

Operating Instructions and Parts Catalog

CONFIDENTIAL: DO NOT LEAVE INSTRUCTIONS IN GAME

Bally®

PALM SPRINGS

IMPORTANT!

Note that this manual is a combination Operating Instructions AND PARTS CATALOG. Part Numbers are marked on the various illustrations and a list of miscellaneous parts appears on the back cover.

**FOR QUICKEST SERVICE
STATE CORRECT PART NUMBER
WHEN ORDERING PARTS**



PALM SPRINGS amusement-game by Bally

5 balls plus extra balls

NEW "HOLD-AND-DRAW" FEATURE: Arrow-lights pointing to HOLD-panel flash for each coin* deposited and advance at mystery-intervals. When light advances to final arrow, panel lights to tell player to

HOLD ODD OR EVEN OR ALL NUMBERS
BY PRESSING ODD OR EVEN OR ALL BUTTON

BALLS RETURN FROM NUMBERS NOT HELD

SPOTTED NUMBERS ALWAYS HELD

Card on front-arch explains that

TO GET "PRE-VIEW" OF YOUR CHOICE OF ODD OR EVEN
PRESS BUTTON ONLY PART WAY IN--PRESS EASY

TO RELEASE BALLS
FROM NUMBERS NOT HELD
PRESS HOLDING BUTTON ALL THE WAY IN

Card further explains that

TO SCORE REPLAYS
WHEN HOLD-LIGHT IS LIT
PRESS ODD OR EVEN OR ALL BUTTON

SCORING LINE-UP MUST BE HELD
TO REGISTER REPLAYS

By pressing holding-buttons only part way in one at a time player can dim first odd then even numbers to decide which choice is better. Then, if he decides to hold odd numbers, he presses odd-button all the way in, putting out all lit even-numbers (excepting spotted number) and releasing for free shots all balls in even-number holes. All odd-numbers already scored remain lit. Or, if he prefers, he can hold even numbers and get back all balls from odd-number holes.

If players has a scoring line-up, such as 3-in-line, with mixed odd and even numbers, he may either press ALL button to register replays scored or he may sacrifice the line-up and hold either odd or even.

After fifth ball is shot flasher-panel blinks on and off to remind player to

HOLD ANY TIME UNTIL END OF GAME

He may, if he desires, play extra balls before holding odd, even or all numbers.

* When replays are registered, Buttons are pressed, instead of coins being deposited.

CORNER-SCORES: Corners-panel flashes for each coin* deposited and, at mystery intervals, lights and remains lit during entire game to tell player that

CENTER CARD
CORNERS
SCORE
200

SUPER-CARDS: Each of 2 SUPER-CARD-panels flash for each coin* deposited and, at mystery intervals, light and remain lit during entire game to tell player that

WHEN (SUPER-CARD) IS LIT
SUPER-CARD 3-IN-LINE
SCORES 4-IN-LINE

SELECT-A-SPOT: Arrow-lights pointing to panel flash for each coin* deposited and advance at mystery-intervals. When light advances to final arrow, panel lights to tell player to

SELECT A LIT NUMBER
BEFORE SHOOTING 4TH BALL**
TURN KNOB ON CABINET

GUARANTEED SELECTIONS: First 4 Selection-Numbers---1, 2, 5, 8---always light when panel lights; at mystery-intervals additional Selection-Numbers---16, 14 and 9---light when guaranteed first 4 numbers light.

EXTRA SELECTIONS: After lighting first group of Selection-Numbers, player may deposit additional coins* to light additional Selection-numbers and other scoring-advantages.

Each Selection-Number lighted remains lit during entire game.

ADVANCING SCORES***: Scores*** appear in scene on backglass, advancing at mystery intervals, when coins* are deposited.

* When replays are registered, Buttons are pressed, instead of coins being deposited.

** After third ball is shot, panel lights to caution player to SELECT NOW

*** Card Scores

5-in-line : 96-96-100-100-150-150-192-300

4-in-line : 16-20- 24- 32- 48- 72-100-200

4-in-line : 4- 6- 8- 12- 18- 36- 48- 64

*** Super-Card Scores

3-in-line on a Super-Card scores 4-in-line scores, when corresponding SUPER-CARD panel is lit.

GUARANTEED SCORES***: Scores*** either advance to a higher bracket or remain as high as on previous coin*, never drop back to a lower bracket, regardless of number of coins* deposited.

EXTRA-BALLS FEATURE: After shooting 4 balls, player may press Extra-Balls Button and deposit additional coins* to play for extra balls.

At mystery-intervals, after Extra-Balls Button is pressed, (1st) lights on backglass, when coin* is deposited. After (1st) is lit, light advances, at mystery-intervals, to (EXTRA), when Extra-Balls Button is pressed and coin* is deposited. After (1st) (EXTRA) is lit, light advances, at mystery-intervals, to (BALL), when Extra-Balls Button is pressed and coin* is deposited.

When (1st) (EXTRA) (BALL) is completely lit, first extra ball is released to player.

After shooting first extra ball, player may continue to press Extra-Balls Button and deposit additional coins* to light (2nd) (EXTRA) (BALL) in order to receive second extra ball and to light (3rd) (EXTRA) (BALL) in order to receive third extra ball.

Coins* deposited to play for extra balls do not light other scoring-advantages.

After playing for extra balls, player may not play to light other scoring-advantages.

* When replays are registered, Buttons are pressed, instead of coins being deposited.

*** Card Scores

5-in-line : 96-96-100-100-150-150-192-300

4-in-line : 16-20- 24- 32- 48- 72-100-200

4-in-line : 4- 6- 8- 12- 18- 36- 48- 64

*** Super-Card Scores

3-in-line on a Super-Card scores 4-in-line scores, when corresponding SUPER-CARD panel is lit.

PALM SPRINGS

INSTALLATION AND OPERATING INSTRUCTIONS

Fasten 4 legs to cabinet with bolts and washers furnished. Place back-box in position. Unlock and open back-door and fasten the back-box to cabinet with bolts and washers furnished. (2 back-door locks are common.)

Plug power line into 110-115 volt 60 cycle Alternating Current only. Turn on power by turning toggle-switch on. Toggle-switch is located on lower left side of back-box.

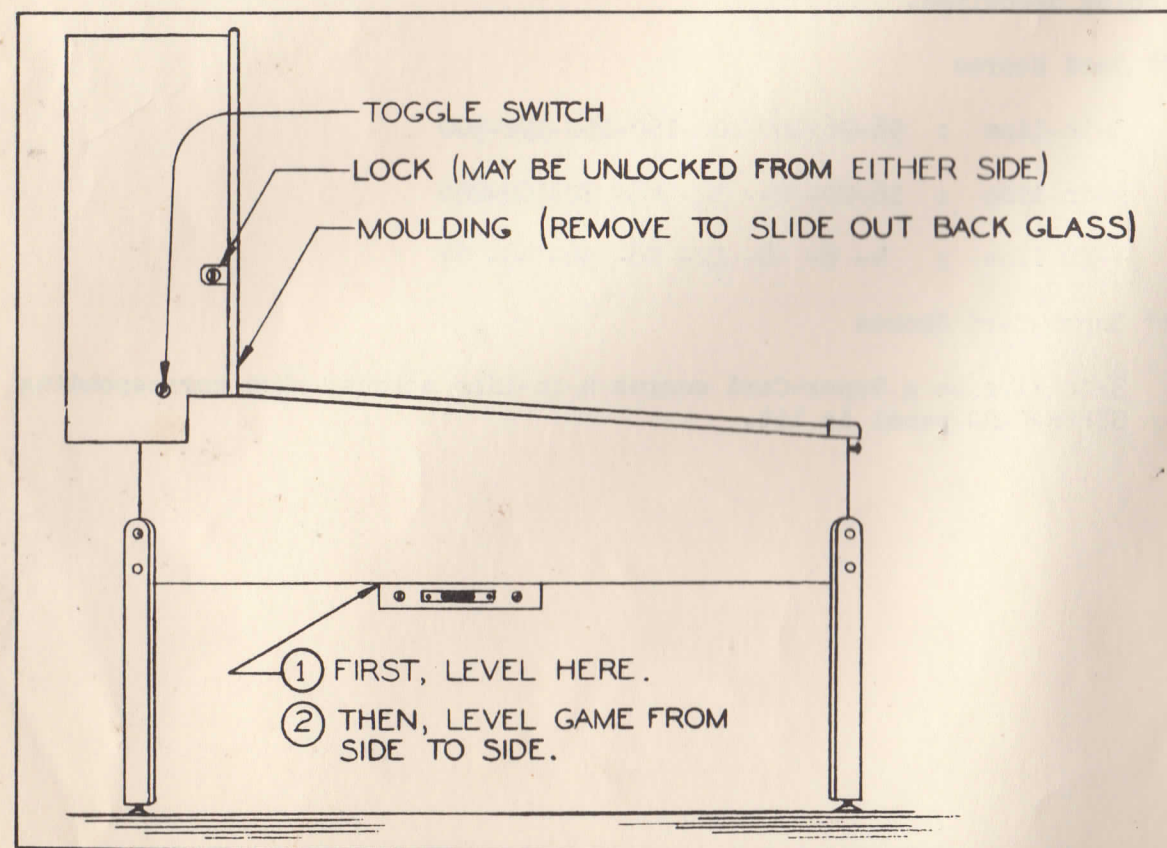
ACCESS TO MECHANISM AND LIGHT BULBS

Back-glass may be removed from either side by unlocking side desired and removing upright moulding. (Remove moulding by pulling bottom portion.)

After removing back-glass, access to mechanism may be obtained by raising 2 slide brackets on insert, located on left and right edges of insert. Insert may then be tilted forward for easy accessibility.

BE SURE TO LEVEL GAME

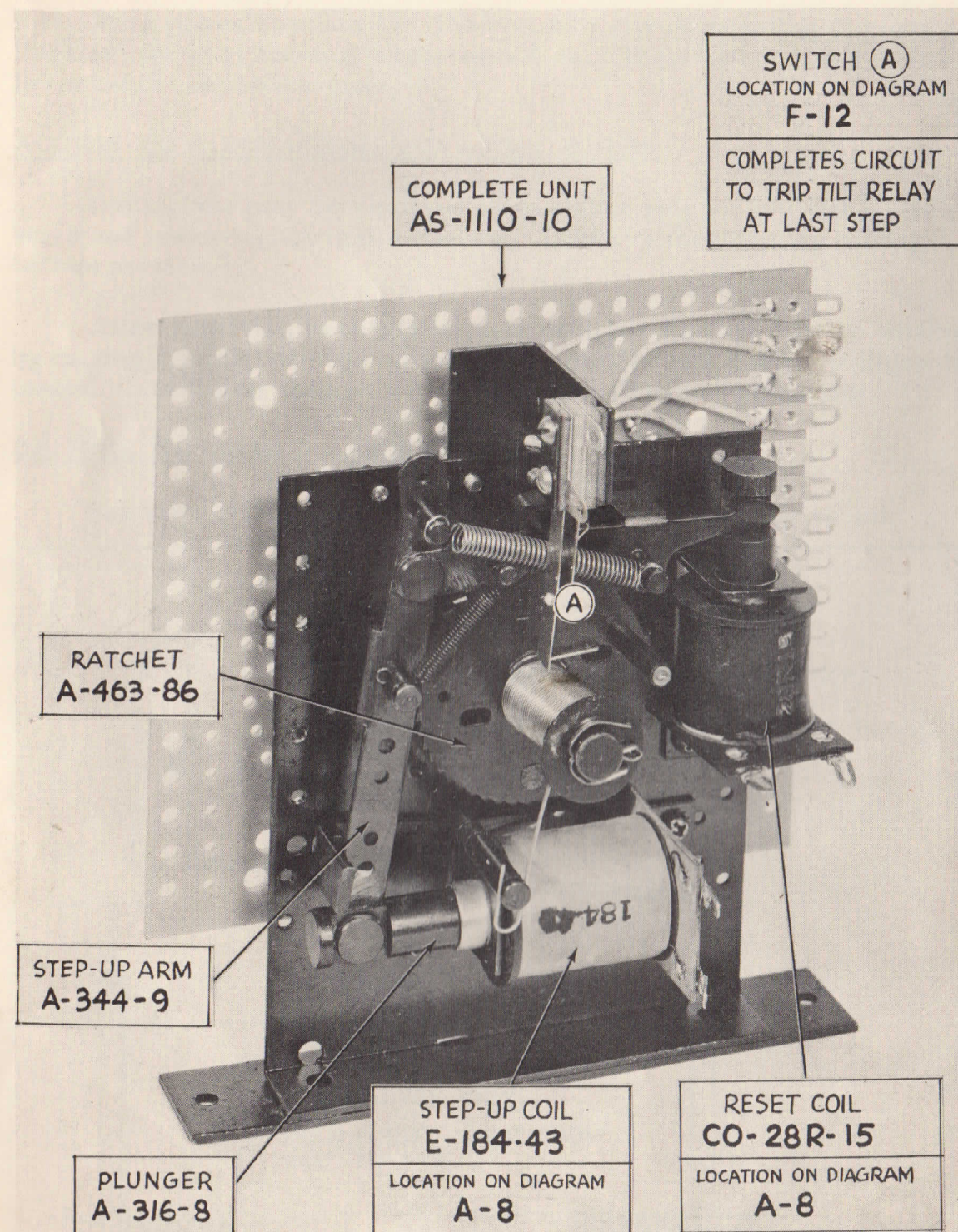
See instructions for leveling below. Place 8 balls in game.



NOTES

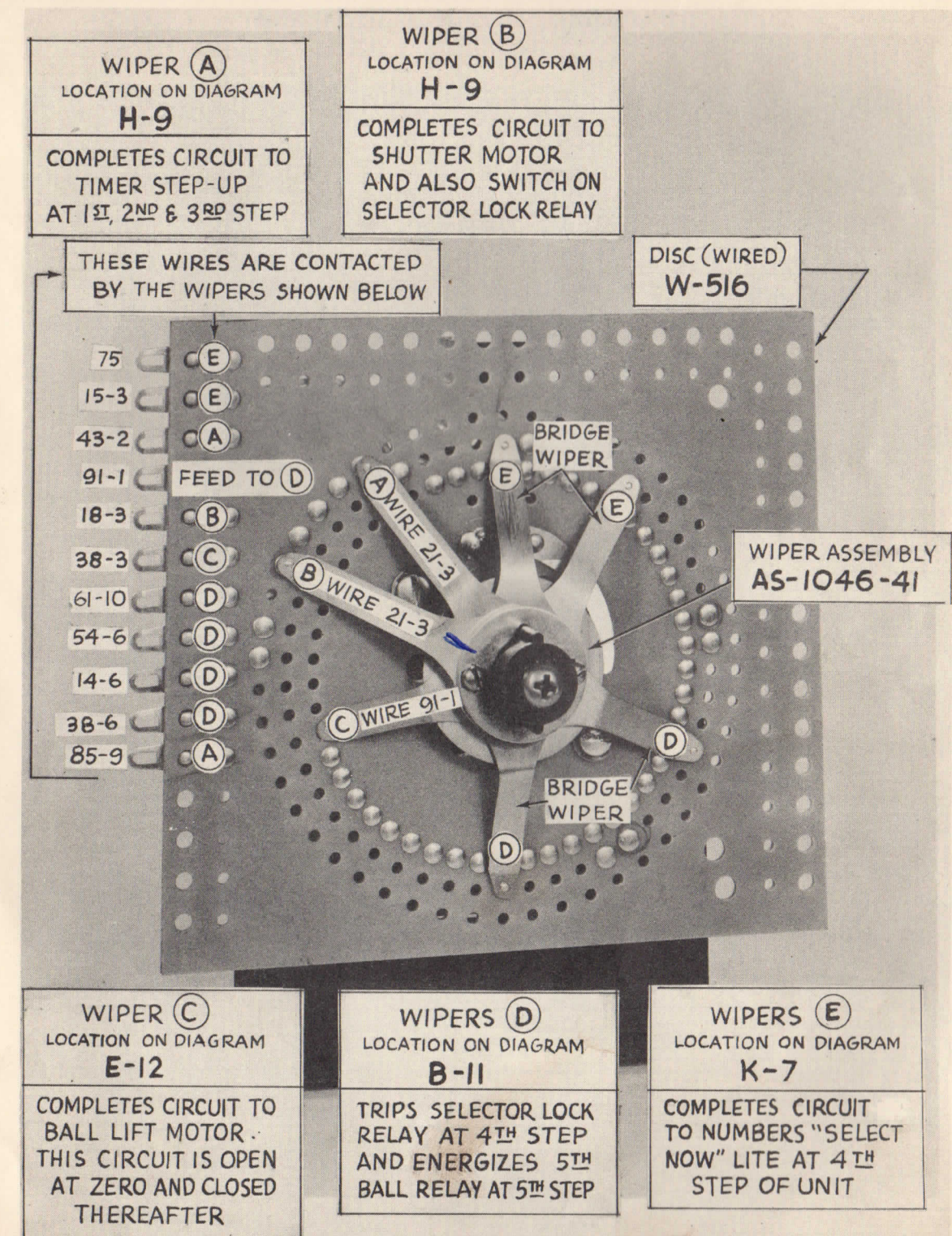
PALM SPRINGS

TIMER UNIT — COIL SIDE



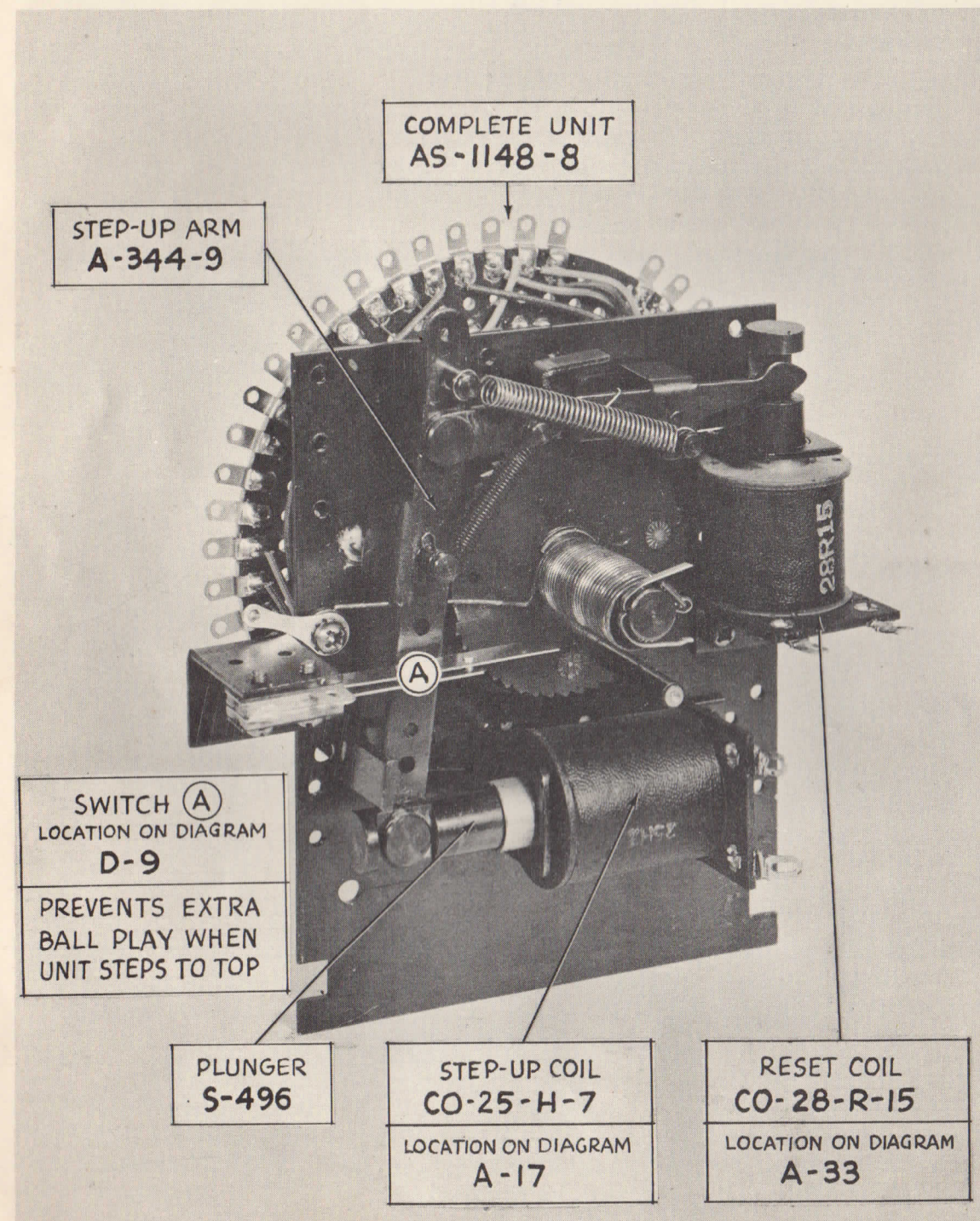
PALM SPRINGS

TIMER UNIT



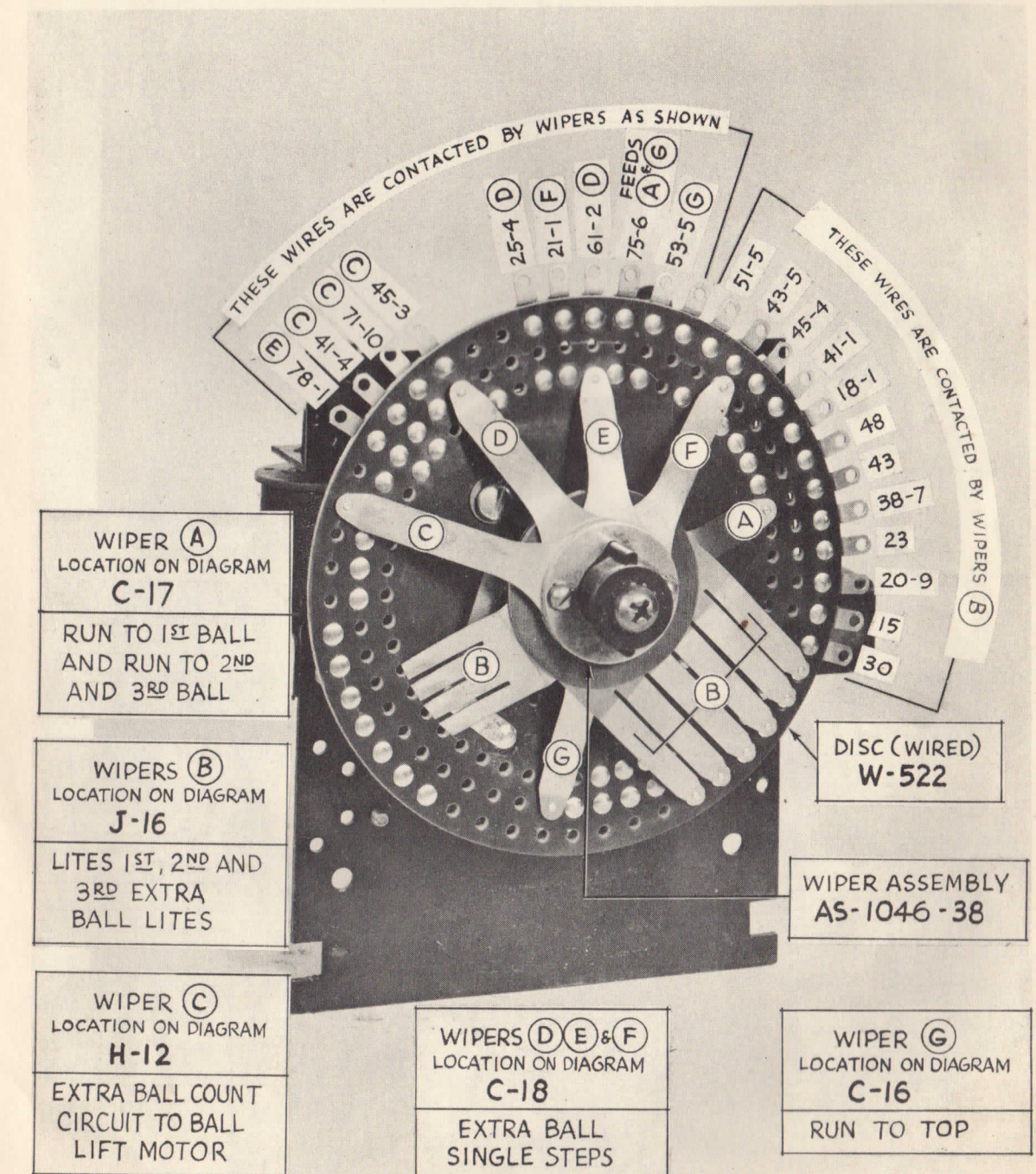
PALM SPRINGS

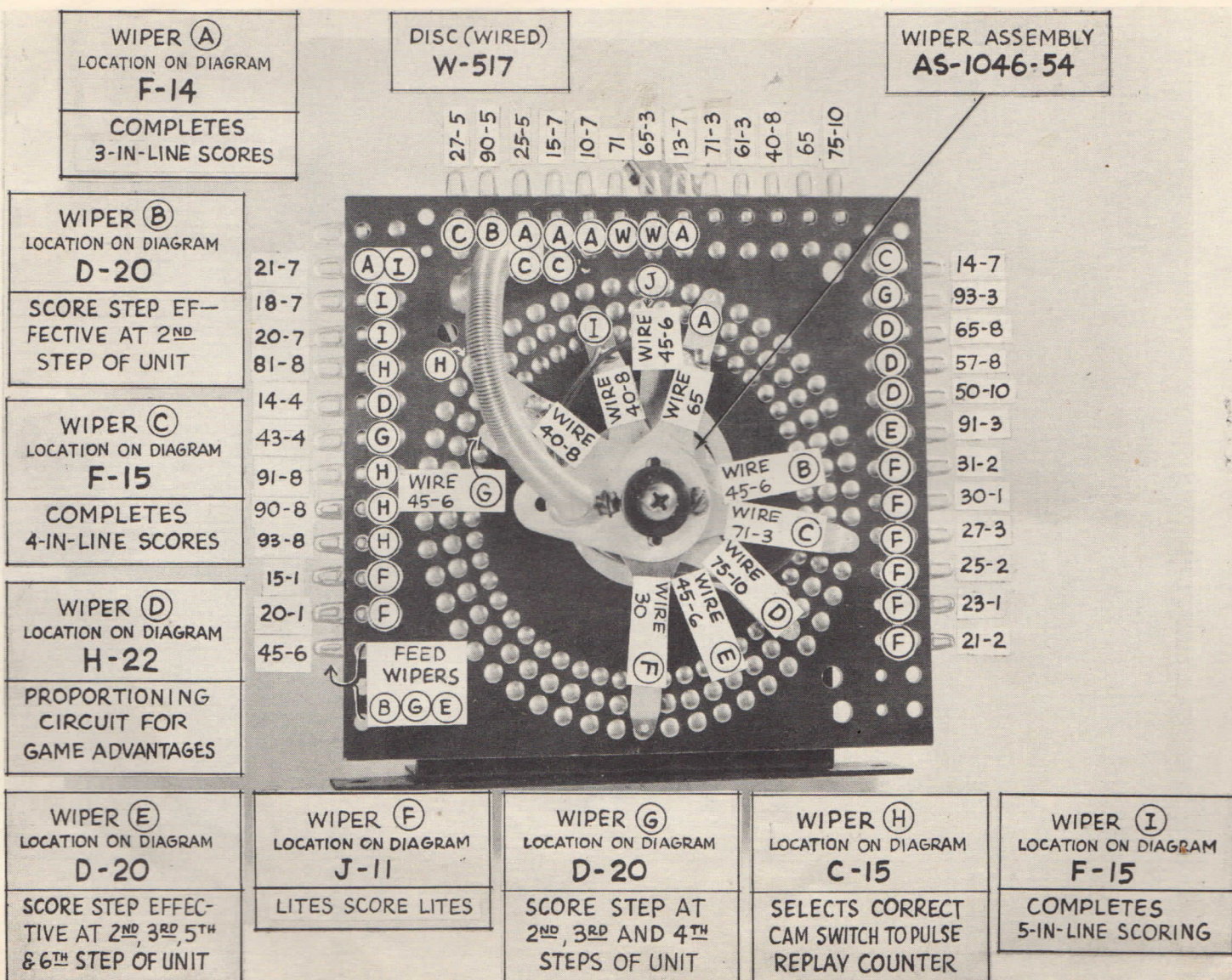
EXTRA BALL UNIT — COIL SIDE



PALM SPRINGS

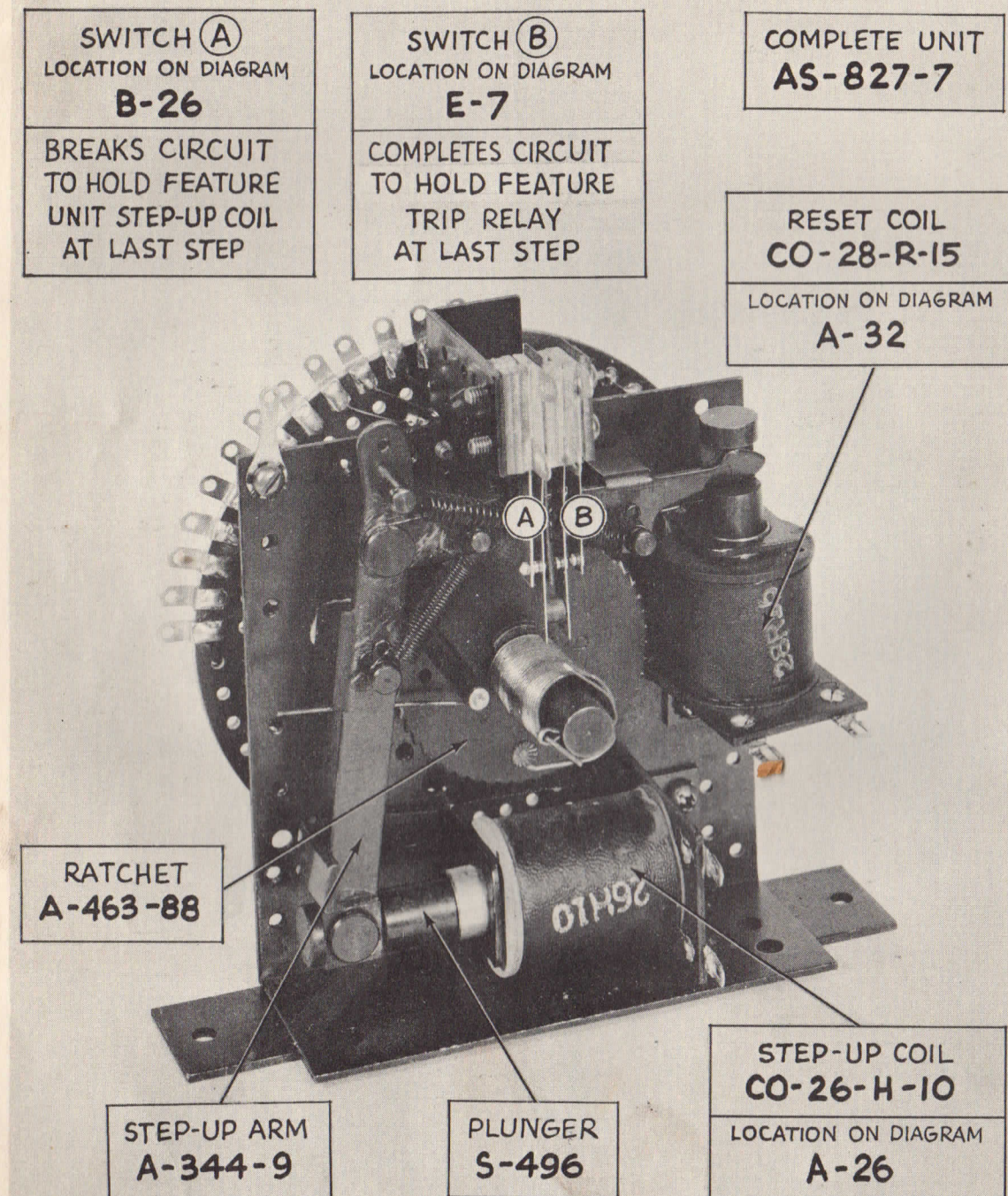
EXTRA BALL UNIT — WIPER SIDE





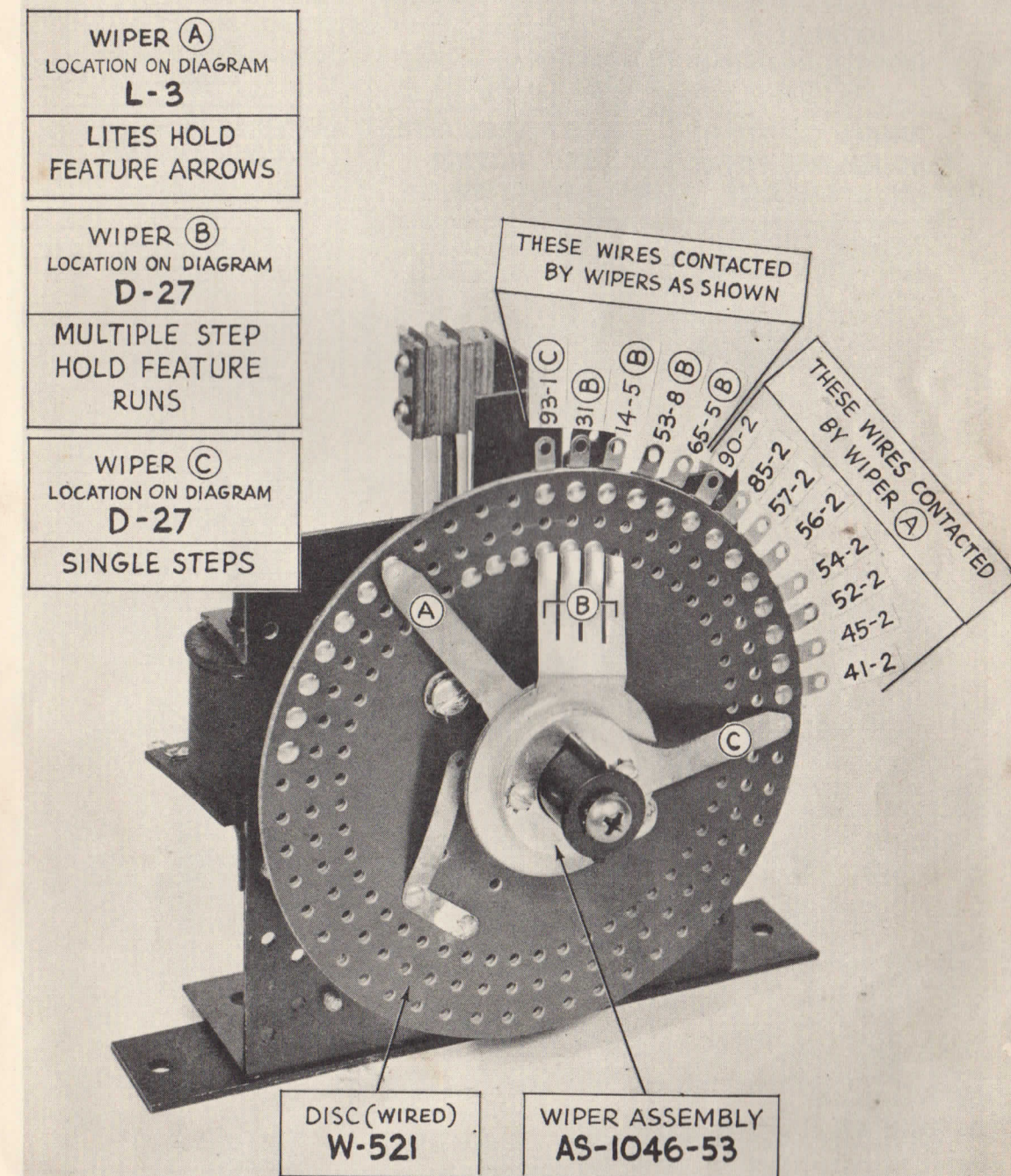
PALM SPRINGS

HOLD FEATURE UNIT — COIL SIDE



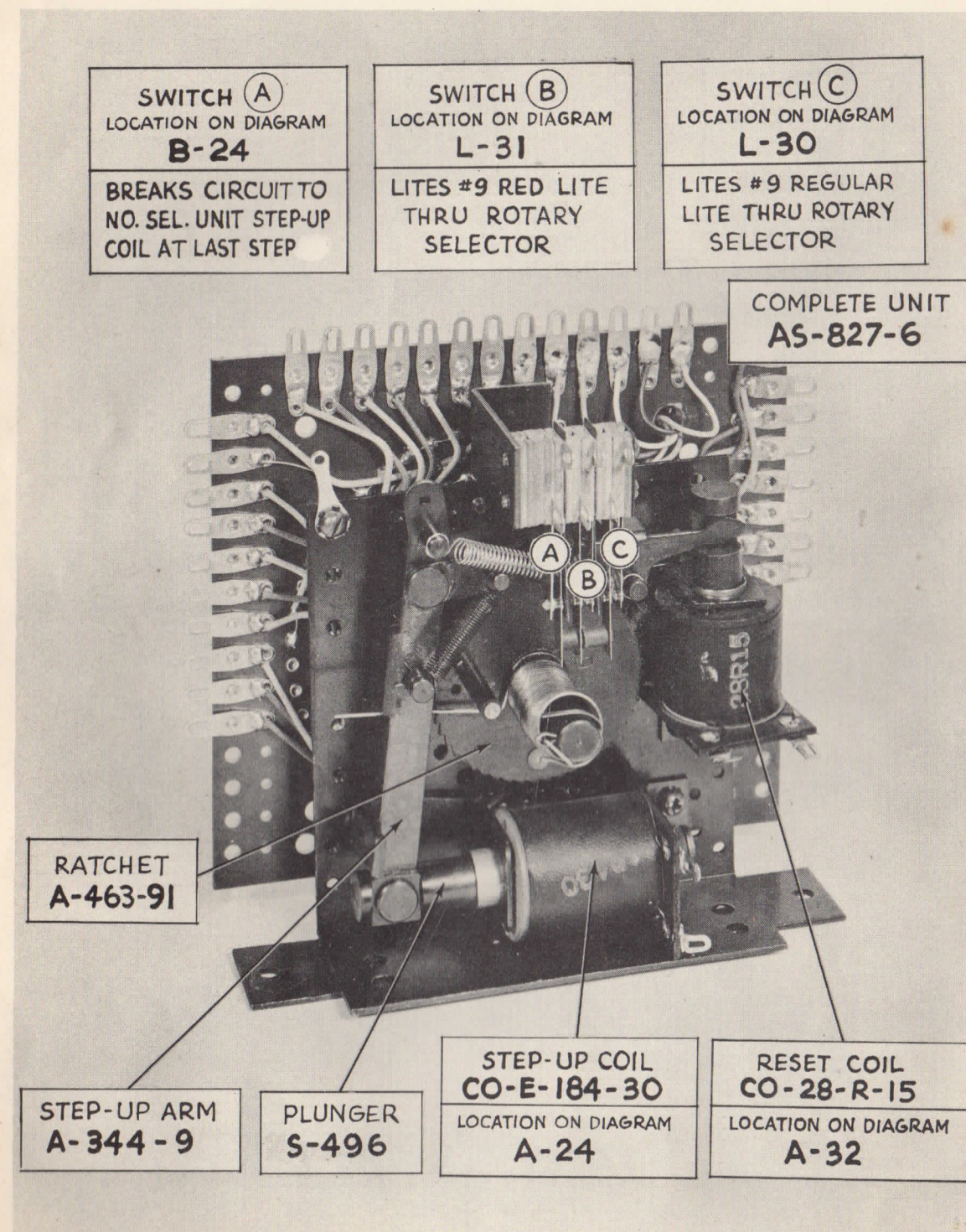
PALM SPRINGS

HOLD FEATURE UNIT — WIPER SIDE



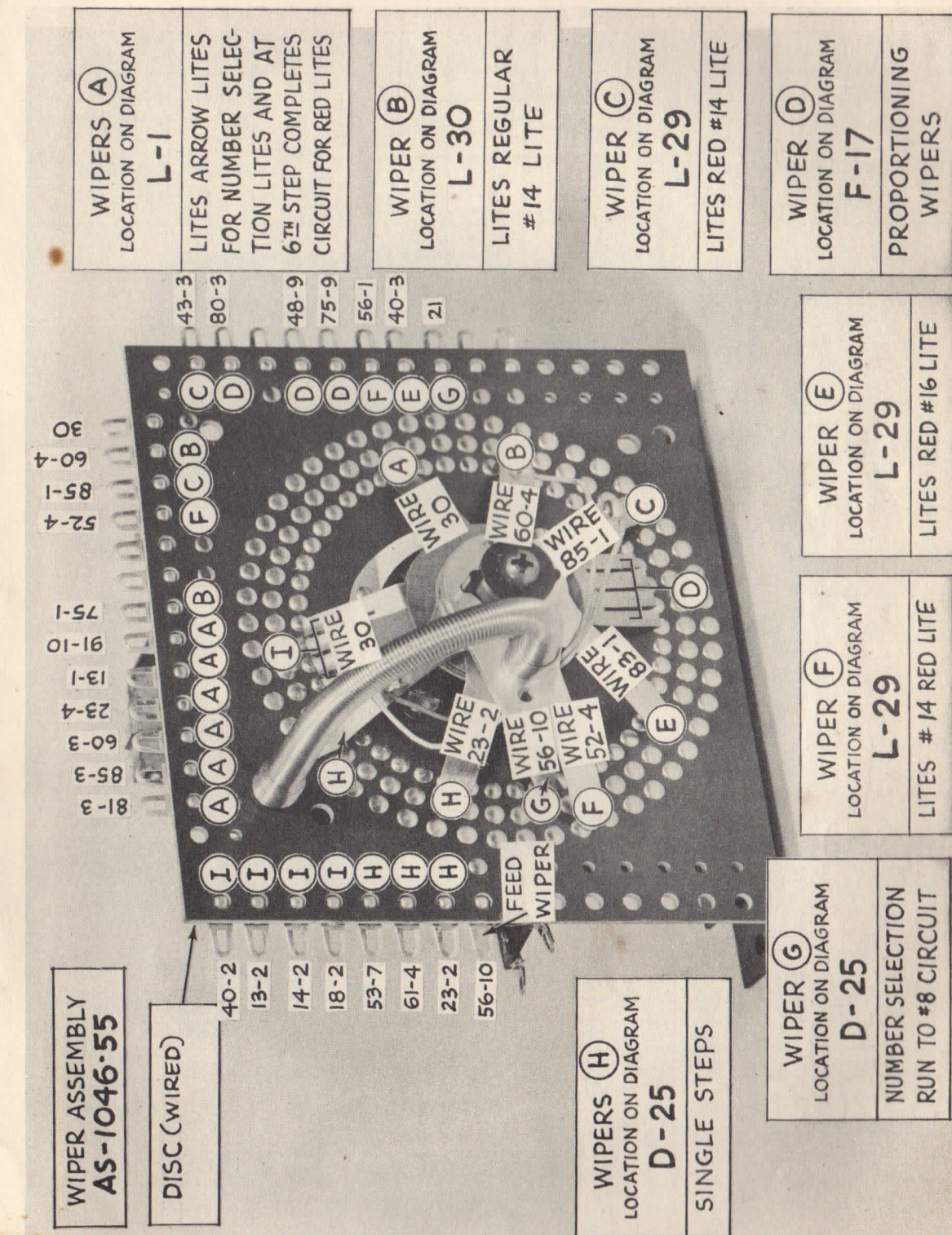
PALM SPRINGS

NUMBER SELECTION UNIT — COIL SIDE



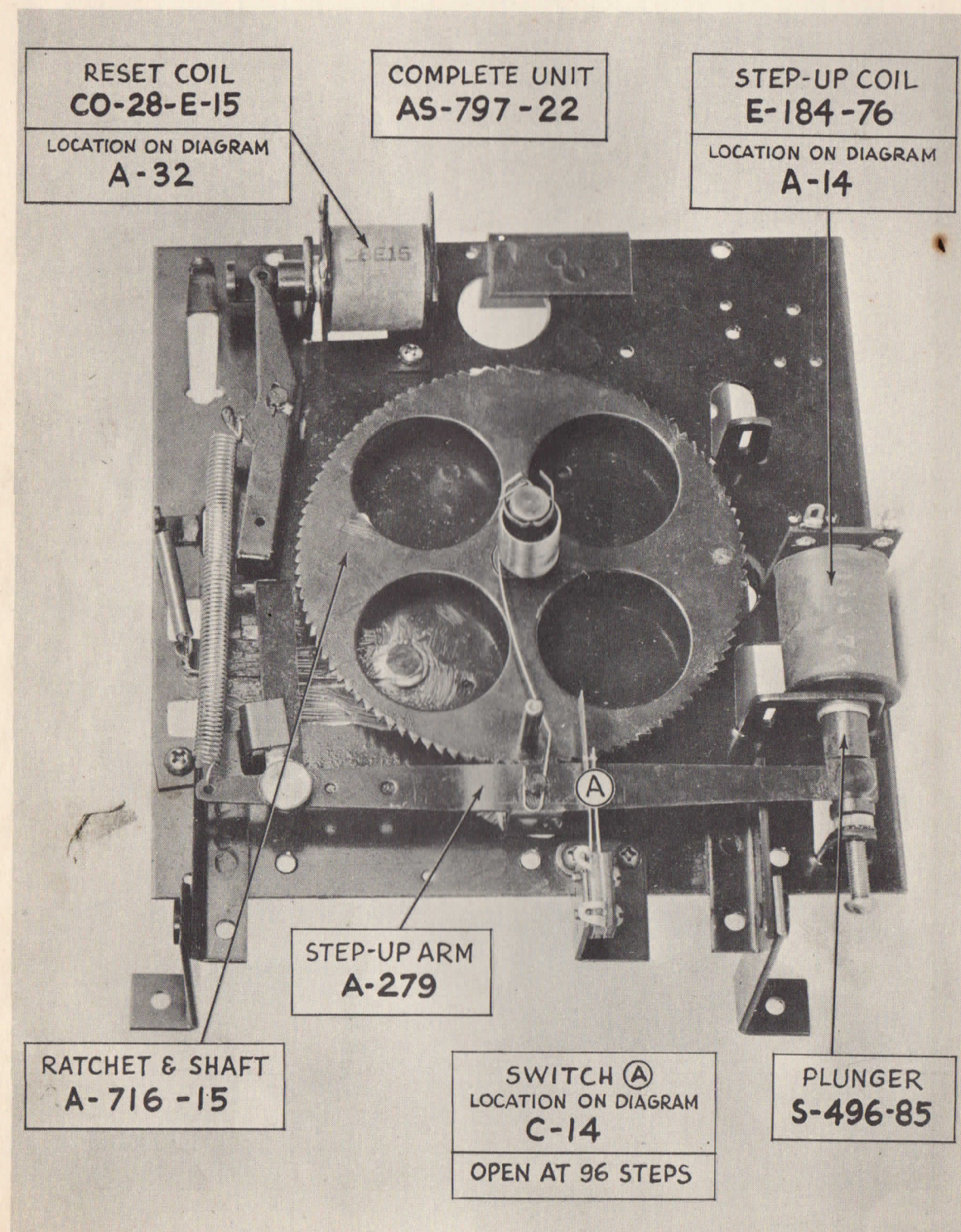
PALM SPRINGS

NUMBER SELECTION UNIT — WIPER SIDE



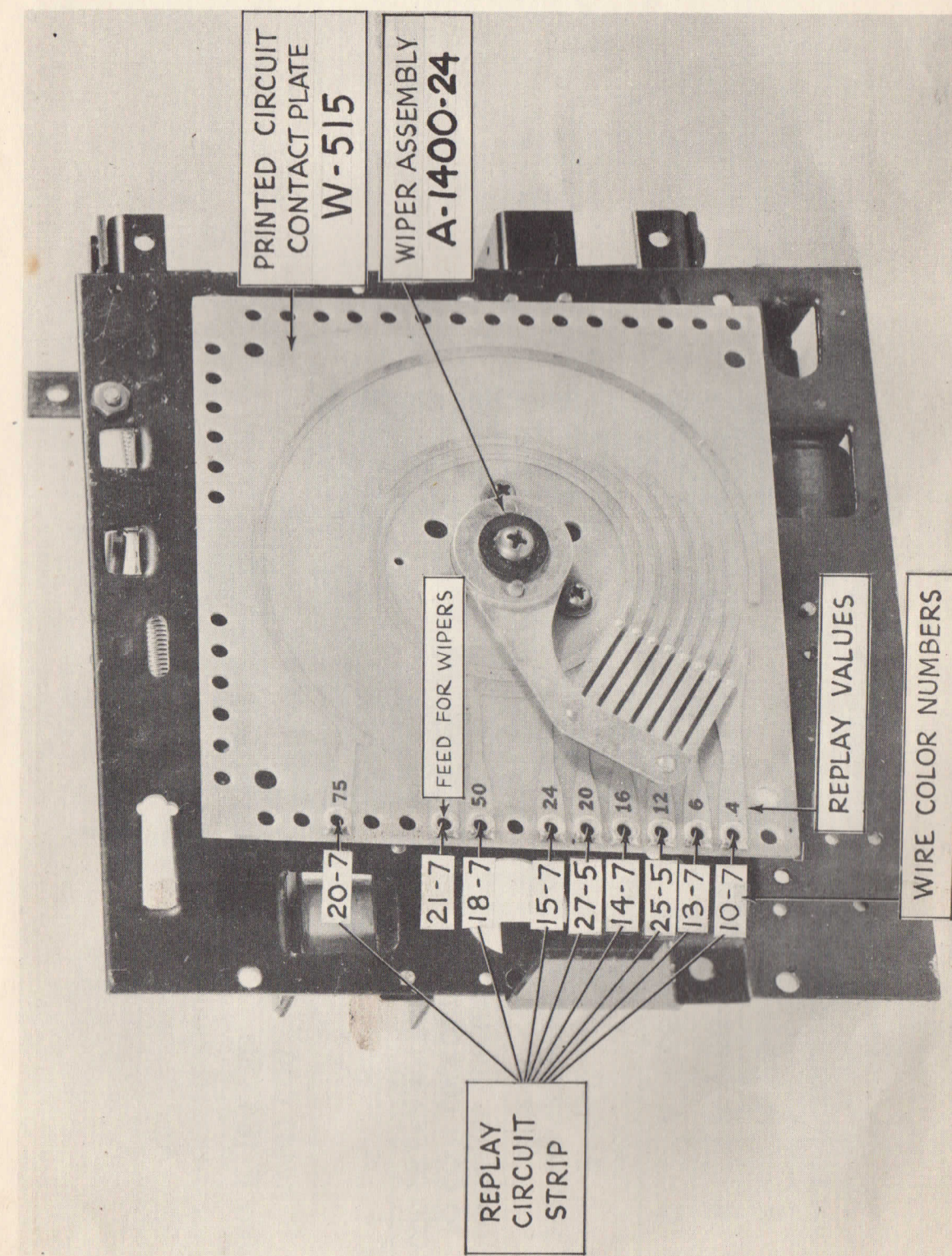
PALM SPRINGS

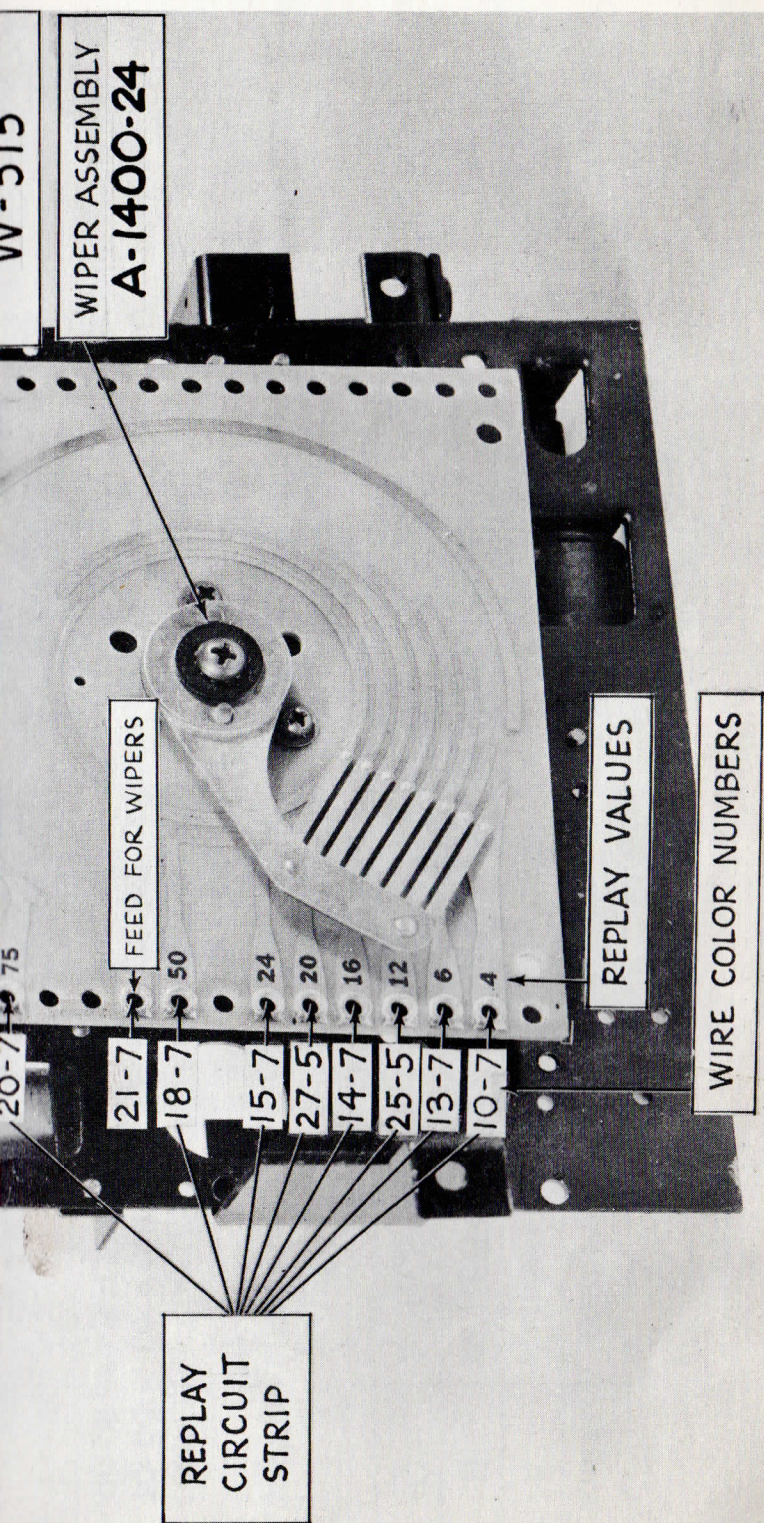
REPLAY COUNTER — COIL SIDE



PALM SPRINGS

REPLAY COUNTER — WIPER SIDE





CAM SWITCHES THAT PULSE REPLAY COUNTER STEP-UP COIL								
	sw. 13A	sw. 13A	sw. 12A	sw. 12A	sw. 11A	sw. 11A	sw. 12A	sw. 10A
5 IN LINE	96 X	96 X	100 50	100 50	150 50	150 50	192 X	300 75
4 IN LINE	16 16	20 20	24 12	32 16	48 16	72 24	100 50	200 50
3 IN LINE	4 4	6 6	8 4	12 6	18 6	36 12	48 24	64 16

LARGE NUMBERS ARE REPLAY SCORES SHOWN ON BACK GLASS. NUMBERS IN SHADED CIRCLES INDICATE WHICH PORTION OF REPLAY CIRCUIT STRIP (MAIN CARD OR EITHER SUPER CARD), IS EFFECTIVE FOR A PARTICULAR REPLAY SCORE.

EXAMPLE: ON A 3-IN-LINE SCORE OF **36** REPLAYS
THE CIRCUIT IS EFFECTIVE THRU THE **12** REPLAY CIRCUIT STRIP

NOTE: 96 & 192 REPLAY SCORE IS EFFECTIVE THRU THE OPEN AT 96 SWITCH.

PALM SPRINGS **REPLAY REGISTER UNIT**

226

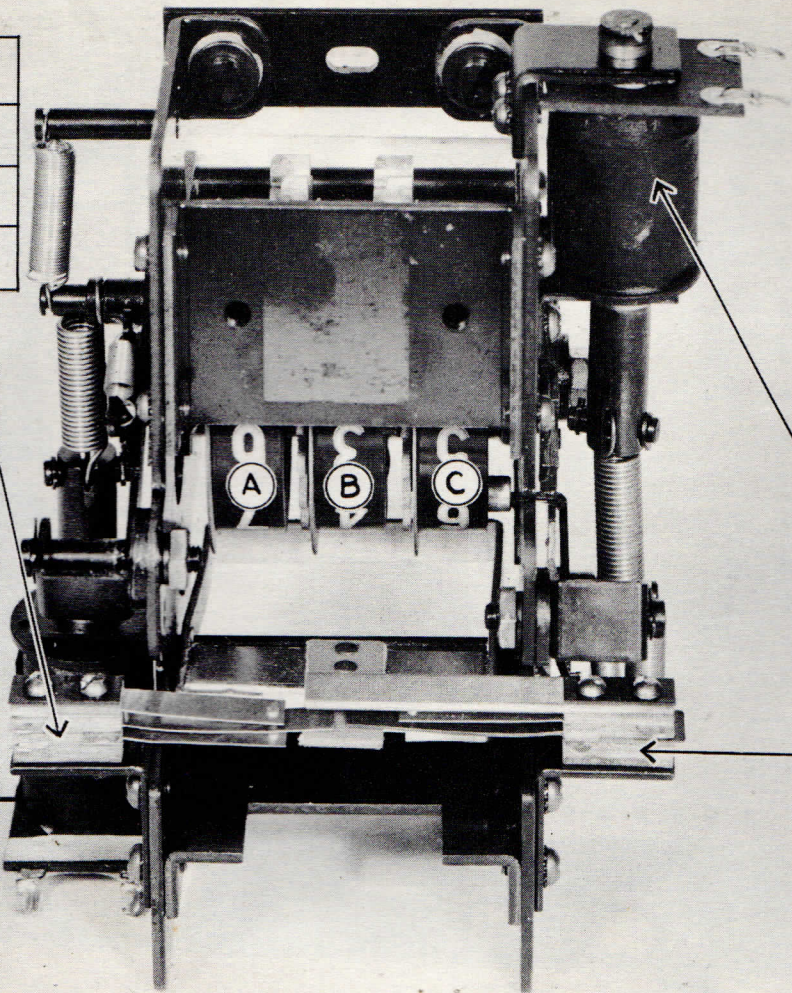
WHEEL	PART NO.
A	A-1168-10
B	A-1168-11
C	A-1168-12

LOCATION ON DIAGRAM
H-4

COMPLETES CIRCUIT
TO COIN LOCKOUT
COIL OR RED BUTTON

RESET COIL
NO. E-184-56

LOCATION ON DIAGRAM
A-7



COMPLETE UNIT
NO. AS-473-13

STEP-UP COIL
NO. CO-26A-9

LOCATION ON DIAGRAM
A-13

LOCATION ON DIAGRAM
B-7

OPENS CIRCUIT TO
RESET COIL OF THIS
UNIT AT ZERO

PALM SPRINGS **CORNERS REPLAY COUNTER**

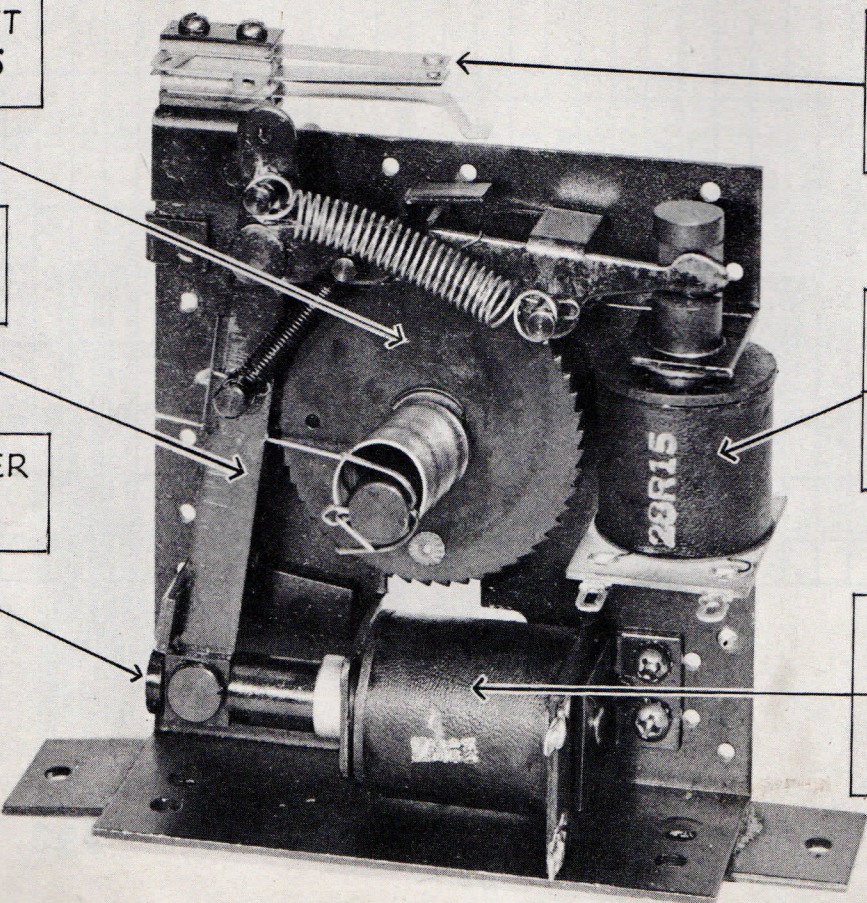
227

COMPLETE UNIT
AS-1215-1

RATCHET & SHAFT
NO. A-463-85

STEP-UP ARM
NO. A-344-9

STEP-UP PLUNGER
S-496



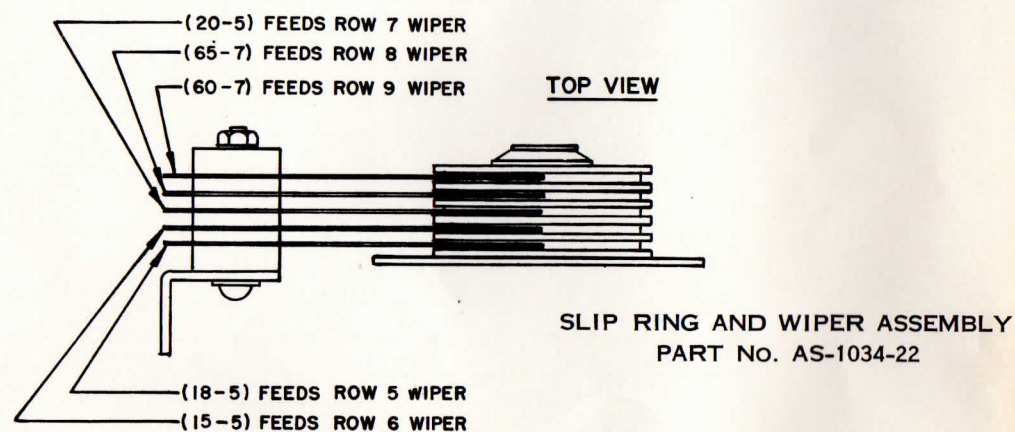
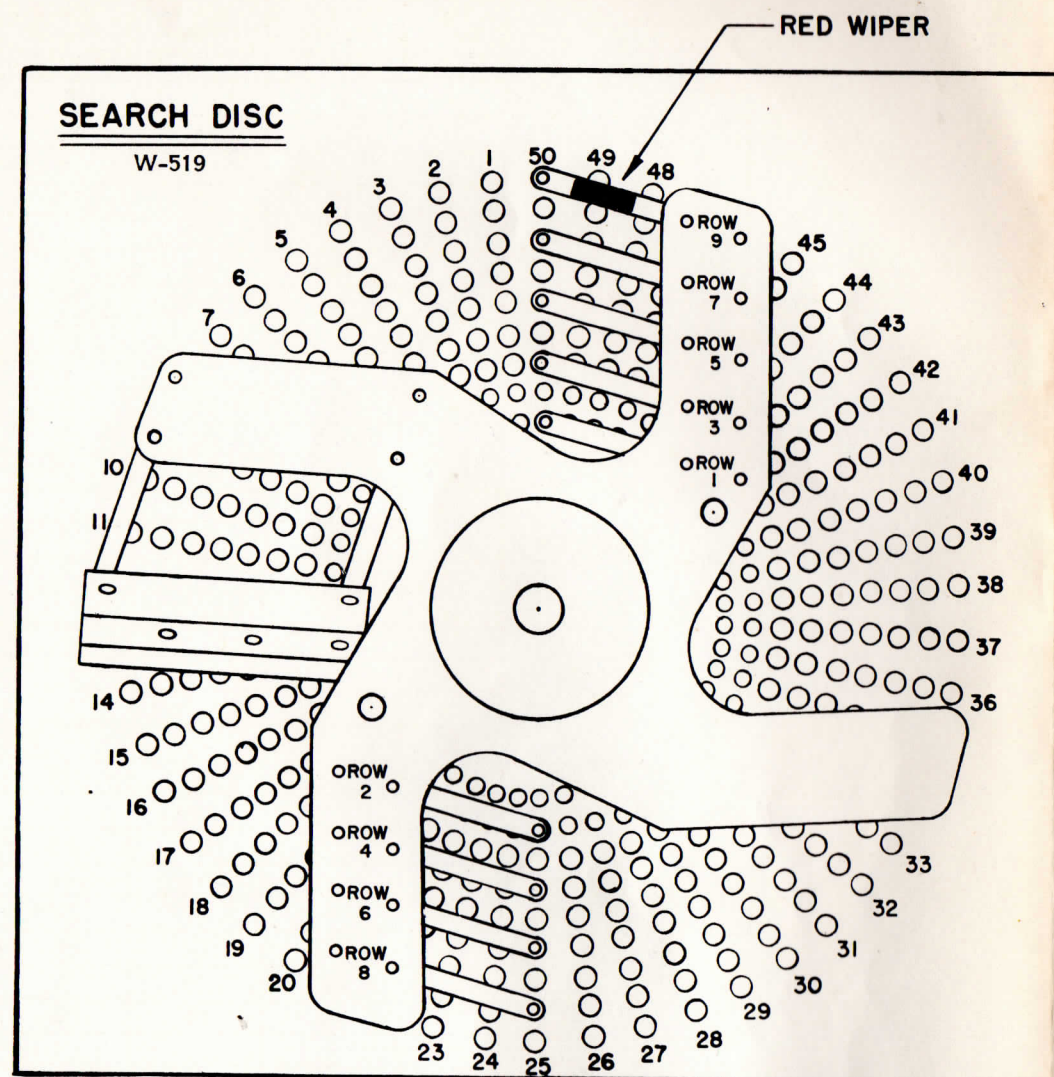
OPEN AT 50 SWITCH
LOCATION ON DIAGRAM
F-15

RESET COIL
NO. 28R-15

LOCATION ON DIAGRAM
A-33

STEP-UP COIL
NO. 25H-7

LOCATION ON DIAGRAM
A-15



SEARCH POSITIONS					
RED WIPER POSITION	ROW 7 SEARCH RELAY #1	ROW 8 SEARCH RELAY #2	ROW 9 SEARCH RELAY #3	ROW 6 SEARCH RELAY #4	ROW 5 SEARCH RELAY #5
1	18	4	8	16	6
2	10	24	12	20	19
3	2	14	15	9	1
4	13	22	25	21	17
5	11	7	5	23	3
6	18	10	2	13	11
7	4	24	14	22	7
8	8	12	15	25	5
9	16	20	9	21	23
10	6	19	1	17	3
11	6	20	15	22	11
12	18	24	15	21	3
13					
14	18	6	3	11	
15					
16					
17					
18					
19					
20					
21	20	4	22		
22	10	14	6		
23	12	24	18		
24	20	10	12		
25	4	14	24		
26	22	6	18		
27	22	14	12		
28	20	14	18		
29					
30					
31					
32					
33					
34					
35					
36	15	7	23		
37	3	9	13		
38	17	11	19		
39	15	3	17		
40	7	9	11		
41	23	13	19		
42	23	9	17		
43	15	9	19		
44					
45					
46					
47					
48					
49					
50					

CENTER CARD

HORIZONTAL

VERTICAL

DIAGONAL

CORNERS

LEFT SUPER CARD

HORIZONTAL

VERTICAL

DIAGONAL

RIGHT SUPER CARD

HORIZONTAL

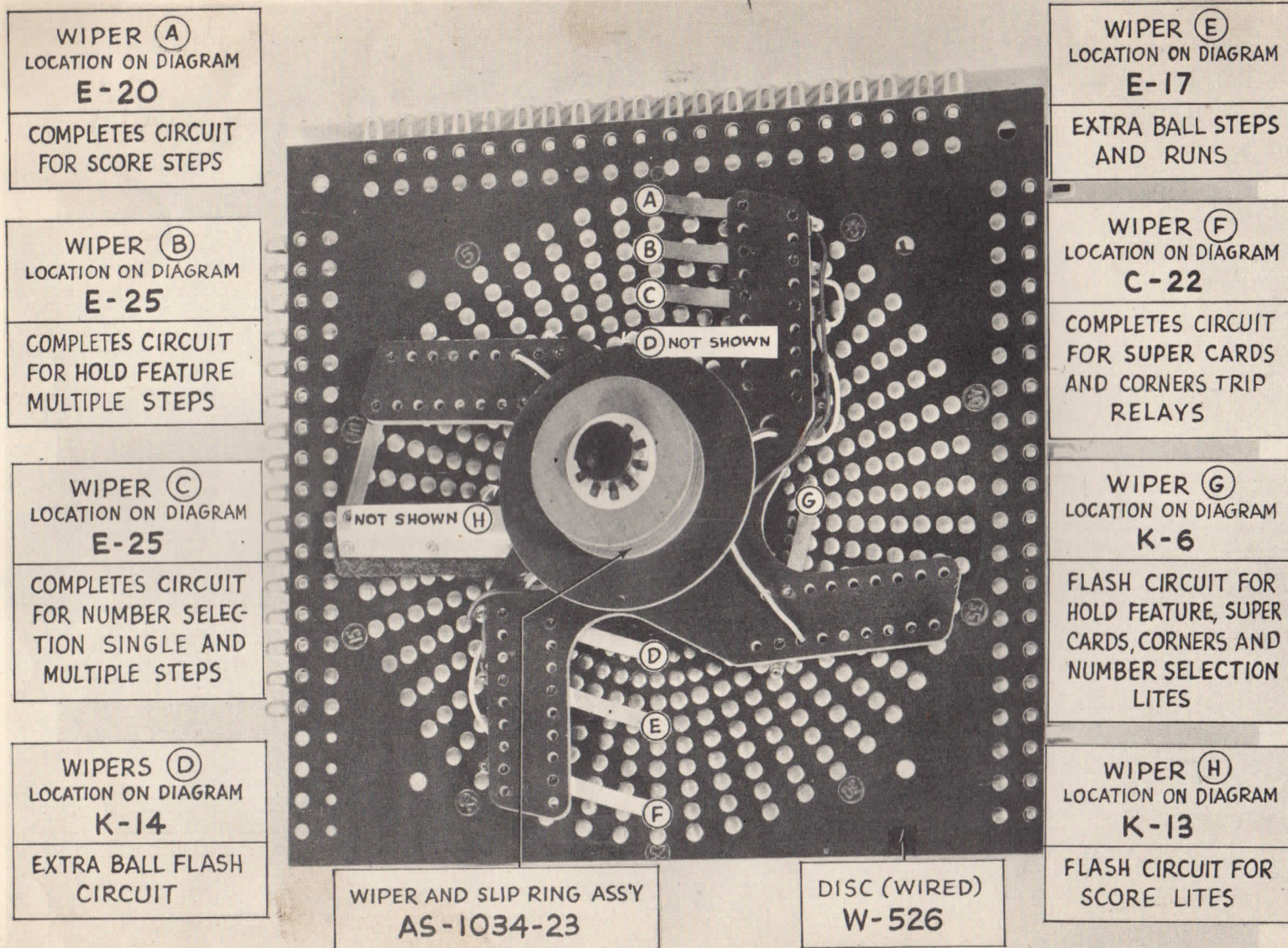
VERTICAL

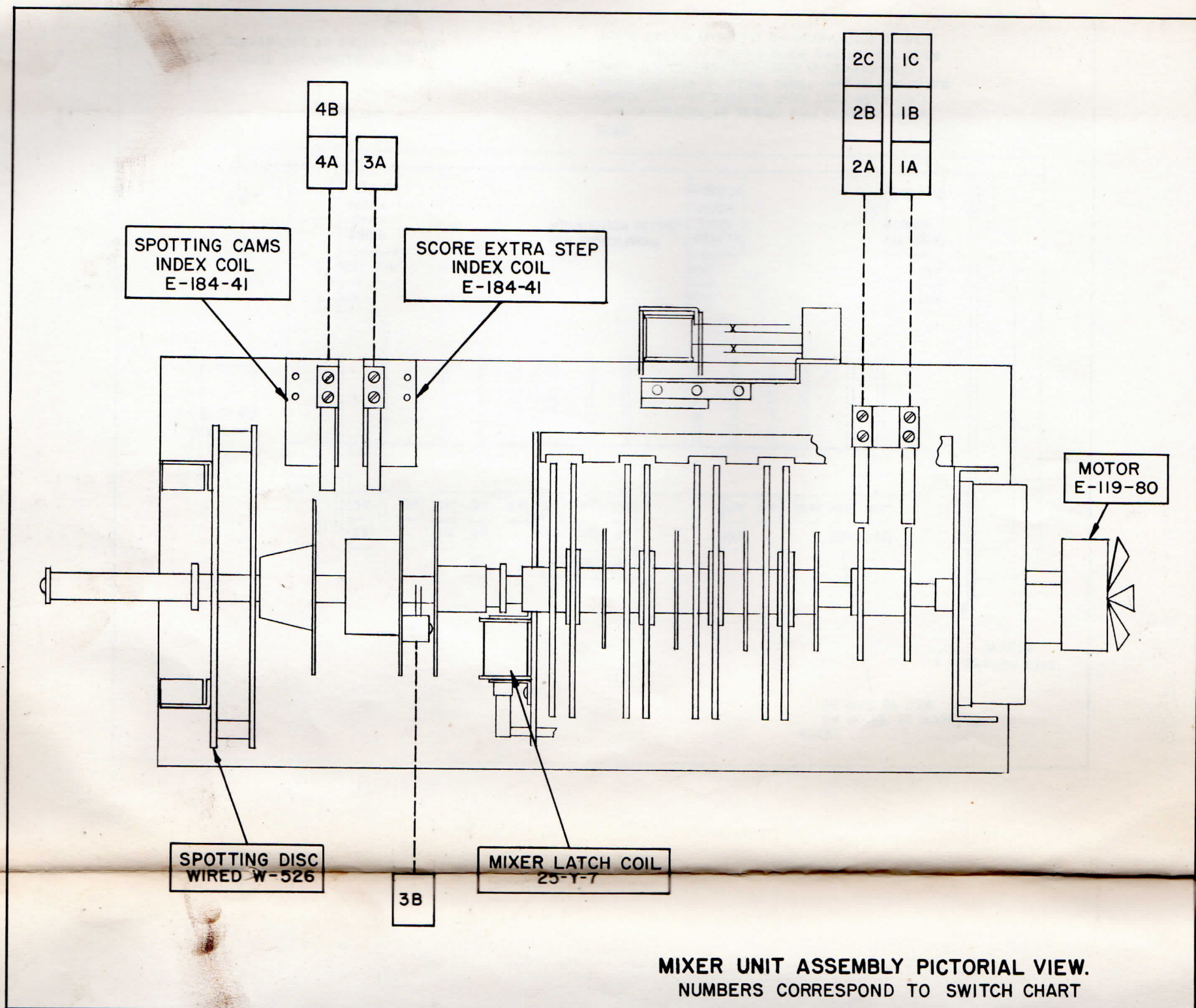
DIAGONAL

NOTES

PALM SPRINGS

MIXER UNIT SPOTTING DISC AND WIPERS





PALM SPRINGS

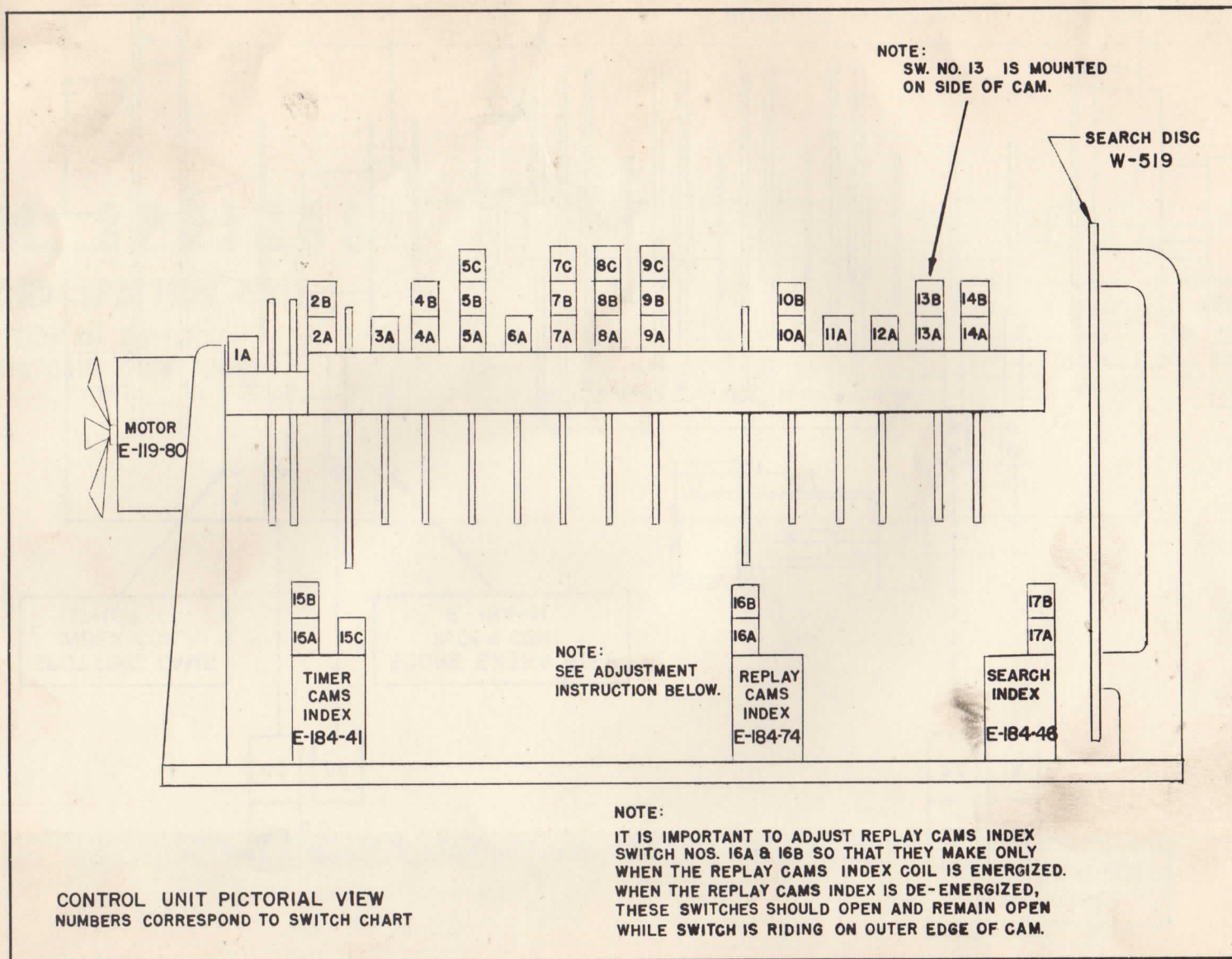
MIXER AND SPOTTING UNIT

FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE

CODE

N.C. NORMALLY CLOSED
N.O. NORMALLY OPEN
M.B.B. MAKE BEFORE BREAK
S.P.D.T...SINGLE POLE DOUBLE THROW

CAM SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
MIXER & SPOTTING 16 PULSE CAM SWITCHES				
1A N.O.	C-27	36 65-5	Yellow-Brown Brown-White	Steps hold feature unit.
1B N.O.	K-7	15-3 60-5	Red-White Brown	Flashes "select now" lite for number selection.
1C N.O.	A-17	78 63-10	Orange-Black Brown-Yellow	Steps extra ball unit.
2A N.O.	C-25	56-10 50-8	White-Brown White	Steps number selection unit.
2B N.O.	D-6	53-2 75-2	White-Yellow Orange-White	Pulse switch for operating replay register reset and replay meter, when replay reset relay is energized.
2C N.O.	K-4	63-3 74-3	Brown-Yellow Orange-Green	Flashes "hold" indicator lite.
SCORE EXTRA STEP INDEX COIL				
3A N.O.	A-34	98-1 70	Gray-Black Orange	Energized during timing cam cycle by control unit cam switch #4B.
3B N.O.	H-27	75-10 81-1	Orange-White Black-Red	Completes lock-in circuit for score extra step relay.
3B N.O.	B-19	25-3 40-5	Blue-White Green	Pulse switch for score multiple steps.
SPOTTING CAMS INDEX COIL				
4A N.O.	A-34	98-1 70	Gray-Black Orange	Energized during timing cycle by control unit cam switch #4B.
4A N.O.	J-6	36-5 83-4	Yellow-Brown Black-Yellow	Completes flash circuit to number selection, corners and super card lites.
4B N.O.	J-13	30-5 13-4	Yellow Red-Yellow	Completes flash circuit for score lites.



PALM SPRINGS

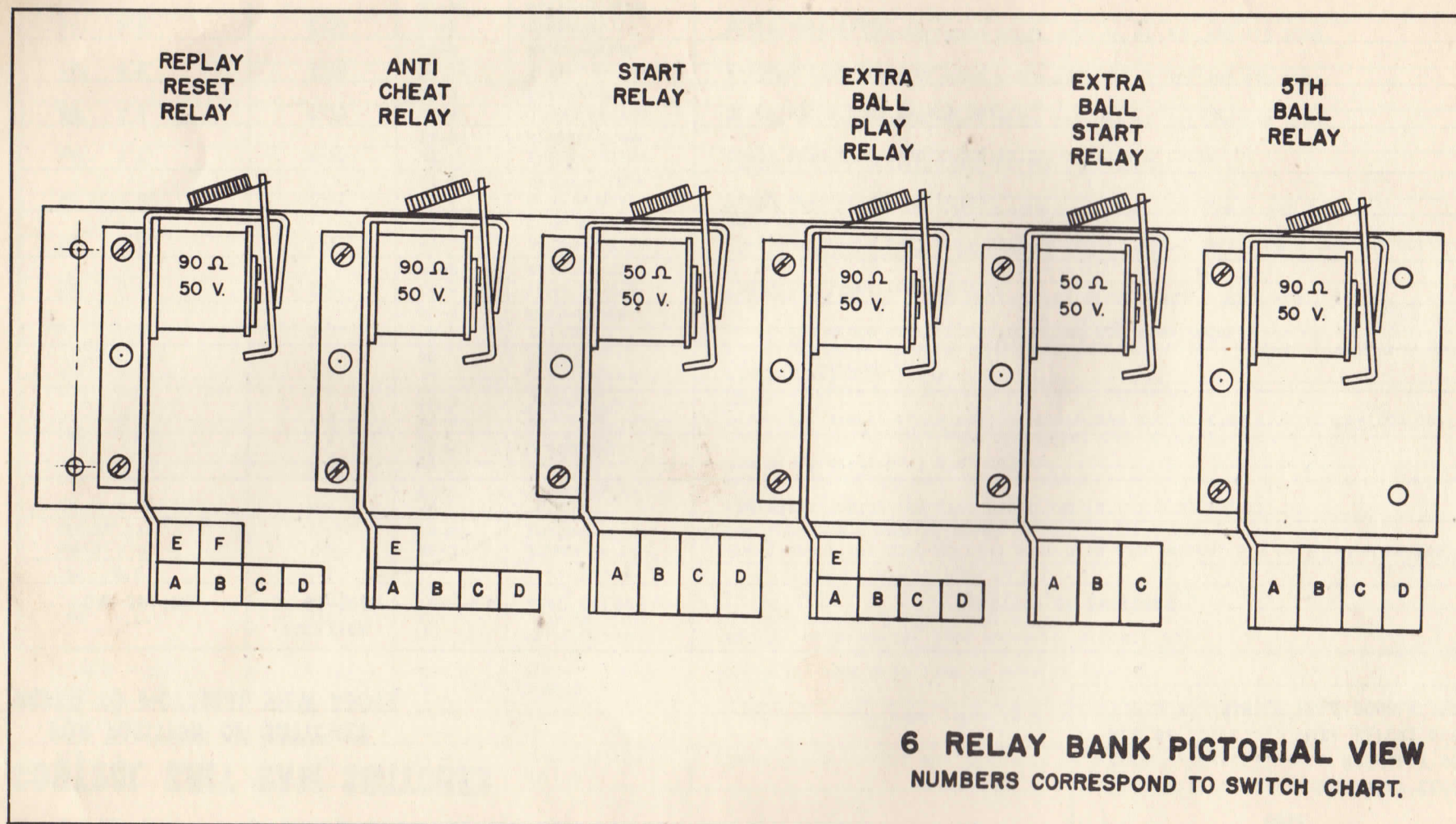
CONTROL UNIT CAM SWITCHES

FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE

CODE

N.C. NORMALLY CLOSED
N.O. NORMALLY OPEN
M.B.B. MAKE BEFORE BREAK
S.P.D.T... SINGLE POLE DOUBLE THROW

CAM SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.O.	F-8	65-2 36-10	Brown-White Yellow-Brown	Energizes timer step-up coil when drag arm switch, 5th ball relay switch and cam switch 14A are closed.
2A N.O.	H-7	30 27-4	Yellow Blue-Orange	Energizes replay register reset and reflex play magnet.
2B N.C.	F-10	30 15-2	Yellow Red-White	Drops out extra ball play relay.
3A N.C.	I-4	83-3 48-2	Black-Yellow Green-Black	Drops out start, extra ball start relays and acts as a safety switch during spin.
4A N.O.	J-14	74 60	Orange-Green Brown	Flashes extra ball lites.
4B N.O.	D-34	30 98-1	Yellow Gray-Black	Energizes score extra step index and spotting index.
5A N.O.	G-8	65-2 71-9	Brown-White Orange-Red	Energizes timer reset coil.
5B N.O.	B-18	63-10 21-1	Brown-Yellow Blue-Red	Energizes extra ball unit step-up coil. Steps unit from minus one position to zero position.
5C N.O.	C-31	78-4 10-6	Orange-Black Red	Energizes anti-cheat relay.
6A N.C.	H-25	83 74-8	Black-Yellow Orange-Green	Opens game advantage circuits during timing cycle.
6B N.C.	C-20	43-4 25-3	Green-Yellow Blue-White	Score extra step safety switch.
7A N.O.	B-18	63-10 25-4	Brown-Yellow Blue-White	Extra ball unit steps.
7B N.O.	C-20	45-6 52-9	Green-White White-Blue	Score unit steps.
7C N.O.	I-6	30 71	Yellow Orange-Red	Pulses coin lock out magnet.
8A N.O.	C-22	61 81-4	Brown-Red Black-Red	Trips either super card if spotting disc is on correct position.
8B N.O.	C-25	23-2 50-8	Blue-Yellow White	Number selection steps.
8C N.O.	B-26	93 36	Gray-Yellow Yellow-Brown	Hold feature steps.
9A Alt.	C-20	71 43	Orange-Red Green-Yellow	Opens score extra step circuit every other time.
9B Alt.	A-22	51-7 91-4 36-6	White-Red Gray-Red Yellow-Brown	Directs circuit to #1 super card or #2 super card relay.
9C Alt.	D-26	53-7 83-8 31	White-Yellow Black-Yellow Yellow-Red	Directs circuit to either a hold feature or numbers selection step.
10A N.O.	A-16	54-8 93-8	White-Green Gray-Yellow	Pulses replay counter when score unit is at last step.
10B N.O.	A-15	38-8 53-10	Yellow-Black White-Yellow	Pulses corners replay counter.
11A N.O.	A-15	91-8 54-8	Gray-Red White-Green	Pulses replay counter when score unit is at 5th and 6th step.
12A N.O.	A-14	90-8 54-8	Gray White-Green	Pulses replay counter when score unit is at 3rd and 4th step.
13A N.O.	A-14	54-8 81-8	White-Green Black-Red	Pulses replay counter when score unit is at 1st and 2nd step.
13B N.O.	B-13	80-10 38-4	Black Yellow-Black	Pulses replay register and reflex play magnet.
13 (Backside) N.O.	I-13	21-3 27	Blue-Red Blue-Orange	Replay lock-in switch NOTE: See pictorial view page 241.
14A N.C.	B-8	27-2 90-9	Blue-Orange Gray	Opens circuit to timer step up during replay winner.
14B N.C.	I-15	56-7 93	White-Brown Gray-Yellow	Prevent the start of another replay scoring until cams are indexed.
TIMER CAM INDEX COIL	A-10	93-2 70	Gray-Yellow Orange	Energized by switches on start and extra ball start relay also thru shutter motor cam switch #5.
15A N.O.	E-9	74-2 81-2	Orange-Green Black-Red	Lock-in safety switch for extra ball play relay.
15B N.C.	G-6	71-2 14-9	Orange-Red Red-Green	Opens circuit to coin lock-out magnet during spin.
15C N.O.	F-2	20-P 60-P	Blue (Plastic) Brown (Plastic)	Operates mixer and control unit motor.
REPLAY CAMS INDEX	A-13	40-4 70	Green Orange	Energizes when winning score is made and releases replay cams.
16A N.O.	G-13	27 80-10	Blue-Orange Black	In series with replay lock in circuit. NOTE: See pictorial view above for correct adj.
16B N.O.	H-14	93 56-7	Gray-Yellow White-Brown	In series with replay winner circuit. NOTE: See pictorial view above for correct adj.
SEARCH INDEX COIL	A-12	80-10 70	Black Orange	Energizes when 3 in line or more is scored.
17A N.O.	B-12	80-10 40-4	Black Green	Energizes replay cams index if 3 in line or more is scored.
17B N.C.	I-4	83-3 30	Black-Yellow Yellow	Opens start circuit and also acts as a safety switch.



PALM SPRINGS

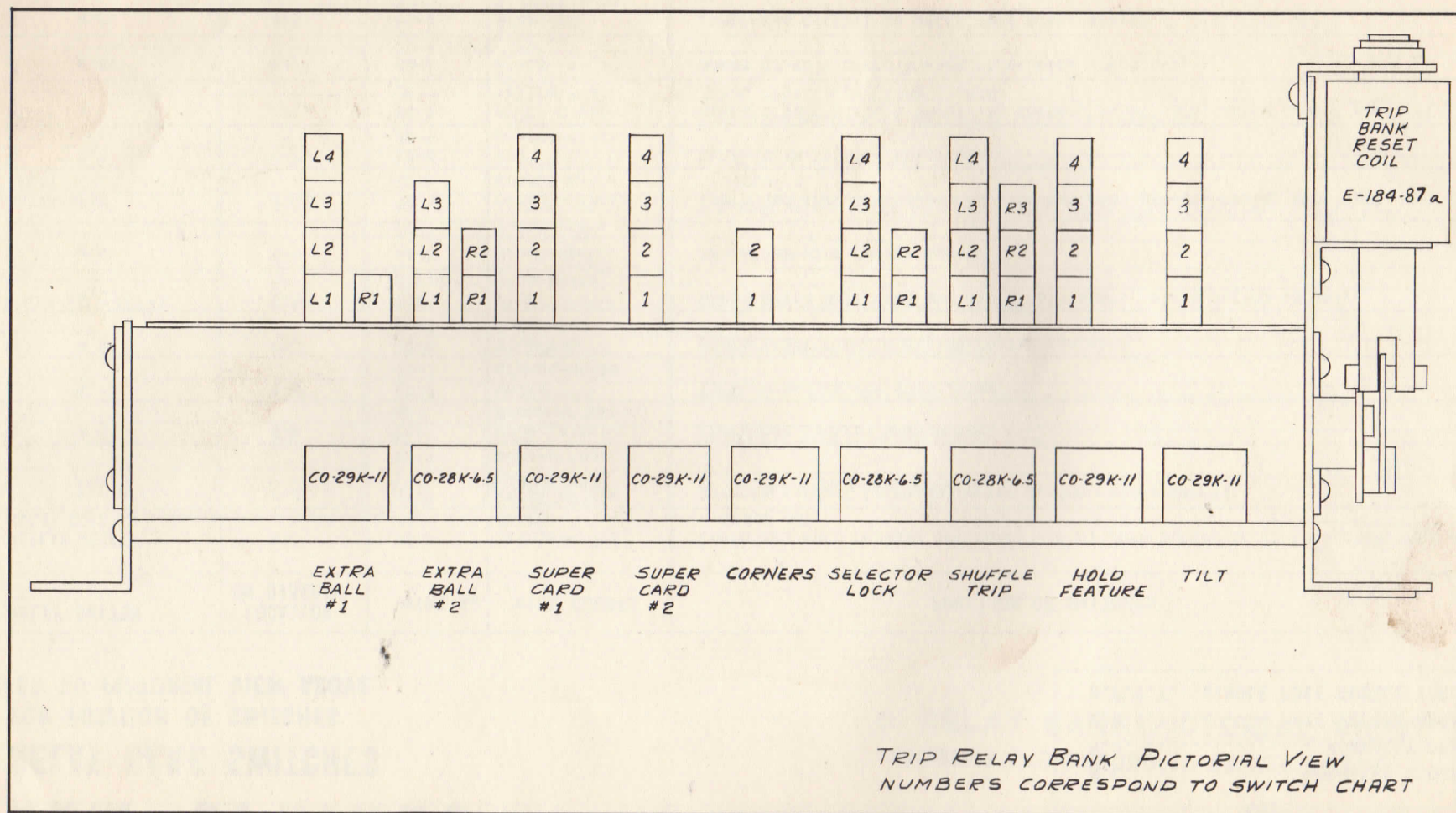
6 RELAY BANK SWITCHES

FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE

CODE

N.C. NORMALLY CLOSED
N.O. NORMALLY OPEN
M.B.B. MAKE BEFORE BREAK
S.P.D.T...SINGLE POLE DOUBLE THROW

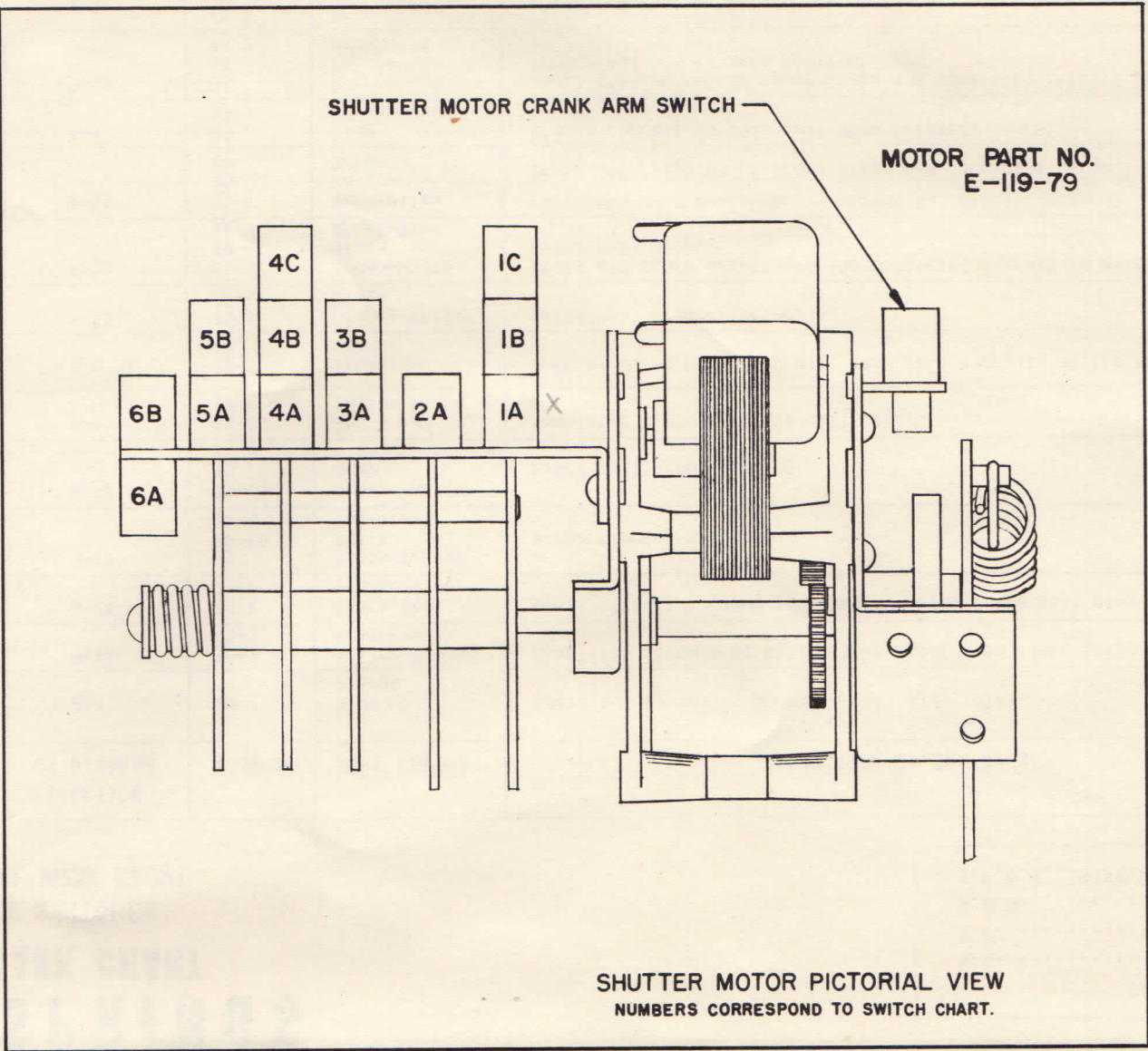
RELAY SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
REPLAY RESET RELAY COIL	A-5	75-2 70	Orange-White Orange	Energizes when replays are cancelled by push button or if anti-cheat relay drops out.
A S.P.D.T.	C-6	53-2 13-9 27-4	White-Yellow Red-Yellow Blue-Orange	Directs circuit to replay meter during replay cancel.
B N.O.	G-1	20P 60P	Blue (Plastic) Brown (Plastic)	Energizes control unit motor.
C N.O.	E-6	50-2 75-2	White Orange-White	Lock-in switch for this relay.
D N.C.	E-3	21-6 63-2	Blue-Red Brown-Red	Opens start circuit during replay cancel.
E N.C.	E-5	20-3 25-10	Blue Blue-White	Opens extra ball trip and extra ball start relays during cancel.
F N.O.	B-6	61-5 41-6	Brown-Red Green-Red	In series with replay meter.
ANTI-CHEAT RELAY COIL	A-31	78-4 70	Orange-Black Orange	Energized thru cam switch #5, its switches protect replay and light circuits.
A N.O.	B-31	10-6 78-4	Red Orange-Black	Lock-in switch for this relay.
B N.O.	L-18	54-7 28	White-Green Yellow-Black	Opens 6 volt circuit involving corner, super card, arrow number and left and right super line lights.
C N.O.	L-21	80-1 20-4	Black Blue	Opens 17 volt circuit when this relay drops out.
D N.O.	B-9	91-2 93-6	Gray-Red Gray-Yellow	Completes circuit to extra ball play relay.
E N.C.	E-6	50-2 75-2	White Orange-White	Energizes replay reset relay when this relay drops out.
START RELAY COIL	A-3	21-6 70	Blue-Red Orange	Energizes every time a coin is played or when a red button is pressed.
A N.C.	C-9	78-2 91-2	Orange-Black Gray-Red	Opens circuit to extra ball play relay when this relay is energized.
B N.C.	G-25	81-4 14-8	Black-Red Red-Green	Opens circuit to number selection and hold feature step up coil.
C N.O.	G-3	48-2 63-2	Green-Black Brown-Yellow	Lock-in switch for this relay.
D N.O.	E-10	41-3 13-3	Green-Red Red-Yellow	Completes circuit to timer cam index coil.
EXTRA BALL PLAY RELAY COIL	A-9	93-6 70	Gray-Yellow Orange	Energizes when yellow button is pressed.
A S.P.D.T.	G-3	50-2 51-2 63-2	White White-Red Brown-Yellow	Directs circuit to regular start relay or extra ball start relay.
B S.P.D.T.	F-10	74-2 15-2 41-3	Orange-Green Red-White Green-Red	Breaks timer cams index circuit and also acts as lock-in switch for this relay.
C N.O.	J-19	21-4 30	Blue-Red Yellow	Lights extra ball light in back box.
D N.O.	F-15	51-2 25-10	White-Red Blue-White	Completes circuit to extra ball start and extra ball trip relay.
E N.C.	J-6	83-4 20	Black-Yellow Yellow	Opens flash circuit during extra ball play.
EXTRA BALL START RELAY	A-4	20-3 70	Blue Orange	Energizes when extra ball play relay is energized.
A N.C.	C-17	78 75-6	Orange-Black Orange-White	Opens circuit to extra ball step-up coil during spin of control unit.
B N.O.	D-9	25 48	Blue-White Green-Black	Operates mixer latch coil and timer index coil during extra ball play.
C N.O.	G-5	74 93	Orange-Green Gray-Yellow	Lock-in switch for this relay.
FIFTH BALL RELAY	A-11	38-6 70	Yellow-Black Orange	Energizes when fifth ball is shot.
A N.O.	E-11	38-6 53	Yellow-Black White-Yellow	Lock-in switch for this relay.
B N.O.	H-29	31-5 45	Yellow-Red Green-White	Makes odd, even and hold all button circuit alive after fifth ball.
C N.O.	J-4	90 10	Gray Red	In series with hold indicator lite.
D N.O.	D-8	27-2 71-4	Blue-Orange Orange-Red	In series with timer step-up coil.



PALM SPRINGS
TRIP RELAY BANK CHART
FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE

CODE	
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
M.B.B.	MAKE BEFORE BREAK
S.P.D.T....	SINGLE POLE DOUBLE THROW

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
EXTRA BALL #1 TRIP COIL	A-4	20-3 70	Blue Orange	Energized by switch on extra ball play relay.
L1 N.O.	D-12	38-3 91-1	Yellow-Black Gray-Red	Completes circuit to ball lifter motor when timer stepper resets.
L2 N.C.	G-26	81-4 74-8	Black-Red Orange-Green	Opens circuit to game advantages during extra ball play.
L3 S.P.D.T.	H-23	83 50-10 14-4	Black-Yellow White Red-Green	Proportioning switch.
L4 S.P.D.T.	G-22	75-10 90 74-8	Orange-White Gray Orange-Green	Extra ball proportioning.
R1 N.O.	B-10	14-6 38-6	Red-Green Yellow-Black	Completes circuit to 5th ball relay.
EXTRA BALL #2 TRIP COIL	A-4	20-3 70	Blue Orange	Same as extra ball trip #1. They both energize at the same time.
L1 N.O.	F-20	75-3 80-3	Orange-White Black	Extra ball proportioning.
L2 S.P.D.T.	F-18	65-3 80-3 52-6	Brown-White Black White-Blue	Shuts off score advantages and completes circuit to extra ball steps during extra ball play.
L3 S.P.D.T.	J-13	13-4 30 60	Red-Yellow Yellow Brown	Shuts off flashing of score lites and completes circuit to extra ball flash.
R1 N.C.	A-4	20 25	Blue Blue-White	Breaks circuit to this coil when tripped.
R2 S.P.D.T.	D-19	71 30 61-2	Orange-Red Yellow Brown-Red	Shuts off guaranteed score steps and completes circuit to extra ball unit from minus one to zero position.
SUPER CARD #1 TRIP COIL	A-21	51-7 70	White-Red Orange	Energized when spotting disc stops on correct buttons; in series with alt. cam #9.
1 N.O.	J-5	30 98	Yellow Gray-Black	Lites the left super card lite.
2 N.C.	G-21	18 90	Red-Black Gray	Proportioning switch.
3 N.O.	F-15	71 20	Orange-Red Blue	Completes circuit from search disc to score disc for equivalent 4 in line score.
4 N.C.	G-21	57 27	White-Orange Blue-Orange	Proportioning switch.
SUPER CARD #2 TRIP COIL	A-22	36-6 70	Yellow-Brown Orange	Energized when spotting disc stops on correct buttons; in series with alt. cam #9.
1 N.O.	J-5	30 10-2	Yellow Red	Lites right super card lite.
2 N.C.	G-21	90 18	Gray-Red Red-Black	Proportioning switch.
3 N.O.	F-15	71-3 18-6	Orange-Red Red-Black	Completes circuit from search disc to score disc for equivalent 4 in line score.
4 N.C.	G-21	90 57	Gray White-Orange	Proportioning switch.
CORNERS TRIP COIL	A-23	60-2 70	Brown Orange	Energized when spotting disc stops on correct buttons.
1 N.O.	J-6	30 98-10	Yellow Gray-Black	Lites corners lite.
2 N.O.	D-16	21-8 13-8	Blue-Red Red-Yellow	Completes circuit to search disc and corners replay counter step-up coil.
SELECTOR LOCK TRIP COIL	A-11	61-10 J	Brown-Red Jumper	Trips at 4th step of timer unit.
L1 N.O.	C-9	81-2 78-2	Black-Red Orange-Black	Completes circuit to extra ball play relay.
L2 N.C.	J-7	75 40-2	Orange-White Green	Shuts off "select now" lite when this relay trips.
L3 N.O.	G-9	43 85	Green-Yellow Black-White	keeps circuit to ball lifter cam switch alive.
L4 N.C.	G-29	23-5 21-3	Blue-Yellow Blue-Red	Breaks circuit to rotary selector coil on front cabinet.
R1 N.O.	E-11	53 30	White-Yellow Yellow	Completes circuit to fifth ball relay.
R2 N.C.	A-11	52 61-10	White-Blue Brown-Red	Opens circuit to this coil when tripped.
SHUFFLE TRIP COIL	A-30	51-4 70	White-Red Orange	If hold feature is lit this coil trips after 5th ball is shot, or when "all" button is pushed.
L1 N.O.	I-15	18-4 56-7	Red-Black White-Brown	Completes circuit to replay scoring circuit (in series with search relays).
L2 N.C.	I-31	31-5 21-3	Yellow-Red Blue-Red	Breaks circuit to this coil.
L3 N.O.	E-19	78-1 52-6	Orange-Black White-Blue	Extra ball proportioning.
L4 N.C.	K-4	10-4 74-3	Red Orange-Green	Opens circuit to hold indicator lite.
R1 N.O.	J-32	91-10 20-2	Gray-Red Blue	Turns on "red" lites in card when this relay trips.
R2 N.O.	J-24	30 41-7	Yellow Green-Red	Completes circuit for odd number lites.
R3 N.O.	J-26	30 45-5	Yellow Green-White	Completes circuit for even number lites.
HOLD FEATURE TRIP COIL	A-7	J 70	Jumper Orange	Trips when hold feature stepper is at last step.
1 S.P.D.T.	F-29	51-4 45 57-4	White-Red Green-White White-Orange	Directs circuit to shuffle trip relay or "all" button switch.
2 N.C.	A-7	98 53	Gray-Black White-Yellow	Opens circuit to this coil when tripped.
3 N.C.	F-19	18 75-9	Red-Black Orange-White	Proportioning switch.
4 N.C.	F-17	80-3 41	Black Green-Red	Proportioning switch.
TILT TRIP COIL	A-11	25-7 70	Blue-White Orange	Actuated by any tilt switch or plumb bob.
1 S.P.D.T.	I-10	21-3 30 36-4	Blue-Red Yellow Yellow-Brown	Breaks circuit to ball counting, extra ball, replay and button circuits. Completes circuit to shutter motor when game is tilted.
2 N.C.	F-1	20-P 60-P	Blue (Plastic) Brown (Plastic)	Opens circuit to both control unit and spotting motor when game tilts.
3 N.C.	L-22	10 20-4	Red Blue	Opens 17 volt circuit.
4 S.P.D.T.	L-19	38 81 41-9	Yellow-Black Black-Red Green-Red	Shuts off 6 volt circuit and lites tilt lite.



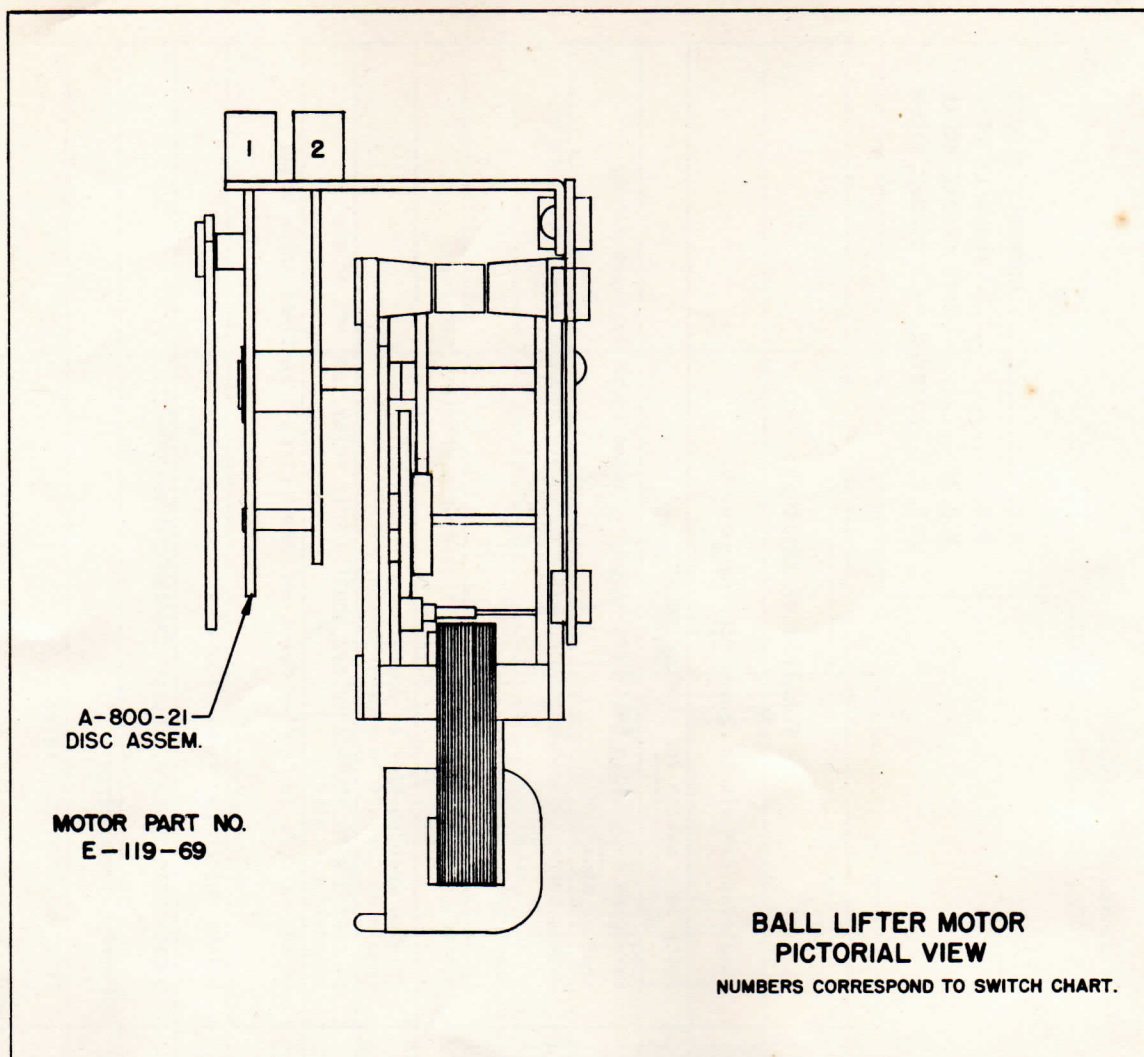
PALM SPRINGS

SHUTTER MOTOR CAM SWITCHES

FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE

CODE	
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
M.B.B.	MAKE BEFORE BREAK
S.P.D.T....	SINGLE POLE DOUBLE THROW

CAM SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.C.	I-14	93 21-3	Gray Blue-Red	Completes circuit to replay scoring circuit.
1B N.O.	G-10	30 14-3	Yellow Red-Green	Carry thru switch for shutter motor.
2A N.C.	F-13	31-3 36-3	Yellow-Red Yellow-Brown	Completes circuit to ball lift motor. (Closed normally, open during shutter cycle).
3A N.O.	C-34	25 83-2	Blue-White Black-Yellow	Resets corners replay counter, extra ball, and numbers selection units.
3B N.O.	G-2	40-P 70-P	Green (Plastic) Orange (Plastic)	Reset trip relay bank.
4A N.O.	H-10	36-4 18-3	Yellow-Brown Red-Black	Starts shutter motor if game is tilted when shutter is open.
4B N.O.	G-10	18-3 14-3	Red-Black Red-Green	(Closed when shutter is open) Completes circuit to shutter motor.
4C N.O.	I-30	21-3 13-5	Blue-Red Red-Yellow	In series with shuffle relay, shuffle trip relay, and odd or even solenoid circuits.
5A S.P.D.T.	D-10	14 93 13	Red-Green Gray-Yellow Red-Yellow	Breaks circuit to shutter motor and makes circuit to timer index coil.
5B N.C.	I-8	65 21	Brown-White Blue-Red	Safety switch for timer reset.
6A N.O.	C-32	98-9 25	Gray-Black Blue-White	Resets hold feature, replay counter and score unit.
6B N.O.	H-8	10-1 71-9	Red Orange-Red	Resets timer stepper.
SHUTTER MOTOR ARM SWITCH	E-30	57-4 51-4	White-Orange White-Red	Trips shuffle trip relay.



PALM SPRINGS

BALL LIFTER MOTOR CAM SWITCHES

**FOR POSITION OF SWITCHES
REFER TO PICTORIAL VIEW ABOVE**

CODE

N. C. NORMALLY CLOSED
N. O. NORMALLY OPEN
M. B. B. MAKE BEFORE BREAK
S. P. D. T. SINGLE POLE DOUBLE THROW

RELAY SWITCH OR CAM SWITCH	LOCATION ON DIAGRAM	WIRE NO.	WIRE COLORS	FUNCTION OF SWITCHES
1 N.O.	G-13	30 91-1	Yellow Grey-Red	Carry-over switch for ball lifter motor.
2 N.O.	E-9	43-2 27-3	Green-Yellow Blue-Orange	Energizes timer unit step-up coil.

CORRECT ADJUSTMENT FOR CONTROL UNIT CAM SWITCHES 13, 13A, & 13B.

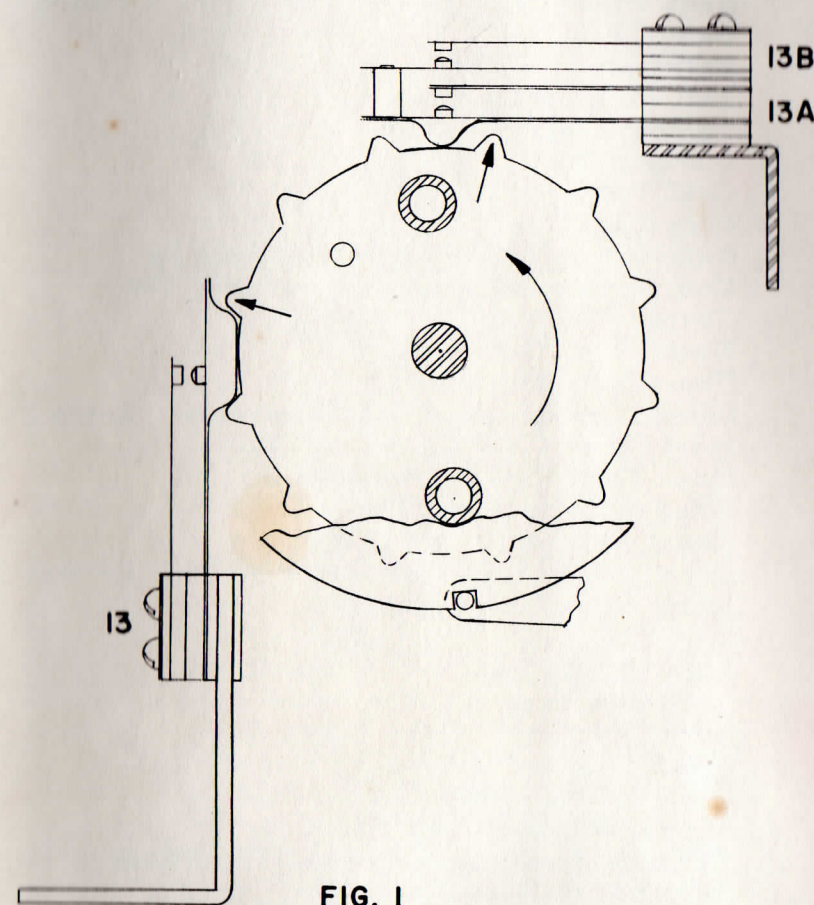


FIG. 1

REPLAY CAMS SHOWN IN THEIR
NORMAL INDEXED POSITION.
SWITCHES 13A, 13B, & 13 ARE
OPEN AT THIS TIME.

NOTE:
ARROWS POINT TO LOBES
THAT WILL ACTUATE SWITCHES.

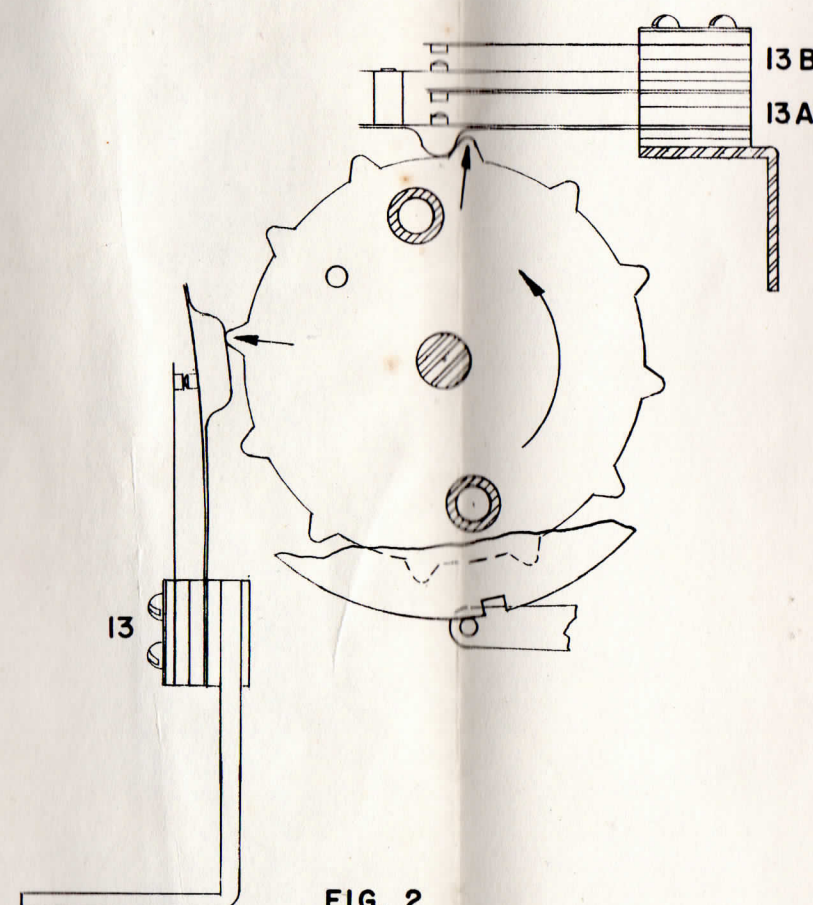


FIG. 2

REPLAY CAMS SHOWN STARTING
TO ROTATE. THEY ARE NOW OUT
OF THEIR INDEX POSITION.
SWITCHES 13A, & 13B ARE STILL
OPEN. SWITCH 13 IS NOW CLOSED.

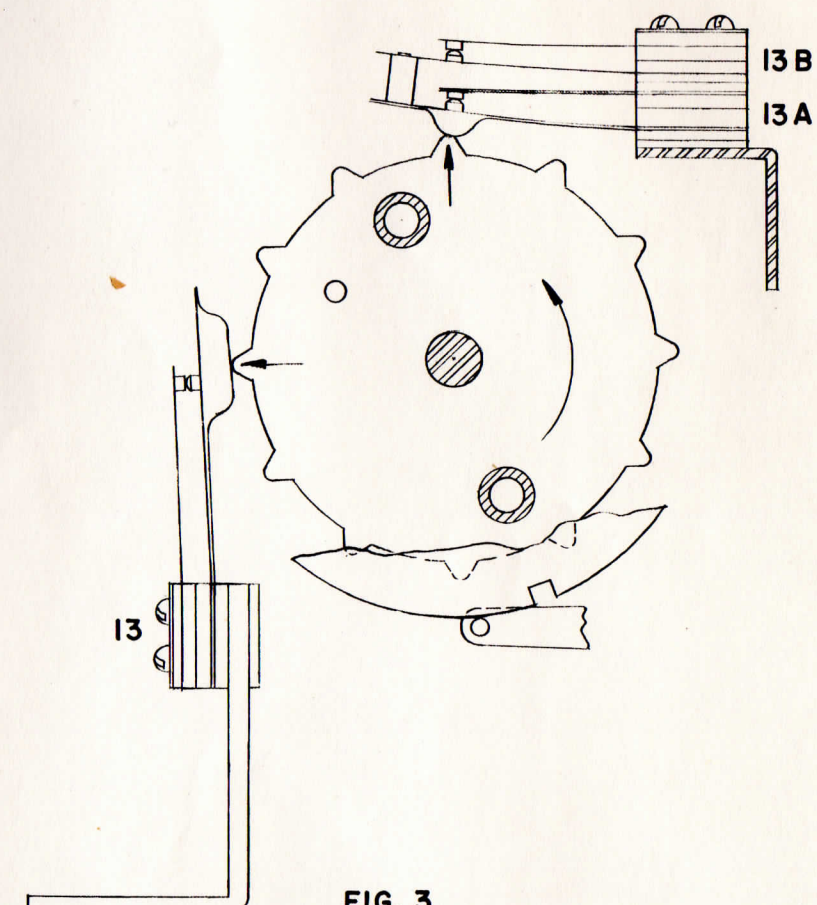
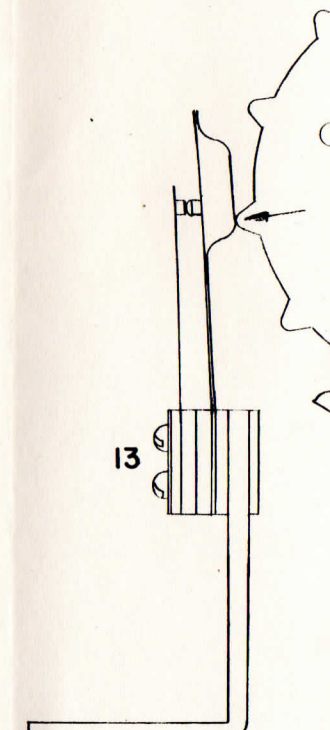


FIG. 3

SWITCHES 13A, & 13B ARE NOW
CLOSED.
SWITCH 13 IS STILL CLOSED.



SWITCHES 13A, &
OPEN AGAIN.
SWITCH 13 IS STILL

NOTICE:

THE IMPORTANT PART OF THIS ILLUSTRATION
IS TO SHOW THAT SWITCH 13 CLOSSES FIRST
AND OPENS LAST.

IF AN ADJUSTMENT IS NECESSARY SWITCH
13 CAN BE MOVED UP OR DOWN.
LOOSEN SCREWS THAT HOLD SWITCH, THEN
MOVE UP OR DOWN.

CORRECT ADJUSTMENT FOR CONTROL UNIT CAM SWITCHES 13, 13A, & 13B.

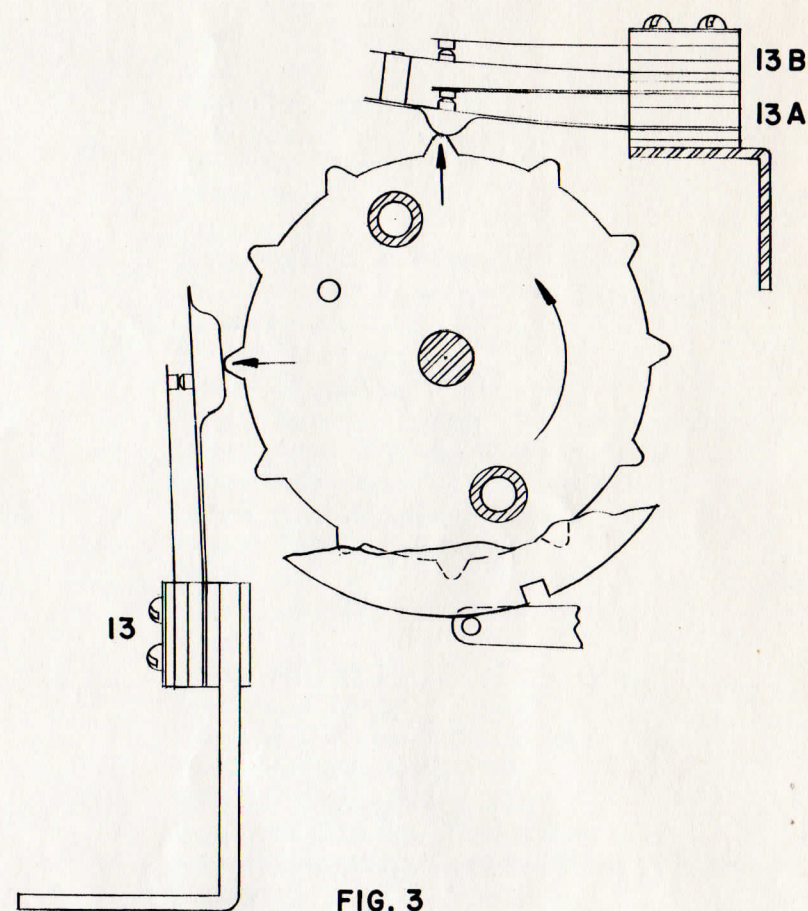
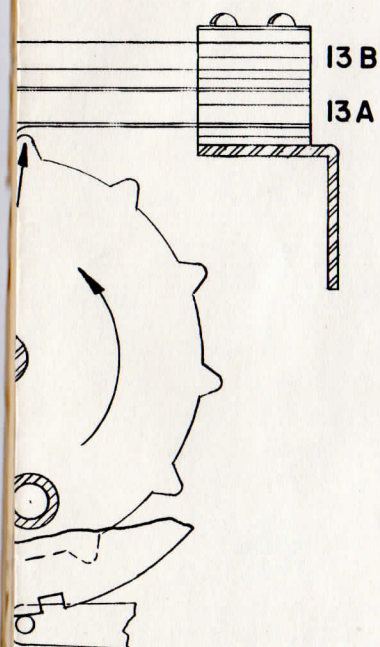


FIG. 3

SWITCHES 13A, & 13B ARE NOW
CLOSED.
SWITCH 13 IS STILL CLOSED.

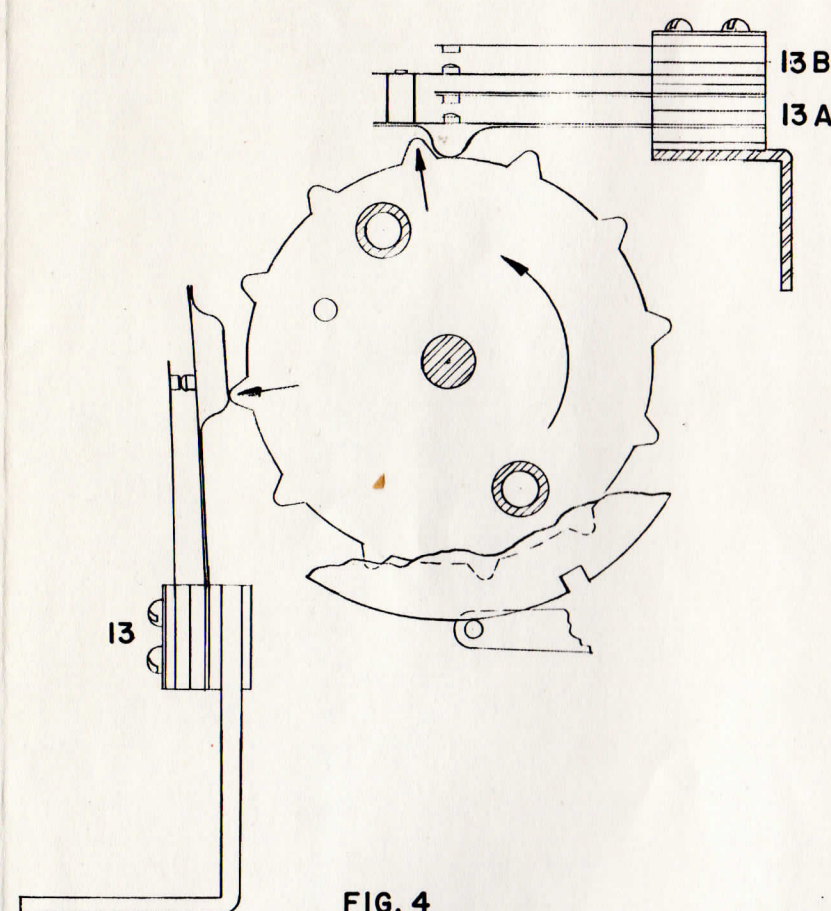


FIG. 4

SWITCHES 13A, & 13B ARE NOW
OPEN AGAIN.
SWITCH 13 IS STILL CLOSED.

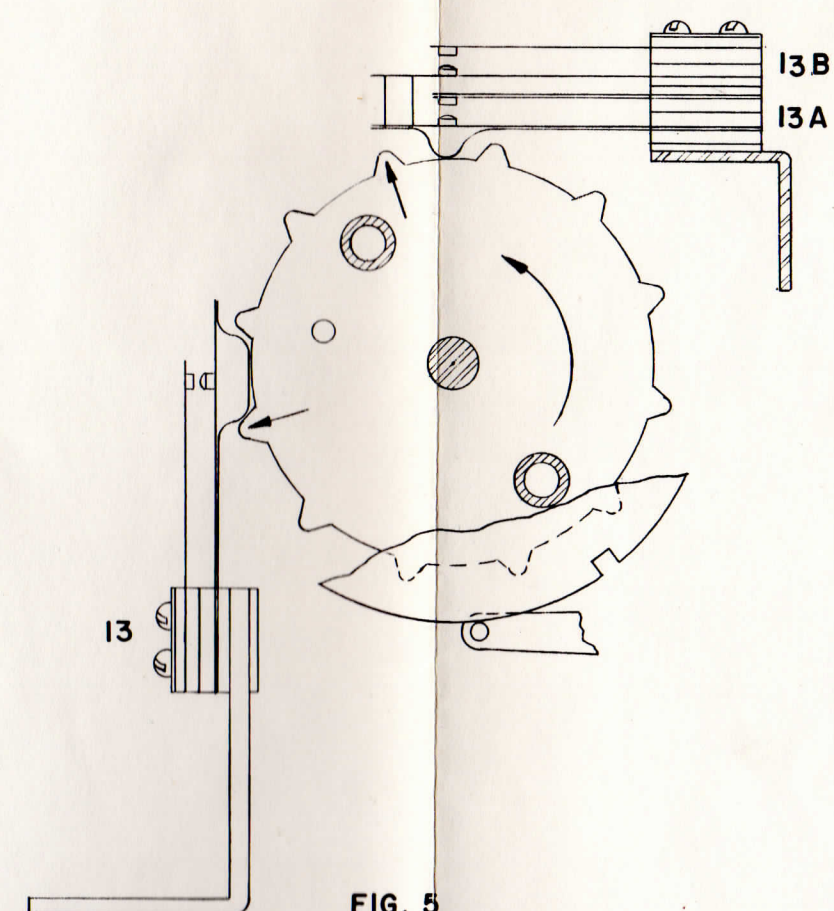


FIG. 5

ALL SWITCHES ARE NOW OPEN
AGAIN, SAME AS IN FIG. 1.
THIS SEQUENCE IS REPEATED
THRUOUT REPLAY SCORING
CYCLE.

NOTICE:

THE IMPORTANT PART OF THIS ILLUSTRATION
IS TO SHOW THAT SWITCH 13 CLOSSES FIRST
AND OPENS LAST.
IF AN ADJUSTMENT IS NECESSARY SWITCH
13 CAN BE MOVED UP OR DOWN.
LOOSEN SCREWS THAT HOLD SWITCH, THEN
MOVE UP OR DOWN.

STARTING
WITHOUT
N.
STILL
N CLOSED.

MISCELLANEOUS PARTS

<u>PART NO.</u>	<u>NAME OF PART</u>
G-227	Back Glass
M-168-13	Ball 1 1/8"
A-1475	Ball Gate
P-1950-71	Ball Gate Spring Only
C-119-4	Bumper Post - Yellow
C-119-5	Bumper Post - Red
P-1900-10	Cash Box
A-1533	Coin Slide
AS-277-21	Coin Switch Assembly - Complete 5¢
AS-277-22	Coin Switch Assembly - Complete 10¢
E-130-3	Counter 48 Volt
CA-567-11	Front Door Only
CA-664-2	Front Moulding
A-1138-3	Index Arm on Index Coil Assembly - Extra Step Unit
A-1138-6	Index Arm Timing Control Unit
A-1138-6	Index Arm Replay Control Unit
A-1138-7	Index Arm Spotting Mixer Unit
E-125-2	Lamp #47 Top Panel
E-125-5	Lamp #55 6-8 Volt Bottom Panel & Lite Box
E-125-1	Lamp #58 20 Volt Lite Box
CA-350-1	Leg
C-258-5	Light Shield Post - Top Panel
M-281-6	Lock and Keys - Front Door
M-281-14	Lock and Keys - Back Door, Set
P-2210-8	Plate - Coin Entry 5¢
P-2210-9	Plate - Coin Entry 10¢
R-203	Rebound Rubber Top Panel
M-170	Rebound Spring Double Post Top Panel
E-104-30	Resistor Bottom Panel
R-243	Rubber Ring for Yellow Post
R-243-2	Rubber Ring for Red Post
AS-187-12	Shooter Assembly Complete
A-1540	Shooter Housing Only
A-100-7	Shooter Rod
SP-200-24	Shooter Spring
SP-233	Shooter Spring Outside Barrel
R-108-3	Shooter Tip
M-280-15	Slug Rejector 5¢
M-280-16	Slug Rejector 10¢
E-122-19	Transformer
M-412-2	Wire Wiper only for Slip Rings

SPECIAL PIN-GAME LUBRICANT
IN ONE POUND CANS