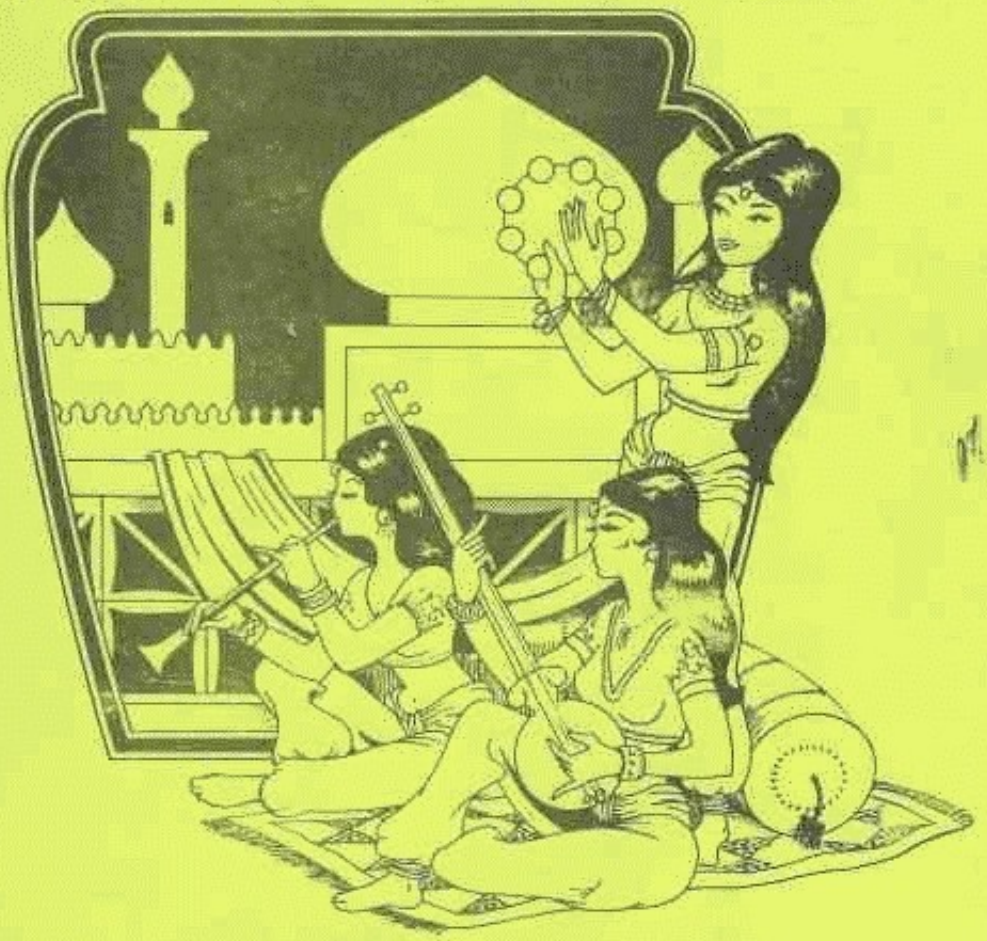
Bally

Aladdin's Castle



Bally MANUFACTURING CORPORATION
2640 Belmont Avenue · Chicago, Illinois, 60618, U.S.A.
TELEPHONE (312) 267-8060/TELEX NO. 25307 6/CABLE ADDRESS: BALFAN

Warranty

MOTORS in new Bally products are guaranteed against defective materials or poor workmanship for 6 months from date of purchase. Any defective motors returned during the warranty-period will be replaced, without cost, by your Bally Distributor.

Bally® MANUFACTURING CORPORATION
2640 BELMONT AVENUE, CHICAGO, ILLINOIS 60618

ALADDIN'S CASTLE

INSTALLATION AND GENERAL GAME OPERATION INSTRUCTIONS

INSTALLATION

On all games there are certain items that should be checked after shipment. These are visual inspections which may avoid time consuming service work later. Minor troubles caused by abusive handling in shipment are unavoidable. Cable plugs and sockets may be loosened, switches (especially tilt switches) may go out of adjustment. Plumb bob tilt switch should always be adjusted after game is set on location and leg levelers are adjusted.

Visual inspections before plugging in line cord:

1. Check that all cable plugs are firmly seated in proper sockets.

2. Check that cables are clear of all moving parts and relays.

3. Check for any wires that may have become disconnected.

4. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of contacts.

5. Check wires on relay coils for proper soldering especially the bare (common) wire connecting a row of relay coils. Cold solder connections may not show up in factory inspection, but vibration in shipment may break contact.

6. Check that fuses are firmly seated and making good contact.

7. Check (manually) the stepping and resetting of all step-up units. The wiper action should not be sluggish.

8. Check the transformer for any foreign material shorting across wiring lugs.

9. Check wiring of transformer to correspond to location voltage. (Transformer wiring card in front cabinet).

Before line cord is plugged in:
Check all plugs and sockets and dress cables:

(A) Plugs in correct sockets.
(B) Plugs securely seated in sockets.
(C) Dress cables away from relays.

Check adjustment of the three (normally open) tilt switches:

(A) Panel tilt on bottom of playfield panel.
(B) Plumb bob tilt on left side of cabinet near front door.
(C) Ball tilt above plumb bob tilt. Insert the smaller ball (15/16" dia.) into the ball tilt assembly, and adjust the bracket so the ball will roll free to contact the switch blade, if front of cabinet is raised.

Plug in line cord:

Check adjustment of the (normally open) kick off switch at rear of cabinet mounting board near cable plugs. Check adjustment of the (normally open) anti-slam switch, on front door. Check adjustment of the (normally open) anti-slam switch on tilt board. If either of those switches is closed, the delay relay is energized momentarily.

GENERAL GAME OPERATION

Place ball into playfield by outhole.

Coin game:

If coin should be rejected move on-off master switch at bottom right front corner of cabinet to "ON" position, then coin game. Coin lock out device rejects all coins when power (master switch) is off. Also check the delay relay. If this relay is energized the game will not accept coins.

1A. If game is adjusted for 1 coin/1play, the coin relay will become energized when a coin is deposited.

1B. With the coin relay energized by the 1st coin, it will reset the complete game.

1C. Inserting the 2nd coin the coin relay is again energized and trips the 2nd player relay to set-up the game for two players.

2A. If game is adjusted for 1 Coin/2 Plays the coin relay will become energized and steps-up the credit unit 2 steps for each coin deposited.

2B. When the credit unit is advanced, the front door credit button switch (when actuated) will energize the credit relay which will then energize the coin relay.

2C. The coin relay will energize the reset relay thru a game over relay switch, operate the score motor and then thru normally open #2 score motor switch, energize the score reset relay. The reset relay will operate the score motor. Both the reset and the score reset relays will be locked-in thru a #1 score motor switch, or until all score counter units are reset to zero position.

2D. The coin relay, thru a normally open #3 score motor switch will advance the total play meter, and thru the reset relay will reset the Game Over relay, ball count unit and 2nd player relay. The coin relay will also reset the credit unit, (1 step) when energized by the credit button.

3A. A ball on the outhole switch, at the start of game will energize the outhole relay thru a normally closed #1 score motor switch, and it will stay energized thru its own hole-in and a normally closed #8 score motor switch. For operations after the first ball, see under heading "Sequence of operation".

3B. When the outhole relay is energized, it will operate the score motor and then energize the outhole kicker solenoid thru a normally open #7 score motor switch. The ball will be kicked thru the ball trough to the shooter alley. The game is ready for the first player to play.

3C. To condition the game for 2nd player, inserting coin(s) or using the credit button before the 1st ball is played, will energize the coin relay again. This time, the coin relay will not energize the reset relay. It will operate the score motor, advance the total play meter, subtract a credit from credit unit, (if credit button was used) and trip the 2nd player relay thru a normally open #3 score motor switch. The game is now set for 2 players.

SEQUENCE OF OPERATION

1A. When a ball is played, the ball index relay will be energized thru the 10 point, 100 point or 1,000 point score relay and it will stay energized thru its own hold-in switch and normally closed #6 score motor switch and a normally closed outhole relay switch.

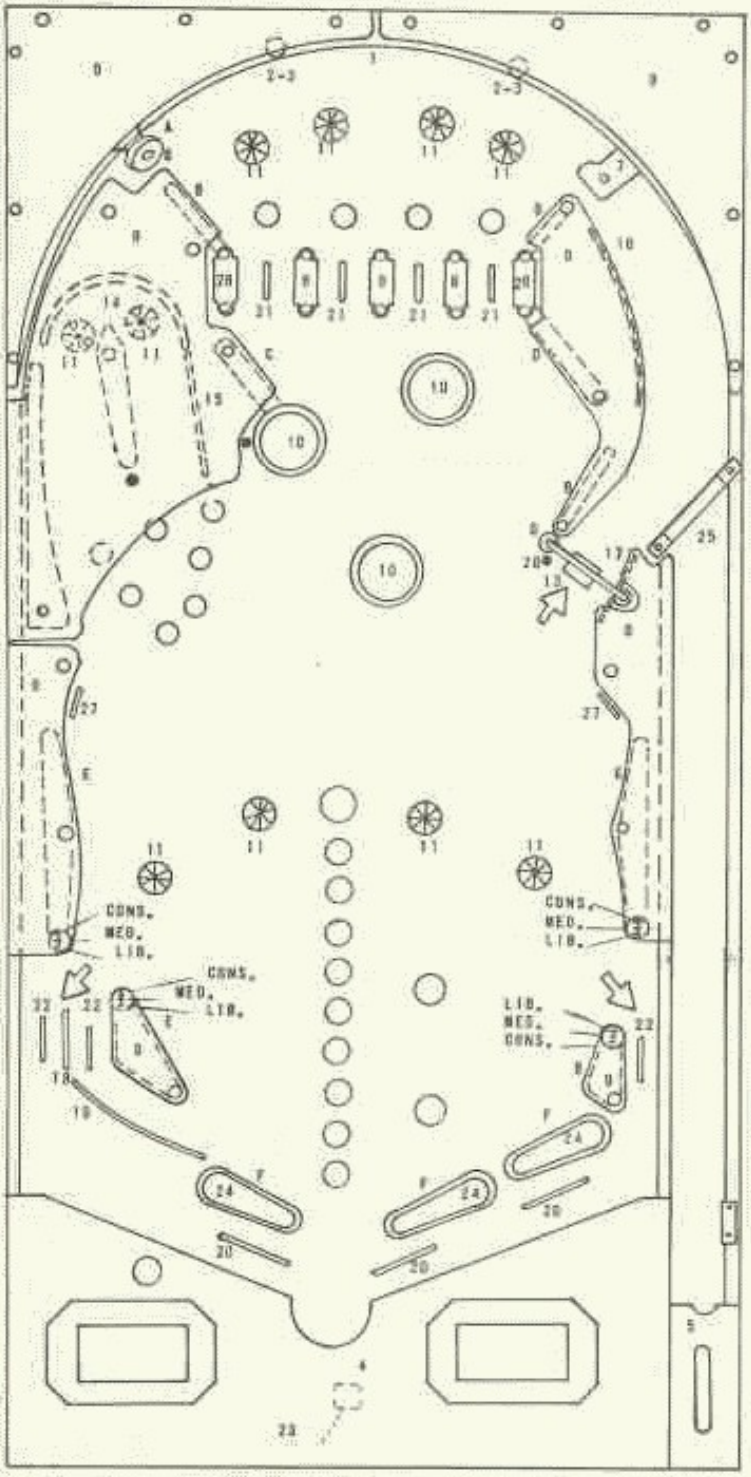
1B. When the ball goes into the outhole:

A) The bonus score relay is energized and operates the score motor to add the bonus score to the total score of the player. When the scoring is completed, this bonus score relay is de-energized and the outhole relay is energized. When the motor reaches index position, the outhole relay will remain energized thru its own lock-in switch until the normally closed #8 score motor cam switch opens.

B) The outhole relay will advance the ball count unit two steps thru #3 and #4 score motor cam switches. If no extra ball has been scored and if only one player is playing.

C) The outhole relay will advance the ball count unit thru #4 score motor cam switch, if more than one player is playing and no extra ball has been scored.

D) The outhole relay when energized will operate the score motor and thru #7 score motor cam switch it will energize the outhole kicker solenoid which will eject the ball from the outhole to the shooter alley. The outhole relay thru another #6 score motor cam switch will advance the bonus unit from zero to 1,000 position. The outhole relay when energized will de-energize the ball index relay, the extra ball relay and the tilt relay.



ALADDIN'S CASTLE #1088

RUBBER PARTS

A	R-115-4	REBOUND	
B	R-521-2	1-1/2 DIA.	(4)
C	R-521-3	2" DIA.	(1)
D	R-521-1	1" DIA.	(1)
E	R-521-5	2" DIA.	(3)
F	R-406-3	FLIPPER	(3)
G	R-249	5/16 DIA.	(11)

PANEL TOP PARTS

1	ARCH NAIL	M-1774
2	RAIL POST	C-607
3	RAIL POST CAP	C-608
4	BOTTOM ARCH	P-5071-48
5	SHOOTER GUIDE	P-6359-14
6	BALL REBOUND	AS-403-8
7	BALL GATE	A-1475-8
8	PLASTIC GUIDE (3)	C-702-1
9	SCREENED PLASTICS (3E3)	A-2880-120
10	THUMPER CAP (3)	A-3713-11
11	ROLLOVER BUTTON (10)	C-600
13	SPINNER GATE	AS-2250-30
14	GUIDE WIRE	W-121-51
15	GUIDE WIRE	W-121-23
16	GUIDE WIRE	W-121-63
17	GUIDE WIRE	W-121-48
18	GUIDE WIRE	W-121-90
19	GUIDE WIRE	W-121-43
20	GUIDE WIRE (3)	W-121-53
21	ROLLOVER WIRE ASSEM. (4)	AS-2800-1
22	ROLLOVER WIRE ASSEM. (3)	AS-2800
23	ROLLOVER WIRE ASSEM.	AS-2800-21
24	FLIPPER & SHAFT (3)	AS-2214-24
25	GATE ASSEM.	AS-2250-24
26	MINI POST & RUBBER (3)	AS-2838
27	TARGET ASSEM. (7)	AS-802-810
28	PLASTIC GUIDE (2)	C-701-1

CONS. - CONSERVATIVE
MED. - MEDIUM
LIB. - LIBERAL

INDICATES MOVABLE POSTS FOR SCORING ADJUSTMENTS.

FO-488

#1065 ALADDIN'S CASTLE

FEATURE OPERATION & SCORING

A. BONUS SCORE FEATURES:

A bonus score of 1,000 to 15,000 may be scored. The game starts with a bonus score of 1,000. The bonus score advances one step at a time each time the ball goes thru a top lane rollover. The (4) top and (4) bottom rollover buttons each lite when the ball goes thru a corresponding lane; buttons advance bonus when lit.

When the ball goes into the outhole, the bonus score lit is added to the player's total score. If the double bonus lite is lit, twice the bonus score lit is added to the player's total score. A tilt nullifies the bonus score.

B. A-B-C-D TOP LANE FEATURE:

A ball thru any top lane scores 100 points and advances the bonus score by one thousand points. A ball thru any top lane when the lane is lit (A-B-C-D lites), transfers the lite to its (2) corresponding R.O.B. lites (one immediately above its corresponding lane, and one in the center of the playfield).

C. R.O.B. FEATURE:

Rollover buttons score 100 points when not lit. When lit on a 5 ball game the buttons score 100 points. When lit on a 3 ball game the buttons score 1000 points.

D. SPINNER FEATURE:

Spinner scores 10 points when not lit, 100 points when lit. A ball thru top lanes "A" & "B" lites the spinner lite for that particular ball-in-play.

E. OUTLANE FEATURE:

A ball exiting the playfield thru either the right or left outlane scores 1000 points when the "Aladdin's Alley Score Value" arrows are not lit. When these arrows are lit, a ball exiting the playfield thru either of these lanes scores the "Aladdin's Alley Score Value")see below for score explanation). A ball thru top lanes "A" & "B" lites the outlane "Aladdin's Alley Score Value" arrows for that particular ball-in-play.

F. DOUBLE BONUS FEATURE:

The double bonus is awarded when the ball goes thru top lanes "C" & "D" for that particular ball-in-play. The double bonus lite goes out at the end of a game or when a ball goes into the outhole after the bonus score is collected.

G. X-BALL FEATURE:

A ball thru top lanes "A-B-C-D" lites the Same Player Shoots Again lite for that particular ball-in-play.

Only one extra ball is awarded at any one time. The extra ball earned must be played off before another extra ball can be scored. The game is adjustable to award an extra ball when a pre-adjusted hi-score is registered or through the special feature. The "Special" award is adjustable to score a credit or an extra ball.

H. ALADDIN'S ALLEY FEATURE:

A ball over either Aladdin's Alley rollover buttons advances the bonus score one thousand points, scores the indicated Aladdin's Alley Score Value and advances it by one position.

The Aladdin's Alley Score Value advances one step at a time in this order with the Aladdin's Alley Score Value Adjustment plug in these positions:

LIBERAL: 500-1000-2000-3000-4000-5000-SPECIAL
Stays on SPECIAL for that particular ball-in-play.

CONSERVATIVE: 500-1000-2000-3000-4000-5000-SPECIAL-5000-SPECIAL-5000
Stays on 5000 for that particular ball-in-play.

A SPECIAL is adjustable to score a credit or an extra ball.

PLAYFIELD PANEL POST ADJUSTMENTS:

Posts that control left and right outlane opening on panel (see panel sketch) can be moved to make access to outlanes easier or harder for ball to enter.

Easier entry will decrease playing time and scoring (conservative).
Harder entry will increase playing time and scoring)liberal).

HI-SCORE ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides a wide range of coverage at which hi-score credits can be scored. (See the score adjustment card in back box for plug positions).

MATCH FEATURE ADJUSTMENT PLUG:

Located in back box lite insert. This plug provides positions to operate match feature on or off.

HI-SCORE FEATURE ADJUSTMENT PLUG:

Located in back box lite insert. This plug provides positions to award Hi-score credit or extra ball.

BALLS PER GAME ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to operate game on 5 ball or 3 ball play.

#1065 ALADDIN'S CASTLE

PARTS LIST

MISCELLANEOUS	PART NO.
Transformer (Domestic)	E-122-124
Transformer (Export)	E-122-123
Score Motor (Domestic)	E-119-354
Score Motor (Export)	E-119-460
RELAY COILS	
Delay	G-30-1500
Coin	G-31-2000
2nd Coin Chute	G-31-2000
3rd Coin Chute	G-31-2000
Credit	G-31-2000
Lock	G-33-2800
Reset	G-31-2000
Score Reset	G-30-1500
Game Over (Trip)	G-31-1600
Game Over (Latch)	G-31-2000
Bonus Score	G-31-2000
Outhole	G-31-2000
Ball Index	G-32-2500
Tilt	G-32-2500
Extra Ball	G-32-2500
300 Point	G-31-2000
Over-The-Top Delay	G-31-1600
"A"	G-31-2000
"B"	G-31-2000
10,100,1000 (3)	G-31-2000
2 Coins-3Play (When Req'd)	G-32-2500
10-12 Play (When Req'd)	G-31-2000
Out Rollover	G-31-2000
Aladdin's Alley	G-31-2000
2nd Coin (Latch)	G-31-2000
2nd Coin (Trip)	G-31-2000
2nd Player	G-32-2500
"C"	G-31-2000
"D"	G-31-2000
Bonus Advance	G-31-2000

ASSEMBLY COILS	PART NO.
Coin Lockout	FC-33-2600
Chime (3)	CG-29-1600
Knocker	AK-27-1300
Flipper Left & Right (3)	AF-25-500 28-1000
Thumper Bumper (3)	AP-27-1300
Outhole Kicker	AP-25-850
Sling Shot	AP-27-1300
UNIT COILS	
Aladdin's Alley (Step-up)	C-31-2000
Credit (Step-up)	B-26-1100
Credit (Reset)	CD-29-1600
Ball Count (Step-up)	B-26-1100
Ball Count (Reset)	CD-29-1600
00-90 (Step-up)	CD-29-1600
Score Drums (Step-up) (8)	CD-29-1600
Bonus Unit (Step-up)	B-26-1100
Bonus Unit (Reset)	CD-29-1600
UNIT DISCS	
Ball Count	W-1043-33
Bonus	W-1072-50
00-90 (2)	W-999-28 W-999-29
Aladdin's Alley (2)	W-999-41 W-999-42
UNIT WIPERS	
Ball Count	AS-1046-811
Bonus	AS-1046-800
00-90 (2)	A-1618-3 A-1618-4
Aladdin's Alley (2)	A-1618-3 A-1618-4

RECOMMENDED SCORE CARDS TO BE USED ON ALADDIN'S CASTLE

3-BALL

REPLAYS

Instruction Card	M-1508-52-A
Score Card	M-1508-52-E

1 Replay at 65,000
1 Replay at 99,000

EXTRA BALL

Instruction Card	M-1508-52-C
Score Card	M-1508-52-S

1 Extra Ball at 63,000
1 Extra Ball at 79,000

Aladdin's Alley Adj. Plug - Liberal

5-BALL

REPLAYS

Instruction Card	M-1508-52-A
Score Card	M-1508-52-D

1 Replay at 80,000
1 Replay at 99,000

EXTRA BALL

Instruction Card	M-1508-52-C
Score Card	M-1508-52-R

1 Extra Ball at 73,000
1 Extra Ball at 89,000

Aladdin's Alley Adj. Plug - Conservativ

(ALL PLAYFIELD ADJUSTABLE POSTS IN MEDIUM POSITION)

ADDITIONAL CARDS

REPLAY

M-1508-52-F	61,000	99,000	
M-1508-52-J	68,000	99,000	
M-1508-52-L	72,000	99,000	
M-1508-52-M	76,000	99,000	
M-1508-52-O	83,000	99,000	
M-1508-52-Q	86,000	99,000	
M-1508-52-H	54,000	78,000	99,000
M-1508-52-K	58,000	82,000	99,000
M-1508-52-I	62,000	86,000	99,000

EXTRA BALL

M-1508-52-P	68,000	84,000
M-1508-52-N	78,000	94,000
M-1508-52-R	83,000	94,000

BLANKS

M-1508-52-T
M-1508-52-U
M-1508-52-V

INSTRUCTION

M-1508-52-B

A) Schematics

The schematic as drawn shows the power-off condition. The lock relay is de-energized. The lock relay will become energized when the power is turned on. The general illumination lights will now light. The schematic should be used to localize the area of interest for any given fault. For example, if the game were coined and the credit button pressed, the game over relay should be latched. If not, the trouble could be in the motor switches or the lock relay. Visual inspection will usually reveal the source of the trouble. A volt-ohmmeter will always locate the trouble.

The schematic, therefore, allows us to trace each circuit through the game to the power source (the transformer secondary). A color code is given for each lead to facilitate this tracing in the game.

The numbers on the bottom of the schematic and the letters on the left hand margin of the schematic can be used with the coil location chart at the right hand side to locate relays and solenoids. If the coil number is not recognizable in the game, the schematic will give the number for reordering (for example, reset relay G-31-2000). The nominal resistance of each relay coil is also given.

Score motor operation is detailed on the schematic. The score motor is used in the coining, reset and scoring operations. The sequence of operation table indicates that the score motor, when energized, will actuate contacts associated with cams one through twelve in the positions indicated. Cam #1 is physically closest to the motor. Cam switches are lettered alphabetically starting with "A" for the bottom of a switch stack. For example, the switch 2C, SCM, on the schematic is driven by the cam in the second position from the motor and is physically the third switch assembly above the cam in the switch stack. It is actuated by the score motor driven second cam in positions 1, 2, 3, 4 and 5.

The motor receives a starting pulse from various sources. It will index itself one-half revolution (180°) by means of self holding switch associated with Cam #1.

Relays shown on the schematic are shown de-energized. A relay consists of a coil of wire (electromagnet, when energized) armature or heel plate, plastic switch actuator, switch assemblies and frame. When the coil is energized, the armature is pulled to the coil by the electromagnetic force created by the current flowing through the turns of the coil. The plastic switch actuator is connected to the armature. The moving armature pulls the actuator and the long switch blades to the energized position. Contacts that were closed in the de-energized are opened in the energized position and vice-versa. In general, Bally relays are designed to self-hold or remain energized through a contact in the stack after the source of initial energization is removed.

B. ASSEMBLY ADJUSTMENTS

1. General

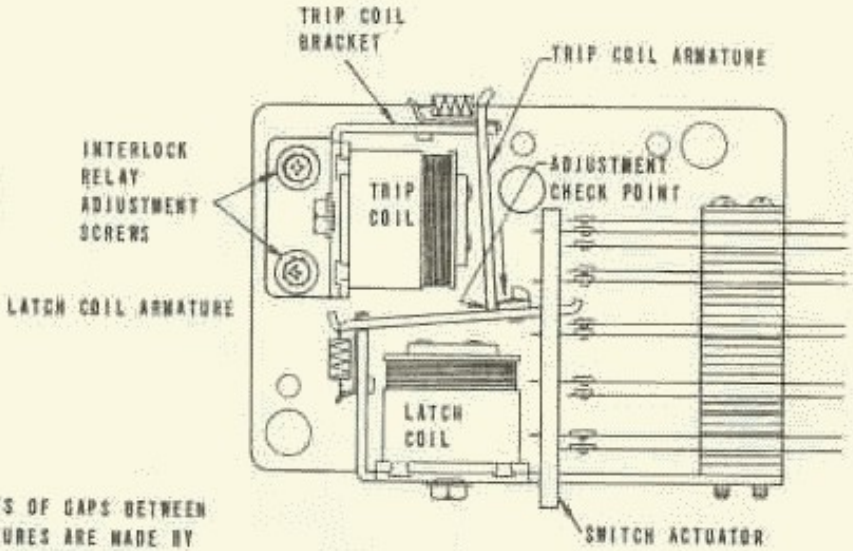
All switch assemblies consist of leaf springs, contacts, separators, plastic tubing and screws to hold them to the mounting surface on the relay frame. Before attempting to adjust a switch assembly, make sure that these screws are tight. If not, tighten screw closest to the contact end of the leaf spring first. This will prevent the assembly from being secured in such a manner that the leaf springs tend to fan out. In general, all leaf springs are adjusted for a 1/32" gap in the open position and .010" overtravel or wipe in the closed position. All contacts should be in good condition. Unless otherwise instructed, they should be dry or non-lubricated. All contacts should be free of dust and dirt. Tranish can be removed with a contact file followed by a burnishing tool. Severely pitted contacts must be replaced as an assembly. In general, contacts need be cleaned or replaced and adjusted when they are found to be a source of game malfunction.

2. Relays

All of the above applies. Relay contacts are operated dry. Beyond the normal 1/32" gap adjustment, relays with a self-holding circuit must be adjusted such that the self-holding contacts make just before the other contacts (adjust to .025" gap). Care in making this adjustment prevents false crediting and false scoring during the game.

The game-over relay is an example of an interlock relay. Interlock relays are adjusted for a .010" gap between the trip and latch coil armatures in the trip position and a .010" gap between the nylon on the latch coil armature and the trip coil armature in the latch position. If an adjustment is necessary, the interlock relay adjustment screws should be loosened and the trip coil repositioned until the trip and latch armature gaps are proper. The screws are then secured. Always check the switch adjustments after a gap adjustment is made. Open contacts should have a 1/32" gap. Closed must show .010" overtravel.

BALLY INTERLOCK RELAY



WHEN THE LATCH ARMATURE IS HELD DOWN DIRECTLY OVER THE CENTER OF THE LATCH COIL, THERE SHOULD BE A .010 GAP BETWEEN THE TRIP COIL ARMATURE AND THE NYLON PIECE OF THE LATCH COIL ARMATURE AT THE ADJUSTMENT POINT.

WHEN THE TRIP COIL ARMATURE IS HELD DOWN AND THE LATCH ARMATURE IS RELEASED, THERE SHOULD BE A GAP OF ABOUT .010 BETWEEN THE TWO ARMATURES.

ADJUSTMENTS OF GAPS BETWEEN THE TWO ARMATURES ARE MADE BY LOOSENING THE INTERLOCK RELAY ADJUSTMENT SCREWS. BE SURE TO TIGHTEN DOWN THE SCREWS AFTER ADJUSTMENT IS MADE.

ALWAYS CHECK SWITCH ADJUSTMENTS WHENEVER A GAP ADJUSTMENT IS MADE.

FIGURE III - 2 INTERLOCK RELAY ADJUSTMENTS

3. Printed Circuit and Riveted Disc Units

Examples of these are the bonus, the ball count, and the 00-90 units. The force exerted on the disc contacts by the rotor requires lubrication of the disc contacts. Periodic maintenance must include an inspection for the presence of lubrication and for contact condition. Touching the contacts with the fingers should result in a shiny trace on the finger. This, and absence of contact pitting and dirt indicate a satisfactory operating condition. Contact pitting can be corrected with a contact file and burnishing tool. Dirt should be removed with a clean, lint free cloth. If contact cleaning fluids are used to remove greasy dirt, a cloth must be used to remove any chemical residue. Finally, apply Bally coin machine lubricant to a clean cloth. Apply a thin film to the contact surfaces.

If, in trouble shooting, a rotor blade is suspected as the source of the problem, it can be checked for proper adjustment. A blade exerting too little pressure can be intermittant. A blade exerting too much pressure may slow or stop the rotor. A check for the force exerted by the rotors can be made as follows: gently warp the disc or printed circuit board away from the rotor. The rotor blade should follow the disc or board for 1/32" before contact is broken. If it follows further, contact force is too great. If it breaks contact too soon, contact force is not great enough. Use a contact adjusting tool to adjust the rotor blade pressure.

4. Credit Unit

The credit unit is used to store in memory the number of credits or games due a player. Credits are payed for or won for high score, match feature or as a special game feature. Improper adjustment of the credit unit can result in too many or too few credits issued to the player. To check for proper adjustment of the credit unit: (See Figure III-3)

a) Slowly hand actuate the step-up plunger. The step-up arm must not engage the next tooth on the ratchet (occasionally engagement is acceptable). If the step-up arm does, gently bend the base plate tab down (away from the step-up solenoid) until hand actuation does not cause consistent engagement of the next tooth on the ratchet. This adjustment, properly made, prevents multiple crediting when only one credit is due the player.

CREDIT (REPLAY) UNIT

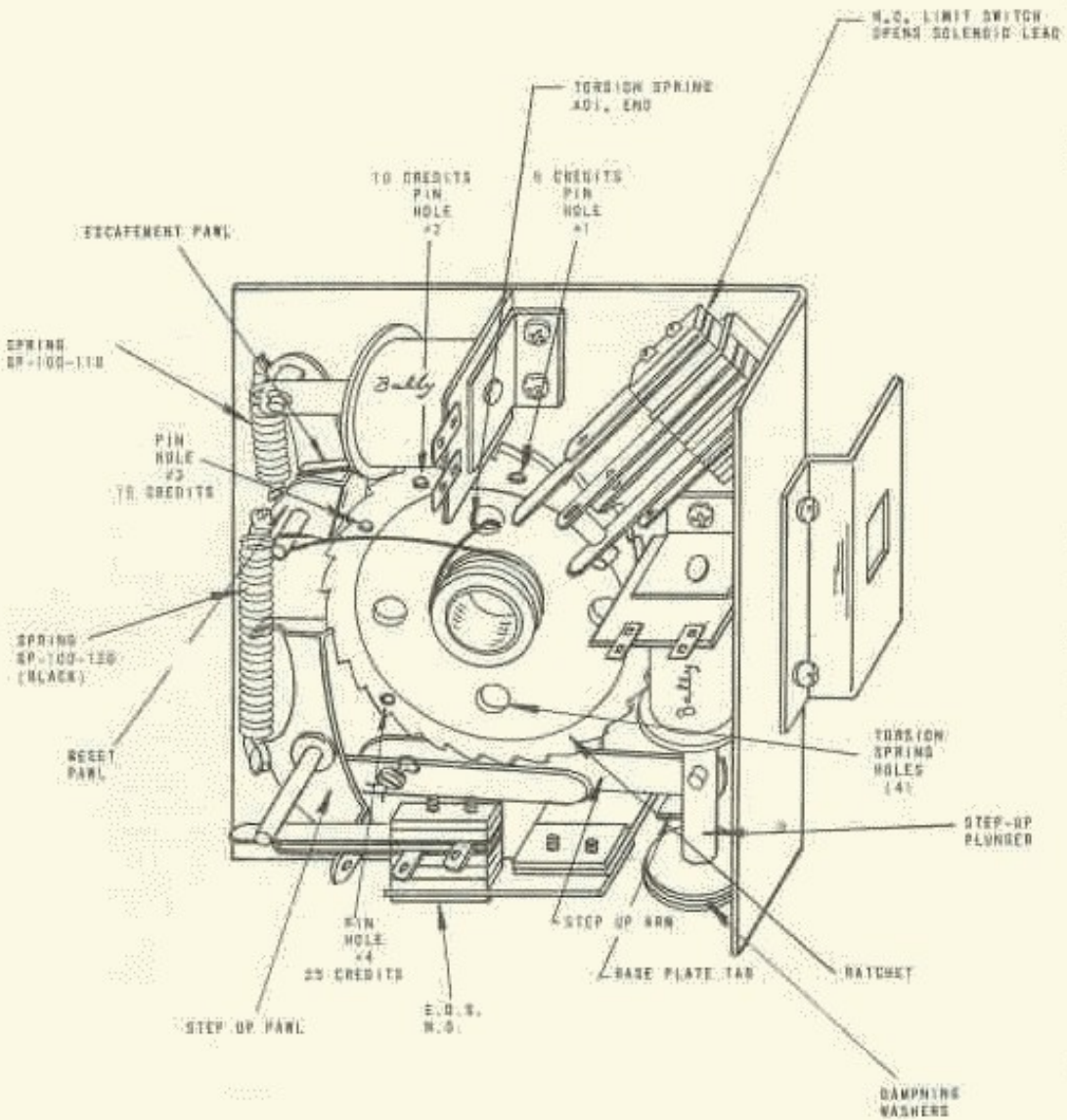


FIGURE ??? - 5 CREDIT UNIT ADJUSTMENTS

b) If multiple crediting persists, increase spring tension by moving the ratchet torsion spring (short end) one hole or 1/4 turn clockwise to the next hole. This will slow the ratchet wheel and decrease the probability of multiple crediting.

c) If the credit unit does not return to zero, check the adjustment of the switch stack just above the step-up solenoid. If the force exerted by the blades in this stack is excessive, the credit unit will not return to zero. Adjust the stack for a 1/32" gap when the credit wheel is not on zero, and a .010" overtravel at zero. Now spin the credit wheel by hand for the maximum allowable number of credit. The normally closed switch in the stack must now be opened by the pin in the ratchet wheel. This switch is the limit switch and opens the lead to the step-up solenoid.

d) If two or more credits are subtracted each time the credit button is actuated, the spring (SP-100-110) that positions the escapement pawl is too strong. Gently spread the turns on the spring until the proper action is obtained.

It is to be noted that selection of the #1, 2, 3, or 4 pin hole will limit the maximum number of credits possible to 5, 10, 15 or 25 as desired. This pin actuates the limit switch on the switch stack.

5. Score Drum Unit Adjustment (See Figure III-4)

All score drum unit assemblies are essentially the same. End of stroke switches are adjusted for a 1/32" gap and .010" overtravel (wipe) at the end of the solenoid stroke. The switches in the stack are adjusted likewise. Note that if the solenoid plunger is actuated by hand, all switches are open in the zero pisition, i.e., the numeral '0' in the viewing window on the insert. Malfunctions can be corrected by proper adjustment. Typical malfunctions are:

a) Score drum continues to step through zero during the reset cycle (top switch in switch assembly always closed).

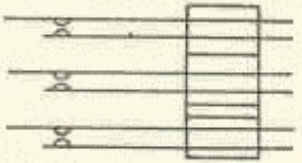
b) Score drum does not score (second switch in switch assembly always open).

c) Score drum and next higher drum advance simultaneously on a continuous or intermittant basis. This is proper when advancing from the 9th position to zero. For all other numerical positions it indicates that the last switch (closest to the metal frame) is always or intermittantly closed.

FIGURE III-4 SCORE DRUM UNIT SWITCH ASSEMBLY

SCORE DRUM UNITS SWITCHES

10-90, 100-900 & 1,000-9,000 UNITS (ALSO 10,000-90,000 UNIT WHEN 100,000 RELAY IS INVOLVED)



LOCK-IN FOR RESET RELAY

CIRCUIT TO STEP-UP COIL DURING RESET CYCLE

ZERO SWITCHES

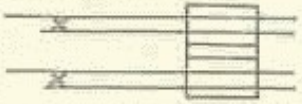
OPEN WHEN ZERO IS SHOWING

COMPLETES CIRCUIT TO ADVANCE NEXT HIGHER DRUM UNIT WHEN A SCORE OF "9" IS SHOWING, AND THE SCORE RELAY IS ENERGIZED TO ADVANCE THIS UNIT.

9th POSITION SWITCH

CLOSED WHEN 9 IS SHOWING

10,000-90,000 UNIT (EXCEPT IN GAME HAVING 100,000 RELAYS - SEE ABOVE)



LOCK-IN FOR RESET RELAY

CIRCUIT TO STEP-UP COIL DURING RESET CYCLE

ZERO SWITCHES

OPEN WHEN ZERO IS SHOWING

Score drums are easy to trouble shoot. A faulty unit can be found visually. Visual inspection and adjustment is adequate to correct the problem. Do not overlook cable dress as a source of the problem. Dress bare leads away from adjacent connections.

SECTION IV SERVICE PARTS

A parts catalogue is available upon request. The catalogue is illustrated and lists all replacement parts for each game manufactured by Bally. Requests should be addressed to:

BALLY MANUFACTURING CORPORATION
2640 WEST BELMONT AVENUE
CHICAGO, ILLINOIS 60618
ATTENTION: PARTS DEPARTMENT

SERVICE HINTS

To maintain trouble free operation, all stepping unit contact plates, rivet and printed circuit type should be cleaned and lubricated sparingly every 30 days using Bally coin machine lubricant.

The Bally playfield has an improved tuff-coat finish with excellent wearing properties. It's life expectancy, as well as play appeal, can be extended by periodic cleaning of the playfield.

DO: Consult your local distributor for his product recommendations on this subject. Chances are, he has direct experience based on usage. If not, clean with a mild face type soap and a clean cloth dampened with water or clean with a product manufactured specifically for this purpose. Use all cleaning agents sparingly. An accumulation of residue can jam roll-over buttons. Inspect and hand polish the ball in a clean cloth. A chipped ball must be replaced. It can ruin the finish on the playfield in a short period of time.

DON'T: Use water in large quantities, highly caustic cleaners, abrasive cleaners or cleaning pads on the playfield. Do not allow a wax or polish build up. Waxes yellow with age and spoil play appeal.

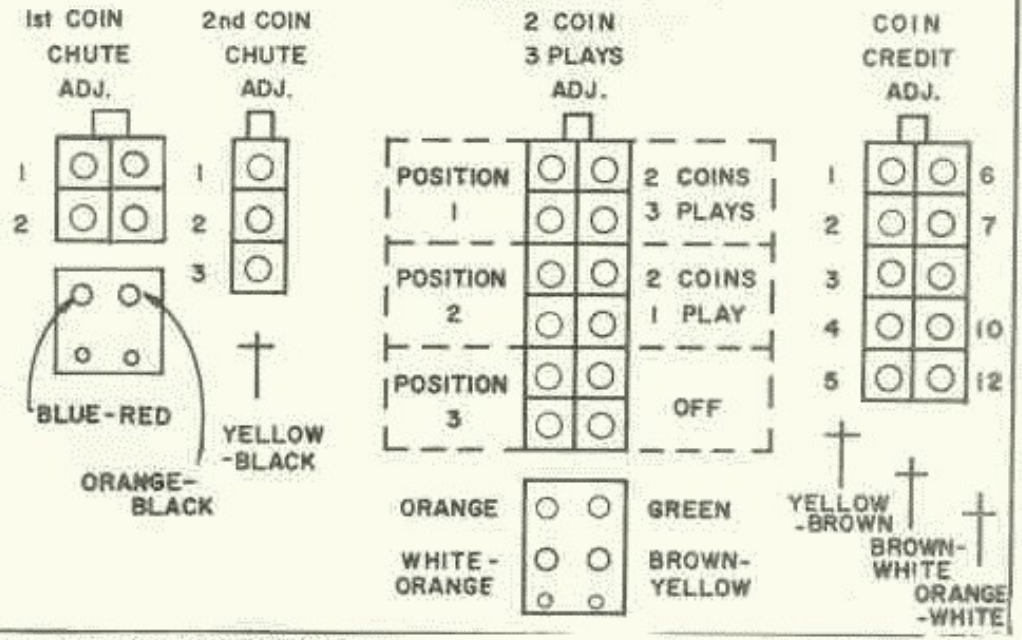
NEW COIN CREDIT ADJUSTMENTS

INTRODUCING: New simple credit adjustments in Bally's Pin Ball games which will allow flexability in setting the number of credits desired per coin.

The function of the adjustment plugs are explained on pages 1A and 2A.

NOTE: However, to set up machine for credits desired, only follow adjustment procedures on pages 3A, 4A and 5A. A detailed layout of the adjustment sockets are also shown below for identity.

COIN ADJUSTMENTS LOCATED ON MOUNTING BOARD



1st COIN CHUTE ADJUSTMENT

Position 1 — 2 point plug in position 1 sets up 1 play per coin.

Position 2 — 2 point plug in position 2 sets up 2 credits on the credit unit.

NOTE: This adjustment is used mostly on games where 1 coin sets up 2 plays.

2nd COIN CHUTE ADJUSTMENT

Position 1 — Yellow-Black wire plug in position 1 sets up 1 player per coin.

NOTE: This adjustment is used when changing the play from 1-coin 2 or more plays to 1-coin 1-play. The coin micro switch must also have the yellow-black wire attached.

2ND COIN CHUTE ADJUSTMENT

Position 2 — Yellow-Black wire plug in position 2 sets up multiple credits per coin. The number of credits received will depend upon the location of the Brown-White wire plug in the Coin Credit Adjustment Connector. For example - to provide 6 credits per coin, place Yellow-Black plug in position 2 on the 2nd Coin Chute Connector and the Brown-White plug in position 6 on the Coin Credit Adjustment Connector.

Position 3 — Yellow-Black wire plug in position 3 is used only when 2 coins-3 plays, or 2 coins-1 play is desired. Complete adjustment procedure is on pages 3 and 5.

2 COINS - 3 PLAY ADJUSTMENT

1st Position — The 4 point plug in 1st position adds 1 credit for the 1st coin and 2 credits for the 2nd coin. 2nd coin must be deposited before a ball is put into play.

NOTE: After 2 credits are added the next coin will again repeat the above sequence,
That is: 1st coin - 1 credit.
2nd coin - 2 credits.

2nd Position — The 4 point adjustment plug in 2nd position sets up 1 play for every 2 coins deposited. Complete adjustment procedure is on page 5A.

3rd Position — The 4 point adjustment plug should always be in position 3 when neither of the above setups are used.

COIN CREDIT ADJUSTMENT

RELAY REQUIRED - 2ND COIN CHUTE RELAY

Position 1 — Brown-White wire plug in position 1 adds 1 credit per coin.

Position 2 — Brown-White wire plug in position 2 adds 2 credits per coin.

Positions 3,4,5, 6 & 7 — Brown-White wire plug in positions 3,4,5,6, & 7 will add credits corresponding to the numbered position it is inserted into.

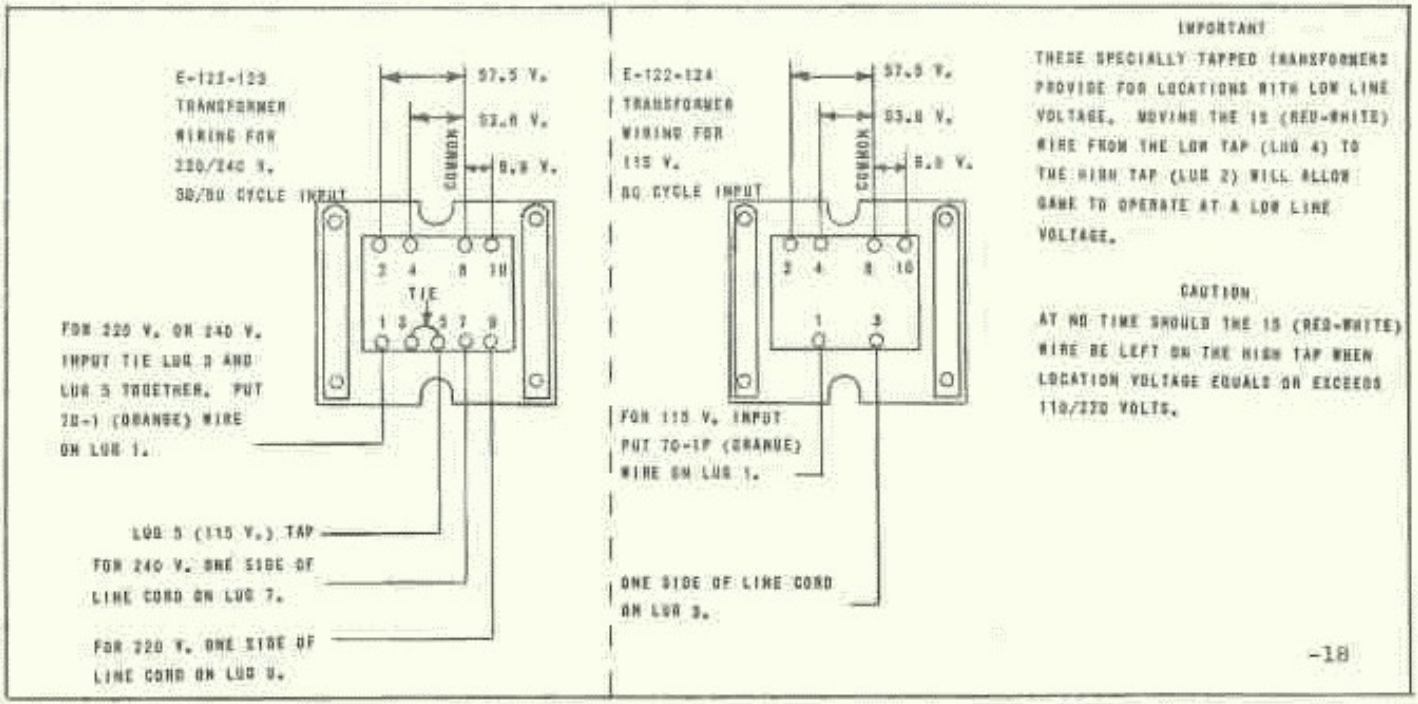
Positions 10,12 — The 10-12 plays per coin requires additional relays. Adjustments for 10-12 plays are explained on page 5A.

ADJUSTMENT INSTRUCTIONS FOR CREDITS DESIRED

COIN	PLAYS	RELAYS REQUIRED	FRONT DOOR COIN SWITCH WIRE	PLUG ADJUSTMENTS
One	One		Door Chute SW White-Blue	Insert 2 point plug in position 1 on 1st coin chute adjustment.
Two	One	2 Coin 3 Play Relay AS-2865 3rd Coin Chute Relay AS-2865-3	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 3 on 2nd coin chute adj. Orange-White wire plug into position 7 on coin credit adj. Insert 4 point plug into 2nd position on 2 coins,3 play adj.
One	Two		Door Chute SW White-Blue	Insert 2 point plug in position 2 on 1st coin chute adjustment. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
One	Three	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 2 on the 2nd coin chute adjustment. Brown-White wire plug into position 3 on the coin credit adj. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
One	Four	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 2 on the 2nd coin chute adj. Brown-White wire plug into position 4 on the coin credit adj. Insert 4 point plug into 3rd position on 2 coins,3 plays adj.

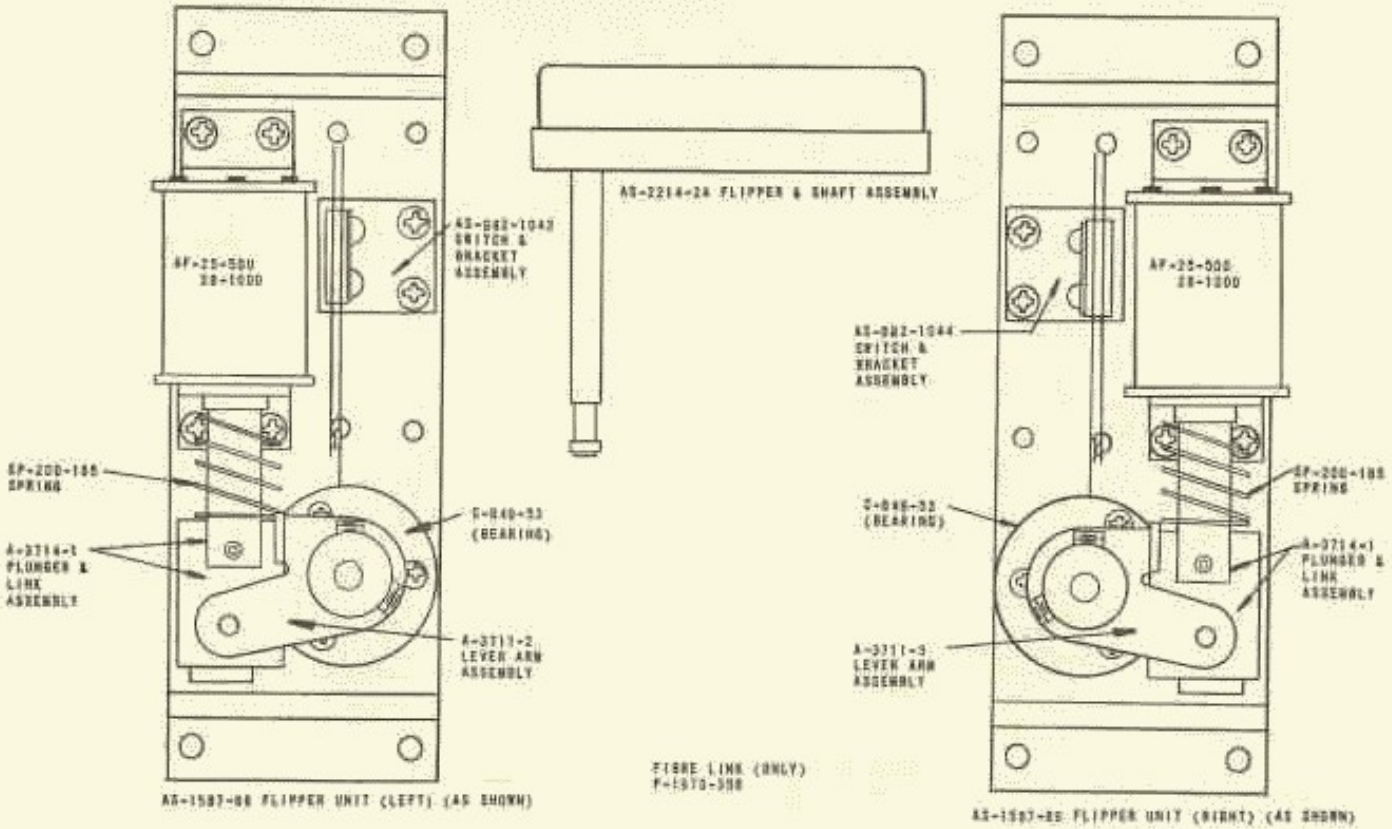
COIN	PLAYS	RELAYS REQUIRED	FRONT DOOR COIN SWITCH WIRE	PLUG ADJUSTMENTS
One	Five	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 2 on 2nd coin chute adj. Brown-White wire plug into position 5 on coin credit adj. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
One	Six	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 2 on the 2nd coin chute adj. Brown-White wire plug into position 6 on the coin credit adj. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
One	Seven	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Insert 2 point plug in position 1 on 1st coin chute adjustment. Yellow-Black wire plug into position 2 on 2nd coin chute adj. Brown-White wire plug into position 7 on coin credit adj. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
		THREE COIN CHUTES		
One	One		Door Chute SW White-Blue	Insert 2 point plug in position 1 on 1st coin chute adj.
One	Three	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Yellow-Black wire plug in position 2 on 2nd coin chute adj.
One	Seven	3rd Coin Chute Relay AS-2865-3	Door Chute SW White-Red	Brown-White wire plug in position 3 on coin credit adjustment. Orange-White wire plug into position 7 on coin credit adj. Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.

COIN	PLAYS	RELAYS REQUIRED	FRONT DOOR COIN SWITCH WIRE	PLUG ADJUSTMENTS
		THREE COIN CHUTES 10 or 12 PLAYS		
One	Two		Door Chute SW White-Blue	Insert 2 point plug into position 2 on 1st coin chute adjustment.
One	Four	2nd Coin Chute Relay AS-2865-2	Door Chute SW Yellow-Black	Yellow-Black wire plug into position 2 on 2nd coin chute adj.
One	Ten or Twelve	3rd Coin Chute Relay AS-2865-3	Door Chute SW White-Red	Brown-White wire plug into position 4 on coin credit adj.
		10-12 Plays Relay AS-2865-1		Orange-White wire plug into position 7 on coin credit adj.
				Yellow-Brown wire plug into position 10 or 12 on coin credit adj.
				Insert 4 point plug into 3rd position on 2 coins, 3 plays adj.
		2 COINS - 3 PLAYS		
1st Coin	One			Insert 2 point plug into position 1 on 1st coin chute adjustment.
2nd Coin	Two	2nd Coin Chute Relay AS-2865-2	Door Chute SWS Yellow-Black	Yellow-Black wire plug into position 3 on 2nd coin chute adj.
		3rd Coin Chute Relay AS-2865-3		Brown-White wire plug into position 2 on coin credit adj.
		2 Coins 3 Play Relay AS-2865		Orange-White wire plug into position 7 on coin credit adj.
				Insert 4 point plug into 1st position on 2 coins, 3 play adj.

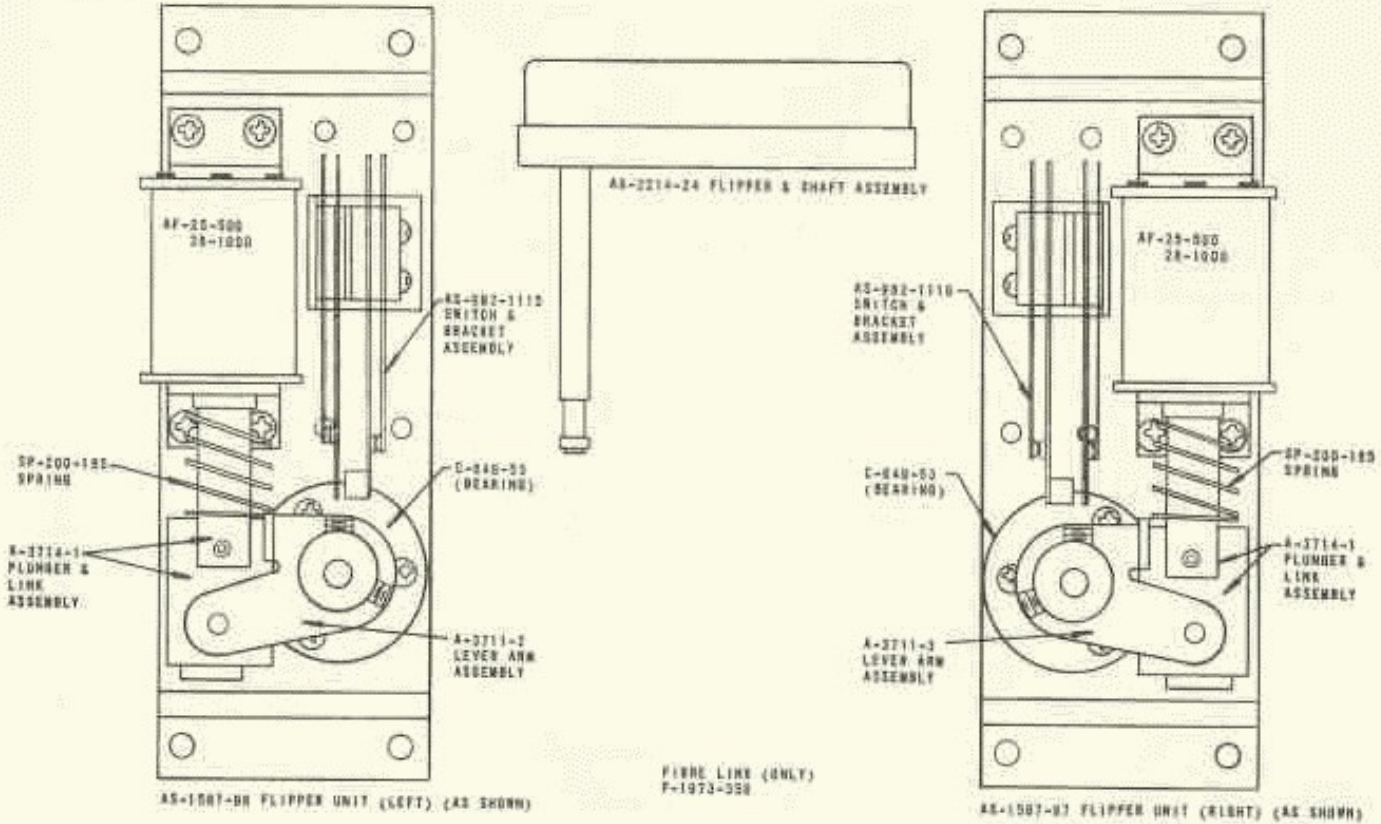


NEW TYPE TRANSFORMER

FLIPPER UNITS
(WITH SINGLE SWITCH)



FLIPPER UNITS
(WITH DOUBLE SWITCH)

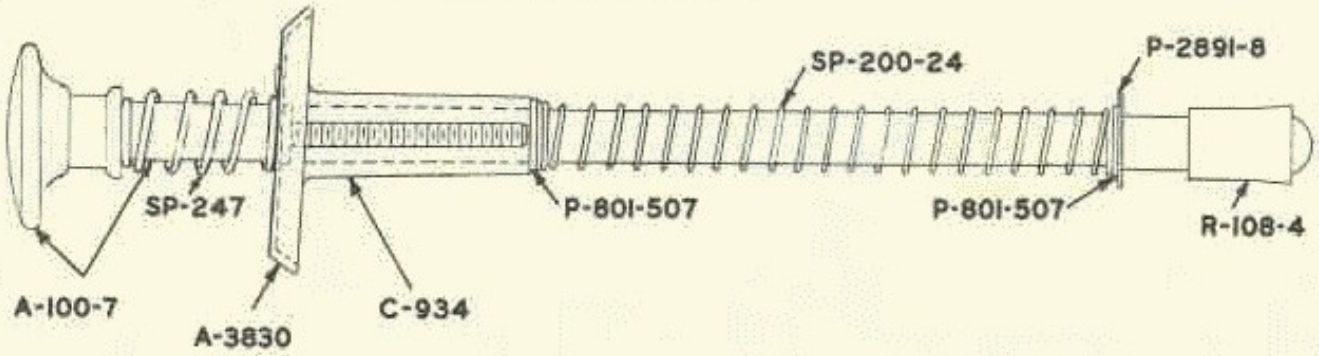


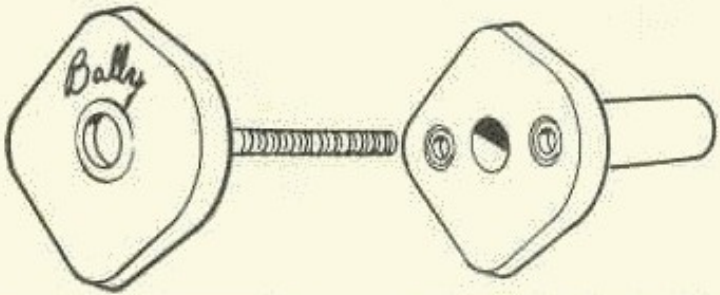
AS-1587-08 FLIPPER UNIT (LEFT) (AS SHOWN)

AS-1587-07 FLIPPER UNIT (RIGHT) (AS SHOWN)

NEW BALL SHOOTER ASSEMBLY

PART NO. AS-2378-5

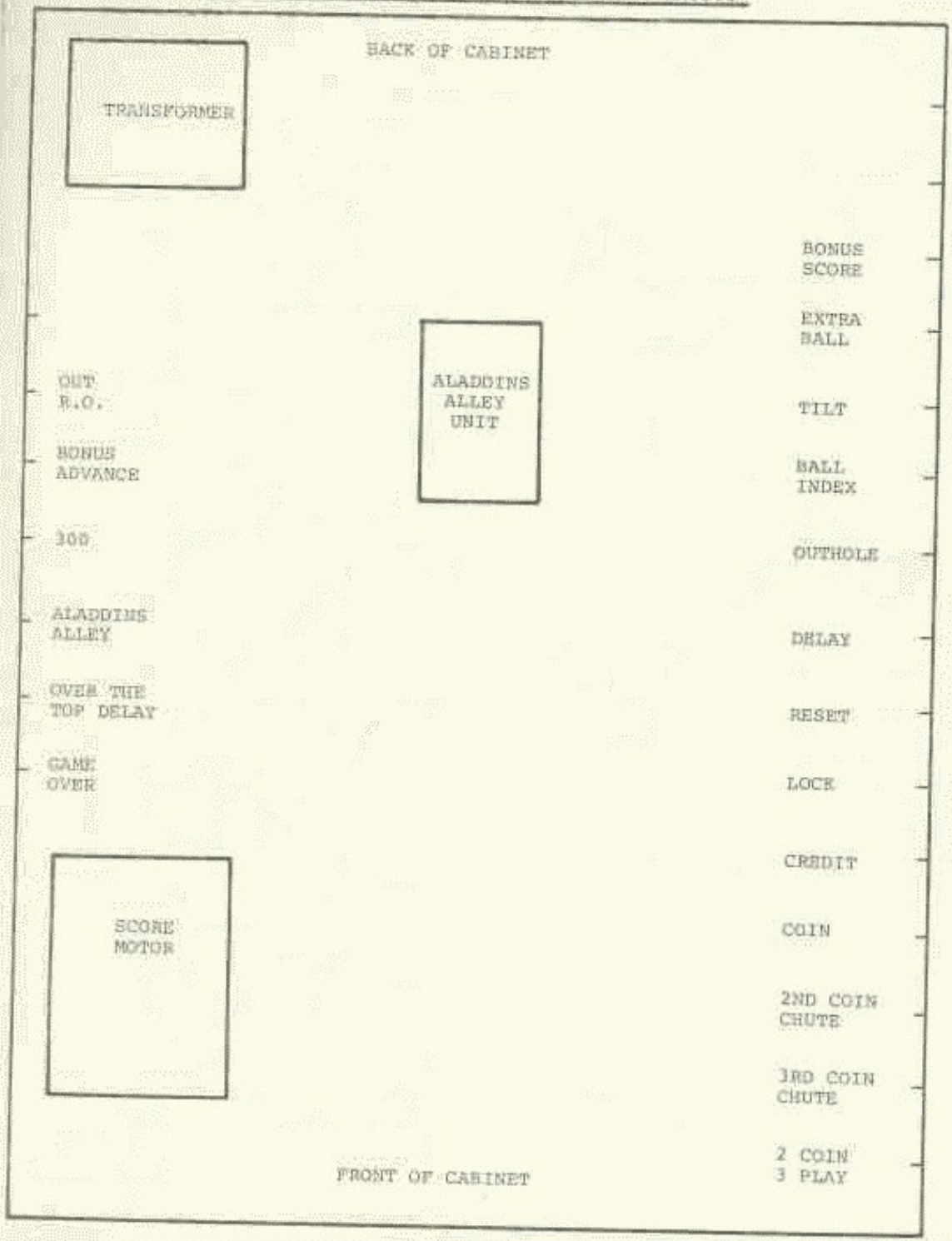




SHOOTER HOUSING COVER
PART NO. A-3830

SHOOTER GUIDE HOUSING
PART NO. C-934

ALADDINS CASTLE MOUNTING BOARD RELAY LAYOUT



TIME DELAY CIRCUIT

The purpose of the time delay circuit is to prevent unnecessary abuse of the machine it is installed in. The time delay relay is energized anytime one of the slam switches are made to contact. There are two factory installed slam switches, one on the front door and one on the mechanism mounting board. (Any number of slam switches could be installed by the operator, to meet his individual requirement). The switches should be adjusted to have approximately 1/16" gap between the contacts. The weighted blade should be adjusted to attain the desired sensitivity. Decreasing the gap between contacts will make switch more sensitive. Opening the gap will reduce sensitivity. The total time the delay relay is energized can be varied by changing the #455 bulb mounted on the delay relay frame. If unable to get a short enough time of delay, get a Westinghouse #455 bulb; these units are considerably faster. If still unable to bring the time down, check the location voltage. It should not be under 49.5 V.A.C. on the transformer secondary.