

JUNGLE

**INSTALLATION PROCEDURES
AND
GAME OPERATION INSTRUCTIONS**

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PRICE \$1.00

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INSTALLATION PROCEDURES AND GAME OPERATION INSTRUCTIONS

All games have been carefully inspected before leaving the factory, however, minor troubles may result due to vibration during shipment. Plugs may come out of their sockets, tilt switches may be out of adjustment, etc.

The following steps should be taken to insure the proper operation of this machine:

VISUAL INSPECTIONS TO BE DONE BEFORE PLUGGING IN LINE CORD.

1. Check for foreign material across the contacts.
2. Look for disconnected wires.
3. Check plugs to be sure they are securely seated in the sockets.
4. Dress cables to keep away from moving parts.
5. Inspect for cold solder connections.
6. Manually operate all step-up units. Action should not be sluggish.
7. Check the fuses. They should be firmly seated in the clips.
8. Adjust leg levelers so that playboard has desired pitch and is level to the horizontal axis.
9. Check the tilt switches: Vibration tilt on playboard, pendulum tilt and ball roll tilt on side panel.
10. Adjust ball roll tilt and pendulum tilt.
11. Check the bounce switches on the bottom panel and in the lightbox.
12. Check the anti-cheat switch on the front door.

PLUG IN THE LINE CORD

The coin chute lights and the scene lights in the lightbox should go on. If not, operate the on-off switch located at the bottom right front corner of the cabinet.

Raise the playboard and close the front door. Drop coins thru the entrances to check alignment of coin feed troughs to rejectors. Check coin lockout wire-forms; they should be out of the path of the coins when the game is on.

If the 1st and 2nd chute adjustment is in the "2 Coins 1 Play - 1 Coin 1 Play" position inserting a coin in the 1st chute (nickel) will step the 2 coins per play relay "Y" once, inserting the second coin will step the "Y" relay again and through the switch now closed on the "Y" relay will actuate the start relay ("S").

If the 1st and 2nd chute adjustment is in the "1 Coin 1 Play - 1 Coin 2 Plays" position, inserting a coin in the 1st chute (nickel) will actuate the start relay ("S"). Inserting a coin in the 2nd chute (dime) will actuate the 2 play relay ("X"). "X" relay steps the replay unit two steps. It is then necessary to push the red button on the front door to start the game.

Insert a coin in the third chute; this will actuate the third chute relay ("W"). "W" relay will step the "Replay" unit as indicated by the 3rd chute adjustment plug. (2, 3, 4, or 5 steps.)

OPERATING INSTRUCTIONS

1. Inserting a coin or pushing the replay button actuates "S" relay (Start relay).
2. This relay will lockin thru its own switch and a motor 2B switch.
3. "S" relay starts the motor running.
4. "SB" relay and the total play meter are actuated by switches on motor 1A and motor 3B thru a switch that has been closed on "S" relay.
5. When "SB" relay is tripped the reset relays ("Z1", "Z2", and "Z3") are energized in sequence to reset the score units and the "player" unit. "Z3" opens the circuit to "Z2" and "Z1" until all of the 4th player score units and the 1000's and 10,000's score units of the 3rd player are reset thru motor switches. When these units are at zero "Z3" falls out and thru a normally closed switch on "Z3" reset relay "Z2" is energized. "Z2" opens the circuit to "Z1" until all the 2nd player score units and the 10's and 100's score units of the 3rd player are reset thru motor switches. When these units are at zero "Z2" falls out and thru a normally closed switch on "Z2" reset relay "Z1" is energized. "Z1" stays energized until all the 1st player score units are reset thru motor switches. At the same time the player unit steps up to its zero position thru a motor 1A switch in series with a switch on "SB" and a run off switch on the "player" unit (P5B).
6. The control bank is reset by a switch on motor 3C thru a switch on "U" relay.
7. Inserting additional coins or pushing the replay button will actuate the 2nd player relay (PB2) thru motor 3B switch; the 3rd player relay (PB3) thru motor 2C and PB2 switches; and the 4th player relay (PB4) thru motor 1D and PB3 switches; in that order.
8. Place the ball in the outhole. When the ball makes the ball return switch, "O" relay is actuated thru the zero position switch on the bonus unit and normally closed switches on "QB" and motor 1C.
9. "O" relay locks in thru its own switch and a switch on motor 2B.
10. When "O" relay is energized the motor starts running.
11. Motor 4C actuates the ball return coil (which kicks the ball onto the runway) thru a switch on "O".
12. The ball is now on the runway and is ready to be put into play.
13. The remaining balls that enter the outhole are kicked across the trough switch which pulls in "P" relay. "P" relay runs the motor. Switches on "XB", "ZB", motor 2C, "P", and motor 1A advances the "player" unit the required number of steps determined by the "player" unit switches and the player relays. (PB2, PB3, and PB4)

WHEN A TILT SWITCH IS MADE THE PLAYER LOSES THE BALL IN PLAY.
IF THE PLAYER CAUSES ONE OF THE BOUNCE SWITCHES TO OPEN (IN THE LIGHTBOX OR ON THE BOTTOM PANEL) THE GAME WILL BE OVER.
ADJUST THESE SWITCHES TO YOUR NEEDS.

PLAYFIELD OPERATION

The rollover buttons score 100 points and advance bonus value when lit. The bonus value is added to the players score when the ball leaves the table. If the player increases the bonus value to the top (10,000 points) the side rollovers light for special. The bonus value will double on the last ball in play.

The top center rollover scores 1,000 points and lights the pop bumper. The pop bumper will remain lit until 10 points are scored. Pop bumper scores 100 points or 1,000 points when lit.

The swinging target scores 10 points for each revolution and turns the pop bumper out.

The plastic targets score 500 points.

The side rollovers score 500 points or special when lit and open the two gates as indicated. The "special when lit" lights when the bonus value reaches 10,000. On 5 ball play the rollovers lite alternately and on 3 ball play both rollovers are on. The special light is turned off when the bonus value is collected.

The ball kicker gate opens by the left side rollover. When the gate is open the ball will enter the chute and actuate a switch. This switch will pull in "E" relay. "E" relay will run the motor and lockin thru its own switch and a motor 2B switch. As the motor runs motor 4B switch closes and actuates the ball kicker coil thru the closed "E" switch. The ball is propelled back onto the playfield.

The gate to the runway opens by the right side rollover. The gates remain open until the ball goes thru the gate or into the outhole.

The kicking rubbers score 10 points or 100 points when lit.

The flippers are actuated by the player pressing buttons on the sides of the cabinet. The flipper coils have two windings; one of heavy wire that passes high current allowing a strong initial stroke; the second winding is of lighter wire and is in series with the first winding. The lighter winding is shorted out until a normally closed switch is opened by the flipper linkage. This allows the flipper to be held energized and not overheat because less current passes thru the coil.

NOTE: THE PLAYBOARD PITCH SHOULD BE 3-1/2 DEGREES TO MAINTAIN PROPER BALL ACTION AND PLAYER APPEAL. THIS IS BUILT INTO THE GAME BY RUNNING THE LEG ADJUSTERS ALL THE WAY IN AND THEN ADJUSTING THEM TO LEVEL THE MACHINE ON ITS HORIZONTAL AXIS.

ADJUSTMENTS ON JUNGLE

LIGHTBOX

POINT SCORE ADJUSTMENT

This adjustment allows replays for variations in high scores. See point score adjustment card for instructions. Refer to recommended score card before making the changes. When changing the scores, change the card on the playfield card holder to agree.

3 - 5 BALL ADJUSTMENT

This adjustment changes the number of balls played per game and controls the "special" rollovers. The "player" unit steps four times for each ball played until it reaches the third or fifth ball depending on setting of the adjustments. The third or fifth ball leaving the playfield will trip the "last ball" relay ("XB") through switches on "O", "ZB" and "XB" relays, motor 1C and rivets on the "player" unit disc.

BOTTOM PANEL

3RD CHUTE ADJUSTMENT

Inserting a coin in the 3rd chute sets up the game and steps the replay credits as determined by the 3rd chute adjustment (2, 3, 4 or 5).

1ST OR 2ND CHUTE ADJUSTMENT

This adjustment determines how many coins are required to set up the game or step the replay unit. If the adjustment is in "2 Coins 1 Play, 1 Coin 1 Play" position, game is set to take 2 coins in the first chute or 1 coin in the second chute to set up the first player. If the adjustment is in "1 Coin 1 Play, 1 Coin 2 Plays" position, the game is set to take 1 coin in the first chute to start the game or 1 coin in the second chute to step the replay unit two steps.

TILT AND FUSE PANEL

There are two sets of holes for mounting the tilt bob strike plate. By moving the strike plate closer to tilt bob support bracket the game will be less sensitive to tilting.

FRONT DOOR

COIN CHUTE SWITCH

The coin chute switches are carefully adjusted to the recommended pressures and gaps with a feeler gauge and a gram gauge. Under normal operation these switches will function as designed, however, if a sharp blow on the front door or dropping of the cabinet sets up the game, carefully inspect and adjust the coin chute switches as indicated on Page 9 of this booklet.

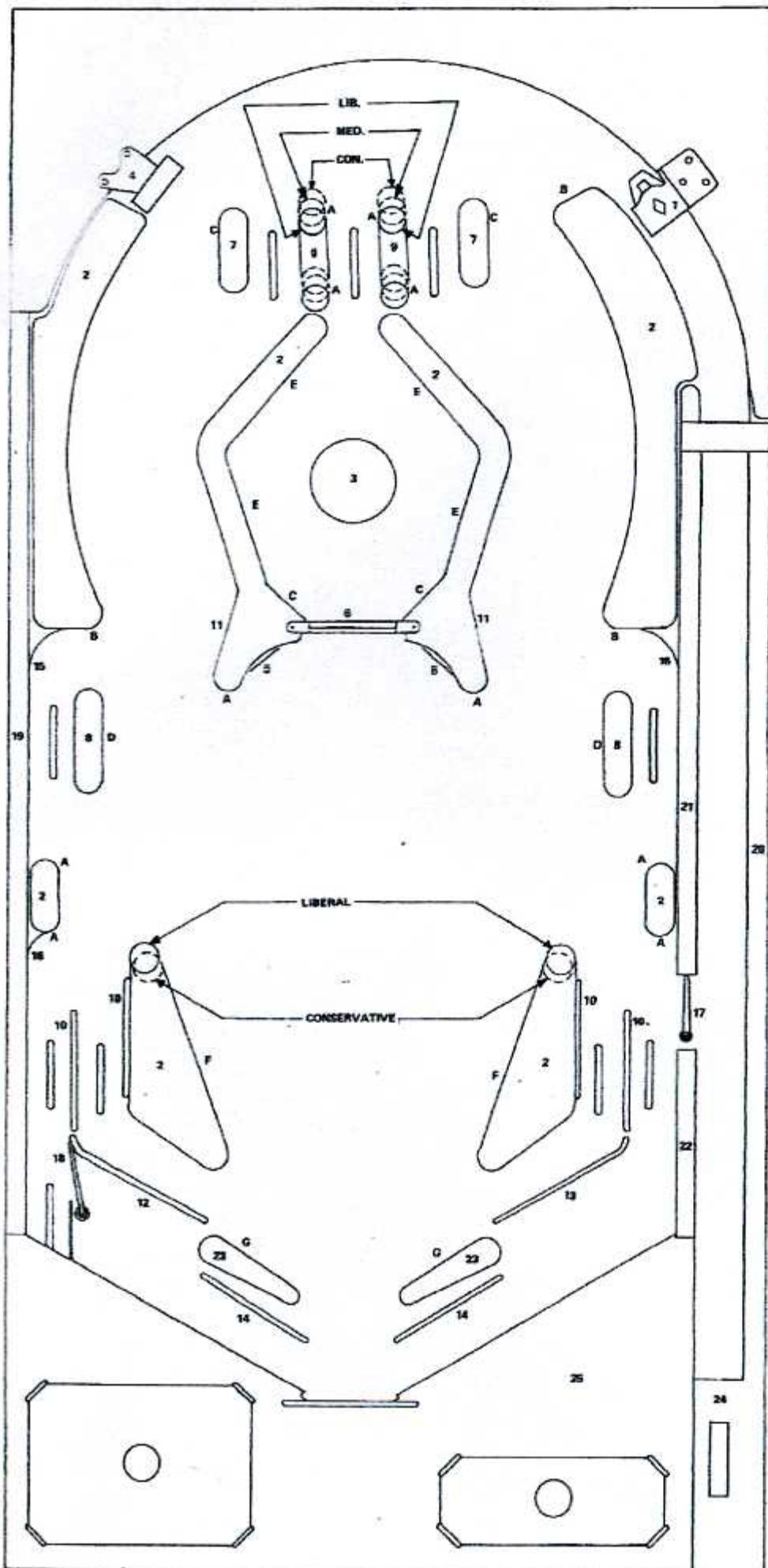
SEE PLAYBOARD INFORMATION PAGE FOR MECHANICAL ADJUSTMENTS.

"RELAYS"

<u>NO.</u>	<u>COIL NO.</u>	<u>TYPE</u>	<u>CONTACTS</u>	<u>USE</u>
A	A-9740	AG.	6C	ALTERNATING RELAY
B	A-9735	AG.	3A	POP BUMPER RELAY
C	A-9735	AG.	3A	ADD BONUS UNIT RELAY
D	A-9735	AG.	3A	500 POINT RELAY
E	A-9735	AG.	3A, 1B	BALL KICKER RELAY
F	A-489	AS.	1A, 2 DISC.	00-90 UNIT RELAY
G	A-9740	AG.	1A, 2C	BUMPER SCORE CONTROL RELAY
H	A-9738	AG.	1A, 1B, 1C	TIILT HOLD RELAY
J	A-9740	AG.	3A, 2C	ROLLOVER SPECIAL CONTROL RELAY
K	A-9735	AG.	2A	10,000 POINT RELAY
L	A-9735	AG.	5A	1,000 POINT RELAY
M	A-9735	AG.	5A	100 POINT RELAY
N	A-9735	AG.	6A, 1B	10 POINT RELAY
O	A-9735	AG.	6A, 1B	BALL RETURN RELAY
P	A-9735	AG.	3A	ADD PLAYER UNIT RELAY
Q	A-9735	AG.	4A, 1B	BONUS SCORE RELAY
R	A-9738	AG.	1A, 1B, 1C	HOLD RELAY
S	A-9740	AG.	4A	START RELAY
T	A-9742	AG.	1B	TIILT RELAY
U	A-9735	AG.	3A	CONTROL BANK RESET RELAY
V	A-9740	AG.	2A	REPLAY BUTTON RELAY
W	A-9740	AG.	3A, 2B	3RD CHUTE RELAY
X	A-9740	AG.	2A, 1B	2 PLAY RELAY
Y	A-6698	AS.	1A	2 COINS PER PLAY RELAY
Z1	A-9735	AG.	5A, 1B	1ST PLAYER RESET RELAY
Z2	A-9735	AG.	6A, 1B	2ND & 3RD PLAYER RESET RELAY
Z3	A-9735	AG.	6A, 1B	3RD & 4TH PLAYER RESET RELAY
AA	A-489		2A	BALL SHOOTER GATE RELAY
BB	A-489		2A	BALL KICKER GATE RELAY

"CONTROL BANK"

<u>NO.</u>	<u>COIL NO.</u>	<u>CONTACTS</u>	<u>USE</u>
LB	A-1118	2A, 1B	BONUS VALUE RELAY
PB2	A-1118	3A, 1B	2ND PLAYER RELAY
PB3	A-1118	3A, 1B	3RD PLAYER RELAY
PB4	A-1118	2A, 2B	4TH PLAYER RELAY
ZB	A-1118	2A, 1B, 1C	1ST BALL RELAY
QB	A-1118	2A, 3B, 1C	GAME OVER RELAY
XB	A-1118	5A, 1B	LAST BALL RELAY
SB1	A-1118	4A, 1C	RESET CONTROL RELAY
SB2	NO COIL	1A, 3B	RESET CONTROL SWITCHES



PLAYBOARD INFORMATION

RUBBER RINGS

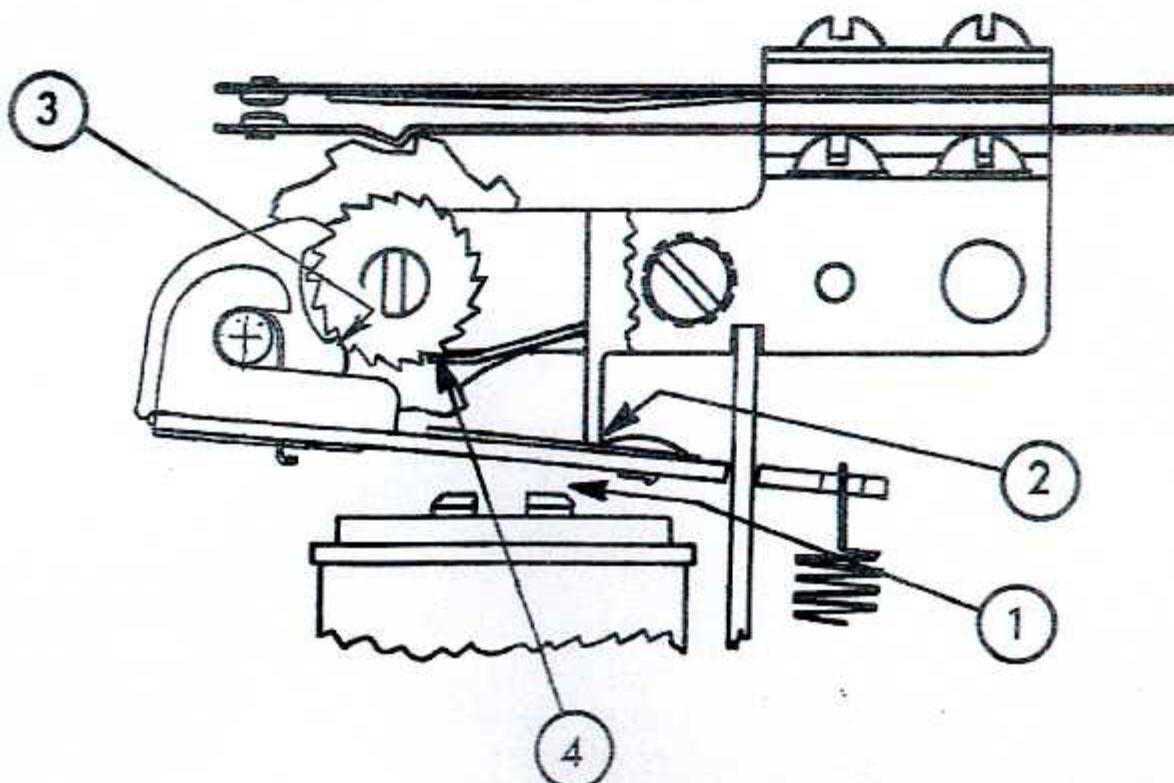
- (A) A-10217 ~~3/8"~~ (10)
 (B) A-10218 ~~3/4"~~ (3)
 (C) A-10219 ~~4"~~ (4)
 (D) A-10220 ~~4 1/2"~~ (2)
 (E) A-10221 ~~5"~~ (4)
 (F) A-10224 ~~3 1/2"~~ (2)
 (G) A-13151 ~~4 1/4" 2 1/2" 1 1/2" 1/2"~~ (2)

PARTS LIST

1. A-3290 Ball Gate.
 2. C-14383 Plastic Shield Set.
 3. Red Pop Bumper, White Cap.
(Indicates 1000 Points)
 4. A-9143 Rebound Rubber.
 5. A-13895 Wheel Target.
 6. A-14514 Spinning Target.
 7. A-9393 Plastic Guide Rail.
 8. A-9395 Plastic Guide Rail.
 9. A-9394 Plastic Guide Rail.
 10. A-4832 Ball Guide Rail.
(Wire Form)
 11. A-6931 Ball Guide Rail.
(Wire Form)
 12. A-12106 Ball Guide Rail.
(Wire Form)
 13. A-12107 Ball Guide Rail.
(Wire Form)
 14. A-13798 Ball Snubber Rail.
(Wire Form)
 15. A-14377 Ball Guide Flat Rail.
 16. A-14389 Ball Guide Flat Rail.
 17. A-13652 Ball Return Gate.
 18. A-13652 Ball Kicker Gate.
 19. C-7393 Wood Rail.
 20. B-13977 Wood Rail.
 21. B-14391 Wood Rail.
 22. A-14392 Wood Rail;
 23. C-13150 Flipper.
 24. C-9767 Ball Shooter Gage.
 25. D-14386 Card Holder.

C-11561 White Plastic Post
(40) 1" High.

MED. = MEDIUM
LIB. = LIBERAL
CON. = CONSERVATIVE.



"AS" RELAY ADJUSTMENT

If an adjustment is needed to the "AS" relay, follow steps as outlined below:

The gap between the armature and the pole piece of the coil as measured at (1) should be approximately .050 inches. The drive pawl should travel 1-1/4 to 1-1/2 teeth on ratchet spindle. Both of these conditions depend on the outboard bearings being perpendicular to the relay frame.

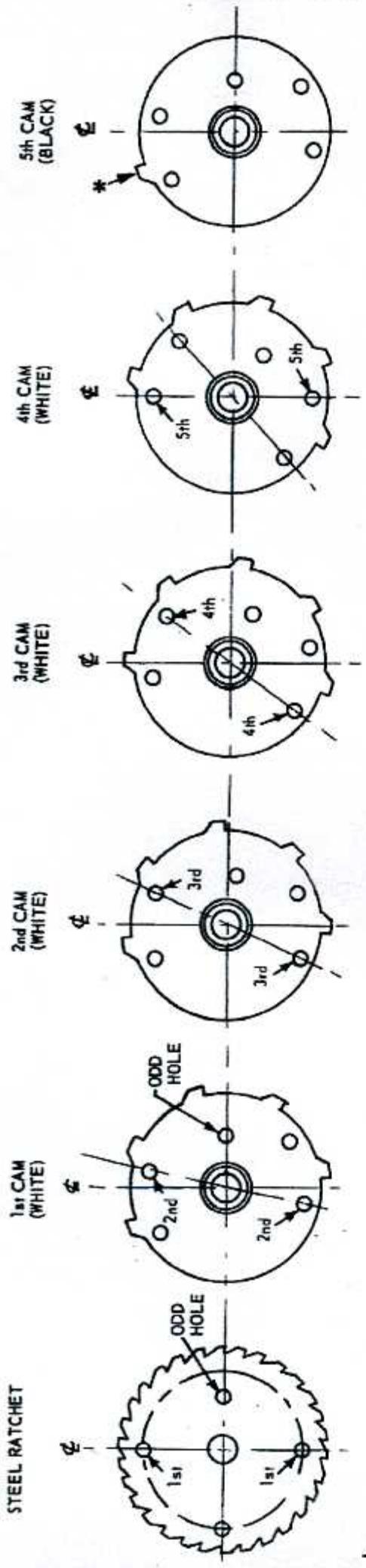
Tighten override stop (2) so that it just touches, but does not exert any pressure, on the armature. Check to see that the drive pawl is in firm contact with the ratchet spindle at (3).

Adjust the index spring to rest in the 1st tooth back of center (4) and to exert a minimum of pressure to the ratchet. This pressure can be adjusted by bending the index spring mounting arm. Check thru one revolution to be sure the index spring clears each tooth with a minimum of backlash.

Adjust bottom switch blade to rest lightly in depression of cam; adjust top blade so that the gap between points is 1/32 inches and resting very lightly against backing blade.

If relay is equipped with a disc, the wiper will stop in the center of a segment when the above adjustments are correct.

PLAYER UNIT CAM LINE-UP (4 PLAYER GAME)



INSERT 1st CAM
IN HOLES INDICATED.

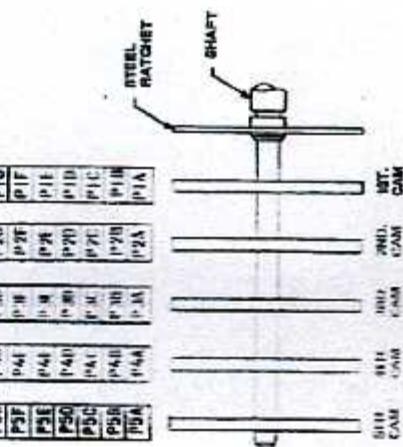
INSERT 2nd CAM
IN HOLES INDICATED.

INSERT 3rd CAM
IN HOLES INDICATED.

INSERT 4th CAM
IN HOLES INDICATED.

INSERT 5th CAM
IN HOLES INDICATED.

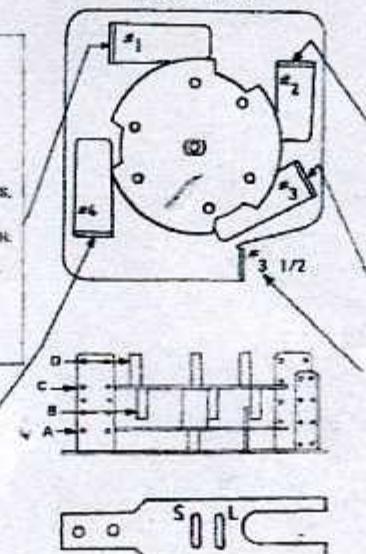
SINGLE TOOTH ON
5th CAM NOW LINES
UP WITH FIRST TOOTH
ON 1st CAM
• WHEN CAM FOLLOWER
IS ON TOP OF THIS TOOTH
UNIT IS AT ZERO POS.



MOTOR SWITCH POSITIONS

WITH "B" RELAY

MOTOR 1A (S-POS.)	INSIDE SW. - RESETS SCORING UNITS. SECOND SW. - ADDS PLAYER UNIT. THIRD SW. - SCORING.
MOTOR 1B	INSIDE SW. - ACTUATES "U" RELAY. SECOND SW. - 1ST PLAYER MATCH. THIRD SW. - SUBTRACTS BONUS UNIT.
MOTOR 1C (S-POS.)	INSIDE SW. - MOTOR RUNOUT. SECOND SW. - OPENS CIRCUIT TO COIN CHUTE SWITCHES, REPLAY BUTTON AND COIN LOCKOUT. THIRD SW. - OPENS CIRCUIT TO TROUGH SWITCH, BALL RETURN SWITCH AND BALL KICKER SWITCH. FOURTH SW. - OPENS CIRCUIT TO "X" RELAY. FIFTH SW. - OPENS CIRCUIT TO PLAYBOARD CONTACTS.
MOTOR 1D	INSIDE SW. - COIN CHUTE CREDIT TOTALIZER. SECOND SW. - 5TH. PLAYER MATCH. THIRD SW. - ACTUATES "P03" RELAY AND SUBTRACTS REPLAY UNIT.
MOTOR 4A	INSIDE SW. - RESETS SCORING UNITS. SECOND SW. - ACTUATES "LB" RELAY.
MOTOR 4B	INSIDE SW. - COIN CHUTE CREDIT TOTALIZER. SECOND SW. - ACTUATES BALL KICKER COIL.
MOTOR 4C (S-POS.)	INSIDE SW. - COIN CHUTE CREDIT TOTALIZER. SECOND SW. - "BB" RELAY LOCKIN. THIRD SW. - "LB" RELAY CONTROL. FOURTH SW. - ACTUATES BALL RETURN COIL.
MOTOR 4D SW.	- OPENS CIRCUIT TO PLAYBOARD LIGHTS.



MOTOR 2B	INSIDE SW. - "E", "U", "P", "D", "T", "V", "A", "B" & "D" RELAY LOCKIN.
MOTOR 2C (S-POS.)	INSIDE SW. - COIN CHUTE CREDIT TOTALIZER. SECOND SW. - ADDS PLAYER UNIT CONTROL. THIRD SW. - ACTUATES "P03" RELAY. FOURTH SW. - 3RD. PLAYER MATCH.
MOTOR 3B	INSIDE SW. - ACTUATES "BB1", "P02" RELAYS AND TOTAL PLAY METER. SECOND SW. - 2ND. PLAYER MATCH. THIRD SW. - BONUS SCORING CONTROL.
MOTOR 3C	INSIDE SW. - ACTUATES "OB" RELAY. SECOND SW. - DOUBLE BONUS SCORING CONTROL. THIRD SW. - RESETS CONTROL BANK.

MOTOR 3B - BRAKE.

JONGLE