

BRIARWOOD™

BEFORE ATTEMPTING TO ASSEMBLE, PERFORM MAINTENANCE ON, OR SERVICE THIS GAME, READ THIS OWNER'S MANUAL COMPLETELY.

Professional Style Home

OWNERS MANUAL

PINBALL GAME

MODEL NUMBER
55-860200-2

CONTENTS

WARRANTY
GENERAL NOTES
INSTALLATION
MAINTENANCE
REPAIR

TOLL FREE NUMBER



10/77

BRIARWOOD SERVICE DEPARTMENT

55-900223-000

325 BRUNSWICK LANE

MARION, VIRGINIA 24354 U.S.A.

printed in U.S.A.

BRIARWOOD™

LIMITED WARRANTY

Briarwood warrants to the original purchaser only, that the **Home Pinball Game**, and all parts and components thereof, except those specifically excluded herein, will remain free from defects in material and workmanship for a period of six (6) months from date of purchase, provided recommended assembly and maintenance procedures set forth in this Owner's Manual have been followed, and ownership has been properly registered.

IN-HOME-SERVICE (both parts and labor) is provided for the **FIRST 30 DAYS** following purchase. **After this 30-day period, removal of defective part and installation of replacement is the responsibility of the purchaser.**

The name of the nearest repair center, warranty replacement parts, or technical assistance may be obtained by calling **Toll Free 1-800-336-8771 or 8772**. For calls within the state of Virginia call 1-703-783-3121. **NOTICE:** Toll Free number is applicable only from within the continental United States. For details, see General Notes page 2.

Parts specifically excluded and not covered by this Warranty or any implied Warranty are: playfield face sheet, upper cabinet face sheet, all rubber bands, and all light bulbs. Parts and components which have been subjected to abuse, lack of maintenance, or damage subsequent to purchase are not covered by this Warranty.

The Owner Registration Card included in this package must be filled in as directed on the Registration Card and forwarded to Briarwood, along with proof of purchase, (copy of bill of sale, cash register receipt, etc.) within ten (10) days of purchase. Failure to register your purchase voids this Warranty in its entirety, and releases all parties hereto, from any liability.

Shipping damages, both obvious and concealed, are the responsibility of the carrier and purchaser. Inspect your purchase immediately upon receipt and if any damage is noted, notify the carrier within fifteen (15) days of receipt and file a formal claim.

The game is intended for home recreational use. This Warranty does not apply to games used in commercial or institutional locations.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

BRIARWOOD
Attn: Service Department
325 Brunswick Lane
Marion, Virginia 24354
U.S.A.

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— INTRODUCTION —

TO YOUR NEW PINBALL GAME

This Home Pinball Game design was thoroughly tested in the field to assure a reliability which will give you many hours of recreation in your home with a minimum of maintenance and problems. This game has incorporated certain solid state features in addition to its mechanical features to insure its reliability. This manual has been developed to thoroughly acquaint you with the function of your game, how to maintain it, and, in the event of a problem, how to recognize its cause and correct it. It also contains instructions for obtaining parts and technical assistance in the event you require them.

GENERAL

1. If you have not done so, read your Warranty carefully so that you are familiar with its details and return your Owner Registration Card.
2. Each Pinball machine has been inspected at the factory to assure its completeness and functional operation. Vendor parts have been sample inspected to assure conformance to our specifications. In spite of all precautions, some human errors occur. In the event one of these errors results in a problem with your game, we have taken significant action to give you speedy recourse to the problem.
3. During the warranty period, should you encounter a problem, check the Problem Solving section of this manual and effect the solution for your particular problem. If the solution does not correct the problem, call our **Toll Free Number 1-800-336-8771 or 8772. (For calls from within the state of Virginia call 1-703-783-3121. Toll Free Number is applicable only from within the Continental United States.)** Your message will be received by a recorder, analyzed, and a return call made to you. Give your name, mailing address, and telephone number. Give the machine serial number (located on rear panel of lower cabinet assembly) and exactly what the problem is plus the solution(s) you tried.

If your call is within 30 days of purchase, an authorized service representative will be dispatched to your home to repair the game. After the 30-day period, **Briarwood™ Service Department** will provide technical assistance in helping you repair your game.

If you require **WARRANTY PARTS** during the first 6 months following purchase, call **toll free 1-800-336-8771 or 8772** and give your name, mailing address, machine serial number (located on rear panel of lower cabinet assembly), part number, description of part, and quantity needed. Part numbers and description of parts are contained in the Parts List.

4. Warranty parts are available direct from the Briarwood Service Department. Major components are available as assemblies and are designed for easy replacement. During Warranty, these units are on a no-charge basis.
5. **Service Parts Ordering:** After expiration of Warranty on those parts covered by Warranty, service parts may be ordered by using the order form included with this package. Simply fill out the form listing the parts desired, enclose your check or money order, and mail. You may obtain a parts list by calling our toll free number, giving your name and address, and stating that you need a price list for an Aspen Model 55-860200-2. Service parts may also be obtained from an authorized Briarwood Representative.
6. If you have purchased your Pinball Game from a "Franchised" Brunswick-Briarwood Dealer or a Brunswick Leisure Mart, they will assist you in resolving any problems you may encounter with parts and function of your game.

ASSEMBLY INSTRUCTIONS

1. Position lower cabinet on top of a bar, table or other surface that is at least 28" from floor. (Figure 1).
2. Attach the four (4) legs as shown using Hex Head Bolts, 5/16-18x2 1/4", and flat washers from hardware bag. (Figure 1).
3. Install the leg levelers into bottom of legs in the following manner. Thread each leveler into bottom of legs as far as it will go but do not tighten the lock nut at this time.
4. Remove game from table and position it in its playing location.
5. Level the unit by placing a level along the bottom edge of the lower cabinet (Figure 3). Adjust the leg levelers up or down as required.
6. With game reasonably level and all four levelers having positive bearing against the floor, securely tighten the lock nuts against the bottom of the four legs.
7. Remove the two screws from rear or upper cabinet as shown in Figure 2. Slide the back panel up and out of the grooves as shown. Set back panel aside.
8. Position the upper cabinet on top of lower cabinet as shown in Figure 3.
9. Reach down inside of lower cabinet and retrieve the two (2) wiring harness assemblies. Route the two wiring harness assemblies through the 3" hole in bottom panel of upper cabinet as shown in Figure 3.
10. Plug in the two wiring harnesses to the P.C. Board as shown making sure that the metal tabs in the harness connector are in contact with the metal strip side of the P.C. Board. Connect the two small connectors as shown. (Figure 3).
11. Secure the upper cabinet to the lower cabinet as shown in Figure 3 with Hex Head Bolts, 1/4-20x1 1/4", lock washers and flat washers (2 each). Replace the back panel.
12. Remove the end cap at player end of lower cabinet as described in step 1, page 8 and slide the playfield cover out approximately 3". Install the steel game ball onto the playing surface. Then re-position the playfield cover and re-install the end cap.
13. For tilt adjustment, see Page 15, Solution 21. Read "Basic Game Operation Section".

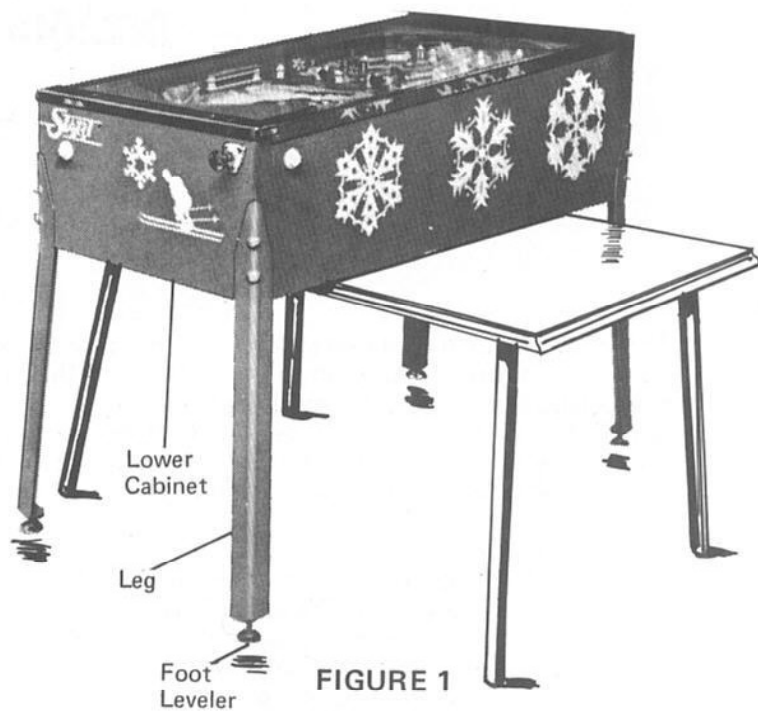


FIGURE 1

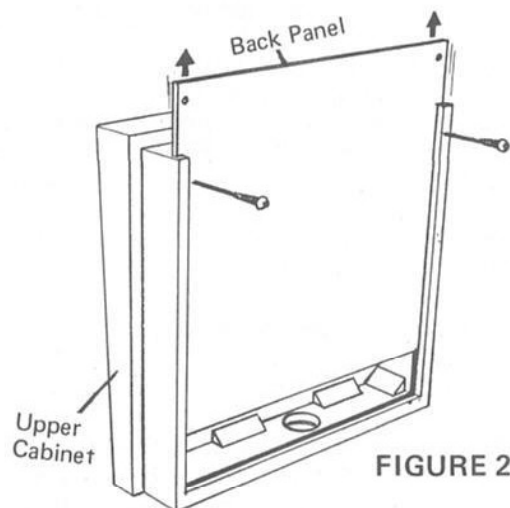


FIGURE 2

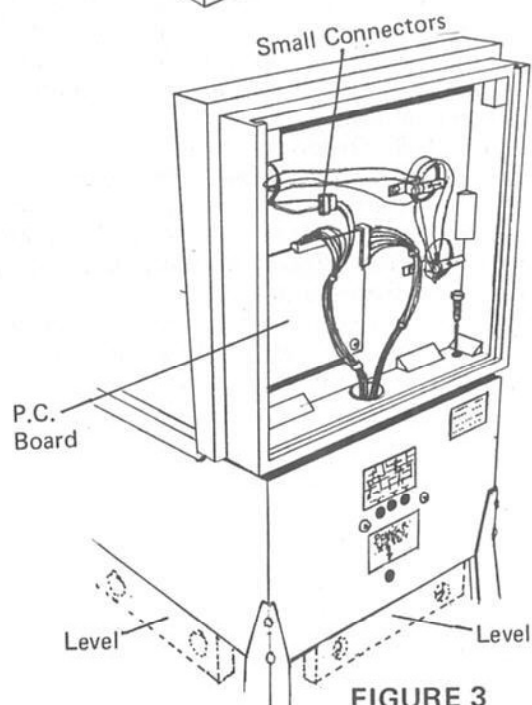


FIGURE 3

BASIC GAME OPERATION

REFER TO FIGURE 5, PAGE 6

First, your Home Pinball Game should be plugged into an electrical outlet and the cord switch turned "on". (PC Digits may not illuminate totally until reset is activated.)

Second, depress the START button once for each player. Player Up light 1 lights with one push of button, Player Up light 2 lights with second push of button, etc. This also resets the Solid State Scorer to zero. Ball in Play light 1 will light and the Ball Return positions the first ball for player number 1 in front of the Ball Shooter automatically.

Third, pull back the Ball Shooter and release it to shoot the ball into the playfield. Once the ball enters the playfield, scoring will begin. Each player's goal is to get as high a score as possible with five balls (balls which go into the LUCK OUT Lane are played again for additional scoring).

Scoring occurs when the ball hits the Thumper Bumper, Targets, or Kickers; goes over Rollovers; or goes through spin gates. The Flippers are used by the player to keep the ball in play and increase the score. As skill and timing improve, so will your score.

A bonus Feature increases the scoring potential. When a ball passes over the 1,000-point Bonus Rollover switch in the upper center of the playfield, two Bonus Lights are lighted. During all remaining play with that ball, the 10-point Score areas score 100 points and the 100-point Score areas score 1,000 points.

If more than one player is playing, the Solid State Scorer will cycle to show each player's score after each ball is played. All players will play their first ball, then all players play their second ball, etc. After the last player plays his fifth ball, the GAME OVER light will light. The Scores will continue to cycle, showing each player's score, until the game is turned off or the START button is depressed.

This Home Pinball game is equipped with a Tilt feature. If the game is pushed, shaken, or tilted to one side in excess of the game's limits, all scoring will stop and Flippers, Kickers, and Thumper Bumper will not function. The Scorer will light tilt. This condition continues until the next ball is ready for play. The player will not lose any points scored prior to the tilt and will be able to continue normal play with his next ball. To adjust Tilt Mechanism, refer to page 15, Figure 17.

HOW IT WORKS

This Section will help explain how the game actually operates so that the maintenance and service sections of this manual are more understandable.

Basically, this Home Pinball Game is a combination of levers, Switches, Lights, and Solenoids that operate at low voltages (6 volts or 28 volts). This game has six main operating sections: (1) Solid State Scorer (PC Board), (2) Playfield, (3) Player Controls, (4) Chime Assembly, (5) Tilt Mechanism, and (6) Power Supply. The six sections are joined together by wiring harnesses and connectors. Each section is described below.

SOLID STATE SCORER (PC BOARD)

The Solid State Scorer is the control center for this game (See Service Parts Assembly Drawing, Page 20). This board tabulates all scores, determines when the Bonus is in effect, remembers who is to play next, detects any tilt condition, and specifies when the game is over.

PLAYFIELD

The playfield has all the parts that cause scoring and ball action. When the ball hits the bumper or kickers, a switch is closed, sending a signal to the corresponding solenoid. This solenoid takes electrical energy and turns it into mechanical energy that causes ball action. In the case of your Home Pinball Game, the bumper and kickers move the ball away faster than it hits. At the same time all this is going on, a signal is sent through the wire harness to the Scorer, which records the points. The Ball Return functions in a similar manner to the other Solenoid. After completing play, the ball closes a switch. A signal is sent from the switch to the Scorer. The Scorer, in turn, signals the Ball Return Solenoid to kick the ball up to the ball track in front of the Ball Shooter. In the case of the Rollover, Target, Upper Rubber Band, and Spin Gate switches, no solenoids are activated, but a signal is sent directly to the Scorer to register the points.

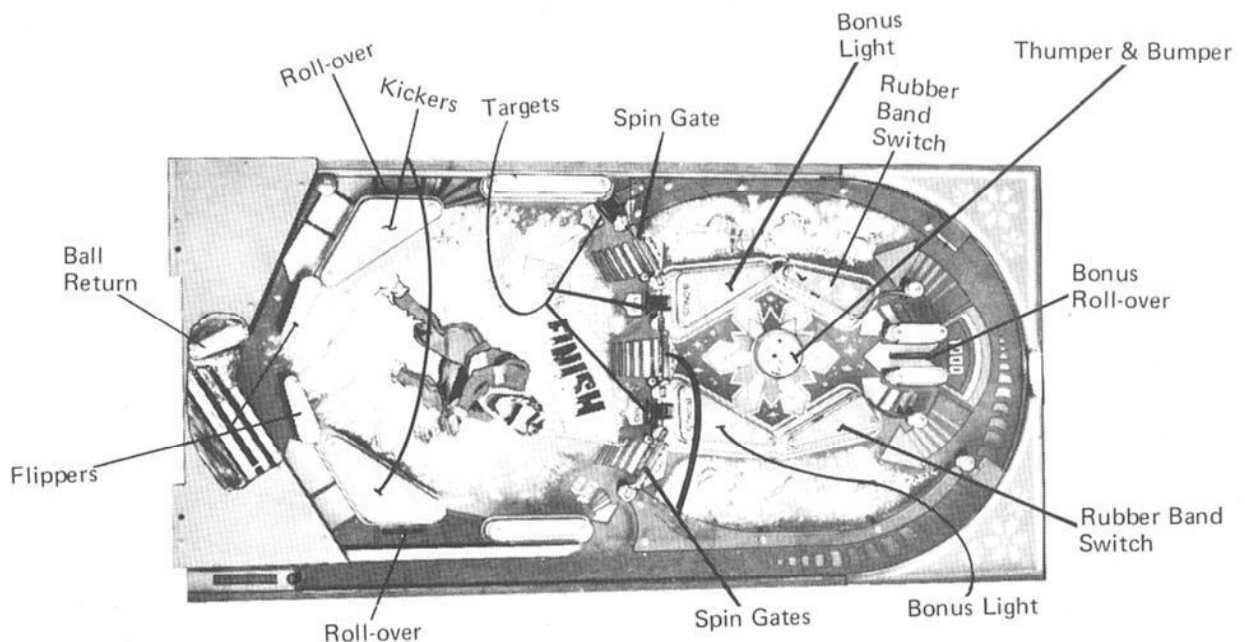


FIGURE 4

PLAYER CONTROLS

The Player Controls are located on the outside of the lower cabinet and are: the START button, the two Flipper buttons, and the Ball Shooter (See Figure 5.) They are mechanical inputs from the player that either moves the ball or closes a switch. The Ball Shooter applies force directly to the ball. Pushing the START button closes a switch that signals the scorer to: set the score to zero, release a ball for play, and start tabulating all scores. Pushing in either Flipper button closes a switch that causes the Flipper solenoid to move the Flipper on that side of the playfield. Flippers function independently.

CHIME ASSEMBLY

The Chime Assembly provides a different tone for each of the three possible scores (10, 100, or 1,000-point score) (See Service Parts Assembly Drawing, Page 24). When a score is recorded, the Scorer signals the associated chime solenoid. Upon receipt of the signal, that solenoid activates, hitting the chime bar, initiating the tone.

TILT MECHANISM

This mechanism tells the Scorer if the cabinet is tilted or pushed out of balance (See Service Parts Assembly Drawing, Page 24). The top and the bottom of this mechanism normally do not touch. However, if the plumb bob hanging down from the top leans to any side, the top and bottom make contact. This action works like a switch to signal the Scorer that the unit is no longer balanced. As a result, the Scorer opens a relay (located with the Power Supply) that temporarily disables the Playfield. **To adjust tilt mechanism, refer to Page 15, Solution 21.**

POWER SUPPLY

The Power Supply is composed of a Transformer and four resettable Circuit Breakers, (See Service Parts Assembly Drawing, Page 24). The transformer reduces the high incoming voltage from your home to the low voltage used in your pinball game (28 and 6 volts). The Circuit Breakers protect the transformer from overload.

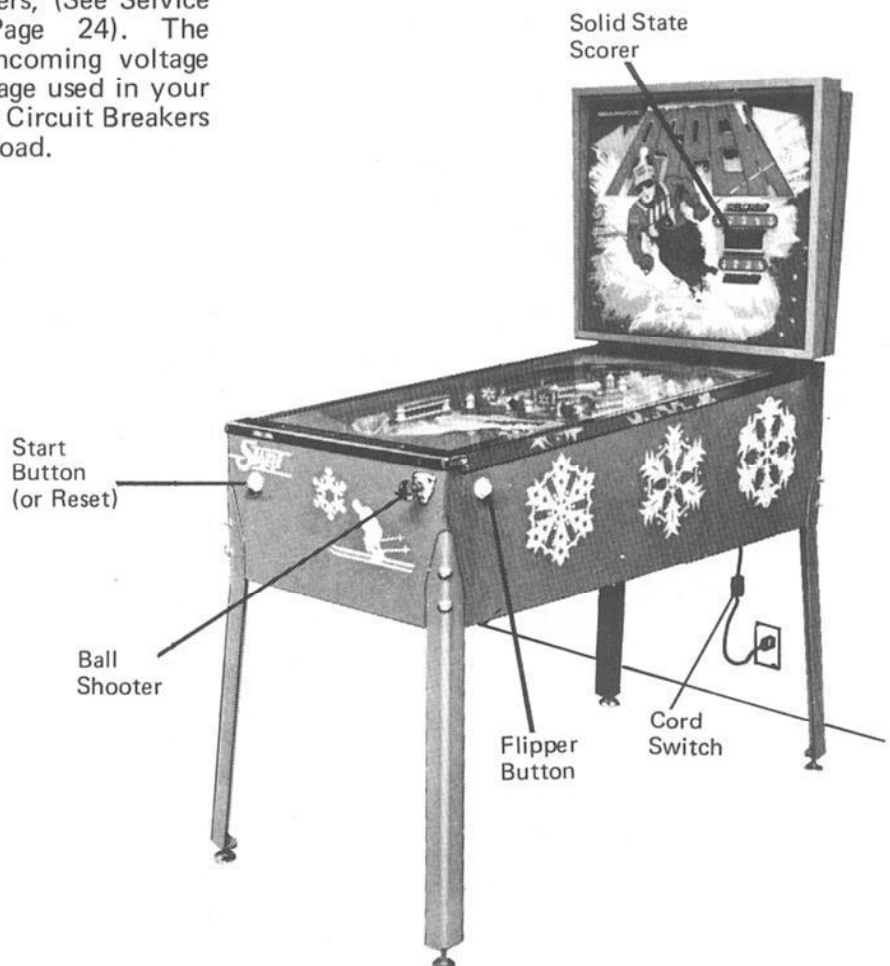


FIGURE 5

PRECAUTIONARY STATEMENT

BEFORE DISASSEMBLING OR PERFORMING ANY MAINTENANCE OR SERVICE PROCEDURES ON YOUR HOME PINBALL GAME, ITS ELECTRICAL CORD MUST BE DISCONNECTED FROM THE HOME'S ELECTRICAL OUTLET AND REMAIN DISCONNECTED UNTIL IT HAS BEEN COMPLETELY REASSEMBLED.

MAINTENANCE

Your Home Pinball Game has been designed to be relatively trouble free and easy to service. Simple adjustments and repairs can be made in the home. Under normal playing conditions, no regular lubrication or cleaning of the mechanical or electrical parts is needed. If the game has received very heavy play, has been in a dusty environment, or has been played over an extended length of time . . . the following parts may be lubricated, after the part has been wiped clean: (lubricate with a fine machine oil, 3 in one, sewing machine oil, etc.)

Ball Shooter Rod
Kicker Arm Pivots

Page 6
Page 15

Figure 5
Figure 19

The Playfield surface can be cleaned with a soft cloth and a mild, non-abrasive detergent. The Playfield and Upper Cabinet Face sheets can also be cleaned with a soft cloth and a mild, non-abrasive detergent or with glass cleaner. Cleaners using Ammonia or solvents could cause damage and should not be used.

Any knicks or chips in the steel game ball could possibly damage the playfield.

Servicing steps are detailed in the following PROBLEM SOLVING section, and they will help solve most of the problems that could occur.

PROBLEM SOLVING

Most of the problems that could happen are minor in nature and are relatively easy to solve. As with any machine that delivers as much action as your Home Pinball Game, some adjustments over time will be required to maintain maximum performance and enjoyment.

Reading the previous sections of this manual is strongly recommended to help you understand the terms used in this section. **BEFORE PERFORMING ANY OF THE STEPS IN THIS SECTION, MAKE SURE YOU HAVE THOROUGHLY READ THE PRECAUTIONARY STATEMENT ON PAGE 7.**

For a detailed exploded view of how each item is assembled (disassembled) refer to the **SERVICE PARTS** section of this manual. Component identification can be simplified by reviewing each assembly breakdown. For reference, a schematic wiring diagram is available on page 18.

BEFORE DOING ANY OF THE RECOMMENDED SOLUTIONS READ THE FOLLOWING INFORMATION.

HOW TO REMOVE PLAYFIELD:

1. Remove the two screws from the end trim as shown in Figure 6. Set end trim and the attaching screws aside.
2. Slide the Playfield Cover out of the Cabinet. **CAUTION:** The Playfield cover is tempered glass and should be handled with care. Set the cover in a safe place while it is removed from the unit. (Figure 7)
3. Remove ball from Playfield.
4. Loosen each Playfield hold down screw approximately $\frac{1}{4}$ turn counter-clockwise (See Figure 6).
5. While standing at the player end of the unit, grasp Ball Return cover and **lift that end of the Playfield approximately 4 inches out of the cabinet.** **NOTE:** If you are unable to lift the playfield adjust each hold down screw (Refer to step 3) while lifting the Playfield until the Playfield is free. (Figure 8).

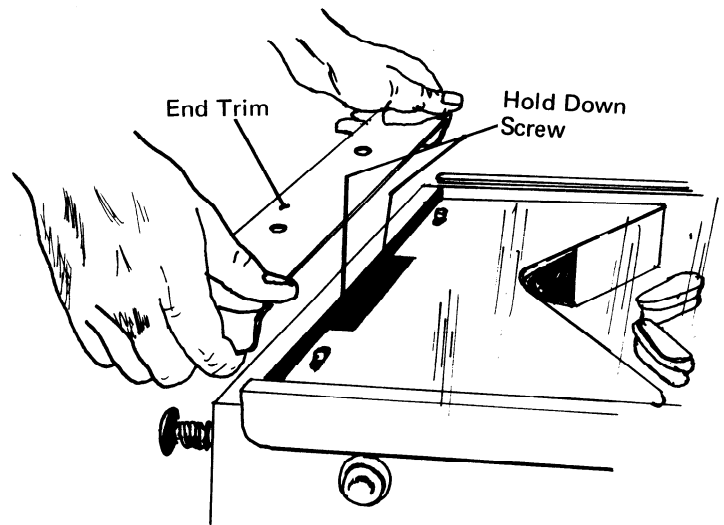


FIGURE 6

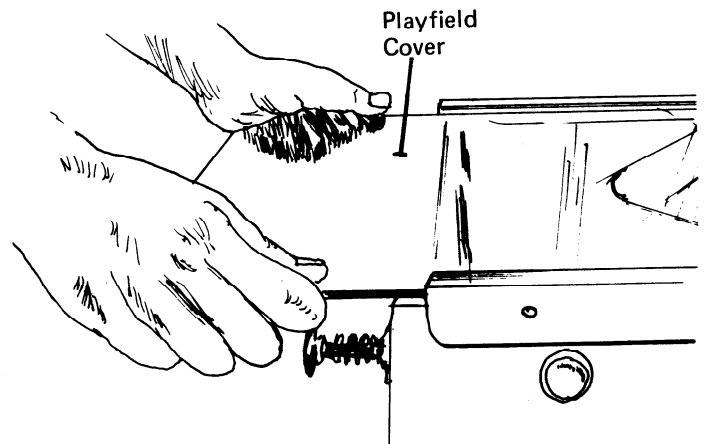


FIGURE 7

6. While continuing to stand at the end of the unit, pull the playfield toward you until the rear edge of the playfield drops into the slots cut into the playfield ledge (Figure 8).

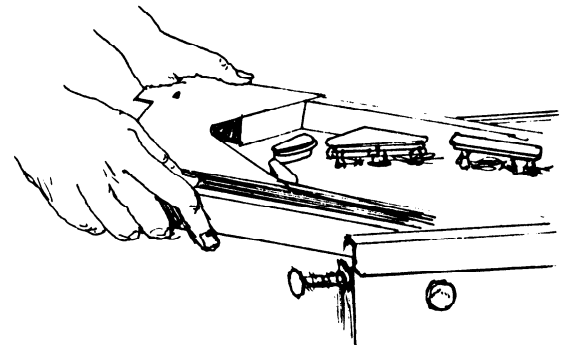


FIGURE 8

7. Carefully lift the player end of the playfield up and lower the rear edge into the lower cabinet (Figure 9). Be sure that the rear edge of playfield is resting against the retainer cleat as shown in Figure 9.
8. With playfield carefully lowered, lean playfield toward you so that front edge is resting against edge of support shelf as shown (Figure 9).

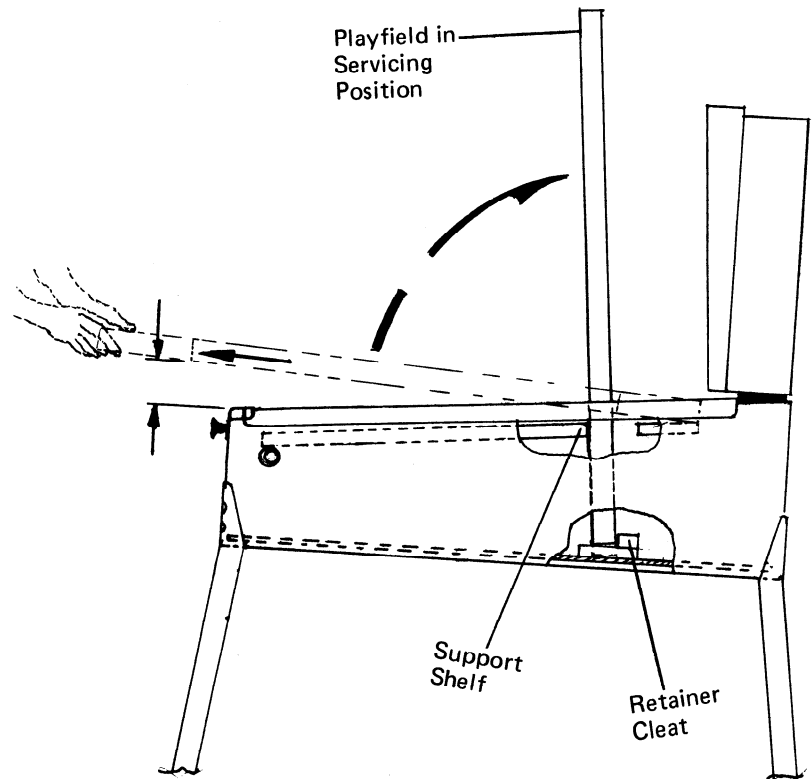


FIGURE 9

HOW TO REPLACE PLAYFIELD INTO PLAYING POSITION

1. Carefully lift playfield up while slowly swinging the player end down. Be sure that the playfield is drawn out of lower cabinet sufficient to be lowered back into playing position.
2. Slide the playfield back toward rear of cabinet and lower the player end completely.
3. Tighten the two (2) Hold-down screws by turning them approximately $\frac{1}{4}$ turn clockwise. Attempt to lift playfield to insure that the screws are secure.
4. Place the game ball in the return area of playfield.
5. Slide the playfield cover back into the player end of the lower cabinet. (See Figure 6, Page 8).
6. Place end trim back into position and re-install the two screws. (See Figure 6, Page 8).

HOW TO USE THE "CAUSE OF PROBLEM/PROBLEM SOLUTION CHART":

Read the problem descriptions and select the description that most closely fits your problem. To the right of the descriptions are "Cause of Problem/Problem Solutions". You will notice that one or more numbers (Cause of Problem) are indicated. These numbers represent the problem solution paragraph on pages 12 through 17. At top of page, directly above each number is an explanation of the problem. Try each of the solutions until the particular problem is corrected. If, after trying all of the solutions, the problem still exists, you may call the toll free number (1-800-336-8771 or 8772) for assistance as directed on Page No. 2 of this Manual.

PROBLEM SOLUTION CHART

PROBLEM DESCRIPTION	CAUSE OF THE PROBLEM						
	No Power From AC Wall Outlet	Circuit Breaker "Tripped"	Faulty Electrical Connection	Switch Requires Adjustment	Failed Electrical Part	Failed Mechanical Part	P.C. Board Failure
All lights "off", nothing works on playfield (unit dead)	1 2	4	3				
Upper cabinet lights "off", Playfield lights "on"			9				
All lights "off"		6 8	10				
Single light does not light on playfield or upper cabinet			14		11		
Ball shooter does not shoot ball straight (or is dragging)						15, 18 16, 19	
Tilt malfunctions (Tilt does not work) or (Game tilts too easily)			20			21	
Circuit Breaker No. 1 "trips" repeatedly			22		8		
Circuit Breaker No. 2 "trips" repeatedly		5	22	34, 23	8, 24		
Circuit Breaker No. 3 "trips" repeatedly		6	25		8, 26		
Circuit Breaker No. 4 "trips" repeatedly		7	25, 9		8, 26		
Rollover does not score			27	28	29		
Ball hangs on rollover switch				28		30	
Target does not score			27	31	29		
Flag does not score			27	32	29		
Rubberband does not score			27	33	29		
One push button fails to operate associated flipper			36	34, 35, 37			
Neither push button operates its associated flipper		5	36	34, 35, 37			
Kicker ball action slow, or incon- sistent				34, 38	39		

PROBLEM SOLUTION CHART

CAUSE OF THE PROBLEM

PROBLEM DESCRIPTION	CAUSE OF THE PROBLEM						
	No Power From AC Wall Outlet	Circuit Breaker "Tripped"	Faulty Electrical Connection	Switch Requires Adjustment	Failed Electrical Part	Failed Mechanical Part	P.C. Board Failure
Kicker does not work			40	34, 38	46	39, 17	
Kicker chatters when operated				34, 38			
Kicker works but does not score every time hit			27	41	29		
Bumper ball action slow, or inconsistent				34, 42		39	
Bumper does not work			40	34, 42	46	17, 39	
Bumper works but does not score every time hit			27	34, 43	29		
No chimes should following a score			44			45	49
No chime sounds following either a 1000, 100, or 10 point score			44		46	17, 45	49
Ball return does not work		5	40	47	46	39	49
Games does not reset after start button is pushed	1, 2	4, 5, 7	36	34, 48			49
Scores do not light and bonus lights do not light in bonus condition		7	25		8		49
No 10 point score, no 100 point score or No 1,000 point score recorded			9				49
Game scoring does not "carry" (add) to next digit							49
Score numbers change (plus or minus) in a random pattern (Float).			9				49
Will not record any score, all "zeroes" on score board			9				49
Games does not remember scores, or does not cycle through scores							49
Games doe not tabulate number of players correctly			36	34,48			49
Games does not count number of balls played correctly							49

1. Firmly insert wall cord into electrical outlet.
2. Determine that outlet is "live" by connecting an appliance that you know works.
3. Turn wall cord switch "on".
4. Reset Circuit Breaker No. 1 by pressing the appropriate red stem (inside the back panel at rear of cabinet) with the eraser end of a pencil (see Figure 10).
5. Reset Circuit Breaker No. 2 as indicated in Solution No. 4.
6. Reset Circuit Breaker No. 3 as indicated in Solution No. 4.
7. Reset Circuit Breaker No. 4 as indicated in Solution No. 4.
8. Note that the circuit breaker normally clicks when reset. If the breaker will not reset, replace it with a new breaker.

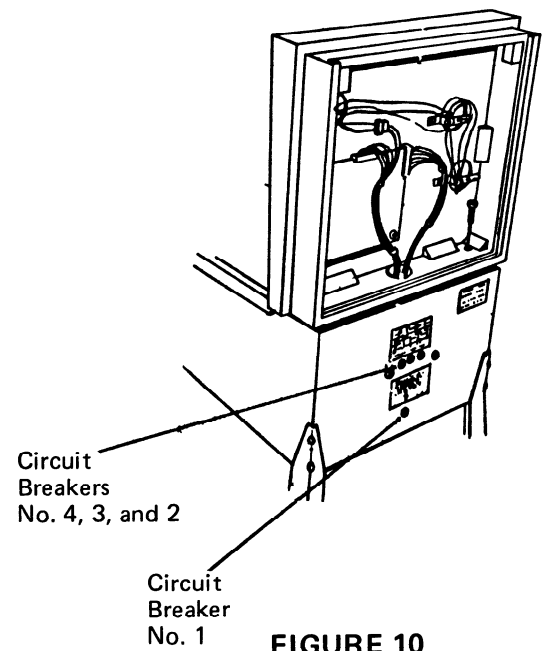


FIGURE 10

9. Press PC Board connector No. 1 (see Figure 11.) firmly onto PC Board. Check wires to insure that they are firmly in connectors.
10. Check all wiring going to the light sockets for loose or broken wires.
11. Light burned out. If the light is for Ball in Play, Player Up, or Game Over, refer to Paragraph No. 12. Refer to Paragraph No. 13 for all other lights.

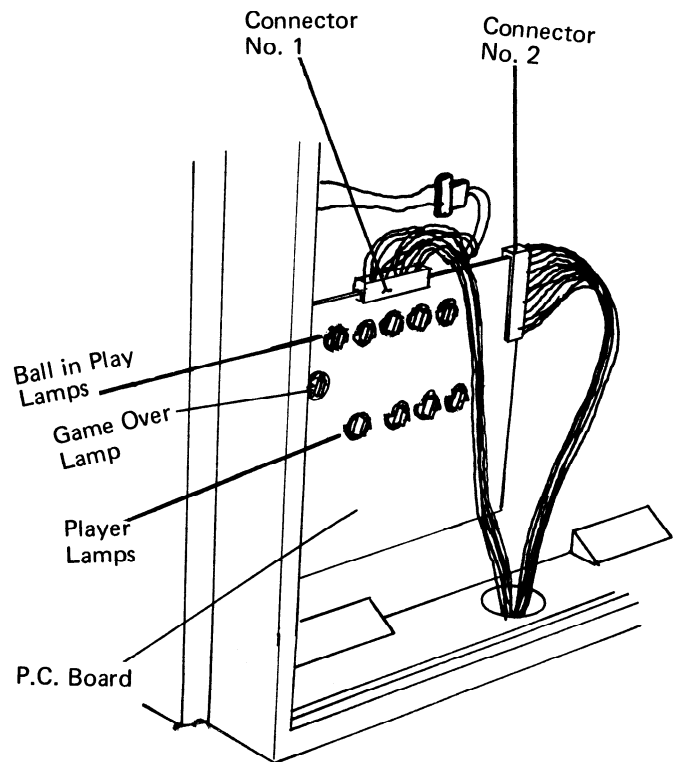


FIGURE 11

12. This light is located on the PC Board. (See Figure 11, Page 12).

To replace the light bulb:

- Remove upper cabinet Rear Panel.
- Locate the failed lamp on rear of PC Board.
- Turn lampholder 1/8 turn counterclockwise and remove from PC Board. (Figure 12)
- Pull lamp out of holder.
- Press replacement lamp into holder.
- Place lampholder back into PC Board and turn holder 1/8 turn clockwise.
- Replace upper cabinet rear panel.

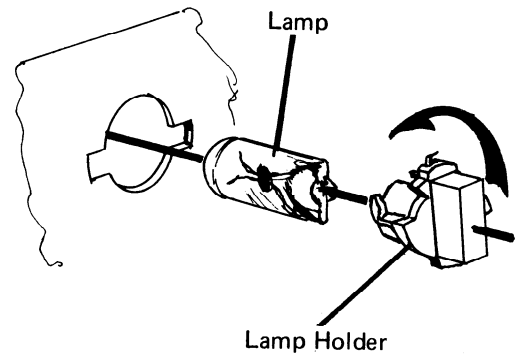


FIGURE 12

13. If lamp is located in the upper cabinet P.C. board support panel, refer to Figure 13.

- Remove upper cabinet rear panel. (Refer to page 3, paragraph 7).
- Remove lamp from socket by lightly pressing lamp in and turning it 1/2 turn counterclockwise.
- Install replacement lamp by pressing it into the socket and turning it 1/2 turn clockwise.
- Replace upper cabinet rear panel.

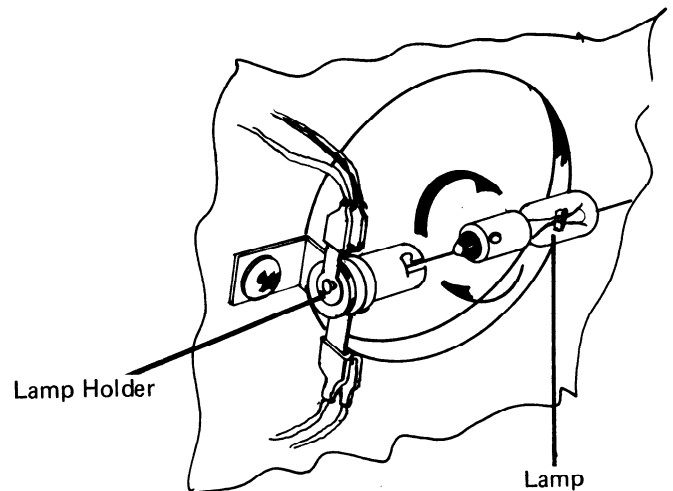


FIGURE 13

If lamp is located on the Playfield, refer to Figure 14.

- Remove Playfield Cover (Refer to page 8. How to remove playfield)
- Remove rubber tips from support posts and lift plastic cover from over light bulb (Figure 14).
- Remove lamp from socket by lightly pressing bulb down and turning it 1/2 turn counterclockwise.
- Install replacement lamp by pressing it into socket and turning it 1/2 turn clockwise.
- Replace plastic cover and press rubber caps firmly onto posts.
- Replace Playfield cover.

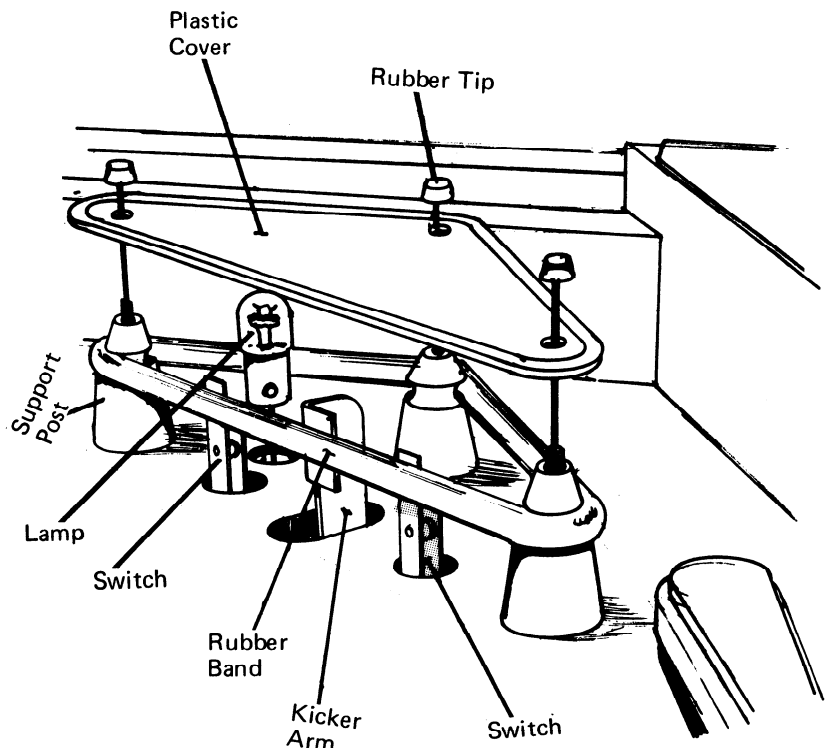


FIGURE 14

14. Check light socket to insure that the wire terminals are firmly connected and the light bulb is firmly in position.

15. Playfield may not be in its correct position. Remove playfield cover (page 8, paragraph 2). Grasp playfield end cover and try to lift it. If the playfield is firmly in position, it cannot be lifted. Refer to page 9 for playfield installation instructions.

16. Check ball shooter tip to insure that it is firmly in position and not worn beyond use (Figure 15).

17. Inspect solenoid sleeve for possible wear, dirt, or warpage that may affect solenoid operation. Clean or replace sleeve as required. (See Service Parts Assembly Drawing Page 24).

18. Screws holding the ball shooter may be loose (Figure 15). Tighten screws as required. Take care not to tighten the screws to the point of breaking the ball shooter housing.

19. Is the ball shooter aligned correctly in the cabinet? (Figure 15). Shooter alignment may be changed by placing a shim (Small spacer like a washer) between the shooter housing and cabinet as follows:

- If shooter is too high, place shim under bottom screw.
- If shooter is too far left, place shim under right hand screw.
- If shooter is too far right, place shim under left hand screw.

20. Inspect all wiring leading to the tilt mechanism for possible breaks or loose connections (Figure 16).

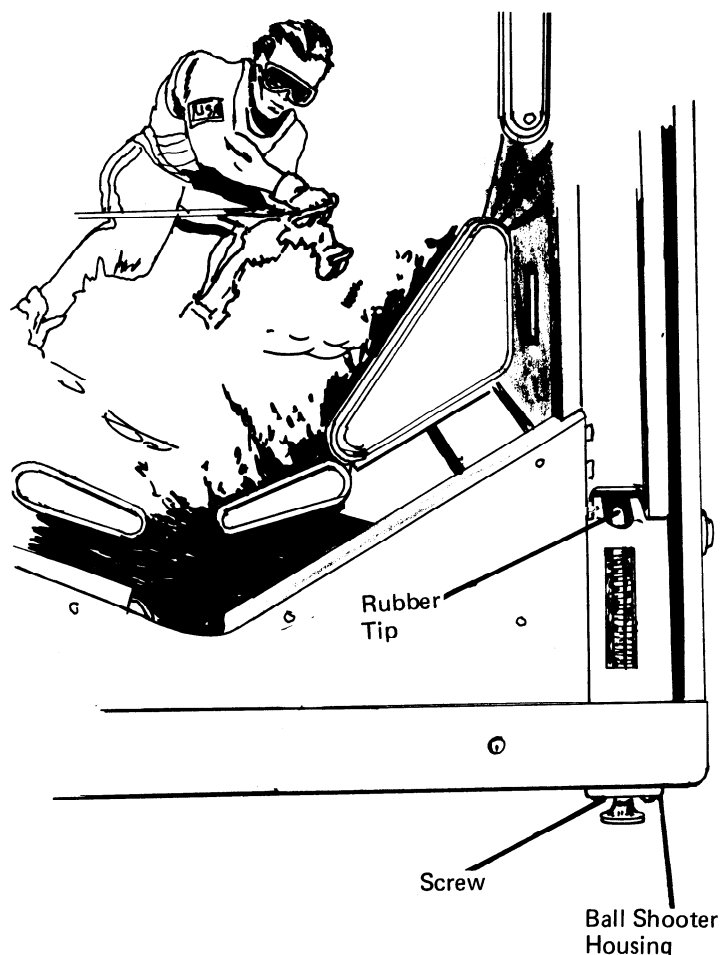


FIGURE 15

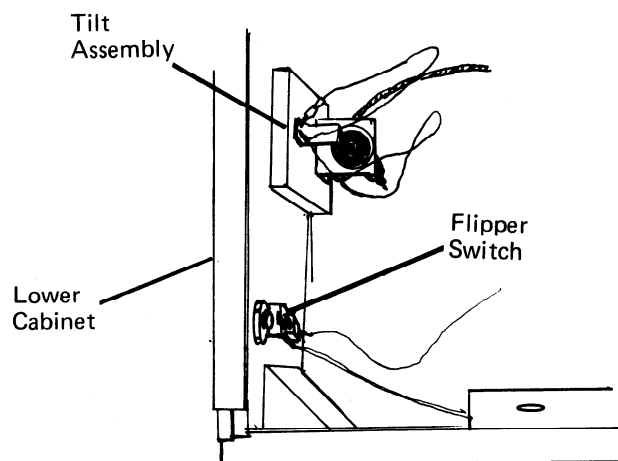


FIGURE 16

Refer to Figure 17.

21. Tilt requires adjustment. To adjust tilt, loosen set screw and lower the plumb-bob. (To make tilt less sensitive, raise the plumb-bob).

22. Inspect wiring and wire connectors in transformer assembly and underneath playfield for crossed or touching wires (See Service Parts Assembly Drawing Page 24).

Refer to Figures 18 and 19.

23. Circuit Breaker No. 2 "trips" repeatedly when the bumper or kicker switches remain closed. Inspect and adjust switches, as required. For detailed adjustment procedures refer to Problem Solution Procedures No. 34, 38, and 42.

24. If Circuit Breaker No. 2 "trips" only when the thumper is activated, replace diode across terminals of thumper solenoid (See Figure 18). If Circuit Breaker No. 2 "trips" only when a flipper is activated, replace diode across terminals of that flipper's solenoid (See Figure 20, Page 16). If Circuit Breaker No. 2 "trips" only when a kicker is activated, replace diode across terminals of that kicker's solenoid (See Figure 19). If Circuit Breaker No. 2 "trips" only when the ball return solenoid is activated, replace diode across terminals of that solenoid (See Figure 20, Page 16).

25. Check wires and connectors to all light sockets for crossed or touching wires. (If breaker No. 4 tripped, inspect only the Bonus light.)

26. Check inside each light socket. The center post in the socket must not touch the side of the socket. Bend post as required. Remove any foreign material found in socket. If breaker No. 4 has tripped, inspect only the Bonus lights.)

27. Check wire connectors to score switch for possible loose or touching connectors (See Service Parts Assembly Drawing Page 22).

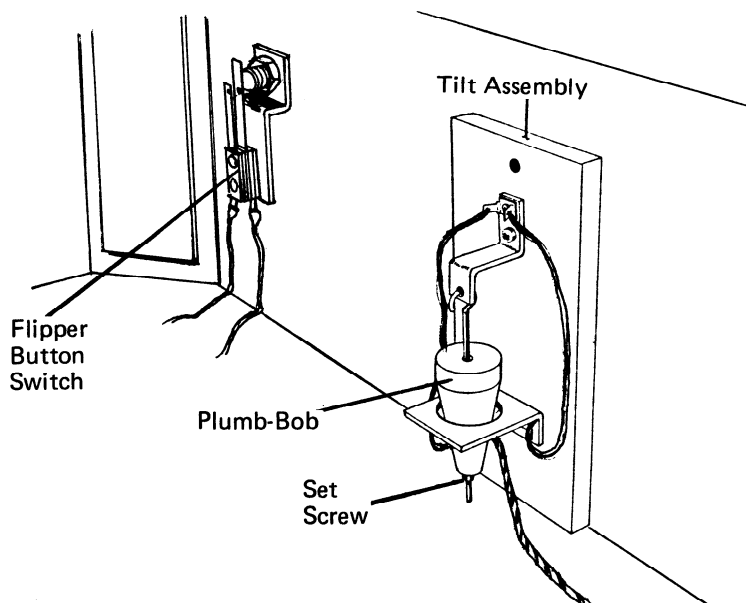


FIGURE 17

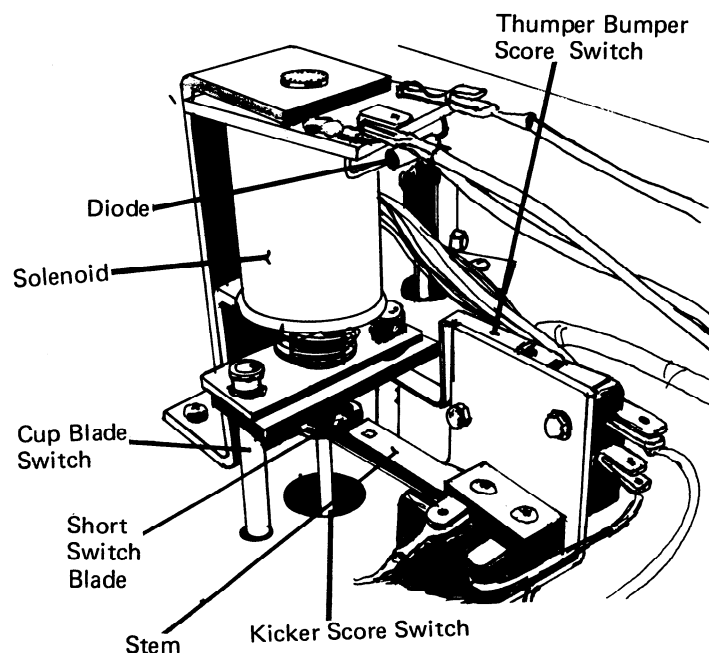


FIGURE 18

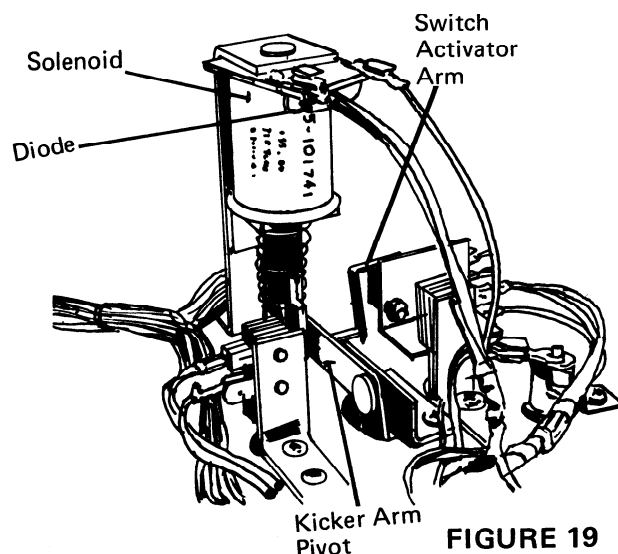


FIGURE 19

28. Adjust Rollover Switch: (Figure 21). The switch should click when pushed down by the ball and click again when released. To adjust switch bend switch arm up or down as required.

29. The microswitch must "click" as the activator arm is pushed in and click a second time when released. If the switch will not "click" when the activator arm is pushed all the way in, and all the way out, replace the switch.

30. Check switch activator arm to insure that it is not rubbing the playfield surface. Bend arm as required. Remove any obstruction to free arm movement.

31. Adjust Target Switch: (Figure 22). This switch should click when the target is pushed back to about $\frac{1}{4}$ inch away from target stop. The switch should also click when returned to its original position. To adjust switch, bend switch arm forward or back.

32. Slowly rotate the spin gate by hand until a "click" is heard. This is the point where the score is made. To make the Flag score earlier, slightly bend the end of the activator arm down away from the playfield. (See Figure 23).

33. Adjust the rubber band switch so that it "clicks" when the activator arm is pushed about $\frac{1}{8}$ inch from the rubber bumper. Bend the activator arm as required.

34. Inspect switch contacts for dirt or oxidation. If cleaning is required, place a strip of plain writing paper between the contacts. Press contacts together, and pull the paper through.

35. Adjust flipper button switch: (See Figure 17, Page 15). Gently bend long blade of switch until it is straight. Gently bend short blade so that the contacts are approximately .060 inch apart. Depress the flipper button to make sure that the button moves the long blade sufficient to contact the short blade.

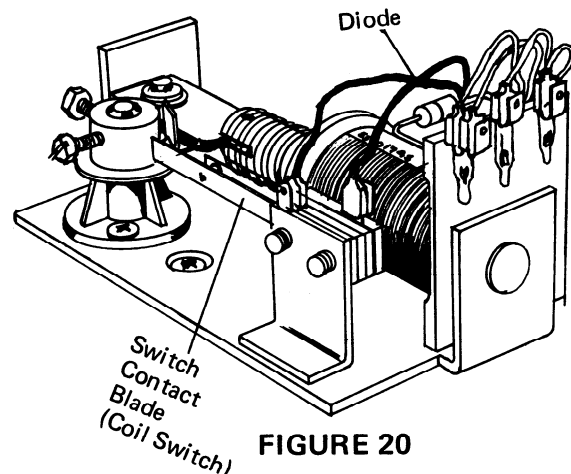


FIGURE 20

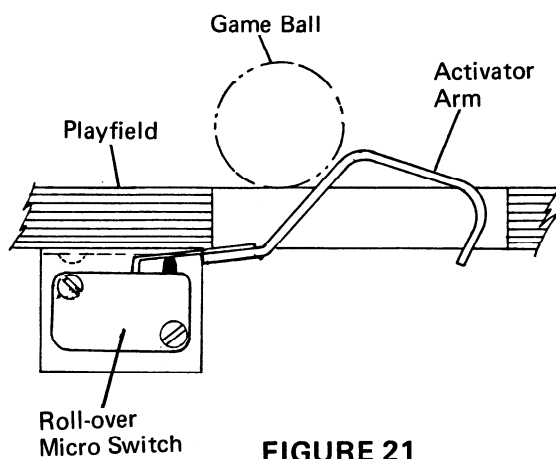


FIGURE 21

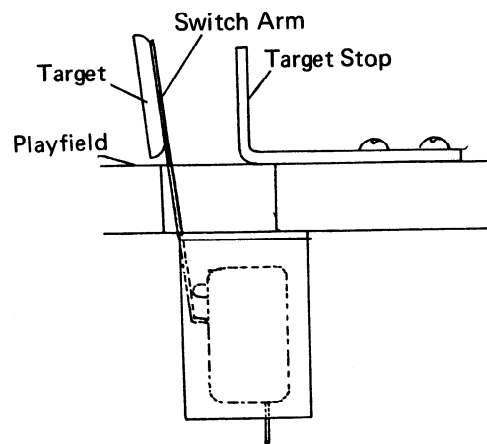


FIGURE 22

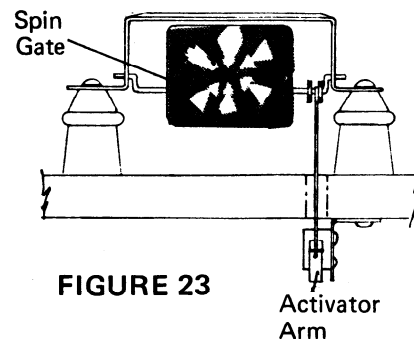


FIGURE 23

Depress the flipper button to make sure that the button moves the long blade sufficient to contact the short blade.

36. Check wiring and connectors to flippers, or start button, for loose or broken wires.
37. Adjust Flipper Coil Switch: (Figure 20, Page 16). Note that the switch contacts are closed (touching) and that the short blade is relatively straight. To adjust these contacts properly, push the coil plunger all the way into the coil with your finger. While holding the plunger in as far as it will go, gently bend the short switch blade so that the contacts are approximately .030 inch apart.
38. Adjust kicker rubber band switch: (See Figure 14, Page 13). Gently bend the long switch contact blade until it just touches the rubber band. Gently bend the short switch contact blade so that the switch contacts are approximately .030 inch apart.
39. Locate the area of the problem underneath the playfield. (See Service Parts Assembly Drawing, Page 22). Carefully inspect for broken, missing, loose, or excessively worn parts. Replace as required.
40. Locate area of the problem underneath the playfield. (See service parts illustration of the playfield components, Page 22). Inspect all wiring and wire connectors for loose, broken, or touching connections. Repair as required.
41. Adjust Kicker Score Switch: (See Figure 19, Page 15). Push the kicker coil plunger all the way into the coil with your finger. The score switch should click when the plunger is pushed in and again when released. Adjust as required.
42. Adjust thumper bumper cup switch: (See Figure 18, Page 15). Adjust the cup blade so that the stem touches the center of the cup. This insures a uniform action of the thumper bumper. Gently bend the short switch blade so that the contacts are approximately .020 inch apart.
43. Adjust Thumper Bumper Score Switch: (See Figure 18, Page 15). Push the thumper coil plunger all the way into the coil with your finger. The score switch should click as the plunger is pushed in and again when the plunger is released. To adjust the score switch bend the switch arm up or down as required.
44. Inspect all chime wiring and wire connectors for loose, broken, or touching connections. Repair as required.
45. Inspect chime assembly for broken, missing, loose, or excessively worn parts, including solenoid sleeves. Repair as required. (See Service Parts Assembly Drawing Page 24).
46. Replace coil and bobbin assembly.

47. Adjust Ball Return Switch: (See Figure 24). The ball return switch should click when pushed down by the ball and click again when released. The end of the switch arm should always be below the ball track. To adjust this switch bend the switch arm up or down as required.
48. Adjust start button switch: Gently bend long blade of switch until it is straight. Gently bend short blade so that the contacts are approximately .060 inch apart. Depress the start button to make sure that the button moves the long blade sufficient to contact the short blade.

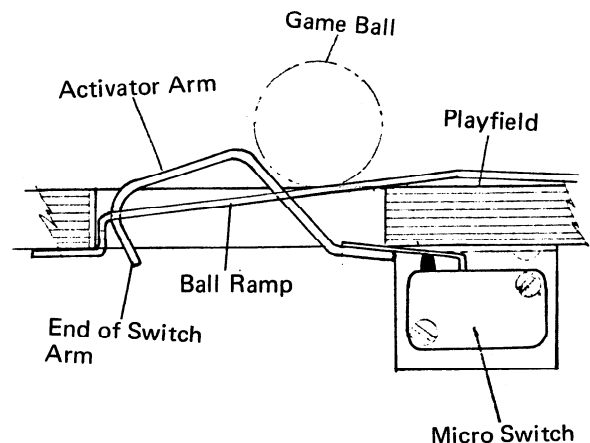
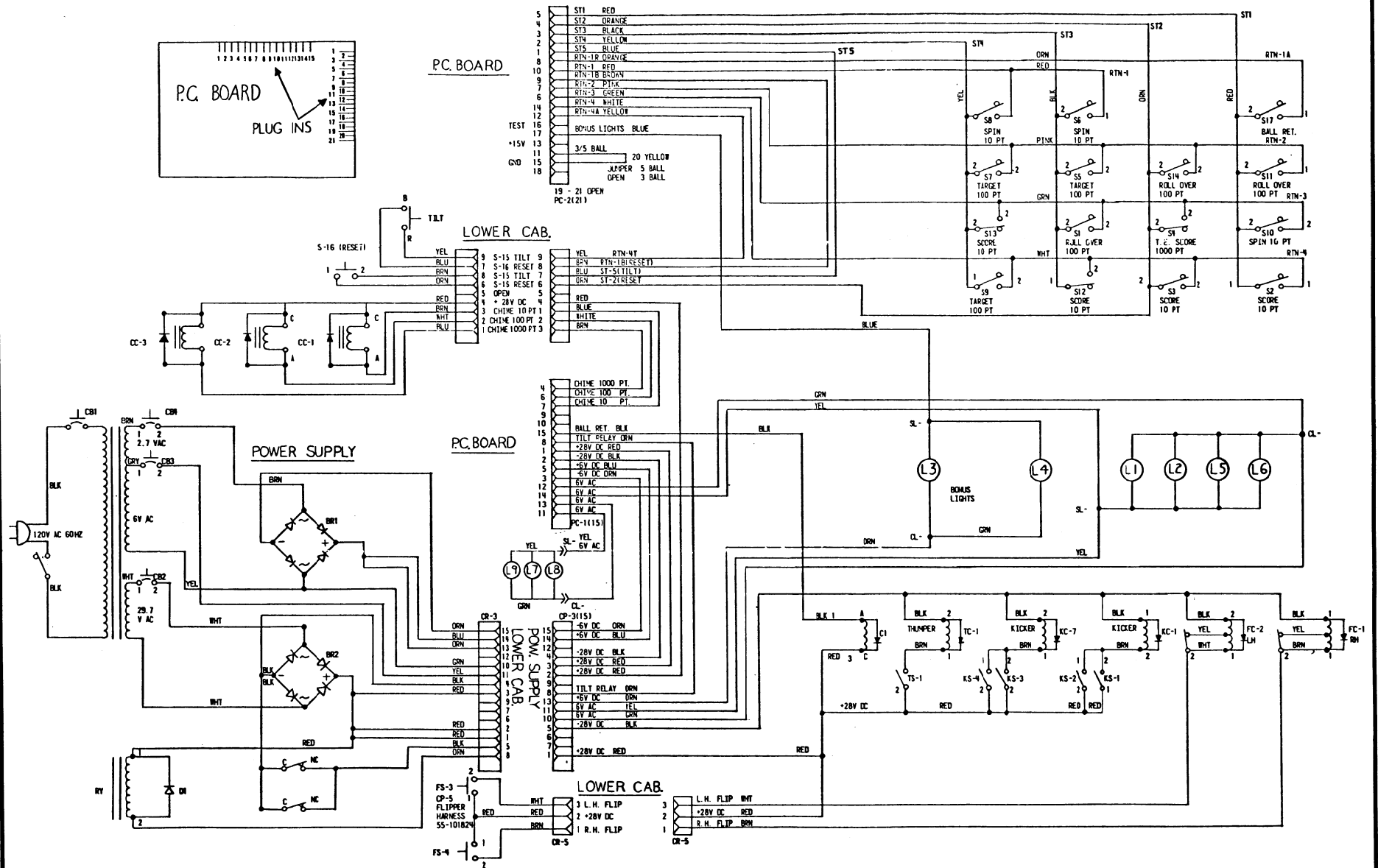


FIGURE 24

49. Suspect failure in PC Board (See Service Parts Assembly Drawing, Page 20). Attempt all other possible solutions before replacing the PC Board.

ELECTRICAL SYSTEM



SERVICE PARTS

ASPEN PROFESSIONAL STYLE PINBALL, MODEL NO. 55-860200-2 UPPER CABINET, LOWER CABINET AND COMPONENTS

ITEM

NO.	PART NUMBER	PART DESCRIPTION
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COMPONENTS OF UPPER CABINET ASSEMBLY

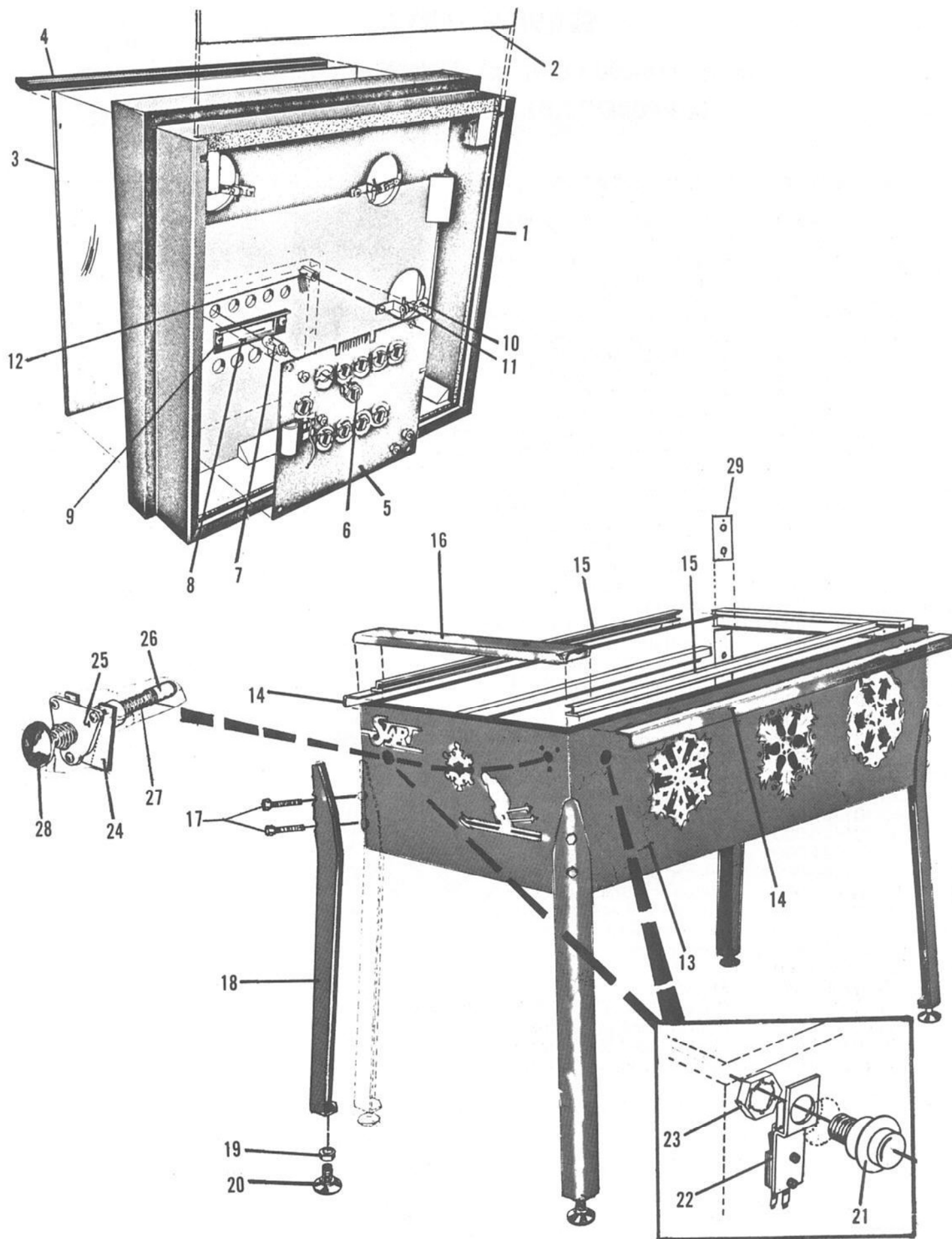
1.	55-860207-000	Cabinet Assembly, Upper (Wood Housing Only)
2.	55-860208-000	Back Panel
3.	55-860209-000	Face Sheet
4.	55-101403-009	Retainer Strip (For Face Sheet)
5.	55-860210-000	Printed Circuit Board Assembly
6.	55-101558-000	Lamp Holder
7.	11-675573-000	Lamp
8.	55-101462-000	Magnifying Lens
9.	55-101518-000	Frame, For Magnifying Lens
10.	11-675578-000	Lamp
11.	55-101833-000	Lamp Holder
12.	55-101524-000	Spacer, Threaded (Stand-Off For P.C. Board)

COMPONENTS OF LOWER CABINET ASSEMBLY

13.	55-860211-000	Lower Cabinet (Wood Assembly Only)
14.	55-101505-000	Extrusion, Side Trim
15.	55-101516-000	Extrusion, (Track For Playfield Cover)
16.	55-101506-000	End Cap
17.	11-001273-001	Bolt, Hex Head, 5/16-18 x 2¼"
18.	55-860212-000	Leg
19.	11-125204-001	Nut, Hex Jam, 3/8 — 16
20.	11-695104-000	Glide, Adjustable
21.	55-101450-000	Push Button Assembly (For Reset and Flippers)
22.	55-101448-000	Switch and Bracket Assembly (For Reset and Flippers)
23.	11-125453-000	Stamped Nut, 5/16-11 Thread
24.	55-101245-000	Plate, Retainer, For Ball Shooter
25.	55-101763-000	Guide Bushing and Face Plate
26.	55-101139-000	Rubber Tip
27.	55-101768-000	Spring
28.	55-101764-003	Knob and Shaft Assembly
29.	55-101544-000	Tapping Plate (For Leg Attachment)

NOT ILLUSTRATED

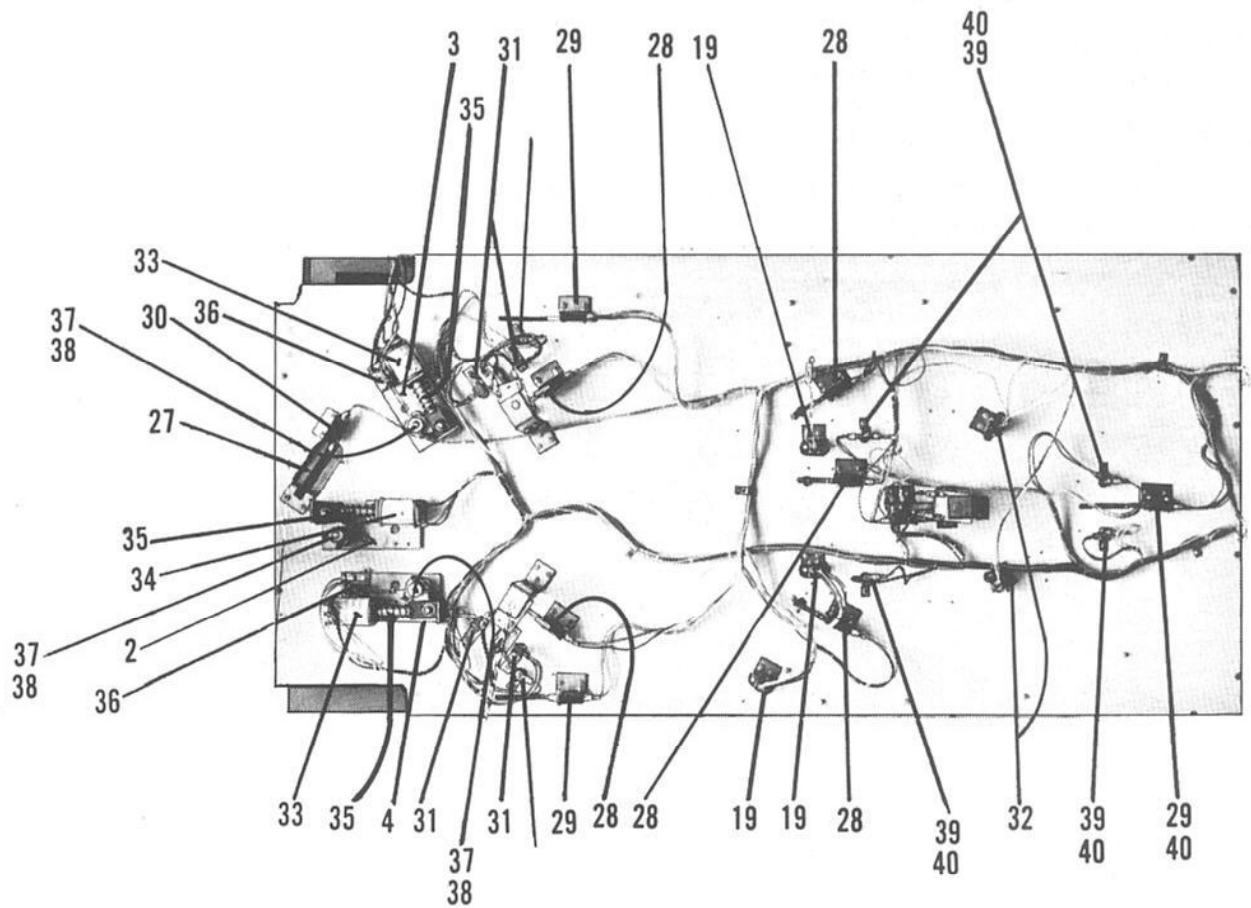
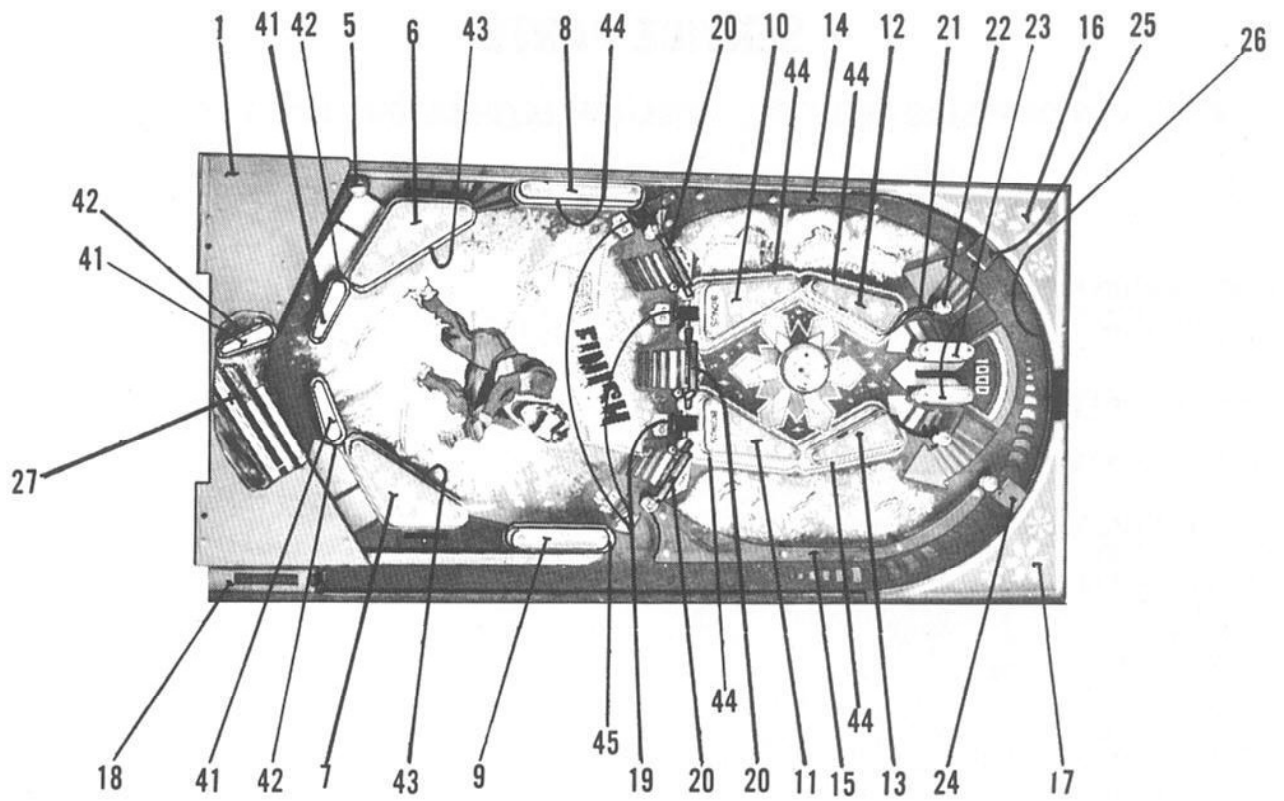
55-860213-000	Playfield Cover
55-860202-000	Package of Assembly Hardware



SERVICE PARTS

55-860214-000 PLAYFIELD ASSEMBLE COMPLETE COMPONENTS OF PLAYFIELD ASSEMBLY

ITEM NO.	PART NUMBER	PART DESCRIPTION
1.	55-860215-000	Cover Assembly, Ball Return
2.	55-860216-000	Ball Return Unit
3.	55-860217-000	Flipper Assembly, Left Hand
4.	55-860218-000	Flipper Assembly, Right Hand
5.	55-860206-000	Steel Game Ball
6.	55-101441-001	Screened Cover, Lower Left Hand
7.	55-101441-002	Screened Cover, Lower Right Hand
8.	55-101441-003	Screened Cover, Left Hand, Small
9.	55-101441-004	Screened Cover, Right Hand, Small
10.	55-101441-005	Screened Cover, Bonus, Center, Left Hand
11.	55-101441-006	Screened Cover, Bonus, Center, Right Hand
12.	55-101441-007	Screened Cover, Upper Left Hand
13.	55-101441-008	Screened Cover, Upper Right Hand
14.	55-101442-001	Ball Guide, Clear, Left Hand
15.	55-101442-002	Ball Guide, Clear, Right Hand
16.	55-101441-009	Screened Cover, Arch, Left Hand
17.	55-101441-010	Screened Cover, Arch, Right Hand
18.	55-101424-002	Cover, For Ball Shooter
19.	55-101494-003	Target and Switch Assembly
20.	55-101779-001	Spin Gate Assembly
21.	55-101443-001	Guide Wire
22.	55-101122-000	Post, 1-1/16" (Used 35 Places)
23.	55-101412-001	Guide Rail
24.	55-101460-002	Gate Assembly, Right Hand
25.	55-101460-001	Gate Assembly, Left Hand
26.	55-101156-000	Guide Wire, Head End
27.	55-101440-000	Ball Ramp
28.	55-101493-000	Switch and Bracket Assembly (For Spin Target)
29.	55-101492-001	Rollover Switch Assembly (N.O.)
30.	55-101492-002	Rollover Switch (For Ball Return Unit)
31.	55-101745-000	Switch and Bracket Assembly
32.	55-101494-002	Switch Assembly, Stand Up
33.	55-101725-000	Coil and Bobbin Assembly
34.	55-101741-000	Coil and Bobbin Assembly
35.	55-101866-000	Plunger and Link Arm Assembly
36.	55-101867-000	Switch and Bracket Assembly
37.	55-101713-000	Flipper Pawl and Hub Assembly
38.	55-101557-000	Base Assembly, Flipper
39.	55-101117-000	Lamp Holder
40.	11-675578-000	Lamp
41.	55-101556-000	Flipper
42.	55-101739-000	Rubber Band, (1 13/16 Dia.) For Flipper
43.	55-101106-008	Rubber Band, 3" Diameter
44.	55-101106-004	Rubber Band, 2½" Diameter
45.	55-101106-007	Rubber Band, 1½" Diameter



SERVICE PARTS

ASPEN PROFESSIONAL STYLE HOME PINBALL, MODEL NO. 55-860200-2

ELECTRICAL - MECHANICAL COMPONENTS

55-860221-000 Chime Assembly
55-860222-000 Power Supply Unit

ITEM

NO. PART NUMBER PART DESCRIPTION

1. 55-860219-000 Tilt Assembly

COMPONENTS OF CHIME ASSEMBLY

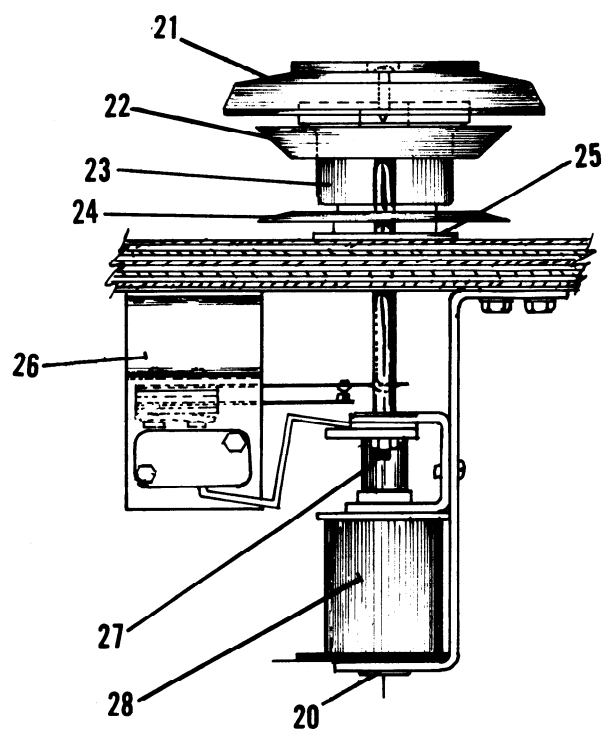
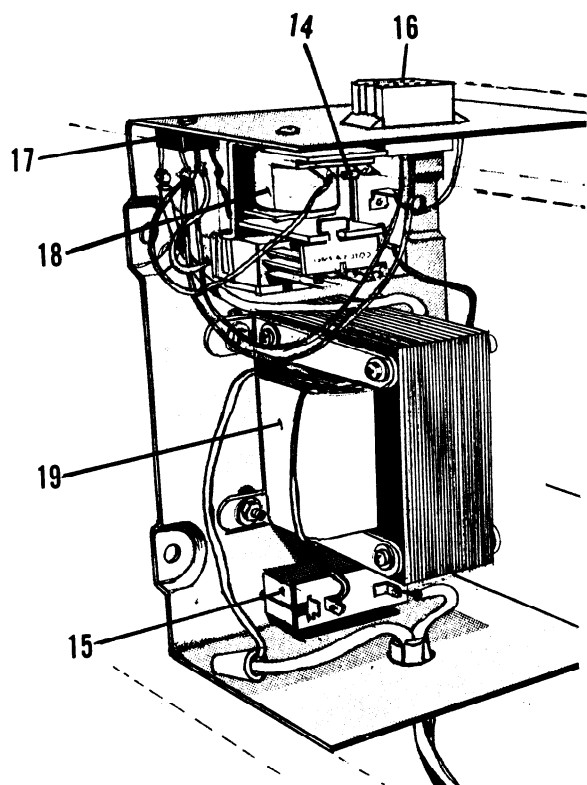
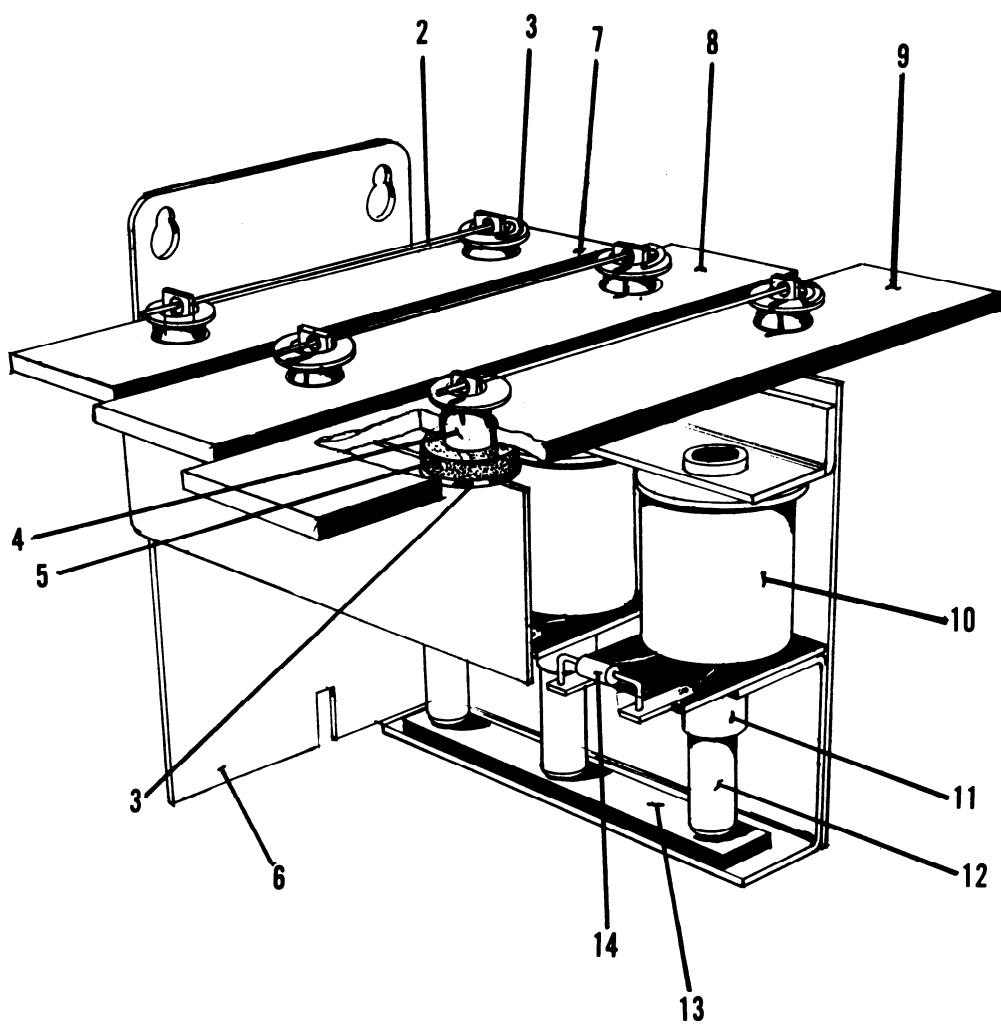
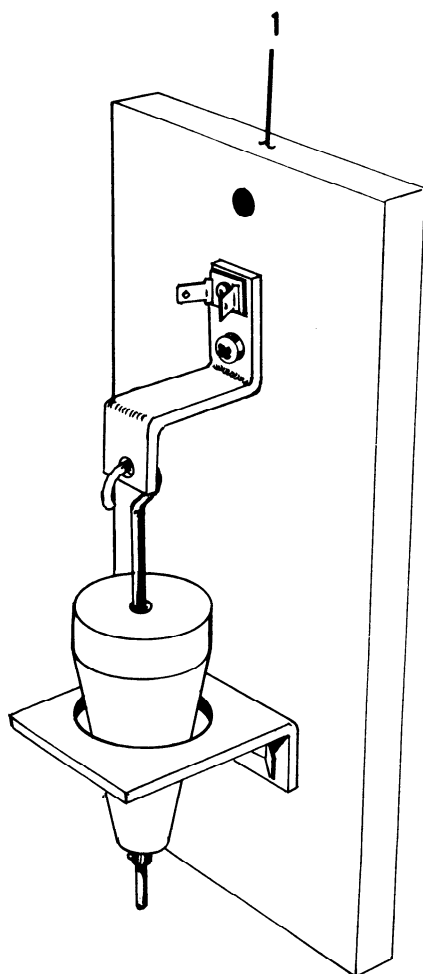
2. 55-101792-000 Wire Retainer
3. 55-101794-000 Washer, Plastic
4. 10-645023-000 Sleeve—Chime Bar
5. 55-101793-000 Pad—Chime Bar
6. 55-101787-000 Bracket
7. 55-101788-002 Chime Bar, 5 3/4" Long
8. 55-101788-003 Chime Bar, 6 3/8" Long
9. 55-101788-004 Chime Bar, 7 3/8" Long
10. 55-101795-000 Coil and Bobbin Assembly
11. 55-101804-000 Sleeve
12. 55-101797-000 Plunger
13. 55-101796-000 Rubber Pad, For Plunger
14. 11-693008-000 Diode

COMPONENTS OF POWER SUPPLY UNIT

15. 55-101062-005 Circuit Breaker
16. 70-609008-001 Molex Receptacle
17. 55-101201-000 Bridge Rectifier
18. 10-679353-000 Relay Assembly
19. 55-860220-000 Transformer

COMPONENTS OF THUMPER BUMPER ASSEMBLY

20. 55-101025-000 Sleeve, (For Coil)
21. 55-101444-000 Cap
22. 55-101014-000 Rod and Ring Assembly
23. 55-101802-000 Bumper Body
24. 55-101013-000 Skirt
25. 55-101012-000 Bumper Base
26. 55-101495-000 Switch and Bracket Assembly
27. 55-101727-000 Plunger
28. 55-101741-000 Coil and Bobbin Assembly



IMPORTANT! RECORD OF PURCHASE

OWNERS REGISTRATION CARD

MODEL NO. _____ SERIAL NO. _____

PINBALL NAME: _____

OWNERS NAME: _____

OWNERS ADDRESS: _____

(STREET OR BOX NO.)

TELEPHONE NO. _____

CITY / STATE ZIP CODE

AREA CODE NUMBERS

DATE OF PURCHASE: _____

GAME PURCHASED FROM: (NAME) _____

(ADDRESS) _____

IMPORTANT

REGISTER YOUR WARRANTY BY COMPLETING AND RETURNING THIS OWNERS REGISTRATION FORM, ALONG WITH PROOF OF PURCHASE WITHIN TEN (10) DAYS FOLLOWING PURCHASE. PROOF OF PURCHASE CAN BE A COPY OF THE BILL OF SALE, CASH REGISTER RECEIPT, ETC. FAILURE TO REGISTER YOUR PURCHASE VOIDS YOUR WARRANTY.

REFER TO YOUR WARRANTY IN THE OWNERS MANUAL. PLEASE TYPE OR PRINT CLEARLY.

FOLD ALONG DOTTED LINE

The 10 Questions Listed Below Are Voluntary

DATE OF PURCHASE: _____ PINBALL NAME: _____

- Where did you purchase your product? 1 ☐ Billiard Specialty Store 2 ☐ Sporting Goods Store 3 ☐ Furn. Store
4 ☐ Brunswick Leisure Mart 5 ☐ Toy Store 6 ☐ Department Store 7 ☐ Discount Store (09)
8 ☐ Mail-order Catalog 9 ☐ Catalog Showroom ☐ Other Outlet (Specify) _____ (10)
- What were some of the reasons for selecting the product you acquired? (Check all that apply.)
1 ☐ Friend/Relative Recommended 2 ☐ Solid, Sturdy design 3 ☐ Styling didn't clash with other furniture (11)
4 ☐ Saw it advertised 5 ☐ Received as a gift 6 ☐ Salesman recommended X ☐ Styling was attractive
R ☐ Brand Reputation 1 ☐ Prior experience with brand 2 ☐ Quality 3 ☐ Price (12)
4 ☐ Other reasons (Specify) _____
- In what part of your home have you placed your product? 1 ☐ Basement Recreation Room/TV Room/Den
2 ☐ Recreation Room/TV Room/Den NOT located in a basement 3 ☐ Other (Specify) _____ (13)
_____ people. (14)
- Including yourself, how many people reside in your household _____ people. (14)
- What ages are your children that are living at home? Under 6 yrs. 1 ☐ Boys 2 ☐ Girls From 6-12 3 ☐ Boys (15)
4 ☐ Girls From 13-17 yrs. 5 ☐ Boys 6 ☐ Girls 18 yrs. or older 7 ☐ Boys 8 ☐ Girls 9 ☐ No Children
6 ☐ 65 and over
- What is occupation of head of household? 1 ☐ Craftsman/tradesman 2 ☐ Machine/vehicle operator (17)
3 ☐ Service occupation (Bartender, Maid, etc.) 4 ☐ Management 5 ☐ Sales Work 6 ☐ Office/clerical work
7 ☐ Professional occupation 8 ☐ Self employed 9 ☐ Homemaker/student 0 ☐ Other (Specify) _____ (18)
- If this household is headed by a married couple, does wife work? 1 ☐ Full time 2 ☐ Part time 3 ☐ No (19)
4 ☐ Not Married
- Did you experience any problems with delivery, installation or performance of your new Briarwood product? (20)
1 ☐ No 2 ☐ Yes (Please Specify) _____ (21/25)
- Aside from your new home recreation product, do you own any of these other products? (Check all that apply)
1 ☐ Folding bridge table 3 ☐ Poker table 4 ☐ Table tennis table 5 ☐ Table tennis top (for use on another table)
6 ☐ Pinball machine 7 ☐ Shuffleboard table 8 ☐ Air hockey table 9 ☐ Billiard table 10 ☐ Juke box (26)
11 ☐ Video game ☐ Other (Specify here) _____ (27)