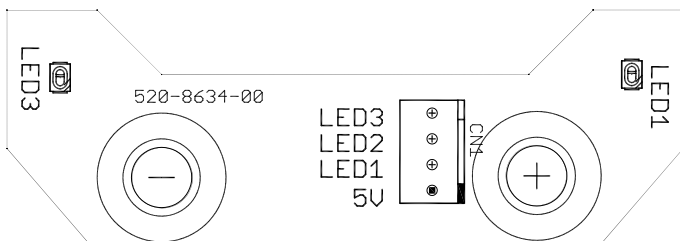
520-8633-00



ID	Type	Pin	Description	Wire Color
CN1	.100" 9-Pin Header	1	5V	RED
		2	5V	-
		3	LED1-R	RED VIO
		4	LED1-G	GRE VIO
		5	LED1-B	BLU BIO
		6	LED2	ORG BLU
		7	LED3-R	RED GRY
		8	LED3-G	GRE GRY
		9	LED3-B	BLU GRY

4.15 CENTER MID BOARD 9B2

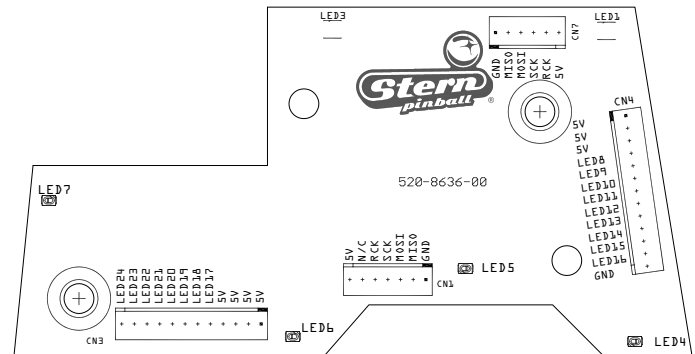
520-8634-00



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

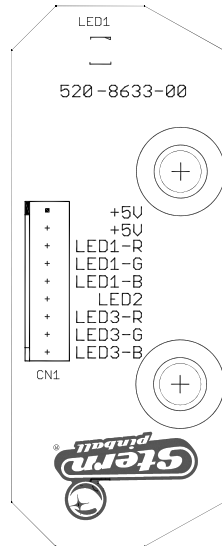
4.16 TOP LEFT LED BOARD 9B

520-8636-00



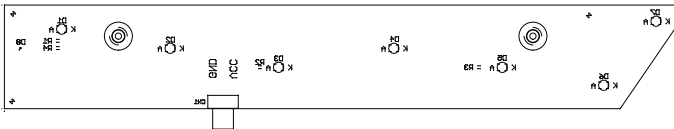
ID	Type	Pin	Description	Wire Color
CN1	.100" 7-Pin Header	1	Ground	BLK
		2	MISO Output Data	VIO-BLK
		3	MOSI Input Data	VIO-BRN
		4	SCK Serial Clock	VIO-RED
		5	RCK Register Clock	VIO-ORG
		6	NC	-
		7	5V	RED
CN3	.100" 12-Pin Header	1	5V	RED
		2	5V	-
		3	5V	-
		4	5V	-
		5	LED17	RED BRN
		6	LED18	GRN BRN
		7	LED19	BLU BRN
		8	LED20	RED ORG
		9	LED21	GRN ORG
		10	LED22	BLU ORG
		11	LED23	ORG VIO
		12	LED24	-
CN4	.100" 13-Pin Header	1	5V	RED
		2	5V	RED
		3	5V	RED
		4	LED8	BRN BLK
		5	LED9	BRN RED
		6	LED10	BRN ORG
		7	LED11	BRN YEL
		8	LED12	BRN GRN
		9	LED13	BRN BLU
		10	LED14	BRN VIO
		11	LED15	BRN WHT
		12	LED16	-
		13	GND	-
CN7	.100" 6-Pin Header	1	Ground	-
		2	MISO Output Data	-
		3	MOSI Input Data	-
		4	SCK Serial Clock	-
		5	RCK Register Clock	-
		6	5V	-

4.17 T LED BOARD 9B1 520-8633-00



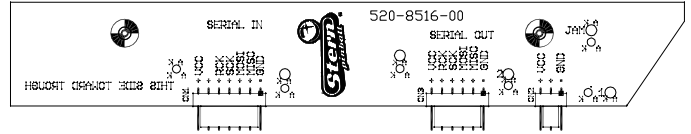
ID	Type	Pin	Description	Wire Color
CN1	.100" 9-Pin Header	1	5V	RED
		2	5V	-
		3	LED1-R	RED BRN
		4	LED1-G	GRE BRN
		5	LED1-B	BLU BRN
		6	LED2	ORG VIO
		7	LED3-R	RED ORG
		8	LED3-G	GRN ORG
		9	LED3-B	BLU ORG

4.18 TROUGH SERIAL OPTO TRANSMITTER 520-5344-00



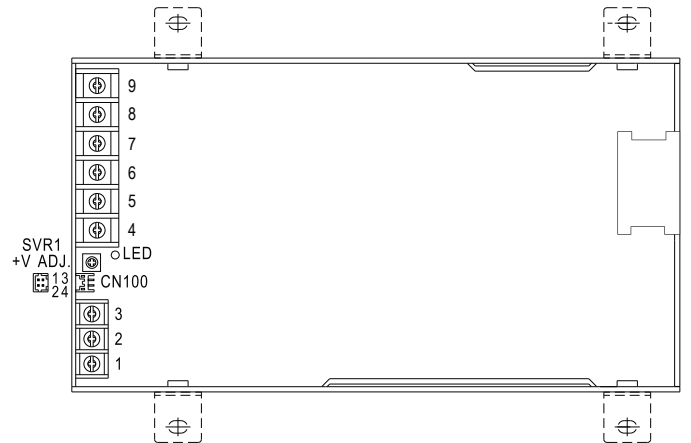
ID	Type	Pin	Description	Wire Color
CN1	.100" 3-Pin Header	1	Ground	BLK
		2	N/C	-
		3	+5 VDC IN	RED

4.19 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+	-

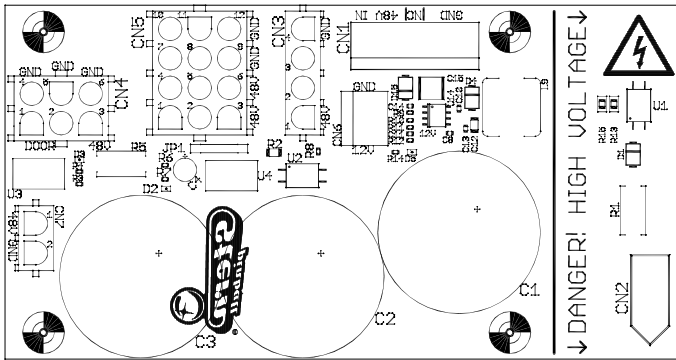
4.20 MAIN POWER SUPPLY 011-5003-00



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

4.21 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 Plug: 045-5259-03 Pin: 055-5331-00 (18awg)	1	Ground	-
		2	Ground	-
		3	+12VDC	-
CN7	.084 2-Pos Plug Plug: 045-5200-02 Pin: 055-5033-08	1	+48 VDC to Topper Node	GRY
		2	Ground	BLK

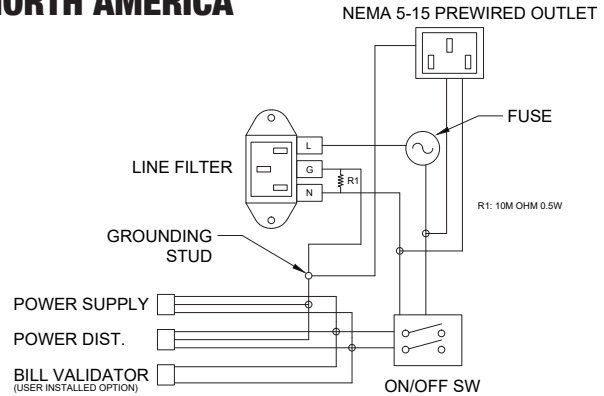
4.22 POWER PLUG WIRING

CAUTION

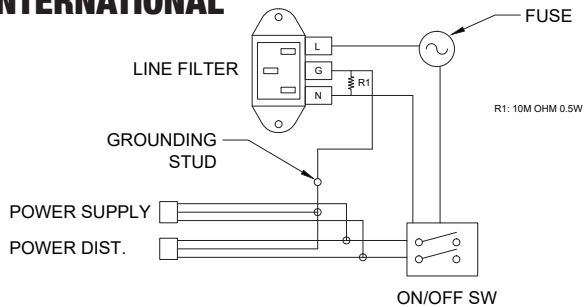
TO MAINTAIN SAFETY, GROUND WIRE FROM LINE FILTER IS TO BE MOUNTED FIRST ON GROUNDING STUD AND SECURED WITH NUT. ALL OTHER GROUNDS MAY THEN BE ATTACHED TO GROUNDING STUD.

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

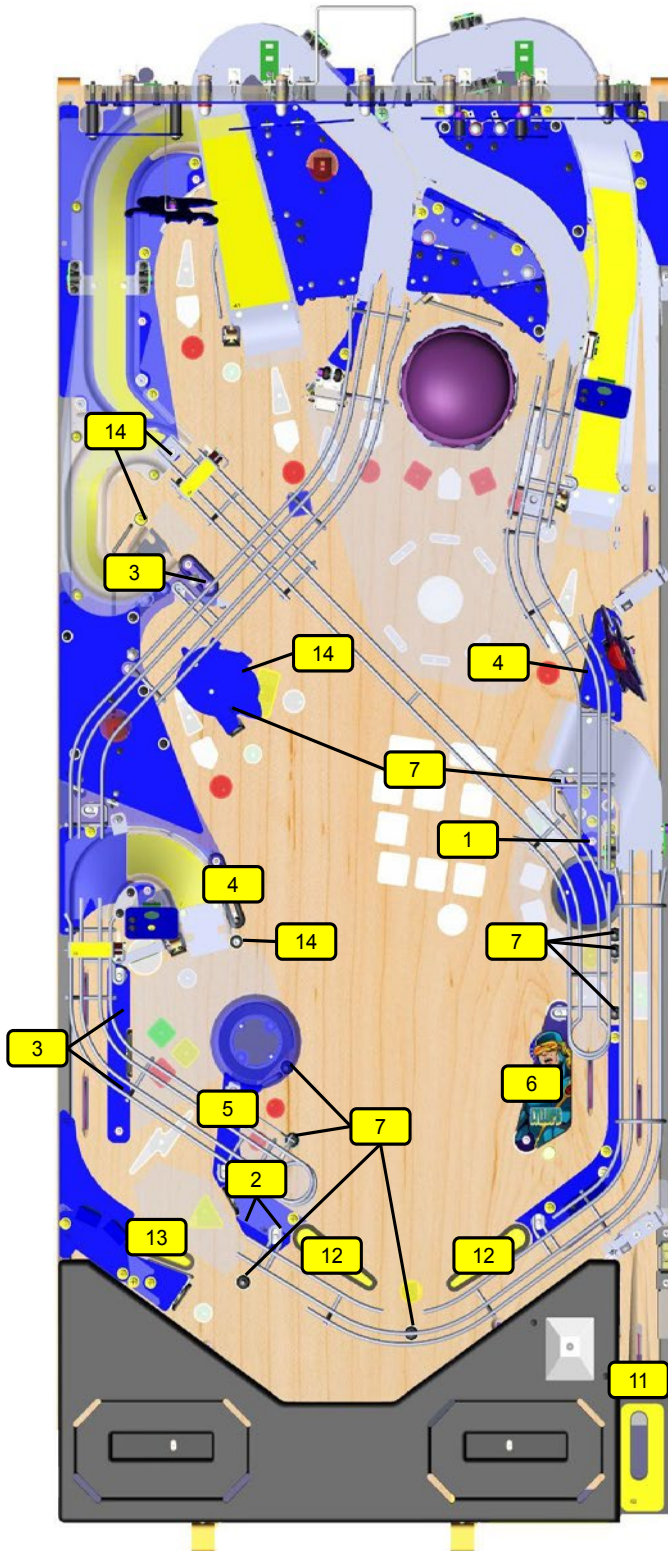


Figure 5.1.1. Rubber o-ring part locations

RUBBER O-RINGS

ID	Qty	Size (ID)	Size (OD)	Durometer	Color	Part Number
1	1	3/16"		50	Black	545-5348-01
2	2	3/8"		50	Black	545-5348-03
3	3	3/4"		50	Black	545-5348-04
4	1	1"		50	Black	545-5348-05
5	2	1-1/4"		50	Black	545-5348-06
6	1	2-1/2"		50	Black	545-5348-09
7	16		7/16"	50	Black	545-5348-17

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	Small Flipper Rubber	Black	545-5207-00
14	4	Post Sleeve	Black	545-5308-00
15	4	Bumper Pad	Black	626-5067-01
16	1	Bumper Pad (Sub assemblies)	Black	545-5105-00
17	4	Bumper Pad (Flippers)	Black	545-5428-00

Figure 5.1.3. Other rubber part numbers and usage

5.2 RUBBER SIZE CHART

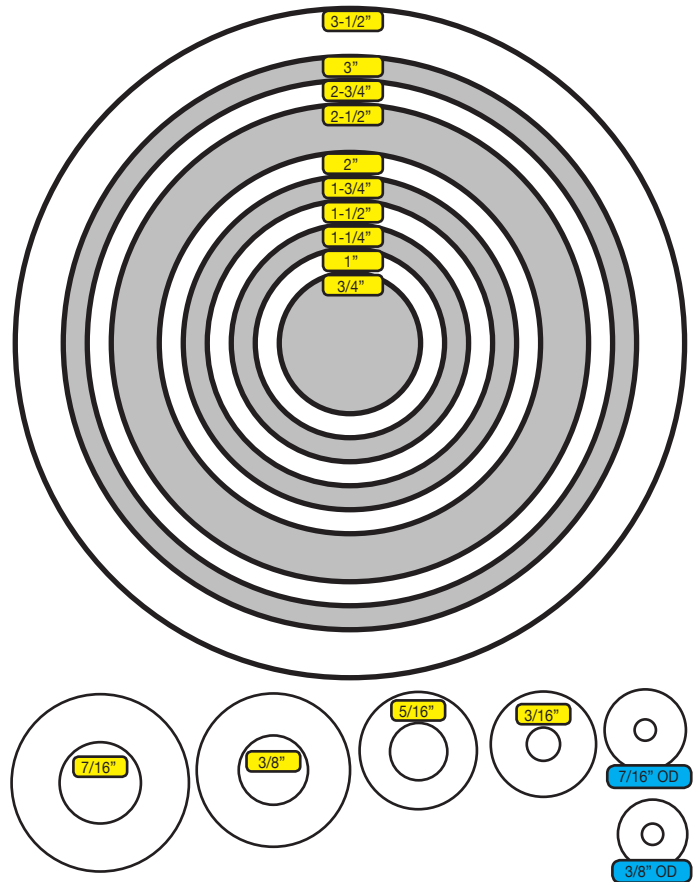
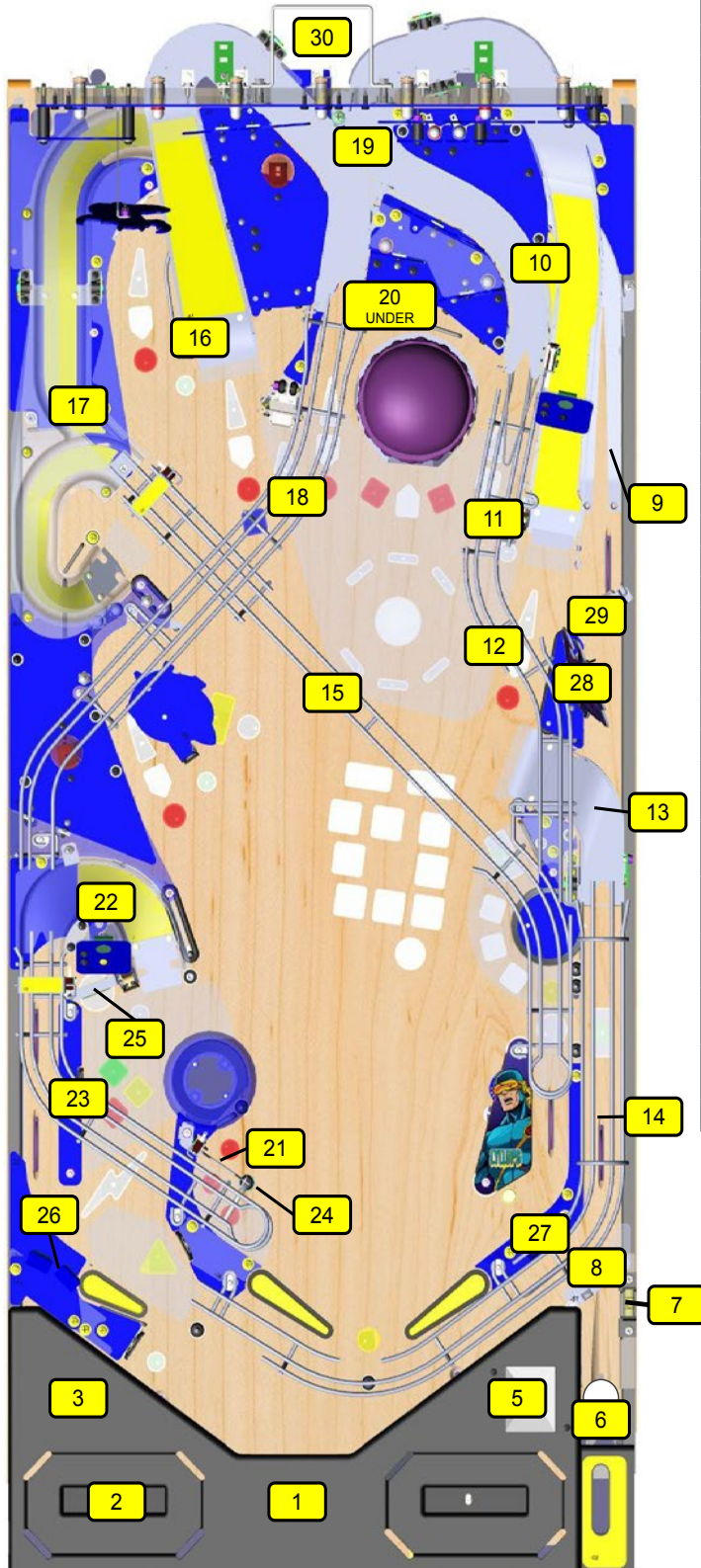


Figure 5.2.1. Rubber ring inner diameter sizing tool. Hold ring up to chart and read largest size on inside of ring. Dimensions are Inner Diameter (ID) unless otherwise noted as Outer Diameter (OD).

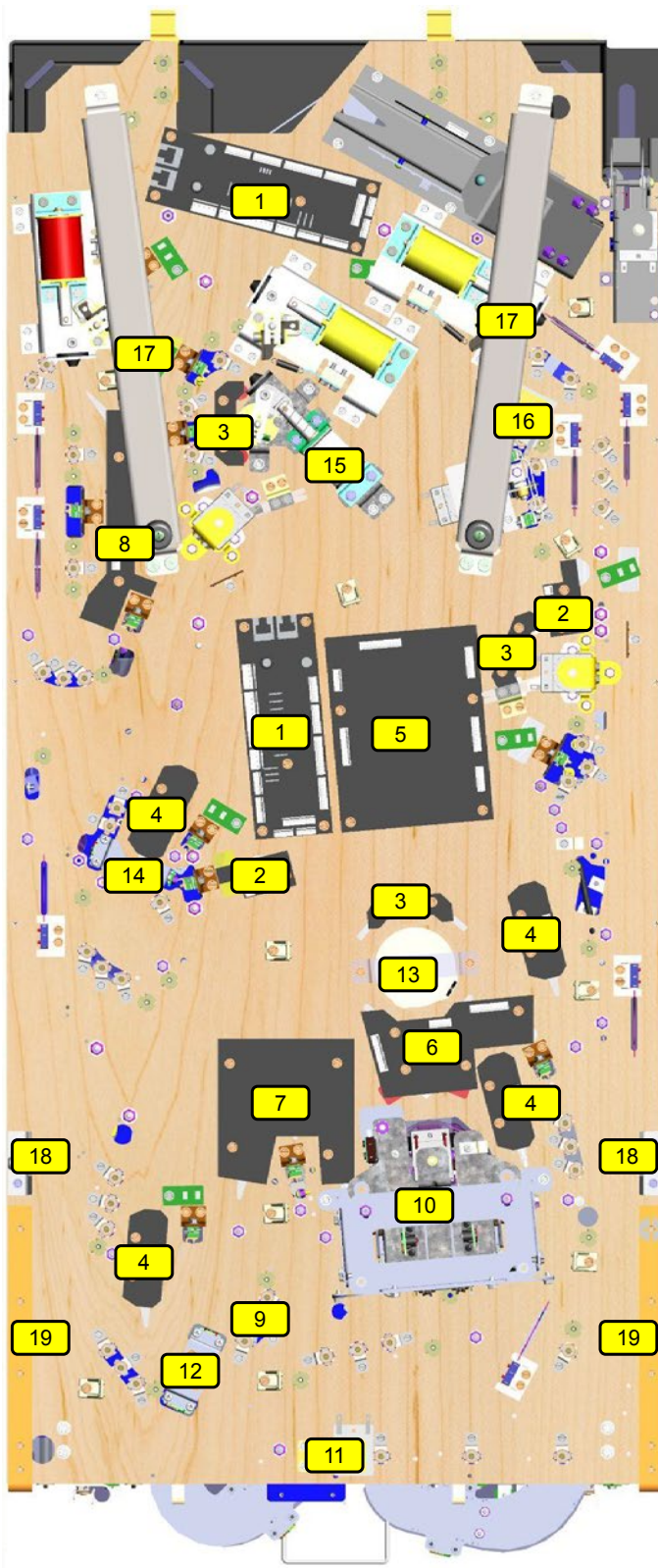
5.3 PLAYFIELD ASSEMBLIES, TOP



ID	Part Number	Description	Qty
1	500-2512-Y5	Bottom Arch Assembly	1
2	755-51Y6-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	6
7	500-6815-00	Bubble Level Assembly	1
8	511-5369-01	One Way Launch Gate Assembly	1
9	535-4092-12	Shooter Lane Ramp	1
10	500-1043-03	Right Ramp Assembly	1
11	515-7840-05	Upper Right Wire Ramp Assembly	1
	237-5871-00P	Screw, 6-32 X 3/8" PFH Zinc, Patch	1
12	515-7840-09	Mid Right Wire Ramp	1
13	500-2692-01	Lower Right Metal Ramp Assembly	1
14	515-7840-02	Lower Right Wire Ramp	1
15	500-2700-03	Crossover Wire Ramp Assembly	1
16	500-2692-02	Left Metal Ramp Assembly	1
17	511-5354-01	Upper Left Plastic Ramp Assembly	1
18	515-7840-08	Left Wire Ramp Assembly	1
19	511-5352-15	Ball Guide Assembly -15 (Ramp Diverter)	1
	232-5402-00P	Screw, 10-32 X 1/2" PPH SEMS, PATCH	1
20	511-5370-00	Upper Loop One Way Assembly	1
21	511-5418-00	Left Lane Rollunder Assembly	1
22	511-5394-00	DR Plastic Ramp Assembly	1
23	500-2700-01	DR Wire Ramp Assembly	1
24	511-3226-00	DR Ball Diverter Assembly	1
25	511-5352-01	Ball Guide Assembly -01 (Has DR Spinner Opto)	1
26	511-5052-22	Plastic Assembly -22 (Has DR Spotlights on it)	1
27	511-5052-02	Plastic Assembly -02 (Has Right Lane Spotlight)	1
28	511-5052-85	Plastic Assembly -85 (Has Right Sentinel Spotlight)	1
29	510-7952-19	Riveted Ball Guide Asy -19 (Top Launch One Way Gate)	1
30	535-2288-00	Backpanel Handle	1

Figure 5.3.1. Major playfield assemblies, Top locations.

5.4 PLAYFIELD ASSEMBLIES, BOTTOM



ID	Part Number	Description	Qty
1	520-1070-00 520-1057-00	Core Node Driver Board	2
2	520-8626-00	LED Board - 8b6, 8b7	2
3	520-8634-00	LED Board - 8b1, 8b3, 9b2	3
4	520-8633-00	LED Board - 8b4, 8b5, 9a1, 9b1	4
5	520-8635-00	LED Board - 8b	1
6	520-8636-00	LED Board - 9b	1
7	520-8637-00	LED Board - 9a	1
8	520-8638-00	LED Board - 8b2	1
9	500-1053-00	Beaker Leaper Assembly	1
10	500-5826-00	Sentinel Head Assembly - Pro	1
11	500-2940-00	Ramp Diverter Coil Assembly (Back Panel)	1
12	511-8960-00	Upper Left Loop Opto Assembly	1
13	500-7425-00	Magnet Assembly	1
14	511-8959-00	Left Opto Assembly (Crossover Shot Start)	1
15	500-2947-00	DR Ramp Diverter Coil Assembly	1
16	500-2678-01	Up Post Assembly	1
17	511-7621-00	Support Rail Assembly	2
18	500-5329-03	Pivot Bracket Assembly	2
19	535-5988-01	Edge Slide Bracket	2

Figure 5.4.1. Major playfield assemblies, Bottom locations.

5.5 BACKBOX PARTS

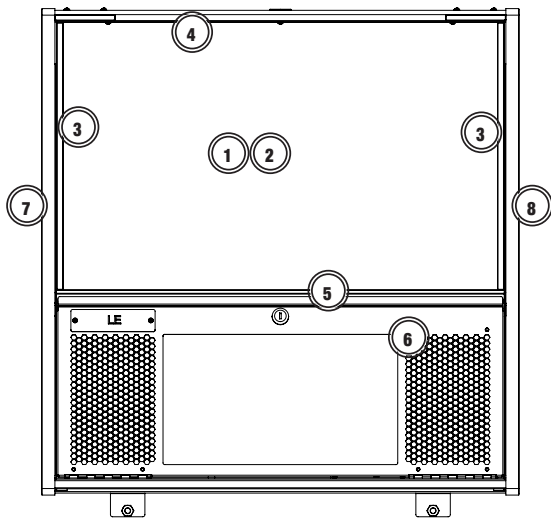


Figure 5.5.1. Backbox external assemblies and components

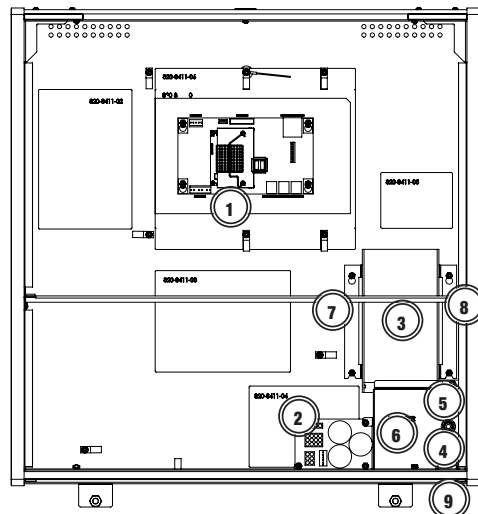


Figure 5.5.2. Backbox internal assemblies and components

EXTERNAL

ID	Part Number	Description	Qty
1	660-5052-00	Backglass	1
2	830-8427-Y5	Translite Art	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	820-76Y5-01	Left Backbox Decal	1
8	820-76Y5-02	Right Backbox Decal	1
	515-9866-00	Backbox Bottom Bracket	1

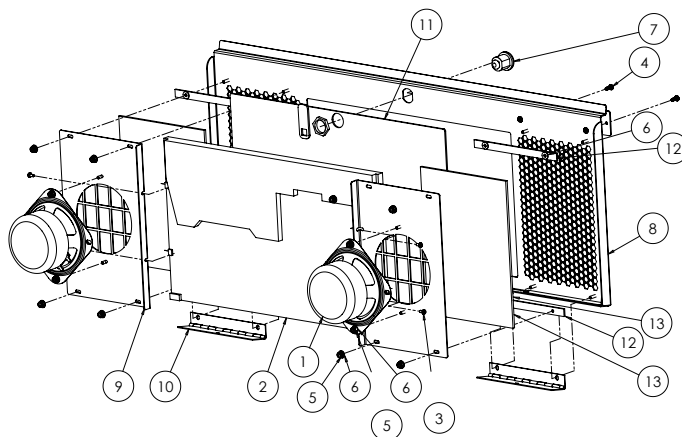
INTERNAL

ID	Part Number	Description	Qty
1	509-1003-01	CPU Node Board	1
2	520-8096-00	Power Distribution Board	1
3	011-5003-00	Power Supply 48V/500W	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	535-1130-00	Cover AC	1
7	535-1129-00	Power Supply Bracket	1
8	535-1129-01	Power Supply Bracket	1
9	180-5001-03	Power Switch	1

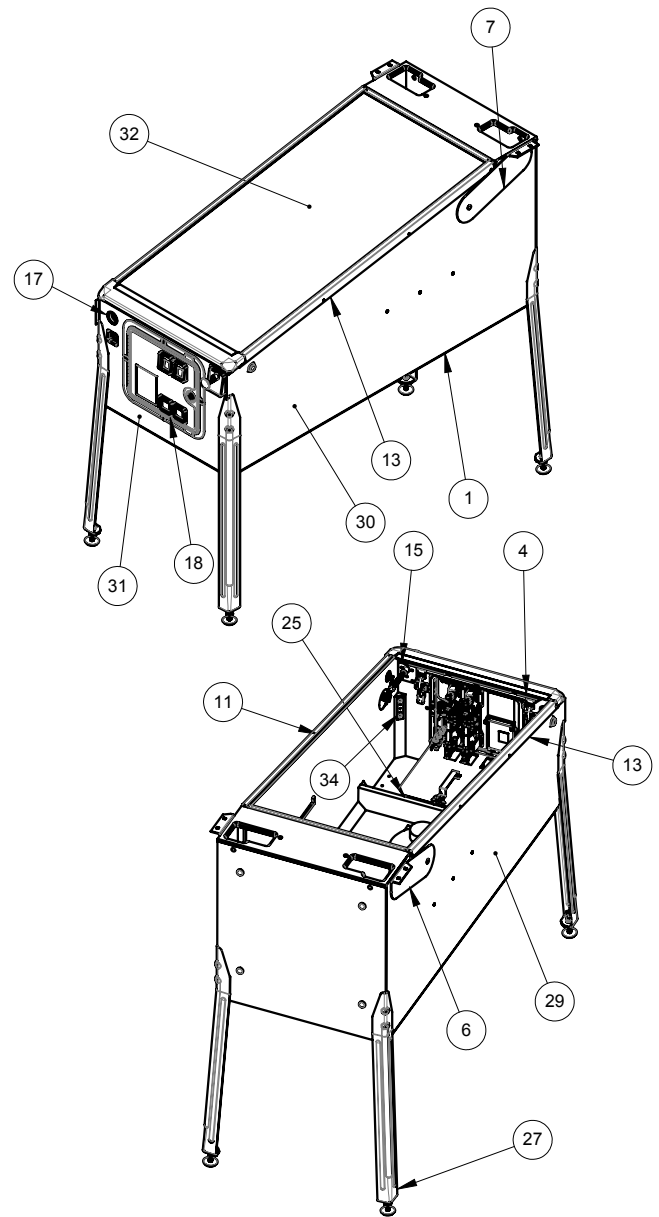
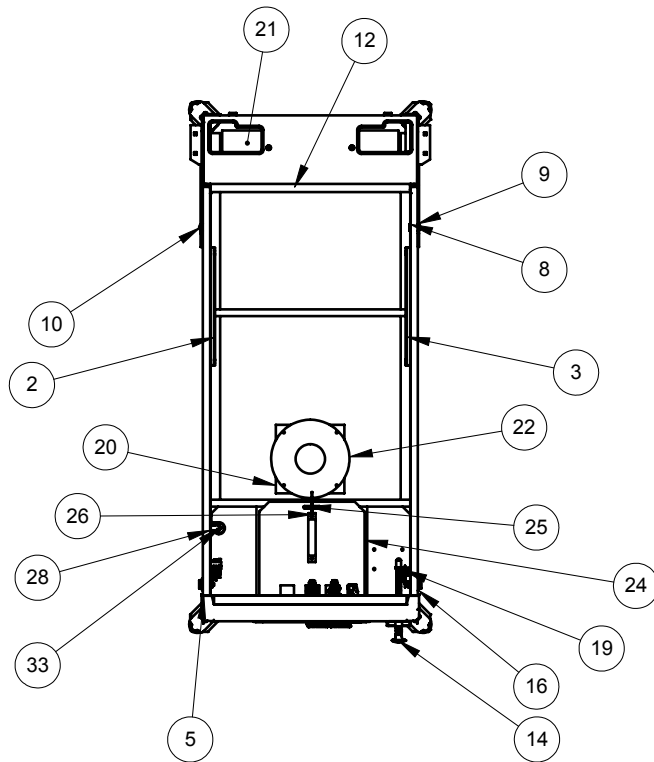
5.6 SPEAKER PANEL PARTS

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



5.7 CABINET PARTS

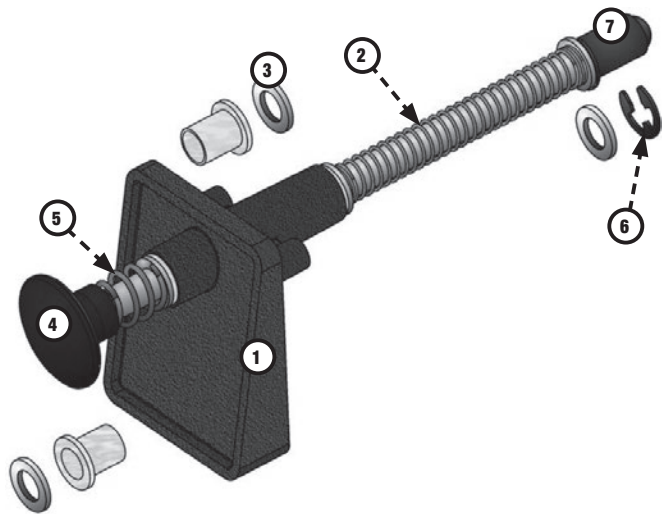


ID	Part Number	Description	Qty
1	525-6026-01	Cabinet Assembly, Single Button	1
2	535-5989-00	Slide & Pivot Bracket - Left Side	1
3	535-5990-00	Slide & Pivot Bracket - Right Side	1
4	535-2051-00	Cabinet Playfield Support Bracket	1
5	500-7424-00	Front Molding Assembly W/ Instructions Plastic	1
6	535-7999-00	Pivot Hinge, Left - Wrinkle Black	1
7	535-7999-01	Pivot Hinge, Right - Wrinkle Black	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	535-7297-02	Side Armor - Wrinkle Black	2
14	500-2604-09	Ball Shooter Assembly - Basic Brite	1
15	535-5027-01	Plunger Support Plate, Notched	1
16	500-5816-00	Flipper Button - Yellow W/ Red Housing	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	031-5007-01	Speaker, Cabinet 8" Round, 4 ohm	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	500-5921-50	Leg Assembly - Wrinkle Black	4
28	516-0007-00	Tilt Assembly	1
	535-5029-00	Tilt Plumb Bob	1
29	820-76Y5-03	Decal, Cabinet Left, The Uncanny X-Men Pro	1
30	820-76Y5-04	Decal, Cabinet Right, The Uncanny X-Men Pro	1
31	820-76Y5-05	Decal, Cabinet Front, The Uncanny X-Men Pro	1
32	660-5001-00	Playfield Glass	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
	820-76Y5-XX	Cabinet Decal Replacement Set, Speaker Panel Decal Not Included	

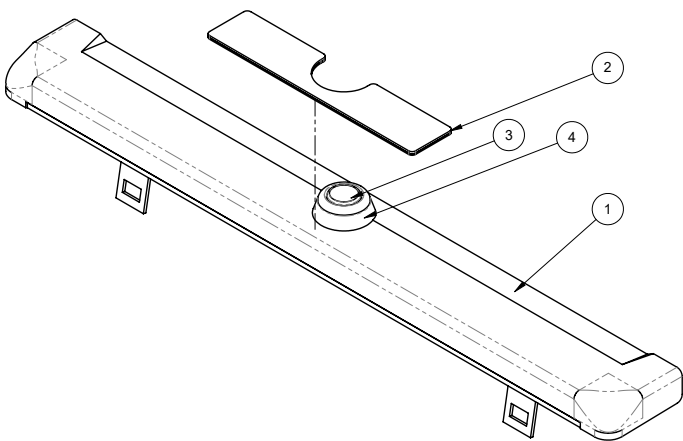
5.8 BALL SHOOTER ASSEMBLY

500-2604-09



ID	Part Number	Description	Qty
1	535-5067-02	HOUSING ASSEMBLY	1
2	266-5001-09	COMPRESSED SPRING (LONG) - BRITE BASIC	1
3	242-5014-00	WASHER 3/8 ID X 5/8 OD X 1/16"	3
4	515-6557-00	ROD ASSEMBLY	1
5	266-5010-00	COMPRESSED SPRING (SHORT)	1
6	270-5012-00	RETAINING RING, 3/8"	1
7	545-5276-00	RUBBER TIP	1

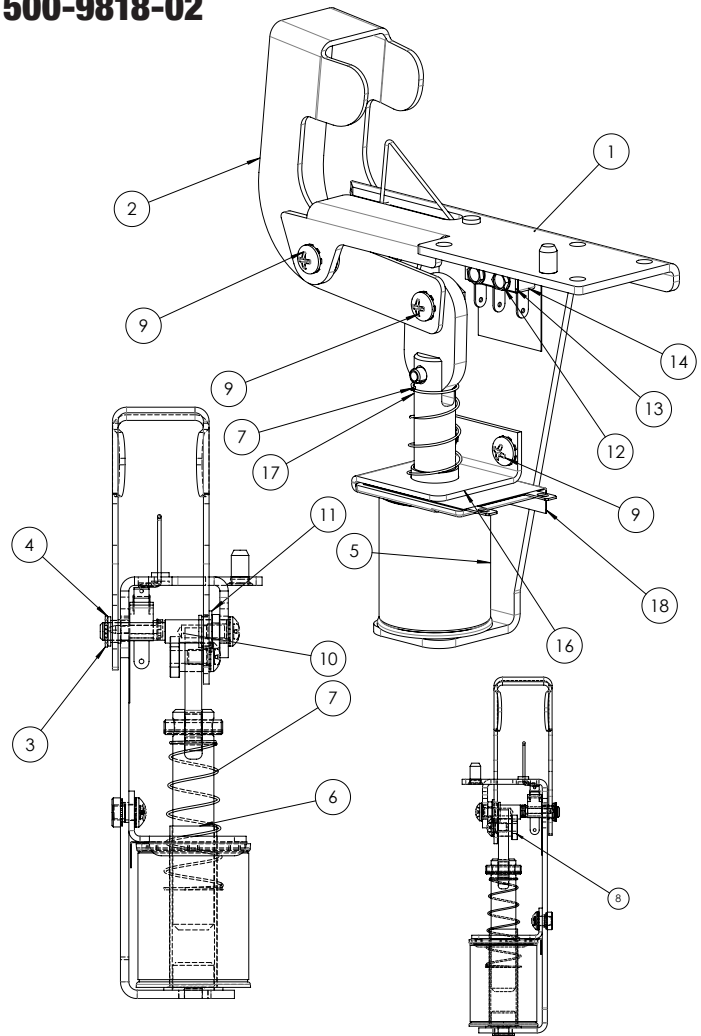
5.9 LOCKDOWN BAR



ID	Part Number	Description	Qty
1	515-9950-00	FRONT MOLD	1
2	830-5512-00	PLASTIC, FRONT MOLDING, THE UNCANNY X-MEN	1
3	515-7791-00	CENTER BUTTON ASSEMBLY	1
4	545-7292-10	SPACER, CENTER BUTTON	1
5	240-5003-01	PAL NUT (BOTTOM OF BUTTON, NOT PICTURED)	1

5.10 AUTO LAUNCH ASSEMBLY

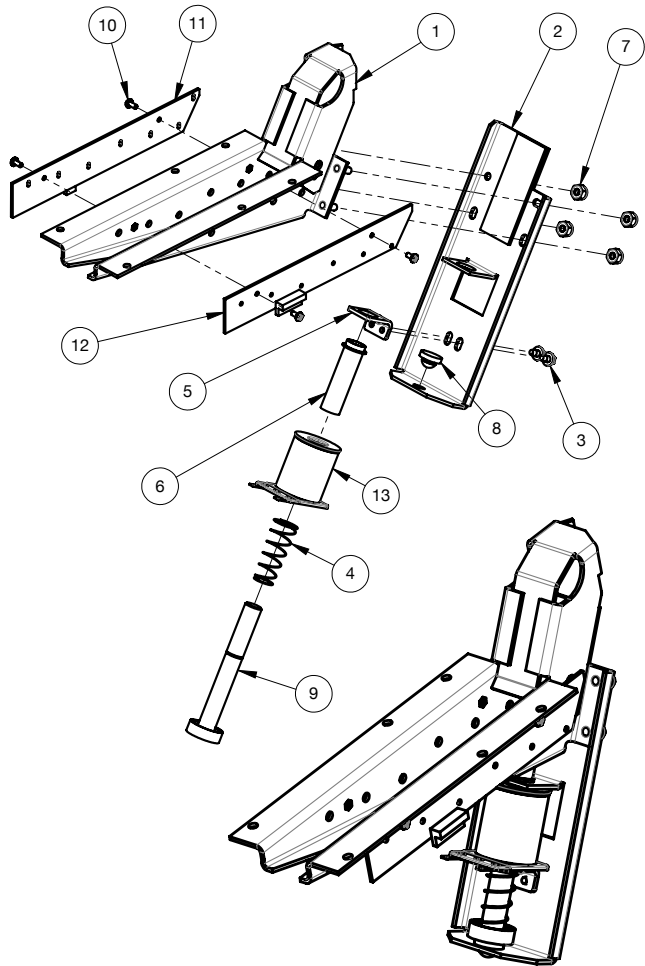
500-9818-02



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

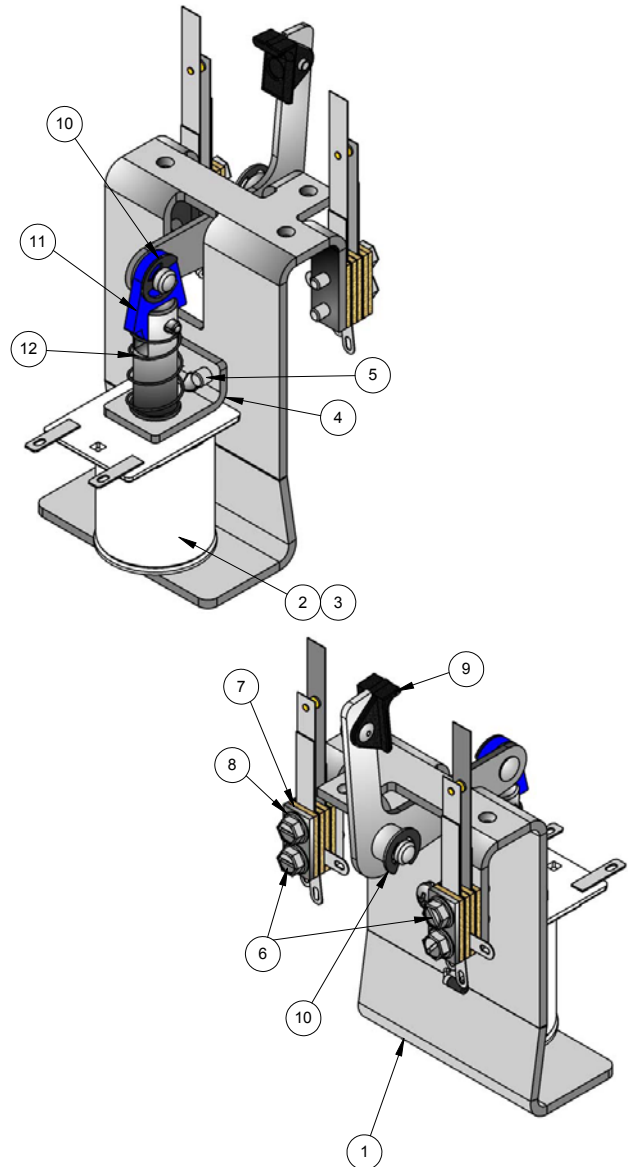
500-9820-01



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

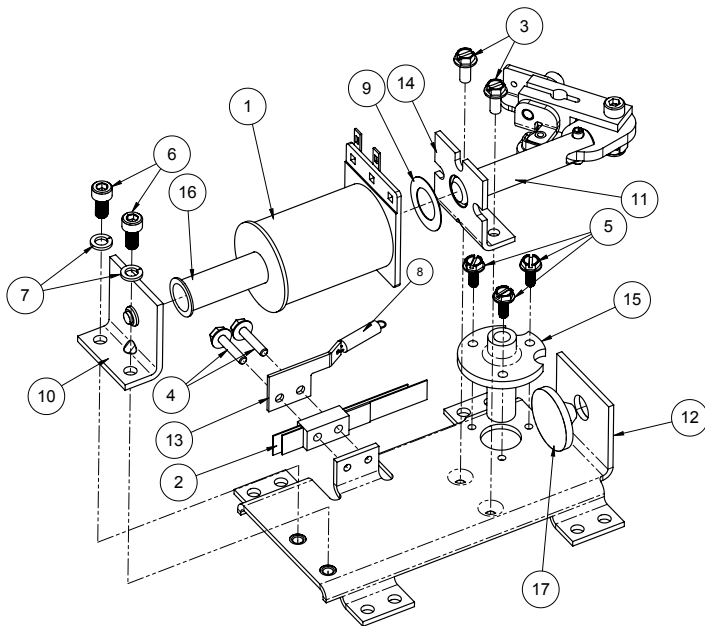
500-9920-01



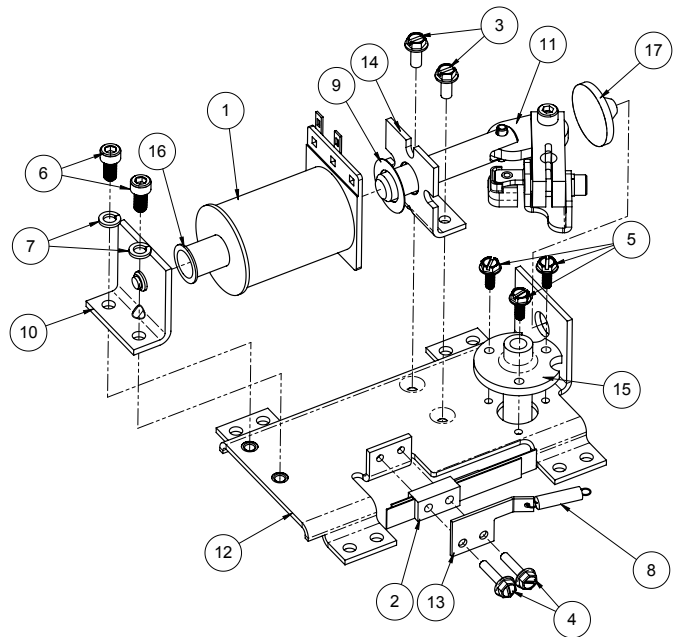
ID	Part Number	Description	Qty
1	515-5339-01	SLINGSHOT BRACKET ASSEMBLY	1
2	090-5044-ND	COIL 26-1200 - NO DIODE	1
3	545-5031-00	COIL SLEEVE	1
4	535-5203-03	COIL RETAINER BRACKET	1
5	232-5301-00	8-32 X 3/8 PPH MS EXT SEMS ZC	2
6	180-5231-00	SWITCH SLING SHOT 2 LUG CENTER	2
7	535-5045-00	SWITCH PLATE	2
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

PARTS REFERENCE

5.13 FLIPPER ASSEMBLY, LEFT & DR 500-6543-12-ND



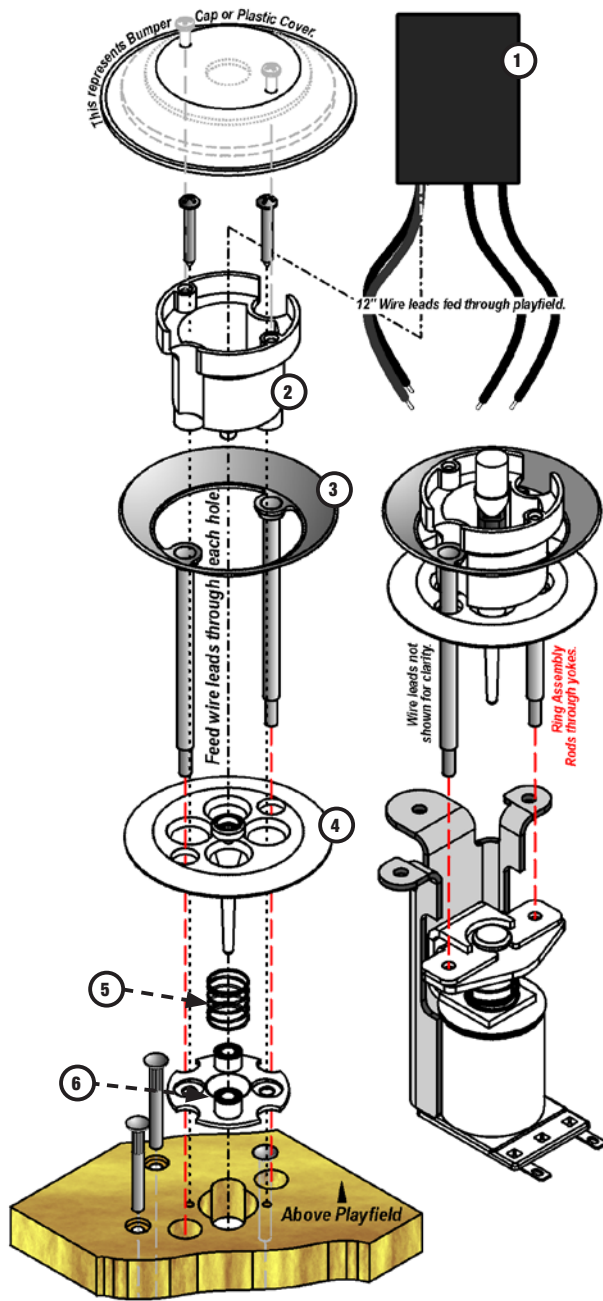
5.14 FLIPPER ASSEMBLY, RIGHT 500-6543-02-ND



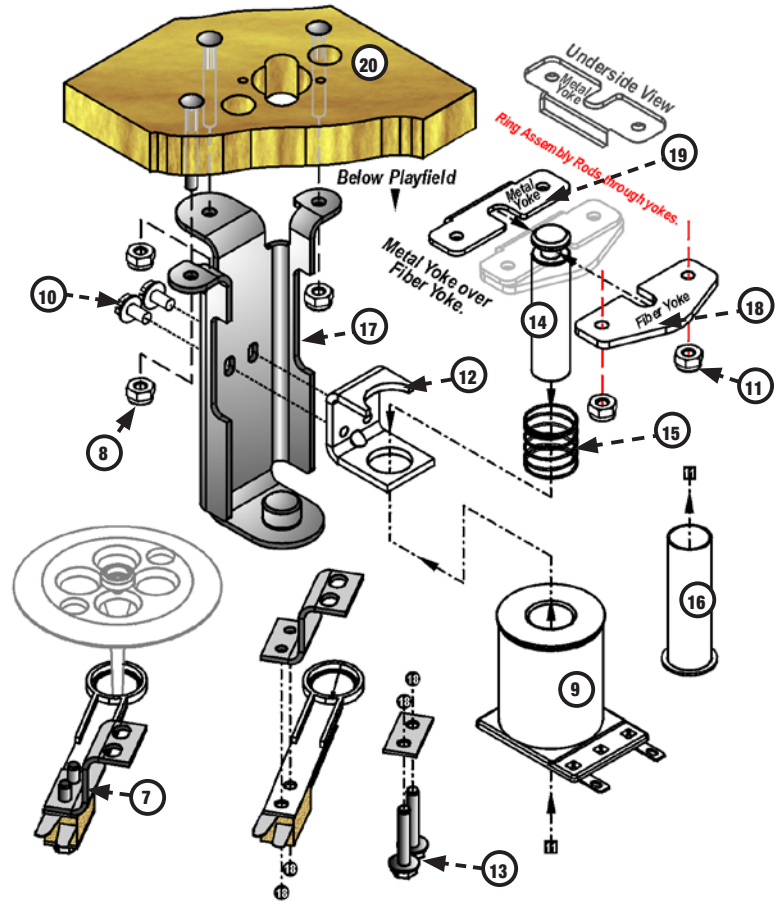
ID	Part Number	Description	Qty
1	090-5032-ND	FLIPPER COIL	1
*	090-5020-30-ND	DR FLIPPER COIL - 23-900	1
2	180-5149-00	SWITCH, END-OF-STROKE	1
3	237-5975-00	SCREW, 8-32 X 3/8" HWH SWAGE ZN	2
4	237-5976-04	SCREW, 6-32 X 5/8" HWH SWAGE	2
5	237-6388-00	SCREW, 6-32 X 3/8", SLOTTED HWH, TYPE F	3
6	237-6389-00	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	515-5133-06-06	FLIPPER BAT AND SHAFT	1
*	544-2001-09-06	DR FLIPPER - YELLOW	1
19	545-5277-00	FLIPPER RUBBER	1
*	545-5207-00	DR SMALL FLIPPER RUBBER - BLACK	1

ID	Part Number	Description	Qty
1	090-5032-ND	FLIPPER COIL	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	515-5133-06-06	FLIPPER BAT AND SHAFT	1
19	545-5277-00	FLIPPER RUBBER	1

5.15 POP BUMPER ASSEMBLY



ID	Part Number	Description	Qty
1	511-1982-00	POP BUMPER LED MODULE	1
2	545-5197-00	BUMPER BODY	1
3	515-5085-01	RING AND ROD ASSY - TRIMMED	1
4	545-5607-04	BUMPER SKIRT - TRIMMED	1
5	266-5048-00	BUMPER SKIRT COMP SPRING	1
6	545-5195-00	BUMPER BASE	1

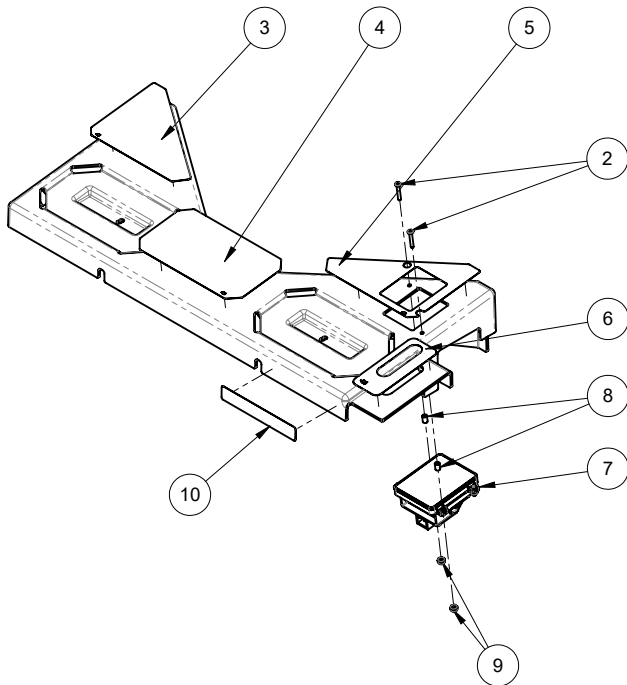


Part Number	Description	Qty
511-1981-00	BUMPER/RING TOP ASSY, W/ LED	1
515-6459-04-ND	BUMPER BOTTOM ASSY, NO DIODE	1

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

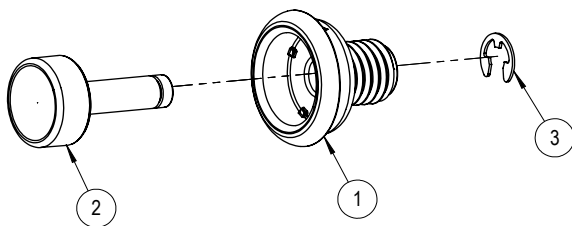
500-2512-XX



ID	Part Number	Description	Qty
1	545-1238-00	BOTTOM ARCH, PLASTIC, QR READY, W/ FLASHER HOLES	1
2	237-5887-01	SCREW, 4-40 X 3/4" PPH MS BLACK	2
3	820-96XX-01	PLASTIC ARCH DECAL SET -01	1
4	820-96XX-02	PLASTIC ARCH DECAL SET -02	1
5	820-96XX-03	PLASTIC ARCH DECAL SET -03	1
6	820-96XX-04	PLASTIC ARCH DECAL SET -04	1
7	509-2020-00	QR SCANNER M306 ASSEMBLY	1
8	254-5090-04	PLASTIC SPACER #4 SCREW, 3/16" OD - 9/32" LENGTH	2
9	240-5303-00	4-40 NYLON LOCK NUT	2
10	820-5422-00	WARNING DECAL, BOTTOM ARCH, QR READER	1

5.17 FLIPPER BUTTON - YELLOW WITH RED HOUSING

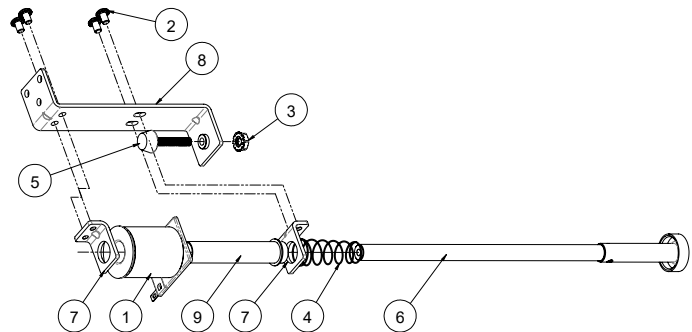
500-5816-00



ID	Part Number	Description	Qty
1	545-1102-32	FLIPPER BUTTON HOUSING, RED	1
2	545-1103-36	FLIPPER BUTTON, YELLOW	1
3	270-5003-00	RETAINING RING 5/16"	1

5.18 RAMP DIVERTER COIL ASSEMBLY

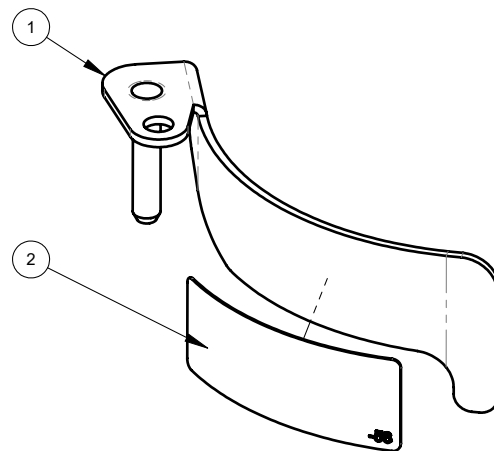
500-2940-00



ID	Part Number	Description	Qty
1	090-5044-ND	COIL 26-1200 - NO DIODE	1
2	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
3	240-5208-00	10-32 KEPS NUT	1
4	266-5020-00	COMPRESSION SPRING-CONICAL	1
5	280-5014-00	ADJUSTABLE BUMPER/STOP	1
6	515-7858-00	PLUNGER ASM, THE UNCANNY X-MEN DIVERTER	1
7	535-5203-03	COIL RETAINING BRACKET	2
8	535-9248-00	BRACKET	1
9	545-5847-00	COIL SLEEVE	1

5.19 BACK RAMP DIVERTER ASSEMBLY

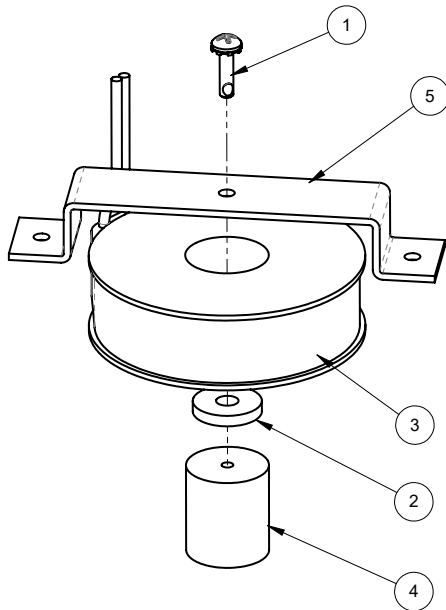
511-5352-15



ID	Part Number	Description	Qty
1	535-4092-15	RAMP DIVERTER, THE UNCANNY X-MEN	1
2	820-7960-56	DECAL -56, THE UNCANNY X-MEN	1

5.20 MAGNET ASSEMBLY

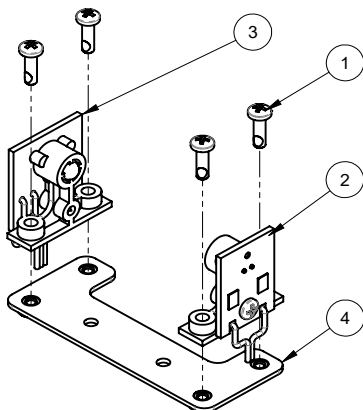
500-7425-00



ID	Part Number	Description	Qty
1	232-5202-00P	SCREW, 6-32 X 1/2" PPH MS SEMS, PATCH	1
2	242-5039-00	WASHER - 13/64 ID X 5/8 OD X .105	1
3	511-5065-ND	MAGNET / CONNECTOR ASSY, 22-650	1
4	530-5266-01	MAGNET CORE	1
5	535-6637-01	MAGNET BRACKET	1

5.21 TOP LEFT RAMP OPTO ASSEMBLY

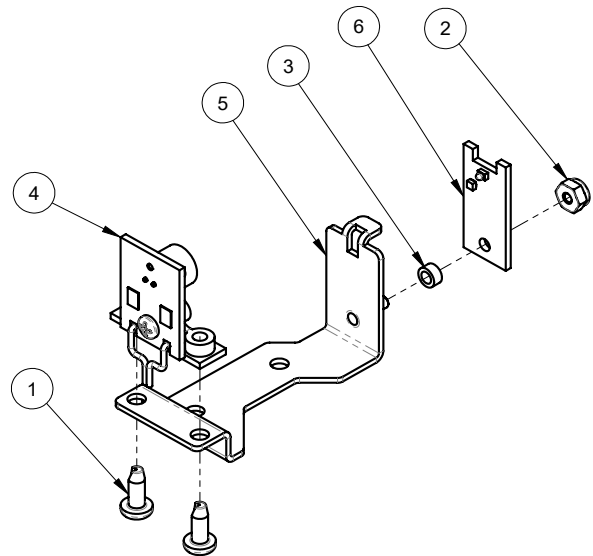
511-5474-00



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	4
2	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
3	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
4	535-4106-00	RAMP OPTO PLATE, THE UNCANNY X-MEN	1

5.22 LEFT OPTO ASSEMBLY

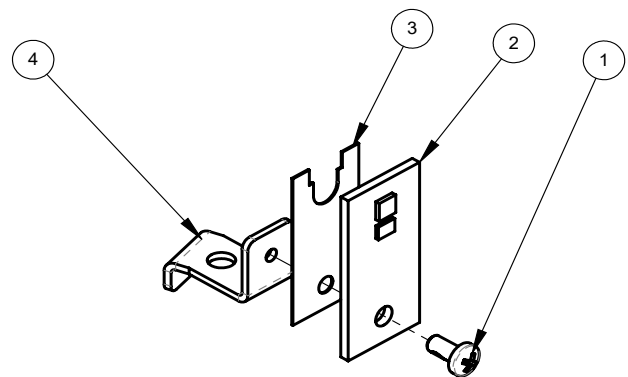
511-8959-00



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	2
2	240-5303-00	4-40 NYLON LOCK NUT	1
3	254-5090-08	PLASTIC SPACER #4 SCREW, 3/16" OD - 3/32" LENGTH	1
4	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
5	515-6798-00	STEPPED OPTO BRACKET, THE UNCANNY X-MEN	1
6	520-8116-00	PCB, IR OPTO RECEIVER, ANTI-ROTATION	1

5.23 SPOTLIGHT ASSEMBLY

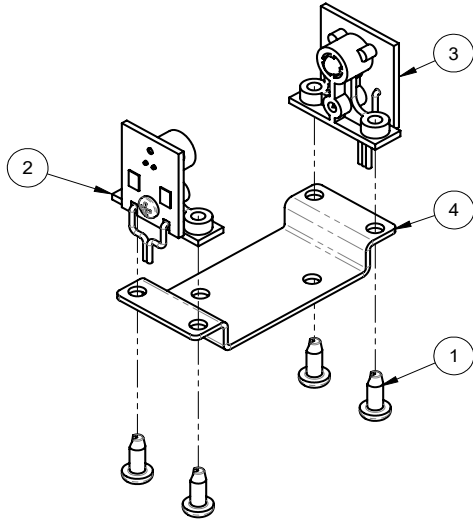
511-9776-00



ID	Part Number	Description	Qty
1	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	1
2	520-7000-00	SINGLE FLASH LED BOARD	1
3	523-0033-00	FISCHE PAPER, MINI OPTOS	1
4	535-3302-00	BRACKET, RIGHT FLASHER, THE UNCANNY X-MEN	1

5.24 UPPER LEFT LOOP OPTO ASSEMBLY

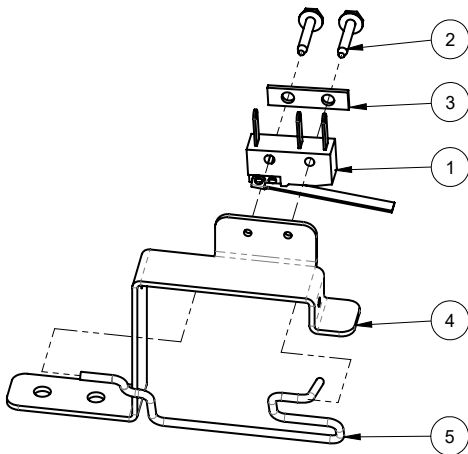
511-8960-00



ID	Part Number	Description	Qty
1	237-5880-00	SCREW, #6 X 3/8 PPH T-25	4
2	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
3	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
4	535-7897-00	LEFT LOOP OPTO BRACKET, THE UNCANNY X-MEN	1

5.25 UPPER LOOP GATE ASSEMBLY

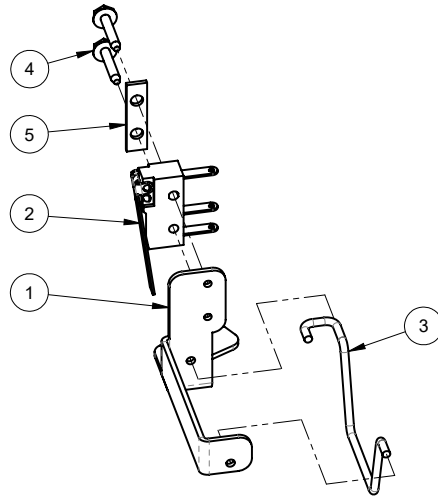
511-5370-00



ID	Part Number	Description	Qty
1	180-5010-04	MICRO-SWITCH	1
2	237-5937-02	SCREW, 2-56 X 1/2" HWH MS	2
3	535-6539-00	SWITCH BODY PROTECT PLATE	1
4	535-3022-00	UPPER LOOP ONE WAY BRACKET, THE UNCANNY X-MEN	1
5	535-3311-00	UPPER LOOP ONE WAY WIRE, THE UNCANNY X-MEN	1

5.26 LEFT LANE ROLLUNDER ASSEMBLY

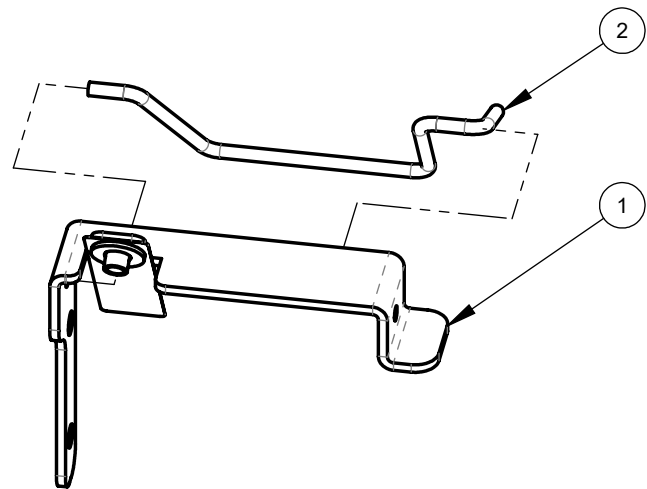
511-5418-00



ID	Part Number	Description	Qty
1	535-4092-17	LEFT LANE ROLLUNDER BRACKET, THE UNCANNY X-MEN	1
2	180-5010-04	MICRO-SWITCH	1
3	535-3055-00	LEFT LANE ROLLUNDER GATE, THE UNCANNY X-MEN	1
4	237-5937-02	SCREW, 2-56 X 1/2" HWH MS	2
5	535-6539-00	SWITCH BODY PROTECT PLATE	1

5.27 TOP LAUNCH ONE WAY ASSEMBLY

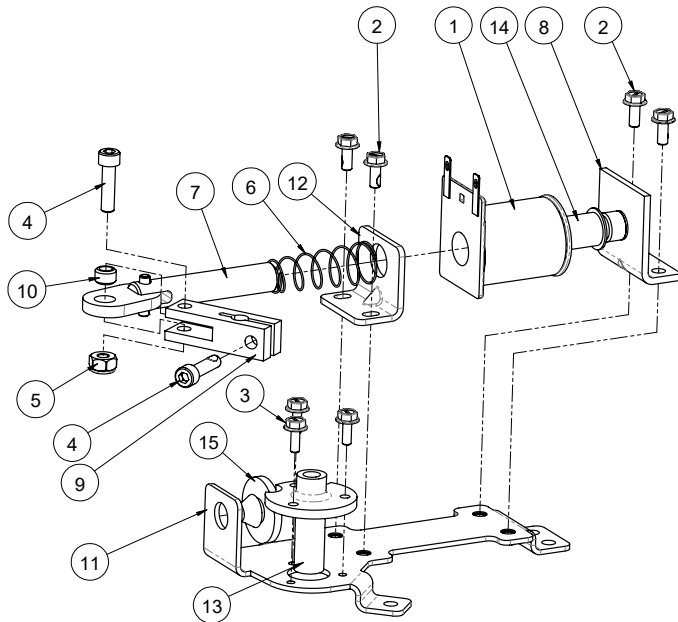
511-5422-00



ID	Part Number	Description	Qty
1	510-7965-00	LAUNCH TOP GATE RIVETED ASM, THE UNCANNY X-MEN	1
2	535-3024-00	LAUNCH ONE WAY WIRE, THE UNCANNY X-MEN	1

5.28 CEREBRO LOCK COIL ASSEMBLY

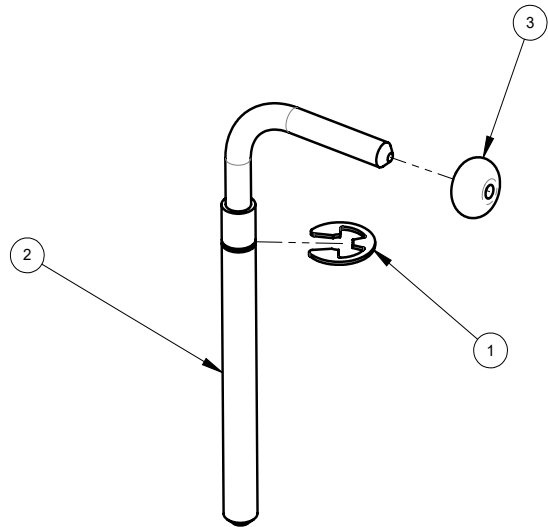
500-2947-00



ID	Part Number	Description	Qty
1	090-5044-ND	COIL 26-1200 - NO DIODE	1
2	237-5903-00P	SCREW, 8-32 X 3/8" HWH, PATCH	4
3	237-5976-02	SCREW, 6-32 X 3/8" HWH SWAGE	3
4	237-6144-00P	SCREW, 10-32 X 3/4" SHCS, PATCH	2
5	240-5203-00	10-32 NYLON LOCK NUT	1
6	266-5020-00	COMPRESSION SPRING-CONICAL	1
7	515-6304-03	PLUNGER / LINK ASSEMBLY	1
8	515-6308-01	COIL STOP ASSEMBLY	1
9	530-5070-02	CRANK BAR	1
10	530-5139-00	BUSHING (CRANK BAR)	1
11	535-4114-00	DR RAMP DIVERTER COIL BRACKET, THE UNCANNY X-MEN	1
12	535-4115-00	SLOTTED COIL RETAINING BRACKET, TALL	1
13	545-5070-00	FLIPPER BUSHING	1
14	545-5411-00	COIL SLEEVE	1
15	545-5428-00	RUBBER BUMPER	1

5.29 CEREBRO LOCK DIVERTER ASSEMBLY

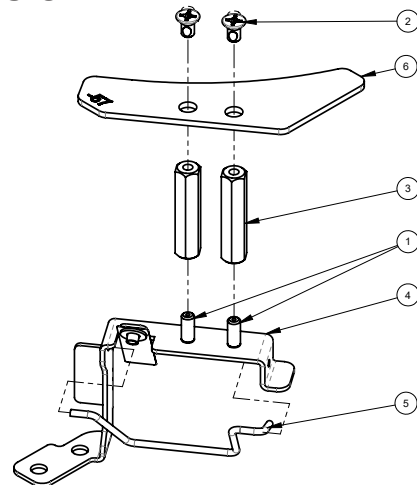
511-3226-00



ID	Part Number	Description	Qty
1	270-5002-00	RETAINING RING - 1/4"	1
2	530-8082-00	DR BALL DIVERTER, THE UNCANNY X-MEN	1
3	545-5348-17	7/16 O.D. RUBBER RING - BLACK	1

5.30 BOTTOM LAUNCH ONE WAY ASSEMBLY

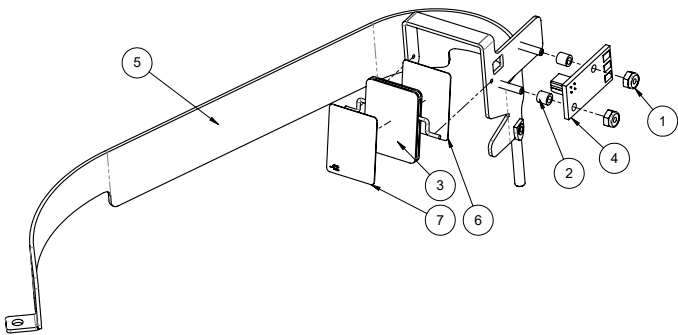
511-5369-01



ID	Part Number	Description	Qty
1		LOCTITE THREAD LOCK 243 "BLUE MED STR"	
2	237-5853-00P	SCREW, 6-32 X 1/4" PFH, ZINC, PATCH	2
3	254-5008-17	HEX SPACER - 1 1/8 "	2
4	510-7966-00	LAUNCH GATE RIVETED ASM, THE UNCANNY X-MEN	1
5	535-3024-00	LAUNCH ONE WAY WIRE, THE UNCANNY X-MEN	1
6	830-8573-57	PLAYFIELD PLASTIC -57, THE UNCANNY X-MEN	1

5.31 BALL GUIDE ASSEMBLY -01

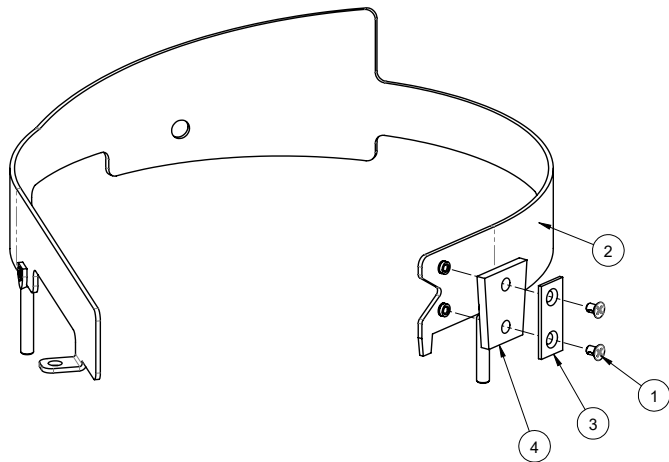
511-5352-01



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	515-1992-00	SPINNER TARGET SUBASSY: NARROW, OPTO	1
4	520-8541-00	PCA SPINNER REFLECTIVE OPTIC	1
5	535-4092-01	BALL GUIDE: -01, THE UNCANNY X-MEN	1
6	820-7960-11	DECAL -11, THE UNCANNY X-MEN	1
7	820-7960-12	DECAL -12, THE UNCANNY X-MEN	1

5.33 BALL GUIDE ASSEMBLY -08

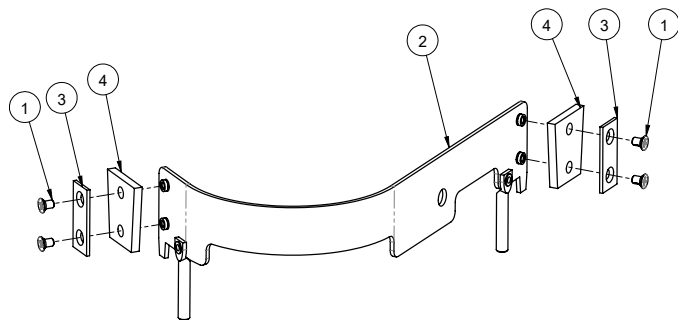
511-5352-08



ID	Part Number	Description	Qty
1	237-6197-00P	SCREW, 4-40 X 3/16 PFH U/C 18-8 SS, PATCH	2
2	535-4092-08	BALL GUIDE: -08, THE UNCANNY X-MEN	1
3	535-9648-00	BUMPER HOLDER - FASTENED	1
4	626-5067-01	RUBBER BUMPER - BLACK - FASTENED	1

5.32 BALL GUIDE ASSEMBLY -05

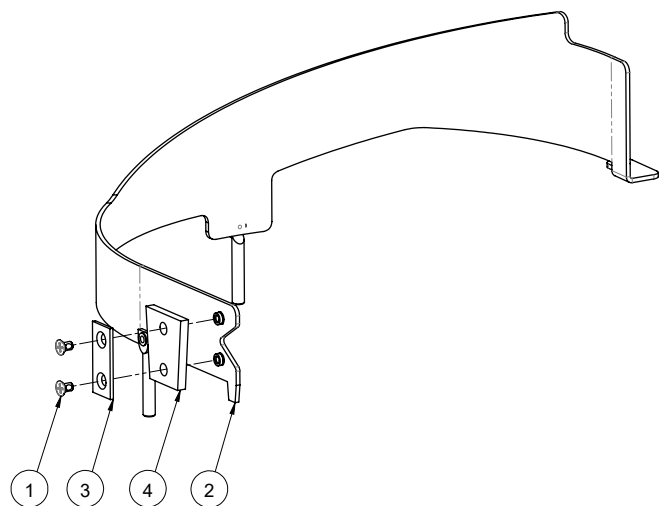
511-5352-05



ID	Part Number	Description	Qty
1	237-6197-00P	SCREW, 4-40 X 3/16 PFH U/C 18-8 SS, PATCH	4
2	535-4092-05	BALL GUIDE: -05, THE UNCANNY X-MEN	1
3	535-9648-00	BUMPER HOLDER - FASTENED	2
4	626-5067-01	RUBBER BUMPER - BLACK - FASTENED	2

5.34 BALL GUIDE ASSEMBLY -10

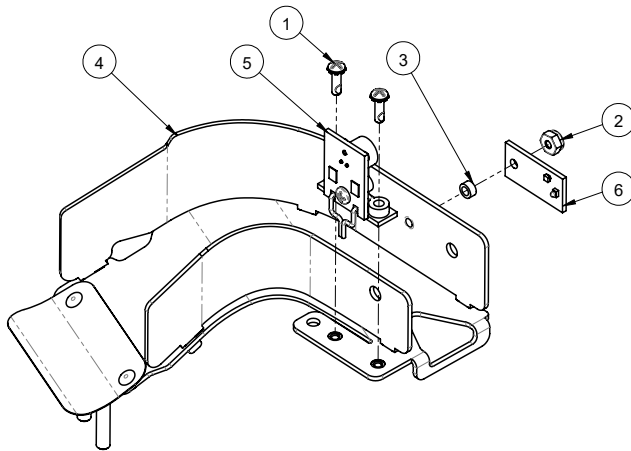
511-5352-10



ID	Part Number	Description	Qty
1	237-6197-00P	SCREW, 4-40 X 3/16 PFH U/C 18-8 SS, PATCH	2
2	535-4092-10	BALL GUIDE -10, THE UNCANNY X-MEN	1
3	535-9648-00	BUMPER HOLDER - FASTENED	1
4	626-5067-01	RUBBER BUMPER - BLACK - FASTENED	1

5.35 LOWER RIGHT METAL RAMP ASSEMBLY

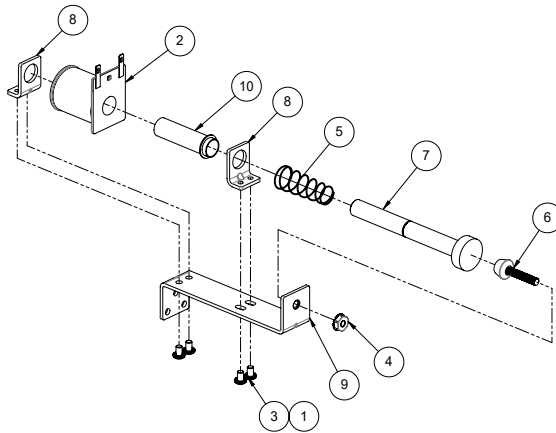
500-2692-01



ID	Part Number	Description	Qty
1	237-5909-01P	SCREW, 4-40 X 3/8" PPH SEMS, PATCH	2
2	240-5303-00	4-40 NYLON LOCK NUT	1
3	254-5090-08	PLASTIC SPACER #4 SCREW, 3/16" OD - 3/32" LENGTH	1
4	510-7954-01	RIVETED LOWER RIGHT RAMP ASSEMBLY, THE UNCANNY X-MEN	1
5	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
6	520-8068-00	PCB, IR OPTO RECEIVER	1

5.36 UP POST ASSEMBLY

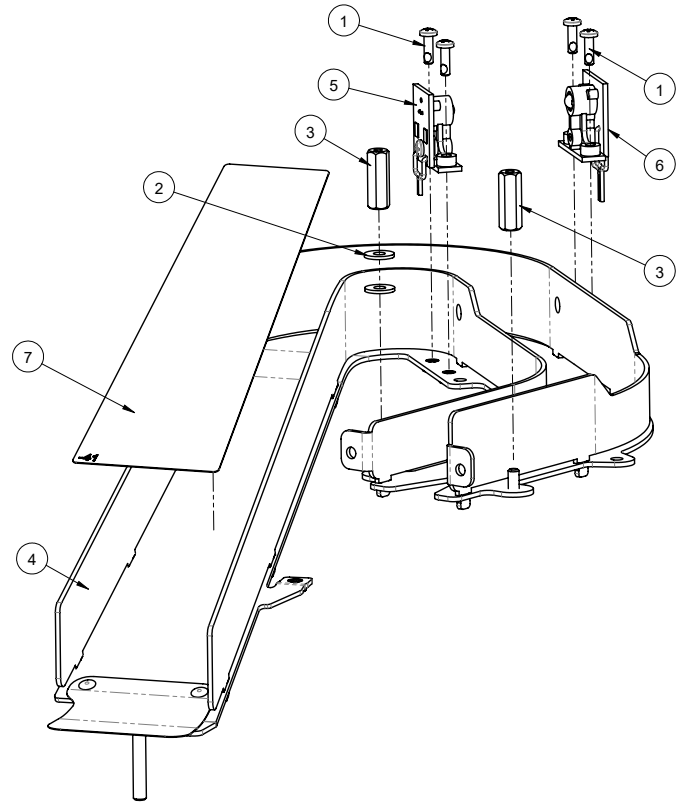
500-2678-01



ID	Part Number	Description	Qty
1		LOCTITE THREAD LOCK 243 "BLUE MED STR"	
2	090-5044-ND	COIL 26-1200 - NO DIODE	1
3	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	4
4	240-5208-00	10-32 KEPS NUT	1
5	266-5020-00	COMPRESSION SPRING-CONICAL	1
6	280-5014-00	ADJUSTABLE BUMPER/STOP	1
7	515-8866-01	PLUNGER, FLAT TIP - 4.09" LENGTH	1
8	535-5203-03	COIL RETAINING BRACKET	2
9	535-9248-00	BRACKET	1
10	545-5076-01	COIL SLEEVE	1

5.37 LEFT METAL RAMP ASSEMBLY

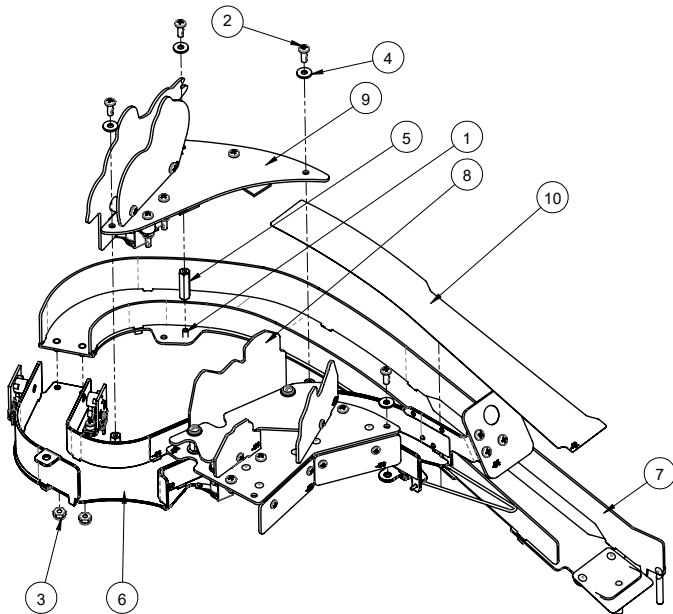
500-2692-02



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	4
2	242-5001-00	#6 WASHER	2
3	254-5008-04	HEX SPACER - 3/4 "	2
4	510-7954-02	RIVETED LEFT RAMP ASSEMBLY, THE UNCANNY X-MEN	1
5	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
6	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
7	820-7960-41	DECAL -41, THE UNCANNY X-MEN	1

5.38 RIGHT RAMP ASSEMBLY

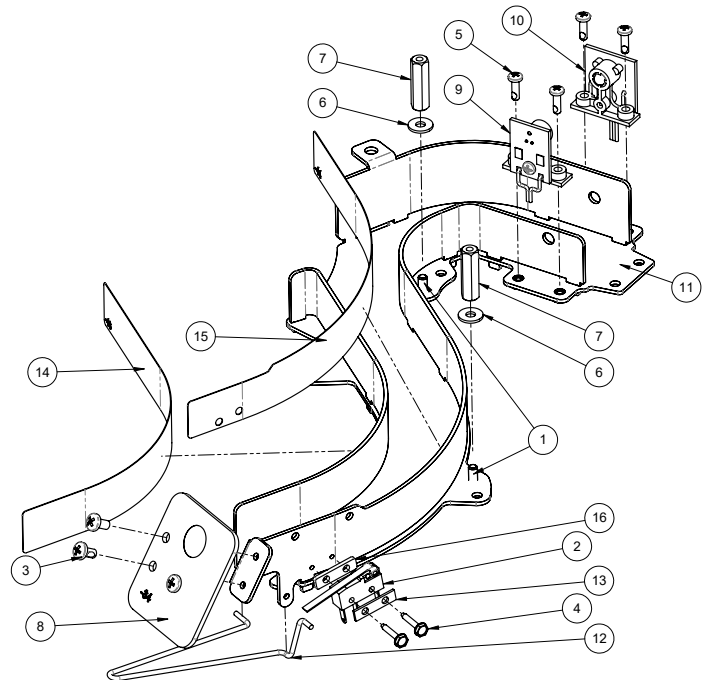
500-1043-03



ID	Part Number	Description	Qty
1		LOCTITE THREAD LOCK 243 "BLUE MED STR"	
2	237-6322-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, BLACK, PATCH	4
3	240-5005-00	6-32 NYLON STOP NUT	2
4	242-5001-01	WASHER	4
5	254-5008-05	HEX SPACER - 7/8 "	1
6	500-1043-06	RIGHT RAMP EXTENSION ASSEMBLY, PRO, THE UNCANNY X-MEN	1
7	510-7954-03	RIVETED RIGHT RAMP ASSEMBLY, THE UNCANNY X-MEN	1
8	511-5052-23	PLAYFIELD PLASTIC ASM -23, THE UNCANNY X-MEN	1
9	511-5052-40	PLAYFIELD PLASTIC ASM -40, THE UNCANNY X-MEN	1
10	820-7960-42	DECAL -42, THE UNCANNY X-MEN	1

5.39 RIGHT RAMP EXTENSION ASSEMBLY

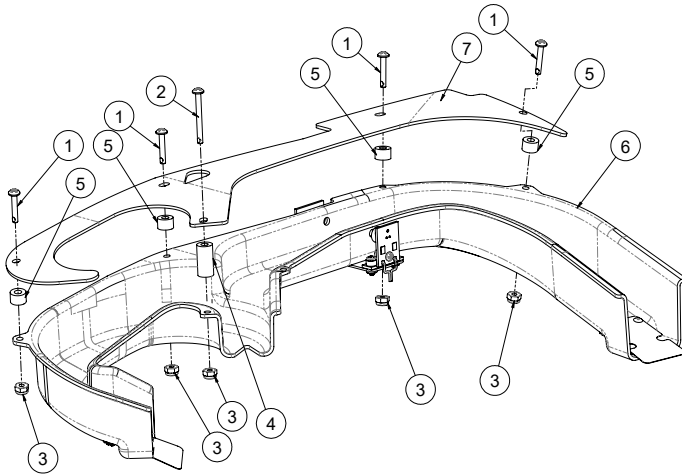
500-1043-06



ID	Part Number	Description	Qty
1		LOCTITE THREAD LOCK 243 "BLUE MED STR"	
2	180-5010-04	MICRO-SWITCH	1
3	237-5500-01P	SCREW, 6-32 X 1/4" PPH MS BLACK, PATCH	2
4	237-5937-02P	SCREW, 2-56 X 1/2" HWH MS, PATCH	2
5	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	4
6	242-5001-00	#6 WASHER	2
7	254-5008-05	HEX SPACER - 7/8 "	2
8	511-5052-34	PLAYFIELD PLASTIC ASM -34, THE UNCANNY X-MEN	1
9	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
10	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
11	515-7838-06	RIGHT METAL RAMP EXTENSION, THE UNCANNY X-MEN	2
12	535-3054-00	RIGHT RAMP ONE WAY WIRE, THE UNCANNY X-MEN	1
13	535-6539-00	SWITCH BODY PROTECT PLATE	1
14	820-7960-43	DECAL -43, THE UNCANNY X-MEN	1
15	820-7960-44	DECAL -44, THE UNCANNY X-MEN	1
16	830-6185-04	RAMP COVER -04, THE UNCANNY X-MEN	1

5.40 UPPER LEFT PLASTIC RAMP ASSEMBLY

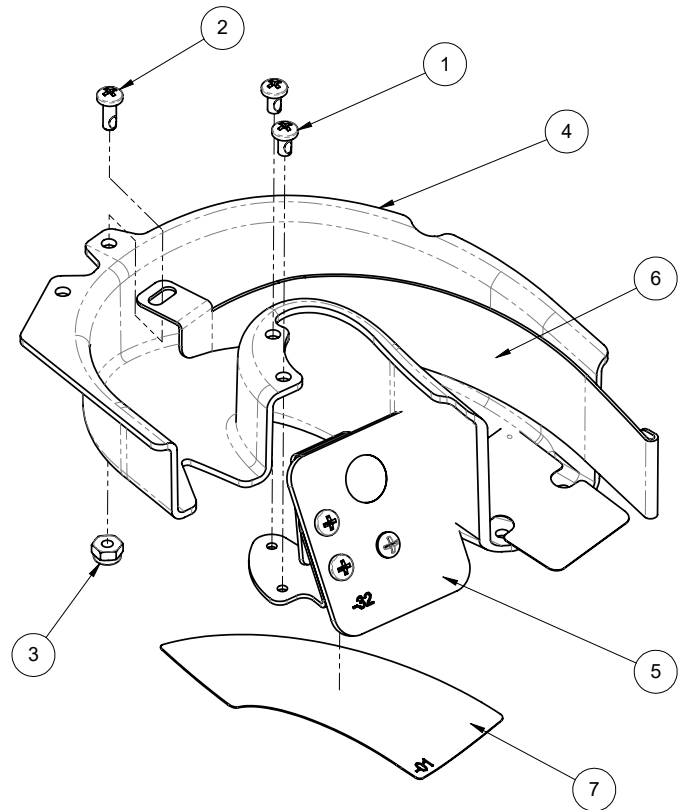
511-5354-01



ID	Part Number	Description	Qty
1	237-5504-00P	SCREW, 6-32 X 3/4" PPH MS, PATCH	4
2	237-5508-00P	SCREW, 6-32 X 1-1/4 PPH MS, PATCH	1
3	240-5005-00	6-32 NYLON STOP NUT	5
4	254-5000-07	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 3/4"	1
5	254-5000-09	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/4"	4
6	510-7955-01	RIVETED UPPER LEFT PLASTIC RAMP ASSEMBLY, THE UNCANNY X-MEN	1
7	830-6185-03	RAMP COVER -03, THE UNCANNY X-MEN	1

5.41 DR PLASTIC RAMP ASSEMBLY

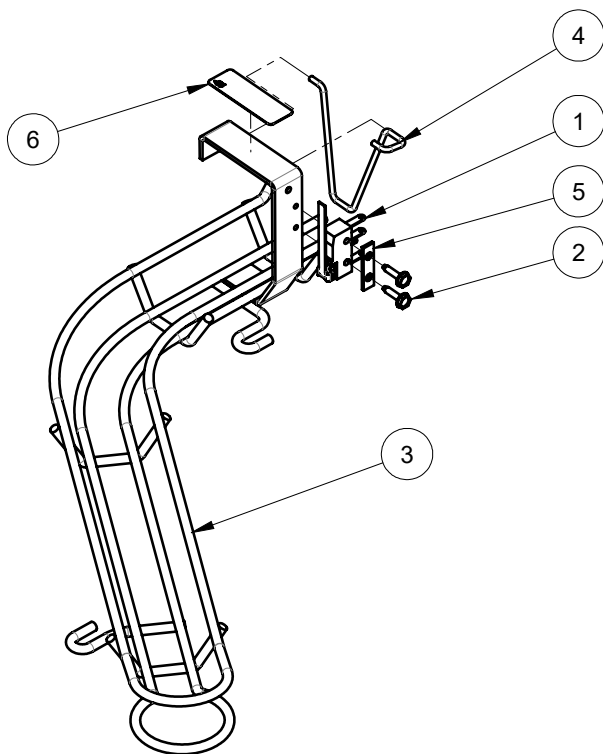
511-5394-00



ID	Part Number	Description	Qty
1	237-5500-01P	SCREW, 6-32 X 1/4" PPH MS BLACK, PATCH	2
2	237-5501-00P	SCREW, 6-32 X 3/8" PPH MS ZINC, PATCH	1
3	240-5005-00	6-32 NYLON STOP NUT	1
4	510-7955-00	RIVETED DR PLASTIC RAMP ASSEMBLY, THE UNCANNY X-MEN	1
5	511-5052-32	PLAYFIELD PLASTIC ASM -32, THE UNCANNY X-MEN PRO	1
6	535-4092-16	DR RAMP PROTECTOR, THE UNCANNY X-MEN	1
7	820-7972-01	UNDER RAMP DECAL -01, THE UNCANNY X-MEN	1

5.42 DR WIRE RAMP ASSEMBLY

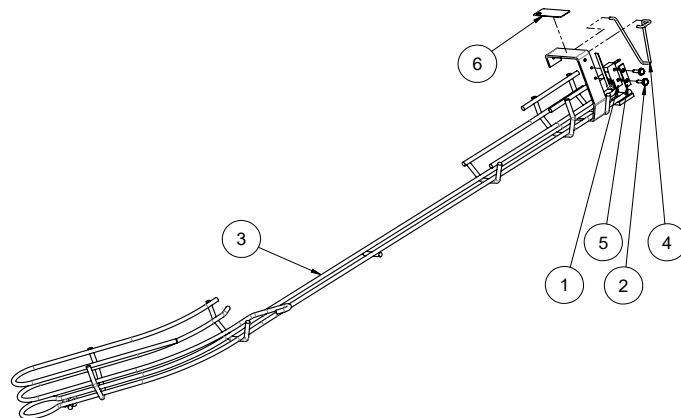
500-2700-01



ID	Part Number	Description	Qty
1	180-5010-04	MICRO-SWITCH	1
2	237-5938-01	SCREW, 2-56 X 3/8 HWH MS	2
3	515-7840-01	WIRE RAMP -01, THE UNCANNY X-MEN	1
4	535-3053-00	DR ROLLUNDER GATE, THE UNCANNY X-MEN	1
5	535-6539-00	SWITCH BODY PROTECT PLATE	1
6	820-7960-55	DECAL -55, THE UNCANNY X-MEN	1

5.43 CROSSOVER WIRE RAMP ASSEMBLY

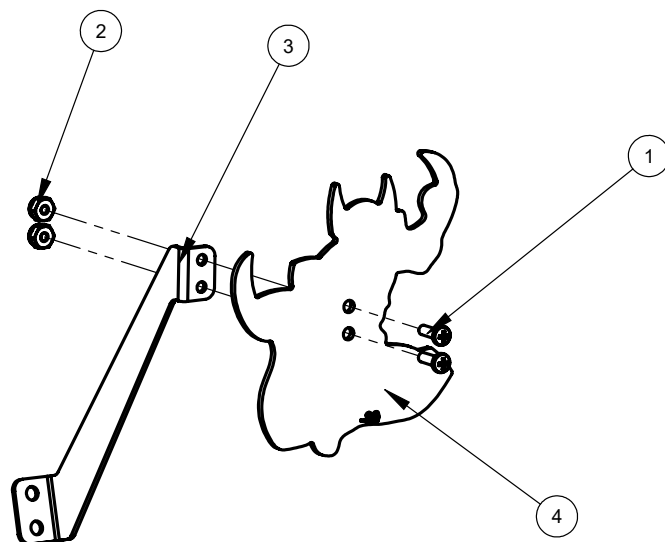
500-2700-03



ID	Part Number	Description	Qty
1	180-5010-04	MICRO-SWITCH	1
2	237-5938-01	SCREW, 2-56 X 3/8 HWH MS	2
3	515-7840-03	WIRE RAMP -03, THE UNCANNY X-MEN	1
4	535-3053-00	DR ROLLUNDER GATE, THE UNCANNY X-MEN	1
5	535-6539-00	SWITCH BODY PROTECT PLATE	1
6	820-7960-54	DECAL -54, THE UNCANNY X-MEN	1

5.44 WOLVERINE ASSEMBLY

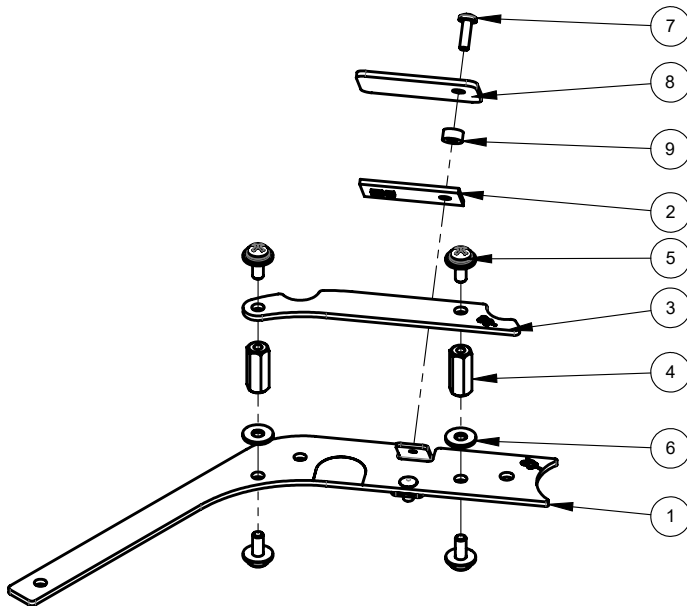
511-3225-01



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	2
2	240-5303-00	4-40 NYLON LOCK NUT	2
3	535-4144-00	FASTBALL BKT, THE UNCANNY X-MEN	1
4	830-8573-80	PLAYFIELD PLASTIC -80, THE UNCANNY X-MEN	1

5.45 PLASTIC 02 ASSEMBLY

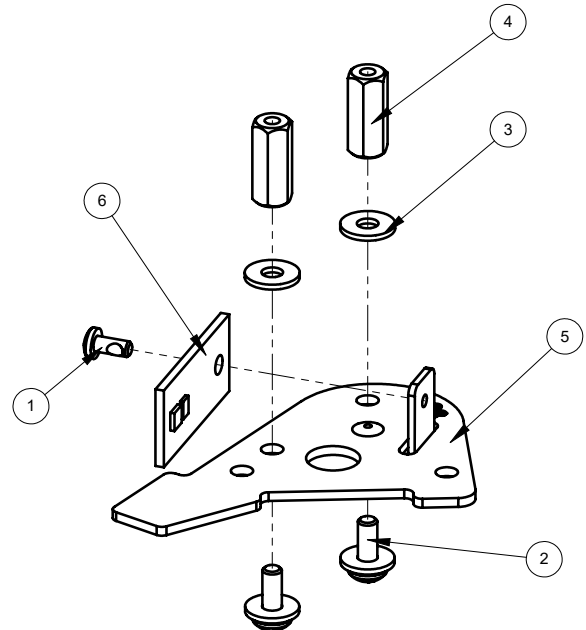
511-5052-02



ID	Part Number	Description	Qty
1	510-7979-02	RIVETED PLASTIC ASM -02, THE UNCANNY X-MEN	1
2	520-7000-00	SINGLE FLASH LED BOARD	1
3	830-8573-33	PLAYFIELD PLASTIC -33, THE UNCANNY X-MEN	1
4	254-5008-02	HEX SPACER - 5/8 "	2
5	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	4
6	242-5001-00	#6 WASHER	2
7	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	1
8	830-8573-72	PLAYFIELD PLASTIC -72, THE UNCANNY X-MEN	1
9	254-5103-02	SPACER, #4 ID X 1/4" OD X 1/8" L	1

5.46 PLASTIC 08 ASSEMBLY

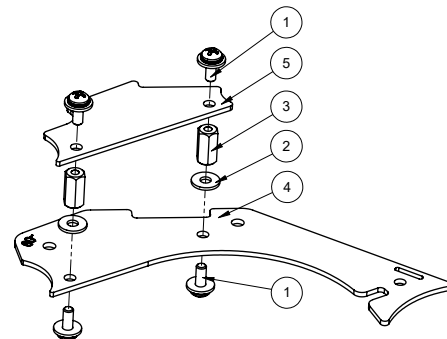
511-5052-08



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4 PPH MS, PATCH	1
2	237-5501-00P	#6-32 X 3/8 PPH MS, ZINC, PATCH	2
3	242-5001-00	#6 WASHER	2
4	254-5008-02	HEX SPACER - 5/8 "	2
5	510-7979-08	PLAYFIELD PLASTIC RIVETED ASM -08, THE UNCANNY X-MEN	1
6	520-7000-00	SINGLE FLASH LED BOARD	1

5.47 PLASTIC 09 ASSEMBLY

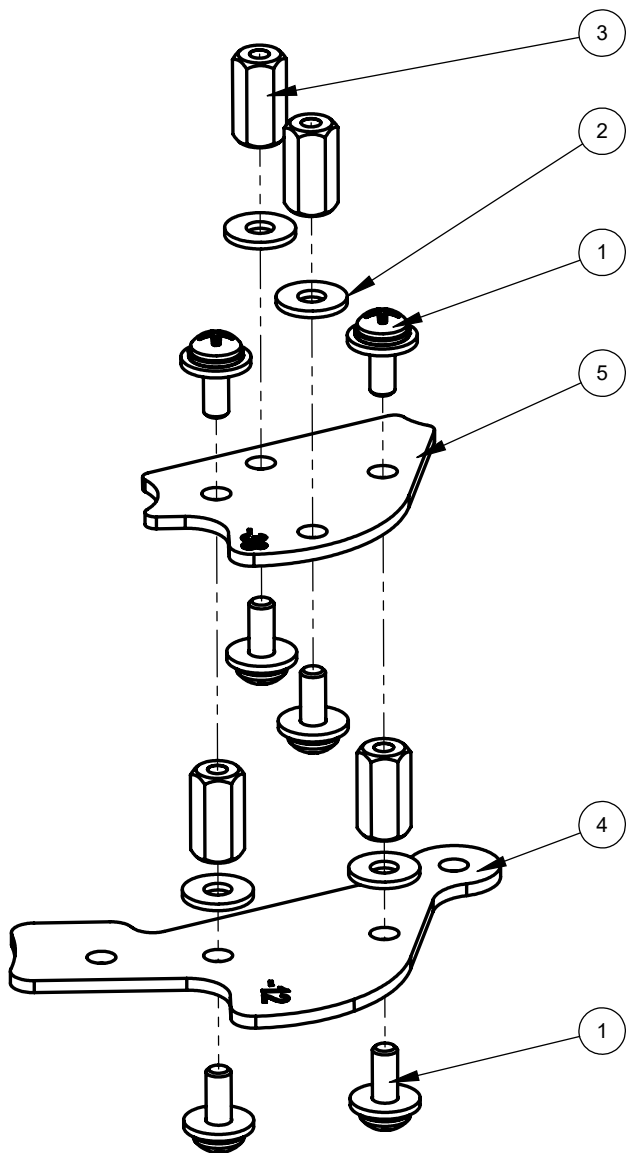
511-5052-09



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	4
2	242-5001-00	#6 WASHER	2
3	254-5008-03	HEX SPACER - 1/2 "	2
4	830-8573-09	PLAYFIELD PLASTIC -09, THE UNCANNY X-MEN	1
5	830-8573-36	PLAYFIELD PLASTIC -36, THE UNCANNY X-MEN	1

5.48 PLASTIC 12 ASSEMBLY

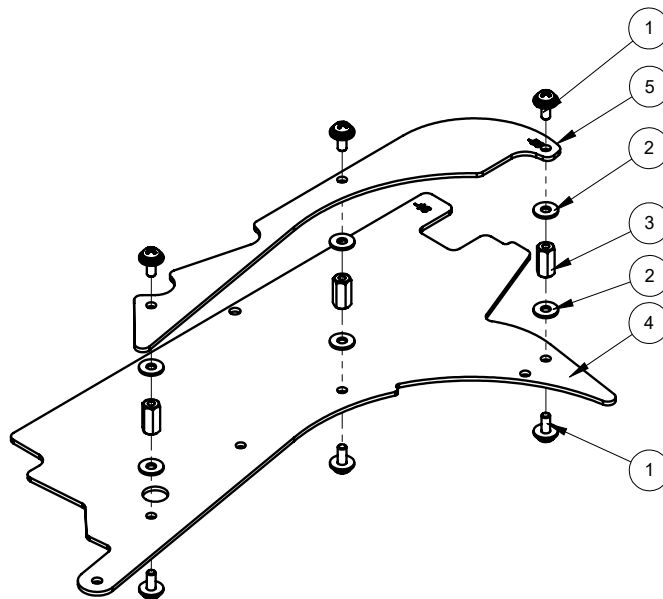
511-5052-12



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	6
2	242-5001-00	#6 WASHER	4
3	254-5008-03	HEX SPACER - 1/2 "	4
4	830-8573-12	PLAYFIELD PLASTIC -12, THE UNCANNY X-MEN	1
5	830-8573-38	PLAYFIELD PLASTIC -38, THE UNCANNY X-MEN	1

5.49 PLASTIC 16 ASSEMBLY

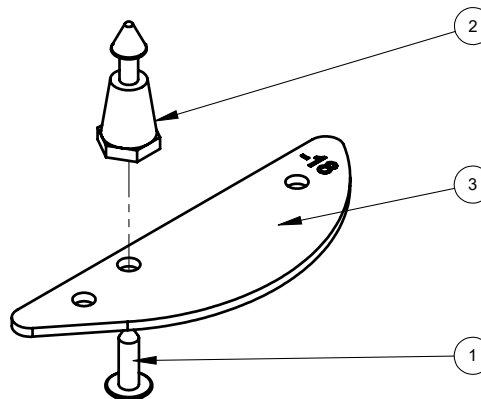
511-5052-16



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	6
2	242-5001-00	#6 WASHER	6
3	254-5008-03	HEX SPACER - 1/2 "	3
4	830-8573-16	PLAYFIELD PLASTIC -16, THE UNCANNY X-MEN	1
5	830-8573-50	PLAYFIELD PLASTIC -50, THE UNCANNY X-MEN	1

5.50 PLASTIC 18 ASSEMBLY

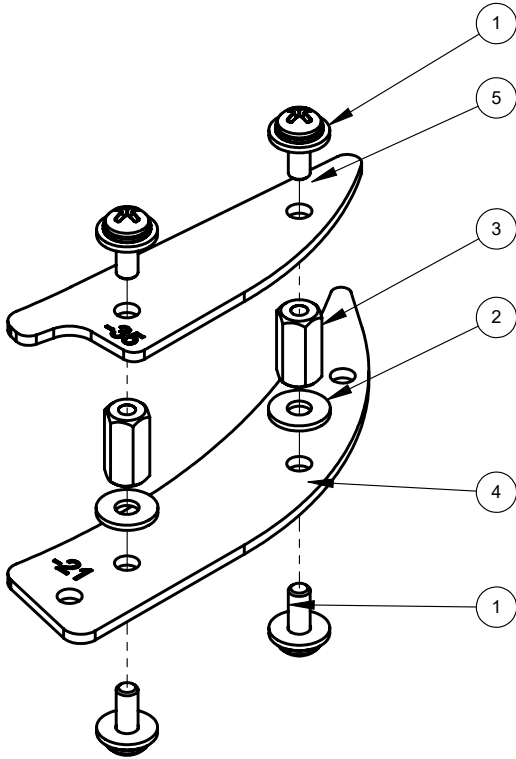
511-5052-18



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	830-8573-18	PLAYFIELD PLASTIC -18, THE UNCANNY X-MEN	1

5.51 PLASTIC 21 ASSEMBLY

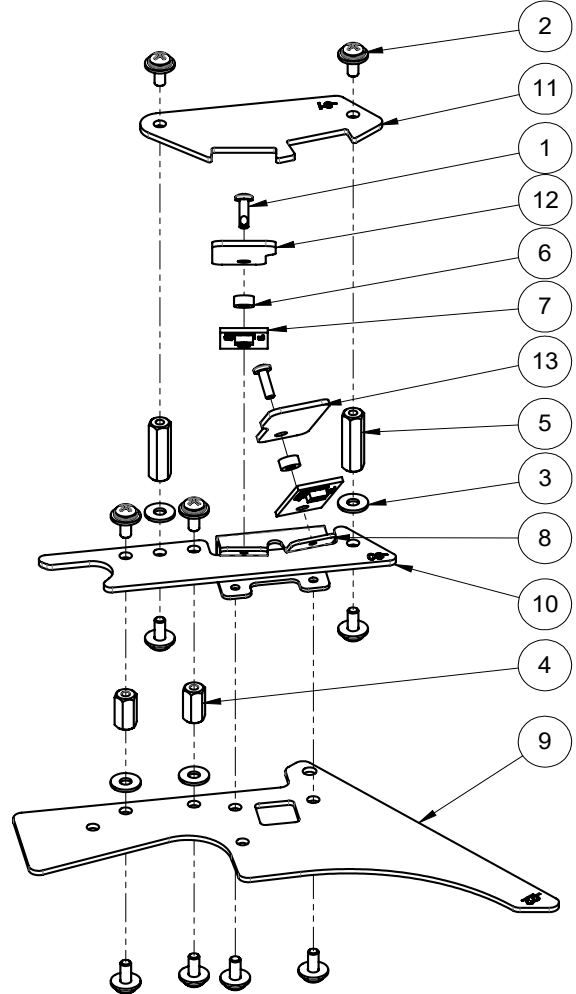
511-5052-21



ID	Part Number	Description	Qty
1	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	4
2	242-5001-00	#6 WASHER	2
3	254-5008-03	HEX SPACER - 1/2 "	2
4	830-8573-21	PLAYFIELD PLASTIC -21, THE UNCANNY X-MEN	1
5	830-8573-35	PLAYFIELD PLASTIC -35, THE UNCANNY X-MEN	1

5.52 PLASTIC 22 ASSEMBLY

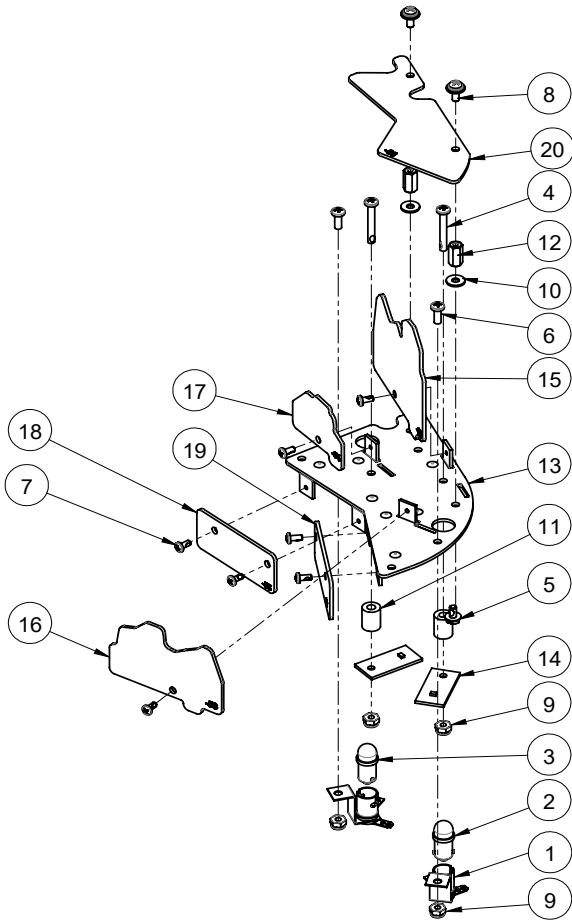
511-5052-22



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	2
2	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	10
3	242-5001-00	#6 WASHER	4
4	254-5008-03	HEX SPACER - 1/2 "	2
5	254-5008-05	HEX SPACER - 7/8 "	2
6	254-5103-02	SPACER, #4 ID X 1/4" OD X 1/8" L	2
7	520-5333-00	SINGLE RGB BOARD	2
8	535-3082-00	BRACKET, RGB LIGHTS, THE UNCANNY X-MEN	1
9	830-8573-22	PLAYFIELD PLASTIC -22, THE UNCANNY X-MEN	1
10	830-8573-30	PLAYFIELD PLASTIC -30, THE UNCANNY X-MEN	1
11	830-8573-31	PLAYFIELD PLASTIC -31, THE UNCANNY X-MEN	1
12	830-8573-70	PLAYFIELD PLASTIC -70, THE UNCANNY X-MEN	1
13	830-8573-71	PLAYFIELD PLASTIC -71, THE UNCANNY X-MEN	1

5.53 PLASTIC 23 ASSEMBLY

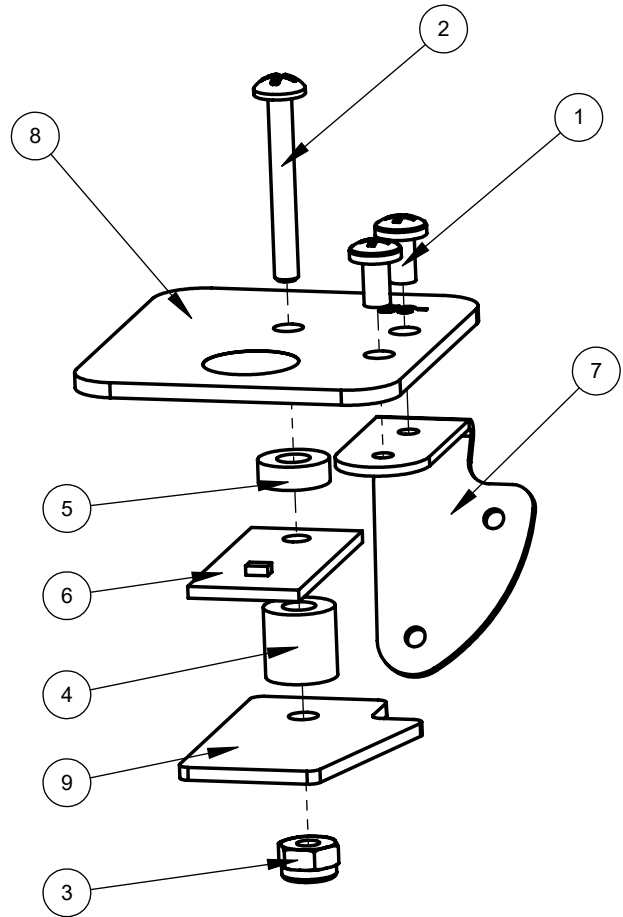
511-5052-23



ID	Part Number	Description	Qty
1	077-5002-00	SOCKET - SHORT STAND-UP 2-LUG	2
2	112-5024-05F	BLUE, FROSTED	1
3	112-5034-02F	RED, FROSTED	1
4	232-5308-00P	SCREW, 6-32 X 1" PPH MS ZINC, BLACK	2
5	237-5976-01P	SCREW, 6-32 X 1/4 HWH SWAGE, PATCH	2
6	237-6322-00	SCREW, 6-32 X 3/8" PPH MS ZINC, BLACK	2
7	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	7
8	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	2
9	240-5005-00	6-32 NYLON STOP NUT	4
10	242-5001-00	#6 WASHER	2
11	254-5000-01	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/2"	2
12	254-5008-03	HEX SPACER - 1/2 "	2
13	510-7979-23	PLAYFIELD PLASTIC RIVETED ASM -23, THE UNCANNY X-MEN	1
14	520-5307-00	SINGLE LED PCB	2
15	830-8573-52	PLAYFIELD PLASTIC -52, THE UNCANNY X-MEN	1
16	830-8573-53	PLAYFIELD PLASTIC -53, THE UNCANNY X-MEN	1
17	830-8573-54	PLAYFIELD PLASTIC -54, THE UNCANNY X-MEN	1
18	830-8573-55	PLAYFIELD PLASTIC -55, THE UNCANNY X-MEN	1
19	830-8573-56	PLAYFIELD PLASTIC -56, THE UNCANNY X-MEN	1
20	830-8573-93	PLAYFIELD PLASTIC -93, THE UNCANNY X-MEN	1

5.54 PLASTIC 32 ASSEMBLY

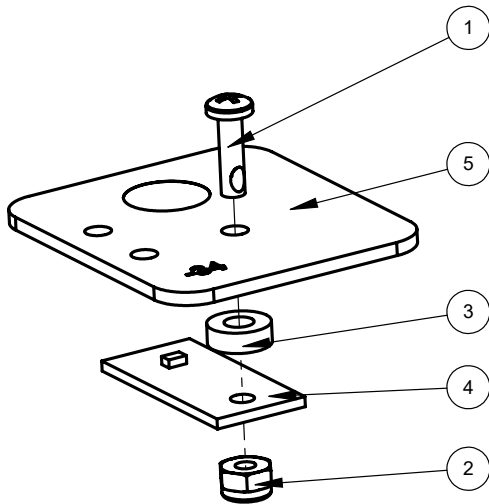
511-5052-32



ID	Part Number	Description	Qty
1	237-5500-01P	SCREW, 6-32 X 1/4" PPH MS BLACK, PATCH	2
2	237-5506-00	SCREW, 6-32 X 1" PPH MS	1
3	240-5005-00	6-32 NYLON STOP NUT	1
4	254-5000-12	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 3/8"	1
5	254-5000-19	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/8"	1
6	520-5307-00	SINGLE LED PCB	1
7	535-3083-00	BRACKET, BILLBOARD, LEFT RAMP, THE UNCANNY X-MEN	1
8	830-8573-32	PLAYFIELD PLASTIC -32, THE UNCANNY X-MEN	1
9	830-8573-37	PLAYFIELD PLASTIC -37, THE UNCANNY X-MEN	1

5.55 PLASTIC 34 ASSEMBLY

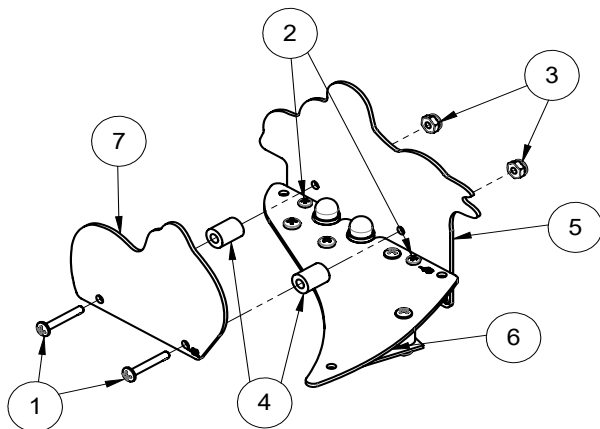
511-5052-34



ID	Part Number	Description	Qty
1	237-5502-03P	SCREW, 6-32 X 1/2" PPH MS BLACK, PATCH	1
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	520-5307-00	SINGLE LED PCB	1
5	830-8573-34	PLAYFIELD PLASTIC -34, THE UNCANNY X-MEN	1

5.56 PLASTIC 40 ASSEMBLY

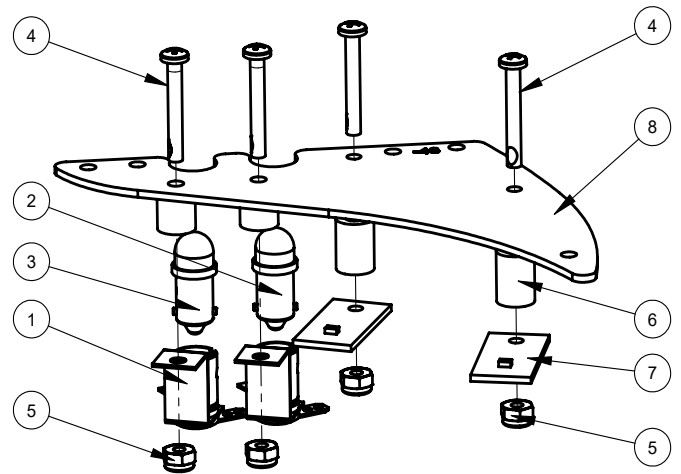
511-5052-40



ID	Part Number	Description	Qty
1	232-5308-00P	SCREW, 6-32 X 1" PPH MS ZINC, BLACK	2
2	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	2
3	240-5005-00	6-32 NYLON STOP NUT	2
4	254-5000-01	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/2"	2
5	510-7979-40	PLAYFIELD PLASTIC RIVETED ASM -40, THE UNCANNY X-MEN	1
6	511-5052-43	PLAYFIELD PLASTIC ASM -43, THE UNCANNY X-MEN	1
7	830-8573-42	PLAYFIELD PLASTIC -42, THE UNCANNY X-MEN	1

5.57 PLASTIC 43 ASSEMBLY

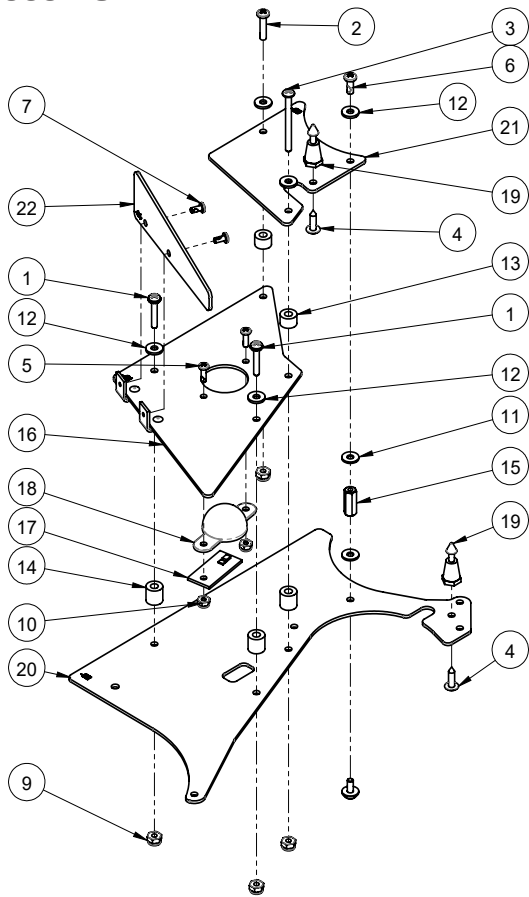
511-5052-43



ID	Part Number	Description	Qty
1	077-5002-00	SOCKET - SHORT STAND-UP 2-LUG	2
2	112-5024-05F	BLUE, FROSTED	1
3	112-5034-02F	RED, FROSTED	1
4	232-5308-00P	SCREW, 6-32 X 1" PPH MS ZINC, BLACK	4
5	240-5005-00	6-32 NYLON STOP NUT	4
6	254-5000-01	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/2"	2
7	520-5307-00	SINGLE LED PCB	2
8	830-8573-43	PLAYFIELD PLASTIC -43, THE UNCANNY X-MEN	1
9	254-5000-12	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 3/8"	2

5.58 PLASTIC 82 ASSEMBLY

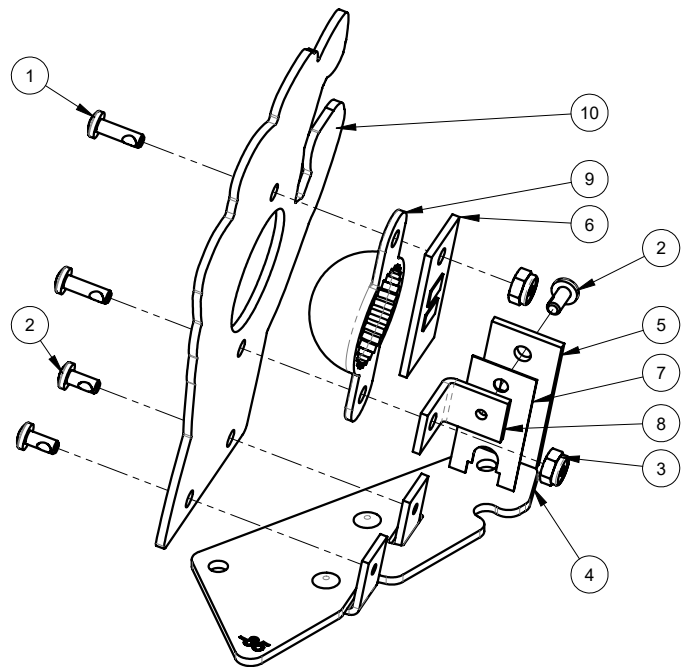
511-5052-82



ID	Part Number	Description	Qty
1	232-5204-01	SCREW, 6-32 X 3/4" PPH SEMS BLACK	2
2	237-5503-01P	SCREW, 6-32 X 5/8" PPH MS BLACK, PATCH	1
3	237-5510-02	SCREW, 6-32 X 1-1/2" PPH MS BLACK	1
4	237-5809-00	SCREW, #6 X 1/2" PTH A	2
5	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	2
6	237-6322-00P	SCREW, 6-32 X 3/8" PPH MS ZINC, BLACK	1
7	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	2
8	237-6378-00P	#6-32 X 3/8 PAN PHILLIPS w/DOUBLE SEMS, PATCH	1
9	240-5005-00	6-32 NYLON STOP NUT	4
10	240-5303-00	4-40 NYLON LOCK NUT	2
11	242-5001-00	#6 WASHER	2
12	242-5001-01	WASHER	5
13	254-5000-09	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/4"	2
14	254-5000-12	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 3/8"	3
15	254-5008-02	HEX SPACER - 5/8 "	1
16	510-7979-81	PLAYFIELD PLASTIC RIVETED ASM -81, THE UNCANNY X-MEN	1
17	520-8457-00	PCB, SINGLE FLOOD LED - RED	1
18	550-5032-02	HAT - RED SB	1
19	550-5052-01	MINI POST - CLEAR	2
20	830-8573-82	PLAYFIELD PLASTIC -05, THE UNCANNY X-MEN	1
21	830-8573-83	PLAYFIELD PLASTIC -83, THE UNCANNY X-MEN	1
22	830-8573-84	PLAYFIELD PLASTIC -84, THE UNCANNY X-MEN	1

5.59 PLASTIC 85 ASSEMBLY

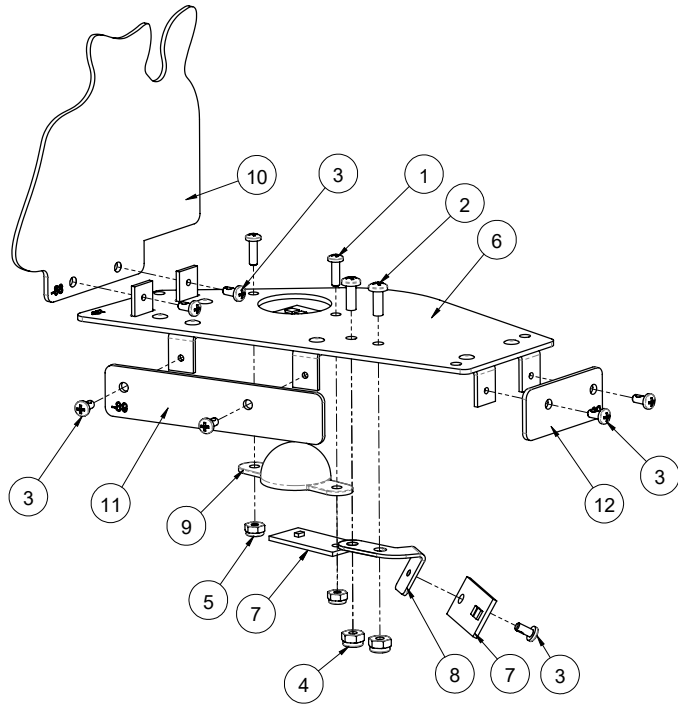
511-5052-85



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	2
2	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	3
3	240-5303-00	4-40 NYLON LOCK NUT	2
4	510-7979-85	PLAYFIELD PLASTIC RIVETED ASM -85, THE UNCANNY X-MEN	1
5	520-7000-00	SINGLE FLASH LED BOARD	1
6	520-8457-00	PCB, SINGLE FLOOD LED - RED	1
7	523-0033-00	FISCHE PAPER, MINI OPTOS	1
8	535-1305-00	BRACKET - PLASTIC MTG - 90°	1
9	550-5032-02	HAT - RED SB	1
10	830-8573-86	PLAYFIELD PLASTIC -86, THE UNCANNY X-MEN	1

5.60 PLASTIC ASSEMBLY 87

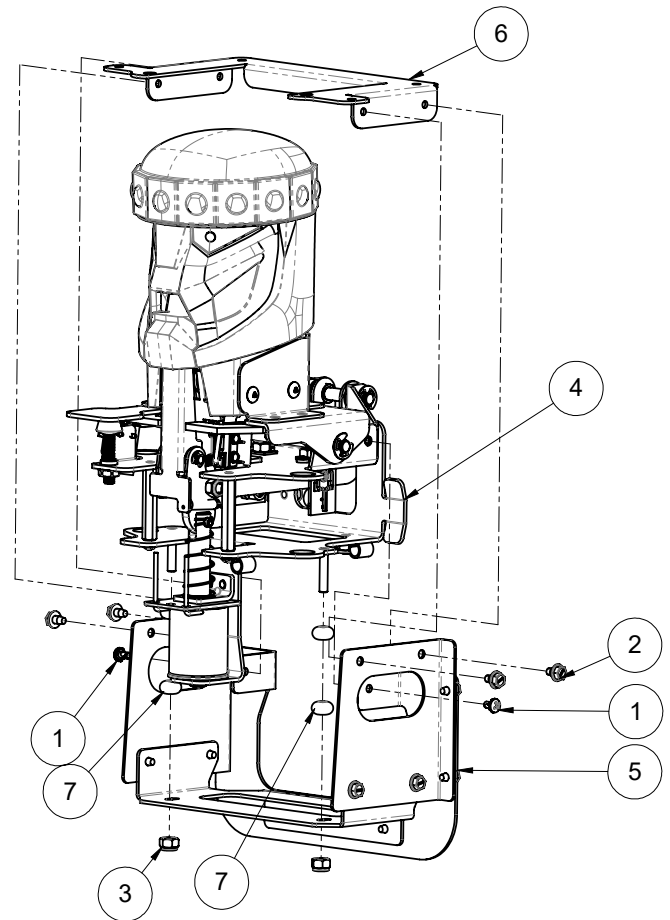
511-5052-87



ID	Part Number	Description	Qty
1	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	2
2	237-6322-00P	SCREW, 6-32 X 3/8" PPH MS ZINC, BLACK	2
3	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	7
4	240-5005-00	6-32 NYLON STOP NUT	2
5	240-5303-00	4-40 NYLON LOCK NUT	2
6	510-7979-87	PLAYFIELD PLASTIC RIVETED ASM -87, THE UNCANNY X-MEN	1
7	520-7000-00	SINGLE FLASH LED BOARD	2
8	535-3086-00	BRACKET, LIGHT, TOY, THE UNCANNY X-MEN	1
9	550-5032-02	HAT - RED SB	1
10	830-8573-88	PLAYFIELD PLASTIC -88, THE UNCANNY X-MEN	1
11	830-8573-89	PLAYFIELD PLASTIC -89, THE UNCANNY X-MEN	1
12	830-8573-90	PLAYFIELD PLASTIC -90, THE UNCANNY X-MEN	1

5.61 SENTINEL HEAD ASSEMBLY

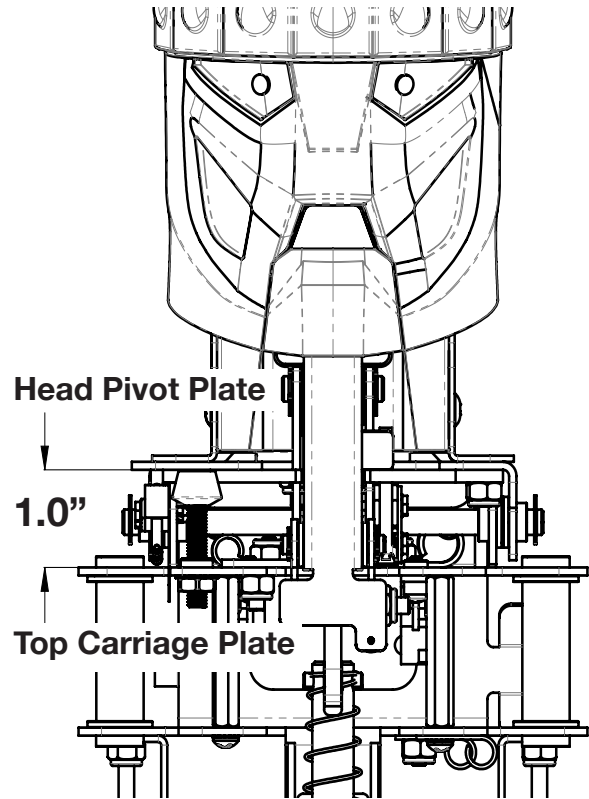
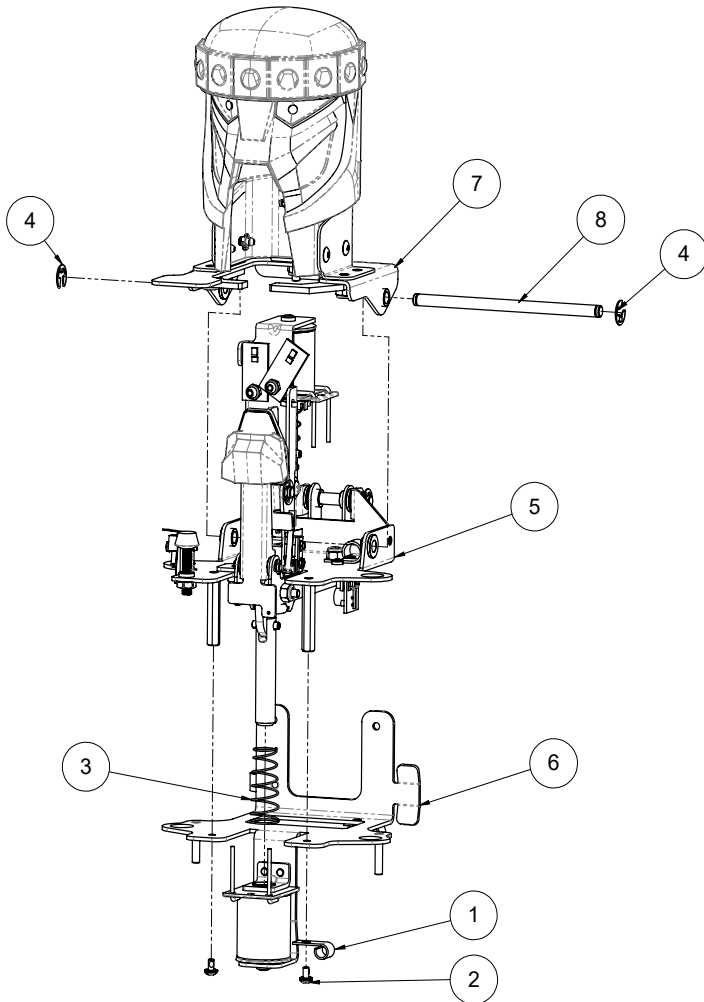
500-5826-00



ID	Part Number	Description	Qty
1	232-5200-00P	SCREW, 6-32 X 1/4" PPH SEMS, PATCH	2
2	237-5975-04	SCREW, 8-32 X 1/4" HWH SWAGE SERR	4
3	240-5102-00	8-32 NYLON LOCK NUT	2
4	511-0017-01	HEAD CARRIAGE ASSEMBLY PRO, THE UNCANNY X-MEN	1
5	511-8573-00	HEAD FRAME SUBASSEMBLY PRO, THE UNCANNY X-MEN	1
6	535-4139-00	TOP PLATE, THE UNCANNY X-MEN	1
7	545-5348-17	7/16 O.D. RUBBER RING - BLACK	4

5.62 SENTINEL HEAD CARRIAGE ASSEMBLY

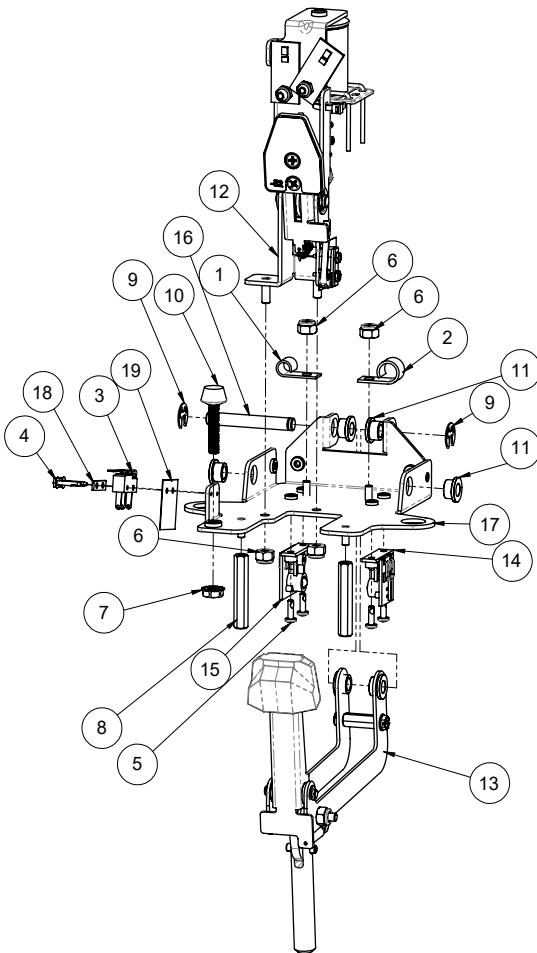
511-0017-01



ID	Part Number	Description	Qty
1	040-5000-03	1/4" CABLE CLAMP	1
2	232-5200-00P	SCREW, 6-32 X 1/4" PPH SEMS, PATCH	4
3	266-5020-02	COMPRESSION SPRING-CONICAL	1
4	270-5002-00	RETAINING RING - 1/4"	2
5	511-0018-01	HEAD TOP PLATE SUBASSEMBLY PRO, THE UNCANNY X-MEN	1
6	511-0019-01	HEAD BOTTOM PLATE SUBASSEMBLY PRO, THE UNCANNY X-MEN	1
7	511-0021-00	TILTING HEAD SUBASSEMBLY, THE UNCANNY X-MEN	1
8	530-7865-10	PIVOT PIN-.250" DIA.	1

5.63 TOP PLATE SUB-ASSEMBLY

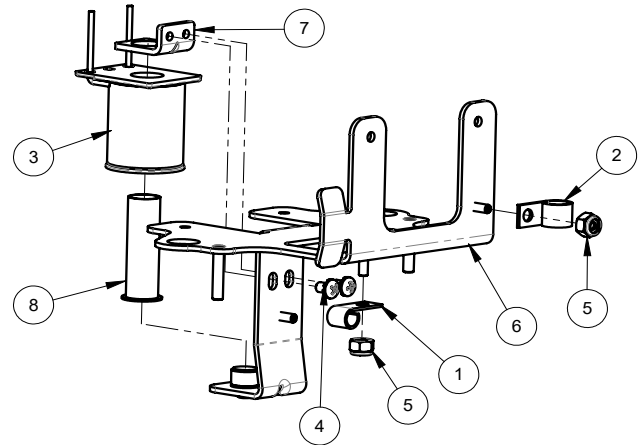
511-0018-01



ID	Part Number	Description	Qty
1	040-5000-03	1/4" CABLE CLAMP	1
2	040-5016-00B	CABLE CLAMP 0.38 BLACK	1
3	180-5010-04	MICRO-SWITCH	1
4	237-5937-02P	SCREW, 2-56 X 1/2" HWH MS, PATCH	2
5	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	4
6	240-5102-00	8-32 NYLON LOCK NUT	4
7	240-5208-00	10-32 KEPS NUT	1
8	254-5008-09	HEX SPACER - 1 1/2 "	2
9	270-5002-00	RETAINING RING - 1/4"	2
10	280-5014-00	ADJUSTABLE BUMPER/STOP	1
11	283-5018-06	1/4 ID X 3/8 OD X 3/16 LG. BUNTING SAE 841 BRONZE FLANGED BEARING-PART #EF040603	4
12	511-0020-00	KICKING TARGET SUBASSEMBLY, THE UNCANNY X-MEN	1
13	511-0024-00	TILTING CHIN SUBASSEMBLY, THE UNCANNY X-MEN	1
14	515-0215-00	LONG RANGE OPTO EMITTER ASSEMBLY	1
15	515-0215-01	LONG RANGE OPTO RECEIVER ASSEMBLY	1
16	530-7865-09	PIVOT PIN-.250" DIA.	1
17	535-5111-00	TOP CARRIAGE PLATE, THE UNCANNY X-MEN	1
18	535-6539-00	SWITCH BODY PROTECT PLATE	1
19	545-6268-00	FISCHE PAPER	1

5.64 BOTTOM PLATE SUB-ASSEMBLY

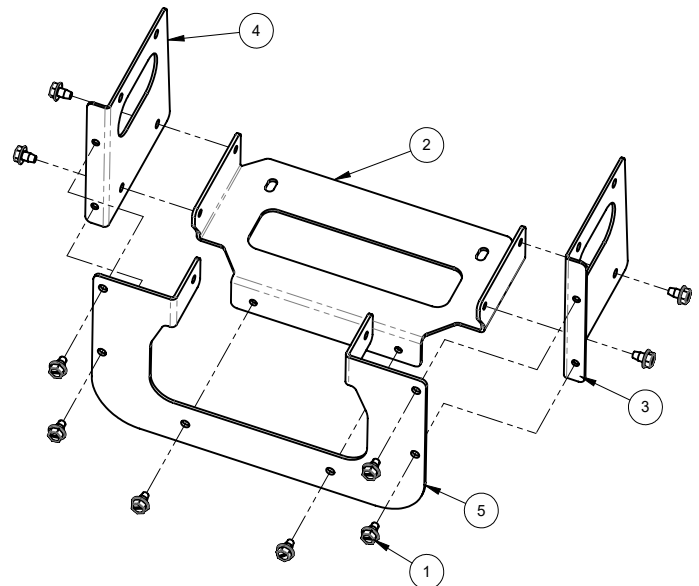
511-0019-01



ID	Part Number	Description	Qty
1	040-5000-03	1/4" CABLE CLAMP	1
2	040-5016-00B	CABLE CLAMP 0.38 BLACK	1
3	090-5091-00	COIL, 26-1200, NO DIODE, LUGLESS	1
4	232-5300-00P	SCREW, 8-32 X 1/4" PPH SEMS, PATCH	2
5	240-5102-00	8-32 NYLON LOCK NUT	2
6	515-8002-00	CARRIAGE BOTTOM PLATE ASM	1
7	535-5203-03	COIL RETAINING BRACKET	1
8	545-5031-00	COIL SLEEVE	1

5.65 HEAD FRAME ASSEMBLY

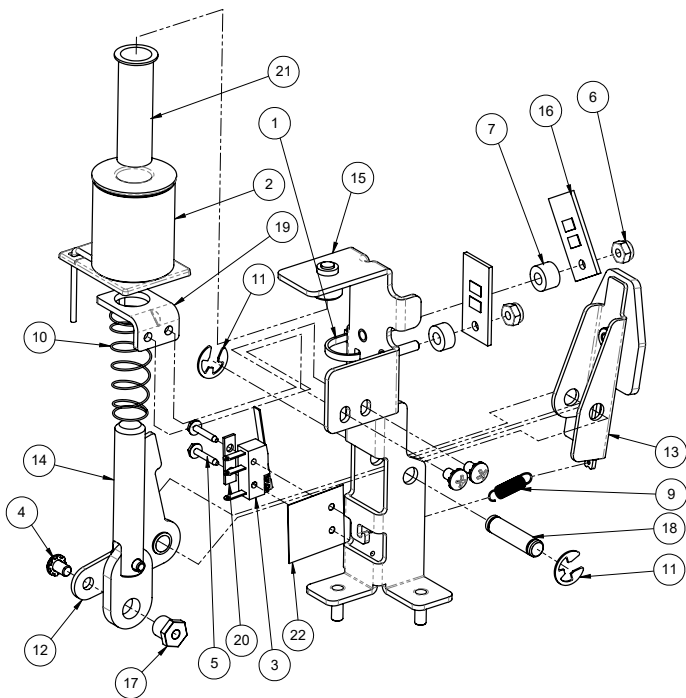
511-8573-00



ID	Part Number	Description	Qty
1	237-5975-04	SCREW, 8-32 X 1/4" HWH SWAGE SERR	10
2	535-3088-00	HEAD FRAME BOTTOM PLATE PRO	1
3	535-3089-00	LEFT PLATE PRO, THE UNCANNY X-MEN	1
4	535-3090-00	RIGHT PLATE PRO, THE UNCANNY X-MEN	1
5	535-3091-00	HEAD ANCHOR PLATE, THE UNCANNY X-MEN	1

5.66 SENTINEL KICKER TARGET ASSEMBLY

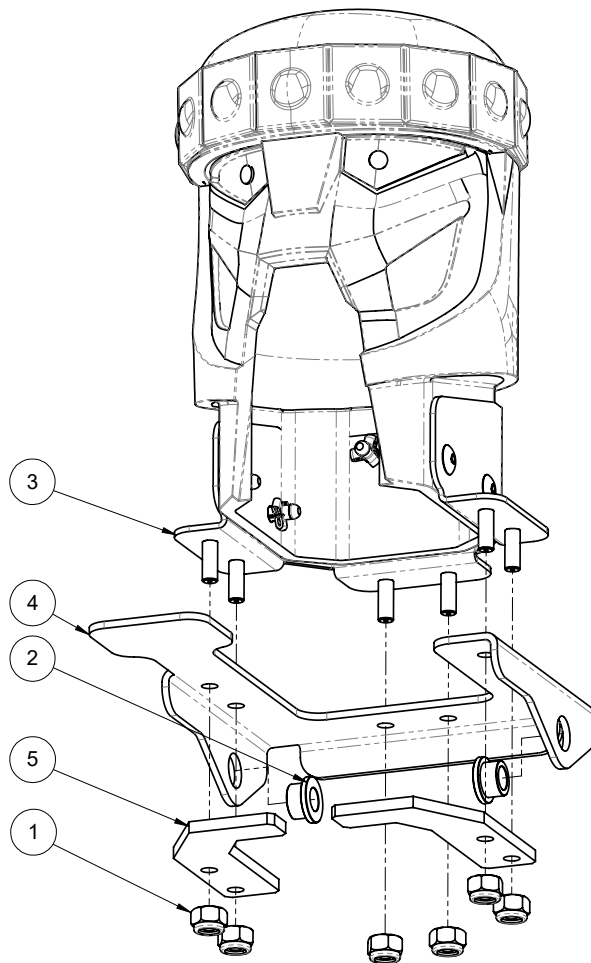
511-0020-00



ID	Part Number	Description	Qty
1		CABLE TIE, BLACK	1
2	090-5091-00	COIL, 26-1200, NO DIODE, LUGLESS	1
3	180-5010-04	MICRO-SWITCH	1
4	232-5300-00	SCREW, 8-32 X 1/4" PPH SEMS	3
5	237-5937-02	SCREW, 2-56 X 1/2" HWH MS	2
6	240-5005-00	6-32 NYLON STOP NUT	2
7	254-5000-09	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/4"	1
8	254-5000-18	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 3/16"	1
9	265-5090-00	EXT SPRING SS 0.188 OPEN HOOKS X 0.75 INSIDE LG	1
10	266-5020-00	COMPRESSION SPRING-CONICAL	1
11	270-5002-00	RETAINING RING - 1/4"	2
12	515-0016-00	KICK ARM ASSEMBLY	1
13	515-1082-00	KICKING TARGET ASSEMBLY, THE UNCANNY X-MEN	1
14	515-6304-03	PLUNGER / LINK ASSEMBLY	1
15	515-8001-00	KICKER COIL BKT ASM, THE UNCANNY X-MEN	1
16	520-8457-00	PCB, SINGLE FLOOD LED - RED	2
17	530-7834-00	PIN: KICKER ARM, AUTO-PLUNGER	1
18	530-7865-08	PIVOT PIN-.250" DIA.	1
19	535-5203-03	COIL RETAINING BRACKET	1
20	535-6539-00	SWITCH BODY PROTECT PLATE	1
21	545-5031-00	COIL SLEEVE	1
22	545-6268-00	FISCHE PAPER	1

5.67 SENTINEL TILTING HEAD ASSEMBLY

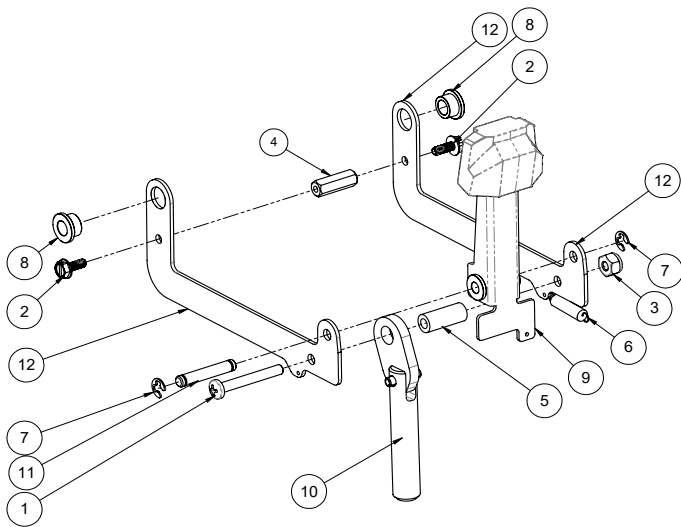
511-0021-00



ID	Part Number	Description	Qty
1	240-5102-00	8-32 NYLON LOCK NUT	6
2	283-5018-06	1/4 ID X 3/8 OD X 3/16 LG. BUNTING SAE 841 BRONZE FLANGED BEARING-PART #EF040603	2
3	515-7891-00	HEAD RIVETED ASM, THE UNCANNY X-MEN	1
4	535-5171-00	HEAD PIVOT PLATE, THE UNCANNY X-MEN	1
5	546-7967-00	CHIN SUPPORT	2

5.68 SENTINEL CHIN ASSEMBLY

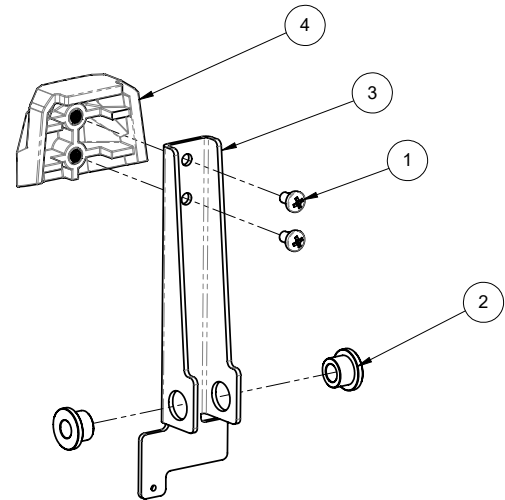
511-0024-00



ID	Part Number	Description	Qty
1	237-5608-00	SCREW, 8-32 X 1-1/4 PPH MS, ZINC	1
2	237-6388-00P	SCREW, 6-32 X 3/8", SLOTTED HWH, TYPE F, PATCH	2
3	240-5102-00	8-32 NYLON LOCK NUT	1
4	254-5008-04	HEX SPACER - 3/4 "	1
5	254-5114-07	NYLON SPACER - BLACK - 5/16" OD X .17 ID X 3/4"	1
6	265-5035-00	EXTENSION SPRING	1
7	270-5001-00	RETAINING E-RING, 3/16" SHAFT OD	2
8	283-5018-06	1/4 ID X 3/8 OD X 3/16 LG. BUNTING SAE 841 BRONZE FLANGED BEARING-PART #EF040603	2
9	511-5462-00	CHIN SUBASSEMBLY, THE UNCANNY X-MEN	1
10	515-6304-03	PLUNGER / LINK ASSEMBLY	1
11	530-7812-10	PIVOT PIN-.188 DIA.	1
12	535-5196-00	MOUTH PIVOT PLATE	2

5.69 SENTINEL CHIN SUB-ASSEMBLY

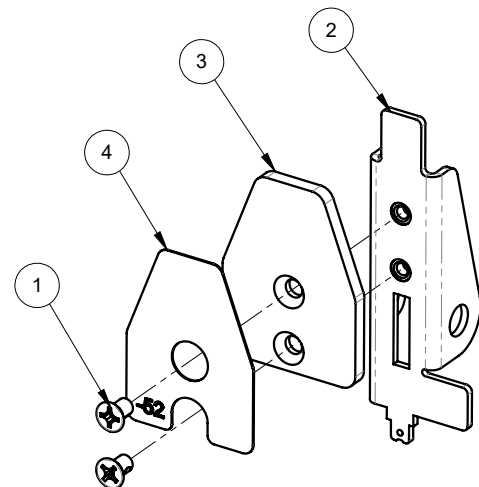
511-5462-00



ID	Part Number	Description	Qty
1	237-5912-00P	SCREW, 4-40 X 3/16" PPH MS, PATCH	2
2	283-5018-03	3/16 ID X 5/16 OD X 1/4 LG. BUNTING SAE 841 BRONZE FLANGED BEARING-PART #EF030504	2
3	535-5197-00	CHIN BACKER	1
4	545-7687-04	FINISHED CHIN, THE UNCANNY X-MEN	1

5.70 KICK TARGET ARM ASSEMBLY

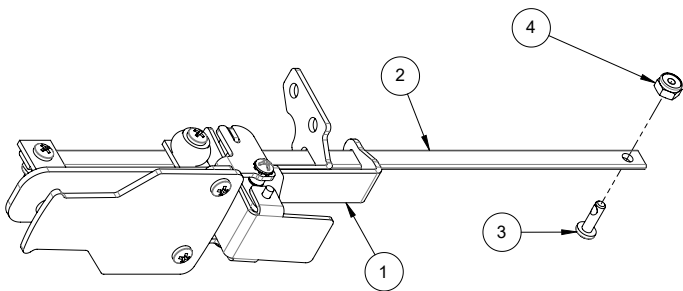
511-5463-00



ID	Part Number	Description	Qty
1	237-5912-00P	SCREW, 4-40 X 3/16" PPH MS, PATCH	2
2	283-5018-03	3/16 ID X 5/16 OD X 1/4 LG. BUNTING SAE 841 BRONZE FLANGED BEARING-PART #EF030504	2
3	535-5197-00	CHIN BACKER	1
4	545-7687-04	FINISHED CHIN, THE UNCANNY X-MEN	1

5.71 BEAKER LEAPER ASSEMBLY

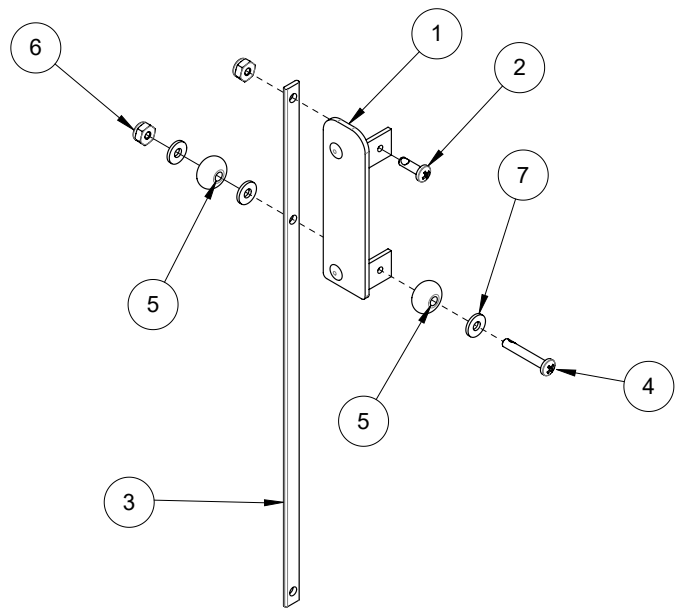
500-1053-00



ID	Part Number	Description	Qty
1	511-3235-00	ASSEMBLY, BEAKER LEVER, THE UNCANNY X-MEN	1
2	511-1051-00	ASSEMBLY, LEAPING LIQUID, THE UNCANNY X-MEN	1
3	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	1
4	240-5303-00	4-40 NYLON LOCK NUT	1

5.73 LEAPING LIQUID ASSEMBLY

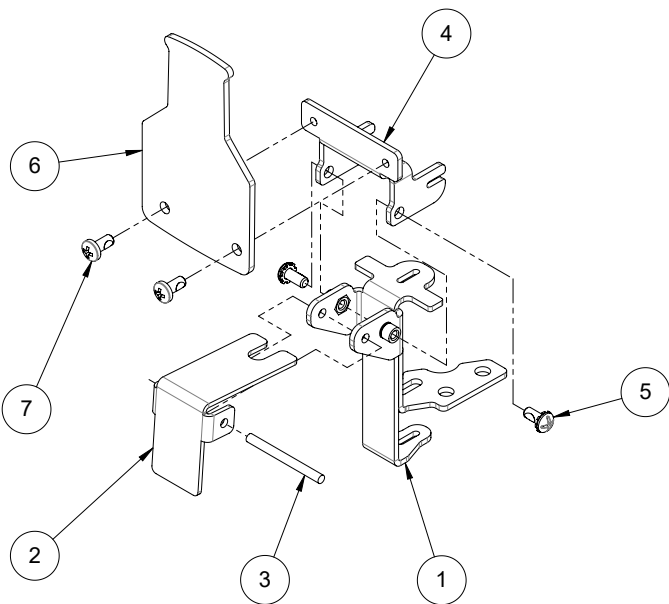
511-1051-00



ID	Part Number	Description	Qty
1	510-7979-92	RIVETED ASSY, PLASTIC #92, THE UNCANNY X-MEN	1
2	237-5997-00P	SCREW, 4-40 X 3/8" PPH MS BLACK, PATCH	1
3	535-2171-00	LEAPER ROD	1
4	237-5887-01P	SCREW, 4-40 X 3/4" PPH MS, BLACK, PATCH	1
5	545-5348-17	RUBBER RING, 7/16" OD X 1/8" ID, BLACK	2
6	240-5303-00	4-40 NYLON LOCK NUT	2
7	242-5002-01	#4 FLAT WASHER - 5/16" O.D. -BLACK	3

5.72 BEAKER LEVER ASSEMBLY

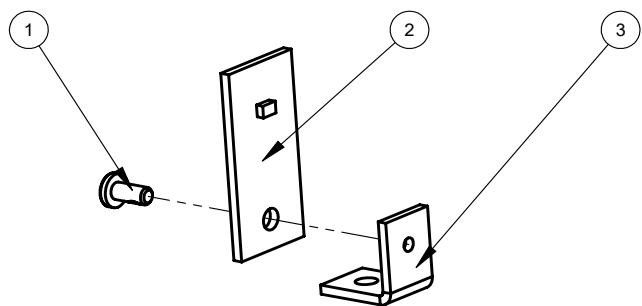
511-3235-00



ID	Part Number	Description	Qty
1	515-5393-00	WELDMENT, LEAPER MOUNT, THE UNCANNY X-MEN	1
2	535-0832-00	BRACKER, LEAPER LEVER, THE UNCANNY X-MEN	1
3	535-7970-02	WIRE, LEAPER, 1.0" LONG	1
4	535-4153-00	BRACKET, BEAKER MOUNT, THE UNCANNY X-MEN	1
5	237-5909-00P	SCREW, 4-40 X 1/4" PPH SEMS, PATCH	2
6	830-8573-91	PLASTIC #91, BEAKER, THE UNCANNY X-MEN	1
7	237-6331-00P	SCREW, 4-40 X 1/4" PPH MS BLACK, PATCH	2

5.74 RAMP LIGHT ASSEMBLY

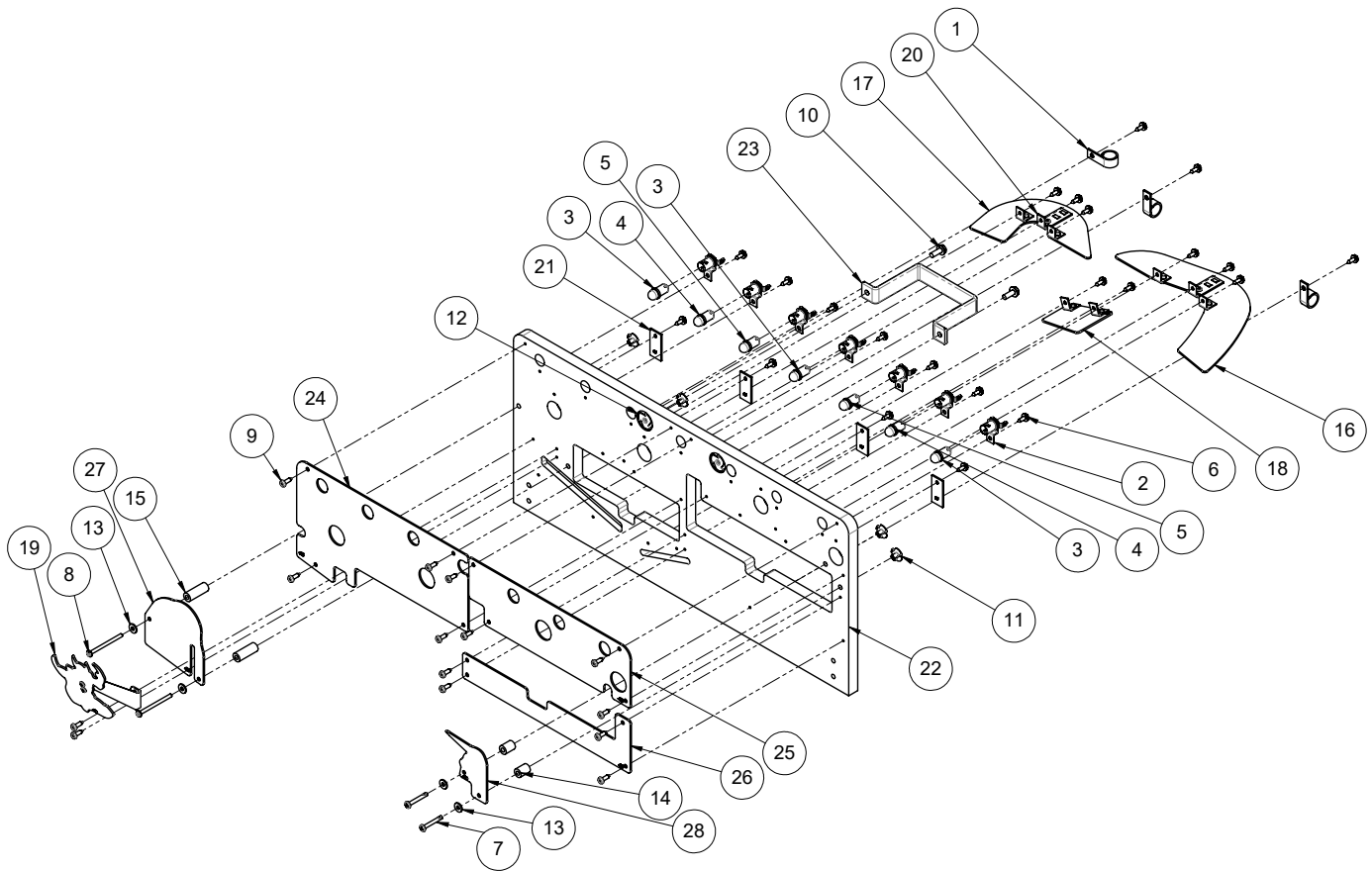
511-9778-00



ID	Part Number	Description	Qty
1	237-6169-00P	SCREW, 4-40 X 1/4" PPH MS, PATCH	1
2	520-5307-00	SINGLE LED PCB	1
3	535-1305-00	BRACKET - PLASTIC MTG - 90°	1

5.75 BACK PANEL ASSEMBLY

500-2691-01



ID	Part Number	Description	Qty
1	040-5000-06	1/2" CABLE CLAMP	3
2	077-5223-00	SOCKET, 2-LUG VERTICAL, SHORT	7
3	112-5024-05F	BLUE, FROSTED	3
4	112-5034-02F	RED, FROSTED	2
5	112-5034-08F	DOUBLE LED, BAYONET BASE - WHITE FROSTED	2
6	234-5000-00	SCREW, #6 X 3/8" HWH	22
7	232-5308-00P	SCREW, 6-32 X 1" PPH MS ZINC, BLACK	2
8	237-5511-01	SCREW, 6-32 X 1-3/4" PPH MS BLACK	2
9	237-5805-00	SCREW, #6 X 1/2" PPH AB BLACK	14
10	237-5995-00	SCREW, 10-32 X 1/2" HWH SERR MS ZI	2
11	240-5002-00	6-32 T-NUT	4
12	240-5204-00	#10-32 T-NUT	2
13	242-5001-01	WASHER	4
14	254-5000-01	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/2"	2
15	254-5000-04	NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1"	2
16	510-5827-01	RAMP COVER RIVETED ASM -01, THE UNCANNY X-MEN	1

ID	Part Number	Description	Qty
17	510-5827-02	RAMP COVER RIVETED ASM -02, THE UNCANNY X-MEN	1
18	510-7979-15	PLAYFIELD PLASTIC RIVETED ASM -15, THE UNCANNY X-MEN PRO	1
19	511-3225-01	WOLVERINE ASSEMBLY, PRO, THE UNCANNY X-MEN	1
20	511-9778-00	ASSEMBLY, RAMP LIGHT, THE UNCANNY X-MEN	2
21	520-5307-00	SINGLE LED PCB	4
22	525-9804-00	BACKPANEL, THE UNCANNY X-MEN	1
23	535-2288-00	HANDLE, BACKPANEL	1
24	830-8573-25	PLAYFIELD PLASTIC -25, THE UNCANNY X-MEN PRO	1
25	830-8573-26	PLAYFIELD PLASTIC -26, THE UNCANNY X-MEN PRO	1
26	830-8573-27	PLAYFIELD PLASTIC -27, THE UNCANNY X-MEN PRO	1
27	830-8573-28	PLAYFIELD PLASTIC -28, THE UNCANNY X-MEN PRO	1
28	830-8573-29	PLAYFIELD PLASTIC -29, THE UNCANNY X-MEN PRO	1

6. SPECIFICATIONS

500-55Y5-01

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.

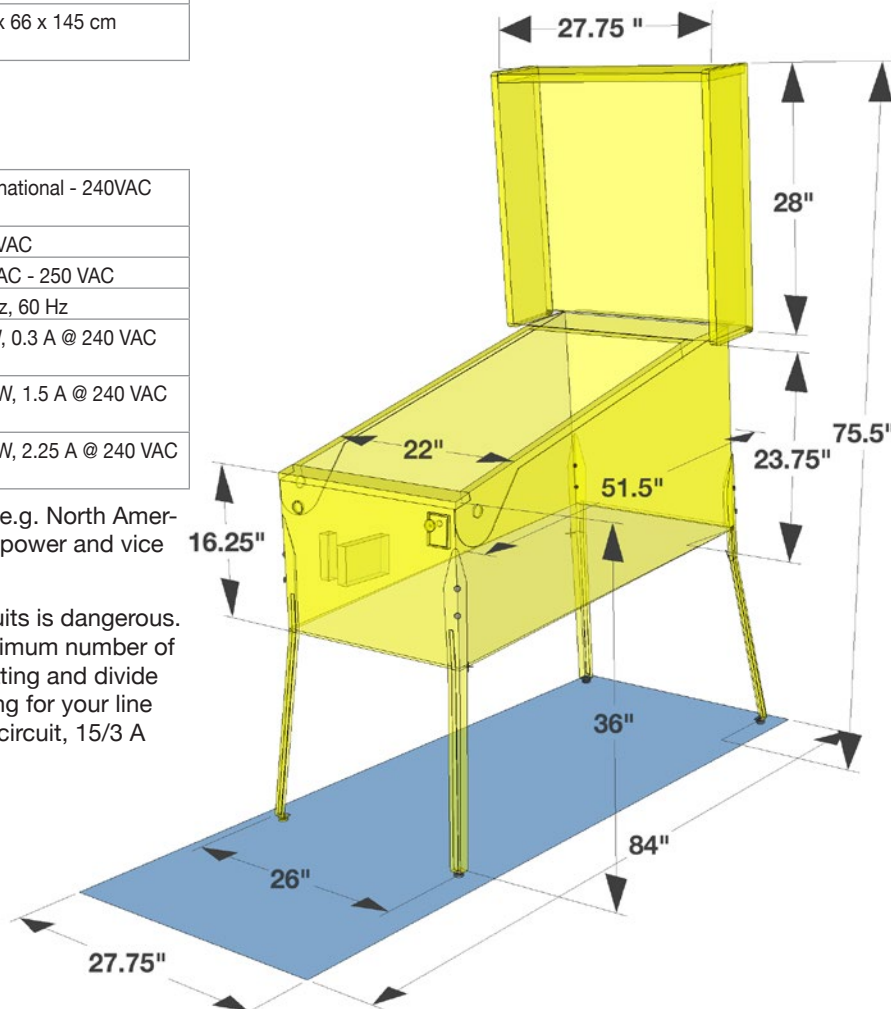
WARNING: Overloading electrical supply circuits is dangerous. Do not overload circuits. To calculate the maximum number of games for a circuit, check circuit amperage rating and divide by the game Nominal Line Power Current rating for your line voltage. For example, a 15A 120V household circuit, 15/3 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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6.4 STERN PINBALL END USER LICENSE AGREEMENT

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- a. “Stern Pinball Machine” means a Stern Pinball arcade game machine.
- b. “Stern Pinball Software” means software (including but not limited to firmware) pre-installed in the Stern Pinball Machine, including all Authorized Content and any Authorized Updates that Stern Pinball may make available to You from time to time.
- c. “Authorized Content” means all Stern Pinball and third-party owned software and content incorporated into or used with the Stern Pinball Software or otherwise embedded in or utilized by a Stern Pinball Machine, including but not limited to graphics, images, music, vocals and voices.
- d. “Authorized Update” means an update to the Stern Pinball Software distributed by Stern Pinball or otherwise made available by Stern Pinball, including for download on its website.
- e. “Unauthorized Content” means all content, including but not limited to graphics, images, music, vocals and voices, that does not comprise Authorized Content or an Authorized Update.
- f. “Unauthorized Software” means any software (including but not limited to firmware) not pre-installed by Stern Pinball on a Stern Pinball Machine or that does not comprise Authorized Content or Authorized Update.
- g. “You” means the purchaser or current owner of a Stern Pinball Machine.

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 - ii. **You will not use or install any Unauthorized Content or Unauthorized Software. Use of Unauthorized Content or Unauthorized Software may result in your Stern Pinball Machine ceasing to work permanently and/or losing access to Stern Pinball’s online game network, either immediately or after a later installed Authorized Update.**

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- v. In view of the rights held by third-party owners of Authorized Content (e.g., music and video clips), Stern does not have the legal authority to give permission to stream the gameplay of Stern Pinball Machines.
- vi. You will not attempt to defeat or circumvent any anti-piracy, security, and/or technical measures to control access to the Stern Pinball Software, features, functions or content, prevent unauthorized use, or otherwise prevent anyone from exceeding the limited license rights granted under this Agreement, "Security Measures". Attempting to defeat or circumvent any Security Measure may result in your Stern Pinball Machine ceasing to work permanently either immediately or after a later installed Authorized Update.
- vii. **Stern Pinball may update the Stern Pinball Software from time to time without further notice to You, for example, to update any anti-piracy, security, and technical measure.**

PRIVACY POLICY

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