

Instruction Manual for

FACES

(PRODUCTION MODEL)

SONIC
PARLA - MADRID

-FACES-

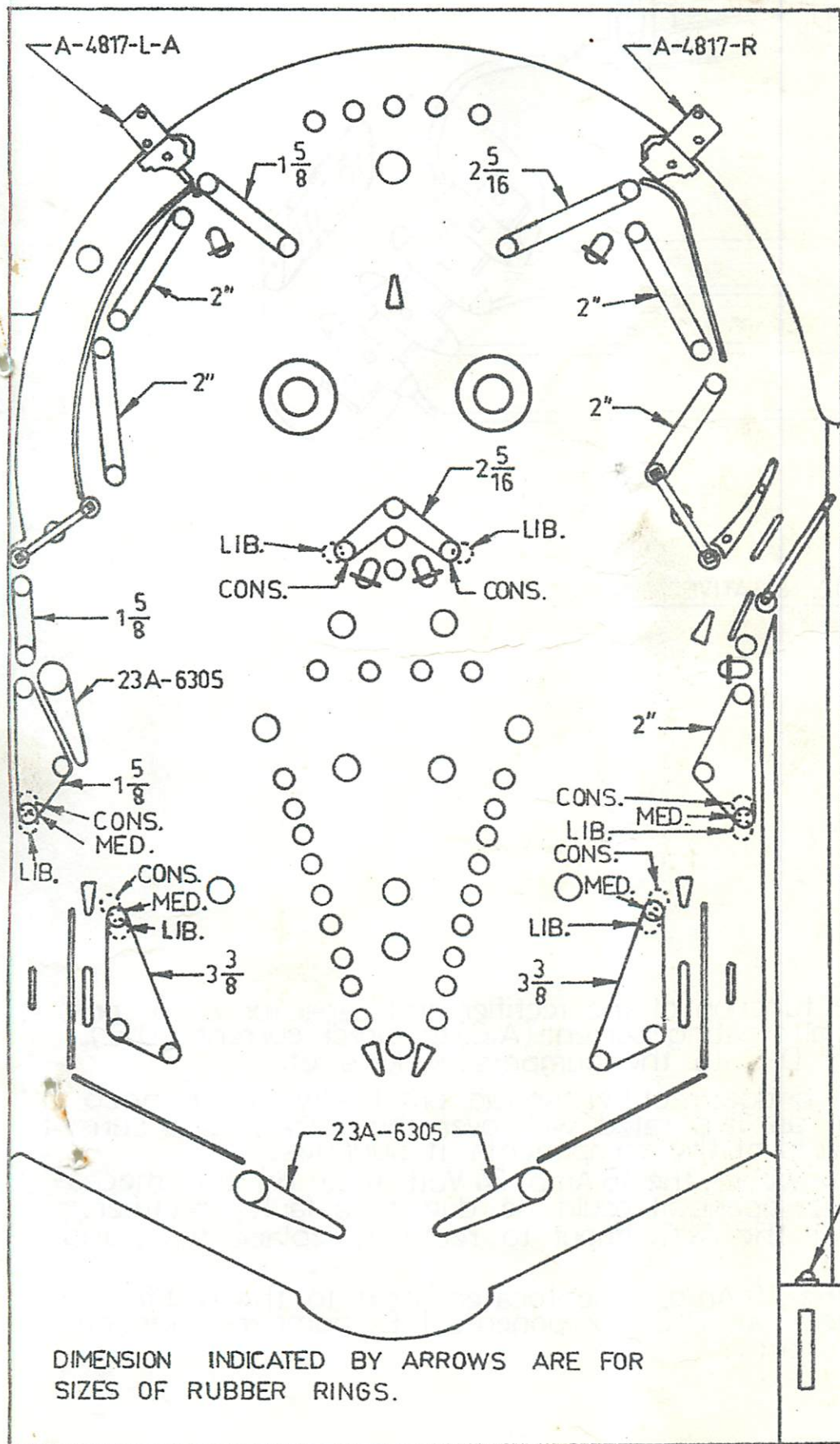
4 PLAYER

I N S T R U C T I O N S

- . EJECT HOLE SELECTS RED OR GREEN BONUS AND SCORES AS INDICATED BY LIGHTS.
 - . SIDE TARGET CHANGES BONUS SELECTION.
 - . UPPER AND SIDE TARGETS AND SIDE ROLLOVERS ADVANCE BONUS.
 - . MAKING TARGETS "A" AND "B" OBTAINS DOUBLE BONUS.
 - . MAKING "F-A-C-E-S" LIGHTS THE FACES.
 - 1ST FACE - LITES BUMPER AND RIGHT ROLLOVER
 - 2ND FACE - LITES EXTRA BALL ALTERNATIVELY
 - 3RD FACE - LITES EXTRA BALL PERMANENTLY
 - 4TH FACE - LITES SPECIAL
 - . ONLY POINTS ON LIT BONUS ARE SCORED WHEN LOSING BALL IN PLAY
 - . NUMBER MATCH FEATURE.
-

"FACES" - POST ADJUSTMENT SHEET

TO MAKE GAME MORE CONSERVATIVE OR LIBERAL MOVE POST $\frac{3}{16}$ " AS SHD IN SKETCH BELOW. SPOTTING HOLE ARE PROVIDED AND CAN BE SEEN ON REMOVAL OF POSTS.



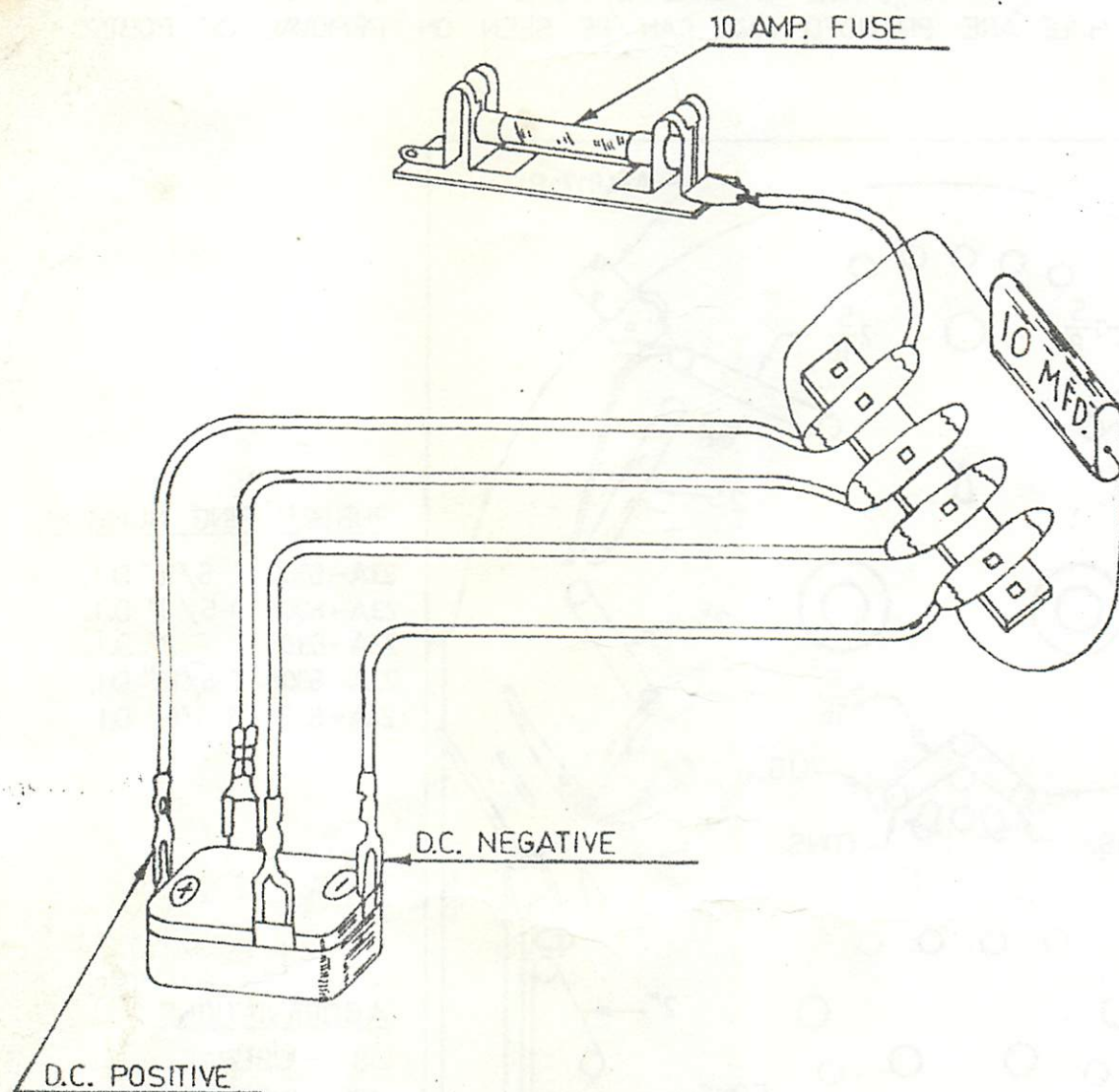
RUBBER RING NUMBERS

23A-6300	$\frac{5}{16}$ " D.I.
23A-6304	$1\frac{5}{8}$ " D.I.
23A-6305	2" D.I.
23A-6306	$2\frac{5}{16}$ " D.I.
23A-6308	$3\frac{3}{8}$ " D.I.

ABBREVIATIONS

LIB.— LIBERAL
MED.— MEDIUM
CONS.— CONSERVATIVE

SILICON BRIDGE RECTIFIER



The function of the rectifier and capacitor is to convert the alternating current (A.C.) to direct current (D.C.), supplying D.C. to the bumpers, kickers etc.

The bridge rectifier should practically never need replacing, as it is rated well over the voltage and current requirements of the components it supplies.

If, however, the 15 Amp. 24 Volt fuse on the mechanism panel opens, it could be due to a faulty rectifier. disconnect the A.C. input to rectifier, replace fuse, and recheck.

If the 10 Amp. fuse located next to the rectifier opens, check all D.C. components I. E. bumpers, kickers etc. for shorts.

1. GENERAL

NEVER EXPERIMENT with any of the mechanism. Locate any trouble with the aid of Wiring Diagrams or Operating & Servicing Information supplied with the machine, then check for proper adjustment of the units involved before making any changes. Improper adjustment or make-shift repair will only cause serious damage to other parts of the machine or repeated failure of the part.

NOTE: Always look for a possible loose wire, bad connection at a plug and socket, broken or unhooked springs on step-up units, relays, etc., before adjustments are made or wires reconnected.

2. FUSES

IMPORTANT: Never replace fuses with any rating other than specified on the fuse block; this block is located adjacent to the transformer.

3. LUBRICATION

Over-lubrication causes far more trouble in coin operated equipment than under-lubrication. Practically all cases of poor contact on switches and wiper discs are due to oil or grease, or oil vapor, which forms a film or residue on the contacts and will not allow current to pass through. Excess lubricant may also seen in to clutches causing them to slip.

IMPORTANT: NEVER USE VASELINE FOR LUBRICATION OF ANY PART OF THE MACHINE. Vaseline is not a true lubricant. It leaves a dirty and gummy residue and it becomes very thick when cold. A special Coin Machine Lubricant is supplied with each machine.

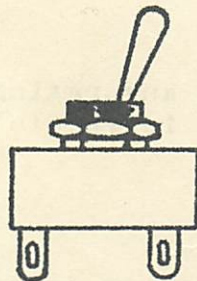
STEP-UP Levers, Ratchets, Cams, Shafts and other sliding or oscillating parts should be very lightly greased with special Coin Machine Lubricant (supplied with machine) not oftener than every six months. The bakelite discs (biscuits) on the Motor Units and Step-up Units will require lubrication with the special Coin Machine Lubricant only after the grease is completely evaporated (3 to 12 months, depending on climate) or when the film of grease becomes dirty. In either event, clean the parts thoroughly with a solvent, then apply an extremely thin coat of the special grease.

Solenoid Plungers should not have a lubricant of any kind. Should there be a sluggish tendency or if plungers are sticking, the parts should be cleaned with a solvent and flaked graphite applied on reassembly.

SWITCH ADJUSTMENT

BEFORE ADJUSTING SWITCHES, MAKE CERTAIN THE SCREWS HOLDING THE SWITCH STACKS ARE DOWN TIGHTLY. BAKELITE SPACERS IN THE SWITCH STACKS, DUE TO EXCESSIVE MOISTURE, HAVE OCCASIONALLY SHRUNK BY DRYING OUT, CAUSING POOR ADJUSTMENT.

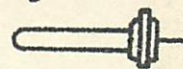
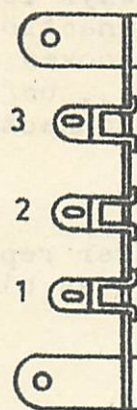
MASTER ON-OFF SW. (Located on cabinet)



CONTROLS POWER TO TRANSFORMER.

ADJUSTMENT FOR ADVANCE BONUS TARGETS "A" & "B"

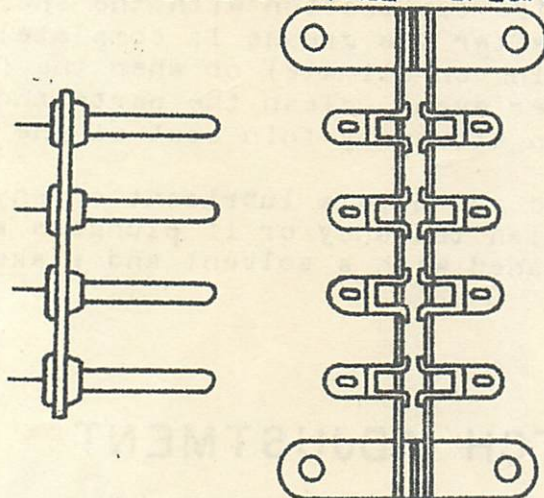
(Located on
Playfield)



THE TARGETS "A" & "B" WILL
ADVANCE 1 2 OR 3 TIMES ACCORDING
TO POSITION OF JACK.

SPECIAL ADJUSTMENT (Located on Playfield)

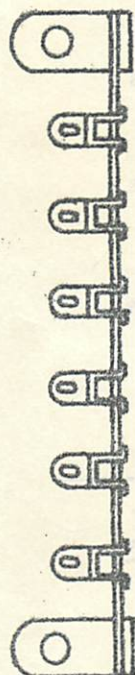
SPECIAL 4TH FACE — SPECIAL 3RD FACE



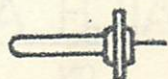
THE SPECIAL WILL LIGHT ON
THE 3RD OR 4TH ACCORDING TO
POSITION OF JACK.

(ADJUSTMENTS LOCATED ON MECHANISM PANEL)

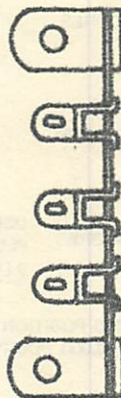
25 ¢ ADJUSTMENT



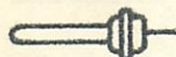
1 TO 6 PLAYS GIVEN
ACCORDING TO POSITION
OF JACK.



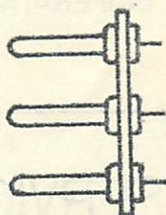
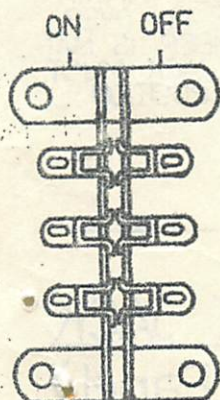
10 ¢ ADJUSTMENT



1 TO 3 PLAYS GIVEN
ACCORDING TO POSITION
OF JACK.



1 COIN - 1 PLAY 2 COINS - 3 PLAYS

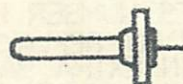
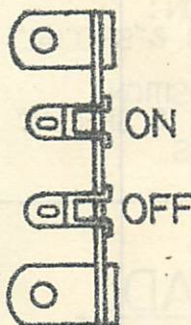


IN "ON" POSITION, 10¢
ADJUSTMENT MUST
BE IN #2 POSITION &
25 ¢ ADJUSTMENT
MUST BE IN #6 PO-
SITION. FIRST COIN
ADVANCES REPLAY
UNIT 1 STEP. SECOND
COIN WILL ADVANCE

REPLAY UNIT 2 STEPS.

IN "OFF" POSITION, 25¢ ADJUST-
MENT &/OR 10 ¢ ADJUSTMENT
SHOULD BE PUT IN PROPER PO-
SITION.

2 COINS 1-3 PLAYS ADJ.



IN "ON" POSITION THE FIRST
COIN IS INOPERATIVE.
WITH SECOND COIN 1-2 OR
3 PLAYS CAN BE OBTAINED
ACCORDING THE POSITION OF
10 ¢ ADJUSTMENT JACK.

ADJUSTMENTS IN BACKBOX

POINT SCORE ADJUSTMENT

PLUG IN RED WIRE FOR SCORES
110.000 200.000

10000 ☐ ☐ 60000

PLUG IN WHITE WIRE FOR SCORES
510.000 600.000

20000 ☐ ☐ 70000

PLUG IN BLUE WIRE FOR SCORES
210.000 300.000

30000 ☐ ☐ 80000

PLUG IN BROWN WIRE FOR SCORES
610.000 700.000

40000 ☐ ☐ 90000

PLUG IN YELLOW WIRE FOR SCORES
310.000 400.000

50000 ☐ ☐ 00000

PLUG IN ORANGE WIRE FOR SCORES
710.000 800.000

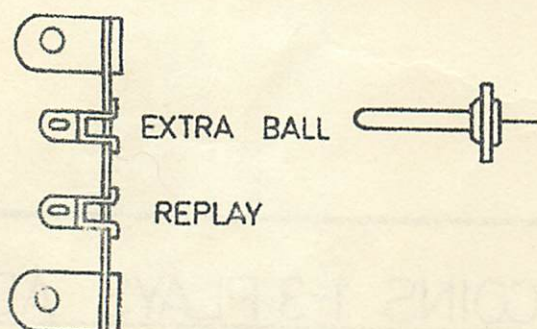
PLUG IN GREEN WIRE FOR SCORES
410.000 500.000

USE EL GRIS DE
PLUG IN GREY WIRE FOR SCORES
910.000 1 990.000

PLUG IN BLACK WIRE FOR SCORES
810.000 900.000

EXAMPLE BLUE WIRE INTO 10.000 POSITION SCORES AT 210.000
OR BLUE WIRE INTO 00.000 POSITION SCORES AT 300.000

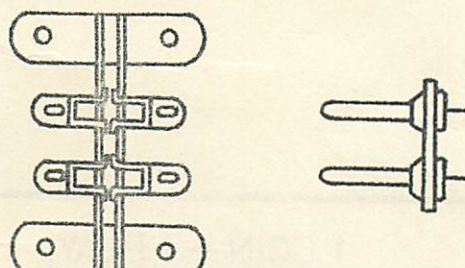
EXTRA BALL ADJ. JACK



IN REPLAY POSITION:
HI-SCORES, NUMBER MATCH & "SPECIAL"
WILL AWARD REPLAYS.
IN EXTRA BALL POSITION:
HI SCORES, NUMBER MATCH & "SPECIAL"
WILL AWARD EXTRA BALLS.

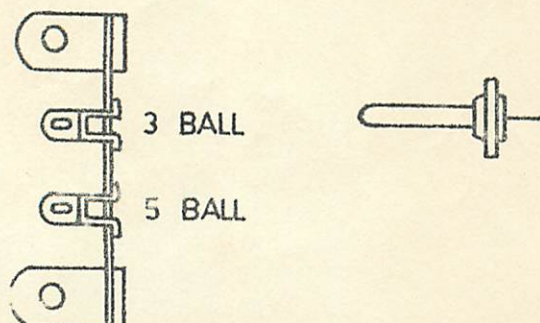
NO. MATCH ADJ. JACK

OFF ON



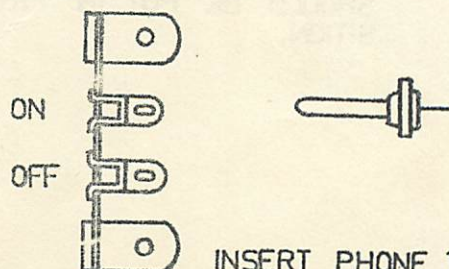
IN "ON" POSITION A NUMBER MATCH
LITE WILL APPEAR WHEN GAME IS OVER
TO AWARD REPLAYS WHEN NUMBER IS MAT-
CHED EXTRA BALL ADJUSTMENT JACK MUST
BE IN REPLAY POSITION. IN "OFF" POSITION
NUMBER MATCH IS INOPERATIVE.

NO OF BALLS ADJ.



THIS JACK CHANGES 3 BALL TO
5 BALL PLAY OR VICEVERSA.

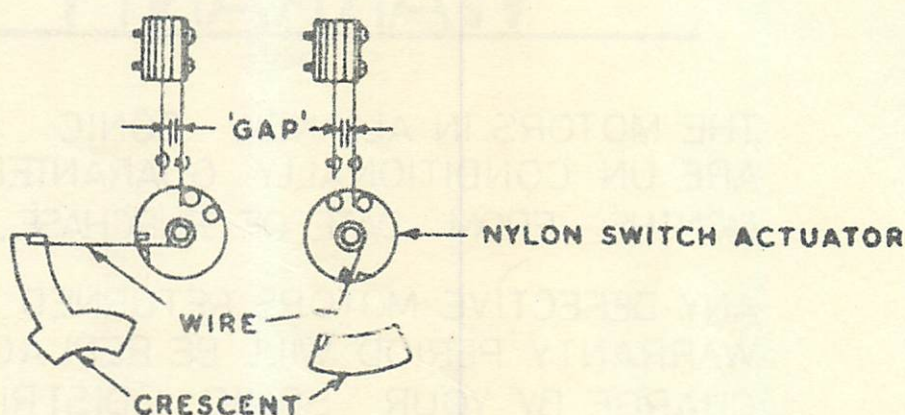
MOTOR SERVICE JACK (Located on Mech. Panel)



INSERT PHONE TIP IN
OFF POSITION CAMS CAN BE TURNED BY
HAND TO CHECK ADJUSTMENT OF SWITCHES.

INSTRUCTIONS FOR COIN TRIP SWITCH ADJUSTMENT

WIRE SHOULD BE IN CONTACT WITH END OF CRESCENT OPENING WHEN BLADE ADJUSTMENT IS MADE.



Long blade should be in contact with nylon switch actuator and have a maximum overtravel of $1/32$.

or

Using a gram gauge, tension of long blade should not exceed 10 grams.

SWITCH ADJUSTMENT

1. For small coins, such as dimes, adjust short blade so that the 'gap' between the silver contacts is .045 to .055.
2. For larger & heavier coins the 'gap' should be .045 to .060.
3. Do not adjust 'gap' closer than .040.

POWER TRANSFORMER:

LOCATED ON MECHANISM PANEL, IT IS EQUIPPED WITH A SECONDARY TAP. IF YOUR GAME IS ON LOCATION WITH EXTREMELY LOW LINE VOLTAGE, REMOVE LEAD FROM LUG MARKED 24 VOLTS AND SOLDER TO ALTERNATE LUG MARKED "HIGH". THIS WILL BOOST SECONDARY VOLTAGE APPROXIMATELY 2-3 VOLTS.

LEG LEVELERS:

ARE PROVIDED FOR TWO PURPOSES - 1ST TO LEVEL GAME ON LOCATION, 2ND TO INCREASE PITCH FOR GAME PERCENTAGING. IF IT IS DESIRED TO SPEED UP PLAY AND DECREASE SCORES, RAISE REAR LEG LEVELERS TO INCREASE PITCH.

WARRANTY

THE MOTORS IN ALL NEW SONIC PRODUCTS ARE UN CONDITIONALLY GUARANTED FOR 6 MONTHS FROM DATE OF PURCHASE.

ANY DEFECTIVE MOTORS RETURNED DURING THE WARRANTY PERIOD WILL BE REPLACED FREE OF CHARGE BY YOUR SONIC DISTRIBUTOR.

IMPORTANT NOTICE

WHEN ORDERING PARTS ALWAYS SPECIFY NAME OF UNIT, GAME AND SERIAL NUMBER IN ADDITION TO A CLEAR DESCRIPTION OF THE PART AND PART NUMBER IF POSSIBLE.

UNIT PARTS LIST

UNIT NAME	CONTACT DISC	WIPER ASSEMBLY	RATCHET GEAT ASSEMBLY	MOTORS
COIN	C-6414-996	B-7456-995	A-6402-3	SCORE MOTOR 14A-7884 (50 CYCLE) 14A-7883 (60 CYCLE)
BALL COUNT	C-6414-34	B-7456-6	A-6402-5	
GREEN BONUS	C-6417-013	B-7456-991	A-6402-10	
RED BONUS	C-6417-013	B-7456-991	A-6402-10	
REPLAY	-----	-----	A-6400-1	
PLAYER	C-6417-004	C-6521-20	A-6404-3	
(RIGHT)	B-7568	A-7614	A-7548-1	
NO.MATCH				
(LEFT)	B-7569	A-7615		
100 POINTS	-----	-----	3C-7272	
1 000 POINTS	-----	-----	3C-7272	
10 000 POINTS	B-7253	A-6294	3C-7272	
100 000 POINTS	B-7253	A-6294	3C-7272	
(RIGHT)	B-7568	A-7614	A-7548-1	
HOLE				
(LEFT)	B-7569	A-7615		

" FACES " COIL CHART

NOTICE: This game operates 24 Volts. When ordering replacement, transformers, motors, coil or meters..... make sure to specify correct part number.

NUMBER	DESCRIPTION	LOCATION
14A-7884	Score Motor 50 cycle	Mech. Panel
15A-6782-1	Transformer 50 cycle	Mech. Panel
14A-7883	Score Motor 60 cycle	Mech. Panel
15A-6771	Transformer 60 cycle	Mech. Panel
<u>SOLENOID COILS</u>		
M-29-900	Score Reset 1-2 Relay	Insert
	Score Reset 3-4 Relay	Insert
M-29-1000	Game Over Re(Trip)	Mech. Panel
	Selection Re(Trip)	Playfield
M-29-1100	Bonus Re	Playfield
	Hole Re	Playfield
	3 Advance Re	Playfield
	"E" Target Re	Playfield
	Green Bonus Advance Re	Playfield
	Red Bonus Advance Re	Playfield
	Auxiliary "A" Targer Re	Playfield
	Auxiliary "B" Targer Re	Playfield
	Bank Re	Playfield
	5.000 Relay	Mech. Panel
	100 Points Re	Insert
	1000 Points Re	Insert
	10.000 Points Re	Insert
M-29-1100	25 ¢ Re	Mech. Panel
	10 ¢ Re	Mech. Panel
M-30-1300	Gate Relay	Playfield
	Coin Set Up Re	Mech. Panel
M1-31-1500	Coin Lockout	Front Door
Z-27-1000	Replay Re	Mech. Panel
	Reset Re	Mech. Panel
	Game Over Re (Latch)	Mech. Panel
	Player Reset Re	Mech. Panel
Z-27-1000	Coin Re	Mech. Panel
	Out Hole Re	Mech. Panel
	Selection Re(Latch)	Playfield
Z-28-1150	Tilt Re	Mech. Panel
	Ball Index Re	Mech. Panel
	Extra Ball Re	Mech. Panel
Z-28-1200	Alternator Re	Playfield
Z-29-1250	Lock Re	Mech. Panel
A-22-550	Coin unit Step Up	Mech. Panel
	Ball Count Unit Step Up	Mech. Panel
	Player Unit Step Up	Insert
	Ball Release	Playfield
	Green Bonus Unit Step Up	Playfield
	Red bonus Unit Step Up	Playfield
A-23-600	Replay Unit Step Up	Insert
A2-23-750	Knocker	Cabinet
	Small Chime	Cabinet
	Medium Chime	Cabinet
A2-26-1300	Large Chime	Cabinet
B-26-800	Replay Unit Reset	Insert
	Coin Unit Reset	Mech. Panel
	Ball Count Unit Reset	Mech. Panel
	Player Unit Reset	Insert
	Green Bonus Unit Reset	Playfield
	Red Bonus Unit Reset	Playfield

BL-26-800	100 Points Drum Unit (x4)	Insert
	1.000 Points Drum Unit(x4)	Insert
	10000 Points Drum Unit(x4)	Insert
	100000 Points Drum Unit(x4)	Insert
DL-24-1600	Faces Bank Reset	Playfield
	Roll Over Button Bank Reset	Insert
FL/20-300/28-400	Left Flipper(x2)	Playfield
	Right Flipper	Playfield
G-23-750	Eject Hole	Playfield
G-23-750	Right Jet Bumper	Playfield
	Left Jet Bumper	Playfield
	Right Kicker	Playfield
	Left Kicker	Playfield
S-27-500	"A" Targer Re	Playfield
	"B" Targer Re	Playfield
	Face-1	Playfield
	Face-2	Playfield
	Face-3	Playfield
	Face-4	Playfield
	1 R.O.Button Re	Playfield
	2 R.O.Button Re	Playfield
	3 R.O.Button Re	Playfield
	4 R.O.Button Re	Playfield
	5 R.O.Button	Playfield
XII-27-675	Total Playmeter	Mech.Panel
XS-28-1000	No.Match Unit	Insert
	Hole Unit	Playfield

CAUTION!

The playboard on this machine has an improved finish with excellent wearing properties. Do not under any circumstances clean the board with water, water soap solutions or harsh abrasives. Avoid such things as steel wool, kitchen cleansers or abrasive hand soap. Water will weaken the adhering of the paint to the board and abrasives shorten the board life by many thousand plays. A wax base cleaner with negligible abrasive qualities used lightly, but frequently, will extend the board life to its full capabilities.

SERVICEMAN TO REMOVE BACKGLASS:

- **WITH BACK DOOR REMOVED, PULL BACK ON BRACKETS AT INSIDE TOP OF LITE BOX.**
- **FROM THE FRONT OF GAME, LIFT GLASS UP AND OUT.**

IMPORTANT NOTICE

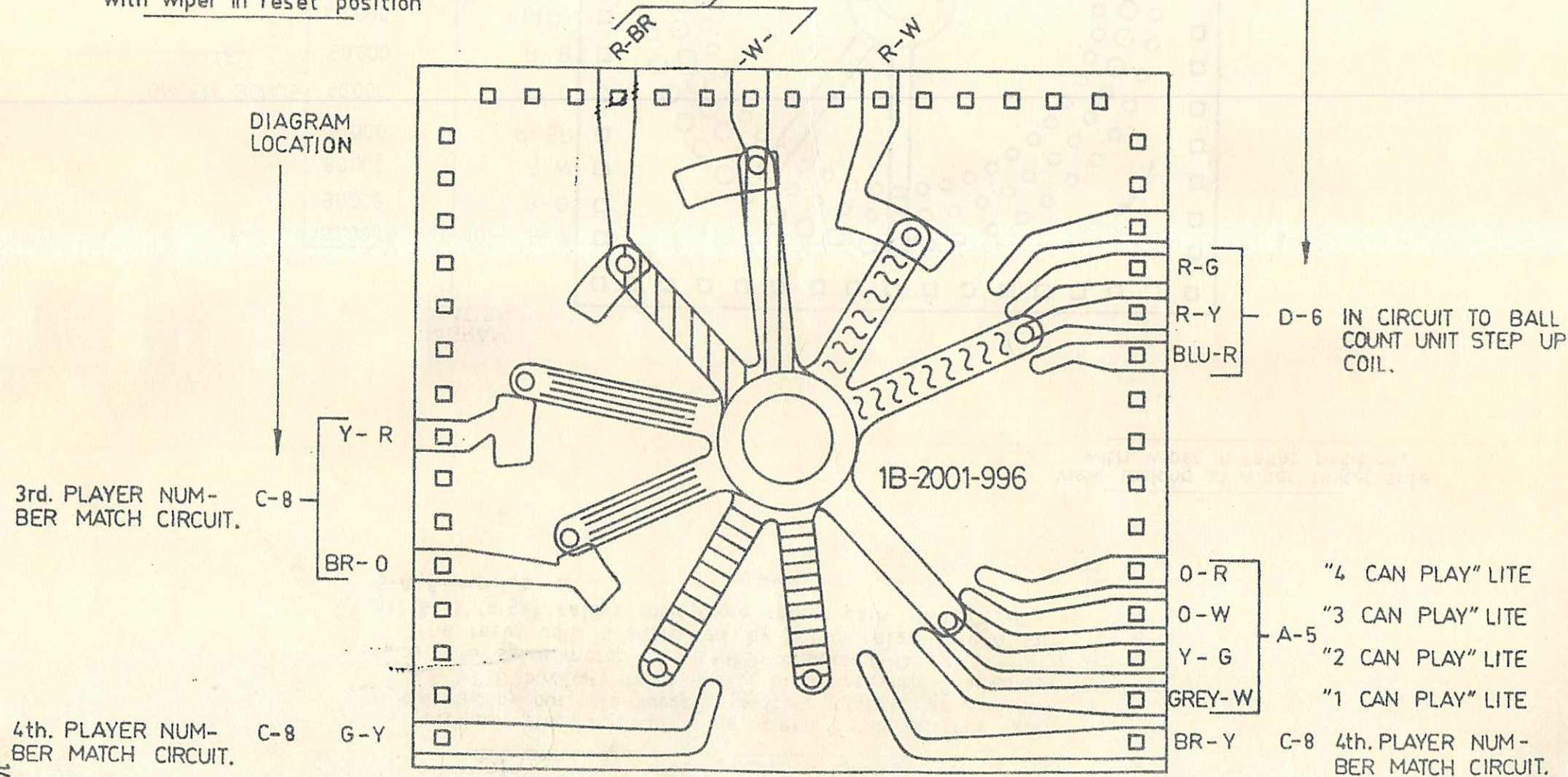
**KINDLY INFORM LOCATIONS THAT THEY
CAN TURN DISPLAY LIGHTS ON BY PRESSING
LEFT FLIPPER BUTTON. MACHINE CAN STILL
BE SHUT OFF BY TAPPING BOTTOM OF
CABINET.**

**MASTER SWITCH (ON-OFF) IS LOCATED
UNDERNEATH FRONT PART OF CABINET.**

COIN UNIT

This unit resets at start of a game.
It then advances one step each time the
replay relay is pulsed.

View looking at wiper finger side
with wiper in reset position

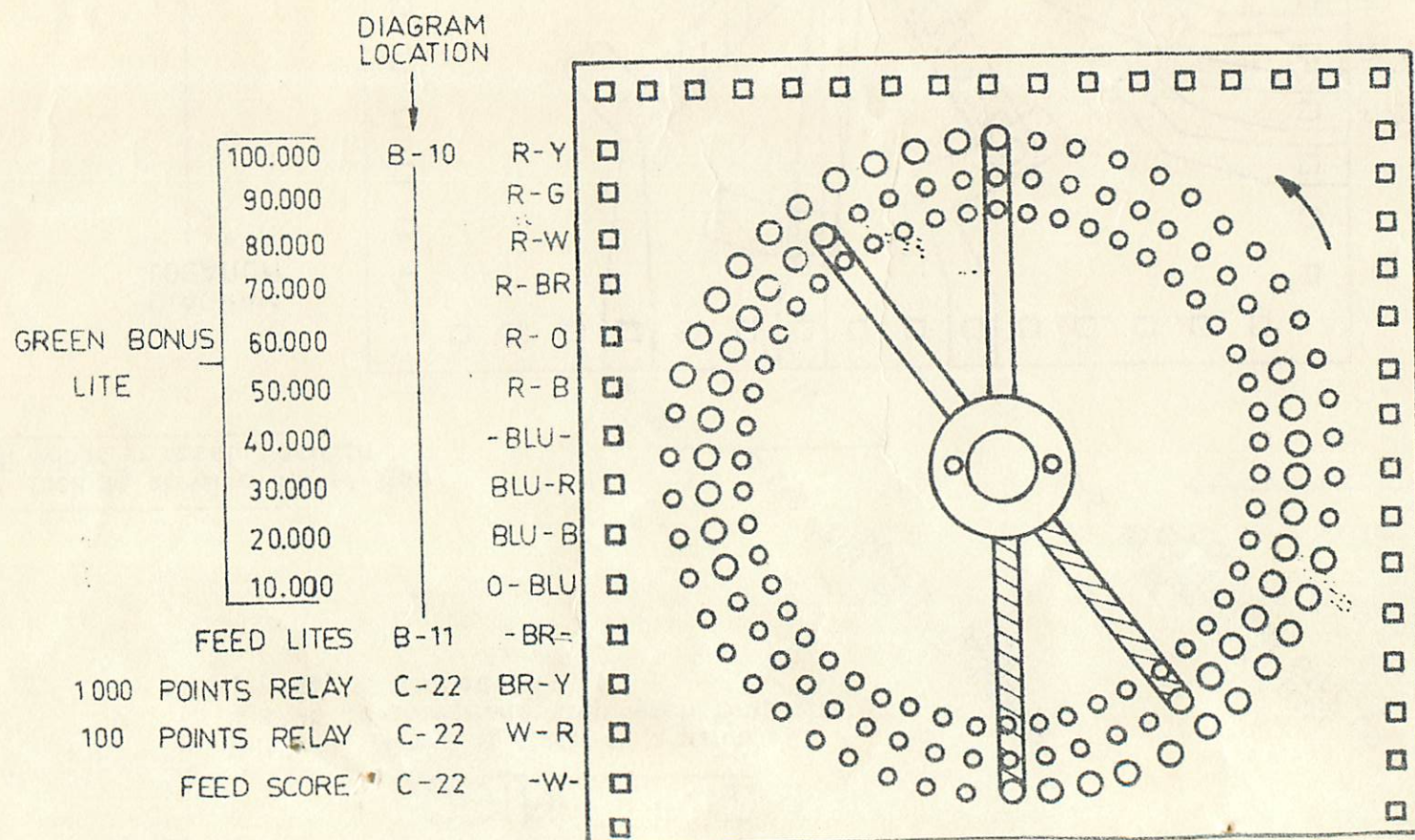


GREEN BONUS UNIT

This unit steps up each time green bonus advance relay is pulsed, by out hole relay thru score motor cam switch & by "B" auxiliary target relay in series with 3 advances thru score motor cam switch impulses - D.

The reset coil is energized by bonus relay thru "A" target & "B" target relays thru score motor cam switch 2-C, 5-A & impulses - D.

View looking at wiper finger side with wiper in reset position.

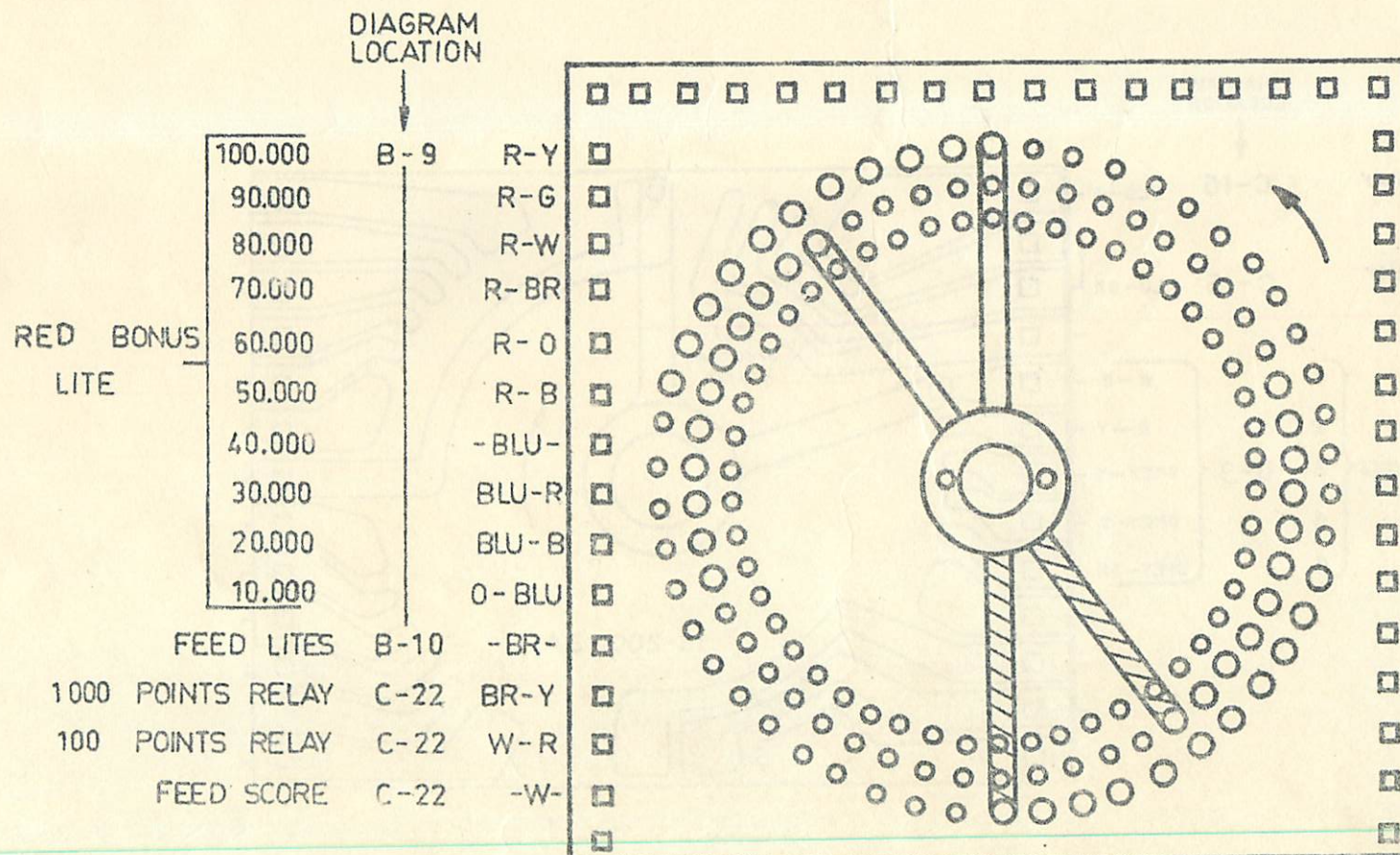


RED BONUS UNIT

This unit steps up each time red bonus advance relay is pulsed, by out hole relay thru score motor cam switch 3-B & by "B" auxiliary target relay in series with 3 advances relay thru score motor cam switch Impulses-D.

The reset coil is energized by bonus relay thru "A" target & "B" target relays thru score motor cam switch 2-C, 5-A & Impulses-D.

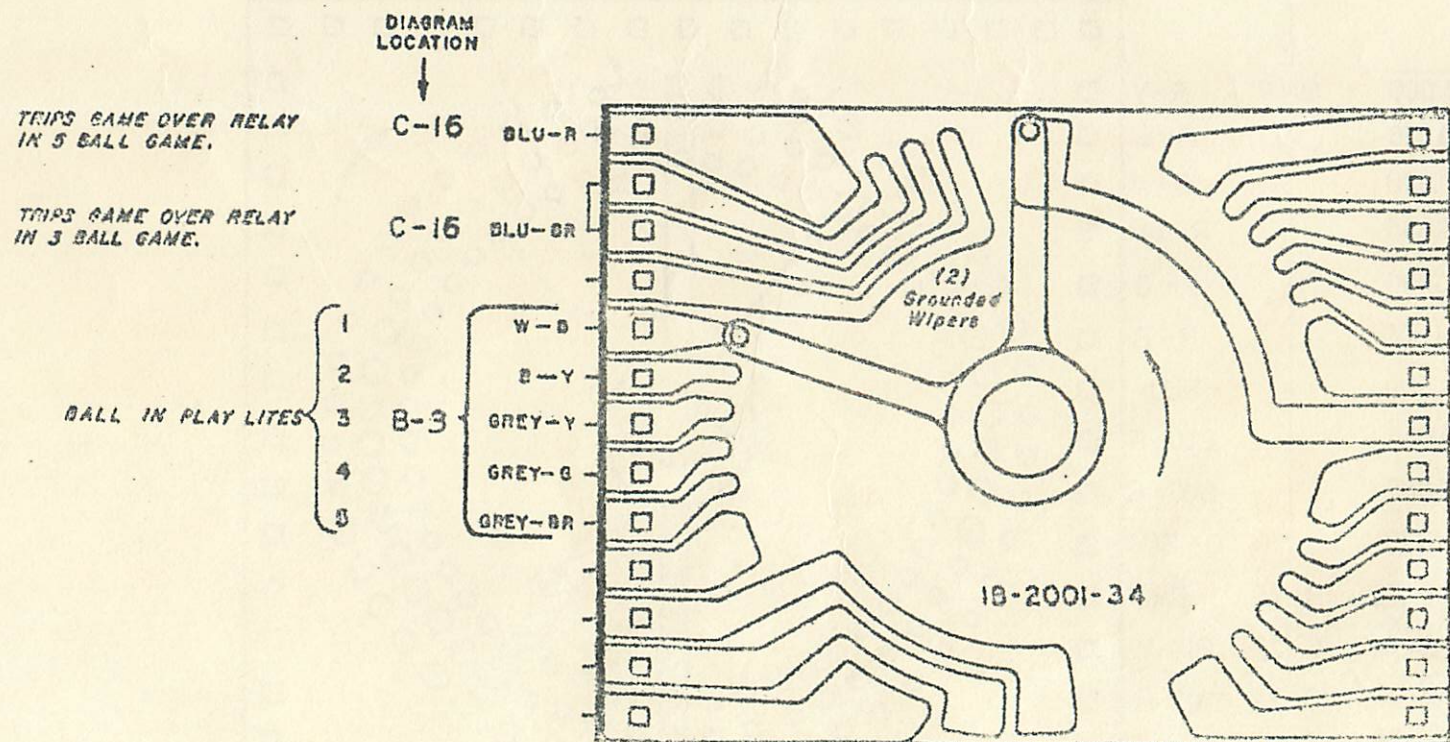
View looking at wiper finger side
with wiper in reset position.



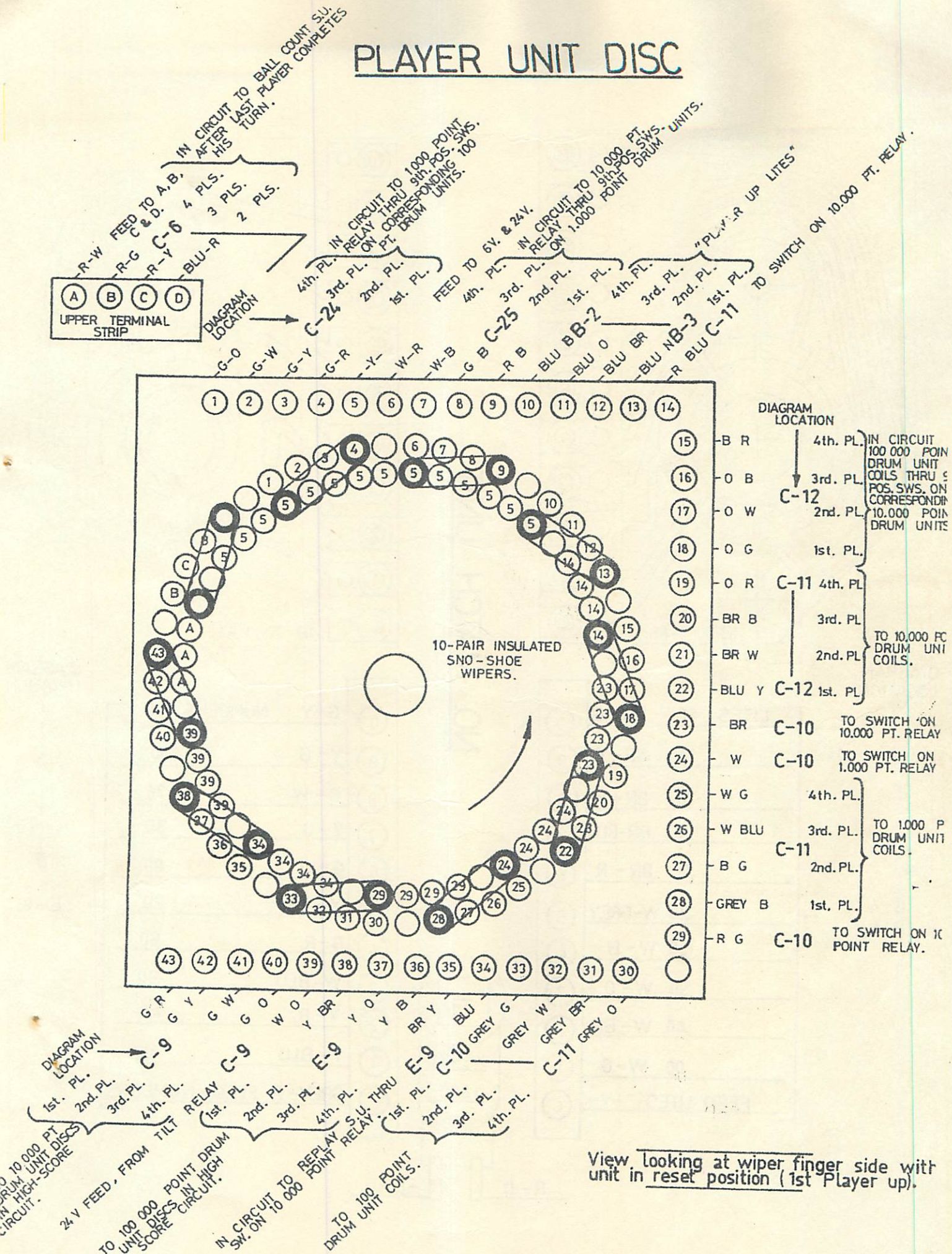
BALL COUNT UNIT DISC

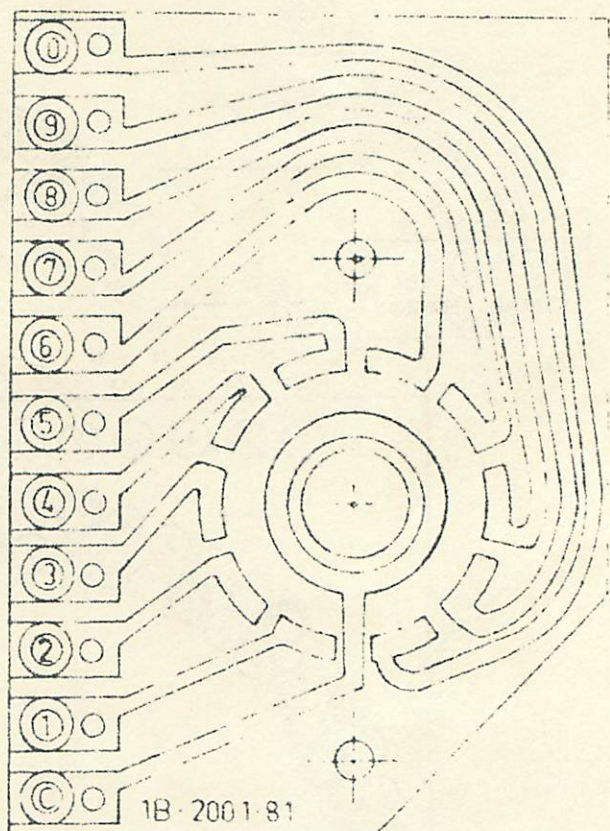
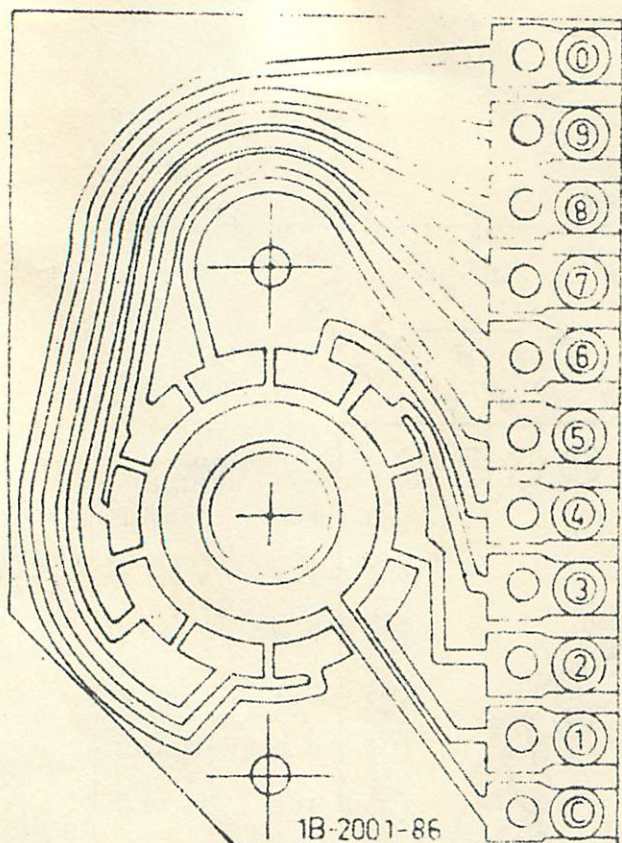
THIS UNIT RESETS AT THE START
OF A NEW GAME, (DURING RESET CYCLE).
IT ADVANCES ONE STEP EACH TIME
THE LAST PLAYER COMPLETES HIS TURN.

View looking at WIPER FINGER side
with WIPER in ZERO position.



PLAYER UNIT DISC





NO. MATCH UNIT

DIAGRAM
LOCATION

B-4
B-5

LITES	60	BR-B	0
	10	BR-G	9
	70	BR-Y	8
	30	BR-BLU	7
	80	BR-R	6
	20	W-GREY	5
	50	W-B	4
	90	W-O	3
	40	W-BR	2
	00	W-G	1
FEED LITES	-Y-	C	

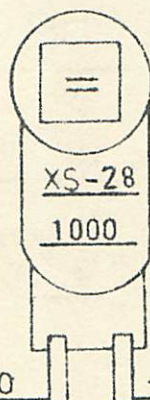
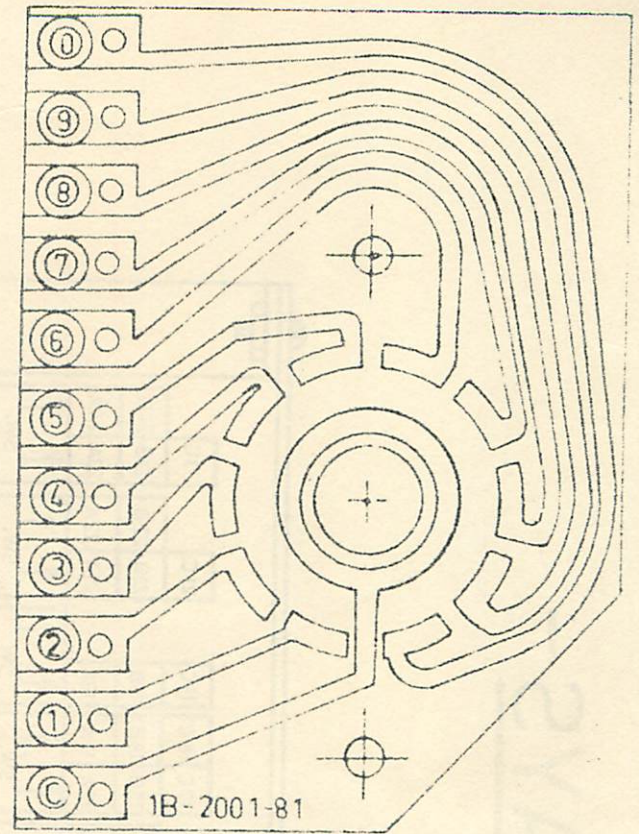
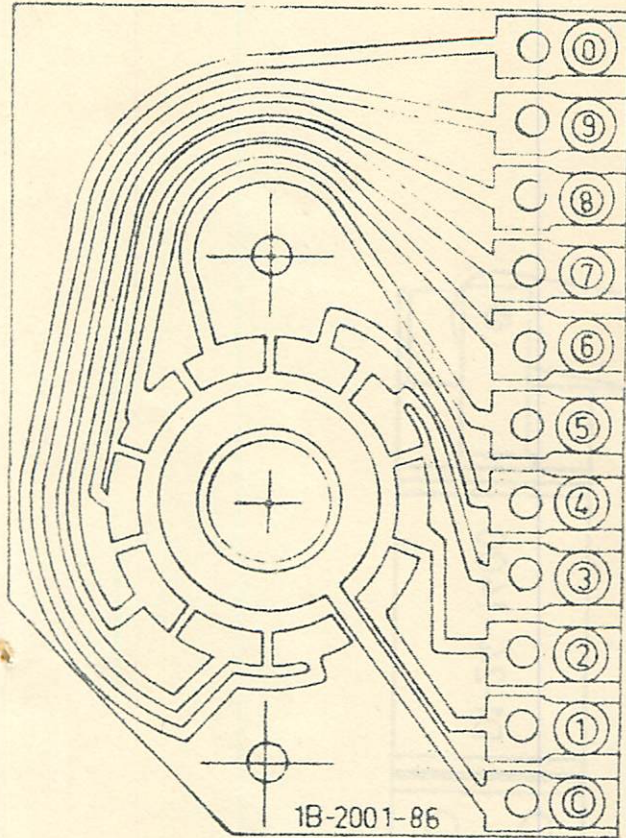


DIAGRAM
LOCATION

E-8

0	G-Y	NUMBERS	60
9	Y-G		10
8	G-W		70
7	Y-O		30
6	G-O		80
5	Y-BR		20
4	G-R		50
3	W-BLU		90
2	Y-B		40
1	Y-BLU		00
C	GREY-R	FEED	NUMBERS



HOLE UNIT

DIAGRAM LOCATION

LITES

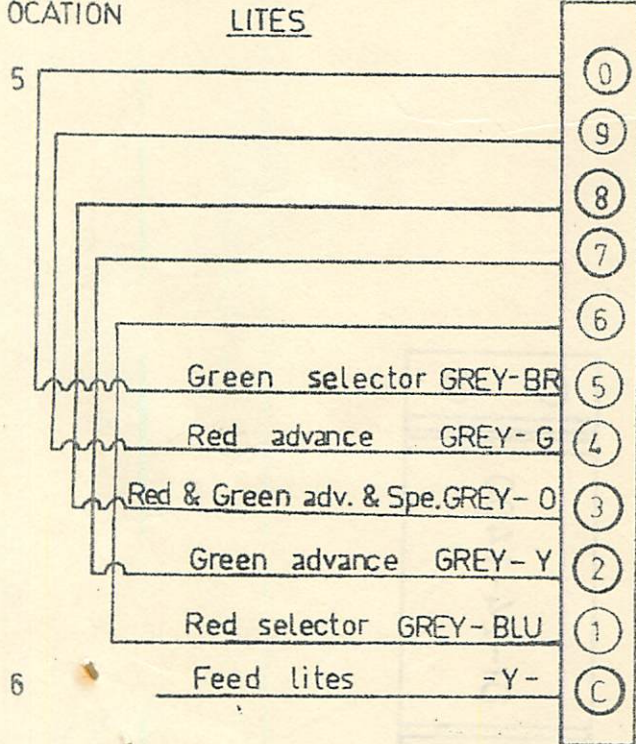
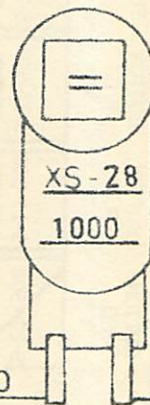
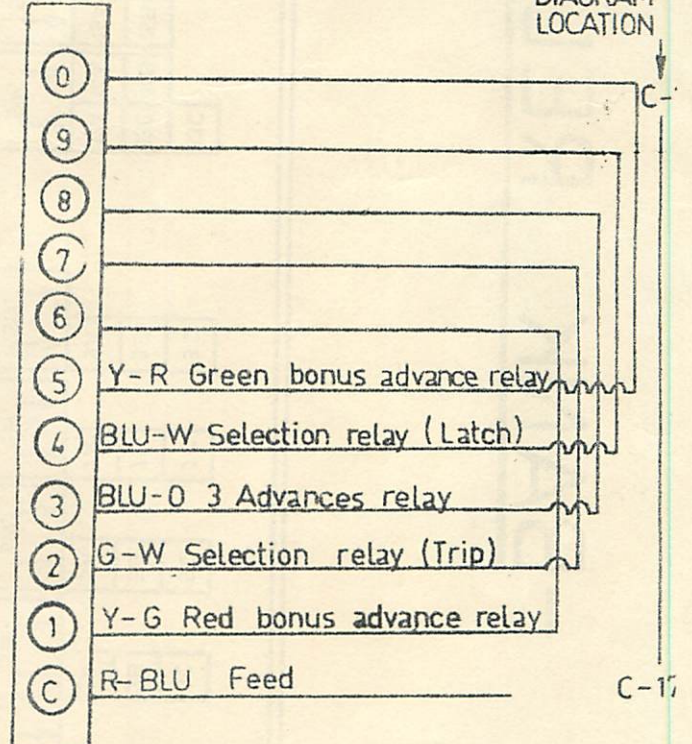
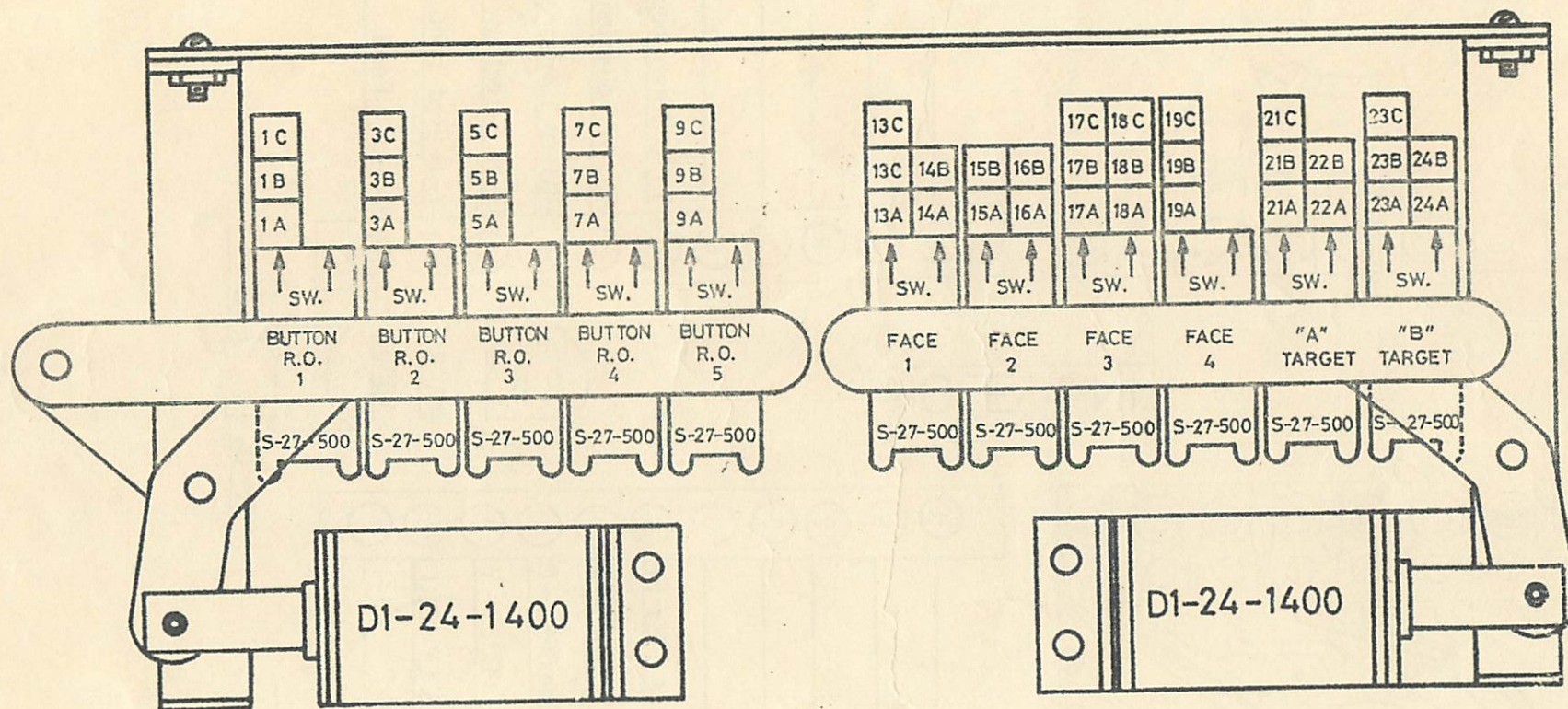


DIAGRAM LOCATION



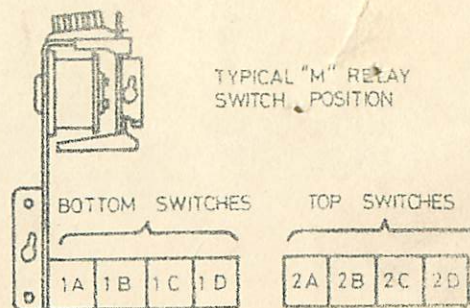
-BANK RELAYS-



RELAY	SW.	WIRE COLORS	DIAG. LOC.	TYPE	SWITCH OPERATION
1 R.O. BUTTON	1A	-Y- -J-	C-19	N.O.	In series with bank relay.
	1B	G-W -Y-	B-7	N.C.	Activates rollover "1" lite.
	1C	-J- Y-G BR-Y	E-23	M.&B.	Closes in circuit to same relay coil. Opens in series to 1000 point relay.
2 R.O. BUTTON	3A	-J- -J-	C-19	N.O.	In series with bank relay.
	3B	G-Y -Y-	B-7	N.C.	Activates rollover "2" lite.
	3C	-J- Y-BLU BR-Y	E-23	M.&B.	Closes in circuit to coil of same relay. Opens in series to 1000 point relay.
3 R.O. BUTTON	5A	-J- -J-	D-19	N.O.	In series with bank relay.
	5B	-G- -Y-	B-7	N.C.	Activates rollover "3" lite.
	5C	-J- Y-R BR-Y	E-23	M.&B.	Closes in circuit to same relay coil. Opens in series to 1000 point relay.
4 R.O. BUTTON	7A	-J- -J-	D-19	N.O.	In series with bank relay.
	7B	-Y- G-R	B-7	N.C.	Activates rollover "4" lite.
	7C	-J- Y-B BR-Y	E-23	M.&B.	Closes in circuit to same relay coil. Opens in series to 1000 point relay.
5 R.O. BUTTON	9A	R-G -J-	E-19	N.O.	In series with bank relay.
	9B	-Y- G-B	B-6	N.C.	Activates rollover "5" lite.
	9C	-J- Y-O BR-Y	E-23	M.&B.	Closes in circuit to same relay. Opens in series to 1000 point relay.
FACE 1	13A	W-O -J-	D-19	N.O.	In series with face "2" relay.
	13B	G-Y -J-	E-19	N.C.	In circuit with same relay coil.
	13C	BR-Y -O- -BLU-	D-23	M.&B.	Closes in circuit to 1000 point relay. Opens in circuit to 5000 point relay.
	14A	W-G -Y-	B-8	N.O.	Activates lites: face "1", right rollover, right bumper and left bumper.
	14B	W-R B-BLU BR-Y	D-21	M.&B.	Closes in circuit to 100 point relay. Opens in circuit to 1000 point relay.
FACE 2	15A	-J- R-B	D-19	N.O.	In series with face "3" relay.
	15B	-B- -Y-	C-19	N.O.	In series with extra ball relay.
	16A	-Y- BR-G	B-8	N.O.	Activates face "2" lite.
	16B	-J- -J-	E-19	N.C.	In circuit with same relay coil.

RELAY	SW.	WIRE COLORS	DIAG. LOC.	TYPE	SWITCH OPERATION
FACE 3	17A	-J- R-W	D-19	N. O.	In series with face "4" relay.
	17B	-Y- G-W	B-7	N. O.	Activates face "3" lite.
	17C	-J- -J-	E-19	N. C.	In circuit with same relay coil.
	18A	GREY-BLU BLU-BR	A-8	N. O.	Activates right inner rollover lite.
	18B	O-G W-B	D-20	N. O.	In circuit with extra ball relay.
	18C	GREY-O O-G B-Y	D-23	M.&B.	Closes to 10,000 point relay. Opens to replay advance coil.
FACE 4	19A	-Y- R-BLU	B-7	N. O.	Activates face "4" lite.
	19B	-J- -J-	E-19	N. C.	In circuit with same relay coil.
	19C	GREY-O -W- B-Y	D-23	M.&B.	Closes to 10,000 point relay. Opens to replay advance coil.
"A" TARGET	21A	W-BR -J-	E-18	N. C.	In circuit to same relay coil.
	21B	-Y- R-Y	B-6	N. C.	Activates target "A" lite.
	21C	O-BLU -J- GREY-G	D-13	M.&B.	Closes in series with switch "B" on motor. Opens in series with switches "2-C" & "5-A" motor.
	22A	BLU-B -J-	B-6	N. O.	Activates double bonus relay lite thru target "B" relay.
	22C	-O- O-BLU -J-	C-24	M.&B.	Closes in series to 10,000 point relay. Opens in series to 10,000 point relay.
"B" TARGET	23A	-J- BR-W	E-18	N. C.	In circuit to same relay coil.
	23B	-Y- R-O	B-6	N. C.	Activates target "B" lite.
	23C	O-BLU R-W -J-	D-13	M.&B.	Closes in series to switch "B" on motor. Opens in series to switches "2-C" & "5-A" on motor.
	24A	-J- -Y-	B-6	N. O.	Activates double bonus lite thru target "A" relay.
	24B	-O- -J- -BLU-	C-24	M.&B.	Closes in series to 10,000 point relay. Opens in series to 10,000 point relay.

A.C. RELAYS & SWITCHES



LOCATED ON MECHANISM PANEL

GAME OVER

The latch coil is energized by a replay relay switch thru switch 1-B on motor.

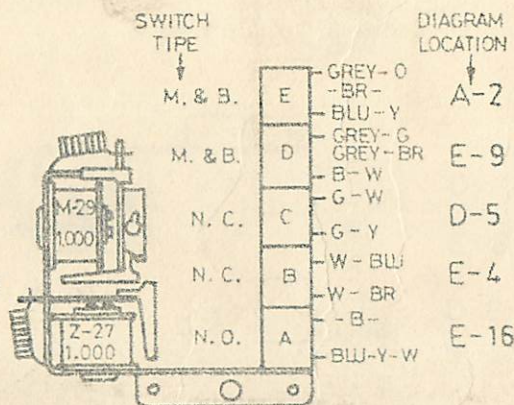
The trip coil is energized by rejector and replay relays; also by disconnection and replay relays thru ball index unit thru printed circuit.

LOCK

Is automatically energized when machine is plugged in.

EXTRA BALL

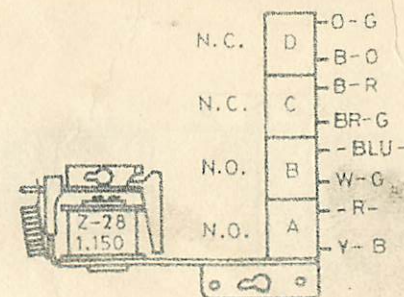
Is energized by final score and also lower right and left switches on playfield.



N.C. activates game over and number match lites.
 N.O. activates player number and ball in play lites.
 N.C. free play for number match.
 N.O. free play for high score and Special.
 In series with reset relay.
 In series with replay relay.
 In circuit to 24 V.



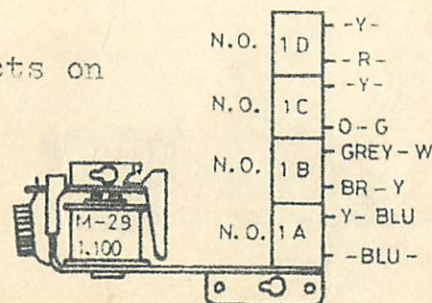
In series with game over relay trip coil.



In circuit with ball index advance coil.
 In circuit with ball index relay.
 Activates extra ball lites on playfield and back glass.
 In hold circuit with this relay.

5.000

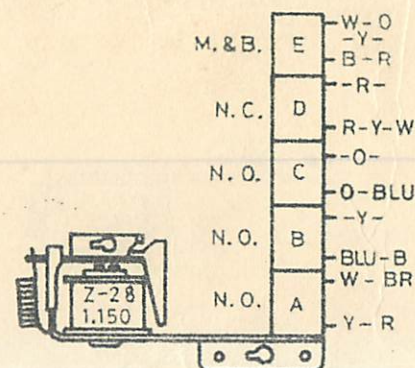
Is energized by various contacts on the playfield.



- B-19 In series with gate relay.
 C-4 Activates motor
 D-21 In series with 1.000 point relay.
 E-20 In hold circuit with this relay.

TILT

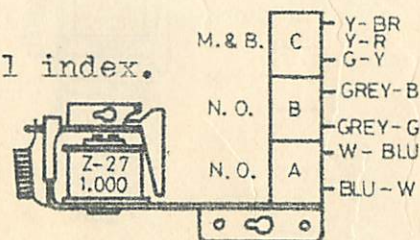
Is energized by tilt switch.



- B-12 Closes in circuit to visible score unit.
 B-15 Opens in circuit to activate ball index relay.
 E-15 Closes 28 V.
 E-8 In coin circuit.
 B-5 Activates tilt lite.
 C-14 In hold circuit with this relay.

PLAYER RESET

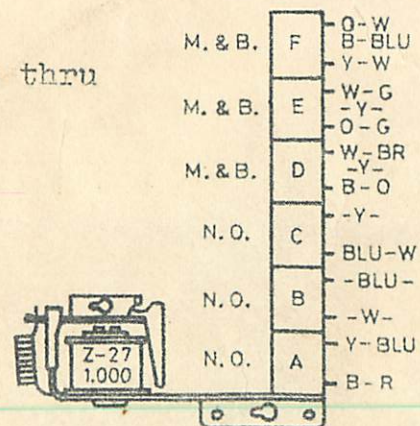
Is energized by contact on ball index.



- D-6 N.C. - In series with advance coil on player unit. N.O. - In series with player reset coil.
 E-8 In series with replay for No. match.
 D-6 In hold circuit with this relay.

OUTHOLE

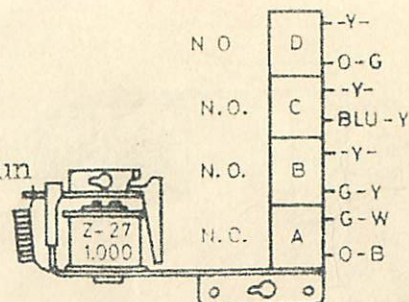
Is energized by outhole switch thru red and green bonus switches.



- D-14 N.C. - In series with eject hole coil.
 B-17 N.O. - In series with ball return coil.
 C-4 In hold circuit. Ball index re.
 B-14 Activates motor.
 C-6 N.C. - In hold circuit with tilt relay.
 N.O. - In series with ball index S.U. unit.
 B-19 In series with relay bank reset coil.
 B-1 In series with relay bank reset coil.
 C-14 In hold circuit with this relay.

COIN

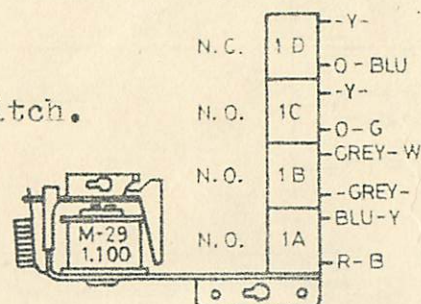
Is energized by Relay y Rethun the motor can switch. 5-B, and 5 ¢ coin switch.



- C-4 Activates motor.
- C-15 Is series to game over relay trip coil.
- C-5 In series to total playmayer ~~Y~~ Reset relay.
- D-3 Hold circuit with this relay.

10 ¢

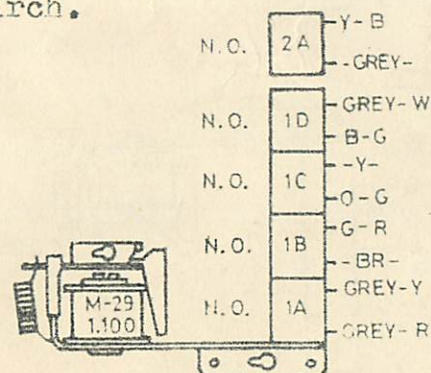
Is energized by 10 ¢ coin switch.



- C-4 In series to set up relays coin.
- C-5 Achivales motor.
- C-7 In circuit to replay unit step up coil.
- E-2 In hold circuit to this Relay.

25 ¢

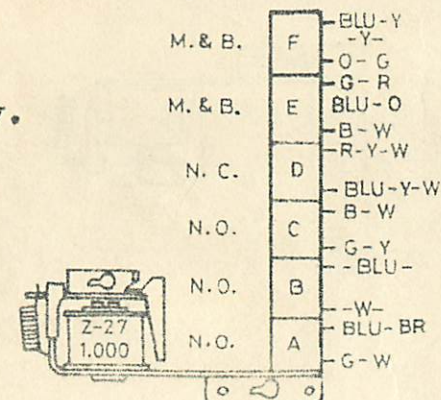
Is energized by 25 ¢ coin switch.



- E-2 Hold circuit to this Relay.
- C-7 In series to replay step up unit.
- C-5 Activates motor.
- C-4 In series to coin set up Relay.
- D-7 In series to coin Relay.

RESET

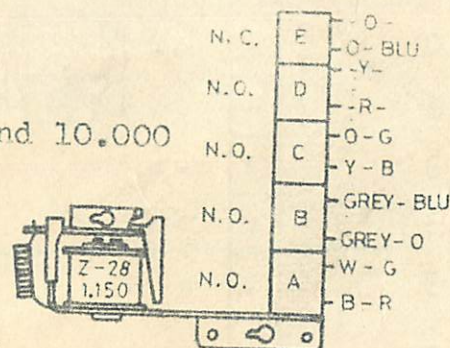
Energized by game reset relay.



- C 3 Closed interrpts replay button.
- C 4 Open pulses motor.
- E 5 Closed in series with coin step up unit.
- E 14 Open in series whit coin reset unit.
- E 6 Interrupts 28 Volts.
- E 6 In series with ball index reset coil.
- B 1 In series whit bank reset coil.
- D 5 In hold circuit with relay.

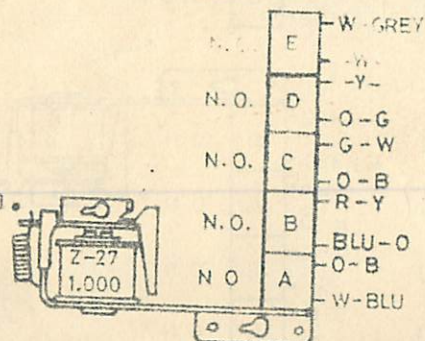
BALL INDEX

In energized by 100, 1000, and 10,000 point relays and tilt relay.



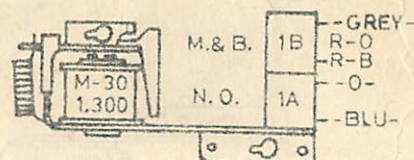
REPLAY

Is energized by replay button.



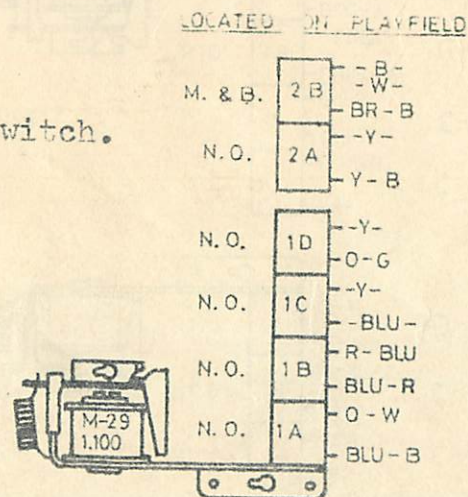
COIN SET UP

Is energized by 25 ¢ Relay.



HOLE

Is energized by eject hole switch.



- C-4 In coin circuit.
- C-20 In hold circuit with extra ball
- C-6 In series with ball index advance unit.
- E-24 In series with 10,000 point relay.
- D-15 In hold circuit with this relay.

- D-4 In series with rejector coil.
- C-5 Activates motor.
- D-3 In series with coin relay.
- E-5 Pulses to replay unit reset coil.
- D-3 In hold circuit with this relay.

N.O. - Activates 10 ¢ Relay.

D-2 N.C. - Activates 25 ¢ Relay.

E-4 In hold circuit with this relay.

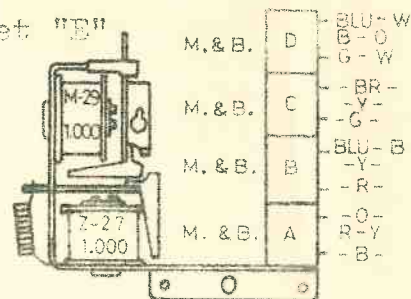
- D-16 N.C. In hold circuit with three advances thru targets.
- C-14 N.O. In hold circuit directly with three advances. In hold circuit with this relay.

- C-4 Activates motor.
- B-20 Activates 5000 point relay.
- C-16 In series with eject hole wiper.
- E-14 In series with eject hole.

SELECTION

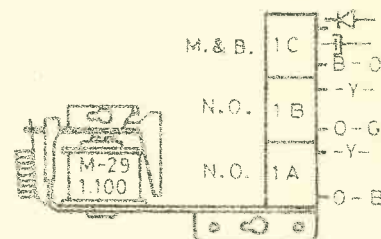
Latch coil is energized by target "E" and thru eject hole unit.

Trip coil is energized by target "E" and thru eject hole unit.



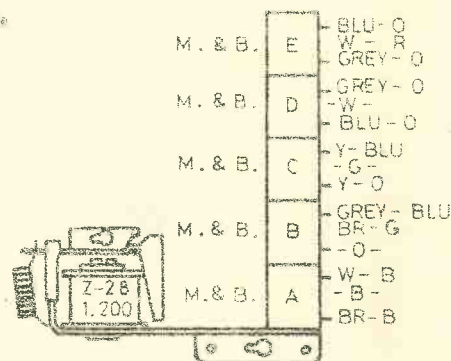
"E" TARGET

Is energized by target "E".



ALTERNATOR

Is energized by eject hole wiper.



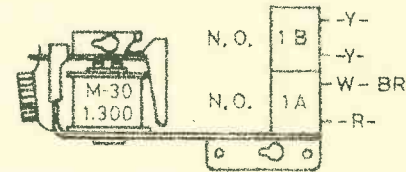
- E-16 N.C. - In series with selection latch relay.
- B-10 N.O. - In series with selection trip relay.
- B-8 N.C. - Activates green bonus lights.
- D-24 N.O. - Activates red bonus lights.
- B-8 N.C. - Activates green bonus selection light.
- D-24 N.O. - Activates red bonus selection light.
- N.C. - In series with 10,000 point relay thru green bonus unit.
- N.O. - In series with 10,000 point relay thru red bonus unit.

- D-16 Opens circuit to selection latch and trip coils.
- C-4 Activates motor.
- D-16 In hold circuit with this relay.

- D-23 N.C. - In series to Special adjust phone tip
- D-24 N.O. - In series with 10,000 point relay.
- B-7 N.C. - In circuit with 10,000 point relay.
- B-8 N.O. - In series with Special adjustment phone tip.
- C-19 N.C. - Activates left Special light.
- N.O. - Activates right Special light.
- N.C. - Activates right inner rollover light.
- N.O. - Activates left inner rollover light.
- N.C. In series with right inner rollover.
- N.O. - In series with left inner rollover.

GATE

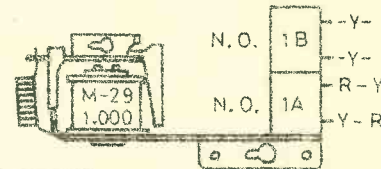
Is energized by 5000 point relay.



- B-6 Activates ball gate light.
E-19 In hold circuit with this relay.

GREEN BONUS ADVANCE

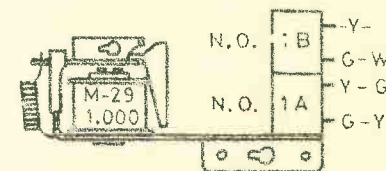
Is energized by upper left target, outer left rollover and eject hole step up unit.



- C-17 In series with green bonus advance unit.
C-17 In hold circuit with this relay.

RED BONUS ADVANCE

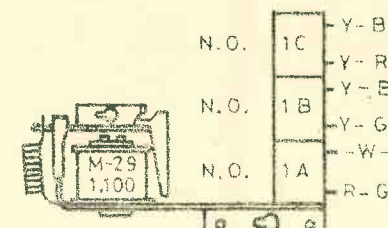
Is energized by upper right target, outer right rollover and by eject hole step up unit.



- C-18 In series with red bonus advance unit.
D-17 In hold circuit with this relay.

3 ADVANCES

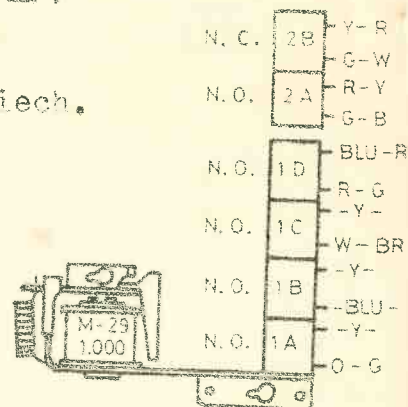
Is energized by auxiliar targets "A" and "B" relays and by eject hole S.U. unit.



- C-17 In circuit with red bonus advance unit.
C-17 In circuit with green bonus advance unit.
D-16 In hold circuit with this relay.

AUXILIARY "A" TARGET

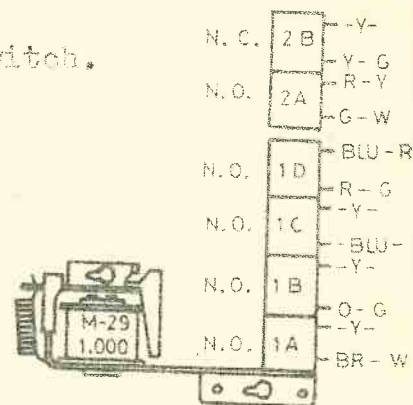
Is energized by target "A" switch.



- D-17 In series with red bonus advance unit.
- E-18 In hold circuit with relay.
- D-16 In series with green bonus advance Re.
- D-18 In series with target "A".
- C-20 In series with 5,000 point relay.
- C-5 In series with score motor.

AUXILIARY "B" TARGET

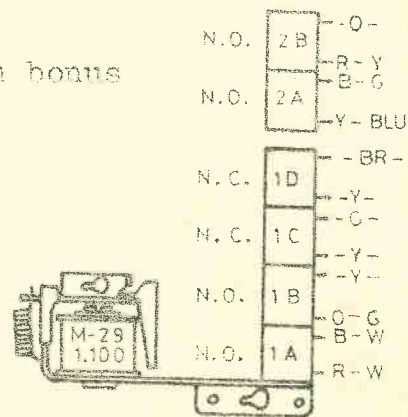
Is energized by target "B" switch.



- E-17 In series with green advance unit.
- D-18 In hold circuit with this relay.
- D-16 In series with red bonus advance re.
- C-20 In series with 5000 point relay.
- C-5 In series with score motor.
- C-18 In series with target "B".

BONUS

Is energized by red and green bonus unit switches.



- D-24 In series with 10,000 point relay.
- C-13 In hold circuit with this relay.
- B-11 In series with green bonus unit.
- B-10 In series with red bonus unit.
- C-5 In series with score motor.
- E-13 In series with red and green bonus reset coils.

Is energized by rollover relay switches.



LOCATED IN BACKBOX

SCORE RESET 1-2

Is energized by switch impulse C on score motor thru reset relay thru indicator switch D on motor; or switches on score unit; also thru game over relay thru replay relay.



SCORE RESET 3-4

Is energized by retarded impulse switch A on score motor thru reset relay thru indicator switch D on motor; or switches on score unit; also thru game over relay thru replay relay.



N.O.	2B	-Y-
N.O.	2A	-O-G
N.O.	1D	-Y-BLU
N.O.	1C	-R-O
N.O.	1B	-G-Y
N.O.	1A	-GREY-G
N.O.		-B-Y
N.O.		-W-O
N.O.		-R-B
N.O.		-B-O
N.O.		-R-W
N.O.		-G-R

- C-5 In series with score motor.
- D-19 In hold circuit with this relay.
- D-19 In series with face "1" relay.
- C-19 In series with face "2" relay.
- C-19 In series with face "3" relay.
- C-19 In series with face "4" relay.

N.O.	2D	-Y-
N.O.	2C	-BR-O
N.O.	2B	-Y-
N.O.	2A	-R-O
N.O.	1D	-Y-
N.O.	1C	-R-B
N.O.	1B	-Y-
N.O.	1A	-O-B
N.O.		-Y-
N.O.		-GREY-BLU
N.O.		-Y-
N.O.		-BLU-R

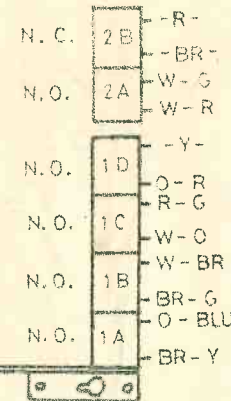
- D-11 In series with 10,000 point D.U. - player 2
- D-11 In series with 10,000 point D.U. - player 1
- D-10 In series with 1000 point D.U. - player 2
- D-10 In series with 1000 point D.U. - player 1
- D-10 In series with 100 point D.U. - player 2
- D-10 In series with 100 point D.U. - player 1.
- D-11 In series with 100,000 point D.U. - player 1
- D-9 In series with 100,000 point D.U. - player 2

N.O.	2D	-Y-
N.O.	2C	-Y-
N.O.	2B	-BR-O
N.O.	2A	-Y-
N.O.	1D	-BR-R
N.O.	1C	-Y-
N.O.	1B	-BR-W
N.O.	1A	-Y-
N.O.		-GREY-R
N.O.		-Y-
N.O.		-BLU-W
N.O.		-Y-
N.O.		-Y-BLU
N.O.		-Y-
N.O.		-Y-R

- D-11 In series with 10,000 point D.U. - player 4.
- D-11 In series with 10,000 point D.U. - player 3.
- D-11 In series with 1000 point D.U. - player 4.
- D-11 In series with 1000 point D.U. - player 3.
- D-10 In series with 100 point D.U. - player 4.
- D-10 In series with 100 point D.U. - player 3.
- D-12 In series with 100,000 point D.U. - player 4.
- D-12 In series with 100,000 point D.U. - player 3.

100 POINTS

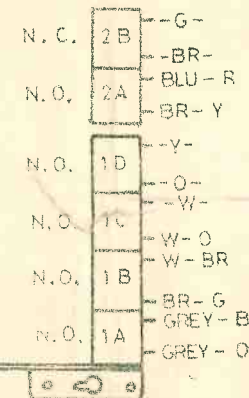
Is energized by kicker switches, stand up switches, face "1" relay thru bumper switches and thru red and green gonus switches.



- C-20 In hold circuit with extra ball relay.
- D-21 In hold circuit with this relay.
- C-12 In series with small chime.
- C-10 In series with 100 point drum unit.
- C-15 In series with ball index relay.
- D-23 In series with 1000 point relay.

1,000 POINTS

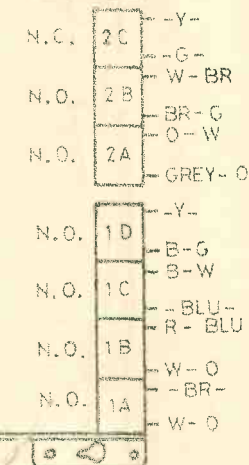
Is energized by upper left and right target switches, 5000 point relay thru score motor switch "A", 100 point relay and bank rollover relays.



- C-20 In hold circuit with extra ball relay.
- D-22 In hold circuit with this relay.
- C-12 In series with medium chime.
- C-10 In series with 1000 point D.U.
- C-15 In series with ball index relay.
- D-24 In series with 10,000 point relay.

10,000 POINTS

Is energized by alternator relay thru left or right rollover relays ball index relay or 1000 point relay.



- C-20 In hold circuit with extra ball relay.
- D-15 In series with ball index relay.
- E-23 In hold circuit with this relay.
- C-13 In series with large chime.
- E-8 In series with player unit.
- C-12 In series with 100,000 point D.U.
- C-11 In series with 10,000 point D.U.

