

JUNK YARD



OPERATIONS MANUAL INCLUDES

Operations & Adjustments • Testing & Problem Diagnosis • Parts Information • Wiring
Diagrams & Schematics

Williams Electronics Games, Inc., 3401 N. California Avenue, Chicago, IL 60618

DIP SWITCH SETTINGS AND JUMPERS

EPROM Jumper Settings for G11	W1	W2
1MEG, 2MEG, 4 MEG EPROM	In	Out

DIP Switch Chart

COUNTRY	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
AMERICA	Off	Off	On	On	On	On	On	On
EUROPEAN	Off	Off	On	On	On	Off	On	On
FRENCH	Off	Off	On	On	On	On	Off	Off
GERMAN	Off	Off	On	On	On	On	On	Off
SPAIN	Off	Off	On	On	Off	On	On	On

SOLENOID/FLASHER TABLE

Sol. No.	Function	Solenoid Type	Voltage Connections			Drive Xistor	Drive Connections			Drive Wire Color	Solenoid Part Number	
			Playfield	Backbox	Cabinet		Playfield	Backbox	Cabinet		Flashlamp Type	Playfield
01	AUTO PLUNGER	High Power	J133-2			Q72	J116-1			VIO-BRN	AE-23-800	
02	REFRIGERATOR POPPER	High Power	J133-2			Q68	J116-2			VIO-RED	AE-23-800	
03	POWER CRANE	High Power	J133-2			Q71	J116-4			VIO-ORG	A-20099	
04	NOT USED	High Power				Q67				VIO-YEL		
05	SCOOP DOWN	High Power	J133-2			Q70	J116-6			VIO-GRN	SM1-28-900	
06	BUS DIVERTER	High Power	J133-2			Q66	J116-7			VIO-BLU	AE-27-1200	
07	KNOCKER	High Power		J133-2		Q69		J116-8		VIO-BLK		AE-23-800
08	NOT USED	High Power				Q65	J116-9			VIO-GRY		
09	TROUGH	Low Power	J133-3			Q44	J113-1			BRN-BLK	AE-26-1500	
10	LEFT SLINGSHOT	Low Power	J133-3			Q48	J113-3			BRN-RED	AE-26-1200	
11	RIGHT SLINGSHOT	Low Power	J133-3			Q43	J113-4			BRN-ORG	AE-26-1200	
12	NOT USED	Low Power				Q47				BRN-YEL		
13	NOT USED	Low Power				Q42				BRN-GRN		
14	NOT USED	Low Power				Q46				BRN-BLU		
15	HOLD CRANE	Low Power	J133-2			Q41	J113-8			BRN-VIO	A-20099	
16	MOVE DOG	Low Power	J133-3			Q45	J113-9			BRN-GRY	AE-26-1200	
17	DOG FACE FLASHER	Flasher	J133-6			Q28	J111-1			BLK-BRN	#906 (1)	
18	WINDOW SHOP FLSHR	Flasher	J133-6			Q32		J112-2		BLK-RED		#906 (1)
19	AUTOFIRE FLASHERS	Flasher	J133-6			Q27	J111-3			BLK-ORG	#89 (2)	
20	LEFT SIDE FLASHERS	Flasher	J133-6			Q31	J111-4	J112-5		BLK-YEL	#906 (1)	#906 (1)
21	SCOOP UP**	Low Power	J133-3			Q26	J111-5			BLU-GRN	AE-26-1200	
22	UNDER CRANE FLSHR	Flasher	J133-6			Q30	J111-6			BLU-BLK	#906 (1)	
23	BACK LEFT FLASHERS	Flasher	J133-6			Q25	J111-7	J112-8		BLU-VIO	#906 (1)	#906 (1)
24	BACK RIGHT FLASHERS	Flasher	J133-6			Q29	J111-8	J112-9		BLU-GRY	#906 (1)	#906 (1)
25	SHOOTER FLASHER	Gen. Purpose	J133-6			Q16	J109-1			BLU-BRN	#906 (1)	
26	SCOOP FLASHERS	Gen. Purpose	J133-6			Q15	J109-2	J108-3		BLU-RED	#906 (1)	#906 (1)
27	DOG HOUSE FLASHER	Gen. Purpose	J133-6			Q14	J109-3			BLU-ORG	#89 (1)	
28	CARS FLASHERS	Gen. Purpose	J133-6			Q13	J109-4			BLU-YEL	#89 (2)	

General Illumination

01	PLAYFIELD STRING 1	G.I.	J105-1			Q5	J105-7			WHT-BRN	#44	
02	PLAYFIELD STRING 2	G.I.	J105-2			Q4	J105-8			WHT-ORG	#44	
03	LOGO STRING 3	G.I.		J106-3		Q3		J106-9		WHT-YEL		#555
04	*ILLUMINATION STRING 4	G.I.		J106-5		Q2		J106-10		WHT-GRN		#555
05	*ILLUMINATION STRING 5	G.I.		J106-6	J104-3	Q1		J106-11	J104-1	WHT-VIO		#555

Flipper Circuits		Voltage Connection	Playfield	Drive Transistors Power	Hold	Drive Connections	Playfield	Drive Wire Colors		Coil Part No.	Coil Colors
								Power	Hold		
29		Lwr. Rt. Power	J119-1 (RED-GRN)	Q90		J120-13		YEL-GRN		FL-11629	BLUE
30	LOWER RIGHT FLIPPER	Lwr. Rt. Hold	J119-1 (RED-GRN)	Q92		J120-11		ORG-GRN			
31		Lwr. Lt. Power	J119-4 (RED-BLU)	Q87		J120-9		YEL-BLU		FL-11629	BLUE
32	LOWER LEFT FLIPPER	Lwr. Lt. Hold	J119-4 (RED-BLU)	Q89		J120-7		ORG-BLU			
33	NOT USED	Upr. Rt. Power	J119-6 (RED-VIO)	Q84		J120-6		YEL-VIO		NOT USED	
34	UPPER RIGHT FLIPPER	Upr. Rt. Hold	J119-6 (RED-VIO)	Q86		J120-4		ORG-VIO			
35	NOT USED	Upr. Lt. Power	J119-8 (RED-GRY)	Q81		J120-3		YEL-GRY		NOT USED	
36	UPPER LEFT FLIPPER	Upr. Lt. Hold	J119-8 (RED-GRY)	Q83		J120-1		ORG-GRY			

J1XX = POWER DRIVER BOARD

24-6549 = #44 BULB; 24-8704 = #89 BULB; 24-8768 = #555 BULB; 24-8802 = #906 BULB

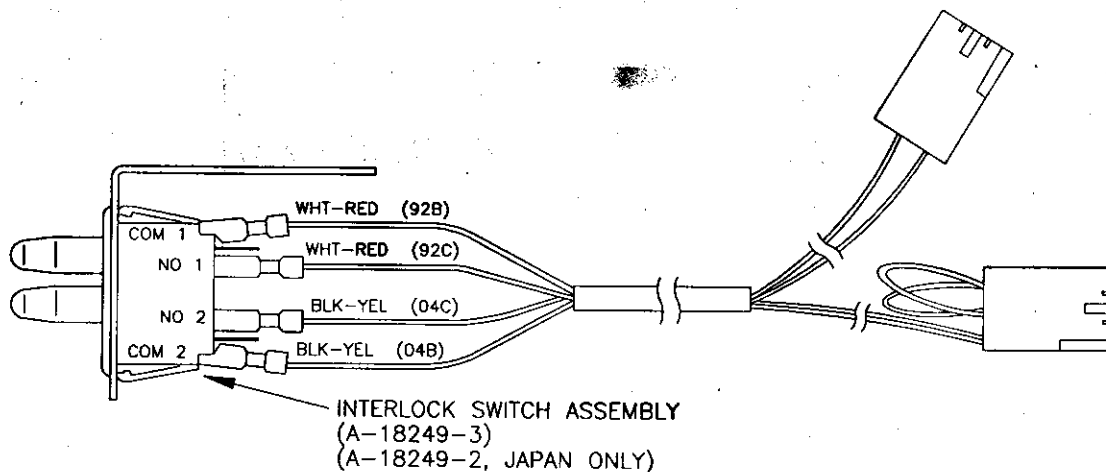
*THESE G.I. STRINGS DO NOT BRIGHTEN AND DIM, THEY ARE ALWAYS ON.

** TIEBACK DIODE FROM J111-12 & J111-13.

IMPORTANT NOTICE

PLEASE READ

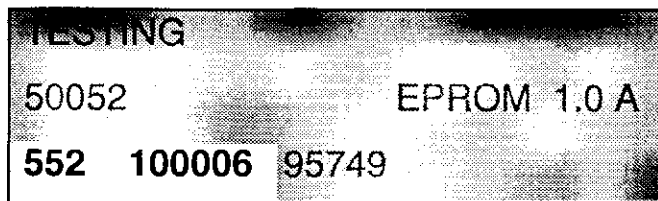
This pinball game is equipped with a SAFETY FEATURE to prevent shocks from the solenoid circuit when the coin door is opened. An interlock switch assembly (part no. A-18249-3), located at the left of the coin door opening, has been added to the game. This assembly is a bracket containing the existing memory protect switch on the bottom and a new interlock switch on the top. When the coin door is opened, this new interlock switch opens, breaking the connection to the +50V and +20V winding of the transformer secondary.



ATTENTION

The game uses a Security CPU Board that is not downward compatible to the CPU boards used in previous games. The board has an added security chip that can be interchanged between other **JUNK YARD** games and software revision levels. The CPU board itself is interchangeable with later model games, but must be equipped with the correct security chip and software for that specific game.

The games' electronic ID number is shown in the display during power-up. The number displayed is the same nine digit number printed on the security chip label. The first three digits are the project number without the country specific code. An example of the power-up display is shown below, the electronic ID number is bolded.



JUNK YARD

Information current at time of release.

Fill out and mail in game Registration card. Be sure to include the game serial number. For your records, write the PIC and game serial numbers in manual.

PIC Number _____ Serial Number _____

Williams Electronics Games, Inc. reserves the rights to make modifications and improvements to its products. The specifications and parts identified in this manual are subject to change without notice.

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JUNK YARD...THE STORY

By Dwight Sullivan

"Nice Doggie!", I exclaimed. Where did this ugly dog come from? I was only looking at a beat up old toaster and the next thing I knew a mouth full of ivory spikes was chomping on my heels as I fled for my life.

"GRRRRFFFFFF GRFF GRFFFFFF!" Snarled Spike.

"Maybe I have a Milkbone," it was lie. I rounded the corner and dashed through a large sliding gate. Spike was still coming attitude and all. Dropping the toaster, I hurried to slide the gate shut as spikes' shadow grew all around me. CLANG! The gate closed and Spike was unable to stop in time.

Then I got a bad feeling as I heard a laughter all around me echoing. "Your trapped in my junkyard HA HA HA HA HA" that must be CRAZY BOB I thought. I am going to have to build some kind of flying jalopy to get out of here.

The growls and snarls of Spike grew faint as I wandered deeper into the canyons of junk. I stumbled across a functional television set. Now if I only had a weather vane I could create a radar device. I looked up and there was a weather vane sticking out of a telephone pole. Climbing on top of a stack of cars, I retrieved the weather vane. Using some extra wiring, I integrated the weather vane to the TV creating a radar device. It was time to test the device. I flipped through the channels on the TV. My choices were Christmas trees, time machines, fireworks, hot babes, junk, and Mean Dogs. I chose fireworks. Then I adjusted the tuner and bingo. The display showed me where and how close the fireworks were.

Just then I saw a hair dryer buried under some bicycle tires. I combined the hair dryer and the toaster creating a kind of toaster gun. Holding the gun I felt the urge to say 'feeling lucky PUNK!', but I resisted.

With new found confidence I made my way deeper into the labyrinth. I had a growing sensation. The sensation of being watched. Turning the corner I saw them. Down the alley, under a street lamp, hundreds, no thousands of rats were bubbling out of crates of fireworks. A sudden urge of stupidity swelled within me. I charged down the alley screaming at the top of my lungs and toaster gun blazing. As I reached the crates, I wasn't sure if it was toast or dead rats crunching under my shoes. I had a feeling that I would need these fireworks sooner or later.

I heard the distinct sound of water running. Climbing over stacks of tires I hid in the shadows and watched. A bare outstretched foot and a wet leg glistened in the moon light. She was taking a bath! I started to forget my surroundings when I heard a familiar yet loathing sound.

"GRRRRFFFFFF GRFF GRFFFFFF!" Spike had a limited vocabulary. The bathing beauty leapt from the water naked and suds flying. I took a firm grip of the toaster gun, and a smile took control of my face.

"Somebody get this dog away from me!" She blurted. Leaping to my feet, I chased after them. FLANK FLANK FLANK, three pieces of toast whizzed past his head. I missed. I followed them to a small alcove. Locked in a figure eight, she was running for her life. I knew how she felt.

Crouching down I took aim. FLANK. Nervous, I shot too soon. The toast narrowly went between them. FLANK. This time I was successful! Spike, knocked down and away, the girl had time to escape. "Eat hot toast you scruffy old mutt!" I exclaimed victoriously.

That's when I had an idea. I tuned my radar device to the junk channel and calibrated it to search for a fan. I was lucky. There was a fan nearby. I tested the fan. I plugged the fan in and turned it on and the force blew me back against a wall of cars. The next thing I remembered was toast, dead rats, and small pieces of junk flying down the alley.

The bath tub still had her sweet smell. Digging the bike tires out I added them to the bath tub. I attached the fan to the rear. Using the fan as a means of locomotion and a rudder, I was soon tooling around the junk yard in my new jalopy.

I knew then that I would be able to collect all the junk I needed to finish this flying jalopy and go on many more adventures.

- J. W. O'Mally

JUNK YARD

RULES & SHOTMAPS

JUNK YARD RULES

RADAR ADVENTURE

- Build the RADAR to light the adventure.
 - Collect WEATHER VANE and TV to build the RADAR.
 - Shoot the SEWER when START ADVENTURE is lit.
 - During RADAR ADVENTURE, shoot flashing arrows to collect FIREWORKS.
 - Collect five FIREWORKS to finish.
-
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO).

THE GREAT JALOPY RACE

- Build the JALOPY to light the adventure.
 - Collect BATH TUB, FAN, and BICYCLE TIRES to build the JALOPY.
 - Shoot the SEWER when START ADVENTURE is lit.
 - During THE GREAT JALOPY RACE shoot all five flashing arrows to win.
-
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO).

THE GREAT TOILET ADVENTURE

- Shoot THE GREAT TOILET to build the JACKPOT at all times.
 - You need the SUBMERGER completed to light the adventure.
 - Build the JALOPY first.
 - Then collect FISH BOWL to complete SUBMERGER.
 - Shoot the SEWER when START ADVENTURE is lit.
 - All shots collect GREAT TOILET JACKPOT.
 - During THE GREAT TOILET ADVENTURE shoot SEWER and THE GREAT TOILET to collect FIREWORKS. Collect five to finish.
-
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect Fireworks at a cost of five pieces of TOAST (AMMO).

AIR TACTICAL COMBAT

- You need the FLYING JALOPY completed to light the adventure.
 - Build the JALOPY first.
 - Then collect PROPELLER to complete the FLYING JALOPY.
 - Shoot the SEWER when START ADVENTURE is lit.
 - Hit the WRECKING BALL five times to win.
-
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO).

OUTER SPACE

- After all other adventures are completed, and all JUNK is collected, OUTER SPACE will be lit. Shoot the SEWER when START ADVENTURE is lit.
- If 20 FIREWORKS were collected, the player will receive FIREWORKS bonus.
- OUTER SPACE is a four ball continuous MULTIBALL that lasts until all your FIREWORKS run out. Hit the TOASTER GUN target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO). Hit the CRANE to collect more FIREWORKS.
- Shoot flashing arrows before they can be re-lit.
- Complete all five to defeat CRAZY BOB.

RUN FROM SPIKE / SAVE THE GIRL

- Spell DOG to light the DOG video mode.
- Shoot ALLEY to play the video mode.
- RUN FROM SPIKE: Pound flipper buttons to escape from SPIKE.
- SAVE THE GIRL: Use flipper buttons to shoot TOAST at Spike. Hit SPIKE three times to win.
Note: Must have the TOASTER GUN to play SAVE THE GIRL.
Note: The initials hanging from SPIKE'S collar are that of the JUNK CHAMPION.

RECYCLE

- Complete the left three bank target to light the left RECYCLE outlane.
- Complete the right three bank target to light the right RECYCLE outlane.
- If the ball travels over the lit outlane, the player will get the ball back for another SKILL SHOT.

MULTIBALL

- Hit the WRECKING BALL to receive a MULTIBALL LETTER.
- Complete the left or right lower CAR three bank targets to receive a MULTIBALL LETTER.
- SNEAK IN: Shoot past the WRECKING BALL while the CRANE is down to receive three MULTIBALL LETTERS.
- Spell MULTIBALL to light MULTIBALL.
- Shoot the CRANE to start a three ball MULTIBALL.
- During MULTIBALL, shoot the CRANE to collect the JACKPOT.
- Shoot the CRANE while the WRECKING BALL is down to collect the SUPER JACKPOT.

CRANE HURRY UP/ CRANE MULTIBALL

- Complete both lower CAR three bank targets to light START HURRY UP return lanes. If the ball travels over either return lane the player will start CRANE HURRY UP.
- CRANE HURRY UP: Hit WRECKING BALL as quickly as possible to collect value and start CRANE MULTIBALL before value counts down.
- CRANE MULTIBALL: This is a two ball MULTIBALL.
- Hit any CAR target, upper or lower, to collect value.

WINDOW SHOPPING

- A feature of five awards in the backglass artwork that light up individually. The awards are:
 - Jackpot Is Lit*
 - Collect Three Fireworks*
 - Free Game*
 - Light Extra Ball*
 - Toxic Waste*
- Shoot THE GREAT TOILET, when lit, to start WINDOW SHOPPING.
- Use both flipper buttons to stop randomly moving light.

SKILL SHOT - SUPER SKILL SHOT

- Launch ball past spinner. Each rotation of spinner advances the highlighted award on the display. The player receives the last award highlighted. The possible awards are:
 - Super Skill Shot*
 - Light Time Machine*
 - Light Extra Ball*
 - Spot All Dog Letters*
 - Collect Junk*
 - Bonus Multiplier*
 - Points*
 - Fireworks*
 - Window Shopping*
- SUPER SKILL SHOT: Shoot SEWER repeatedly for increasing award values.

TIME MACHINE

- Shoot SEWER when TIME MACHINE is lit to start.
- TIME MACHINE starts one of four modes:
 - The Mamuska*
 - Move Your Car*
 - Saucer Attack Video Mode*
 - Knight Mission*

BUS RAMP

- The Bus Ramp gives three awards:
 - Bus Rides*
 - Magic Bus When Lit*
 - Collect Junk When Lit*
- BUS RIDES: Shoot the BUS ramp to increase BUS RIDES. Awards are given at thresholds. The awards are:
 - Light Collect Junk*
 - Light Magic Bus*
 - Light Window Shopping*
 - Light Extra Ball*
- MAGIC BUS: This is a random feature. One of several features are randomly chosen and awarded. The awards are:
 - Light Extra Ball*
 - Collect Junk*

MAGIC BUS CONTINUED:

Dog Video Mode
Multiball
Bonus Multiplier
Light Jackpot
Window Shopping
Light Time Machine
Light Recycle
Autofire
Big Points
All Of The Above (An Industry First)

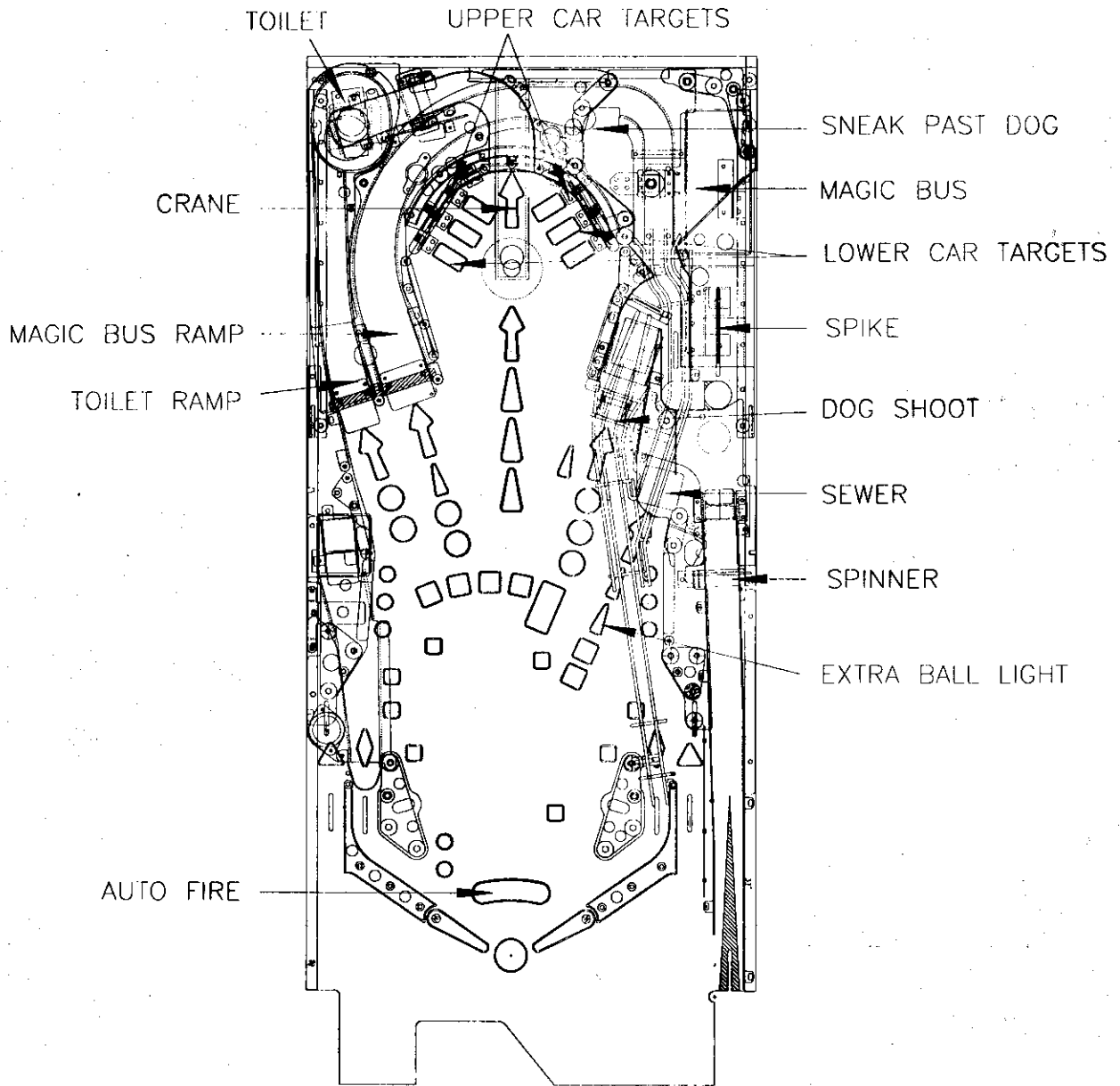
JUNK

- There are several ways to collect JUNK:
Skill Shot
Collect Junk From The Bus Ramp.
Choose Junk From The Great Toilet Ramp.
Dog Video Modes
Magic Bus
- Collect JUNK to light **EXTRA BALL.**
- JUNK CHAMPION: Collect all JUNK to be the JUNK CHAMPION.
- You need to collect all the JUNK to play OUTER SPACE.

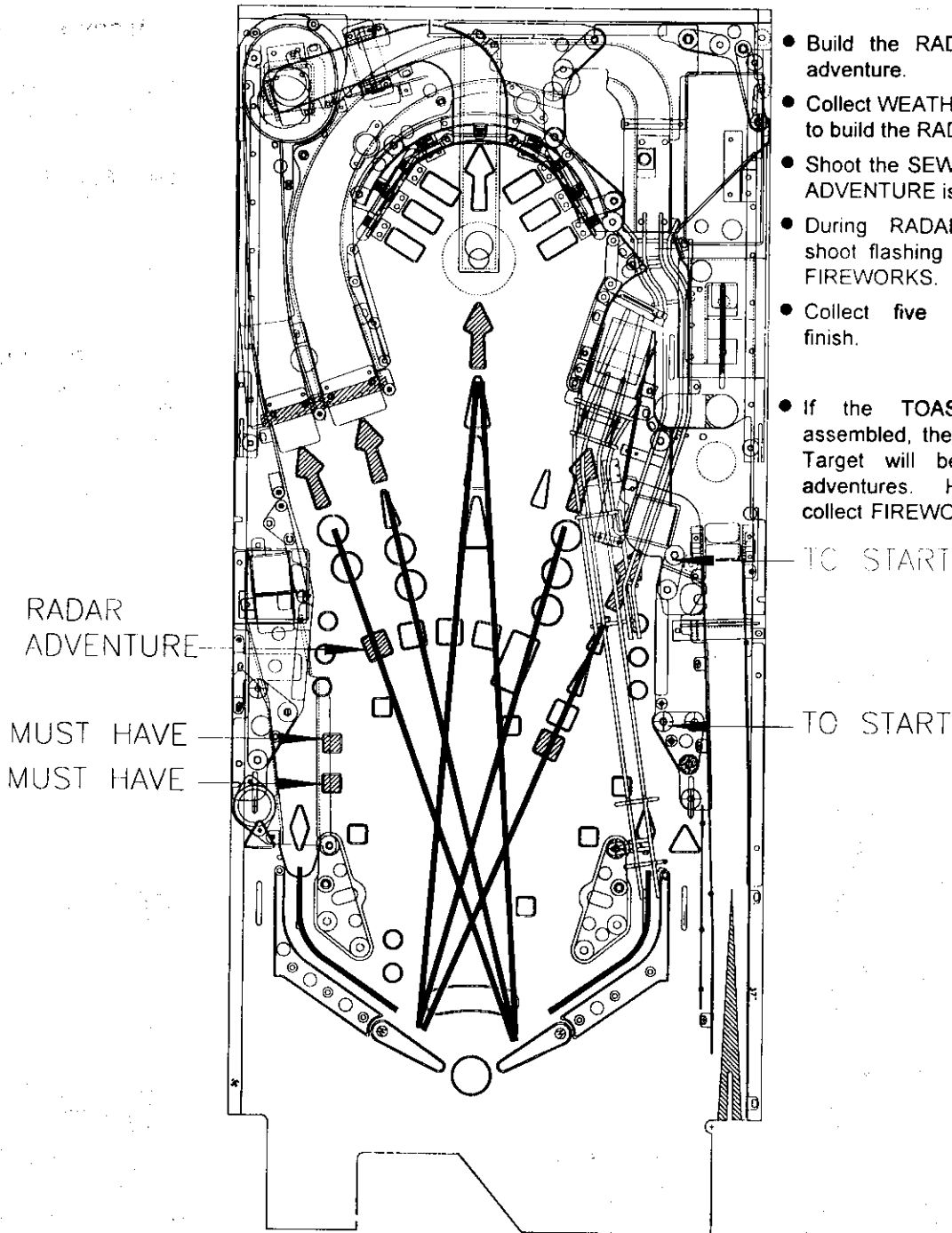
CHOOSE JUNK:

- Shoot THE GREAT TOILET, when lit, to start.
- Use the flippers to move the current JUNK selected.
- Press both flippers to choose the selected piece of JUNK.

PLAYFIELD SHOTS



RADAR ADVENTURE

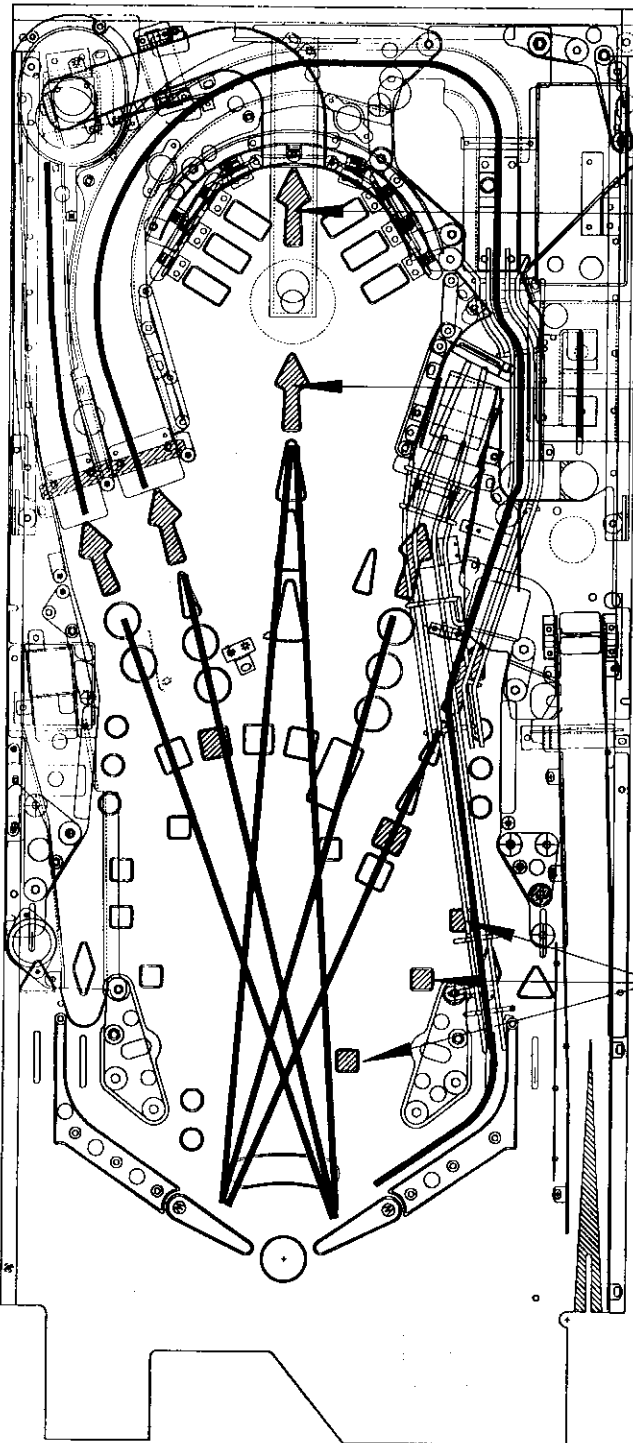


- Build the RADAR to light the adventure.
- Collect WEATHER VANE and TV to build the RADAR.
- Shoot the SEWER when START ADVENTURE is lit.
- During RADAR ADVENTURE, shoot flashing arrows to collect FIREWORKS.
- Collect five FIREWORKS to finish.
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of

TO START

TO START

THE GREAT JALOPY RACE



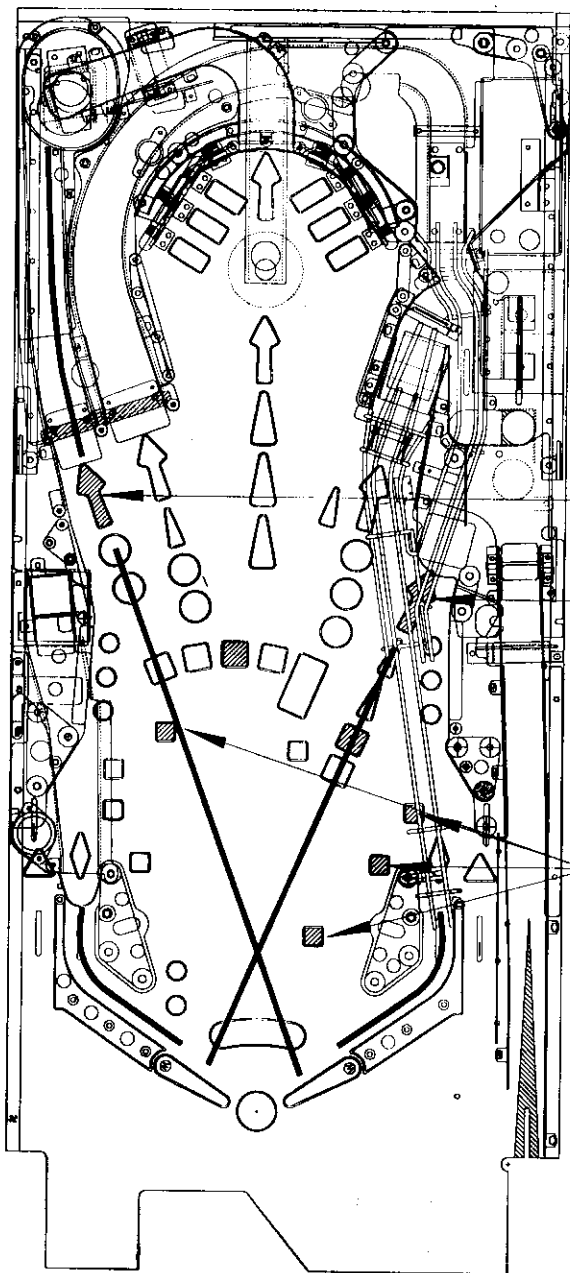
CRANE

WRECKING
BALL

MUST HAVE

- Build the JALOPY to light the adventure.
- Collect BATH TUB, FAN, and BICYCLE TIRES to build the JALOPY.
- Shoot the SEWER when START ADVENTURE is lit.
- During THE GREAT JALOPY RACE shoot all five flashing arrows to win.
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO).

THE GREAT TOILET ADVENTURE



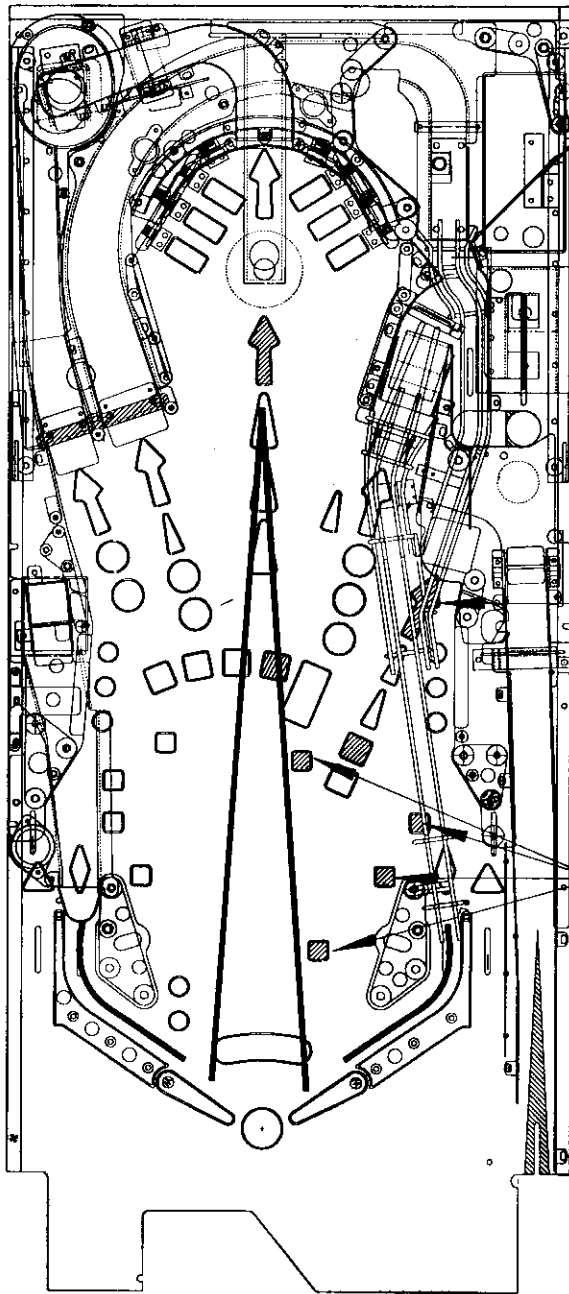
- Shoot THE GREAT TOILET to build the JACKPOT at all times.
- You need the SUBMERGER completed to light the adventure.
- Build the JALOPY first.
- Then collect FISH BOWL to complete SUBMERGER.
- Shoot the SEWER when START ADVENTURE is lit.
- All shots collect GREAT TOILET JACKPOT.
- During THE GREAT TOILET ADVENTURE shoot SEWER and THE GREAT TOILET to collect FIREWORKS. Collect five to finish.
- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect Fireworks at a cost of five pieces of TOAST (AMMO).

SCORES
FIREWORKS
STARTS
ADVENTURE
&
SCORES
FIREWORKS

MUST HAVE

ALL OTHER SHOTS
SCORE TOILET
JACKPOT.

AIR TACTICAL COMBAT



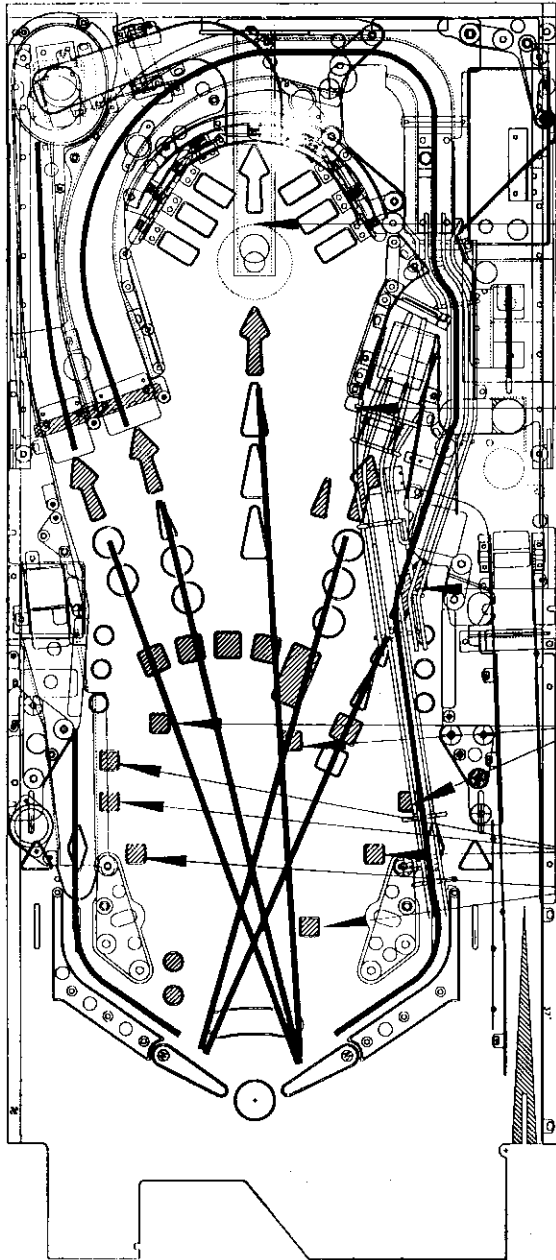
- You need the FLYING JALOPY completed to light the adventure.
- Build the JALOPY first.
- Then collect PROPELLER to complete the FLYING JALOPY.
- Shoot the SEWER when START ADVENTURE is lit.
- Hit the WRECKING BALL five times to win.

- If the TOASTER GUN is assembled, the TOASTER GUN Target will be lit during all adventures. Hit the target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO).

STARTS
ADVENTURE

MUST HAVE

OUTER SPACE



WRECKING
BALL

TOASTER
TARGET
GETS MORE
FIREWORKS

STARTS
ADVENTURE

MUST HAVE

MUST HAVE
MUST HAVE

- After all other adventures are completed, and all JUNK is collected, OUTER SPACE will be lit. Shoot the SEWER when START ADVENTURE is lit.

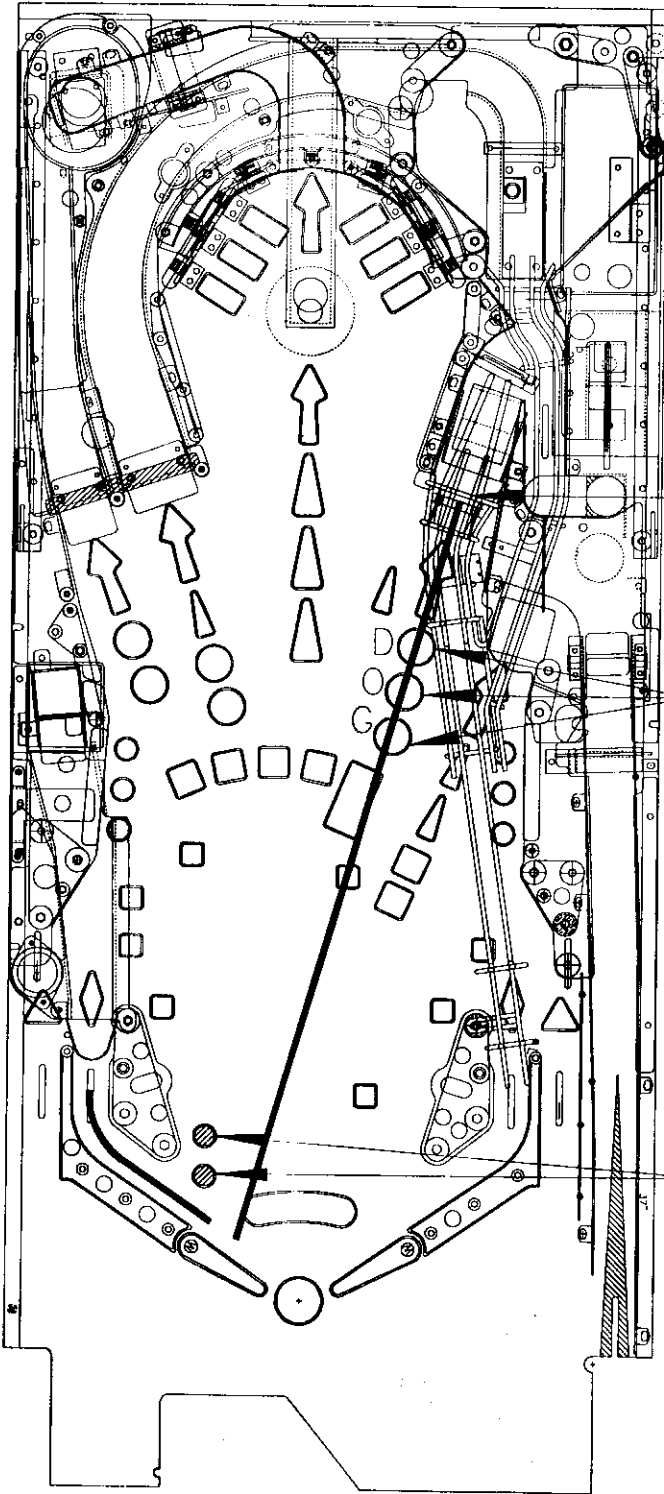
- If 20 FIREWORKS were collected, the player will receive FIREWORKS bonus.

- OUTER SPACE is a four ball continuous MULTIBALL that lasts until all your FIREWORKS run out. Hit the TOASTER GUN target to collect FIREWORKS at a cost of five pieces of TOAST (AMMO). Hit the CRANE to collect more FIREWORKS.

- Shoot flashing arrows before they can be re-lit.

- Complete all five to defeat CRAZY BOB.

RUN FROM SPIKE & SAVE THE GIRL



- Spell DOG to light the DOG video mode.
- Shoot ALLEY to play the video mode.

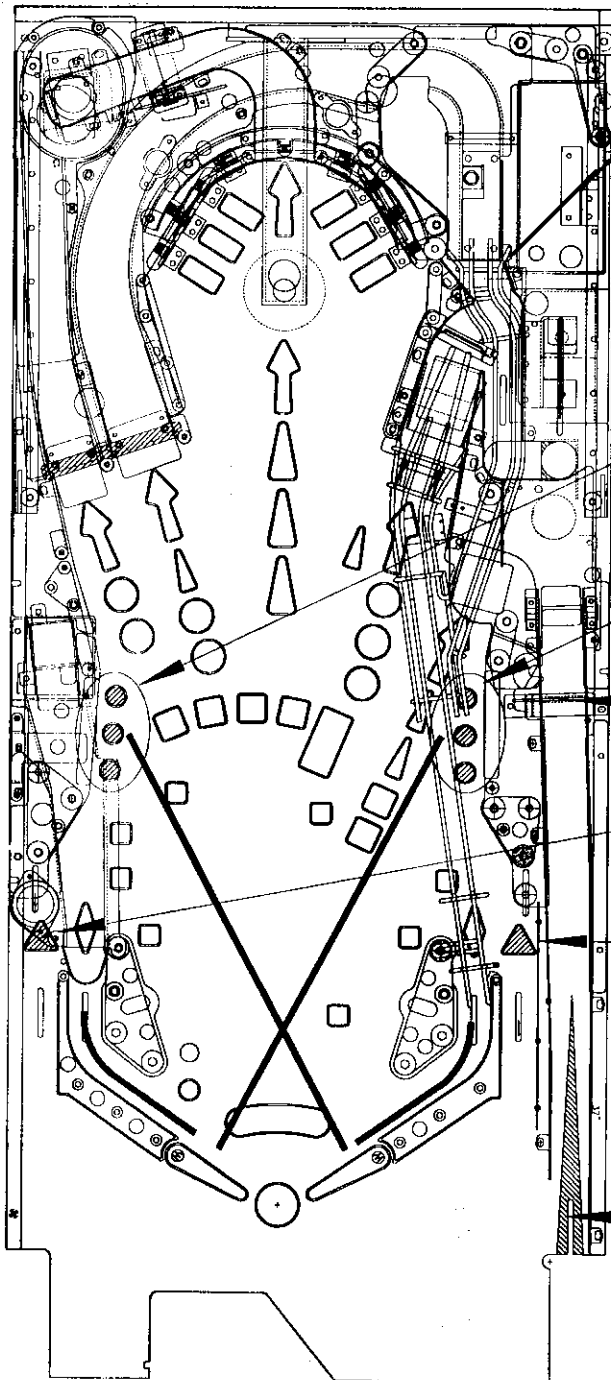
- RUN FROM SPIKE: Pound flipper buttons to escape from SPIKE.
- SAVE THE GIRL: Use flipper buttons to shoot TOAST at Spike. Hit SPIKE three times to win.
- **Note:** Must have the TOASTER GUN to play SAVE THE GIRL.
- **Note:** The initials hanging from SPIKE'S collar are that of the JUNK CHAMPION.

STARTS
VIDEO
MODE

MUST HAVE

NEED FOR
SAVE THE
GIRL

RECYCLE



- Complete the left three bank target to light the left RECYCLE outlane.
- Complete the right three bank target to light the right RECYCLE outlane.
- If the ball travels over the lit outlane, the player will get the ball back for another SKILL SHOT.

LEFT
RECYCLE
3-BANK

RIGHT
RECYCLE
3-BANK

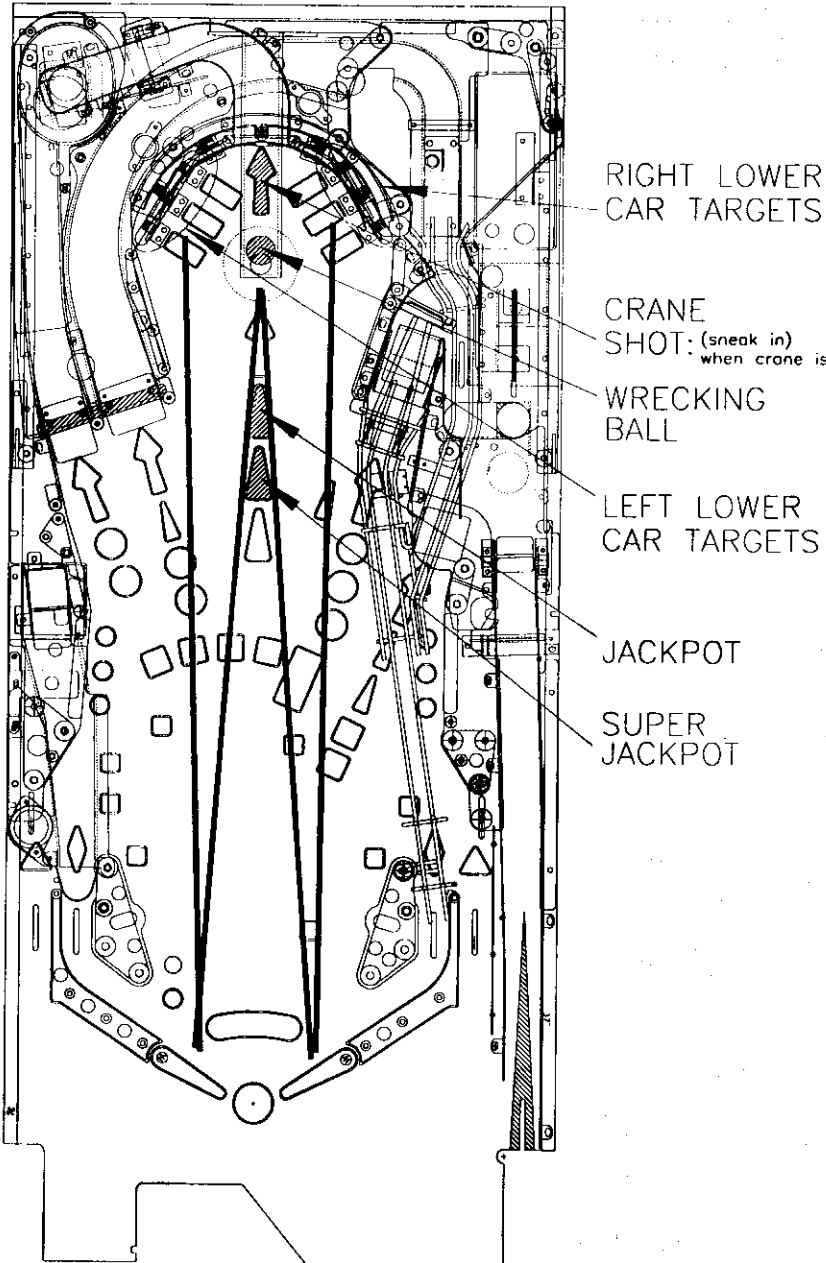
SPINNER

LEFT
RECYCLE
LANE

RIGHT
RECYCLE
LANE

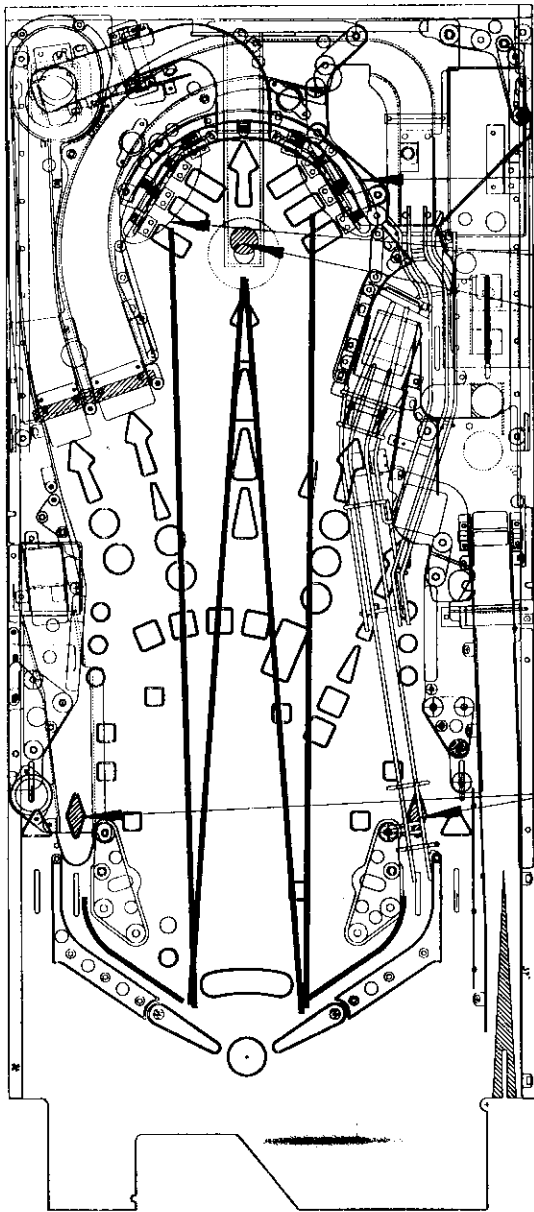
RELAUNCH

MULTIBALL



- Hit the WRECKING BALL to receive a MULTIBALL LETTER.
- Complete the left or right lower CAR three bank targets to receive a MULTIBALL LETTER.
- SNEAK IN: Shoot past the WRECKING BALL while the CRANE is down to receive three MULTIBALL LETTERS.
- Spell MULTIBALL to light MULTIBALL.
- Shoot the CRANE to start a three ball MULTIBALL.
- During MULTIBALL, shoot the CRANE to collect the JACKPOT.
- Shoot the CRANE while the WRECKING BALL is down to collect the SUPER JACKPOT.

CRANE HURRY-UP
CRANE MULTIBALL



RIGHT LOWER
CAR TARGETS

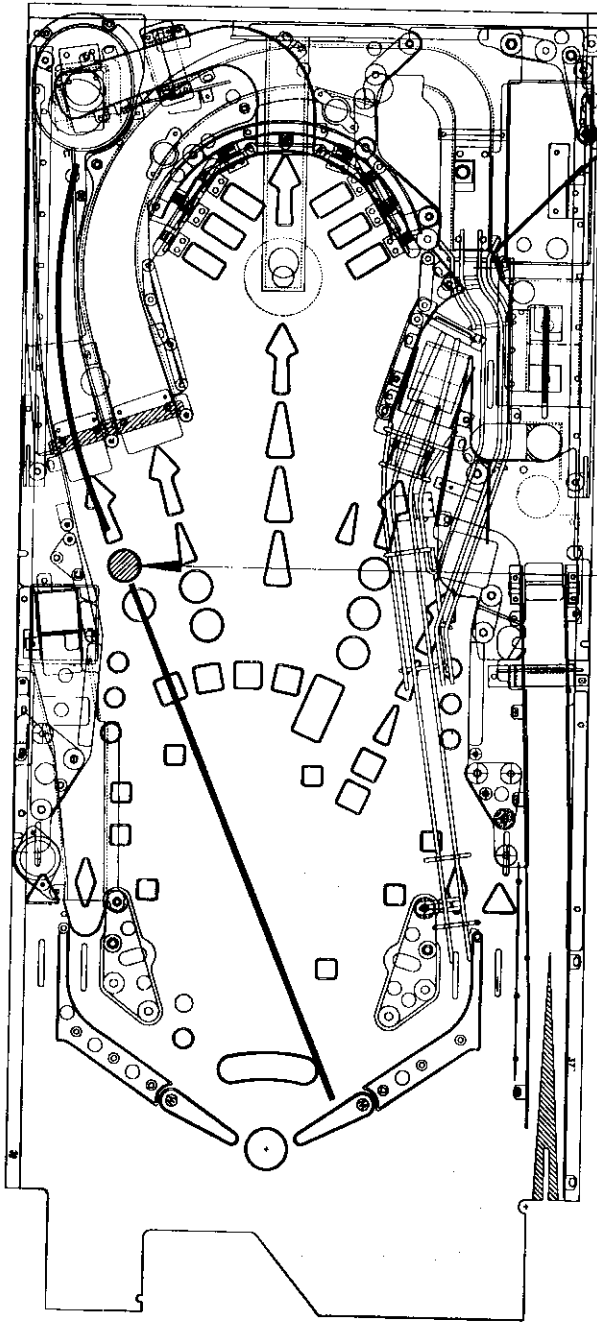
LEFT LOWER
CAR TARGETS

WRECKING
BALL

START
HURRY-UP

- Complete both lower CAR three bank targets to light START HURRY UP return lanes. If the ball travels over either return lane the player will start CRANE HURRY UP.
- CRANE HURRY UP: Hit WRECKING BALL as quickly as possible to collect value and start CRANE MULTIBALL before value counts down.
- CRANE MULTIBALL: This is a two ball MULTIBALL.
- Hit any CAR target, upper or lower, to collect value.

WINDOW SHOPPING

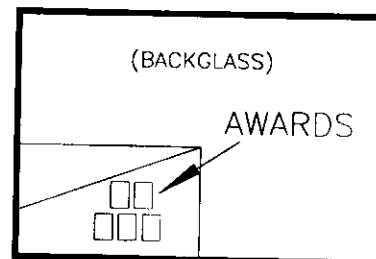


- A feature of five awards in the backglass artwork that light up individually. The awards are:

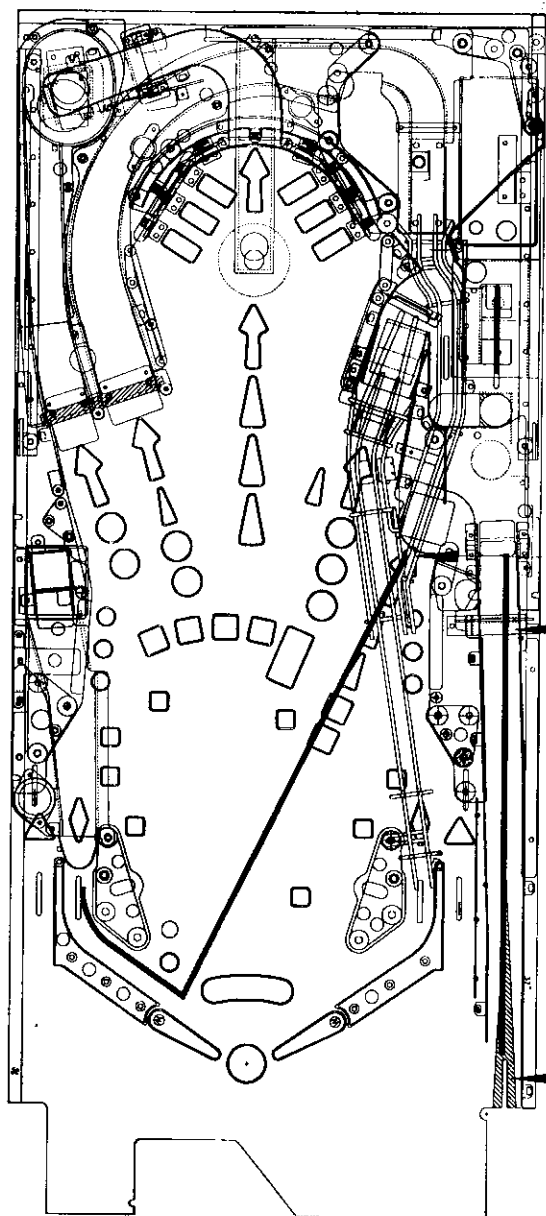
Jackpot Is Lit
Collect Three Fireworks
Free Game
Light Extra Ball
Toxic Waste

- Shoot THE GREAT TOILET, when lit, to start WINDOW SHOPPING.
- Use both flipper buttons to stop randomly moving light.

WINDOW
SHOPPING



SKILL SHOT & SUPER SKILL SHOT



- **Launch ball past spinner.** Each rotation of spinner advances the highlighted award on the display. The player receives the last award highlighted. The possible awards are:

Super Skill Shot
Light Time Machine
Light Extra Ball
Spot All Dog Letters
Collect Junk
Bonus Multiplier
Points
Fireworks
Window Shopping

- **SUPER SKILL SHOT:** Shoot SEWER repeatedly for increasing award values.

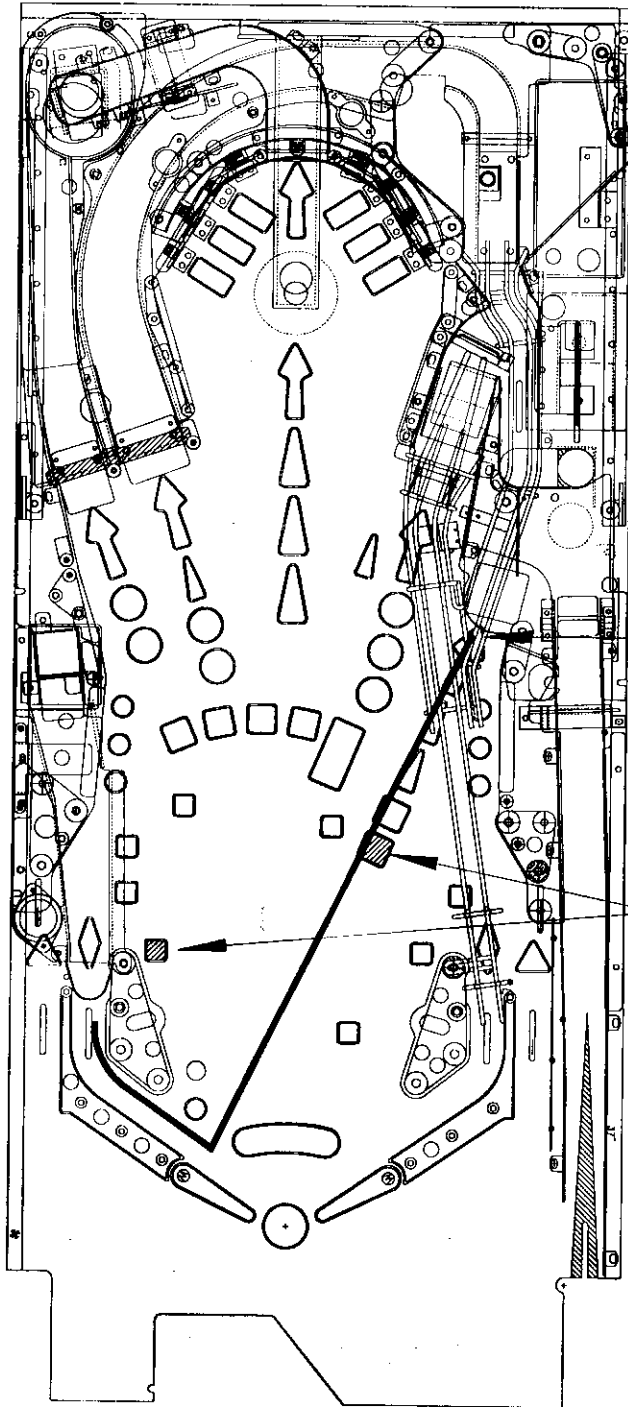
SUPER SKILL SHOT

SPINNER

(DISPLAY)	
0	CHOICE 1
0	CHOICE 2
0	CHOICE 3
0	CHOICE 4

LAUNCH BALL

TIME MACHINE

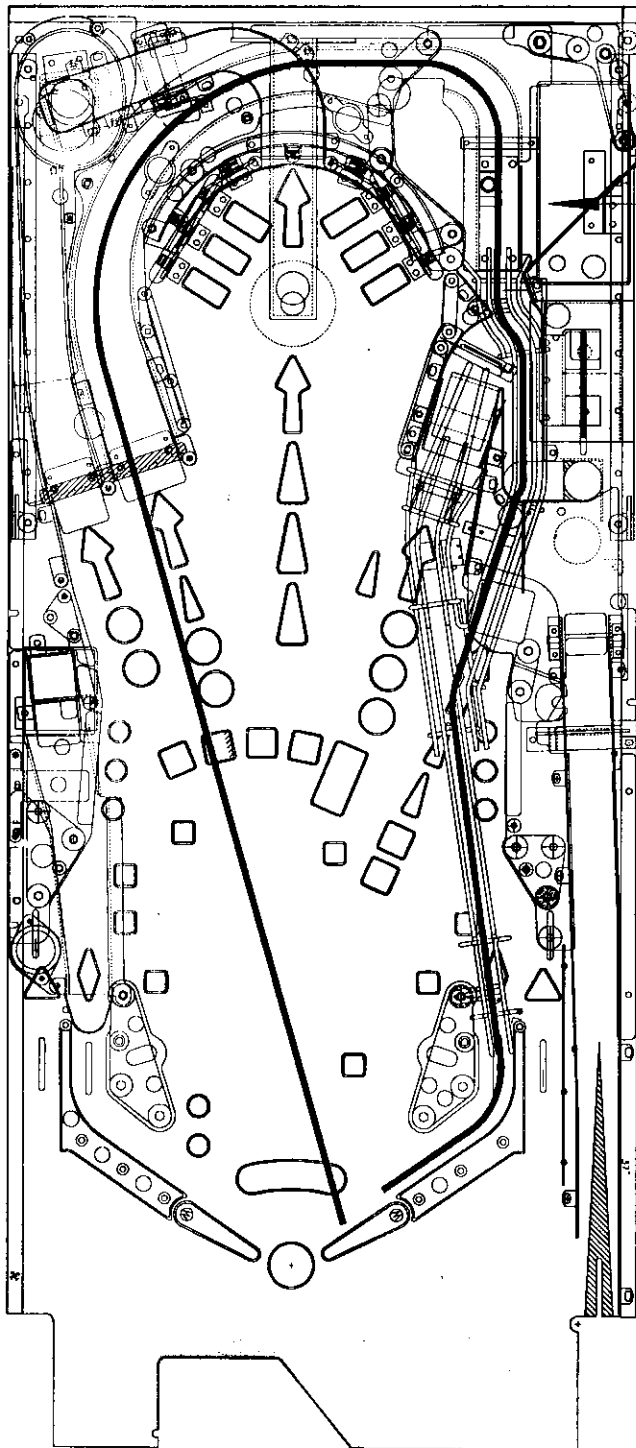


- Shoot SEWER when TIME MACHINE is lit to start.
- TIME MACHINE starts one of four modes:
 - The Mamuska*
 - Move Your Car*
 - Saucer Attack Video Mode*
 - Knight Mission*

STARTS
TIME
MACHINE

MUST
HAVE

BUS RAMP



MAGIC
BUS

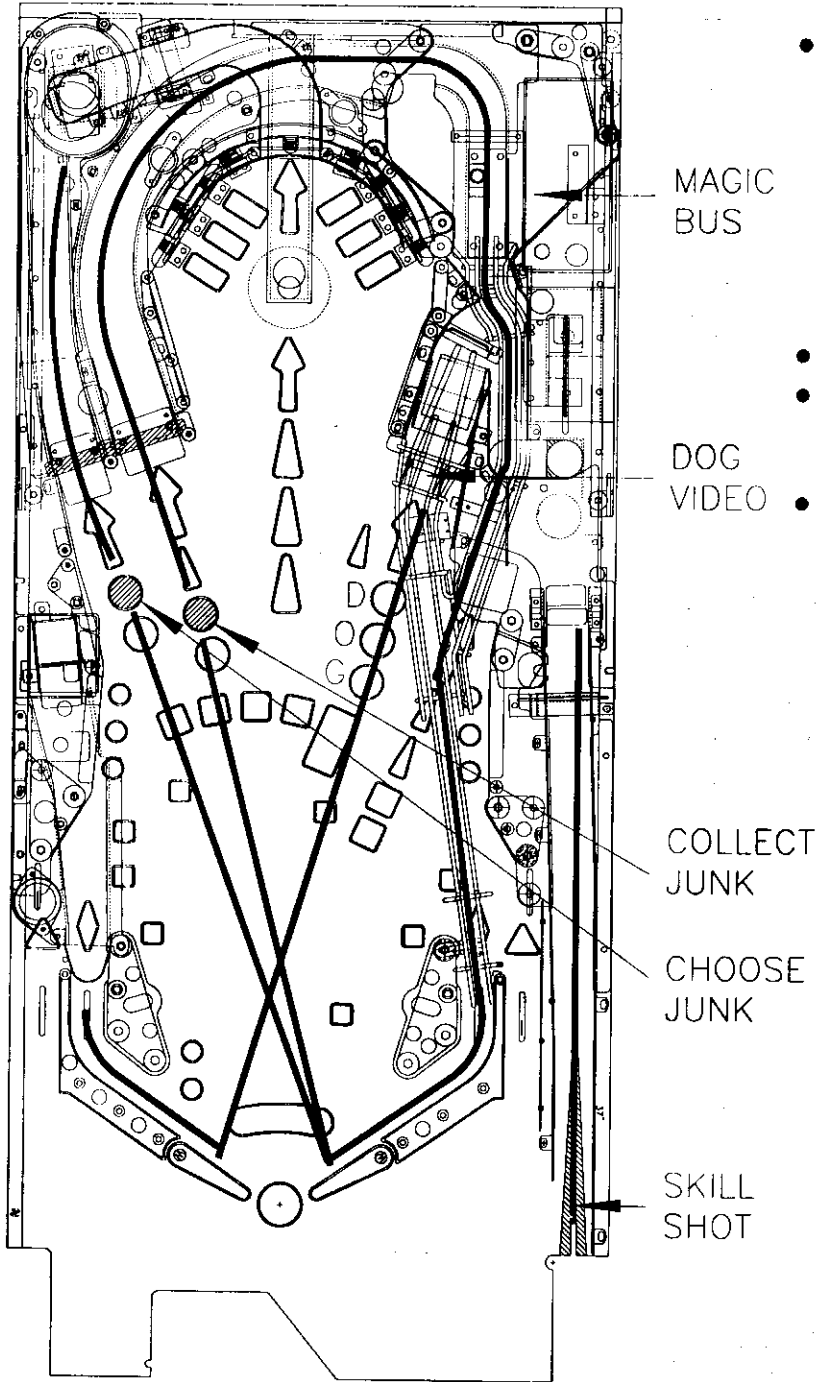
MAGIC BUS



DISPLAY

- **The Bus Ramp gives three awards:**
 - Bus Rides*
 - Magic Bus When Lit*
 - Collect Junk When Lit*
 - **BUS RIDES:** Shoot the BUS ramp to increase BUS RIDES. Awards are given at thresholds. The awards are:
 - Light Collect Junk*
 - Light Magic Bus*
 - Light Window Shopping*
 - Light Extra Ball*
 - **MAGIC BUS:** This is a random feature. One of several features are randomly chosen and awarded. The awards are:
 - Light Extra Ball*
 - Collect Junk*
- MAGIC BUS CONTINUED:**
- Dog Video Mode*
 - Multiball*
 - Bonus Multiplier*
 - Light Jackpot*
 - Window Shopping*
 - Light Time Machine*
 - Light Recycle*
 - Autofire*
 - Big Points*
 - All Of The Above (An Industry First)*

JUNK



- There are several ways to collect JUNK:
 - Skill Shot*
 - Collect Junk From The Bus Ramp.*
 - Choose Junk From The Great Toilet Ramp.*
 - Dog Video Modes*
 - Magic Bus*
- Collect JUNK to light EXTRA BALL.
- JUNK CHAMPION: Collect all JUNK to be the JUNK CHAMPION.
- You need to collect all the JUNK to play OUTER SPACE.

SECTION ONE

GAME OPERATION AND TEST INFORMATION

(System WPC) ROM SUMMARY

IC	TYPE	BOARD	LOCATION	PART NUMBER
Game 1	27c040	CPU	G11	A-5343-50052-1
Security Chip	PIC16C57	CPU	G10	A-5400-50052-1
Music/Speech	M27c801	Audio	SU2	A-5343-50052-S2
Music/Speech	M27c801	Audio	SU3	A-5343-50052-S3
Music/Speech	M27c801	Audio	SU4	A-5343-50052-S4

NOTICE

Order replacement ROMs from your authorized Williams Electronics Games, Inc. distributor. Specify: (1) part number (if available); (2) ROM level (number) on label; (3) game in which ROM is used.

PINBALL GAME ASSEMBLY INSTRUCTIONS

JUNK YARD IS A FOUR BALL GAME.

Power: Domestic 120V @ 60Hz
Foreign 230V @ 50Hz
Japan 100V @ 50HZ

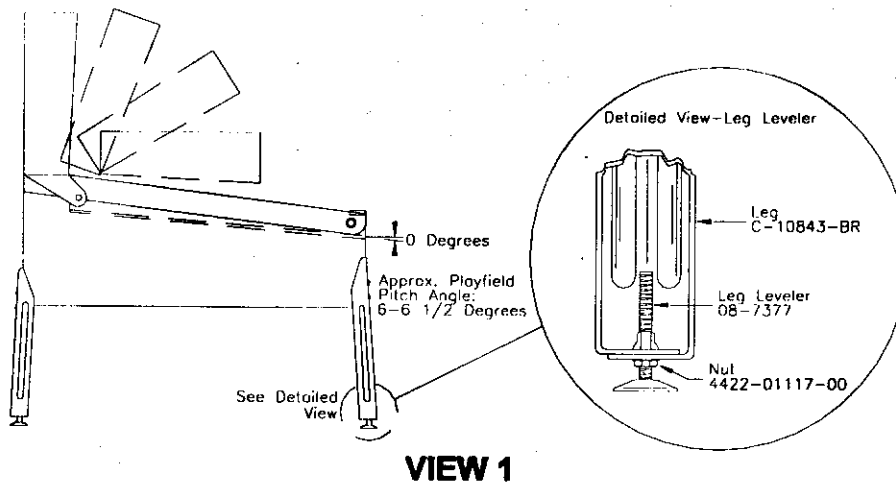
Temp: 32°F to 100° F, (0°C to 38°C)

Humidity: Not to exceed 95% relative.

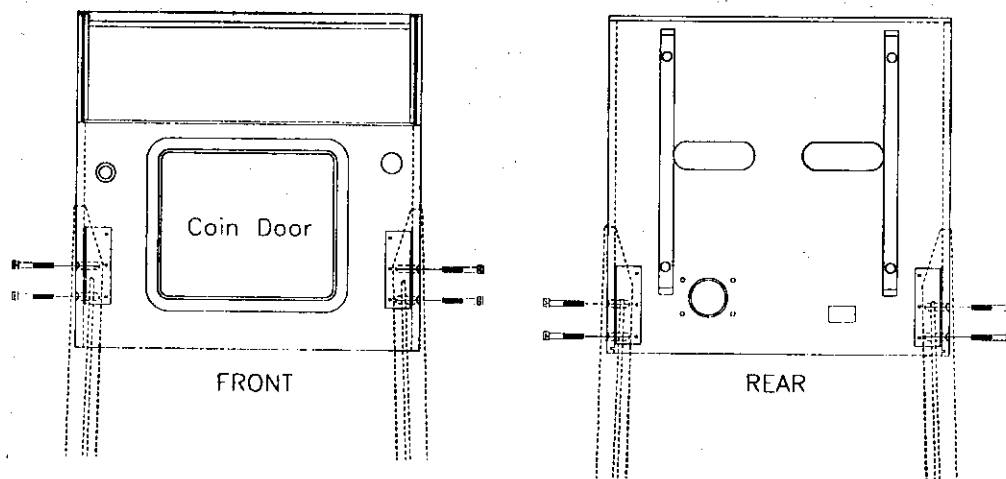
Dimensions: Width: 29" approx.
Depth: 52" approx.
Height: 75" approx.

Weight: 325 lb. approx. (crated)

1. Remove all cartons, parts, and other items from the shipping container and set them aside.
2. Leg levelers and leg bolts are among the parts in the cash box. Install leg levelers on the front and rear legs (View 1). Place cabinet on a support and attach rear legs using leg bolts (View 2).
3. Attach front legs using leg bolts (View 2).



VIEW 1



VIEW 2

4. Reach into the cabinet and backbox and ensure that the interconnecting cables are not kinked or pinched. Be careful to avoid damaging wires at any stage of the assembly process.

5. Raise the hinged backbox upright and latch it into position.

Note: The insert panel is no longer hinged to the backbox; it is attached to the backglass. The backglass and the insert panel are removed from the backbox housing as a single unit.

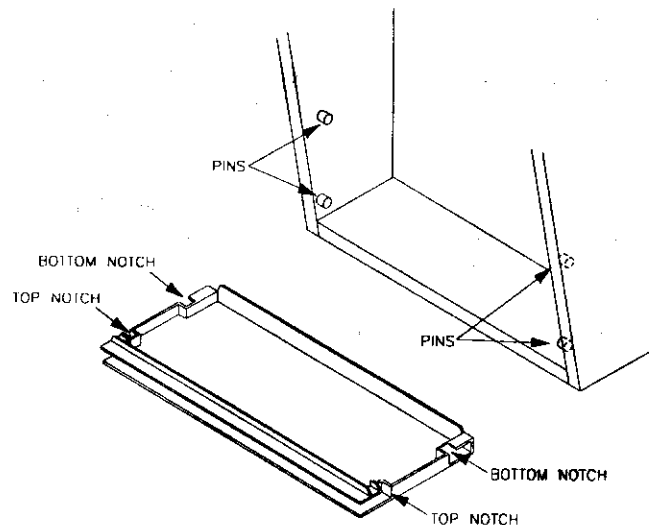
Unlock the backbox. Carefully, lift the backglass/insert panel from the bottom and slide it out of the backbox. Lay it down on the playfield glass. Unplug the cable extending from the backbox to the insert panel. Carefully, set the backglass/insert panel aside.

Note: The speaker panel uses a new hinging system. The bottom of the speaker panel remains attached to the backbox unit when released.

Carefully lift the speaker panel so that the top notches clear the top pins. Rotate it away from the backbox; toward the playfield glass. The speaker panel will remain attached to the backbox unit.

This allows access to the bolt holes for securing the backbox upright. Install the washer-head mounting bolts through the bottom holes of the backbox into the threaded fasteners in the cabinet to secure the backbox.

Note: You have the option of removing the speaker panel completely. Lay the speaker panel on the playfield glass. Unplug the display cable, speaker cable, and ground strap. Line up the bottom notches with the bottom backbox pins. Lower the speaker panel through the notches and slide it under the backbox pins.



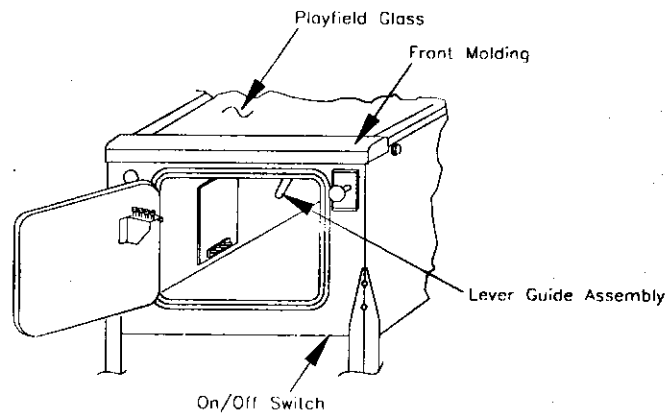
6. After the washer-head mounting bolts are installed, replace the speaker panel and the backglass/insert panel. Lock the backbox.

⚠ CAUTION

FAILURE TO INSTALL the backbox mounting hardware properly can cause personal injury. **NEVER TRANSPORT** a pinball game with the hinged backbox erect. Always lower the backbox forward onto the playfield cabinet on a layer of protective material to prevent marring or damage and possible personal injury.

7. Extend each leg leveler *slightly* below the leg bottom, so that all four foot pads are extended about the same distance. Remove the cabinet from its support and place it on the floor.

8. **Unlock and open the coin door.** Move the lever guide toward the left side of the game. Lift the front molding off the playfield glass. Return the lever guide to the right, and close the coin door. Carefully slide the glass downward, until it clears the grooves of the left and right side moldings. Lift the glass up and away from the game, storing it carefully to avoid breakage.



9. Place a level or an inclinometer on the playfield surface. Adjust the leg levelers for proper playfield level (side-to-side).

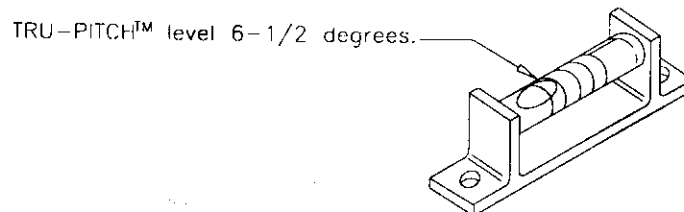
Note: This measurement must be made **ON the playfield**, not the cabinet nor the playfield cover glass. Tighten the nut on each leg leveler shaft to maintain this setting.

10. Remove the tie-wrap and foam packing from the Wrecking Ball Crane mechanism.

Note: ALWAYS replace the tie-wrap and foam packing from the Wrecking Ball Crane BEFORE moving the game to a new location. Failure to do so could result in damage to the mechanism and/or surrounding parts on the playfield.

If the wrecking ball touches the playfield, the mechanism needs to be adjusted. Loosen the two screws located at the back of the mechanism. Raise the crane arm so that the ball doesn't touch the playfield, but not so high that the crane arm can touch the playfield glass. Tighten the screws.

11. The TRU-PITCH™ level is located on the right shooter rail. This allows the playfield pitch angle to be properly adjusted WITHOUT REMOVING THE GLASS. The first line (closest to the front of the game) on the level is approximately 6 degrees. Every line thereafter is approximately another 1/2 degree of pitch. The recommended pitch is 6-1/2 degrees. The NOSE of the bubble should be between the first and second line on the level (see diagram below).



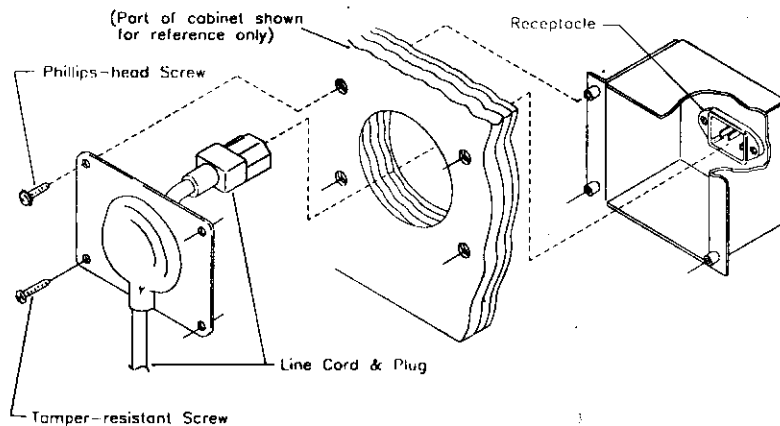
! IMPORTANT !

Playfield pitch angle can affect the operation of the plumb bob tilt. The plumb bob weight is among the parts in the cash box; the operator should install the weight and adjust this tilt mechanism for proper operation, after completion of the desired playfield pitch angle setting. The unit is factory installed for a 6-1/2 degree angle. If an adjustment is necessary, loosen the screw at the bottom of the unit. Move the pointer, one groove at a time to the left or the right, depending on the degree desired. Hold the pointer in place and tighten screw

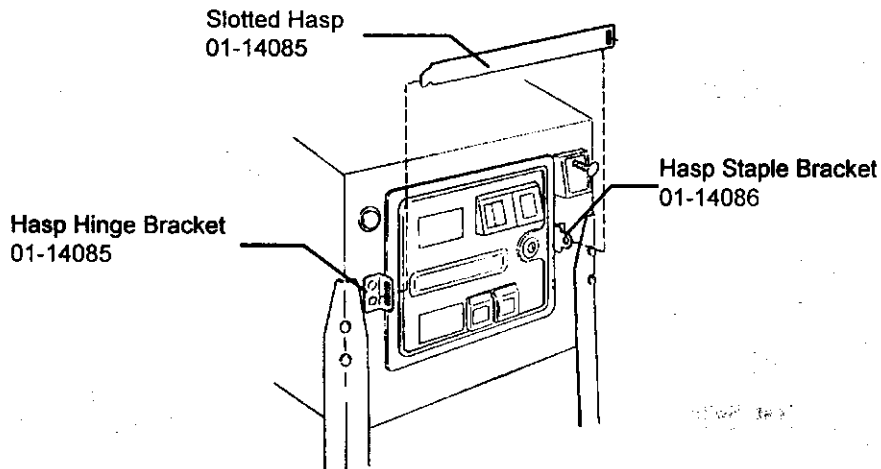
12. Be sure the **required number** of balls are installed. The **JUNK YARD** game uses **FOUR** balls.
13. Install full playfield mylar, if desired.

Note: The **JUNK YARD** playfield is coated with a special hardcoat surface and does not require a protective mylar. However, mylars can be purchased through your local Williams Distributor. Specify part number 03-9610-1 for full playfield mylar.

14. Clean and reinstall the playfield cover glass. Replace and lock the front molding.
15. To attach the line cord, remove the four Phillips-head screws that mount to line cord cover plate to the rear cabinet. Match the prongs on the plug with the holes in the receptacle, and push the line cord securely into place. Make sure the cord is aligned with the indentation on the cover plate (indentation should point toward bottom of the cabinet). Remount line cord cover plate. If desired, four tamper resistant screws have been provided, in the unique parts bag, to remount cover plate.



16. Move the game into the desired location, recheck the level and pitch angle of the playfield.
17. If a padlock is desired, install the security bar as shown below.



18. **IMPORTANT:** Fill out and return the registration card.

GAME CONTROL LOCATIONS

Cabinet Switches

The On-Off Switch is on the bottom of the cabinet near the right front leg.

The Start Button is a push-button to the left of the coin door on the cabinet exterior. Press the Start button to begin a game, or during the diagnostic mode, to ask for HELP.

Coin Door Buttons

The operator controls all game adjustments, obtains bookkeeping information, and diagnoses problems, using only four push-button switches mounted on the inside of the coin door. The coin door buttons have two modes of operation Normal Function and Test Function.

Normal Function

The Service Credits button puts credits on the game that are not included in any of the game audits.

The Volume Up (+) button raises the sound level of the game. Press and hold the button until the desired level is reached.

The Volume Down (-) button lowers the sound level of the game. Press and hold the button until the desired level is reached. See Adjustment A.1 28 to turn sound off completely.

The Begin Test button starts the Menu System operation and changes the coin door buttons from Normal Function to Test Function.

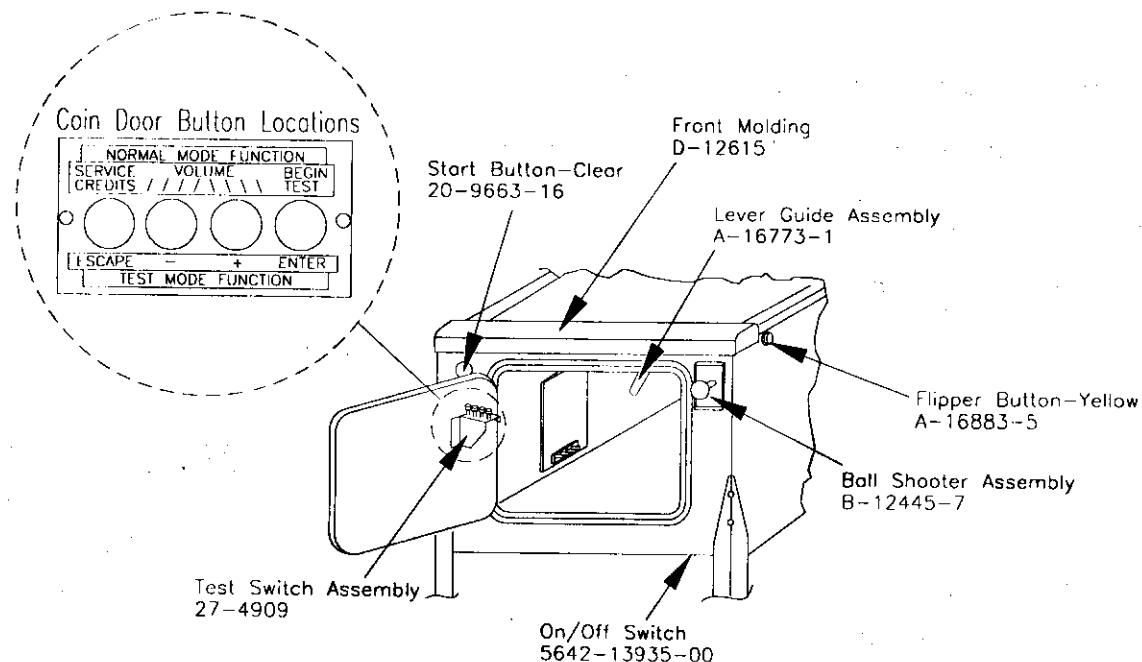
Test Function

The Escape button allows you to get out of a menu selection or return to the Attract mode.

The Up (+) button allows you to cycle forward through the menu selections or adjustment choices.

The Down (-) button allows you to cycle backward through the menu selections or adjustment choices.

The *Enter button allows you to get into a menu selection or lock in an adjustment choice.



***To reset High Score, hold down the Begin Test/Enter switch for five seconds while in the Attract mode.**

GAME OPERATION

CAUTION

After assembly and installation at its site location, this game must be plugged into a properly grounded outlet to prevent shock hazard, and to assure proper game operation. DO NOT use a 'cheater' plug to defeat the ground pin on the line cord. DO NOT cut off the ground pin.

POWERING UP. With the coin door closed, plug the game in, and switch it on. In normal operation, TESTING shows in the displays as the game performs Start-up tests. Once the Start-up tests have been successfully completed the last score is displayed and the game goes into the Attract mode.

Note: After the game has been on location for a time, the Start-up tests may contain messages concerning game problems. See 'Error Messages' for more detailed information regarding messages.

Open the coin door and press the Begin Test switch. The display shows the game name, number, and software revision. The message changes, and the display shows the sound software revision, the revision level of the system software, and the date the software was revised.

Example:

	JUNK YARD	Sound Rev. 1.0A
50052	Rev. 1.0A	SY. 0.X0
		XX-XX-97

Press the Enter button to enter the Menu System (refer to the section entitled "Menu System Operation" for more information). Perform the entire Test menu routine to verify that the game is operating satisfactorily.

Note: In order to operate the tests that use the +50V or +20V circuits, pull the top interlock switch button out. The interlock switches are located on a bracket in the coin door opening.

ATTRACT MODE*. After completing the Test menu routine, press the Escape button three times to enter the Attract mode. During the Attract mode, the display shows a series of messages informing the player of the recent highest *scores, "**custom messages", and the score to obtain a replay *award.

CREDIT POSTING. Insert coin(s). A sound is heard for each coin, and the display shows the number of credits purchased. So long as the number of maximum allowable credits* are NOT exceeded by coin purchase or high score, credits are posted correctly.

STARTING A GAME. Press the Start button. A startup sound plays, and the credit amount shown in the display decreases by one. The display flashes 00 (until the first playfield switch is actuated), and shows ball 1. If credits are posted, additional players may enter the game by pressing the Start button once for each player, before the end of play on the first ball.

TILTS. Actuating the cabinet tilt switch inside the cabinet ends the current game and proceeds to the Game Over mode. With the third closure* of the plumb bob tilt switch, the player loses the remaining play of that ball, but can complete the game.

END OF A GAME. All earned scores and bonuses are awarded. If a player's final score exceeds the specified value, the player receives a designated award for achieving the current highest score. A random digit set* appears in the display. Credits* may be awarded, when the last two digits of any player's score match the random digits. Match, high score, and game over sounds are made.

GAME OVER MODE. The Game Over display shows the high scores and the game proceeds to the Attract Mode.

* - Operator-adjustable feature

RAISING THE PLAYFIELD

CAUTION

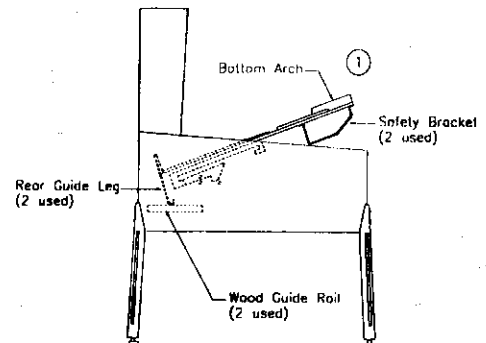
Do not raise the playfield straight up! This game uses a slide assembly to raise and lower the playfield.

Before Raising the Playfield:

Be sure there are no balls present in the ball trough or any of the other ball-holding playfield devices (i.e. poppers). Raising the playfield with balls present in these locations may cause them to come loose and damage the playfield. Use the "Empty Balls Test" to remove all of the balls from these locations.

To Raise the Playfield.

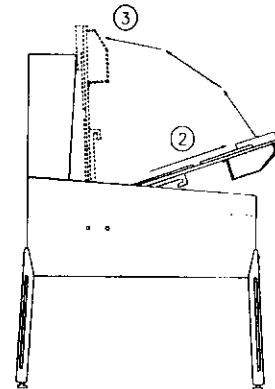
1. Grasp bottom arch and carefully lift up playfield only high enough to clear safety brackets. Rear guide legs should not hit wood guide rails, or be used to slide out playfield.



2. Pull the playfield out toward you until it stops (rest position), and raise it approximately 3".

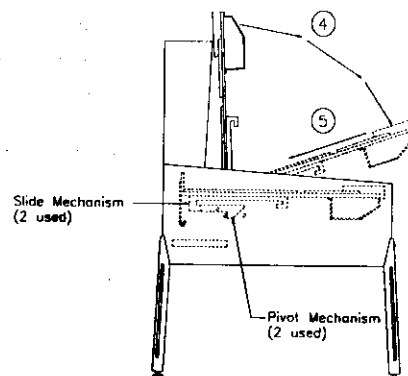
Be sure playfield is in locked position and does not slide back into cabinet. If it does, repeat Step 2 before proceeding to Step 3.

3. Rotate playfield to upright service position (lean on backbox) by pulling toward you and up. Listen for the sound of a click: this ensures locking and pivoting sequence.



To Lower the Playfield.

4. Rotate the playfield to the rest position. This unlocks the pivoting mechanism.
5. Push the playfield back into cabinet and into the playing position.



MENU SYSTEM OPERATION

The Main Menu allows you to choose from several options, which in turn lead to other menus to choose from. To access the Main Menu open the coin door, press the Begin Test button, then the Enter button. Press the Up and Down buttons to scroll through the Main Menu. To access a menu, (Bookkeeping, Printouts, etc.), from the Main Menu, press the Enter button. To return to the Main Menu (from Bookkeeping, Printouts, etc.) press the Escape button. Press the Start button for HELP.

MAIN MENU

B. BOOKKEEPING MENU

B.1 Main Audits	<u>Press Escape</u>
B.2 Earning Audits	To move out of a menu selection.
B.3 Standard Audits	
B.4 Feature Audits	<u>Press Enter</u>
B.5 Histograms	To get into a menu selection.
B.6 Time-Stamps	

P. PRINTOUTS MENU

P.1 Earnings Data	<u>Press Up</u>
P.2 Main Audits	Increases sequence; Example A.1, A.2, A.3, A.4.
P.3 Standard Audits	<u>Press Down</u>
P.4 Feature Audits	Decreases sequence; Example A.4, A.3, A.2, A.1.
P.5 Score Histograms	
P.6 Time Histograms	Use Up or Down to cycle through the
P.7 Time-Stamps	selections in a menu.
P.8 All Data	

T. TEST MENU

T.1 Switch Edges Test	Use Escape and Enter to move into and out of the
T.2 Switch Levels Test	selected menu.
T.3 Single Switches Test	
T.4 Solenoid Test	
T.5 Flasher Test	
T.6 General Illumination Test	
T.7 Sound and Music Test	
T.8 Single Lamp Test	
T.9 All Lamps Test	
T.10 Lamp and Flasher Test	
T.11 Display Test	
T.12 Flipper Coil Test	
T.13 Ordered Lamps Test	
T.14 Lamp Row-Col.	
T.15 DIP Switch Test	
T.16 Empty Balls Test	

U. UTILITIES MENU

U.1 Clear Audits
U.2 Clear Coins
U.3 Reset H.S.T.D.
U.4 Set Time and Date
U.5 Custom Message
U.6 Set Game I.D.
U.7 Factory Adjustments
U.8 Factory Resets
U.9 Presets
U.10 Clear Credits
U.11 Auto Burn-in

A. ADJUSTMENT MENU

A.1 Standard Adjustments
A.2 Feature Adjustments
A.3 Pricing Adjustments
A.4 H.S.T.D. Adjustments
A.5 Printer Adjustments

Press the Up or Down buttons to scroll through the Bookkeeping menu. Press the Enter button to access an audit menu. Press the Escape button to return to the Bookkeeping Menu.

B. BOOKKEEPING MENU

- B.1 Main Audits
- B.2 Earning Audits
- B.3 Standard Audits
- B.4 Feature Audits
- B.5 Histograms
- B.6 Time-Stamps

One Button Audit System. The Bookkeeping Menu is obtainable directly from the Attract Mode. Repeatedly pressing the Enter button, while in the Attract Mode, will cycle through all of the game audits.

B.1 Main Audits

B.1 01	Total Earnings	00	B.1 06	Total Plays	00
B.1 02	Recent Earnings	00	B.1 07	Replay Awards	00
B.1 03	Free Play Percent	00	B.1 08	Percent Replays	00
B.1 04	Average Ball Time	00	B.1 09	Extra Balls	00
B.1 05	Time Per Credit	00	B.1 10	Percent Extra Ball	00

B.2 Earning Audits

B.2 01	Recent Earnings	00	B.2 08	Total Earnings*	00
B.2 02	Recent Left Slot	00	B.2 09	Total Left Slot*	00
B.2 03	Recent Center Slot	00	B.2 10	Total Center Slot*	00
B.2 04	Recent Right Slot	00	B.2 11	Total Right Slot*	00
B.2 05	Recent 4th Slot	00	B.2 12	Total 4th Slot*	00
B.2 06	Recent Paid Credits	00	B.2 13	Total Paid Credits*	00
B.2 07	Recent Service Credits	00	B.2 14	Total Service Credits*	00

*These audits are NOT re-settable. They are a record of the earnings of the game since the "CLOCK 1ST SET" Time-stamp.

B.3 Standard Audits

B.3 01	Games Started	00	B.3 20	Average Game Time	00
B.3 02	Total Plays**	00	B.3 21	Play Time	00
B.3 03	Total Free Play	00	B.3 22	Minutes On	00
B.3 04	Free Play Percent	00	B.3 23	Balls Played	00
B.3 05	Replay Awards	00	B.3 24	Tilts	00
B.3 06	Percent Replays	00	B.3 25	Replay 1 Awards	00
B.3 07	Special Awards	00	B.3 26	Replay 2 Awards	00
B.3 08	Percent Special	00	B.3 27	Replay 3 Awards	00
B.3 09	Match Awards	00	B.3 28	Replay 4 Awards	00
B.3 10	Percent Match	00	B.3 29	1 Player Games	00
B.3 11	H.S.T.D. Credits	00	B.3 30	2 Player Games	00
B.3 12	Percent H.S.T.D.	00	B.3 31	3 Player Games	00
B.3 13	Extra Ball	00	B.3 32	4 Player Games	00
B.3 14	Percent Extra Ball	00	B.3 33	H.S.T.D. Reset Count	00
B.3 15	Tickets Awarded	00	B.3 34	Burn-in Time†	00:00:00
B.3 16	Percent Tickets	00	B.3 35	1st Replay Level	00
B.3 17	Left Drains	00	B.3 36	Left Flipper	00
B.3 18	Right Drains	00	B.3 37	Right Flipper	00
B.3 19	Average Ball Time	00			

**"Total Plays" only counts on completed games. A game is considered complete when the final ball begins. Audit information from incomplete games is ignored. Operation for test and service do not affect audits.

†This Audit cannot be reset.

B.4 Feature Audits

B.4 01	Buy-in Extra Balls	Number of games that use buy-in.
B.4 02	Time Per Credit	This is the average time per game.
B.4 03	Ball Saves	Number of ball saves.
B.4 04	Total Lit Extra Balls	Total of extra balls lit.
B.4 05	Total Extra Balls	Total of extra balls collected.
B.4 06	Total Recycles	Total times the ball was recycled.
B.4 07	Total Lit Multiballs	Total times multiball was lit.
B.4 08	Total Multiballs	Total times multiball was started.
B.4 09	Total Jackpots	Total jackpots collected.
B.4 10	Total Super Jackpots	Total super jackpots collected.
B.4 11	Total Junk	Total junk collected.
B.4 12	Total Toaster Guns	Total toaster guns assembled.
B.4 13	Total Radar Assembled	Total radar assembled.
B.4 14	Total Radar Adventures	Total radar adventures started.
B.4 15	Total Jalopies	Total jalopies assembled.
B.4 16	Total Jalopy Adventures	Total jalopy races started.
B.4 17	Total Submergers	Total submergers assembled.
B.4 18	Total Toilet Adventures	Total toilet adventures started.
B.4 19	Total Flying Machines	Total flying machines assembled.
B.4 20	Total Combat Adventures	Total air tactical combats started.
B.4 21	Total All Junk	Total times all junk was collected.
B.4 22	Total Outer Space	Total outer space started.
B.4 23	Total Bob Defeated	Total outer space was completed.
B.4 24	Total Time Machines	Total time machine started.
B.4 25	Total Dog Modes	Total dog modes started.
B.4 26	Total Fireworks	Total fireworks collected.
B.4 27	Total Bonus X	Total bonus multipliers collected.
B.4 28	Total Choose Junk	Total choose junk started.
B.4 29	Bus Light Extra Ball	Number of Light Extra Ball bus awards.
B.4 30	Bus Collect Junk	Number of Collect Junk bus awards.
B.4 31	Bus Dog Video	Number of dog video mode bus awards.
B.4 32	Bus Multiball	Number of Multiball bus awards.
B.4 33	Bus Bonus X	Number of Bonus Multiplier bus awards.
B.4 34	Bus Light Jackpot	Number of Light Jackpot bus awards.
B.4 35	Bus Shopping	Number of Window Shopping bus awards.
B.4 36	Bus Light Time	Number of Light Time Machine bus awards.
B.4 37	Bus All Above	Number of all the above bus awards.
B.4 38	Bus Recycle Lit	Number of Recycle Lit bus awards.
B.4 39	Bus Autofire	Number of Autofire bus awards.
B.4 40	Bus Points	Number of points bus awards.
B.4 41	Skill Super	Number of super skill shots.
B.4 42	Skill Light Time	Number of Light Time Machine skill shots.
B.4 43	Skill Light Extra	Number of Light Extra Ball skill shots.
B.4 44	Skill Spot Dog	Number of Spot Dog skill shots.
B.4 45	Skill Award Junk	Number of Junk Awarded skill shots.
B.4 46	Skill Bonus X	Number of Bonus Multiplier skill shots.
B.4 47	Skill Points	Number of Skill Points skill shots.
B.4 48	Skill Windows	Number of Window Shopping skill shots.
B.4 49	Skill Fireworks	Number of Skill Shot fireworks awarded.
B.4 50	Window Toxic Waste	Number of Toxic Waste window awards.
B.4 51	Window Extra Ball	Number of Light Extra Ball window awards.

Features Audits Continued...

- B.4 52 Window Light Jackpot Number of Light Jackpot window awards.
- B.4 53 Window Free Game Number of Free Game window awards.
- B.4 54 Window Fireworks Number of Fireworks window awards.

B.5 Histograms

B.5 01	0.0 - 0.4 Million Scores	00	00%
B.5 02	0.5 - 0.9 Million Scores	00	00%
B.5 03	1.0 - 1.4 Million Scores	00	00%
B.5 04	1.5 - 1.9 Million Scores	00	00%
B.5 05	2.0 - 2.9 Million Scores	00	00%
B.5 06	3.0 - 3.9 Million Scores	00	00%
B.5 07	4.0 - 4.9 Million Scores	00	00%
B.5 08	5.0 - 5.9 Million Scores	00	00%
B.5 09	6.0 - 7.9 Million Scores	00	00%
B.5 10	8.0 - 9.9 Million Scores	00	00%
B.5 11	10 - 15 Million Scores	00	00%
B.5 12	15 - 20 Million Scores	00	00%
B.5 13	Over 20 Million Score	00	00%
B.5 14	Game Time 0.0-1.0 Mins	00	00%
B.5 15	Game Time 1.0-1.5 Mins	00	00%
B.5 16	Game Time 1.5-2.0 Mins	00	00%
B.5 17	Game Time 2.0-2.5 Mins	00	00%
B.5 18	Game Time 2.5-3.0 Mins	00	00%
B.5 19	Game Time 3.0-3.5 Mins	00	00%
B.5 20	Game Time 3.5-4.0 Mins	00	00%
B.5 21	Game Time 4-5 Mins	00	00%
B.5 22	Game Time 5-6 Mins	00	00%
B.5 23	Game Time 6-8 Mins	00	00%
B.5 24	Game Time 8-10 Mins	00	00%
B.5 25	Game Time 10-15 Mins	00	00%
B.5 26	Game Time Over 15 Mins	00	00%

B.6 Time-Stamps

- B.6 01 Current Time
- B.6 02 Clock 1st Set
- B.6 03 Clock Last Set
- B.6 04 Audits Cleared
- B.6 05 Coins Cleared
- B.6 06 Factory Setting
- B.6 07 Last Game Start
- B.6 08 Last Replay
- B.6 09 Last H.S.T.D. Reset
- B.6 10 Champion Reset
- B.6 11 Last Printout
- B.6 12 Last Service Credit

Time-Stamps Menu allows you to view dates and times that are important to game software.

Press the Up or Down buttons to scroll through the Printouts menu. Press the Enter button to access a menu. Press the Escape button to return to the Printouts Menu.

P. PRINTOUTS MENU

(optional board required to use Printouts feature.)

- P.1 Earnings Data**
- P.2 Main Audits**
- P.3 Standard Audits**
- P.4 Feature Audits**
- P.5 Score Histograms**
- P.6 Time Histograms**
- P.7 Time-Stamps**
- P.8 All Data**

The Printouts Menu is a combination of the other menus. This menu allows you to access and print information in the available menu selections.

If no printer is attached the message "Waiting for Printer" appears in the displays. **Note: Set the print specification from the Adjustment Menu, A.5 Printer Adjustments.**

Press the Up or Down buttons to scroll through the Test menu. Press the Enter button to access a test. Press the Escape button to return to the Test menu. During any test, press the Start button to obtain the wire color, driver number, connector number and fuse location.

T. TEST MENU

T.1 Switch Edges Test	T.10 Lamps And Flasher Test
T.2 Switch Levels Test	T.11 Display Test
T.3 Single Switch Test	T.12 Flipper Coil Test
T.4 Solenoid Test	T.13 Ordered Lamps Test
T.5 Flasher Test	T.14 Lamp Row-Col.
T.6 General Illumination Test	T.15 DIP Switch Test
T.7 Sound & Music Test	T.16 Empty Balls Test
T.8 Single Lamps Test	
T.9 All Lamps Test	

Note: In order to operate the tests that use the +50V or +20V circuits, pull the top interlock switch button out. The interlock switches are located on a bracket in the coin door opening.

The switch matrix, on the left side of the display, shows the state of all switches. A dot indicates the switch is open, a square indicates the switch is closed. The numbers assigned to each switch indicate where the switch is located in the matrix. The number on the left indicates the column, the number on the right indicates the row. Example - Switch 23 is 2nd column, 3rd row.

A short to ground - on either the row or column wire - appears as a shorted row(s). However, a column wire shorted to ground disappears when all of the indicated row switches are open. A row wire shorted to ground does not disappear.

A shorted diode in the switch matrix **can cause other switches to appear closed**. These "phantom" switches (though not actually closed), complete a rectangle in the switch matrix. Therefore, if two switches in the same column are closed (example; #22 and #24), and a third switch is pressed in another column but in the same row as one of the first two (example; #32), the "phantom" switch #34 is falsely indicated as closed. The switch with the shorted diode is diagonally opposite the "phantom" switch (in this case #22).

T.1 Switch Edges Test

Press each switch one at a time. The name and number of the switch is shown in the display. If a switch other than the one pressed, or no switch at all is indicated, the system has detected a problem with the switch circuit.

To return the Test menu, press the Escape button.

T.2 Switch Levels Test

This test automatically cycles through all switches that are detected closed. The name and number of each switch that is detected is shown in the display. A filled square indicates the switch's position in the matrix.

To return the Test menu, press the Escape button.

T.3 Single Switches Test

The Single Switch test isolates a particular switch by blocking signals from all other switches. Use the Up or Down buttons to select the switch to be tested.

To return the Test menu, press the Escape button.

T.4 Solenoid Test

The Solenoid test has three modes -- Repeat, Stop, and Run. Only one solenoid should pulse at a time. The system has detected a problem if more than one solenoid pulses, a solenoid comes on and stays on, or no solenoids pulse during the Repeat and Run modes.

Repeat: The Repeat mode pulses a single solenoid. Press the Enter button to start this test. The name of the first solenoid shows in the display and the corresponding coil pulses. Press the Up or Down buttons to cycle through the solenoids, one at a time. The same solenoid pulses until you press the Up or Down buttons to advance to the next one. To return the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Solenoid test. No solenoids should be active. To return the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the solenoids automatically. The display shows the name and number of the solenoid currently being pulsed. To return the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.5 Flasher Test

This tests the flashlamp part of the solenoid circuit. There are three modes -- Repeat, Stop, and Run. During this test the flashlamp circuit named in the display should blink. The system has detected a problem if more than one flashlamp circuit blinks, the lamps stays on, or no lamps blink during the Repeat and Run modes.

Repeat: The Repeat mode pulses a single flashlamp. Press the Enter button to start this test. The name and number of the first flashlamp is displayed and the corresponding bulb(s) blinks. The same bulb(s) blinks until you press the Up or Down buttons to advance to the next one. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Flasher test. There should not be any flashlamps lit during this mode. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the flashlamps automatically. The display shows the name and number of the flashlamp circuit currently being pulsed as the corresponding bulb(s) flashes. To return to the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.6 General Illumination Test

This test checks all of the General Illumination circuits. There are two modes of operation -- Stop and Run. **Note: G.I. strings four and five do not brighten and dim, they are always ON.**

Stop: The Stop mode allows you to cycle through the General Illumination test manually. Press the Up or Down buttons to advance through the test. All illumination is tested first, followed by an individual circuit test. The circuit name and number shows in the display while the corresponding bulbs light. If any other results occur the system has detected an error. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

General Illumination Test Continued...

Run: The Run mode cycles through the General Illumination test automatically. For each circuit shown in the display the corresponding bulbs should light. If any other results occur, the system has detected a problem. To return to the Test menu, press the Escape button. To return to the Stop mode, press the Enter button.

T.7 Sound and Music Test

The Sound and Music test checks the audio circuits. This test has three modes for testing the sound and music circuits -- Run, Repeat, and Stop.

Run: The Run mode steps through a sequence of sounds and music. Press the Up or Down buttons to advance to a particular sound or tune. A sound or tune should be heard for each name and number that appears in the display. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Repeat: The Repeat mode causes the program to stop and repeat a particular sound/tune. The same sound repeats continuously until you press the Up or Down buttons to advance to the next one. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode stops this test altogether. Nothing should be heard. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button. To return to the Run mode, press the Enter button.

T.8 Single Lamp Test

The number assigned to each lamp indicates the lamp's position in the matrix. The number on the left indicates the column. The number on the right indicates the row. Example - Lamp 23 means 2nd column, 3rd row.

The Single Lamp test checks each lamp circuit individually. Press the Up or Down buttons to scroll through this test. A lamp should light for each name and number that is displayed. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button.

T.9 All Lamps Test

This test causes all the controlled lamps to flash at the same time. Every controlled lamp should flash. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button.

T.10 Lamp and Flasher Test

This test causes all the flashlamps and the controlled lamps to flash at the same time. The controlled lamps blink, while the flashlamps cycle from highest to lowest. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button.

T.11 Display Test

This test automatically checks every dot in the Dot Matrix Display board. A series of patterns appear in sequence. Each pattern turns on and off a section of dots. Every dot on the matrix display should be turned on and off during this test. To return to the Test menu, press the Escape button.

T.12 Flipper Coil Test

The Flipper Coil test has three modes – Repeat, Stop, and Run. Only one flipper should pulse at a time. The system has detected a problem if more than one flipper pulses, a flipper comes on and stays on, or no flippers pulse during the Repeat and Run modes.

Repeat: The Repeat mode pulses a single flipper. Press the Enter button to begin the test. Press the Up or Down buttons to cycle through the flipper coils one at a time. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Stop: The Stop mode halts the Flipper Coil test. No coils should pulse while the test is stopped. To return to the Test menu, press the Escape button. To advance to the next test mode, press the Enter button.

Run: The Run mode cycles through the flippers automatically. The display shows the name and number of the flipper coil currently being pulsed. To return to the Test menu, press the Escape button. To return to the Repeat mode, press the Enter button.

T.13 Ordered Lamps Test

The number assigned to each lamp indicates the lamp's position in the matrix. The number on the left indicates the column. The number on the right indicates the row. Example - Lamp 23 means 2nd column, 3rd row.

This test checks each lamp circuit individually. Press the Up or Down buttons to cycle through the lamps. Lamps light in a clock-wise or counter clock-wise direction starting from the bottom of the playfield. The direction depends on which button, Up or Down, is pressed. For each name and number that is shown in the display, the corresponding lamp should light. Any other results indicates the system has detected a problem. To return to the Test menu, press the Escape button.

T.14 Lamp Row-Col.

This test allows individual rows and columns in the lamp matrix to be operated. This is useful for troubleshooting wiring and driver problems.

Press the Up and Down buttons to cycles through the different rows and columns.

To return to the Test menu, press the Escape button.

T.15 DIP Switch Test

This test is used to show the positions of the DIP switches on the CPU board (U27).

To return to the Test menu, press the Escape button.

T.16 Empty Balls Test

This test kicks out all balls loaded in the troughs, lockups, poppers, and kick-outs until no balls remain in those locations.

To return to the Test menu, press the Escape button.

Note: As the trough kicks the balls out, they may stack up in the shooter groove, which may require manual clearing in order to allow further balls to be kicked out.