

#895 - "FIRECRACKER"

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 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 one of the two balls into ball tilt assembly and adjust bracket so ball will roll over switch blade if front of cabinet is raised.

Plug in line cord:

Check adjustment of the (normally closed) kick-off switch on front cabinet mounting board, near cable plugs. Check adjustment of the (normally closed) anti-slam switch on front door.

GENERAL GAME OPERATION

Place ball into playfield by out hole.

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.

- 1A. If coin is inserted in 1st (nickel) coin chute and game is conditioned for 1 play-5¢, it will energize the "coin relay". If game is conditioned for 1 play-10¢, the first coin inserted will advance the "2 coin unit", then second coin inserted will energize the "coin relay" thru 2 coin unit switch.

(See 1st coin chute adjustment plug on game adjustments sheet).

- 1B. If coin is inserted in 2nd (dime) coin chute and game is conditioned for 1 play-10¢, it will energize the "coin relay". If game is conditioned for 2 plays-10¢, it will energize the "2nd coin chute relay" and 2nd coin chute relay will advance "credit unit" (2 steps) thru coin credit circuit.

(See 2nd coin chute adjustment plug on game adjustments sheet).

- 1C. If coin is inserted in 3rd (quarter) coin chute and game is conditioned for 2-3-4-5 or 6 plays-25¢, it will energize the "3rd coin chute relay" and 3rd coin chute relay will advance "credit unit" (2-3-4-5-6 steps) thru coin credit circuit.

(See 3rd coin chute adjustment plug on game adjustments sheet).

- 1D. When "credit unit" has been advanced from 2nd or 3rd coin chute, (as described in section 1B and 1C) the front door "credit button" switch will energize the "credit relay" and then credit relay will energize "coin relay".
- 2A. Coin relay, when energized by any of the ways described, (in sections 1A thru 1D) will stay energized thru its own hold-in switch and (normally closed) #8 score motor switch.
- 2B. Coin relay will energize the "lock relay" which stays energized thru its own hold-in switch and cabinet kick-off switch.
- 2C. Coin relay will energize the "reset relay" thru game over relay switch or ball count unit switch, operate the "score motor" and then thru (normally open) #2 and #11 score motor switches, energize the "#1 and #2 score reset relays". The reset relay will continue to operate score motor and reset the "bonus unit" thru (normally open) #2 score motor switch, both the reset and score reset relays will stay energized thru (normally closed) #8 score motor switch, or until all "score counter units" are reset to "zero position".
- 2D. Coin relay, thru (normally open) #3 score motor switch will advance the "total play meter", and thru reset relay will reset the "coin unit", "ball count unit" and "player up unit". Coin relay will also reset the "credit unit" (1 step) when energized by credit button. Ball count unit "zero switch", thru (normally open) #10 score motor switch will energize the "game over relay (latch) coil" as game start cycle ends.
- 3A. Ball on out hole switch will energize the "out hole relay" thru (normally closed) #1 score motor switch and bonus unit disc, and it will stay energized thru its own hold-in switch and (normally closed) #10 score motor switch.
- 3B. Out hole relay will operate the "score motor" and then energize the "out hole kicker" solenoid thru (normally open) #7 score motor switch. 1st ball is kicker thru ball trough to shooter alley and game is now conditioned for "1st player" to begin play.
- 3C. To condition game for "2nd player", inserting coin (s) or use of credit button now (before 1st ball is played) will energize the "coin relay" again. This time, coin relay will not energize the "reset relay". It will operate the "score motor", advance "total play meter", subtract a credit from "credit unit", (if credit button was used) and advance the "coin unit" thru (normally open) #3 score motor switch. Game is now conditioned for "2 players". Repeating this sequence will condition game for "3rd player" and "4th player".

Regular ball to ball (5 or 3) sequence of operation

- 1A. When "1st ball" is played, the "ball index relay" will be energized by either the "100 point score relay" or "1000 point score relay", and it stays energized thru its own hold-in switch, outhole relay switch and (normally closed) #8 score motor switch.
- 1B. When "1st ball played" returns to outhole, it will energize the "bonus reset relay" thru (normally closed) #1 score motor switch, if "bonus score" of 2,000 to 10,000 was left (not collected) when ball entered outhole. Bonus reset relay stays energized thru its own hold-in switch and (normally closed) #10 score motor switch. Bonus reset relay operates "score motor", then resets "bonus unit" thru (normally open) #2 score motor switch. The "outhole relay" is then energized thru (normally closed) #1 score motor switch and bonus unit at index position, and it stays energized thru its own hold-in switch and (normally closed) #10 score motor switch.
- 1C. The outhole relay operates "score motor", and if game is conditioned for "single player", the "ball count unit" is advanced 1 step by (normally open) #3 score motor switch thru coin unit, ("0" position) or if game is conditioned for "multiple players", (2 to 4) the "player-up unit" is advanced 1 step thru (normally open) #4 score motor switch. Outhole relay then energized the "outhole kicker solenoid" thru (normally open) #7 score motor switch, 1st ball is returned to shooter alley and game is now conditioned for either "1st player - 2nd ball" or "2nd player - 1st ball". During "multiple player" game, when the last eligible players 1st ball returns to outhole, the outhole relay advances the "ball count unit" 1 step thru #3 score motor switch, "coin unit" and/or "player-up unit", then ball count unit end of stroke switch energizes the "player reset relay". Player reset relay stays energized thru its own hold-in switch and (normally open) #1 score motor switch, and resets the "player-up unit" thru normally open #4 score motor switch, and game is conditioned for "1st player - 2nd ball".
- 1D. When the last eligible players last ball returns to outhole, the outhole relays final advance of "ball count unit" will energize the game-over interlock relay trip coil and game is completed.

Note:

"Regular" ball to ball sequence of operation is interrupted when a player scores and "extra ball" or "tilts" on a ball in play.

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FEATURE OPERATION & SCORING

Firecracker score feature:

Ball in either top or left Firecracker spin-score hole operates the "spin unit" and advances the "firecracker unit". Scoring then corresponds to feature lite lit when spin ends, and ball is ejected from hole.

Bonus score feature:

The "bonus unit" is advanced by top roll-over button, left and right top lane roll-overs, top right target, left and right center targets, and by firecracker holes when "advance bonus" is lit.

Ball in "bonus score hole" scores 1000 to 10000 points depending on score lite lit, resets bonus unit, and ball is ejected from hole.

EXTRA BALL TARGET FEATURE:

Ball hitting "extra ball target" when lit scores and "extra ball". "Extra ball target lite" is lit at random thru 00-90 unit*. When an extra ball is scored, "same player shoots again" lites on bottom of playfield, and when ball in play goes into out hole, then returns to shooter alley, "player" and/or "ball in play" lites will not change. Extra ball must be played, before another can be scored.

FREE BALL GATE FEATURE:

This is a one way gate, that allows ball to return from playfield action to shooter alley at any time.

When "3000 score lite" is lit, ball thru gate scores 3000 points thru the shooter alley roll-over.

LEFT OUT LANE KICKBACK FEATURE:

Ball into left out lane when "kicker on lite" is lit is "kicked back" into playfield for further scoring. "Kicker on lite" is lit at random thru 00-90 unit*.

THUMPER-BUMPER LITES FEATURE:

"Blue" thumper-bumper (1) or "red" thumper bumpers (2) lite alternately thru 00-90 unit*. Lit thumper-bumpers score "100 points" instead of 10 points.

PLAY MORE POST FEATURE:

Post goes up when "middle center target" is hit, post goes down when ball goes over either left or right down post roll-over button, next ball is kicked to shooter alley, tilt occurs, or new game is started.

* 00-90 unit advances each time 10 point relay is energized.

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GAME ADJUSTMENTS

PLAYFIELD PANEL POST ADJUSTMENTS:

Game has (4) posts that can be moved to make game playing time and scoring more conservative or liberal. Spotting holes are provided for movement of posts, and "liberal" and "conservative" positions are shown on panel sketch FO-315.

BALL ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides positions to ring bell for "100" point scores, "1000" point scores, or both "100 & 1000" point scores.

HI-SCORE ADJUSTMENT PLUG:

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

1ST COIN CHUTE ADJUSTMENT PLUG:

Located on the 2 coin unit, on front cabinet mounting board. This plug provides positions to give "1 play for 1 coin" or "1 play for 2 coins" thru the 1st (nickel) coin chute.

HI-SCORE FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to award "credits" or "extra balls" for preset hi-scores.

2ND COIN CHUTE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to give "1 play for 1 coin" or "2 plays for 1 coin" thru the 2nd (dime) coin chute. Note: When this plug is set for "2 plays - 1 coin", brown-white (male plug) wire on 3rd coin chute adjustment must be in "position 2".

3RD COIN CHUTE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to give "2 to 6 plays for 1 coin" thru the 3rd (quarter) coin chute, orange-white (male plug) wire.

MATCH FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to turn match feature "on" or "off".

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.

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PARTS LISTMISCELLANEOUS

Transformer	E-122-95
Score Motor (Domestic)	E-119-354
Score Motor (Export)	E-119-372
Meter (Total Play)	E-130-10

RELAY COILS

Bonus Score	G-32-2500
Bonus "O"	G-31-1800
Top Spin Hole	G-31-1800
Left Spin Hole	G-31-1800
Bonus Reset	G-31-1800
Bonus Hole	G-31-1800
Ball Index	G-32-2500
Out Hole	G-31-1800
Extra Ball	G-32-2500
Tilt	G-32-2500
Reset	G-31-1800
Player Reset	G-31-1800
Credit	G-31-1800
3rd Coin Chute	G-31-1800
2nd Coin Chute	G-31-1800
Coin	G-31-1800
Lock	G-33-2800
Game Over (trip)	G-31-1800
Game Over (latch)	G-31-1800
Gate Target	G-30-1500
Gate Lite	G-32-2500
Bonus Advance	G-31-1800
Extra Ball Target	G-30-1500
3000 Point	G-31-1800
Alternator	G-33-2800
Eject	G-31-1800
Spin Pulse	G-31-1800
Delay	G-35-5200
Post	G-32-2500
On Kicker	G-33-2800
Blue T.B.	G-31-1800
Right Red T.B.	G-31-1800
Left Red T.B.	G-31-1800
10 Point	G-30-1500
100 Point	G-30-1500
1000 Point	G-30-1500
#1 Score Reset	G-30-1500
#2 Score Reset	G-30-1500

ASSEMBLY COILS

Out Hole Kicker	A-26-1100
Top Hole Kicker	A-26-1100
Left Hole Kicker	A-26-1100
Bonus Hole Kicker	A-26-1100
Kickback	AK-25-1050
Left Red T.B.	A-25-1000
Right Red T.B.	A-25-1000
Blue T.B.	A-25-1000
Left Slingshot	A-26-1200
Right Slingshot	A-26-1200
Left Flipper	AF-26-750/31-900
Right Flipper	AF-26-750/31-900
Post	AP-31-3000
Knocker	C-27-1000
Bell	CB-31-2000
Coin Lockout	FC-33-2600

UNIT COILS

Coin (Step-up)	B-26-1100
Coin (Reset)	C-28-1100
Player up (Step-up)	B-26-1100
Player up (Reset)	C-28-1100
Ball Count (Step-up)	B-26-1100
Ball Count (Reset)	C-28-1100
00-90 (Step-up)	B-26-1100
Bonus (Step-up)	B-26-1100
Bonus (Reset)	C-28-1100
Firecracker (Step-up)	B-26-1100
Spin (Step-up)	B-26-1100
Spin (Reset)	C-28-1100
Credit (Step-up)	B-26-1100
Credit (Reset)	C-28-1100
2 Coin (Step-up)	CD-29-1600
Score (Step-up)	CD-29-1600

UNIT CONTACT DISC'S

Coin	W-923-208
Player Up	W-923-207
Ball Count	W-1043-14
00-90	W-1034-10
Bonus	W-1072-17
Firecracker	W-1123-9
Score	A-2212-7

UNIT WIPER ASSY'S

Coin	AS-1024-108
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UNIT WIPER ASSY'S (cont)

Player Up	AS-1046-620
Ball Count	AS-1046-621
00-90	AS-1046-501
Bonus	AS-1046-630
Firecracker	AS-1046-614
Score	A-1618-3

BALLY MFG. CORP.

Jan. 6, 1971

NEW COIL NUMBERS

FO-319a

<u>OLD COIL NUMBER</u>	<u>NEW BALLY COIL NUMBER</u>
CO-25A-7	A-25-1050
CO-25GG-7	B-25-925
CO-25H-7	BC-25-925
CO-26A-9	A-26-1100
CO-26GG-9	B-26-1100
CO-27R-11	C-27-1000
CO-28R-15	C-28-1100
E-184-41	BF-27-1250
E-184-46	EA-30-1150
E-184-47	EA-32-1550
E-184-55	B-29-1200
E-184-56	A-27-1100
E-184-74	CF-28-1025
E-184-75	E-32-1700
E-184-112	EA-29-950
E-184-135	BA-25-925
E-184-155	D-27-425
E-184-156	D-28-500
E-184-160	B-25-750
E-184-175	AP-27-1300
E-184-180	CE-33-4800
E-184-190	AF-25-600/31-1000
E-184-204	AF-27-1000/32-1300
E-184-205	B-27-1300
E-184-206	CD-29-1600
E-184-207	A-27-1400
E-184-213	A-27-1300
E-184-218	F-31-1500
E-184-224	F-31-2100
E-184-231	CA-29-800/31-900
E-184-235	AK-25-1050
E-184-236	J-28-1100
E-184-237	BA-26-1040
E-184-241	AF-25-600/31-1000
E-184-243	A-26-1200
E-184-248	FC-30-1300
E-184-249	BF-28-1500
E-184-250	D-30-700
E-184-252	BB-26-655/32-1245
E-184-254	FC-30-1400
E-184-257	AP-25-1050
E-184-260	B-28-1600
E-184-261	AP-31-3000
E-184-262	A-26-1200
E-184-263	AF-27-775/31-861
E-184-264	A-28-1900
E-184-265	AF-25-600/31-1000
E-184-266	D-29-675
E-184-268	AF-26-750/31-900
E-184-269	FC-33-2600
E-184-270	AB-31-3000
E-184-271	AK-24-750
E-184-272	A-25-1000
E-184-274	FC-32-2100

NOTE:

THESE COILS MAY BE ORDERED BY THE OLD COIL NUMBER OR BY THE NEW COIL NUMBER OR BY BOTH.

#895 FIRECRACKER

RUBBER PARTS

- A. R-115-4 REBOUND (1)
- B. R-521-2 1-1/2" (8)
- C. R-521-3 2" (1)
- D. R-521-5 3" (3)
- E. R-521-6 3-1/2" (1)
- F. R-243a 5/16" (11)
- G. R-406-3 FLIPPER (2)

PANEL TOP PARTS

- 1. TOP ARCH P-5838-51
- 2. BOTTOM ARCH P-5871-38
- 3. SHOOTER GAGE P-6359-10
- 4. SIDE RAIL (LEFT) CA-1208-2
- 5. SIDE RAIL (RIGHT) CA-1208-1
- 6. INNER RAIL CA-1208-5
- 7. PROTECTIVE ANGLE P-7639
- 8. BALL REBOUND AS-493-3
- 9. BALL GATE A-1475-1
- 10. BALL GATE COVER P-2986-5
- 11. LITE SHIELDS A-2890-68
- 12. BUMPER CAP (RED) C-719-12
- 13. BUMPER CAP (BLUE) C-719-16
- 14. ROLLOVER BUTTON C-387-5
- 15. FLIPPERS (WHITE) C-611-5
- 16. ROLLOVER WIRE M-1336-10
- 17. ROLLOVER WIRE M-1336-2
- 18. ROLLOVER WIRE M-1336-9
- 19. ROLLOVER WIRE M-1336-13
- 20. BALL GUIDE WIRE M-121-24
- 21. GUIDE RAIL (RED) C-694-1
- 22. GUIDE RAIL (RED) C-696-1
- 23. BUMPER C-810
- 24. TARGET ASSY. (RED) AS-982-831
- 25. TARGET ASSY. (RED) AS-982-723
- 26. TARGET ASSY. (RED) AS-982-699
- 27. BALL GATE & WIRE AS-2250-25

● CONSERVATIVE POSITION

○ LIBERAL POSITION

