

Bally[®]
FIREBALL!

Professional
Home Model
**PINBALL
GAME**



OWNER'S MANUAL
MODEL NO. 0606-01000

Osella

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INTRODUCTION

Congratulations! You have just acquired the finest pinball machine in the world. You can look forward to years of family fun and entertainment with one of the most challenging and exciting amusement games ever created. Please read your homeowners manual carefully and follow all instruction to insure proper operation.

Please register your enclosed warranty by completing and returning it as soon as possible.

Read all instructions carefully before plugging in game. Plug only into 115 volt A.C. outlet.

Before performing any maintenance or service on your game, its electrical cord must be disconnected from the outlet and remain disconnected until the service has been completed.

MANUFACTURED BY

MIDWAY MFG. CO.

A BALLY COMPANY

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CABLE ADDRESS: MIDCO • TELEX NO. 72-1596

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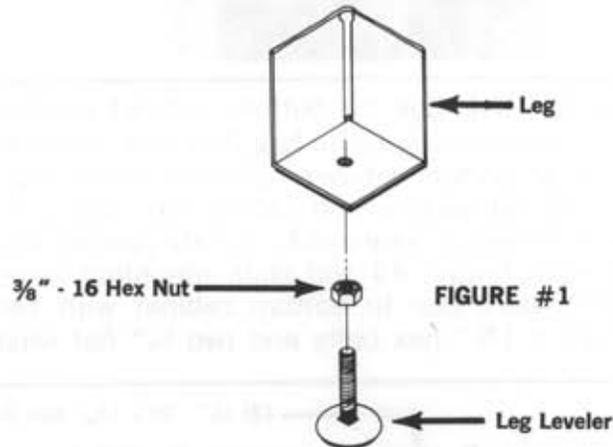
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(BEFORE CALLING DEALER FOR SERVICE, READ THIS SECTION CAREFULLY.)

This game has been designed with the owner in mind. Solid state electronic circuitry and plastic encapsulated switches have been utilized extensively because of their high degree of dependability. This system makes your game virtually trouble-free. The few general maintenance procedures are easily performed and all assemblies are readily accessible. If the maintenance instructions are carefully followed, this game will render a lifetime of entertainment to you and your family.

ASSEMBLY INSTRUCTIONS

1. MAKE CERTAIN HARDWARE IS COMPLETE AS FOLLOWS:
 - (A) bottom cabinet
 - (B) cabinet back box
 - (C) loose carton parts
 - (a) (4) legs (in carton)
 - (b) (8) $\frac{3}{8}$ "-16 x $2\frac{3}{8}$ " long mounting bolts for legs.
 - (c) (4) leg levelers
 - (d) (4) $\frac{3}{8}$ " x 16 hex nuts for leg levelers
 - (e) (2) $\frac{1}{4}$ "-20 x $1\frac{3}{4}$ " hex bolts for mounting cabinet back box
 - (f) (2) $\frac{1}{4}$ " flat washers for mounting cabinet back box
 - (g) (1) steel play ball
 - (h) (4) #147 and (1) #455 lamps (spare)
2. PLEASE FOLLOW IN NUMERIC ORDER THE FOLLOWING ASSEMBLY INSTRUCTIONS.
 - (1) Assemble leg levelers and nuts as shown in figure #1.



- (2) Place bottom cabinet on two chairs (or comparable base) and mount four legs to cabinet with eight $\frac{3}{8}$ "-16 x $2\frac{3}{8}$ " bolts. See figure #2. Remove cabinet from base and stand on floor.

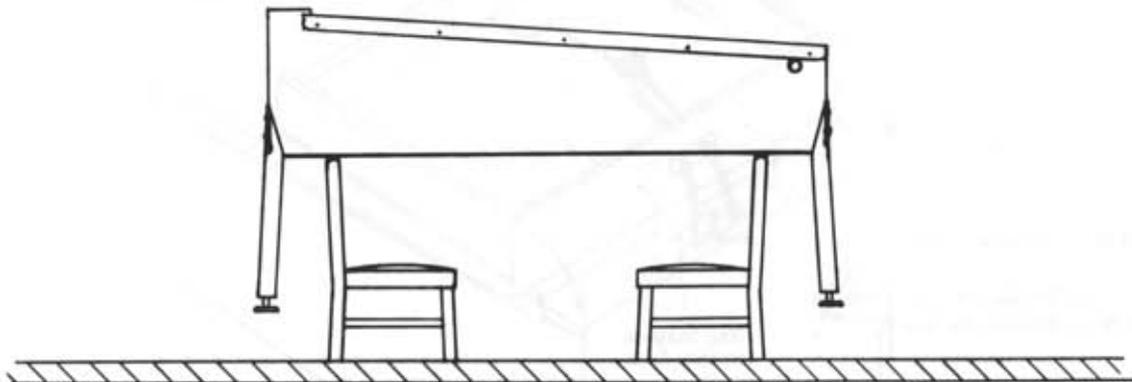


FIGURE #2

- (3) Insert ball in acceptor bracket located in slot in bottom cabinet (See figure #4) and release onto playfield. Bend flap on acceptor bracket forward toward front of cabinet.
- (4) Remove two screws from rear of cabinet back box panel. Slide back panel up and out of cabinet grooves. (See figure #3).

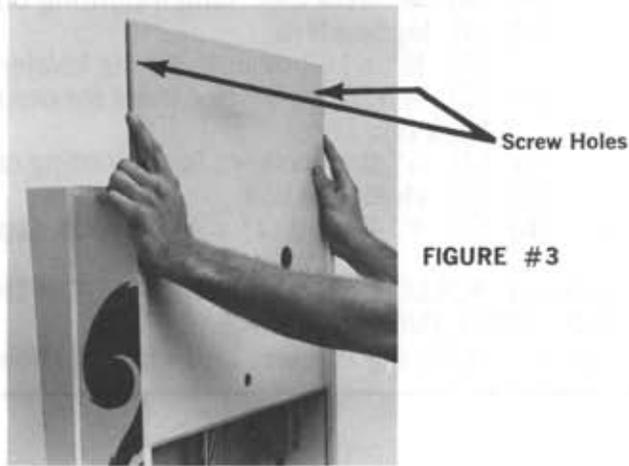


FIGURE #3

- (5) Place cabinet back box on bottom cabinet as shown in figure #4. Remove staples in bag (holding connectors) in slotted area of bottom cabinet. Remove connectors from bag and feed connectors and cables thru slot in cabinet back box as shown in figure #4. Rotate cabinet back box as indicated in figure #4 and align mounting holes. Secure cabinet back box to bottom cabinet with two provided $\frac{1}{4}$ "-20 x $1\frac{3}{4}$ " hex bolts and two $\frac{1}{4}$ " flat washers.

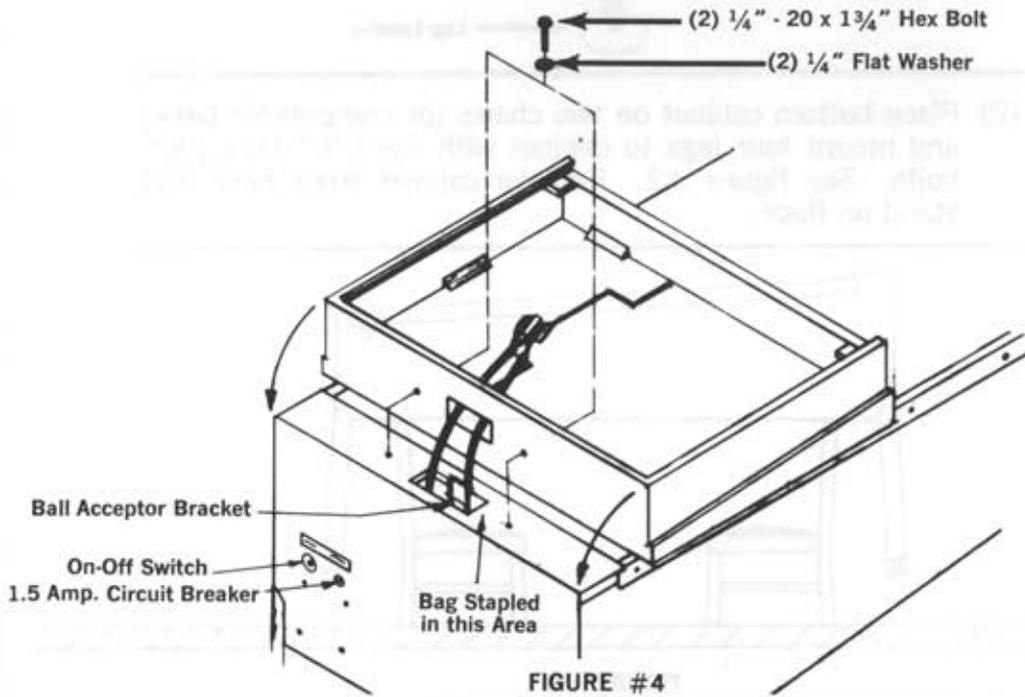


FIGURE #4

- (6) Connect three connectors to proper terminals as shown in figure #5.

CAUTION: When connecting connectors be sure that every male pin is mated with a female socket. Push female socket housing firmly onto male housing to assure a good connection.

FAILURE TO CONNECT PROPERLY WILL RESULT IN SERIOUS DAMAGE TO ELECTRONIC COMPONENTS ON LOGIC BOARD.

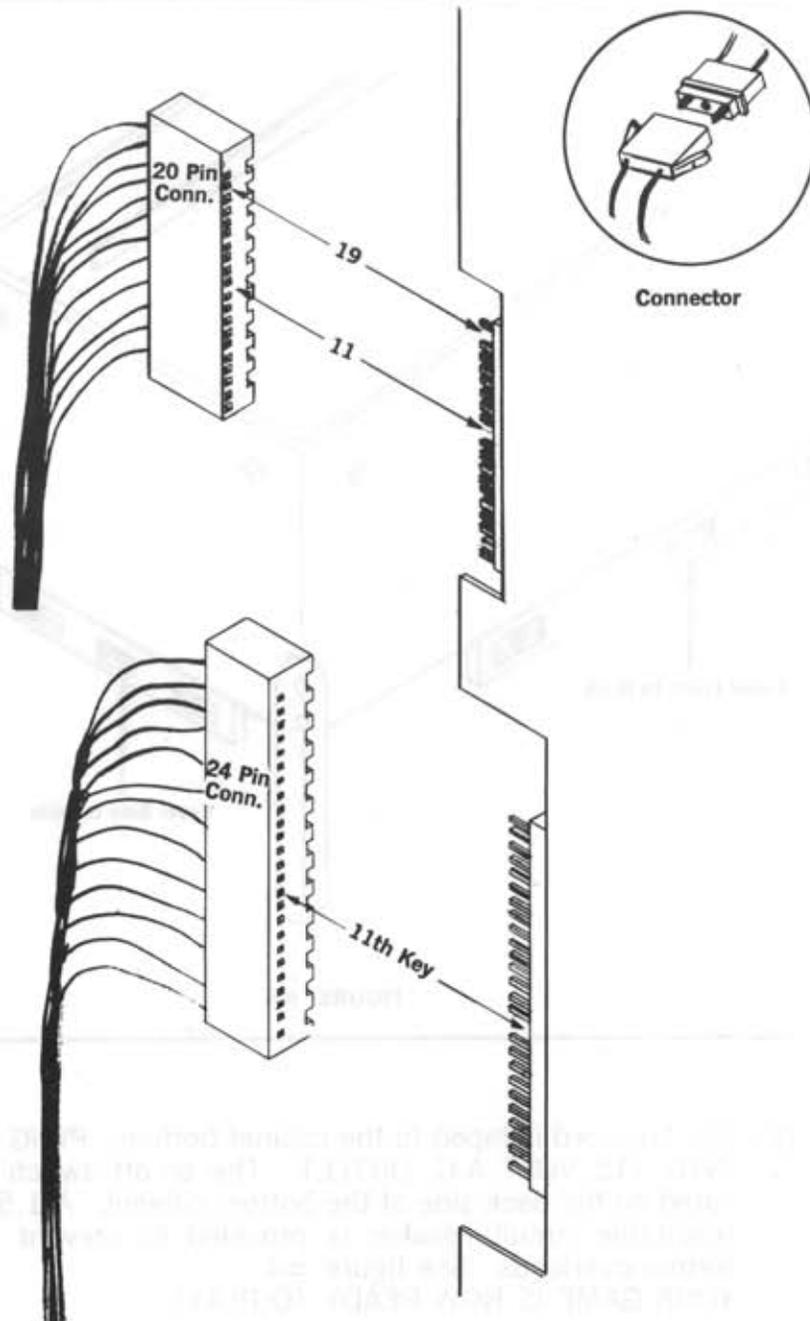


FIGURE #5

- (7) Slide cabinet back box panel into grooves in cabinet back box. Secure rear panel with two screws previously removed. See figure #3.
- (8) Place game in playing location and level cabinet. Place level on bottom front edge of cabinet and level cabinet from side to side. Place level on bottom side edge of cabinet and level cabinet from front to back. See figure #6. Secure levelers with nuts.

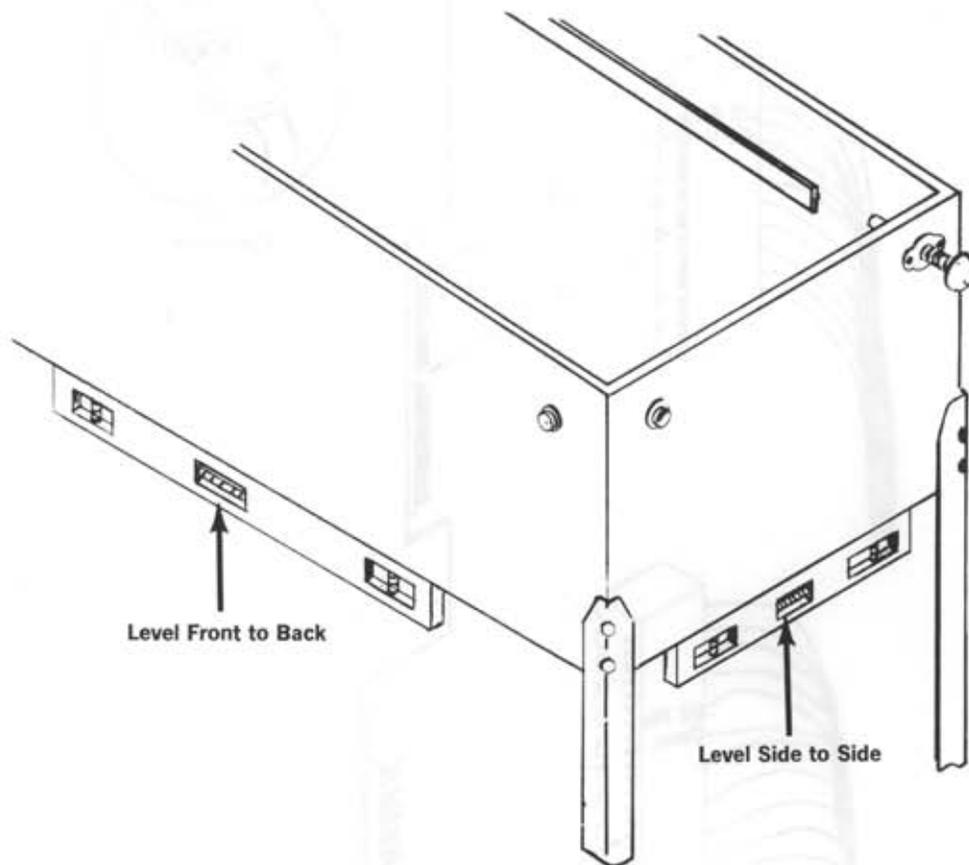


FIGURE #6

- (9) The line cord is taped to the cabinet bottom. PLUG ONLY INTO 115 VOLT A.C. OUTLET. The on-off switch is located on the back side of the bottom cabinet. A 1.5 amp. resettable circuit breaker is provided to prevent transformer overloads. See figure #4. YOUR GAME IS NOW READY TO PLAY!

OPERATION AND SCORE FEATURES

1. Depress start button (located on front of game) once for each player. The number of participating players is indicated by lit areas in the player section of the score glass.
(1 2 3 4)
2. After each ball is played the score unit will scan thru each players' score and come to rest on the next player up lite in the player section of the score glass.
3. This game is equipped with a memory unit. Each participant plays his own game. That is, any features or partial features scored by a player (top rollovers A-B-C-D, targets 1, 2, 3 or extra ball lites) are only his. The partial feature is carried over to the player's next ball and is reset only after the indicated bonus is collected.
4. All target and rollover switches are scored as indicated on the playfield. A ball passing thru a top rollover switch scores 1000 points, turns out its lite and advances the bonus score 1000 points. When all top rollover switches are scored (A-B-C-D) a 24,000 point bonus is awarded, the top rollover lites are reset and the lower outside extra ball lites are lit.
5. Hitting targets 1, 2 and 3 (in any order) advances bonus score 2000 points and awards double (1 and 2 made) or triple (1, 2, and 3 made) bonus when ball leaves play area.
6. An extra ball is awarded when the ball played passes over the lower outside rollover switch while the "Extra Ball When Lit" lites are on. (Top rollover switches A-B-C-D made). Scores of 50,000 - 100,000 - 150,000 (extra ball switch in "Easy" position "50k") or 100,000 - 200,000 - 300,000 (extra ball switch in "Hard" position "100k") also awards an extra ball. See figure #7. Extra balls may be accumulated if more than one feature is scored and are indicated by "Same Player Shoots Again" lite on lower playfield.

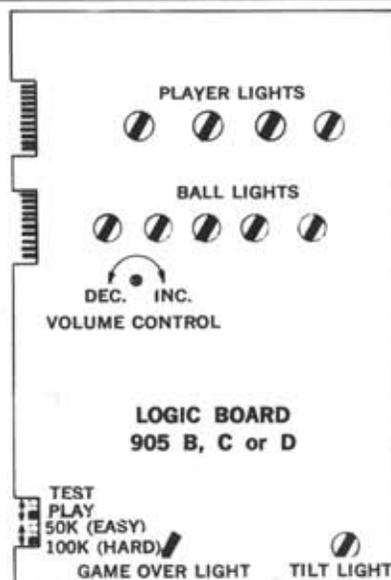


FIGURE #7

7. The diagnostic switch is provided only for test purposes and must be in "Play" position for game to operate. See figure #7.
8. The "Volume Control" is located on the Logic Board and the volume may be varied by rotating as indicated in Figure #7.
9. Shaking or pounding of machine will result in a tilt. When the machine is tilted all switches and bumpers are disabled and no bonus points are awarded. If an "Extra Ball" has been awarded previous to the "Tilt" the same player plays his extra ball.
10. SCORE AND FEATURE SOUNDS:

Tone 1	Sound associated with score of 1000
Tone 2	Sound associated with score of 500
Tone 3	Sound associated with score of 100
Tone 4	Sound associated with score of 50
Tone 5	Sound associated with multiple players at start of game
Beethoven's "Fifth Symphony"	Plays when reset button is depressed.
"Charge"	Plays when A-B-C-D rollovers are made.
"Zip-Pid-De-Do-Da"	Plays when double bonus (targets 1 and 2) is made.
Half-time "Fight" song	Plays when triple bonus targets (1, 2 and 3) is made.
"We're In The Money"	Plays when extra ball is awarded.
"Funeral March"	Plays when game is tilted.
"The Party's Over"	Plays when the game is over.

GENERAL MAINTENANCE

1. PLAYFIELD SWITCH LOCATIONS:

- (1) Rollover Switches (8)
S1, S2, S3, S4, S18, S19, S21, S22
- (2) Sling Shot And Side Rubber Switches (6)
S12, S13, S14, S15, S16, S17
- (3) Target Switches (3)
S5, S6, S9
- (4) Thumper Bumper Switches (2)
S7, S8
- (5) Ball Return Switch (1)
S20
- (6) Spinner Target Switches (2)
S10, S11

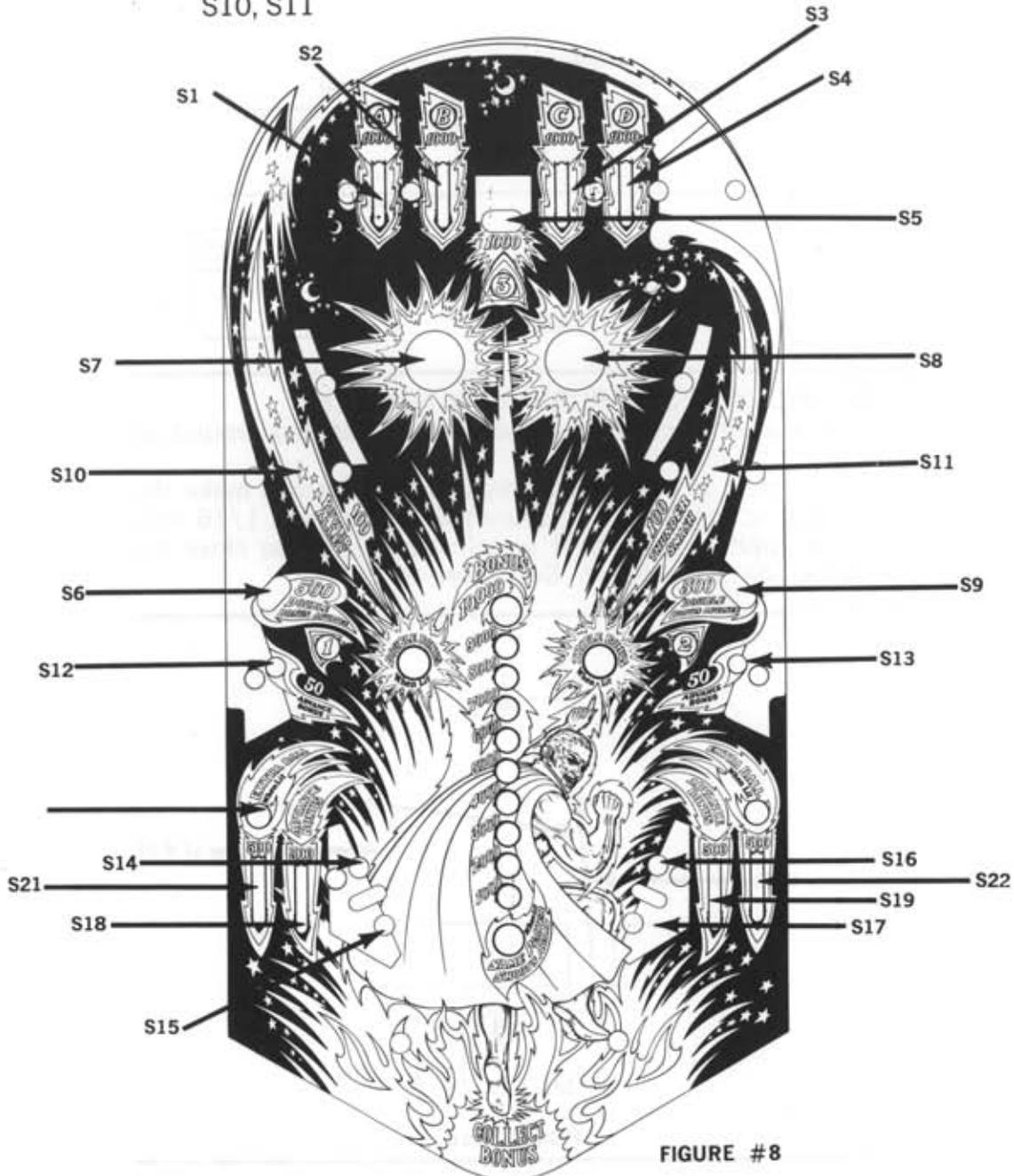


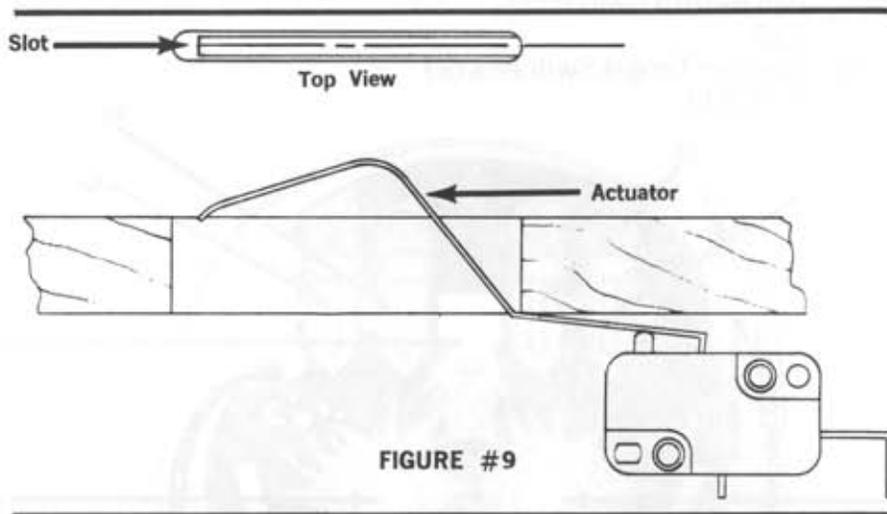
FIGURE #8

S20 Ball Return

SWITCH ADJUSTMENTS

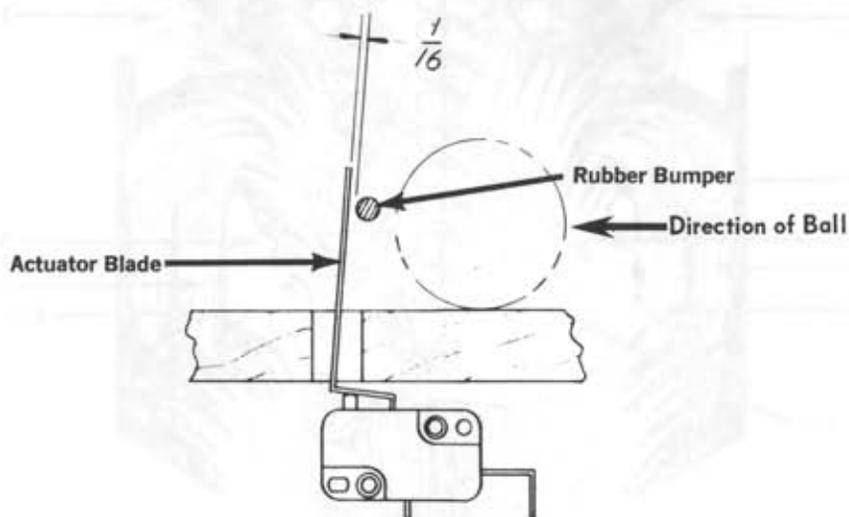
1. ROLLOVER SWITCHES (8)

- (1) The ball must actuate the switch when rolling thru the rollover area from both directions. The switch actuator can be formed up slightly to get actuation. See figure #9.
CAUTION: When adjusting actuator be sure it is centered in the slot and does not rest above the playfield surface.
- (2) The ball must not hang up (stop) on the actuator.
- (3) The switch actuator must always return to the up position after actuation.



2. SLING SHOT AND SIDE RUBBER SWITCHES (6)

- (1) The rubber bumper must be evenly stretched around all posts.
- (2) The switch actuator blade must be adjusted to make the switch actuate (clicking sound) when it moves $1/16$ inch from rubber bumper. If switch is adjusted too close the Sling Shot will chatter. See figure #10.



3. TARGET SWITCHES (3)

- (1) The switch must actuate and reset (klick-klick) freely in playfield slot.
- (2) The rear stop bracket must be adjusted (by bending) to be $\frac{5}{32}$ inch from actuation point of switch. See figure 11.

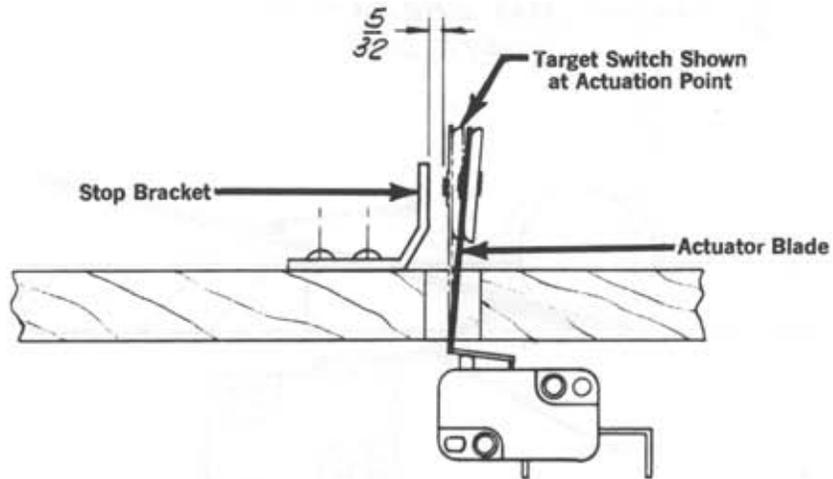


FIGURE #11

4. THUMPER BUMPER SWITCHES (2)

- (1) The thumper bumper spoon must be centered about thumper bumper actuating point in all directions. See figure 12.
- (2) When the thumper bumper wafer is depressed (at any point on the periphery) the switch must actuate. Adjust (by bending) the switch actuator arm to meet this requirement.

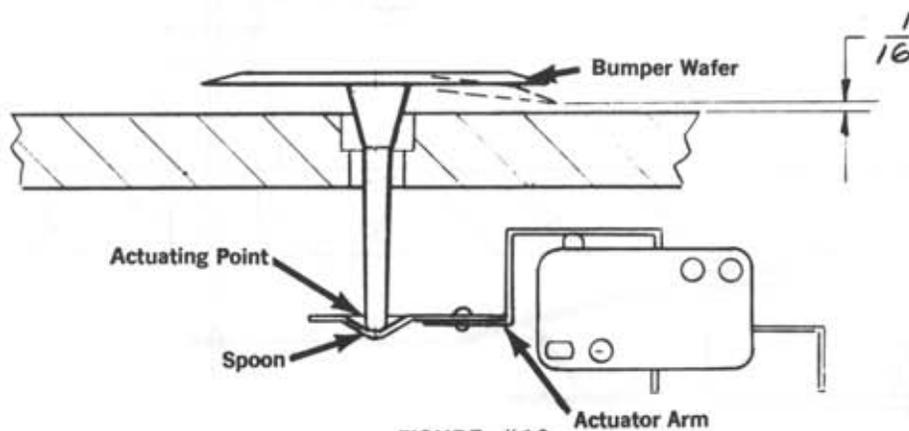


FIGURE #12

5. BALL RETURN SWITCH (1)

To adjust ball return switch, adjust switch actuator to actuate when ball stops in position shown in figure #13 . If switch actuates before ball returns to position shown, ball ejection will start prematurely and cause ball to hang up.

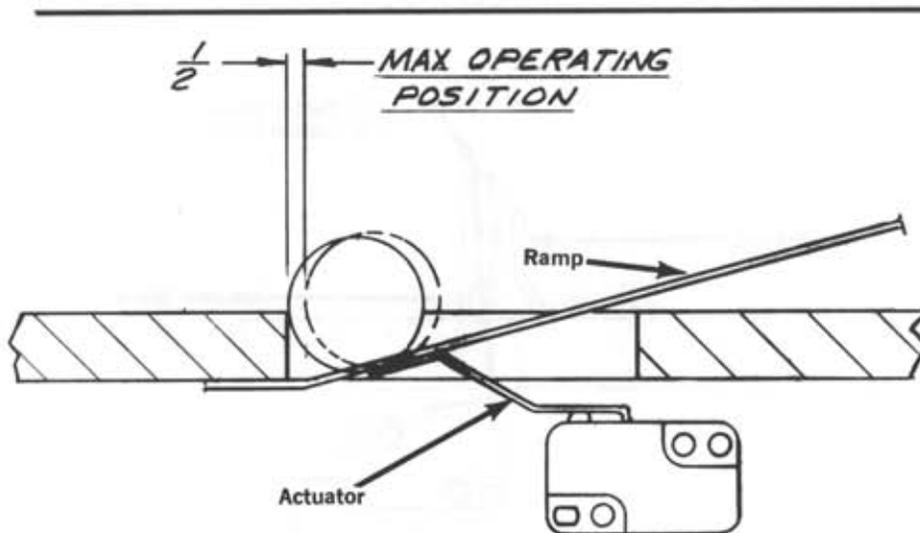


FIGURE #13

6. SPINNER TARGET SWITCHES (2)

Adjust the switch actuation arm (by bending) until the switch actuates (click) in the lower $\frac{1}{3}$ of spinner travel. See Figure #14.

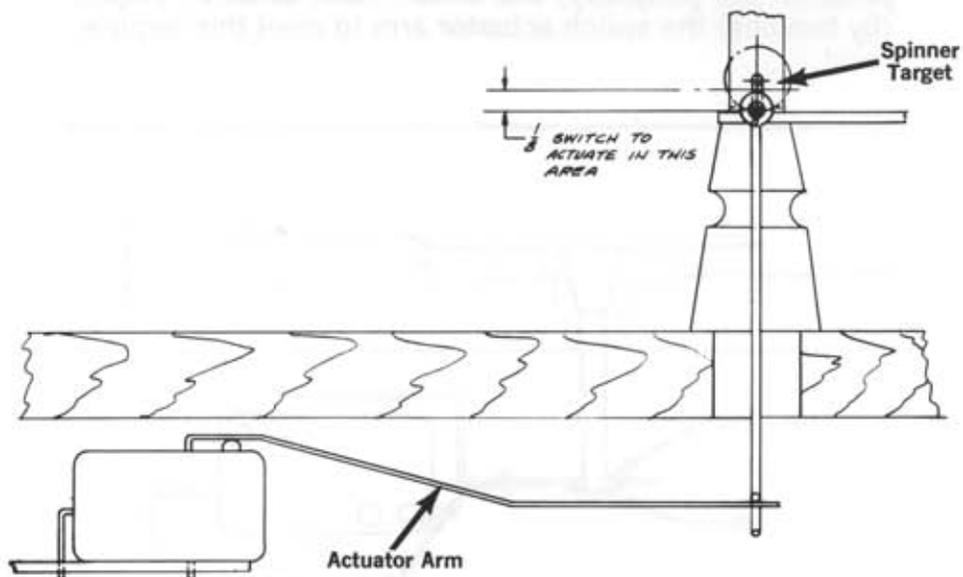


FIGURE #14

7. TO CLEAN PLAYFIELD:

- (1) Remove playfield glass as shown in figure #15 and #16.
- (2) Wipe playfield surface with a soft rag or towel dampened slightly with any mild non-abrasive detergent.

8. TO SERVICE BOTTOM OF PLAYFIELD:

- (1) Remove three screws in cabinet front and lift off trim moulding. See figure #15.



FIGURE #15

- (2) Carefully slide out playfield glass as shown in figure #16.

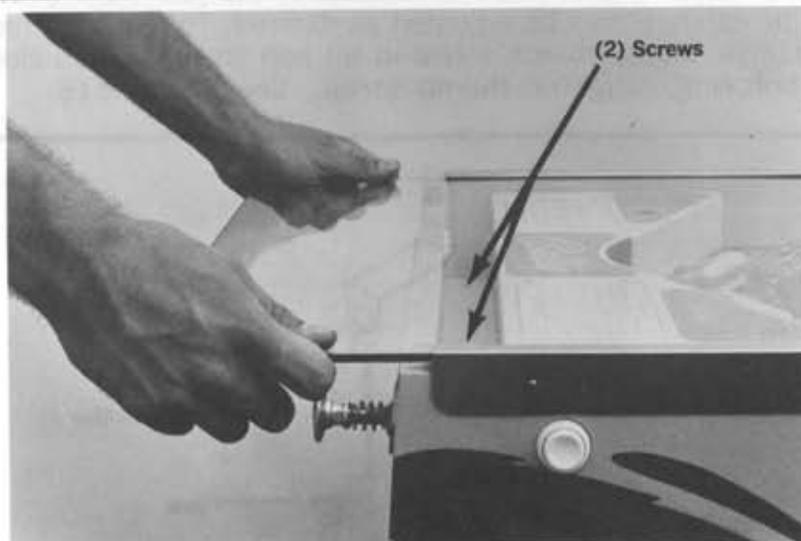


FIGURE #16

- (3) Remove two screws in bracket holding down playfield as shown in figure #16.

- (4) Raise playfield from front and place against cabinet back box with playfield resting in provided notches in playfield support rails. See figure #17. The playfield bottom, (lamps, switches and solenoids) flipper switches, tilt assembly and power supply are now easily accessible.

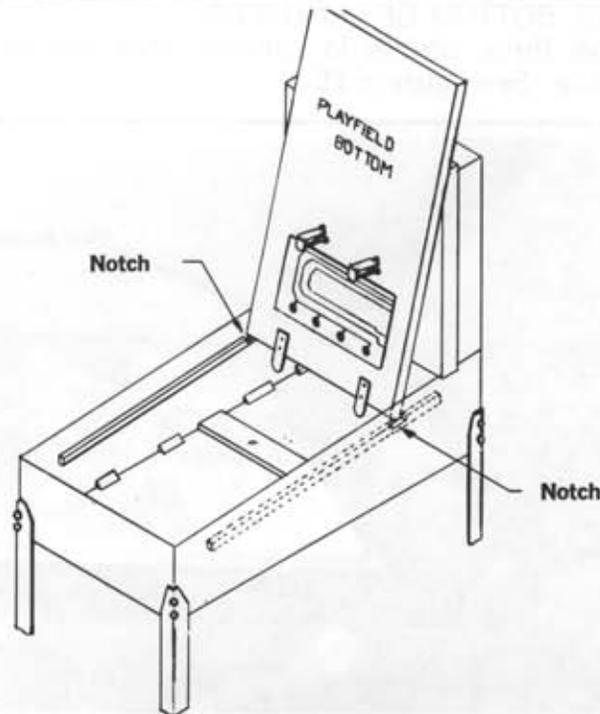


FIGURE #17

9. The pendulum tilt, which is located in the left front section of the cabinet, may be adjusted as desired. To make tilt more sensitive, loosen thumb screw in tilt bob and raise bob closer to bob ring, retighten thumb screw. See figure #18.

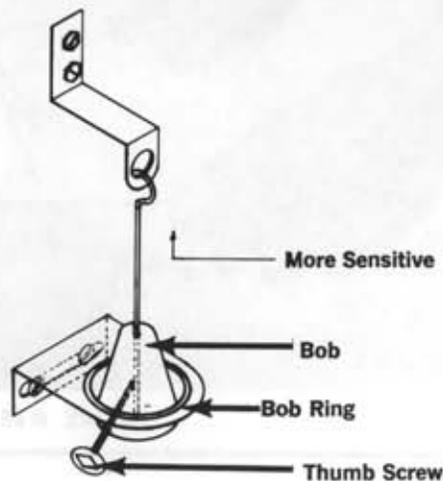


FIGURE #18

10. TO CHANGE ANY BUMPER RUBBER

- (1) Remove acorn nuts holding plastic cap. See figure #19.
- (2) Remove plastic cap.
- (3) Remove worn bumper rubber.
- (4) Stretch new bumper rubber around bumper rubber posts. Tension on bumper rubber must be evenly distributed about all bumper posts.
- (5) Replace plastic cap and acorn nuts. Do not overtighten acorn nuts. Allow plastic cap to move slightly on top of bumper posts.

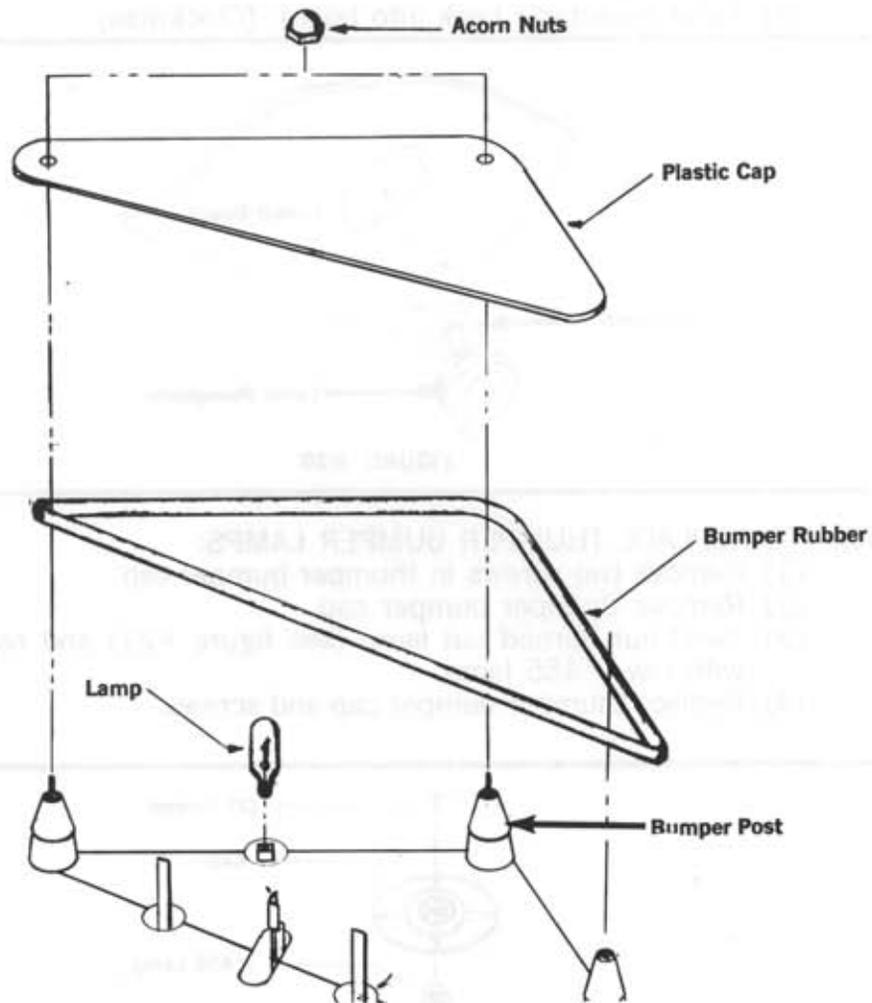


FIGURE #19

11. TO REPLACE ANY LAMP MOUNTED ABOVE PLAYFIELD SURFACE

- (1) Remove acorn nuts from plastic cap covering burned out lamp. See figure #19.
- (2) Remove plastic cap.
- (3) Pull burned out lamp straight out of receptacle and insert new one.
- (4) Replace plastic cap and acorn nuts. Do not overtighten acorn nuts. Allow plastic cap to move freely on top of bumper posts.

12. TO REPLACE ANY LAMP MOUNTED ON CIRCUIT BOARD

- (1) Twist lamp receptacle counterclockwise and remove from board. See figure #20.
- (2) Pull burned out lamp straight out of receptacle and insert new one.
- (3) Twist receptacle back into board. (Clockwise)

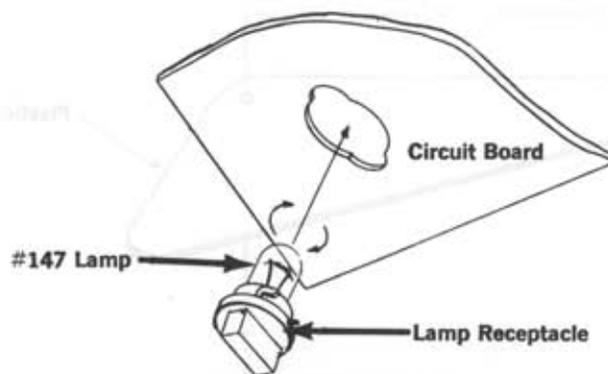


FIGURE #20

13. TO REPLACE THUMPER BUMPER LAMPS:

- (1) Remove two screws in thumper bumper cap.
- (2) Remove thumper bumper cap.
- (3) Twist out burned out lamp (see figure #21) and replace with new #455 lamp.
- (4) Replace thumper bumper cap and screws.

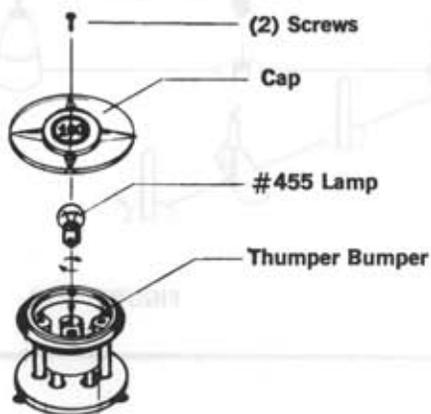


FIGURE #21

14. TO REPLACE DISPLAY INSERT LAMPS:

- (1) Remove three screws in insert moulding and remove moulding (see figure #22).
- (2) Remove insert display glass.
- (3) Replace burned out lamp with new #147 lamp.
- (4) Replace display glass, moulding and three screws.

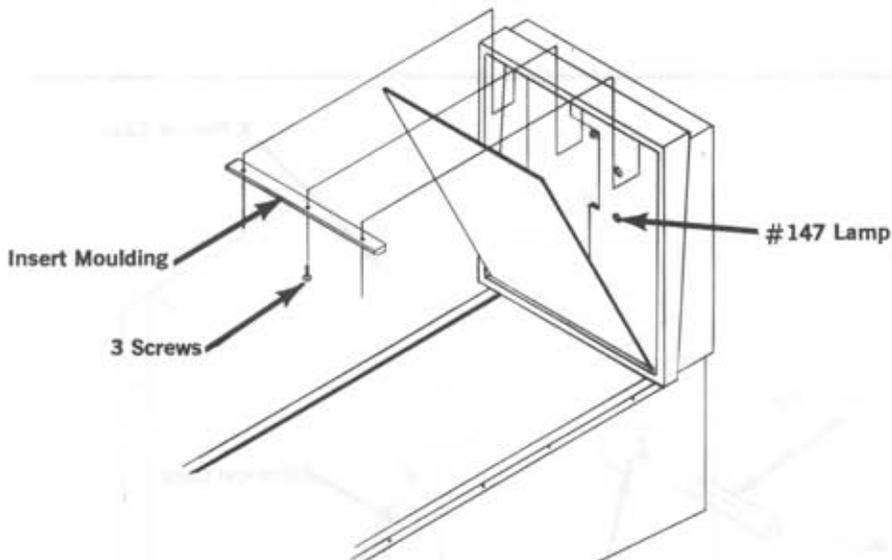


FIGURE #22

15. SOLENOID WIRING: (2 Thumper Bumpers, 2 Slingshots, 2 Flippers, 1 Ball Return)

If for any reason the wiring of any solenoid is removed, it must be replaced in the following manner. The white wire must be connected (by push on) to the terminal identified with a white marking. (see figure #23)

CAUTION: Failure to connect solenoids as instructed will result in serious damage to electronic components on logic board.

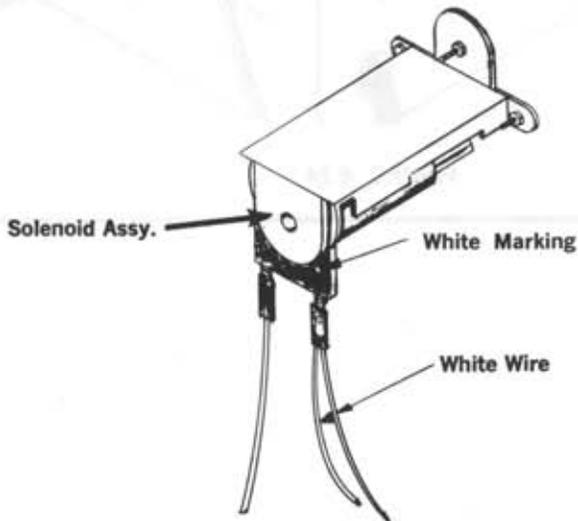


FIGURE 23

16. TO REPLACE OR CHECK 8 AMP. FUSE:

- (1) Remove playfield glass (figure #15 and #16) and raise playfield. See figure #17.
- (2) The transformer assembly is located in the right rear corner of the bottom cabinet. Remove fuse from this assembly by twisting fuse cap. See figure #24.
- (3) Replace with new 8 amp. fuse.

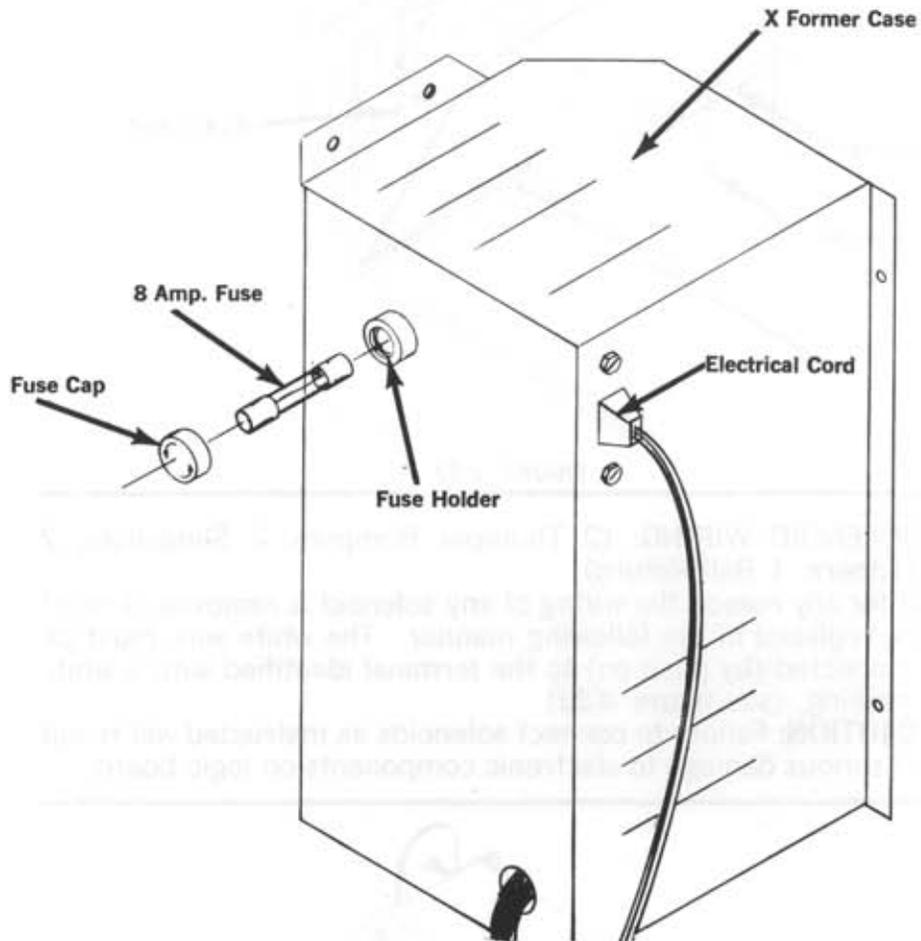


FIGURE #24

TROUBLE SHOOTING

BEFORE PERFORMING ANY MAINTENANCE OR SERVICE ON YOUR GAME, ITS ELECTRICAL CORD MUST BE DISCONNECTED FROM THE OUTLET AND REMAIN DISCONNECTED UNTIL THE SERVICE HAS BEEN COMPLETED.

IF ALL GENERAL MAINTENANCE AND TROUBLE SHOOTING PROCEDURES HAVE BEEN FOLLOWED AND GAME STILL MALFUNCTIONS, CALL YOUR DEALER FOR SERVICE.

1. ALL LITES "OFF" — NOTHING WORKS.
 - (1) Make sure the electrical cord is firmly inserted in wall outlet.
 - (2) Depress "on-off" switch. See figure #4.
 - (3) Reset circuit breaker. See figure #4.
 - (4) Check 8 amp. fuse. See figure #24.
 - (5) Check power supply connections.
2. DISPLAY INSERT LITES "ON" — PLAYFIELD LITES "OFF".
 - (1) Remove rear cabinet panel. See figure #3.
 - (2) See that connectors on logic board are firmly in place. See figure #5.
 - (3) Remove playfield glass (figure #15 and #16) and raise playfield. See figure #17. See that connectors on upper and lower playfield boards are firmly in place.
3. PLAYFIELD LITES "ON" — DISPLAY INSERT LITES "OFF".
 - (1) Remove rear cabinet panel. See figure #3.
 - (2) See that connectors on logic board and display insert are firmly in place.
4. GAME WILL NOT START:
 - (1) Remove playfield glass (figure #15 and #16) and raise playfield. See figure #17.
 - (2) Make sure "push-on" connectors are firmly attached to start switch terminals.
 - (3) Actuate switch via start button and listen for clicking sound.
 - (4) If start button stroke is too short to actuate switch, the switch blade may be bent slightly to get actuation.
5. BALL WILL NOT EJECT TO SHOOTER:
 - (1) Remove playfield glass (figures #15 and #16) and raise playfield. See figure #17.
 - (2) Make sure "push-on" connectors are firmly attached to solenoid terminals and ball return switch terminals.
 - (3) Check switch adjustment. See figure #13.
6. SWITCH WILL NOT SCORE OR OPERATE SOLENOID:
 - (1) Remove playfield glass. See figures #15 and #16.
 - (2) Operate switch manually and listen for actuation. (Clicking sound).
 - (3) Adjust switch as indicated in figures #9 to #14.
7. SOLENOID DOES NOT OPERATE:
 - (1) Remove playfield glass (figures #15 and #16) and raise playfield. See figure #17.
 - (2) Make sure "push-on" connectors are firmly attached to solenoid terminals.
 - (3) Check adjustment of solenoid operating switch. (Klick). If no (click) is heard adjust as indicated in figures #9 to #14.
8. FLIPPER SOLENOID WILL NOT OPERATE OR OPERATES WEAKLY:
 - (1) Remove playfield glass (figures #15 and #16) and raise playfield. See figure #17.
 - (2) Make sure "push-on" connectors are firmly attached to flipper solenoid terminals.
 - (3) Make sure that flipper button switch is making solid contact. Switch may be adjusted by bending switch blade slightly.
 - (4) Clean flipper button switch with piece of fine emery cloth to insure continuity.
 - (5) When Flipper operates weakly, switch on coil assembly may be adjusted (by bending) so solid contact is made (between switch contact) when Flipper is at rest. These contacts must be open when solenoid plunger is at the end of its stroke. This condition may be simulated by moving Flipper on to a "up" position manually.

TRUCK SHOOTING

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