#1014 FLICKER

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 PLUG 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 BALL (15/16" DIA.) INTO BALL TILT ASSEMBLY AND ADJUST BRACKET SO BALL WILL ROLL FREELY IF FRONT OF CABINET IS RAISED.

CHECK ADJUSTMENT OF THE KICK-OFF AND SLAM SWITCHES:
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 THE FRONT DOOR. THESE SWITCHES SHOULD CLOSE WHEN FRONT DOOR IS SLAMMED OR THE BOTTOM OF THE CABINET IS KICKED. EITHER SWITCH WHEN CLOSED WILL ENERGIZE THE DELAY RELAY.

GENERAL GAME OPERATION

PLACE BALL ONTO PLAYFIELD BY OUT HOLE.
PLUG IN THE LINE CORD.

COIN GAME:
IF THE COIN SHOULD BE REJECTED, MOVE ON-OFF MASTER SIWTCH AT THE BOTTOM RIGHT FRONT CORNER OF CABINET TO "ON" POSITION, THEN COIN GAME. THE COIN LOCK-OUT DEVICE REJECTS ALL COINS WHEN POWER (MASTER SWITCH) IS OFF.

1A. IF THE COIN IS INSERTED IN THE 1ST (NICKEL) COIN CHUTE AND THE GAME IS SET FOR 1 PLAY-5¢, IT WILL ENERGIZE THE "COIN RELAY". IF GAME IS SET FOR 1 PLAY-10¢, THE FIRST COIN INSERTED WILL ADVANCE THE "2 COIN UNIT", THEN THE SECOND COIN INSERTED WILL ENERGIZE THE "COIN RELAY" THRU THE 2 COIN UNIT SWITCH. (SEE 1ST COIN CHUTE ADJUSTMENT PLUG POSITIONS ON GAME ADJUSTMENTS SHEET).

1B. IF THE COIN IS INSERTED IN THE 2ND (DIME) COIN CHUTE AND THE GAME IS SET FOR 1 PLAY-10¢, IT WILL ENERGIZE THE "COIN RELAY". IF GAME IS SET FOR 2 PLAYS-10¢, IT WILL ENERGIZE THE "2ND COIN CHUTE RELAY" AND THE 2ND COIN CHUTE RELAY WILL ADVANCE THE "CREDIT UNIT" (2 STEPS) THRU THE COIN CREDIT CIRCUIT. (SEE 2ND COIN CHUTE ADJUSTMENT PLUG POSITIONS ON GAME ADJUSTMENTS).

1C. IF THE COIN IS INSERTED IN THE 3RD (QUARTER) COIN CHUTE AND THE GAME IS SET FOR 2-3-4-5-6 PLAYS-25¢, IT WILL ENERGIZE THE "3RD COIN CHUTE RELAY" AND THE 3RD COIN CHUTE RELAY WILL ADVANCE THE "CREDIT UNIT" (2-3-4-5-6 STEPS) THRU THE COIN CREDIT CIRCUIT. (SEE 3RD COIN CHUTE ADJUSTMENT PLUG POSITIONS ON GAME ADJUSTMENTS).

1D. WHEN THE "CREDIT UNIT" HAS BEEN ADVANCED FROM THE 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 THE CREDIT RELAY WILL ENERGIZE "COIN RELAY".

2A. THE COIN RELAY, WHEN ENERGIZED BY ANY OF THE WAYS DESCRIBED, (IN SECTIONS 1A TRY 1D) WILL STAY ENERGIZED THRU ITS OWN HOLD-IN SWITCH AND (NORMALLY OPEN) #8 SCORE MOTOR SWITCH.

2B. THE COIN RELAY WILL ENERGIZE THE LOCK RELAY WHICH STAYS ENERGIZED THRU ITS OWN HOLD-IN SWITCH AND THE NORMALLY CLOSED DELAY RELAY SWITCH.

2C. THE COIN RELAY WILL ENERGIZE THE RESET RELAY THRU A GAME OVER RELAY SWITCH; OPERATE THE SCORE MOTOR AND THRU THE (NORMALLY OPEN) #2 SCORE MOTOR SWITCH, ENERGIZE THE SCORE RESET RELAY. THE RESET RELAY WILL STAY ENERGIZED THRU A NORMALLY CLOSED #8 SCORE MOTOR SWITCH, AND UNTIL ALL SCORE COUNTER UNITS ARE RESET TO ZERO POSITION. THE COIN RELAY WILL LATCH THE GAME OVER RELAY THRU THE (NORMALLY OPEN) #4 SCORE MOTOR SWITCH.

2D. THE COIN RELAY, THRU THE NORMALLY OPEN #3 MOTOR SWITCH WILL ADVANCE THE TOTAL PLAY METER, AND THRU THE RESET RELAY WILL RESET BALL COUNT UNIT, AND LATCH THE 2ND COIN RELAY. THE COIN RELAY WILL ALSO RESET THE CREDIT UNIT (1 STEP) WHEN STARTED BY THE CREDIT RELAY. THE COIN RELAY WILL TRIP THE 2ND COIN RELAY WHEN THE RESET RELAY IS NOT ENERGIZED.

3A. A BALL IN THE OUT HOLE WILL ENERGIZE THE OUT HOLE RELAY THRU A NORMALLY CLOSED #1 SCORE MOTOR SWITCH, AND IT WILL STAY ENERGIZED THRU ITS OWN HOLD-IN SWITCH AND NORMALLY CLOSED #10 SCORE MOTOR SWITCH.

3B. THE OUT HOLE RELAY WILL OPERATE THE SCORE MOTOR AND THEN ENERGIZE THE OUT HOLE KICKER SOLENOID THRU A NORMALLY OPEN #7 SCORE MOTOR SWITCH. THE 1ST BALL IS KICKED THRU THE BALL TROUGH TO THE SHOOTER ALLEY AND THE GAME IS NOW READY FOR THE "1ST PLAYER" TO BEGIN PLAY.

3C. THE CONDITION THE GAME FOR "2ND PLAYER" INSERTING COIN(S) OR USE OF THE CREDIT BUTTON (BEFORE 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 AND ADVANCE THE TOTAL PLAY METER, SUBTRACT A CREDIT FROM THE CREDIT UNIT, (IF CREDIT BUTTON WAS USED) AND TRIP THE 2ND COIN RELAY THRU A NORMALLY OPEN #3 SCORE MOTOR SWITCH. THE GAME IS NOW SET FOR "2 PLAYERS".

<u>SEQUENCE OF OPERATION</u>

1A. WHEN THE 1ST BALL IS PLAYED, THE BALL INDEX RELAY WILL BE ENERGIZED BY THE 10 POINT RELAY, 100 POINT RELAY OR 1000 POINT RELAY, AND IT WILL STAY ENERGIZED THRU ITS OWN HOLD-IN SWITCH, OUTHOLE RELAY SWITCH AND A NORMALLY CLOSED #6 SCORE MOTOR 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 TOTAL TOTAL SCORE OF THE PLAYER. WHEN THE SCORING IS COMPLETED, THIS BONUS SCORE RELAY IS DE-ENERGIZED AND THE OUTHOLE RELAY IS ENERGIZED. THE OUTHOLE RELAY WILL REMAIN ENERGIZED THRU ITS OWN LOCK-IN SWITCH UNTIL THE NORMALLY CLOSED #8 SCORE MOTOR CAM SWITCH OPENS.

1C. THE OUTHOLE RELAY OPERATES THE SCORE MOTOR AND THRU A BALL INDEX RELAY SWITCH WILL ADVANCE THE BALL COUNT UNIT EITHER TWO STEPS THRU NORMALLY OPEN #3 AND #4 SCORE MOTOR SWITCHES DURING A ONE PLAYER GAME OR ONE STEP THRU A NORMALLY OPEN #4 SCORE MOTOR SWITCH DURING A TWO PLAYER GAME. THE OUTHOLE RELAY THEN COMPLETES THE CIRCUIT TO THE OUTHOLE KICKER SOLENOID THRU A NORMALLY OPEN #7 SCORE MOTOR SWITCH. THE 1ST BALL IS RETURNED TO THE SHOOTER AND THE GAME IS NOW SET FOR EITHER 1ST PLAYER; 2ND BALL OR 2ND PLAYER, 1ST BALL.

1D. SEQUENCE 1A, 1B AND 1C ARE THEN REPEATED FOR EACH BALL PLAYED UNTIL THE LAST BALL IS PLAYED. WHEN THE LAST BALL PLAYED RETURNS TO THE OUTHOLE, THE GAME OVER RELAY TRIP COIN WILL BE ENERGIZED THRU THE BALL COUNT UNIT DISC. THE GAME OVER RELAY WHEN TRIPPED WILL TURN OFF THE BALL IN PLAY LITE, TURN ON 00-90 MATCH LITE AND OPEN THE GAME PLAY AND SCORING CIRCUITS.

NOTE: REGULAR BALL TO BALL OPERATION (SEQUENCE 1C) IS INTERRUPTED WHENEVER A PLAYER SCORES AN EXTRA BALL WITH THE EXCEPTION THAT THE OUTHOLE KICKER SOLENOID WILL OPERATE AS INDICATED.

FLIPPER OPERATION:

THE FLIPPERS ARE ACTUATED BY THE PLAYER PRESSING BUTTONS ON THE SIDES OF THE CABINET. THE FLIPPER COILS HAVE TWO WINDINGS; ONE OF HEAVY WIRE THAT PASSES HIGH CURRENT ALLOWING A STRONG INITIAL STROKE; THE SECOND WINDING IS OF LIGHTER WIRE AND IS IN SERIES WITH THE FIRST WINDING. THE LIGHTER WINDING IS SHORTED OUT UNTIL A NORMALLY CLOSED SWITCH IS OPENED BY THE FLIPPER LINKAGE. THIS ALLOWS THE FLIPPER TO BE HELD ENERGIZED AND NOT OVERHEAT BECAUSE LESS CURRENT PASSES THROUGH THE COIL.

FEATURE OPERATION AND SCORING

100,000 SCORE FEATURE:
THERE ARE TWO 100,000 SCORE INTERLOCK RELAYS, ONE FOR EACH PLAYER. WHEN A PLAYER HAS SCORED 100,000 POINTS, THE 100,000 REALY IS TRIPPED, LIGHTING THE 100,000 LITE ON THE SCORE GLASS. ALL 100,000 RELAYS ARE LATCHED AT THE START OF EACH GAME.

BONUS SCORE FEATURE:
BONUS SCORES OF 1,000 TO 15,000 POINTS IS SCORED WHEN THE BALL GOES INTO THE OUTHOLE OR 2,000 TO 30,000 WHEN THE DOUBLE BONUS LITE IS LIT.

BONUS SCORE BUILD UP STARTS AT 1,000 AND ADVANCES 1,000 POINTS WHENEVER THE BALL GOES OVER EITHER LEFT OR RIGHT BALL RETURN LANE ROLLOVER; WHEN THE SPINNER LITES COMPLETE ONE CYCLE, AND WHEN THE CAPTIVE BALL IN EITHER YELLOW OR GREEN LANE GOES OVER A ROLL-OVER WHEN THE LANE IS LIT.

BONUS SCORE IS RESET AT THE START OF A GAME, WHEN THE GAME IS TILTED AND WHEN A BONUS SCORE IS COLLECTED.

GAME ADJUSTMENTS

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.
HARDER ENTRY WILL INCREASE PLAYING TIME AND SCORING.

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 ON FRONT CABINET MOUNTING BOARD. THIS PLUG PROVIDES POSITIONS TO OPERATE MATCH FEAUTRE ON OR OFF.

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 TO SET NUMBER OF CREDITS.

DOUBLE BONUS FEATURE:

WHEN DOUBLE BONUS LITE IS LIT AND THE BALL GOES INTO THE OUTHOLE, THE GAME WILL AWARD TWICE THE BONUS SCORE LIT. WHENEVER THE DOUBLE BONUS LITE IS LIT, ROLLOVER BUTTONS A-B-C-D ARE ALL LIT.

OUTHOLE BONUS SCORE COLLECT FEATURE:

WHEN THE BALL GOES INTO THE OUTHOLE, THE GAME WILL ADD THE BONUS SCORE LIT TO THE TOTAL SCORE OF THE PLAYER UP. WHEN THE DOUBLE BONUS LITE IS LIT, THE GAME WILL ADD TWICE THE BONUS SCORE LIT.

SPINNER FEATURE:

WHENEVER THE BALL FLIPS THE SPINNER, LOCATED IN THE CENTER OF THE PLAYFIELD, IT WILL SCORE 100 POINTS AND ADVANCE THE SPINNER LI ONE POSITION FOR EACH REVOLUTION. THE SPIN LITE COMPLETES ONE CYCLE, IT WILL ADVANCE THE BONUS SCORE LITE ONE THOUSAND POINTS.

LEFT AND RIGHT LANES FEATURE:

WHEN THE BALL IN PLAY STRIKES A CAPTIVE BALL IN EITHER THE LEFT OR RIGHT LANE, THE CAPTIVE BALL IS KICKED OVER THE ROLL-OVERS AND AT THE TARGET IN THE LANE. THE ROLL-OVERS SCORE 1,000 POINTS; WHEN THE ROLL-OVERS ARE LIT, THEY ADVANCE THE BONUS SCORE LITE. THE TARGET WHEN HIT AWARDS A "SPECIAL" WHEN LIT. THE SPECIAL IS ADJUSTABLE FOR A CREDIT OR AN EXTRA BALL.

ROLL-OVER BUTTON FEATURE:

HITTING "A" TARGET LITES "A" ROLL-OVER BUTTON.
HITTING "B" TARGET LITES "B" ROLL-OVER BUTTON.
HITTING "C" TARGET LITES "C" ROLL-OVER BUTTON.
HITTING "D" TARGET LITES "D" ROLL-OVER BUTTON.

WHEN THE ROLL-OVERS ARE LIT, THEY ADVANCE THE BONUS SCORE LITE. THE LITES REMAIN LIT DURING THE PLAY OF THAT BALL.
WHEN "A", "B", "C" AND "D" ARE LIT, THE DOUBLE BONUS LITE LITES.

EXTRA BALL FEATURE:

EXTRA BALL RELAY IS ENERGIZED WHEN A BALL PASSES THROUGH EITHER THE RIGHT OR LEFT OUT ROLL-OVERS WHEN LIT. ALSO WHEN THE HIGH SCORE ADJUSTMENT PLUG IS SET FOR EXTRA BALL, AND A PRESET HIGH SCORE IS SCORED, OR WHEN RIGHT AND LEFT LANE TARGETS ARE HIT WHEN LIT, FOR SPECIAL. ONLY <u>ONE</u> EXTRA BALL MAY BE EARNED AT ANY ONE TIME.

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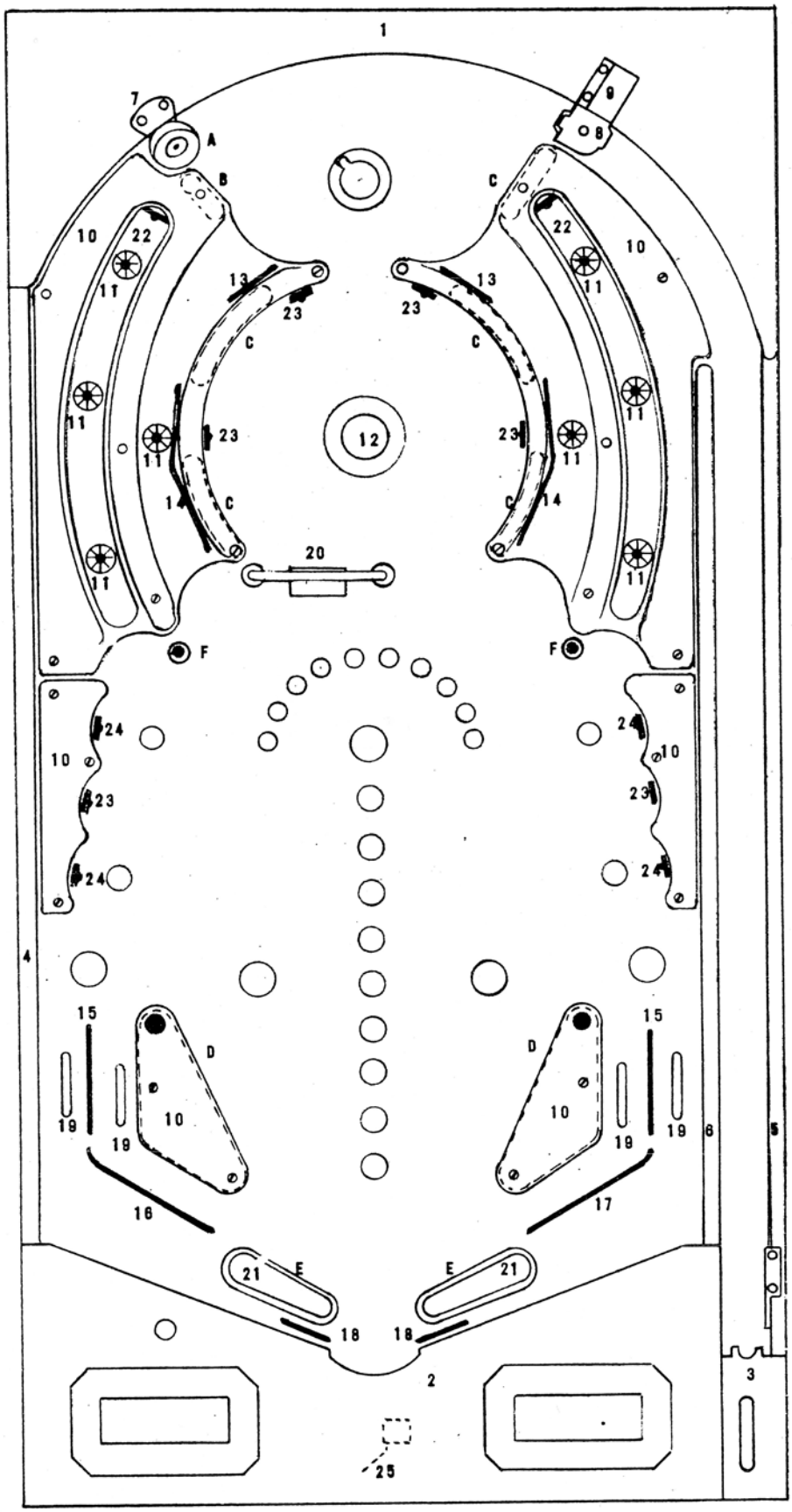

RUBBER PARTS

A-	R-115-4	REBOUND	1
B-	R-521-1	1'	1
C-	R-521-2	1-1/2'	5
D-	R-521-5	3'	2
E-	R-406-3	FLIPPER	2
F-	R-243	5/16	15

PANEL TOP PARTS

1-	TOP ARCH	P-5839-88
2-	BOTTOM ARCH	P-5871-47
3-	SHOOTER GAUGE	P-6359-13
4-	SIDE RAIL	CA-1208-24
5-	SIDE RAIL	CA-1208-22
6-	INNER RAIL	CA-1208-14
7-	REBOUND ASSEMBLY	AS-493-3
8-	BALL GATE	A-1475-1
9-	BALL GATE COVER	P-2998-5
10-	LITE SHIELDS	A-2890-101
11-	ROLLOVER BUTTON (8)	C-800
12-	BUMPER CAP (BLUE)	A-3713-11
13-	GUIDE WIRE (2)	M-121-24
14-	GUIDE WIRE (2)	M-121-54
15-	GUIDE WIRE (2)	M-121-18
16-	GUIDE WIRE	M-121-43
17-	GUIDE WIRE	M-121-44
18-	GUIDE WIRE (2)	M-121-53
19-	ROLLOVER WIRE (4)	M-1336
20-	SPINNER GATE ASSEMBLY	AS-2250-32
21-	FLIPPER & PIN ASSEMBLY	AS-2214-19
22-	TARGET & SWITCH ASSEMBLY (RED)	AS-982-699
23-	TARGET & SWITCH ASSEMBLY (YELLOW)	AS-982-740
24-	TARGET & SWITCH ASSEMBLY (WHITE)	AS-982-806
25-	BALL RETURN WIRE	M-1336-21

● INDICATES MOVABLE POSTS FOR SCORING ADJUSTMENT.

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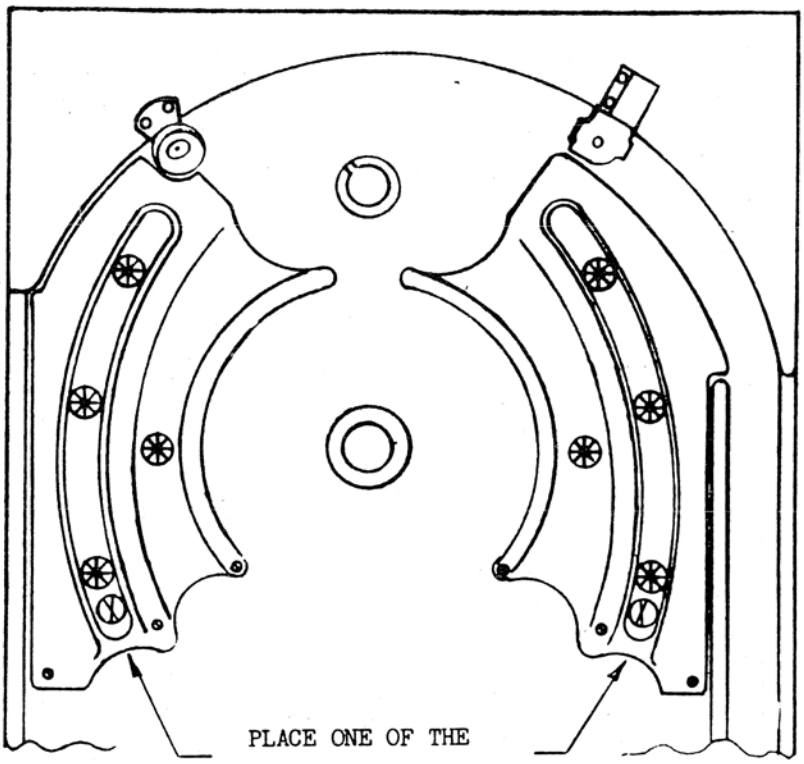
INSTRUCTIONS FOR PLACING BALL IN SPECIAL LINES



PLACE ONE OF THE
1-1/16" BALLS IN THE LEFT LANE X
AND ONE IN THE RIGHT LANE (X)
PLACE THE OTHER 1/1/16" BALL
ON THE PLAYFIELD AND THE
REMAINING 15/16" BALL GOES INTO
THE "TILT TRACK" LOCATED ON
THE LEFT SIDE OF CABINET.

#1014 "FLICKER"

#1 MOTOR CAM SWITCHES

#1A (BREAK) OPENS CIRCUIT TO COIN LOCKOUT COIL WHEN MOTOR RUNS.
#1B (BREAK) HOLDS OUTHOLE RELAY OUT UNTIL MOTOR IS AT REST.
#1C (MAKE-BREAK) OPENS CIRCUIT THRU CREDIT BUTTON & RUNS SCORE MOTOR.

#2 MOTOR CAM SWITCHES

#2A (MAKE) PULSES SCORE RESET RELAY.
#2B (MAKE) FAST RESET OF BONUS UNIT WHEN TILT OR RESET RELAY.SWITCHES ARE CLOSED.
#2C (MAKE) SCORES 500 POINTS WHEN 500 POINT RELAY IS ENERGIZED.

#3 MOTOR CAM SWITCHES

#3A (MAKE) STEPS BALL COUNT UNIT ONE STEP WHEN 2ND COIN RELAY IS LATCHED.
#3B (MAKE) OPERATES TOTAL PLAY METER.
#3C (MAKE) WITH #6A SWITCH ADDS 1000 UNIT WHEN BONUS RELAY IS ENERGIZED.

#4 CAM SWITCHES

#4A (MAKE) STEPS BALL COUNT UNIT ONE STEP WITH OUTHOLE RELAY IN.
#4B (MAKE) LATCHES GAME OVER RELAY ON RESET.
#4C (MAKE) WITH SWITCH #7D, SCORES 1000 POINTS EACH WHEN DOUBLE BONUS RELAY IS ENERGIZED.

#5 MOTOR CAM SWITCHES

#5A (MAKE) WITH SWITCH #8A AND THRU BONUS SCORE RELAY, RESETS BONUS UNIT.
#5B (BREAK) ADJUSTMENT FOR 2ND & 3RD COIN CHUTE RELAYS TO ADD 2 CREDITS.

#6 MOTOR CAM SWITCHES

#6A (MAKE) SEE SWITCH #3C.
#6B (BREAK) BALL INDEX, TILT AND EXTRA BALL RELAY LOCK IN.
#6C (BREAK) ADJUSTMENT FOR 2ND & 3RD COIN CHUTE RELAYS TO ADD 3 CREDITS.

#7 MOTOR CAM SWITCHES

#7A (MAKE) LATCHES 1ST & 2ND PLAYER RELAYS THRU COIN RELAY.
#7B (MAKE) ENERGIZES OUTHOLE AND TOP HOLE KICKERS.
#7C (MAKE) MOVES BONUS UNIT ONE STEP WHEN OUTHOLE RELAY IS ENERGIZED.
#7D (MAKE) SEE MOTOR SWITCH #4C.
#7E (BREAK) CREDIT RELAY LOCKS IN AND 4 COUNT ADJUSTMENT FOR 3RD COIN CHUTE RELAY.

#8 MOTOR CAM SWITCHES

#8A (MAKE) SEE MOTOR SWITCH #5A.
#8B (BREAK) OUTHOLE RELAY LOCK IN.
#8C (BREAK) 500 POINT RELAY LOCK IN.
#8D (BREAK) LOCKS IN RESET RELAY UNTIL MOTOR NEAR END OF CYCLE.
#8E (BREAK) COIN RELAY LOCK IN AND FIVE COUNT ADJUSTMENT FOR 3RD COIN RELAY.

#9 MOTOR CAM SWITCHES

#9 (MAKE) SCORES 300 POINTS WHEN TOP HOLE RELAY IS ENERGIZED.

#10 MOTOR CAM SWITCHES

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PARTS LIST

MISCELLANEOUS	PART NO.
SCORE MOTOR (DOMESTIC)	E-119-354
SCORE MOTOR (EXPORT)	E-119-411
TOTAL PLAY METER	E-130-10
RESISTOR (COIN LOCKOUT)	
8200 OHMS, ½ WATT	E-105-6
TRANSFORMER	E-122-95

RELAY COILS	
DELAY	G-31-1600
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
2ND COIN (TRIP)	G-31-2000
2ND COIN (LATCH)	G-31-2000
GAME OVER (TRIP)	G-31-2000
GAME OVER (LATCH)	G-31-2000
2ND PLAYER RELAY (A)	G-32-2500
2ND PLAYER RELAY (B)	G-32-2500
#1 SCORE RESET	G-30-1500
1ST & 2ND PLAYER 100,000 (TRIP)	G-31-2000
1ST & 2ND PLAYER 100,000 (LATCH)	G-31-2000
BONUS ZERO	G-32-2500
BONUS SCORE	G-31-2000
OUTHOLE	G-31-2000
BALL INDEX	G-32-2500
EXTRA BALL	G-32-2500
TILT	G-32-2500
BONUS ADVANCE	G-31-2000
LITE "A" ROLL-OVER	G-32-2500
LITE "B" ROLL-OVER	G-32-2500
LITE "C" ROLL-OVER	G-32-2500
LITE "D" ROLL-OVER	G-32-2500
DOUBLE BONUS	G-32-2500
500 POINT	G-31-2000
1000 POINT	G-31-2000
100 POINT	G-31-2000
10 POINT	G-31-2000
THUMPER-BUMPER	G-31-2000
SPINNER	G-30-1500
15000BONUS	G-32-2500
SPECIAL	G-31-2000
TOP HOLE	G-32-2500

ASSEMBLY COILS	PART NO.
COIN LCOKOUT 10,100 & 1000	FC-33-2600
CHIMES (3)	CC-31-2000
KNOCKER	C-27-1000
THUMPER-BUMPER	A-25-1000
OUTHOLE KICKER	A-25-950
SLING-SHOTS (2)	A-26-1200
FLIPPERS (2)	AF-25-600/ 28-800

UNITS COILS	
2 COIN (STEP-UP)	CD-29-1600
CREDIT (STEP-UP)	B-26-1100
CREDIT (RESET)	C-28-1100
BALL COUNT (STEP-UP)	B-26-1100
BALL COUNT (RESET)	C-281100
00-90 (STEP-UP)	CD29-1600
SCORE DRUMS (STEP UP)(8)	CD-29-1600
BONUS (STEP UP)	B-26-1100
BONUS (RESET)	C-28-1100
SPINNER	CD-29-1600

UNIT DISCS	
BALL COUNT	W-1043-13
00-90	W-999-29
	W-999-28
BONUS	W-1072-40

UNIT WIPERS	
BALL COUNT	AS-1046-618
00-90	AS-1618-3
	AS-1618-4
BONUS	AS-1046-739

TIME DELAY CIRCUIT

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 lite 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.