



Game Manual

VERSION 1.0 – OCTOBER 2023



WARNING!

IMPORTANT: DO **NOT** UNPLUG BOARD CONNECTORS WHILE THE MACHINE IS POWERED ON. DOING SO CAN CAUSE SEVERE DAMAGE TO THE BOARD. PLEASE NOTE THAT ANY DAMAGE RESULTING FROM THIS ACTION IS **NOT** COVERED UNDER AMERICAN PINBALL'S WARRANTY. YOU WILL BE HELD RESPONSIBLE FOR ALL ASSOCIATED COSTS. **THERE WILL BE NO EXCEPTIONS.**

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PART NUMBER: DOC0022-00

Contents

DISCLAIMERS	vii
LIMITED WARRANTY	vii
COVERAGE	vii
CONDITIONS	vii
EXCLUSIONS	vii
DISCLAIMER OF IMPLIED WARRANTY	vii
DISCLAIMER OF DAMAGE	vii
CAUTIONS, WARNINGS & NOTICES	viii
COMPLIANCE, LEGAL AND WARNINGS	ix
REGIONAL CONTACTS	x
LIST OF TABLES	v
LIST OF FIGURES	vi
CHAPTER 1: OVERVIEW	1
ABOUT THE MANUAL	1
POST POSITIONS AND PARTS LIST	2
RUBBER POSITIONS AND PARTS LIST	3
CHAPTER 2: UNPACKING	4
UNPACKING	4
TOOLS REQUIRED FOR UNPACKING	4
LEVELING YOUR AMERICAN PINBALL MACHINE	7
PHONE APPS FOR LEVELING	7
CHAPTER 3: SERVICE MENU	8
GALACTIC TANK FORCE SERVICE MENU	8
API COCKPIT	9
TESTS	11
SWITCH TESTING	13
PLAYFIELD SWITCH MAP	14
PLAYFIELD COIL MAP	15
COIL TESTING	16
LED TESTING	16
DISPLAY AND SOUND TEST	16
COIL INTERLOCK SWITCH	16
COIL ADJUSTMENT SETTINGS	17

COIL SETUP	17
FEATURE ADJUSTMENT SETTINGS	18
COIN DOOR AND DOLLAR BILL ACCEPTOR INFORMATION	19
PRICING ADJUSTMENT SETTINGS.....	20
REPLAY ADJUSTMENT SETTINGS.....	22
SOUND ADJUSTMENT SETTINGS	23
AMPLIFIER SETTINGS.....	23
HOW TO CREATE A CUSTOM MESSAGE	24
STANDARD ADJUSTMENT SETTINGS	25
PRESETS.....	26
SWITCH THEORY	29
CABINET CIRCUIT BOARDS ASSEMBLY.....	32
POWER DISTRIBUTION.....	33
BOTTOM PLAYFIELD PDB DIP SWITCH POSITIONS.....	34
RGB CABLE POSITIONS.....	35
RGB COMMUNICATION CABLE POSITIONS	36
SWITCH COMMUNICATION CABLE POSITIONS	37
FLASHER CABLE POSITIONS	38
SPYBOT CABLE POSITIONS.....	38
CHAPTER 4:	39
TANK FORCE CODE UPDATE.....	39
COLLECTING GAME LOGS	41
CHAPTER 5:	42
TANK FORCE GAME RULES	42
MAIN OBJECTIVES	42
OVERVIEW OF GAMEPLAY.....	42
SKILL SHOTS (2).....	44
MULTIBALL MODES (3)	44
WIZARD MODES (3).....	45

LIST OF TABLES

Table 0-1 Document Revision History	ix
Table 1-1 Manual Overview	1
Table 1-2 Commonly used terms in the Service Manual documentation	1
Table 1-3 Post Positions Parts List	2
Table 1-4 Rubber Positions Parts List	3
Table 3-1 Service Menu Icons	9
Table 3-2 Service Menu Icons Continued	10
Table 3-3 Test Menu Icons	11
Table 3-4 API Cockpit Navigation	13
Table 3-5 Coil Settings	17
Table 3-6 Feature Adjustment Settings	18
Table 3-7 Coin Door Parts List	19
Table 3-8 DBA Pin Locations	19
Table 3-9 Price Table	20
Table 3-10 Pricing Adjustment Settings	21
Table 3-11 Replay Adjustment Settings	22
Table 3-12 Sound Adjustment Settings	23
Table 3-13 Standard Adjustments	25
Table 3-14 Presets	27
Table 3-15 Switch Table	28
Table 3-16 Switch Table Continued	29
Table 3-17 Opto Board Switches	30
Table 3-18 Coil Positions	31
Table 3-19 Fuse Table	31

LIST OF FIGURES

Post Positions	2
Rubber Positions	3
Authorized American Pinball Box.....	4
API Cockpit	9
Service Menu Buttons	12
Service Testing Menu	12
Switch Testing Menu	13
Playfield Switch Map.....	14
Playfield Coil Map	15
Interlock Switch.....	16
DBA Connector Pin Outs	19
Opto Board Connector Positions.....	30
Cabinet Circuit Boards Assembly	32
Power Distribution	33
Bottom Playfield PCB Dip Switches	34
RGB Cable Positions	35
RGB Communication Cable Positions.....	36
Switch Communication Cable Positions	37
Flasher Cable Positions	38
Spybot Cable Positions.....	38

DISCLAIMERS

LIMITED WARRANTY

American Pinball Inc. (hereafter "Seller") provides a limited warranty to the original purchaser, guaranteeing that the items specified below are free from defects in materials and workmanship under normal use for the specified warranty period. This warranty is non-transferable.

COVERAGE

This Limited Warranty covers:

1. All machine parts, except for standard plastics, bumper posts, rubber rings, and wear-and-tear parts, for **90 days** from the date of invoice or distributor shipment.
2. The LCD monitor for **1 year** from the date of invoice or distributor shipment.

CONDITIONS

The **original purchaser** must complete the Product Registration Form on the American Pinball website within 15 days of receipt: <https://www.american-pinball.com/support/register/>

For warranty parts or service assistance, open a **Service Ticket** by visiting <https://www.american-pinball.com/support/service/> or calling **1-833-API-HELP**.

Service-related questions can be sent via e-mail to service@american-pinball.com.

Defective parts must be sent to American Pinball at the purchaser's expense. If removal is not possible, the entire machine must be returned to the distributor for repair or replacement. All parts must be properly packaged with an RMA tag or Service Ticket and returned with prepaid freight to the Sellers facility.

EXCLUSIONS

This Limited Warranty excludes service, labor, and shipping and handling costs. Damage, wear, or breakage not caused by defective materials or workmanship, as well as those incurred during shipping, are excluded from this warranty.

DISCLAIMER OF IMPLIED WARRANTY

Except as specifically provided in a written contract between Seller and Purchaser, there are no other warranties, express or implied, including any implied warranties of merchantability or fitness for a particular purpose.

DISCLAIMER OF DAMAGE

This warranty does not apply to any parts damaged to improper handling or due to improper installation, usage, or alteration, in no event shall the Seller be held liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages or any other losses incurred by the customer regarding the purchase of an AMERICAN PINBALL, INC. product.



CAUTIONS, WARNINGS & NOTICES

CAUTION!

FOR SAFETY AND RELIABILITY, DO NOT SUBSTITUTE PARTS, EQUIPMENT OR ADD GAME CIRCUITRY MODIFICATIONS. SUCH MODIFICATIONS MAY ADVERSELY AFFECT GAME PLAY OR CAUSE INJURIES AND MAY RESULT IN VOIDING OF THE WARRANTY. ALWAYS TRANSPORT PINBALL GAMES WITH THE HINDGE BACKBOX IN THE FOLDED POSITION. CONTACT AUTHORIZED SERVICE PERSONNEL BEFORE PERFORMING ANY REPAIR. ANY SUCH REPAIRS SHOULD BE DONE WITH THE LINE VOLTAGE DISCONNECTED. FOR SERVICING TIPS, REFERENCE THE USER MANUAL OR CONTACT AMERICAN PINBALL INC. TECHNICAL SUPPORT. SUBSTITUTION OF PARTS AND EQUIPMENT MAY VOID FCC TYPE ACCEPTANCE.

WARNING!

EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A “CLASS A” COMPUTING DEVICE. PURSUANT TO SUBPART J OF PART 15 OF THE FCC RULES AND REGULATIONS. FCC RULES ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST RF ENERGY WHEN OPERATED IN A COMMERCIAL ENVIRONMENT. OPERATION IN A PRIVATE RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER AT ITS OWN EXPENSE WOULD BE REQUIRED TO TAKE WHATEVER MEASURES TO CORRECT SUCH INTERFERENCE.

WARNING!

OPENING THE COIN DOOR EXPOSES HIGH VOLTAGE PARTS IN THE GAME, AND DIRECT CONTACT TO THESE HIGH VOLTAGE PARTS CAN LEAD TO SERIOUS OR FATAL INJURIES. THIS EQUIPMENT IS TO BE SERVICED BY TRAINED PROFESSIONALS ONLY.



COMPLIANCE, LEGAL AND WARNINGS

RADIO FREQUENCY INTERFERENCE NOTICE

CABLE HARNESS PLACEMENT AND GROUND STRAP ROUTING have been designed to keep RF radiation and conduction within levels accepted by FCC rules.

DO NOT ALTER WIRING OR GROUND STRAPPING. Revert wiring and ground strap back to their original positions if they become loose or are removed for service.

LEGAL

Galactic Tank Force and all related characters are trademarks of American Pinball, Inc. MAGIC GLASS and this manual are trademarks of American Pinball. Unauthorized reproductions or modifications are prohibited and illegal.

WARNINGS

Only American Pinball authorized parts are to be used. Using ANY unauthorized parts will void all warranties and may cause injury to persons or property.

All servicing of equipment must be completed by competent personnel. Pinball machines are complex and present an electrical shock hazard. Not following these guidelines can be fatal.

DOCUMENT REVISION HISTORY

DOC0022-00	June 2023	Initial Draft
DOC0022-01	September 2023	Production Release
DOC0022-01	October 2023	Final Release of Document

Table 2-1 Document Revision History

All information in this manual is accurate at time of release and is subject to change without notice. Check <https://www.american-pinball.com/support/> for any and all updates to this manual.

REGIONAL CONTACTS

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Service@americanpinball.com
833-API-HELP

 API Tech Tip Videos



https://www.youtube.com/channel/UC9_k0XRo6IbeyeOuQy4Hseg/videos

CHAPTER 1: OVERVIEW

ABOUT THE MANUAL

This manual details the integral aspects of the [Galactic Tank Force](#) pinball machine.

The following chapters are included in this manual.

Chapter	Title
Chapter 1	Overview
Chapter 2	Unpacking Instructions
Chapter 3	API Cockpit / Service Information
Chapter 4	Code Update / Game Logs / USB
Chapter 5	Game Rules

Table 1-1 Manual Overview

Term	Description
ADJ	Abbreviation for the adjustment menu when certain settings are adjusted/configured.
AUD	Abbreviation for the audit menu, where audits can be run for the machine.
DIAG	Abbreviation for the diagnostic menu, where diagnostics can be run for the machine.
Plumb Bob Tilt	Weighted tilt assembly on the inside left of the cabinet.
P3-ROC Board	Designed to control all the real-time signaling on a pinball machine. Note: The documentation for the P3-ROC Boards is available at American-pinball.com/support
UTIL	Abbreviation for the utility menu, where utilities can be run for the machine.

Table 1-2 Commonly used terms in the Service Manual documentation

POST POSITIONS AND PARTS LIST

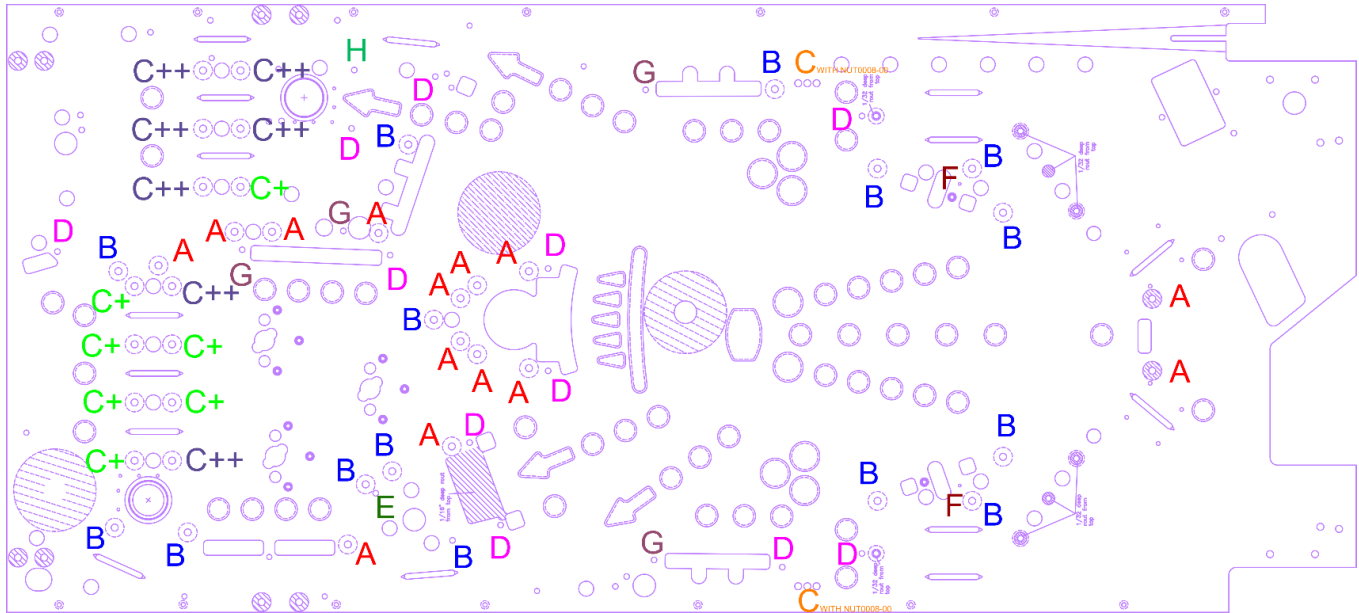


Figure 1 Post Positions

Letter	Part Number	Quantity
A	MAS0008-24	14
	PST0001-00	14
B	PST0003-00	15
	PST0001-00	15
C	MAS0008-32	2
	NUT0008-00	2
	PST0001-00	2
C+	MAS0008-32	7
	PST0001-00	7
C++	PST0003-00	7
	PST0001-00	7
D	PST0004-03	11
	NUT0010-00	11
E	PST0002-00	1
	NUT0010-00	1
F	PST0002-02	2
G	PST0004-01	4
	NUT0010-00	4
H	PST0003-02	1
	PST0001-00	1
MOUNT C+ and C++ with (PLS0121-00 Quantity 7)		

Table 1-3 Post Positions Parts List

RUBBER POSITIONS AND PARTS LIST

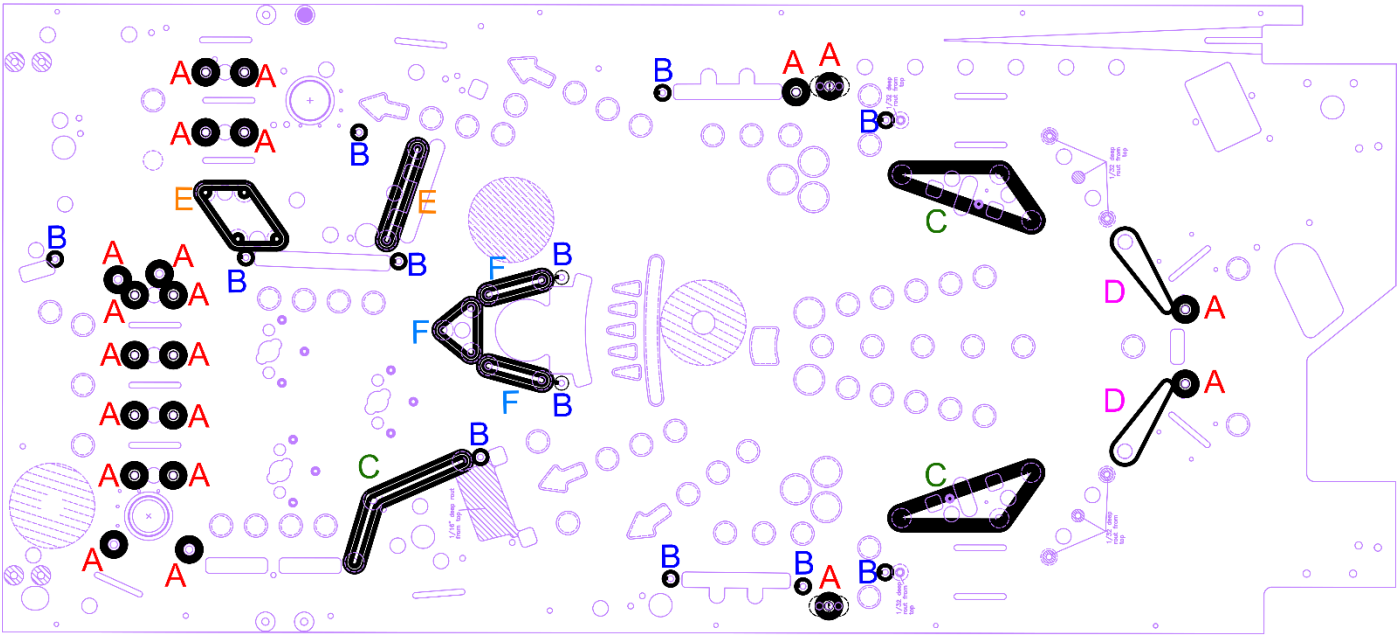


Figure 2 Rubber Positions

Letter	Part Number	Quantity
A	RBR0001-02	21
B	RBR0005-00	12
C	RBR0001-12	3
D	RBR0002-01	2
E	RBR0001-10	2
F	RBR0001-07	3

Table 1-4 Rubber Positions Parts List

CHAPTER 2: UNPACKING

CHAPTER

2

UNPACKING

In order to fully enjoy your pinball machine in the manner it was designed, please adhere to the following unpacking instructions.

CAUTION!

THE GAME WEIGHS IN EXCESS OF 250 LBS.

**AT LEAST TWO (2) PEOPLE ARE REQUIRED
TO UNPACK AND MANEUVER THE MACHINE.**

TOOLS REQUIRED FOR UNPACKING

A pair of scissors or a utility knife is all you need to unpack.

Your pinball machine should appear in the following corrugated box.



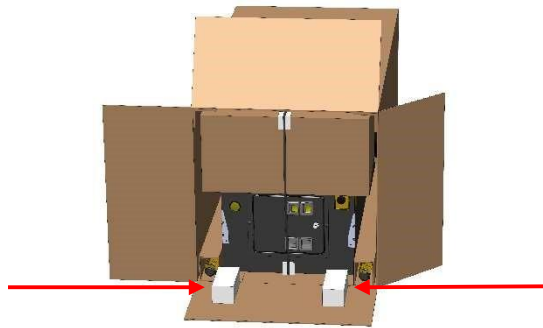
Figure 3 Authorized American Pinball Box

UNPACKING CONTINUED

Using a pair of scissors or utility knife, carefully cut the bands highlighted with red arrows.

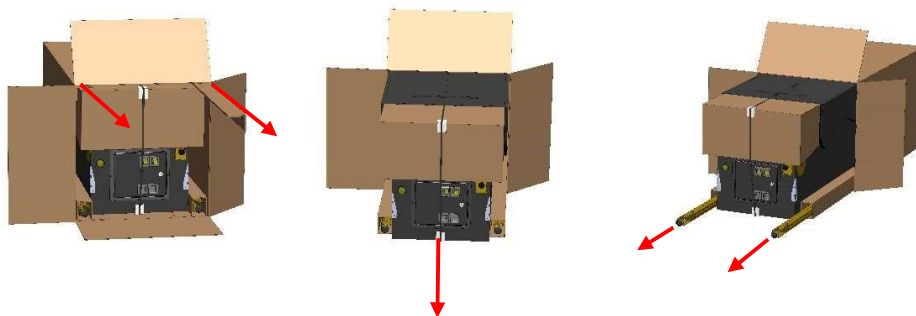


Lay the box down on the “TRUCK THIS SIDE ONLY” side. Remove the 2 pieces of Styrofoam (indicated here with red arrows) and fold the flap under or cut the whole flap off the box.



Remove the 2 top corner protectors highlighted in the picture (left) and pull out the game using the center strap (center). Next, remove the 4 legs from the bottom corner protectors (right).

DO NOT CUT THE CENTER STRAP AROUND THE GAME YET

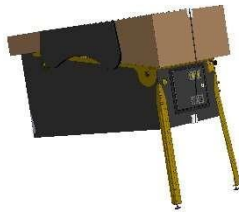


UNPACKING CONTINUED

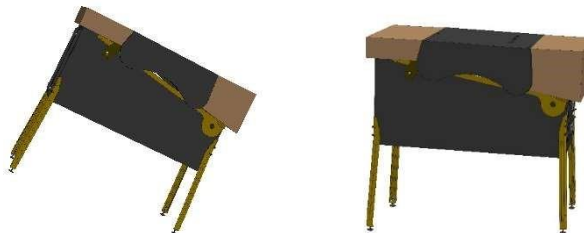
Slide the game completely out of the box (left), and carefully stand the game upright (center). Cut the shrink wrap by the front legs and install the legs with the supplied hardware (right).



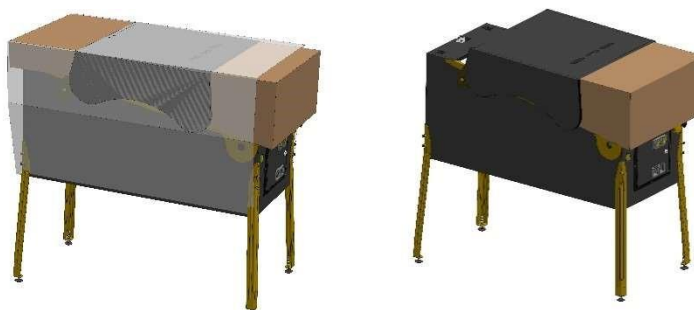
Lay the game down and cut away the shrink wrap covering the rear leg mounting area.



Carefully lift the game up. Install the 2 rear legs with the included hardware. Stand the game up on all 4 legs once the rear legs are installed.

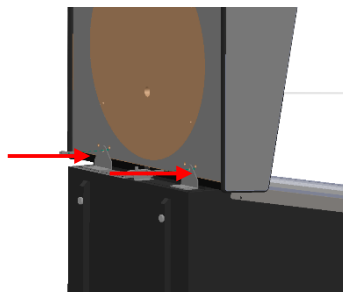
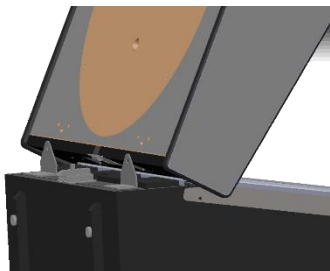


Cut and remove the center band, all the stretch wrap, and the 2 cardboard protectors for the front and back.

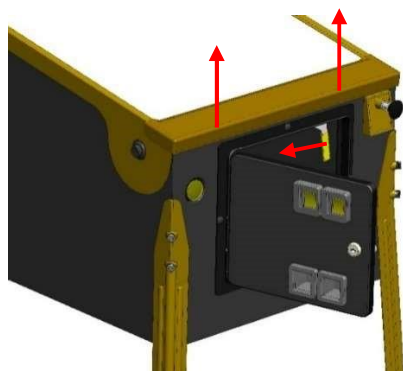


UNPACKING CONTINUED

Lift the backbox until the latch clicks closed. Thread two hex bolts through the brackets in the back and tighten with the 5/16 hex wrench.



Remove the keys from the ball shooter rod. One set is for the back box, the other set is for the front coin door. Open the coin door, move the lockdown bar handle to the left, and pull up on the lockdown bar. Remove the film from the lockdown bar. Pull the glass off and follow the instructions under the glass.



LEVELING YOUR AMERICAN PINBALL MACHINE

Depending on the floor, you may have to adjust so that the game is properly leveled left to right and or at the proper pitch. With the leg levelers all the way in (no threads showing below the leg) the game will sit approximately at 6 degrees. Your game is designed to sit at an incline of 6.5 degrees.

PHONE APPS FOR LEVELING

iPhone: PinGuy <https://apps.apple.com/de/app/pinguy/id782973821>



Video on how to use:

<https://www.youtube.com/watch?v=SiM7aMIoCjc>



Android: Pinball Leveler

https://play.google.com/store/apps/details?id=com.nottud.pinballleveller&hl=en_US&gl=US



CHAPTER 3: SERVICE MENU

CHAPTER

3

GALACTIC TANK FORCE SERVICE MENU

This chapter includes service menu settings. The service menu accesses the following settings for optimal play and maintenance.

- Tests
- Settings
- Statistics
- Utilities
- Health Meter

Before You Begin

- Have you unpacked your pinball machine and set it up according to the instructions in the manual?
- Have you downloaded the most current code from American Pinball's Support site?

<https://www.american-pinball.com/support/updates/>

Video showing how to update the gamecode:

https://youtu.be/_n4-7ZSH3UE



- Have you registered your game? <https://www.american-pinball.com/support/register/>

Games must be registered prior to receiving any warranty parts.

Video on how to register your game:

<https://youtu.be/LsoqXcbKZzE>



Note: settings are occasionally updated. Please refer to American Pinball's support site for the most current documentation.

API COCKPIT

The service menu contains tests for all the electrical and mechanical functions within the game.

Video showing how to use the service menus: <https://youtu.be/nKcwKNgNhCw>

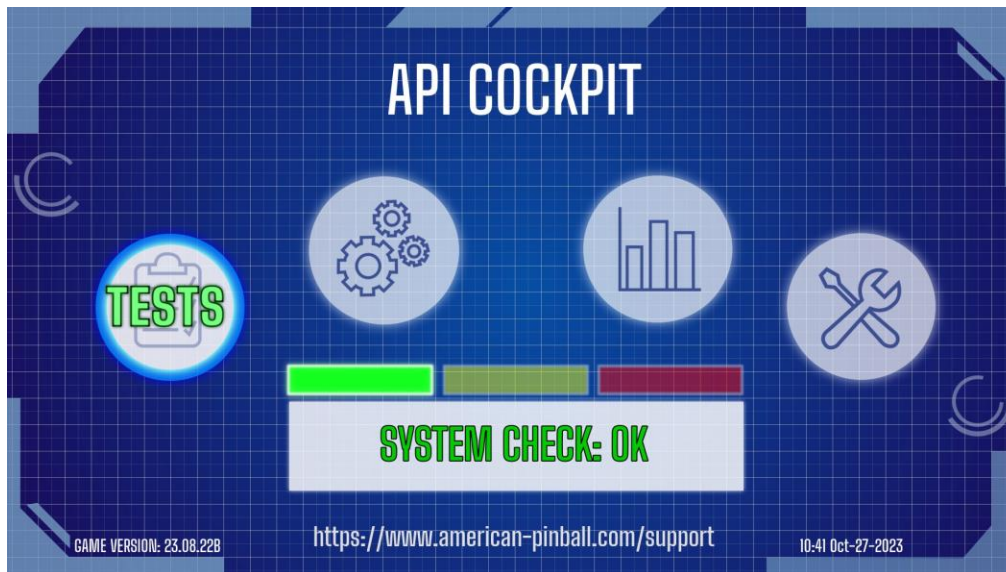


Figure 4 API Cockpit

Service Menu Icons





Utilities		<p><u>This includes information for the following utilities:</u></p> <ul style="list-style-type: none"> • Clear Balls • Statistic Clear • Date and Time Set • Restoration of Default Settings
Health Meter Green		<p><u>The Health Meter Provides a Quick Analysis of the Overall State of The Game</u></p> <p>Game has no issues</p>
Health Meter Yellow		<p>Game may have switch issues. If the game hasn't seen a switch hit in 30 games, it will call attention to it. Go to TESTS – SWITCH TEST</p>
Health Meter Red		<p>Game may have missing balls</p>

Table 3-1 Service Menu Icons




Tests		<p><u>This includes tests in the following areas.</u></p> <ul style="list-style-type: none"> • Switches • Coils • LEDs • Displays
Settings		<p><u>This includes adjustments in the following settings.</u></p> <ul style="list-style-type: none"> • Standard Adjustment Settings • Replay Adjustment Settings • Coil Adjustment Settings • Sound Adjustment Settings • Feature Adjustment Settings • Pricing Adjustment Settings • Presets
Statistics		<p><u>This includes audits for the following statistics.</u></p> <ul style="list-style-type: none"> • Basic Statistics • Feature Statistics • Standard Statistics • Game Time Statistics • Earning Statistics • Score Breakdown Statistics

Table 3-2 Service Menu Icons Continued

TESTS

The test menu includes several diagnostic tests for assuring that your machine is operating properly.

The Test Menu provides tests for the following items.

- Switches
- Coils
- LEDs
- Display

Test Menu Icons





Switches	
Coils	
LEDs	
Display	

Table 3-3 Test Menu Icons

To Access the Test Menu

1. Power on the machine.
2. Open the coin door.
3. Press the black MENU SELECT button to access the service mode.
4. Press the +/- button to move to icons and menu selections.
5. Press the MENU SELECT button to enter or test the current selection.
6. Use either the flipper buttons or the red +/- coin door buttons to navigate the tests.



Figure 5 Service Menu Buttons

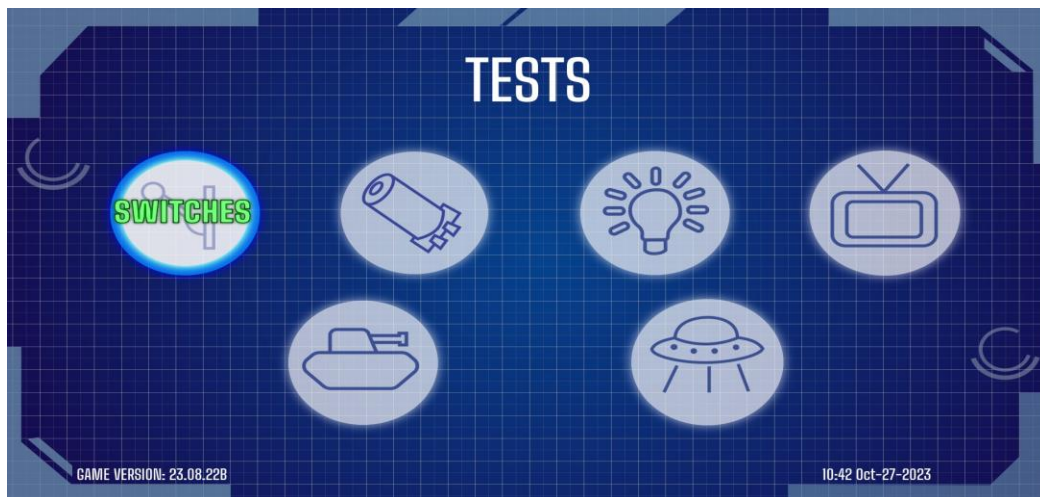


Figure 6 Service Testing Menu

API Cockpit Button	Flipper Button Equivalent	Functionality
Green	Press right and left flipper button simultaneously	<ul style="list-style-type: none"> Back one level Exit
Red (+)	Right flipper	<ul style="list-style-type: none"> Increases through menu by one Advance to the right or down
Red (-)	Left flipper	<ul style="list-style-type: none"> Decrease through menu by one Advance to the left or up
Black	Start	<ul style="list-style-type: none"> Menu Enter Select current choice

Table 3-4 API Cockpit Navigation

SWITCH TESTING

The Switch Test screen shows all the switches, grouped by their boards, there are 16 individual switches per board and are displayed in columns. That means all the switches in one column are all on the same switch board. Each switch board has 2 groups of 8 switches and each group of 8 switches will all share the same primary wire color. Opto switches do not share a primary wire color. All contact switches (micro, standup and rollover) will have a brown background when open. The background color will change to bright green when closed. Opto switches will be dark green when they are open, and the background will change to bright green when detecting a ball. A switch with a red background indicates a switch that has not been made in a while and should be checked to ensure it is working properly.

SWITCH TESTING					
Left Flipper	Tank 1	Pop Right Target 3	Left Orbit Enter	Left Outlane	UFO Home
Right Flipper	Tank 2	Pop Right Target 4	Pop Left Target 1	Left Inlane	Robot Up
Right Extra Button	Tank 3	Adv Rank L	Pop Left Target 2	Left Slingshot	Tank Home
Enter	Tank 4	Adv Rank R	Pop Left Target 4	Left Flipper EOS	Ramp Return Right
Exit	Tank 5	Right Orbit Exit	Pop Left Target 3	Left Flipper Lane	Ramp Return Left
Down	Cow	Right Spinner	Left VUK	Right Flipper Lane	Ramp Make
Up	Cow Rebound	Not Used	Saucer Lane	Right Flipper EOS	Ramp Enter
Tilt	Right VUK	Not Used	Left Orbit Exit	Not Used	Lock 1
Start Button	Right Inlane	Left Flank 1	Left Pop Bumper	Trough 1	Lock 2
Coin Door	Right Outlane	Left Flank 2	Bottom Pop Bumper	Trough 2	Lock 3
coin1	Right Flank 1	Left Flank 3	Right Pop Bumper	Trough 3	Not Used
coin2	Right Flank 2	Left Spinner	(L)AB	Trough 4	Not Used
coin3	Right Flank 3	(A)IR	L(A)B	Trough 5	Not Used
coin4	AI(R)	A(I)R	L(A)B	Trough 6	Not Used
coin5	Right Orbit Enter	Pop Right Target 1	Power Up	Trough Jam	Not Used
coin6	Right Slingshot	Pop Right Target 2	Not Used	Shooter	Not Used

Figure 7 Switch Testing Menu

PLAYFIELD SWITCH MAP



Figure 8 Playfield Switch Map

PLAYFIELD COIL MAP

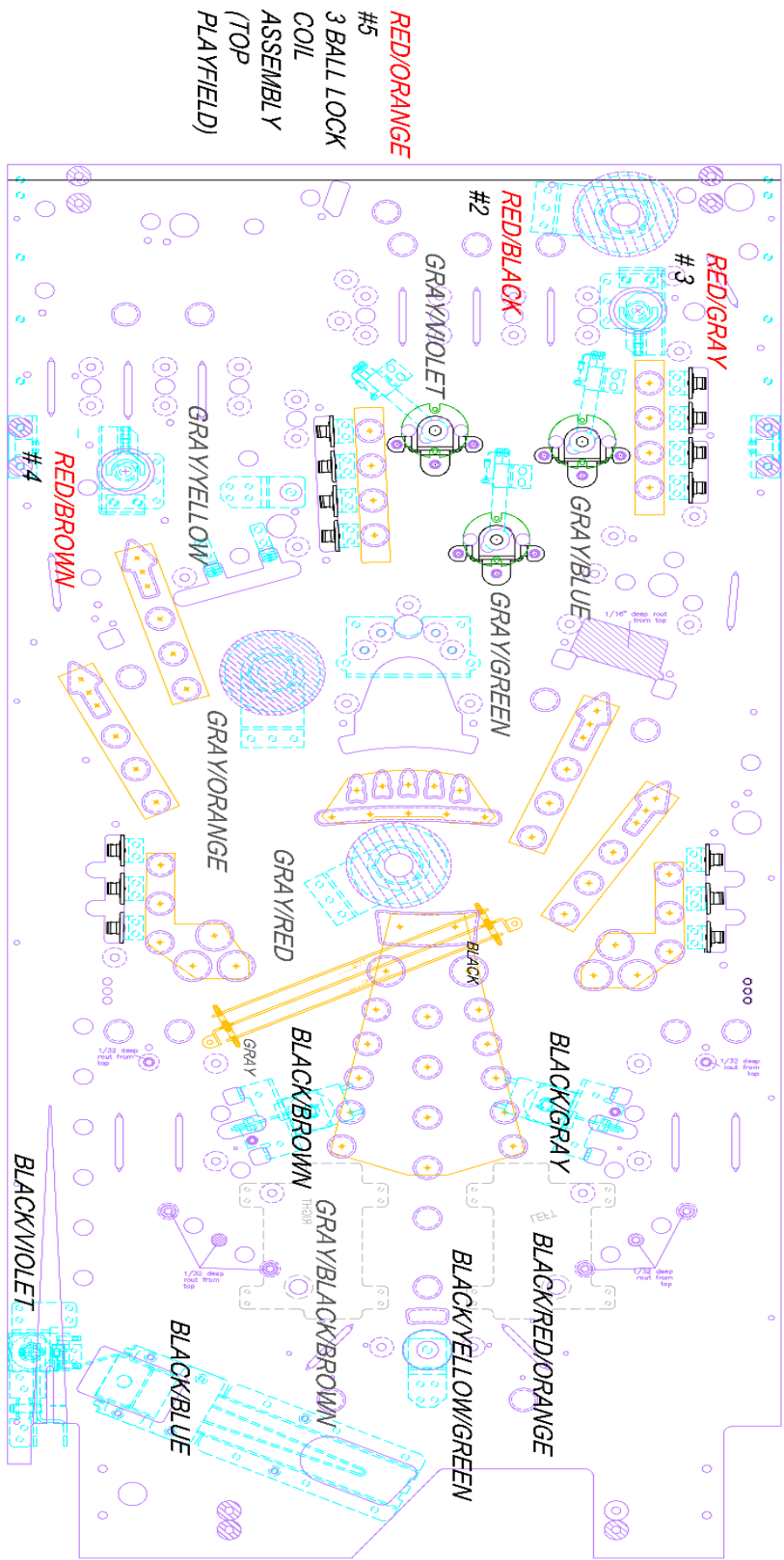


Figure 9 Playfield Coil Map

COIL TESTING

To test the coils, you must pull out on the High-Power Interlock switch, just inside the coin door – bottom left – White Knob. While in TESTS - Coil TEST, highlight the coil you want to test, then press the black enter button on the coin door or Start button on the cabinet.

Note: The power is a momentary pulse, not the full strength you would experience in gameplay.

Flipper hold - you need to hold the flipper bat up with one hand and tap the test button rapidly.

Shaker motor – tap the test button rapidly.

Magnet – hold a ball next to the magnet and hit the test button.

LED TESTING

When first entering LED Test, all LED's flash on the playfield, rotating through red, green, blue and white.

You also can walk through the LED's one-by-one. LED testing is designed to follow the playfield in a logical sequence.

DISPLAY AND SOUND TEST

The main display proceeds through a series of colors (red, green, and blue) and a test pattern. The test also exercises the stereo speaker system at the same time.

COIL INTERLOCK SWITCH

ATTENTION

THIS GAME IS EQUIPPED WITH AN INTERLOCK SWITCH FOR THE COIL VOLTAGE. THE INTERLOCK SWITCH DISABLES THE COIL VOLTAGE WHEN THE DOOR IS OPEN. INTERLOCK SWITCH NEEDS TO BE PULLED OUT TO ENGAGE COIL VOLTAGE WHEN DOOR IS OPEN FOR COILS TO WORK.

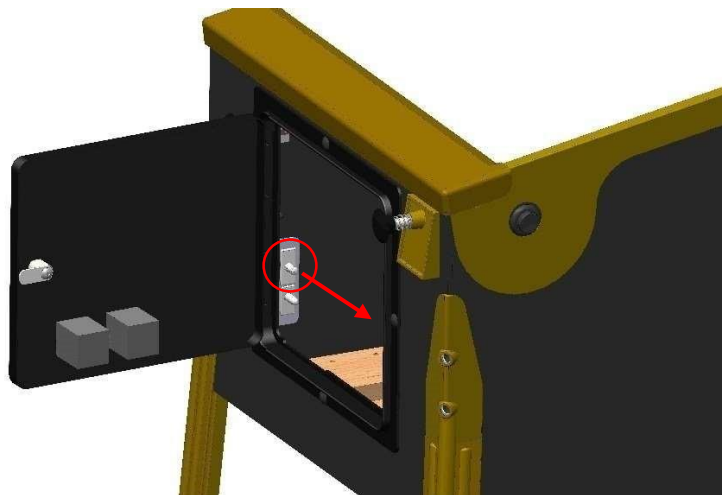


Figure 10 Interlock Switch

COIL ADJUSTMENT SETTINGS

Coil settings allow you to control the “strength” of the various mechanisms on the playfield.

To access coil settings



1. Power on the machine
2. Open the coin door.
3. Press the MENU SELECT button to access the service mode.
4. Press the red +/- button to select the settings icon.
5. Press the MENU SELECT button to enter the settings section.
6. Use the red +/- buttons to page through the different settings to the coil settings.
7. Press the green BACK EXIT button to return to the previous menu.

COIL SETUP

Individual coil strength can be adjusted to enhance gameplay to your preference.

CAUTION! Increasing coil strength can create undesirable results such as broken plastics as well as expedited playfield wear. Increased coil strength wear and tear is not covered under our warranty. Keep coil strength as low as possible.

Note: all default settings are highlighted green. They turn white when changed:

Coil	Default
Auto Fire	24
Bottom Pop Bumper	14
Left Flipper Main	26
Left Pop Bumper	14
Left Slingshot	10
Left VUK Eject	11
Lock Release	25
Right Flipper Main	26
Right Pop Bumper	14
Right Slingshot	10
Right VUK Eject	11
Trough Kicker	18
Up Post	25

Table 3-5 Coil Settings

FEATURE ADJUSTMENT SETTINGS

Feature settings address conditions that are specific to the game.

To access Feature settings



1. Power on the machine.
2. Open the coin door.
3. Press the MENU SELECT button to access the service mode.
4. Press the red +/- button to select the settings icon.
5. Press the MENU SELECT button to enter the settings section.
6. Use the red +/- buttons to page through the different settings to the feature settings.
7. Press the green BACK EXIT button to return to the previous menu.

Feature	Default
Air Lock Hold Strength	5
Air Lock Release Time	7
Air Strike Add Ball Difficulty	Medium
Air Strike Ball Save Time	15
Air Strike Start Difficulty	Medium
Air Strike Super Jackpot Time	16
Cow a Bongo Ball Save Time	15
Cow a Bongo Start Difficulty	Medium
Defense Shield Time	20
Disable Tank Mechanism	No
Flank Award Rotation Time	8
Initial Hits for Neutron Bomb	4
Lucky Break Always Saves Ball	No
Making Ice Cream Requires All Ingredients	No
Meltdown Multiball Ball Save Time	15
Meltdown Start Difficulty	Medium
Meltdown Super Jackpot Difficulty	Medium
Methane Blaster Single Shot	No
Mission Berry Difficulty	Medium
Mission Start Difficulty	Medium
Mission Walnut Difficulty	Medium
Quantum Accelerator Time	16
Release Locks at Game End	Yes
UFO Abduction Interval	73
UFO Cow Rescue Difficulty	Medium
UFO First Abduction	51
UFO Timer	45
Virtual Locks	No

Table 3-6 Feature Adjustment Settings

COIN DOOR AND DOLLAR BILL ACCEPTOR INFORMATION

Dollar Bill Acceptor (DBA)

Any standard up stacker DBA with a bill cassette of 500 or less, operating at 12 Volts DC can be used.

Description	Part number
US Coin Door	PUR0001-00
European Coin Door (*not included w/ door)	PUR0007-00
*European Coin Door Cable	WCA0036-00
*European Interface Board	PCB0024-00

Table 3-7 Coin Door Parts List

Coin door lights are 12 volts.

Note: you can make a 120V bill acceptor work by getting an MEI 01-12-139 converter plug and tapping into a coin switch.

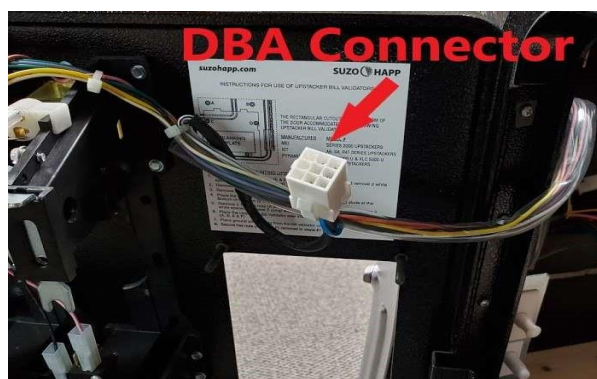
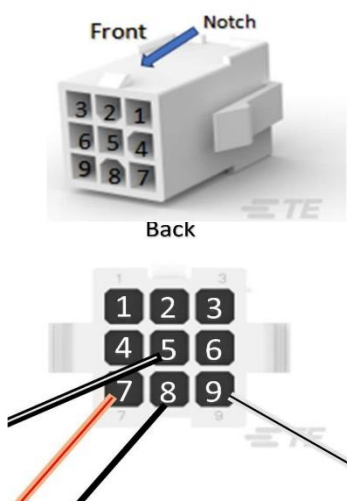


Figure 11 DBA Connector Pin Outs



Coin door receptacle

Male 0.062" Molex pins = 02-06-2103

Receptacle = 172161-1 Mate-N-Loc

DBA Mating plug

Female 0.062" Molex pins = 02-06-1103

Plug = 172169-1 Mate-N-Lock



Wire Color	Pin Location
Black wire w/ white stripe = 12v DC HOT (power)	Pin 5
Pink wire w/ red stripe = Credit Relay Pulse/N.O.	Pin 7
Black wire = Credit Relay (Common)	Pin 8
White wire w/ black stripe = 12v DC Return (Ground)	Pin 9

Table 3-8 DBA Pin Locations

PRICING ADJUSTMENT SETTINGS

Pricing adjustment settings address settings related to game unit value, free play, and currency management. Pricing establishes the game unit of value, which should be the lowest denomination of currency based on the coin door configuration.

To access Pricing settings



1. Power on the machine.
2. Open the coin door.
3. Press the MENU SELECT button to access the service mode.
4. Press the red +/- button to select the setting icon.
5. Press the MENU SELECT button to enter the settings selection.
6. Use the flipper buttons to page through the different settings to pricing settings.
7. Press the green BACK EXIT button to return to the previous menu.

The “Unit Value” must be set to the lowest denomination that the game will accept.

Desired Coinage	Set “Pricing Plan”
25 cents per game	1 unit = 1 credit
25 cents per game or 2 games for 75 cents	1 unit for 1 credit, 2 for 3
50 cents per game	2 units for 1 credit
50 cents per game or 5 games for 2 dollars	2 units for 1 credit, 4 for 3
50 cents per game or 5 games for 3 dollars	2 units for 1 credit, 5 for 3
50 cents per game or 5 games for 2 dollars	2 units for 1 credit, 8 for 5
75 cents per game or 3 games for 2 dollars	3 units for 1 credit, 8 for 3
75 cents per game	3 units for 1 credit
1 dollar per game (default setting)	4 units for 1 credit
1 dollar per game or 3 games for 2 dollars	4 units for 1 credit, 8 for 3
1 swipe per game	1 swipe for 1 credit
Overseas Options	Set “Pricing Plan”
	10 units for 1 credit
	15 units for 1 credit
	20 units for 1 credit
	10 units for 1 credit, 20 for 3
	10 units for 1 credit, 40 for 5

Table 3-9 Price Table

Pricing Adjustment Settings

Free Play	options: ['On', 'Off']	default: 'Off'
Unit Value	options: [.1, .2, .25, .5, 1]	default: .25
Pricing Plan	options: Unit = 1 Credit Units for 1 Credit Units for 1 Credit Units for 1 Credit 2 Units for 1 Credit, 4 for 3 2 Units for 1 Credit, 8 for 5	
	4 Units for 1 Credit, 8 for 3 1 Unit for 1 Credit, 2 for 3 10 Units for 1 Credit 10 Units for 1 Credit, 20 for 3 10 Units for 1 Credit, 40 for 5	default: '4 Units for 1 Credit'
	15 Units for 1 Credit 20 Units for 1 Credit 2 Units for 1 Credit, 5 for 3 4 Units for 1 Credit, 20 for 6 1 Swipe for 1 Credit	
Currency	options: ['Dollar', 'Euro', 'Pound', 'Kroner']	default: 'Dollar'
Coin Slot 1 Units	options: [1-21]	default: 1
Coin Slot 2 Units	options: [1-21]	default: 1
Bill Changer	options: [1-21]	default: 1
Coin Slot 4 Units	options: [1-21]	default: 1
Coin Slot 5 Units	options: [1-21]	default: 1
Credits	options: [0-99]	default: 0
Max Service Credits	options: [0-99]	default: 30

Table 3-10 Pricing Adjustment Settings

REPLAY ADJUSTMENT SETTINGS

To access Replay Settings



1. Power on the machine.
2. Open the coin door.
3. Press the MENU SELECT button to access the service mode.
4. Press the red +/- button to select the settings icon.
5. Press the MENU SELECT button to enter the settings section.
6. Use the red +/- buttons to page through the different settings to the replay setting.
7. Press the green BACK EXIT button to return to the previous menu.

Name	Description	Value
Automatic Replay Percentaging	Whether the game software should periodically adjust Replay Award Level 1 to maintain replays at the frequency specified by Replay Percentage. Requires "Replay Levels" to be set to 1.	Options: On/Off Default: On
Replay Award Level 1	Specifies the point total required to receive an award that is defined in Replay Award Type	Options: 20M-250M Increments: 10M Default: 20M
Replay Award Level 2	Specifies the point total required to receive an award that is defined in Replay Award Type	Options: 20M-250M Increments: 10M Default: 100M
Replay Award Level 3	Specifies the point total required to receive an award that is defined in Replay Award Type	Options: 20M-250M Increments: 10M Default: 150M
Replay Award Level 4	Specifies the point total required to receive an award that is defined in Replay Award Type	Options: 20M-250M Increments: 10M Default: 250M
Replay Type	Specifies the type of replay awarded to the player.	Options: Free Game, Extra Ball, Points, Off Default: Free Game
Replay Levels	Specifies how many replay levels are active	Options: 1-5 Default: 1
Replay Boost	Specifies the number of points that each replay value will be increased. After each game in which a replay is earned, all replay levels are increased by the defined replay boost amount. For any game in which a replay was not won, the amount is reduced by the boost amount. For example, if three games in a row earn a replay, each replay amount is set to the original value + (3* boost value). If on the next game the replay is not earned, it drops to original value+ (2*boost value).	Options: 1M, 50M Increments: 1M Default: 5M

Table 3-11 Replay Adjustment Settings

SOUND ADJUSTMENT SETTINGS

Sound settings allow you to control the volume level in the game.

To access Sound Settings



1. Power on the machine.
2. Open the coin door.
3. Press the MENU SELECT button to access the service mode.
4. Press the red +/- button to select the settings icon.
5. Press the MENU SELECT button to enter the settings section.
6. Use the flipper buttons to page through the different settings to the sound setting.
7. Press the green BACK EXIT button to return to the previous menu.

Name	Description	Value
Initial Volume	Specifies the initial volume	Options: 1 to 11 Default: 6
Music volume offset		Options: -0.4 to +0.4 Default: 0.4

Table 3-12 Sound Adjustment Settings

AMPLIFIER SETTINGS

The amplifier is located within the backbox and should not need adjustment.

Reference Settings:

Sub volume = 3/4 clockwise turn

Cross Over = Full clockwise turn

Treble = +8

Bass = +8

Volume = 6



HOW TO CREATE A CUSTOM MESSAGE

1. Create a PNG image, 1366x768 with whatever you want on it.
Name the file custom message and put that file on a USB stick (with no game code) see the section “Code Update” for information on how to format your USB stick to FAT 32.
2. Go into Settings > Standard and set ‘Custom Message’ to ‘On’.
3. Insert the USB stick into the USB extension cable inside the coin door on the right side, after several seconds you will get a screen with green type that says, ‘audits copied . . .’ power cycle game.
4. After you power cycle, use the flipper buttons to cycle through the screens to see the message.
5. If the image didn’t take and all the above steps have been followed, try step 3 again.

Video showing how to create a custom message for the attract screen: <https://youtu.be/8fpDKsQIHA4>



STANDARD ADJUSTMENT SETTINGS

Standard adjustments address global options, such as the number of balls per game, tilt settings, and replay award settings.

To access Standard Adjustment Settings



1. **Power on the machine.**
2. **Open the coin door.**
3. **Press the MENU SELECT button to access the service mode.**
4. **Press the red +/- button to select the settings icon.**
5. **Press the MENU SELECT button to enter the settings section.**
6. **Use the red +/- buttons to page through the different settings to the standard adjustment.**
7. **Press the green BACK EXIT button to return to the previous menu.**

Attract Mode Music	options: ['On', 'Off']	default: 'On'
Attract Mode Sounds	options: ['On', 'Off']	default: 'Off'
Balls Per Game	options: [1-6]	default: 3
Color Display X Offset	Offset for X axis	default 0
Color Display Y Offset	Offset for Y axis	default -70
Custom Message	options: ['On', 'Off']	default: 'Off'
Debug	Developer tool	default 10
Game Restart	Holding start button for 5 seconds after ball 1	default True
Inactive Switch Warning		default 5

Table 3-13 Standard Adjustments

PRESETS

The Preset feature allows you to load a profile setting. There are 8 presets available.

Note: Presets are subject to change. Refer to American Pinball's support page for the most current listings of presets.

To access Presets



1. **Power on the machine.**
2. **Open the coin door.**
3. **Press the MENU SELECT button to access the service mode.**
4. **Press the red +/- button to access the settings icon.**
5. **Press the MENU SELECT button to enter settings selection.**
6. **Use the flipper buttons to page through the different settings to the preset settings.**
7. **Press the green BACK EXIT button to return to the previous menu.**

Preset	Extra Easy	Easy	Medium	Hard	Extra Hard	Competition	Home	Location
Standard								
Attract Mode Sounds	On	On	On	On	On	On	On	On
Attract Mode Music	Off	Off	Off	Off	Off	Off	Off	Off
Game Restart	On	On	On	On	On	Off	On	Off
Balls Per Game	3	3	3	3	3	3	3	3
Clear Shooter Lane After 60 Sec	Off	Off	Off	Off	Off	Off	Off	On
Match Feature						Off	Off	
Tournament Mode						On		
Pricing								
Free Play							On	Off
Features								
Air Strike Add Ball Difficulty	Easy	Medium	Medium	Medium	Hard			
Air Strike Ball Save Time	21	18	15	12	9			
Air Strike Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Air Strike Super Jackpot Time	24	20	16	12	8			
Ball Save Timer	18	25	12	9	6			
Cow a Bongo Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Defense Shield Time	30	25	20	15	10			
Initial Hits for Neutron Bomb	2	3	4	5	6			
Max Number of Extra Balls	6	5	4	3	2			
Meltdown Multiball Save Time	21	18	15	12	9			
Meltdown Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Meltdown Super Jackpot Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Methane Blaster Single Shot	No	No	No	Yes	Yes			
Mission Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Multiple Ball Saves Allowed	Yes	Yes	No	No	No			
Quantum Accelerator Time	24	20	16	12	8			
Tilt Bob Settle Time	4	3	3	3	2			
Tilt Warnings	4	3	2	1	1			
Replay								
Replays						Disabled	Enabled	Enabled
Replay Award Type						Off	Extra Ball	Replay
Replay Type						Off	Fixed	Incremental

Table 3-14 Presets

Cabinet Switch Board 0 - PCB0021-02																											
J9 Add-On Board	Return 1 Pin 2		Return 2 Pin 3		Return 3 Pin 4		Return 4 Pin 5		Return 5 Pin 6		Return 6 Pin 7		Return 7 Pin 8		Return 8 Pin 9												
Ground	WHT Leaf	BLK 0	WHT Leaf	BRN 1	WHT Leaf	RED 2	WHT Push	ORG 3	WHT Push	YEL 4	WHT Push	GRN 5	WHT Push	BLU 6	WHT N/A	VIO 7											
	SWI0009-00		SWI0009-00		SWI0009-00																						
BLK-pin 10	Left Flipper button		Right Flipper button		Divertor		Enter		Exit		Down		Up		Tilt												
J8 Add-On Board	Return 1 Pin 2		Return 2 Pin 3		Return 3 Pin 4		Return 4 Pin 5		Return 5 Pin 6		Return 6 Pin 7		Return 7 Pin 8		Return 8 Pin 9												
Ground	GRY Push	BLK 8	GRY Push	BRN 9	GRY Micro	RED 10	GRY Micro	ORG 11	GRY Opto	YEL 12	GRY Opto	GRN 13	GRY Leaf	BLU 14	GRY Leaf	VIO 15											
BLK-pin 10	Start Button		Interlock/Dooropen		Coin #1		Coin #2		Dollar Bill Acceptor		Coin #4		Coin #5		N/C												
Yellow/White Switch - Opto Cable WCA0186-00 SW-16 Board 1 - Dip Switch 1 ON																											
J2 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16												
Ground	WHT OPTO	BLK 16	WHT OPTO	BRN 17	WHT OPTO	RED 18	WHT OPTO	ORG 19	WHT OPTO	YEL 20	WHT OPTO	GRN 21	WHT OPTO	BLU 22	WHT OPTO	VIO 23											
BLK-pin 10																											
Bank B	Return 1		Return 2		Return 3		Return 4		Return 5		Return 6		Return 7		Return 8												
Ground	YEL OPTO	BLK 24	YEL OPTO	BRN 25	YEL OPTO	RED 26	YEL OPTO	ORG 27	YEL OPTO	GRY 31	YEL OPTO	GRN 29	YEL OPTO	BLU 30	YEL OPTO	VIO 31											
BLK-pin 10																											
Red Switch Cable WCA0184-00 SW-16 Board 2 - Dip Switch ON																											
J2 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16												
Ground	RED Micro	BLK 32	RED S/U	BRN 33	RED S/U	GRY 34	RED S/U	ORG 35	RED S/U	YEL 36	RED Micro	GRN 37	GRN 38	BLU 38	RED Micro	VIO 39											
BLK-pin 10																											
	SWI0001-00		SWIF0011-02		SWIF0011-02		SWIF0011-02		SWIF0011-02		SWIF0011-02		N/A		SWI0001-00												
			DCL0031-07		DCL0031-07		DCL0031-07		DCL0031-07		LEFT VUK		N/A														
Gray Switch Cable WCA0190-00 SW-16 Board 2 - Dip Switch ON																											
J6 Bank B	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16												
Ground	GRY Leaf	BLK 40	GRY Leaf	BRN 41	GRY Leaf	RED 42	GRY Micro	ORG 43	GRY Micro	YEL 44	GRY Micro	GRN 45	GRY S/U	BLU 46	GRY	VIO 47											
BLK-pin 10	LEFT POP BUMPER		CENTER POP BUMPER		RIGHT POP BUMPER										N/A												
	SWI0019-01		SWI0019-01		SWI0019-01		SWI0001-00		SWI0001-00		SWI0001-00		SWIF0011-09		N/A												
			DCL0031-07										DCL0031-07														
Brown Switch Cable WCA0183-00 SW-16 Board 3 - Dip Switch ON																											
J2 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16												
Ground	BRN S/U	BLK 48	BRN S/U	BRN 49	BRN S/U	RED 50	BRN	ORG 51	BRN S/U	YEL 52	BRN S/U	GRN 53	BRN S/U	BLU 54	BRN S/U	VIO 55											
BLK-pin 10	STAND LEFT 1		STAND LEFT 2		STAND LEFT 3		LEFT SPINNER		AIR		AIR		POP BUMPER BANK 1		POP BUMPER BANK 2												
	SWIF0011-09		SWIF0011-09		SWIF0011-09		SWI0005-00		SWIF0015-05		SWIF0015-05		SWIF0011-02		SWIF0011-02												
	DCL0031-08		DCL0031-08		DCL0031-08								DCL0031-07		DCL0031-07												
Orange Switch Cable WCA0185-00 SW-16 Board 3 - Dip Switch ON																											
J6 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16												
Ground	ORG S/U	BLK 56	ORG S/U	BRN 57	ORG Micro	RED 58	ORG Micro	GRY 59	ORG Micro	YEL 60	ORG	GRN 61	ORG	BLU 62	ORG	VIO 63											
BLK-pin 10	POP RIGHT BANK 4		POP RIGHT BANK 3		ADVANCE BANK LEFT		ADVANCE BANK RIGHT		RIGHT ORBIT EXIT		RIGHT SPINNER		N/A		N/A												
	SWIF0011-02		SWIF0011-02		SWI0001-00		SWI0001-00		SWI0001-00		SWI0005-00		N/A		N/A												
	DCL0031-07		DCL0031-07																								

Table 3-15 Switch Table

Violet Switch Cable WCA0189-00 SW-16 Board 4 - Dip Switch ON																
J2 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16	
Ground	VIO	BLK	VIO	BRN	VIO	RED	VIO	ORG	VIO	YEL	VIO	GRN	VIO	BLU	VIO	GRY
	S/U	64	S/U	65	S/U	66	S/U	67	S/U	68	S/U	69	Leaf	70	Micro	71
BLK-pin 10	BASM0123-00		BASM0123-00		BASM0123-00		BASM0123-00		BASM0123-00		SWIR0031-09		BASM0122-00			
	TANK 1		TANK 2		TANK 3		TANK 4		TANK 5		COW		COW REBOUND		RIGHT VUK	
	DCL0031-16		DCL0031-17		DCL0031-18		DCL0031-19		DCL0031-20							
Green Switch Cable WCA0187-00 SW-16 Board 4 - Dip Switch ON																
J6 Bank B	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16	
Ground	GRN	BLK	GRN	BRN	GRN	RED	GRN	ORG	GRN	YEL	GRN	GRY	GRN	BLU	GRN	VIO
	Micro	72	Micro	73	S/U	74	S/U	75	S/U	76	S/U	77	Micro	78	Leaf	79
BLK-pin 10	SWI0001-00		SWI0001-00		SWIF0011-09		SWIF0011-09		SWIF0011-09		SWIF0015-05		SWI0001-00		BASM0004-01	
	RIGHT INLANE		RIGHT OUTLANE		STAND RIGHT 1		STAND RIGHT 2		STAND RIGHT 3		AIR		RIGHT ORBIT ENTER		RIGHT SLING SHOT	
					DCL0031-08		DCL0031-08		DCL0031-08							
Black Switch Cable WCA0182-00 SW-16 Board 5 - Dip Switch ON																
J2 Bank A	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16	
Ground	BLK	GRY	BLK	BRN	BLK	RED	BLK	ORG	BLK	YEL	BLK	GRN	BLK	BLU	BLK	VIO
	Micro	80	Micro	81	Leaf	82	Leaf	83	Micro	84	Micro	85	Leaf	86		87
BLK-pin 10	SWI0001-00		SWI0001-00		BASM0004-01		BASM0001-00		SWI0001-00		SWI0001-00		BASM0002-00		N/A	
	LEFT OUTLANE		LEFT INLANE		LEFT SLING SHOT		LEFT FLIPPER EOS		LEFT FLIPPER SAVE		RIGHT FLIPPER SAVE		RIGHT FLIPPER EOS		N/A	
Blue Switch Cable WCA0188-00 SW-16 Board 5 - Dip Switch ON																
J6 Bank B	Return 1 Pin2 on SW-16		Return 2 Pin3 on SW-16		Return 3 Pin4 on SW-16		Return 4 Pin5 on SW-16		Return 5 Pin6 on SW-16		Return 6 Pin7 on SW-16		Return 7 Pin 8 on SW-16		Return 8 Pin9 on SW-16	
Ground	BLU	BLK	BLU	BRN	BLU	RED	BLU	ORG	BLU	YEL	BLU	GRN	BLU	GRY	BLU	VIO
		88		89		90		91	Micro	92	Micro	93		94	Micro	95
BLK-pin 10	OPTO		OPTO		OPTO		OPTO		OPTO		OPTO		OPTO		SWI0002-00	
	Ball Trough 1		Ball Trough 2		Ball Trough 3		Ball Trough 4		Ball Trough 5		Ball Trough 6		Ball Trough Jam		SHOOTER LANE	

Table 3-16 Switch Table Continued

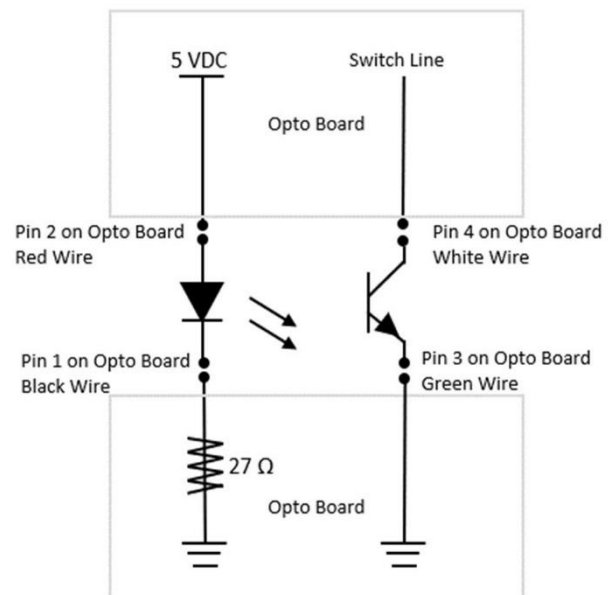
SWITCH THEORY

Mechanical Switch

All mechanical switch lines are “Active Low” 0 VDC (Logic Ground) when active (Made). Normally open state (12 VDC) (Not Made).

Optos

All opto switch lines are “Active High” (12 VDC) when active (Made). Normally open state 0 VDC (Logic Ground) (Not Made).



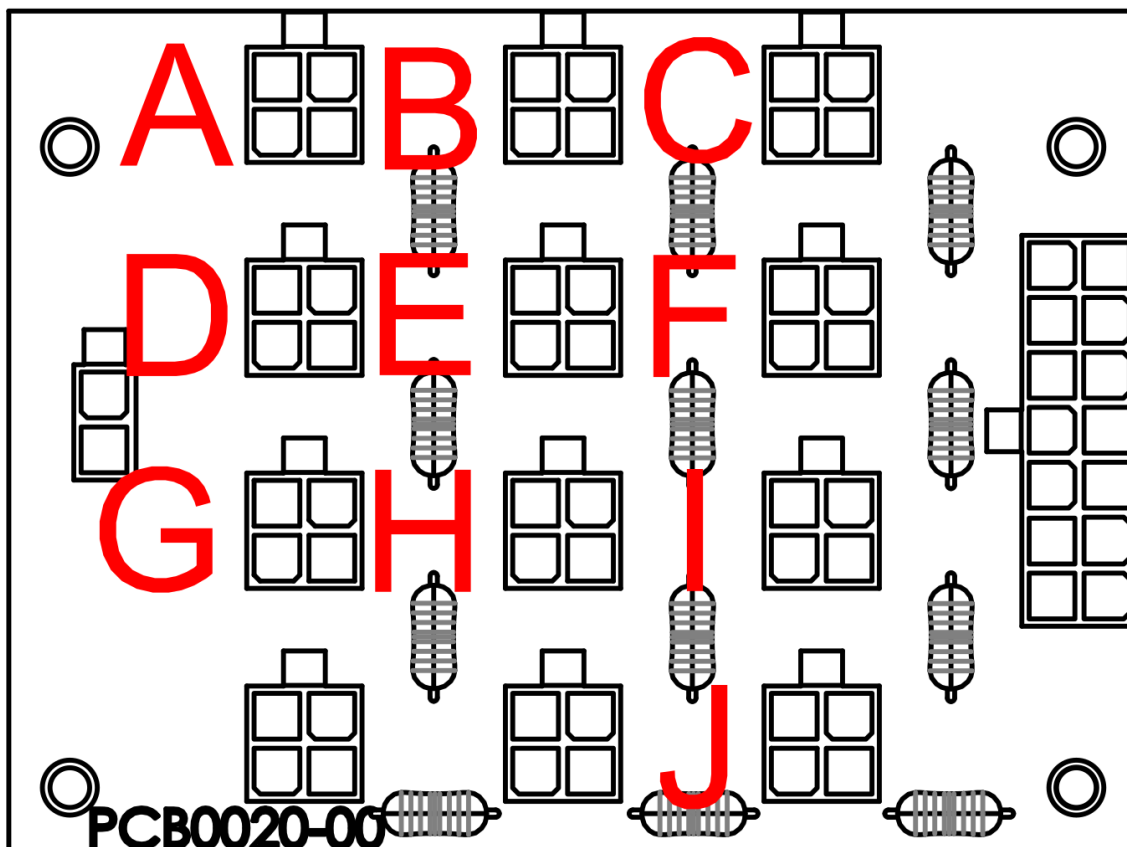


Figure 12 Opto Board Connector Positions

Location	Position
A	Swing Spaceship Mech
B	Tank Alien Home
C	Tank Alien Down
D	Plastic Ramp Right Exit
E	Plastic Ramp Left Side Exit
F	Plastic Ramp Right Side Exit
G	Plastic Ramp Enter
H	Lock 1
I	Lock 2
J	Lock 3

Table 3-17 Opto Board Switches

Add-on board PCB0021-02				Coil Locations				Q = Transistor IRL540N						
		BRN +	BLK -			RED +	BLK -	RED +	BRN	RED +	GRY	RED +	ORG	
48v Power	J10 - Pin2	J10 - Pin3	J10 - Pin4	J10 - Pin5	J11 - Pin3	J11 - Pin4	J11 - Pin5	J11 - Pin6						
	Not Used	KNOCKER	Not Used	Not Used	UPPER MAGNET	RIGHT VUK	LEFT VUK	3 BALL LOCK						
	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15						
Add-on board PCB0021-02				Aux Locations				Q = Transistor DMN3404L-7						
		BLK -	YEL +	BLK -	GRY +	BLK -	ORG +	BLK	BLU +					
12v Power	J1	J2	J3	J4	J5	J6	J7							
	START BUTTON	BACKBOX LED	SHAKER MOTOR	BARREL	Not Used	Not Used	Not Used							
	Q1	Q2	Q3	Q4	Q5	Q6	Q7							

Dip Switch 2,3,8 ON				PD-16 Coil Locations				Q = Transistor IRL540N									
		BLK	GRY	BLK	BRN	BLK	RED	BLK	ORG	BLK	YEL	BLK	GRN	BLK	BLU	BLK	VIO
48v Power BankA - J7	Pin#1	Pin#3	Pin#4	Pin#5	Pin#6	Pin#7	Pin#8	Pin#9									
	LEFT SLINGSHOT	RIGHT SLINGSHOT	LEFT FLIPPER MAIN	LEFT FLIPPER HOLD	DRAIN UP POST MAIN	DRAIN UP POST HOLD	BALL TROUGH	AUTO LAUNCH									
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8									
J3 + ORG																	
		GRY	BLK	GRY	BRN	GRY	RED	GRY	ORG	GRY	YEL	GRY	GRN	GRY	BLU	GRY	VIO
48v Power BankB - J11	Pin#1	Pin#2	Pin#4	Pin#5	Pin#6	Pin#7	Pin#8	Pin#9									
	RIGHT FLIPPER MAIN	RIGHT FLIPPER HOLD	CENTER MAGNET	RIGHT MAGNET	RAMP UP POST	CENTER POP BUMPER	LEFT POP BUMPER	RIGHT POP BUMPER									
	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16									
Add-on board PCB0021-02				Coil Locations				Q = Transistor IRL540N									

Table 3-18 Coil Positions

Fuse Name	Fuse Rating	Voltage	Type	Fuse Voltage
Coil Drive	6.3 Amp	48 VDC	5x20mm Slow Blow	250 Volt
	6.3 Amp	48 VDC	5x20mm Slow Blow	250 Volt
Main Fuse	6 Amp (US) 3 Amp (EU)	120 VAC OR 230 VAC	3AG Slow Blow	250 Volt
Add On Board F1	4 Amp	12 AND 48 VDC	5x20mm Slow Blow	250 Volt
RGB Back Panel	4 Amp	5 VDC	5x20mm Slow Blow	250 Volt

Table 3-19 Fuse Table

CABINET CIRCUIT BOARDS ASSEMBLY

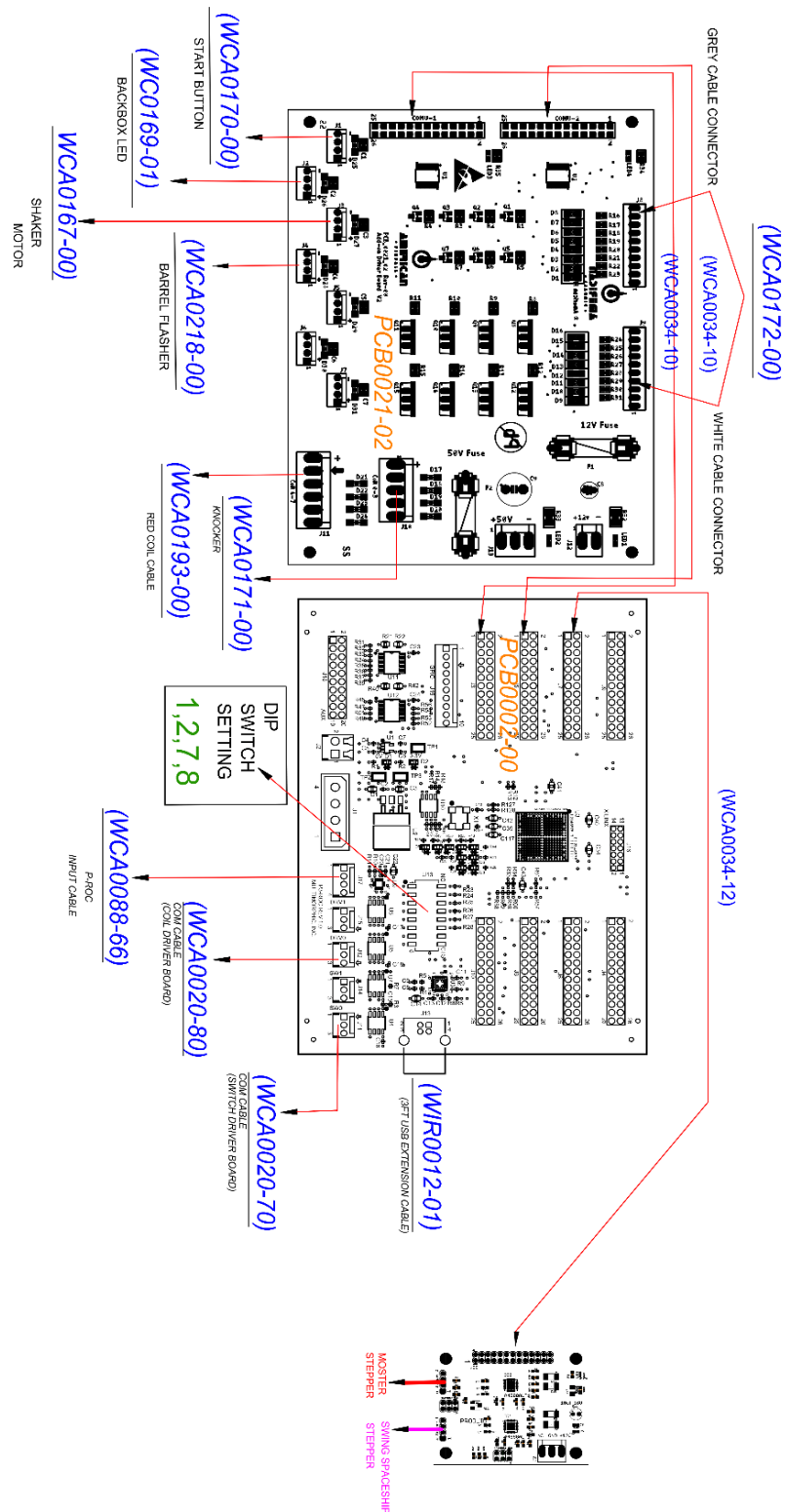


Figure 13 Cabinet Circuit Boards Assembly

POWER DISTRIBUTION

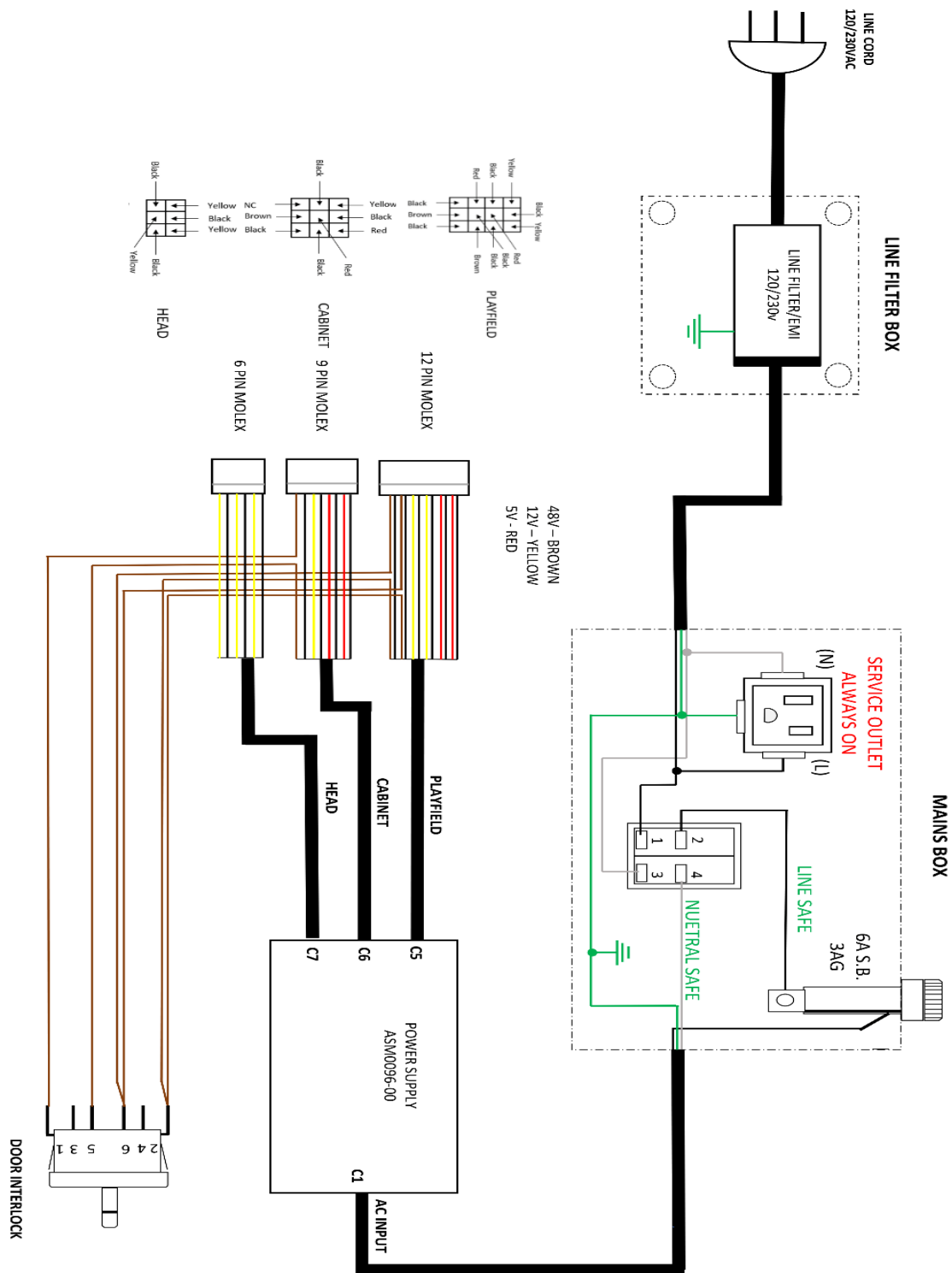


Figure 14 Power Distribution

BOTTOM PLAYFIELD PCB DIP SWITCH POSITIONS

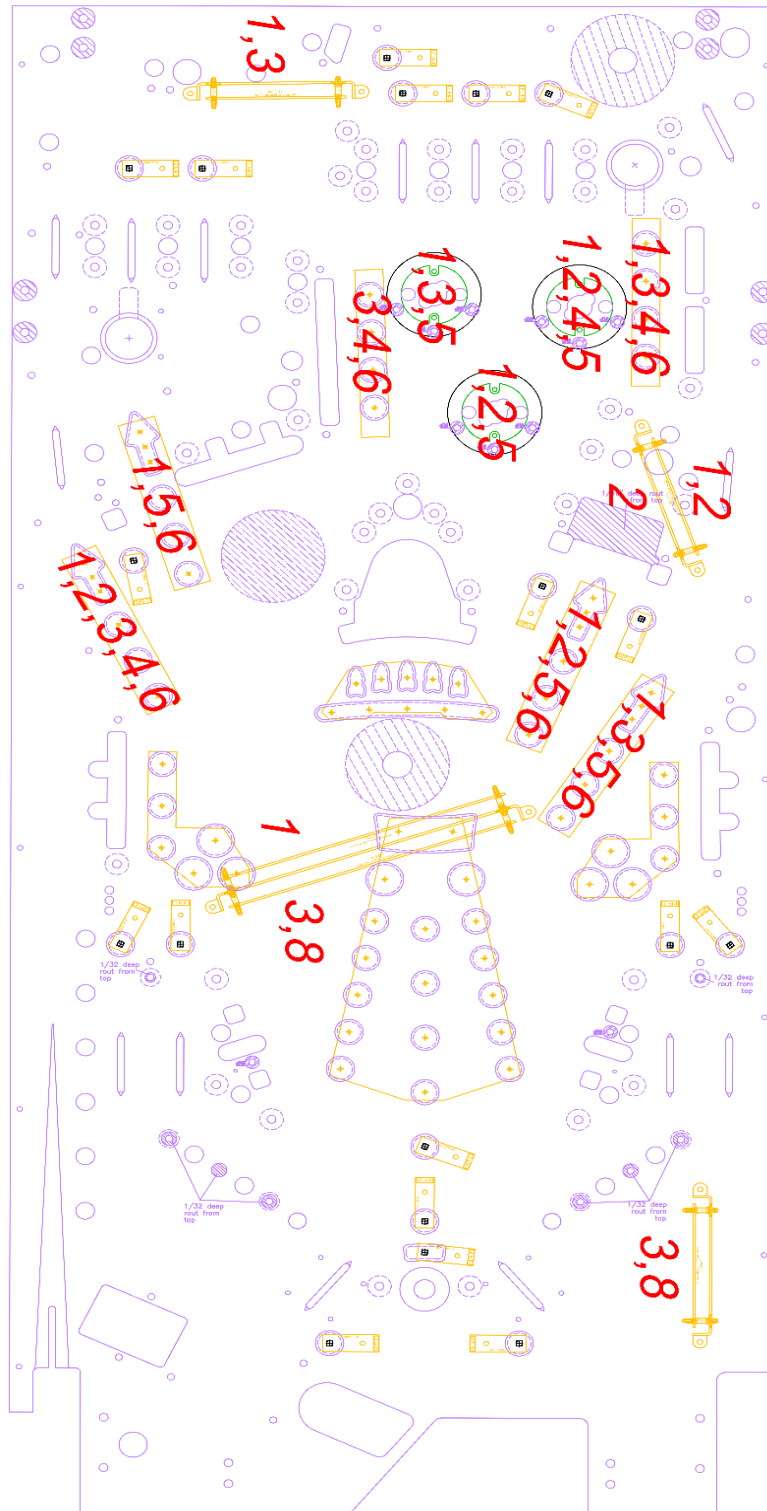


Figure 15 Bottom Playfield PCB Dip Switches

[illegible]

35

RGB COMMUNICATION CABLE POSITIONS

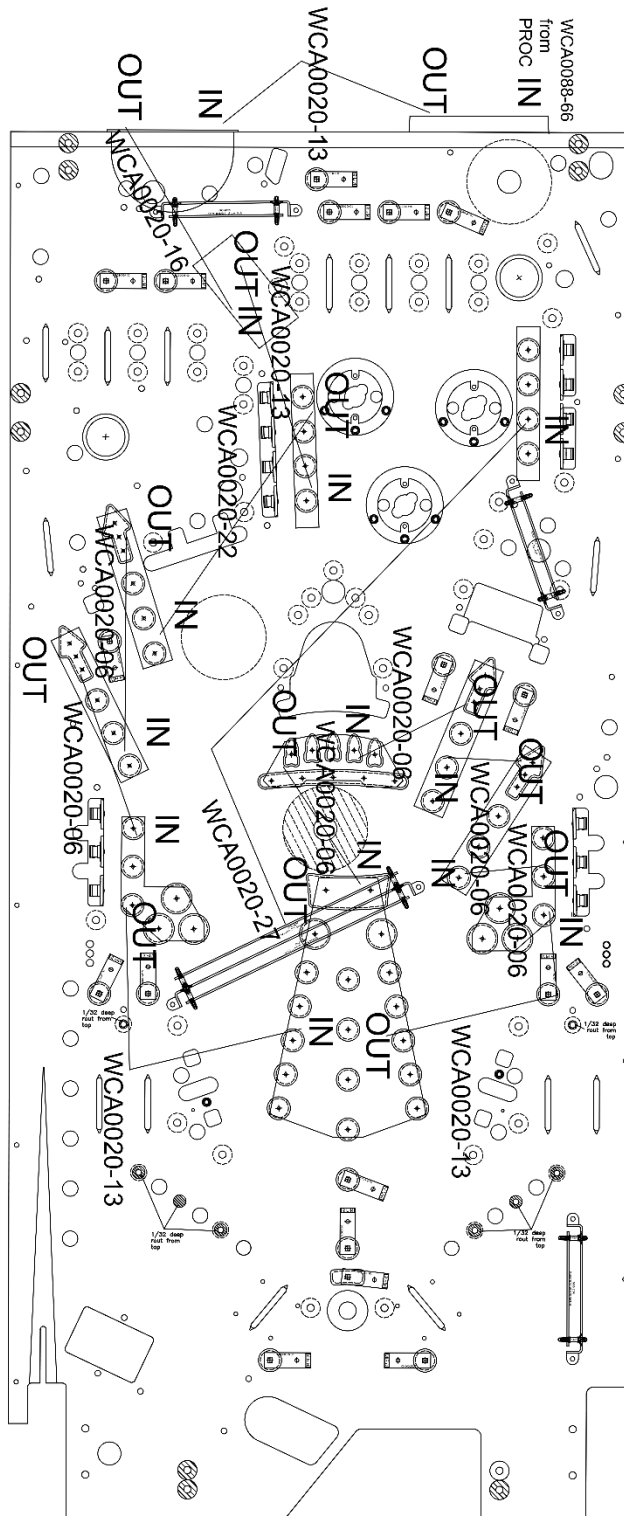


Figure 17 RGB Communication Cable Positions

SWTICH COMMUNICATION CABLE POSITIONS

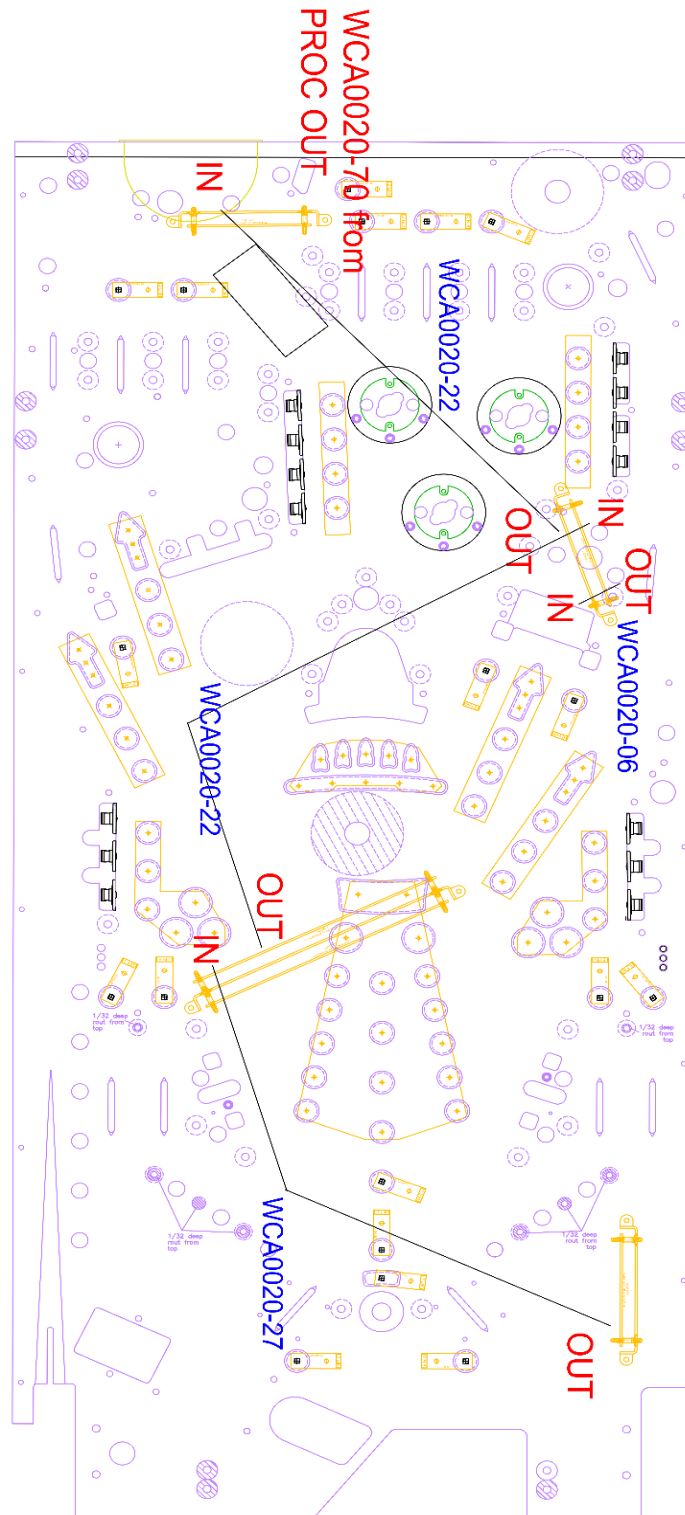


Figure 18 Switch Communication Cable Positions

FLASHER CABLE POSITIONS

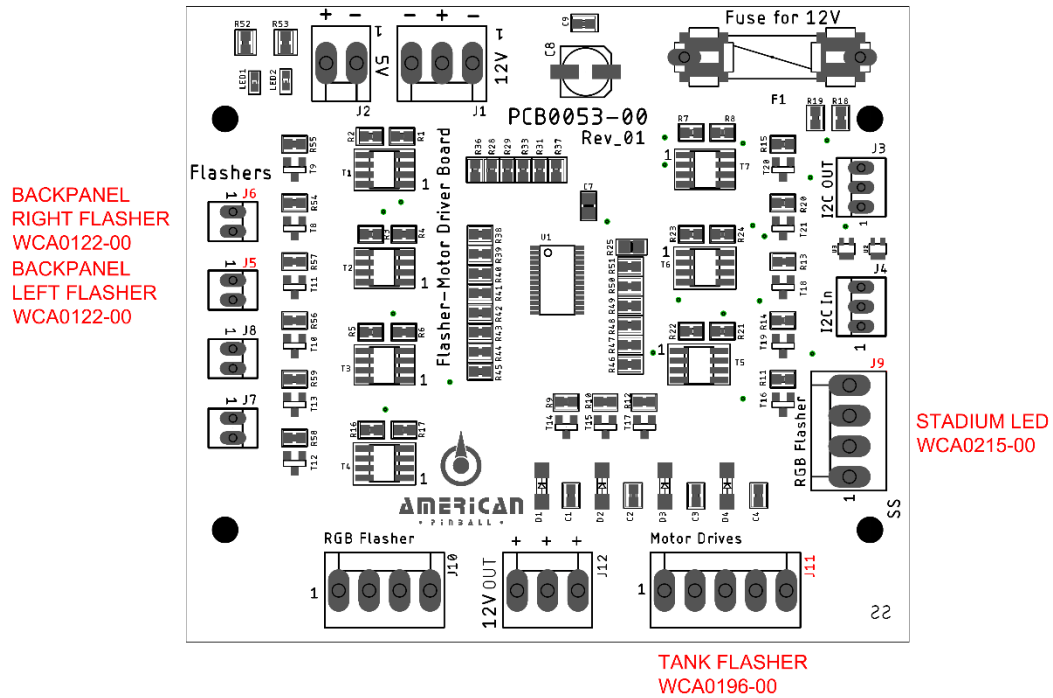


Figure 19 Flasher Cable Positions

SPYBOT CABLE POSITIONS

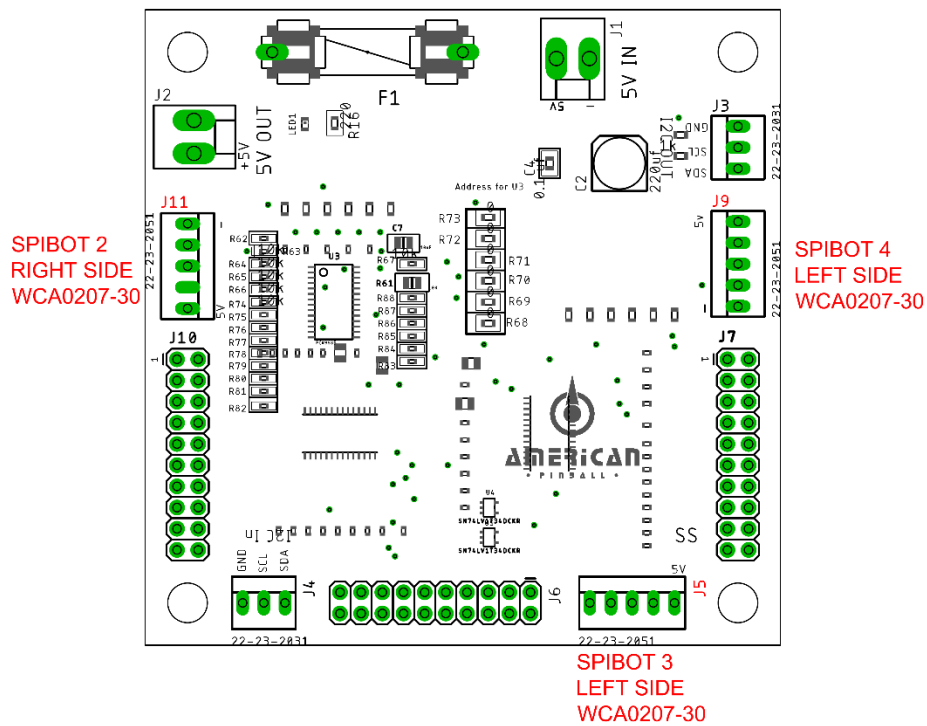


Figure 20 Spybot Cable Positions

CHAPTER 4:

GALACTIC TANK FORCE CODE UPDATE

Please have the following items available before performing a code update:

- A FAT 32 formatted 2.0 USB drive with at least 16 GB of storage

Latest version of game code, which can be downloaded from

<https://www.americanpinball.com/support/updates/> using your computer



Video showing how to update gamecode: https://youtu.be/_n4-7ZSH3UE

WARNING! OPENING THE COIN DOOR EXPOSES HIGH VOLTAGE PARTS IN THE GAME, AND DIRECT CONTACT TO THESE HIGH VOLTAGE PARTS CAN LEAD TO SERIOUS OR FATAL INJURIES. THIS EQUIPMENT IS TO BE SERVICED BY TRAINED PROFESSIONALS ONLY.



How To download code to a Microsoft Windows PC

1. Go to www.american-pinball.com/support/updates/
2. Compare the game version on your machine (in service menu status box) to the most current version available on the site.
3. If your machine is running the most current version of code, enjoy your game! Otherwise, proceed to the next step.
4. Insert a formatted USB drive with at least 8GB of storage into your computer.
5. From File Explorer, right click on the USB drive.
6. Select Format Drive FAT 32.

How To download code to a MAC

1. Go to www.american-pinball.com/support/updates/
2. Compare the game version on your machine to the most current version available on the site.
3. If your machine is running the most current version of code, enjoy your game! Otherwise, proceed to the next step.
4. Insert a formatted USB drive with at least 8GB of storage into your computer.
5. Open Disk Utility.
6. Select USB Drive.
7. Select Erase.
8. Select Format FAT 32.

How To update code

1. Copy the update package (.pkg) code file to the USB drive.
2. Open the coin door and locate the USB extension cable on the inside-side of the cabinet below the flipper switch.
3. Insert the USB drive with the code update package into the USB extension cable.
4. If the game is powered off, turn on (USB can be inserted with power on).
The game will recognize the USB drive and will provide a message on the monitor stating that you have 5 seconds to remove the USB drive or the machine will begin the update process. Takes about 10 min.
5. When the code update process is complete an "Update Complete" message appears. Remove the USB drive from the USB extension cable.
6. Power cycle the game.
7. Enjoy your updated game!

Note: The code version is shown on the home page of the service menu.

COLLECTING GAME LOGS

To assist in game development and troubleshooting, American Pinball may ask for a copy of the game logs. Make sure your game's Date and Time are set correctly in the Utilities menu so you can note the date and time the error occurred.

How to copy game logs

1. Open the coin door and locate the USB extension cable on the inside-side of the cabinet below the flipper switch.
2. Insert a blank USB drive into the USB extension cable.
3. If the game power is turned off, turn on.
4. Wait for the completion screen on the monitor and remove the USB drive.
5. Power cycle the game.
6. Email the files to service@americanpinball.com, include the date and time of the error along with a detailed description of what's going on.

CHAPTER 5:

GALACTIC TANK FORCE GAME RULES

CHAPTER

5

MAIN OBJECTIVES

As the newest member of the Galactic Tank Force, you have been stationed at the research base on the Moon of Lumina. Your mission is to protect the cows from Empress Annoya, who has mobilized tanks and UFOs to steal our cows and drive us off the moon. In addition to fighting off enemies sent from Lumina, you have also been assigned to assist Professor Plotnik in collecting ingredients for his Top Secret Zero Gravity Ice Cream Research.

OVERVIEW OF GAMEPLAY

Missions

Ice Cream Missions

- Start Ice Cream Missions at the right VUK, indicated by the purple mission light.
 - Enable start mission by completing both inlanes.
- **Cream**
 - Hit unique switches to send cows through the milk-o-matic.
 - Once enough cows have been collected shoot Mission Control (Right VUK) to collect the jackpot
- **Walnuts**
 - Use the professors “Nutdar” to locate the purple shot hiding the Walnuts.
 - Collect as many walnuts as you can before the time runs out.
- **Berries**
 - Collect berries at the left ramp.
 - Keep looping the left ramp until enough berries have been collected then keep going.
- **Fudge**
 - Alternate shots between the Lab (Left Ramp) and Mission Control (Right VUK) to pump fudge.
- **Sprinkles**
 - Collect sprinkles by getting spins at both spinners.
 - Once enough sprinkles have been collected shoot the Lab (Left Orbit) or Mission Control (Right VUK) to collect jackpot.
- Complete the 5 Ice Cream Missions (Cream, Walnuts, Berries, Fudge, Sprinkles) to enable the “SUNDAE” mini-wizard mode.

Tank Battles

- Tank battles can have up to three parts:
 - Destroy Shields: hit the tank targets until the tank shields are down.
 - Destroy the Tank: hit the tank targets until it is destroyed.
 - Destroy the Robot: shoot the roving red shot to damage and then destroy it.
- Make your way through 5 tank modes (Alpha, Bravo, Charlie, Delta, Echo) to enable “ZULU” mini wizard mode.

Cow Abductions

- Annoya’s UFO’s will periodically attempt to abduct cows.
- Hit the moving UFO target to save the cow before the time runs out.
- Saving enough cows will start “COW A BONGO” Multiball.

Rank

- Every rank advance increases your bonus multiplier and the value of your mode shots.
- Multiple ways to advance your rank:
 - Make a rank lane skill shot.
 - Complete the two advance rank lanes.
 - Complete the right flank targets while rank is selected.
 - Earn it from the Professor as a mystery award.

Quantum Accelerator Towers

- The set of targets surrounding the pop bumpers are the towers. Complete a tower to start double scoring. Complete a second tower in time to start quadruple scoring.
- To complete one tower:
 - Use your flippers to rotate the selected target.
 - Hit the selected target to light it.
 - Lighting all 4 targets will complete one tower.

Flank Targets

- Advance your forces by hitting the flank targets.
- Completing sets of flank targets (left or right) awards an advance for a mode indicated by the respective flashing LED.
- Left: Meltdown - Pop Bumpers - Quantum Accelerator
- Right: Rank - Cow – Spinners
- Completing sets of flank targets will also light a shot multiplier or increase the value of the tank targets.

LEFT		RIGHT	
Light	Shot X	Light	Shot X
Pops	Tank Target	Spinners	Tank Targets
Meltdown	Ramp Value	Rank	Mission Lane (Right VUK)
Quantum Accelerator	Left Orbit	Cow	Right Orbit

Lucky Break

- Your ball is saved if it falls through the Lucky Break Lanes underneath the flippers when lit.

Atomic Shield

- Atomic Shield is enabled when the Defense light is flashing.
- If enabled, shooting the tank targets will raise the Atomic Shield between the flippers to try to save your ball.

Methane Blaster

- Charge your methane blaster by refueling it at lit “Charge Methane” shots.
- When the methane blaster is fully charged, shoot the indicated tank target (blue flashing LED) to destroy the tank in one shot.

SKILL SHOTS (2)

LAB Skillshot

- Plunge the ball into the lit upper lane to immediately open Plotnik’s Lab.

Advance Rank

- Plunge into one of the advance rank lanes to instantly rank up.

Secret Skill Shots

- There are more skill shots. Can you find them all?

MULTIBALL MODES (3)

Meltdown Multiball

- Hitting enough pop bumpers will start Meltdown Multiball (2-ball Multiball).
- A hurry-up value will start counting down quickly.
- Shoot green arrows to collect the jackpot, increase the hurry-up value and boost the super jackpot.
- Hit pop bumpers to cool the meltdown and score a percentage of the jackpot value with each hit.
- Once the meltdown is controlled, go to Professor Plotnik (left orbit to the LAB) to finish the job.

Air Strike Multiball

- Light the ‘A’, ‘I’, and ‘R’ targets to enable lock.
- Shoot the left orbit to lock balls (3).
- In multiball, shoot the lit blue arrow shots to take down all Annoya’s Spybots.
- Once the Spybots are gone, shoot the moving UFO Target to take down the mothership.
- Shoot the left ramp for Super Jackpot victory laps before the next wave of Spybots comes in.

Cow-A-Bongo Multiball

- The cows are having a dance party in your honor!
- Cyan shots score jackpots.
- Shoot the moving UFO target to score a jackpot and add another jackpot shot.
- Hit the UFO target enough times to score the Super Jackpot.

WIZARD MODES (3)

Tank Zulu – Destroy all tanks and Empress Annoya will try to get revenge by using her ultimate weapon!

Sundae – Congratulations! You have completed Professor Plotnik's Zero Gravity Ice Cream experiment!

Ice Cream Social – To start this wizard mode, destroy all tanks, get all the achievements and complete Professor Plotnik's experiment. Can we all be friends? Find out!

Preset	Extra Easy	Easy	Medium	Hard	Extra Hard	Competition	Home	Location
Standard								
Attract Mode Sounds	On	On	On	On	On	On	On	On
Attract Mode Music	Off	Off	Off	Off	Off	Off	Off	Off
Game Restart	On	On	On	On	On	Off	On	Off
Balls Per Game	3	3	3	3	3	3	3	3
Clear Shooter Lane After 60 Sec	Off	Off	Off	Off	Off	Off	Off	On
Match Feature						Off	Off	
Tournament Mode						On		
Pricing								
Free Play							On	Off
Features								
Air Strike Add Ball Difficulty	Easy	Medium	Medium	Medium	Hard			
Air Strike Ball Save Time	21	18	15	12	9			
Air Strike Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Air Strike Super Jackpot Time	24	20	16	12	8			
Ball Save Timer	18	25	12	9	6			
Cow a Bongo Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Defense Shield Time	30	25	20	15	10			
Initial Hits for Neutron Bomb	2	3	4	5	6			
Max Number of Extra Balls	6	5	4	3	2			
Meltdown Multiball Save Time	21	18	15	12	9			
Meltdown Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Meltdown Super Jackpot Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Methane Blaster Single Shot	No	No	No	Yes	Yes			
Mission Start Difficulty	Extra Easy	Easy	Medium	Hard	Extra Hard			
Multiple Ball Saves Allowed	Yes	Yes	No	No	No			
Quantum Accelerator Time	24	20	16	12	8			
Tilt Bob Settle Time	4	3	3	3	2			
Tilt Warnings	4	3	2	1	1			
Replay								
Replays						Disabled	Enabled	Enabled
Replay Award Type						Off	Extra Ball	Replay
Replay Type						Off	Fixed	Incremental

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 API Tech Tip Videos



https://www.youtube.com/channel/UC9_k0XRo6IbeyeOuQy4Hseg/videos



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