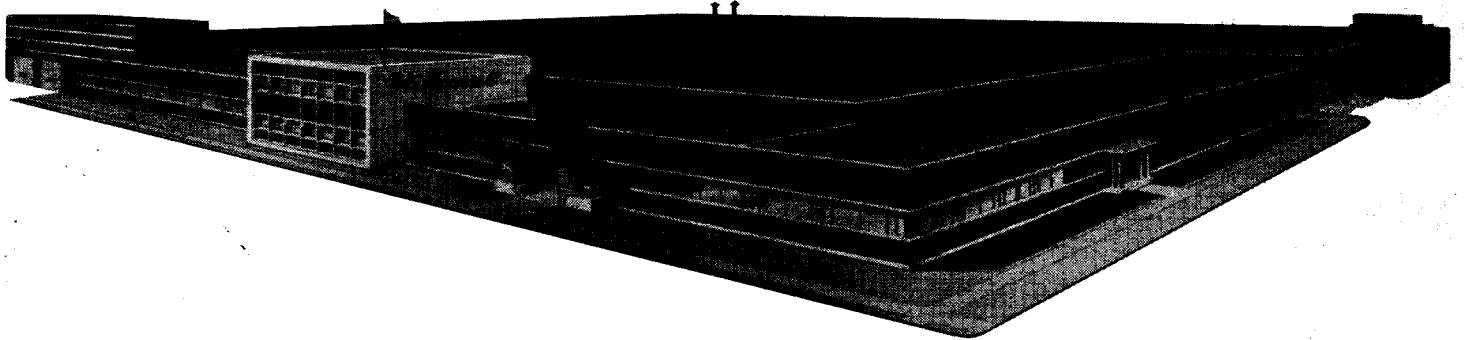


Instruction Manual

for

LADY LUCK



Williams® ELECTRONICS, INC.
SUBSIDIARY OF THE SEEBURG CORPORATION

3401 N. California Ave.
Phone 267-2240

Chicago, Ill. 60618, U.S.A.
Cable Address: Wilcoin

IMPORTANT NOTICE

KINDLY INFORM LOCATIONS THAT THEY CAN TURN DISPLAY LIGHTS ON BY PRESSING LEFT FLIPPER BUTTON. MACHINE CAN STILL BE SHUT OFF BY TAPPING BOTTOM OF CABINET.

MASTER SWITCH (ON-OFF) IS LOCATED UNDERNEATH FRONT PART OF CABINET.

CAUTION!

The playboard on this machine has an improved finish with excellent wearing properties. Do not under any circumstances clean the board with water, water soap solutions or harsh abrasives. Avoid such things as steel wool, kitchen cleansers or abrasive hand soap. Water will weaken the adhering of the paint to the board and abrasives shorten the board life by many thousand plays. A wax base cleaner with negligible abrasive qualities used lightly, but frequently, will extend the board life to its full capabilities.

SERVICEMAN TO REMOVE BACKGLASS:

- WITH BACK DOOR REMOVED, PULL BACK ON BRACKETS AT INSIDE TOP OF LITE BOX.**
- FROM THE FRONT OF GAME, LIFT GLASS UP AND OUT.**

INSTRUCTIONS FOR ALTERING COIN CHUTES EQUIPPED WITH A FLIP-OVER DEVICE.

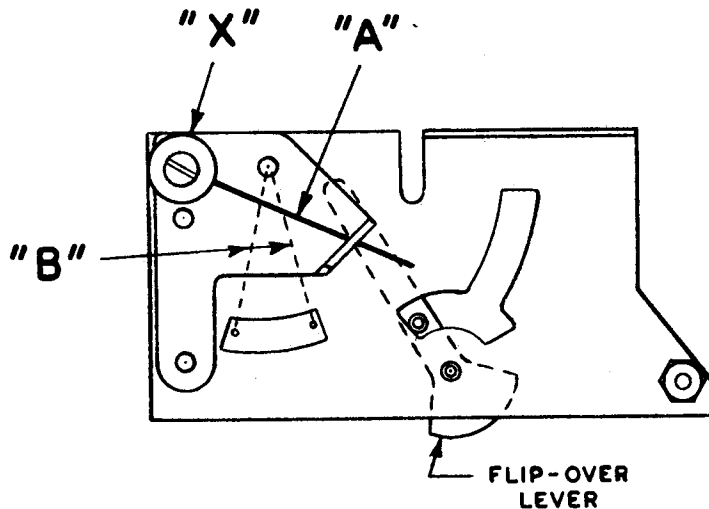
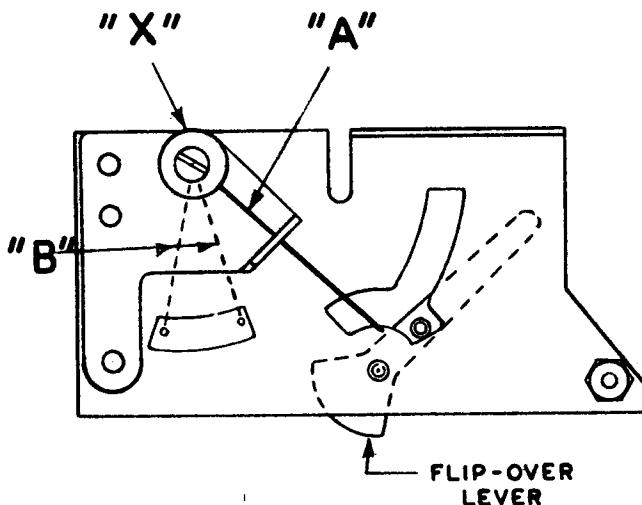
FOR 1 COIN - FOR 1 PLAY

OR

2 COINS - FOR 1 PLAY

FIGURE 1

FIGURE 2



1 COIN - FOR 1 PLAY (FIGURE 1):

Wire form "A" should be in position as shown in Figure 1. Flip-over lever should rebound from wire form "A" and return to position shown in Figure 1 everytime a coin is inserted. All coins pass over the coin trip switch wire "B".

2 COINS - FOR 1 PLAY (FIGURE 2):

Wire form "A" should be in position as shown in Figure 2 (see note). Flip-over lever should alternate from side to side. 1st coin should go to cash box without actuating coin trip switch wire "B", 2nd coin should pass the coin trip switch wire "B" and returns flip-over to position as shown in Figure 2.

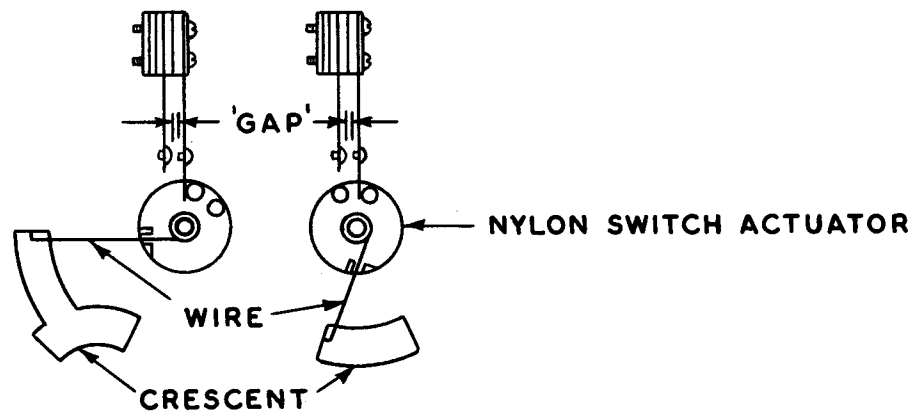
NOTE:

To change from 1 coin play to 2 coin play or vice versa - loosen screw "X" and move screw, bushing & wire form "A" to position as required - shown in Figure 1 position as required - shown in Figure 1 or Figure 2.

When using 1 coin for 1 play, wire form "A" should not under any circumstances be allowed to enter the "Banana" slot and cause binding of flip-over lever.

INSTRUCTIONS FOR COIN TRIP SWITCH ADJUSTMENT

WIRE SHOULD BE IN CONTACT WITH END OF CRESCENT OPENING WHEN BLADE ADJUSTMENT IS MADE.



Long blade should be in contact with nylon switch actuator and have a maximum overtravel of 1/32.

or

Using a gram gauge, tension of long blade should not exceed 10 grams.

SWITCH ADJUSTMENT

1. For small coins, such as dimes, adjust short blade so that the 'gap' between the silver contacts is .045 to .055.
2. For larger & heavier coins the 'gap' should be .045 to .060.
3. Do not adjust 'gap' closer than .040.

WARRANTY

THE MOTORS IN ALL NEW WILLIAMS PRODUCTS
ARE UN-CONDITIONALLY GUARANTEED FOR
6 MONTHS FROM DATE OF PURCHASE.

ANY DEFECTIVE MOTORS RETURNED DURING THE
WARRANTY PERIOD WILL BE REPLACED FREE OF
CHARGE BY YOUR WILLIAMS DISTRIBUTOR.

IMPORTANT NOTICE

WHEN ORDERING PARTS ALWAYS SPECIFY NAME OF
UNIT, GAME AND SERIAL NUMBER, IN ADDITION TO A
CLEAR DESCRIPTION OF THE PART AND PART
NUMBER IF POSSIBLE.

UNIT PARTS LIST FOR "LADY LUCK"

UNIT NAME	CONTACT DISC	WIPER ASS'Y.	RATCHET GEAR ASSEMBLY	MOTORS
REPLAY BALL COUNT MATCH ADVANCE	<u>C-6878</u> C-6417 C-6417	<u>C-6520</u> C-6521 C-6520	A-6400 A-6402-10 A-6403 A-6401	14A-7805 (60 CYCLE)
O-9 TENS HUNDREDS THOUSANDS O-9 CARD TENS-CARD	B-6297 <u>B-6297</u> B-6297 B-6297 B-6297 B-6297	A-6294 <u>A-6294</u> A-6294 A-6294 A-6294 A-6294	3C-7128 3C-7128 3C-7128 3C-7128 3C-7128 3C-7128	14A-7806 (50 CYCLE)

"LADY LUCK" COIL CHART

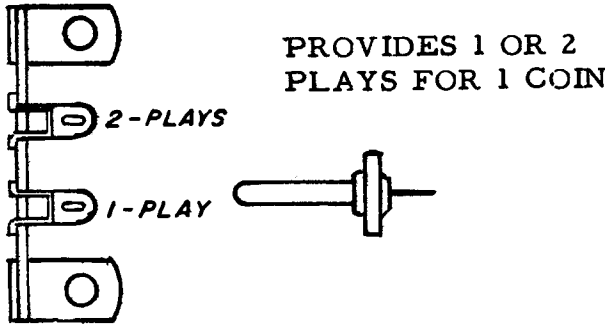
NOTICE:

THIS GAME OPERATES ON 24 VOLTS. WHEN ORDERING REPLACEMENT TRANSFORMERS, MOTORS, COILS OR METERS MAKE SURE TO SPECIFY CORRECT PART NUMBERS.

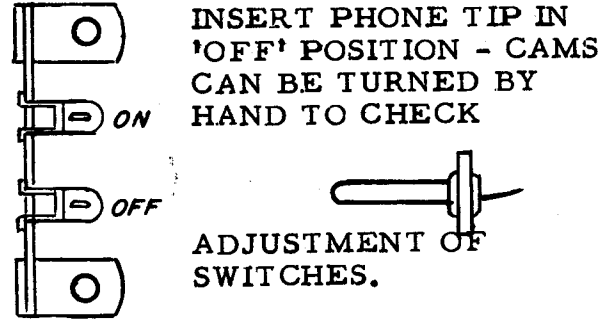
NUMBER	DESCRIPTION	LOCATION
14 A 7805	SCORE MOTOR - 60 CYCLE	MECH. PANEL
14 A 7806	SCORE MOTOR - 50 CYCLE	MECH. PANEL
15 A 6771	TRANSFORMER - 60 CYCLE	MECH. PANEL
15 A 6773	TRANSFORMER - 50 CYCLE	MECH. PANEL
B 6396	24 VOLT METER	MECH. PANEL
	<u>SOLENOID COILS</u>	
A 22-550	BALL RELEASE BALL COUNT UNIT STEP UP MATCH UNIT STEP UP ADVANCE UNIT STEP UP	PLAYFIELD INSERT INSERT PLAYFIELD
A 23-600	REPLAY UNIT STEP UP	INSERT
A2-23-750	LARGE BELL KNOCKER	CABINET CABINET
B 26-800	REPLAY UNIT RESET BALL COUNT UNIT RESET SCORE DRUM UNITS ... (12 req'd.)	INSERT INSERT INSERT
D 24-1400	RELAY BANK RESET COIL	PLAYFIELD
FL 21-375/ 28-400	FLIPPERS ... (2 req'd.)	PLAYFIELD
G 22-550	JET BUMPERS ... (4 req'd.)	PLAYFIELD
G 23-750	AUTOMATIC KICKERS ... (2 req'd.)	PLAYFIELD
G 23-600	EJECT COILS ... (2 req'd.)	PLAYFIELD
	<u>RELAY COILS</u>	
M 29-1000	SCORE RESET 2nd COIN (TRIP) PLAYER RESET	INSERT MECH. PANEL INSERT
M 29-1100	#1 BUMPER #2 BUMPER #3 BUMPER 1 POINT 10 POINT 100 POINT 10¢ RELAY 25¢ RELAY TARGET RELAY NO. 1 RELAY NO. 2 RELAY R.O. RELAY ADVANCE RELAY DELAY RELAY	PLAYFIELD PLAYFIELD PLAYFIELD INSERT INSERT INSERT MECH. PANEL MECH. PANEL PLAYFIELD PLAYFIELD PLAYFIELD PLAYFIELD PLAYFIELD PLAYFIELD PLAYFIELD
M 30-1300	"A" PLAYER RELAY	INSERT
M 30-1400	NO. 8 RELAY NO. 9 RELAY	INSERT INSERT
M1-31P-1500	COIN LOCKOUT COIL	CABINET
S 27-500	RELAY BANK COILS ... (7 req'd.)	PLAYFIELD
XM 27-675	METER COIL	MECH. PANEL
Z 27-1000	OUTHOLE RELAY RESET RELAY 2nd COIN RELAY (LATCH) EJECT RELAY COIN RELAY REPLAY RELAY	MECH. PANEL MECH. PANEL MECH. PANEL MECH. PANEL MECH. PANEL MECH. PANEL
Z 28-1150	LOCK RELAY PLAYER RELAY TILT RELAY CHANGE RELAY BALL INDEX RELAY	MECH. PANEL INSERT MECH. PANEL PLAYFIELD MECH. PANEL
Z 28-1200	GATE RELAY	PLAYFIELD

ADJUSTMENTS ON MECHANISM PANEL

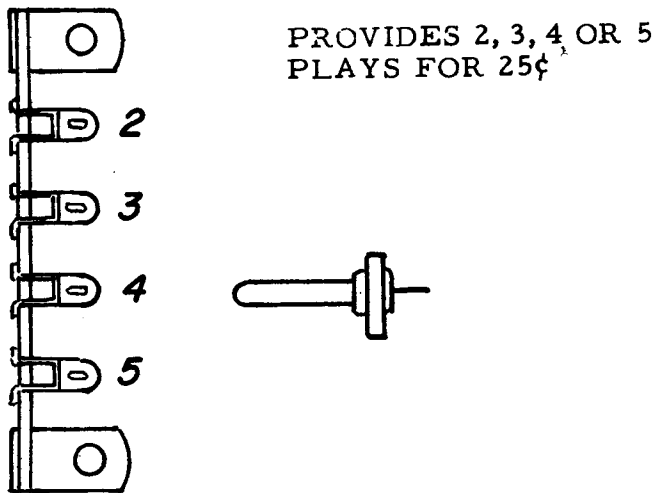
10¢ Adjustment



Motor Service Jack

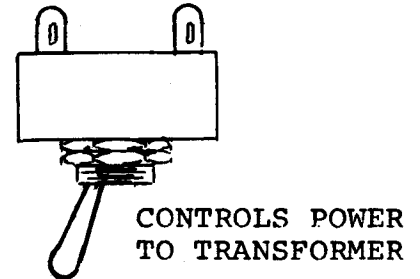


25¢ Adjustment

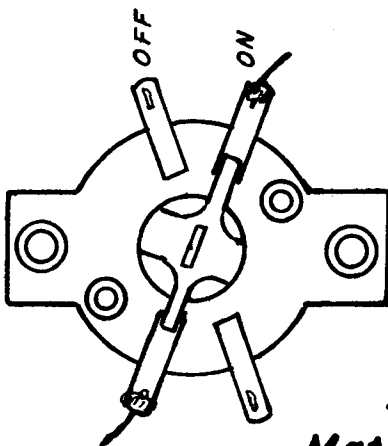


MASTER ON-OFF SW.

(Located under front of
Cabinet)

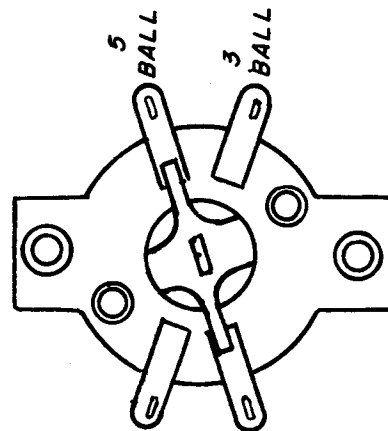


ADJUSTMENTS IN BACKBOX



Number Match Adjustment

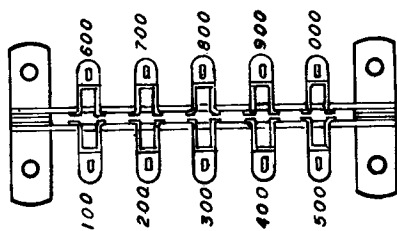
In "ON" position, number match lite will appear when game is over. This number will match the last number in point score, on the average, once every ten games. In "OFF" position, Number Match is inoperative.



No. of Balls Adjustment

This switch changes 3 Ball to 5 Ball play, or vice versa.

ADJUSTMENTS IN BACKBOX

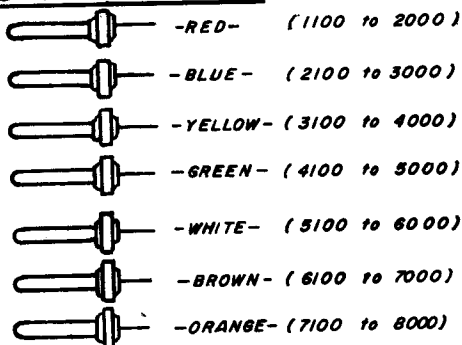


Hi-Score Adjustment

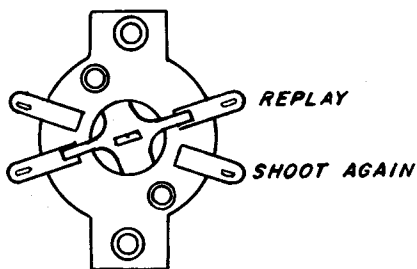
Insert plugs into 10 Point Female at desired positions.

Examples:

Yellow wire into 300 position scores at 3300.
Yellow wire into 000 position scores at 4000.



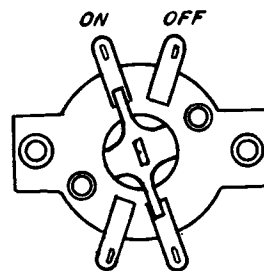
REPLAY-SHOOT AGAIN ADJUSTMENT



In Replay position, High Scores register a replay. Card score of 21 also registers a replay, provided "Replay on 21" Adjustment is in "ON" position.

In "Shoot Again" position, High Scores and 21 register an extra ball.

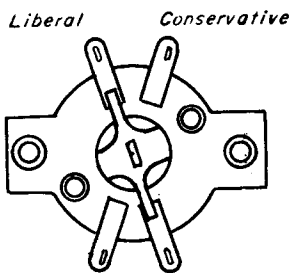
REPLAY ON '21 ADJUSTMENT



In "ON" position, card score of 21 registers a replay as well as an extra ball and 300 points, provided that "Replay- Shoot Again" Adjustment is in "Replay" position.

In "OFF" position, 21 registers only an extra ball and 300 points.

100 POINT BUMPER ADJUSTMENT

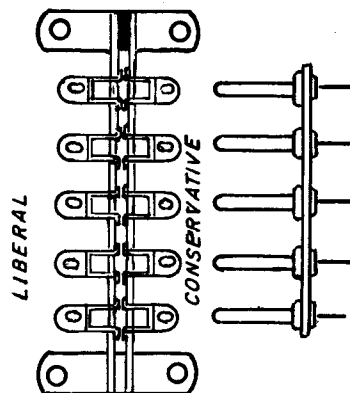


100 Point Bumper lites when
(a) Both Jokers are lit in 5 Ball game.
(b) either Joker is lit in 3 Ball game.

With adjustment switch in "Liberal" position, 100 Point Bumper remains lit to score 100 Points.

In "Conservative" position, 100 Point Bumper lite alternates.

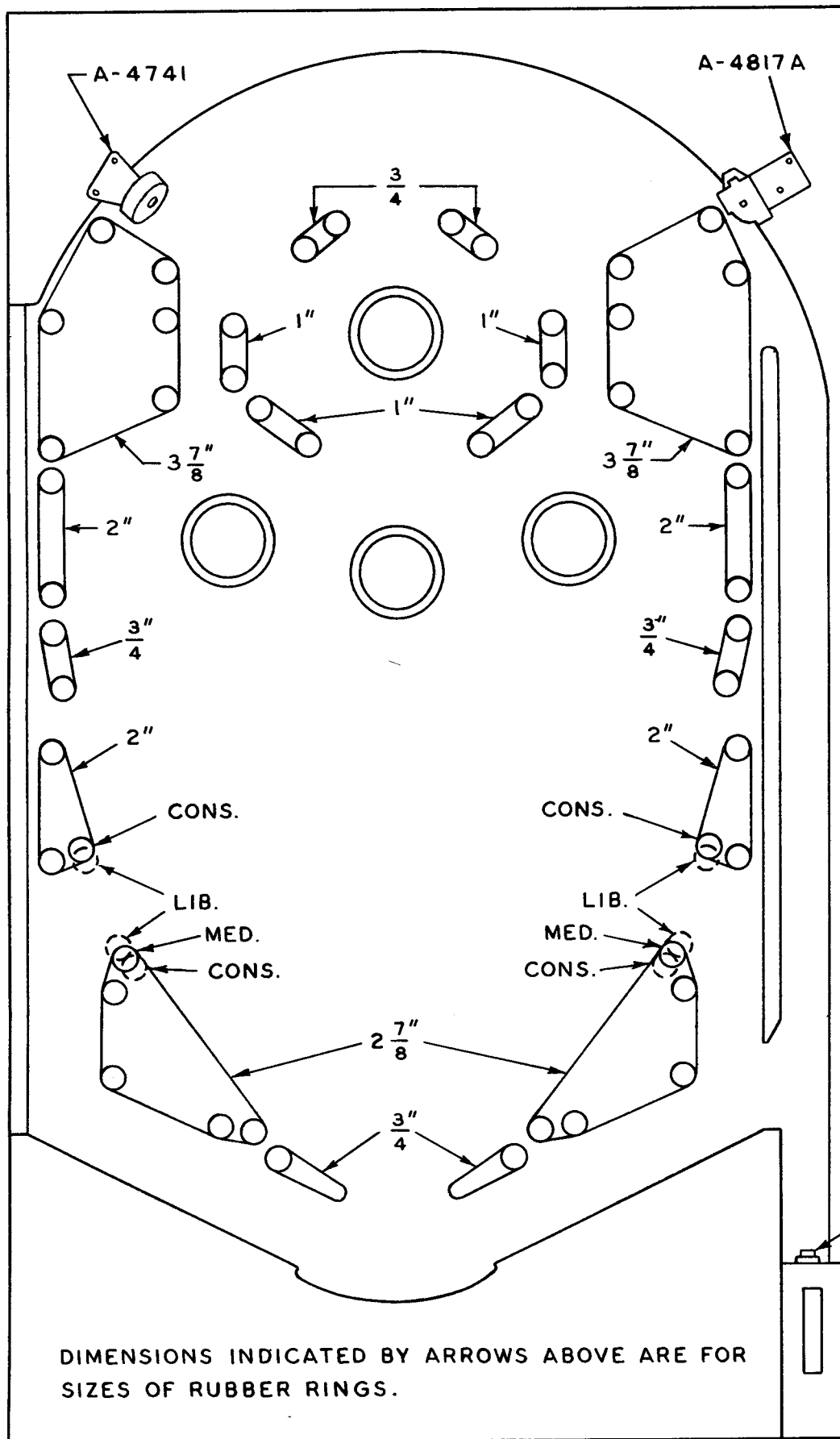
DEALERS HAND ADJUSTMENT



When jack is in "Liberal" position, Dealer's Hand is easier to beat.

" LADY LUCK" - POST ADJUSTMENT SHEET

TO MAKE GAME MORE "CONSERVATIVE" OR "LIBERAL" - MOVE POSTS 3/16" AS SHOWN IN SKETCH BELOW. SPOTTING HOLES ARE PROVIDED AND CAN BE SEEN ON REMOVAL OF POSTS.



ABBREVIATIONS:

CONS.- CONSERVATIVE
LIB. - LIBERAL
MED.- MEDIUM

RUBBER RING NUMBERS

23A-6300	5/16" I. D.
23A-6301	3/4" I. D.
23A-6302	1" I. D.
23A-6305	2" I. D.
23A-6307	2 7/8" I. D.
23A-6309	3 7/8" I. D.

A-4741 - REBOUND ASS'Y.

A-4817A - BALL GATE ASS'Y.

23A-6327 - BALL SHOOTER
RUBBER TIP

DIMENSIONS INDICATED BY ARROWS ABOVE ARE FOR
SIZES OF RUBBER RINGS.

SUGGESTED TIPS FOR PEAK COLLECTIONS

1. CLEAN, NEAT EQUIPMENT:

- a. Playfields — clean semi-monthly or sooner if necessary.
- b. Cabinet — same as above.
- c. Glass — ask location to cooperate, clean daily.

2. PROPER WORKING EQUIPMENT:

- a. Replace lite bulbs if blown.
- b. Bring game into shop for periodical adjustment and thorough check-up.
- c. Rubbers — clean or replace often, keeps playfield live.

3. ROTATE GAMES:

- a. Cash box should indicate time for change, however eight weeks is the usual peak player interest.

Remember: to keep player interest high - **Rotate, Rotate Rotate**. Playing games is a habit. Don't let your players lose it.

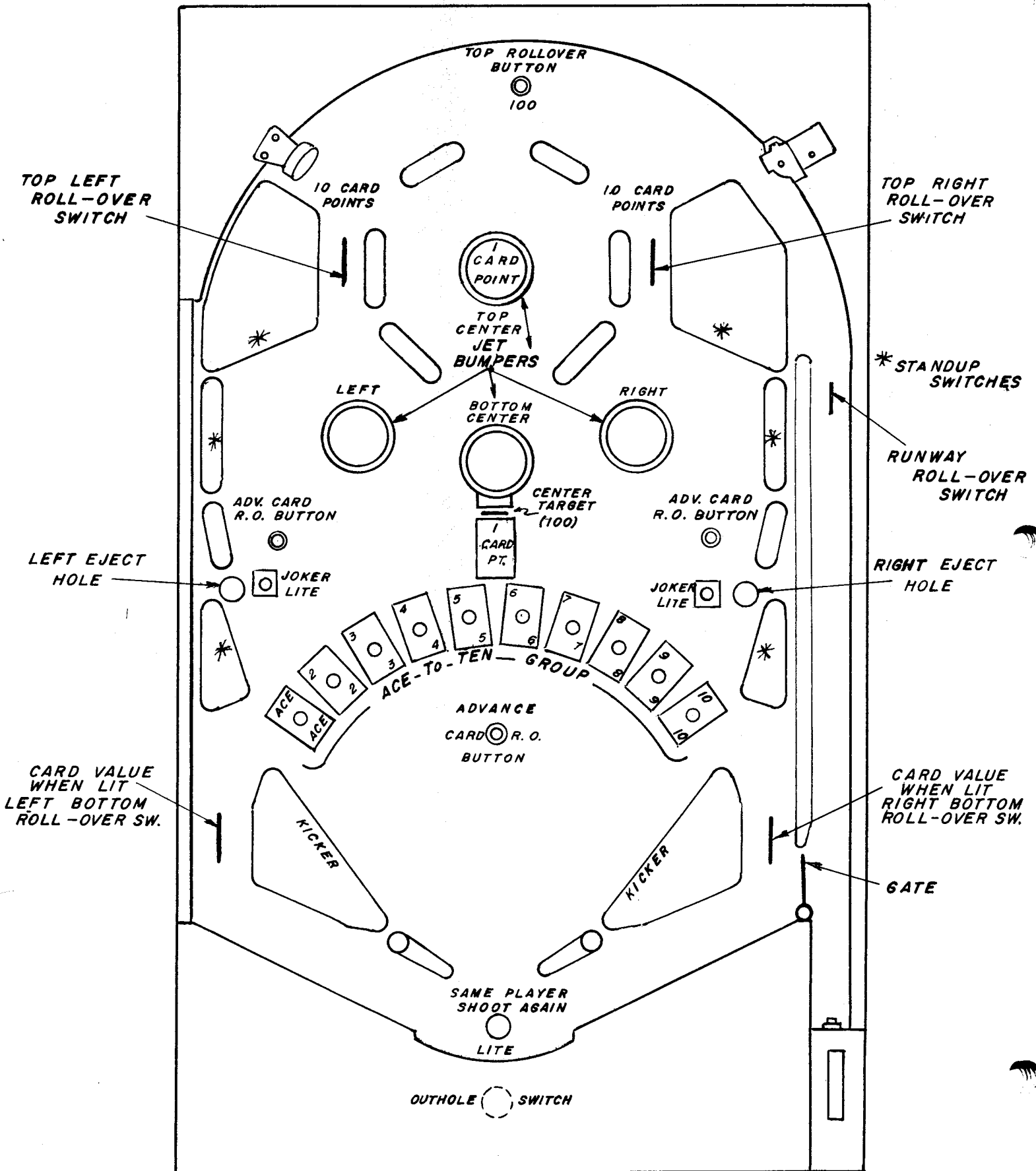
4. SERVICE:

This is your business; carry a good supply of replacement parts such as:

- | | |
|--------------|------------------------------|
| a. fuses | e. Springs |
| b. coils | f. Contact blades & tips |
| c. Rubbers | g. Step-up or actuating arms |
| d. Litebulbs | h. Proper Tools |

Games Out-of-order cannot earn money.

PLAYFIELD LAYOUT SHOWING LOCATION OF TARGETS, ROLL OVERS, AND JET BUMPERS



"LADY LUCK"

OBJECT OF GAME IS TO BEAT THE DEALER'S HAND, WITHOUT BUSTING, TO SCORE AN EXTRA BALL AND 300 POINTS. PLAYER BUSTS WHEN HIS CARD SCORE EXCEEDS 21. IF PLAYER'S CARD SCORE IS EXACTLY 21, A REPLAY IS AWARDED IN ADDITION TO THE ABOVE, PROVIDED ADJUSTMENT JACKS ARE IN REPLAY POSITION. REFER TO PAGES ON ADJUSTMENT JACKS.

PLAYER'S CARD SCORE IS OBTAINED AS FOLLOWS:
1 CARD POINT FOR EACH HIT ON TOP CENTER JET BUMPER.
1 CARD POINT FOR EACH HIT ON CENTER TARGET.
10 CARD POINTS FOR BALL THRU EITHER TOP ROLLOVER.

EJECT HOLES, AS WELL AS LEFT AND RIGHT BOTTOM ROLLOVERS WHEN LIT, SCORE CARD VALUE (VALUE OF LIT CARD IN THE ACE TO 10 GROUP. ACE SCORES 1 CARD POINT).

DEALER'S HAND IS CONTROLLED BY THE NUMBER MATCH UNIT AND IS DISCLOSED ON THE COMPLETION OF EACH BALL. IT CONSISTS OF A CARD SCORE OF 17, 18, 19, 20 OR BUST. ANYTIME THE DEALER BUSTS, AND PLAYER'S CARD HAS NOT EXCEEDED 21, THIS CONSTITUTES A WIN FOR THE PLAYER---EVEN THOUGH THE PLAYER'S CARD SCORE MIGHT READ ZERO.

REPLAYS OR EXTRA BALLS ARE ALSO AWARDED FOR HIGH SCORES AS INDICATED, AND BY NUMBER MATCH CIRCUIT. REFER TO PAGES ON ADJUSTMENT JACKS.

THE POWER TRANSFORMER,

LOCATED ON PANEL. IS EQUIPPED WITH A SECONDARY TAP. IF YOUR GAME IS ON LOCATION WITH EXTREMELY LOW LINE VOLTAGE, REMOVE LEAD FROM LUG MARKED 24 VOLT AND SOLDER TO ALTERNATE LUG MARKED "HIGH". THIS WILL BOOST SECONDARY VOLTAGE BY APPROXIMATELY 2-3 VOLTS.

LEG LEVELERS,

ARE PROVIDED FOR TWO PURPOSES---1ST TO LEVEL GAME ON LOCATION, 2ND TO INCREASE PITCH FOR GAME PERCENTAGING. IF IT IS DESIRED TO SPEED UP PLAY OR DECREASE SCORES, RAISE REAR LEG LEVELERS TO INCREASE PITCH.

SUGGESTED SCORE CARDS:

FOR REGULAR REPLAY

5 BALL PLAY - 341-1

3 BALL PLAY - 341-2

FOR EXTRA BALL ONLY (NO REPLAYS)

5 BALL PLAY - 341-EB-1

3 BALL PLAY - 341-EB-2

1. GENERAL

NEVER EXPERIMENT with any of the mechanism. Locate any trouble with the aid of Wiring Diagrams or Operating & Servicing Information supplied with the machine, then check for proper adjustment of the units involved before making any changes. Improper adjustment or make-shift repair will only cause serious damage to other parts of the machine or repeated failure of the part.

NOTE: Always look for a possible loose wire, bad connection at a plug and socket, broken or unhooked springs on step-up units, relays, etc., before adjustments are made or wires reconnected.

2. FUSES

IMPORTANT: Never replace fuses with any rating other than specified on the fuse block; this block is located adjacent to the transformer.

3. LUBRICATION

Over-lubrication causes far more trouble in coin operated equipment than under-lubrication. Practically all cases of poor contact on switches and wiper discs are due to oil or grease, or oil vapor, which forms a film or residue on the contacts and will not allow current to pass through. Excess lubricant may also seep into clutches causing them to slip.

IMPORTANT: NEVER USE VASELINE FOR LUBRICATION OF ANY PART OF THE MACHINE. Vaseline is not a true lubricant. It leaves a dirty and gummy residue and it becomes very thick when cold. A special Coin Machine Lubricant is supplied with each machine.

STEP-UP Levers, Ratchets, Cams, Shafts and other sliding or oscillating parts should be very lightly greased with special Coin Machine Lubricant (supplied with machine) not oftener than every six months. The bakelite discs (biscuits) on the Motor Units and Step-up Units will require lubrication with the special Coin Machine Lubricant only after the grease is completely evaporated (3 to 12 months, depending on climate) or when the film of grease becomes dirty. In either event, clean the parts thoroughly with a solvent, then apply an extremely thin coat of the special grease.

Solenoid Plungers should not have a lubricant of any kind. Should there be a sluggish tendency or if plungers are sticking, the parts should be cleaned with a solvent and flaked graphite applied on reassembly.

4. RELAY and SWITCH ADJUSTMENT

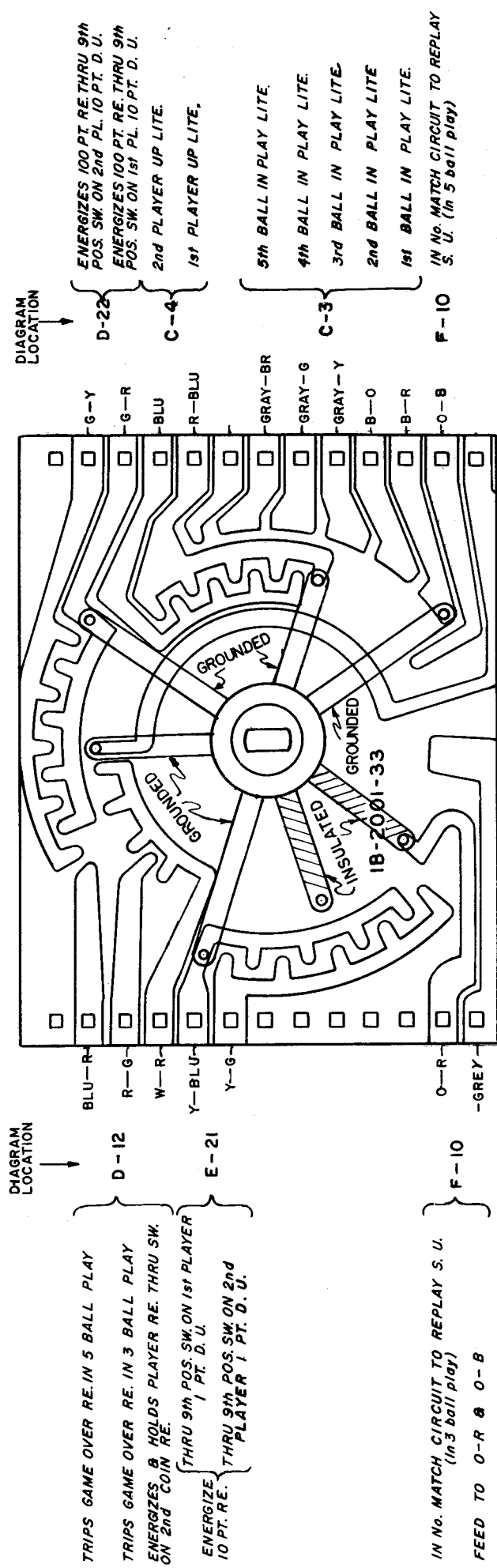
Where relay adjustments are called for, before bending blades, in all cases, on any machine, make certain that the screws holding the switch stacks are down very tightly. This is suggested because the plastic spacers in the switch stacks have occasionally shrunk by drying out, causing a poor adjustment.

WHAT TO DO IF:

1. Lights are out, game is inoperative:
 - a. Check A.C. cord and plugs for breaks, cuts or other damage.
 - b. Check fuses, located behind cash box.
 - c. Check master switch, located under front of cabinet.
 - d. Check plugs and jacks for proper installation.
2. Lights are out, game operates:
 - a. Check two switches on Lock Relay: Blue-Yellow-White to Green-Yellow-White, and Brown-Yellow-White to Green-Yellow-White.
 - b. Check 10 AMP fuse-Blue wire, and 15 AMP fuse-Brown wire.
3. Game resets but Game Over Relay trips immediately:
 - a. Check switch on Lock Relay Blue-Red and Yellow.
 - b. Check Ball Count Unit Reset Coil.
 - c. Check Ball Count Unit and switches for proper resetting.
4. Game is over, replays are indicated, but the Replay Button fails to start a new game:
 - a. Check Make and Break Switch on Index Cam (Green-Red and Yellow).
 - b. Check switch on Reset Relay (Green-Red and White-Gray).
 - c. Check Replay Button Switch.
 - d. Check Replay Unit Zero Switch.
 - e. Check switch on Game Over Relay (White-Brown and Green-Orange).
 - f. Check Replay Relay Coil.
5. Fails to score 300 points when registering an Extra Ball:
 - a. Check switch on Extra Ball Relay (Brown-Yellow and Grey-Yellow).
 - b. Check Impulse Cam Switch D (Grey-Yellow and Red-Orange).
6. Ball Count Unit fails to advance during play:
 - a. Check Make-Break sw. on Outhole Relay (Red-White and Yellow).
 - b. Check sw. on Ball Index Relay (Red-White and Red-Orange).
 - c. Check sw. on Extra Ball Relay (Red-Orange and Orange-Black).
 - d. Check Score Motor Cam Sw. 2A (Orange-Black and Red-White).
 - e. Check Ball Count S.U. coil.
7. Left and Right Jet Bumpers remain energized:
 - a. Check switches on No. 1 Bumper Relay (Grey-Brown and Yellow; Grey-Yellow and a Jumper).
8. No. 1 Bumper Relay remains energized:
 - a. Check Left and Right Jet Bumper switches.
 - b. Check Left and Right Jet Bumper End-of-Stroke switches.

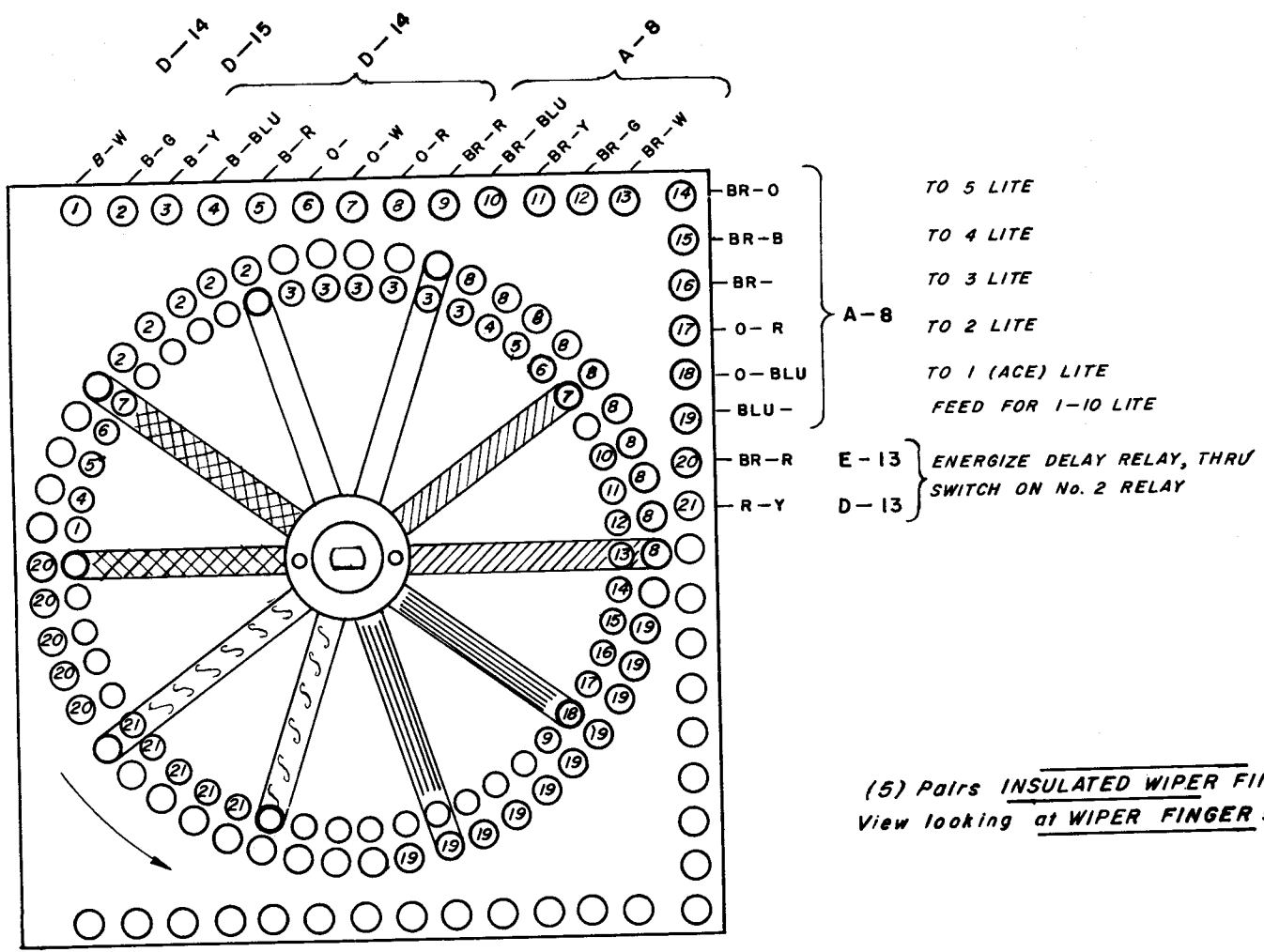
BALL COUNT UNIT

THIS UNIT RESETS AT THE START OF A NEW GAME. IT ADVANCES ONE STEP AT A TIME WHEN TWO PERSONS ARE PLAYING & TWO STEPS IF ONLY ONE IS PLAYING.



View looking at WIPER FINGERS with WIPER in RESET Position

D-14 FEED TO B-6 FROM SINGLE DWELL CAM SWITCH
 D-15 IN HOLD CIRCUIT TO No 2 RELAY
 D-14 FEED TO O-R FROM CAM SWITCH 5B
 FEED TO B-6 & O-R FROM CAM SWITCH 5B
 FEED TO B-6 & O-R FROM CAM SWITCH 4C
 FEED TO B-6 & O-R FROM CAM SWITCH 3C
 IN HOLD CIRCUIT TO No. 1 RELAY
 TO 10 LITE
 TO 9 LITE
 TO 8 LITE
 TO 7 LITE
 TO 6 LITE



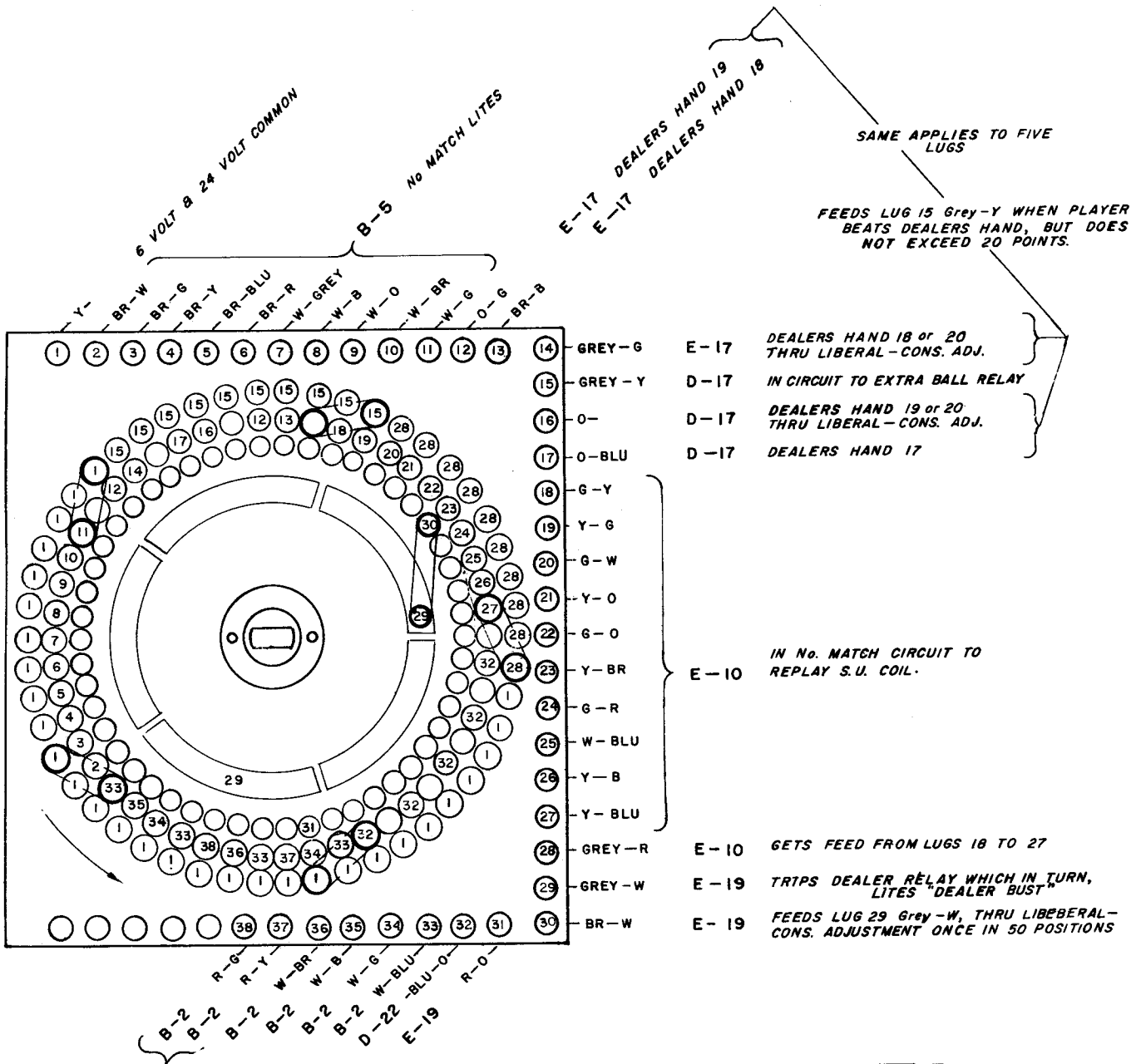
(5) Pairs INSULATED WIPER FINGERS
 View looking at WIPER FINGER side

ADVANCE UNIT DISC

THIS UNIT ADVANCES ONE STEP EACH TIME
 THE ADVANCE RELAY IS PULSED.

No. MATCH UNIT DISC

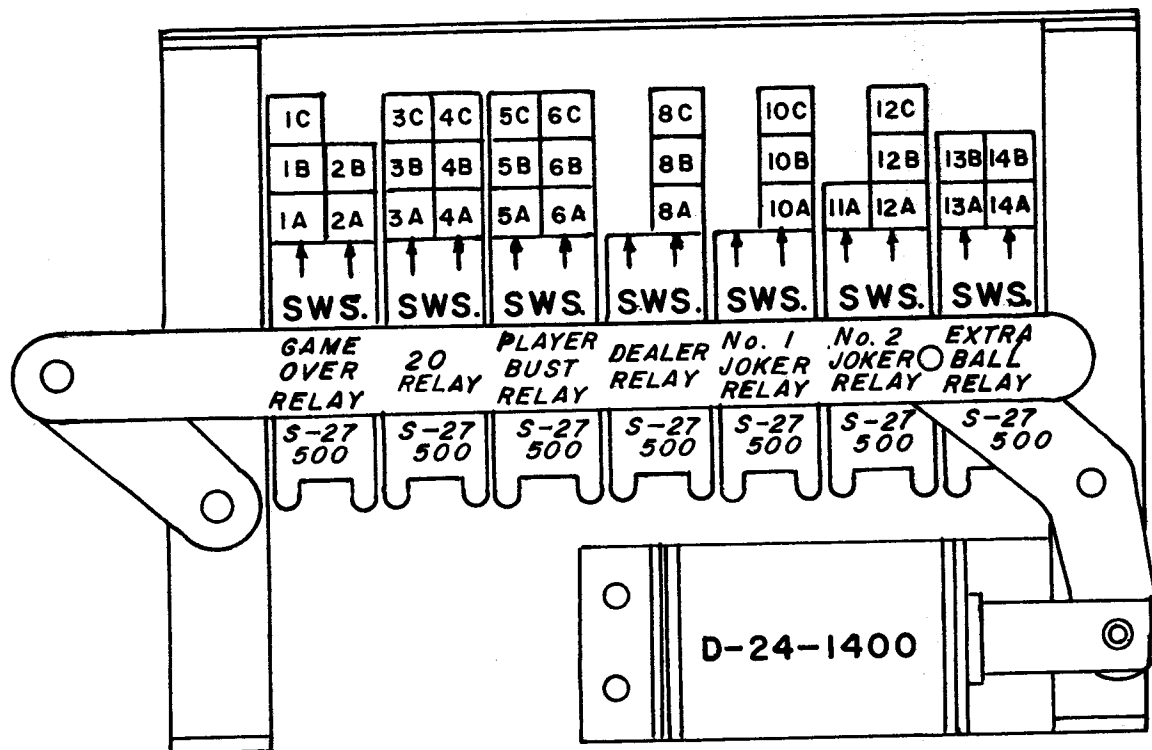
THIS UNIT ADVANCES ONE STEP EACH TIME THE ONE POINT RELAY IS PULSED. THE FUNCTION OF THIS UNIT, BESIDES THE No. MATCH CIRCUIT, IS TO CONTROL THE DEALERS HAND AND THE DEALER RELAY.



TO LIBERAL-CONSERVATIVE
ADJUSTMENT JACK-DEALERS
LITES
DEALERS "17" LITE
DEALERS "18" LITE
DEALERS "19" LITE
DEALERS "20" LITE
ENERGIZES CHANGE RELAY
LUG 29 ONCE IN 50
POSITIONS

(6) Pair of Insulated SNO-SHOE wipers
View looking at SNO-SHOE WIPER side

RELAY BANK SWS.



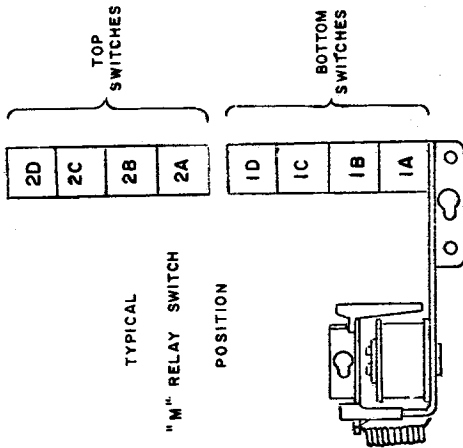
N.O. — NORMALLY OPEN SWITCH
 N.C. — NORMALLY CLOSED SWITCH
 M&B — MAKE AND BREAK SWITCH

GAME OVER RELAY	1C	BR-Y-W -BR- GRAY-O	A-2	M&B	Breaks circuit to Ball in Play and Player Up lites, and makes to Game Over and Match lites.
	1B	BLU-Y-W -B-	G-10	N.C.	Breaks circuit to all playfield sws. except Eject switch.
	1A	G-O W-BR	E-2	N.O.	In circuit to Replay Relay, thru Replay Button switch.
	2B	R-Y R-G	D-7	N.C.	In circuit to Player Reset Relay, thru playfield trough sw.
	2A	BLU-W O-R	D-3	N.O.	In circuit to Reset Relay, from switch on Coin Relay.

RELAY	SW.	WIRE COLORS	DIAG. LOC.	TYPE	SWITCH OPERATION
20 RELAY	3C	G-B O-G	D-17	N.O.	In circuit to Extra Ball Relay, when player has 20 and Dealer 19.
	3B	GRAY- BLU GRAY-B	F-16	N.O.	In circuit to trip Player Bust Relay, thru 1 Pt. Card Drum Unit discs.
	3A	B-W -J-	F-16	N.O.	In circuit to "Replay on 21" Adjustment switch.
	4C	BLU-Y -J-	F-16	N.C.	Safety switch to this relay coil.
	4B	Y-O Y-BLU	D-15	N.O.	In circuits to Player Bust, No. 8, No. 9 and 20 Relays. Also in series with sw. 3A on this relay. (1st player only).
	4A	W-BLU Y-B	D-16	N.O.	Same explanation as sw. 4B above. (For 2nd player only).
PLAYER BUST RELAY	5C	R-Y -J-	E-16	N.C.	In series with switch 3A on 20 Relay.
	5B	R-BLU -Y-	C-8	N.O.	In hold circuit to Player Reset Relay.
	5A	B-G -J-	C-23	N.O.	Energizes Gate Relay.
	6C	GRAY-Y GRAY- BR	E-17	N.C.	In circuit to Extra Ball Relay, if player beats Dealer, or Dealer busts and player doesn't.
	6B	-J- -J-	F-15	N.C.	Safety switch to this relay coil.
	6A	G-Y -BLU-	A-1	N.O.	To "Player Bust" lite.
DEALER RELAY	8C	R-BLU W-O GRAY-R	A-2	M&B	Breaks circuit to Dealers hand 17, 18, 19 or 20 lites and makes to "Dealer Bust" lite.
	8B	GRAY-W -J-	F-19	N.C.	Safety switch to this relay coil.
	8A	-BR- -J-	D-18	N.O.	In series with switch 6C.

RELAY	SW.	WIRE COLOR	DIAGRAM LOC.	TYPE	SWITCH OPERATION
NO.1 JOKER RELAY	10C	W-R GRAY-B -J-	E-20	M&B	Pulses 10 Pt. or 100 Pt. Relay, from switch on No. 3 Bumper Relay.
	10B	O-W -J-	F-18	N.C.	Safety switch to this relay coil.
	10A	R-BR -J-	A-6	N.O.	To Left Joker lite---also in series with switch 12A.
NO.2 JOKER RELAY	11A	BLU-Y -J-	A-6	N.O.	To Right Joker lite.
	12C	-J- -J- -J-	E-20	M&B	In series with switch 10C on No.1 Joker Relay.
	12B	B-R -J-	F-18	N.C.	Safety switch to this relay.
	12A	-J- B-G	A-6	N.O.	To Bottom Center Jet Bumper lite.
EXTRA BALL RELAY	13B	R-O O-B	D-9	N.C.	Breaks circuit to Ball Count S.U. coil.
	13A	BLU-O -J-	A-6	N.O.	To Playfield and Back Box "shoot again" lites.
	14B	BR-R -J-	F-17	N.C.	Safety switch to this relay coil.
	14A	BR-Y GRAY-Y	F-19	N.O.	Pulses 100 Pt. Relay, from Impulse Cam switch D.

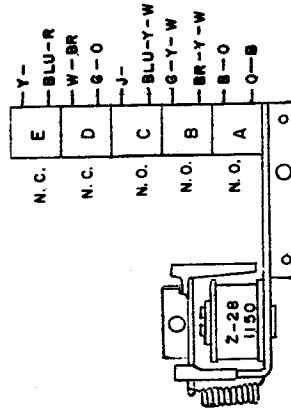
A.C. RELAYS & SWITCHES (ON MECHANISM PANEL)



LOCK RELAY

IS ENERGIZED BY LEFT FLIPPER SWITCH, COIN, 10¢ OR 25¢ RELAY.

DIAGRAM LOCATION



OPERATION

TRIPS GAME OVER RELAY.

IN CIRCUIT TO REPLAY RELAY, FROM REPLAY BUTTON SWITCH.

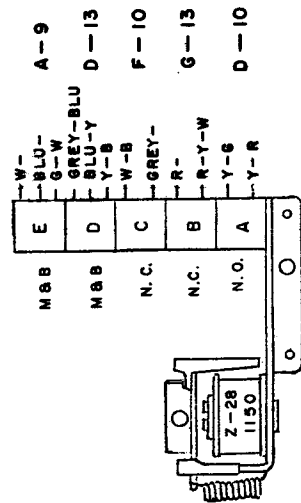
6 VOLTS TO LITES, THRU 10 AMP FUSE.

6 VOLTS TO LITES, THRU 15 AMP FUSE.

IN HOLD CIRCUIT TO THIS RELAY.

TILT RELAY

IS ENERGIZED BY PLUMB BOB, ROLL BALL, OR (2) SHAKE TILT SWS. IT IS THEN HELD IN UNTIL THE OUTHOLE RELAY IS ENERGIZED.



BREAKS CIRCUIT TO DISPLAY LITES, AND MAKES TO TILT LITE. ENERGIZES NO. 1 RELAY, FROM (2) EJECT SWS. OR BOTTOM ROLLOVER WHEN LIT.

BREAKS CIRCUIT TO REPLAY S.U. COIL.

BREAKS CIRCUIT TO ALL PLAYFIELD SWITCHES.

IN HOLD CIRCUIT TO THIS RELAY.

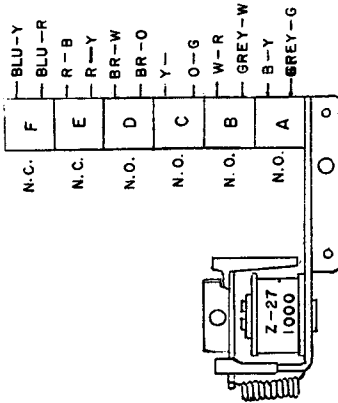
A.C. RELAYS & SWITCHES

(ON MECHANISM PANEL)

EJECT RELAY

IS ENERGIZED BY EITHER EJECT SWITCH, AFTER NO. 2 RELAY DROPS OUT.

DIAGRAM LOCATION

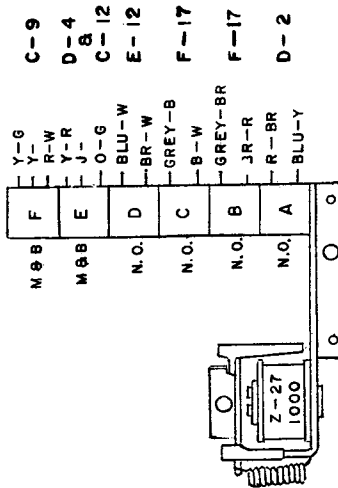


OPERATION

IN SERIES WITH SWITCH A ON DELAY RELAY.
 IN SERIES WITH SWITCH D ON TILT RELAY.
 PULSES EJECT COIL, FROM CAM SW. 4A.
 RUNS SCORE MOTOR.
 PULSES 10 PT. RELAY, FROM IMPULSE CAM SW. B.
 IN HOLD CIRCUIT TO THIS RELAY.

OUTHOLE RELAY

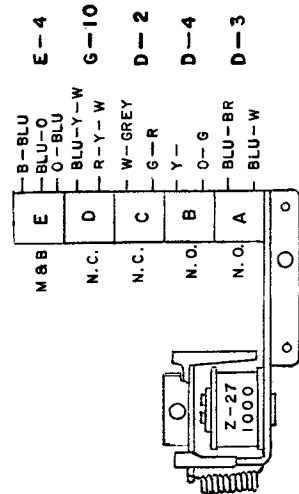
IS ENERGIZED BY OUTHOLE SWITCH.



IN HOLD CIRCUIT TO TILT RELAY---ALSO IN CIRCUIT TO BALL COUNT S.U. COIL.
 IN HOLD CIRCUIT TO BALL INDEX RELAY---ALSO RUNS SCORE MOTOR.
 ENERGIZES BALL RELEASE COIL, FROM CAM SWITCH 4A.
 IN CIRCUIT TO "REPLAY ON 21" ADJUSTMENT.
 TO EXTRA BALL RELAY, WHEN PLAYER BEATS THE DEALER.
 IN HOLD CIRCUIT TO THIS RELAY.

RESET RELAY

IS ENERGIZED BY THE COIN RELAY, THRU A SWITCH ON GAME OVER RELAY.



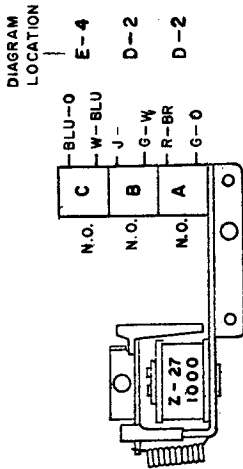
IN CIRCUIT TO 2ND COIN RELAY (TRIP COIL)---ALSO ENERGIZES BALL COUNT RESET COIL.
 BREAKS CIRCUIT TO GAME OVER AND TILT RELAYS AND ALL PLAYFIELD SWITCHES.
 BREAKS CIRCUIT TO REPLAY BUTTON SWITCH.
 RUNS SCORE MOTOR.
 IN HOLD CIRCUIT TO THIS RELAY.

A. C. RELAYS & SWITCHES

(ON MECHANISM PANEL)

REPLAY RELAY

IS ENERGIZED BY REPLAY BUTTON SWITCH, THRU ZERO BREAK SWITCH ON REPLAY S.U.

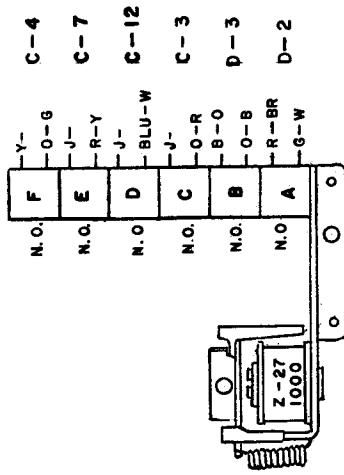


OPERATION

ENERGIZES REPLAY UNIT RESET COIL, FROM CAM SW. 1A.
ENERGIZES COIN RELAY.
IN HOLD CIRCUIT TO THIS RELAY.

COIN RELAY

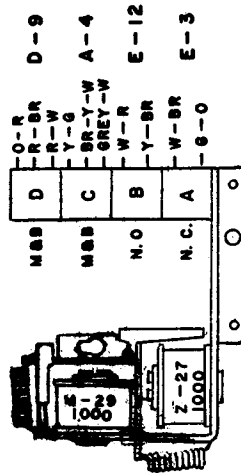
IS ENERGIZED BY A COIN SWITCH OR BY REPLAY RELAY.



RUNS SCORE MOTOR.
ENERGIZES PLAYER RESET RELAY.
IN CIRCUIT TO GAME OVER RELAY, THRU BALL COUNT ZERO BREAK SWITCH.
FEEDS SWITCH C ON REPLAY RELAY AND SWITCH E ON RESET RELAY.
ENERGIZES LOCK RELAY.
IN HOLD CIRCUIT TO THIS RELAY.

2nd COIN RELAY

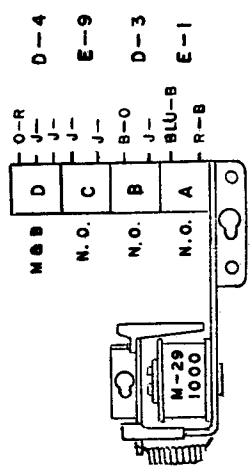
LATCH COIL IS ENERGIZED BY COIN RELAY. WHEN RESET RELAY IS IN ENERGIZED POSITION, TRIP COIL IS ENERGIZED BY SAME COIN RELAY SWITCH. WHEN RESET RELAY IS NOT ENERGIZED.



IN CIRCUIT TO BALL COUNT S.U. COIL---ALSO IN NO. MATCH CIRCUIT.
TO "1 CAN PLAY" OR "2 CAN PLAY" LITES.
ENERGIZES PLAYER RELAY, FROM BALL COUNT UNIT DISC.
BREAKS CIRCUIT TO REPLAY RELAY, FROM REPLAY BUTTON SW.

10¢ RELAY

IS ENERGIZED BY 10¢ COIN SWITCH, IF 10¢ ADJUSTMENT JACK IS INSERTED INTO "2 PLAYS" POSITION.



IN CIRCUIT TO KNOCKER COIL---ALSO RUNS SCORE MOTOR.
ENERGIZES REPLAY S.U., FROM IMPULSE CAM SW. B.
ENERGIZES LOCK RELAY.
IN HOLD CIRCUIT TO THIS RELAY.

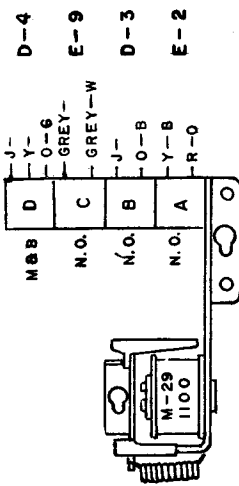
A.C. RELAYS & SW. CHES

(ON MECHANISM PANEL)

25¢ RELAY

IS ENERGIZED BY 25¢ COIN SWITCH.

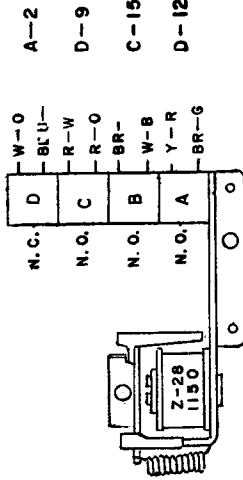
DIAGRAM LOCATION



IN CIRCUIT TO KNOCKER COIL---ALSO RUNS SCORE MOTOR.
 PULSES REPLAY S.U. COIL, FROM IMPULSE CAM SW. B.
 ENERGIZES LOCK RELAY.
 IN HOLD CIRCUIT TO THIS RELAY.

BALL INDEX RELAY

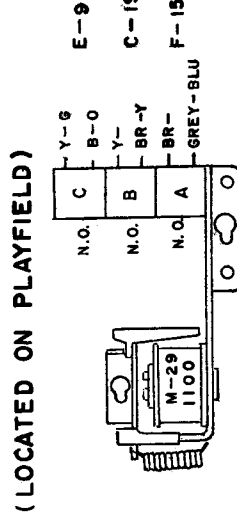
IS ENERGIZED BY THE GATE SWITCH---ALSO BY 1, 10 OR 100 PT. RELAY.



IN CIRCUIT TO DEALERS HAND LITES---17, 18, 19 OR 20.
 IN CIRCUIT TO BALL COUNT S.U.---ALSO IN SERIES WITH SWITCH D ON 2ND COIN RELAY
 IN BEAT THE DEALER CIRCUIT TO EXTRA BALL RELAY AND REPLAY S.U. COIL.
 IN HOLD CIRCUIT TO THIS RELAY.

ROLL-OVER RELAY

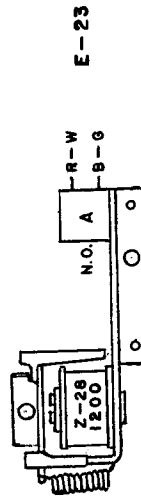
IS ENERGIZED BY LEFT OR RIGHT TOP ROLLOVER SWITCH.



PULSES 1ST OR 2ND PLAYER 10 PT. CARD D.U., THRU SWITCH ON PLAYER RELAY.
 PULSES 100 PT. RELAY.
 IN CIRCUIT TO TRIP PLAYER BUST RELAY, WHEN PT. CARD SCORE ADVANCES FROM 18 TO 28 OR 19 TO 29.

GATE RELAY

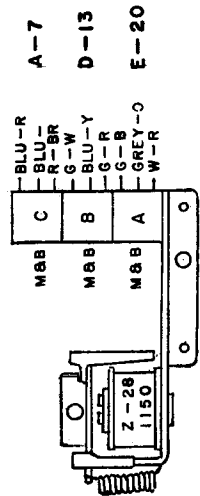
IS ENERGIZED BY A SWITCH ON PLAYER BUST RELAY.



IN HOLD CIRCUIT TO THIS RELAY, FROM SWITCH ON PLAYER RESET RELAY.

CHANGE RELAY

IS ENERGIZED AND HELD IN BY THE NO. MATCH DISC, THRU A GROUNDED WIPER.



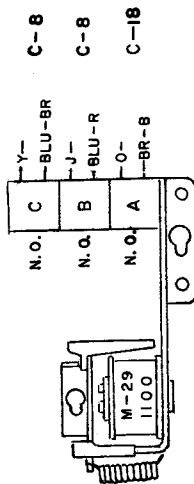
TO RIGHT BOTTOM ROLLOVER LITE OR LEFT BOTTOM ROLLOVER LITE.
 ENERGIZES NO. 1 RELAY, FROM L. BOTTOM OR R. BOTTOM ROLLOVER SWITCH.
 ENERGIZES 1 PT. OR 10 PT. RELAY, FROM SWITCH ON NO. 1 BUMPER RELAY.

A. C. RELAYS & SWITCHES (LOCATED ON PLAYFIELD)

DIAGRAM LOCATION

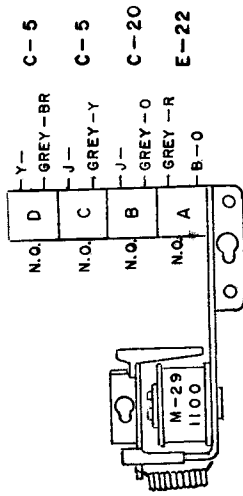
TARGET RELAY

IS ENERGIZED BY THE TARGET SWITCH OR NO. 2 BUMPER RELAY.



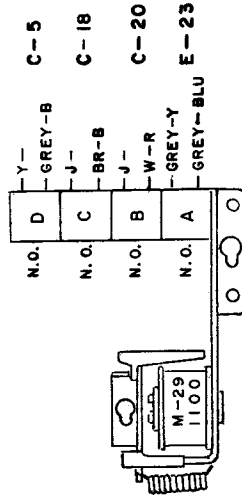
No. 1 BUMPER RELAY

IS ENERGIZED BY THE LEFT OR RIGHT JET BUMPER SWITCH.



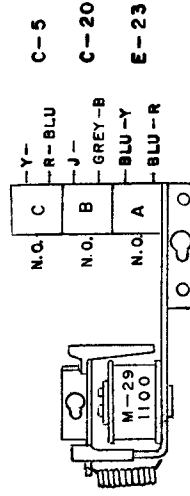
No. 2 BUMPER RELAY

IS ENERGIZED BY TOP CENTER JET BUMPER SWITCH.



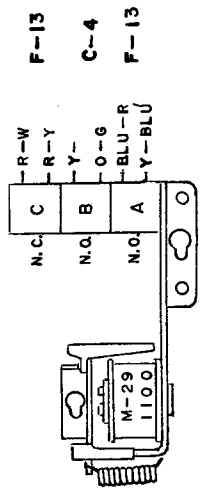
No. 3 BUMPER RELAY

IS ENERGIZED BY BOTTOM CENTER JET BUMPER SWITCH.



DELAY RELAY

IS ENERGIZED BY NO. 2 RELAY, THRU ADVANCE UNIT DISC.



OPERATION

ENERGIZES 1ST OR 2ND PLAYER 10 PT. CARD D.U., THRU 9TH POSITION SWITCH ON 1 PT. CARD D.U.

ENERGIZES 1ST OR 2ND PLAYER 1 PT. CARD D.U.

IN HOLD CIRCUIT TO THIS RELAY.

PULSES LEFT JET BUMPER.

PULSES RIGHT JET BUMPER.

IN SERIES WITH SWITCH A ON CHANGE RELAY.

IN HOLD CIRCUIT TO THIS RELAY.

PULSES TOP CENTER JET BUMPER.

PULSES TARGET RELAY.

PULSES 10 PT. RELAY.

IN HOLD CIRCUIT TO THIS RELAY.

PULSES BOTTOM CENTER JET BUMPER.

PULSES 10 PT. OR 100 PT. RELAY, THRU SWS. ON JOKER RELAYS.

IN HOLD CIRCUIT TO THIS RELAY.

IN SERIES WITH SWITCH E ON EJECT RELAY.

RUNS SCORE MOTOR.

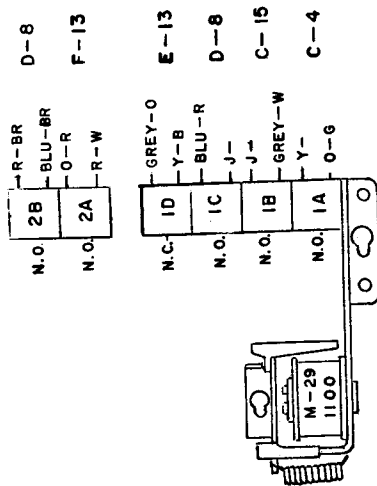
IN HOLD CIRCUIT TO THIS RELAY.

A.C. RELAYS & SWITCHES (LOCATED ON PLAYFIELD)

No. 1 RELAY

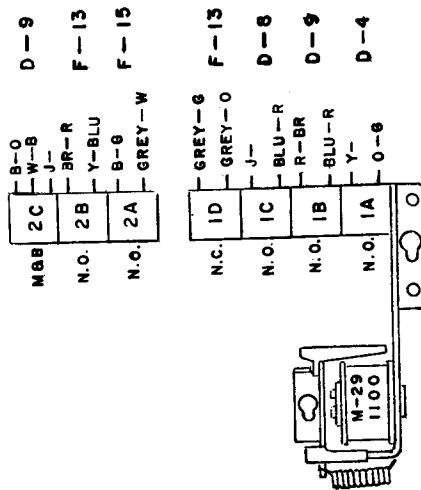
IS ENERGIZED BY LEFT OR RIGHT BOTTOM FOLLOVER, WHEN LIT--- ALSO BY LEFT OR RIGHT EJECT SWITCH.

DIAGRAM LOCATION



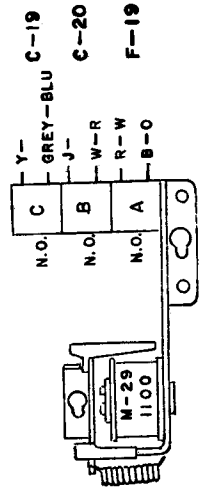
No. 2 RELAY

IS ENERGIZED BY NO. 1 RELAY.



ADVANCE RELAY

IS ENERGIZED BY ANY OF (3) ROLL-OVER BUTTON SWITCHES.



OPERATION

PULSES 1ST OR 2ND PLAYER 10 PT. CARD D.U., THRU 9TH POSITION SWITCH ON CORRESPONDING 1 PT. CARD D.U.

IN HOLD CIRCUIT TO THIS RELAY.

IN SERIES WITH SWITCH 1D ON NO. 2 RELAY.

PULSES 1ST OR 2ND PLAYER 1 PT. CARD D.U., FROM IMPULSE CAM SWITCH C.

ENERGIZES NO. 2 RELAY.

RUNS SCORE MOTOR.

IN CIRCUIT TO PLAYER BUST RELAY.

IN CIRCUIT TO DELAY RELAY, THRU ADVANCE UNIT DISC.

IN HOLD CIRCUIT TO THIS RELAY, THRU ADVANCE UNIT DISC.

BREAKS CIRCUIT TO EJECT RELAY.

PULSES 1ST OR 2ND PLAYER 1 PT. CARD D.U. FROM IMPULSE CAM SWITCH C.

PULSES 1ST OR 2ND PLAYER 10 PT. CARD D.U. THRU 9TH POSITION SWITCH ON CORRESPONDING 1 PT. CARD D.U.

RUNS SCORE MOTOR.

ENERGIZES ADVANCE UNIT COIL.

PULSES 10 PT. RELAY.

IN HOLD CIRCUIT TO THIS RELAY.

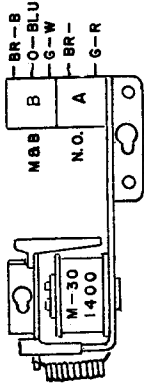
A.C. RELAYS & SWITCHES

(LOCATED ON INSERT)

No. 8 RELAY

IS ENERGIZED BY THE 1 PT. CARD AND 10 PT. CARD DRUM UNIT DISCS (AT 1B), THRU SWITCH D ON PLAYER RELAY AND SWITCH 2D ON "A" PLAYER RELAY.

DIAGRAM LOCATION

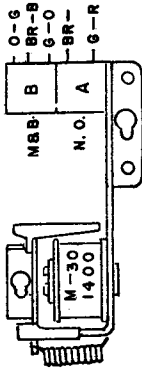


F-17
E-15

IN BEAT THE DEALER CIRCUIT TO EXTRA BALL RELAY.
IN SERIES WITH SWITCH A ON R.O. (ROLLOVER) RELAY.

No. 9 RELAY

IS ENERGIZED BY SAME CIRCUITS AS NO. 8 RELAY (AT 19 ON PLAYERS CARD SCORE).

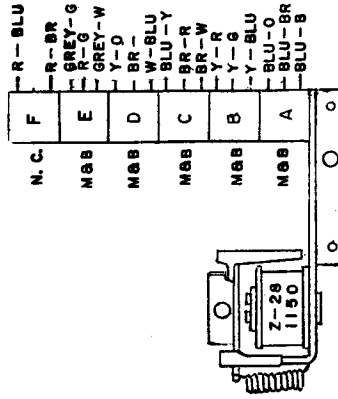


F-17
E-15

IN BEAT THE DEALER CIRCUIT TO EXTRA BALL RELAY.
IN SERIES WITH SWITCH A ON R.O. (ROLLOVER) RELAY.

PLAYER RELAY

IS ENERGIZED BY A SWITCH ON 2ND COIN RELAY, THRU BALL COUNT UNIT DISC.

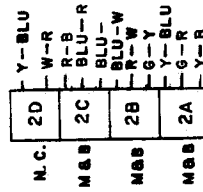


D-8
D-6
D-15
D-7
F-9
E-9

IN HOLD CIRCUIT TO PLAYER RESET RELAY, FROM ZERO POSITION SWS. ON 1ST PLAYER CARD DRUM UNITS.
ENERGIZES 1ST OR 2ND PLAYER 10 PT. D.U., THRU SWITCH ON 10 PT. RELAY.
IN CIRCUITS TO PLAYER BUST RELAY AND 20 RELAY---ALSC NO. 8 AND NO. 9 RELAY.
IN CIRCUIT TO 1ST & 2ND PLAYER 1000 PT. D.U., THRU 9TH POSITION SWITCHES ON CORRESPONDING 100 PT. D.U.
IN SERIES WITH SWITCH C ON R.O. RELAY.
IN SERIES WITH SWITCH 1B ON NO. 2 RELAY.

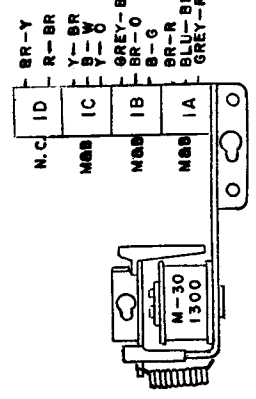
"A" PLAYER RELAY

SAME AS PLAYER RELAY.



D-16
E-8
D-11
E-15

IN BEAT THE DEALER CIRCUITS TO EXTRA BALL AND REPLAY RELAYS. ALSO IN CIRCUITS TO PLAYER BUST RELAY, NO. 8 & NO. 9 RELAYS. (1ST PLAYER ONLY).
IN SERIES WITH SWITCH 1C ON NO. 2 RELAY.
IN HIGH SCORE CIRCUIT TO EXTRA BALL OR REPLAY S.U.
IN SERIES WITH SWITCH A ON R.O. RELAY.



D-8
F-11
D-6
D-5

IN CIRCUIT TO 1ST PLAYER 1 PT. & 10 PT. CARD D.U.--- DURING RESET CYCLE.
IN SERIES WITH SWITCH 2B ON THIS RELAY.
IN CIRCUIT TO 1ST & 2ND PLAYER 100 PT. D.U., FROM SWITCH ON 100 PT. RELAY.
TO 1ST & 2ND PLAYER 1 PT. D.U., FROM SWITCH ON 1 PT. RELAY.

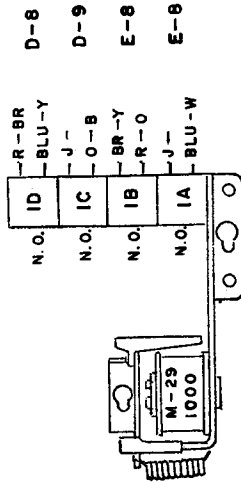
A.C. RELAYS & SWITCHES (LOCATED ON INSERT)

PLAYER RESET RELAY

IS ENERGIZED BY THE COIN RELAY---
ALSO BY PLAYFIELD THROUGH SWITCH.

DIAGRAM
LOCATION

M.B.B.	2D	R-W	C-23
N.O.	2C	Y-J	C-4
N.O.	2B	O-O	C-1
N.O.	2A	BLU-R	F-8
		R-Y	



OPERATION

IN HOLD CIRCUIT TO GATE RELAY---ALSO ENERGIZES NO. MATCH S.U.

RUNS SCORE MOTOR.

ENERGIZES RELAY BANK RESET COIL, FROM CAM SW. 3A.

IN HOLD CIRCUIT TO THIS RELAY.

TO 2ND PLAYER 1 PT. CARD D.U., FROM IMPULSE CAM SW. C.

TO 2ND PLAYER 10 PT. CARD D.U., THRU ZERO POSITION SW. ON THAT UNIT.

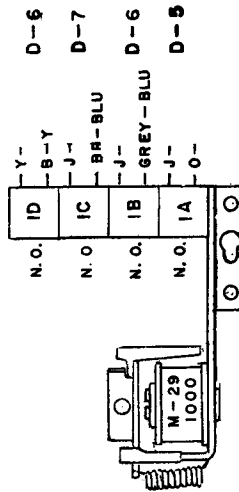
TO 1ST PLAYER 1 PT. CARD D.U., THRU ZERO POSITION SW. ON THAT UNIT.

TO 1ST PLAYER 10 PT. CARD D.U., THRU ZERO POSITION SWITCH ON THAT UNIT.

SCORE RESET RELAY

IS PULSED BY IMPULSE CAM SWITCH
A, THRU RESET RELAY AND (8)
DRUM UNIT ZERO SWITCHES.

N.O.	2D	J-J	D-7
N.O.	2C	B-O	D-7
N.O.	2B	BR-G	D-6
N.O.	2A	J-J	D-6
		O-W	
		J-J	
		R-B	



PULSES 2ND PLAYER 100 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 2ND PLAYER 1000 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 1ST PLAYER 10 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 2ND PLAYER 10 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 1ST PLAYER 100 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 1ST PLAYER 1000 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 2ND PLAYER 1 PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

PULSES 1ST PLAYER 1PT. D.U., THRU ZERO POSITION SW. ON THAT UNIT.

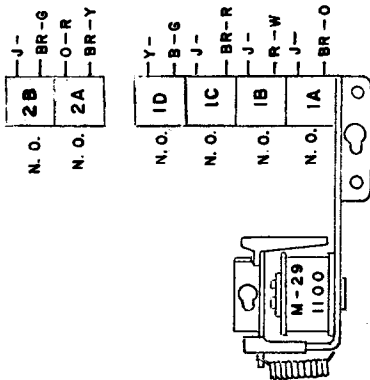
A. C. RELAYS & SWITCHES

(LOCATED ON INSERT)

100 POINT RELAY

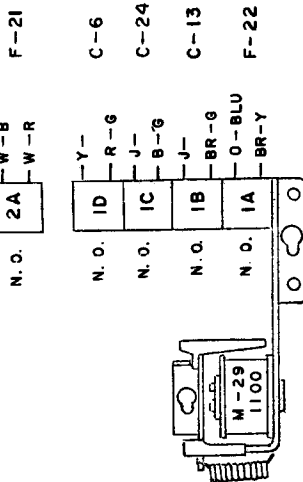
IS PULSED BY THE TOP ROLLOVER BUTTON SW., (2) BOTTOM ROLLOVER SWITCHES, TARGET SW., OR R.O. RELAY-- ALSO BY IMPULSE CAM SW. D, THRU EXTRA BALL RELAY-- AND BY NO. 3 BUMPER RELAY WHEN BOTH JOKERS ARE LIT.

DIAGRAM LOCATION



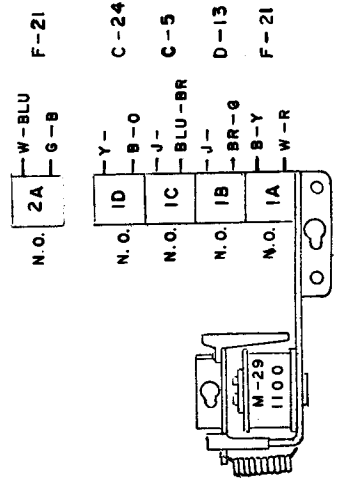
10 POINT RELAY

IS PULSED BY NO. 1, 2 OR 3 BUMPER RELAY, BY ADVANCE RELAY, AND BY EJECT RELAY THRU IMPULSE CAM SWITCH B.



1 POINT RELAY

IS PULSED BY NO. 1 BUMPER RELAY.



OPERATION

ENERGIZES BALL INDEX RELAY.

IN HOLD CIRCUIT TO THIS RELAY.

PULSES LARGE BELL COIL.

IN SERIES WITH SWITCH C ON PLAYER RELAY.

IN SERIES WITH SWITCH 2B ON "A" PLAYER RELAY.

IN SERIES WITH SWITCH 1B ON "A" PLAYER RELAY.

IN HOLD CIRCUIT TO THIS RELAY.

IN SERIES WITH SWITCH E ON PLAYER RELAY.

PULSES LARGE BELL COIL.

ENERGIZES BALL INDEX RELAY.

PULSES 100 PT. RELAY, THRU 9TH POSITION SWITCH OF 10 PT. DRUM UNITS.

IN HOLD CIRCUIT TO THIS RELAY.

ENERGIZES NO. MATCH S.U.

IN SERIES WITH SWITCH 1A ON "A" PLAYER RELAY.

ENERGIZES BALL INDEX RELAY.

PULSES 10 PT. RELAY, THRU 9TH POSITION SWITCH OF 10 PT. DRUM UNITS.