

Bally®

BARREL O' FUN '61

(FUN-SPOT '61)
NON-REPLAY MODEL

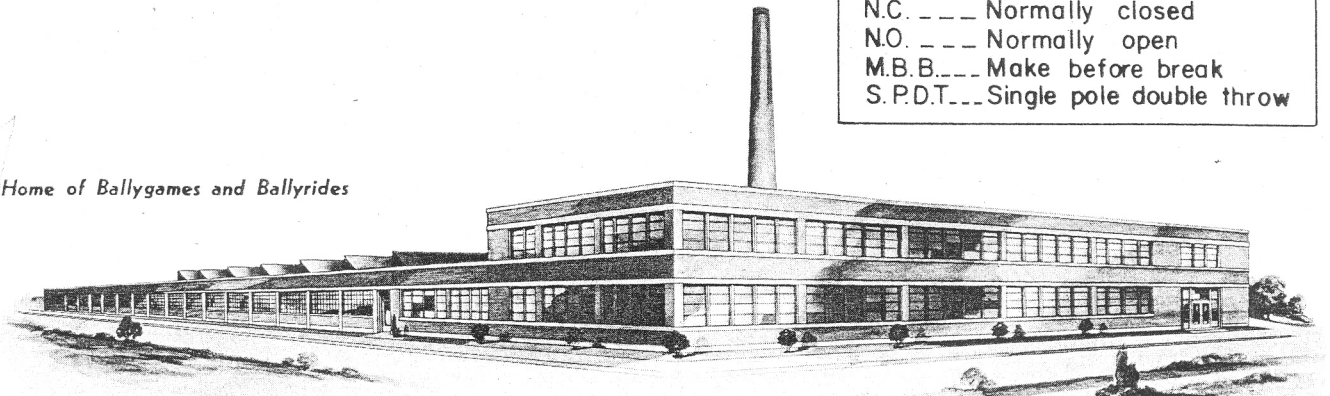
OPERATING INSTRUCTIONS AND PARTS CATALOG

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

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

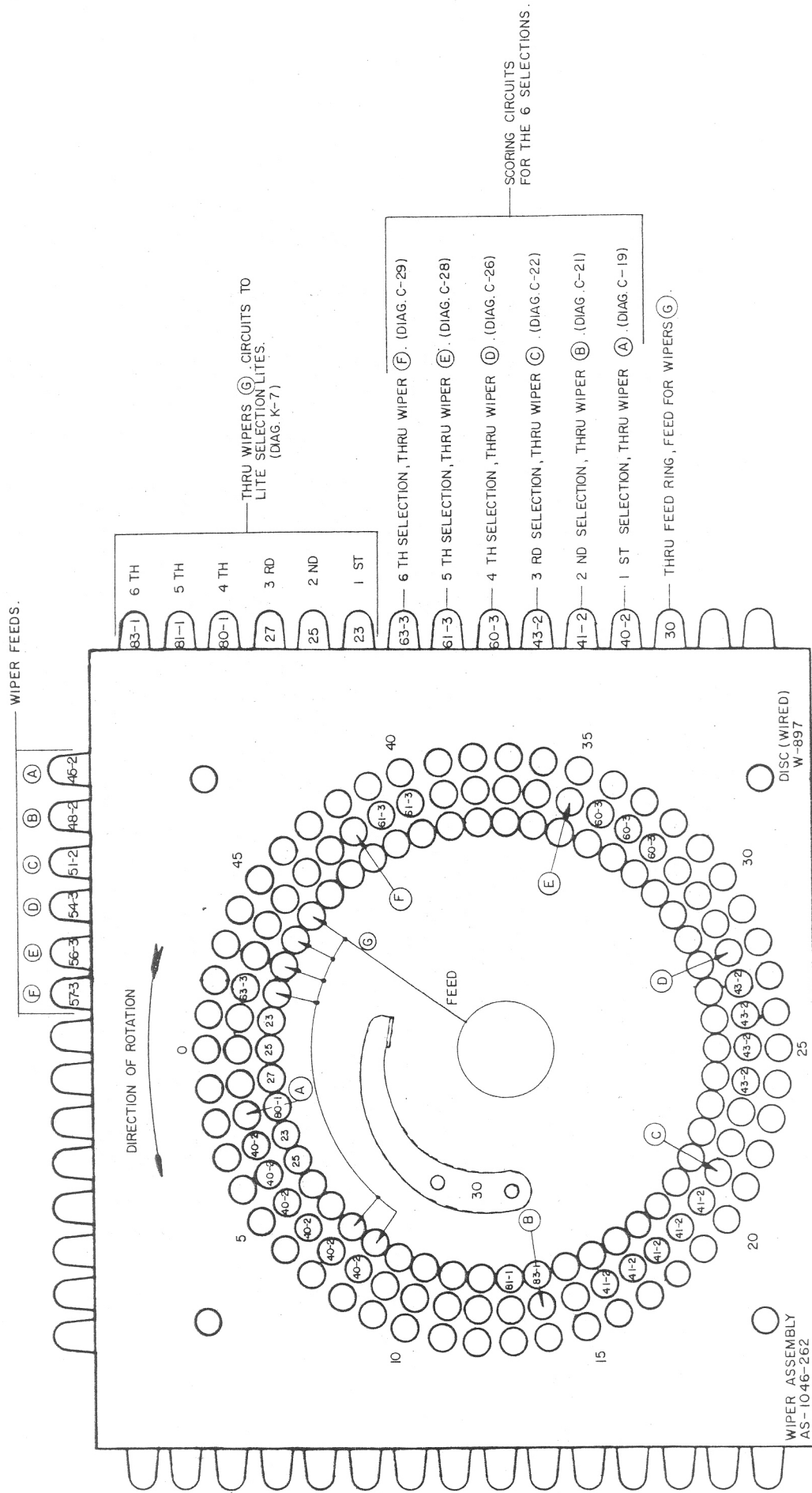
| Code | |
|--------------|--------------------------|
| N.C. ___ | Normally closed |
| N.O. ___ | Normally open |
| M.B.B. ___ | Make before break |
| S.P.D.T. ___ | Single pole double throw |

Home of Ballygames and Ballyrides



SELECTION UNIT DISC viewed from BUTTON or WIPER side

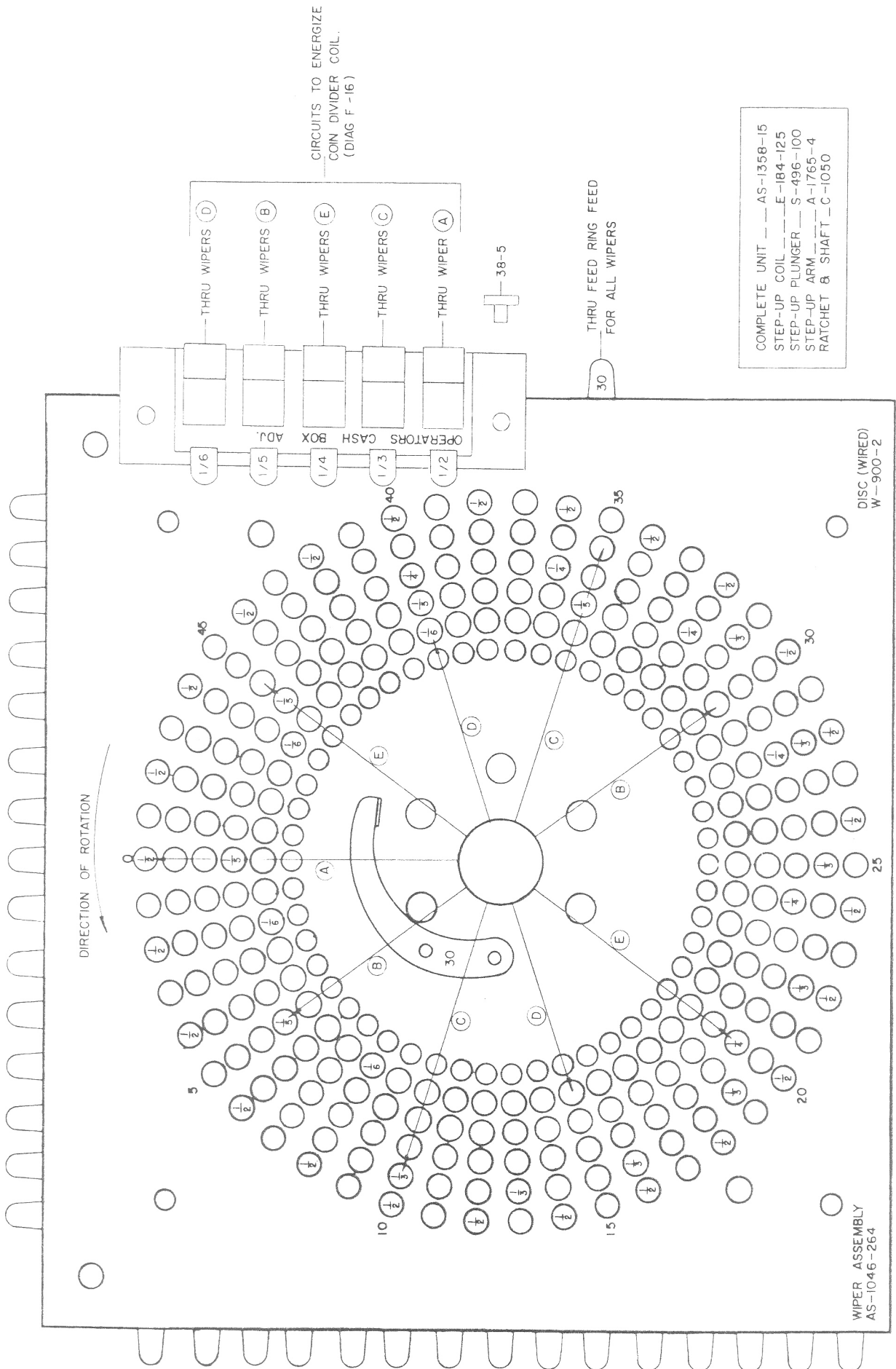
6 step unit. Wipers shown in zero or reset position



| | |
|-----------------|-------------|
| COMPLETE UNIT | AS-1022-47 |
| RESET COIL | 28-R-15 |
| STEP-UP COIL | 25-GG-7 |
| STEP-UP PLUNGER | S-496-00 |
| STEP-UP ARM | A-1765-4 |
| RATCHET & SHAFT | C-1050-6-39 |

COIN UNIT DISC viewed from **BUTTON** or **WIPER** side

Continuous step unit.



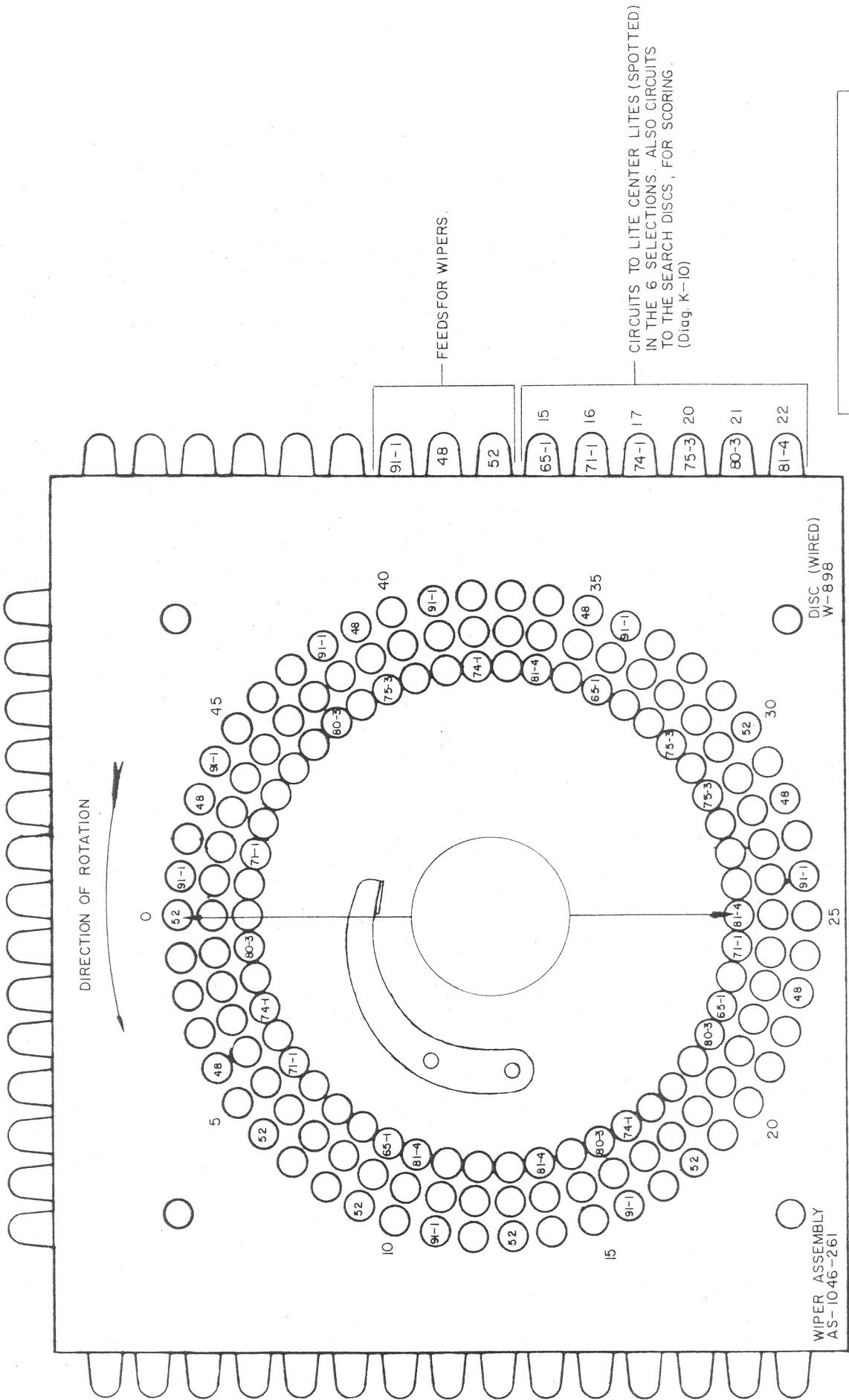
COMPLETE UNIT AS-1358-15
 STEP-UP COIL E-184-125
 STEP-UP PLUNGER S-496-100
 STEP-UP ARM A-1765-4
 RATCHET & SHAFT C-1050

DISC (WIRED)
 W-900-2

WIPER ASSEMBLY
 AS-1046-264

SPOTTING UNIT DISC viewed from **BUTTON** or **WIPER** side

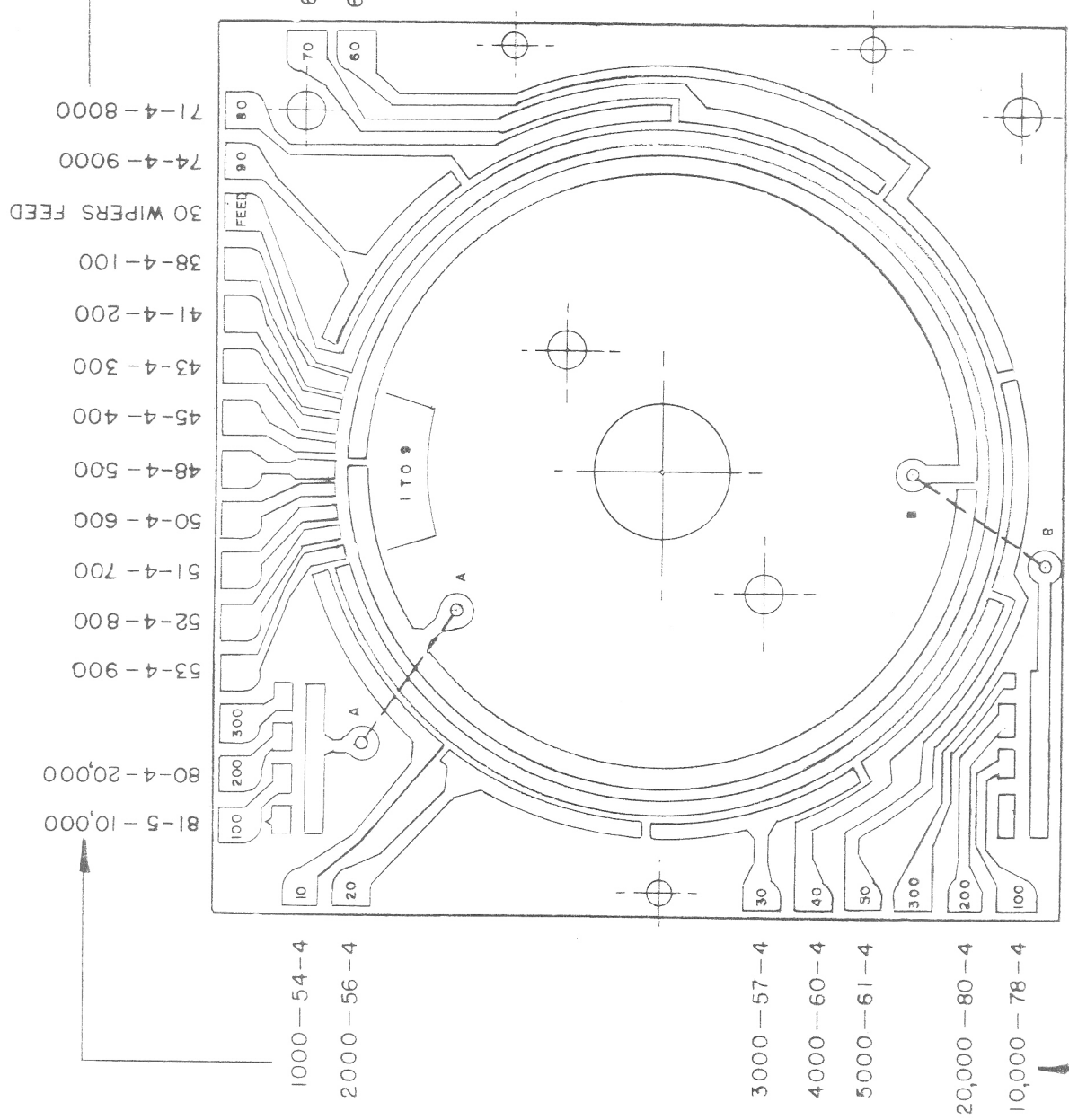
Continuous step unit.



COMPLETE UNIT.....AS-1358-10
 STEP-UP COIL.....E-184-125
 STEP-UP PLUNGER.....S-496-100
 STEP-UP ARM.....A-1765-4
 RATCHET & SHAFT.....C-1050

SCORE INDICATOR UNIT

viewed from WIPER side



PRINTED CIRCUIT
CONTACT PLATE
W-923-3

WIPER ASSEMBLY
AS-1046-293

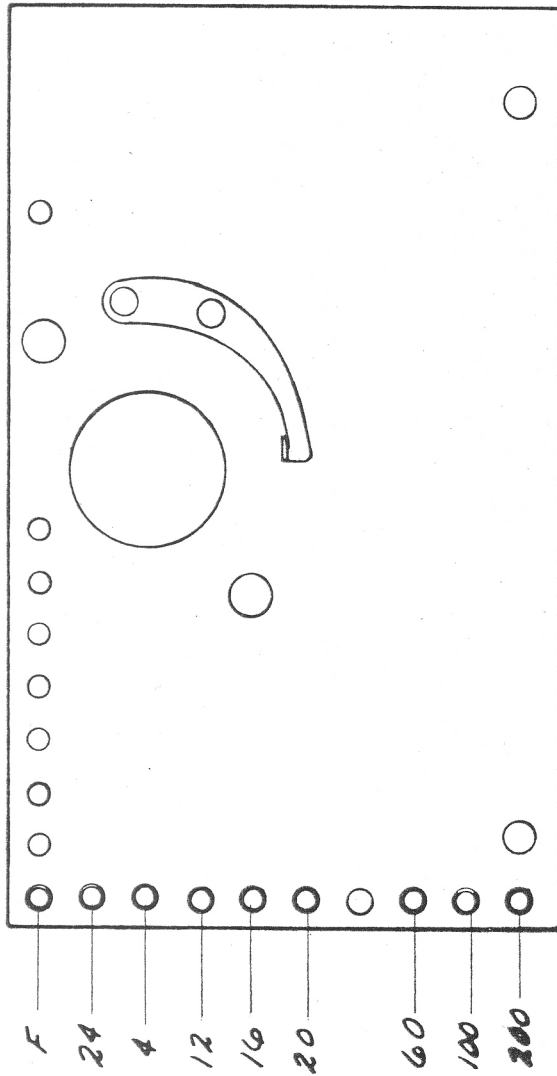
COMPLETE UNIT AS-797-50
RESET COIL — 28-R-15
STEP-UP COIL — 25-GG-7
STEP-UP PLUNGER — S-496-116
STEP-UP ARM — A-1765-6
RATCHET & SHAFT — C-100

SCORE INDICATOR LITES
(DIAG. K-1, K-3)

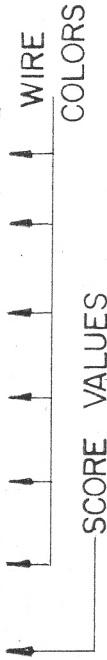
SCORE COUNTER

viewed from BUTTON or WIPER side

6 used (see code box at right)



| LUG | SCORE COUNTERS | | | | | |
|-----|----------------|------|------|------|------|------|
| | #1 | #2 | #3 | #4 | #5 | #6 |
| F | 45-2 | 48-2 | 51-2 | 54-3 | 56-3 | 57-3 |
| 24 | 14-4 | 23-6 | 36-6 | 48-6 | 53-6 | 61-6 |
| 4 | 52-2 | 52-2 | 52-2 | 52-2 | 52-2 | 52-2 |
| 12 | 10-6 | 18-6 | 27-6 | 31-6 | 43-6 | 56-6 |
| 16 | 53-2 | 53-2 | 53-2 | 53-2 | 53-2 | 53-2 |
| 20 | 13-4 | 21-6 | 31-6 | 43-6 | 52-6 | 57-6 |
| 60 | 15-4 | 25-6 | 38-6 | 75-6 | 50-6 | 63-6 |
| 100 | 54-2 | 54-2 | 54-2 | 54-2 | 54-2 | 54-2 |
| 200 | 60-2 | 60-2 | 60-2 | 48-3 | 48-3 | 48-3 |



PRINTED CIRCUIT
CONTACT PLATE
W-945

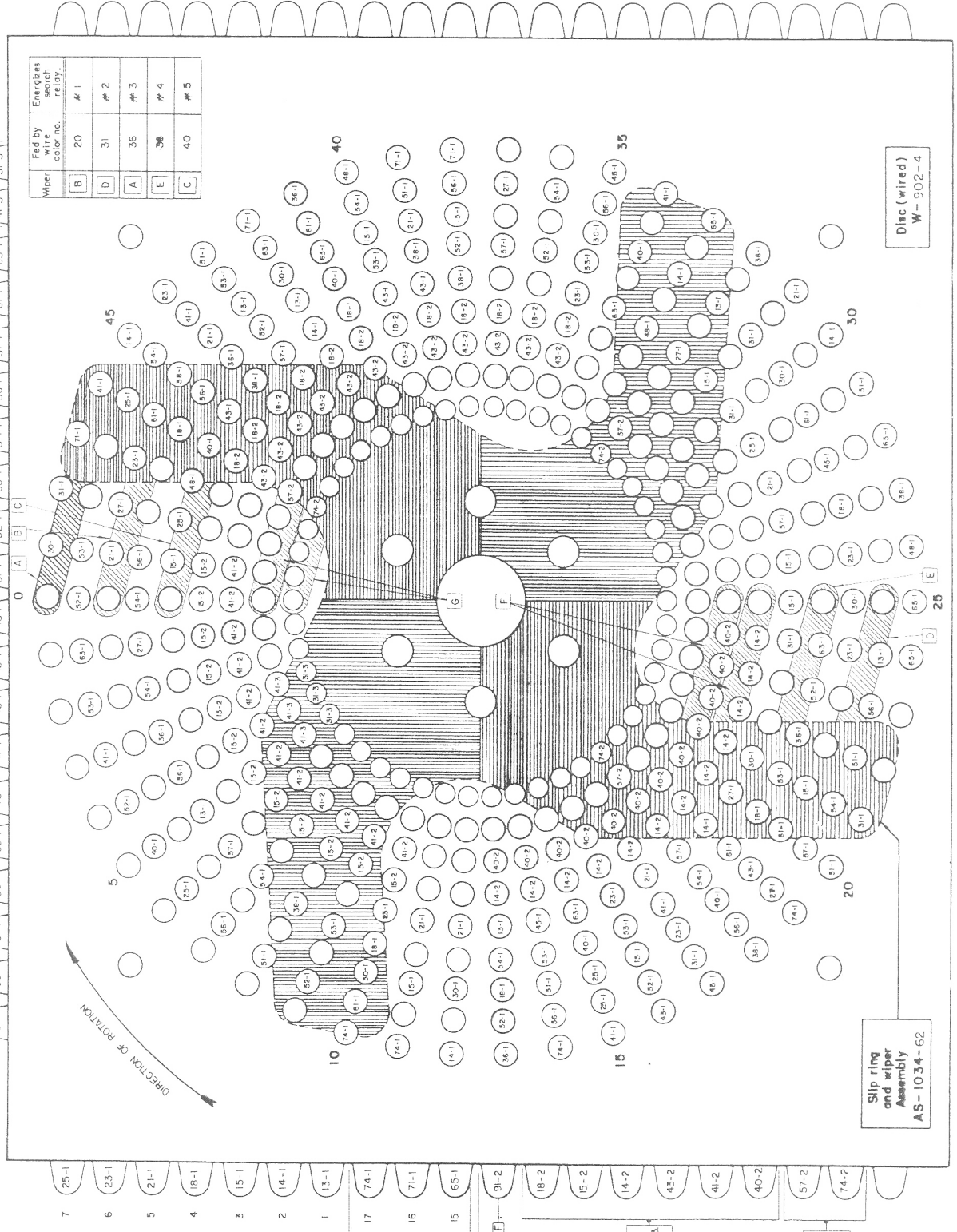
WIPER ASSEMBLY
(NOT SHOWN)
AS-1046-263

COMPLETE UNIT — AS-797-51
RESET COIL — 28-R-15
STEP-UP COIL — 25-GG-7
STEP-UP PLUNGER — S-496-116
STEP-UP ARM — A-1765-4
RATCHET & SHAFT — C-100

SEARCH DISC for Selections 1, 2, 3 viewed from BUTTON or WIPER side

THRU WIPERS (A), (B), (C), (D), (E), CIRCUITS FROM PANEL SWITCHES TO ENERGIZE SEARCH RELAYS FOR SCORING IN SELECTIONS 1, 2, AND 3. (DIAG. K-31)

THRU WIPERS (G), CIRCUIT TO ENERGIZE SEARCH RELAYS FOR SCORING IN SELECTIONS 1, 2, AND 3. (DIAG. D-11)



| Wiper | Color no. | Energizes relay # |
|-------|-----------|-------------------|
| B | 20 | # 1 |
| D | 31 | # 2 |
| A | 36 | # 3 |
| E | 38 | # 4 |
| C | 40 | # 5 |

Disc (wired)
W-902-4

Slip ring and wiper Assembly
AS-1034-62

7 25-1
6 23-1
5 21-1
4 18-1
3 15-1
2 14-1
1 13-1

17 74-1
16 71-1
15 65-1

9-1-2
18-2
15-2
14-2
43-2
41-2
40-2

57-2
74-2

ALSO FROM SPOTTING DISC

THRU FEED RING, FEED FOR WIPERS (F)

THRU WIPERS (E), CIRCUITS TO STEP #1, #2, AND #3 SCORE COUNTERS WHEN SCORING IN SELECTIONS 1, 2, & 3. (DIAG. B-20, 21, 23)

THRU WIPERS (G), CIRCUIT TO ENERGIZE YELLOW LINE RELAY 1-2-3 FOR YELLOW LINE SCORING IN SELECTIONS 1, 2, AND 3. (DIAG. D-23)

25-1
23-1
21-1
18-1
15-1
14-1
13-1
74-1
71-1
65-1
9-1-2
18-2
15-2
14-2
43-2
41-2
40-2
57-2
74-2

7 25-1
6 23-1
5 21-1
4 18-1
3 15-1
2 14-1
1 13-1
17 74-1
16 71-1
15 65-1
9-1-2
18-2
15-2
14-2
43-2
41-2
40-2
57-2
74-2

ALSO FROM SPOTTING DISC

THRU FEED RING, FEED FOR WIPERS (F)

THRU WIPERS (E), CIRCUITS TO STEP #1, #2, AND #3 SCORE COUNTERS WHEN SCORING IN SELECTIONS 1, 2, & 3. (DIAG. B-20, 21, 23)

THRU WIPERS (G), CIRCUIT TO ENERGIZE YELLOW LINE RELAY 1-2-3 FOR YELLOW LINE SCORING IN SELECTIONS 1, 2, AND 3. (DIAG. D-23)

SEARCH POSITIONS CHART

| | WIPER [A] AT POSITION | WIPER [B] SEARCH RELAY # 1 | WIPER [D] SEARCH RELAY # 2 | WIPER [A] SEARCH RELAY # 3 | WIPER [E] SEARCH RELAY # 4 | WIPER [C] SEARCH RELAY # 5 | |
|-------------|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------|
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | | | | | |
| | 9 | | | | | | |
| DIAGONAL | 10 | 9 | 22 | 17 | 20 | 6 | SELECTION-3 |
| | 11 | 3 | 21 | 17 | 19 | 5 | |
| | 12 | 9 | 8 | 2 | 23 | 5 | |
| | 13 | 4 | 22 | 11 | 19 | 1 | |
| VERTICAL | 14 | 10 | 18 | 17 | 12 | 16 | |
| | 15 | 7 | 21 | 14 | 20 | 25 | |
| | 16 | 3 | 24 | 15 | 13 | 6 | |
| YELLOW LINE | 17 | 6 | 25 | 16 | 1 | 5 | |
| | 18 | 13 | 20 | 12 | 19 | 23 | |
| HORIZONTAL | 19 | 15 | 14 | 17 | 11 | 2 | |
| | 20 | 24 | 21 | 18 | 22 | 8 | |
| | 21 | 3 | 7 | 10 | 4 | 9 | |
| | 22 | | | | | | |
| | 23 | | | | | | |
| DIAGONAL | 24 | 6 | 20 | 15 | 22 | 10 | SELECTION-2 |
| | 25 | 9 | 19 | 15 | 21 | 3 | |
| | 26 | 6 | 25 | 17 | 8 | 3 | |
| | 27 | 4 | 20 | 12 | 21 | 23 | |
| VERTICAL | 28 | 16 | 14 | 15 | 11 | 5 | |
| | 29 | 24 | 19 | 18 | 22 | 7 | |
| | 30 | 9 | 13 | 2 | 1 | 10 | |
| YELLOW LINE | 31 | 10 | 7 | 5 | 23 | 3 | |
| | 32 | 1 | 22 | 11 | 21 | 8 | |
| HORIZONTAL | 33 | 2 | 18 | 15 | 12 | 17 | |
| | 34 | 13 | 19 | 14 | 20 | 25 | |
| | 35 | 9 | 24 | 16 | 4 | 6 | |
| | 36 | | | | | | |
| | 37 | | | | | | |
| DIAGONAL | 38 | 3 | 19 | 16 | 21 | 12 | SELECTION-1 |
| | 39 | 5 | 22 | 16 | 20 | 15 | |
| | 40 | 3 | 7 | 17 | 13 | 15 | |
| | 41 | 25 | 19 | 11 | 20 | 4 | |
| VERTICAL | 42 | 9 | 10 | 16 | 14 | 2 | |
| | 43 | 1 | 22 | 18 | 21 | 23 | |
| | 44 | 5 | 8 | 6 | 24 | 12 | |
| YELLOW LINE | 45 | 12 | 23 | 2 | 4 | 15 | |
| | 46 | 24 | 21 | 14 | 20 | 13 | |
| HORIZONTAL | 47 | 6 | 18 | 16 | 11 | 17 | |
| | 48 | 8 | 22 | 10 | 19 | 7 | |
| | 49 | 5 | 1 | 9 | 25 | 3 | |
| | 50 | | | | | | |

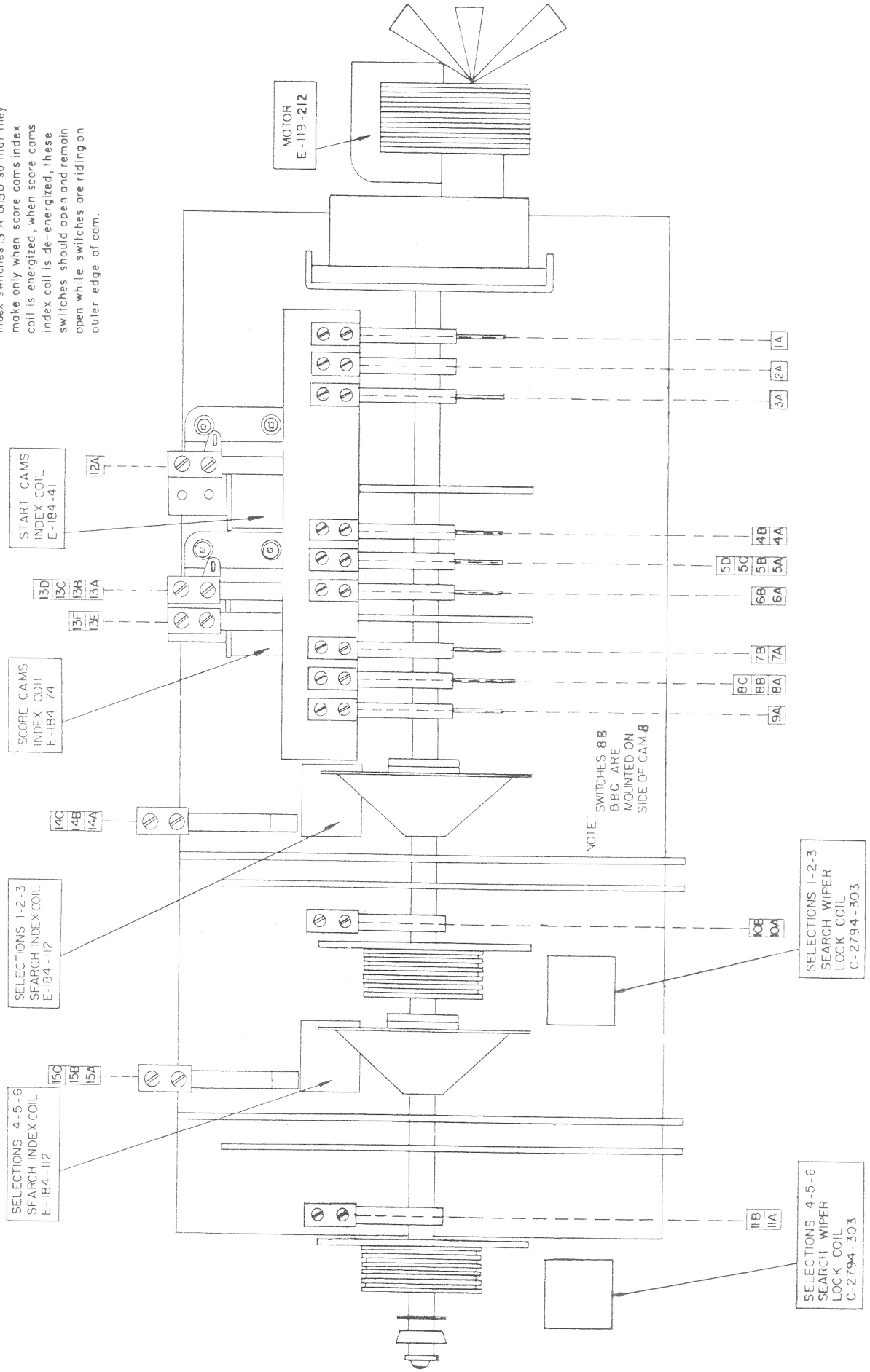
SEARCH POSITIONS CHART

| | WIPER [A] AT POSITION | WIPER [B] SEARCH RELAY # 1 | WIPER [D] SEARCH RELAY # 2 | WIPER [A] SEARCH RELAY # 3 | WIPER [E] SEARCH RELAY # 4 | WIPER [C] SEARCH RELAY # 5 | |
|-------------|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------|
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | | | | | |
| | 9 | | | | | | |
| DIAGONAL | 10 | 5 | 17 | 21 | 18 | 7 | SELECTION-6 |
| | 11 | 4 | 15 | 21 | 14 | 11 | |
| | 12 | 5 | 13 | 20 | 8 | 11 | |
| VERTICAL | 13 | 23 | 17 | 12 | 14 | 2 | |
| | 14 | 1 | 3 | 21 | 16 | 22 | |
| | 15 | 6 | 15 | 19 | 18 | 24 | |
| | 16 | 4 | 25 | 9 | 10 | 7 | |
| | 17 | 7 | 24 | 22 | 2 | 11 | |
| YELLOW LINE | 18 | 10 | 18 | 16 | 14 | 8 | |
| HORIZONTAL | 19 | 9 | 19 | 21 | 12 | 20 | |
| | 20 | 25 | 15 | 3 | 17 | 13 | |
| | 21 | 4 | 6 | 1 | 23 | 5 | |
| | 22 | | | | | | |
| | 23 | | | | | | |
| DIAGONAL | 24 | 4 | 14 | 22 | 15 | 1 | SELECTION-5 |
| | 25 | 8 | 17 | 22 | 18 | 6 | |
| | 26 | 4 | 24 | 5 | 11 | 6 | |
| VERTICAL | 27 | 13 | 14 | 19 | 18 | 3 | |
| | 28 | 10 | 16 | 22 | 9 | 21 | |
| | 29 | 23 | 17 | 12 | 15 | 7 | |
| | 30 | 8 | 2 | 20 | 25 | 1 | |
| | 31 | 1 | 7 | 21 | 3 | 6 | |
| YELLOW LINE | 32 | 25 | 15 | 9 | 18 | 11 | |
| HORIZONTAL | 33 | 20 | 12 | 22 | 19 | 5 | |
| | 34 | 2 | 17 | 16 | 14 | 24 | |
| | 35 | 8 | 23 | 10 | 13 | 4 | |
| | 36 | | | | | | |
| | 37 | | | | | | |
| DIAGONAL | 38 | 1 | 18 | 20 | 17 | 10 | SELECTION-4 |
| | 39 | 6 | 14 | 20 | 15 | 8 | |
| | 40 | 1 | 2 | 22 | 25 | 8 | |
| VERTICAL | 41 | 24 | 18 | 16 | 15 | 4 | |
| | 42 | 3 | 12 | 20 | 9 | 21 | |
| | 43 | 7 | 14 | 19 | 17 | 13 | |
| | 44 | 6 | 23 | 5 | 11 | 10 | |
| | 45 | 10 | 13 | 21 | 4 | 8 | |
| YELLOW LINE | 46 | 11 | 17 | 9 | 15 | 25 | |
| HORIZONTAL | 47 | 5 | 19 | 20 | 16 | 22 | |
| | 48 | 23 | 14 | 12 | 18 | 2 | |
| | 49 | 6 | 7 | 3 | 24 | 1 | |
| | 50 | | | | | | |

CONTROL UNIT PICTORIAL VIEW NUMBERS CORRESPOND TO SWITCH CHART ON PAGE 13

Note:

It is important to adjust score cams index switches 13 A & 13 B so that they make only when score cams index coil is energized, when score cams index coil is de-energized, these switches should open and remain open while switches are riding on outer edge of cam.

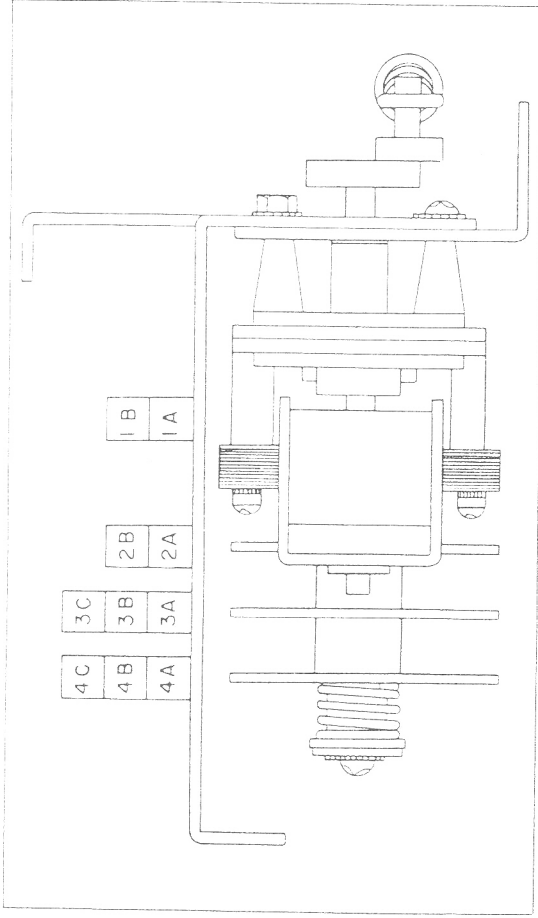


CONTROL UNIT CAM SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW ON PAGE 12

| CAM SWITCH | LOCATION ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|--|---------------------|------------------------------------|--|---|
| 1A N.O. | C-14 | 10-2 13-2 | Red Red-Yellow | In series with control unit cam switch #4B, energizes spotting unit step-up coil. |
| 2A N.O. PIN SWITCH | E-8 | 63-2 40-7 | Brown-Yellow Green | Pulses timer unit step-up coil, when circuit complete thru other factors. |
| 3A N.O. 16 PULSE | C-7 | 75 83 | Orange-White Black-Yellow | Pulses score indicator escapement coil, when score reset relay is energized. |
| 4A N.C. | I-6 | 93-1 30 | Gray-Yellow Yellow | Opens start circuit. |
| 4B N.O. | D-14 | 10-2 36-4 | Red Yellow-Brown | In series with control unit cam switch #1A, energizes spotting unit step-up coil. |
| 5A N.O. | C-4 | 51 30 | White-Red Yellow | Energizes anti-cheat relay. |
| 5B N.O. | F-8 | 45 63 | Green-White Brown-Yellow | Pulses coin unit step-up coil on each coin played, when score indicator unit is at zero. |
| 5C N.O. | F-8 | 50-1 63 | White Brown-Yellow | Pulses coin unit step-up coil on 1st coin played, when score indicator unit is not at zero. (Fun-spot operation) |
| 5D S.P.D.T. | D-6 | 81 14-5 13-5 | Black-Red Red-Green Red-Yellow | Opens start circuit, and completes a circuit to energize tilt relay if coin switch is closed too long. (Anti-cheat coin switch circuit) |
| 6A N.O. | F-14 | 36-4 53-3 | Yellow-Brown White-Yellow | Pulses selection unit step-up coil. |
| 6B N.O. | G-5 | 43 30 | Green-Yellow Yellow | Pulses score indicator unit escapement coil, when score reset relay is not energized. |
| 7A N.O. | A-19 | 75-4 90 | Orange-White Gray | Pulses score counter unit #1, #2 or #3 step-up coil, when a scoring circuit is completed in selections 1-2 or 3. |
| 7B N.O. | A-25 | 78-2 80 | Orange-Black Black | Pulses score counter unit #4, #5 or #6 step-up coil, when a scoring circuit is completed in selection 1, 2 or 3. |
| 8A N.O. | D-15 | 21-2 23-2 | Blue-Red Blue-Yellow | Pulses score indicator unit step-up coil when a scoring circuit is completed. |
| 8B N.O. VERTICAL SWITCH | E-17 | 27-2 91-2 | Blue-Orange Gray-Red | In series with scoring lock-in circuit when scoring in selections 1, 2 or 3. |
| 8C N.O. VERTICAL SWITCH | E-25 | 27-2 71-3 | Blue-Orange Orange-Red | In series with scoring lock-in circuit when scoring in selections 4, 5 or 6. |
| 9A N.C. | H-17 | 50 90-1 | White Gray | In series with scoring circuits when scoring in any selections. |
| SELECTIONS 1-2-3 SEARCH WIPER LOCK COIL | A-11 | 27-3 70 | Blue-Orange Orange | Energized when 4th ball is raised to playfield, and releases selections 1-2-3 search wipers to search for scores. |
| SEARCH CAM 10A N.O. 10B | F-2 | 10P 20P 23-3 38-7 31-3 | Red(Plastic) Blue(Plastic) Blue-Yellow Yellow-Black Yellow-Red | Completes a circuit to control unit motor. Directs circuit to energize selection 1-2-3, search wiper lock coil, or selection 4-5-6 search wiper lock coil. |

| CAM SWITCH | LOCATION ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|--|---------------------|----------------------|--|---|
| SELECTIONS 4-5-6 SEARCH WIPER LOCK COIL | A-11 | 41-3 70 | Green-Red Orange | Energized when search for scores in selections 1-2-3 is completed, and releases selections 4-5-6 search wipers to search for scores. |
| SEARCH CAM 11A N.O. | F-2 | 10P 20P | Red(Plastic) Blue(Plastic) | Completes a circuit to control unit motor. |
| SEARCH CAM 11B S.P.D.T. | C-11 | 27-3 23-3 25-3 | Blue-Orange Blue-Yellow Blue-White | Directs circuit to energize selections 1-2-3 search wiper lock coil at start of search cycle, or after selection 4-5-6 search cycle is completed. |
| START CAMS INDEX COIL | A-10 | 56 70 | White-Brown Orange | Energized thru shutter motor cam switch #4C when start relay is energized. |
| 12A N.O. | E-2 | 10P 20P | Red(Plastic) Blue(Plastic) | Completes a circuit to run control unit motor. |
| SCORE CAMS INDEX COIL | A-15 | 21-2 70 | Blue-Red Orange | Energized when scoring in any selection, and releases scoring cams. |
| 13A N.O. | H-17 | 27-2 50 | Blue-Orange White | In series with scoring lock-in circuits when scoring in any selection. |
| 13B N.O. | H-16 | 50 90-1 | White Gray | Same as above switch. |
| 13C N.C. | B-17 | 51-3 91-2 | White-Red Gray-Red | Opens direct 50 volt circuit to selection 1-2-3 search index coil, coil then held in thru resistor. |
| 13D N.C. | B-25 | 52-3 71-3 | White-Blue Orange-Red | Opens direct 50 volt circuit to selection 4-5-6 search index coil, coil then held in thru resistor. |
| 13E N.O. | E-2 | 10P 20P | Red(Plastic) Blue(Plastic) | Completes a circuit to run control unit motor. |
| 13F N.C. | E-8 | 61-2 63-2 | Brown-Red Brown-Yellow | Opens timer unit step-up circuit. |
| SELECTIONS 1-2-3 SEARCH INDEX COIL | B-17 | 51-3 90 | White-Red Gray | Energized when a scoring circuit is completed in selection 1-2 or 3. |
| 14A N.C. | H-6 | 15-5 93-1 | Red-White Gray-Yellow | Opens start circuit. |
| 14B N.C. | A-25 | 80 70 | Black Orange | Opens circuit to selection 4-5-6 search index coil. |
| 14C N.O. | H-15 | 21-2 91-2 | Blue-Red Gray-Red | In series with a circuit to energize score cams index coil, and step score indicator unit. |
| SELECTIONS 4-5-6 SEARCH INDEX COIL | B-25 | 52-3 80 | White-Blue Black | Energized when a scoring circuit is completed in selection 4, 5 or 6. |
| 15A N.C. | G-6 | 15-5 57 | Red-White White-Orange | Opens start circuit. |
| 15B N.C. | A-17 | 90 70 | Gray Orange | Opens circuit to selection 1, 2, 3 search index coil. |
| 15C N.O. | G-15 | 21-2 71-3 | Blue-Red Orange-Red | In series with a circuit to energize score cams index coil, and step score indicator unit. |

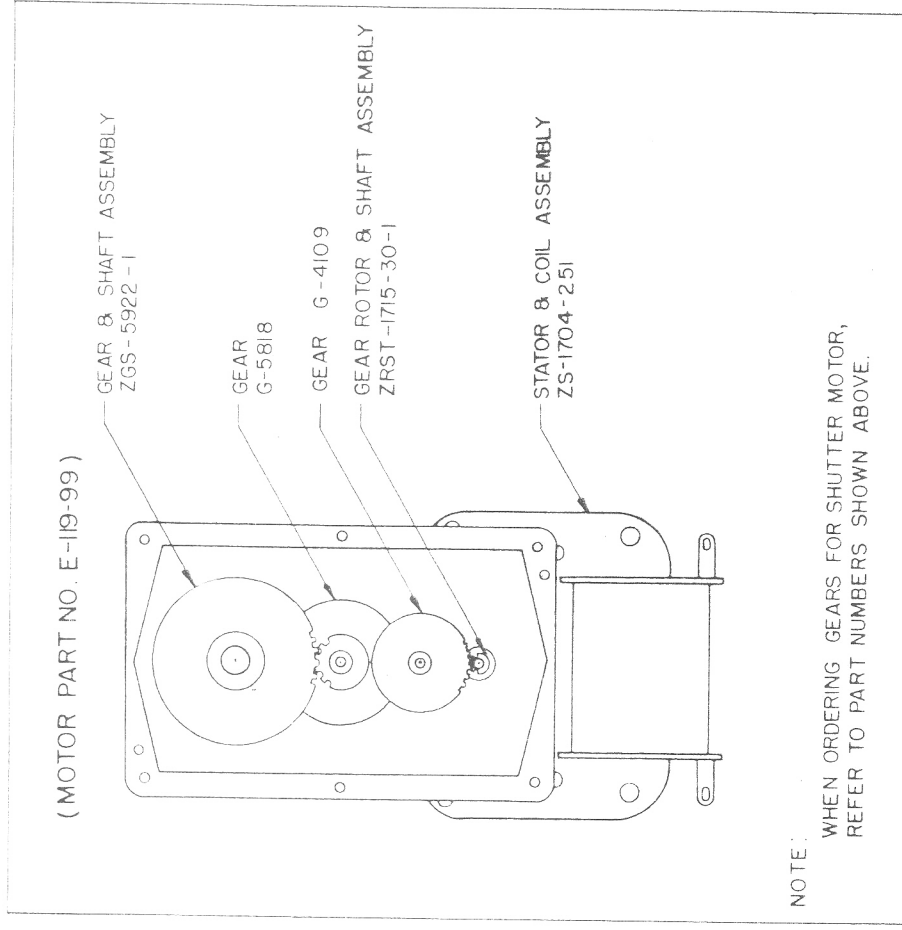
SHUTTER MOTOR PICTORIAL VIEW



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

| CAM SWITCH | LOCATION ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|-------------|---------------------|------------------|-------------------------------------|---|
| 1A | N.C. | 90-1 30 | Gray Yellow | (Closed when shutter is closed) in series with scoring circuit. |
| 1B | N.O. | 80-2 30 | Black Yellow | Completes shutter motor carry-over circuit. |
| 2A | N.O. | 98 30 | Gray-Black Yellow | Energizes ball gate relay when starting new game. |
| 2B | N.O. | 85 30 | Black-White Yellow | Resets score counter units, selection unit, timer unit, and energizes tilt reset coil when starting new game. |
| 3A | N.O. | 38-2 61 | Yellow-Black Brown-Red | (Closed when shutter is open) in series with circuit to close shutter if game is tilted when shutter is open. |
| 3B | N.C. | 91-1 30 | Gray-Red Yellow | (Closed when shutter is closed) in series with circuit to tilt spotted number lites. |
| 3C | N.O. | 61 80-2 | Brown-Red Black | (Closed when shutter is open) in series with circuit to close shutter when game is tilted when shutter is open. Also in series with circuit to close shutter when 1st ball is shot. |
| 4A | N.O. | 78 | Orange-Black | (Closed when shutter is open) in series with automatic start circuit thru red button adjustment plug. |
| 4B | N.C. | 60-1 93-2 | Black-Red Brown Gray-Yellow | (Closed when shutter is closed) in series with timer unit step-up circuit. Also in series with search circuit. |
| 4C S.P.D.T. | B-9 | 80-2 54 56 | Black White-Green White-Brown | Directs circuit to open shutter, and energize start cams index coil when start relay is energized. |

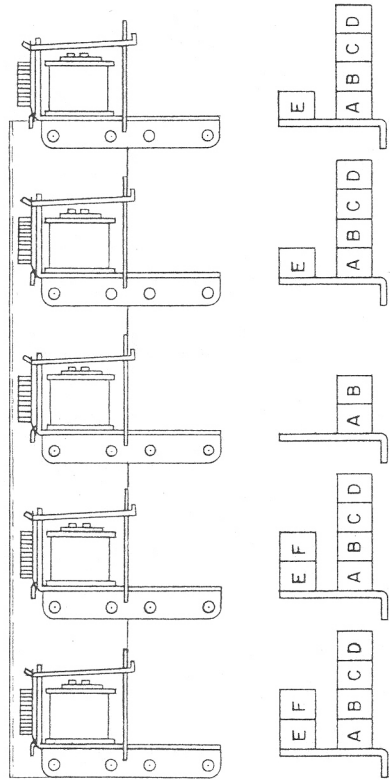
SHUTTER MOTOR



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

5 RELAYS BANK PICTORIAL VIEW

NUMBERS CORRESPOND TO SWITCH CHART AT RIGHT



5 RELAYS BANK SWITCH CHART

FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW

| RELAY SWITCH | LOCATION ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|------------------------------|---------------------|----------------------|---|--|
| 4-5-6 YELLOW LINE RELAY COIL | A-31 | 40-3 70 | Green Orange | Energized thru selections 4-5-6 search disc when scoring in yellow line of selections 4, 5 or 6. |
| A S.P.D.T. | E-35 | 53-2 71-6 52-2 | White-Yellow Orange-Red White-Blue | Directs #4 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 4. |
| B S.P.D.T. | F-26 | 54-2 75-6 53-2 | White-Green Orange-White White-Yellow | Directs #4 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 4. |
| C S.P.D.T. | E-27 | 53-2 51-6 52-2 | White-Yellow White-Red White-Blue | Directs #5 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 5. |
| D S.P.D.T. | F-28 | 54-2 50-6 53-2 | White-Green White White-Yellow | Directs #5 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 5. |
| E S.P.D.T. | E-28 | 53-2 56-6 52-2 | White-Yellow White-Brown White-Blue | Directs #6 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 6. |
| F S.P.D.T. | F-29 | 53-2 63-6 53-2 | White-Green Brown-Yellow White-Yellow | Directs #6 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 6. |
| 1-2-3 YELLOW LINE RELAY COIL | A-24 | 57-2 70 | White-Orange Orange | Energized thru selections 1-2-3 search disc when scoring in yellow line of selections 1, 2 or 3. |
| A S.P.D.T. | E-19 | 53-2 10-6 52-2 | White-Yellow Red White-Blue | Directs #1 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 1. |
| B S.P.D.T. | F-19 | 54-2 15-4 53-2 | White-Green Red-White White-Yellow | Directs #1 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 1. |
| C S.P.D.T. | E-20 | 53-2 18-6 52-2 | White-Yellow Red-Black White-Blue | Directs #2 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 2. |
| D S.P.D.T. | F-21 | 54-2 25-6 53-2 | White-Green Blue-White White-Yellow | Directs #2 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 2. |
| E S.P.D.T. | E-22 | 53-2 27-6 52-2 | White-Yellow Blue-Orange White-Blue | Directs #3 score counter step-up circuit during white 4-in-line or yellow 3-in-line scoring in selection 3. |
| F S.P.D.T. | F-22 | 54-2 38-6 53-2 | White-Green Yellow-Black White-Yellow | Directs #3 score counter step-up circuit during white 5-in-line or yellow 4-in-line scoring in selection 3. |
| START RELAY COIL | A-6 | 98-3 70 | Gray-Black Orange | Energized on each spin of game, thru coin switch, replay button switch, and also thru automatic selection step-up circuit. Lock-in circuit for this relay. |
| A N.O. | E-6 | 57 81 | White-Orange Black-Red | Completes circuit to open shutter, and energize start cams index coil. |
| B N.O. | C-9 | 54 30 | White-Green Yellow | |

| Name | 4-5-6 YELLOW LINE REYELLOW LINE RE. | | 1-2-3 YELLOW LINE RE. | | START RE. | ANTI-CHEAT RE. | SCORE RESET RE. | |
|-----------------------------------|--|------------|-----------------------|------------|-------------|----------------|-----------------|------------|
| | # 33 | # 33 | # 33 | # 33 | # 33 | # 33 | # 33 | |
| Coil turns & wire gauge (nominal) | 1700 | 1700 | 1700 | 1700 | 1800 | 2300 | 2300 | |
| Coil resistance | 60 | 60 | 60 | 60 | 65 | 85 | 85 | |
| Operating voltage | 50 V. | 50 V. | 50 V. | 50 V. | 50 V. | 50 V. | 50 V. | |
| Test voltage | 37 V. | 37 V. | 37 V. | 37 V. | 32 V. | 39 V. | 37 V. | |
| Extension spring load | GREEN | GREEN | GREEN | GREEN | GREEN | YELLOW | YELLOW | |
| Sw. actuator stroke | 3/32 | 3/32 | 3/32 | 3/32 | 3/32 | 3/32 | 3/32 | |
| Additional information | THERMALEZE WIRE OR EQUIVALENT NO WRAP ON COIL. | | | | | | | |
| | C-7300-338 | | | | | | | C-7300-331 |
| COIL NO. | C-7300-338 | C-7300-338 | C-7300-334 | C-7300-336 | SPRING CODE | | | |
| | COLOR | PART NO. | LOAD | | | | | |
| | CLEAR | SP-199-13 | 13 OZ. AT 5/16 | | | | | |
| | BLUE | SP-199-14 | 21 OZ. AT 5/16 | | | | | |
| | YELLOW | SP-199-15 | 15 OZ. AT 5/16 | | | | | |
| | RED | SP-199-16 | 9 OZ. AT 5/16 | | | | | |
| | GREEN | SP-199-17 | 17 OZ. AT 5/16 | | | | | |

MISCELLANEOUS RELAYS SWITCH CHART

5 RELAYS BANK SWITCH CHART FOR POSITION OF SWITCHES REFER TO PICTORIAL VIEW

| RELAY SWITCH | LOCATION ON ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|----------------------|------------------------|----------|----------------|---|
| TILT RESET COIL | B-13 | 85 | Black-White | Energized by shutter motor cam switch #2B, when starting new game. When this coil is energized, tilt relay coil drops out. |
| TILT RELAY COIL | A-5 | 70 | Orange | Energized by tilt switches of plumb bob tilt. Also thru control unit cam switch #5D if coin switch is closed too long. |
| A | N.C. | 10P | Orange | Opens circuit to control unit motor. |
| B | N.C. | 30P | Red(Plastic) | Opens circuit to control unit motor. |
| C | N.C. | J | White(Plastic) | Opens circuit to tilt relay coil. |
| D | N.O. | 15 | Red-Yellow | Opens 17 volt circuit. |
| E | N.O. | 16 | Red-White | Completes a circuit to tilt lite. |
| | | 31-4 | Red-Black | |
| | | 60-1 | Yellow-Red | |
| | | 30 | Brown | Opens timer step-up circuit, and search circuit, and completes circuit to close shutter if game is tilted when shutter is open. |
| | | 38-2 | Yellow-Black | |
| BALL GATE RELAY COIL | A-10 | 98 | Gray-Black | Energized by shutter motor cam switch 2A when starting new game. Relay stays energized until 1st ball is shot. |
| A | N.O. | 70 | Orange | Lock-in circuit for this relay. |
| | | 98 | Orange-Red | |
| B | N.C. | 61 | Gray-Black | In series with circuit to close shutter when 1st ball is shot. |
| | | 30 | Brown-Red | |
| | | | Yellow | |

| RELAY SWITCH | LOCATION ON ON DIAGRAM | WIRE No. | WIRE COLORS | FUNCTION OF SWITCHES |
|------------------------|------------------------|----------|---------------|---|
| ANTI-CHEAT RELAY COIL | A-5 | 51 | White-Red | Energized by control unit cam switch #5A. Switches on this relay protect scoring, lite, and game playing circuits. |
| A | N.O. | 70 | Orange | Lock-in circuit for this relay. |
| B | N.O. | 30 | White-Red | Opens 17 volt circuit when this relay drops out. |
| C | N.C. | 14 | Yellow | Completes circuit to energize score reset relay when this relay drops out. |
| D | N.C. | 74 | Red-Green | Completes circuit to energize score reset relay when this relay drops out. |
| E | N.O. | 75 | Orange-Green | Completes a circuit to lite tilt lite when this relay drops out. |
| | | 18 | Orange-White | |
| | | 31-4 | Red-Black | |
| | | 31-4 | Yellow-Red | |
| | | 41-5 | Green-Red | |
| SCORE RESET RELAY COIL | A-8 | 75 | Orange-White | Energized thru score indicator unit "0" switch, when anti-cheat relay drops out. |
| A | N.O. | 70 | Orange | Lock-in circuit for this relay. |
| B | N.O. | 74 | Orange-Green | Completes a circuit to run control unit motor. |
| C | N.C. | 10P | Orange-White | Opens timer unit step-up circuit. |
| | | 20P | Red(Plastic) | |
| | | 53 | Blue(Plastic) | |
| | | 61-2 | White-Yellow | |
| D | N.C. | 81 | Brown-Red | Opens start circuit. |
| | | 98-3 | Black-Red | |
| E | S.P.D.T. | 91 | Gray-Black | Opens circuit to pulse score indicator unit escapement coil thru control unit cam switch #6B, and completes circuit to pulse coil thru control unit cam switch #3A. |
| | | 93 | Gray-Red | |
| | | 83 | Gray-Yellow | |
| | | | Black-Yellow | |

NEW ANTI-CHEAT COIN SWITCH CIRCUIT

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

The circuit is completed thru control unit cam switch #5D (on wiring diagram at D-6).

MISCELLANEOUS PARTS

Back Cabinet Assembly:

| Part No. | Name of Part |
|----------|-------------------------------|
| G-284-1 | Back glass—FUN SPOT—61 |
| G-284 | Back glass—BARREL O'FUN—61 |
| M-281-23 | Lock and keys (2) keyed alike |

Back Door Assembly:

| | |
|----------|---------------|
| M-281-25 | Lock and keys |
| P-758-17 | Lock cam |
| E-122-19 | Transformer |

Front Cabinet Assembly:

| | |
|-----------|-----------------------------|
| M-168-15 | Ball |
| AS-187-18 | Ball shooter assembly |
| A-1540-3 | Ball shooter housing |
| A-100-7 | Ball shooter rod |
| SP-200-24 | Ball shooter spring (long) |
| SP-243 | Ball shooter spring (short) |
| R-108-3 | Ball shooter tip |
| P-711-1 | Cigarette holder |
| P-2210-80 | Coin entry plate 10¢ |
| P-2210-81 | Coin entry plate 5¢ |
| P-1900-49 | Coin box—Front door |
| P-1900-50 | Coin box—Side door |
| CA-1074-2 | Front moulding only |
| M-281-22 | Lock and keys—side door |
| M-163-13 | Leg |
| M-106-1 | Leg bolt |
| M-163-4 | Leg adjuster |
| CA-1074-3 | Side door only |

Front Door Assembly:

| Part No. | Name of Part |
|------------|--|
| A-1538-3 | Armature plate (AS-277-56) |
| E-101-45 | Coil—coin lockout |
| AS-277-56 | Coin switch assembly 5¢ and 10¢ |
| CA-567-119 | Front door only—FUN SPOT—61 |
| CA-567-118 | Front door only— BARREL O'FUN—61 |
| AS-1971-6 | Front door assembly complete— FUN SPOT—61 |
| AS-1971-5 | Front door assembly complete— BARREL O'FUN—61 |
| A-254-33 | Hinge and bracket |
| M-281-6 | Lock and keys |
| P-4005 | Lock cam |
| E-108-32 | Micro switch 5¢ and 10¢ |
| A-1729-6 | Push button—replay |
| SW-100-157 | Push button switch |
| P-2768-5 | Ring for A-1729-6 button |
| P-2768-7 | Ring for M-281-6 lock |
| M-280-15 | Slug rejector 5¢ |
| M-280-16 | Slug rejector 10¢ |

Panel Assembly:

| | |
|---------|-------------------------------|
| AS-1315 | Ball gate and switch assembly |
| C-326-9 | Light shield post |
| R-115-4 | Rebound rubber |
| M-170 | Rebound spring—double post |
| R-243 | Rubber ring for yellow post |
| R-243-2 | Rubber ring for red post |

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