

Bally

SUPER-7

SERVICE & OPERATING INSTRUCTIONS



Manual No. 1300
Game No. 993-1

Bally

MANUFACTURING CORPORATION

2640 Belmont Avenue - Chicago, Illinois, 60618, U.S.A.

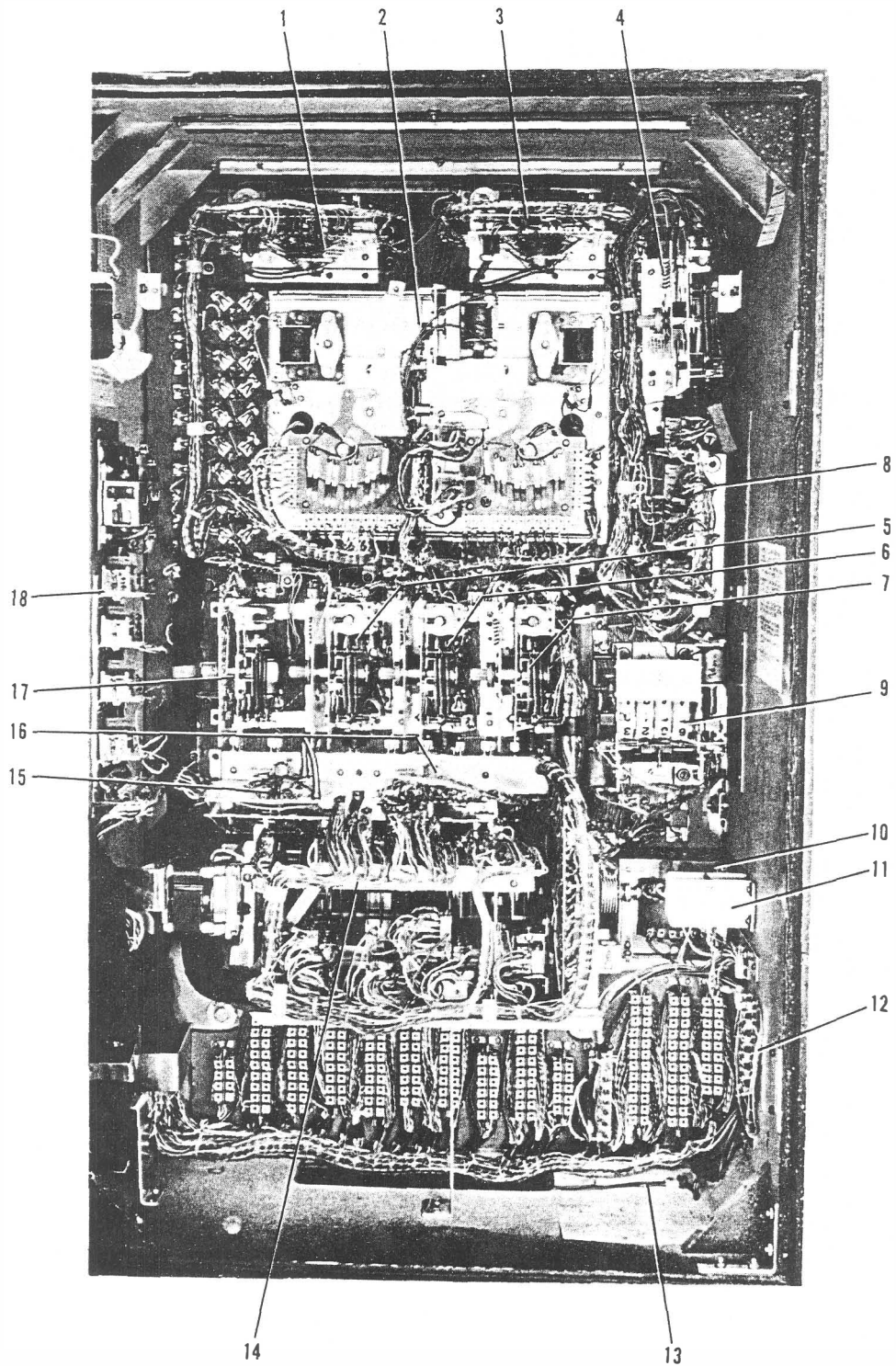
TELEPHONE (312) 267-6060/CABLE ADDRESS: Balfan

INTRODUCTION

This Book has been designed as the complete Electrical Component & Circuit Function Guide for your "Super 7" Bingo Game. The following electrical operating instructions gives all needed information on the function of the various Switches, Relays & Stepping Unit Contact Plate Discs, their location on the Wiring Diagram & Wire Code Information.

This Special operating instruction edition for "Super 7" is meant to be used in conjunction with the recently released "Bingo Games Parts Catalog" (Manual 1000 Series). This new Parts Catalog gives comprehensive information on the assembly of the Game & unit function, with all parts & their part numbers indexed for your convenience. If you do not have this important Bingo Parts Catalog (Green Book #1000 Series), request it from your Bally Service Center - it makes the job easier.

BACK CABINET UNIT LAYOUT & PAGE INDEX



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

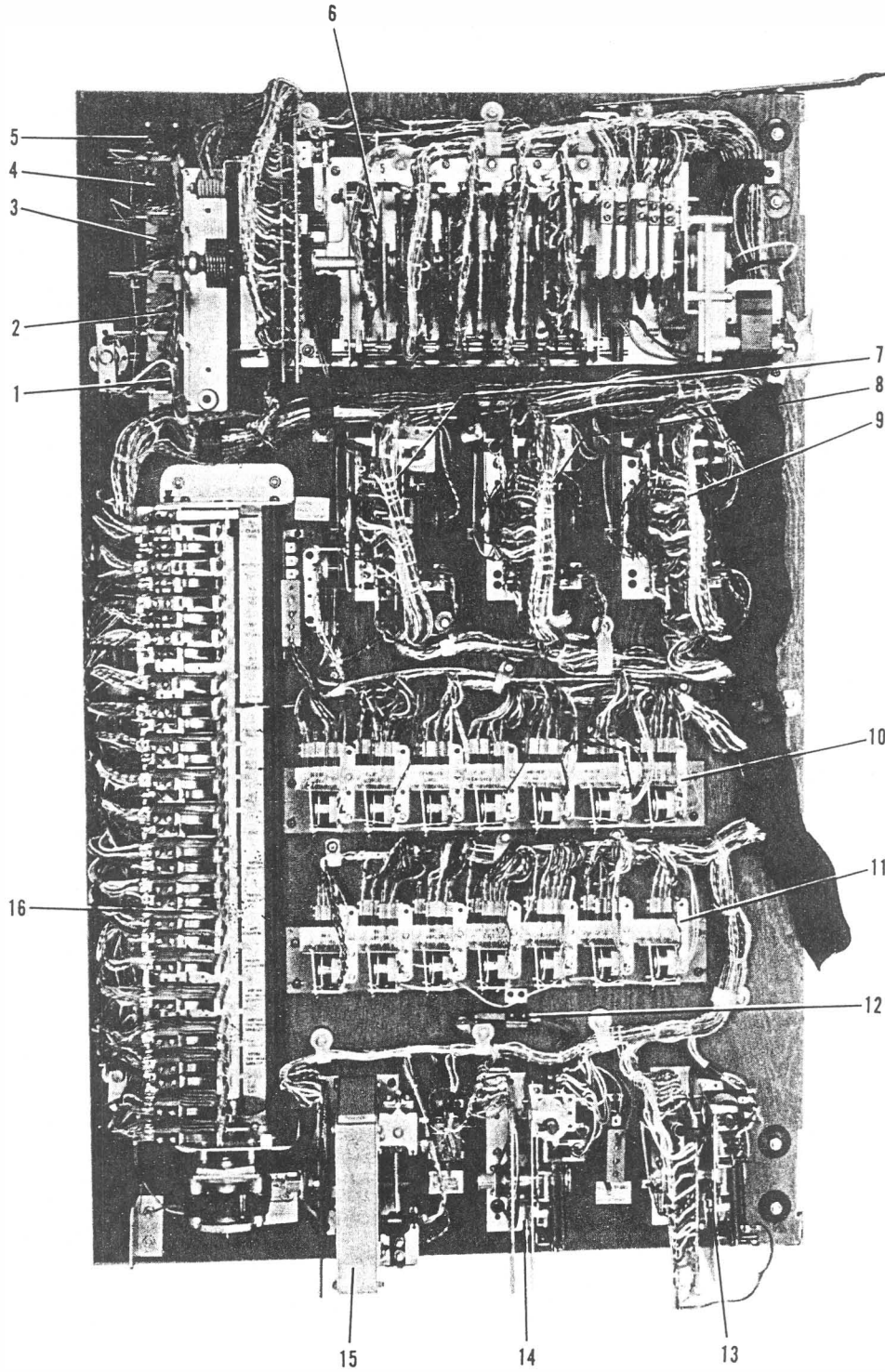
BACK CABINET UNIT LAYOUT & PAGE INDEX

Bally

Index No.	Part No.	Description	Page No.	Index No.	Part No.	Description	Page No.
		Note: This Photograph shows an interior view of the Back Cabinet & Insert Unit with the Back Door removed.		10	E-122-110B	Transformer (See Parts Book)	—
1	AS-827-236 ND	Selection Features Unit	16	11	AS-2513A	Rectifier Bridge Assembly (See Parts Book)	—
2	AS-1809-11 ND	Mystic Lines Unit		12	E-148-9A	Fuse Block (See Parts Book)	—
		Front Number Layout	8		E-133-8A	Fuse (8Amp. - 1 Req'd.)	
		Winner Search Positions Chart	8		E-133-10A	Fuse (10 Amp. - 5 Req'd.)	
		Motor Unit Discs	9	13	E-126A	Cord Set	—
		Relays	44	14	AS-798-107 ND	Control Unit Assembly Search Disc	11-14 10
3	AS-827-237 ND	Mystic Lines Feature Unit	15	15	AS-1022-91 ND	Red Letter Unit	19
4	AS-797-111 ND	Replay Counter Unit (Blue)	17	16	AS-1148-31 ND	Extra Ball Unit	20
5	AS-797-111 ND	Replay Counter Unit (Green)	17	17	AS-827-425 ND	Multiplier Unit	18
6	AS-797-111 ND	Replay Counter Unit (Red)	17	18	AS-2390-3 ND	Auxiliary Board Assembly All 4 stars replay counter (See Parts Book)	
7	AS-797-111 ND	Replay Counter Unit (Yellow)	17			Relays (4)	35
8	E-300-492A	Relay Bank (4)	34				
9	AS-473-35 ND	Replay Counter Assembly (See Parts Book)	—				

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

BACK DOOR UNIT LAYOUT & PAGE INDEX

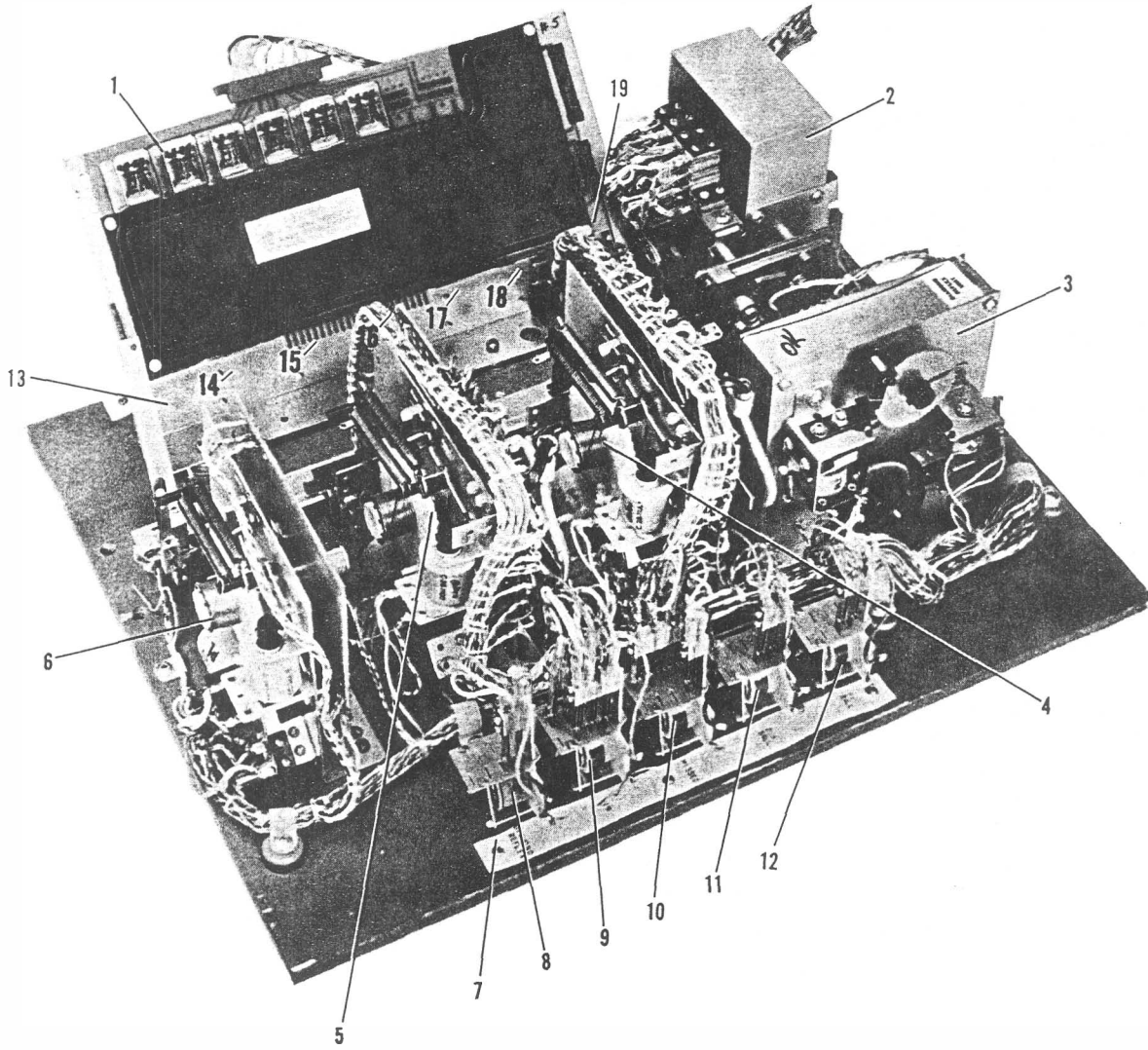


ALWAYS GIVE MOOEL AND PART NO. WHEN ORDERING SERVICE PARTS

BACK DOOR UNIT LAYOUT & PAGE INDEX

Index No.	Part No.	Description	Page No.	Index No.	Part No.	Description	Page No.
		Note: This Photograph shows an interior view of the Back Door Assembly showing the layout of the various units & electrical systems.			2	Play Scores	37
					3	Feature Lock	36
					4	Play Feature	36
					5	Mixer #4	36
					6	Mixer #2	36
					7	Mixer Cam Switch #2	36
		Note: Index No.'s 1 - 5 are component parts of the "Search Relay Bank", E-300-506A.		11	E-300-491A	Relay Bank - Bottom (7) The Functions of the 7 Relays are (Reading L to R):	38-39
1		#5 Search Relay	35		1	Red Button	39
2		#4 Search Relay	35		2	Red Letter #2	39
3		#3 Search Relay	35		3	Red Letter #1	39
4		#2 Search Relay	35		4	Up & Down Play (Diamond Play	38
5		#1 Search Relay	35		5	Steering	38
6	AS-1020-58ND	Mixer Unit	21-23		6	Cam #7	38
		Spotting Disc	21		7	Z	38
7	AS-1022-106ND	Yellow Score Unit	24	12	AS-982-61A	Tilt Switch Unit (See Parts Catalog)	-
8	AS-1022-104ND	Red Score Unit	25	13	AS-1022-108ND	Twin Features Unit	27
9	AS-1022-105ND	Blue & Green Score Unit	26	14	AS-1110-41ND	Timer Unit	28
10	E-300-493A	Relay Bank - Top (7) The functions of the 7 Relays (Reading L to R):	36-37	15	AS-823-47ND	Regular Features Reflex Unit (See Parts Catalog)	-
	1	Scores Lock	37	16	AS-2409-12C	Trip Relay Assembly	40-43

CONTROL BOARD LAYOUT & PAGE INDEX



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

CONTROL BOARD LAYOUT & PAGE INDEX

Index No.	Part No.	Description	Page No.
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Note: This Photograph shows the "Diamond Feature" Control Board which is located in the lower, Front Cabinet & is accessible thru the keyed Side Door.

1	AS-2519-4B	Diamond Module Board Assembly	32-33
	AS-2518-7C	Module Circuit Plate Assembly	33
	W-1140-1B	Module Circuit Diagram	32
2	AS-2380-77B	Diamond Pulsing Unit	48
3	AS-873-50ND	Diamond Reflex Unit (See Parts Catalog)	
4	AS-1022-116ND	Diamond Score Unit	29
5	AS-1110-43ND	Diamond Feature Unit	30
6	AS-797-192ND	Diamond Replay Counter Unit	31
7	E-300-541B	Diamond Relay Bank (5)	47

Note: The following Relays are component parts of Index No. 7.

8		Reflex Relay	47
9		Diamond Win Relay	47
10		Missed Relay	47
11		2nd Ball Relay	47
12		1st Ball Relay	47
13	E-300-542A	Diamond Relay Bank (6)	46

Note: The following Relays are component parts of Index No. 13.

14		No. 6 Step Relay	46
15		No. 5 Step Relay	46
16		No. 4 Step Relay	46
17		No. 3 Step Relay	46
18		No. 2 Step Relay	46
19		No. 1 Step Relay	46

FRONT CABINET UNITS

FRONT CABINET UNITS & RELAYS

A.	E-300-494A	Front Cabinet Relay Bank (3)	43
B.	E-146-768A	Lifter Start Relay (Playfield Panel)	44
C.	AS-1139-23ND	Ball Lifter Motor Unit	44
D.	AS-232-80B	Shutter Motor Assembly	45
E.		Motor Parts Guide	49

SIMPLIFIED PARTS GUIDE

F.		Miscellaneous Parts	50
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MYSTIC LINES LAYOUT

WINNER SEARCH POSITIONS CHART						
Red Wiper at Position	Wiper ① Search Relay # 1	Wiper ② Search Relay # 2	Wiper ③ Search Relay # 3	Wiper ④ Search Relay # 4	Wiper ⑤ Search Relay # 5	
1						
2						
3						
4	R5	G5				
5						
6	Y5	G5				
7						
8	Y5	R5	G5			
9						
10	B5	G5	Y5			
11						
12	B5	R5	G5			
13						
14	B5	Y5	R5			
15						
16	B5	Y5	R5	G5		
17						
18	G2	G3	G4			
19						
20	G1	G3	G4			
21						
22	G1	G2	G4			
23						
24	G1	G2	G3	G4	G5	
25						
26	B2	B3	B4			
27						
28	B1	B3	B4			
29						
30	B1	B2	B4			
31						
32	B1	B2	B3	B4	B5	
33						
34	R2	R3	R4			
35						
36	R1	R3	R4			
37						
38	R1	R2	R4			
39						
40	R1	R2	R3	R4	R5	
41						
42	Y2	Y3	Y4			
43						
44	Y1	Y3	Y4			
45						
46	Y1	Y2	Y4			
47						
48	Y1	Y2	Y3	Y4	Y5	
49						
50						

2 Star - 3 Star
Red Letter
Game Winners

All 4 Star
300 - 600
Winners

Green Zone
Winners

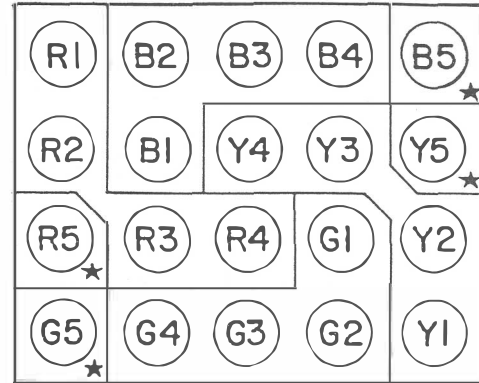
Blue Zone
Winners

Red Zone
Winners

Yellow Zone
Winners

Diamond Feature
Winners Scored
Here.

MYSTIC LINES CODE

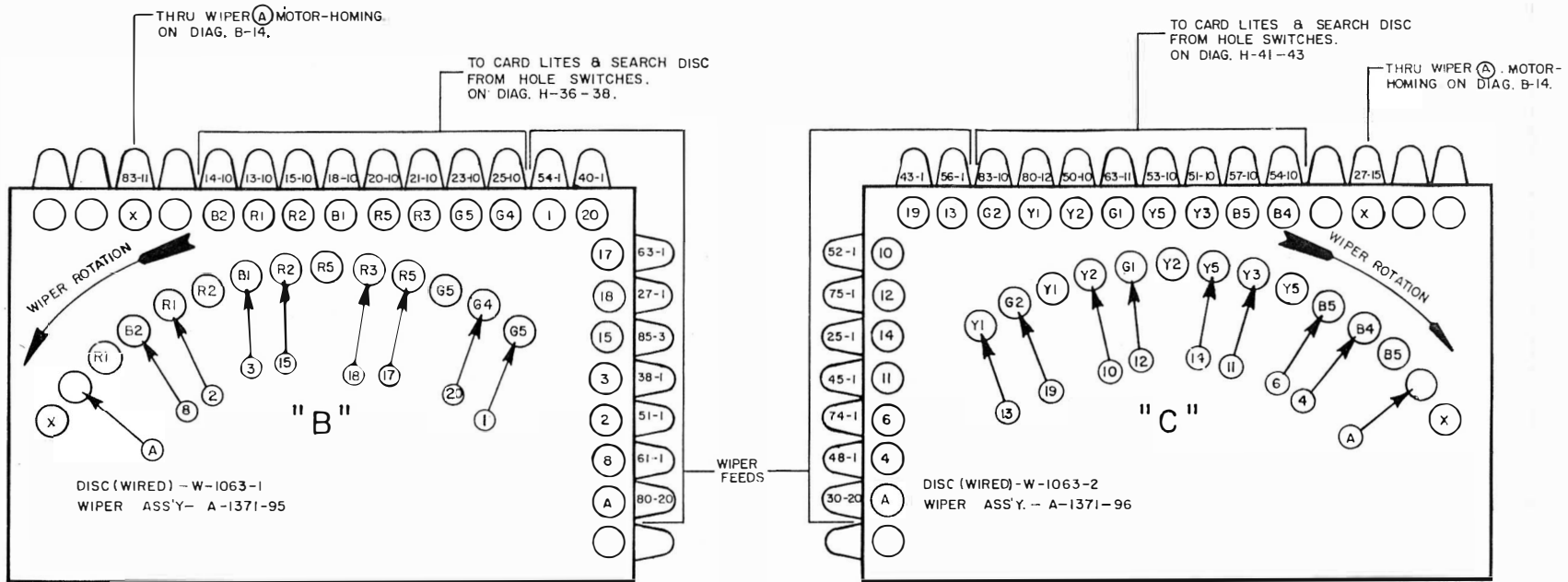


When checking out any winner, refer to winner search positions chart to find position on search disc where that winner is scored.

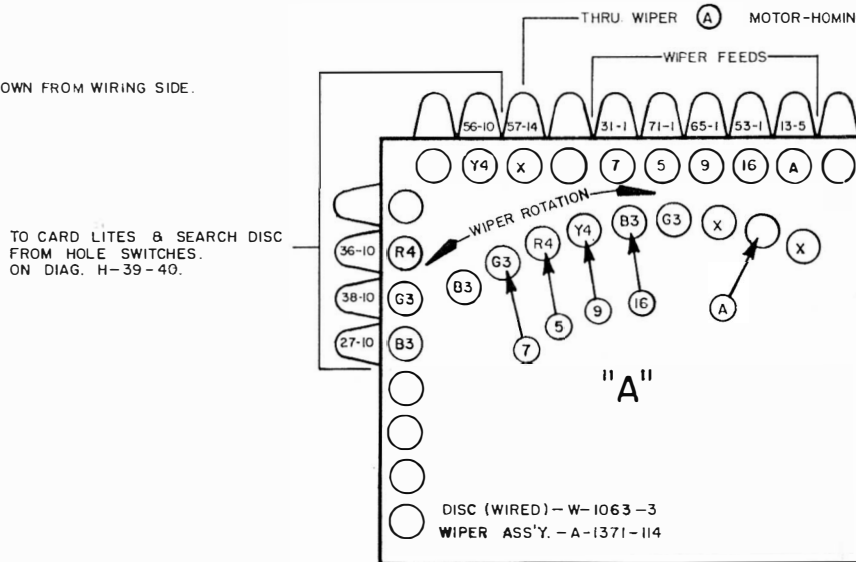
MYSTIC LINES MOTOR UNIT DISCS

VIEWED FROM WIRING SIDE

Wipers shown in zero position



NOTE:
DISC'S SHOWN FROM WIRING SIDE.



COMPLETE UNIT.....	AS-1B09-11
MOTOR-"A" LINE.....	E-119-352
MOTOR-"B" & "C" LINES.....	E-119-353
RELAY "B" & "C" CAMS.....	E-146-618
CAM & HUB ASS'Y-"A" LINE.....	A-800-130
CAM & HUB ASS'Y-"B" & "C" LINES.....	A-800-131
SWITCH & BRACKET ASS'Y-"A" CAM.....	AS-982-535
SWITCH & BRACKET ASS'Y-"B" & "C" CAM.....	AS-982-579
PLASTIC SLAT ASS'Y - ROW # 1.....	A-2988-1
PLASTIC SLAT ASS'Y - ROW # 2.....	A-2989-1
PLASTIC SLAT ASS'Y - ROW # 3.....	A-2990-1
PLASTIC SLAT ASS'Y - ROW # 4.....	A-2991-1
PLASTIC SLAT ASS'Y - ROW # 5.....	A-2992-1
PLASTIC OVERLAY.....	M-1423

SEARCH DISC (CONTROL UNIT)

VIEWED FROM WIPER SIDE

Wipers shown in zero position

THRU SEARCH RELAY WIPERS, SEARCH RELAYS SOURCE FROM MYSTIC-LINES MOTOR UNIT DISC'S. ON DIAG. H-44.

THRU SEARCH RELAY WIPERS, SEARCH RELAYS SOURCE FROM MYSTIC-LINES MOTOR UNIT DISC'S. ON DIAG. H-44.

THRU WIPERS (C), BLUE 3-IN-ZONE WINNERS SOURCE. ON DIAG. E-33.

THRU WIPERS (B), RED 4-IN-ZONE WINNERS SOURCE. ON DIAG. E-32.

THRU WIPERS (C), GREEN 3-IN-ZONE WINNERS SOURCE. ON DIAG. E-34.

THRU WIPERS (A), YELLOW ZONE WINNERS DOUBLE, TRIPLE SCORING FEED. ON DIAG. C-31.

THRU WIPERS (A), ALL 4 STARS REPLAY COUNTER UNIT ADVANCE DURING 4 STAR WINNERS. ON DIAG. C-29.

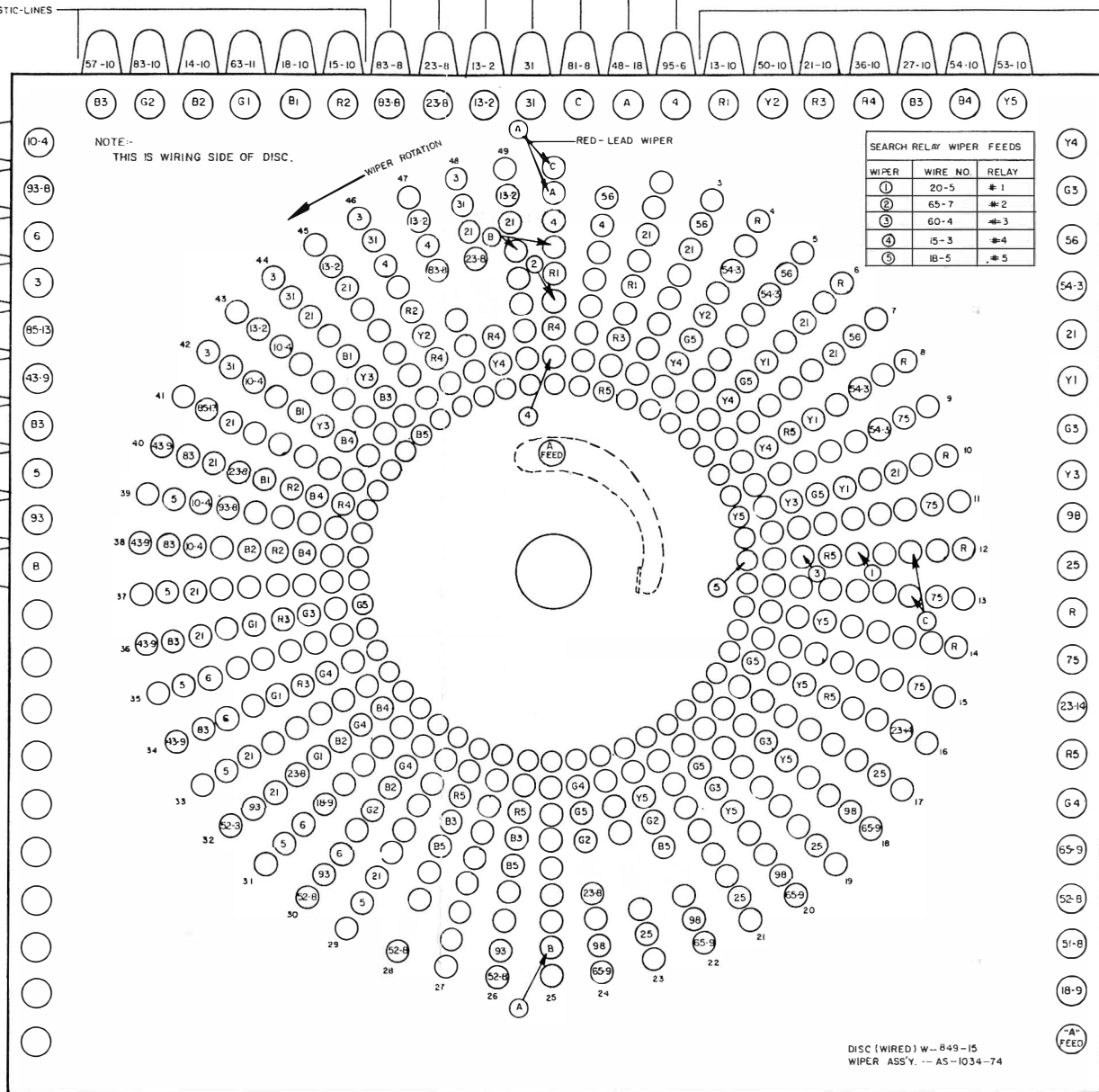
THRU WIPERS (A), RED ZONE WINNERS DOUBLE, TRIPLE SCORING FEED. ON DIAG. C-32.

THRU WIPERS (A), RED REPLAY COUNTER UNIT ADVANCE DURING RED ZONE WINNER SCORING. ON DIAG. C-32.

THRU WIPERS (A), RED LETTER WIN RELAYS DURING RED LETTER-GAME SCORING. ON DIAG. C-35.

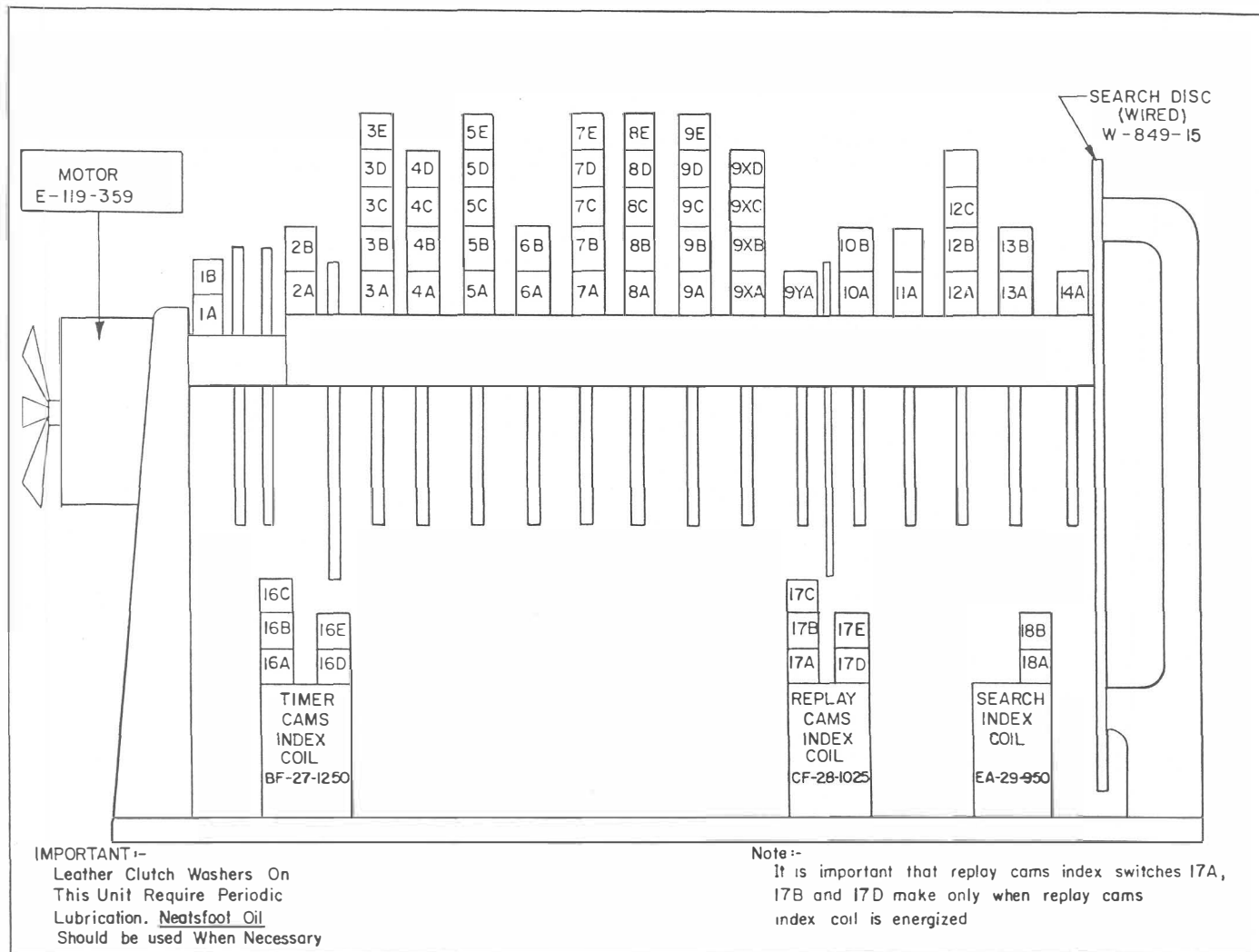
THRU WIPERS (A), BLUE ZONE WINNERS SCORING FEED. ON DIAG. C-34.

THRU WIPERS (A) "Z" RELAY, DIAMOND REFLEX UNIT REPLAY ADVANCE AND DIAMOND REPLAY COUNTER ADVANCE DURING DIAMOND FEATURE WINNER SCORING. ON DIAG. D-44.

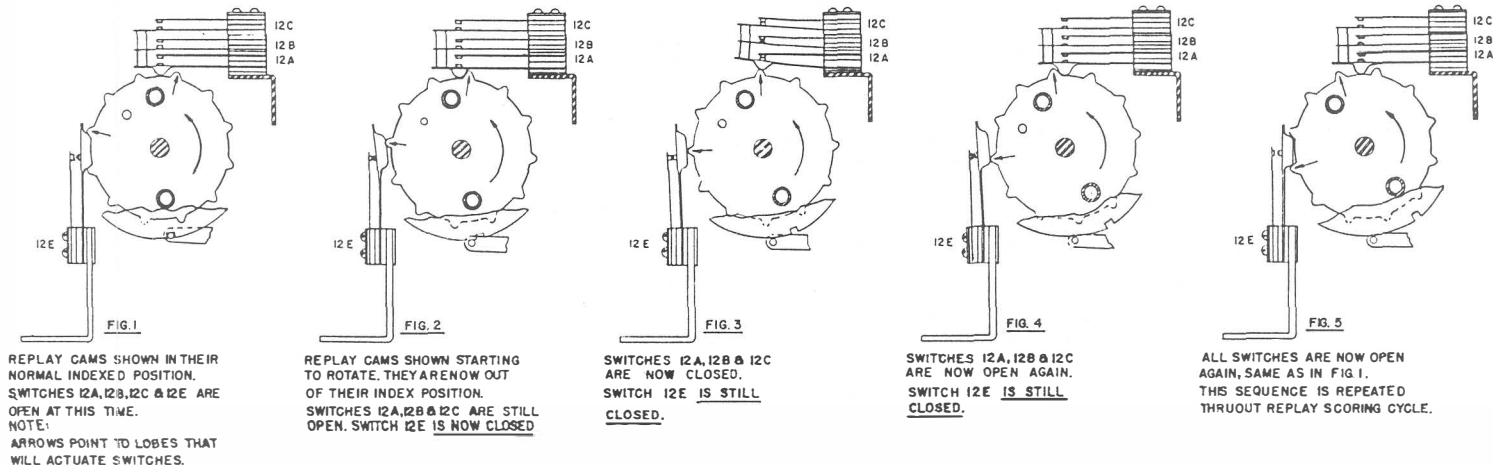


DISC (WIRED) W-849-15
WIPER ASS'Y. -- AS-1034-74

CONTROL UNIT



CORRECT ADJUSTMENT: CONTROL UNIT SWITCHES 12A, 12B, 12C & 12E NOTICE: IMPORTANT PART OF ILLUSTRATION IS TO SHOW THAT SWITCH 12E CLOSSES FIRST AND OPENS LAST. IF AN ADJUSTMENT IS NECESSARY, SWITCH 12E CAN BE MOVED UP OR DOWN. LOOSEN SCREWS THAT HOLD SWITCH, THEN MOVE UP OR DOWN.



CONTROL UNIT

N.C. ----- NORMALLY CLOSED

M.B.B. ----- MAKE BEFORE BREAK

N.O. ----- NORMALLY OPEN

S.P.D.T. ----- SINGLE POLE DOUBLE THROW

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.o.	E-8	65-2 36-9	Brown-White Yellow-Brown	Completes Timer step up circuit after 5th ball
1B N.c.	A-6	85-1 45-18	Black-White Green-White	Opens circuit to mixer latch coil
Drag Arm N.o.	D-8	36-9 78-6	Yellow-Brown Orange-Black	(Not shown in pictorial view) Same function as switch 1A
2A N.o.	D-67	98-14 56-7	Gray-Black White-Brown	Completes circuit to triple feature trip relay
2B N.c.	G-7	30 25-9	Yellow Blue-White	Opens lock in circuit to 25¢ relay
3A N.c.	G-4	30 48-2	Yellow Green-Black	Opens entire game start circuit
3B S.P.D.T	A-29	93-7 98-4 91-7	Gray-Yellow Gray-Black Gray-Red	Directs circuit from replay meter to total play meter
3C S.P.D.T	D-39	60-13 57-13 21-3	Brown White-Orange Blue-Red	Directs pull in and lock in circuit to play scores relay
3D S.P.D.T	D-38	74-16 81-13 21-3	Orange-Green Black-Red Blue-Red	Directs pull in and lock in circuit to play scores relay
3E S.P.D.T	D-39	61-16 43-18 21-3	Brown-Red Green-Yellow Blue-Red	Directs pull in and lock in circuit to diamond play relay
4A N.o.	E-68	30 98-1	Yellow Gray-Black	Completes circuit to spotting cams index coil
4B N.o.	C-4	27-9 80-2	Blue-Orange Black	When single play coin meter installed, completes circuit to meter
4C N.o.	F-9	52-3 14-5	White-Blue Red-Green	When 25¢ anti-cheat coin circuit used, completes circuit to tilt trip relay.
4D S.P.D.T	D-4	10-5 13-9 14-5	Red-Green Red-Yellow Red-Green	Directs 5¢ coin switch circuit from start relay to tilt trip relay. (5¢ anti-cheat coin circuit)
5A N.o.	A-19	27-20 23-7	Blue-Orange Blue-Yellow	Completes circuit for extra ball unit single steps
5B N.o.	B-20	78-4 91-6	Orange-Black Gray-Red	Completes pull in circuit to anti cheat relay
5C N.o.	C-21	85-4 10-7	Black-White Red	Completes circuit for mystic-lines feature unit and selection feature unit single steps
5D N.o.	A-26	21-3 50-3	Blue-Red White	Completes circuit to cam #5 relay
5E N.c.	D-38	21-3 40-15	Blue-Red Green	Opens lock in circuit to features lock relay and scores lock relay
6A N.c.	D-22	40-4 18-16	Green Red-Black	Opens entire feature circuit
6B N.c.	E-20	51-5 45-2	White-Red Green-White	Opens extra ball unit step up circuit
7A N.o.	C-58	54-12 10-17	White-Green Red	Completes circuit for yellow, red, blue and green score unit single steps
7B N.o.	F-60	81-11 63-4	Black-Red Brown-Yellow	Completes circuit for yellow, red, blue, and green score unit single steps and multiple feature trip relays
7C N.o.	C-41	45-15 31-21	Green-White Yellow-Red	Completes circuit for diamond score unit single steps
7D N.o.	D-41	45-15 23-20	Green-White Blue-Yellow	Same function as switch 7c
7E N.o.	E-2	30 90-5	Yellow Gray	Completes regular or diamond reflex unit play circuit, replay register unit play reset circuit, cam #7 relay circuit and total play meter circuit
7YA N.o.	E-58	25-16 51-6	Blue-White White-Red	(Not shown in pictorial view) completes circuit for yellow, red, blue and green score unit extra steps and multiple feature trip relays
7YB N.o.	E-58	51-6 60-18	White-Red Brown	(Not shown in pictorial view) same function as switch 7YA
8A N.o.	A-19	27-20 25-4	Blue-Orange Blue-White	Same function as switch 5A
8B N.o.	E-59	51-6 13-13	White-Red Red-Yellow	Completes circuit for yellow, red, blue and green blue button play score unit single steps & multiple feature trip relays
8C N.o.	C-41	45-15 81-16	Green-White Black-Red	Same function as switch 7C
8D N.o.	B-41	45-15 36-18	Green-White Yellow-Brown	Same function as switch 7C

N.C.-----NORMALLY CLOSED

N.O.-----NORMALLY OPEN

CONTROL UNIT

M.B.B.-----MAKE BEFORE BREAK

S.P.D.T.-----SINGLE POLE DOUBLE THRO'

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
8E N.o.	C-58	54-12 20-6	White-Green Blue	Same function as switch 7A
8XA N.o.	B-14	21-3 18-19	Blue-Red Red-Black	(Not shown in pictorial view) completes circuit to mixer cam #2 relay
8ZA N.o.	E-58	25-16 51-6	Blue-White White-Red	(Not shown in pictorial view) same function as switch 7YA
8ZB N.o.	A-41	45-15 56-11	Green-White White-Brown	(Not shown in pictorial view) same function as switch 7C
9A N.o.	D-21	18-2 36-19	Red-Black Yellow-Brown	Alternates circuit for extra ball unit steps
9B N.o.	A-24	52-11 20-11	White-Blue Blue	Alternates circuit for 4 stars 600 & 4 stars 300 feature trip relays
9C N.o.	B-23	31-14 50-11	Yellow-Red White	Alternates circuit for any 2 stars feature
9D N.o.	E-22	85-12 40-4	Black-White Green	Alternates circuit for all regular game features
9E S.P.D.T.	B-16	63-9 71-10 58-2	Brown-Yellow Orange-Red White-Black	Alternates circuit to mixer #4 relay
9XA N.o.	C-60	83-4 81-9	Black-Yellow Black-Red	Alternates circuit for red score unit steps
9XB N.o.	D-43	13-15 91-5	Red-Yellow Gray-Red	Alternates circuit for Super 7 diamond feature score unit steps
9XC N.o.	B-58	27-11 23-11	Blue-Orange Blue-Yellow	Alternates circuit for yellow, red, blue and green multiple feature trip relays
9XD N.o.	A-67	15-16 45-16	Red-Black Green-White	Alternates circuit to 2 extra step relay
9YA N.o.	E-28	21-3 36-13	Blue-Red Yellow-Brown	Completes 25¢ relay circuit to step replay register unit
10A N.o.	B-32	63 90-1	Brown-Yellow Gray	Completes winner circuits to step yellow, red, blue, green and diamond replay counter units at a 1 to 12 ratio with replay register unit step up
10B N.o.	B-29	27-17 23-17	Blue-Orange Blue-Yellow	Completes 4 star 600 winner circuit to step 4 star replay counter unit at a 1 to 12 ratio with replay register unit step up
11A N.o.	B-32	57 90-1	White-Orange Gray	Same function as switch 10A at a 1 to 6 ratio
N.o.				Not used - extra switch
12A N.o.	B-31	45 90-1	Green-White Gray	Same function as switch 10A at a 1 to 1 ratio
12B N.o.	C-28	41-14 81-10	Green-Red Black-Red	Completes winner circuits to step replay register unit replay meter and regular reflex replay coil
12C N.o.	C-45	95-1 83-21	Gray-White Black-Yellow	Completes Super 7 diamond winner circuits to step diamond reflex unit replay coil
N.o.		27-17	Blue-Orange	Not used in circuit
12E N.o.	F-28	21-3 23-13	Blue-Red Blue-Yellow	(Not shown in pictorial view) completes all replay winner lock in circuits to search index coil
13A N.o.	B-31	52 90-1	White-Blue Gray	Same function as switch 10A at a 1 to 4 ratio
13B N.o.	C-30	10-16 27-17	Red Blue-Orange	Completes 4 star 300 winner circuit to step 4 star replay counter unit at a 1 to 4 ratio with replay register unit step up
14A N.c.	F-30	74 31-11	Orange-Green Yellow-Red	Opens initial yellow, red, blue, green and 4 star winner search circuit
Search wiper lock magnet coil (C-2794-303)	A-12	23-16 70	Blue-Yellow Orange	(Not shown in pictorial view) energized by front rail "R" button or diamond feature disc and releases search wipers for winner search
15A N.c.	D-12	14-4 57-12	Red-Green White-Orange	Opens circuit to mystic lines buttons
15B N.c.	B-4	53-15 13-16	White-Yellow Red-Yellow	Opens circuit to start relay
15C N.c.	A-12	52-9 23-16	White-Blue Blue-Yellow	Opens circuit to search wiper lock magnet coil
15D N.o.	A-29	41-14 61-14	Green-Red Brown-Red	Completes circuit to step regular reflex unit replay coil during all replay winner scoring
15E N.c.	B-7	27-2 58-5	Blue-Orange White-Black	Opens circuit to timer unit step up coil

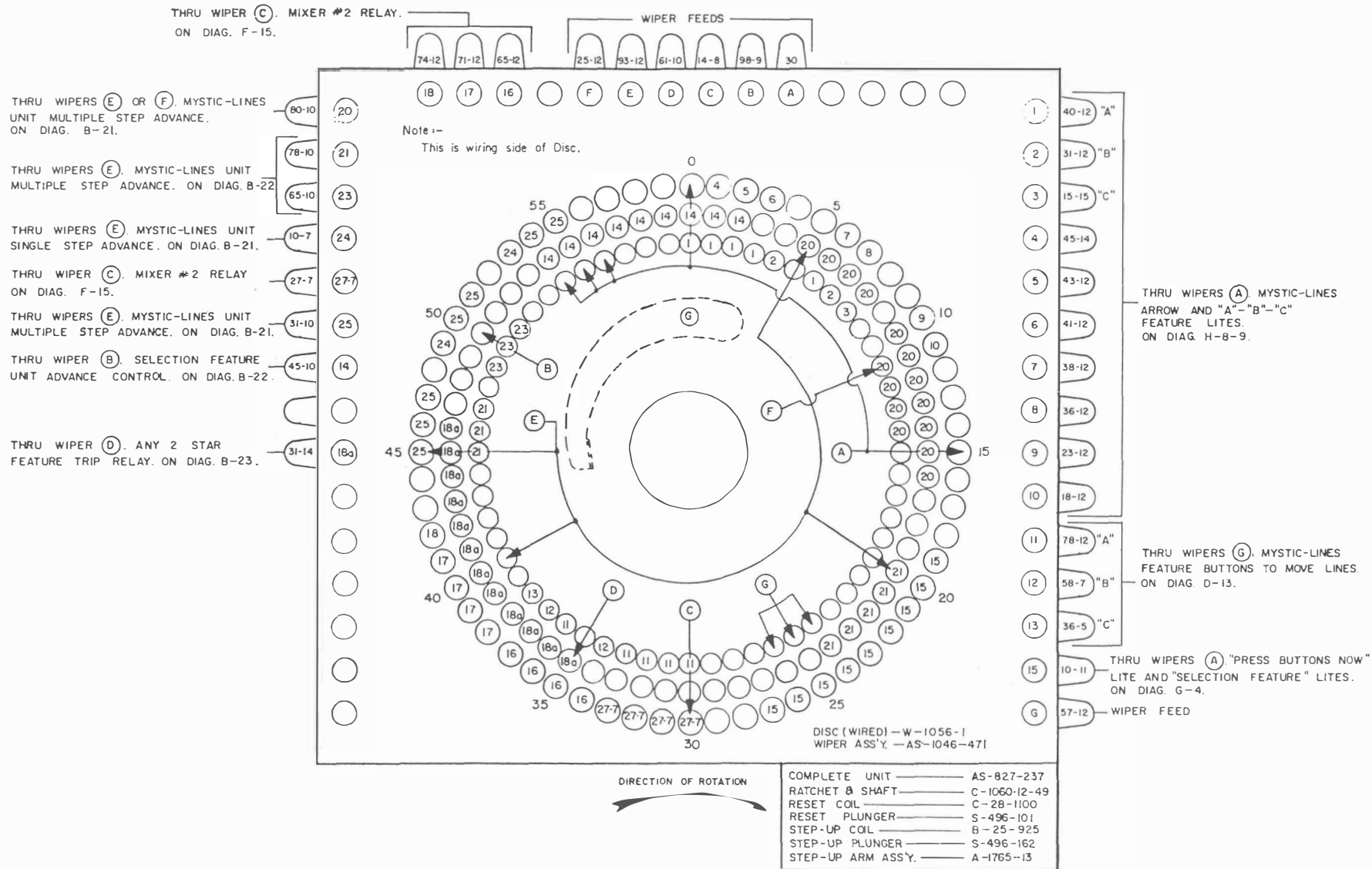
CONTROL UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Timer cams index coil	A-6	45-18 70	Green-White Orange	Energized by start relay circuit and releases timer cams for play cycle
16A N.o.	G-1	2op 6op	Blue Plastic Brown Plastic	Completes circuit to control unit and mixer spotting unit motors
16B N.c.	F-5	27-9 71-2	Blue-Orange Orange-Red	Opens circuit to 25¢ coin lockout magnet
16C N.c.	E-10	10-2 30	Red Yellow	Opens red button relay and extra ball trip relay circuit
16D N.o.	C-67	21-3 57-4	Blue-Red White-Orange	Completes lock in circuit for BB step relay 1 extra step relay and 2 extra step relay
16E N.c.	E-5	90-2 91-13	Gray Gray-Red	Opens circuit to 5¢ coin lockout magnet
Cam #5 Relay Coil	A-26	50-3 70	White Orange	(Not shown in pictorial view) energized by C.U. cam #5D during each play cycle
A N.o.	D-8	65-2 83-1	Brown-White Black-Yellow	Completes circuit to reset timer unit during extra ball play
B N.c.	B-14	18-7 21-3	Red-Black Blue-Red	Opens lock in circuit to mixer #4 relay
C N.c.	D-17	13-3 21-3	Red-Yellow Blue-Red	Opens lock in circuit to mixer #2 relay
D N.c.	E-40	85-4 43-10	Black-White Green-Yellow	Opens lock in circuit to diamond reflex relay
E N.o.	B-25	85-4 10-9	Black-White Red	Completes circuit for twin number feature unit single steps
F N.c.	B-67	57-4 36-16	White-Orange Yellow-Brown	Opens lock in circuit to BB step relay, 1 extra step relay and 2 extra step relay
Replay cams index coil	A-28	41-13 70	Green-Red Orange	Energized by replay winner search circuit and releases replay cams to score winners
17A N.o.	E-28	23-13 80	Blue-Yellow Black	Completes winner search index lock in circuit
17B N.o.	F-31	31-11 74	Yellow-Red Orange-Green	Completes yellow, red, blue, green and 4 star winner scoring circuits
17C N.c.	B-27	13-6 15-2	Red-Yellow Red-White	Opens initial 50 volt pull in circuit to search index coil
17D N.o.	C-28	81-10 80	Black-Red Black	Same function as C.U. cam switch 12B
17E N.c.	B-7	27-2 58-5	Blue-Orange White-Black	Opens circuit to reset timer unit
Search index coil	A-27	15-2 70	Red-White Orange	Energized by winner search circuit and stops search wipers to score winners
18A N.o.	C-27	60 41-13	Brown Green-Red	Completes replay winner circuit to replay cams index coil
18B N.c.	C-4	61-8 53-13	Brown-Red White-Yellow	Opens circuit to start relay

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

MYSTIC LINES FEATURE UNIT DISC VIEWED FROM WIRING SIDE

12 step unit. Wipers shown in zero or reset position



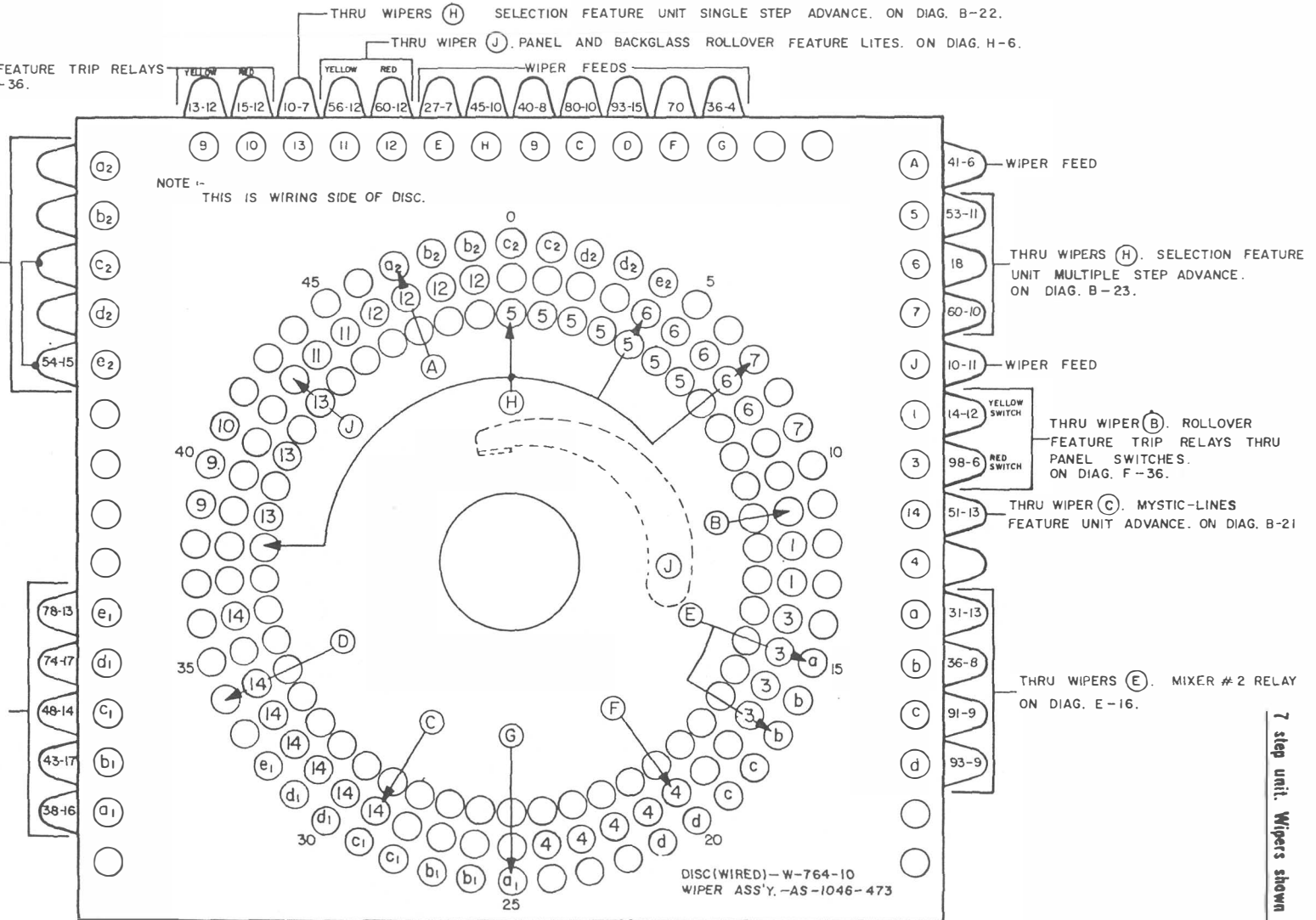
THRU WIPER (D). ROLLOVER FEATURE TRIP RELAYS ON DIAG. F-36.

THRU WIPERS (H) SELECTION FEATURE UNIT SINGLE STEP ADVANCE. ON DIAG. B-22.

THRU WIPER (J). PANEL AND BACKGLASS ROLLOVER FEATURE LITES. ON DIAG. H-6.

THRU WIPER (A). MIXER #2 RELAY. ON DIAG. E-17

THRU WIPER (G). MIXER #2 RELAY ON DIAG. E-16.



NOTE - THIS IS WIRING SIDE OF DISC.

DISC (WIRED) - W-764-10
WIPER ASS'Y. - AS-1046-473

DIRECTION OF ROTATION

COMPLETE UNIT	AS-827-236
RATCHET & SHAFT	C-1050-7-40
RESET COIL	C-28-1100
RESET PLUNGER	S-496-101
STEP-UP COIL	B-25-925
STEP-UP PLUNGER	S-496-100
STEP-UP ARM ASS'Y.	A-1765-4

7 step unit. Wipers shown in zero or reset position

SELECTION FEATURE DISC
VIEWED FROM WIRING SIDE

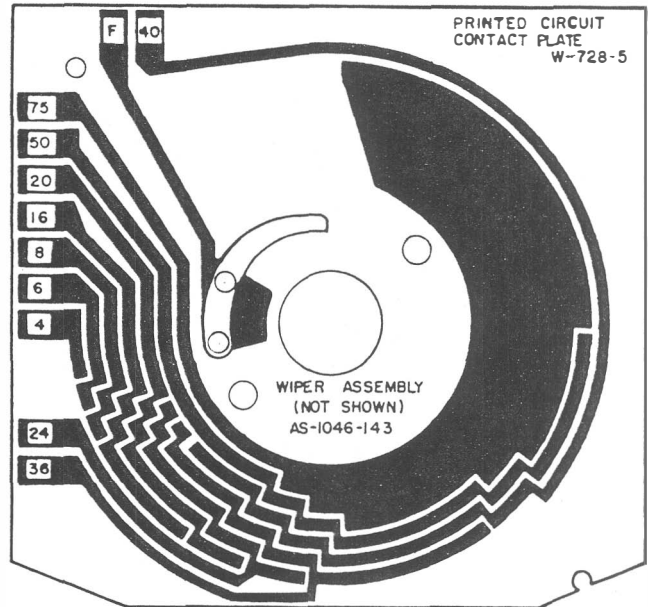
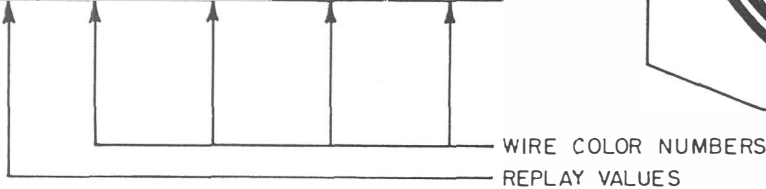
- (A) 41-6 WIPER FEED
- (5) 53-11
- (6) 18 THRU WIPERS (H). SELECTION FEATURE UNIT MULTIPLE STEP ADVANCE. ON DIAG. B-23.
- (7) 60-10
- (J) 10-11 WIPER FEED
- (I) 14-12 YELLOW SWITCH
- (3) 98-6 RED SWITCH THRU WIPER (B). ROLLOVER FEATURE TRIP RELAYS THRU PANEL SWITCHES. ON DIAG. F-36.
- (14) 51-13 THRU WIPER (C). MYSTIC-LINES FEATURE UNIT ADVANCE. ON DIAG. B-21
- (4)
- (a) 31-13
- (b) 36-8 THRU WIPERS (E). MIXER #2 RELAY ON DIAG. E-16.
- (c) 91-9
- (d) 93-9

REPLAY COUNTER UNIT DISC

VIEWED FROM WIPER SIDE

4 IDENTICAL UNITS USED

LUG No.	GREEN REPLAY COUNTER	RED REPLAY COUNTER	YELLOW REPLAY COUNTER	BLUE REPLAY COUNTER
F	54	71	23	91
75	61-9	27-8	50-6	61-6
50	60-9	40-3	57-2	54-6
40	57-9	25-3	52-2	80-3
36	90-8	23-3	51-2	74-3
24	13-1	20-3	41-2	65-3
20	27-6	10-3	40-2	63-3
16	45-12	85-2	23-2	60-3
8	40-9	83-2	93-1	48-3
6	36-14	74-2	81-1	43-3
4	41-9	60-2	78-1	41-3



COMPLETE UNIT	AS-797-111
RESET COIL	C-28-1100
STEP-UP COIL	B-25-925
STEP-UP PLUNGER	S-496-116
STEP-UP ARM ASSY.	A-1765-8
RATCHET & SHAFT	C-100
RESET PLUNGER	S-496-101

Control Unit Multiplier Cam Switches That Advance Green, Red, Yellow And Blue Replay Counter Units During 3-4-5 IN A COLOR Zone Winners. During Double & Triple Winners, Switches Double & Triple Their Regular Multiplier Ratio Thru Multiple Unit Disc.

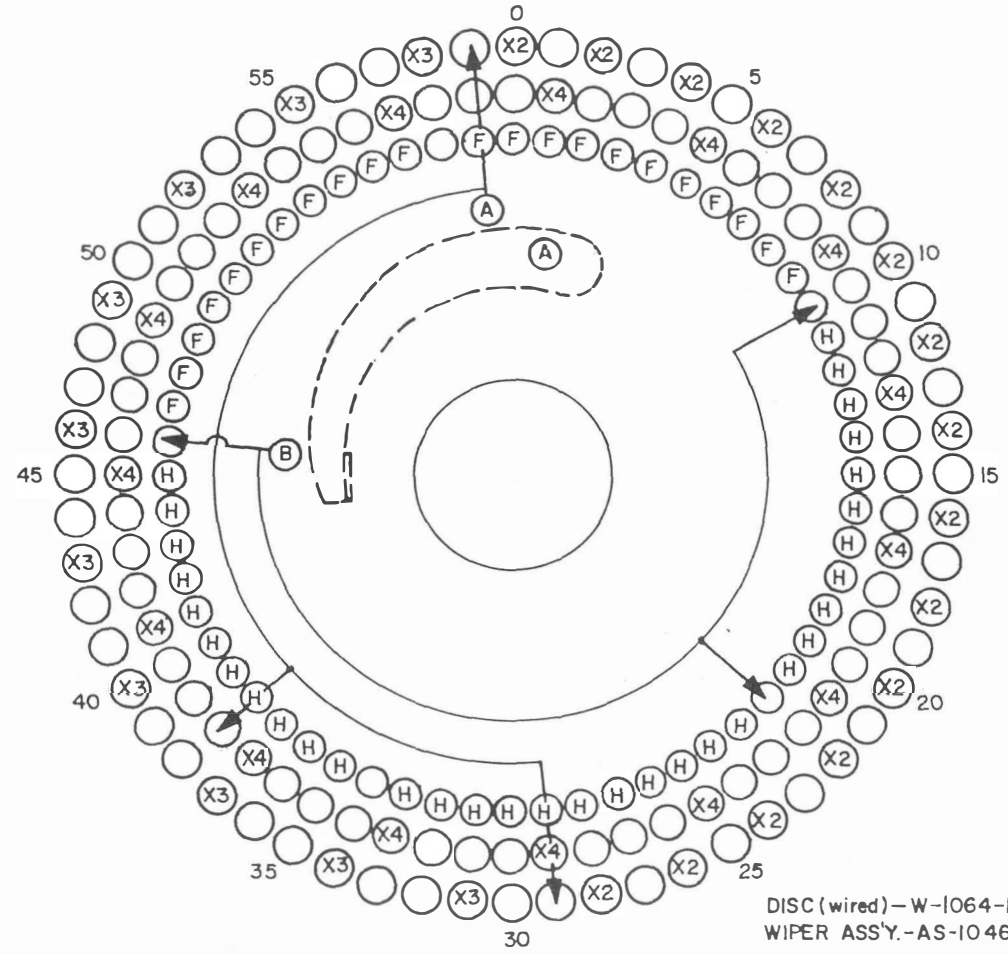
	12A-X1	12A-X1	12A-X1	11A-X6	12A-X1	13A-X4	11A-X6	13A-X4	11A-X6	10A-X12
5 In A Zone	75 (75)	75 (75)	96 (*)	96 (16)	96 (*)	144 (36)	216 (36)	300 (75)	450 (75)	600 (50)
4 In A Zone	16 (16)	20 (20)	24 (24)	36 (6)	50 (50)	64 (16)	96 (16)	144 (36)	240 (40)	480 (40)
3 In A Zone	4 (4)	6 (6)	8 (8)	12 (**)	16 (16)	24 (6)	36 (6)	64 (16)	120 (20)	192 (16)

Large numbers are Green, Red, Yellow and Blue Replay Scores shown on backglass. Numbers in circles indicate the replay counter disc value each score is effective thru during winners.

(*) Effective thru open at 96th step replay counter unit switches.

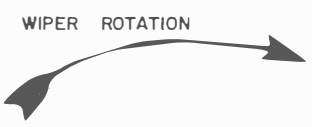
(**) Effective thru open at 2nd step replay counter unit switches.

Note:-
THIS IS WIRING SIDE OF DISC.



- (F) 43-15 THRU WIPERS (B) MULTIPLE UNIT
ADVANCE TO HOME UNIT TO
NEUTRAL POSITION, ON DIAG.-A-31.
- (H) 75-6
- (X2) 78-2
- (X3) 74-13 THRU WIPERS (A) REPLAY COUNTER UNIT
ADVANCE DURING ALL REGULAR GAME
DOUBLE-TRIPLE WINNERS AND 4 BALL
-5 BALL SUPER-7 DIAMOND FEATURE
WINNERS. ON DIAG. A-32.
- (X4) 63-19
- (A) 70 WIPER FEED.

DISC (wired) - W-1064-1
WIPER ASS'Y. - AS-1046-634



- COMPLETE UNIT _____ AS-827-425
- RATCHET & SHAFT _____ C-1060
- STEP-UP COIL _____ B-25-925
- STEP-UP PLUNGER _____ S-496-162
- STEP-UP ARM ASS'Y. _____ A-1765-19

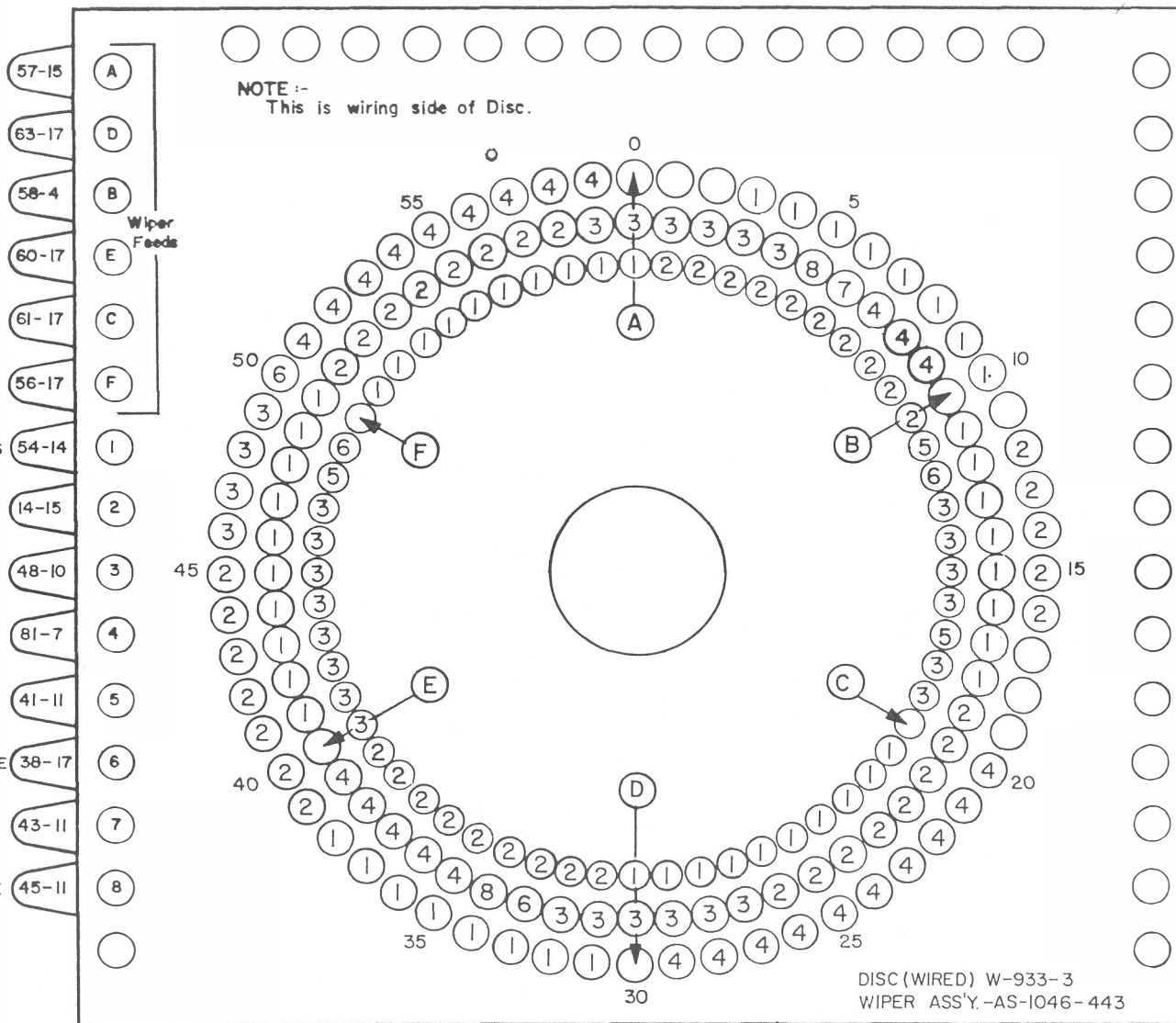
MULTIPLIER UNIT DISC
VIEWED FROM WIRING SIDE

Continuous step unit.

RED LETTER UNIT DISC

VIEWED FROM WIRING SIDE

29 step unit. Wipers shown in zero or reset position

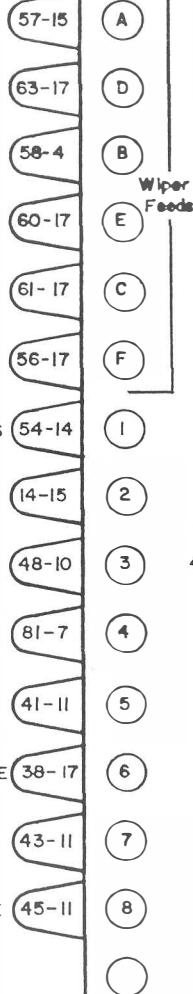


DIRECTION OF ROTATION

COMPLETE UNIT	AS-1022-91
RATCHET & SHAFT	C-1060-29-7
RESET COIL	C-28-1100
RESET PLUNGER	S-496-101
STEP-UP COIL	B-25-925
STEP-UP PLUNGER	S-496-162
STEP-UP ARM ASS'Y.	A-1765-13

YELLOW SCORES	54-14	1
BLUE & GREEN SCORES	14-15	2
SELECTION FEATURE	48-10	3
MYSTIC LINES FEATURE	81-7	4
RED MULTIPLE FEATURE	41-11	5
YELLOW MULTIPLE FEATURE	38-17	6
BLUE MULTIPLE FEATURE	43-11	7
GREEN MULTIPLE FEATURE	45-11	8

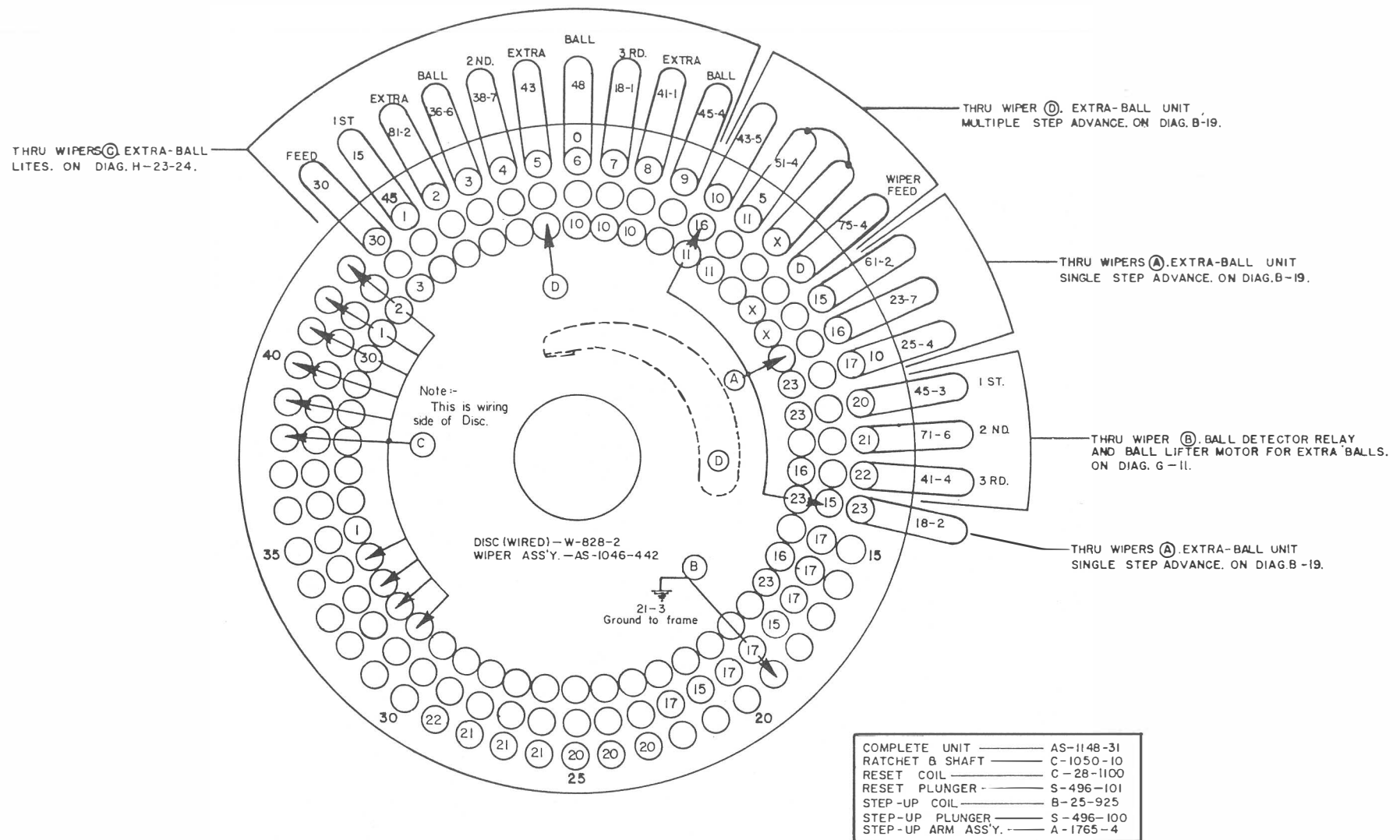
SCORE & FEATURE UNIT
ADVANCE AND MULTIPLE
FEATURE TRIP RELAYS
FOR RED LETTER GAME
SCORING ON DIAG. F-18.



EXTRA BALL UNIT DISC

VIEWED FROM WIRING SIDE

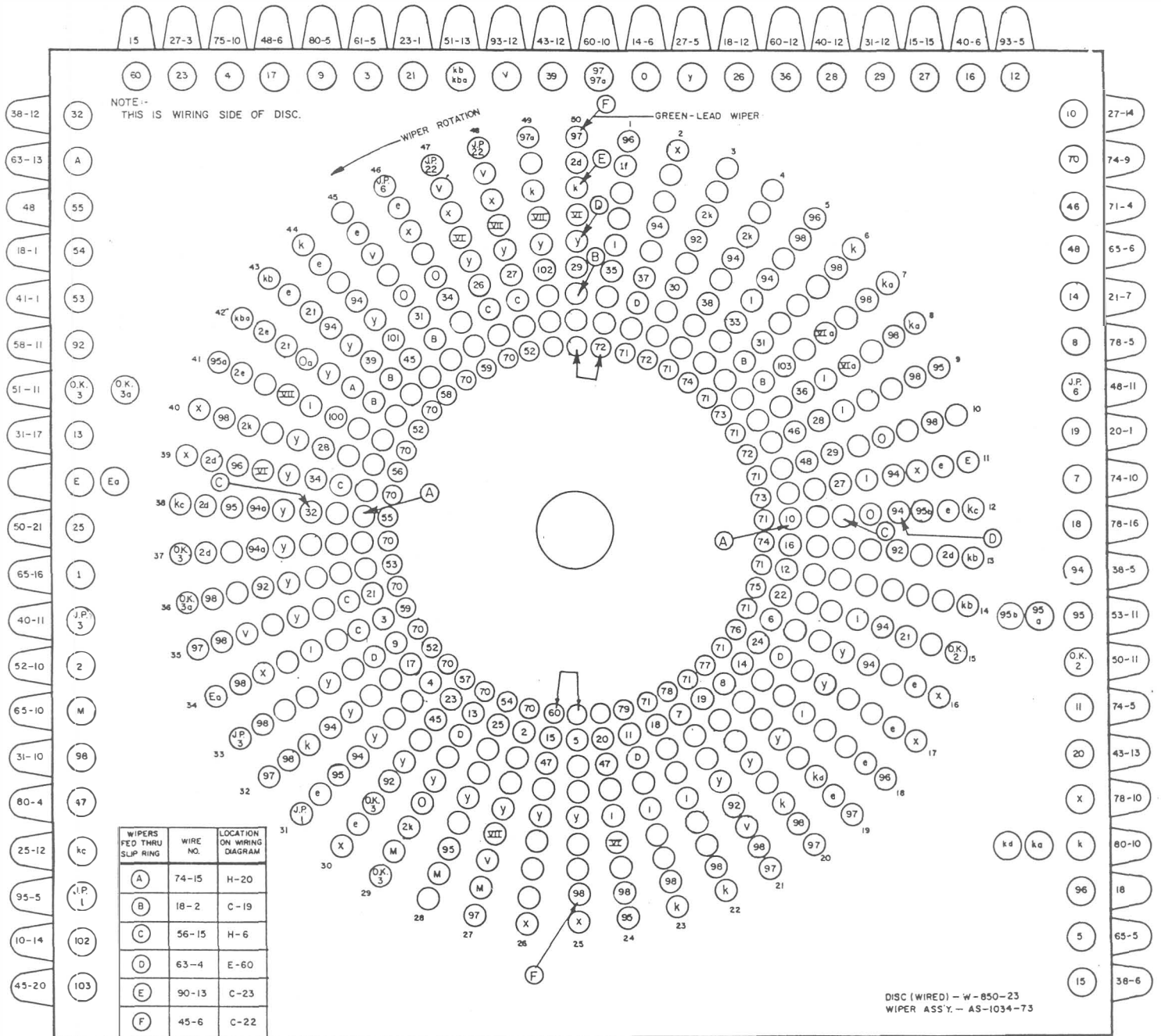
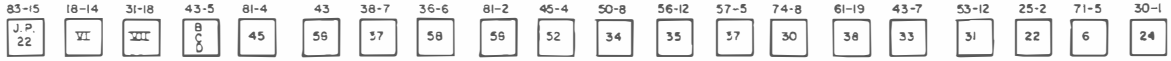
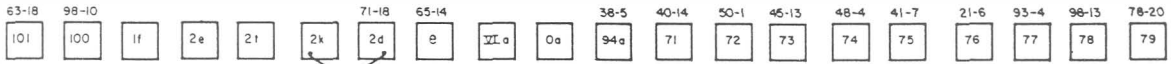
10 step unit. Wipers shown in zero or reset position



DIRECTION OF ROTATION

SPOTTING DISC VIEWED FROM WIRING SIDE

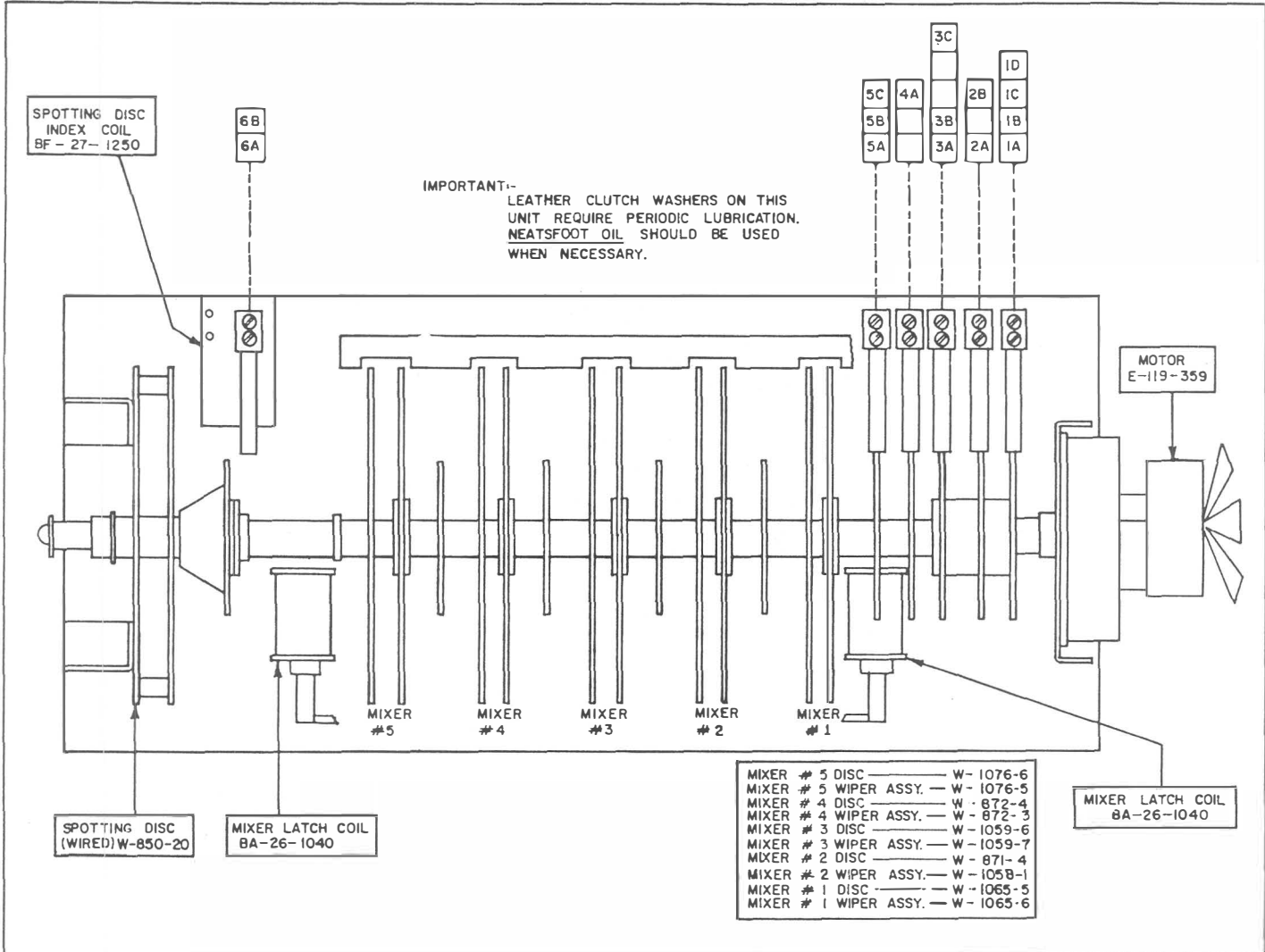
Wipers shown in zero position



WIPERS FED THRU SLIP RING	WIRE NO.	LOCATION ON WIRING DIAGRAM
A	74-15	H-20
B	18-2	C-19
C	56-15	H-6
D	63-4	E-60
E	90-13	C-23
F	45-6	C-22

DISC (WIRED) - W-850-23
WIPER ASSY. - AS-1034-73

MIXER UNIT (SPOTTING DISC)

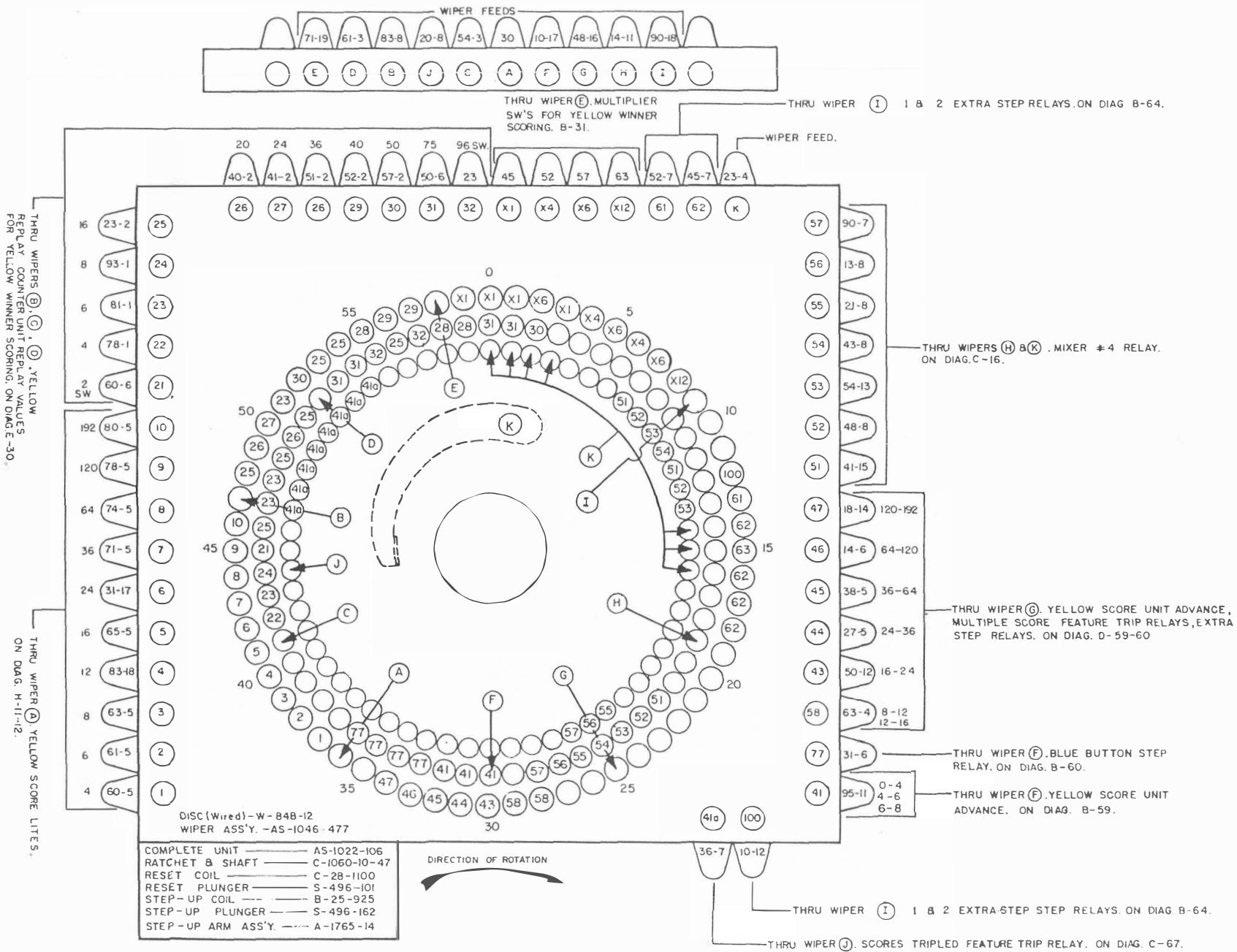


MIXER UNIT (SPOTTING DISC)

				CODE
				N.C.-----NORMALLY CLOSED
				N.O.-----NORMALLY OPEN
				M.B.B.-----MAKE BEFORE BREAK
				S.P.D.T.-----SINGLE POLE DOUBLE THROW
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
16 pulse cam 1A N.o.	D-22	95-9 45-6	Gray-White Green-White	Completes regular game feature units multiple step and feature trip relay circuits
16 pulse cam 1B N.o.	H-5	90 10-11	Gray Red	Completes mystic lines feature circuit to "Press buttons now" lite
16 pulse cam 1C N.o.	E-17	20-16 52-5	Blue White-Blue	Completes red letter winner circuit to step red letter feature unit regular game feature units and energize feature trip relays
16 pulse cam 1D N.o.	H-32	13-18 63-7	Red-Yellow Brown-Yellow	Completes Super 7 diamond feature win circuit to "collect or double", "shoot red", "shoot yellow", "shoot red" lites
Mixer cam 2A N.o.	A-14	18-19 93-11	Red-Black Gray-Yellow	Completes pull in circuit to mixer cam #2 relay
Mixer roving cam 2B S.P.D.T.	D-40	71-16 85-4	Orange-Red Black-White	(Only normally open portion of switch used) completes circuit to diamond reflex relay
Mixer cam 3A N.o.	E-59	63-4 50-12	Brown-Yellow White	Completes circuit for yellow, red, blue, green score unit steps and multiple feature trip relays
Mixer pulse 3B N.o.	F-59	60-16 90-11	Brown Gray	Same function as switch 3A
Mixer roving cam 3C S.P.D.T.	E-41	38-9 85-4	Yellow-Black Black-White	(Only normally open portion of switch used) same function as switch 2B
Mixer roving cam 4A S.P.D.T.	D-40	36-20 85-4	Yellow-Brown Black-White	(Only normally open portion of switch used) same function as switch 2B
16 pulse cam 5A N.o.	C-3	75-2 53-7	Orange-White White-Yellow	Completes replay register unit reset circuit (total reset)
16 pulse cam 5B N.o.	A-19	78 27-20	Orange-Black Blue-Orange	Completes circuit for extra ball unit multiple steps
16 pulse cam 5C N.o.	B-30	30 41-5	Yellow Green-Red	Completes homing circuit for 4 star replay counter and multiple units
BB step Relay coil	A-63	71-13 83-17	Orange-Red Black-Yellow	(Relay and switches not shown on pictorial view) energized thru yellow, red, blue, green score step circuits
A N.o.	A-63	36-16 83-17	Yellow-Brown Black-Yellow	Completes lock-in circuit to this relay
B N.o.	E-58	53-15 13-13	White-Yellow Red-Yellow	Completes circuit for yellow, red, blue, green score steps multiple feature trip relays
Spotting disc index coil	E-68	98-1 70	Gray-Black Orange	Energized by C.U. cam switch 4A during play cycle and releases spotting wipers
6A N.o.	G-22	30 13-4	Yellow Red-Yellow	Completes spotting disc circuits to flash yellow, red, blue green and diamond feature score lites or extra ball feature lites
6B N.o.	G-6	81-6 30	Black-Red Yellow	Completes spotting disc circuits to flash selection feature stars feature and mystic-lines feature lites
Mixer latch coils (2)	A-6	85-1 70	Black-White Orange	Energized by start relay circuit during play cycle and releases mixer wipers

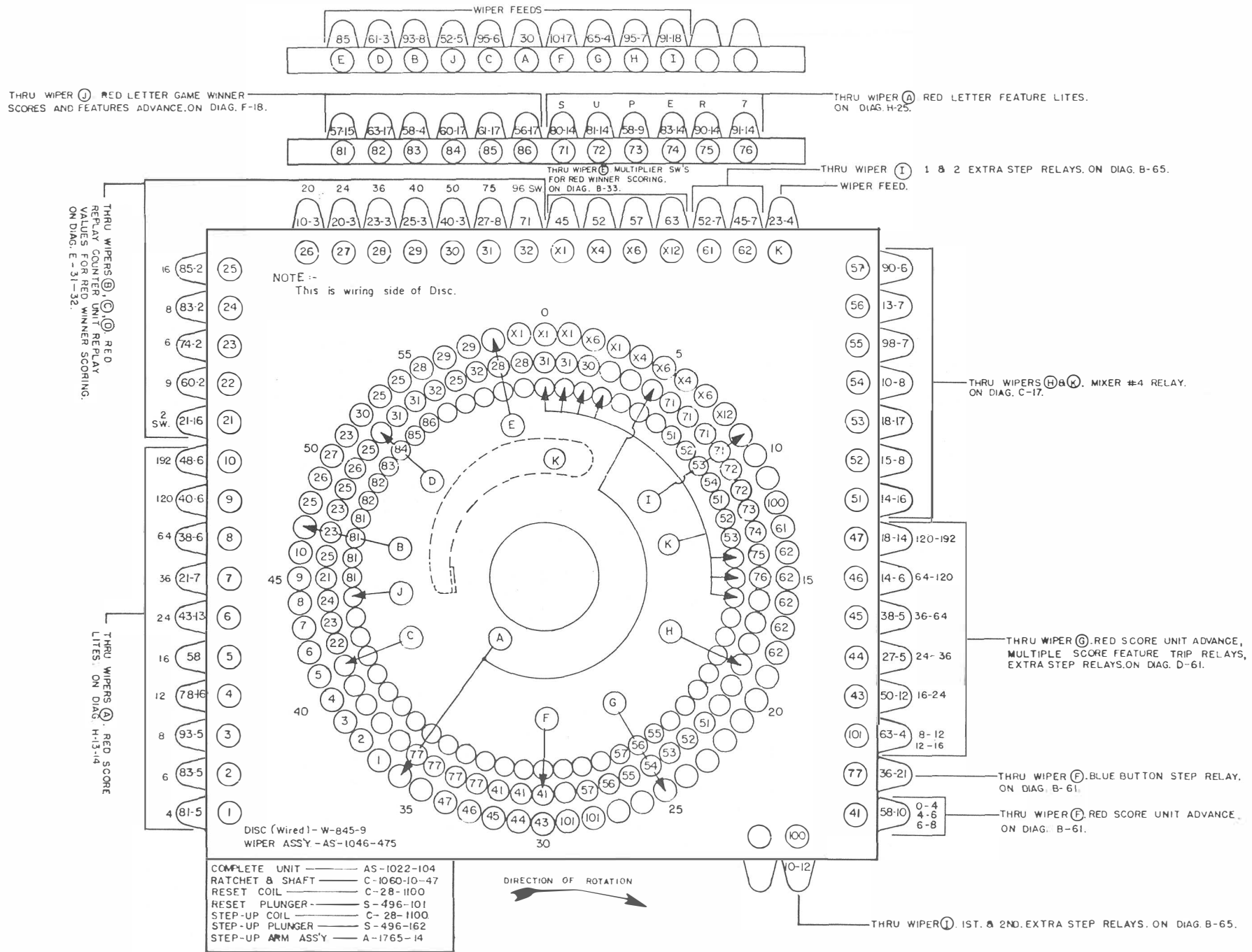
YELLOW SCORE UNIT DISC VIEWED FROM WIRING SIDE

10 step unit. Wipers shown in zero or reset position



RED SCORE UNIT DISC VIEWED FROM WIRING SIDE

10 step unit. Wipers shown in zero or reset position

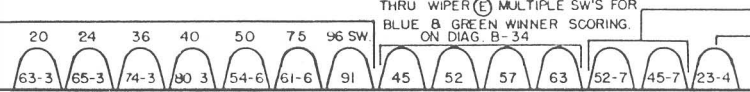
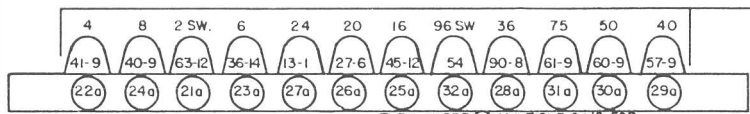
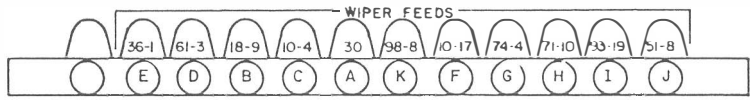


BLUE & GREEN SCORE UNIT DISC
VIEWED FROM WIRING SIDE

10 step unit. Wipers shown in zero or reset position

THRU WIPER (B) (C) (D) BLUE RELAY COUNTER UNIT REPLAY VALUES FOR BLUE WINNER SCORING ON DIAG. E-33

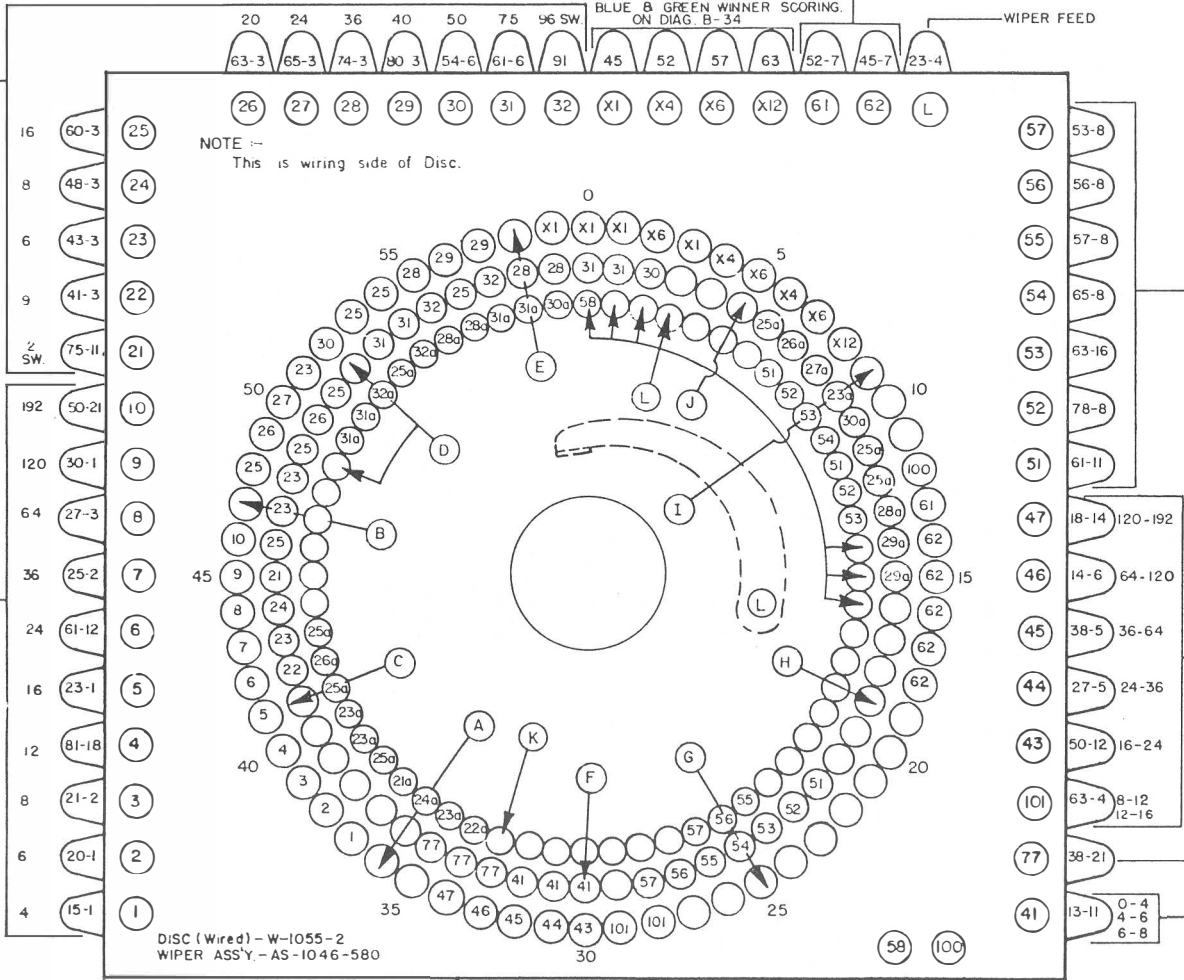
THRU WIPER (A) BLUE & GREEN SCORE LITES H-15-19.



THRU WIPERS (D), (J), (K) GREEN REPLAY COUNTER UNIT REPLAY VALUES FOR GREEN WINNER SCORING ON DIAG. E-34.

THRU WIPER (I) 1 & 2. EXTRA STEP RELAYS. ON DIAG. B-66.

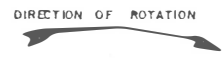
THRU WIPER (E) MULTIPLE SW'S FOR BLUE & GREEN WINNER SCORING. ON DIAG. B-34



NOTE :- This is wiring side of Disc.

DISC (Wired) - W-1055-2
WIPER ASS'Y - AS-1046-580

- COMPLETE UNIT ----- AS-1022-105
- HATCHET & SHAFT ----- C-1060-10--47
- RESET COIL ----- C-28-1100
- RESET PLUNGER ----- S-496-101
- STEP-UP COIL ----- B-25-925
- STEP-UP PLUNGER ----- S-496-162
- STEP-UP ARM ASS'Y. ----- A-1765-14



THRU WIPER (I) 1 & 2. EXTRA STEP RELAYS. ON DIAG. B-66.

THRU WIPERS (H) & (L) MIXER #4 RELAY. ON DIAG. C-15.

THRU WIPER (C) BLUE & GREEN SCORE UNIT ADVANCE, MULTIPLE SCORE FEATURE TRIP RELAYS, EXTRA STEP RELAYS. ON DIAG. D-62-63.

THRU WIPER (F) BLUE BUTTON STEP RELAY ON DIAG. B-63

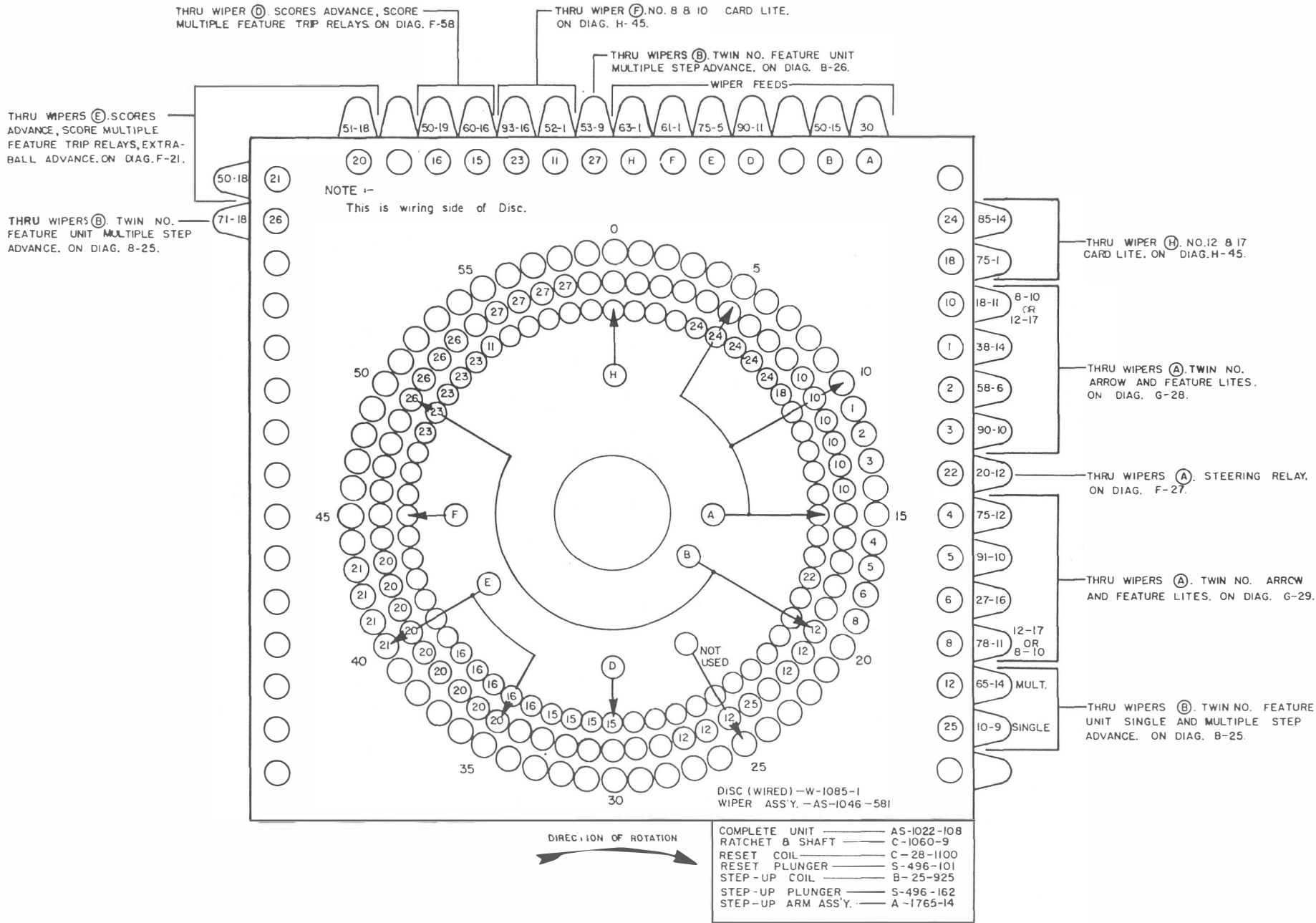
THRU WIPER (F) BLUE & GREEN SCORE UNIT ADVANCE. ON DIAG. B-62.

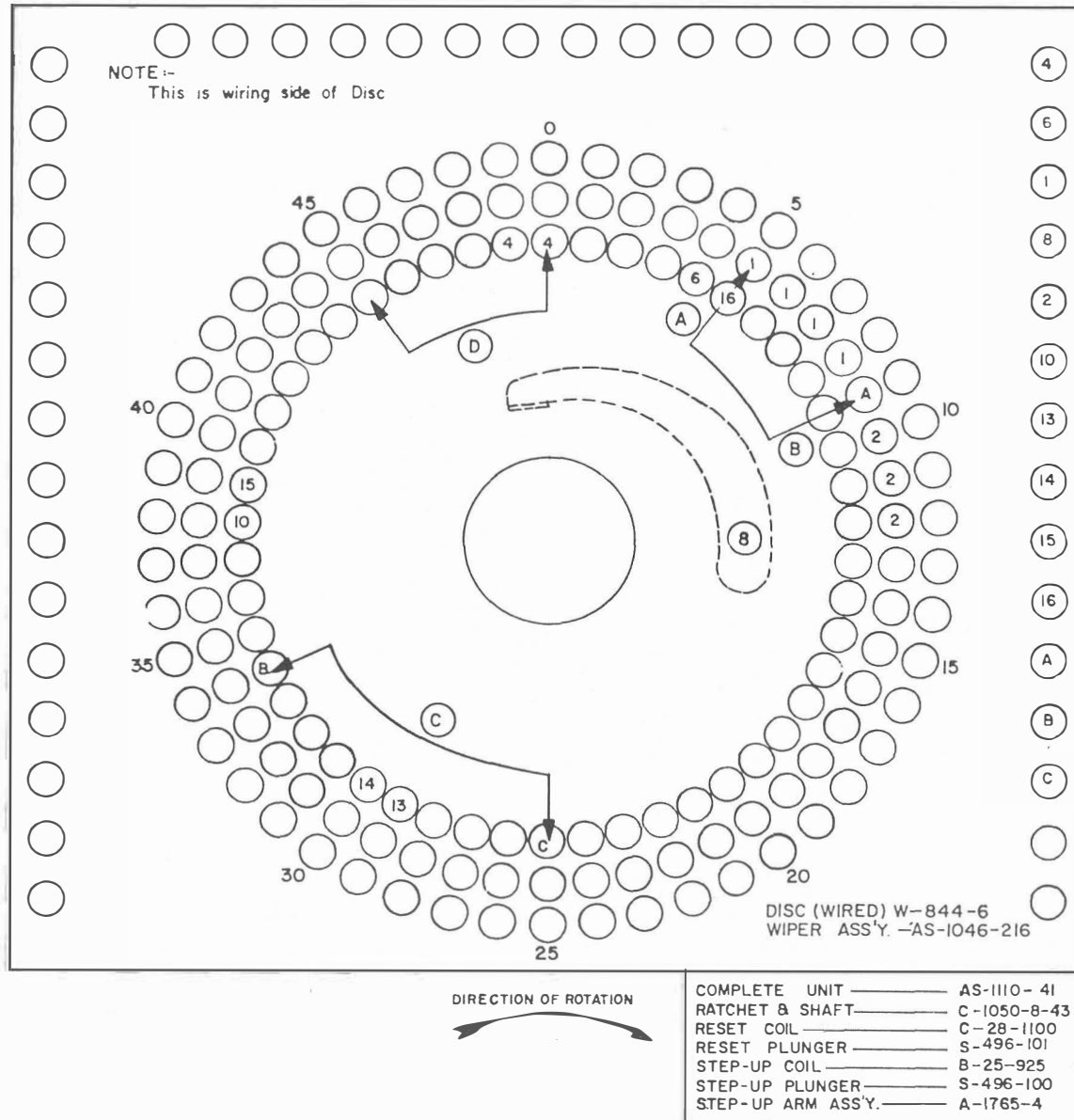
THRU WIPER (I) 1 & 2. EXTRA STEP RELAYS. ON DIAG. B-66.

THRU WIPERS (L) MIXER #4 RELAY. ON DIAG. C-15.

TWIN FEATURE UNIT DISC

VIEWED FROM WIRING SIDE





- 4 14-18 WIPERS (D) FEED.
- 6 27-4 THRU WIPERS (D). "PRESS BUTTONS NOW LITE" BEFORE 4th BALL. ON DIAG. H-4.
- 1 43-2 THRU WIPER (A). TIMER UNIT ADVANCE - 0 THRU 4th STEPS. ON DIAG. F-7.
- 8 21-3 WIPER (A) AND (B) FEED.
- 2 56-9 THRU WIPER (B). SHUTTER MOTOR - CLOSE SHUTTER. ON DIAG. F-8.
- 10 83-6 THRU WIPERS (C). BEFORE 4th BALL LOCKOUT TRIP RELAY. ON DIAG. B-12.
- 13 78-7
- 14 54-5 THRU WIPERS (C). BEFORE 5th BALL LOCKOUT TRIP RELAY ON DIAG. B-12
- 15 74-6
- 16 23-5 THRU WIPERS (D) "PRESS BUTTONS NOW LITE" BEFORE 5th BALL. ON DIAG. H-5.
- A 36-2 THRU WIPER (A). TIMER UNIT ADVANCE - 4th TO 5th STEP ON DIAG. F-8
- B 80-15 THRU WIPERS (C). BALL LIFTER MOTOR START WHEN UNIT RESETS. ON DIAG. D-11.
- C 58-13

8 step unit. Wipers shown in zero or reset position

TIMER UNIT DISC
VIEWED FROM WIRING SIDE

DIAMOND SCORE UNIT DISC

VIEWED FROM WIRING SIDE

9 step unit. Wipers shown in zero or reset position

THRU WIPER (N) DIAMOND SCORE LITE. ON DIAG. H-22

THRU WIPER (O) DIAMOND SCORE ADVANCE ON DIAG. D-42.

DIAMOND SCORE ADVANCE, 9-16 THRU WIPER (R) ON DIAG. D-41, 16-24 THRU WIPER (P) ON DIAG. C-41.

DIAMOND SCORE ADVANCE, 4-6 & 6-9 WIPER (Q) ON DIAG. B-41, 2-4 & 4-6 THRU WIPER (S) ON DIAG. B-41.

DIAMOND SCORE ADVANCE, 24-36 THRU WIPER (P) ON DIAG. C-42, 16-24 THRU WIPER (R) ON DIAG. D-41, 6-9 THRU WIPER (S) ON DIAG. B-41

WIPERS

THRU WIPER (O) DIAMOND SCORE ADVANCE ON DIAG. D-41.

THRU WIPER (N) DIAMOND SCORE LITES ON DIAG. H-21.

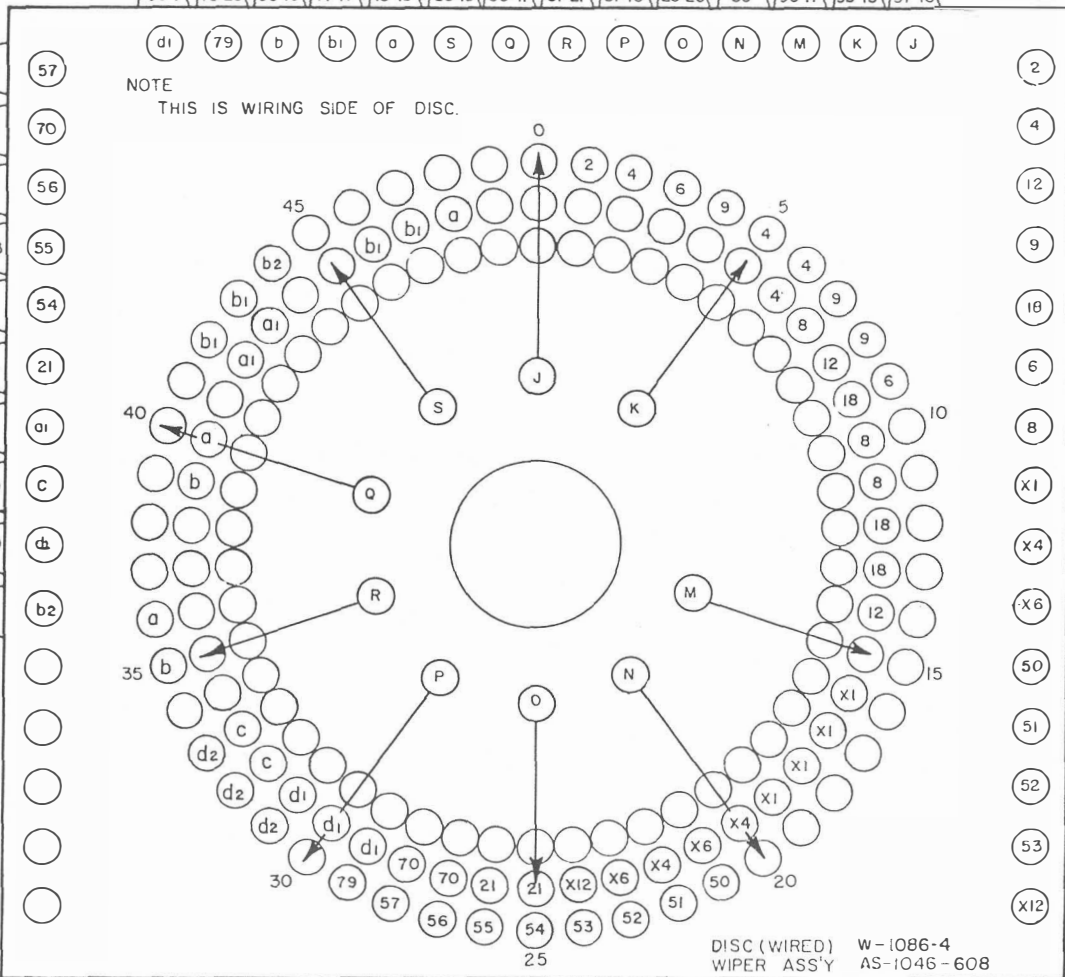
THRU WIPER (O) DIAMOND SCORE ADVANCE ON DIAG. D-41.

THRU WIPER (R) DIAMOND SCORE ADVANCE ON DIAG. D-42.

THRU WIPER (O) DIAMOND SCORE ADVANCE ON DIAG. D-42.

THRU WIPER (P) DIAMOND SCORE ADVANCE ON DIAG. C-41.

THRU WIPER (O) DIAMOND SCORE ADVANCE 9-16 ON DIAG. B-41.



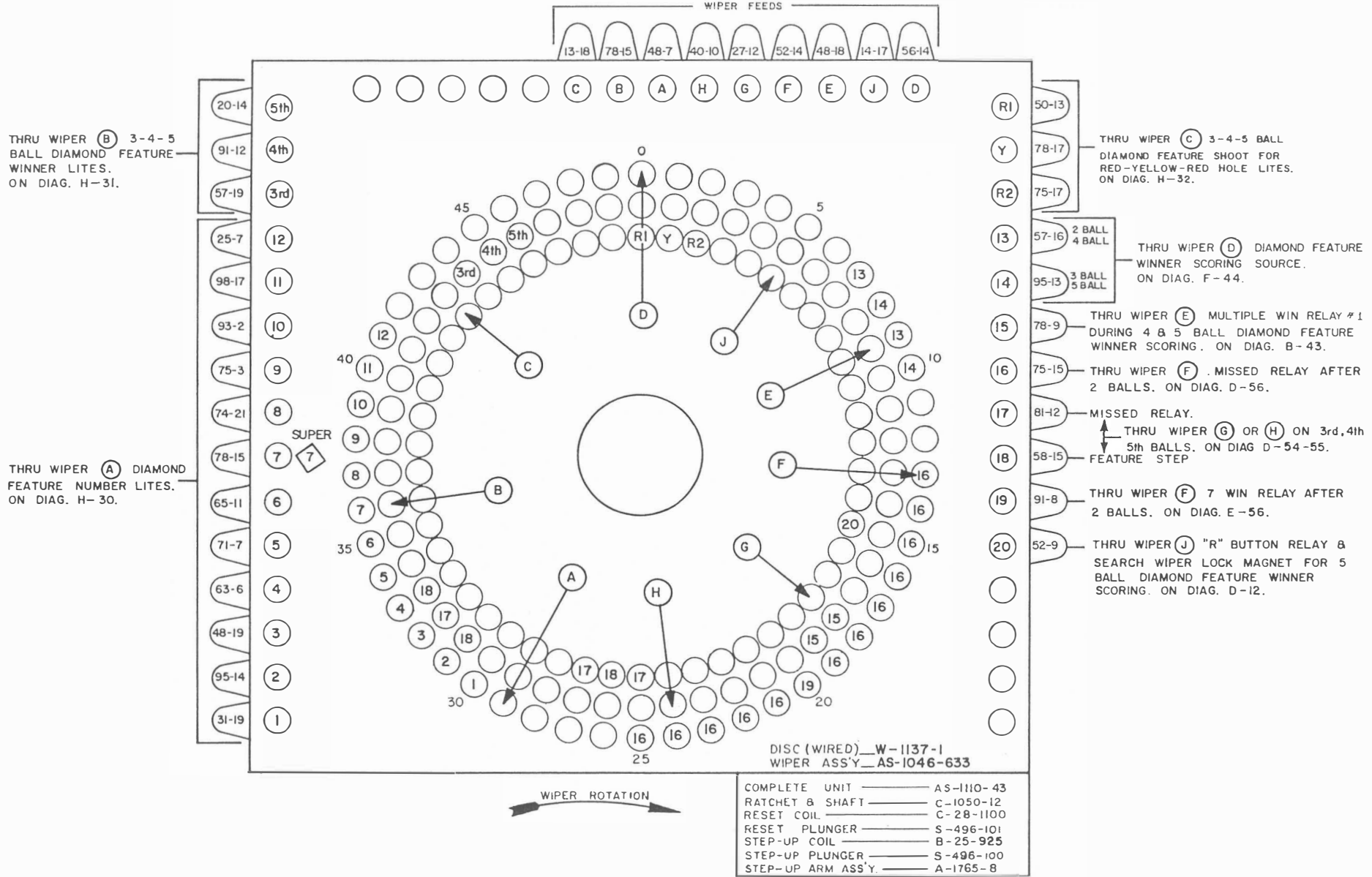
THRU WIPERS (J) & (K) DIAMOND REPLAY COUNTER UNIT REPLAY VALUES FOR DIAMOND WINNER SCORING. ON DIAG. E-44-45.

THRU WIPER (M) MULTIPLIER SWITCHES FOR DIAMOND WINNER SCORING. ON DIAG. A-44.

THRU WIPER (N) DIAMOND SCORE LITES. ON DIAG. H-20.

THRU WIPER (M) MULTIPLIER SWITCH FOR DIAMOND WINNER SCORING. ON DIAG. A-45.

- DISC (WIRED) W-1086-4
WIPER ASS'Y AS-1046-608
- COMPLETE UNIT ----- AS-1022-116
 - RATCHET & SHAFT ----- C-1050-9
 - RESET COIL ----- C-28-1100
 - RESET PLUNGER ----- S-496-101
 - STEP-UP COIL ----- B-25-925
 - STEP-UP PLUNGER ----- S-496-100
 - STEP-UP ARM ASS'Y. ----- A-1765-4

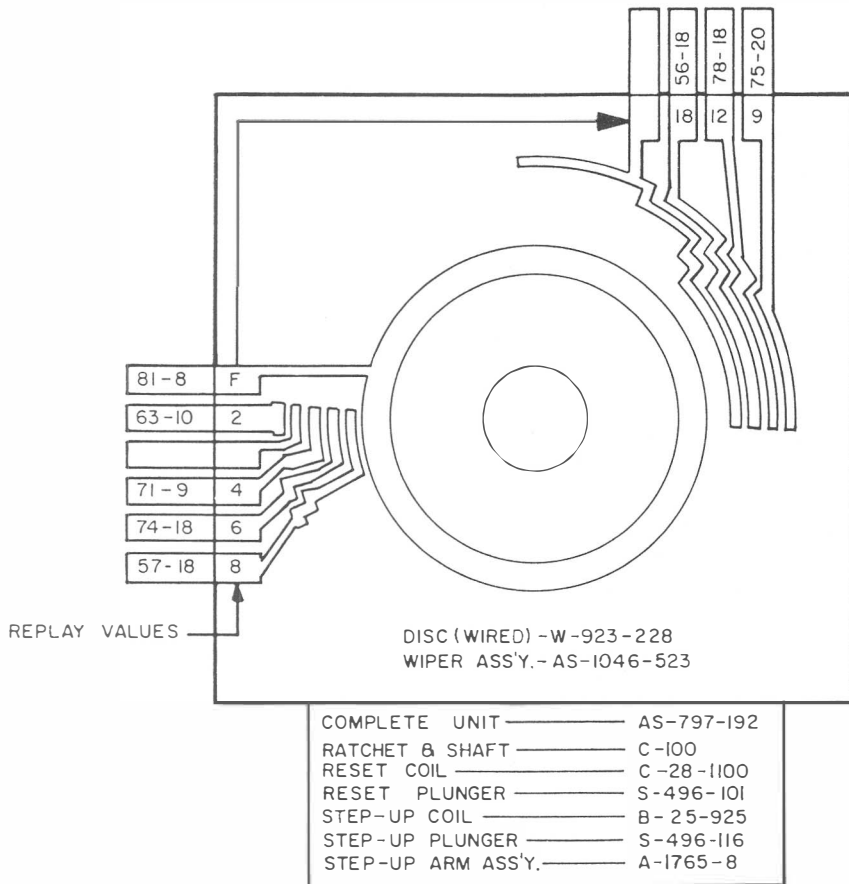


12 step unit. Wipers shown in zero or reset position

DIAMOND FEATURE UNIT DISC
VIEWED FROM WIRING SIDE

DIAMOND REPLAY COUNTER DISC

VIEWED FROM WIPER SIDE

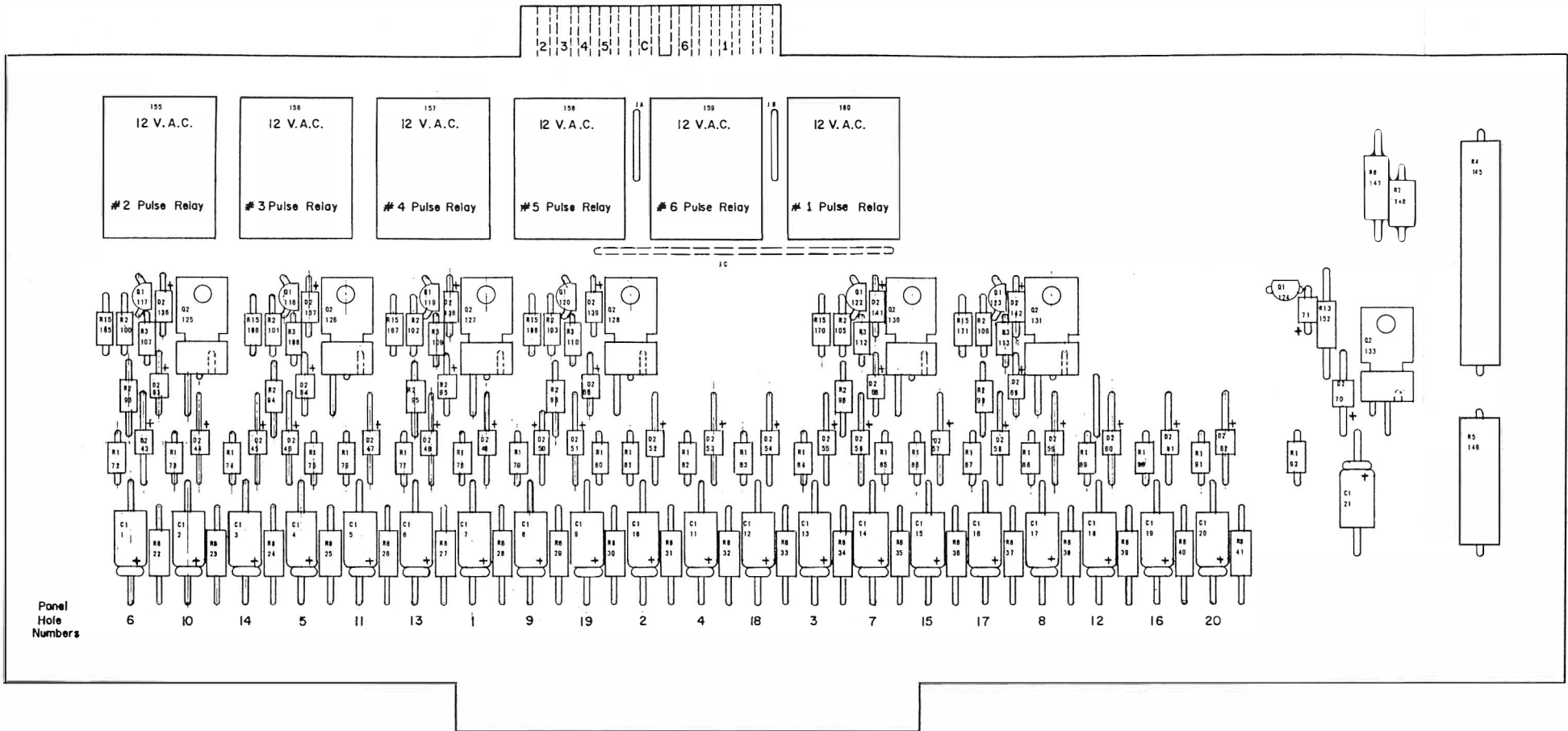


CONTROL UNIT MULTIPLIER CAM SWITCHES THAT ADVANCE DIAMOND REPLAY COUNTER UNIT DURING 2-3-4-5 BALL SUPER-7 DIAMOND FEATURE WINNERS. DURING 4 & 5 BALL WINNERS, SWITCHES DOUBLE 8 QUADRUPLE THEIR REGULAR MULTIPLIER RATIO THRU MULTIPLE UNIT DISC.

10A X12	72 <small>6</small>	144 <small>12</small>	288 <small>12</small>	576 <small>12</small>
11A X6	54 <small>9</small>	108 <small>18</small>	216 <small>18</small>	432 <small>18</small>
13A X4	36 <small>9</small>	72 <small>18</small>	144 <small>18</small>	288 <small>18</small>
11A X6	24 <small>4</small>	48 <small>8</small>	96 <small>8</small>	192 <small>8</small>
13A X4	16 <small>4</small>	32 <small>8</small>	64 <small>8</small>	128 <small>8</small>
12A X1	9 <small>9</small>	18 <small>18</small>	36 <small>18</small>	72 <small>18</small>
12A X1	6 <small>6</small>	12 <small>12</small>	24 <small>12</small>	48 <small>12</small>
12A X1	4 <small>4</small>	8 <small>8</small>	16 <small>8</small>	32 <small>8</small>
12A X1	2 <small>2</small>	4 <small>4</small>	8 <small>4</small>	16 <small>4</small>
	2	3	4	5
	BALL	BALL	BALL	BALL

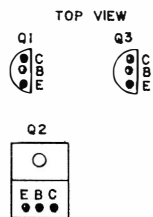
LARGE NUMBERS ARE SUPER-7 DIAMOND FEATURE REPLAY SCORES SHOWN ON BACK GLASS. NUMBERS IN CIRCLES INDICATE THE REPLAY COUNTER DISC VALUE EACH SCORE IS EFFECTIVE THRU DURING WINNERS.

DIAMOND MODULE BOARD ASSEMBLY AS-2518-7C



NOTE 1-

Jumper JD must have sleeving.
Use with schematic W-1140-1b



Letter	Part No.	Name	Description	Req.
C-1	E-586-8	Electrolytic	2 MFD 50 V.	21
D-2	E-587-6	Diode	EM502	33
Q-1	E-585-2a	Transistor	MP S 6566	6
Q-2	E-585-11a	Transistor	D40C-4	7
R-1	E-105-168b	Resistor	470 K 10% ½ watt	21
R-2	E-105-164b	Resistor	1 K. 10% ½ watt	12
R-3	E-105-148b	Resistor	10 K. 10% ½ watt	6
R-4	E-104-72b	Resistor	56 OHM.5% 12 watt	1

Letter	Part No.	Name	Description	Req.
R-5	E-104-73b	Resistor	30 OHM. 5% 8 watt	1
R-6	E-108-168b	Resistor	680 K. 2% ½ watt	1
R-7	E-105-167b	Resistor	470 K. 2% ½ watt	1
R-8	E-105-153b	Resistor	100 K. 10% ½ watt	21
R-15	E-105-159b	Resistor	4.7 K. 5% ½ watt	6
JA		Jumper	½" Long	1
JB		Jumper	½" Long	1
JC		Jumper	2-9/32" Long	1

BACK CABINET RELAY BANK (4)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Replay reset relay coil	A-3	75-2 70	Orange-White Orange	Energized by anti cheat relay circuit thru replay register unit zero switch
L1 N.o.	F-3	75-2 56-2	Orange-White White-Brown	Completes lock-in circuit to this relay and multiple reset circuit to replay register unit
L2 N.o.	G-1	20(P) 60(P)	Blue (Plastic) Brown (Plastic)	Completes a circuit to control unit and mixer spotting unit motors
L3 S.P.D.T.	B-3	90-5 98-5 53-7	Gray Gray-White White-Yellow	Directs single (Play) reset circuit or multiple (Cancel) reset circuit to replay register unit
L4 N.c.	D-4	10-5 61-8	Red Brown-Red	Opens start relay circuit
R1 N.o.				Extra switch - not used in circuit
R2 N.c.	B-28	30 93-20	Yellow Gray-Yellow	Opens key plays circuit to step replay register unit and key plays meter
Start relay coil	A-4	98-20 70	Gray-Black Orange	Energized thru 5¢ or 25¢ coin switch circuit, also thru red, green, blue, white or yellow play button circuits, when re-plays are registered
L1 N.c.	D-36	56-4 38-15	White-Brown Yellow-Black	Opens lock-in circuit to red letter win relays
L2 N.c.	B-14	21-3 14-9	Blue-Red Red-Green	Opens lock-in circuit to mixer #2 relay
R1 N.c.	A-18	75-4 78	Orange-White Orange-Black	Opens extra ball unit multiple step circuit
R2 N.c.	D-22	18-16 95-9	Red-Black Gray-White	Opens regular game features circuit
R3 N.o.	D-5	13-16 18-2	Red-Yellow Green-Black	Completes lock-in circuit to this relay, also completes shutter motor circuit, timer cams index and mixer latch coil circuits
R4 N.o.	C-5	13-16 10-10	Red-Yellow Red	In series with switch R3 circuit to shutter motor, timer, cams index and mixer latch coils
25¢ relay coil	A-7	15-13 70	Red-White Orange	Energized thru 25¢ coin switch circuit
L1 N.c.	A-4	33-16 80-2	Black-Yellow Black	Opens circuit to single coin meter terminal when used
1 N.o.	E-7	15-13 25-9	Red-White Blue-White	Completes lock-in circuit to this relay
R2 N.o.	E-5	10-5 90-2	Red Gray	Completes a circuit to start relay
R3 S.P.D.T.	B-28	41-14 75-9 36-13	Green-Red Orange-White Yellow-Brown	Directs winner or 25¢ credit circuit to step replay register unit
R4 N.c.	B-3	45-9 98-5	Green-White Gray-Black	Opens replay register unit reset circuit
Anti cheat relay coil	A-20	78-4 70	Orange-Black Orange	Energized by C.U. cam switch #5B during play cycle and remains energized unless power to game is interrupted. Also energized by key play switch circuit
L1 N.c.	G-6	14-14 30	Red-Green Yellow	Completes a shutter motor circuit to close shutter when relay drops out
L2 S.P.D.T.	J-33	91-2 36-17 40	Gray-Red Yellow-Brown Green	Opens 6 volt game lites circuit and completes circuit to tilt lite when relay drops out
R1 N.o.	B-20	30 78-4	Yellow Orange-Black	Completes lock-in circuit to this relay
R2 N.o.	H-35	51-19 80-1	White-Red Black	Opens 21 volt game circuit when relay drops out
R3 S.P.D.T.	F-4	75-2 56-2 50-2	Orange-White White-Brown White	Opens replay play buttons circuit to start relay and completes circuit to replay reset relay when relay drops out
R4 N.c.	E-10	57-6 85-7	White-Orange Black-White	Completes a circuit to red button relay when relay drops out

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

BACK CABINET AUXILIARY BOARD RELAYS (4)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1 extra step relay coil	A-64	31-5 71-13	Yellow-Red Orange-Red	Energized thru yellow, red, blue & green score unit step control circuits
1 N.o.	A-64	36-16 31-5	Yellow-Brown Yellow-Red	Completes lock in circuit to this relay
2 N.o.	E-58	81-11 60-18	Black-Red Brown	Completes circuit for yellow, red, blue & green score unit extra step and multiple score feature relays
2 Extra step relay coil	A-67	45-16 71-13	Green-White Orange-Red	Energized thru yellow, red, blue & green score unit step control circuits
1 N.o.	A-67	36-16 45-16	Yellow-Brown Green-White	Completes lock in circuit to this relay
2 N.o.	F-58	81-11 25-16	Black-Red Blue-White	Completes circuit for yellow, red, blue & green score unit extra steps and multiple score feature relays
Multiple win #1 relay coil	A-30	78-9 70	Orange-Black Orange	Energized thru yellow, red, blue & green score winner circuits, thru multiple feature relays. Also thru 4 & 5 ball diamond winner circuit
1 N.c.	A-30	80-16 43-15	Black Green-Yellow	Opens multiple unit homing circuit
2 N.c.	A-34	90-1 70	Gray Orange	Opens normal multiplier circuit to step replay counter units during winner scoring, circuit then effective thru multiple unit disc.
3 N.c.	A-34	90-1 70	Gray Orange	Parallel circuit to switch 2
Multiple win #2 relay coil	A-34	90-1 70	Gray Orange	Energized thru yellow, red, blue & green score winner circuits and Super 7 diamond feature score winner circuits
1 N.o.	C-31	75-6 78-9	Orange-White Orange-Black	Completes a circuit to step multiple unit

BACK DOOR SEARCH RELAY BANK (5)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
#5 search Relay coil	J-45	50-14 18-5	White Red-Black	Energized thru search disc circuits from 20 panel-hole switches and mystic lines motor unit disc's.
1 N.O.	E-31	61-3 23-8	Brown-Red Blue-Yellow	In series with 5-in-zone yellow, red, blue, green winner search & scoring circuits.
#4 search relay coil	J-45	50-14 15-3	White Red-White	Same as #5 search relay coil.
1 N.O.	E-31	74 23-8	Orange-Green Blue-Yellow	In series with 4 & 5-in-zone yellow, red, blue, green, and all 4 star zones feature, winner search and scoring circuit
#3 search relay coil	J-44	50-14 60-4	White Brown	Same as #5 search relay coil.
1 N.O.	F-31	31-11 36-11	Yellow-Red Yellow-Brown	In series with 3,4, and 5-in-zone yellow, red, blue, green all 4 star zones feature, and any 3 star zones feature winner search and scoring circuits.
#2 search relay coil	J-44	50-14 65-7	White Brown-White	Same as #5 search relay coil.
1 N.O.	F-31	38-11 36-11	Yellow-Black Yellow-Brown	In series with 3,4, 5-in-zone yellow, red, blue, green all 4 star zones feature, any 3 star zones feature, and any 2 star zones feature, winner search and scoring circuits.
#1 search relay coil	J-43	50-14 20-5	White Blue	Same as #5 search relay coil.
1 N.O.	F-31	40-5 38-11	Green Yellow-Black	Same function as #2 search relay switch.

BACK DOOR RELAY BANK-TOP (7)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Mixer cam #2 relay coil	A-14	93-11 70	Gray-Yellow Orange	Energized during play cycles thru mixer cam #2A and C.U. cam 8XA circuit
L1 N.c.	A-24	20-11 70	Blue Orange	Opens a control circuit for all 4 stars 600 and all 4 stars 300 feature
L2 N.c.	B-26	53-9 71-18	White-Yellow Orange-Red	Opens a control circuit for twin number feature unit steps
L3 S.P.D.T.	D-58	25-11 18-8 27-11	Blue-White Red-Black Blue-Orange	Directs circuits for yellow, red, blue, & green score unit steps and multiple feature relays
L4 N.O.	A-63	31-5 15-9	Yellow-Red Red-White	Completes a score control circuit to extra step relays
R1 N.O.	A-14	14-9 93-11	Red-Green Gray-Yellow	Completes lock in circuit to this relay
R2 N.O.	C-60	81-9 58-10	Black-Red White-Black	Completes a control circuit for red score unit steps
R3 N.O.	E-27	21-17 10-18	Blue-Red Red	Completes twin number feature control circuit to steering relay
R4 N.O.	E-67	83-12 98-14	Black-Yellow Gray-Black	Completes score control circuit for triple scores feature
Mixer #2 relay coil	A-18	27-7 70	Blue-Orange Orange	Energized during play cycles thru score control circuit
1 N.O.	D-17	13-3 27-7	Red-Yellow Blue-Orange	Completes lock in circuit to this relay
2 N.O.	C-58	85-4 54-12	Black-White White-Green	Completes circuit for yellow, red, blue, green score unit steps
3 N.O.	E-21	56-6 75-5	White-Brown Orange-White	Completes control circuit for yellow, red, blue & green score unit steps, multiple and triple feature, or extra ball feature unit steps
Mixer #4 relay coil	A-16	23-4 70	Blue-Yellow Orange	Energized during play cycles thru feature control circuit
1 N.O.	A-14	18-7 23-4	Red-Black Blue-Yellow	Completes lock in circuit to this relay
2 N.c.	D-20	36-19 51-5	Yellow-Brown White-Red	Opens a control circuit for extra ball feature unit steps
3 N.c.	C-67	20-8 56-7	Blue White-Brown	Opens control circuit for triple scores feature
4 N.c.	E-22	48-20 43-16	Green-Black Green-Yellow	Opens control circuit for mystic lines, selection and twin number feature unit steps, and star zone feature relays
Play features relay coil	A-38	61-13 31-15	Brown-Red Yellow-Red	Energized thru green button circuit during play for regular game features only, also energized thru diamond play relay circuit
L1 S.P.D.T.	H-27	95-2 14-21 23-15	Gray-White Red-Green Blue-Yellow	Directs circuit to red, blue, or green button play lite
R1 N.O.	B-37	43-14 53-14	Green-Yellow White-Yellow	Completes circuit to features lock relay
R2 N.O.	C-38	81-13 61-13	Black-Red Brown-Red	Completes lock in circuit to this relay
R3 N.c.	G-21	74-15 15-17	Orange-Green Red-White	Opens spotting disc circuit to flash yellow, red, blue & green score lites and scores multiple feature lites
R4 N.c.	A-58	71-13 70	Orange-Red Orange	Opens circuit for yellow, red, blue and green score unit steps and scores multiple feature relays
Features lock relay coil	A-37	53-14 31-15	White-Yellow Yellow-Red	Energized thru play features relay circuit
1 N.O.	B-37	40-15 53-14	Green White-Yellow	Completes lock in circuit to this relay
2 N.O.	C-23	45-6 90-13	Green-White Gray	Completes spotting disc control circuit for mystic lines selection, twin number feature unit steps, and star zone feature relays
3 N.c.	E-15	52-17 41-17	White-Blue Green-Red	Opens a control circuit to mixer #4 relay

BACK DOOR RELAY BANK-TOP (7)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES										
Play scores relay coil	A-39	85-15 31-15	Black-White Yellow-Red	Energized thru blue button circuit during play for yellow, red, blue & green scores and multiple score features only. Also energized thru diamond play relay circuit										
L1 S.P.D.T.	H-26	25-15 25-2 21-15	Blue-White Gray-White Blue-Red	Directs circuit to red or blue button play lite										
L2 S.P.D.T.	E-16	36-4 27-7 41-6	Yellow-Brown Blue-Orange Green-Red	Directs feature control circuits to mixer #2 relay										
R1 N.o.	C-39	57-13 85-15	White-Orange Black-White	Completes lock in circuit to this relay										
R2 N.o.	B-58	10-17 20-6	Red Blue	Completes a circuit for yellow, red, blue, & green score unit steps										
R3 N.o.	B-38	43-14 93-14	Green-Yellow Gray-Yellow	Completes circuit to scores lock relay										
R4 N.c.	H-7	56-15 31-16	White-Brown Yellow-Red	Open spotting disc circuit to flash selection features, star zone features mystic lines feature and twin number feature lites										
Scores lock relay coil	A-38	93-14 31-15	Gray-Yellow Yellow-Red	Energized thru play scores relay circuit										
L1 N.o.	E-61	58-11 14-6	White-Black Red-Green	Completes spotting disc control circuit for yellow, red, blue & green score unit steps and multiple scores feature relays										
L2 N.o.	F-58	81-11 53-15	Black-Red White-Yellow	Completes a control circuit for yellow, red, blue & green score unit steps and multiple score feature relays										
L3 N.c.	E-22	83-9 48-20	Black-Yellow Green-Black	Opens control circuit for selection feature, mystic lines feature, twin number feature unit steps and star zone feature relays										
L4 S.P.D.T.	A-63	52-7 10-12 15-9	White-Blue Red Red-White	Directs yellow, red, blue & green score step circuits to 1 extra step relay or 2 extra step relay										
R1 N.o.	B-38	40-15 93-14	Green Gray-Yellow	Completes lock in circuit to this relay										
R2 N.o.	E-60	38-5 65-16	Yellow-Black Brown-White	Same function as switch L1										
R3 N.o.				Extra switch - not used in circuit										
R4 N.o.	E-61	18-14 31-18	Red-Black Yellow-Red	Same function as switch L1										
<table border="1" style="margin: auto; padding: 5px;"> <tr> <td colspan="2" style="text-align: center;">CODE</td> </tr> <tr> <td style="width: 50%;">N.C.</td> <td>NORMALLY CLOSED</td> </tr> <tr> <td>N.O.</td> <td>NORMALLY OPEN</td> </tr> <tr> <td>M.B.B.</td> <td>MAKE BEFORE BREAK</td> </tr> <tr> <td>S.P.D.T.</td> <td>SINGLE POLE DOUBLE THROW</td> </tr> </table>					CODE		N.C.	NORMALLY CLOSED	N.O.	NORMALLY OPEN	M.B.B.	MAKE BEFORE BREAK	S.P.D.T.	SINGLE POLE DOUBLE THROW
CODE														
N.C.	NORMALLY CLOSED													
N.O.	NORMALLY OPEN													
M.B.B.	MAKE BEFORE BREAK													
S.P.D.T.	SINGLE POLE DOUBLE THROW													

BACK DOOR RELAY BANK-BOTTOM (7)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Z relay coil	A-45	83-21 70	Black-Yellow Orange	Energized thru super 7 diamond feature winner search circuit
1 N.o.	D-45	53-16 83-21	White-Yellow Black-Yellow	Completes replay counter step-up circuit for diamond scoring
2 S.P.D.T.	A-32	50-16 90-1 63-19	White Gray Brown-Yellow	Directs C.U, multiplier switches thru multiple unit disc during regular game double and triple scoring or 4 & 5 ball diamond winner scoring
3 N.c.	B-27	71-3 13-6	Orange-Red Red-Yellow	Opens winner search circuit to search index coil
Cam #7 relay coil	A-28	90-5 70	Gray Orange	Energized during play cycles by C.U. cam switch #7E
L1 N.o.	B-66	13-11 65-17	Red-Yellow Brown-White	Completes control circuits for blue and green score extra steps.
L2 N.o.	B-64	58-10 48-17	White-Black Green-Black	Completes control circuits for red score extra steps
L3 N.o.	B-63	95-11 20-18	Gray-White Blue	Completes control circuits for yellow score extra steps
R1 N.o.	F-15	21-3 25-5	Blue-Red Blue-White	Completes control circuit to mixer #4 relay
R2 N.o.	E-37	21-3 43-14	Blue-Red Green-Yellow	Completes circuit to features lock relay or scores lock relay during green or blue button play
R3 N.o.	G-15	21-3 14-8	Blue-Red Red-Green	Completes control circuit to mixer #2 relay
R4 N.o.	B-40	38-9 41-10	Yellow-Black Green-Red	Completes control circuit to diamond reflex relay
Steering relay coil	A-27	95-15 70	Gray-White Orange	Energized thru twin number feature control circuit
L1 S.P.D.T.	H-28	98-10 18-11 10-14	Gray-Black Red-Black Red	Directs twin number feature lite circuits 8-10 or 12-17
L2 S.P.D.T.	H-29	63-18 78-11 45-20	Brown-Yellow Orange-Black Green-White	Directs twin number feature lite circuits 12-17 or 8-10
L3 N.c.	G-45	93-16 52-1	Gray-Yellow White-Blue	Opens 8-10 twin number circuit from hole switches
R1 N.o.	E-27	41-20 95-15	Green-Red Gray-White	Completes lock-in circuit to this relay
R2 N.o.	G-59	50-19 60-16	White Brown	Completes a control circuit for yellow, red, blue & green score unit steps, multiple and triple feature trip relays
R3 N.o.	H-45	85-14 75-1	Black-White Orange-White	Completes 12-17 twin number circuit from hole switches
R4 N.c.	A-24	20-11 70	Blue Orange	Opens a control circuit to all 4 star 300 and 600 feature trip relays
Diamond play relay coil	A-39	31-15 60-14	Yellow-Red Brown	Energized thru white button diamond feature play circuit
L1 S.P.D.T.	A-2	13-14 90-5 81-15	Red-Yellow Gray Black-Red	Directs regular or diamond reflex unit play circuit
L2 S.P.D.T.	H-26	14-21 36-15 38-19	Red-Green Yellow-Brown Yellow-Black	Directs red, blue, green or white button play lite circuit
L3 N.o.	A-38	75-13 85-15	Orange-White Black-White	Completes a circuit to play scores relay
R1 N.o.	C-39	43-18 60-14	Green-Yellow Brown	Completes lock in circuit to this relay
R2 N.o.	A-41	45-15 56-16	Green-White White-Brown	Completes circuit for diamond score unit steps
R3 N.o.	H-22	40-14 15-17	Green Red-White	Completes spotting disc circuit to flash diamond feature score lites
R4 N.o.	A-38	61-13 75-13	Brown-Red Orange-White	Completes a circuit to play features relay

BACK DOOR RELAY BANK-BOTTOM (7)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Red letter #1 relay coil	A-36	70 56-4	Orange White-Brown	Energized thru any 3 stars any 2 stars red letter game feature winner search circuit
L1 N.c.	F-22	43-16 61-15	Green-Yellow Brown-Red	Opens control circuit for all regular game features
L2 N.c.	B-21	93-12 81-7	Gray-Yellow Black-Red	Opens mystic lines feature unit guaranteed step circuit
L3 N.c.	B-27	71-3 80	Orange-Red Black	Opens winner search circuit to search index coil
R1 N.o.	G-5	30 10-11	Yellow Red	Completes selection feature lite circuits
R2 N.o.	E-17	25-18 20-16	Blue-White Blue	Completes red letter feature unit, scores, and feature unit step-up & feature relays circuit
R3 N.c.	B-59	54-14 95-11	White-Green Gray-White	Opens regular yellow score unit step-up circuit.
R4 N.c.	B-62	14-15 13-11	Red-Green Red-Yellow	Opens regular blue & green score unit step-up circuit
Red-Letter #2 relay coil	A-36	56-4 70	White-Brown Orange	Energized thru any 3 stars any 2 stars red letter game feature winner search circuit.
L1 N.c.	C-27	80 60	Black Brown	Opens winner search circuit to replay cams index coil
L2 N.c.	A-22	48-10 98-9	Green-Black Gray-Black	Opens selection feature unit guaranteed step circuit
R1 N.o.	C-7	21-3 91-11	Blue-Red Gray-Red	Completes a shutter motor circuit to open shutter
R2 N.o.	F-36	38-15 63-8	Yellow-Black Brown-Yellow	Completes lock-in circuit to both red letter win relays
R3 N.c.	A-68	85-5 15-4	Black-White Red-White	Opens reset circuit to red score unit
R4 N.c.	B-60	58-10 52-19	White-Black White-Blue	Opens regular red score unit step-up circuit
Red button relay coil	A-10	85-7 91-15	Black-white Gray-Red	Energized thru red button play circuit, also thru anti-cheat relay circuit, tilt relay circuit and blue & green score unit circuit
1 S.P.D.T.	B-6	45-18 50-2 53-5	Green-White Gray-Black White-Yellow	Directs mixer latch and timer cams index coil circuit during E.B. play, shutter motor circuit to open shutter starting new game following E.B. play
2 S.P.D.T.	G-27	23-6 30 36-15	Blue-Yellow Yellow Yellow-Brown	Directs E.B. play lite circuit or red, blue, green, white button play lite circuit.
3 N.o.	E-10	57-6 20-2	White-Orange Blue	Completes lock-in circuit to this relay

CODE

N.C.-----NORMALLY CLOSED

N.O.-----NORMALLY OPEN

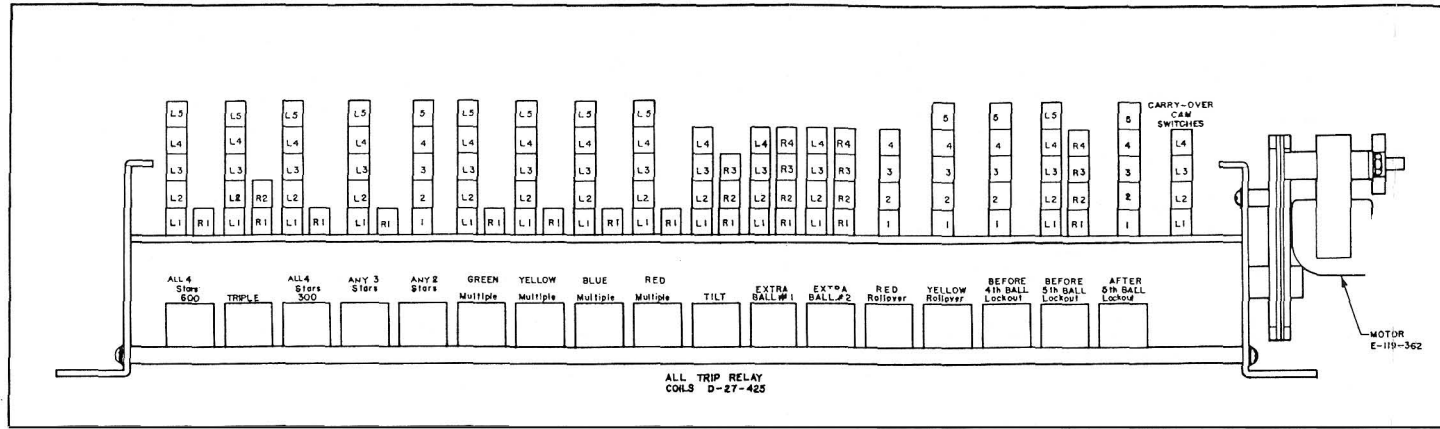
M.B.B.----MAKE BEFORE BREAK

S.P.D.T.---SINGLE POLE DOUBLE THROW

BACK DOOR TRIP RELAY ASSEMBLY

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
All 4 stars. 600 Relay Coil	B-24	48-11 52-11	Green-Black White-Blue	Energized thru control and spotting disc circuit during red or green button play
L1 N.c.	B-24	48-11 48-11	Green-Black Green-Black	Opens circuit to this relay coil
L2 S.P.D.T.	G-7	71-15 30 63-13	Orange-Red Yellow Brown-Yellow	Directs circuits to all 4 star 300 or 600 feature lite
L3 S.P.D.T.	C-29	10-16 85-13 23-17	Red Black-White Blue-Yellow	Directs all 4 star replay counter unit step-up circuit during 300 or 600 winner scoring
L4 N.o.	C-24	80-9 40-11	Black Green	Completes a circuit to all 4 stars 300 feature trip relay
L5 N.o.	A-24	52-11 70	White-Blue Orange	Same function as switch L4
R1 S.P.D.T.	E-29	98-18 81-20 83-13	Gray-Black Black-Red Black-Yellow	Directs all 4 stars 300 or 600 winner search and scoring circuit
Triple relay coil	A-67	36-7J 71-13	Yellow-Brown Orange-Red	Energized thru control circuit during red or blue button play
L1 N.c.	A-67	36-7 36-7J	Yellow-Brown Yellow-Brown	Opens circuit to this relay coil
L2 N.c.	C-58	27-11 23-11	Blue-Orange Blue-Yellow	Opens a mixer #3 disc control circuit to the multiple feature trip relays
L3 S.P.D.T.	A-32	78-2 50-16 74-13	Orange-Black White Orange-Green	Directs replay counter multiplier step-up circuit thru multiple unit disc
L4 S.P.D.T.	G-10	57-11 60-7	White-Orange Yellow Black	Directs lit color scores doubled or tripled lite circuit
L5 S.P.D.T.	C-59	95-11 25-17 75-8	Gray-White Blue-White Orange-White	Directs control circuits for yellow score unit single and extra steps
R1 N.c.	C-64	81-9 58-10	Black-Red White-Black	Opens control circuit for red score unit single and extra steps
R2 S.P.D.T.	C-62	13-11 15-19 90-4	Red-Yellow Red-White Gray	Directs control circuit for blue and green score unit single and extra steps
All 4 stars 300 relay coil	B-24	40-11J 52-11	Green White-Blue	Energized thru control and spotting disc circuit during red or green button play also energized thru all 4 stars 600 trip relay circuit
L1 N.c.	B-24	40-11 40-11J	Green Green	Opens circuit to this relay coil
L2 N.c.	D-20	18-2 36-19	Red-Black Yellow-Brown	Opens control circuit for extra ball unit steps
L3 N.c.	D-24	80-9 30	Black Yellow	Opens all 4 stars 600 relay circuit to this relay
L4 N.o.	G-7	61-19 71-15	Brown-Red Orange-Red	Completes circuit to all 4 stars 300 feature lite
L5 N.o.	E-29	81-20 23-8	Black-Red Blue-Yellow	Completes all 4 stars 300 and 600 winner search and scoring circuits
R1 N.c.	B-19	74-7 51-4	Orange-Green White-Red	Same function as switch L2
Any 3 stars relay coil	A-24	51-11J 70	White-Red Orange	Energized thru control and spotting disc circuit during red or green button play also energized thru any 2 stars trip relay circuits
L1 N.c.	A-24	51-11 51-11J	White-Red White-Red	Opens circuit to this relay coil
L2 N.c.	C-61	85-10 91-17	Black-White Gray-Red	Opens control circuit for red score unit single and extra steps
L3 N.c.	D-24	38-2 30	Yellow-Black Yellow	Opens any 2 stars trip relay circuit to this relay
L4 N.o.	G-7	50-8 58-3	White White-Black	Completes circuit to any 3 stars feature lite
L5 N.o.	E-35	74-11 98-16	Orange-Green Gray-Black	Completes any 3 and any 2 star winner search and scoring circuits
R1 N.c.	D-27	10-18 95-15	Red Gray-White	Opens control circuit to steering relay

BACK DOOR TRIP RELAY ASSEMBLY



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

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Any 2 stars relay coil	A-23	61-10, 70	Brown-Red Orange	Energized thru control and spotting disc circuit during red or green button play
1 N.c.	A-23	61-10, 61-10	Brown-Red Brown-Red	Opens circuit to this relay coil
2 N.c.	C-61	83-4, 85-10	Black-Yellow Black-White	Opens a control circuit for red score unit single and extra steps
3 S.P.D.T.	G-7	58-3, 30, 43-7	White-Black Yellow Green-Yellow	Directs circuit to any 3 stars or any 2 stars feature lite
4 S.P.D.T.	F-35	31-11, 74-11, 38-11	Yellow-Red Orange-Green Yellow-Brown	Directs any 3 stars or any 2 stars winner search and scoring circuits
5 N.o.	C-23	38-2, 51-11	Yellow-Black White-Red	Completes a circuit to any 3 stars feature trip relay
Green Multiple relay coil	A-58	45-11, 71-13	Green-White Orange-Red	Energized thru control circuit during red or blue button play, also energized thru red letter game winner circuit
L1 N.c.	A-58	45-11, 45-11	Green-White Green-White	Opens circuit to this relay coil
L2 N.c.	C-63	31-7, 13-11	Yellow-Red Red-Yellow	Opens a control circuit for blue and green score unit single and extra steps
L3 N.o.	A-16	23-4, 63-9	Blue-Yellow Brown-Yellow	Completes a control circuit to mixer #4 relay
L4 N.o.	G-20	27-14, 30	Blue-Orange Yellow	Completes circuit to green multiple feature lite
L5 N.o.	C-35	78-9, 65-9	Orange-Black Brown-White	Completes green double and triple winner circuit to step replay counter unit
R1 N.c.	F-60	15-11, 81-11	Red-White Black-Red	Opens a control circuit for yellow, red, blue and green score unit steps and yellow, red, blue multiple features

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Yellow multiple relay coil	A-58	38-17, 71-13	Yellow-Black Orange-Red	Energized thru control circuit during red or blue button play, also energized thru red letter game winner circuit
L1 N.c.	A-58	38-17, 38-17	Yellow-Black Yellow-Black	Opens circuit to this relay coil
L2 N.c.	C-60	95-11, 75-8	Gray-White Orange-White	Opens a control circuit for yellow score unit single & extra steps
L3 N.o.	B-17	23-4, 14-11	Blue-Yellow Red-Green	Completes a control circuit to mixer #4 relay
L4 N.o.	G-12	52-10, 30	White-Blue Yellow	Completes circuit to yellow multiple feature lite
L5 N.o.	C-31	78-9, 80-6	Orange-Black Black	Completes yellow double and triple winner circuit to step replay counter unit
R1 N.c.	F-53	60-16, 10-15	Brown Red	Opens a control circuit for yellow, red, blue and green score unit steps and red, blue green multiple features
Blue multiple relay coil	A-58	43-11, 71-13	Green-Yellow Orange-Red	Energized thru control circuit during red or blue button play also energized thru red letter game winner circuit
L1 N.c.	A-58	43-11, 43-11	Green-Yellow Green-Yellow	Opens circuit to this relay coil
L2 N.c.	C-63	90-4, 31-7	Gray Yellow-Red	Opens a control circuit for blue and green score unit single and extra steps
L3 N.o.	B-15	23-4, 58-2	Blue-Yellow White-Black	Completes a control circuit to mixer #4 relay
L4 N.o.	G-19	74-10, 30	Orange-Green Yellow	Completes circuit to blue multiple feature lite
L5 N.o.	D-33	78-9, 52-8	Orange-Black White-Blue	Completes blue double and triple winner circuit to step replay counter unit
R1 N.c.	F-60	14-7, 15-11	Red-Green Red-White	Opens a control circuit for yellow, red, blue and green score unit steps and red, yellow, green multiple features

BACK DOOR TRIP RELAY ASSEMBLY

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Red multiple relay coil	A-58	41-110 71-13	Green-Red Orange-Red	Energized thru control circuit during red or blue button play, also energized thru red letter game winner circuit
L1 N.c.	A-58	41-11 41-110	Green-Red Green-Red	Opens circuit to this relay coil
L2 N.c.	C-60	83-4 58-10	Black-Yellow White-Black	Opens a control circuit for red score unit single and extra steps
L3 N.o.	B-18	23-4 95-7	Blue-Yellow Gray-White	Completes a control circuit to mixer #4 relay
L4 N.o.	G-15	75-10 30	Orange-White Yellow	Completes circuit to red multiple feature lite
L5 N.o.	C-32	78-9 43-9	Orange-Black Green-Yellow	Completes red double and triple winner circuit to step replay counter unit
R1 N.c.	F-59	10-15 14-7	Red Red-Green	Opens a control circuit for yellow, red, blue and green score unit steps and yellow, blue, green score multiple features
Tilt relay coil	A-9	14-5 70	Red-Green Orange	Energized thru any tilt switch circuit, also by coin anti cheat circuit, ball lift anti cheat circuit and key switch circuit
L1 N.c.	G-12	40-8 20-13	Green Blue	Opens circuit to search wiper lock magnet, R-button relay and mystic lines unit motors
L2 N.c.	H-35	71-20 51-19	Orange-Red White-Red	Opens 21 volt game circuits
L3 S.P.D.T.	G-7	21-3 30 45-8	Blue-Red Yellow Green-White	Opens 50 volt game operating, feature, winner circuits and circuit to this relay coil, completes shutter motor tilt circuit
L4 S.P.D.T.	J-34	36-17 18-15 91-2	Yellow-Brown Red-Black Gray-Red	Opens 6 volt game circuits and completes circuit to tilt lite
R1 N.c.	F-1	60P. 30P.	Brown Plastic Yellow Plastic	Opens 115 volt circuit to control unit and mixer - spotting unit motors
R2 N.o.	E-10	57-6 85-7	White-Orange Black-White	Completes a circuit to red button relay
R3 N.o.	B-3	61-8 13-16	Brown-Red Red-Yellow	Completes safety circuit to energize start relay
Extra ball #1 relay coil	A-10	58-120 70	White-Black Orange	Energized by extra ball #2 trip relay switch circuit
L1 N.c.	C-20	91-6 85-4	Gray-Red Black-White	Opens control unit cam switch #58 circuit to anti cheat relay
L2 S.P.D.T.	F-20	85-4 30 95-20	Black-White Yellow Gray-White	In series with switch L1 circuit, also opens feature units, score units step up circuit, completes extra ball unit step-up circuit
L3 S.P.D.T.	E-21	90-11 58-6 45-2	Gray White-Brown Green-White	Opens score units step up circuit and multiple feature relays circuit, completes extra ball unit step up circuit
L4 N.o.	C-8	83-1 71-8	Black-Yellow Orange-Red	Completes a timer unit reset circuit
R1 N.c.	A-10	58-12 58-120	White-Black White-Black	Opens circuit to this relay coil
R2 N.c.	E-15	25-5 41-17	Blue-White Green-Red	Opens a control circuit to mixer #4 relay
R3 N.o.	H-33	51-14 23-6	White-Red Blue-Yellow	Completes circuit to extra balls play feature lite
R4 N.o.	F-4	50-2 80-11	White Black	Completes extra ball replay play circuit to start relay
Extra ball #2 relay coil	A-10	10-6J 70	Red Orange	Energized thru yellow play button circuit after 5th ball is shot
L1 N.c.	A-10	10-6 10-6J	Red Red	Opens circuit to this relay coil
L2 N.c.	C-9	20-2 85-7	Blue Black-Orange	Opens safety lock in circuit to red button relay
L3 S.P.D.T.	B-6	53-5 61 98-2	White-Yellow Brown-Red Gray-Black	Directs shutter motor or mixer latch and timer cams index coil circuits
L4 N.o.	B-10	91-1 38-3	Gray-Red Yellow-Black	Completes a circuit to ball lifter motor
R1 N.c.	H-7	31-16 81-6	Yellow-Red Black-Red	Opens spotting disc circuit to flash other game feature lites

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
R2 N.c.	E-22	83-9 50-5	Black-Yellow White	Opens control and spotting disc circuit for other game features
R3 S.P.D.T.	G-22	15-17 13-4 78-19	Red-White Red-Yellow Orange-Black	Directs spotting disc circuits to flash score lites or extra ball lites
R4 N.o.	A-10	21-3 58-12	Blue-Red White-Black	Completes circuit to extra ball #1 trip relay coil
Red rollover relay coil	A-37	25-13 70	Blue-White Orange	Energized by circuits from selection feature disc, direct or thru red panel rollover button
1 N.c.	A-37	25-13 25-13	Blue-White Blue-White	Opens circuit to this relay coil
2 S.P.D.T.	H-4	51-12 90 52-13	White-Red Gray White-Blue	Directs circuit to flash mystic lines press buttons now lite before 4th, 5th, or after 5th balls
3 S.P.D.T.	G-5	31-8 10-11 53-12	Yellow-Red Red White-Yellow	Directs circuit to lite select before 4th, 5th, or after 5th ball selection feature lites
4 N.o.	F-13	93-3 21-12	Gray-Yellow Blue-Red	Completes circuit to mystic lines feature buttons to move lines until 1st extra ball is shot.
Yellow rollover relay coil	A-36	38-13 70	Yellow-Black Orange	Energized by circuits from selection feature disc, direct or thru yellow panel rollover button
1 N.c.	A-36	38-13 38-13	Yellow-Black Yellow-Black	Opens circuit to this relay coil
2 N.c.	F-59	60-16 90-11	Brown Gray	Opens a control circuit for yellow, red, blue and green score unit steps, multiple feature relays and triple feature relay
3 S.P.D.T.	H-4	75-18 51-12 23-5	Orange-White White-Red Blue-Yellow	Directs circuit to flash mystic lines press buttons now lite before 4th or 5th ball
4 S.P.D.T.	H-5	57-5 31-8 74-8	White-Orange Yellow-Red Orange-Green	Directs circuit to lite select before 4th or 5th ball selection feature lites
5 N.o.	F-12	93-3 98-3	Gray-Yellow Gray-Black	Completes circuit to mystic lines feature buttons to move lines until 5th ball is shot
Before 4th ball Lockout relay coil	A-12	83-6J 70	Black-Yellow Orange	Energized thru timer disc ball count when 5th ball is shot
1 N.c.	A-12	83-6 83-6J	Black-Yellow Black-Yellow	Opens circuit to this relay coil
2 N.c.	H-4	27-4 75-18	Blue-Orange Orange-White	Opens before 4th ball mystic lines flash circuit to press buttons now lite
3 S.P.D.T.	E-12	98-3 93-3 53-18	Gray-Black Gray-Yellow White-Yellow	Opens a circuit to move mystic lines and completes "R" button circuit to search for winners
4 N.o.	F-8	36-2 43-2	Yellow-Brown Green-Yellow	Completes 4th to 5th step timer unit step up circuit
5 N.o.	F-30	15-5 40-5	Red-White Green	Completes winner search and scoring circuit for all regular game winners
Before 5th ball lockout relay coil	A-12	74-6J 70	Orange-Green Orange	Energized thru timer disc ball count circuit when 5th ball is shot
L1 N.c.	H-6	52-12 56-12	White-Blue White-Brown	Opens circuit to yellow panel rollover lite
L2 N.c.	C-36	13-12 38-13	Red-Yellow Yellow-Black	Opens circuit to yellow rollover trip relay
L3 N.c.	E-12	98-3 21-12	Gray-Black Blue-Red	Opens a circuit to move mystic lines
L4 N.o.	E-9	54-11 71-8	White-Green Orange-Red	Completes "R" button relay circuit to reset timer unit
L5 N.o.	C-7	78-6 27-2	Orange-Black Blue-Orange	Completes 5th thru 8th step timer unit step up circuit
R1 N.c.	A-12	74-6 74-6J	Orange-Green Orange-Green	Opens circuit to this relay coil
R2 S.P.D.T.	J-4	14-18 40-12 53-2	Red-Green Green-Black White-Yellow	Directs circuit to flash mystic lines press buttons now lite before 4th and before 5th ball or after 5th ball
R3 N.o.	B-10	23-18 25-8	Blue-Yellow Blue-White	Completes yellow button play circuit to extra ball #2 trip relay
R4 N.o.	E-4	80-11 18-6	Black Red-Black	Completes extra ball replay play circuit to start relay

BACK DOOR TRIP RELAY ASSEMBLY

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
After 5th ball lockout relay coil	A-12	98-11J 70	Gray-Black Orange	Energized thru ball count circuit when 1st extra ball is shot
1 N.c.	A-12	98-11 98-11J	Gray-Black Gray-Black	Opens circuit to this relay coil
2 N.c.	E-12	21-12 14-4	Blue-Red Red-Green	Opens circuit to move mystic-lines
3 N.c.	B-37	15-12 25-13	Red-White Blue-White	Opens circuit to red rollover trip relay
4 N.c.	H-5	53-2 52-13	White-Yellow White-Blue	Opens mystic lines circuit to flash press buttons now lite
5 N.c.	H-6	41-8 60-12	Green-Red Brown	Opens circuit to red panel rollover lite
Carry-over cam 1 N.o.	B-9	30 90-20	Yellow Gray	Completes trip bank motor carry over circuit
Carry-over cam 2 N.c.	E-35	98-16 60-1	Gray-Black Brown	Opens red letter game search-winner circuit
Carry-over cam 3 N.c.	H-23	74-9 78-19	Orange-Green Orange-Black	Opens spotting disc extra ball lite flash circuit
Carry-over cam 4 N.c.	C-19	95-20 61-2	Gray-White Brown-Red	Opens extra ball guaranteed step circuit

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

FRONT CABINET RELAY BANK (3)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Ball lift relay coil	A-57	51-17 70	White-Red Orange	Energized by circuits thru diamond feature components, also by ball return hole circuit, and controls the lifting of all balls to shooter
1 N.o.	C-57	52-4 51-17	White-Blue White-Red	Completes lock-in circuit to this relay
2 N.o.	D-11	80-15 58-13	Black White-Black	Completes ball count circuit to ball lifter motor
3 N.o.	F-12	93-3 20-13	Gray-Yellow Blue	Completes a circuit to mystic lines buttons and "R" button
4 N.o.	B-10	23-18 10-6	Blue-Yellow Red	Completes extra ball play circuit to extra ball trip relays
Ball detector relay coil	A-11	41-4 70	Green-Red Orange	Energized thru ball count circuit, then de-energized following ball lift cycle
1 N.o.	E-11	41-4 80-15	Green-Red Black	Completes all circuits to ball lifter motor
2 N.o.	F-11	51-3 41-4	White-Red Green-Red	Completes lock-in circuit to this relay
3 N.c.	F-10	21-3 93-17	Blue-Red Gray-Yellow	Completes a circuit to tilt relay when ball lifter motor cycles while this relay not energized
"R" button relay coil	A-12	52-9 70	White-Blue Orange	Energized thru before 4th ball lockout relay circuit by "R" button switch, or thru 5 ball diamond feature win circuit
1 N.o.	F-9	21-3 54-11	Blue-Red White-Green	Completes a circuit to reset timer unit thru before 5th ball lockout relay
2 N.o.	D-35	60-1 57-1	Brown White-Orange	Completes any 3 and any 2 star zone feature winner search and scoring circuit

MISCELLANEOUS RELAYS

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
"B" cam relay coil	A-13	80-20 70	Black Orange	Energized thru mystic lines feature disc circuit by "B" button switch
1 N.c.	C-14	25-6 30-20	Blue-White Yellow	Opens mystic lines feature disc "C" button circuit
2 N.c.	C-13	40-13 45-5	Green Green-White	Opens mystic lines feature disc "A" button circuit.
3 N.c.	J-40	18-4 54-7	Red-Black White-Green	Opens circuit to search relays
"C" cam relay coil	A-14	30-20 70	Yellow Orange	Energized thru mystic lines feature disc circuit by "C" button switch
1 N.c.	B-13	13-5 40-13	Red-Yellow Green	Opens mystic lines feature disc "A" button circuit
2 N.c.	J-41	54-7 50-14	White-Green White	Opens circuit to search relays
3 N.c.	C-13	80-20 48-5	Black Green-Black	Opens mystic lines feature disc "B" button circuit.
Lifter start relay coil	A-37	38-8 70	Yellow-Black Orange	Energized thru ball runway switch circuit when each ball is lifted to shooter, de-energized when each ball enters playfield
L1 N.o.	F-12	20-13 93-3	Blue Gray-Yellow	Completes mystic lines feature button circuits to move lines and "R" button circuit for regular game winner search
L2 S.P.D.T.	D-12	14-17 61-7 53-18	Red-Green Brown-Red White-Yellow	Directs 5 ball diamond winner search circuit or 2,3,4, ball diamond winner search circuit, thru "R" button.
R1 N.o.	D-37	36 38-8	Yellow-Brown Yellow-Black	Completes lock in circuit to this relay
R2 N.c.	E-11	10-13 15-6	Red Red-White	Opens ball count circuit to the lockout relays while relay is energized
R3 N.c.	D-11	58-13 31-3	White-Black Yellow-Red	Opens ball count circuit to ball lifter motor while relay is energized
R4 N.c.	E-8	56-9 18-3	White-Brown Red-Black	Opens timer disc circuit to shutter motor while relay is energized

BALL LIFTER MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.c.	D-12	15-6 85-6	Red-White Black-White	Opens ball count circuit to the selection lockout trip relays
1B N.o.	C-11	91-1 30	Gray-Red Yellow	Completes carry over circuit to motor
1C N.c.	D-6	57-7 53-5	White-Orange White-Yellow	In series with shutter motor circuits from timer unit, anti-cheat and tilt relays
1D N.o.	F-11	21-3 51-3	Blue-Red White-Red	Completes lock in circuit to ball detector relay
2A N.o.	E-7	43-2 27-2	Green-Yellow Blue-Orange	Completes 0 thru 5th step timer unit step up circuit
2B N.o.	E-9	93-17 14-5	Gray-Yellow Red-Green	Completes ball detector relay circuit to tilt trip relay
2C N.c.	D-57	21-3 52-4	Blue-Red White-Blue	Opens lock in circuit to ball lift relay
Pin Sw. 3A N.c.	G-4	48-2 95-3	Green-Black Gray-White	In series with start relay circuits

SHUTTER MOTOR UNIT

Note:

Normal position of shutter is closed

RELAY SWITCH OR CAM SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.c.	G-17	90-3 21-3	Gray Blue-Red	In series with red letter game winner circuit to advance scores and features
1B N.o.	E-6	53-5 30	White-Yellow Yellow	Completes shutter motor carry over circuit
1C N.c.	G-3	95-3 98-19	Gray-White Gray-Black	In series with start relay circuits
1D M.B.B.	G-30	21-3 93-15 63-8	Blue-Red Gray-Yellow Brown-Yellow	Starts lock in circuit to red letter win relays and opens winner search and scoring circuit
1XA N.c.	F-8	21-3 65-2	Blue-Red Brown-White	In series with circuits to step timer unit after 5th ball, energize ball lift relay and reset timer unit during extra ball play
1XB N.c.	H-35	20-4 54-17	Blue White-Green	In series with 21 volt circuit
2A N.c.	D-11	31-3 36-3	Yellow-Red Yellow-Brown	In series with ball lifter motor circuit
2B N.c.	F-27	41-20 30	Green-Red Yellow	In series with steering relay lock in circuit
3A N.o.	B-68	85-5 30	Black-White Yellow	Completes reset circuit for diamond replay counter, selection feature, red, blue, green, yellow replay counter and red score units
3B N.o.	B-8	90-20 30	Gray Yellow	Completes circuit to trip bank reset motor
4A N.o.	D-6	57-7 18-3	White-Orange Red-Black	In series with tilt and A.C. drop out circuits to shutter motor
4B N.o.	F-6	45-8 18-3	Green-White Red-Black	Same function as switch 4A
4C N.o.	G-36	63-8 21-3	Brown-Yellow Blue-Red	Completes red letter win relays lock in circuit
5A S.P.D.T.	C-6	61 10-10 51-15	Brown-Red Red White-Red	Directs start relay circuit to shutter motor or mixer latch and timer cams index coils
5B N.o.	F-37	31-4 90-9	Yellow-Red Gray	In series with lifter start relay lock in circuit
5C N.o.	D-22	85-12 50-5	Black-White White	In series with feature unit advance and feature trip relay circuits
5D N.o.	B-30	41-5 80-16	Green-Red Black	In series with 4 star replay counter and multiple unit homing circuits
5XA N.c.	G-12	40-8 21-3	Green Blue-Red	In series with ball count circuit to selection lockout relays, mystic lines movement circuit and rollover feature circuit
5XB N.c.	E-11	40-8 10-13	Green Red	In series with ball count circuit to selection lockout relays
6A N.o.	D-8	71-8 30	Orange-Red Yellow	Completes timer unit reset circuit
6B N.o.	D-68	78-3 30	Orange-Black Yellow	Completes reset circuit for twin no. feature, diamond feature, diamond score, extra ball feature, red letter feature, mystic lines feature, blue & green score & yellow score units
6C N.o.	B-8	90-20 30	Gray Yellow	Same function as switch 3B
6XA N.c.	A-10	91-15 70	Gray-Red Orange	(Under cam #6) In series with red button relay circuit
Panel shutter switches				Note: switches listed below are mounted on bottom of panel and are operated when panel shutter opens and closes
A C.W.O.	E-14	44-3 44-4 84-11 57-14	Blue-Red Blue-Orange Black-Yellow White-Orange	In series with A-B-C mystic lines motor unit homing circuit
B O.W.O.	B-7	91-11 53-5	Gray-Red White-Yellow	In series with red letter win relay circuit to shutter motor
C O.W.O.	C-36	56-4 71-14	White-Brown Orange-Red	In series with winner circuit to red letter win relays
D C.W.O.	G-38	21-3 75-13	Blue-Red Orange-White	In series with green, blue, white button circuits for feature play, score play, and diamond feature score play
E C.W.O.	F-17	90-3 25-18	Gray Blue-White	In series with red letter game winner circuit to advance scores and features
F C.W.O.	B-6	45-18 51-15	Green-White White-Red	In series with start relay circuit to mixer latch and timer cams index coils
G O.W.O.	F-29	93-15 15-5	Gray-Yellow Red-White	In series with all winner search and scoring circuits

DIAMOND FEATURE RELAY BANK (6)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1 step relay coil	A-47	56-3 70	White-Brown Orange	Energized by 1 pulse module relay switch, thru missed relay circuit
1 N.o.	B-47	53-3 56-3	White-Yellow White-Brown	Completes lock in circuit to this relay
2 N.o.	F-50	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse unit motor
3 N.o.	E-51	60-19 14-1	Brown Red-Green	Completes 1 step diamond feature unit advance circuit
4 N.o.	E-54	48-9 27-12	Green-Black Blue-Orange	Completes yellow holes diamond feature "miss" or "hit" circuits on 3rd, 4th, 5th balls
2 step relay coil	A-48	80-18 70	Black Orange	Energized by 2 pulse module relay switch, thru missed relay circuit
1 N.o.	B-47	53-3 80-18	White-Yellow Black	Completes lock in circuit to this relay
2 N.o.	E-50	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse motor
3 N.o.	D-52	60-19 18-13	Brown Red-Black	Completes 2 step diamond feature unit advance circuit
4 N.o.	F-54	48-9 40-10	Green-Black Green	Completes red holes diamond feature "hit" or "miss" circuits on 3rd, 4th, 5th balls
3 step relay coil	A-48	41-19 70	Green-Red Orange	Energized by 3 pulse module relay switch, thru missed relay circuit
1 N.o.	B-48	53-3 41-19	White-Yellow Green-Red	Completes lock in circuit to this relay
2 N.o.	F-50	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse unit motor
3 N.o.	E-52	60-19 23-19	Brown Blue-Yellow	Completes 3 step diamond feature unit advance circuit
4 N.o.	F-55	48-19 27-12	Green-Black Blue-Orange	Completes yellow holes diamond feature "miss" or "hit" circuits on 3rd, 4th, 5th balls
4 step relay coil	A-49	25-20 70	Blue-White Orange	Energized by 4 pulse module relay switch, thru missed relay circuit
1 N.o.	B-48	53-3 25-20	White-Yellow Blue-White	Completes lock in circuit to this relay
2 N.o.	E-50	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse unit motor
3 N.o.	D-52	60-19 74-20	Brown Orange-Green	Completes 4 step diamond feature unit advance circuit
4 N.o.	E-55	48-9 27-12	Green-Black Blue-orange	Completes yellow holes diamond feature "miss" or "hit" circuits on 3rd, 4th, 5th balls
5 step relay coil	A-49	91-16 70	Gray-Red Orange	Energized by 5 pulse module relay switch, thru missed relay circuit
1 N.o.	B-48	53-3 91-16	White-Yellow Gray-Red	Completes lock in circuit to this relay
2 N.o.	F-51	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse unit motor
3 N.o.	E-53	60-19 57-3	Brown White-Orange	Completes 5 step diamond feature unit advance circuit
4 N.o.	E-54	48-9 40-10	Green-Black Green	Completes red holes diamond feature "hit" or "miss" circuits on 3rd, 4th, 5th, balls
6 step relay coil	A-49	93-10 70	Gray-Yellow Orange	Energized by 5 pulse module relay switch, thru missed relay circuit
1 N.o.	B-49	53-3 93-10	White-Yellow Gray-Yellow	Completes lock in circuit to this relay
2 N.o.	E-51	83-7 31-20	Black-Yellow Yellow-Red	Completes a circuit to diamond pulse unit motor
3 N.o.	D-53	60-19 10-19	Brown Red	Completes 6 step diamond feature unit advance circuit
4 N.o.	F-54	48-9 40-10	Green-Black Green	Completes red holes diamond feature "hit" or "miss" circuits on 3rd, 4th, 5th balls

DIAMOND FEATURE RELAY BANK (5)

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES										
1st ball relay coil	A-47	20-15 70	Blue Orange	Energized by diamond pulse motor switch #5c circuit, when 1st ball played enters playfield hole.										
A N.o.	B-47	15-5 20-15	Red-White Blue	Completes lock in circuit to this relay										
B N.o.	D-46	13-17 45-17	Red-Yellow Green-White	Completes circuit to 2nd ball relay										
2nd ball relay coil	A-46	45-17 70	Green-White Orange	Energized by diamond pulse motor switch #3a, thru 1st ball relay circuit, when 2nd ball played enters playfield hole										
A N.o.	B-46	15-5 45-17	Red-White Green-White	Completes lock in circuit to this relay'										
B N.o.	F-55	15-5 40-16	Red-White Green	Completes diamond feature disc circuits to missed relay or 7 win relay										
Missed relay coil	A-55	81-12 70	Black-Red Orange	Energized thru diamond feature disc "miss" circuits on 2nd, 3rd, 4th, or 5th ball.										
L1 S.P.D.T.	G-32	25-14 60-11 50-17	Blue-White Brown White	Directs circuits to diamond feature "shoot for" and "score collected", or "missed" lites										
R1 N.o.	B-55	15-5 81-12	Red-White Black-Red	Completes lock in circuit to this relay										
R2 N.o.	F-57	21-3 51-17	Blue-Red White-Red	Completes a circuit to ball lift relay										
R3 N.c.	F-44	15-5 56-14	Red-White White-Brown	Opens diamond feature winner search and scoring circuit										
R4 N.c.	G-52	85-4 83-7	Black-White Black-Yellow	Opens circuit to all diamond feature components										
7 win relay coil	A-56	91-8 70	Gray-Red Orange	Energized thru diamond feature disc "hit" circuit on 2nd ball										
L1 N.o.	G-32	63-7 74-14	Brown-Yellow Orange-Green	Completes diamond feature win circuits to "collect" and "shoot for" lites										
L2 N.o.	E-12	95-10 61-7	Gray-White Brown-Red	Completes diamond feature win circuits to search wiper lock magnet and "R" button relay										
L3 S.P.D.T.	G-31	48-7 30 78-15	Green-Black Yellow Orange-Black	Directs circuits to diamond feature (1 to 12) number lites, or "super 7" and 3,4,5 ball "win" lites										
R1 N.o.	B-56	15-5 91-8	Red-White Gray-Red	Completes lock in circuit to this relay										
R2 N.o.	G-53	23-9 85-4	Blue-Yellow Black-White	Completes circuits to advance diamond feature unit, or energize missed relay on 3rd, 4th, 5th balls										
R3 N.c.	F-52	83-7 60-19	Black-Yellow Brown	Opens circuit to advance diamond feature unit on 1st and 2nd balls										
R4 N.c.	D-56	75-15 81-12	Orange-White Black-Red	Opens diamond feature 2 ball missed relay circuit										
Diamond reflex relay coil	A-40	41-10 70	Green-Red Orange	Energized thru diamond feature score control circuits										
1 N.o.	B-40	41-10 43-10	Green-Red Green-Yellow	Completes lock in circuit to this relay										
2 N.o.	E-41	85-4 51-7	Black-White White-Red	Completes score control circuits to advance diamond score unit										
<table border="1" style="margin: auto; padding: 10px;"> <tr> <th colspan="2" style="text-align: center;">CODE</th> </tr> <tr> <td style="text-align: center;">N.C.</td> <td style="text-align: center;">NORMALLY CLOSED</td> </tr> <tr> <td style="text-align: center;">N.O.</td> <td style="text-align: center;">NORMALLY OPEN</td> </tr> <tr> <td style="text-align: center;">M.B.B.</td> <td style="text-align: center;">MAKE BEFORE BREAK</td> </tr> <tr> <td style="text-align: center;">S.P.D.T.</td> <td style="text-align: center;">SINGLE POLE DOUBLE THROW</td> </tr> </table>					CODE		N.C.	NORMALLY CLOSED	N.O.	NORMALLY OPEN	M.B.B.	MAKE BEFORE BREAK	S.P.D.T.	SINGLE POLE DOUBLE THROW
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DIAMOND PULSING UNIT

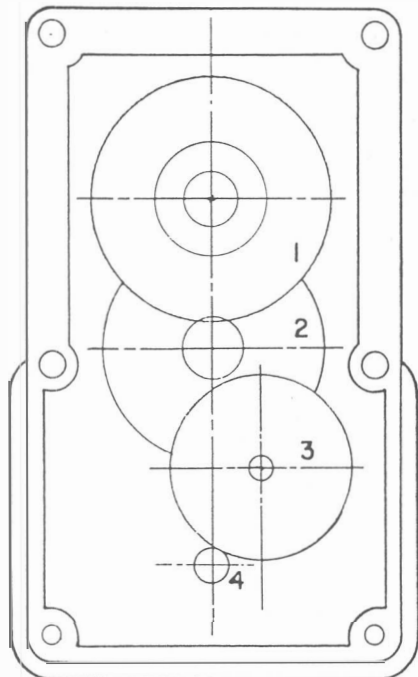
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A N.o.	F-51	21-3 31-20	Blue-Red Yellow-Red	Completes carry over circuit to motor
1 Pulse 2A N.o.	B-53	10-19 58-15	Red White-Black	Completes 1st and 2nd ball diamond feature unit step-up circuit, thru 6 step relay
1 Pulse 2B N.o.	C-51	14-1 58-15	Red-Green White-Black	Same function as switch 2A, thru 1 step relay
1 Pulse 2C N.o.	B-52	74-20 58-15	Orange-Green White-Black	Same function as switch 2A, thru 4 step relay
1 Pulse 2D N.o.	G-54	23-9 98-12	Blue-Yellow Gray-Black	Completes 3rd, 4th, 5th ball diamond feature unit step up circuit or miss relay circuit thru feature unit disc.
3A N.o.	E-46	15-5 13-17	Red-White Red-Yellow	Completes circuit to 2nd ball relay
2 Pulse 3B N.o.	B-52	18-13 58-15	Red-Black White-Black	Completes 1st and 2nd ball diamond feature unit step up circuit, thru 2 step relay
2 Pulse 3C N.o.	B-53	57-3 58-15	White-Orange White-Black	Same function as switch 3B, thru 5 step relay
2 Pulse 3D N.o.	C-53	10-19 58-15	Red White-Black	Same function as switch 3B, thru 6 step relay.
3 Pulse 4A N.o.	C-52	23-19 58-15	Blue-Yellow White-Black	Completes 1st & 2nd ball diamond feature unit step up circuit, thru 3 step relay
3 Pulse 4B N.o.	C-52	74-20 58-15	Orange-Green White-Black	Same function as switch 4A, thru 4 step relay
3 Pulse 4C N.o.	C-53	57-3 58-15	White-Orange White-Black	Same function as switch 4A, thru 5 step relay
3 Pulse 4D N.o.	B-53	10-19 58-15	Red White-Black	Same function as switch 4A, thru 6 step relay
5A N.o.	F-56	21-3 51-17	Blue-Red White-Red	Completes A circuit to ball lift relay
5B N.o.	F-56	40-16 52-14	Green White-Blue	Completes 2nd ball relay circuit to miss relay or 7 win relay, thru diamond feature unit disc.
5C N.o.	E-47	15-5 20-15	Red-White Blue	Completes circuit to 1st ball relay
5D N.c.	E-47	53-3 83-7	White-Yellow Black-Yellow	Completes lock in circuit for all the step relays

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

MOTOR PARTS GUIDE

CODE

- 1 GEAR & SHAFT ASSEMBLY. 4 GEAR ROTOR & SHAFT ASSEMBLY.
 2 GEAR. 5 STATOR & COIL ASSEMBLY.
 3 GEAR.



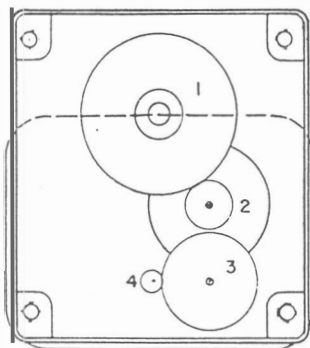
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Motor (E -119-359)

- Bearing & Bracket Assembly ———— ZBB-7553-20
 Gear Case Ass'y. (Minus Stator & Coil) — ZEGB-4020-1
 1 Output Gear & Shaft Ass'y. ———— ZEGS-4020-1
 2 Gear ———— G-6712-32
 3 Gear ———— GL-6312-21
 4 Gear-Rotor & Shaft Ass'y. ———— ZRS-4038-52-1 R.H.
 5 Stator & Coil Ass'y. ———— ZS-4018-26109

Misc Parts

- Fan ———— P-1036-1
 Oil Pad Retaining Plate ———— A-1417
 Oil Pad ———— P-4010
 Washer, Bottom (for ZEGS-4020-1) ——— W-2060-2
 Spacer (for ZEGS-4020-1) ———— B-1887
 Washer, Top (for ZEGS-4020-1) ——— W-2044
 Spacer (for G-6712-32) ———— V-1309-3
 Washers, Two (for G-6712-32) ——— W-2078
 Spacer (for GL-6312-21) ———— V-1309-1
 Washers, Two (for GL-6312-21) ——— W-2077



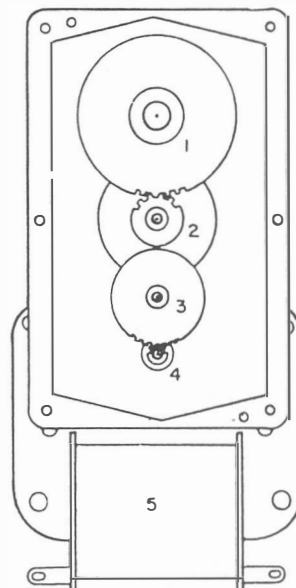
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MYSTIC LINE "A" MOTOR (E-119-352)

- 1 HGS-1726-1
 2 G-5818-1
 3 G-4109-1
 4 ZRST-1415-32-8
 5 ZS-1704-2521

MYSTIC LINES "B" & "C" MOTOR (E-119-353)

- 1 HGS-1744-1
 2 G-5318-1
 3 G-4114-1
 4 ZRST-1415-32-9
 5 ZS-1703-2522



SHUTTER MOTOR (E-119-338)

- 1 ZGS-1725-15
 2 G-5818-1
 3 C-4109-1
 4 ZRST-1715-30-1
 5 ZS-1708-2519

BALL LIFTER MOTOR (E-119-339)

- 1 ZGS-1745-12
 2 G-5318-1
 3 G-4114-1
 4 ZRST-1715-30-1
 5 ZS-1708-2519

MISCELLANEOUS PARTS

* When ordering part, specify full name of game, part name and type of coin(s) used.

Back Cabinet Assembly:

Part No.	Name of Part
G-292-34	Backglass
M-1424-13	Backglass (Plexiglass)
M-281-31	Lock & Keys (2 Keyed alike)
E-122-110	Transformer

Back Door Assembly:

M-281-25	Lock & Keys (3 keyed alike)
ASW-A1-16	Lock Switch
E-105-6	Resistor (8200 ohm ½ watt)
E-105-64	Resistor (100 ohm 2 watt)

Front Cabinet Assembly:

K-241	Ball Kit (8 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
A-2790-19	Coin Box
P-3089-30	Coin Box Cover
E-130-10	Counter (total play-replay-key play)
A-2618	Leg
M-106-1	Leg Bolt
M-163-4	Leg Adjuster
M-281-22	Lock & Keys (key play)
AS-2183-11	Push Button (Blue)
AS-2183-10	Push Button (Green)
E-138-3	Plumb Bob Tilt
G-213	Top Glass
E-108-57	Toggle Switch

Front Door Assembly:

	Coin Switch & Rejector Mount Assembly*
E-101-58	Coin Lockout Magnet Coil
E-108-02	Coin Switch
	Coin Guide Assembly*
	Coin Slide Assembly*
AS-2041-47	Front Door Assembly (Single Coin)
AS-2041-48	Front Door Assembly (Double Coin)
CA-567-165	Front Door Only
A-254-84	Hinge & Bracket Assembly
M-281-54	Lock & Keys
S-490-18	Push Button (Reject)
A-1729-15	Push Button (Yellow)
A-1729-16	Push Button (Red)
A-1729-18	Push Button (White)
	Slug Rejector*

Front Moulding Assembly:

AS-1305-54	Front Moulding Assembly
CA-1119-25	Front Moulding Only
A-1272-17	Button (A)
A-1272-18	Button (B)
A-1272-19	Button (C)
A-1272-29	Button (R)
	Coin Entry Plate*

Panel Assembly:

AS-1315	Ball Gate & Switch Assembly
AS-493-2	Ball Rebound Assembly
R-115-4	Ball Rebound Rubber (Only)
C-119-23	Bumper Post (Yellow)
C-119-21	Bumper Post (Red)
R-135	Rubber Ring (2 Yellow Posts)
R-243	Rubber Ring (Yellow Post)
R-243-2	Rubber Ring (Red Post)
M-170	Rebound Spring
C-326-9	Light Shield Post
C-387-1	Rollover Button (Red)
C-387-2	Rollover Button (Yellow)

Relay Coils:

C-7800-334	"Z"
C-7800-334	Cam #7
C-7800-331	Steering
C-7800-334	Diamond Play
C-7800-334	Red Letter #1
C-7800-334	Red Letter #2
C-7800-3310	Red Button
C-7800-331	Mixer Cam #2
C-7800-332	Mixer #2
C-7800-332	Mixer #4
C-7800-331	Play Features
C-7800-331	Features Lock
C-7800-331	Play Scores
C-7800-331	Scores Lock
C-7800-291	#5 Search
C-7800-291	#4 Search
C-7800-291	#3 Search
C-7800-291	#2 Search
C-7800-291	#1 Search
C-7800-331	Replay Reset
C-7800-334	Start
C-7800-334	25¢
C-7800-336	Anti Cheat
C-7800-331	1 Extra Step
C-7800-331	2 Extra Step
C-7800-331	Multiple Win #1
C-7800-334	Multiple Win #2
C-7800-331	Ball Lift
C-7800-3312	Ball Detector
C-7800-3312	"R" Button
C-7800-331	"B" Cam
C-7800-331	"C" Cam
C-7800-332	Lifter Start
C-7800-331	Cam #5
C-7800-332	BB Step
C-7800-331	1st Ball
C-7800-331	2nd Ball
C-7800-331	Missed
C-7800-331	Win
C-7800-3312	Diamond Reflex
C-7800-334	1 Step
C-7800-334	2 Step
C-7800-334	3 Step
C-7800-334	4 Step
C-7800-334	5 Step
C-7800-334	6 Step
C-7800-334	6 Step
CRL-1620P-1-10	2 Pulse
CRL-1620P-1-10	3 Pulse
CRL-1620P-1-10	4 Pulse
CRL-1620P-1-10	5 Pulse
CRL-1620P-1-10	6 Pulse
CRL-1620P-1-10	1 Pulse