

PARTS MAY BE PURCHASED FROM.

1. 1/8/79

EMPIRE DIST.
2828 N. PAULINA ST.
CHICAGO ILL. 60657.

#911 "Time Tunnel"

Wico Corp
6400 W. Grand Point Rd
Miles, Ill. 60648 312-647-7500

INSTALLATION AND GENERAL GAME OPERATION INSTRUCTIONS

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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 at rear of 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 positions 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 positions 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 positions 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 operate the score motor. 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 score motor start cycle ends.
- 3A. Ball on out hole switch will energize the "out hole relay" thru (normally closed side) #1 score motor switch 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. Ball will be kicked into ball trough to shooter alley and game is 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 set game for "3rd player" and "4th player".

REGULAR BALL TO BALL SEQUENCE OF OPERATION:

- 1A. When "1st ball" is played, the "ball index relay" will be energized by the "10 point", "100 point" or "1000 point" score relay and it stays energized thru its own hold in switch, (normally closed) switch and (normally closed) #7 score motor switch.
- 1B. When the ball in plays goes into outhole, it will energize the "outhole relay" thru (normally closed) #1 score motor switch, 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" 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 an "extra ball" or "tilts" on a ball in play.

FEATURE OPERATION AND SCORING

Time Tunnel Feature:

The "Tunnel motor unit" controls the tunnel flashing lites and tunnel scoring. The motor starts operating when ball is kicked out of outhole, when ball goes into either top eject holes and when ball hits either "start tunnel" target. The motor stops when ball goes over shooter alley roll-over, thru "collect tunnel" target. The motor also stops on game over. "Collect tunnel" roll-overs and target stop tunnel motor unit and scores lit tunnel score.

Skill Shots: To register a high score when ball is in shooter alley, the ball shooter should be released so ball will go over shooter alley roll-over when "5000" score lite is lit, and the ball should shot with just the right force to go into "collect tunnel" lane at top of playfield.

Right alley feature:

The alley has two gates. The upper gate is opened when ball goes into right eject hole. The lower gate is opened when ball goes into left eject hole. The gates remain open until ball goes into right alley, into outhole or when game is tilted. The top three roll-overs score 1000 each and the bottom roll-over stops "tunnel motor unit" and scores "tunnel score" lit.

Left alley feature:

There is no entrance gate into left alley, so ball can go into the alley at any time.

When ball goes into the alley, it stops "tunnel motor unit", scores lit tunnel score, and kicks ball to top of playfield.

Extra ball feature:

When the ball hits "extra ball target" when lit, the game awards an extra ball and the "same player shoots again" lites are lit (lites on playfield and score glass). When same player shoots again is lit and the ball goes into the outhole, the ball is kicked into shooter alley and the same player shoots again. There is no advance of ball in play lite.

The "extra ball target" lite is controlled by 00-90 unit. Only one "extra ball" is awarded per ball in play.

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GAME ADJUSTMENTSPLAYFIELD 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.

Harder entry will "increase" playing time and scoring.

BELL ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides 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" can be scored. (see "score adjustment card" in back box for plug positions).

MATCH FEATURE ADJUSTMENT PLUG:

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

HI-SCORE FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. 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.

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.

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. Use orange-white (male plug) wire.

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PARTS LIST

MISCELLANEOUS

Transformer	E-122-95
Score Motor (Domestic)	E-119-354
Score Motor (Export)	E-119-411
Tunnel Motor	E-119-410
Meter (Total Play)	E-130-10
Resistor	E-105-147

RELAY COILS

Coin	G-31-1800
2nd coin chute	G-31-1800
3rd coin chute	G-31-1800
Credit	G-31-1800
Lock	G-33-2800
Player reset	G-31-1800
Left Hole	G-31-1800
Right Hole	G-31-1800
Left alley	G-31-1800
Game over (latch)	G-31-1800
Game over (trip)	G-31-1800
Reset	G-31-1800
Score reset (#1 & #2)	G-30-1500
Outhole	G-31-1800
Ball index	G-32-2500
Tilt	G-32-2500
Extra ball	G-32-2500
Tunnel	G-32-2500
Collect	G-31-1800
Lower gate	G-32-2500
Upper gate	G-32-2500
1000 point	G-30-1500
100 point	G-30-1500
10 point	G-30-1500
Extra ball target	G-30-1500
Start target	G-30-1500
Left thumper bumper	G-31-1800
Right thumper bumper	G-31-1800

ASSEMBLY COILS

Coin lockout	FC-33-2600
Bell	CB-31-2000
Knocker	C-27-1000
Left thumper bumper	A-25-1000
Right thumper bumper	A-25-1000
Left hole eject	A-27-1100
Right hole eject	A-27-1100
Left alley kicker	A-25-1050
Tunnel unit index	F-32-2100
Outhole kicker	A-25-1050
Left slingshot	AP-26-1200
Right slingshot	AP-26-1200
Left flipper	AF-26-650/30-1200
Right flipper	AF-26-650/30-1200

UNIT COILS

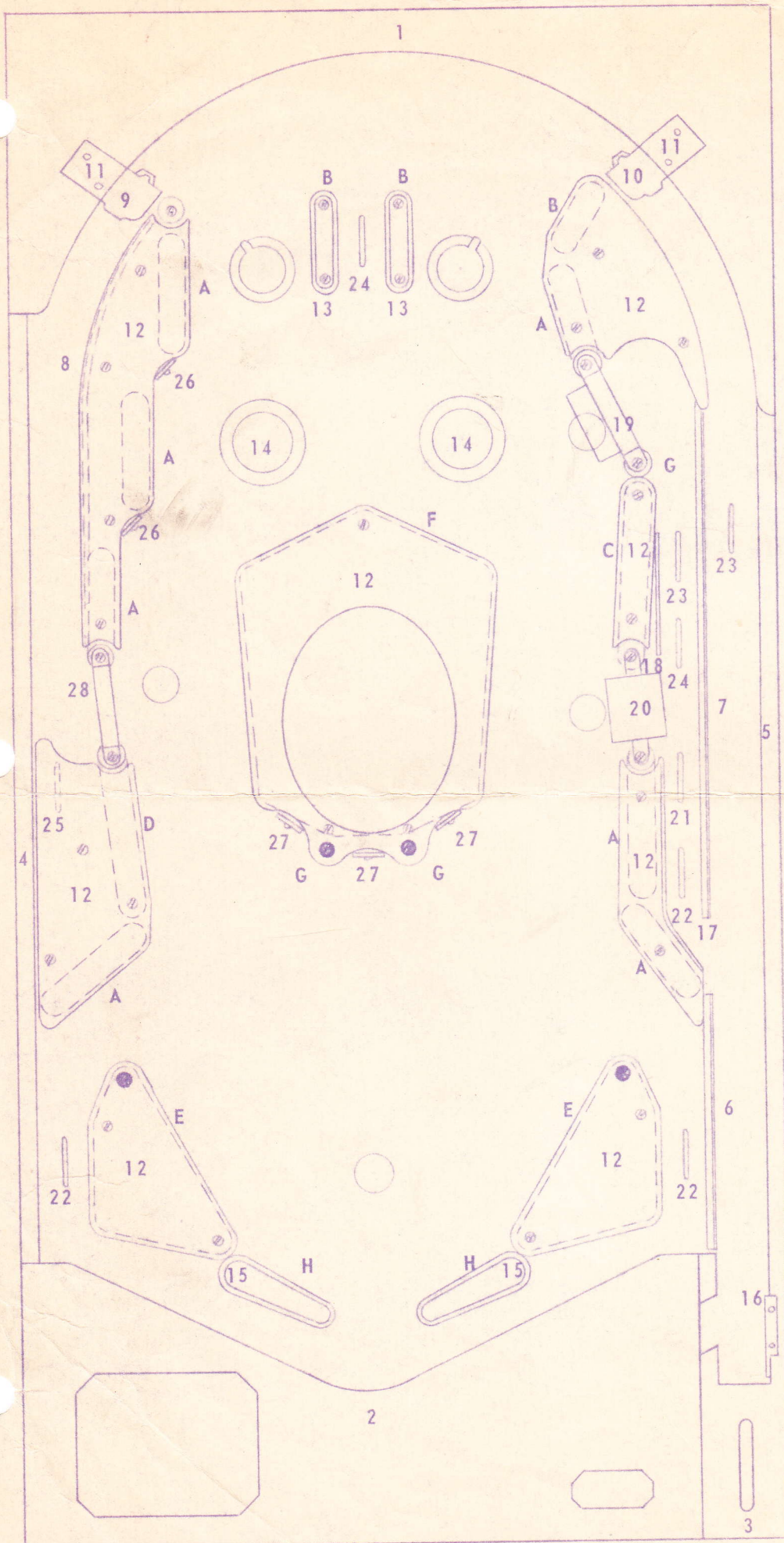
2 coin (step up)	CD-29-1600
Credit (step up)	B-26-1100
Credit (reset)	C-28-1100
Coin (step up)	B-26-1100
Coin (reset)	C-28-1100
Ball count (step up)	B-26-1100
Ball count (reset)	C-28-1100
Player up (step up)	B-26-1100
Player up (reset)	C-28-1100
00-90 (step up)	B-26-1100
Score drum (16)	
(Step up)	CD-29-1600

UNITS CONTACT DISC

Coin	W-923-260
Ball count	W-1043-17
Player up	W-923-207
00-90	W-1034-13
Tunnel Motor	W-1072-19

UNITS WIPER ASS'Y

Coin	AS-1024-108
Ball count	AS-1046-648
Player up	AS-1046-620
00-90	AS-1046-501
Tunnel Motor	AS-1046-642



RUBBER PARTS

A.	R-521-2	1-1/2°	(7)
B.	R-521-1	1°	(3)
C.	R-521-3	2°	(1)
D.	R-521-4	2-1/2°	(1)
E.	R-521-6	3-1/2°	(2)
F.	R-521-9	5°	(1)
G.	R-243	5/16°	(4)
H.	R-406-3a	YELLOW	(2)

PANEL TOP PARTS

1.	TOP ARCH	P-5839-54
2.	BOTTOM ARCH	P-5871-38
3.	SHOOTER GAUGE	P-6359-10
4.	SIDE RAIL (L)	CA-1208-15
5.	SIDE RAIL (R)	CA-1208-1
6.	BALL GUIDE	P-6495-66
7.	BALL GUIDE	P-6495-64
8.	BALL GUIDE	P-6495-65
9.	BALL GATE (L)	A-1475-4
10.	BALL GATE (R)	A-1475-1
11.	BALL GATE COVER	P-2996-5 (2)
12.	LITE SHIELDS	A-2890-77
13.	PLATE	P-5899-29
14.	BUMPER CAP	C-719-3
15.	FLIPPER (WHITE)	C-611-5
16.	PROTECTIVE ANGLE	P-7639
17.	GUIDE WIRE	M-121-28
18.	GUIDE WIRE	M-121-18
19.	BALL GATE WIRE	AS-2250-28
20.	BALL GATE WIRE	AS-2250-4
21.	ROLLOVER WIRE	M-1336-2 (1)
22.	ROLLOVER WIRE	M-1336-3 (3)
23.	ROLLOVER WIRE	M-1336-9 (2)
24.	ROLLOVER WIRE	M-1336-10 (2)
25.	ROLLOVER WIRE	M-1336-13 (1)
26.	TARGET ASSY.	AS-982-699 (2)
27.	TARGET ASSY.	AS-982-723 (3)
28.	GATE BRACKET	P-5867-2

● INDICATES MOVABLE POSTS FOR SCORING ADJUSTMENTS