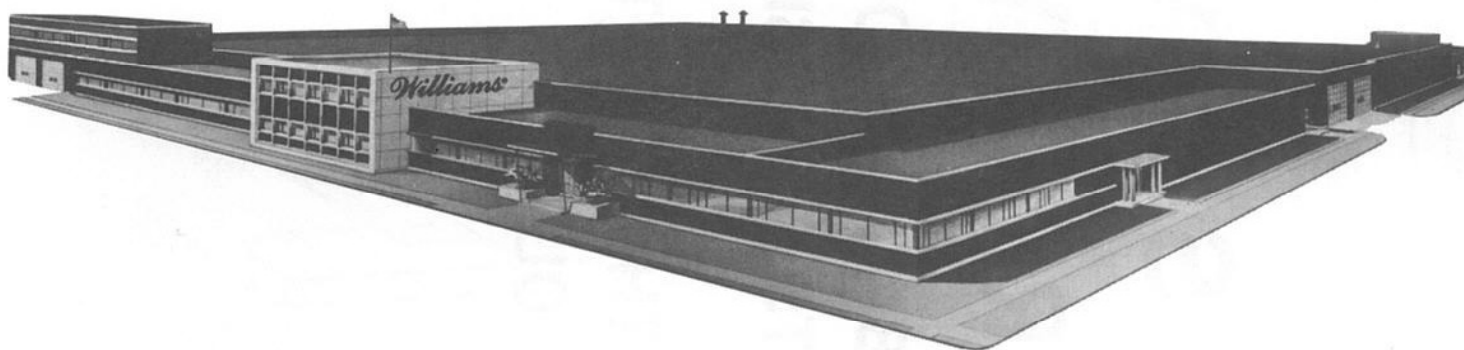


# Instruction Manual

*for*

# RINGER



*Williams*<sup>®</sup> ELECTRONICS, INC.  
SUBSIDIARY OF THE SEEBURG CORPORATION

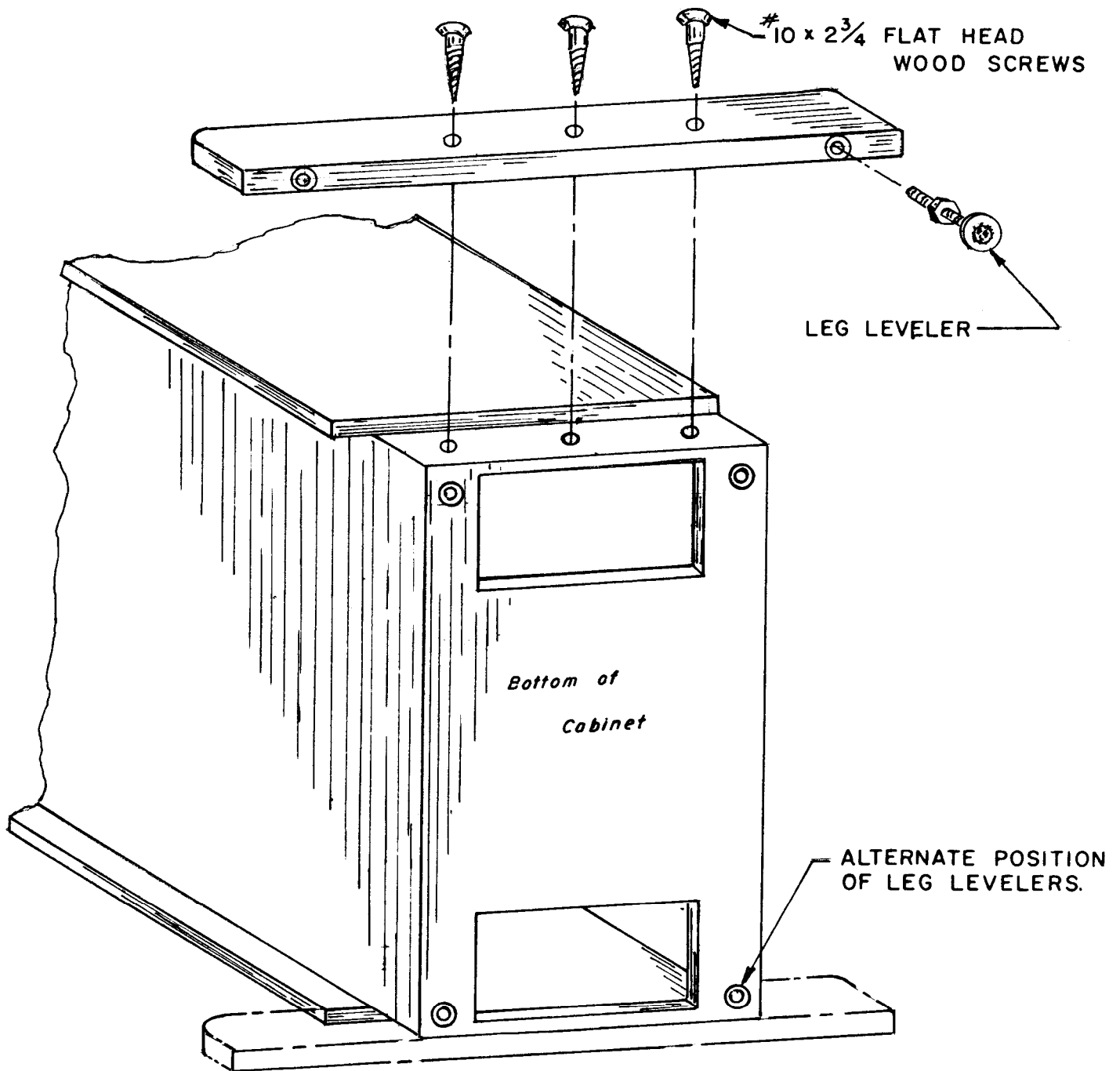
3401 N. California Ave.  
Phone 267-2240

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

# **SERVICEMAN TO REMOVE BACKGLASS:**

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

# "RINGER"- LEG MOUNTING INSTRUCTIONS



This Drawing Shows Attachment of Legs to Cabinet, Lay Cabinet On Sides to Assemble Legs to it. Add Leg Levelers as Shown.

When Cabinet is Setting Flush Against A Wall Legs Cannot Be Used. Place Leg Levelers in Alternate Position Shown and Adjust so Cabinet Tilts Slightly Backwards.

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

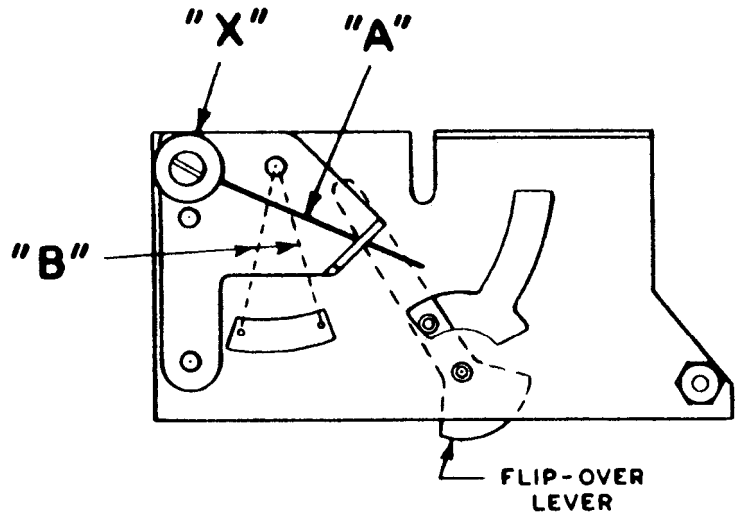
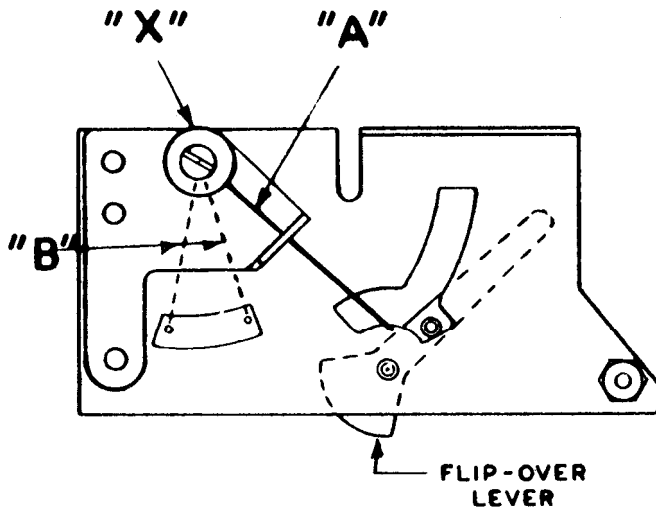
FOR 1 COIN - FOR 1 PLAY

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.

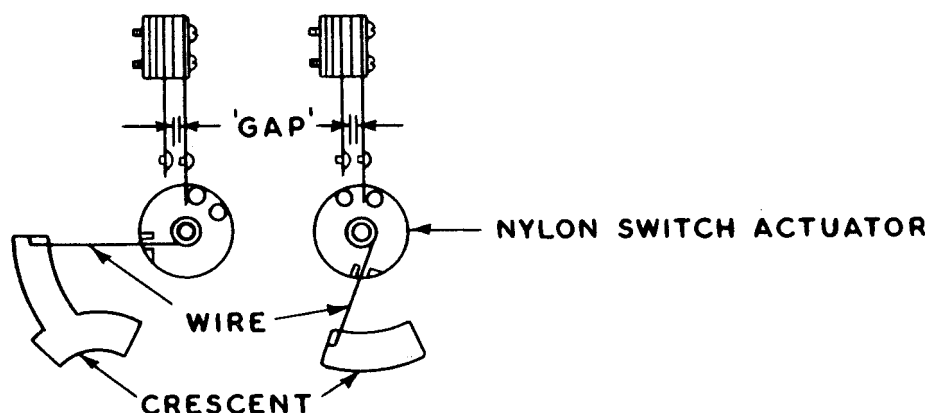
## **NOTE:**

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.

### POWER TRANSFORMER:

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

### SUGGESTED SCORE CARDS:

7 SHOT---REPLAYS AT 15 AND 21---PART NO. 30D-383  
5 SHOT---REPLAYS AT 10 AND 15---#383-3C PLASTIC INSERT  
10 SHOT---REPLAYS AT 21 AND 27---#383-1B PLASTIC INSERT

"RINGER"

COIL & MOTOR CHART

NOTICE:

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

NUMBER	DESCRIPTION	LOCATION
14A-7805	CONTROL MOTOR 60 CYCLE	MECH. PANEL
14A-7806	CONTROL MOTOR 50 CYCLE	MECH. PANEL
15A-6771	TRANSFORMER 60 CYCLE	MECH. PANEL
15A-6782-1	TRANSFORMER 50 CYCLE	MECH. PANEL
XM-27-675	TOTAL PLAY METER	CABINET
<u>SOLENOID COILS</u>		
A-29-2800	ENGAGE COIL	CABINET
A-24-975	BRAKE COIL	CABINET
A-23-600	CREDIT UNIT DRIVE	INSERT
A-22-550	HORSESHOE UNIT DRIVE	INSERT
A-22-550	SHOT COUNT UNIT DRIVE	INSERT
C2-26-800	CHIME	CABINET
B-26-800	HORSESHOE UNIT RESET	INSERT
B-26-800	SHOT COUNT UNIT RESET	INSERT
B-26-800	1ST 0-9 DRUM UNIT	INSERT
B-26-800	2ND 0-9 DRUM UNIT	INSERT
B-26-800	1ST 10-90 DRUM UNIT	INSERT
B-26-800	2ND 10-90 DRUM UNIT	INSERT
B-26-800	CREDIT UNIT RESET	INSERT
A2-23-750	KNOCKER	CABINET
<u>RELAY COILS</u>		
Z-28-1150	LOCK RELAY	MECH. PANEL
Z-28-1150	CUTOFF RELAY	MECH. PANEL
Z-28-1150	ENGAGE RELAY	MECH. PANEL
Z-28-1150	PLAY CONTROL RELAY	MECH. PANEL
Z-28-1150	RINGER RELAY	MECH. PANEL
Z-28-1150	EXTRA SHOT RELAY	MECH. PANEL
Z-28-1150	GAME OVER RELAY	MECH. PANEL
Z-28-1150	PLAYER RELAY	INSERT
Z-27-1000	COIN RELAY	MECH. PANEL
Z-27-1000	START RELAY	MECH. PANEL
Z-27-1000	2ND COIN RELAY	MECH. PANEL
M-36-5500	TIMER RELAY	CABINET
M1-31-1500	COIN LOCKOUT	COIN DOOR
M3-30-1400	BUZZER	CABINET
M-29-1100	10¢ RELAY	MECH. PANEL
M-29-1100	25¢ RELAY	MECH. PANEL
M-29-1100	POINT RELAY	INSERT
M-29-1000	2ND COIN RELAY	MECH. PANEL
M-29-1000	GAME OVER RELAY	MECH. PANEL
M-29-1000	SCORE RESET RELAY	INSERT
M-29-1000	HORSESHOE RELAY	INSERT

## 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.

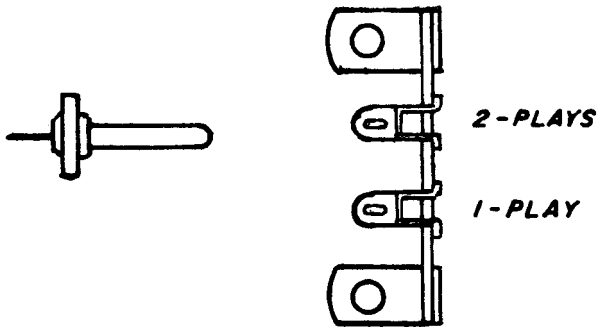
## 4. RELAY and SWITCH ADJUSTMENT

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.

# ADJUSTMENTS

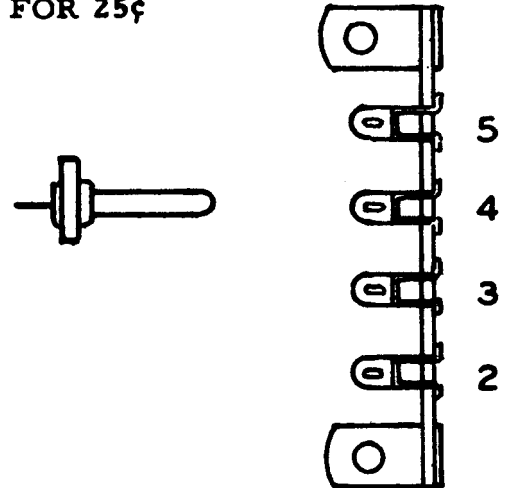
## 10¢ Adjustment

PROVIDES 1 OR 2  
PLAYS FOR 1 COIN

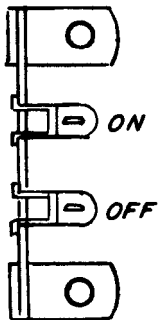


## 25¢ Adjustment

PROVIDES 2, 3, 4 OR 5  
PLAYS FOR 25¢

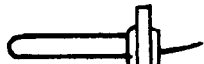


## Motor Service Jack



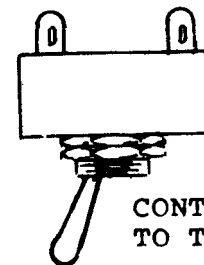
INSERT PHONE TIP IN  
'OFF' POSITION - CAMS  
CAN BE TURNED BY  
HAND TO CHECK

ADJUSTMENT OF  
SWITCHES.



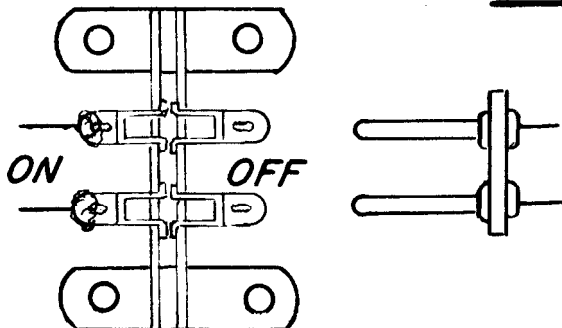
## MASTER ON-OFF SW.

LOCATED ON TOP OF  
CABINET.



CONTROLS POWER  
TO TRANSFORMER

## Extra Shots Adjustment

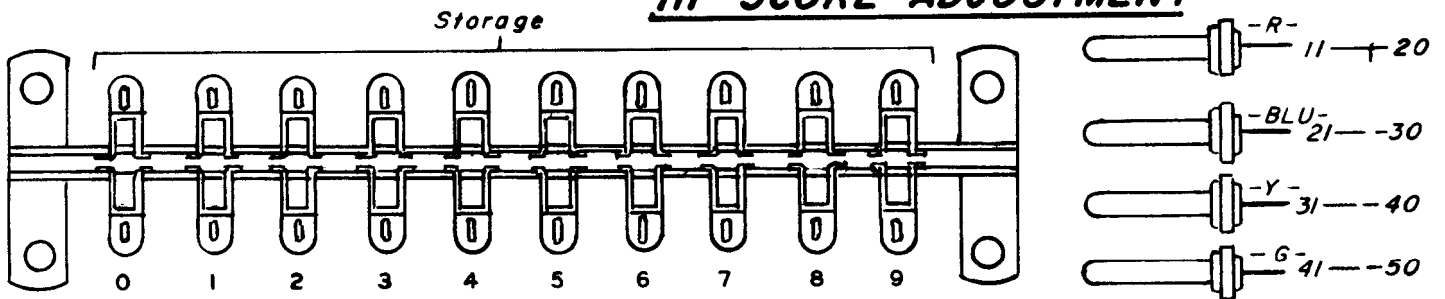


IN "OFF" POSITION, GAME  
WILL NOT SCORE ANY EXTRA  
SHOTS.



# ADJUSTMENTS

## HI-SCORE ADJUSTMENT

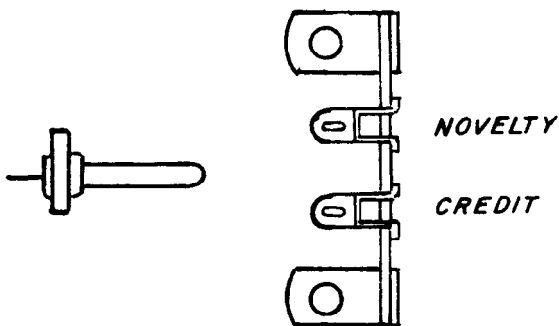


INSERT PLUGS INTO 20 POINT FEMALE AT DESIRED POSITIONS.

### EXAMPLES:

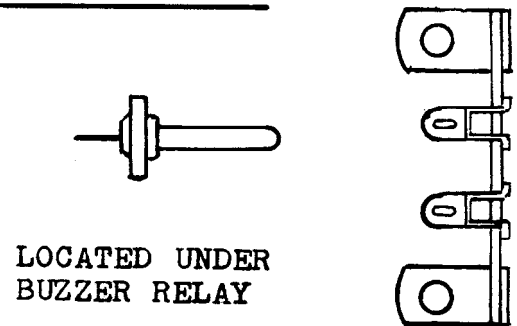
BLUE WIRE INTO 1 POSITION SCORES AT 21.  
 BLUE WIRE INTO 0 POSITION SCORES AT 30.

## NOVELTY - CREDIT ADJ.



IN CREDIT POSITION, HI SCORES, AS INDICATED, ADVANCE CREDIT UNIT.  
 IN NOVELTY POSITION, HI-SCORES WILL ENERGIZE EXTRA SHOT RELAY.

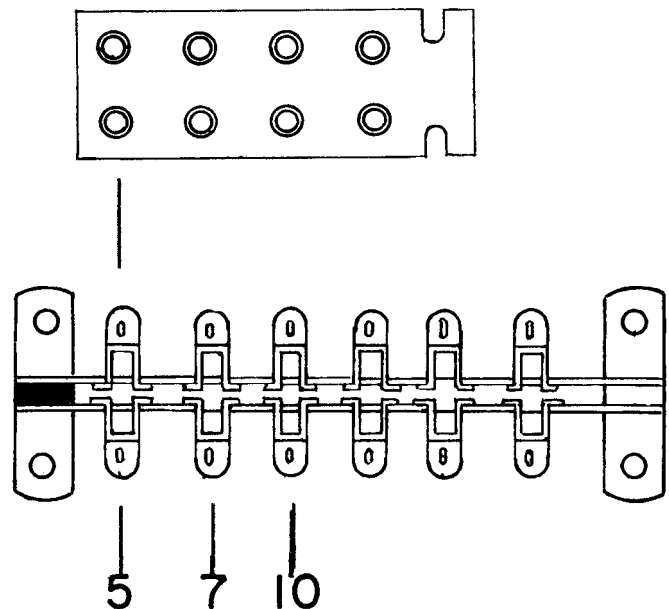
## BUZZER ADJ.



CHANGES BUZZER FROM LOUD TO SOFT OR VICE VERSA

## GAME ADJUSTMENT

ENERGIZES GAME-OVER RELAY AFTER 5, 7 OR 10 SHOTS PER PLAYER.  
 ALSO IN CIRCUITS TO LITE "RINGER SCORES EXTRA SHOT" ON 5TH, 7TH OR 10TH SHOT, AND TO EXTRA SHOT RELAY.

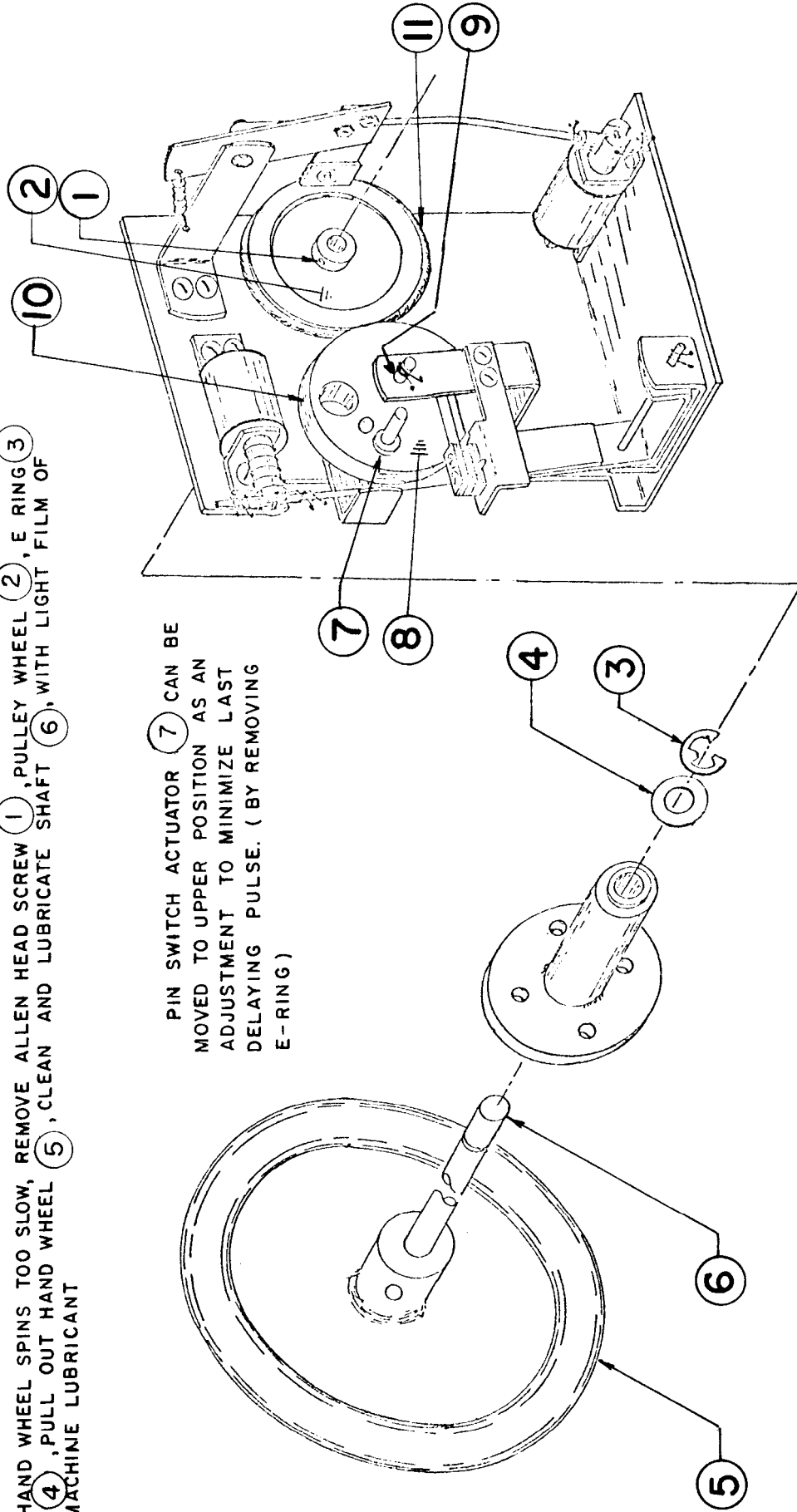


# D-7322

## SPIN MECHANISM

IF HAND WHEEL SPINS TOO SLOW, REMOVE ALLEN HEAD SCREW (1), PULLEY WHEEL (2), E RING (3) WASHER (4), PULL OUT HAND WHEEL (5), CLEAN AND LUBRICATE SHAFT (6), WITH LIGHT FILM OF COIN MACHINE LUBRICANT

PIN SWITCH ACTUATOR (7) CAN BE MOVED TO UPPER POSITION AS AN ADJUSTMENT TO MINIMIZE LAST DELAYING PULSE. ( BY REMOVING E-RING )



IF FLYWHEEL (8) SPINS TOO SLOW, PUT A DROP OF 3 IN 1 OIL (OR EQUIVALENT) ON BEARINGS SURFACE (9) ON BOTH SIDES.

FLY WHEEL SURFACE (10) AND RUBBER TIRE (11) MUST BE CLEAN AND FREE OF ANY LUBRICATION. ( A SPARE RUBBER TIRE IS INCLUDED WITH EACH NEW GAME )

## "RINGER"

ENGAGE RELAY IS ENERGIZED WHEN WIPER ON HORSESHOE UNIT DISC IS AT ZERO POSITION. SWITCHES ON "ENGAGE RELAY" WILL ENERGIZE "ENGAGE SOLENOID", LOCATED ON SPIN MECHANISM.

THE "SPIN WHEEL SWITCH" PULSES THE "HORSESHOE RELAY".

SWITCHES ON HORSESHOE RELAY WILL PULSE HORSESHOE UNIT STEP UP COIL AND THE TIMER RELAY.

A 1500 MFD 50 VOLT CAPACITOR IS IN PARALLEL WITH THE TIMER RELAY COIL. THIS SERVES TO DELAY THE DROPPING OUT OF THE TIMER RELAY AFTER SPIN WHEEL STOPS SENDING PULSES.

SWITCH ON TIMER RELAY (WHEN IT DOES DROP OUT), IN SERIES WITH SWITCH ON "PLAY CONTROL RELAY", WILL RUN THE CONTROL MOTOR FOR SCORING.

PLAY CONTROL RELAY, WHICH WAS ENERGIZED BY WIPER FINGER AT 4th STEP OF HORSESHOE UNIT, WILL NOW DROP OUT AT CONTROL MOTOR CAM 5.

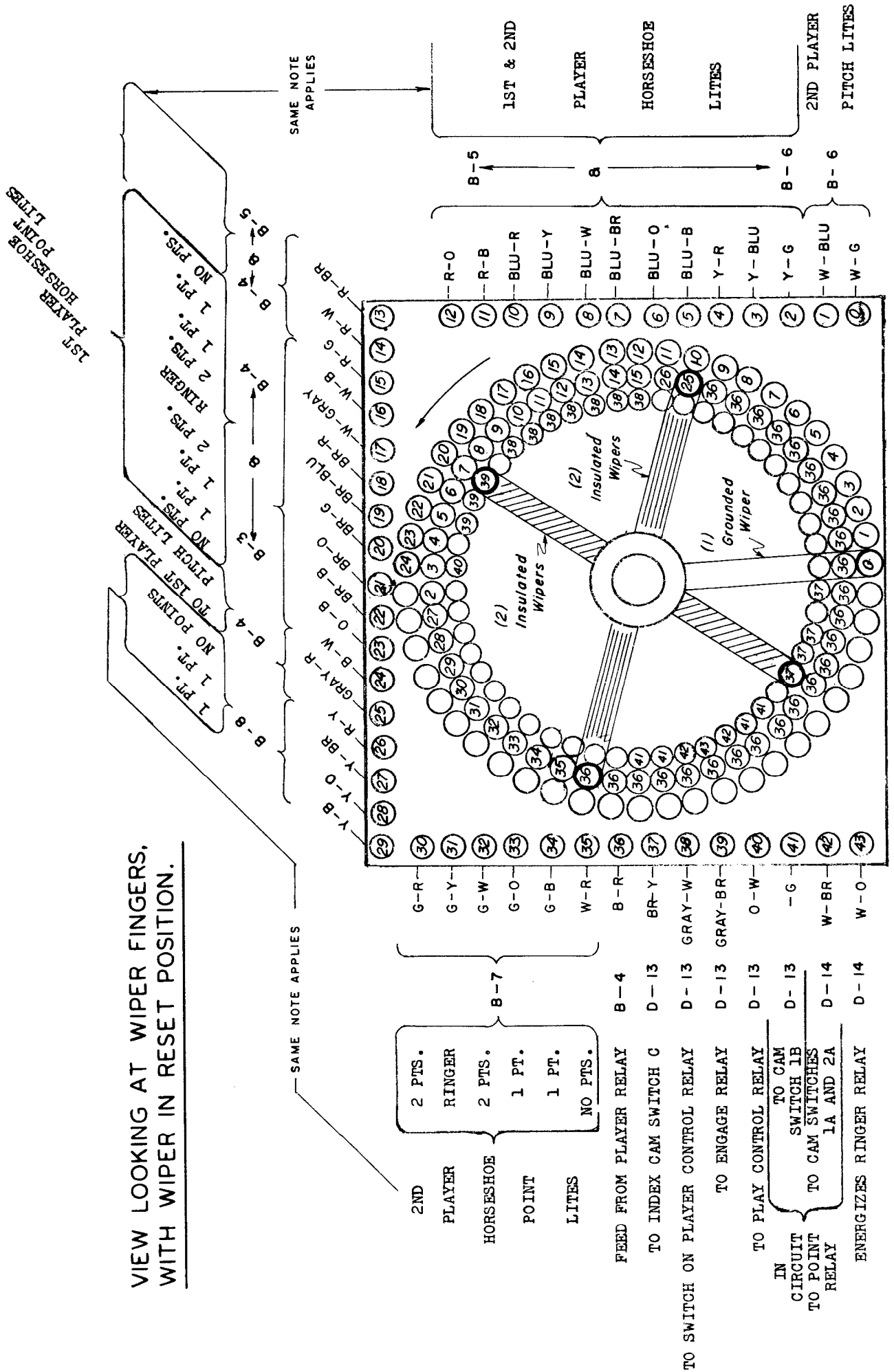
THE SCORING OF ONE, TWO OR THREE POINTS IS ACCOMPLISHED BY CONTROL MOTOR CAM SWITCHES, DEPENDENT UPON WHERE THE HORSESHOE UNIT WIPERS CAME TO REST.

AFTER THE SCORE COUNT, SWITCH ON CONTROL MOTOR CAM 4 WILL RESET HORSESHOE UNIT.

# HORSESHOE UNIT

THIS UNIT RESETS AT CONTROL MOTOR CAM SWITCH 4B. IT ADVANCES ONE STEP EACH TIME THE HORSESHOE RELAY IS PULSED.

VIEW LOOKING AT WIPER FINGERS, WITH WIPER IN RESET POSITION.

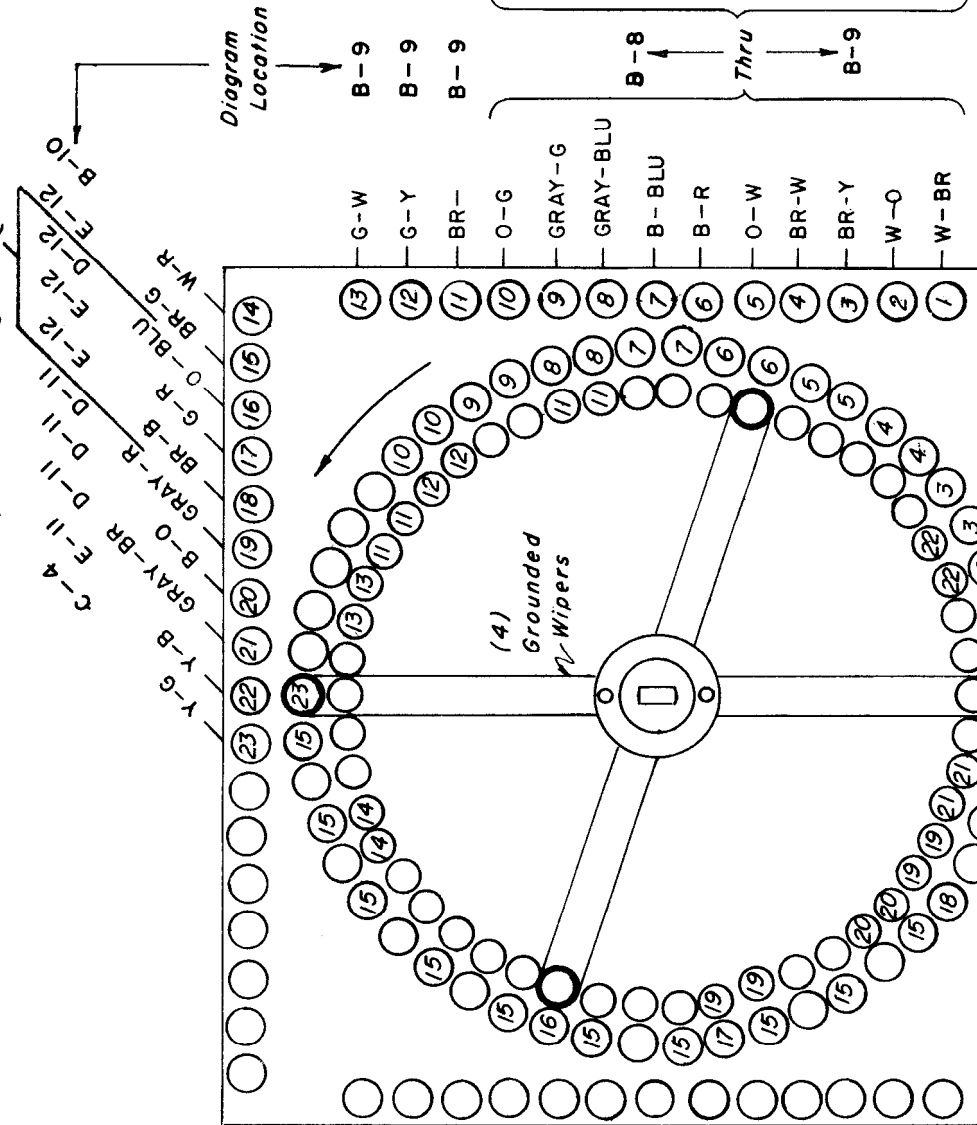


# SHOT COUNTER UNIT

THIS UNIT IS RESET BY SWITCH B ON COIN RELAY, AND CONTROL MOTOR CAM SWITCH 3C.  
 IT ADVANCES ONE STEP AT CAM SWITCH 4A, THRU SWITCH D ON EXTRA SHOT RELAY.  
 IT ALSO ADVANCES ONE STEP AT CAM SWITCH 3A, THRU SWITCH B ON 2ND COIN RELAY AND SWITCH D ON EXTRA SHOT RELAY.

IN SERIES WITH SWITCH B ON LOCK RELAY.  
 IN CIRCUIT TO EXTRA RINGER RELAY, THRU SWITCH ON EXTRA SHOT RELAY.  
 IN CIRCUIT TO EXTRA RINGER RELAY, THRU SWITCH ON LOCK RELAY.  
 IN SERIES WITH SWITCH B ON LOCK RELAY, THRU SWITCH ON EXTRA SHOT RELAY.  
 ON 7TH SHOT ON 5TH SHOT ENERGIIZES GAME-OVER RELAY (TRIP COIL) AFTER 10.7. OR 5.2ND COIN RELAY, THRU SWITCH ON EXTRA SHOT RELAY.  
 ON 10TH SHOT ON 3RD & 6TH SHOT ENERGIIZES GAME-OVER RELAY (TRIP COIL) AFTER 10.7. OR 5.2ND COIN RELAY, THRU SWITCH ON EXTRA SHOT RELAY.  
 ON 10TH SHOT TO RINGER SCORES EXTRA SHOT LITE (ON 10TH SHOT).  
 ON 10TH SHOT TO RINGER SCORES EXTRA SHOT LITE (ON 10TH SHOT).  
 ON 10TH SHOT TO RINGER SCORES EXTRA SHOT LITE (ON 10TH SHOT).

View looking at wiper FINGERS with wiper in RESET position.

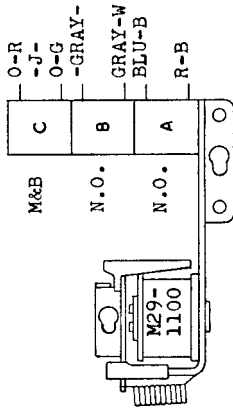


"RINGER SCORES EXTRA SHOT" LITE (ON 7TH SHOT).  
 "RINGER SCORES EXTRA SHOT" LITE (ON 5TH SHOT).  
 "RINGER SCORES EXTRA SHOT" LITE (ON 3RD & 6TH SHOT).

10th SHOT LITE  
 9th SHOT LITE  
 8th SHOT LITE  
 7th SHOT LITE  
 6th SHOT LITE  
 5th SHOT LITE  
 4th SHOT LITE  
 3rd SHOT LITE  
 2nd SHOT LITE  
 1st SHOT LITE

### 10¢ RELAY

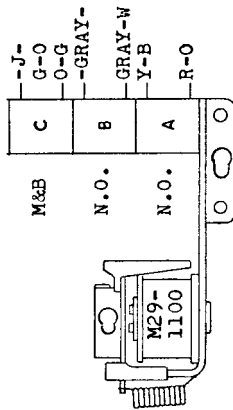
IS ENERGIZED BY 10¢ COIN SWITCH, IF "10¢ ADJUSTMENT" JACK IS IN "2 PLAYS" POSITION.



E-5 OPENS IN CIRCUIT TO KNOCKER COIL AND CLOSES TO RUN CONTROL MOTOR.  
 D-9 PULSES CREDIT UNIT S.U., THRU IMPULSE CAM SWITCH A.  
 E-5 IN HOLD CIRCUIT TO THIS RELAY.

### 25¢ RELAY

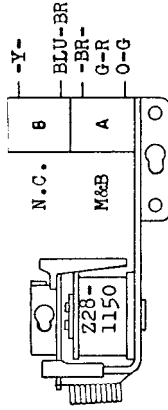
IS ENERGIZED BY 25¢ COIN SWITCH.



E-5 OPENS IN CIRCUIT TO KNOCKER COIL AND CLOSES TO RUN CONTROL MOTOR.  
 D-9 PULSES CREDIT UNIT S.U., THRU IMPULSE CAM SWITCH A.  
 D-5 IN HOLD CIRCUIT TO THIS RELAY.

### CUT-OFF RELAY

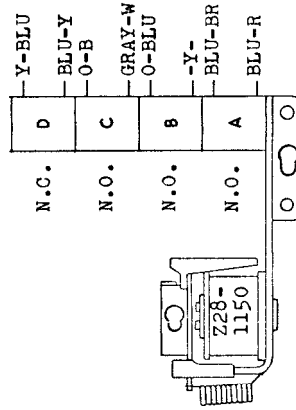
IS ENERGIZED BY HORSESHOE UNIT END-OF-STROKE SWITCH.



C-11 IN SERIES WITH SWITCH A ON EXTRA SHOT RELAY.  
 E-12 OPENS IN CIRCUIT TO HORSESHOE RELAY AND CLOSES TO CUT-OFF RELAY.

### EXTRA SHOT RELAY

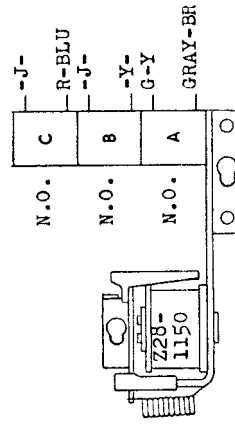
IS ENERGIZED BY SWITCH ON RINGER RELAY, THRU SHOT COUNTER UNIT DISC.



E-7 IN CIRCUIT TO SHOT COUNTER UNIT S.U. COIL.  
 C-14 ENERGIZES BUZZER COIL, THRU SWITCH B ON "PLAY CONTROL" RELAY.  
 C-10 TO "SAME PLAYER SHOOTS AGAIN" LITE.  
 E-11 IN HOLD CIRCUIT TO THIS RELAY.

### ENGAGE RELAY

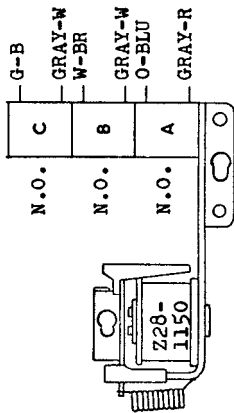
IS ENERGIZED BY WIPER FINGERS ON HORSESHOE UNIT DISC (IN ZERO POSITION), THRU CONTROL MOTOR INDEX CAM SWITCH C.



C-3 ENERGIZES ENGAGE SOLENOID.  
 C-3 IN SERIES WITH SWITCH C ON THIS RELAY.  
 E-13 IN HOLD CIRCUIT TO THIS RELAY, THRU SWITCH D ON PLAY CONTROL RELAY.

## RINGER RELAY

IS ENERGIZED BY WIPER FINGERS ON HORSESHOE UNIT (20TH POSITION), THRU SWITCH B ON PLAY CONTROL RELAY.



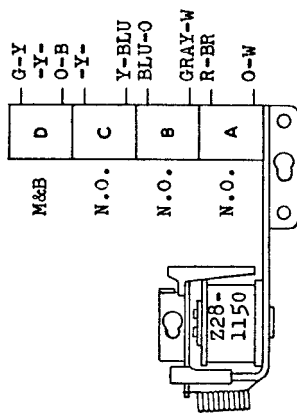
D-14 PULSES POINT RELAY, THRU CAM SWITCH 3A.

D-14 PULSES POINT RELAY, THRU CAM SWITCHES 1A AND 2A.

F-11 IN CIRCUIT TO EXTRA SHOT RELAY, THRU DISC ON SHOT COUNTER UNIT.

## PLAY CONTROL RELAY

IS ENERGIZED BY WIPER FINGERS ON HORSESHOE UNIT (4TH POSITION).



C-7 OPENS IN HOLD CIRCUIT TO ENGAGE RELAY AND CLOSES TO ENERGIZE SHOT COUNTER UNIT S.U. COIL.

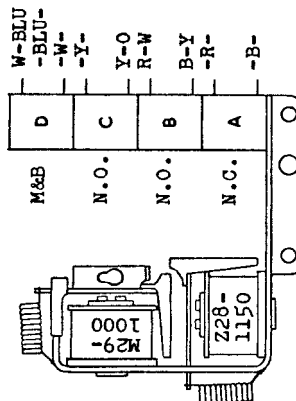
C-4 RUNS CONTROL MOTOR, THRU SWITCH ON TIMER RELAY.

D-13 IN CIRCUIT TO POINT RELAY, THRU HORSESHOE UNIT DISC OR SWITCHES ON RINGER RELAY.

E-13 IN HOLD CIRCUIT TO THIS RELAY.

## GAME-OVER RELAY

RESET COIL IS ENERGIZED BY WIPER FINGER ON SHOT COUNTER UNIT (AT ZERO POSITION), THRU ZERO MAKE SWITCHES ON (4) SCORING DRUMS. TRIP COIL IS ENERGIZED BY WIPER FINGER ON SHOT COUNTER UNIT AT 10TH, 14TH OR 20TH POSITION, DEPENDING ON GAME ADJUSTMENT JACK. TRIP COIL IS ALSO ENERGIZED BY COIN RELAY OR LOCK RELAY.



A-7 IN 6 VOLT CIRCUIT TO SHOT LITES OR GAME-OVER LITES.

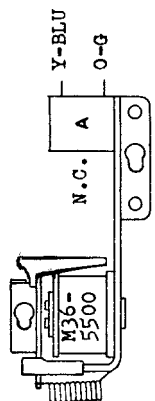
C-6 IN CIRCUIT TO START RELAY.

D-6 IN CIRCUIT TO COIN RELAY.

F-10 OPENS CIRCUITS TO ENGAGE RELAY, HORSESHOE RELAY, POINT RELAY AND OTHERS.

## TIMER RELAY

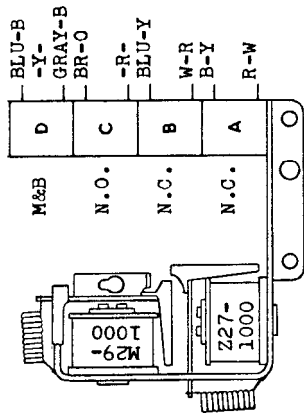
IS ENERGIZED BY TWO SWITCHES, IN SERIES, ON HORSESHOE RELAY. THESE TWO SWITCHES ALSO CHARGE A 1500 MFD-50 VOLT CAPACITOR WHICH IS WIRED IN PARALLEL WITH THE TIMER RELAY COIL.



D-4 IN SERIES WITH SWITCH C ON PLAY CONTROL RELAY.

## 2nd COIN RELAY

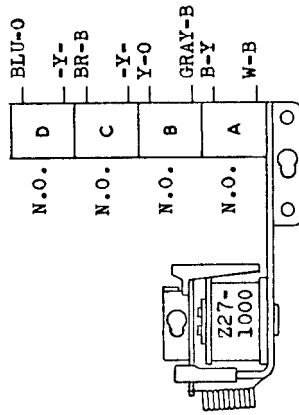
RESET COIL IS ENERGIZED AT CAM SWITCH 3C, THRU SWITCH B ON COIN RELAY OR SWITCH A ON START RELAY.  
TRIP COIL IS ENERGIZED BY SWITCH D ON COIN RELAY.



C-10 OPENS IN CIRCUIT TO "1 CAN PLAY" LITE AND CLOSES TO "2 CAN PLAY" LITE.  
F-12 ENERGIZES PLAYER RELAY, THRU SHOT COUNTER DISC.  
D-7 ONE PULSE TO SHOT COUNTER UNIT S.U. COIL, THRU CAM SWITCH 3B.  
D-6 IN CIRCUIT TO COIN RELAY.

## COIN RELAY

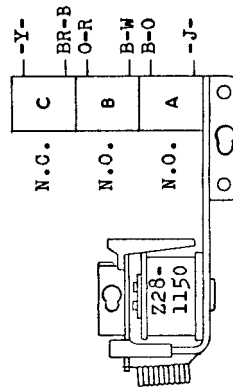
IS ENERGIZED BY COIN SWITCH OR BY REPLAY BUTTON WHEN CREDIT IS AVAILABLE.



C-4 TO CREDIT UNIT RESET COIL AND 2ND COIN RELAY (TRIP COIL).  
C-12 ENERGIZES GAME-OVER RELAY (TRIP COIL).  
D-6 ENERGIZES START RELAY, AND RESET COILS ON 2ND COIN RELAY AND SHOT COUNTER UNIT.  
E-6 IN HOLD CIRCUIT TO THIS RELAY.

## LOCK RELAY

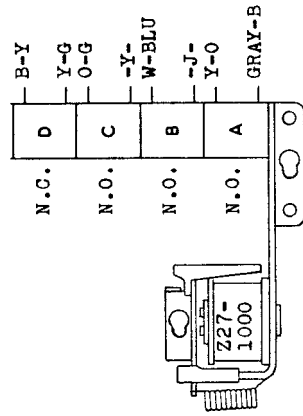
IS ENERGIZED BY START RELAY AT CONTROL MOTOR CAM SWITCH 1C.



C-11 ENERGIZES GAME-OVER RELAY (TRIP COIL).  
F-4 ENERGIZES GAME-OVER RELAY (RESET COIL), THRU (4) ZERO SWITCHES ON SCORING DRUM UNITS.  
D-7 IN HOLD CIRCUIT TO THIS RELAY.

## START RELAY

IS ENERGIZED BY COIN RELAY, THRU SWITCH C ON GAME-OVER RELAY.



D-6 IN CIRCUIT TO COIN RELAY, THRU REPLAY BUTTON SWITCH.  
D-4 RUNS CONTROL MOTOR.  
D-7 ENERGIZES LOCK RELAY AT CONTROL MOTOR CAM SWITCH 1C.  
D-6 IN HOLD CIRCUIT TO THIS RELAY.

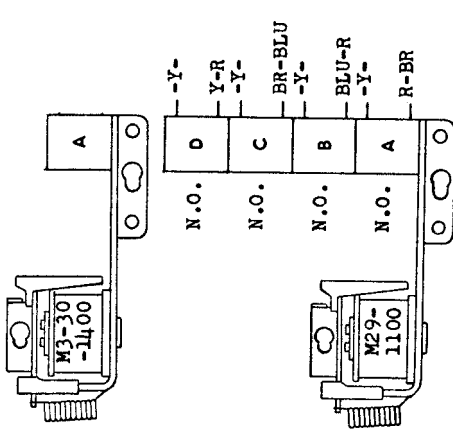


## BUZZER RELAY

IS PULSED BY SWITCH C ON EXTRA SHOT RELAY.

## POINT RELAY

IS PULSED BY CONTROL MOTOR CAM SWITCHES 1, 2 AND 3, THRU THE HORSESHOE UNIT DISC.

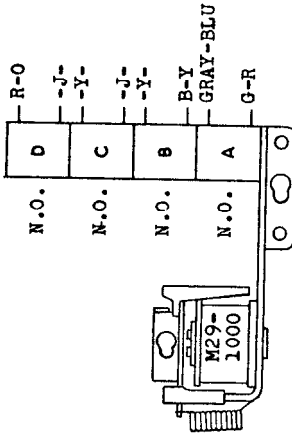


C-9  
C-8  
C-8  
C-6

IN HI-SCORE CIRCUIT TO "CREDIT-NOVELTY" ADJUSTMENT JACK.  
IN SERIES WITH SWITCH C ON PLAYER RELAY.  
IN SERIES WITH SWITCH D ON PLAYER RELAY.  
PULSES CHIME COIL.

## HORSESHOE RELAY

IS PULSED BY "SPIN WHEEL" SWITCH, THRU SWITCH A ON CUT-OFF RELAY. LAST POSITION SWITCH ON HORSESHOE UNIT IS ALSO IN THE CIRCUIT.

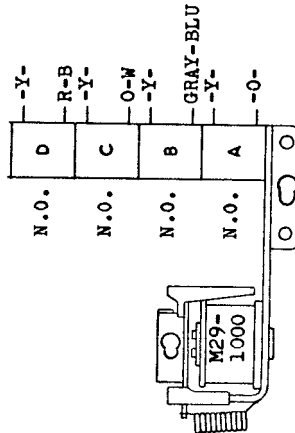


C-3  
C-3  
C-15  
D-12

ENERGIZES TIMER RELAY, THRU SWITCH C ON THIS RELAY.  
IN SERIES WITH SWITCH D ON THIS RELAY.  
ENERGIZES HORSESHOE UNIT S.U. COIL.  
IN HOLD CIRCUIT TO THIS RELAY.

## SCORE RESET RELAY

IS PULSED BY IMPULSE CAM SWITCH B, THRU SWITCH A ON START RELAY.

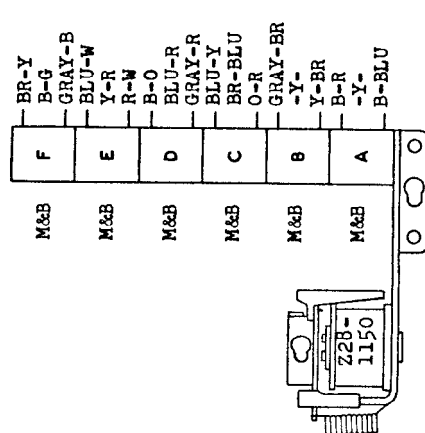


D-8  
D-8  
D-8  
D-8

PULSES 2ND PLAYER 10 POINT DRUM UNIT, THRU ZERO SWITCH ON THAT UNIT.  
PULSES 1ST PLAYER 10 POINT DRUM UNIT, THRU ZERO SWITCH ON THAT UNIT.  
PULSES 2ND PLAYER 1 POINT DRUM UNIT, THRU ZERO SWITCH ON THAT UNIT.  
PULSES 1ST PLAYER 1 POINT DRUM UNIT, THRU ZERO SWITCH ON THAT UNIT.

## PLAYER RELAY

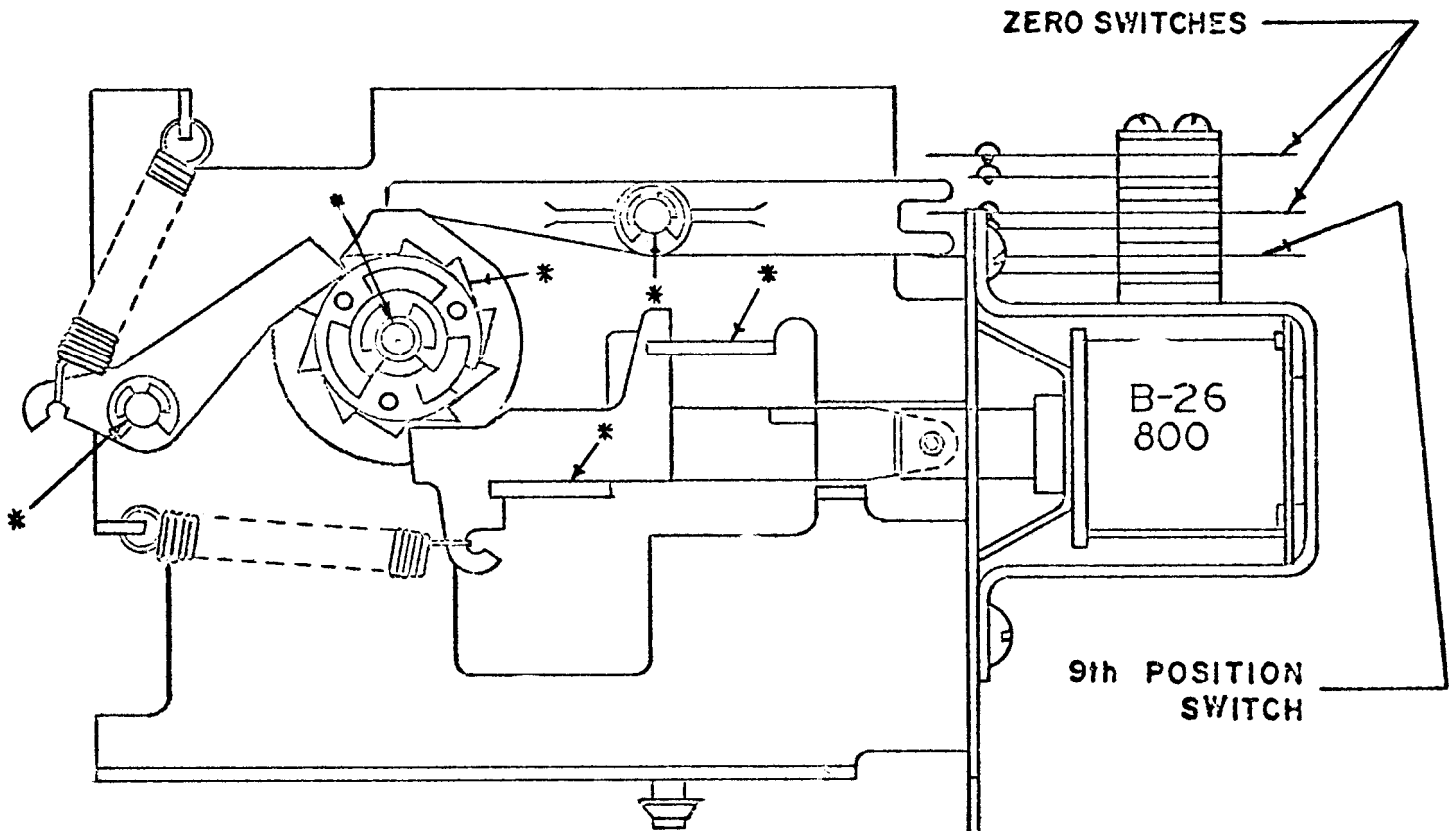
IS ENERGIZED BY WIPER FINGER ON SHOT COUNTER UNIT, THRU SWITCH C ON 2ND COIN RELAY.



F-9  
C-9  
D-8  
D-8  
C-10  
C-4

IN HI-SCORE CIRCUIT TO CREDIT UNIT S.U. OR EXTRA SHOT RELAY.  
IN SERIES WITH SWITCH F ON THIS RELAY.  
TO 1ST & 2ND PLAYER 1 POINT DRUM UNIT COILS.  
IN CIRCUIT TO 1ST OR 2ND PLAYER 10 POINT DRUM UNIT COILS.  
OPENS TO "1ST PLAYER UP" LITE AND CLOSES TO "2ND PLAYER UP" LITE.  
IN CIRCUIT TO 1ST AND 2ND PLAYER HORSESHOE LITES, THRU HORSESHOE UNIT DISC.

# SCORE DRUM UNIT



PROPER LUBRICATION WILL INSURE A LONGER LASTING AND BETTER OPERATING UNIT.

POINTS TO BE LUBRICATED ARE THE THREE POSTS ON WHICH THE NYLON PARTS ROTATE, EACH TOOTH OF THE RATCHET, ALSO THE (2) DRIVE PAWL GUIDE SLOTS, INDICATED BY (\*).

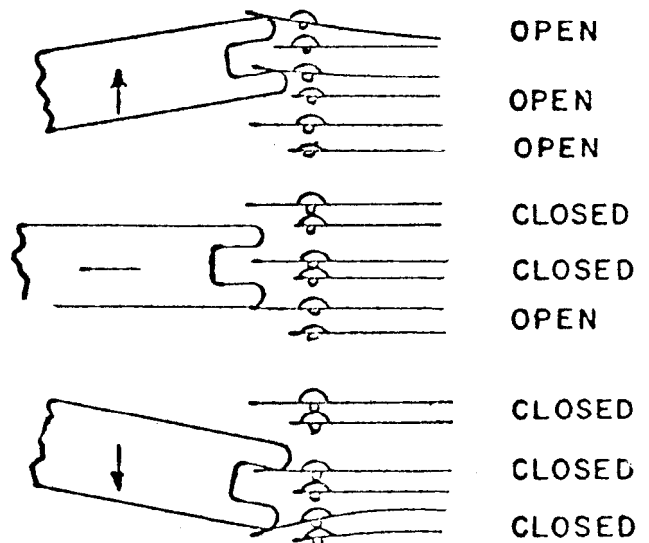
**LUBRICATION: DO NOT PUT LUBRICANT ON DRIVE ARMATURE**

## SWITCH ADJUSTMENT

AT "0" OR INDEX POSITION ALL SWITCHES ARE OPEN AS SHOWN.

AT 1st. TO 8th. POSITION TOP SWITCHES ARE CLOSED—BOTTOM SWITCH REMAINS OPEN.

AT 9th POSITION ALL SWITCHES ARE CLOSED AS SHOWN



# 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

UNIT NAME	CONTACT DISC	WIPER ASSEMBLY	RATCHET GEAR ASSEMBLY	MOTORS
CREDIT	-----	-----	A-6400	
SHOT COUNTER	C-6417	C-6520	A-6402	SCORE MOTOR
HORSESHOE	C-6417	C-6520	A-6402	114A-7805 (60 CYCLE)
1 POINT	A-7195	A-6294	3C-7272	114A-7806 (50 CYCLE)
10 POINT	A-7195	A-6294	3C-7272	

SUGGEST ORDERING ALL GAMES WITH 2/25 PLAY

To convert Williams' Equipment to 2 plays for 25¢---

Please Order

16 A-8636 (Dummy Entry Covers)

16 C-8640 - 100 (2/25 Coin Entry Plate)

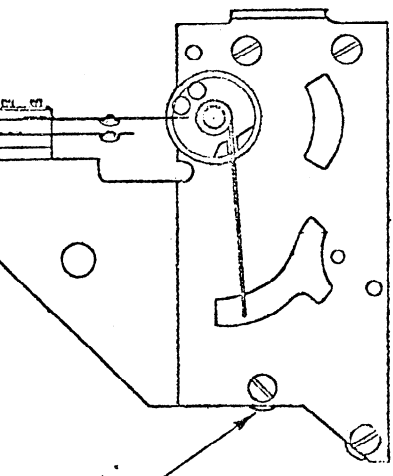
Move Phone Tip on 25¢ - Adjustment to No. 2

If Necessary Order

9 C - 8803 25¢ Coin Chute

# CONVERTING WILLIAMS GAMES TO 2/25¢

- CONVERTING FROM (10¢-25¢) PLAY TO (2/25¢ - 2/25¢) PLAY
- REPLACE 10¢ COIN CHUTE WITH 25¢ COIN CHUTE.
- REPLACE 10¢ COIN INSERT PLATE WITH (1A-4215) 25¢ COIN INSERT PLATE.
- REPLACE 10¢ IDENTIFICATION PLATE WITH (16C-8640-100) 2 PLAYS-QUARTER.
- REPLACE 10¢ COIN SWITCH WITH 25¢ COIN SWITCH (3M-3)



REMOVE MACHINE SCREW AND SPACER IN "COIN TRIP AND SWITCH ASSEMBLY" B-6853, TO ALLOW QUARTER TO PASS THRU.

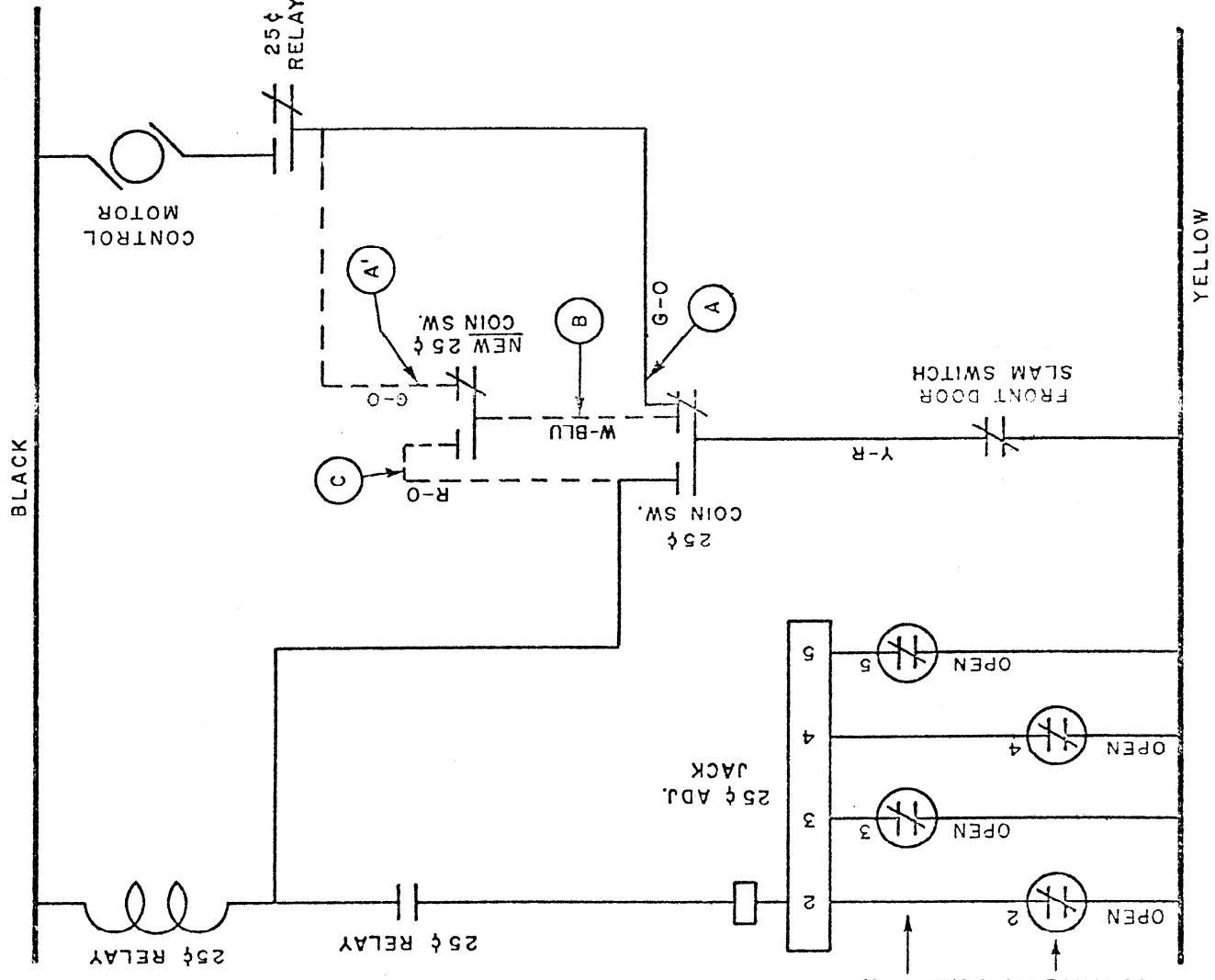
B-6853 COIN TRIP & SWITCH ASS'Y.

- TO CONVERT FROM (5¢ 5¢ - 10¢ - 25¢) TO (2/25¢ - 2/25¢)
- REPLACE (5¢ 5¢) COIN TRIP AND SWITCH ASSEMBLY WITH B-6853 (10¢) COIN TRIP AND SWITCH ASSEMBLY.
- REPLACE 5¢ COIN CHUTE WITH 25¢ COIN CHUTE.
- REPLACE 5¢ COIN INSERT PLATE WITH (1A-4215) 25¢ COIN INSERT PLATE.
- REPLACE 5¢ IDENTIFICATION PLATE WITH (16C-8640-100) 2 PLAYS - QUARTER.
- MAKE CHANGES ON B-6853 "COIN TRIP AND SWITCH ASSEMBLY" AS SHOWN ABOVE.
- USE PART NO. 16A-8636 (DUMMY COIN ENTRY COVER) ON CENTER CHUTE.

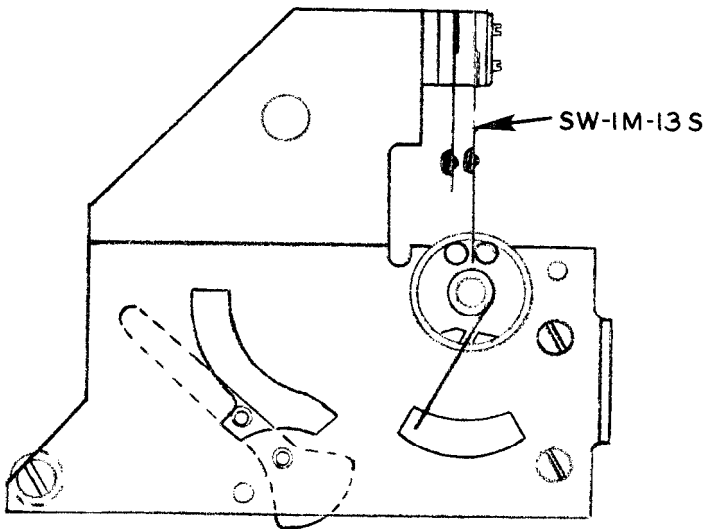
### WIRING INSTRUCTIONS

- AT ORIGINAL 25¢ COIN SWITCH, UNSOLDER GREEN-ORANGE WIRE (A) AND TAPE IT. REMOVE TAPE FROM WHITE-BLUE WIRE AND SOLDER IN ITS PLACE.
- AT NEW 25¢ COIN SWITCH, REMOVE TAPE FROM GREEN-ORANGE, WHITE-BLUE AND RED-ORANGE WIRES AND SOLDER AS SHOWN BY DOTTED LINES (A), (B) AND (C).

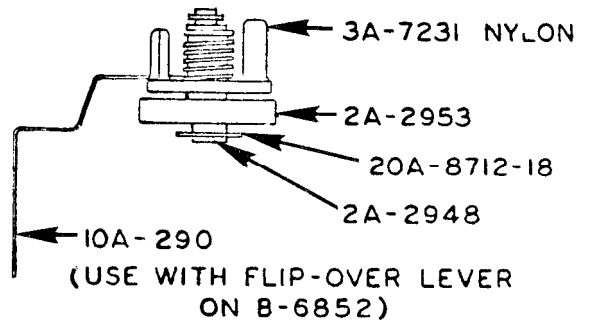
INSERT 25¢ ADJUSTMENT JACK INTO "2 PLAYS FOR QUARTER" POSITION.



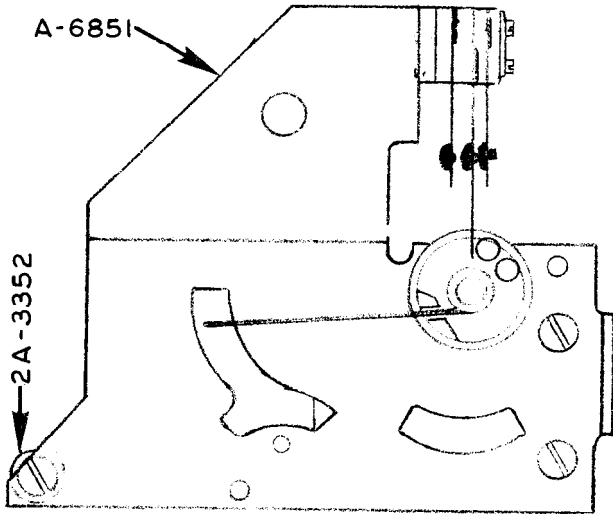
# COIN TRIP ASSEMBLIES & PARTS



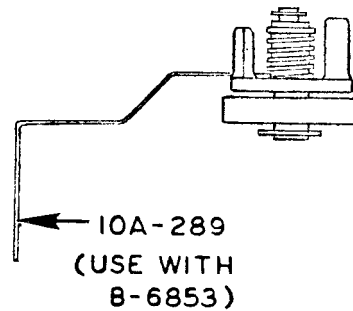
**B-6852 COIN TRIP & SWITCH ASS'Y.**  
(WITH FLIP-OVER LEVER)



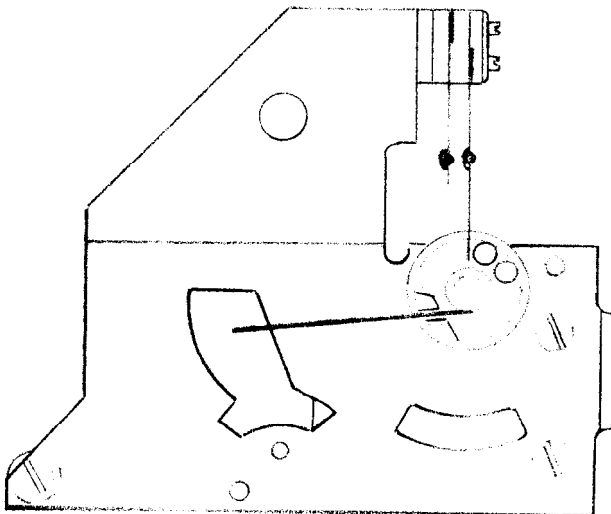
**A-7015**



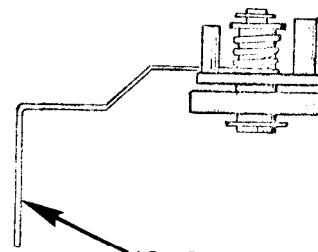
**B-6853 COIN TRIP & SWITCH ASS'Y.**  
(WITHOUT FLIP-OVER LEVER)



**A-7016**



**B-6853 L COIN TRIP & SWITCH ASS'Y.**  
(USE ONLY WITH LARGE COINS)



USED ONLY WITH B-6853 L

**A-7017**