## OPERATING INSTRUCTIONS

CONFIDENTIAL: DO NOT LEAVE INSTRUCTIONS IN GAME



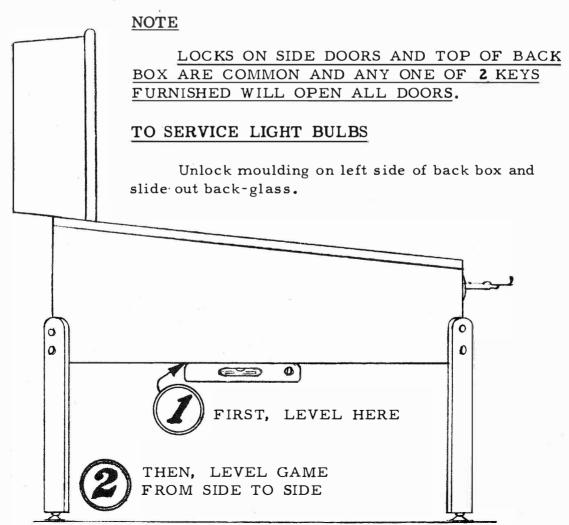
### INSTALLATION & OPERATING INSTRUCTIONS.

Fasten 4 legs to cabinet with bolts and washers furnished. Place back-box in position. Remove C-clamp holding back door, remove door and fasten the back-box to cabinet with bolts and washers furnished. Remove side of back-box by opening lock on left side, slide out glass and lower insert by lowering slide brackets on top. Replace back door and lock with turn-bolts mounted on back door. Raise insert and lock in place. Replace glass and side of back-box and lock.

Plug power line into 110-115 volt 60 cycle alternating current only. Turn on power by turning toggle switch on in bottom of cabinet (front right).

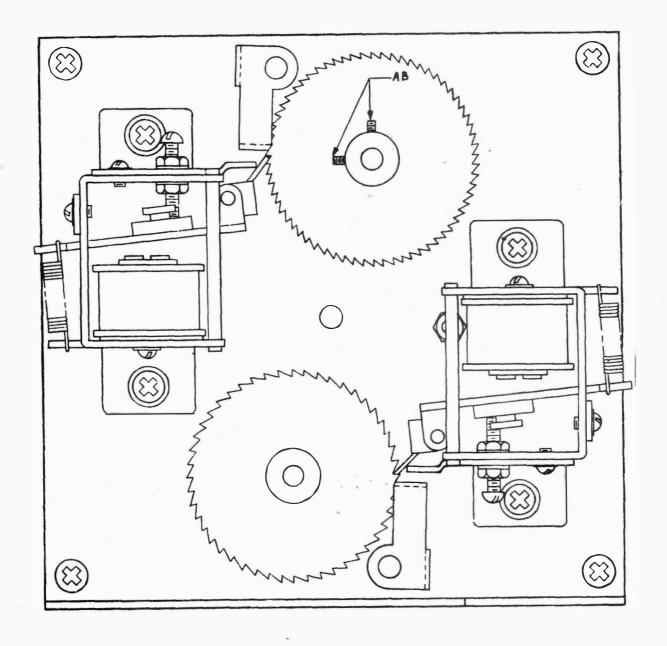
### ACCESS TO MECHANISM

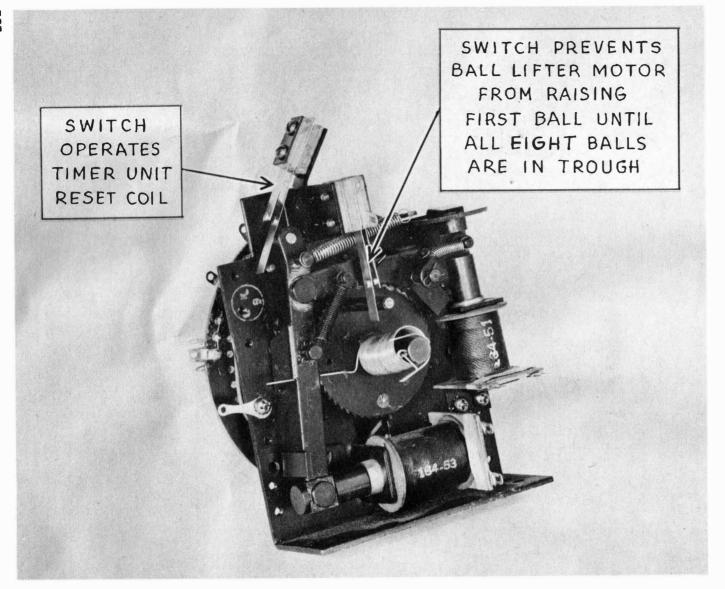
The above paragraph explains access to back box. Mechanism in cabinet can be reached by removing doors on either side of cabinet for minor repairs.



## GAME PROPORTIONING

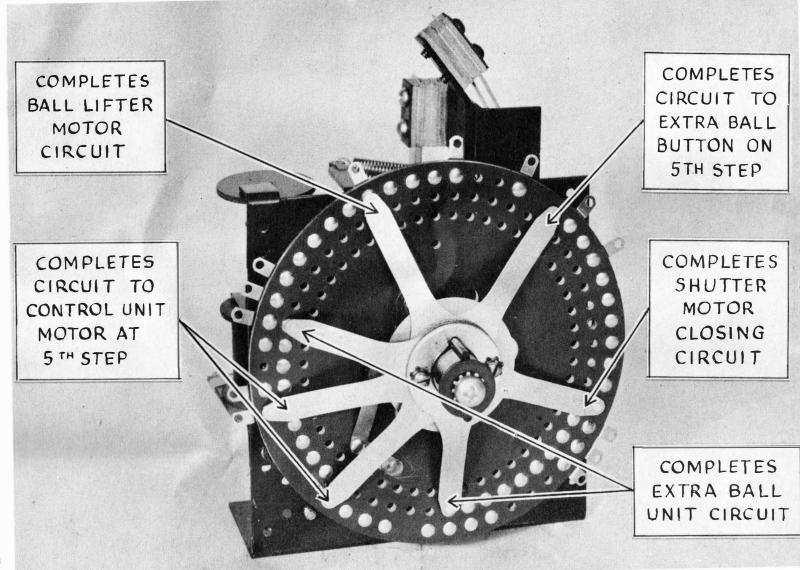
OVERALL PROPORTIONING of game to maintain a maximum amount of play is the function of the REFLEX UNIT which is located in the back cabinet. Two additional ratchets are supplied if the type of play in some locations require a change. See diagram below for location of set screws (A and B) for fastening ratchets.





# ATLANTIC CITY BALL COUNTER — SWITCH SIDE

# ATLANTIC CITY BALL COUNTER — WIPER SIDE



# STEPPER



SWITCH BREAKS 17 VOLT CIRCUIT

SWITCH PREVENTS EXTRA BALLS FROM BEING PLAYED AFTER TIMER HAS RUN OUT

SWITCH BREAKS 6 VOLT CIRCUIT

TO SELECTION AND

EXTRA BALL LITES

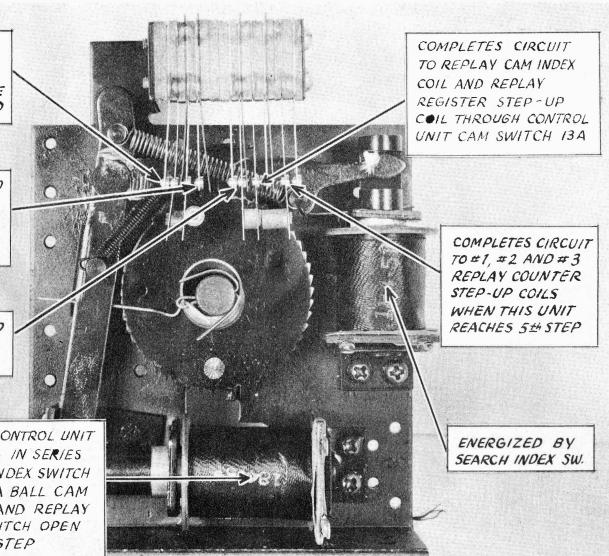
# ATLANTIC CITY REPLAY DELAY UNIT

BREAKS CIRCUIT
TO EXTRA BALL
PLAY RELAY
WHEN REPLAYS ARE
BEING REGISTERED

BREAKS CIRCUIT TO RESET COIL WHEN OPEN. COMPLETES CIRCUIT TO RESET COIL WHEN CLOSED

BREAKS CIRCUIT TO STEP-UP COIL AT 5± STEP OF UNIT

ENERGIZED BY CONTROL UNIT CAM SWITCH IOB IN SERIES WITH SEARCH INDEX SWITCH SPOT AND EXTRA BALL CAM INDEX SWITCH, AND REPLAY DELAY UNIT SWITCH OPEN AT THE FIFTH STEP



ENERGIZES EXTRA

BALL RUN RELAY

OPENS CIRCUIT TO EXTRA BALL RUN RELAY

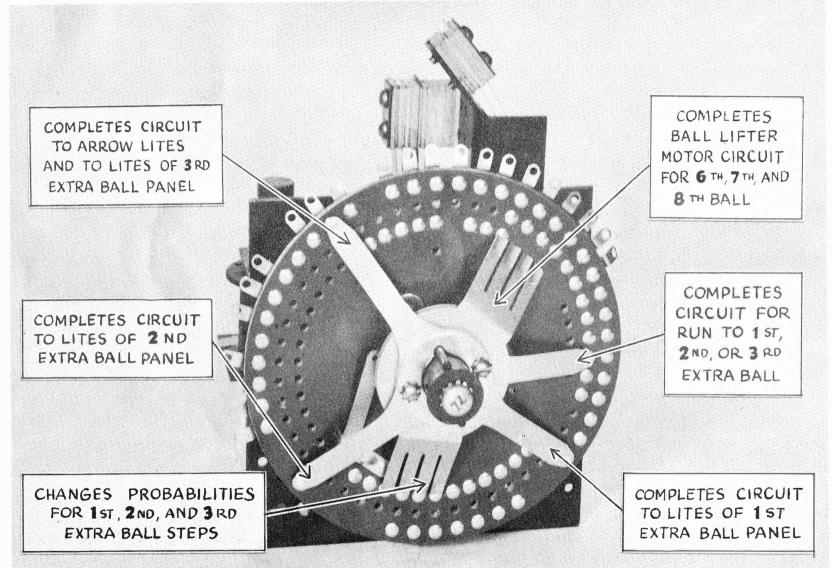
RELAY

RESETS WHEN SHUTTER MOTOR SW #5 CLOSES

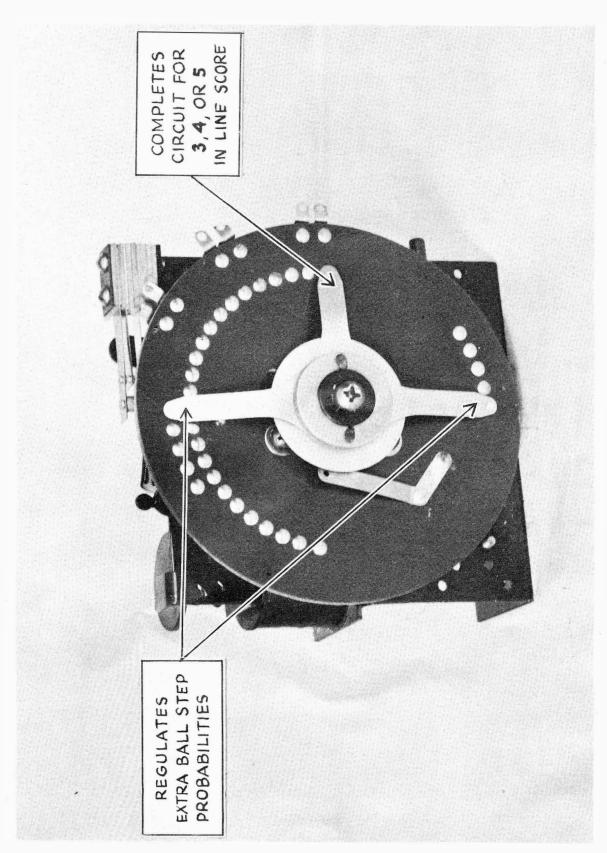
ENERGIZES THRU

OPENS CIRCUIT TO EXTRA BALL PLAY CONTROL UNIT CAM SW, # 2 IF CIRCUIT IS COMPLETE THRU MIXER DISCS, SPOT & EXTRA BALL SEL-ECTION DISC & EXTRA BALL UNIT DISC





REPLAY COUNTERS 1, 2, 3 — WIPER SIDE

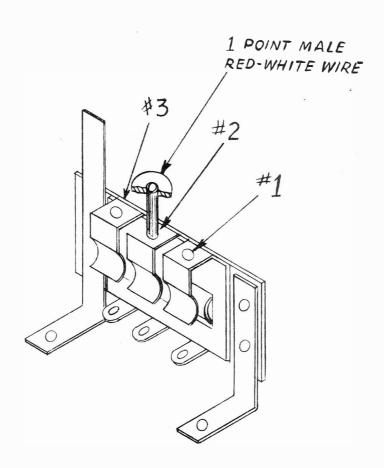


## CORNERS ADJUSTMENT

No. 1 REGULAR

No. 2 MORE LIBERAL

No. 3 MOST LIBERAL



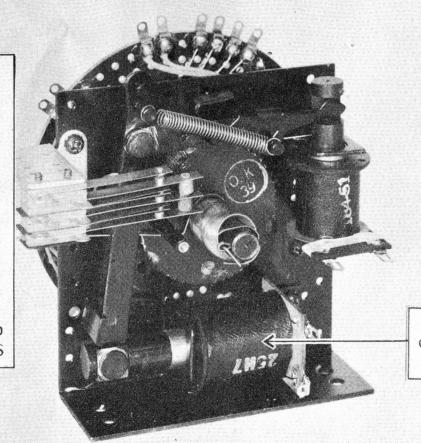
# SELECTION UNIT—SWITCH SIDE

## SWITCH TOP TO BOTTOM:

COMPLETES CIRCUIT TO SPOT DISC WIPER FOR ENERGIZING DOUBLE RELAYS

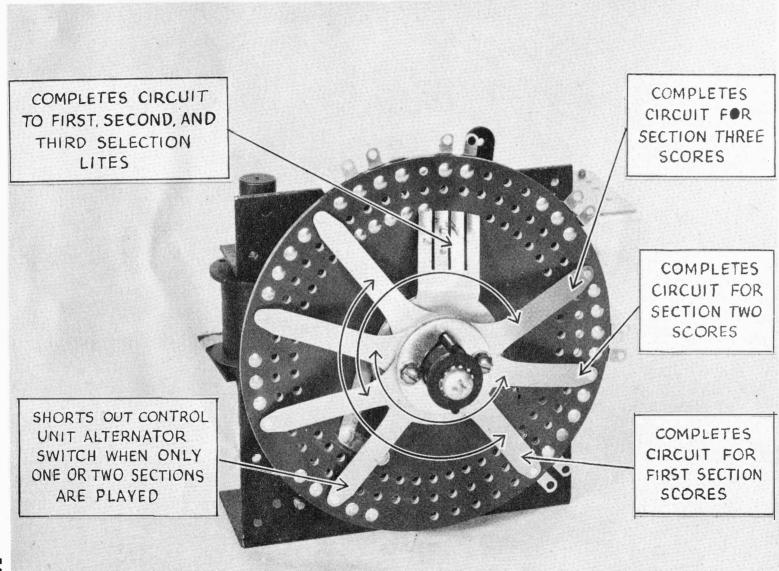
COMPLETES CIRCUIT TO SPOT DISC WIPER FOR ENERGIZING #14,#19 AND #22 RELAYS

COMPLETES CIRCUIT FOR SPOTTING FLASH OF DOUBLE LITES AND #14, #19, AND #22 LITES

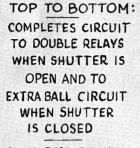


ENERGIZED BY CONTROL UNIT CAM SWITCH #58





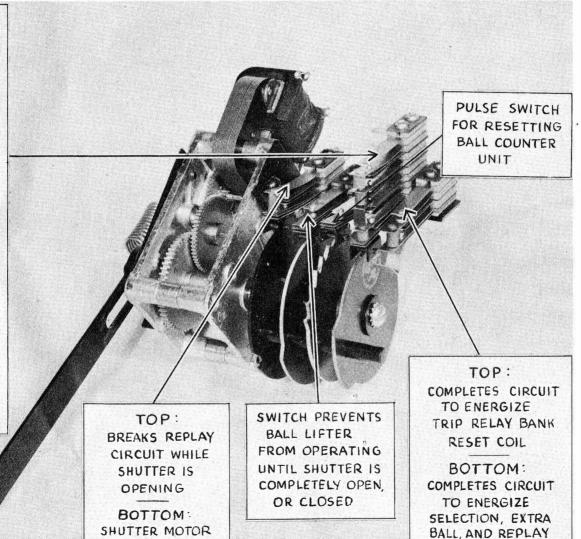
# **NOTES**



COMPLETES CIRCUIT
TO #14,#15,#16,#17
#19,#22, AND
CORNERS RELAY
WHEN SHUTTER
IS OPEN

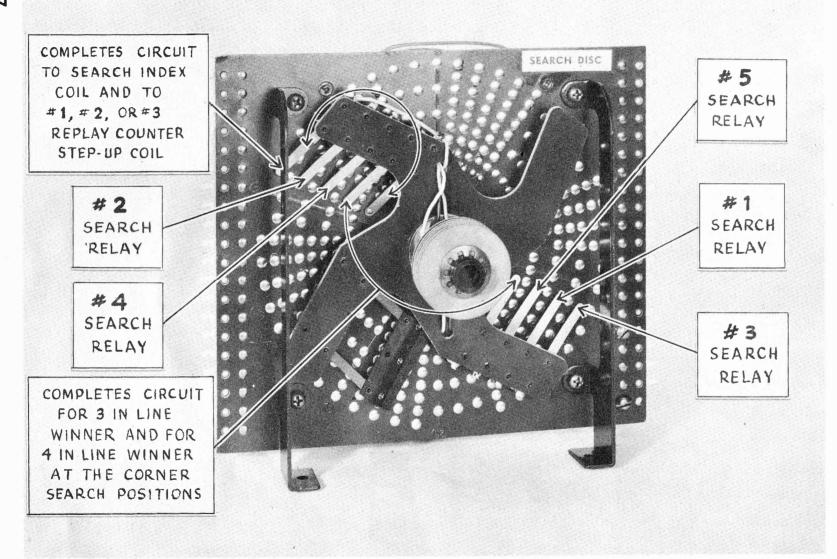
COMPLETES CIRCUIT FOR CLOSING SHUTTER

COMPLETES CIRCUIT
TO SHUTTER MOTOR
WHEN SHUTTER IS
CLOSED AND TO
TIMER CAMS INDEX
WHEN SHUTTER
IS OPEN



COUNTER RESET COILS

CARRY-OVER SWITCH



SELECTION DISC

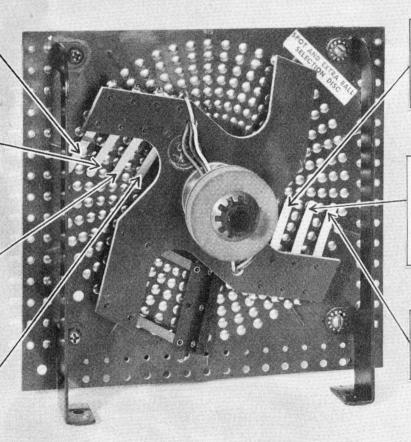
WIPERS

COMPLETES CIRCUIT TO DOUBLE RELAYS

COMPLETES CIRCUIT TO #15, #16, #17 AND CORNERS RELAY

COMPLETES CIRCUIT FOR # 14, # 19, # 22, AND DOUBLE LITES FLASH

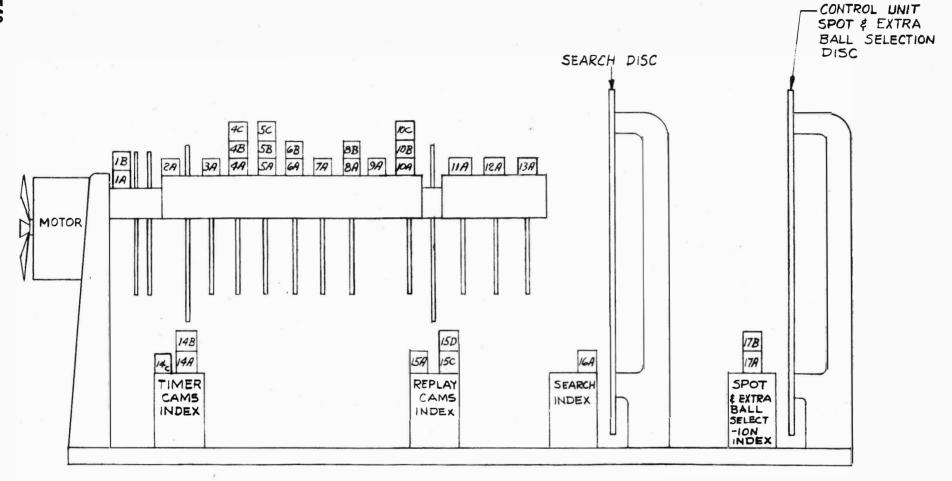
COMPLETES CIRCUIT FOR EXTRA BALL ARROW LITE FLASH



COMPLETES CIRCUIT TO #15, #16, #17 AND CORNERS LITE FLASH

COMPLETES CIRCUIT TO EXTRA BALL UNIT STEP-UP COIL THRU EXTRA BALL UNIT DISC

COMPLETES CIRCUIT TO # 14, #19 AND # 22 RELAYS

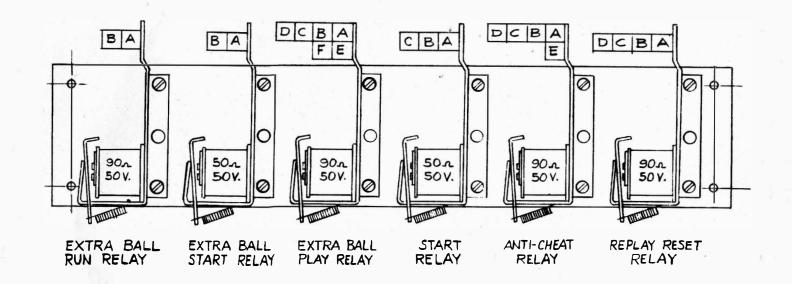


CONTROL UNIT PICTORIAL VIEW
NUMBERS CORRESPOND TO SWITCH CHART

SWITCH NUMBERS CORRESPOND TO CONTROL UNIT PICTORIAL DIAGRAM

	CODE	
N.C.		NORMALLY CLOSED
ΝΛ		NODMALLY OPEN

RELAY SWITCH OR CAM SWITCH	SWITCH CODE	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
1 A	N.O.	60 P 20 P	Brown-Plastic Blue-Plastic	Prevents control unit motor from stopping while 18 is closed.
18	N.O.	52-3 83	White-8lue Black-Yellow	Energizes timer unit step-up coil,
2A	N.O.	10-2 60-1	Red Brown	Completes circuit to energize, spot and double relays and extra ball unit step-up coil.
3 A	N.C.	14-4 48-2	Red-Green Green-Black	Prevents start relay and extra ball start relay from being pulled in during timer cam cycle.
at V	N.O.	45° 38	Green-White Yellow-Black	Completes circuit for spotting flash of \$15, \$16, \$17 and corner panel lites.
ив	N.O.	21 48	Blue-Red Green-Black	Completes circuit for extra ball flash.
4C	N.O.	83 78-2	Black-Yellow Orange-Black	Completes circuit to energize Spot and extra ball index coil.
5 A	N.O.	15-3 83	Red-White Black-Yellow	Completes circuit to energize anti-cheat relay after 110 is turned off and then on again.
5B	N.O.	91 <del>-3</del> 48-3	Grey-Red Green-Black	Completes circuit for energizing the selection unit step-up coil.
5C	N.O.	50 B3	White Black-Yellow	Completes circuit for energizing timer unit reset coil.
6 A	N.O.	40-3 36-2	Green Yellow-Brown	Energizes extra ball unit step-up coil when unit is on 3rd or 7th position.
6B	N.C.	B3 43-3	Black-Yellow Green-Yellow	Łock-in circuit for extra ball play relay. Relay drops out when switch opens.
7A	N.O.	83 27–4	Black-Yellow Blue-Orange	Energizes replay register reset coil and reflex play magnet
8.8	Alternator	81-2 13-4	Black-Red Red-Yellow	Switch is open 1/2 the time in extra ball run to the top circuit.
88	Alternator	81-2 10-4	Black-Red Red	Switch is open 1/2 the time in 3 step extra ball run circui
9.4	1:3	10-4 25-3	Red Blue-White	Switch is closed 1/3 of the time in 3 step extra ball run circuit.
10 A	N.O.	53-2 75-2	White-Yellow Orange-White	Energizes replay meter and replay register reset coil wher replay reset relay is energized.
108	N.O.	57~3 54~3	White-Orange White-Green	Completes circuit to energize replay delay unit step-up co
10C	N.O.	65 <b>-</b> 2 40 <b>-</b> 3	Brown-White Green	Energizes extra ball unit step-up coil when extra ball run relay is energized.
11A	N.O.	71-3	Orange-Red Orange	Energizes replay counter when double relays are tripped. Double replays.
12A	N.O.	74-3 70-3	Orange-Green Orange	Energizes replay counters when double relays are latched. Single replays.
13 A	N.O.	30-4 56-4	Yellow White-Brown	Energizes sounder coil, reflex replay magnet, and replay register step-up coil when winner is scored.
TIMER CAMS INDEX	Coil	90 36-3	Grey Yellow-Brown	Energized by start relay or by extra ball start relay.
14A	N.O.	60-P 20-P	Brown Plastic	Completes circuit to start control unit motor.
148	N.C.	71-2 14-9	Orange-Red Red-Green	Opens circuit to coin lockout magnet during timer cams cycl
14C	N.O.	31-2 54-2	Yellow-Red White-Green	Prevents extra ball play relay from being de-energized dur timer cams cycle.
REPLAY CAMS INDEX	Coil	90 564	Grey White-Brown	Energized when 3 or more in line is scored and replay delay unit moved to 5th step.
15 A	N.C.	53-3 52-3	White-Yellow White-Blue	Opens circuit to timer unit step-up coil while replays are registering.
158				
15C	N.C.	20-P 60-P	8lue-Plastic Brown-Plastic	Completes circuit to control unit motor.
15 D	N.C.	14-4 83	Red-Green Black-Yellow	Opens circuit to start relays while replays are registerin
SEARCH INDEX	Coil	9.0 9.1–4	Grey Grey-Red	Energized when 3 or more in line on selected section is scored.
16 A	S.P.D.T.	61-3 83 54-3	Brown-Red Black-Yellow White-Green	Normally completes circuit to replay delay unit reset coil when index is energized switch completes circuit to replay delay unit step-up coil.
SPOT & EXTRA BALL SELECTION INDEX	Coil	90 78-2	Grey Orange-Black	Energized when control unit switch 4C is closed.
17A	N.O.	71-9 43	Orange-Red Green-Yellow	Completes circuit to \$14, \$19, \$22 and double lites flash.
17B	N.C.	56-3 57-3	White-Brown White-Orange	Opens circuit to replay delay unit step-up coil while selection index is e



6 RELAY BANK

### 6 RELAY BANK CHART

## FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW OF CONTROL UNIT ABOVE

CODE	
N.C	NORMALLY CLOSED
N.O	NORMALLY OPEN
M. B. B M	AKE BEFORE BREAK
S.P.D.TSINGLE P	OLE DOUBLE THROW

RELAY SWITCH OR CAM SWITCH	SWITCH CODE	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
EXTRA BALL RUN RELAY COIL	*	90 65-2	Grey Brown-White	Energized by extra ball unit step-up arm switch to give 3 step run or run to 3rd extra ball.
A	N.C.	23-3 53-6	Blue-Yellow White-Yellow	Prevents extra ball play relay from being pulled in during extra ball run.
В	N.O.	10-5 65-2	Red Brown-White	Locks in extra ball run relay.
EXTRA BALL START		90 20–3	Grey Blue	Energized when extra ball relay is pulled in and then coin is dropped.
A	N.O.	20-3 4B-2	Blue Green-Black	Lock in circuit for extra ball start relay.
В	N.O.	31-2 36-3	Yellow-Red Yellow-Brown	Completes circuit to energize the start cams index coil.
EXTRA BALL PLAY RELAY COIL		90 31 <b>-</b> 3	Grey Yellow-Red	Energize by pressing green button on front door after 5 balls have been played.
A	N.C.	40 3B	Green Yellow-Black	Breaks feed to 15, 16, 17, and corner lite flash when playing extra balls.
В	S.P.D.T.	48-3 43-3 31-2	Green—Black Green—Yellow Yellow—Red	Normally completes circuit for start relay to operate shutter motor. Lock-in circuit for extra ball play relay when energized.
C	S.P.D.T.	52-2 51-2 20-3	White-Blue White-Red Blue	Normally completes circuit to regular start relay and to extra ball start relay when energized.
D	N.O.	56 21	White-Brown Blue-Red	Completes circuit to extra balls lite and to extra ball flash.
E es	N.C.	45 14-8	Green⇔White Red–Green	Breaks circuit to 14, 19, 22, and double lite flash when playing extra balls.
F	N.O.	51-2 50-2	White-Red White	Completes circuit to energize extra ball start relay when free plays have been registered.
START RELAY COIL	- (*	21-6 52-2	Blue-Red White-Blue	Energized when coin is dropped or when red button is pushed when replays have been registered, and extra balls are not being played.
A	N.C.	31-3 57-6	Yellow-Red White-Orange	Prevents extra ball play relay from being pulled in after start relay has been energized.
В	N.O.	52-2 48-2	White-Blue Green-Black	Lock in circuit for start relay.
С	N.O.	3B-3 48-3	Yellow-Black Green-Black	Completes circuit to operate shutter motor after balls have been played and operates start cams index when shutter is open.
ANTI-CHEAT RELAY COIL		90 15–3	Grey Red-White	Energized by control unit cam switch #5A.
A	N.C.	75-2 50-2	Orange-White White	Energizes replay reset relay when 110 is turned on if replays have been registered.
В	N.O.	30 14-6	Yellow Red-Green	Completes 17 volt circuit when energized.
, С	N.O.	80 25	Black Blue-White	Completes 6 volt circuit when energized.
D	N.O.	15-3 83	Red-White Black-Yellow	Lock in circuit for anti-cheat relay.
E	N.O.	57-6 53-6	White-Orange White-Yellow	Prevents extra ball play relay from being pulled in if 110 has been turned off and then on again.
REPLAY RESET RELAY COIL		90 75–2	Grey Orange-White	Energized when replays have been registered and replay reset button is pushed or if anti-cheat relay is de-energized.
A	N.C.	21-6 52-2	Blue-Red White-Blue	Prevents new game from being played while replay reset relay is energized.
В	S.P.D.T.	27-4 13-9 53-2	81ue-Orange Red-Yellow White-Yellow	Normally completes circuit to replay register reset coil. When energized it parallels replays register reset coil with the replay meter.
С	N.O.	20-P 60-P	Blue Plastic Brown Plastic	Completes circuit to control unit motor.
D	N.O.	75-2 50-2	Orange-White White	Lock-in circuit for replay reset relay.

## **NOTES**

FRIP RELAY BANK SWITCHES
SWITCHES ARE LISTED FROM A POSITION
OF LOOKING AT LUGS

OF LOOKING AT LUGS			S.P.D.T. SINGLE POLE DOUBLE THROW	
RELAY SWITCH OR CAM SWITCH	SWITCH CODE	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
TILT RELAY	Coil	85-6 61-2	Black-White Brown-Red	
Тор	N.C.	81 14-6	81 ack-Red Red-Green	Opens 17 volt circuit when tripped.
Middle	N.C.	83	81ack-Yellow	Breaks feed to extra ball play relay, tilt relay and ball
Bottom	S.P.D.T.	56-2 20 <b>2</b> 5	White-Brown  Blue Blue-White	lifter motor.  Normally completes 6 volt circuit to selection disc and extra ball flash. Lites tilt lite when tripped.
		10	Red	CANTO BOTT THOM THE MICH OT THE CONTROL OF THE CONT
CORNERS RELAY	Coil	90 15-1	Grey Red-White	
Тор	N.O.	21 <del>-</del> 9 48-4	Blue-Red Green-Black	Complete corner circuit to search disc on section three.
Bottom Left	N.O.	36-4 43-4	Yellow-Brown Green-Yellow	Completes corner circuit to search disc on section two.
Top Right	N. O.	45 23	Green-White Blue-Yellow	Lites corner panel.
Bottom Right	N.O.	40-4 31-4	Green Yellow-Red	Completes corner circuit to search disc on section one.
#3 DOUBLE RELAY	Coil	90 27-1	Grey Blue-Orange	· .
Тор	N.C.	93	Grey-Yellow Blue-Yellow	Regulates probabilities thru mixer disc #3
Middle	S.P.D.T.	23-2 74-3	Orange-Green	Normally completes circuit to 4 pulse cam for single scor
		85-4 71-3	Black-White Orange-Red	When tripped completes circuit to 2 pulse cam for double score on section 3.
Bottom	N.O.	45 36	Green-White Yellow-Brown	Completes circuit to #3 double lite.
#2 DOUBLE RELAY	Coil	90 25-2	Grey Blue-White	
Тор	N.C.	93 21–2	Grey-Yellow Blue-Red	Regulates probabilities thru mixer disc #3.
Middle	S.P.D.T.	74-3 98-3	Orange-Green Grey-Black	Normally completes circuit to 4 pulse cam for single scor When tripped completes circuit to 2 pulse cam for double score on section 2.
Bottom	N.O.	71-3 45 31	Orange-Red Green-White Yellow-Red	Completes circuit to #2 double lite.
#1 DOUBLE RELAY	Coil	90	Grey	
Тор	N.C.	23-1 93	Blue-Yellow Grey-Yellow RedBlack	Regulates probabilities thru mixer disc #3.
Middle	S.P.D.T.	18-2 74-3 93-4	RedBlack Orange-Green Grey-Yellow	Normally completes circuit to a pulse cam for single scor When tripped completes circuit to 2 pulse cam for double
Bottom	N. O.	71-3	Orange-Red Green-White	score on section 1.  Completes circuit to #1 double lite.
		27	Blue-Orange	
#22 RELAY	Coil	90 14-2	Grey Red-Green	
Тор	N.C.	93 56-1	Grey-Yellow White-Brown	Regulates probabilities thru mixer disc #2.
Bottom	N.O.	45 52-1	Green-White White-Blue	Completes circuit to #22 lites.
#19 RELAY	Coil	90	Grey	
Тор	N.C.	13-1 93	Red-Yellow Grey-Yellow Yellow-Brown	Regulates probabilities thru mixer disc #2.
Bottom	N.O.	36-1 45 91-1	Yellow-Brown Green-White Grey-Red	Completes circuit to #19 lites.
<b>#14 RELAY</b>	Coil	90	Grey	
Top	N.C.	10-1 93	Red	Regulates probabilities thru mixer disc #2.
Bottom	N.O.	31-1 45	Grey-Yellow Yellow-Red Green-White	Completes circuit to #14 lites.
20000111		75-1	Orange-White	
#17 RELAY	Coil	90 21-1	Grey Blue-Red	
Тор	N.C.	74-2 38-2	Orange-Green Yellow-Black	Regulates probabilities thru mixer disc #2.
Bottom	N.O.	45 85-1	Green-White Black-White	Completes circuit to #17 lites.
#16 RELAY	Coil	90 20-2	Grey Blue	
Тор	N.C.	74-2 30-2	Orange-Green Yellow	Regulates probabilities thru mixer disc #2.
Bottom	N.O.	45 81-1	Green-White Black-Red	Completes circuit to #16 lites.
<b>#15 RELAY</b>	Coil	90	Grey	·
Тор	N.C.	18-1 74-2	Red-Black Orange-Green	Regulates probabilities thru mixer disc #2.
	N.O.	27-2 45	Blue-Orange Green-White	Completes circuit_to #15 lites.

## Wire substitutes on Atlantic City

- 1. 90 Gray changed to Blue-Red
  - 2. 83 Black-Yellow changed to 50 White
  - 3. 80 Black changed to White-Red