



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 (gold 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

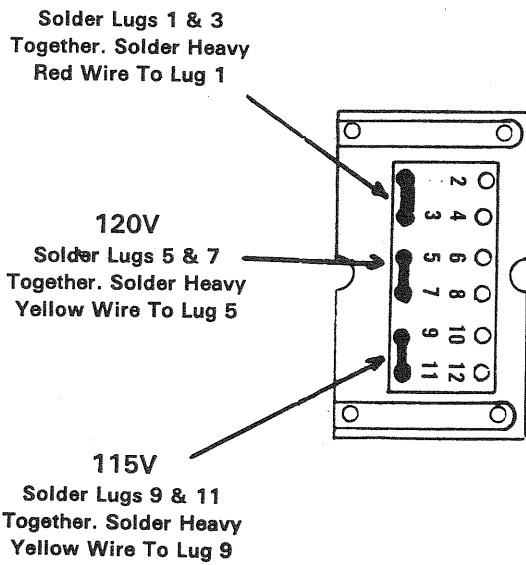
TO PROTECT SOLID STATE COMPONENTS
BEFORE TOUCHING ANY COMPONENT IN THE
BACK BOX, DISCHARGE ANY POSSIBLE STATIC
BUILD-UP BY TOUCHING ANY GROUND
CIRCUIT, e.g. SIDE ARMOR, GROUND BRAID.

FIGURE 1

STERN 16B-3 TRANSFORMER WIRING CONNECTION INSTRUCTIONS

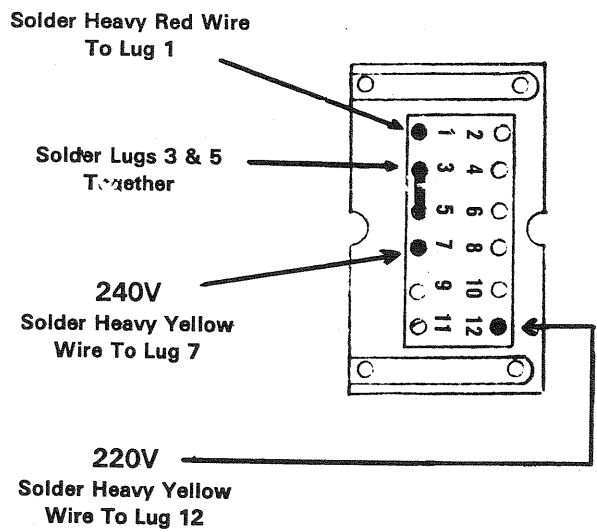
115/120V., 50/60 Cycle Input.

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



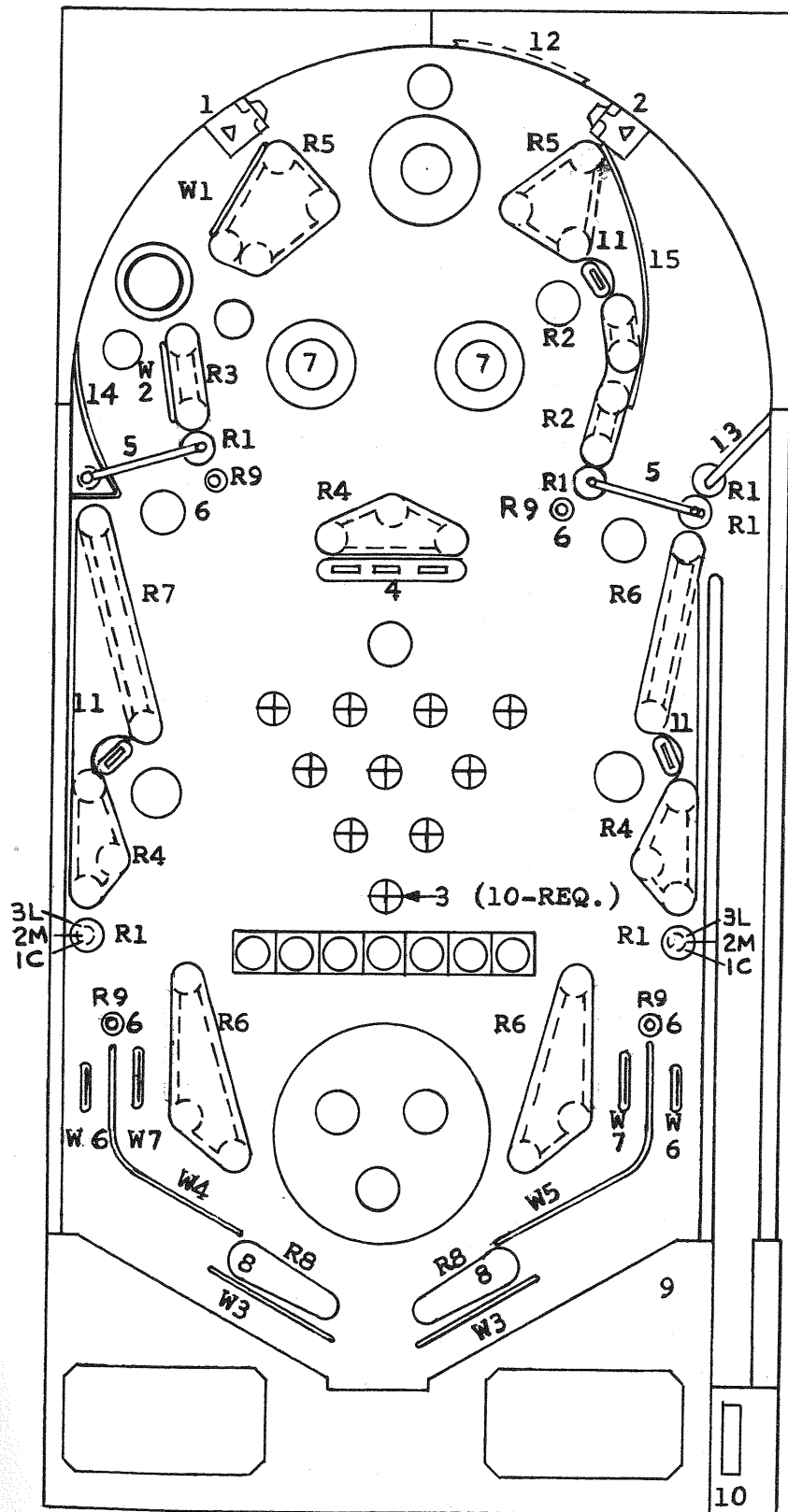
220/240V., 50/60 Cycle Input.

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



MEMORY LANE - Playfield Chart

FIGURE 2



POST ADJUSTMENT

- 1C - Conservative
- 2M - Medium
- 3L - Liberal

RUBBER RINGS

R1	7A-120-031	5/16" DIA.
R2	7A-120-100	1" DIA.
R3	7A-120-150	1-1/2" DIA.
R4	7A-120-200	2" DIA.
R5	7A-120-225	2-1/4" DIA.
R6	7A-120-250	2-1/2" DIA.
R7	7A-120-300	3" DIA.
R8	7A-121 W	(Flipper)
R9	7A-125	

GUIDE WIRE & ROLL OVER WIRE

W1	6A-101-E
W2	6A-101-F
W3	6A-139-1 (2 REQ'D)
W4	6A-225
W5	6A-226
W6	A-388
W7	A-149

PLAYFIELD PLASTIC SHIELDS

TOP ARCH SET 13C-104-1L & 1R

MEM. LANE SET 13A-104-1 to -8

MISCELLANEOUS PARTS

1. BALL GATE, LEFT A-104-L
2. BALL GATE, RIGHT A-104-R
3. ROLL OVER BUTTON 4B-241
4. BANK TARGET D-393-3B
5. SPIN TARGET B-102-3
6. BALL GUIDE POST 2A-200
7. THUMPER CAP 13A-18
8. FLIPPER & SHAFT A-192
FLIPPER 4B-122-W
9. INSTRUCTION PLATE 14B-1-3
10. SHOOTER GAUGE 14A-2-2
11. TARGET ASS'Y. A-461
12. TOP ARCH RAIL 6B-222
13. BALL GATE ASS'Y. A-471
14. BALL GUIDE RAIL 1A-554
15. GUIDE RAIL ASS'Y. A-473

II. GENERAL GAME OPERATION

PLACE 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.

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 or 50 points.

When the ball enters the outhole, a bonus score is added for each strike made and each pin made. 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 strikes made and pins made positions are retained from ball to ball permitting greater number of strikes to be made.

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

Tilting the game results in loss of the ball in play. The flippers, thumper-bumpers, etc., go "dead". Bonus score is not added. 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.

** Some tunes and features can be disabled by operator is so desired. *** See back box adjustments. *****

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 000040
Total Plays (Played & Free Games)	= 06 00000 to 999999
Total Replays (Free Games)	= 07 00000 to 999999
Total Times "High Game to Date" is beat	= 08 00000 to 999999
Coins Dropped Thru Coin Chute 2"	= 09 00000 to 999999
Coins Dropped Thru Coin Chute 1"	= 10 00000 to 999999
Coins Dropped Thru Coin Chute #3**	= 11 00000 to 999999

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 feature 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 & SCORING

BONUS SCORE FEATURES:

A bonus of 0 to 79,000 may be scored. The game starts with no bonus score - The bonus score is awarded on the basis of 10,000 points for each strike made and 1,000 points for each pin made. (When all 10 pins are made a strike is spotted and the rollovers lite again for additional bonus). The bonus is collected when the ball goes into the outhole.

ROLLOVER BUTTONS:

The rollover buttons are arranged to simulate a rack of bowling pins and score 100 points each time the ball rolls over the button. The first time the roll over button is made its corresponding lite is turned off, making all ten of them spots a strike and all 10 lites are turned back on so that additional strikes can be made.

DROP TARGETS FEATURE:

Each target scores 500 points - all targets down score strike when "X" is lit - hitting the first target down when "X" is lit will cause the lite to stay on until the entire bank is made or the ball goes into the outhole. The alteration of the strike ("X") lite is adjustable.

Everytime all drop targets are down an additional 3,000 points is scored.

STATIONARY TARGETS:

Stationary targets score 500 points. After the required number of strikes are made (adjustable), the special lite lights; the special Lite changes position everytime a 10 point and change switch is made. Hitting the target with the special lite lit, awards special and then is adjustable to:

1. go out - 1 special per ball
2. open ended - continues to move and can be made

Once special feature lites, it will come up again on all remaining balls left in the game.

Special Lite Feature Adjustable To Award

1. 1 Free Game
2. 1 Extra Ball
3. 1 Free Game And 1 Extra Ball
4. 100,000 Points

LEFT SPINNER FEATURE:

Spinner scores 100 points. After ball goes thru left return lane 1,000 point when lit lites and spinner scores 1,000 points.

RIGHT SPINNER FEATURE:

Spinner scores 100 points. After ball goes thru right return lane 1,000 point when lit lites and spinner scores 1,000 points.

Both spinners reset to 100 points at the start of every ball.

THUMPER BUMPERS:

Thumper Bumpers score 1,000 points on 3 ball and 100 points on 5 ball games.

BALL EJECT FEATURE:

Both eject pockets score 5,000 points, going into the left pocket lites the lower double bonus lite. (Lower Double Bonus lite goes out when ball goes into the outhole and the bonus is collected,) and lites top center hole for triple bonus.

Going into the top center eject pocket when the 3X lite is lit, lites the Lower Triple Bonus lite. (Lower Triple Bonus lite goes out when ball goes into the outhole and the bonus is collected) and lites left eject pocket for extra ball feature.

EXTRA BALL FEATURES:

When the eject holes are made in the proper sequence and the left eject pocket is made when the Lites Extra Ball Lanes lite are lit, the outlanes lite for extra ball. The ball going thru the lane when lit awards an extra ball, and lites the Shoot Again lite, the ball going into the outhole also collects Triple Bonus for all Strikes made and Pins made.

RETURN LANES:

Return Lanes score 500 points and lites respective Spinners.

OUTLANES:

Score 5,000 Points and awards Extra Ball (when Extra Ball lanes are lit). (The Extra Ball is adjustable for alternation, no alternation, or bypass).

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. MAKE ADJUSTMENTS BEFORE TURNING POWER BACK ON.**

MPU SWITCH ASSIGNMENT

1 thru 5	Coin Chute No. 2 Center
6	High Score
7	Balls Per Game
8	Chime Melody
9 thru 13	Coin Chute No. 3
14	Center Saucer (Triple Bonus)
15-16	High Game To Date
17 thru 19	Max. Credits
20	Credit Display
21	Match Feature
22-23	No. of Strikes
24	Strike Lamp
25	Extra Ball Lane
26	Extra Ball Enable
27	Special Selection
28 thru 30	Coin Chute No. 1
31-32	Special Award

CREDITS/COIN ADJUSTMENTS:

The #1 coin chute (next to hinge) is adjustable by means of switches 28-30 inclusive - Eight different credit ratios are available.

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)	5	4	3	2	1	
OR #3 (RIGHT CHUTE)	13	12	11	10	9	
OFF	OFF	OFF	OFF	OFF	OFF	..... 3/2 COINS**
OFF	OFF	OFF	OFF	ON	ON	..... 3/2 COINS**
OFF	OFF	OFF	ON	OFF	OFF	..... 1/COIN
OFF	OFF	OFF	ON	ON	ON	..... 1/2 COINS*
OFF	OFF	ON	OFF	OFF	OFF	..... 2/COIN
OFF	OFF	ON	OFF	ON	ON	..... 2/2 COINS*
OFF	OFF	ON	ON	OFF	OFF	..... 3/COIN
OFF	OFF	ON	ON	ON	ON	..... 3/2 COINS*
OFF	ON	OFF	OFF	OFF	OFF	..... 4/COIN
OFF	ON	OFF	OFF	ON	ON	..... 4/2 COINS*
OFF	ON	OFF	ON	OFF	OFF	..... 5/COIN
OFF	ON	OFF	ON	ON	ON	..... 5/2 COINS*
OFF	ON	ON	OFF	OFF	OFF	..... 6/COIN
OFF	ON	ON	OFF	ON	ON	..... 6/2 COINS*
OFF	ON	ON	ON	OFF	OFF	..... 7/COIN
OFF	ON	ON	ON	ON	ON	..... 7/2 COINS*
ON	OFF	OFF	OFF	OFF	OFF	..... 8/COIN
ON	OFF	OFF	OFF	ON	ON	..... 8/2 COINS*
ON	OFF	OFF	ON	OFF	OFF	..... 9/COIN
ON	OFF	OFF	ON	ON	ON	..... 9/2 COINS*
ON	OFF	ON	OFF	OFF	OFF	..... 10/COIN
ON	OFF	ON	OFF	ON	ON	..... 10/2 COINS*
ON	OFF	ON	ON	OFF	OFF	..... 11/COIN
ON	OFF	ON	ON	ON	ON	..... 11/2 COINS*
ON	ON	OFF	OFF	OFF	OFF	..... 12/COIN
ON	ON	OFF	OFF	ON	ON	..... 12/2 COINS*
ON	ON	OFF	ON	OFF	OFF	..... 13/COIN
ON	ON	OFF	ON	ON	ON	..... 13/2 COINS*
ON	ON	ON	OFF	OFF	OFF	..... 14/COIN
ON	ON	ON	OFF	ON	ON	..... 14/2 COINS*
ON	ON	ON	ON	OFF	OFF	..... 15/COIN
ON	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 occurred between 1st and 2nd coin drops. If scoring occurred, second coin gives one credit.

COIN CHUTE #1			CREDITS/COINS
30	29	28	
OFF	OFF	OFF	1/1 Coin
OFF	OFF	ON	1/2 Coins
OFF	ON	OFF	2/1 Coin
OFF	ON	ON	2/2 Coins
ON	OFF	OFF	3/1 Coin
ON	OFF	ON	3/2 Coins
ON	ON	OFF	4/1 Coin
ON	ON	ON	5/1 Coin

1. 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

2. BALL PER GAME:

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

3. 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

4. Top eject pocket lamp Switch 14 controls the 3X lamp on the top eject pocket. After making the left eject,
- | | | |
|-------|-----|---------------------------------------|
| SW 14 | OFF | (NO ALTERNATION) |
| SW 14 | ON | (ALTERNATION ON 10 POINTS AND CHANGE) |

5. HIGH GAME TO DATE FEATURE:

The game is designed to award up to 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.

	SWITCH	
	16	15
NOVELTY	OFF	OFF
1 FREE GAME	OFF	ON
2 FREE GAMES	ON	OFF
3 FREE GAMES	ON	ON

6. 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 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

7. CREDIT DISPLAY:

CREDITS DISPLAY	SWITCH 20
YES	ON
NO	OFF

8. 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 feature creates an incentive to play.

MATCH	SWITCH 21
ON	ON
OFF	OFF

9. NUMBER OF STRIKES:

The number of strikes necessary before the Special Lites is adjustable by switches 22, 23

	SWITCH	
	23	22
3 Strikes	OFF	OFF
4 Strikes	OFF	ON
5 Strikes	ON	OFF
6 Strikes	ON	ON

10. STRIKE LAMP:

The frequency of which the 'X' lites in front of the drop target bank is controlled by switch 24.

	SW-24
EVERY MULTIPLE OF 20	OFF
EVERY MULTIPLE OF 40	ON

11. EXTRA BALL LANES:

When the "Lites Extra Ball Lanes" is made, the extra Ball Lanes can be adjusted as follows:

	SW-25
BOTH EXTRA BALL LANES (NO ALTERNATION)	OFF
EXTRA BALL LANES ALTERNATE	ON

12. EXTRA BALL:

This option can be adjusted as follows:

	SW-26
NO EXTRA BALL (BYPASS)	OFF
AWARD EXTRA BALL	ON

13. STRIKE SPECIAL:

The number of replays made per ball from the rotating Special lite on the three stationary targets can be adjusted as follows:

	SW-27
1 SPECIAL PER BALL	ON
OPENED ENDED	OFF

14. SPECIAL AWARD:

Award received when hitting the rotating "Special" lite on the Stationary Targets, when Special light 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	31	ON
FREE GAME	32	ON

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 up to 3 free games (option) when "High Game to Date" is beat. For the recommended, factory preset level.

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 an 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

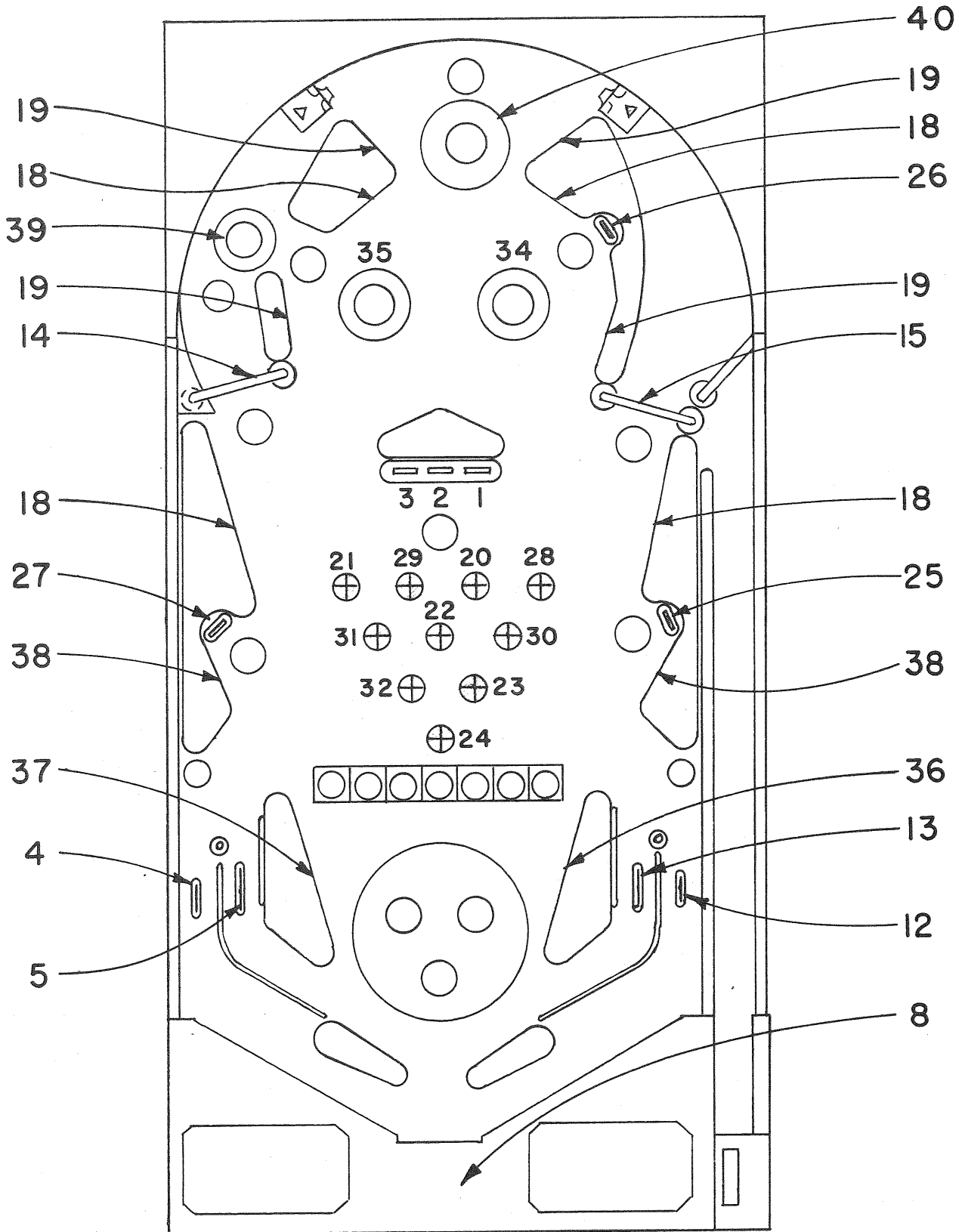
Stern playfields have a durable long life playing finish. Its life expectancy, as well as playing appeal can be greatly extended by periodic cleaning. Inspect and hand polish the ball with a clean cloth. A chipped ball must be replaced, as it will ruin the finish on the playfield. Do not use water in 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	SWITCH NO.	SWITCH LOCATION
1	TARGET #3	21	PIN #7
2	TARGET #2	22	PIN #5
3	TARGET #1	23	PIN #3
4	LEFT OUT LANE	24	PIN #1
5	LEFT RETURN LANE	25	SPECIAL #3
6	CREDIT BUTTON	26	SPECIAL #2
7	TILT	27	SPECIAL #1
8	OUTHOLE	28	PIN #10
9	COIN #3 (RIGHT)	29	PIN #8
10	COIN #1 (CENTER)	30	PIN #6
11	COIN #2 (LEFT)	31	PIN #4
12	RIGHT OUT LANE	32	PIN #2
13	RIGHT RETURN LANE	33	
14	LEFT SPINNER	34	RIGHT THUMPER
15	RIGHT SPINNER	35	LEFT THUMPER
16	SLAM (3)	36	RIGHT SLINGSHOT
17		37	LEFT SLINGSHOT
18	50 POINTS & CHANGE	38	10 - POINTS
19	10 POINTS & CHANGE	39	LEFT SAUCER
20	PIN #9	40	CENTER SAUCER

SWITCHES



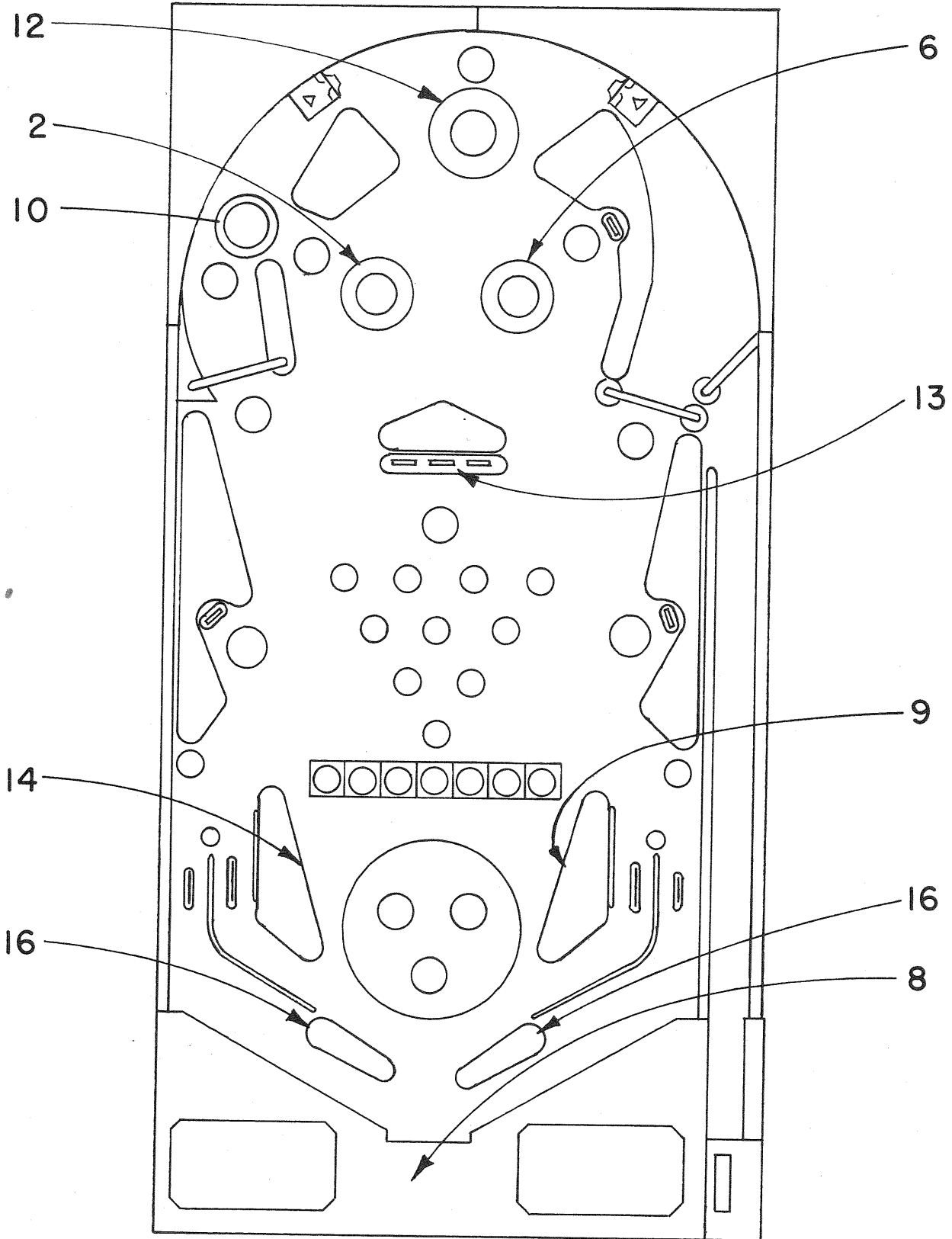
SWITCHES NOT ON PLAYFIELD :

- | | |
|-----------------|--------------------------|
| 6 CREDIT BUTTON | 11 LEFT CHUTE |
| 7 ROLL TILT | 10 CENTER CHUTE |
| 7 PENDULUM | 16 TILTBOARD VIB. |
| 9 RIGHT CHUTE | 16 DOOR & PLAYFIELD VIB. |

**SOLENOID IDENTIFICATION
SELF TEST DISPLAY NUMBERS**

SOLENOID NO.	SOLENOID LOCATION
1	CHIME (10) (SMALL)
2	THUMPER, LEFT
3	CHIME (100)
4	
5	CHIME (1,000)
6	THUMPER, RIGHT
7	CHIME (10,000)
8	OUT HOLE
9	RIGHT SLINGSHOT
10	LEFT SAUCER
11	
12	CENTER SAUCER
13	DROP TARGET RESET
14	LEFT SLINGSHOT
15	KNOCKER
16	(2) FLIPPERS & RELAY ON SOL. DRIVER P.C. BOARD
17	COIN LOCK OUT

SOLENOIDS

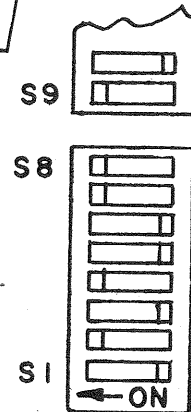
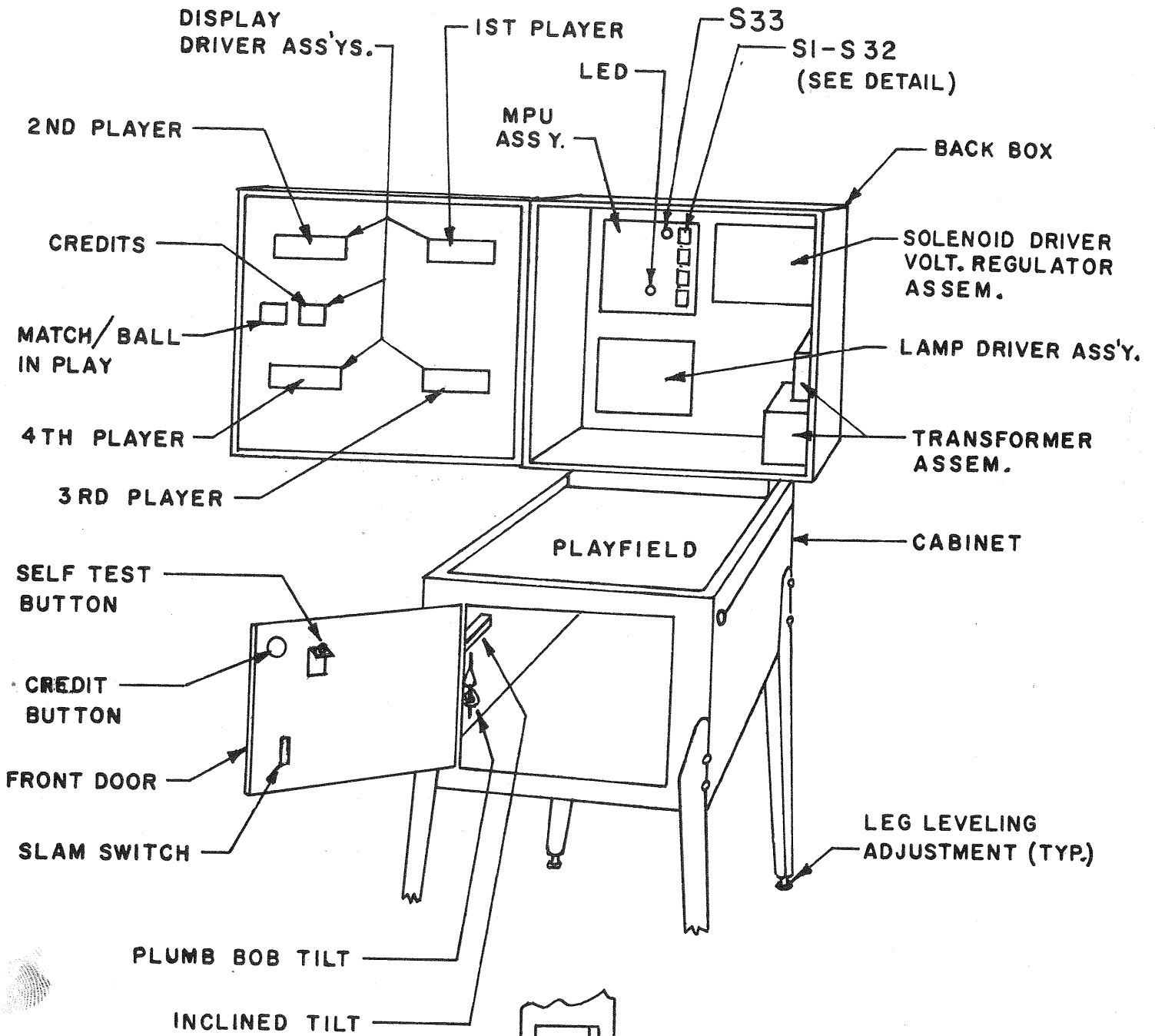


SOLENOIDS NOT ON PLAYFIELD:

- | | |
|-----------------|----------------|
| 1 CHIME (10) | 7 CHIME 10,000 |
| 3 CHIME (100) | 15 KNOCKER |
| 5 CHIME (1,000) | 17 LOCKOUTS |

ELECTRONIC PIN GAME

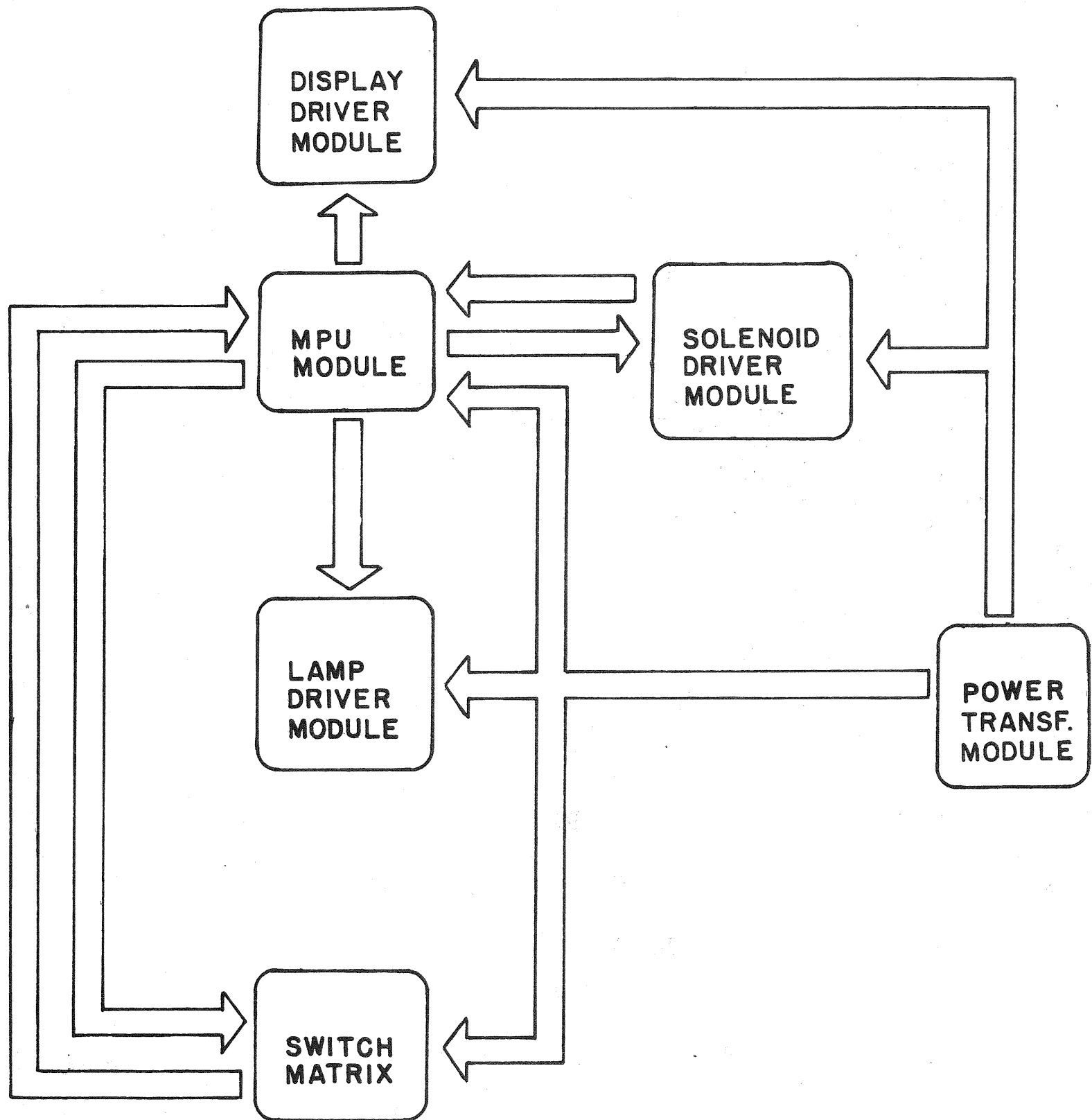
Figure 3



DETAIL SI-S32
MPU ASS'Y.

- Led rouge reste allumé en permanence. - Vis sur afficheur.
- éclairage sous digicode.
- finibles $\frac{1}{4}$ de ~~sec~~ amp.

BLOCK DIAGRAM



XI. PARTS LIST GAME #104 MEMORY LANE

MISCELLANEOUS

PART NUMBER

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

ASSEMBLY COILS

Chimes	N-31-2000
Coin Lockout	C-36-5500
Flipper Left & Right (2)	J-25-500/34-5050
Knocker	N-26-1200
Outhole Kicker	J-26-1100
Saucer Eject (2)	J-28-2300
Thumper-Bumper 2	J-26-1200
Sling-Shot (2)	J-26-1200
Drop Target Reset	B-27-2300

MODULES

Lamp Driver	B-431
Display Driver (5 Used)	A-434
Solenoid Driver/Voltage Regulator	B-432
MPU	C-433-102
Rectifier Board	A-430

PLAYFIELD PARTS SEE PLAYFIELD
DIAGRAM