DATA EAST

GUNS N ROSES

'The Pinball Incident?'

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CPU JUMPER TABLE

Game	CPU* Version	ROM Position	Jumpers Installed	Jumpers Removed	Game	CPU* Version	ROM Position	Jumpers Installed	Jumpers Removed
01. Laser War	1	5C	J4 J6a J7a	J5 J6 J7b	14. Star Trek	3	5C	J5	J4
	2	5B, 5C	J4 J5a J6a	J5 J5b J6b	15. Hook	3	5C	J5	J4
02. Secret Service	2	5B, 5C	J4	J5	16. Lethal Weapon 3	3	5C	J5	J4
03. Torpedo Alley	2	5B, 5C	J4	J5	17. Star Wars	3	5C	J5	J4
04. Time Machine	2	5B, 5C	J4	J5	18. Rocky & Bullwinkle	3	5C	J5	J4
05. Playboy	2	5B, 5C	J4	J5	19. Jurassic Park	3	5C	J5	J4
06. ABC Mon. Nite Football	2	5B, 5C	J4	J5	20. Last Action Hero	3	5C	J5	J4
07. Robocop	2	5B, 5C	J4	J5	21. Tales from the Crypt	3	5C	J5	J4
08. Phantom of the Opera	2	5B, 5C	J4	J5	22. The Who's Tommy	3	5C	J5	J4
09. Back to the Future	3	5B, 5C	J4	J5	23. WWF Royal Rumble	3	5C	J5	J4
10. The Simpsons	3	5B, 5C	J4	J5	24. Guns N' Roses	3	5C	J5	J4
11. Checkpoint	3	5B, 5C	J4	J5					
12. Teen. Mtnt. Ninja Trtls.	3	5B, 5C	J4	J5					
13. Batman	3	5B, 5C	J4	J5					

Board Combinations with **ROM at Location 5C** (Game 1, Ver1) **Installed** J1b, J3, J4, J6a, **J7a** & J8 **Removed** J1a, J2, J5, **J6** & **J7b**

Bd. Combinations w/ **ROM at Locations 5B, 5C** (Game 1, Ver2) **Installed** J1b, J3, J4, **J5a, J6a, J7b** & J8 **Removed** J1a, J2, J5, **J5b, J6b, & J7a**

Bd. Combinations w/ **ROM at Loc. 5B, 5C** (Games 2-13, Ver2/3) **Installed** J1b, J3, **J4**, J5b, J6b, J7b & J8 **Removed** J1a, J2, J5, **J5a, J6a** & J7a

Bd. Combinations with **ROM at Loc. 5C** (Games 14-23, Ver3) **Installed** J1b, J3, **J5**, J5b, J6b, J7b & J8 **Removed** J1a, J2, **J4**, J5a, J6a & J7a

* Version 1 has a 2K RAM which is a 24-pin IC in Position 5D; Version 2/3 have a 8K RAM which is a 28-PIN IC in Position 5D.

Board Compatibility (Reflexive & Non-Reflexive) of CPU Boards

Version 1 and 2—**Reflexive**—Solenoid Drive Transistor is enabled directly by a *switch closure* on the solenoid assembly. Version 3—**Non-Reflexive**—Solenoid Drive Transistor is enabled by the CPU after reading a *switch closure* in the Switch Matrix. All CPU Boards are *backwards compatible* (e.g. Jurrasic Park/Ver. 3 to Time Machine/Ver. 2). Swapping a Version 2 Board to a Version 3 is not possible due to the special solenoids section (i.e. Slingshots, Turbo Bumpers, etc.) changing from **Reflexive** to **Non-Reflexive** on Version 3 Boards.

Power-Up CPU Self Tests

Upon power-up, the CPU Board performs a series of self tests of major components. Turn the game on while observing the LEDs on the CPU Board. Tests of the PIAs, RAM, and EPROMs are performed automatically and results of the tests are indicated by the PIA LED.

With all tests passed, the LEDs illuminate in the following sequence at power turn-on. The PIA and +5v LEDs illuminate immediately. Approximately 1/2-second later, the PIA LED goes out and the Blanking LED illuminates; the +5v and Blanking LEDs remain illuminated until the game is turned off. Test failures are indicated with the PIA LED:

(Fig. 1)

Blank   +5V   PIA

on   on   off
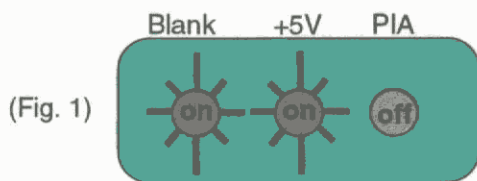
Normal Operation

PIA LED	SUSPECT COMPONENT
Stays On	One of the 6821 PIAs
Flashes 1 Time	6264 RAM at location D5
Flashes 2 Times	EPROM at location C5

DISPLAY READS "OPEN THE DOOR" -- This indicates a faulty memory condition in RAM. Opening the Coin Door will initiate a Factory Restore, by opening the Memory Protect Switch. Check battery voltage at CMOS RAM with power off.

QUICK REFERENCE FUSE CHART

PPB BOARD		POWER SUPPLY BOARD	
F1	5A Slo-Blo G.I. 6.3vAC	F1	7A Slo-Blo +5vDC Regulator Input (9vAC)
F2	5A Slo-Blo G.I. 6.3vAC	F2	7A Slo-Blo +5vDC Regulator Input (9vAC)
F3	5A Slo-Blo G.I. 6.3vAC	F3	Not Used
F4	5A Slo-Blo G.I. 6.3vAC	F4	8A Slo-Blo Switched Illumination Buss (18vDC)
F5	5A Slo-Blo Flipper Power & 50v coils	F5	4A Slo-Blo Solenoid (32vDC)...
F6	5A Slo-Blo Flash Lamps (32vDC) Right		Bumpers, Slingshots, etc.
F7	3A Slo-Blo Flipper Power & 32v coils Left	F6	5A Slo-Blo Solenoid Buss (32vDC)
F8	4A Slo-Blo 50v coils	F7	0.5A Slo-Blo Display Reg. Input (90vAC)
F9	5A Slo-Blo 50v coils		

GUNS N' ROSES
Table of Contents

GAME SPECIFICATIONS

POWER REQUIREMENTS

This game is provided with a 3-prong plug and **must be connected to a properly grounded outlet to reduce shock hazard** and insure proper game operation. Refer to AC Power Wiring Diagram for transformer connections required for normal, high, and low line conditions.

Normal Line:	109 to 129 -Volts AC (211 to 225 -Volts AC)
High Line:	(226 to 235 -Volts AC)-- European, International
Low Line:	95 to 108 -Volts AC (200 to 210 -Volts AC)

PROM SUMMARY

CPU Board:	Location C5
Sound Board:	Locations U17 (Voice ROM 1), U21 (Voice ROM 2), U36 (Voice ROM 3), U37 (Voice ROM 4), and U7 (Sound ROM)
Display Controller Board:	Location U12, ROM 0

TRANSPORTATION

To reduce the possibility of damage, observe the following precautions whenever transporting the game. Lower the backbox and secure it to the cabinet. Remove the legs and secure the game within the transporting vehicle.

OVERALL DIMENSIONS

Shipping Crate Dimensions	
Height	55-1/2"
Width	30-1/2"
Length	31"
Approx. Wt.	300 lbs.

† Note: The Leg Levellers can add up to 2 more inches to the overall height of the front & back dimensions.

Please Note

An addition of a Marquee to the top of the backbox will increase the overall height of the back dimensions.

27-3/4"
30"
76"
25"
46"
51-3/4"
16-1/4"
36-1/2"
28-1/2"
1"-3" †
1"-3" †
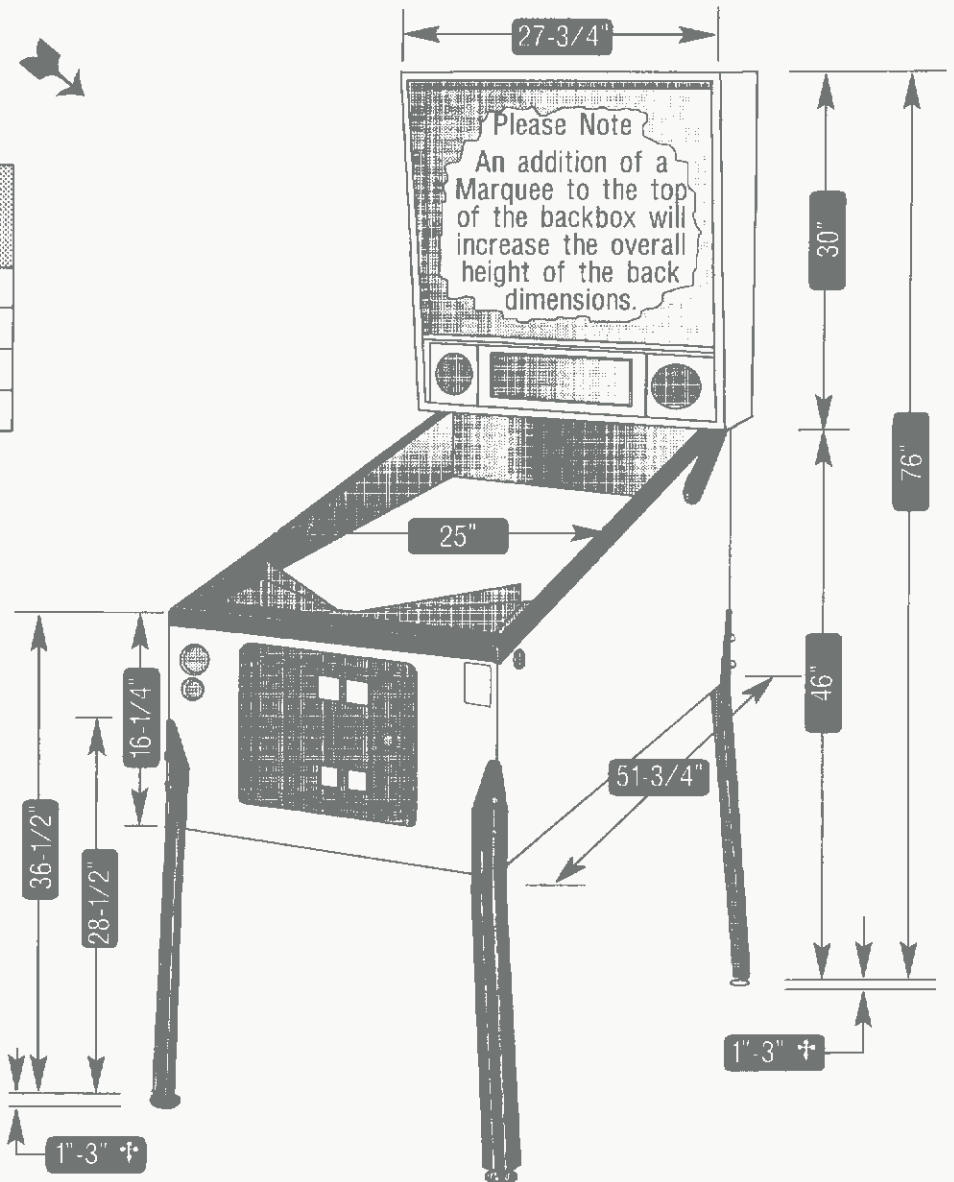
Game Assembly Procedures

(Refer to the Illustrations on pages 3 & 4)

1. Open the top of the carton and lay it on its side with the bottom of the cabinet down. Using the plastic banding strip as a handle, slide the game out of the carton.

2. Remove all packing material. Cabinet legs are located on top of the front moulding above the coin door and the assembly parts package is in the cashbox. There should be four leg levelers, eight leg bolts, six pinballs and a large Allen Wrench, used for securing the backbox, is inserted & taped to the rear of cabinet.

3. Attach leg leveler from the parts package to each leg, make sure that each leveler is threaded through a hex nut before threading it into the leg.

4. Support rear of cabinet and attach rear legs using two leg bolts for each leg.

5. Support front of cabinet and attach front legs using two leg bolts for each leg.

6. While assuring that no cables are being pinched, carefully raise the backbox and secure it in its upright position with the Allen Wrench in the hole in the back of the cabinet and rotating the wrench 270 degrees(3/4 turn).

7. Remove the backbox keys from the playfield glass, unlock and carefully remove the backglass. Set the backglass aside.

8. Check all connectors in the backbox for loose wire terminations. Reseat any loose wire by pushing in on the terminal. Push on all connectors plugged into the CPU board, Sound Board, Power Supply Boards, and (on insert board) Display board to check that they are properly seated.

9. Check that the fuses on the Power Supply board, PPB board and fuse panel are seated properly.

10. Carefully remove the playfield glass and set it aside.

11. Raise the playfield and support it, by lifting the Stay Arm on the Right Side of the Cabinet and locking it into the slotted bracket on the playfield. (Use the instruction sheet provided in the game to see alternative methods of accessing the playfield bottom.)

12. Check all cabinet cable and playfield lamp board connector terminations.

13. Remove all shipping tie downs.

14. Remove the Plumb Bob tilt from the parts package and install on the pendulum wire on the inside left of the cabinet. (See Cabinet Parts Illustration.)

15. Lower the playfield and level the playfield side-to-side by adjusting leg levelers.

16. Using a level or slope indicator, adjust the pitch of the playfield to approximately 6.5 degrees.

THE PLAYFIELD INCLINE AFFECTS DIFFICULTY OF PLAY. USE THE RECOMMENDED INCLINE; GAME DIFFICULTY IS BEST VARIED USING GAME ADJUSTMENTS.

17. Check the plumb tilt and adjust as required.

18. If desired, perform any self tests at this time. With the insert door closed, carefully reinstall and lock the backglass.

19. Place the six pinballs on the playfield near the outhole and carefully reinstall the playfield glass.

20. If desired, make game pricing and Add-A-Ball, Novelty, or 5-Ball Play adjustments at this time.

Game Specifications

LEG LEVELER ADJUSTMENT

Cabinet Leg

3/8-16 Hex Nut

Leg Leveler
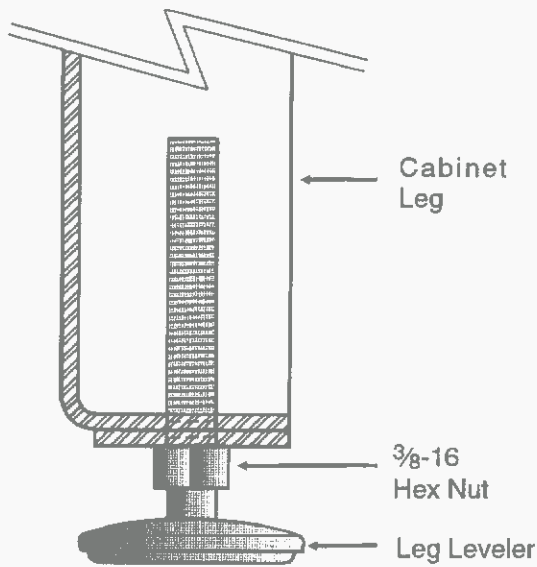
STEP 1
Assemble all (4) legs and levelers as shown in the diagram. Be sure the leveler is turned all the way in.

STEP 2
Attach leg assemblies to cabinet with leg bolts provided.

YOUR PLAYFIELD PITCH IS NOW AT 6.5° *AS REQUIRED FOR PROPER GAME PLAY!* See Step 3.

STEP 3
Verify 6.5° pitch. Minor adjustment(s) may be necessary depending on the location floor being level.

For custom adjustment greater than 6.5° can be acheived by turning out the leg leveler, however, it is not recommended.

EASY ACCESS SERVICE SYSTEM

Support Bracket

LINE OF SIGHT

Fig. 2.1   Fig. 2.2   Fig. 2.3
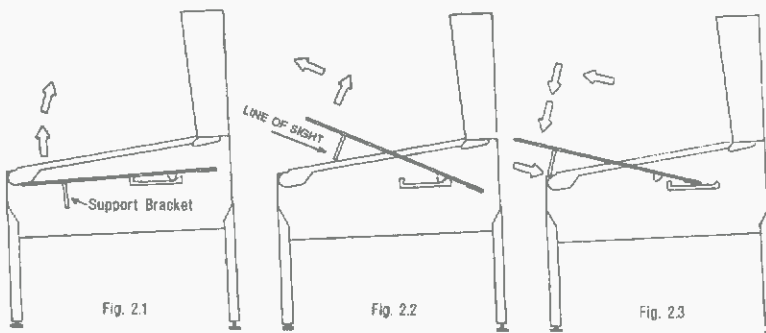
This position is useful to service:

Trough Switches, Connectors at back of cabinet, Cleaning the Playfield, etc.

SERVICE POSTION 1
Lift the playfield *using the left and right ball guides* upward (Fig. 2.1) until the playfield support brackets can be seen to clear cabinet front (Fig. 2.2). At this time, pull playfield toward the front of the cabinet, checking that the mechanical components clears the cabinet front (Fig. 2.3). Then rest the playfield on the support brackets at the front channel of cabinet. *Reverse procedure when service is complete.*

Slider Bracket

Fig. 3.1   Fig. 3.2   Fig. 3.3
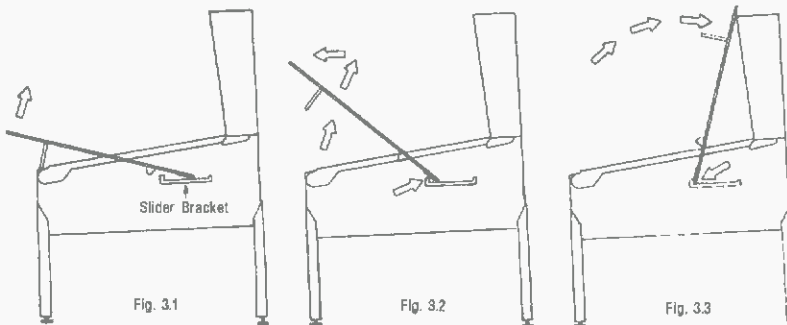
This position is useful to service:

All Playfield Bottom Components, Cabinet Components, etc.

SERVICE POSTION 2
With the playfield at rest (Fig. 3.1), hold sides of playfield and pull toward the front of the cabinet (approximately 6-8"), until resistance is felt from the slider brackets located on either side of the cabinet (Fig. 3.2). At this time, swivel playfield toward the backbox, then rest on top edge of the backbox. *Reverse procedure when service is complete.*

BACKBOX LAYOUT, FUSE & RELAY LOCATIONS

PSB ➤ **Power Supply Board**

G.I. RELAY

CPU BOARD

FLIPPER ENABLE RELAY

SOUND BOARD (no fuses)
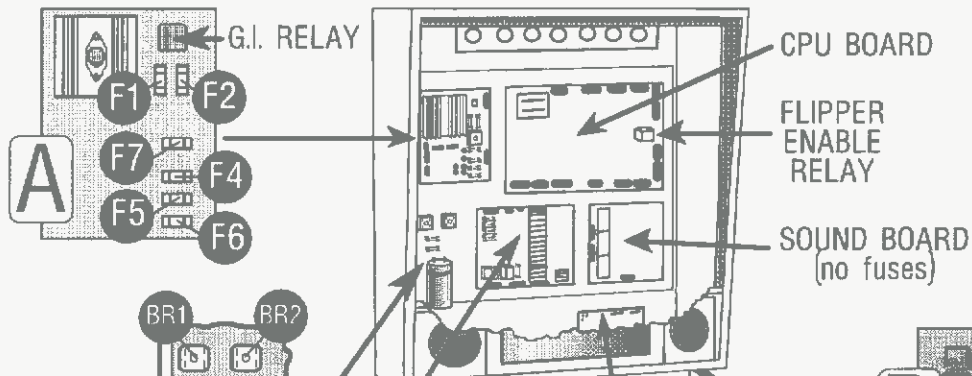
Backbox Bridges Mounted in Backbox
F1: 8A Slo-Blo 32v Coils
F2: 8A Slo-Blo 18vDC Lamps

LAMP FILTER CAPACITOR

DISPLAY BOARD (no fuses)
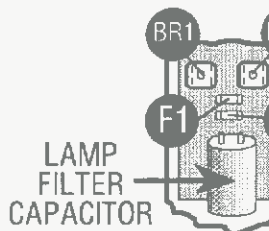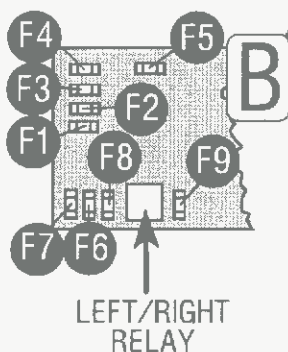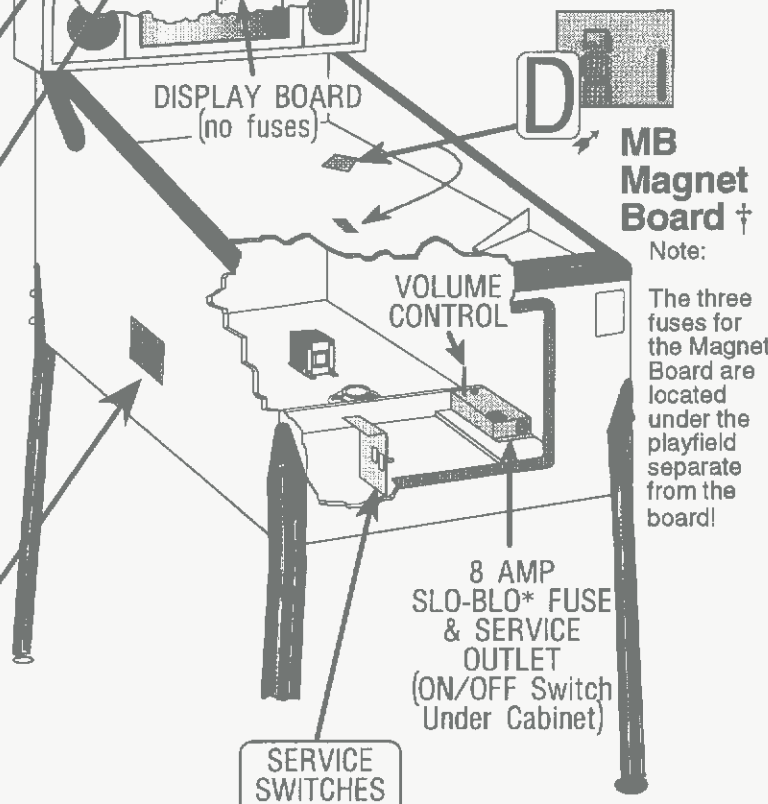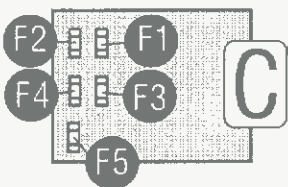
MB Magnet Board †

Note:

The three fuses for the Magnet Board are located under the playfield separate from the board!

PPB ➤ **Playfield Power Board**

VOLUME CONTROL

LEFT/RIGHT RELAY

8 AMP SLO-BLO* FUSE & SERVICE OUTLET (ON/OFF Switch Under Cabinet)

SSFB ➤ **Solid State Flipper Board**

SERVICE SWITCHES

Note: Backbox Part Numbers on Page 38

A: In the Backbox		B: In the Backbox		C: In the Cabinet		D: † Under Playfield	
Power Supply Board PSB		**Playfield Power Board PPB**		**Solid State 3-Flipper Bd. SSFB**		**Magnet Board MB**	
F1	7A Slo-Blo +5vDC Regulator Input (9vAC)	F1	G.I. 5A Slo-Blo Playfield	F1	3A 250v Slo-Blo 50v DC Output (All Fuses) Lower Right Flipper	F1	2.5 Amp Slo-Blo
F2	7A Slo-Blo +5vDC Regulator Input (9vAC)	F2	G.I. 5A Slo-Blo Backbox Dr./Spkr. Panel	F2	3A 250v Slo-Blo 9v AC Holding	F2	2.5 Amp Slo-Blo
F3	Not Used	F3	G.I. 5A Slo-Blo Playfield & Coin Door	F3	3A 250v Slo-Blo 50v DC Output Left Flipper	F3	2.5 Amp Slo-Blo
F4	8A Slo-Blo Switched Illum'tion Buss (18vDC)	F4	G.I. 5A Slo-Blo Backbox Door	F4	3A 250v Slo-Blo 9v AC Holding		**† Note: The three fuses are located separate from the Magnet Board.**
F5	4A Slo-Blo Solenoid (32vDC) Bumpers, Sling- shots, etc.	F5	50v 5A Flippers /All 50v Coils	F5	3A 250v Slo-Blo 50v DC Output Upper Left Flipper		
F6	5A Slo-Blo Solenoid Buss (34vDC) L/R Relay Coils/Flash	F6	32v Flash Lamps 3A Slo-Blo/Right				*** Cabinet Fuses**
F7	0.5A 250v Slo-Blo Display Reg. Input (90vAC)	F7	32v 3A Coils/Flash Right/Left				Main Fuse Line: 8Amp 250v Slo-Blo
		F8	50v 4A / 50v Coils				International: 2X 4Amp 250v Slo-Blo
		F9	50v 5A Laser Kick				

Standard Features

Insert coin(s), the game makes a sound for the first credit and generates sounds for each subsequent coin and the display indicates the number of credit(s) posted. Depress the credit button and a start-up sound is produced, the posted credit(s) are reduced by one. The display now indicates the player or # of players selected from the total depressions of the credit button. The display indicates the ball in play, and a ball is served to the shooter lane. Additional players may be added by pressing the Credit button before the end of ball 1. At game start, an introduction is shown followed by Skill Shot Graphics. (Note: Any 1/2 credit remaining during game play after the end of ball 1, or power down, will be eliminated.)

The second closure (adjustable) or prolonged closure of the plumb bob tilt switch tilts the ball in play. Closure of the slam tilt switch on the coin door ends the current game(s).

At the end of each ball, earned bonuses are collected. If the player enabled the EB Buy-In Feature*, the player now has the option of purchasing an extra ball to continue game play (See Extra Ball (EB) Buy-In Feature below), Otherwise, the system produces a random 2-digit number (a multiple of 10; 00 to 90) for a Match feature (adjustable). Matching the last two digits of a player score with this number awards a credit. Some geographical areas do not allow the award of a free game, this can be adjusted with Adj. 4, Replay Awards. Players exceeding high score levels receive free credits (adjustable) and are able to enter their initials with the new High Score achieved. To enter your initials, use the left & right flipper buttons to choose letter or character as seen on the Visual Display. Hitting the Start Button locks the letter or character in. Procede with the 2nd & 3rd letter. The game then proceeds into the game-over mode and then to the attract mode. A custom message (adjustable) can be displayed during the attract mode.

*Extra Ball (EB) Buy-in Feature

An option to add an extra ball(s) after the game is finished. TO ACTIVATE THE *EXTRA BALL BUY-IN FEATURE*, THE PLAYER MUST PRESS THE EB BUY-IN BUTTON DURING THE COURSE OF THE GAME. At the end of normal game play, the same player may choose to continue the game at the same score and features active by pressing the EXTRA BALL BUTTON prior to the expiration of the "countdown timer." Pressing the START BUTTON or FLIPPERS cancels this feature. If the player does not have any credits, the player will get "more time" to add credit. The number of extra balls which can be added to a game can be adjusted with Adj. 38, N° of Extra Ball (EB) Buy-In Allowed. Set at 00, will make this feature unavailable. Set at 01, will allow only 1 extra ball to be purchased per game. Set to Unlimited, after the end of the game the countdown will appear after the end of each ball for the option of purchasing another extra ball.

Manual Percentaging

This game is equipped with Manual Percentage Adjustment. As previously with our games, you can either set operator adjustments for a replay percent or you can set a fixed replay score.

If you set operator adjustments for a particular replay percent, the game will compute a recommended score to keep the game at that replay percentage. If a change is recommended and the game coin door is opened, the display will indicate a recommended replay score to beat and make a sound to alert the operator. By pressing the start button, the score to beat will be changed to the recommended level. If you close the coin door or go into Audit or Adjustment Mode, no score change will be made.

You may choose to ignore the recommended change; for example, you may not think last week's players were the usual crowd. Just close the door and the message will disappear without altering the existing level. Or you may choose to make a different score to beat adjustment; this is done by utilizing Adj. 02, Start Replay.

Playfield Overview and Game Rules (See the following pages)

The following pages describe the Game Rules. On the next page is a playfield overview to show the locations of of the featured items. Your game includes an instruction card. The instruction card on the next page may be photo-copied as a temporary replacement if required. Please note, rules and featured items may be subject to change through production.

VIDEO DISPLAY MODE

SNAKE PIT FUNNEL SWITCH

LEFT ORBIT SWITCH

CAPTIVE BALL TARGETS X4

UPPER SLINGSHOT

GUNS RAMP EXIT SWITCH

BALL EJECT

GUNS RAMP ENTER SWITCH

GUNS RAMP TRAP DOOR

UPPER LEFT FLIPPER

CAPTIVE BALL

LEFT 3-BANK DROP TARGET

LEFT SLINGSHOT

LASER KICK LEFT OUTLANE "PATIENCE"

LEFT SHOOTER LANE SWITCH

ROSE PLUNGER

START & EXTRA BALL BUTTONS

TOP LANES X3

1-WAY GATES X2

RIGHT ORBIT SWITCH

VUK (VERTICAL UP-KICKER)

TURBO BUMPERS X3

ROSE RAMP EXIT SWITCH

ROSE RAMP ENTER SWITCH

CENTER SCOOP

RIGHT 3-BANK DROP TARGET

MAGNETS

RIGHT SLINGSHOT

RIGHT OUT LANE "MICHELLE"

RIGHT RETURN LANE

LOWER FLIPPERS

AUTOPLUNGER RIGHT SHOOTER LANE SWITCH

GUN TRIGGER

SAME PLAYER SHOOTS AGAIN LIGHT

MAGNETS ARE ON LIGHT

GUNS N' ROSES, The Pinball

SKILL SHOT Select 1 of 4 awards at the start of each ball: *Add-A-Band Member, Guitar Feature, Super Pops, or Mystery.*

MULTI-BALL Add band members by shooting the Up-Kicker, then shoot the "**GUNS**" Ramp or Up-Kicker to start *Multi-Ball.*

JACKPOTS Shoot ramps to collect Jackpots, then shoot the Up-Kicker for a *PARADISE CITY JACKPOT*. Repeat this sequence to light *SUPER JACKPOT* at the Mini-Orbit.

GUITAR FEATURES Shoot the "Eject" to collect various Skill Level awards. Pull Gun Trigger to lock/unlock lit feature.

MYSTERY Shoot the Mini-Orbit to light *Mystery Award* at the center "Hole".

SNAKE PIT Shoot Orbits to lite the *Snake Pit*. Enter the *Snake Pit* via the "GUNS" Ramp.

HINT Pressing the Extra Ball Buy-in Button during the course of a game activates the *Extra Ball Buy-in Feature* at the end of game play!

(E)ject (H)ole (T)rap Door (U)p-Kicker

RAMP TO SNAKE PIT

GUNS RAMP

ROSES RAMP
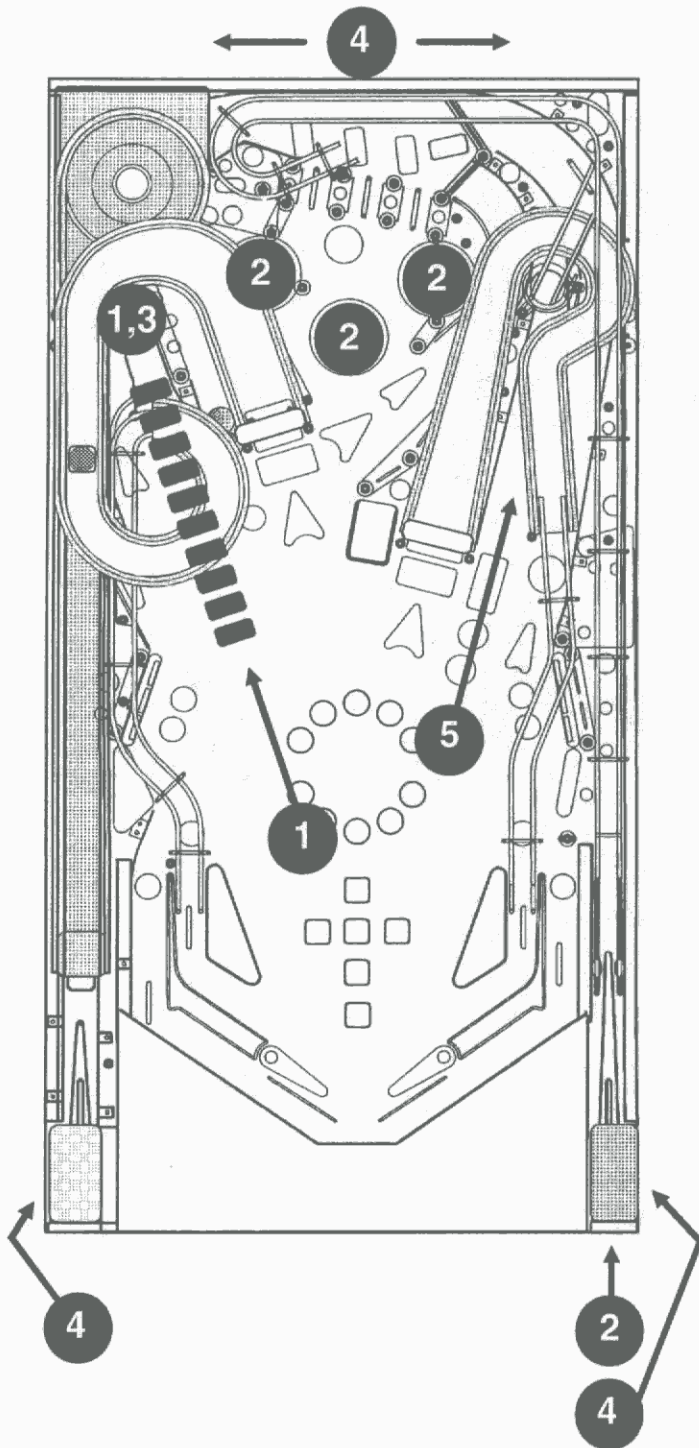
01 Guitar Feature

Collect flashing *"Guitar"* features at Left Eject when lit. *"Guitar"* features are not available while other *"Guitar"* features are running.

02 Change Guitar Feature

The switch closures on the Turbo Bumpers change the lit *"Guitar"* feature. Pulling the Gun Trigger will lock/unlock the currently lit *"Guitar"* feature.

10 GUITAR FEATURES:

03 Extra Ball

An Extra Ball is collected at the Left Eject when lit for **EXTRA BALL.**

04 Gilby Rolls - Video Mode

Use flippers to help Gilby maneuver his motorcycle and avoid obstacles.

05 Lite Coma

Lites the **COMA** lamp located at the VUK. The Add-A-Ball *COMA Mode* starts when a ball is shot into the VUK. With 2 balls in play, the player must continue to shoot balls into the **COMA** VUK, each time scoring the **COMA** Award and adding another ball into play. The **COMA** Award is increased by each Turbo Bumper switch closure. Play continues until only 1 ball is left in play.

06 Slash Solo

Shoot the Right Orbit, Left Orbit, or Mini-Orbit to collect the **SLASH SOLO COUNT-UP** Award.

07 Matt Scoring

A Fast scoring mode where each switch scores 250K. Every 10 switch closures advances the award 250K. Shooting the Left Orbit collects the **MATT SCORING** *Escrow* Award.

08 Super Snake Pit

A 50M point countdown bonus starts and is collected by shooting the Left "*G*" Ramp. Upon collecting the countdown award the ball is diverted to the Left Plunger (*Rose*) where the player can then score an additional 1X, 2X, or 3X of the countdown value. Next, plunging the ball into the *SNAKE PIT* advances the awards from 1X, 2X, 3X, for every orbit the ball makes while in the *SNAKE PIT.*

09 Duff Rocks

30-Second Timed Mode. Each **DUFF** Target scores 5M; 10 **DUFF** Targets required to complete the mode. 100M Bonus for completion. The mode ends when the timer expires or 10 **DUFF** Targets are made.
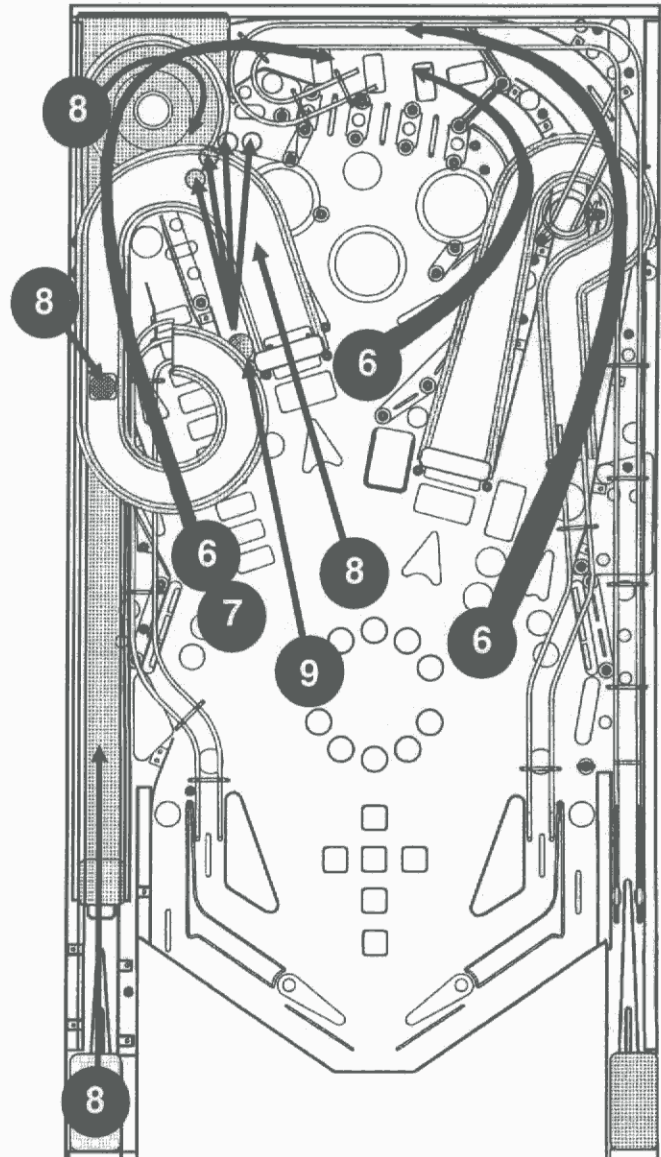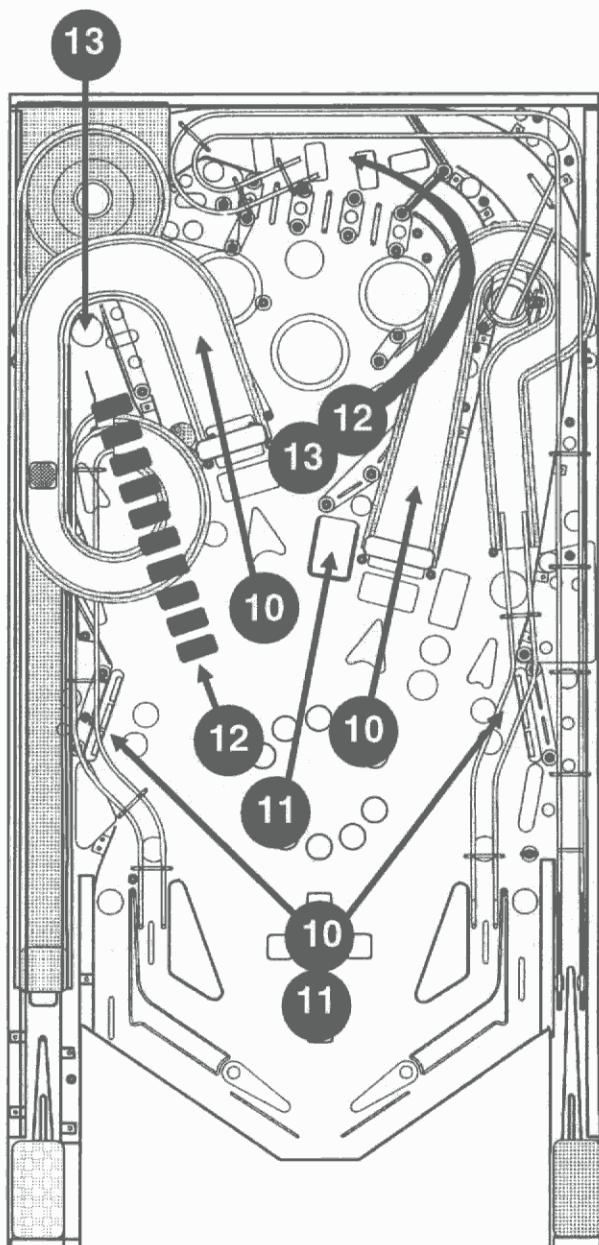
10 Dizzy 2-Ball

The player shoots either the Left **"G"** Ramp or the Right **"R"** Ramp for 10+ millions. Each ramp shot and/or Drop Target advances the award 1M. Play continues until 1 ball remains in Play.

11 Axl 3-Ball

Each Shot into the **AXL Scoop** scores 10M+ points. Each Drop Target advances the Scoop Award by 1M. Play continues until 1 ball remains in play.

12 Riot 6-Ball

Completing all the above **GUITAR** features lites **RIOT BALL**. All 6 balls are placed into play scoring 1M per switch closure. Every 20+ switch closures advances a letter in the word **"RIOT"** and scores an additional 20M+ point bonus. Completing **"RIOT"** lites the **RIOT JACKPOT** for 1 **BILLION** points which is collected by shooting the Mini-Orbit. Play continues until 1 ball remains in play.

13 Double

The **Guitar Scoring** features are **DOUBLED** if the player shoots the Mini-Orbit as the Guitar feature starts and the ball is kicked out of the left Eject.

GNR RULES

MULTI-BALL RULES:

14 Multi-Ball Ready

Add Band Members (5) at the VUK to light Multi-Ball Ready at the VUK. If 1-Ball play results before a "**GUNS**" Jackpot or "**ROSES**" Jakpot is collected, then both the VUK and "**G**" Ramp are available for Multi-Ball Restart (2 Balls).

15 Multi-Ball Jackpots

At the start of Multi-Ball the ramps are lit for "**GUNS N' ROSES**" Jackpot. Shoot ramps to collect **JACKPOTS**, then shoot the VUK for a **PARADISE CITY JACKPOT**. Repeat this sequence to light the **SUPER JACKPOT** which is collected at the

16 Skill Shot

The player selects 1 of 4 awards at the beginning of each ball. The awards are:
● 1) Add-A-Band Member ● 2) Start a Guitar Feature
● 3) Super Pops (2M per Pop) ● 4) Mystery.
The award is selected by pulling the Gun Trigger while the award is highlighted in the display.

17 Turbo Bumpers

Turbo Bumpers start at 100K per hit each ball. Each 10 hits, value increases by 100K, up to a maximum of 1M. Bumper value can also increase based on consecutive bumper hits (when the ball stays in bumpers for a long time).

J A M
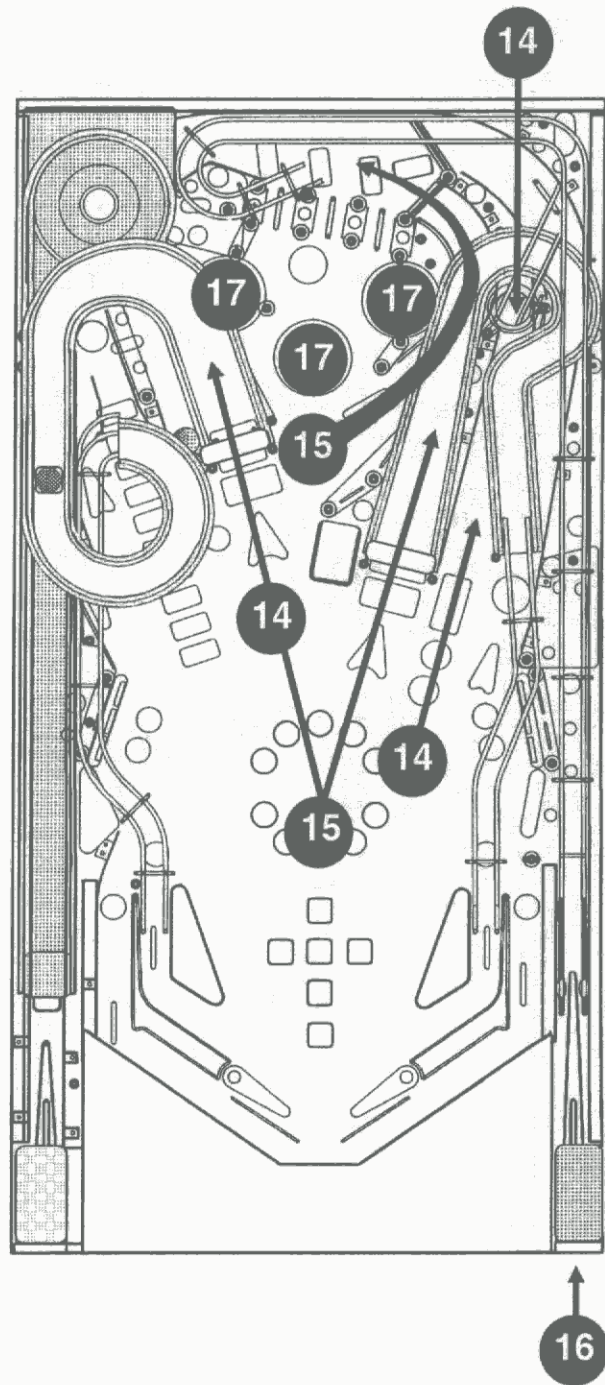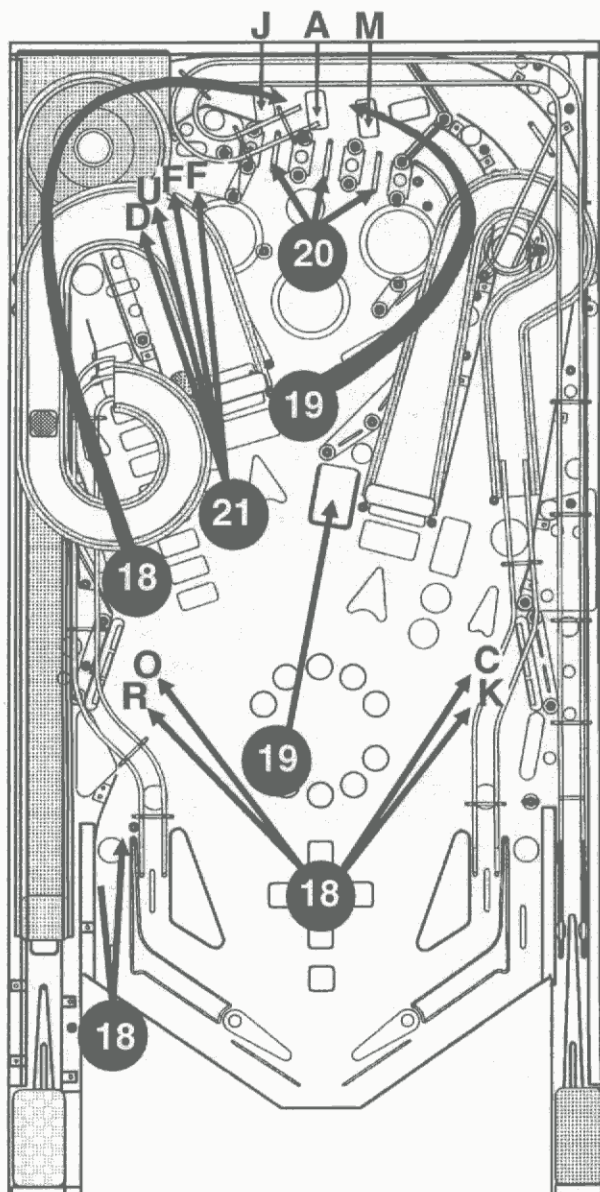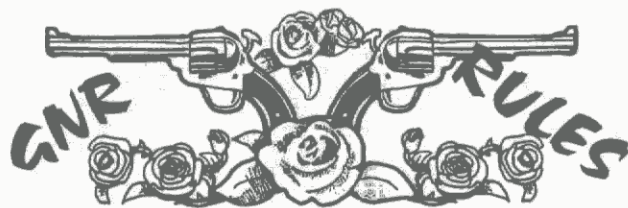
18 Rock Targets

Shoot the Left and Right 3-BANK Drop Targets to spell "**ROCK**". When "**ROCK**" is spelled the "**ROLL**" lamp is lit at the Left Orbit for a "**ROCK N ROLL**" Countdown Award. The award starts at 50M and counts down to 10M. Shooting the Left Orbit during the "**ROCK N ROLL**" countdown, awards the countdown value and play continues. Completing the Left & Right 3-Bank Drop Targets will also re-lite the **PATIENCE KICKBACK** (left outlane).

19 Axl Mystery Award at the Scoop

13 randomly selected awards are available for collection when Axl Mystery is lit via Mini-Orbits. Awards are given in set order during Tournament Play.

20 JAM (Top Lanes)

Completing the top lanes advances BonusX: 2X, 4X, 6X, 8X, 10X = Maximum. Subsequent hits score 20M. BonusX resets at the start of each ball.

21 Duff Targets

Each **DUFF** Target scores 1M, adds 1M to a progressive **DUFF JACKPOT**, and adds 1 uncollected letter to the the word '*DUFF*'. Spelling *DUFF* collects the progressive **DUFF JACKPOT**.

22 Return Lanes

The Left Return lane lites the *"ROSES"* Ramp for double value for a short time period. The Right return lane lights the *"GUNS"* Ramp for double value for a short time period.

23 Guns-N-Roses Ramp Millions Countdown

Shooting the Left *"G"* Ramp spells *"GUNS"* while shooting the Right *"R"* Ramp spells *"ROSES"*. When both *"GUNS"* & *"ROSES"* have been spelled a *"GUNS & ROSES"* Ramp Millions Countdown feature begins. The award starts at 30M and counts down to 10M. Shooting either ramp scores the countdown award and lights the opposite ramp for an an identical award for a short period of time. If the player can shoot the opposite ramp they are awarded the countdown value again and the opposite ramp is lit for an identical award. This feature continues until the player has made 10 ramp shots or the Countdown award has timed out.

24 Mini-Orbit Light Axl Mystery

"Mystery" lights at *"Scoop"* after 2,5,8,11,16,22,29,37,46,...,99 Mini-Orbit shots. The Mini-Orbit also re-lites the **PATIENCE KICKBACK**.

25 Right Orbits to Spell: S N A K E

Spell the word *"SNAKE"* by shooting the Right Orbit. When *"SNAKE"* is spelled the Left **"G"** Ramp is lit for **SNAKE PIT** award. Shooting the Left *"G"* Ramp when **SNAKE PIT** is lit diverts the ball to the *"ROSES"* Plunger which in turn starts **SNAKE PIT MYSTERY**.
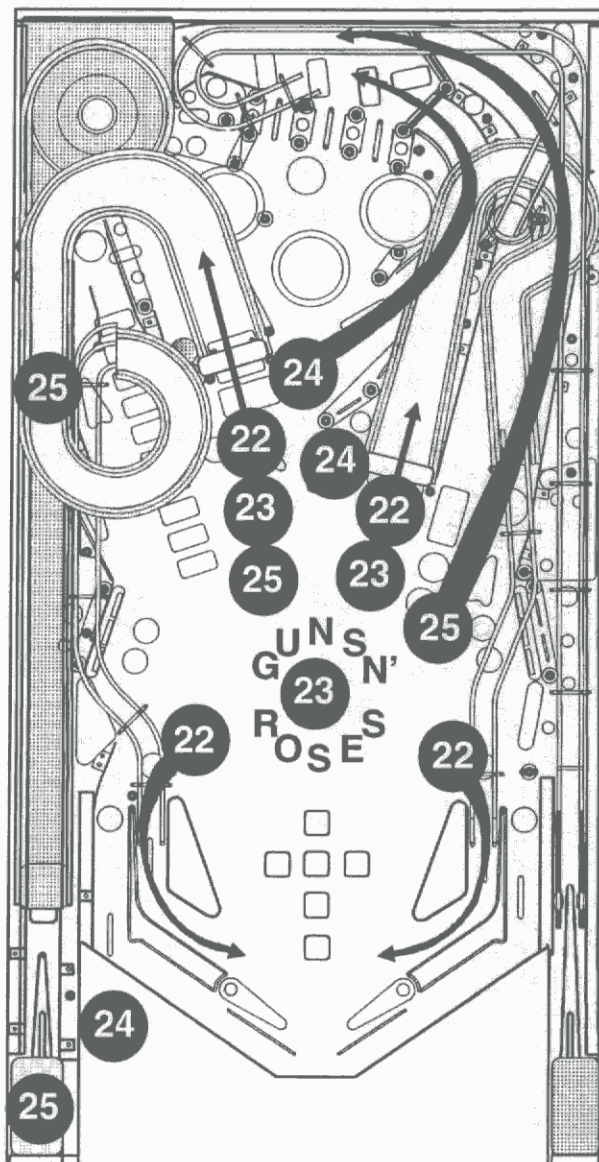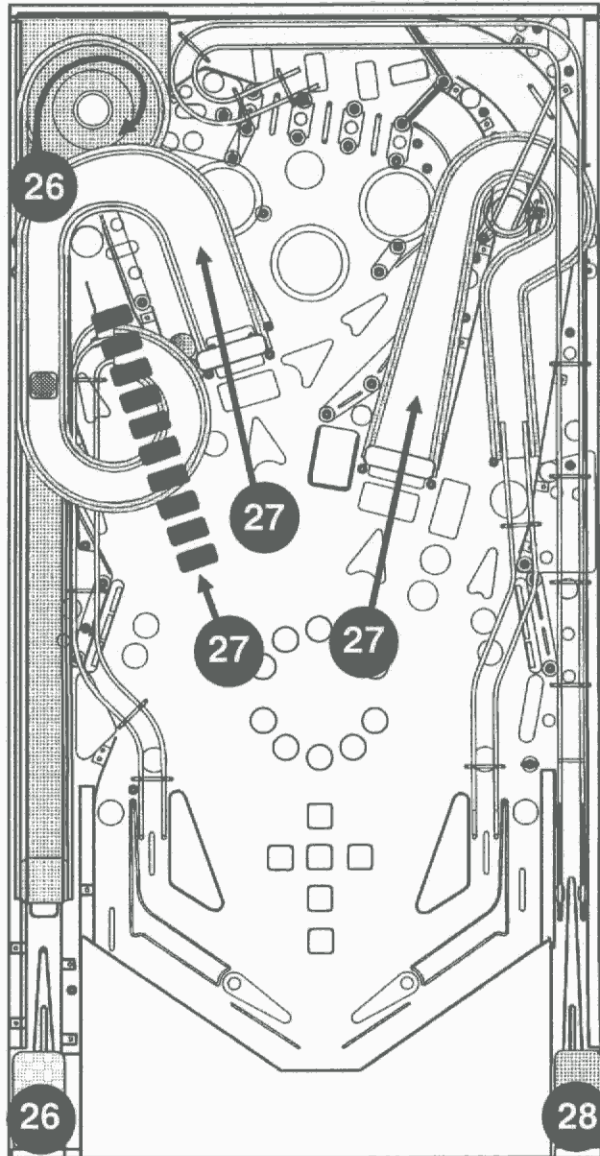
26 Snake Pit Mystery

SNAKE PIT MYSTERY begins with the ball resting on the **"ROSES"** plunger. 4 Mystery Awards appear on the display with 1 being highlighted. The player plunges the ball into the **SNAKE PIT**. Each orbit of the **SNAKE PIT** highlights the next Mystery Award. When the ball stops orbiting and falls out of the **SNAKE PIT** the currently highlighted award is given to the player and play continues.

27 Bonus

Bonus = BonusX x [200K x **"GUNS"** Ramp current ball + 100K x **"ROSES"** Ramp current ball + 1M x **"Guitar"** features Collected].

28 Combination Shots

The game features several "2, 3, 4" and "5" way combos. These combos involve natural sequences of orbits, ramps, and/or the Guitar/Axl Holes. Several undocumented difficult combos may also be present.

29 Extra-Ball (EB) Buy-In

Pressing the **EXTRA BALL BUY-IN BUTTON** during the course of a game activates the Extra Ball Buy-In Feature at the end of game play. After the game ends, Extra Ball(s) may be purchased to continue before the countdown timer expires. Cancel the Buy-In Feature with either the Start or Flipper Buttons.

Under "Start"

GNR RULES
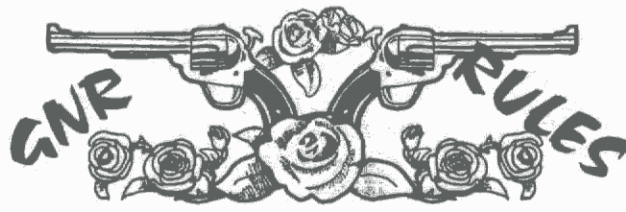
30 Hidden Rules

Undocumented rules and special effects may be discovered by continued play.

Like any performance, rules and point values are subject to change without notice!

AUDIT FUNCTIONS

General

There are 66 audit functions provided for accounting purposes and for evaluation of game difficulty adjustments. Audit functions are split into two groups. There are 12 most-used audits (1 through 12) in a 'quick look' group and 54 less-used audits (13 through 66), in an 'Expanded' Group. The various auditing functions are summarized in the **GAME AUDIT TABLE** and, when accessed, are shown on the Dot Matrix Display. The *Audit Number* is shown in the top of the display, the *Description* is shown next and the *Audit Total* in the display. Access and control is provided from switches located on the inside of the coin door.

To access audit functions, open the coin door and make sure that the **FORWARD/REVERSE** switch is in the **FORWARD** (up) position. Depress the **STEP** switch and the display indicates **AUDITS & ADJUSTMENTS**. This indicates access to audit functions.

With the **FORWARD/REVERSE** push-button switch still in the **FORWARD** (up) position, depressing the **STEP** push-button switch advances through the audit functions one at a time. To review lower-numbered functions, set the forward/reverse push-button switch to the **REVERSE** (down) position and operate the **STEP** push-button switch.

To access expanded audits, operate the step push-button until **AUDIT 12**, *Expand Audits* is displayed. Set the choice to **YES** as indicated in the lower display by depressing the Game Start push-button and then depress the step push-button. The request is installed and Audit 13 is displayed. When you exit audits and adjustments, the Audit 12 setting is returned to off for the next time that a review of audits are required.

Audit totals may be reset to zero using Game Adjustment, **ADJUSTMENT 10**, *Reset All Audits*. Game adjustments (1 to 12 and 13 to 55) begin after the last audit function (12 or 66). Once audits functions have been recorded, and if no adjustments are required, you may return the game to the attract mode. If adjustments are required, continue pressing the **STEP** button until the game adjustments are reached. See Game Adjustments for details.

Audits - 'Quick Look' Functions

Au. #	Audit Name	Audit Definition
Au. 1	**Total Paid Credits**	The total number of paid credits is displayed.
Au. 2	**Free Game Percentage**	The Total Free Plays (Audit 25) divided by Total Plays (Audit 26).
Au. 3	**Average Ball Time**	(In Seconds) The Total Play Time divided by Balls Total (Audit 13)
Au. 4	**Average Game Time**	The Average Game Time expressed in minutes and seconds.
Au. 5, 6, 7, 8	**Coins (Left, Right, Center, & 4th Chute)**	These four audit totals are provided to show the amount of coins registered for the LT, RT, CT, & 4th Chute, respectively.
Au. 9	**Total Coins**	The total number of coins dropped through all 4 coin chutes.
Au. 10	**Total Earnings**	The total cash value accumulated since the last Factory Restore occurred.
Au. 11	**Meter Clicks**	Provides the total number of money clicks accumulated, based on the country's lowest coin denomination used for the game credit.
Au. 12	**Expand Audits...**	(On/Off) This audit permits operator to proceed into expanded audits.

GUNS N' ROSES
Game Audit Table

	Item/Description			Item/Description	
1	Total Paid Credits		34	Service Credits	
2	Free Game Percentage		35	Proprietary	
3	Average Ball Time		36	Proprietary	
4	Average Game Time		37	Proprietary	
5	Coins Left		38	Total Buyin Games	
6	Coins Right		39	Extra Ball (EB) Buyins	
7	Coins Center		40	EB Buyin Replay Awards	
8	Coins 4th Chute		41	EB Buyin HS Awards	
9	Total Coins		42	Drains Left	
10	Total Earnings		43	Drains Center	
11	Meter Clicks		44	Drains Right	
12	Expand Audits...(On/Off)		45	Slam Tilts	
13	Balls Total		46	Freeze Used	
14	Extra Balls Total		47	Left "G" Ramp Shots	
15	Extra Ball Percent		48	Right "R" Ramp Shots	
16	Replay 1 Awards		49	Left Drops Completed	
17	Replay 2+ Awards		50	Right Drops Completed	
18	Total Replays		51	Orbit Shots	
19	Replay Percent		52	Mini-Orbit Shots	
20	Total Specials		53	Skill Shot: Add-A-Band Member	
21	Special Percent		54	Skill Shot: Guitar Features	
22	Total Matches		55	Skill Shot: Pops Feature	
23	High Score (HS) Wins		56	Skill Shot: Mystery Feature	
24	High Score (HS) Percent		57	Guitar Feature from Eject	
25	Total Free Plays		58	Mystery Awarded from Scoop	
26	Total Plays		59	Multi-Ball Lit	
27	000.0 - 199.9 Million		60	Multi-Ball Start from "G" Ramp	
28	200.0 - 499.9 Million		61	Multi-Ball Start from VUK	
29	500.0 - 799.9 Million		62	Multi-Ball Restart Awarded	
30	800.0 - 1.09 Billion		63	2nd+ Multi-Ball Start	
31	1.1 - 1.39 Billion		64	Jackpot	
32	Over 1.4 Billion		65	Paradise City Jackpot	
33	Average Scores		66	Super Jackpot	

Audit Functions

PHOTOCOPY FOR FIELD AUDIT TRACKING PERFORMANCE

Audits - 'Expanded' Generic Functions

Au.#	Audit Name	Audit Definition
Au. 13	**Balls Total**	The total of regular and extra balls.
Au. 14	**Extra Balls Total**	The total number of extra balls awarded.
Au. 15	**Extra Balls Percentage**	The Extra Balls Total (Au.14) divided by Total Plays (Au. 26).
Au. 16 & 17	**Replay 1, 2+ Awards**	These audits provide the total awards (credit, extra ball, or audit) for replay level 1 or 2+, respectively.
Au. 18	**Total Replays**	The total awards (credits, extra balls, or audit only) for exceeding replay score levels.
Au. 19	**Replay Percent**	The Replay Total awards for exceeding replay score levels, Total Replays (Au. 18) divided by Total Plays (Au. 26).
Au.20	**Total Specials**	The total awards (credits, extra balls, or scores) for making specials.
Au. 21	**Special Percentage**	The Total Specials (Au. 20) divided by Total Plays (Au. 26).
Au. 22	**Total Matches**	The total credits awarded for matching the last two digits of the score with the system-generated Match Number at the end of the game. Percentage of match credits will be adjustable from 0% to 10%, by Adj. 13 if enabled.
Au. 23	**High Score Wins**	The total credits awarded for exceeding the high-score-to-date scores.
Au. 24	**High Score Percent**	The High Score Wins (Au. 23) divided by Total Plays (Au. 26).
Au. 25	**Total Free Plays**	The total free credits for replays, high-score-to-date, specials, and match.
Au. 26	**Total Plays**	The sum of Total Paid Credits (Au.1) and Total Free Plays (Au. 25). Note that free credits are not recorded in the Audit until they are actually used.
Au. 27	**000.0 - 199.9 Million**	Provides the total number of games the Player's final score was between 0 and 199,999,990 points.
Au. 28	**200.0 - 499.9 Million**	Provides the total number of games the Player's final score was between 200,000,000 and 499,999,990 points.
Au. 29	**500.0 - 799.9 Million**	Provides the total number of games the Player's final score was between 500,000,000 and 799,999,990 points.
Au. 30	**800.0 - 1.09 Billion**	Provides the total number of games the Player's final score was between 800,000,000 and 1,099,999,990 points.
Au. 31	**1.1 - 1.39 Billion**	Provides the total number of games the Player's final score was between 1,100,000,000 and 1,399,999,990 points.
Au. 32	**Over 1.4 Billion**	Provides the total number of games the Player's final score was over 1,400,000,000 points.
Au. 33	**Average Scores**	Provides the Average Score by adding the Final Score of each game to a table and dividing this sum by the Total Plays.

Audits - 'Expanded' Generic Functions (cont.)

Au.#	Audit Name	Audit Definition
Au. 34	Service Credits	Provides the total number of Service credits added to the game. *See Game Diagnostics on page 25 for instructions regarding entry of Service Credits.*
Au. 35, 36, 37	Proprietary	Provides information to the game designer to aid in design development (not for consumer use).
Au. 38	Total Buyin Games	Provides the number of times a player utilized the Buy-In Feature.
Au. 39	Extra Ball Buyins	Provides the total number of times the Extra Ball Buyin feature was used.
Au. 40	EB Buyin Replay Awards	Provides the total number of replay awards that resulted from the use of the Extra Ball Buyin (Au. 39) feature.
Au. 41	EB Buyin HS Awards	Provides the total number of times in which use of the Extra Ball Buyin feature resulted in a high score.
Au. 42	Drains Left	Provides the number of times the ball drained out the left drain.
Au. 43	Drains Center	Provides the number of times the ball drained out the center drain.
Au. 44	Drains Right	Provides the number of times the ball drained out the right drain.
Au. 45	Slam Tilts	Provides the number of times the Slam Tilt switch was activated.
Au. 46	Freeze Used	Provides the total number of times the Freeze feature was used. The Freeze feature is enabled at the start of each ball and is disabled as soon as the ball makes contact with 5 game switches or allocated time expired.

Audits - 'Expanded' Game Specific Functions

Au.#	Audit Name	Audit Definition
Au. 47	Left "G" Ramp Shots	Provides the total number of times the Left "G" Ramp was scored.
Au. 48	Right "R" Ramp Shots	Provides the total number of times the Right "R" Ramp was scored.
Au. 49	Left Drops Completed	Provides the total number of times that the left drop target bank was completed.
Au. 50	Right Drops Completed	Provides the total number of times that the Right Drop Target Bank was completed.
Au. 51	Orbit Shots	Provides the total number of times the Orbit was scored.
Au. 52	Mini-Orbit Shots	Provides the total number of times the Mini-Orbit was scored.
Au. 53	Skill Shot-Add-A-Band Member Feature	Provides the total number of times the Skill Shot Add-A-Band Member was selected from the Autoplunger.
Au. 54	Skill Shot-Guitar Features	Provides the total number of times the Skill Shot Guitar Feature was selected from the Autoplunger.

Audit Functions

Au.#	Audit Name	Audit Definition
Au. 55	**Skill Shot-Turbo-Bumper Pops Feature**	Provides the total number of times the Skill Shot "Pops" Feature was selected from the Autoplunger.
Au. 56	**Skill Shot-Mystery Feature**	Provides the total number of times the Skill Shot "Mystery" Feature was selected from the Autoplunger.
Au. 57	**Guitar Feature from Eject**	Provides the total number of times the Guitar Feature was collected from the Eject.
Au. 58	**Mystery Awarded from Scoop**	Provides the total number of times the Mystery Feature was collected from the Scoop.
Au. 59	**Multi-Ball Lit**	Provides the total number of times the Multi-Ball feature was lit.
Au. 60	**Multi-Ball Start from"G" Ramp**	Provides the total number of times Multi-Ball was started at the "G" Ramp.
Au. 61	**Multi-Ball Start from VUK**	Provides the total number of times Multi-Ball was started at the VUK.
Au. 62	**Multi-Ball Restart Awarded**	Provides the total number of times the Multi-Ball Restart feature was awarded.
Au. 63	**2nd+ Multi-Ball**	Provides the total number of times the Multi-Ball Feature was awarded two or more times.
Au. 64	**Jackpot**	Provides the total number of times the Jackpot feature was scored.
Au. 65	**Paradise City Jackpot**	Provides the total number of times the Paradise City Jackpot feature was scored.
Au. 66	**Super Jackpot**	Provides the total number of times the Super Jackpot feature was collected.

GAME ADJUSTMENTS

General
There are 55 adjustable functions provided to vary difficulty of play and to periodically reset audits and the high score levels. The various game adjustments are summarized in the **Game Adjustments Table** and, when accessed, are shown on the player score display. The *Adjustment Number* is shown in the top of the display, the *Description* is shown next, and the setting, in the bottom of the display. Access and control is provided from switches located on the inside of the coin door.

Game adjustments are accessed from the audit mode. With the audits displaying AUDIT 1 and the **FORWARD/ REVERSE** switch in the **REVERSE** (down) position, depress the **STEP** switch and ADJUSTMENT 99 is shown at the top of the display, *Factory Restore* is shown in the middle of the display, and **NO** is shown in the bottom of the display. With the audits displaying AUDIT 10 or 99) and the **FORWARD/REVERSE** switch in the **FORWARD** (up) position, depress the **STEP** switch and ADJUSTMENT 1 is shown in the top of the display, *Replay/manual* is shown in the middle of the display, and the setting is shown in the bottom of the display.

With the **FORWARD/REVERSE** switch in the **FORWARD** (up) position, depressing the **STEP** switch advances through the game adjustments one at a time. With it in the **REVERSE** (down) position, the **STEP** switch selects lower-numbered adjustments. To rapidly scroll through adjustments, hold the **STEP** switch depressed. Adjustment values are changed by operating the **GAME START** push-button. The **FORWARD/REVERSE** switch setting determines whether the values are increased or decreased. (With the **FORWARD/REVERSE** switch up, the value increases, with it down, the value decreases). When the **STEP** switch is depressed the display indicates **REQUEST INSTALLED**.

Replay And Generic Features
Replays may be adjusted either for fixed levels or for a system-adjusted manual percentage of replay awards. Four levels may be selected. Adjustments allow awarding of a credit or an extra ball as each level is exceeded. With the manual percentage feature, if the actual replay percentage is higher or lower than that desired, the game computes new recommended manual percentage score(s). When the coin door is subsequently opened the player displays indicate the recommended level and a sound is made to alert the operator of a potential change. This new level is entered into adjustments simply by pressing the game start push-button. (If the coin door is closed or you enter audits/adjustments or diagnostics, the replay level is not changed.)

Adjustments - 'Replays'

Adj.#	Adjustment Name	Adjustment Definition
Adj. 1	**Replay - Manual:**	Adjust for percentage of awards for replay levels (1% through 50%). Proceed to Adj. 2 and 3 for starting replay levels.
	Replay - Fixed:	Lower the automatic value to 0% and the display will indicate Fixed. Proceed to Adj. 2 and 3 for fixed replay levels.
Adj. 2	**Start Replay - Manual**	Adjust the starting Replay 1 setting to between 100,000,000 and 9,999,000,000.
Adj. 3	**Levels Replay / Level 1, 2, 3 & 4 Replay**	Adjust the number of replay levels to be active (1 to 4). Any additional starting replay levels are automatically set to values higher than Replay 1. Adjust Replay 1 level to between 100,000,000 and 9,999,000,000. (Same as Start Replay). If Adj. 3 is set for 2, 3, or 4, adjust Replay 2, 3, or 4 (respectively) level to between 100,000,000 & 9,999,000,000.
Adj. 4	**Replay Awards**	Set for replays to award: **CREDIT, EXTRA BALL, NONE**
Adj. 5	**Limit Freegame**	Adjust the max. # of free games that may be accumulated per game; 0-9
Adj. 6	**Limit Extra Balls**	Adjust the max. # of extra balls that may be accumulated per game; 1- 9 or OFF.

GUNS N' ROSES

Game Adjustment Table

Adj Nº	Description	Factory Setting	Adj Nº	Description	Factory Setting
1	Replay: Manual/Fixed	10%	33	Flash Lamps	Normal
2	Start Replay	900,000,000	34	Coils Pulse	Normal
3	Replay Levels †	01	35	Modesty Option	Yes
4	Replay Awards	Credit	36	Next Game Promo Msg.	Off
5	Limit Freegame	05	37	Buyin Type	Extra Ball
6	Limit Extra Balls	03	38	Nº of EB Buyin Allowed	01
7	Game Rules †	Moderate	39	Restart Game	Yes
8	Game Price †	USA 7	40	Extra Ball Percentage	25%
9	Reset Coins	No	41	Volume Control	100%
10	Reset Audits	No	42	Bill Validator	No
11	Restore High Scores	No	43	Tournament Style	None
12	Expand Adjustments	No	44	External Replay Knocker Option	Off
13	Match Percentage	09%	45	Multi-Ball Restart Criterion	Easy
14	Balls Per Game	03	46	Jackpot Criterion	No
15	Tilt Warnings	01	47	Multi-Ball Ready Style	Moderate
16	Replay Boost	Yes	48	Extra Ball Lit from Memory	On
17	Credits Limit	30	49	Ramp Memory	On
18	High Scores Allowed	Yes	50	Prototype Game	No
19	High Score Nº 1 Awards	03	51	Software Meter	00
20	High Score Nº 2 Awards	01	52	Location ID Nº	0000
21	High Score Nº 3 Awards	01	53	Game ID Nº	0000
22	High Score Nº 4 Awards	00	54	Reset Printer	N/A
23	Default High Score Nº 1	2,400,000,000	55	Printer Interface	Press Start to Print
24	Default High Score Nº 2	2,100,000,000			
25	Default High Score Nº 3	1,950,000,000	99	**Factory Restore**	No
26	Default High Score Nº 4	1,800,000,000			
27	Default High Score Nº 5	1,650,000,000			
28	Default High Score Nº 6	1,500,000,000			
29	Reset High Score To Date	700 Games			
30	Free Play	No			
31	Custom Message	On			
32	Attract Music	On			

† Some settings result in Drop-Down Tables. Review the following pages which define all of the above adjustments.

Single-function Difficulty Adjustment (7)

Adj.#	Adjustment Name	Adjustment Definition

Adj. 7   **Game Rules**   Any one of five INSTALL settings for this adjustment may be activated to automatically select settings for multiple adjustments affecting game difficulty. Use the Start button to choose the difficulty level you require and press the step button to activate the setting. After activation, the individual adjustments may be readjusted if desired. Refer to Install Adjustment Table for details.

Set to EXTRA EASY, EASY, FACTORY, HARD or EXTRA HARD.
(*Note*: Additional game features are not adjustable in by the Expanded Adjustments may also change using this setting.)

Install Adjustments	Adj. 7 Extra Easy	Adj. 7 Easy	Adj. 7 Moderate	Adj. 7 Hard	Adj. 7 Extra Hard
(45) Multi-Ball Restart Criterion	EXTRA EASY	EASY	EASY	HARD	EXTRA HARD
(46) Jackpot Criterion	NO	NO	NO	YES	YES
(47) Multi-Ball Ready Style	EXTRA EASY	EASY	MODERATE	HARD	EXTRA HARD
(49) Ramp Memory	YES	YES	YES	NO	NO

NOVELTY / 5-BALL / ADD-A-BALL SETTINGS

The following three combinations are recommended for situations where local laws restrict certain game features

Novelty Play Rules - Set to establish recommended settings for no free play or extra balls:

Adj.	Adj. Name	Setting	Adj.	Adj. Name	Setting
1	Manual Replay	Fixed	6	Limit Extra Balls	00
3	Replay Levels	None	13	Match Percentage	Off
4	Replay Awards	None	19	High Score N° 1 Awards	03
5	Limit Freegame	00	20	High Score N° 2 Awards	01

regarding the use of replays or the number of balls per game:

5-Ball Play Rules - Set to establish recommended settings for 5-ball play:

Adj.	Adj. Name	Setting	Adj.	Adj. Name	Setting
1	Manual Replay	07%	6	Limt Extra Balls	03
2	Start Replay	1,500,000,000	13	Match Percentage	04
3	Replay Levels	01	14	Balls Per Game	05
4	Replay Awards	Credit	19	High Score N° 1 Awards	03
5	Limit Freegame	05	20	High Score N° 2 Awards	01

Add-A-Ball Settings-To disable awarding of credits and provide awards with an extra ball:

Adj.	Adj. Name	Setting	Adj.	Adj. Name	Setting
4	Replay Awards	Extra Ball	18	High Scores Allowed	No
5	Limit Freegame	00	19-22	High Score N° 1-4	00
13	Match Percentage	Off			

Game Price Adjustment (8)

There are two methods available for coin switch programming; Standard and Custom. Standard pricing uses a single adjustment (Adj. 8) to select a pricing scheme shown in the **Standard /Custom Pricing Table**. Custom pricing is used to select additional pricing schemes defined by a Drop Down Menu.

With Adj. 8 set to **CUSTOM** operating the step button again initiates a drop down menu representing coin switch pulses for the left, right, center and fourth coin slots. The prescribed the number of pulses are required for one credit. For example, if *Left Coin Pulses,* was set to 02 and *Coin Switch Pulses Required for 1 Credit,* to 01 a coin in the left slot would produce two credits. Further, if *Left Coin Pulses,* was set to 01 and *Coin Switch Pulses Required for 1 Credit,* to 02, two coins in the left slot would be required for one credit.

Coin Switch Pulses Required for Bonus Credit may be set to post bonus credits when a minimum amount of coins are inserted at one time. For example, if *Left Coin Pulses* was set to 01, *Coin Switch Pulses Required for 1 Credit* to 01 and *Coin Switch Pulses Required for Bonus Credit* to 04, one credit would be posted for each of the first three coins in the left slot and two credits for the fourth coin.

Standard/Custom Pricing - Set for the desired pricing scheme from the Standard Pricing Table as indicated on the dot matrix display. For Custom Pricing, set to **CUSTOM**. When set to CUSTOM, the following adjustments are utilized to tailor each individual coin chute.

Left Coin Switch Pulses - Set the number of pulses registered for closure of the left coin switch; 00 to 99.

Right Coin Switch Pulses - Set the number of pulses registered for closure of the right coin switch; 00 to 99.

Center Coin Switch Pulses - Set the number of pulses registered for closure of the center coin switch; 00 to 99.

4th Coin Switch Pulses - Set the number of pulses registered for closure of the fourth coin switch; 00 to 99.

Coin Switch Pulses Required for 1 Credit - Set the number of coin switch pulses required to post one credit; 00 to 99.

Coin Switch Pulses Required for Bonus Credit- Set the number of coin switch pulses required to award the 1st bonus credit(s); 00 to 99.

Coin Switch Pulses Required for 2nd Bonus Credit- Set the number of coin switch pulses required to award the 2nd bonus credit; 00 to 99.

Credits awarded for 1st Bonus - Set the number of credits awarded for achieving the first Bonus level; 00 to 99.

CUSTOM PRICING TABLE

Coin Mechs				Plays/Coins	Adjustments							
Left	Right	Center	4th		Left Pulses	Right Pulses	Mid Pulses	4th Pulses	Pulses /Credit	Pulses /Bonus	Pulses /2nd BONUS	Credit /1st BONUS
25¢	25¢	$1.00	N/U	1/25¢ 3/50¢	01	01	04	00	01	02	00	01
				1/25¢ 5/$1.00	01	01	04	00	01	04	00	01
				1/25¢ 6/$1.00	05	05	20	00	04	20	00	01
5SCH	10SCH	10SCH	N/U	1/10 S	01	02	02	00	02	00	00	00
				1/10 S 4/30 S	04	08	08	00	06	00	00	00
10p	£1	50p	20p	1/30p 2/50p	01	15	06	02	03	00	00	00
				5/£1	01	15	05	02	05	00	00	00
				1/50p 3/£1	01	12	05	02	03	00	00	00
				1/30p 4/£1								
20¢	$1.00	N/U	N/U	1/60¢ 2/$1.00	01	05	00	00	03	05	00	01

Standard Pricing Table

Adj. 8 Standard Pricing Select	Coin Mechanisms				Pricing Scheme Explained Number of "Plays" for Price Amount Shown			
	Left	Center	Right	Right				
	1st	2nd	3rd	4th				
USA 1	25¢	$1	25¢		1/25¢			
USA 2	25¢	$1	25¢		1/50¢	2/75¢	3/$1	
USA 3	25¢	$1	25¢		1/50¢			
USA 4	25¢		25¢		1/50¢			
USA 5	25¢	$1	25¢		1/50¢	5/$2		Used to promote Bill Validator
USA 6	25¢	$1	25¢		1/50¢	2/"4X25¢"	3/$1(bill)←	
USA 7 ★	25¢	$1	25¢		1/50¢	4/$1.50	6/$2	
Austria	5S	10S	10S		1/10S	2/15S	3/20S	
Australia	20¢	$A 1	$A 2		1/$A 1	3/$A 2		
Australia 2	20¢	$1	$2		1/$1	2/$2		
Belgium	5 BF	20 BF	50 BF		1/20 BF	3/50 BF		
Canada	25¢	25¢	Can$ 1		1/50¢	2/75¢	3/Can$ 1	
Denmark 1	1DKr	5 DKr	10 DKr	20 DKr	1/3 DKr	2/5 DKr		
Denmark 2	1DKr	5 DKr	10 DKr	20 DKr	1/2 DKr	3/5 DKr	7/10 DKr	
Finland	1Fmk	5Fmk			1/3Fmk	2/5Fmk		
France 1 ★	1 Fr	5 Fr	10 Fr	20 Fr	1/3 Fr	2/5 Fr	5/10 Fr	11/20 Fr
France 2	1 Fr	5 Fr	10 Fr	20 Fr	1/5 Fr	3/10 Fr	7/20 Fr	
France 3	1 Fr	5 Fr	10 Fr	20 Fr	1/3 Fr	2/5 Fr	4/10 Fr	9/20 Fr
Germany 1	1DM	2DM	5DM		1/1DM	5/5DM		
Germany 2	1DM	2DM	5DM		1/1DM	6/5DM		
Germany 3 ★	1DM	2DM	5DM		1/2DM	2/3DM	3/4DM	5/5DM
Greece	50Dr		100Dr		1/50Dr	3/100Dr		
Holland (See Netherlands 2)								
Hungary	10 Ft	10 Ft	20 Ft		1/20 Ft	3/40 Ft		
Italy 1	500 Lit		500 Lit		1/500 Lit			
Italy 2	500 Lit		500 Lit		1/1000 Lit	3/2000 Lit		
Japan			100¥		1/100¥	3/200¥		
Korea	100Won		100Won		1/100Won			
Netherlands 1	1 Fls.	1 Fls.	2.5 Fls.		1/1Fls.	3/2.5 Fls.		
Netherlands 2 ★	1 Fls.	2.5 Fls.	5 Fls.		1/1Fls.	3/2.5 Fls.	6/5 Fls.	
New Zealand 1	$NZ 1		$NZ 2		1/$NZ 1	2/$NZ 2		
New Zealand 2	$NZ 1		$NZ 2		1/$NZ 1	3/$NZ 2		
Norway	5 NKr		10 NKr		1/5 NKr	5/20 NKr		
Spain	100Pts		500Pts		1/100Pts	6/500Pts		
Sweden	1 SKr	5 SKr	10 SKr		1/10 SKr	2/15 SKr	3/20 SKr	
Switzerland 1 ★	1 SwF	2 SwF	5 SwF		1/1 SwF	6/5 SwF		
Switzerland 2	1 SwF	2 SwF	5 SwF		1/1 SwF	3/2 SwF	9/5 SwF	
UK 1	10p	50p	1£	20p	1/50p	3/1£		
UK 2	10p	50p	1£	20p	1/40p	3/1£		
UK 3 ★	10p	50p	1£	20p	1/50p			
Yugoslavia	5 Din		5 Din		1/5 Din			

★ Default Factory Setting.

Additional Generic Features

Adj.#	Adjustment Name	Adjustment Definition
Adj. 9	**Reset Coins**	When enabled (set to **YES**) all coin/paid credit totals will be reset to zero when **STEP** is depressed.
Adj. 10	**Reset Audits**	When enabled (set to **YES**) all audit totals except for coins and paid credits will be reset to zero when **STEP** is depressed.
Adj. 11	**Restore High Scores**	When enabled (set to **YES**) the High Score Levels and associated initials will be restored to backup settings when **STEP** is depressed .
Adj. 12	**Expand Adjustments**	When set to **NO**, depressing the **STEP** push-button advances directly to Adj. 99, *FACTORY RESTORE*. When set to **YES**, depressing the **STEP** push-button sequences through the expanded adjustments. When exiting from expanded adjustments, this function is reset to **OFF** for the next time that adjustments are required.
Adj. 13	**Match Percentage**	Set Match percent from **00%** to **10%** or **OFF**. At **00%** the match display occurs at the end of the game but never awards a credit.
Adj. 14	**Balls Per Game**	Adjust the number of balls per game; **2** to **5**.
Adj. 15	**Tilt Warnings**	Adjust the number of plumb bob tilt switch closures before the ball in play is tilted; **1**, **2**, **3** or **OFF**.
Adj. 16	**Replay Boost**	Set to **YES** or **NO**. When set to **YES**, exceeding a replay will set a temporary replay level for each time a replay level is surpassed. This new level will equal the previous replay level (when the replay was awarded) plus 50 Million for each following game, until the replays have all been played. At this time the previous level is resumed.
Adj. 17	**Credits Limit**	Adjust the maximum number of credits that may be posted; **4** to **50**.

There are four of the six high score levels with associated player initials that are displayed during the attract mode. This provides a high-score-to-date feature. When players exceed these levels, the player initials may be entered to replace the previous ones. These levels may be adjusted to award credits and to be reset to backup values after a selected number of games.

Adj.#	Adjustment Name	Adjustment Definition
Adj. 18	**High Scores Allowed**	Set to enable or disable the four high score levels; 00.
Adj. 19	**High Scores № 1 Awards**	Adjust the number of credits (**0** to **4**) awarded for exceeding level 1 (the highest of the four levels).
Adj. 20	**High Scores № 2 Awards**	Adjust the number of credits (**0** to **3**) awarded for exceeding level 2.
Adj. 21	**High Scores № 3 Awards**	Adjust the number of credits (**0** to **2**) awarded for exceeding level 3.
Adj. 22	**High Scores № 4 Awards**	Adjust the number of credits (**0** to **1**) awarded for exceeding level 4.
Adj. 23	**Default High Score № 1**	Adjust the score level to which the world record, (level 1) (the highest of the four levels) may be altered. This adjustment is not affected by Adj. 29, *Reset High Score To Date*.
Adj. 24	**Default High Score № 2**	Adjust the backup score level to which level 2 may be reset.
Adj. 25	**Default High Score № 3**	Adjust the backup score level to which level 3 may be reset.
Adj. 26	**Default High Score № 4**	Adjust the backup score level to which level 4 may be reset.

Adj.#	Adjustment Name	Adjustment Definition
Adj. 28	**Default High Score № 6**	Adjust the backup score level to which level 6 may be reset.
Adj. 29	**Reset High Score To Date**	Adjust the number of games between automatic resets of high score levels to backup settings and ball time averager adjustments; **100** to **900** or **OFF** (no reset or adjustment).
Adj. 30	**Free Play**	When set to **YES**, no coins are required for games.
Adj. 31	**Custom Message**	When desired, this function is used to establish a custom message periodically displayed during the attract mode. Set the feature to **CHANGE** using the Credit button and depress **STEP.** The letter A is indicated in the first position in the display. Vary the letter by operating the left and right flippers. With the desired letter indicated, depress the **CREDIT** button to lock in the letter and advance to the next character. Repeat this procedure until the desired message is completed in the display. Press the **STEP** push-button switch to advance to Adj. 32.
Adj. 32	**Attract Music**	Set to **ON** or **OFF**.
Adj. 33	**Flash Lamps**	Set to **NORMAL**, **DIM** or **OFF**. When set to **NORMAL** the Flash Lamps are active, when **DIM** the Flash Lamps impulse power is reduced by **25%** and when **OFF** the Flash Lamps do not flash.
Adj. 34	**Coils Pulse**	Set to **NORMAL, HARD** or **SOFT**. When **HARD** the coil pulse power is increased by **12.5%** of the normal pulse rate. When set to **SOFT** the coil pulse power is reduced by **12.5%** of the normal pulse rate. These adjustments are provided to compensate for Low Line or High Line voltage conditions where the solenoids appear to kicking too weak or too hard.
Adj. 35	**Modesty Option**	Set to **Yes** or **No**. Default setting is **YES**. When set to **NO**, the woman in the Match Feature appears topless.
Adj. 36	**Next Game Promo Message**	Set to **ON** or **OFF**. When set to **ON**, the game, in attract mode will randomly display a short promotion for our next game. When set to **OFF**, the game in attract mode will not generate any sounds or graphics referring to the next game.
Adj. 37	**Buy-in Type**	Set to **Extra-Ball Buyin**. When set to **EB Buyin**, the game is set to Extra Ball Buy-in. When set to **Feature Buyin,** the game is set to Game Buy-in. Set to **OFF** to make Buy-in Type inoperative.
Adj. 38	**№ of E.B. Buyin Allowed**	**00, 01** or **UNLIMITED**. Allows the operator to adjust the number of Extra Ball (EB) Buyins allowed after normal game play.
Adj. 39	**Restart Game**	Set to **YES** or **NO**. When set to **YES**, a new game may be started during any ball after the first ball is completed. (Note-Pressing start during the first ball will add additional players.) When set to **NO**, the game disables the start button after the first ball until the final ball is in play.
Adj. 40	**Extra Ball Percentage**	Set from **0** to **50**. Allows the operator to adjust how frequently the Extra Ball feature is made available to the player.
Adj. 41	**Volume Control**	Set to **0, 25, 50, 75** or **100** percent. Allows the operator to adjust the background music volume independently from the normal game sounds.

Game Specific Features

Adj.#	Adjustment Name	Adjustment Definition
Adj. 42	Bill Validator	Set to **YES** or **NO**. When set to **YES** , the display, in game attract mode, will show an "*Insert Bill Animation*". When set to **NO**, the display, in game attract mode will show "*Insert Coin Animation*".
Adj. 43	Tournament Style	Set to **NONE, PINBALL EXPO, IFPA-PAPA** or **HOME**. This function determines the default conditions to quickly prepare a game for tournament play. When this setting is changed all audits will be reset and all adjustments will be initiated to the particular style selected. The game will then return to game over attract mode, as if a Factory Restore had been performed. **NONE** - Same as a Factory Reset conditions. **IFPA**-Straight 50¢ play, no replay, no Extra Ball, no High Scores , 2 Tilt Warnings and No Match. **PINBALL EXPO-PAPA**- Same as **IFPA** settings except Free Play is enabled. **HOME**-Sets game for Free Play, extra ball play, no replay, **10%** Match & Ex Ball percent **30%**.
Adj. 44	External Replay Knocker Option	Set to **ON** or **OFF**. When set to **ON**, the operator can enable the knocker in the cabinet to drive an external device without the game giving a replay.
Adj. 45	Multi-Ball Restart Criterion	Set to **EXEASY, EASY, MODERATE, HARD** or **EXHARD**. Determines how Multi-Ball can restart.
Adj. 46	Jackpot Criterion	Determines how the Jackpot is lit.
Adj. 47	Multi-Ball Ready Style	Determines how Multi-Ball Ready is achieved.
Adj. 48	Extra Ball from Memory	Set to **ON** or **OFF**. When set to **ON**, the lit 'Extra Ball' light will be retained in memory from ball to ball for the same player. When set to **OFF**, the lit 'Extra Ball' light will go out at the end of each ball.
Adj. 49	Ramp Memory	Set to **YES** or **NO**. When set to **YES**, the 'Completed Number of Ramps' will be retained in memory from ball to ball for the same player to achieve set awards. When set to **NO**, the 'Completed Number of Ramps' will be reset at the end of each ball.
Adj. 50	Prototype Game	Set to **YES** or **NO**. Informs operator if game is a prototype or not. DO NOT CHANGE SETTING. This will affect outcome of software updates (if any).
Adj. 51	Software Meter	Provides the operator with the total number of Meter Clicks.
Adj. 52	Location I.D. Number	0 to **9999**. Allows the operator to assign a location identification number to the audit print-out sheet.(Will not be affected by Factory Restore.)
Adj. 53	Game I.D. Number	0 to **9999**. Allows the operator to assign a game identification number to the Audit print-out sheet.(Will not be affected by Factory Restore.)
Adj. 54	Reset Printer	Provides the operator with the ability to reset the printer option.
Adj. 55	Printer Interface	Allows the operator to print by pressing the Start Button.
Adj. 99	Factory Restore	Allows the operator to reset all adjustments to the factory settings.

GAME DIAGNOSTICS

Please note: If the Display Reads **"OPEN THE DOOR,"** this indicates a faulty memory condition in RAM. Opening the Coin Door will initiate a Factory Restore, by opening the Memory Protect Switch. Check battery voltage at CMOS RAM with power off.

The Data East Pinball system provides tests for sounds, digital displays, lamps, switches, and solenoids. Each feature may be tested manually or automatically using the **STEP** and **FORWARD/REVERSE** push-button switches inside the coin door and the white "Clear Ticket" button located next to the Diagnostic Switchs. The automatic tests may be used for a quick verification of automatic test functions and the manual tests, for troubleshooting.

During game play, activation of switches and operation of coils with associated switches are monitored. If a switch is not made for 50 games it is considered faulty. When operation of a coil should close or open a switch and does not, the coil is considered faulty. In Game Over Attract Mode, faulty switches and coils (if any) are reported (See Tech Alert Description below). Note that reporting of an unused switch does not constitute a problem and that a bad coil could mean that the associated switch requires adjustment.

Wiring to switches, solenoids and controlled lamps uses color-coded wires that basically follows a resistor color-code scheme for the eight rows and eight columns. During the switch tests and during the discrete lamp test, identification of the color of the row and column wires are indicated in the Dot Matrix Display. For example, making the right coin switch during the Switch Test results in the switch functional name (RIGHT COIN) , the row (WHT-YEL) and column (GRN-BRN) wire color codes, and the switch number are shown in the display.

Color Abbreviations Used:

0	BLK	= BLACK	3	ORN	= ORANGE	6	BLU	= BLUE
1	BRN	= BROWN	4	YEL	= YELLOW	7	VIO	= VIOLET
2	RED	= RED	5	GRN	= GREEN	8	GRY	= GREY
						9	WHT	= WHITE

Additional Abbreviations/Acronyms Used:

X	Times	P/F	Playfield	D.T.	Drop Target(s)
LT	Left	S-U	Stand-Up	PPB	Playfield Power Board
RT	Right	Au.	Audit(s)	SSFB	Solid State Flipper Board
BOT	Bottom	Adj.	Adjustments	PSB	Power Supply Board
MID	Middle	G.I.	General Illumination	SMB	Shaker Motor Board

Entering Diagnostics

With the game in the game-over mode, open the coin door and make sure that the **FORWARD/REVERSE** push-button switch is set to **REVERSE** (down) and depress the **STEP** push-button switch. The Player displays will show the tollfree Customer Service number 1-800-KICKERS, that is 1-800-542-5377 (U.S. including Illinois) and the toll number (708) 345-7700 (Outside the United States). This indicates entry into game diagnostics.

Service Credits

With the phone number displayed depress the **STEP** push-button switch. The game now gives the technician the option of adding 1 to 5 service credits. These credits allow the technician to test-play the game without adding any counts to the coin audits (Au. 01 & Au. 05 - 08). When the message appears, press and hold the Game Start pushbutton until the desired number of credits are shown on the display. Then press the step button again to add these credits to the game and enter Tech Alert. If no Service Credits are desired, press the step button with the initial message displayed.

Tech Alert

The display will now indicate if there are any faulty switches (i.e., Switches that are normally closed but remain open or open switches that have not been closed (activated) in 50 games.

Easy Trough Clear

Pressing the step button again displays the **EASY TROUGH CLEAR** message and instructs the technician to operate either flipper button to easily remove the balls from the trough. This is provided to allow the technician a simple method of removing the balls from the trough prior to entering the Active Switch Test , thereby reducing the number of switches closed. Also, to test functionality of trough, ensure proper trough operation.

Burn-In Minutes

Pressing the step button while in Tech Alert mode will step game into Burn-in Mode (Factory use). At this stage pressing the game start button will cause the game to exercise all CPU I/O functions. This is provided to constantly exercise sounds, solenoids, etc...

To stop the test press the start button again. Cumulative Burn-In minutes will be displayed. To reset Burn-In minutes to 00, you must perform an Audit Reset (Adj. 10) or a Factory Restore (Adj. 99).

Sound Tests

The Data East Pinball sound system produces true digital stereo sound on left and right speakers and mono on a center speaker. During Sound tests, the bottom display shows the sound board circuit under test and the corresponding sounds are selected by operating the left and right flipper buttons to choose the circuit to be tested. Now press the start button to initiate the sound. Refer to the Sound Test Chart for the sound circuits displayed and the sounds produced.

The sound functions allow verification that all channels are functioning properly and that the speaker connections are correct. Speaker Phase Testing procedures follow for checking speaker connections.

SOUND TEST CHART

Auto/Manual Tests	Sounds Produced
LEFT SPEAKER	Left Sine
BOTH LT & RT SPEAKERS	Center Sine
RIGHT SPEAKER	Right Sine
VOICE ROM1 (Loc U17)	Speech Pattern 1
VOICE ROM2 (Loc U21)	Speech Pattern 2
VOICE ROM3 (Loc U36)	Speech Pattern 3
VOICE ROM4 (Loc U37)	Speech Pattern 4
MUSIC TEST (Sound ROM, Loc U7)	Level 1-3 Music

Note: The cabinet speaker should be on all the time.

Speaker Phase Testing

Connections to each of the three speakers are polarized and each must be connected appropriately for the best quality sound. If one speaker has the positive and negative connections reversed with respect to the other two, bass frequencies will not be produced properly and the overall sound quality will be poor.

To test for proper speaker phasing, use the sound test to cycle through the Left, Center, and Right Sine functions. If the Center Sine produces more volume and bass than the Left and Right Sines, the speakers are connected properly. If it produces the same or less, one speaker is connected improperly. To isolate and correct reversed speaker connections, one of two methods may be used.

1. Check each speaker for polarity markings. If the speakers have polarity markings, verify that the single-color wire (BLK, YEL or RED) is connected to the negative (-) terminal.

2. Disconnect the speaker output connector from the Sound Board and connect a 1.5-volt battery across each speaker pair one at a time while observing the speakers. Make sure the positive battery terminal is connected to the positive lead (CN1- Pin 1, 3 or 6) each time. As the connection is made, check speaker cone movement; proper connections are indicated by outward movement.

Digital Display Test

The Digital display utilizes a Dot Matrix Display Control board mounted in piggyback fashion to the display driver Board. The purpose behind this board is to provide more information (128 X 32 Dots) to the operator as well as displaying graphics to the player.

The board is controlled by a 68B09E microprocessor and its personality ROMs (Unique to the Game) . It receives Data, Reset & Clock information from the CPU Board via the ribbon cable and sends back multiple Status and Busy signals to the CPU . This is to insure synchronized communication between the CPU and the Display Controller board.

The Drivers for the rows and columns are provided on 4 surface mounted integrated circuits on the Display driver board.

Dot Matrix Display Test

To enter Dot Matrix Display Test, operate the STEP push-button switch from the Sound Manual test. The display will immediately illuminate one vertical column of dots, turning it off and illuminating the next column, until each column has been individually lit, while the other columns are off. It will make one pass. The display will then illuminate the top horizontal row of dots, and test by lighting the row of the display, then turning it off and illuminating the next row, until each row has been indivudally lit, while the other rows are off. The test will then illuminate all the dots in the display, except for one column. It will cycle this blank column from left to right for one pass. The display will then again illuminate all the dots except for the top row, and then turning it on and blanking the next row, until each row has been individually blanked, while the other rows are on. It will cycle this blank row for one pass. The next test begins with every other dot lit, in both the rows and columns.These dots then go out, and the unlit dots light, resulting in an alternating checkerboard pattern for approximately 4 seconds. The test will repeat these cycles indefinitely until advanced to the next test or until the power is removed. (Please Note- these tests may be interrupted at any time by operating the STEP push-button switch to advance to the next test.)
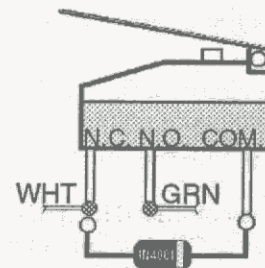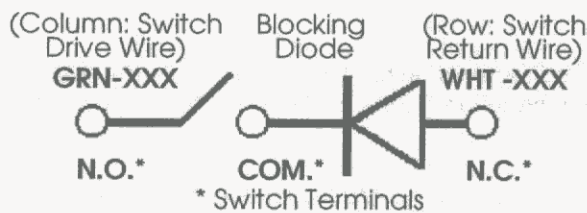
SWITCH TESTS

Switches are configured in an 8 x 8 matrix of columns (switch drives) and rows (switch returns) with up to 64 switches possible. The switch tests include three parts; switch test, active switches, and bad switches. Column and Row wire colors are indicated in each test using corresponding resistor color code numbers.

Switch Test

To initiate, push the STEP push-button switch, until the display indicates **SWITCH TEST**. Close each switch and observe the display. The display will indicate the switch name, column wire colors, row wire colors and the switch number. When a switch is released, the name and number disappear until another switch is closed or the test is exited.

Active Switches

Push the STEP push-button switch from the Switch Test. The display will indicate **ACTIVE SWITCHES**. If any switches are stuck closed (or made from the presence of a ball), the display sequences through switch names, and indicates the row and column wire colors, and the switch numbers are indicated in the display. This cycle continues until all switches are cleared or until the STEP push-button switch is depressed.

(Column: Switch Drive Wire) GRN-XXX — N.O.*
Blocking Diode — COM.*
(Row: Switch Return Wire) WHT-XXX — N.C.*
* Switch Terminals

Diode 1N4001

SWITCH MATRIX CHART

Column (Drive) / Row (Return)	1 Q55 GRN-BRN CN8-1	2 Q54 GRN-RED CN8-2	3 Q53 GRN-ORN CN8-3	4 Q52 GRN-YEL CN8-4	5 Q51 GRN-BLK CN8-5	6 Q50 GRN-BLU CN8-7	7 Q49 GRN-VIO CN8-8	8 Q48 GRN-GRY CN8-9
1 WHT-BRN CN10-9	Plumb Tilt 1	#1 (Left) Ball Trough 9	Captive Stand-Up "D" of DUFF 17	Left Turbo Bumper 25	Left Drop Target Bottom 33	Not Used 41	"R" Ramp Enter 49	Right Drop Target Top 57
2 WHT-RED CN10-8	4th Coin 2	#2 Ball Trough 10	Captive Stand-Up "U" of DUFF 18	Bottom Turbo Bumper 26	Left Drop Target Middle 34	Not Used 42	"R" Ramp Exit 50	Right Orbit Top 58
3 WHT-ORN CN10-7	Credit Button 3	#3 Ball Trough 11	Captive Stand-Up "F" of DUFF 19	Right Turbo Bumper 27	Right Drop Target Middle 35	Not Used 43	"G" Ramp Enter 51	Left Drop Target Top 59
4 WHT-YEL CN10-6	Right Coin 4	#4 Ball Trough 12	Captive Stand-Up "F" of DUFF 20	Right Slingshot 28	Right Drop Target Bottom 36	Not Used 44	"G" Ramp Exit 52	Left Orbit Top 60
5 WHT-GRN CN10-5	Center Coin 5	#5 Ball Trough 13	"J" of JAM Top Lane Left 21	Left Slingshot 29	Eject 37	Not Used 45	Left Return Lane 53	Not Used 61
6 WHT-BLU CN10-3	Left Coin 6	#6 Ball Trough 14	"A" of JAM Top Lane Middle 22	Top Slingshot 30	Center Scoop 38	Not Used 46	Left Outlane 54	Gun Trigger 62
7 WHT-VIO CN10-2	Slam Tilt 7	#7 (Right) Ball Trough 15	"M" of JAM Top Lane Right 23	Not Used 31	VUK 39	Not Used 47	Right Outlane 55	Left Flipper Upr./Lwr. 63
8 WHT-GRY CN10-1	Extra Ball Button 8	Shooter Lane 16	Left Shooter Lane 24	Not Used 32	Funnel Snake Pit 40	Inner Orbit Bottom 48	Right Return Lane 56	Right Flipper Lower 64

Switch Matrix Locations, Descriptions & Switch Part Numbers†

Switch Matrix No. & Description		Part No.
01*	Plumb Tilt	See Cabinet
02*	4th Coin (On Coin Door)	---
03*	Credit Button (Left of Coin Door)	500-5097-02
04*	Right Coin (On Coin Door)	180-5024-00
05*	Center Coin (On Coin Door)	180-5024-00
06*	Left Coin (On Coin Door)	180-5024-00
07*	Slam Tilt	180-5022-00
08*	Extra Ball Button (Under 03)	180-5073-00
09	#1 (Left) Ball Trough	180-5119-00
10	#2 Ball Trough	180-5119-00
11	#3 Ball Trough	180-5119-00
12	#4 Ball Trough	180-5119-00

Switch Matrix No. & Description		Part No.
13	#5 Ball Trough	180-5119-00
14	#6 Ball Trough	180-5119-00
15	#7 (Right) Ball Trough	180-5118-00
16	Shooter Lane	180-5100-01
17	Captive Stand-Up "D" of DUFF	515-5470-08
18	Captive Stand-Up "U" of DUFF	515-5470-08
19	Captive Stand-Up "F" of DUFF	515-5470-08
20	Captive Stand-Up "F" of DUFF	515-5470-08
21	Top Lane Left "J" of JAM	500-5707-00
22	Top Lane Middle "A" of JAM	500-5707-00
23	Top Lane Right "M" of JAM	500-5707-00
24	Left Shooter Lane	180-5700-00
25	Left Turbo Bumper	180-5015-01
26	Bottom Turbo Bumper	180-5015-01
27	Right Turbo Bumper	180-5015-01
28	Right Slingshot	180-5054-00
29	Left Slingshot	180-5054-00
30	Top Slingshot	180-5054-00
31	Not Used	--- ---
32	Not Used	--- ---
33	Left Drop Target Bottom	180-5092-01
34	Left Drop Target Middle	180-5092-01
35	Right Drop Target Middle	180-5092-01
36	Right Drop Target Bottom	180-5092-01
37	Eject	180-5027-01
38	Center Scoop	180-5057-00
39	VUK	180-5116-00
40	Funnel Snake Pit	515-6073-00
41	Not Used	--- ---
42	Not Used	--- ---
43	Not Used	--- ---
44	Not Used	--- ---
45	Not Used	--- ---
46	Not Used	--- ---
47	Not Used	--- ---
48	Inner Orbit Bottom	500-5706-00
49	" R " Ramp Enter	180-5090-00
50	" R " Ramp Exit	180-5090-00
51	" G " Ramp Enter	180-5090-00
52	" G " Ramp Exit	180-5090-00
53	Left Return Lane	500-5707-00
54	Left Outlane	500-5707-00
55	Right Outlane	500-5707-00
56	Right Return Lane	500-5706-00
57	Right Drop Target Top	180-5092-01
58	Right Orbit Top	500-5707-00
59	Left Drop Target Top	180-5092-01
60	Left Orbit Top	500-5706-00
61	Not Used	--- ---
62	Gun Trigger	180-5093-00
63*	Left Flipper Cabinet via Q7 (Transistor) on SSFB	180-5124-00
64*	Right Flipper Cabinet via Q5 (Transitor) on SSFB	180-5124-00
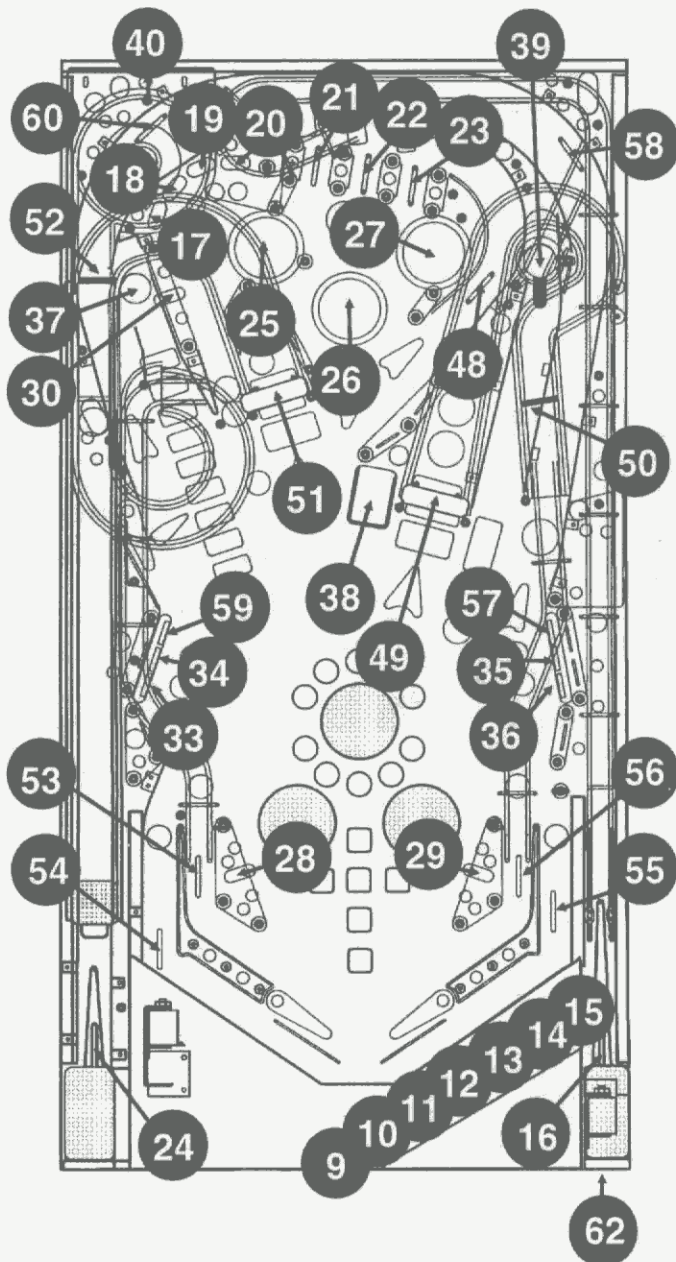
*   Location - In Cabinet
**   Location - Under Playfield
†   Specify Game Nº (29) & decal description if applicable.

LAMP TESTS

Controlled lamps are configured in an 8 x 8 matrix of columns (lamp drives) and rows (lamp returns) with up to 64 lamps possible. The lamp tests include four parts, all lamps, lamp return (row), lamp drive (column), and discrete (individual) lamps. Row and column wire colors are indicated in the discrete lamp test using corresponding resistor color code numbers.

All Lamps
From the Active Switch test, operate the STEP push-button switch. The dot matrix display will indicate ALL LAMPS and all controlled lamps will light.

Lamp Returns (Row)
From the ALL LAMPS test, depress the STEP push-button switch. The display indicates LAMP RETURNS, wire color and the LAMP RETURN driver transistor. All controlled lamps in row 1 should be lit. Operating the Game Start push-button switch cycles through each of the rows separately.

Lamp Drives (Column)
From the LAMP RETURNS test, depress the STEP push-button switch. The display will indicate LAMP COLUMNS, wire color and the LAMP DRIVES driver transistor. All controlled lamps in column 1 should be lit. Operating the Game Start push-button switch, cycles through each of the columns separately.

Single Lamp
From the LAMP DRIVES test, depress the STEP push-button switch. The display will indicate the lamp name. The display indicates the row and column wire colors and the lamp matrix number. Lamp 01 should light. With the FORWARD/REVERSE push-button switch in the FORWARD (up) position, operating the Game Start push-button switch selects higher-numbered lamps; with it in the REVERSE (down) position, Game Start selects lower-numbered lamps.

LAMP MATRIX CHART

Column 18V / Row GND	1 Q71 YEL-BRN CN7-1	2 Q70 YEL-RED CN7-2	3 Q69 YEL-ORN CN7-3	4 Q68 YEL-BLK CN7-4	5 Q67 YEL-GRN CN7-6	6 Q66 YEL-BLU CN7-7	7 Q65 YEL-VIO CN7-8	8 Q64 YEL-GRY CN7-9
1 Q72 RED-BRN CN6-1	Cross Grid Top "Dizzy" 01	Same Player Shoots Again 09	Left Outlane Patience 17	Right Outlane Michelle 25	" R " Ramp Rose Millions 33	Riot Ball 41	Matt Scoring 49	Left Top Lane "J" of JAM 57
2 Q73 RED-BLK CN6-2	" R " of ROCK 02	Cross Grid Left "Matt" 10	Left Return Lite Rock 18	Right Return Lite Guitar 26	" R " Ramp Jackpot 34	Axl 3-Ball 42	Slash Solo 50	Middle Top Lane "A" of JAM 58
3 Q74 RED-ORN CN6-3	" O " of ROCK 03	Double Mode 11	Cross Grid Upr. Center "Axl" 19	Captive Ball 27	" R " Ramp Enter 35	Dizzy Ball 43	Lite COMA 51	Right Top Lane "M" of JAM 59
4 Q75 RED-YEL CN6-5	" C " of ROCK 04	" R " of ROSES 12	" G " of GUNS 20	Cross Grid Right "Duff" 28	Magnets ON 36	Duff Rocks 44	Gilby Rolls 52	Back Stage Pass 60
5 Q76 RED-GRN CN6-6	" K " of ROCK 05	" O " of ROSES 13	" U " of GUNS 21	" D " of DUFF 29	Cross Grid Lwr. Center "Slash" 37	Super Snake Pit 45	Extra Ball 53	Slash 61
6 Q77 RED-BLU CN6-7	COMA 06	1st " S " of ROSES 14	" N " of GUNS 22	" U " of DUFF 30	" G " Ramp Gun Millions 38	Cross Grid Bottom "Gilby" 46	Mystery Scoop 54	Right Shooter Lane 62
7 Q78 RED-VIO CN6-8	Multi-Ball Ready 07	" E " of ROSES 15	" S " of GUNS 23	1st " F " of DUFF 31	" G " Ramp Jackpots 39	RIOT Jackpot 47	Left Shooter Left Ramp 55	Extra-Ball Button 63
8 Q79 RED-GRY CN6-9	Add Band Members 08	2nd " S " of ROSES 16	" N " of G... N' R... 24	2nd " F " of DUFF 32	" G " Ramp Enter 40	Super Jackpot 48	Roll 56	Credit 64

Lamp Matrix Location and Descriptions

Lamp Matrix No. & Description		Lamp Matrix No. & Description		Lamp Matrix No. & Description	
01	Cross Grid Top "Dizzy"	22	" N " of GU—N—S	43	Dizzy Ball
02	" R " of —R—OCK	23	" S " of GUN—S—	44	Duff Rocks
03	" O " of R—O—CK	24	" N' " of Guns —N'— Roses	45	Super Snake Pit
04	" C " of RO—C—K	25	Right Outlane Michelle	46	Cross Grid Bottom "Gilby"
05	" K " of ROC—K—	26	Right Return Lite Guitar	47	RIOT Jackpot
06	COMA	27	Captive Ball	48	Super Jackpot
07	Multi-Ball Ready	28	Cross Grid Right "Duff"	49	Matt Scoring
08	Add Band Members	29	" D " of —D—UFF	50	Slash Solo
09	Same Player Shoots Again	30	" U " of D—U—FF	51	Lite COMA
10	Cross Grid Left "Matt"	31	" F " of DU—F—F	52	Gilby Rolls
11	Double Mode	32	" F " of DUF—F—	53	Extra Ball
12	" R " of —R—OSES	33	" R " Ramp Rose Millions	54	Mystery Scoop
13	" O " of R—O—SES	34	" R " Ramp Jackpot	55	Left Shooter/Left Ramp
14	" S " of RO—S—ES	35	" R " Ramp Enter	56	Roll
15	" E " of ROS—E—S	36	Magnets ON	57	Left Top Lane "J" of JAM
16	" S " of ROSE—S—	37	Cross Grid Lwr. Cntr. "Slash"	58	Middle Top Lane "A" of JAM
17	Left Outlane Patience	38	" G " Ramp Gun Millions	59	Right Top Lane "M" of JAM
18	Left Return Lite Rock	39	" G" Ramp Jackpots	60	Back Stage Pass
19	Cross Grid Upr. Center "Axl"	40	" G" Ramp Enter	61	Slash
20	" G " of —G—UNS	41	Riot Ball	62	Right Shooter Lane
21	" U " of G—U—NS	42	Axl 3-Ball	63	Extra Ball Button
				64	Credit

Please Note:
General Illumination (G.I.)
Lamps are not shown.
For Bulb Types & Sockets,
see pages 46 & 47
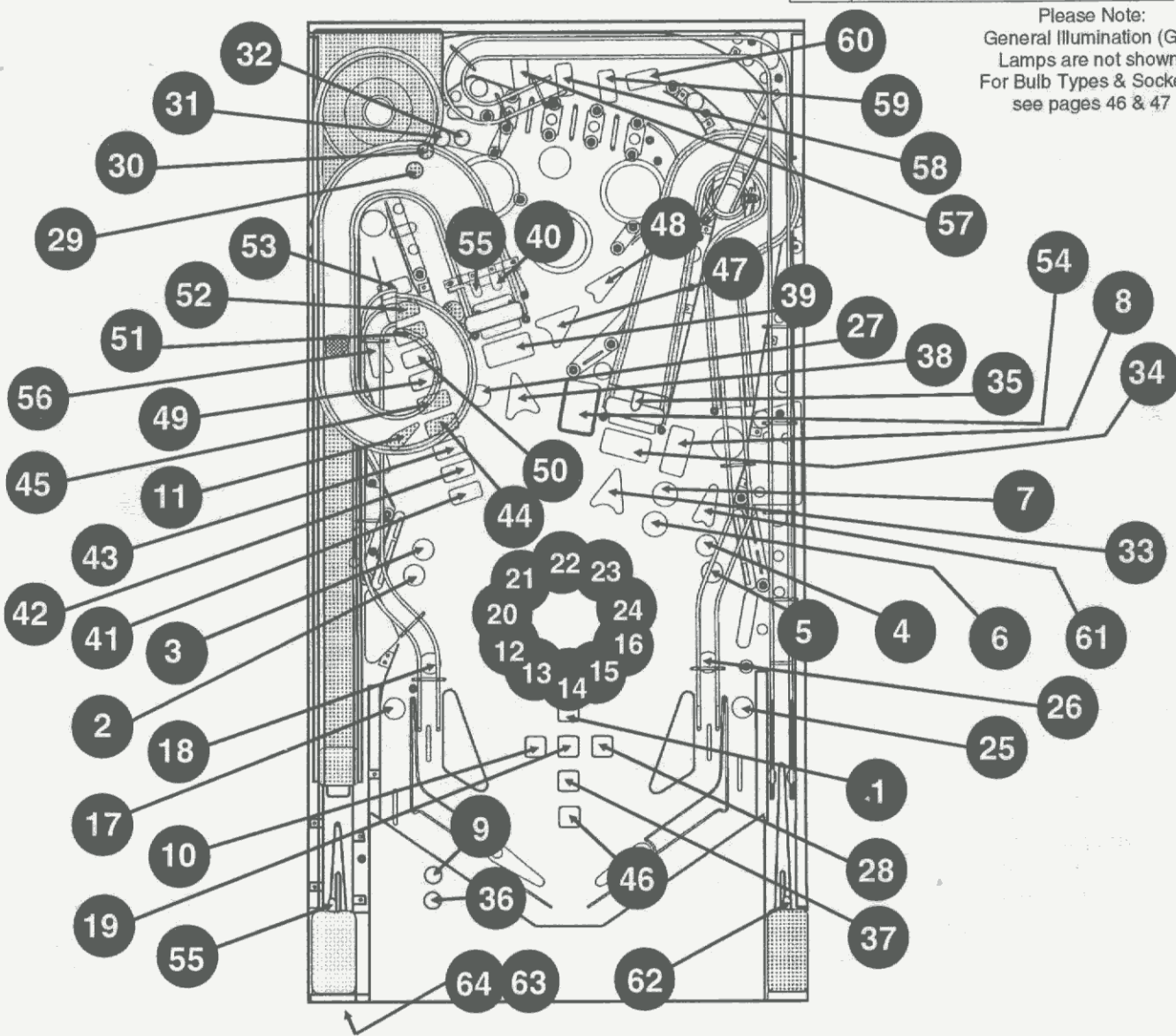
FLASH LAMP / COIL TESTS

Twenty-Two regular (pulsed under microprocessor control) coil drivers are provided to switch ground to coils. The Left/Right relay is used in conjunction with drives 1 through 8 to switch +32 volts between coils or flash lamps; these sets are termed "left" and "right". This relay is located on the PPB board which provides isolation diodes and current limiting resistors. This effectively provides 29 regular coils.

Flash Lamp	From the Single Lamp test, depress the **STEP** push-button switch. All Flash lamps will fire randomly. This allows the Technician to easily spot any burned out bulbs and replace them without stepping through the tests below.
Automatic Test	From the Flash Lamps test, depress the **STEP** push-button switch. The dot matrix display will indicate **ALL COILS**. The test pulses each regular solenoid or flash lamp sequentially with the coil/flash lamp names and the wire colors indicated in the display.
Select Coil	From the Coil Test, depress the **STEP** push-button switch. The display will indicate **SELECT COIL** and then the name of 1st drive and the wire colors. Operate either Flipper push-button switch to select the coil or flash lamp to be tested. With the desired drive number indicated in thedisplay, depress the **START** push-button switch to cause it to be pulsed repeatedly.
Return To Game Over	From the Select Coil test, depress the **STEP** push-button switch once. The game returns to the game-over mode.

Backbox Flash Lamps
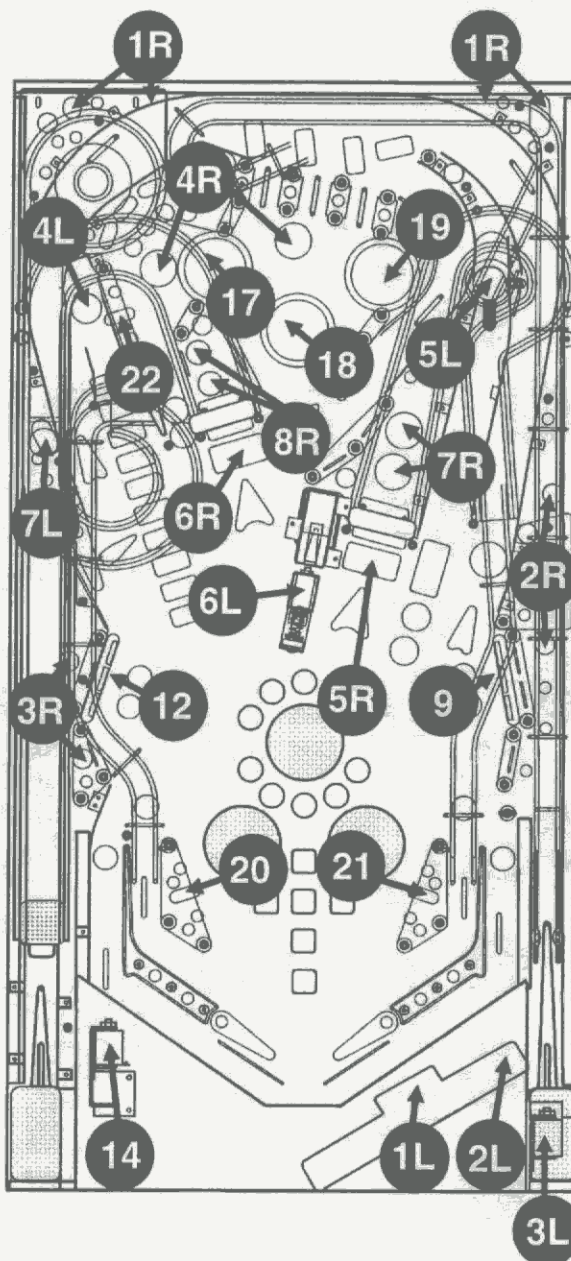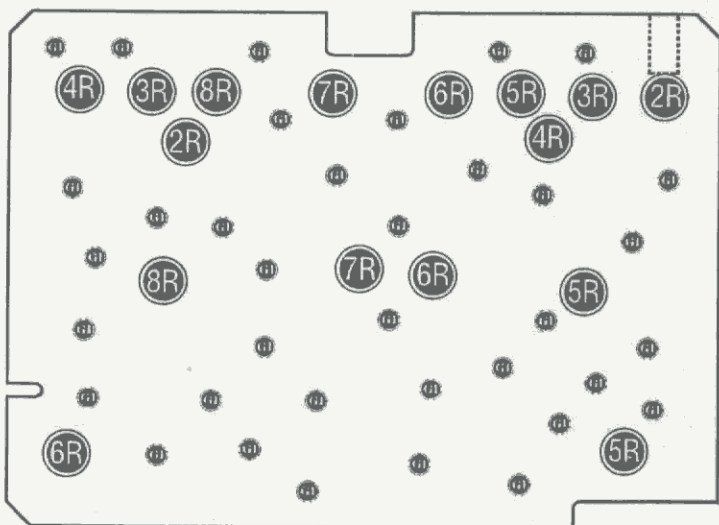
1L	6-Ball Ass'y Lockout	8R	Under "G" Ramp
1R	Back Panel X2 LT/RT Crnr.	09	Right 3-Bank Drop Targets
2L	Ball Release (Eject)	10	Left/Right (A/B) Relay
2R	Right Playfield	11	G.I. Relay
3L	Auto Ball Launch 50v	12	Left 3-Bank Drop Targets
3R	Left Playfield	13	Not Used
4L	Kicker, Eject	14	Laser Kick 50v
4R	Turbo Bumpers X2	15	Not Used
5L	VUK 50v	16	Not Used
5R	"R" Ramp Enter	17	Left Turbo Bumper
6L	Scoop/Kick Big 50v	18	Bottom Turbo Bumper
6R	"G" Ramp	19	Right Turbo Bumper
7L	Ramp Coil Trap Door	20	Left Slingshot
7R	Under "R" Ramp	21	Right Slingshot
8L	Knocker 32v	22	Top Slingshot

Note: Shaded areas not shown on Diagrams.
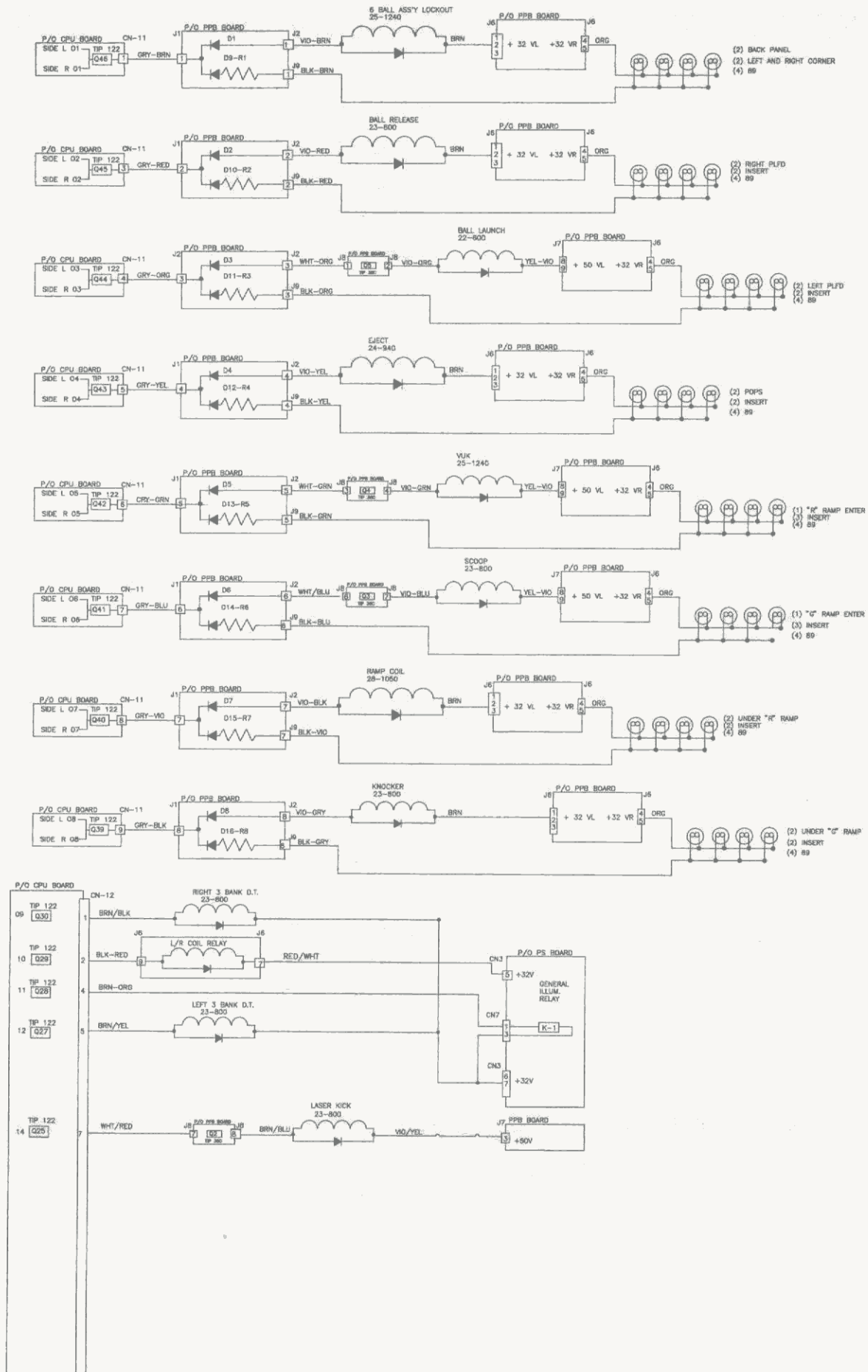G.I. General Illumination Lamps

Switched, CPU Controlled Auxiliary & Constant Power Solenoids

Coil No.	Coil or Flashlamp Description	Drive Transistor (D.T.)	On Which Board?	D.T. Control Line	D.T. Control Line Connect	Power Line	Power Line Connection	Power Description	Coil or Flash Type
1L	Coil: 6-Ball Assembly Lockout	Q46	CPU	VIO-BRN	PPB J 2-1	BRN	PPB J 6-1, 2	32v L	25-1240
1R	Flashlamp: X2 Backpanel, X2 P/F Back Pnl-P/F LT/RT Corners Flash	Q46	CPU	BLK-BRN	PPB J 9-1	ORG	PPB J 6-4, 5	32v R	Bulb #89
2L	Coil: Ball Release (Eject)	Q45	CPU	VIO-RED	PPB J 2-2	BRN	PPB J 6-1, 2	32v L	23-800
2R	Flashlamp: X2 P/F, Insert X2 Right Playfield Flash	Q45	CPU	BLK-RED	PPB J 9-2	ORG	PPB J 6-4, 5	32v R	Bulb #89
3L	Coil: Auto Ball Launch 50v	Q5	PPB	VIO-ORG	PPB J 8-2	YEL/VIO	PPB J 7-8	50v L	22-600
3R	Flashlamp: X2 P/F, Insert X2 Left Playfield Flash	Q44	CPU	BLK-ORG	PPB J 9-3	ORG	PPB J 6-4, 5	32v R	Bulb #89
4L	Coil: Kicker, Eject	Q43	CPU	VIO-YEL	PPB J 2-4	BRN	PPB J 6-1, 2	32v L	24-940
4R	Flashlamp: X2 P/F, Insert X2 "C"aptive Ball Flash	Q43	CPU	BLK-YEL	PPB J 9-4	ORG	PPB J 6-4, 5	32v R	Bulb #89
5L	Coil: VUK 50v	Q4	PPB	VIO-GRN	PPB J 8-4	YEL/VIO	PPB J 7-8	50v L	23-800
5R	Flashlamp: X1 P/F, Insert X3 "R" Ramp Enter Flash	Q42	CPU	BLK-GRN	PPB J 9-5	ORG	PPB J 6-4, 5	32v R	Bulb #89
6L	Coil: Kick Big/Scoop 50v	Q3	PPB	VIO-BLU	PPB J 8-7	YEL/VIO	PPB J 7-8	50v L	23-800
6R	Flashlamp: X1 P/F, Insert X3 "G" Ramp Enter Flash	Q41	CPU	BLK-BLU	PPB J 9-6	ORG	PPB J 6-4, 5	32v R	Bulb #89
7L	Coil: Ramp Trap Door	Q40	CPU	VIO-BLK	PPB J 2-8	BRN	PPB J 6-1, 2	32v L	28-1050
7R	Flashlamp: X2 P/F, Insert X2 Under "R" Ramp Flash	Q40	CPU	BLK-VIO	PPB J 9-7	ORG	PPB J 6-4, 5	32v R	Bulb #89
8L	Coil: Knocker (In Cabinet)	Q39	CPU	VIO-GRY	PPB J 2-8	BRN	PPB J 6-1, 2	32v L	23-800
8R	Flashlamp: X2 P/F, Insert X2 Under "G" Ramp Flash	Q39	CPU	BLK-GRY	PPB J 9-8	ORG	PPB J 6-4, 5	32v R	Bulb #89
09	Coil: Right 3-Bank Drop Target	Q30	CPU	BRN-BLK	CPU CN 12-1	RED	PS CN 3-6,7	32v	23-800
10	Coil: Located on PPB in Backbox Left & Right Relay	Q29	CPU	BLK-RED	CPU CN 12-5	RED	PS CN 6-7	32v	24v DC 10A DPDT
11	Coil: Located on Power Supply Bd. G.I. Relay	Q28	CPU	BRN-ORG	CPU CN 12-4	RED	PS CN 3-6,7	32v	24v DC 10A DPDT
12	Coil: Left 3-Bank Drop Target	Q27	CPU	BRN-YEL	CPU CN 12-5	RED	PS CN 3-6,7	32v	23-800
13	Coil: Not Used	---	---	---	---	---	---	---	---
14	Coil: Laser Kick 50v	Q2	PPB	BRN-BLU	PPB J 8-8	VIO-YEL	PPB J 7-2	50v	23-800
15	Coil: Not Used	---	---	---	---	---	---	---	---
16	Coil: Not Used	---	---	---	---	---	---	---	---
17	Coil: Left Turbo Bumper	Q11	CPU	BLU-BRN	CPU CN 19-7	RED	PS CN 3-6	32v	23-800
18	Coil: Bottom Turbo Bumper	Q9	CPU	BLU-RED	CPU CN 19-4	RED	PS CN 3-6	32v	23-800
19	Coil: Right Turbo Bumper	Q8	CPU	BLU-ORG	CPU CN 19-3	RED	PS CN 3-6	32v	23-800
20	Coil: Left Slingshot	Q10	CPU	BLU-YEL	CPU CN 19-6	RED	PS CN 3-6	32v	23-800
21	Coil: Right Slingshot	Q12	CPU	BLU-GRN	CPU CN 19-8	RED	PS CN 3-6	32v	23-800
22	Coil: Top Slingshot	Q13	CPU	BLU-BLK	CPU CN 19-9	RED	PS CN 3-6	32v	23-800

Flipper Solenoids

SSFB No.	Flipper Coil	Cabinet Switch	Switch Drive	Switch Return	E.O.S.	GND	Flipper 50vDC Power	Flipper 8vAC Hold	Flipper Coil Output	
SSFB 1	Lwr. Rt. Flipper 22-1080 BLU/YEL ORG/VIO	BLU-VIO SSFB CN1-7	GRN-GRY CPU CN8-9 TO SSFB CN1-4	WHT-GRY CPU CN10-1 TO SSFB CN1-3	BRN-VIO RT. EOS SW. TO CN1-1	BLK CPU CN5 TO CN1-6	BLK-WHT PPB J7-1, -5 to SSFB CN2-8, -9	GRY-GRN-GRY P/S CN1-10, -11, to SSFB CN2-7, -8	50v Q2, Q3, CN2-7, 8	8vAC SR1
SSFB 1	Lwr. Lt. Flipper 22-1080 GRY/YEL ORG/GRY	BLU-GRY SSFB CN1-11	GRN-GRY CPU CN8-9 TO SSFB CN1-4	WHT-VIO CPU CN10-2 TO SSFB CN1-5	BRN-GRY LT. EOS SW. TO CN1-9	BLK CPU CN5 TO CN1-6	BLK-WHT PPB J7-1, -5 to SSFB CN2-8, -9	GRY-GRN-GRY P/S CN1-10, -11, to SSFB CN2-7, -8	50v Q10, Q9, CN2-4, 5	8vAC SR2
SSFB 1	Upr. Lt. Flipper 25-1100 BLU/YEL ORG/GRY	GRY-VIO SSFB CN1-12	GRN-GRY CPU CN8-9 TO SSFB CN1-4	WHT-GRY CPU CN10-2 TO SSFB CN1-10	Not Used	BLK CPU CN5 TO CN1-6	BLK-WHT PPB J7-1, -5 to SSFB CN2-8, -9	GRY-GRN-GRY P/S CN1-10, -11, to SSFB CN2-7, -8	50v Q16, Q15, CN2-1, 2	8vAC SR3

Game Diagnostics

Backbox Parts

Power Supply Board

"PPB" Board

CPU Board

Sound Board

Dot Matrix Display

For Fuse descriptions & locations, see page 4.

(Display Controller Board Behind 7)

NOTE: An asterisk (*) (shaded items) indicates item is not noted in this illustration.
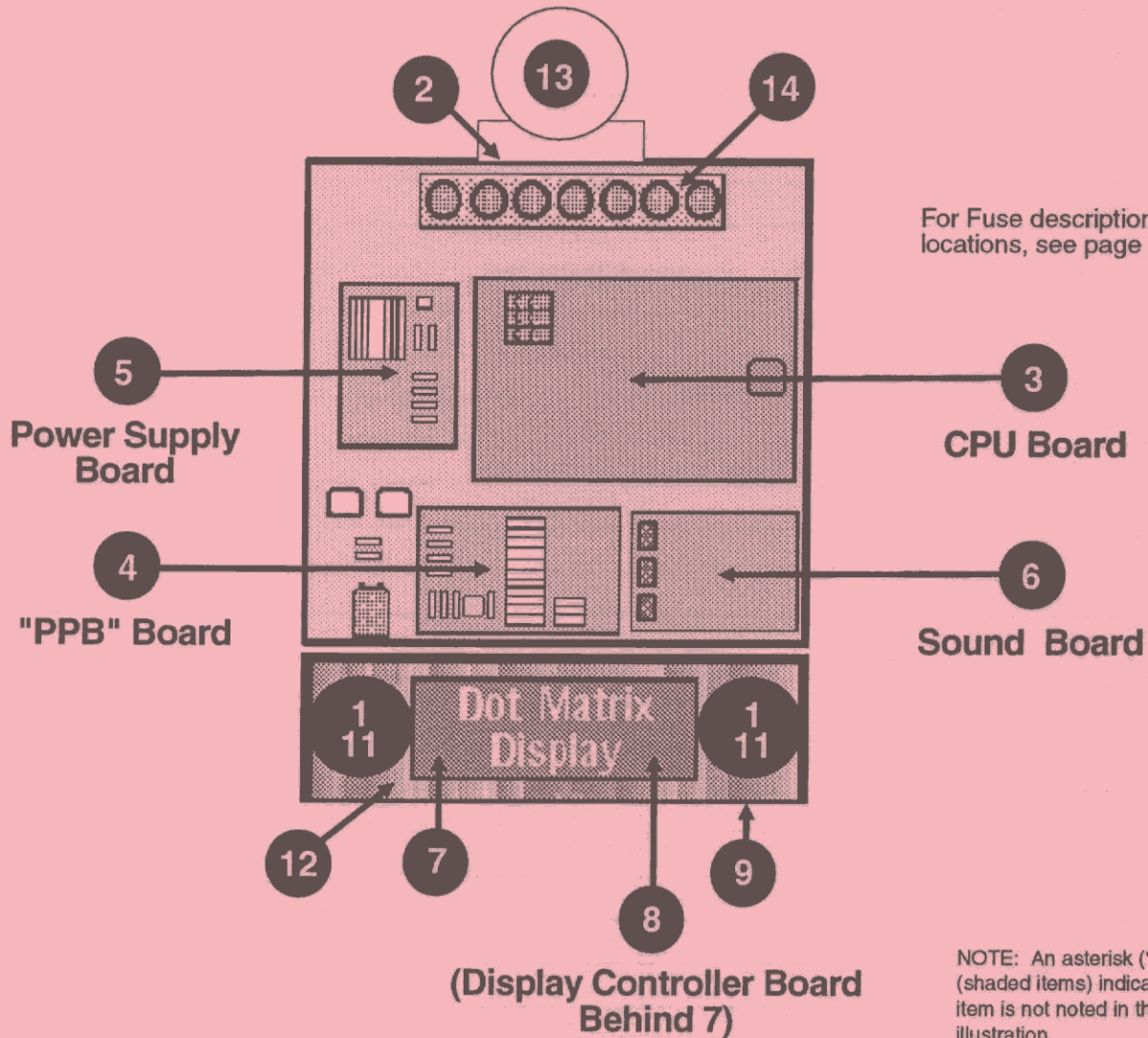
Item	Description	Part No.	Item	Description	Part No.
1	Speakers	031-5004-00	15 *	Static Shield *	535-6437-00
2	Back Box Lock	355-5008-00	16 *	Backglass Clear 26" X 20⅜" *	660-5017-00
3	CPU Bd. Non-Reflexive †	520-5003-04	17 *	26" Plastic Extrusion *	545-5018-04
4	PPB Board Ass'y Rev. C	520-5021-05	18 *	21⅜" Plastic Extr. (2) *	545-5018-07
5	Power Supply	520-5047-02	19 *	Glass Channel 26-1/16" *	545-5021-01
6	Sound Board 4MB †	520-5077-00	20 *	GNR Lights Insert *	525-5145-00
7	Dot Matrix Display Board 128 X 32 ††	520-5052-00	21 *	Ribbon Cable, 14-Pin * Display to Display	602-5005-14
8	Display Controller Bd. †	520-5055-01	22 *	Ribbon Cable, 20-Pin * CPU to Sound Board	602-5005-20
9	Speaker Panel Assembly	500-5833-00			
10 *	GNR Backglass Artwork *	830-5229-00	23 *	Ribbon Cable, 26-Pin * CPU to Display	602-5005-26
11	GNR Speaker Grills	830-5628-00			
12	GNR Speaker Plexi w\ Artwork	830-5627-00			
13	GNR Header Assembly	515-6072-00		† When ordering PC Boards with ROMS, please specify the Game Name.	
13B	GNR Header Bracket (2)	535-7023-00			
14	7 Vent Hole Grill 2½" X 18"	545-5072-02		†† Indicate Manufacturer.	
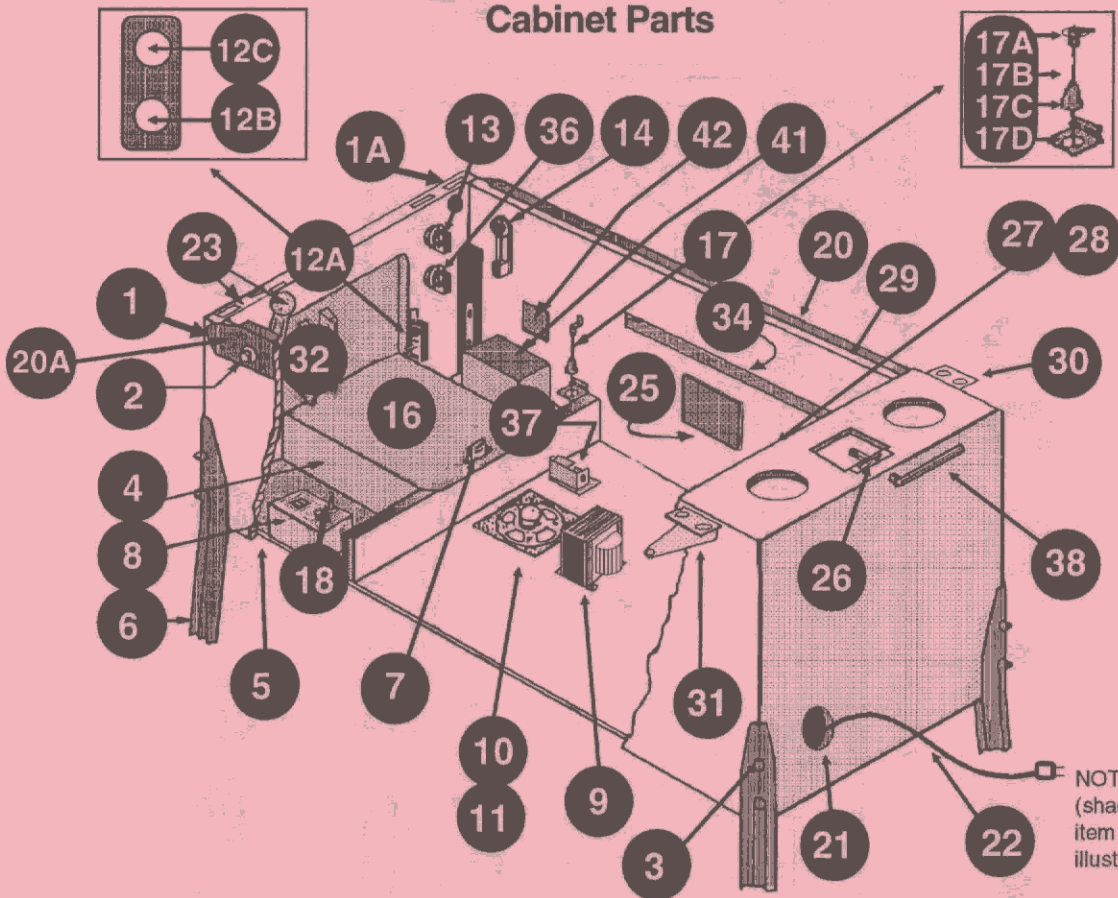
Cabinet Parts

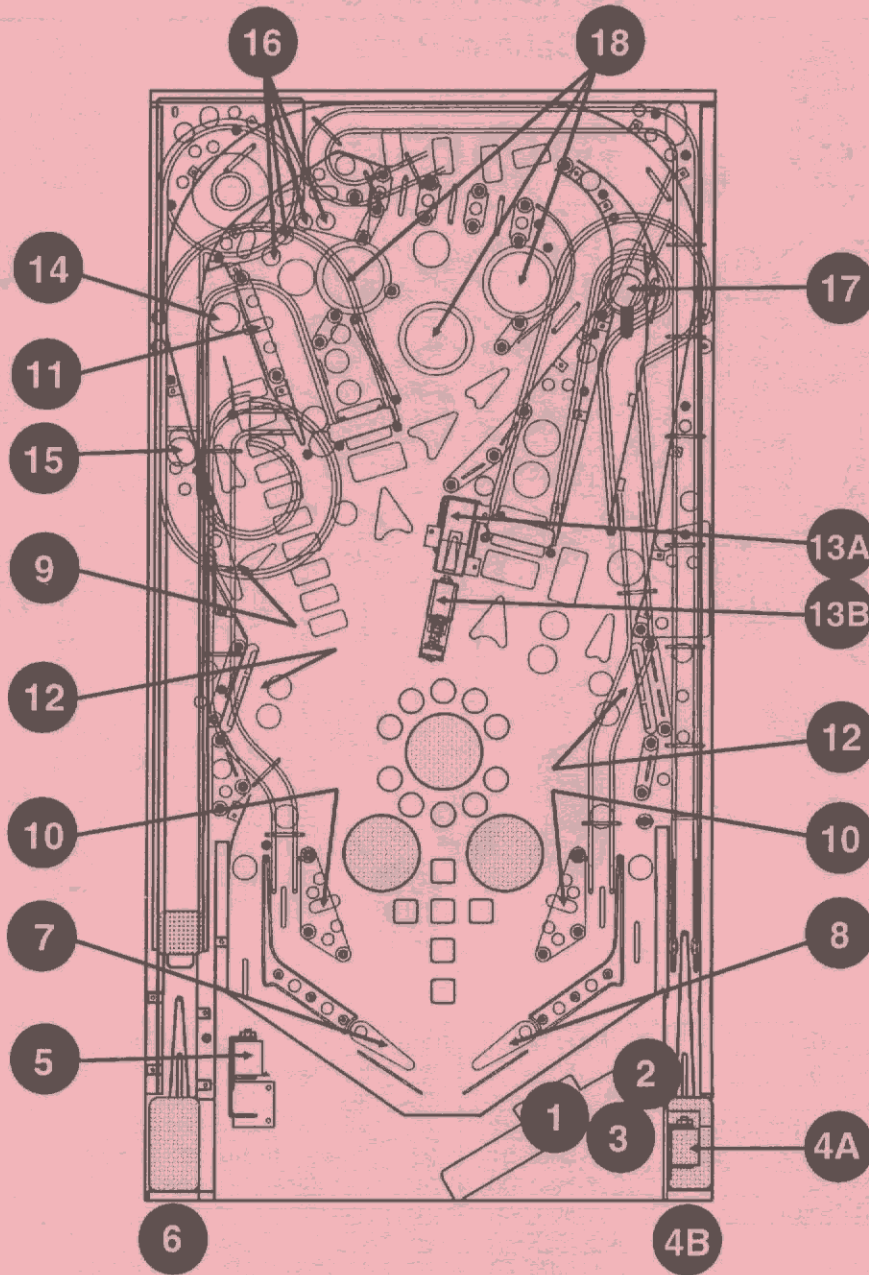| Item	Description	Part No.	Item	Description	Part No.
1	6-Shooter Gun Assembly	500-5834-00	19 *	Playfield Glass (T.P.) 22-3/4" x 43" *	660-5014-00
1A	Rose Shooter Assembly	500-5876-01-02	20/A	Side Armor - Left & Right	535-6831-00
2	Flipper Button Red Assy (Solid) (X2)	500-5026-32	21	Recessed Cup for Line Cord	545-5122-00
3	Leg Bolt (Black) 3/8-16 x 2-3/8 Hex Hd.	231-5000-01	22	Line Cord 10' ROJ 3" Maximum	034-5000-10
4	Cash Box Plastic Bottom	545-5090-00	23*	Front Molding Lockdown Assy*	500-5020-01
5	Power Switch DPST Toggle	180-5001-00	24*	Front Molding - Black *	500-5757-00
6	Leg (Black) X4	535-5020-50	25	Solid State 3-Flipper Bds. (SSFB)	520-5076-00
	Leg Leveler 3/8-16x3" X4	500-5017-00	26	#1 Roto Lock Male, (Femaile -02)*	355-5006-01
7	Cash Box Lock Bracket	535-5215-00	27	Rear Plastic Ext. P/F Glass	545-5038-02
8	Service Outlet	180-5008-01	28	Mounting Fm. Rubber for Ext.	626-5004-00
9	Transformer	010-5003-00	29	Plastic Channel Left & Right	545-5017-00
10	Speaker-Round - 8"	031-5005-00	30	Backbox Hinge Left	515-5987-00
11	Speaker Grill 7 X 7	535-6830-00	31	Backbox Hinge Right	515-5987-01
12A	Dual Switch Assembly	500-5808-00	32	Coin Door (w/Validator) USA	500-5018-17
12B	Memory Protect Switch	180-5000-00	33 *	Slide & Pivot Support Bracket Right*	535-5989-00
12C	Interlock Switch	180-5136-00	34*	Slide & Pivot Support Bracket Left	535-5990-00
12D *	Service Switch Set on Coin Door *	180-5012-00		Edge Slide Bracket *	535-5988-00
13	Start Button Switch Ass'y (GNR)	500-5728-04		Playfield Support Slide Rev. A *	535-6862-00
14	Flipper Switch, Left, Top/Bottom	180-5122-00	35 *	Playfield Support Bar * (Stay Arm)	535-5019-00
15*	Flipper Switch, Right *	180-5048-01	36	Extra Ball Switch Ass'y (Orange)	500-5779-07
16	Cash Box Cover (Validator)	535-5013-03	37	Knocker Assembly	500-5081-00
17	Plumb Bob Tilt Assembly	500-5023-00	38	5/16" Hex Key Allen Wrench	777-0001-00
17A	Hanger Bracket (tilt)	535-5221-00	39 *	Backbox/Cabinet Matrix/Fuse Info *	820-6104-02
17B	Hanger Wire (tilt) (Attach to "17A")	535-5319-00	40 *	3-Flipper Board Cover *	545-5165-02
17C	Plumb Bob (tilt) (Attach to "17B")	535-5029-00	41 *	Shaker Motor (Not Used This Game)	515-5893-00
17D	Contact Bracket (tilt)	535-5220-00	42 *	Shaker Motor P.C. Board (Not Used)	520-5065-00
18	Volume Control Single 10K Pot	123-5000-02			

NOTE: An asterisk (*) (shaded items) indicates item is not noted in this illustration.

Item	Description	Part No.	Item	Description	Part No.
1	6-Ball Switch Assembly (Under Playfield)	500-5683-01	9	Flipper Assembly, Upper Left	500-5694-02
			10	Slingshots, Lower	500-5226-00
2	Lock Ball Assembly (Under Arch, Above Playfield)	500-5684-01	11	Slingshot, Upper	500-5226-01
			12	3-Bank Drop Targets Left/Right	500-5621-03
3	Deflector for 6-Ball Assembly (Under Arch)	535-6606-01	13A	Power Scoop Assembly,	500-5809-00
			13B	with Kick Big Assembly	500-5740-00
4A	Ball Kicker (Auto Launch) Ass'y	500-5477-03	14	Ball Eject Assembly	500-5664-01
4B	6-Shooter Gun Assembly	500-5834-00	15	"G" Ramp Trap Door Assembly	500-5830-00
5	Laser Kick Assembly	500-5838-00	16	1" Stand-Up Targets (4)	500-5835-08
6	Rose Shooter Assembly	500-5836-01-02	17	Vertical Up-Kicker (VUK)	500-5839-00
7	Flipper Assembly, Left	500-5755-02	18	Turbo Pop-Bumpers (3)	500-5227-00
8	Flipper Assembly, Right	500-5755-01	19	Knocker Assembly (In Cabinet)	500-5081-00
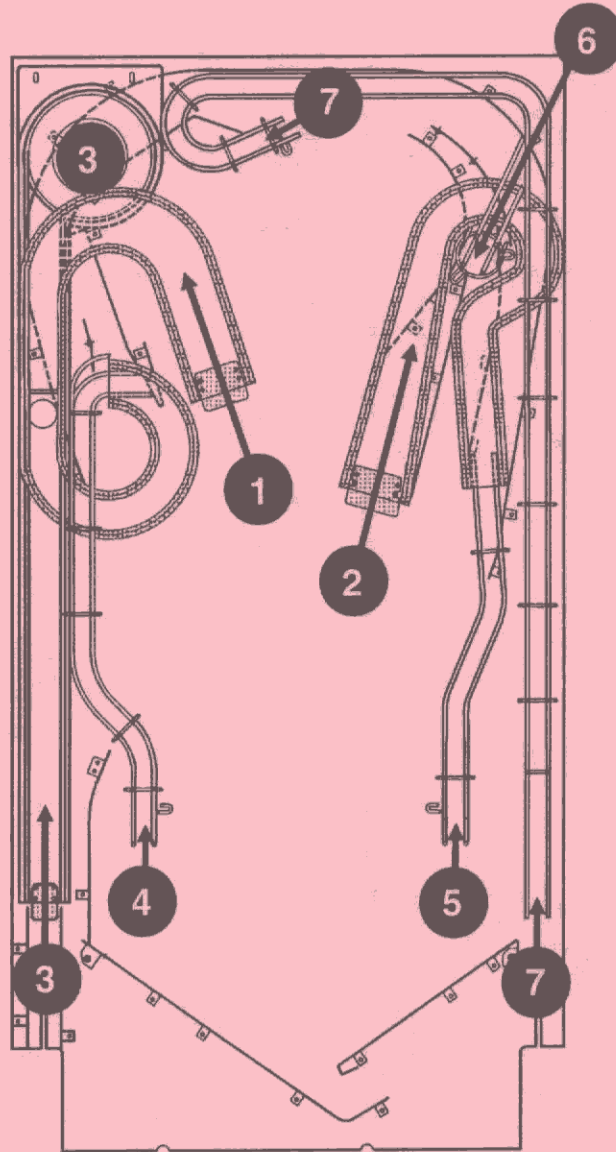
Item	Description	Part No.	Item	Description	Part No.
1	"G" Gun Ramp Assembly	500-5828-00	4	"G" Ramp Wire Ramp	535-6910-00
2	"R" Rose Ramp Assembly	500-5829-00	5	"R" Ramp Wire Ramp	535-6927-00
3	Snake Pit Ramp Assembly	500-5837-00	6	VUK Wire Ramp	535-6843-00
See Unique Parts for Ramp Assembly Breakdowns.			7	Shooter Lane Right Wire Ramp	515-6007-00

Butyrate Notes:

Item **B3** (830-5467-XX)
Item -01 is on the Snake Pit (Not Shown)
Item -02 is on the "R" Ramp (Not Shown)
See Unique Parts for location.

Item **B2** (830-5463-XX) There is no item "-01"

Item **B1** (830-5459-XX) There is no item "-06",
"-07", "-08", "-09", "-23" & "-24".
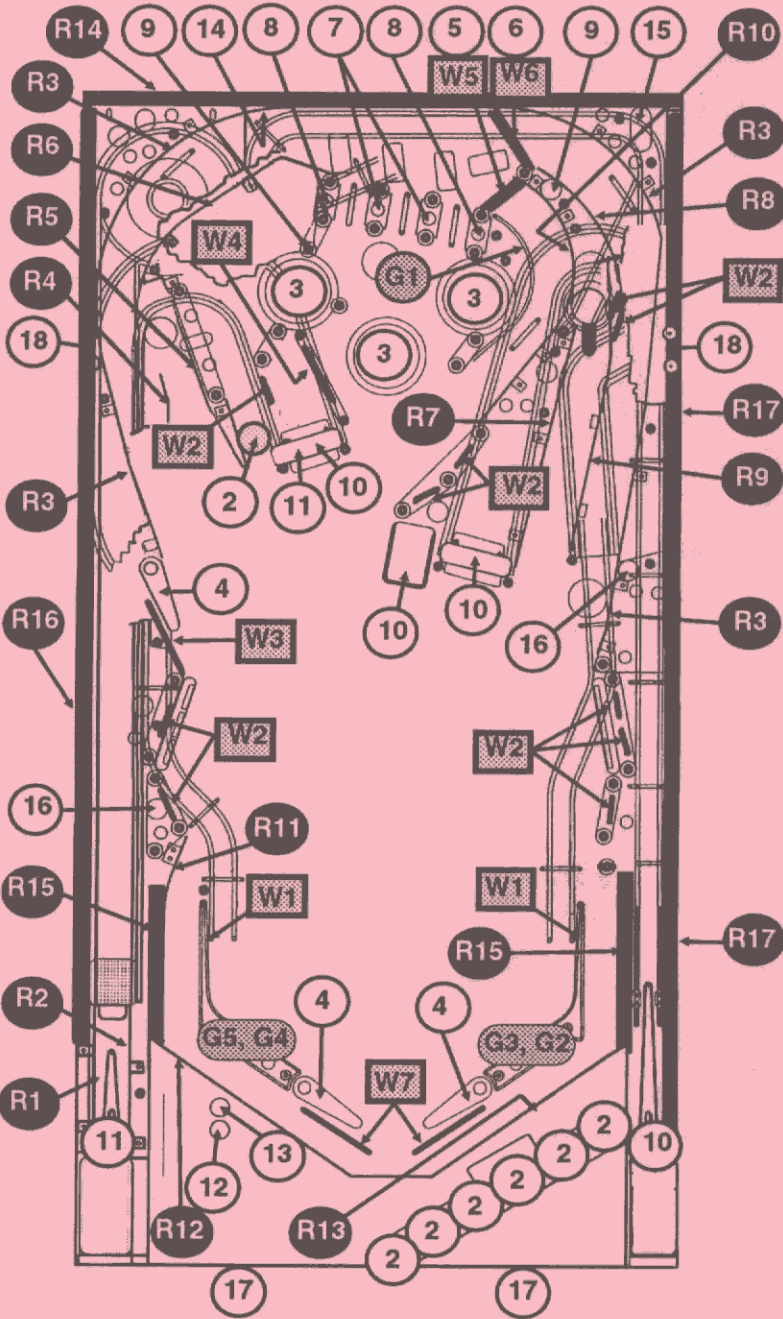
Some Items on the playfield were omitted or
"broken away" to show clarity.

Key (The item numbers are from the table on the next page)

#	General Parts
B#	Butyrate Pieces
R#	All Rails (Flat, Wood, & Steel)
G#	All Ball Guides (Plastic & Metal)
W#	All Wire Forms (Metal)
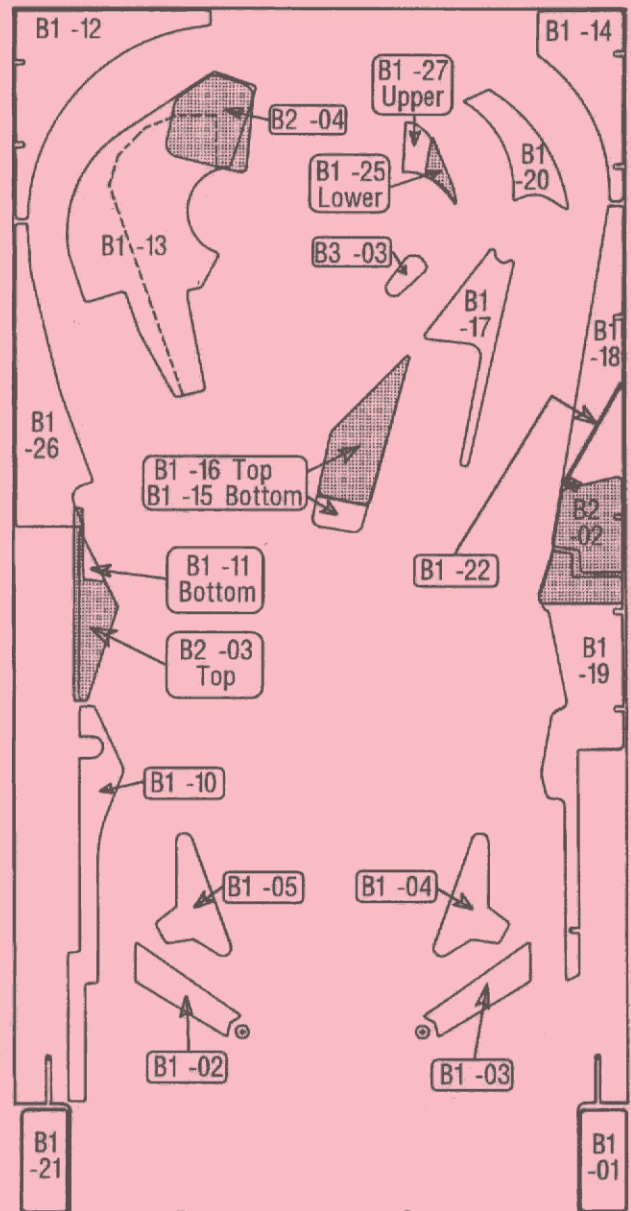
PLAYFIELD - TOP PARTS (TABLES)
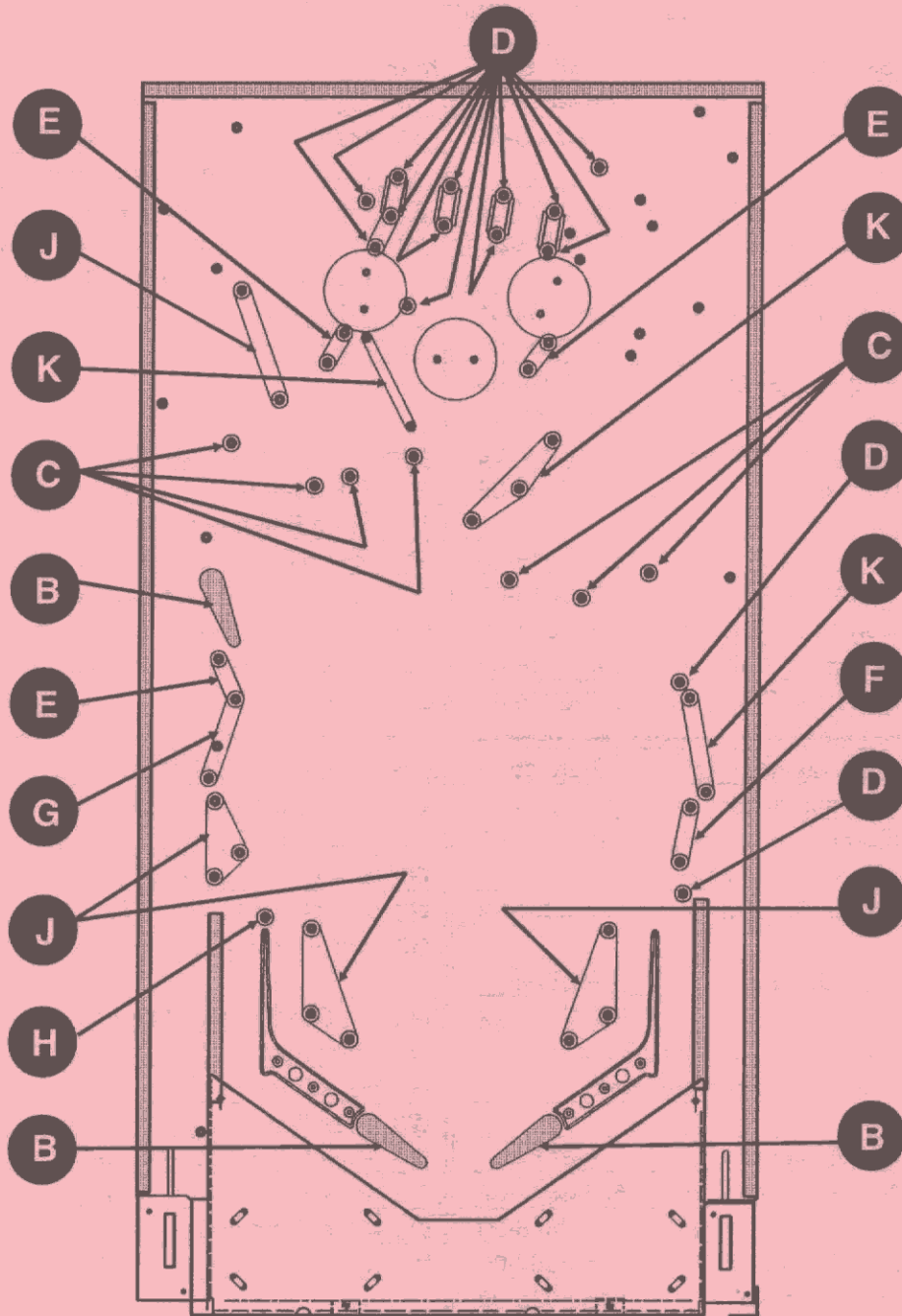
(See diagrams on previous page for locations, except for items noted with an asterisk*)

Item	Description	Part No.	Item	Description	Part No.
1	Bottom Arch Assembly (Metal)	500-5813-00	14	Light Cap Hat Yellow X1	550-5032-06
2	1-1/16" Steel Balls, 1-Captive, 6-Play (7 Total)	260-5000-00	15	Mini-Mars Light Cover Red X1	550-5055-02
			16	Mini-Mars Light Cover Clear X2	550-5055-01
3	Pop Bumper Cap (Red) X3	550-5057-02	17	Playfield Hanging Bracket X2	535-5216-00
4	Long Flippers & Shaft Ass'y Yellow, with "DE" Stamp X3	515-5133-02-00	18	Pivot Pin Bracket Ass'y X2, with	500-5329-00
5	1-Way Gate Sm. (Mini-Orbit) Hanging Wire Form	535-5269-01 535-5307-01		Pivot Bracket Screws X4, and	237-5907-00
				T-Nut X4	240-5101-00
6	1-Way Gate Lg. (Large-Orbit) Hanging Wire Form	535-5210-00 535-5307-02	19*	Stay Arm Holder	535-5747-00
7	Lite Hood Top Lanes Red X2	550-5036-02			
8	Lite Hood Top Lanes Left/Right Blue X2	550-5035-05	Item	Desc.: Butyrate	Part No.
9	Spot Lite & Bracket Ass'y X2	500-5818-00	B1	P/F Butyrate Pieces (01-27)†	830-5459-XX
10	Lite Cover Condoms Red X4	545-5014-02	B2	Extra Butyrate Pieces (02-04)†	830-5463-XX
11	Lite Cover Condoms Yellow X2	545-5014-06	B3	Ramp Butyrate Pieces (01-03)†	830-5467-XX
12	Lite Cover Condoms White X1	545-5014-08		† To order replacement Butyrate, fill in the last 2 #'s	
13	Lite Cover Condoms Orange X1	545-5014-07		with the corresponding # printed on each piece. For	

† To order replacement Butyrate, fill in the last 2 #'s with the corresponding # printed on each piece. For Clear Butyrate, describe location. Please view the location diagram for butyrate on the previous page.

Item	Desc.: Mylar	Part No.	Item	Desc.: Ball Guides (G)	Part No.
¤ *	Mylar Pieces (Clear Pre-Scored)	820-5839-00	G1	Ball Guide (Mini-Orbit Left)	535-6907-00
¤ *	Mylar Pad (Clear approx. 1"sq.) Entrance to Return Lanes X2	820-5815-00	G2	Ball Guide Upper Lt. Return	550-5038-01
			G3	Ball Guide Upper Rt. Return	550-5037-01
¤ *	Front of Slingshot Clear Mylar	820-5821-00	G4	Ball Guide Lower Lt. Return	550-5064-01
			G5	Ball Guide Lower Rt. Return	550-5065-01

Item	Desc.: Decals	Part No.
¤ *	Complete Decal Sheet ††	820-6105-XX

†† To order individual decals, describe decal and location. Note the last 2-digit number given.

Item	Desc.: Wire Forms (W)	Part No.
W1	Wire Form on Ball Guides X2	535-5642-00
W2	Wire Form 1" X10	535-5300-05
W3	Wire Form 3" Upper Flipper	535-5300-02
W4	Wire Form 2.25" G-Ramp Left	535-5300-12
W5	Wire Form on Sm. 1-Way Gate	535-5307-01
W6	Wire Form on Lg. 1-Way Gate	535-5307-02
W7	Snubber Wires	535-5373-01

Item	Desc.: Rails (R)	Part No.
R1	Flat Rail Left, Left Shooter Lane	535-6865-00
R2	Flat Rail Right, Lt. Shooter Lane	535-6866-00
R3	Flat Rail Large Outside Orbit	535-6867-00
R4	Flat Rail to Eject Left Side	515-5975-00
R5	Flat Rail to Eject Right Side	515-5976-00
R6	Flat Rail Behind Captive Targets	515-5977-00
R7	Flat Rail to VUK Left Side	535-6869-00
R8	Flat Rail Behind VUK	535-6870-00
R9	Flat Rail to VUK Right Side	515-5978-00
R10	Flat Rail Mini-Orbit Left Side	535-6909-00
R11	Flat Rail Left Outlane	535-6868-00
R12	Flat Rail Arch Left Side	515-6042-00
R13	Flat Rail Arch Right Side	515-6043-00
R14	Wood Rail 23"	525-5007-01
R15	Wood Rail 7"	525-5007-10
R16	Steel Rail Arch Left Side	535-7002-00
R17	Steel Rail Arch Right Side	535-7001-00

Page	Desc.: Other Part Numbers
33	Switches
40	Back Box Parts
41	Cabinet Parts
42	Major Assemblies (Breakdowns on Pgs. 51-66)
43	Major Ramp Assemblies & Wire Ramps
46	Rubber Parts
47	Posts
48	Lamps with Sockets
49	More Lamps with Sockets & Lamp Boards

Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
A	Rubber Bumper	5	545-5105-00	F	1-1/4" I.D. Black Rubber Ring	1	545-5348-06
†	Post Rubber (Sleeve Short)	0	545-5151-00	G	1-1/2" I.D. Black Rubber Ring	1	545-5348-07
†	Flipper Bushing (Small)	0	545-5192-00	†	2" I.D. Black Rubber Ring	0	545-5348-08
B	Flipper Rubber Rings	3	545-5277-00	†	2-1/2" I.D. Black Rubber Ring	0	545-5348-09
C	Post Rubber (Sleeve Tall)	6	545-5308-00	H	3/8" O.D. Black Rubber Ring	1	545-5348-19
D	3/16" I.D. Black Rubber Ring	14	545-5348-01	I	Bumper Post Rubber	1	545-5009-00
†	5/16" I.D. Black Rubber Ring	0	545-5348-02	J	2-3/4" I.D. Black Rubber Ring	4	545-5348-20
E	1" I.D. Black Rubber Ring	3	545-5348-05	K	1-3/4" I.D. Black Rubber Ring	3	545-5348-21

† **Shaded Items Not Used This Game.**
Please note, the size and/or quantities may change as production continues.
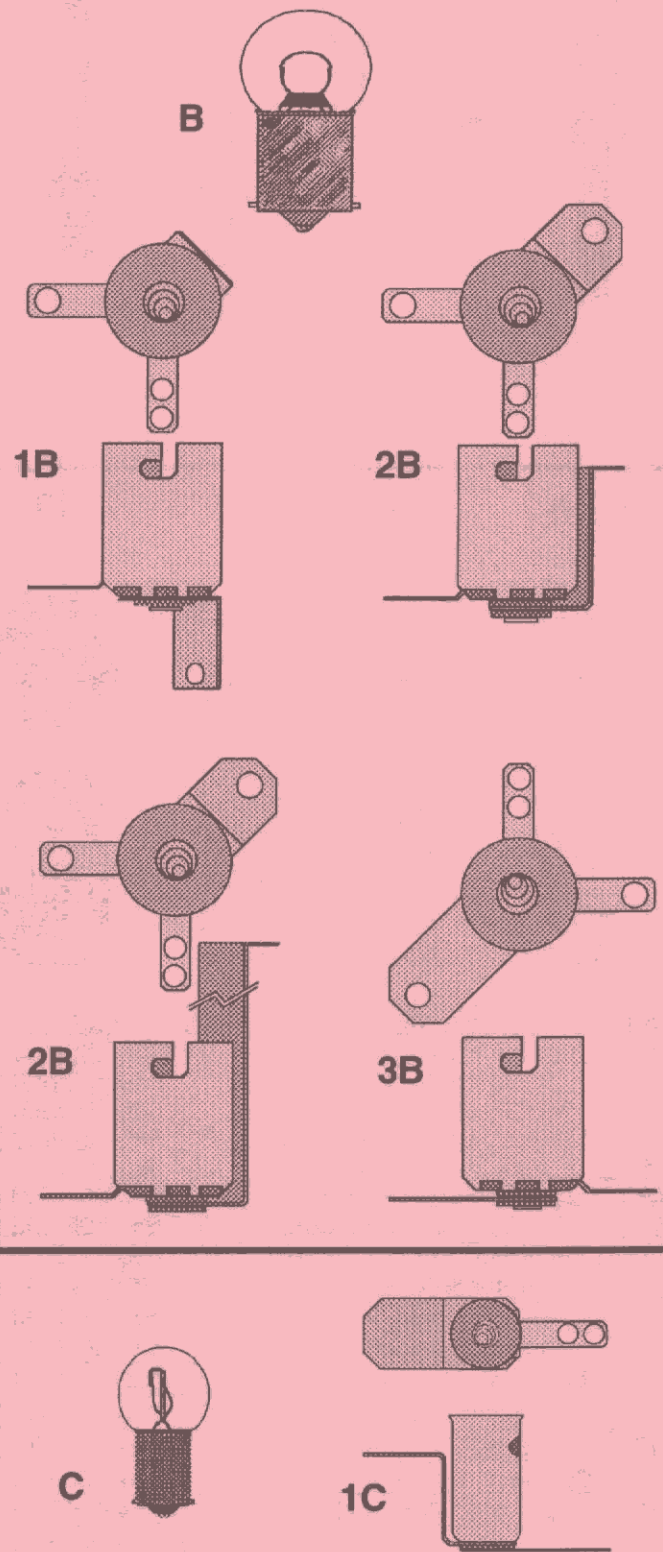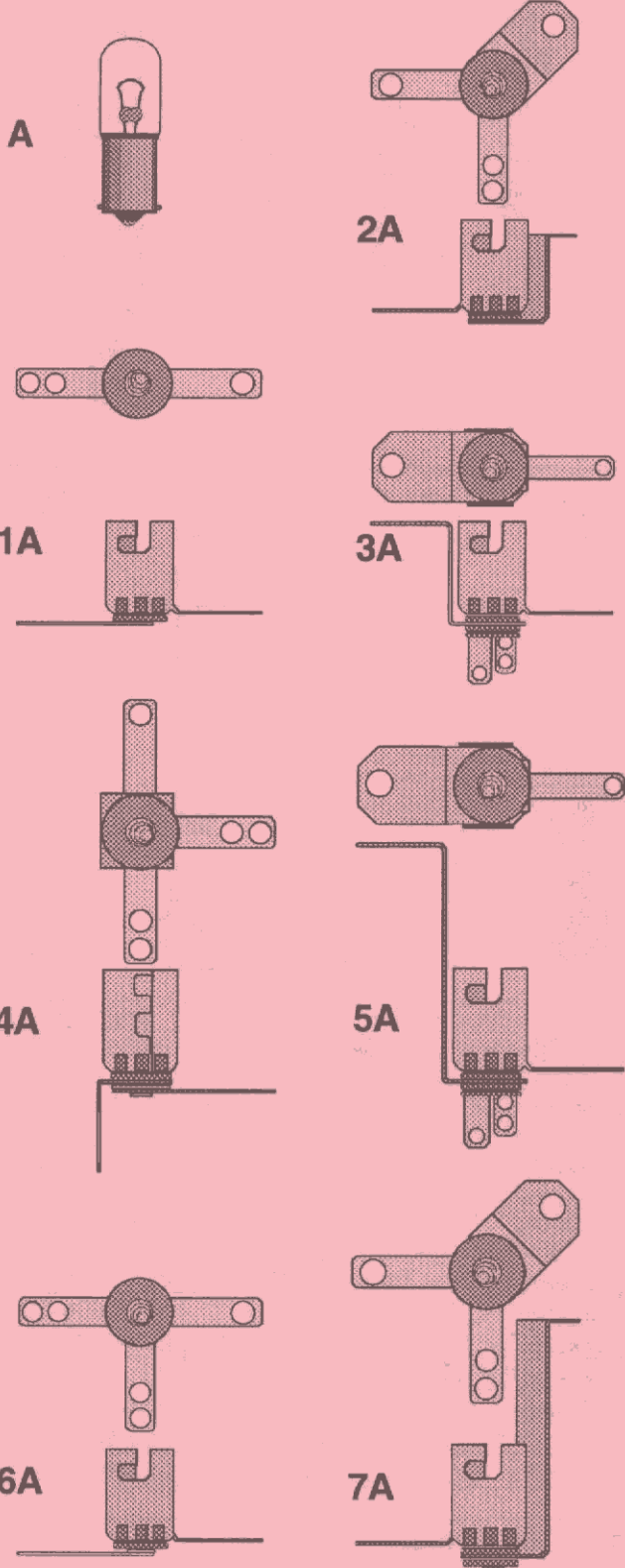
PLAYFIELD - POSTS

| 1 | 2 | 3 | 4 | 5 | 6A* | 6B | 7* | 8 | 9 |

| 10 | 11 | 12 | 13 | 14 15 | 16 | 17 18 19 | 20 21 22 23 24 | 25 26 |
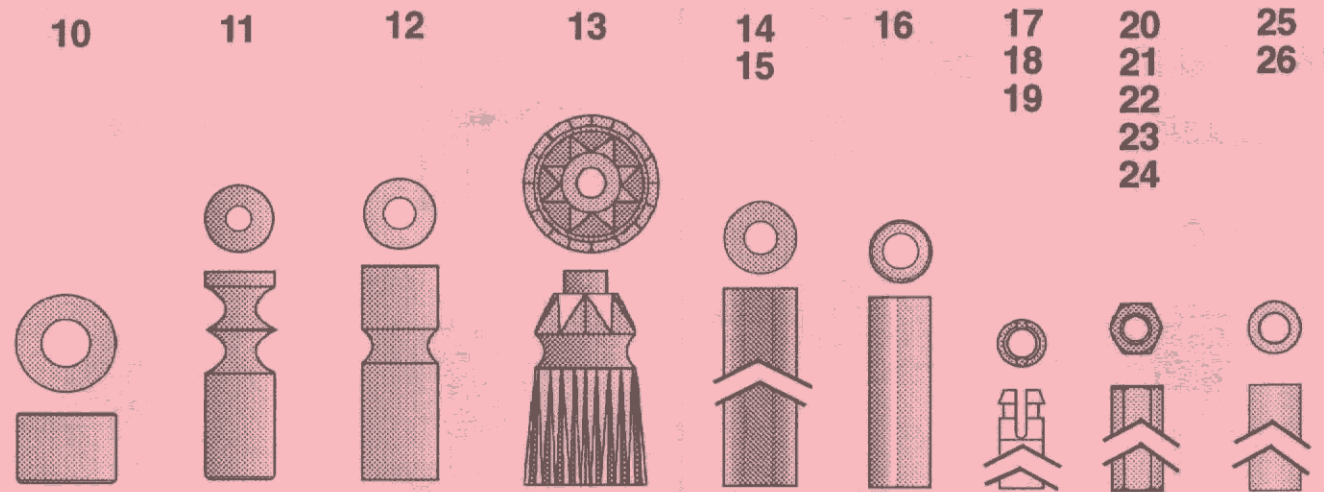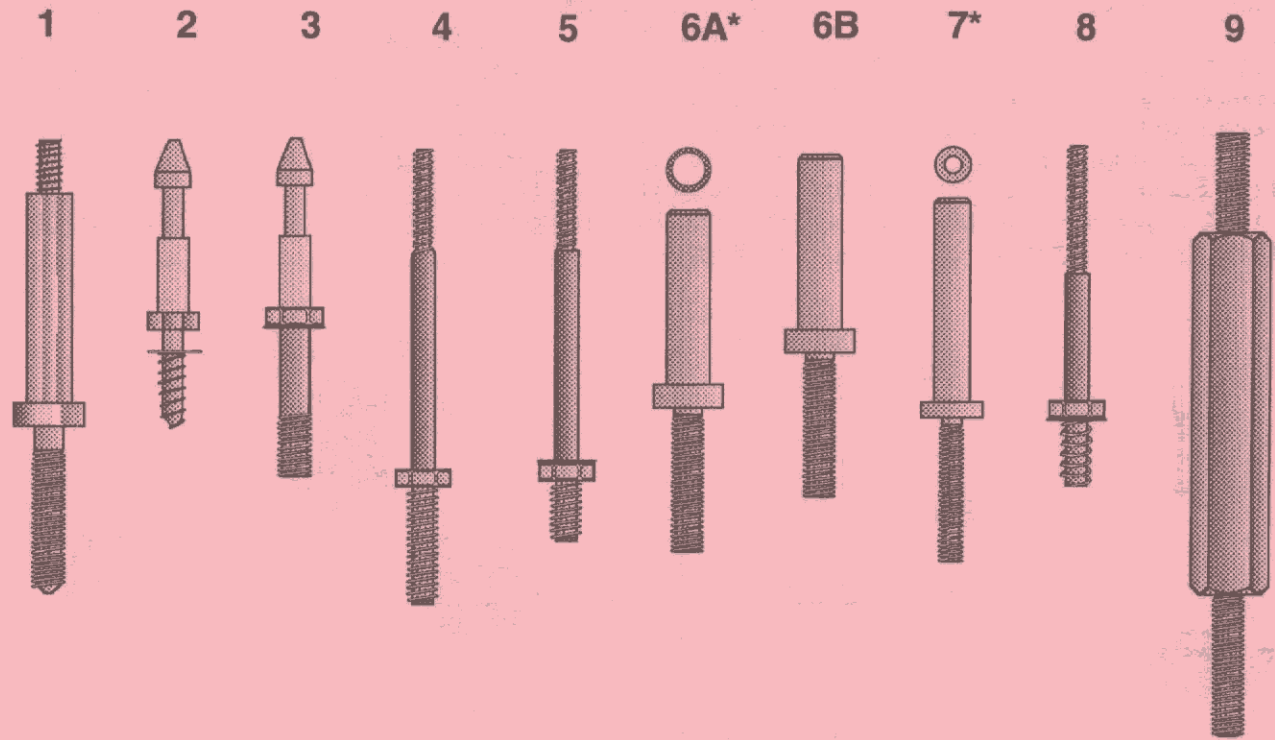
Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Bumper Post - Machine	0	530-5007-00	16	Spacer 1" Long Metal 5/16" X .144ID	0	254-5001-00
2	Mini-Post-Wood THD	1	530-5004-00	17	Spacer 3/8" Slf. Rtn. SRS6-6-01 Plastic (White)	33	254-5007-01
3	Mini-Post-Machine THD	3	530-5005-00				
4	Machine Post Screw Large	3	530-5008-00	18	Spacer 1/4" Slf. Rtn. SRS6-4-01 Plastic (White)	4	254-5007-02
5	Post Machine Screw	31	530-5012-00				
6A*	Bumper Post 8-32 Tapped	0	530-5075-00	19	Spacer 3/4" Slf. Rtn. SRS6-12-01 Plastic (White)	3	254-5007-03
6B	Bumper Post Untapped	0	530-5057-02				
7	Bumper Post 6-32 Tapped	7	530-5127-00				
8	Post Machine Screw	0	530-5263-01	20	Spacer ¼" Hex Tapped 6-32	1	254-5008-00
9	Mini-Playfield Support	0	530-5285-00	21	Spacer ½" Hex Tapped 6-32	7	254-5008-03
10	Spacer Backbox Hinge	2	530-5099-00	22	Spacer ⅝" Hex Tapped 6-32	0	254-5008-02
11	Stand-Off 2 Grooves 1-1/16"	0	530-5102-01	23	Spacer ¾" Hex Tapped 6-32	2	254-5008-04
12	Plastic Post (Grey)	57	550-5059-00	24	Spacer 2¾" Hex Tap. 6-32	2	254-5008-12
13	Small Post Plastic	0	550-5034-XX	25	Spcr. ½" Lg.X5/16"X.1441D	8	254-5014-00
14	Spacer 1" Plastic (Grey) ⅜"	2	254-5000-04	26	Spcr. ¾" Lg.X5/16"X.1441D	7	254-5014-01
15	Spacer 1¼" Plstc. (GRY) ⅜"	2	254-5000-05				

† **Shaded Items Not Used This Game.**

Please note, the size and/or quantities may change as production continues.

Posts Shown Actual Size

PLAYFIELD - LAMPS WITH SOCKETS

Item	Description (1 bulb per socket)	Qty.	Part No.	Item	Description (1bulb per socket)	Qty.	Part No.
A	#44 Bulb	91	165-5000-44	B	#89 Bulb	34	165-5000-89
1A	2-Lug Staple Down Socket	68	077-5000-00	1B	Laydown Standard Socket	1	077-5100-00
2A	2-Lug Stand-Up Short Socket	0	077-5002-00	2B	Stand-Up, Short Socket	24	077-5101-00
3A	3-Lug Stand-Up Short Socket	2	077-5008-00	3B	Stand-Up, Long Socket	7	077-5102-00
4A	3-Lug Laydown Socket	3	077-5006-00	4B	Straight Leg Socket	2	077-5107-00
5A	3-Lug Stand-Up Long Socket	19	077-5009-00	C	#455 Bulb (Twinkle)	0	165-5003-00
6A	3-Lug Staple Down Socket	0	077-5001-00	1C	1-Lug Stand-Up Long Socket	0	077-5012-00
7A	2-Lug Stand-Up Long Socket	1	077-5005-00				

A

2A

B

1A

3A

1B

2B

4A

5A

2B

3B

6A

7A

C

1C

Parts Identification
Lamps with Sockets Shown Actual Size

PLAYFIELD - LAMPS WITH SOCKETS

Item	Description (1 bulb per socket)	Qty.	Part No.
D	#555 Wedge Base Bulb *	48	165-5002-00
1D	555 Wedge Base Socket **	37	077-5007-00
2D	Laydown Wedge Base L/R BLK	6	077-5026-01
3D	Wedge Offset Bracket Socket	0	077-5029-00
4D	Laydown Wedge Base Black	0	077-5026-00
E	#906 Wedge Base Bulb	2	165-5004-00
1E	906 Wedge Base Socket	2	077-5016-00

* - 3 extra #555 Bulb located 1 per Pop Bumper.

Item	Lamp Board P.N.	Item	Lamp Board P.N.
A	520-5079-01	E	520-5079-06
B	520-5079-02	F	520-5079-07
C	520-5079-04	G	520-5079-08
D	520-5079-05	H	520-5079-09
		I	520-5079-11

{Please Note: Boards -03, -10, Not Used.}

D

**** This socket used only on Lamp Bds.

Note the notch in the bracket. (Used with Reflectors.)

1D

2D

3D

4D

E

1E
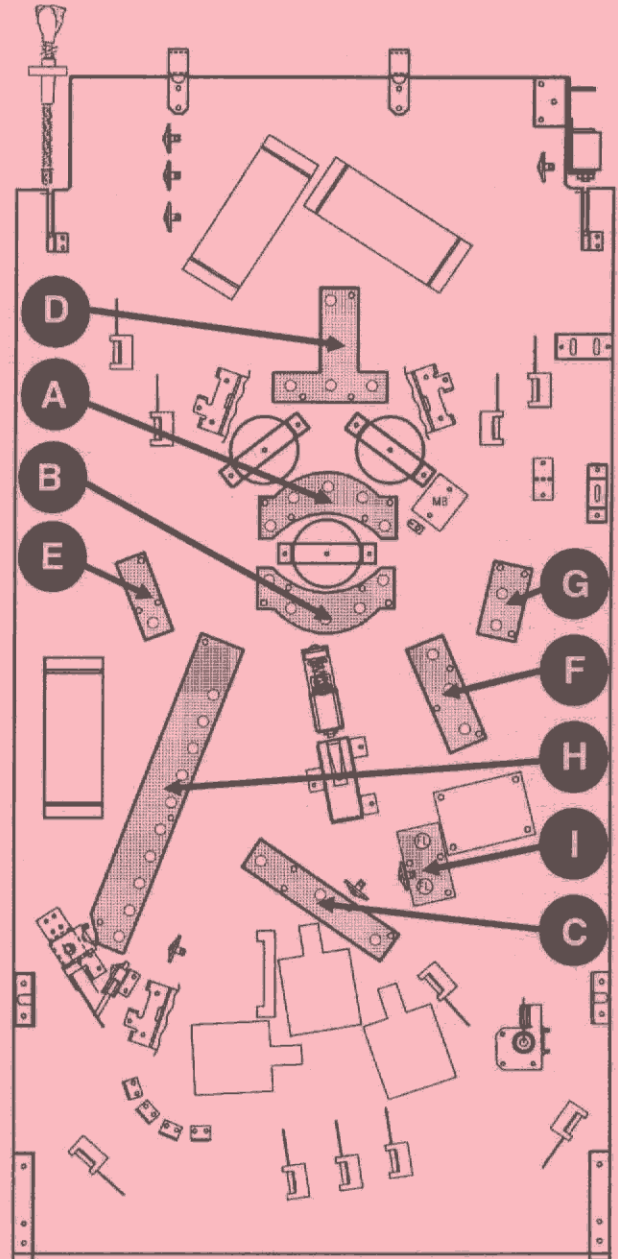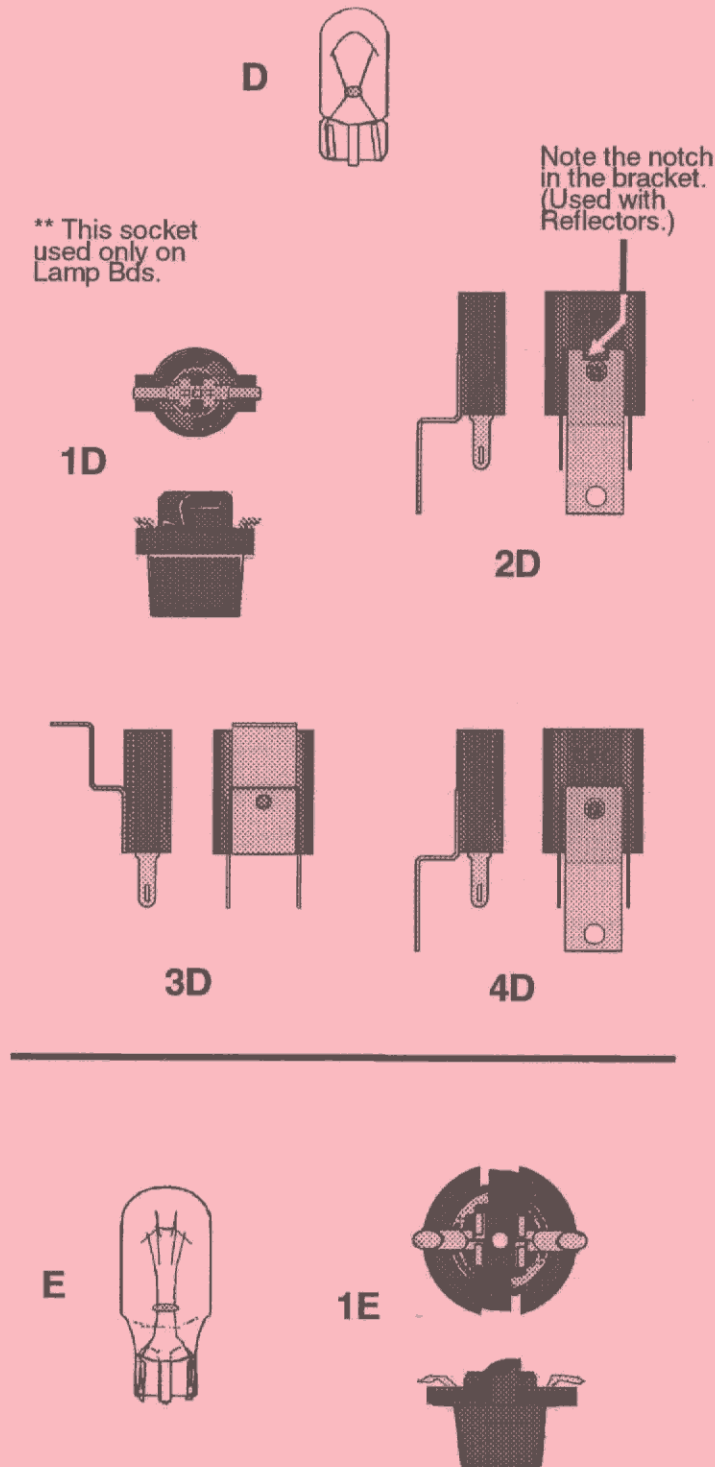
UNDER PLAYFIELD: BOTTOM VIEW

Lamps with Sockets Shown Actual Size
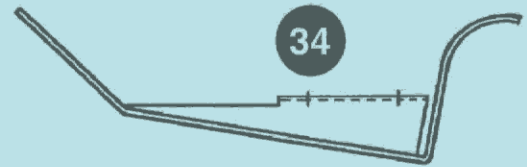
Part Order Notes
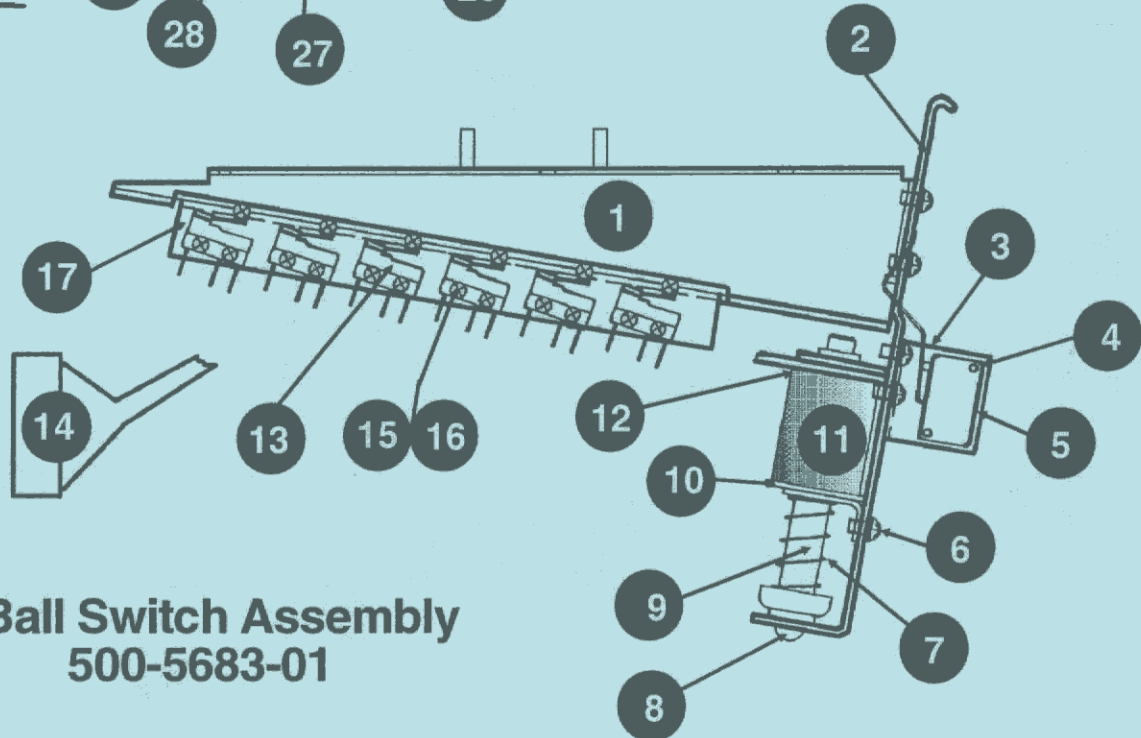
Lock Ball Assembly
500-5684-01
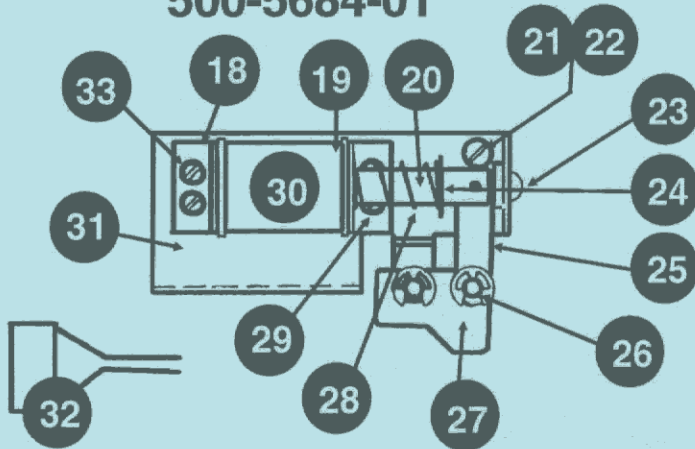
Deflector
535-6606-01

6-Ball Switch Assembly
500-5683-01

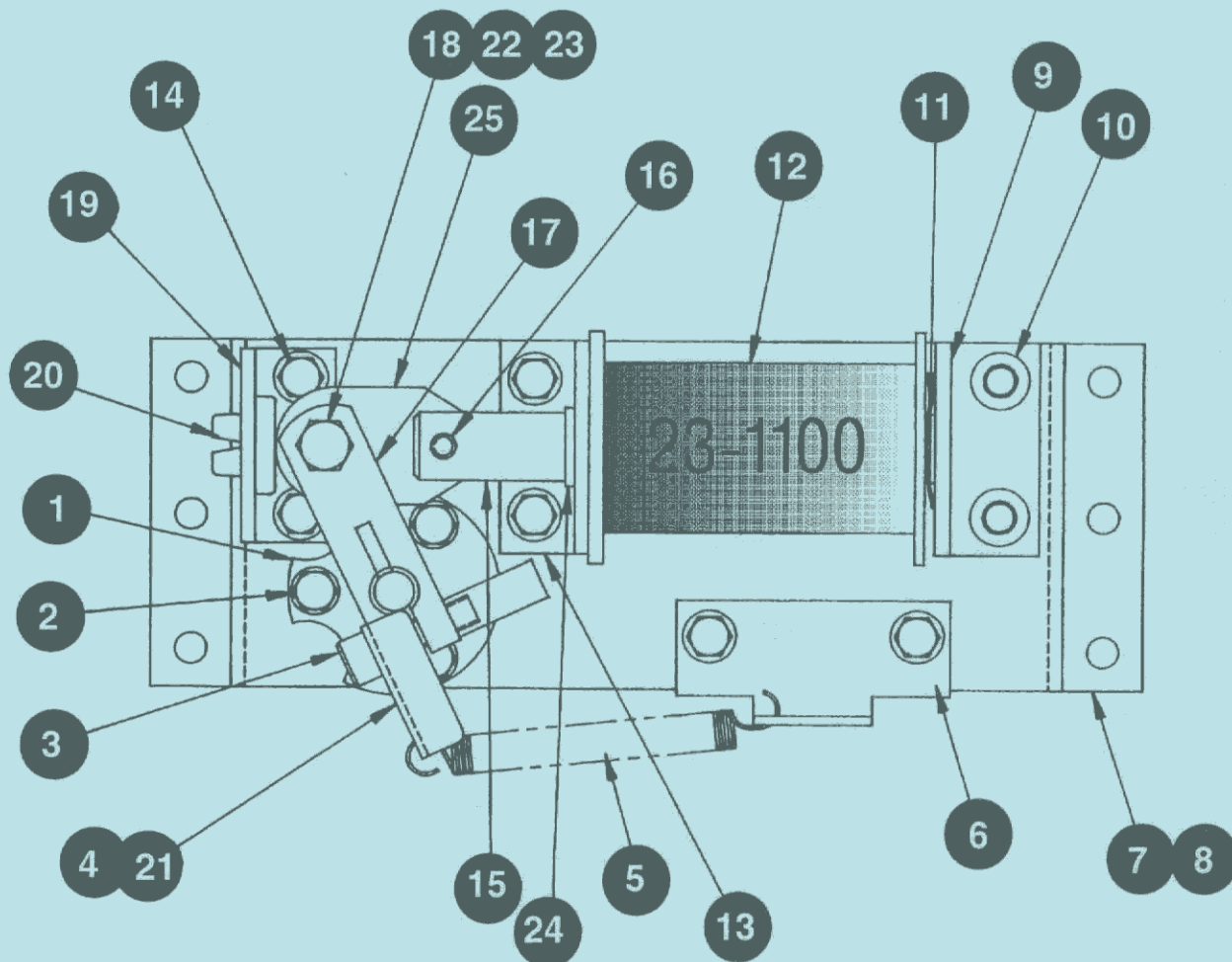| Item	Description	Part No.	Item	Description	Part No.
1	Outhole Mounting Bracket	535-6621-01	18	Core Stop Assembly	515-5088-00
2	Coil Mounting Bracket	535-6622-01	19	Coil Sleeve	545-5411-00
3	Switch Mounting Bracket	535-6623-00	20	Plunger ø7/16 X 2-1/4 LG	530-5250-01
4	#4-40 PPH X .62 LG (2)	237-5832-00	21	Spacer	545-5400-00
5	Switch, Miniature	180-5118-00	22	#8-32 PPH X 1" LG	232-1104-16
6	#8-32 PPH w/SEM X.25 LG (8)	232-5300-00	23	Rubber Bumper	545-5105-00
7	Spring	266-5020-00	24	E-Ring ø.44 Shaft	270-5005-00
8	Rubber Bumper	545-5105-00	25	Link, Lock Ball	535-6649-00
9	Plunger Assembly	515-5000-02	26	E-Ring, .25 Shaft (2)	250-0008-00
10	Coil Retaining Bracket	535-5203-01	27	Lock Ball Cam Assembly	515-5815-01
11	Coil, 23-800	090-5001-00	28	Spring	266-5000-00
12	Coil Sleeve	545-5076-00	29	Coil Retaining Bracket	535-6658-00
13	Switch, Subminiature (6)	180-5119-00	30	Coil, 25-1240	090-5034-00
14	Wire Harness	036-5301-00	31	Lock Ball Bracket Assembly	515-5817-01
15	#2-56 PPH X .5 LG (12)	237-5806-00	32	Wire Harness	036-5301-01
16	#2 Split LW (12)	244-5001-00	33	#6-32 HWH TC X .38 LG (4)	237-5898-00
17	Switch Protector (6)	535-6539-00	34	Deflector (Trough Entry Scoop)	535-6606-01

Flipper Assembly, Lower
500-5755-01 (Right), 500-5755-02 (Left)
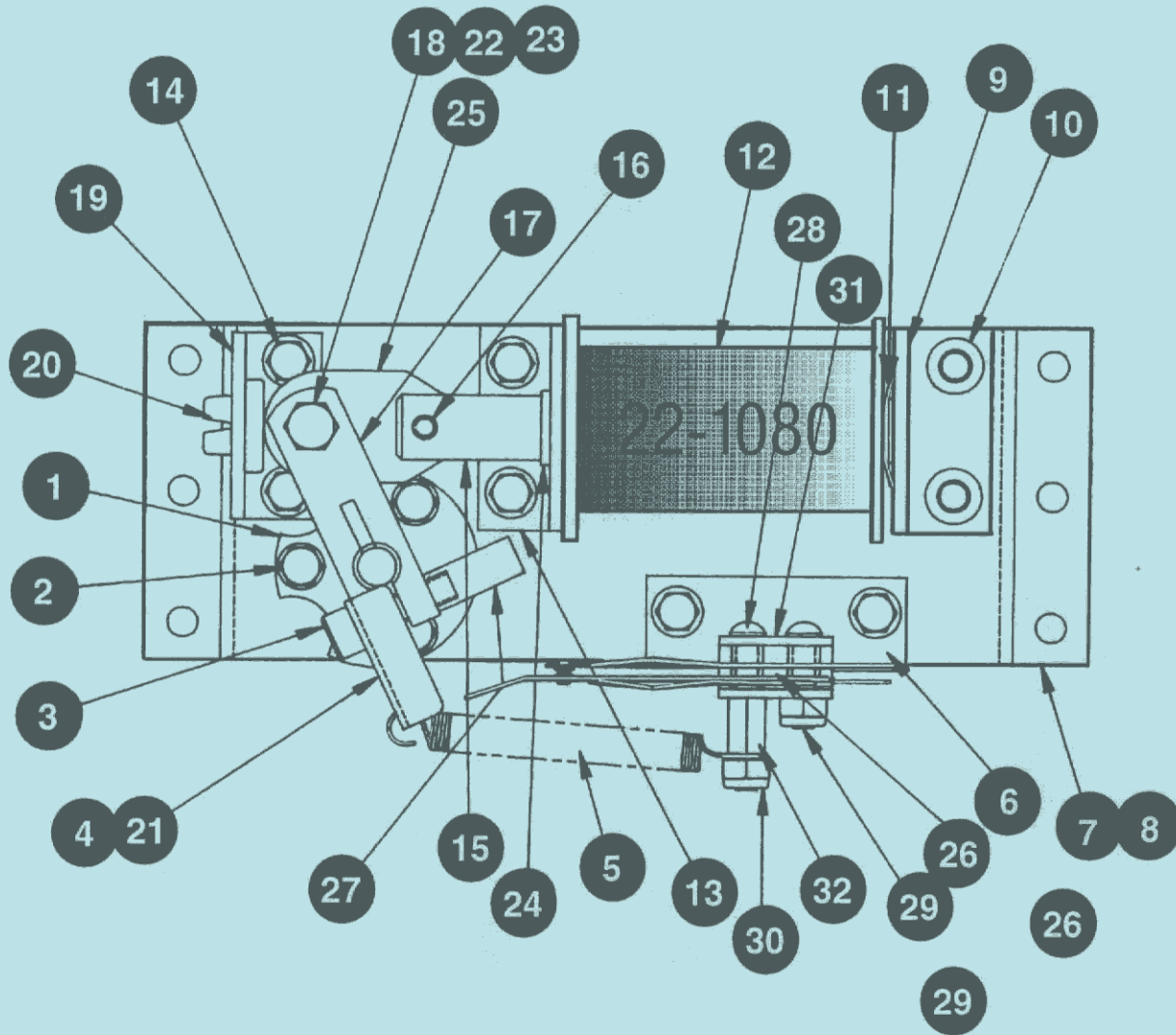
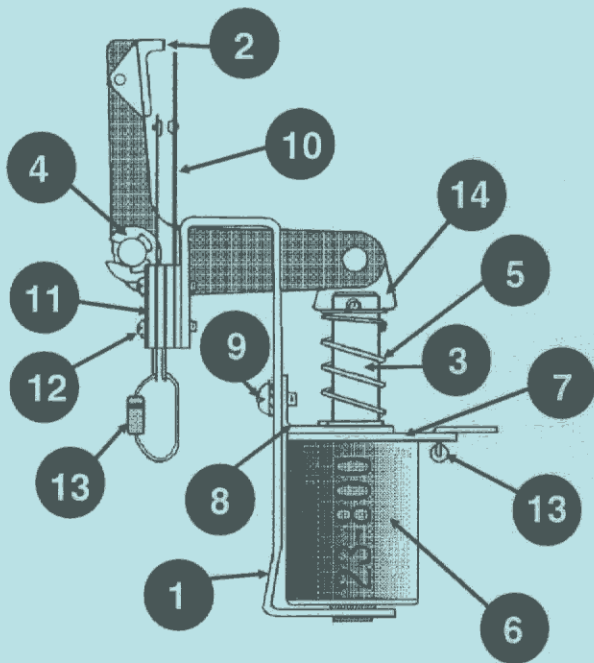| Item	Description	Part No.	Item	Description	Part No.
1	Flipper Bushing	545-5070-00	17	Pawl	530-5070-00
2	#6-32 X .38 LG HWH (3)	237-5910-00	18	#10-32 X .75 LG Shoulder Bolt	231-5019-00
3	#10-32 SOC HD X .75 LG	237-5864-00	19	Plunger Stop Bracket	535-5279-01
4	Spring Bracket (Left)	535-6663-02	20	Nylon Stop	545-5445-01
5	Flipper Return Spring	265-5029-02	21	Spring Bracket (Right)	535-6663-01
6	Switch Mounting Bracket	535-6664-00	22	Bushing	530-5139-00
7	Flipper Base (Left)	515-5077-02	23	#10-32 Elastic Stop Nut	240-5203-00
8	Flipper Base (Right)	515-5077-01	24	Coil Sleeve	545-5388-00
9	Coil Stop Bracket	515-5346-00	25	Flipper Link	545-5401-00
10	1/4-20 SOC HD X .38 LG (2)	237-5861-00	26	Power Switch	180-5124-01
11	Spring Washer	269-5002-00	27	Plastic Cap	545-5084-00
12	Coil 22-1080	090-5032-00	28	#6-32 X 1" LG PPH	237-5506-00
13	Front Bracket	535-6453-00	29	#6-32 X .63 LG PPH	237-5899-00
14	#8-32 X .38 LG HWH (6)	237-5903-00	30	#6-32 Elastic Stop Nut	240-5005-00
15	Plunger and Link Assembly	515-5822-00	31	Switch Plate	535-5045-00
16	Roll Pin	251-5000-00	32	1/4 Hex Spacer (3/8" Long)	254-5008-12

Unique Parts

Flipper Assembly, Upper
500-5694-02 (Left)

Item	Description	Part No.	Item	Description	Part No.
1	Flipper Bushing	545-5070-00	13	Front Bracket	535-6453-00
2	#6-32 X .38 LG HWH (3)	234-5000-00	14	#8-32 X .38 LG HWH (6)	234-5100-00
3	#10-32 SOC HD X .75 LG	237-5864-00	15	Plunger and Link Assembly	515-5822-00
4	Spring Bracket (Left)	535-6663-02	16	Roll Pin	251-5000-00
5	Flipper Return Spring	265-5029-02	17	Pawl	530-5070-00
6	Switch Mounting Bracket	535-6664-00	18	#10-32 X .75 LG Shoulder Bolt	231-5019-00
7	Flipper Base (Left)	515-5077-02	19	Plunger Stop Bracket	535-5279-01
8	Flipper Base (Right)	515-5077-01	20	Nylon Stop	545-5445-01
9	Coil Stop Bracket	515-5346-00	21	Spring Bracket (Right)	535-6663-01
10	1/4-20 SOC HD X .38 LG (2)	237-5861-00	22	Bushing	530-5139-00
11	Spring Washer	269-5002-00	23	#10-32 Elastic Stop Nut	240-5206-00
12	Coil 23-1100	090-5030-00	24	Coil Sleeve	545-5388-00
			25	Flipper Link	545-5401-00

Lower Slingshot Assemblies
500-5226-00

Item	Description	Part No.
1	Slingshot Bracket	515-5339-00
2	S. S. Arm & Tip Assembly	515-5340-00
3	Plunger & Link Assembly	515-5338-00
4	1/4 Retaining Ring (2)	270-5002-00
5	Spring	266-5020-00
6	Coil 23-800	090-5001-00
7	Coil Sleeve	260-0004-00
8	Coil Retainer	535-5203-03
9	#8-32 X 1/4" Screw (2)	232-5300-00
10	Slingshot Switch (2)	180-5054-00
11	Tension Plate (2)	535-5846-00
12	#4-40 X 1/2" Screw (4)	237-5837-00
13	Diode 1N4004 (2)	112-5003-00
14	Link	545-5062-00

Upper Slingshot Assembly
500-5226-01
(Note coil is rotated 90°)

Item	Description	Part No.
1	Slingshot Bracket	515-5339-00
2	S. S. Arm & Tip Assembly	515-5340-00
3	Plunger & Link Assembly	515-5338-00
4	1/4 Retaining Ring (2)	270-5002-00
5	Spring	266-5020-00
6	Coil 23-800	090-5001-00
7	Coil Sleeve	260-0004-00
8	Coil Retainer	535-5203-03
9	#8-32 X 1/4" Screw (2)	232-5300-00
10	Slingshot Switch (2)	180-5054-00
11	Tension Plate (2)	535-5846-00
12	#4-40 X 1/2" Screw (4)	237-5837-00
13	Diode 1N4004 (2)	112-5003-00
14	Link	545-5062-00

Unique Parts

Turbo Bumper Assembly
500-5227-00†
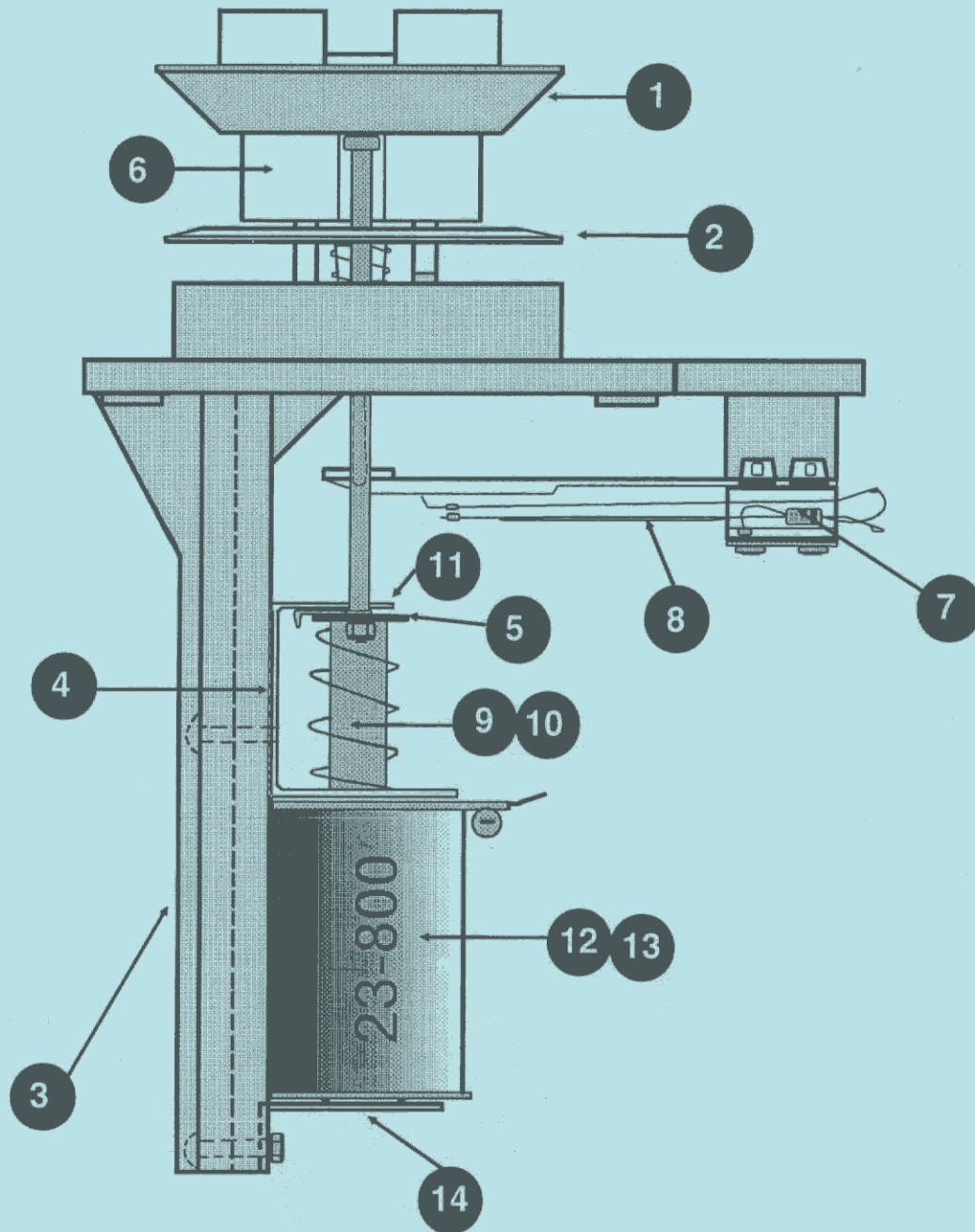
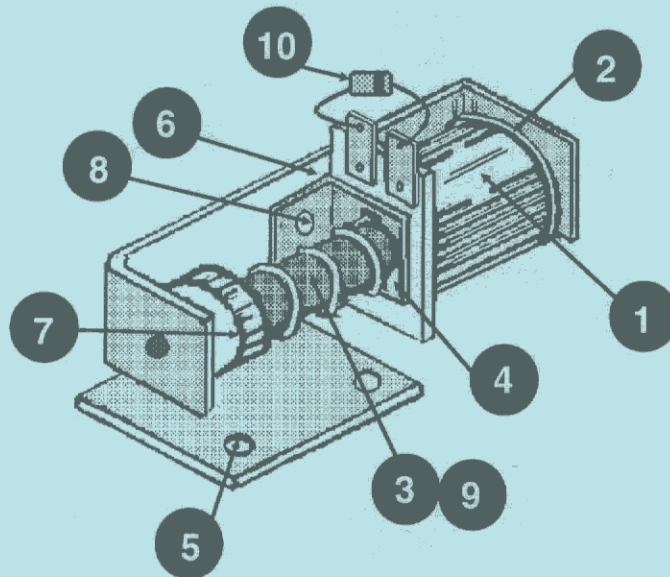| Item	Description	Part No.	Item	Description	Part No.
1	Rod & Ring Assembly	515-5085-00	8	Switch	180-5015-01
2	Bumper Skirt	545-5098-00	9	Plunger	530-5062-00
3	Bumper Housing	545-5100-00	10	Spring	266-5009-00
4	Plunger Bracket	535-5277-00	11	Metal Yoke	535-5877-00
5	Fiber Yoke	545-5120-00	12	Coil 23-800	090-5001-00
6	Bumper Body	545-5197-00	13	Coil Sleeve	260-0004-00
7	Diode 1N4004	112-5003-00	14	Coil Stop Assembly	515-5088-00

† Bumper Cover (not shown) is not included with above assembly. Bumper Cover (Red), 550-5057-02, Qty. 3, must be ordered separately.

Ball Kicker (Auto Launch) Assembly
500-5477-03
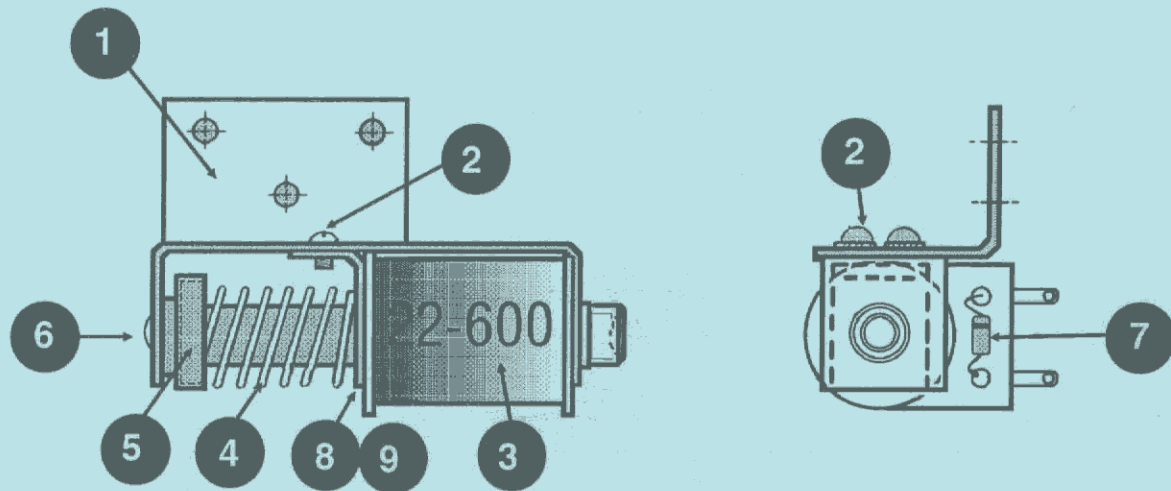
Item	Description	Part No.	Item	Description	Part No.
1	Coil Mounting Bracket	535-6385-00	5	Plunger Assembly	515-5000-02
2	8-32 X 1/4 SEMS (2)	232-5300-00	6	Grommet (Bumper Pad)	545-5105-00
3	Coil 22-600	090-5023-01	7	Diode 1N4004	112-5003-00
4	Spring	266-5020-00	8	Coil Retaining Bracket	535-5203-03
			9	Spring Washer	269-5002-00

Knocker Assembly
500-5081-00

Item	Description	Part No.	Item	Description	Part No.
1	Coil 23-800	090-5001-01	6	Coil Retainer Bracket	535-5203-01
2	Coil Sleeve	545-5076-00	7	Bumper Pad	545-5105-00
3	Spring	266-5020-00	8	Screw #8-32 X 1/4 SEMS (2)	232-5300-00
4	Spring Washer	269-5002-00	9	Plunger Assembly	515-5000-02
5	Kickback/Knocker Bracket	535-5265-00	10	Diode 1N4004	112-5003-00

Unique Parts

Rose Handle Shooter Assembly
(Long Shaft) 500-5836-01-02
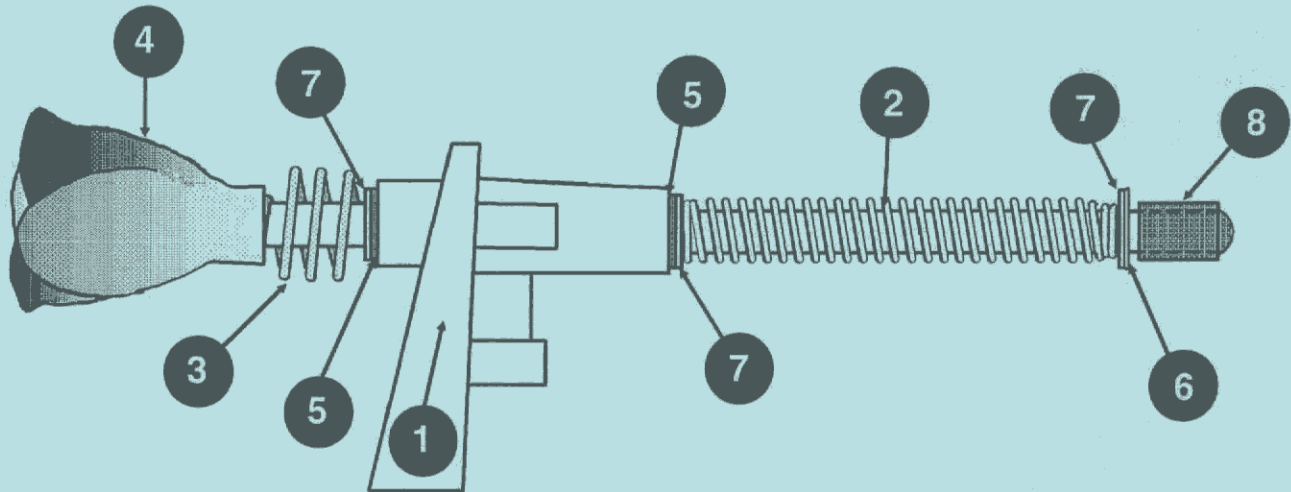
Item	Description	Part No.	Item	Description	Part No.
1	Housing	535-5067-00	5	Bushing (2)	280-5010-00
2	Spring Large Red	266-5001-02	6	Retaining Ring	270-5012-00
3	Spring Small Red	266-5010-02	7	Washer (3)	242-5014-00
4	Red Rose Rod Assembly	515-6067-01	8	Plunger Tip	545-5276-00

Laser Kick Assembly
500-5838-00
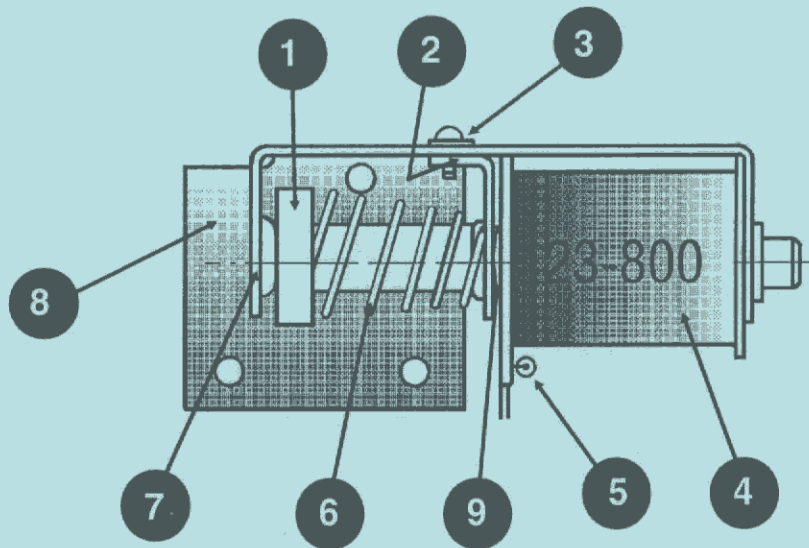
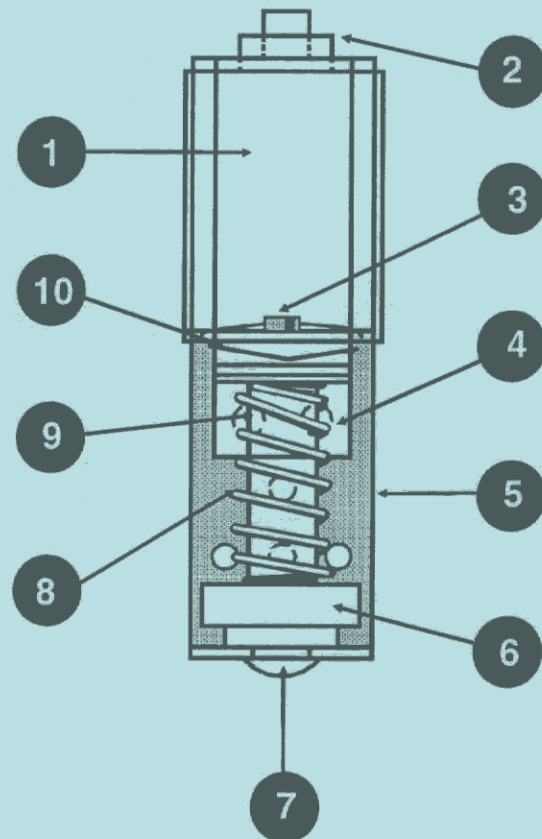| Item	Description	Part No.	Item	Description	Part No.
1	Plunger Assembly	515-5000-02	6	Spring	266-5020-00
2	Coil Retainer Bracket	535-5203-03	7	Grommet (Bumper Pad)	545-5105-00
3	#8-32 X 5/16" LG Phil. Pan. (2)	232-5300-00	8	Kick Back/Knocker Bracket	535-5265-00
4	Coil 23-800	090-5001-01	9	Crescent Spring Washer	269-5002-00
5	1N4004 Diode	112-5003-00			

Power Scoop Assembly
500-5809-00

Please Note:
These two assemblies work in conjuntion with each other but are separate assemblies.

Item	Description	Part No.
1	Power Scoop Weld Assembly	515-6022-00
2	Micro Switch	180-5057-00
	Switch Protect Plate	535-6539-00
	#2 Lockwasher (2)	244-5001-00
	2-56 Hex Nut (2)	240-5301-00
	Micro Bracket	535-6163-00
	2-56 PHMS (2)	237-5806-00
	6-32 PHMS (2)	232-5200-00
3	Diode 1N4004	112-5003-00
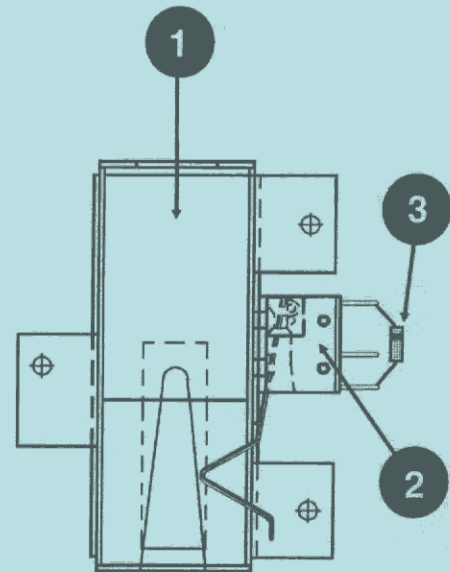
Kick Big Assembly
500-5740-00

Item	Description	Part No.
1	Coil 23-800	090-5001-01
2	Coil Sleeve	545-5076-00
3	Diode 1N4004	112-5003-00
4	Bracket	535-5203-01
5	Frame	535-6730-00
6	Plunger Assembly	515-5000-02
7	Rubber Grommet	545-5105-00
8	Spring	266-5020-00
9	8-32 X 1/4 SEMS (2)	232-5300-04
10	Spring Washer	269-5002-00

Ball Eject Assembly
500-5664-01
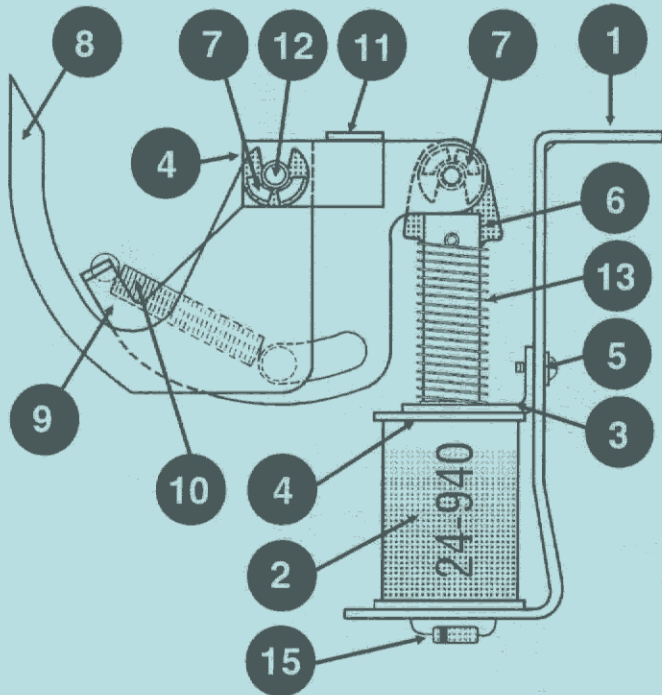
Item	Description	Part No.
1	Bracket & Stop Assembly	515-5011-00
2	Coil 24-940	090-5036-01
3	Coil Retainer Bracket	535-5203-01
4	Coil Sleeve	545-5031-00
5	8-32 X ¼ SEMS (2)	232-5300-04
6	Plunger & Link Assembly	515-5338-00
7	"E" Ring (2)	270-5002-00
8	Eject Cam Assembly	515-5042-00
9	Spring Plate Assembly	515-5009-00
10	Ext. Spring	265-5017-00
11	Fulcrum Bracket	535-6446-01
12	Fulcrum Pin	530-5207-00
13	Plunger Spring	266-5000-00
14	Shim Washer (If Required) (2)	242-5013-00
15	Diode 1N4004	112-5003-00

Vertical Up-Kicker (VUK)
500-5839-00
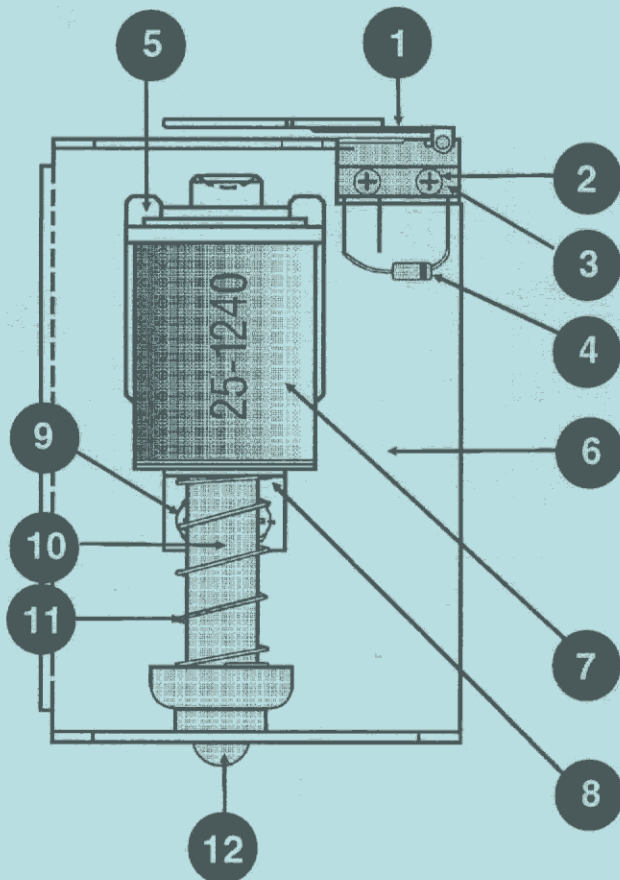
Item	Description	Part No.
1	Switch	180-5116-00
2	Screw (2)	237-5806-00
	Washer (2)	244-5001-00
3	Protector	535-6539-00
4	Diode 1N4001	112-5001-00
5	Insulation	545-5431-00
6	Bracket	535-6607-01
7	Coil 25-1240	090-5034-01
8	Bracket	535-5203-01
9	Screw (2)	232-5300-00
10	Plunger	515-5941-01
11	Spring	266-5020-00
12	Bumper Pad	545-5105-00

Drop Target 3-Bank Assembly
500-5621-03 (Left & Right)
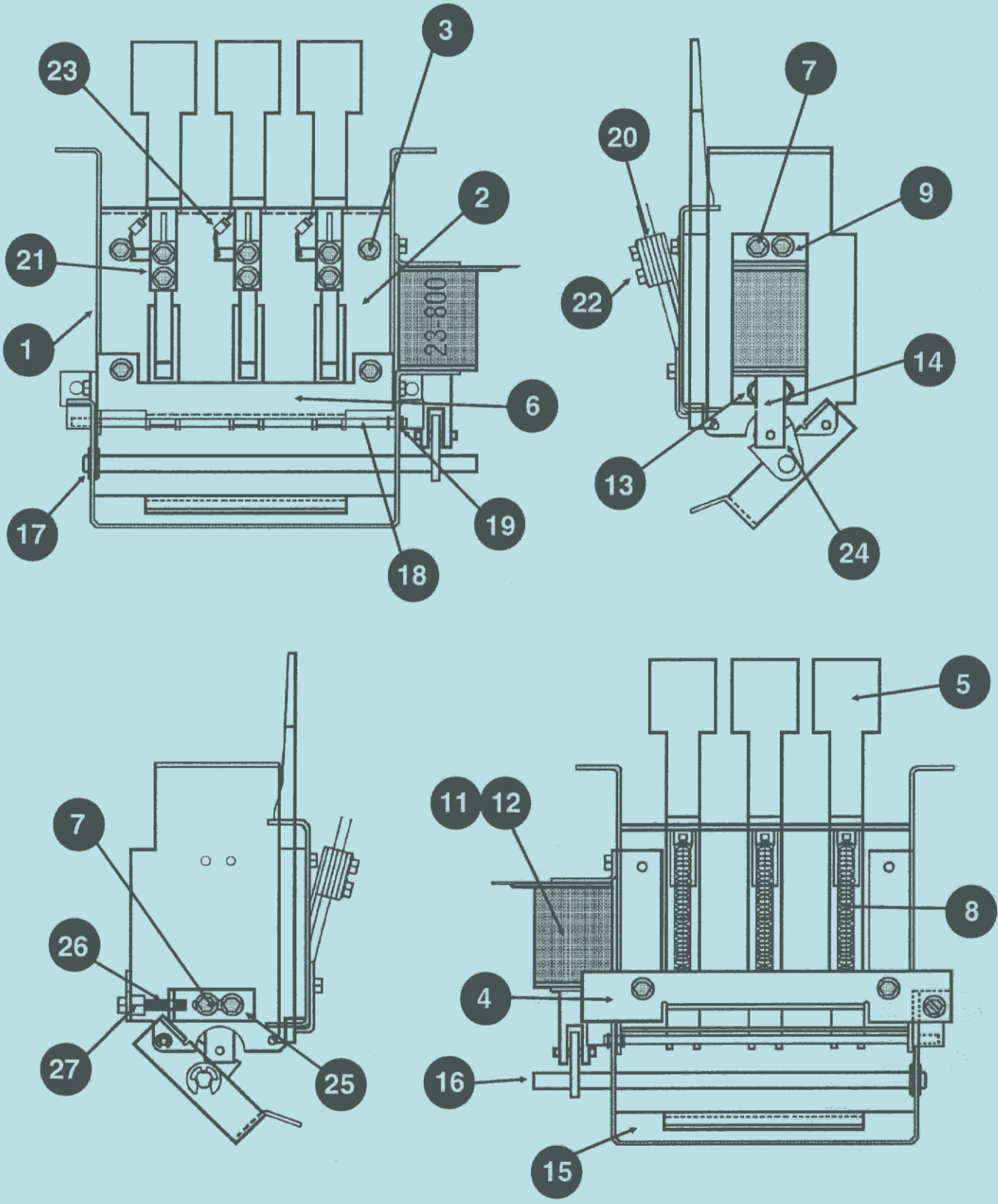

(See Next Page for Table & Notes)

Unique Parts

Drop Target (D.T.) 3-Bank Assembly
500-5799-03 †

Item	Description	Part No.	Item	Description	Part No.
1	Target End Plate (2)	535-6162-00	13	Plunger Stop Bracket	515-5008-00
2	Target Frame for 4-Bank	535-6159-04	14	Plunger/Link Assembly	515-5338-00
2	Target Frame for 3-Bank	535-6159-03	15	Target Lift Bracket for 4-Bank	535-6509-04
2	Target Frame for 2-Bank	535-6159-02	15	Target Lift Bracket for 3-Bank	535-6509-03
3	8-32 X 3/8 (6)	237-5879-00	15	Target Lift Bracket for 2-Bank	535-6509-02
4	Spring Mount. Plate for 4-Bank	535-6510-04	16	Target Shaft for 4-Bank	530-5179-04
4	Spring Mount. Plate for 3-Bank	535-6510-03	16	Target Shaft for 3-Bank	530-5179-03
4	Spring Mount. Plate for 2-Bank	535-6510-02	16	Target Shaft for 2-Bank	530-5179-02
5	Target (Specify Game)	545-5048-01	17	E-Ring (1/4")	270-5002-00
6	Trgt. Retaining Brkt. for 4-Bank	535-5042-04	18	Pivot Shaft for 4-Bank	530-5180-04
6	Trgt. Retaining Brkt. for 3-Bank	535-5042-03	18	Pivot Shaft for 3-Bank	530-5180-03
6	Trgt. Retaining Brkt. for 2-Bank	535-5042-02	18	Pivot Shaft for 2-Bank	530-5180-02
7	6-32 X 3/8 SHWHTCS Type 23 (6)	237-5891-00	19	E-Ring (1/8")	270-5000-00
8	Target Reset Spring	265-5003-00	20	Switch Assembly	180-5092-01
9	Coil Support Bracket	535-6154-00	21	Switch Plate	535-5045-00
10	—··—··—··—··—	—··—··—	22	6-32 X 1/2	237-5878-00
11	23-700 Coil for 4-Bank	090-5022-00	23	Diode 1N4004	112-5003-00
11	23-800 Coil for 3-Bank	090-5001-02	24	Plunger Link	545-5293-00
11	23-800 Coil for 2-Bank	090-5001-02	25	Adjustment Bracket	535-6508-00
12	Coil Sleeve	545-5031-00	26	8-32 X 7/8 (1)	237-5890-00
			27	8-32 Nyloc	240-5102-00

† - Note: Table above shows common parts and unique parts for the 2, 3 & 4 Bank Drop Target Assemblies. The shaded areas (X-Bank D.T.) are not used in this game. Quantity is designated by bank size (see Dwg.) (e.g. 1 diode per target, thus if a 4-Bank is ordered, diode qty. is 4.) *When ordering any part always reference game number (see inside cover) for proper decals.*
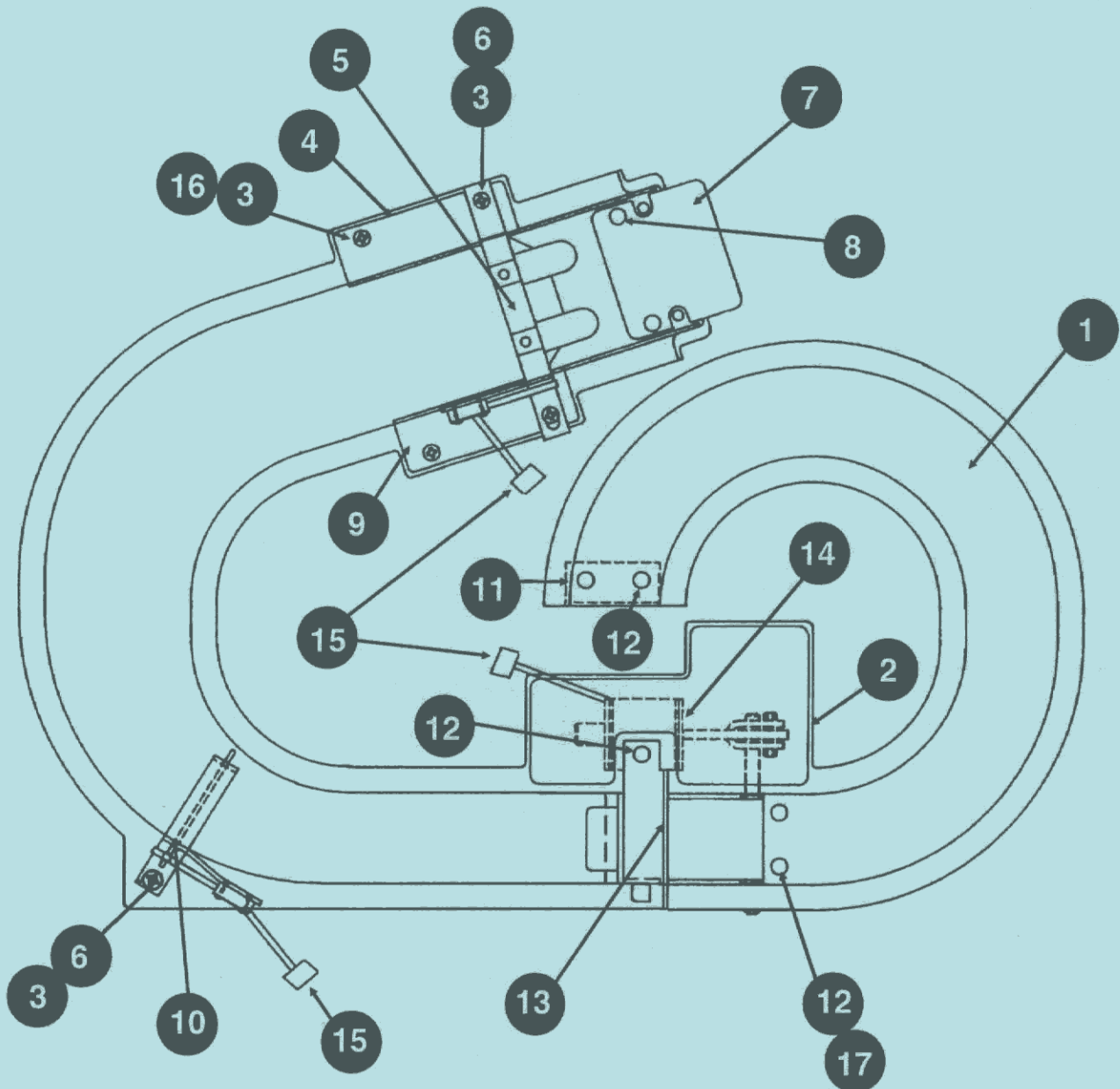
Stand-Up Target Assembly (1" Circle)
500-5835-08 (White)
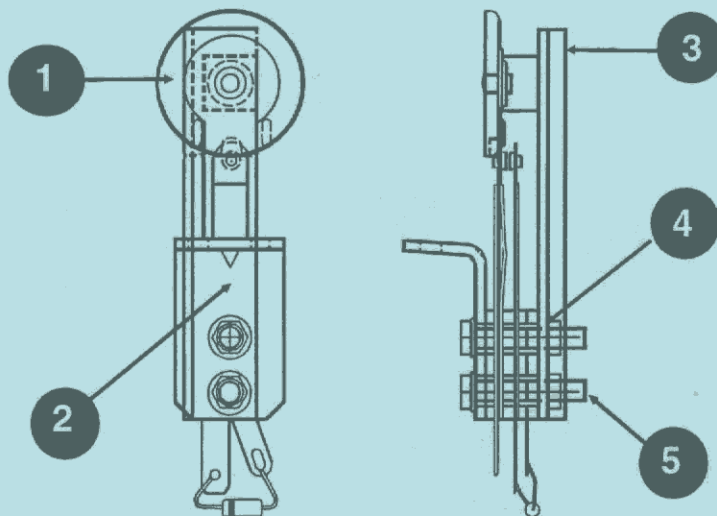
Target Color 500-5835-XX	
Clear	-01
Red	-02
Amber	-03
Green	-04
Blue	-05
Yellow	-06
Orange	-07
White	-08
Purple	-09

Item	Description	Part No.	Item	Description	Part No.
1	Switch & Target Ass'y	515-5966-08	4	6-32 Nyloc (2)	240-5010-00
2	Mounting Bracket	535-6896-00	5	6-32 X 3/4 HWH MS (2)	237-5893-00
3	Back Plate	535-5116-00			

"G" Ramp Assembly
500-5828-00

Item	Description	Part No.	Item	Description	Part No.
1	G-Ramp	545-5464-00	9	Ramp Protector	535-7011-01
2	G-Ramp Decal (Coil Cover)	820-5090-00	10	Ramp Exit Gate Assembly	515-6075-00
3	#6 Nyloc (5)	240-5005-00	11	Wire Ramp Bracket	535-5291-00
4	Ramp Protector	535-7011-00	12	1/2 DX 9/32 Rivet	249-5009-00
5	Gate Assembly	515-6064-00	13	Trap Door Stop	535-7012-00
6	6-32 X 1/2 SEMS PH (2)	232-5202-00	14	Ramp Trap Door Assembly	500-5830-00
7	Ramp Flap	535-7013-00	15	Wire Harness	036-5350-00
8	1/8 X 1/4 Rivet (2)	249-5003-00	16	6-32 X 3/8 SEMS PH (2)	232-5201-00
			17	Trap Door Bracket Spacer	535-6241-00

"G" Ramp Trap Door Assembly
500-5830-00
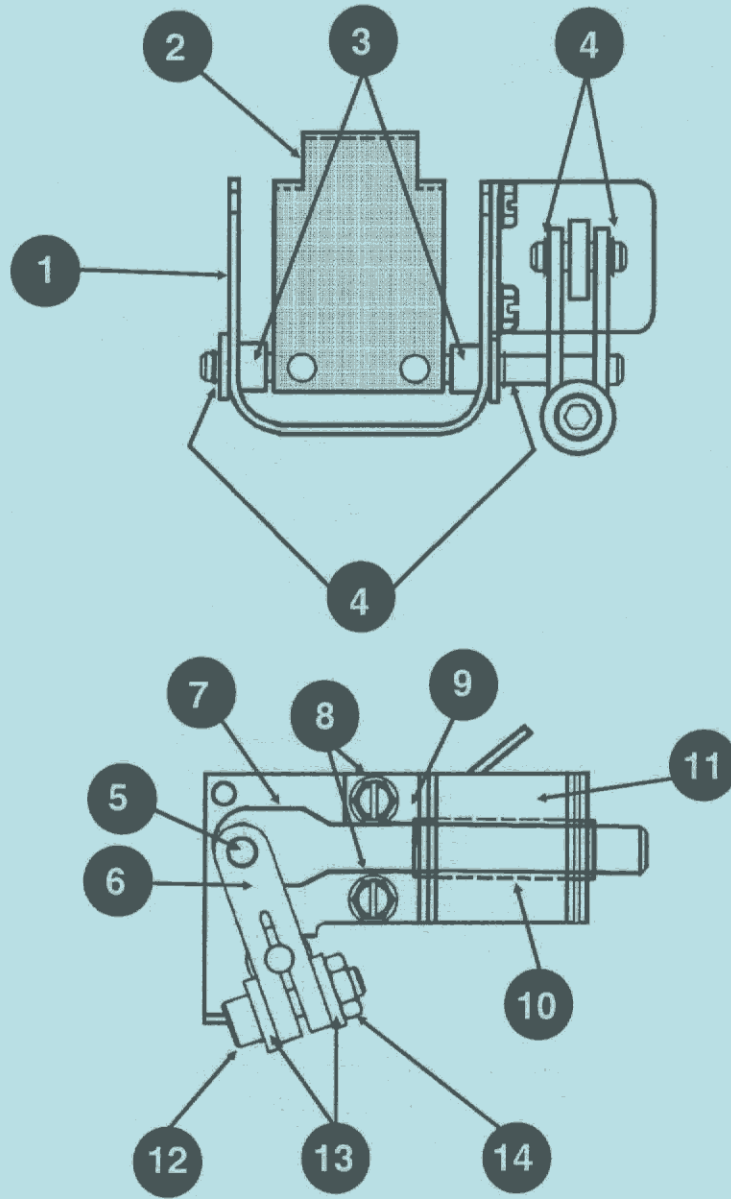
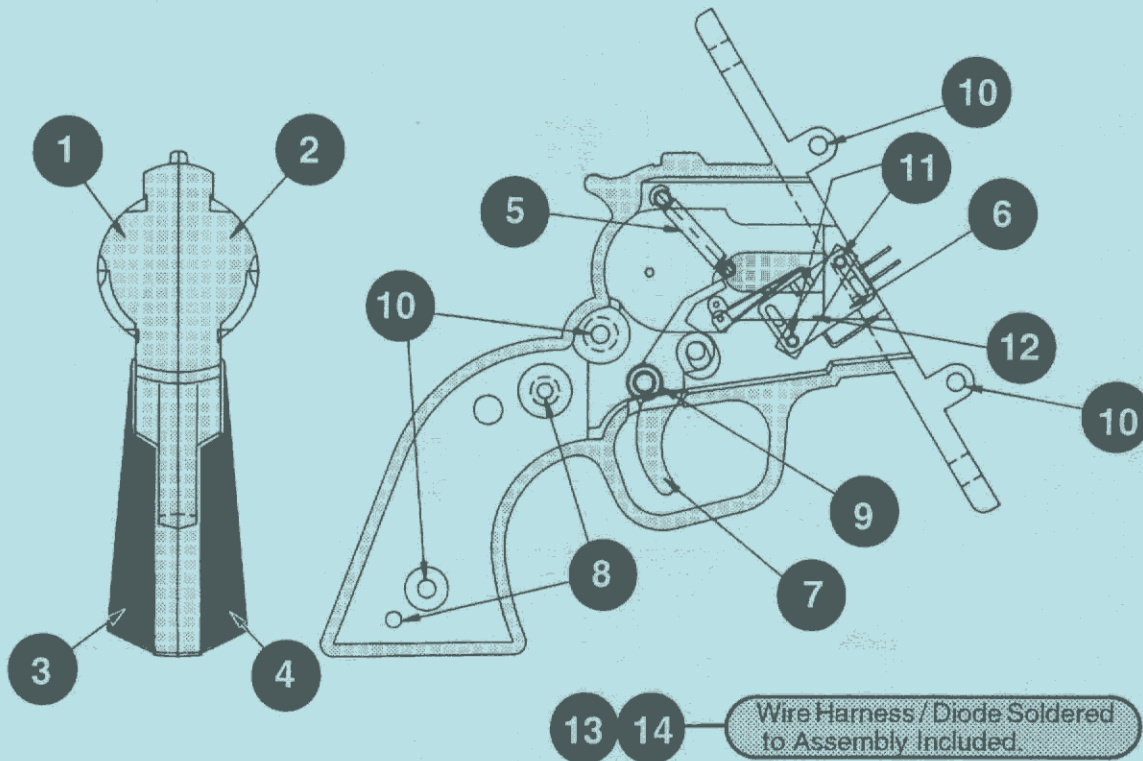| Item	Description	Part No.	Item	Description	Part No.
1	Bracket	535-6998-00	8	#6-32 X 3/16 PHS (2)	232-5209-00
2	Trap Door Flap Assembly	515-6056-00	9	Coil Bracket	535-6784-00
3	Nylon Flange Bearing (2)	545-5492-00	10	Coil Sleeve	545-5500-00
4	Retaining Ring 3/16 (4)	270-5001-00	11	Coil 28-1050	090-5046-00
5	Trap Door Linkage Clip	535-6999-00	12	#10-32 X 3/4 SHCS	232-2206-12
6	Trap Door Linkage Pin	530-5300-00	13	#10 Washer (.090 THK) (2)	242-5023-00
7	Plunger Assembly	515-6057-00	14	#10-32 Nyloc Nut	240-5203-00

"R" Ramp Assembly
500-5829-00
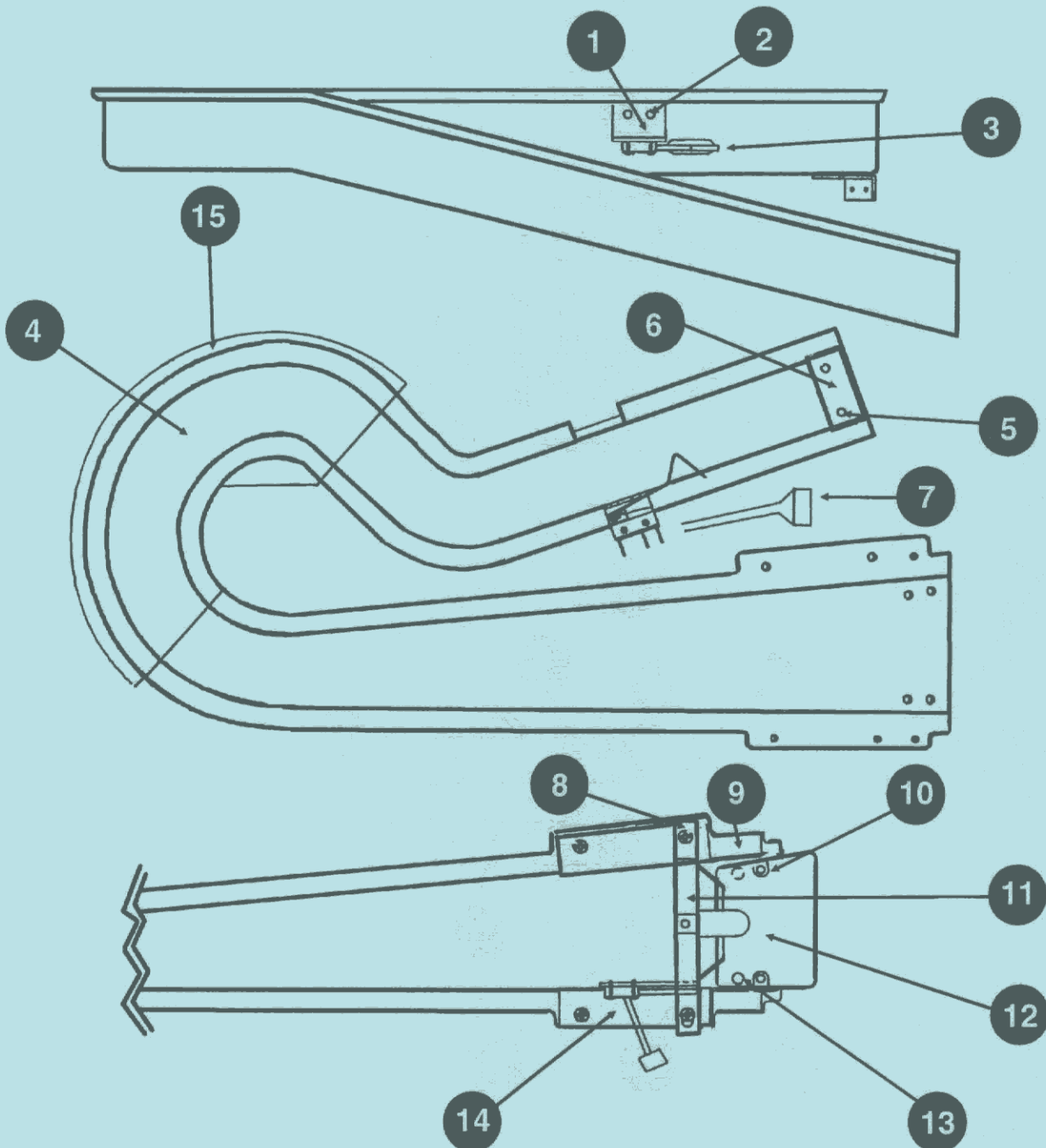
Item	Description	Part No.	Item	Description	Part No.
1	Ramp Bracket	535-5794-00	7	Wiring Harness	036-5350-03
2	1/8 X 9/32 Rivet (2)	249-5009-00	8	6-32 Lock Nut Typ. (4)	240-5005-00
3	Switch	180-5093-00		6-32 X 3/8 SEMS PH (2)	232-5201-00
	2-56 PHMS	237-5872-00	9	Ramp Protector	535-6938-00
	Switch Protect Plate	535-6539-00	10	6-32 X 1/2 SEMS PH Typ. (2)	232-5202-00
	#2 Lockwasher	244-5001-00	11	Right Gate Assembly	515-6065-00
4	"R" Ramp	545-5465-00	12	Ramp Flap	535-6941-01
5	1/8 X 9/32 Rivet Typ. (2)	249-5009-00	13	1/8 X 1/4 Rivet Typ. (2)	249-5003-00
6	Wire Ramp Bracket	535-5291-00	14	Ramp Protector	535-6938-01
			15	Butyrate	830-5467-02

Unique Parts

Snake Pit Ramp Assembly
500-5837-00
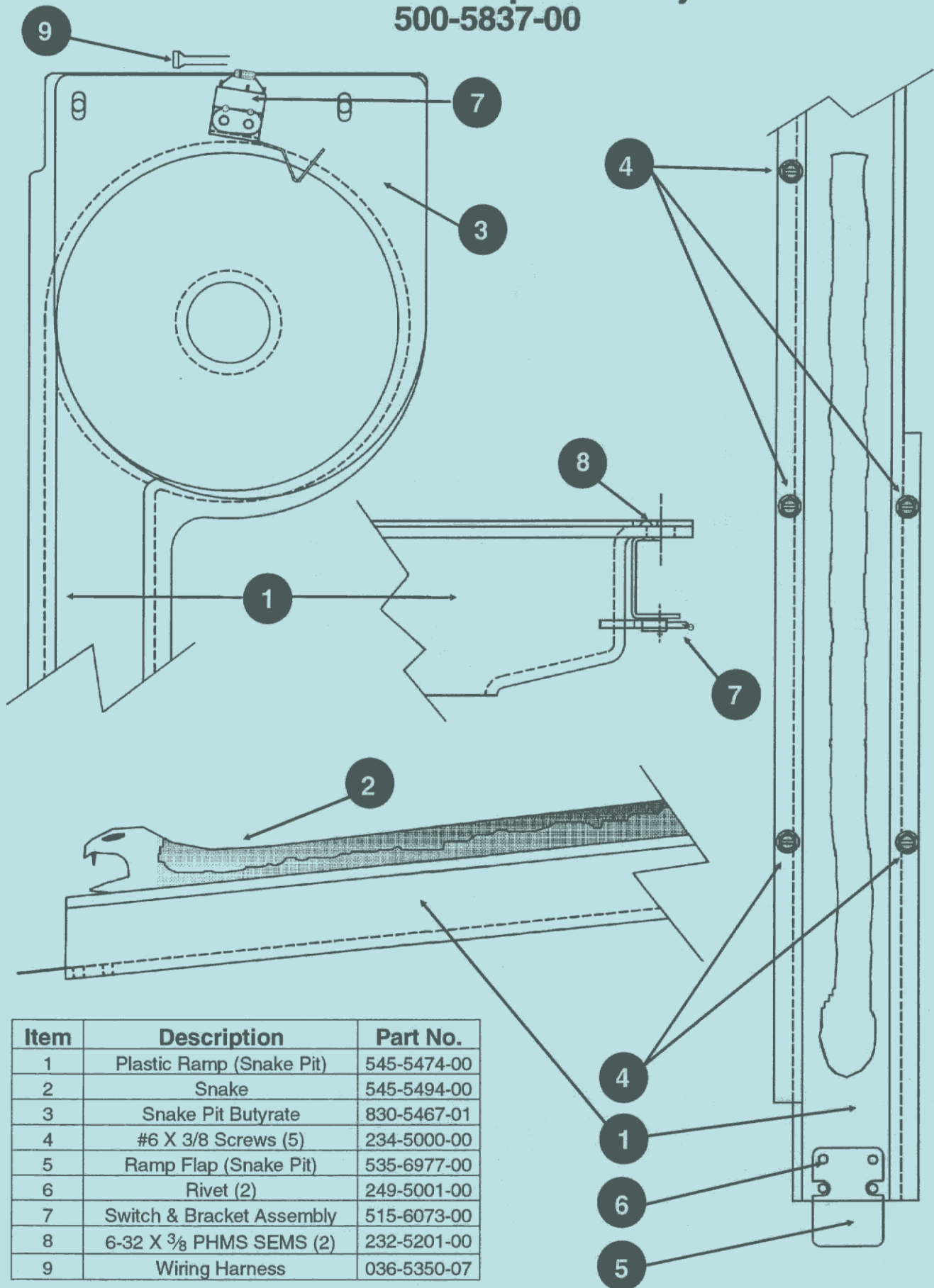
Item	Description	Part No.
1	Plastic Ramp (Snake Pit)	545-5474-00
2	Snake	545-5494-00
3	Snake Pit Butyrate	830-5467-01
4	#6 X 3/8 Screws (5)	234-5000-00
5	Ramp Flap (Snake Pit)	535-6977-00
6	Rivet (2)	249-5001-00
7	Switch & Bracket Assembly	515-6073-00
8	6-32 X 3/8 PHMS SEMS (2)	232-5201-00
9	Wiring Harness	036-5350-07

6-Shooter Gun Assembly
500-5834-00

Wire Harness / Diode Soldered to Assembly Included.

Item	Description	Part No.	Item	Description	Part No.
1	Gun Body (Left)	535-6280-00	8	Grip Mtg. Screw #4 X .42-.39	237-5929-00
2	Gun Body (Right)	535-6280-01	9	Nyliner (3L2-FF) (Bushing)	545-5532-00
3	Gun Grip (Left) Black	545-5531-00	10	8-32 X $\frac{5}{8}$ Scw. Type F PPHMS	237-5930-00
4	Gun Grip (Right) Black	545-5531-01	11	Microswitch Mounting Screw	237-5931-00
5	Trigger Spring	265-5037-00	12	Switch Protect Plate	535-6281-00
6	Microswitch	180-5143-00	13	Wire Harness Assembly	036-5350-06
7	Trigger	535-6282-00	14	Diode 1N4004	535-5203-03

Unique Parts