

THE NAME OF THE GAME **"ELECTRONIC  
PINBALL"** by STERN



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## I. INSTALLATION

### Assemble the game as follows:

Bolt legs to cabinet. Using flat washers under bolt heads, bolt back box to cabinet. Feed cable connectors and ground braid through cable port in back box. Screw ground braid to braid in back box. Insert connectors so they are completely seated on printed circuit board assemblies.

On all games there are some items that must be checked after shipment. Making these visual inspections may avoid time consuming service work later. Minor troubles caused by abusive handling in shipment are unavoidable. Cable connectors may be loosened, switches (especially tilt switches) may go out of adjustment. Plumb bob tilt switches should always be adjusted after game is set on location and leg levelers are adjusted.

### Visual inspections before plugging in line cord:

1. Check wiring of transformer to correspond to location voltage. See figure 1.
2. Check the transformer for any foreign material shorting across wiring lugs.
3. Check that fuses are firmly seated and making good contact.
4. Check wire on coils for proper soldering. Cold solder connections may not show up in factory inspection, but vibration in shipment may break contact.
5. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of contacts.
6. Check for any wires that may have become disconnected.
7. Check that all cable connectors are completely seated on printed circuit board assemblies.
8. Check that cables are clear of all moving parts.

### Check adjustment of the three (normally open) tilt switches:

1. Plumb bob tilt on left side of cabinet near front door.
2. Ball tilt above plumb bob tilt. Insert the smaller ball (15/16" dia.) into the ball tilt assembly, and adjust the bracket so the ball will roll free to contact the switch blade, if front of cabinet is raised.
3. Panel tilt on bottom of playfield panel.

NOTE  
TO PROTECT SOLID STATE COMPONENTS  
BEFORE TOUCHING ANY COMPONENTS  
BACK BOX, DISCHARGE ANY POSSIBLE  
BUILD-UP BY TOUCHING A  
CIRCUIT, e.g. SIDE ARMOR, ETC.

FIGURE 1

# STERN 16B-3 TRANSFORMER WIRING CONNECTION INSTRUCTIONS

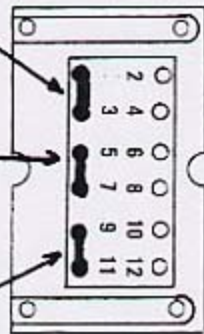
115/120V., 50/60 Cycle Input.

Varistor - Soldered to Line Filter on Left Side of Cabinet  
Must Be Stern Part No. 25A-18-1.

Solder Lugs 1 & 3  
Together. Solder Heavy  
Red Wire To Lug 1

120V  
Solder Lugs 5 & 7  
Together. Solder Heavy  
Yellow Wire To Lug 5

115V  
Solder Lugs 9 & 11  
Together. Solder Heavy  
Yellow Wire To Lug 9



220/240V., 50/60 Cycle Input.

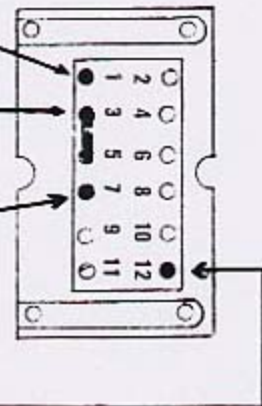
Varistor - Soldered to Line Filter on Left Side of Cabinet  
Must be Stern Part No. 25A-18-2.

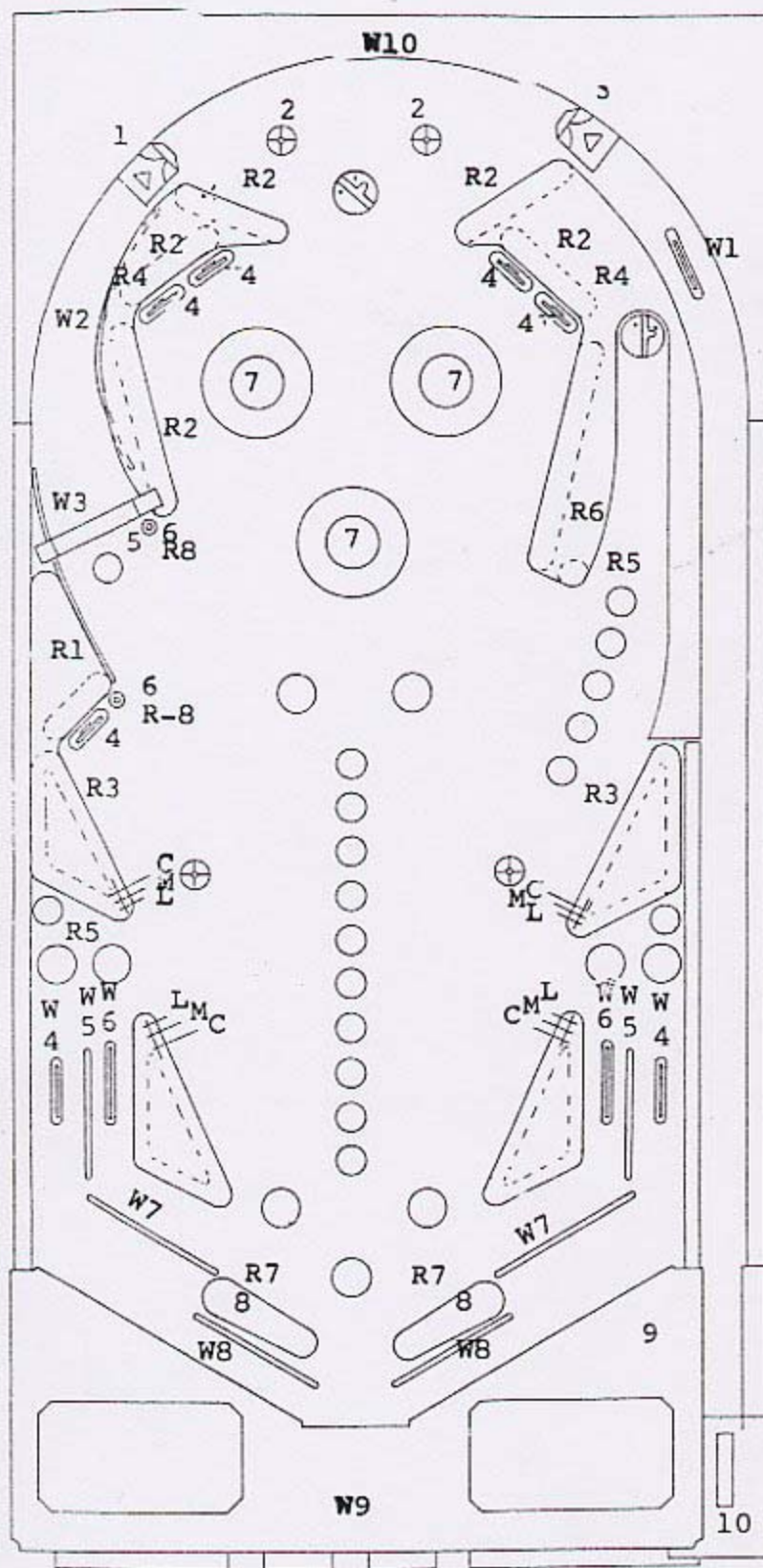
Solder Heavy Red Wire  
To Lug 1

Solder Lugs 3 & 5  
Together

240V  
Solder Heavy Yellow  
Wire To Lug 7

220V  
Solder Heavy Yellow  
Wire To Lug 12



Rubber Rings

|    |                          |
|----|--------------------------|
| R1 | 7A-120-100, 1"           |
| R2 | 7A-120-200, 2"           |
| R3 | 7A-120-300, 3"           |
| R4 | 7A-120-150, 1-1/2" (Top) |
| R5 | 7A-120-031, 5/16"        |
| R6 | 7A-120-250, 2-1/2"       |
| R7 | 7A-121                   |
| R8 | 7A-125                   |

Guide Wire & Rollover Wire

|     |          |
|-----|----------|
| W1  | A-149    |
| W2  | 6A-202   |
| W3  | 6A-135   |
| W4  | A-383    |
| W5  | 6A-101-A |
| W6  | A-149    |
| W7  | 6A-157-B |
| W8  | 6A-139   |
| W9  | A-150    |
| W10 | 1B-107   |

PlayField Plastic Shields

Top Arch Set 13C-100-1L & M  
Pinball Set 13C-101-1 to 7

MISCELLANEOUS PARTS

1. Ball Gate Left A-104-L
2. Rollover Bottom Ass'y A-181
3. Ball Gate Right A-104-R
4. Drop Target (See D.T. Page)
5. Spin Target Ass'y B-102-1
6. Ball Guide Post 2A-200
7. Tumper Cap 13A-6-1
8. Flipper & Shaft A-192  
Flipper 4B-122-W
9. Bottom Arch 14B-1-1
10. Shooter Gauge 14B-2-1

C- Conservative  
M- Medium  
L-Liberal

## II. GENERAL GAME OPERATION

### ACE BALL INTO PLAYFIELD BY OUTHOLE.

**COIN GAME.** Coin should be rejected. Plug in line cord. For proper game operation grounding circuit must be used. Move power ON-OFF Toggle Switch at bottom right front corner of cabinet to "ON" position. The game will play a tune to announce game-readiness. Drop targets are reset, scores are reset to zero, alternating with the "High Game to Date", and the game is ready for play. Coin Game. The game should accept the coin and post credits\* for coins accepted (adjustable). Pressing the credit button on the door will cause the outhole kicker to move the ball to the shooter lane. The 1st player-up lite becomes lit. A tune\* is played to announce play-readiness. The bonus score is at 10,000 points.

One player is registered each time the credit button is pressed (one to four can play). The credits are reduced by one each time the credit button is pressed until the credits are reduced to zero. Credit button is in-operative after 4 player's are registered.

Shooting the ball initiates play. Rebound switches score 10 points. Thumper-bumpers, when not lit, score 100 points.

When the ball enters the outhole, the bonus score is added to the players score. The player-up and/or ball in play on the back box is advanced one position. The bonus score starts at 10,000 points. The outhole kicker moves the ball to the shooter lane and play is resumed. This continues until each player has played the allowable number of balls per game (adjustable). At this time the "Game Over" light becomes lit. A random Match\* number appears and the "Match" light becomes lit. If the match number is the same as the last two digits in the player's score, a free game is awarded.

Extra ball won during the course of the game is played immediately after the player's regular ball enters the outhole. The player-up and/or ball in play are not advanced for extra ball play. Bonus score is added to the player's score and the bonus is set to 10,000 points before the game moves the extra ball for play.

At the end of the game, a "High Game to Date" is alternately flashed with all player scores. If the "High Score to Date" is beat, this feature\* can award 3 free games.

Tilting the game results in loss of the ball in play. The flippers, thumper-bumpers, etc., go "dead". Bonus points are not scored. The purpose of the tilt penalty is to discourage the player from jostling the machine in an attempt to prolong play. Game action becomes normal after the outhole kicker moves the ball to the shooter lane.

Slamming the machine results in the loss of the game. All feature lights go out and the game becomes "dead", through a built-in time delay circuit. The purpose of the time delay circuit is to discourage abuse of the machine. After the delay, the "Game Over" light lites and the game readiness tune is played. The time delay occurs anytime one of the slam switches is made to contact. There is a slam switch on the front door. One on the tilt board and one on the playfield. (Any number of slam switches could be installed by the operator, to meet his individual requirement). The switch should be adjusted to have approximately 1/16" gap between the contacts. The weighed blade should be adjusted to attain the desired sensitivity. Decreasing gap between contacts will make the switch more sensitive. Opening the gap will reduce sensitivity.

### III. BOOKKEEPING FUNCTIONS

The game is designed to help the operator perform certain accounting functions. The game can display the number of total plays and replays (free games)\*. It can display the number of coins inserted into each coin chute. Each bookkeeping function is displayed on all player score displays simultaneously. An identification number 05 to 11 appears on the Match/Ball-in-Play window as follows:

#### DESCRIPTION

|                                                |                     |
|------------------------------------------------|---------------------|
| Current Credits .....                          | = 05 00000 to 00004 |
| Total Plays (Played & Free Games) .....        | = 06 00000 to 99999 |
| Total Replays (Free Games) .....               | = 07 00000 to 99999 |
| Total Times "High Score to Date" is beat ..... | = 08 00000 to 99999 |
| Coins Dropped Thru Coin Chute #1** .....       | = 09 00000 to 99999 |
| Coins Dropped Thru Coin Chute #2** .....       | = 10 00000 to 99999 |
| Coins Dropped Thru Coin Chute #3** .....       | = 11 00000 to 99999 |

The game displays the first bookkeeping entry if the Self-Test Button (See Fig. 3) on the inside of the front door is pushed and released nine times at one second intervals. The number 05 now appears in the "Match/Ball-in Play" window. Current credits appear on all player score displays. Each additional press of the button causes the next entry to be displayed.

After the data in each bookkeeping register is recorded, it can be set to zero simply by pressing switch button S33, located on the MPU module in the back box. (See Fig. 3). Any or all registers can be cleared by alternating between the Self-Test button and the switch button on the MPU module. The operator is given this option as a possible convenience and can elect to use or not use it as needed.

Pressing the button once more with the eleventh entry displayed causes the game to play the power-up tune and light the Game-Over Light.

- \* Some tunes and features can be disabled by operator if so desired. See Back Box Adjustments.
- \*\* If Coin Chute is not used in game, number displayed (if other than 00) on Player Score Displays has no significance.

## IV FEATURE OPERATION AND SCORING

### BONUS SCORE FEATURE:

A bonus of 10,000 to 100,000 may be scored. The game starts with a bonus score of 10,000. The bonus score advances one step at a time, each time the ball goes over one of four "Advance Bonus" roll-over buttons and the button is lit. The two outlanes also advance the bonus score. The bonus is collected when the ball goes into the outhole.

### DOUBLE BONUS FEATURE:

The "Double Bonus" is awarded when the right eject hole score lite value (Lites Double Bonus) is lit and ball goes into the right hole. The Double Bonus lite goes out when a ball goes into the outhole and the Bonus Score is collected.

### TRIPLE BONUS FEATURE:

The "Triple Bonus" is awarded after the right eject hole score lite value (Lites Top Center Hole) is lit, the ball goes into the right eject hole lighting center top hole and then the ball goes into the center top eject hole. The Triple Bonus lite goes out when a ball goes into the outhole and the Bonus Score is collected.

### 5 DROP TARGET FEATURES:

**1st Time Down:** Each drop target scores 1000 points, all drop targets down awards 10,000 additional points.

**2nd Time Down:** Each drop target scores 1000 points, all drop targets down awards 10,000 additional points and is adjustable to:

- 1) Outlane Special lite on and 1 free game (free game everytime down thereafter).
- 2) Outlane Special lite on only.

Each drop target down thereafter scores 1000 points, all drop targets down awards 10,000 additional points.

Drop Targets Feature reset for every ball.

### SPECIAL LITE OUTLANE FEATURE:

Adjustable for one lite to alternate or both lites to stay on. When lite is lit and ball goes down outlane, 4 adjustable award options are available:

- 1) 1 extra ball
- 2) 1 free game
- 3) 1 extra ball and 1 free game
- 4) 100,000 points

### SPINNER FEATURES:

Unlit spinner scores 100 points, lit spinner scores 1,000 points. The lit Spinner 1000 points is lit when the right eject hole scores lit value (Lites Spinner) is lit and ball goes into the right eject hole. The Spinner 1000 lite goes out when a ball goes into the outhole.

## V. GAME ADJUSTMENTS

### A. Playfield Post Adjustments:

Posts that control left and right outlane openings on playfield can be moved to make access to outlanes conservative or liberal for ball to enter. See Figure 2.

Conservative entry will decrease playing time and scoring.

Liberal entry will increase playing time and scoring.

### B. Back Box Game Adjustments:

Each game has thirty-two switches located on the MPU module, located in the back box, that allow play to be customized to the location. See Figure 3. Credits per coin, maximum credits, credit display, balls per game, match feature, high game feature, special award and melody are selectable by means of the switches. The switches are contained in four sixteen lead packages numbered S1-8, S9-16, S17-24 and S25-32 for easy identification. The "ON" toggle position is marked on the assembly. TURN OFF POWER BEFORE MAKING ADJUSTMENTS.

#### Credits/Coin Adjustments:

The #1 coin chute (next to hinge) is not adjustable and will only give 1 game per coin.

The credits given per coin are selectable by means of switches 1-5 incl. for coin chute #2 and switches 9-13 incl. for coin chute #3. Thirty-one different credit ratios are available for each coin chute. The switch settings and resultant credits/coin are listed below:

### CREDITS/COIN ADJUSTMENTS

| COIN CHUTE                 | SWITCHES |     |     |     |     | CREDITS/COIN |
|----------------------------|----------|-----|-----|-----|-----|--------------|
| #2 (CENTER CHUTE)<br>OR #3 | 5        | 4   | 3   | 2   | 1   |              |
|                            | 13       | 12  | 11  | 10  | 9   |              |
|                            | OFF      | OFF | OFF | OFF | OFF | 3/2 COINS**  |
|                            | OFF      | OFF | OFF | OFF | ON  | 3/2 COINS**  |
|                            | OFF      | OFF | OFF | ON  | OFF | 1/COIN       |
|                            | OFF      | OFF | OFF | ON  | ON  | 1/2 COINS*   |
|                            | OFF      | OFF | ON  | OFF | OFF | 2/COIN       |
|                            | OFF      | OFF | ON  | OFF | ON  | 2/2 COINS*   |
|                            | OFF      | OFF | ON  | ON  | OFF | 3/COIN       |
|                            | OFF      | OFF | ON  | ON  | ON  | 3/2 COINS*   |
|                            | OFF      | ON  | OFF | OFF | OFF | 4/COIN       |
|                            | OFF      | ON  | OFF | OFF | ON  | 4/2 COINS*   |
|                            | OFF      | ON  | OFF | ON  | OFF | 5/COIN       |
|                            | OFF      | ON  | OFF | ON  | ON  | 5/2 COINS*   |
|                            | OFF      | ON  | ON  | OFF | OFF | 6/COIN       |
|                            | OFF      | ON  | ON  | OFF | ON  | 6/2 COINS*   |
|                            | OFF      | ON  | ON  | ON  | OFF | 7/COIN       |
|                            | OFF      | ON  | ON  | ON  | ON  | 7/2 COINS*   |
|                            | ON       | OFF | OFF | OFF | OFF | 8/COIN       |
|                            | ON       | OFF | OFF | OFF | ON  | 8/2 COINS*   |
|                            | ON       | OFF | OFF | ON  | OFF | 9/COIN       |
|                            | ON       | OFF | OFF | ON  | ON  | 9/2 COINS*   |
|                            | ON       | OFF | ON  | OFF | OFF | 10/COIN      |
|                            | ON       | OFF | ON  | OFF | ON  | 10/2 COINS*  |
|                            | ON       | OFF | ON  | ON  | OFF | 11/COIN      |
|                            | ON       | OFF | ON  | ON  | ON  | 11/2 COINS*  |
|                            | ON       | ON  | OFF | OFF | OFF | 12/COIN      |
|                            | ON       | ON  | OFF | OFF | ON  | 12/2 COINS*  |
|                            | ON       | ON  | OFF | ON  | OFF | 13/COIN      |
|                            | ON       | ON  | OFF | ON  | ON  | 13/2 COINS*  |
|                            | ON       | ON  | ON  | OFF | OFF | 14/COIN      |
|                            | ON       | ON  | ON  | OFF | ON  | 14/2 COINS*  |
|                            | ON       | ON  | ON  | ON  | OFF | 15/COIN      |
|                            | ON       | ON  | ON  | ON  | ON  | 15/2 COINS*  |

\* No credits until second coin dropped.

\*\* One Credit for first coin. Two Credits for second coin provided that no scoring occur between 1st and 2nd coin drop. If scoring occurred, second coin gives one credit.

1. **MAXIMUM CREDITS:**

The maximum credits accepted by the machine limits the number of games that can be accumulated by coining, by winning replays or both. The maximum number of credits are adjustable by means of switches 17, 18 and 19. Eight credits limits are available. Switch settings are listed below:

| MAXIMUM<br>CREDITS | SWITCHES |     |     |
|--------------------|----------|-----|-----|
|                    | 19       | 18  | 17  |
| 5 .....            | OFF      | OFF | OFF |
| 10 .....           | OFF      | OFF | ON  |
| 15 .....           | OFF      | ON  | OFF |
| 20 .....           | OFF      | ON  | ON  |
| 25 .....           | ON       | OFF | OFF |
| 30 .....           | ON       | OFF | ON  |
| 35 .....           | ON       | ON  | OFF |
| 40 .....           | ON       | ON  | ON  |

2. **BALL PER GAME:**

| No. of BALLS PER GAME | SWITCH 7 |
|-----------------------|----------|
| 5                     | ON       |
| 3                     | OFF      |

3. **CREDIT DISPLAY:**

| CREDITS DISPLAY | SWITCH 20 |
|-----------------|-----------|
| YES             | ON        |
| NO              | OFF       |

4. **HIGH SCORE FEATURE:**

The game is designed to award an Extra Ball or Free Game at one, two or three high score levels. See Front Door Game Adjustments.

| AWARD      | SWITCH 6 |
|------------|----------|
| EXTRA BALL | OFF      |
| REPLAY     | ON       |

5. **HIGH GAME TO DATE FEATURE:**

The game is designed to award 3 free games as an option if high score to date is beat. Each time this happens, the winning score becomes the new high game score to beat. This score is displayed on all 4 player score displays at the end of each game as an incentive to play. Recommended setting is underlined.

| HIGH SCORE TO DATE FEATURE | SWITCH 15      |
|----------------------------|----------------|
| FREE GAMES                 | ON             |
| NOVELTY                    | OFF            |
| 3 Ball 500,000             | 5 Ball 840,000 |

6. **MATCH FEATURE:**

When the Match Feature is ON, a random number appears in the "Match/Ball in Play" window and the word MATCH is illuminated. If the number matches the tens digit in a player's score, a free game is awarded. The Match features creates an incentive to play.

| MATCH | SWITCH 21 |
|-------|-----------|
| ON    | ON        |
| OFF   | OFF       |

# 7. MELODY OPTION:

The game is designed to play melodies to announce power-up, credit, etc. Some tunes are adjustable by Switch 8.

| GAME MELODY         | SWITCH 8  | MELODY       |
|---------------------|-----------|--------------|
| POWER-UP .....      | ON .....  | Full Melody  |
| " .....             | OFF ..... | Full Melody  |
| COIN .....          | ON .....  | Full Melody  |
| " .....             | OFF ..... | 2 Tones Only |
| CREDIT BUTTON ..... | ON .....  | Full Melody  |
| " .....             | OFF ..... | 2 Tones Only |
| GAME OVER .....     | ON .....  | Full Melody  |
| " .....             | OFF ..... | Full Melody  |

# 8. PRO/NOVICE FEATURE:

This feature enables the "Outlane, Thumper Bumpers, and Bonus Rollover Lites" to either all stay on when activated or alternate, thereby changing game scoring.

| Pro/Novice   | Switch 16 |
|--------------|-----------|
| ALTERNATE    | ON        |
| ALL LITES ON | OFF       |

# 9. OUTLANE SPECIAL AWARD:

Awards received when going through the outlane when the "Special" lite is lit can be adjusted as follows:

| AWARD                      | SWITCHES | POSITION |
|----------------------------|----------|----------|
| FREE BALL                  | 31       | ON       |
|                            | 32       | OFF      |
| FREE GAME                  | 31       | OFF      |
|                            | 32       | ON       |
| 100,000 POINTS             | 31       | OFF      |
|                            | 32       | OFF      |
| FREE BALL AND<br>FREE GAME | 31       | ON       |
|                            | 32       | ON       |

# 10. DROP TARGET:

Award for hitting all 5 drop target's down the **second time** can be adjusted as follows:

| AWARD                                                                                            | SWITCH 24 |
|--------------------------------------------------------------------------------------------------|-----------|
| Special Lite On<br>and 1 Free Game (Free Game<br>awarded everytime 5 targets<br>down thereafter) | ON        |
| Special Lite on only                                                                             | OFF       |

## VI. FRONT DOOR GAME ADJUSTMENTS:

### HIGH SCORE FEATURE ADJUSTMENTS:

The game is designed to award an extra ball or a free game (option) at three score levels. (See High Score Feature Switch 6 Function). The recommended levels are on the score card on the game.

Any level from 10,000 or 990,000 can be set, as desired. It is also possible to reset or turn off (00) any or all of the levels, if desired.

1. Push and release Self-Test button at one second intervals five times or until number 01 appears on the Match/Ball in Play display.
2. The number on the Player Score Displays is the first score level\*. It can be increased, if desired, by holding the credit button in. To decrease the score level, reset to '00', and then hold the credit button in. Release the credit button when the desired High Score appears. Note that the level changes 10,000 points at a time. If the number '00' is left on the displays, the high score feature is eliminated for that level.
3. Repeat steps 1 and 2 for the second and third high score levels. The number '02' and '03' on the Match/Ball-in-Play display are for the second and third levels, respectively.

NOTE: Only One Extra Ball Can Be Achieved Per Ball In Play.

### HIGH GAME TO DATE FEATURE:

The game is designed to award 3 free games (option) when "High Game to Date" is beat. For the recommended, factory preset level, see page 6.

It is recommended that the level, which will build with game play, be periodically reset to the factory recommended level to encourage game play. The adjustment procedure is the same as for the High Score Feature Adjustment, Steps 1 and 2. Continue pushing the Self-Test button until the number '04' appears on the Match/Ball-in-Play display and then do Step 2.

Any level from '00' to 990,000 can be set as described. It is to be noted that '00' does not turn off the feature, as it does on High Score feature. The feature is turned off by positioning switch 6 to the "OFF" position.

\*Can be quickly set to '00' by pressing S33 on the MPU assembly in the back box. See Figure 3.

## VII. ROUTINE MAINTENANCE ON LOCATION:

Self tests, which are programmed into the design of the game, are very helpful. As with any solid state piece of equipment the three prong grounding receptacle is a important piece part of the game, that must not be tampered with and must be used properly.

### MPU MODULE SELF-TEST:

During power up, the MPU assembly tests itself, which can visibly be seen by the flashing of a LED on the board. When the game is turned on, the LED will flash once, pause, then flash six more times and go out. A tune is then played to announce game readiness. This indicates proper MPU game operating conditions.

### GAME SELF-DIAGNOSTIC TESTS:

Pressing the Self-Test button inside the coin door one time activates the game into its self-diagnostic test.

1. Feature lamps: All feature lamps will flash on and off continuously, determining any burnt lamps.
2. Pressing the Self-Test button again causes each digit on all displays to cycle from 0 thru 9, and repeat continuously.
3. Pressing the Self-Test button again causes each solenoid to be energized, one at a time, in a continuous sequence. Holding both flipper buttons "in" during this test will cause the flipper coils to be energized. The number appearing on the Player Score displays is the same as the number assigned to the solenoid. The sound of a solenoid pulling-in as a number appears indicates proper operation. The absence of a sound shows a fault. If sound is absent, see Solenoid I.D. Page for help in Solenoid identification.
4. Pressing the Self-Test button again causes the MPU to look at each switch assembly for stuck contacts.\* If there are any stuck, the number of the first set encountered is flashed on the Player Score displays. The number remains until the fault is corrected. See Switch I.D. page for help in Stuck Switch identification. Other numbers may follow if more stuck contacts are present. If there are no stuck switches, the Match/Ball in Play display flashes '0'. DO NOT BURNISH OR FILE GOLD PLATED SWITCH CONTACTS.  
\* Flipper Button Switches are not included.
5. Pressing the Self-Test button eleven more times causes the MPU to step thru the game levels and book-keeping functions described previously and finally to repeat the power-up test. To by-pass these functions, turn the game off, then on. The game is now ready to play, after the MPU Self-Test.

Set the game up for play, after successful completion of the Self Diagnostic Test procedure. Exercise each roll-over, thumper-bumper, slingshot, etc., by hand until each switch assembly on the playfield has been checked for proper operation. If actuating a switch assembly results in intermittent or no response, clean contacts by gently closing them on a clean business card or piece of paper and wiping until they wipe clean. Regap, if necessary, to 1/16". Do not burnish or file Gold Plated Switch Contacts.

## VIII CONTACT SWITCH ADJUSTMENTS

All contact switches should be adjusted to have a gap of 1/16" in the open position, and have .010" overtravel closed. All contact switches (except for flipper button & flipper end of stroke) are plated to resist corrosion and, **SHOULD NOT BE FILED OR BURNISHED**. If contacts have dirt or dust on them, a clean piece of paper should be used to clean them, by closing the contacts and wiping gently.

**FLIPPER BUTTON & FLIPPER END OF STROKE SWITCHES ONLY.** Tarnish or pitted contacts can be corrected with a contact file followed by a burnishing tool. Severely pitted contacts must be replaced as an assembly.

## PLAYFIELD

Stern playfields have a durable long life playing finish. Its life expectancy, as well as playing appeal can be greatly extended by periodic cleaning. Inspect and hand polish the ball with a clean cloth. A chipped ball must be replaced, as it will ruin the finish on the playfield. Do not use water in large quantities, highly caustic cleaners, abrasive cleaners or cleaning pads on the playfield surface.

**IX. SWITCH IDENTIFICATION  
SELF TEST DISPLAY NUMBERS**

Note: Flipper button cabinet switches do not appear on test.

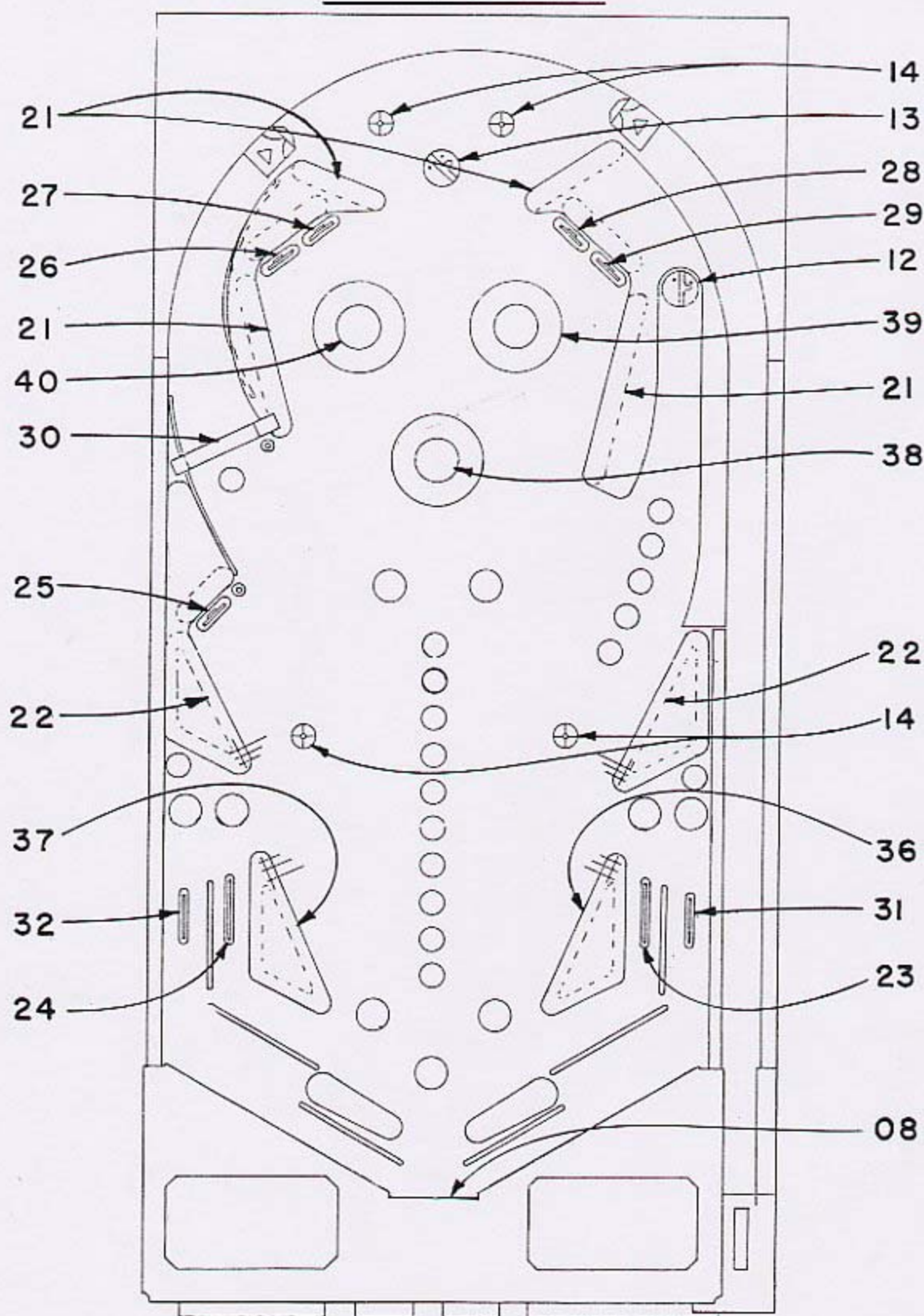
**SWITCH NO. SWITCH LOCATION**

|    |                   |
|----|-------------------|
| 01 |                   |
| 02 |                   |
| 03 |                   |
| 04 |                   |
| 05 |                   |
| 06 | CREDIT BUTTON     |
| 07 | TILT              |
| 08 | OUTHOLE           |
| 09 | COIN #3 (RT)      |
| 10 | COIN #2 (CTR)     |
| 11 | COIN #1 (LT)      |
| 12 | RT SAUCER         |
| 13 | TOP SAUCER        |
| 14 | (4) ADVANCE BONUS |
| 15 | ROLL-OVERS        |
| 16 | SLAM              |
| 17 |                   |
| 18 |                   |
| 19 |                   |
| 20 |                   |

**SWITCH NO. SWITCH LOCATION**

|    |                      |
|----|----------------------|
| 21 | (4) 10 POINT SWS     |
| 22 | R & L 50 POINT       |
| 23 | RT INNER OUTLANE     |
| 24 | LT INNER OUTLANE     |
| 25 | LT CTR DROP TAR.     |
| 26 | LT TOP OUT DROP TAR. |
| 27 | LT TOP IN DROP TAR.  |
| 28 | RT TOP IN DROP TAR.  |
| 29 | RT TOP OUT DROP TAR. |
| 30 | SPINNER              |
| 31 | RT OUT OUTLANE       |
| 32 | LT OUT OUTLANE       |
| 33 |                      |
| 34 |                      |
| 35 |                      |
| 36 | RT SLINGSHOT         |
| 37 | LT SLINGSHOT         |
| 38 | BOTTOM BUMPER        |
| 39 | RIGHT BUMPER         |
| 40 | LEFT BUMPER          |

# SWITCHES



## SWITCHES NOT ON PLAYFIELD:

06 CREDIT BUTTON  
07 ROLL TILT  
07 PENDULUM  
09 RIGHT CHUTE

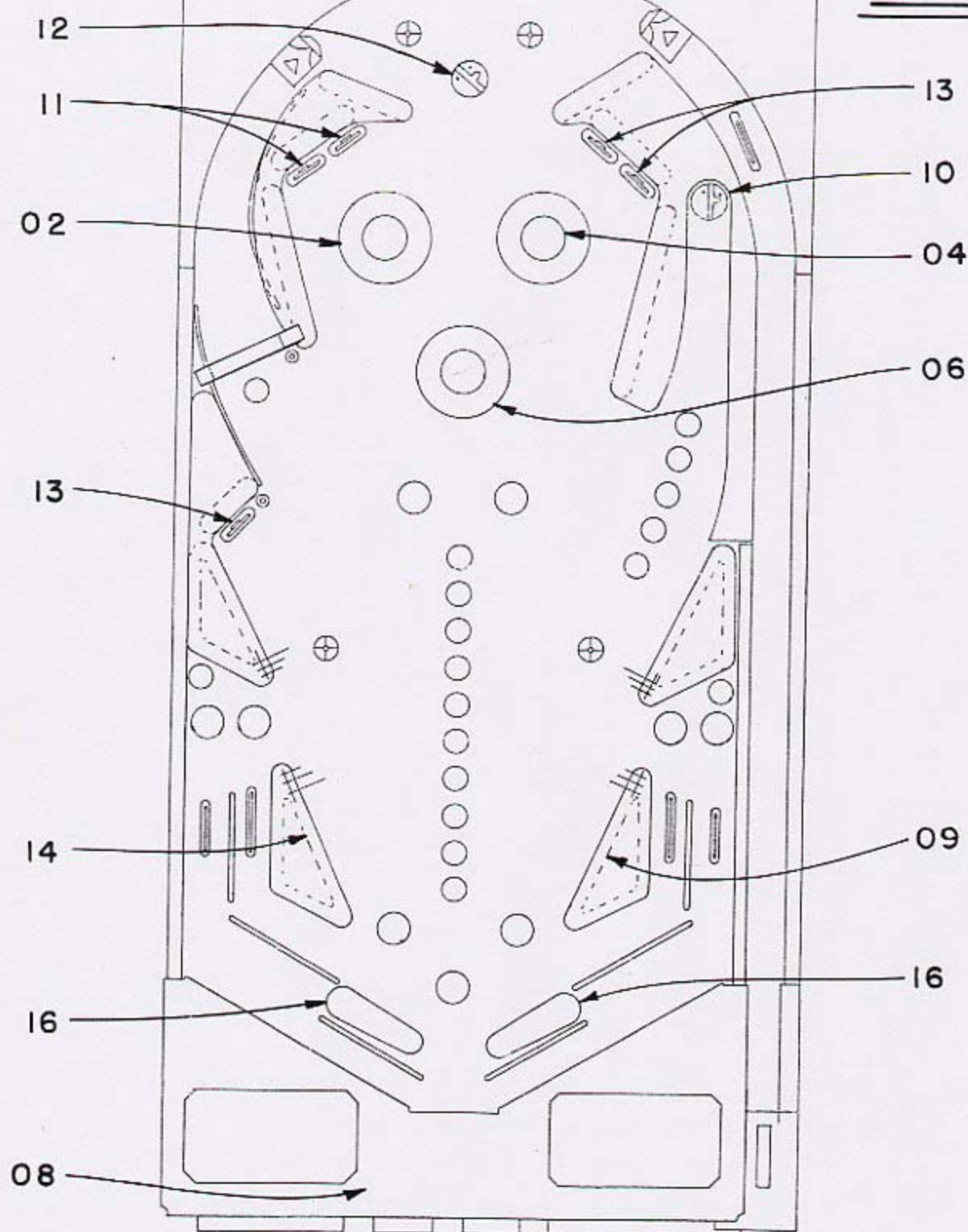
10 CENTER CHUTE  
11 LEFT CHUTE  
16 DOOR VIB.  
16 PLAYBOARD VIB.  
16 TILTBOARD VIB.

## X. SOLENOID IDENTIFICATION

### SELF TEST DISPLAY NUMBERS

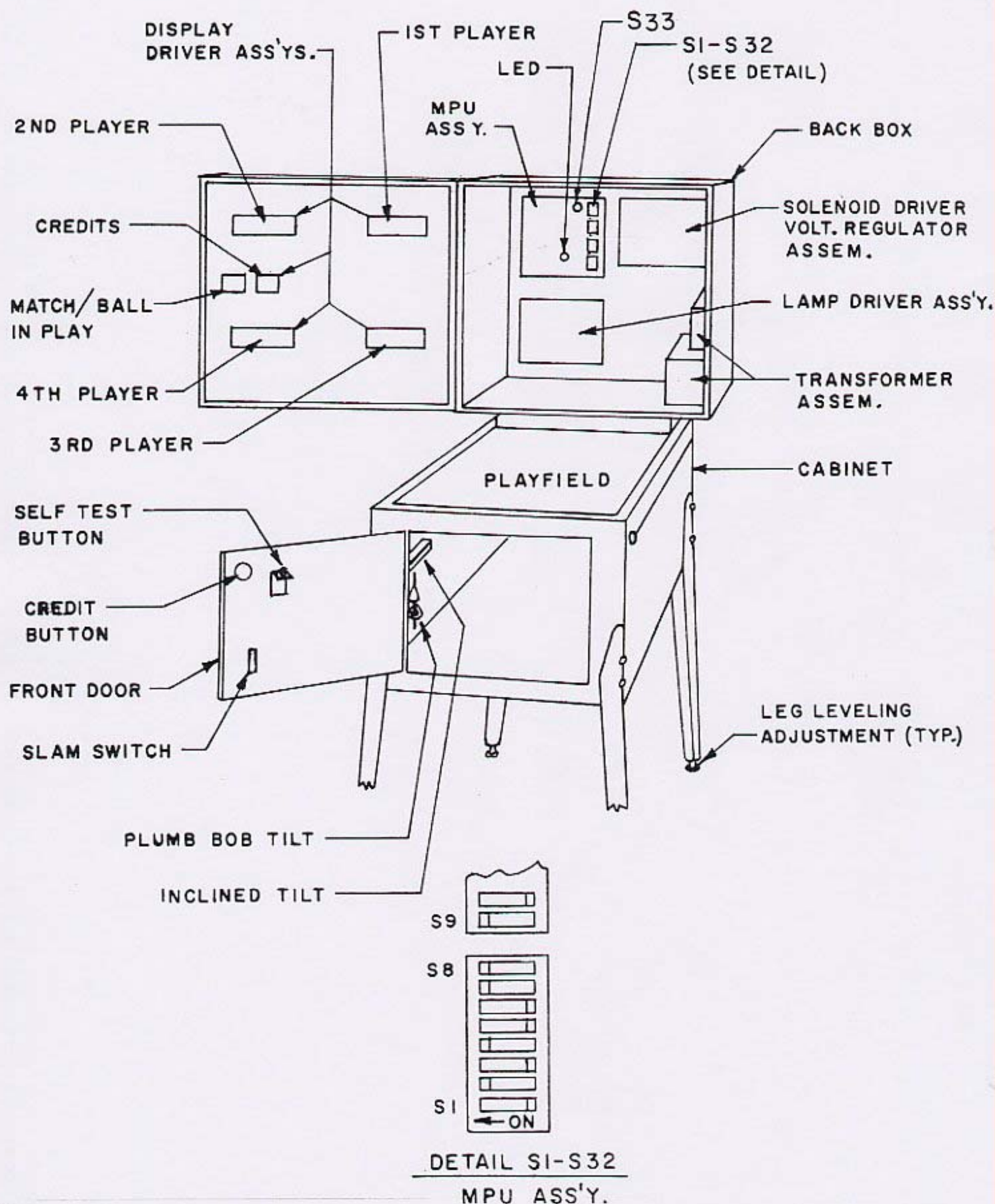
| SOLENOID NO. |       | SOLENOID LOCATION                                 |
|--------------|-------|---------------------------------------------------|
| 01           | ..... | CHIME (10) (SMALL)                                |
| 02           |       | THUMPER - LEFT TOP                                |
| 03           |       | CHIME (100)                                       |
| 04           | ..... | THUMPER - RIGHT TOP                               |
| 05           |       | CHIME (1,000)                                     |
| 06           |       | THUMPER - CENTER BOTTOM                           |
| 07           | ..... | CHIME (10,000)                                    |
| 08           |       | OUT HOLE                                          |
| 09           |       | RIGHT SLINGSHOT                                   |
| 10           | ..... | RIGHT HOLE                                        |
| 11           |       | (2) LEFT TARGETS                                  |
| 12           |       | TOP HOLE                                          |
| 13           | ..... | (2) RIGHT & LOWER LEFT TARGETS                    |
| 14           |       | LEFT SLINGSHOT                                    |
| 15           |       | KNOCKER                                           |
| 16           | ..... | (2) FLIPPERS & RELAY ON SOL.<br>DRIVER P.C. BOARD |
| 17           |       | COIN LOCK OUT                                     |

## SOLENOIDS

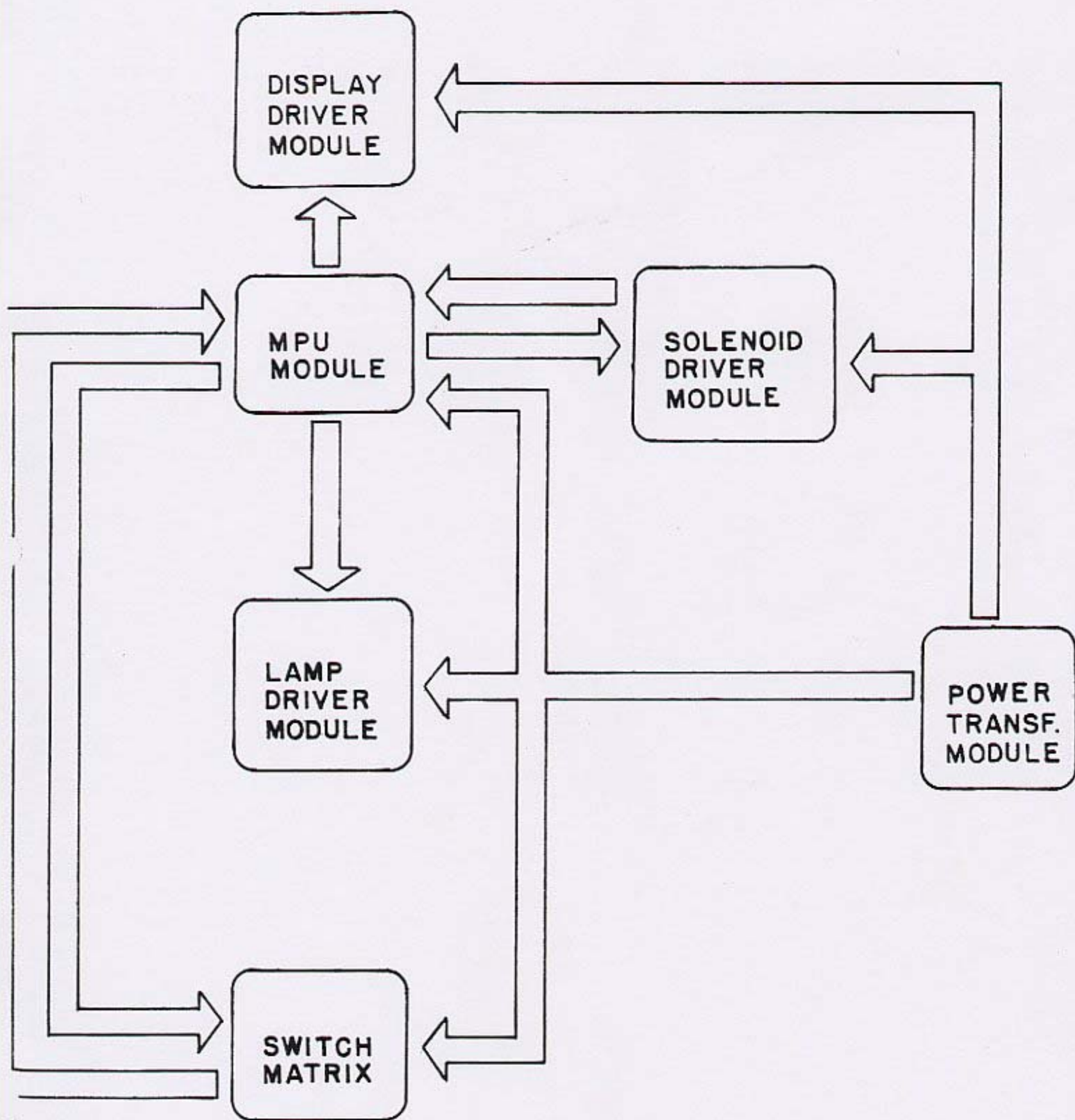


### **SOLENOIDS NOT ON PLAYFIELD**

- 01 BELL (SMALL)
- 03 BELL
- 05 BELL
- 07 BELL
- 15 KNOCKER
- 17 LOCKOUTS



BLOCK DIAGRAM



# **XI. PARTS LIST** **GAME #101-E ELECTRONIC PINBALL**

## **MISCELLANEOUS**

## **PART NUMBER**

|                                        |        |
|----------------------------------------|--------|
| Transformer (Domestic or Export) ..... | 16B-3  |
| Transformer & Rectifier Board .....    | C-464  |
| Bulbs, #44 .....                       | 8A-101 |

## **ASSEMBLY COILS**

|                                |                  |
|--------------------------------|------------------|
| Chimes (4) .....               | N-31-2000        |
| Coin Lockout .....             | C-36-5500        |
| Flipper Left & Right (2) ..... | J-25-500/34-5050 |
| Knocker .....                  | N-26-1200        |
| Outhole Kicker .....           | J-26-1200        |
| Saucer Eject (2) .....         | J-28-2300        |
| Thumper-Bumper (3) .....       | J-26-1200        |
| Sling-Shot (2) .....           | J-26-1200        |
| Drop Target (Reset) (5) .....  | J-27-1500        |

## **MODULES**

|                                         |       |
|-----------------------------------------|-------|
| Lamp Driver .....                       | B-431 |
| Display Driver (5 Used) .....           | A-434 |
| Solenoid Driver/Voltage Regulator ..... | B-432 |
| MPU .....                               | C-433 |
| Rectifier Board .....                   | A-430 |

|                       |                          |
|-----------------------|--------------------------|
| PLAYFIELD PARTS ..... | SEE PLAYFIELD<br>DIAGRAM |
|-----------------------|--------------------------|