

Bally[®]

COUNTY FAIR

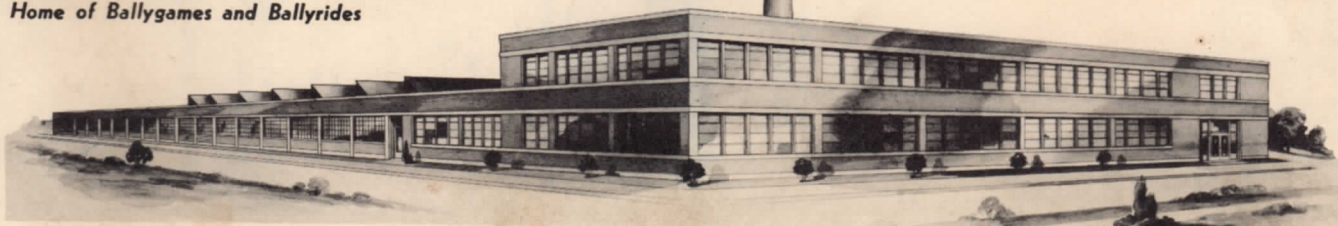
OPERATING INSTRUCTIONS AND PARTS CATALOG

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

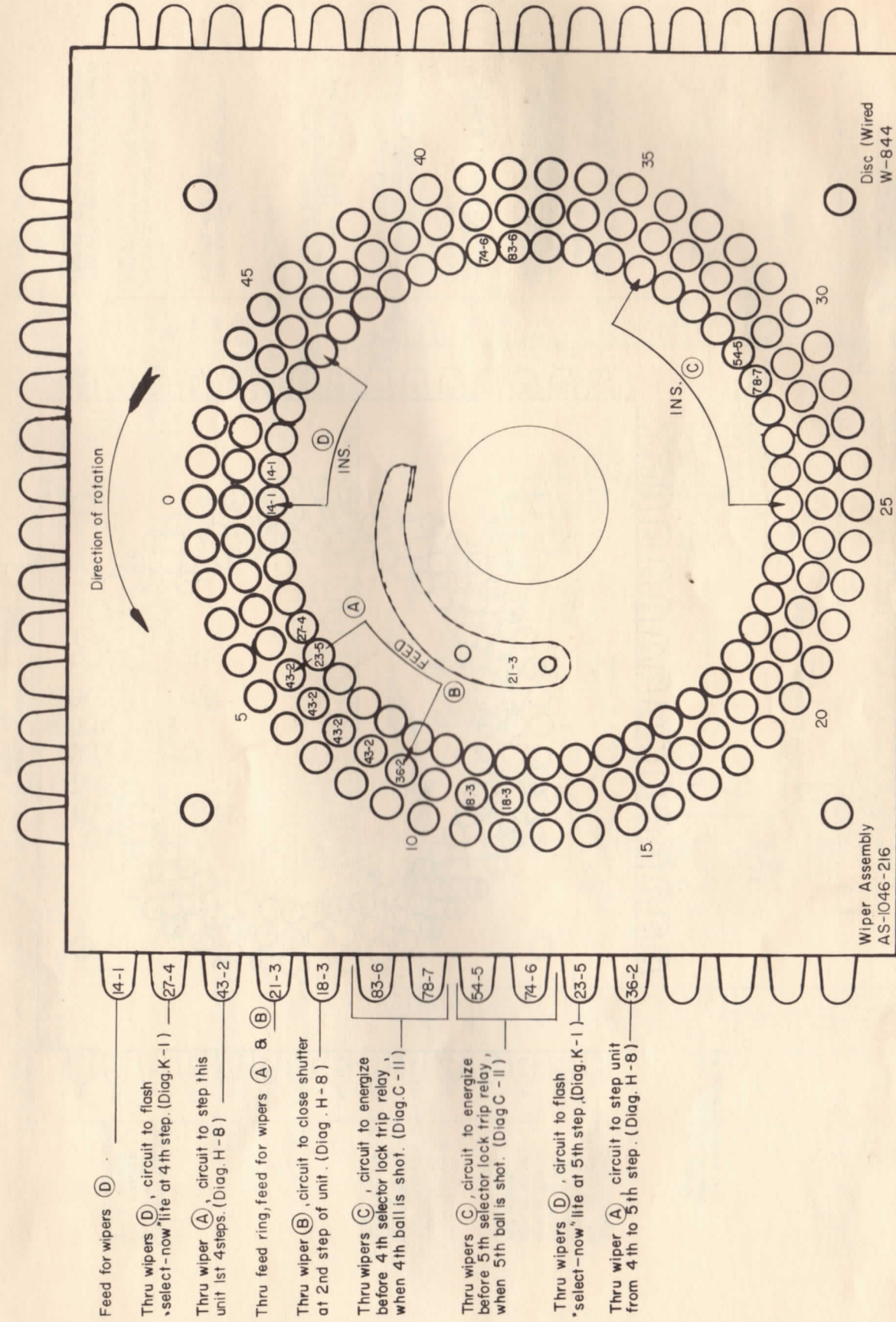
Home of Ballygames and Ballyrides



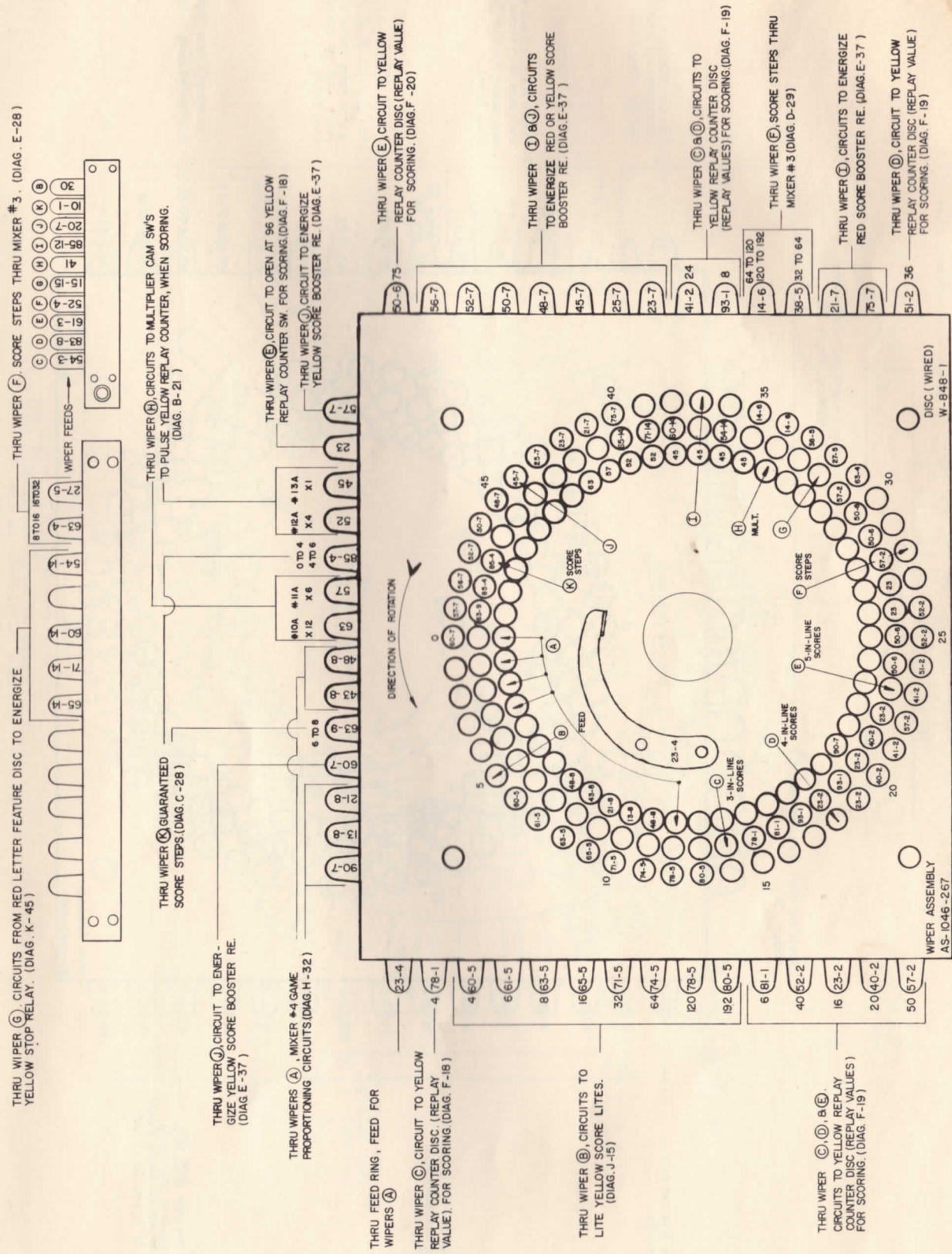
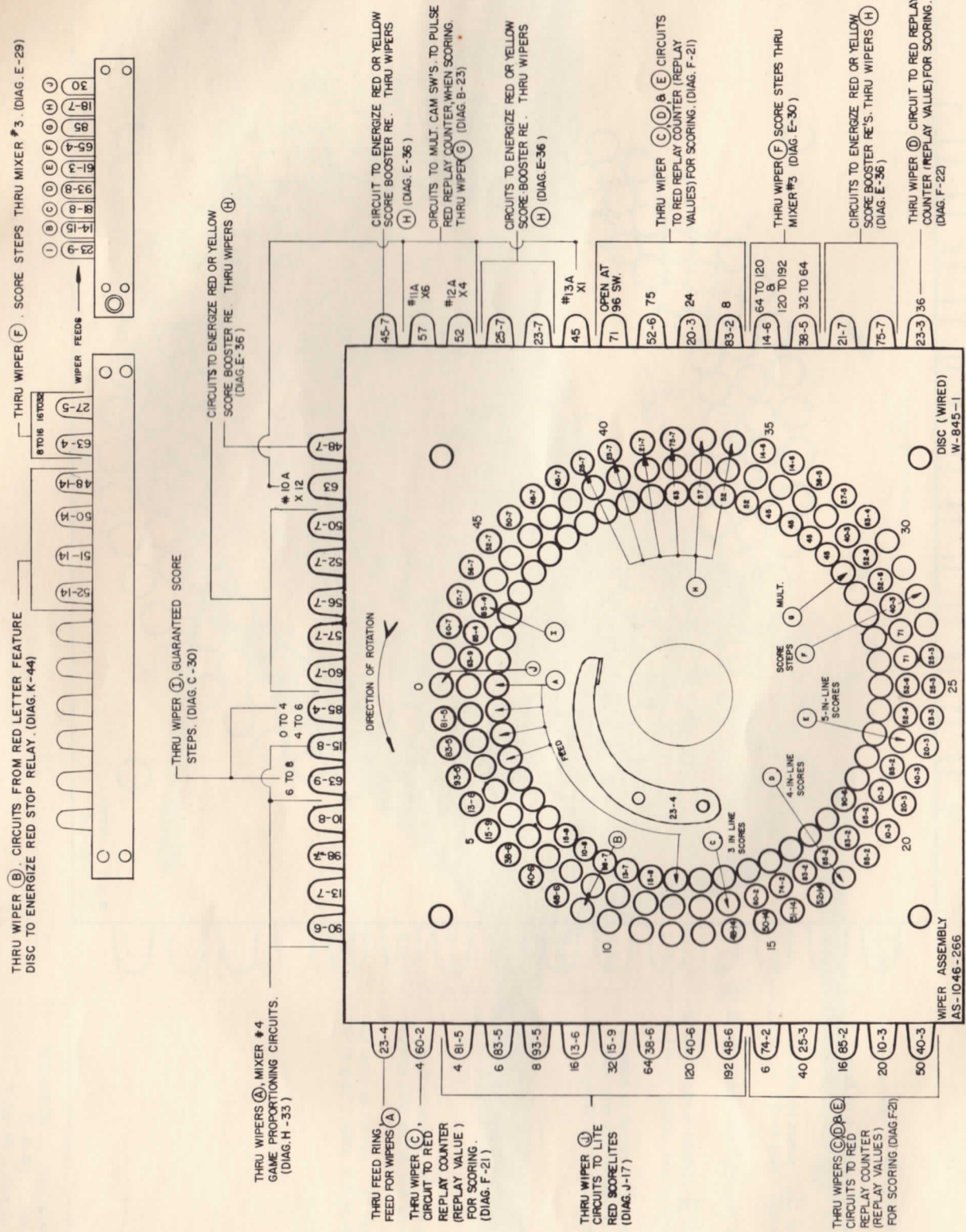


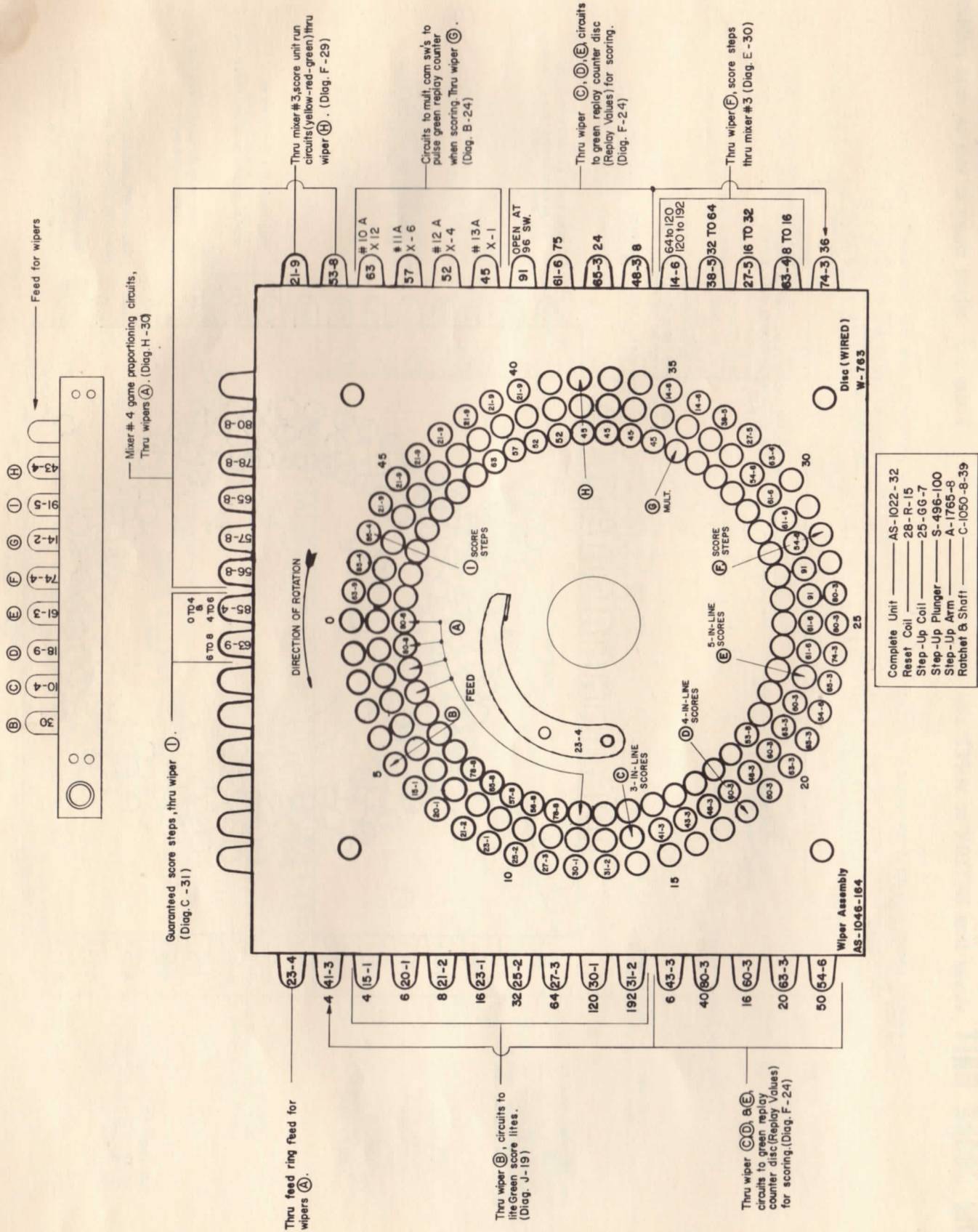
TIMER UNIT viewed from BUTTON or WIPER side

8 step unit. Wipers shown in zero or reset position



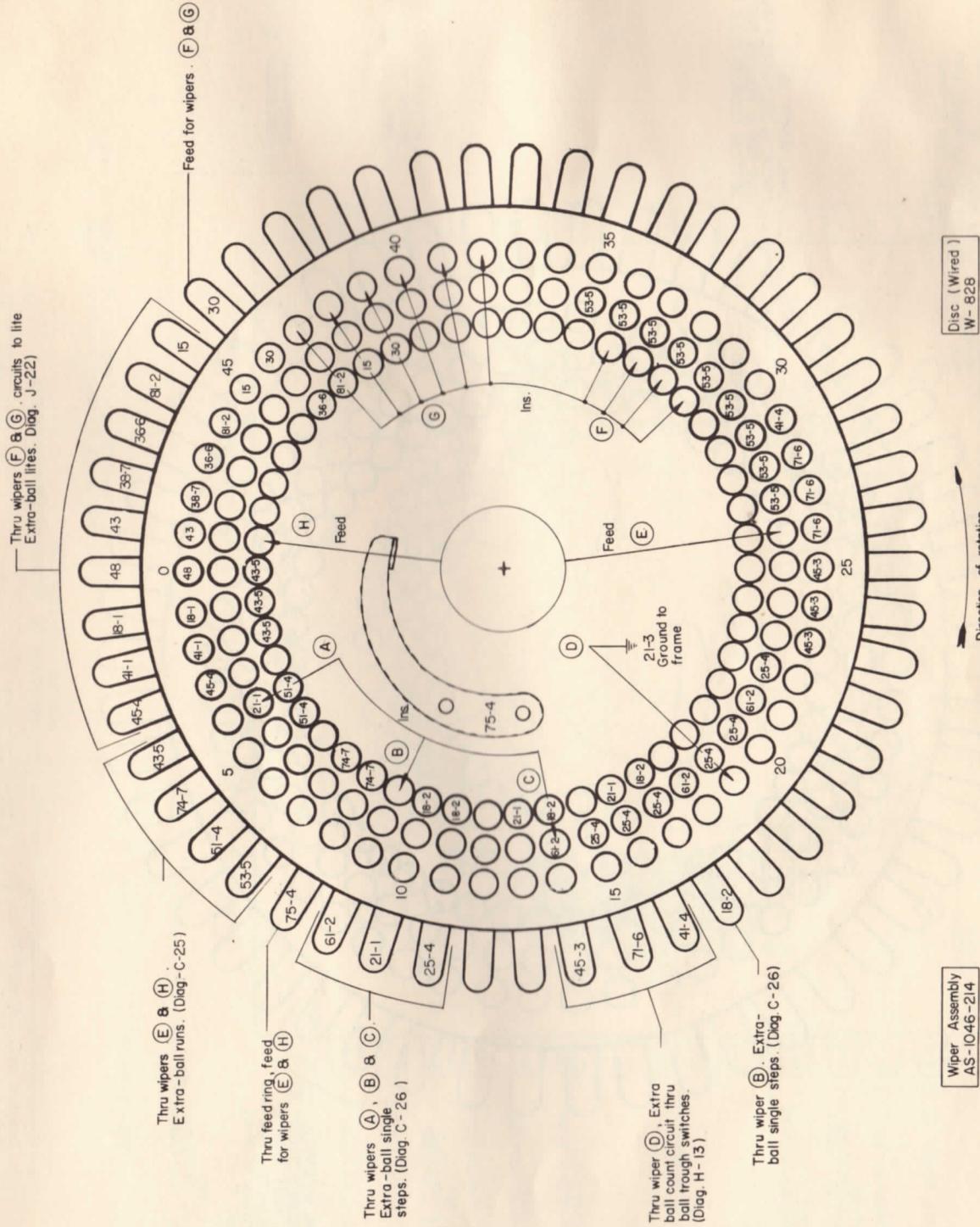
Complete unit... AS-110-29
Reset coil... 28-R-15
Step-up coil... 25-GG-7
Step-up plunger... S-496-100
Step-up arm... A-1765-4
Ratchet & shaft... C-1050-8-41

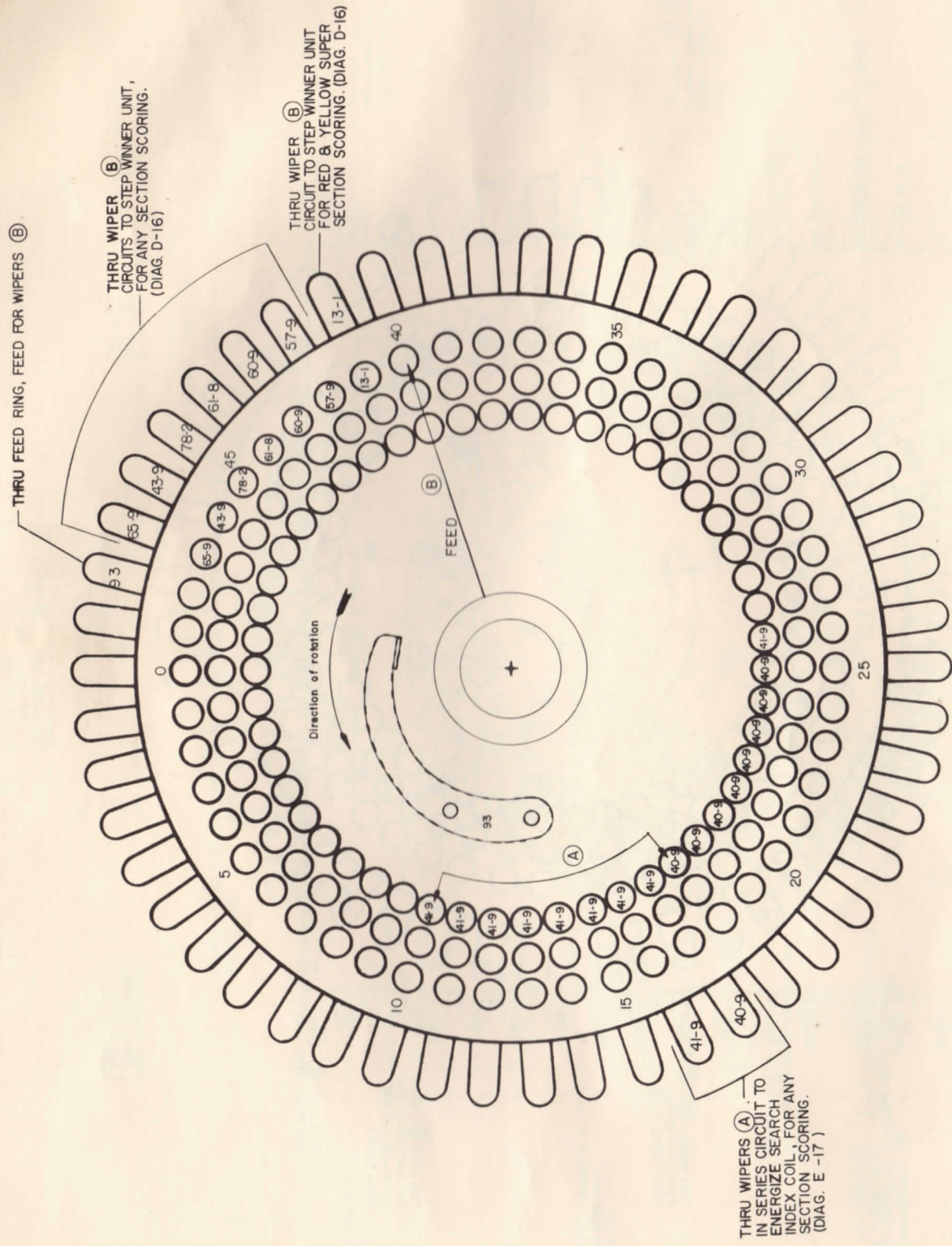




EXTRA BALL UNIT viewed from BUTTON or WIPER side

10 step unit. Wipers shown in zero or reset position

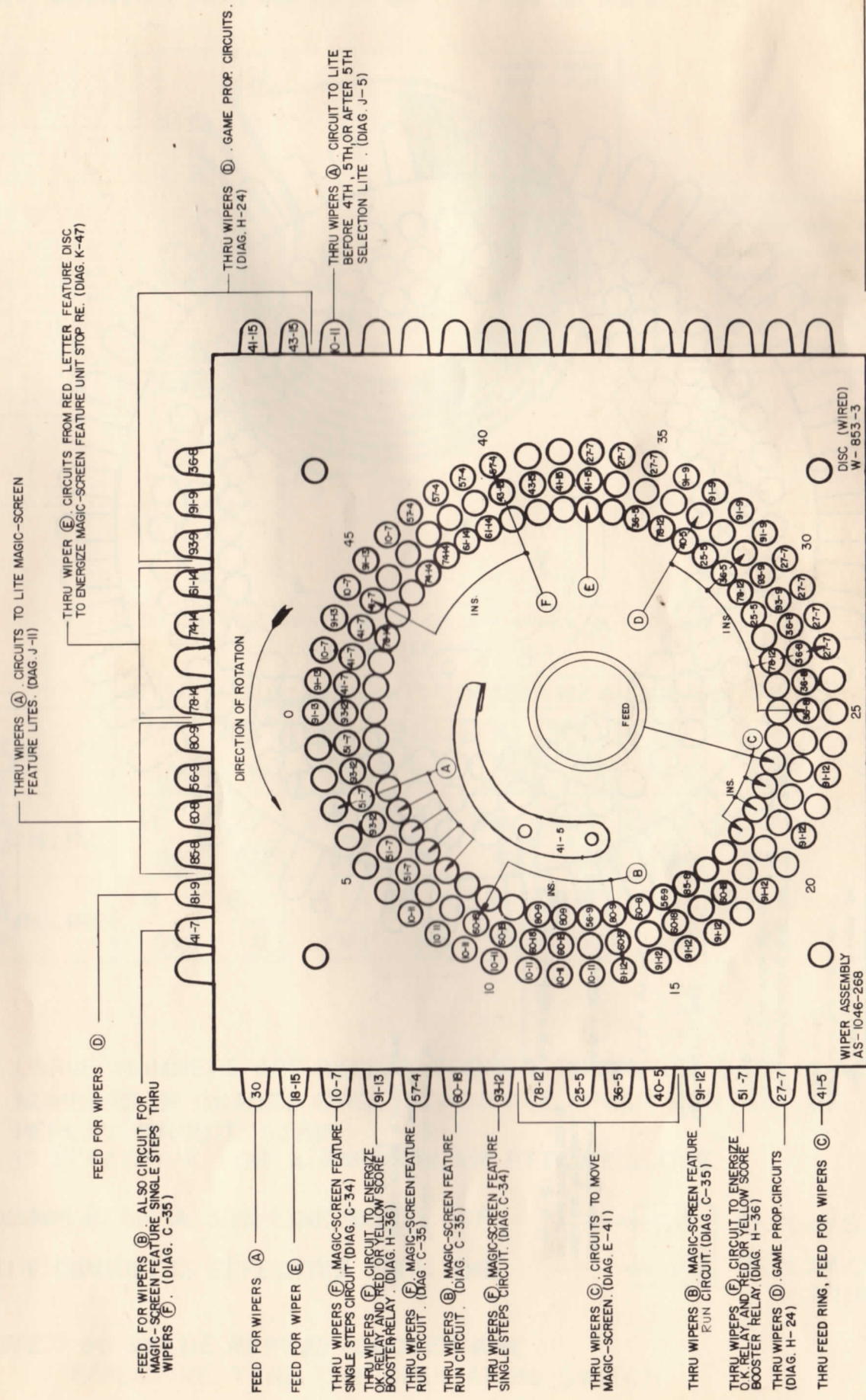




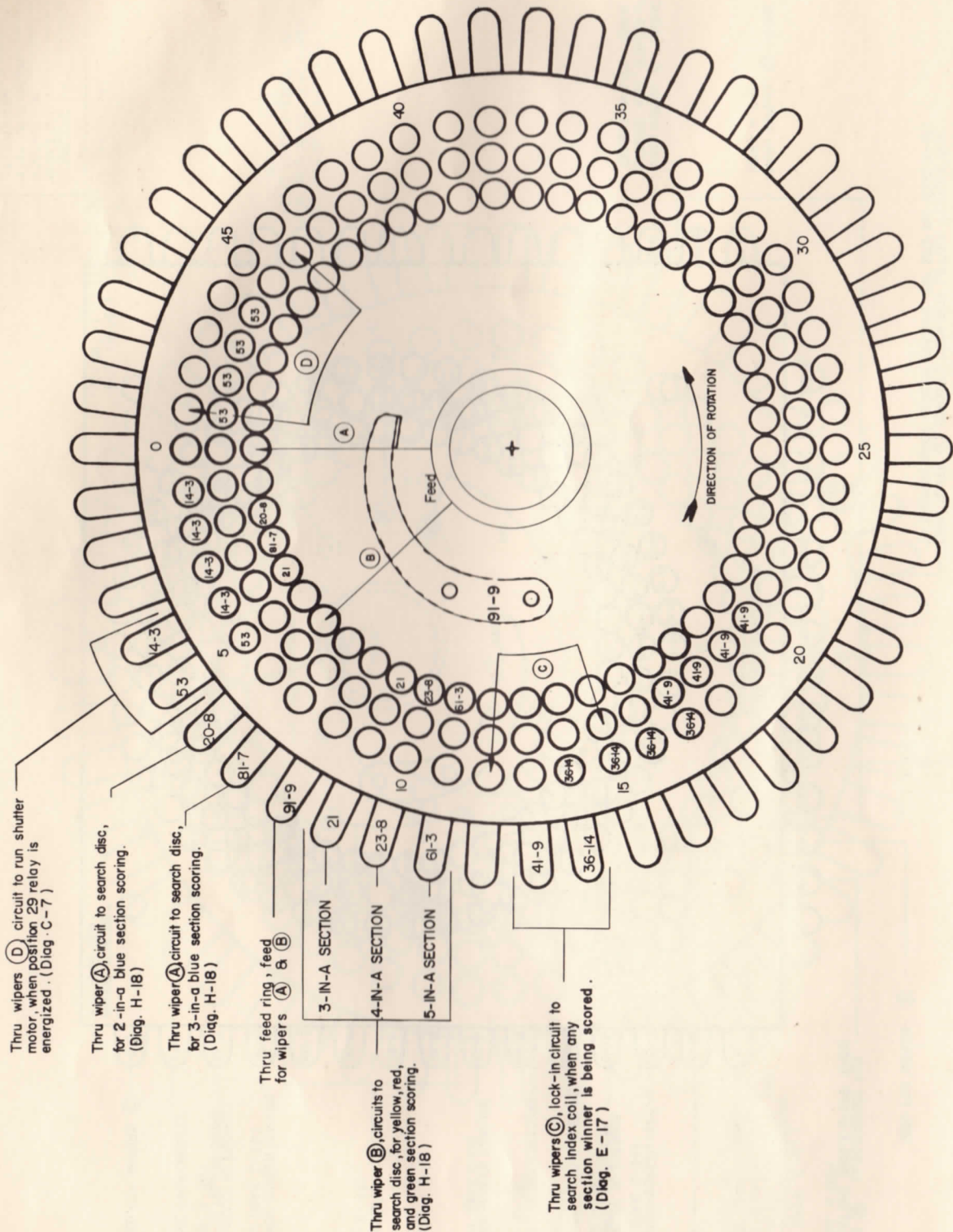
Complete unit...AS-827-71
 Reset coil...28-R-15
 Step-up coil...E-184-160
 Step-up arm...A-1765-4
 Step-up plunger...S-496-100
 Ratchet & shaft...C-1050-8-40

Wiper Assembly
 AS-1046-224

Disc (Wired)
 W-847

MAGIC SCREEN FEATURE UNIT viewed from **BUTTON** or **WIPER** side

COMPLETE UNIT...AS-827-95
 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-1050-10-43



Complete unit - AS-827-94
Reset coil - 28-R-15
Step-up coil - 25-GG-7
Step-up arm - A-1765-4
Step-up plunger - S-496-100
Ratchet & shaft - C-1050-5

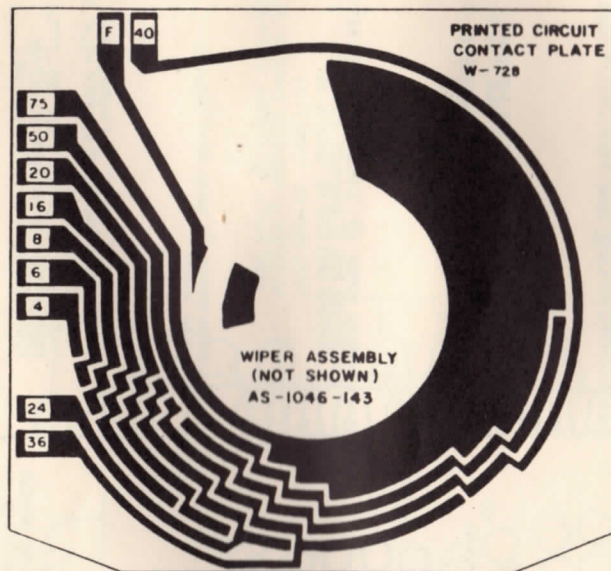
Wiper Assembly
AS-1046-265

Disc (Wired)
W-846-1

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

WIRE COLORS
REPLAY VALUES



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	SW 12 A	SW 11 A	SW 10A
5 IN LINE	75 75	75 75	96 NOTE	96 NOTE	200 50	300 75	450 75	600 50
4 IN LINE	16 16	20 20	24 24	50 50	96 24	144 36	240 40	480 40
3 IN LINE	4 4	6 6	8 8	16 16	32 8	64 16	120 20	192 16

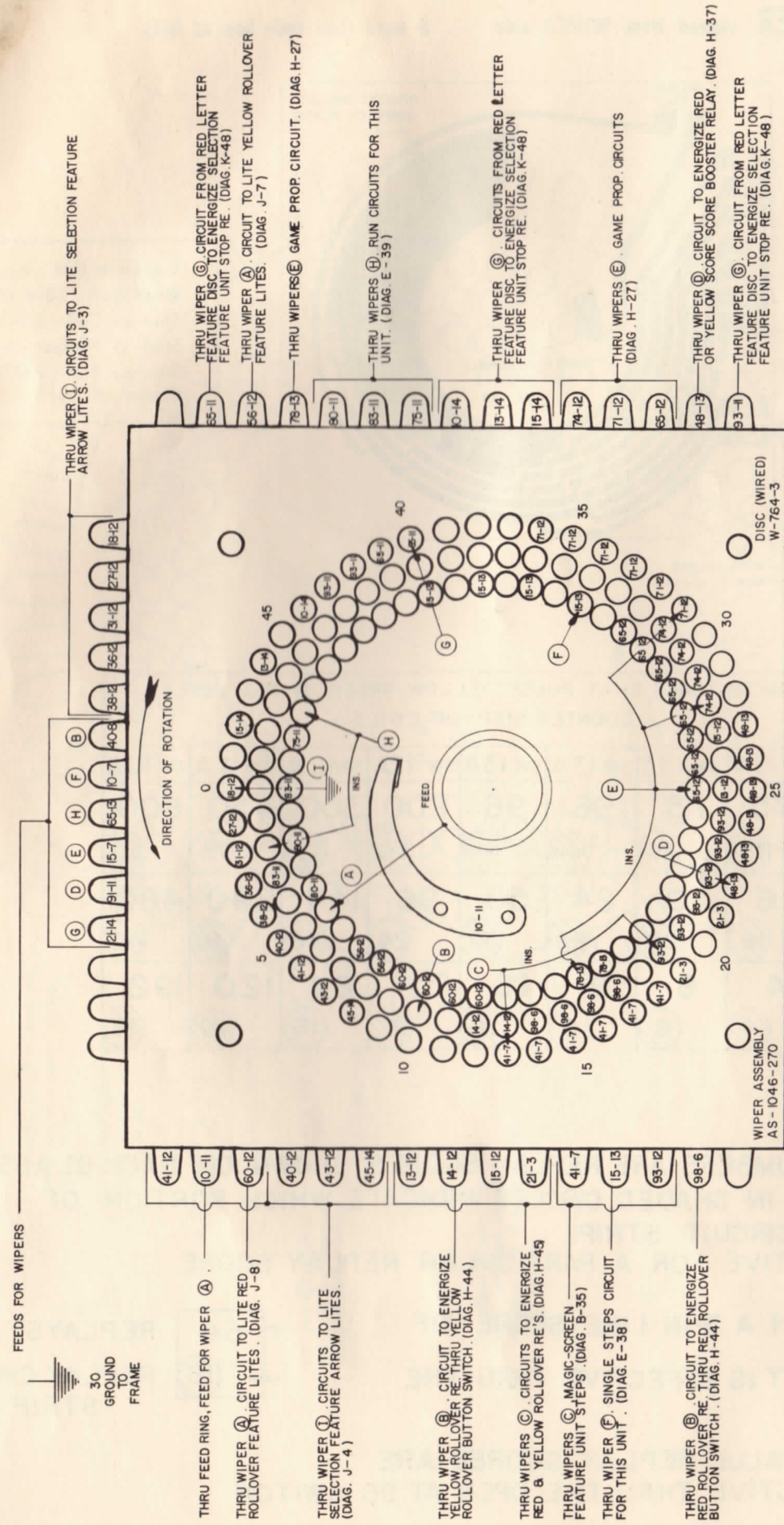
LARGE NUMBERS ARE REPLAY SCORES SHOWN ON BACK GLASS.
NUMBERS IN SHADED CIRCLES INDICATE WHICH PORTION OF
REPLAY CIRCUIT STRIP
IS EFFECTIVE FOR A PARTICULAR REPLAY SCORE.

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.

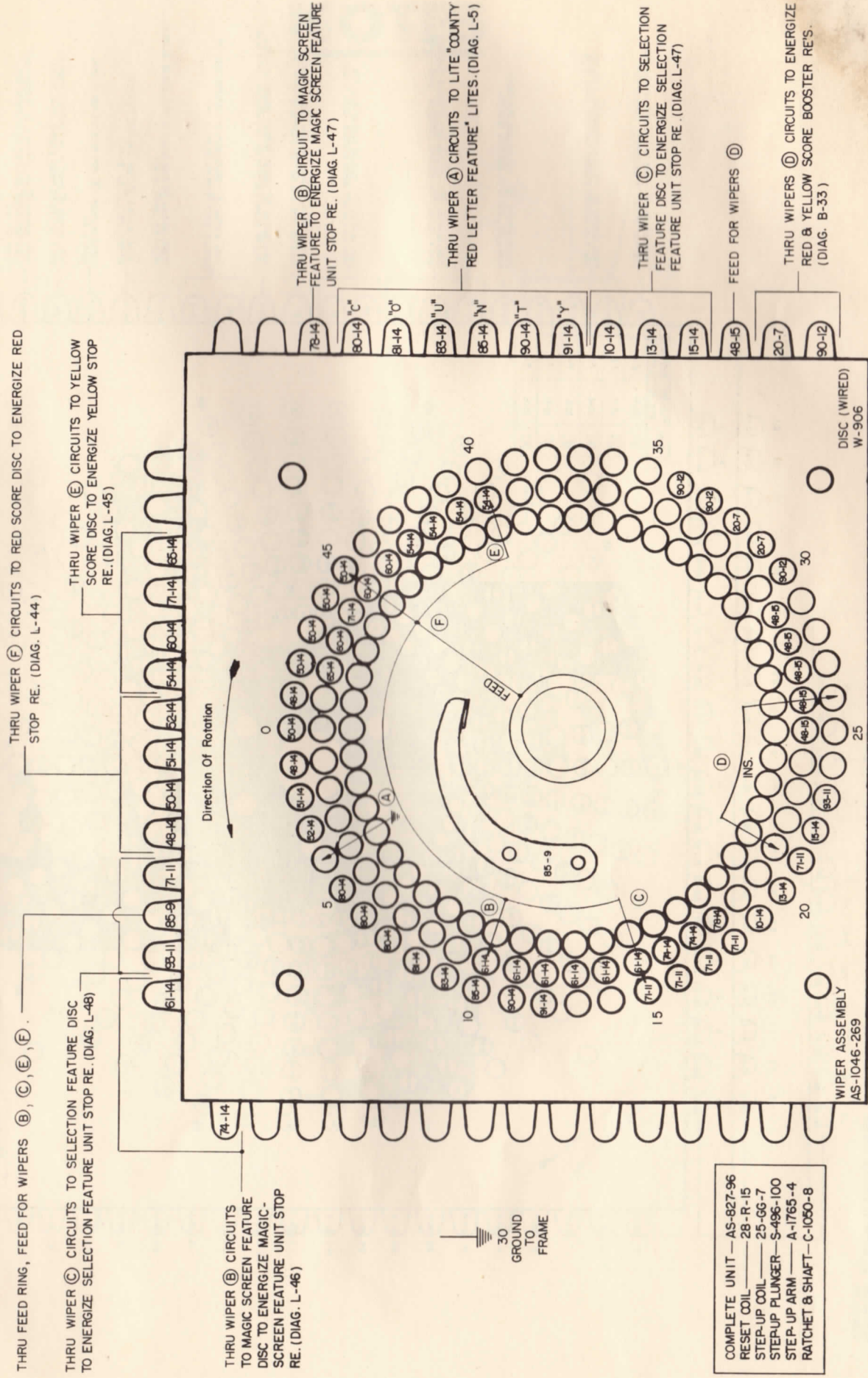
SELECTION FEATURE UNIT viewed from BUTTON or WIPER side

8 step unit. Wipers shown in zero or reset position



RED LETTER FEATURE UNIT viewed from BUTTON or WIPER side

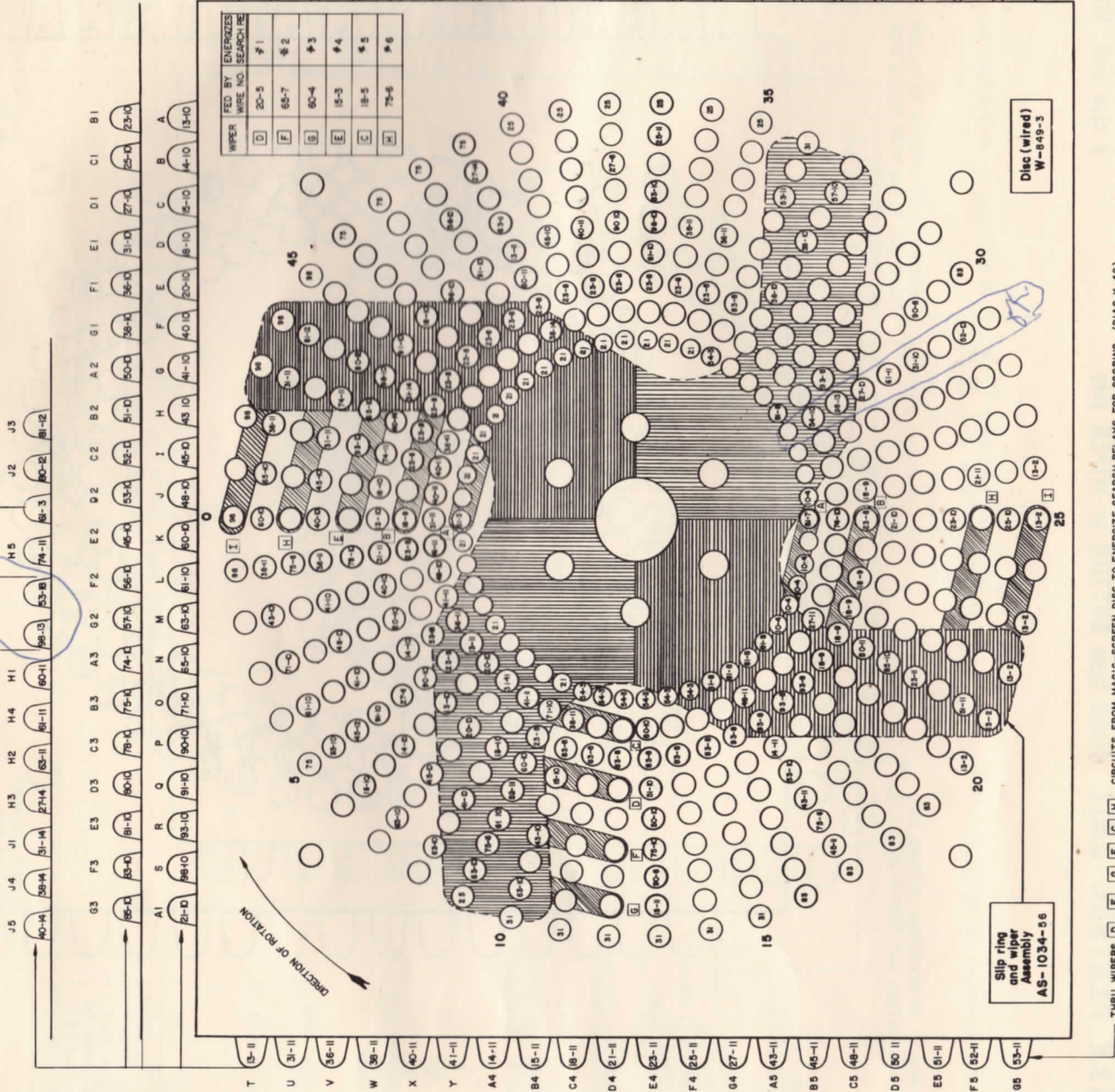
8 step unit. Wipers shown in zero or reset position



SEARCH DISC viewed from BUTTON or WIPER side

THRU WIPERS [B] CIRCUIT TO ENERGIZE POSITION 29 RE. FOR ORANGE SECTION SCORING. (DIAG. G-44)

THRU WIPERS [A] CIRCUIT FOR BLUE SECTION SCORING. (DIAG. G-18)



THRU WIPERS [D], [F], [G], [E], [C], [H] CIRCUITS FROM MAGIC-SCREEN DISC TO ENERGIZE SEARCH RELAYS FOR SCORING. (DIAG. K-42)

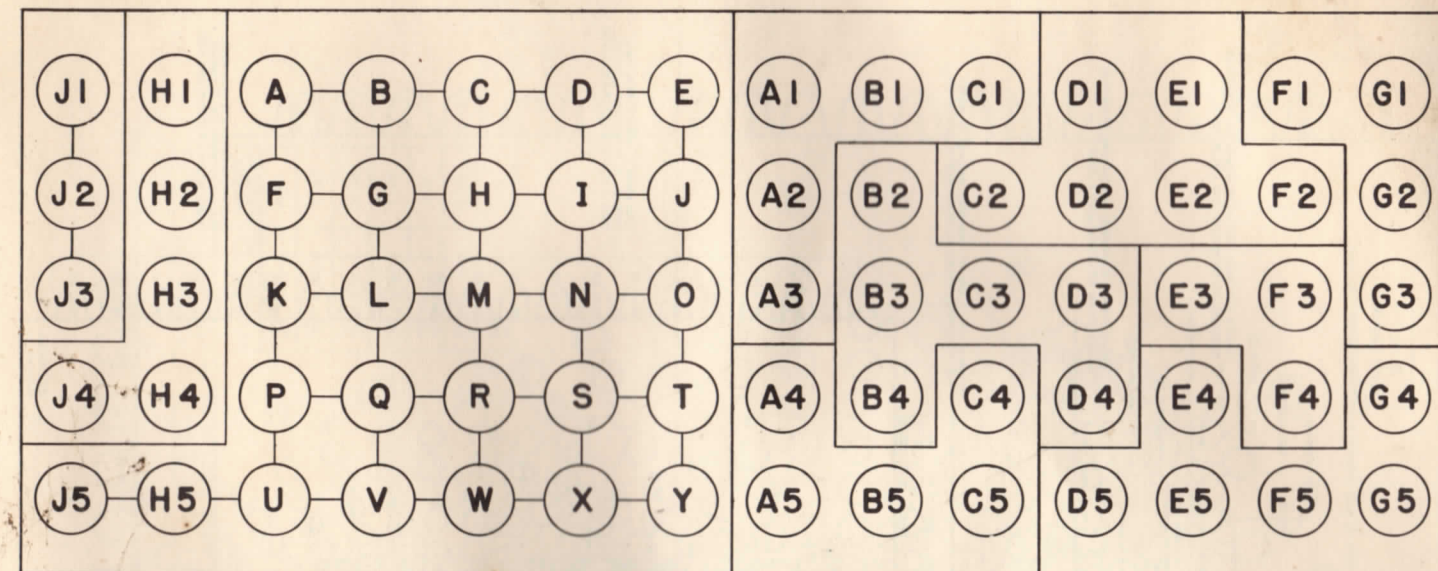
NOTES

SEARCH POSITIONS CHART							
	RED WIPER AT POSITION	WIPER [D] ROW 4 SEARCH RE. # 1	WIPER [F] ROW 6 SEARCH RE. # 2	WIPER [G] ROW 8 SEARCH RE. # 3	WIPER [E] ROW 5 SEARCH RE. # 4	WIPER [C] ROW 2 SEARCH RE. # 5	WIPER [H] ROW 7 SEARCH RE. # 6
6 NO. GREEN SECTION	1	B2	B3	B4	C3	D3	D4
	2						
	3						
RED SUPER SECTION	4						
	5	A4	A5	B5	C4	C5	
	6						
	7						
YELLOW SECTION	8						
	9	D5	E4	E5	F5	G4	G5
	10						
	11						
YELLOW SUPER SECTION	12						
	13	A1	B1	C1	A2	A3	
	14						
	15						
RED SECTION	16						
	17	D1	E1	C2	D2	E2	F2
	18						
	19						
4 NO. GREEN SECTION	20						
	21	F1	G1	G2	G3		
	22						
	23						
	24						
BLUE SECTION	25	E3	F3	F4			
	26						
	27						
	28						
ORANGE SECTION	29	H1	H2	H3	H4	J4	
	30						
	31						
	32						
	33						
YELLOW	34	J1	J2	J3			
	35	J5	H5	U	V	W	
	36	H5	U	V	W	X	
	37	D	I	N	S	X	
	38	A	F	K	P	U	
	39	U	V	W	X	Y	
	40	F	G	H	I	J	
RED	41	E	J	O	T	Y	
	42	B	G	L	Q	V	
	43	P	Q	R	S	T	
	44	A	B	C	D	E	
GREEN	45	E	I	M	Q	U	
	46	A	G	M	S	Y	
	47	K	L	M	N	O	
	48	C	H	M	R	W	
	49						
	50						

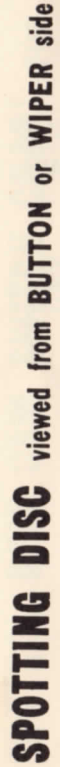
YELLOW
 VERTICAL LINE
 HORIZONTAL LINE
 HORIZONTAL LINE
 VERTICAL LINE
 VERTICAL LINE
 HORIZONTAL LINE
 HORIZONTAL LINE
 RED
 VERTICAL LINE
 VERTICAL LINE
 HORIZONTAL LINE
 HORIZONTAL LINE
 GREEN
 DIAGONAL LINE
 DIAGONAL LINE
 HORIZONTAL LINE
 VERTICAL LINE

ROTATION OF SEARCH DISC WIPERS FROM 50 TO 1
 ↓

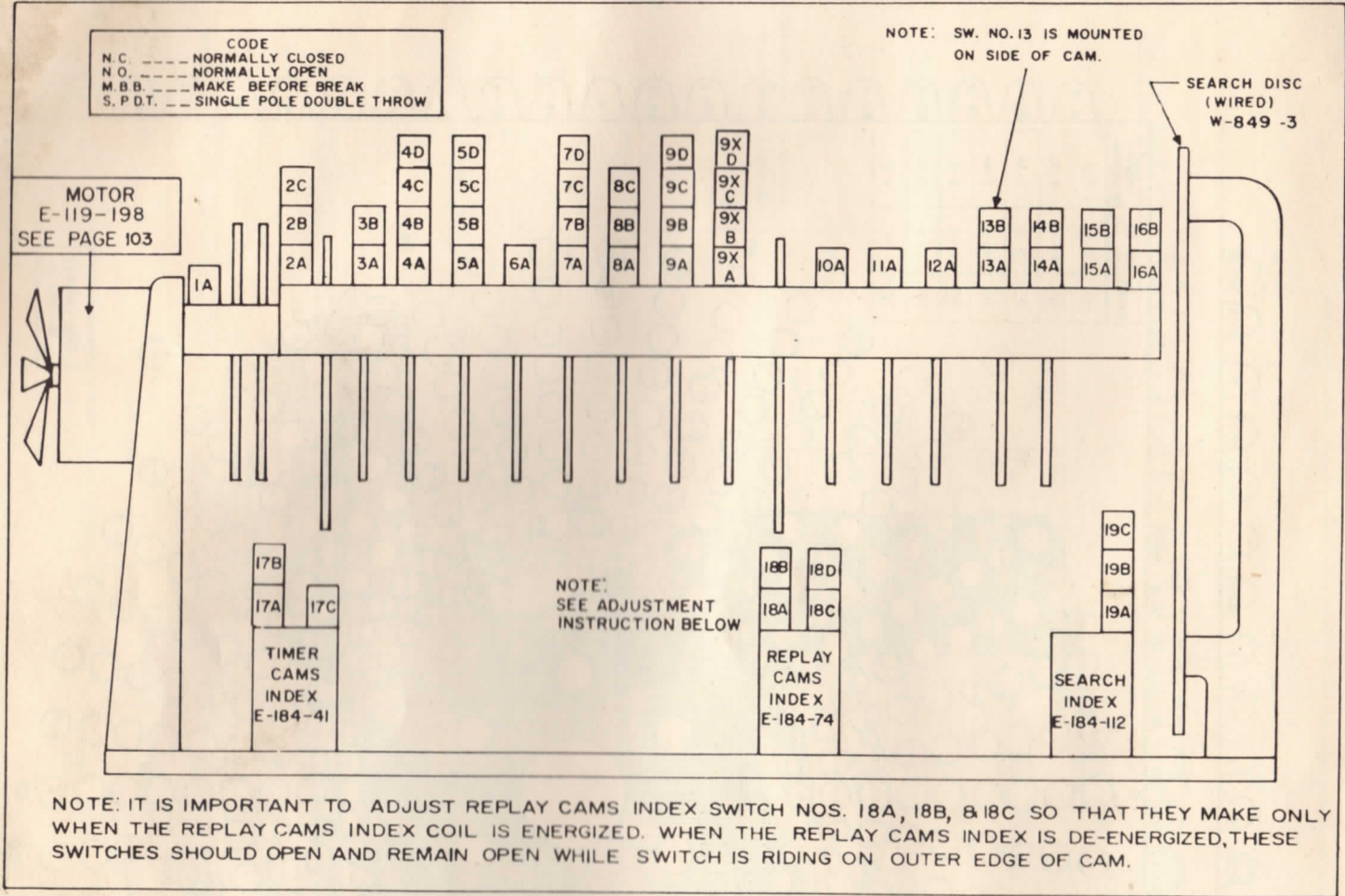
MAGIC-SCREEN LAYOUT



WHEN CHECKING OUT ANY "IN-LINE" OR "SECTION" REPLAY SCORING CIRCUIT, REFER TO SEARCH POSITIONS CHART FOR THE POSITION ON "SEARCH DISC" WHERE THAT "IN-LINE" OR "SECTION" REPLAY SCORING CIRCUIT IS SEARCHED.
 EXAMPLE:
 WITH BALLS IN PROPER HOLES ON PLAYFIELD CORRESPONDING TO J1-J2-J3 (SEE MAGIC-SCREEN LAYOUT ABOVE), REFER TO SEARCH POSITIONS CHART. THE CHART WILL SHOW THAT THIS YELLOW VERTICAL "3-IN-LINE" COMBINATION IS SEARCHED AT POSITION 34 ON THE "SEARCH DISC", THRU SEARCH DISC WIPERS [D] [F] & [G], AND SEARCH RELAYS #1 #2 #3 SHOULD BE ENERGIZED TO SCORE REPLAYS.



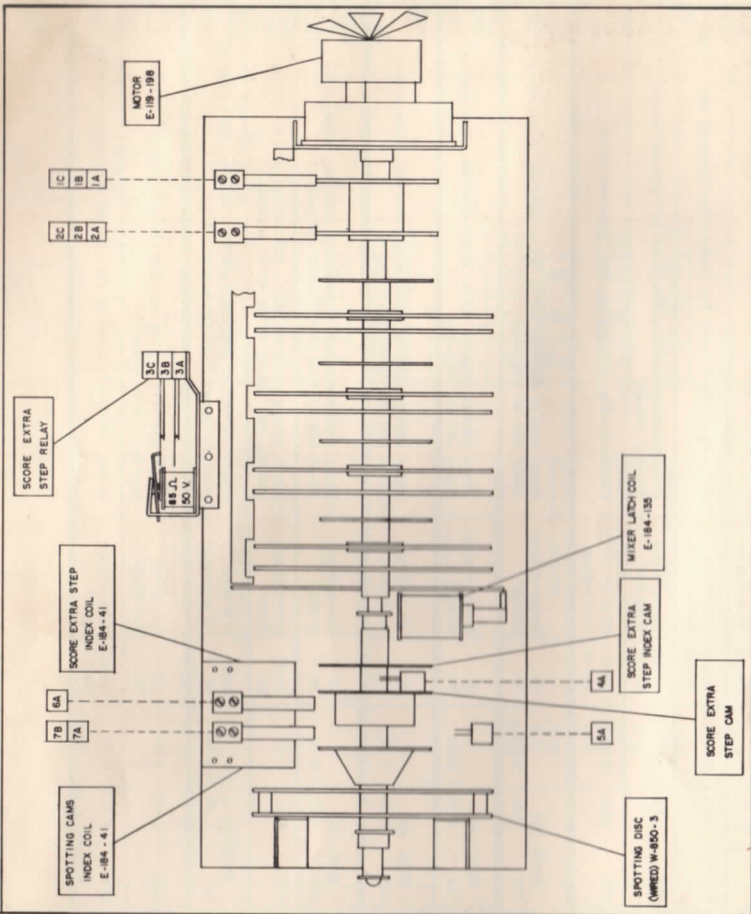
CONTROL UNIT PICTORIAL VIEW NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 93



CONTROL UNIT CAM SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 92

CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
CHANGE-OVER 15A S.P.D.T.	H-17	56 18 54	White-Brown Red-Black White-Green	Directs in-line or section replay scoring circuit.
CHANGE-OVER 15B S.P.D.T.	D-17	80 51-8 41-9	Black White-Red Green-Red	Directs circuit to energize search index coil for in-line or section replay scoring.
16A N.O.	G-49	21-3 31-6	Blue-Red Yellow-Red	Resets sequence unit, and winner unit.
TIMER CAMS INDEX COIL	A-6	99-2 70	Gray-Yellow Orange	Energized when playing coins or replays.
17A N.O.	G-1	20P 60P	Blue(Plastic) Brown(Plastic)	Completes a circuit to run control unit, and mixer-spotting unit motors.
17B N.C.	G-5	27-9 71-2	Blue-Orange Orange-Red	Opens circuit to coin lock-out magnet coil.
17C N.C.	F-12	13 30	Red-Yellow Yellow	Opens circuit to red button relay, and extra-ball relays.
REPLAY CAMS INDEX COIL	A-18	40-4 70	Green Orange	Energized by search index switch #18B to release replay cams for scoring.
18A N.O.	G-17	27 80	Blue-Orange Black	In series with replay lock-in circuit, during in-line or section replay scoring. (See control unit pictorial view for correct adj.)
18B N.O.	H-15	14 18	Red-Green Red-Black	In series with in-line or section replay scoring circuit. (See control unit pictorial view for correct adj.)
18C N.O.	F-17	36-14 80	Yellow-Brown Black	In series with replay lock-in circuit, during section scoring. (See control unit pictorial view for correct adj.)
18D N.C.	B-17	19-2 91-8	Red-White Gray-Red	Opens direct 90 volt circuit to search index coil, coil then held in thru resistor.
SEARCH INDEX COIL	A-17	15-2 70	Red-White Orange	Energized thru control unit change-over cam switch #15B, when a score is made.
19A N.O.	G-43	10-9 99-13	Red Gray-Black	Completes circuit to energize position 28 relay.
19B N.O.	H-18	54 91-16	White-Green Gray-Red	In series with section replay scoring circuit.
19C N.O.	C-18	40-4 90	Green Brown	Completes circuit to energize replay cams index coil.
SEARCH INDEX LOCK MAGNET COIL	A-40	80-6 70	Black Orange	(Not shown on pictorial view) energized by front rail collect scores button switch to release search disc wipers.
SEARCH WIPER CAM 20A N.C.	H-42	14-4 20-2	Red-Green Blue	(Not shown on pictorial view) opens circuit for moving magic-screen.
SEARCH WIPER CAM 20B N.C.	C-5	13-16 83-3	Red-Yellow Black-Yellow	Opens start relay 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

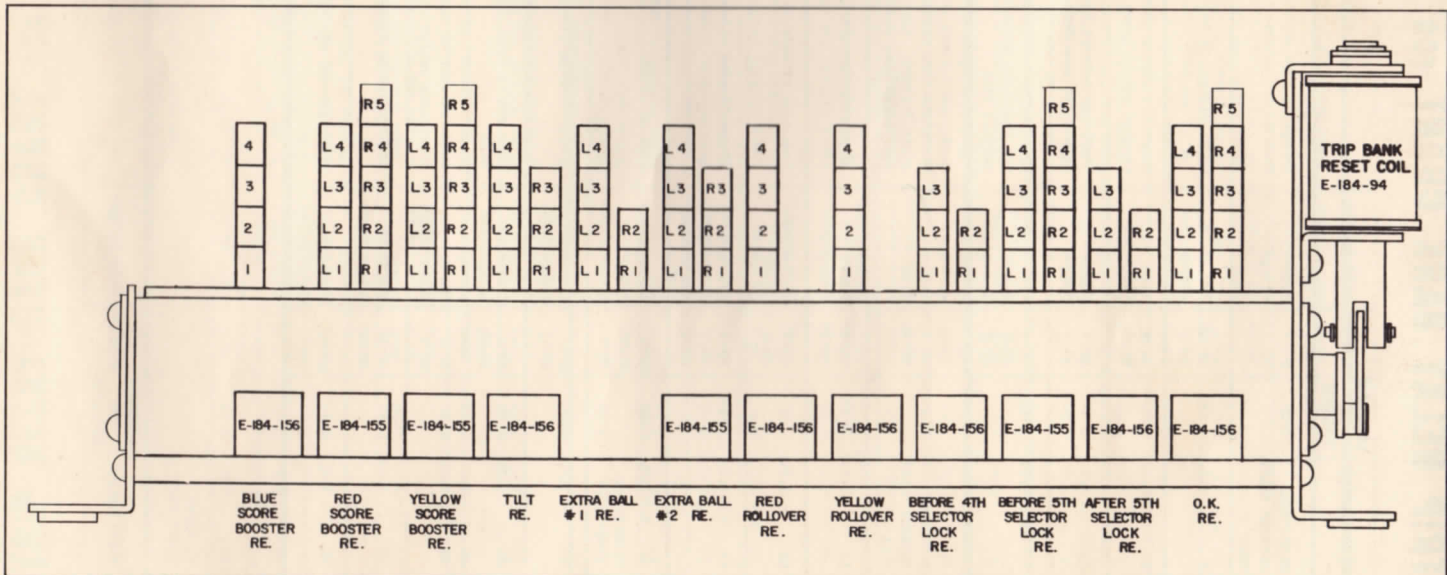
CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
16 PULSE 1A N.O.	F-34	45-6 91-13	Green-White Gray-Red	Pulses "magic-screen feature" unit, and "selection feature" unit for multiple steps. Also energizes "OK" trip relay, and "blue score booster trip relay."
16 PULSE 1B N.O.	D-4	75-2 53-7	Orange-White White-Yellow	Pulses replay register unit reset coil, when replay re-set relay is energized.
16 PULSE 1C N.O.	J-2	10-11 90	Red Gray	Flashes "select-now" lite, thru timer unit disc.
16 PULSE 2A N.O.	F-15	52-8 93	White-Blue Gray-Yellow	Pulses sequence unit, and winner unit, when searching for "section" scoring.
16 PULSE 2B N.O.	B-26	38-4 78	Yellow-Black Orange-Black	Steps extra-ball unit for multiple steps.
16 PULSE 2C N.O.	E-33	36-7 61-12	Yellow-Brown Brown-Red	Pulses red, yellow score units, "magic-screen" and "selection feature" units, and energizes "red" or "yellow" score booster relay, when scoring red letter games.

CONCLUDED ON NEXT PAGE

MIXER AND SPOTTING UNIT CAM SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 94

CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
SCORE EXTRA STEP RELAY COIL	A-9	43-6 70	Green-Yellow Orange	Energized by score unit step-up arm switches.
3A N.O.	C-9	43-6 81-3	Green-Yellow Black-Red	Lock-in circuit for this relay.
3B N.O.	D-28	50-4 51-6	White White-Red	Circuit for yellow, red, green score unit multiple steps.
3C N.C.	I-4	15-5 30	Red-White Yellow	Opens start circuit during score unit multiple steps.
EXTRA STEP PULSE SW. 4A N.O.	E-28	43-4 50-4	Green-Yellow White	Pulses yellow, red, green score units for multiple steps.
SQUARE PIN SW. 5A N.C.	D-10	13-5 21-3	Red-Yellow Blue-Red	Drops out score extra step relay.
SCORE EXTRA STEP INDEX COIL	A-46	56-5 70	White-Brown Orange	Energized by control unit cam switch #4B.
6A N.O.	C-10	13-5 81-3	Red-Yellow Black-Red	In series with lock-in circuit for score extra-step relay.
SPOTTING CAMS INDEX COIL	A-50	98-1 70	Gray-Black Orange	Energized by control unit cam switch #4A.
7A N.O.	J-21	13-4 30	Red-Yellow Yellow	Flashes score lites or extra-ball lites.
7B N.O.	J-13	81-6 30	Black-Red Yellow	Flashes feature lites.

TRIP RELAY BANK PICTORIAL VIEW
NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 96



TRIP RELAY BANK CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 95

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
BLUE SCORE BOOSTER RELAY COIL	A-38	J 70	Jumper Orange	Energized thru spotting disc, when circuit complete thru other factors.
1	N.C.	14-13 J	Red-Green Jumper	Opens circuit to coil.
2	N.O.	20-8 81-7	Blue Black-Red	Completes replay scoring circuit for 2 in a blue section scores green 5-in-line.
3	N.O.	85-1 30	Black-White Yellow	Completes circuit to lite blue 2 scores green 5 indicator lite. (To show feature is in play)
4	S.P.D.T.	18-4 60-8 61-9	Red-Black Brown Brown-Red	Opens circuit to lite blue 3 scores green 5 feature lite, and completes circuit to lite blue 2 scores green 5 feature lite.
RED SCORE BOOSTER RELAY COIL	B-37	10-5 90-12	Red Gray	Energized thru spotting disc, when circuit complete thru other factors. Also thru red letter feature disc for red letter game scoring.
L1	N.C.	41-13 90-13	Green-Red Gray-Yellow	(Proportioning circuit) magic-screen feature unit steps.
L2	N.O.	54-7 80-9	White-Green Black	Completes circuit to lite red score booster feature lite.
L3	S.P.D.T.	65-4 63-7 52-4	Brown-White Brown-Yellow White-Blue	(Proportioning circuit) red or yellow score steps.
L4	S.P.D.T.	83-4 25-14 75-8	Black-Yellow Blue-White Orange-White	Same as above.
R1	N.C.	27-7 78-11	Blue-Orange Orange-Black	(Proportioning circuit) all game advantages.
R2	N.O.	13-1 45-12	Red-Yellow Green-White	Thru search disc, completes a circuit to step winner unit.
R3	N.C.	10-5 53-6	Red White-Yellow	Opens circuit to this coil. Also opens circuit for energizing yellow score booster relay.
R4	N.C.	15-13 36-13	Red-White Yellow-Brown	(Proportioning circuit) selection feature unit steps.
R5	N.C.	21-13 43-7	Blue-Red Green-Yellow	Opens circuit for flashing yellow score booster feature lite.

CONTINUED ON NEXT PAGE

TRIP RELAY BANK CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 95

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
EXTRA BALL #1 RELAY				Trips with extra-ball #2 trip relay.
L1	N.C.	85-4 91-6	Black-White Gray-Red	In series with circuit to energize anti-cheat relay.
L2	N.O.	71-8 83-1	Orange-Red Black-Yellow	In series with circuit to reset timer unit while playing extra-balls.
L3	S.P.D.T.	85-4 30 Yellow 61-2	Black-White Yellow Brown-Red	Opens guaranteed score steps circuit, and completes circuit for extra-ball unit 1st step.
L4	S.P.D.T.	60-6 27-7 18-2	Brown Blue-Orange Red-Black	Opens circuit for other game advantages, and completes circuit for extra-ball steps.
R1	N.C.	35-9 81-6	Blue-White Black-Red	Opens circuit for flashing other game advantage lites.
R2	S.P.D.T.	75-5 15-7 45-2	Orange-White Red-White Green-White	Opens circuit for other game advantages, and further completes circuit for extra-ball steps.
EXTRA BALL #2 RELAY COIL	A-13	J 70	Jumper Orange	Energized by yellow button switch, when playing for extra balls.
L1	N.C.	10-6 J	Red Jumper	Opens circuit to coil.
L2	N.O.	38-3 91-1	Yellow-Black Gray-Red	Thru extra-ball unit disc completes circuit to run ball lifter motor.
L3	S.P.D.T.	14-3 61 Gray 98-2	Red-Green Brown-Red Gray-Black	Opens circuit to shutter motor, and completes a circuit to energize mixer latch, and timer cams index coils.
L4	S.P.D.T.	31-5 13-4 74	Yellow-Red Red-Yellow Orange-Green	Opens circuit for flashing score lites, and completes circuit to flash extra-ball lites.
R1	N.C.	45-2 83-9	Green-White Black-Yellow	Opens circuit for other game advantages.
R2	N.O.	21-4 30	Blue-Red Yellow	Completes circuit to lite extra-balls feature lite. (Show extra ball is being played)
R3	N.O.	27-7 54-8	Blue-Orange White-Green	(Proportioning circuit) extra-ball unit steps.
RED ROLLOVER RELAY COIL	A-45	J 70	Jumper Orange	Energized directly thru selection feature disc, or by red rollover button switch thru selection feature disc.
1	N.C.	25-13 J	Blue-White Jumper	Opens circuit to coil.
2	N.O.	21-13 90-3	Blue-Red Gray-Yellow	Completes circuit to keep magic-screen buttons alive until 6th ball (1st extra ball) is shot.
3	S.P.D.T.	51-2 90 Gray 52-13	White-Red Gray White-Blue	Opens circuit to flash select-now lite before shooting 4th, and before shooting 5th ball, and completes circuit to flash select-now lite after shooting 5th ball.
4	S.P.D.T.	31-8 10-11 Red 52-12	Yellow-Red Red White-Yellow	Opens circuit to lite select before 4th, and select before 5th ball feature lites, and completes circuit to lite select after 5th ball feature lite.

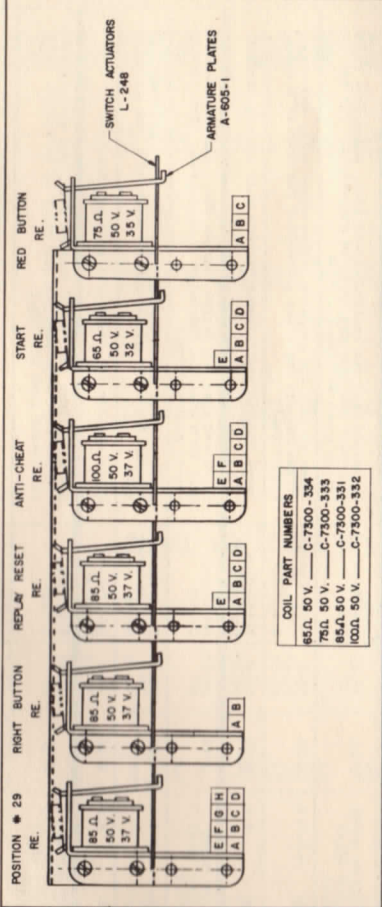
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RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
YELLOW SCORE BOOSTER RELAY COIL	B-36	10-5 20-7	Red Blue	Energized thru spotting disc, when circuit complete thru other factors. Also thru red letter feature disc for red letter game scoring.
L1	N.C.	91-12 93-13	Gray-Red Gray-Yellow	(Proportioning circuit) magic-screen feature unit steps.
L2	N.O.	43-7 80-9	Green-Yellow Black	Completes circuit to lite yellow score booster feature lite.
L3	S.P.D.T.	52-4 31-9 65-4	White-Blue Yellow-Red Brown-White	(Proportioning circuit) red or yellow score steps.
L4	S.P.D.T.	75-8 38-9 83-4	Orange-White Yellow-Black Black-Yellow	Same as above.
R1	N.C.	53-6 70	White-Yellow Orange	Opens circuit to this coil. Also opens circuit for energizing red score booster relay.
R2	N.O.	13-1 27-6	Red-Yellow Blue-Orange	Thru search disc, completes a circuit to step winner unit.
R3	N.C.	36-13 65-13	Yellow-Brown Brown-White	(Proportioning circuit) selection feature unit steps.
R4	N.C.	78-11 81-9	Orange-Black Black-Red	(Proportioning circuit) all game advantages.
R5	N.C.	18-13 54-7	Red-Black White-Green	Opens circuit for flashing red score booster lite.
TIILT RELAY COIL	A-12	14-5 70	Red-Green Orange	Energized by any tilt switch. Also thru control unit cam switch #4D if coin switch is closed too long.
L1	N.C.	40-8 83-3	Green Gray-Yellow	Opens circuit to magic-screen buttons, and collect scores button.
L2	N.C.	10 20-4	Red Blue	Opens 17 volt circuit.
L3	S.P.D.T.	21-3 30 Yellow 45-8	Blue-Red Yellow Green-White	Opens circuit to this coil. Also opens circuit for game advantages, replay scoring, ball counting, and completes a circuit to close shutter.
L4	S.P.D.T.	38 54-2 91-2	Yellow-Black White-Green Gray-Red	Opens 6 volt circuit, and completes a circuit to lite tilt lite.
R1	N.C.	30P 60P	Yellow (Plastic) Brown (Plastic)	Opens circuit to control unit, and mixer-spotting unit motors.
R2	N.O.	57-6 85-7	White-Orange Black-White	(Safety circuit) for energizing red button relay.
R3	N.O.	13-16 83-3	Red-Yellow Black-Yellow	(Safety circuit) for energizing start relay.

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
AFTER 6th SELECTOR LOCK RELAY COIL	A-11	J 70	Jumper Orange	Energized when 6th ball (1st extra-ball) is shot.
L1	N.C.	H-41 14-4 21-12	Red-Green Blue-Red	Opens circuit to magic-screen buttons.
L2	N.C.	C-45 15-12 25-13	Red-White Blue-White	Opens circuit for energizing red rollover trip relay (thru red panel rollover button).
L3	N.C.	A-11 98-11 J	Gray-Black Jumper	Opens circuit to coil.
R1	N.C.	K-2 52-13 53-2	White-Blue White-Yellow	Opens circuit for flashing select-now lite.
R2	N.C.	I-8 41-8 60-12	Green-Red Brown	Opens circuit to red rollover lite.

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
O.K. RELAY COIL	A-36	J 70	Jumper Orange	Energized thru spotting disc, when circuit complete thru other factors.
L1	N.C.	A-36 52-16 J	White-Blue Jumper	Opens circuit to coil.
L2	N.O.	L-10 50-8 30	White Yellow	Completes circuit to lite OK feature lite.
L3	N.O.	B-42 57-14 71-7	White-Orange Orange-Red	Completes a circuit to energize magic-screen unit index coil.
L4	N.O.	C-43 27-15 98-12	Blue-Orange Gray-Black	Completes a circuit to move right magic-screen motor, and to energize right button relay.
R1	N.C.	H-26 53-13 74-12	White-Yellow Orange-Green	Proportioning circuit.
R2	N.O.	J-6 10-11 30	Red Yellow	Completes a circuit for flashing select-now lite. Also completes circuit thru selection feature disc to lite red or yellow rollover lites.
R3	N.C.	I-26 54-13 66-12	White-Green Brown-White	Proportioning circuit.
R4	N.C.	I-26 15-7 56-13	Red-White White-Brown	Proportioning circuit.
R5	N.C.	F-39 83-11 90-11	Black-Yellow Gray	Proportioning circuit.

6 RELAY BANK PICTORIAL VIEW
LETTERS CORRESPOND TO SWITCH CHART BELOW



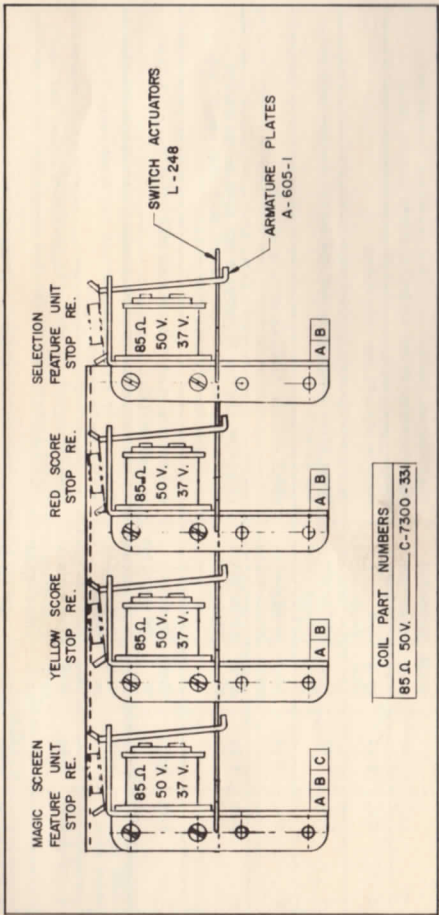
6 RELAY BANK SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ABOVE

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
POSITION #29 RELAY COIL	A-44	38-9 70	Yellow-Black Orange	Energized thru search disc, when circuit complete thru other factors. This relay is energized when scoring in orange section (*red letter game.*).
A	N.C.	B-31 15-4 74-13	Red-White Orange-Green	Opens green score unit step-up circuit.
B	N.C.	C-15 60 80	Brown Black	Opens circuit to replay cams index coil.
C	N.O.	F-33 25-18 61-12	Blue-White Brown-Red	Completes circuit for stepping red and yellow score units, magic-screen feature unit, and selection feature unit. Also to energize red or yellow score booster relay.
D	N.O.	D-44 10-9 63-8	Red Brown-Yellow	Lock-in circuit for this relay.
E	N.C.	C-49 14-9 78-3	Red-Green Orange-Black	Opens green score unit, and red letter feature unit re-set circuit.
F	N.C.	I-24 75-5 83-12	Orange-White Black-Yellow	Opens regular features step-up circuit.
G	N.O.	M-44 85-9 30	Black-White Yellow	Completes circuit to energize red stop relay, yellow stop relay, magic-screen feature unit stop relay, and selection feature unit stop relay.
H	N.O.	D-7 50-16 53	White White-Yellow	Completes a circuit to run shutter motor (opens shutter to dump balls).
RIGHT BUTTON RELAY COIL	A-43	45-5 70	Green-White Orange	Energized by right button switch (on front rail) for moving magic-screen right.
A	S.P.D.T.	B-43 48-6 25-6 45-5	Green-Black Blue-White Green-White	Opens circuit to move left magic-screen motor, and completes lock-in circuit for this relay.
B	N.C.	G-42 31-16 39-4	Yellow-Red Yellow-Brown	Opens circuit for moving magic-screen left.

6 RELAY BANK SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW AT LEFT

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
REPLAY RESET RELAY COIL	A-4	75-2 70	Orange-White Orange	Energized when anti-cheat relay drops out.
A	S.P.D.T.	C-4 90-5 41-6 53-7	Gray Green-Red White-Yellow	Directs replay register reset circuit thru control unit cam switch #2A, when replays are being played, or thru 10 pulse cam switch #1B, when replays are being cancelled.
B	N.O.	G-1 20P 60P	Blue (Plastic) Brown (Plastic)	Completes a circuit to run control unit, and mixer-spotting unit motors.
C	N.O.	G-4 56-2 75-2	White-Brown Orange-White	Lock-in circuit for this relay.
D	N.C.	C-4 13-9 83-3	Red-Yellow Black-Yellow	Opens start circuit.
ANTI-CHEAT RELAY COIL	A-27	78-4 70	Orange-Black Orange	Energized by control unit cam switch #5C. Switches on this relay protect replay scoring, game advantage, and lite circuits.
A	S.P.D.T.	G-4 75-2 56-2 50-2	Orange-White White-Brown White	Opens start circuit, and energizes replay reset relay, when this relay drops out.
B	N.O.	L-26 20-4 80-1	Blue Black	Opens 17 volt circuit, when this relay drops out.
C	N.O.	E-27 78-4 30	Orange-Black Yellow	Lock-in circuit for this relay.
D	N.C.	I-7 14-14 30	Red-Green Yellow	(Safety circuit) closes shutter if this relay drops out, when shutter is open.
E	S.P.D.T.	L-24 91-2 38 40	Gray-Red Yellow-Black Green	Opens 6 volt circuit to score lites, and lites tilt lite, when this relay drops out.
F	N.C.	F-13 57-6 85-7	White-Orange Black-White	(Safety circuit) energizes red button relay, when this relay drops out.
START RELAY COIL	A-5	13-16 70	Red-Yellow Orange	Energized when playing coins or replays.
A	N.C.	B-26 75-4 78	Orange-White Orange-Black	Opens extra-ball unit step-up circuit during spin.
B	N.C.	G-30 83-9 85-12	Black-Yellow Black-White	Opens game advantage circuits during spin.
C	N.O.	F-6 10-10 48-2	Red Green-Black	Completes circuit to energize mixer latch, and timer cams index coils.
D	N.O.	F-4 13-16 48-2	Red-Yellow Green-Black	Lock-in circuit for this relay.
E	N.C.	B-43 10-9 38-9	Red Yellow-Black	Opens circuit to position 29 relay.
RED BUTTON RELAY COIL	A-12	85-7 70	Black-White Orange	Energized by red button switch.
A	S.P.D.T.	C-6 93-2 98-2 14-3	Gray-Yellow Red-Black Red-Green	Opens circuit to energize mixer latch, and timer cams index coils during extra-ball play, and completes a circuit to open shutter when starting new game after extra-ball play.
B	N.O.	D-12 27-8 31-7	Blue-Orange Yellow-Red	Lock-in circuit for this relay.
C	N.C.	K-25 21-4 50-9	Blue-Red White	Opens circuit to extra-ball feature lite.

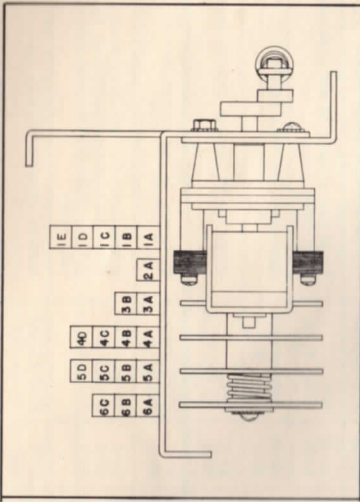
4 RELAY BANK PICTORIAL VIEW
LETTERS CORRESPOND TO SWITCH CHART BELOW



4 RELAY BANK SWITCH CHART
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ABOVE

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
MAGIC SCREEN FEATURE UNIT STOP RELAY COIL	J-46	18-15 70	Red-Black Orange	Energized thru red letter feature disc, and magic-screen feature disc, when position #29 relay is energized. (For red letter games scoring.)
A S.P.D.T.	D-33	52-5 41-14 43-15	White-Blue Green-Red Green-White	Opens circuit for stepping magic-screen feature unit, and completes circuit for other guaranteed features of a red letter game.
B N.C.	B-39	15-13 78-15	Red-White Orange-Black	Opens regular selection feature unit step-up circuit.
C N.O.	K-49	65-11 71-11	Brown-White Orange-Red	Thru selection feature, and red letter feature disc, completes a circuit to energize selection feature unit stop relay.
YELLOW SCORE STOP RELAY COIL	J-45	15-15 70	Red-White Orange	Energized thru red letter feature disc, and yellow score disc when position #29 relay is energized. (For red letter games scoring.)
A S.P.D.T.	E-33	56-3 40-13 41-14	White-Brown Green-Red Green-Red	Opens circuit for stepping yellow score unit, and completes circuit for other guaranteed features of a red letter game.
B N.C.	B-34	52-5 38-12	White-Blue Gray-Yellow	Opens regular magic-screen feature unit step-up circuit.
RED SCORE STOP RELAY COIL	J-44	14-15 70	Red-Green Orange	Energized thru red letter feature disc, and red score disc when position #29 relay is energized. (For red letter games scoring.)
A S.P.D.T.	E-33	82-15 38-7 40-13	Black-White Yellow-Brown Green	Opens circuit for stepping red score unit, and completes circuit for other guaranteed features of a red letter game.
B N.C.	B-30	13-3 85-15	Red-Yellow Black-White	Opens regular red score unit step-up circuit.
SELECTION FEATURE UNIT STOP RELAY COIL	J-47	21-14 70	Blue-Red Orange	Energized thru red letter feature disc, and selection feature disc when position #29 relay is energized. (For red letter games scoring.)
A S.P.D.T.	C-33	78-15 43-15 48-15	Orange-Black Green-White Green-Black	Opens circuit for stepping selection feature unit, and completes circuit for other guaranteed features of a red letter game.
B N.C.	G-37	61-7 91-11	Brown-Red Gray-Red	(Safety circuit) opens regular circuit for energizing red or yellow score booster relay.

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.	I-15	14 21-3	Red-Green Blue-Red	(Closed when shutter is closed) completes circuit for selection feature unit, and in-line replay scoring, thru change-over cam switch #15A.
1B N.O.	G-6	14-3 30	Red-Green Yellow	Completes carry-over circuit for shutter motor.
1C N.C.	H-9	21-3 98-8	Blue-Red Gray-Black	In series with shutter motor cam switch #5A. (Safety circuit) timer unit reset.
1D N.O.	F-44	21-3 63-8	Blue-Red Brown-Yellow	Starts lock-in circuit for position #29 relay.
1E N.C.	I-35	21-3 90-3	Blue-Red Gray	In series with circuit for red letter game scoring.
2A N.C.	F-14	31-3 36-3	Yellow-Red Yellow-Brown	(Closed when shutter is closed) completes circuit to ball lifter motor.
3A N.O.	E-48	85-5 30	Black-White Yellow	Resets extra-ball unit, yellow, red, green replay counter units, and selection feature unit, when starting new game.
3B N.O.	H-2	20P 70P	Blue (Plastic) Orange (Plastic)	Resets trip relay bank, when starting new game.
4A N.O.	F-7	14-3 18-3	Red-Green Red-Black	In series with shutter motor cam switch #4C, completes a circuit to run shutter motor if game is tilted when shutter is open.
4B N.C.	I-38	21-3 40-8	Blue-Red Green	(Closed when shutter is closed) completes circuit to magic-screen buttons, and collect scores button.
4C N.O.	H-7	18-3 45-8	Red-Black Green-White	(See function of switch #4A above.)
4D N.O.	F-44	21-3 63-8	Blue-Red Brown-Yellow	Completes lock-in circuit for position #29 relay.
5A N.C.	H-9	65-2 98-8	Brown-White Gray-Black	(See function of switch 1C above.)
5B N.O.	G-45	31-4 91-4	Yellow-Red Gray-Red	(Closed when shutter is open) lock-in circuit for lifter start relay.
5C N.O.	G-31	85-4 91-4	Black-White Gray-Red	(Closed when shutter is open) in series with circuit for game advantages.
5D S.P.D.T.	E-6	61-10 83-2	Brown-Red Gray-Yellow	Directs circuit to run shutter motor, or energize mixer latch, and timer cams index coil.
6A N.O.	H-9	71-8 30	Orange-Red Yellow	Resets timer unit, when starting new game.
6B N.O.	E-48	78-3 30	Orange-Black Yellow	Resets magic-screen feature unit, yellow, red, and green score units, and red letter feature unit when starting new game.

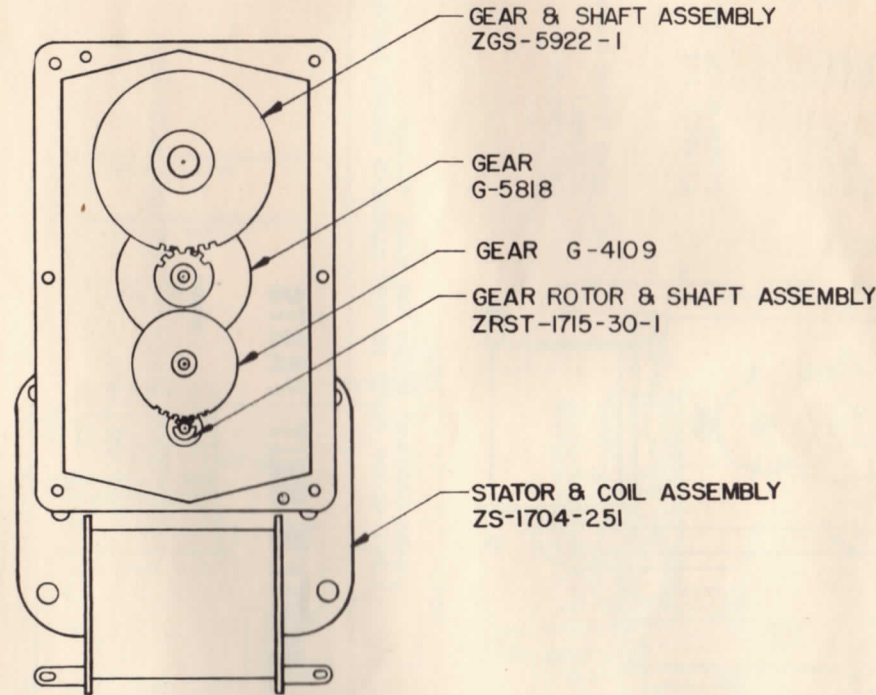
NEW ANTI-CHEAT COIN SWITCH CIRCUIT

The coin switch gives a very short pulse, when operated by a coin. With this new circuit, the game will tilt if the pulse is not as short as from a coin, so that operating the coin switch with wire, strings, etc., usually results in a tilt.

The circuit is completed thru control unit cam switch #4D (on wiring diagram at G-5).

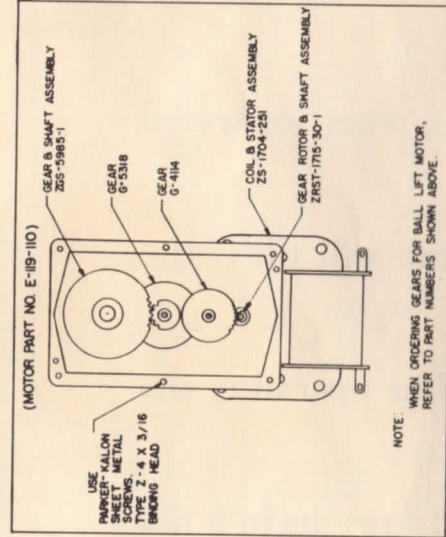
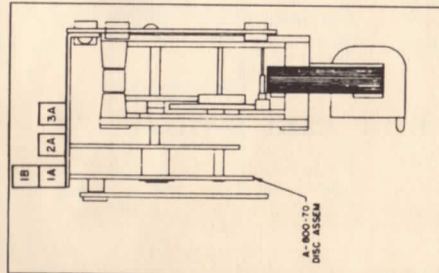
SHUTTER MOTOR

(MOTOR PART NO. E-119-99)



NOTE:

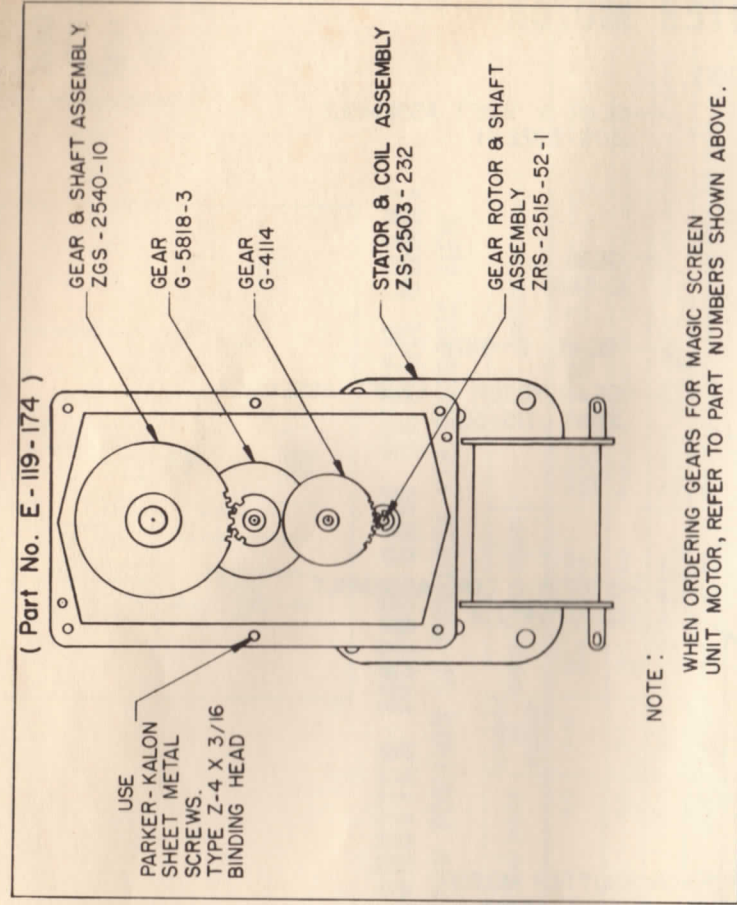
WHEN ORDERING GEARS FOR SHUTTER MOTOR, REFER TO PART NUMBERS SHOWN ABOVE.



BALL LIFT MOTOR CAM SWITCH CHART FOR POSITION OF SWITCHES SEE PICTORIAL VIEW

RELAY SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A	N.C.	15-6 85-6	Red-White Black-White	(Safety circuit) for before 5th selector lock trip relay.
1B	N.O.	91-1 30	Gray-Red Yellow	Completes carry-over circuit to ball lift motor.
2A	N.O.	27-2 43-2	Blue-Orange Green-Yellow	Completes circuit to energize timer unit step-up coil.
3A	N.O.	21-3 63-7	Blue-Red Black-Yellow	Completes circuit to energize before 4th selector lock relay, thru timer unit disc.

MAGIC SCREEN UNIT MOTOR



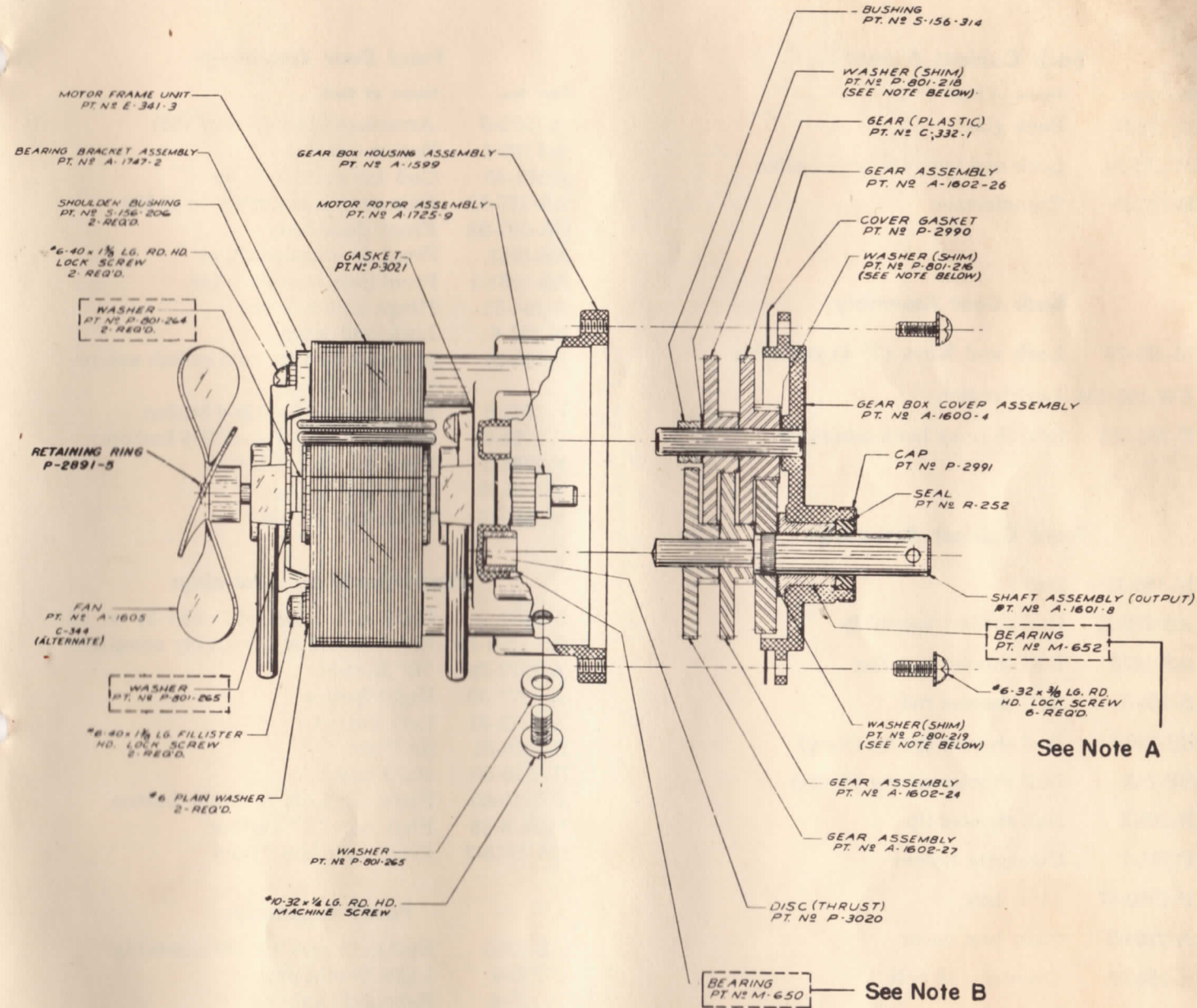
NOTE:

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

MAGIC SCREEN UNIT PARTS

PART No.	NAME
AS-1809-2	Complete Magic Screen Unit assembly
W-851-4	Contact plate
26-GG-10	Coil
A-613-55	Core plug
AS-1846-1	Index Arm and plunger assembly
P-163-32	Key Washer
M-943	Ladder Chain
P-801-310	Leather Washer
E-119-174	Motor
S-496-152	Plunger only for AS-1846-1

MOTOR ASSEMBLY (Part No. E-119-198)



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-1600-4 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-292-6	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
SW-100-106	Lock switch
E-300-115	Search relay bank assembly

Front Cabinet Assembly:

M-168-15	Ball
AS-187-17	Ball shooter assembly
AS-1835	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-1900-47	Coin box
A-2304-2	Coin box cover
E-130-10	Counter—48 volt
P-4052	Legs
M-106-1	Leg bolt
M-163-4	Leg adjuster
E-108-27	Toggle switch

Front Door Assembly:

Part No.	Name of Part
A-1538-3	Armature plate (AS-277-50)
A-1729-4	Button—metal
E-101-45	Coil for coin lock out
AS-277-50	Coin switch assembly 5¢ or 10¢
CA-567-90	Front door only
AS-1981,	Front door assembly 5¢
AS-1981-1	Front door assembly 10¢
A-254-33	Hinge and bracket
M-281-6	Lock and keys
E-108-14	Micro switch for coin switch assembly 5¢ or 10¢
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:

A-2359	Coin plate and coin slide 5¢ or 10¢
AS-1305-15	Front moulding assembly complete
A-1272-29	"R" Button
A-1272-30	Right Button
A-1272-31	Left Button
P-2210-81	5¢ Plate
P-2210-80	10¢ Plate
P-2210-63	Plate for Left & Right button
P-2210-38	Plate for "R" Button
CA-1018-2	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
C-387-1	Roll over button—red
C-387-2	Roll over button—yellow
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.

Cabinet

24

20-2	71-2
25-8	78-7
27-8	80-2
30	81
31-16	85-13
40-7	90-5
45-16	91-7
48-4	93-7
52-9	98-11
53-18	40 P
54-11	90 P
57-14	50-16

22

13	45-3
14-5	48-2
15-6	50-2
18-6	54-5
21-3	63-2
27-2	70
31-4	71-6
36-3	80-6
38-3	85-7
41-4	90-9
43-2	91-1

Panel

22

14-3	60-1
25-1	61
31-1	71-1
36-3	74-1
40-8	78-3
41-5	81
43-1	85-3
45-8	90-1
51-1	93-2
53-1	98-12
54-1	

24

10-10	52-12
14	57-1
15-6	61-4
18-3	63-1
21-3	65-1
25-18	70
30	71-8
36-1	75-1
40-1	80-6
41-4	85-5
45-1	91-13
50-1	98-6

20

13-12	50-5
14-12	52-1
15-12	56-1
20	61-1
27-1	63-8
31-4	65-2
38-1	85-12
41-8	91-4
45-16	20 P
48-1	70 P

Transformer

10

20	81
30	20 P
54-2	40 P
70	50 P
80-1	90 P

Door

14

13	48-2
14-5	50-2
18-6	63-2
21-3	70
25-8	71-2
27-8	85-7
40-7	90-9

PLUG SHEET
FOR #639

COUNTY FAIR