

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 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 three (normally closed) anti-cheat switches that hold in anti-cheat relay:

- (A) On front door.
- (B) On bottom of cabinet to right of cash box.
- (C) On mounting board in front of cable plugs.

Installation (continued)

NOTE: Adjustment of above switches should be checked after game is plugged in. If not properly adjusted the anti-cheat relay may drop out during normal playing of game.

GENERAL GAME OPERATION

Place ball into playfield by out hole.

Plug in line cord.

(A) No lites lit.

Coin game:

- 1A. If coin is inserted in 1st (5¢) coin chute*, and if game is adjusted to require two coins per play, the first coin inserted will advance the "2" coin unit", and second coin inserted will energize the "coin relay" thru the 2 coin unit switch. If game is adjusted to require one coin per play, the first coin inserted will energize the "coin relay".

* See 1st coin chute adjustment plug on "Game Adjustment" sheet.

- 1B. If coin is inserted in 2nd (10¢) coin chute**, it will energize the "2nd coin chute relay", and if game is being operated at 5¢ per play, 2nd coin chute relay will advance the "replay unit" thru credit circuit. If game is being operated at 10¢ per play, the 2nd coin chute relay will not advance "replay unit".

- 1C. If coin is inserted in 3rd (25¢) coin chute**, it will energize the "3rd coin chute" relay, and if game is being operated at 5¢ or 10¢ per play, 3rd coin chute relay will advance "the replay unit" thru credit circuit accordingly.

** See 2nd & 3rd coin chute adjustment plug on "game adjustment" sheet.

2. 1st coin chute switch and 2nd or 3rd coin chute relay switches will energize the "coin relay". Coin relay will then energize the "start trip relay" and operate score motor to start game reset cycle. When credits are on replay unit, replay button will energize the "start trip relay".
3. Start trip relay thru (normally closed) #1 score motor switch will energize the "anti-cheat relay" which stays energized thru its own hold in switch, the game anti-cheat switches and cabinet push button shut off switch.
4. Start trip relay will energize the reset relay and then thru (normally open) #3 score motor switch, energize the clutch trip relay, which in turn will operate the trip bank motor to reset all trip relays.
5. When replay button is pressed to use "replay credits" to start game, start trip relay resets the "replay unit" one position thru (normally open) #3 score motor switch, for each credit used.
6. Start trip relay resets "ball count unit" and advances total play meter thru (normally open) #4 score motor switch.

General Game Operation (continued)

7. After all above units have been reset and score motor unit has returned to "index position", ball on "out hole switch" will energize the "ball return relay" thru (normally closed) #1 score motor switch. Ball return relay will stay energized thru its own hold in switch in series with (normally closed) #8 score motor switch.
8. The ball return relay will operate the "score motor" and then energize the "ball return kicker solenoid" thru (normally open) #3 score motor switch. Ball is kicked thru ball trough to shooter alley, "1st ball" lites on backglass and game is conditioned for 1st ball play.

BALLS IN PLAY:

1. When 1st ball is played, any point score relay will energize the "ball played trip relay", which then activates the "ball trough switch".
2. When 1st ball played returns to out hole, "Ball return relay" is again energized thru (normally closed) #1 score motor switch. Ball return relay will operate the "score motor" and then energize the "ball return kicker solenoid" thru (normally open) #3 score motor switch.
3. Ball is kicked thru ball trough, closes activated trough switch and thru ball played trip relay, energizes the "ball advance relay". Ball advance relay will stay energized thru its own hold in switch in series with (normally closed) #10 score motor switch.
4. The ball advance relay will operate score motor then advance the "ball count unit" thru (normally open) #8 score motor switch. Ball count unit disc will lite "2nd ball" on backglass and game is conditioned for 2nd ball play. This sequence is then repeated thru 3rd or 5th ball, depending on game being conditioned for 3 or 5 ball play.
5. After the last ball (3 or 5) has been played and returns to outhole, the ball return will energize the "match relay" thru balls per game adjustment and ball count unit disc. The match relay will then energize the "game over trip relay" thru (normally open) #7 score motor switch, "game over" lites on backglass and play is completed.

COIN CREDIT OPERATION:

- (A). When multiple play coin chutes are used to start new game, one credit is automatically used to condition game for "play" and remainder of credit (s) are registered on "replay unit".
- (B) When multiple or single play coin chutes are used after game is conditioned for "play" all credit (s) (to 25) are registered on "replay unit".

GAME #870 - "Bowl-O"

FEATURE OPERATION and SCORING

Top Center Rollover (Strike) Feature:

Ball thru top center lane when lit, registers a strike and scores 5000 points. When not lit, lites 7 & 10 pin lites* and scores 1000 points. Feature lites at random thru match unit and frequency is adjustable thru plug on back cabinet insert.

Saucer Hole (Strike) Feature:

Ball in saucer hole always registers a strike and scores 5000 points.

No.'s 1-10 Pin Targets:

Ball hitting a target lites corresponding pin lite* and scores 100 points.

Spot Pin Lite Feature:

Ball hitting left & right side rebound lites pin lite* corresponding to spotted pin lit. Spotted pin lites are lit in rotation thru match unit.

Top Left & Right Lane Rollover:

Ball thru left lane lites 1 pin lite* and scores 1000 points.
Ball thru right lane lites 8 pin lite* and scores 1000 points.

Left & Right Out Rollover Lane:

Ball thru left out lane lites 1 pin lite* and scores 1000 points. Ball thru right out lane lites 10 pin lite* and scores 1000 points.

- * Pin lites remain lit until all ten are lit, which registers a strike and scores 5000 points, or until new game is started.

Play-More Post Feature:

"Post UP" prevents ball from going thru flippers into outhole, keeps ball in play for more scoring. Post goes up when ball hits "Up Post" rollover button. Post goes down when ball hits "Down Post" rollover buttons (2), ball returns to outhole, game is tilted, new game is started.

#870 - "BOWL-O"
GAME ADJUSTMENTS

PLAYFIELD PANEL POST ADJUSTMENTS:

The playfield panel has (2) posts that can be moved to increase or decrease game scoring. Spotting holes are provided for movement of these parts, and "liberal" and "conservative" positions are shown on panel sketch FO-292.

BELL 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 and 1000" point scores.

HI-SCORE ADJUSTMENT PLUGS:

Located on back box lite insert. These (2) plugs provide a wide range of score coverage at which replays can be awarded. Recommended plug settings that correspond to score cards shipped with game are shown on hi-score chart FO-290.

TOP CENTER LANE (STRIKE) FEATURE ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides positions to increase or decrease frequency of top center lane strike feature lite. In "liberal" position, feature lites "twice" every ten steps of match unit. In "conservative" position, feature lites "once" every ten steps of match unit.

BALLS PER GAME ADJUSTMENTS PLUG:

Located on back box lite insert. This plug provides positions to operate game on "5 ball" or "3 ball" play.

STRIKE FEATURE REPLAY ADJUSTMENT PLUG:

Located on bottom of playfield panel. This plug provides (5) positions at which a replay can be awarded for "strikes" (X). Score cards shipped with game correspond to plug positions (5X), (8X), (10X), (14X), (18X).

MATCH FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to operate game "with" or "without" match number feature replay award.

TILT ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to penalize player "complete game" or "ball in play" when tilt occurs.

2ND & 3RD COIN CHUTE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to give "2 to 6 plays" per coin thru 2nd and/or 3rd coin chutes.

1ST COIN CHUTE ADJUSTMENT PLUG:

Located on 2 coin unit. (On front cabinet mounting board). This plug provides positions to give "1 play per two coins" or "1 play per coin" thru 1st coin chute.

PARTS LIST

AS-1046-614
AS-1046-600
AS-1046-615
A-1618-3
A-1618-3
A-1618-3

#870 BOWL-0

RUBBER RINGS

- A - R-115-4a REBOUND (1)
- B - R-243a 5/16 (14)
- C - R-196a (5)
- D - R-284-5 (3)
- E - R-296-5a (2)
- F - R-406-1a FLIPPER (2) (RED)

PANEL TOP PARTS

- 1 - TOP ARCH P-5839-53
- 2 - BOTTOM ARCH P-5871-38
- 3 - SHOOTER GAUGE P-6359-10
- 4 - SIDE RAIL (LEFT) P-6360-33
- 5 - SIDE RAIL (RIGHT) A-2900-20
- 6 - BALL GUIDE RAIL P-6495-62
- 7 - BALL REBOUND AS-493-3
- 8 - BALL GATE A-1475-1
- 9 - LIGHT SHIELD & BUSHING A-2890-58
- 10 - BUMPER CAP (RED) C-719-1
- 11 - BUMPER CAP (BLUE) C-719-2
- 12 - ROLLOVER BUTTON C-387-5
- 13 - TARGET ASSEMBLY (RED) (10) AS-982-752
- 14 - FLIPPER (WHITE) C-611-5
- 15 - BUMPER C-810
- 16 - ROLLOVER WIRE M-1336-10
- 17 - ROLLOVER WIRE M-1336-9
- 18 - BALL GUIDE (RED) C-695-1a

