



A Stern Home Arcade Original

SETUP GUIDE

1-800-KICKERS - service@sternpinball.com
www.sternpinball.com - facebook.com/sternpinball

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

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IMPORTANT SAFETY INSTRUCTIONS - PLEASE READ FIRST



1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not operate this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the grounding type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if the power-supply cord or plug has been damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. The pinball machine shall be connected to a mains socket outlet with a protective earthing connection.
15. WARNING: To reduce the risk of fire or electric shock, do not expose apparatus to rain or moisture.
16. DO NOT expose the pinball machine to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the machine.
17. The DPDT rocker switch located under the backbox of the game turns the unit on and off. This switch cuts off both the Hot and Neutral electrical lines. This is the power switch. When the switch is depressed in the "1" position the power is ON. When depressed in the "0" position, the power is off. The power switch shall remain operable.
18. CAUTION: To reduce the risk of electric shock, servicing other than mentioned in the operating instructions should only be done by qualified service personnel unless you are qualified to do so.
19. Do not expose the battery on the CPU board, located in the top backbox, to excessive heat such as direct sunlight, fire, or other heat sources.
20. Use only legs specified by the manufacturer, or those sold with the apparatus.



Lightning in a triangle warns that there is dangerous electricity inside an appliance or product.



An exclamation mark in a triangle mean there are important instructions you should read.

CLEANING/CARE

GLASS SURFACE

USE A STANDARD HOUSEHOLD GLASS CLEANER WITH A SOFT CLOTH.

PLAYFIELD AND PLASTICS SURFACE

USE A HOUSEHOLD FURNITURE POLISH APPLIED TO A SOFT CLEAN MICROFIBER CLOTH. DO NOT SPRAY DIRECTLY ONTO SURFACE OR PLAYFIELD. AVOID DIRECT CONTACT BETWEEN LIQUIDS AND PLAYFIELD.

FOR OPTIMAL PERFORMANCE AND GAMEPLAY IT IS STRONGLY ADVISED TO CLEAN THE PLAYING SURFACE REGULARLY (I.E. EVERY 2-4 WEEKS IF USED FREQUENTLY)

LIMITED CONSUMER WARRANTY



**6 MONTHS LABOR
6 MONTHS PARTS
6 MONTHS DISPLAY**

**ANY QUESTIONS CONTACT:
1-800-KICKERS (542-5377)
service@sternpinball.com**



WARRANTY

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

STERN PINBALL, INC. LIMITED WARRANTY

Stern Pinball, Inc. ('SELLER') warrants only to the initial purchaser of its products that the items listed below are free from defects in material and workmanship under normal use and service for the warranty period specified:

- Printed circuit boards (game logic): 6 months
- Dot Matrix / LCD Display: 6 months
- Power Supply: 6 months

No other parts of seller's product are warranted.

Warranty periods are effective from the initial date of shipment from SELLER to its authorized distributors or if sold by SELLER direct to end user, date of shipment to each end user.

SELLER's sole liability shall be, at its option, to repair or replace parts which are returned to SELLER during the warranty periods specified, provided:

1. SELLER is notified promptly upon discovery by purchaser that stated parts are defective.
2. Such parts are properly packaged and then returned freight prepaid, to SELLER's plant.

This warranty does not apply to any parts damaged during shipment and/or due to improper handling, or due to improper installation or usage, or alteration. In no event shall the seller be liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages, or any other losses incurred by the customer in connection with the purchase of a Stern Pinball, Inc. part.

PARTS RETURN PROCESS

If you believe that your pinball has malfunctioned, please contact support in order to diagnose the issue:

- Phone: 1-800-542-5377
- Email: service@sternpinball.com

The Stern Pinball service department will issue an RMA for parts that are determined to be faulty.

WARRANTY DISCLAIMER

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.

This Game Service Manual and all other documents relating to this product, playfield components, features, rules, programming, and operation are subject to change without notice (Service Bulletins, if applicable, available through official Stern Pinball website).

WARNINGS AND NOTICES

PHOTOSENSITIVE SEIZURES HEALTH WARNING



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

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

PARTS SUBSTITUTIONS



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

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

ATTENTION! IMPORTANT WARRANTY INFORMATION

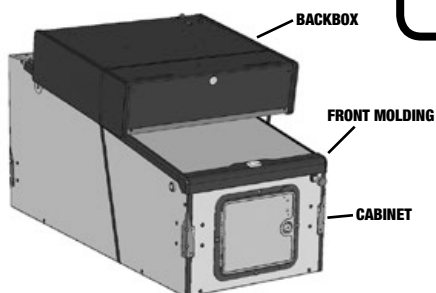
The electronics system, node network architecture, mechanical devices and associated software control systems in this pinball machine are designed to work with genuine Stern Pinball accessories and devices. Installation of non-authorized accessories, lamps, LED's, motors or other devices or modification of electro-mechanical devices may damage the system and will void your warranty.

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

PARTS LIST

TOOLS REQUIRED:

- 5/8" WRENCH OR SOCKET DRIVER



1 GAME CABINET



4 LEGS AND LEVELERS



POWER CORD



8 CABINET LEG BOLTS



4 PINBALLS



2 BACKBOX BOLTS



SETUP GUIDE

INDEX

INITIAL SETUP • 6

VOLUME ADJUSTMENT • 11

SERVICE MENU • 11

SERVICE MENU ADJUSTMENTS • 14

PLAYFIELD & CABINET ELECTRICAL • 15

DRIVER REFERENCE • 15

SWITCH REFERENCE • 17

LIGHT REFERENCE • 21

MOTOR REFERENCE • 25

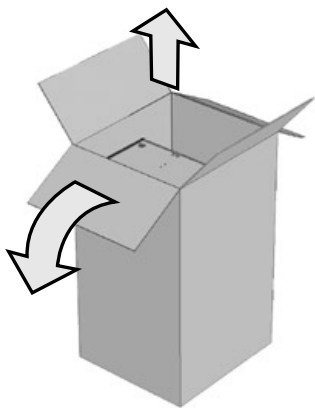
PLAYFIELD TOP ASSEMBLIES • 26

PLAYFIELD BOTTOM ASSEMBLIES • 28

PLAYFIELD RUBBER & MAINTENANCE PARTS • 30

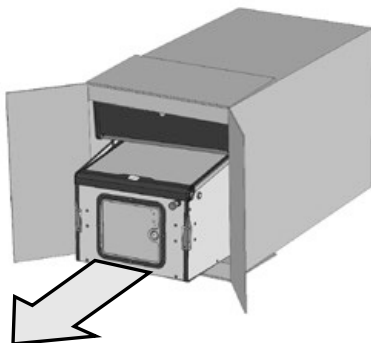
INITIAL SETUP (2 PEOPLE REQUIRED)

1 OPEN CARTON



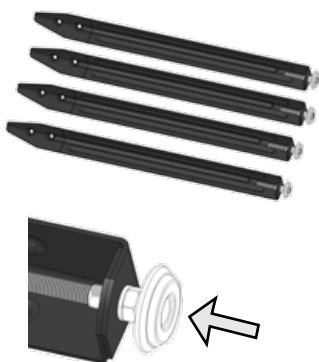
CAREFULLY TILT CARTON
FORWARD ONTO THE FLOOR

2 UNBOX GAME



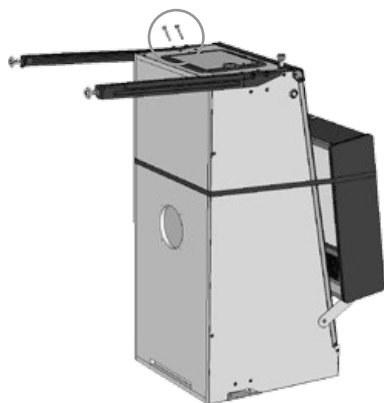
TAKE HOLD OF THE CABINET
AND CAREFULLY PULL GAME
OUT FROM CARTON

3 REMOVE 4 LEGS FROM CARTON



CHECK THAT BOTTOM LEG
LEVELERS ARE FULLY SEATED

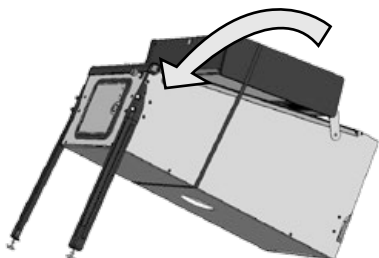
4 STAND GAME ON END



INSTALL BOTH FRONT LEGS
EACH USING 2 OF THE BOLTS
SUPPLIED WITH THE GAME

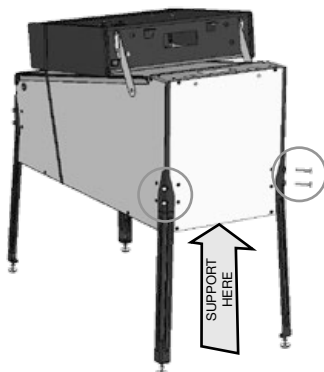
5 WITH ASSISTANCE

ROCK THE CABINET FORWARD



UNTIL THE FRONT LEGS ARE
ON THE FLOOR

6 AGAIN, WITH ASSISTANCE, CAREFULLY LIFT THE BACK OF THE CABINET AND PLACE ON A STURDY SUPPORT OBJECT



INSTALL AND TIGHTEN BOTH
BACK LEGS USING 2 BOLTS
EACH

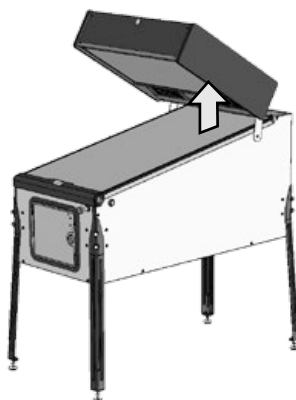
7 CUT THE STRAP

SECURING THE BACKBOX TO
THE REST OF THE CABINET



8 LIFT BACKBOX

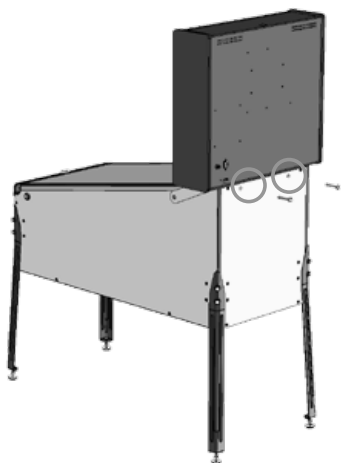
UNTIL IT IS IN AN UPRIGHT
POSITION



TAKE CARE TO MAKE SURE NO
CABLES ARE PINCHED WHILE
LIFTING THE BACKBOX

9 SECURE BACKBOX

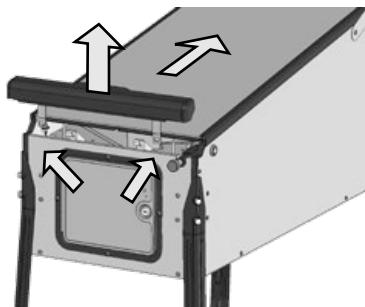
USING THE TWO 5/8"
BACKBOX BOLTS INCLUDED



INSTALLING PINBALLS

1

REACH INSIDE THE CABINET
AND LIFT THE TWO LATCHES
LOCATED ON EITHER SIDE OF
THE FRONT DOOR

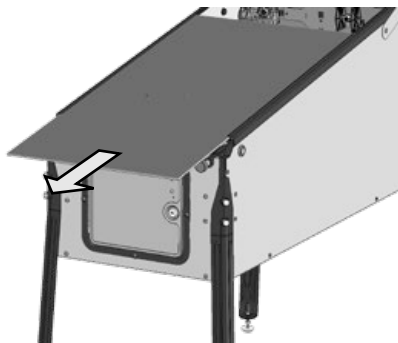


SLIDE PLAYFIELD GLASS
SLIGHTLY TOWARDS THE
BACKBOX THEN PARTIALLY
LIFT UP THE FRONT MOLDING

UNPLUG 4-PIN CONNECTOR
BEFORE FULLY LIFTING OFF
THE FRONT MOLDING

2 TO INSTALL PINBALLS

SLIDE PLAYFIELD GLASS
DOWN PARTIALLY AND PLACE
THE PINBALLS INTO THE
PLAYFIELD AREA



SLIDE PLAYFIELD GLASS
COMPLETELY OUT FROM
THE FRONT AND CAREFULLY
PLACE IN A SAFE AREA IF
ACCESS TO THE PLAYFIELD
IS NEEDED

TILT ADJUSTMENT

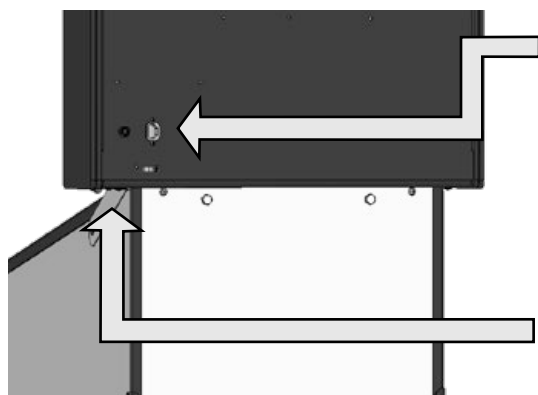
- 1** LOCATE THE TILT SENSOR INSIDE THE FRONT DOOR BY THE LEFT SIDE PANEL.
- 2** REMOVE ANY SHIPPING MATERIAL COVERING THE TILT SENSOR.
- 3** SENSITIVITY OF THE TILT HAS BEEN FACTORY ADJUSTED. IF FURTHER ADJUSTMENT IS REQUIRED, LOOSEN THUMB SCREW, ADJUST THE PLUMB BOB, AND RETIGHTEN.

NOTE: THE VERTICAL POSITION OF THE PLUMB BOB AFFECTS TILT SENSITIVITY - HIGHER MAKES THE GAME MORE SENSITIVE TO TILTING.

LEVELING

- 1** ADJUST THE FRONT OR REAR LEVELERS AS NECESSARY TO POSITION THE PLAYFIELD BUBBLE LEVEL, LOCATED ON THE FRONT RIGHT OF THE PLAYFIELD NEXT TO THE SHOOTER LANE, TO FLOAT BETWEEN THE TWO (2) BLACK LINES. THIS WILL PLACE THE PLAYFIELD AT THE RECOMMENDED 6.5° PITCH.
- 2** USE A PINBALL TO ROLL DOWN THE CENTER OF THE PLAYFIELD FOR SIDE-TO-SIDE LEVELING, OR USE AN EXTERNAL BUBBLE LEVEL, DIGITAL LEVEL, OR SMARTPHONE LEVEL APP.

INITIALIZATION



ATTACH THE POWERLINE CORD TO THE BACK OF THE GAME ON THE BACKBOX AND PLUG THE CORD INTO A 3-PRONG POWER OUTLET

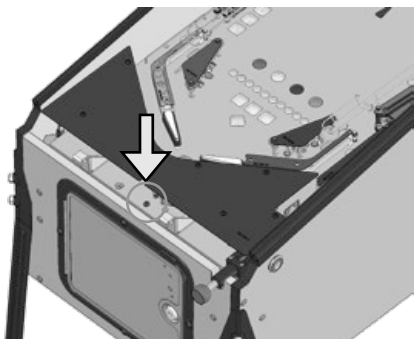
FLIP THE POWER SWITCH LOCATED ON THE UNDERSIDE OF THE RIGHT EDGE OF THE BACKBOX TO POWER ON THE GAME

PLAYFIELD ACCESS

(FOR QUALIFIED SERVICE PERSONNEL ONLY)

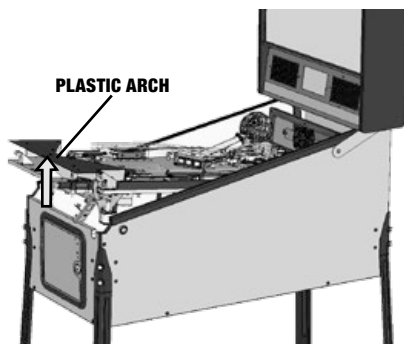
1

UNSCREW THE BLACK PLAYFIELD KNOB AT THE BOTTOM CENTER OF THE PLAYFIELD



2 CAREFULLY LIFT

THE PLAYFIELD BY THE MIDDLE OF THE PLASTIC ARCH

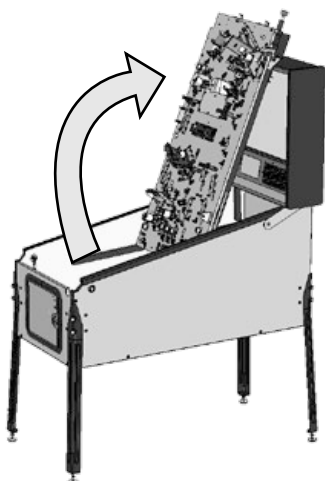


LIFT THE PLAYFIELD UP AND THEN PULL SLIGHTLY TOWARDS YOU

PLAYFIELD SHOULD STOP SLIDING AT A NOTCH ABOUT A FOOT AWAY FROM THE BACK OF THE CABINET

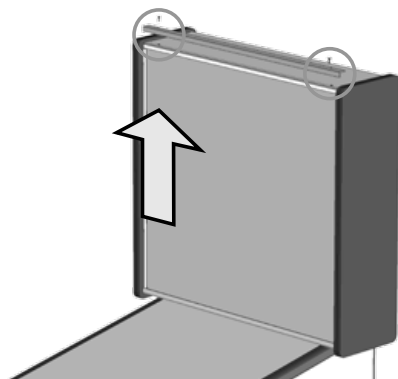
3

LIFT THE PLAYFIELD UP ON ITS END RESTING IT AGAINST THE BACKBOX



CAUTION: TAKE CARE AS PINBALLS COULD FALL OUT OF THE BALL TROUGH WHILE LIFTING THE PLAYFIELD

BACKBOX ACCESS



IF ACCESS TO THE BACKBOX IS NECESSARY, REMOVE 2 PHILLIPS SCREWS ON THE TOP OF THE BACKBOX

REMOVE GLASS BRACKET AND LIFT GLASS UP AND OUT

VOLUME ADJUSTMENT

Volume Menu Control:

Green -	Exit to Attract Mode
Left Red -	Decrease Volume
Right Red -	Increase Volume
Black -	Enter Service Menu

Open the door on the front of the machine to gain access to the service control buttons. The four buttons for changing settings will be located on the inside of the front door. Press the right red button to increase the volume of the game. Press the left red button to decrease the volume. The current volume will be shown on the main display.



SERVICE MENU

Service Menu Control:

Green -	Back/Escape
Left Red -	Left/Minus
Right Red -	Right/Plus
Black -	Enter/Select

Open the door on the front of the machine to gain access to the service control buttons. Press the black button to continue into the Service Menu. The left and right red buttons are used to browse the options within the Service Menu. Use the black button to select an item in the menu and see available options. The green button is used to back out of menu options, returning to the previous screen. To exit out of the Service Menu, press the green button until the game goes back into Attract Mode.

SERVICE MENU CONTINUED



DIAGNOSTICS

The Diagnostics Menu is used to access various tests to verify that your machine is working properly or to help diagnose potential problems.



SWITCH

Switch Test: Close each switch by hand and observe the display. If the switch is working properly it will display the name and corresponding number of the switch when it is activated.

Active Switch Test: Shows all active switches on the playfield. This test is useful for identifying if a switch is stuck.



COIL

Coil Test: Used to test individual coils on the playfield. Use the left and right flipper buttons to select a coil to test. Press the start button to fire the coil. CAUTION: Keep hands clear from playfield while testing coils.

Cycle Coil Test: Automatically cycles through all coils on the game to verify complete functionality. Observe the playfield and make sure each corresponding coil fires as the game cycles through each.



LAMP

LED Test: Selects individual lights to flash on the playfield. Use the left and right flipper buttons to cycle through all the lights on the game. The corresponding light flashes as it is displayed on the screen.

All LED Test: The CPU will illuminate all LEDs on the playfield. Useful for identifying possible non-functioning LEDs without cycling through every light.

G.I. (General Illumination): Lights the three general illumination areas of the playfield at the lower, middle, and upper areas of the game. Use the flipper buttons to cycle through each.



NODE

Node Test: Checks the status of the node boards. In this case the CPU Node 0 and the Playfield Core Node 8.

SERVICE MENU CONTINUED



GAME

Bank: Tests the functionality of the 3-Bank Drop Target Assembly. Manually hit the drop targets and watch the display. The display should indicate any dropped targets. Useful for checking the functionality of switches in the drop target bank. If any of the targets are recessed, press the start button to reset them.



CLEAR TROUGH

Clear Trough Test: This test allows for a simple method of removing pinballs from the trough and making sure the trough correctly detects any pinballs it is currently holding. The display should indicate if and how many pinballs are installed as well as the corresponding activated switches. Press the start button to activate the autolauncher and remove pinballs from the trough. It is a good idea to do this before intending to lift the playfield.



DOT MATRIX

Dot Matrix Test: Exercises the dot matrix display to test the illumination of all pixels in the display. No interaction is necessary. The test will continue to loop on its own. Press the launch button to exit out of the test.



ADJUSTMENTS

The Adjustments Menu is used to make changes to settings related to the gameplay of the pinball machine. Use the flipper buttons to cycle through all the game options. Press the start button to select an adjustment. The adjustment will flash when it is selected. Use the flipper buttons to change the selected adjustment and hit the start button to save the changes.

SERVICE MENU ADJUSTMENTS

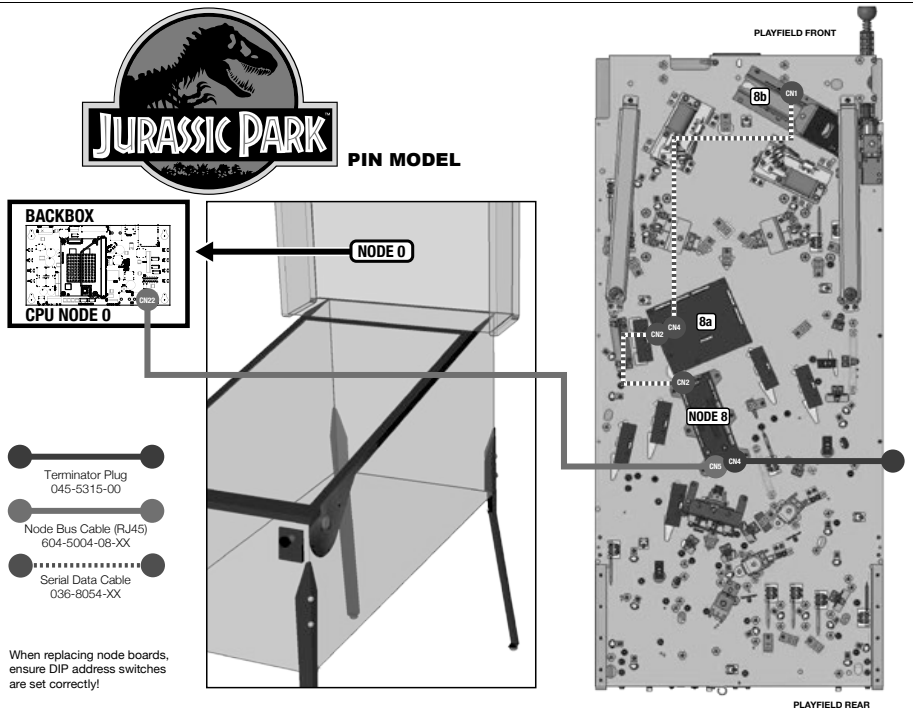
STANDARD ADJUSTMENTS

ID	Adjustment Name	Default Setting
21	Balls Per Game	3
22	Max Players Per Game	4
23	Tilt Warnings	2
24	Tilt Debounce	750
26	Allow High Scores	Yes
33	Grand Champion Score	15,000,000
34	High Score #1	12,500,000
35	High Score #2	10,000,000
36	High Score #3	7,500,000
37	High Score #4	5,000,000
38	HSTD Initials	10 Letter Name
39	HSTD Reset Count	Off
41	Language	English
43	Custom Message	On
45	Start Game On Credit	Off
46	Game Restart	Yes
48	Start Button Attract Mode Illum.	Blinking
49	Allow Left + Start to End Game	Free Play Only
50	Ball Save Time	0:10
51	Target Game Time	No Target Time
52	Timed Plunger	Off
53	Flipper Ball Launch	Off
55	Competition Mode	No Target Time
56	Fast Boot	Yes
57	024 Option	Coin Meter
59	Player Game Mode	Yes
60	Player Competition Mode	No
63	DJ Mixer Mode	Yes
64	DJ Mixer Playlist Mode	Ordered Playback
65	DJ Mixer Playlist Repeat	Yes
66	Location ID	0
67	Game ID	0
68	Time Format	12-Hour
72	Lost Ball Recovery	Yes
80	GI LED Brightness	100%
81	GI LED Max Brightness	255
82	Insert LED Brightness	100%
83	Insert LED Max Brightness	255
84	Flasher LED Brightness	100%
85	Flasher LED Max Brightness	255
87	Attract Mode B.Box Brightness	0%
88	Game Play B.Box Brightness	0%
89	Service Menu B.Box Brightness	2%

FEATURE ADJUSTMENTS

ID	Adjustment Name	Default Setting
1	Ball Launch Power	200
2	Disable Drop Targets	No
3	Slingshot Power	32
4	Disable Left Control Gate	No
5	Trough Eject Power	190
6	Allow Mode Adv. and MB Stack	Yes
7	T-Rex Multiball Champion	1,000,000
8	Raptor Multiball Champion	1,000,000
9	Escape Nublar Champion	5,000,000
10	Restore Power Champion	10,000,000
11	Bonus Champion	500,000
12	Music Attenuation	0
13	Speech Attenuation	0
14	Easier Restore Power	No

PLAYFIELD & CABINET ELECTRICAL

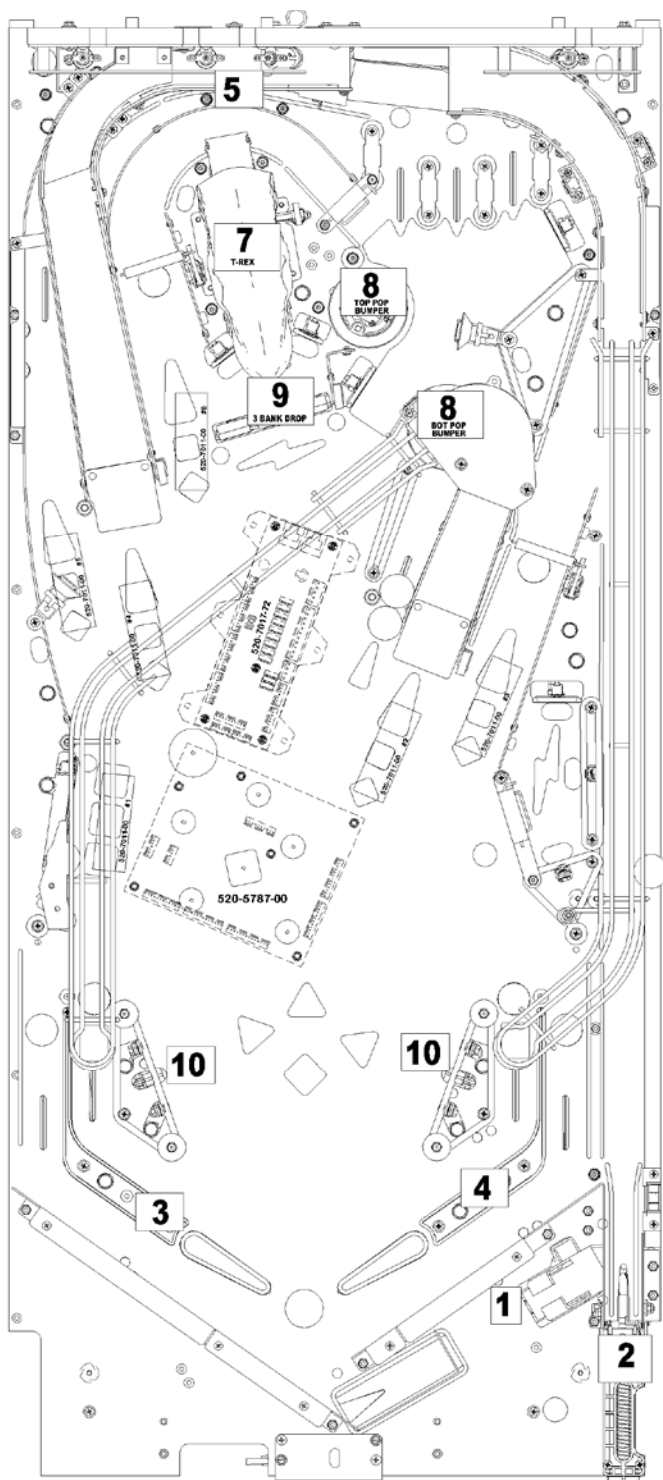


NODE REFERENCE

ID	DIP Address	Description	Location	Part Number
Node 0	n/a	SPIKE 2 CPU Node	Backbox	509-1003-01
Node 8	OFF-OFF-OFF-OFF	Playfield 48V Core-Driver Node	Lower Playfield	520-7017-72
8a	n/a	PCB Main LED	Playfield	520-5787-00
8b	n/a	Trough Serial Opto Receiver Extension	Playfield	520-8516-00
Node 12	ON-OFF-OFF-OFF	Topper (Optional)	Topper	520-6976-72

DRIVER REFERENCE

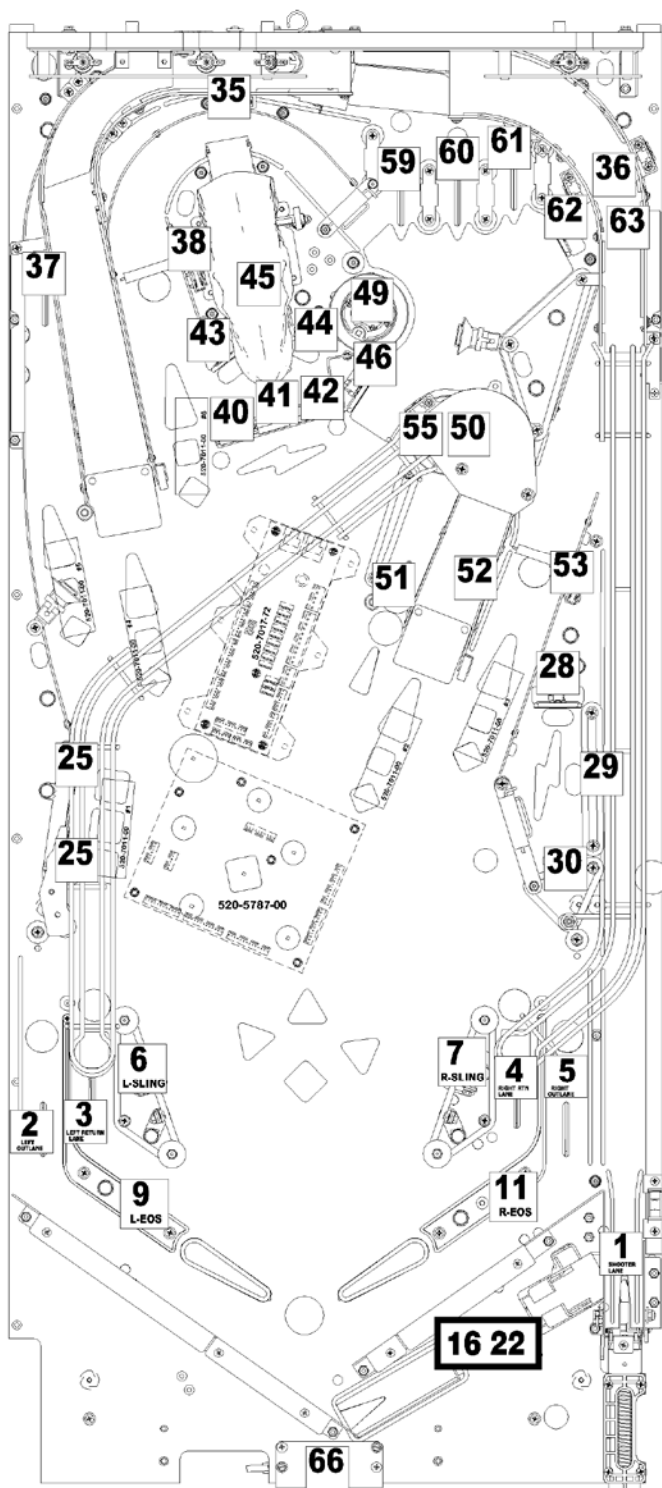
ID	Name	Node	Connector	Ret. Pin	Ret. Wire	Voltage	V+ Pin	V+ Color	Location	Type	Address	Part Number
1	Trough	8	CN8	7	ORG GRY	48V	3/4	GRY ORG	Playfield	Coil - 27-1500	8-DR-1	090-5004-ND
2	Auto Plunger	8	CN8	9	ORG WHT	48V	3/4	GRY ORG	Playfield	Coil - 24-940	8-DR-4	090-5036-ND
3	Left Flipper Power	8	CN8	6	ORG YEL	48V	2	GRY ORG	Playfield	Coil - 23-900	8-DR-5	090-5020-30-ND
4	Right Flipper Power	8	CN8	5	ORG GRN	48V	1	GRY ORG	Playfield	Coil - 23-900	8-DR-0	090-5020-30-ND
5	Control Gate	8	CN7	4	ORG BLK	48V	1	GRY ORG	Playfield	Coil - 32-1250	8-DR-7	090-5060-01-ND
6												
7	T-Rex	8	CN7	3	ORG BLU	48V	1	GRY ORG	Playfield	Coil - 26-1200	8-DR-6	090-5044-ND
8	Top/Bottom Pop Bumper	8	CN7	2	ORG RED	48V	1	GRY ORG	Playfield	Coil - 26-1200	8-DR-8	090-5044-ND
9	3-Bank Drop Reset	8	CN8	11	ORG BRN	48V	3/4	GRY ORG	Playfield	Coil - 25-1240	8-DR-3	090-5034-ND
10	Left/Right Slingshot	8	CN8	10	ORG VIO	48V	3/4	GRY ORG	Playfield	Coil - 26-1200	8-DR-2	090-5044-ND



Driver Location Map

SWITCH REFERENCE

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
1	Shooter Lane Opto	8	-	CN10	2	GRY WHT	7/8/9	BLK GRN	Playfield	Opto	8-SW-28	520-8115-00 tx 520-8116-00 rx
2	Left Outlane	8	-	CN11	4	LGN RED	11	BLK ORG	Playfield	Rollover	8-SW-17	500-9935-03
3	Left Return Lane	8	-	CN11	5	LGN ORG	11	BLK ORG	Playfield	Rollover	8-SW-18	500-9935-03
4	Right Return Lane	8	-	CN11	6	LGN YEL	11	BLK ORG	Playfield	Rollover	8-SW-19	500-9935-03
5	Right Outlane	8	-	CN11	7	LGN BLU	11	BLK ORG	Playfield	Rollover	8-SW-20	500-9935-03
6	Left Slingshot	8	-	CN10	4	GRY BLU	7/8/9	BLK GRN	Playfield	Leaf	8-SW-30	180-5231-00
7	Right Sling-shot	8	-	CN10	3	GRY VIO	7/8/9	BLK GRN	Playfield	Leaf	8-SW-29	180-5231-00
8	L Flipper Button	8	-	CN9	4	GRY BRN	7	BLK GRN	Cabinet	Leaf	8-SW-25	180-5160-01R
9	Left Flipper EOS	8	-	CN10	6	GRY YEL	7/8/9	BLK GRN	Playfield	Leaf	8-SW-16	180-5149-00
10	R Flipper Button	8	-	CN9	3	GRY RED	7	BLK GRN	Cabinet	Leaf	8-SW-24	180-5160-01R
11	Right Flipper EOS	8	-	CN10	5	GRY GRN	7/8/9	BLK GRN	Playfield	Leaf	8-SW-31	180-5149-00
12												
13												
14												
15												
16	Trough 6	8	8b	CN14	-		-		Playfield	Opto	8-SW-40	520-5344-00 tx 520-8516-00 rx
17	Trough 5	8	8b	CN14	-		-		Playfield	Opto	8-SW-41	520-5344-00 tx 520-8516-00 rx
18	Trough 4	8	8b	CN14	-		-		Playfield	Opto	8-SW-42	520-5344-00 tx 520-8516-00 rx
19	Trough 3	8	8b	CN14	-		-		Playfield	Opto	8-SW-43	520-5344-00 tx 520-8516-00 rx
20	Trough 2	8	8b	CN14	-		-		Playfield	Opto	8-SW-44	520-5344-00 tx 520-8516-00 rx
21	Trough 1	8	8b	CN14	-		-		Playfield	Opto	8-SW-45	520-5344-00 tx 520-8516-00 rx
22	Trough Jam	8	8b	CN14	-		-		Playfield	Opto	8-SW-46	520-5344-00 tx 520-8516-00 rx
23												
24												
25	Control Room Target (x2)	8	8a	CN5	4	TAN YEL	10	BLK YEL	Playfield	Leaf, Target	8-SW-34	510-7802-00
26												
27												
28	Raptor Pen Target	8	-	CN12	2	WHT BRN	10	BLK RED	Playfield	Leaf, Target	8-SW-8	515-9784-00-00
29	Raptor Pen 10 Pt Sw-Right	8	-	CN12	3	WHT RED	10	BLK RED	Playfield	Leaf	8-SW-9	180-5231-00
30	Raptor Pen 10 Pt Sw-Bot	8	-	CN12	4	WHT ORG	10	BLK RED	Playfield	Leaf	8-SW-10	180-5231-00
31												
32												
33												
34												
35	Left Ramp Opto	8	-	CN11	2	LGN BLK	11/12	BLK ORG	Playfield	Opto	8-SW-26	515-0215-00 tx 511-5815-01 rx
36	Catch Ramp Opto	8	-	CN11	3	LGN BRN	11/12	BLK ORG	Playfield	Opto	8-SW-27	515-0215-00 tx 515-0215-01 rx
37	Left Orbit	8	8a	CN5	2	TAN RED	10	BLK YEL	Playfield	Rollover	8-SW-32	500-9935-03
38	Left Spinner	8	8a	CN5	3	TAN ORG	10	BLK YEL	Playfield	Micro	8-SW-33	180-5010-04
39												



Switch Location Map

SWITCH REFERENCE CONTINUED

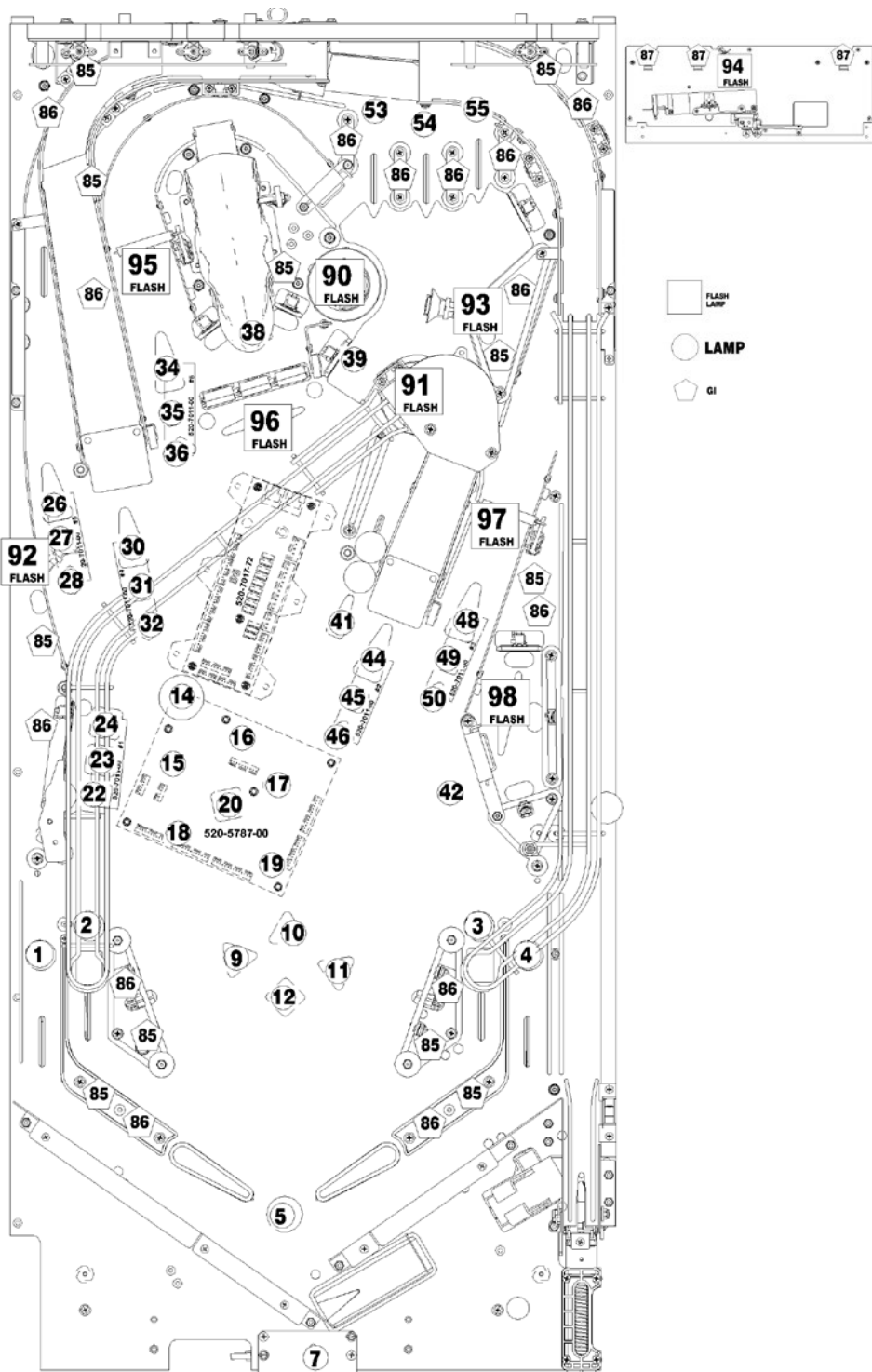
ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
40	3-Bank Drop Tgt Left	8	-	CN11	8	LGN VIO	11/12	BLK ORG	Playfield	Opto	8-SW-21	520-8497-00
41	3-Bank Drop Tgt Center	8	-	CN11	9	LGN GRY	11/12	BLK ORG	Playfield	Opto	8-SW-22	520-8497-00
42	3-Bank Drop Tgt Right	8	-	CN11	10	LGN WHT	11/12	BLK ORG	Playfield	Opto	8-SW-23	520-8497-00
43	T-Rex Left	8	8a	CN5	5	TAN GRN	10	BLK YEL	Playfield	Leaf, Target	8-SW-35	515-9783-00-00
44	T-Rex Right	8	8a	CN5	6	TAN BLU	10	BLK YEL	Playfield	Leaf, Target	8-SW-36	515-9783-00-00
45	T-Rex Head Opto	8	8a	CN5	7	TAN VIO	10	BLK YEL	Playfield	Opto	8-SW-37	515-0215-00 tx 511-5815-M4 rx
46	Smart Missile	8	-	CN13	3	PNK BRN	10	BLK BRN	Playfield	Leaf, Target	8-SW-1	515-9784-00-00
47												
48												
49	Top Pop Bumper	8	-	CN13	2	PNK BLK	10	BLK BRN	Playfield	Leaf	8-SW-0	180-5232-00
50	Bot Pop Bumper	8	-	CN13	4	PNK RED	10	BLK BRN	Playfield	Leaf	8-SW-2	180-5232-00
51	Spino Captive	8	-	CN12	7	WHT BLU	10	BLK RED	Playfield	Rollover	8-SW-13	500-9935-03
52	Spino 10Pt	8	-	CN12	8	WHT VIO	10	BLK RED	Playfield	Leaf	8-SW-14	180-5231-00
53	Right Spinner	8	-	CN12	9	WHT GRY	10	BLK RED	Playfield	Micro	8-SW-15	180-5010-04
54												
55	Right Ramp Opto	8	-	CN12	6	WHT GRN	10	BLK RED	Playfield	Opto	8-SW-12	515-0215-00 tx 515-0215-01 rx
56												
57												
58												
59	Top Lane Left	8	-	CN13	7	PNK GRN	10	BLK BRN	Playfield	Rollover	8-SW-5	500-9935-03
60	Top Lane Center	8	-	CN13	8	PNK BLU	10	BLK BRN	Playfield	Rollover	8-SW-6	500-9935-03
61	Top Lane Right	8	-	CN13	9	PNK VIO	10	BLK BRN	Playfield	Rollover	8-SW-7	500-9935-03
62	Amber Target	8	-	CN13	5	PNK ORG	10	BLK BRN	Playfield	Leaf, Target	8-SW-3	515-9784-00-00
63	Right Orbit	8	-	CN13	6	PNK YEL	10	BLK BRN	Playfield	Rollover	8-SW-4	500-9935-03
64												
65												
66	Start Button	8	8a	CN5	9	GRY	10	BLK YEL	Cabinet	Micro	8-SW-39	500-2490-04-LED
67												
68	Tilt Pendulum	8	8a	CN5	8	WHT	10	BLK YEL	Cabinet	Plumb Bob	8-SW-38	516-0007-H8
69												
C1	DIP 1	0	-	-	-		-		CPU Node		0-SW-0	-
C2	DIP 2	0	-	-	-		-		CPU Node		0-SW-1	-
C3	DIP 3	0	-	-	-		-		CPU Node		0-SW-2	-
C4	DIP 4	0	-	-	-		-		CPU Node		0-SW-3	-
C5	DIP 5	0	-	-	-		-		CPU Node		0-SW-4	-
C6	DIP 6	0	-	-	-		-		CPU Node		0-SW-5	-

SWITCH REFERENCE CONTINUED

ID	Name	Node	Node Ext	Conn.	Input Pin	Input Wire	GND Pin	Ground Wire	Location	Type	Address	Part Number
C7	DIP 7	0	-	-	-		-		CPU Node		0-SW-6	-
C8	DIP 8	0	-	-	-		-		CPU Node		0-SW-7	-
C9	Service Select	0	-	CN25	4	LGN GRY	6	BLK	Coin Door		0-SW-8	515-1963-00
C10	Service Plus	0	-	CN25	3	LGN VIO	6	BLK	Coin Door		0-SW-9	515-1963-00
C11	Service Minus	0	-	CN25	2	LGN BLU	6	BLK	Coin Door		0-SW-10	515-1963-00
C12	Service Back	0	-	CN25	1	LGN BLK	6	BLK	Coin Door		0-SW-11	515-1963-00
C17	Headphone Detect	0	-	-	-	-	-	-	Coin Door		0-SW-16	-
C18	Headphone Kit Cable Detect	0	-	CN3	5	BLK	4	BLK	CPU Node		0-SW-17	-
C19	Volume En- coder 1	0	-	CN3	6	WHT	1	DRAIN	CPU Node		0-SW-18	-
C20	Volume En- coder 2	0	-	CN3	7	GRN	1	DRAIN	CPU Node		0-SW-19	-
C24	DC Sense	0	-	CN7	4	GRY RED	1	BLK	-		0-SW-23	-

LIGHT REFERENCE

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
1	Left Outlane	8	-	CN14	6	BRN RED	7/8	YEL	Playfield	Feature	White	8-LP-3	520-5307-00
2	Left Return Lane	8	-	CN14	5	BRN ORG	7/8	YEL	Playfield	Feature	White	8-LP-4	520-5307-00
3	Right Return Lane	8	-	CN14	4	BRN YEL	7/8	YEL	Playfield	Feature	White	8-LP-5	520-5307-00
4	Right Outlane	8	-	CN14	3	BRN BLU	7/8	YEL	Playfield	Feature	White	8-LP-6	520-5307-00
5	Shoot Again	8	-	CN14	2	BRN GRN	7/8	YEL	Playfield	Feature	White	8-LP-7	520-5307-00
6													
7	Start	8	8a	CN9	11	YEL BLK	1/2/3/4/5	RED	Cabinet	Feature	White	8-LP-53	500-2490-04-LED
8													
9	2x	8	8a	CN3	6	BLU	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-20	520-5307-00
10	3x	8	8a	CN3	7	BLU VIO	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-21	520-5307-00
11	5x	8	8a	CN3	8	BLU GRY	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-22	520-5307-00
12	Restore Power	8	8a	CN3	9	BLU WHT	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-23	520-5307-00
13													
14	Escape Nublar	8	a	LED1	-	-	-	-	Playfield	Feature	White	8-LP-8	520-5787-00
15	Triceritops Mode	8	a	LED2	-	-	-	-	Playfield	Feature	White	8-LP-9	520-5787-00
16	Pteranodon Mode	8	a	LED22	-	-	-	-	Playfield	Feature	White	8-LP-29	520-5787-00
17	Stegosaurus Mode	8	a	LED21	-	-	-	-	Playfield	Feature	White	8-LP-28	520-5787-00
18	Brachiosaurus Mode	8	a	LED12	-	-	-	-	Playfield	Feature	White	8-LP-19	520-5787-00
19	Gallimimus Mode	8	a	LED32	-	-	-	-	Playfield	Feature	White	8-LP-39	520-5787-00
20	Double Score	8	a	LED23	-	-	-	-	Playfield	Feature	White	8-LP-30	520-5787-00
21													
22	Control Room Bottom	8	8a	CN1	6	BLU RED	1/2/3	RED	Playfield	Feature	White	8-LP-12	520-7011-00
23	Control Room Mid	8	8a	CN1	5	BLU BRN	1/2/3	RED	Playfield	Feature	White	8-LP-11	520-7011-00
24	Control Room Top	8	8a	CN1	4	BLU BLK	1/2/3	RED	Playfield	Feature	White	8-LP-10	520-7011-00
25													
26	Left Orbit Arrow	8	8a	CN1	7	YEL BRN	1/2/3	RED	Playfield	Feature	White	8-LP-13	520-7011-00
27	Left Orbit C	8	8a	CN1	8	YEL ORG	1/2/3	RED	Playfield	Feature	White	8-LP-14	520-7011-00
28	Left Orbit Rescue	8	8a	CN1	9	YEL GRN	1/2/3	RED	Playfield	Feature	White	8-LP-15	520-7011-00
29													
30	Left Ramp Arrow	8	8a	CN1	10	YEL VIO	1/2/3	RED	Playfield	Feature	White	8-LP-16	520-7011-00
31	Left Ramp H	8	8a	CN1	11	YEL GRY	1/2/3	RED	Playfield	Feature	White	8-LP-17	520-7011-00
32	Left Ramp Rescue	8	8a	CN1	12	YEL WHT	1/2/3	RED	Playfield	Feature	White	8-LP-18	520-7011-00
33													
34	Left Loop Arrow	8	8a	CN3	10	BRN VIO	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-24	520-7011-00
35	Left Loop A	8	8a	CN3	11	BRN GRY	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-25	520-7011-00
36	Left Loop Rescue	8	8a	CN3	12	BRN WHT	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-26	520-7011-00
37													



Light Location Map

LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
38	Super Jack-pot	8	8a	CN7	7	GRN BLU	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-32	520-5307-00
39	Smart Missile	8	8a	CN7	11	GRN VIO	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-36	520-5307-00
40													
41	Spino Arrow	8	8a	CN8	11	GRN ORG	1/2/3/4	RED	Playfield	Feature	White	8-LP-46	520-5307-00
42	Extra Ball	8	8a	CN8	12	GRN YELL	1/2/3/4	RED	Playfield	Feature	White	8-LP-47	520-5307-00
43													
44	Right Ramp Arrow	8	8a	CN8	8	ORG VIO	1/2/3/4	RED	Playfield	Feature	White	8-LP-43	520-7011-00
45	Right Ramp O	8	8a	CN8	9	ORG GRY	1/2/3/4	RED	Playfield	Feature	White	8-LP-44	520-7011-00
46	Right Ramp Rescue	8	8a	CN8	10	ORG WHT	1/2/3/4	RED	Playfield	Feature	White	8-LP-45	520-7011-00
47													
48	Right Orbit Arrow	8	8a	CN9	7	BLU ORG	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-49	520-7011-00
49	Right Orbit S	8	8a	CN9	8	BLU YEL	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-50	520-7011-00
50	Right Orbit Rescue	8	8a	CN9	9	BLU GRN	1/2/3/4/5	RED	Playfield	Feature	White	8-LP-51	520-7011-00
51													
52													
53	DNA Left	8	8a	CN8	5	GRN BLK	1/2/3/4	RED	Playfield	Feature	White	8-LP-40	520-5307-00
54	DNA Center	8	8a	CN8	6	GRN BRN	1/2/3/4	RED	Playfield	Feature	White	8-LP-41	520-5307-00
55	DNA Right	8	8a	CN8	7	GRN RED	1/2/3/4	RED	Playfield	Feature	White	8-LP-42	520-5307-00
56													
57													
58													
59													
60													
61													
62													
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80													
81													
82													
83													
84													
85	Playfield GI-RED (x11)	8	-	CN15	5	RED BLK	1	YEL RED	Playfield	G.I.	Red	8-LP-0	112-5034-02F
86	Lower GI-WHT (x14)	8	-	CN15	6	WHT BLK	2	YEL BLK	Playfield	G.I.	White	8-LP-1	112-5034-WW

LIGHT REFERENCE CONTINUED

ID	Name	Node	Node Ext.	Conn.	Ret. Pin	Ret. Wire	Src. Pin	Src. Wire	Location	Type	Light Color	Address	Part Number
87	Backpanel Gl (x3)	8	-	CN15	7	BLU BLK	3	YEL BLU	Back-panel	Flash	White	8-LP-2	113-5045-08
88													
89													
90	Top Pop Bumper	8	8a	CN7	9	BRN BLK	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-34	520-8059-00
91	Bottom Pop Bumper	8	8a	CN7	10	BRN	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-35	520-8059-00
92	Left T-Rex Flash	8	8a	CN7	6	ORG BRN	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-31	113-5032-08
93	Right T-Rex Flash	8	8a	CN7	12	ORG BRN	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-37	113-5032-08
94	Backpanel Flash	8	8a	CN7	13	ORG YEL	1/2/3/4/5	RED	Playfield	Flash	Red	8-LP-38	113-5045-02
95	Left Spinner Flash	8	8a	CN3	13	ORG BLK	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-27	520-7000-00
96	T-Rex Bolt Flash	8	8a	CN7	8	ORG RED	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-33	520-7000-00
97	Right Spinner Flash	8	8a	CN9	6	ORG GRN	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-48	520-7000-00
98	Raptor Pen Bolt Flash	8	8a	CN9	10	ORG BLU	1/2/3/4/5	RED	Playfield	Flash	White	8-LP-52	520-7000-00
99													

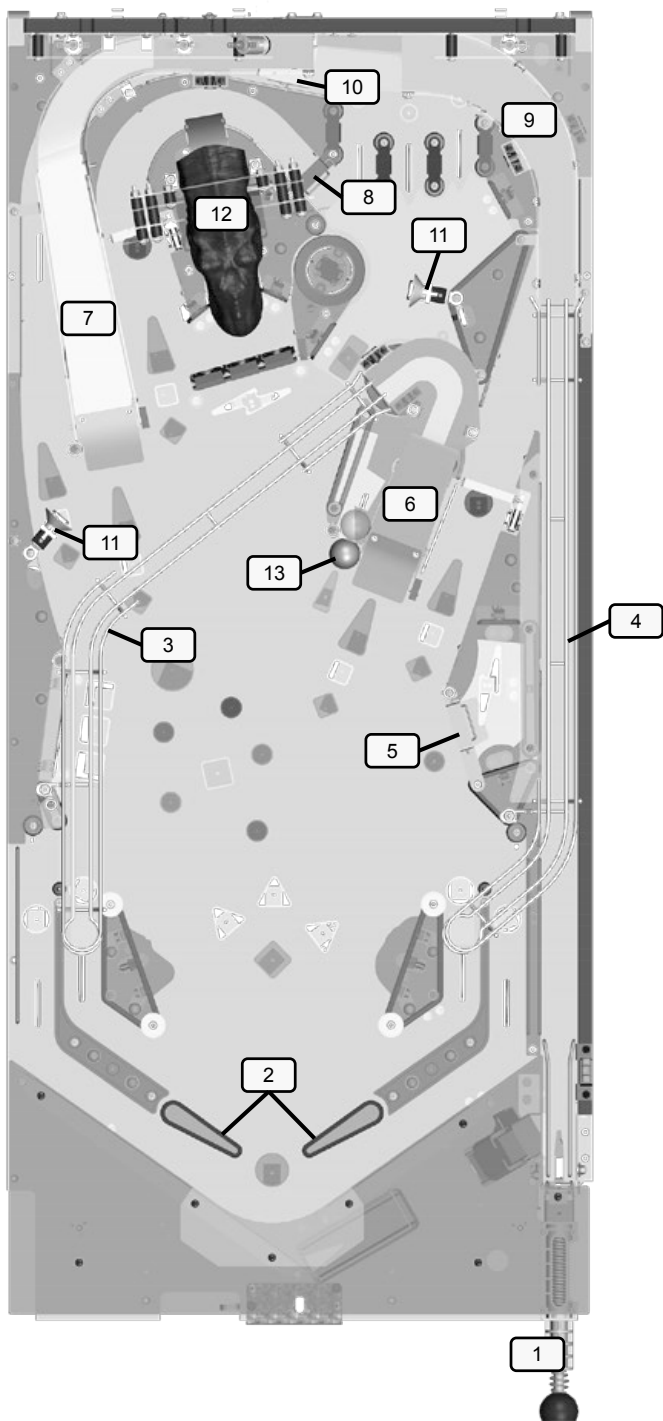
MOTOR REFERENCE

[illegible]

Bi-Direction						
MOTOR A		Coast	Brake	Brake	Dir. 1	Dir. 2
x-LP-0	Enable A	H	L	L	L	L
x-LP-1	Control 1A	H	L	H	L	H-PWM
x-LP-2	Control 2A	H	L	H	H-PWM	L
MOTOR B		Coast	Brake	Brake	Dir. 1	Dir. 2
x-LP-3	Enable B	H	L	L	L	L
x-LP-4	Control 1B	H	L	H	L	H-PWM
x-LP-5	Control 2B	H	L	H	H-PWM	L
x=Node #			L/Low=Lamp On			
			H/High=Lamp Off			
	Motor Wiring: Drive 1A&2A/1B&2B					
Single Direction						
MOTORS 1 & 2		Coast	Brake	Motor 1	Motor 2	
x-LP-0	Enable A	H	L	L	L	
x-LP-1	Control 1A	H	L	H-PWM	N/A	
x-LP-2	Control 2A	H	L	N/A	H-PWM	
MOTORS 3 & 4		Coast	Brake	Motor 3	Motor 4	
x-LP-3	Enable B	H	L	L	L	
x-LP-4	Control 1B	H	L	H-PWM	N/A	
x-LP-5	Control 2B	H	L	N/A	H-PWM	
x=Node #			L/Low=Lamp On			
			H/High=Lamp Off			
Single Direction Notes:					PWM Notes:	
	When Enable A is High both motors (1&2) are off (coast)				12V Motor - PWM of 25%	
	When Enable B is High both motors (3&4) are off (coast)				24V Motor - PWM of 50%	
	Motor Wiring: 48V & required drive					

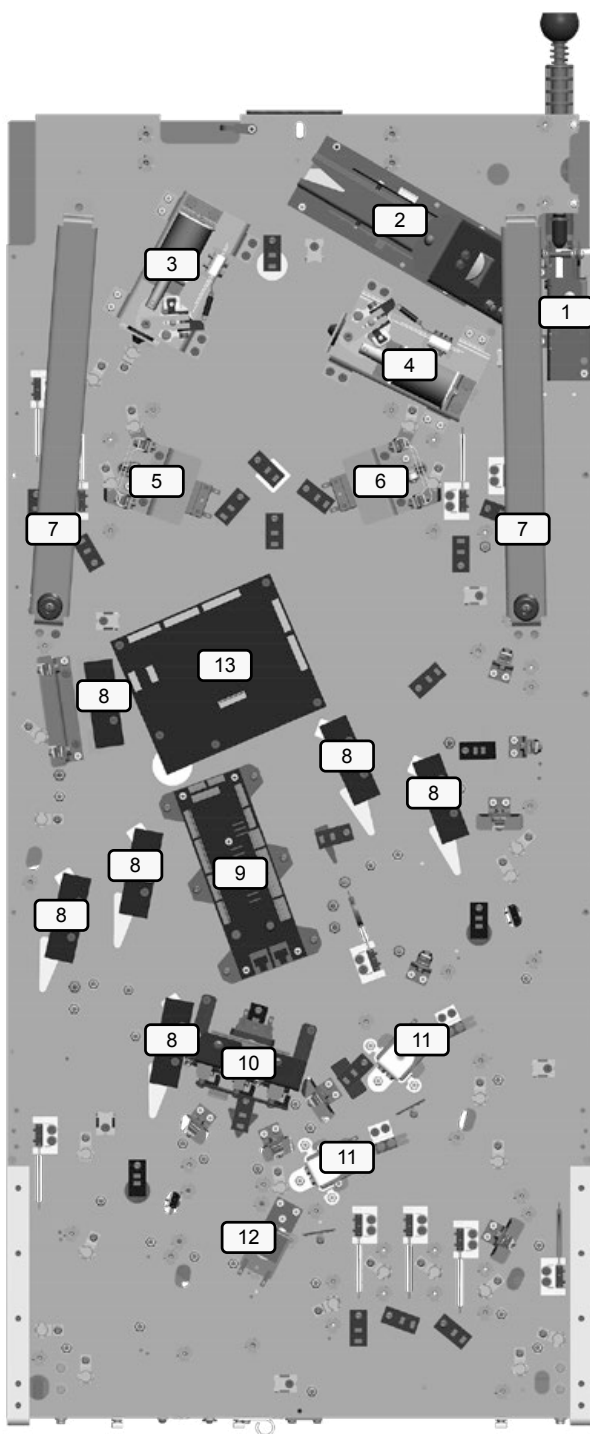
PLAYFIELD TOP ASSEMBLIES

ID	Part Number	Description	Qty
1	500-2496-00	Shooter Assembly	1
2	515-5133-06-06	Flipper Bat	2
3	515-2443-00	Left Wireform Ramp	1
4	515-244-00	Right Wireform Ramp	1
5	535-2650-00	Gate	1
	535-2631-00	Bracket	1
6	500-2592-00	Right Ramp	1
7	510-7846-00	Left Ramp	1
8	535-5307-03	Gate	1
	535-5269-03	Bracket	1
9	511-5812-00	Right Rear Ramp	1
10	511-5033-00	Control Gate	1
11	545-5409-01	Reflector	2
12	550-5514-01	T-Rex Head	1
	550-5512-00	T-Rex Jaw	1
13	515-1935-00	Newton Ball	1



PLAYFIELD BOTTOM ASSEMBLIES

ID	Part Number	Description	Qty
1	500-1177-00	Auto Launch Assembly	1
2	500-9820-L8	Trough Assembly	1
3	500-6543-13-ND	Left Flipper Assembly	1
4	500-6543-03-ND	Right Flipper Assembly	1
5	500-9920-01	Left Slingshot	1
6	500-9920-01	Right Slingshot	1
7	535-0781-01	Playfield Support Rail	2
8	520-7011-00	LED Board	6
9	520-7017-72	Core Node Driver Board	1
10	500-7408-03	Drop Target Assembly	1
11	511-1981-01	Pop Bumper	2
12	500-2590-00	VUK Assembly	1
13	520-5787-00	Main LED Board	1



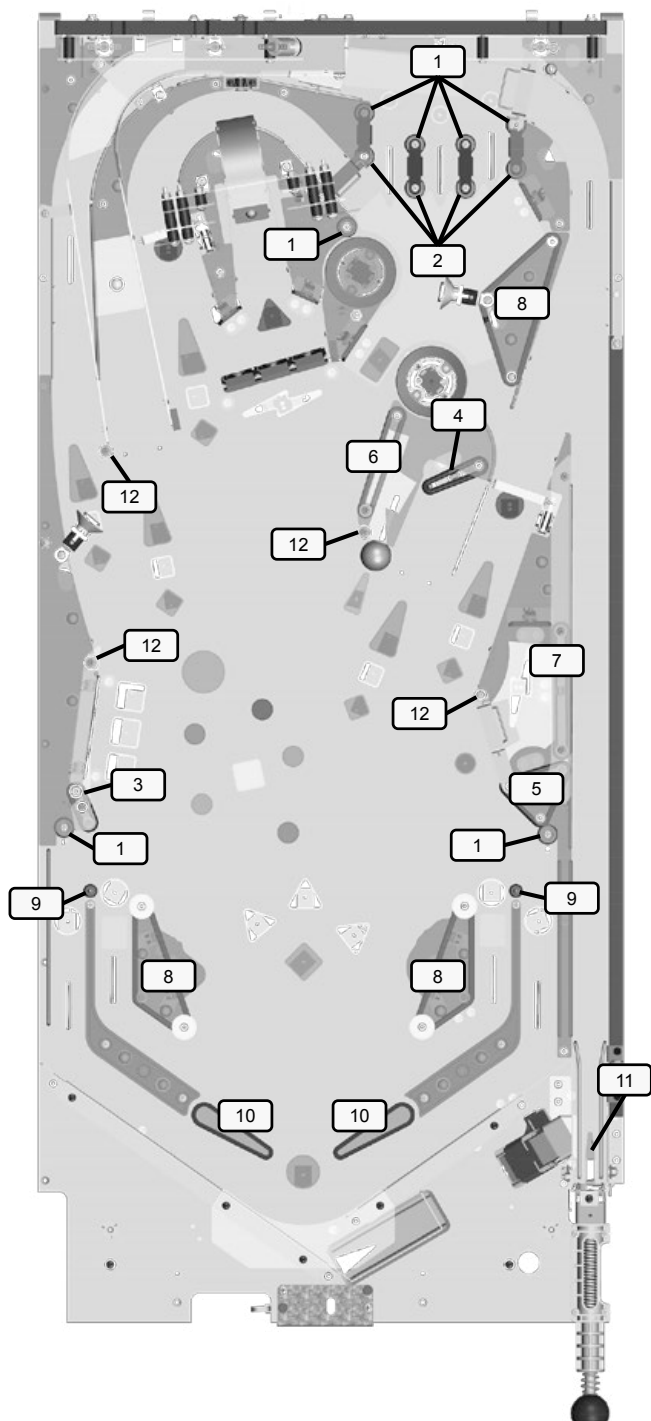
PLAYFIELD RUBBER PARTS

ID	Qty	Size (ID)	Size (OD)	Durometer	Color	Part Number
1	7	3/16"		50	Black	545-5348-01
2	4	5/16"		50	Black	545-5348-02
3	1	3/4"		50	Black	545-5348-04
4	1	1"		50	Black	545-5348-05
5	1	1-1/4"		50	Black	545-5348-06
6	1	1-1/2"		50	Black	545-5348-07
7	1	1-3/4"		50	Black	545-5348-21
8	3	2-1/2"		50	Black	545-5348-09
9	2		7/16"	50	Black	545-5348-17

ID	Qty	Description	Color	Part Number
10	2	Flipper Rubber	Black	545-5277-00
11	1	Plunger Tip	Black	545-5276-00
12	4	Post Rubber	Black	545-5308-00

MAINTENANCE PARTS

Description	Part Number
Cabinet Decal Left	820-92M4-03
Cabinet Decal Right	820-92M4-04
Cabinet Decal Front	820-92M4-05
Backbox Decal Left	820-92M4-01
Backbox Decal Right	820-92M4-02
Playfield Plastic Set	830-1140-XX
Playfield Decal Set	820-1159-XX
Backglass Translite	830-1039-M4





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JURASSIC PARK #500-55M4-01

MANUAL #780-50M4-00

