

Bally[®]

SAFARI

OPERATING INSTRUCTIONS

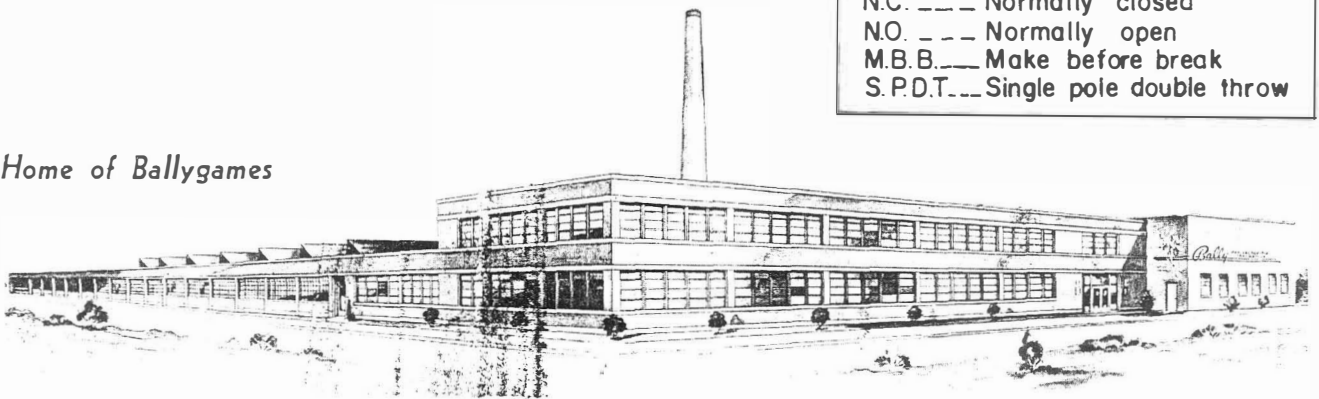
AND

PARTS CATALOG

FOR QUICKEST SERVICE
STATE CORRECT PART NUMBER
WHEN ORDERING PARTS

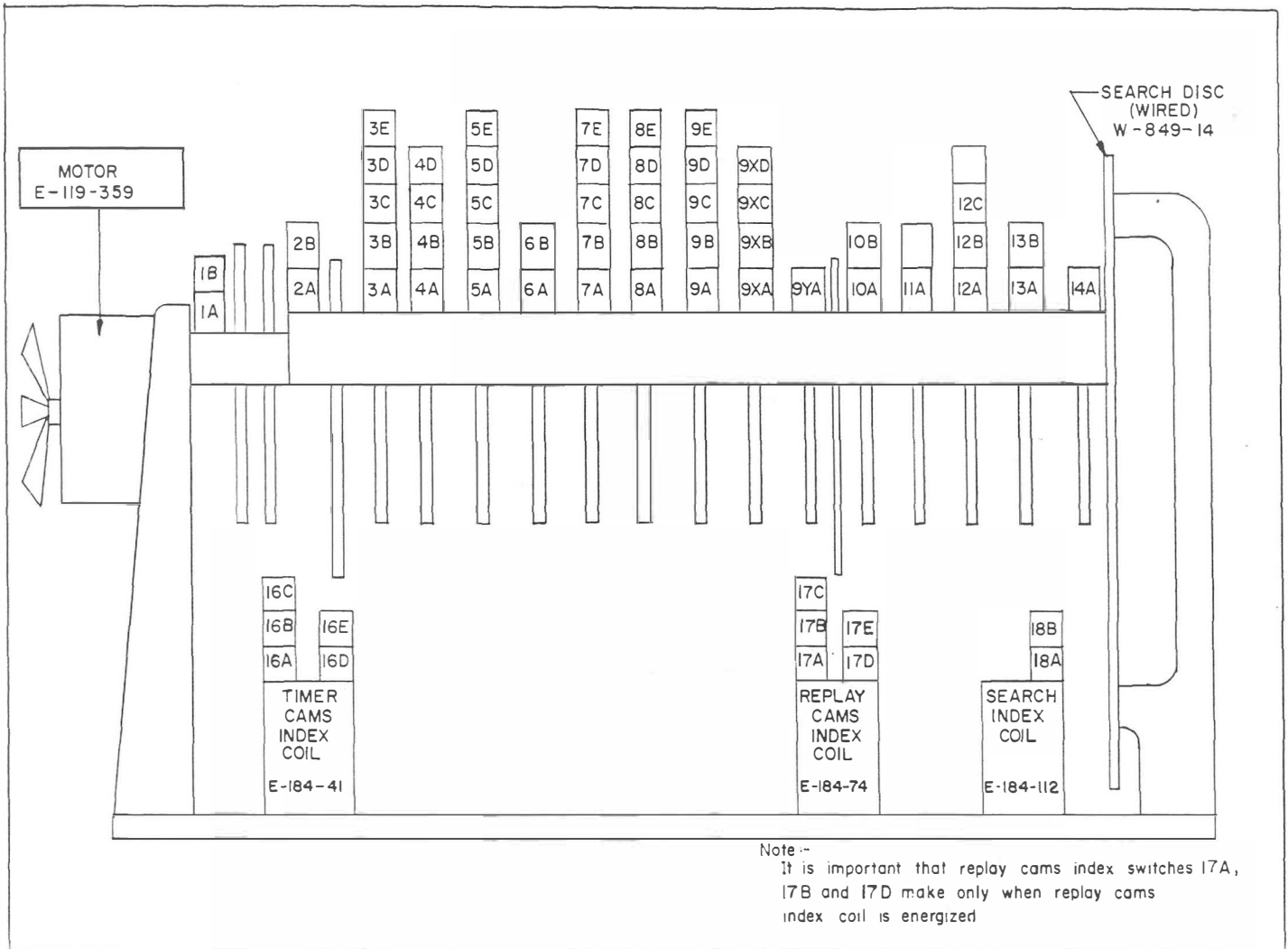
Code	
N.C. ___	Normally closed
N.O. ___	Normally open
M.B.B. ___	Make before break
S.P.D.T. ___	Single pole double throw

Home of Ballygames

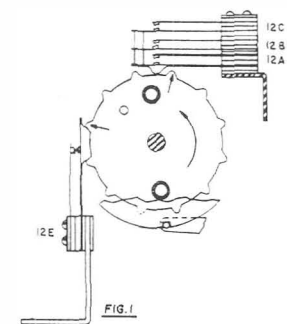




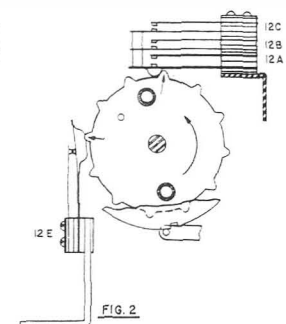
CONTROL MOTOR UNIT



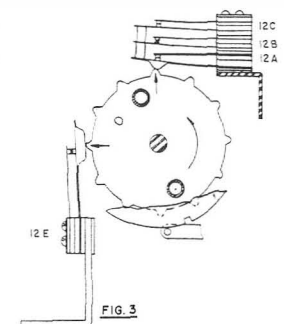
CORRECT ADJUSTMENT: CONTROL UNIT SWITCHES 12A, 12B, 12C & 12E NOTE: IMPORTANT PART OF ILLUSTRATION IS TO SHOW THAT SWITCH 12C CLOSURES FIRST AND OPENS LAST. IF AN ADJUSTMENT IS NECESSARY, SWITCH 12C CAN BE MOVED UP OR DOWN. LOOSEN SCREWS THAT HOLD SWITCH, THEN MOVE UP OR DOWN.



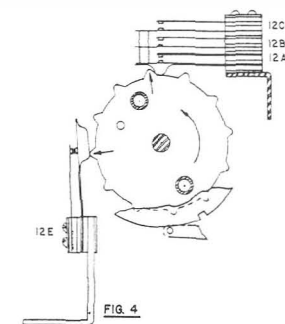
REPLAY CAMS SHOWN IN THEIR NORMAL INDEXED POSITION. SWITCHES 12A, 12B, 12C & 12E ARE OPEN AT THIS TIME.
NOTE:
ARROWS POINT TO LOBES THAT WILL ACTUATE SWITCHES.



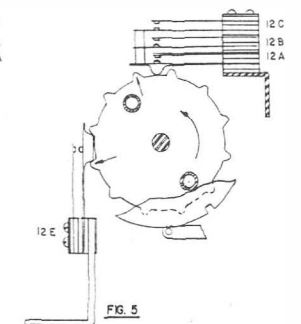
REPLAY CAMS SHOWN STARTING TO ROTATE. THEY ARE NOW OUT OF THEIR INDEX POSITION. SWITCHES 12A, 12B & 12C ARE STILL OPEN. SWITCH 12E IS NOW CLOSED



SWITCHES 12A, 12B & 12C ARE NOW CLOSED. SWITCH 12E IS STILL CLOSED.



SWITCHES 12A, 12B & 12C ARE NOW OPEN AGAIN. SWITCH 12E IS STILL CLOSED.



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

CONTROL MOTOR UNIT

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.	C-60	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.	B-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.	C-38	74-16 81-13 21-3	Orange-Green Black-Red Blue-Red	Directs pull-in and lock-in circuit to play features relay.
3E S.P.D.T.	C-39	61-16 43-18 21-3	Brown-Red Green-Yellow Blue-Red	Directs pull-in and lock-in circuit to up & down animal feature play relay.
4A N.O.	D-61	30 98-1	Yellow Gray-Black	Completes circuit to spotting cams index coil.
4B N.O.	C-5	27-9 80-2	Blue-Orange Black	When 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.	E-4	10-5 13-9 14-5	Red 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.	C-38	21-3 40-15	Blue-Red Green	Opens lock-in circuit to features lock relay and scores lock relay.
6A N.C.	E-20	51-5 45-2	White-Red Green-White	Opens extra ball unit step-up circuit.
6B N.C.	C-22	40-4 18-16	Green Red-Black	Opens entire feature circuit.

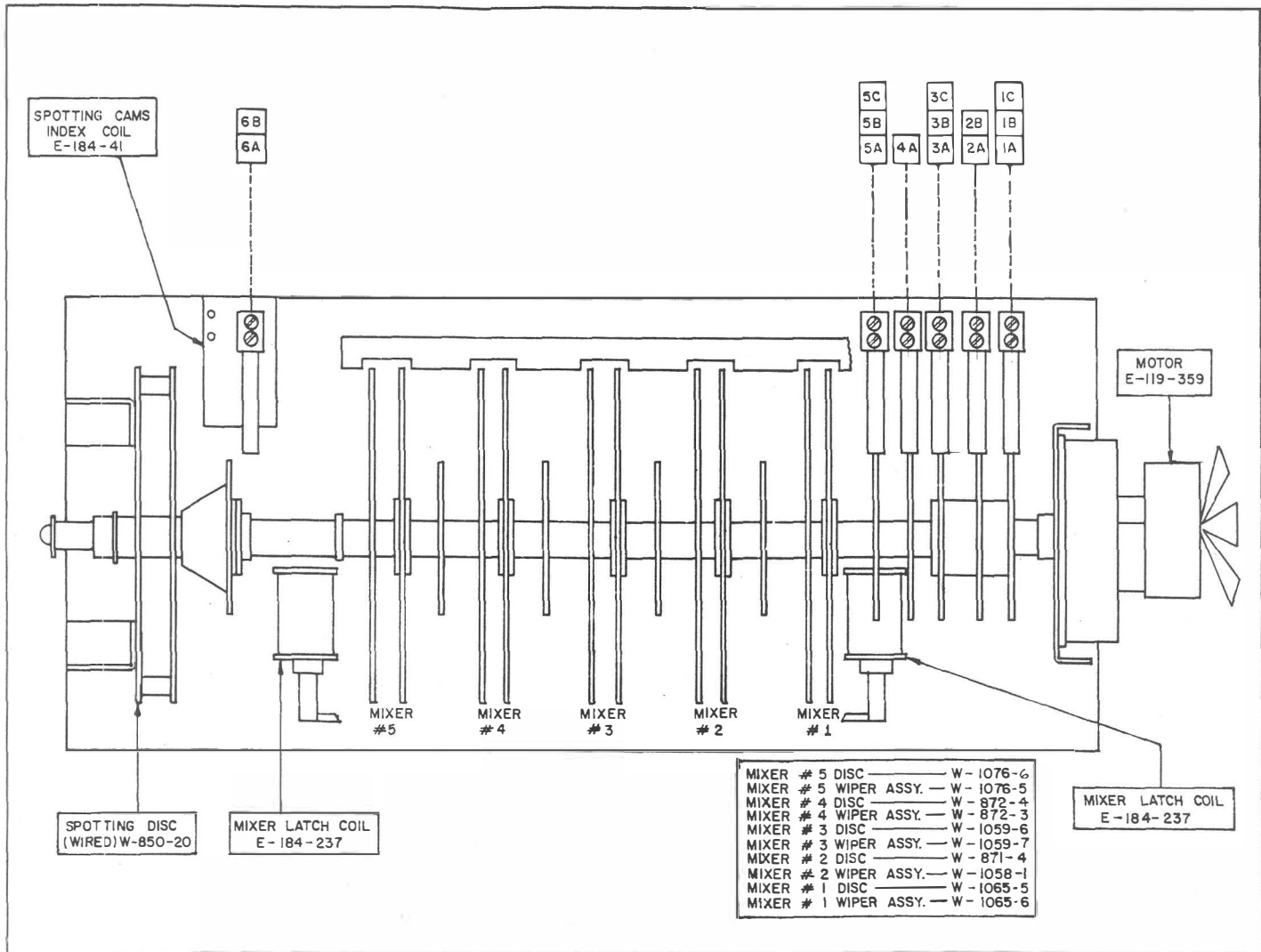
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
7A N.O.	C-51	54-12 10-17	White-Green Red	Completes circuit for yellow, red, blue and green score unit single steps.
7B N.O.	F-53	81-11 63-4	Black-Red Brown-Yellow	Completes circuit for yellow, red, blue and green score unit single steps and multiple feature trip relays.
7C N.O.	C-41	45-15 31-21	Green-White Yellow-Red	Completes circuit for up & down animal feature 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-3	30 90-5	Yellow Gray	Completes regular or up & down reflex unit play circuit, replay register unit play reset circuit, cam #7 relay circuit and total play meter circuit.
7YA N.O.	E-51	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-51	51-6 60-18	White-Red Brown	(Not shown in pictorial view) Same function as switch 7YA.
8A N.O.	A-20	27-20 25-4	Blue-Orange Blue-White	Same function as switch 5A.
8B N.O.	E-51	51-6 13-13	White-Red Red-Yellow	Completes circuit for yellow, red, blue and green blue button play score unit single steps and 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.
8E N.O.	C-51	54-12 20-6	White-Green Blue	Same function as switch 7A.
8XA N.O.	B-14	21-3 18-9	Blue-Red Red-Black	(Not shown in pictorial view) Completes circuit to mixer cam #2 relay.
8ZA N.O.	E-51	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-25	52-11 20-11	White-Blue Blue	Alternates circuit for 4 stars 600 and 4 stars 300 feature trip relays.
9C N.O.	B-24	31-14 50-11	Yellow-Red White	Alternates circuit for any 2 stars feature trip relay.
9D N.O.	B-51	27-11 23-11G	Blue-Orange Blue-Yellow	Alternates circuit for yellow, red, blue and green multiple feature trip relays.
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-53	83-4 81-9	Black-Yellow Black-Red	Alternates circuit for red score unit steps.
9XB N.O.	E-43	13-15 91-5	Red-Yellow Gray-Red	Alternates circuit for up and down animal feature score unit steps.
9XC N.O.	E-22	85-12 40-4	Black-White Green	Alternates circuit for all regular game features.
9XD N.O.	A-60	15-16 45-16	Red-Black Green-White	Alternates circuit to 2 extra step relay.
9YA N.O.	D-28	21-3 36-13	Blue-Red Yellow-Brown	Completes 25¢ relay circuit to step replay register unit.

CONTROL MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
10A	N.O.	B-32	63 90-1 27-17	Brown-Yellow Gray Blue-Orange	Completes winner circuits to step yellow, red, blue, green and up and down animal replay counter units at a 1 to 12 ratio with replay register unit step-up.
10B	N.O.	B-29	23-17	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.
11B	N.O.				Not used - Extra switch
12A	N.O.	B-31	45 90-1	Green-Black 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.	B-45	95-1 83-21	Gray-White Black-Yellow	Completes up and down animal winner circuit to step up and down reflex unit replay coil.
12D	N.O.		27-17	Blue-Orange	Not used in circuit.
12E	N.O.	E-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 and releases search wipers for winner search.
15A	N.C.	D-13	14-4 57-12	Red-Green White-Orange	Opens circuit to mystic-lines buttons.
15B	N.C.	B-4	53-13 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.
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	20P 60P	Blue Plastic Brown Plastic	Completes circuit to control unit and mixer-spotting unit motors.
16B	N.C.	G-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-60	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.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES	
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 play.
B	N.C.	B-15	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 up and down 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-60	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.	D-29	23-13 80	Blue-Yellow Black	Completes winner search index lock-in circuit.
17B	N.O.	E-31	31-11 74	Yellow-Red Orange-Green	Comp 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-29	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.

MIXER AND SPOTTING MOTOR UNIT



MIXER AND SPOTTING MOTOR UNIT

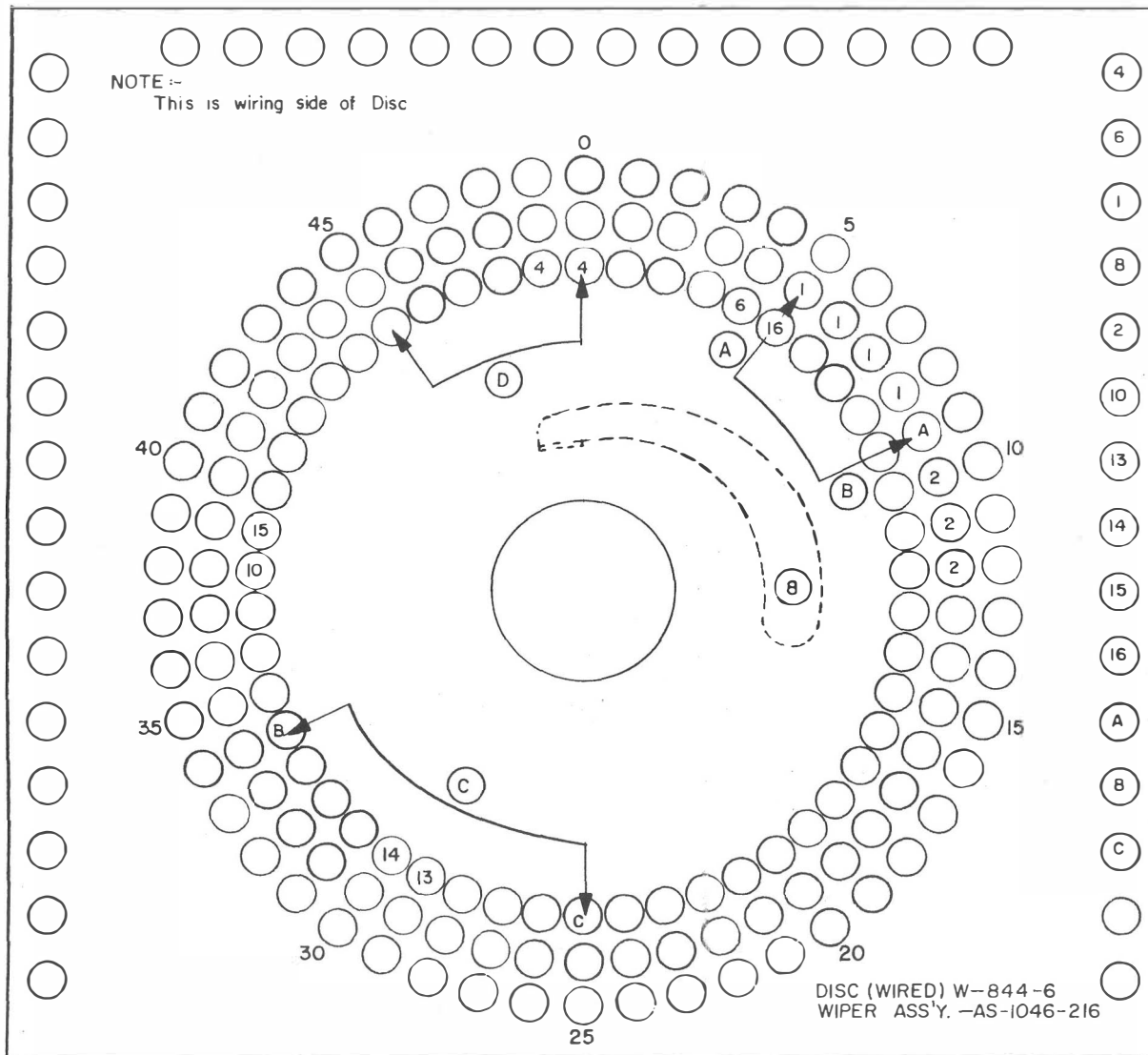
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
16 pulse cam 1A N.O.	C-22	95-9 45-6	Gray-White Green-White	Completes regular game feature units multiple step and feature trip relay circuits.
16 pulse cam 1B N.O.	G-4	90 10-11	Gray Red	Completes mystic lines feature circuit to "Press buttons now" lite.
16 pulse cam 1C N.O.	D-18	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.
Mixer cam 2A N.O.	A-14	18-19 93-11	Red-Black Gray-Yellow	Completes lock-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 up and down reflex relay.

MIXER AND SPOTTING MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Mixer cam 3A N.O.	E-52	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-51	60-16 90-11	Brown Gray	Same function as switch 3A.
Mixer roving cam 3C 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.
Mixer roving cam 4A 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.
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.	C-30	30 41-5	Yellow Green-Red	Completes homing circuit for 4 star replay counter, multiple unit and up and down animal feature units.
BB step Relay coil	A-56	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-56	36-16 83-17	Yellow-Brown Black-Yellow	Completes lock-in circuit to this relay.
B N.O.	E-51	53-15 13-13	White-Yellow Red-Yellow	Completes circuit for yellow, red, blue, green score steps and multiple feature trip relays.
Spotting cams index coil	D-61	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 animal 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.

TIMER UNIT DISC viewed from WIRING side

8 step unit. Wipers shown in zero or reset position



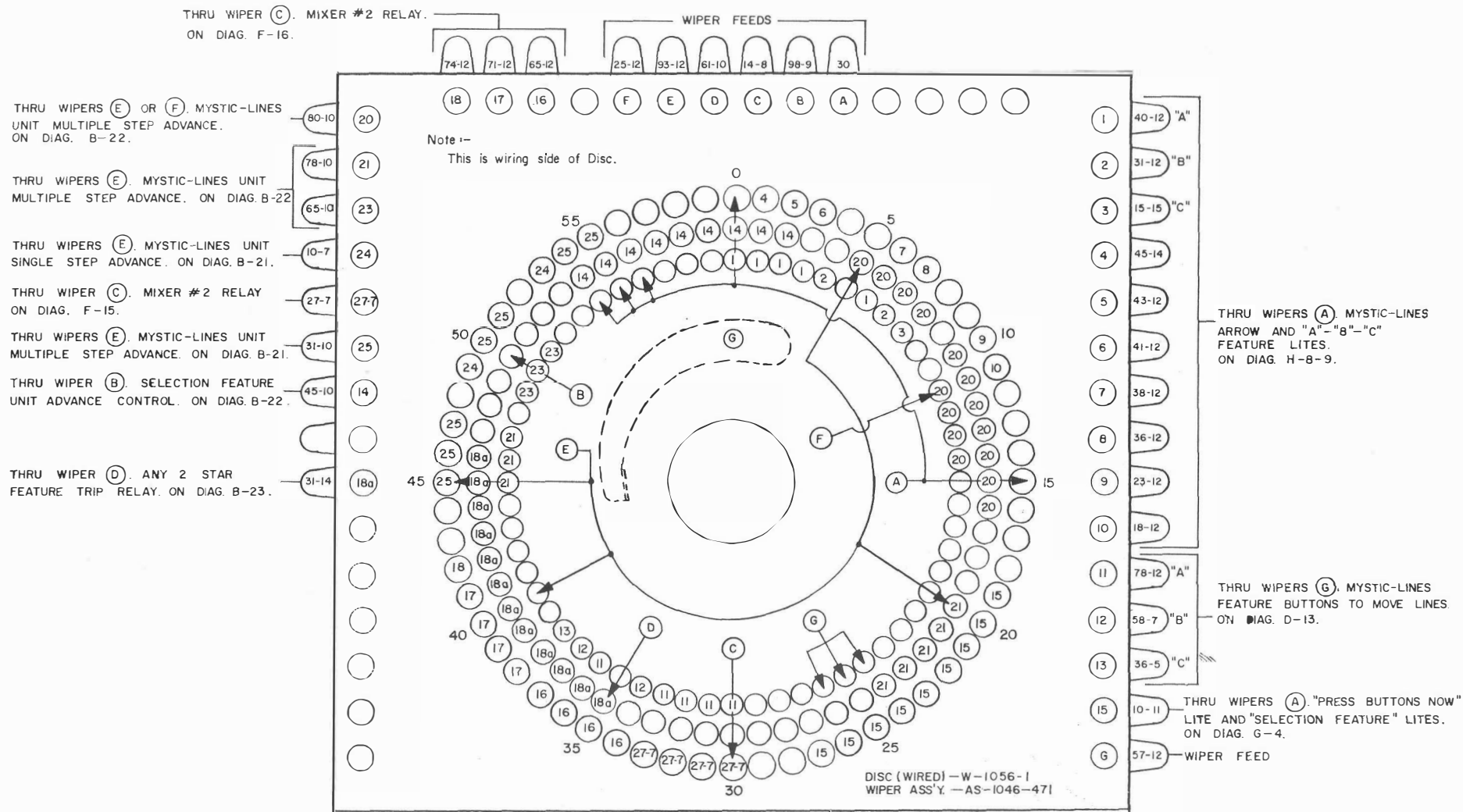
- 4 14-18 — WIPERS (D) FEED.
- 6 27-4 — THRU WIPERS (D). "PRESS BUTTONS NOW LITE" BEFORE 4th BALL. ON DIAG. H-4.
- 1 43-2 — THRU WIPER (A). TIMER UNIT ADVANCE — 0 THRU 4th STEPS. ON DIAG. F-7.
- B 21-3 — WIPER (A) AND (B) FEED.
- 2 56-9 — THRU WIPER (B). SHUTTER MOTOR — CLOSE SHUTTER. ON DIAG. F-8.
-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



COMPLETE UNIT	AS-1110-41
RATCHET & SHAFT	C-1050-8-43
RESET COIL	CO-28-R-15
RESET PLUNGER	S-496-101
STEP-UP COIL	CO-25-GG-7
STEP-UP PLUNGER	S-496-100
STEP-UP ARM ASS'Y.	A-1765-4

MYSTIC LINES FEATURE UNIT DISC viewed from WIRING side

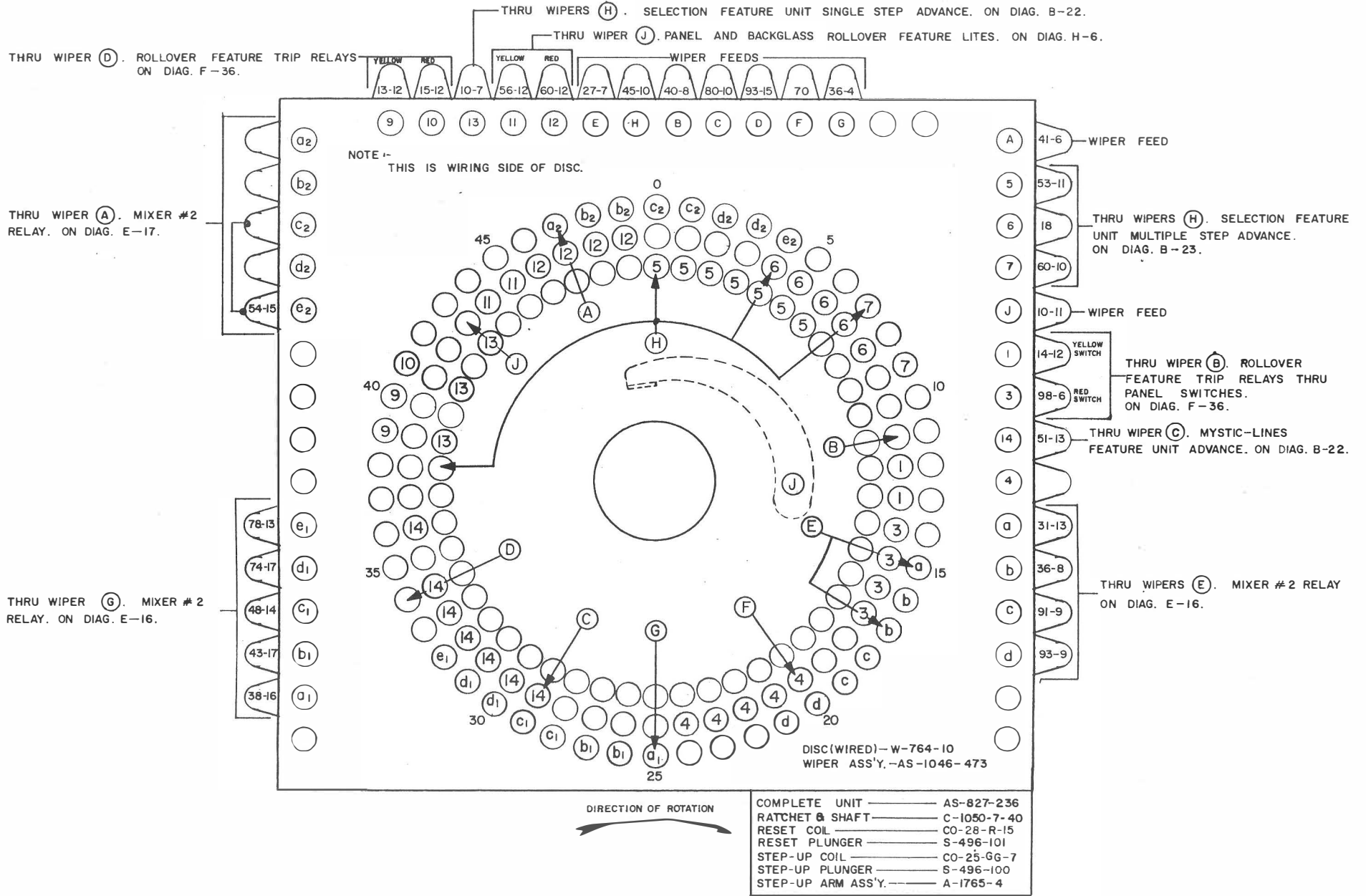
12 step unit. Wipers shown in zero or reset position



COMPLETE UNIT	AS-827-237
RATCHET & SHAFT	C-1060-12-49
RESET COIL	CO-28-R-15
RESET PLUNGER	S-496-101
STEP-UP COIL	CO-25-GG-7
STEP-UP PLUNGER	S-496-162
STEP-UP ARM ASS'Y.	A-1765-13

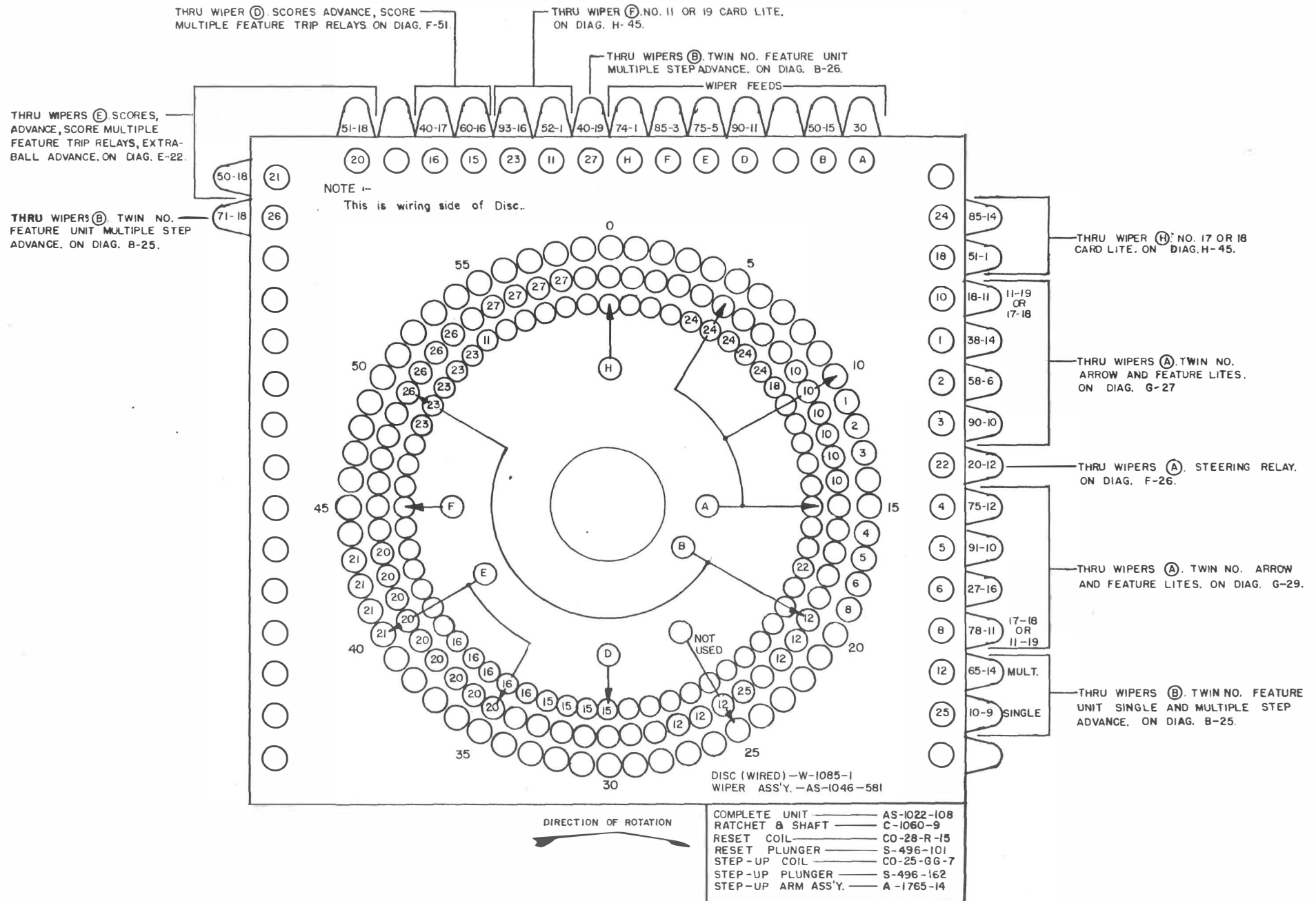
SELECTION FEATURE UNIT DISC viewed from WIRING side

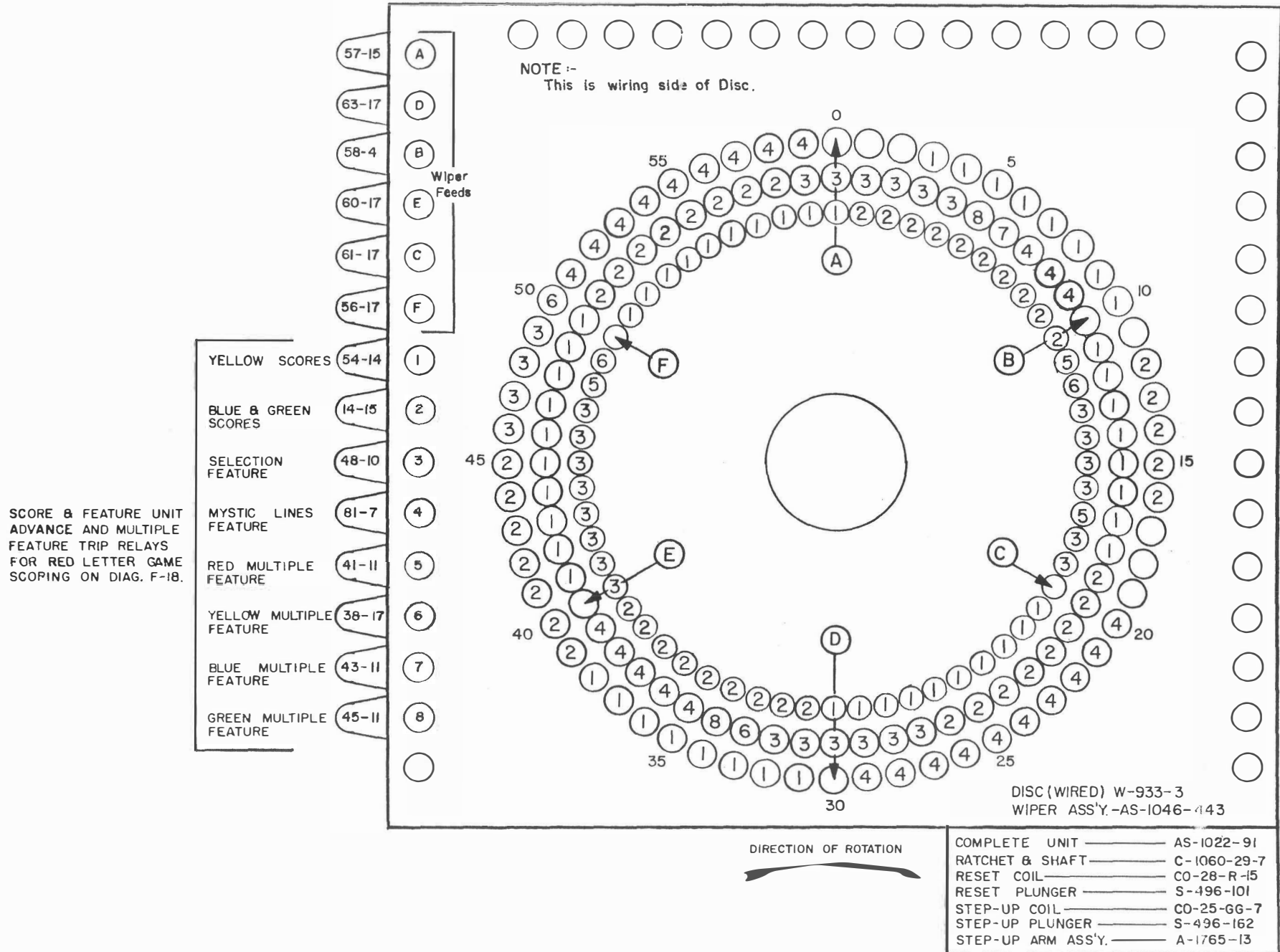
7 step unit. Wipers shown in zero or reset position



TWIN NUMBER FEATURE UNIT DISC viewed from WIRING side

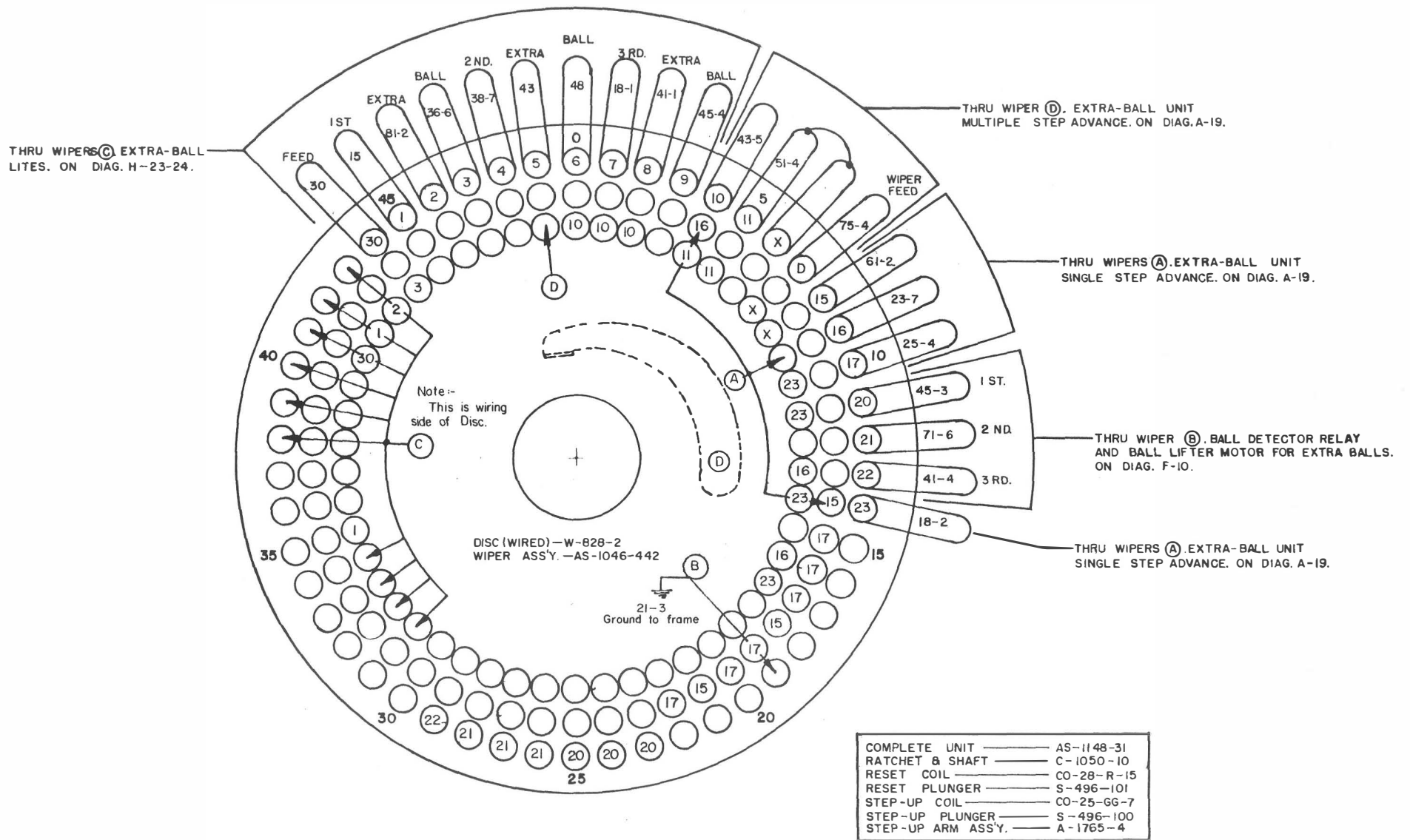
9 step unit. Wipers shown in zero or reset position





EXTRA BALL UNIT DISC viewed from WIRING side

10 step unit. Wipers shown in zero or reset position

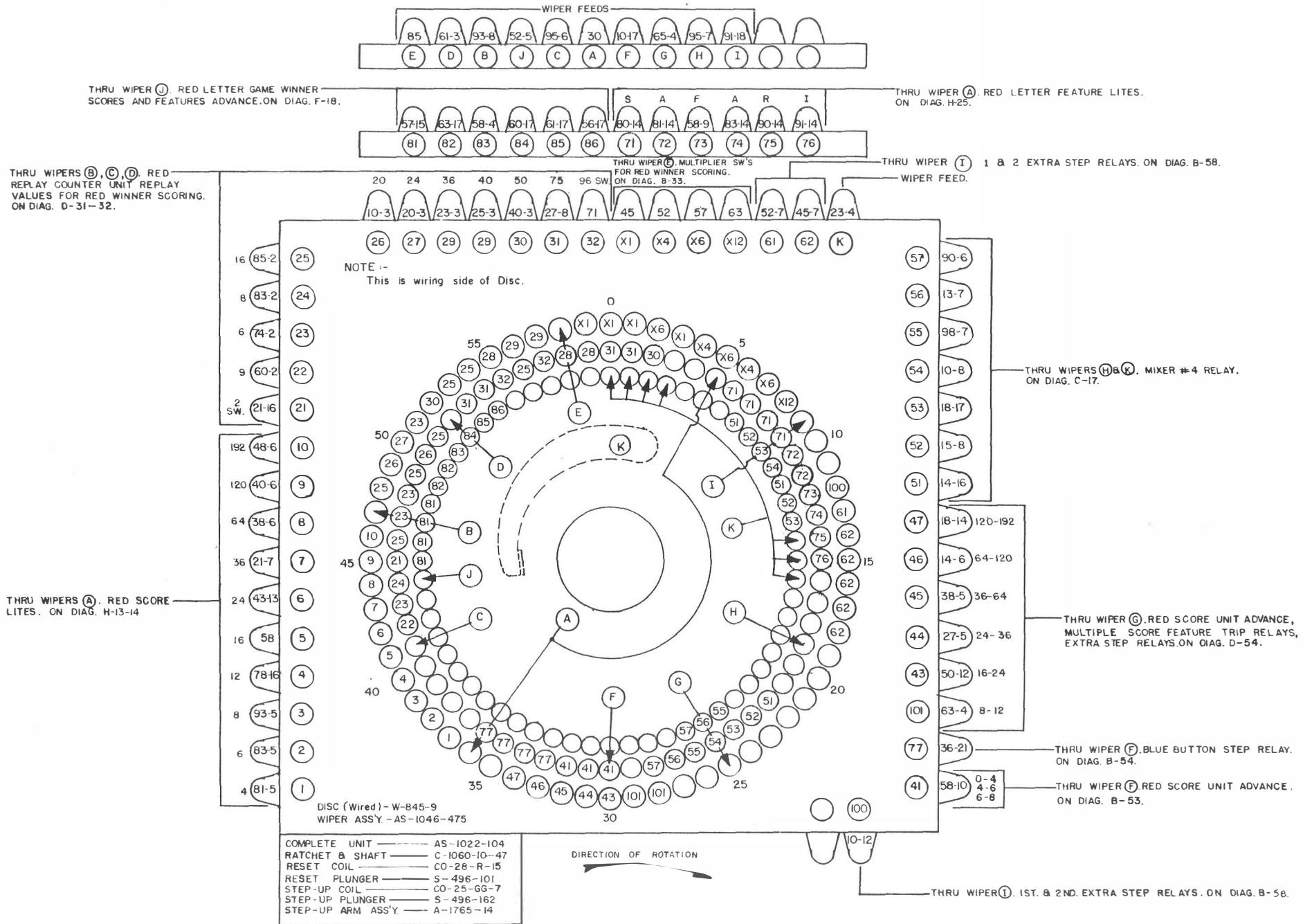


DIRECTION OF ROTATION



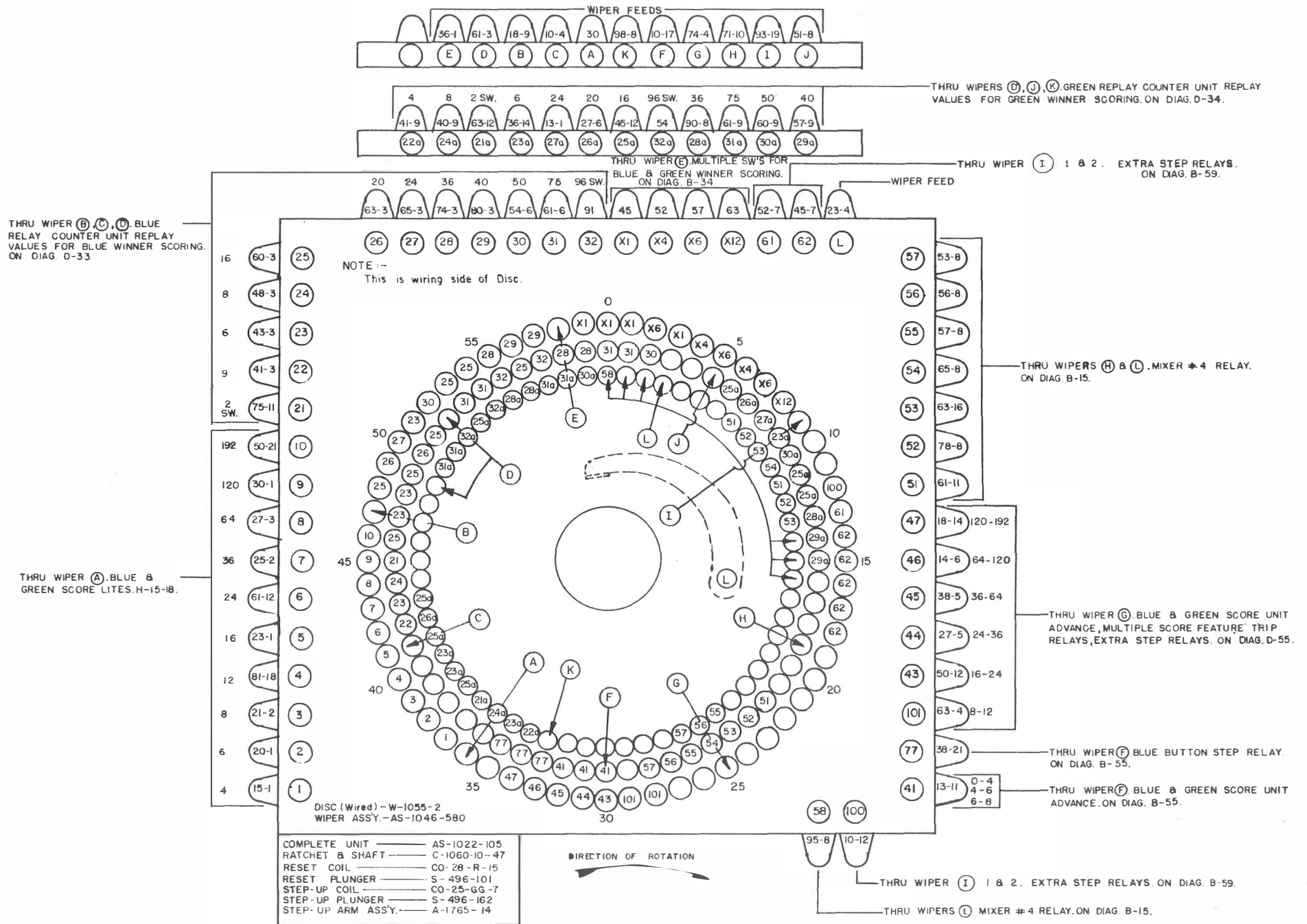
RED SCORE UNIT DISC viewed from WIRING side

10 step unit. Wipers shown in zero or reset position



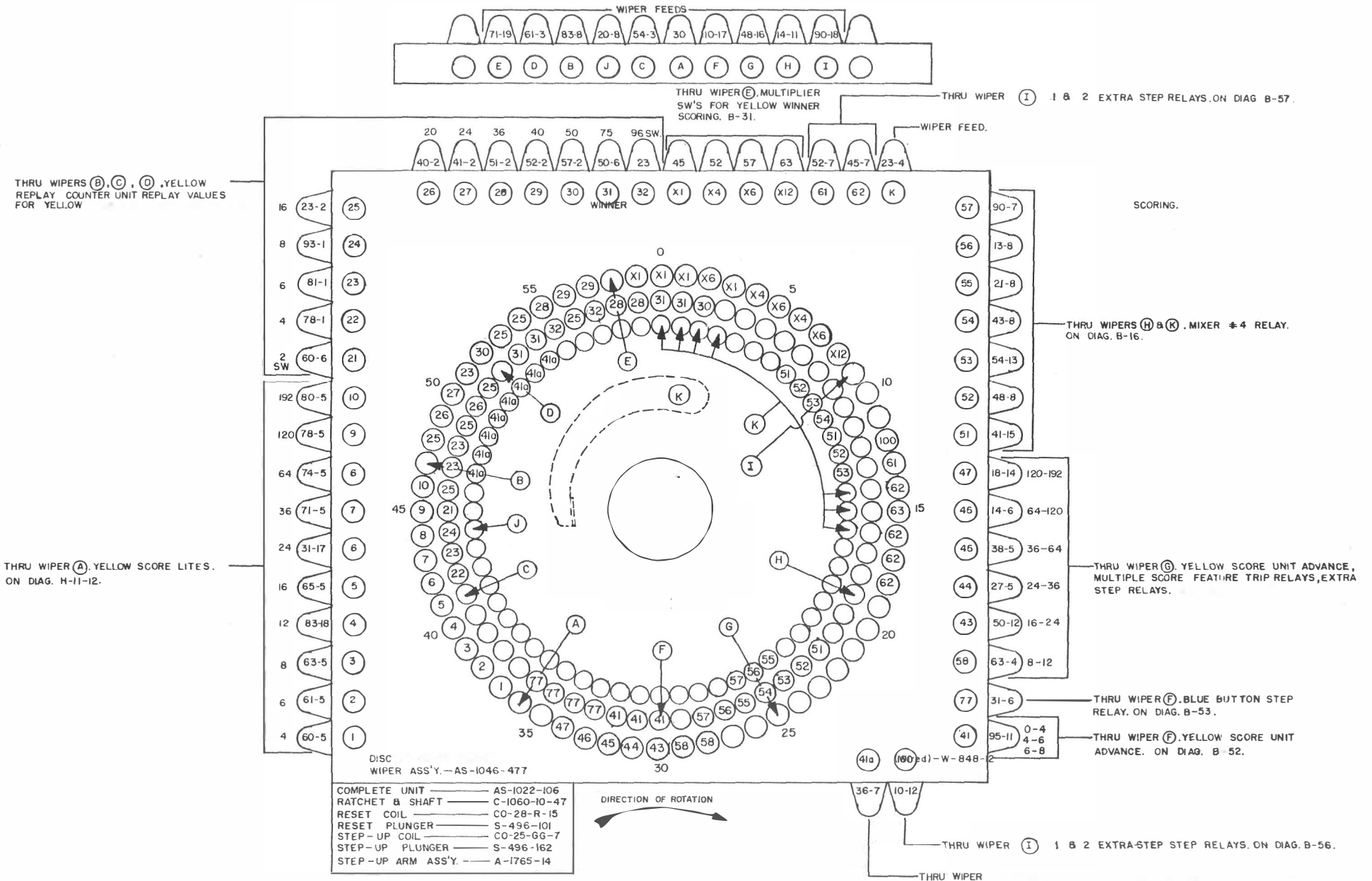
BLUE & GREEN SCORE UNIT DISC viewed from WIRING side

10 step unit. Wipers shown in zero or reset position



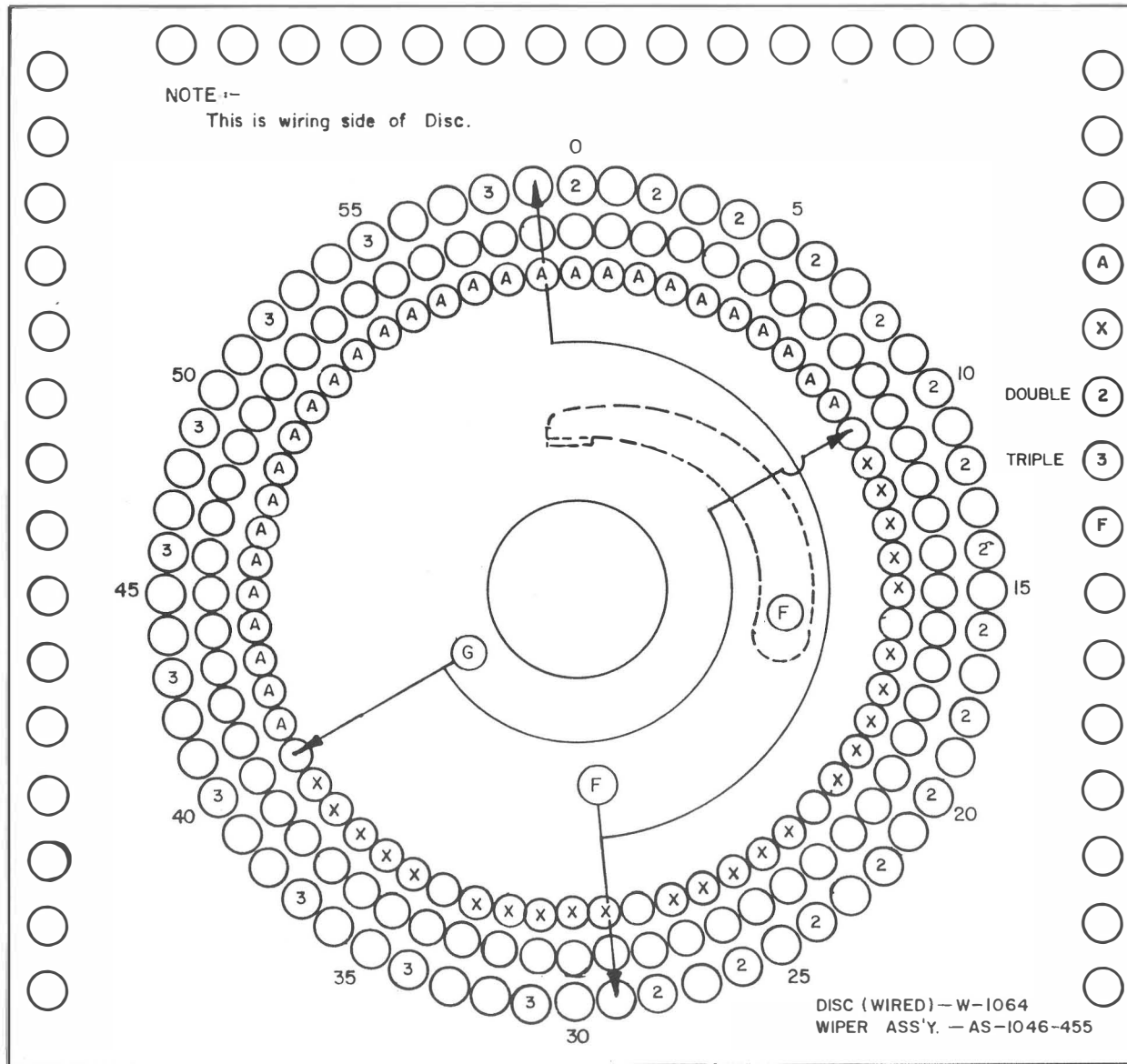
YELLOW SCORE UNIT DISC viewed from WIRING side

10 step unit. Wipers shown in zero or reset position



MULTIPLE UNIT DISC viewed from WIRING side

Continuous step unit.



NOTE:-
This is wiring side of Disc.

- A 43-15 THRU WIPERS (G). MULTIPLE UNIT ADVANCE TO HOME UNIT TO NEUTRAL POSITION. ON DIAG. A-31.
- X 75-6
- DOUBLE 2 78-2 THRU WIPERS (F). REGULAR REPLAY COUNTER UNIT ADVANCE DURING REGULAR GAME DOUBLE AND TRIPLE WINNER SCORING.
- TRIPLE 3 74-13 ALSO UP & DOWN REPLAY COUNTER UNIT ADVANCE DURING 5 BALL U. & D. WINNER SCORING. ON DIAG. A-32.
- F 70 WIPER FEED

DISC (WIRED) - W-1064
WIPER ASS'Y. - AS-1046-455

DIRECTION OF ROTATION

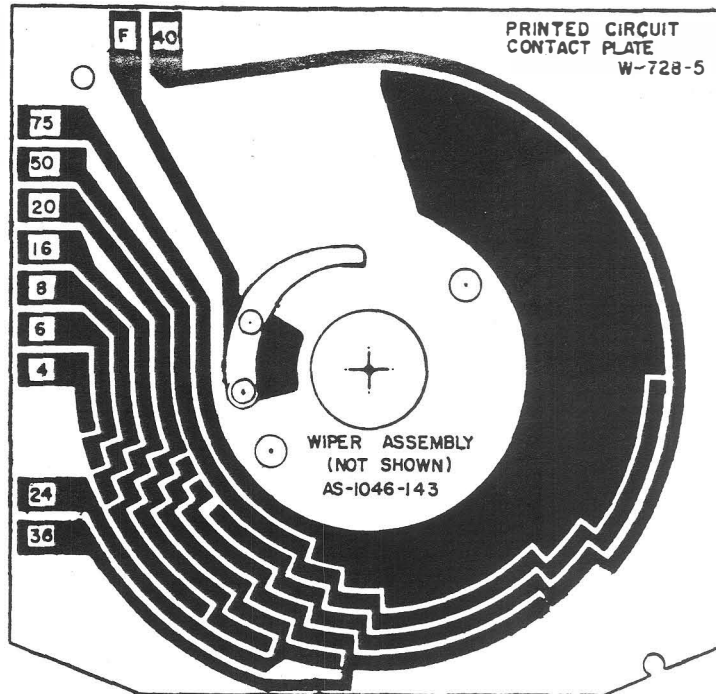


- COMPLETE UNIT — AS-827-194
- RATCHET & SHAFT — C-1060
- STEP-UP COIL — CO-25-GG-7
- STEP-UP PLUNGER — S-496-162
- STEP-UP ARM ASS'Y. — A-1765-19

REPLAY COUNTER UNIT DISC viewed from WIPER side

4 used (see code box at left)

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



WIRE COLOR NUMBERS
REPLAY VALUES

COMPLETE UNIT	AS-797-111
RESET COIL	CO-28-R-15
STEP-UP COIL	CO-25-GG-7
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 Pulse Green, Red, Yellow And Blue Replay Counter Unit Step-Up Coils During 3-4-5 In A Zone Winners. During Double or Triple Winners, Switches Double or Triple Their Ratio Thru Multiple Unit Disc.

	12A-1.1	12A-1.1	12A-1.1	11A-6.1	12A-1.1	13A-4.1	11A-6.1	13A-4.1	11A-6.1	10A-12.1
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)

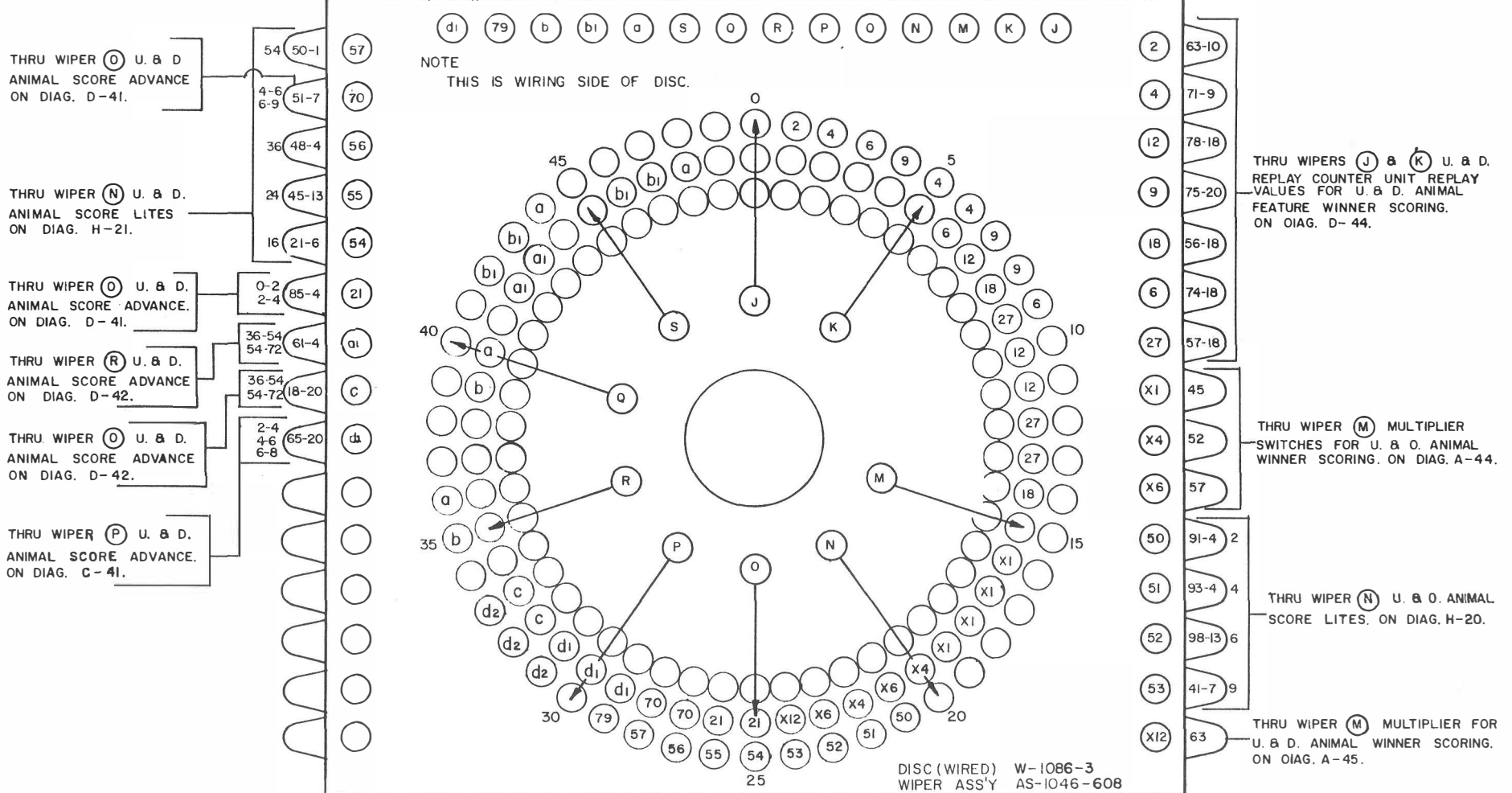
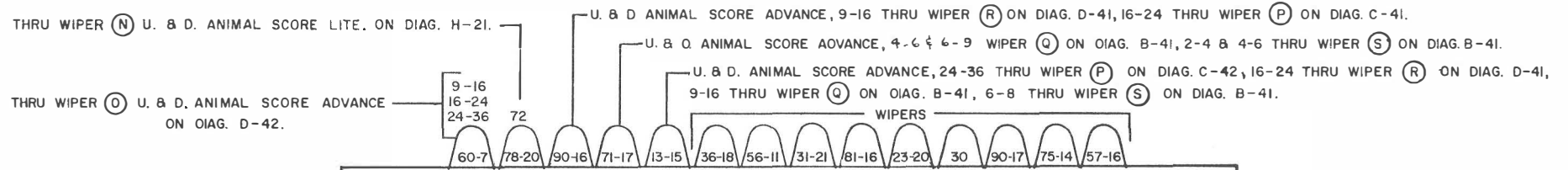
Large numbers are Green, Red, Yellow and Blue Replay Scores shown on backglass. Numbers in circles indicate the replay counter disc value each score is effective thru during winners.

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

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

UP AND DOWN SCORE UNIT DISC viewed from WIRING side

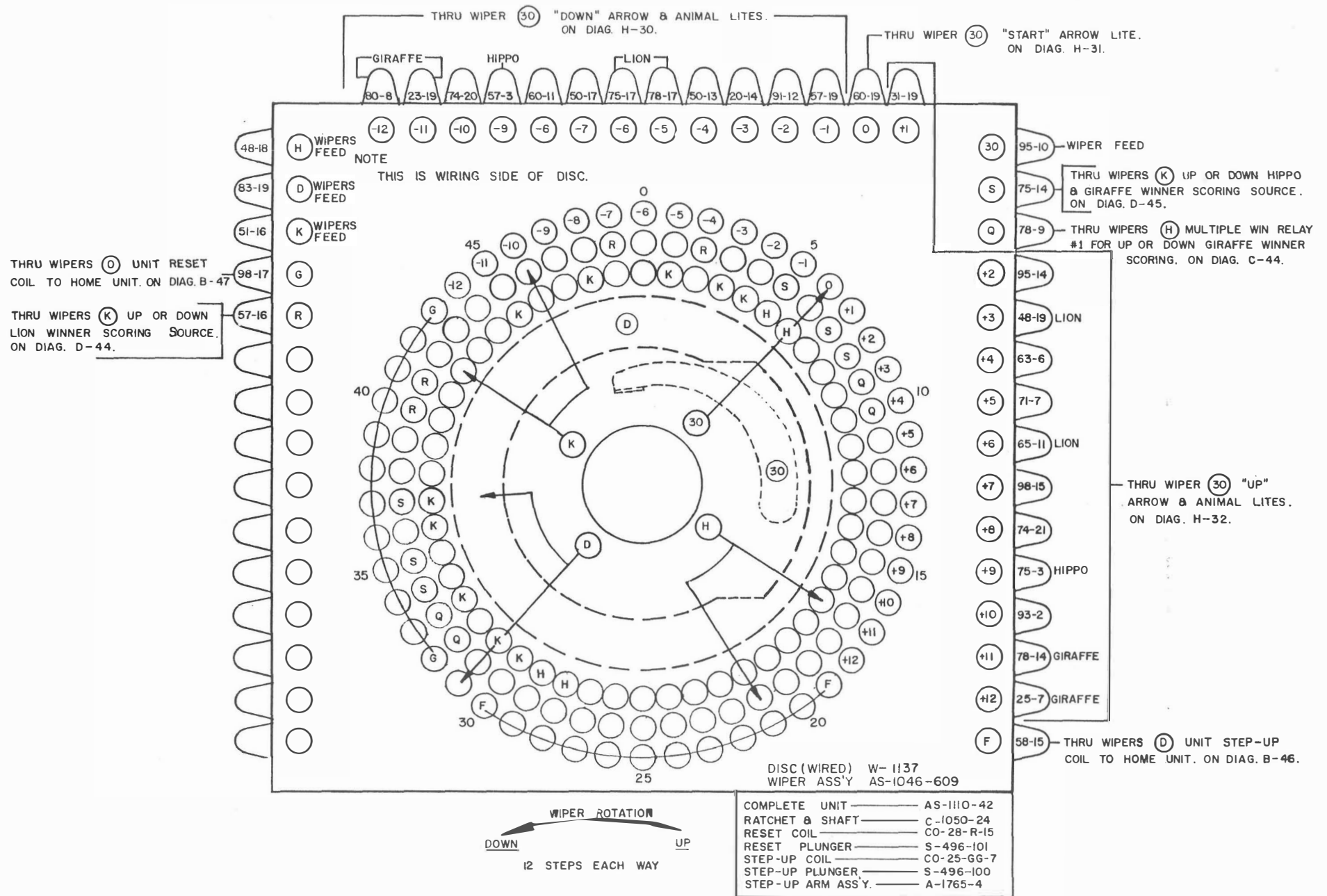
9 step unit. Wipers shown in zero or reset position



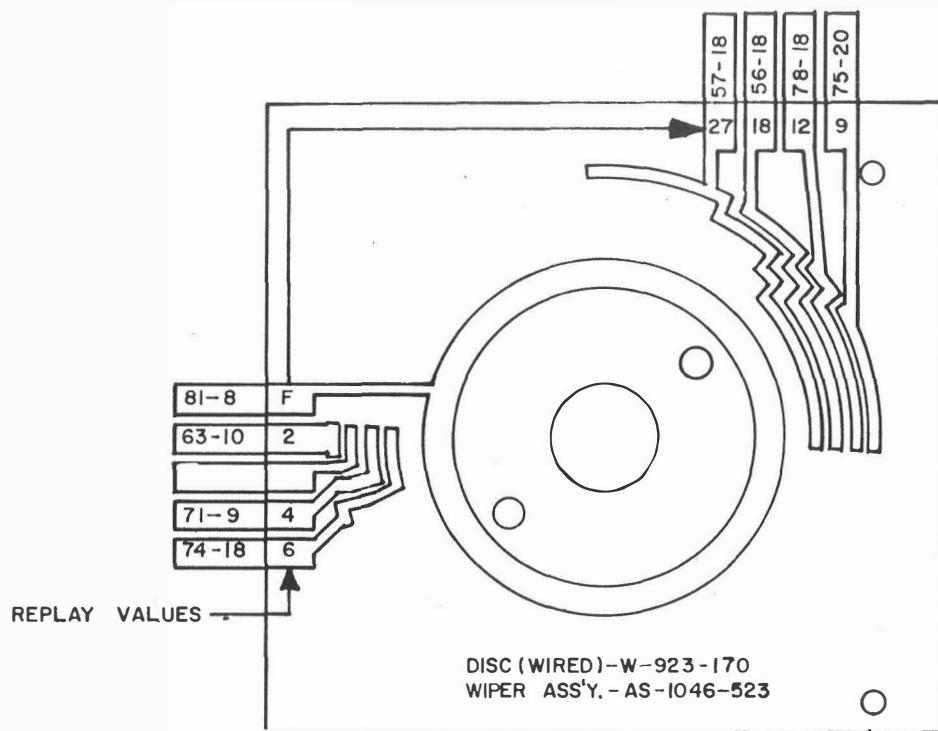
WIPER ROTATION

UP AND DOWN FEATURE UNIT DISC viewed from WIRING side

24 step unit. Wipers shown in zero or reset position



UP AND DOWN REPLAY COUNTER UNIT DISC viewed from WIPER side



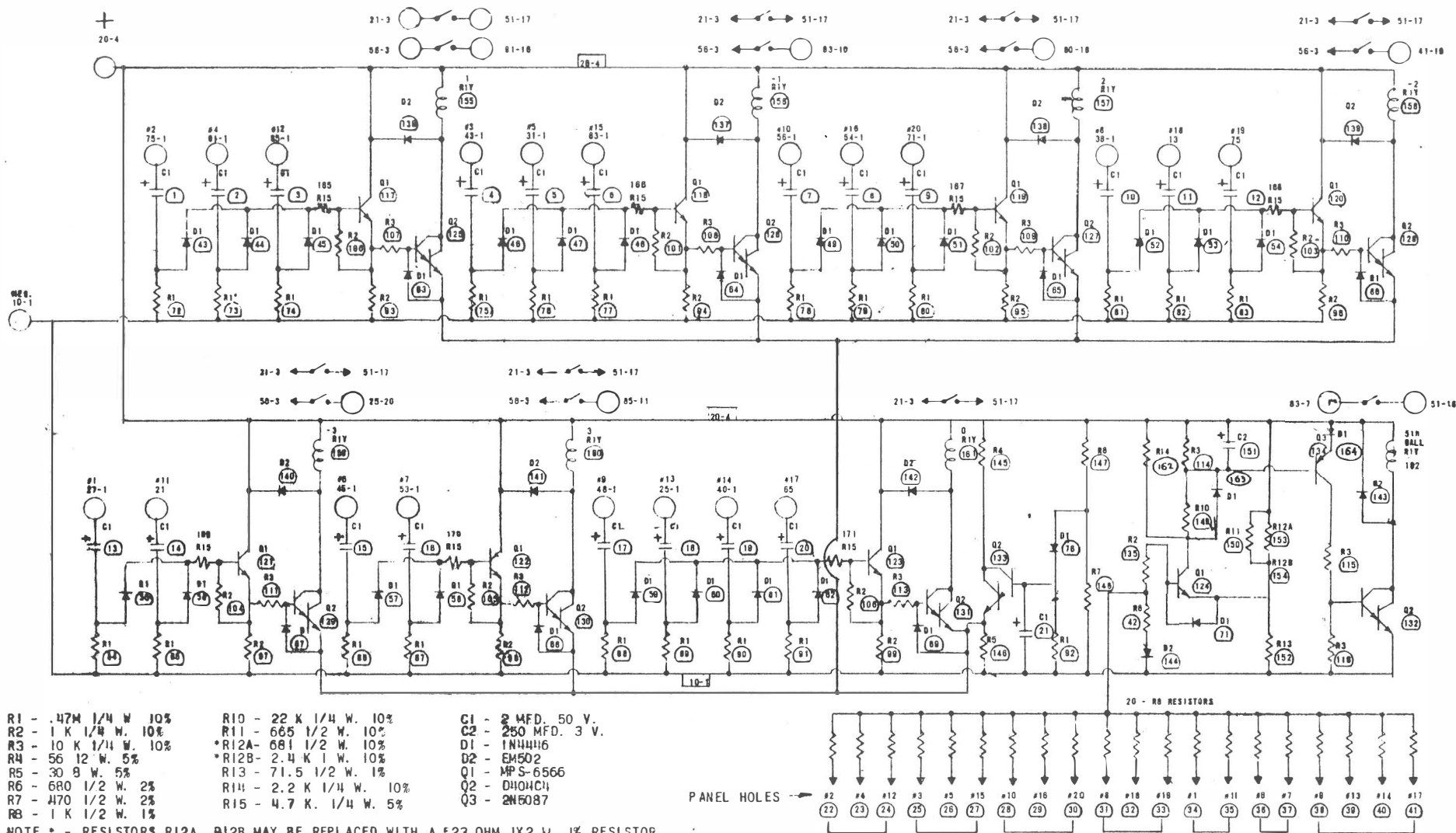
- | | |
|--------------------|------------|
| COMPLETE UNIT | AS-797-181 |
| RATCHET & SHAFT | C-100 |
| RESET COIL | CO-28-R-15 |
| RESET PLUNGER | S-496-101 |
| STEP-UP COIL | CO-25-GG-7 |
| STEP-UP PLUNGER | S-496-116 |
| STEP-UP ARM ASS'Y. | A-1765-8 |

CONTROL UNIT MULTIPLIER CAM SWITCHES THAT PULSE UP AND DOWN REPLAY COUNTER UNIT STEP-UP COIL DURING ANIMAL FEATURE WINNERS. DURING GIRAFFE WINNERS, SWITCHES DOUBLE THEIR RATIO THRU MULTIPLE UNIT.

C.U. 10A 12.1	72 (6)	216 (18)	432 (18)
C.U. 11A 6.1	54 (9)	162 (27)	324 (27)
C.U. 13A 4.1	36 (9)	108 (27)	216 (27)
C.U. 11A 6.1	24 (4)	72 (12)	144 (12)
C.U. 13A 4.1	16 (4)	48 (12)	96 (12)
C.U. 12A 1.1	9 (9)	27 (27)	54 (27)
C.U. 12A 1.1	6 (6)	18 (18)	36 (18)
C.U. 12A 1.1	4 (4)	12 (12)	24 (12)
C.U. 12A 1.1	2 (2)	6 (6)	12 (6)
	L I O N	R H I N O	G I R A F F E

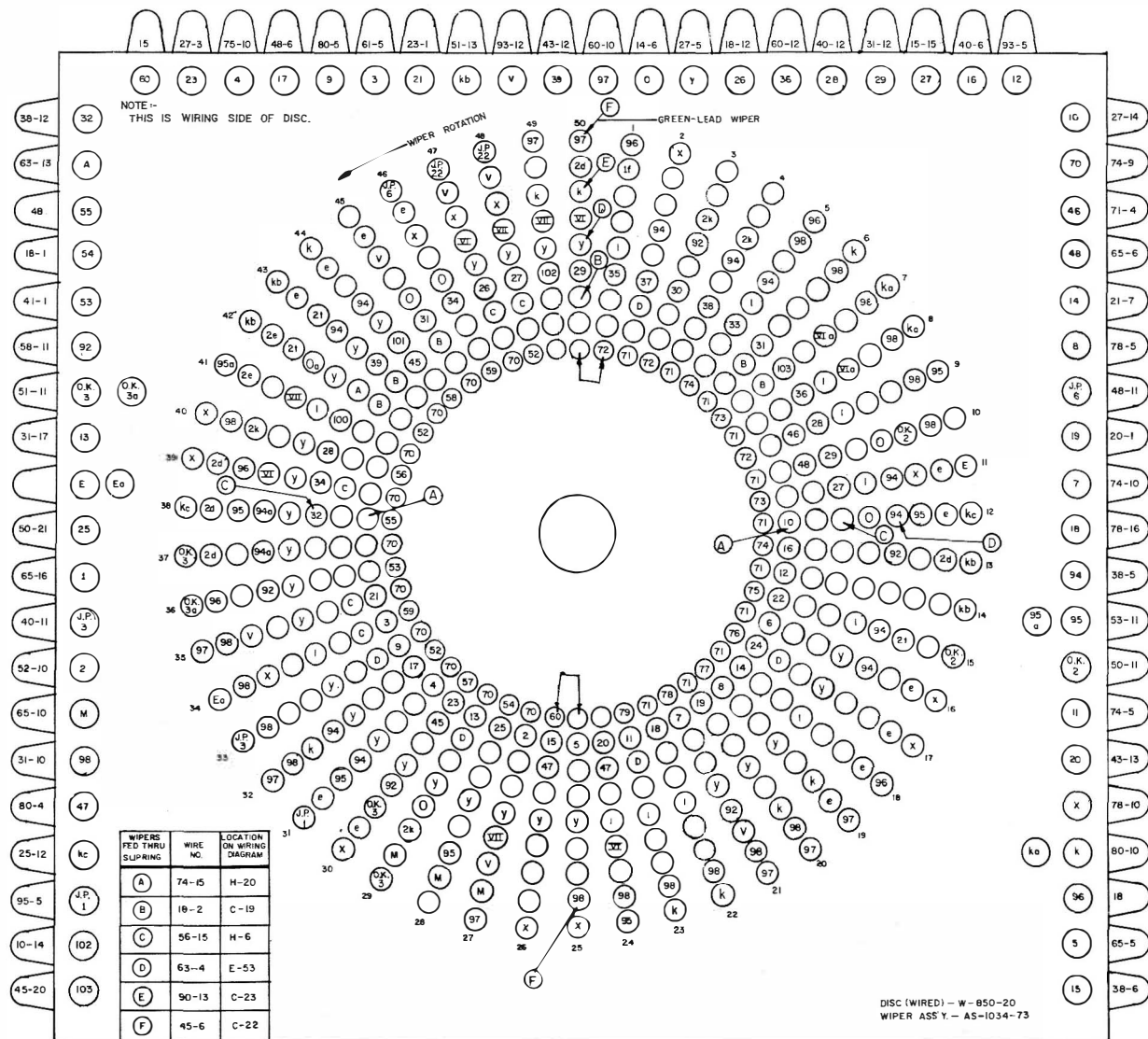
LARGE NUMBERS ARE ANIMAL FEATURE REPLAY SCORES SHOWN ON BACK GLASS. NUMBERS IN CIRCLES INDICATE THE REPLAY COUNTER DISC VALUE. EACH REPLAY SCORE IS EFFECTIVE THRU DURING WINNERS.

ANIMAL FEATURE MODULE BOARD CIRCUIT W-1140B

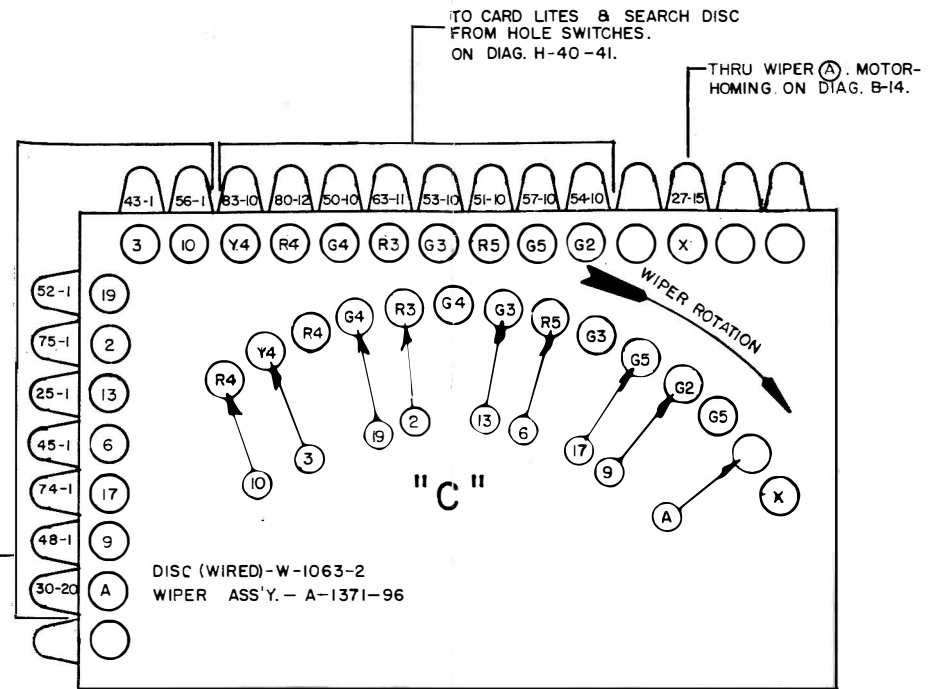
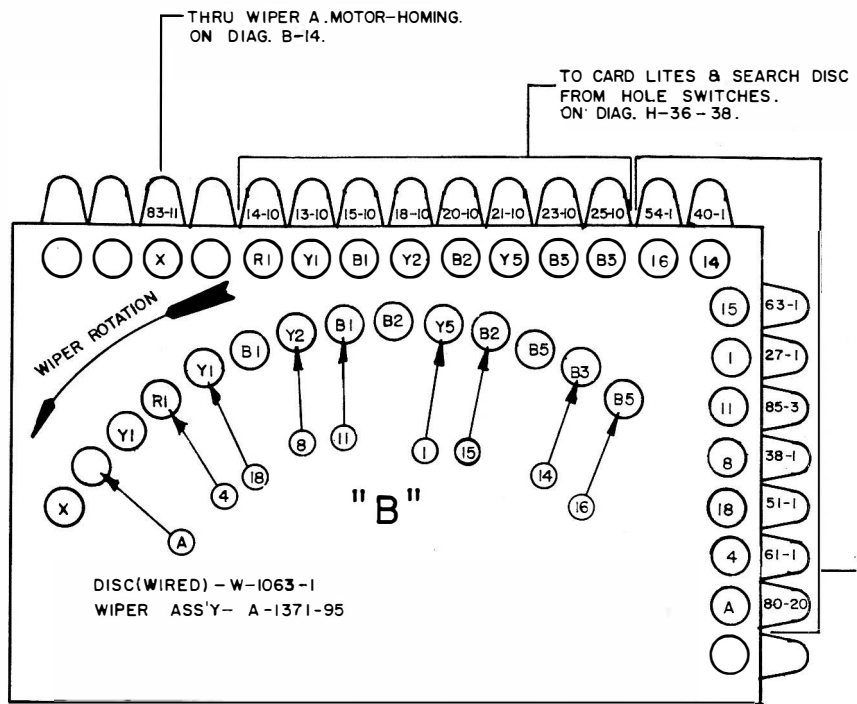


63-18	98-10				71-18	65-14			38-5	40-14	50-1	45-13	48-4	41-7	21-6	93-4	98-13	78-20	
101	100	11	2e	21	2k	2d	e	XII a	0a	94a	71	72	73	74	75	76	77	78	79

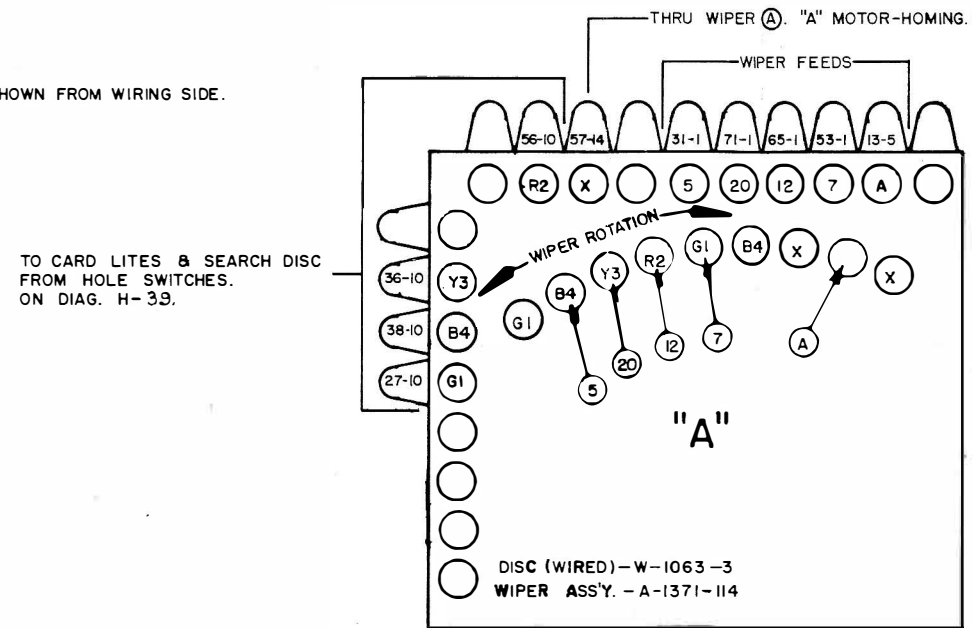
63-15	18-14	31-18	43-5	81-4	43	38-7	36-6	81-2	45-4	50-8	56-12	57-5	74-8	61-19	43-7	53-12	25-2	71-5	30-1
J.P. 22	XI	XIII	B C	45	56	57	58	59	52	34	35	37	30	38	33	31	22	6	24



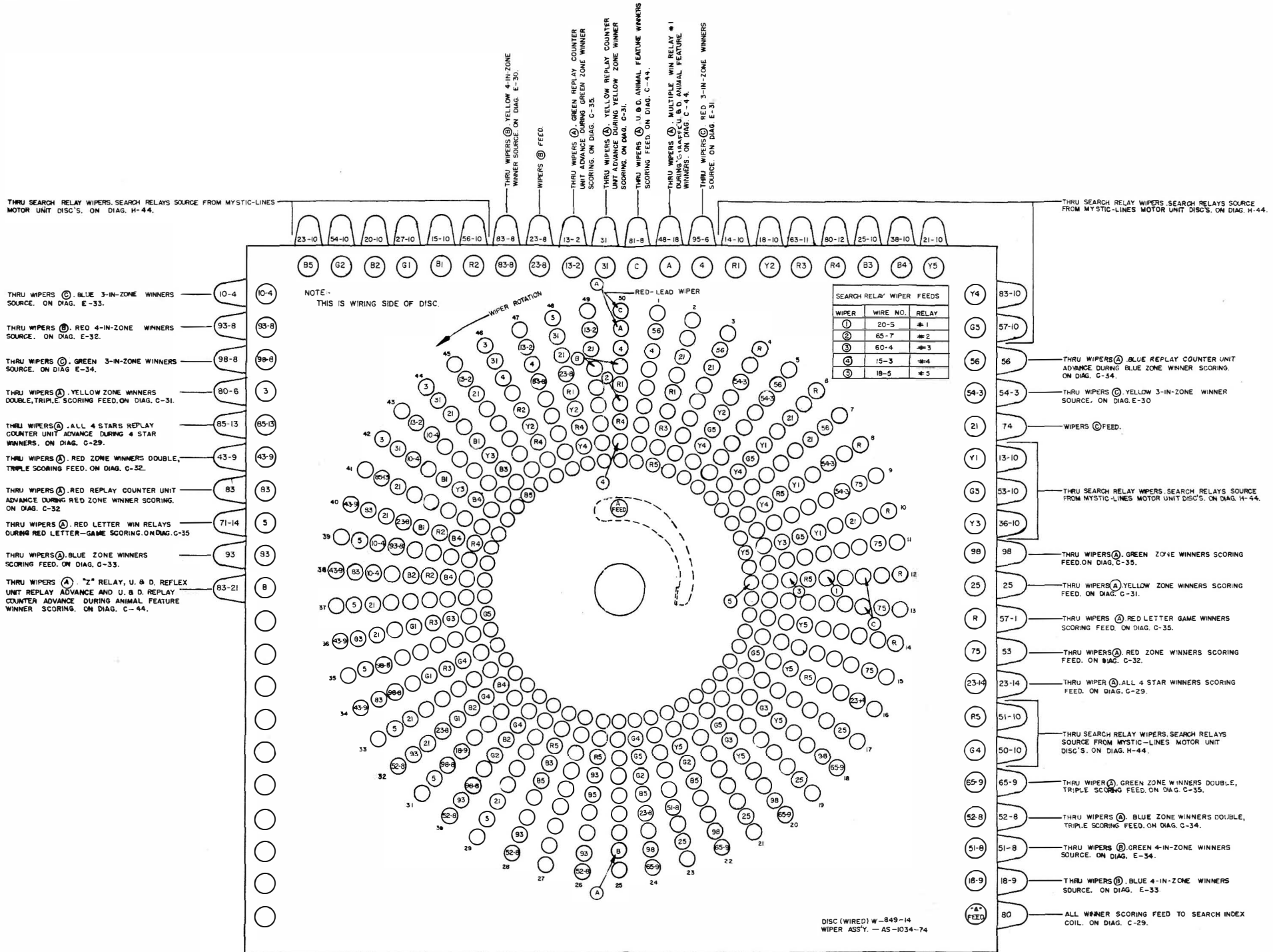
MYSTIC LINES MOTOR UNIT DISCS viewed from WIRING side Wipers shown in zero position



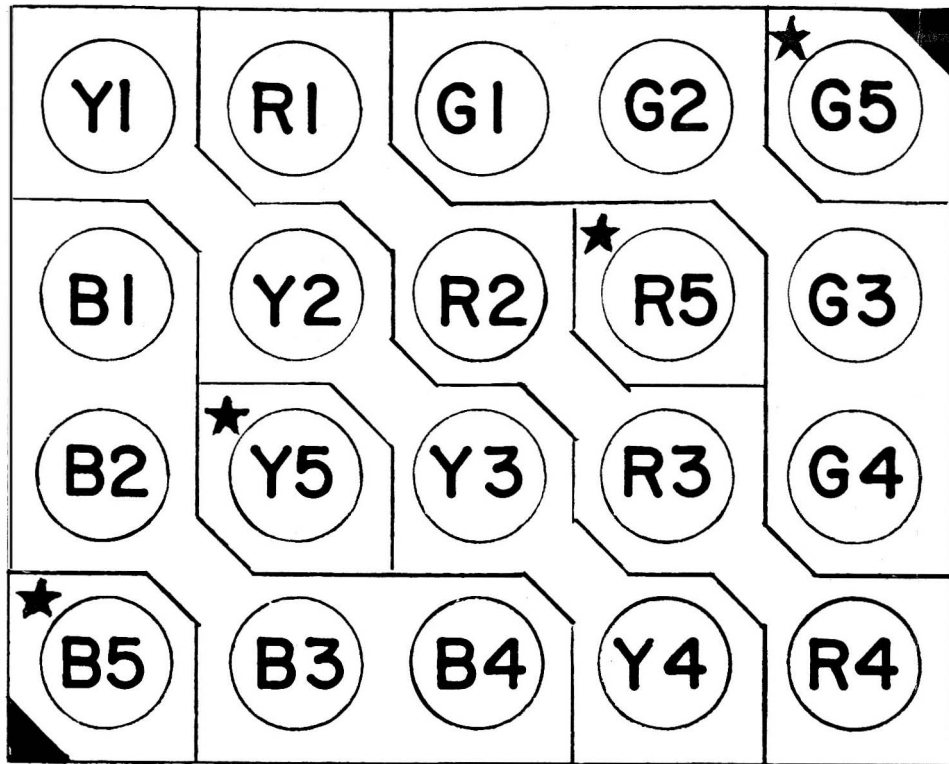
NOTE:
DISC'S SHOWN FROM WIRING SIDE.



COMPLETE UNIT.....	AS-1809-10
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
PLASTIC SLAT ASS'Y - ROW # 2.....	A-2989
PLASTIC SLAT ASS'Y - ROW # 3.....	A-2990
PLASTIC SLAT ASS'Y - ROW # 4.....	A-2991
PLASTIC SLAT ASS'Y - ROW # 5.....	A-2992
PLASTIC OVERLAY.....	M-1423



MYSTIC LINES LAYOUT



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

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

Animal Feature
Winners Scored
Here.

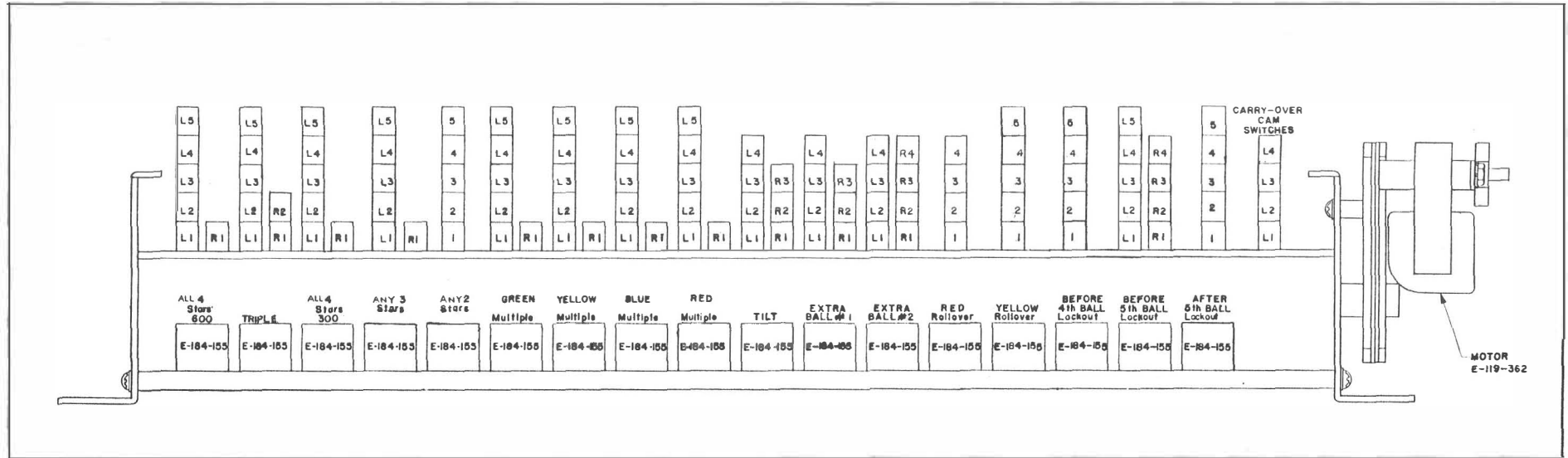
5 (SEARCH) RELAY BANK

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 circuits.
#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.

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 circuit to mystic lines feature disc "C" button.
2 N.C.	C-13	40-13 45-5	Green Green-White	Opens circuit to mystic lines feature disc "A" button.
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 circuit to mystic lines feature disc "A" button.
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 circuit to mystic lines feature disc "B" button.
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.
1 N.O.	D-37	36 38-8	Yellow-Brown Yellow-Black	Completes lock-in circuit to this relay.
2 N.C.	D-12	10-13 15-6	Red Red-White	Opens ball count circuit to the lock-out relays while relay is energized.
3 N.C.	C-10	58-13 31-3	White-Black Yellow-Red	Opens ball count circuit to ball lifter motor while relay is energized.
4 N.C.	D-8	56-9 18-3	White-Brown Red-Black	Opens timer disc circuit to shutter motor while relay is energized.
#2 5th ball relay coil	A-43	51-16 70	White-Red Orange	Energized thru 5th ball module relay circuit when 5th ball enters playfield hole.
1 N.O.	F-4	50-2 80-11	White Black	Completes yellow button (extra ball) play circuit to start relay.
2 N.O.	B-10	20-9 10-6	Blue Red	Completes yellow button (extra ball) play circuit to extra ball trip relay #2.

TRIP RELAY BANK MOTOR UNIT



TRIP RELAY BANK MOTOR UNIT

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	Green-Black Green-Black	Opens circuit to this relay coil.
L2	S.P.D.T.	G-7 63-13	Orange-Red Brown-Yellow	Directs circuits to all 4 star 300 or 600 feature lite.
L3	S.P.D.T.	C-30 10-16 85-13	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.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Triple relay coil	A-60	36-7J 71-13	Yellow-Brown Orange-Red	Energized thru control circuit during red or blue button play.
L1	N.C.	A-60 36-7J	Yellow-Brown Yellow-Brown	Opens circuit to this relay coil.
L2	N.C.	C-51 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 30 80-7	White-Orange Yellow Black	Directs lit color scores doubled or tripled lite circuit.
L5	S.P.D.T.	C-52 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-54 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-55 13-11 15-19 90-4	Red-Yellow Red-White Gray	Directs control circuit for blue and green score unit single and extra steps.

TRIP RELAY BANK MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
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 40-11J	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	Open 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	Opens circuit to this relay coil.
L2	N.C.	C-54 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.
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 61-10J	Brown-Red Brown-Red	Opens circuit to this relay coil.
2	N.C.	C-54 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.	H-6 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 36-11	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.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Green Multiple relay coil	A-52	45-11J 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-52 45-11 45-11J	Green-White Green-White	Opens circuit to this relay coil.
L2	N.C.	C-56 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 65-9	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-53 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.
Yellow multiple relay coil	A-51	38-17J 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-51 38-17 38-17J	Yellow-Black	Opens circuit to this relay coil.
L2	N.C.	C-52 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-13 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-52 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-51	43-11J 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-51 43-11 43-11J	Green-Yellow Green-Yellow	Opens circuit to this relay coil.
L2	N.C.	C-56 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-16 23-4 58-2	Blue-Yellow White-Black	Completes a control circuit to mixer #4 relay.
L4	N.O.	G-20 74-10 30	Orange-Green Yellow	Completes circuit to blue multiple feature lite.
L5	N.O.	D-34 78-9 52-8	Orange-Black White-Blue	Completes blue double and triple winner circuit to step replay counter unit.
R1	N.C.	F-53 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.

TRIP RELAY BANK MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Red multiple relay coil	A-51	41-11J 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-51	41-11J 41-11J	Green-Red Green-Red	Opens circuit to this relay coil.
L2 N.C.	C-53	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-53	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.	F-13	40-8 93-3	Green Gray-Yellow	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	Blue-Red Yellow	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-33	45-8 36-17 18-15	Green-White Yellow-Brown Red-Black	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 motor.
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	58-12J 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 #5B 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 56-6 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	58-12J 58-12J	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.	G-34	50-9 23-6	White Blue-Yellow	Completes circuit to extra balls play feature lite.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
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.	G-6	31-16 81-6	Yellow-Red Black-Red	Opens spotting disc circuit to flash other game feature lites.
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	Red-White Red-Yellow	Directs spotting disc circuits to flash scores and scores feature lites or extra ball lites.
R4 N.O.	A-10	78-19 21-3 58-12	Orange-Black Blue-Red White-Black	Completes circuit to extra ball #1 trip relay coil.
Red rollover relay coil	A-37	25-13J 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 25-13J	Blue-White Blue-White	Opens circuit to this relay coil.
2 S.P.D.T.	H-4	51-12 90	White-Red Gray	Directs circuit to flash mystic lines press buttons now lite before 4th, 5th, or after 5th balls.
3 S.P.D.T.	G-5	52-13 31-8 10-11	White-Blue Yellow-Red Red	Directs circuit to lite select before 4th, 5th, or after 5th ball selection feature lites.
4 N.O.	E-13	53-12 93-3 21-12	White-Yellow 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	38-13J 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 38-13J	Yellow-Black Yellow-Black	Opens circuit to this relay coil.
2 N.C.	F-52	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 not 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.

TRIP RELAY BANK MOTOR UNIT

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Before 4th ball lockout relay coil	A-12	83-6J 70	Black-Yellow Orange	Energized thru timer disc ball count circuit 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	Complete winner search and scoring circuit for all regular game winners.
Before 5th ball lockout relay coil	A-12	74-6J 70	Orange-Green Orange	Energize 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.	B-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 48-12 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	20-9 25-8	Blue 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 yellow button replay circuit to start relay.

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.

FRONT CABINET MOUNTING BOARD UP AND DOWN PULSE MOTOR UNIT

SWITCH		LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1A	N.O.	E-48	31-20 85-4	Yellow-Red Black-White	Completes carry over circuit to motor.
1B	N.C.	E-44	15-5 83-7	Red-White Black-Yellow	Opens animal feature winner search and scoring circuit.
3 pulse cam 2A	N.O.	E-47	23-9 85-4	Blue-Yellow Black-White	Completes up and down animal feature unit 3 up and 3 down circuits.
2 pulse cam 3A	N.O.	E-46	18-13 85-4	Red-Black Black-White	Completes up and down animal feature unit 2 up and 2 down circuits.
1 pulse cam 4A	N.O.	E-46	14-1 85-4	Red-Green Black-White	Completes up and down animal feature unit 1 up and 1 down circuits.
5A	N.C.	D-47	53-3 85-4	White-Yellow Black-White	Opens lock-in circuit to all up and down relays.

BACK CABINET 4 RELAY BANK

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.	F-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 replays 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 48-2	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.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
25¢ relay coil	A-7	15-13 70	Red-White Orange	Energized thru 25¢ coin switch circuit.
L1 N.C.	A-5	83-16 80-2	Black-Yellow Black	Opens circuit to single coin meter terminal when used.
R1 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	14-4 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.

BACK CABINET AUXILIARY BOARD RELAYS

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
1 extra step relay coil	A-57	31-5 71-13	Yellow-Red Orange-Red	Energized thru yellow, red, blue & green score unit step control circuits.
1 N.O.	A-57	36-16 31-5	Yellow-Brown Yellow-Red	Completes lock-in circuit to this relay.
2 N.O.	E-51	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-60	45-16 71-13	Green-White Orange-Red	Energized thru yellow, red, blue & green score unit step control circuits.
1 N.O.	A-60	36-16 45-16	Yellow-Brown Green-White	Completes lock-in circuit to this relay.
2 N.O.	E-51	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 relay circuits, also thru (giraffe) up and down animal 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 switch ratio circuit to step replay counter units during winner scoring.
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 up and down animal 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 CABINET (TOP) 7 RELAY BANK

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 Bxa 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	40-19 71-18	Green Orange-Red	Opens a control circuit for twin number feature unit steps.
L3 S.P.D.T.	D-51	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-56	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.	B-53	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.	D-60	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-51	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-60	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 up and down 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-51	71-13 70	Orange-Red Orange	Opens circuit for yellow, red, blue and green score unit steps and scores multiple feature relays.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
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 and 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.
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 up and down play relay circuit.
L1 S.P.D.T.	H-26	25-15 95-2 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 #4 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-51	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-54	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-51	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-56	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-53	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-54	18-14 31-18	Red-Black Yellow-Red	Same function as switch L1.

BACK CABINET (BOTTOM) 7 RELAY BANK

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Z relay Coil	A-45	83-21 70	Black-Yellow Orange	Energized thru up and down animal feature winner search circuit.
1 N.O.	C-45	53-16 83-21	White-Yellow Black-Yellow	Completes replay counter step-up circuit for animal winner scoring.
2 S.P.D.T.	A-32	50-16 90-1 78-2	White Gray Orange-Black	Directs multiplier replay counter unit step-up source for regular or animal 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-59	13-11 65-17	Red-Yellow Brown-White	Completes control circuits for blue and green score extra steps.
L2 N.O.	B-57	58-10 48-17	White-Black Green-Black	Completes control circuits for red score extra steps.
L3 N.O.	B-56	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.	D-37	21-3 43-14	Red-Red Green-Yellow	Completes circuit to features lock relay and scores lock relay.
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 up and down 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 11-19 or 17-18.
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 17-18 or 11-19.
L3 N.C.	G-45	93-16 52-1	Gray-Yellow White-Blue	Opens 11-19 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-52	40-17 60-16	Green 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 51-1	Black-White White-Red	Completes 17-18 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.
Up & down play relay coil	A-39	31-15 60-14	Yellow-Red Brown	Energized thru white button play animal feature circuit.
L1 S.P.D.T.	A-2	13-14 90-5 81-15	Red-Yellow Gray Black-Red	Directs regular or up and down animal 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.	B-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 up and down score unit steps.
R3 N.O.	H-22	40-14 15-17	Green Red-White	Completes spotting disc circuit to flash up and down animal feature score lites
R4 N.O.	A-38	61-13 75-13	Brown-Red Orange-White	Completes a circuit to play features relay.

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 all regular game feature circuits.
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.	A-52	54-14 95-11	White-Green Gray-White	Opens regular yellow score unit step-up circuit.
R4 N.C.	A-55	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-61	85-5 15-4	Black-White Red-White	Opens reset circuit to red score unit.
R4 N.C.	A-53	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 98-2 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-9	57-6 20-2	White-Orange Blue	Completes lock-in circuit to this relay.

FRONT CABINET MOUNTING BOARD 7 RELAY BANK

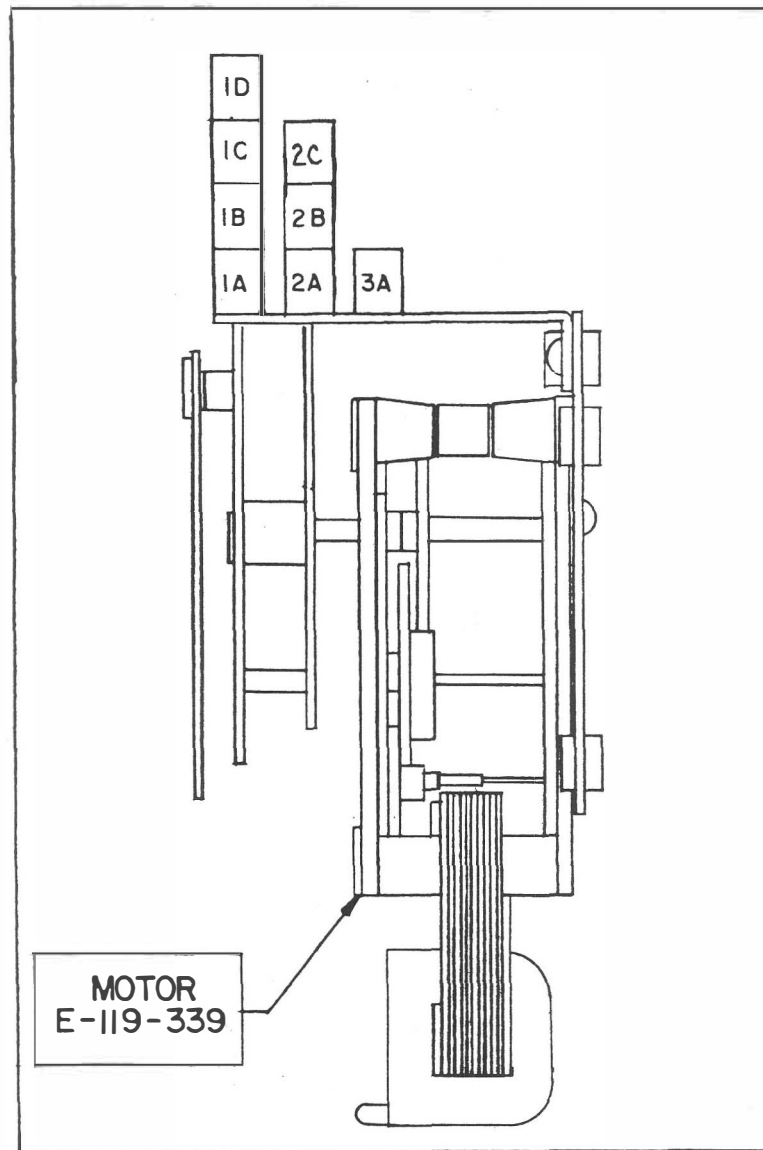
SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Down 3 relay coil	A-49	25-20 70	Blue-White Orange	Energized by -3 module pulse relay circuit.
1 N.O.	D-47	23-9 98-17	Blue-Yellow Gray-Black	Completes a reset (escapement) circuit to up and down animal feature unit.
2 N.O.	B-49	25-20 53-3	Blue-White White-Yellow	Completes lock-in circuit to this relay.
3 N.O.	D-50	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.
Down 2 relay coil	A-48	41-19 70	Green-Red Orange	Energized by -2 module pulse relay circuit.
1 N.O.	D-46	18-13 98-17	Red-Black Gray-Black	Completes a reset (escapement) circuit to up and down animal feature unit.
2 N.O.	B-48	41-19 53-3	Green-Red White-Yellow	Completes lock-in circuit to this relay.
3 N.O.	E-50	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.
Down 1 relay coil	A-50	93-10 70	Gray-Yellow Orange	Energized by -1 module pulse relay circuit.
1 N.O.	D-46	14-1 98-17	Red-Green Gray-Black	Completes a reset (escapement) circuit to up and down animal feature unit.
2 N.O.	B-49	93-10 53-3	Gray-Yellow White-Yellow	Completes lock-in circuit to this relay.
3 N.O.	D-49	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.
Up 3 relay coil	A-47	56-3 70	White-Brown Orange	Energized by +3 module pulse relay circuit.
1 N.O.	D-46	23-9 58-15	Blue-Yellow White-Black	Completes a step-up circuit to up and down animal feature unit.
2 N.O.	B-47	56-3 53-3	White-Brown White-Yellow	Completes lock-in circuit to this relay.
3 N.O.	E-49	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Up 2 relay coil	A-48	80-18 70	Black Orange	Energized by +2 module pulse relay circuit.
1 N.O.	D-46	18-13 58-15	Red-Black White-Black	Completes a step-up circuit to up and down animal feature unit.
2 N.O.	B-48	53-3 80-18	White-Yellow Black	Completes lock-in circuit to this relay.
3 N.O.	D-49	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.
Up 1 relay coil	A-49	91-16 70	Gray-Red Orange	Energized by +1 module pulse relay circuit.
1 N.O.	D-46	14-1 58-15	Red-Green White-Black	Completes a step-up circuit to up and down animal feature unit.
2 N.O.	B-49	91-16 53-3	Gray-Red White-Yellow	Completes lock-in circuit to this relay.
3 N.O.	E-49	85-4 31-20	Black-White Yellow-Red	Completes a circuit to up and down pulse unit motor.
Up and Down Reflex relay coil	A-40	41-10 70	Green-Red Orange	Energized thru up and down animal feature score control circuit.
1 N.O.				Extra switch - not used in circuit.
2 N.O.	B-40	41-10 43-10	Green-Red Green-Yellow	Completes lock-in circuit to this relay.
3 N.O.	E-41	85-4 51-7	Black-White White-Red	Completes control circuit for up and down animal feature score unit steps.

FRONT CABINET 3 RELAY BANK

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
Ball lift relay coil	A-50	51-17 70	White-Red Orange	Energized by circuit from up and down score unit, ball return hole or module pulse relays.
1 N.O.	C-50	52-4 51-17	White-Blue White-Red	Completes lock-in circuit to this relay.
2 N.O.	D-11	80-15 58-13	White-Black	Completes ball count circuit to ball lifter motor.
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 ball count circuit to ball lifter motor.
2 N.O.	E-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.
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.

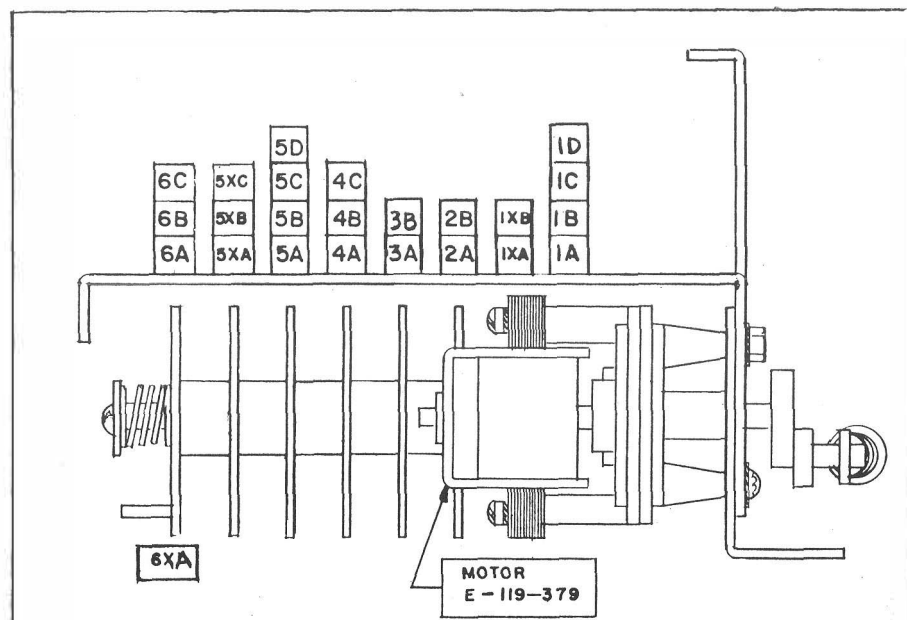
BALL LIFTER MOTOR UNIT



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.	C-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.	E-50	21-3 52-4	Blue-Red White-Blue	Opens lock-in circuit to ball lift relay.
Pin Sw.	N.C.	G-4	48-2 95-3	Green-Black Gray-White	Opens entire game start circuit.

SHUTTER MOTOR UNIT

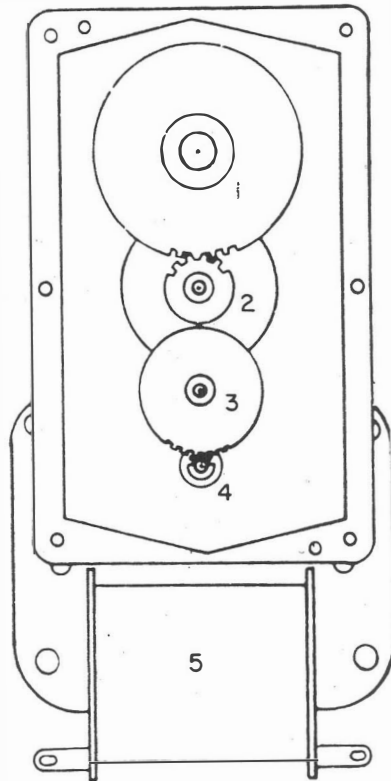


SHUTTER MOTOR UNIT

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 circuit.
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 circuit to step timer unit after 5th ball, ball lift relay and extra ball circuit to reset timer unit.
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.

SWITCH	LOCATION ON DIAGRAM	WIRE No.	WIRE COLORS	FUNCTION OF SWITCHES
3A	N.O.	C-61 85-5 30	Black-White Yellow	Completes unit reset circuit for up & down replay counter, selection feature, red, blue, green, yellow replay counters and red score unit.
3B	N.O.	A-8 90-20 30	Gray Yellow	Completes circuit to trip bank reset motor.
4A	N.O.	D-7 57-7 18-3	White-Orange Red-Black	In series with tilt and A.C. drop-out circuit to shutter motor.
4B	N.O.	F-7 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.	E-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 circuit.
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.	F-12 40-8 10-13	Green Red	In series with ball count circuit to selection lockout relays.
5XC	N.O.	B-30 41-5 83-19	Green-Red Black-Yellow	In series with up and down animal feature unit homing circuit.
6A	N.O.	D-9 71-8 30	Orange-Red Yellow	Completes timer unit reset circuit.
6B	N.O.	D-61 78-3 30	Orange-Black Yellow	Completes unit reset circuit for twin no. feature up and down score, extra ball feature, red letter feature, mystic lines feature, blue and green score and yellow score.
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	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.	D-14 21-3 27-15 83-11 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 animal 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-30 93-15 15-5	Gray-Yellow Red-White	In series with all winner search and scoring circuits.

MOTOR PARTS GUIDE



SHUTTER MOTOR (E-119-338)

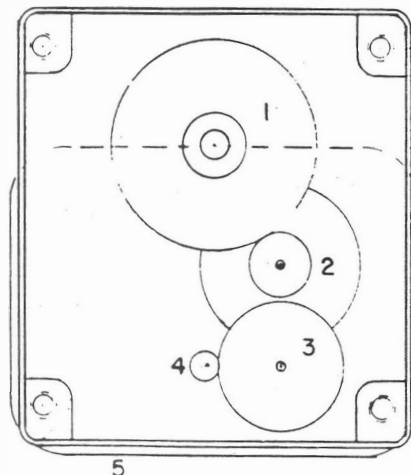
- 1 ZGS-1725-15
- 2 G-5818-1
- 3 G-4109-1
- 4 ZRST-1715-30-1
- 5 ZS-1708-2519

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

CODE

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



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

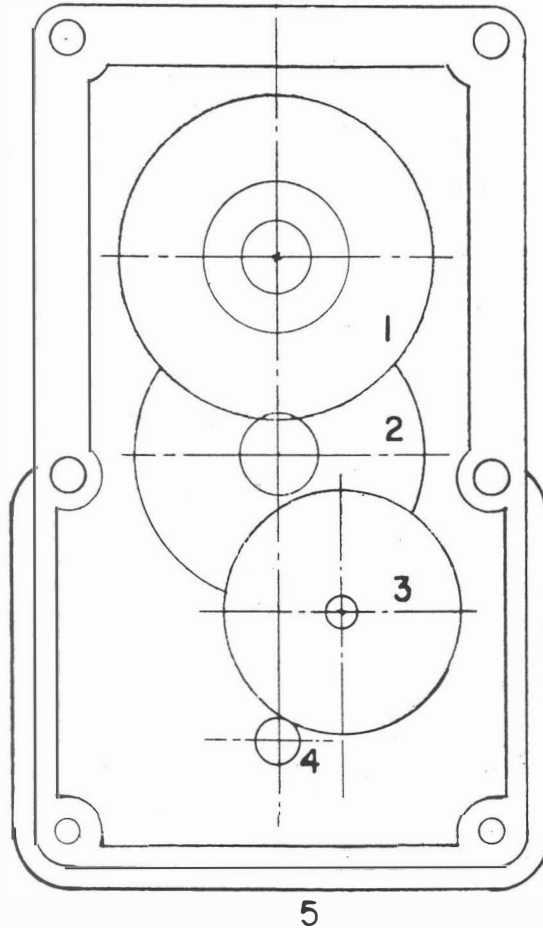
MYSTIC LINES "B" & "C" MOTOR (E-119-353)

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

CODE

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

MOTOR FOR CONTROL UNIT AND MIXER & SPOTTING UNIT



Motor
(E -119-359)

Bearing & Bracket Ass'y. — — — — —	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

MISCELLANEOUS PARTS

Back Cabinet Assembly:

P Part No.	Name of Part
G-292-33	Backglass
M-1424-11	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)
SW-100-106	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-281-6	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:

Part No.	Relay No	Name of Part
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-243		Rubber Ring (White 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	Up & Down 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	#2 5th Ball
M-36-3300	Down 2
M-36-3300	Down 2
M-36-3300	Down 1
M-36-3300	Up 3
M-36-3300	Up 2
M-36-3300	Up 1
M-36-3300	Up & Down Reflex
CRL-1620P-1-10	Up 1 Pulse
CRL-1620P-1-10	Down 1 Pulse
CRL-1620P-1-10	Up 2 Pulse
CRL-1620P-1-10	Down 2 Pulse
CRL-1620P-1-10	Down 3 Pulse
CRL-1620P-1-10	Up 3 Pulse
CRL-1620P-1-10	O Pulse
CRL-1621P-1-10	5th Ball Pulse
C-7800-331	Cam #5
C-7800-332	BB Step

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