

Bally[®]

BOUNTY

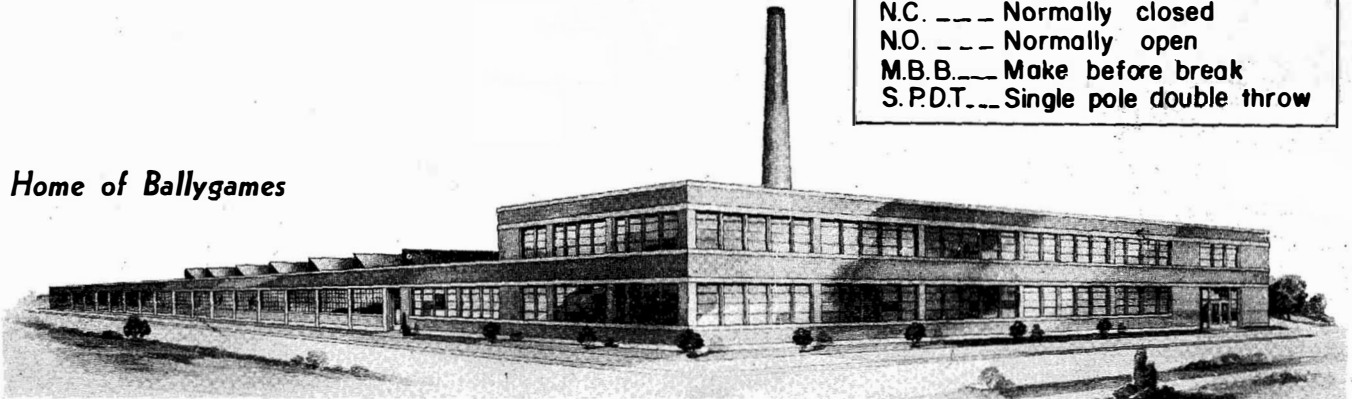
OPERATING INSTRUCTIONS AND PARTS CATALOG

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





CONNECTOR PLUGS CHART

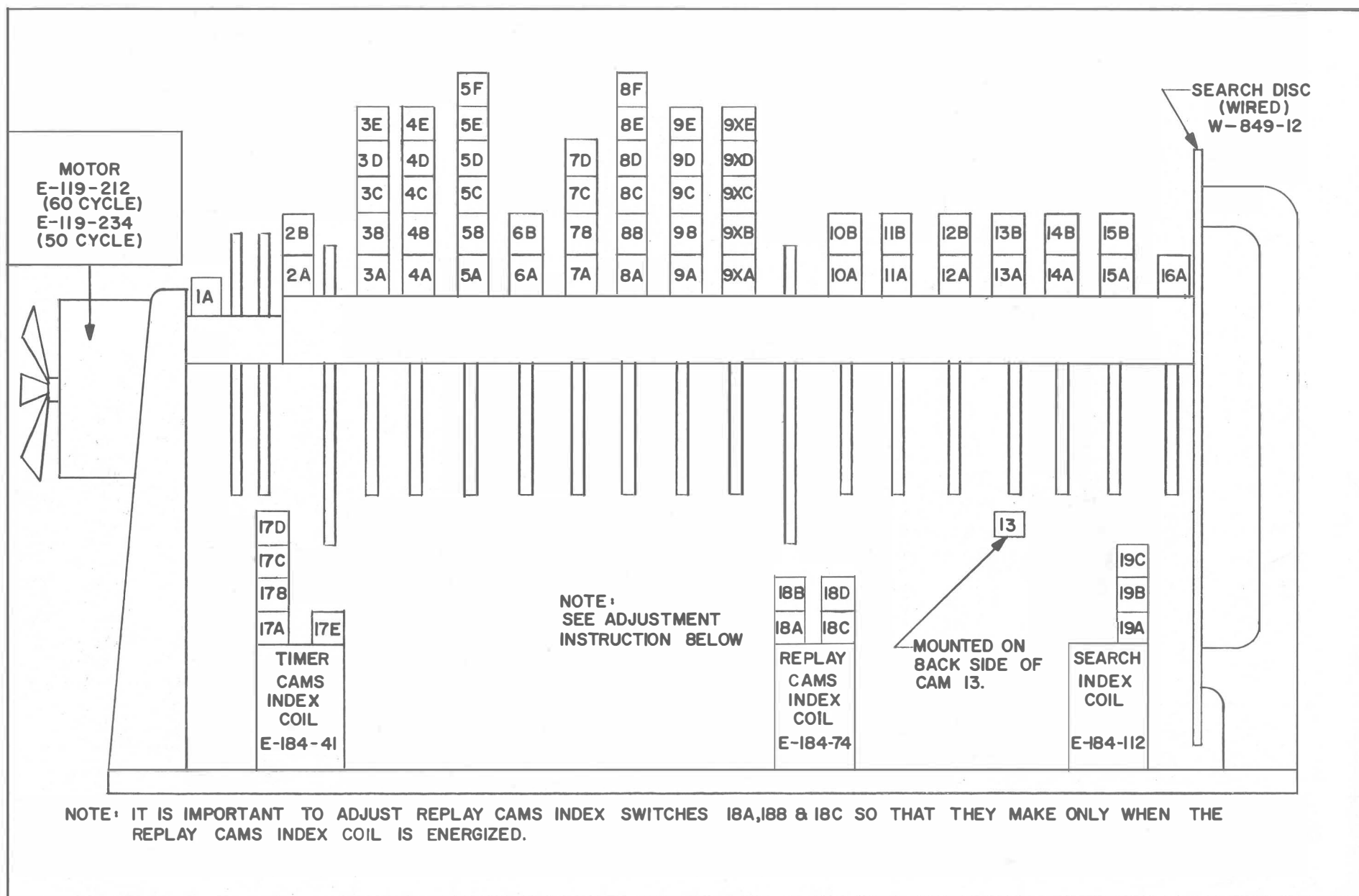
CABINET				PANEL					
24		22		18		24		24	
20-2	57-14	13	45-3	10-12	61-13	14-3	61	10-10	52-12
25-8	71-2	14-5	48-2	15-20	65-15	25-1	71-1	14	57-1
27-8	78-7	15-6	50-2	20-14	74-16	31-1	74-1	15-6	58-20
30	80-2	18-6	54-5	25-17	75-13	36-3	75-13	18-3	61-4
31-16	81	21-3	63-2	31-19	80-19	40-8	78-3	21-3	63-1
40-7	85-17	27-2	70	45-15	81-13	41-5	80-16	25-18	65-1
45-16	90-5	31-4	71-6	51-13	83-12	43-1	81	30	70
48-4	91-7	36-20	80-6	57-13	90-17	45-8	85-3	36-1	71-8
50-16	93-7	38-3	85-7	60-13	93-20	51-1	90-1	40-1	75-1
52-9	98-11	41-4	90-9			53-1	91-15	41-4	80-6
53-18	20P	43-2	91-1			54-1	93-2	45-1	85-5
54-11	90P					60-1	98-12	50-1	98-6

PANEL		FRONT DOOR		TRANSFORMER			
22		14		20		12	
13-12	50-5	14-8	58-1	13	61-13	20	80-1
14-12	52-1	15-17	60-19	14-5	63-2	30	81
15-12	56-1	20-9	65-13	18-6	70	45-15	20P
18-20	61-1	31-20	81-18	21-3	71-2	51	50P
20	63-8	51-16	83-12	25-8	74-16	54-2	90P
27-1	65-2	52-15	93-11	27-8	75-13	70	
31-4	83-15	54-14		40-7	80-13		
38-1	85-12			48-2	85-7		
41-8	98-14			50-2	90-9		
45-16	20P			57-13			
48-1	70P						

DISCS COMMENCE ON PAGE 9

CONTROL UNIT PICTORIAL VIEW

NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 5



CONTROL UNIT CAM SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 4

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
DRAG ARM SWITCH 1A	G-14 N.O. H-14 N.O.	36-9 78-6 65-2 36-9	Yellow-Brown Orange-Black Brown-White Yellow-Brown	(Not shown on pictorial view) In series with control unit cam switch 1A to step timer unit. Pulses timer unit step-up coil after 5th ball is shot.	
2A	N.O.	E-53	61-7 10-2	Brown-Red Red	Energizes red or yellow score booster feature trip relay.
2B	N.C.	D-64	53-9 21-3	White-Yellow Blue-Red	Opens skill shot relay circuit to play features and play scores relay.
3A	N.C.	K-8	48-2 18-20	Green-Black Red-Black	Opens start circuit.
3B	S.P.D.T.	B-33	93-7 98-4 91-7	Gray-Yellow Gray-Black Gray-Red	Directs circuit to replay meter and total play meter.
3C	S.P.D.T.	C-63	60-13 57-13 20-9	Brown White-Orange Blue	Directs circuit to energize and lock-in play scores relay during blue button play.
3D	N.C.	J-19	58-20 10-12	White-Black Red	Opens circuit to skill shot play relay.
3E	S.P.D.T.	C-62	74-16 81-13 20-9	Orange-Green Black-Red Blue	Directs circuit to energize and lock-in play. Features relay during green button play.
4A	N.O.	J-62	30 98-1	Yellow Gray-Black	Energizes spotting index coil.
4B	N.O.	F-61	30 56-5	Yellow White-Brown	Energizes score extra-step index coil.
4C	N.O.	H-9	27-9 80-2	Blue-Orange Black	Pulses coin meter (when coin meter is used).
4D	S.P.D.T.	E-8	13-9 90-9 14-5	Red-Yellow Gray Red-Green	(Anti-cheat coin switch circuit) opens start circuit and completes a circuit to tilt relay if coin switch is closed too long.
4E	N.O.	G-21	74-9 36-17	Orange-Green Yellow-Brown	Energizes spin relay.
5A	N.O.	H-14	65-2 83-1	Brown-White Black-Yellow	Pulses timer unit reset coil when playing for extra-balls.
5B	N.O.	B-41	21-1 38-4	Blue-Red Yellow-Black	Pulses extra-ball unit step-up coil for guaranteed step circuit.
5C	N.O.	D-42	91-6 78-4	Gray-Red Orange-Black	Energizes anti-cheat relay
5D	N.O.	F-47	85-4 10-7	Black-White Red	Pulses magic-screen feature unit and selection feature unit for guaranteed step circuit.
5E	N.O.	J-5	18-20 90-5	Red-Black Gray	Pulses skill shot reflex play magnet, reflex play magnet, replay register reset coil and total play meter when playing coins and replays.
5F	N.C.	D-61	21-3 40-15	Blue-Red Green	Opens lock-in circuit to features lock relay and scores lock relay.
6A	N.C.	J-21	21-3 36-17	Blue-Red Yellow-Brown	In series with control unit cam switch 4E to energize spin relay.
6B	N.C.	J-44	51-5 78-9	White-Red Orange-Black	Opens features circuit during play cycle.

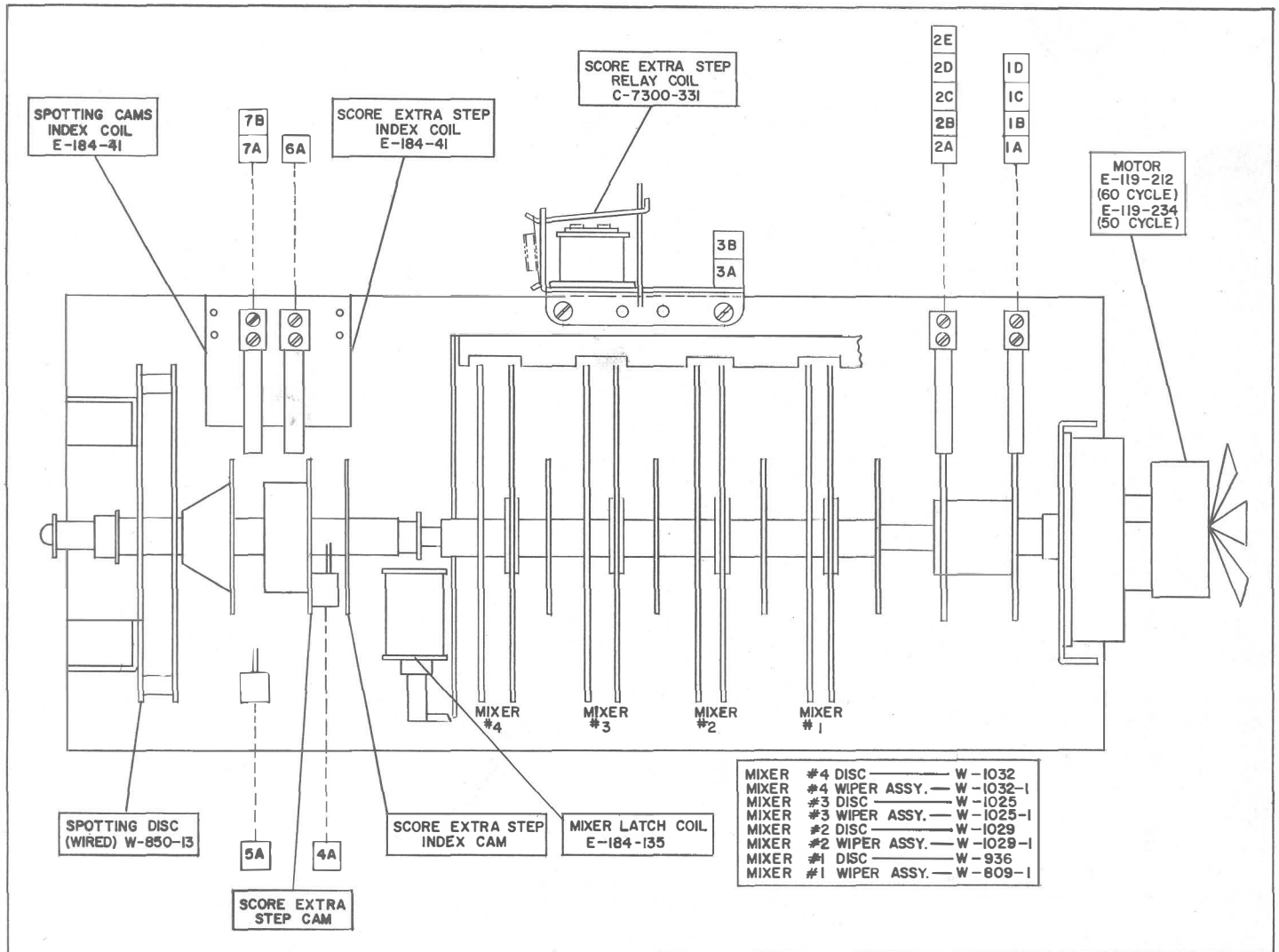
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
7A	N.O.	C-43	54-12 10-1	White-Green Red	Pulses yellow, red and green score unit step-up coils for single steps.
7B	N.O.	D-61	21-3 43-14	Blue-Red Green-Yellow	Energizes play features lock relay during green button play, or to play scores lock relay during blue button play.
7C	N.O.	G-44	60-6 58-10	Brown White-Black	Pulses yellow, red and green score unit step-up coils for single steps.
7D	N.O.	C-19	14-8 15-17	Red-Green Red-White	Pulses skill shot score unit step-up coil for guaranteed single steps.
8A	N.O.	B-42	25-4 38-4	Blue-White Yellow-Black	Pulses extra-ball unit step-up coil for single steps.
8B	N.O.	E-51	61-7 18-7	Brown-Red Red-Black	Energizes red or yellow score booster feature trip relay.
8C	N.O.	F-53	98 23-9	Gray-Black Blue-Yellow	Energizes OK feature trip relay.
8D	N.O.	F-45	56-11 58-10	White-Brown White-Black	Pulses yellow, red and green score unit step-up coils for single steps only during blue button play.
8E	N.O.	D-43	54-12 91-5	White-Green Gray-Red	Pulses yellow, red and green score unit step-up coils for single steps only during blue button play.
8F	N.O.	B-20	15-17 71-14	Red-White Orange-Red	Pulses skill shot score unit step-up coil for single steps.
ALTERNATOR 9A	N.C.	D-41	43-5 74-7	Green-Yellow Orange-Green	Proportioning circuit for extra-ball unit steps.
ALTERNATOR 9B	N.C.	B-49	71-9 93-12	Orange-Red Gray-Yellow	Proportioning circuit for magic-screen feature unit steps.
ALTERNATOR 9C	S.P.D.T.	C-52	90-12 10-2 20-7	Gray Red Blue	Proportioning circuit for red or yellow score booster feature trip relays.
ALTERNATOR 9D	N.O.	H-43	15-7 54-8	Red-White White-Green	Proportioning circuit for extra-ball unit steps.
ALTERNATOR 9E	N.O.	D-46	13-18 51-17	Red-Yellow White-Red	Proportioning circuit for green score unit steps.
ALTERNATOR 9XA	N.O.	G-53	25-12 14-13	Blue-White Red-Green	Proportioning circuit for super blue feature relay.
ALTERNATOR 9XB	N.O.	C-51	50-17 15-13	White Red-White	Proportioning circuit for selection feature unit steps.
ALTERNATOR 9XC	N.O.	C-53	23-9 52-16	Blue-Yellow White-Blue	Proportioning circuit for OK feature trip relay.
ALTERNATOR 9XD	N.O.	F-46	58-10 63-4	White-Black Brown-Yellow	Proportioning circuit for yellow, red and green score unit steps.
ALTERNATOR 9XE	N.C.	G-51	91-11 48-13	Gray-Red Green-Black	Proportioning circuit for yellow and red score booster feature trip relays.
12.1 MULTIPLIER 10A	N.O.	A-37	63 70	Brown-Yellow Orange	During yellow, red and green in-line or in-section winners, pulses replay counter unit step-up coils when score units are at 8th step.
12.1 MULTIPLIER 10B	N.O.	B-34	25-17 27-17	Blue-Yellow Blue-Orange	During blue section 600 winner, pulses blue replay counter unit step-up coil.

CONTROL UNIT CAM SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 4

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
6.1 MULTIPLIER 11A N.O.	A-36	57 70	White-Orange Orange	During yellow, red and green in-line or in-section winners, pulses replay counter unit step-up coils when score units are at 7th step.
6.1 MULTIPLIER 11B N.O.	B-19	18-15 58-1	Red-Black White-Black	During skill shot winners, pulses skill shot score unit escapement coil.
4.1 MULTIPLIER 12A N.O.	A-36	52 70	White-Blue Orange	During yellow, red and green in-line or in-section winners, pulses replay counter unit step-up coils when score units are at 5th or 6th step.
4.1 MULTIPLIER 12B N.O.	B-34	10-16 27-17	Red Blue-Orange	During blue section 300 winner, pulses blue replay counter unit step-up coil.
1.1 MULTIPLIER 13A N.O.	A-35	45 70	Green-White Orange	During yellow, red and green in-line or in-section winners, pulses replay counter unit step-up coils when score units are at 1st, 2nd 3rd or 4th step.
13B N.O.	C-32	80 48-4	Black Green-Black	During winners, pulses replay register unit step-up coil, reflex unit replay coil or skill-shot reflex unit replay coil and replay meter.
BACKSIDE 13 N.O.	G-32	21-3 27	Blue-Red Blue-Orange	During in-line or in-section winners, completes replay scoring lock-in circuit.
14A N.C.	J-30	18 14	Red-Black Red-Green	In series with in-line or in-section winner circuit.
14B N.C.	C-14	27-2 90-2	Blue-Orange Gray	During winners, opens timer unit step-up circuit.
CHANGE-OVER 15A S.P.D.T.	J-32	56 18 54	White-Brown Red-Black White-Green	Directs in-line or in-section winner circuit.
CHANGE-OVER 15B S.P.D.T.	D-31	80 51-8 41-9	Black White-Red Green-Red	Directs circuit to energize search index coil for in-line or in-section winners.
16A N.O.	J-62	31-6 21-3	Yellow-Red Blue-Red	Resets sequence unit and winner unit.
TIMER CAMS INDEX COIL	A-11	93-2 70	Gray-Yellow Orange	Energized thru start circuit or skill shot spin circuit and releases timer cams for cycle.
17A N.O.	H-1	90P 60P	Gray (Plastic) Brown (Plastic)	Completes circuit to control unit and mixer-spotting unit motors.
17B N.O.	F-19	25-17 15-20	Blue-White Red-White	During skill shot play, in series with skill shot relay lock-in, skill shot score unit step-up, skill shot selection relay and skill shot reflex relay.
17C N.C.	F-9	27-9 71-2	Blue-Orange Orange-Red	Opens circuit to coin lock-out magnet coil.
17D N.C.	B-20	93-20 93-2	Gray-Yellow Gray-Yellow	Opens skill shot spin circuit to the timer cams index coil.
17E N.C.	G-27	13 30	Red-Yellow Yellow	Opens circuit to red button relay and extra-ball trip relays.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
REPLAY CAMS INDEX COIL	A-31	74-4 70	Orange-Green Orange	Energized thru search index switch 19B when in-line or in-section winners are made. Energized thru skill shot replay relay when skill shot winners are made. Releases replay cams.
18A N.O.	G-32	27 80	Blue-Orange Black	During in-line or in-section winners, in series with replay scoring lock-in circuit.
18B N.O.	G-29	14 18	Red-Green Red-Black	During in-line or in-section winners, in series with winner circuit.
18C N.O.	F-33	80 36-14	Black Yellow-Brown	During in-section winners, in series with replay scoring lock-in circuit.
18D N.C.	B-31	91-8 15-2	Gray-Red Red-White	Opens direct 50 volt pull-in circuit to search index coil.
SEARCH INDEX COIL	A-31	15-2 70	Red-White Orange	Energized when in-line or in-section winners are found thru winner search circuit and stops search disc wipers to record each winner.
19A N.O.	H-32	54 91-16	White-Green Gray-Red	During in-section winners, in series with winner circuit.
19B N.O.	C-31	80 74-4	Black Orange-Green	During in-line or in-section winners, completes circuit to energize replay cams index coil.
19C N.O.	D-58	98-13 10-9	Gray-Black Red	During orange section (OK) winners, completes circuit to energize position 29 relays.
SEARCH INDEX LOCK MAGNET COIL	A-54	23-16 70	Blue-Yellow Orange	(Not shown in pictorial view) energized by front rail (R) button after 4th ball is shot and releases search disc wipers to search for in-line and in-section winners.
SEARCH WIPER 20A N.C.	J-56	14-4 20-2	Red-Green Blue	(Not shown in pictorial view) opens circuit to move magic-screen during search for winners.
SEARCH WIPER 20B N.C.	B-8	83-3 80-12	Black-Yellow Black	(Not shown in pictorial view) opens circuit to start relay during search for scores.
SEARCH WIPER 20C N.C.	B-54	52-9 23-16	White-Blue Blue-Yellow	(Not shown in pictorial view) opens circuit to search index lock magnet coil.

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

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
16 PULSE 1A N.O.	F-48	98-14 45-6	Gray-Black Green-White	When circuit complete thru spotting disc, energizes Super OK Feature Relay, Extra OK Feature Relay and OK Feature Relay. Also pulses magic-screen and selection feature unit step-up coils for multiple steps.
16 PULSE 1B S.P.D.T.	K-64	14-9 58-8 25-16	Red-Green White-Black Blue-White	When skill shot winner circuit is complete, energizes skill shot replay relay to record winners.
16 PULSE 1C N.O.	F-29	52-8 93	White-Blue Gray-Yellow	During search for in-section scores, pulses sequence and winner unit step-up coils.
16 PULSE 1D S.P.D.T.	K-62	31-18 58-8 43-16	Yellow-Red White-Black Green-Yellow	When skill shot spin (gold button) is made, flashes skill shot selection lite or lites.

CONCLUDED ON NEXT PAGE

MIXER AND SPOTTING UNIT CAM SWITCH CHART

FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 7

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
16 PULSE 2A N.O.	E-5	75-2 53-7	Orange-White White-Yellow	When replay reset relay is energized, pulses replay register unit reset coil.
16 PULSE 2B N.O.	L-3	90 10-11	Gray Red	When magic-screen or OK Features are lit, flashes press buttons now "lite and magic-screen" position lite.
16 PULSE 2C N.O.	B-40	78 38-4	Orange-Black Yellow-Black	When circuit complete thru spotting disc, pulses extra ball unit step-up coil for multiple steps.
16 PULSE 2D N.O.	E-48	20-16 36-7	Blue Yellow-Brown	During orange section (red letter game) winners, pulses OK unit step-up coil, score unit step-up coils, feature unit step-up coils and energizes feature relays.
2E N.O.	B-33	80-16 40-16	Black Green	(Homing circuit) pulses blue replay counter coil to return unit to zero position.
MIXER LATCH COIL	A-10	93-2 70	Gray-Yellow Orange	Energized thru start circuit or skill shot spin circuit and releases mixer disc wipers for cycle.
SCORE EXTRA-STEP RELAY COIL	A-12	43-6 70	Green-Yellow Orange	Energized by red, yellow or green score unit step-up arm switch.
3A N.O.	B-13	43-6 81-6	Green-Yellow Black-Red	Completes lock-in circuit to this relay.
3B N.O.	D-43	50-4 51-6	White White-Red	In series with yellow, red or green score unit multiple step circuit.
SCORE EXTRA-STEP PULSE 4A N.O.	E-43	50-4 43-4	White Green-Yellow	Pulses yellow, red or green score unit when multiple step circuit is complete.
SQUARE PIN 5A N.C.	C-13	21-3 13-5	Blue-Red Red-Yellow	Opens score extra-step relay lock-in circuit.
SCORE EXTRA-STEP INDEX COIL	D-64	56-5 70	White-Brown Orange	Energized by control unit cam switch 4B during each play cycle.
6A N.O.	B-14	13-5 81-3	Red-Yellow Black-Red	In series with score extra-step relay lock-in circuit.
SPOTTING CAMS INDEX COIL	J-64	98-1 70	Gray-Black Orange	Energized by control unit cam switch 4A during each play cycle.
7A N.O.	L-39	30 13-4	Yellow Red-Yellow	Completes spotting disc flash circuit to skill shot score lites during white button play, yellow red and green score lites during red button play, or extra-ball lites during yellow button play.
7B N.O.	M-20	56-15 27-16	White-Brown Blue-Orange	Completes spotting disc flash circuit to feature lites during green button play.

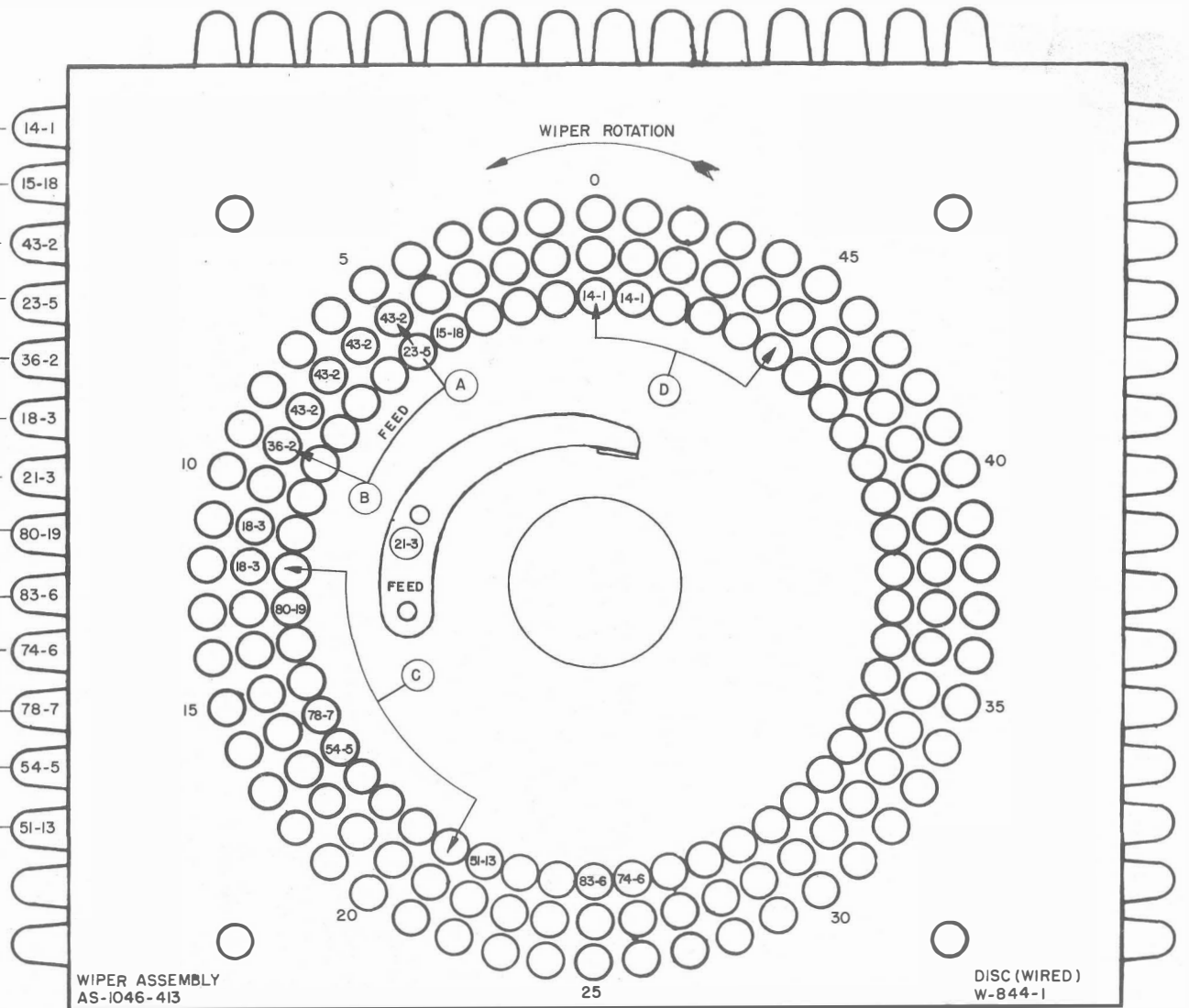
**RELAY PICTORIAL VIEWS AND CHARTS
APPEAR ON PAGE 25
AND FOLLOWING PAGES**

TIMER UNIT DISC viewed from BUTTON or WIPER side

9 step unit. Wipers shown in zero or reset position

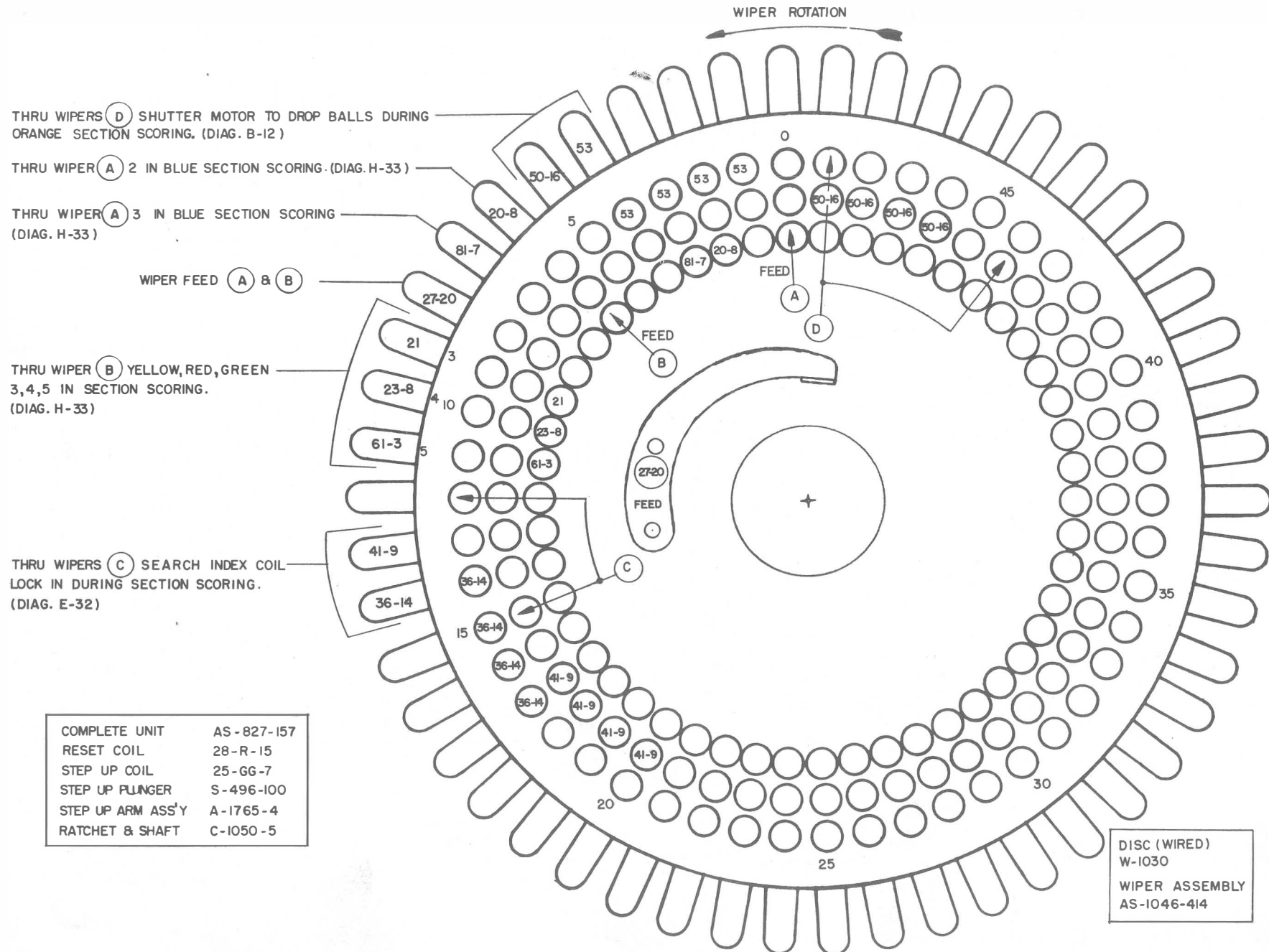
- THRU WIPERS (D) "PRESS BUTTONS NOW" LITE FEED. (DIAG. M-2) 14-1
- THRU WIPERS (D) "PRESS BUTTONS NOW" LITE BEFORE SHOOTING 4TH BALL. (DIAG. M-2) 15-18
- THRU WIPER (A) TIMER UNIT STEP-UP, 0 TO 4TH STEP. (DIAG. J-12) 43-2
- THRU WIPERS (D) "PRESS BUTTONS NOW" LITE BEFORE SHOOTING 5TH BALL. (DIAG. M-2) 23-5
- THRU WIPER (A) TIMER UNIT STEP-UP, 4TH TO 5TH STEP. (DIAG. J-13) 36-2
- THRU WIPER (B) SHUTTER MOTOR TO CLOSE SHUTTER. (DIAG. J-13) 18-3
- FEED FOR WIPERS (A) & (B) 21-3
- THRU WIPERS (C) TIMER CAMS INDEX COIL & MIXER LATCH COIL FOR SKILL SHOT SPIN WHEN 1ST BALL IS SHOT. (DIAG. D-20) 80-19
- THRU WIPERS (C) SELECT BEFORE 4TH BALL LOCKOUT RELAY. (DIAG. C-16) 83-6
- THRU WIPERS (C) SELECT BEFORE 5TH BALL LOCKOUT RELAY. (DIAG. C-16) 74-6
- 78-7
- 54-5
- 51-13

COMPLETE UNIT	AS-1110-32
RESET COIL	28-R-15
STEP UP COIL	25-GG-7
STEP UP PLUNGER	S-496-100
STEP UP ARM ASS'Y.	A-1765-4
RATCHET & SHAFT	C-1050-8-43



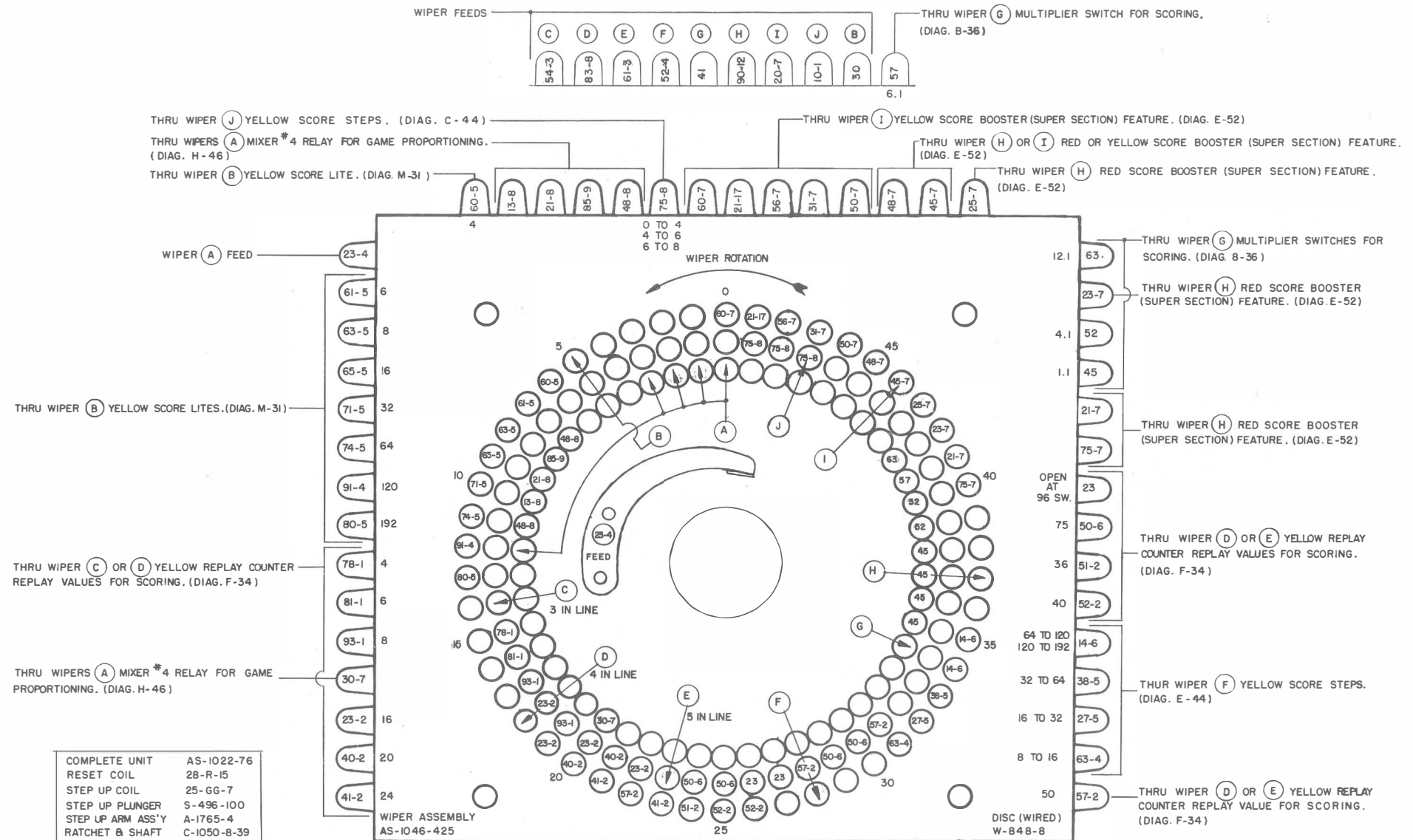
WINNER UNIT DISC viewed from BUTTON or WIPER side

5 step unit. Wipers shown in zero or reset position



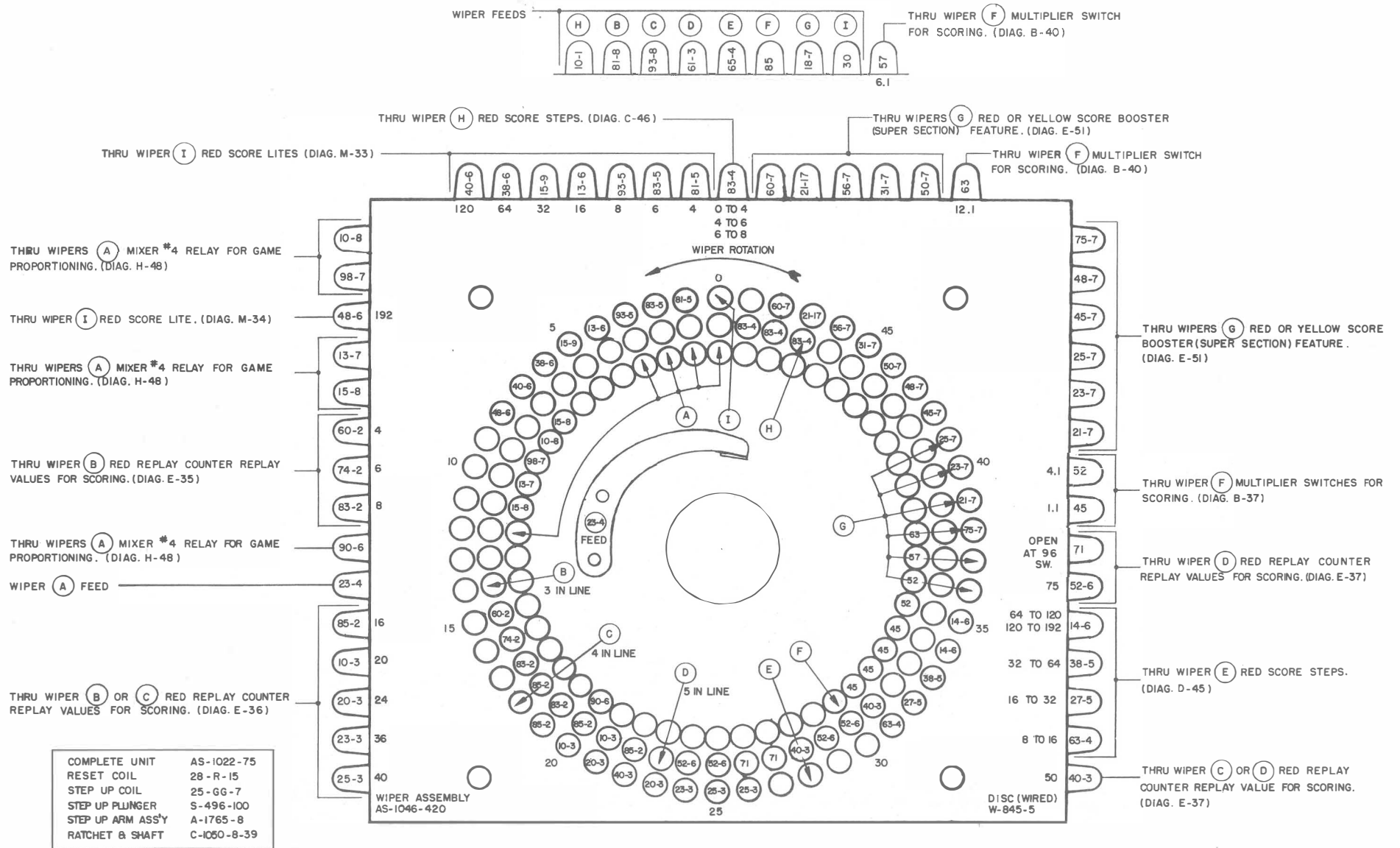
YELLOW SCORE UNIT DISC viewed from BUTTON or WIPER side

8 step unit. Wipers shown in zero or reset position



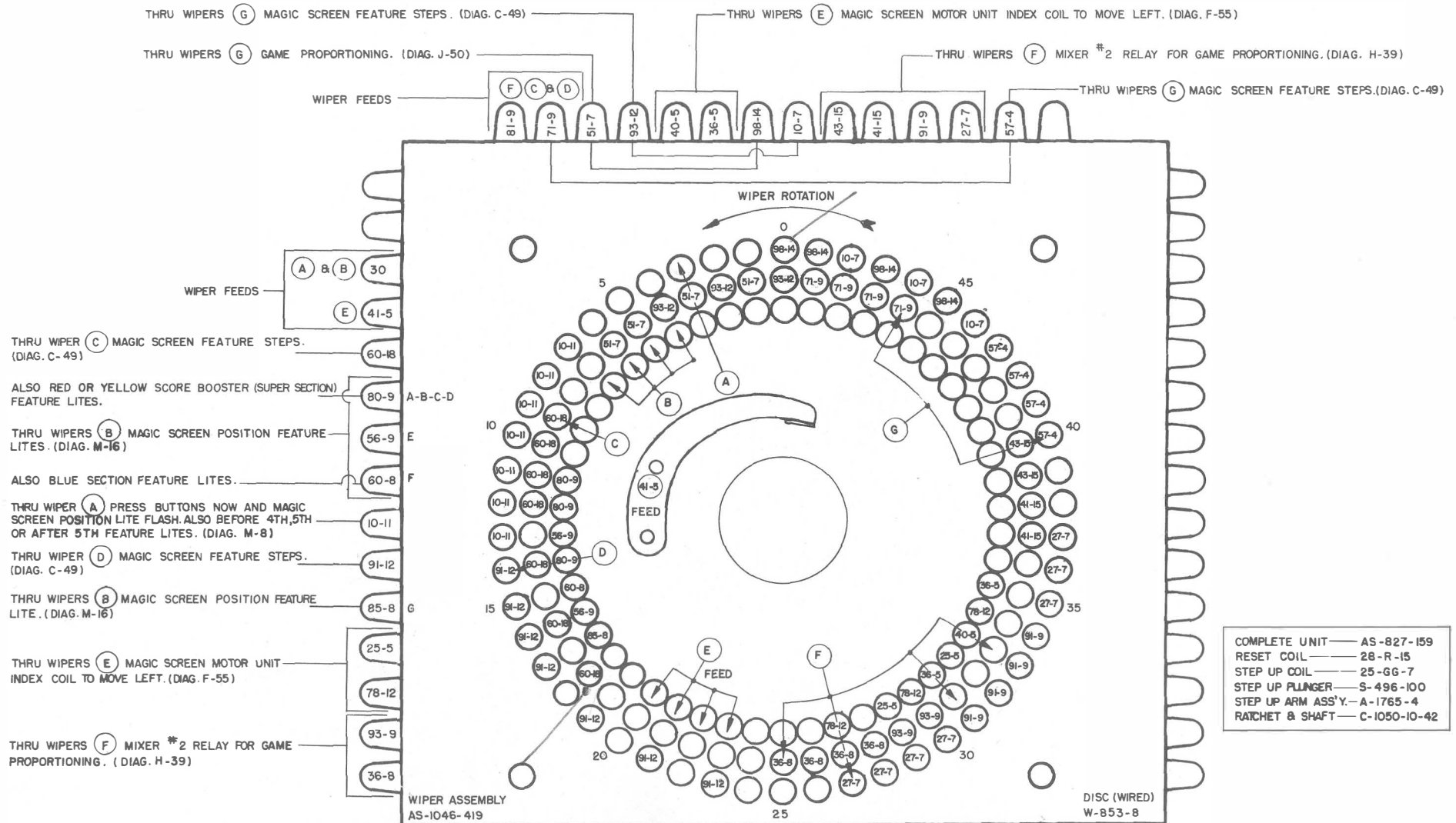
RED SCORE UNIT DISC viewed from BUTTON or WIPER side

8 step unit. Wipers shown in zero or reset position



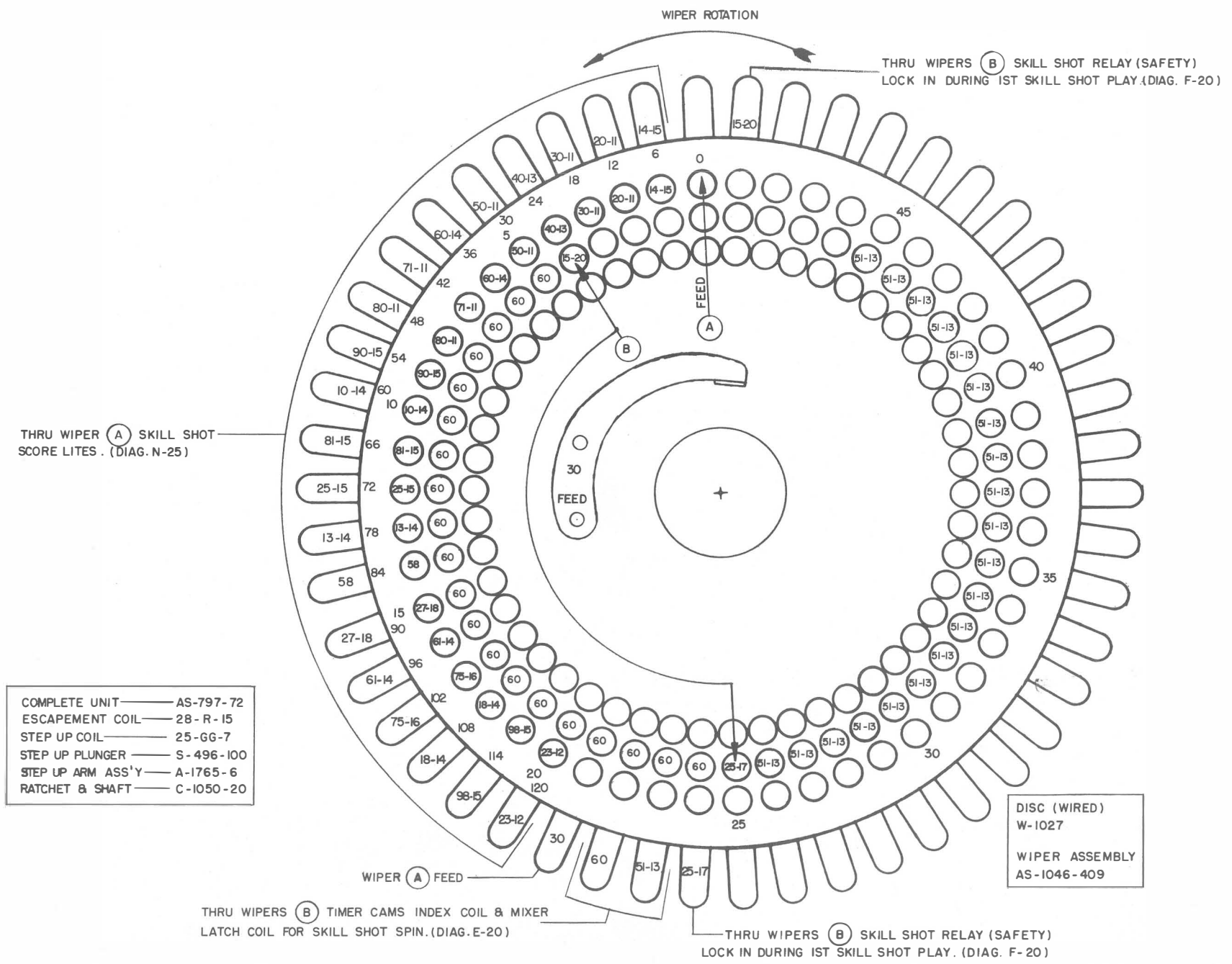
MAGIC SCREEN FEATURE UNIT DISC viewed from BUTTON or WIPER side

10 step unit. Wipers shown in zero or reset position



SKILL-SHOT SCORE UNIT DISC viewed from BUTTON or WIPER side

20 step unit. Wipers shown in zero or reset position



THRU WIPER (A) SKILL SHOT SCORE LITES . (DIAG. N-25)

THRU WIPERS (B) SKILL SHOT RELAY (SAFETY) LOCK IN DURING 1ST SKILL SHOT PLAY.(DIAG. F-20)

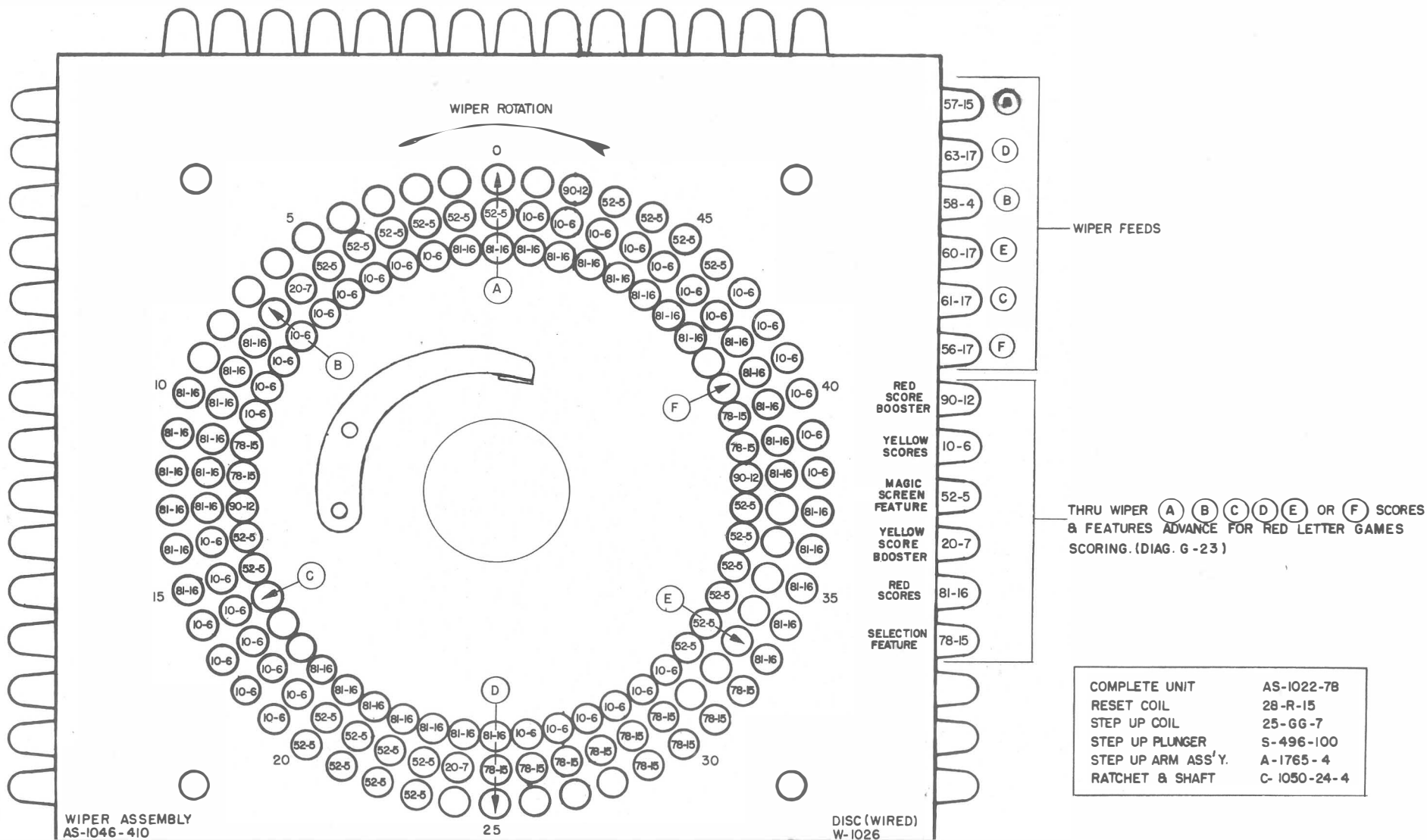
- COMPLETE UNIT — AS-797-72
- ESCAPEMENT COIL — 28-R-15
- STEP UP COIL — 25-GG-7
- STEP UP PLUNGER — S-496-100
- STEP UP ARM ASS'Y — A-1765-6
- RATCHET & SHAFT — C-1050-20

DISC (WIRED)
W-1027

WIPER ASSEMBLY
AS-1046-409

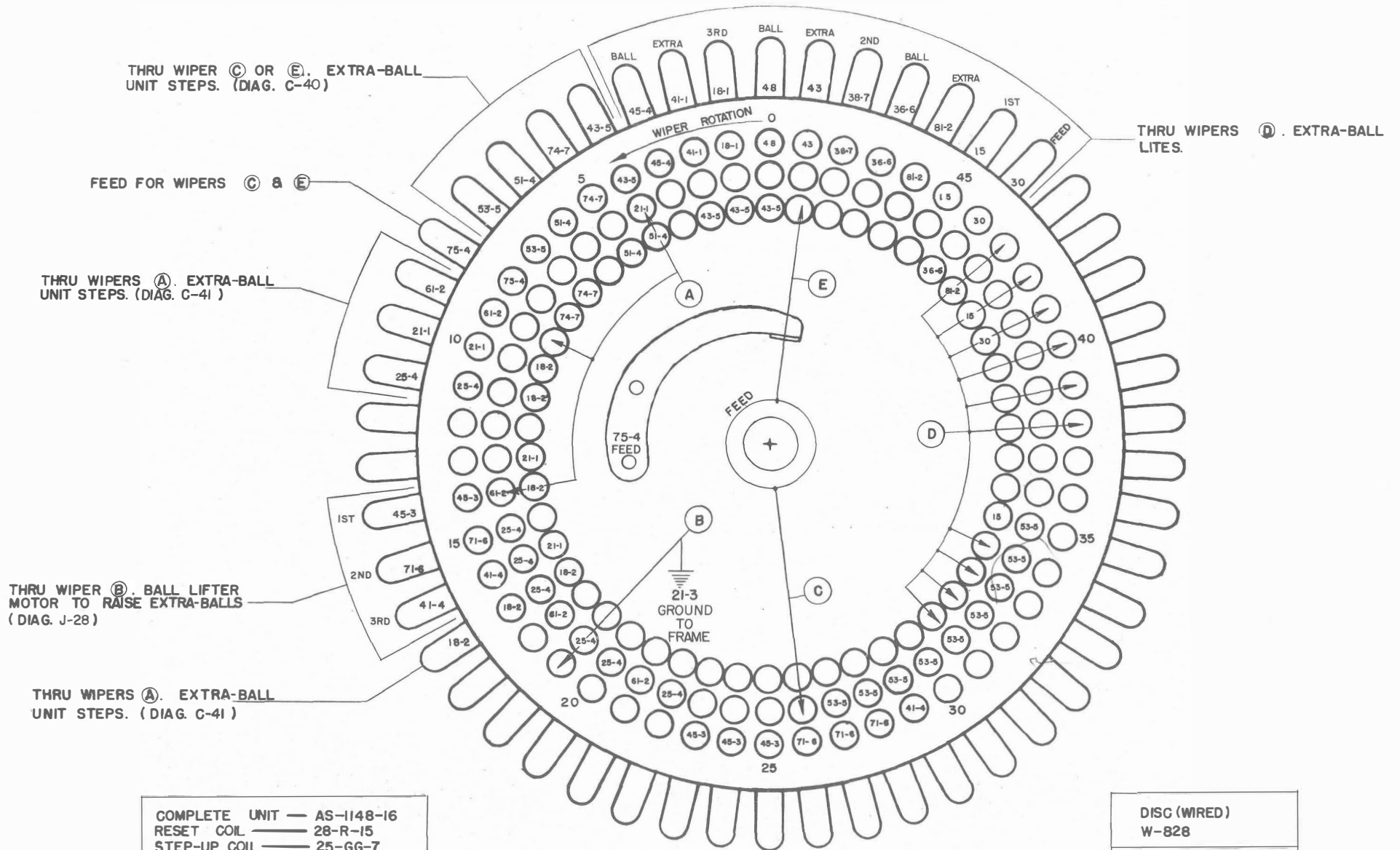
THRU WIPERS (B) TIMER CAMS INDEX COIL & MIXER LATCH COIL FOR SKILL SHOT SPIN.(DIAG. E-20)

THRU WIPERS (B) SKILL SHOT RELAY (SAFETY) LOCK IN DURING 1ST SKILL SHOT PLAY . (DIAG. F- 20)



EXTRA BALL UNIT DISC viewed from BUTTON or WIPER side

10 step unit. Wipers shown in zero or reset position



THRU WIPER (C) OR (E). EXTRA-BALL UNIT STEPS. (DIAG. C-40)

FEED FOR WIPERS (C) & (E)

THRU WIPERS (A). EXTRA-BALL UNIT STEPS. (DIAG. C-41)

THRU WIPER (B). BALL LIFTER MOTOR TO RAISE EXTRA-BALLS (DIAG. J-28)

THRU WIPERS (A). EXTRA-BALL UNIT STEPS. (DIAG. C-41)

THRU WIPERS (D). EXTRA-BALL LITES.

- COMPLETE UNIT — AS-1148-16
- RESET COIL — 28-R-15
- STEP-UP COIL — 25-GG-7
- STEP-UP PLUNGER — S-496-100
- STEP-UP ARM ASS'Y — A-1765-4
- RATCHET & SHAFT — C-1050-10

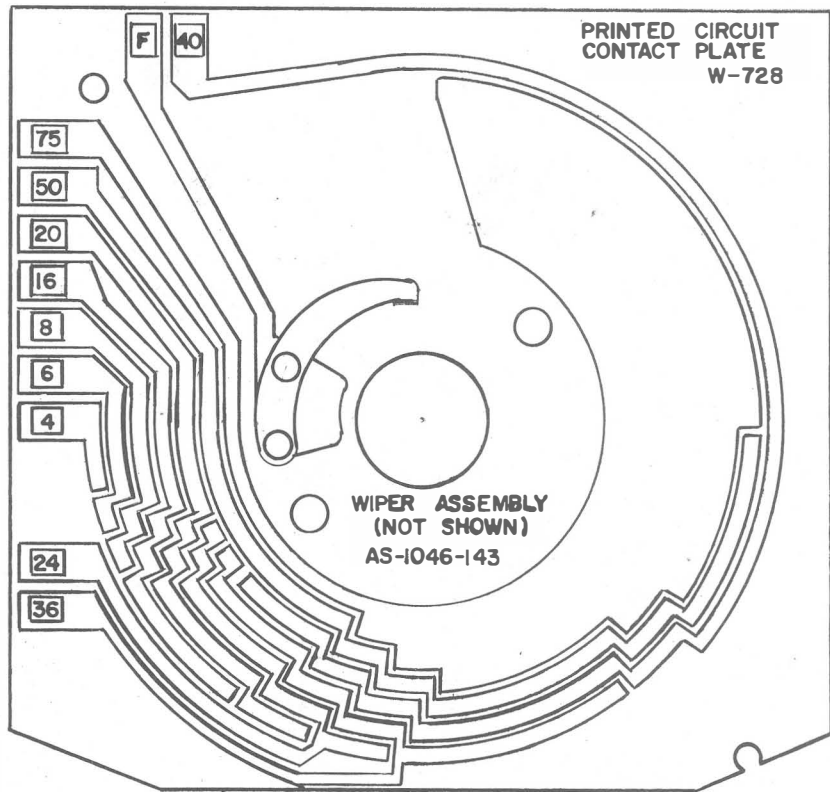
- DISC (WIRED)
W-828
- WIPER ASSEMBLY
AS-1046-214

REPLAY COUNTER UNIT DISC

viewed from WIPER side

3 used (see code box at left)

LUG NO.	YELLOW REPLAY COUNTER	RED REPLAY COUNTER	GREEN REPLAY COUNTER
40	52-2	25-3	80-3
F	23	71	91
75	50-6	52-6	61-6
50	57-2	40-3	54-6
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
24	41-2	20-3	65-3
36	51-2	23-3	74-3



WIRE COLOR NUMBERS
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 ASSY. — A-1765-4
 RATCHET & SHAFT — C-100

CONTROL UNIT MULTIPLIER CAM SWITCHES THAT PULSE YELLOW, RED AND GREEN REPLAY COUNTER UNIT STEP-UP COILS DURING IN-LINE OR IN-SECTION WINNERS.

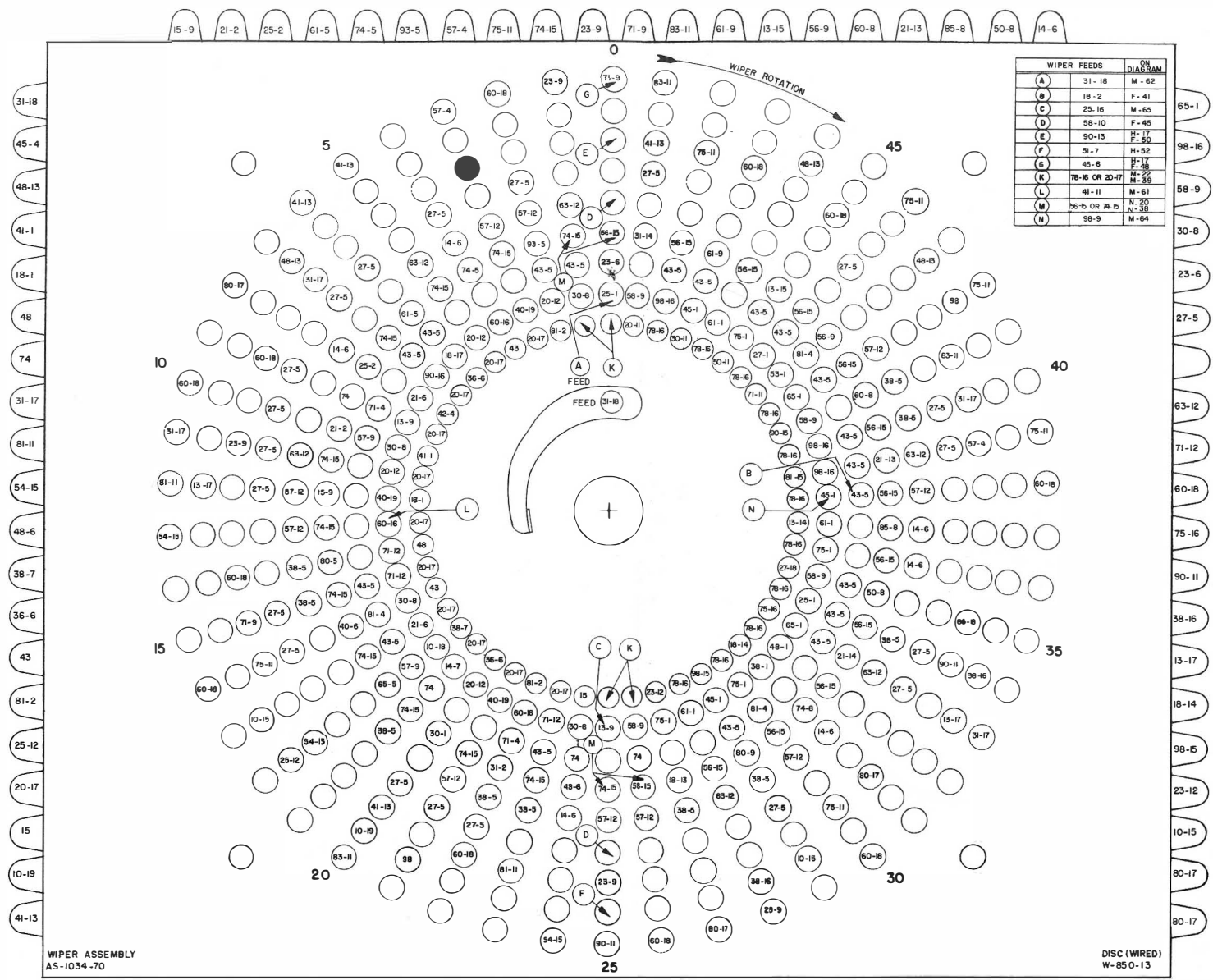
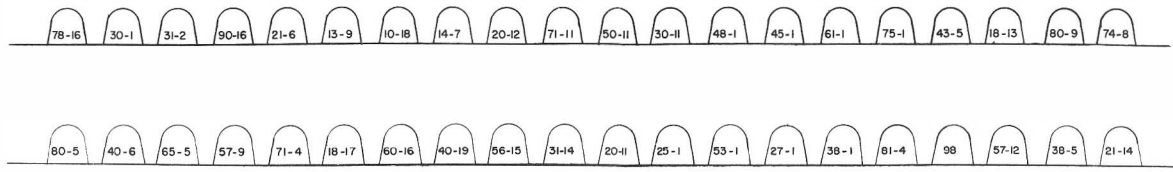
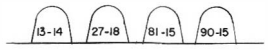
	13A-1.1	13A-1.1	13A-1.1	13A-1.1	12A-4.1	12A-4.1	11A-6.1	10A-12.1
5 IN-LINE IN SECTION	75 (75)	75 (75)	96 (*)	96 (*)	200 (50)	300 (75)	450 (75)	600 (50)
4 IN-LINE IN SECTION	16 (16)	20 (20)	24 (24)	50 (50)	96 (24)	144 (36)	240 (40)	480 (40)
3 IN-LINE IN SECTION	4 (4)	6 (6)	8 (8)	16 (16)	32 (8)	64 (16)	120 (20)	192 (16)

LARGE NUMBERS ARE YELLOW, RED AND GREEN REPLAYS SCORES SHOWN ON BACKGLASS. NUMBERS IN CIRCLES INDICATE THE REPLAY VALUE EACH SCORE IS EFFECTIVE THRU DURING WINNERS.

(*) EFFECTIVE THRU OPEN AT 96TH STEP REPLAY COUNTER UNIT SWITCHES.

SPOTTING DISC viewed from WIPER side

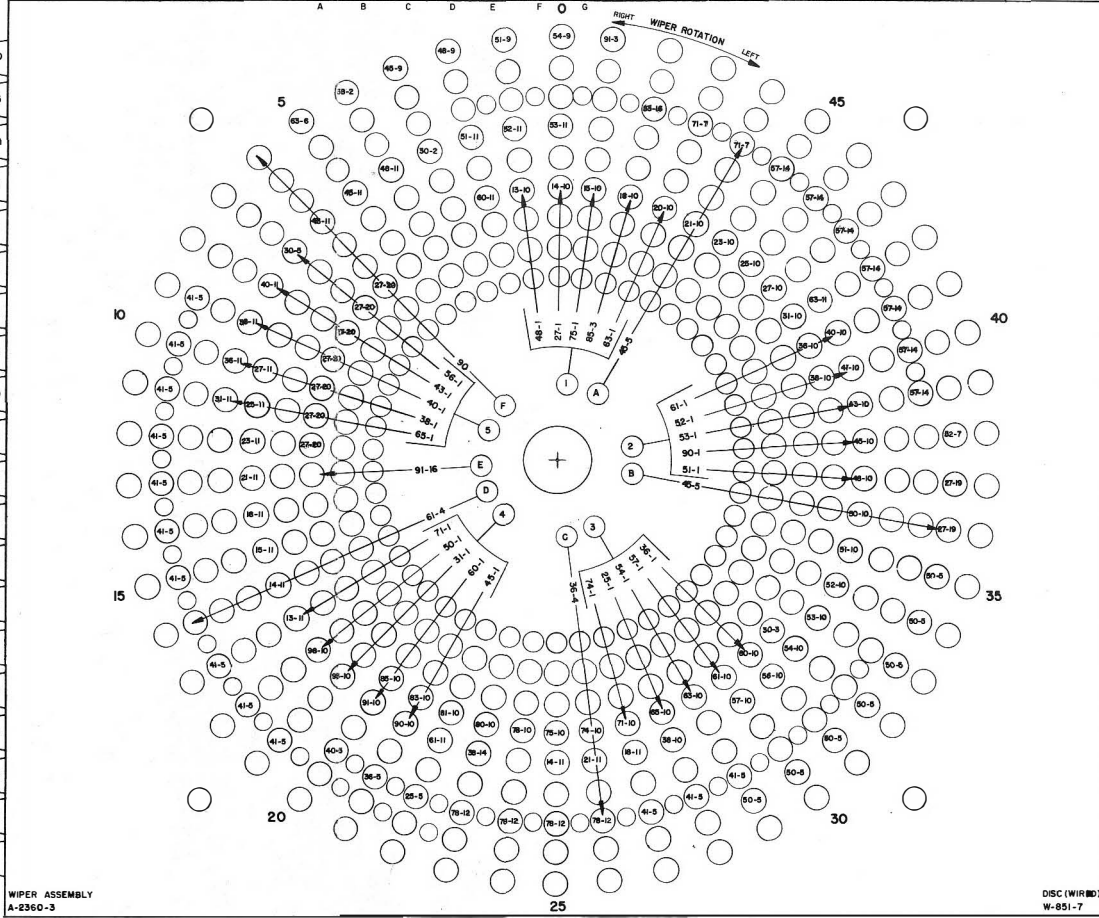
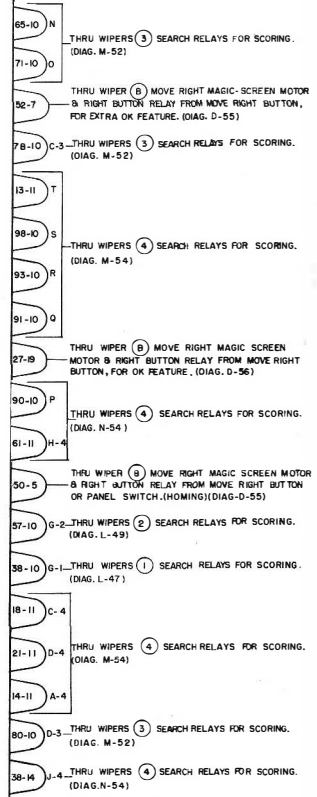
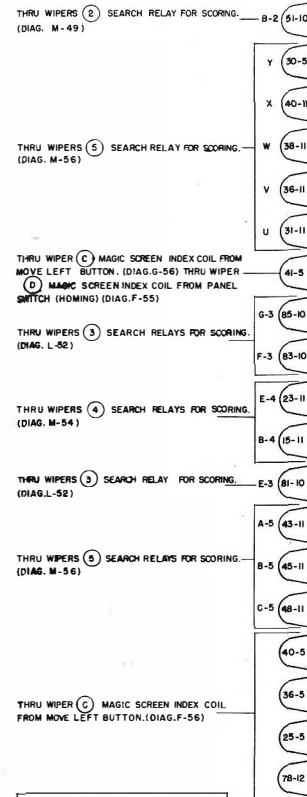
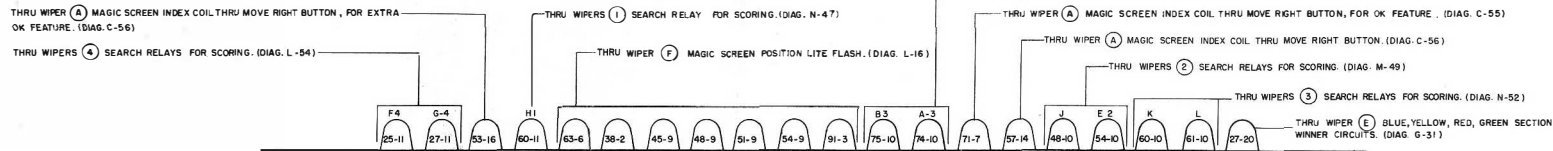
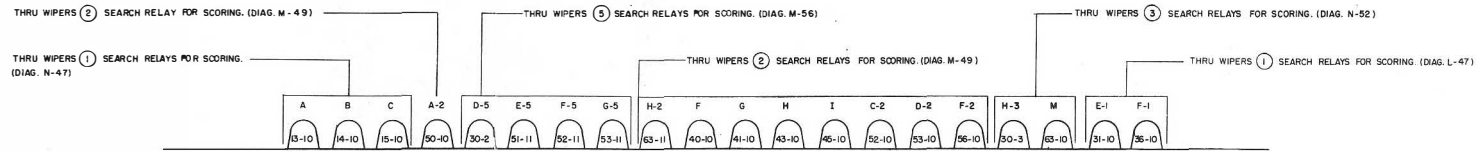
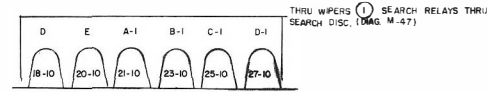
Wipers shown in zero position



WIPER ASSEMBLY AS-1034-70

DISC (WIRED) W-850-13

MAGIC SCREEN MOTOR UNIT DISC viewed from WIPER side Wipers shown in zero position



COMPLETE UNIT	AS-1809-6
INDEX COIL	26-66-10
MOTOR (60 CYCLE)	E-119-174
MOTOR (50 CYCLE)	E-119-175
INDEX ARM B PLINGER	AS-1846-1
INDEX PLUNGER	S-496-152
LADDER CHAIN	M-943
CLUTCH KEY WASHER	P-163-32
CLUTCH LEATHER WASHER	P-163-310

WIPER ASSEMBLY
A-2360-3

DISC (WIPER)
W-851-7

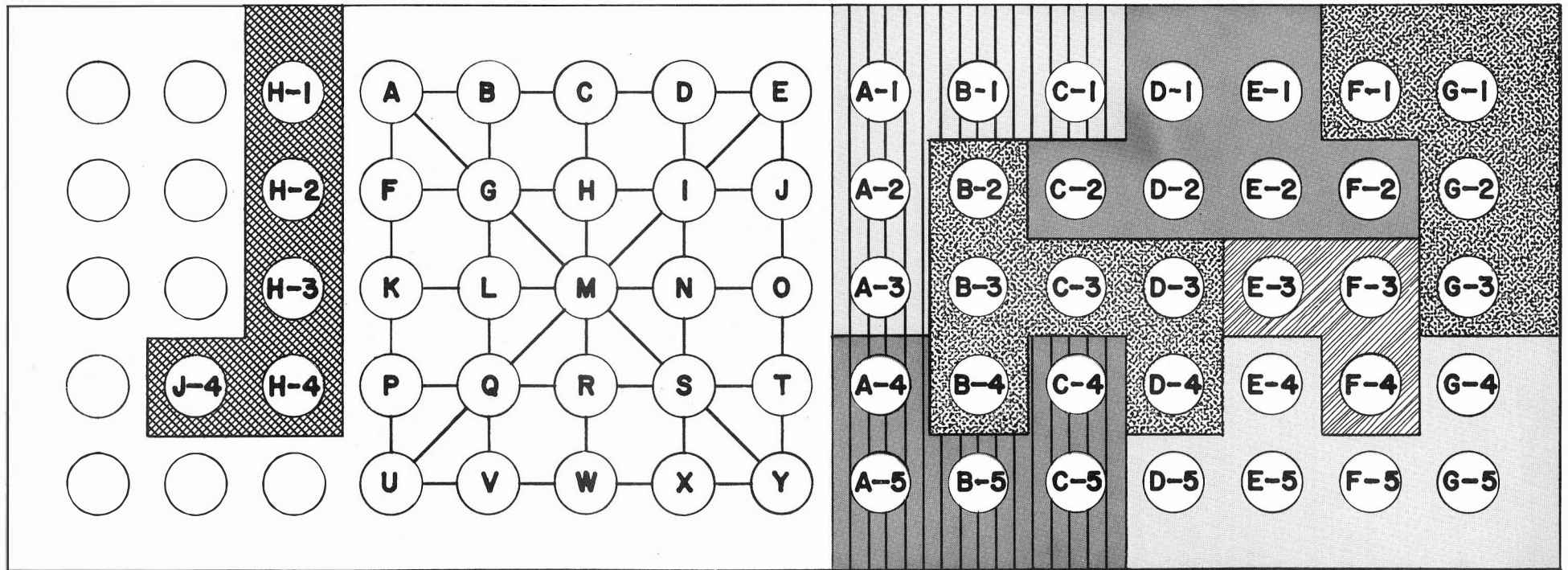
SPOTTING DISC
on other side
of this sheet

SEARCH POSITIONS CHART

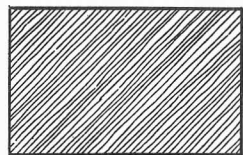
	RED WIPER AT POSITION	WIPER (D) SEARCH RELAY #1	WIPER (F) SEARCH RELAY #2	WIPER (G) SEARCH RELAY #3	WIPER (E) SEARCH RELAY #4	WIPER (C) SEARCH RELAY #5	WIPER (H) SEARCH RELAY #6
6 NO. GREEN	1	B-2	B-3	B-4	C-3	D-3	D-4
	2						
	3						
	4						
RED SUPER	5	A-4	A-5	B-5	C-4	C-5	
	6						
	7						
	8						
YELLOW	9	D-5	E-4	E-5	F-5	G-4	G-5
	10						
	11						
	12						
YELLOW SUPER	13	A-1	B-1	C-1	A-2	A-3	
	14						
	15						
	16						
RED	17	D-1	E-1	C-2	D-2	E-2	F-2
	18						
	19						
	20						
4 NO. GREEN	21	F-1	G-1	G-2	G-3		
	22						
	23						
	24						
BLUE	25	E-3	F-3	F-4			
	26						
	27						
	28						
ORANGE	29	H-1	H-2	H-3	H-4	J-4	
	30						
	31						
	32						
SECTIONS	33						
	34						
	35						
	36						
LINES	37	D	I	N	S	X	
	38	A	F	K	P	U	
	39	U	V	W	X	Y	
	40	F	G	H	I	J	
YELLOW	41	O	J	E	T	Y	
	42	B	G	L	Q	V	
	43	P	Q	R	S	T	
	44	A	B	C	D	E	
RED	45	E	I	M	Q	U	
	46	A	G	M	S	Y	
	47	K	L	M	N	O	
	48	C	H	M	R	W	
GREEN	49						
	50						

SEARCH WIPER ROTATION DURING SEARCH FOR WINNERS

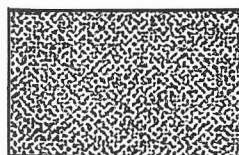
MAGIC-SCREEN LAYOUT



WHEN CHECKING OUT ANY "IN-LINE" OR "IN-SECTION" WINNER, REFER TO SEARCH POSITIONS CHART TO FIND THE POSITION ON SEARCH DISC WHERE THAT PARTICULAR WINNER IS SCORED.



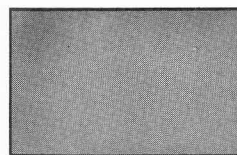
BLUE SECTION



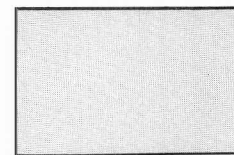
GREEN SECTIONS



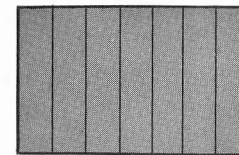
ORANGE SECTION



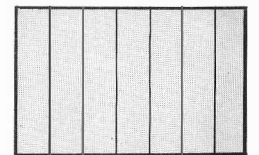
RED SECTION



YELLOW SECTION



RED SUPER-SECTION



YELLOW SUPER-SECTION

MISCELLANEOUS RELAY SWITCH CHART

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
LIFTER START RELAY COIL	A-60	38-8 70	Yellow-Black Orange	Energized by ball runway switch. Drops out each time a ball is shot or (manual) ball lifter button is pressed.
A N.C.	J-16	10-13 15-6	Red Red-White	When relay drops out, completes circuit thru ball trough switches #2 and #3 to energize select before 5th ball and select after 5th ball trip relays.
B N.C.	G-28	41-4 31-3	Green-Red Yellow-Red	When relay drops out, completes circuit to ball lifter motor to raise next ball.
C N.O.	D-60	36 38-8	Yellow-Brown Yellow-Black	When relay is energized, completes lock-in circuit.

TRIP RELAY BANK CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 26

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
BLUE SCORE BOOSTER RELAY COIL	A-54	51-19 70	White-Red Orange	Energized thru spotting disc control circuit. Also when super blue relay is energized.
L1	N.C.	G-42 54-8 58-2	White-Green White-Black	Proportioning circuit for yellow, red and green score steps or extra-ball steps.
L2	S.P.D.T.	D-34 75-14 85-1 83-13	Orange-White Black-White Black-Yellow	Directs blue replay counter unit step-up circuit during blue section winners.
L3	S.P.D.T.	B-34 10-16 15-16 23-17	Red Red-White Blue-Yellow	In series with L2 switch.
R1	N.C.	B-54 51-19 51-19]	White-Red White-Red	Opens circuit to this relay coil.
R2	S.P.D.T.	N-19 18-4 60-8 61-9	Red-Black Brown Brown-Red	Directs circuit to lite blue 3 score 300, blue 3 scores 600 or blue 2 scores 600 feature lite.
RED SCORE BOOSTER RELAY COIL	B-52	90-12 10-5	Gray Red	Energized thru spotting disc control circuit. Also thru OK unit disc during red letter game winners.
L1	N.C.	D-49 41-13 93-13	Green-Red Gray-Yellow	Proportioning circuit for magic-screen feature unit steps.
L2	N.O.	M-12 54-7 80-9	White-Green Black	Completes circuit to red super section feature lite.
L3	S.P.D.T.	D-45 65-4 63-7 52-4	Brown-White Brown-Yellow White-Blue	Proportioning circuit for red or yellow score steps.
L4	N.C.	N-13 43-7 12-13	Green-Yellow Blue-Red	Opens spotting disc circuit to flash yellow super section feature lite.
L5	N.C.	G-38 78-11 27-7	Orange-Black Blue-Orange	Opens a circuit to mixer #2 relay for yellow, red and green score steps proportioning.
R1	N.C.	A-52 53-6 10-5	White-Yellow Red	Opens circuit to this relay coil and yellow score booster trip relay coil.
R2	N.O.	B-29 13-1 45-12	Red-Yellow Green-White	Completes a circuit to step winner unit during search for red super section scores.
R3	S.P.D.T.	C-45 83-4 25-14 75-8	Black-Yellow Blue-White Orange-White	Proportioning circuit for red or yellow score steps.
R4	N.C.	C-50 36-13 15-13	Yellow-Brown Red-White	Proportioning circuit for selection feature unit steps.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
YELLOW SCORE BOOSTER RELAY COIL	B-51	20-7 10-5	Blue Red	Energized thru spotting disc control circuit. Also thru OK unit disc during red letter game winners.
L1	N.C.	D-49 93-13 91-12	Gray-Yellow Gray-Red	Proportioning circuit for magic-screen feature steps.
L2	N.O.	M-12 43-7 80-9	Green-Yellow Black	Completes circuit to yellow super section feature lite.
L3	S.P.D.T.	D-44 52-4 31-9 65-4	White-Blue Yellow-Red Brown-White	Proportioning circuit for yellow or red score steps.
L4	N.C.	N-12 54-7 18-13	White-Green Red-Black	Opens spotting disc circuit to flash red super section feature lite.
L5	N.C.	C-50 50-17 36-13	White Yellow-Brown	Proportioning circuit for selection feature unit steps.
R1	N.C.	A-52 53-6 70	White-Yellow Orange	Opens circuit to this relay coil and red score booster relay coil.
R2	N.O.	B-29 13-1 27-6	Red-Yellow Blue-Orange	Completes a circuit to step winner unit during search for yellow super section winner.
R3	S.P.D.T.	C-44 75-8 38-9 83-4	Orange-White Yellow-Black Black-Yellow	Proportioning circuit for yellow or red score steps.
R4	N.C.	H-38 81-9 78-11	Black-Red Orange-Black	Opens a circuit to mixer #2 relay for yellow, red and green score steps proportioning.
TILT RELAY COIL	A-17	14-5 70	Red-Green Orange	Energized by inertia tilt switches, plumb-bob tilt and control unit cam switch 4D (anti-cheat coin switch circuit).
L1	N.C.	H-53 40-8 93-3	Green Gray-Yellow	Opens circuit to search index lock magnet, magic-screen unit motor and position 29 relays.
L2	N.C.	P-46 10 23-18	Red Blue-Yellow	Opens 17 volt circuit.
L3	S.P.D.T.	K-11 21-3 30 45-8	Blue-Red Yellow Green-White	Opens circuit to this relay coil. Also opens score and feature circuits and game playing circuit, and completes circuit to shutter motor.
L4	S.P.D.T.	N-43 38 54-2 91-2	Yellow-Black White-Green Gray-Red	Opens 6 volt lite circuit and completes circuit to tilt lite.
R1	N.C.	H-2 60P 30P	Brown (Plastic) Yellow (Plastic)	Opens circuit to control unit and mixer-spotting unit motors.
R2	N.O.	F-26 57-6 85-7	White-Orange Black-White	Completes a circuit to red button relay.
R3	N.O.	C-7 83-3 13-16	Black-Yellow Red-Yellow	Completes a circuit to start relay.

CONTINUED ON NEXT PAGE

TRIP RELAY BANK CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 26

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
EXTRA BALL #1 RELAY				Trips with extra-ball #2 relay.
L1 N.C.	E-42	85-4 91-6	Black-White Gray-Red	Opens circuit for energizing anti-cheat relay.
L2 N.O.	G-14	83-1 71-8	Black-Yellow Orange-Red	Completes circuit to reset timer unit when playing for extra-balls.
L3 S.P.D.T.	E-41	85-4 30 61-2	Black-White Yellow Brown-Red	Opens circuit to energize anti-cheat relay and step score units, and completes circuit to step extra-ball unit.
L4 S.P.D.T.	G-42	60-6 56-6 18-2	Brown White-Brown Red-Black	Opens circuit to step score units and completes circuit to step extra-ball unit.
R1 N.C.	L-20	27-16 81-6	Blue-Orange Black-Red	Opens spotting disc feature flash circuit.
R2 N.O.	F-8	50-2 58-5	White White-Black	Completes yellow button play circuit to start relay.
R3 S.P.D.T.	J-42	78-9 15-7 45-2	Orange-Black Red-White Green-White	Opens circuit to step score units and completes circuit to step extra-ball unit.
R4 S.P.D.T.	B-4	52-3 41-7 13-2	White-Blue Green-Red Red-Yellow	Opens circuit to skill shot reflex play magnet and completes circuit to reflex play magnet.
EXTRA BALL #2 RELAY COIL	A-28	40-17 70	Green Orange	Energized by yellow play button after 5th ball is shot.
L1 N.C.	A-28	40-17 40-17J	Green Green	Opens circuit to this relay coil.
L2 N.O.	C-28	91-1 38-3	Gray-Red Yellow-Black	Completes extra-ball disc circuit to ball lifter motor.
L3 S.P.D.T.	D-11	14-3 61 98-2	Red-Green Brown-Red Gray-Black	Directs circuit from shutter motor to mixer latch and timer cams index coils.
L4 S.P.D.T.	M-39	75-9 13-4 20-17	Orange-White Red-Yellow Blue	Opens spotting disc flash circuit to skill shot score lites and regular score lites, and completes spotting disc flash circuit to extra-ball lites.
L5 N.C.	C-27	27-8 85-7	Blue-Orange Black-White	Opens lock-in circuit to red button relay.
R1 N.C.	H-43	45-2 41-14	Green-White Green-Red	Opens circuit for other game features.
R2 N.O.	L-43	21-4 50-9	Blue-Red White	Completes circuit to extra-balls feature lite.
R3 N.O.	G-42	58-2 56-6	White-Black White-Brown	Completes circuit to step extra-ball unit.
R4 S.P.D.T.	H-44	63-15 80-8 78-8	Brown-Yellow Black Orange-Black	Directs circuits to mixer #4 relay.
R5 N.O.	D-64	21-3 53-9	Blue-Red White-Yellow	Completes skill shot play lock-in circuit to play features and play scores relay.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
RED ROLLOVER RELAY COIL	A-60	25-13 70	Blue-White Orange	Energized by circuit from selection feature unit disc thru red rollover button on panel. Also energized directly by circuit from selection feature unit disc.
L1 N.C.	A-60	25-13 25-13J	Blue-White Blue-White	Opens circuit to this relay coil.
L2 N.O.	J-54	93-3 21-12	Gray-Yellow Blue-Red	Completes circuit to move magic-screen until 6th ball is shot.
L3 S.P.D.T.	L-2	51-12 90 52-13	White-Red Gray White-Blue	Directs circuit to flash "press buttons now" lite before 4th ball, before 5th ball or after 5th ball.
L4 S.P.D.T.	L-9	31-8 10-11 53-12	Yellow-Red Red White-Yellow	Directs circuit to flash press buttons before shooting "4th" "5th" or after "5th" ball selection feature lites.
YELLOW ROLLOVER RELAY COIL	A-59	38-13 70	Yellow-Black Orange	Energized by circuit from selection feature unit disc thru red rollover button on panel. Energized directly by circuit from selection feature unit disc.
L1 N.C.	A-59	38-13 38-13J	Yellow-Black Yellow-Black	Opens circuit to this relay coil.
L2 N.O.	H-53	93-3 98-3	Gray-Yellow Gray-Black	Completes circuit to move magic-screen until 5th ball is shot.
L3 S.P.D.T.	M-2	50-12 51-12 23-5	White White-Red Blue-Yellow	Directs circuit to flash "press buttons now" lite before shooting 4th or 5th ball.
L4 S.P.D.T.	M-9	57-5 31-8 74-8	White-Orange Yellow-Red Orange-Green	Directs circuit to flash press buttons before shooting "4th" or "5th" ball selection feature lites.
SELECT BEFORE 4th BALL LOCK-OUT RELAY COIL	A-16	83-6 70	Black-Yellow Orange	Energized thru timer disc circuit when 4th ball is shot.
L1 N.C.	A-16	83-6 83-6J	Black-Yellow Black-Yellow	Opens circuit to this relay coil.
L2 S.P.D.T.	J-54	98-3 93-3 53-18	Gray-Black Gray-Yellow White-Yellow	Opens before 4th ball circuit to move magic-screen and completes circuit to search for winners.
L3 N.O.	H-13	36-2 43-2	Yellow-Brown Green-Yellow	Completes timer unit step-up circuit, from 4th to 5th step.
L4 N.C.	A-25	91-13 78-5	Gray-Red Orange-Black	Opens circuit to skill shot reflex relay.
R1 N.C.	M-2	15-18 50-12	Red-White White	Opens before 4th ball "press buttons now" lite flash circuit.
R2 N.C.	D-14	90-2 27-2	Gray Blue-Orange	(Safety circuit) In series with timer unit step-up circuit for first 4 steps.
R3 N.O.	C-31	51-8 23-13	White-Red Blue-Yellow	Completes circuit to search index coil during search for winners.

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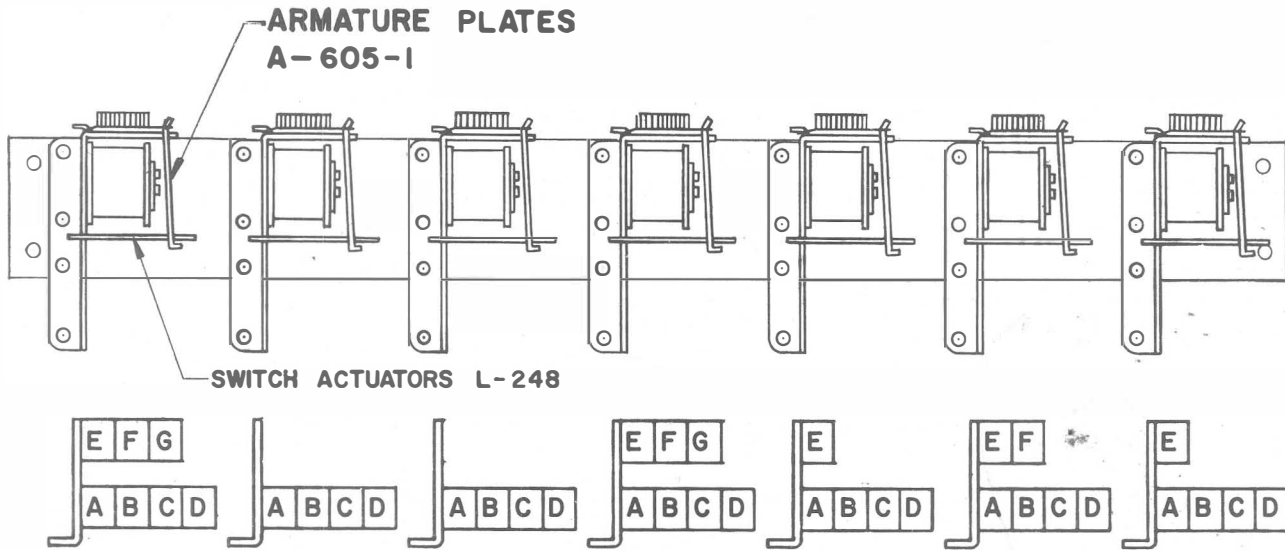
TRIP RELAY BANK CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 26

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
SELECT BEFORE 5th BALL LOCK-OUT RELAY COIL	A-16	74-6 70	Orange-Green Orange	Energized thru timer disc circuit when 5th ball is shot.	
L1	N.C.	P-10	52-12 56-12	White-Blue White-Brown	Opens circuit to yellow rollover button panel lite.
L2	N.C.	C-59	13-12 38-13	Red-Yellow Yellow-Black	Opens circuit to yellow rollover trip relay.
L3	N.O.	E-15	54-11 71-8	White-Green Orange-Red	Completes circuit to reset timer unit thru collect scores (r) button.
L4	N.O.	F-14	78-6 27-2	Orange-Black Blue-Orange	Completes timer unit step-up circuit from 5th to 8th step.
L5	N.C.	J-55	98-3 21-12	Gray-Black Blue-Orange	Opens before 5th ball circuit to move magic-screen.
R1	N.C.	A-16	74-6 74-6J	Orange-Green Orange-Green	Opens circuit to this relay coil.
R2	N.O.	C-28	40-17 25-8	Green Blue-White	Completes yellow button circuit to extra-ball trip relays for extra-ball play.
R3	N.O.	E-7	58-5 18-6	White-Black Red-Black	Completes extra-ball play circuit to start relay.
R4	S.P.D.T.	N-3	14-1 48-12 53-2	Red-Green Green-Black White-Yellow	Directs circuit to flash "press buttons now" lite before 4th ball, before 5th ball or after 5th ball.
AFTER 5th BALL SELECTOR LOCK-OUT RELAY COIL	A-15	98-11 70	Gray-Black Orange	Energized when 6th ball (1st extra-ball is shot).	
L1	N.C.	J-55	21-12 51-14	Blue-Red White-Red	Opens after 5th ball circuit to move magic-screen.
L2	N.C.	B-60	15-12 25-13	Red-White Blue-White	Opens circuit to red rollover trip relay.
L3	N.C.	M-4	53-2 52-13	White-Yellow White-Blue	Opens after 5th ball flash of "press buttons now" lite.
R1	N.C.	A-15	98-11 98-11J	Gray-Black Gray-Black	Opens circuit to this relay coil.
R2	N.C.	P-11	41-8 60-12	Green-Red Brown	Opens circuit to red rollover button panel lite.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
OK RELAY COIL	B-53	52-16 85-13	White-Blue Black-White	Energized thru spotting disc control circuit.	
L1	N.C.	J-41	56-13 21-3	White-Brown Blue-Red	Opens a circuit to mixer #2 relay for yellow, red and green score steps proportioning.
L2	N.C.	H-41	54-13 65-12	White-Green Brown-White	Opens a circuit to mixer #2 relay. For yellow, red and green score steps proportioning.
L3	N.O.	D-56	98-12 27-19	Gray-Black Blue-Orange	Completes circuit to move magic-screen right.
L4	N.O.	B-55	57-14 71-7	White-Orange Orange-Red	Completes circuit to move magic-screen right.
L5	N.C.	E-50	83-11 90-11	Black-Yellow Gray	Proportioning circuit for selection feature unit steps.
R1	N.C.	G-41	45-19 74-12	Green-White Orange-Green	Opens a circuit to mixer #2 relay for yellow, red and green score steps proportioning.
R2	N.O.	L-11	10-11 30	Red Yellow	Completes a circuit to flash "press buttons now" lite, and lite select before 4th, yellow rollover, select before 5th, red rollover, or select after 5th feature lite.
R3	N.O.	N-14	50-8 30	White Yellow	Completes circuit to OK feature lite.
R4	S.P.D.T.	A-17	85-13 70 78-14	Black-White Orange Orange-Black	Opens circuit to this relay coil and completes circuit for energizing extra OK trip relay and super OK relay.
EXTRA OK RELAY COIL	D-17	54-15 15-15	White-Green Red-White	Energized thru spotting disc control circuit when OK trip relay is energized.	
L1	N.C.	D-46	13-18 51-17	Red-Yellow White-Red	Proportioning circuit for green score steps.
L2	N.O.	B-56	71-7 53-16	Orange-Red White-Yellow	Completes circuit to move magic-screen right.
L3	N.O.	D-56	27-19 52-7	Blue-Orange White-Blue	Completes circuit to move magic-screen right.
R1	N.C.	C-17	15-15 78-14	Red-White Orange-Black	Opens circuit to this relay coil.
R2	N.O.	M-21	31-14 30	Yellow-Red Yellow	Completes circuit to extra OK feature lite.

7 RELAY BANK PICTORIAL VIEW

LETTERS CORRESPOND TO SWITCH CHART ON PAGE 31



Name	#1 POSITION 29	#2 POSITION 29	SUPER BLUE	PLAY FEATURES	FEATURES LOCK	PLAY SCORES	SCORES LOCK
Coil turns & wire gauge	1800 # 33	1800 # 33	2300 # 33	2300 # 33	2300 # 33	2300 # 33	2300 # 33
Coil resistance (nominal)	65 Ω	65 Ω	85 Ω	85 Ω	85 Ω	85 Ω	85 Ω
Operating voltage	50 V.	50 V.	50 V.	50 V.	50 V.	50 V.	50 V.
Test voltage	37 V.	37 V.	37V.	37 V.	38V.	37 V.	37 V.
Extension spring load	CLEAR	GREEN	CLEAR	CLEAR	YELLOW	CLEAR	CLEAR
Sw actuator stroke	3/32	3/32	3/32	3/32	3/32	3/32	3/32
Additional information			Note Thermaleze wire or equivalent. No wrap on coil.	See Note	See Note	See Note	See Note
Coil Part No.	C-7800-334	C-7800-334	C-7800-336	C-7800-336	C-7800-336	C-7800-336	C-7800-336

SPRING CODE		
COLOR	PART NO.	LOAD
CLEAR	SP-199-13	13oz. at 15/16
BLUE	SP-199-14	21oz. at 15/16
YELLOW	SP-199-15	15oz. at 15/16
RED	SP-199-16	9 oz. at 15/16
GREEN	SP-199-17	17oz. at 15/16

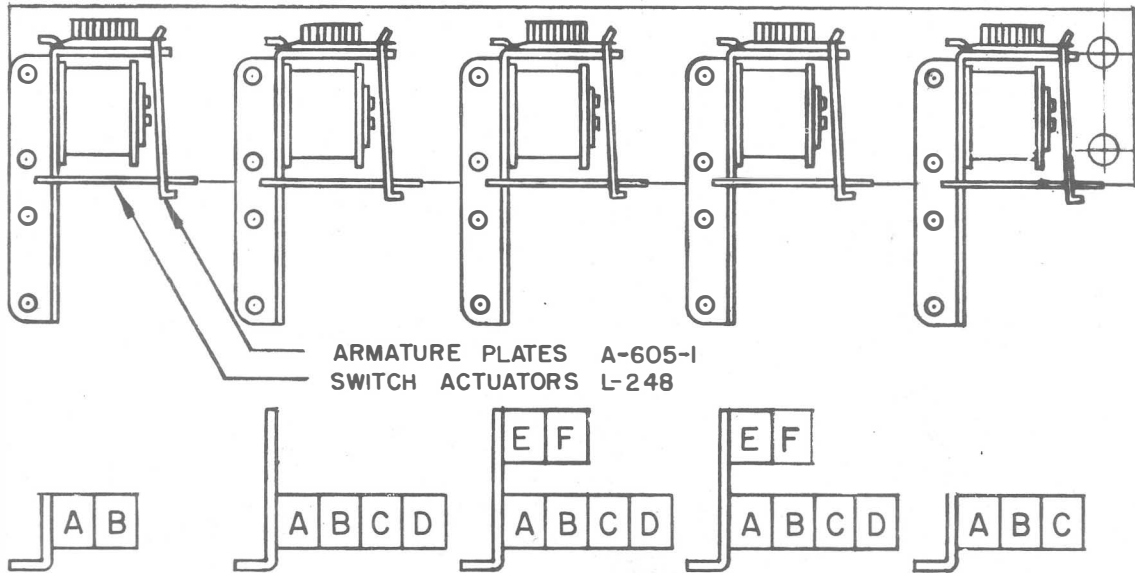
7 RELAY BANK SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 30

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
#1 POSITION 29 RELAY COIL	B-57	10-9 70	Red Orange	Energized by search disc circuit when (OK) orange section winners are made.
A N.C.	H-62	85-5 31-5	Black-White Yellow-Red	Opens green score unit reset circuit.
B N.C.	G-44	83-9 18-16	Black-Yellow Red-Black	Opens regular game features circuit.
C N.C.	B-46	74-13 15-4	Orange-Green Red-White	Opens regular green score unit step-up circuit.
D N.O.	D-58	38-15 10-9	Yellow-Black Red	Completes lock-in circuit for this relay and #2 position 29 relay coil.
E N.O.	F-48	25-18 20-16	Blue-White Blue	Completes guaranteed red letter scores and features advance circuit.
F N.O.	G-18	21-3 54-14	Blue-Red White-Green	Completes lock-in circuit for super OK relay when panel opens.
G N.O.	B-11	14-3 53	Red-Green White-Yellow	Complete a circuit to shutter motor to open shutter.
#2 POSITION 29 RELAY COIL	B-58	10-9 70	Red Orange	Energized by search disc circuit when (OK) orange section winners are made.
A N.C.	B-48	93-12 52-5	Gray-Yellow White-Blue	Opens regular magic-screen feature unit step-up circuit.
B N.C.	B-45	13-3 81-16	Red-Yellow Black-Red	Opens regular red score unit step-up circuit.
C N.C.	B-50	15-13 78-15	Red-White Orange-Black	Opens regular selection feature unit step-up circuit.
D N.C.	F-52	91-11 61-7	Gray-Red Brown-Red	Opens regular red and yellow score booster feature circuit.
SUPER BLUE RELAY COIL	B-54	31-15 31-15	Yellow-Red Yellow-Red	Energized thru spotting disc control circuit.
A N.O.	G-53	45-20 38-16	Green-White Yellow-Black	From same circuit that energized this relay. Completes a circuit to blue score booster trip relay.
B M.B.B.	E-54	21-3 45-20 31-15	Blue-Red Green-White Yellow-Red	Completes lock-in circuit and opens pull-in circuit to this relay.
C S.P.D.T.	N-20	13-13 61-9 63-13	Red-Yellow Brown-Red Brown-Yellow	Directs circuit to 3-in-blue section scores 600 or 2-in-blue section score 600 feature lite.
D N.O.	G-33	20-8 81-7	Blue Black-Red	Completes replay scoring circuit for 2 in blue section winner.
PLAY FEATURES RELAY COIL	A-62	31-15 61-13	Yellow-Red Brown-Red	Energized during green button (feature play) or white button (skill shot score) play.
A S.P.D.T.	M-29	36-16 50-14 23-15	Yellow-Brown White Blue-Yellow	Directs circuit to red button, play, blue button play or green button play lite.
B N.O.	C-61	43-14 53-14	Green-Yellow White-Yellow	Completes circuit to features lock relay.
C N.O.	G-52	98 10-15	Gray-Black Red	Completes a spotting disc control circuit to OK feature trip relay.
D N.O.	B-62	81-13 61-13	Black-Red Brown-Red	Completes lock-in circuit to this relay.
E N.C.	A-44	70 71-13	Orange Orange-Red	Opens yellow, red and green score unit step-up circuit.
F N.C.	M-38	74-15 75-9	Orange-Green Orange-White	Opens yellow, red and green score lites flash circuit.
G N.O.	E-19	14-8 25-17	Red-Green Blue-White	During (white button) skill shot feature play, in series with skill shot score unit step-up circuit, skill shot relay, skill shot selection relay and skill shot reflex relay lock-in circuit.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
FEATURES LOCK RELAY COIL	A-61	31-15 53-14	Yellow-Red White-Yellow	Energized by circuit from control unit cam switch 7B when play features relay is energized.
A N.O.	B-61	40-15 53-14	Green White-Yellow	Completes lock-in circuit to this relay.
B N.O.	H-51	13-17 48-13	Red-Yellow Green-Black	Complete a spotting disc control circuit for red or yellow score booster feature trip relay.
C N.O.	F-49	45-6 90-13	Green-White Gray	Completes a spotting disc control circuit for magic-screen feature steps, selection feature steps and OK feature trip relay.
D N.O.	H-45	56-8 23-4	White-Brown Blue-Yellow	Completes a circuit to mixer #4 relay for features proportioning.
E N.C.	H-44	21-3 63-15	Blue-Red Brown-Yellow	Opens a circuit to mixer #4 relay for features proportioning.
PLAY SCORES RELAY COIL	A-63	31-15 65-15	Yellow-Red Brown-White	Energized during (blue button) scores play or (white button) skill shot scores play.
A S.P.D.T.	N-29	60-19 36-16 21-15	Brown Yellow-Brown Blue-Red	Directs circuit to red button play lite or blue button play lite.
B N.O.	C-43	91-5 10-1	Gray-Red Red	Completes circuit from control unit cam switch 8E for yellow, red and green score steps. (1st 3 steps)
C N.O.	C-61	43-14 93-14	Green-Yellow Gray-Yellow	Completes circuit to scores lock relay.
D N.O.	D-63	57-13 65-15	White-Orange Brown-White	Completes lock-in circuit to this relay.
E N.C.	L-20	81-6 30	Black-Red Yellow	Opens features lite flash circuit.
F N.C.	H-43	41-14 80-7	Green-Red Black	Opens features circuit.
SCORES LOCK RELAY COIL	A-61	31-15 93-14	Yellow-Red Gray-Yellow	Energized by circuit from control unit cam switch 7B when play scores relay is energized.
A N.O.	B-61	40-15 93-14	Green Gray-Yellow	Completes lock-in circuit to this relay.
B N.O.	G-44	60-6 56-11	Brown White-Brown	Completes a circuit thru control unit cam switch 8D for yellow, red and green score steps.
C N.O.	E-45	63-12 38-5	Brown-Yellow Yellow-Black	Completes a spotting disc control circuit for yellow, red and green score steps.
D N.O.	E-45	57-12 27-5	White-Orange Blue-Orange	Completes a spotting disc control circuit for yellow, red and green score steps.
E N.C.	G-43	80-7 83-9	Black Black-Yellow	Opens features circuit.

(VERTICAL) 5 RELAY BANK PICTORIAL VIEW

LETTERS CORRESPOND TO SWITCH CHART ON PAGE 33



Name	Right Button	Replay Reset	Anti-cheat	Start	Red Button
Coil turns & wire gauge	2300 #33	2300 #33	2300 #33	1800 #33	2000 #33
Coil resistance (nominal)	85 Ω	85 Ω	85 Ω	65 Ω	75 Ω
Operating voltage	50v.	50v.	50v.	50v.	50v.
Test voltage	37v.	37v.	39v.	32v.	32v.
Extension spring load	CLEAR	YELLOW	YELLOW	YELLOW	CLEAR
Sw. actuator stroke	3/32	3/32	3/32	3/32	3/32
Additional information			Thermaleze wire or equivalent. No wrap on coil.		Thermaleze wire or equivalent. No wrap on coil.
Coil Part No.	C-7800-331	C-7800-331	C-7800-336	C-7800-334	C-7800-3310

SPRING CODE

COLOR	PART NO.	LOAD
CLEAR	SP-199-13	13 oz. at 15/16
BLUE	SP-199-14	21 oz. at 15/16
YELLOW	SP-199-15	15 oz. at 15/16
RED	SP-199-16	9 oz. at 15/16
GREEN	SP-199-17	17 oz. at 15/16

(VERTICAL) 5 RELAY BANK SWITCH CHART

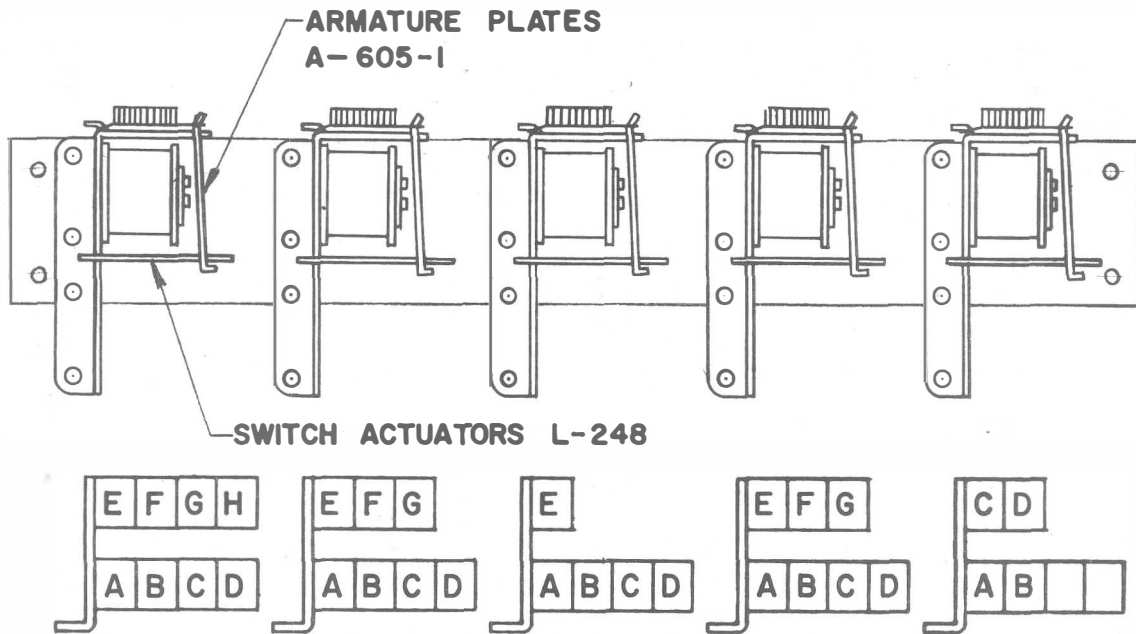
FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 32

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
RIGHT BUT-TON RELAY COIL	A-56	45-5 70	Green-White Orange	Energized by right button switch when circuit to move magic-screen right is complete thru other factors.
A S.P.D.T.	B-57	48-5 25-6 45-5	Green-Black Blue-White Green-White	Directs move left or right magic-screen motor circuit. Also completes lock-in circuit for this relay when energized.
B N.C.	G-56	31-16 36-4	Yellow-Red Yellow-Brown	Opens move left circuit to magic-screen index coil.
REPLAY RE-SET RELAY COIL	A-6	75-2 70	Orange-White Orange	Energized by circuit from anti-cheat relay switch.
A S.P.D.T.	D-5	90-5 41-6 53-7	Gray Green-Red White-Yellow	Directs single replay register unit reset circuit thru control unit cam switch 5E, or multiple reset circuit thru mixer-spotting cam switch 2A.
B N.O.	H-2	20P 60P	Blue (Plastic) Brown(Plastic)	Completes a circuit to mixer-spotting and control unit motors.
C N.O.	H-5	56-2 75-2	White-Brown Orange-White	Completes lock-in circuit for this relay. Also in series with multiple replay register reset circuit.
D N.C.	C-8	13-9 83-3	Red-Yellow Black-Red	Opens circuit to start relay.
ANTI-CHEAT RELAY COIL	A-42	78-4 70	Orange-Black Orange	Energized by circuit from control unit cam switch 5C, stays energized unless power is interrupted.
A S.P.D.T.	H-7	75-2 56-2 50-2	Orange-White White-Brown White	Opens circuit to start relay and completes circuit to replay reset relay when relay drops out.
B N.O.	P-44	20-4 80-1	Blue Black	Opens 17 volt circuit when this relay drops out.
C N.O.	E-42	78-4 30	Orange-Black Yellow	Completes lock-in circuit for this relay when energized.
D N.C.	K-10	14-14 30	Red-Green Yellow	Completes circuit to shutter motor when this relay drops out when shutter is open.
E S.P.D.T.	P-42	91-2 38 40	Gray-Red Yellow-Black Green	Opens 6 volt lite circuit and completes a circuit to tilt lite when this relay drops out.
F N.C.	G-26	57-6 85-7	White-Orange Black-White	Completes a circuit to red button relay when this relay drops out.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
START RE-LAY COIL	A-8	13-16 70	Red-Yellow Orange	Energized by circuit from coin switch or replay button switches. (Blue-green-white-red-yellow)
A N.C.	B-40	75-4 78	Orange-White Orange-Black	Opens multiple step extra-ball unit step-up circuit.
B N.C.	G-44	18-16 85-12	Red-Black Black-White	Opens game features circuit.
C N.O.	H-10	48-2 13-16	Green-Black Red-Yellow	Completes lock-in circuit for this relay. Also in series with function of switch (D) below.
D N.O.	G-10	10-10 13-16	Red Red-Yellow	Completes circuits to shutter motor, (open shutter) mixer latch and timer cams index coils.
E N.C.	E-58	63-8 38-15	Brown-Yellow Yellow-Black	Opens lock-in circuit to position 29 relays.
F N.C.	E-21	56-19 74-9	White-Brown Orange-Green	Opens circuit to spin relay.
RED BUTTON RELAY COIL	B-27	85-7 91-15	Black-White Gray-Red	Energized by circuit from anti-cheat relay switch, tilt relay switch, red score unit zero switch or red (replay) button switch.
A S.P.D.T.	B-10	93-2 98-2 14-3	Gray-Yellow Gray-Black Red-Green	Directs circuit to mixer latch and timer cams index coil during extra-ball play or shutter motor when starting new game.
B S.P.D.T.	L-29	21-4 30 80-18	Blue-Red Yellow Black	Directs circuit to extra-ball feature lite or red, blue, green or white button feature lites.
C N.O.	F-27	57-6 27-8	White-Orange Blue-Orange	Completes lock-in circuit for this relay

(HORIZONTAL) 5 RELAY BANK PICTORIAL VIEW

LETTERS CORRESPOND TO SWITCH CHART ON PAGE 35



Name	SPIN	SKILL SHOT PLAY	SKILL SHOT SELECTION	SKILL SHOT REPLAY	MIXER # 2
Coil turns & wire gauge	2300 # 33	2300 # 33	2300 # 33	700 # 29	2300 # 33
Coil resistance (nominal)	85 Ω	85 Ω	85 Ω	10 Ω	85 Ω
Operating voltage	50 V.	50 V.	50 V.	18 V.	50 V.
Test voltage	37 V.	37 V.	37 V.	UNDER 12 V. OVER 9 V.	37 V.
Extension spring load	RED	RED	RED	RED	YELLOW
Sw actuator stroke	3/32	3/32	3/32	3/32	3/32
Additional information	THERMALEZE WIRE OR EQUIVALENT, NO WRAP ON COIL.	SEE NOTE	SEE NOTE	SEE NOTE	SEE NOTE
Coil Part No.	C-7800-336	C-7800-336	C-7800-336	C-7800-293	C-7800-336

SPRING CODE		
COLOR	PART NO.	LOAD
CLEAR	SP-199-13	13oz at 15/16
BLUE	SP-199-14	21oz at 15/16
YELLOW	SP-199-15	15 oz. at 15/16
RED	SP-199-16	9 oz. at 15/16
GREEN	SP-199-17	17 oz. at 15/16

(HORIZONTAL) 5 RELAY BANK SWITCH CHART

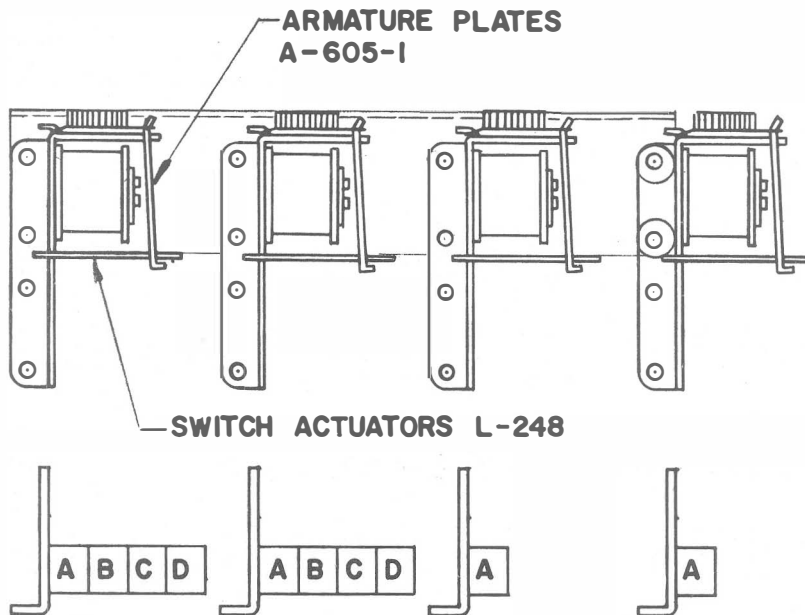
LETTERS CORRESPOND TO SWITCH CHART ON PAGE 34

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
SPIN RELAY COIL	A-21	56-19 70	White-Brown Orange	During skill shot play, energized by circuit from control unit cam switch 4E when (gold button) selection spin is made.
A N.C.	K-8	30 18-20	Yellow Red-Black	Opens start circuit.
B N.C.	F-19	31-19 14-8	Yellow-Red Red-Green	Opens pull-in circuit to this relay.
C S.P.D.T.	K-61	45-15 98-17 58-8	Green-White Gray-Black White-Black	Opens pull-in circuit to 1st ball relay and completes skill shot selection lites and winner circuit.
D N.O.	D-21	56-19 14-8	White-Brown Red-Green	Completes a circuit to skill shot relay, skill shot selection relay and skill shot reflex relay.
E N.C.	B-19	15-17 57-11	Red-White White-Orange	Opens circuit to skill shot score unit step-up coil.
F N.C.	L-23	75-9 43-8	Orange-White Green-Yellow	Opens skill shot score lites flash circuit.
G S.P.D.T.	M-30	93-11 36-18 60-19	Gray-Yellow Yellow-Brown Brown	Opens panel switch circuit to red button play lite and white button play lite, and completes direct circuit to red button play lite.
H N.O.	E-21	56-19 65-13	White-Brown Brown-White	When 1st ball is shot, completes a lock-in circuit to this relay, skill shot relay, skill shot selection relay and skill shot reflex relay.
SKILL SHOT RELAY COIL	B-19	14-8 31-15	Red-Green Yellow-Red	During skill shot play, energized by circuit from (white) skill shot play button, also energized by circuit from spin relay when (gold button) selection spin is made.
A S.P.D.T.	C-5	13-2 90-5 41-7	Red-Yellow Gray Green-Red	Opens regular circuit to reflex unit play coil and completes circuit thru extra-ball trip relay switch to skill shot reflex unit play coil or reflex unit play coil.
B S.P.D.T.	H-20	60 58-20 15-20	Brown White-Black Red-White	Opens gold button selection spin circuit and completes circuit to lock-in this relay, step skill shot score unit, energize skill shot selection and skill shot reflex relays.
C S.P.D.T.	M-29	50-14 80-18 36-18	White Black Yellow-Brown	Directs circuits to red, blue, green and white button play lites.
D N.O.	L-22	78-16 43-8	Orange-Black Green-Yellow	Completes spotting disc flash circuit to skill shot score lites.
E N.C.	E-62	21-3 20-9	Blue-Red Blue	Opens green button play circuit to play features relay and blue button play circuit to play scores relay.
F N.O.	B-62	61-13 53-9	Brown-Red White-Yellow	Completes white button play circuit to play features relay.
G N.O.	C-64	65-15 53-9	Brown-White White-Yellow	Completes white button play circuit to play scores relay.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
SKILL SHOT SELECTION RELAY COIL	A-22	85-15 70	Black-White Orange	During skill shot play, energized by circuit from skill shot reflex disc.
A S.P.D.T.	M-63	18-17 71-12 10-18	Red-Black Orange-Red Red	Directs a spotting disc circuit to #8 or #7 skill shot selection lite.
B S.P.D.T.	M-62	90-16 30-8 14-7	Gray Yellow Red-Green	Directs a spotting disc circuit to #9 or #1 skill shot selection lite.
C S.P.D.T.	M-66	38-1 98-16 53-1	Yellow-Black Gray-Black White-Yellow	From skill shot selection panel switch #8 or #7, completes a circuit to skill shot replay relay.
D S.P.D.T.	M-64	48-1 58-9 27-1	Green-Black White-Black Blue-Orange	From skill shot selection panel switch #9 or #1, completes a circuit to skill shot replay relay.
E N.O.	B-22	52-15 85-15	White-Blue Black-White	Completes lock-in circuit to this relay.
SKILL SHOT REPLAY RELAY COIL	P-66	10 81-18	Red Black-Red	During skill shot play, energized by circuit from skill shot selection panel switches to record skill shot winners.
A S.P.D.T.	A-32	20-6 48-4 15-5	Blue Green-Black Red-White	Opens circuit to reflex unit replay coil and completes circuit to skill shot reflex unit replay coil.
B N.O.	B-31	74-4 21-3	Orange-Green Blue-Red	Completes a circuit to replay cams index coil.
C N.O.	D-18	18-15 21-3	Red-Black Blue-Red	Thru control unit cam switch 11B, completes skill shot score unit escapement circuit.
D N.O.	J-61	58-8 30	White-Black Yellow	Completes lock-in circuit to this relay.
E N.C.	E-29	36-20 36-3	Yellow-Brown Yellow-Brown	Opens circuit to ball lifter motor.
F N.C.	B-8	80-12 13-16	Black Red-Yellow	Opens circuit to start relay.
G N.C.	J-55	51-14 14-4	White-Red Red-Green	Opens circuit to move magic-screen.
MIXER #2 RELAY COIL	A-43	27-7 70	Blue-Orange Orange	Energized thru mixer #2 disc control circuit.
A N.O.	E-43	85-4 54-12	Black-White White-Green	Thru control unit cam switch 8E, completes circuit for yellow, red and green score steps during blue button play. (1st 3 steps only).
B N.O.	H-43	15-7 56-6	Red-White White-Brown	Thru control unit cam switch 7C and 8D, completes circuit for yellow, red and green score steps. Also completes circuit for extra-ball steps during extra-ball play.
C N.O.	F-53	14-13 45-20	Red-Green Green-White	From control unit alternator cam switch 9XA, completes circuit to super blue feature relay.
D N.O.	D-54	38-16 51-19	Yellow-Black White-Red	From spotting disc, completes circuit to blue score booster feature trip relay.

4 RELAY BANK PICTORIAL VIEW

LETTERS CORRESPOND TO SWITCH CHART ON PAGE 37



Name	SKILL SHOT REFLEX	SUPER OK	MIXER # 4	1st BALL
Coil turns & wire gauge	2800 # 33	2300 # 33	2800 # 33	430 # 25
Coil resistance (nominal)	100 Ω	85 Ω	100 Ω	2.5 Ω
Operating voltage	50 V.	50 V.	50 V.	6 V.
Test voltage	37 V.	37 V.	37 V.	4 V.
Extension spring load	RED	CLEAR	RED	RED
Sw actuator stroke	3/32	3/32	3/32	3/32
Additional information	Thermaleze wire or equivalent. no wrap on coil. Minimum dropout voltage, 115V. after energized at 50V		Thermaleze wire or equivalent. no wrap on coil. Minimum dropout voltage, 115V. after energized at 50V	
Coil Part No.	C-7800-3312	C-7800-331	C-7800-3312	C-7800-252

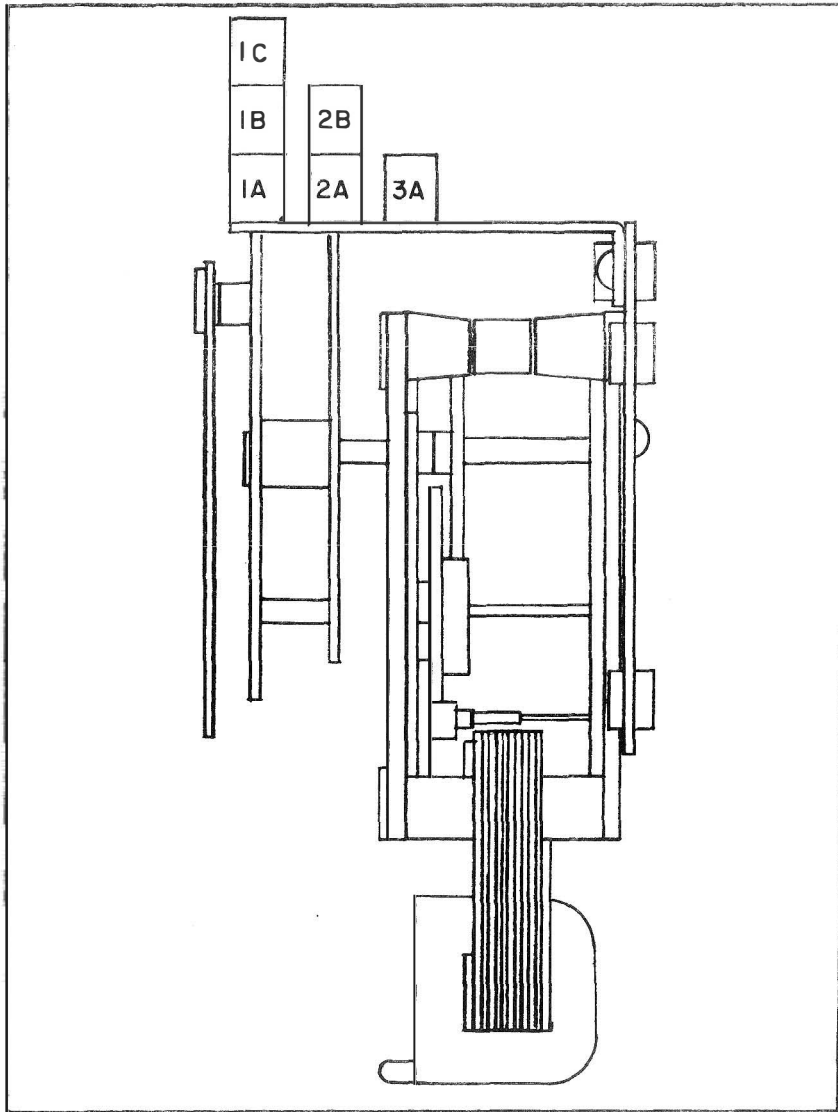
SPRING CODE		
COLOR	PART NO.	LOAD
CLEAR	SP-199-13	13oz. at 15/16
BLUE	SP-199-14	21oz. at 15/16
YELLOW	SP-199-15	15oz. at 15/16
RED	SP-199-16	9 oz. at 15/16
GREEN	SP-199-17	17oz. at 15/16

4 RELAY BANK SWITCH CHART

FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 36

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
SKILL SHOT REFLEX RE-LAY COIL	A-25	91-13 78-5	Gray-Red Orange-Black	During skill shot play, energized by a circuit from mixer #4 disc.
A N.O.	B-24	31-20 91-13	Yellow-Red Gray-Red	Completes lock-in circuit to this relay.
B N.O.	L-61	41-11 43-16	Green-Red Green-Yellow	Thru spotting disc, completes a circuit to skill shot selection lites. (2nd selection)
C N.O.	L-64	98-9 14-9	Gray-Black Red-Green	Thru spotting disc, completes a circuit from skill shot selection panel switches to energize skill shot replay relay.
D N.O.	C-20	71-14 58-7	Orange-Red White-Black	From mixer #2 disc, completes a circuit for an extra skill shot score step.
SUPER OK RELAY COIL	D-17	80-17 27-15	Black Blue-Orange	Energized thru spotting disc control circuit when OK trip relay is energized.
A S.P.D.T.	E-47	56-3 36-7 15-4	White-Brown Yellow-Brown Red-White	Directs guaranteed scores and features advance circuit during orange section winners.
B N.O.	L-13	13-15 30	Red-Yellow Yellow	Completes circuit to super OK feature lite.
C N.O.	E-17	80-18 54-14	Black White-Green	Completes lock-in circuit to this relay.
D N.O.	G-17	78-14 70	Orange-Black Orange	Completes lock-in circuit to this relay.
MIXER #4 RELAY COIL	A-47	23-4 70	Blue-Yellow Orange	Energized thru mixer #4 disc control circuit.
A N.C.	H-43	45-2 51-5	Green-White White-Red	Opens features and extra ball circuit
1st BALL RELAY COIL	M-61	51 98-17	White-Red Gray-Black	Energized by 6 volt circuit thru spin relay switches. Drops out when 5th ball through switch opens. (2nd ball is shot)
A N.O.	K-60	98-17 90-17	Gray-Black Gray	Completes 6 volt circuit to skill shot selection and shoot-now lites. Also completes lock-in circuit to this relay.

BALL LIFTER MOTOR PICTORIAL VIEW



BALL LIFTER MOTOR SWITCH CHART

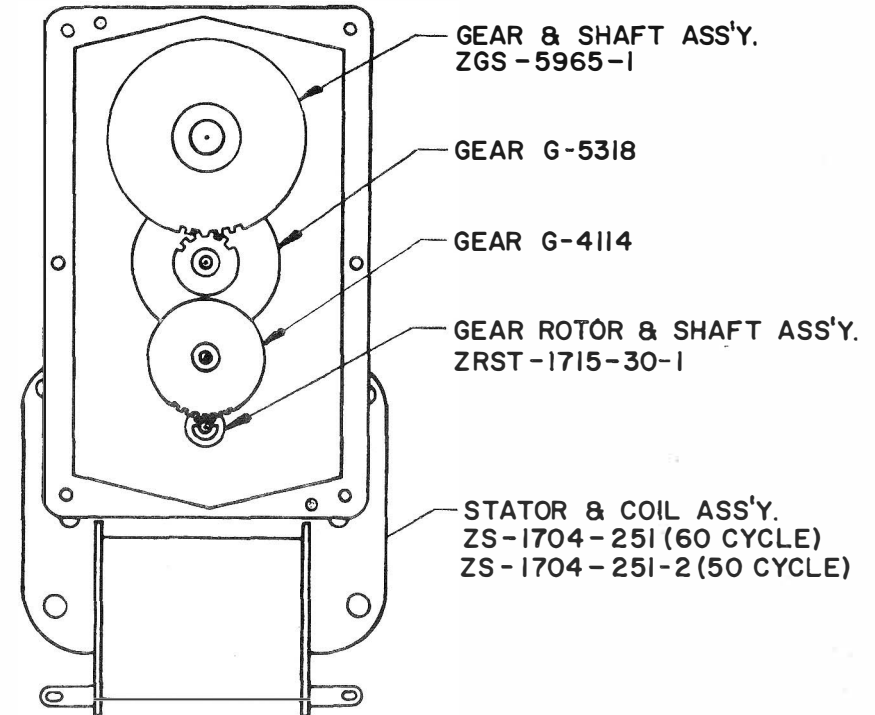
FOR POSITION OF SWITCHES SEE PICTORIAL VIEW AT LEFT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
1A	N.C.	H-16	15-6 85-6	Red-White Black-White	(Safety circuit) opens circuit to select before 5th ball lockout relay.
1B	N.C.	F-20	25-17 90-7	Blue-White Gray	In series with lock-in circuit to skill shot play relay, spin relay and skill shot selection relay during skill shot play.
1C	N.O.	H-29	91-1 30	Gray-Red Yellow	Completes ball lifter motor carry-over circuit.
2A	N.O.	D-13	43-2 27-2	Green-Yellow Blue-Orange	Completes rimer unit step-up circuit (0 to 5th step).
2B	N.O.	B-21	80-19 93-2	Black Gray-Yellow	Completes circuit to timer cams index and mixer latch coils for skill shot play spin if gold spin button is not pressed.
3A	N.O.	G-16	21-3 83-7	Blue-Red Black-Yellow	Completes circuit to energize select before 4th ball lockout relay when 4th ball is shot.

BALL LIFTER MOTOR

E-119-110 (60 CYCLE)

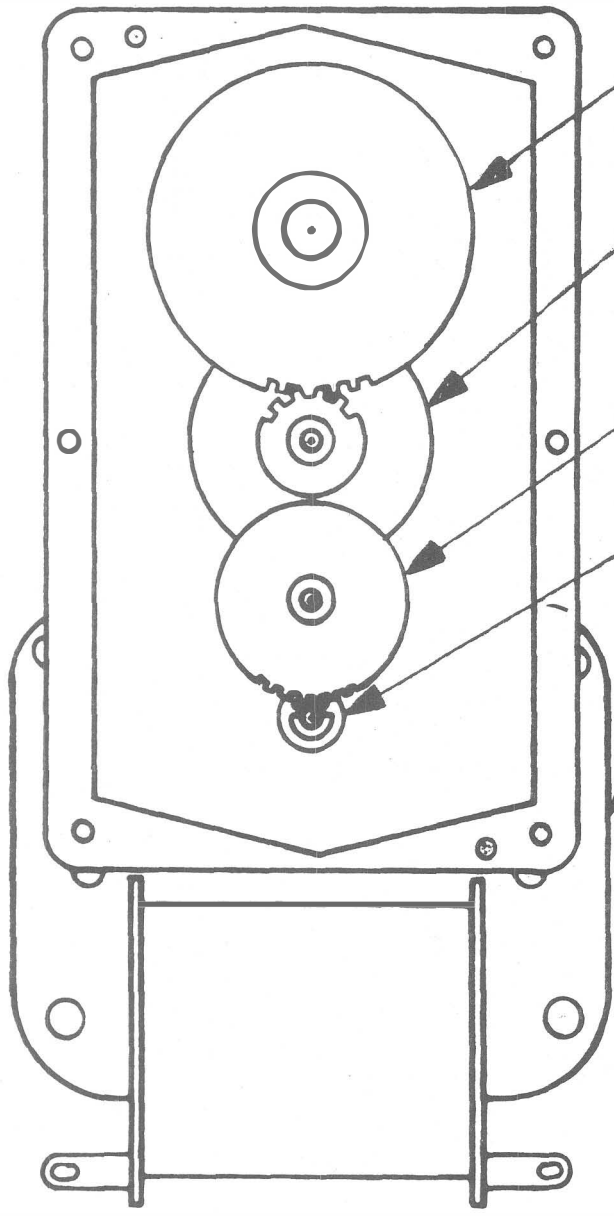
E-119-168 (50 CYCLE)



MAGIC SCREEN UNIT MOTOR

E-119-174 (60 CYCLE)

E-119-175 (50 CYCLE)



GEAR & SHAFT ASS'Y.
ZGS-2540-10

GEAR G-5818-3

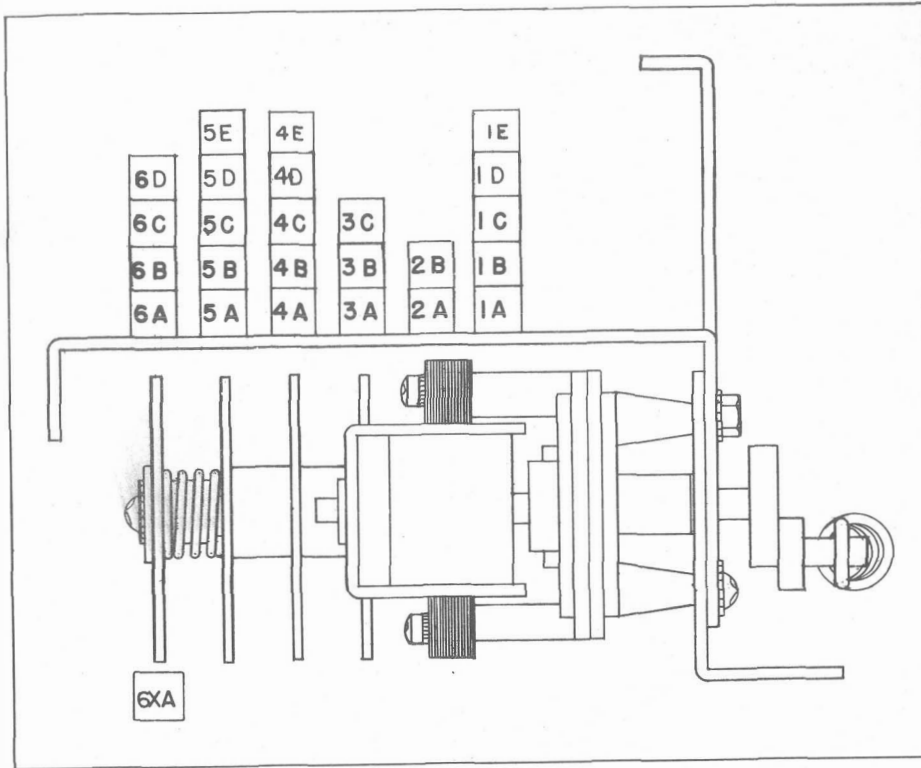
GEAR G-4114

GEAR ROTOR & SHAFT ASS'Y.
ZZRS-2554-3-54-1

STATOR & COIL ASS'Y.
ZS-2503-232 (60 CYCLE)
ZS-2503-246 (50 CYCLE)

SHUTTER MOTOR PICTORIAL VIEW

LETTERS CORRESPOND TO SWITCH CHART



SHUTTER MOTOR SWITCH CHART

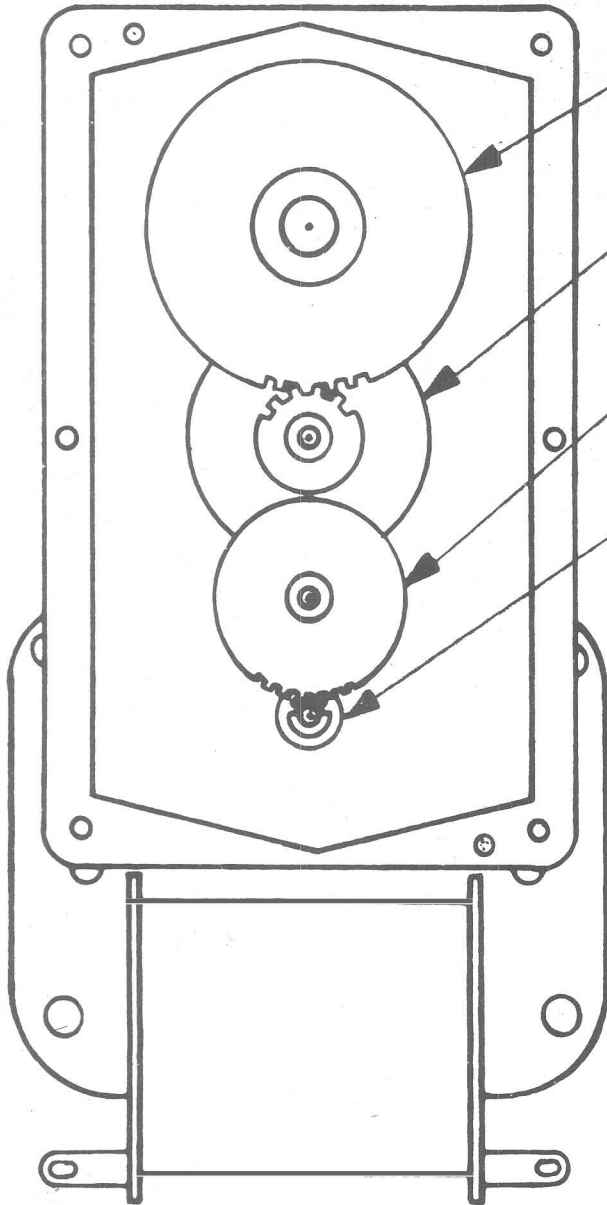
FOR POSITION OF SWITCHES SEE PICTORIAL VIEW AT LEFT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
1A	N.C.	J-29	14 21-3	Red-Green Blue-Red	When shutter is closed, completes in-line or in-section replay winner circuit.
1B	N.O.	J-10	14-3 30	Red-Green Yellow	During shutter cycle completes shutter motor carry-over circuit.
1C	N.C.	K-14	98-8 21-3	Gray-Black Blue-Red	When shutter is closed, completes timer unit step-up circuit after 5th ball is shot. Also completes timer unit reset circuit when playing for extra-balls.
1D	N.O.	G-58	63-8 30	Brown-Yellow Yellow	When shutter opens, starts lock-in circuit to position 29 relays.
1E	N.C.	G-49	90-3 21-3	Gray Blue-Red	When shutter is open, completes OK unit and scores and features step-up circuit for red letter orange section winners.
2A	N.O.	C-18	21-3 58-1	Blue-Red White-Black	When shutter opens, pulses skill shot score unit escapement coil. (Total reset circuit)
2B	N.C.	F-29	31-3 36-3	Yellow-Red Yellow-Brown	When shutter is closed, in series with ball lifter motor circuit.
3A	N.O.	F-61	85-5 30	Black-White Yellow	When shutter opens, resets extra-ball, yellow replay counter, red replay counter, green replay counter, selection feature and green score units.
3B	N.O.	J-3	70P 20P	Orange(Plastic) Blue (Plastic)	When shutter opens, resets trip relay bank.
3C	N.O.	G-19	21-3 15-17	Blue-Red Red-White	When shutter opens, pulses skill shot score unit step-up coil. (Total reset circuit)
4A	N.O.	F-11	18-3 14-3	Red-Black Red-Green	When shutter is open, in series with tilt circuit to run shutter motor to close shutter.
4B	N.C.	J-53	21-3 40-8	Blue-Red Green	When shutter is closed, completes circuit to magic-screen buttons, "R" (collect scores) button, energize position 29 relays, red and yellow rollover relays and, select before 5th and after lockout relays.
4C	N.O.	G-46	98-14 85-12	Gray-Black Black-White	When shutter is open, in series with features circuit during red or green button play.
4D	N.C.	K-16	10-13 40-8	Red Green	When shutter is closed, in series with circuit to energize select before 5th and select after 5th lockout relays.
4E	N.O.	F-58	63-8 30	Brown-Yellow Yellow	When shutter opens, completes lock-in circuit to position 29 relays.
5A	N.C.	K-8	18-20 30	Red-Black Yellow	When shutter is closed, in series with start circuit.
5B	N.O.	G-60	31-4 83-15	Yellow-Red Black-Yellow	When shutter is open, in series with lock-in circuit to lifter start relay.
5C	N.O.	H-11	18-3 45-8	Red-Black Green-White	When shutter is open, in series with tilt circuit to run shutter motor to close shutter.
5D	N.O.	B-33	30 80-16	Yellow Black	When shutter is open, completes circuit to reset blue replay counter. (Homing circuit)
5E	S.P.D.T.	D-10	61 10-10 93-2	Brown-Red Red Gray-Yellow	Directs circuit from start relay to shutter motor, mixer latch and timer cams index coils.
6XA	N.C.	A-27	91-15 70	Gray-Red Orange	(Open only during shutter cycle) completes circuit to red button relay.
6A	N.O.	J-15	71-8 30	Orange-Red Yellow	When shutter opens, resets timer unit.
6B	N.O.	H-62	78-3 30	Orange-Black Yellow	When shutter opens, resets magic-screen feature, yellow score, red score, and OK units.
6C	N.C.	F-21	21-3 65-13	Blue-Red Brown-White	During gold button (skill shot) spin, completes lock-in circuit to spin relay, skill shot play relay and skill shot selection relay.
6D	N.C.	F-18	21-3 54-14	Blue-Red White-Green	Completes lock-in circuit to super OK relay.

SHUTTER MOTOR

E-119-99 (60 CYCLE)

E-119-166 (50 CYCLE)



GEAR & SHAFT ASS'Y.
ZGS-5922-1

GEAR G-5818

GEAR G-4109

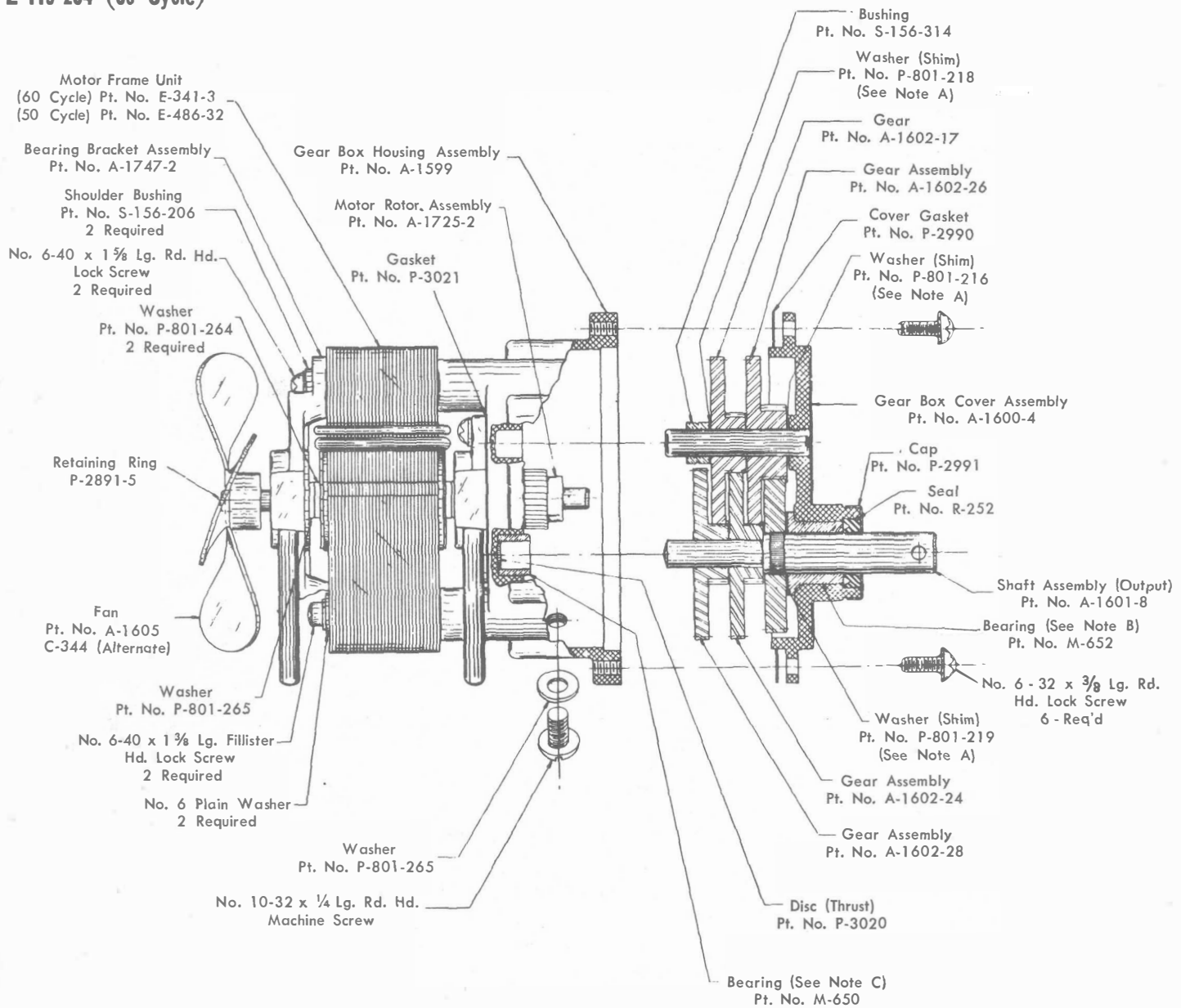
GEAR ROTOR & SHAFT ASS'Y.
ZRST-1715-30-1

STATOR & COIL ASS'Y.
ZS-1704-251 (60 CYCLE)
ZS-1704-251-2 (50 CYCLE)

MOTOR FOR CONTROL UNIT AND MIXER & SPOTTING UNIT

E-119-212 (60 Cycle)

E-119-234 (50 Cycle)



NOTE A: In order to maintain proper clearances between gears it is most important that when re-assembling gear train that the same number of shims be replaced in each of their respective locations.

NOTE B: Bearing M-652 is part of Gear Box Cover Assembly A-1600-4 and cannot be ordered separately.

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

NOTES

MISCELLANEOUS PARTS

Back Cabinet Assembly:

Part No.	Name of Part
G-292-20	Back glass
G-292-21	Back Glass in PLEXIGLASS
M-281-31	Lock and keys (2) Keyed alike
E-122-94	Transformer (115 volts)
E-122-94-1	Transformer (220-240 volts)

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	Balls
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
A-2618	Legs
M-106-1	Leg bolt
M-163-4	Leg adjuster
A-1729-6	Push Button
P-2768-15	Ring—blue
P-2768-23	Ring—white
G-213	Top glass 21" x 40"
E-108-57	Toggle switch

Front Door Assembly:

A-1538-3	Armature plate for (AS-277-50)
A-1729-6	Button—metal
E-101-45	Coil for coin lock out
AS-277-50	Coin switch assembly 5¢ or 10¢

Front Door Assembly (Continued):

Part No.	Name of Part
CA-567-148	Front door only
AS-2041-19	Front door assembly (Specify 5¢ or 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
P-2768-6	Ring—yellow
P-2768-16	Ring—green
P-2768-7	Ring for M-281-6
M-280-15	Slug rejector 5¢
M-280-16	Slug rejector 10¢

Front Moulding Assembly:

A-2359-1	Coin slide 5¢ or 10¢
AS-1305-34	Front moulding assembly complete
A-1272-29	"R" Button
A-1272-30	Right Button
A-1272-31	Left Button
A-1272-50	Gold Button
P-2210-8	5¢ plate
P-2210-9	10¢ plate
P-2210-135	Plate—Moulding
CA-1119-7	Front moulding only

Panel Assembly:

AS-1315	Ball Gate and Switch Assembly
C-326-9	Light Shield post
AS-493-2	Rebound assembly
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.