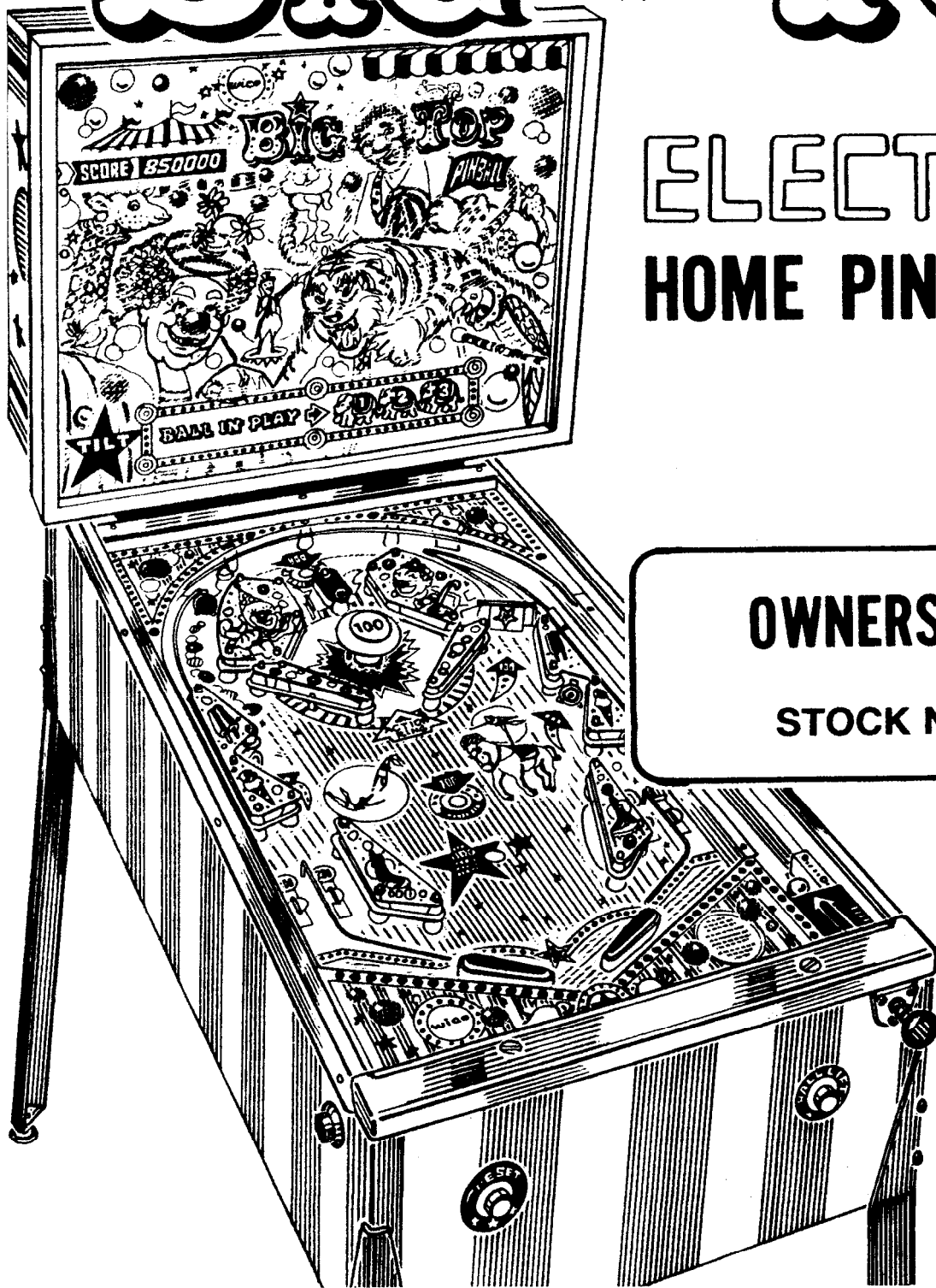


BIG

wico
Presents

TOP



ELECTRONIC HOME PINBALL GAME

OWNERS MANUAL

STOCK NO. 15-2001

wico
Corporation

6400 West Gross Point Road ● Niles, Illinois 60648
Telephone 312-647-7500

BIG TOP

Get set for years of family fun. Your Big top Electronic Home Pinball Game is a sophisticated product that has been designed and manufactured to give you trouble-free operation, easy maintenance and lots of fun.

Please complete and mail your Warranty validation letter as soon as possible.

Read this Owner's Manual carefully. Follow all instructions to assure proper assembly and operation. Plug only into 115-volt AC outlet.

Disconnect plug from outlet before performing any maintenance or service. Keep disconnected until service is completed.

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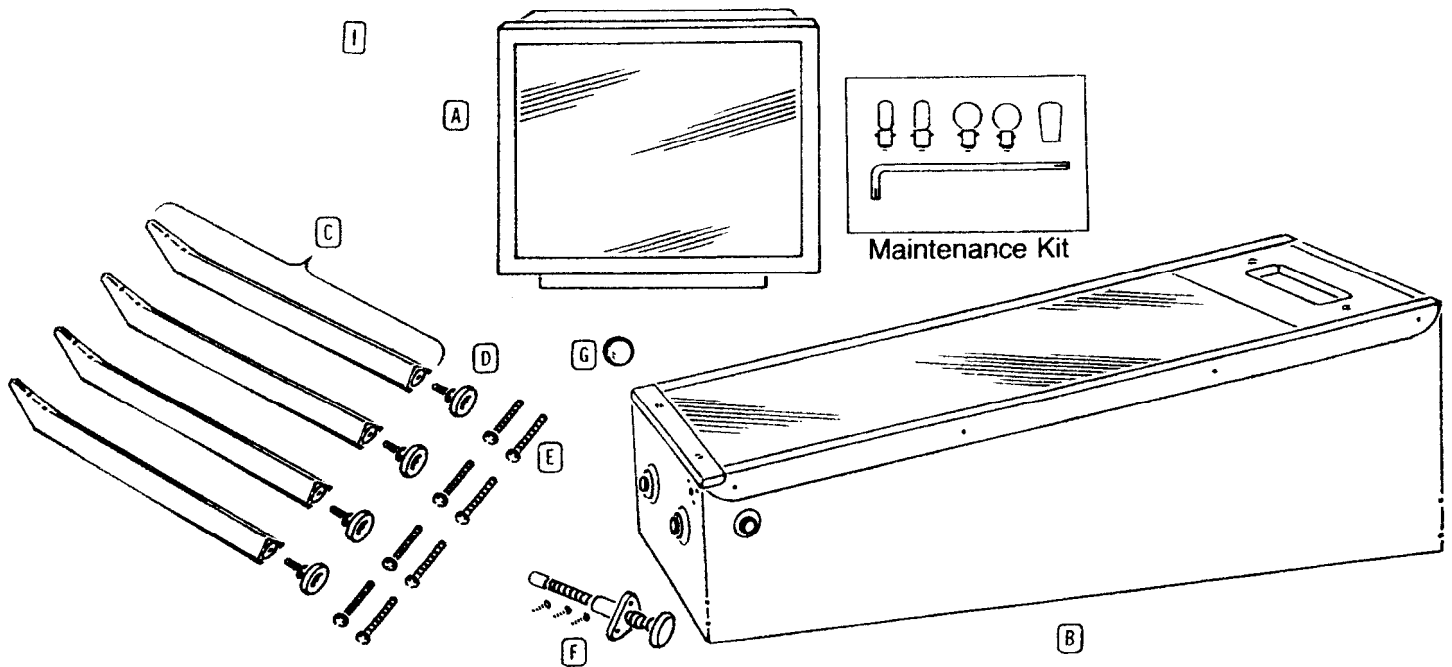
I - Assembly	pages 3-7
II - Scoring and Play	pages 8-9
III - General Maintenance	pages 10-19
IV - Trouble shooting	pages 20-21
V - Parts List	pages 22-25
VI - Wiring Diagrams	pages 26-30

STEP-BY-STEP ASSEMBLY INSTRUCTIONS

Your Big Top Electronic Home Pinball Game has been engineered for easy assembly and years of trouble-free play. Please read Assembly Instructions completely before starting the actual assembly. Then proceed step by step, completing each step before going to the next.

HERE ARE ALL THE TOOLS NEEDED:

1. Flat blade-type Screwdriver.
2. Phillips head-type Screwdriver.
3. Pliers or Adjustable Wrench.
4. Carpenter's (bubble-type) Level.



HERE ARE ALL THE PARTS FOR COMPLETE GAME ASSEMBLY (See Fig. 1):

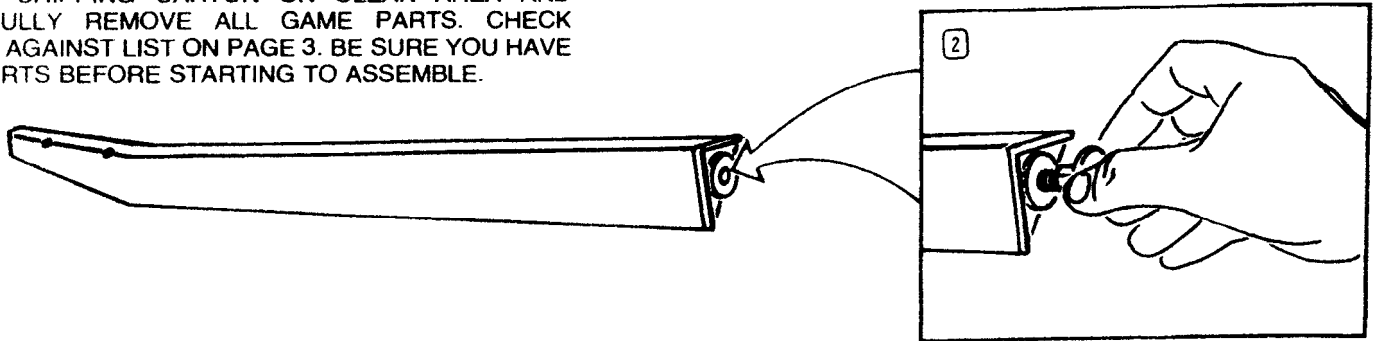
- A. Score Unit (smaller cabinet)
- B. Playfield Unit (larger cabinet)
- C. 4 Metal Legs
- D. 4 Leg Levelers
- E. 8 Leg Mounting Bolts ($\frac{1}{4}$ -20 x 2" long; Phillips head)
- F. Ball Shooter Assembly with 3 Screws (#10-24 x 1" long; Phillips head)
- G. 1 Steel Game Ball

NOTE: A "Maintenance Kit" is also included. In the kit are: 2 No. 47 light bulbs; 2 No. 455 light bulbs; 1 replacement shooter tip/bulb extractor; 1 switch blade adjustment tool. These items are NOT needed for assembly. See Maintenance Section of this Manual.

STEP-BY-STEP ASSEMBLY INSTRUCTIONS

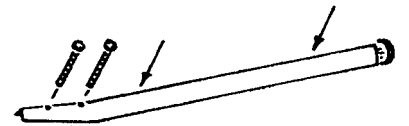
STEP 1

PLACE SHIPPING CARTON ON CLEAN AREA AND CAREFULLY REMOVE ALL GAME PARTS. CHECK PARTS AGAINST LIST ON PAGE 3. BE SURE YOU HAVE ALL PARTS BEFORE STARTING TO ASSEMBLE.



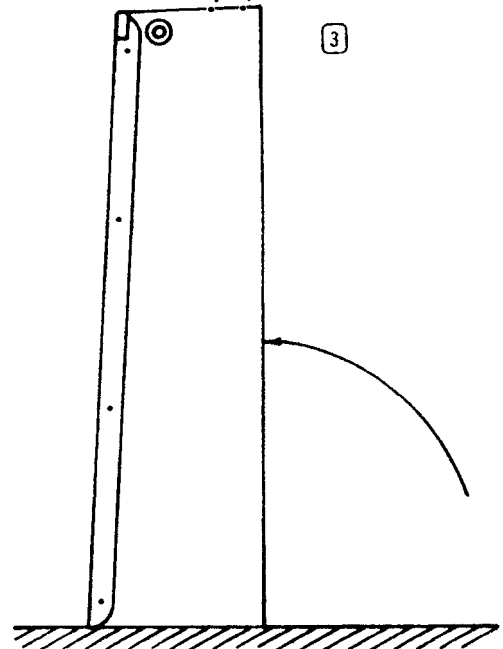
STEP 2

INSERT A LEG LEVELER INTO THE BASE OF EACH METAL LEG. (SEE FIG. 2).



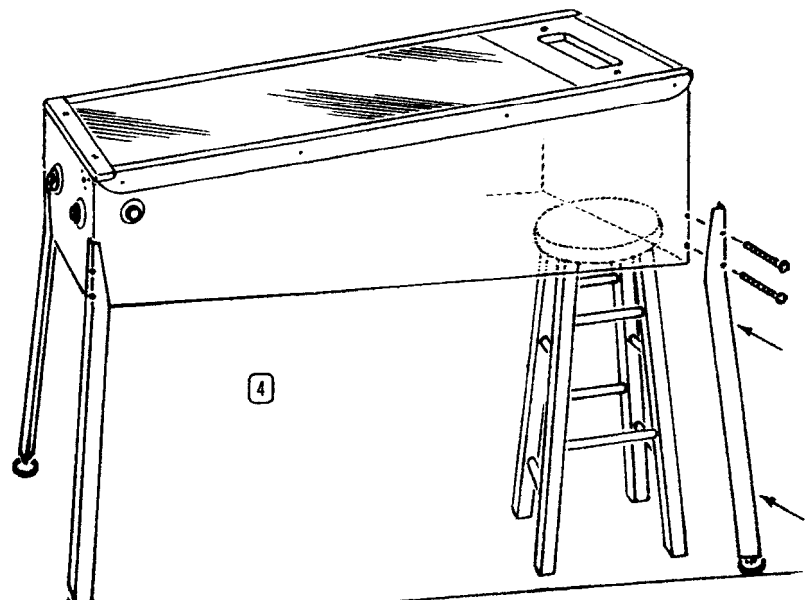
STEP 3

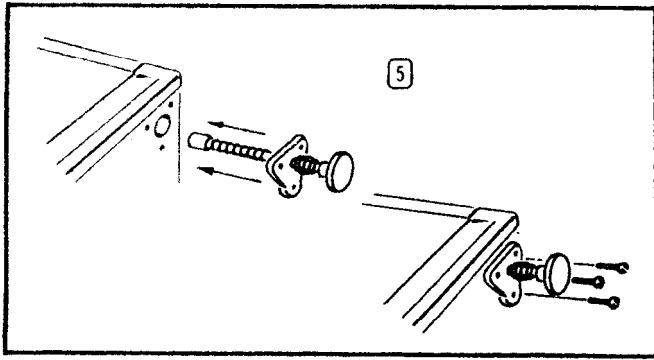
STAND PLAYFIELD UNIT ON END SO THAT "RESET" AND "BALL LIFT" BUTTONS ARE AT THE TOP. ATTACH A METAL LEG TO EACH TOP CORNER OF THE PLAYFIELD UNIT USING 2 LEG MOUNTING SCREWS FOR EACH. (SEE FIG. 3). TIGHTEN SCREWS.



STEP 4

LOWER THE PLAYFIELD UNIT SO FRONT LEGS ARE RESTING ON FLOOR. NOW PICK UP THE BACK OF THE PLAYFIELD UNIT WITH A STOOL OR BY HAVING ANOTHER PERSON HOLD UP UNIT. **NOTE:** PLACE STOOL OR OTHER SUPPORT ON **EDGE** OF PLAYFIELD UNIT. **DO NOT PLACE SUPPORT UNDER UNIT.** THE UNDERSIDE OF THE PLAYFIELD UNIT IS **NOT** A WEIGHT BEARING SURFACE. (SEE FIG. 4). NOW ATTACH THE BACK LEGS USING 2 LEG MOUNTING SCREWS FOR EACH LEG. TIGHTEN SCREWS. REMOVE SUPPORT.



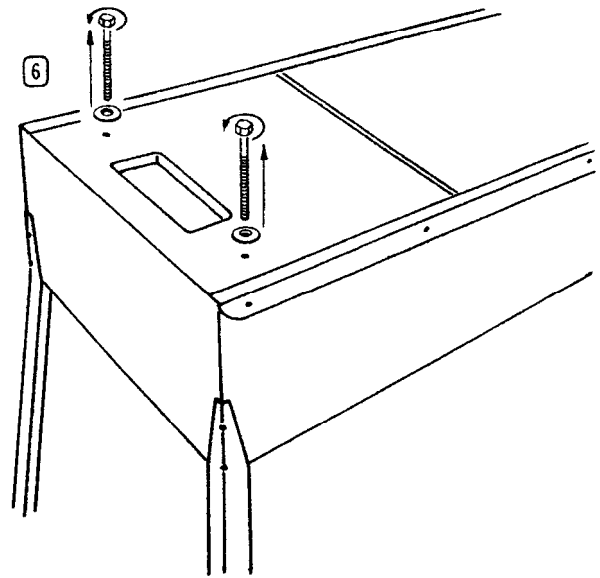


STEP 5

INSERT BALL SHOOTER ASSEMBLY INTO HOLE ON RIGHT SIDE OF FRONT PANEL OF PLAYFIELD UNIT. ATTACH WITH 3 BALL SHOOTER MOUNTING SCREWS. SCREW HOLES ARE PRE-DRILLED. (SEE FIG. 5).

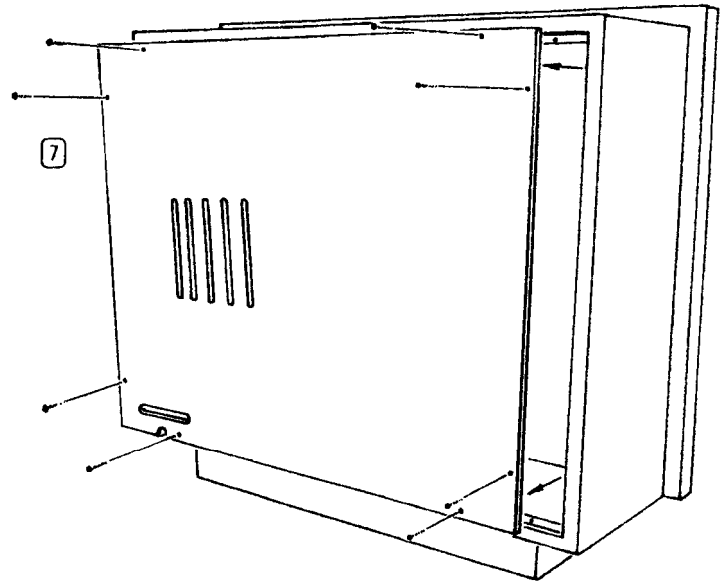
STEP 6

REMOVE THE 2 BOLTS WITH WASHERS FROM THE TOP REAR OF THE PLAYFIELD UNIT. THIS WILL RELEASE A SHIPPING BLOCK INSIDE THE UNIT. LET SHIPPING BLOCK DROP TO BOTTOM OF CABINET. THIS WILL NOT DAMAGE THE GAME. SHIPPING BLOCK CAN BE LEFT INSIDE PLAYFIELD UNIT. KEEP BOLTS AND WASHERS. THEY WILL BE NEEDED LATER. (SEE FIG. 6).



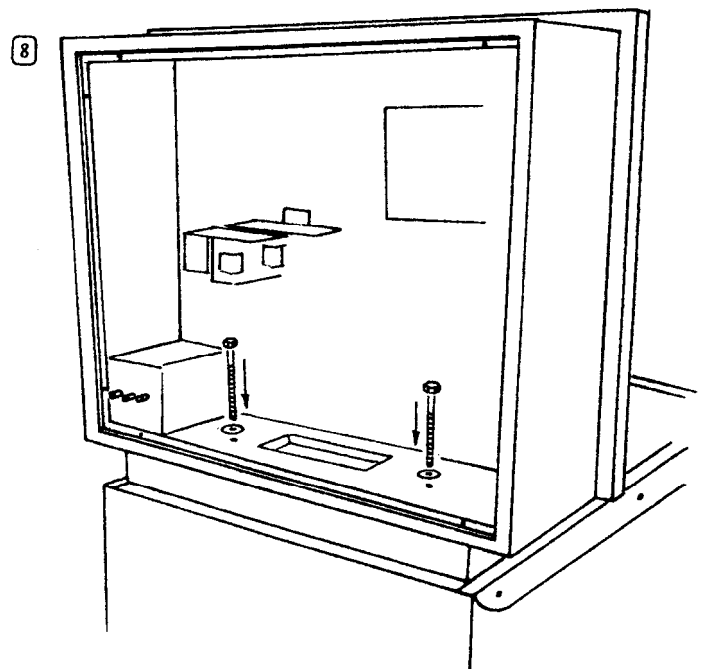
STEP 7

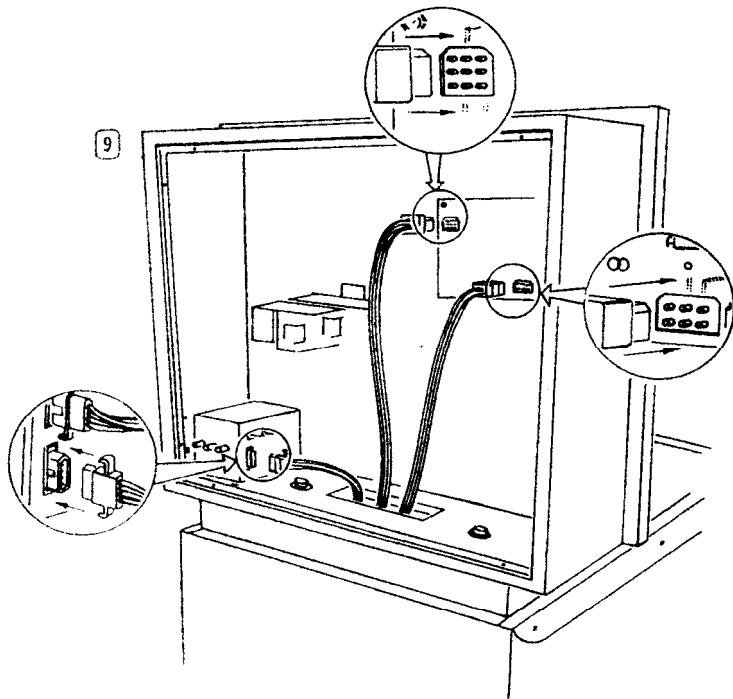
REMOVE RETAINING SCREWS FROM BACK COVER OF THE SCORE UNIT. DO NOT LOSE SCREWS. THEY WILL BE NEEDED LATER. REMOVE BACK COVER OF SCORING UNIT. (SEE FIG. 7).



STEP 8

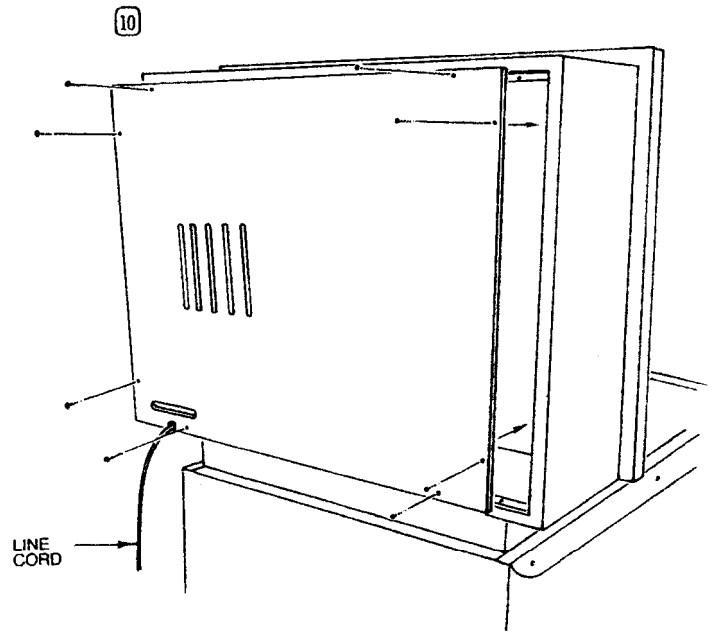
PLACE THE SCORE UNIT ON TOP REAR OF THE PLAYFIELD UNIT. ALIGN 2 BOLT HOLES IN BASE OF SCORE UNIT WITH 2 BOLT HOLES IN PLAYFIELD UNIT. INSERT THE 2 MOUNTING BOLTS WITH WASHERS WHICH WERE REMOVED IN STEP 6. TIGHTEN WITH PLIERS OR WRENCH. (SEE FIG. 8).





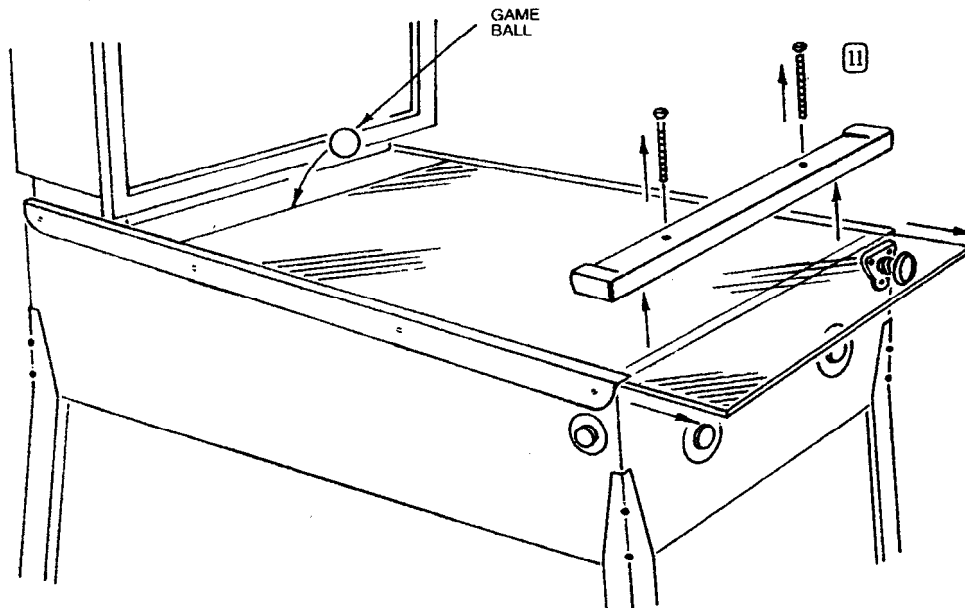
STEP 9

REACH THRU ACCESS HOLE IN BASE OF THE SCORE UNIT AND CAREFULLY PULL UP ON STRING ATTACHED TO ACCESS HOLE IN PLAYFIELD CABINET. THIS WILL BRING UP A WIRING HARNESS WITH 3 PLASTIC CONNECTORS. PLUG THE 3 CONNECTORS INTO MATING SOCKETS IN THE SCORE UNIT. THE CONNECTORS HAVE 4, 6 AND 9 TERMINALS RESPECTIVELY. (SEE FIG. 9).



STEP 10

LET PLUG ON END OF LINE CORD DROP TO FLOOR. REPLACE BACK COVER OF SCORE UNIT USING SCREWS REMOVED IN STEP 7. (SEE FIG. 10).



STEP 11

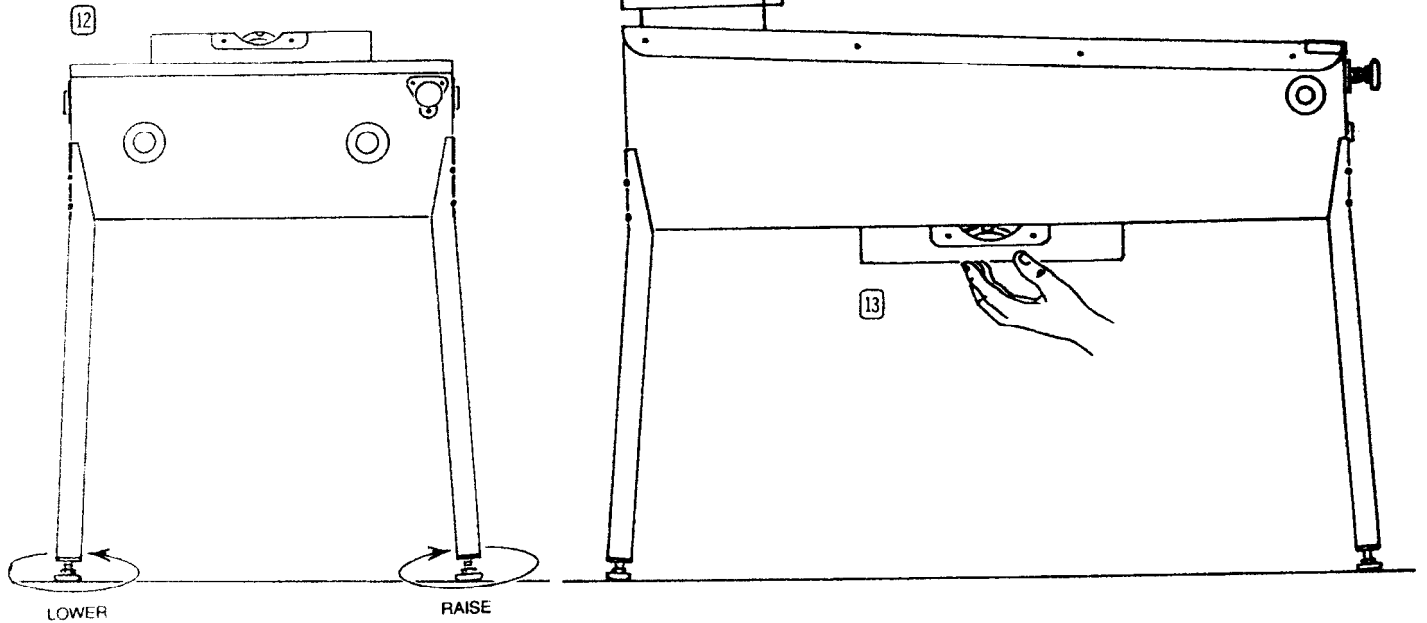
REMOVE 2 SCREWS HOLDING LARGE CHROME END CAP ON TOP FRONT OF PLAYFIELD UNIT. REMOVE CHROME END CAP. SLIDE CLEAR PLASTIC PLAYFIELD COVER TOWARD YOU ABOUT 2 INCHES. DROP STEEL GAME BALL ONTO THE PLAYFIELD SURFACE THROUGH OPENING CREATED BY SLIDING COVER FORWARD. (SEE FIG. 11).

STEP 12

SLIDE PLAYFIELD COVER BACK TO ORIGINAL POSITION. REPLACE CHROME END CAP AND SECURE WITH 2 SCREWS REMOVED IN STEP 11.

STEP 13

PLACE ASSEMBLED GAME IN PLAYING LOCATION. PLACE CARPENTER'S LEVEL ON PLASTIC PLAYFIELD COVER NEXT TO CHROME END CAP. ADJUST LEG LEVELERS ON FRONT LEGS UNTIL GAME IS LEVEL SIDE TO SIDE. TURN LEVELER, CLOCKWISE TO RAISE; COUNTER-CLOCKWISE TO LOWER. (SEE FIG. 12).

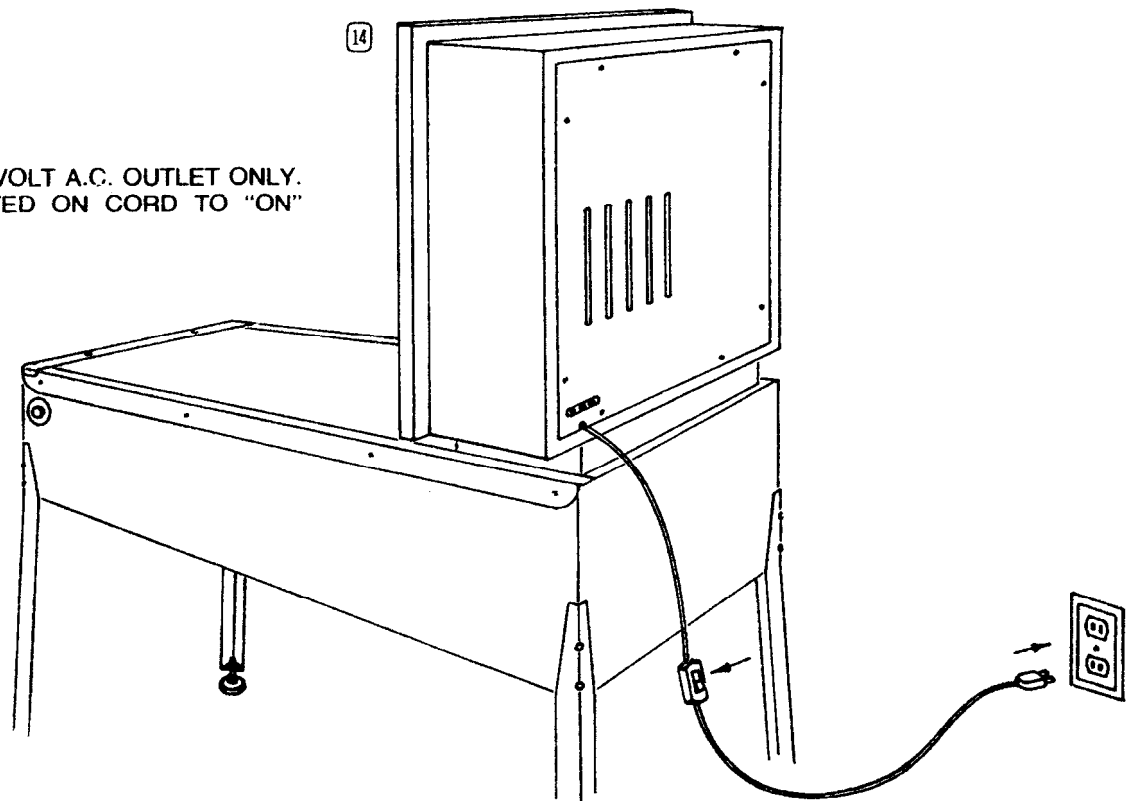


STEP 14

NOW HOLD CARPENTER'S LEVEL ON BOTTOM EDGE OF PLAYFIELD UNIT AND ADJUST REAR LEG LEVELERS UNTIL GAME IS LEVEL FRONT TO BACK. REPEAT ON BOTH SIDES OF GAME. (SEE FIG. 13.). RECHECK LEVEL ON END CAP (STEP 12.). MAKE FINAL ADJUSTMENTS TO ASSURE GAME IS STABLE. NOTE: AS YOUR SKILL IMPROVES, YOU MAY WANT TO RAISE THE REAR LEG LEVELERS 1/2 INCH. THIS WILL MAKE THE GAME PLAY FASTER.

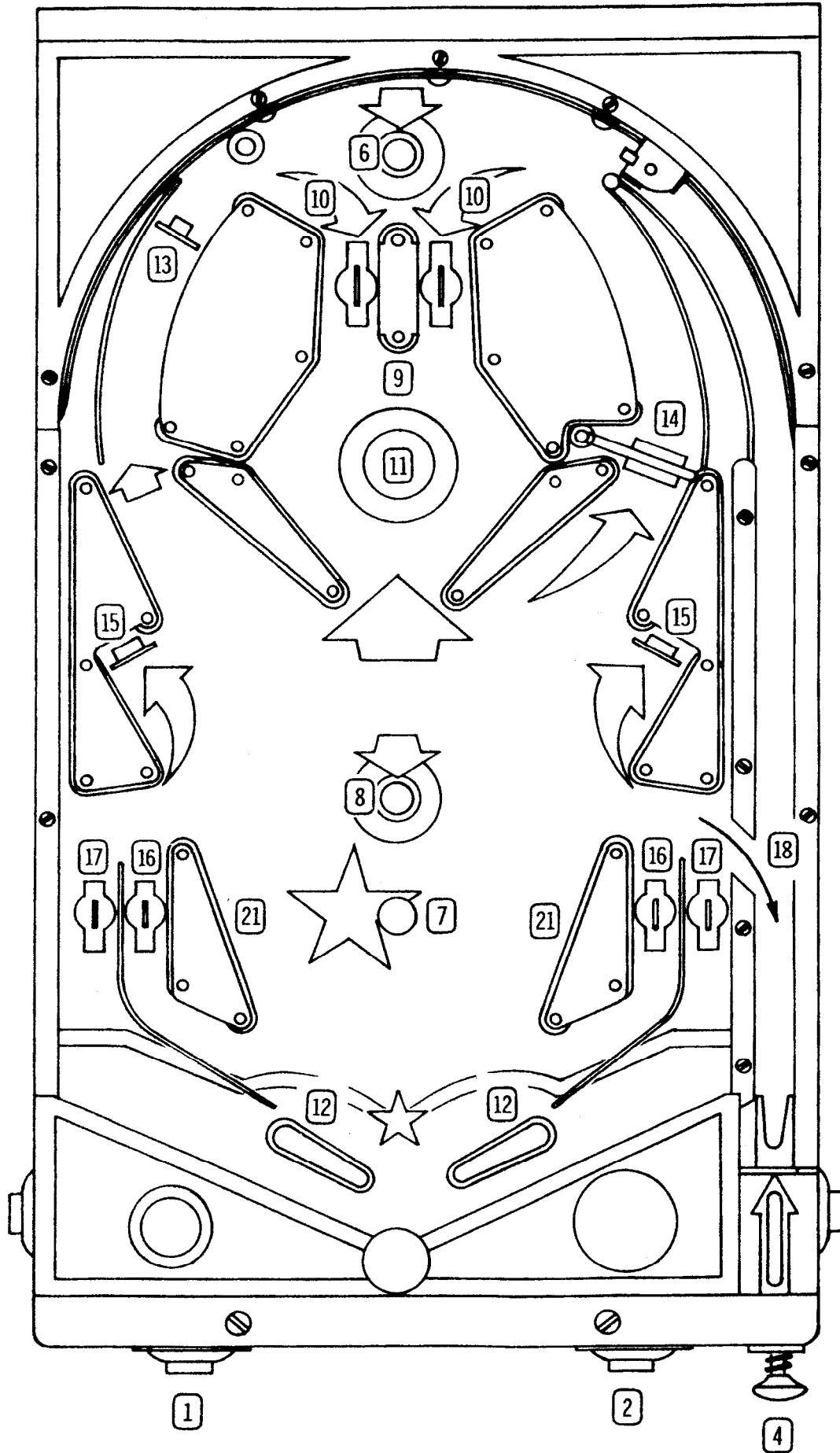
STEP 15

PLUG LINE CORD INTO 115 VOLT A.C. OUTLET ONLY. PUSH LINE SWITCH LOCATED ON CORD TO "ON" POSITION. (SEE FIG. 14).

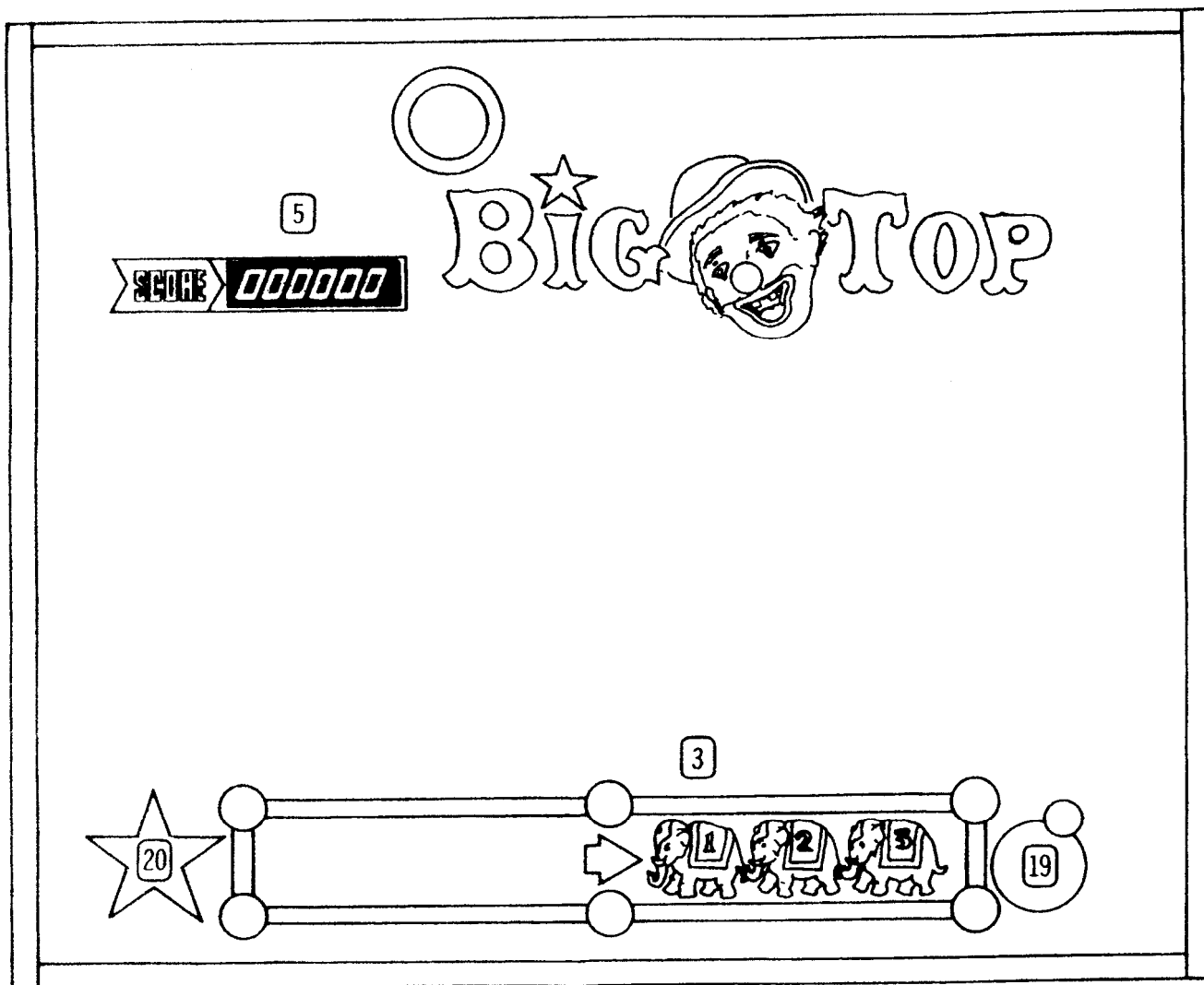


YOU ARE NOW READY TO PLAY THE EXCITING BIG TOP ELECTRONIC HOME PINBALL GAME. PLEASE READ THE OTHER SECTIONS OF THIS BOOK FOR YEARS OF EXCITING FAMILY FUN.

PLAY AND SCORING



PLAY AND SCORING



To start play, press RESET button (No. 1). Score is now set to zero.

Press BALL LIFT button (No. 2). Ball is positioned in front of shooter and number 1 is lit on BALL IN PLAY area (No. 3) of Score Unit.

Pull SHOOTER (No. 4) toward you and release. Ball is sent up ramp to top of Playfield. Action and scoring begins.

Score is recorded in SCORE section (No. 5) of the Score Unit. (A score of 100 points or more is added each time a chime sounds.)

If ball rolls over HIGH SCORE button (No. 6) you get 800 points and ADD 800 TO ALL SCORES (No. 7) lights up. As long as ADD 800 light stays lit, 800 points are added to every score on playfield. ADD 800 light goes out when ball rolls over midfield CHANGE SCORE button (No. 8). All scores are again as indicated on playfield.

You score 300 points when ball enters ACTION RING (No. 9) through either of the two TOP LANES (No. 10).

100 points are scored each time ball hits THUMPER BUMPER (No. 11) in center of ACTION RING.

FLIPPERS (No. 12) are controlled independently. Button on left side of cabinet controls left flipper; button on right side controls right flipper.

HIGH SCORE TARGET (No. 13) in upper left side of playfield records 700 points when hit.

SPINNER TARGET (No. 14) in upper right side of playfield records 100 points with each revolution.

Two MIDFIELD SIDE TARGETS (No. 15) give 500 points each hit.

Two LOWER INSIDE LANES (No. 16) score 200 points and send ball to flippers for continued play.

Two LOWER OUTSIDE LANES (No. 17) score 300 points and ball goes out of play.

FREE BALL CHANNEL (No. 18) located on right side sends ball back to shooter for additional play.

Game consists of 3 balls played one at a time. (Any ball returning to the shooter through the FREE BALL CHANNEL is not counted.) After third ball is played, GAME OVER (No. 19) lights up on Score Unit.

If game is moved or jerked too aggressively, TILT (No. 20) will light on Score Unit. Tilt is adjustable to your desired touch. When TILT is lighted, scoring stops for the ball in play. TILT is erased when next ball goes out of play at bottom of playfield. (See the Maintenance Section of this Manual for instructions on adjusting TILT.)

Two SLINGSHOT KICKERS (No. 21) are positioned behind rubber rings on lower part of the playfield. These kickers add speed to ball.

Highest scores are made while the ADD 800 light is lit... a normal 100 point score gives you 900 points, normal 200 gives you 1,000 etc. If SCORE CHANGE button is hit turning off the ADD 800 light, try to power ball through SPINNER TARGET to top of playfield for another chance to hit the HIGH SCORE button.

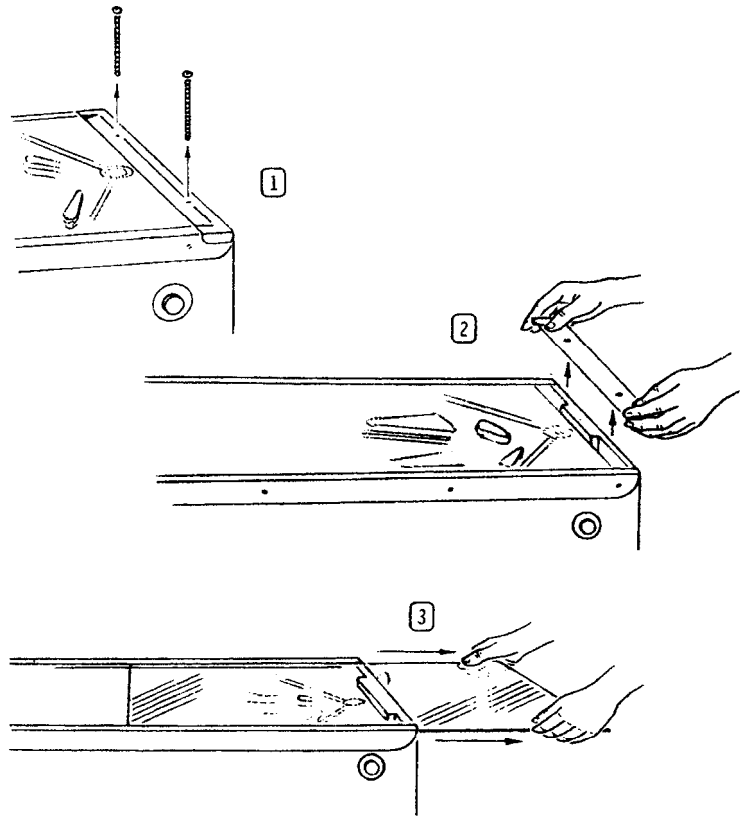
A score of 75,000 makes you a SHARP SHOOTER; score of 100,000 makes you an EXPERT. A score of 150,000 or more ranks you as a true PROFESSIONAL BIG TOP PLAYER.

MAINTENANCE

TURN OFF POWER AND UNPLUG GAME BEFORE OPENING FOR CLEANING OR SERVICE.

OPENING PLAYFIELD.

To clean or service the playfield area, the clear plastic cover must be removed. Remove the two screws that hold the chrome end cap in place. Remove end cap. Slide plastic cover off game. See illustrations 1 thru 3 below.

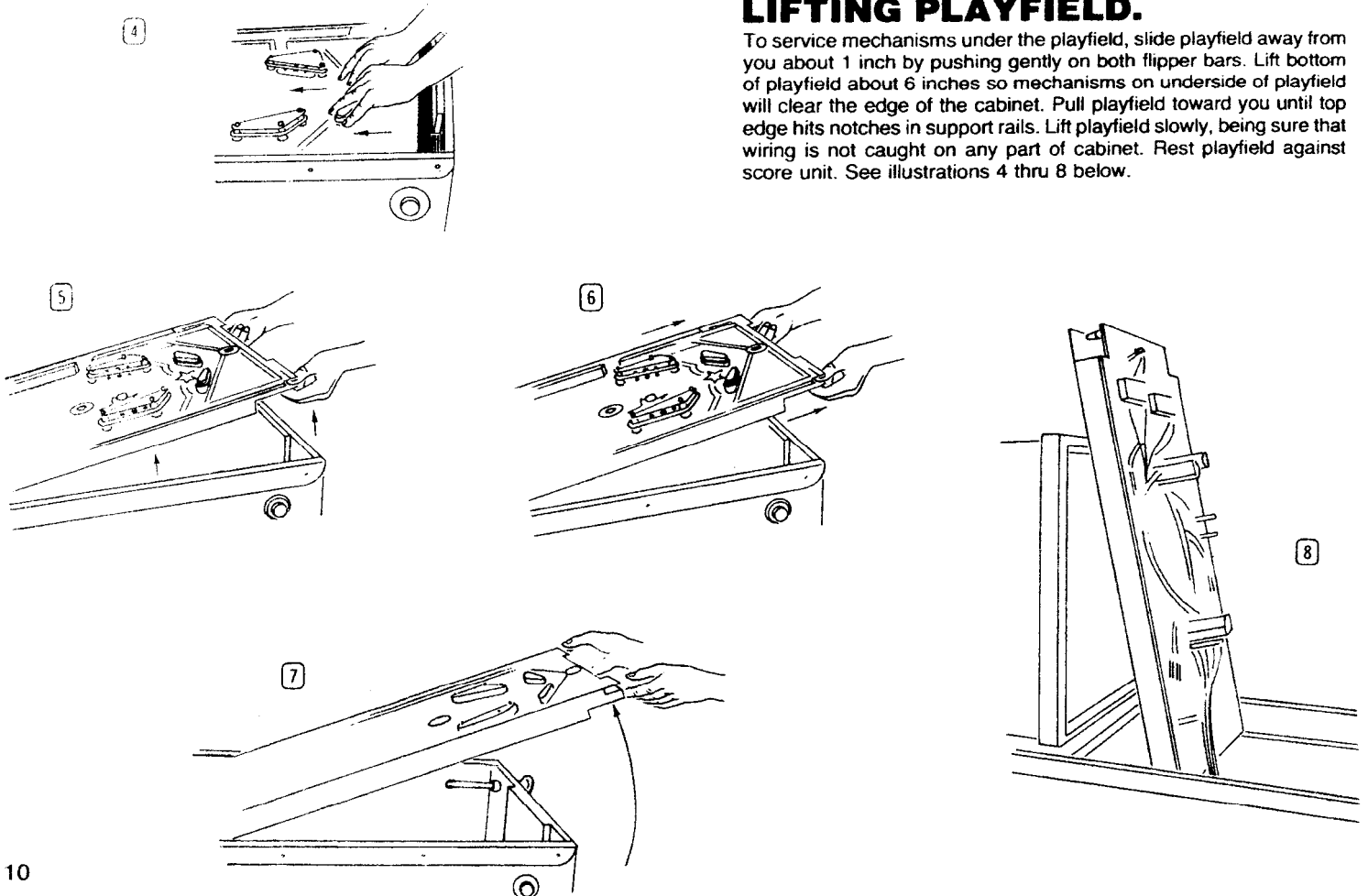


CLEANING PLAYFIELD.

Wipe playfield with slightly dampened, lint-free towel or soft cloth. Any mild, non-abrasive detergent may be used.

LIFTING PLAYFIELD.

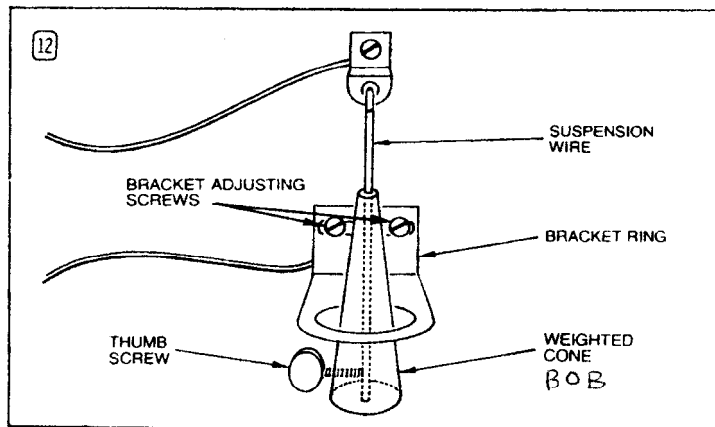
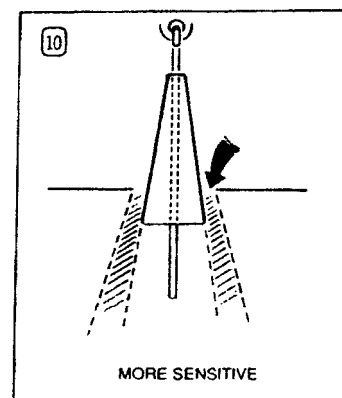
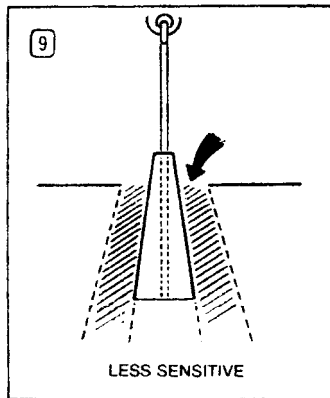
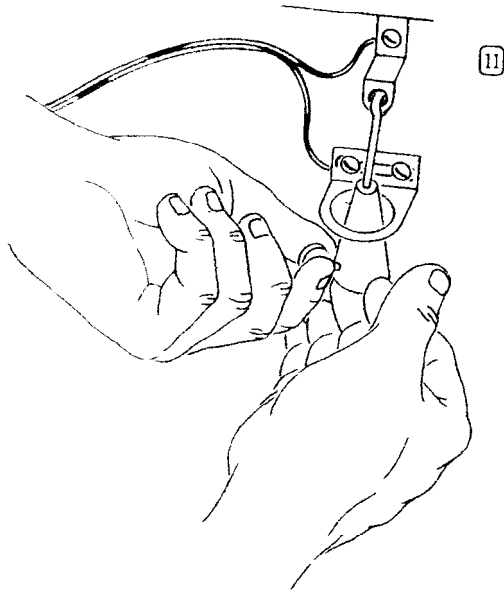
To service mechanisms under the playfield, slide playfield away from you about 1 inch by pushing gently on both flipper bars. Lift bottom of playfield about 6 inches so mechanisms on underside of playfield will clear the edge of the cabinet. Pull playfield toward you until top edge hits notches in support rails. Lift playfield slowly, being sure that wiring is not caught on any part of cabinet. Rest playfield against score unit. See illustrations 4 thru 8 below.



ADJUSTING TILT

The Tilt mechanism is located on the left side of the playfield cabinet. The weighted cone can be moved up and down on the suspension wire. The higher the cone, the more sensitive the tilt. The lower the cone, the less sensitive the tilt. See illustrations 9 and 10 at right.

To adjust tilt, loosen thumb screw on cone. Slide cone up or down on suspension wire to desired level. Tighten thumb screw. If cone is not hanging in center of bracket ring, loosen 2 bracket screws and slide bracket side to side until cone is centered. Tighten bracket screws. See illustrations 11 and 12 below.



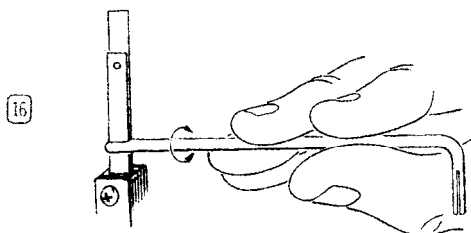
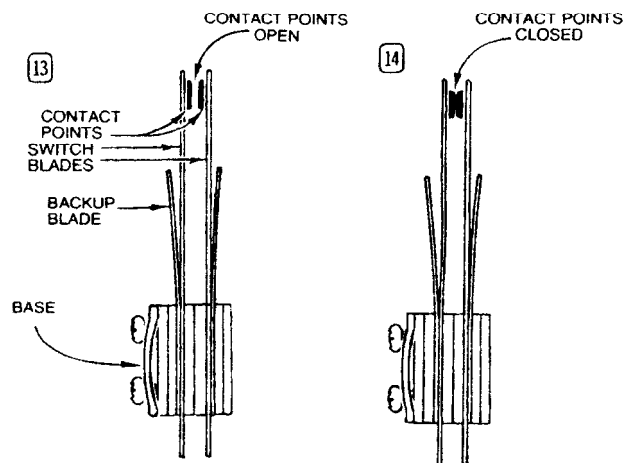
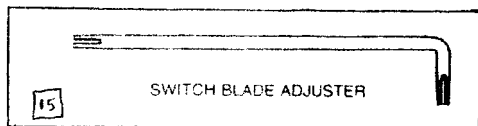
SWITCH ADJUSTMENTS

The scoring and action of this game is controlled by switches which open and close as the ball hits and rolls over various points on the playfield. These switches will need minor adjustments from time to time. Switch adjustment is not complicated when you understand their operation and read the instructions in this manual carefully.

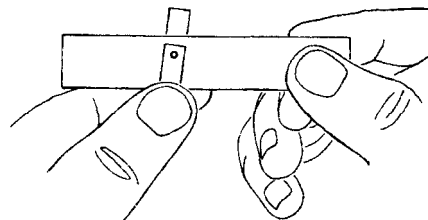
A switch is simply two contact points on blades of spring steel. When the contact points touch electricity passes thru activating the chimes and scoring. When there is a space between the contacts, no electricity passes. See illustrations 13 and 14 at right.

The space between contact points can be easily adjusted with the Switch Blade Adjuster found in the Maintenance Kit that came with this game. Either end may be used depending on location of switch to be adjusted. See illustration 15 below.

To make switch adjustment slip fork of Switch Blade Adjuster on switch blade near base. Turn gently in direction desired and release. Where two blades are very close together, place adjuster on the blade with a contact point, slide adjuster toward base separating the two blades slightly, then turn gently. See illustration 16.



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CLEANING CONTACT POINTS.

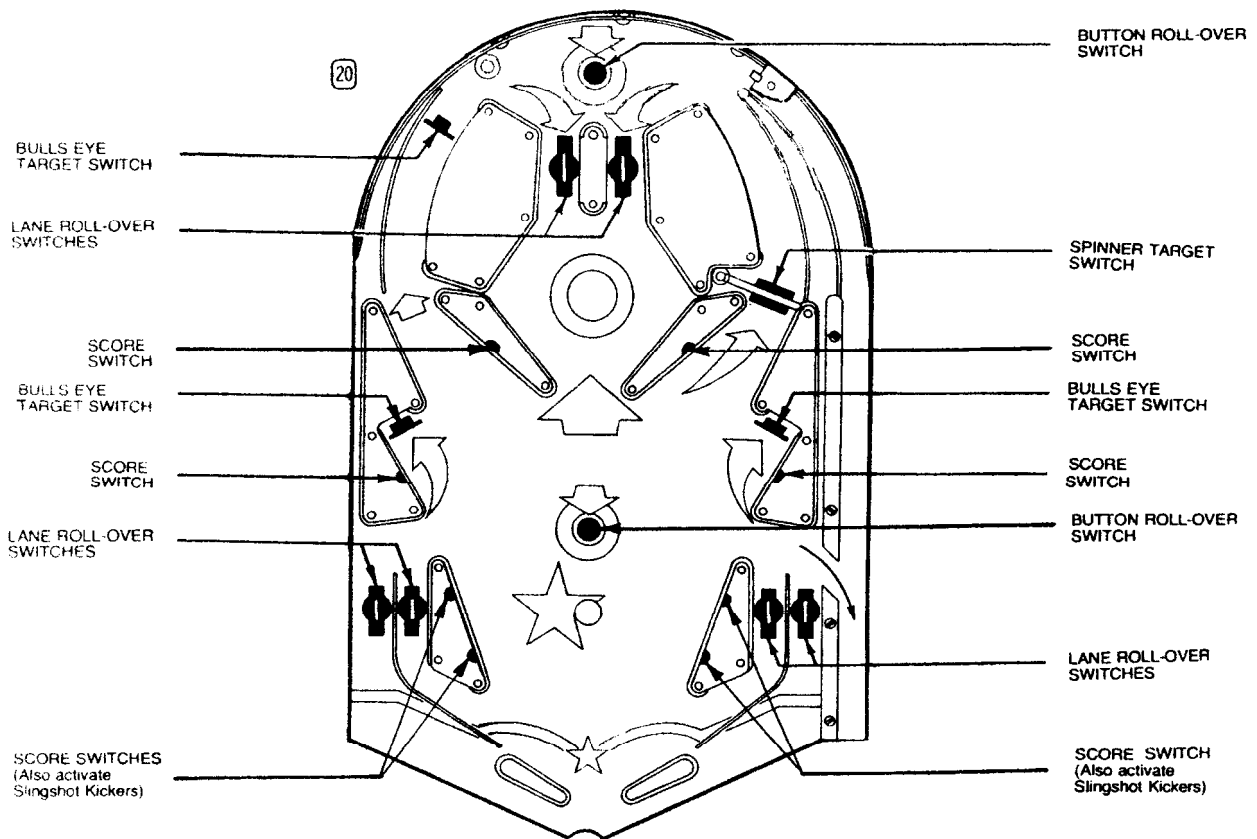
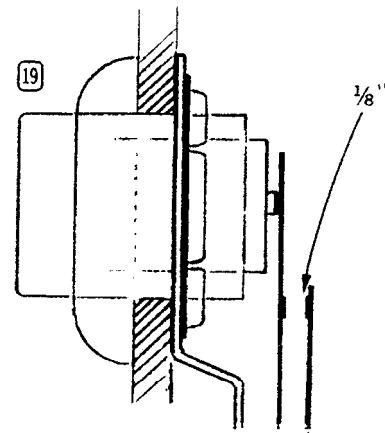
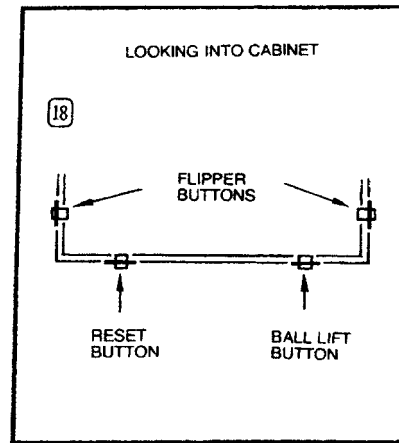
Contact points may get dirty or oxidize, especially if game is not played for a long period. To clean contacts place a narrow strip of plain writing paper between the contacts, press contacts together gently and pull paper through. See illustration 17.

BUTTON SWITCH ADJUSTMENT

Four Button Switches are located in the playfield cabinet. Buttons on the cabinet sides control the flippers. Buttons on the front panel control the Game Reset and Ball Lift. See illustration 18.

All 4 Button Switches are adjusted in the same way:

- Inside blade should rest against the plastic button.
- There should be a gap of about $\frac{1}{8}$ -inch (thickness of two nickels) between the two contact points.
- After making necessary adjustments, check by depressing button—contact points should touch. Release button—contact points should be separated.
- See illustration 19.

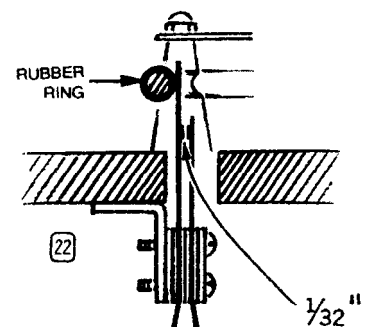
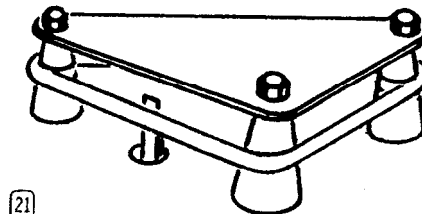


SCORE SWITCH ADJUSTMENT.

These switches can be seen from the top side of the playfield, behind rubber rings. There are 8 score switches. NOTE: Switches beside slingshot kicker also activate slingshots. See illustration 20.

Score switches are adjusted on the underside of the playfield as follows:

- Outside blade should be just touching the rubber ring.
- There should be a gap of about $\frac{1}{32}$ -inch (thickness of a dime) between the two contact points.
- If contact points cannot be seen clearly, remove the plastic cover by unscrewing the cap nuts.
- See illustrations 21 and 22.

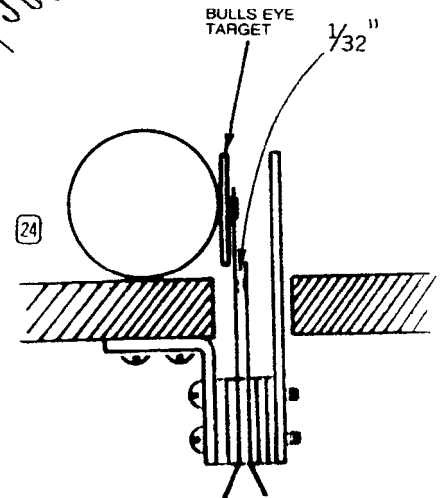
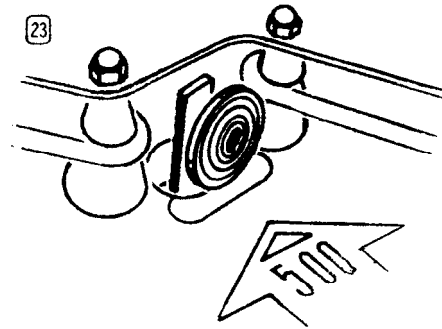


BULLS EYE TARGET SWITCH ADJUSTMENT.

Three Bulls Eye Targets are located near mid-field and at the top of the playfield. See illustration 20.

Bulls Eye Target switches are adjusted on the underside of the playfield as follows:

- Blade on which the Bulls Eye is attached needs no adjustment.
- There should be a gap of about 1/32-inch (thickness of a dime) between the two contact points.
- See illustrations 23 and 24.

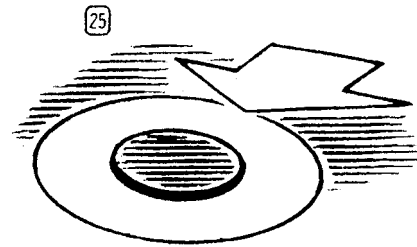


BUTTON ROLL-OVER SWITCH ADJUSTMENT

Two Button Roll-over Switches are located in the center of the playfield near the top and at mid-field. See illustration 20.

Button Roll-over Switches are adjusted on the underside of the playfield as follows:

- Long blade should be just touching the plastic tip.
- Gap between contact points should be about 1/32-inch (thickness of a dime).
- After making necessary adjustments, check by lightly pressing the plastic button from the top side of the playfield. When depressed, contact points should touch. When released, contact points should be separated.
- See illustrations 25 and 26.

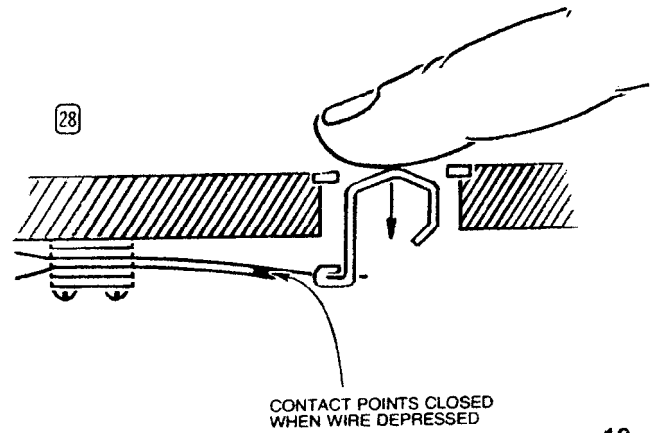
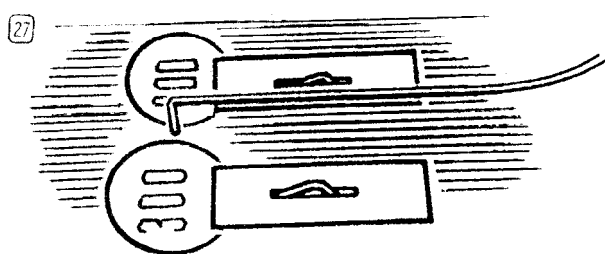
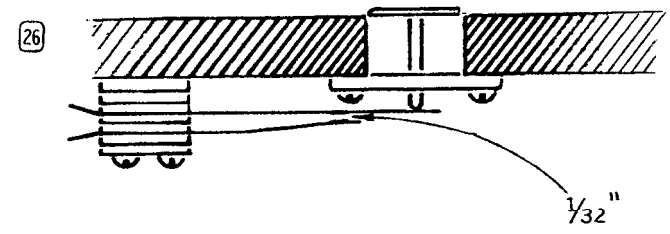


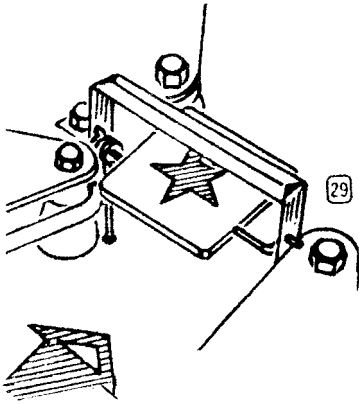
LANE ROLL-OVER SWITCH ADJUSTMENT

Six Lane Roll-over Switches are located at the top and bottom of the playfield. See illustration 20.

Lane Roll-over Switches are adjusted on the underside of the playfield as follows:

- Depress wire from top side of playfield so top of wire arch is flush with playfield surface. Contact points should be touching. If they do not touch, adjust short switch blade.
- Release wire. There should be a gap between the contact points. The amount of space between the contact points is not important.
- Do not adjust the long switch blade.
- See illustrations 27 and 28.





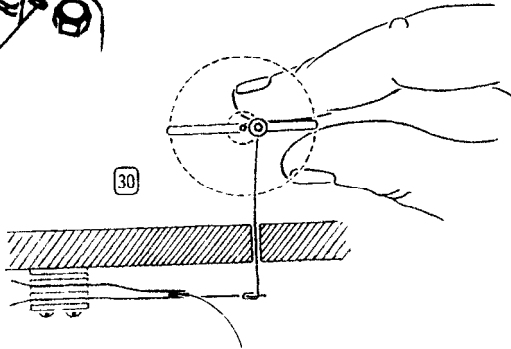
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SPINNER TARGET SWITCH ADJUSTMENT.

The Spinner Target Switch is located on the right side of the playfield just above the mid-field. See illustration 20, page 12.

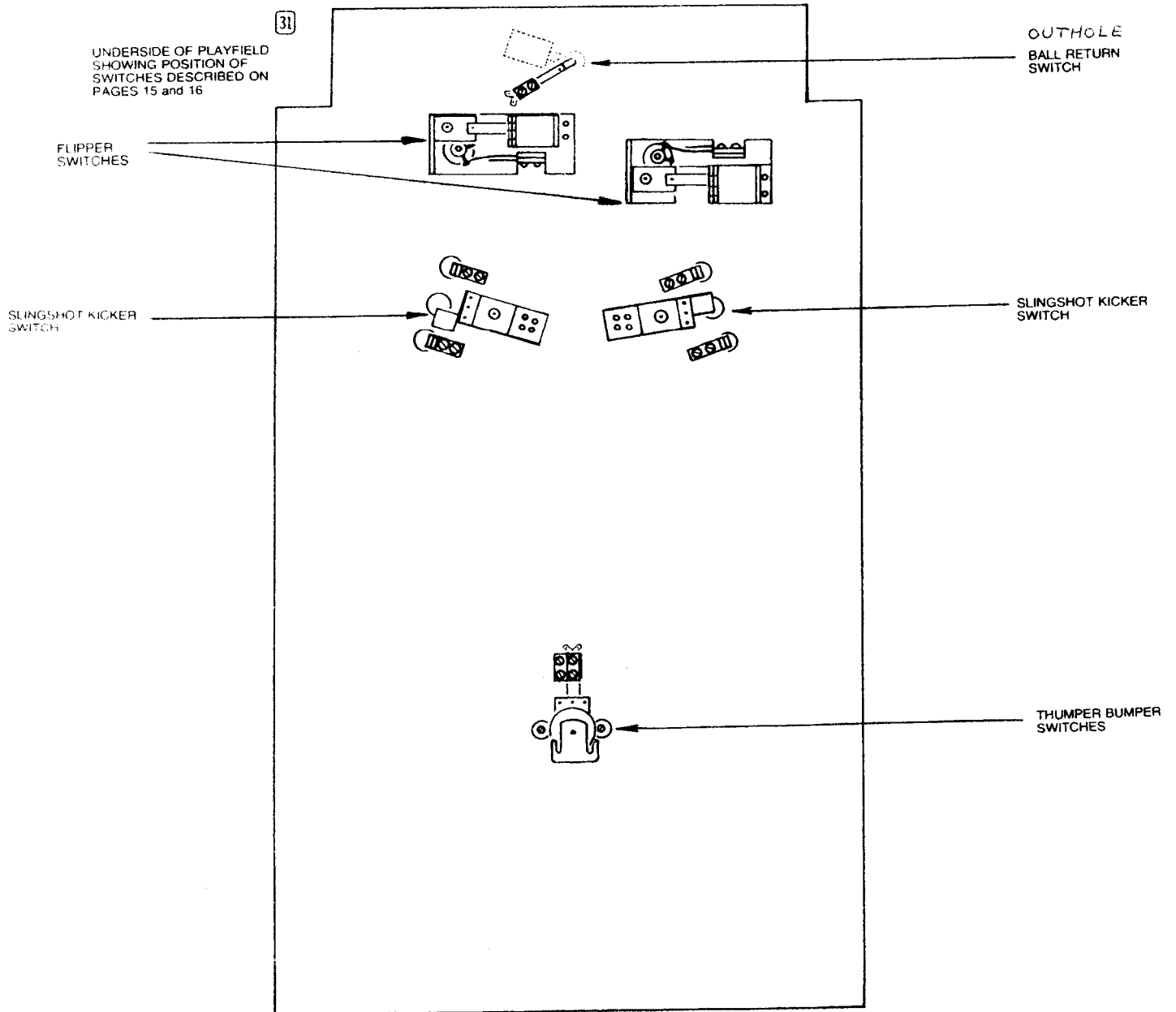
Spinner Target Switch is adjusted on the underside of the playfield as follows:

- Turn Spinner Target from top side of playfield so face of target is horizontal to playfield surface. In this position the contact points should be touching. If they do not touch, adjust short switch blade.
- Release Spinner Target. There should now be a gap between the contact points.
- Do not adjust the long switch blade.
- See illustrations 29 and 30.



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CONTACT POINTS CLOSED

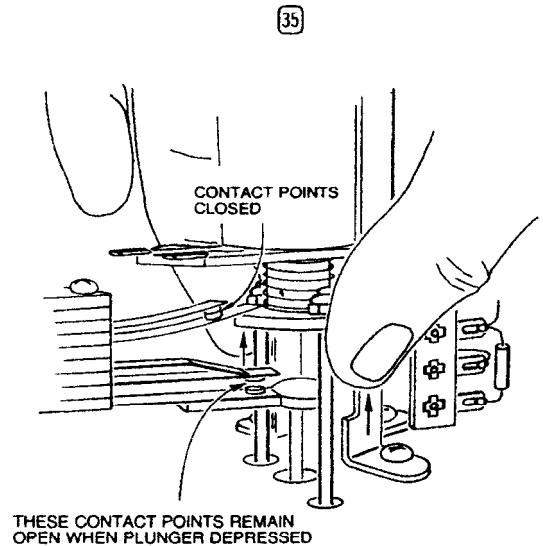
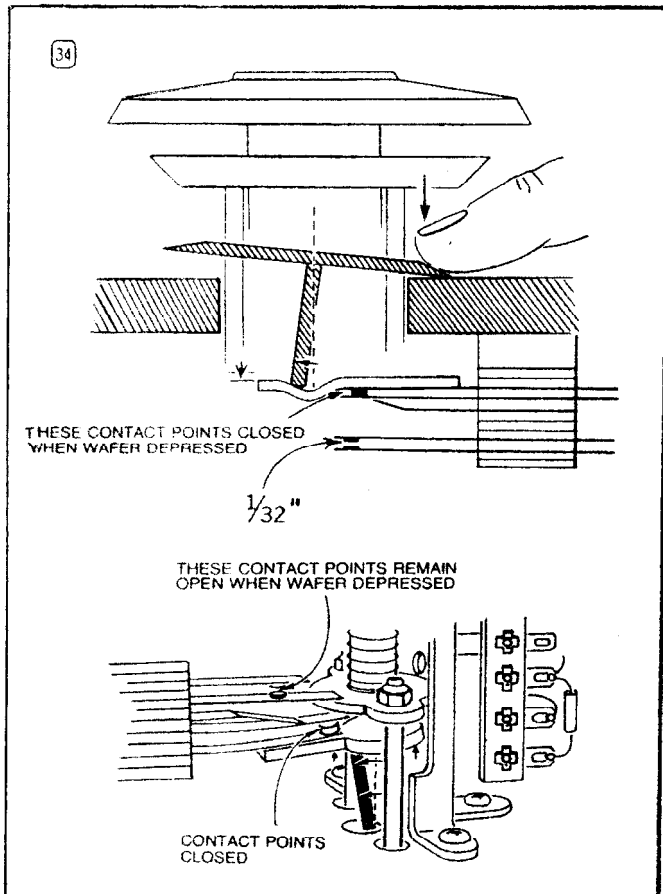
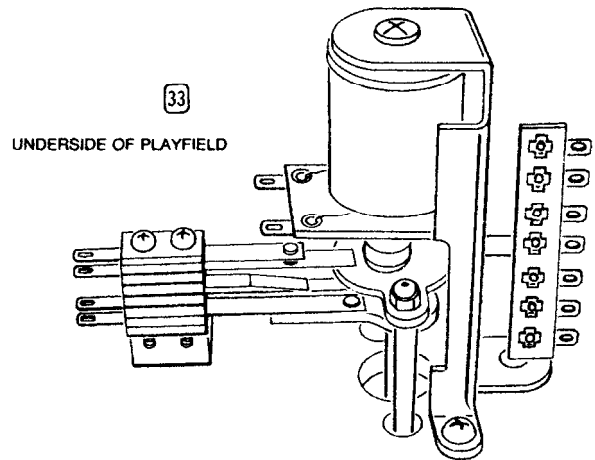
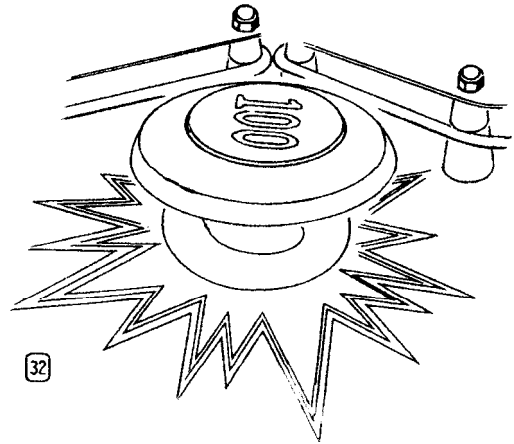


THUMPER-BUMPER SWITCH ADJUSTMENT.

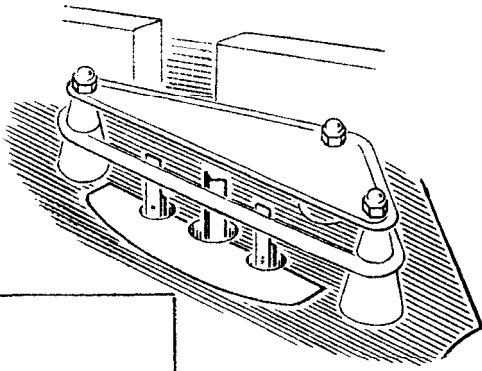
The Thumper Bumper is located at the top, center of playfield. See Illustration 31.

Thumper Bumper switches are adjusted on the underside of the playfield. There are two switches, one mounted on top of the other. They are adjusted as follows:

- (a) First look at the switch closest to the underside of the playfield surface. There should be a gap between the contact points of about 1/32-inch (thickness of a dime).
- (b) Adjust only the short blade. do not adjust the long blade.
- (c) After making necessary adjustment, check by depressing the red plastic wafer from the top side of the playfield. Hold with one finger so that the edge of the wafer touches the playfield surface at one point. The entire wafer should not be depressed. In this position the contact points should be touching. Release wafer—contact points should now be separated.
- (d) Now look at the switch furthest away from the playfield surface. There should be a gap between the contact points of about 1/32-inch (thickness of a dime).
- (e) Adjust only the short blade. Do not adjust the long blade.
- (f) After making necessary adjustment, check by pulling the two steel rods toward the coil. Contact points should be touching. Release rods—contact points should now be separated.
- (g) See illustrations 32 thru 35.



36

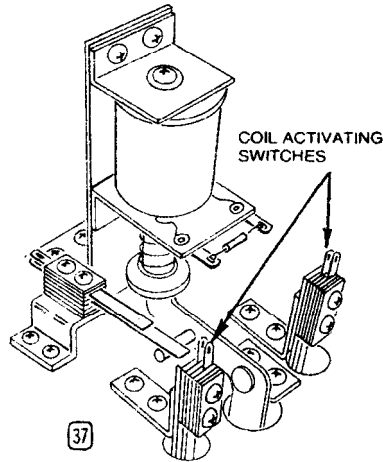
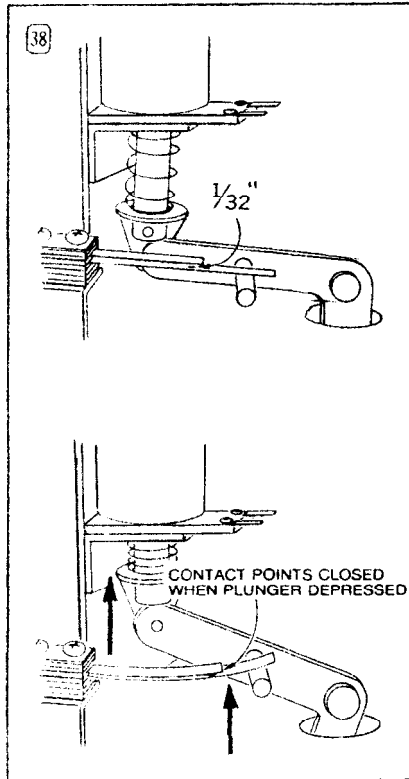


SLINGSHOT KICKER SCORE SWITCH ADJUSTMENT.

Two Slingshot Kicker score switches are located on either side of the playfield near the bottom. See illustration 31.

Slingshot Kicker score switches are adjusted on the underside of the playfield as follows:

- There should be a gap of about 1/32-inch (thickness of a dime) between the contact points.
- Adjust short blade only. Do not adjust long blade.
- After making necessary adjustment, check by pulling back on vertical steel shaft. Contact points should be touching. Release—contact points should now be separated.
- See illustrations 36 thru 38.

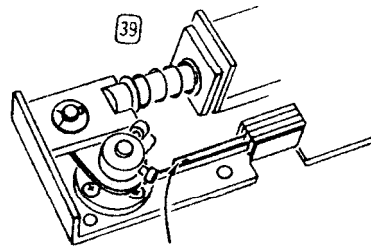


FLIPPER COIL SWITCH ADJUSTMENT.

Two Flipper Coil switches are located near the bottom of the playfield. See illustration 31.

Flipper Coil switches are adjusted on the underside of playfield as follows:

- In rest position contact points should be touching.
- Depress steel plunger rod into coil. Contact points should separate near end of stroke.
- Adjust long blade.
- See illustrations 39 and 40.



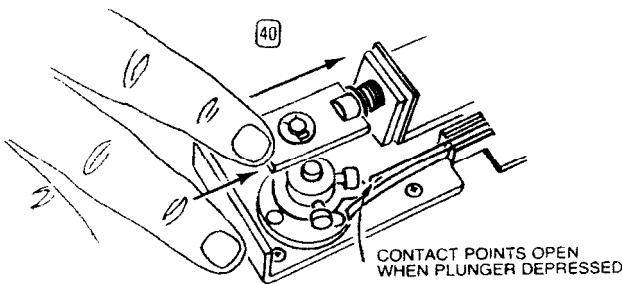
CONTACT POINTS CLOSED IN REST POSITION

BALL RETURN SWITCH ADJUSTMENT.

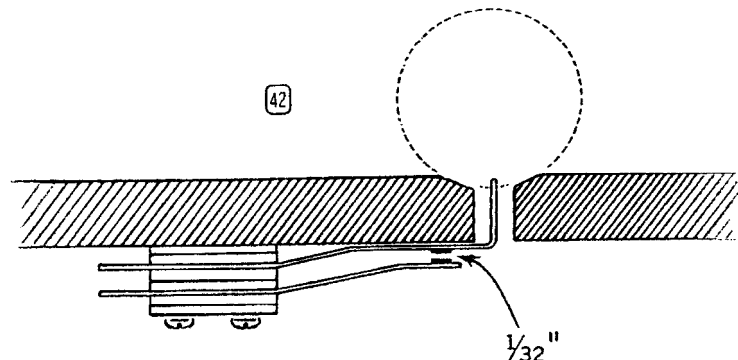
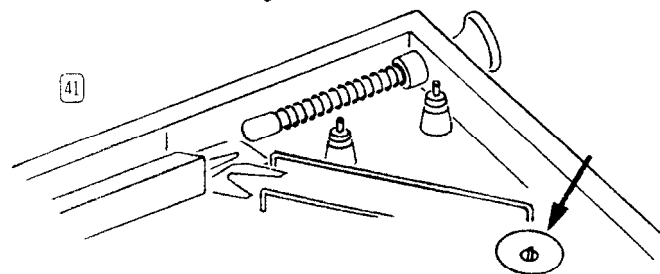
The Ball Return switch is located at the bottom of the playfield. See illustration 31.

Ball Return switch is adjusted on the underside of the playfield as follows:

- Long blade should touch the under surface of playfield
- There should be a gap of about 1/32-inch (thickness of a dime) between the contact points.
- After making necessary adjustment, check by holding steel ball in the ball return depression on the top side of the playfield. Contact points should be touching. Remove ball—contact points should now be separated.
- See illustrations 41 and 42.

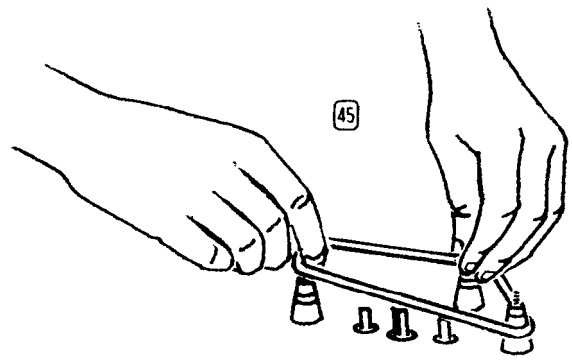
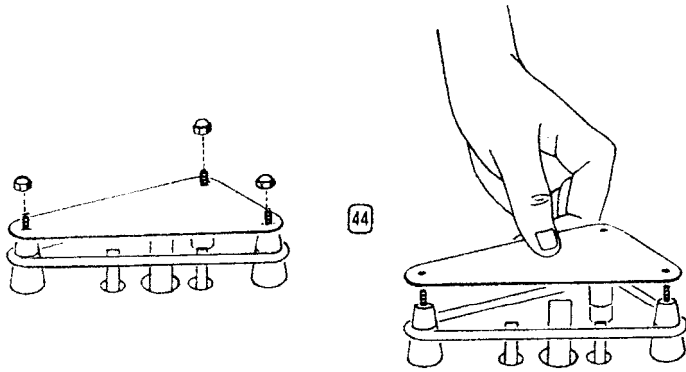


CONTACT POINTS OPEN WHEN PLUNGER DEPRESSED



42

1/32"



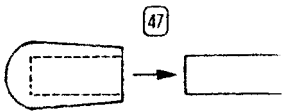
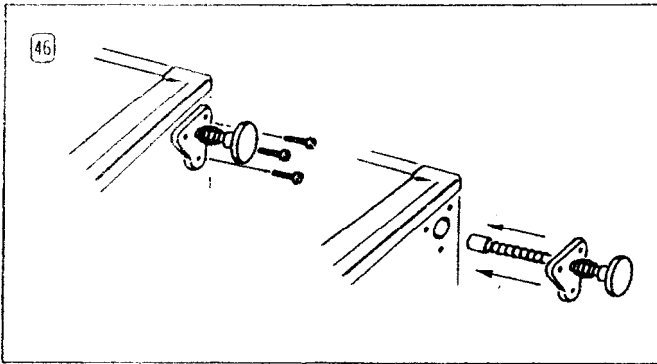
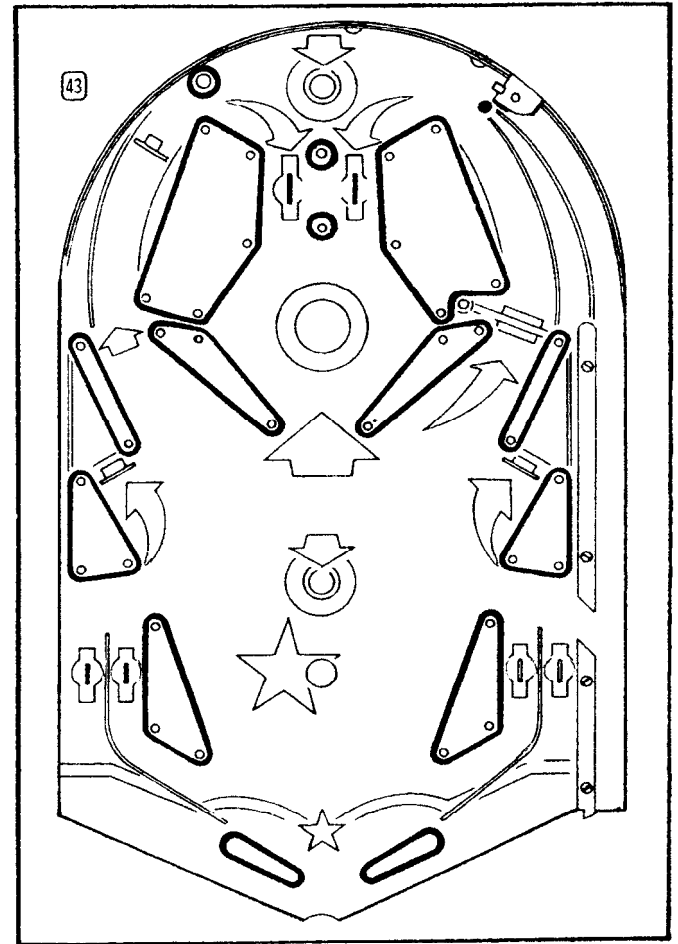
RUBBER RING REPLACEMENT

Sixteen Rubber Rings are located on the playfield as indicated in illustration 43

Rubber Rings do not need to be replaced often. Even with heavy play you will probably not have to replace rings more than once a year. Dirty rubber rings can be wiped clean with a soft, lint-free cloth dampened slightly with any mild, non-abrasive detergent.

To replace rubber rings unscrew the cap nuts that hold plastic covers in place. Lift off plastic cover. Slip rubber ring off support posts. See illustrations 44 thru 45. Place new rubber ring on support posts, making sure ring is seated in the holding grooves on each post. Replace plastic cover. Fasten with cap nuts.

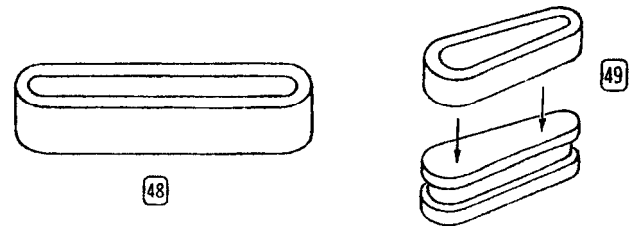
Note that double rings are used on the two triangles located along the bottom side of the Action Ring. First ring should be placed on support posts near the bottom close to the playfield surface. Second ring should now be placed on support posts and seated in the holding grooves on each post. Now roll the first ring up the support posts until it touches the bottom of the second ring all the way around the triangle.



RUBBER TIP REPLACEMENT

The Rubber Tip is located on the end of the shooter rod. See illustration 47. This tip will require replacement more frequently than the rubber rings. A replacement rubber tip is included in the Maintenance Kit which came with this game. This tip serves as a handy bulb extractor as well as a replacement for the shooter. Save the old tip as it can still be used as a bulb extractor—see page 18.

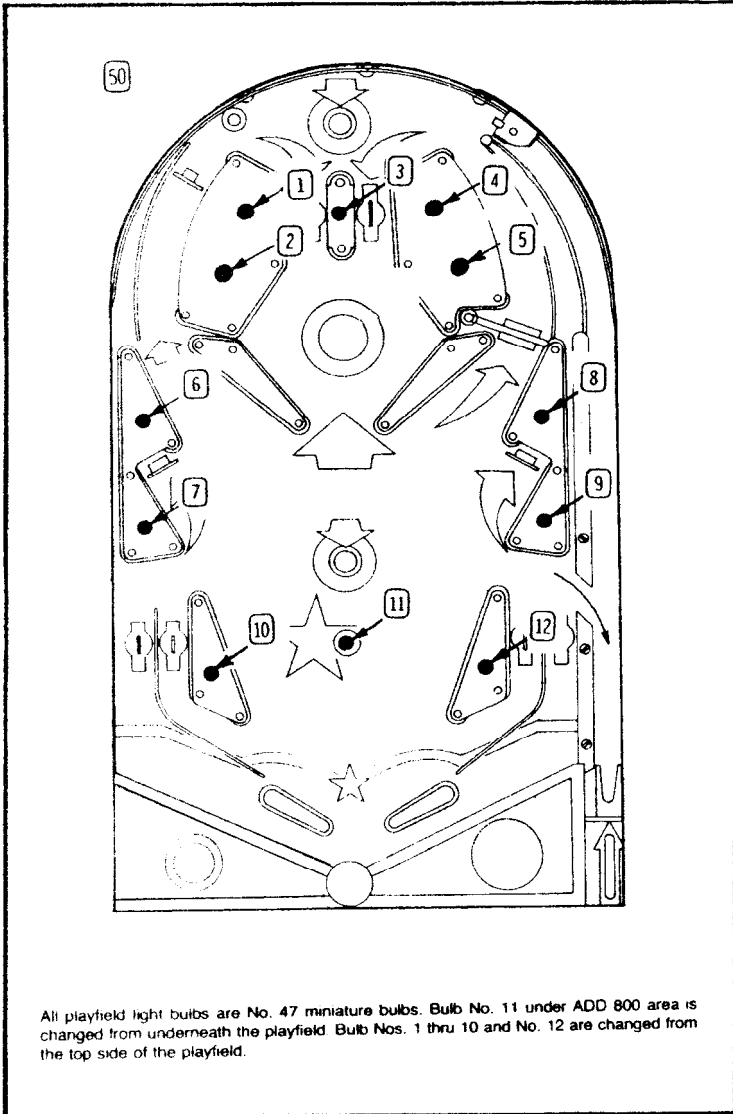
To replace the Rubber Tip, remove the Ball Shooter assembly. Unscrew the three screws that hold the shooter in the front panel of the game. Pull shooter assembly toward you out of the game. Pull old rubber tip off shooter rod. Do not remove any washers or springs. Slip on new tip. Put shooter assembly back in game. Tighten screws. See illustrations 46 and 47.



FLIPPER RUBBER REPLACEMENT

Large Rubber Rings encircle each flipper located near the bottom of the playfield. See illustration 43.

Flipper Rubber need not be replaced often. The ball hits only one side of the flipper bar. When rubber shows wear, we recommend rotating the rubber ring so that unused back side faces front. When full ring needs replacement, simply pull rubber ring upward from flipper bar. New rubber ring is then placed on bar from the top. See illustrations 48 and 49.



LIGHT BULB REPLACEMENT ON PLAYFIELD

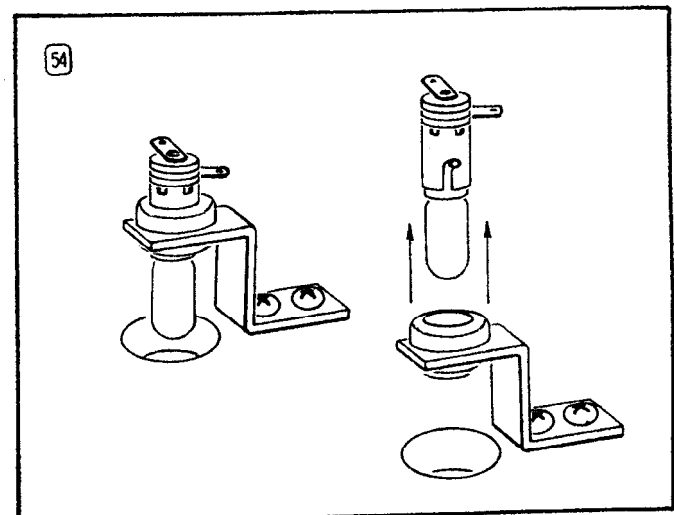
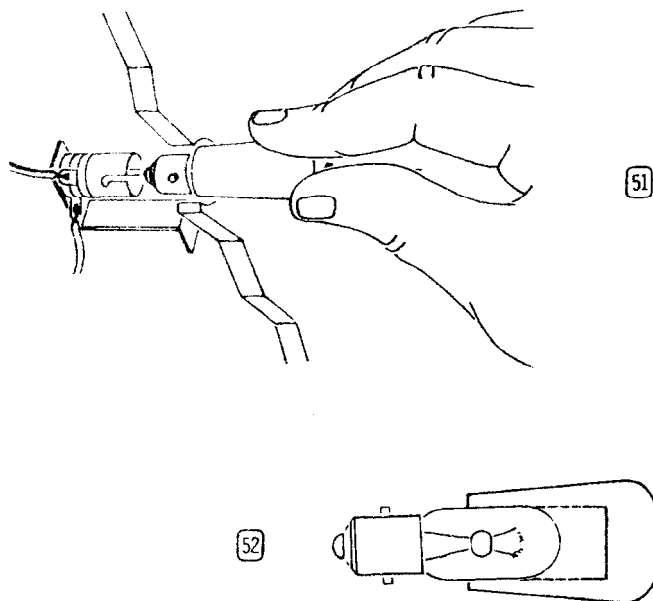
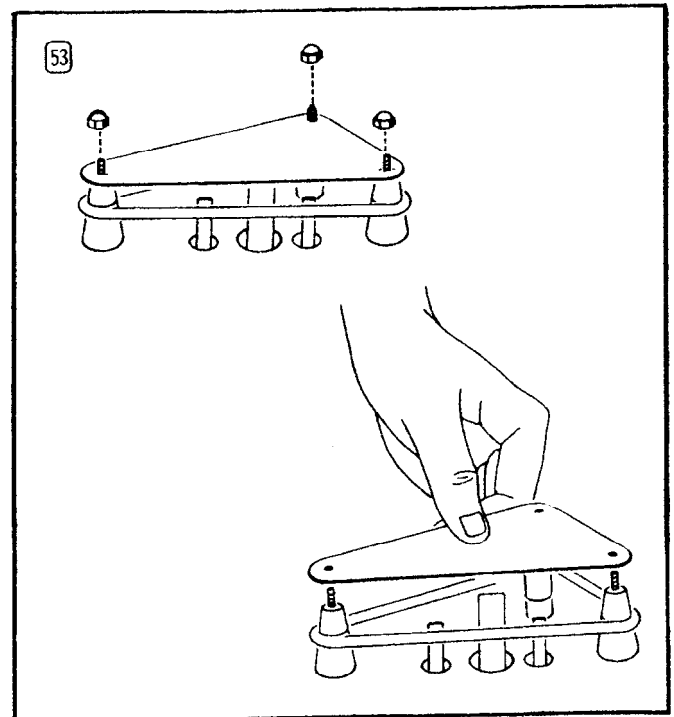
There are 12 light bulbs on the playfield. See illustration 50. All are No. 47 size miniature bulbs. All but one of these bulbs can be replaced from the top side of playfield.

To replace bulbs on top side of playfield, remove cap nuts that hold plastic cover in place. Lift off plastic cover. Remove bulb by pressing down gently, turning bulb and lifting. In most cases you will be able to remove the bulb with your fingers.

For hard to reach bulbs, take the rubber shooter tip from the Maintenance Kit that came with the game. Push shooter tip over bulb, press down gently, turn and lift. See illustrations 51 thru 53.

The light bulb under the "ADD 800 TO EACH SCORE" circle is changed from the underside of the playfield. See illustration 50 for location.

To change the "ADD 800" bulb, gently pull socket and bulb out of bracket. Then hold bracket in one hand. With other hand press down gently on bulb, turn and lift. After changing bulb, slide socket back into bracket. See illustration 54.



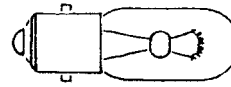
LIGHT BULB REPLACEMENT ON SCORE UNIT

Light bulbs on Score Unit face are replaced by removing the face panel. Remove 3 screws that hold wood bar in position inside the frame at the top of the Score Unit cabinet. Remove wood bar. Gently pull face plate up and out. See illustrations 55 thru 57.

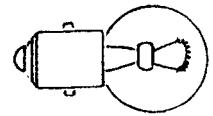
There are 14 light bulbs in the Score Unit. 12 of the bulbs are No. 47 miniature bulbs. 2 blinkers are No. 455 miniature bulbs.

Replace bulbs by pressing down gently, turning and lifting. For hard to reach spots, use the shooter tip extractor as explained on page 18. Illustration 58 shows the position of each bulb with the area of the Score Unit face it lights.

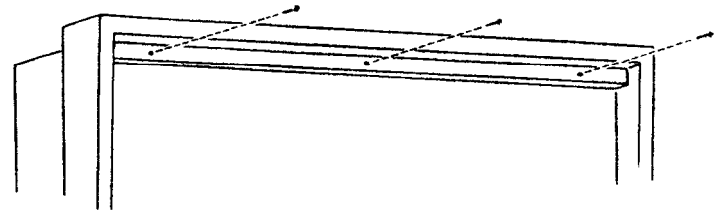
NO. 47 MINIATURE BULB



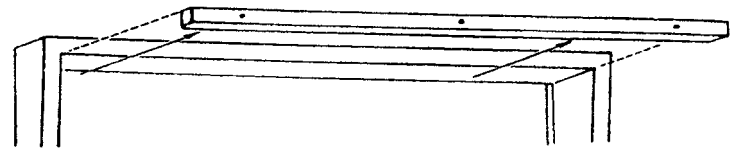
NO. 455 BLINKER BULB



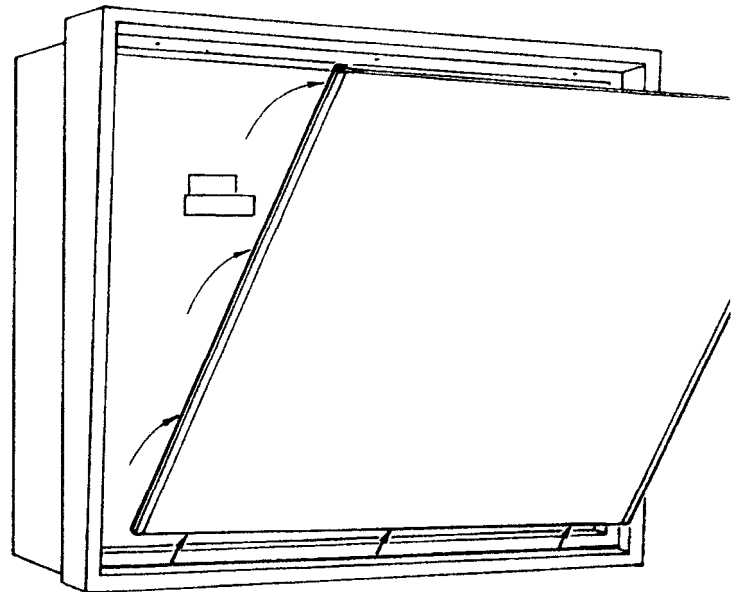
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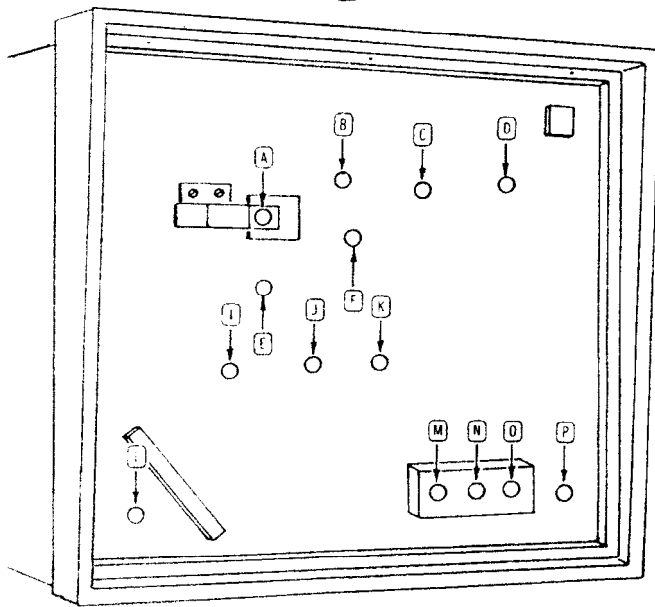
56



57

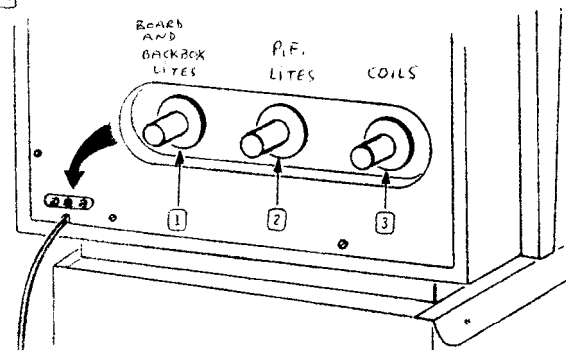


58



Legend for lights behind Score Unit face cover: A. Last 2 zeroes of score; B. Word "Big"; C. Clown's nose (No. 455 Blinker); D. Word "Top"; E. Clown's hat; F. Dog; I. Clown's face (No. 455 Blinker); J. Ringmaster; K. Tiger; L. Tilt; M. Ball in play No. 1; N. No. 2; O. No. 3; P. Game Over.

59



CIRCUIT BREAKERS

This game uses circuit breakers instead of fuses. If a short or malfunction occurs, the circuit breaker stops electricity from flowing to that part of the game.

There are 3 circuit breakers located on the back of the Score Unit cabinet in the lower left corner. See illustration 59. Breaker No. 1 controls power supply to lights on Score Unit. Breaker No. 2 controls power supply to lights on playfield. Breaker No. 3 controls power supply to the scoring mechanisms on the playfield.

Reset the circuit breakers by pressing them in with the eraser end of a pencil.

TROUBLE SHOOTING

Here are some common types of malfunctions that you can easily diagnose and correct.
TURN OFF POWER AND UNPLUG GAME BEFORE OPENING FOR SERVICE.

ALL LIGHTS "OFF" - NOTHING OPERATES

1. Plug cord firmly into operating wall outlet - see page 7.
2. Turn line cord switch to "ON" position - see page 7.
3. Reset circuit breakers - see page 19.
4. Check power supply to wall outlet.

SCORE UNIT LIGHTS "ON" - PLAYFIELD LIGHTS "OFF"

1. Reset circuit breakers - see page 19.
2. Remove back of Score Unit. Make sure all connectors are plugged in - see page 6.
3. Raise playfield. Make sure connectors on right side of playfield cabinet are firmly connected - see page 10.

PLAYFIELD LIGHTS "ON" - SCORE UNIT LIGHTS "OFF"

1. Reset circuit breakers - see page 19.
2. Remove back of Score Unit. Make sure all connectors are plugged in - see page 6.

ALL LIGHTS "ON" - NO ACTION OR SCORING ON PLAYFIELD

1. If "GAME OVER" light on Score Unit is lit, press Reset Button - see page 9.
2. If "TILT" light on Score Unit is lit, shoot ball and let it roll to bottom of playfield - see page 9.
3. Reset circuit breakers - see page 19.
4. Remove back of Score Unit. Make sure all connectors are plugged in - see page 6.

CHIME AND SCORING STOP WHILE BALL IN PLAY

1. If "TILT" light on Score Unit is lit, let ball roll to bottom of playfield. "TILT" light should go off with chime and scoring resuming on next ball played - see page 9.
2. If "GAME OVER" light on Score Unit is lit, press Reset Button. Chime and scoring should resume - see page 9.
3. Score switch may be stuck closed. Check all switches—see pages 11 to 16. Score contact stuck closed, check each score contact for proper gap.

SCORE NOT RECORDING WHEN BALL HITS SCORING AREA (TARGET, ROLL-OVER, KICKER, THUMPER BUMPER OR SCORE SWITCH)

1. Identify malfunction area on playfield. Adjust switch as described on pages 11 to 16.

TROUBLE SHOOTING

THUMPER BUMPER OR KICKER CONTINUE TO ACTIVATE AFTER BALL HITS

1. Adjust Thumper Bumper switches - see page 15.
2. Adjust Slingshot Kicker activating score switches - see page 12.

ONE FLIPPER NOT OPERATING - OTHER FLIPPER OPERATING PROPERLY

1. Adjust Flipper Button Switch - see page 12.
2. Adjust Flipper Coil Switch - see page 16.
3. Raise playfield. Make sure connectors on right side of playfield cabinet are firmly connected - see page 10.

"BALL IN PLAY" COUNT SKIPS NUMBER OR DOES NOT ADVANCE

1. Adjust Ball Return Switch - see page 16.

GAME WILL NOT RESET - "GAME OVER" LIGHT STAYS LIT

1. Adjust Reset Button Switch - see page 12.

"TILT" LIGHT STAYS LIT CONTINUOUSLY

1. Make sure game is leveled properly - see page 7.
2. Adjust Tilt mechanism - see page 11.

BALL LIFT DOES NOT OPERATE

1. Adjust Ball Lift Button Switch - see page 12.

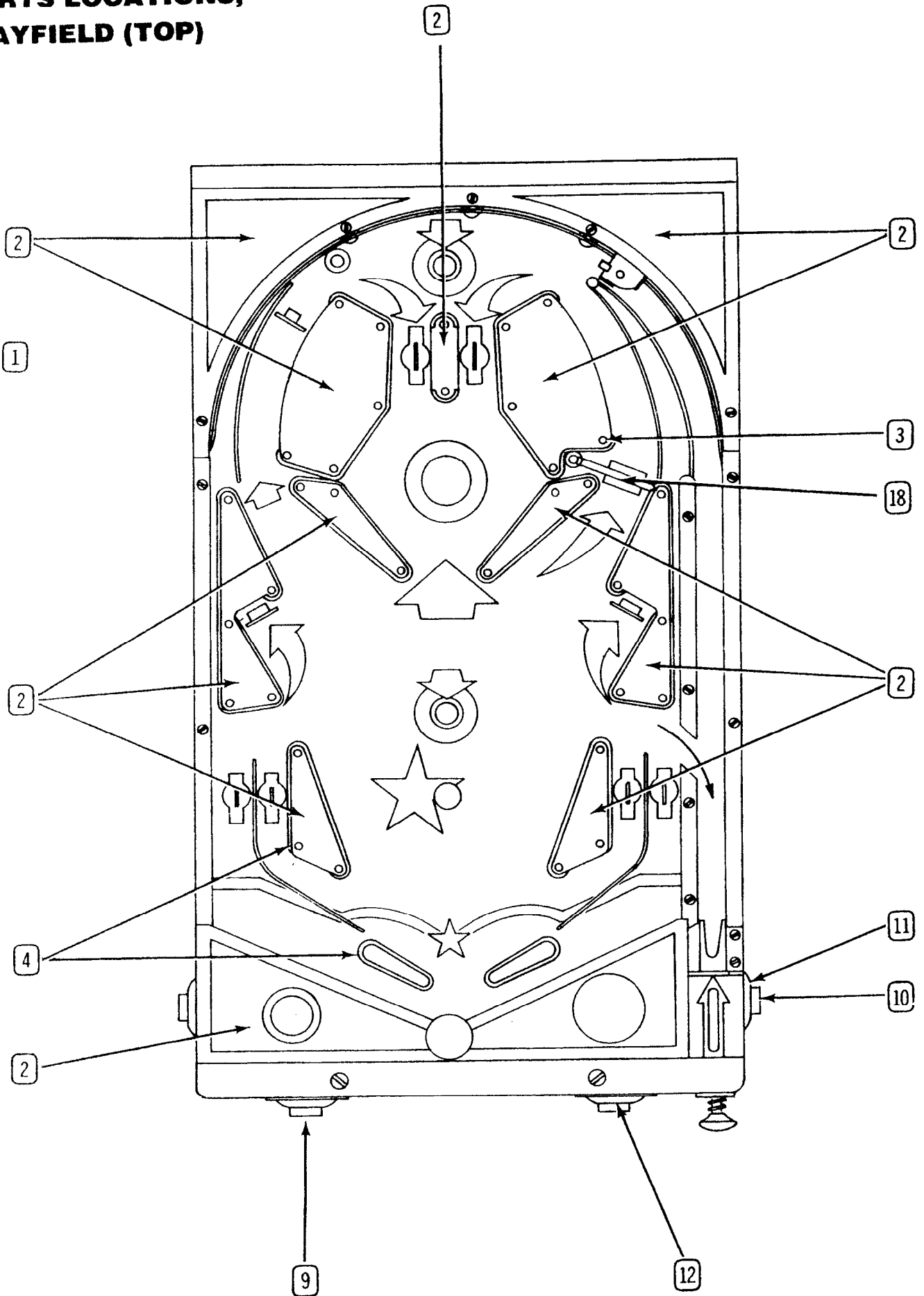
CIRCUIT BREAKER NO. 3 OPENS REPEATEDLY

1. Disconnect power, lift playfield and check all switches. Contact points on all switches should be separated. NOTE EXCEPTION: Flipper Coil Switches (2) should be closed when at rest. Make switch adjustments where necessary - see pages 10 to 16.

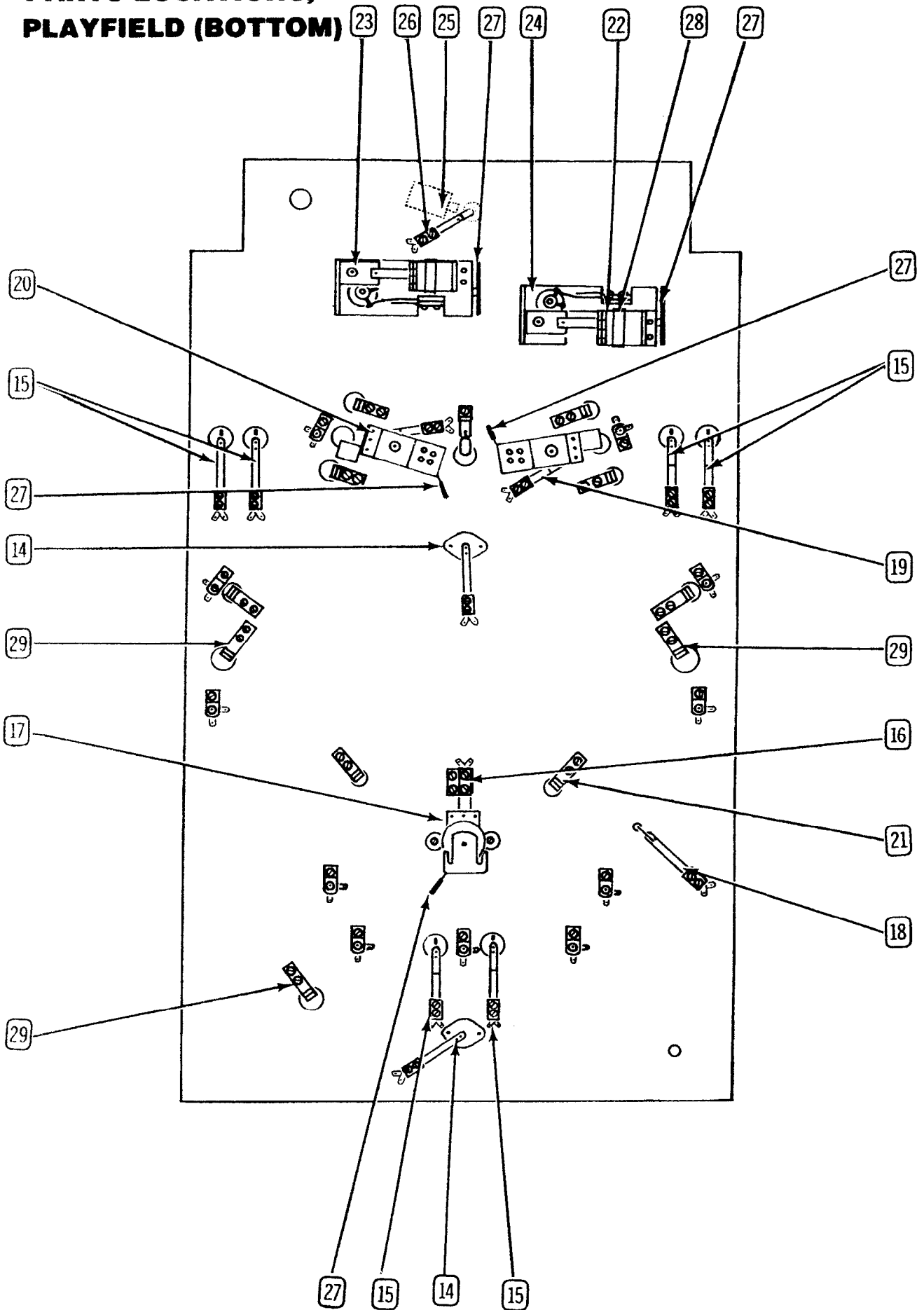
If all Maintenance and Trouble Shooting procedures have been followed and game continues to malfunction, call the number below for help and/or name of local WICO Authorized Service Agent.

Call toll free: 800 - 323-4240
For Illinois call collect: (312) 792-3833
For local calls in Chicago: 792-3833

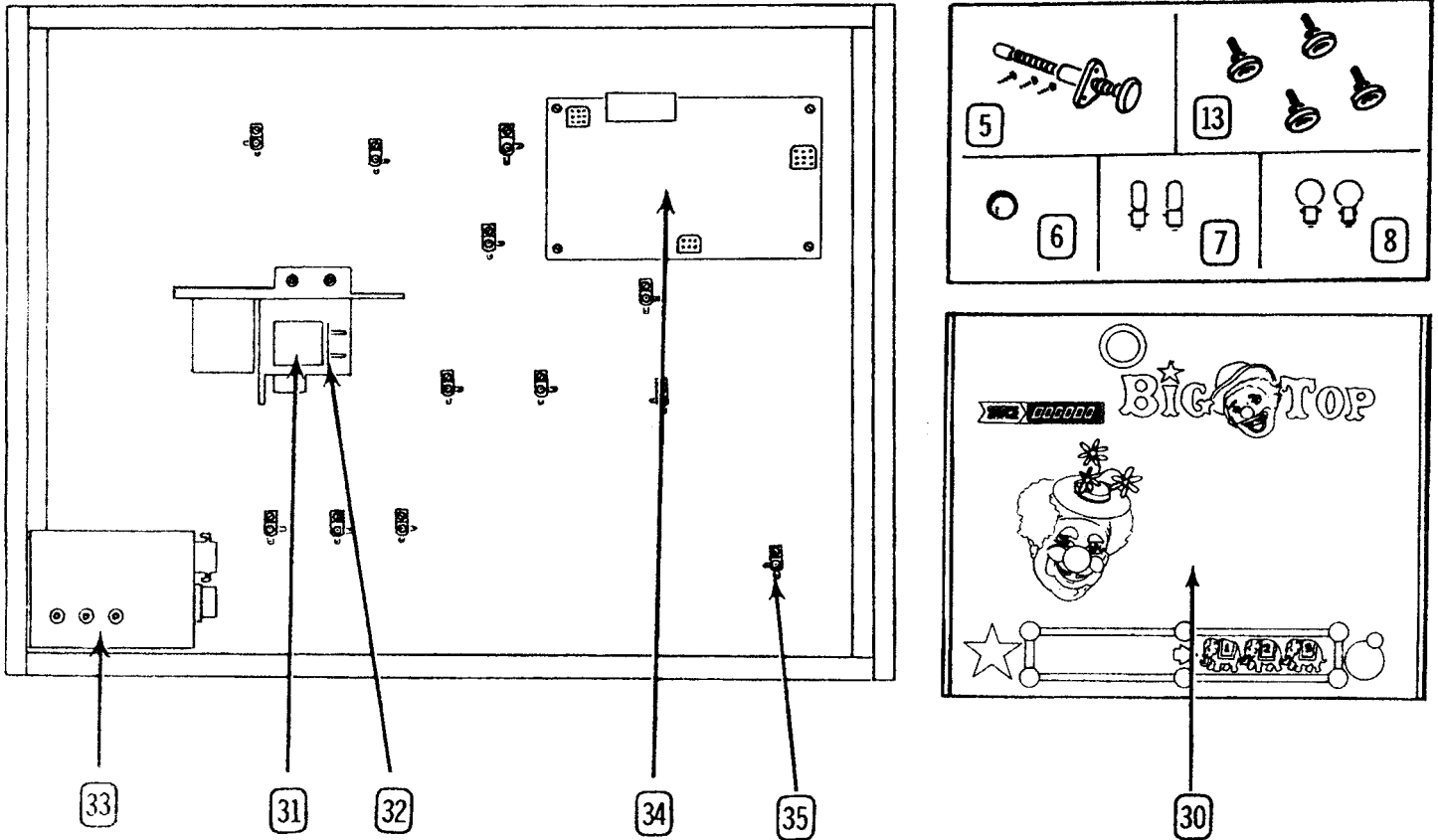
PARTS LOCATIONS, PLAYFIELD (TOP)



PARTS LOCATIONS, PLAYFIELD (BOTTOM)



PARTS LOCATIONS, SCORE UNIT & MISCELLANEOUS



BIG TOP PARTS LIST

Parts for this game may be purchased from WICO Corporation. List part(s) required by the WICO stock number(s) listed on the following pages. Location of parts on game are shown in schematic drawings on pages 22 thru 24. Send check or money order with list of parts by stock number to:

WICO CORPORATION
 Games Division
 6400 West Gross Point Road
 Niles, Illinois 60648

Parts Price List is included in this Manual. Prices are subject to change without notice.

Do not remove defective part until you have received the replacement. This will avoid mistakes in the installation of the new part.

LOCATION Ref. No. - Page	WICO STOCK NO.	PART DESCRIPTION
1 - page 22	15-0252	Clear Plastic Playfield Cover
2 - page 22	15-8001	Colored Plastic Playfield Cover Caps - Set of 12: 1 for each position.
3 - page 22	15-8002	Chrome Post Cap Nuts - Pkg. of 10
4 - page 22	15-8003	Replacement Rubber - Set of 20 pieces: 16 rings (1 for each position), 2 flipper bands, 2 shooter tips.
5 - page 24	15-0317	Ball Shooter Complete Assembly
6 - page 24	15-8004	Steel Game Ball
7 - page 24	15-8005	No. 47 Bulbs - Pkg. of 10
8 - page 24	15-8006	No. 455 Blinker Bulbs - Pkg. of 10

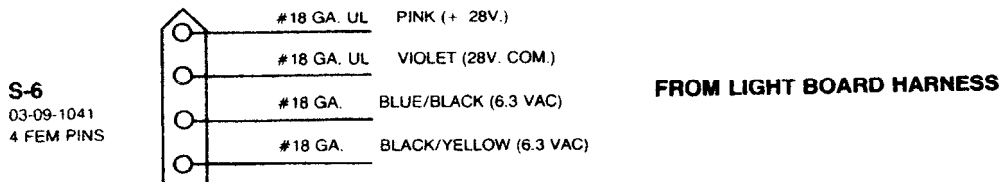
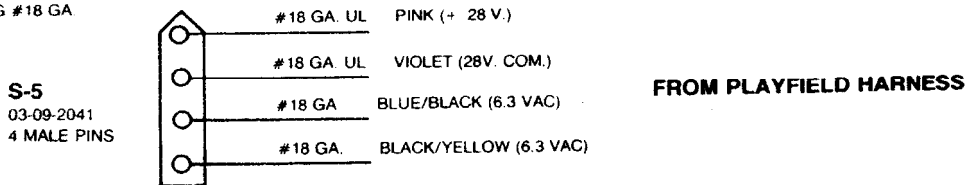
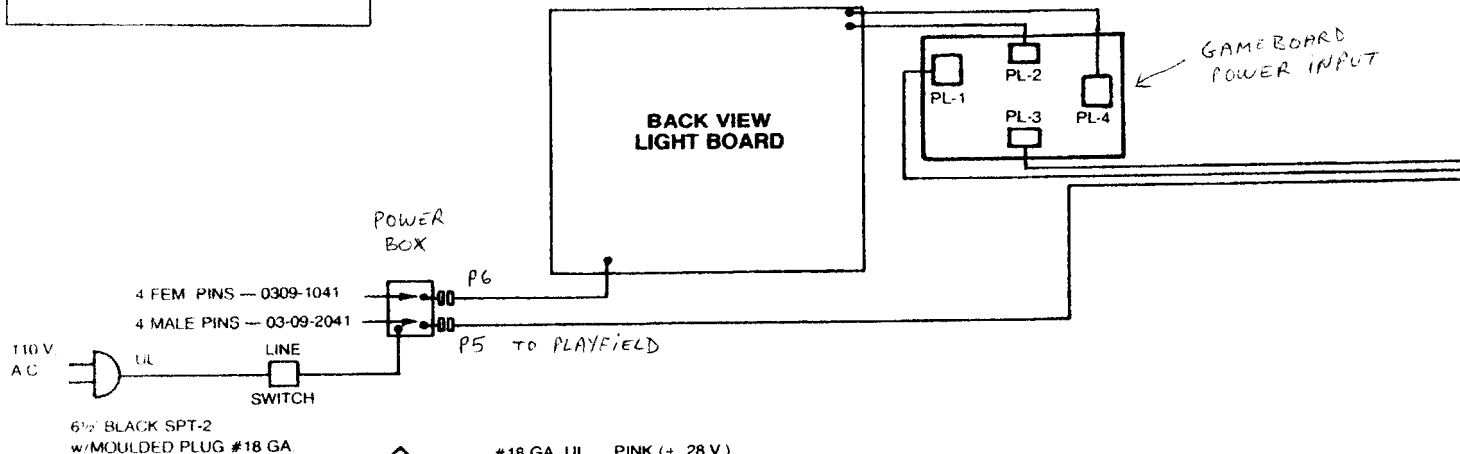
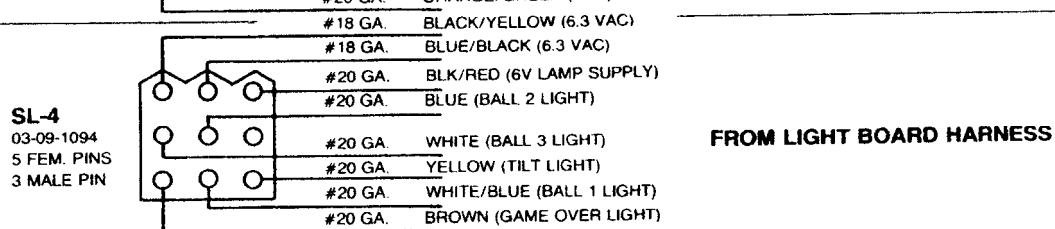
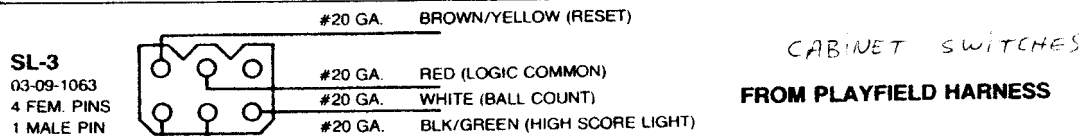
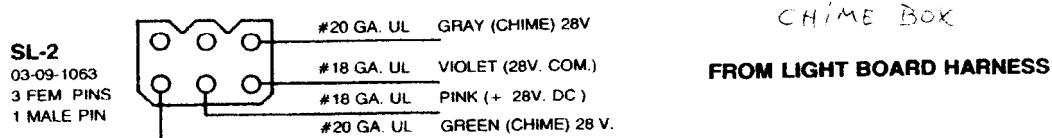
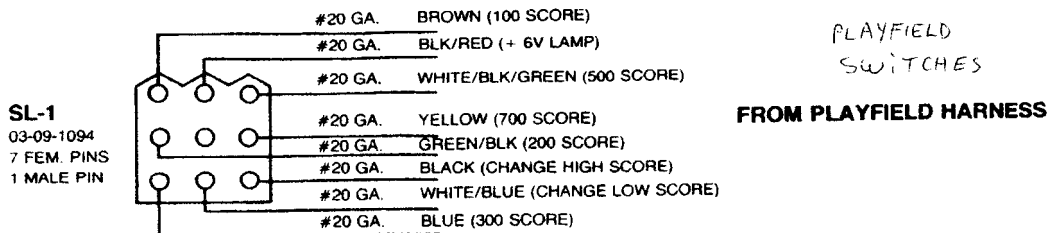
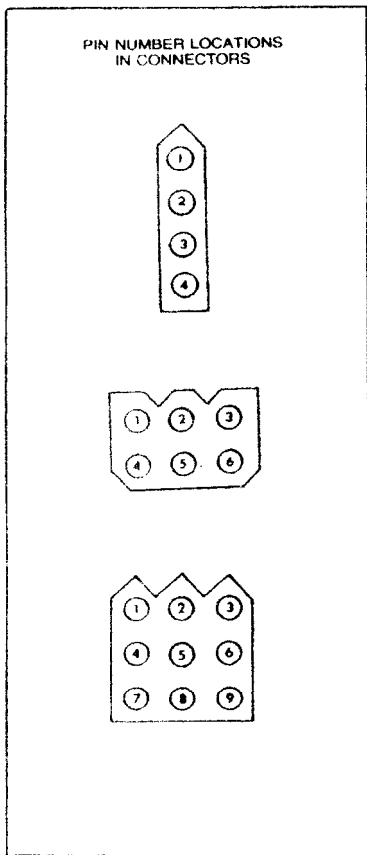
BIG TOP PARTS LIST — CONTINUED

LOCATION Ref. No. - Page	WICO STOCK NO.	PART DESCRIPTION
9 - page 22	15-8007	Plastic Push Buttons - Set of 2: White
10 - page 22	15-8008	Plastic Push Buttons - Set of 2: Red
11 - page 22	15-8009	Push Button Switch Assembly - Set of 3: Same switch used for flipper buttons and reset button.
12 - page 22	15-0565	Push Button Switch Assembly - One: Switch for ball lift button only.
13 - page 24	15-8011	Leg Levelers - Set of 4.
14 - page 23	15-8012	Button Roll-over Switch Assembly - Set of 2: Includes plastic button.
15 - page 23	15-8013	Lane Roll-over Switch Assembly - Set of 2: Includes wire loop.
16 - page 23	15-0212	Thumper Bumper Switch Assembly: Includes "Z" bracket.
17 - page 23	15-8014	- Thumper Bumper Coil with sleeve.
17 - page 23	15-0211	Thumper Bumper Complete Assembly: Includes all parts above and below playfield; includes coil; does not include switch.
18 - page 22 & 23	15-8015	Spinner Target Complete Assembly: Includes switch and all parts above and below playfield.
19 - page 23	15-8016	Slingshot Kicker Score Switch Assembly - Set of 2.
20 - page 23	15-8017	- Slingshot Kicker Coil with sleeve - Set of 2.
20 - page 23	15-8018	Slingshot Kicker Complete Assemble - Set of 2: Includes mechanical parts and coil; does not include switch.
21 - page 23	15-8019	Score Switch Assembly on standup bracket - Set of 4
22 - page 23	15-8020	- Flipper Coil with sleeve - Set of 2: Same coil used on both sides.
23 - page 23	15-0290	Left Flipper Complete Assembly: Includes coil and switch.
24 - page 23	15-0291	Right Flipper Complete Assembly: Includes coil and switch.
25 - page 23	15-0570	Ball Return Ejector Complete Assembly: Includes coil.
26 - page 23	15-0313	Ball Return Switch Assembly
27 - page 23	15-0429	Contact Protection Pack Assembly: Same pack used on Thumper Bumper, 2 Sling-shot Kickers and 2 Flippers.
28 - page 23	15-8021	Rectangular Flipper Resistor - Set of 2 20 Ω 25 WATT
29 - page 23	15-8010	Bulls Eye Target Complete Assembly - Set of 3
30 - page 24	15-0251	Plastic Score Unit Face Cover
31 - page 24	15-8023	- Chime Unit Coil with sleeve - Set of 2
32 - page 24	15-0390	Chime Unit Complete Assembly: Includes coils.
33 - page 24	15-0370	Power Supply Unit Complete Assembly: Includes circuit breakers and line cord with switch.
34 - page 24	15-0521	Printed Circuit Board Complete Assembly: Includes LED Score Counter.
35 - page 24	15-8022	Light Bulb Socket with Bracket - Set of 6

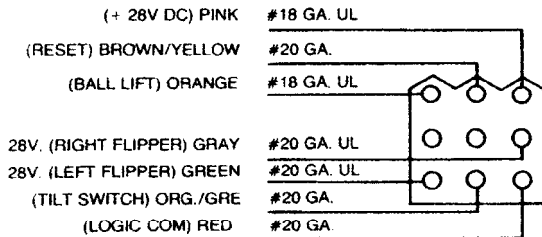
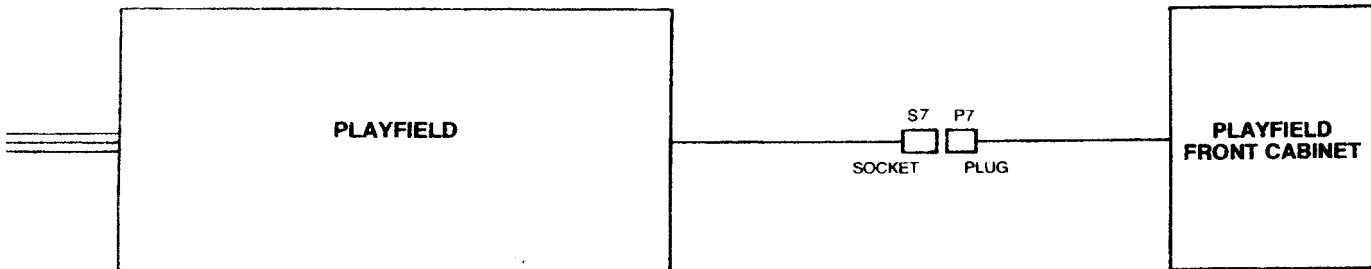
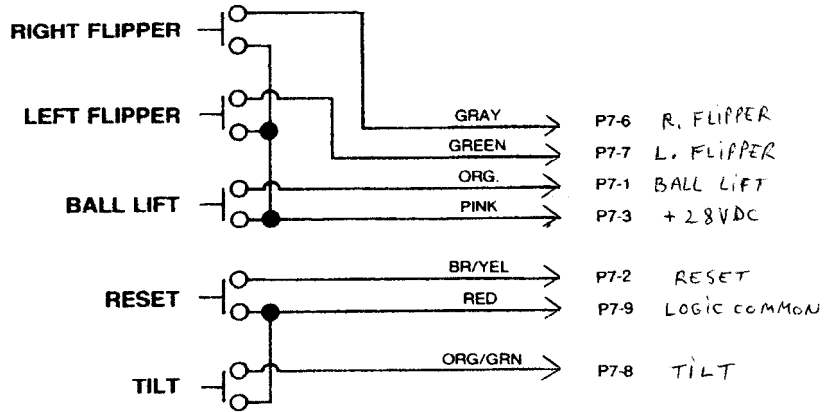


WICO CORPORATION
 Games Division
 6400 West Gross Point Road
 Niles, Illinois 60648

COMPLETE WIRING DIAGRAM



WIRING DIAGRAM: FRONT CABINET

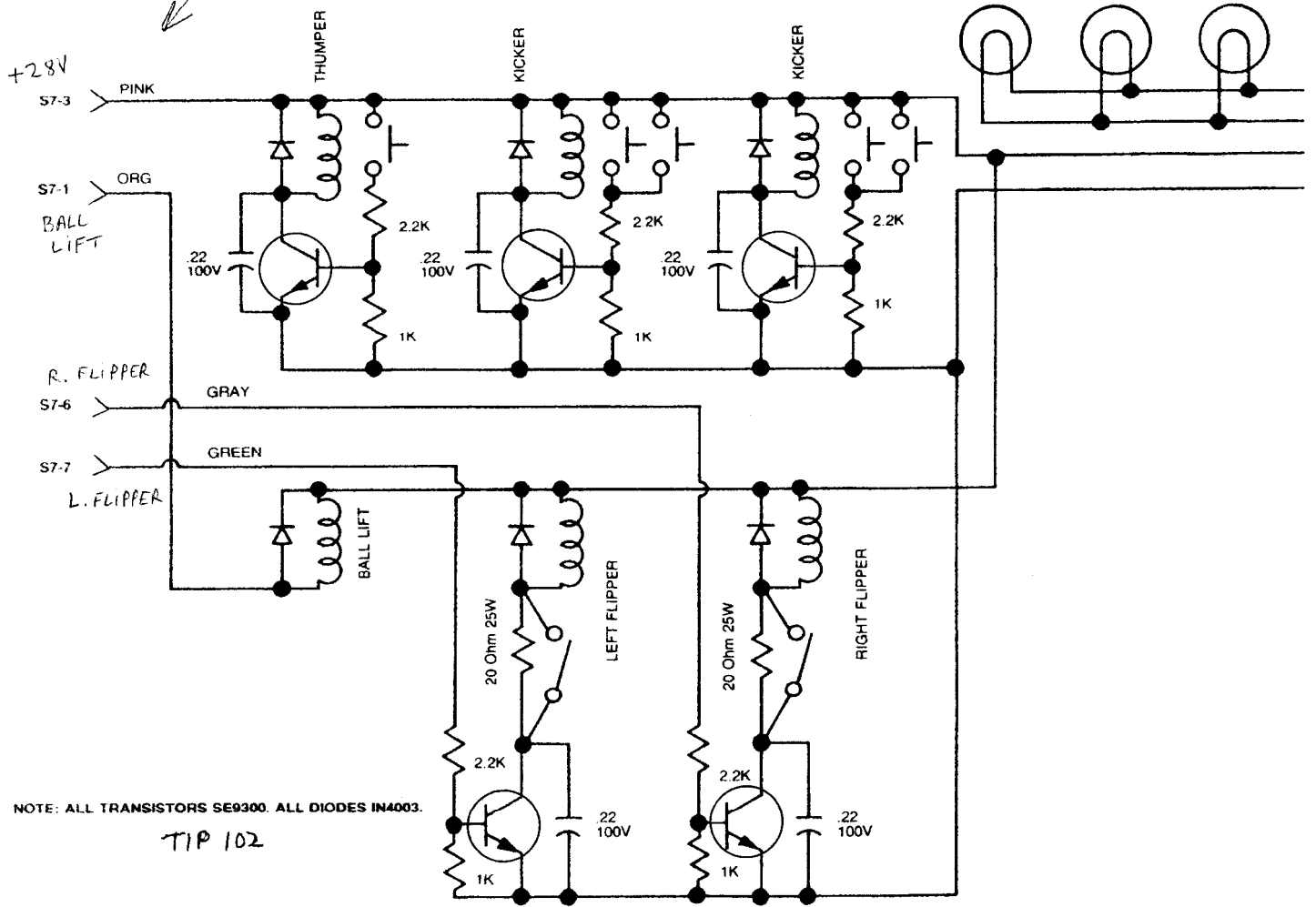


S-7 FROM PLAYFIELD HARNESS

03-09-1094
7 FEM. PINS

WIRING DIAGRAM: PLAYFIELD

TO FRONT
OF CABINET
SWITCHES



NOTE: ALL TRANSISTORS SE9300. ALL DIODES IN4003.

TIP 102

LOGIC COMMON

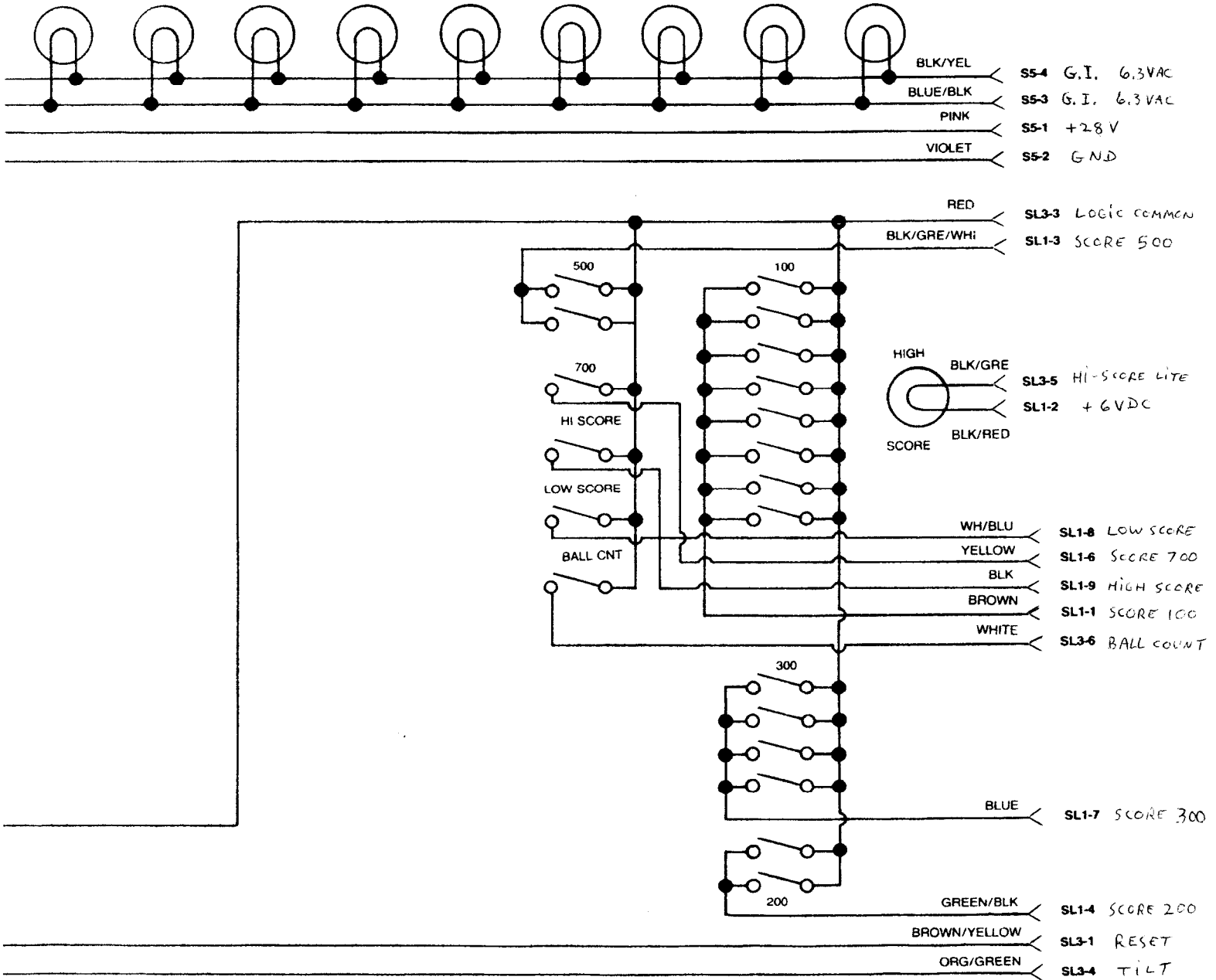
S7-9 > RED

RESET SW

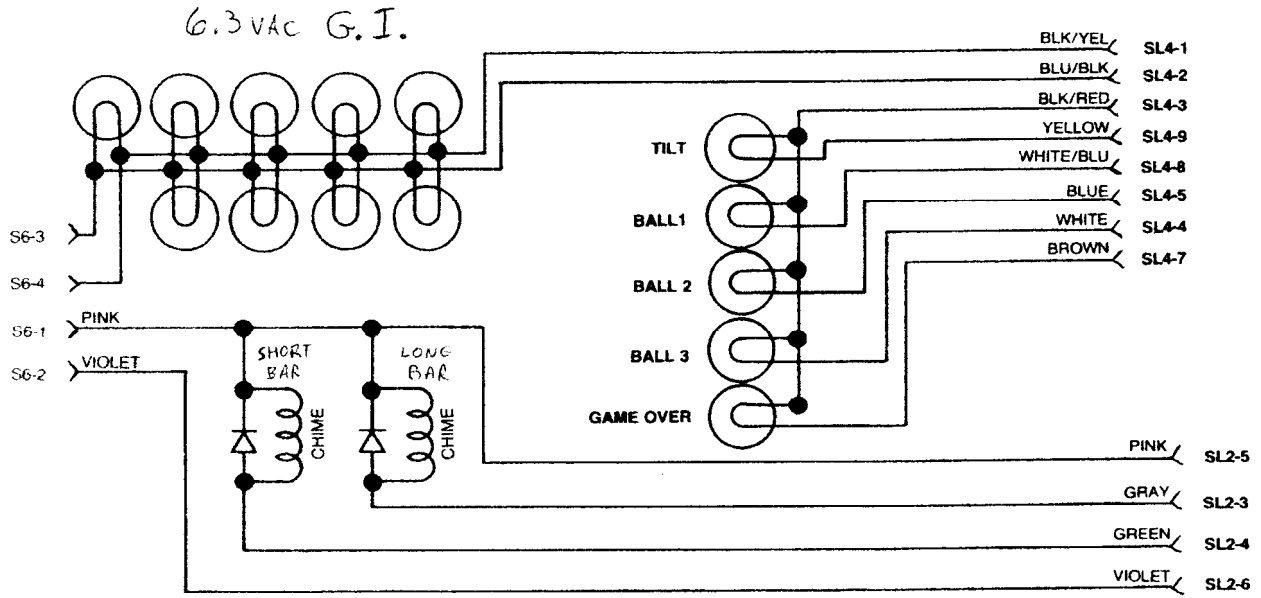
S7-2 > BROWN - YELLOW

S7-8 > ORANGE - GREEN
TILT SW.

WIRING DIAGRAM: PLAYFIELD



WIRING DIAGRAM: LIGHT BOARD

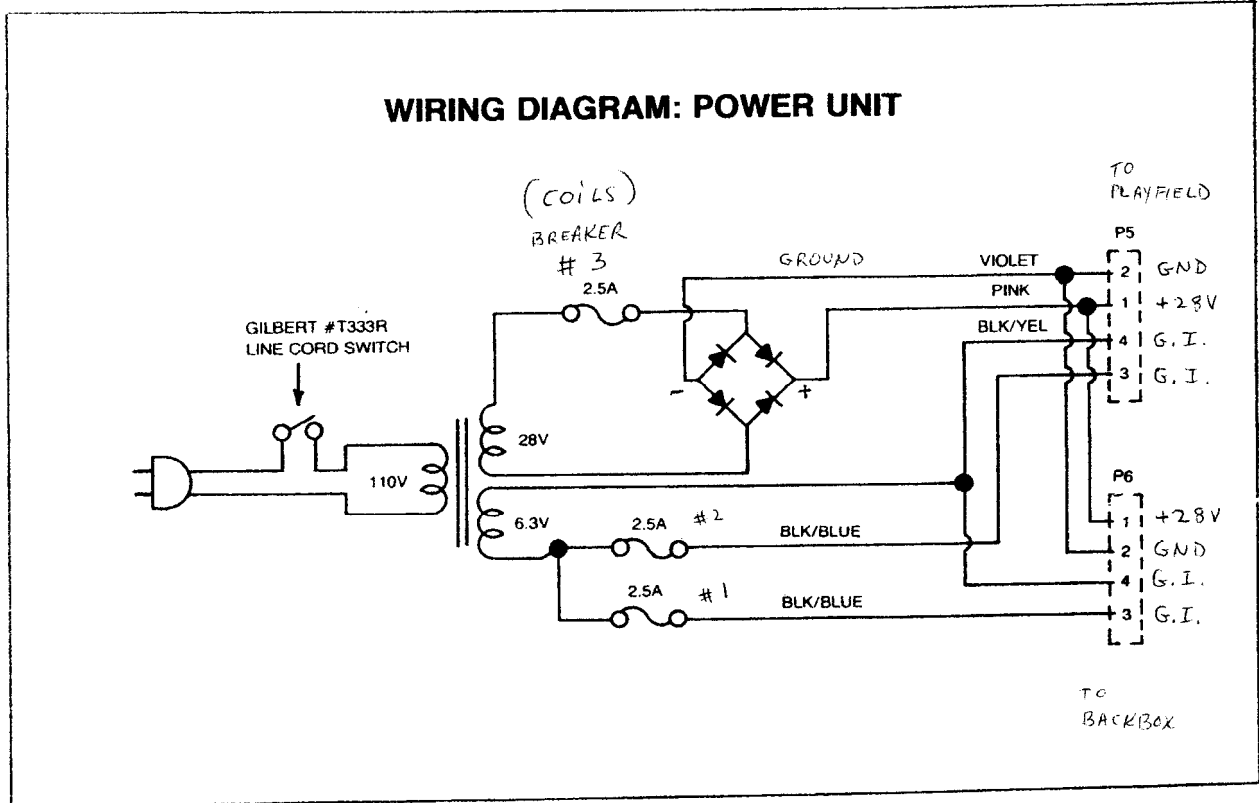


TRANSFORMER SECONDARY SPECIFICATIONS:

6V @ 4 AMPS

28V @ 2 AMPS

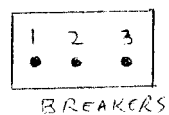
WIRING DIAGRAM: POWER UNIT



BREAKER #1: GAMEBOARD POWER AND BACKBOX LIGHTS

BREAKER #2: PLAYFIELD LIGHTS

BREAKER #3: COILS, +28VDC



BIG TOP PRICE LIST FOR PARTS

EFFECTIVE AUG. 1, 1977

List part(s) required by the WICO stock number(s) shown below. Location of parts on game are shown in your BIG TOP Owner's Manual, pages 22 - 25. Send check or money order together with your name, full shipping address and list of parts by stock number to:

WICO CORPORATION
Games Division
6400 West Gross Point Road
Niles, Illinois 60648

Prices shown below include shipping charges. Prices are subject to change without notice.

To avoid mistakes installing new part, do not remove old part until you have received replacement part.

LOCATION Ref. No. - Page	WICO STOCK NO.	PART DESCRIPTION	PRICE
1 - page 22	15-0252	Clear Plastic Playfield Cover	\$12.61
2 - page 22	15-8001	Colored Plastic Playfield Cover Caps - Set of 12: 1 for each position.	7.27
3 - page 22	15-8002	Chrome Post Cap Nuts - Pkg. of 10	1.90
4 - page 22	15-8003	Replacement Rubber - Set of 20 pieces: 16 rings (1 for each position), 2 flipper bands, 2 shooter tips.	3.52
5 - page 24	15-0317	Ball Shooter Complete Assembly	3.73
6 - page 24	15-8004	Steel Game Ball	2.20
7 - page 24	15-8005	No. 47 Bulbs - Pkg. of 10	3.28
8 - page 24	15-8006	No. 455 Blinker Bulbs - Pkg. of 10	3.82
9 - page 22	15-8007	Plastic Push Buttons - Set of 2: White	2.23
10 - page 22	15-8008	Plastic Push Buttons - Set of 2: Red	2.23
11 - page 22	15-8009	Push Button Switch Assembly - Set of 3: Same switch used for flipper buttons and reset button.	3.52
12 - page 22	15-0565	Push Button Switch Assembly - One: Switch for ball lift button only.	2.50
13 - page 24	15-8011	Leg Levelers - Set of 4.	3.46
14 - page 23	15-8012	Button Roll-over Switch Assembly - Set of 2: Includes plastic button.	3.85
15 - page 23	15-8013	Lane Roll-over Switch Assembly - Set of 2: Includes wire loop.	3.25
16 - page 23	15-0212	Thumper Bumper Switch Assembly: Includes "Z" bracket.	3.01
17 - page 23	15-8014	Thumper Bumper Coil with sleeve.	3.25
17 - page 23	15-0211	Thumper Bumper Complete Assembly: Includes all parts above and below playfield; includes coil; does not include switch.	7.18
18 - page 22 & 23	15-8015	Spinner Target Complete Assembly: Includes switch and all parts above and below playfield.	3.43
19 - page 23	15-8016	Slingshot Kicker Score Switch Assembly - Set of 2.	3.10
20 - page 23	15-8017	Slingshot Kicker Coil with sleeve - Set of 2.	5.26
20 - page 23	15-8018	Slingshot Kicker Complete Assembly - Set of 2: Includes mechanical parts and coil; does not include switch.	10.96
21 - page 23	15-8019	Score Switch Assembly on standup bracket - Set of 4	4.45
22 - page 23	15-8020	Flipper Coil with sleeve - Set of 2: Same coil used on both sides.	4.45
23 - page 23	15-0290	Left Flipper Complete Assembly: Includes coil and switch.	8.26
24 - page 23	15-0291	Right Flipper Complete Assembly: Includes coil and switch.	8.26
25 - page 23	15-0570	Ball Return Ejector Complete Assembly: Includes coil.	5.50
26 - page 23	15-0313	Ball Return Switch Assembly	2.41
27 - page 23	15-0429	Contact Protection Pack Assembly: Same pack used on Thumper Bumper, 2 Slingshot Kickers and 2 Flippers.	4.93
28 - page 23	15-8021	Rectangular Flipper Resistor - Set of 2	3.22
29 - page 23	15-8010	Bulls Eye Target Complete Assembly - Set of 3	4.42
30 - page 24	15-0251	Plastic Score Unit Face Cover	10.33
31 - page 24	15-8023	Chime Unit Coil with sleeve - Set of 2	4.87
32 - page 24	15-0390	Chime Unit Complete Assembly: Includes coils.	10.42
33 - page 24	15-0370	Power Supply Unit Complete Assembly: Includes circuit breakers and line cord with switch.	29.50
34 - page 24	15-0521	Printed Circuit Board Complete Assembly: Includes LED Score Counter.	77.20
35 - page 24	15-8022	Light Bulb Socket with Bracket - Set of 6	3.28

BIG TOP 90-DAY LIMITED WARRANTY

WICO Corporation, 6400 West Gross Point Road, Niles, Illinois 60648, has designed this game with the utmost professional care, high quality materials and skilled workmanship.

WICO warrants to the original purchaser only that this "BIG TOP" Electronic Home Pinball Game will remain free from defects in materials and workmanship for a period of 90 days from date of purchase under normal in-home use when assembled and maintained according to instructions in Owner's Manual.

For 90 days from date of purchase, WICO will, at its option, repair or replace this game without charge for parts or labor.

This warranty does not apply if game has been subjected to purchaser abuse, negligence, lack of maintenance or damage subsequent to purchase. Please read Owner's Manual thoroughly before starting to assemble.

This warranty does not apply to repairs made by other than a WICO Authorized Customer Service Agent. For service within the warranty period and the name of your

local Authorized Customer Service Agent call the following number between 8:00AM and 4:00PM, Central Time, Monday through Friday.

Call toll free: 800-323-4240
For Illinois call collect: (312)-792-3833
For local calls in Chicago: 792-3833

This warranty does not cover bulbs, rubber rings or damage to plastic playfield or score unit covers. Note that game comes with a supply of replacement bulbs. Damage that occurs in transit can be claimed against the freight carrier or trucking company.

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

Customer Record

Stock No: 15-2001 Serial No: _____
Place Purchased: _____
Date Purchased: _____

Warranty Validation

Please fill in the requested information, fold envelope, insert proof of purchase date and mail as soon as possible.

Customer Name: _____
Customer Address: _____
Customer Phone: () _____
Date of Purchase: _____
Store Name: _____
Store Address: _____

1ST FOLD HERE

Please enclose sales slip or other proof of purchase date. Mail today.

LAST FOLD HERE

Stock No.: 15-2001

Serial No.



2ND FOLD HERE



BIG TOP PINBALL

COILS:

- 15-8014 POP BUMPER COIL AND SLEEVE
- 15-8017 SLINGSHOT COIL AND SLEEVE
- 15-8020 FLIPPER COIL AND SLEEVE
- 15-8023 CHIME COIL AND SLEEVE