

Gottlieb's

ROYAL FLUSH®

INSTALLATION PROCEDURES AND GAME OPERATION INSTRUCTIONS

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PRICE \$1.00

ROYAL FLUSH

INSTALLATION PROCEDURES AND GAME OPERATIONS 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. (The factory recommended pitch of $3\frac{1}{2}^{\circ}$ is obtained by having all leg adjusters set at the same height.)
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.

Drop coins through the coin entrances to check alignment of coin feed troughs to rejectors. Check coin lockout wireforms; they should be out of the path of the coins when the game is on.

If the 1st coin chute adjustment is in 1 play position, inserting a coin in the 1st chute will actuate the start relay "S". Inserting a coin in the 2nd chute will actuate the 2nd chute relay "W". "W" relay will step the "replay" unit as indicated by the 2nd chute adjustment plug. (2,3,4 or 5 steps.)

If the 1st coin chute adjustment is in "2nd chute adjustment" position, inserting a coin in the 1st or 2nd chute will actuate the 2nd chute relay "W".

In the above examples, if the coin actuates "W" relay, it is necessary to push the red button on the front door to start the game.

OPERATING INSTRUCTIONS

1. Inserting a coin or pushing the replay button actuates "S" relay (Start relay).
2. This relay will lock-in through its own switch and a motor 2B switch.
3. "S" relay starts the motor running.
4. "AX" relay actuates and the "coin" unit resets through switches on "U" and "S" relays and a switch on motor 1D. "Q" and "U" relays de-energize when "AX" relay operates.
5. When "AX" relay actuates, the reset relays "Z1" and "Z2" are energized in sequence by rivets on the "Player" unit, through switches on "AX" relay
 - (a) Motor 1A steps the "Player" unit, through switches on "AX" relay and "P5B", to the 20th position energizing "Z1".
 - (b) When "Z1" is energized the 1st and 2nd player score units reset to zero through switches on motor 1A, motor 4A and "Z1". When all score units of the 1st and 2nd player are at zero the player unit steps to the 21st position through a normally closed switch on "Z2" and normally closed switches on all score units of the 1st two players, actuating "Z2" relay. The 3rd and 4th player score units now reset through switches on motor 1A, motor 4A and "Z2". The player unit continues to its zero position through the closed switches on "Z1", "Z2", "P5B" and motor 1A until "P5B" opens.
6. When "P5A" on the player unit closes, "AX" and "BX" relays reset through motor 2C and switches on "U", "O" and "R" relays. The reset cycle is now complete.
7. Inserting additional coins or pushing the replay button will step the "coin" unit to a maximum of 3 (4 players) through switches on "U" and "S" relays and a switch on motor 1D. The replay button circuit opens when "coin" unit is on 3rd position.
8. Place the ball in the out hole. The ball return switch closes and completes the circuit to "O" relay through the normally closed switches on "A", "AX" and "Q" relays. "O" relay locks-in through its own switch and a switch on motor 2B. When "O" relay is energized, motor 4C actuates the ball return coil (which kicks the ball onto the runway) through a switch on "O" and a normally closed switch on "BX" relay. The ball is now on the runway and is ready to be put into play.
9. 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 "U", motor 2C, "P", "BX" and motor 1A advances the "Player" unit the required number of steps determined by the "Player" unit switches and the "Coin" unit.

WHEN A TILT SWITCH IS MADE THE PLAYER LOSES THE BALL IN PLAY. IF THE PLAYER CAUSES ONE OF THE BOUNCING 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 Joker feature lights corresponding rollovers for 3000 points and increases the hole value up to 4000 points. Completing the three Joker sequence lights the hole for "Special".

The drop targets score the hole point value up to 4000 points. Completing the drop targets will light the center target for 3000 points. On 3 ball play the 3000 point target is always lit.

The pop bumper scores 100 points on 5 ball play and 1000 points on 3 ball play.

The bonus is scored after completion of ball in play. The bonus scores double on the fifth ball in play. On 3 ball play the bonus scores double on the second and third ball in play. The bonus unit will run through its complete cycle if a bonus is indicated. However, if no bonus is indicated, the unit will not run.

The features reset after each ball in play.

WHEN A TILT SWITCH IS MADE "T" RELAY WILL ENERGIZE. A NORMALLY CLOSED SWITCH ON "T" WILL OPEN AND BREAK THE CIRCUIT TO "R" RELAY. THE CIRCUIT TO "R" RELAY WILL ALSO OPEN IF ANY OF THE BOUNCE SWITCHES OPEN. (IN THE LIGHTBOX, ON THE FRONT DOOR OR ON THE BOTTOM PANEL.)

ADJUSTMENT ON ROYAL FLUSH

LIGHTBOX

POINT SCORE ADJUSTMENT

This adjustment allows replays for various 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.

PLAYBOARD

3 - 5 BALL ADJUSTMENT

This adjustment changes the number of balls played per game. The third or fifth ball leaving the playfield will trip the "last ball" relay "BX" through switches on "O", motor 1C, rivets on the Player unit disc and "U" relay.

SEE PLAYBOARD INFORMATION PAGE FOR MECHANICAL ADJUSTMENTS.

BOTTOM PANEL

1ST COIN CHUTE ADJUSTMENT AND 2ND CHUTE ADJUSTMENT

This adjustment provides for the 1st chute to set up the game or to parallel the 2nd chute which steps the replay credit unit. If the adjustment is in 1 play position, inserting a coin in the 1st chute will set up the game. Inserting a coin in the 2nd chute will step the replay unit. (2,3,4 or 5 steps.) If the adjustment is in 2nd chute adjustment position, inserting a coin in either chute steps the replay unit.

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 10 of this booklet.

"RELAYS"

<u>NO.</u>	<u>COIL NO.</u>	<u>TYPE</u>	<u>CONTACTS</u>	<u>USE</u>
A	A-9738	AG.	1C	BALL RETURN RELAY
B	A-9735	AG.	4A	POP BUMPER RELAY
C	A-9735	AG.	3A	500 POINT RELAY
D	A-9735	AG.	3A	3000 POINT RELAY
E	A-9735	AG.	5A	BONUS SCORE RELAY
F	A-489	AS.	2A, 2 DISCS	00-90 UNIT RELAY
G	A-9735	AG.	8A	HOLE RELAY
H	A-9738	AG.	1A, 1B, 1C	TILT HOLD RELAY
I	A-489	AS.	2A, 2 DISCS	BONUS UNIT RELAY
J	A-6698	AS.	1A	DOUBLE BONUS SCORE CONTROL RELAY
L	A-9735	AG.	5A	1000 POINT RELAY
M	A-9735	AG.	4A	100 POINT RELAY
N	A-9735	AG.	5A	10 POINT RELAY
O	A-9735	AG.	7A, 1B	BALL RETURN RELAY
P	A-9735	AG.	4A, 1B	ADD PLAYER UNIT RELAY
Q	A-9740	AG.	3A, 2B, 1C	GAME OVER RELAY
R	A-9738	AG.	1A, 2B, 1C	HOLD RELAY
S	A-9740	AG.	6A	START RELAY
T	A-9742	AG.	1B	TILT RELAY
U	A-9740	AG.	4A, 1B, 1C	1ST BALL RELAY
V	A-9740	AG.	2A	REPLAY BUTTON RELAY
W	A-9740	AG.	2A, 1B, 1C	2ND CHUTE RELAY
X	A-9735	AG.	2A, 4B	DROP TARGET RELAY
Z1	A-9735	AG.	8A, 1B	1ST & 2ND PLAYER RESET RELAY
Z2	A-9735	AG.	8A, 1B	3RD & 4TH PLAYER RESET RELAY
AX	A-9735	INTER-LOCK	1A, 4B, 2C	RESET COMPLETED RELAY
AXR	A-5662	INTER-LOCK		
BX	A-9735	INTER-LOCK	4A, 2B, 1C	LAST BALL RELAY
BXR	A-5662	LOCK		
EX	A-489		1A	BALL GATE RELAY
KX	A-9735	INTER-LOCK	1A, 1B, 1C	DOUBLE BONUS RELAY
KXR	A-9746	LOCK		

"SEQUENCE BANK"

<u>NO.</u>	<u>COIL NO.</u>	<u>CONTACTS</u>	<u>USE</u>
1B	A-1118	4A, 1B, 2C	GREEN JOKER RELAY
2B	A-1118	4A, 1B, 2C	WHITE JOKER RELAY
3B	A-1118	3A, 1B, 2C	PURPLE JOKER RELAY
4B	A-1118	6A, 1B	2 JACKS RELAY
5B	A-1118	6A, 1B	2 KINGS RELAY
6B	A-1118	5A, 1B	3 QUEENS RELAY
7B	A-1118	3A, 1B	ROYAL FLUSH RELAY
8B	A-1118	2B	4TH POSITION BONUS UNIT RELAY

"OTHER COILS USED"

COIL NO.

DESCRIPTION

A-5141	FLIPPER COILS
A-5194	KICKING RUBBER COILS
A-4893	POP BUMPER COIL
A-5195	TENS CHIME COIL
A-5195	HUNDREDS CHIME COIL
A-5195	THOUSANDS CHIME COIL
A-5194	KNOCKER
A-5194	ADD REPLAY UNIT COIL
A-5194	SUBTRACT REPLAY UNIT COIL
A-5194	ADD PLAYER UNIT COIL
A-5194	HOLE KICKER COIL
A-1496	BALL RETURN COIL
A-15259	SCORING UNIT COILS
A-5194	ADD COIN UNIT COIL
A-5194	RESET COIN UNIT COIL
A-9736	COIN LOCKOUT COIL
A-15555	TARGET BANK RESET COILS 60 HZ.
A-9479	TARGET BANK RESET COILS 50 HZ.
A-9479	SEQUENCE BANK RESET COIL
B7760	MOTOR ASSEMBLY 60 HZ.
B-11550	MOTOR ASSEMBLY 50 HZ.
B-6183	TRANSFORMER 115V.
B-8091	TRANSFORMER 230V.

DISC & WIPERS

	<u>GEAR & SHAFT</u>	<u>DISC</u>	<u>WIPER</u>
PLAYER UNIT	A-12399	C-15275	B-12566
OO-90 UNIT	A-9012	A-9016	B-9015
(F RELAY)		A-9017	
COIN UNIT	A-15611	B-15601	B-15602
BONUS UNIT	A-15659	A-9016	B-9015
(I RELAY)		A-9017	

ROYAL FLUSH MOTOR SWITCHES

MOTOR 1A "S" Pos.	Inside Sw. Second Sw. Third Sw. Fourth Sw.	- Resets "Tens and "Hundreds score units. - Adds player unit. - Scoring. - 1st Player Match control.
MOTOR 1B	Inside Sw. Second Sw. Third Sw.	- Score control switch. - 1st player match. - "U" relay lockin.
MOTOR 1C "S" Pos.	Inside Sw. Second Sw. Third Sw. Fourth Sw. Fifth Sw.	- Motor runout. - Opens circuit to replay button and coin chute switches. - Opens circuit to hole, trough and ball return swtiches. - Opens circuit to "Ex" relay. - Opens circuit to playboard contacts.
MOTOR 1D	Inside Sw. Second Sw.	- 4th player match. - Subtracts replay unit, adds coin unit and total play meter.
MOTOR 2B	Inside Sw. Second Sw.	- "E", "G", "P", "O", "S", "V" and "W" relay lockin. - "C" and "D" relay lockin.
MOTOR 2C "L" Pos.	Inside Sw. Second Sw. Third Sw. Fourth Sw. Fifth Sw. Sixth Sw.	- Coin chute credit totalizer. - Score control switch. - Resets "AX" and "BX" relays. - 3rd player unit control switch. - Adds player unit control switch. - Resets target bank.
MOTOR 3B	Inside Sw. Second Sw.	- Score control switch. - Resets sequence bank.
MOTOR 3-1/2 B		- Brake.
MOTOR 3D	Switch	- Opens circuit to playboard lights.
MOTOR 4A "S" Pos.	Switch	- Resets "Thousands" and "Ten Thousands" score units.
MOTOR 4B	Inside Sw. Second Sw.	- Coin chute credit totalizer. - 2nd player match.
MOTOR 4C "S" Pos.	Inside Sw. Second Sw. Third Sw. Fourth Sw. Fifth Sw.	- Coin chute credit totalizer. - Score control switch. - Adds replay unit. - Actuates "Q" relay. - Actuates "I" and "J" relays, hole kicker and ball return coils.

NOTE: Target Adjustment made on underside of Playboard.

LIB. — Liberal.
MED. — Medium.
CON. — Conservative.

PLAYBOARD INFORMATION

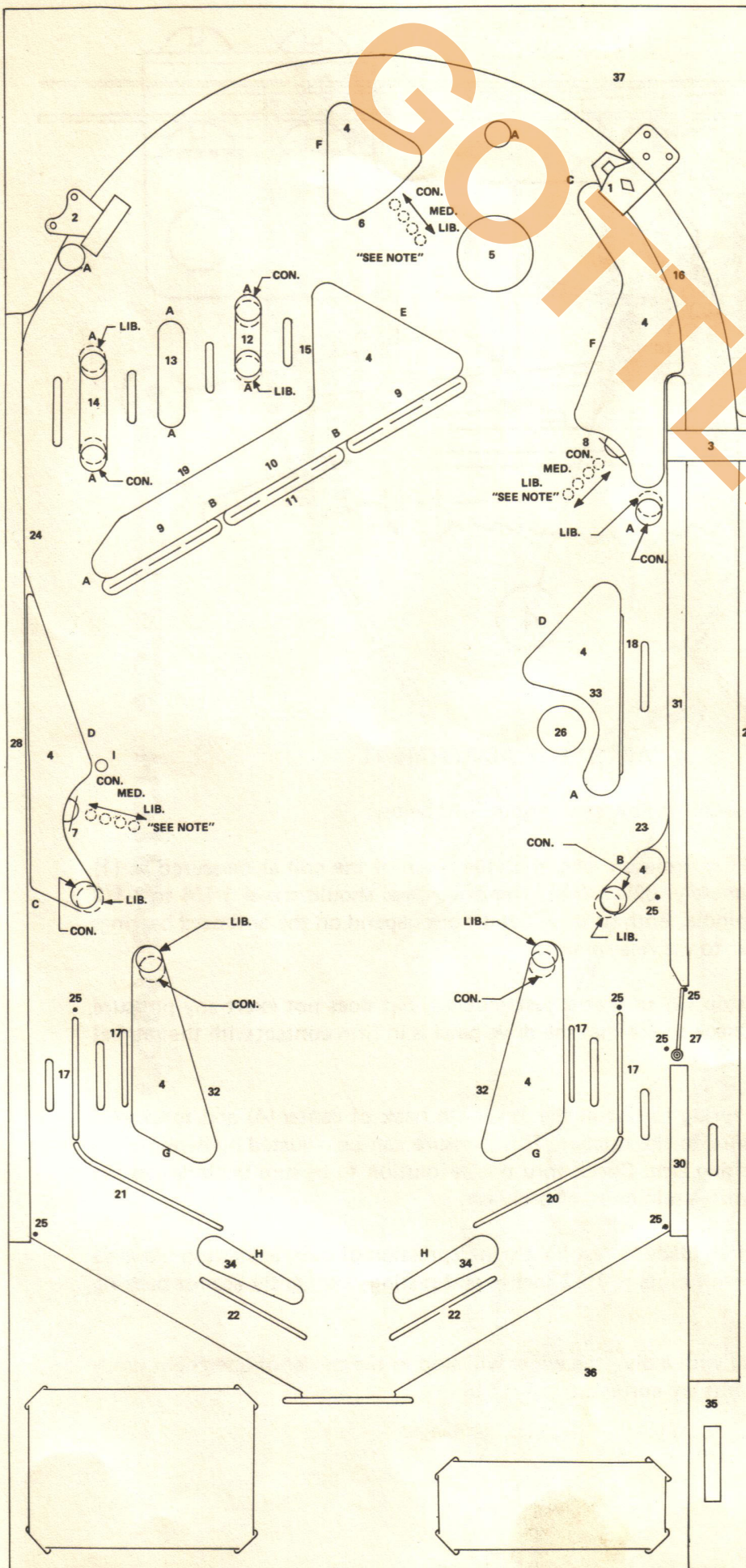
RUBBER RINGS

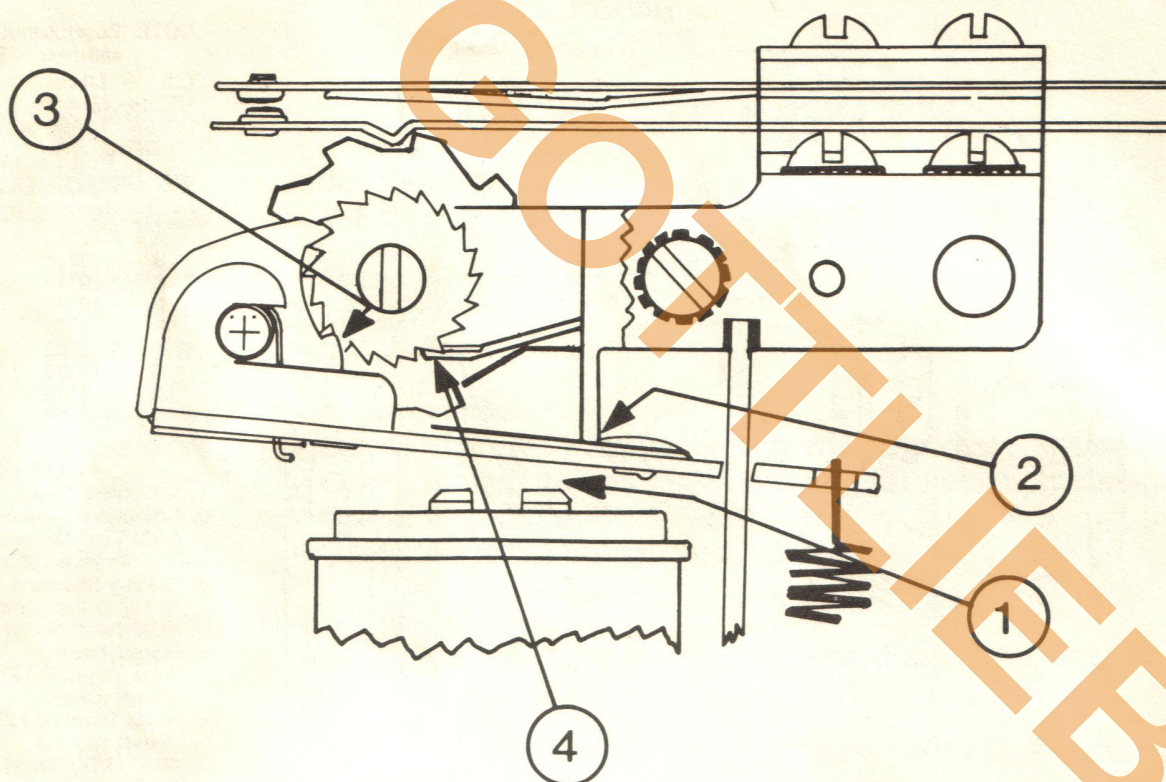
A	A-10217	(12)
B	A-10218	(3)
C	A-10219	(2)
D	A-10220	(2)
E	A-10221	(1)
F	A-10222	(2)
G	A-10223	(2)
H	A-13150	(2)
I	A-14793	(1)

Mini Post

PARTS LIST

- A-3290 Ball Gate.
- A-9143 Ball Rebound Rubber.
- A-8215 Ball Deflector.
- C-15645 Plastic Shield Set.
- Red Pop Bumper A-10436 and A-15745 Cap Stamped in Blue.
- White Target (B-15653 Sw. & Target Assem.)
- Green Target (B-15771 Sw. & Target Assem.)
- Purple Target (B-15771 Sw. & Target Assem.)
- A-15747 Dip Target Stamped in Blue.
- A-15749 Dip Target Stamped in Red.
- 9 Pos. Drop Target A, K, K, Q, Q, Q, J, J, 10
- A-9394 Yellow Plastic Guide Rail.
- A-9396 Yellow Plastic Guide Rail.
- A-9398 Yellow Plastic Guide Rail.
- A-3722 Ball Guide Rail. (Wire Form)
- A-4831 Ball Guide Rail. (Wire Form)
- A-6612 Ball Guide Rail. (Wire Form)
- A-4833 Ball Guide Rail. (Wire Form)
- A-12570 Ball Guide Rail. (Wire Form)
- A-14571 Ball Guide Rail. (Wire Form)
- A-14572 Ball Guide Rail. (Wire Form)
- A-13798 Ball Snubber Rail. (Wire Form)
- A-8688 Metal Flat Rail.
- A-15629 Metal Flat Rail.
- A-10542 Steel Pin. (7)
- C-15707 Red Plastic Hole Base Plate.
- A-13652 Ball Return Gate.
- C-7393 Wood Rail. (Left Side)
- C-13977 Wood Rail. (Right Side)
- A-15627 Wood Rail. (Center Bottom)
- B-15628 Wood Rail. (Center Top)
- A-15838 Ball Kicker.
- A-5867 Hole Guard.
- C-13150 Flippers.
- C-9767 Ball Shooter Gage.
- D-13647 Card Holder.
- D-4806 Top Arch. (with "F" & "3". "4" Pos.)
- C-11561 White Plastic Post 1" High. (39)
- A-14792 Mini Post Screw. (2)





"AS" RELAY ADJUSTMENT

If an adjustment is needed, 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.

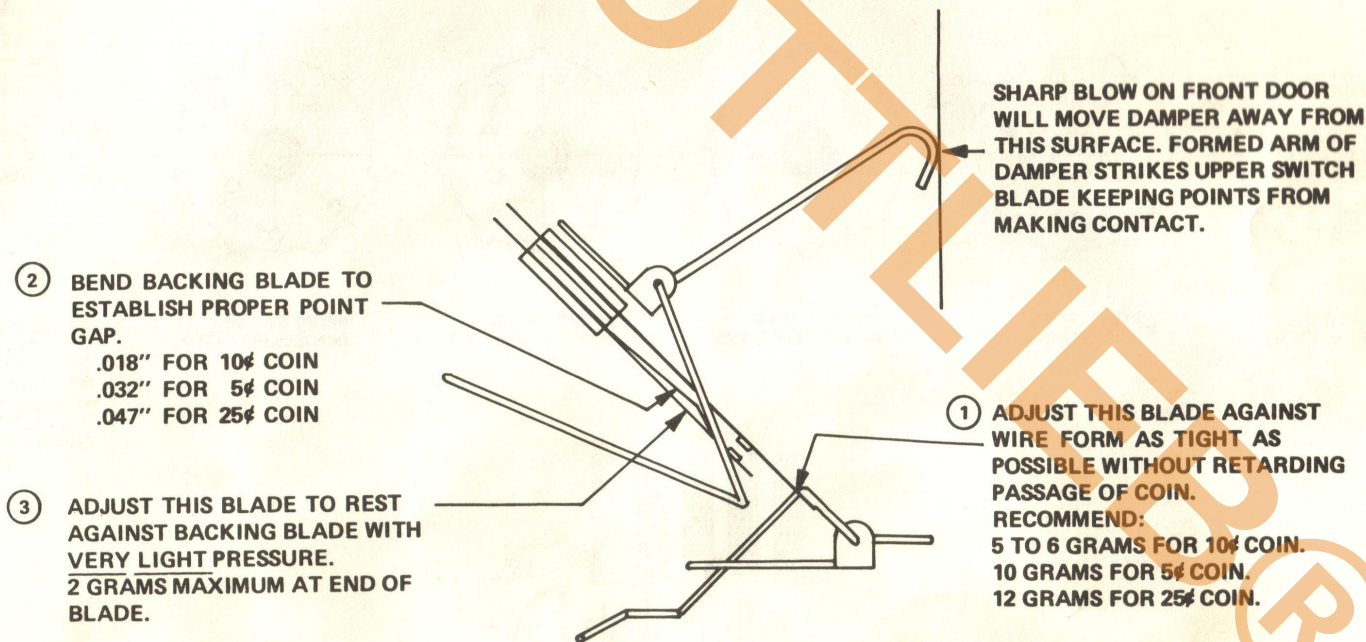
Tighten override stop (2) so that it just touches, but does not exert any pressure, on the armature. Check to see that the drive pawl is in firm contact with the ratchet spindle at (3).

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.

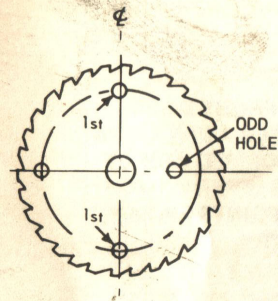
If relay is equipped with a disc, the wiper will stop in the center of a segment when the above adjustments are correct.

COIN SWITCH ADJUSTMENT



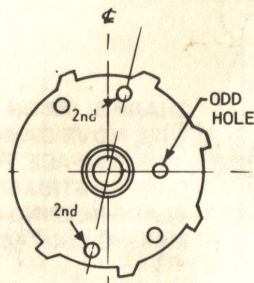
PLAYER UNIT CAM LINE-UP (4 PLAYER GAME)

STEEL RATCHET



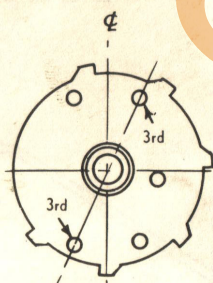
INSERT 1st CAM
IN HOLES INDICATED.

1st CAM
(WHITE)



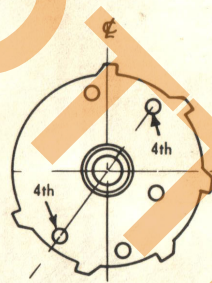
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IN HOLES INDICATED.

2nd CAM
(WHITE)



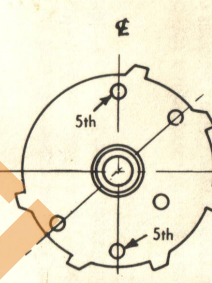
INSERT 3rd CAM
IN HOLES INDICATED.

3rd CAM
(WHITE)



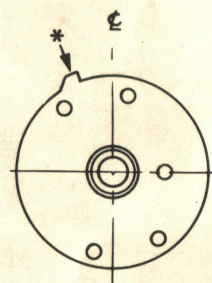
INSERT 4th CAM
IN HOLES INDICATED.

4th CAM
(WHITE)



INSERT 5th CAM
IN HOLES INDICATED.

5th CAM
(BLACK)



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.

"PLAYER" UNIT

P5G	P4G	P3G	P2G	P1G
P5F	P4F	P3F	P2F	P1F
P5E	P4E	P3E	P2E	P1E
P5D	P4D	P3D	P2D	P1D
P5C	P4C	P3C	P2C	P1C
P5B	P4B	P3B	P2B	P1B
P5A	P4A	P3A	P2A	P1A

