MB-16-50065101
REV 1.0

MONSTER BASH™
REMAKE

OPERATIONS MANUAL

·For service open a help desk ticket at www.chicago-gaming.com/support

·Parts advanced under warranty are the responsibility of Chicago Gaming Company.

·All parts sales are made exclusively through Planetary Pinball. See www.planetarypinball.com.

Models: 13000-CE, 13000-SE, 13000-LE

Operations Manual Includes:

Operations & Adjustments • Testing & Problem Diagnosis • Parts Information • Reference Diagrams & Schematics

Chicago Gaming Company · 4616 W. 19th St. Cicero, IL 60804 · (708) 780-0070

DIP Switch Chart

COUNTRY	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
AMERICA	Off	Off	On	On	On	On	On	On
EUROPEAN	Off	Off	On	On	On	Off	On	On
FRENCH	Off	Off	On	On	On	On	Off	Off
GERMAN	Off	Off	On	On	On	On	On	Off
SPAIN	Off	Off	On	On	Off	On	On	On

SOLENOID/FLASHER TABLE

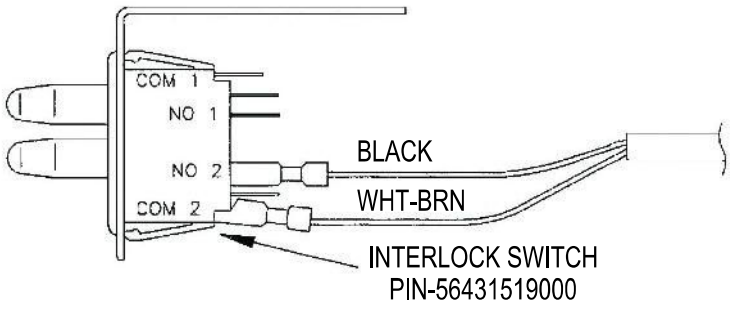
MONSTER BASH Solenoid - Flasher Table

WMS#	Solenoids	Driver Brd	FET#	Con.	FUSE	WIRE COLOR	PART#
01	AUTO PLUNGER	SP	Q101	J116p1	F103	VIO/WHT	AE-24-900
02	BRIDE POST	SP	Q102	J116p2	F103	VIO/BLK	AE-26-1500
03	MUMMY COFFIN	SP	Q103	J116p3	F103	VIO/ORN	AE-27-1200
04	NOT USED	SP	Q104	J116p4	F103		
05	NOT USED	SP	Q105	J116p6	F103		
06	NOT USED	SP	Q106	J116p7	F103		
07	NOT USED	SP	Q107	J115p2	F103		
08	RAMP LOCK POST	SP	Q108	J116p9	F103	VIO/GRN	AE-27-1200
09	TROUGH EJECT	SP	Q109	J113p1	F107	VIO/RED	AE-26-1500
10	LEFT SLINGSHOT	SP	Q110	J113p2	F102	BRN/BLK	AE-26-1200
11	RGHT SLINGSHOT	SP	Q111	J113p4	F102	BRN/RED	AE-26-1200
12	LEFT JET	SP	Q112	J113p5	F102	BRN/ORN	AE-26-1200
13	RIGHT JET	SP	Q113	J113p6	F102	BRN/GRN	AE-26-1200
14	BOTTOM JET	SP	Q114	J113p7	F102	BRN/YEL	AE-26-1200
15	LEFT EJECT	SP	Q115	J113p8	F107	BRN/WHT	AE-30-2000
16	RIGHT POPPER	SP	Q116	J113p9	F107	VIO/YEL	AE-25-8100
	FLASHERS						
17	WOLFMAN FLASHERS BB Insert	PF-?	Q47A	J9p5 (2) BACK		PANEL	PIN-PCB-MOTFLS PIN-PCB-BBFLASH
18	BRIDE FLASHERS BB Insert	PF	Q50PB	J9p6			PIN-PCB-TRUFLSH PIN-PCB-BBFLASH
19	FRANKENSTEIN FLASHERS BB Insert	PF	Q50PA	J9p7 (2)			PIN-LMP-T3DBLCW PIN-PCB-BBFLASH
20	DRAC COFFIN FLASHERS BB Insert	PF	Q46B	J17p2			PIN-PCB-TRUFLS2 PIN-PCB-BBFLASH
21	CREATURE FLASHERS	PF	Q45B	JF21 (2)			PIN-PCB-THINFLS
22	JETS/MUMMY FLASHERS BB Insert	PF	Q45A Q33A	J19p4 (2) PL71			PIN-PCB- TRUFLSH PIN-PCB-BBFLASH
23	RIGHT POPPER FLASHER	PF	Q40B	J19p3			PIN-PCB-3PNFLSH
24	FRANK ARROW FLASHER	PF	Q46B	CR90,CR91,CR92			MB-PCB-PLAYFLD
25	MONSTERS OF ROCK FLSHR BB Insert	PF	Q43A	J8p9			MB-PCB-7LAMP PIN-PCB-BBFLASH
26	WOLFMAN LOOP FLASHERS BB Insert	PF	Q47B	J9p3 (2)		WHT-ORG	AE-27-1200
27	FRANKENSTEIN MOTOR	PF	Q55	J6 p2,3	F1	BLU-BLK	PIN-14-HTSOG37C
28	UP/DWN BANK MOTOR	PF	Q57	J7p2,3	F1	BLU-YEL	PIN-14-HTSOG37C
05	LEFT GATE	PF	Q49B	J9p2	F1		PIN-A-27700
06	RIGHT GATE	PF	Q49A	J19p2	F1		PIN-A-27700
37	DRACULA MOTOR FORWARD	PF	U33p5	J23	F1		PIN-14-8034
38	DRACULA MOTOR BACKWARD	PF	U33p7	J23	F1		
	FLIPPERS						
29	FLIPPER RIGHT POWER	SP	Q124	J119	F116	GRA-RED	FL-11629
30	FLIPPER RIGHT HOLD	SP	Q131	J119	F116	GRA-BLK	Blue
31	FLIPPER LEFT POWER	SP	Q125	J119	F115	GRA-YEL	FL-11629
32	FLIPPER LEFT HOLD	SP	Q132	J119	F115	GRA-WHT	Blue
33-34	NOT USED	SP	Q126	J120	F118		
35-36	NOT USED	SP	Q128	J120	F117		
	GENERAL ILLUMINATION						
01	BOTTOM PLAYFIELD	PF	Q64,Q65	PL3+4		WHT-BRN	PIN-LMP-LEDRGB
02	TOP RIGHT PLAYFIELD	PF	Q61,Q61	PL1		WHT-ORG	PIN-LMP-LEDRGB
03	TOP LEFT PLAYFIELD	PF	Q65,Q66	PL7		WHT-YEL	PIN-LMP-LEDRGB
04	TOP INSERT	CONTRLR	Q5A	J4 P9		RED-GRN	PIN-PCB-24LEDBR
05	BOTTOM INSERT	CONTRLR	Q7A	J4 P13		BLK-YEL	PIN-PCB-24LEDBR

IMPORTANT NOTICE

PLEASE READ

This pinball game is equipped with a SAFETY FEATURE to prevent shocks from the solenoid circuit when the coin door is opened. An interlock switch, located at the left of the coin door opening, has been added to the game. When the coin door is opened, this interlock switch opens, breaking the connection to the +50V winding of the transformer secondary.



Safety Notices

The following safety instructions apply to all game operators. We recommend that you read this page before setting up Monster Bash. Use the following safety guidelines to help protect the system from potential damage and to ensure your personal safety.

- Monster Bash will function at either 115V or 230V. Instructions on changing operating voltage can be found on Page 1-6.
- If operating at 230V, the operator must use a CE certified power cord rated for 240V, 5A.
- To help prevent electric shock, plug the system power cables into properly grounded power sources. These cables are equipped with 3-prong plugs to help ensure proper grounding.
  Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- Do not spill food or liquid on your system.
- Do not push any objects into the openings of the system. Doing so can cause fire or electric shock by shorting out interior components.
- Keep your game far away from radiators and heat sources.
- Do not block cooling vents.
- Before working on the machine be sure to unplug it.
- Be sure to use fuses that meet the specified rating. Using fuses exceeding the specified rating can cause a fire and electrical shock.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or service agent.
- CAUTION, battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.
- CAUTION, when you raise the backbox, it must be secured in place with the wing bolts provided. These can be found in the cash box. Do not rely on the latch alone. Instructions for lowering the speaker panel to access the mounting holes can be found on page 1-3.

FCC Compliance

Note: 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 instructions 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.

MONSTER BASH

Information current at time of release.

Fill out and mail in warranty registration card. Be sure to include the game serial number. For your records, write the game serial number in the manual.

We reserve the rights to make modifications and improvements to its products.

The specifications and parts identified in this manual are subject to change without notice.

TABLE OF CONTENTS

Section 2 Continued...

Section 3 Continued...

NOTES

MONSTER BASH
RULES
&
PLAYFIELD SHOTS

DIABOLICAL DIRECTIONS

SKILL SHOT: Collect flashing light in the top lanes (D-I-G) for points and a random Monster Item. Use flippers to change lanes.

MONSTER FEATURES: Collect monsters by starting each monster's feature.

- CREATURE FEATURE: Shoot lagoon to collect awards.
- BALL & CHAIN: Complete left and right ramps.
- FRANK COMES ALIVE: Collect body parts by hitting Frank targets and shoot Frank ramp to start Multiball.
- MUMMY MAYHEM: Get jet bumper hits to light Mummy Mayhem.
- FULL MOON FEVER: Collect moon phases (loop shots) to start Full Moon Fever.
- DRAC ATTACK: Hit Drac Attack targets to spell DRACULA.

Finish features to collect musical instruments.

EXTRA BALL: Collect monster(s) or shoot Mosh Pit (spinner shot) to light extra ball.

SPECIAL: Collect musical instrument(s) to light Special.

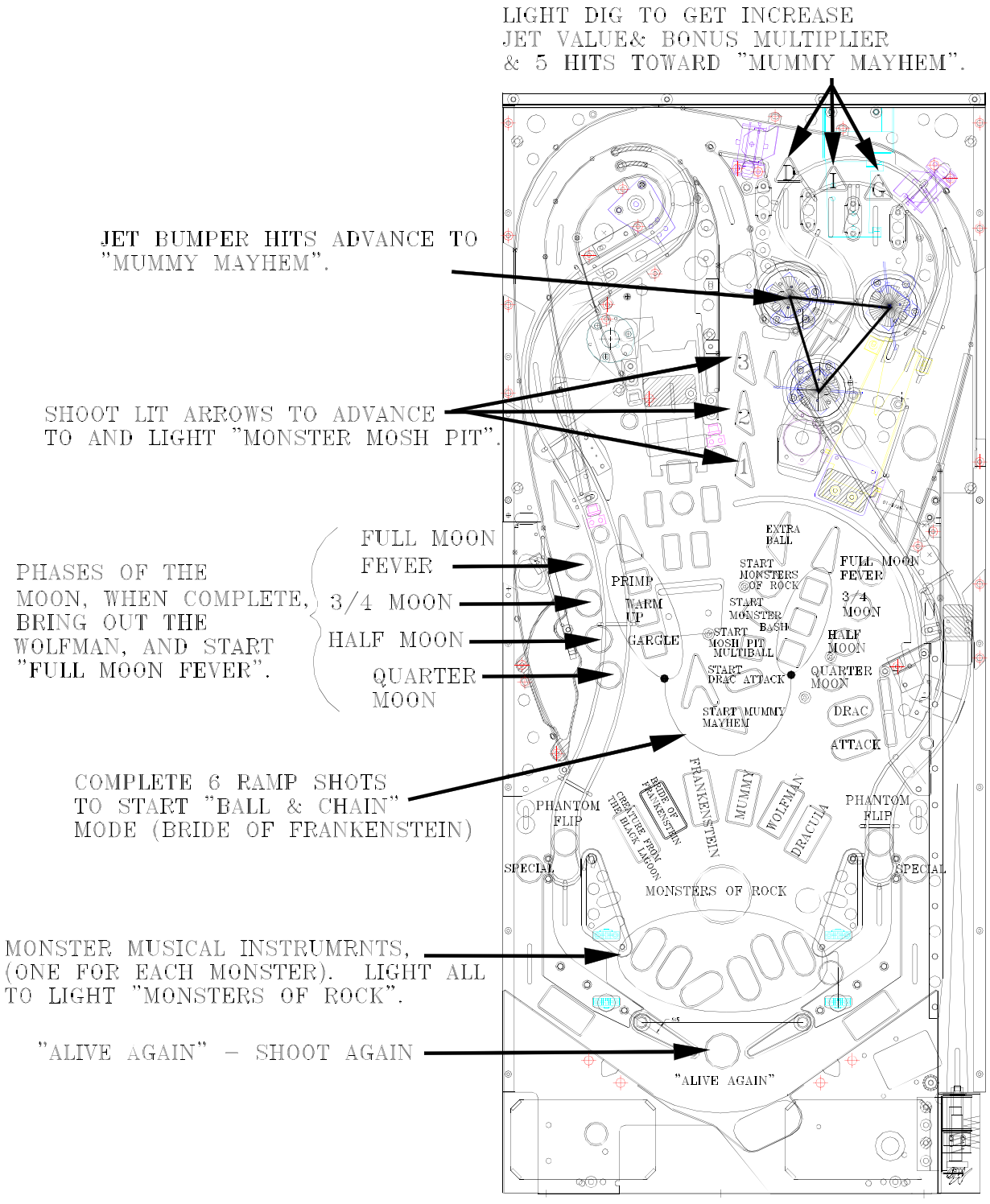
MONSTER BASH: Collect all six monsters to light Monster Bash.

MONSTERS OF ROCK: Collect all six musical instruments to light Monsters of Rock.

MONSTER ITEMS: Shoot Mosh Pit (spinner shot) to collect items. Use Monster Items by hitting launch button during features for easier scoring.

MOSH PIT MULTIBALL: Shoot Mosh Pit (spinner) to light Mosh Pit Multiball.

PLAYFIELD SHOTS



PLAYFIELD SHOTS

"TOMB TREASURES"
HIT "TOMB TREASURES" TARGETS TO GET 10X JETS & 1 BONUS "X".

HITTING ALL 3 TARGETS LIGHTS "PHANTOM FLIP".

SIGN WITH LAMPS ABOVE PLAYFIELD.

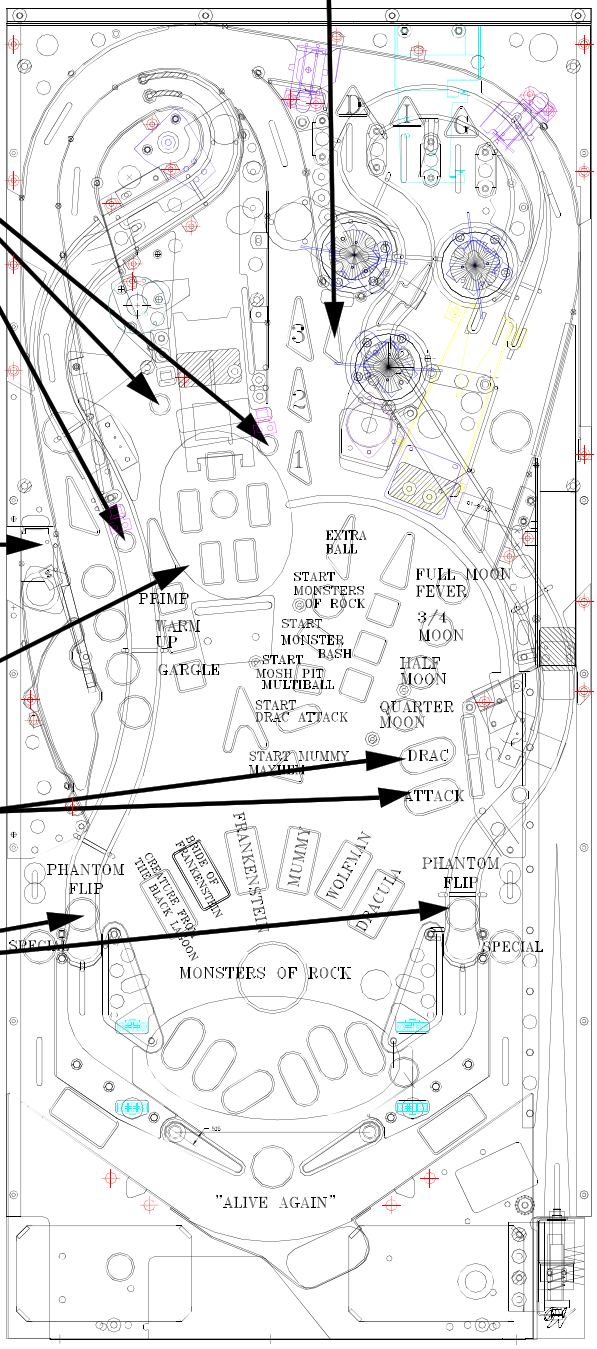
- POND SCUM
- ALGAE
- SEAWEED
- MUCK

CREATURE FEATURE, MAKE 4 SHOTS TO START MODE.

FRANKENSTEIN'S BODY PARTS, COLLECT THEM ALL TO LOWER TARGET AND ALLOW RAMP SHOT TO START "FRANK COMES ALIVE" MULTIBALL.

HIT THESE TARGETS TO SPELL DRACULA AND LIGHT "DRAC ATTACK".

"PHANTOM FLIP", THE MACHINE ATTEMPTS TO COMPLETE THE REQUIRED SHOT WHEN BALL ENTERS EITHER LANE IF "PHANTOM FLIP" IS LIT.



NOTES

SECTION ONE

GAME OPERATION
AND TEST INFORMATION

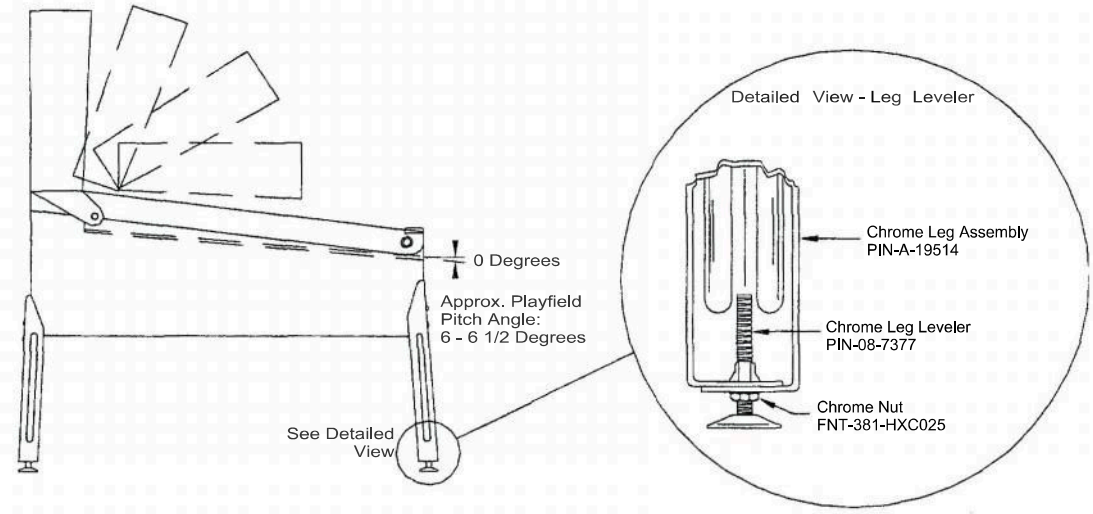
PINBALL GAME ASSEMBLY INSTRUCTIONS

MONSTER BASH IS A FOUR BALL GAME.

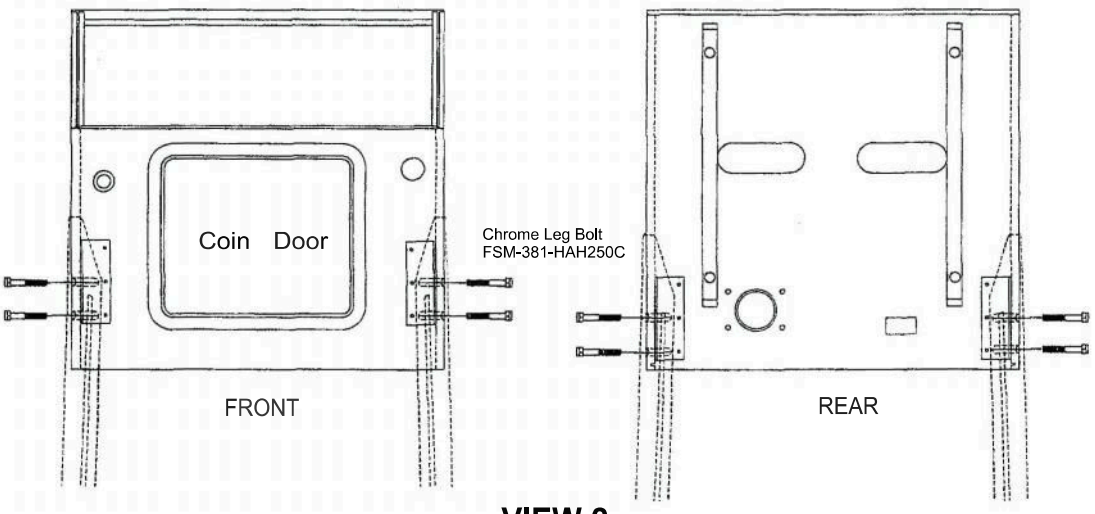
Power:	Domestic 115V @ 60Hz Foreign 230V @ 50Hz	***Dimensions:***	Width: 29" approx. Depth: 55" approx. Height: 75" approx.
Temp:	32°F to 100° F, (O°C to 38°C)		
Humidity:	Not to exceed 95% relative.	***Weight:***	325 lb. approx. (crated)

NOTE: FOR TOPPER INSTALLATION INSTRUCTIONS, SEE PAGE 2-29

1. Remove all cartons, parts, and other items from the shipping container and set them aside.
2. Leg levelers come installed in the legs, and the leg bolts are installed in the leg mounting brackets. Remove the leg bolts from the cabinet. Place the cabinet on a support and attach rear legs using leg bolts (View 2).
3. Attach front legs using leg bolts (View 2).



VIEW 1



VIEW 2

Alternate Finish Part Numbers

STAINLESS FRONT MOLDING PIN-D-12615SS

STAINLESS SIDE MOLDING PIN-01-89934

STAINLESS LEG ASSEMBLY PIN-A-19514

BLUE FRONT MOLDING PIN-D-12615BL

BLUE SIDE MOLDING PIN-01-89934BL

BLUE LEG ASSEMBLY PIN-D-12615BL

4. Reach into the cabinet and backbox and ensure that the interconnecting cables are not kinked or pinched. Be careful to avoid damaging wires at any stage of the assembly process.

5. Raise the hinged backbox upright and latch it into position.

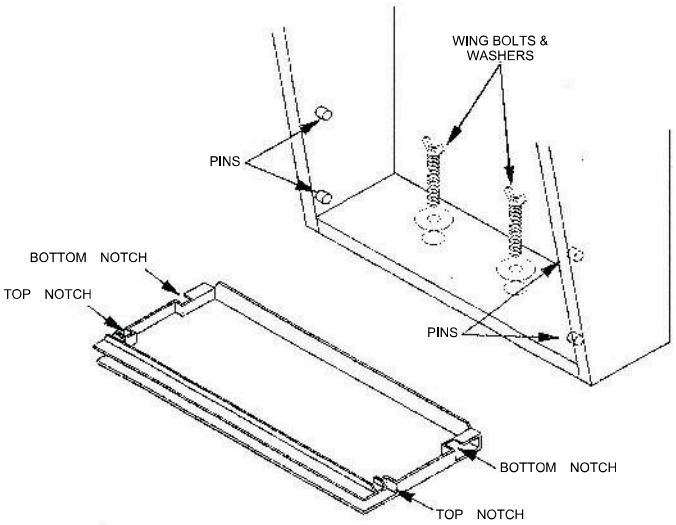
Unlock the backbox. Carefully, lift the backglass/insert panel from the bottom and slide it out of the backbox. Lay it down on the playfield glass. Unplug the insert panel cable from the controller PCB. Carefully, set the backglass/insert panel aside.

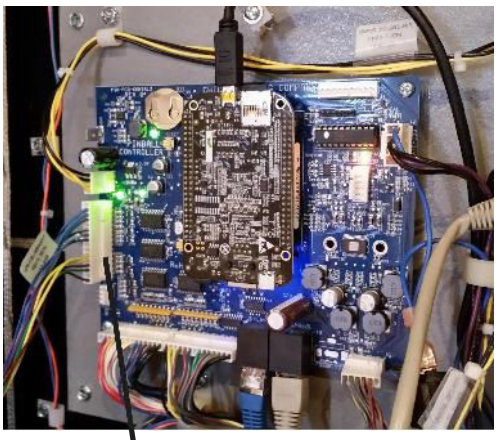
Note: *The speaker panel uses a new hinging system. The bottom of the speaker panel remains attached to the backbox unit when released.*

Carefully lift the speaker panel so that the top notches clear the top pins. Rotate it away from the backbox and toward the playfield glass. The bottom of the speaker panel remains attached to the backbox unit.

Lowering the speaker panel allows access to the holes for the bolts used to secure the backbox upright. Install one washer-head mounting bolt with washer a through each hole and into the threaded fasteners in the cabinet.

Note: You have the option of removing the speaker panel completely. Lay the speaker panel on the playfield glass.
For Large Display: Unplug the HDMI display cable, speaker cable, monitor power cable, and ground cable. Line up the bottom notches with the bottom backbox pins. Lower the speaker panel through the notches and slide it under the backbox pins.
For Small Display: Unplug the HDMI display cable, speaker cable, monitor power cable, and monitor keyboard cable. Line up the bottom notches with the bottom backbox pins. Lower the speaker panelthrough the notches and slide it under the backbox pins.





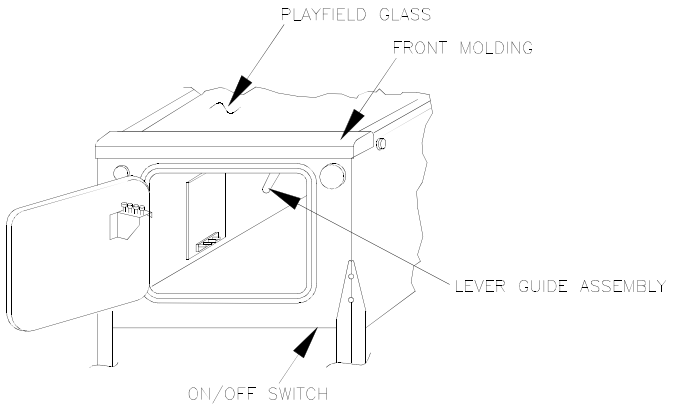
Connector for Insert Panel

6. After the wing-head mounting bolts are installed, replace the speaker panel and the backglass/insert panel. Lock the backbox.

CAUTION

FAILURE TO INSTALL the backbox mounting hardware properly can cause personal injury. ***NEVER TRANSPORT*** a pinball game with the hinged backbox erect. Always lower the backbox forward onto the playfield cabinet on a layer of protective material to prevent marring or damage and possible personal injury.

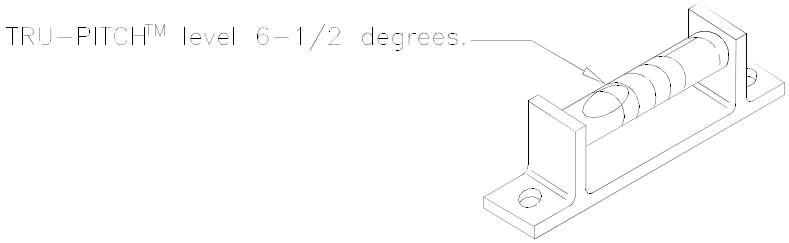
8. Unlock and open the coin door. Move the lever guide toward the left side of the game, and lift the front molding off of the playfield cover glass. Slide the lever guide to the right, and close the coin door. Carefully slide the glass downward, until it clears the grooves of the left and right side moldings. Lift the glass up and away from the game, storing it carefully to avoid breakage.



9. Place a level or an inclinometer on the playfield surface. Adjust the leg levelers for proper playfield level (side-to-side).

   Note: *This measurement must be made ON the playfield, not the cabinet or the playfield cover glass. Tighten the nut on each leg leveler shaft to maintain this setting.*

10. The TRU-PITCH™ level is located on the right shooter rail. This allows the playfield pitch angle to be properly adjusted WITHOUT REMOVING THE GLASS. The first line (closest to the front of the game) on the level is approximately 6 degrees. Every line thereafter is approximately another 1/2 degree of pitch. The recommended pitch is 6-1/2 degrees. The NOSE of the bubble should be between the first and second line on the level (see diagram below).



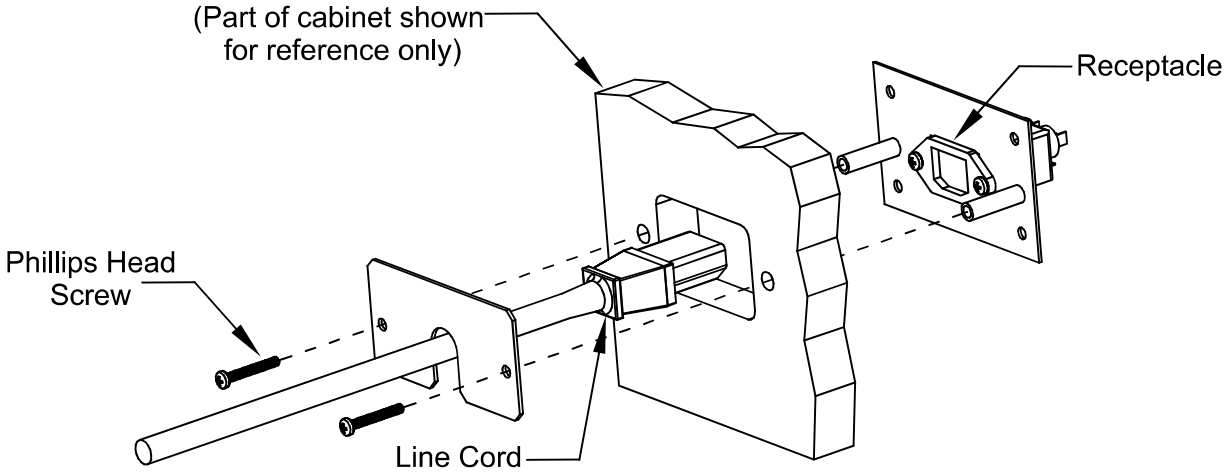
IMPORTANT!

Playfield pitch angle can affect the operation of the plumb bob tilt. The plumb bob weight is among the parts in the cash box; the operator should install the weight and adjust this tilt mechanism for proper operation, after completion of the desired playfield pitch angle setting. The unit is factory installed for a 6-1/2 degree angle. If an adjustment is necessary, loosen the screw at the bottom of the unit. Move the pointer, one grove at a time to the left or the right, depending on the degree desired. Hold the pointer in place and tighten screw

11. Be sure the ***required number*** of balls is installed. The **MONSTER BASH** game uses FOUR balls.

12. Clean and reinstall the playfield cover glass. Replace and lock the front molding.

13. To attach the line cord, retrieve the line cord cover and two black Phillips-head screws, to mount the cover, from the cash box. Match the prongs on the plug with the holes in the receptacle, and push the line cord securely into place. Make sure the cord is aligned with the indentation on the cabinet (indentation should point toward bottom of the cabinet). Slide the line cord cover plate over the line cord, and align the holes with the cabinet. Secure the plate with the two screws.



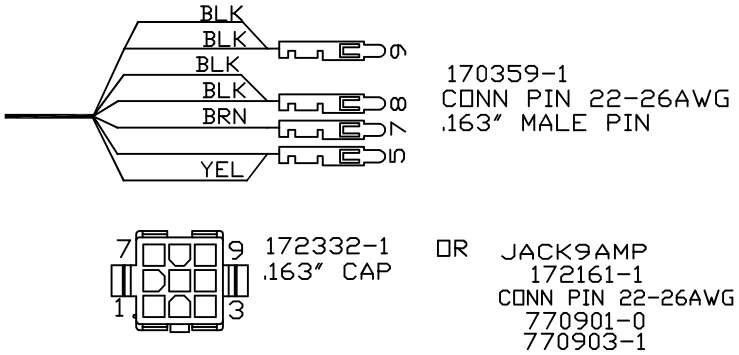
14. Move the game into the desired location; recheck the level and pitch angle of the playfield.

15. IMPORTANT: Fill out and return the warranty registration card.

Bill Acceptor

Monster Bash Remake was designed to use a 12V Bill Acceptor. We recommend using MEI AE2654U5E. This is an MEI 12VDC Upstacker Bill Acceptor 12VDC with 500 Cashbox.

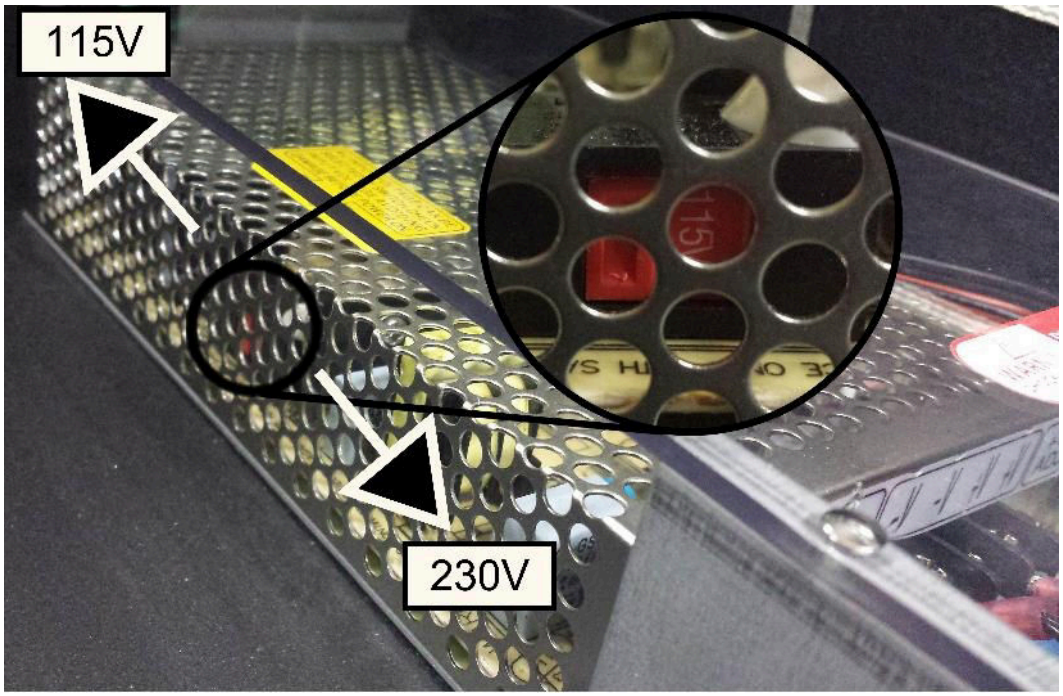
The connector for the bill acceptor can be found on the left side, inside the cabinet, near the plumb bob tilt mechanism.

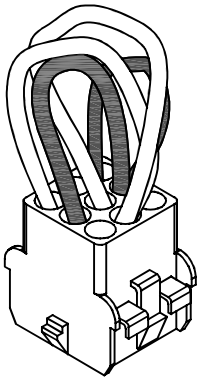


VOLTAGE SELECTION

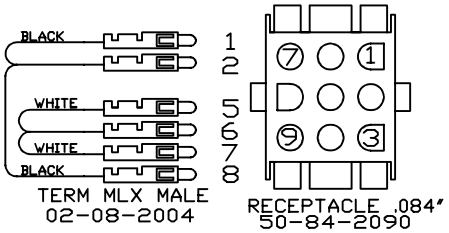
CAUTION

If you are converting a game between 115V and 230V, be sure to change the AC Input Selection switch on the power supply, and use the correct voltage selection block, shown below.

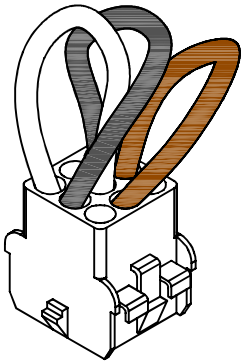




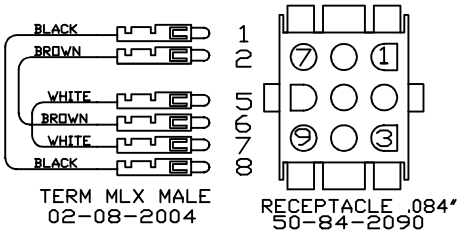
115V Voltage Selection Block
PIN-CBL-VOLT120



Viewed from top



230V Voltage Selection Block
PIN-CBL-VOLT240



Viewed from top

GAME CONTROL LOCATIONS

Cabinet Switches

The On-Off Switch is on the bottom of the cabinet near the right front leg. Press the side of the rocker switch closest to the front of the cabinet to power the game on.

The Start Button is a push-button to the left of the coin door on the cabinet exterior. Press the Start button to begin a game, or during the diagnostic mode, to ask tor HELP.

Coin Door Buttons

The operator controls all game adjustments, obtains bookkeeping information, and diagnoses problems, using only four push-button switches mounted on the inside of the coin door. The coin door buttons have two modes of operation Normal Function and Test Function.

Normal Function

The Service Credits button puts credits on the games that are not included in any of the game audits.

The Volume Up (+) button raises the sound level of the game. Press and hold the button until the desired level is reached.

The Volume Down (-) button lowers the sound level of the game. Press and hold the button until the desired level is reached. See Adjustment A.1 28 to turn sound off completely.

The Begin Test button starts the Menu System operation and changes the coin door buttons from Normal Function to Test Function.

Test Function

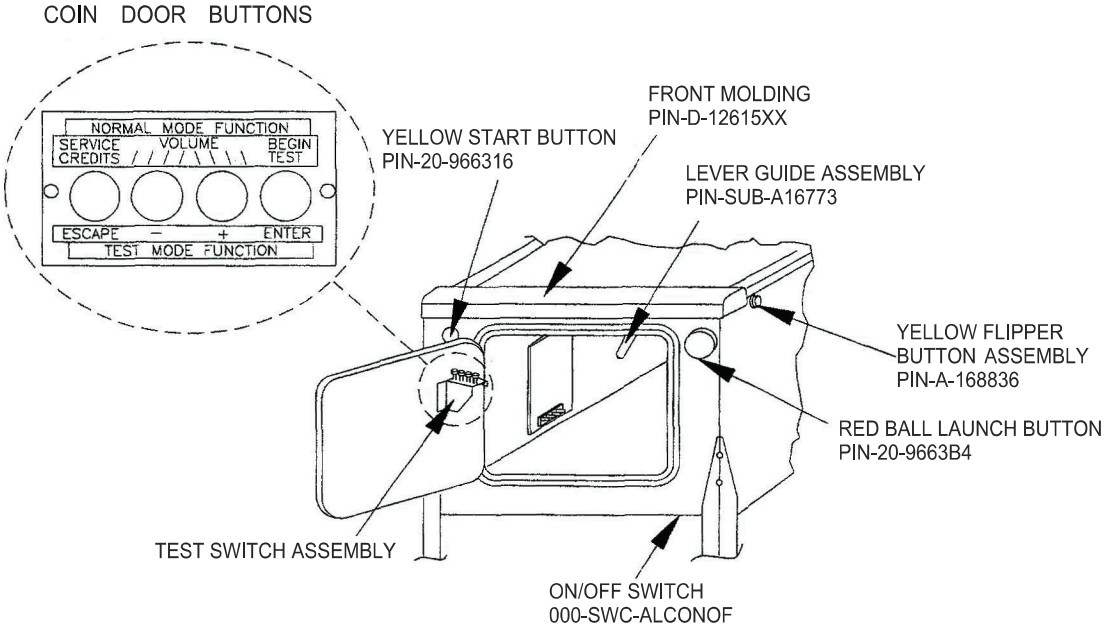
The Escape button allows you to get out of a menu selection or return to the Attract mode.

The Up (+) button allows you to cycle forward through the menu selections or adjustment choices.

The Down (-) button allows you to cycle backward through the menu selections or adjustment choices.

The *Enter button allows you to get into a menu selection or lock in an adjustment choice.

Hold the Escape button for 4 seconds to enter the **CGC SYSTEM MENU. See PAGE 1-10 for more information



Alternate Finish Part Numbers

STAINLESS FRONT MOLDING PIN-D-12615SS

STAINLESS SIDE MOLDING PIN-01-89934

STAINLESS LEG ASSEMBLY PIN-A-19514

BLUE FRONT MOLDING PIN-D-12615BL

BLUE SIDE MOLDING PIN-01-89934BL

BLUE LEG ASSEMBLY PIN-D-12615BL

To reset High Score, hold down the Begin Test/Enter switch for five seconds while in the Attract mode.

***** This menu did not exist in the original game***

GAME OPERATION

⚠ CAUTION

After assembly and installation at its site location, this game must be plugged into a properly grounded outlet to prevent shock hazard, and to assure proper game operation. DO NOT use a 'cheater' plug to defeat the ground pin on the line cord. DO NOT cut off the ground pin.

POWERING UP. With the coin door closed, plug the game in, and switch it on. In normal operation, TESTING shows in the displays as the game performs Start-up tests. Once the Start-up tests have been successfully completed the last score is displayed and the game goes into the Attract mode.

Note: *After the game has been on location for a time, the Start-up tests may contain messages concerning game problems. See 'Error Messages' for more detailed information regarding messages.*

Open the coin door and press the Begin Test switch. The display shows the game name, number, and software revision. The message changes and the display will show the sound software revision, the revision level of the system software, and the date the software was revised.

Example:	**MONSTER BASH**		**Sound Rev. 1.0A**	
	50065	**Rev. 1.06B**	**SY. 0.X0**	**XX-XX-98**

Press the Enter button to enter the Menu System (refer to the section entitled "Menu System Operation" for more information). Perform the entire Test menu routine to verify that the game is operating satisfactorily.

In order to operate the tests that use the +50V or +20V circuits, pull the top interlock switch button out. The interlock switches are located on a bracket in the coin door opening.

ATTRACT MODE*. After completing the Test menu routine, press the Escape button three times to enter the Attract mode. During the Attract mode, the display shows a series of messages informing the player of the recent highest *scores, "*custom messages", and the score to obtain a replay *award.

CREDIT POSTING. Insert coin(s). A sound is heard for each coin, the music plays for one minute, and the display shows the number of credits purchased. So long as the number of maximum allowable credits* are NOT exceeded by coin purchase or high score, credits are posted correctly.

STARTING A GAME. Press the Start button. A startup sound plays, and the credit amount shown in the display decreases by one. The display flashes 00 (until the first playfield switch is actuated), and shows ball 1. If credits are posted, additional players may enter the game by pressing the Start button once for each player, before the end of play on the first ball.

TILTS. Actuating the cabinet slam tilt switch inside the cabinet ends the current game and proceeds to the Game Over mode. With the third closure* of the plumb bob tilt switch, the player loses the remaining play of that ball, but can complete the game.

END OF A GAME. All earned scores and bonuses are awarded. If a player's final score exceeds the specified value, the player receives a designated award for achieving the current highest score. A random digit set* appears in the display. Credits* may be awarded, when the last two digits of any player's score match the random digits. Match, high score, and game over sounds are made.

GAME OVER MODE. The **Game Over** display shows the high scores and the game proceeds to the Attract Mode.

* - Operator-adjustable feature

RAISING THE PLAYFIELD

⚠ CAUTION

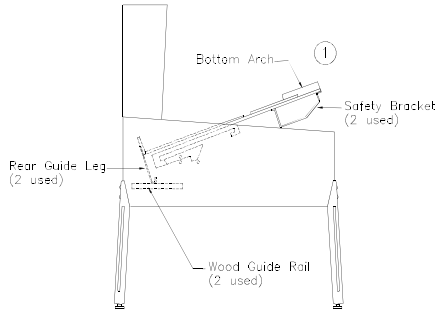
Do not raise the playfield straight up! This game uses a slide assembly to raise and lower the playfield.

Before Raising the Playfield:

Be sure there are no balls present in the ball trough or any of the other ball-holding playfield devices (i.e. poppers). Raising the playfield with balls present in these locations may cause them to come loose and damage the playfield. Use the "Empty Balls Test" to remove all of the balls from these locations.

To Raise the Playfield:

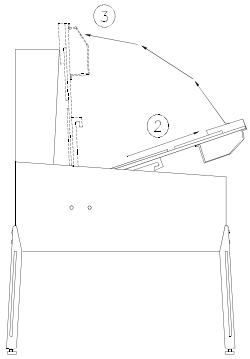
1. Grasp bottom arch and carefully lift up playfield only high enough to clear safety brackets. Rear guide legs should not hit wood guide rails, or be used to slide out playfield.



2. Pull the playfield out toward you until it stops (rest position), and raise it approximately 3".

Be sure playfield is in locked position and does not slide back into cabinet. If it does, repeat Step 2 before proceeding to Step 3.

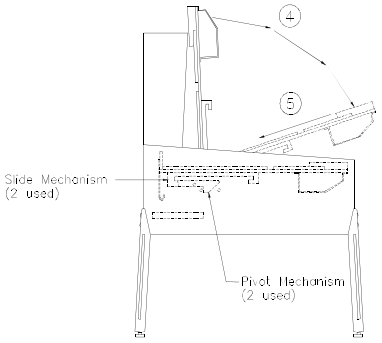
3. Rotate playfield to upright service position (lean on backbox) by pulling toward you and up. Listen for the sound of a click: this ensures locking and pivoting sequence. The latch will engage at the upper position.



To Lower the Playfield

4. Press down on the latch end to disengage (see decal) and rotate the playfield to the rest position. This unlocks the pivoting mechanism.

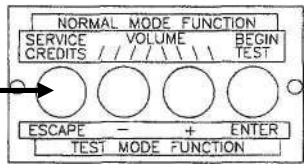
5. Push the playfield back into cabinet and into the playing position.



CGC SYSTEM MENU OPERATION

The System Menu displays the current software versions and allows you to adjust dipswitch settings, as well as for features unique to Monster Bash Remake. To access the System Menu, open the coin door and hold the Service Credits button for four seconds. Press Service Credits again to move through screens, and to exit the System Menu from the Dipswitch Settings screen.

Press and hold the **Service Credits** button for 4 seconds to enter the System Menu



PRESS SERVICE TO START CGC MENU

INFORMATION

SOFTWARE VERSION:	1.0.1
BUILD DATE:	NOV 6 2018
PLAYFIELD FIRMWARE REV:	2.0 LE
SPI STATUS:	GOOD
SUBWOOFER BAL. - USE L/R FLIP	0

SUBWOOFER BALANCE

This setting changes the audio balance between subwoofer and speaker panel. Use the Left and Right Flipper Buttons to adjust the levels. Use the right button to increase the level of the speaker panel, and the left button to increase the level of the subwoofer.

DISPLAY MENU

The first page of the system menu allows you to make adjustments to the game's display.

To change a setting, use **UP/DOWN** to highlight the setting, and press **ENTER** to select it. Press **UP/DOWN** to change the setting. When you are done, press **ENTER** again to save the new setting. Press **SERVICE** advance to the next page and exit the menu.

DISPLAY COLOR

This setting changes the color of the dot matrix display in game. There are several preset color configurations, or you can set it to a custom color.

RED, GREEN, BLUE

0 – 100, Default: GREEN

Turning each of the three colors up or down allows you to set the display to any color you would like.

COLORIZE

ON, OFF, NOT INSTALLED

This setting turns the full colorized display on or off. ON will turn on the fully colorized version. OFF will be the monochromatic game using the DISPLAY COLOR that is set above. If you do not own the color upgrade, this option will be unavailable and marked NOT INSTALLED.

CUSTOM LOGO

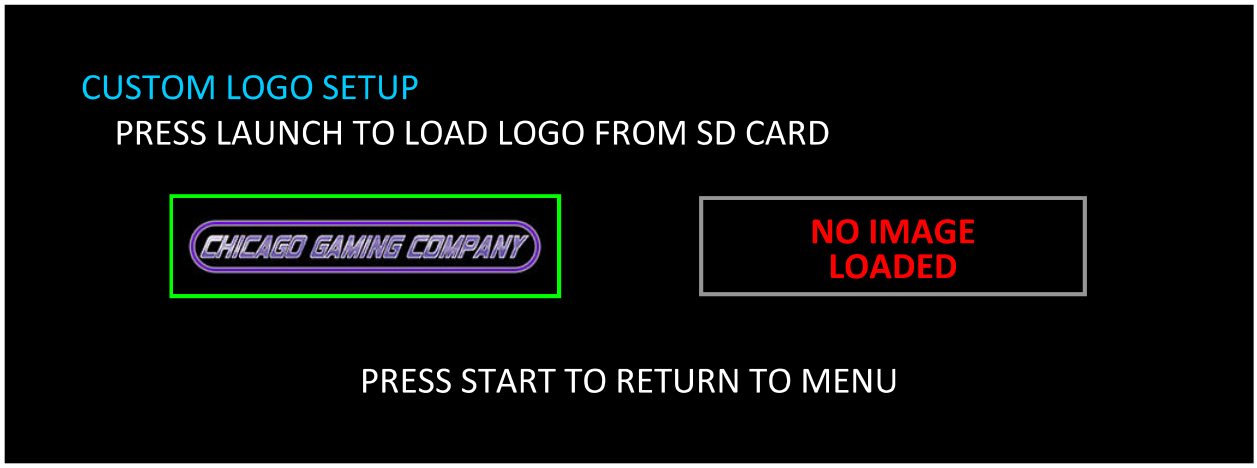
Limited and Special Editions of Monster Bash support custom logo display. This requires a microSD card, formatted in FAT32.

Logo Requirements

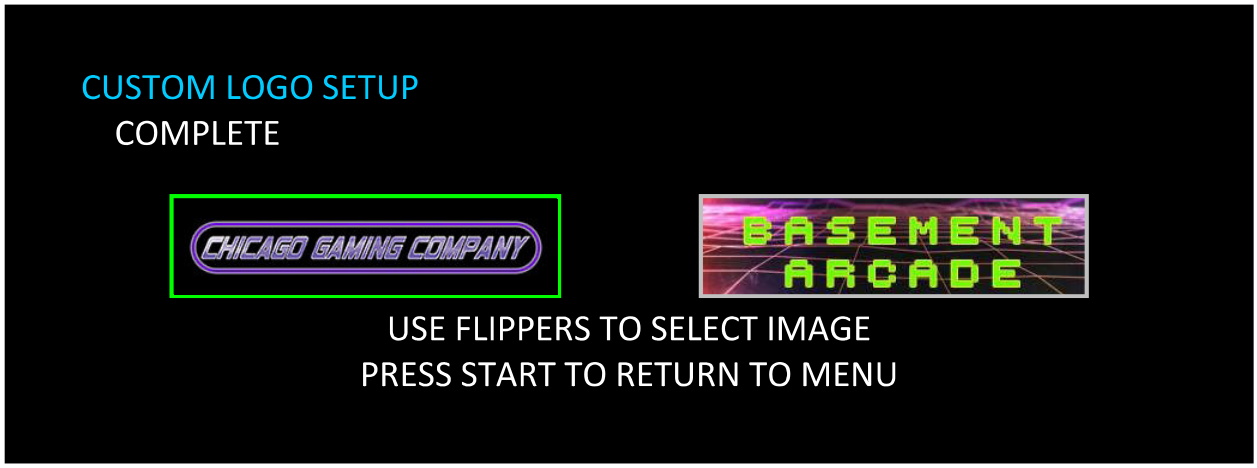
- **Image must be named userlogo.bmp**
- **Image must be 320 x 80 pixels**
- **Image must be 24-bit color, uncompressed. This is the normal Windows format for BMPs.**

Custom Logo Instructions

1) On your computer, make sure the logo you want to use matches the requirements listed on above.
2) Insert a microSD card in your computer. Check that the card is formatted as FAT32.
3) Drag and drop the logo onto the top level of he drive (not in a subdirectory). This file must be named userlogo.bmp.
4) Remove the card from your computer.
5) Remove the backbox insert from Monster Bash.
6) With the game powered on, insert the microSD into the controller board. There is only one way the card can be inserted.
7) Hold the **SERVICE** button for 5 seconds to enter the CGC System Menu. Press **SERVICE** again to go to the Display Menu.
8) Press **START**.



9) Press **LAUNCH** to load your custom logo, or press **START** to return to the menu.



10) After loading your logo, you will be able select between the Chicago Gaming Company logo or your new custom logo. Use the flippers to switch logos. You can also switch between logos at any time, without a microSD card, by coming back to this menu.

IF YOU DO NOT REMOVE THE MICROSD CARD AFTER INSTALLING YOUR LOGO, MONSTER BASH WILL NOT BOOT PROPERLY. REMOVE THE CARD AFTER INSTALLING THE LOGO.

LIGHTING MENU

The second page of the System Menu allows you to adjust the brightness, speed, and other settings for game lamps.

NOTE: Not all features appear in Classic Edition Games

LIGHTING MENU – PRESS SERVICE TO ADVANCE	
INCANDESCENT EMULATION	SLOW
PLAYFIELD LED BRIGHTNESS	MAX
BACKBOX BRIGHTNESS	MAX
BACKBOX GI CONTROL	STOCK
SPEAKER LED	INTERACTIVE
UPPER STRIP	INTERACTIVE
STRIP INTENSITY	DEFAULT

INCANDESCENT EMULATION

OFF, SLOW, MED, FAST, DEFAULT: SLOW

Monster Bash replicates the look of incandescent lights while using LEDs. The incandescent emulation setting allows you to adjust the speed that the LEDs turn on and off.

PLAYFIELD LED BRIGHTNESS

MIN, -3, -2, -1, MAX, DEFAULT: MAX

Monster Bash allows you to adjust the brightness of the playfield lamps.

BACKBOX BRIGHTNESS

MIN, -3, -2, -1, MAX, DEFAULT: MAX

Monster Bash allows you to adjust the brightness of the GI's in the backbox.

BACKBOX GI CONTROL

STOCK, MIRROR PF GI, ALWAYS ON, DEFAULT: STOCK

Monster Bash allows you to control how the GI's in the backbox behave. Stock matches the original game: some GI boards in the backbox will adjust brightness according to game features. Mirror PF GI will blackout all backbox GIs when the playfield GIs turn off. Always On will keep all backbox GIs at full brightness.

SPEAKER LED

OFF, RED, GREEN, BLUE, INTERACTIVE, DEFAULT: INTERACTIVE

The RED, GREEN, or BLUE settings will force the speaker LEDs to stay on in that one color. When set to INTERACTIVE, the speaker LEDs will change colors and flash, triggered by events in the game.

UPPER STRIP

OFF, RED, GREEN, BLUE, WHITE, INTERACTIVE, DEFAULT: INTERACTIVE

The LED strip above the back panel can be set to be a solid color, or change color when triggered by in game events.

STRIP INTENSITY

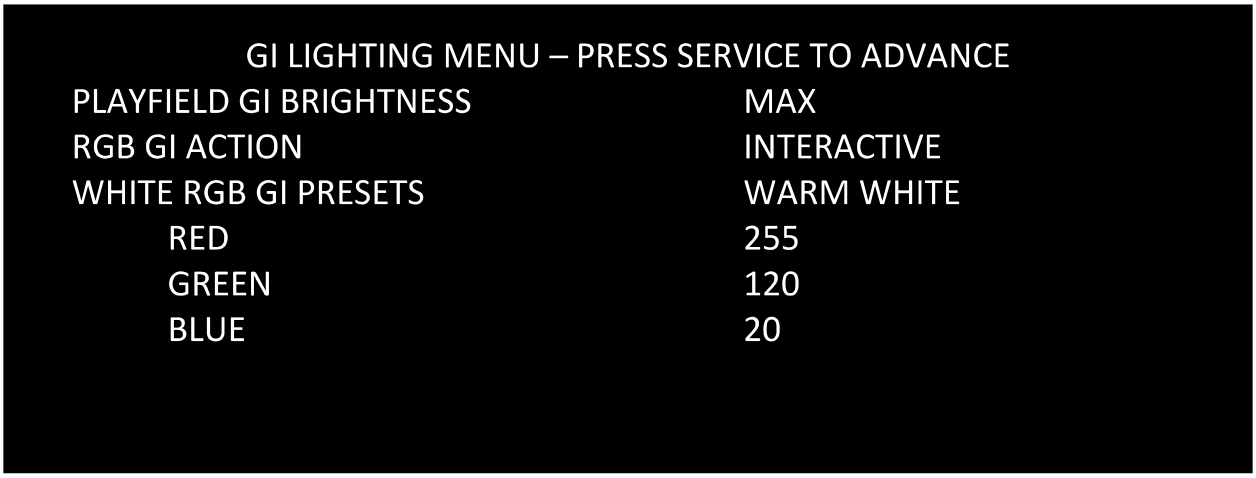
LOW, MEDIUM, DEFAULT, HIGH

This adjustment changes the brightness of the RGB strip above the back panel in Limited and Special Edition models.

GI LIGHTING MENU

The third page of the System Menu allows you to adjust the brightness and color of the General Illumination LEDs.

NOTE: This menu is not included in Classic Edition Games



PLAYFIELD GI BRIGHTNESS

MIN, -3, -2, -1, MAX, DEFAULT: MAX

Monster Bash allows you to adjust the brightness of the GI's on the playfield.

RGB GI ACTION

WHITE, INTERACTIVE, DEFAULT: INTERACTIVE

For Special Edition and Limited Edition models of Monster Bash, the General Illumination LEDs are colorized. This setting allows you to turn off the color, and it will only be white, using the WHITE RGB GI PRESETS below in this menu.

WHITE RGB GI PRESETS

WARM WHITE, COOL WHITE, CE UPGRAGE WHITE, CUSTOM, DEFAULT: WARM

The white color temperature that is used on versions of Monster Bash with RGB GI LEDs can be adjusted. Either choose between WARM and COOL white, or customize your color below. If you upgrade a Monster Bash Classic Edition with the **HD Color Display Upgrade**, and you do not replace the White GI LEDs with RGB GI LEDs, the **CI UPGRAGE WHITE** setting will adjust the brightness of your original white LEDs.

CUSTOMIZE WHITE RGB GI

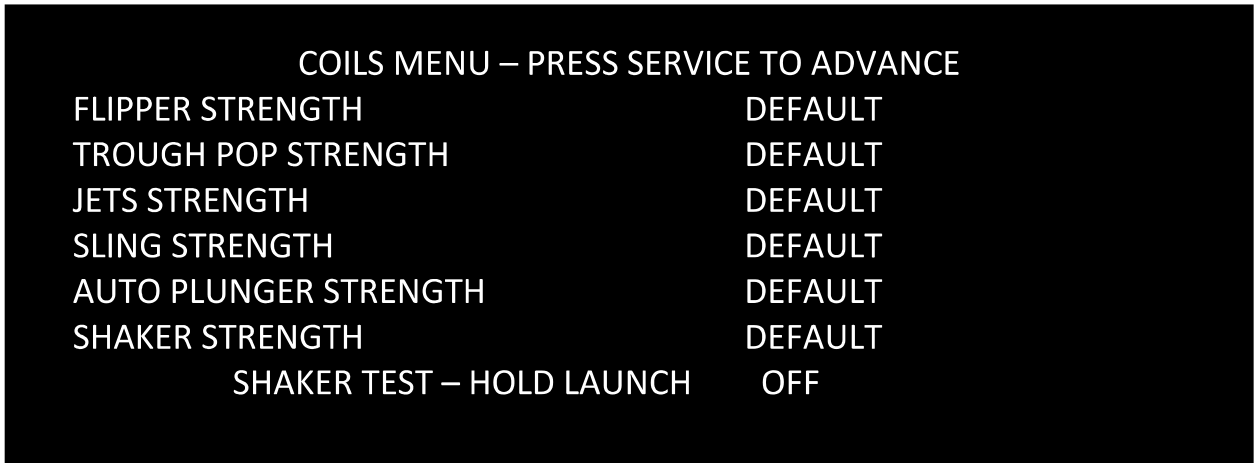
RED, GREEN, BLUE

DEFAULT:	**RED**	**255**
	GREEN	**120**
	BLUE	**20**

By adjusting the values of the Red, Green, and Blue used in the GI LEDs, you can customize the white color used in game. The game default is the value for warm white.

COILS MENU

The fourth page of the System Menu allows you to adjust the strength of the solenoids in the game.



FLIPPER STRENGTH

The strength of the flipper coils is highly adjustable. This adjustment is very useful for making Monster Bash feel just like you remember. The DEFAULT setting should feel great at most locations. However, if the line voltage into the game is too high or too low, this setting allows you to tweak the strength of the flippers so it feels just right.

TROUGH POPPER STRENGTH

MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Trough Popper. If the ball is being kicked out of the trough too hard, try turning the strength down.

JET STRENGTH

MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Jet Bumper coils.

SLING STRENGTH

MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Slingshot coils.

AUTO PLUNGER STRENGTH

MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Martian coils.

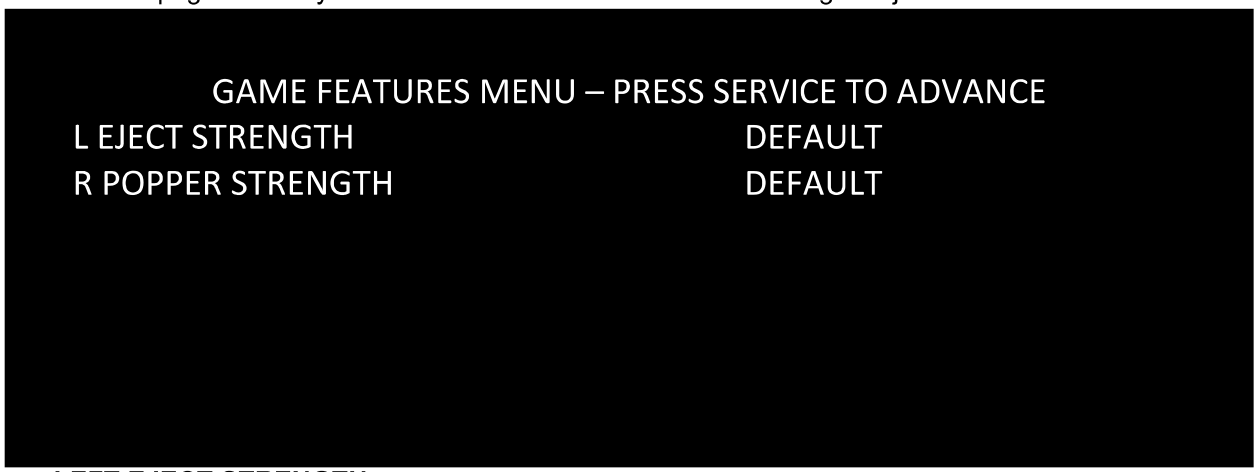
SHAKER STRENGTH

OFF, MIN, DEFAULT, MAX

You can increase or decrease the strength of the shaker motor during play or turn it off entirely.

GAME FEATURES MENU

The fifth page of the System Menu continues with more coil strength adjustments.



LEFT EJECT STRENGTH
MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Left Popper coil.

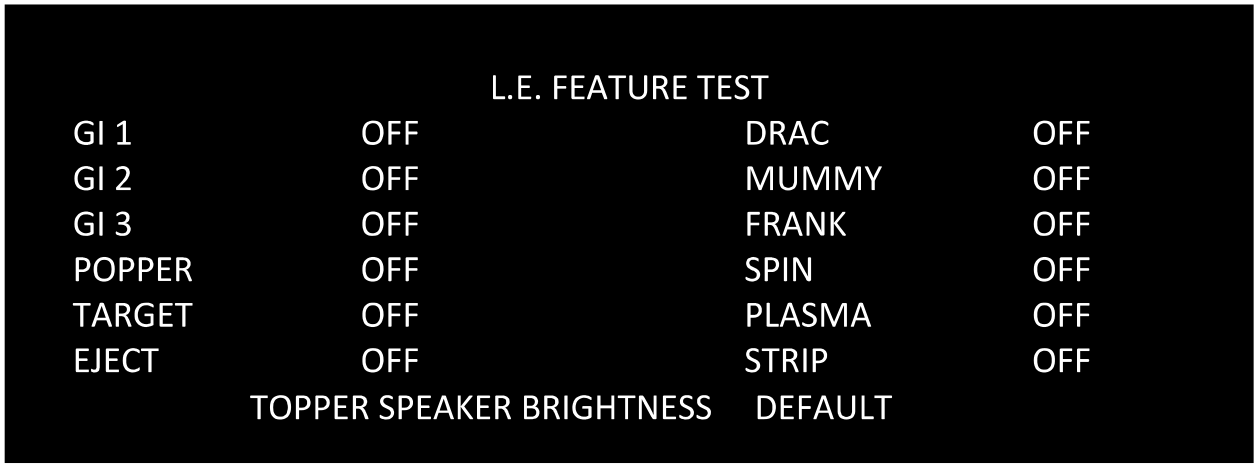
RIGHT POPPER STRENGTH
MIN, DEFAULT, +1, MAX

This adjustment changes the strength of the Right Popper coil.

LE FEATURE TEST

The fifth page of the System Menu allows you to individually test the new RGB outputs and Plasma output.

NOTE: This menu is not included in Classic Edition Games



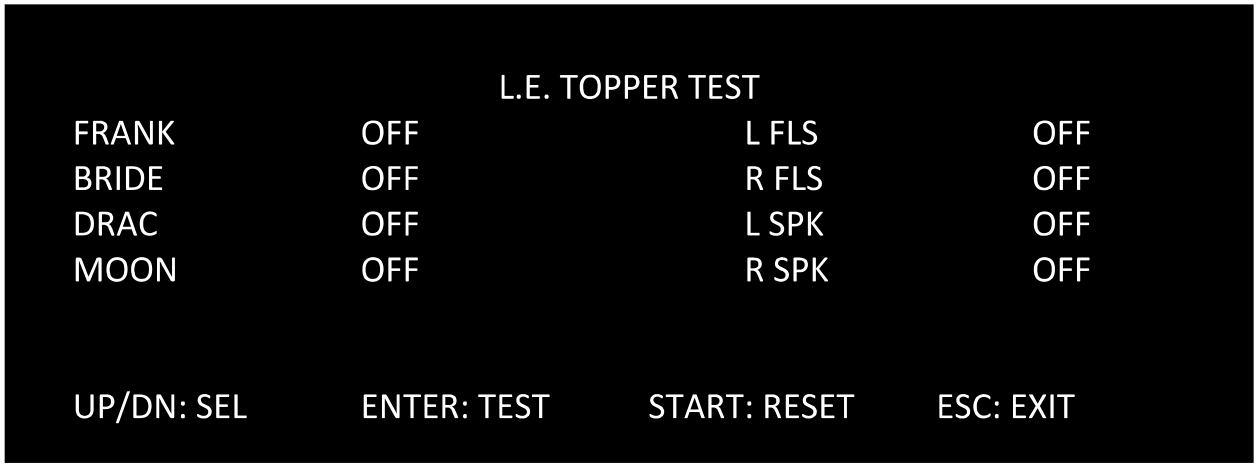
Test each output by highlighting the lamp you want to test, press ENTER to select it, and then UP and DOWN to change the color or brightness.

Change the brightness of the LEDs in the speaker boxes by adjusting the Topper Speaker Brightness.

TOPPER TEST

The Topper Menu is used to test all of the LEDs on the topper.

NOTE: This menu is not included in Classic Edition Games

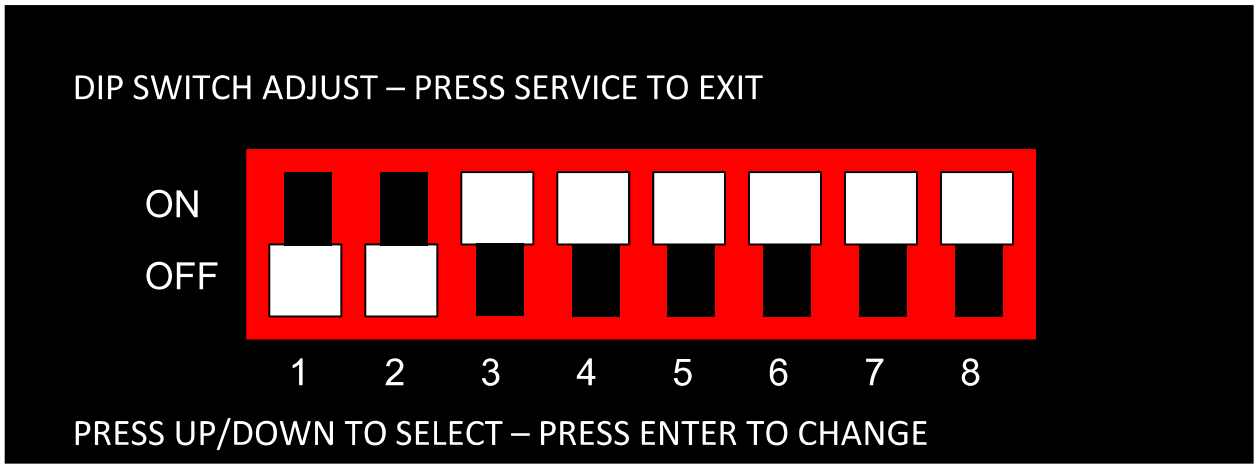


Test each output by highlighting the lamp you want to test, press ENTER to select it, and then UP and DOWN to change the color or to turn it on or off.

DIP SWITCH SETTINGS

DIP Switch settings may be adjusted in the CGC System Menu

After changing DIP switch Settings, you will have to enter the Main Menu or power cycle the game to apply the new settings.



COUNTRY	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
AMERICA	OFF	OFF	ON	ON	ON	ON	ON	ON
EUROPEAN	OFF	OFF	ON	ON	ON	OFF	ON	ON
FRENCH	OFF	OFF	ON	ON	ON	ON	OFF	OFF
GERMAN	OFF	OFF	ON	ON	ON	ON	ON	OFF
SPAIN	OFF	OFF	ON	ON	OFF	ON	ON	ON

NOTE: CHANGING DIP SWITCH SETTINGS WIILL CLEAR ALL HIGH SCORES AND PERFORM A FACTORY RESET!

MENU SYSTEM OPERATION

The Main Menu allows you to choose from several options, which in turn lead to other menus to choose from. To access the Main Menu open the coin door, press the Begin Test button, then the Enter button. Press the Up and Down buttons to scroll through the Main Menu. To access a menu, (Bookkeeping, Printouts, etc.), from the Main Menu, press the Enter button. To return to the Main Menu (from Bookkeeping, Printouts, etc.) press the Escape button. Press the Start button for HELP.

MAIN MENU

B. BOOKKEEPING MENU

- B.1 Main Audits
- B.2 Earning Audits
- B.3 Standard Audits
- B.4 Feature Audits
- B.5 Histograms
- B.6 Time-Stamps

T. TEST MENU

- T.1 Switch Edges Test
- T.2 Switch Levels Test
- T.3 Single Switches Test
- T.4 Solenoid Test
- T.5 Flasher Test
- T.6 General Illumination Test
- T.7 Sound and Music Test
- T.8 Single Lamp Test
- T.9 All Lamps Test
- T.10 Lamp and Flasher Test
- T.11 Display Test
- T.12 Flipper Coil Test
- T.13 Ordered Lamps Test
- T.14 Lamp Row-Col.
- T.15 DIP Switch Test
- T.16 Loop/Gate Test
- T.17 Up/Down Bank Test
- T.18 Frankenstein Table Test
- T.19 Dracula Test
- T.20 Empty Balls Test

U. UTILITIES MENU

- U.1 Clear Audits
- U.2 Clear Coins
- U.3 Reset H.S.T.D.
- U.4 Set Time and Date
- U.5 Custom Message
- U.6 Set Game I.D.
- U.7 Factory Adjustments
- U.8 Factory Resets
- U.9 Presets
- U.10 Clear Credits
- U.11 Auto Burn-in
- U.12 Reset Phantom Flip Data

A. ADJUSTMENT MENU

- A.1 Standard Adjustments
- A.2 Feature Adjustments
- A.3 Pricing Adjustments
- A.4 H.S.T.D. Adjustments
- A.5 Printer Adjustments

Press Escape
To move out of a menu selection.

Press Enter
To get into a menu selection.

Press Up
Increases sequence; Example A.1, A.2, A.3, A.4.

Press Down
Decreases sequence; Example A.4, A.3, A.2, A.1.

Use Up or Down to cycle through the selections in a menu.

Use Escape and Enter to move into and out of the selected menu.

Press the Up or Down buttons to scroll through the Bookkeeping menu. Press the Enter button to access an audit menu. Press the Escape button to return to the Bookkeeping Menu.

B. BOOKKEEPING MENU

B.1 Main Audits
B.2 Earning Audits
B.3 Standard Audits
B.4 Feature Audits
B.5 Histograms
B.6 Time-Stamps

Using the One Button Audit System. *The Bookkeeping Menu is obtainable directly from the Attract Mode. Repeatedly pressing the Enter button, while in the Attract Mode, will cycle through all of the game audits.*

B.1 MAIN AUDITS

B.1	**01**	Total Earnings	00	**B.1**	**06**	Total Plays	00
B.1	**02**	Recent Earnings	00	**B.1**	**07**	Replay Awards	00
B.1	**03**	Free Play Percent	00	**B.1**	**08**	Percent Replays	00
B.1	**04**	Average Ball Time	00	**B.1**	**09**	Extra Balls	00
B.1	**05**	Time Per Credit	00	**B.1**	**10**	Percent Extra Ball	00

B.2 EARNING AUDITS

B.2	**01**	Recent Earnings	00	**B.2**	**08**	Total Earnings*	00
B.2	**02**	Recent Left Slot	00	**B.2**	**09**	Total Left Slot*	00
B.2	**03**	Recent Center Slot	00	**B.2**	**10**	Total Center Slot*	00
B.2	**04**	Recent Right Slot	00	**B.2**	**11**	Total Right Slot*	00
B.2	**05**	Recent 4th Slot	00	**B.2**	**12**	Total 4th Slot*	00
B.2	**06**	Recent Paid Credits	00	**B.2**	**13**	Total Paid Credits*	00
B.2	**07**	Recent Service Credits	00	**B.2**	**14**	Total Service Credits*	00

**These audits are NOT re-settable. They are a record of the earnings of the game since the "CLOCK 1ST SET" Time-stamp.*

B.3 STANDARD AUDITS

B.3	**01**	Games Started	00	**B.3**	**21**	Play Time	00
B.3	**02**	Total Plays**	00	**B.3**	**22**	Minutes On	00
B.3	**03**	Total Free Play	00	**B.3**	**23**	Balls Played	00
B.3	**04**	Free Play Percent	00	**B.3**	**24**	Tilts	00
B.3	**05**	Replay Awards	00	**B.3**	**25**	Replay 1 Awards	00
B.3	**06**	Percent Replays	00	**B.3**	**26**	Replay 2 Awards	00
B.3	**09**	Match Awards	00	**B.3**	**27**	Replay 3 Awards	00
B.3	**10**	Percent Match	00	**B.3**	**28**	Replay 4 Awards	00
B.3	**11**	H.S.T.D. Credits	00	**B.3**	**29**	1 Player Games	00
B.3	**12**	Percent H.S.T.D.	00	**B.3**	**30**	2 Player Games	00
B.3	**13**	Extra Ball	00	**B.3**	**31**	3 Player Games	00
B.3	**14**	Percent Extra Ball	00	**B.3**	**32**	4 Player Games	00
B.3	**15**	Tickets Awarded	00	**B.3**	**33**	H.S.T.D. Reset Count	00
B.3	**16**	Percent Tickets	00	**B.3**	**34**	Burn-in Time†	00:00:00
B.3	**17**	Left Drains	00	**B.3**	**35**	1st Replay Level	00
B.3	**18**	Right Drains	00	**B.3**	**36**	Left Flipper	00
B.3	**19**	Average Ball Time	00	**B.3**	**37**	Right Flipper	00
B.3	**20**	Average Game Time	00				

***"Total Plays" only counts on completed games. A game is considered complete when the final ball begins. Audit information from incomplete games is ignored. Operation for test and service do not affect audits. †This Audit cannot be reset.*

B.4 FEATURE AUDITS

B.4 01 Ball Saves 00% 00
The number of times the ball was saved.

B.4 02 Total Multiballs 00% 00
The number of times a Multiball Feature was started.

B.4 03 Creature Started 00% 00
The number of times Creature Feature was started.

B.4 04 Creature Completed 00% 00
The number of times Creature Feature was completed.

B.4 05 Ball and Chain Started 00% 00
The number of times Ball and Chain was started.

B.4 06 Ball and Chain Completed 00% 00
The number of times Ball and Chain was completed.

B.4 07 Frankenstein Multiball Started 00% 00
The number of times Frankenstein Multiball was started.

B.4 08 Frankenstein Multiball Completed 00% 00
The number of times Frankenstein Multiball was completed.

B.4 09 Mummy Mayhem Lit 00% 00
The number of times Mummy Mayhem was lit.

B.4 10 Mummy Mayhem Started 00% 00
The number of times Mummy Mayhem was started.

B.4 11 Mummy Mayhem Completed 00% 00
The number of times Mummy Mayhem was completed.

B.4 12 Full Moon Fever Started 00% 00
The number of times Full Moon Fever was started.

B.4 13 Full Moon Fever Completed 00% 00
The number of times Full Moon Fever was completed.

B.4 14 Drac-Attack Lit 00% 00
The number of times Drac-Attack was lit.

B.4 15 Drac-Attack Started 00% 00
The number of times Drac-Attack was started.

B.4 16 Drac-Attack Completed 00% 00
The number of times Drac-Attack was completed.

B.4 17 Monsters Extra Ball Lit 00% 00
The number of Extra Balls lit from collecting Monsters.

B.4 18 Instrument Special Lit 00% 00
The number of Specials lit from collecting Instruments.

B.4 19 Monster Bash Started 00% 00
The number of times Monster Bash was started.

Feature Audits Continued…

B.4 20 Monsters of Rock Started 00% 00
The number of times Monster of Rock was started.

B.4 21 Rock 3X Awards 00% 00
The number of times a 3X award was given during Monsters of Rock.

B.4 22 Rock 5X Awards 00% 00
The number of times a 5X award was given during Monsters of Rock.

B.4 23 Rock 7X Awards 00% 00
The number of times a 7X award was given during Monsters of Rock.

B.4 24 Rock 10X Awards 00% 00
The number of times a 10X award was given during Monsters of Rock.

B.4 25 Random Awards 00% 00
The number of Random Awards (Concert Halls) given.

B.4 26 Random Award Extra Ball Lit 00% 00
The number of Extra Balls lit from the Random Award (Concert Halls).

B.4 27 Mosh Pit Multiball Started 00% 00
The number of times Mosh Pit Multiball was started.

B.4 28 Center Loop Extra Ball Lit 00% 00
The number of Extra Balls lit from the Center Loop.

B.4 29 Lament Started 00% 00
The number of times Lament was started.

B.5 HISTOGRAMS

B.5	**01**	0 to 1 Million Scores	00%	00
B.5	**02**	1 Million to 2 Million Scores	00%	00
B.5	**03**	2 Million to 3 Million Scores	00%	00
B.5	**04**	3 Million to 4 Million Scores	00%	00
B.5	**05**	4 Million to 5 Million Scores	00%	00
B.5	**06**	5 Million to 6 Million Scores	00%	00
B.5	**07**	6 Million to 12 Million Scores	00%	00
B.5	**08**	12 Million to 18 Million Scores	00%	00
B.5	**09**	18 Million to 25 Million Scores	00%	00
B.5	**10**	25 Million to 50 Million Scores	00%	00
B.5	**11**	50 Million to 75 Million Scores	00%	00
B.5	**12**	75 Million to 99 Million Scores	00%	00
B.5	**13**	Over 99 Million Scores	00%	00
B.5	**14**	Game Time 0.0 to 1.0 Minute	00%	00
B.5	**15**	Game Time 1.0 Minute to 1.5 Minutes	00%	00
B.5	**16**	Game Time 1.5 Minutes to 2.0 Minutes	00%	00
B.5	**17**	Game Time 2.0 Minutes to 2.5 Minutes	00%	00
B.5	**18**	Game Time 2.5 Minutes to 3.0 Minutes	00%	00
B.5	**19**	Game Time 3.0 Minutes to 3.5 Minutes	00%	00
B.5	**20**	Game Time 3.5 Minutes to 4.0 Minutes	00%	00
B.5	**21**	Game Time 4 Minutes to 5 Minutes	00%	00
B.5	**22**	Game Time 5 Minutes to 6 Minutes	00%	00
B.5	**23**	Game Time 6 Minutes to 8 Minutes	00%	00
B.5	**24**	Game Time 8 Minutes to 10 Minutes	00%	00
B.5	**25**	Game Time 10 Minutes to 15 Minutes	00%	00
B.5	**26**	Game Time Over 15 Minutes	00%	00

B.6 TIME-STAMPS

B.6 01 Current Time
B.6 02 Clock 1st Set
B.6 03 Clock Last Set
B.6 04 Audits Cleared
B.6 05 Coins Cleared
B.6 06 Factory Setting
B.6 07 Last Game Start
B.6 08 Last Replay
B.6 09 Last H.S.T.D. Reset
B.6 10 Champion Reset
B.6 11 Last Printout
B.6 12 Last Service Credit

Time-Stamps Menu allows you to view dates and times that are important to game software.

Press the Up or Down buttons to scroll through the Test menu. Press the Enter button to access a test. Press the Escape button to return to the Test menu. During any test, press the Start button to obtain the wire color, driver number, connector number and fuse location.

T. TEST MENU

T.1 Switch Edges Test	**T.11 Display Test**
T.2 Switch Levels Test	**T.12 Flipper Coil Test**
T.3 Single Switch Test	**T.13 Ordered Lamps Test**
T.4 Solenoid Test	**T.14 Lamp Row-Col.**
T.5 Flasher Test	**T.15 DIP Switch Test**
T.6 General Illumination Test	**T.16 Loop /Gate Test**
T.7 Sound & Music Test	**T.17 Up/Down Bank Test**
T.8 Single Lamps Test	**T.18 Frankenstein Table Test**
T.9 All Lamps Test	**T.19 Dracula Test**
T.10 Lamps And Flasher Test	**T.20 Empty Balls Test**

In order to operate the tests that use the +50V circuits, pull the top interlock switch button out. The interlock switches are located on a bracket just inside the coin door opening.

NOTE: Monster Bash DOES NOT use a switch matrix

T.1 SWITCH EDGES TEST

Press each of the switches one at a time. The name and number of the switch is shown in the display. If a switch other than the one pressed, or no switch at all is indicated, the system has detected a problem with the switch circuit. To return the Test menu, press the Escape button.

T.2 SWITCH LEVELS TEST

This test automatically cycles through all switches that are detected closed. The name and number of each switch that is detected is shown in the display. A filled square indicates the switch's position in the matrix. To return the Test menu, press the Escape button.

T.3 SINGLE SWITCHES TEST

This test isolates a single switch and shows its state in the display. A mechanical switch is 'made' when the display reads closed. An opto switch is 'made' (opto beam broken) when the display reads open. Use the Up or Down buttons to select the switch to be tested. To return the Test menu, press the Escape button.

T.4 SOLENOID TEST

The Solenoid test has three modes -- Repeat, Stop, and Run. Only one solenoid should pulse at a time. The system has detected a problem if more than one solenoid pulses, a solenoid comes on and stays on, or no solenoids pulse during the Repeat and Run modes.

Repeat: The Repeat mode pulses an individual solenoid. Press the Enter button to start this test. The name of the first solenoid shows in the display and the corresponding coil pulses. Press the Up or Down buttons to cycle through the solenoids, one at a time. The same solenoid pulses until you press the Up or Down buttons to advance to the next one. To return the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Solenoid test. No solenoids should be active. To return the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the solenoids automatically. The display shows the name and number of the solenoid currently being pulsed. To return the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.5 FLASHER TEST

This tests the flashlamp part of the solenoid circuit. There are three modes -- Repeat, Stop, and Run. During this test the flashlamp circuit named in the display should blink. The system has detected a problem if more than one flashlamp circuit blinks, the lamps stays on, or no lamps blink during the Repeat and Run modes.

Repeat: The Repeat mode pulses an individual flashlamp. Press the Enter button to start this test. The name and number of the first flashlamp is displayed and the corresponding bulb(s) blinks. The same bulb(s) blinks until you press the Up or Down buttons to advance to the next one. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Flasher test. There should not be any flashlamps lit during this mode. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the flashlamps automatically. The display shows the name and number of the flashlamp circuit currently being pulsed as the corresponding bulb(s) flashes. To return to the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.6 GENERAL ILLUMINATION TEST

This test checks all of the General Illumination circuits. There are two modes of operation – Stop and Run.

Note: General Illumination strings four & five do not brighten or dim, they are always ON.

Stop: The Stop mode allows you to cycle through the General Illumination test manually. Press the Up or Down buttons to advance through the test. All illumination is tested first, followed by an individual circuit test. The circuit name and number shows in the display while the corresponding bulbs light. If any other results occur the system has detected an error. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

T.6 General Illumination Test Continued…

Run: The Run mode cycles through the General Illumination test automatically. For each circuit shown in the display the corresponding bulbs should light. If any other results occur, the system has detected a problem. To return to the Test menu, press the Escape button. To return to the Stop mode, press the Enter button.

T.7 SOUND AND MUSIC TEST

The Sound and Music test checks the audio circuits. This test has three modes for testing the sound and music circuits -- Run, Repeat, and Stop.

Run: The Run mode steps through a sequence of sounds and music. Press the Up or Down buttons to advance to a particular sound or tune. A sound or tune should be heard for each name and number that appears in the display. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Repeat: The Repeat mode causes the program to stop and repeat a particular sound/tune. The same sound repeats continuously until you press the Up or Down buttons to advance to the next one. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode stops this test altogether. Nothing should be heard. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button. To return to the Run mode, press the Enter button.

T.8 SINGLE LAMP TEST

The number assigned to each lamp indicates the lamp's position in the matrix. The number on the left indicates the column. The number on the right indicates the row. Example - Lamp 23 means 2nd column, 3rd row.

The Single Lamp test checks each lamp circuit individually. Press the Up or Down buttons to scroll through this test. A lamp should light for each name and number that is displayed. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button.

T.9 ALL LAMPS TEST

This test causes all the controlled lamps to flash at the same time. Every controlled lamp should flash. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button.

T.10 LAMP AND FLASHER TEST

This test causes all the flashlamps and the controlled lamps to flash at the same time. The controlled lamps blink, while the flashlamps cycle from highest to lowest. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button.

T.11 DISPLAY TEST

This test automatically checks every dot in the Dot Matrix Display board. A series of patterns appear in sequence. Each pattern turns on and off a section of dots. Every dot on the matrix display should be turned on and off during this test. To return to the Test menu, press the Escape button.

T.12 FLIPPER COIL TEST

The Flipper Coil test has three modes -- Repeat, Stop, and Run. Only one flipper should pulse at a time. The system has detected a problem if more than one flipper pulses, a flipper comes on and stays on, or no flippers pulse during the Repeat and Run modes.

Repeat: The Repeat mode pulses an individual flipper. Press the Enter button to begin the test. Press the Up or Down buttons to cycle through the flipper coils one at a time. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Flipper Coil test. No coils should pulse while the test is stopped. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the flippers automatically. The display shows the name and number of the flipper coil currently being pulsed. To return to the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.13 ORDERED LAMPS TEST

The number assigned to each lamp indicates the lamp's position in the matrix. The number on the left indicates the column. The number on the right indicates the row. Example - Lamp 23 means 2nd column, 3rd row.

This test checks each lamp circuit individually. Press the Up or Down buttons to cycle through the lamps. Lamps light in a clock-wise or counter clock-wise direction starting from the bottom of the playfield. The direction depends on whether the Up or Down button is pressed. For each name and number that is shown in the display, the corresponding lamp should light. Any other results indicate the system has detected a problem. To return to the Test menu, press the Escape button.

T.14 LAMP ROW - COLUMN

This test allows individual rows and columns in the lamp matrix to be operated. This is useful for troubleshooting wiring and driver problems.

Press the Up and Down buttons to cycles through the different rows and columns. To return to the Test menu, press the Escape button.

T.15 DIP SWITCH TEST

This test is used to show the positions of the DIP switches on the CPU board (U27). To return to the Test menu, press the Escape button.

T.16 LOOP/GATE TEST

This test is used to verify proper ball delivery from the shooter lane onto the playfield, and to exercise the four loop switches and the two control gates. This test has two modes of operation:

Loops Mode: This mode is used to verify that the ball is able to pass through the control gates and around either of the loops. This is useful for clearing "Left Gate Stuck Closed" and "Right Gate Stuck Closed" errors that may appear in the test report. If an error exists, one of them will be shown on the bottom line of the display.

To verify loop switch and control gate operation in "Loops Mode", press the Up or Down buttons until the message "Test Mode: Around Loops" appears on the second line of the

T.16 Loop/Gate Test Continued…

display. Roll a ball around either of the loops (a ball may be ejected from the trough by pressing the launch button). A sound is made as the ball passes over the loop switches, and the state of the loop switches is updated in the display. If the ball is traveling around the loop from left to right, the right control gate should open upon activation of the second left loop switch (L.HI). If the ball is traveling around the loop from right to left, the left control gate should open upon activation of the second right loop switch (R.HI). When the ball has finished its path around the loop (either from left to right, or from right to left), the test should report "TEST PASSED - PRESS ENTER" on the bottom line of the display. Any other result indicates a problem with either the loop switches, or the control gates, or both. To re-test, press the Enter button.

"Left Gate Stuck Closed" errors can be cleared in "Loops Mode" by repeatedly testing the right loop (the Enter button must be pressed at the end of each test). The test will clear the error when there have been two consecutive successful right loop tests in this mode.

"Right Gate Stuck Closed" errors can be cleared in "Loops Mode" by repeatedly testing the left loop (the Enter button must be pressed at the end of each test). The test will clear the error when there have been two consecutive successful left loop tests in this mode.

Jets Mode: This mode is used to verify that the ball is able to pass into either of the loops and be diverted into the jets. This is useful for clearing "Left Gate Stuck Open" and "Right Gate Stuck Open" errors that may appear in the test report. If an error exists, one of them will be shown on the bottom line of the display.

To verify loop switch and control gate operation in "Jets Mode", press the Up or Down buttons until the message "Test Mode: To Jet Bumpers" appears on the second line of the display. Roll a ball into either of the loops (a ball may be ejected from the trough by pressing the launch button). A sound is made as the ball passes over the loop switches, and the state of the loop switches is updated in the display. If the ball is traveling to the jets from left to right, the right control gate should remain closed upon activation of either of the left loop switches (L.LO and L.HI). If the ball is traveling to the jets from right to left, the left control gate should remain closed upon activation of either of the right loop switches (R.LO and R.HI). When the ball has finished its path into the jets (either from the left, or from the right), and makes contact with one of the top lane switches, the test should report "TEST PASSED - PRESS ENTER" on the bottom line of the display. Any other result indicates a problem with either the loop switches, or the control gates, or both. To re-test, press the Enter button.

"Left Gate Stuck Open" errors can be cleared in "Jets Mode" by repeatedly testing the right loop (the Enter button must be pressed at the end of each test). The test will clear the error when there have been two consecutive successful right loop tests in this mode.

"Right Gate Stuck Open" errors can be cleared in "Jets Mode" by repeatedly testing the left loop (the Enter button must be pressed at the end of each test). The test will clear the error when there have been two consecutive successful left loop tests in this mode.

Ball delivery from the shooter lane can be verified by this test in either "Loops Mode" or "Jets Mode" by placing a ball into the shooter lane, and pressing the launch button. When in "Loops Mode", the ball should travel all the way around the loop, and be delivered cleanly to the left flipper. When in "Jets Mode", the ball should be delivered into the loop, through one of the top lane switches, and into the jet bumpers.

During this test, the diagnostic test buttons inside the coin door act as follows:
Escape: This button returns to the previous menu.
Down/Up: These buttons toggle the test mode between "Loops Mode" and "Jets Mode".
Enter: This button is used to clear the "TEST PASSED/TEST FAILED" messages.

T.17 UP/DOWN BANK TEST

This test is used to verify proper operation of the Up/Down Target Bank. It exercises the Up/Down Bank motor, and the Up/Down Bank position switches.

Upon entry, this test will attempt to position the Frankenstein Table, if necessary. The Up/Down Bank can only operate with the Frankenstein Table in the UP position. If, at the start of the test, the Frankenstein Table is unable to be put in its UP position, the message "CAN'T POSITION FRANK. TABLE" will appear on the bottom line of the display, and the test will not run. It will then be necessary to fix the Frankenstein Table.

Once the Frankenstein Table has been positioned, the Up/Down Bank test will run automatically. The test continually moves the Bank to the Up and Down positions, with small pauses when a new position is reached. To stop the Up/Down Bank motor from moving during this test, press the Enter button. To re-start the Up/Down Bank motor, press the Enter button again.

This test is useful for clearing Up/Down Bank UP and Up/Down Bank DOWN switch errors that may appear in the test report. If the errors exist, they will be shown on the bottom line of the display. The errors are cleared when the Up/Down Bank completes two consecutive successful cycles.

During this test, the diagnostic test buttons inside the coin door act as follows:
Escape: This button returns to the previous menu.
Enter: This button toggles the state of the test from Running to Stopped, and from Stopped to Running.

T.18 FRANKENSTEIN TABLE TEST

This test is used to verify proper operation of the Frankenstein Table. It exercises the Frankenstein Table motor, and the Frankenstein Table position switches.

Upon entry, this test will attempt to position the Up/Down Target Bank, if necessary. The Frankenstein Table can only operate with the Up/Down Bank in the DOWN position. If, at the start of the test, the Up/Down Bank is unable to be put in its DOWN position, the message "CAN'T POSITION UP/DOWN BANK" will appear on the bottom line of the display, and the test will not run. It will then be necessary to fix the Up/Down Bank.

Once the Up/Down Bank has been positioned, the Frankenstein Table test will run automatically. The test continually moves the Table to the Up and Down positions, with small pauses when a new position is reached. To stop the Frankenstein Table motor from moving during this test, press the Enter button. To re-start the Frankenstein Table motor, press the Enter button again.

This test is useful for clearing Frankenstein Table UP and Frankenstein Table DOWN switch errors that may appear in the test report. If the errors exist, they will be shown on the bottom line of the display. The errors are cleared when the Frankenstein Table completes two consecutive successful cycles.

During this test, the diagnostic test buttons inside the coin door act as follows:
Escape: This button returns to the previous menu.
Enter: This button toggles the state of the test from Running to Stopped, and from Stopped to Running.

T.19 DRACULA TEST

This test is used to verify proper operation of the Dracula mechanism. It exercises the Dracula motor, and the Dracula position switches.

This test has two modes of operation:

T.19 Dracula Test Continued…

Manual Mode: This mode provides user control of the movement of the Dracula mechanism. The Down button is used to move the mechanism to the left, and the Up button is used to move the mechanism to the right.

Automatic Mode: This mode moves the mechanism automatically. The mechanism will first return to its HOME position (position #1), and then move to positions 2, 3, 4, 5, 4, 3, 2, and back to HOME (position #1), with small pauses when a new position is reached.

The speed of the motor can be set by pressing the Enter button until the message "Test Mode: Set Speed" appears on the second line of the display. To decrease the speed of the mechanism during the test, press the Down button. To increase the speed of the mechanism during the test, press the Up button.

This test is useful for clearing Dracula position switch errors that may appear in the test report. If errors exist, they will be shown on the bottom line of the display. The error for a bad position switch is cleared when the Dracula mechanism completes two consecutive successful moves to the position.

During this test, the diagnostic test buttons inside the coin door act as follows:
Escape: This button returns to the previous menu.
Down: In Manual Mode, this button moves the Dracula mechanism to the left. When in Set Speed Mode, this button decreases the speed of the mechanism.
Up: When in Manual Mode, this button moves the Dracula mechanism to the right. When in Set Speed Mode, this button increases the speed of the mechanism.
Enter: This button is used to change the test modes.

T.20 EMPTY BALLS TEST

This test kicks out all balls loaded in troughs, lockups, poppers, and kick-outs until no balls remain in those locations.

Note: *As the trough kicks out balls, they will stack up in the shooter groove, which may require manual clearing in order to allow further balls to be kicked out.*

To scroll through the Utilities menu, press the Up or Down buttons. To access a utility, press the Enter button. To see the setting choices of a utility option, press the Up and Down buttons. Press the Enter button to lock in a choice. If you make a mistake, press Escape while "Saving Adjustment Value" is in the display. The original setting is retained and the new setting is ignored. To return to the Utilities menu, press the Escape button.

U. UTILITIES MENU

U.1	**Clear Audits**	**U.7**	**Factory Adjustments**
U.2	**Clear Coins**	**U.8**	**Factory Reset**
U.3	**Reset H.S.T.D.**	**U.9**	**Preset**
U.4	**Set Time & Date**	**U.10**	**Clear Coins**
U.5	**Custom Message**	**U.11**	**Auto Burn-in**
U.6	**Set Game I.D.**	**U.12**	**Reset Phantom Flip Data**

U.1 CLEAR AUDITS

Press the Enter button to clear the Standard Audits (except Burn-in Time), Feature Audits, and Histograms.

U.2 CLEAR COINS

Press the Enter button to clear the Earnings Audits.

U.3 RESET H.S.T.D.

Press the Enter button to clear the High Score to Date Table and the Grand Champion.

U.4 SET TIME AND DATE

Press the Enter button to activate the time and date. Use the Up or Down buttons to change the value, then press the Enter button to lock in that value. If you make a mistake press the Escape button while "Saving Adjustment Value" is displayed. The new value is ignored and the original value is retained.

U.5 CUSTOM MESSAGE

Set A.1 20 to ON before trying to write a custom message.

Press the Enter button to begin entry of the custom message. Use the Up or Down buttons to cycle through letters. Use the Start button to cycle through punctuation marks. Press the Enter button to lock in the desired letter and punctuation. If you make a mistake, use Up and Down to select the "back-arrow" character. The "back-arrow" character is located before the space character and after the number nine. Press Enter while the back-arrow shows to erase the previously entered character. Once the message is complete, press and hold the Enter button until "Message Stored" is displayed.

Press the Escape button to cancel the new message. The message "Press Enter to Reset" appears. If Enter is pressed, the custom message is cleared and no message is displayed. If Escape is pressed, the original message remains intact.

U.6 SET GAME I.D.

This utility allows for the installation of a message, such as game location, that only appears on the printouts. Press the Enter button to activate Set Game I.D. Use the Up or Down buttons to cycle through letters. Use the Start button to cycle through punctuation marks. Press the Enter button to lock in desired letters and punctuation marks.

U.7 FACTORY ADJUSTMENT

Press the Enter button to restore the adjustments to factory settings.

U.8 FACTORY RESET

Press the Enter button to restore the adjustments to their factory setting, clear the Audits, H.S.T.D. Table, and Custom Message/Game I.D.

U.9 PRESETS

Use the Up or Down buttons to cycle through the available Presets. When the desired Preset is displayed, press the Enter button to lock in that Preset. If you make a mistake, press the Escape button while "Saving Adjustment Value" is displayed. The new value is ignored and the original value is retained.

Game Difficulty Levels *The game play difficulty adjustments can be changed to a combination that is MUCH LESS to MUCH MORE difficult than Factory Settings. The Game Difficulty Setting Table lists the adjustments and settings that comprise the individual group.*

U.9 01 INSTALL EXTRA EASY	MUCH LESS difficult than factory setting.
U.9 02 INSTALL EASY	Somewhat LESS difficult than factory setting.
U.9 03 INSTALL MEDIUM	Nearly the SAME as factory setting.
U.9 04 INSTALL HARD	Somewhat MORE difficult than factory setting.
U.9 05 INSTALL EXTRA HARD	MUCH MORE difficult than factory setting.

DIFFICULTY SETTING TABLE FOR U.S., CANADIAN, FRENCH, GERMAN, AND EUROPEAN GAMES

Adj. #	Adj. Description	Extra Easy U.9 01	Easy U.9 02	Medium U.9 03 (factory)	Hard U.9 04	Extra Hard U.9 05
A.2 01	BALL SAVES	02	01	01	01	00
A.2 02	BALL SAVE TIME	04	03	03	03	N/A
A.2 03	EXTRA BALL PERCENT	35%	30%	30%	30%	25%
A.2 05	BALL AND CHAIN TIMER	35	35	30	25	25
A.2 06	FRANK BODY PART SPOT BALL START	YES	YES	YES	NO	NO
A.2 08	DRACULA LETTERS	3	3	3	2	0
A.2 09	DRAC-ATTACK TIMER	40	35	30	25	20
A.2 13	CENTER LOOP EXTRA BALL 1	9	12	12	12	15

U.9 06 INSTALL 5 BALL
U.9 07 INSTALL 3 BALL

Adjustments U.9 06 and U.9 07 can be used to change a game to 3 or 5 ball play, including changing of certain features to the recommended 3-and 5-ball level. The Preset Game Adjustments Table for U.S./Canadian Games lists the adjustments and settings that comprise the individual groups.

PRESET ADJUSTMENTS TABLE FOR U.S. AND CANADIAN GAMES

Adj. #	Adj. Description	Install 5-ball U.9 06	Install 3-ball U.9 07
A.1 01	BALL PER GAME	05	03
A.1 07	REPLAY START	50,000,000	30,000,000
A.2 06	FRANK BODY PART SPOT BALL START	NO	YES
A.2 08	DRACULA LETTERS	0	3
A.2 10	MONSTER EXTRA BALL	4	3
A.2 11	INSTRUMENTS SPECIAL	4	3
A.2 13	CENTER LOOP EXTRA BALL 1	15	12

U.9 08 INSTALL ADD-A-BALL

This option deletes all Free Play awards and replaces them with Extra Ball awards. Individual adjustments are affected, as follows:

Adjust.	Name	New Settings
A.1 13	Replay Boost	Off
A.1 14	Replay Award	Extra Ball
A.1 15	Special Award	Extra Ball
A.1 17	Extra Ball Ticket	No
A.1 19	Match Feature	Off
A.4 04	Champion Credits	00
A.4 05	High Score 1 Credits	00
A.4 06	High Score 2 Credits	00
A.4 07	High Score 3 Credits	00
A.4 08	High Score 4 Credits	00
A.4 16	Monster Bash Credits	00
A.4 18	Monsters of Rock Credits	00

U.9 09 INSTALL TICKET

This option deletes Credit awards and replaces them with Ticket awards. Individual adjustments are affected as follows:

Adjust.	Name	New Settings
A.1 14	Replay Award	Ticket
A.1 15	Special Award	Ticket
A.1 16	Match Award	Ticket
A.1 17	Extra Ball Ticket	Yes
A.1 31	Ticket Expansion Brd.	Yes
A.4 02	H.S.T.D. Award Ticket	Yes

U.9 10 INSTALL NOVELTY

This option removes all Free Play and Extra Ball awards. Individual adjustments are affected as follows:

Adjust.	Name	New Settings
A.1 04	Maximum Extra Ball	Off
A.1 05	Replay system	Fixed
A.1 09	Replay Level 1	Off
A.1 10	Replay Level 2	Off
A.1 11	Replay Level 3	Off
A.1 12	Replay Level 4	Off
A.1 15	Special Award	Points
A.1 19	Match Feature	Off
A.4 01	Highest Score	On
A.4 04	Champion Credit	00
A.4 05	High Score 1 Credits	00
A.4 06	High Score 2 Credits	00
A.4 07	High Score 3 Credits	00
A.4 08	High Score 4 Credits	00
A.4 16	Monster Bash Credits	00
A.4 18	Monsters of Rock Credits	00

U.9 11 NOT USED

U.9 12 SERIAL CAPTURE

This sets up the printer adjustments for a serial transmission to a laptop computer, (9600 baud, 40 column, no page breaks, serial printer). This option requires the installation of the optional printer kit; part number 63110.

U.9 13 TO U.9 16 NOT USED

U.9 17 INSTALL GERMAN 1
U.9 18 INSTALL GERMAN 2
U.9 19 INSTALL GERMAN 3
U.9 20 INSTALL GERMAN 4
U.9 21 INSTALL GERMAN 5
U.9 22 INSTALL GERMAN 6
Adjustments U.9 17 through U.9 22 are used to modify game pricing and type of play.

U.9 23 INSTALL FRENCH 1
U.9 24 INSTALL FRENCH 2
U.9 25 INSTALL FRENCH 3
U.9 26 INSTALL FRENCH 4
U.9 27 INSTALL FRENCH 5
U.9 28 INSTALL FRENCH 6
Adjustments U.9 23 through U.9 28 are used to modify game pricing and type of play.

U.10 CLEAR CREDITS

Press the Enter button to clear the game Credits.

U.11 AUTO BURN-IN

Press the Enter button to activate Auto Burn-in. This utility automatically cycles through several tests. This helps in finding intermittent problems. The tests that Auto Burn-in cycles through are: the Display Test, the Sound and Music Test, the All Lamps Test, the Solenoid Test, the Flashers Test, the General Illumination Test, and the Flipper Coil Test. All of the tests run concurrently. The time spent on the burn-in cycle and the total time the game has spent in burn-in are displayed.

U.12 RESET PHANTOM FLIP DATA

This Utility is used to reset all the shot timing data accumulated by the Phantom Flip feature.

Press the Up or Down buttons to scroll through the Adjustments menu. To access an adjustment menu option, press the Enter button. To see the setting choices for that option press the Up and Down buttons. To lock in a setting choice, press the Enter button. If you make a mistake, press the Escape button while "Saving Adjustment Value" is in the display. The original value is retained and the new value is ignored. Press the Escape button to return to the Adjustment menu.

A. ADJUSTMENTS MENU

A.1 Standard Adjustments
A.2 Feature Adjustments
A.3 Pricing Adjustments
A.4 H.S.T.D Adjustments
A.5 Printer Adjustments (optional board required)

A.1 STANDARD ADJUSTMENTS

A.1 01 BALLS PER GAME
A "game" is defined by specifying the number of balls to be played.

Settings: 1 to 10

Factory Default: 3

A.1 02 TILT WARNINGS
The number of total actuation's of the plumb bob that can occur before the game is "tilted".

Settings: 1 to 10

Factory Default: 3

A.1 03 MAXIMUM EXTRA BALLS COUNT
The number of extra balls that a player may accumulate.

Settings: 0 to 10
NO EXTRA BALL - No extra balls may be accumulated.

Factory Default: 4

A.1 04 MAXIMUM EXTRA BALLS PER BALL IN PLAY
The number of extra balls to be awarded per ball in play.

Settings: OFF - No maximum number of extra balls per ball in play.
1 to 10 - 1 through 10 extra balls per ball in play.

Factory Default: OFF

A.1 05 REPLAY SYSTEM
The type of replay system to be used.

Settings: FIXED - Replay value is set and does not change during game play.
AUTO % - Replay starting value is set but changes every 50 games to comply with the percentage of replays desired.
OFF - Disable the replay system. No replays are awarded.

Factory Default: AUTO %

A.1 06 REPLAY PERCENT

The percentage of replays the players are able to earn when Auto Replay is used.

Settings: 5% to 50%

Factory Default: 10%

A.1 07 REPLAY START

Replay Start value when Auto % Replay is used.

Settings: 5,000,000 to 300,000,000

Factory Default: 30,000,000

A.1 08 REPLAY LEVELS

The number of replay levels used by the Auto % Replay mode. When two replay levels are chosen, the second replay level is automatically adjusted to twice the starting replay level. When three of four replay levels are chosen, their values are automatically adjusted to three or four times the starting replay level.

Settings: 1 to 4

Factory Default: 1

A.1 09 REPLAY LEVEL 1
A.1 10 REPLAY LEVEL 2
A.1 11 REPLAY LEVEL 3
A.1 12 REPLAY LEVEL 4

The value to be used for the 1st through 4th Fixed Replay.

Settings: 00 to 300,000,000.

A.1 13 REPLAY BOOST

The replay score can be temporarily boosted by the selected amount EACH time the player reaches or exceeds the replay score. This temporary boost is canceled when credits equal 0; the player inserts another coin, or when Begin Test is pressed.

Settings: AUTO - The Replay Boost value is half of the current Replay value.
ON - Score is boosted between 2,000,000 and 25,000,000 points.
OFF - Replay score is not boosted.

Factory Default: AUTO

A.1 14 REPLAY AWARD

The form of award automatically provided when the player exceeds any replay level for either Auto % Replay or Fixed Replay.

Settings: CREDIT - Reaching each replay level awards credit.
TICKET - Reaching each replay level awards a ticket.
BALL - Reaching each replay level awards an extra ball.
AUDIT - Reaching each replay level awards nothing to the player; it does increase the entry value of the audit item(s) maintaining a tally of these awards.

Factory Default: CREDIT

A.1 15 NOT USED

A.1 16 MATCH AWARD

The award automatically provided when the players win a match.

Settings: CREDIT - Winning a match awards a credit.
TICKET - Winning a match awards a ticket.

Factory Default: CREDIT

A.1 17 EXTRA BALL TICKET

A ticket is awarded when the player earns an extra ball.

Settings: YES - The player is awarded a ticket in addition to an extra ball.
NO - The player is not awarded a ticket.

Factory Default: NO

A.1 18 MAXIMUM TICKET/PLAYER

The amount of tickets each player can earn.

Settings: 00 to 100.

Factory Default: 25

A.1 19 MATCH FEATURE

This is the desired percentage for the Match Feature occurring at the end of the game.

Settings: OFF - Match Feature is not available.
1 to 50% - 1% is 'hard'; 50% is 'extremely easy'. The Match Feature selects random points score value at the end of the game and compares each player's score for an identical match. A match of an entire score value results in an award of a Credit or a Ticket.

Factory Default: 7%

A.1 20 CUSTOM MESSAGE

The message displayed during the Attract mode.

Settings: ON - A message is displayed
OFF - A message is not displayed.

Factory Default: ON

A.1 21 LANGUAGE

The language the game uses.

Settings: ENGLISH, FRENCH, OR GERMAN

Factory Default: ENGLISH

A.1 22 CLOCK STYLE

The style of clock the game uses.

Settings: A.M./P.M. or 24 hours.

Factory Default: A.M./P.M.

A.1 23 DATE STYLE

The style of dates the game uses.

Settings: MONTH/DATE/YEAR OR DATE/MONTH/YEAR

Factory Default: MONTH/DATE/YEAR

A.1 24 SHOW DATE AND TIME

The date and time show in the Attract mode.

Settings: YES - Show the date, time in status report or in the Attract mode.
NO - Do not show date, time in status report or in the Attract mode.

Factory Default: NO

A.1 25 ALLOW DIM ILLUMINATION

The game program dims the general illumination for special effects and during the Attract mode.

Settings: YES - Dim the general illumination during the Attract mode.
NO - Do not dim the general illumination.

Factory Default: YES

A.1 26 TOURNAMENT PLAY

Equalize random game features and global score values during multi-player games.

Settings: YES - Equalize random game features and global score values.
NO - Do not equalize random game features and global score values.

Factory Default: NO

A.1 27 EUROPEAN SCORE FORMAT

Use either commas or dots between digits when numbers are displayed.

Settings: YES - Dots instead of commas, (example- 1.000.000).
NO - Commas instead of dots, (example- 1, 000, 000).

Factory Default: NO

A.1 28 MINIMUM VOLUME OVERRIDE

The volume can be turned off.

Settings: YES - Volume can be turned off.
NO - Volume can be turned down but not off.

Factory Default: NO

A.1 29 GENERAL ILLUMINATION POWER SAVER

This allows the general illumination and controlled lamps to be dimmed following a time interval after a game is played. Power Saver Level (A.1 30) determines dimness of the lamps. Using this feature substantially increases the life of the lamps.

Settings: OFF, 2 to 60 minutes.

Factory Default: 15 minutes

A.1 30 POWER SAVER LEVEL

When General Illumination Power Saver (A.1 29) is set for 2 to 60 minutes, the Power Saver Level controls the intensity of the general illumination and controlled lamps after the game has been idle for the specified period of time.

Settings: 4 to 7 (4 = dimmest, 7 = brightest)

Factory Default: 5

A.1 31 TICKET EXPANSION BOARD

When a Ticket Expansion board is connected, full control of the ticket dispenser is available. This includes a ticket low/error lamp, resume on ticket jam switch and manual ticket dispense switch.

Settings: YES - Ticket Expansion board is connected.
NO - Ticket Expansion board is NOT installed in the game.

Factory Default: NO

A.1 32 NO BONUS FLIPS

The activation of flippers during the end of ball "bonus" sequence. Setting to "YES" may extend the life of the flipper mechanisms.

Settings: YES, NO

Factory Default: YES

A.1 33 GAME RESTART

When you press the Start button during or after the 2nd ball, the game in progress ends and a new game begins. This adjustment has three settings to determine how to handle this.

Settings: NEVER - Do not allow a new game start until the current game is over.
SLOW - Restart if the Start button is pressed continuously for over 1/2 second. This helps to prevent the unintended restart of the game in progress.
INSTANTLY - Restart as soon as the Start button is pressed.

When you press the Start button during game over, or during the 1st ball (to add a player), it is always handled instantly.

Factory Default: SLOW

A.1 34 ALLOW CHASE BALL

The Chase Ball feature will attempt to keep a game operational in the event that a ball becomes stuck on the playfield. After a number of unsuccessful ball searches, the game software will end the player's current ball, give a bonus award, then serve a new ball (or end the game if that was the last ball in the player's game). This ball 'chases' the stuck ball on the playfield and will hopefully knock it loose.

Setting this adjustment to NO will revert to the previous WPC behavior of searching endlessly until the stuck ball becomes freed, or the machine's power is turned off and back on.

Settings: YES, NO
Factory Default: YES

A.2 FEATURE ADJUSTMENTS

A.2 01 BALL SAVES

This adjustment determines the number of "full" Ball Saves that each player receives in a game. A ball that is "saved" will be returned to play without a change in the player up number or the ball in play number. A "full" Ball Save is "used" if a ball drains after it is launched into play within the amount of time specified by A.2 02 (Ball Save Time). Once all "full" Ball Saves are used, balls will no longer be returned to play should they drain quickly after being launched into play.

Settings: OFF - Balls will not be saved.
01-05: 1 to 5 "full" Ball Saves given to each player per game.

A.2 02 BALL SAVE TIME

This adjustment determines the number of seconds in which a ball may drain after being launched into play, such that it will be returned to play without a change in the player up number or the ball in play number.

Settings: 03-15: 3 to 15 seconds.

A.2 03 EXTRA BALL PERCENTAGE

This adjustment determines the total percentage of Extra Balls desired (for all Extra Balls awarded from all features except Replay Score levels). The game will adjust the percentage of the Random Award (Concert Hall) "Light Extra Ball" award to achieve the requested percentage. When this adjustment is set to "FIXED", no automatic percentaging will be done for the Random Award "Light Extra Ball" Award; it will operate with a FIXED percentage of 2%.

Settings: FIXED - Do not percentage the Random Award "Light Extra Ball" Award.
15-40: Percentage the Random Award "Light Extra Ball" Award to achieve this percentage.

A.2 04 CREATURE FEATURE TIMER

This adjustment specifies the number of seconds the player has to complete a shot during Creature Feature.

Settings: 10-30: The starting number of seconds for the timer.

A.2 05 BALL AND CHAIN TIMER

This adjustment specifies the number of seconds in which the player has to complete the Ball and Chain feature.

Settings: 20-40: The starting number of seconds for the timer.

A.2 06 FRANKENSTEIN BODY PART SPOT BALL START

This adjustment specifies whether or not Frankenstein Body Parts are spotted for the first Frankenstein Multiball at the start of each ball. Setting this adjustment to YES makes the first Frankenstein Multiball easier to achieve.

Settings: YES - Spot Frankenstein Body Parts.
NO - Do not spot Frankenstein Body Parts.

A.2 07 MUMMY MAYHEM TIMER

This adjustment specifies the number of seconds in which the player has to complete the Mummy Mayhem feature.

Settings: 30-60: The starting number of seconds for the timer.

A.2 08 DRACULA LETTERS

This adjustment specifies the number of free Dracula letters that are given to each player at the start of a game. The higher this number is, the easier it is to light the Drac-Attack feature.

Settings: 00-06: The starting number of Dracula letters.

A.2 09 DRAC-ATTACK TIMER

This adjustment specifies the number of seconds in which the player has to hit Dracula during Drac-Attack.

Settings: 20-40: The starting number of seconds for the timer.

A.2 10 MONSTERS EXTRA BALL

This adjustment specifies the number of Monsters that must be collected to light an Extra Ball.

Settings: OFF - Do NOT light an Extra Ball for collecting Monsters.
1-6: Light and Extra Ball for collecting this number of Monsters.

A.2 11 INSTRUMENT SPECIAL

This adjustment specifies the number of Instruments that must be collected to light a Special.

Settings: OFF - Do NOT light a Special for collecting Instruments.
1-6: Light a Special for collecting this number of Instruments.

A.2 12 MAXIMUM INSTRUMENTS SPECIALS

This adjustment limits the number of Specials that can be lit for collecting Instruments.

Settings: 1-10: The number of times the Special can be lit.
UNLIMITED - Instrument Specials can be lit an unlimited number of times.

A.2 13 CENTER LOOP EXTRA BALL 1

This adjustment specifies the number of Center Loop shots that must be made before lighting the first Center Loop Extra Ball.

Settings: NO EXTRA BALL - Do not light the first Extra Ball from the Center Loop.
3, 6, 9, 12, 15 - Light an Extra Ball when this number of Center Loop shots is made.

A.2 14 CENTER LOOP EXTRA BALL 2

This adjustment specifies the number of Center Loop shots that must be made before lighting the second Center Loop Extra Ball.

Settings: NO EXTRA BALL - Do not light the second Extra Ball from the Center Loop.
24, 27, 30, 33, 36 - Light an Extra Ball when this number of Center Loop shots is made.

A.2 15 SPECIAL MEMORY

This adjustment determines whether or not lit Specials remain in memory from ball to ball.

Settings: YES - Specials stay lit from ball to ball.
NO - Specials will be turned off at the start of each ball.

A.2 16 PHANTOM FLIP BALL SAVE

This adjustment allows activation of the ball save feature for a brief period when an automatic flip is underway.

Settings: YES – Activate the ball save feature during automatic flips.
NO – Do not activate the ball save feature.

A.2 17 KNOCKER SOUND

This adjustment is used to turn off the knocker sound.

Settings: OFF – Disable the knocker sound.
NO – Knocker sound active.

A.2 18 PLAYER TOURNAMENT MODE

This adjustment determines whether or not lit Specials remain in memory from ball to ball.

Settings: YES - Specials stay lit from ball to ball.
NO - Specials will be turned off at the start of each ball.

A.2 19 FAMILY MODE

This adjustment allows the game to operate in "Family Mode". Any possibly offensive or objectionable dot matrix images and sounds will not be utilized.

Settings: YES - Do NOT utilize any possibly offensive or objectionable dot matrix images and sounds.
NO - Utilize all dot matrix images and sounds.

A.2 20 ATTRACT MODE MUSIC

This adjustment is used to allow the playing of music in Attract Mode.

Settings: YES - Allow music to be played in Attract Mode.
NO - Do NOT allow music to be played in Attract Mode.

A.2 21 ATTRACT MODE SOUND

This adjustment is used to allow the playing of sound effects in Attract Mode.

Settings: YES - Allow sounds effects to be played in Attract Mode.
NO - Do NOT allow sound effects to be played in Attract Mode.

A.2 22 TIMED PLUNGER

This adjustment specifies the number of seconds before automatically plunging a ball onto the playfield that can otherwise be plunged by the player via the launch button.

Settings: OFF - Never automatically plunge a ball onto the playfield that can otherwise be plunged by the player via the launch button.
30-90: The number of seconds before automatically plunging the ball.

A.2 23 FLIPPER PLUNGER

When this adjustment is set to YES, the right flipper will cause a ball sitting in the shooter lane to be launched onto the playfield. This adjustment is provided for use when the launch button is broken and/or intermittent. The game will automatically detect a broken launch button, but it may take several games to perform the detection. In this case, set this adjustment to YES until the launch button can be repaired.

Settings: YES - Allow the right flipper to launch a ball sitting in the shooter lane.
NO - Do NOT allow the right flipper to launch a ball sitting in the shooter lane.

A.2 24 DISABLE PHANTOM FLIP

This adjustment is used to disable the Phantom Flip feature.

Settings: YES - Disable the feature.
NO - Do NOT disable the feature.

A.2 25 DISABLE UP/DOWN BANK

This adjustment is provided for use when the Up/Down Bank is broken and/or intermittent. The game will automatically detect a broken Up/Down Bank, but it may take several games to perform the detection. In this case, set this adjustment to YES until the Up/Down Bank can be repaired.

If it is necessary to set this adjustment to YES, and the Up/Down Bank motor is operable, use T.17 (Up/Down Bank Test) to move the Bank to its UP or its DOWN position. This will minimize possible damage to the top of the unit during game play, and provide for better game-play software compensation.

Settings: YES - Disable the Up/Down Bank.
NO - Do NOT disable the Up/Down Bank.

A.2 26 DISABLE FRANKENSTEIN TABLE

This adjustment is provided for use when the Frankenstein Table is broken and/or intermittent. The game will automatically detect a broken Frankenstein Table, but it may take several games to perform the detection. In this case, set this adjustment to YES until the Frankenstein Table can be repaired.

If it is necessary to set this adjustment to YES, and the Frankenstein Table motor is operable, use T.18 (Frankenstein Table Test) to move the Table to its UP or its DOWN position. This will minimize possible damage to the bottom of the unit during game play, and provide for better game-play software compensation.

Settings: YES - Disable the Frankenstein Table.
NO - Do NOT disable the Frankenstein Table.

A.2 27 DISABLE RAMP LOCK POST

This adjustment is used to disable the Ramp Lock Post.

Settings: YES - Disable the Ramp Lock Post.
NO - Do NOT disable the Ramp Lock Post.

A.2 29 DISABLE MUMMY

This adjustment is used to disable the Mummy Coffin.

Settings: YES - Disable the Mummy Coffin.
NO - Do NOT disable the Mummy Coffin.

A.2 30 DISABLE LEFT GATE

This adjustment is provided for use when the Left Gate is broken and/or intermittent. The game will automatically detect a broken Left Gate, but it may take several games to perform the detection. In this case, set this adjustment to YES until the Left Gate can be repaired.

Settings: YES - Disable the Left Gate.
NO - Do NOT disable the Left Gate.

A.2 31 DISABLE RIGHT GATE

This adjustment is provided for use when the Right Gate is broken and/or intermittent. The game will automatically detect a broken Right Gate, but it may take several games to perform the detection. In this case, set this adjustment to YES until the Right Gate can be repaired.

Settings: YES - Disable the Right Gate.
NO - Do NOT disable the Right Gate.

A.2 32 DISABLE DRACULA

This adjustment is provided for use when the Dracula mechanism is broken and/or intermittent. The game will automatically detect a broken Dracula mechanism, but it may take several games to perform the detection. In this case, set this adjustment to YES until the Dracula mechanism can be repaired.

Settings: YES - Disable the Dracula Mechanism.
NO - Do NOT disable the Dracula Mechanism.

A. 3 PRICING ADJUSTMENTS

A.3 01 GAME PRICING (If set to custom, then 02 to 09 are available).
The cost of a game is selected here from the Standard Pricing Table or by using the custom pricing editor (A.3 27).

A.3 02 to A.2 09 NOT USED

A.3 10 COIN DOOR TYPE (If set to custom, then 11 to 15, 20 and 25 are available).
This adjustment is used to preset adjustments 11 through 15, 20 and 25, based on standard coin doors.

A.3 11 COLLECTION TEXT
The coin system is used to display the Earning Audits.

A.3 12 LEFT SLOT VALUE
A.3 13 CENTER SLOT VALUE
A.3 14 RIGHT SLOT VALUE
A.3 15 4TH SLOT VALUE
These are the values for the coins for these respective coin slots. These values are used for determining collection totals. The corresponding adjustments A.3 28 (Left Slot Credit Value) through A.3 31 (4th Slot Credit Value) typically contain the same values and are used to determine the number of credits awarded for the coin slot. Whenever these values are changed, the new value is copied to the corresponding A.3 28 through A.3 31 adjustment. If a bonus is desired for a particular coin (such as three credits for dollar coin), then the corresponding A.3 28 through A.3 31 "Credit Value" adjustment should be modified to award the bonus. See "Bonus for Special Coin" section for more information.

A.3 16 MAXIMUM CREDITS
The maximum number of credits the game can accumulate, either through game plays awards or coin purchases. The range of this setting is 5 through 99. Reaching the specified setting prevents the award of any credits. Factory default is 10.

A.3 17 FREE PLAY
A player can operate the game without a coin (free play), or with a coin.

NO - A coin is necessary for game play.
YES - Game play is free; no coin required.

A.3 18 HIDE COIN AUDITS
The coin audits may, or may not, be displayed.

YES - The coin audits are not displayed.
NO - The coin audits are displayed.
HIDE NAMES - The coin audit value is shown but not the audit name.

A.3 19 NOT USED

A.3 20 BASE COIN SIZE
This is the smallest unit of coin that may be used when creating a custom pricing mode using the Pricing Editor (A.3 27). For example, in the USA this is typically $0.25. All pricing levels are then specified in 25 cents (or greater) increments.

A.3 21 COIN METER UNITS

The adjustment determines the value of each coin unit on the coin meter. For example, to show the total amount of money collected as total quarters, set the adjustment to 0.25. To show the total amount of money collected as "total dollars", set this adjustment to 1.00. Setting this adjustment to anything other than OFF establishes the coin unit for the meter installed on the Coin Door Interface board. ***Note:*** *All WPC-95 games are cable ready to operate a coin meter mounted to the Coin Door Interface board. Boards without a meter can use the parts listed below to take advantage of the coin meter feature. The coin meter and spacer may be purchased from your distributor.* coin meter +6V p/n 20-9302-3; spacer p/n 20-9914

A.3 22 DOLLAR BILL SLOT

The system normally requires 150 microseconds between coin pulses. This is too long a delay for a fast-pulsing dollar bill validator. This adjustment may be used to tell the game that there is a fast-pulsing dollar bill validator connected to one of the coin switches.

NONE = No validator connected.
LEFT = Validator connected to left slot.
CENTER = Validator connected to center slot.
RIGHT = Validator connected to right slot
FOURTH = Validator connected to fourth.

A.3 23 MINIMUM COIN MILLISECONDS

This is the minimum width required for coin pulses to be accepted as valid coins. This may be changed to prevent certain kinds of cheating.

A.3 24 NOT USED

A.3 25 ALLOW HUNDREDTHS

This is used for a custom door specifier. If set to YES, then the values for A.3 12-15 are specified in units and hundredths (such as dollars and quarters). If set to NO, then all values are in units (such as Francs and Lire.)

A.3 26 CREDIT FRACTION

This determines the smallest fraction used for credits. It must be even to accommodate the extra ball buy-in option of 1/2 credit, and is typically 1/2 but may need to be a different value for modes requiring more coins per credit.

A.3 27 PRICING EDITOR

This function is now used to enter information for a custom pricing mode. The adjustment A.3 26 (Credit Fraction) may need to be set before entering the custom pricing editor. This specifies the smallest fraction available for partial credits.

Because of availability of an extra ball (buy-in) for 1/2 credit, this value is always even (1/2, 1/4, 1/6etc.). The typical setting for A.3 26 is 1/2 (such that there are only full credits and half credits) but you may need to used a different value for other pricing modes.

Please note that formerly, the coin values specified by custom coin doors adjustments A.3 12-15 only affected audit totals that showed collection totals. In the 10/94 pricing system, these coin values are added up for each coin received and credits are awarded based on pricing levels being reached. The pricing editor described here allows you to set these levels, however it may be necessary for you to set A.3 10 (Coin Door Type) to CUSTOM and then change A.3 11-15, 20 and 25 to reflect the value of the coins being used. This is usually NOT NECESSARY, but must be done BEFORE using the custom pricing editor when it is necessary.

Begin the custom pricing function by pressing the Enter button while A.3 27 Pricing Editor is showing in the display.

The pricing editor will now show the data for the currently selected pricing mode. If this is the 1st use of the pricing editor then this will show the last built-in pricing that was selected. Otherwise it will be the last custom mode created by this function. (Note that A.3 01 will display Custom any time a non-standard pricing has been selected.)

Assuming the last mode installed was 1/$0.50, 2/$0.75, 3/$1.00 the display appears as follows:

CUSTOM PRICING EDITOR		
1)	$0.25	1/2 cred.
2)	$0.50	1 cred.
3)	$0.75	2 cred.
4)	$1.00	3 cred.

DISPLAY VIEW

The $0.25 field will be flashing. You may now use the test mode buttons to perform the following functions:

Escape:
Undo any changes to the current field and move to the previous field.

"-" (Down):
Make the current field lower.

"+" (Up):
Make the current field higher.

Enter:
Save any changes to the current field and move to the next field. Note that there are 2 columns of fields. Price levels are in the left column and credit levels are in the right column. Pressing Enter will move from left column to right column before moving to the next line.

Start:
Save the current price mode or start over

By using the above functions, you simply enumerate each pricing level and the number of credits that should be awarded at that level. Please note that you must specify each fractional level in sequence.

Example: 1/$0.50 2/$1.00 4/$1.50 6/$2.00

1) $0.25 1/2 cred.
2) $0.50 1 cred.
3) $0.75 1 1/2 cred.
4) $1.00 2 cred.
5) $1.25 2 1/2 cred.
6) $1.50 4 cred.
7) $1.75 4 1/2 cred
8) $2.00 6 cred.

Also note that once the value of the coins repeat that no further specification is necessary.

Example: 1/$0.50 2/$1.00

1) $0.25 1/2 cred.

In the above example, only one line needs to be specified, indicating that 1/2 credit is awarded for each $0.25 received.

Special Features:
There are some special features available by pressing the Down button while in the left column. The following words will be displayed instead of a pricing level:

End	*Repeat 3*	*Repeat 9*	*Repeat 15*
Delete	*Repeat 4*	*Repeat 10*	*Repeat 16*
Insert	*Repeat 5*	*Repeat 11*	*Repeat 17*
Clear	*Repeat 6*	*Repeat 12*	*Repeat 18*
Repeat 1	*Repeat 7*	*Repeat 13*	*Repeat 19*
Repeat 2	*Repeat 8*	*Repeat 14*	*Repeat 20*

Pressing Enter with the above words selected will activate the following instructions:

End
This is the same as pressing the Start button. A menu of choices will be provided (see Start Button later in this section).

Delete
This deletes the current level from the pricing mode.

Insert
This inserts a new pricing level ABOVE the current level. The current level will be unaffected. There must be room for at least one coin between the current level and the previous level, and at least one fractional credit unit between the current level and the previous level.

Example: Inserting a new pricing level.

CUSTOM PRICING EDITOR		
1)	$0.50	1 cred.
2)	$1.00	2 cred.
3)	$1.50	4 cred.
4)	$2.00	6 cred

DISPLAY VIEW

Use the Enter button to move to the $1.50 field. Now press the Down button once to create the following display:

CUSTOM PRICING EDITOR		
1)	$0.50	1 cred.
2)	$1.00	2 cred.
3)	INSERT	4 cred.
4)	$2.00	6 cred

DISPLAY VIEW

Now press the Enter button. The display will now show:

CUSTOM PRICING EDITOR		
1)	$0.50	1 cred.
2)	$1.00	2 cred.
3)	$1.25	2 1/2 cred.
4)	$1.50	4 cred

DISPLAY VI

Note that the line "5) $2.00 6 cred." No longer fits on the display. Whenever there are more than four pricing levels that the display will scroll up and down as Enter and Escape are used to move from field to field. If you repeatedly press Enter the display will then show:

CUSTOM PRICING EDITOR		
2)	$1.00	2 cred.
3)	$1.25	2 1/2 cred.
4)	$1.50	4 cred.
5)	$2.00	6 cred

DISPLAY VIEW

Clear
This clears out the current entries to allow a new pricing mode to be entered.

Repeat (1-20)
This causes all of the entries above the current line to be repeated the number of times specified. This is only available when there are no pricing levels below the current line.

Example: 1/$0.50 2/$1.00 15/$5.00

Use the "Edit New Pricing Mode" feature described below to clear out the current levels.
Use the Up and Enter buttons to specify 1/2 credit for $0.25:

CUSTOM PRICING EDITOR		
1)	$0.25	1/2 cred.

DISPLAY VIEW

Now, use the Up button until the display shows "Repeat 20". The display looks like this:

CUSTOM PRICING EDITOR		
1)	$0.50	1 cred.
2)	REPEAT 20	

DISPLAY VIEW

Press the Enter button and the display will show the following:

CUSTOM PRICING EDITOR		
1)	$0.25	1/2 cred.
2)	$0.50	1 cred.
3)	$0.75	1 1/2 cred.
4)	$1.00	2 cred

DISPLAY VIEW

Actually, by repeating the 1st line 20 times the pricing mode is currently set up as follows, but only the 1st four lines are displayed.

CUSTOM PRICING EDITOR		
1)	$0.25	1 /2 cred.
2)	$0.50	1 cred.
3)	$0.75	1 1/2 cred.
4)	$1.00	2 cred.
5)	$1.25	2 1/2 cred.
6)	$1.50	3 cred.
7)	$1.75	3 1/2 cred.
8)	$2.00	4 cred.
9)	$2.25	4 1/2 cred.
10)	$2.50	5 cred.
11)	$2.75	5 1/2 cred.
12)	$3.00	6 cred.
13)	$3.25	6 1/2 cred.
14)	$3.50	7 cred.
15)	$3.75	7 1/2 cred.
16)	$4.00	8 cred.
17)	$4.25	8 1/2 cred
18)	$4.50	9 cred.
19)	$4.75	9 1/2 cred.
20)	$5.00	10 cred

DISPLAY VIEW

Now repeatedly press the Enter button to move the right hand column to the 20th level. The display will show (with "10 cred." Blinking):

CUSTOM PRICING EDITOR		
17)	$4.25	8 1/2 cred.
18)	$4.50	9 cred.
19)	$4.75	9 1/2 cred.
20)	$5.00	10 cred

DISPLAY VIEW

Now press the Up button repeatedly until the right hand column of line 20 reads "15 cred."

Start Button

Once the pricing mode has be specified, you exit the custom pricing editor by pressing the 'Start" button. This will bring up a menu with some or all of the following choices:

Choose an Option:
- Return to Editor
- Clear Pricing
- Ignore Changes
- Save Changes

DISPLAY VIEW

Use the Up and Down buttons to select your choice and press the Enter button to activate it. The selections cause the following actions:

Return To Editor

This option will allow you to continue to edit the pricing information.

Clear Pricing

This option will clear out all pricing levels and bring you back to the pricing editor to create a pricing mode from scratch.

Ignore Changes

This option will discard the work done in the previous pricing editor and leave the previously installed pricing mode in the game.

Save Changes

Press the Enter button to save your custom edited pricing mode and install it as the pricing for the game. Note that this choice will not be displayed if there is not at least one pricing level specified in the pricing editor, or if no changes have been made.

Exit Pricing Editor

This option will appear if no changes have been made. It will exit the Pricing Editor leaving the pricing as is.

Bonus for Special Coins

For most coin modes, the system allows the mixing of any combination of any size coin and awards credits as each appropriate amount is accumulated. With A.3 10 (Coin Door Type) set to "custom", the value of each coin slot may be entered for adjustments A.3 12 (Left Slot Value) through A.3 15 (4th slot value). Whenever these values are changed, the new values are copied to A.3 28 (Left Slot Credit Value) through A.3 31 (4th Slot Credit Value) respectively. To give a bonus for a particular coin, you need to modify the Credit Value adjustment to specify the value to be given for the bonus coin.

For example, in a game with a Left Coin Slot that takes quarters and a center coin slot that takes dollars, if you wish to charge 50 cents for 1 play and $1.00 for 2 plays, you setup the pricing editor to show:

CUSTOM PRICING EDITOR		
1)	$0.25	1/2 cred.
2)	$0.50	1 cred.
3)	$0.75	1-1/2 cred.
4)	$1.00	2 cred

DISPLAY VIEW

If you set A.3 10 (Coin Door Type) to Custom you will see the following coin door specifier adjustments:

A.3 12	Left Slot Value	0.25
A.3 13	Center Slot Value	1.00
A.3 28	Left Slot Credit Value	0.25
A.3 29	Center Slot Credit Value	1.00

To change the pricing to 1 play for $0.50, 2 plays for $1.00 and 3 plays for a dollar coin, you change A.3 29 (Center Slot Credit Value) to 1.50. This will result in the following settings:

A.3 12	Left Slot Value	0.25
A.3 13	Center Slot Value	1.00
A.3 28	Left Slot Credit Value	0.25
A.3 29	Center Slot Credit Value	1.50

This will cause $1.50 worth of credits (3) to be awarded for each coin inserted in the center coin slot (dollar coin). This is due to the $1.50 setting of A.3 29 (Center Slot CREDIT VALUE). Note that the 1.00 setting of A.3 13 tells the game that each coin in the center slot adds $1.00 to the total collection.

A.3 28 LEFT SLOT CREDIT VALUE
A.3 29 CENTER SLOT CREDIT VALUE
A.3 30 RIGHT SLOT CREDIT VALUE
A.3 31 4TH SLOT CREDIT VALUE

This adjustment specifies the value to be used for awarding credits. It is typically the same value as the corresponding A.3 12 (Left Slot Value) through A.3 15 (4th Slot Value) adjustment.

The A.3 12 through A.3 15 values are used to determine the auditing value of each coin (for collection totals) while the A.3 28 through A.3 31 value determine the coin value for awarding credits. By making this "Credit Value" adjustment higher than the A.3 12 through A.3 15 "Value" adjustment, a bonus may be given for a specific call (see Bonus for Special Coin section for more information).

Pricing Table

COUNTRY	COIN CHUTES LEFT	CENTER	RIGHT	4TH CHUTE	GAMES/COINS	DISPLAY	PRICING ADJUSTMENTS A3 02 03 04 05 06 07 08 09
USA	25¢	$1.00*	25¢	$1.00	1/50¢, 2/75¢, 3/$1[2]	50¢, 75¢, $1.00	
	25¢	$1.00*	25¢	$1.00	1/75¢, 2/$1.50, 3/$2.00[2]	1/.75, 3/2.00	
	25¢	$1.00	25¢	$1.00	1/3X25¢[2]	USA 1/$0.75	
	25¢	$1.00	25¢	$1.00	1/50¢, 2/$1[2]	USA 2/$1.00	
	25¢	$1.00	25¢	$1.00	1/50¢, 3/$1.00[2]	USA 3/$1.00	
	25¢	$1.00	25¢	$1.00	1/2x25¢, 2/$1.00, 3/$1.50, 6/$2.00[2]	USA 6/$2.00	
	25¢	$1.00	25¢	$1.00	1/2x25¢, 2/$1.00, 3/$1.50, 5/$2.00[1,2]	USA 5/$2.00	
	25¢	$1.00	25¢	$1.00	1/3x25¢, 2/$1.50, 4/$2.00[2]	1/.75, 4/$2.00	
	25¢	$1.00	25¢	$1.00	1/2x25¢, 2/$1.00, 4/$1.50, 6/$2.00[2]	6/$2. 00 4/$1.50	
	25¢	25¢	25¢	-	1/4x25¢, 6/$5.00[2]	1/1, 6/5	
	25¢	25¢	25¢	-	1/4x25¢[2]	1/$1.00	
Canada	25¢	-	$1.00	-	1/50¢, 2/75¢, 3/$1[2]	CAN. 50-75-1	
	25¢	-	$1.00	-	1/50¢, 2/$1[2]	CAN. 2/$1.00	
	25¢	-	$1.00	-	1/50¢, 3/$1.00[2]	CAN. 3/$1.00	
	25¢	-	$1.00	-	1/2x25¢, 2/4x25¢, 3/$1.00[2]	3/$1.00 Coin	
	25¢	-	$1.00	-	1/2x25¢, 2/$1.00, 3/$1.50, 6/$2.00[2]	CAN. 6/$2.00	
	25¢	-	$1.00	-	1/2x25¢, 2/$1.00, 3/$1.50, 5/$2.00[1,2]	CAN. 5/$2.00	
	25¢	-	$1.00	-	1/2x25¢, 2/$1.00, 4/$1.50, 6/$2.00[2]	6/$2, 4/1.50	
	25¢	-	$1.00	-	1/3x25¢, 2/$1.50, 4/$2.00[2]	1/.75, 4/2.00	
	25¢	-	$1.00	-	1/75¢, 2/$1.50, 3/$2.00[2]	1/.75, 3/2.00	
	25¢	-	$1.00	-	1/3X25¢[2]	CAN. 1/$0.75	
Canada 3/Dollar Coin	25¢	-	$1.00	-	1/0.50, 2/$1.00, 3/$1.00-Coin	CAN.$ BONUS	
Austria	5sch	10sch	10sch	-	1/2x5sch, 3/2x10sch[2]	AUSTRIA	
	5sch	-	10sch	-	12/5sch, 5/10sch	CUSTOM	02 00 05 00 01 00 01 00
Australia	20¢	$1	$1	$2	1/$1, 3/$2[2]	AUSTRALIA 1	
	20¢	$1	$1	$2	1/$1, 2/$2	AUSTRALIA 2	
U.K.	£1.00	50P	20P	10P	1/3x10P, 2/50P, 4/£1[2]	U. KINGDOM	
Switzerland	1Fr	2Fr	5Fr	-	1/1Fr, 3/2Fr, 7/5Fr[2]	SWISS 1	
Swiss 2	1Fr	2Fr	5Fr	-	1/2Fr, 2/3Fr, 3/4Fr, 5/5Fr	SWISS 2	
Swiss 3	1Fr	2Fr	5Fr	-	1/1Fr, 5/5Fr	SWISS 3	
Swiss 4	1Fr	2Fr	5Fr	-	1/1Fr, 2/2Fr, 3/3Fr, 4/4Fr, 6/5Fr[1]	SWISS 4	
Swiss 5	1Fr	1Fr	1Fr	-	1/1Fr (all slots = 1Fr)	SWISS 5	
Belgium	5Fr	20Fr	50Fr	-	1/4x5Fr, 1/20Fr , 3/50Fr[2]	BELGIUM	
Belgium 2	5Fr	20Fr	50Fr	-	1/20Fr, 3/60Fr, 3/50Fr-Coin	BELG. BONUS	
Germany	1DM	2DM	5DM	-	1/1DM, 2/2DM, 6/5DM[1,2]	GER. 6/5DM	
					1/2DM, 2/3DM, 3/4DM, 4/5DM[2]	GER. 4/5DM	
					1/2DM, 2/3DM, 3/4DM, 5/5DM[2]	GER. 1/2DM	
					1/1DM, 2/2DM, 5/5DM[2]	GER. 1/1DM	
Holland	1G	-	1G	-	1/1G[2]	HOLLAND	
Sweden	1Kr	5Kr	10Kr	1Kr	1/10Kr, 2/15Kr, 3/20Kr[1,2]	SWEDEN 1	
	1Kr	5Kr	10Kr	1Kr	1/5Kr[2]	SWEDEN 2	
France	1Fr	5Fr	10Fr	20Fr	1/3x1Fr, 2/5Fr, 5/10Fr , 10/20Fr[2, 3]	TARIFF 1	
	1Fr	5Fr	10Fr	20Fr	1/2x1Fr, 3/5Fr, 7/10Fr ,14/20Fr[2, 3]	TARIFF 2	
	1Fr	5Fr	10Fr	20Fr	1/5Fr, 3/10Fr, 7/2x10Fr , 7/20Fr[2,3]	TARIFF 3	
	1Fr	5Fr	10Fr	20Fr	2/5Fr, 4/10Fr, 9/2x10Fr , 9/20Fr[2,3]	TARIFF 4	
	1Fr	5Fr	10Fr	20Fr	2/5Fr, 5/10Fr, 11/2x10Fr , 11/20Fr[2,3]	TARIFF 5	
	1Fr	5Fr	10Fr	20Fr	1/5Fr, 3/10Fr , 6/20Fr[2,3]	TARIFF 6	
Italy	500L	500L	500L	-	1/500L[2]	ITALY 1	
	500L	500L	500L	-	1/2x500L, 3/4x500L[1,2]	ITALY 2	
	500L	500L	500L	-	1/2x500L, 2/4x500L[2]	ITALY 3	
Spain	100P	-	500P	-	1/100P, 6/500P[2]	SPAIN	
	25P	-	100P	-	1/25P, 5/100P	CUSTOM	01 00 04 00 01 04 01 00
	25P	-	100P	-	1/25P, 4/100P	CUSTOM	01 00 04 00 01 00 01 00
	25P	-	100P	-	1/2x25P, 2/100P	CUSTOM	01 00 04 00 02 00 01 00
	25P	-	100P	-	1/2x25P, 3/100P	CUSTOM	03 00 12 00 04 00 01 06
Japan	100¥	-	100¥	-	1/100¥[2]	JAPAN	
Chile	Token	-	Token	-	1/1Token[2]	CHILE	
Denmark	1Kr	5Kr	10Kr	20Kr	1/2x1 Kr, 3/5 Kr, 7/10 Kr[2]	DENMARK 1	
	1Kr	5Kr	10Kr	20Kr	1/5 Kr, 3/10 Kr, 6/20 Kr[1,2]	DENMARK 2	
Finland	1Mka	-	5Mka	-	1/2x1Mka, 3/5Mka[2]	FINLAND 1	
	1Mka	-	5Mka	-	1/3x1Mka, 2/5Mka[2]	FINLAND 2	
New Zealand	$1.00	-	$2.00	-	1/$1, 3/$2[2]	NEW ZEALAND 1	
	$2.00	-	$1.00	-	1/$1, 3/$2, ($2-$1 door)	NEW ZEALAND 2	
Norway	5Kr	-	10Kr	-	1/5Kr, 2/10Kr, 5/20Kr[2]	NORWAY	
Argentina	10¢	10¢	10¢	-	1/1 Token[2]	ARGENTINA	
Greece	10D	20D	50D	-	1/2x10D, 1/20D, 3/50D	GREECE	
Antilles	25¢	25¢	1G	-	1/25¢, 4/1G	ANTILLES	
Netherlands 1	1 HFI	2.5 HFI	2.5 HFI	-	1/1Hfl, 3/2.5Hfl	NETHERLANDS	
Netherlands 2	1 HFI	2.5 HFI	2.5 HFI	-	1/1HFI, 3/3HFI, 3/2.5HFI-Coin	NETH. BONUS	
Netherlands 3	1 HFI	2.5 HFI	5 HFI	-	1/1Hfl, 3/2.5Hfl	NETH. CSHFL	
Hungary	20 Old	20 New	50F	-	1/40F, 2/60F, 4/100F	HUNGARY	

1. Factory Default. 2. Standard Setting - Change by pressing Enter button. 3. Other functions are also affected. * Only if Bill Acceptor and Center Chute are available.

A.4 HIGH SCORE TO DATE (H.S.T.D.) ADJUSTMENTS

A.4 01 HIGHEST SCORES
The game maintains a record of the four highest scores achieved to date.

OFF - No high scores are recorded, or displayed.
ON - The four highest scores are stored in memory and displayed in Attract Mode.

A.4 02 H.S.T.D. AWARD
This is the award given for achieving the High Score to Date or the Champion High Score to Date. Credit or Ticket

A.4 03 CHAMPION H.S.T.D.
The "Highest" High Score can be displayed in the Attract Mode. This score is not cleared when "High Score Reset Every" occurs.

ON - The "Highest" High Score is retained in memory and displayed.
OFF - The "Highest" High Score is not retained.

A.4 04 CHAMPION CREDITS
The number of credits or tickets awarded for a Grand Champion Score.

Range: 00 to 10.

A.4 05 H.S.T.D. 1 CREDITS
A.4 06 H.S.T.D. 2 CREDITS
A.4 07 H.S.T.D. 3 CREDITS
A.4 08 H.S.T.D. 4 CREDITS
The number of credits or tickets awarded whenever a player exceeds the four highest scores.

Range: 00 to 10.

A.4 09 HIGH SCORE RESET EVERY
The number of games to be played before an automatic reset of the displayed Highest Score occurs. The operator selects the values provided at reset in the Back-up High Scores.

Range: OFF (disabled), 250 to 20,000.

A.4 10 BACKUP CHAMPION
The Back-up Grand Champion Score.

Range: 00 to 200,000,000

A.4 11 BACKUP H.S.T.D. 1
A.4 12 BACKUP H.S.T.D. 2
A.4 13 BACKUP H.S.T.D. 3
A.4 14 BACKUP H.S.T.D. 4
The first through fourth Back-up High Score values. The game automatically restores this value when the “High Score Reset Every” value is reached.

Range: 00 to 200,000,000

A.4 15 MONSTER BASH CHAMPION
This adjustment is used to set the score to be achieved during the Monster Bash feature to become the new Monster Bash Champion.

Range: 10,000,000 to 60,000,000

A.4 16 MONSTER BASH CREDITS

This adjustment specifies the number of credits to award the new Monster Bash Champion at the end of a game.

Range: 00-03

A.4 17 MONSTERS OF ROCK CHAMPION

This adjustment is used to set the score to be achieved during the Monsters of Rock feature to become the new Monsters of Rock Champion.

Range: 50,000,000 to 90,000,000

A.4 18 MONSTERS OF ROCK CREDITS

This adjustment specifies the number of credits to award the new Monsters of Rock Champion at the end of a game.

Range: 00-03

ERROR MESSAGES

The game program has the capability to aid the operator and service personnel. At game turn-on, or after pressing the Begin Test switch, once the game has been operating for an extended period, the display may signal with a message, "Press ENTER for Test Report". This indicates the game program has detected a possible problem with the game.

MONSTER BASH features a new coin door display. When the coin door is open (in Attract mode and game play), the display shows that the high-power has been disabled. It also shows the Test Report (if there is anything to report), and some game specific information. Use the flipper buttons to page through this information.

To obtain details of the problem open the coin door and press the Begin Test switch. Press the Enter button to begin displaying the message(s). The following messages apply to your game.

GAME SPECIFIC ERROR MESSAGES.

CHECK LEFT GATE - STUCK CLOSED.

The game has detected that the Left Gate is stuck closed. Use T.16 (Loop/Gate Test), Loops Mode, to verify that all of the Loop switches and the Left Gate are operating properly.

CHECK LEFT GATE - STUCK OPEN.

The game has detected that the Left Gate is stuck open. Use T.16 (Loop/Gate Test), Jets Mode, to verify that the Right Loop switches and the Left Gate are operating properly.

CHECK RIGHT GATE - STUCK CLOSED.

The game has detected that the Right Gate is stuck closed. Use T.16 (Loop/Gate Test), Loops Mode, to verify that all of the Loop switches and the Right Gate are operating properly.

CHECK RIGHT GATE - STUCK OPEN.

The game has detected that the Right Gate is stuck open. Use T.16 (Loop/Gate Test), Jets Mode, to verify that the Left Loop switches and the Right Gate are operating properly.

GENERAL ERROR MESSAGES.

CHECK SWITCH ##

This message indicates that at least one switch was stuck 'On' at game turn-on or has NOT been actuated during ball play (for 90 balls or apx. 30 games). The game program compensates the game play requirements affected by each disabled switch to allow 'nearly normal' play. This helps keep your game earning, until the service technician can repair the problem. To verify the problem, refer to the Test Menu text describing Switch Testing, and check each reported switch using applicable switch tests. Always check switch operation using a ball, to simulate game conditions. Switch problems may often be resolved by adjusting the wire switch actuators, fixing switch circuitry problems, securing loose connectors, etc. Mechanisms using 'opto switches' (drop targets, etc.) need to be checked for proper power connections.

CHECK FUSES F115 AND F116 AND OPTO 12V SUPPLY

This message will be displayed if the game senses that all optical switches are not functioning. This usually occurs when there is no +12V supply to the playfield optics.

OPTO TROUGH BAD CHECK CONNECTORS, WIRES AND 12V SUPPLY

This message will be displayed if all of the opto switches in the playfield ball trough are not functioning. This is usually caused by a problem with a ball trough connector supplying +12V and ground for the optical circuits.

PINBALL MISSING

This game normally uses four balls, however, it will operate with less. This message announces that a ball is missing or stuck. When the ball is located, return it to the game via the Outhole. Other possibilities for this problem could be malfunctions of the Ball Trough switches or the Ball Shooter switch.

XXXX SW. IS STUCK ON

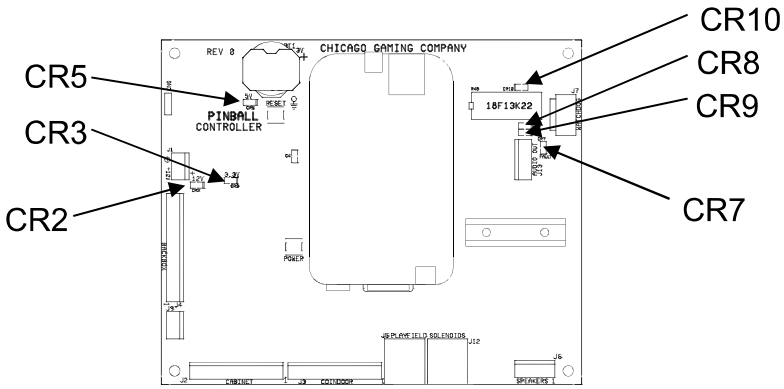
This message indicates that a switch, which is not usually on, remains in the On position after. The stuck switch is essential for game play (for example, a coin chute switch, the slam tilt switch, and the plumb bob tilt switch), and should be cleared to permit proper game operation.

TIME AND DATE NOT SET.

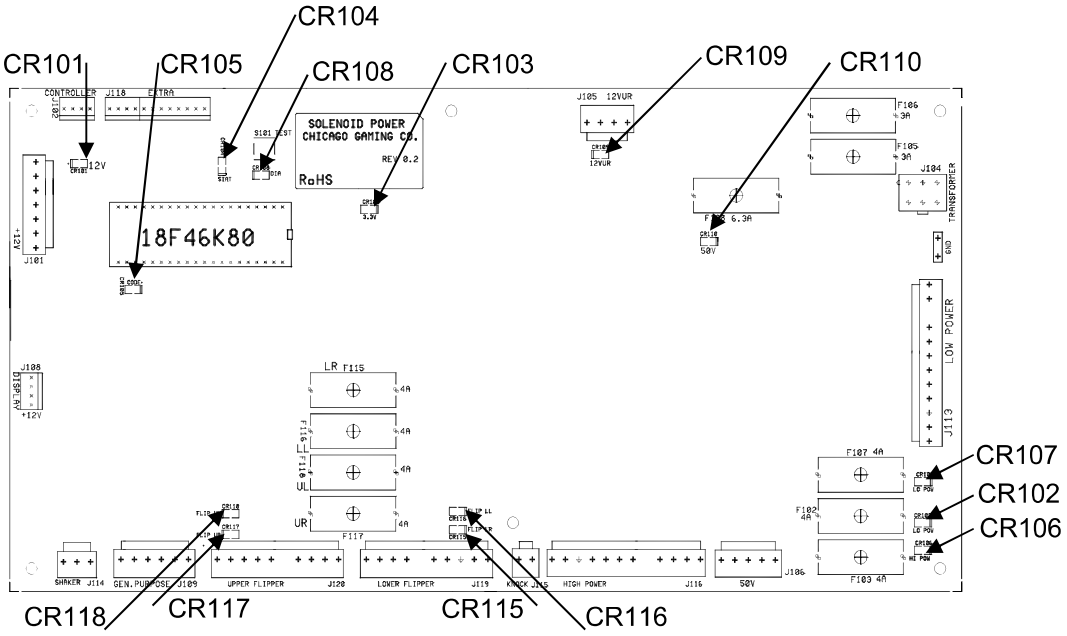
The real time clock is not set. Go to U.4 of the Utilities Menu and set the time and date.

Monster Bash
LED List

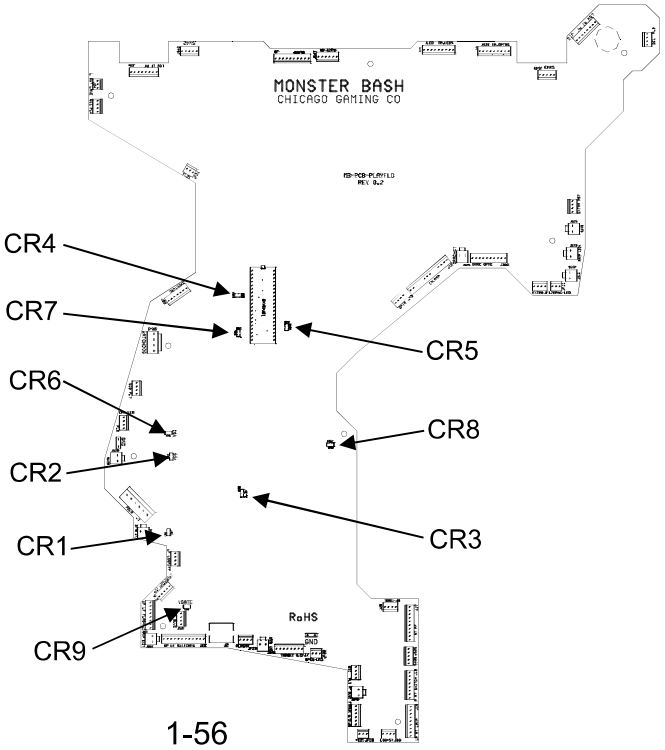
Controller Board
CR2: 12V, normally on
CR3: 3.3V, normally on
CR5: 5V, normally on
CR7: Amp Fault, normally off
CR8: Heartbeat, flashes normally
CR9: Blank, normally off. Yellow ON indicates blank is active.
CR10: Reset, normally off. Flashes red on boot and when watchdog hits reset.



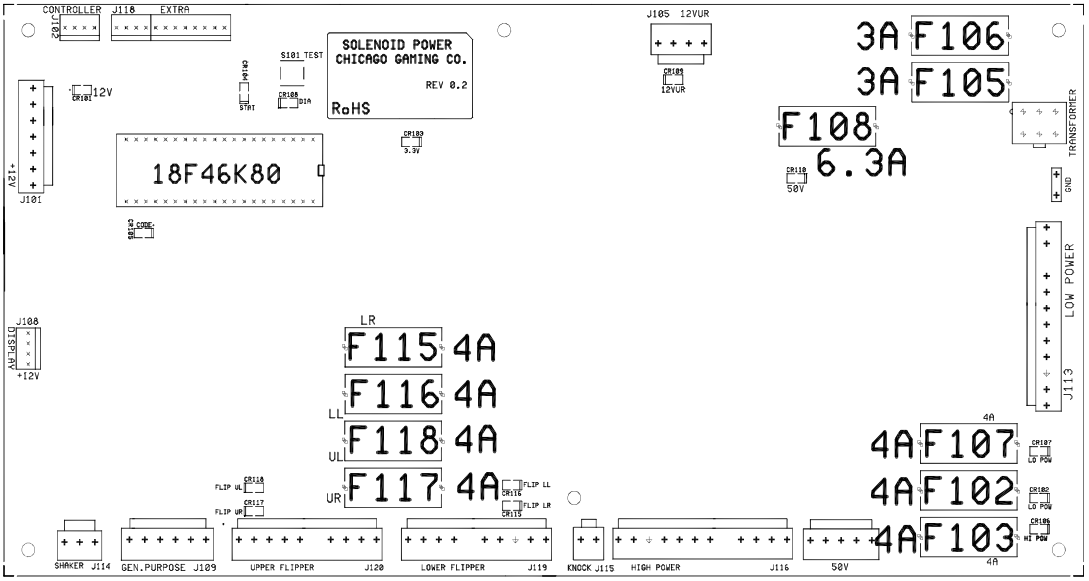
Solenoid Power Board
CR101: 12V, normally on
CR102: Fuse F102
CR103: 3.3V, normally on
CR104: STAT, off during boot, normally flashes when game is running
CR105: CODE, flashes during boot, normally on.
CR106: Fuse F103
CR107: Fuse F107
CR108: DIA, normally flashes
CR109: 12VUR,
CR110: 50V, normally on
CR115: Fuse F115
CR116: Fuse F116
CR117: Fuse F117
CR118: Fuse F118

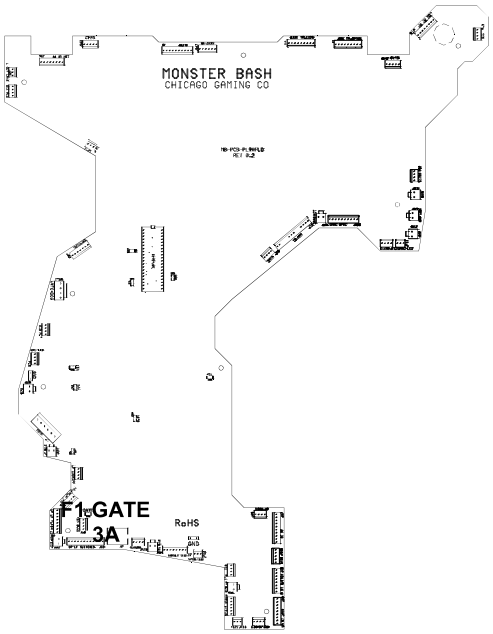


Playfield Board
CR1: 12V, normally on
CR2: VCC, normally on
CR3: 3.3V, normally on
CR4: STAT, off during boot, normally flashes when game is running
CR5: CODE, normally on
CR6: VGI, normally on
CR7: DIA, normally flashes
CR8: +5V, normally on
CR9: VGATE, normally on, off if fuse is blown



Monster Bash
Fuse List





Power Interface Assembly (not shown)

LOC.	DESC.	PART NUMBER	VALUE
Panel Mount	AC Input	5ST 5-R	5A 250V Slow Blow

Solenoid Power Board

LOC.	DESC.	PART NUMBER	VALUE
F108	50VAC	5ST 6.3R	6.3A 250V Slow Blow
F105	12VAC	5ST 3-R	3A 250V Slow Blow
F106	12VAC	5ST 3-R	3A 250V Slow Blow
F102	+50V Low Power Solenoids	5ST 4-R	4A 250V Slow Blow
F107	+50V Low Power Solenoids	5ST 4-R	4A 250V Slow Blow
F103	+50V High Power Solenoids	5ST 4-R	4A 250V Slow Blow
F115	+4A Lower Flipper Left	5ST 4-R	4A 250V Slow Blow
F116	+4A Lower Flipper Right	5ST 4-R	4A 250V Slow Blow
F117	+4A (Upper Flipper) Diverter	5ST 4-R	4A 250V Slow Blow
F118	+4A (Upper Flipper) NU	5ST 4-R	4A 250V Slow Blow

Playfield Board

LOC.	DESC.	PART NUMBER	VALUE
F1 GATE	12V Ball Gates	5ST 3-R	3A 250V Slow Blow

MAINTENANCE INFORMATION

LUBRICATION

The two main lubrication points of the Ball Release mechanism are the pivots for the arm. The mechanisms of other playfield devices are somewhat similar to the Ball Release device, and have the same lubrication requirements. A medium viscosity oil (switch target grease) is satisfactory for these devices.

Because of the functional design (arm-actuated via solenoid plunger operation), the pivot points of the Left and Right Kickers ("Slingshots") all require lubrication as a regular servicing procedure.

Lubrication to ensure proper operation also applies to the target blades of the Drop Targets. MBI Instrument Grease, also known as Drop Target Switch Lubricant, with a Williams' part number of EI165, is a recommended lubricant.

SWITCH CONTACTS

Playfield Switches

For proper game operation, switch contacts should be free of dust, dirt, contamination, and corrosion. Blade switch contacts are plated to resist corrosion. Cleaning blade switch contacts requires gentle closing of the contacts on a clean business card or piece of paper, and then pulling the paper about 2 inches, which should restore the clean contact surface. Adjust the switch contacts to a 1/16-inch gap.

Flipper Switches

This game uses the new Fliptronic II Electronic Flipper System. The End-of-Stroke switches are NORMALLY OPEN. The switch should close when the flipper is energized. All E.O.S. switches are gold flashed computer grade leaf switches. Only low computer current is carried through these switches. DO NOT FILE or abrasively clean these switches! DO NOT REPLACE these switches with the tungsten high current switches, as intermittent operation could occur.

Note: *Unlike the old style of flipper, an E.O.S. switch failure does not harm the flipper. The game notifies the operator that the switch is misadjusted in the test report, but continues to play. The E.O.S. switches are a means by which the new electronic flippers feel and play with all of the subtleties of the old flippers.*

CLEANING

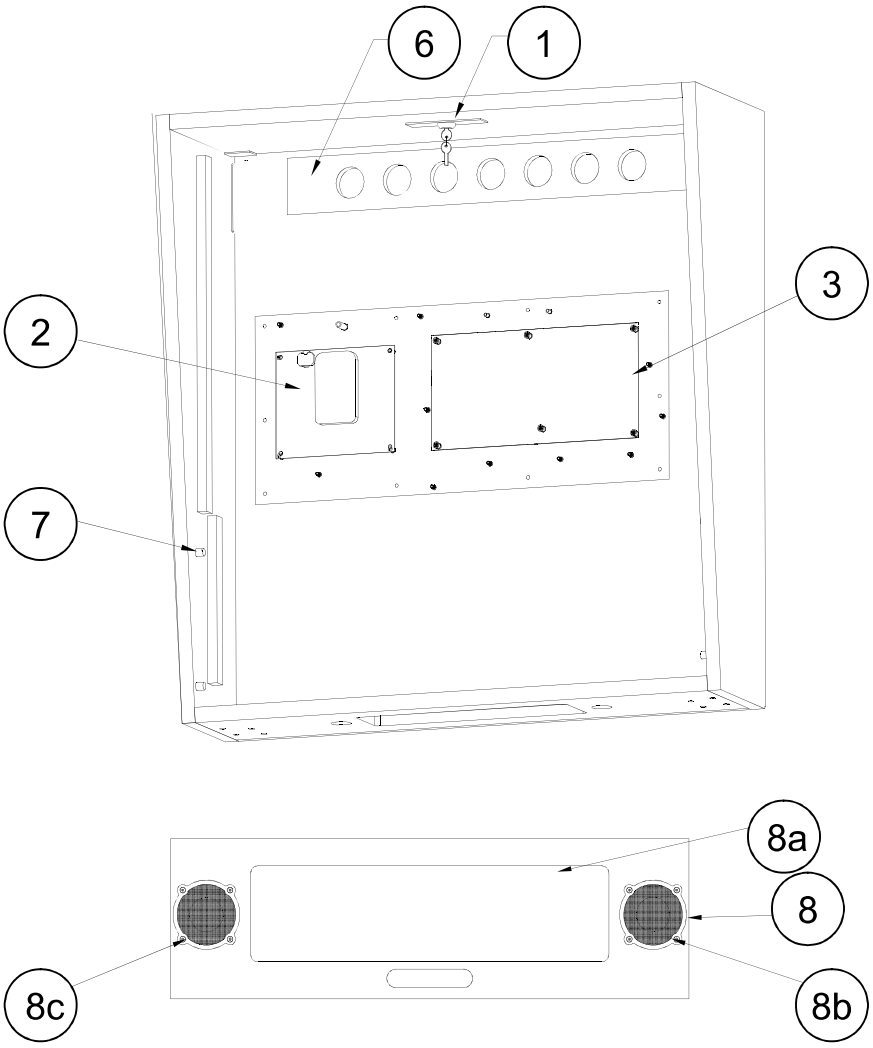
Good game action and extended playfield life are the results of regular playfield cleaning. During each collection stop, the playfield glass should be removed and thoroughly cleaned and the playfield should be wiped off with a clean, lint-free cloth. The game balls should be cleaned and inspected for any chips, nicks, or pits. Replace any damaged balls to prevent playfield damage.

Regular, more extensive, playfield cleaning is recommended. However, avoid excessive use of water and caustic or abrasive cleaners because they tend to damage the playfield surface. Playfield wax (or any carnauba based wax), or polish may be used sparingly, to prevent a buildup on the playfield surface. Do not use cleaners containing petroleum distillates on any playfield plastics because they may dissolve the plastic material or damage the artwork.

SECTION TWO

GAME PARTS INFORMATION

MB-SUB-50041BB
Limited and Special Edition Backbox Assembly

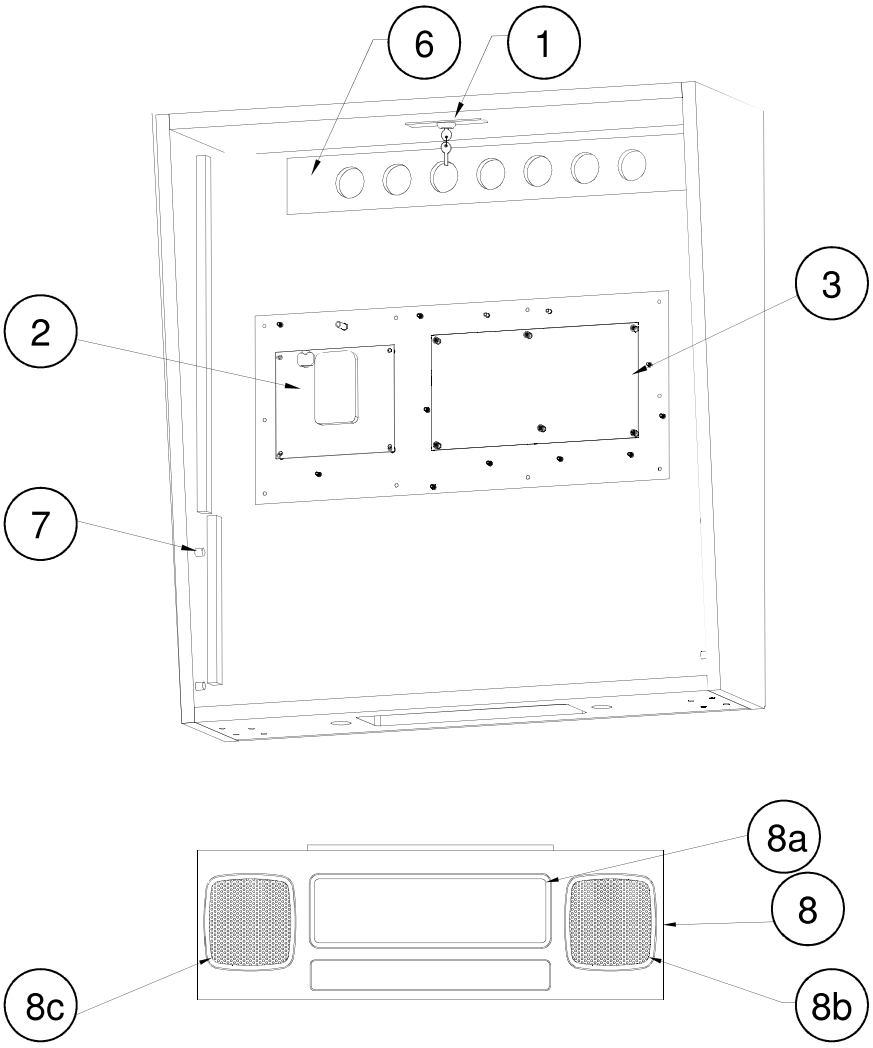


Item	Part Number	Description
1	A-13379	Lock & Plate Assembly
a)	20-9637	Lock & Cam Kit
2	MB-SUB-CONTRLR	AFM Controller Board
3	PIN-PCB-SOLPOWR	Solenoid Power Board
6	01-6645	Vent Screen
7	02-5223	Bushing Button, Speaker Panel
8	PIN-SUB-XLCDDIS	XL LCD Display Assembly
a)	PIN-MON-GSD198C	GSD 19.8” Cut LCD Panel
b)	000-SPK-PLG3.2	Pyle PLG3.2, 3.5" 4 Ohm Speaker
c)	000-SPK-PLG3.2	Pyle PLG3.2, 3.5" 4 Ohm Speaker

Miscellaneous Parts:
(Not Shown)

08-7456	Backbox Glass, 27” x 18-7/8”
MB-ART-BACKBOX	MB Backbox Marquee Translite

MB-SUB-50041BB
Classic Edition Backbox Assembly



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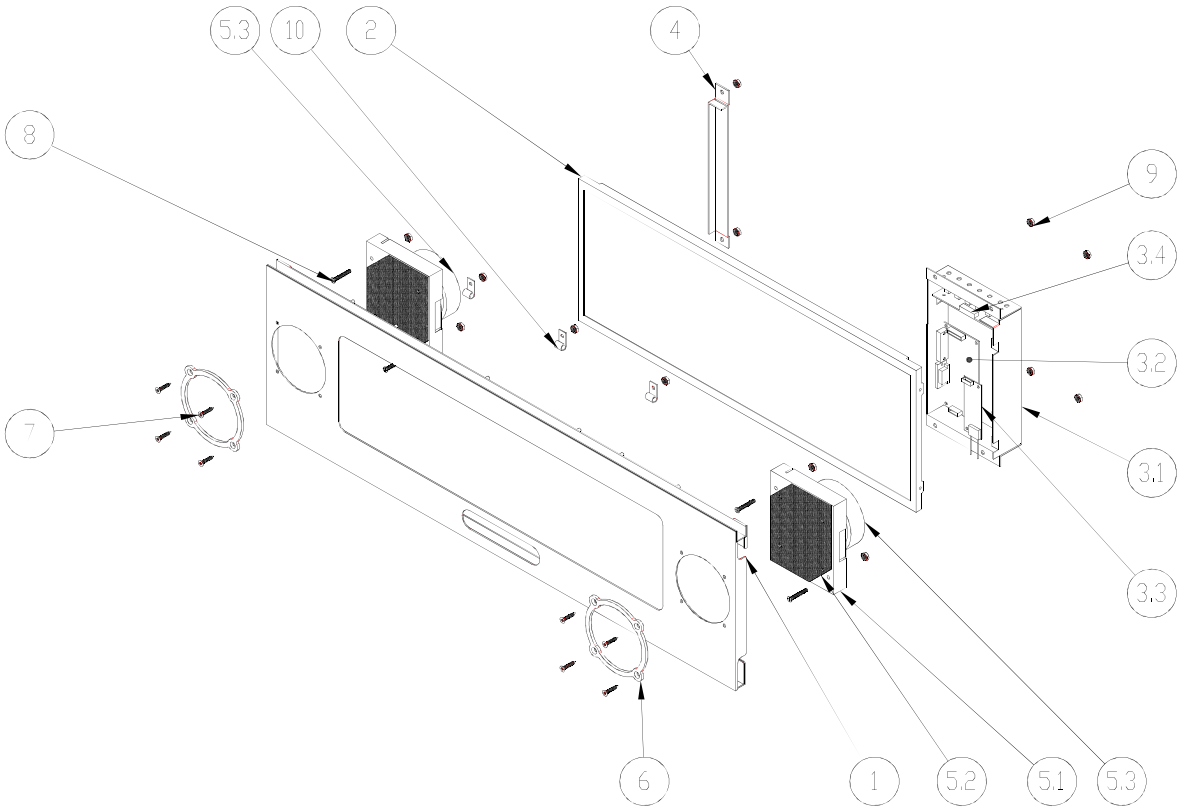
6	01-6645	Vent Screen
7	02-5223	Bushing Button, Speaker Panel
8	AFM-SUB-A20796	XL LCD Display Assembly
a)	000-MON-156LCD	AUO 15.6 LCD Panel
b)	PIN-SPK-5412PX	5.25" 4 Ohm Speaker
c)	PIN-SPK-5412PX	5.25" 4 Ohm Speaker

Miscellaneous Parts:
(Not Shown)

08-7456	Backbox Glass, 27” x 18-7/8”
MB-ART-BACKBOX	MB Backbox Marquee Translite

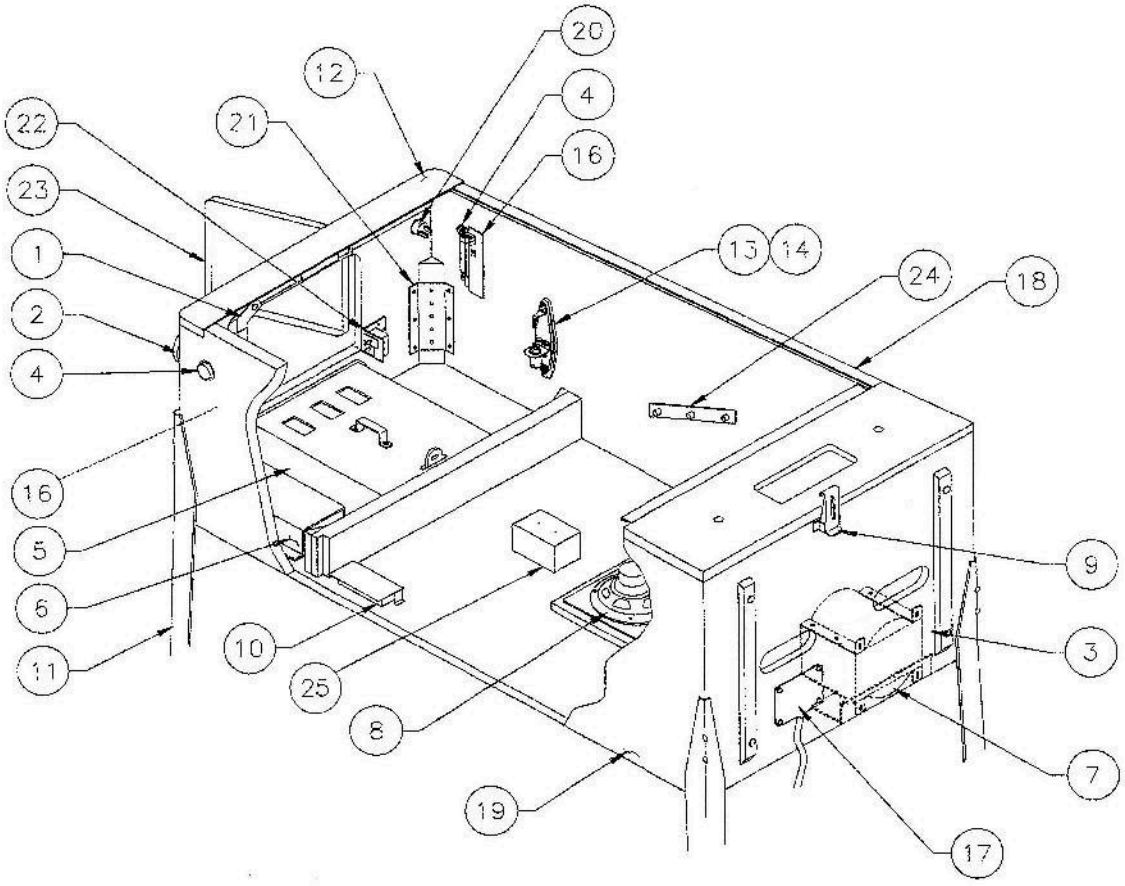
PIN-SUB-XLCDDIS
XL LCD Speaker Panel Assembly



PLEASE NOTE: CABLE & HARNESSES NOT SHOWN FOR CLARITY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	PIN-MLS-XLCDFRM	XL Pinball Display Frame Back	1
2	PIN-MON-GSD198C	GSD 19.8" Cut LCD Display	1
3.1	PIN-MLS-XLCDBOX	XL Pinball Display - Electronics	1
3.2	PIN-PCB-LEDCN19	LCD Controller PCB w/Firmware	1
3.3	PIN-PCB-XLCDPWR	XL Pinball LCD Power Board	1
3.4	000-PCB-OSDKEY	OSD Keyboard for RT2261.5B	1
4	PIN-MLS-XLCDBRK	XL Pinball Display - Right Bracket	1
5.1	PIN-PLS-XLCDSPR	XL LCD Spacer (Rev 3)	2
5.2	PIN-MLS-XLCDGRL	XL LCD Grill (Rev 3)	2
5.3	000-SPK-PLG3.2	Pyle PLG3.2, 3.5" 4 Ohm, Coaxial	2
6	PIN-MLS-XLCDBEZ	XL Pinball Display - Speaker B	2
7	FSS-N06-XFH075A	#6 x 3/4" SMS, Torx Security Screw	8
8	FSM-063-NSS125C	Spiral Shank Screw, 6-32 x 1-1	4
9	FNT-063-KEC0000	6-32 Kep Nut Clear Zinc	13
10	000-PLM-NC25CLP	1/4" Non-captive Cable Clamp	3

MB-SUB-50059CAB
Cabinet Assembly



Item	Part Number	Description
1	A-16773	Lever Guide Assembly
2	20-9663-B-4	Push Button, Round
3	MM-MLS-DRIPPLT	Drip Plate - Narrow
4	A-16883-4	Flipper Button w/Spring (2)
5	A-20729-5	4-Ball Cashbox Assembly
6	PIN-SUB-POWRBOX	Power Interface Assy.
7	PIN-TRF-PTRANS	WPC Transformer
8	000-SPK-8IN4OHM	8" Woofer, 4 Ohms, 190 W
9	PIN-20-9347	Toggle Latch
10	000-ELE-RS15012	Switching Power Supply, 12V, 150W
11	A-19514	Leg Assembly, Chrome (4)
12	0-12615	Front Molding Assembly
13	20-6502-A	Plumb Bob
14	04-10346	Tilt Mechanism Assembly
16	PIN-PCB-FLIPBTN	Opto Flipper Assembly (2)
17	PIN-MLS-INLTCVR	Line Cord Cover
18	A-12359-3	Side Molding Assembly (2)
19	AFM-SUB-CABDECAL	MM Cabinet with Decals
20	20-9663-2	Push Button w/Sw., Start (Green)
21	01-11400	Leg Plate (4)
22	A-18249-3	Cable & Interlock Switch Assy. Coin Door-U.S.A.
23	09-61000-1	
24	01-11408	Plate Spacer (2)
25	PIN-SUB-SHAKER2	Shaker Motor Assy.

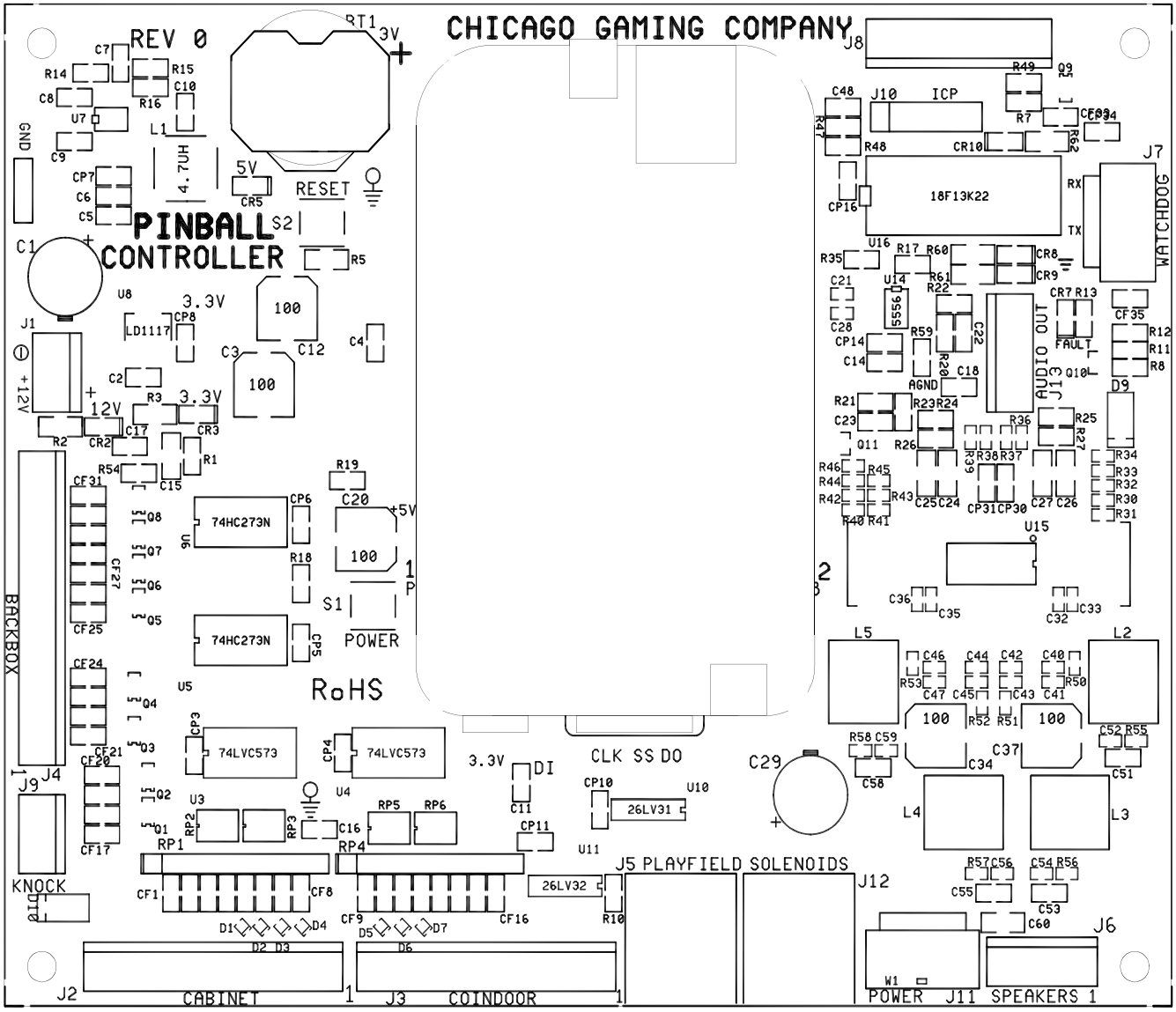
Miscellaneous Parts (Not Shown)

Part Number	Description
PIN-A-17195	Tilt Switch Assy.
A-19562.1	Stay Arm Assembly
01-12352	Clip Bracket
01-9011.l-L	Backbox Mtg. Bracket, Left
01-90l1.l-R	Backbox Mtg. Bracket, Right
01-6389-1	Cashbox Lock Bracket
08-7028-T	Playfield Glass
08-7377	Leg Leveler Adjuster, 3"
20-6500	Steel Ball, 1-1/16" (4)

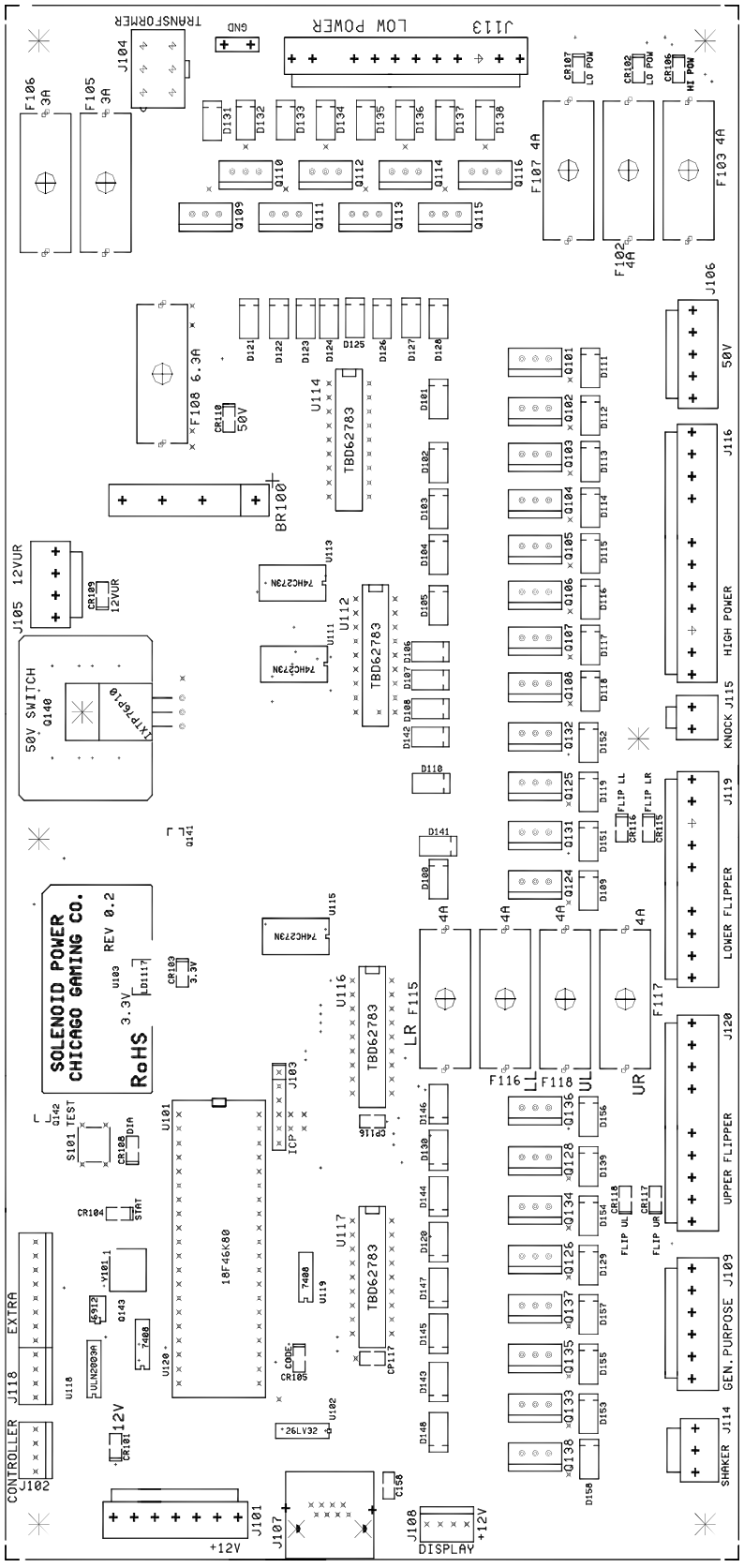
Cabinet Cables:

PIN-CBL-CABINET	Cabinet Cable
PIN-CBL-ACPOWER	AC Power Cable
PIN-CBL-PFPOWR	Playfield Power Cable

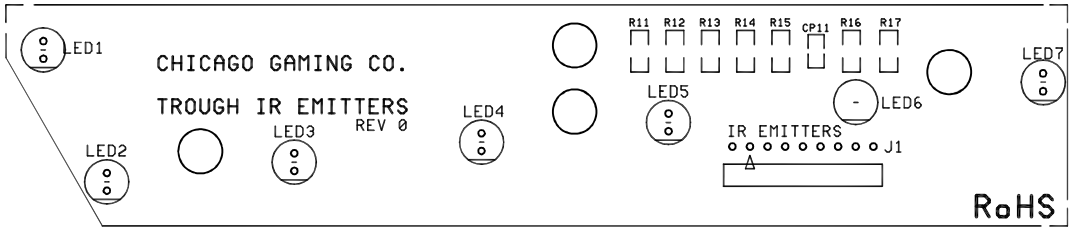
MB-SUB-CONTRLR
Controller Board

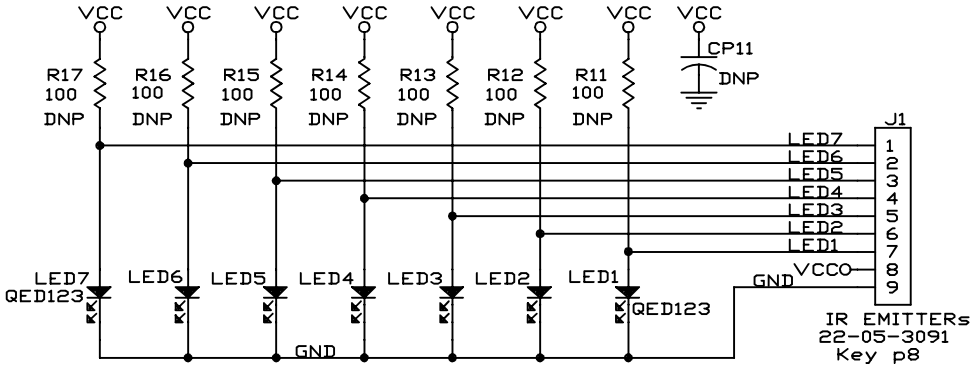


PIN-PCB-SOLPOWR
Monster Bash Solenoid Power Board

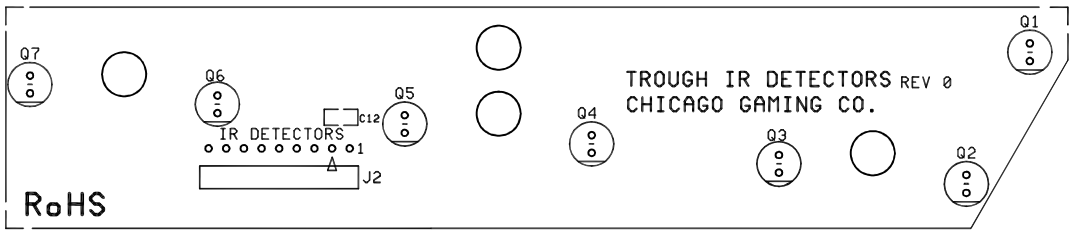


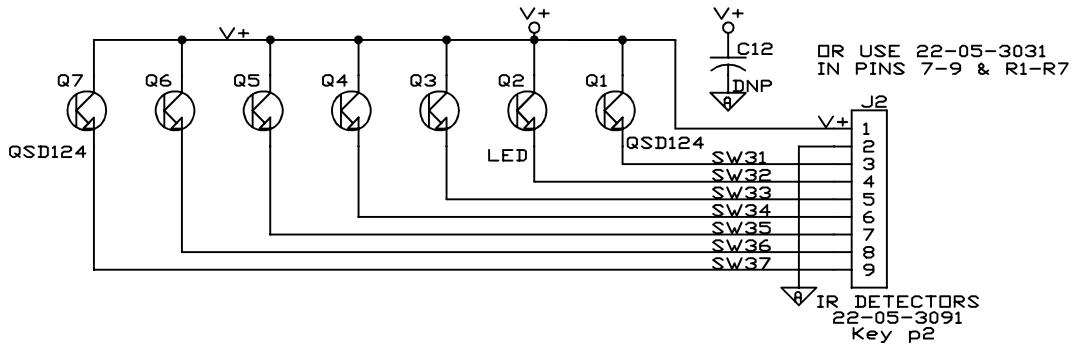
PIN-PCB-TRGHLED
Trough IR LED PCB Assembly



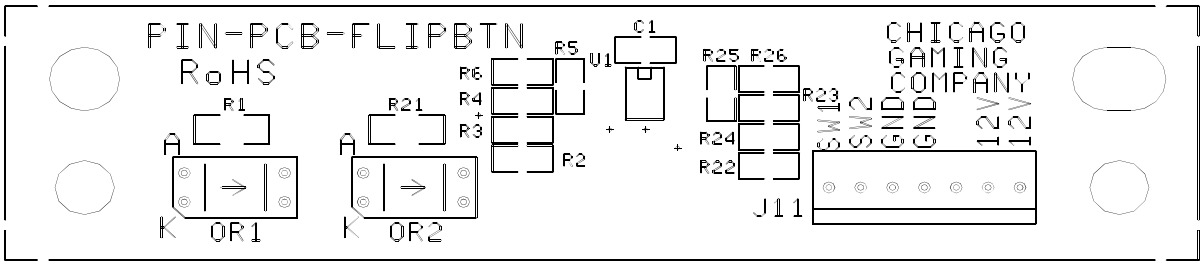


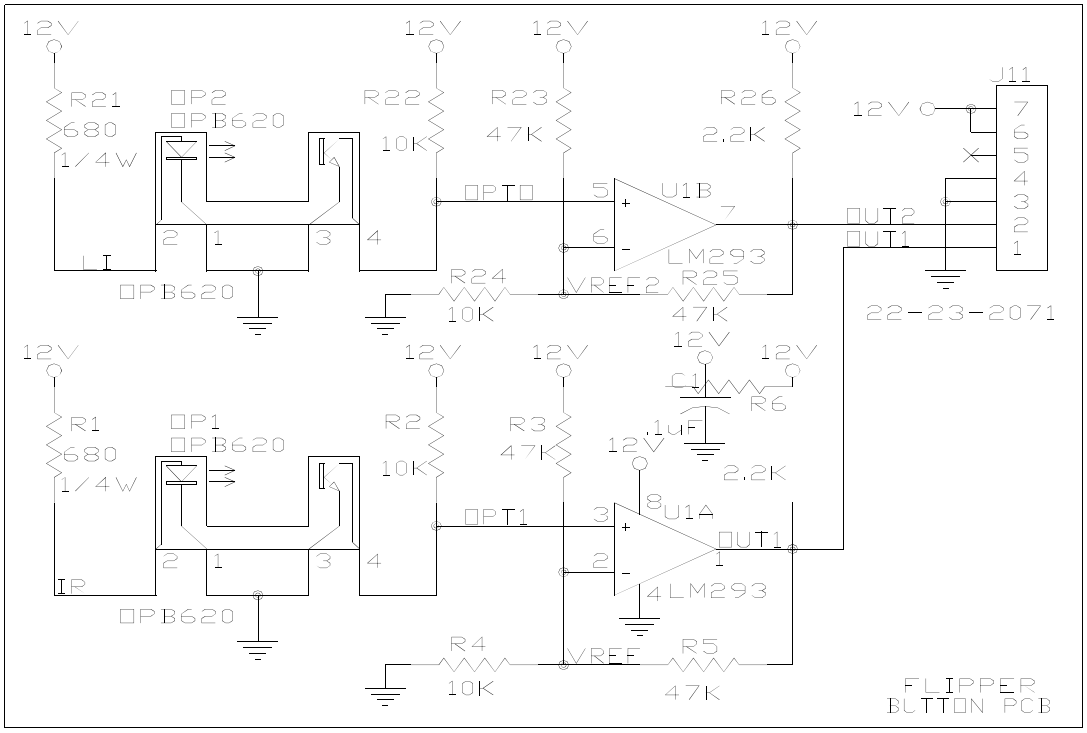
PIN-PCB-TRGHDET
Trough IR Photo Transistor PCB Assembly



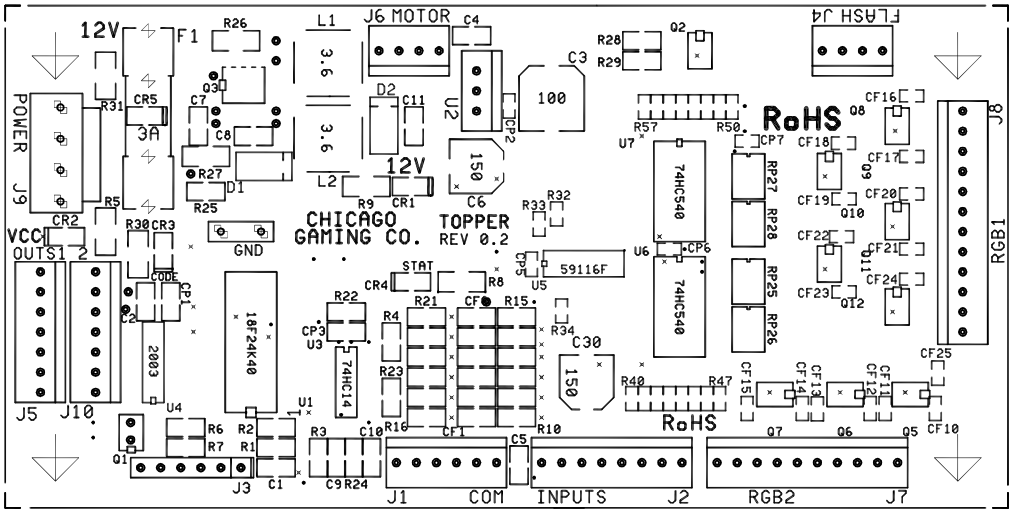


PIN-PCB-FLIPBTN
Flipper Opto PCB Assembly



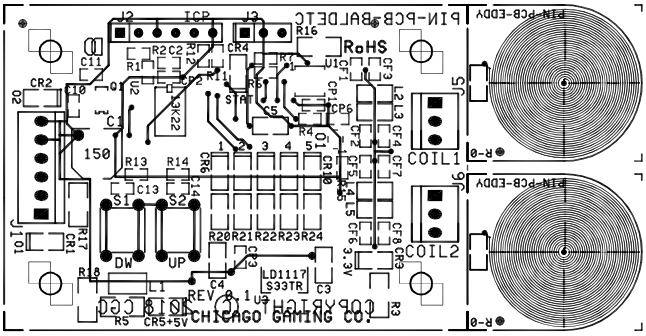


MB-PCB-TOPPER2
Monster Bash Topper PCB



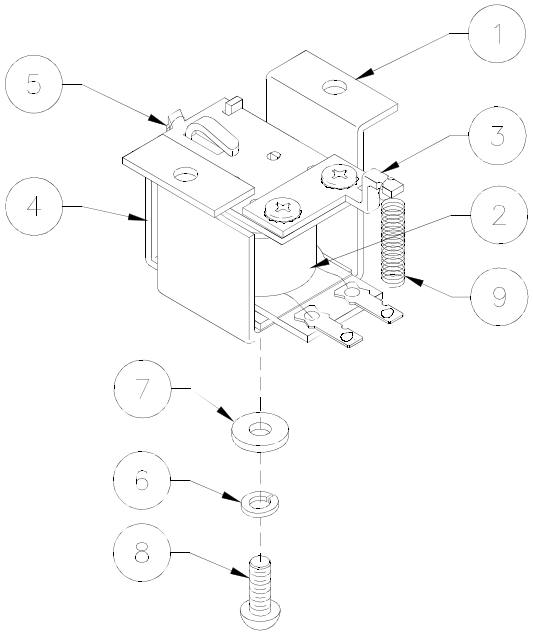
PIN-PCB-BALDETC
Ball Detector PCB

PIN-PCB-EDDY
Eddy Sensor Detector Boards (2 per)



PIN-SUB_A177961 Ball Gate Actuator Assembly

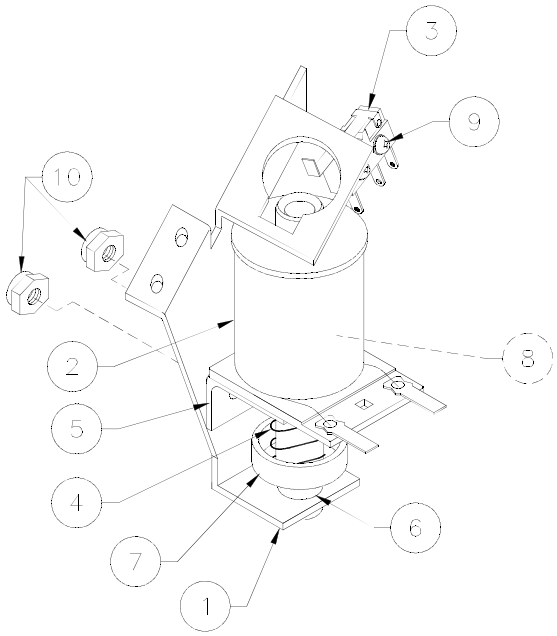
Item	Part Number	Description
1	**01-12348**	Ball Gate Coil Bracket
2	**A-14406**	Coil Assembly
3	**A-11146**	Armature Assembly
4	**A-6892**	Frame & Eyelet Assy.
5	**10-120**	Spring
6	**4701-00003-00**	Lockwasher #18 Split
7	**4700-00089-00**	Flat Washer: 11/64 x 7/16 x 16ga.
8	**4008-01021-07**	Mach. Screw, 8-32 x 7/16”
9	**10-194**	Extension Spring



MB-SUB-A22449 Eject Assembly

MB-SUB-RGBEJCT RGB Eject Assembly (Not Shown)

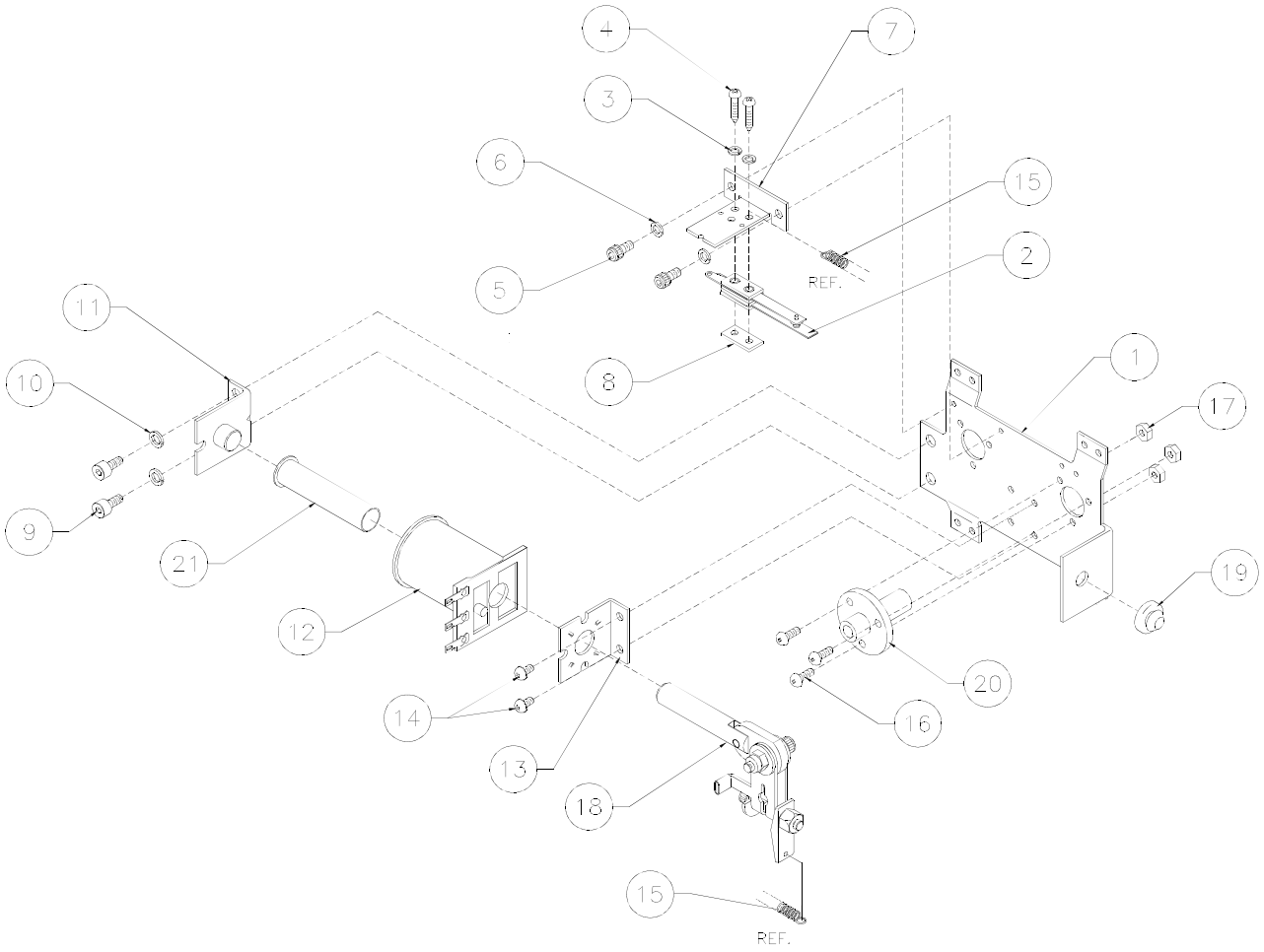
Item	Part Number	Description
1	**04-10702.2-1**	NBA Eject Bracket
2	**AE-30-2000**	Coil Assembly
3	**5647-12693-66**	Sub-Mini Micro Switch
4	**10-135**	Plunger Spring
5	**04-10322-2**	Coil Bracket 8-32 Stud
6	**23-6420**	Rubber Grommet
7	**A-15371**	Plunger Assembly
8	**03-7067-5**	Coil Tubing
9	**4002-01105-06**	Mach. Screw, 2-56 x 3/8”
10	**4408-01119-00**	Nut 8-32 ESNA



RGB Assembly Parts Not Shown

Part Number	Description
PIN-01-12345	PCB Bracket
FSM-083-PPH025C	Mach. Screw, 8-32 x 1/4"
MB-SUB-CREALED	Creature LED PCB w/ Cable
FWC-019-037N003	Nylon Flat Washer
FSM-063-PPH037A	Mach. Screw, 6-32 x 3/8" Black
FNT-063-KEC000	6-32 Kep Nut
MB-PLS-CRTINS	Creature PCB Insulator

PIN-SUB-A15849L Flipper Assembly



Item	Part Number	Description
1	**B-13104-L**	Flipper Base Assembly, Left
2	**SW-1A-194**	Switch Assembly
3	**4701-00002-00**	Lock Washer #6 Split
4	**4105-01019-10**	Sh. Metal Screw, #5 x 5/8”
5	**4008-01079-05**	Mach. Screw, 8-32 x 5/16”
6	**4701-00003-00**	Lock Washer #8 Split
7	**01-9375**	Switch Mounting Bracket
8	**20-6516**	Speednut, Tinnerman
9	**4010-01066-06**	Cap Screw, 10-32 x 3/8”
10	**4701-00004-00**	Lock Washer #10 Split
11	**A-12390**	Flipper Stop Assembly
12	**FL-11629**	Flipper Coil
13	**01-7695-1**	Solenoid Bracket
14	**4006-01017-04**	Mach. Screw, 6-32 x 1/4”
15	**10-364**	Spring
16	**4006-01005-06**	Mach. Screw, 6-32 x 3/8”
17	**4406-01117-00**	Nut 6-32 Hex.

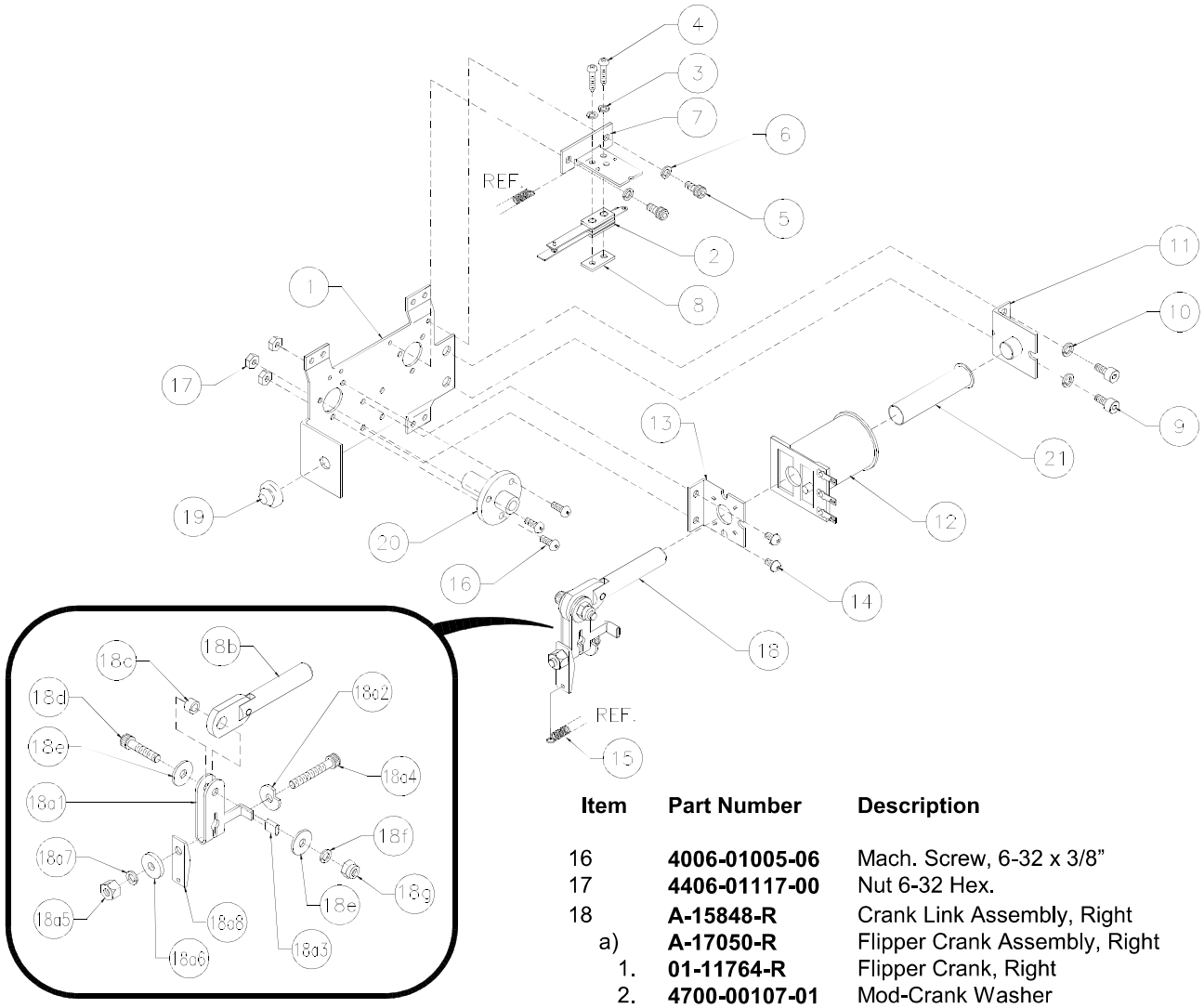
Item	Part Number	Description
*18	**A-15848-L**	Crank Link Assembly, Left
a)	**A-17050-L**	Flipper Crank Assembly, Left
b)	**A-15847**	Flipper Link Assembly
c)	**02-4676**	Link Spacer Bushing
d)	**4010-01086-14**	Cap Screw, 10-32 x 7/8”
e)	**4700-00023-00**	Flat Washer, 5/8 x 13/64 x 16ga.
f)	**4701-00004-00**	Lock Washer #10 Split
g)	**4410-01132-00**	Nut 10-32 ESN
19	**23-6577**	Bumper Plug, 5/8”
20	**03-7568**	Flipper Bushing
21	**03-7066-5**	Coil Tubing

Associated Parts: (Not Shown)

23-6695	Flipper Ring
20-10110-5	Flipper Bat w/Shaft

* See page 2-17 for assembly detail drawing.

PIN-SUB-A22603R Flipper Assembly



Item	Part Number	Description
1	**04-12342**	Flipper Base Assembly-Mod., R.
2	**SW-1A-194**	Switch Assembly
3	**4701-00002-00**	Lock Washer #6 Split
4	**4105-01019-10**	Sh. Metal Screw, #5 x 5/8”
5	**4008-01079-05**	Mach. Screw, 8-32 x 5/16”
6	**4701-00003-00**	Lock Washer #8 Split
7	**01-9375**	Switch Mounting Bracket
8	**20-6516**	Speednut, Tinnerman
9	**4010-01066-06**	Cap Screw, 10-32 x 3/8”
10	**4701-00004-00**	Lock Washer #10 Split
11	**A-12390**	Flipper Stop Assembly
12	**FL-11629**	Flipper Coil
13	**01-7695-1**	Solenoid Bracket
14	**4006-01017-04**	Mach. Screw, 6-32 x 1/4”
15	**10-364**	Spring
16	**4006-01005-06**	Mach. Screw, 6-32 x 3/8”
17	**4406-01117-00**	Nut 6-32 Hex.
18	**A-15848-R**	Crank Link Assembly, Right
a)	**A-17050-R**	Flipper Crank Assembly, Right
1.	**01-11764-R**	Flipper Crank, Right
2.	**4700-00107-01**	Mod-Crank Washer
3.	**RM-23-06**	H.S. Tubing ¼”
4.	**4010-01066-20**	Mach. Screw, 10-32 x 1-1/4”
5.	**4410-01127-00**	Nut, 10-32 Hex.
6.	**4700-00107-00**	FW: 13/64 x 5/8 x 12ga.
7.	**4701-00004-00**	Lockwasher #10 Split
8.	**01-9376**	Spring Retainer Bracket
b)	**A-15847**	Flipper Link Assembly
c)	**02-4676**	Link Spacer Bushing
d)	**4010-01086-14**	Cap Screw, 10-32 x 7/8”
e)	**4700-00023-00**	Flat Washer, 5/8 x 13/64 x 16ga.
f)	**4701-00004-00**	Lock Washer #10 Split
g)	**4410-01132-00**	Nut 10-32 ESN
19	**23-6577**	Bumper Plug, 5/8”
20	**03-7568**	Flipper Bushing
21	**03-7066-5**	Coil Tubing

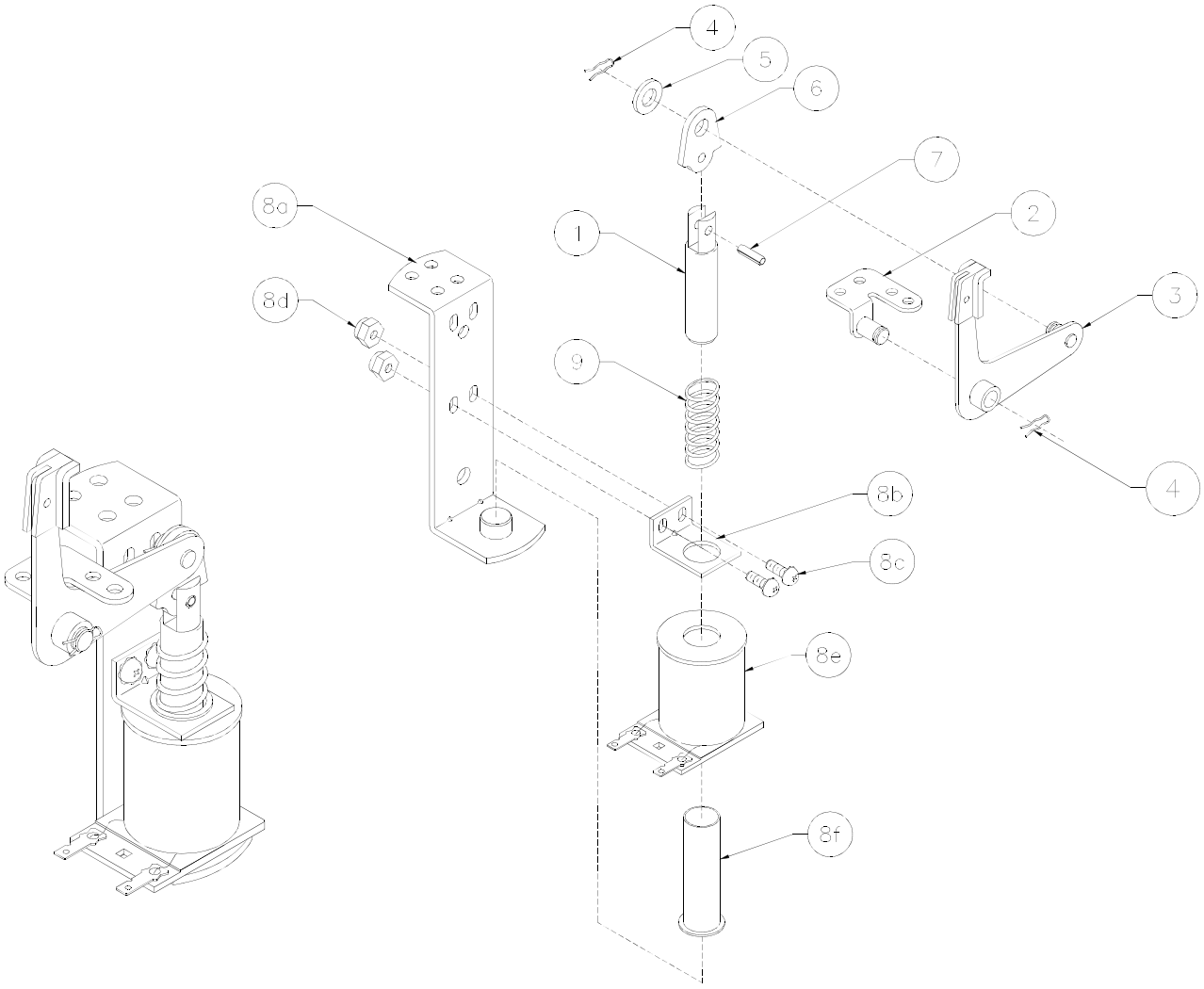
Associated Parts: (Not Shown)

23-6695	Flipper Ring
20-10110-5	Flipper Bat w/Shaft

Flipper Notes...

1. *Each Flipper Assembly is mounted beneath the playfield, in conjunction with the Plastic Flipper & Shaft, and Flipper Rubber on the upper side of the playfield.*
2. *With the flipper, in the non-activated position, the E.O.S. Switch contacts must have a gap of .062 (±.015) inch. When flipper is activated switch must close.*
3. *Any adjustment of the E.O.S. switch must be made at a minimum distance of 0.25 inch from the switch body.*
4. *Longer blade of E.O.S. switch must be made straight. Gap adjustment is done by adjusting shorter blade.*
5. *All moving elements of the assembly must operate freely without any evidence of binding.*
6. *Apply Loctite™ 245 when reattaching screws to the Flipper Stop Assembly, the Solenoid Bracket, and the Flipper Bushing.*

PIN-SUB_A17811L Kicker Arm (Slingshot) Assembly - Left
PIN-SUB_A17811R Kicker Arm (Slingshot) Assembly - Right

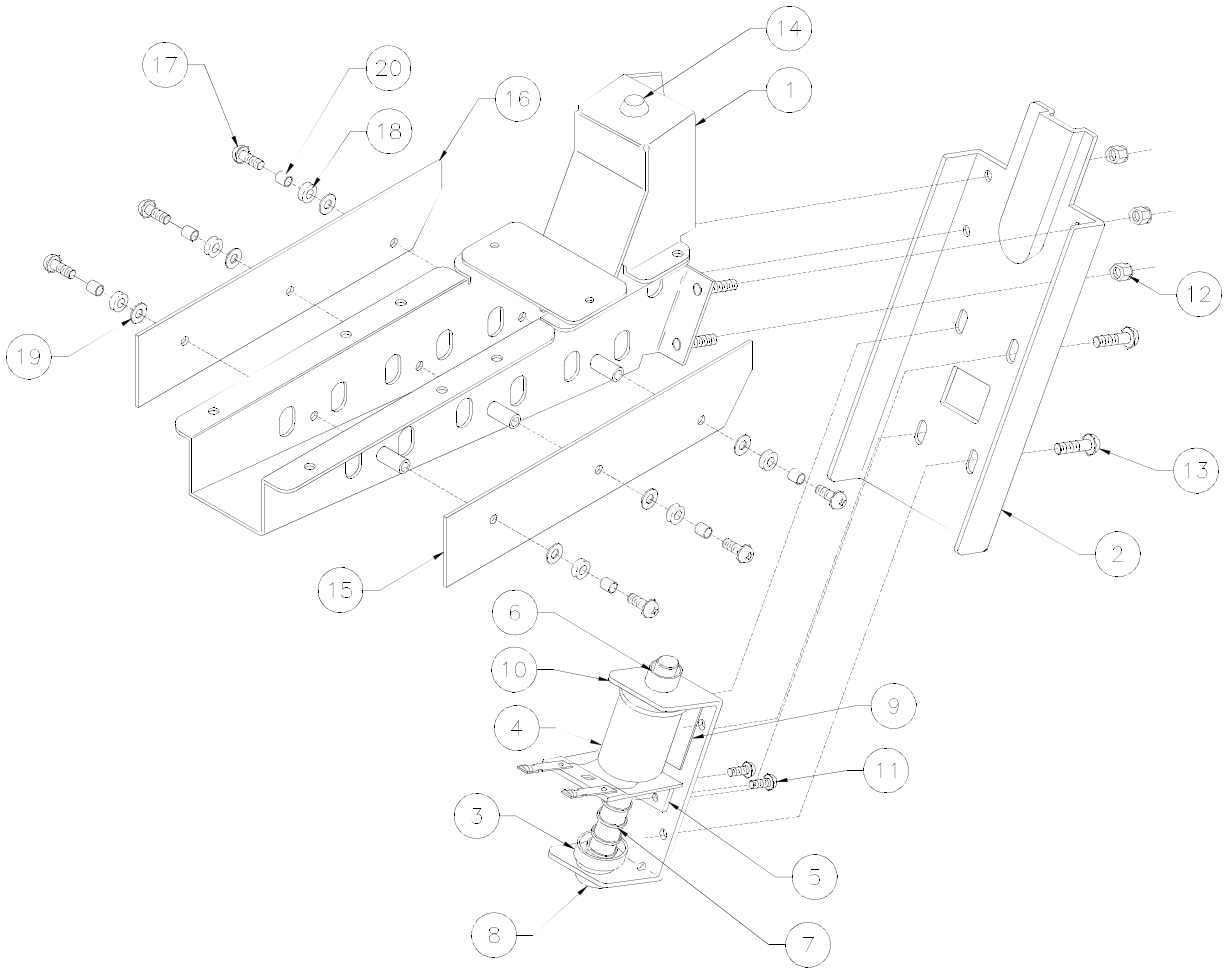


Associated Parts for Right & Left Kickers:

Item	Part Number	Description
1	**02-2364**	Coil Plunger
2	**A-17810**	Mounting Bracket Assy.
3	**A-12664**	Kicker Crank Assembly
4	**12-6227**	Hairpin Clip
5	**4700-00030-00**	FW, 17/64 x 1/2 x 15ga.
6	**03-8085**	Armature Link
7	**20-8716-5**	Roll Pin, 1/8 x 7/16”

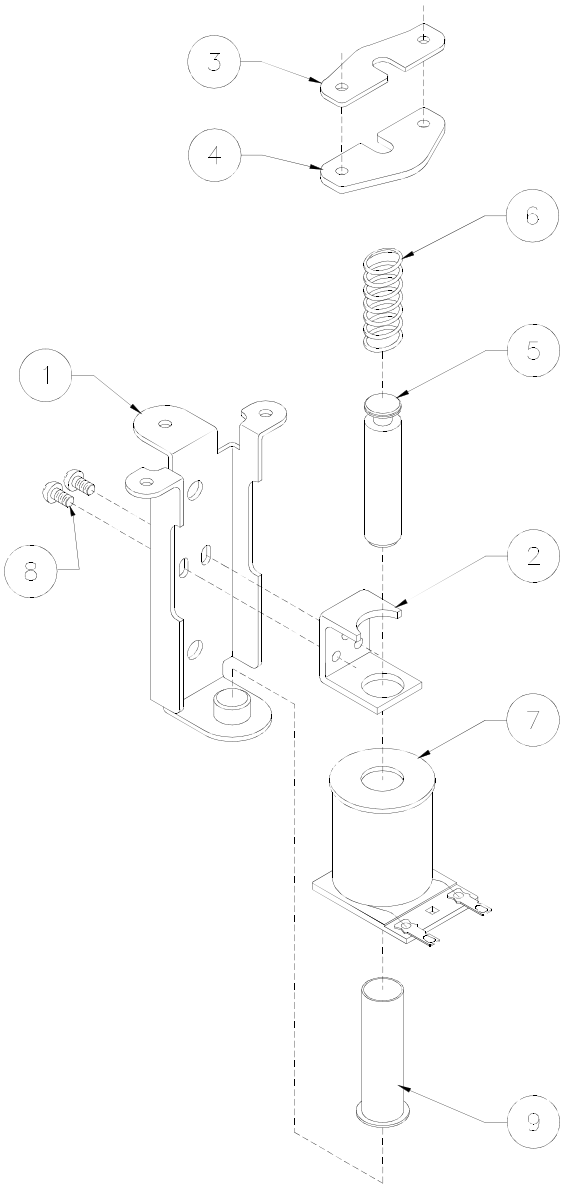
Item	Part Number	Description
8	**A-22206-2**	**Coil & Bracket Assembly, R.**
	A-22207-2	**Coil & Bracket Assembly, L.**
a)	**A-17808**	Bracket & Stop Assembly
b)	**01-8-508-S**	Coil Retaining Bracket
c)	**4006-01017-06**	Mach. Screw, 6-32 x 3/8”
d)	**4406-01119-00**	Nut, 6-32 ESN
e)	**AE-26-1200**	Coil Assembly
f)	**03-7066**	Coil Tubing
9	**10-128**	Spring

PIN-SUB-A19963 Ball Trough Assembly Complete



Item	Part Number	Description	Item	Part Number	Description
1	**A-16809-2**	Ball Trough Welded Assy.	11	**4008-01017-05**	Mach. Screw, 8-32 x 5/16"
2	**01-11587**	Ball Trough Front	12	**4408-01119-00**	Nut 8-32 ESN
3	**A-6306-2**	Bell Armature Assembly	13	**4008-01017-06**	Mach. Screw, 8-32 x 3/8"
4	**AE-26-1500**	Coil Assembly	14	**23-6702**	Bumper Plug
5	**01-8-508-T**	Solenoid Assembly	15	**PIN-PCB-TRGHLED**	Trough IRED LED PCB Assembly
6	**03-7067-5**	Coil Tubing	16	**PIN-PCB-TRGHDET**	Trough IRED Transistor PCB
Assy. 7	**10-135**	Spring	17	**4006-01003-10**	Mach. Screw, 6-32 x 5/8" SEMS
8	**23-6420**	Rubber Grommet	18	**23-6626**	Rubber Grommet
9	**03-8523**	Insulator	19	**4700-00004-00**	Flat Washer, 9/64 x 7/16 x 21ga.
10	**01-11586**	Coil Mounting Bracket	20	**02-4975**	Bushing

PIN-SUB_A94152 Jet Coil & Bracket Assembly

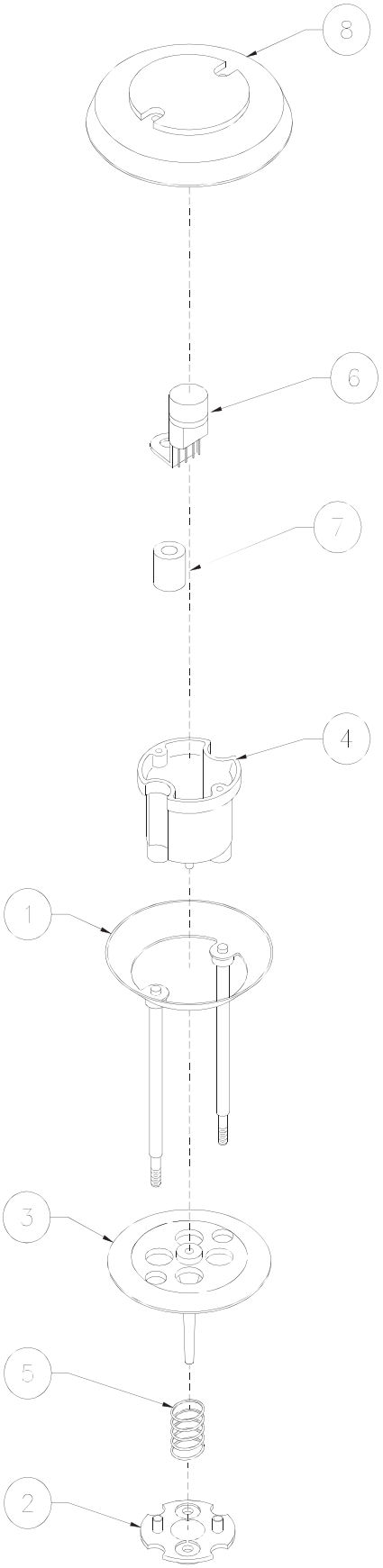


Item	Part Number	Description
1	**04-10888**	Bracket & Stop Assembly
2	**01-1747**	Coil Retaining Bracket
3	**01-5492**	Armature Link, Steel
4	**01-5493**	Armature Link, Bakeline
5	**02-3406-1**	Coil Plunger
6	**10-326**	Armature Spring
7	**AE-26-1200**	Coil Assembly
8	**4006-01017-04**	Mach. Screw, 6-32 x 1/4”
9	**03-7066**	Coil Tubing

Associated Parts: (Not Shown)

10	**B-12030-2**	Leaf Switch Assembly
a)	**A-16443**	Switch & Diode Assembly
b)	**01-1168**	Switch Mounting Bracket
c)	**01-3670**	Switch Plate
d)	**03-7395**	Switch Actuator
e)	**4005-01003-12**	Mach. Screw, 5-40 x 3/4”
f)	**4405-01117-00**	Nut 5-40 Hex.

MB-SUB-B94145 Jet Bumper Assemblies

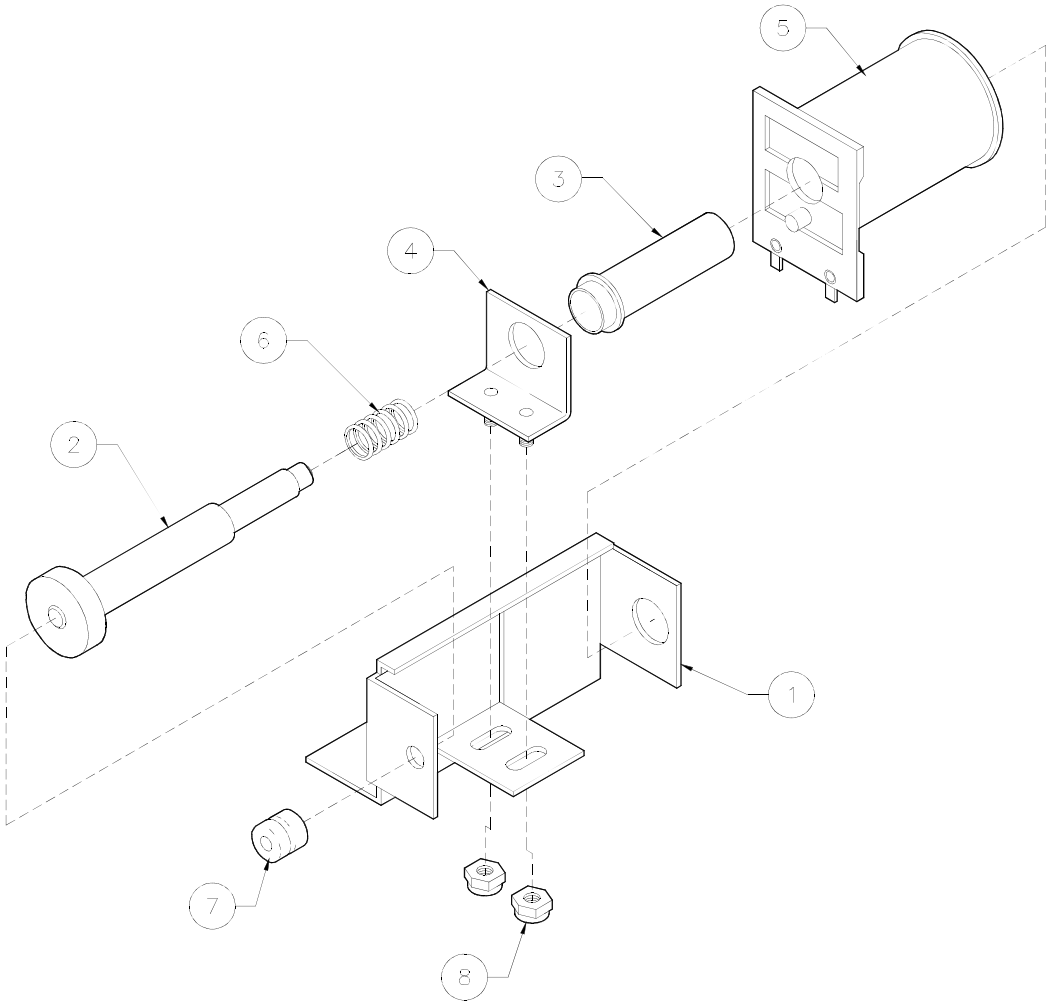


Item	Part Number	Description
1	**A-4754**	Bumper Ring Assembly
2	**03-6009-A5**	Bumper Base, White
3	**03-6035-15**	Bumper Wafer, Orange
4	**03-7443-5**	Bumper Body, White
5	**10-7**	Spring
Limited and Special Edition		
6	**PIN-LMP-LEDRGB**	RGB GI LED
Classic Edition		
6	**PIN-LMP-GILEDWW**	Warm White GI LED
7	**FWC-019-037N037**	Spacer - #10 x 3/8" x 3/8"
(Not shown)		
	FSS-N06-PFH125C	Flat Head SMS, #6 x 1-1/4"

Associated Parts:

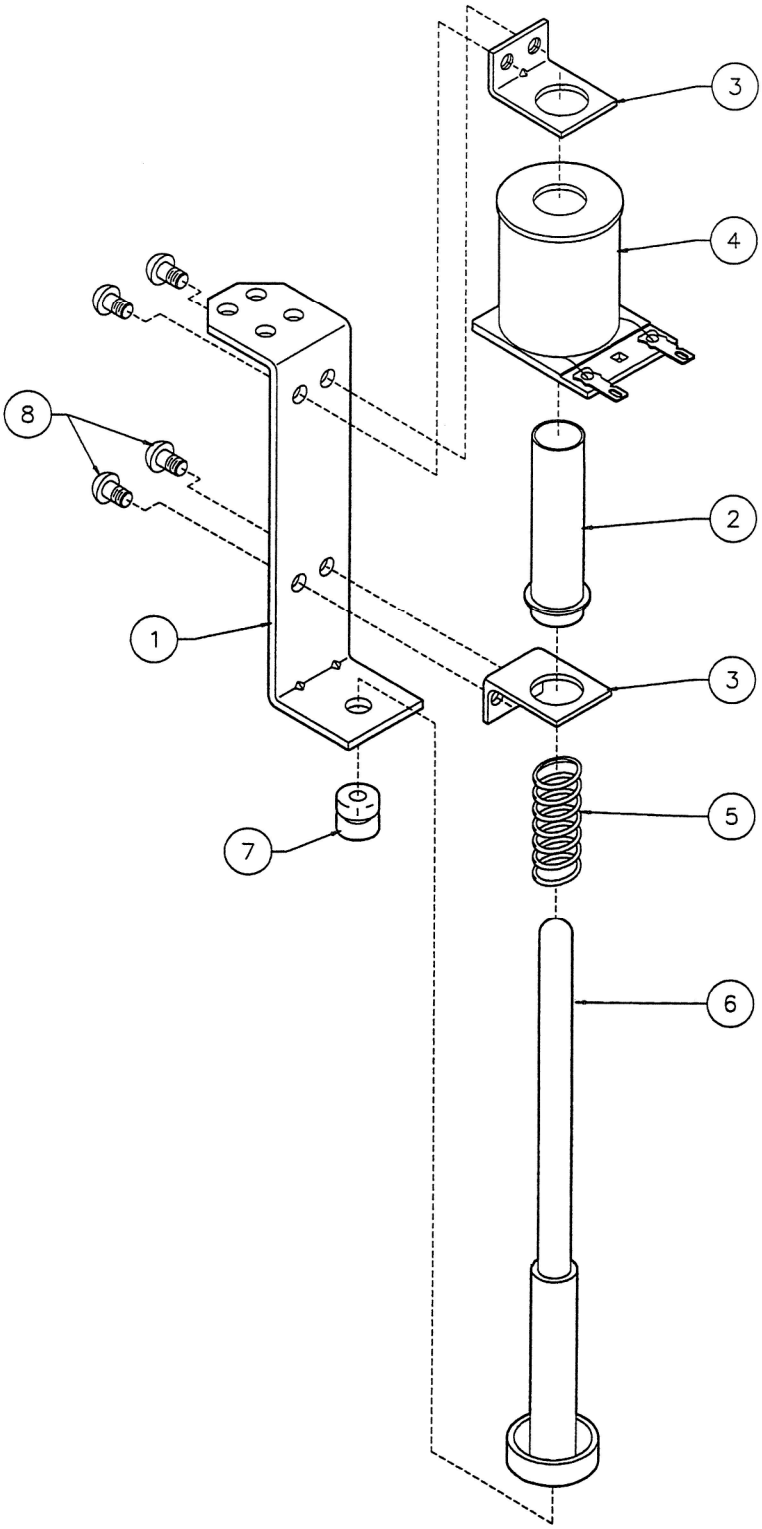
Limited and Special Edition		
8	**PIN-03-900713**	Clear Starburst Jet Bumper Cap (3)
Classic Edition		
8	**PIN-03-825412**	Orange Jet Bumper Cap (3)

PIN-SUB_A215531 Auto Fire Assembly



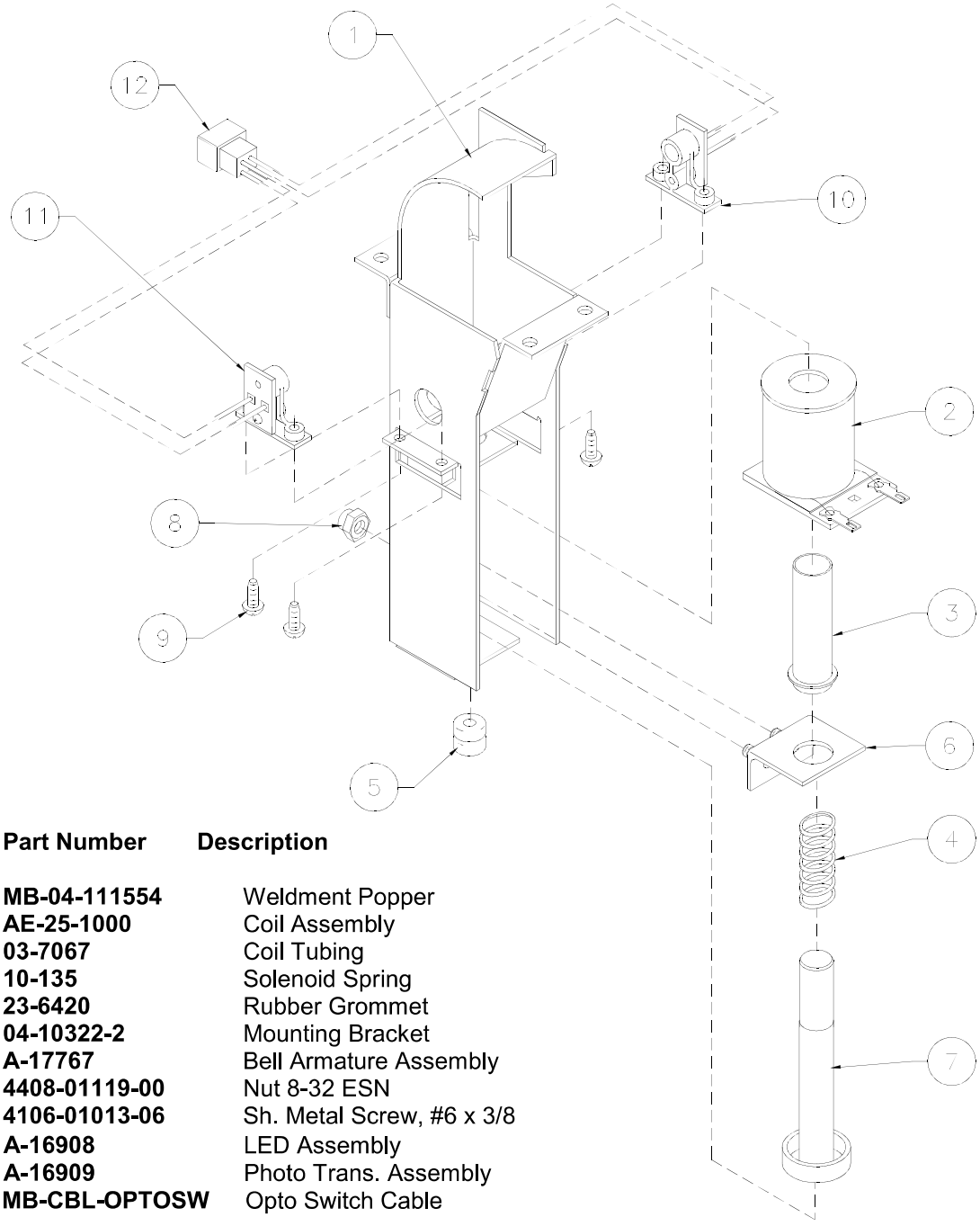
Item	Part Number	Description
1	**01-14618.1**	Auto Fire Bracket
2	**A-6306-2**	Plunger
3	**03-7067**	Coil Tubing
4	**04-10322-2**	Coil Bracket
5	**AE-24-900**	Coil Sub-Assembly
6	**10-135**	Spring
7	**23-6420**	Rubber Grommet
8	**4408-01119-00**	Nut, 8-32 ESN

MB-SUB-A22293 Up Down Post Assembly



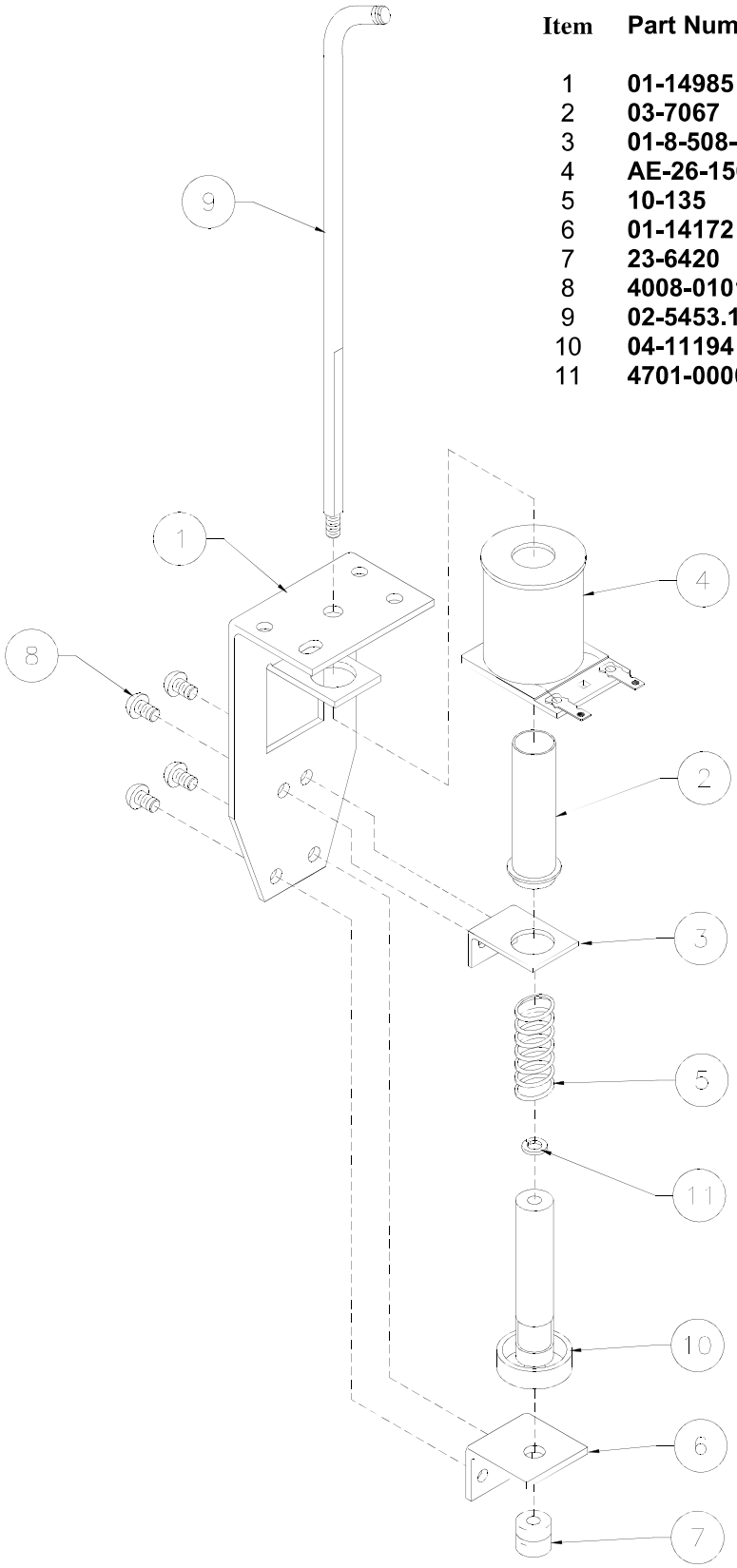
Item	Part Number	Description
1	**01-12441**	Diverter Post Bracket
2	**03-7067-5**	Coil Tubing
3	**01-8-508-T**	Coil Retainer Bracket
4	**AE-27-1200**	Coil Assembly
5	**10-135**	Spring
6	**04-11212**	Armature Assembly
7	**23-6420**	Rubber Grommet
8	**4008-01017-04**	Mach. Screw: 8-32 x ¼"

MB-SUB-A22266 Popper Assembly



Item	Part Number	Description
1	**MB-04-111554**	Weldment Popper
2	**AE-25-1000**	Coil Assembly
3	**03-7067**	Coil Tubing
4	**10-135**	Solenoid Spring
5	**23-6420**	Rubber Grommet
6	**04-10322-2**	Mounting Bracket
7	**A-17767**	Bell Armature Assembly
8	**4408-01119-00**	Nut 8-32 ESN
9	**4106-01013-06**	Sh. Metal Screw, #6 x 3/8
10	**A-16908**	LED Assembly
11	**A-16909**	Photo Trans. Assembly
12	**MB-CBL-OPTOSW**	Opto Switch Cable

MB-SUB-A22425 Bride Mechanism Assembly

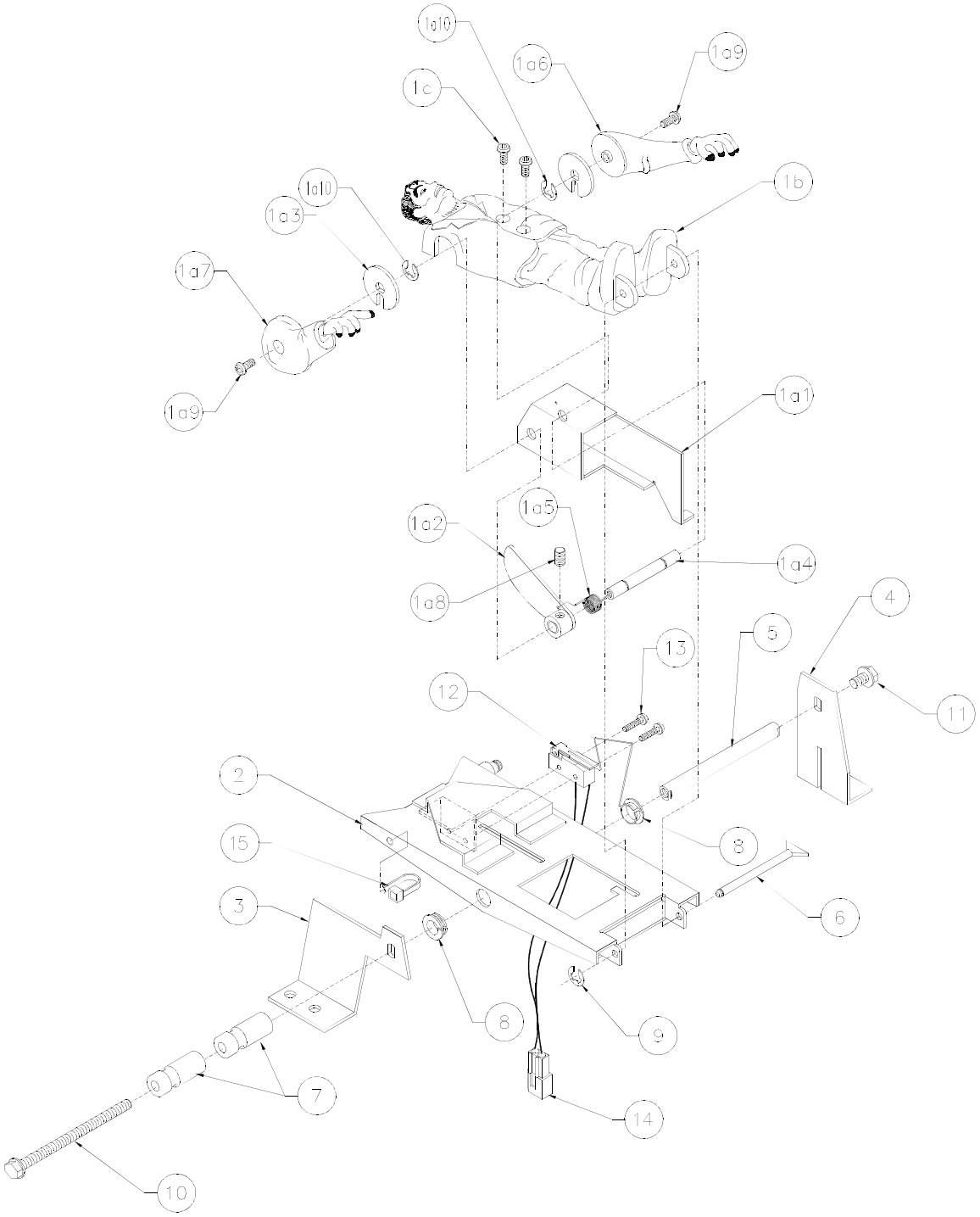


Item	Part Number	Description
1	**01-14985**	Bride Mech. Bracket
2	**03-7067**	Coil Tubing
3	**01-8-508-T**	Coil retainer Bracket
4	**AE-26-1500**	Coil Assembly
5	**10-135**	Spring
6	**01-14172**	Coil Stop Bracket
7	**23-6420**	Rubber Grommet
8	**4008-01017-04**	Mach. Screw: 8-32 x ¼”
9	**02-5453.1**	Shaft Bride
10	**04-11194**	Bride Armature Assembly
11	**4701-00003-00**	Lockwasher #8 Split

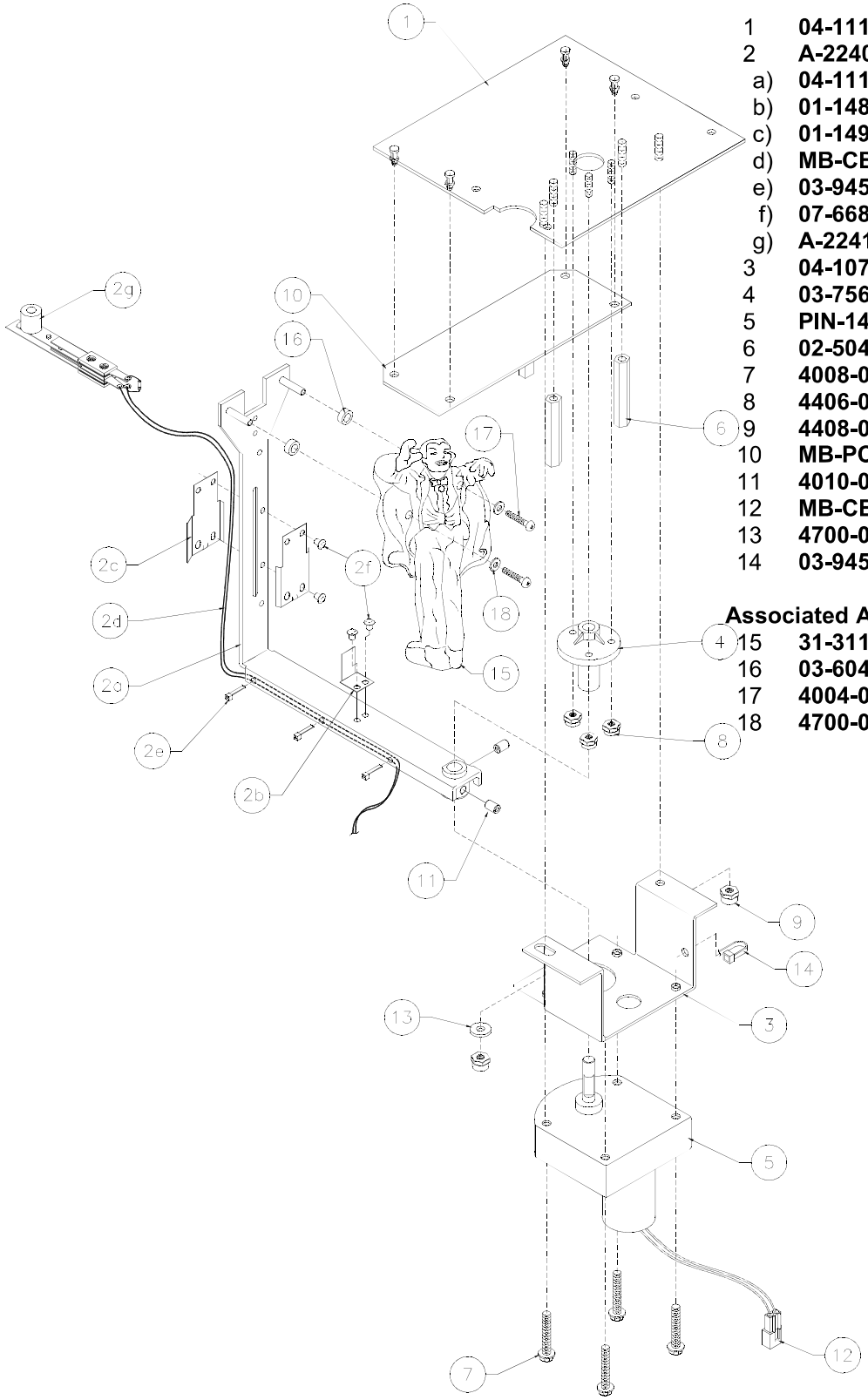
MB-SUB-A22297 Monster Table Assembly

Item	Part Number	Description	Item	Part Number	Description
1	**A-22298**	Monster Sub-Assy.	2	**04-11174.2**	Table
a)	**A-22299**	Monster Arm Sub-Assy.	3	**01-14849**	Table Support Brkt., Left
1.	**04-11176**	Arm Pivot Support Brkt.	4	**01-14850**	Table Support Brkt., Right
2.	**04-11175**	Arm Pivot Actuator	5	**02-5446**	Table Pivot Shaft
3.	**01-14956**	Arm Washer	6	**02-5447**	Monster Pivot Shaft
4.	**02-5448**	Arm Pivot Shaft	7	**03-8365-18**	Post # 8, Trans. Violet
5.	**10-539**	Arm Pivot Spring	8	**20-8790**	Nyliner Bearing
6.	**31-3104**	Monster Arm Left	9	**20-8712-12**	E-Ring, 1/8" Shaft
7.	**31-3105**	Monster Arm Right	10	**4008-01113-40**	Mach. Screw: 8-32 x 2-1/2"
8.	**4008-01083-04**	Set Screw< 8-32 x ¼"	11	**4008-01113-04**	Mach. Screw: 8-32 x ¼"
9.	**4004-01073-04B**	Cap Screw, 4-40 x ¼"	12	**5647-12693-69**	Sub Mini Micro Switch
10.	**20-8712-18**	E-Ring, 3/16" Shaft	13	**4002-01105-06**	Mach. Screw: 2-56 x 3/8"
b)	**31-3103**	Monster Figurine	14	**PIN-CBL-RAMPSW3**	Frank Hit Cable
c)	**4004-01073-04B**	Cap Screw: 4-40 x ¼"	15	**03-9454**	Ty-Wrap

MB-SUB-A22297 Monster Table Assembly



PIN-SUB-A22292 Dracula Assembly

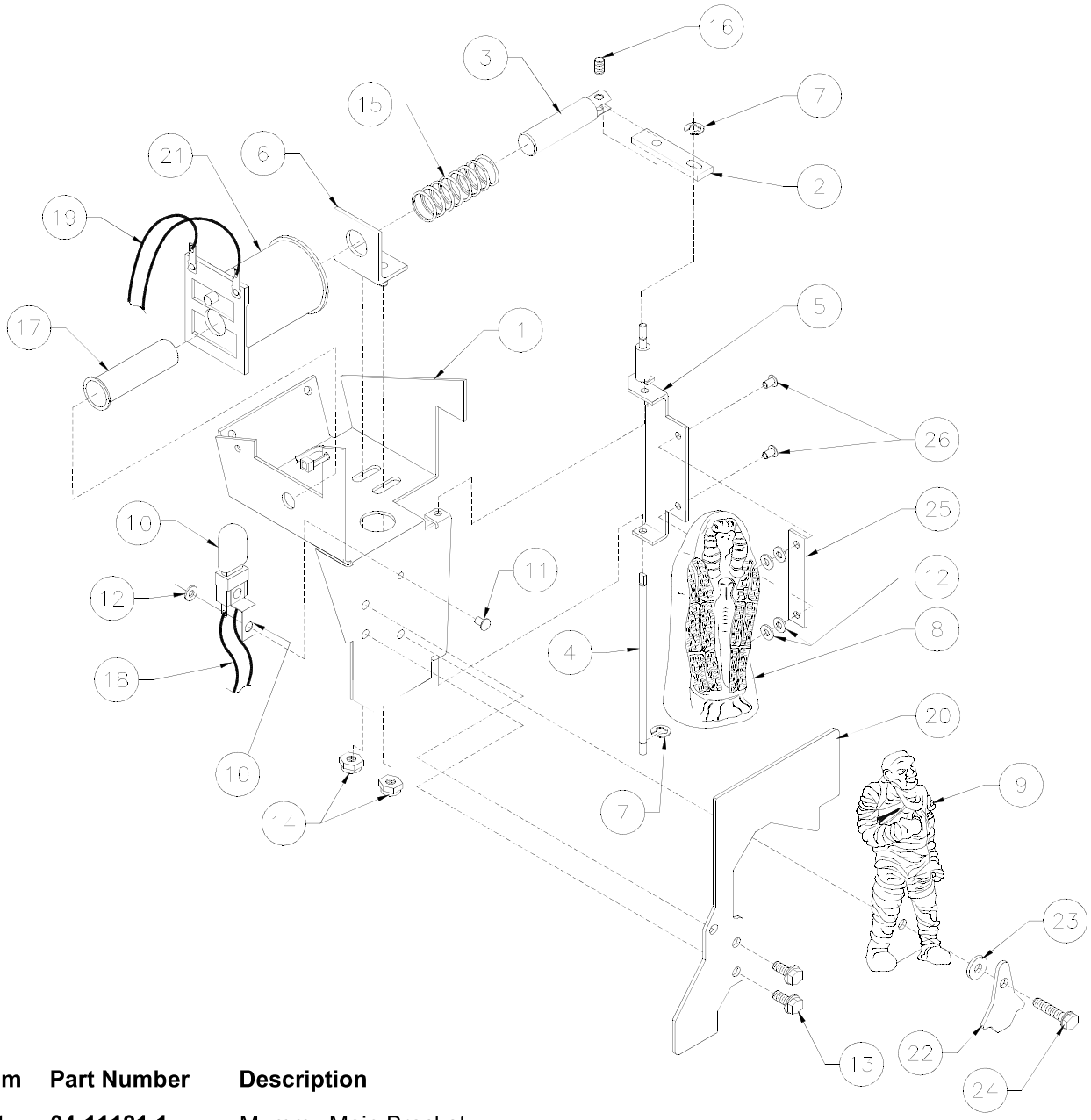


Item	Part Number	Description
1	**04-11163**	Base Plate
2	**A-22409**	Dracula Arm Assembly
a)	**04-11171**	Dracula Mounting Bracket
b)	**01-14839**	Dracula Mech. – Flap
c)	**01-14960**	Retainer Clip-Wire
d)	**MB-CBL-DRACSW**	Cable
e)	**03-9454**	Ty-Wrap
f)	**07-6688-17N**	Rivet: 1/8 x 5/32”
g)	**A-22411**	Dracula Switch Assembly
3	**04-10708**	Motor Bracket – Defender
4	**03-7568**	Flipper Bushing
5	**PIN-14-8034**	Dracula Motor
6	**02-5049-6**	F-F Spacer #8-32 x 1.62”
7	**4008-01113-16**	Mach. Screw, 8-32 x 1”
8	**4406-01119-00**	Nut 6-32 ESN
9	**4408-01119-00**	Nut 8-32 ESN
10	**MB-PCB-DRCOPTO**	Opto Board
11	**4010-01082-04**	Set Screw, 10-32 x ¼”
12	**MB-CBL-DRACMTR**	Cable
13	**4700-00011-00**	FW: 11/64 x 7/16 x 16ga.
14	**03-9454**	Cable Tie 4” Long

Associated Assemblies:

15	**31-3112**	Dracula Figure
16	**03-6047-7**	Spacer
17	**4004-01003-10**	Mach. Screw: 4-40 x 5/8”
18	**4700-00003-00**	FW: 1/8 x 9/32 x 21ga.

MB-SUB-A22302 Mummy Assembly



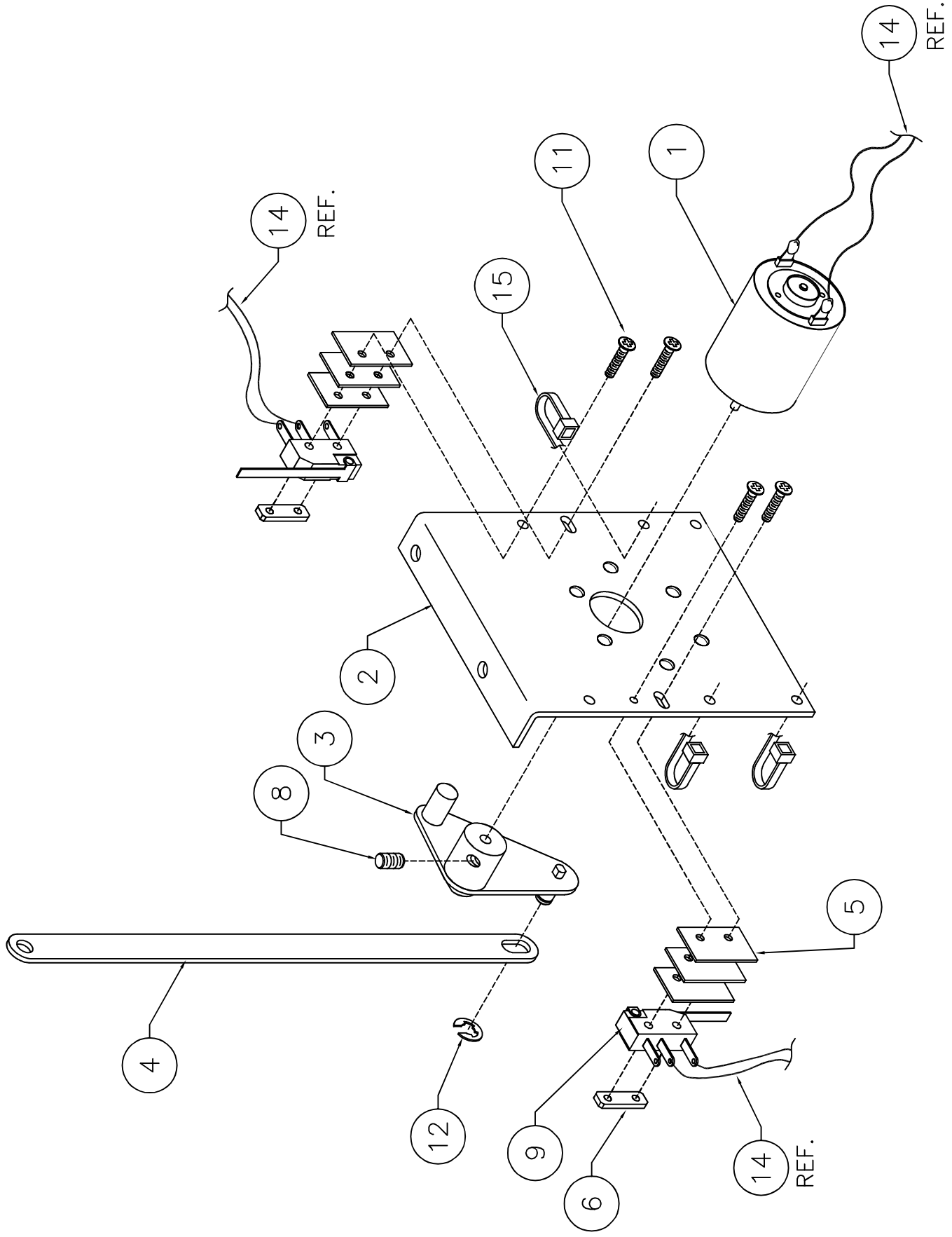
Item	Part Number	Description
1	**04-11181.1**	Mummy Main Bracket
2	**01-14854**	Link Arm
3	**02-5449**	Armature Shaft
4	**02-5451**	Hinge Pin
5	**04-11190.1**	Door Bracket
6	**04-10910-1**	Bracket 5/8" Coil Ctr.
7	**20-8712-12**	E-Ring, 1/8" Shaft (2)
8	**03-9865.1**	Mummy Coffin
9	**03-9864**	Mummy Figure
10a	**000-LMS-158SCKT**	Socket
10b	**PIN-LMP-T3DBLCW**	Double Stack Flasher LED
11	**07-6688-18N**	Rivet
12	**4700-00003-00**	FW: 1/8 x 9/32 x 21ga. (5)
13	**4008-01113-06**	Mach. Screw: 8-32 x 3/8"
14	**4408-01119-00**	Nut #8-32 ESNA (2)
15	**10-399**	Spring

Item	Part Number	Description
16	**20-9370-1**	Roll Pin: 5/32 x 7/16"
17	**03-7066**	Coil Tubing: 1-3/4"
18	**PIN-CBL-COILOV**	Coil Cable
19	**PIN-CBL-PFLS062**	Mummy Flash Cable
20	**31-3219-11A**	Playfield Plastic
21	**AE-27-1200**	Coil
22	**31-3219-38**	Playfield Plastic
23	**4700-00011-00**	FW: 11/64 x 7/16 x 16ga.
24	**4008-01168-12**	Mach. Screw: 8-32 x ¾"
25	**23-6842**	Rubber Pad
26	**07-6688-22N**	Rivet: 5/16 x 1/8" (2)

MB-SUB-A22422 Monster Mech. Assembly

Item	Part Number	Description
1	**PIN-14-HTSOG37C**	12V Motor
2	**MB-04-111893**	Monster Mech. Bracket
3	**04-11188**	Monster Mech. Crank
4	**01-14964**	Monster Mech. Link
5	**01-8600**	Insulator (6)
6	**01-8240**	Nut Plate 2-56
7	**4408-01119-01**	Nut 8-32 ESNA
8	**4008-01083-04**	Set Screw: 8-32 x ¼”
9	**5647-12693-11**	Mini Micro Switch
11	**4002-01105-10**	Mach. Screw 2-56 x 5/8”
12	**20-8712-18**	E-Ring 3/16” Shaft
14	**MB-CBL-FRNKMCH**	Frank Switch Cable
15	**03-9454**	Cable Tie 4” Long .1 Wide

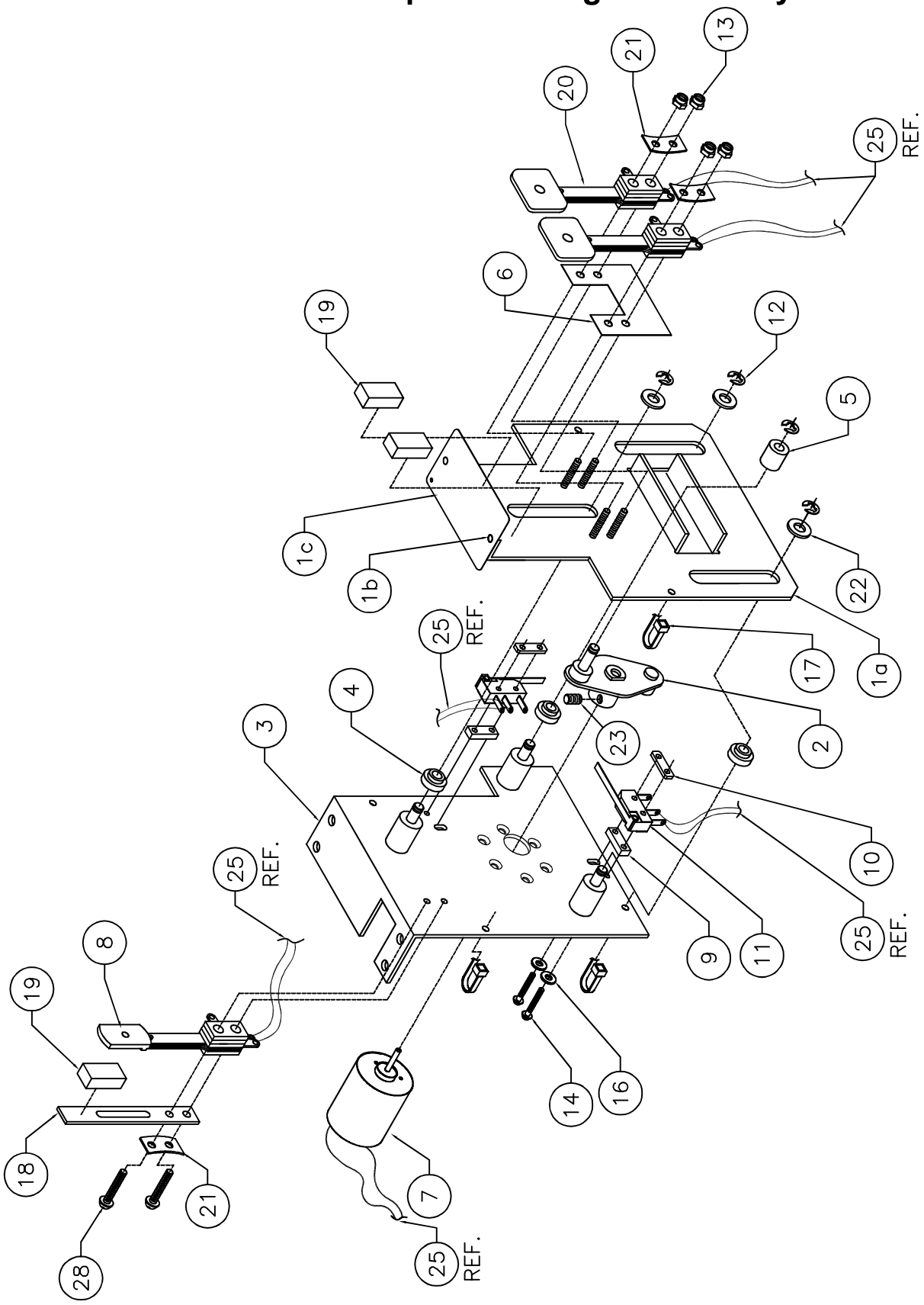
MB-SUB-A22422 Monster Mech. Assembly



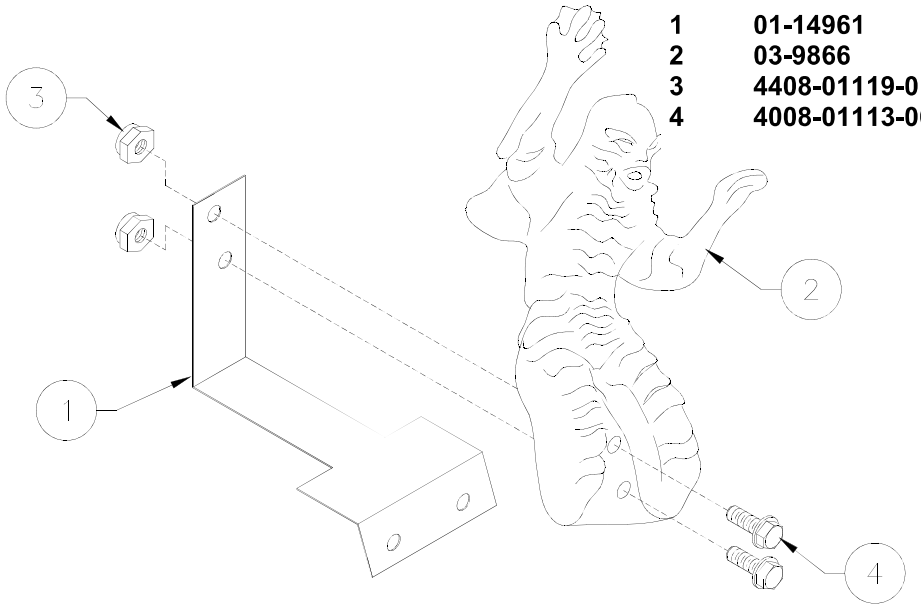
MB-SUB-A22275 Up/Down Target Assembly

Item	Part Number	Description
1	**A-22276**	Slide Bracket Assembly
a)	**04-11218**	Slide Bracket
b)	**07-6688-16N**	Rivet: 1/8 x 1/8”
c)	**01-14833**	Up/Down Flap
2	**04-11167**	Cam
3	**PIN-04-111662**	Main Bracket
4	**03-9859**	Slide Roller
5	**03-9860**	Roller
6	**01-14835**	Fish Paper
7	**PIN-14-HTSOG37C**	12V Motor
8	**A-22414-1**	Standup Target Assembly, Blue
9	**03-9835**	Pivot Spacer (2)
10	**01-8240**	Plate Nut #2-56 (2)
11	**5647-12639-36**	Mini Micro Switch (2)
12	**20-8712-18**	E-Ring, 3/16” Shaft (4)
13	**4404-01119-00**	Nut 4-40 ESNA (4)
14	**4002-01105-10**	Mach. Screw: 2-56 x 5/8”
16	**4700-00003-00**	Flat Washer: 1/8 x 9/32 x 21ga.
17	**03-9454**	Cable Tie 4” Long
18	**01-8657**	Bracket Stop
19	**23-6534-9**	Rubber Protector 3/8”
20	**SW-1A-217-4**	Standup Target Assembly (2)
21	**01-3670**	Sw. Curved Plate (3)
22	**4700-00123-00**	Flat Washer: 7/32 x 7/16 x 18ga.
23	**4008-01083-04**	Set Screw 8-32
25	**MB-CBL-UDWMCH**	Up/Down Mech Cable
28	**4004-01005-16**	Mach. Screw, 4-40 x 1” (2)

MB-SUB-A22275 Up/Down Target Assembly

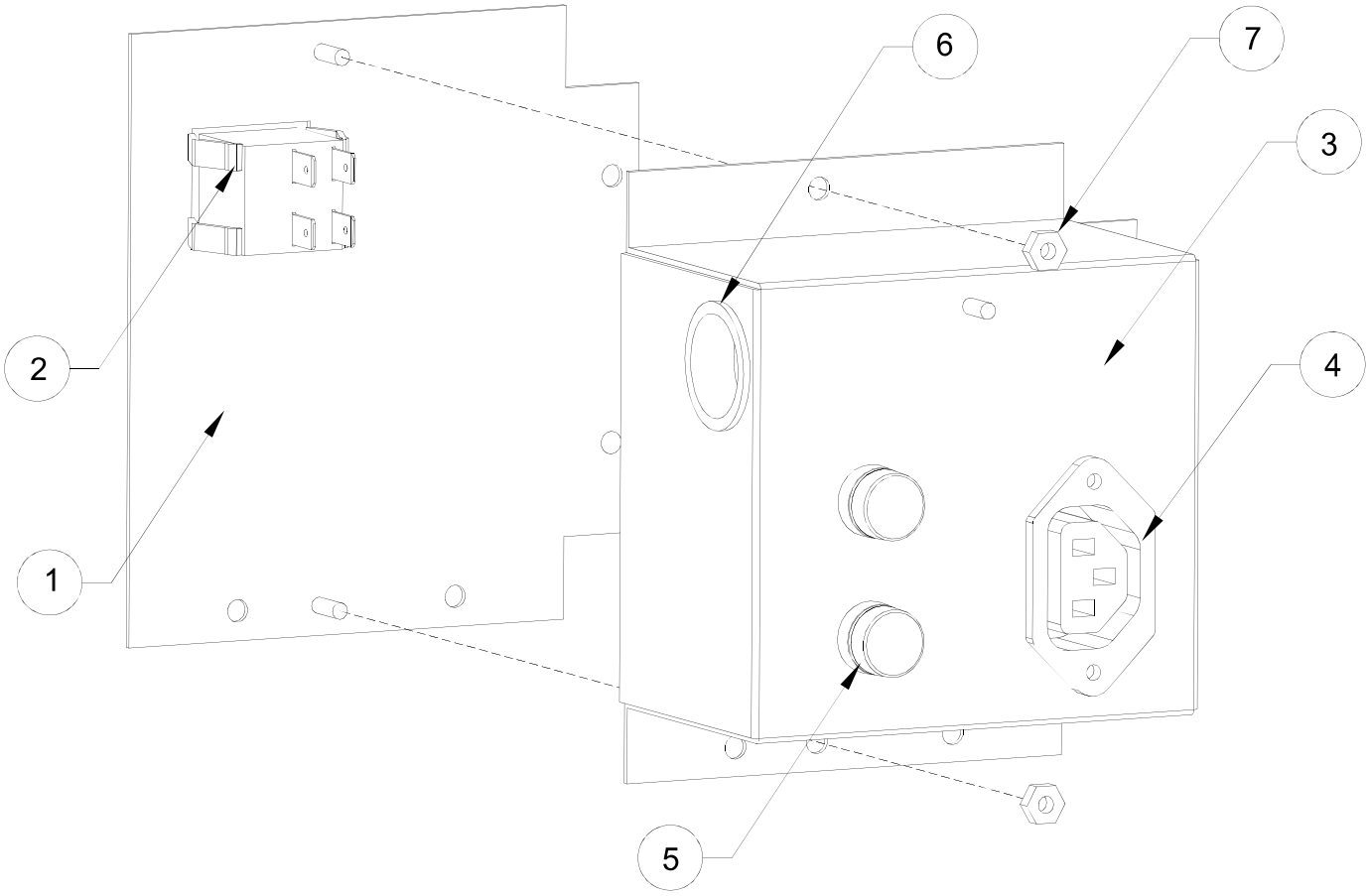


MB-SUB-A22408 Creature Mounting Bracket Assembly



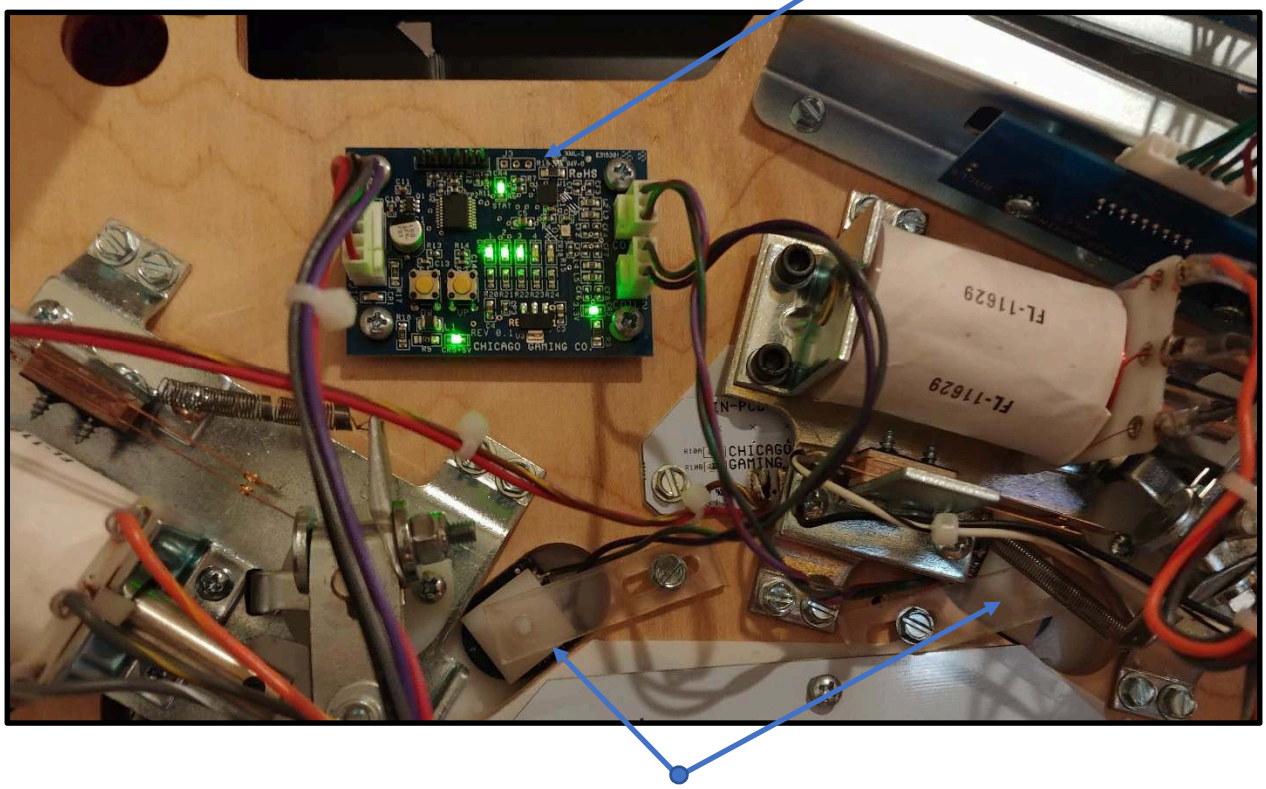
Item	Part Number	Description
1	01-14961	Creature Mounting Bracket
2	03-9866	Creature
3	4408-01119-01	8-32 ESNA Nut
4	4008-01113-06	Mach. Screw: 8-32 x 3/8”

PIN-SUB-POWRBOX
Pinball Power Switch Fuse Box



Item	Part Number	Description
1	PIN-MLS-SWCHPLT	Power Switch Plate
2	000-SWC-ALCONOF	Alcoswitch Rocker, 16A DPST
3	PIN-MLS-SWCHBOX	Switch/Fuse Box
4	000-ELE-IECOUTL	IEC Outlet, Female
5	000-ELE-PNLFUSE	5mm Panel Mount Fuse Holder
6	000-PLM-100SBUS	1” Shorty Bushing
7	FNT-063-KEC0000	6-32 Kep Nut

PIN-PCB-BALDETC **Ball Detector PCB**



PIN-PCB-EDDY **Eddy Current / Proximity Sensor PCBs**

The Eddy Sensor PCB system has been redesigned. If you are experiencing issues with Phantom Flip, there are two adjustments that can be made.

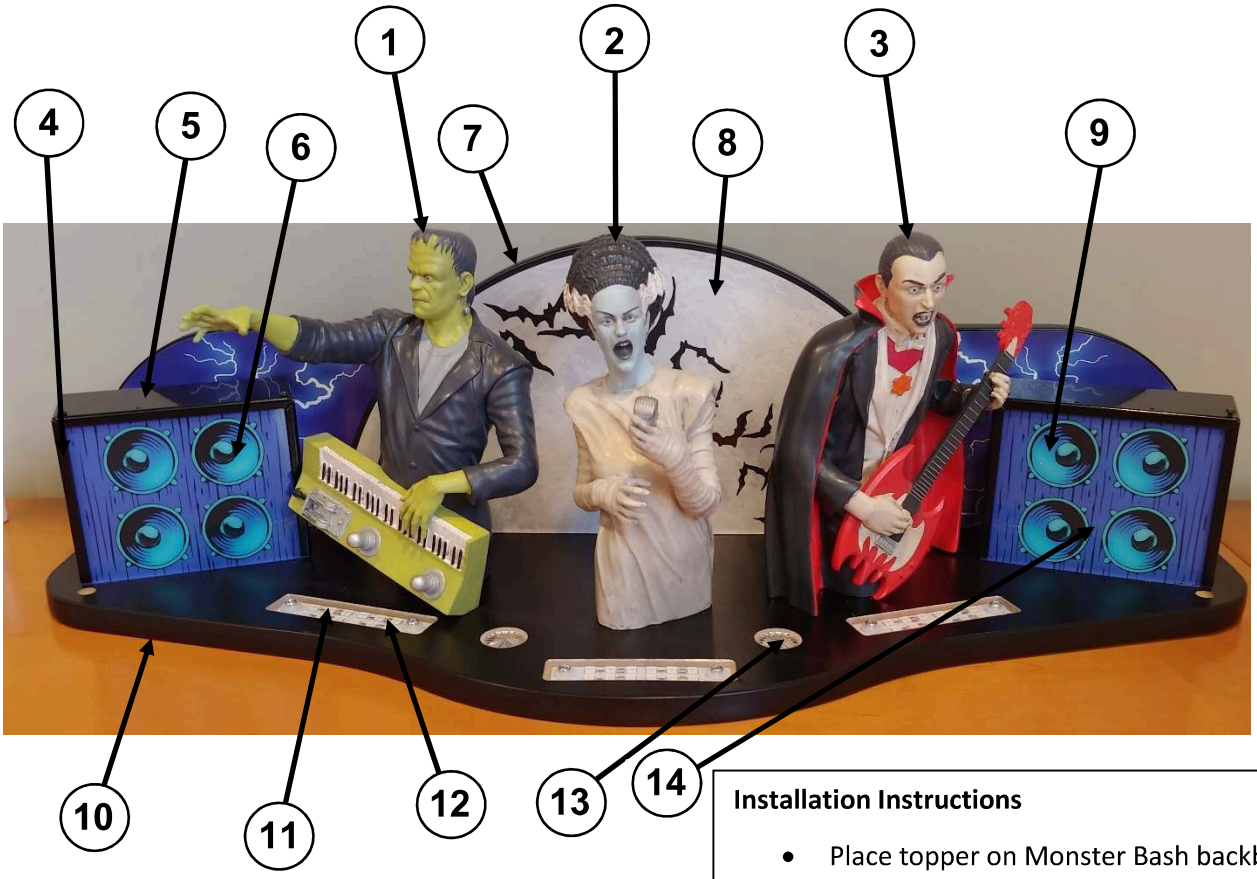
Use the buttons on the Ball Detector PCB to adjust the sensitivity. One LED is the least sensitive setting, and five LEDs is the most sensitive.

The default setting is three. If the sensor is missing balls, increase the sensitivity. If the sensor is getting false hits from the flippers, decrease the sensitivity.

The position of the sensors can also be adjusted. Loosen the screw and slide the plastic to move the sensor.

If Phantom Flip is consistently missing shots to the right, try sliding the sensor board to the left.

Monster Bash LE Topper

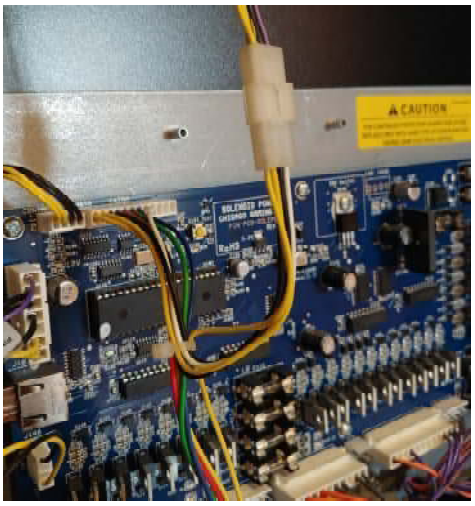


Item	Part Number	Description
1	MB-PLM-FRANK	Topper Monster Figure
2	MB-PLM-BRIDE	Topper Bride Figure
3	MB-PLM-DRACULA	Topper Dracula Figure
4	MB-MLS-SPKRBOX	Topper Speaker Box
5	MB-MLS-SPKRTOP	Topper Speaker Top
6	MB-ART-SPKLFT	Left Speaker Art
7	MB-PLS-MOONBCK	Moon Edge Lit Acrylic
8	MB-ART-MOONART	Topper Moon Artwork
9	MB-ART-SPKRGT	Right Speaker Art
10	MB-CCC-TOPRWOD	Topper Wood Assy.
11	MB-SUB-RGTOPR	RGB PCB with Cable
12	MB-PLS-RGBLENS	Topper Lamp Lens
13	PIN-PCB-MOTFLSH	Topper Flasher
14	MB-PCB-TOPPER2	Topper PCB

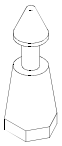
Installation Instructions

- Place topper on Monster Bash backbox.
- Feed the cable into the backbox.

- Secure topper with 4 included screws.
- Connect cable inside backbox. The topper cable connects to the cable shown below.

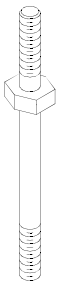


Posts



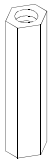
03-8044-12
Mini-Post, Trans. Org.
Qty.: 2

03-8044-13
Mini-Post, Clear
Qty.: 3



02-4425-1
Post #8-32/#8-32
Qty.: 3

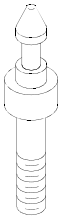
02-4425-2
Post #8-32/#8-32
Qty.: 4



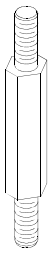
02-5294-18
1/4 Hex. Post 8F/8F, 1.13"
Qty.: 2

02-5295-16
Post M-F 8-32 x 1"
Qty.: 2

02-5295-22
Post M-F 8-32 x 1-3/8"
Qty.: 1



02-4660
Mini-Post Single Bumper
Qty.: 4

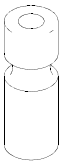


02-5296-17
1/4 Hex. Post 8M/8M, 1.06"
Qty.: 4

02-5296-21
1/4 Hex. Post 8M/8M, 1.31"
Qty.: 1

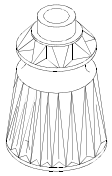
02-5296-28
1/4 Hex. Post 8M/8M, 1.75"
Qty.: 2

02-5296-50
1/4 Hex. Post 8M/8M, 3.13"
Qty.: 1



03-9357-13
Post 3/8 X 1.06", Clear
Qty.: 9

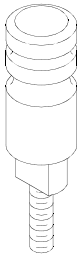
03-8319-12
Post #8 Starred, Tr. Org.
Qty.: 2



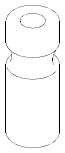
03-8319-13
Post #8 Starred, Clear
Qty.: 1

03-8319-18
Post #8 Starred, Tr. Violet
Qty.: 13

03-8319-9
Post #8 Starred, Tr. Red
Qty.: 1

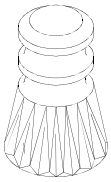


02-5107
Post-Adjusting
Qty.: 2



03-8365-12
Post #8 Trans. Orange
Qty.: 6

03-8365-18
Post #8
Qty.: 2



03-8247-12
Bumper Post Double Starred, Tr. Org.
Qty.: 1

03-8247-18
Bumper Post Double Starred, Tr. Violet
Qty.: 3

Upper Playfield Parts

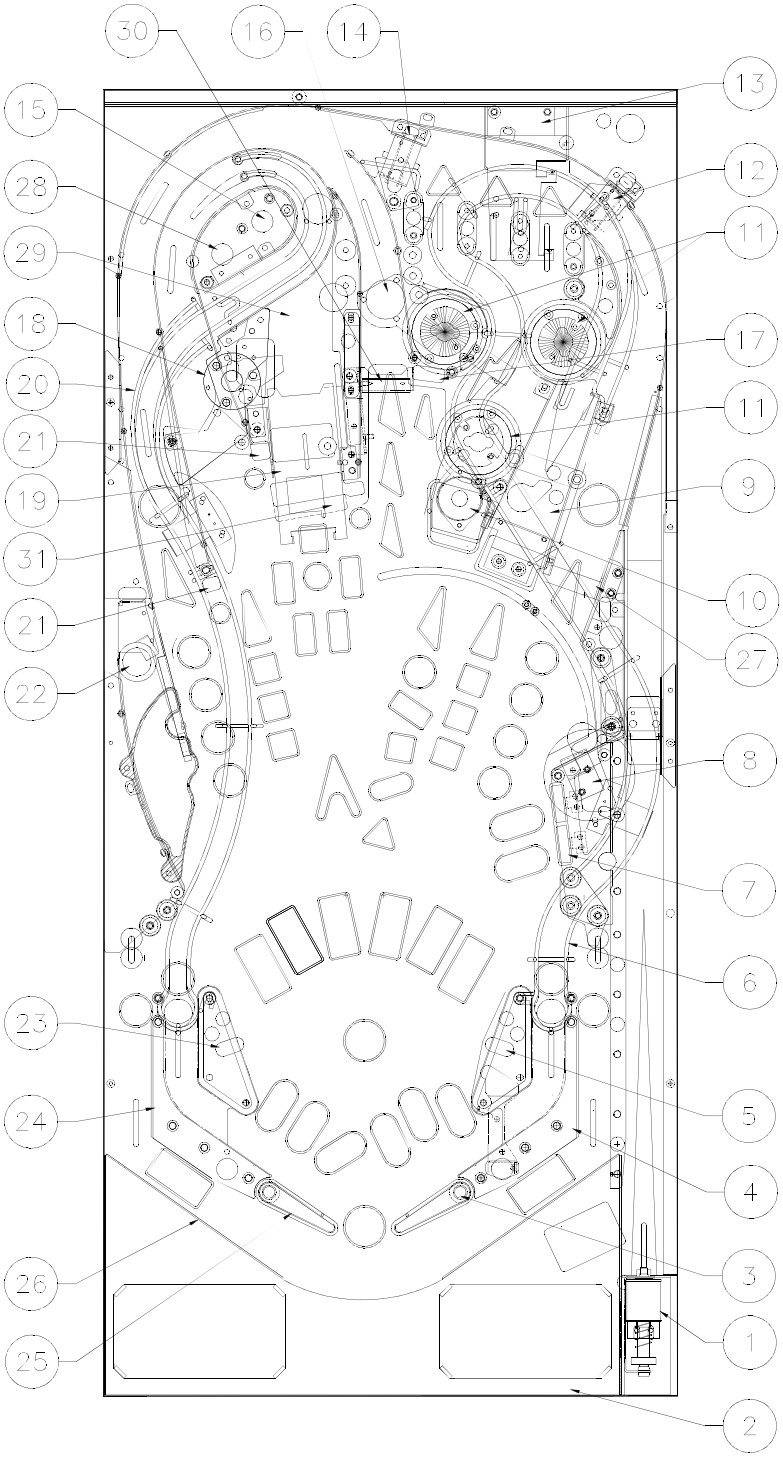
Item Number	Part Number	Description
1	A-22429-1	Auto-fire Kicker Assy
	AE-24-900	Coil
2	A-19963	Complete Ball Trough
	AE-26-1500	Coil
	A-18617-1	LED PC Board
	A-18618-1	Photo Trans PC Board
3	A-22603-R	Right Flipper Assy
	FL-11629	Coil
	20-10110-5	Flipper Bat & Shaft
4	A-22473-1	Right Flipper Ball Guide
	01-14819	Ball Guide #1
5	A-17811	Slingshot Assy
	A-17801	Count Switch Assy
	A-22206-2	Coil & Bracket Assy
6	A-22256	Right Wire Ramp
7	A-20499-9	Standup Target – Red
8	A-22292	Dracula Assy
	A-22409	Dracula Arm Assy
	A-22411	Dracula Switch Assy
	14-8034	Motor
	A-21402	Defender Switch PC Brd
	31-3112	Dracula Figurine
	A-22436	Dracula Coffin Assy
9	A-22295	Right Ramp Assy
	A-22437	Rollunder Gate Assy
	23-6766	Ball Guide Bumper
10	A-22266	Popper Monster Assy
	AE-25-1000	Coil
11	B-9414-5	Jet Bumper Assy
	A-22205-2	Coil & Bracket
	A-12030-3	Leaf Switch Assy
12	A-19001	Ball Gate Special Assy
	12-6657.1-L	Ball Gate Wire
13	A-22302	Mummy Assy
	03-9864	Mummy Figurine
	03-9865.1	Mummy Coffin
	AE-27-1200	Coil
	23-6842	Rubber Pad
14	A-17797-1	Ball Gate Special Assy
	12-6657.1-L	Ball Gate Wire
15	A-22425	Bride Mechanism Assy
	AE-26-1500	Coil
	31-3116-1	Bride Head
	31-3116-2	Bride Body
16	A-22469	Playfield Plastic #4
	A-22472	Dome Sub-assy
	04-10091.1	Bulb & Socket Assy
17	A-18019-15	Standup Trgt - Orange
18	A-22470	Playfield Plastic #5
	A-22472	Dome Sub-assy
	04-10091.1	Bulb & Socket
19	A-22422	Monster Mech Assy
	A-22404	Motor & Gear Box Assy
	14-8015	Motor
	A-22297	Monster Table Assy
	31-3103	Monster Figurine
	A-22293	Up/Down Post Assy
20	A-22257	Left Wire Ramp
21	A-18530-1	Standup Target – Blue

Item Number	Part Number	Description
22	A-22449	Left Eject Assy
	AE-30-2000	
23	A-17811	Slingshot Assy
	A-17801	Count Switch Assy
	A-22207-2	Coil & Bracket Assy
24	A-22473-2	Left Flipper Ball Guide
	01-14819	Ball Guide #1
25	A-15849-L-2	Left Flipper Assy
	FL-11629	Coil
	20-10110-5	Flipper Bat & Shaft
26	A-13204-50065	Screened Bottom Arch Assy
	31-3221.1	Screened Bottom Arch
27	A-22481	Rollunder Gate Assy
	12-7436.1	Wireform
28	A-22434	Dr. Frank Bracket Assy
	04-11200	Bracket
	31-3115	Dr. Frank Figurine
29	A-22413	Center Ramp Assy
	A-22437	Rollunder Gate Assy
	23-6694-3	Black Rubber Ring–5/16”
30	A-22268	Spin Target Assy
	A-19308	Wire Shaft & Target Assy
31	A-22275	Up/Down Target Assy
	A-22404	Motor & Gear Box Assy
	14-8015	Motor
	A-22414-1	Standup Target - Blue
	SW-1A-217-4	Standup Target - Red

Not Shown:	
A-22405	Back Panel Assembly
01-14959	Playfield Brace
01-14613	Backboard Brace
31-3219-1A	Playfield Plastic
31-3219-22A	Playfield Plastic
20-9658-1	PC Board Standoff
A-17802	Socket & Bulb
A-17826	Socket & Bulb
03-8633	Level Mount
20-9691	Level
31-3114	Igor Figurine

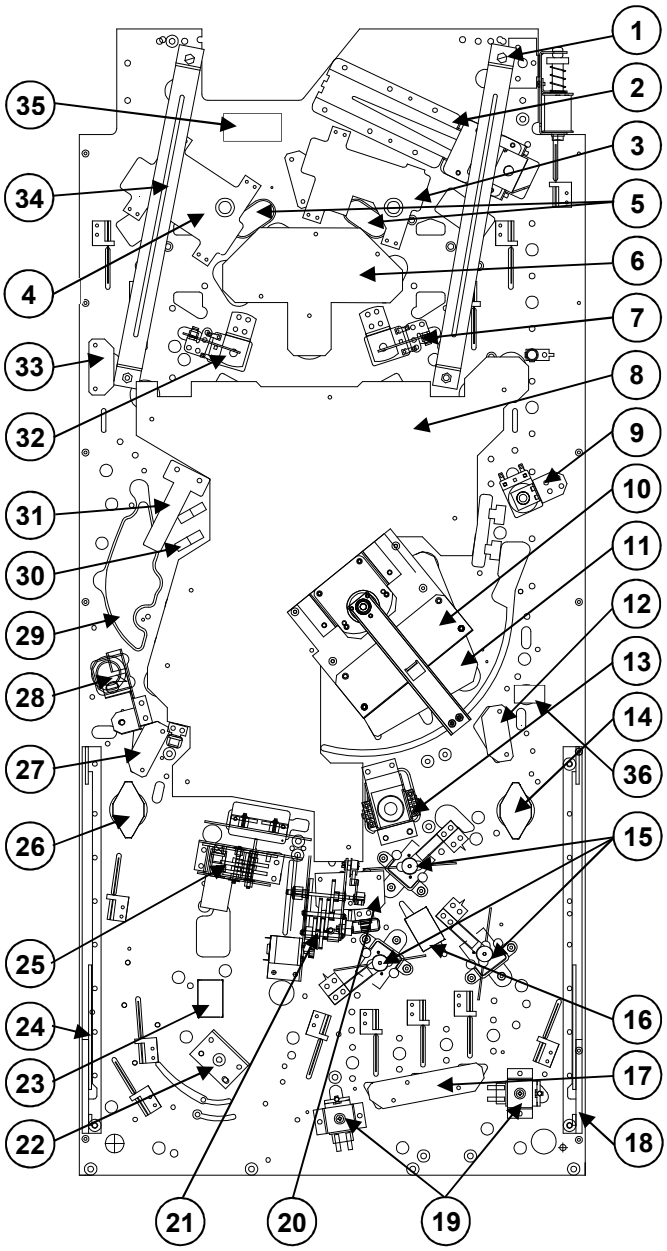
*The *MONSTER BASH* hardcoat playfield does not require a full Mylar. However, mylars can be purchased through your local WILLIAMS Distributor.

Upper Playfield Parts



Lower Playfield Parts

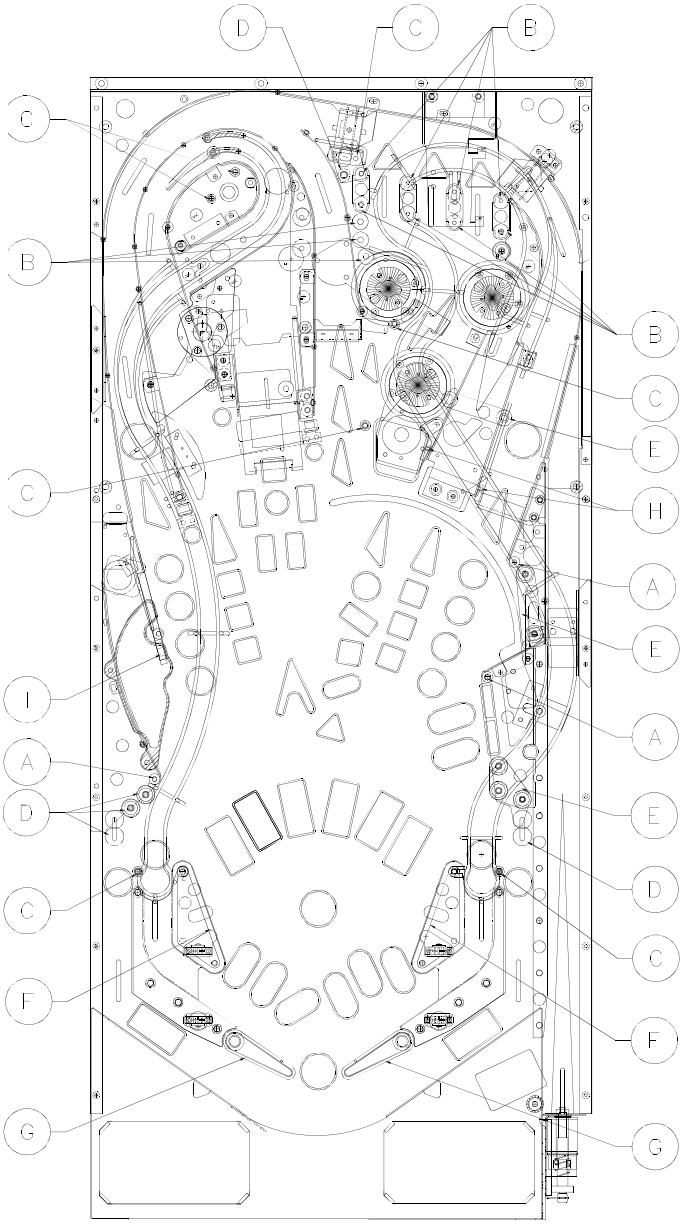
Item	Part Number	**Description**
1	**01-11781**	Support Bracket (2)
2	**A-19963**	Ball Trough Assembly
3	**A-22603-R**	Flipper Assembly
4	**A-15849-L-2**	Flipper Assembly
5	**PIN-PCB-EDDY**	Eddy Current Sensor (2)
6	**PIN-PCB-7LAMP**	7-Lamp PCB
7	**A-22206-2**	Coil & Bracket Assembly, R.
8	**MB-PCB-PLAYFLD**	Monster Bash Playfield PCB
9	**A-22293**	Up Down Post Assembly
10	**A-22292**	Dracula Assembly
11	**MB-PCB-12LAMP**	12-Lamp PCB
12	**PIN-PCB-SINGLMP**	Single Lamp PCB
13	**A-22266**	Popper Assembly
14	**PIN-PCB-MARFLSH**	Mars Flasher PCB
15	**A-22205-2**	Jet Coil & Bracket Assy. (3)
16	**PIN-PCB-TRUFLS2**	Through PF Flasher 2 PCB
17	**MB-PCB-3LAMP**	3-Lamp PCB
18	**A-17749.1-2**	Slide Playfield Assy., R.
19	**A-17796-1**	Ball Gate Actuator Assy. (2)
20	**MB-PCB-2LAMP**	2-Lamp PCB
21	**MB-SUB-A222422**	Monster Mech Assembly
22	**A-22425**	Bride Mechanism Assembly
23	**PIN-PCB-TRUFLSH**	Through PF Flasher PCB
24	**A-17749.1-1**	Slide Playfield Assy., L.
25	**MB-SUB-A22275**	Up/Down Target Assy.
26	**PIN-PCB-MARFLSH**	Mars Flasher PCB
27	**PIN-PCB-SINGLMP**	Single Lamp PCB
28	**A-22449**	Eject Assembly
29	**03-9862**	Creature Lagoon Plastic
30	**PIN-PCB-THINFLS**	Thin Flasher PCB (2)
31	**A-22408**	Creature Mounting Bracket
32	**A-22207-2**	Coil & Bracket Assembly, L.
33	**PIN-PCB-SINGLMP**	Single Lamp PCB
34	**A-17749.1-2**	Slide Playfield Assy., R.
35	**PIN-PCB-BALDETC**	Ball Detector PCB
36	**PIN-PCB-TRUFLS2**	Through PF Flasher 2 PCB



Underside of playfield, viewed in raised position.

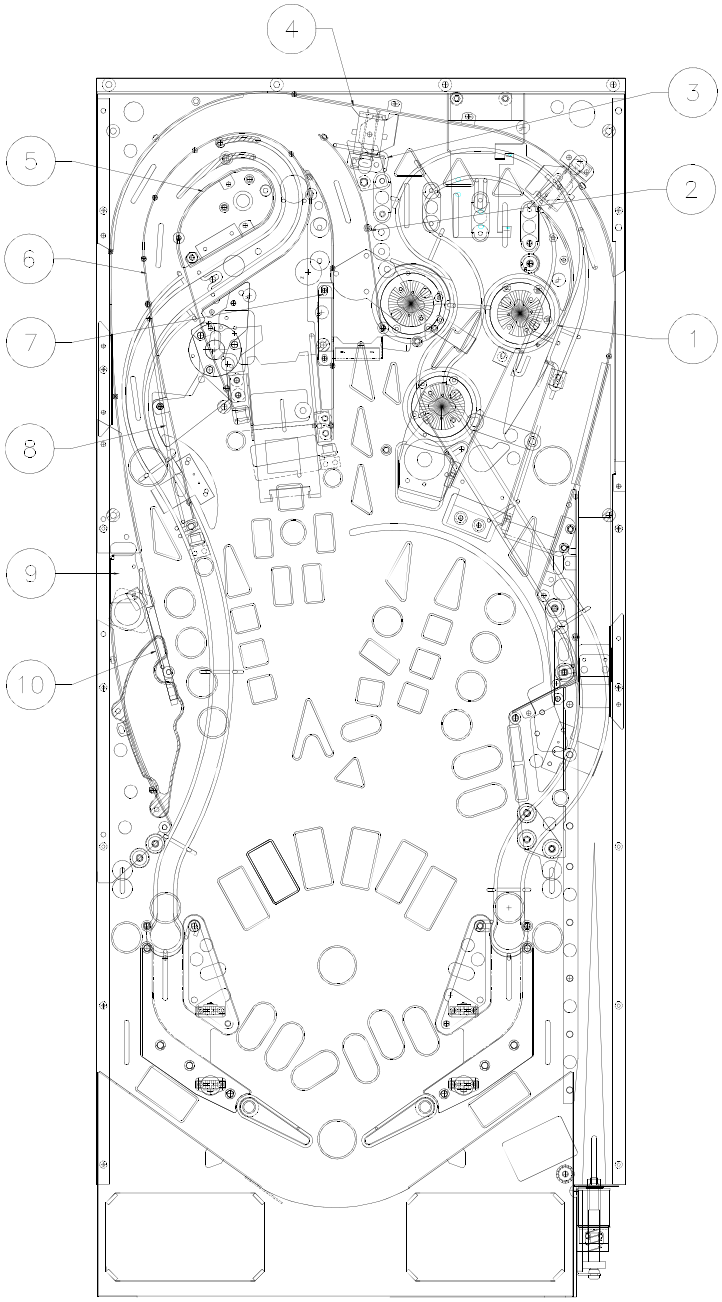
Rubber Parts

Item No.	Part No.	Description	Quantity
A	23-6556	Black Rubber Bumper Sleeve	3
B	23-6641	Black Rubber Bumper	11
C	23-6694-1	Black Rubber Grommet 3/32”	7
D	23-6694-3	Black Rubber Ring 5/16”	6
E	23-6694-8	Black Rubber Ring 1-1/2”	3
F	23-6694-10	Black Rubber Ring 2-1/2”	2
G	23-6695	Black Rubber Flipper Ring	2
H	23-6766 01-14844	Blue Rubber Bumper Guard	2 2
I	23-6766 04-10253-1	Blue Rubber Bumper Guard	1 1



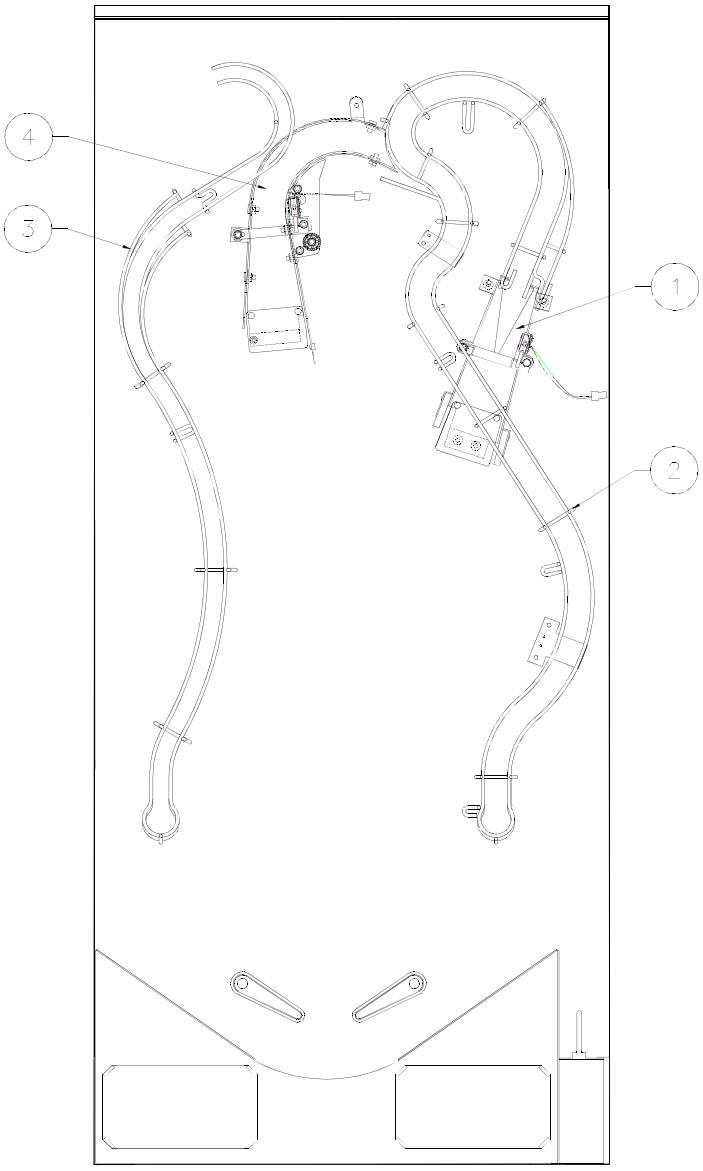
Ball Guides

Item No.	Part No.	Description
1	**12-7433**	Wire Ball Guide #3
2	**04-11161**	Ball Guide #9
3	**12-7432**	Wire Ball Guide #2
4	**A-22464**	Ball Guide #3
5	**04-11159.1**	Ball Guide #5
6	**04-11158.1**	Ball Guide #4
7	**04-11160**	Ball Guide #8
8	**12-7374.1**	Wire Ball Guide
9	**A-22463**	Ball Guide #2
10	**12-7439**	Wire Ball Guide #1



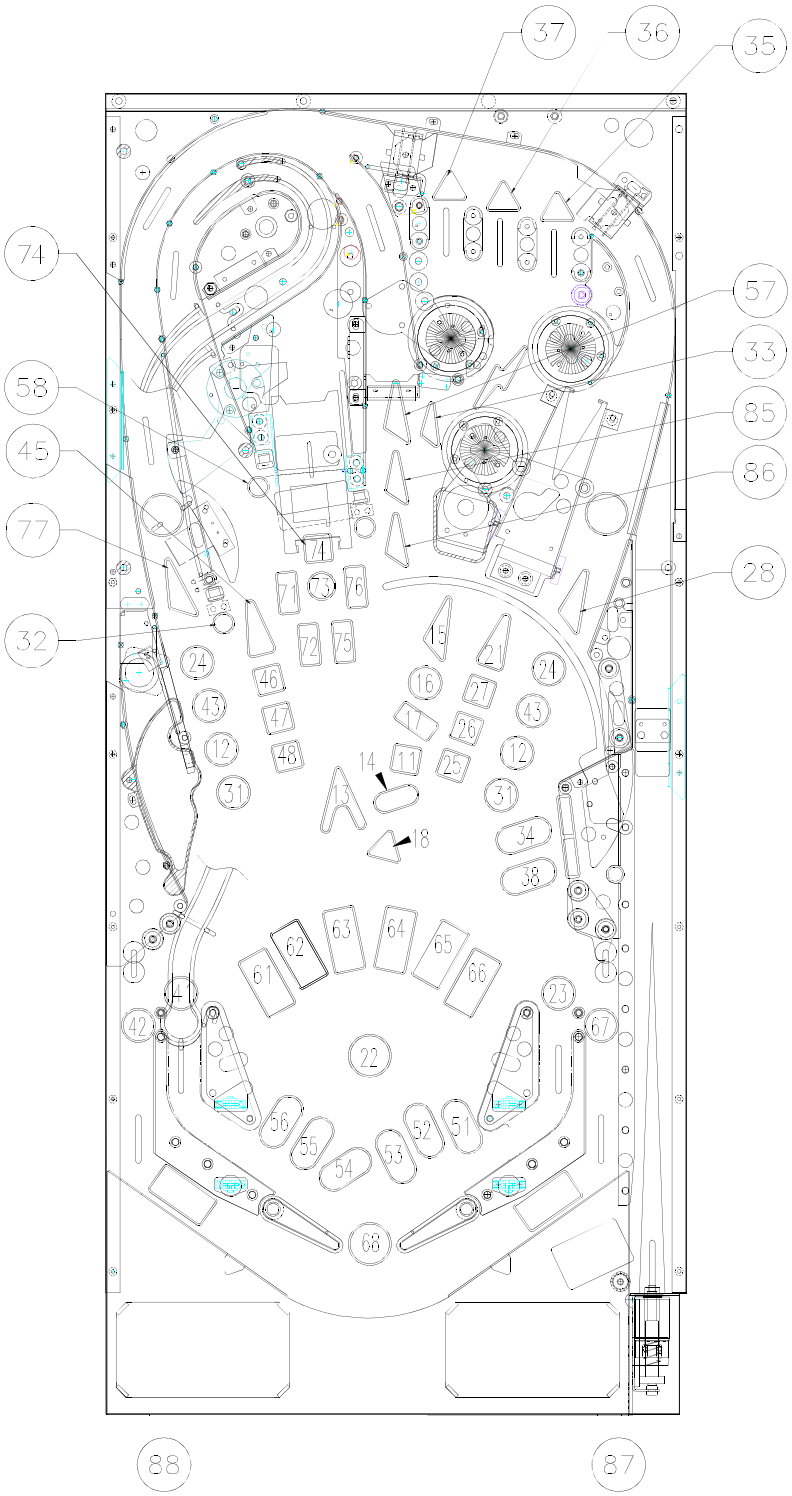
Ramps

Item	Part Number	Description
1	**A-22295**	Right Ramp Assembly
2	**A-22256**	Right Wire Ramp
3	**A-22257**	Left Wire Ramp
4	**A-22413**	Center Ramp Assembly



Lamp Locations		
LMP#	Part Number	Description
11	MB-PCB-12LAMP	MONSTER MOSH PIT
12	MB-PCB-12LAMP	HALF MOON (2)
13	MB-PCB-PLAYFLD	FRANKENSTEIN ARROW
14	MB-PCB-PLAYFLD	DRAC- ATTACK
15	MB-PCB-12LAMP	EXTRA BALL
16	MB-PCB-12LAMP	MONSTERS OF ROCK
17	MB-PCB-12LAMP	MONSTER BASH
18	MB-PCB-PLAYFLD	MUMMY MAYHEM
21	MB-PCB-12LAMP	RIGHT RAMP ARROW
22	MB-PCB-7LAMP	ROCK C D
23	MB-PCB-PLAYFLD	RIGHT RETURN
24	MB-PCB-12LAMP	FULL MOON FEVER (2)
25	MB-PCB-12LAMP	RIGHT GARGLE
26	MB-PCB-12LAMP	RIGHT WARM UP
27	MB-PCB-12LAMP	RIGHT PRIMP
28	MB-PCB-SINGLMP	RIGHT LOOP ARROW
31	MB-PCB-12LAMP	QUARTER MOON (2)
32	MB-PCB-PLAYFLD	LEFT BLUE TARGET
33	MB-PCB-2LMPBRD	TOMB TREASURE
34	MB-PCB-PLAYFLD	DRACULA STAND UP
35	MB-PCB-3LAMP	RIGHT TOP LANE
36	MB-PCB-3LAMP	CENTER TOP LANE
37	MB-PCB-3LAMP	LEFT TOP LANE
38	MB-PCB-PLAYFLD	DRAC STAND UP BOTTOM
41	MB-PCB-PLAYFLD	LEFT RETURN
42	MB-PCB-SINGLMP	LEFT OUTLANE
43	MB-PCB-12LAMP	3/4 MOON (2)
44	MB-PCB-PLAYFLD	RIGHT BLUE TARGET
45	MB-PCB-PLAYFLD	LEFT RAMP ARROW
46	MB-PCB-PLAYFLD	LEFT PRIMP
47	MB-PCB-PLAYFLD	LEFT WARM UP
48	MB-PCB-PLAYFLD	LEFT GARGOYLE
51	MB-PCB-7LAMP	GUITAR
52	MB-PCB-7LAMP	DRUMS
53	MB-PCB-7LAMP	BASS GUITAR
54	MB-PCB-7LAMP	KEYBOARD
55	MB-PCB-7LAMP	MICROPHONE
56	MB-PCB-7LAMP	SAXOPHONE
57	MB-PCB-2LMPBRD	CENTER LOOP ARROW 3
58	MB-PCB-PLEDL58	CENTER BLUE TARGET
61	MB-PCB-PLAYFLD	CREATURE
62	MB-PCB-PLAYFLD	BRIDE
63	MB-PCB-PLAYFLD	FRANKENSTEIN
64	MB-PCB-PLAYFLD	MUMMY
65	MB-PCB-PLAYFLD	WOLFMAN
66	MB-PCB-PLAYFLD	DRACULA
67	MB-PCB-PLAYFLD	RIGHT OUTLANE
68	MB-PCB-SINGLMP	SHOOT AGAIN
71	MB-PCB-PLAYFLD	LEFT FRANKENSTEIN ARM
72	MB-PCB-PLAYFLD	LEFT FRANKENSTEIN LEG
73	MB-PCB-PLAYFLD	FRANKENSTEIN TORSO
74	MB-PCB-PLAYFLD	FRANKENSTEIN HEAD
75	MB-PCB-PLAYFLD	RT FRANKENSTEIN LEG
76	MB-PCB-PLAYFLD	RT FRANKENSTEIN ARM
77	MB-PCB-SINGLMP	RIGHT LOOP ARROW
78		NOT USED
81	MB-PCB-CREALED	MUCK
82	MB-PCB-CREALED	SEAWEED
83	MB-PCB-CREALED	ALGE
84	MB-PCB-CREALED	POND SCUM
85	MB-PCB-PLAYFLD	CENTER LOOP ARROW 2
86	MB-PCB-PLAYFLD	CENTER LOOP ARROW 1
87	000-LMP-LED12VW	LAUNCH BUTTON
88	000-LMP-LED12VW	START BUTTON

Lamp Locations



Solenoid/Flasher Locations

Item Number	Assembly Part Number	Coil or Flasher Part Number	Description
01	A-22429-1	AE-24-900	AUTO PLUNGER
02	A-22425	AE-26-1500	BRIDE POST
03	A-22302	AE-27-1200	MUMMY COFFIN
04			NOT USED
05	A-17796	A-14406	LEFT GATE
06	A-17796	A-14406	RIGHT GATE
07			NOT USED
08	A-22293	AE-27-1200	RAMP LOCK POST
09	A-19963	AE-26-1500	TROUGH EJECT
10	A-22207-2	AE-26-1200	LEFT SLINGSHOT
11	A-22206-2	AE-26-1200	RIGHT SLINGSHOT
12	A-22205-2	AE-26-1200	LEFT JET BUMPER
13	A-22205-2	AE-26-1200	RIGHT JET BUMPER
14	A-22205-2	AE-26-1200	BOTTOM LET BUMPER
15	A-22449	AE-30-2000	LEFT EJECT
16	A-22266	AE-25-1000	RIGHT POPPER
17	A-17802	PIN-PCB-MOTFLSH	WOLFMAN FLASHERS – BACK PANEL
17	-----	PIN-PCB-BBFLASH	WOLFMAN FLASHER - INSERT PANEL
18	A-17983	PIN-PCB-TRUFLSH	BRIDE FLASHER – PLAYFIELD
18	-----	PIN-PCB-BBFLASH	BRIDE FLASHER – INSERT PANEL
19	04-10091.1	PIN-LMP-T3DBLCW	FRANKENSTEIN FLASHERS - PLAYFIELD
19	-----	PIN-PCB-BBFLASH	FRANKENSTEIN FLASHER – INSERT PANEL
20	A-17983	PIN-PCB-TRUFLS2	DRACULA COFFIN FLASHER - PLAYFIELD
20	-----	PIN-PCB-BBFLASH	DRACULA COFFIN FLASHER – INSERT PANEL
21	A-17802	PIN-PCB-THINFLS	CREATURE FLASHERS - PLAYFIELD
22	A-17802	PIN-PCB-TRUFLSH	JETS/MUMMY FLASHERS - PLAYFIELD
22	-----	PIN-PCB-BBFLASH	JETS/MUMMY FLASHER – INSERT PANEL
23	-----	PIN-PCB-3PNFLSH	RIGHT POPPER FLASHER - PLAYFIELD
24	A-17802	MB-PCB-PLAYFLD	FRANK ARROW FLASHER – PLAYFIELD
25	A-17802	MB-PCB-7LAMP	MONSTERS OF ROCK FLASHER – PLAYFIELD
25	-----	PIN-PCB-BBFLASH	MONSTERS OF ROCK FLASHER – INSERT PANEL
26	A-17802	PIN-PCB-MARFLSH	WOLFMAN LOOP FLASHERS - PLAYFIELD
27	A-22404	PIN-14-HTSOG37C	FRANK MOTOR
28	A-22404	PIN-14-HTSOG37C	UP/DOWN BANK MOTOR

Flippers

Item	Assembly Part Number	Coil Part Number	Description
29-30	A-22603-R	FL-11629	LOWER RIGHT FLIPPER
31-32	A-15849-L-2	FL-11629	LOWER LEFT FLIPPER
33-34			NOT USED
35-36			NOT USED

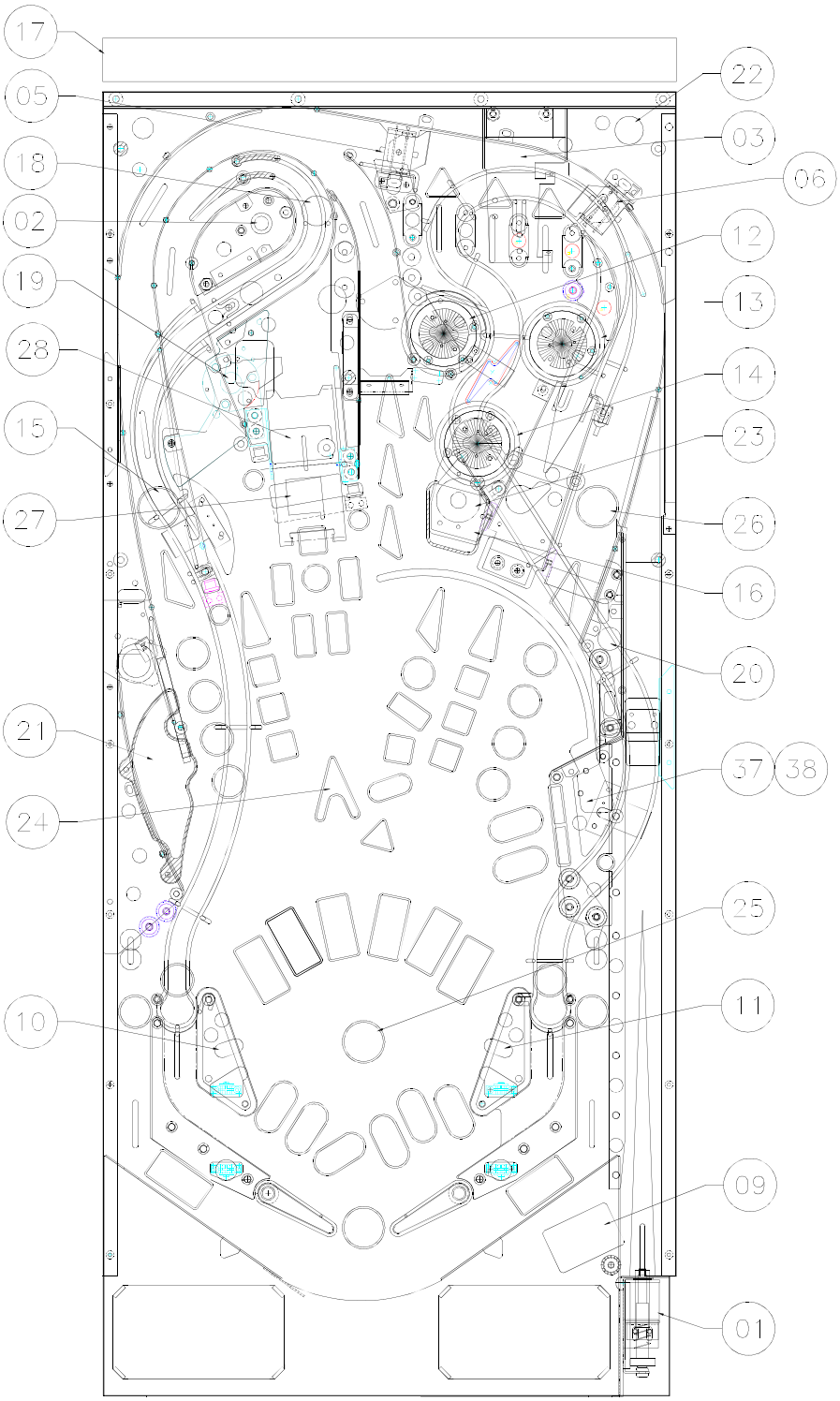
Dracula Motor Circuits

Item	Assembly Part Number	Motor Number	Description
37	A-22292	PIN-14-8034	DRACULA MOTOR FORWARD
38			DRACULA MOTOR BACKWARD

General Illumination

Item	Lamp Part Number		Description
01	PIN-LMP-LEDRGB		BOTTOM PLAYFIELD
02	PIN-LMP-LEDRGB		TOP RIGHT PLAYFIELD
03	PIN-LMP-LEDRGB		TOP LEFT PLAYFIELD
04	PIN-PCB-24LEDBR		TOP INSERT PANEL
05	PIN-PCB-24LEDBR		BOTTOM INSERT PANEL

Solenoid/Flasher Locations



Switch Locations

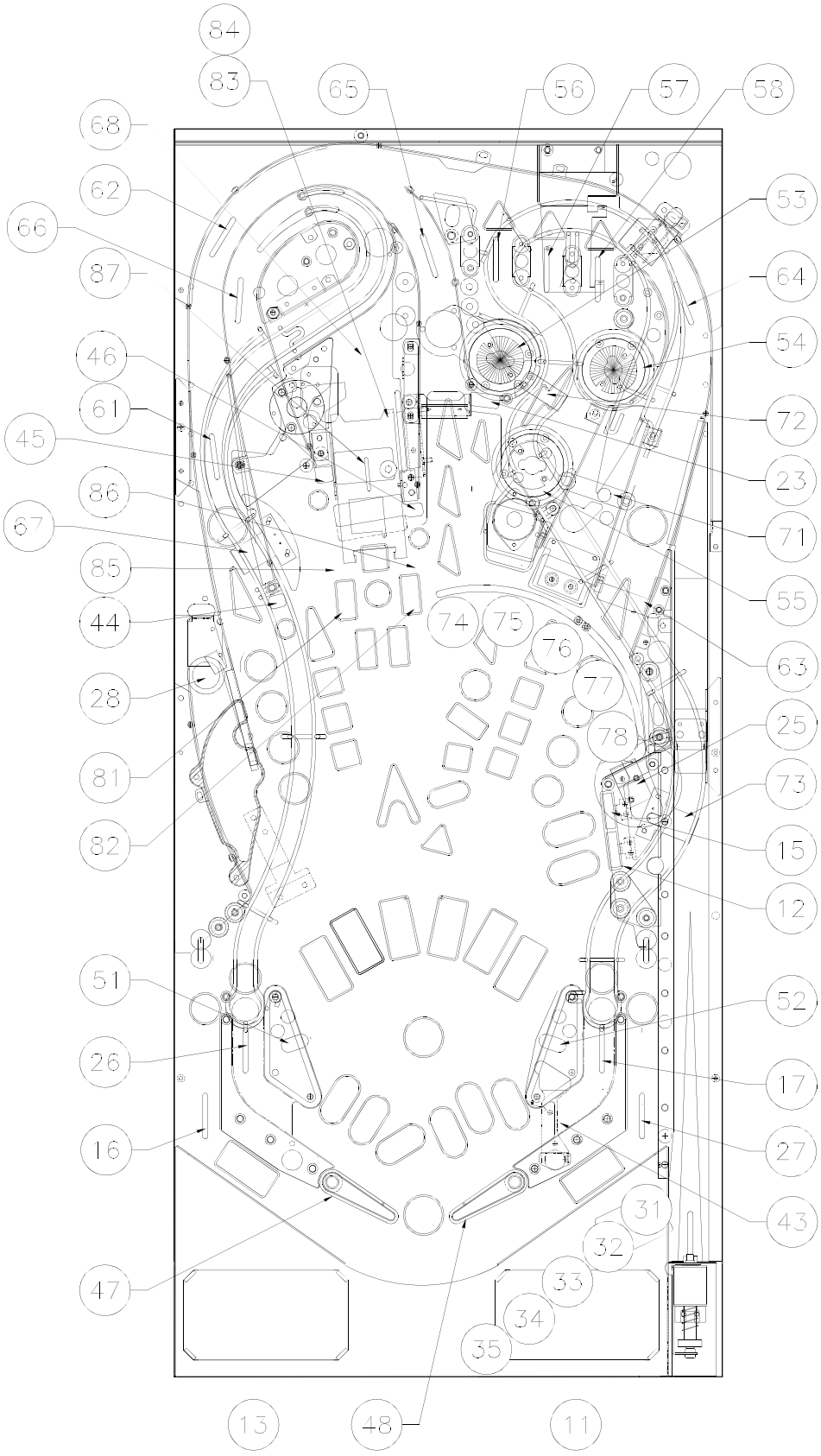
Item Number	Switch Assembly Part Number *OR* Opto Assembly Part Number	Switch Part Number	Description
F1	----–	SW-1A-194	*LOWER RIGHT FLIPPER E.O.S.
F2	A-17316	-----	*LOWER RIGHT FLIPPER CABINET
F3	----–	SW-1A-194	*LOWER LEFT FLIPPER E.O.S.
F4	A-17316	-----	*LOWER LEFT FLIPPER CABINET
F5	NOT USED	NOT USED	UPPER RIGHT FLIPPER E.O.S
F6	NOT USED	NOT USED	UPPER RIGHT FLIPPER CABINET
F7	A-22268	5647-12693-24	CENTER SPINNER
F8	NOT USED	NOT USED	UPPER LEFT FLIPPER CABINET
11	20-9663-B-4	-----	LAUNCH BUTTON
12	A-20499-9	-----	DRACULA STANDUP TOP
13	20-9663-16	-----	START BUTTON
14	----–	04-10346	*PLUMB BOB TILT
15	A-20499-9	-----	DRACULA STANDUP BOTTOM
16	A-17813	5647-12693-19	LEFT OUTLANE
17	A-17813	5647-12693-19	RIGHT RETURN
18	A-17791	5467-12693-32	SHOOTER LANE
21	A-17238	-----	*SLAM TILT
22	----–	5643-09268-00	*COIN DOOR CLOSED
23	A-18019-15	-----	TOMB TREASURE
24	----–	5643-15190-00	*ALWAYS CLOSED
25	A-22411	-----	DRACULA TARGET
26	A-17813	5647-12693-19	LEFT RETURN
27	A-17813	5647-12693-19	RIGHT OUTLANE
28	-----	5647-12693-66	LEFT EJECT
31	PIN-PCB-TRGHLED (LED) PIN-PCB-TRGHDET (PHOTO TRANS)	----- -----	TROUGH EJECT
32	PIN-PCB-TRGHLED (LED) PIN-PCB-TRGHDET (PHOTO TRANS)	----- -----	TROUGH BALL 1
33	PIN-PCB-TRGHLED (LED) PIN-PCB-TRGHDET (PHOTO TRANS)	----- -----	TROUGH BALL 2
34	PIN-PCB-TRGHLED (LED) PIN-PCB-TRGHDET (PHOTO TRANS)	----- -----	TROUGH BALL 3
35	PIN-PCB-TRGHLED (LED) PIN-PCB-TRGHDET (PHOTO TRANS)	----- -----	TROUGH BALL 4
36	A-16908 (LED) A-16909 (PHOTO TRANS)	----- -----	RIGHT POPPER
37	NOT USED	NOT USED	NOT USED
38	NOT USED	NOT USED	NOT USED
41	NOT USED	NOT USED	NOT USED
42	A-16908 (LED) A-16909 (PHOTO TRANS)	----- -----	LEFT FLIPPER OPTO
43	A-16908 (LED) A-16909 (PHOTO TRANS)	----- -----	RIGHT FLIPPER OPTO
44	A-18530-1	-----	LEFT BLUE TARGET
45	A-18530-1	-----	CENTER BLUE TARGET
46	A-22414-1	-----	RIGHT BLUE TARGET
47	MB-PCB-EDDY	-----	LEFT FLIPPER PROXIMITY SENSOR
48	MB-PCB-EDDY	-----	RIGHT FLIPPER PROXIMITY SENSOR
51	A-17801	A-17800 (KICK) A-17794 (SCORE)	LEFT SLINGSHOT
52	A-17801	A-17800 (KICK) A-17794 (SCORE)	RIGHT SLINGSHOT
53	A-12030-3	A-16443-1	LEFT JET BUMPER
54	A-12030-3	A-16443-1	RIGHT JET BUMPER
55	A-12030-3	A-16443-1	BOTTOM JET BUMPER
56	A-17813	5647-12693-19	LEFT TOP LANE
57	A-17813	5647-12693-19	CENTER TOP LANE
58	A-17813	5647-12693-19	RIGHT TOP LANE
61	A-17813	5647-12693-19	LEFT LOOP LOW
62	A-17813	5647-12693-19	LEFT LOOP HIGH
63	A-22481	5647-12693-36	RIGHT LOOP LOW
64	A-17813	5647-12693-19	RIGHT LOOP HIGH
65	A-17813	5647-12693-19	CENTER LOOP
66	A-17813	5647-12693-19	LEFT RAMP ENTER
67	----–	5647-12693-13	LEFT RAMP EXIT

Switch Locations

Item Number	Switch Assembly Part Number *OR* Opto Assembly Part Number	Switch Part Number	Description
68	A-22437	5647-12693-24	CENTER RAMP ENTER
71	A-22437	5647-12693-24	RIGHT RAMP ENTER
72	-----	5647-12693-24	RIGHT RAMP EXIT
73	-----	5647-12693-21	RIGHT RAMP LOCK
74	A-21402	-----	DRACULA POSITION 5
75	A-21402	-----	DRACULA POSITION 4
76	A-21402	-----	DRACULA POSITION 3
77	A-21402	-----	DRACULA POSITION 2
78	A-21402	-----	DRACULA POSITION 1
81	-----	5647-12693-36	UP/DOWN BANK UP
82	-----	5647-12693-36	UP/DOWN BANK DOWN
83	-----	5647-12693-11	FRANK TABLE DOWN
84	-----	5647-12693-11	FRANK TABLE UP
85	-----	SW-1A-217-4	LEFT UP/DOWN BANK TARGET
86	-----	SW-1A-217-4	RIGHT UP/DOWN BANK TARGET
87	-----	5647-12693-69	FRANK HIT
88	NOT USED	NOT USED	NOT USED

***NOT SHOWN.**

Switch Locations

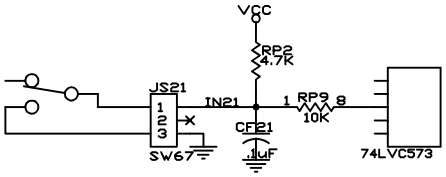


MONSTER BASH
Switch Table (NOT A MATRIX)

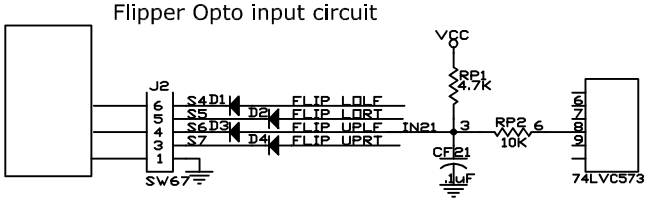
Cabinet switches are read by CONTROLLER Board

LEFT COIN CHUTE U4p2 I8 D1 J3p11	LAUNCH BALL U3p3 IN43 11 J2p9	SLAM TILT U4p5 I11 21 J3p7	TROUGH EJECT U11p1 IN31 31 JS31p8	NOT USED 41	LEFT SLINGSHOT U14p7 IN43 51 J16p6	LEFT LOOP LOW U16p2 IN61 61 J10p12	RIGHT RAMP ENTER U17p2 IN71 71 J7p8	UP/DOWN BANK UP U18p2 IN81 81 J7p4	LOW RT FLIP EOS U10p11 F1 J15p4
CENTER COIN CHUTE U4p3 I9 D2 J3p10	DARCULA STANDUP TOP U12p2 IN21 12 JS12	COIN DOOR CLOSED U2p5 I3 22 J2p7	TROUGH BALL 1 U11p3 IN32 32 JS31p7	LEFT FLIPPER OPTO U36p3 IN37 42 JS42	RIGHT SLINGSHOT U12p8 IN27 52 J15p5	LEFT LOOP HIGH U16p3 IN62 62 J10p8	RIGHT RAMP EXIT U17p3 IN72 72 J10p4	UP/DOWN BANK DOWN U18p2 IN82 82 J7p5	LOW RT FLIP OPTO BUTTON U3p7 F2 J2p5
RIGHT COIN CHUTE U4p4 I10 D3 J3p9	START BUTTON U3p2 IN53 13 J2p10	TOMB TREASURE U15p2 IN51 23 J18p1	TROUGH BALL 2 U11p5 IN33 33 JS31p6	RIGHT FLIPPER OPTO U3p5 IN38 43 JS43	LEFT JET U15p4 IN53 53 J10p3	RIGHT LOOP LOW U16p4 IN63 63 J17p7	RIGHT RAMP LOCK U17p4 IN73 73 JS73	FRANK TABLE DOWN U18p4 IN83 83 J6p4	LOW LEFT FLIP EOS U18p9 IN88 F3 J16p7
NOT USED D4	PLUMB BOB TILT U3p4 I2 14 J2p8	ALWAYS CLOSED 24	TROUGH BALL 3 IN34 U11p11 34 JS31p4	LEFT BLUE TARGET U14p6 IN44 44 JS44	RIGHT JET U15p5 IN54 54 J18p2	RIGHT LOOP HIGH U16p5 IN64 64 J18p6	DRACULA POSITION 5 IN74 U17p5 74 J300p3	FRANK TABLE UP U18p5 IN84 84 J6p5	LOW LEFT FLIP OPTO BUTTON U3p6 F4 J2p6
ESCAPE SVC CRDT U4p6 I12 D5 J3p6	DARCULA STANDUP BOTTOM U12p3 IN22 15 JS15	DRACULA TARGET U12p5 IN25 25 JS25	TROUGH BALL 4 IN35 U11p13 35 JS31p3	CENTER BLUE TARGET U14p5 IN45 45 JS45	BOTTOM JET U15p6 IN55 55 J17p6	CENTER LOOP U16p6 IN65 65 J10p2	DRACULA POSITION 4 IN75 U17p6 75 J300p4	LEFT UP/DOWN BANK TARGET U18p6 IN85 85 J7p6	Not Used F5
VOLUME DOWN U4p7 I13 D6 J3p5	LEFT OUTLANE U14p9 IN41 16 J16p4	LEFT RETURN LANE U14p8 IN42 26 J16p5	RIGHT POPPER U11p9 I36 36 JS36p5	RIGHT BLUE TARGET U14p4 IN46 46 JS46	LEFT TOP LANE U15p8 IN56 56 J10p2	LEFT RAMP ENTER U16p7 IN66 66 J10p10	DRACULA POSITION 3 IN76 U17p7 76 J300p5	RIGHT UP/DOWN BANK TARGET U18p7 IN86 86 J7p7	UP RIGHT FLIP OPTO U3p9 F6 J2p3
VOLUME UP U4p8 I14 D7 J3p4	RT RETURN LANE U12p7 IN26 17 J15p1	RIGHT OUTLANE U12p5 IN24 27 J15p6	NOT USED 37	LF FLIPPER PROXIMITY SENSOR U14p3 IN47 47 JS47p3	CENTER TOP LANE U15p8 IN57 57 J18p3	LEFT RAMP EXIT U16p8 IN67 67 JS67	DRACULA POSITION 2 IN77 U17p8 77 J300p6	FRANK HIT U18p8 IN87 87 J10p11	CENTER SPINNER IN51 F7 J10p6
BEGIN TEST U4p9 I15 D8 J3p3	SHOOTER LANE U15p9 IN23 18 J15p7	LEFT EJECT U12p9 IN28 28 JS28	NOT USED 38	RT FLIPPER PROXIMITY SENSOR U14p2 IN48 48 JS47p4	RIGHT TOP LANE U15p9 IN58 58 J18p5	CENTER RAMP ENTER U16p9 IN68 68 J10p7	DRACULA POSITION 1 IN78 U17p9 78 J300p7	NOT USED	UP LFT FLIP OPTO U3p8 F8 J2p4

Typical switch input circuit



Flipper Opto input circuit



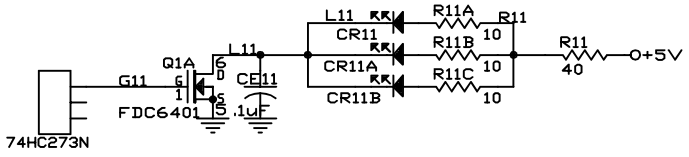
MONSTER BASH

Lamp Table (NOT A MATRIX) Cabinet lamp drivers are on the CONTROLLER Board

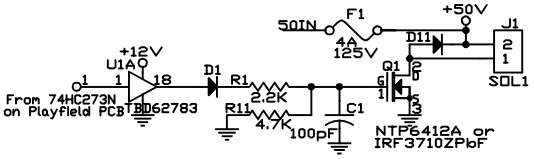
L11 Q11A MONSTER MOSH PIT J12p12	L21 Q16B RIGHT RAMP ARROW J12p2	L31 Q19B QUARTER MOON (2)	L41 Q15A LEFT RETURN	L51 Q27A GUITAR J8p2	L61 Q31A CREATURE	L71 Q35A LEFT FRANK ARM	L81 Q39A MUCK J80p2
L12 Q11B HALF MOON (2) J12p5	L22 Q16A ROCK C.D. J8p8	L32 Q41B LEFT BLUE TARGET	L42 Q23B LEFT OUTLANE J24	L52 Q27B DRUMS J8p3	L62 Q31B BRIDE	L72 Q36B LEFT FRANK LEG	L82 Q39B SEAWEED J80p3
L13 Q12A FRANK ARROW	L23 Q15B RIGHT RETURN	L33 Q21B TOMB TREASURE J33p3	L43 Q26A THREE-QUARTER MOON (2) J12p4	L53 Q29A BASS GUITAR J8p4	L63 Q32A FRANKEN-STEIN	L73 Q37A FRANK TORSO	L83 Q40A ALGAE J80p4
L14 Q12B DRAC-ATTACK	L24 Q15A FULL MOON FEVER (2) J12p3	L34 Q22A DRACULA STANUP TOP	L44 Q26B RIGHT BLUE TARGET	L54 Q28B KEYBOARD J8p5	L64 Q32B MUMMY	L74 Q38B FRANK HEAD	L84 Q40B POND SCUM J80p5
L15 Q13A CR15 EXTRA BALL J12p13	L25 Q17A RIGHT GARGLE J12p9	L35 Q22B RIGHT TOP LANE J19p6	L45 Q24B LEFT RAMP ARROW	L55 Q28A MICRO-PHONE J8p6	L65 Q33A WOLFMAN	L75 Q36A RIGHT FRANK LEG	L85 Q41A CENTER LOOP ARROW 2
L16 Q13B MONSTERS OF ROCK J12p10	L26 Q17B RIGHT WARM UP J12p8	L36 Q20B CENTER TOP LANE J19p7	L46 Q24A LEFT PRIMP	L56 Q29B SAXOPHONE J8p7	L66 Q33B DRACULA	L76 Q38A RIGHT FRANK ARM	L86 Q2A CENTER LOOP ARROW 1 J2p13
L17 Q14A MONSTER BASH J12p11	L27 Q18A RIGHT RAMP J12p7	L37 Q19A LEFT TOP LANE J19p8	L47 Q25B LEFT WARM UP	L57 Q30A CENTER LOOP ARROW 3 J33p4	L67 Q34A RIGHT OUTLANE	L77 Q37B LEFT LOOP ARROW J77	L87 LAUNCH BUTTON J2p13
L18 Q14B MUMMY MAYHEM	L28 Q18B RIGHT LOOP ARROW J17p5	L38 Q20A DRACULA STANUP BOTTOM	L48 Q23A LEFT GARGOYLE	L58 Q30B CENTER BLUE TARGET J58	L68 Q42B SHOOT AGAIN J16p2 G86	L78 Q35B EXTRA GI2 P87	L88 Q1B START BUTTON J2p12

GI LED#___ SOCKET#___	PF Left PF Right	GI1 Q42A	P93 P93B	BROWN WHT-BRN	GI2 Q42B	P94B P94	ORANGE WHT-ORG	GI3 Q43A	P95B P95	YELLOW WHT-YEL

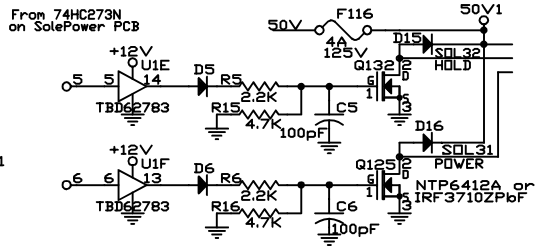
Typical Lamp circuit



Typical solenoid driver circuit



Typical Flipper driver circuit



MONSTER BASH Solenoid - Flasher Table

WMS#	Solenoids	Driver Brd	FET#	Con.	FUSE	WIRE COLOR	PART#
01	AUTO PLUNGER	SP	Q101	J116p1	F103	VIO/WHT	AE-24-900
02	BRIDE POST	SP	Q102	J116p2	F103	VIO/BLK	AE-26-1500
03	MUMMY COFFIN	SP	Q103	J116p3	F103	VIO/ORN	AE-27-1200
04	NOT USED	SP	Q104	J116p4	F103		
05	NOT USED	SP	Q105	J116p6	F103		
06	NOT USED	SP	Q106	J116p7	F103		
07	NOT USED	SP	Q107	J115p2	F103		
08	RAMP LOCK POST	SP	Q108	J116p9	F103	VIO/GRN	AE-27-1200
09	TROUGH EJECT	SP	Q109	J113p1	F107	VIO/RED	AE-26-1500
10	LEFT SLINGSHOT	SP	Q110	J113p2	F102	BRN/BLK	AE-26-1200
11	RGHT SLINGSHOT	SP	Q111	J113p4	F102	BRN/RED	AE-26-1200
12	LEFT JET	SP	Q112	J113p5	F102	BRN/ORN	AE-26-1200
13	RIGHT JET	SP	Q113	J113p6	F102	BRN/GRN	AE-26-1200
14	BOTTOM JET	SP	Q114	J113p7	F102	BRN/YEL	AE-26-1200
15	LEFT EJECT	SP	Q115	J113p8	F107	BRN/WHT	AE-30-2000
16	RIGHT POPPER	SP	Q116	J113p9	F107	VIO/YEL	AE-25-8100
	FLASHERS						
17	WOLFMAN FLASHERS BB Insert	PF-?	Q47A	J9p5 (2) BACK		PANEL	PIN-PCB-TWSFLSH PIN-PCB-BBFLASH
18	BRIDE FLASHERS BB Insert	PF	Q50PB	J9p6			PIN-PCB-TRUFLSH PIN-PCB-BBFLASH
19	FRANKENSTEIN FLASHERS BB Insert	PF	Q50PA	J9p7 (2)			--- ---
20	DRAC COFFIN FLASHERS BB Insert	PF	Q46B	J17p2			PIN-PCB-TWSFLS2
21	CREATURE FLASHERS	PF	Q45B	JF21 (2)			PIN-PCB-TRUFLSH
22	JETS/MUMMY FLASHERS BB Insert	PF	Q45A Q33A	J19p4 (2) PL71			PIN-PCB-TWSFLS2 PIN-PCB-BBFLASH
23	RIGHT POPPER FLASHER	PF	Q40B	J19p3			PIN-PCB-TWSFLSH
24	FRANK ARROW FLASHER	PF	Q46B	CR90,CR91,CR92			PIN-PCB-MOTFLSH
25	MONSTERS OF ROCK FLSHR BB Insert	PF	Q43A	J8p9			PIN-PCB-TWSFLSH PIN-PCB-BBFLASH
26	WOLFMAN LOOP FLASHERS BB Insert	PF	Q47B	J9p3 (2)		WHT-ORG	AE-27-1200
27	FRANKENSTEIN MOTOR	PF	Q55	J6 p2,3	F1	BLU-BLK	PIN-A-14406
28	UP/DWN BANK MOTOR	PF	Q57	J7p2,3	F1	BLU-YEL	PIN-A-14406
05	LEFT GATE	PF	Q49B	J9p2	F1		PIN-A-27700
06	RIGHT GATE	PF	Q49A	J19p2	F1		PIN-A-27700
37	DRACULA MOTOR FORWARD	PF	U33p5	J23	F1		
38	DRACULA MOTOR BACKWARD	PF	U33p7	J23	F1		
	FLIPPERS						
29	FLIPPER RIGHT POWER	SP	Q124	J119	F116	GRA-RED	FL-11629
30	FLIPPER RIGHT HOLD	SP	Q131	J119	F116	GRA-BLK	Blue
31	FLIPPER LEFT POWER	SP	Q125	J119	F115	GRA-YEL	FL-11629
32	FLIPPER LEFT HOLD	SP	Q132	J119	F115	GRA-WHT	Blue
33-34	NOT USED	SP	Q126	J120	F118		
35-36	NOT USED	SP	Q128	J120	F117		
	GENERAL ILLUMINATION						
01	BOTTOM PLAYIELD	PF	Q64,Q65	PL3+4		WHT-BRN	___-___-____
02	TOP RIGHT PLAYIELD	PF	Q61,Q61	PL1		WHT-ORG	___-___-____
03	TOP LEFT PLAYIELD	PF	Q65,Q66	PL7		WHT-YEL	___-___-____
04	TOP INSERT	CONTRLR	Q5A	J4 P9		RED-GRN	PIN-PCB-24LEDBR
05	BOTTOM INSERT	CONTRLR	Q7A	J4 P13		BLK-YEL	PIN-PCB-24LEDBR

NOTES

SECTION THREE

GAME WIRING
AND SCHEMATICS

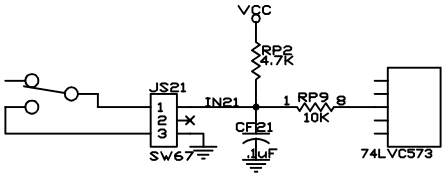
MONSTER BASH

Switch Table (NOT A MATRIX)

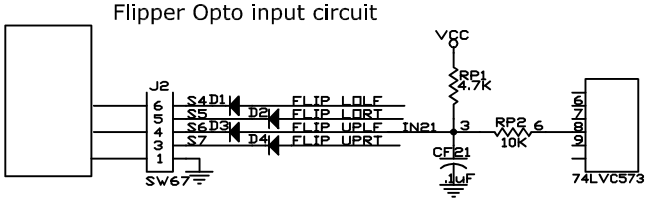
Cabinet switches are read by CONTROLLER Board

LEFT COIN CHUTE U4p2 I8 D1 J3p11	LAUNCH BALL U3p3 IN43 11 J2p9	SLAM TILT U4p5 I11 21 J3p7	TROUGH EJECT U11p1 IN31 31 JS31p8	NOT USED 41	LEFT SLINGSHOT U14p7 IN43 51 J16p6	LEFT LOOP LOW U16p2 IN61 61 J10p12	RIGHT RAMP ENTER U17p2 IN71 71 J7p8	UP/DOWN BANK UP U18p2 IN81 81 J7p4	LOW RT FLIP EOS U10p11 F1 J15p4
CENTER COIN CHUTE U4p3 I9 D2 J3p10	DARCULA STANDUP TOP U12p2 IN21 12 JS12	COIN DOOR CLOSED U2p5 I3 22 J2p7	TROUGH BALL 1 U11p3 IN32 32 JS31p7	LEFT FLIPPER OPTO U36p3 IN37 42 JS42	RIGHT SLINGSHOT U12p8 IN27 52 J15p5	LEFT LOOP HIGH U16p3 IN62 62 J10p8	RIGHT RAMP EXIT U17p3 IN72 72 J10p4	UP/DOWN BANK DOWN U18p2 IN82 82 J7p5	LOW RT FLIP OPTO BUTTON U3p7 F2 J2p5
RIGHT COIN CHUTE U4p4 I10 D3 J3p9	START BUTTON U3p2 IN53 13 J2p10	TOMB TREASURE U15p2 IN51 23 J18p1	TROUGH BALL 2 U11p5 IN33 33 JS31p6	RIGHT FLIPPER OPTO U3p5 IN38 43 JS43	LEFT JET U15p4 IN53 53 J10p3	RIGHT LOOP LOW U16p4 IN63 63 J17p7	RIGHT RAMP LOCK U17p4 IN73 73 JS73	FRANK TABLE DOWN U18p4 IN83 83 J6p4	LOW LEFT FLIP EOS U18p9 IN88 F3 J16p7
NOT USED D4	PLUMB BOB TILT U3p4 I2 14 J2p8	ALWAYS CLOSED 24	TROUGH BALL 3 IN34 U11p11 34 JS31p4	LEFT BLUE TARGET U14p6 IN44 44 JS44	RIGHT JET U15p5 IN54 54 J18p2	RIGHT LOOP HIGH U16p5 IN64 64 J18p6	DRACULA POSITION 5 IN74 U17p5 74 J300p3	FRANK TABLE UP U18p5 IN84 84 J6p5	LOW LEFT FLIP OPTO BUTTON U3p6 F4 J2p6
ESCAPE SVC CRDT U4p6 I12 D5 J3p6	DARCULA STANDUP BOTTOM U12p3 IN22 15 JS15	DRACULA TARGET U12p5 IN25 25 JS25	TROUGH BALL 4 IN35 U11p13 35 JS31p3	CENTER BLUE TARGET U14p5 IN45 45 JS45	BOTTOM JET U15p6 IN55 55 J17p6	CENTER LOOP U16p6 IN65 65 J10p2	DRACULA POSITION 4 IN75 U17p6 75 J300p4	LEFT UP/DOWN BANK TARGET U18p6 IN85 85 J7p6	Not Used F5
VOLUME DOWN U4p7 I13 D6 J3p5	LEFT OUTLANE U14p9 IN41 16 J16p4	LEFT RETURN LANE U14p8 IN42 26 J16p5	RIGHT POPPER U11p9 I36 36 JS36p5	RIGHT BLUE TARGET U14p4 IN46 46 JS46	LEFT TOP LANE U15p8 IN56 56 J10p2	LEFT RAMP ENTER U16p7 IN66 66 J10p10	DRACULA POSITION 3 IN76 U17p7 76 J300p5	RIGHT UP/DOWN BANK TARGET U18p7 IN86 86 J7p7	UP RIGHT FLIP OPTO U3p9 F6 J2p3
VOLUME UP U4p8 I14 D7 J3p4	RT RETURN LANE U12p7 IN26 17 J15p1	RIGHT OUTLANE U12p5 IN24 27 J15p6	NOT USED 37	LF FLIPPER PROXIMITY SENSOR U14p3 IN47 47 JS47p3	CENTER TOP LANE U15p8 IN57 57 J18p3	LEFT RAMP EXIT U16p8 IN67 67 JS67	DRACULA POSITION 2 IN77 U17p8 77 J300p6	FRANK HIT U18p8 IN87 87 J10p11	CENTER SPINNER IN51 F7 J10p6
BEGIN TEST U4p9 I15 D8 J3p3	SHOOTER LANE U15p9 IN23 18 J15p7	LEFT EJECT U12p9 IN28 28 JS28	NOT USED 38	RT FLIPPER PROXIMITY SENSOR U14p2 IN48 48 JS47p4	RIGHT TOP LANE U15p9 IN58 58 J18p5	CENTER RAMP ENTER U16p9 IN68 68 J10p7	DRACULA POSITION 1 IN78 U17p9 78 J300p7	NOT USED	UP LFT FLIP OPTO U3p8 F8 J2p4

Typical switch input circuit



Flipper Opto input circuit



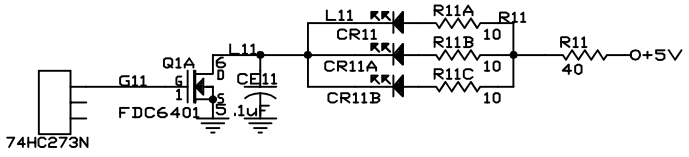
MONSTER BASH

Lamp Table (NOT A MATRIX) Cabinet lamp drivers are on the CONTROLLER Board

L11 Q11A MONSTER MOSH PIT J12p12	L21 Q16B RIGHT RAMP ARROW J12p2	L31 Q19B QUARTER MOON (2)	L41 Q15A LEFT RETURN	L51 Q27A GUITAR J8p2	L61 Q31A CREATURE	L71 Q35A LEFT FRANK ARM	L81 Q39A MUCK J80p2
L12 Q11B HALF MOON (2) J12p5	L22 Q16A ROCK C.D. J8p8	L32 Q41B LEFT BLUE TARGET	L42 Q23B LEFT OUTLANE J24	L52 Q27B DRUMS J8p3	L62 Q31B BRIDE	L72 Q36B LEFT FRANK LEG	L82 Q39B SEAWEED J80p3
L13 Q12A FRANK ARROW	L23 Q15B RIGHT RETURN	L33 Q21B TOMB TREASURE J33p3	L43 Q26A THREE-QUARTER MOON (2) J12p4	L53 Q29A BASS GUITAR J8p4	L63 Q32A FRANKEN-STEIN	L73 Q37A FRANK TORSO	L83 Q40A ALGAE J80p4
L14 Q12B DRAC-ATTACK	L24 Q15A FULL MOON FEVER (2) J12p3	L34 Q22A DRACULA STANUP TOP	L44 Q26B RIGHT BLUE TARGET	L54 Q28B KEYBOARD J8p5	L64 Q32B MUMMY	L74 Q38B FRANK HEAD	L84 Q40B POND SCUM J80p5
L15 Q13A CR15 EXTRA BALL J12p13	L25 Q17A RIGHT GARGLE J12p9	L35 Q22B RIGHT TOP LANE J19p6	L45 Q24B LEFT RAMP ARROW	L55 Q28A MICRO-PHONE J8p6	L65 Q33A WOLFMAN	L75 Q36A RIGHT FRANK LEG	L85 Q41A CENTER LOOP ARROW 2
L16 Q13B MONSTERS OF ROCK J12p10	L26 Q17B RIGHT WARM UP J12p8	L36 Q20B CENTER TOP LANE J19p7	L46 Q24A LEFT PRIMP	L56 Q29B SAXOPHONE J8p7	L66 Q33B DRACULA	L76 Q38A RIGHT FRANK ARM	L86 Q2A CENTER LOOP ARROW 1 J2p13
L17 Q14A MONSTER BASH J12p11	L27 Q18A RIGHT RAMP J12p7	L37 Q19A LEFT TOP LANE J19p8	L47 Q25B LEFT WARM UP	L57 Q30A CENTER LOOP ARROW 3 J33p4	L67 Q34A RIGHT OUTLANE	L77 Q37B LEFT LOOP ARROW J77	L87 LAUNCH BUTTON J2p13
L18 Q14B MUMMY MAYHEM	L28 Q18B RIGHT LOOP ARROW J17p5	L38 Q20A DRACULA STANUP BOTTOM	L48 Q23A LEFT GARGOYLE	L58 Q30B CENTER BLUE TARGET J58	L68 Q42B SHOOT AGAIN J16p2 G86	L78 Q35B EXTRA GI2 P87	L88 Q1B START BUTTON J2p12

GI LED#___ SOCKET#___	PF Left PF Right	GI1 Q42A	P93 P93B	BROWN WHT-BRN	GI2 Q42B	P94B P94	ORANGE WHT-ORG	GI3 Q43A	P95B P95	YELLOW WHT-YEL

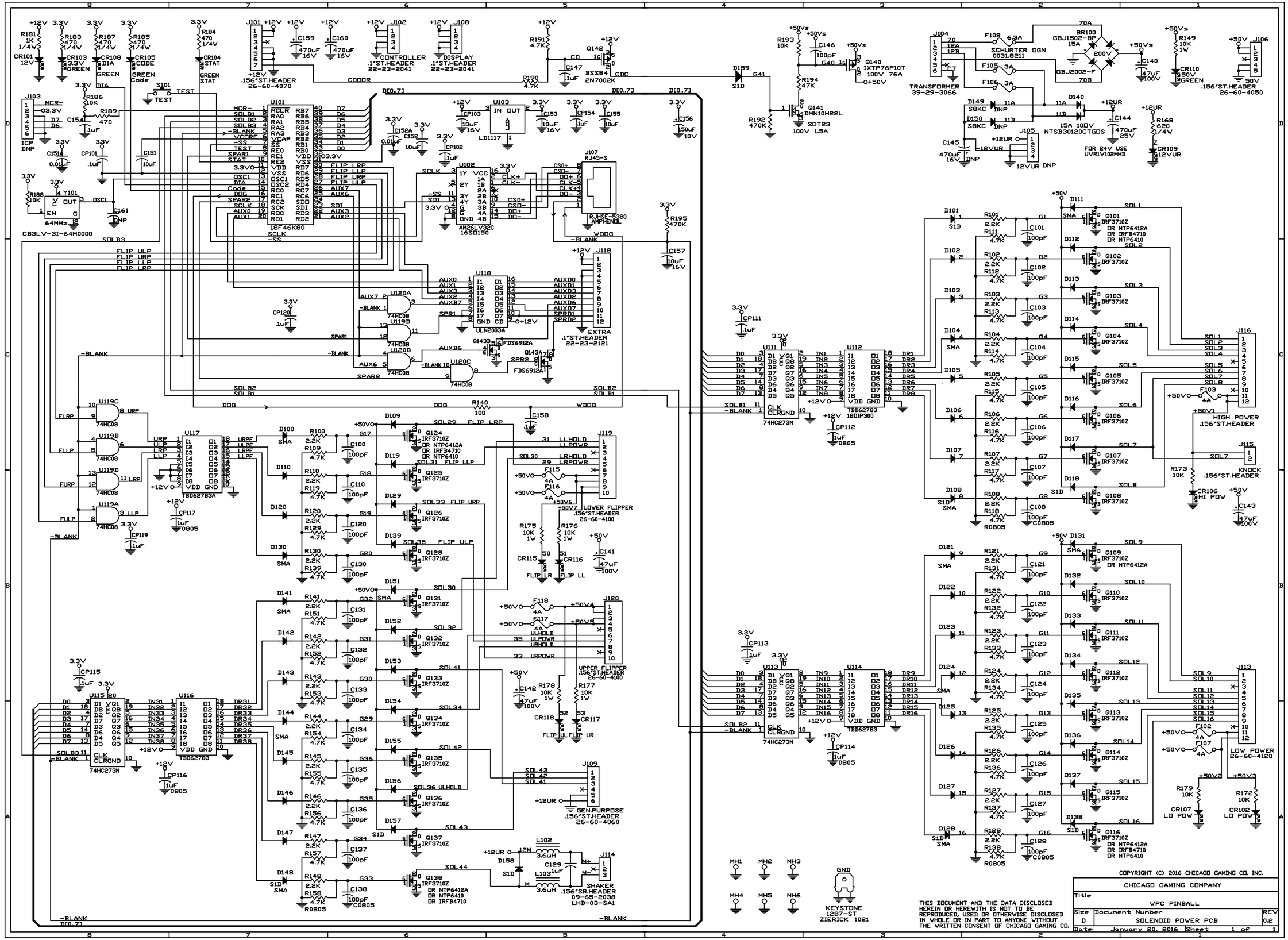
Typical Lamp circuit



SOLENOID/FLASHER TABLE

MONSTER BASH Solenoid - Flasher Table								
WMS#	Solenoids	Driver Brd	FET#	Con.	FUSE	WIRE COLOR	PART#
01	AUTO PLUNGER	SP	Q101	J116p1	F103	VIO/WHT	AE-24-900
02	BRIDE POST	SP	Q102	J116p2	F103	VIO/BLK	AE-26-1500
03	MUMMY COFFIN	SP	Q103	J116p3	F103	VIO/ORN	AE-27-1200
04	NOT USED	SP	Q104	J116p4	F103		
05	NOT USED	SP	Q105	J116p6	F103		
06	NOT USED	SP	Q106	J116p7	F103		
07	NOT USED	SP	Q107	J115p2	F103		
08	RAMP LOCK POST	SP	Q108	J116p9	F103	VIO/GRN	AE-27-1200
09	TROUGH EJECT	SP	Q109	J113p1	F107	VIO/RED	AE-26-1500
10	LEFT SLINGSHOT	SP	Q110	J113p2	F102	BRN/BLK	AE-26-1200
11	RGHT SLINGSHOT	SP	Q111	J113p4	F102	BRN/RED	AE-26-1200
12	LEFT JET	SP	Q112	J113p5	F102	BRN/ORN	AE-26-1200
13	RIGHT JET	SP	Q113	J113p6	F102	BRN/GRN	AE-26-1200
14	BOTTOM JET	SP	Q114	J113p7	F102	BRN/YEL	AE-26-1200
15	LEFT EJECT	SP	Q115	J113p8	F107	BRN/WHT	AE-30-2000
16	RIGHT POPPER	SP	Q116	J113p9	F107	VIO/YEL	AE-25-8100
	FLASHERS						
17	WOLFMAN FLASHERS BB Insert	PF-?	Q47A	J9p5 (2) BACK		PANEL	PIN-PCB-MOTFLS PIN-PCB-BBFLASH
18	BRIDE FLASHERS BB Insert	PF	Q50PB	J9p6			PIN-PCB-TRUFLSH PIN-PCB-BBFLASH
19	FRANKENSTEIN FLASHERS BB Insert	PF	Q50PA	J9p7	(2)		PIN-LMP-T3DBLCW PIN-PCB-BBFLASH
20	DRAC COFFIN FLASHERS BB Insert	PF	Q46B	J17p2			PIN-PCB-TRUFLS2 PIN-PCB-BBFLASH
21	CREATURE FLASHERS	PF	Q45B	JF21	(2)		PIN-PCB-THINFLS
22	JETS/MUMMY FLASHERS BB Insert	PF	Q45A Q33A	J19p4 PL71	(2)		PIN-PCB- TRUFLSH PIN-PCB-BBFLASH
23	RIGHT POPPER FLASHER	PF	Q40B	J19p3			PIN-PCB-3PNFLSH
24	FRANK ARROW FLASHER	PF	Q46B	CR90,CR91,CR92			MB-PCB-PLAYFLD
25	MONSTERS OF ROCK FLSHR BB Insert	PF	Q43A	J8p9			MB-PCB-7LAMP PIN-PCB-BBFLASH
26	WOLFMAN LOOP FLASHERS BB Insert	PF	Q47B	J9p3	(2)	WHT-ORG	AE-27-1200
27	FRANKENSTEIN MOTOR	PF	Q55	J6 p2,3	F1	BLU-BLK	PIN-14-HTSOG37C
28	UP/DWN BANK MOTOR	PF	Q57	J7p2,3	F1	BLU-YEL	PIN-14-HTSOG37C
05	LEFT GATE	PF	Q49B	J9p2	F1		PIN-A-27700
06	RIGHT GATE	PF	Q49A	J19p2	F1		PIN-A-27700
37	DRACULA MOTOR FORWARD	PF	U33p5	J23	F1		PIN-14-8034
38	DRACULA MOTOR BACKWARD	PF	U33p7	J23	F1		
	FLIPPERS						
29	FLIPPER RIGHT POWER	SP	Q124	J119	F116	GRA-RED	FL-11629
30	FLIPPER RIGHT HOLD	SP	Q131	J119	F116	GRA-BLK	Blue
31	FLIPPER LEFT POWER	SP	Q125	J119	F115	GRA-YEL	FL-11629
32	FLIPPER LEFT HOLD	SP	Q132	J119	F115	GRA-WHT	Blue
33-34	NOT USED	SP	Q126	J120	F118		
35-36	NOT USED	SP	Q128	J120	F117		
	GENERAL ILLUMINATION						
01	BOTTOM PLAYFIELD	PF	Q64,Q65	PL3+4		WHT-BRN	PIN-LMP-LEDRGB
02	TOP RIGHT PLAYFIELD	PF	Q61,Q61	PL1		WHT-ORG	PIN-LMP-LEDRGB
03	TOP LEFT PLAYFIELD	PF	Q65,Q66	PL7		WHT-YEL	PIN-LMP-LEDRGB
04	TOP INSERT	CONTRLR	Q5A	J4 P9		RED-GRN	PIN-PCB-24LEDBR
05	BOTTOM INSERT	CONTRLR	Q7A	J4 P13		BLK-YEL	PIN-PCB-24LEDBR

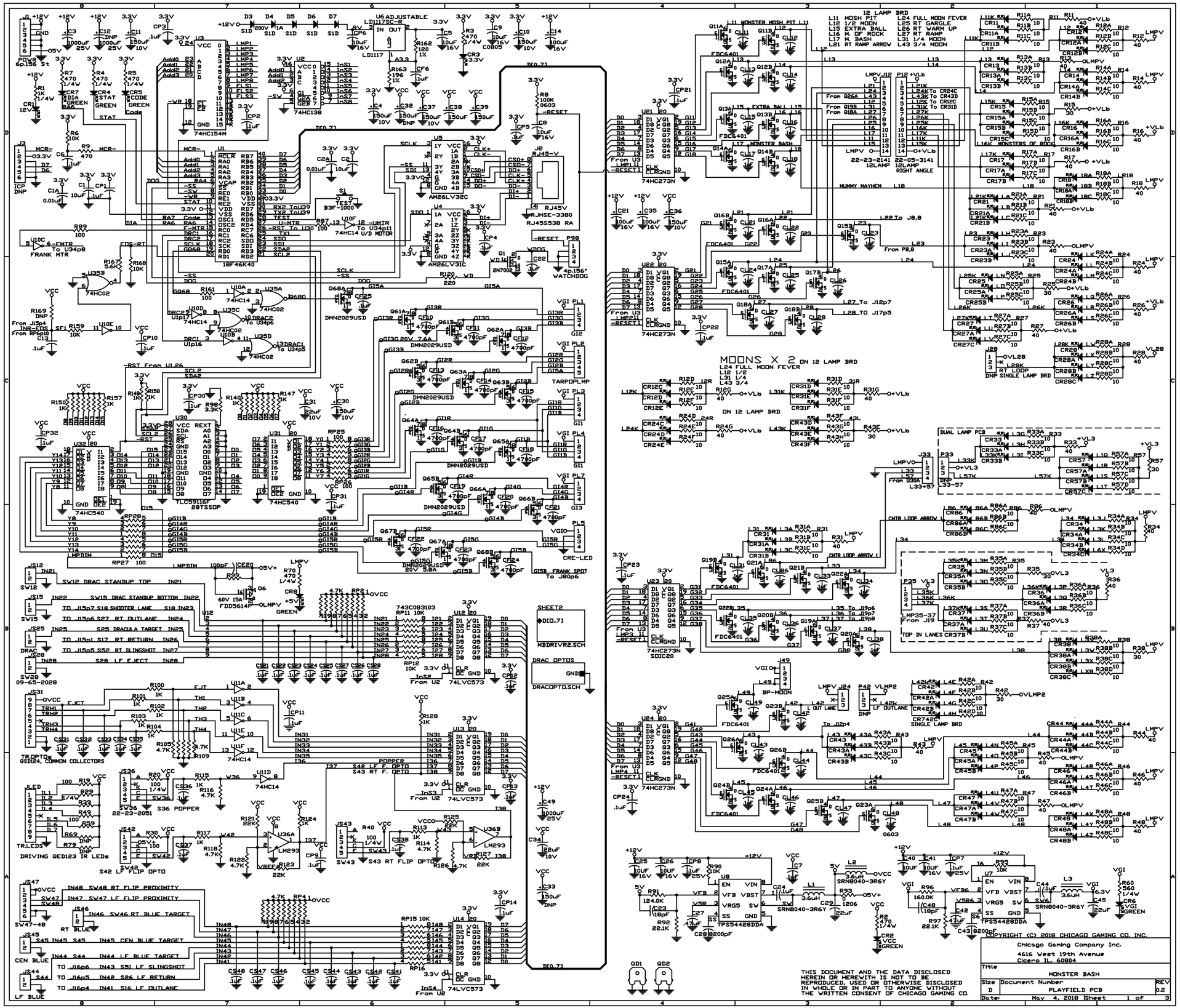
MB Solenoid Board Schematic



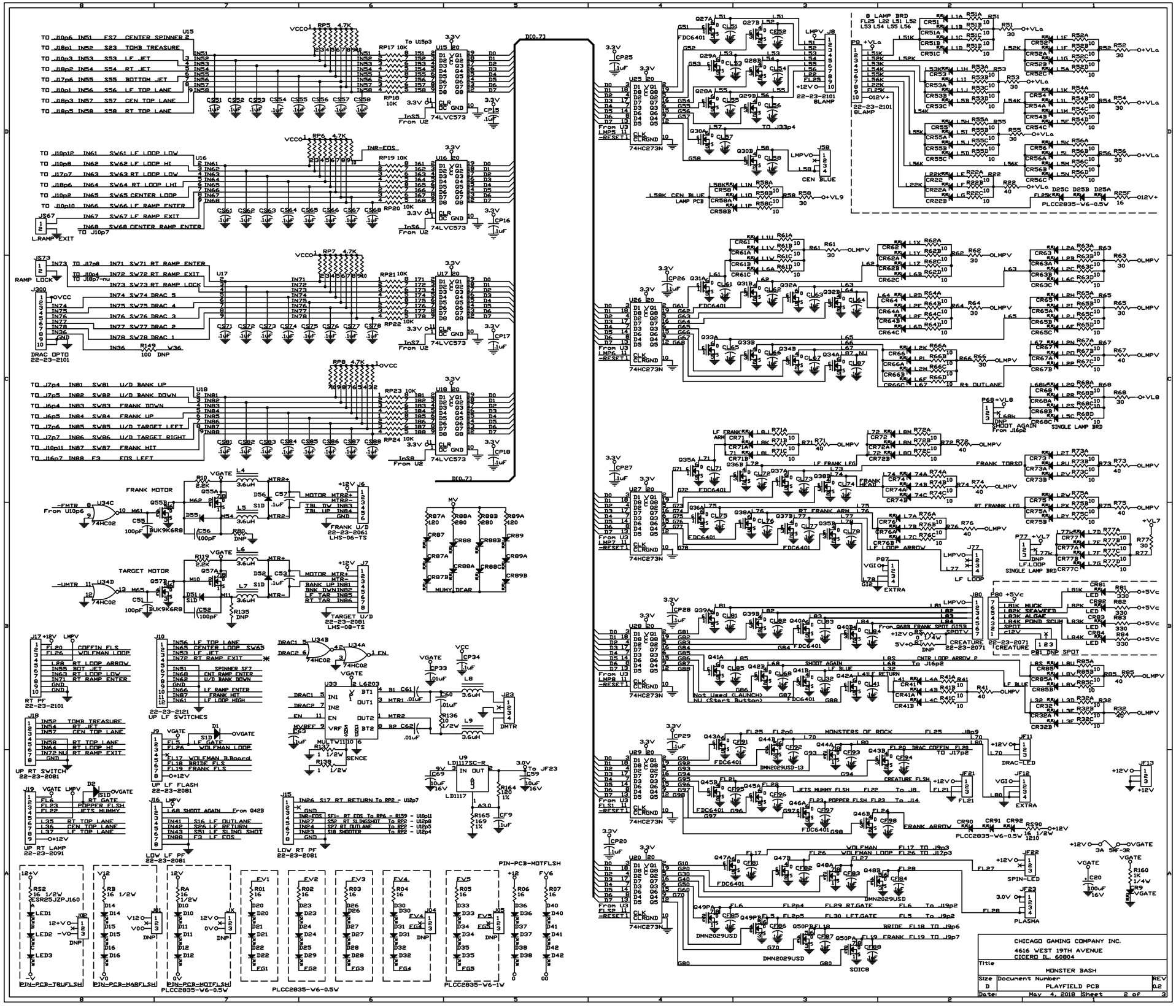
CHICAGO GAMING COMPANY

Title	WPC PINBALL	
Size D	Document Number SOLENOID POWER PCB	REV 0.2
Date: January 20, 2016	Sheet 1 of 1	

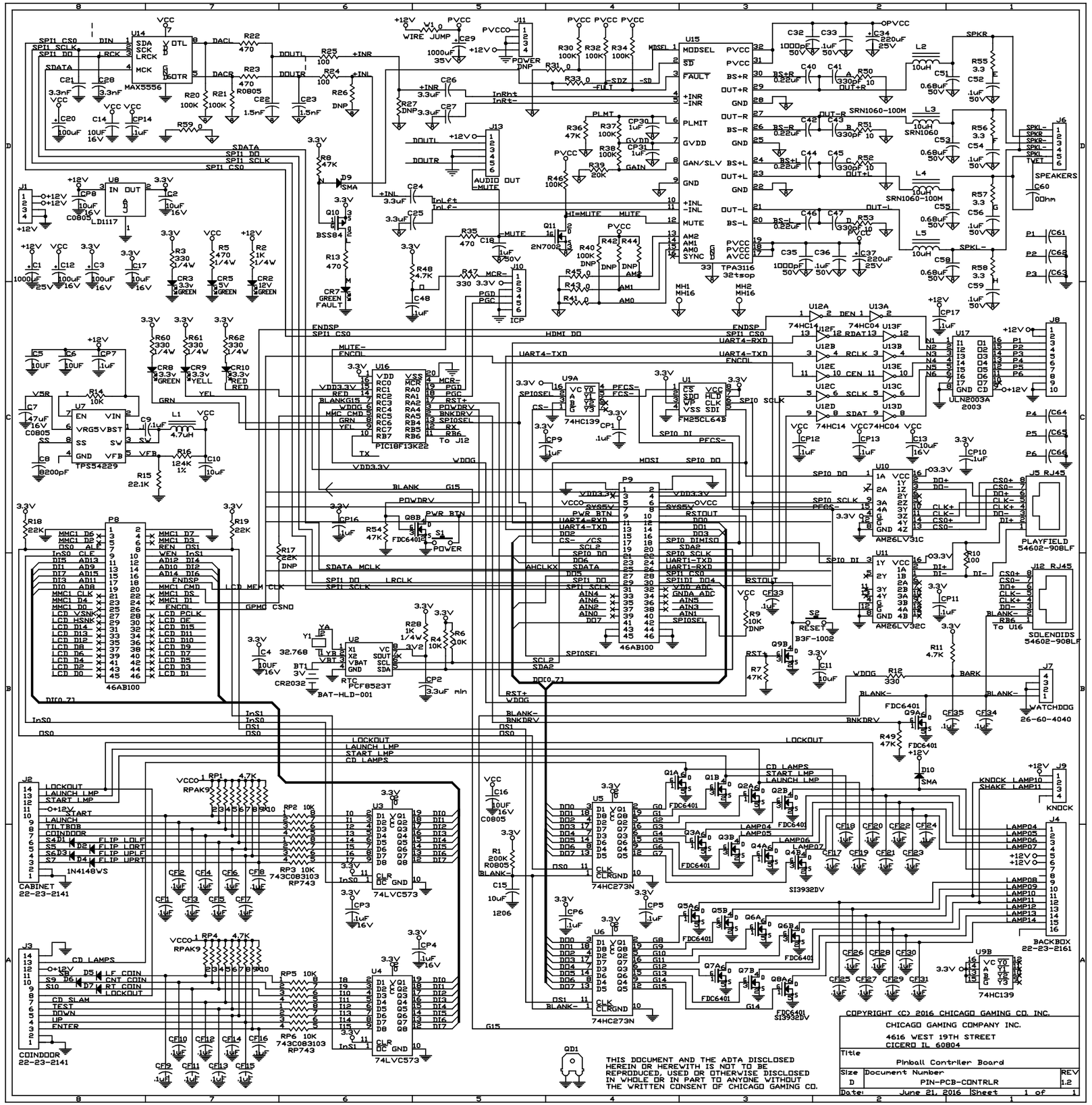
MB Playfield Board Schematic 1 of 2



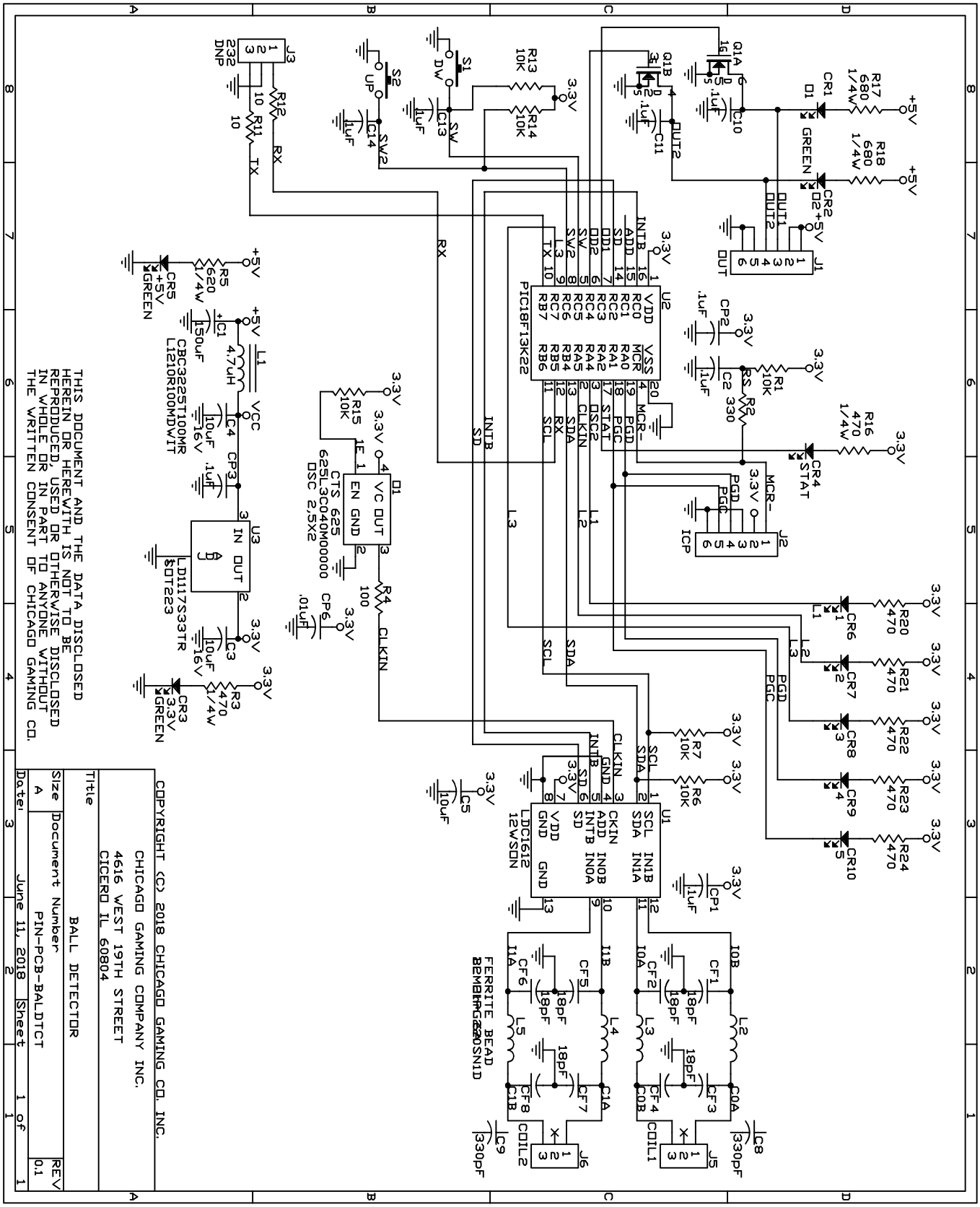
MB Playfield Board Schematic 1 of 2



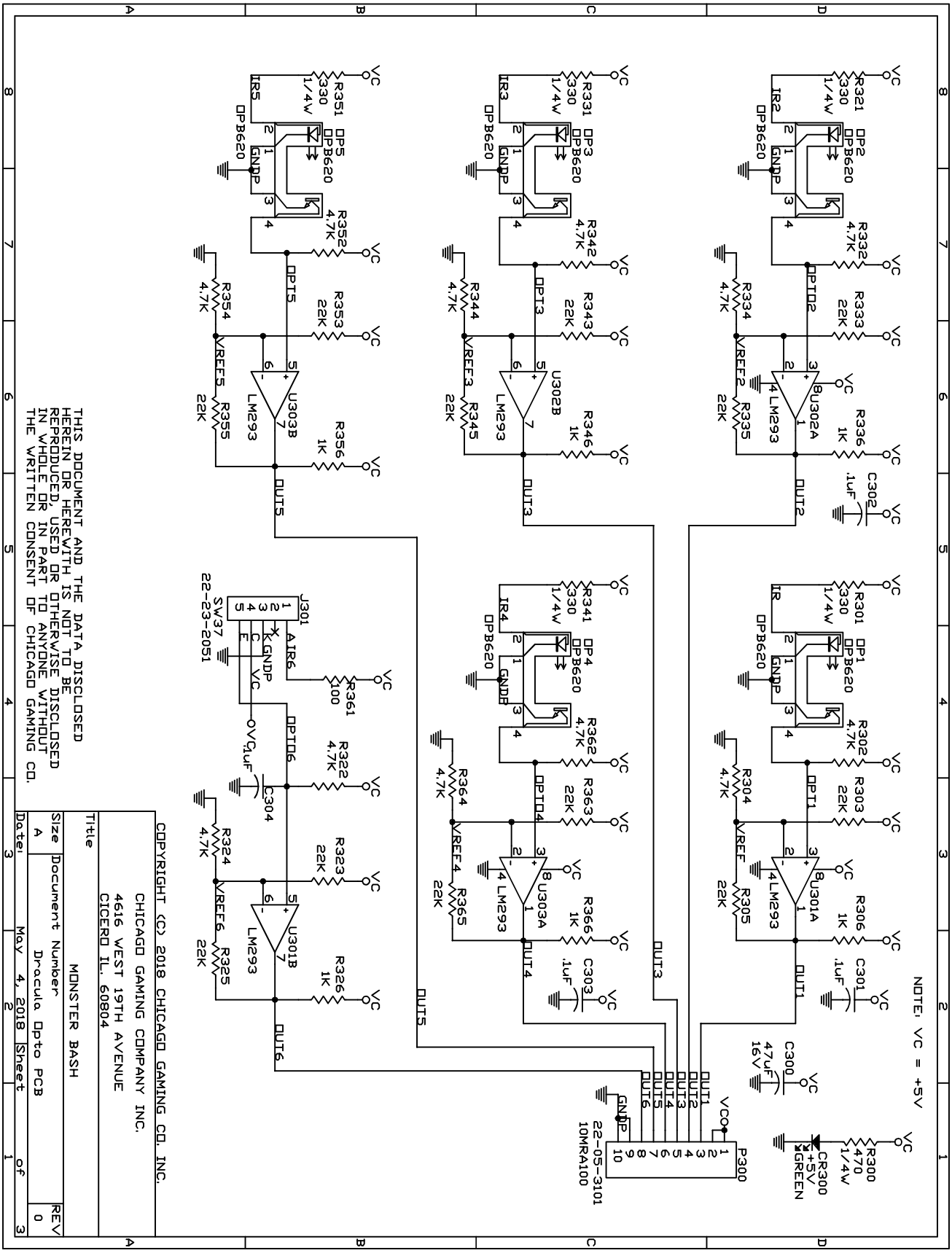
MB Controller Board Schematic



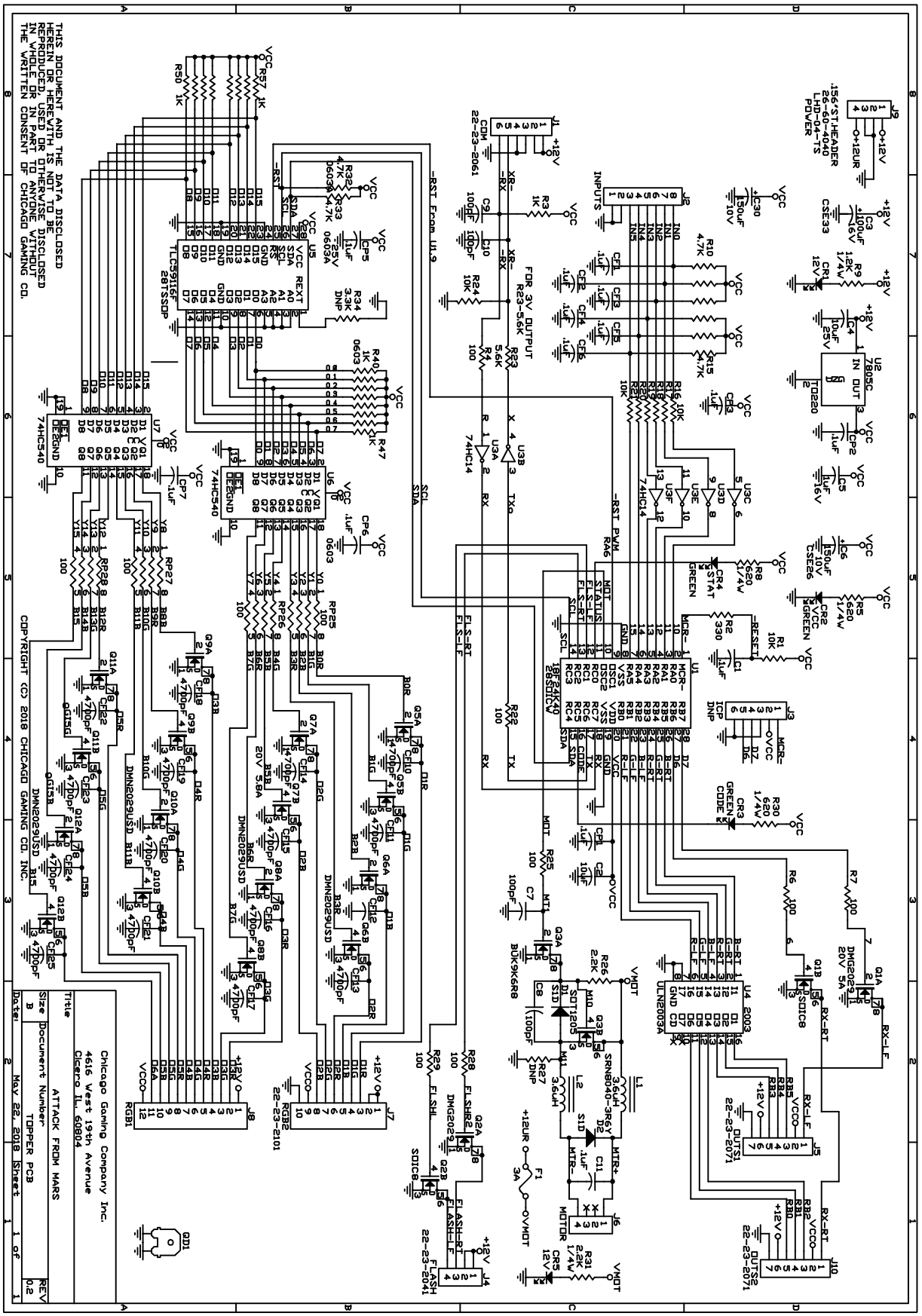
MB Ball Detector Board Schematic



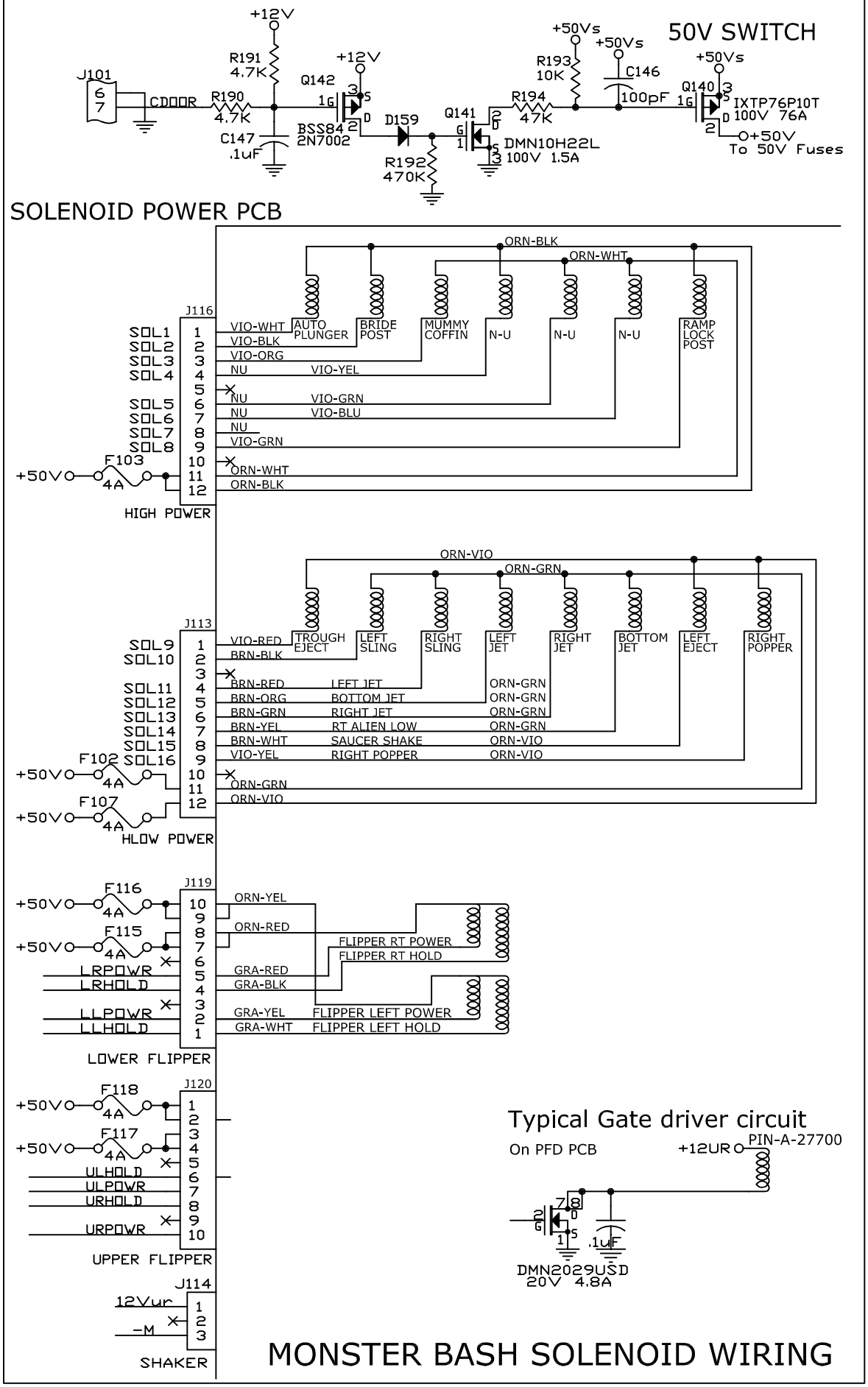
MB Drac Opto Board Schematic



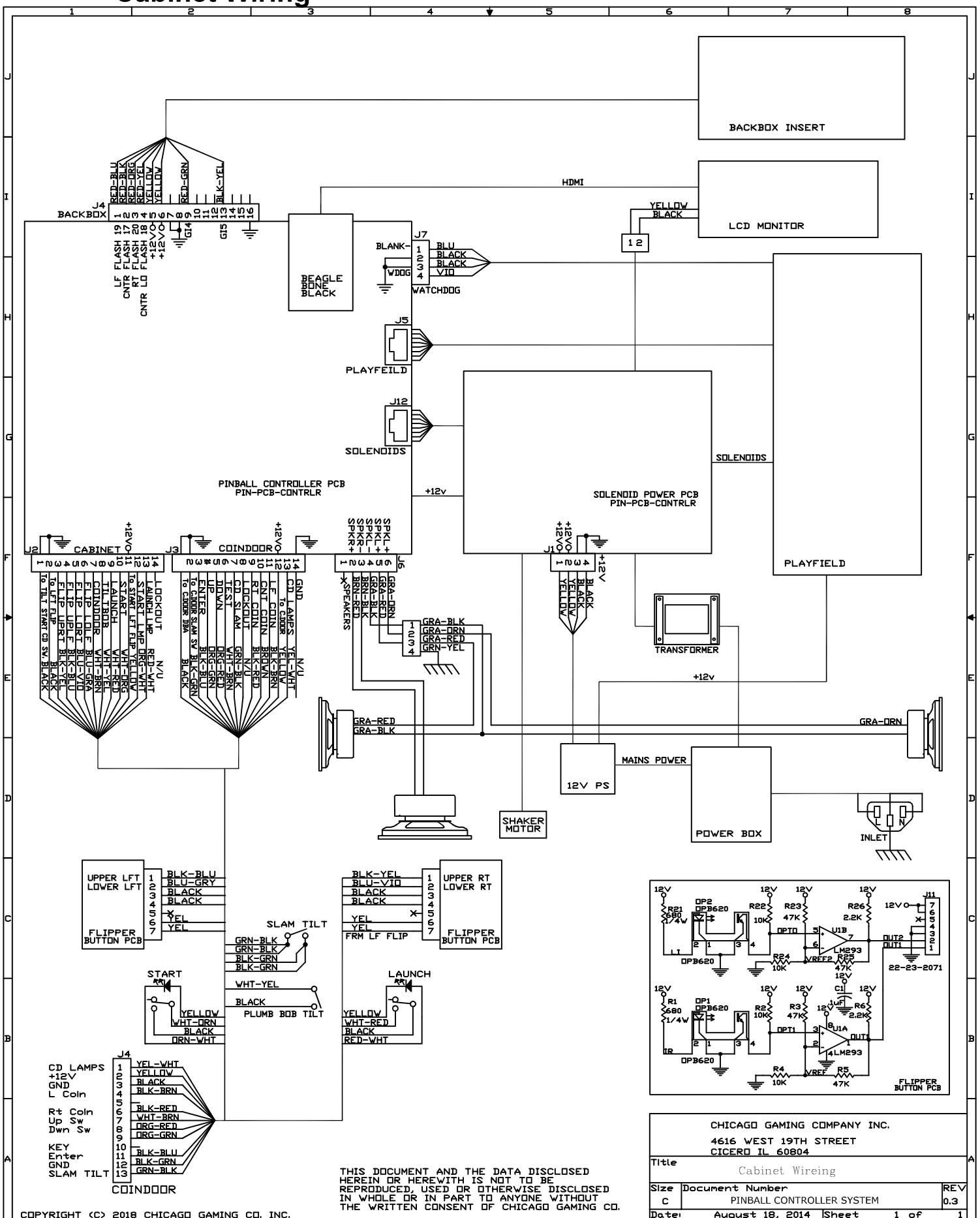
Topper Schematic



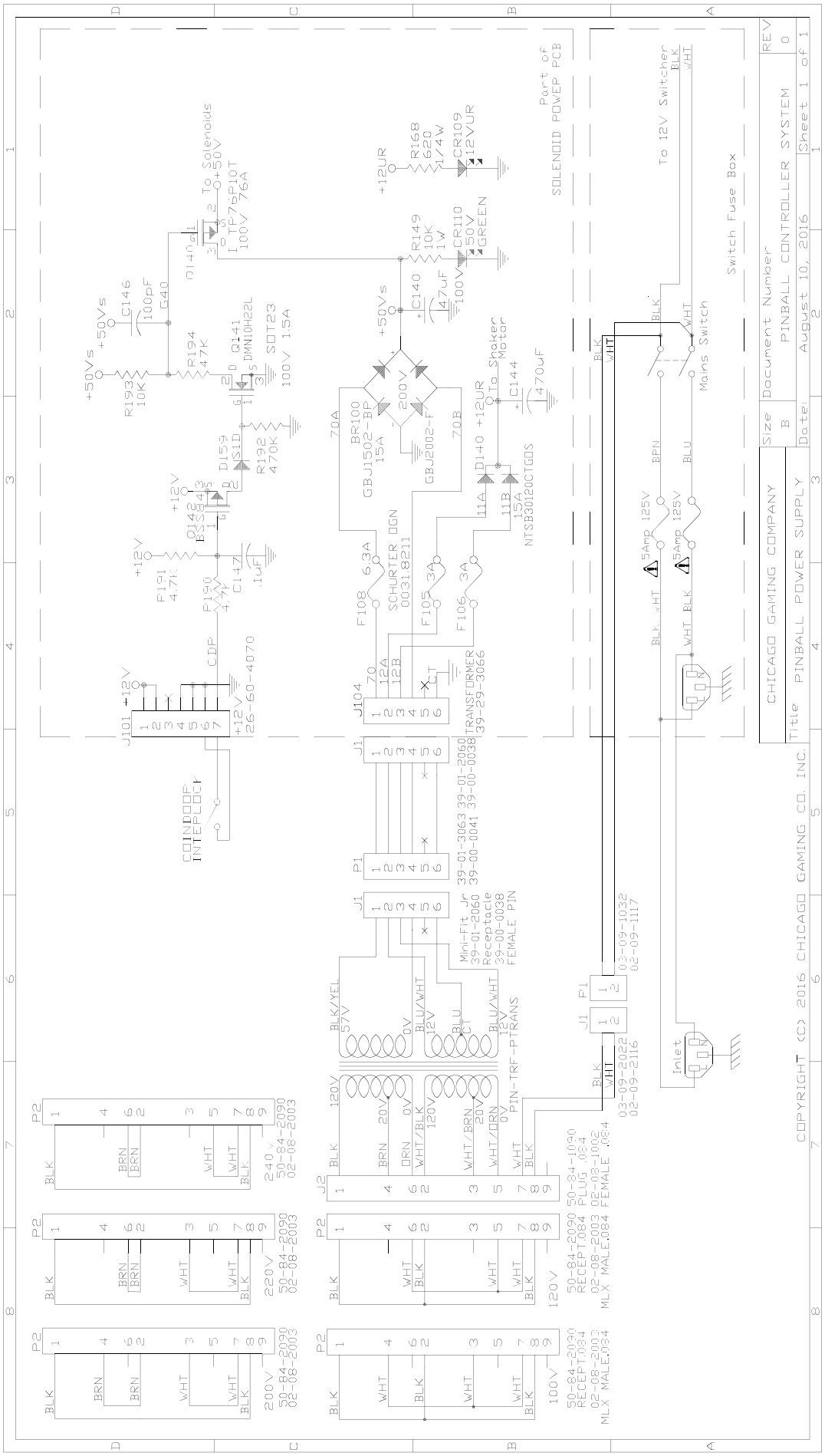
Solenoid Wiring



Cabinet Wiring



AC Wiring


CHICAGO GAMING COMPANY
PINBALL POWER SUPPLY
Document Number
PINBALL CONTROLLER SYSTEM
August 10, 2016
Sheet 1 of 1
REV 0
COPYRIGHT (C) 2016 CHICAGO GAMING CO. INC.
Switch Fuse Box
Mains Switch
To 12V Switcher
Inlet
To Solenoids
To Shaker Motor
Part of SOLENOID POWER PCB
COINDOOR INTERLOCK
TRANSFORMER 39-29-3066
SCHURTER OGN 0031.8211
BR100 GBJ1502-BP 15A
GBJ2002-F
NTSB3012CTGOS
Mini-Fit Jr 39-01-2060
Receptacle 39-00-0038
FEMALE PIN
PIN-TRF-PTRANS
50-84-2090 RECEPT.084 PLUG .084
02-08-2003 MLX MALE.084
02-08-1002 FEMALE .084
03-09-1032
02-09-1117
03-09-2022
02-09-2116
240V 50-84-2090 02-08-2003
220V 50-84-2090 02-08-2003
200V 50-84-2090 02-08-2003
120V 50-84-2090 02-08-2003
100V 50-84-2090 02-08-2003

NOTES

NOTES

MONSTER BASH

Lamp Table (NOT A MATRIX)

Cabinet lamp drivers are on the CONTROLLER Board

L11 Q11A MONSTER MOSH PIT	L21 Q16B RIGHT RAMP ARROW	L31 Q19B QUARTER MOON (2)	L41 Q42A LEFT RETURN	L51 Q27A GUITAR J8p2	L61 Q31A CREATURE	L71 Q35A LEFT FRANK ARM	L81 Q35A MUCK J80p2
L12 Q11B HALF MOON (2)	L22 Q16A ROCK C.D.	L32 Q21A LEFT BLUE TARGET	L42 Q23B LEFT OUTLANE J24	L52 Q27B DRUMS J8p3	L62 Q31B BRIDE	L72 Q36B LEFT FRANK LEG	L82 Q39B SEAWEED J80p3
L13 Q12A FRANK ARROW	L23 Q15B RIGHT RETURN	L33 Q21B TOMB TREASURE J33p3	L43 Q26A THREE-QUARTER MOON (2)	L53 Q29A BASS GUITAR J8p4	L63 Q32A FRANKEN-STEIN	L73 Q37A FRANK TORSO	L83 Q40A ALGAE J80p4
L14 Q12B DRAC-ATTACK	L24 Q15A FULL MOON FEVER (2)	L34 Q22A DRACULA STANUP TOP	L44 Q26B RIGHT BLUE TARGET	L54 Q28B KEYBOARD J8p5	L64 Q32B MUMMY	L74 Q38B FRANK HEAD	L84 Q38A POND SCUM J80p5
L15 Q13A EXTRA BALL	L25 Q17A RIGHT GARGLE	L35 Q22B RIGHT TOP LANE	L45 Q24B LEFT RAMP ARROW	L55 Q28A MICRO-PHONE J8p6	L65 Q33A WOLFMAN	L75 Q36A RIGHT FRANK LEG	L85 Q41A CENTER LOOP ARROW 2
L16 Q13B MONSTERS OF ROCK	L26 Q17B RIGHT WARM UP	L36 Q20B CENTER TOP LANE	L46 Q24A LEFT PRIMP	L56 Q29B SAXOPHONE J8p7	L66 Q33B DRACULA	L76 Q38A RIGHT FRANK ARM	L86 Q21A CENTER LOOP ARROW 1 J2p13
L17 Q14A MONSTER BASH	L27 Q18A RIGHT RAMP	L37 Q19A LEFT TOP LANE	L47 Q25B LEFT WARM UP	L57 Q30A CENTER LOOP ARROW 3 J33p4	L67 Q34B RIGHT OUTLANE	L77 Q37B LEFT LOOP ARROW	L87 LAUNCH BUTTON
L18 Q14B MUMMY MAYHEM	L28 Q18B RIGHT LOOP ARROW	L38 Q20A DRACULA STANUP BOTTOM	L48 Q23A LEFT GARGOYLE	L58 Q30B CENTER BLUE TARGET J58	L68 Q42B SHOOT AGAIN J16p2	L78 Q35B NOT USED J6p8	L88 Q1B START BUTTON J2p12
GI LED#___ PF Left SOCKET#___ PF Right	GI1 P93 BROWN Q42A P93B WHT-BRN	GI2 P94B ORANGE Q42B P94 WHT-ORG	GI3 P95B YELLOW Q43A P95 WHT-YEL				

Cabinet switches are read by CONTROLLER Board

MONSTER BASH

Switch Table (NOT A MATRIX)

LEFT COIN CHUTE U4p2 D1 IN43	LAUNCH BALL U3p3 11 IN43	SLAM TILT U12p5 21 21	TROUGH EJECT JS31p8 31 U13p2	NOT USED 41	LEFT SLINGSHOT SF7 U14p7 51 IN43	LEFT LOOP LOW U16p2 61 IN61	RIGHT RAMP ENTER U17p2 71 J7p	UP/DOWN BANK UP U18p2 81 J7p4	LOW RT FLIP EOS U15p2 F1 J15p4
CENTER COIN CHUTE U4p3 D2 IN27	DARCULA STANDUP TOP U12p2 12 IN21	COIN DOOR CLOSED S22 22 22	TROUGH BALL 1 JS31p7 32 U13p3	LEFT FLIPPER OPTO U13p8 42 IN37	RIGHT SLINGSHOT U12p8 52 J15p5	LEFT LOOP HIGH U16p3 62 IN62	RIGHT RAMP EXIT U17p3 72 J7p	UP/DOWN BANK DOWN U18p2 82 J7p5	LOW RT FLIP OPTO BUTTON J2p5 F2 U3p7
RIGHT CHUTE F1 U4p4 D3 IN53	START BUTTON U3p2 13 IN53	TOMB TREASURE U15p2 23 IN51	TROUGH BALL 2 JS31p6 33 U13p4	RIGHT FLIPPER OPTO U13p9 43 IN38	LEFT JET U15p4 53 IN53	RIGHT LOOP LOW U16p4 63 IN63	RIGHT RAMP LOCK U17p4 73 JS73p1	FRANK TABLE DOWN U18p 83 J6p4	LOW LEFT FLIP EOS U18p9 F3 J16p7
NOT USED D4	PLUMB BOB TILT U3p4 14 IN54	ALWAYS CLOSED 24	TROUGH BALL 3 JS31p4 34 U13p5	LEFT BLUE TARGET U14p6 44 JS44	RIGHT JET U15p5 54 IN54	RIGHT LOOP HIGH U16p5 64 IN64	DRACULA POSITION 5 S74 U17p5 74 J300p3	FRANK TABLE UP U18p 84 J6p5	LOW LEFT FLIP OPTO BUTTON J2p6 F4 U3p6
ESCAPE SVC CRDT U4p6 D5 IN55	DARCULA STANDUP BOTTOM U12p3 15 IN22	DRACULA TARGET U12p5 25 IN25	TROUGH BALL 4 JS31p3 35 U13p6	CENTER BLUE TARGET U14p5 45 JS45	BOTTOM JET U15p6 55 IN55	CENTER LOOP U16p6 65 IN65	DRACULA POSITION 4 S75 U17p6 75 J300p4	LEFT UP/DOWN BANK TARGET U18p 85 J7p6	UP RT FLIP EOS Not Used J9p3 F5
VOLUME DOWN U4p7 D6 IN56	LEFT OUTLANE U14p9 16 IN41	LEFT RETURN LANE U14p8 26 J15p1	RIGHT POPPER JS36p5 36 U13p7	RIGHT BLUE TARGET U14p4 46 JS46	LEFT TOP LANE U15p8 56 IN56	LEFT RAMP ENTER U16p7 66 IN66	DRACULA POSITION 3 S76 U17p7 76 J300p5	RIGHT UP/DOWN BANK TARGET U18p 86 J7p7	UP RIGHT FLIP OPTO J2p3 F6 U3p9
VOLUME UP U4p8 D7 IN57	RT RETURN LANE U12p7 17 J15p1	RIGHT OUTLANE U12p5 27 J15p6	NOT USED 37	LF FLIPPER PROXIMITY SENSOR U14p3 47 JS47p3	CENTER TOP LANE U15p8 57 IN57	LEFT RAMP EXIT U16p8 67 IN67	DRACULA POSITION 2 S77 U17p8 77 J300p6	FRANK HIT U18p8 87 J10p11	CENTER SPINNER J10p6 F7 IN52
BEGIN TEST U4p9 D8 IN	SHOOTER LANE U15p9 18 J15p7	LEFT EJECT U12p9 28 IN28	NOT USED 38	RT FLIPPER PROXIMITY SENSOR U14p2 48 JS47p4	RIGHT TOP LANE U15p9 58 IN	CENTER RAMP ENTER U16p9 68 IN68	DRACULA POSITION 1 S78 U17p9 78 J300p7	NOT USED LEFT EOS U18p9 SF3 J16p7	UP LFT FLIP OPTO J2p4 U3p8 F8 F8