

Bally®

BEACH TIME

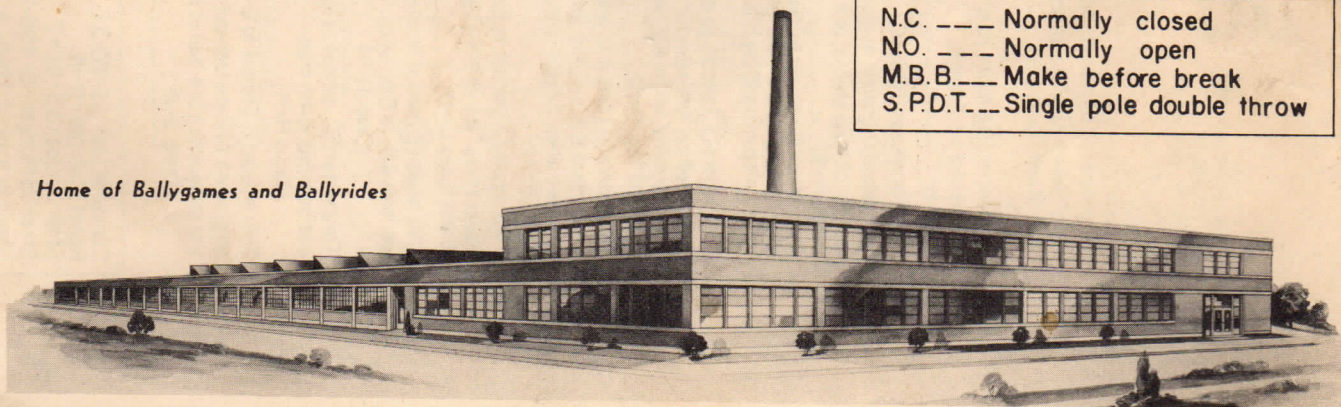
OPERATING INSTRUCTIONS AND PARTS CATALOG

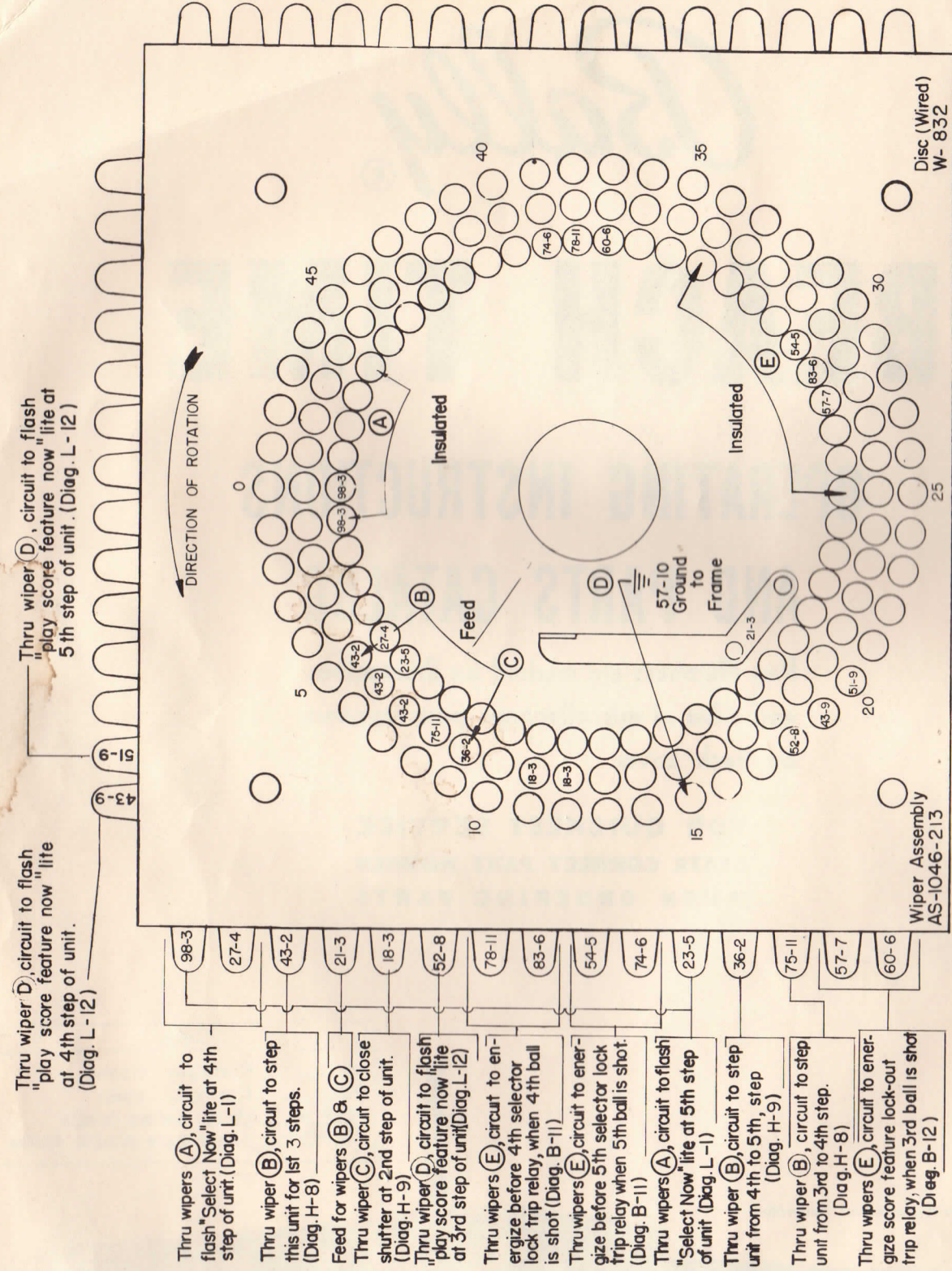
Part Numbers are marked on illustrations
and a list of miscellaneous parts appears
on back cover.

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

Code	
N.C. ---	Normally closed
N.O. ---	Normally open
M.B.B.---	Make before break
S.P.D.T.---	Single pole double throw

Home of Ballygames and Ballyrides

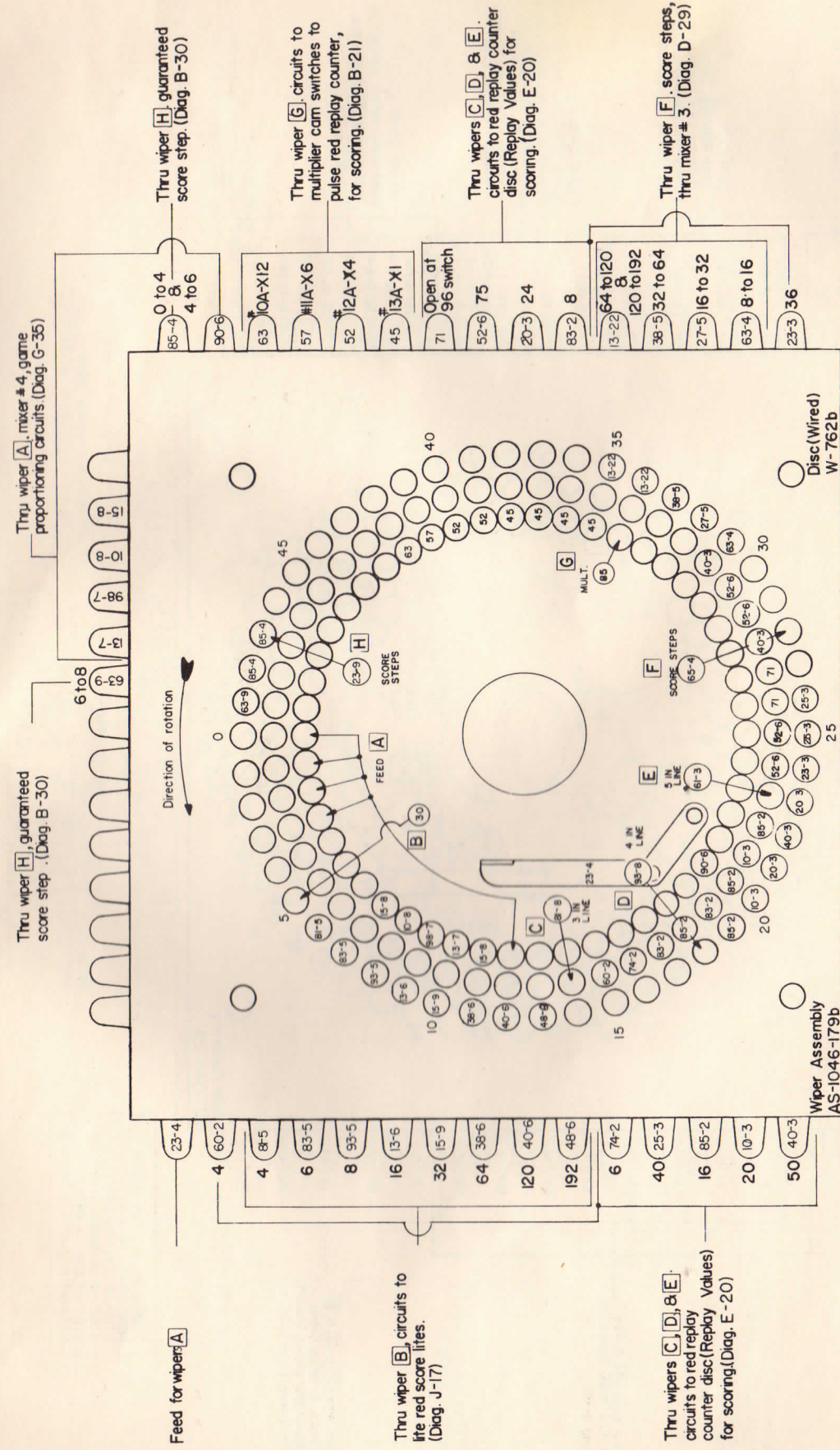




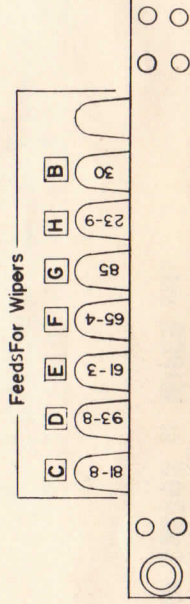
Complete Unit-AS-III0-27
Reset Coil -28-R-15
Step-Up Coil -25-GG-7
Step-Up Plunger -S-496-100
Step-Up Arm -A-1765-4
Ratchet & Shaft-C-1050-39-21

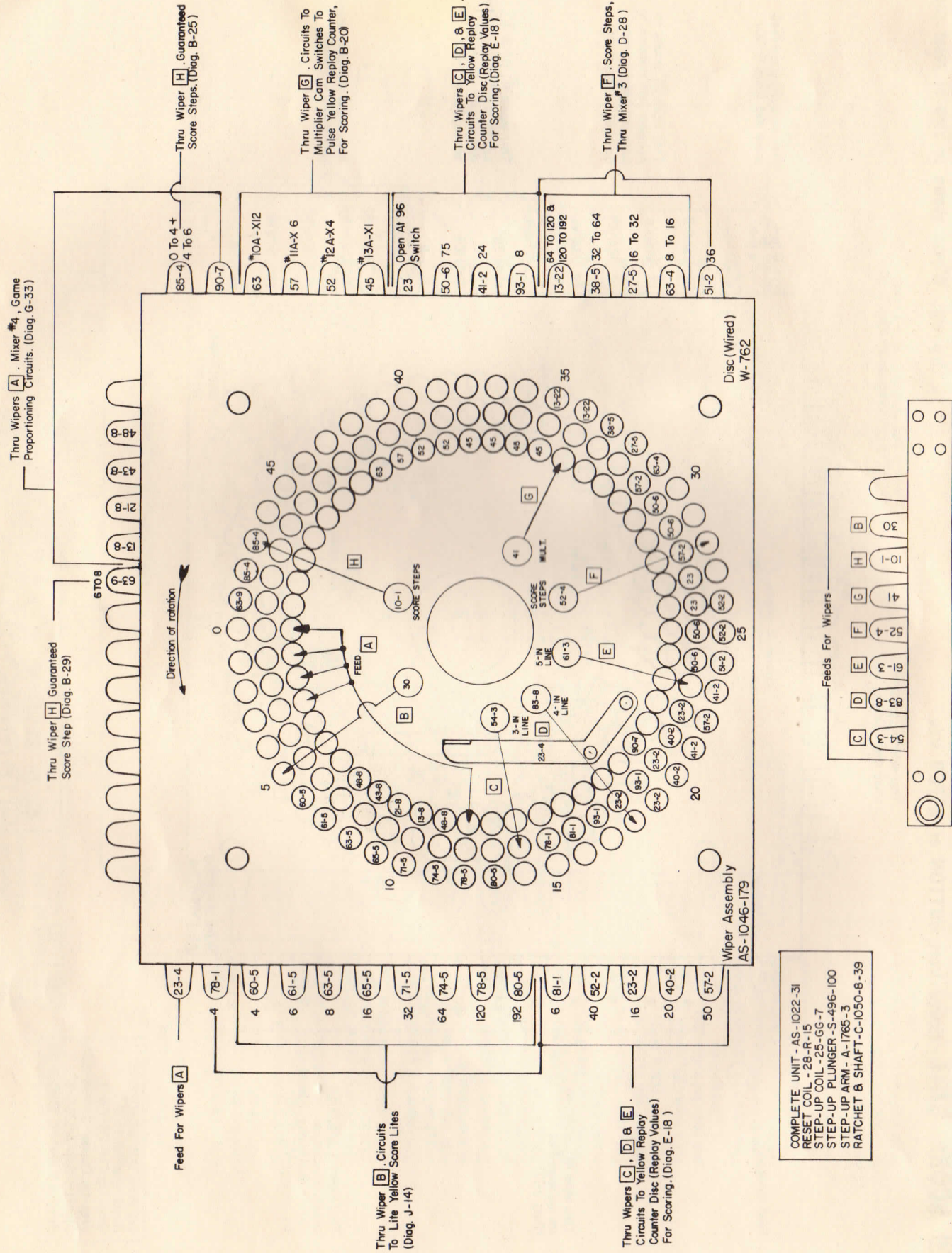
RED SCORE UNIT viewed from **BUTTON** or **WIPER** side

8 step unit. Wipers shown in zero or reset position

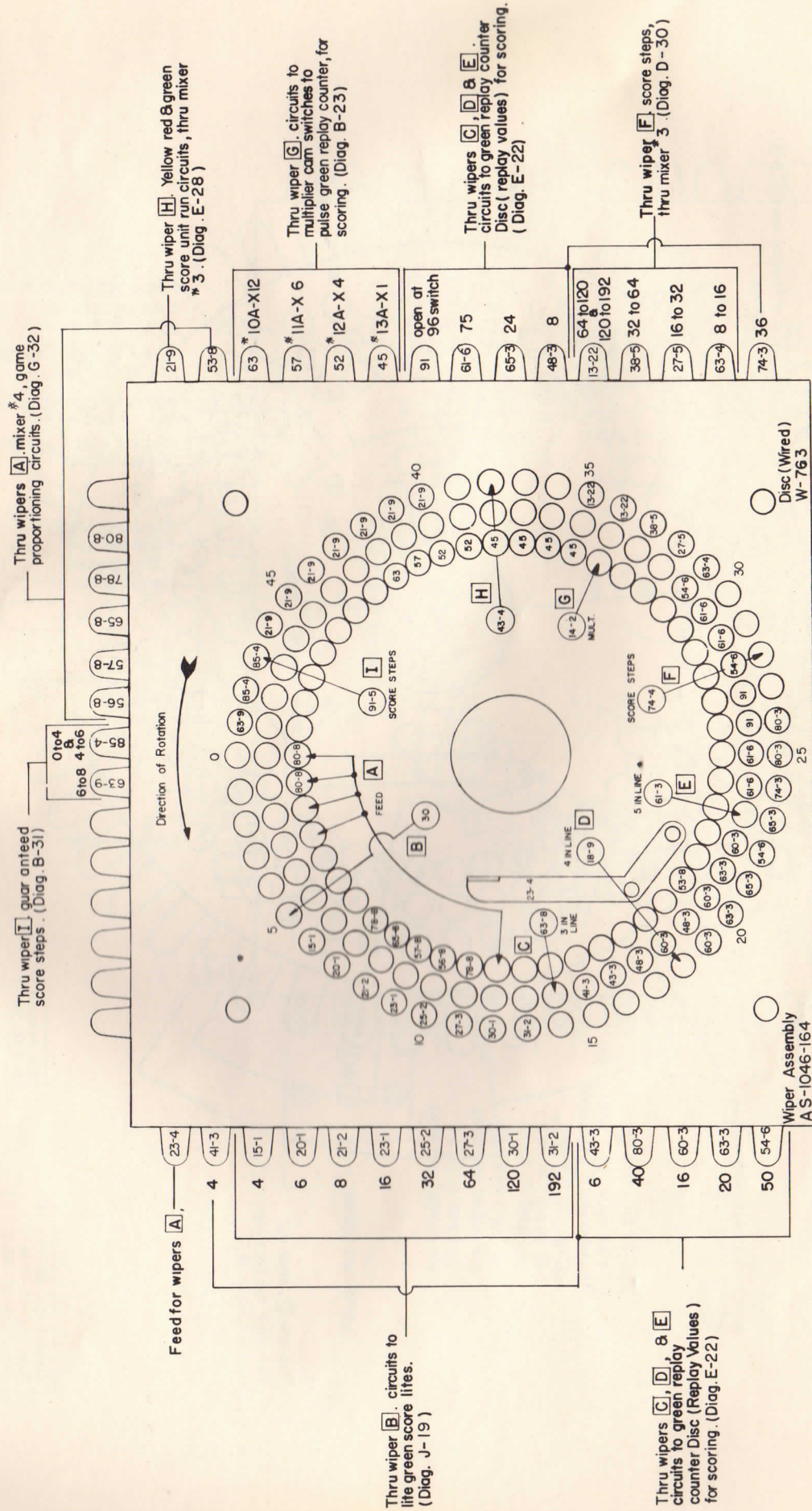


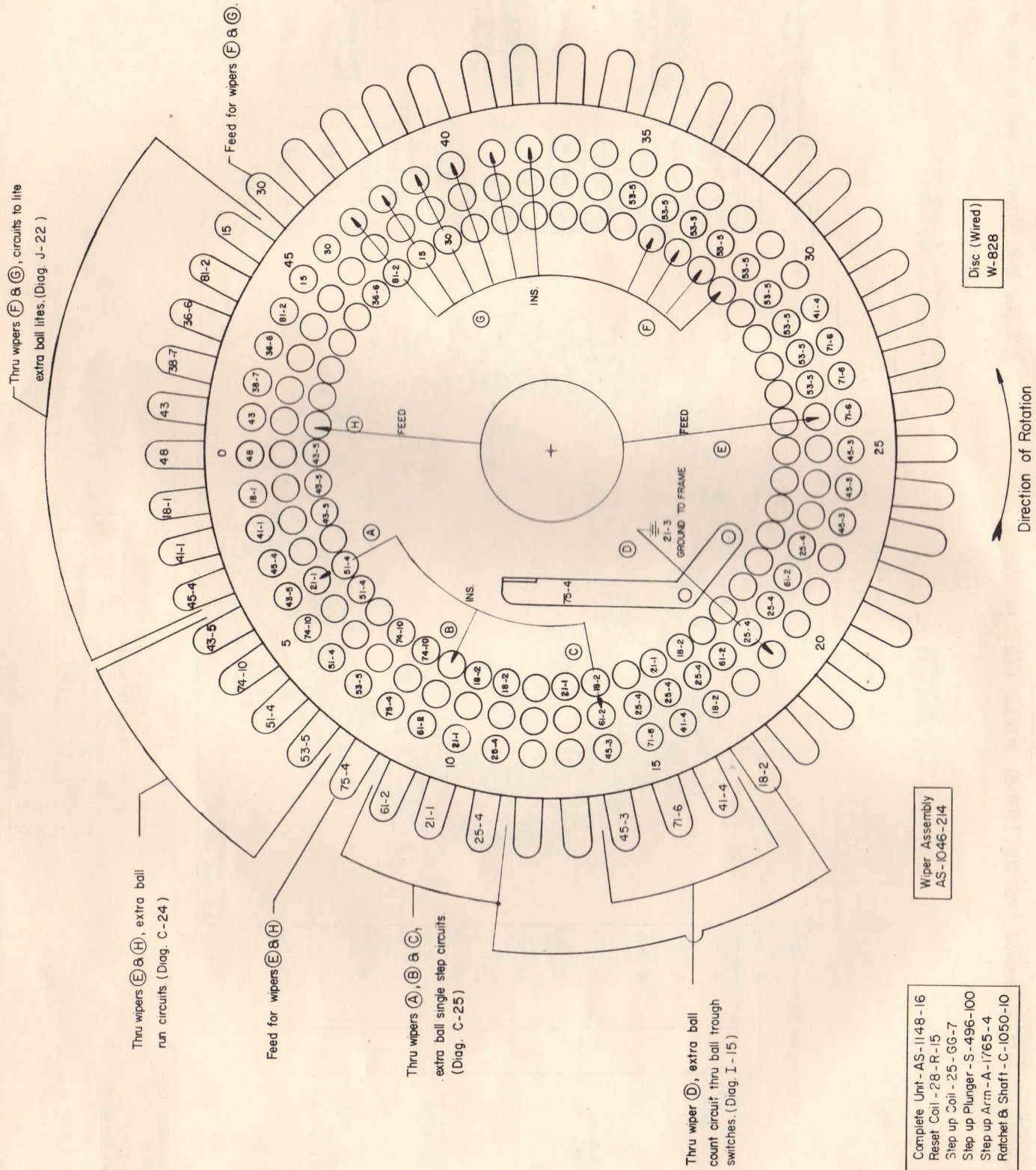
Complete Unit-AS-1022-31
Reset Coil-28-R-15
Step-Up Coil-25-GG-7
Step-Up Plunger-S-496-100
Step-Up Arm-A-1765-3
Ratchet & Shaft-C-1050-8-39





GREEN SCORE UNIT viewed from BUTTON or WIPER side

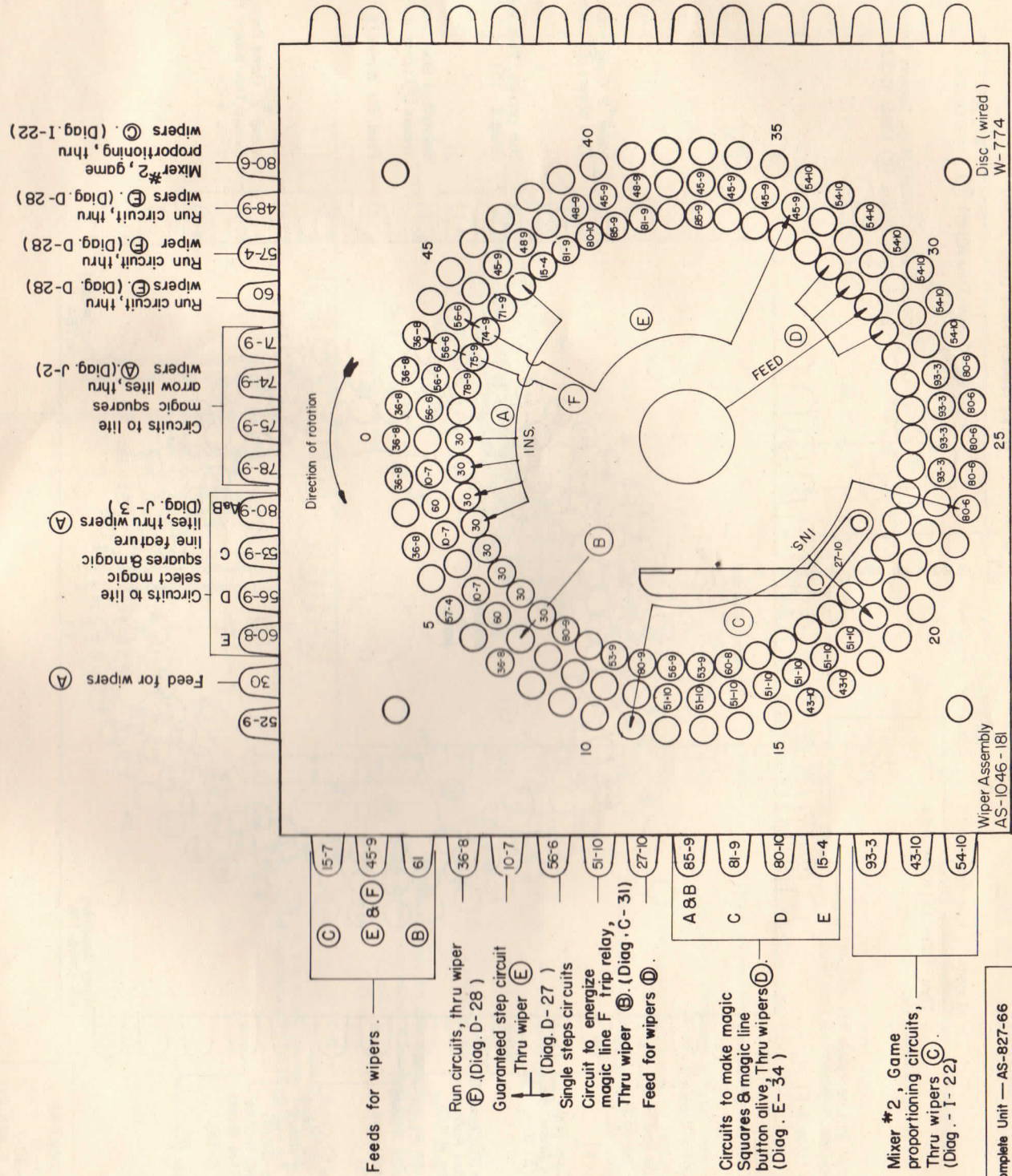


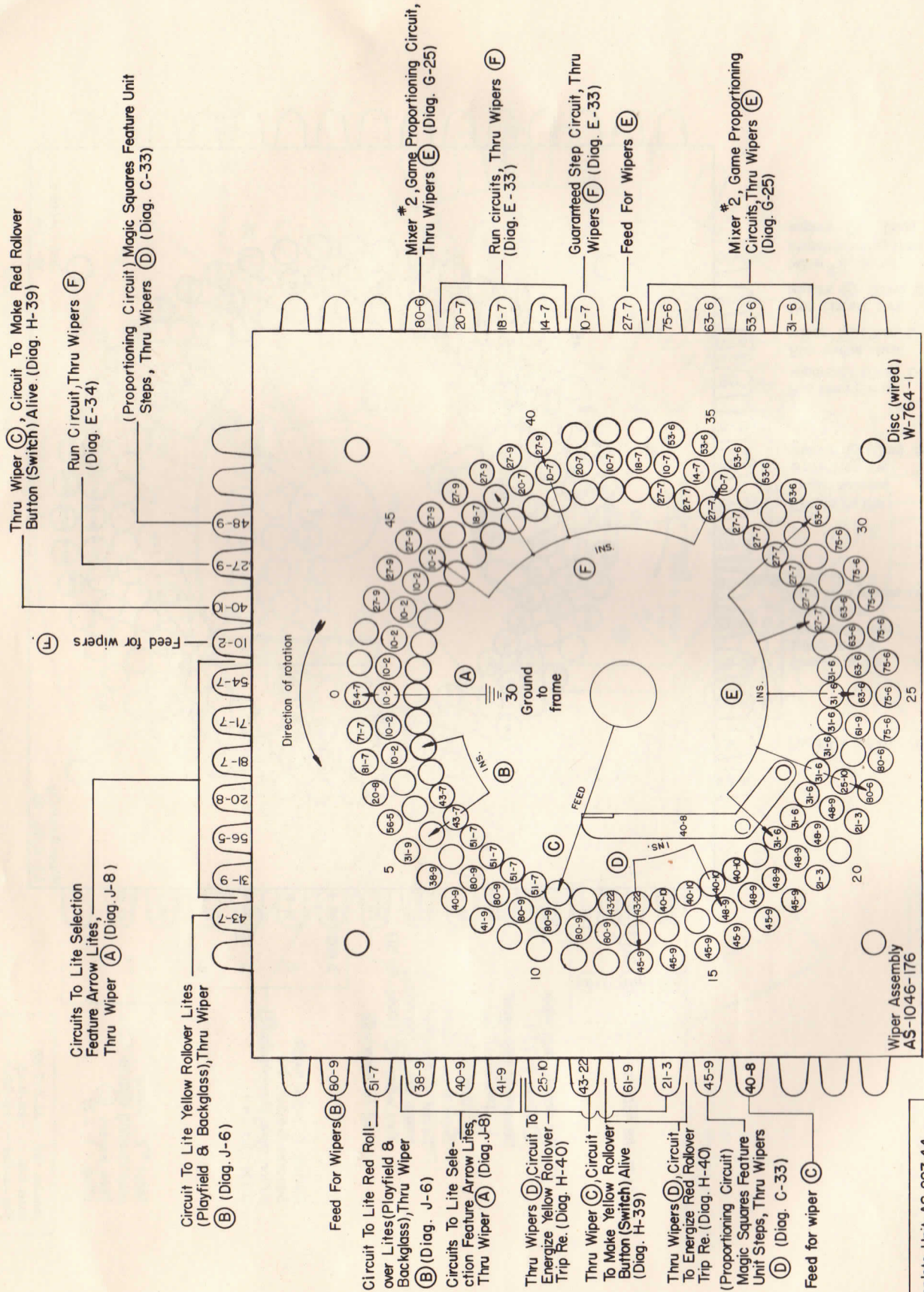


MAGIC SQUARES FEATURE UNIT

viewed from BUTTON or WIPER side

11 step unit. Wipers shown in zero or reset position

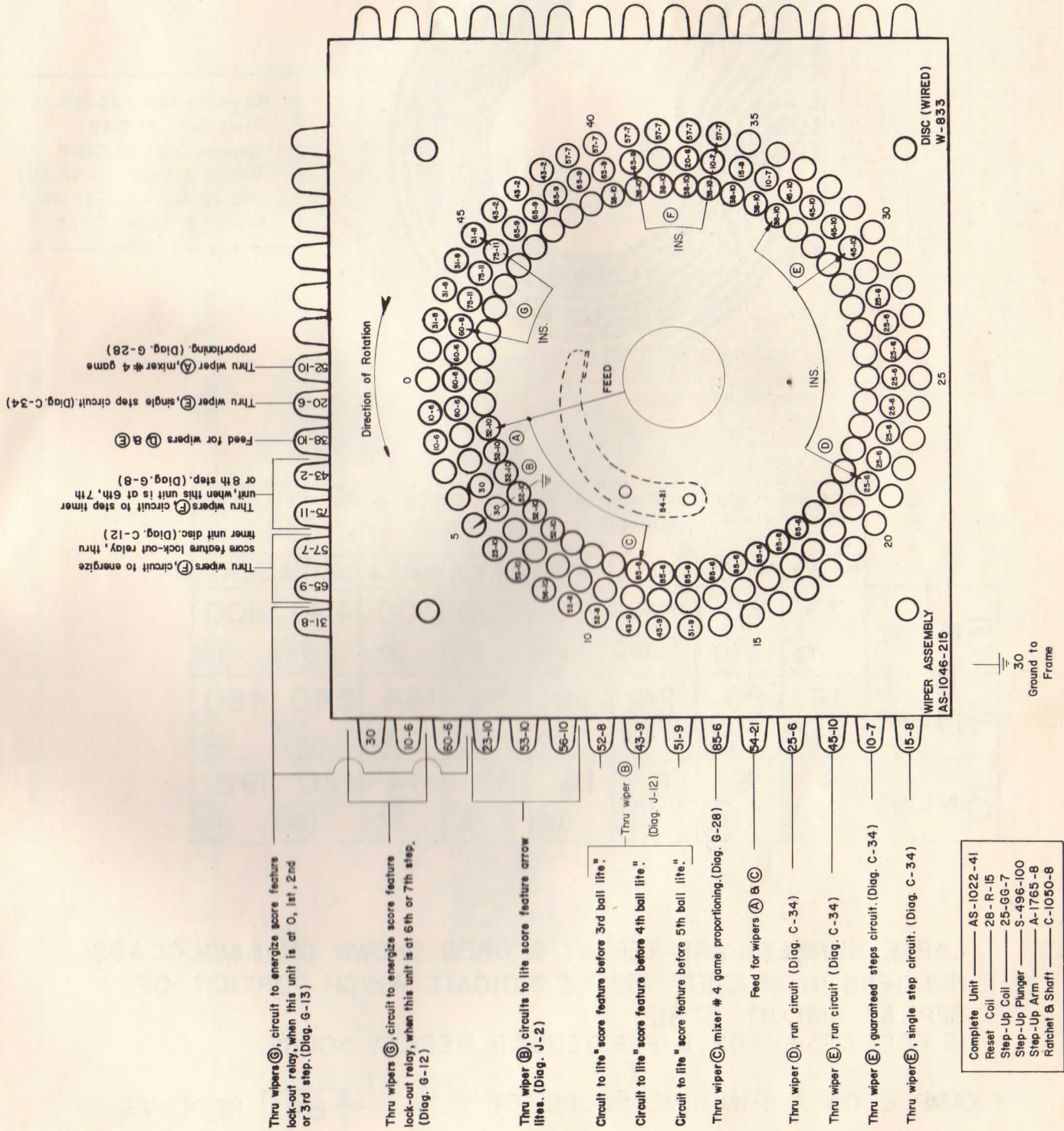




- Complete Unit - AS-827-44
- Reset Coil - 28-R-15
- Step Up Coil - 25-GG-7
- Step Up Plunger - S-496-100
- Step Up Arm - A-1765-3
- Ratchet & Shaft - C-1050-8

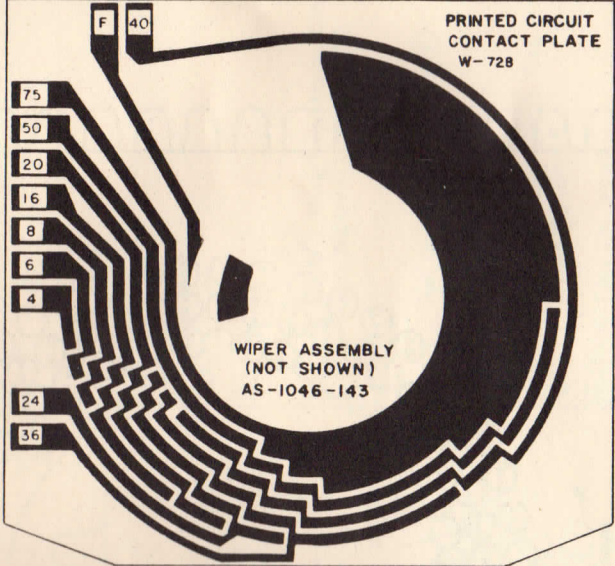
SCORE FEATURE UNIT viewed from BUTTON or WIPER side

8 step unit. Wipers shown in zero or reset position

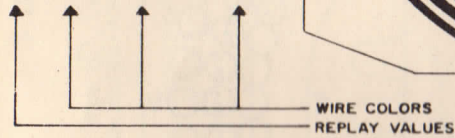


REPLAY COUNTER viewed from WIPER side 3 used (see code box at left)

LUG	YELLOW REPLAY COUNTER	RED REPLAY COUNTER	GREEN REPLAY COUNTER
50	57-2	40-3	54-6
75	50-6	52-6	61-6
F	23	71	91
36	51-2	23-3	74-3
24	41-2	20-3	65-3
20	40-2	10-3	63-3
16	23-2	85-2	60-3
8	93-1	83-2	48-3
6	81-1	74-2	43-3
4	78-1	60-2	41-3
40	52-2	25-3	80-3



Complete Unit - AS-797-36
Reset Coil - 28-R-15
Step-up Coil - 25-GG-7
Step-up Plunger - S-496-116
Step-up Arm - A-1765-49
Ratchet & Shaft - C-100



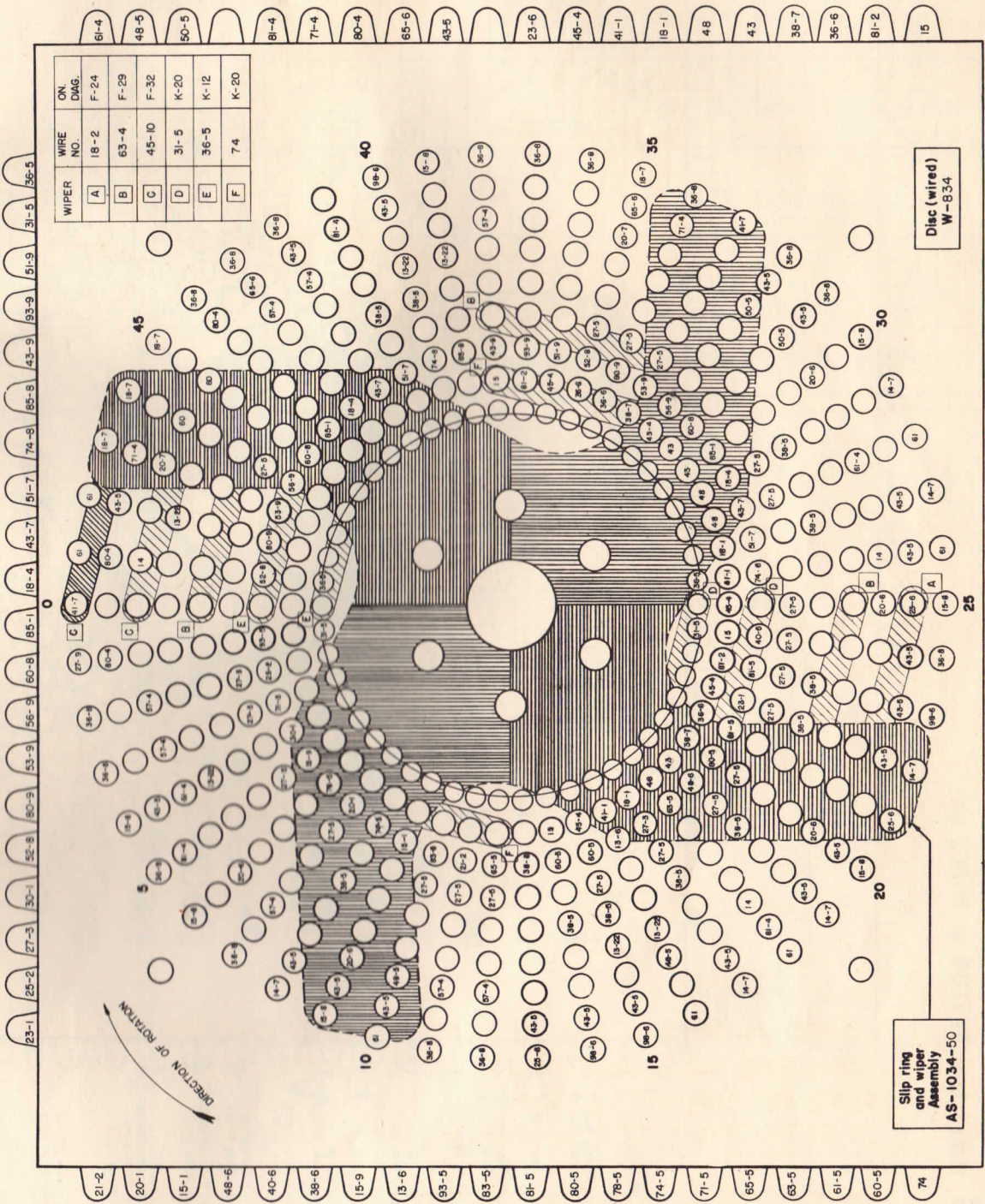
CAM SWITCHES THAT PULSE YELLOW, GREEN & RED REPLAY COUNTER STEP-UP COILS								
	SW 13A	SW. 13A	SW. 13A	SW. 13A	SW. 12A	SW12 A	SW. 11 A	SW. 10A
5 IN LINE	75 	75 	96 	96 	200 	300 	450 	600 
4 IN LINE	16 	20 	24 	50 	96 	144 	240 	480 
3 IN LINE	4 	6 	8 	16 	32 	64 	120 	192 

LARGE NUMBERS ARE REPLAY SCORES SHOWN ON BACK GLASS.
NUMBERS IN SHADED CIRCLES INDICATE WHICH PORTION OF
REPLAY CIRCUIT STRIP
IS EFFECTIVE FOR A PARTICULAR REPLAY SCORE.

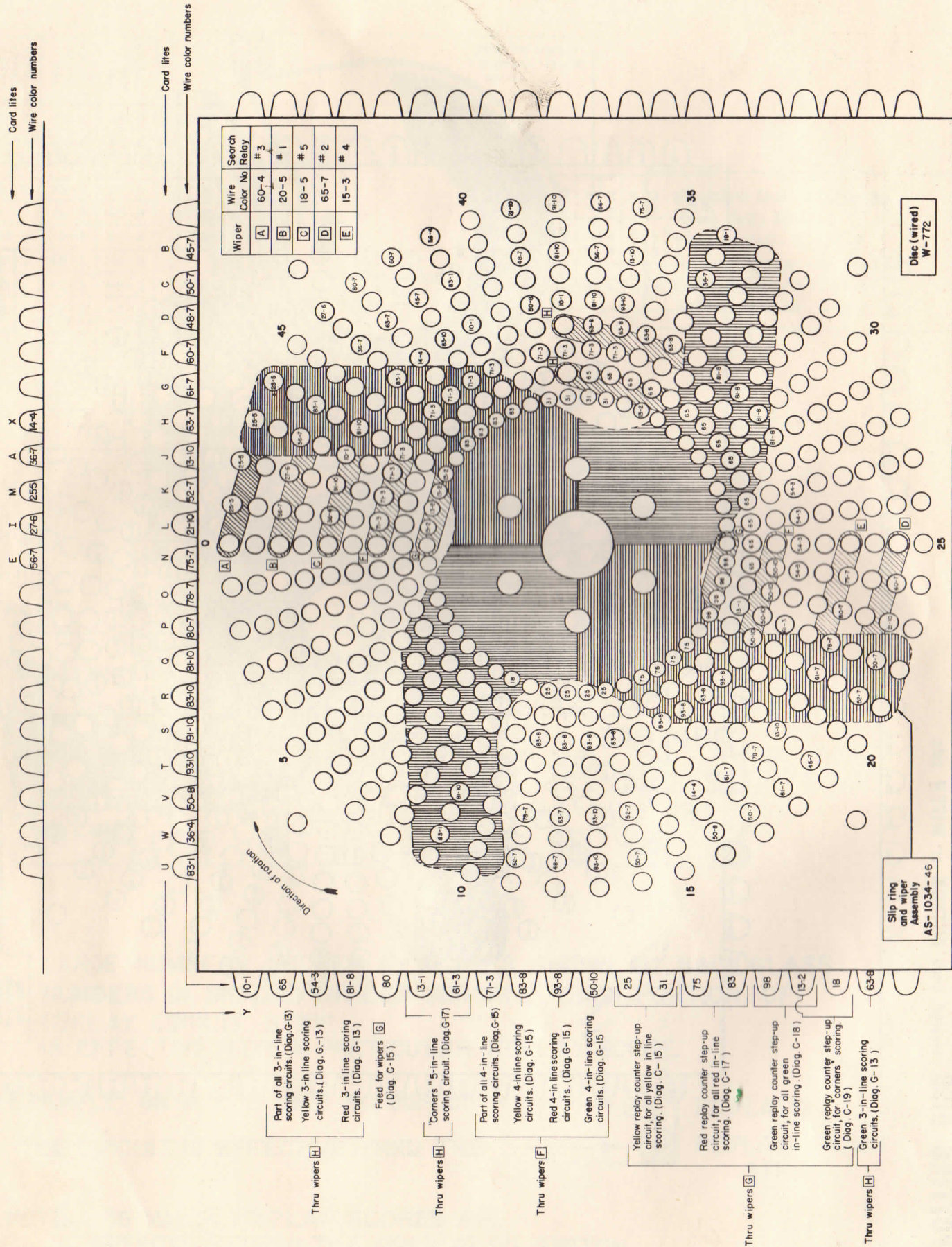
EXAMPLE: ON A 3-IN-LINE SCORE OF 64 REPLAYS
THE CIRCUIT IS EFFECTIVE THRU THE 16 REPLAY CIRCUIT STRIP

NOTE: 96 VALUE REPLAY SCORES ARE
EFFECTIVE THRU THE OPEN AT 96 SWITCH.

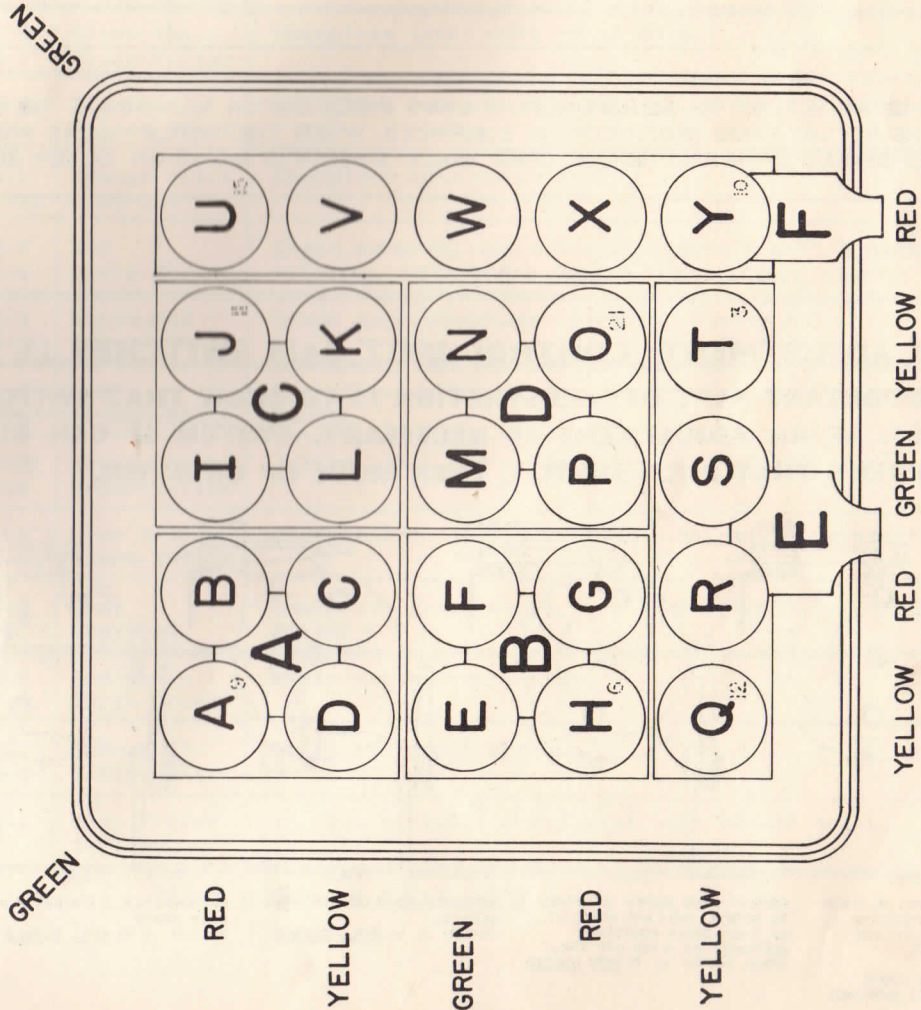
SPOTTING DISC viewed from BUTTON or WIPER side



SEARCH DISC viewed from BUTTON or WIPER side



CARD LAYOUT
NEUTRAL POSITION



SEARCH POSITIONS									
WIPER (A) AT POSITION	WIPER (B) ROW 7 SEARCH RELAY #1	WIPER (C) ROW 8 SEARCH RELAY #2	WIPER (D) ROW 9 SEARCH RELAY #3	WIPER (E) ROW 6 SEARCH RELAY #4	WIPER (F) ROW 5 SEARCH RELAY #5				
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34	A	U	Y	Q					
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36	J	K	N	O	T				
37	A	D	E	H	Q				
38	Q	R	S	T	Y				
39	D	C	L	K	V				
40									
41	U	V	W	X	Y				
42	B	C	F	G	R				
43	H	G	P	O	X				
44	A	B	I	J	U				
45	U	K	M	G	Q				
46	A	C	M	O	Y				
47	I	L	M	P	S				
48	E	F	M	N	W				
49									
50									

GREEN

RED

YELLOW

GREEN

RED

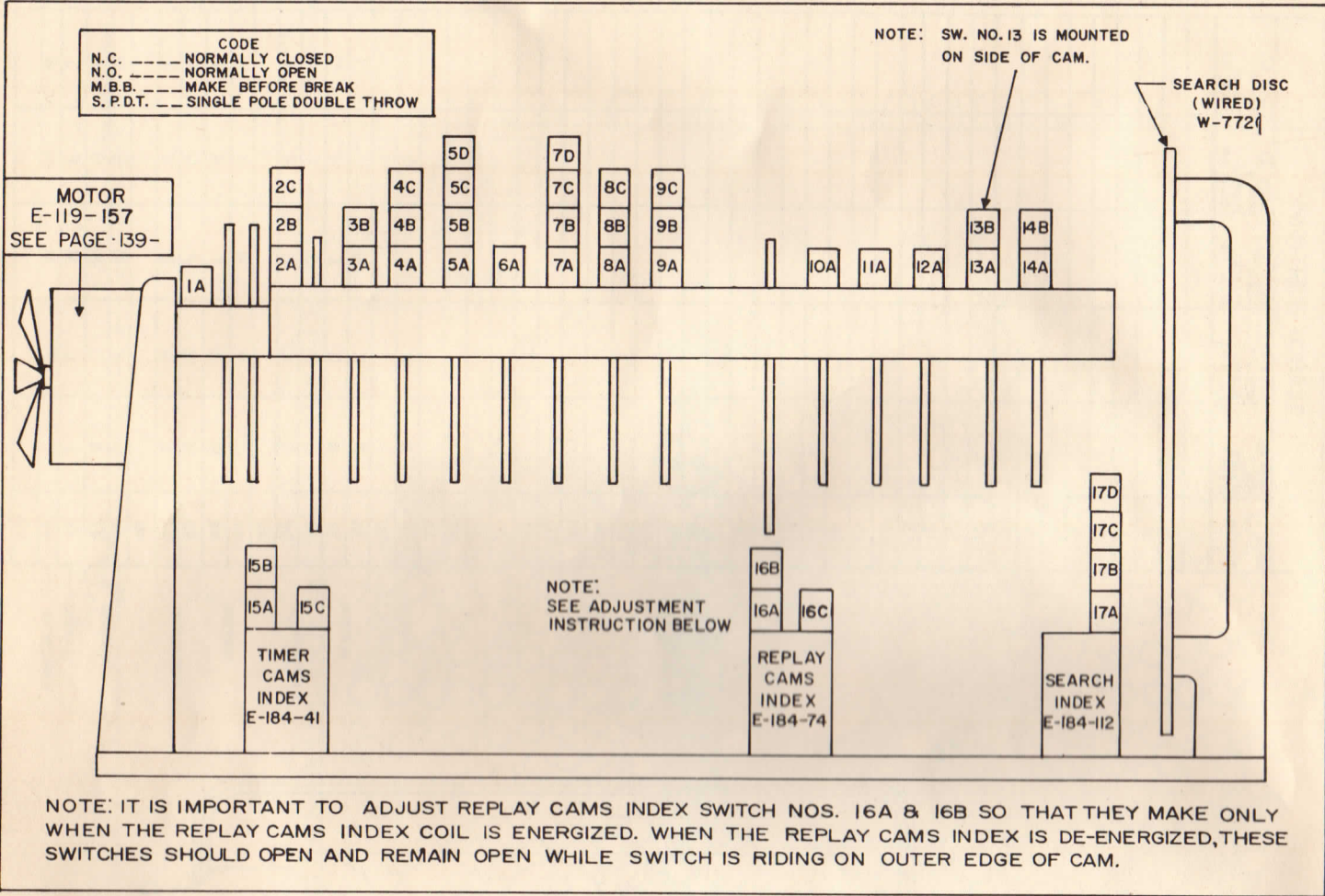
YELLOW

YELLOW RED GREEN YELLOW RED

FROM 50 TO 1
ROTATION OF SEARCH DISC WIPERS

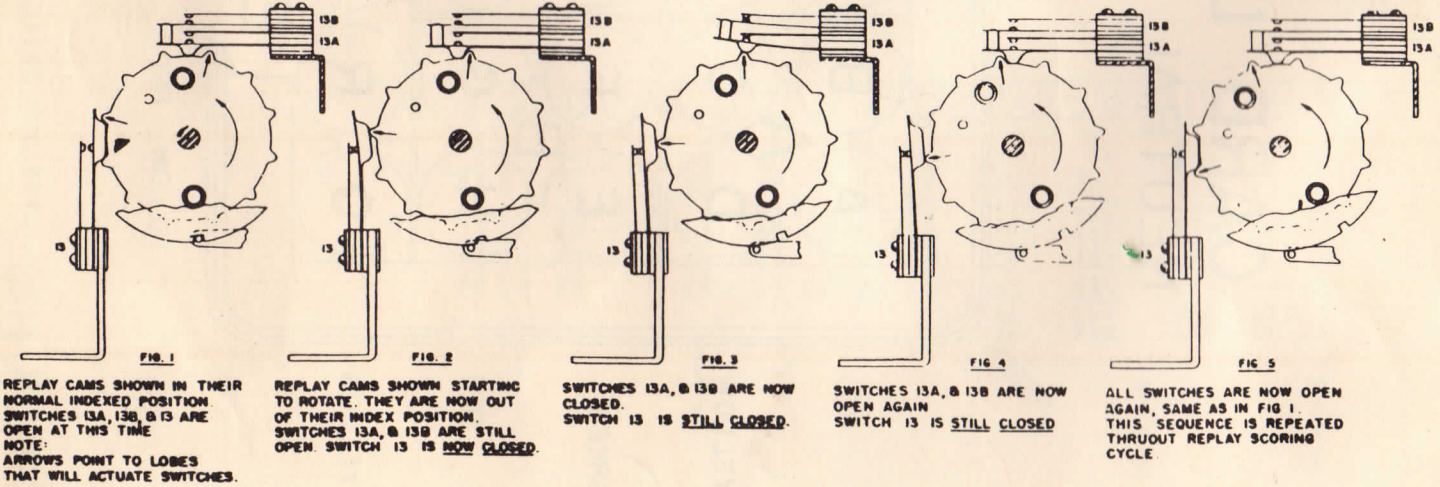
CONTROL UNIT PICTORIAL VIEW

NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 131



CORRECT ADJUSTMENT: CONTROL UNIT CAM SWITCHES 13, 13A & 13B

NOTICE: IMPORTANT PART OF 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.



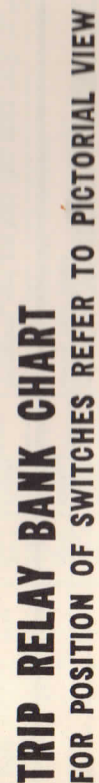
CONTROL UNIT CAM SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 130

CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.O.	F-10	65-2 36-9	Brown-White Yellow-Brown	Circuit to step timer unit, after shooting 5th ball.
2A N.O.	I-3	90-5 30	Gray Yellow	Energizes reflex play magnet, and replay register reset coil. Also pulses total plays meter.
2B N.O.	C-42	93-4 30	Gray-Yellow Yellow	Energizes coin kicker coil.
2C N.C.	E-14	31-7 57-6	Yellow-Red White-Orange	Drops out red button relay.
3A N.C.	I-4	48-2 83-3	Green-Black Black-Yellow	Drops out start relay, and acts as safety switch during spin.
3B S.P.D.T.	B-18	93-7 98-4 91-7	Gray-Yellow Gray-Black Gray-Red	Directs circuit to replay meter, or total plays meter.
4A N.O.	C-44	98-1 30	Gray-Black Yellow	Energizes spotting cams index coil.
4B N.O.	B-40	25-9 30	Blue-White Yellow	Energizes score extra step index coil.
4C N.O.	C-5	14-9 80-2	Red-Green Black	Used if coin meter is added in front cabinet.
5A N.O.	G-10	65-2 83-1	Brown-White Black-Yellow	Energizes timer unit reset coil.
5B N.O.	B-25	21-1 38-4	Blue-Red Yellow-Black	Energizes extra-ball unit step-up coil. (guaranteed step)
5C N.O.	D-26	78-4 91-11	Orange-Black Gray-Red	Energizes anti-cheat relay.
5D N.O.	F-31	10-7 85-4	Red Black-White	Magic squares, and selection feature unit single steps circuit. Also score feature unit single steps.
6A N.C.	I-30	51-5 75-5	White-Red Orange-White	Opens game advantage circuits, during spin.
7A N.O.	B-29	10-1 75-8	Red Orange-White	Energizes yellow score unit step-up coil. (guaranteed steps)
7B N.O.	F-29	54-21 63-4	White-Green Brown-Yellow	Yellow, red, and green score unit single steps circuit.
7C N.O.	B-30	23-9 83-4	Blue-Yellow Black-Yellow	Energizes red score unit step-up coil. (guaranteed steps)
7D N.O.	B-31	90-4 91-5	Gray Gray-Red	Energizes green score unit step-up coil. (guaranteed steps)
8A N.O.	G-31	14-8 56-6	Red-Green White-Brown	Magic-squares unit steps.
8B N.O.	B-25	25-4 38-4	Blue-White Yellow-Black	Extra ball unit steps.
8C N.O.	C-41	93-4 30	Gray-Yellow Yellow	(Safety circuit) energizing coin kicker coil.

CONCLUDED ON NEXT PAGE

TRIP RELAY BANK PICTORIAL VIEW

NUMBERS CORRESPOND TO SWITCH CHART

133

CONCLUDED ON NEXT PAGE

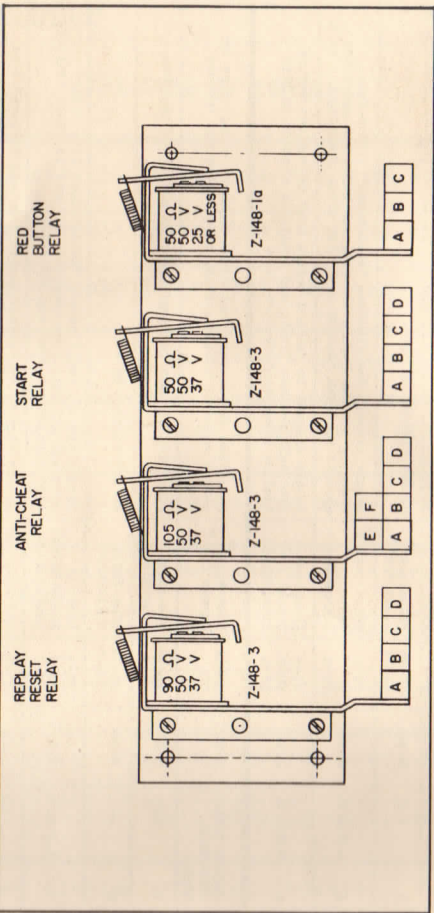
TRIP RELAY BANK CHART

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
BEFORE 4th SELECTOR LOCK TRIP COIL	A-11	J 70	Jumper Orange	Energized thru timer unit disc, when 4th ball is shot.
1	N.C.	B-11 J	Black-Yellow Jumper	Breaks circuit to coil.
2	N.C.	H-38 88-9	Red-White Gray-Black	Breaks circuit to "magic-squares and lines" buttons.
3	N.O.	H-9 36-2 43-2	Yellow-Brown Green-Yellow	Completes circuit to timer unit step-up coil.
4	N.O.	F-12 10-6 80-6	Red Brown	Completes a circuit to energize score feature lock-out trip relay.
5	N.C.	K-1 10-5 27-4	Red Blue-Orange	Breaks circuit to "select-now" lite.
BEFORE 5th SELECTOR LOCK TRIP COIL	A-11	J 70	Jumper Orange	Energized thru timer unit disc, when 5th ball is shot.
L1	S.P.D.T.	L1 98-3 14-1 75-3	Gray-Black Red-Green Orange-White	Breaks circuit to flash "select-now" lite (for select before 5th ball), and completes circuit to flash "select-now" lite for (select after 5th ball).
L2	N.C.	B-11 J	Orange-Green Jumper	Breaks circuit to coil.
L3	N.O.	B-14 35-3 38-2	Blue-White Yellow-Black	Completes circuit to extra-ball trip relays, for extra-ball play.
L4	N.C.	B-39 25-10 31-10	Blue-White Yellow-Red	Breaks circuit for energizing yellow roll-over trip relay, (thru yellow rollover button switch).
L5	N.C.	K-6 20-2 43-7	Blue Green-Yellow	Breaks circuit to yellow rollover lite.
R1	N.O.	G-12 10-6 80-6	Red Brown	Completes a circuit to energize score feature lock-out relay.
R2	N.C.	F-38 45-5 15-10	Green-White Red-White	Breaks circuit to "magic-squares & lines buttons."
R3	N.O.	I-19 45-6 33	Green-White White-Brown	In series circuit for replay scoring.
R4	N.O.	D-9 27-2 78-6	Blue-Orange Orange-Black	Completes circuit to timer unit step-up coil.
R5	N.O.	E-4 18-6 50-6	Red-Black White	Completes circuit to make yellow button alive. (For extra ball play)
AFTER 5th SELECTOR LOCK TRIP COIL	A-10	J 70	Jumper Orange	Energized when 6th ball (1st extra ball) is shot.
L1	N.C.	K-1 75-3 78-2	Orange-White Orange-Black	Breaks circuit to "select-now" lite.
L2	N.C.	B-11 98-5 J	Gray-Black Jumper	Breaks circuit to coil.
L3	N.C.	K-6 10-9 51-7	Red White-Red	Breaks circuit to red rollover lite.
R1	N.C.	F-39 27-10 91-6	Blue-Orange Gray-Red	Breaks circuit to "magic-squares and lines" buttons.
R2	N.C.	C-40 18-10 61-9	Red-Black Brown-Red	Breaks circuit for energizing red rollover trip relay. (Thru red rollover button switch)
CORNERS TRIP COIL	A-35	J 70	Jumper Orange	Energized thru spotting unit disc, when circuit complete thru other factors.
1	N.O.	J-9 85-1 30	Black-White Yellow	Completes circuit to lite "corners" lite.
2	N.C.	B-35 61-4 J	Brown-Red Jumper	Breaks circuit to coil.
3	N.O.	G-20 13-1 71-3	Red-Yellow Orange-Red	Part of corners replay scoring circuit.
4	N.O.	C-22 18 98	Red-Black Gray-Black	Same as above.

TRIP RELAY BANK CHART

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
TIPT TRIP COIL	A-15	14-5 70	Red-Green Orange	Energized by any tilt switch or the plumb-bob tilt. Also at 38th step of timer unit.
L1	S.P.D.T.	I-7 21-3 40-5 48-8	Blue-Red Yellow Green-White	Breaks circuits for game advantages, replay scoring, ball counting, and completes circuit to shutter motor.
L2	N.C.	I-38 40-8 98-9	Green Gray-Black	Breaks circuit to "magic-squares and lines" buttons.
L3	N.C.	L-27 10 20-4	Red Blue	Breaks 17 volt circuit.
L4	S.P.D.T.	L-26 38 81 91-2	Yellow-Black Black-Red Gray-Red	Breaks 6 volt circuit, and lites tilt lite.
R1	N.O.	D-15 57-6 85-7	White-Orange Black-White	Safety circuit. (Red button relay)
R2	N.O.	G-12 60-6 30	Brown Yellow	Completes circuit to energize score feature lock-out relay.
R3	N.C.	G-1 20-P 60-P	Blue (Plastic) Brown(Plastic)	Breaks circuit to control unit, and mixer-spotting unit motors.

4 RELAY BANK PICTORIAL VIEW
NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 135



Coil part numbers

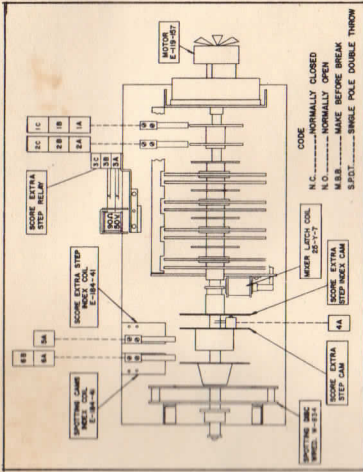
50 ~ 50V - C-2794-9
90 ~ 50V - C-2794-1
105 ~ 50V - C-2794-23

4 RELAY BANK SWITCH CHART

FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 134

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
REPLAY RESET RELAY COIL	A-4	75-2 70	Orange-White Orange	Energizes when anti-cheat relay drops out.
A	S.P.D.T.	C-3 90-5 13-9 53-7	Gray Red-Yellow White-Yellow	Directs replay register reset circuit thru control unit cam switch #24, when replays are being played, or thru 16 pulse cam when replays are being cancelled.
B	N.O.	G-3 56-2 75-2	White-Brown Orange-White	Lock-in switch for this relay.
C	N.O.	G-1 20-P 60-P	Blue (Plastic) Brown(Plastic)	Completes circuit to control unit, and mixer & spotting unit motors, when replays are being cancelled.
D	N.C.	C-4 21-6 63-2	Blue-Red Brown-Yellow	Opens start circuit during replay cancel.
ANTI-CHEAT RELAY COIL	A-26	78-4 70	Orange-Black	Energized thru control unit cam switch #5C, its switches protect replay, game advantage, and lite circuits.
A	S.P.D.T.	G-4 75-2 56-2 50-2	Orange-White White-Brown White	Breaks start relay circuit, and completes circuit to replay reset relay when this relay drops out.
B	N.O.	D-26 78-4 30	Orange-Black Yellow	Lock-in switch for this relay.
C	N.O.	M-27 20-4 80-1	Blue Black	Breaks 17 volt circuit, when relay drops out.
D	N.C.	D-14 57-6 85-7	White-Orange Black-White	Safety switch. (Red button relay circuit.)
E	S.P.D.T.	L-25 91-2 38 54-2	Gray-Red Yellow-Black White-Green	Breaks 6 volt circuit, and lites tilt lite, when this relay drops out.
F	N.C.	G-13 21 60-6	Blue-Red Brown	(Safety switch) Red button relay circuit.
START RELAY COIL	A-4	21-6 70	Blue-Red Orange	Energized every time a coin is played, or when red or yellow button is pressed.
A	N.C.	B-24 75-4 78	Orange-White Orange-Black	Opens extra ball step-up circuit during spin.
B	N.C.	G-29 14-8 83-9	Red-Green Black-Yellow	Opens game advantage circuits during spin.
C	N.O.	F-6 13-3 90-9	Red-Yellow Black-White	Completes circuit to timer cams index, and mixer latch coils.
D	N.O.	F-4 48-2 63-2	Green-Black Brown-Yellow	Lock-in switch for this relay.
RED BUTTON RELAY COIL	A-14	85-7 70	Black-White Orange	Energizes when red button is pressed.
A	S.P.D.T.	C-6 93-2 98-2 14-3	Gray-Yellow Gray-Black Red-Green	Directs circuit from mixer latch, and timer cams index coils during extra ball play, to shutter motor when starting new game after extra ball play.
B	N.O.	D-14 31-7 27-8	Yellow-Red Blue-Orange	Lock-in switch for this relay.
C	N.C.	K-25 50-9 21-4	White Blue-Red	Opens extra ball lite circuit.

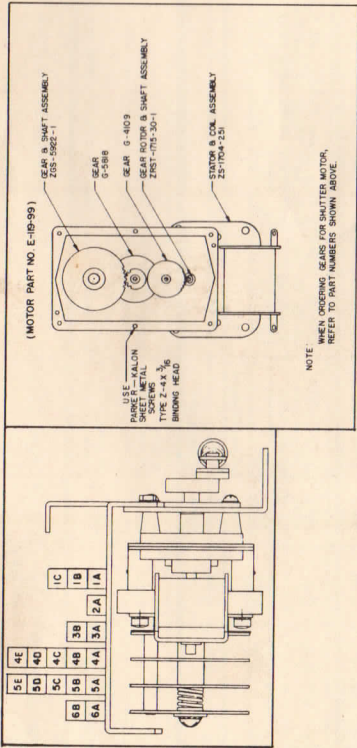
MIXER AND SPOTTING UNIT ASSEMBLY
NUMBERS CORRESPOND TO SWITCH CHART BELOW



MIXER AND SPOTTING UNIT CAM SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ABOVE

CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A	N.O.	F-31 14-8 45-10	Red-Green Green-White	Pulses magic-squares, selection feature, score feature for multiple steps. Also energizes corners, Bally-note, and magic line "Fe" trip relays.
1B	N.O.	J-2 80-9 90	Black Gray	Flashes select-now lite.
1C	N.O.	L-12 54-9 91-9	White-Green Gray-Red	Flashes "play score feature now" lite.
2A	N.O.	D-3 53-7 75-2	White-Yellow Orange-White	Pulses replay register reset coil.
2B	N.O.	B-24 38-4 78	Yellow-Black Orange-Black	Pulses extra ball unit step-up coil, for multiple steps.
2C	N.O.	E-36 48-21 51-21	Green-Black White-Red	Pulses magic squares feature unit step-up coll. (Next game feature, when Bally-note hit circuit.)
SCORE EXTRA STEP RELAY COIL	A-8	43-6 70	Green-Yellow Orange	Energized by yellow, red, or green score unit step-up arm switch.
3A	N.O.	B-8 43-6 81-3	Green-Yellow Black-Red	Lock-in circuit for this relay.
3B	N.O.	C-27 90-4 51-6	White White-Red	Completes circuit for yellow, red, and green score unit multiple steps.
3C	N.C.	I-3 15-5 30	Red-White Yellow	(Safety switch) Opens start circuit.
4A	N.O.	D-27 43-4 50-4	Green-Yellow White	Pulses yellow, red, and green score units for multiple steps.
SCORE EXTRA STEP INDEX COIL	A-40	25-9 70	Blue-White Orange	Energized during timing cam cycle, by control unit cam switch #4B.
5A	N.O.	C-9 13-5 81-3	Red-Yellow Black-Red	Lock-in circuit for score extra step relay.
SPOTTING CAMS INDEX COIL	A-44	98-1 70	Gray-Black Orange	Energized during timing cam cycle, by control unit cam switch #4A.
6A	N.O.	J-20 13-4 30	Red-Yellow Yellow	Flashes game advantage lites, also flashes extra ball lites, during extra ball play.
6B	N.O.	J-13 61-8 30	Brown-Red Yellow	Flashes game advantage lites.

SHUTTER MOTOR PICTORIAL VIEW



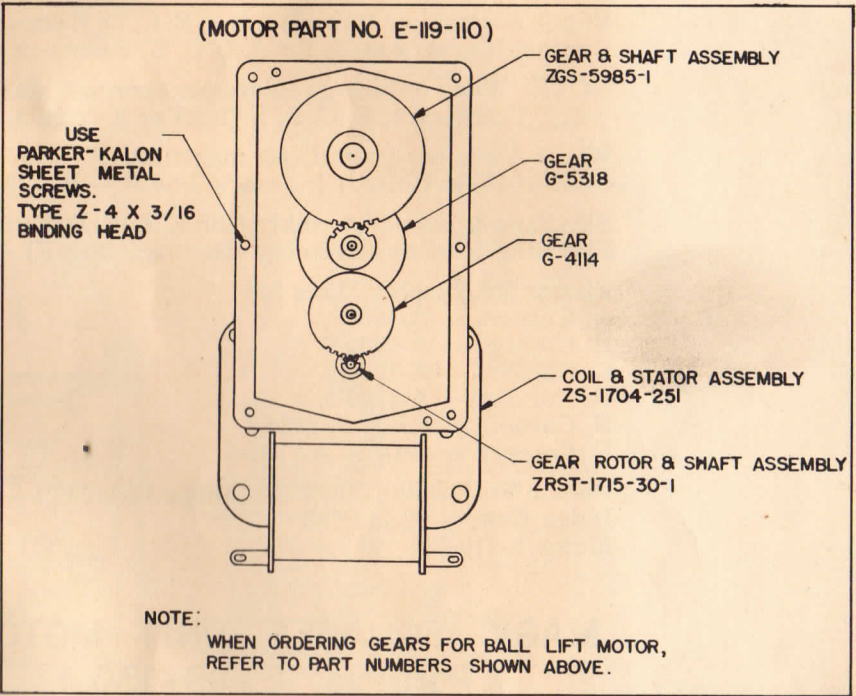
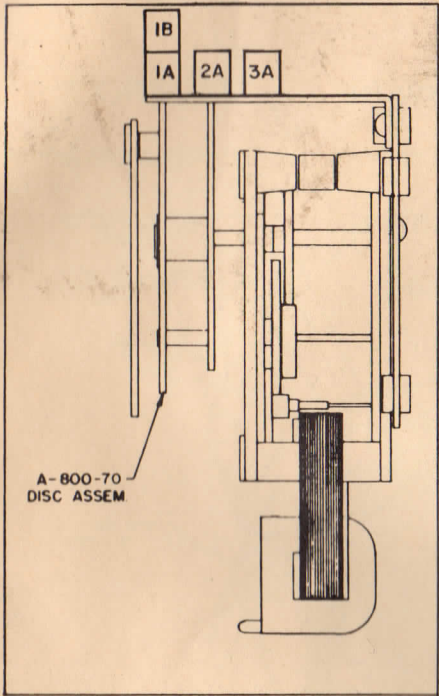
SHUTTER MOTOR CAM SWITCH CHART
FOR POSITION OF SWITCHES SEE PICTORIAL VIEW

CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A	N.C.	H-17	Blue-Red Gray-Yellow	(Closed when shutter is closed) Completes circuit for replay scoring.
1B	N.O.	G-6	Red-Green Yellow	Carry-over circuit for shutter motor.
1C	N.C.	H-10	Blue-Red Gray-Black	Safety switch. (Timer unit reset circuit)
2A	N.C.	F-16	Yellow-Red Yellow-Brown	(Closed when shutter is closed) Completes circuit to ball lifter motor.
3A	N.O.	C-43	Black-White Yellow	Resets extra ball yellow, red, and green replay counter units.
3B	N.O.	H-2	Blue (Plastic) Orange(Plastic)	Resets trip relay bank.
4A	N.O.	F-6	Red-Green Red-Black	(Closed when shutter is open) Completes circuit to shutter motor.
4B	N.C.	I-37	Blue-Red Green	Completes circuit to magic squares buttons.
4C	N.O.	H-6	Red-Black Green-White	Starts shutter motor, if game is tilted, when shutter is open.
4D	N.O.	J-13	Yellow-Brown Brown-Red	(Closed when shutter is open) Completes feature lites flash circuit.
4E	N.O.	H-36	Blue-Red Gray-Yellow	(Closed when shutter is open) Completes circuit to step magic squares feature unit. (Part of next game feature circuit)
5A	N.C.	F-28	White-Blue White-Green	Proportioning circuit. (Score step)
5B	N.C.	J-40	Yellow-Brown Gray	(Closed when shutter is closed) Part of Bally-hole next game feature circuit.
5C	N.O.	D-40	Yellow-Red Gray-Red	Safety circuit. (Lifter start relay)
5D	N.C.	G-10	Brown-White Gray-Black	Safety switch. (Timer unit reset circuit)
5E	N.O.	H-29	Green-White Black-Yellow	(Closed when shutter is open) completes game advantage circuits.
6A	N.O.	H-10	Orange-Red Yellow	Resets timer unit.
6B	N.O.	C-43	Orange-Black Yellow	Resets magic squares feature unit, yellow, red, green score units, selection feature unit, and score feature unit.

MISCELLANEOUS RELAYS SWITCH CHART

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
NEXT GAME FEATURE TRIP COIL	L-40	J 10	Jumper Red	Energized by #16 hole switch, when Bally-hole trip relay is energized.
RESET COIL	A-36	40-5 70	Green Orange	Energized thru magic-squares unit switch, when unit is at 11th step.
A	N.C.	50-8 J	White Jumper	Breaks circuit to step-up coil.
B	N.O.	13-21 30	Red-Yellow Yellow	Completes circuit to lite "A-B-C-D-E next game feature lite."
C	N.C.	41-21 45-9	Green-Red Green-Black	Breaks regular step-up circuit to magic squares unit.
D	N.C.	40-5 45-21	Green Green-White	Breaks circuit to reset coil.
E	N.O.	51-21 93-21	White-Red Gray-Yellow	Completes circuit for stepping magic squares unit to top. Also to reset next game feature trip relay.
LIFTER START COIL	A-41	38-8 70	Yellow-Black Orange	Energized when a ball is on ball runway switch. This relay controls ball lifter circuit.
A	N.C.	15-6 40-8	Red-White Green	Safety circuit. (Selector lock, and score feature lock trip relays)
B	N.C.	G-16	Yellow-Red Green-Red	Breaks ball lifter motor circuit.
C	N.O.	C-40	Yellow-Brown Yellow-Black	Lock-in circuit for this relay.
MAGIC SQUARES MOTOR RELAY	A-12	78-10 70	Orange-Black Orange	Energized by magic squares index coil switches, when magic squares buttons are pressed.
A	N.C.	M-37	Red Orange-Red	Safety circuit (Breaks circuit to #9 search relay)
B	N.O.	G-2	Blue (Plastic) Brown(Plastic)	Completes circuit to run magic squares motor.

BALL LIFT MOTOR PICTORIAL VIEW
NUMBERS CORRESPOND TO SWITCH CHART BELOW



BALL LIFT MOTOR SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ABOVE

CAM SWITCH		LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A	N.C.	F-11	15-6 85-21	Red-White Black-White	(Safety circuit) before 5th and after 5th selector lock trip relays.
1B	N.O.	G-16	91-1 30	Gray-Red Yellow	Carry-over switch for ball lifter motor.
2A	N.O.	E-8	27-2 43-2	Blue-Orange Green-Yellow	Energizes timer unit step-up coil.
3A	N.O.	G-12	83-21 21-3	Black-Yellow Blue-Red	Energizes before 4th selector lock trip relay at 4th step of timer unit. Also energizes score feature lock-out relay at 3rd step of timer unit.

MAGIC SQUARES & LINES UNIT PARTS LIST

Complete Unit — AS-1507-6

Wiper Assemblies (wired) for A, B, C, D, E corners — W-757

Contact Plates (wired) for A, B, C, D, E corners — W-766

NOTE: When ordering replacement contact plates W-766 specify for corners A, B, C, D, E (left) or E (right)

Wiper Assembly (wired) for magic line F — W-778

Contact Plate (wired) for magic line F — W-779

Slip Ring & Index Assembly (for A, B, C, D, E corners) — AS-579-23

Slip Ring & Index Assembly (for magic line F) — AS-579-24

Plastic No. Display Discs for

A. Corners — A-1980

B. Corners — A-1980-1

C. Corners — A-1980-2

D. Corners — A-1980-3

E. Corners (left) — A-1980-4

E. Corners (right) — A-1980-5

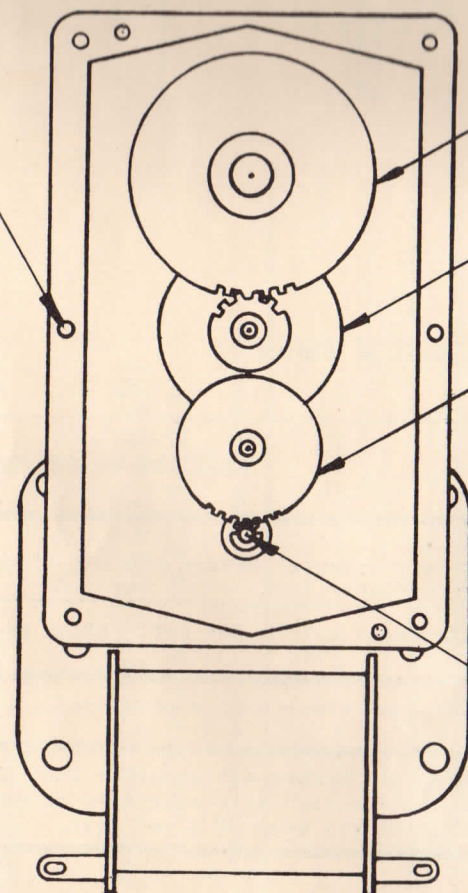
Plastic No. Display Strip (for Magic Line "F") — M-865-1

Index Coils — E-146-392

Motor E-119-130

MAGIC SQUARES UNIT MOTOR (Part No. E-119-130)

USE
PARKER-KALON
SHEET METAL
SCREWS.
TYPE Z-4 X 3/16
BINDING HEAD



GEAR & SHAFT ASSEMBLY
ZGS-6793-1

GEAR
G-5813-3

GEAR
G-4109

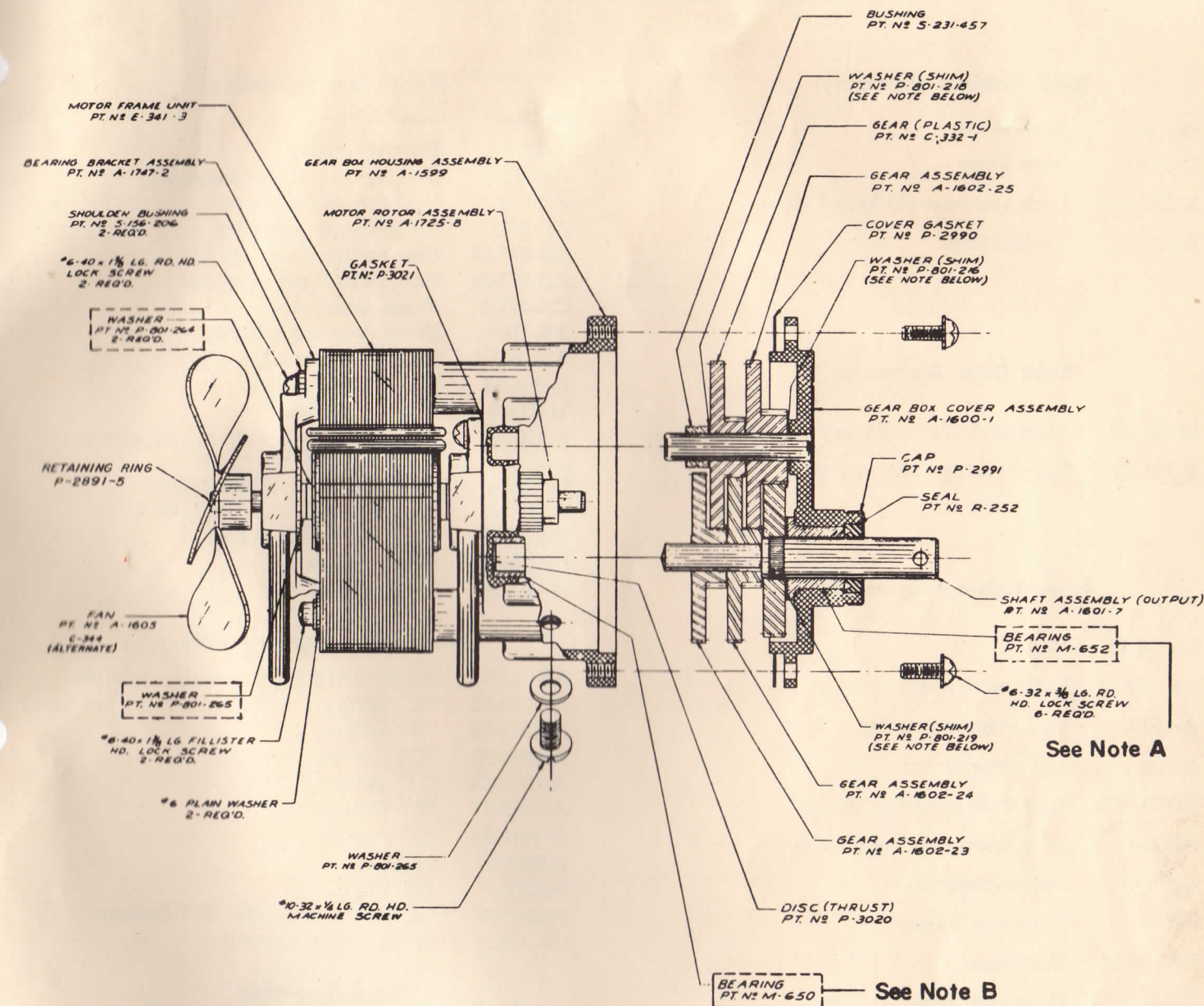
STATOR & COIL ASSEMBLY
ZS-2503-2819

GEAR ROTOR & SHAFT
ASSEMBLY
ZRS-2594

NOTE:

WHEN ORDERING GEARS FOR MAGIC SQUARES
UNIT MOTOR, REFER TO PART NUMBERS SHOWN ABOVE.

MOTOR ASSEMBLY (Part No. E-119-157)



NOTE
IN ORDER TO MAINTAIN PROPER
CLEARANCES BETWEEN GEARS IT
IS MOST IMPORTANT THAT WHEN
REASSEMBLING GEAR TRAIN:
1. SHIMS BE REPLACED IN
THEIR RESPECTIVE LOCATIONS.
2. SAME NUMBER OF SHIMS BE
REPLACED IN EACH RESPECTIVE
LOCATION.

CHECK PART NUMBER ON GEAR
BEFORE ORDERING GEAR

NOTE A: Bearing M-652 is part of Gear Box Cover Assembly A-1600-1
and cannot be ordered separately.

NOTE B: Bearing M-650 is part of Gear Box Housing Assembly A-1599
and cannot be ordered separately.

MISCELLANEOUS PARTS

Back Cabinet Assembly:

Part No.	Name of Part
G-223-1	Back glass
M-281-14	Lock and keys (2) keyed alike
E-122-19	Transformer

Back Door Assembly:

M-281-24	Lock and Keys (2) keyed alike
E-300-73	Search relay bank assembly

Front Cabinet Assembly:

M-168-15	Ball
AS-187-13	Ball shooter assembly
A-1540	Ball shooter housing
A-100-7	Ball shooter rod
SP-200-24	Ball shooter spring (long)
SP-243	Ball shooter spring (short)
R-108-3	Ball shooter tip
P-711-1	Cigarette holder
P-1900-18	Coin box
A-1726	Coin box cover
E-130-10	Counter—48 volt
P-4052	Legs
M-106-1	Leg bolt
M-163-4	Leg adjuster

Front Door Assembly:

Part No.	Name of Part
A-1729-4	Button—metal
C-2342-102	Coil for coin kicker assembly
E-101-45	Coil for coin lock out
AS-1316	Coin kicker assembly
AS-277-33	Coin switch assembly 5¢
AS-277-34	Coin switch assembly 10¢
CA-567-67	Front door only
AS-1801	Front door assembly 5¢
AS-1801-1	Front door assembly 10¢
A-254-33	Hinge and bracket
M-281-6	Lock and keys
E-108-32	Micro switch for coin switch assembly 5¢ and 10¢ play
P-2768-5	Ring-red for A-1729-4 button
P-2768-6	Ring-yellow for A-1729-4 button
P-2768-7	Ring for M-281-6 lock
M-280-15	Slug rejector 5¢
M-280-16	Slug rejector 10¢

Front Moulding Assembly:

AS-1305-11	Front moulding assembly complete
A-1272-23	"A" Button
A-1272-24	"B" Button
A-1272-25	"C" Button
A-1272-26	"D" Button
A-1272-27	"E" Button
A-1272-28	"F" Button
P-2210-8	5¢ Plate
P-2210-9	10¢ Plate
P-2210-36	Plate for A-B—C-D—E-F Buttons
CA-936-2	Front moulding only

Panel Assembly

AS-1315	Ball gate and switch assembly
C-326-9	Light Shield post
R-115-4	Rebound rubber
M-170	Rebound spring-Double post
R-243	Rubber ring for Yellow post
R-243-2	Rubber ring for Red post

Bally pin game lubricant now available in one half-pint (8 Oz.)
containers with plastic spout and screw cap.