

# **BMU's Pinball "EM-cyclopedia"**

## **A Player's Guide to Electro-Mechanical Pinball Machines**

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### **Author's Note**

Hi, I'm Bob Matthews, a.k.a. BobMathUse, a.k.a. BMU [machine high score initials]. I started playing pinball in the early 1970s. It was 10 cents a game, all EMs, and add-a-ball only - - replays were illegal where I lived in New York State. To make my dimes go the furthest, I had to strive for long games. This is some of my accumulated knowledge from the past 45 years. My ideas aren't always perfect, nor my execution of them, but they've worked pretty well for me. In some cases, expert players may have different opinions on choices of shots or flipper techniques to use than what I describe here. That's fine; if you find or hear of something better that works for you, use it! If you find the tips here help you, you're welcome, and spread the word. And if you want to pass this along to someone or somewhere else, go ahead as long as it's attributed to me.

My thanks to Levi Nayman for editorial help on this new version.

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## Overview

Electro-mechanical pinball machines, commonly called “E-M”s for short, are the older games which were made up until early 1978. About 90% of the ones you’ll see in tournaments or at shows were made by either Gottlieb, Williams or Bally. Most of those which are “tournament grade” in terms of design, maintainability and “skill” date from 1965 and later, skewing towards the latter years. All have mechanical scoring reels which rotate vertically to advance in value. Some have an indicator light to show when a player has “rolled over” the score, typically at a value of 100,000, but most have no indication when a player rolls the game a second time. Most EM games have manual coil plungers, but a few older ones automatically plunge the ball when you hit one of the flippers, usually the right one, similar to the autoplunger buttons on newer games like Attack From Mars. Older games may also have a push-up trough where the player must first push a lever on the right side of the machine cabinet to raise a ball into the plunger lane prior to pulling the plunger to serve the ball. These machines will show the balls yet to be plunged through a glass window in the lower front of the top of the game surface.

I will be using a fair amount of “pinballese” here. I also am omitting photos both to save space and because I do not possess photos of many of the games I’ve included. For both a good pinball glossary and useful photos of most machines, I recommend using the Internet Pinball Database [[ipdb.org](http://ipdb.org)]. I will include explanations of a few terms here when I think they may not be in ipdb or if I use them somewhat differently.

## Preview and Basic Principles

1. When in doubt, UTAD - - Up Top All Day. Shoot the ball up towards the top of the machine, through a spinner if possible, and better yet if that spinner is lit for its maximum value.
2. Nudging: unlike modern games, EMs have NO tilt warnings. You find out you shook it too hard when your ball, or the entire game, suddenly ends. Nudge, but don’t vigorously shake or slide the game. One-time bumps on the side or front of the game should suffice. On many games, a large fraction of your final score will come from end-of-ball bonuses. On such games, avoiding tilting is more important than you’re probably used to. On games where there is no end of ball bonus, desperation shoves are worth a try if it’s your last ball, or if the penalty is only the end of the ball currently in play [some games take the ball in play plus a second ball as a tilt penalty].
3. If there’s a “collect bonus” shot and your bonus is close to maximum, shoot it. There are some exceptions, but I’ll cover these game by game.
4. If there’s a “light double bonus” shot lit, shoot it.

5. Completing sets of things [targets of a given color or suit, lanes, saucers, etc.] is generally better than a random mix of each item.
6. If there's a "close flippers" shot [older EMs from the 1960's], shoot it.
7. If there's a shot or a nudge that gets the ball back to the plunger lane, do so.
8. When shooting for bumpers, whether normal or "mushroom" bumpers, try to make the hits grazing ones where the ball will continue upwards after hitting the bumper. [See El Toro, Fireball, Cosmos, etc.] A direct hit on the bottom of a bumper may cause the ball to be kicked out the center or side drain by the bumper.
9. Use "dead bounces" to pass the ball across to the other flipper and get to a cradle. A dead bounce is when you let a ball falling towards a flipper hit it *without* flipping so that the ball bounces off of it and across to the other side, where it will often roll up just past the other flipper. You can then raise the other flipper and get the ball to settle down onto that flipper to take a more controlled shot. Most older games have relatively dead flipper rubber so that such bounces are unlikely to go up into the slingshots and out of control as if sometimes the case on modern games. But be careful – if the rubber is too dead, the ball may just die down the center.

## **Ball Control**

When you have the ball cradled on a flipper, you often can't transfer it to the other flipper using a post pass as you would on most recent machines. There may be no posts, or they may be too high up, or too close, or the flippers unsuited for making that move. Your two basic alternatives are tap passing [soft late flip] and alley passing a.k.a. Shatzing [an end-of-the-flipper shot into the opposite flipper lane]. Bally games are more likely to accommodate tap passes due to the flipper construction. Williams games more often can apply shatzing. Gottlieb games with full-size flippers often can't reliably handle either one safely, while Gottlieb games with mini-flippers can sometimes shatz.

Drop catching, live catching and especially dead bounces will be very useful, but beware the "dead catch" or "death bounce." Sometimes the flipper response will be so slow after a catch that the ball will roll off the end of it before you can flip. Or the flipper rubber will be so dead that the bounce off of it won't make it across to the opposite flipper, just die down the center. Watch and learn from the player ahead of you if you can.

**Micro-flipping.** On several games, the ball can come to rest between either the tips of the two flippers, when in a "closed flippers" position, or between a flipper and a center post. When you have a chance to let the ball do this, take it unless it's easier to get the ball directly to a flipper cradle. Once the ball is there, use tiny flips to nudge it to a spot where you can either cradle it on the opposite

flipper [Time Zone], or take a shot as it rolls up the other flipper if that's more advantageous [Fireball]. This is one skill or feature that's absent from modern games.

## **Shot Selection and Aiming**

Ever watch golf on TV? If so, you've probably heard an announcer talk about the "correct miss." This refers to when you take a shot that may not go exactly where you want it to, what happens when you miss by a modest but not severe amount? If you're nowhere close to target, e.g. 50+ feet off, you may be in a lot of trouble, but that's due to missing that badly, and you'll pay the price. But when you miss by 10-20 feet, i.e. you're reasonably close, can anything bad happen? If the hole is near the edge of the green and there's a sand trap next to that edge, you'll see pro golfers target a spot between the hole and the center of the green, rather than the hole itself, so that if they miss, they're not in the sand trap.

Pinball has similar situations. For instance, when shooting the ball up a side orbit to the top of the game, if you miss high, the ball may hit a post and rebound dangerously, while if you miss low, the ball may hit the side of the machine and go partway but not all the way up to the top. The basic strategy is that while trying to hit your exact target, time your shot to favor missing to the "safe" side. The better your aim is, the closer to dead center you should aim in general. [Exceptions are when you get a better rebound by hitting the edge of something.] The worse or less consistent your aim is, the more you need to consider which way to miss – right or left with bottom flippers, high or low with upper flippers. If one way is safer than the other, aim a shade to the safe side of center.

If you're shooting at a bank of targets, all of equal value, start nearer the middle if your aim is so-so; that way if you miss the center one, you'll likely still hit a target to the side of the center one. If your aim is better and some targets are "easier" to hit than others for whatever reason, try to start with the harder ones. Usually the hardest targets are the highest one [sometimes weak flippers strain to make it up there and only a perfect shot will do] or the lowest one [where a post or other feature may block the lower edge of the target].

**Flipper Choice.** Many shots can be hit with either flipper. There is usually a "better" flipper to choose for the shot, and it may not be the obvious choice. Novice players generally don't use "backhand" shots, and even middle-tier players don't use them as often as they should. When there is a choice, consider these things:

1. How easy to hit is the shot from each flipper?
2. Where does the rebound go from each?

3. Can I safely transfer the ball from one flipper to the other before choosing which flipper to use?
4. Is it better to shoot with the ball stopped on the flipper in a cradle position or with the ball moving down (or up) the flipper? [A moving ball has more energy and is often necessary to hit some shots]

Speaking of moving balls having more energy, there's a technique that's much more useful on EMs than on more recent machines, which I as a "flow" player use frequently. I call it a "flying backhand." This is when the ball is moving towards a flipper from the opposite side of the playfield and rather than try for a cradle, dead bounce, or normal forward flip, I wait until the ball is near the flipper surface and then try to flip it up and backwards. This can improve my chances for some shots, not so much when shooting at specific targets as when trying to go UTAD or to get the ball into a narrow chute. Another reason to use the flying backhand is sheer physics: the ball will have more energy and go higher up or hit harder than a shot from a cradle.

On modern games, the flying backhand tends to be less useful, since it's often hard to hit a ramp shot that way, and orbit shots tend to be aligned to be more makeable from the normal opposite-side flipper.

Example: RoGo. When trying UTAD, note that forehand shots, i.e. shots to the opposite side of the playfield, must negotiate a sharp angle to go through. A ball going up top from the same side as the flipper is on has a much more open entry to the gap. The catch is, you either can't flip the ball up that way from a cradled position on the flipper at all or else if you tried, it wouldn't go up as far as needed because the ball is standing still to start and flipper power is limited.

Spanish Eyes and Liberty Belle are a few other games where the flying backhand is useful.

## **Common EM Playfield Features**

EMs have fewer types of playfield features than later games; technology takes time. Here are the features you'll find most often:

1. Lane Sets

Often used to advance Bonus Multiplier [or light a lane to do so] or to increase the value of Drop Targets or other playfield features.

2. Drop Target Sets

On most EMs, there's no scoring advantage to hitting targets in any particular order. [Sample exception: Sinbad] That doesn't mean there's not a best order to hit them in, however! Some targets are more dangerous than others due to where

the rebounds tend to go. We'll deal with that by machine if needed. Otherwise, watch your rebounds and learn what's riskiest on your particular game. Avoid those targets if feasible, otherwise get them last.

Drop Target values may vary depending on what you've done before you hit them. Games where this is critical include:

Volley – targets are worth 1000 plus 1000 per completed lane up to 3; 4<sup>th</sup> lane resets lanes

Card Whiz -- targets are worth 1000 plus 1000 per completed lane up to 3

Jumping Jack - targets are worth 100 in bonus, 1000 if lit saucer collected

Several games have drop target-based end-of-ball bonuses. In some cases, complete sets matter [High Hand – 10 times the value for complete suits]. In other cases, they don't [El Dorado].

### 3. Spinners

Flaps that spin when the ball travels through them. When spinners are single-valued, they are usually not worth shooting. Most spinners, though, are dual-valued, e.g. 100 per spin unlit, 1000 when lit or 1K unlit and 10K lit. A few machines even have 3 or 4 spinner value levels. Somewhere on the game surface or instruction card will be text telling you how to light the spinners to their higher value. On some games, the spinners when lit are highly valuable compared to other features and are “safe” shots in that the ball goes up to the top of the game through them vs. a shot at a drop target where the rebound can drain. On these games, the optimal strategy often becomes “light spinner(s), then shoot spinners all day.” Grand Prix is one of the best-known examples of this.

### 4. Rollover Buttons

Less common, these can be asterisk-shaped disks with slightly raised centers [Jungle King], lozenge-shaped disks about 1/2 inch wide [Satin Doll], or small tabs 1/4" wide [Hang Glider]. They often advance your bonus or spot a number / card / letter.

### 5. Bumpers

Unlike most modern games, the scoring from bumpers can sometimes be a significant fraction of your game's total. Lighting bumpers to increase their value by a factor of 10 can be important. It's also not unusual to have some bumpers worth more than others in a game, e.g. some be 10 points when unlit and 100 lit, others 100 unlit and 1000 lit.

### 6. Waterfalls a.k.a. Plinko Lanes

Example games: 300, Atlantis, Centigrade 37 and Sing-Along. These are a series of lanes, usually two parallel sets on the right hand side set one below the other, typically 3 or 4 sets. There may be a gate below the bottom right lane. The ball can drain out the [right] side if it comes down the outer lowermost lane and there is no open gate protecting it.

## 7. Saucers

These come in two basic physical types: sharp-edged ones just slightly larger than the pinball [High Hand, Snow Derby], and shallow bowl-shaped ones [Little Chief]. Some just award points, although their value may change [Snow Derby again]. Others may cycle through different awards of either points, bonus advances, playfield features [open gate] or some combination thereof. Some may collect bonus. Note what it does when you see one; it may be the most important shot on the game. The bowl-shaped ones are more likely to have the ball rim out and not fall in; watch out for that. The sharp-edged ones have a smaller feed-in area but are more likely to actually catch a ball once it's there.

## 8. Ball Return Gates

A wire gate, usually at the lower right, where the ball will return to either the plunger lane or the flipper if the gate is open vs. draining out the side if the gate is closed. If the game has such a gate, you usually want to open it ASAP.

## 9. End of Ball Bonus

Many EMs are bonus-heavy, i.e. a large portion of your score will come from end-of-ball bonuses or from making a collect bonus shot. Always look to see what shots add bonus, what shots increase the bonus multiplier [if present], what shots light collect bonus [if present], and what shots collect bonus. EM games' bonus values are usually shown on the playfield surface through lights corresponding to the value earned so far. In some cases, you'll need to add the value of two light to get the total bonus, e.g. a game may have a bonus that maxes out at 29,000 and have a 20,000 light and a 9,000 light lit to indicate it; a 15,000 max indicated by a 10,000 light and a 5,000 light is another common combination. If you've earned double [or triple, etc.] bonus, a separate light [usually colored] on the playfield will show that.

### 9a. Collect Bonus / Hold Bonus

Some EMs have a "hold bonus" feature. Hold bonus means that whatever end of ball bonus you've earned is carried over to the next ball in play; normally, bonus resets to zero or a base amount like 1000 after each ball. If hold bonus is available, it's usually good to take it if a shot to score it presents itself.

Many EMs also have a “collect bonus” shot. This allows you to collect the end of ball bonus while the ball is still in play, in addition to receiving it at the end of the ball. On most machines, the bonus value will remain where it was after you make such a shot; on a handful of games, the bonus value is reset to the minimum amount after you make the shot. It is almost always good to shoot this shot, especially once the value is near maximum. I say “almost” because there is a notable exception to this. The exception occurs on games where the bonus resets \_and\_ you have the ability to double or triple the end of ball bonus. These games include Cherry Bell, Mars Trek, Monaco and Super Straight [all Sonic/Segasa machines]; I’ll deal with the situation in the individual discussions for those games.

## 10. Slingshots

Many EM games have relatively weak slingshots, mostly due to age. In machines where there are no return lanes, e.g. the bottom configuration is outlane-left sling-left flipper-center gap-right flipper-right sling-right outlane, you’ll often find the ball bouncing softly back and forth between the slingshots. Situations like this are where the “art of nudging” came to the forefront. Your goal in such situations is to nudge the machine (or not) when the ball hits the slings in order to get the ball to either settle gradually down to where it will be shootable with a flipper, or climb up and rise above the slings, but not go into either outlane. It’s kind of like riding a swing as a child - - you “pump” the swing / sling to rise up (\*or pull to drop down), but here, there’s a “no fly zone” at the top of the sling where the ball must not go lest it drain. If you’re in rising mode, once the last hit was just below the top of the sling, the next one needs to clear the outlane gap.

Examples: Drop-A-Card; Flip-A-Card; Fun Land

## 11. Roto Targets

These are spinning targets where there is usually a post, saucer or other feature between two gaps in front of a rotating disk. Two different shots can be made at any given time by hitting either of the exposed targets in the gaps. The disk is stationary when you are about to shoot at it - - it spins when the ball goes through an indicated lane or hits an indicated target. You may also collect the item indicated in one of the gaps by having the ball go through a lane, hit a target, land in a saucer elsewhere on the playfield, or drain in a linked outlane.

## 12. Random Value Features [Spinners / Targets / Saucers]

Do the math. If the values are 5, 50 or 500, treat it as worth 185, i.e. use the average value. Then prioritize your shots using that average value vs. the fixed-value shots.

Examples: Fun Land spinners; “300” and Soccer bonus-add saucers.

### 13. Vari-Targets

These are metal pads set in angled channels that you can push back via a flipper shot into the channel. The “vari” part comes from the fact that their value varies depending on how far back you push the pad - - further is more. The strength of the flippers, narrowness of the channel and stiffness of the target pad will all affect how easy it is to score on these.

Examples: Baseball; Orbit; Pro Football

## Game Condition

Well, it’s an EM, so it’s over 40 years old, maybe 50. Things wear out. Flippers, slingshots, bumpers, rubbers and other playfield parts don’t last forever. There’s a good chance that the machine won’t play quite as it was intended to when it was brand new. In fact, none of the machine operators I knew back in the 1970’s thought that many (if any!) of those machines would still be in use 10 years from then, let alone 40. No arcade I visited at the time had machines more than 5-10 years old in it even though pinball games had been around for a couple of decades. I don’t know what the intended useful life span of the games was at the time they were built, but I’m sure we’re long past it.

What things about a machine have changed with time and how will that affect how the game plays? Here are a few I see often:

#### 1. Weak flippers

This is the most common flaw - - flippers that have worn out. This can result in some shots being much harder to make, or more dangerous to take, than was intended when the game was built. Some of the shots you would normally take may be completely unhittable; others may be makeable, but only at much higher risk than as designed, e.g. more likely to miss and with a greater drain risk if you do miss or even if you hit the shot. If your flippers are weak, you may need to adjust your strategy to taking 2<sup>nd</sup>- or 3<sup>rd</sup>- best shots rather than the best ones if those are all you can make repeatedly. Your ability to transfer the ball between flippers may also be reduced.

#### 2. Cratered lights

Many games have little circles in the lower center area of the playfield where the amount of bonus you have earned thus far during your latest ball in play is displayed. Each plastic circular disk shows an amount, and there are lights underneath - - the amount you’ve earned will be indicated by the disc that is lit. [In some cases, more than one light may be on, in which case you add the values

for those disks to get your bonus total, e.g. the 20,000 light and the 7,000 light for 27,000 total.] Over the years, these discs tend to sink into the wood surface of the playfield, creating moon-like craters in the otherwise flat playfield surface. When the ball rolls over these, it will deflect along the curve. Unfortunately, many of these discs are directly above the gap between the flippers, and the way they deflect the ball can cause it to drain down the center when it would normally have rolled towards a flipper without the craters. This can be repaired, but it takes time and money to do so, and in many cases the owners will leave the game as is. There's not much you can do about it other than be alert for it and if it is present, do your best to deal with it by nudging.

This can also be a problem with the outlanes, where a similar disk above the outlane switch indicates its value. Originally, with that area flat, a ball heading into the outlane might have bounced off the side wall enough to come back to the adjacent return lane and roll down to your flipper. A cratered disk in an outlane will tend to "grab" the ball and keep it in the outlane far more often.

### **3. Non-registering switches**

Some playfield features may not register when the ball contacts them - - rollovers and targets may have reduced sensitivity and either not register at all or, more commonly, only register particularly strong hits to them. Again, not much you can do other than be aware of it and allow for it in your strategy. There's a related thing to watch for, slow switches. If you hit one target and the ball quickly rebounds into a second target, the machine may not score fast enough to register the second target value.

### **4. Wood wear**

After 40 years, the wood on the outlane side walls has sometimes lost its bounce and the ball may not ricochet into the return lane as often as when the game was new. Another item is that a groove often forms at the top arc of the game, which can make hitting top saucers harder, e.g. on Wizard - - the ball will follow the groove and tend to drop down along the sides at the top rather than more uniformly along the entire top arc.

### **5. Outlane pins and posts**

On a few games there are thin pins that can deflect a ball that might drain back into play. As the machine ages, these may get bent such that they do not deflect the ball back as often, or at all in extreme cases.

### **6. Weak or dead bumpers and slingshots**

A worn out old bumper or slingshot will not kick the ball as hard or as far as it was originally designed to. As a result, it may send the ball towards a drain or

some other undesirable place. One more thing to watch out for and try to avoid or nudge to mitigate. Note that in some instances, a weak bumper or slingshot may actually work in your favor by either slowing the ball down to make it easier to control or directing it to a safer location than it normally would.

What to do with such well-worn games? If the guidance given here isn't working, change tactics, technique or both. Keep in mind why I gave the guidance I did, though, e.g. if UTAD or the spinner or a certain drop target bank is where the points are, try to find an alternate way to get those points safely. If you can't do so safely, choose the next-most valuable objective to go for. Take what the machine gives you and make the most of it.

## **Nudging and "Key Feeds"**

Few if any shots will return to a flipper, unlike more recent games with ramps and orbits. Shots will bounce off of things or go through things. When they rebound or exit, it's important to learn where the ball goes and how much you can alter that. Some rebounds and exits are relatively consistent, some not. Rebounds will depend on speed and angle of hit and whether or not the thing hit hits back; exit paths may depend on how the ball entered the feature, how fast the ball comes through, and whether or not it hits any post, knob or other object at the exit.

A "key feed" is where the ball goes after you make an important shot that you'll be repeating often. [See El Dorado, Wizard, Card Whiz.] It's important to learn "feed nudging," particularly for key feeds. When the ball goes through a feed, you want it to come to where you can control it if possible, at a minimum prevent it from draining, and usually avoiding it heading into and triggering a slingshot or other playfield feature where it may bounce away randomly. The nudge-or-not decision may depend on how the ball entered the feature or its speed: On El Dorado, if the ball goes down the right side through the outer [right] lane, it will be moving faster and cleaner than if it goes through the left of the two right-side lanes. The faster feed may come out clean and travel to a flipper, while the slower feed may dribble out and hang up on top of the slingshot, where it can rattle off and drain out to the right. Also, timing may be critical, e.g. you may want to nudge just as the ball hits a post, the top of a slingshot, etc.

## **Machine Settings and Instruction Cards**

Settings matter even on EMs - - while new games have far more selectable options, older games had some, even if you had to physically move a switch rather than push buttons and use menus. It can be important to note how your

game is set. Some of these are obvious, for instance how many or which items of type A need to be scored to activate a change to how item type B scores.

Each game should have an “instruction card” visible under the glass at the bottom of the game near the flipper buttons. EMs had few enough “rules” that the some of the more important ones could be shown on a simple index card. Not all machines will have one, though, since they often got lost or damaged over the years. When they are present, they’ll give you partial guidance as to what to do, but are usually not as detailed as this guide nor do they indicate which of the several choices are the most valuable or the “safest.”

*The instruction card may not accurately reflect how that machine is set.* In many cases, the card will not be the original one, or it may reflect a different number of balls, for instance showing the rules that apply to a 5-ball game vs. a slightly different set of rules that apply to a 3-ball game. The card may be the rules for the “other” of the free-game or the add-a-ball version of the machine. The machine owner and or tournament director may have changed the settings on the game from the original settings. Therefore, *do not presume* that the instruction card you see, if any, is 100% accurate for the game in front of you. Take it as a starting point but be sure to note what the game actually *does* as you play it - ideally, by watching while someone else is playing!

## **Parting Words / Disclaimer / Feedback**

I wrote this guide to make Electro Mechanical games more fun for people to play by making them more understandable. If you know the goals on a game and the means and techniques to achieve them, any pinball machine becomes more fun.

I have omitted numerous machines, especially earlier EMs, due to their infrequent appearance at tournaments, shows or on location. Other machines have been omitted because they are “luck boxes” where you just flip the ball into the bumpers and pray for lots of action before the ball comes back down. If you come across a game that you think should be included here, though, let me know and I’ll consider including it.

This guide, while comprehensive, is not perfect. I’ve done my best to make it accurate, but as I mention in the instruction card section, the individual game unit you happen to be playing on may not perform exactly as described here. I may have missed something or misremembered it; operators and tournament directors can and do make alterations to games for their own purposes; 40-year-old machines can develop bugs and not function as built. Treat this document as a guide, but *do not* present it to a tournament director or lash out at the author if something happens differently than is written here. Always remember that what the machine really does is the final say on your score.

People have asked me about having a “condensed” version of this guide. While I could do that, not everyone would want the same things condensed, nor to the same degree. I’d rather have all the detail here to start and let people do their own editing, each to suit their personal needs.

I’m interested in how well this guide works for people who use it. If you find something you’d care to add or correct, pass it along to me. While I’ve played all of these games, in some cases it has been many years since I last did so. I’ve omitted some details when I couldn’t remember them precisely, e.g. whether the bonus maxes out at 19,000 vs. 15,000 in a case or two, so I know there are some gaps to be filled in yet as well. If you see one and have the correct information, let me know and I’ll update this document with it [eventually]. Thanks.

- Bob Math Use

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## Specific Game Guides

### 4 Million BC [Bally, 1971]; L

This game and the more often seen Fireball each employ a “top of the cliff” skill shot. The goal is to plunge the ball just hard enough to go up to the top of the ramp, then fall back down the ramp. On this game, you get 100 points for each of the first three switch levels on the ramp that you trigger on the way up or down. If the ball touches the upper fourth switch, this changes the value of the three lower switches to 1000 points each - - but you can only score these if the ball falls back down the ramp to the left. If the ball goes over the cliff to the upper right, you don't get those points, and the ball goes into the pop bumpers, netting you 310 total [300 on the way up, 10 as you exit into the bumpers]. If the ball goes up to the topmost of the three switches but doesn't reach the fourth switch, you'll score 600 - - 300 on the way up, 300 on the way down. Shorter plunges will score less.

After making the skill shot, your first priority is to close or “zip” the flippers. You do this by shooting either the left one of the two red stand-up targets or the right one of the two yellow mushroom bumpers.

Shooting the Volcano saucer on the left will lock a ball. You receive a random value award of 1000, 2000, 3000, 4000 or 5000 when you release the ball from the saucer. The ball is released by shooting the right mushroom bumper.

The Tar Pit gate opens when you plunge the ball. When you shoot it the first time, a ball will lock above the catch in the upper level. Do this - - more skill plunges for points! The tar pit gate will then close, and the kickback should come on. The center open-flippers bumper advances the ball down the tar pit; three advances release it from the tar pit for multiball.

You can thus get either a 2-ball or 3-ball multiball.

The general strategy is make skill shot, close the flippers, use microflips to get the ball to a cradle, lock a ball in either the volcano or the tar pit. Repeat skill shot and closing flippers, lock the other ball. Repeat skill shot, close flippers, hit center bumper to advance ball in tar pit. Re-close flippers, repeat twice to release ball in tar pit for 2-ball multiball. There's a good chance you'll hit the bumper to release the ball in the volcano during your two-ball multiball and end up with three balls. Relock a ball in the tar pit or volcano if you can.

Just keep repeating skill shot, close flippers, lock balls, release balls as many times as possible. In a well-played game, most of your points will come from skill

shots and locking balls. Good game for learning skill shot precision and ball control.

### **4 Square [Gottlieb, 1971]**

Your goal for this game is to complete sets of 1-2-3-4 numbered lanes and targets as many times as possible. There are five of each number on the playfield: one top lane, one side lane, one bottom return lane or out lane, one yellow target and one green target. Any of the five counts towards finishing a set of 1-2-3-4. Finishing a set scores 500 points and increases the value of one set of numbered lanes or targets from 50 to 200. The first set increases the top lanes; set #2 increases the yellow targets; set #3 increases the green targets. Completing a fourth set actually hurts your scoring opportunities, since the green targets now change to “special,” which is a free game in location play but worth nothing in tournament play. I wouldn’t worry about it much, though, since to collect points, you need to keep scoring numbers. Just try to postpone finishing that fourth set and shoot all but one of the four numbers as much as you can.

The key feeds on this game are when the ball comes out of the side 1, 2, 3 or 4 lanes. It will hit the rubber post below the lane and bounce off the top of the triangle [2 and 3 lanes] or slingshot [1 and 4 lanes] below. You’ll need to learn how to “read” the drop to know when and how to nudge to keep the ball in play.

Shatzing the ball up the bottom 2 or 3 lanes from the flippers is possible, but you’ll need to be careful you don’t get an “up the return lane, out the out lane” drain when you do it. Balls coming down the return lanes usually are going fast enough to hold up the flipper and transfer them to the opposite side for a cradle and more controlled shot.

### **300 [Gottlieb, 1975]**

Your primary objective on this bowling-themed game is to build bonus with shots around the playfield, including the right-hand saucer, and collect it in the left-hand saucer. This game has a rare “ball count” bonus display feature, inside the backglass. Your bonus is one thousand per ball shown in the window. You want to get the bonus up close to its maximum of 10K, collect it, and repeat that process. The collect part is important since you can’t advance the bonus beyond 10K - bonus advance shots don’t add any bonus at that point. If your bonus is at 10K, collecting it is your absolute priority.

Primary feature: two saucers at the upper left. The left saucer collects and resets your bonus, plus giving you 1000 points. The right saucer randomly adds 1K, 2K or 3K to your bonus.

Bonus is built many ways. The center spinner advances bonus 1K per five spins. The return lanes, outlanes, upper left lane and standup targets all advance it 1K when lit. The right side of the game is a set of eight lanes in four side-by-side pairs. These are lit crosswise, i.e. either (top-left) + (second-right) + (third-left) + (bottom-right) or vice versa. If you shoot the ball into these, you'll want to keep it in the lit lanes to add bonus, so nudge accordingly. The bottom right lane drops to a gap between the right return lane and a rubbered post and will drain if not nudged properly, unless the gate is open.

The upper left lane, below the saucers, opens that gate at the right outlane; you want that gate open whenever possible. The lane can't be reliably shot directly, but you can nudge the ball in when it's bouncing off the left bumper. If the ball is in the vicinity, try to do so!

**Skill shot:** I like to go for the left of the two top lanes; the ball will fall onto the right pop bumper from there, and I try to nudge the bounce off the bumper into the upper [right] add-bonus saucer.

**Right flipper:** shoot for the saucers.

**Left flipper:** shoot the spinner to advance bonus and get the ball rattling in the bumpers where it might bounce into a saucer or over to the left to open the gate. You can also consider shooting for the eight right side lanes, but I suggest doing so only when the crosswise sequence has the top right lane lit. The ball usually goes in there when you shoot it up that way, so you'll likely get at least one advance, up to four if the ball falls through the sequence of lanes optimally. Note that this sequence has the right return lane lit, too, which is where you want the ball to go if it falls through all four levels of lanes rather than bouncing out into the center of the playfield.

**Ball Control:** do NOT hold the right flipper up to roll the ball up to a cradle: it will often go up and out the gap at the right side of the wire form. Live catches and drop catches are fine, but use caution you don't accidentally do the roll-out.

## [2001 / Dimension \[Gottlieb, 1971\]](#)

Center saucer is always worth 300. This is your skill shot on ball one. Once other saucers are lit, you want to change your skill shot to a different saucer [see below].

The other 4 top saucers are worth 300 AFTER you've completed the 5 drops of the corresponding color, e.g. 5 greens down lights the green saucer, worth only 50 until then. This means that, given a choice of drop targets, finish a color. Completing a color also lights the lane of that color for 300 vs. 50 points. The

upper colors, green and red, are better to get first since these each lights a return lane, while the lower banks each light an outlane.

The kickout from the center saucer goes onto the upper right sling, but usually not causing a hard enough kick to keep the ball up top. Unless the sling on your machine is snappy enough to keep the ball up top, prepare for nudging as it comes down. You want the ball to bounce off the red or yellow targets, or the rubber behind them, just enough to roll gently down the face of the lower slings to the flipper. Too hard a bounce will go down the middle.

The kickouts from the other four color saucers will hit a top bumper; depending on the exact alignment, you can sometimes nudge the rebound back into a saucer [may be a different saucer]. If so, do as often as you can, and also change your skill shot to aim for that saucer.

Avoid the 4 standup targets facing you in the center. These are only useful on location when they award a replay or extra ball when lit [if turned on].

Ball control: you usually can hold the flipper up and pass the ball across when it is rolling down the return lane. The choice of doing this or not goes with what targets you need to complete a color set first.

### [Abra Ca Dabra \[Gottlieb, 1975\]; T](#)

Skill shot: whichever number you don't already have. Try for something other than the 4 on ball one, since you can always soft plunge for the 4 later if needed. On a few Abras, a plunge into the 1 or 4 lane will occasionally drain down the middle; if yours does that, go for the 2 or 3 instead.

You want to do two things here: hit the lit targets and try to get the ball to go through all four numbered lanes, either at the top or near the flippers at the bottom. The "bonus value," shown in the bottom center of the playfield, is what hitting a lit target is worth - - 1K to 5K - - vs. 500 for unlit targets. Switch hits change the lit target, so it will eventually cycle to light each of them in turn.

Finishing 1-2-3-4 instantly scores the bonus value and raises it to the next level until it maxes out at 5000. So, like some other EM games, scoring certain lanes or lane sets first make [some] targets worth more. The other way to raise the bonus value is to knock down all of the drop targets on both sides, then shoot the center standup target.

It IS possible to shoot the ball up the 1 and 4 lanes directly, but you'll find that you can also go up the 2 and 3 lanes! This can happen when you have knocked down the center couple of drop targets on either side and then shoot the ball that

way again: it can hit the rubber behind where the targets were and rebound towards and up the 2 or 3 lane off the curved center divider.

If you are close to completing all of the drop targets, go ahead and shoot the remaining few, even if none of the remaining ones are lit, to raise the bonus value and reset the bank so that at least one target standing on each side will be lit.

Numbers carry over from ball to ball, so finish the set a.s.a.p. Shoot up the 1 and 4 directly if you can, and bank shot the ball off the drops up the 2 or 3 if you can.

Good tournament game, rewarding precision drop target shooting.

### [Aces & Kings \[Williams, 1970\]](#)

Kind of a misnomer given how to play it. Finishing either the Aces or the Kings lights the respective saucer on that side for extra ball, but assuming extra balls are off, they're pretty useless. So if EBs are out, don't bother to shoot aces or kings!

Your plunge will go through either the "light green joker" or "light yellow joker" lane. That makes the saucer value for whichever color you get 10 times its base value for the rest of that ball. Shooting the spinner increases the saucer value, but only for the color lit at the spinner at the time. The switches labelled "change" will flip which color the spinner advances. Ideally, you want to keep the spinner on the color you plunged and shoot it to advance it. Rebounds off of spinner shots, however, will often hit a change switch and flip it to the other color. If the spinner is on the wrong color, shoot the ball up the side of the machine to change it; it may take more than one try, depending on how many times you hit a change switch before you get the ball back under control on a flipper. Once your 10X side color bonus is at or near maximum value, shoot the saucer to collect. Rinse and repeat.

### [Aerobatics \[Zaccaria, 1978\]](#)

Which item in the "loop the loop" feature is lit [that's the top left of the machine] is the key here. If extra balls are on and "bonus ball" is the lit loop feature, any time you have the ball on the right flipper, shoot the left saucer right away. Similarly, if the loop is lit for 10X bonus, take that saucer shot.

Other than that, it's a mostly UTAD game. From the left flipper, shoot the right spinner, and try to get 10X bonus at the top saucer. From the right flipper, if the "loop the loop" feature is not currently on "10X Bonus," shoot loop the loop to try to light it. In general, shooting up top from the left flipper is better than shooting the loop from the right, so if you have the option to transfer between flippers, get the ball on the left one unless it's time to shoot the left saucer.

Once your bonus is maxed at 100K and the 10X multiplier is lit, shoot the red drop targets for 100K each.

Ignore the two standup targets on the center right.

When the ball goes down either side outlane, try to bounce it up off the white mini posts back onto one of the rails leading to the flippers. This happens fairly often.

### Aladdins Castle [Bally, 1976]; T

A, B, C and D lanes each light star rollovers above and below for advance bonus and 1K. A+B lanes lights spinner at center right and lights the outlanes to collect the horseshoe value. C+D lanes lights double bonus. All four lanes lights EB if active. The Aladdin's Alley horseshoe shot on left side scores 500 to start; value increases to 1K after first shot and by 1K per shot thereafter until it reaches 5K.

For the skill shot, I prefer the C lane since the bumper may kick the ball back up through the D lane to give you double bonus right away. Bonus maxes out at 15,000. [When bonus is over 10,000, one of the 1000 through 5000 lights will be on in addition to the 1000 light.] The side outlanes score the horseshoe value. Ignore the "300 plus advance bonus" targets - - this is another UTAD game, i.e. shoot the spinner from the left flipper, shoot the Aladdin's Alley horseshoe from the right flipper. Speaking of the horseshoe, the key feed on this game is how the ball comes out of the horseshoe [how it comes down from the top lanes and bumpers is pretty random]. You'll usually be making the horseshoe clockwise [outside looping to inside], and it should come towards the left flipper, but if it tends to hit the left slingshot or down the middle instead, use caution with this shot.

### Amigo [Bally, 1974]

Skill shot is the center saucer, to light both bumpers and get three bonus advances; the top side lanes each score only 1K, one bonus advance and light one bumper. On your first shot with the left flipper, shoot the upper right lane arc to lights the spinner. On your first shot with the right flipper, shoot through the left orbit spinner to open the gate at the lower right outlane. Whenever the ball is up top, you want it to drop into the center saucer rather than go through either side lane. Note, however, that it can rim out of the center saucer and not score it, while if passing through the sides lanes, it's guaranteed to score those. On your next shot with either flipper, shoot the center target to raise the post. You have now protected yourself from both center drains and right side drains until you trip a "down post" switch [center] or actually use the outlane gate on the right. All shots with the right flipper should now be at the spinner, lit or not. Once the

spinner is lit and the post is up, if the ball is on the left flipper, transfer it to the right flipper if able to do so safely, otherwise reshoot the right lane arc at the top.

Key feed is out of the right side arc lanes: the ball should lightly bounce off the rubber on the post at the bottom of the gate and fall to the right flipper. If it tends to fall to the left one, let it dead-bounce back to the right flipper. If it tends to drain, find the timing for a nudge when it reaches that post to prevent this.

Fine print on center “up post” target: when you hit it, the ball will rebound off of both it and whichever of the posts to its side the ball contacts. Watch out for side drains!

Fine print on “down post” buttons: accurate shots to the right lane arc [light spinner] and left orbit [spinner] will miss these buttons to the inside. Your greatest risk of the post dropping is when the ball falls out of the bumpers, and perhaps when it comes out of the right arc lanes.

### [Aquarius \[Gottlieb, 1970\]](#)

UTAD. The single most important thing about this game is to note where the saucer kickouts go. On this game, keeping the ball up top is paramount, since the decent points are saucers and lit center bumper hits. You want as many of these as possible. Your best strategy, so far as you can have one on this game, is to find a saucer whose kickout bounces the ball back close to a saucer so that you can get two saucers, perhaps plus a bumper hit, for the price of one. Find any saucer(s) whose kickouts that come close to doing this and then look to nudge the bumper rebounds into that saucer.

Note that this means a 300 saucer whose kickout sends the ball below is less desirable than even a lesser-valued saucer where the kickout stays up top. The center saucer [left-most of the three 300 ones] usually throws the ball down past the bumpers, so avoid it. The 200 saucer will throw the ball into the center bumper, which then kicks the ball back up, possibly into a saucer. If that bumper is lit for 100, so much the better. The skill shot is usually one of the two right-most 300-point saucers, which typically throw the ball into the right bumper.

When the ball is on the flipper, shoot it up towards the outside of the right and left bumpers. The flippers are set so low on this game that they probably won't be able to shoot much more central anyway, so this is your best chance to get the ball up top. Avoid the bottom standups whenever possible.

Note that this saucer-bumper-nudge-saucer strategy is the same one as on “2001”.

## Argosy [Williams 1977]; T, F

**Skill shot:** make the top center lane to open the gate [lower left outlane]. If you make it, future shots should be to the spinner from the left flipper and to the advance bonus rollover disc from the right flipper until your bonus base is maxed out at 100,000. If you don't make it, your next shot from the right flipper should be a not-too-hard shatz of the left return lane to open the gate. "Not too hard" because a strong shot will open the gate, roll up the left outlane, trigger the gate to close, and the ball will then drain out that outlane. If your ball is cradled on the left flipper with the gate not open, you have the option the shatz to the right, cradle, then shatz to the left. I prefer to shoot the spinner when it's lit [for 1000 per spin], though, rather than double-shatz.

Once the bonus is maxed at 100K, you want to get the double bonus. This is the saucer on the right. A direct shot at it rarely works - - it's too hard and will be rejected most of the time. Your best bet is to work on your next goal, lighting the saucer for extra ball [assuming they are enabled]. This is done by completing the set of 4 drop targets on the left. The rebounds from these shots will come to a flipper or slingshot, depending on how cleanly you hit them, and some rebounds into the slings will kick into the saucer for you. With any luck, the kickout from the saucer will go to the left flipper hard enough to let the ball dead bounce to the right flipper, setting up another shot at the drops. Once the bonus is maxed and doubled, these are your best option from the right flipper.

## Astro / Star Trek [Gottlieb, single player, 1971]

I played this in college in the early '70's. While it has the letters that spell out Star Trek on the playfield, there is no evidence of any connection to the TV show. The artwork is un-themed period sci-fi and pretty cool for the time.

The initial skill shot is to get either the S or the R top lane; the A and R can be scored via return lanes, but the S and R are only available up top or via the out lanes, so get them here. After that, get whatever you need.

This is another UTAD game, just keep throwing the ball up top between the star target posts and the bumpers.

Astro is not used in tournaments much since it's designed for add-a-ball play [the "wow" star-symbol targets when lit - - done by finishing S-T-A-R, T-R-E-K and the two star targets or lanes, which then light the star targets for add-a-balls]. Add-a-balls aside, the scoring on this game is all about the pop bumpers. They score 1000 when lit, which is more than anything else on the playfield. The letters themselves score just 500, consisting of the standup targets and the top, side, return and out lanes. S-T-A-R lights the center yellow bumper, T-R-E-K lights the

two side green bumpers. This is all about nudging to get the Trek letters, Star when possible, and as many lit bumper hits as possible thereafter.

Key feeds are when the ball comes out of the side T and K lanes and the two star lanes. You may need to nudge to avoid down the middle drains from either. Also beware of balls coming out of the T or K lanes and going bottom post – top of slingshot post – outlane. Whenever the ball is on top of one of the four triangles and rolling down it towards the center of the playfield, also watch out for center drains.

### Atlantis [Gottlieb, 1975]

**Skill shot:** plunge the lit yellow lane. Note the lane changes with top slingshot hits, so allow for and count your bounces!

Note the right flipper has up-and-outlane risk. Don't make the mistake of holding the right flipper up when the ball is coming fast towards it and having the ball roll up and out the right side.

Hit drop targets in pairs [5000 vs. 500], shoot lit yellow lanes [3000 vs. 500] and targets [3000 vs. 500].

The 1-9 sequence is pretty useless other than that you need to collect each number to light the next number. If the ball is draining out the left side and the 5 lane is lit, try to make sure it goes there rather than into the far left outlane.

I try to just shoot drops all day and ignore the sequence. If I get some numbers, fine, but I'd rather backhand or bank the ball off of the bumpers into the drop targets than go for the plinko lanes since you've got that right outlane risk. If the Atlantis you're playing is one where the balls tend to come out of the plinko lanes to the center of the machine before reaching the bottom lanes, then it may be safer to shoot for them [depending on just where and how the ball comes out to the center].

### Aztec [Williams, 1976]; T

UTAD - - It's all about the spinner from the right flipper and the U-chute on the upper right from the left flipper.

**Skill shot:** the center lane at the top, which lights the spinner for 1000. If you miss it, try to get the center lane whenever you send the ball to the top through the spinner. Once the spinner is lit, try to get the lit side lane of the three at the top - - either the right or left lane will always be lit for advance bonus, they alternate on switch hits. Also, try to have the ball go over the top center rollover

disk to advance bonus as it's bouncing back and forth between flaps and rubbers at the top.

After you've UTAD-ed enough to get your bonus up to the maximum base of 100,000, shoot for either the Z or T standup target to light the spinner lane and U-chute for Double Bonus.

If Extra Balls are on, once you have both max bonus and double bonus, you can consider going for the remaining AZTEC letters. Completing all five lights the center standup for Extra Ball. If EBs are not on, avoid the C and E shots at all times.

Key feed: the kickout from the U-chute. Depending on the strength of the kicker and the reaction of the upper right bumper, you may be able to nudge the machine so that the ball rebounds off of that bumper back into the u-chute. Done several times in a row with multiple letters lit, this can add up to a lot of easy points quickly.

### Bank Shot [Gottlieb, 1976]

Skill shot: the center lane, worth "wow" when lit, and it's the only way to collect the one ball. Ideally, this should be set in tournament play so that "WOW" scores 50,000, rather than an extra ball or being turned off. This puts a premium on finishing all the pool balls. Once you have the one ball, the skill shot is to go for any other lane you need unless wow is lit.

Shoot as many different pool balls as you can; each adds 1,000 to your end-of-ball bonus. Once you have most of the balls, shoot for the top two saucers for partial collects: they score 1000 for each lit ball on the corresponding side of the triangle [and 100 for each unlit ball of the five]. Rollovers and targets are all worth 500 and bumpers 100 [their value is unmarked on the playfield, so you'd know it only if the instruction card is present].

Some key feeds on this game are when the ball exits the 10, 11, 6 and 9 lanes - - from the 10 and 11, it will usually hit the post outside the top of the 6 and 9 lanes; you want to nudge it to go into them if you haven't haven't collected them yet. If it won't go in there, the key is avoiding a center drain bounce. From the 6 and 9, the ball will hit the post below the lane; nudge so it either goes in the 2 or 3 return lanes or comes out into the middle of the playfield towards a flipper. Beware of the "slow dribbler" out the bottom of the 6 or 9, which often bounces <low post> - <top outside of slingshot> - <outlane>.

The other two key feeds are how the ball is kicked out of the upper collect saucers. Shoot each saucer early to find out. If you're lucky and or good, you

might get the kickout to go <post above 10 or 11 lane> – <bumper> – <into the 10 or 11 lane>.

## Baseball [Gottlieb, 1970]

**Skill shot:** any of the top 3-1-2 lanes; the points are the same for each. If you find that one of the lanes feeds the ball into one of the bumpers better than the others, stick with that lane.

There are two ways to play the game: UTAD and vari-target. The vari-targets score 500 when pushed all the way back; how often your shot gets full or near-full value will depend on how recently the flippers were rebuilt, how steep the game is, and how accurate you are. If your percentage on the vari-target is good, go that route. If not, try UTAD.

Interesting rules for the pop bumpers. They light together, never separately, and they light only when you have runners on both second and third base. How do you do this? Those 3-1-2 lanes at the top each place a runner on the corresponding base when triggered. The 3 [left], 2 [two, upper center] and 1 [right] standup targets likewise place a runner on the corresponding base. Each lane and the #2 targets score 50, btw, the 1 and 3 standups score 100. So scoring #2 and #3 via either lane or target will do it. But that's not all. The vari-targets, besides scoring points, score hits - - singles for weak hits, doubles and triples for stronger ones, a home run for a maximum 500 point hit. The right combination of hits will get you the necessary runners. Also, if you have a runner on first base, with or without runners on second or third, and score a double via the left side 200-point lane, you'll then have runners on 2<sup>nd</sup> and 3<sup>rd</sup>. It may be the most creative ways to toggle the bumpers of any pinball machine ever built - - not on switch hits, not on scoring reel status, not when you hit a specific target or set thereof and not when you finish all the lanes or numbers. You can light them with as few as two shots, even using just the vari-targets [single, then double], or never light them for the entire game even with a high score. And they turn off only *sometimes* when you hit something in the game: runners on 2<sup>nd</sup> and 3<sup>rd</sup>, get a double, they turn off; runners on 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>, get a double, then stay on. But scoring a triple will always turn the bumpers off. Ingenious. [My thanks to Jim Swain of Pintastic who took the glass off and helped me figure all this out.]

Anyway, if you have the bumpers lit, UTAD becomes a more viable strategy, since it doesn't take that many bumper hits to match the value of a vari-target shot. Whether or not you should try to light them, e.g. by shooting at the standup targets, is another matter. So even if you've selected the vari-target strategy over UTAD, if you do get the bumpers lit, go UTAD while they are.

Key feeds: out of the side double and triple lanes; watch out for both side and center drains. Note though that side drains are worth 500 points, a big number on this machine, and you might actually win a game by “draining correctly” often enough. The feed from the top bumpers to the center is safer than it looks. Most of the time, the ball will hit the side of the vari-target chamber and deflect towards one of the flippers or the bottom of the slingshots / return lane wires above them.

### Big Deal [Williams, 1977]

“Big Deal” is a misnomer as far as the game’s name relates to tournament play. The “B-I-G-D-E-A-L” letters are for earning extra balls and replays, so they’re largely irrelevant in competition. The “big deal” for scoring on this game is the Aces. There are four ace lanes at the top, and four more below, the two return lanes and the two outanes. Each ace lane adds 10K to your bonus. Getting all four aces doubles your bonus. You also advance your bonus with each of the three red standup targets [left side of lower playfield; below and left of top Ace of Spades lane; and center upper right of horseshoe], as well as with the horseshoe shot. The horseshoe is also worth 10K for each Ace you’ve collected so far on that ball. So, UTAD it is - - keep going there to max out your bonus and get all four aces to double it. Once you’ve done that ... just keep shooting the left orbit to the top for 5K per shot from the right flipper and heading towards the horseshoe from the left flipper. You can totally ignore the big deal letters for the entire game unless extra balls are on; if EBs are on, you still shouldn’t bother hitting the letters until your bonus is maxed out at 200K.

### Big Indian / Big Brave [Gottlieb, 1974]

A classic example of UTAD. The round standup targets are not worth the risk - - only 500 and one bonus advance. The vary-target is valuable enough to shoot [5K + 5 bonus advances if you hit it all the way back], but only worth risking if you’re really accurate; if you miss, the rebound is likely to drain. UTAD also gives you the chance to complete all three top lanes for double bonus.

### Big Shot / Pro Pool [Gottlieb, 1973]

One of several pool-themed games where your goal is to collect all 15 pool balls. On this game, 14 of these are in two rows of seven standup targets on each side. The last is the eight ball, earned from either the top center lane [your skill shot] or the center saucer [risky shot]. The eight ball shot also opens the ball return gate on the lower right side.

Bonus is 1000 per pool ball, 15k max; the bonus is doubled on the second-last ball [ball 4 in tournament play] and tripled on the last ball [ball 5].

One drawback of this game is that once you've collected all of the pool balls, there's not much to do - - the targets don't reset, and there's no collect bonus feature. About all that's left is are the lanes for 500 or 1000 each and the bumper for 1000 at that stage.

### Blue Chip [Williams, 1976]

Shoot the ball up top through the spinners until you are able to collect the 1, 2 and 3 lights. This lights the top right saucer for 50,000. Then STOP shooting the top long enough to shoot the 4 and 6 targets to light Double Bonus. This is more important than usual: on this game, the numbers collected are held between balls, so double bonus stays on for the rest of the game, as does your lit saucer.

Now you can go back to shooting the spinners, preferably the right one to try to get the ball in the saucer for 50K. The right spinner is only lit after you've collected the 5 target, but that's a center shot and not worth the risk; if you hit it, fine, if not, don't worry about it.

The game has wide return lanes, so shatzing from right to left to shoot the right spinner is pretty safe.

Never shoot the 7 or 8 targets; they only help you light the special, worth nothing in tournament play.

### Bon Voyage [Bally, 1974]

Skill shot: get the B letter first, then work your way down from left to right until you have the O and N letters as well. I recommend this order since the ball tends to rattle down and to the right when failing to settle into a lane, making the B the hardest to get.

This game is UTAD from the left flipper, but shoot the outer "deflector" lane where the ball goes up to the top standup and then back down to get deflected back into the plunger lane rather than along the rollovers left of it. This scores additional points [5K if you hit the standup, 3K when going back into the plunger lane], and you'll still get to shoot the ball up top towards the B-O-N letters just as if you'd shot at them more directly via going up the right side star rollovers. The ball ends up in the same place, but you score more points en route.

Top top right target also awards up to three letters when hit: notice it has three lights below it, "BON, "VOY" and "AGE". One of those three lights will always be lit. When you hit the target, it gives you any of the letters in the lit trio that you don't already have. Thus, this is the easiest way to collect letters quickly.

When the ball is on the right flipper, you have a couple of choices. The center spinner changes the value of the left-side saucer between 1K and 5K [see lights on playfield]; if the saucer value is at 1K or 2K, you may want to shoot the spinner and hope it stops on a bigger number.

The top left lane scores 3000 unless you have all 9 letters of Bon Voyage, in which case it scores a special [useless in tournaments, free game on location] and resets the letters [bad in tournament, it removes your bonus]. You score it by hitting the captive ball into it, which will also get you 4000 points as the ball goes up and down over the two inner switches. Weaker hits to the captive ball will score 1000 to 4000 depending on how far up they go.

Bonus [letters] carries over from ball to ball.

### **Bow and Arrow [Bally, 1975]**

Skill shot: center saucer for 3K and open gate. 4K and 5K are okay, but opening the gate is worth the point differential. If you can, plunge so the ball hits one or both of the 500-point star rollovers disks before dropping into the top saucer.

Use the spinners to advance bonus. Collect bonus in saucer in upper left. Once bonus 7000+ [higher or lower depending on your shotmaking % and match score situation], shoot the saucer all day.

Key feed: saucer kickout. You may be able to repeat this shot several times via either one-timing it properly or live catching it on the right flipper, then shooting it again.

Hitting any of the A,B,C,D standups lights the corresponding bumper; getting all four standups activates Double Bonus. They're not worth shooting at, though, IMO, due to rebound risk. But if you have collected 3 of them at some point for whatever reason, go ahead and shoot the final one.

Only shoot for the center extra ball target if it's turned on; otherwise, it's too risky. If enabled, the EB light activates when bonus is maxed at 10K.

Don't bother shooting the gate even if it's open as you don't have a good angle on it from the flippers, but do try to nudge the ball through it if it's in the vicinity.

### **Butterfly [Sonic, 1971]; T**

Skill shot: center lane for advance bonus. But ... on some Butterflies, the ball will hit the top bumper and deflect to the left and out of control, while a plunge through the right-hand top lane will bounce off the same bumper to the right and

down over the advance bonus and point lanes on the right-hand side, which is actually worth more.

Making the three angled drop targets in the center lights set up an opportunity for Double Bonus: activate double bonus by getting the ball to go through either the right side return lane or the outer [left-most] left side return lane. While there's no direct shot for either of these, if you shoot the ball to the top and can get it to come back down the right side behind the drop target section, the feed from the bottom of the right side lane will go directly into the right return lane to turn on your double bonus. The easiest way to achieve this is to shoot the upper left side "extra ball when lit" lane from the right flipper hard enough for the ball to continue around the arc behind it and across to the right side of the game.

Bonus is advanced via the top center lane, the three standup targets when lit [a yellow one on the left, two red ones on the right], both outlanes, the upper right side lane, the top left saucer, and the inner [right-most] left side return lane. While you can shoot four of these directly, I advise against shooting at any of the three standups due to rebound risk. Be patient and advance the bonus via the saucer and that upper right lane; any random return lane or target hits you get are "a bonus bonus."

General strategy is to first max out the bonus at 100,000 with shots to the saucer or around the left side arc and down through the upper right side lane. Only then should you risk going for the center drop targets for double bonus. The drop targets themselves only score 100 at first, but their value rises to 1,000 after completing the first set and then 10,000 per target after completing the second set. If you have the ball on the left flipper, try to transfer it safely to the right flipper via shatzing - - the opening is relatively wide, so it's not too hard to do, and since there's a "hard corner" in the return lane, the ball is not at risk of going up the return lane and out the outlane. It will hit the hard corner, stop there and come back to the right flipper.

Note the upper saucer scores 1000 plus 1000 per lit light, maxing out at 10,000, so it's worth shooting in its own right. Lit lights are earned by scoring the top red standup or top left entry lane [red light 1], left yellow standup or top center lane [yellow light], bottom right red standup or top right entry lane [red light 2] and maxing out the bonus at 100,000 [white light].

If Extra Balls are on, you earn one by first completing the center drop targets twice, then shooting that left side arc.

Key feed is out of the top left saucer: sometimes it comes back to a flipper such than you can repeat the shot

## Captain Fantastic [Bally, 1976]; T, F

One of the most popular EMs ever, and a frequent choice for tournaments.

**Skill shot:** top center lane when lit [alternates on switch hits, nudge as needed] opens ball save gate on lower right. Get this first. Shoot the ball up top again first chance you get: scoring both the “A” and “B” lights, which alternate opposite to the center lane, gets you double bonus. Continue UTAD until bonus is doubled and maxed [15,000 base]. Once bonus is maxed, you can, if you choose, switch to shooting the drop targets at the middle left from the lower flipper. If EBs are on, completing the targets lights the EB lane. If not, you still get decent points each time you complete the target bank. Avoid shots with the upper flipper - - if you miss low, you drain out the left, and even if you hit the targets, the rebound from this angle can go out the right outlane.

**Key feed:** when the ball is coming past the upper right flipper, what happens 1: when you hold that flipper up; 2: when you leave the flipper down; 3: when you have the flipper up but drop it as the ball reaches the flipper. As always, you’re looking for a repeatable choice that gets the ball to a cradle, or at least a nearly-stopped-ball on a lower flipper.

## Centigrade 37 [Gottlieb, 1977]; T

UTAD for the most part. From the left flipper, it’s the top saucer all day. From the right flipper, go up top just left of the left-most bumper until all 4 letters A-B-C-D are complete, then shoot drop targets. If a shot to the saucer misses and goes into the right side plinko-type lanes, keep ball out of bottom-most right lane to avoid draining; if it goes into that one anyway, the ball can still often be saved with a properly-timed nudge, but most people nudge too soon! Wait until the ball is actually part way into the outlane, say 1/5 of the way, then do a sideways nudge. This will get the ball to hit the edge of the return lane or the outer post and perhaps flick it onto the return track.

Letters first because this lights the drops for 5K instead of 500. Once the drops are down, shooting a lit bullseye is ok.

## Cherry Bell [Sonic, 1978]

This game is mostly about the bonus and a bit with the center three saucers. The skill shot is the center lane up top, which lights double bonus - - make sure you get this - - and also scores 5000. You advance your bonus by one notch of 10K with the top right lane, the two star rollovers, the left orbit to the top, the left return lane and the right outlane. The bonus collect saucer on the upper right side is your friend - - fill up your bonus to 100K, collect it, refill it. That’s your primary strategy on this machine.

The center saucers give you things, but only one, triple bonus, is really useful. Other awards are lighting the yellow standups for 10K instead of 1000 [don't bother to ever shoot at those targets], raising the right side post, an extra ball [worth it if enabled] and lighting the two special targets [worthless, never shoot these either unless they've been altered to award big points]. The center saucers have safe kickouts, so don't be afraid to shoot them until you get that triple bonus lit. Note that the ball won't necessarily go in the saucer you shoot at - - it usually rattles around in the cove there a bit before falling into a saucer. As for the ball-protecting post on the right, it is NOT foolproof - - the ball can creep around the edge of it and still drain out the right side. Treat it as an aid but not a sure thing.

The left top lane, also worth 500, lights the bumpers for 1000. Unlike most machines where the bumpers stay on once lit, either for the entire game or at least the remainder of the ball in play, on Cherry Bell, the bumpers are turned off whenever the ball hits either of the two small green standup targets right and left of the bumpers. That happens fairly often, so the bumpers rarely stay lit long.

The bonus collect saucer is NOT multiplied by either the double bonus or triple bonus feature. This is strategically important if you're on your last ball. If you have the doubler or tripler on, have the bonus maxed at 100K, and then collect it, you just gave up 100,000 or 200,000 points unless you can refill some of all of your bonus before your ball drains. This means that you need to pay close attention to your score versus that of your opponents. If you're last to play and behind by less than your multiplied bonus, don't shoot the collect bonus, just play on gently [don't tilt!] until you drain and win! If you're close to catching up, same advice. But if you're behind by a lot, take the collect shot and try to refill the bonus to forge ahead. If you're player one or two and you're ahead by a good margin, you could consider not taking the collect as well and just going UTAD until you drain. If you're way behind, though, as any player number, you're pretty much forced to take the collect bonus whenever it's high [say 80K or more] and then try to refill and multiply it if you haven't already done so. That's the only realistic way to make up a gap of several hundred thousand points on this game.

Key feeds: the kick outs from the center saucers and the bonus collect hole - - can you get the ball back to a cradle, or do you need to flip away?

### Circus [Bally, 1973]

Making the skill shot here is critical and will save you having to take risky shots later. Drop the ball into the top center lane to light the six white rollover disks, three on each side of the upper playfield, to advance bonus [by 1K each]. If you go through either side top lane, only the disks on that side will be turned on for advance bonus. If you miss all three top lanes on the plunge, which is not just

possible but common since there's no gate at the top of the right or left orbit, you'll need to flip the ball back up top to try again or shoot one of the risky standup targets below the disks to light the disks. Unlit, they're only worth 100 points.

This game is mostly about bonus, with the other major scoring coming from the two top side bumpers once your bonus is maximized at 19,000. Build bonus by hitting any of ten switches: those six white rollovers when lit, plus the two yellow standup targets near the middle of the game and the two return lanes. Since both the yellow standup bonus advance targets and the "light lanes" standups are risky shots, I prefer UTAD to advance bonus [and to light the disks if I missed them on the plunge].

Bonus is doubled on balls 3 and 5; you can't double it on the other balls.

Like some games, this has an extra ball feature that is on a bonus value cycle: it lights only when the bonus is at exactly 15000. Take it if you can, but it's usually turned off for competition.

Since you'll be going UTAD, the key feeds will be how the ball comes down each side orbit - - you may need to bump the game when the ball gets to the post below the lowest white disk - - and how the ball comes down through the center gap below the bumper. Most of the time it comes down the center gap, it will have traveled along the angled rubber in that section and won't drain down the middle, but you still may need to nudge to get the ball to come to a flipper rather than hit one of the lower slingshots or drain out the side.

### Cosmos [Bally, 1969]

Skill shot is the center lane. Shoot first for the red mushroom bumper to zip the flippers together. Next, shoot at the three blue mushroom bumpers to light the orbit shot [upper left], then shoot that. The orbit shot is okay any time, just worth more once you've completed the blue bumpers.

### Dealer's Choice / Lucky Ace / High Ace [Williams 1974]; F

This is one of my favorite games of the mid-70's, and it has more side-to-side action than most games. I like the center 3 by 3 matrix of rollover disks: completing them once lights double bonus, twice lights triple bonus. Base bonus maxes at 10000 and is advanced by either top lane and the three yellow standup targets. Specials are worth 5000 and are earned two ways: completing 1 through 9 three or more times, or completing 10-J-Q-K-A and shooting the right special lane. Completing the five cards also lights the return lane on the right for an

extra ball; on the add-a-ball version, you can build the balls-to-play count up to 10 using this lane.

Historical note: this was the game where I first started shooting the ball up the opposite return lane frequently, for the obvious reason of scoring the extra ball. I'd used that shot before, but not as a primary strategy until this game. The technique is now called Shatzing, in honor of Neil Shatz. In the 1990s, Neil became such an expert at applying this technique on more games than pretty much anyone else, and with greater accuracy, that the technique began to get referred to by his name. While I learned this shot a few decades earlier, I never quite reached his degree of proficiency at it. If you ever see the initials "NES" on a game for high score, that's for Neil - - either he did it, or one of us who respect him put in his initials instead of our own in tribute to him. I think they even use NES for one of the preset high scores in Iron Maiden, perhaps on other games as well. He's a great guy; I hope you have a chance to meet him.

As for the 1-9 targets, crosswise shots using the upper flipper are a good way to collect those, and you will usually get a card at the same time. The rebound off the card standups usually falls down towards one of the flippers rather than making it all the way across to the right outlane, although it can arc down the center at times.

From the lower flippers, shoot up the Special lane or into the cards. Shooting the 1-9 disks is a bit risky since after the ball goes over them it will probably hit and trigger one of the bumpers, which can lead to a drain down the center or either side.

### [Dipsy Doodle / Doodle Bug \[Williams, 1970\]; L](#)

This game is actually more complex than it looks. It starts as a UTAD game, then switches to micro-flip and standup target shooting, then reverts to UTAD.

Skill shot: make the top saucer. The slings at the top cycle the lit value; you want the 5000 [red arrow on the right] lit when it drops in. If that would require too many cycles from where the light is when you plunge [it's hard to get more than 2 changes], try to get one of the "light bumpers" features. Lighting the bumpers also lights one of the side lanes to open the bottom right gate [yellow bumpers on lights the left side, green bumpers on lights the right side]. The two "500 points" choices are the least valuable.

First things first: keep the ball up top until you have the center post raised, via either of those side lanes. With any luck, you'll get the ball to also go back up into the saucer to light the bumpers and or go through one of the upper side lanes to open the lower right gate. Okay, now let's assume the ball comes back

down to the flippers with the center post up. Try to get the ball to settle between the tip of either flipper and the center post. This is harder than you're used to, since if you try the normal "hold up the flipper to cradle it" technique, the ball will roll up the flipper, over and behind the flipper pivot, and drain. Okay, assume you've done a drop catch, dead bounce or whatever and you have the ball in position; good. Now, look at the #1 through #4 targets to see which one is lit - - the top saucer may have advanced it beyond target #1, so you'll need to check. You want to collect the 1-4 targets in order. Assuming you still need all four for simplicity, here's the procedure. Microflip the ball back and forth between the flippers until you get it to roll up the right flipper far enough to shoot at the #1 target. Collect #1, then go up top and try to get the post back up; shooting the #1 target lowers the post. Once the post is back up, get the ball back in that flipper-post nook, then microflip until you get a good shot at the #2 target. Repeat the process for the #3 and #4 targets; you may not need to raise the post in between these since shooting the #2 and #3 targets doesn't lower it, but if you roll over a "down post" button along the way, try to reactive the post. Of course, you can shoot the #1-4 targets any time even if the post isn't up, and should do if you get a clean shot at the next one you need, it's just easier and usually safer to do using the microflip technique.

Caution here regarding microflipping: if you flip too hard, you risk having the ball roll up the opposite flipper, over it and behind it for a drain; unlike most games, there's no return lane rail to protect you. If you sense you flipped too hard and this might happen, flip right away with the other flipper that the ball is now rolling up to prevent a drain.

Once you have collected all 4 numbers and the center doodle starter / extra ball arrow is lit [depends on which version of the machine you're playing], shoot it to start the doodler or collect the extra ball. Note that each time you complete the 1 through 4 targets, the doodler value rises by a factor of ten - - 10, 100, 1000 and maxing out at 10000.

Now, return to your UTAD routine; the idea now that you have your doodler running [and extra ball, if on] is to milk the bumpers for as many points as possible while the doodler racks up more points. Note that the doodler does NOT run while the center post is up! [No sitting there with the ball cradled forever while points score!] When you shoot the #4 target to light the center target to start the doodler, that shot drops the post. If you trip either of the side "up post" lanes, note that they also immediately stop the doodler. For getting the most out of your doodler, you have to hit that center target, then go up top, avoiding the "stop doodle bug" rollovers en route, and get as much action up there as you can.

If you ever get the doodler value up to 1000 (or 10000; I've never done 10K), forget about anything other than getting the doodler running! You'll crush anybody else with just a few seconds of doodling at that level.

### Doozie / Freak Out [Williams, 1968]

UTAD; nudge to get "open gate" and to get the ball out the gate when you can. I tend to not risk shooting at the "close flippers" standup targets since a. they're narrow shots and the rebounds, hit or miss, can be dangerous, and b. most balls drain out the sides anyway. If you get the flippers closed by accident, fine, use the closed flippers to help trap the ball up easier.

Finishing all 5 numbers scores 300 points, large on this game, so try to make sure your plunge gets the 5 if you need it and one of 1-4 you still need. If you already have 1-4, or have none of them yet, go for the 1 on the far left. This provides the greatest chance that the ball will randomly bounce into the "open gate" standup target near the upper left.

When going UTAD, I find it's better to shoot between the bumpers rather than try to go outside them. The gap between the bumpers and the sides is narrower than the gap between bumpers, and it's hard to aim precisely with those flippers, so your chances of getting through are better with the wider paths. Odds are that the ball will graze the edge of one of the bumpers anyway, which makes it more likely it will start to rattle around up there like you want it to. The thing you most want to avoid, after all, is hitting the underside of one of the lower three bumpers directly and having the rebound drain.

### Dragon ("bao") [ Interflip, 1977]

UTAD, via the sides. Light the bumpers going through the top lanes: #1 lights the left bumper, #3 the center one, #5 the right. I tend to prefer soft plunging for the 5, since the ball hits the side bumpers more often than the center one, plus it's the easiest to get. Avoid the 2 and 4 lanes, they don't light a bumper and the ball falls through them to the middle without hitting any bumpers; plunges to the 1, 3 or 5 will usually hit the bumper below them at least once. Then hit the bumpers all day. Shoot the ball up the sides of the game rather than between the drop targets in the middle. Ignore the dragon drop targets themselves. If you accidentally light the extra ball stand-up in the center and EBs are on, go ahead and shoot it.

The "bao" is because the game has a unique sound to it, easily identified from across the room.

## [Drop-A-Card / Pop-A-Card \[Gottlieb, 1971\]](#)

Skill shot is the lit top lane; one side will always be lit, so soft plunge for the right side, find the right plunger marker for the left. Shoot sets of drops on the sides to light the bumpers and lanes on the same side for increased values. Once you have the targets finished [they do not reset each ball!], UTAD to try to get the ball to deflect into one of the upper 500 lanes. Try to anticipate side drains to get the ball to rattle out of them.

## [El Dorado / Gold Strike \[Gottlieb, 1975\]; T, L, F](#)

Drop targets galore. Shoot the lit ones for 5,000, unlit ones are only 500. The targets reset once you have completed both banks. There's a good amount of strategy and ball control required to get the most out the target banks.

Skill shot: soft plunge the ball into the lit 5,000 lane at the upper right.

Key Feeds: watch the three feeds on this machine carefully! When the ball comes down the left lane into the left bumper [feed 1], does it tend to come to the left, meaning either a drain out the left or a feed the left return lane, or come out the right, to either the left flipper or down the center? You'll need to be nudging either way, but check its natural tendencies first.

When the ball comes down the right side, it can be moving slow if it fell through the left of the two lanes [feed 2] and hits the right wall or rattles unevenly down the right lane, or it can be moving faster if it falls cleanly down the right lane [feed 3]. Again, where does each tend to go? If the clean fall comes out fast enough to reach the left flipper, don't nudge. If the slow fall comes out and thinks about slipping to the right towards the inlane/outlane divider, nudge.

The drop targets on the right are rarely backhandable, but you can often do a "well-timed-flying-backhand" into them when the ball is coming to the right flipper. If it looks like the ball is headed that way in such a manner that you're not likely to be able to trap it on the flipper, give this a try.

## [El Toro \[Bally, 1972\]](#)

Skill shot: center lane, then one of the lit 1000 lanes.

Right flipper: try to graze the "light #1" mushroom bumper on the right side to light that lane on the right side of the machine; after that, it's UTAD and nudge for the 1000 lanes.

Left flipper: try to graze "light #2" mushroom bumper on the right side and #3 on the left side to light those lanes. Once two or more lanes are lit, shoot to the upper right for the lanes. [One of your misses might light the third lane anyway.]

Ignore the El Toro letters otherwise unless extra balls are on and playable. In that case, try to finish the El Toro letters to light the top center lane to earn an extra ball. Note the extra ball lane will not always be lit even after you finish the letters; it switches on and off with the tens digit of your score.

Grazing the mushroom bumpers is better than hitting them face on: face shots can rebound in dangerous ways, while grazing hits will continue up the playfield.

If the right flipper is able to backhand the right side waterfall lanes and the feed out of the lanes is good, try repeating that shot as much as possible.

## **Faces [Sonic, 1976]**

This is a lot like Williams' Grand Prix [wonder where they got the idea?], with separate bonuses on each side of the game and a pair of lightable spinners. Unlike Grand Prix, though, the bonus is not built up by the spinners but by the top saucer and the colored standup targets. Green bonus is advanced by the two green standup targets, the left outlane, and by the top saucer when it's lit for the green bonus feature. Red bonus is built by the red targets, right outlane, and top saucer when on red. If the top saucer light is on the yellow circle, you advance both red and green bonuses, so that's your skill shot.

Which bonus is lit up top is changed by hitting the "changes bonus selection" target in the middle of the right side of the game. It also changes if "select green bonus" or the same for red is lit when the ball drops into the upper saucer. The top light cycles through the five options on switch hits much like on Williams' Strato-Flite, so when plunging, try to get the "correct" number of slingshot bounces next to the saucer before the ball drops into it.

Both the top saucer and the center standups open the gate, but this is not a ball-saving gate at an outlane. Instead, it means that shots to the right orbit will go all the way around and down the left side, rather than hitting the metal plate and falling towards the top saucer. In some ways, you're better off with the gate not open. Shots through the left orbit will always be stopped by the upper right metal plate and either fall towards the top saucer or rebound back down the left orbit.

Hitting both center targets, A and B, lights double bonus; do this, but build your bonus first.

Major point: you only collect the bonus that is LIT at the end of the ball! If you have 100,000 on the green bonus but only 10K on red and the ball exits with red lit ... yes, you get only 10K. Ideally, you want to build both bonuses up to 100,000, and better yet, do so roughly in parallel so that you're not "unbalanced" with a big bonus on one color and not the other. Being unbalanced is risky - - to build up the weaker one before you drain, you need to have that color "on," but if

you do drain before building it, you're out a good chunk of points. Makes for interesting strategy.

One other way to approach being bonus-unbalanced is to let rip at the spinner - - once a color bonus is maxed, the spinner on that side of the machine will be lit for 1000 per spin, making it a good shot to take. Note that the right [red] spinner is best hit from the third, upper-left flipper.

The F-A-C-E-S rollover disks don't do much in competition - - they're mainly for extra balls and specials. The first time you finish them does light the bumpers and the 5000 point right-side exit lane, but you'll get them randomly during play on a long enough ball, so don't bother aiming for them.

Since bonus is key on this game, do lots of nudging when the ball is in the bumper-top-standup-targets area to get as many bonus advances as you can while the ball is rattling around there.

### Far Out [Gottlieb, 1974]

**Skill shot:** any top lane. The center lane feeds the top bumper, the side lanes will drop to the flipper on their respective sides. I prefer the center since you then have a chance to nudge the ball towards one of the side lanes [see below].

**Strategy:** first, UTAD until you have both side lanes lit - - the left side lane lights the left kickback, the right side lane lights the right-hand gate.

Once you are thus "protected," shoot for the drop targets. Drop targets have three values - - 50, 500 and 5000. At all times, one bank of targets will be lit for 10X [base value 500]; this cycles with switch hits [slings?]. There will also be one target in each bank lit for a second factor of 10X [small circle below the target.] Shoot for the twice-lit target, worth 5000. The red star rollover in the center of the game changes the lit target one step.

Targets also increase your end-of-ball bonus, as do the lanes at the top and, when lit, the bottom return lanes. [Light by making the lane at the top?] The drop targets do not reset when completed. Completing all targets on both sides lights double bonus; you also get double bonus on your last ball [normally ball 5].

### Fast Draw [Gottlieb, 1975]

**Skill shot:** B lane at the top. From the B lane, the ball hits the center bumper and goes ... wherever. Might go into a saucer, might go back up top; it's usually the best option of the three. From the A and C lanes, the ball might go SDTM; it *should* drop cleanly through the bumpers and land on the flipper below at a speed allowing you to let it dead bounce across and trap up on the other flipper;

if so, fine, but observe other players' results or test it before your game, if permitted, to see where A and C go.

Strategy: UTAD until ball 5. Try to bank the ball off one of the bumpers and into one of the saucers. Saucers score 1000 + 1000 per A/B/C letter collected.

You may see players shoot drops before ball 5. I disagree. The rebounds from the drops are risky. The one situation where shooting drops is okay early in the game is if you find that the rebound from a particular drop target goes up top and lands in a saucer. This is most likely for the 2<sup>nd</sup> or top-most targets.

On ball 5, the bonus is automatically doubled, so shooting drops is more valuable.

When shooting drops, try to hit them one at a time! While getting two at once makes better progress towards completing them, there's no reward for that until all ten are down, when the center ones pop back up and become worth 5,000. Until then, hitting two drops at once, or worse two on one side and one or more on the other via a quick rebound, scores only 1 bonus advance! Yes, the drops advance bonus, but it's not one advance per target down, it's one advance per "registered" drop. Getting more than one too quickly doesn't register as multiple hits.

"Fast" Draw often plays slow, so be careful when dead bouncing to make sure the ball is moving fast enough to make it across. But a fast-falling dead bounce will sometimes roll all the way up the side A or C lane, thus collecting it. You want that!

Saucers score 1000 + 1000 per completed letter.

Drops advance bonus; all drops in both banks lights center drops for 5000. Second drop target from the top on each side often banks the ball into the opposite saucer.

### Fireball [Bally, 1972]; T, L

Skill shot: plunge so the ball stops just shy of the top left gate and falls back into the nearly-horizontal lanes to collect 3 one-thousand point switches and light the bumpers. Extreme priority to finding this skill shot! You'll find that you may get more than half your points in the game from it. And those points, and lighting the bumpers, can ONLY be done on a plunge; there's no way to shoot the ball up there to do it during play. The only other way to get it during a ball is to lock a ball so that you get another chance to plunge. A really good plunge will actually get you 4K, as the ball will rebound slightly at the top right and trip the bottom 1,000 switch before dropping into the bumpers.

Lock balls whenever you can! More skill shots at potentially 3K each. Sets up multiball, too, of course.

If the ball is coming towards the flippers, trap if you can, but if you must shoot, shoot the ball at the center mushroom bumper to close the flippers. If you get the ball cradled on either flipper, shoot to lock a ball.

Once the flippers are zipped, try to get the ball to settle onto the zipped flippers. If the ball is coming towards the flippers when zipped, don't flip! Let the ball settle down onto them.

Okay, let's assume you've got the ball resting between the zipped flippers. Very lightly tap one of the flipper buttons to get the ball to dribble up the opposite flipper. Then try to backhand one of the lock ball saucers. Backhands are safer and more accurate than forehands on this game. The backhand shots are about halfway up the face of the flipper.

Once a ball is locked, repeat the skill shot. Get that ball to the flippers, and try to lock a second ball.

Once you have a ball locked in Wotan [right side saucer], try to keep the flippers zipped and just keep shooting at the Wotan saucer. With a ball locked in the saucer, the second ball will just go through the gate, deflect off the locked ball, and roll down through the rollovers, scoring 1000 for each of the mushroom bumpers you've hit [minimum 1 if you have zipped the flippers], then out the lower gate and hopefully back towards the right flipper. Trap it if you can and repeat for 1000-3000 as many times as you can.

The side mushroom bumpers will release a ball locked in the opposite-side saucer and start multiball. During multiball, try to shoot the balls back into the saucers and or rezip the flippers. Unlike most machines, this is one where you're better off not playing multiball.

The kickback is lit and unlit by buttons around the edge of the center spinning rubber disk. Don't bother shooting to light it [although a zip flippers shot often does], just enjoy a kickback if you get one.

### **Flicker [Bally, 1975]**

Spinner all day is one choice. The other is shooting the two captive balls to build up the bonus and shooting A-B-C-D to activate double bonus. If when you shoot the spinner you get decent point action in that center circle and at the end of it the ball drops out safely without draining most of the time, stick with the spinner. If not, try the bonus route.

## [Flip-A-Card / Card Trix \[Gottlieb, 1970\]](#)

Ace all day. Really. The skill shot is to get one of the two Kings for 300. Best choice is to soft plunge for the king on the far right, which may also feed the Ace below it. After that, it's all about the Ace. Completing the cards only gets you a worthless special. Since we're after points, ignore which cards you have. UTAD from the right flipper to try to get J-Q-K, best King, of course. Shoot the Ace from below with the left flipper. And if the right flipper is strong enough, when cradled, try to flip the ball into the right side of the 100 bumper to bank it into the Ace lane from above.

Card Trix is basically the same, but the score values are 10X higher.

## [Flying Carpet \[Gottlieb, 1972\]](#)

Skill shot is getting either the A or P letter. Getting both letters lights blue bumpers for 100, which is key to this game. Letters earned are kept from ball to ball. Ignore the stand-ups.

This is a mostly-UTAD game, except that you really need to make sure you get both the A and P before you go into UTAD mode. Don't count on being able to get the A or P via a top lane any time other than on the plunge; if you need either of them, the somewhat dangerous A and P stand-up targets halfway down the playfield sides are your best bet.

The feed from the R and Y side lanes will generally come safely to the opposite-side flipper; some nudging off the top of the L-P or A-I section below may be required, depending on the machine's slope. The dangerous feeds are from the F and C lanes just below them. If the ball goes down either of these, you usually need to bump the machine to get the ball to bounce off of the divider between the T and N or G and E outlanes at the bottom to get the ball to continue towards the center of the game and one of the flippers.

## [Freedom \[Bally, 1976\]](#)

UTAD. Do you feel lucky? Freedom is all about getting the ball in the top saucer when "lite spinner" is lit, then shooting the spinners all day. Since you can't control which center feature is lit, it's a matter of luck to get the spinner item to fall your way on a shot when the ball settles into the top saucer. Fewer than half of the shots to the top do this due to the wide gaps next to the saucer. If the center wheel is currently on "lite spinners," you can try to shoot the right side saucer for it, but that's about the only time I'd ever deviate from UTAD.

## Fun Land [Gottlieb, 1968]

UTAD through the 3-alternate-value spinners, and hope the spinners stop on 500 for you. Bit of a luck-box game, but used enough that I've included it.

## Gay 90's [Williams, 1970]

**Skill shot:** drop the ball between the top bumpers, ideally so it rolls over the little white knob that "scores lit value" [rotating awards are hole advance, open right gate, open left gate]. A full plunge is often the right strength for this.

This game is all about hole awards. Shoot the A or B targets to increase the hole value.

**Strategy:** raise the post by hitting the A or B. Continue to hit the A and B to raise the hole value. Collect hole when you feel its high enough. Hole value goes 50-100-200-300-400-500. Hole values above 50 reset down to 50 after being collected.

You may be able to repeatedly flip into the hole, let the kickout settle back on the left flipper-center post point, then flip it from there back into the hole. If the ball settles back on the righthand side, you may be able to microflip it back to the left for the repeat shot.

On some units, a full power flip from the post-cradle may be too strong and be rejected at the hole. Try a medium-level flip rather than a full one or a soft tapping one.

While a ball going into the left gate when open will score 300 or 400 points by the time it's kicked back out, keep the ball away from there just in case the kicker misses or kicks too weakly to pop the ball back into play.

The center target scores 100 and advances the hole value, but I avoid it unless I have the post up and either also have the right gate open or else have the ball cradled and my shot is at it while it's lit to open that right gate. Otherwise, it's a rebound risk.

Shots to the top usually come back to the bottom on a flipper or hit the slings; side drains from up top are at highest risk when the ball is rolling down the right side of the back of the moving target section.

**Flipper techniques:** when you get the ball between the upraised post and a flipper tip, microflipping to transfer it to the other flipper is more difficult than on other games with this opportunity. As you try to creep up your microflip to "just enough to transfer the ball," the flippers on Gay 90's tend to go nothing-nothing-

nothing-too much. This can lead to a flip straight out the right drain from the left flipper or an uncontrolled shot off the left wall from the right flipper. Be careful!

### Granada [Williams, 1972]

Visually like Spanish Eyes [especially the backglass], but with a noticeably different playfield. Like Spanish Eyes, meant to be played with extra balls ON. And not much fun to play if the bumpers are weak.

There are two ways to earn EBs on the game: one via the G-R-A-N-A-D-A letter lanes, the other via the numbered 1-10 standup targets. Finish either and then hit the corresponding special target in the center to get your extra ball. If you've finished both, hit the center special for two extra balls.

Bumper strength is important since most of the numbers and letters on the game cannot be shot directly from either flipper. Most must be bounced into by the bumpers. If the bumpers are strong, shots up top will get you a couple of the numbers and maybe an up-the-top-lane letter or two. If they're weak ... you'll wish you weren't playing the game.

Like Spanish Eyes, you get a 5000 point feature lit when you complete things, in this case, the left saucer for the letters and the right saucer for the numbers. Otherwise, most of your points come from bumper action up top - - the bumpers themselves, each target or lane you score, and the 500-point gate between the lower pair of bumpers. The two return lanes score 5000 each, big on this game, so since the return lanes are shatzable, learn to do it. In fact, if the bumpers are so-so and the shatz shot exit from the return lanes is safe, consider a shatz-all-day strategy - - boring but effective.

### Grand Prix [Williams, 1976]; T, L, F

This is one of many top players' favorite EMs, even though it's largely a UTAD spinner-all-day game. Skill shot is to get the ball in the top saucer for 5K and a bonus advance. The ball will kick out towards the right bumper. You want to nudge to try to get the ball to knock down the A and B targets above and outside the bumpers. A+B lights double bonus. If you're at a lower-level tournament or league where extra balls are on, getting A+B twice lights a return lane for an EB, three times awards the EB outright. If EBs are off, ignore the A and B targets once you have double bonus lit.

While the top saucer and the two middle-of-the-sides mini-slings below the side bonus-collect saucers each gives a bonus advance, the best way to advance the bonus is to shoot the spinners. There's a second reason to do so: once the bonus for a side is maxed out at 50K [100K if doubled], the spinner value jumps

from 100 per spin to 1,000 per spin. Most Grand Prixes have pretty active spinners, so this can be worth 20-30K per shot once lit.

Note that when you collect bonus on either side, that side's spinner reverts to the 100-per-spin value. You can rebuild the bonus, of course, and collect it many times per ball. Let's look at the math, though. Every 5 spins advances the bonus by one notch of 5,000. Thus, it takes 50 spins to max out the bonus at 50K. 50 spins when the spinner is lit is also worth 50K. So there's nothing to be gained by collecting an undoubled bonus vs. continuing to shoot the spinner.

When you have double bonus lit, though, collect it whenever you can and then go back to the spinners to refill it. Your 50 spins to refill the bonus are worth 100K in this case, assuming you either eventually collect that side saucer or that side's arrow is lit when the ball drains - - the end-of-ball collect bonus applies to whichever side's arrow is lit at the time.

Ball control: use dead bounce passes a lot. [See video of Circuit Final.] Less-than-perfect live catches tend to roll up the flipper and drain out the gaps above the return lanes. Shatz passes are clearly impractical for the same reason, and post passes aren't really necessary, just shoot either spinner.

Note to TDs: this game has a tendency to "skip" 100,000's either when counting down side bonus collects or making a really zippy spinner shot. Check to make sure the scoring reels advance properly.

Key feeds: kickouts from the collect bonus side saucers. Can you let them dead bounce safely or not?

## [Grand Slam / World Series \[Gottlieb, 1972\]](#)

Not much to this game, unfortunately. Skill shot is a home run lane at the top, of course. Your best points is if you load the bases and then get a home run, worth 5000, via either of the two standup targets to the outside of the two bumpers. But it's not likely you'll deliberately load the bases. The first, second and third base saucers all score 1000 and put a player on that base, but they tend to deflect the ball a lot - - shooting at them is more likely to not go in but have the ball arc out of control after rimming out of the saucer. Besides the saucers, you could load the bases with three three singles if you do so without scoring other hits that drive in runs baseball-style. Again, this is not that likely, even if you're a good shot, since rebounds can go down the double or triple side lanes, or into the bumpers and then up top or into a random roto target.

I just try to shoot the double and triple on the sides and if the ball settles into the saucer, fine. If I make the double or triple, the ball will continue up to bounce around the bumpers and maybe then go up top for a hit and some lane points or

else hit one of those two standups. If I do get the bases loaded, yes, I'll try not to get a hit other than a single until I can take a shot at the home run.

Note that the outlanes are both home runs, so if you have the bases loaded and drain through one of them, at least you'll cash in for 5000 points.

The roto-target at the top can give either points or a single, double, etc. I avoid it due to rebound center drain risk.

### Gulfstream / Tropic Fun [Williams, 1973]

I played this game a lot in college, and it was fun, but largely because it was set for extra balls. Since I was in a snowy climate, the tropic part [backglass scene] was welcome, too. There are two themes to this game, completing the lettered lanes and the center target. The center target scores one of the 1-9 targets, whichever is lit on the playfield below it at the time. The key here is to get either three number in a row or all four corner numbers. Doing so lights the center target and the two side saucers for 5000, plus extra balls or specials when enabled. Finishing the S-P-E-C-I-A-L letters lights the return lanes for 5000. These are the only big points available on the game; the rest of the time, these are 500, as are the lanes at all times.

Since this machine was really designed for EBs and free games, it's rarely used in tournaments.

Artwork note: while human figures in pinball art are not always properly scaled, the ones on the playfield here are exceptionally bad: the arms and legs are way too long compared to the rest of the bodies. Watch out for those sharp knees!

### Hi Lo Ace [Bally, 1973]

Kind of a bass-ackwards UTAD game. Each card [lane or target] is worth 5000 the first time you hit it, then 500 thereafter. Get as many different ones as fast as you can. Once you've scored a card, ignore it for the rest of the game. Finishing Ace through 7 lights alternate outlanes for Special; finishing 8 through Ace lights alternate middle gate lanes for Special. When the middle gate special is lit, you want to get the NON-special gate lane for 5000. The only other ways to add meaningful points at that stage are by hitting the three risky button standup targets in the middle of the game, or getting the ball to go up the Ace lane; these are worth 5000 [vs. 500] if you've got 8-A. The standups aren't worth the risk.

Note that you need to "drain wisely": on your first ball or two, out the side to collect the Jack or 6 if you don't have them yet. Once you have A-7 complete, out the lit non-special outlane.

So, short version: UTAD; once you've got all the cards, try to get the ball to come down through the lit non-special gate.

Key feeds: out of those two gates, the 7-card and the 8-card.

### High Deal / Hang Glider [Bally, 1975 and 1976]

This is a bonus plus spinner game. Bonus is advanced by the ten white mini-rollover buttons at the top when lit, by the two return lanes, by the five red standup targets [three lower left, two upper right] when lit, and from the center saucer, which gives one advance and 1000 points for each of A-K-Q-J-10 that you've hit so far on that ball. Bonus maxes out at 15000. If extra balls are enabled, you score it in a lit return lane [which one alternates on switch hits] once the five cards are completed. One of the outer EB lanes will be on once your bonus is maxed, again if enabled.

The right side double bonus lane lights randomly based on score digit [the tens digit, I think; officially, it's on an "adjustable mystery basis"]. General strategy is UTAD through either the spinner or the double bonus orbit [even if not lit] until your bonus is maxed at 15K and doubled.

Once your bonus is at 30K, it's time to deal with the five cards [pun intended]. Each card standup target scores 1K and increases the value of the center saucer. If you've got three or four of the cards completed, you can then consider taking shots at that center saucer. I still wouldn't, though; the saucer is high-risk / high-reward, giving 1000 per card plus one bonus advance per card, but if you miss it and hit one of the posts next to the saucer instead, you can easily drain.

If you do manage to complete all five cards, forget about everything but the left side spinner. The spinner is now worth 1000 per spin, which beats anything else on the playfield for risk-reward when lit. This is true even if you light the spinner before maxing out your bonus.

In the Hang Glider version of the game, the card-themed standup targets are changed into kit-themed drop targets. Scoring and strategy are otherwise the same.

### High Hand / Captain Card [Gottlieb, 1973]; T

Skill Shot – make the lit top lane for 1000; the ball should then hit the 1000 bumper and rebound off it into either the Ace of Spades [right] or the Jack of Diamonds [left], spotting you a card.

Goal – complete suits to advance bonus value; bonus is 100 for one card in a suit, 200 for two cards, 300 for three cards, then leaps to 4000 for a complete suit.

**Strategy – try to finish suits rather than get some of each: 12 cards total with 3 in each suit is worth 1,200 in bonus; 12 cards total in three [complete] suits is worth 12,000 in bonus.**

**Shot choice – from a cradle, shoot the upper suits [diamonds and spades]; you can backhand the Q-J of diamonds and A-K of spades. All but the diamond jack and spade ace can be cross-shot. When the ball is rolling down the inlane towards a flipper too slowly to transfer across, shoot the lower suits [clubs and hearts]. The top suits can be drainy when cross-shooting, so be alert. The top edge cards are restively safe if you hit them on the outer edges.**

**Bonus – collected ONLY at the saucer or side outlanes. Center drains do not score bonus! There are several shots to collect bonus at the saucer, none of which are high percentage. Which work best will vary from machine to machine depending on flipper power, machine slope and slingshot power. Shot 1 is direct into the saucer, but this must be very precise to avoid rim-out; try to feather the flipper a bit. Shot 2 is towards the gaps next to the ace of diamonds or jack of spades: when the ball falls back, you can sometimes nudge the bounce off the angled middle lane guide into the straight guide and then into the saucer [or directly off the edge of the angled guide]. Shot 3 is to bank the ball off the opposite slingshot, which angles it towards the saucer but moving more slowly than a direct shot: less accurate, but less likely to rim out when not precise, and less likely to drain if you miss.**

**The main thing on High Hand is to have the ball going slowly and not straight up-and-down in the vicinity of the hole. The Gottlieb saucers are steep-edged, which means that a ball entering one close to center-on is more likely to actually fall in than is true for a shallower bowl-shaped saucer like those on many Ballys [Little Chief, or the more common SS games like Paragon and Mata Hari]. Slower helps because, like a golf hole, a too-hard shot will rim out unless dead center, while a slower shot can fall in from the edge. Coming in from the side is better because if it does miss, fall short or rim out, it's less likely to drain down the middle. The highest percentage is the rattle-out-of-the-angled-lane nudge-in, made via shooting up top, but that's indirect. Next highest is the sling bank shot; the advantage here is it both slows the ball since the sling kicks either not at all or weakly at the proper shot angle, and that if it misses, the ball can continue higher up and turn into one of those lane rattle-out-and-ins - - thus while the shot itself isn't the highest percentage, it gives you two chances which total your best odds. There one more indirect way, a bank shot off the tip of those angled lane sides, but that's a really fine angle, although a close miss again gives you a chance at a rattler. The direct shot actually has a better chance to go in when the flippers are weak, but of course then, it's harder to finish the top cards.**

## Hokus Pokus [Bally, 1976]; T, F

**Skill shot:** two-parter here. You want to go over the top “B” or “C” roll over disks and have the ball drop through a different lettered top lane below the rollovers. You activate double bonus by getting all four letters A-B-C-D, so making two on the skill shot gets you halfway there. When possible, nudge to get the B or C lanes at the top, given a choice of those vs. A and D, since you can get the A and D letters lower down on the playfield via either the stand-up targets or the rollovers above the side spinners [preferred method].

**Ball on either flipper:** UTAD, through the spinner, unless the yellow “open gate” target is lit in the upper center of the game. In that case, shoot through the center spinner to try to hit it and open the gate.

**Ball control:** when you have a choice of which flipper to let the ball come to, take the right side. Shots with the right flipper to the top give you the chance to collect more letters through the top lanes.

When extra balls are enabled, collecting A-B-C-D twice scores it.

Avoid the A and D stand-up targets unless you just need one of them to get extra ball. Even then, I’d probably still shoot through the spinner.

## Hot Line [Williams, 1966]

Another UTAD game. Try to shoot the ball up the sides of the games rather than between bumpers.

## Hot Tip [Williams, 1977]

**Skill shot:** center saucer, ideally nudging so that double bonus is lit when the ball drops in. The saucer lights cycle clockwise on top sling shot hits, so count how many you’ll need before you plunge.

**Right flipper:** Spinner all day. Only way to get double bonus is the top saucer, so keep trying until you get it. Then keep shooting it anyway for spinner points, advances and other saucer points.

**Left flipper:** “T-I-P” drop targets, to light the spinner; getting all 6 drops lights the spinner.

## Jack In The Box / Jumping Jack [Gottlieb 1973]; T, L, F

**Skill shot:** shoot the lit saucer. Important: on most JITBs, you do this by having the ball drop through the lane opposite from the lit saucer, not on the same side! Most of the time, the ball will hit the metal rail above the saucer and bounce over

the top post to the other side. The lit saucer scores 3000 and lights the drops for 1000 each in bonus. Those are way more important than going through the lit lane at the top for 500 vs. 50. The center lane, worth 500, is too great a risk of not going into the lit saucer and not worth the risk. In any case, if your ball is about to go somewhere other than into the opposing top lane, try to nudge it to not cross over [if same side] or roll to the lit side [center lane]. But don't tilt!

**Strategy:** when the ball is on the flipper on the side opposite the lit saucer, shoot the top arc for the saucer. When the ball is on the same side, shoot for the drop targets.

The upper flippers are good for shooting drop targets, and you can sometimes do a back-and-forth shot or two where the rebound off the target goes to the opposite upper flipper.

Whenever possible, hold up the upper flippers to cradle the ball and try to get it to roll up the lanes above those flippers.

Completing the drop targets twice scores the accumulated bonus [either in 10x100 or 10x1000] and pops the targets back up. Completing them twice scores an extra ball.

Balls in the bumpers will come back into play more often than not (unless that particular machine is run down). When you see the ball heading for the top of a bumper, though, try to nudge so that it bounces up where one of the upper flippers can hit it. If your game has really lively bumpers, you may want to hold up the flipper on the side where the ball is rattling around the bumper - - if it comes out to the center quickly, the bumper can smack it down the middle before you can react. A raised flipper is a bit of a drain shield in this case.

[Note: I also recommend this tactic on *Satin Doll*, *Sharpshooter*, *Coney Island* and similar games with bumpers close to the flippers.]

### Jacks Open [Gottlieb, 1977]; T, L

This is another game where the drop target value increases as you do other things, in this case, complete more lanes at the top. Drops are worth 1000 + 1000 per completed suit lane. Thus, like on *Card Whiz*, you want to defer hitting the drops until you've raised their value. In this case, though, completing all four suits doesn't raise the value but lowers it! You get 5000 points for finishing the four suits and the lanes reset and relight. So, the ideal situation for shooting drops is to have three of the four suits completed.

**Skill shot:** get one of the four suit lanes at the top. Uncollected lanes are the ones lit, and are worth 5000; already-collected lanes are unlit and worth 500.

Given a choice on the plunge, take one of the center ones since it's easier to get one of the side ones during game play.

One you have at least two suits, go ahead and start shooting drop targets. Which ones to shoot, though, are actually the opposite of what game's playfield suggests! You do get 5000 points for completing the next "hand," e.g. the two jacks, then the three queens, then the kings-queens full house, then the royal flush, but you want to "milk" the target bank for a while before you complete it. Be careful once you've shot some drops, though: it exposes bare rubber behind them. Shots into bare rubber, especially behind the center three drops, are more likely to drain than shots to the targets.

Plan on not getting the "hand" drops right away anyway. On this game, you need to think "flow" and "dead bounce" a lot. When the ball rolls down a return lane, it will be going to slow to transfer across, but may also be too fast to cradle. You'll need to be able to shoot on the fly. And since the ball will drain if you hold up the flipper to get it to roll up the wire guide, cradling isn't as easy as on modern games. Dead bouncing is the best way to get to a cradle. You'll have plenty of opportunity to do dead bounces off of shots to the drops, but be careful: a too-fast dead bounce will also roll up and out the gap above the flippers.

Note the suit lanes also light corresponding lanes at the bottom; more lights, more points.

When the ball is headed out on of the side lanes, you can often still save it with a well-timed nudge as it gets to the post below the outer edge of the bottom of the lane. Don't nudge too soon!

### [Jet Spin \[Gottlieb, 1977\]](#)

Shoot the roto target, ignore the vari-target, and if you can make the narrow left bullseye shot and the return feed from it is good, shoot that. Avoid the standups, too, unless EBs are enabled and the standup is lit for one.

### [Joust \[Bally, 1969\]](#)

Joust is an odd-ball game with layout and rules different from most others of its era. It has no drop targets, no spinner, no end-of-ball bonus and a two-stage outlane with no return lane on the left. The primary scoring is via a set of nine white rollover disks in a chamber at the upper right of the playfield. Completing specific sets of numbers earns you points: 1 through 6 for 3000, 7-8-9 for 5000 and all nine for 10000. The ball enters the chamber from the upper left, shootable from either flipper. Once in the chamber, it deflects off pins, the rollovers and

dividers, scoring three of the numbers on the way down. Obviously, you want to nudge the game so the ball goes over number you haven't got yet.

Five of the numbers can be earned outside the chamber, as marked on the playfield. Get the 1 from the center mushroom bumper, which also scores 1000. Get the 2 and the 6 from the side mushroom bumpers, which also open the flippers if closed. The top left mushroom bumper gives you the 4, closes the bumpers and scores 1000, making it a good thing to shoot for if you can't backhand the chamber from the right flipper. And the top saucer gets you the 5, and is naturally your desired skill shot.

Any shot into the chamber opens the flippers.

There's a ball save gate on the right outlane of the machine. You open it by hitting the white rollover disk above and to the right of the right flipper. If you can nudge a ball exiting the chamber to go over it, definitely do so. You can shoot at it with the left flipper [late flip, somewhat dangerous - - a miss-hit may just drain out that same right outlane], or hit it from the right flipper with an early backhand shot when the flippers are zipped and the ball cradled.

The game overall is pretty much UTAD. The exceptions I'd make are if you just need the 1, 2 or 6 digit to reach to one of the "lighting" scores, go ahead and hit the mushroom bumper to get it, just try to graze the it on the inner side so that the ball continues up the playfield after the shot.

### [Jungle / Jungle King / Jungle Life / Wild Life \[Gottlieb, 1973\]](#)

This game is about the rollovers, 5 in an arc along each side of the game. They advance your bonus. Once the bonus is maxed out at 10000, the rollovers are worth 1000 each. [Similar to Williams Satin Doll.]

Going through the left side lane or left return lane turns on the kickback in the left outlane; going through the ride side lane or right return lane opens the gate at the right outlane.

On the Jungle King version, the top center lane lights double bonus; this is your skill shot.

### [Jungle Queen / Jungle Princess \[Gottlieb, 1977\]; T, L, F](#)

The PAPA video on this is one of the better EM ones.

Skill shot: one of A-B-C, preferably the B since you can get A and C below on the playfield.

**First goal: shoot the drops for bonus and to light the side lanes for 5000 [all 5 drops on one side lights the lane behind them]. Use the upper stubby flippers to deflect the ball or shoot the lower drops, but try not to use them too much. Transfer to lower flippers whenever possible.**

**When the ball is coming fast towards the inside of a lower flipper, hold it up to try to get the ball to roll up the return lane into the A or C. When the ball is falling towards the center of a flipper, let it dead bounce.**

**Once all of the drops on a side are down, shoot for the upper saucer above them for 5000. If the shot misses, it may still roll down the lit 5000 lane below. If the flippers are on the stronger side and you're pretty accurate, you can shoot the side lanes from the bottom once lit, too, and sometimes get two 5000s via an up-and-down.**

**Key feeds: kickouts from the two top saucers and roll downs on the right and left sides. Can you let top saucer kickouts dead bounce? Can you deflect side roll down feeds with the stub flippers to the opposite lower flipper? Which strategy you choose once your sides are lit for 5000 depends on both your accuracy and what the kickouts from the top saucers and the drops from the sides do. You want both a shot you can hit and a return you can get control of for whichever choice, top saucer or side lane, you pick.**

### **King Kool [Gottlieb, 1972]**

**Tricky game for ball control, due to double in-line flippers. Only a handful of machines ever used this flipper design.**

**Skill shot is one of the four KING letters. King letters all score 1000 and add 1000 to bonus.**

**The spinners advance bonus, but only slowly [once per ten spins].**

**Try to complete the KING letters; doing so raises the bonus multiplier to 2X on balls 1-4 and from the automatic 2X on ball 5 to 3X.**

**Shots to the lower King standup targets are actually pretty safe; the shallow angle and not overly strong flippers means that the rebounds usually come back to the flippers, albeit at odd angles.**

**You can't cradle the ball on the lower of either flipper pair, and there's a high risk of scissoring [losing the ball between the flippers due to improper flip timing]! Upper flipper cradling does work, but be careful when attempting to get the ball to settle there: you risk draining up and over the post dividers.**

**Shoot the center bullseye standup target ONLY when it's lit to "open gate."**

Most of the time, it's shoot the lower King letters or UTAD. UTAD is not as productive as on some other games since the spinners only build bonus slowly and shots through them often don't end up netting any King letters before they come back down. The angle of the flippers and spinners is such that crossing shots with the lower flippers often go spinner-10 bumper- back down right away; some will rattle around, but not a high percentage. Your best bet is to shoot through the same-side spinner, but you can only do that from the upper flippers unless you make a backhand shot on the fly. The angle from the upper flippers through the same-side spinners is pretty good for getting some action up top, since it tends to go between the bumpers. You might even go up the I or N lanes.

### King of Diamonds [Gottlieb, 1967]

A blatant case of UTAD, ideally shooting at the 50-point K and Q standup targets.

**Skill shot:** get a lit lane for 50 points. I prefer the 9 and 6 lanes since after rolling through these, the ball is likely to hit a bumper and score the K or Q target, possibly bouncing back and forth to do so more than once. Balls missing the lanes completely and coming through on either side of the center bumper are the worst.

Don't even think about anything at the bottom. But if you see the ball nearing one of the side "spin roto" lanes, try to get it to go through there rather than roll off the other side of those triangles towards the center.

**Key feeds:** the 4 and 5 side lanes. To a lesser degree, the K and G lanes at the top as regards can you nudge the ball off the bumper below each into the nearby 50 point standup targets?

### King Pin [Gottlieb, 1973]

How about a straight row of 10 drop targets? Ten bowling pins, ten drops. How About a game where making bank shots is important? Here, it's all about hitting the lit pin, worth 5000 instead of the base 500 points. The star rollover in the center of the game moves the lit pin.

The skill shot is to drop the ball into the lit saucer at the top for 5000; that's big points on this machine. The unlit one is worth just 500, and missing both is common if you're careless. Line up your skill shot mark and prepare to nudge a bit to make sure you get it.

Once the ball falls down to the top of the playfield, try to hit the lit pin for 5000. Hitting unlit ones is okay, too, since completing them will score 5000 and reset them, guaranteeing some points and that one is again lit. When the ball exits the top, it usually rolls smoothly down the face of one of the top slingshots without

triggering it. Timing your shots when the ball gets to the flippers is critical on this game. You'll be banking your shots off of the opposite slingshot, so think about the angles when you shoot. You'll find that shots to the drop targets often rebound towards the other flipper due to the angle you're shooting from, allowing you to do some back-and-forth target shooting. Some hits will rebound more down the center, where you can try to catch them on the lower flippers and take straight-up shots from there.

If you have the ball cradled on a lower flipper when there is no lit pin on the opposite side of the playfield up top to shoot at, try shooting the ball just in front of the upper slingshot all the way to the top of the game to score a 5000 saucer there.

The side outlane angles here are a bit different from other machines; balls going in fast that don't touch the top curve have a decent chance to bounce off the side wall into the return lanes. When the ball goes in slowly or hits that curve, you're likely toast.

Key feeds - - balls through the top side lanes; ideally, you want the ball to come to the opposite flipper and get to a cradle.

### [Knockout \[Bally, 1975\]](#)

UTAD, through either spinner. Skill shot is the center wiggly lane leading to the saucer. When the ball is up top, if you can't nudge it into the wiggly knockout lane, the two outside lanes over the bumpers with the white lights are better than the two inner lanes.

Note that one of the center wiggly awards is double bonus, but it's on a switch hit cycle, you can't change it on your own. If it's not lit, just go up top again, eventually it will be.

Ignore the two bottom standup targets.

As for the center saucer, it scores 30 the first time shot, 300 the next time, and 3000 per shot thereafter for the rest of that ball. But it's a risky shot due to the posts on either side, so I usually don't bother shooting directly at the saucer either.

Key feeds: when the ball comes down through either spinner, does it trigger the slingshot or roll down to a flipper? And how's the kickout from the center saucer? The saucer kickout should hit the left flipper, but you need to determine if you should dead bounce, live catch, hold up the flipper, or maybe need to nudge, too, if it tends to come out too close to the slingshot or flipper pivot.

## Liberty Bell [Williams, 1977]

Also known as “Grand Prix with no return lanes,” like that game, this is a UTAD through the spinners, other than shooting for one of the double bonus saucers when you light it. Completing B+E or L+L lights the side saucers for double bonus; you need to get the saucer to activate the doubling. It’s worth shooting at when your bonus is high, since bonus maxes out at a base of 100K, so a shot to double that is way more valuable than a spinner shot even with the top saucer at 30K [see below].

Completing B+E or L+L also advances the top saucer value from 500 to 5000, 10K, 20K and then 30K. This makes UTAD all the more valuable as your letter completions go up, since you not only get spinner points but a good chance at higher saucer points. The saucer kickout goes to the right bumper, and will often then rebound into the E target for you, meaning you just need to nudge and or go back up top to try again to get the B target.

Caution: when the ball hits the B or E targets, if it falls straight down, it’s at high risk of a center drain. You want it to graze something as it exits the top playfield area so that it comes out at an angle.

## Liberty Belle [Gottlieb, 1962]

Hit the center standup target to light the bumpers, then UTAD. If you get a clean shot at a roto target lit for 10x, take it.

Note that **\*\*exactly\*\*** one of the roto targets is always lit; it cycles on switches. AFAIK, one bumper is always lit, too [also cycles], until you hit that center target, then all 3 are lit.

A few things to note on this game regarding the roto targets:

1. Your best chance at hitting the roto targets for score is "bumper love," so get the ball rattling around the top as often and as rapidly as you can.
2. The inner roto targets, i.e. the two next to the top rollover entry lanes, can only be shot directly from the opposite side upper flipper, through a gap in the upper bumpers.
3. A good way to try to deliberately score one of the outer two roto targets when lit is a flying backhand, i.e. when the ball is coming out of the top bumpers towards an upper flipper, flip early and try to deflect the ball up into the target above the flipper. You actually have two or three chances to hit it that way - - one directly, one via a bank shot off the outer edge of the top bumper, and a slim one if the ball skims off the upper slingshot above it into the target.

4. It may be possible to score the outer rotos with shots from the lower flippers, but on some of these games, the flippers aren't strong enough to do so consistently. If that's the case, use the lower flippers to feed the upper ones and treat it like a two-stage rocket.

### Little Chief [Williams, 1975]; T, F

Generally UTAD, but with a few specifics.

**Skill shot:** the A lane at the top. B is okay, A is better. Why? A lights the upper right advance bonus slingshot, while B lights the lower left advance bonus standup target. The upper left sling is by far the safer of the two to shoot at, and the more likely to be hit accidentally as well.

Keys here are building up bonus, doubling it, collecting it, repeating.

Lots of stuff advances bonus - - top lanes, left center rollover button, standup targets. Double bonus is earned one of two ways: shooting the center saucer [or having the ball drop into it from above]; or collecting the top center lane when lit. That lane is lit by collecting both the A and B lanes next to it.

Three saucer shots, or three lit center lanes, advances the saucer to level 3, where a drain out the lit side scores an extra ball [if enabled].

**Strategy:** shoot up top until you get both A and B to light the bottom gate and the top center lane. Shoot top again to get the center lane for double bonus. Then shoot the open gate to collect bonus. Repeat.

Basically, every shot with the right flipper should be up top. From the left flipper, there are 4 choices, depending on where your bonus stands. If the base bonus is not maxed out, you can either transfer [may be risky] or shoot at the upper right "advance bonus when lit" mini-sling. If the bonus is maxed, or close, but not doubled and "light double bonus" is on, you can shoot the center saucer, but this is also risky since misses can drain. And if the bonus is doubled and at or close to maximum, your top priority is to shoot the collect bonus gate at the middle right of the machine.

If you're still building up bonus, try to get the ball to the right flipper; if your bonus is built up, try to get it to the left. Learning the feeds and dead bouncing and return lane transferring are the easiest ways to do so.

**Key feeds:** balls rolling down the left over the 3 discs; through the upper right advance bonus lane; kickout from the center saucer.

**Key Feed Caution Zone:** when the ball is approaching the center saucer from above, it may encounter the post directly above the saucer. It may or may not

also hit one of the two posts below the sides of the saucer. In either case, if the ball falls to the outside of the side posts, you risk a drain out that side of the machine, either directly or off the top of one of the slingshots. Nudge to avoid the ball rolling outside; if you can't prevent that, be ready to try a nudge lower down to avoid side draining. You want the ball to go to the inside of these two lower posts and drop towards and ideally into the saucer. But don't be complacent when the ball does go inside the posts towards the saucer: if it doesn't settle smoothly into the saucer, it may become a center drain.

### Little Joe [Bally, 1972]

Shoot the upper right saucer all day. Seriously. Lit, it's worth 5000; unlit, it's still worth 3000. Beats anything else you can do for risk-reward.

As for what the other stuff on the game does ... You get a white dice value from the plunge, 1 through 6 at the top lanes. If you get the ball through a gate and re-plunge, the white dice value changes to whatever the new plunge goes through. The yellow dice value advances by one for each hit to a yellow mushroom bumper, going from 6 back to 1 at the end of the cycle. When your combined white + yellow dice total is either 7 or 11, it changes the top right saucer value from 3000 to 5000 and makes going through the upper gate on the right worth 5000 as well. When the combined value is 6, the upper gate is open. When the combined value is 8, going through the upper gate or hitting the standup target to the left of the top #6 lane opens the lower gate. A combined value of 4 lights the extra ball target. When the combined value is 2, 3, 5, 9, 10 or 12 ... nothing happens.

If you happen to get the center post up by hitting the marked rollover in the center of the game], try to let the ball drop onto the flippers and rest against the post, then use microflips to get the ball onto the left flipper just high enough to shoot at that top right saucer.

### Magic City / Magic Town [Williams, 1967]

While I don't think much of this game, I have seen it used in competition, so here's a quick summary. Skill shot is to hit the top "advance and on bumpers" rollover, then drop down into the lane for a M-A-G-I-C letter you don't yet have. Then it's UTAD; you want to try to nudge the ball off the top of the three upper bumpers so that it goes up one of the MAGIC letters and then down another one. There are two reasons for this: first, those magic lanes are worth 100 points each, the highest value on the game. Second, once you finish magic, you want to hit the center standup target to get the star. Getting the star lights the upper blue bumper for 100, which then becomes your top UTAD goal. You can try shooting

at the center target right away to advance your magic letters towards the star, but rebounds and misses can be dangerous; exercise caution on that approach.

C-I-T-Y is useless other than for replays and extra balls, which will be turned off.

## Mars Trek [Sonic, 1977]; T

Frequently used in tournaments, Mars Trek is another bonus-heavy game, but one with challenging angles. Let's get to it.

The skill shot is usually to get the top saucer for a bonus advance, but that may not be the case depending on the kickout from that saucer and where the ball goes if it instead drops through the top R or T lane. You'll be going up top most of the time on this game, so pay close attention to these three key feeds! When the ball goes down the R or T, it travels down-and-left along the rubber below them, usually hits the back of triangular piece behind the center target, then rolls towards the MARS targets. It will either hit one of those targets or the wall or posts between them. If it then rebounds down the center, you want to avoid the lane it went through leading up to all that. Note that the ball will be moving faster when going through the T than through the R [longer fall], so it will bounce in different places for each letter. The bounce will also vary some from shot to shot. If the machine is reasonably nudgeable, you can compensate to some degree, so one or both letters may still be safe with good nudging.

The saucer kickout, meanwhile, may go between the red bumper and the R lane and somewhat towards the lower right slingshot. If it hits the slingshot or the post on top of it in a way that regularly deflects the ball to someplace you can control it, good. Ideally, whenever you send the ball up top, you want it to come down through whichever of these three routes is safest. It can also come down on either side of the red bumper without getting any of those three, but this gets really random, so you'll just have to deal with those cases as best you can.

Bonus maxes out at 100,000. It is advanced via the top saucer [which also spots T or R], the E and K return lanes, the star rollover at the upper left, and the spinner behind the saucer on the right. Scoring both E and K doubles your end-of-ball bonus, but NOT the value of the collect bonus saucer [see below]. Besides the return lanes, E and K are shootable via the center target which alternates between them. The catch is, that center shot is risky, with rebounds often draining out the left side [the target is angled facing left]. If you've finished T-R-E-K, the center target is worth 10000, but I still wouldn't shoot at it then due to that rebound angle.

Strategy is UTAD until you've maxed your bonus, except that if you happen to get the E or K and have the center target lit for the other one, shoot it to get your

doubler. There's a collect bonus saucer up the right side, with that spinner-in-a-horseshoe behind it. Once your bonus is maxed, you have a decision to make: to shoot the Collect Bonus saucer or not. Unlike most games with a collect bonus feature, you often don't want to shoot at this! If you've made no progress on the E-K doubler, it's an easy choice to cash in and try to rebuild your bonus. If you're at 100K, however, it's a tough call since the collect bonus is NOT doubled. You're then taking a sure 200K [if you don't tilt] and trading it for 100K plus whatever you might earn for the remainder of the ball in play [well, 110K, you're spotted back one bonus when you collect]. You need to consider where you stand versus your opponents and what ball in play you're on to make a wise choice.

Flipper technique: don't flip with the third, upper right flipper except to try to deflect the ball in a safer direction than its current path. The M-A-R-S targets across from it are not worth the rebound risk to hit, and a missed shot may drain out the left side. [You do get 10000 if you finish all four MARS targets].

### Melody [Gottlieb, 1967]

Completing numbers 1-2-3-4 is good [1's, 2's and 3's score 50, the 4's score 100]; getting lots of saucer collects is better. The saucers kick out from one to another left to right until the right one kicks the ball towards the right flipper. If you can, try to flip from the kickout into the left saucer to repeat the process; if not, UTAD. Ignore the bottom "3" targets. Hit the center 100-point standup target exactly once, to light the bumpers; ignore it thereafter unless the ball goes through the 50-point "bumpers off" gate between the upper bumpers. If that happens, go ahead and relight the bumpers with the center target.

Note there's a center post between the two central outlanes; use it, and try not to flip then - - if you do and you mis-time your flip, you'll drain either down the center or under the flipper. If you do get the ball stuck under a flipper [between the tip of the flipper and the larger posts below the tips], try to do a rapid multiple flip to get the ball to bounce off of the large post and back into play.

Saucers score 10 + 10 per lit number of that color. If you have all four numbers of a color lit, the hole awards an extra ball, if enabled. For instance, the top left "1" lane, far left central "2" lane, left side "3" standup and left "4" outlane, once collected, lights the left hole/saucer.

### Miss-O [Williams, 1969]

Skill shot is the center lane for 200 points. While the ball is up in the bumpers, try to nudge it into hitting the top left "A" and top right "D" yellow standup targets to light the bumpers. After that, shoot the center horseshoe shot [500 points] when

you can, go up top when you can't. The horseshoe shot is pretty narrow, so if you're not sure you're accurate enough, stick with UTAD. Likewise if the feed when the ball comes out of the horseshoe is bad, avoid it.

Balls can and do sometimes come back up into play after dropping into the zone around the bottom center bumper. Try not to flip when the ball is in there unless the ball is clearly above the edge of the flipper [in the unpainted wood area]. If you flip at the wrong time, the ball can drain under the flipper for zero points. If it drains down one of the three center lanes [ideally the middle one], at least you'll get points.

### Monaco [Segasa, 1977]

UTAD left side through the spinner to fill up your bonus; UTAD right side to the saucer to collect bonus. Rinse and repeat. Ignore the two lower saucers.

Here's a case where settings matter. This first requires telling you more about the machine set-up. Monaco has a swinging target right in the center that sets up double bonus in an odd way. On the standard Monaco setup, you need to hit the swinging target when it's in each of the two "1" or "3" positions [right side and left side, one indicator light for each of the two positions, center positions don't come into play here] to activate double bonus. Since the rebound off of the swinging target may drain [or you may miss it and have the rebound drain], it's too risky a shot to be worthwhile much of the time. However, I was at a recent tournament where just one hit to the target in the "1" or "3" zone awarded double bonus. Now, it's a good idea to shoot for it, especially once your bonus is up over 50,000.

When you shoot the bonus collect, your bonus is scored - - without the doubling - - and your bonus is reset to 10K. If you have the double bonus activated, your playing strategy changes. Shooting the upper right saucer still awards your bonus, but without the doubling you can actually lose points by shooting it and draining before you can "refill" your bonus. For example, if you have 100K bonus built up with the doubler lit and collect your bonus at the saucer (resetting your bonus to 10K), but then quickly drain, you now earn 120K total vs. the 200K you would have earned when the ball drained if you hadn't shot the collect saucer. If it's ball 5 and you were behind by 150K at the time, you just changed a win into a loss. So while you can shoot to collect now, whether or not you should depends on the game situation. If you're 300K or more behind, it's probably worth the risk to collect and hope to refill your bonus [the doubler stays lit for the remainder of the ball once activated, but it does not carry over to the next ball] since you need to go big to win. Your other option in this case is to avoid collecting and milk the spinner and top lanes, i.e. UT-left-side-only-AD to work your way up. Since the top lanes are worth either 5K or 10K, plus you'll get spinner points and some

bumper points each time you successfully execute it, you can still get a couple hundred thousand this way; it's now a matter of surviving how the ball exits from the upper bumper area more times than in the case of build-and-collect.

Note that this is like Mars Trek and Cherry Bell, among other games, where you have a collect-or-not-when-bonus-is-multiplied decision to make.

### Night Rider [Bally, 1976]

UTAD through the spinners. Skill shot is to get just enough switch hits at the top to get the ball in the saucer when it's worth 5000; it cycles left-to-right on 10-point switches. When the top saucer is lit for double bonus, do whatever you can to get it. Ignore the drop targets; while worth 3000 points when completing a bank, they're a drain risk.

### Old Chicago [Bally, 1976]; T

Skill shot: the lit lane at the top; note that it switches sides with top rubber hits, so nudge accordingly for the left side or lag plunge it for the right side if you can get it to dribble in without triggering the right rubber's switch [not that easy, it's pretty sensitive].

This game is all about the bonus. Shoot the spinner on the left to advance it, collect it at the center saucer. If the ball is on the left flipper and you have little bonus, you can shoot the drops or saucer in the upper right for points. If the kickout from the saucer comes clean to the right flipper, though, either by cradle dead bounce or live catch, you can shoot the saucer as a ball transfer. Then shoot the left spinner.

Once the saucer value is high enough, just repeat saucer shots as much as you can, using whichever technique [dead bounce, catch, trap] works best to set up a repeat shot.

This is a great game for patience and for practicing dead bounces. Many bounces will end up dropping towards a flipper, and dead bouncing is most often the best way to get control. Most Old Chicagos play slow, too, other than when the ball is in the bumpers.

Speaking of ball in the bumpers, if your bumpers are reasonably active, don't worry overmuch about shaking the game while the ball is in them; it doesn't drain through the lanes below them as often as you'd think unless the bumpers are weak.

## **Orbit / Outer Space [Gottlieb 1971, 1972]**

You may have seen its solid state younger brother, Super Orbit, in a tournament, but the original Orbit has pretty much the same rules as junior, just one less scoring digit. He's the scoop.

The skill shot is to plunge the advance bonus lane, the center of the three at the top left. Just watch out, on some games the ball may then go SDTM.

Strategy is three-fold: one is hitting the vari-target, which advances bonus and scores points; the further back you push it, the better, up to 5000 plus 5 advances. Note where the ball rebounds after you hit this; you may be able to get the ball back to a cradle on the left flipper after your shot. Second is shooting the right side spinner, which also advances the bonus and is usually a safer shot than the vari-target when you miss. Third is towards the upper always-open gate, good for 3000 and a free plunge.

There's also a lower gate, opened when the ball goes through the left return lane, so nudge the ball into that when you can. Note that shots through the upper gate will close the lower gate if it's open.

Bonus maxes out at 10,000 and is doubled on the last ball.

Ignore the 500-point lanes and standup targets.

## **OXO [Williams, 1973]**

OXO shares its playfield design with Gulf Stream / Tropic Fun, but has a different rule set, so I'm listing it separately.

Each of the six top lanes, two side lanes, two return lanes, center target and lower center rollover scores the tic-tac-toe square indicated on the playfield by that lane, placing an "X" or an "O" in it. For the top six lanes, you get the letter as marked - - 3 X lanes, 3 O lanes. For sides lanes, return lanes, center target and center rollover, you get whichever X/O letter is indicated as active at that time in the lit circle above the flippers. So the top 6 lanes are "hard-coded," while the other squares toggle. If you get three X's or O's in a row, that lights the side saucers for 5000.

One of the first things to do is shoot up top to get the A and B standup targets; scoring both lights the center bumper and opens the gate at the right outlane. Your bonus is 1000 per lit square, so you want to score as many different lanes as possible. Ideally, you want to line up X's or O's, but do get squares whenever you can. Bonus is tripled on the last ball. I believe it's that lower rollover that toggles the X and O.

## Pat Hand / Satin Doll [Williams, 1975]

This game is somewhat deceptive. Many players focus on the side joker targets or the lit 3000 target among the five in the top center bank. Nope. The big, safe[r] points here come from the rollovers at the very top of the machine. Soft plunge or skill shot to get the ball to roll over as many top rollovers as possible before then rolling smoothly over the rollovers above the upper left flipper. When the ball gets to that flipper, shoot it back up top to repeat the roll-down. Rollovers add to your bonus. Once the base bonus is maxed at 10,000, then you can deal with the center cards A-K-Q-J-10. Finishing them once lights the rollovers for 1,000; two completions lights double bonus. Once the rollovers are lit, forget everything else and throw the ball up top whenever you can, shooting along the upper left rollovers from the right flipper and straight up above the top joker from the left.

**Key feeds:** both sides of the top arc. When the ball dribbles off to the left, does it roll over most of the star rollovers on the left? If yes, get this as much as you can. If not, especially if it misses them all, switch tactics. When the ball dribbles off to the right, how high is the drain risk? Speed matters.

As for the two bumpers, simply hold the left flipper up at all times when the ball is in them to avoid center bumper-slam drains.

## Poker Plus [Recel, 1977]

It's all about the aces, 'bout those aces, 'bout those aces, but they're trouble.

**Skill shot:** soft plunge for the top center "light both 10X" lane; next best is for either side 50000 lane. Do not full plunge!

Shoot Aces until you've got all four, then shoot the center target. Doing this twice gives you double bonus. Besides, shooting the aces is the only way to build base bonus. Note that hitting the center target resets the ace drop targets, so if you hit it too soon, while you will build your base bonus, you'll have to start over again to set up the double.

If you survive the rebounds from the ace shots long enough to max and double your bonus, shoot them again but don't hit the center target any more! Now, shoot the ball up top to try to collect either of the side "X 10" rollover lanes when the ball comes back down; these are worth 50000 with all four ace drops down and the 10X lit.

## Pro Football [Gottlieb, 1973]

Skill shot? Nope, this game autoplunges the ball out the center drain when you flip the right flipper. That's actually one of the most dangerous moments on the game. If the autoplunge is too weak, the ball might hit just one or two switches, then fall back down to a center drain. Watch out!

Your best points on this game are the center spinner and the vari-targets. You can hit the spinner with any of the four flippers, but you'll do best to use the lower ones since the shot angle is better for going through. The vari-targets score more the further back you push them; which flipper, upper or lower, does that better is a bit more variable from machine to machine. It's also affected by how steep or shallow the game is. And this is another case where you may need to have the ball rolling down the flipper face to add that extra bit of energy to the shot to push the vari-target all the way back.

Touchdowns are scored every 100 yards and award 6000 points. The lanes, spinner and vari-targets all spot you yards towards that.

The upper flippers of each pair are better for getting the ball up top into the bumper zone; here, the ball can get popped up one of the top lanes for yardage towards a touchdown and points. Obviously you prefer the 50 yards / 500 point lanes [center-most of the three lanes on each side at the top and also the two far outside lanes, one on each side] to the lesser ones when given a chance to nudge between them as the ball is popping around. [Oh, ignore the "when lit" on the top lanes; they always score those values.]

## Prospector [Sonic, 1977]; T, L, F

Built by Sonic [Spain], and playing a lot like a Williams, Prospector is a frequent favorite for Classics tournaments. It has two major strategies: Gold Bonus [primary] and Lit Spinners [secondary]. The gold bonus maxes at 2 times 100K. Build it by shooting the left orbit [or nudging the ball to fall down through that lane from above]. You can also advance it by hitting any lit gold star rollover - - at the top of the machine, when lit, either on the skill shot or from bumper action kicking it up from below, or two on each side of the playfield. Don't bother shooting the playfield star rollovers, though, especially the left side ones. The ball rebounds too randomly off these. Shooting the two on the right is okay, but you're generally better off shooting for the 5-6 if you don't have them yet, or the spinner [see below].

The 2X bonus is achieved by hitting the number 5 and 6 standup targets on the middle right side of the machine. Targets 1-4 are for lighting EB, which will almost always be turned off.

Silver bonus is built up mostly via the two center spinners: spin them enough and the bonus goes up to 10K, collectible in the center saucer or far upper right saucer. But try NOT to collect it! Once the silver bonus is maxed, one of the spinners will always be lit for 1000 per spin. That's more valuable than collecting it and relighting it. Either spinner can be hit from either flipper. Light it and rip it!

General order of business is any time the ball is in control on the right flipper and your base gold bonus is less than 100K, shoot the left orbit gold lane. From the left flipper, shoot for the 5-6 targets. Once you've completed either task, change your shot with that flipper to the silver spinners to light them and then spin them lit.

Note that most left gold shots will continue across and into the scoop on the upper right side. This adds 5K and a silver bonus advance, making this dual shot worth at least 15K plus whatever improvement that gets you on silver. The scoop then kicks out into the bumpers.

Ball control: you can't shatz up the return lanes due to the sharp corner in the wires, but you can use the move to transfer the ball to the other flipper. Some players choose to shatz left to right to max out the gold bonus at 100K before going for the 5-6 targets as a safety play. Be careful shooting the 6, the rebound may hit the post to its left; shots at the 5 usually continue up top.

Side drains are much preferable to center: 10K plus a gold advance, worth another 10K if you're not maxed, 20K if doubled. If you're playing last, or after your main opponent, keep that in mind if that would be enough to win.

Key feed: left gold lane. When the ball comes down it, does it go safely to a flipper at all speeds, only some speeds, or never? Learn when to nudge this, if needed.

## Ro Go [Bally, 1974]

Ro Go is another bonus-focused game, but more balanced than many others. Your skill shot is the top center lane, which scores 1000, opens both gates on the right side and advances bonus by 1000. The two top saucers each score 500, give two bonus advances rather than one, but only open one gate - - the right saucer opens the upper gate, the left saucer opens the lower [center of the playfield] gate.

Only one of the four highest-scoring shots on this game can be shot directly - - the center horseshoe. This is good for 5000 and five bonus advances, plus the advance switches you go over on the way up and down. Going only partway up either side of it earns 1000 and one advance if you just barely trip the switch,

2000 and two advances if you go past the switch far enough to trip it a second time on the way down.

The other three high-value shots each require an indirect approach. One is the collect bonus chute on the left side, where the ball needs to bounce sideways through the gap to go in. The other two are those gates when open - - you score 6K through the lower gate or 8K through the upper one and it returns the ball to the plunger lane. You want to nudge the ball through them whenever possible.

Basic strategy is shoot the center horseshoe when possible, UTAD and pray for going through an open gate or dropping into the collect bonus chute. If the flippers are strong enough to backhand the horseshoe, that provides you with a wider angle to make the shot than going cross-field.

### Royal Flush / Card Whiz [Gottlieb, 1976]

**Skill shot:** go for the white joker lane, the center of the three colored lanes at the top left. This lights the long white lane next to these on the left side for 3000. The pink and green joker lanes are the next-best options; either of these lights the same-colored return lane and outlane for 3000. Try to avoid having the ball come down to the right of the triangular piece at the top of the game - - this can lead to a center drain.

**Ball on right flipper:** shoot left side white lane to get ball back up top into area where you can collect any remaining top color lanes until all three colors are collected. Then shoot drops until finished, then white side lane again. This is most valuable when the left side lane is lit, i.e. after you've collected the white top lane, but is still the best strategy even when it's not lit.

**Ball on left flipper:** transfer to right flipper until you finish all three colored lanes, then you can use it to hit the drops. Oh, shoot the jacks first (!) since the rebound off of them can go into the "open gate" lane on the right side; usually it's the rebound from the right-hand jack. Optimal order for the drops is 2 jacks, 3 queens, 2 kings, ace, ten.

You shoot the drops after you get the colors because the drop value is 1000 + 1000 for each color.

Ignore the saucer.

If you finish the drops, continue shooting the left side with the right flipper and shoot the center pad from the left flipper.

**General strategy:** shoot up the far left white lane whenever you have the chance; it's good for 3000 when lit, plus you'll have a chance to light the other two colors

while the ball is up there. You can also sometimes get an up-and-down for 6000 total.

**Key Feed:** left lane below the 3000 switch - - where does it go? Does it bounce off the rubber post below it and come to the right flipper? Stay right of and miss the post and come clean to the left flipper? Ever go SDTM? Hit the post and go to a slingshot?

Once you have all three colors lit, you can start shooting drop targets from the left flipper. These advance your end-of-ball card bonus. If the ball is on the right flipper, stick with the far left lane.

Note that shooting the Jack drop targets often rebounds into the right side long lane, opening the gate. The gate saves balls going out the right outlane. This is a good shot to make from the left flipper early in the ball.

If you finish the drop targets, you can shoot the center 5000 pad target, again from the left flipper.

While you can light each of the white, pink and green lanes with the joker standup targets, don't shoot at them - - too risky compared to going up the left side. If the ball bounces into one of them to light it, fine.

Last ball strategy: since ball 5 is double bonus, the targets become more valuable if you can complete bonus sets, so shifting to target shots sooner is worthwhile.

### Royal Guard / Palace Guard [Gottlieb, 1968]

This is a fine example of a "deferred UTAD" game. There are 5 lettered lanes at the top, A-E. Each lights an outlane for 500 points [base value is 50], corresponding to the outlane positions from left to right, e.g. the "A" lights the far left outlane [of the two on that side], C lights the center drain. Ideally, you want to get the C first so you're covered while using the flippers, then get a different letter each ball after that. When draining out the side, remember to nudge to get a lit 500 lane if only one of the two outlanes on that side is lit.

Note, like most early EMs, once you light something, i.e. a letter, target or bumper, it stays lit for the remainder of the game.

The primary feature here is the moving center rail of four colored disk targets, blue, red, yellow and green. Each disk lights a feature of the same color in the upper playfield when hit. When the rail is on the left side, the hit target lights a standup target above; when the rail is to the right, it lights a bumper. Once lit, any of these stay lit for the rest of the game.

**Strategy:** hit as many of the rail disk targets as you can to light upper playfield features. Once you've got most of the features lit, especially the standup targets, go UTAD. Nudge the ball when in the bumpers to try to direct it into any lit standups. And if the opportunity arises to nudge to get the ball to go up a not-yet-lit top lane [A-E], by all means do it.

The ball will rarely drain directly from the upper playfield; it's a tight angle to the sides, and a relatively small portion of the drop-downs from above go clean down the center without a chance to bounce them off a flipper or post. Most drains happen because you are unable to get control of the ball and it deflects around the lower playfield until going down the center or sides.

This is another back-loaded game as far as scoring, i.e. most of your score will come on balls 4 and 5 since you'll have the most features lit then. Don't let a bad ball 1 or 2 get to you; if you can get enough things lit later on, you can make a good come back.

### **Safari [Bally, 1968]**

A total flailure. You'll rarely be able to get any kind of ball control, so just focus on UTAD, with grazing hits off the mushroom bumpers where possible, and through the upper right gate if you can manage it. As indicated at the top of the machine, the skill shot is to hit the top sling to light the center lane, then have the ball go in that lane.

### **Scuba [Gottlieb, 1970]**

Scuba is an interesting case, but many feel it's more of a luck-box than most EMs. In this case, rather than collecting a set of lanes to make targets worth more, you're doing the reverse: collecting sets of targets to make the lanes worth more. Here, the five stand-up targets below the top lanes and largely hidden from the flippers by the three bumpers are the key. Completing all five of them scores 500 points and increases the value of three lanes from 50 to 300. Values hold from ball to ball, so finishing them as early in the game as possible is the key to victory. Hitting them is another matter. Only two are directly shootable from the flippers; the center, right and left targets are behind bumpers. They're so important, though, that you must forego all else and try. You're best bet is to try to hit the two open targets on their edges so that the ball bounces sideways; the ideal situation is to get the ball zigzagging at an angle between the three bumpers and the five targets to hit as many of them as possible. Just keep shooting the ball up between the bumpers.

Once you have several lanes lit ... not much change. While you can try to shoot the ball up the right- and left-side 50 / 300 lanes from the flippers, I've found that's

not easy to do with the corners there, rather than a curved lane bottom. UTAD seems to work well, trying to get all of the lanes lit, then maybe getting the ball to up-and-down some of the top lanes off the bumpers.

If you see the ball heading for the top of the left lane on the right side [the one that drops below towards the flippers, try to nudge the ball off the post over to the outer lane that feeds the plunger. That'll get you lane points plus plunge points. Similarly, on the left side, try to nudge for the outer lane rather than the inner one; the feed from the outer lane is usually cleaner to the left flipper than from the inner lane.

### Sinbad / Eye of the Tiger [Gottlieb, 1978]; T, L, F

Sequence matters. You need the single white target to advance to double bonus; the two yellow targets plus the white one give you triple; white, yellows and the three purple targets gives 4X; and adding the four red drops makes it 5X. But if you have nine of the ten drops and the one you're missing is the white one ... you're still at single bonus. The order you actually hit them in doesn't matter, just which ones you've got so far. If you get the white one last but do get it before you drain, you'll still get your 5X. But obviously you want to get them in order in case you drain before you get them all.

Each completed target color set also lights the corresponding top lane for the higher value - - the white lane on the right goes from 100 to 1000, the yellow lane from 500 to 5K, purple from 1000 to Extra Ball, red one from 5000 to special [useless in competition]. If extra balls are enabled, one strategy is to shoot for the purple targets first, then flip the ball up top and try to get it to drop through the purple lane to score the extra ball.

Center spinner advances bonus 1K for every 5 spins. Green star rollovers on the upper left advance bonus 1K each when lit; top lanes light them, one for each. So go up top to advance your base bonus and get the drop targets to multiply it.

Once you finish the drop targets, the bonus will be collected, and you can rebuild it and collect it again. You'll need to redo both the base and the multiplier. The bonus counting down can be distracting if you're not expecting it; the best thing to do is go back up top while it counts. You don't have to cradle up while it does so, and anything you score while it's happening will be kept.

### Sky Jump / Free Fall [Gottlieb, 1974]; T, F

No UTAD here. This game is all about targets - - lighting them and hitting the lit ones. But unlike most machines, these targets have three factor-of-ten values, not two levels or an add-a-value. Base target value is 50. This goes up to 500 for

any target for which you've scored the lane number corresponding to the target number. Finally, one target is always lit for 10 times more than whichever of these applies; it changes each time you hit the bumper that says in big letters "moves 10X target lite when lit." [Can't get much clearer than that! I believe the "when lit" cycles on the tens digit.] So the big points on this game is lighting as many targets as possible, then hitting the lit one, changing which one is lit and hitting the next one. You also get good points [5000] each time you complete the target bank, which then resets. Oh, yes, the numbered lanes collected carry over from ball to ball for the entire game. Thus you will likely score more points on your last two balls than on your first three.

**Skill shot:** I prefer to go for the 4 lane first; you then have a chance to nudge the ball off the center bumper towards the upper 1-2-3 lanes and get a second number on the way down. Once you have the 4, get the 7 and 5 next in that order: the 7 gives you a chance to score the right side lanes, while the 5 just drops onto the bumper and starts going random and is thus riskier.

Try not to plunge the ball into the 6! Really. Even if it's the last number you need. If you get it by accident, fine, but avoid getting it from above. Why? Many Sky Jumps are aligned such that the ball will go straight down the middle fairly often after falling through the top 6 lane.

How to get the 6 then? Shoot the ball up the 6 from below. It's not as hard a shot from the left flipper as you might think.

**Key feeds:** when the ball comes down either side, where does it go? The right side is mostly one speed, i.e. all the way from the top down, since the ball rarely goes through the gap between standup targets into it. You can probably let it dead bounce off of the left flipper onto the right flipper. You may also be able to drop catch or raise the flipper and cradle up, depending on how far up the flipper it comes. As for the left side, there will be two different exit speeds - - down the 1 [fast] and post-2 or 3 lane [slow]. Learn where the ball goes from each; nudge if necessary to avoid center drains.

Okay, let's assume you have the ball on a flipper. If it's the right flipper and one of the targets is lit for 5000 [both the lane has been collected and the moving light is on it], or you just have one target left to finish the bank, shoot it! Otherwise, shoot the ball up top to either try to collect another lane or move the lit target.

If the ball is on the left flipper, you can probably not hit any target left of the 5. If the 5, 6 or 7 is lit for 5K or is that last target, take it, otherwise you can shoot the ball up top, through the 6 lane if you can do it. Numbered lanes are worth 1000, so this isn't bad point-wise, either. Depending on your flipper skills, you can also try to alley pass the ball from left to right.

One move I've found useful on this game is the flying backhand: when the ball is coming down the right side lanes, you can often time a backhand with the left flipper to hit the 1, 2, 3 or 4 targets. It may or may not be riskier than trying to get control via a catch or dead bounce followed by a shot from a cradle; it depends on your skills and how the rebounds from each target go when shot from each flipper.

Yes, that's the other key to this game: watch where your rebounds off of the targets go. Any that drain too often means you need to shoot that target some other way, e.g. with the other flipper, or as the ball is moving down the return lane vs. from a cradle.

Great game for practicing your nudging and flipper accuracy skills.

### Sky Kings [Bally, 1974]

An older mostly-UTAD game, but with an alternate strategy available. Skill shot: top saucer, which lights both side captive ball lanes. Either side is next best, lighting one or the other lane. Dribbling through the center without landing in the saucer is bad news, get nothing lit.

If you don't make the saucer skill shot, UTAD until you get both captive lanes lit.

Once you have both lanes lit, you have to choose between two primary alternatives: continue UTAD to score 3000 point saucers plus whatever random points you get while the ball is up there, or shoot the lit captive ball lanes to get 1000 to 4000 per shot, depending upon how far up the captive ball goes. There's rebound drain risk from either strategy, plus brick drain risk, so you need to figure out a few things to help decide:

1. When you hit each captive ball squarely, where does the rebound go?
2. How many points does a square hit get you, i.e. does the captive ball regularly go all the way up and down for the maximum value of 4K?
3. What happens if you miss or hit the captive ball a glancing blow?
4. When the ball comes down from up top, how likely is it to drain vs. come to a flipper or through a return lane?
5. How readily does the ball go in the saucer when put up top?
6. If you miss the top shot, what happens?

Essentially, you're doing a risk-reward calculation on the two. If the top is pretty safe and the saucer friendly, I tend to take that route. If hits to the captive ball fall cleanly into the return lanes, that makes these a good [or better] choice. YMMV; choose wisely.

The EB lights come on once you max the bonus [15K]; only one side is lit at a time. Take it if they're on and you can play them!

Double bonus is last ball only.

### Skylab / Spacelab [Williams, 1974]

Mostly UTAD, via banking the ball off any SKYLAB letters you need. Lit lanes give one bonus advance, completing Skylab gives two advances. Bonus is doubled on last ball. Ignore the captive balls until you have maxed your bonus. At that point, getting all of them to the lit side for an extra ball [if enabled] or a special [if worth points - - check the instruction card to see] is your best bet.

### Snow Derby / Snow Queen [Gottlieb, 1970]

UTAD spinners. Scoring on this game is extremely last-two-balls biased. Balls 1, 2 and 3 are single bonus, i.e. 50 points per lap; ball 4 is 100 double at per lap; ball 5 is at 200 per lap. In addition, the top 50-point saucers add one lit saucer each ball, and other than the bonus, this is where the next most of your points will come from. If you can, you want to get into a "ball in lit saucer kicks out and bounces back off a bumper into a lit saucer" rhythm on balls 4 and 5 in particular. You'll find that most of your score is on balls 4 and 5.

Getting the ball to exit out the right side lane in the middle of the machine, where it goes back to the plunger lane, is desirable whenever you can do it.

### Soccer [Gottlieb, 1975]

One of two games, the other being "300," that use a backglass-held plastic ball rail to track your accumulated bonus. In each case, bonus max is 10,000 [ten balls]. Like 300, it has a mystery saucer that adds 1, 2 or 3 bonus advances, subject to the bonus max of ten.

UTAD - - through the spinner from the left flipper, to the collect bonus saucer or, if the ball continues past that, the mystery add bonus saucer. Rinse and repeat.

There's a ball save gate on the right outlane, activated by getting the right side lane in the mid-upper playfield. You can't shoot it directly, but you can try to nudge the ball into it.

The two standup add bonus targets above the return lanes are not worth shooting at. You should also avoid hitting the bumpers directly from the flippers, other than a grazing hit on the left edge of the left bumper.

Double bonus on last ball, cannot be lit on other balls.

## Space Mission / Space Odyssey [Williams, 1976]

Ever see the movie War Games? “The only winning move is not to play.” Well, here, playing is okay, but a winning move is often not to flip.

**Skill shot:** the lit “collect swinging target value” lane; they cycle on and off with sling hits. If they’re not lit when you plunge, go for an odd number of hits on the top right sling; the left side is rubber only, no switch.

**Goal:** build up bonus, double it, then stay with UTAD for collect target lanes. UTAD is the best way to build up bonus, and also helps progression for lighting the doubler. The doubler is another multi-step process: first, shoot or top-collect the swinging target for both lights of one of the A-B-C letters. This lights the side saucers, which you must then get the ball into to activate the double bonus.

The backstop behind the two side saucers makes them easier shots than many other saucers since rim-outs are rarer. Fewer rim-outs.

**Key feeds:** the kickups from the two flipper-elbow saucers, and the kickouts from the two side saucers. Side kickouts often let you capture-to-upkicker or dead bounce across to flip up the left spinner.

I’ve found that holding the flippers up and letting the ball roll into the upkickers is often a better strategy than flipping. The kickers tend to hit the center target, when often drops the ball back towards the flippers, allowing you to repeat the process.

The main reason to flip is to shoot the ball up top through the left spinner and to shoot at the double bonus saucers when lit. You’ll find that the ball often goes in the doublers on its own, though, so using the upkickers and left side UTAD may be all you need.

Spinner lights for 1000 when you have maxed your bonus at 29000.

## Space Race [Recel, 1977]

This and Dragon [the EM, not the SS] are two games that have a completely different “feel” to them - - heavy. As on many EMs, Double Max Bonus is your goal here. Advance bonus with drops and standups behind them. Double your bonus when you finish the drop targets.

**Skill shot** – either of the top angled lanes.

**Ball control:** balls coming through the inner return lanes will be moving too slowly to transfer; you’ll have to cradle or flip away.

Watch out on the return lane / outlane setup here: the divider between the two return lanes is higher than the one between the middle lane and the outlane, so balls that bobble off it are predisposed to drain unless nudged.

## Spanish Eyes [Williams 1972]; F

This game is lots of fun - - *if* the bumpers and flippers are strong. It's also got a rare layout, with a center-bottom bumper between and below the flippers, making ball control more challenging than most games. It's best played with extra balls on [note to TDs!] to make the top A-B-C-D-E lanes meaningful; players won't earn so many as to make the game play unduly long, so go ahead and leave EBs on as the designers intended.

Strategy is two-fold, one for points, one for EBs. For points, you want to shoot the center horseshoe [5000] and center saucer [1000 for each of the number 1-6 you've collected]. For the saucer, you obviously need to do some up top work first to get your numbers lit. The real question is how are the feeds from shots around the horseshoe and kickouts from the saucer? With enough numbers collected, the two are similar in value, so it becomes a matter of which one you can best survive the return from. Of course, if you're way more accurate at hitting one than the other, that enters the equation as well. The center saucer usually kicks out towards the right flipper, but not necessarily so that you can drop catch it. Dead bouncing isn't likely to work since the ball rarely goes across to the other flipper, falling onto the bottom bumper instead. Can you get control after the kickout? As for the horseshoe shot, it's likely to come out so that it lands on top of that bottom bumper. What happens next depends a lot on how strong that bumper is. If it's weak, the ball will rattle around a bit and then weakly dribble-drain down the center. If it's strong but the ball tends to come out of the horseshoe at an unfortunate angle, it may do a quick double- or triple-bank shot center drain. What you need is a strong bumper and for the horseshoe feed to hit close enough to the top of the bumper for the bump to kick the ball up where you can flip at it or cradle it.

As for extra balls, getting the five A-E letters will immediately add a ball. The other way to earn one is to complete the numbers 1-6 and then shoot the center horseshoe. In each case, the numbers or letters will then reset. That means the number way to EB presents an interesting strategic quandary: when you have 1-6 lit, the center saucer is worth 6000. If you shoot the horseshoe, you get an extra ball, but now the saucer value drops back to 500 points until you hit the numbers again. Which is worth more, continuing to shoot 6000-point saucers or another ball? Note also, finishing 1-6 also lights the outlanes for 5000; these stay lit even if you collect the extra ball, but reset for the next ball in play.

The skill shot is a two-part one: the first part is to roll over the “on bumpers” button above the center C lane to make the two side bumpers worth 100 points. Part two is the letter choice: plunge for the C on the first ball and then for whichever letters you still need thereafter. I go for the C first: the ball will then hit the 100 bumper directly below the C, which can bump it back up through the C. This may cause the ball to hit that “on bumpers” disk, in case I missed it on the plunge. I might also be able to nudge the ball into one of the other letters as it falls back.

Overall, this means that your shot choice depends on lots of things for an EM: are EBs on? Up top becomes more important, especially if the upper bumpers are active enough to pop the ball up through the A-E letter lanes. Do you need numbers to light the saucer? Up top again. Does the horseshoe give you a good feed? Shoot it often. Is the saucer value high and provide a good ball return? Go for it.

And there’s still the nudging skill for when the ball goes into that bottom bumper zone. As long as the ball is still bumping around, you may survive. You’ll find your nerves get edgy when the ball goes in there for more than a fraction of a second.

Ah, yes, I should warn you that you can lose a ball under either flipper. There’s no wall or rail there, just empty space hidden by the playfield plastics. Mis-time your flip and it’s under-and-out to your ball!

### [Spin Out \[Gottlieb, 1975\]](#)

It’s all about the Roto target. Each number you collect increases the value of the roto targets, roto lanes at the top, and roto hole in the center. Going back up top is easier than it looks - - the curved plastics above / outside the bumpers tend to deflect the ball up towards the A-B-C-D. The way to the best points is to complete as many numbers as you can by hitting the two exposed roto targets [you also collect a number when you drain out the side], then either shoot the ball into the saucer in the center or get it through one of the “Hole Value When Lit” lanes that’s lit. I don’t recall the details of how you light those Hole Value lanes - - I think each one is keyed to one of the lettered top lanes. If so, then you want as many top lanes collected as possible.

Tactically, shooting at the center saucer to collect the 1000 plus 1000 per spot value is not worth the risk. You’re better off trying to slide the ball up one of the sides lanes, or threading the gap between either of those and the bumpers to go up top and try to get the ball to bounce into one of the Hole Value lanes as it comes back down.

So, basically, UTAD until you have the Hole Value lanes lit, then shoot at the Roto targets to get numbers, back up top whenever neither of the two exposed Roto numbers is one you still need, and UTAD once you have all [or most] of the seven numbers.

### Spirit of 76 / Pioneer [Gottlieb, 1975]

It's all about the drop targets, although if extra balls are on, the lanes can become important, too. More than half of your points in a game can come from bonus, especially if you can double it. Base bonus is 15K, advanced by hitting a drop target or triggering a lit star rollover. Each lettered lane lights a star rollover [the one nearest each lane]. Scoring all five letters lights center saucer for Extra Ball on digit cycle; all 8 drops lights the saucer for double bonus on cycle; completing both the targets and the lanes lights it for special on cycle. There's a way to get 4x bonus: light double bonus in the saucer, score it, relight double bonus in the saucer, shoot it. Since you already have double bonus lit, it instead awards you 4X bonus. This is the most valuable shot in the game. End of ball bonus is doubled if you've made the doubler shot.

Skill shot: make the C. Even if EBs are off, the C shot will light the center star rollover for bonus advances, and you should get at least one right away when the ball exits the C lane over it. As for the other letters, if you get them, fine, but don't bother shooting at them.

The rebounds from hitting the drop targets are risky, but you need to shoot them, so plan on quick reflex nudging to save drain-bound bounces.

### Star Pool [Williams, 1974]

Somewhat like Triple Action / Star Action with return lanes [see below].

Skill shot: hit as many of the top white advance bonus micro buttons as you can, while also trying to hit the orange "opens gate" rollover.

Strategy: UTAD until you have maxed your bonus at 15K. At that point, shoot for the A-B-C-D large drop targets to get double bonus. You may want to do another top shot or two first so that the lower gate is open before you go after whichever you still need of A-B-C-D. Note that you can often get both the A and B in one shot via a bank shot off the side rubbers; the other way to get A and B is from shots to the top where the ball falls down the center into the middle bumper and bounces off of it into the A and or B. C and D are direct shots from the flippers, although you can also collect these randomly off of sling bounces.

You also get a bonus advance for each trip through either of the return lanes.

Once your bonus is at double 15K, UTAD.

Don't bother to shoot the spinner; even at 100 per spin, the risk of drain is too high to make it worthwhile. Up top is far safer.

Note that it's really hard to make up ground on this game once your bonus is maxed out; the point values for things are too low to get more than 10-20K in "scrounge points," even on a really long ball. It's extremely important therefore to get as close to max bonus as you can every ball. If you're down 60K or more going to the last ball ... you're screwed.

### Strange World [Gottlieb, 1978]

Here, you the key is to collect sets of numbers - - one from the top lane, one from the green standup [or disk rollover at the top for #4], and one from the yellow stand-up [or right side lane for #2]. Getting all three of a number increases the value of any shot for that number from 500 to 5,000. The top saucer is always worth 5,000, so that's good to score often. Bumpers are 1000.

The skill shot would be for either the 2 or the 3, since scoring either awards both lanes. This also applies for the other 2 and 3 targets, i.e. getting either gives you both. It's therefore easier to "finish" your three 2's or 3's first.

### Strato-Flite / Super Flite [Williams, 1974]

UTAD, via bank shots off the A and D standup banks.

Skill shot: land in the top saucer, ideally for open bottom gate [1<sup>st</sup> choice] or 5000 points [2<sup>nd</sup> choice]; open upper gate is okay, but the ball goes through that far less often than the bottom gate; 500 points is the worst option. The small slings on either side of the saucer at the top cycle its value, so try to get the optimal number of back-and-forth bounces on them to light the gate choice. The right-hand sling also scores a bonus advance, so multiple back-and-forths leading to a drop into the saucer are better than a clean drop into it.

Completing a set of letters [A,B,C or D] increases your bonus multiplier, one set for 2X, two sets for 3X. Additional sets only lead to special, not worth anything in tournament play; focus on completing two sets.

If the lower gate is open, don't try to avoid that gate if the ball is heading that way, take the gate and 5000 points plus the chance to plunge back to the top.

Balls coming down the left return lane almost always do so fast enough to pass them over to the right flipper for a more controlled shot up top.

## Super Star / Big Star [Williams 1972]

Not a game I'm thrilled about. It's got multiple ball protect / ball unprotect features that are moderately useful, but not much to shoot at. Let's start with the protectors: the upper left yellow standup raises the rubber post at the left drain, right target does it on the right drain. Both posts can have the ball creep past them, but they will save at least half the balls heading that way. The two lower side slingshots raise the center post, but the button right above that post lowers it, so again it's only partial protection - - a ball heading SDTM will go over that button, lower the post, and drain. Still, you can have some long game times if you keep the three posts up and the tilt is liberal.

As for points, shoot the red rollover buttons to advance the value of the center saucer, hit the drop target in front of it to expose it, shoot into it to collect. A well-aimed shot will score all five rollovers on a side in sequence; each advance through number five moves the value of the center saucer up by 5000 points. Bumpers, standup targets, top lanes, slingshots, all are worth diddly squat [10 or 100] compared to the 5000 to 40000 for the center saucer. Yawn.

## Super Straight [Segasa / Sonic, 1977]; T, F

Skill shot – plunge the center lane for 5K + advance bonus; only one of the side lanes advances bonus [lit, alternates sides], and they're only worth 1K.

Strategy – Initial: from the left flipper, shoot the right gate to go back up top for more bonus advances. From the right flipper, shoot the two Jack standup targets to light bonus collect; even if you miss, you may hit other standups that will be useful. Getting both kings opens the gate; the queen lights the rollover; the tens light the bumpers

Strategy changes:

1. When you have 70K+ bonus AND bonus Collect lit, change your right flipper shot to the Bonus Collect saucer. Maintain gate shot from Left.
2. If you get the Spinner lit before maxing out your bonus, change Left flipper shot to the spinner [assuming the spinner spins well].
3. When you have bonus maxed out at 100K, change Left flipper shot to shatzing the right inlane to Right shot at the collect saucer.

Note that the inlanes on this game and similar vintage ones like Hot Tip and Mars Trek are wide enough to make shatzing relatively safe even for those players not very adept at this type of shot. In fact, this is a good game to learn this skill on: start with games like this with wide gaps between the bottom of the return lane and the bottom of the slingshot above it, then work your way into narrower ones like High Speed. Here, though, the shatz shot will not roll up the return lane due

to the sharp corner in the wire, it will simply serve as a flipper transfer mechanism.

If you happen to hit one of the Ace targets along the way [which often happens when you miss the gate shot on the right or the Jack shot on the left], go ahead and shoot the other Ace if you get the chance. The two aces light a return lane [it alternates] for Double Bonus. While double bonus can be very valuable, the rebound risk off the Aces tends to be high, so I don't go for them at all unless the bonus is near maximum - - especially since you don't get double bonus unless the ball falls into one of the return lanes. It happens, but you're more likely to drain out the side than get double bonus.

No real "key feeds," but take note of the kickout from the Collect Bonus saucer on the left.

Like its Sonic / Segasa brethren Cherry Bell, Mars Trek and Monaco, Super Straight has the "should I shoot to collect bonus with double bonus lit?" quandary, since the bonus value is not doubled when shooting the collect saucer. Take note of your competitive position before shooting it, since you'll need to "refill" the bonus before you drain to make your doubler worthwhile again.

### **Surfer / Surf Champ [Gottlieb, 1976]; F**

**Skill shot:** the left orbit shot is fine if the feed from it is good. If the feed is not consistently good, go for the lit lane of the four at the top instead.

**Basic strategy** is to shoot the drop targets and top saucer while having the ball go over the central star rollovers en route. The stars increase the saucer value [top right, base value 1000] by 1000 per rollover collected. Shooting the center rollover should go through the spinner. Shooting the two left rollovers should continue on to get a drop target or two. Shooting the right rollover is close to the shot for the saucer. The riskiest rollover is the second from the right, which continues on into the right bumper; watch out for the rebound!

**Top lanes and upper left lane advance bonus**, maxes at 15000. Double bonus is in two steps: first, get all five rollovers to light the left side center and right side center lanes; then get the ball through the lit lane to increase the multiplier. If you're on the last ball, where the bonus is already doubled, this advances you to triple bonus.

**Important feeds to observe:** ball coming down the top left advance lane behind the drop targets, and ball coming out of either side lane. You may have to nudge.

## Swinger / Fun-Fest [Williams, 1972]

Well, it's got bright colors. And three ball saving features. But it's a luck box and I don't recommend it for tournament use.

The skill shot is to make the center saucer for 5000 [huge points on this game], but that's much harder than it sounds. The two top lanes and top saucer all cycle on the tens digit counter, which is advanced by, among other things, the two top unmarked bumpers. The 3000 lanes are on a simple, on-off toggle. The 5000 lane is on a five-way cycle, indicated by the lights above it, advancing clockwise, i.e. you're one hit away when the white light at the right end of the four-light arc is lit, and you're active for 5000 when the orange arrow light above the saucer is lit. If you're not starting with either the 5000 light already on or with the indicator on one of the two right-hand white lights, you're unlikely to be able to score the 5000. It's hard to get more than two bumper hits and still have the ball go in the saucer [and it sometimes goes right through the center without dropping into the saucer]. Focus on getting a 3000 top lane skill shot instead, remembering the on-off rule.

Once the ball is in play, you can protect against drains down the left outlane by hitting either of the marked outer top standup targets. The two small "up post" disk rollovers next to the swinging target protect against center drains until you hit a "down post" rollover.

The center swinging target is the other high-value item, but it's a risky shot due to the randomness of rebounds off it or, when you miss, the rubber behind it.

House balls are common on this game, often when the ball rolls off the center triangle above the swinging target and drains out either side.

If you get the center post up, let the ball settle onto it and use micro-flips to set up your shots. Best strategy is UTAD, aiming just to the center of the down post rollovers [you want to miss them].

The winner of the game is usually the player who gets the most lucky bounces from the bumpers into the saucer when the saucer is lit for 5000. There's also a lot of luck in draining, i.e. which value the center target is on when you drain [with or without the kicker or gate lit]. After the skill shot, 80%+ of the large points earned tend to be random. Even lighting the bumpers, which can add up with enough time up top, is a matter of a lucky or nudge-assisted bounce into the "on bumpers" standup targets - - you can't shoot them directly.

## Target Alpha / Solar City [Gottlieb, 1976]; T, L, F

These titles share the playfield with El Dorado / Gold Strike. I list them separately because the scoring on them is different and alters the strategy.

In this case, the top targets are all worth the same 2000 points lit or not, and the side ones worth 500. The goal is to get as many of them as possible to maximize your bonus. Bonus is 1000 per target and is doubled on your last ball, making it even more important then. Unlike most machines where the playfield light corresponding to a drop target indicates it's now worth more than base value, here those lights only come on to indicate that you've knocked down that target.

Unlike El Dorado, the targets do not reset when completed. Once the targets are down, you're left with just the lanes and the only-100-point bumpers. Focus on that top lane for 5000 if you can, and try to drain out the side for 5000 rather than down the center.

I've copied in the text from El Dorado about key feeds and such, since those are the same.

**Key Feeds:** watch the three feeds on this machine carefully! When the ball comes down the left lane into the left bumper [feed 1], does it tend to come to the left, meaning either a drain out the left or a feed the left return lane, or come out the right, to either the left flipper or down the center? You'll need to be nudging either way, but check its natural tendencies first.

When the ball comes down the right side, it can be moving slow if it fell through the left of the two lanes [feed 2] and hits the right wall or rattles unevenly down the right lane, or it can be moving faster if it falls cleanly down the right lane [feed 3]. Again, where does each tend to go? If the clean fall comes out fast enough to reach the left flipper, don't nudge. If the slow fall comes out and thinks about slipping to the right towards the inlane/outlane divider, nudge.

The drop targets on the right are rarely backhandable, but you can often do a "well-timed-flying-backhand" into them when the ball is coming to the right flipper. If it looks like the ball is headed that way in such a manner that you're not likely to be able to trap it on the flipper, give this a try.

## Target Pool [Gottlieb, 1969]; T, L, F

Two main goals: collect 14 of the 15 numbers, omitting one of the 1-5 or 9-15, then shoot lit targets (worth 300 vs. 50 unlit); and get the bumper lit for 100 points and hit it as often as possible.

**You can't shoot any of the number targets directly, you have to get them via slingshot hits, kicks off of the bumper, or bank shots. Just put the ball up top and let the slings and bumpers do the work, with nudging assist from you.**

**You light the bumper by making the 6, 7 and 8 lanes at the top. Find the skill shot for each top lane. Ideally, plunge the 6 first, soft plunge the 8 on the next ball, and get the 7 last to get the sure 100 points when the ball hits the now-lit bumper after going through it. If and only if the game has strong flippers, you can instead plunge for the 7 lane first. Why? You'll find that bank shots to the top of the game off of the side standup targets will sometimes go back up through one of the top lanes. This happens far more often for the 6 and 8 lanes than for the 7 lane. If it does go through to the very top, try to nudge the ball into any other lane you don't already have when it comes back down. But it does mean that it's possible to get the bumper lit on the first ball, which is a huge scoring advantage on this game.**

**Collecting numbers "sort of" increases the number of lit arrow standups, but it's not one-to-one: yes, there are 15 numbers and 15 arrow targets, but how many and which one(s) are lit move with switch hits. You can have two numbers and two lit or ten numbers and none lit, but in general, more numbers translates to more lit targets. Now, why complete all but 1 (!) of the numbers 1-15 around the sides of the game? Because if you get them ALL, the inlanes and outlanes change value from 100 points to Special. In tournament play, the Special is worth Zero. If you do get them all, there's no way to un-do it.**

**Ball control: the inlanes usually will feed the ball down fast enough to transfer it to the other flipper; do so if there are lit arrows you can shoot from the other side but not from the return lane side. Likewise, use dead bounces and catches to get the ball to the shoot-lit side.**

**In general, shoot the ball up top all the time and don't bother to shoot the arrows on the center bank unless they're lit. Going topside gives you a chance to light the bumper if it's not lit, to hit it if it is, and to collect more numbers to light more arrows.**

**Drain shots: The standup targets on the right and left ends of the center bank. The ONLY time you should ever shoot one of these is if all three of these are true:**

- 1. it's lit for 300**
- 2. you're the final player**
- 3. you need less than 300 points to win**

**The center bank's center target can be drainy, so don't shoot it even if lit. The other center bank targets tend to be fairly safe, but again, don't shoot for one unless it's lit for 300.**

**Nudging:** You want to nudge up top at times to get the ball to hit the upper slings hard enough to get a good kick off of them and score number targets; this calls for a push nudge. You want to do side nudges up top as the ball is approaching the top-bottom divider necks [edges of the slings above and center target bank below] to get the ball to come down from the top along the face of the lower slingshots. The most common drains on the game, besides those two targets I warned you about, are rolling down the sides directly from the upper playfield, slingshot cross-drains on the lower playfield, and soft downward bounces off of the arrow targets near the neck that go down the middle. When you see that the ball is coming down and is either going to hit one of these targets or hit a slingshot too softly to trigger it and then roll into one of the arrow standups, try to gauge the angle of attack. You want the ball to bounce off the arrow target and go parallel to the lower slingshot close enough to it so that the ball rolls down its face to the flipper without triggering the slingshot.

### **Team One / Kicker [1977]; T, L**

Team One shares its playfield layout with Abra Ca Dabra, but the scoring is different, so I list the game separately. It's designed as add-a-ball, but the add-a-balls can be converted to scoring points [usually 50000], and this is how the game is most often set for competition play.

**Skill shot:** whichever number you don't already have. Try for something other than the 4 on ball one, since you can always soft plunge for the 4 later if needed. On a few Team Ones, a plunge into the 1 or 4 lane will occasionally drain down the middle; if yours does that, go for the 2 or 3 instead.

You want to do two things here: hit each star target when the soccer ball above it is lit and eventually compete all of the 10 targets, and try to get the ball to go through all six [vs. four for Abra Ca Dabra] numbered lanes.

Lanes 1-4 are at the top; lanes 5 and 6 are near the flippers at the bottom. There are also two pad targets, a 5 and a 6, hidden behind the top drop targets on each side. This provides one other way to get the 5 and 6. As on Abra, you can shoot the ball up the 1 and 4 lanes directly [flipper strength permitting], and up the 2 and 3 lanes via bank shots off the rubber behind the drop targets. Numbers carry over from ball to ball, so finish the set a.s.a.p.

For the targets, like Abra, the lit target is worth more, but here, it's a fixed 5000 lit vs. 500 for unlit targets. Switch hits change the lit target, so it will eventually cycle to light each of them in turn. Finishing 1-6 scores 50000 and raises the target values by a factor of 10 to 5000 for unlit targets and 50K for lit ones. If you are close to completing all of the drop targets, go ahead and shoot the remaining few, even if none of the remaining ones are lit, to set up raising their value. Note

that once you finish the drops, in order to reset them, you must either hit the center standup target or get the ball through one of the two outer return lanes.

I've found that on a Team One with decent flippers, I can backhand the upper drop target (or the number behind it, once exposed) from a cradle on the flipper. So if that target is a one number you still need, or is lit, go for it.

Team One is a good tournament game, rewarding precision drop target shooting.

### [Time Zone / Time Tunnel \[Bally, 1973\]; T, L](#)

Easier said than done. Skill shot is the collect tunnel lane at the top, but you need to time your plunge so that the tunnel is lit for 5000 when you collect it. The tunnel cycles through values of 1000 to 5000 [look down at the tunnel, you'll see it], stopping when the ball hits the "stop tunnel" switch near the top of the plunger lane. You can try to soft plunge just up to the stop switch first, then go for the collect plunge after that, but I've found it's harder to accurately time a soft plunge than the near-full plunge that gets the center collect lane. If you do the one-step near-full plunge, line up the plunger on the right spot on the plunge markers first, then time your release while watching the tunnel lights cycling below.

Once the ball is in play, your goal is simple: shoot the center red standup target all day to collect tunnel value so long as the value is 3000 or more. If the tunnel is on 1000 or 2000, you're usually better off shooting the ball towards the gate, if open, the collect bonus on the left [which shoots the ball back up top], or just shooting the ball up top towards the "start tunnel" saucers to change it. If your plunge fell into one of the start tunnel saucers, or the ball got there after rattling around in the bumpers, the tunnel value will stop again when you hit that center target, or when the ball goes into the "collect tunnel" pocket on the left side.

Ball control and soft flips are the keys here. Once you've hit the center target, which raises the center post, you want the ball to settle back down onto a flipper to repeat. The easiest way is to use dead bounces or drop catches to get the ball to settle into the hollow between the tip of a flipper and the center post. Once it's there, use very light flipper taps to try to hop the ball across to the other flipper just high enough to let you cradle it, but not so hard that it goes up and away or triggers a slingshot. It's delicate and requires patience. Breathe.

Note that there are two "down post" white buttons near the tops of the slingshots. Obviously you want to avoid them; equally obviously, you need to not be caught off guard if the ball triggers one of them and be ready to flip or try for a trap.

While you can use the two “start tunnel” standup targets to the side of the center collect target to change the tunnel value, the rebounds off of those targets can be really risky, so I’d avoid them.

The two gates are useful, scoring both points and collect tunnel; take them if you get the chance, but don’t go out of your way shooting for them when you have a good tunnel value lit. Each of the two top saucers opens one of the gates.

## Travel Time / Summer Time [Williams 1973]

Ah, Summer Time. The “forever or crap” game. My best score on this is a bit over 11 million - - yes, rolling it 110 times in one game [I played it literally all day - - not the same quarter, the same game - - and only stopped when the arcade closed for the night.] But it can also be almost unplayably bad. Read on and be amazed, disgusted or both.

The skill shot is to make the center lane to add 10 time units. This is THE MOST IMPORTANT thing about the entire game. Learn this or lose miserably.

The game runs on time, not balls. You start with 1:30 on the clock; the clock starts running as soon as the ball goes through one of the top three lanes. You can stop the clock by shooting the ball into the center saucer; this is your single most important shot on the game. The clock is restarted by either of the red rollover buttons to the sides of the center saucer area and by the upkicker between the flippers. The clock also stops when the ball drains out either side, but if the ball drains out the middle, e.g. between the flippers and the upkicker, the clock doesn’t stop until the ball is in the bottom trough, so try to not to drain down the middle. If you see that a center drain is unavoidable, in some cases you can slap the ball backwards with a flip-and-release to get it to drain quicker!

Besides the top center lane, time is added to the clock when you complete the set of six top T-R-A-V-E-L standup targets or the four mid-playfield T-I-M-E targets and then get the ball to drop into the upkicker. Each is good for 25 time units. The clock maxes out at 2:55, so if you’re close to that and have the upkicker lit, shoot more letters before using it.

Basic strategy: make the skill shot every time you plunge. During play, shoot for the letters to finish them, then let the ball roll down off a flipper into the upkicker to cash in and add time. In most cases, the upkicker will then throw the ball into the stop clock saucer, which then kicks the ball out towards the right flipper. You’ve just added 25 seconds and stopped the clock; shoot for more letters, i.e. rinse and repeat. When you go up top, try to go around the start clock buttons, of course. You can also get the ball up top with a too-hard shot to the center saucer that can go through into the bumpers.

Key things to note on this game are the kickouts, especially how often the upkicker successfully plops the ball into the stop clock saucer. If that percentage isn't high, games will be short since direct stop-clock shots are both difficult and often go through as mentioned. Also, the machine's pitch is critical: if the game is too shallow or floaty, the ball will take too long to do things while the clock is running and you won't be able to earn time faster than it's used up. In this case, a viable strategy is to just skill shot and drain all day, i.e. let the ball go out as quickly as you can and hope it averages less than 10 time units before doing so.

Points, oh, yes, points. It's all about the saucers and top lanes. The stop clock one is worth 5000 when lit, and the upkicker, when you have a set of letters completed, is also 5000, otherwise the upkicker is 500. Top lanes are 2000 for the center and 1000 for each side. The rollover buttons, targets, slings and bumpers don't add much unless you have very active bumpers.

Ball control is key - - managing the clock means not cradling the ball when the clock is running, and flailing just waste time you haven't got to spare. Take controlled, well-aimed shots or let the ball dribble into the upkicker or drain.

### Triple Action / Star Action [Williams, 1974]

UTAD, with optional spinner risk once your base bonus is maxed.

The skill shot is to hit as many of the top disk "advance bonus" rollovers as possible before having the ball drop into the lit advance spinner lane. The lit lane changes as the ball hits the side rubbers at the top.

After that, go up top until your base bonus is maxed out at 10000. Once the base bonus is maxed, if you're close to completing the center spinner to increase the bonus multiplier, go up top again and try to get the lit lane to finish it.

The fastest way to increase your bonus multiplier is to shoot the spinner. If the spinner is not too lively, though, ignore it and stick with UTAD for the lit lane. I'd say to ignore the spinner completely, except that UTAD will eventually drain when the ball comes out of the top bumpers the wrong way towards those gaping no-return-lane sides or straight down the middle, so since one good whack to the spinner can be worth several top shots as far as advancing the spinner goes, it can be less risky statistically to take one spinner shot than those several top shots. The spinner shot is best done when the spinner posts are near the 3 o'clock and 9 o'clock positions to maximize the number of spins a hit to it gets you. Also, try to hit the outside edges of the posts: you want the rebound to go sideways and up rather than down towards an outlane.

Ignore the A-B-C-D completely. I much prefer the add-a-ball version of this game [Star Action], since it brings the A-B-C-D into play - - completing them twice scores an extra ball in that version.

Once your bonus is at 30,000, if the spinner is lit for 100 points per spin, spinner all day until you drain. Otherwise UTAD until you drain.

### Triple Strike [Williams, 1975]

Similar in layout to Triple Action / Star Action, except that here, there's only an orbit to the top on the left; the right side is closed off.

The A-B-C-D oversized drop targets [again like Star Action or Big Ben] are one key; completing them increases the value of the return lanes and the three left orbit rollover buttons from 100 to 1000, and the top saucer from 500 to 5000.

This bowling-themed game uses 10 button rollovers for your ten pins. The buttons advance your bonus to a maximum of 39,000. You can hold your bonus as well: if you collect the top saucer three times during a ball, it activates hold bonus.

I prefer the UTAD strategy on this game, especially until you have your hold bonus activated. While you can shoot for the A-B-C-D targets, you'll probably get the A and B eventually via bounces off the bumper from balls coming down from the top of the game, and you may get C and D from ball-saving shots with the flippers. Likewise, shooting the ten rollovers is largely unnecessary since balls falling from above will go over them. I tend to only shoot at rollovers or letters when I just need one or two to finish the set.

Note the huge side outlanes on this game; while there's plenty of room for the ball to bounce off the side walls into a return lane, those walls may be pretty dead wood now, 40+ years after the game was made. If your walls are dead, you'll have to bump the game to have a chance to save balls heading out the side.

One other thing you can try on this game is shatzing the wide return lanes; with strong enough flippers, you'll score the return lane and the ball will continue up into the C or D drop target. It's fun to do, but only worth the risk if the rebound off the C or D proves to be safe.

### Volley [Gottlieb, 1976]; T, L, F

This is a "targets worth more based on lit lanes" game, so focus on lighting lanes first. Try to make one on the skill shot plunge; it's best to get one of the two side lanes first [blue or green], since you're more likely to get hits on those colored targets below first. Each colored lane lights the matching colored targets and

bumper. When the ball comes down, shoot it back up top; if you're lucky or good, you'll get the ball back above the top lanes where you can try to nudge it into one you still need. If not, try to use the bumpers to nudge the ball up top either around the edges or going upwards through one of the top lanes.

Once you have all 3 lanes lit, it's time to go for the drop targets. They're worth 500 unlit, 5000 lit. Note that getting all three lanes also lights the top center lane for 5000. But shooting the targets isn't as simple as it sounds. Yes, you get 5000 for hitting a lit target, but this game registers target hits slowly. If you hit two at once, it will only register as one. If you hit one or two blue or green targets and the ball then rebounds into one or two yellow targets, you'll probably still get only one 5000 hit registered! So you're often better off shooting the yellow targets first, trying to pick them off one at a time, then doing the greens and the blues one by one.

The targets do not reset until you complete all three banks. If you're getting close to doing this, don't worry about hitting more than one at a time, finish them off so that you have 15 fresh targets to shoot at.

Watch out when you miss a target or otherwise hit the rubber behind the target banks; those rebounds can be dangerous.

The most challenging [and stressful!] part of this game is dealing with balls coming down the upper half of the sides, i.e. behind the blue and green target banks. You clearly want the ball to drop into the return lane rather than the outlane, but guessing and timing the nudging or not on this is a true art form not easily mastered. Avoid any shots that would have the balls go in there as best you can [e.g. don't hit the outside edges of the end yellow targets], and be alert and ready to nudge when the ball is coming down from the top of the playfield. The one caveat I would make here is if the ball looks like it will either go in the side lane or rattle off the top of the target bank divider towards the center, remember that even side lane plus outlane is better than straight down the middle.

### [Wizard \[Bally, 1975\]; T, L, F](#)

UTAD pretty much. Great game for learning ball-passing flipper skills, since you want the ball on the right flipper whenever possible.

Key feature to note is the upper right "flags" lane. A ball in the top saucer will be ejected into this lane; you can also get the ball there with shots to the top that rattle around or hit the bumper and go in. The lane flags do the following when tripped by the ball rolling through the upper right lane:

**Flag 1 – lights Bumpers for 100 [vs. 10]**

**Flag 2 – lights Center Target for 3000 [vs. 500]**

**Flag 3 – lights Double Bonus**

**Flag 4 – lights Spinner for 100 [vs. 10]**

Besides each flag being activated by the matching numbered target (1, 2 and 3 at the lower left, 4 just right of center), the star rollovers at the top light the 1 flag (left rollover) and 4 flag (right).

**Skill shot:** get the ball in top saucer, but try to go over the right star rollover on the way. Since the saucer ejects the ball into the flags lane, this will light the spinner right away. You'll be shooting the ball through the spinner all the time as part of the UTAD strategy; might as well light it. The left star rollover, which lights the bumpers, is not as good, but still better than getting neither rollover.

On any shot to the top, your priority is to nudge the ball into the saucer for 3000 + 3 bonus advances + 400 points when it is kicked out over the four flag rollovers + whatever features your flags activate. Getting one of those star rollovers at the top is nice if you're missing that flag, but don't let that make you miss the saucer.

**Key feed:** Flag exit. Ball control is king here. When the ball comes down the flags lane, you want to get it back to the right flipper by whatever means works best. This could be letting it dead bounce off the left flipper to the right, drop catching on the left, then tap passing or alley passing to the right, live catching on the right, or some variation of these. It all depends on how fast the ball comes down the chute and where it goes when it does. Nudge as needed if it doesn't come cleanly to one of these options.

If you have a strong enough left flipper, you may be able to backhand the spinner. If so, consider yourself lucky - - you can now make your priority shot from either flipper without risking a transfer.

If you have your base bonus close to maximum (19000) and have not yet doubled it, it's probably worthwhile to risk shooting at the Flag 2 standup target at the lower left to activate that flag. Then go back up top to the saucer or otherwise get the ball into the flag lane to activate the double bonus. Otherwise, it's generally not worth shooting at any of the four flag standups. Likewise, don't bother to shoot the 5000 recessed standup target unless you're really accurate and just need those points to win - - missed shots to it often drain, and hits to it can drain, too.

The top left pair of standup targets and both return lanes add bonus. Don't worry about those standups, though, they're not worth shooting the ball into the

bumper area rather than through the spinner. You can get some random hits on them when a ball up top fails to land in the saucer and comes down the center.

If you find the Wizard in your tournament has flippers too weak to consistently make the UTAD shot through the spinner, or if you get a consistently bad feed out of the flags lane, avoid playing the game if given a choice.

If Extra Balls are on, you get it by maxing the bonus at 19000, then shooting the ball to the top through the spinner.

## Yukon “Special” version [Williams, 1971]

**Skill shot:** hit both the top center advance disk and one of the side disks; hit more than one advance on the side disk if you can nudge for it before the ball drops through the top lane [two or three hits are not uncommon].

**Objective:** advance all three reels to Yukon. Each reel goes from 1-9, then “Yukon.” This lights both the center reel and the two top side saucers for a special worth 100,000 points.

The center reel advances in several ways: balls through either return lane, balls through either side lane, hits to the center reel, and any time the ball rolls over the center disk above the reel complex where you plunge the ball.

The right and left reels only advance in three ways each: shots to the reel, the right and left disks at the top of the game above the entry lanes, and the standup targets that face the flippers below the bumpers.

Once you score the special, the center reel advances back to 1, but the side reels stay at Yukon. You now need to advance just the center reel to Yukon again to relight the special. There is no limit to how many specials you can score.

**Strategy:** start by shooting for the side reels. You’ll find that you rarely need to shoot at the center reel to get it to Yukon the first time around; stray bounces going through the lanes that advance it will generally get you there before you finish both side reels. While you can backhand either side advance target, I find that shooting at the opposite-side reel above is safer. Side reel shots also give the ball the opportunity to drop through a side lane and or return lane to advance the center reel on the way back down.

Once you’re on your second Yukon lap, you just need center advances. Shooting the center reel risks a down the middle drain; either just shoot the ball up top towards the side reels to set up those random lane advances, or if you shoot for the center reel, try to hit it on the edge. Edge hits usually bounce sideways - - more likely to rattle around and get some lanes, less likely to bounce back towards a center drain. You can also try shooting the ball up the right and left

side lanes; I've done it, but it's a low percentage shot. Shatzing is an option, too, but again it's riskier than the side reels.

Advances score 1k; the top entry lanes and the two saucers score 5k each; outlanes 10K. Bumpers and slings are negligible.

### Zig Zag [Williams, 1964]

Probably the oldest tournament game you're ever likely to play – in Pittsburgh; I've only seen one elsewhere twice in many years.

UTAD, preferably along the sides; they're safer and easier to shoot than the center. Pray for bumper and saucer love. When draining out the sides, try to get "rack ball" rather than the "special when lit" lane; racking all nine balls lights all of the saucers.