

The Twice Monthly Publication
for the Coin Operated Entertainment Industry

PLAY METER

Volume 7, Number 11

June 15, 1981

**Breaking Through
with Grassroots Lobbying**



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PLAY METER

Vol. 7, No. 11
June 15, 1981

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PLAY METER

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From the Editor

Did you ever wonder how the articles you read in *Play Meter* come about? Well, wonder no more. The answer is no deep, dark, hidden secret. In fact, most of our editorial matter input comes from our readers. One of the things *Play Meter* has prided itself on is that many of our writers come from within the ranks of the industry itself. Operators such as Charles Ross, Dick Welu, Frank Seninsky, and Louis Boasberg, to name a few, have made frequent contributions which have shown the various facets of the operating business. Their experience and insight have provided us all with a better understanding of what it takes to be an operator. From the humorous to the basic business concepts, we have shared their successes as well as their failures.


When I first started publishing *Play Meter*, my ultimate point goal was to produce a publication that would serve the needs of the nation's operators. The idea was and still is to gather information from operators and share this information with the entire operating population. As it turned out, this was no easy task.

In the beginning, operators had a very skeptical attitude. Why should they divulge knowledge and information that took them years to acquire? Why should they want to extend a helping hand to the up- up-and-coming operator? The answer soon became obvious. By helping others, the industry as a whole would become healthier and stronger. Through a free exchange of information, operators have reached a better understanding among themselves and have discovered the fruits of a united effort.

When we first made the announcement about *Play Meter* as a new twice-monthly frequency, the most common reaction was, "How are you going to find that much to write about?" Fact is, up until we made the move to twice monthly, we often found ourselves with an excess of editorial material. It frequently became necessary to hold back some editorial material in order to keep the book from being editorially lopsided. All that has changed now and we are doing our best to pack as much information as possible in each and every issue.

I'm sure that there are a lot more operators out there who have a lot to say and a wealth of information and expertise that could benefit a great many others. You don't have to be a Mark Twain or a Woodward and Bernstein. Nor do you have to be one of my best friends or one of our largest advertisers. Our open editorial policy is exactly that—open to anyone with the willingness to share information. And don't worry about your own writing ability, It's not your grammar or spelling that we're interested in; it's your thoughts, experience, and suggestions that we want to share. Our editorial staff is highly trained in editing material in such a way that they won't change what you say but rather how you say it, if that appears necessary. And if you don't like to write, don't let that stop you. Many of the feature articles that we write ourselves are the results of suggestions by our readers, who perhaps wrote us a short note or gave us a phone call.

The whole point here is that *Play Meter* is your magazine. We want it to be everything you want it to be. And the only way we can accomplish that is through your input. We're all in this together, and together we can make some beautiful music. So drop us a line. The song has only just begun.



Ralph C. Lally II
Editor and Publisher

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Household products have their "seal of approval," courtesy Good Housekeeping magazine. What about a seal for the coin-op industry, courtesy ADMA?

A Possible Intra-industry Solution

Despite this being boom times for coin-op amusements, the industry finds itself beset by a multitude of problems—not the least of which is how to deal with copycat game manufacturers.

To date, manufacturers of in-house developed or legally licensed games have each been hacking their separate ways through a quagmire of legalities to differentiate in court what can be copyrighted and what can be done to protect their proprietary rights.

For the most part, their efforts have met with success. But even granting success in this endeavor, it still seems there's another way the industry should address itself to this and other problems.

The establishment of an industry seal of approval would clarify, both within the industry and without, what coin-op amusement devices the industry lays claim to as being its own.

This seal of approval would appear on all industry-approved games, on promotional material dealing with those games, and in any national coin-op advertising program promoting the play on these industry-approved devices.

Since the manufacturers' newly formed organization, Amusement Device Manufacturers Association (ADMA), has shown a special interest in addressing itself to the matter of copycat games, perhaps it should be this association which would take it upon itself to establish an industrywide seal of approval on games.

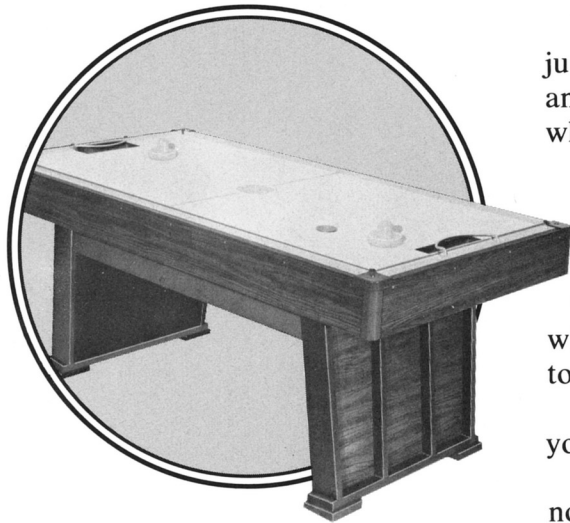
The seal of approval could serve to incorporate later industry positions. For instance, if so-called gray area games are determined not to be in the best interests of the industry as a whole, then perhaps the association could make it a stipulation that gray area games would not be granted ADMA's seal of approval. If federal safety standards pose severe problems for the manufacture of the games, then again the industry association could offer itself as the watchdog by withholding its seal of approval on all games judged to be unsafe. It could cut through a lot of bureaucratic red tape at all levels of government.

Such a program would not preclude any attempts within the industry to establish government recognition of, say, video game copyrights; but it could go a long way toward clarifying within the industry what is in the best interests of coin-op entertainment and what is not.

David Pierson
Editorial Director

EDITORIAL

In 1972, we scored again.



While other distributors were just killing time, Banner took another shot at bringing you what your customers want.

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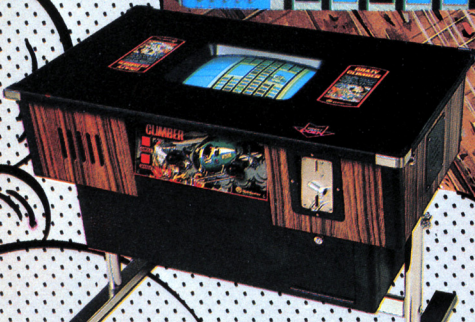
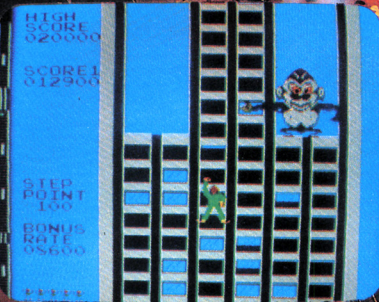


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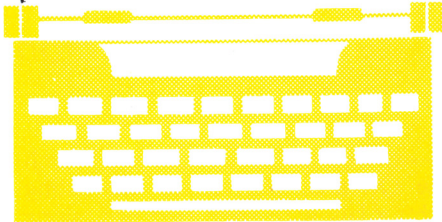


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Letters to the editor . . .



Stern vs. Omni

On behalf of our clients, Omni Video Games, Inc., and Ferncrest Distributors, Inc., we are writing in response to an article which appeared in the February 1981 issue of *Play Meter* regarding a lawsuit pending in the United States District Court, Eastern District of New York between Stern Electronics, Inc., plaintiff, and Omni Video Games, Inc. and Ferncrest Distributors, Inc., defendants. That article incorrectly characterized the proceedings which took place on December 19, 1980. Contrary to the report, the Court did not "grant" a preliminary injunction. Rather, the parties consented to the entry of an order during the pendency of the lawsuit. At the time of the commencement of the lawsuit, Omni Video Games Inc. had already stopped production of the Zygon game for reasons unrelated to an alleged copyright infringement. No "hearing" was held nor did the court make any preliminary findings of fact or conclusions of law.

With respect to that lawsuit, Omni Video Games, Inc. and Ferncrest Distributors, Inc. have denied Stern Electronics' allegations relating to an alleged infringement of the copyright concerning the *Astro Invaders* game and those issues remain to be determined by the Court.

Richard W. MacAdams
Providence, Rhode Island

[Ed. note: The writer refers to a news article in *Play Meter News Update* April 1.

Response from George H. Gerstman, attorney for Stern follows:

"I represented Stern Electronics, Inc. at the hearing before Judge

Nickerson last December in connection with the lawsuit filed by Stern Electronics, Inc. against Omni, Ferncrest and others. I have seen the April 7, 1981 letter from Richard W. MacAdams, the attorney for Omni and Ferncrest, and I have determined that Mr. MacAdams' letter is incorrect and requires a response.

First, neither Mr. MacAdams nor anyone from his law firm was present at the hearing before Judge Nickerson. Instead, an attorney from New York City was present at the hearing on behalf of Omni and Ferncrest.

Second, the article in the February, 1981 issue of *Play Meter* was entirely correct, in that the court did grant Stern a preliminary injunction against Omni and Ferncrest. After Judge Nickerson compared Omni and Ferncrest's Zygon video game against Stern's copyrighted *Astro Invaders* game, Judge Nickerson stated "I will issue

a preliminary injunction . . ." Thereafter, Omni and Ferncrest's attorney indicated that he would consent to the preliminary injunction, and of course I did not object to the consent because it effectively waived Omni and Ferncrest's right to appeal.

Third, the playing of the video tapes on a television set in the courtroom and the discussions in open court between the attorneys and Judge Nickerson clearly constituted a "hearing" in any sense of the term.

A preliminary injunction [was] issued against Omni and Ferncrest. Judge Nickerson issued the preliminary injunction against one of the other defendants, Bay Coin Distributors, Inc., without the consent of Bay Coin. Please note that the injunction order specifically recites that a hearing was held before the court of December 19, 1980 on Stern's motion for a preliminary injunction."]



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GRASSROOTS LOBBYING:

Points to send to Congress on the jukebox plight

By David Pierson

Copyright fees for the jukebox operator, prior to the Copyright Act of 1976, totalled about \$9.44 per jukebox. Next year copyright payments by the average jukebox operator will escalate to \$38.73 per jukebox per year. In 1984 it will skyrocket to an average of more than \$63 per jukebox, and there are even more increases built into the future.

The reason for the excessive increase within just a few short years is that jukebox operators are paying both a

Copyright double dipping: Operators pay mechanical fees PLUS the per-jukebox fee.

mechanical royalty (a copyright fee that is built into the purchase price of each record they buy) and a federally-controlled per-jukebox fee. That per-jukebox fee is increasing from \$8 to \$25 in 1982, to \$50 in 1984, and even higher, according to the Consumer Price Index, in 1987.

As can be expected, once things taken to the extreme hit the pocketbook, then anger modifies itself into a search for some sort of legal remedy—in the case of the jukebox operators, it's taking the form of a possible "grassroots" effort to get the law changed.

Heartened by the conservative mandate in the November national elections, jukebox operators sense a chance to reverse some adverse legislation which was created by a congressional attitude that catered to special interests groups such as ASCAP, SESAC, and BMI.

Already in Louisiana, operators have tested the congressional waters and have found it's not as hard to talk to their congressmen as they had imagined. Many operators, it appears, harbor hobgoblins of misinformation about the way congressmen work—that it's money and other gratuities, more than sound reasoning, that make congressmen vote the way they do. Such is not the case, however, as Louisiana operators have found out (See "It's not my fault," *PLAY METER*, May 15, pages 40-45). They found their arguments in the jukebox copyright debate are forceful and convincing, convincing enough to make congressmen see the law has to be changed.

In fact, Congresswoman Lindy Boggs of Louisiana, after having the details of the problems of the existing copyright law outlined to her by two jukebox operators—John Elms of TAC Amusement and Bob

Nims of Lucky Coin—as well as this reporter at a March 21 meeting in New Orleans, offered an interesting explanation as to why a law with such bad provisions could make it through Congress: "That was right before the election recess," she said, "and with everyone anxious to get back home in time for the election, there was a flurry of legislative activity. And a lot of what passed at that time is being bounced back at us now." In particular, she mentioned new regulations governing the sugar industry.

This bears out when compared to comments made on the floor on of the U.S. House of Representatives when it considered the omnibus copyright bill. The House considered and passed the law in a single night session, a procedure which caused one Congressman, Bill Frenzel of Minnesota to state on the floor of the House: "I support the copyright revision bill, S. 22, although I believe it is poor management on the part of our leadership to bring this complicated bill up for debate and vote at 10 p.m. The importance and complexity of the bill deserve better treatment.... This bill should have been handled under an open rule with at least a full day available for debate and questions. Under these circumstances, I will vote 'aye', and urge its passage and fervently hope that the sections we have not discussed adequately tonight are in good shape."

Let's dismiss for now the moot question of where was the AMOA at this time, and why they didn't make a point of showing the problems in the law at that time. At this point, such arguments are unproductive. Instead, operators should turn to the more immediate task of pointing out to their congressmen that the sections they did not discuss that night were not in good shape.

The purpose of the first meeting with your Congressman: Let him know there are problems with the law, and be as specific as possible.

Many operators may not feel adequate talking with their congressmen right now about the problems with the law because they themselves may not even know how the law should be remedied. But such mental reservations should not stop operators from buttonholing their congressmen anyway, in a special meeting preferably with as many other area operators present as possible.

After all, before the congressmen can be asked to



Also shown: Ace, Ray, Teddy, and Kathryn Anne

“ The best thing ol’ Al ever did for his place was Pulsar. It’s more than a game. It’s a sport. I like its guts. I mean, the better I get, the tougher it gets. See, you’re slidin’ through the maze blastin’ away, the Pulsar heart-beat is keepin’ time. Then, just when you think you’ve got it whipped, in comes a new maze and you gotta change your **‘Fingers’ Malloy for Pulsar** game plan. Hey, I may have the touch, but I don’t have Pulsar aced. It’s the only game in town that keeps comin’ back for more. So I do too. I’ll bet ol’ Al figures he’s got a gravy train with Pulsar, and he’s right. Cause I’ll tell you one thing; if you’re not playing Pulsar, you’re just playing games. And you can quote me on that. ”

Gremlin/SEGA

"Check it out."

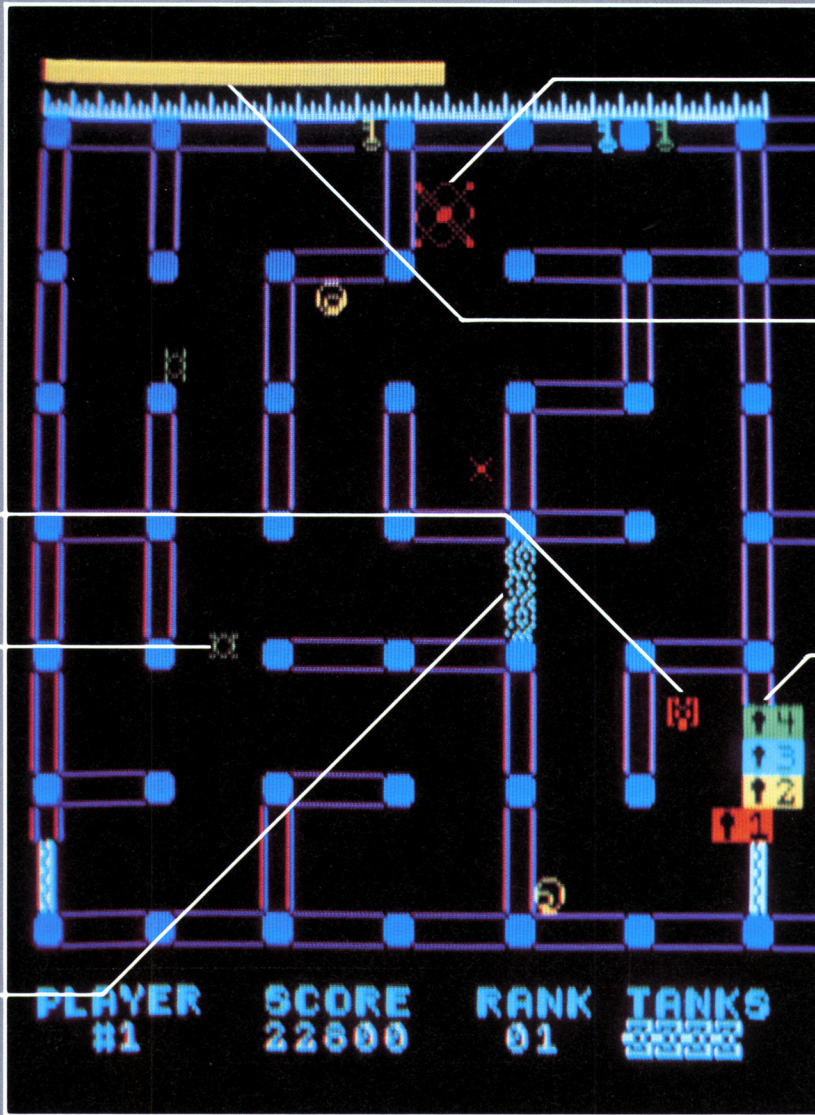


Guide the tank through the changing maze and transport the treasure keys to their color-matched locks. Every round presents the player with a new environment.

Score points to earn more fuel by blasting enemy aggressors and by unlocking the locks.

Yellow enemy aggressors move along the walls. Green aggressors travel at random. Red enemies bounce and ricochet off walls. All travel faster and shoot more frequently with each round, and they also become worth more points.

Avoid the constantly changing "force field" walls. The player is destroyed if caught in one.



Blast the Pulsar target and it breaks into six enemy aggressors.

Open the locks to earn bonus points:

- by unlocking all the locks in any sequence,
- and bonus points are calculated based on how much fuel remains after all locks are opened—the less fuel used, the more points scored.
- double bonus points are earned by unlocking the locks in 1, 2, 3, 4 sequence,

Seven realistic sound effects:

- the continuous Pulsar heartbeat,
- the electric sizzle of force-field walls
- the clanging of shifting walls,
- the blasting sound of the player's fire.
- the piercing shots of the aggressors,
- the sound that signals the shift to a new maze,
- the exciting clamor of bonus points.

PULSAR

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change the law, they have to know something is wrong with it. This should be the purpose of the first such meeting with your congressmen: let him know there are problems with the law, and try to be as specific as possible.

As for specifics, here are the major points touched on with Louisiana's congressional delegation. These points have met with a favorable response and should be pointed out in any meetings with congressmen concerning the law:

PROBLEM #1: *Jukebox operators are paying twice for the right to use the copyrighted works*

Among copyright users, they are alone in this double dipping dilemma. They pay (a) a "mechanical royalty" fee which is built into the price of each record and which was recently increased by the Copyright Royalty Tribunal (CRT) from 5½ cents per record to 8 cents per record; and (b) a per-jukebox assessment which the CRT recently increased from \$8 per-jukebox to \$25 in 1982 and \$50 in 1984 and even higher (according to the Consumer Price Index) in 1987. The combination of these two copyright assessments has made the operation of the jukeboxes virtually unprofitable.

SUGGESTION #1: *Eliminate the per-jukebox assessment.*

The congressionally-approved \$8 per-jukebox fee was only agreeable to the jukebox industry as a compromise measure which would have stipulated that the \$8 per-jukebox assessment be the be-all and the end-all of any further copyright demands by the performing rights societies. A continually escalating per-jukebox fee is unacceptable to operators and threatens to make the operation of jukebox totally unprofitable. Since jukebox operators have been paying copyright owners far above the norm through the mechanical royalty assessment already, there is no need for a second such

\$8 per-jukebox assessment: A compromise measure only agreeable as a be-all and end-all future copyright demands.

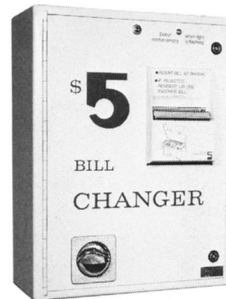
assessment. Because of the nature of the jukebox business, an operator does not buy a record just one time. He buys it 20, 50, even 100 times depending upon the number of jukeboxes he has programmed that record for. So he is already making a copyright payment of 20, 50, or 100 times more for the right to use that copyrighted work for profit. Surely, this multiple payment should be enough. According to Play Meter magazine's annual industry survey, the average operator buys 3.3 records per week per jukebox; so the average operator is already paying about \$13.75 in royalty payments per jukebox per year.

PROBLEM #2: *The jukebox copyright law has also placed operators in the compromising position of having to divulge confidential business information.*

The law, besides assessing a second superfluous payment for copyrights, has apparently empowered the CRT to require operators to supply them with a list of their jukebox locations. Now although operators have argued strenuously against the location list requirement promulgated by the CRT and have even appealed it through the court system, the CRT has steadfastly maintained that it has the authority to require the lists to remain in compliance with the law. However, the CRT

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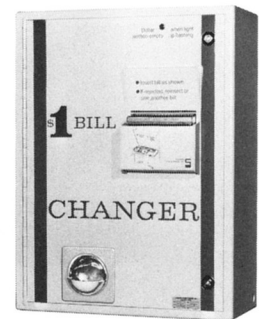


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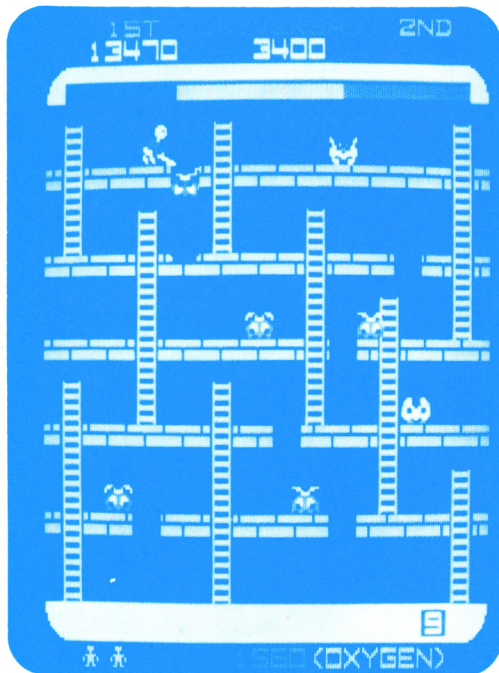
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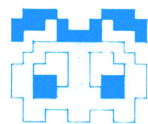


HOW TO PLAY

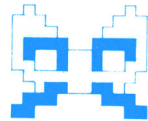
- ★ Dig holes by operating the man. When a space monster has fallen into a hole, fill it up before the space monster creeps out of it, and you are awarded points.
- ★ The man can escape by jumping down through the hole he has dug to the next lower floor.
- ★ When oxygen is rarefied, a warning buzzer sounds and the man's movement slows down. When oxygen is reduced to zero, he dies.
- ★ If oxygen has not been reduced to zero even when all the space monsters on the screen have been destroyed, you are awarded corresponding bonus points.
- ★ The highest scorer can register his name on the screen.



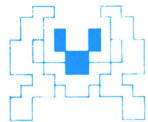
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MONSTER 100~800 PTS



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DON 800~2,000 PTS

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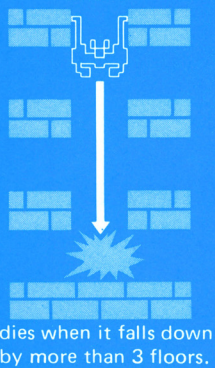
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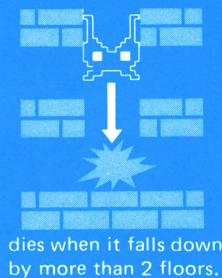
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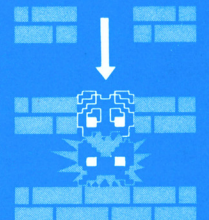
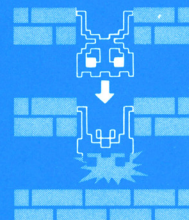
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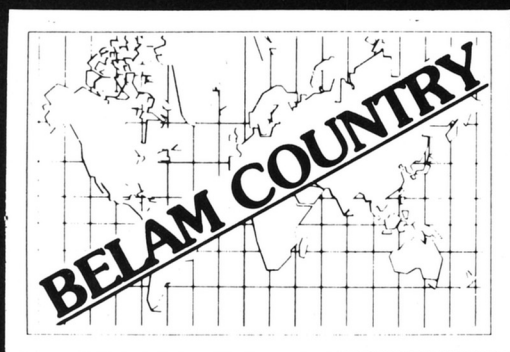


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has also readily admitted that to date there has been no need for the location lists. Therefore, their location list requirement, while possibly jeopardizing thousands of small businesses nationwide, is openly acknowledged by CRT members as being virtually useless to them. This scenario may also illustrate an undesirable prejudice on behalf of the CRT.

SUGGESTION #2: Eliminating the per-jukebox assessment (**SUGGESTION #1**) would eliminate any real or imagined need on the part of the CRT for the location lists.

PROBLEM #3: *The American taxpayer is paying for an anomalous governmental body that is functioning as a private collection agency.*

The CRT members, who are each paid \$47,000 per year and who have assistants and secretaries working under them, are performing a function that, in effect,

*A Reagan budget cut target?
The CRT—a taxpayer-funded private
collection agency.*

benefits directly the performing rights societies. However, the CRT's operating expenses and salaries are not deducted from the copyright collections they distribute. So it has been left up to the taxpayer to pick up the tab for this special collection agency service that benefits only special interest groups like the performing rights societies.

SUGGESTION #3: *Require the CRT to deduct from all copyright collection pools, the cost of its salaries, expenses, according to the amount of time spent on each matter on which it sits in judgement.*

That way the taxpayer does not end up funding this private collection agency which collects money from one group of people that is earmarked for distribution to another group of people.

Finally, it should be pointed out that, unlike the performing rights societies which are working with enormous capital resources, jukebox operators today are in a financial bind, as are small businessmen everywhere. A reckless disregard of the economics affecting small businesses—such as the creation of additional assessments such as the per-jukebox fee—threatens the profitability of thousands of small businesses nationwide.

The congressionally-approved CRT has demonstrated a less than sympathetic ear for the problems of today's small businessman, as is evidenced by their location list requirement and their ruling for a graduated royalty rate increase in excess of 600% over what congress mandated. Any decision to raise or lower copyright fees should have been judged on the dual consideration of one side's need to receive and the other side's ability to pay. Evidence to this effect, however, is lacking in the CRT rate review decision process. Consequently, the present jukebox copyright law has resulted in enormously high copyright payments that threaten the profitability of the American jukebox and, thus, the continuation of many small businesses nationwide.

With a concerted effort by jukebox operators around the country on this matter, the law can be turned around. It'll be something of a change from the present defeatist talk which permeates most discussions about the jukebox copyright law.

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Survey results
compiled through
April 15, 1981.

Equipment Poll

Top Videos

APRIL 15	APRIL 1	APRIL 15	APRIL 1
1 PAC-MAN/Midway	1	6 MISSILE COMMAND/Atari	6
2 ASTEROIDS/Atari	2	7 PHOENIX/Centuri	10
3 DEFENDER/Williams	4	8 BATTLEZONE/Atari	7
4 BERZERK/Stern	3	9 GORF/Midway	8
5 GALAXIAN/Midway	5	10 STAR CASTLE/Cinematronics	—

Others receiving votes: ASTRO BLASTER(Gremlin), RALLY X(Midway), SPACE INVADERS (Midway)

Top Pins

APRIL 15	APRIL 1	APRIL 15	APRIL 1
1 BLACK KNIGHT/Williams	1	6 BLACKOUT/Williams	6
2 XENON/Bally	2	7 SPACE INVADERS/Bally	7
3 FIREPOWER/Williams	3	8 GORGAR/Williams	8
4 FLIGHT 2000/Stern	5	9 ALIEN POKER/Williams	—
5 FLASH GORDON/Bally	4	10 FLASH/Williams	10

Others receiving votes: KISS (Bally), NINE BALL (Stern), SILVERBALL MANIA (Bally)

The PLAY METER subscriber survey of pinball and video games will be a regular feature in subsequent PLAY METER publications. If you would like to join readers currently participating in the survey, simply fill out and return the coupon below.

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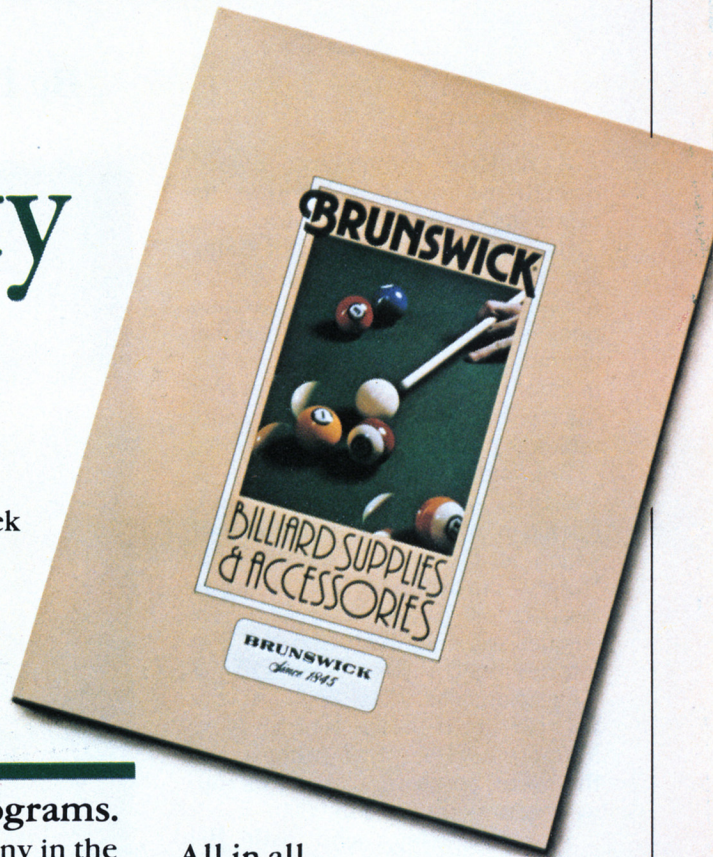


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Pool Leagues Get Rolling

By David Pierson

A national movement toward operator-run pool leagues is beginning to gain momentum.

Recently operators in eight states and the two easternmost provinces of Canada committed to running pool leagues leading to a national championship because they see the promotion as a sound way to reverse the trend of operating their own pool tables.

The move was initiated by The Valley Company of Bay City, Michigan, a pool table manufacturer which is currently promoting the Valley National 8-Ball League Association. The operator-run pool leagues will culminate with the first International Valley 8-Ball League Championships May 28-31 at the Kahler Hotel in Rochester, Minnesota. The prize package for the event, association sponsors say, will be in excess of \$15,000.

Warren Kelley, who with Bill Nemgar is in charge of the league's championship tournament, explained the reason operators are turning to the pool league format.

"The value of the program from the operator standpoint," Kelley told PLAY METER, "is that we have demonstrated that operators who have gone to the league format have stopped the losses of location-owned pool tables."

But he stressed the pool league format also holds other advantages for operators. "We have also been able to show that pool leagues can help increase collections in all machines at the location by anywhere from 20 to 60 percent."

And the pool league concept, Kelley also points out, carries additional advantages for the location owner. "Bar business, from the sales of drinks and sandwiches, has been shown to increase in the range of 20 to 40 percent on league nights," he said.

All this, Kelley pointed out, is helping reverse the trend of locations buying their own pool tables and



Warren Kelley talks with an interested operator about pool leagues.

depriving the operator of the piece which, despite the video boom, is still regarded as the most profitable part of an operators' business.

"It appears for the first time the location is genuinely dependent on the operator," said Kelley, "and that means the operator is more in control of his own business." The players, Kelley stated, have responded with enthusiasm over the idea. Over 7500 players are registered in Valley sanctioned pool leagues on a weekly basis, and the promotion is showing signs of expanding the player base to include women.

"We're finding, especially in Minnesota, that pool leagues have created so much interest that women's leagues are being formed.

So we're starting to see multiple league locations."

In fact, Kelley said, 20 percent of the Valley National 8-Ball League Association is made up of women; so there will be a women's championship also held during the four-day championships in Rochester, Minnesota.

There are over 80 leagues involved in the first-ever Valley-sponsored championships with leagues ranging in size from six to 24 teams. Each sanctioned league has been allotted one spot for their league champion in the Rochester finals.

The teams compete at both the league and championship level for cash awards, trophies, and merchandise which is generated by sanction and entry fees from players, location owners, operators, and the sponsoring Valley pool table manufacturing company.

Although the promotion is being sponsored by The Valley Company, and the tournament organizers (Kelley and Nemgar) are paid by Valley, Kelley stressed that the league should not be construed as merely a Valley pool table promotion. Kelley said the tables used in the Valley pool league association don't even have to be Valley tables. Sanctioned league games can be played on other pool tables as well. In fact, other pool table manufacturers are invited to join forces in the promotion concept for the benefit of the whole industry, he said. "The only requirement," Kelley said, "is that the tables be operator tables and not location-owned."

He explained, "We're not trying to hog this market. We're trying to help it."

Charles Milhem, president of Valley, said his company initiated the pool league association concept because the trend of locations buying their own tables affects not only the operator but also the manufacturer. A location which buys

its own pool tables, Milhem said, looks upon the purchase of a pool table differently from professional operators. Locations generally see a pool table purchase as a one-time investment, but operators see the need to continually upgrade their pool table stops with continued new pool table purchases, Milhem pointed out.

Kelley stressed the advantage a pool league has over pool tournaments. He drew a parallel analogy to bowling and said that pool, like bowling, stands to benefit more from leagues. He said tournaments by their very nature don't last as long and therefore are not as beneficial as leagues which run continuously for longer periods

of time.

He also said that tournaments which, again by their very nature, emphasize skill can actually discourage participation by weaker players facing the stronger players. But a league concept with teams whose players are playing under an approved handicap system (like bowling leagues) that allows weaker

Pool Leagues Endorsements

Valley's promotional package on its National 8-Ball League Association includes some noteworthy endorsements from both operators and location owners who have found operator-run pool leagues to be to their mutual benefits. Their endorsements of the league play concept are, therefore, being reprinted below.

Operator's reactions to league play

"I no longer lose tables to my locations. Period. And since my involvement in leagues I find myself in a position to pick and choose my locations.

Roger Rassmussen
Music Service
Marshall, Minnesota

"Better locations are seeking me out for tables so they can be included in our league set-up. Best of all, we haven't lost a table to a location since we started league play four years ago!"

Dick Hawkins
D & R Star
Rochester, Minnesota

"With leagues, I'm in the strong position of bringing extra profits to my locations. Naturally, they want to stay on my route because they don't want to lose these extra profits from league play.

Bob Kervina
Twin Ports Vending
Duluth, Minnesota

"We've grown bigger every year because leagues have increased my collections from other machines, as well as pool. Leagues mean busier locations which means more activity for everything."

Erv Beck
Mitchell Novelty
Milwaukee, Wisconsin

"Teams were easy to organize...like 1-2-3. Now, local players seek locations where they can join a league. My locations have more customers; they make more money; have better teams."

Red Jacomet
Red's Novelty Co.
West Allis, Wisconsin

"The publicity generated by our leagues has brought new attention to my locations and their customers. As a

result, my position with my locations is stronger than ever."

Howard Riley
R & M Amusement
Tulsa, Oklahoma

Location owner's reactions to league play

"We've had as many as 14 teams going at once, and we've had a minimum of 12 extra customers every night of team matches. We see the players on nights when the teams are not playing, too. Players have actually come to us from other leagues, wanting to join ours. Sometimes we've supplied shirts, and we recovered the cost, plus sponsor fees, in just one week."

Dick Walberts
West Allis, Wisconsin

"Other games, the bar, traffic during the evening, customer loyalty—all are up, and more than a little, all because of our leagues."

Chuck Nicholas
West Allis, Wisconsin

"We would certainly be hurting without leagues. They've increased our overall business by as much as 25 percent, and our bar business is up by about 20 percent. Our customers' loyalty is way up; the players—especially the women—come to practice regularly. And after matches, the players and spectators stay to talk and have a good time."

Harry Hayes
Rochester, Minnesota

"Everything about our league play has been good for us. Our revenue is up 50 percent overall; we've gained many regular new customers and the loyalty of the old ones is so much more evident; business has improved both before and after the playing of matches; other machine income is well up, too. We'd certainly feel it if the leagues would stop."

Randy Krahn
West Allis, Wisconsin

"We've been in leagues for six years, and they have been six very good years. Our pool business alone has doubled or tripled. Our beer sales are up 25 percent. Many new customers—and pool players—are coming in and all are playing our other machines, too. We have mixed teams in the summer, and teams for men and for women in the winter. If we dropped our leagues, our business would drop, too."

Bob Wheelock
Rochester, Minnesota



Valley' Warren Kelley has been on the speaking circuit with his presentation on operator-run pool leagues: here at an AOE rostrum in New Orleans, recently at the Florida show in Orlando, and in meetings with state associations. Pool league information is made available free to interested operators.

players to compete head-to-head against stronger players fosters more player interest and thus a more enthusiastic commitment.

Also, he said, a league—which can be run by the players—needs only to be organized once whereas pool tournaments have to be organized at the operator level continuously.

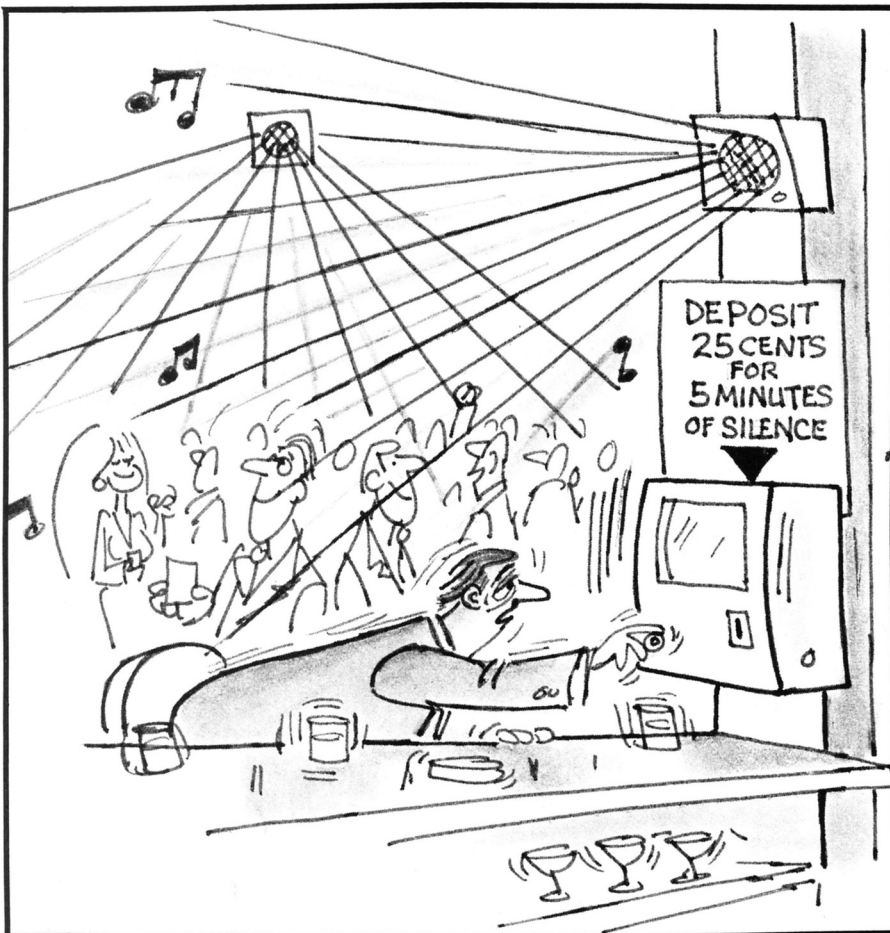
Valley has been moving aggressively but with caution on the pool league promotion. Kelley reports that they are working directly with some state operator associations. Operators in Ohio, Florida, Iowa, Illinois, Minnesota, Wisconsin, Wyoming, Colorado, and North Carolina are using the league play promotion to cement their relations with locations and, notably, to make the move up in pricing to 50 cents per game. And reportedly the price increase is being readily accepted when attached to such a promotion as an operator-sponsored pool league.

So the idea appears to be gaining momentum because it offers so much for so many people.

For the player, it is offering a continual competitive format that takes play balance into consideration.

For the location owner, it offers increased business on league nights (which are usually set on the normally slow nights), increased revenue from more play on the other games, and greater traffic.

And for the operator, it means more than additional revenue through an improved pricing structure and added play on the games and tables. It means a secure relationship with pool table locations and a reversal of the trend toward location-owned equipment. ●



The Psychology of Arcade Tokens

Many operators offer discount pricing, such as five or six tokens for \$1—which gives the player the “good feeling of bargain pricing” most commonly associated with women and department stores. Some players think they are getting “something for nothing” or that they are somehow “beating the house” on discount-priced tokens.

The net result is the urge to spend more for tokens than would normally be spent in quarters.

Additionally, the effect is that the player feels that he has a bargain in his hand, and he plays more freely than if he were playing with quarters.

—from 'Notes and Quotes' by Van Brook of Lexington



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Las Vegas exit planned in

An official "no comment" to specific, pressing matters discussed at the recent AMOA Board of Directors meeting—and the subsequent leak of some of that information to the trade press—has raised questions about the AMOA's secret deliberations over matters of concern to the whole industry.

The controversy came to the fore following a decision by AMOA Executive Director Leo A. Droste and others to exclude the trade press from the board's April 2-4 meeting in California and then to draw the cover of secrecy over a possible move out of Las Vegas where the 1982 AMOA Exposition had been scheduled.

PLAY METER requested to attend and report on decision making in the mid-year board of directors meeting in Monterey. But AMOA's Droste flatly refused. In a letter of March 17 he told PLAY METER: It is a long-standing policy of the AMOA Board of Directors that no one other than directors is allowed in the meeting during the discussion of specific topics."

When asked to elaborate, Droste said this policy of banning the trade press had been, "I assume, a consensus, or it could be an official motion," some eight to 10 years ago. He could not, however, specify any written policy or part of the AMOA by-laws that precluded press coverage of the board meetings prior to the April 2-4 meeting. At that meeting, "It was reaffirmed again," he said, but added: "It was no formal motion but a consensus of the board. It was brought up in executive committee meeting, but that's as far as it went."

As a result of this now-you-see-it, now-you-don't policy of closed meetings—which Droste said also excludes AMOA members who are

not board members—deliberations around key decisions (such as whether to exhibit in Las Vegas in the fall of 1982) were left in the dark.

PLAY METER learned by word out of the board meeting, however, that AMOA officers had been empowered to try to negotiate out of its commitment to go to Caesar's Palace, Las Vegas with the 1982 show. Alternate sites for the show if AMOA can negotiate its way out of Las Vegas, an unnamed source said, were not discussed because such discussions were "premature." However, another board member told PLAY METER that the AMOA was considering a west coast site in lieu of Las Vegas.

On these negotiations, Droste and AMOA President Norm Pink held out "no comment" to repeated inquiries on a Las Vegas decision (reported in PLAY METER, June 1 issue).

Las Vegas has become a crossroads for the AMOA, which has been petitioned by amusement games manufacturers not to proceed with the Las Vegas show. The producers say they fear adverse publicity from having an amusement games trade show in the gambling capital, since confusion may be created on the part of legislators and the public over what is a gambling device and what is a skill game.

Operators polled by PLAY METER, however, indicated their support for a Las Vegas convention by a vote of 57 percent "yes" to 18½ percent "no" and 24 percent "no opinion."

While the AMOA leadership is in the throes of a decision on the issue, it has remained officially silent on the fact that it is considering a switch.

Prior to the Monterey meeting, Play Meter Managing Editor Ray E.

Tilley sent a formal request to Droste requesting permission to be present to cover the sessions first-hand. Droste had indicated earlier that the board of directors' doors are closed to the press, citing a "long-standing policy."

In the letter of February 27, Tilley wrote: "As an editor, I find this policy of excluding the press from these deliberations as something that flies in the face of public statements by AMOA spokesmen... There will be a number of important issues addressed at the April 2-4 meeting, and the decisions the board reaches on each of these matters will impact on all the association's members. While I appreciate the fact that the AMOA publication *The Location*, will summarize the board's actions, mere summaries are not enough when providing thorough industry coverage.

"Since *Play Meter* reaches virtually all of AMOA's members, and goes to such a large number of potential members, it is to everyone's benefit that these board deliberations be opened to first-hand reporting of a straightforward manner. We understand that certain delicate matters may be discussed at the meeting which may require your confidence in *Play Meter's* integrity. However, I trust you are aware that *Play Meter* has the best interests of the industry in mind and, thus, would not print material injurious to its causes," wrote the managing editor.

"This closed-door policy, as you stated, has never been addressed by the general membership or by the board. In other words, this exclusionary policy is arbitrarily applied so that the trade press is allowed in for some functions but not for others. I hope that after discussing this matter further with officers of the AMOA, you will agree

questioned closed-door meeting

that it is in the best interests of everyone that the press be allowed access to your meeting," Tilley wrote to the AMOA executive director, with a copy sent to President Pink.

Droste responded in a letter of March 17 that persons with "a specific proposal" or a presentation would be allowed to appear before the board of directors, but observation of all deliberations would not be allowed.

Following the Monterey meeting, Droste's response to questions on Las Vegas plans was "No comment" and "When something happens, we'll let you know."

Explaining his no-comment, Droste said that "it may mean things are developing, but we are not at liberty to discuss it." And, explaining the closed-door status of the mid-year session, he said: "When we have a board meeting, the material discussed in the meeting on any specific topic does not go outside that room. What does become official is the motions and actions on the part of the board; that then becomes public knowledge."

Still, the Las Vegas question (and possibly other closed-door matters) remained in the "no comment" category, although PLAY METER learned—independently of the "official" reports of the Monterey meeting—that a bowing-out from Las Vegas for 1982 was planned.

PLAY METER had also requested an agenda of the April 2-4 meeting when attendance for reporting was requested. The agenda was not provided. Droste termed this an "inappropriate request" and said the list of items to be discussed was due "strictly to the board members."

PLAY METER's position

Play Meter Editorial Director David Pierson explained the reason

for the magazine's insistence on an open-door policy toward the trade press: "Since the AMOA Show this past fall, we have received numerous inquiries from all segments of the industry-- from manufacturers, distributors, and operators, from members, non-members, and prospective members of AMOA alike-- and the inquiries were quite simply, 'what exactly is the AMOA doing?'"

"With the copyright rate debacle and the costly location list setback by the U.S. Supreme Court, even more member operators have begun to complain bitterly to PLAY METER, asking that there be an accounting of the AMOA's actions. They contend the AMOA has been fighting losing battles because of its habit of representing the interests and wills of a small clique of individuals who perpetuate themselves on the board of the national association.

"The complaints have come even from former board members who say the AMOA's ineffectiveness is the result of its not being willing to change with the times and of its unwillingness to encourage new ideas or fresh viewpoints to help break through the logjam.

"It all echoes a consistent and disturbing theme," said Pierson, "of a national association which discourages and even thwarts individual initiative for the sake of doing things the AMOA way-- even when the AMOA way is or has been proved wrong, or the individual initiative wouldn't even impact on it.

"We're finding the complaints of many members are centering on the AMOA's steadfast refusal to keep its members abreast of exactly what it is doing. Member operators contend the AMOA has not kept them

informed as to what issues it is considering, why it is considering those issues, why it is not considering other issues, what options it is considering relating to each of those issues, what options it is not considering, why some options are being considered and other options are not. In short, the information the industry relies on the trade press to convey," continued Pierson.

"As the industry forum for the free flow of information, PLAY METER feels the deliberations should be open to the trade press. The argument that the presence of the press discourages a frank discussion of issues is ludicrous in light of the fact that the presence of the press has not intimidated governmental bodies from performing their functions. But it's more ludicrous in light of the fact that, after the closed AMOA board meetings, the only official word from the AMOA leadership pertained to such minutia as how the AMOA plans to keep food off the floors at next year's AMOA Show.

"The AMOA's stonewall posture of excluding the trade press has not helped enlighten the general membership as to matters of pocketbook importance to them."

Pierson concluded, "By restricting the free flow of ideas, of options, of issues, the AMOA is restricting its own effectiveness to the industry. There are just too many indications from AMOA members that the general membership is intimidated by what they don't know and are left to rely on the dictates and wills of a small clique which professes 'internal and elite wisdom' and this carries over to the new board members who find themselves having to rely on the already-digested input of those before them."

Iowa operators join to ban gray area games

Iowa operators have formed a state association with its principal motive force being "policing our own industry" against gray-area card game equipment.

Clyde Knupp, Fort Dodge operator, was elected president of Iowa Operators of Music and Amusement, which met March 8 to organize and nominate officers. In a conversation with PLAY METER, Knupp commented that the members' "common goals are to promote the industry and to make it a better industry."

He continued, "We've got a lot of good equipment and want to keep it that way. The problem is borderline equipment." This equipment, Knupp and other Iowa operators explained, are upright video card games that apparently infringe state law. The sellers of the videos were "finding a way to go around the law—and it made our industry look bad." One IOMA member noted the repercus-

sions against amusement games in other states where the gambling-type games have been marketed. (Chief among those states is Ohio, as reported in PLAY METER, June 1.)

Other officers elected by the newly-formed IOMA are: vice president, Bob Newell, Sioux City, secretary/treasurer, Byron Van Zandit, Des Moines;—board members—Clarence Hagen, Iowa City; Jim Raymond, Cedar Rapids; Morey Rosetein, Marshalltown; Jack Woods, Des Moines; Ron Pope, Ames; John Moklestad, Spencer; and Bill Curley, distributor rep of Philip Moss & Co., Des Moines.

In an April 11 board meeting, IOMA by-laws were adopted and three committees were set up: legislative, educational, and program area panels.

IOMA will hold a "summer outing" on the July 4th weekend, at Okoboji near Spirit Lake.

Centuri pacts with Tehkan

HIALEAH, Fla.—Centuri, Inc. has entered into a licensing agreement with Tehkan International Corporation of Japan to manufacture *Route 16*, a new video strategy game.

The announcement was made jointly by Centuri President Edward Miller, Tehkan President Yoshihito Kakihara, and Sun Electronics Corp. President Masami Maeda. Tehkan was granted world-wide marketing rights for *Route 16* by Sun Electronics Corp., the game's developer.

Under the terms of the agreement, Centuri has the exclusive manufacturing rights for *Route 16* in upright, cocktail table, and new "elite" models, for the United States, Canada, Central and South America, and Europe (excluding the United Kingdom and Spain).

Negotiations between Centuri, Tehkan and Sun Electronics began in January at the Amusement Trade Exhibition in London, England. *Route 16* was well received by U.S. and European distributors when debuted at the ATE show in London," Miller said. "Our initial

field testing has been outstanding."

The two-dimensional *Route 16* takes its name from the 16 city blocks or routes the player is introduced to when the game begins. With enemy cars in hot pursuit, the player selects one of the 16 routes and attempts to eliminate as many targets as possible. Upon entering the route, the screen shifts to an enlarged detailed closeup of the targets and activities of the block. A player must not only select the most rewarding routes, but successfully maneuver his vehicle and avoid the chase cars and various hazards along the way.

According to Miller, the new "elite" version adds a new dimension to Centuri's extensive product line. "The 'elite' blends the subtle space saving advantage of our maxi with the total impact of an upright," Miller said. "We now have a model to fit the needs of virtually any location."

Miller said that production on all three *Route 16* versions is currently underway and quantity deliveries, beginning with upright models, were expected in April.

Cinematronics wins:

Court

Operators who bought black market copies of Cinematronics' *Star Castle* video game may find their equipment seized and sent to the El Cajon, California manufacturer, whose right to the game program were upheld in federal court in Phoenix on April 16.

The decision by U.S. District Court Judge Charles L. Hardy in Phoenix ruled that Cinematronics as a game maker has the right to register copyright "in the manner in which we have been registering copyrights, that it's a valid copyright and valid trademark, in the same principle as records and books," according to Tom Stroud, secretary/treasurer of Cinematronics.

Although other court battles have been waged on the issue of alleged game copies, it was a landmark step in a federal court, settling case law that will open the way for federal officers to pursue copied games in the United States rather than putting the burden of the legitimate

Calendar

May 23-26

U.S. Tournament Eight Ball Championships, Chicago

May 28-31

First International Valley 8-Ball League Championships, Kahler Hotel, Rochester, Minnesota

June 4-7

Music Operators of Texas, annual meeting, Houston

June 5-6

Wisconsin Music Merchants Association annual convention, Holiday Acres, Rhinelander

June 11-13

Illinois Coin Machine Operators Association, annual meeting, Lincolnshire Marriott, Lincolnshire

July 24-26

Amusement & Music Operators of Tennessee, annual convention, Hyatt Regency, Nashville

September 11-13

North Carolina and South Carolina coin operators associations' combined annual convention, Carolina Inn, Columbia

precedent set on Star Castle

producer to hire investigators and attorneys to pursue each instance of suspected copies.

Defendants in the Phoenix case, Bernie's Specialty Co., its officer Bernie Shapiro, and co-defendants Sutra Imports of New York and California, and K. Noma of Tokyo, Japan, were given a permanent restraining order April 16 banning their distribution of the *Star Castle* copies. Cinematronics did not pursue the damages asked in the total sum of \$6.5 million, but Stroud said further court action would be taken against the suppliers, Sutra and K. Noma.

The copy games had been produced in Japan, according to Stroud. In their marketed form here, the games bore no name and had no cabinet graphics, he said.

The legal remedy given by the court was for Cinematronics to be able to seize all *Star Castle* copies in the United States, with the aid of

federal marshalls if necessary, and with the games required to be sent to the legitimate manufacturer in El Cajon, freight-paid.

"It's a good thing for the whole industry," said Stroud. "Anything that stops copiers helps us, of course, in this particular instance, but it really helps the whole industry too. Now we have something that is federal law and has teeth in it too, saying that companies have the right to seize (copied) games."

"I'm sure there will be a lot of cases like this, popping up real soon," he added, "because everybody in our industry wants to stop this, like they did in the record industry," in the instance of "bootleg tapes," he noted. He termed the April 16 ruling, which was not being challenged by the defendants, "quite a landmark."

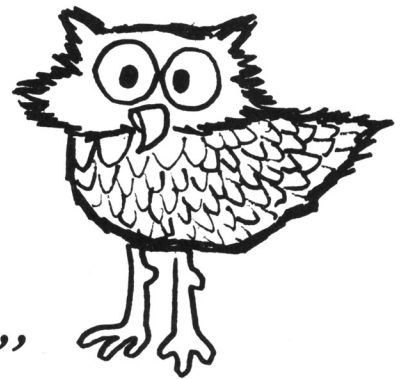
Stroud also reported that the government of Japan has recently passed rulings which favor copyright ownership to original games. That

would represent a major step to curb electronic cloning of new games, since it is in Japan that many copycat games allegedly originate. Japanese manufacturers together with American and European producers have called for a halt to the privacy problem. (See *PLAY METER*, June 1, on their joint meeting in Tokyo; also see related story, this issue, on British producers organizing to stand against illegitimate duplicates.)

In the Phoenix case, Cinematronics attested that a private investigator was hired by the firm's attorney William A. Brockett to buy one of the *Star Castle* copies on March 20. Court records said that the seller, Shapiro, told the investigator that the game he was buying was "an exact copy" of *Star Castle*.

Cinematronics did not divulge how many of the of the copies were in distribution, but Stroud said the number was "substantial."

A WORD TO THE WISE



*"To buy a game without
the service is nothing"*

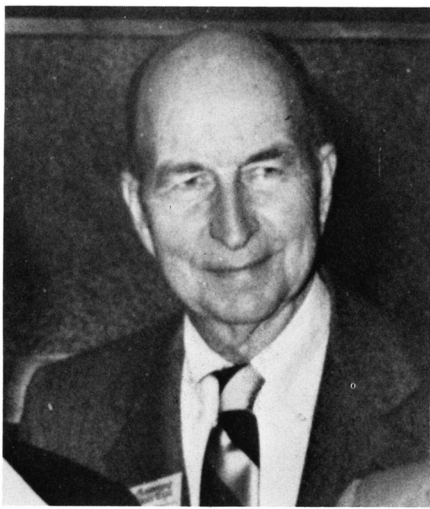
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Herrick

Veteran exits

Tom Herrick, D. Gottlieb & Co. vice president, left the amusement games firm in April, according to Bob Bloom, company president.

Herrick, a coin-industry veteran for over 25 years, whose career spans sales and marketing positions with the original J.P. Seeburg Company and the publishing industry as well, said: "I'm taking the summer off to handle some neglected personal affairs and relax a bit. Then when fall rolls around and my future objectives are sorted out, I may look for consultant or part-time activities within the industry."

"In the meantime," he concluded, "I'm conveying heartfelt thanks to my associates at Gottlieb and all my distributor friends. It's been a great three-year association with one of my all-time favorite companies."

"Tom is one of the best-known, best-liked gentlemen in our industry and a man with whom I have thoroughly enjoyed working for the past three years," commented Bloom. "Tom for some time has expressed an interest in reducing his career activities to a less than full-time level; however, being as conscientious as he is, the opportunity to do so never seemed to arise and, in fact, may never have. It is impossible to quantify the many contributions that Tom has made at Gottlieb during the past three years, and I can only express on behalf of myself and the company our respect and great appreciation. Although not on a daily basis, we will keep in close contact in the future. I'm sure that Tom's many friends, both at Gottlieb and within the industry, will join with me in wishing him the very best in the many, many years to come," concluded Bloom.

Willis graphics give facelift to games

Replacement graphics panels for game machines are being produced by Willis Industries (formerly R&N Silkscreening) of San Jose, California and marketed through Wico Corp., Niles, Illinois.

The appliques enable an operator to restore eye-catching color to a game cabinet that has become worn and scuffed. "Operators and distributors have been screaming for something like this," said Brian Warkentin, marketing vice president of Willis. "By having a sharp-looking game they can increase play significantly, it has been shown."

He noted that Willis Industries is preparing a "universal graphics kit" to fit any upright video cabinet manufactured in the past several years.

At present, the original graphics prepared by Willis include artwork to fit *Space Invaders*, *Deluxe S.I.*, *Galaxian*, and *Asteroids*. The artwork is created by Willis' staff and is copyrighted by Willis. Examples were displayed at the Amusement Operators Expo in New Orleans.

Also available, said Warkentin, are graphics for gaming machines, including glass and reel-strips.

Timm appointed

Robert Timm, formerly with Advertising Poster Company in

Chicago, has been appointed art director in charge of all creative services for Willis Industries, Inc. Brian Warkentin, vice-president of marketing for Willis, announced the appointment April 16.

Timm, a graduate of Notre Dame University, apprenticed with Bally Manufacturing in Chicago. He was the director for Advertising Poster and responsible for concept, production, delivery and a staff of seven artists. Said Timm, "I'm looking forward to even better things with Willis Industries, truly the most forward-thinking, aggressive member of our small fraternity."

Warkentin said, "Hiring Timm is one of many things we're doing to increase the quality of product and level of services we offer to a growing, highly competitive industry."

Willis has opened a Midwest office at 500 Davis Center, Evanston, Illinois 60201; telephone: 312/869-9766. This office will handle sales, art and customer service for Midwest and East Coast customers. Timm will work from this office until he can relocate to company headquarters in California.

A toll free number, 800/538-7808, has been installed at Willis headquarters to service customers nationwide.

Play Meter circulation reflects industry growth

Play Meter's paid circulation base rose in April to 5,000—by far the largest figure of any magazine serving the coin-op entertainment industry. As a result, PLAY METER increased its total circulation to 8,300. (The balance between 8,300 and the 5,000 paid subscribers is in the sample issues mailed to potential subscribers in the industry.)

Play Meter Publisher Ralph C. Lally II commented on the magazine's growth (60 percent more readers compared to last year): "The magazine, mirroring the industry itself, has expanded its coverage at a rapid rate. And we feel the response of operator/readers has illustrated the importance of an industry

magazine with the editorial independence of PLAY METER."

He added, "We are looking forward to even greater times and augmented growth in the future. With the growing number of new people coming into the industry, there is a great need for independent, unbiased information, and PLAY METER continues to serve in that function," said Lally.

As a part of that expansion, PLAY METER is now issued in magazine format twice each month. Also, PLAY METER recently applied to Business Publications Audit of Circulation, Inc. to certify the readership, now 8,300 persons, in the coin-operated amusement industry.



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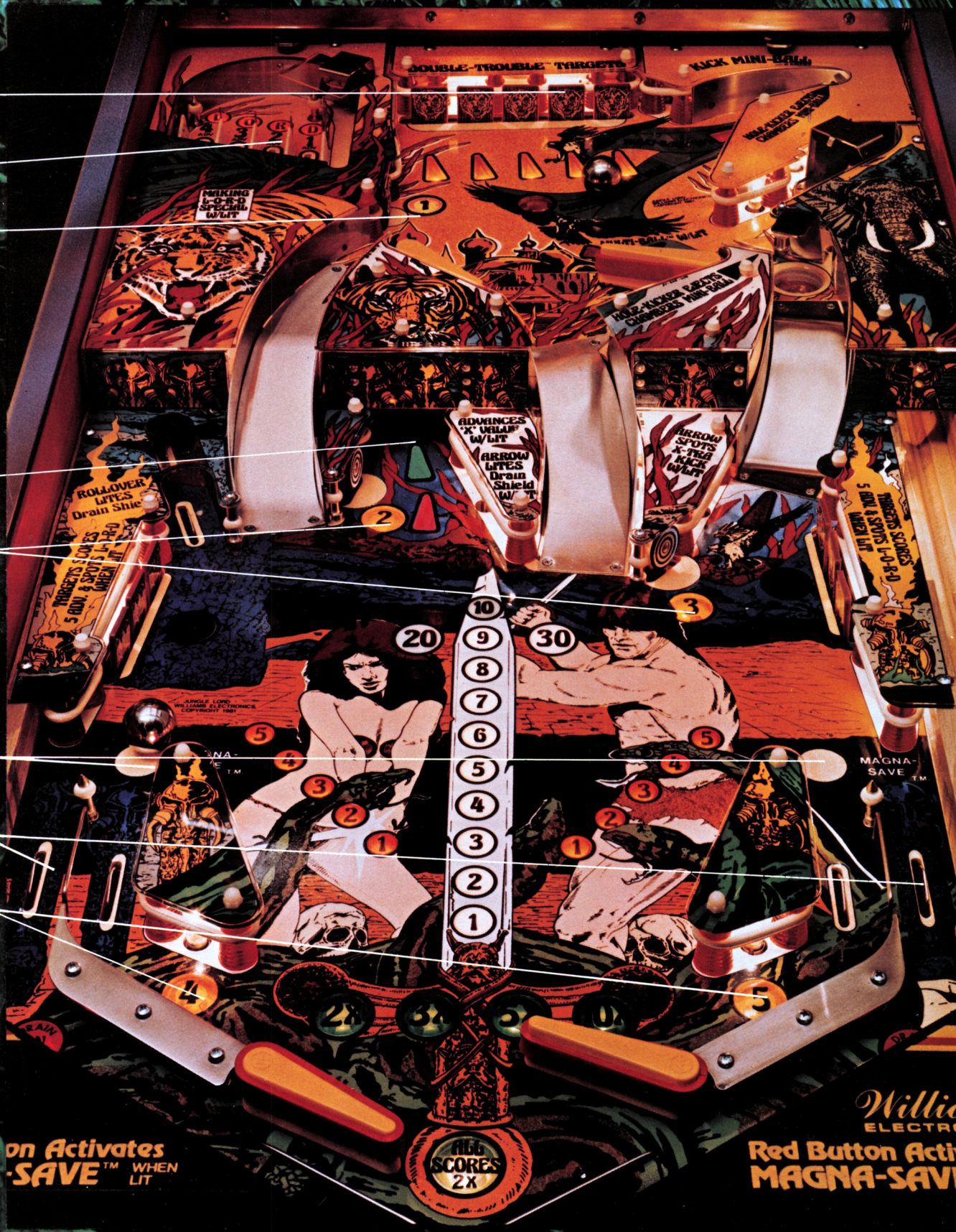
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Knock down the 1 standing drop target and 2 come up. Knock down the 2 and 3 appear. The sequence continues 'til all 5 challenge you! Knock them all down and activate Double Trouble™! Timed targets now randomly appear! Knocking them down within the limit earns 10,000, 20,000, 40,000, 80,000, 160,000 value! Double Trouble™ is held in memory for each player throughout the game.

B MULTI-BALL!™

To activate 2-ball multi-ball, you must first spell L-O-R-D in the mini-playfield. Spot a letter by making either eject hole which shoots the captive mini-ball down 1 of the 4 roll-over lanes or by completing either bank of timed drop targets. Shoot the mini-ball twice by making the eject hole at the top of the right ramp when the ramp's red arrow has been lit from making the 4 lane! Once you spell L-O-R-D, making either eject hole will hold the ball captive, releasing a second ball to the shooter. Propelling the second ball onto the field releases the first ball for 35 second multi-ball play! If 1 ball drains before your 35 seconds have run out, make an eject hole to release another ball to the shooter for more multi-ball play! During multi-ball, activate the mini-playfield for longer multi-ball time or spell L-O-R-D to score a Special!

C 1st SINGLE-BALL DOUBLE SCORING!

Lighting 1,2,3 targets and 4,5 roll-over lanes activates double-scoring for the rest of the time the ball is in play!

D BONUS MULTIPLIER!

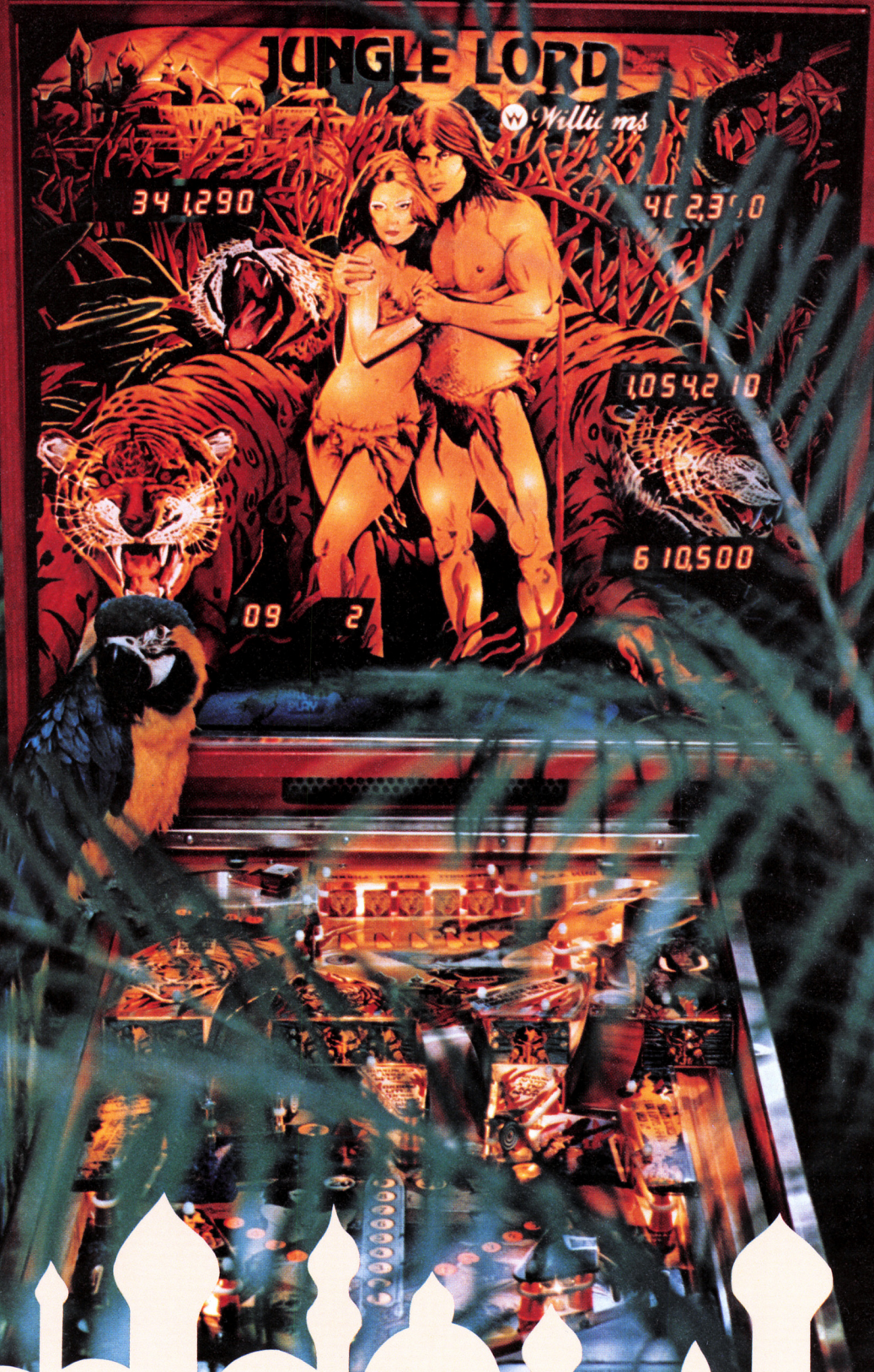
Making roll-over lane 4 or 5 lights timed arrow for Bonus Multiplier! Zoom through horseshoe within time limit to collect. The higher the Bonus Multiplier, the shorter the time the arrow stays lit, requiring progressively more skill to advance 2X, 3X, 5X, 10X!

E MAGNA-SAVE!™

Drop any target in the right 3-bank to increase right Magna-Save time; in the left 3-bank to increase left Magna-Save time! Use only the amount of time you need by skillfully manipulating Magna-Save buttons from a quick 1-second tap to a longer hold position!

F 1st DRAIN SHIELD!

To spot left or right Drain Shield, make 10X Bonus Multiplier and either 4 or 5 roll-over lane or shoot through the horseshoe from the narrow left entrance! When the ball in play drains through the lane and the Shield is lit, the ball returns to the shooter for continued play!



Height: 69½"; Depth: 52"; Width (cabinet): 22½"; Width (backbox): 30¼"
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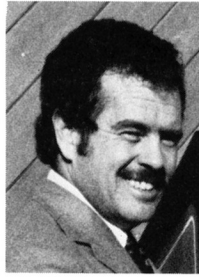
Kauffman moves to chair board, Anglin becomes Exidy president

SUNNYVALE, Calif.—The board of directors of Exidy, Inc. has announced the appointment of H.R. "Pete" Kauffman as chairman of the board. Kauffman had held the post of president since Exidy's founding in 1973 and will continue to be active in all Exidy operations. Noah Anglin succeeds him to the office of president.

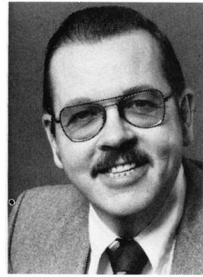
"Pete's promotion to chairman further strengthens our dynamic management team and will bring Exidy to the forefront of video game manufacturers with progressive and innovative game concepts," reported a spokesman for the board.

Prior to establishing Exidy, Kauffman was a founder of Ramtek Corporation, a manufacturer of graphic display systems.

Anglin, prior to joining Exidy, was vice president of engineering and



Kauffman



Anglin

manufacturing for Atari's coin-operated games division. Previously, he had been director of engineering for Atari.

Before joining Atari, he was a founder and vice president of Office Communications Inc. now the Office Products Division of Savin Corporation, where he developed and patented a word processing system. He was also director of

research for new technology at Memorex Corporation. He began his career at IBM where he held various positions in engineering and manufacturing.

Of Anglin's appointment, Kauffman stated, "With Noah joining Exidy we anticipate expanded new product development that will definitely put Exidy in the forefront of worldwide original game manufacturers."

Anglin holds a Mechanical Engineering degree from the University of Kentucky and resides with his wife and two children in San Jose, California.

As president, he will report to Kauffman. Howell Ivy remains vice president of engineering; Leslie Hauser, vice president of administration; and Lila Zinter remains director of marketing.

U.K. producers to organize

British video games manufacturers are taking steps to form an organization with the principal aim of combatting games copying in the U.K. industry. An inaugural meeting was set for April 24 at Westbury Hotel in London.

Bill Tulloch, managing director of Subelectro, Ltd. of Cheltenham initiated the association. After testing the reactions of U.K. manufacturers, he had received "full support," Tulloch told the trade press.

The need to fight games copying comes about because of insufficient definition in the 1956 Copyright act, "because it was framed before the micro chip revolution," he said, adding: "no one is quite certain how the copyright laws would work out in a major test case, and in the absence of one on the immediate horizon, it is imperative for a balanced, settled market conducted in a professional manner to be established for some form of security to be achieved."

He said the association would strive for manufacturers to "voluntarily bind themselves to non-copying agreements just as if the Copyright Act was positively binding on video games. The security for the

industry would come in the shape of unified action—with the resultant spreading of costs—against a manufacturer or importer who transgressed," Tulloch explained.

Leading importers of video games would be welcomed into membership and would be required not to import copied machines or games boards, according to Tulloch. Further, locations would be asked to cooperate by not accepting

machines which were not properly produced under license.

The British moves follow closely on the formation of a U.S. association with similar aims—Amusement Devices Manufacturers Association—and a joint conference recently in Tokyo of Japanese, American, and European manufacturers to take step on curbing the flow of copies in the international market.



New Orleans Novelty Company, established in 1932, will move this summer from its old headquarters at 1055 Dryades Street to a new million-dollar complex at 3030 N. Arnoult Road in Metairie, Louisiana, in an area better known as Fat City. Shown under construction are the new loading docks of the distributing complex.

Operators afraid they're overbuying — but can't help it !

"The Hit Syndrome goes much deeper than industry people think," Ray Hibarger of Hanson Distributing, told operators at his seminar March 14 at the Amusement Operators Expo.

Pointing to a straw poll that he took in his own area, he said operators today are truly lost when it comes to equipment budgeting, and this uncertainty is what makes the market so volatile. Operators taking part in his poll reported almost with unanimity that they felt they had probably overbought on recent video game hits, Hibarger said, but still these same operators couldn't determine by what quantity they had overbought the video hits nor if, in fact, they had actually overbought at all.

"The operator today just has to guess his best," Hibarger told convention-goers. The suspected overbuying by operators, he said, reflects the imbalance not only of the earning potential of game types but also of game models.

"It's a marketing disease," he told operators, "and is the result of a single product line and, more importantly, the surge of a single specific product."

Player and location demands for single specific games, he said, strain the operator's capital and create a dangerously volatile market where operators over-commit on particular pieces, thus endangering the long-range stability of the operator's business.

He stressed the fatalistic point that a video bust must follow this video boom by tracing for the seminar the past boom/bust cycles in the industry (including the 1972 *Pong* fad, the foosball phenomenon, and the solid state pinball explosion a few years back). For that reason, Hibarger warned, operators should

try to offset the risk of being over-invested in video games by reinvesting some of their newly-gotten gains into other equipment types—specifically pinballs, pool, and jukeboxes.

As for an indication of when the predicted video bust would hit, Hibarger suggested American operators should closely monitor industry trends in Japan and Europe.

"We can look to Japan and Europe to see what will happen to us because what will happen to us happens to them in spades," he said. The reasons for this, he observed, is that because of the geographical proximity of the major cities in Europe (and the same principle here holds true in Japan, he pointed out), boom/bust cycles are magnified and accelerated in those areas. Hibarger's warning of monitoring industry activity overseas for early signs of a video bust was particularly unsettling in light of recent reports from Japan of a downturn in that country's video activity.

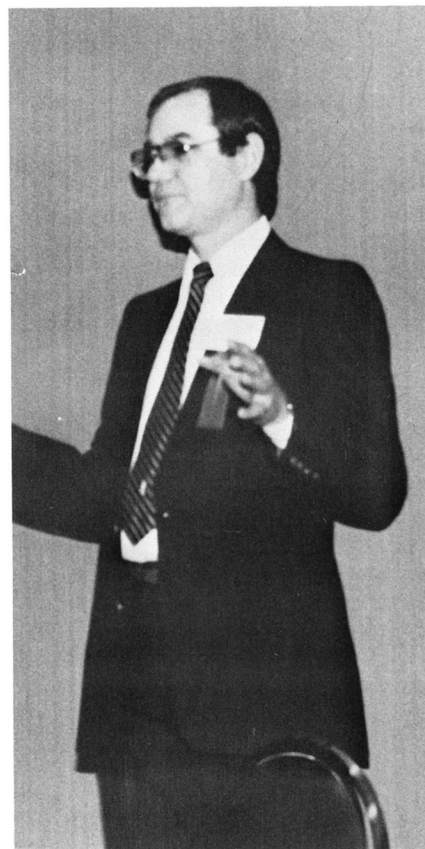
His advice to operators to avoid what he sees as the inevitable bust (which, he acknowledged, could still be years away) at the end of this video boom was to resist location demands for supplying every video hit that comes down the pike. He even suggested playing shell games with demanding locations where the operator could probably spring a sure-fire hit and replace it with a brand new also-ran video that carries a closeout price tag with a cost reduction of up to \$1000. By making moves like that, Hibarger said, operators could then use the money saved to reinvest in other game types.

He also suggested that operators should liquidate equipment early to get a good trade-in. Holding onto equipment too long, he pointed out,

will mean the operator loses any trade-in value for the piece on the used equipment market.

Hibarger also said the Hit Syndrome had had its effect on distributors as well. He said many distributors today are experiencing high receivables. He also pointed out that distributors tend to overspend in a Hit Syndrome too, by over-committing on supposed hit games to make sure they get early delivery on the games. But this practice, Hibarger said, leaves the distributor vulnerable to the whims of the marketplace.

—by David Pierson



Ray Hibarger

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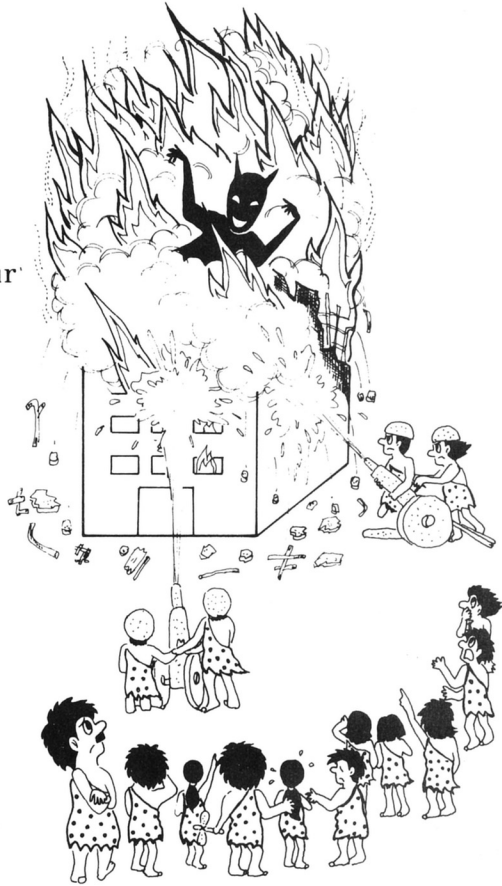
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Atari introduces new home game with holograms

SUNNYVALE, Calif.—In what it terms a “revolutionary technological breakthrough,” Atari has introduced the amazing effects of holography to electronic games with its *Cosmos/The Third Dimension* home video game and its Holoptics programmable games system.

Holographics is Atari’s exclusive holographic technique for producing three-dimensional light images of high detail and realism on a two-dimensional plane. The system will have eight or more game cartridges available when it is introduced in selected test markets this fall; national marketing is expected to follow, next year, said an Atari spokesman.

Meanwhile, the recent addition of *Missile Command* to the Video Computer System for the home expands Atari’s game library to a total of 43 game cartridges, with more under development. The

introduction of *Missile Command* in its VCS system was “largely due to *Missile Command*’s success as an arcade game and in response to considerable consumer demand,” said the manufacturer. The game cartridge provides a one- or two-player game that uses a joystick and offers 34 game variations, such as change in the speed of oncoming enemy attack.

For the Holoptics game mode, the manufacturer worked from the other end of the amusement games market, developing and introducing an advanced system for the home before proving its appeal in an arcade version. Of a coin-op model using holography, a spokesman said, “We are certainly working on the possibility of it,” but added that Atari is not near the production stage for the coin-op version. “This is the state of the art in holographic technology. Right now Atari holds most of the

patents available” in games holograms, having acquired these within the past year, said the Atari spokesman.

Until *Cosmos/The Third Dimension*, holograms in games had not been produced in large volumes and were very expensive. “Recently, however, an Atari engineering team developed a unique process for inexpensive mass production of flat surface holograms. *Cosmos* is truly the first consumer product to use this technology,” said Ginny Juhnke, speaking for the manufacturer.

Cosmos is a tabletop game system that combines the dazzling Holoptics images, sophisticated LED game play, and innovative sound effects.

The programmable system initially offers eight game cartridges: *Asteroids*, *Superman*, *Football*, *Road Runner*, *Sea Battle*, *Space Invaders*, *Destroyer*, and *Outlaw*. Said the manufacturer: “Because one of two microprocessors is dedicated entirely to sound, *Cosmos* has the most innovative and realistic sound effects available in an electronic game.”

The other microprocessor accounts for *Cosmos*’ sophisticated, exciting LED game play. *Cosmos* is operated by inserting the game cartridge into the slot provided which positions the image in front of an array of LEDs. The player sees a green, 3-dimensional image superimposed over red game figures (cars, missiles, gunfighters) illuminated by the LEDs. During game play, the red figure moved about the illuminated screen under computer and player control. At critical moments during a game, the 3-D image changes to indicate an outcome or some new aspect of game play.

Each game can be played by either one player against the computer or two players pitted against one another, and there are two different skill levels for each player and each game. There are two separate holographic images on each game cartridge.

Included in the *Cosmos* package, which will sell for about \$99, are an AC adapter which eliminates the need for batteries and an *Asteroids* game cartridges.



Atari’s new *Missile Command* home video system, as introduced in New York City. (Photo by Atari, Inc.)

Source and Uses of Funds Statement

By Charles C. Ross

You had a good net profit last year but you don't have much money in the bank. Where did all the money go? If you have ever asked that question and been unable to determine the answer you are in need of a Sources and Uses of Funds Statement to show you where your money came from and where your money went.

There are several different methods you can employ to answer the question, but let's do it the easy way and build an actual Source and Use of Funds Statement. Figure 1 is a schematic drawing for your company's cash circuit.

First, before you could expend money you had to have had money come in, so let us look at the sources of funds.

1. Decrease in an Asset. If you have a decrease in any asset

account it is a source of funds. For example, when you sell an old piece of equipment you receive cash and decrease the amount of equipment you own. Therefore the sale of the equipment was a source of funds. A decrease in cash, which is also an asset account, is also a source of funds. At first, that appears a bit confusing. How can a decrease in cash be a source of funds? A decrease in the cash balance is a source of cash flow in the sense that if the firm's cash balance is decreased the cash flow released must have gone towards some use of cash such as to purchase more equipment or pay off a bank loan.

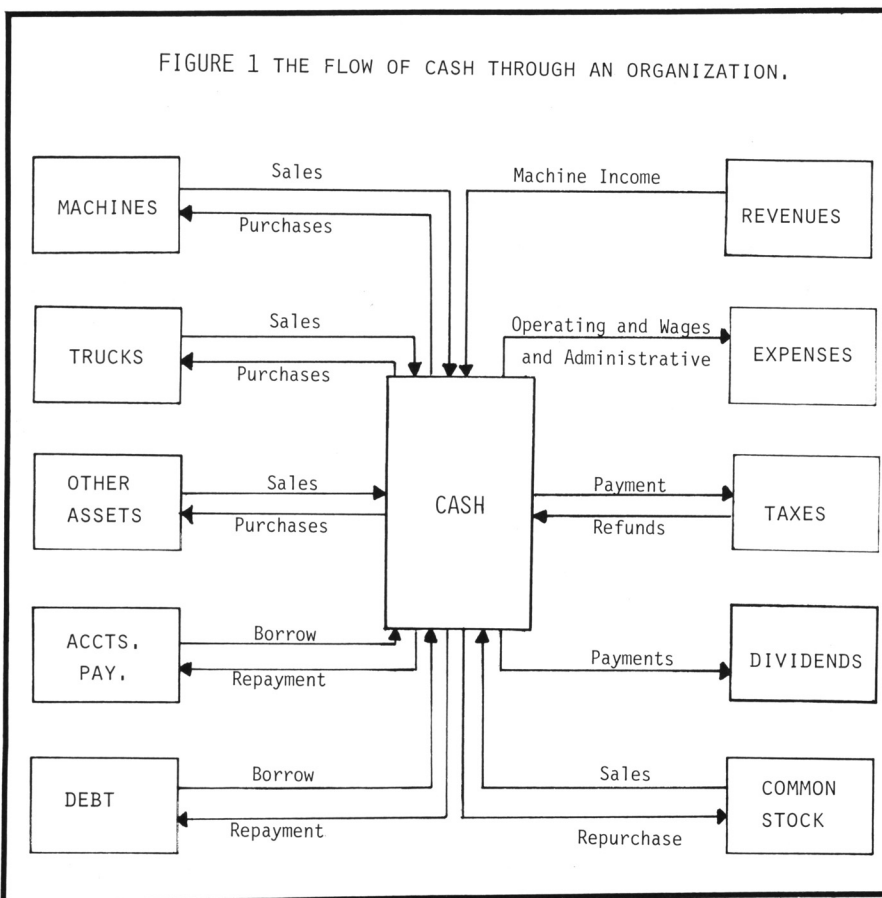
2. An Increase in a Liability. A liability is of course what your company owes someone else. If you go to the bank and borrow money the banker deposits the money into

your bank account, thereby increasing the funds you have and also increasing the liability you have to the bank. An increase in any liability is a source of funds.

3. Net Profit After Taxes. Earnings after taxes are probably the biggest source of funds to all amusement operators. Revenues flowing into machines are of course really the sources of funds but then you have expenses which use funds. The difference between these two opposing forces is net income (we hope), which is a source of funds.

4. Depreciation. Understanding how depreciation is a source of funds requires some real explaining. First let us look at a simple income statement:

$$\begin{array}{r} \text{Revenues} \\ - \text{Expenses} \\ \hline = \text{Net Income} \end{array}$$



If we assume all revenues and all expenses are cash, then the Net Income is the cash left over. But, there is an expense you have which is not a cash expense, that is Depreciation Expense. Since depreciation expense does not involve a cash outflow, it is considered to be a source of funds. The deduction of depreciation is what is considered to be a tax shelter. You get to deduct a non-cash expense from your income, thereby sheltering income from taxes.

5. Sale of Stock. If your company sells stock, then funds flow into the company from the sale of the stock, thereby making the sale of stock a source of funds. The same applies to allowing a partner to buy into your business: the sale raised funds.

The above five sources of funds are the only sources of funds. You will note in Figure 1 there are the only sources. All sources must fall into one of these five categories.

Once the company has received funds from one of the five sources, something is done with the funds, the funds are used, or become uses of

funds.

1. An Increase in Assets. When your company buys a new video game, pinball, truck, or other piece of equipment it takes funds out of the company coffers. The equipment purchased of course increases the equipment you own, but the increase requires the use of funds.

2. Decreases in Liabilities. Every month when you go to the bank and pay on that bank loan you decrease the liability you owe to the bank and you also decrease your cash balance. The same applies to the purchase of equipment on account from your distributor. It takes money to pay him off. Decreasing any liability is a use of funds.

3. A Net Loss. If your company lost money last year the loss is a use of funds. Since expenses outran revenues, more money flowed out of the company than flowed in; therefore the net loss is a use of funds.

4. Payment of a Dividend. Cash dividends require funds to be paid out of the company treasury, and are a use of funds.

5. Repurchase of Stock. A use of funds which does not occur very often is the repurchase of stock from one of the stockholders. When stock is repurchased it requires the payment of cash to the stockholder in exchange for the share of stock.

Now that we have seen all the sources and uses of funds let's prepare a source and use of funds statement so we can answer the questions, where the money came from and where the money went.

Take the two most recent Balance Sheets for your company and place them side by side and find the difference between each balance sheet item and classify it as source or a use of funds. Use the earliest year as the base. Please note that you ignored the change in net machines because the change in machinery is handled in the machines and accumulated depreciation accounts.

In the Balance Sheet for the "Magic Circus Vending Company," first of all note that total sources must equal total uses of funds. If they do not equal you have probably listed a source or a use in the wrong column, or made an adding error.

The actual source and use statement makes it very clear where the money came from and where the money went. Referring to the Source and Use of Funds for Magic Circus Vending, we can see that 94% of the funds they generated were generated by the operation of the

Magic Circus Vending Co.
Statement of Balance Sheet Changes
Year Ending Dec. 31

	1979	1980	Sources	Uses
ASSETS				
Cash	\$ 12,000	\$ 35,000		\$ 23,000
Machines	200,000	305,000		105,000
Less Acc. Dep.	<u>(80,000)</u>	<u>(130,000)</u>	\$ 50,000	
Net Machines	\$120,000	\$175,000	-	-
Trucks	15,000	25,000		10,000
Less Acc. Dep.	<u>(5,000)</u>	<u>(13,000)</u>	8,000	
Net Trucks	\$ 10,000	\$ 12,000	-	-
Other Assests	15,000	12,000	3,000	
Less Acc. Dep.	<u>(3,000)</u>	<u>(5,000)</u>	2,000	
Net Other Assets	\$ 12,000	\$ 7,000	-	-
TOTAL ASSETS	<u>\$154,000</u>	<u>\$229,000</u>	-	-
LIABILITIES				
Equipment Accounts	\$ 13,000	\$ 20,000	7,000	
Bank Loans	40,000	11,000		29,000
NET WORTH				
Common Stock	1,000	1,000	-	-
Retained Earnings	<u>100,000</u>	<u>197,000</u>	<u>97,000</u>	
TOTAL LIAB. & NET WORTH	<u>\$154,000</u>	<u>\$229,000</u>	<u>\$167,000</u>	<u>\$167,000</u>

Magic Circus Vending Co.
Statement of Sources and Uses of Funds
For the Year Ending December 31, 1980

<u>SOURCES</u>	<u>AMOUNT</u>	<u>PERCENT</u>
Funds Provided by Operations		
Net Income	\$ 97,000	58%
Depreciation	<u>60,000</u>	<u>36%</u>
Total from Operations	\$157,000	94%
Other Accounts	3,000	2%
Increase in Equip. Accounts Payable	<u>7,000</u>	<u>4</u>
TOTAL SOURCES OF FUNDS	<u>\$167,000</u>	<u>100%</u>
<u>USES</u>		
Cash	\$ 23,000	14%
Machines	105,000	63%
Trucks	10,000	6%
Bank Loans	<u>29,000</u>	<u>17%</u>
TOTAL USES OF FUNDS	<u>\$167,000</u>	<u>100%</u>

Note: Total Sources of Funds must equal total Uses of Funds. That does not imply that all the funds generated were expended. Note that 14% of the funds generated are still in the company's cash account. Cash is a use of funds. The funds were used to increase the cash account.

“Don’t let the money come in and go out at will, but determine how the money is going to be spent, through planning.”

business. They sold \$3,000 of other assets which accounted for 2% of the funds they generated and an increase in the amount they owe to their distributors accounted for 4% of the funds generated which was \$7,000.

Not only is it easy to see where the money came from but it is also easy to see where the money went: \$23,000 of the funds they generated is still in the bank. Equipment was the big use, absorbing \$105,000 or 63% of their funds plowed back into the company in the form of new equipment purchasing. One note here; most vending companies are experiencing this same situation in that all of the money they generate is going back into equipment either in the form of replacement or into expansion of their operations. The whole point is that expansion should be given careful consideration as should the purchase of new equipment to make sure the expenditure is going to generate cash in sufficient quantities to offset expenses and depreciation.

Magic Circus Vending also bought a new truck which accounted for

\$10,000, a 6% use of total funds generated. They also made their banker happy by paying off \$29,000 on a bank loan which accounted for a 17% use of the funds generated.

Young companies which are debt heavy often find that repayment of bank loans is the biggest reason that they have so little money in the bank.

Well, now that we have answered the question, “Where did the money go?” —of what use is the information? The Sources and Uses of Funds Statement can be used to help give the company future direction. For example, Magic Circus Vending Company may feel that they spent too much money on new equipment last year and would like to review their locations and make sure they are all generating sufficient net profit to warrant keeping the location. They may also desire to set up an equipment budget for 1981 (see PLAY METER, August 15, 1980, page 52) instead of just buying machines on impulse. They may also discuss the possibility of extending their bank loan so that their payments would be reduced.

The present Source and Uses of

Funds Statement is also an excellent point of departure for preparing a projected Sources and Uses of Funds Statement which can be an excellent planning tool for the coming year. In other words don't let the money come in and go out at its will, but let us determine how the money is going to be spent through planning.

Another important use of the Sources and Uses of Funds Statement is in the preparation of information for the bank when you need to borrow money. It shows the banker what the company had done with the money generated in the past.

Easy to prepare, a simple tool for forecasting, and an easy way to inform your banker about your situation, the “Where Got, Where Gone” Sources and Uses of Funds Statement is a useful, informative, and powerful financial tool. •

Charles C. Ross is a partner in the firm of Innovative Management Consultants which specializes in consulting to the amusement industry.

Kids' sitters appreciate games

Galaxy Game Center owner, Gil Williams, wanted to increase awareness of his location in Cupertino, California. A special event was organized to meet this objective, and the Big Brothers and Big Sisters organization was selected due to its publicity capabilities during its National Appreciation Week in February. The local membership of over 300 adults matched with youngsters 7 to 17 years old is potential player market for the Galaxy Game Center, Williams noted.

A special “Appreciation Day” was planned for Sunday, February 22. The Big Brothers & Sisters members were invited to bring their little brothers and sisters to play games at Galaxy. Each person attending (both adult and youngster) received five free tokens for playing games. In addition all 300 adult members received 2-for-1 token coupons to play again with their little brother or

sister over the next three months.

Contests and prizes were a highlight of the day. Stuff Pizza, near the game center, donated free pizzas as prizes. Williams awarded an Atari home TV game as the top prize to Renda Ajluni of San Jose for her high score of 427,200 on *Firepower*. In addition to the all day high score contest, short term events were held on other games, such as the first players to get over a set score on different games, or the first combined big and little brother or sister score over a set amount. “These type contests are easier to administer and give the novice players a better chance of winning.” explained Carol Kantor, organizer of the event.

“We were pleased with the results of this day,” reported Williams. “The collections for the day were the highest of the year for a Sunday. The residual effects are also positive, and

the coupons are still being used, indicating more new customers for my location.” Also the local daily newspaper reporters were there to cover the event. Prior press notification by the Big Brother/Big Sisters organization and the coordinating PR agency helped to increase the publicity on the event, he said.

Public relations director for the Big Brother & Big Sisters of Santa Clara County, Nzinga Jenkins-El, was pleased with the response to Galaxy Appreciation Day, “This was a great program that appealed to both the adults and the kids. Everyone enjoyed the excitement of the games and contests. They all stayed for the entire afternoon.” Ms. Jenkin-El added that the game center is a good alternative activity for their Big Brothers and Big Sisters. “We are always trying to find new things for our volunteers to do with their little brothers and sisters.”

PINS VERSUS VIDEOS: Another Look

By Roger C. Sharpe

Back during Halloween weekend I really thought that the tricks and treats were those being offered by new pinball machines on review including *Black Knight* and *Flash Gordon*. It looked to be a taking off point and indication that the flipper market could once again be innovative and exciting as well as competitive with video. I wasn't alone in this feeling and many others supported what appeared to be the beginning upswing of pinball on its much awaited, long road back to popularity.

Even the initial returns when the new pins first hit the streets tended to add support that maybe pinball was indeed making a comeback. But video kept on hitting hard with a variety of equipment that, although in some cases very similar, were what the playing market wanted to see. So the pinball groundswell never really had the opportunity to take off and exert itself. Instead the resistance continued to pinball's potential profitability, and manufacturers were fairly silent and not bursting with the enthusiasm they once had.

In February 15th's magazine, feeling much more optimistic that things would happen quicker with pinball, I offered an analysis ("Pinball Must Be True To Itself") where I was trying to gauge many of the variables of the cyclical nature of this business, but there was an important factor left out—the player. And in the past few months I've had the opportunity to really take a closer look at who is spending their money, on what, and lastly, why.

It's interesting to even a pinball diehard like me that video has grown to the point that it has, not only in attracting new players to the whole pastime of game playing, but also in luring away that borderline player who was willing to invest some time and money to see if video could in

fact be as satisfying and enjoyable as pinball. For the majority it proved to be, and pinball was left in the background and not at the center of interest. I think there are a number of reasons for this, which in part may help to clear up those who still have questions as to why video has taken the world by storm and what it seems to offer over pinball for many different types of players.

For a long time I have noticed the surface changes in video in terms of different play strategies and play themes. Admittedly, although *Space Invaders* supplied the turning point, it did a great deal more in retrospect. It brought predictability into video as well as easy player controls and a fairly simplistic strategy of play—just keep shooting at the invaders and you get to keep playing. What followed, as we all know, were a deluge of games that copied or modified the "S.I." approach of little things advancing from somewhere above—usually space, and this type of game (if you'll allow some categorization) found its place in the sun.

Another video category also began, which for the most part I consider to be those models that have you somewhere in the middle of converging objects, whether it be asteroids, bullets from banditos, or whatever. And the third of what I see as the major categories was the advent of the maze game and all its variations of themes.

Now, if you accept the notion that, outside of a few departures which may in fact eventually spawn their own rip-offs and imitators such as the track ball variety of game, *Battlezone*, *Berzerk*, or even *Defender* with its side-to-side action, the player really only has to get comfortable and master three basic types of play and control, no matter what the manufacturer or game

theme. The end result is that a player can walk up to a strange video game, watch the attract mode go through its paces to understand the basic game, or watch someone play and also get a pretty good idea of the nature of the game. The guesswork is gone and so is any possible intimidation, which is a vital factor if one is to understand player motivation or reluctance. But before I get to that, there's another very important thing to consider and mull over.

Technical vitality

What proved invaluable and really paved the way for video to hit the heights that it has reached was when it had reached the point that everyone was writing it off, a better understanding and utilization of the technology brought the games back to life. The single biggest result was that video games suddenly pitted man against machine (that old strong appeal of pinball) and not two players against each other. If you really think about it, back in the early and mid-Seventies, most of the video games were two-player models that had someone trying to hit a blip back and forth, or shoot the other guy, tank, or whatever.

And then it happened. Most of the games hit on "Star Wars" as the coming and then current craze, and things went to outer space and the player playing against some phantom enemy. It was the perfect blend and video was on the road to success.

Now no matter what pinball was going through at the time, the crucial thing was that it wasn't innovating fast enough to keep the players interested. Playfield design became almost standard and predictable, things that the pinball player didn't want from each succeeding machine. He wanted, instead, continually new challenges that tested his skills or forced him to

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A Truly Deluxe Feature

Pinball-pool lovers score 2000 points for each of the 1-7 or 9-15 drop target balls hit, as well as advancing the bonuses. Dropping all 7 targets lights the 8-Ball. Making all 7 targets and the 8-Ball Target awards the bonus and lights the D-E-L-U-X-E lights.

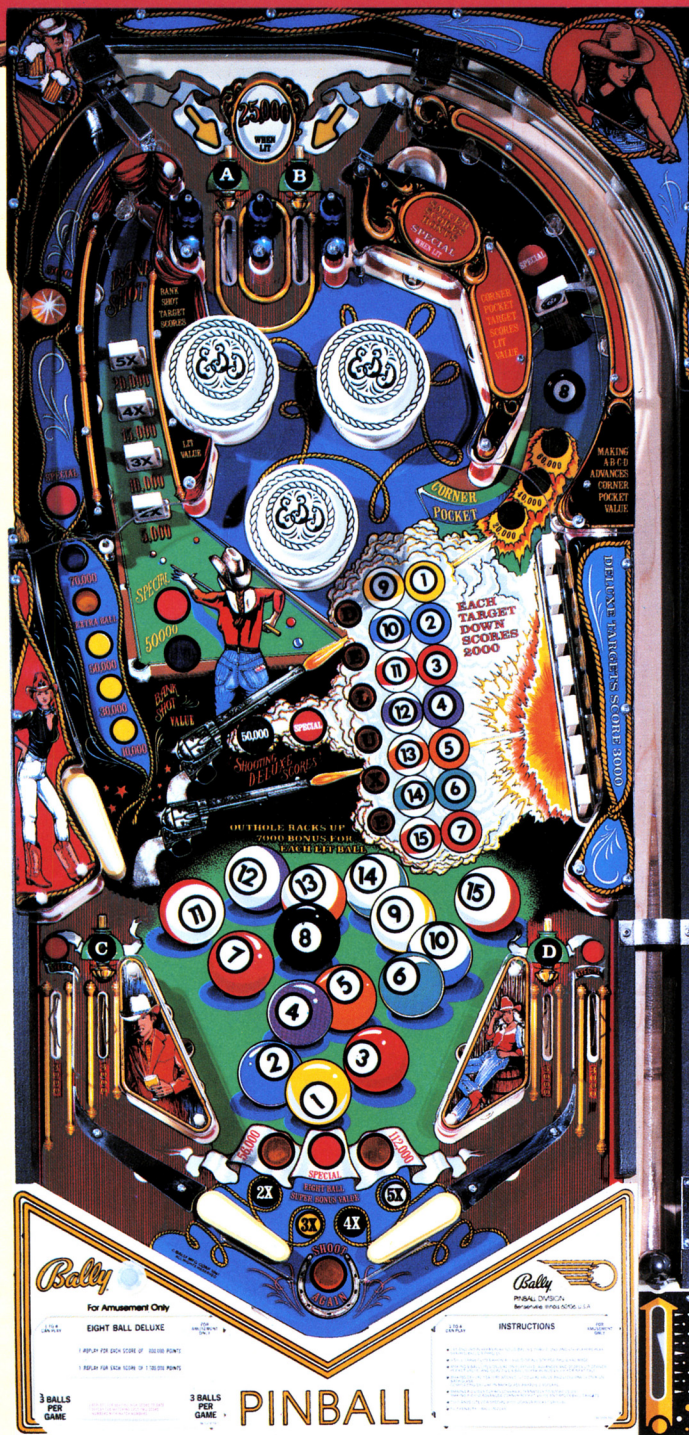
Deluxe targets score 3,000 points each; Completing D-E-L-U-X-E scores either 50,000 points or the Deluxe Special, and lights a letter in the backbox D-E-L-U-X-E Carry-over feature.

Go for the Bank Shot, Partner

50,000 points are awarded when you hit the Bankshot target the first time; 50,000 points and Special the second time, but first you'll have to drop the entire 4 drop targets, scoring 5, 10, 15 and 20 thousand points consecutively while multiplying bonus scores from 2 thru 5x.

Shoot for A·B·C·D

A & B top lanes, when completed, light alternately for 25,000 points. When all 4 letters are completed they drop drop targets and increase the corner pocket value for hitting the 8-Ball Target.



8-Ball, Corner Pocket

Build up special points by hitting the 8-Ball Drop Target in the corner pocket. This bonus advances from 20 to 40 to 60 thousand points, and lights the outlane specials by completing the A-B-C-D feature, or by hitting the 8-Ball Target. It is collected only by hitting the 8-Ball Target.

Dropping the ball into the saucer scores top right lane special when lit and awards 500 or 7000 points for each lit ball, plus Super Bonus time the multipliers.

Chalk Up for the Left Lane Shot

Consecutive shots up the left lane to the top of the playfield score 50, 10,000, 30,000, 50,000, Extra Ball, 70,000, then Special. 70,000 points are earned for each subsequent shot up this lane.

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adopt newer techniques in mastering a game. And pinball stagnated while video kept on refining itself and fitting into a format. In essence both were doing the same thing, but for pinball it meant disaster, while for video it meant that people could be comfortable with what was going on, on the television screen.

That was the key for video, especially in establishing its initial audience. The basic framework of machines was something that everyone could relate to: a TV screen with a limited number of buttons to push or levers to move. It was what was on the screen that video had to concern itself with, and the predictable pattern was an easy niche to take: the intimidation factor.

The thing with pinball was and still is —probably now even more so, with so much going on— visibility for the player. It's the thing that has made pinball the game that it is and the draw for generations of players. Unpredictable, the same models of machines playing differently, different machines being different and never the same in terms of play or even score most of the time. One game is great, the next a bust and so on, egging the player always onward to pop that next coin in the slot.

But for many of the new entrants into arcades, amusement centers, bars, and a whole host of other locations, pinball was still a bewildering display of lights, sounds and seemingly no-rhyme-or-reason playfield design. Talk of skill to these newcomers and the reaction is one of how they would just want to watch because they can't play it and don't want to feel foolish—and there is the bottom line. The thing that made pinball special was also the single ingredient that tended to turn away the new and uncertain player. The option? Video. With its few buttons and comforting television screen.

There really was never a choice or even a competitive nature to the thing. Those who would play pinball, would continue to do so just as long as the games remained challenging and different, while those who wanted to play games and feel on somewhat even terms would always choose video. But pinball didn't keep up its end of the bargain and players turned away to try the new TV challenges. And the price being paid is still felt today with the diminished glamour of pinball.

Unfortunately, the approach that pinball manufacturers have chosen to take is one where all the new

games are being loaded to the hilt in the hope that it is what the player wants. Give him multi-levels, multi-balls, and a host of other gimmicks and maybe pinball can make its way back. But that's not the real need. It's helpful, yes, to continue to try new things: however, the fundamentals that make pinball unique must also enter into the picture and be amplified, and it's just not happening that way. Instead, pinball is going very deliberately, with a few of the major manufacturers more thankful that they have video to get them through, while pinball is kind of put on the "not necessarily a priority issue" list.

Hidden blessing

I for one viewed the whole atmosphere as a blessing in disguise because pinball could get itself together and deal with quality, not quantity, and maybe by so doing end the glut of machines and models churned out annually. However, even at this juncture a more assertive stance is needed especially if you look at the big pinballs now out and about.

As of this writing, there are really only three new pieces that are drawing their share of the player

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load—*Black Knight, Flash Gordon, and Free Fall*—and somehow three games are not enough to sustain things. What's needed is not an inundation of the market, but rather a few strong, exciting pieces from everyone to give players more of a choice and bring back some of the enthusiasm and interest to pinball. But it's not being done because so many are just not sold on the idea of pinball versus video in terms of purchases when one is looking on the operator level. And it's not an either/or situation, but rather the fact that both types of games are needed for any complete location or total route, no matter how the earnings stack up on a week by week basis.

Pinball is going to be there down the road, strong and captivating for its own audience and so too will video with its audience. The question is one of time and whether pinball can weather the storm in a positive fashion and come back better than ever. I think it can and, deep down, I think all of you think it can too. It's the same kind of thing that you hear from some of the oldtimers when they talk of bringing back rifle games and other arcade pieces that this new generation of players has never

experienced.

Or put another way in terms of video, one designer, still active and with more years of experience in the business than can be counted, told me to take a look at some old games and tell him what "new" thing I can find that may be good for today's games. But that's not the point really, except that pinball adds diversity to anyone's operation, just as video did when it first came out. The earning curves and all the rest aside, both types of equipment can earn an operator business if he's a smart buyer of games and knows what his customers are going to like. This is especially true in this age of tight money.

As to the pinball versus video question, well, the truth of the matter is that today's newest videos are involving the player far more than ever before. All you need to do is walk into any location and see it for yourself. They're transfixed in front of that screen, pushing those buttons and oblivious to the outside world. The concentration and reflexes needed to sustain the action are all inclusive. It is something that pinball once enjoyed—this idea of total player involvement. But pinball has its moments where you can lay

back and, seemingly, the new generation of players, many of them, don't want this breather or feel slightly removed from the action standing there looking down at the playfield and waiting for the ball to reach the flippers.

"Is this good or bad?" you may question. Well, it's a matter of whether the video games can continue to be innovative and keep the players guessing, or whether these machines too will fall victim to a phenomenon all too frequent in the coin machine business—when things are going good, don't rock the boat; just keep giving the players what they've been playing—and if things soften a bit, then try something new. And when that happens, which it will, pinball will be rediscovered by a great many players who are going to be surprised (positively) by what they're going to find.

And then the cycle will continue, back and forth, back and forth. It's the nature of this business and a reason that even now I can feel good about pinball and what the future holds and even still think that '81 will still be more pinball-oriented when people look back at it down the road.



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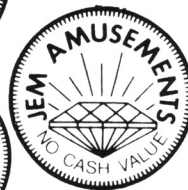
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Spiderman.....	900
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Ali	945
Big Game.....	900
Meteor.....	750
Sea Witch	100
Galaxy	850
Dracula	545
Trident	600
Wild Fyre.....	400
Lectronomo	350

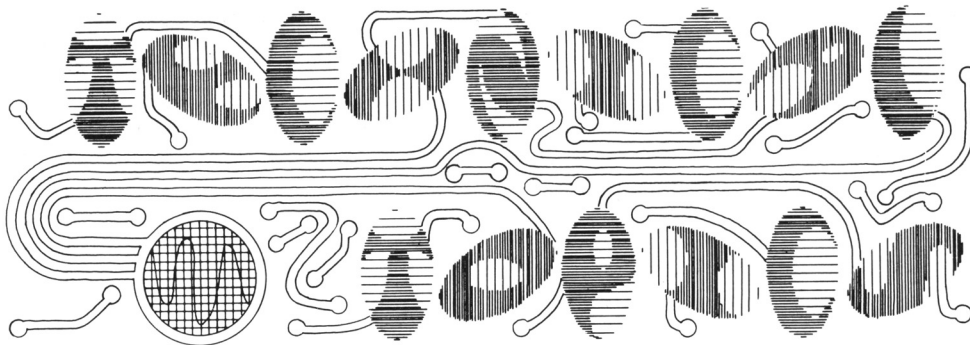
WILLIAMS

MODEL	LOW PRICE
Alien Poker.....	1200
Flash	615
Gorgar	845
Laser Ball	900
Phoenix	550
Pokerino	550
Space Mission	75
Stellar War	750
Time Warp	750
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By
Randy
Fromm



Revolutionary new game cassette tape system

Although we got a sneak preview of this revolutionary new system at the AMOA show in November, I didn't get a chance to get a close look at the beast until the Amusement Operators Expo in March. Lynn Watson, customer service manager and head technician for Data East's Santa Clara, California facility, took me on a private journey into the future of video games...

Imagine a game that can be easily changed from one to another of any dozen or more game programs! Think of the time and money such a system would save. When a game loses its play appeal, a new game can be programmed into the existing cabinet. Since you're not buying a new game cabinet, you'd save money over the cost of buying an entire new game. No more "rotation days" spent moving equipment around from point A to point B (Oh, my aching back!) will make your mechanic a good friend for life.

Sounds too good to be true, doesn't it! Well, it is true and it's available right now from Data East Corporation, the same firm that produced *Astro Fighter* (licensed to Gremlin). This revolutionary new video game system uses a micro-cassette to load the game program into the computer. Different games may be programmed into the computer by installing a new tape and "key module" into the computer unit that stays in the game cabinet. Each new game program requires both the cassette tape and the key

module to complete the game change. In other words, you cannot use one cassette to program a number of games. The cassette tape containing the new program, the key module, and a new instruction panel. The new instruction panel also modifies the control panel to conform to the particular game programmed at that time. The basic control panel comes equipped with a joystick, and a number of buttons. The new control instruction panel selectively blocks off some buttons or joystick directions to eliminate any player confusion about buttons that don't seem to do anything.

How it works

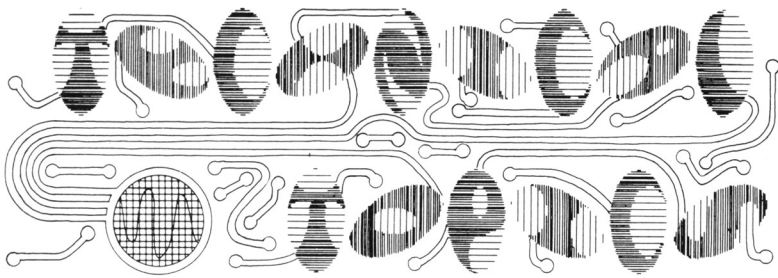
In actual fact, although the system is revolutionary as far as its applications in the coin amusement industry are concerned, there is nothing new about the idea of loading a computer program by way of magnetic tape cassette. There is lots of "software" on cassette tape out there for Apple or Radio Shack computer owners. A good chunk of it is devoted to game programs. Naturally, these game programs are primitive as far as the coin amusement industry is concerned.

The Data East system uses the same principle to load much more complex game programs into a powerful computer system that can handle the tasks of a sophisticated video game. The "bit stream" that comes from the cassette tape player is loaded or stored in RAM. The

RAM holds the program and tells the computer what to do and when to do it. The key module is used to "scramble" the data from game to game to prevent unauthorized duplication of the cassette tape containing the program (easy to do!). You must have a key module that's dedicated to a specific game and a cassette tape for each game. The key modules are constructed in such a way that it is impossible to open them to see what's inside, and the only place to get them from is Data East.

Changing the game program is a simple matter of changing the cassette in the tape player that's built into each game, changing these plug-in key module, and installing the new instruction panel. The program loads in automatically when you turn the power on. Without the hassle of changing machines, locks, or even money (a big plus, the cashbox can remain untouched during the changeover!), you have a new game in your best location at a fraction of the price you would expect to have to pay.

Naturally, the success of this system lies not in the system itself (it's been thoroughly field tested in Europe) but in the programmers' ability to come up with "hot" game programs for the future. Data East Executive Vice President Satish Bhutani assures us that their current plans include an ample supply of hit games developed in-house and under license from other manufacturers. ●



DIGITAL CIRCUIT DESIGN COURSE

Editor's Note: The material below is a serialization of the Kurz Kasch correspondence course for electronics, designed specifically for the coin-operated amusement industry. This course is copyrighted and owned by Kurz Kasch of Dayton, Ohio and its reprinting is being sponsored jointly by Kurz Kasch and Play Meter magazine. This material is authorized for publication exclusively by Play Meter magazine.

Lesson Ten:

Set/Reset Flip-Flops

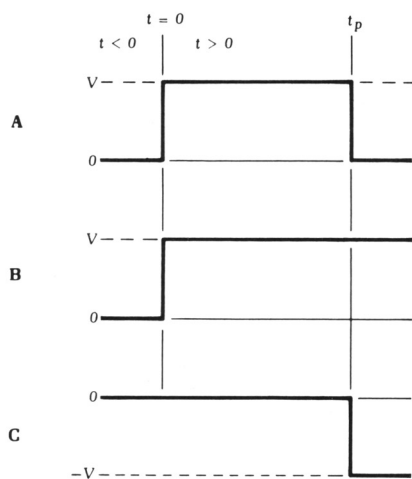


Fig. 10-1. A pulse waveform is shown in A. It consists of an up-going step-voltage, B, and a down-going step-voltage, C.

Truth Table

S	R	Q	\bar{Q}
0	0	*	*
1	0	1	0
0	1	0	1
1	1	0	0

* Retains the state of lines 2 or 3

Fig. 10-2 The truth table for a Set/Reset Flip-Flop. The circuit stores indefinitely the states of line two or three when both the S and R inputs are at a low level. The fourth line of the truth table represents an undefined state and should not be used.

This lesson is about the design of SET/RESET flip-flops. The student should familiarize himself with the truth table for this circuit. Most important is how the circuit is triggered and when it has memory.

A pulse:

A pulse can be considered the algebraic sum of two step voltages: the first step voltage occurring at $t = 0$ and the second, of opposite polarity to the first, occurring at t_p . Referring to *figure 10-1*, the waveform A is a positive pulse of duration t_p and amplitude V. Waveforms B and C show the two components of the pulse. A negative pulse is of the same two components except their time relationship is interchanged.

SET/RESET flip-flops

A set/reset flip-flop is a bi-stable circuit having two outputs, Q and \bar{Q} (\bar{Q} is said **Not Q**.)

The Q and not-Q outputs are complements of each other, that is, when Q is at a logic 1, not-Q is at a logic 0, and vice versa. From the truth table in *figure 10-2* it can be noted that if the set (S) input is at a logic 1 while the reset (R) is at a logic 0, the Q output is at a logic 1. And if the S input is at a logic 0 while the R input is at a logic 1, the Q output is at a logic 0. If both inputs, S and R, are at a logic 0,

the outputs will remain in the state of lines two or three indefinitely.

For example, if the S input is pulsed with a logic 1, the Q output will be a logic 1. After the pulse, the S input will be at a logic 0 as is the R input, which was at a logic 0 when S was pulsed. The circuit will remain with a logic 1 at the Q output until the R input is pulsed with a logic 1, at which time the Q output will assume a logic 0.

Should both the S and R input be at a logic 1 simultaneously, both the Q and not Q output will be at a logic 0. Then if both the S and R inputs are switched simultaneously to a logic 0, the state of the output cannot, in theory, be defined. In practice, however, the transistor with the most gain will saturate first, whether it be on the Q or not Q output. Since the state of the outputs cannot be determined by design, the circuit should not be operated in this fashion.

Because the flip-flop will retain a selected state indefinitely, it is said to have memory and is, therefore, used in registers and logic circuits as such. Also, because each input is pulsed independent, the circuit is said to be unsymmetrically triggered.

Figure 10-3 is a schematic diagram of an SR flip-flop. Notice that the basic element is the familiar NOR gate of Lesson Nine. An SR flip-flop can also be made



MUSIC PROGRAMMING

By Pat Matthews

Name that tune

It has been almost three years since I began writing for this fantastic magazine. I mean that—the people are great and the publication is informational and well written. I think it's one of the most colorful periodicals I've seen...in more ways than one.

But, let me get to the point. I'm a lonely writer. I'd like to get correspondence from you, the reader. I'd like to know what you think. Maybe you have some suggestions for the improvement of the column. Is it funny? Useful? Or what?

Send your cards and letters to: Play Meter Magazine, Music Programming, P.O. Box 24170, New Orleans, LA 70184

And remember, ladies, a photograph would be nice.

Now the reviews for late-spring...

FIND YOUR WAY BACK—Jefferson Starship—Grunt/JH-12211

The title is sort of appropriate. The prodigal daughter, Grace Slick, has found her way back from the musically dead to pump more life into an already rockin' bunch of guys.

Just thought I'd mention that—she sings on the new lp *Modern Times*; however she only chimes in

on background vocals on this one. It's a rocker throughout, save the acoustic guitar open. In the vein of *Jane* from the previous album, the song relies on super-heavy fuzz guitars, drums, and a forefront piano. Where ya been, Grace? The group has a legion of followers...give the number an 8 out of 10 chance or better on the pop charts.

SINCE I DON'T HAVE YOU—Don McLean—Millenium/JH 11804

You might think that this one may have been re-done one too many times. Maybe you're right. I don't think so.

Art Garfunkel was the last to have singles success with this ageless classic, and that was back around 1972. McLean has characterized this as a "do-wop" number and plays the theme throughout. The main thing that sets this rendition apart from the rest is its lush string arrangement along with a steel guitar to give it a somewhat country kick. Should do well on Pop, Country, and Easy Listening (Adult Contemporary or whatever they're calling it this week.): 10 out of 10 on highest chart.

MESMERIZED—The Cold—Top Pop/TP-002

Well, here they are again. A little more polished than the first time around and a lot wiser. Vance DeGeneres wrote this one all by himself and co-produced it along with sound man Cliff Derbins. Barbara Menendez is in fine form in this "How come I ain't good enough for you?" story. The use of a happy-sounding upbeat chorus in an otherwise song of despair is a neat trick in a number full of proven hooks (the Easybeats sound of the guitar in the middle). Maybe this time will hit for the New Orleans group. If this would crack the charts, I'd give it a 7 out of 10.

TOO MUCH TIME ON MY HANDS—Styx—A&M/2323 S

Already getting a lot of airplay, this Tommy Shaw composition from the *Paradise Theater* concept lp also works well out of context, so to speak. The instrumental track could pass as something from the Donna Summer catalogue of synthesizer disco beats. Slick guitar work and the theme of "an idle mind is..." holds it all together. Surefire rock and roll from a group that doesn't seem to do any wrong: 10 out of 10.

THIS LITTLE GIRL—Gary U.S. Bonds—EMI America/8079

First off, this label and its

subsidiaries (Liberty and so on) has really gotten its stuff together in the past six months. And secondly, yes, Romona, it is the same Gary U.S. Bonds who rocked your socks off back in the early Sixties. Apparently, he had a big fan in one Bruce Springsteen, because "The Boss" wrote and co-produced the cinch comeback tune for the ageless rock 'n' roller. A few members of the E Street Band join in on this rousing three-cord rocker that'll have 'em jitterbuggin' around the juke box one more time. Pass around the cherry Cokes and have a House Party! Gary's voice hasn't changed a bit and neither has Bruce's who lent support on guitar and background harmonies. Play it, Clarence; *9 out of 10* or better.

TWO HEARTS—Stephanie Mills—20th Century Fox/TC-2492

It's a mid-tempo soul searcher with lots of help from Mr. Teddy Pendergrass. The two voice "sing and respond" format seems to always work, especially on black records and this one should be no exception. The song is catchy, and Ms. Mills is fast becoming the Superstar Mr. Pendergrass already is; rates *10 out of 10* on highest chart.

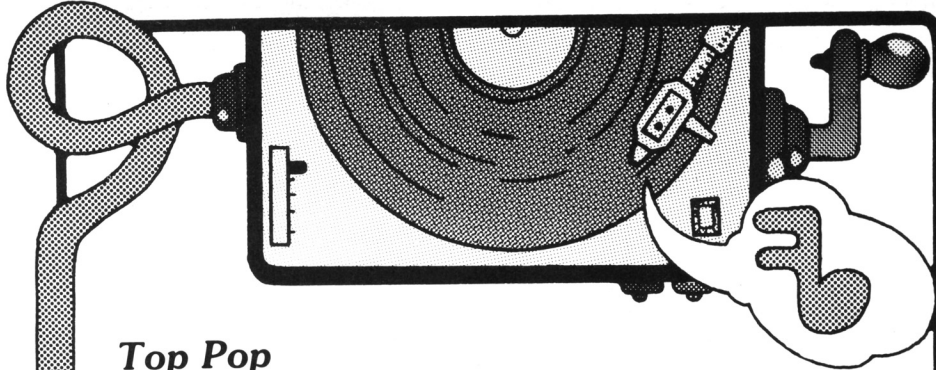
MISTER PEEPERS—Bill Anderson—MCA/MCA-51052

A fun sound pierces this otherwise "making fun of someone who just died" theme from a man who has had a string of Country chart successes in the past few years. It's a nice story to sip a couple of beers to, but you'd better drink 'em fast because it's a relatively short one (just like this review); *10 out of 10* Country.

[Ed. note: As always, Mathews' comments are uncensored, unedited, unexpurgated. (We'd rather not admit that Pat says "whatever comes into his head." Readers' comments are, seriously, welcomed. Photos are optional, but—as Pat says—nice to get.

Thanks are due to P.M.'s help in staging this issue's cover.

Finally your editors learned that one should not call a radio music program director in mid-afternoon for assistance—but the more cooperative ones like Pat, will lend help, not withstanding that you woke them up....]



Top Pop

- KISS ON MY LIST—Daryl Hall and John Oates—RCA
- DON'T STAND SO CLOSE TO ME—The Police—A & M
- JUST THE TWO OF US—Grover Washington Jr.—Elektra
- MORNING TRAIN (9-To-5)—Sheena Easton—EMI America
- WHILE YOU SEE A CHANCE—Steve Winwood—Island
- SUKIYAKI—A Taste of Honey—Capitol
- ANGEL OF THE MORNING—Juice Newton—Capitol
- WHAT ARE WE DOING IN LOVE—Dottie West—Liberty
- HELLO AGAIN—Neil Diamond—Capitol
- A WOMAN NEEDS LOVE (JUST LIKE YOU DO)—Ray Parker, Jr. & Raydio—Arista
- BETTE DAVIS EYES—Kim Carnes—EMI America***
- HER TOWN TOO—James Taylor & J.D. Souther—Columbia
- LOVE YOU LIKE I NEVER LOVED BEFORE—John O'Banion—Elektra
- I LOVE YOU—Climax Blues Band—Warner Brothers
- BEING WITH YOU—Smokey Robinson—Tamla
- HOW 'BOUT US—Champaign—Columbia
- WATCHING THE WHEELS—John Lennon—Geffen***
- JUST BETWEEN YOU AND ME—Aprilwine—Capitol
- LONELY TOGETHER—Barry Manilow—Arista***
- I CAN'T STAND IT—Eric Clapton—RSO***
- TAKE IT ON THE RUN—REO Speedwagon—Epic

Country & Western

- OLD FLAME—Alabama—RCA
- LOVIN' WHAT YOUR LOVIN' DOES—Conway Twitty & Loretta Lynn—MCA
- TEXAS WOMEN—Hank Williams, Jr.—Elektra
- LEONARD—Merle Haggard—MCA***
- I FEEL LIKE LOVIN' YOU AGAIN—T.G. Sheppard—Warner/Curb
- A HEADACHE TOMORROW (OR A HEARTACHE TONIGHT)—Mickey Gilley—Epic
- YOU'RE THE REASON GOD MADE OKLAHOMA—David Frizzell & Shelley West—Warner Brothers***
- SOUTHERN RAINS—Mel Tillis—Elektra
- ANGELS FLYING TOO CLOSE TO THE GROUND—Willie Nelson—Columbia
- PICKIN' UP STRANGERS—Johnny Lee—Full Moon/Asylum
- WHO'S CHEATIN' WHO—Charly McClain—Epic
- GUITAR MAN—Elvis Presley—RCA***

Rhythm & Blues

- IT'S A LOVE THING—Whispers—Solar
- WHO SAID?—Isley Brothers—T-Neck
- DON'T STOP THE MUSIC—Yarbrough & Peoples—Mercury/Polygram
- FANTASTIC VOYAGE—Lakeside—Solar***
- I JUST LOVE THE MAN—Jones Girls—Philadelphia International
- TOGETHER—Tierra—Boardwalk
- THIGHS HIGH—Tom Browne—GRP/Arista
- BOOGIE BODY LAND—Bar-Kays—Mercury/Polygram
- WATCHING YOU—Slave—Cotillion
- BURN RUBBER ON ME—Gap Band—Mercury/Polygram
- HEARTBREAK HOTEL—The Jacksons—Epic***
- I AIN'T GONNA STAND FOR IT—Stevie Wonder—Tamla***

***denotes records reviewed previously by PLAY METER



from NAND gates.

Circuit operation

For descriptive purposes, let us assume that the Set [S] input is at a logic 1, and the Reset [R] input is at a logic 0 at $t=0$. Referring to the circuit in figure 10-3, transistor Q1 is driven in saturation and transistor Q4 is cutoff. With Q1 saturated, the Q output is at a logic 0 and transistor Q3 is cutoff. The Q output is at a logic 1 when transistors Q3 and Q4 are cutoff. With the Q output at a logic 1, transistor Q2 is saturated.

Referring to the truth table in figure 10-2, the second row is in agreement.

At time t_p the S input changes to a logic 0 and reverse biases the base of Q1. However the not-Q output is held to a logic 0 by transistor Q2, and the output states of the flip-flop *do not change*. Comparing the above to the truth table confirms the first row.

The flip-flop will remain in this state until the R input is changed to a logic 1. At this time, $t = 0'$, transistor Q4 is saturated and the Q output goes to a logic 0. With Q at logic 0 transistor Q2 is cutoff and the not-Q output raises to a logic 1. When not-Q raises to a logic 1, transistor Q3 saturates. This operating state is in agreement with row three of the truth table.

At time t_p' the R input changes to a logic 0, and the base of Q4 is reverse biased. The not-Q output being at a logic 1 holds Q3 in saturation and the outputs, again, do not change state. Line one of the truth table is also again in agreement. The flip-flop will now remain in this state until the S input is changed to a logic 1.

Design procedure

STEP 1: Design a two input NOR as outlined in Lesson Nine.

STEP 2: Find $V_{B'}$ for transistor Q2 or Q3 when the corres-

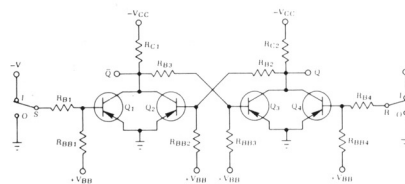


Fig. 10-3. A Set/Reset Flip-Flop which consists of two cross-coupled and two input NOR gates.

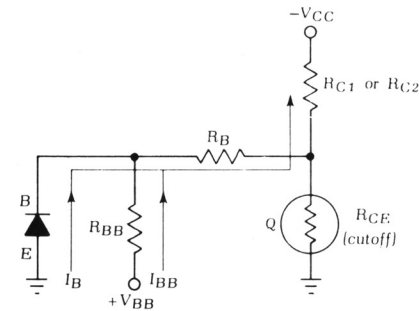


Fig. 10-4. Equivalent circuit of the cross-coupled portion of a S/R flip-flop. The base current of the saturated transistor will cause a voltage drop across the R_C which will prevent the output from rising to V_{CC} .

sponding output (Q or \bar{Q}) is at a logic 1.

$$V_{B'} = V_B = V_{Logic\ 0}$$

where

$$V_B = V_{BB} \left[\frac{R_B}{R_B + R_{BB}} \right]$$

$V_{Logic\ 0}$ is actually $V_{CE(sat)}$ of the transistors providing the logic 0 output. This voltage will add to V_B . The summing of these two voltages is algebraic. Therefore, the absolute value of V_B must be greater than the absolute value of $V_{CE(sat)}$ to reverse-bias the base, or:

$$|V_B| > |V_{Logic\ 0}|$$

STEP 3: Find $|V_{Logic\ 1}|$.

$$|V_{Logic\ 1}| = |V_{CC} - [R_C \times (I_B + I_{BB})]|$$

The output voltage will not raise to V_{CC} when the transistors are cutoff since there is a current flowing through R_C . The current flowing through R_C is I_B and I_{BB} of either Q2 or Q3. The voltage across R_C is subtracted from V_{CC} . (Refer to figure 10-4.)

Design example:

Design an SR Flip-Flop, using NOR gates capable of driving 6V, 150-ohm lamps. Use the circuit configuration in figure 10-3. Use germanium transistors type 2N404. Make $V_{BB} = +3V$ and $R_C = R_L$.

STEP 1: Design a two input NOR gate as outlined in Lesson Nine.
STEP 2: Find $V_{B'}$ for Q2 or Q3 when the corresponding output is at a logic 0

$$V_{B'} = V_B = V_{Logic\ 0}$$

$$V_{B'} = 0.43V = [-0.1V] = 0.33V$$

V_B is found to be 0.43 and the general rule for germanium transistors ($V_{CE(sat)} = 0.1V$) was used for $V_{Logic\ 0}$. A voltage of 0.33V is more than sufficient to reverse bias the base. $V_{Logic\ 0}$ is negative and V_B is positive for PNP transistors. However, $V_{Logic\ 0}$ is positive and V_B is negative for NPN transistors.

STEP 3: Find the absolute value of $V_{Logic\ 1}$.

$$V_{Logic\ 1}$$

$$\begin{aligned} &= |V_{CC} - [R_C (I_B + I_{BB})]| \\ &= 6 - 150\ \Omega \times (2.0\text{ma} + 0.2\text{ma}) \\ &= 6 - 0.33V \\ &= 5.67V \end{aligned}$$

The output voltage will be 5.67V for a logic 1 output. And from the above the output voltage will be 0.1V for a logic 0.

End of Lesson 10

PROGRAMMED TEST/10

Instructions: The test is programmed: again, start at block 1 and follow the numbered instruction associated with your answer. Complete your work in the appropriate block.

1

A set/reset flip-flop is a circuit with _____ inputs and _____ outputs.
a. 2,2

GO TO BLOCK 12

b. 1,2

GO TO BLOCK 20

2 YOU ARE CORRECT!

A set/reset is triggered _____

a. Symmetrically

GO TO BLOCK 13

b. Unsymmetrically

GO TO BLOCK 19

3

$$V_{logic\ 1} = 6 - (2.4K \times 0.275\text{ma}) = 5.34V$$

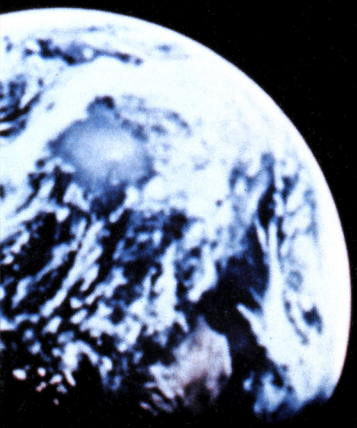
Did you get the same result? If not, do not go on but check.

$V_{logic\ 1}$ is the voltage measured from collector to ground. The small voltage drop across R_C is the effect of the loading by R_B of the "on" stage.

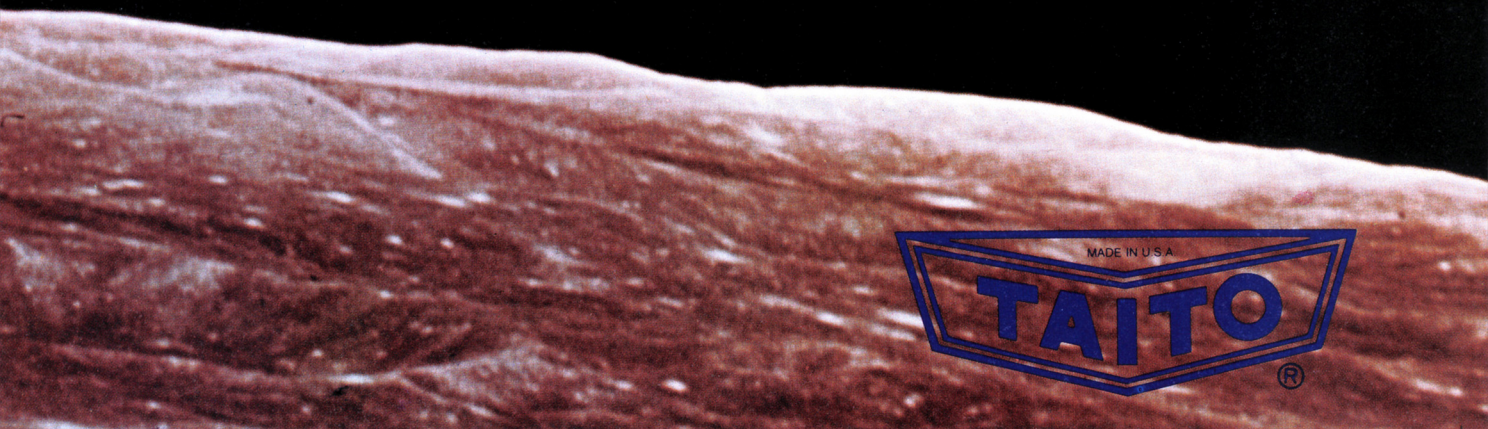
What is the swing in output voltage?

- a. 0.3V to 5.34V GO TO BLOCK 22
- b. 0V to V_{CC} GO TO BLOCK 14

They came from outer space.
They came as UFOs.
As Rockets.
Meteors.
Spiders.
Dragonflies.
They came to destroy.

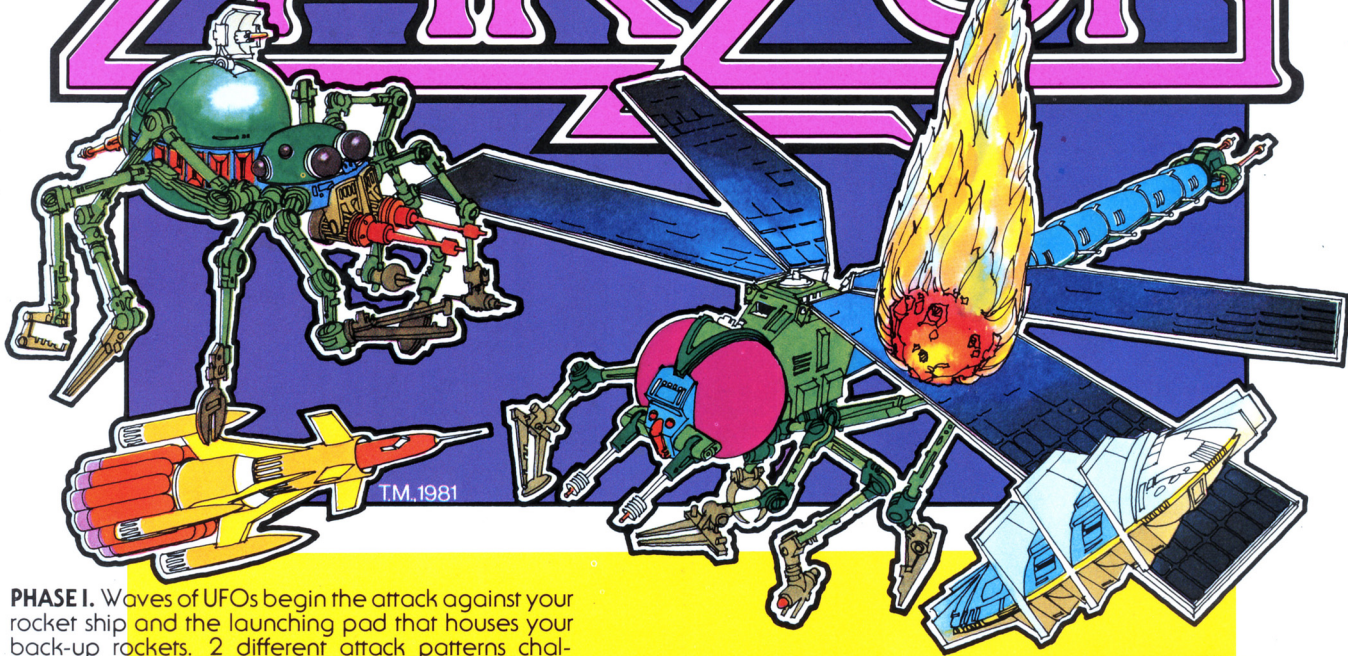


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4 YOU ARE CORRECT!

You have completed the test for Lesson 10.

11

$$V_{B'} = 0.55V - 0.3V = -0.25V$$

Did you get the same result? If not, do not go on but check.

What is V logic 1?

$$V_{logic\ 1} = \underline{\hspace{2cm}} \quad \text{GO TO BLOCK 3}$$

12 YOU ARE CORRECT!

A set/reset flip-flop is a circuit with .
 a. Memory GO TO BLOCK 2
 b. Speed GO TO BLOCK 21

13 YOU ARE INCORRECT!

Refer to the text and return to BLOCK 2.

14 YOU ARE INCORRECT!

The choice of 0V to V_{cc} fails to account for the voltage drop across the transistor when saturated and, also, the effects of the loading on R_c by the "on" transistor in the flip-flop.

RETURN TO BLOCK 3

15 YOU ARE INCORRECT!

Since the inverters are in series in a NAND gate, V logic 0 will be twice that for one transistor.

RETURN TO BLOCK 22

19 YOU ARE CORRECT!

Design a Set/Reset Flip-Flop using the gate designed in the test for Lesson Nine.

What is V_{B'}?

$$V_{B'} = \underline{\hspace{2cm}} \quad \text{GO TO BLOCK 11}$$

20 YOU ARE INCORRECT!

Refer to the text and return to BLOCK 1.

21 YOU ARE INCORRECT!

Refer to the text and return to BLOCK 12

22 YOU ARE CORRECT!

If this were an S/R Flip-Flop using NAND gates, V logic 0 would be
 a. V_{CESat} GO TO BLOCK 15

b. 2 x V_{CESat} GO TO BLOCK 4

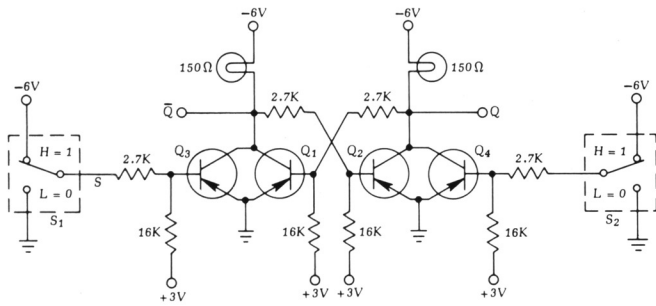


Fig. 1

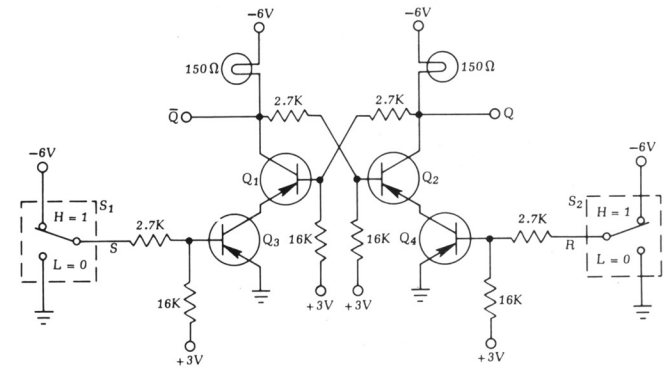


Fig. 2

BREADBOARD PROJECT/ Lesson 10

Flip-flop Design

1. "Wire up" the circuit in figure 1 on the breadboard. Before applying power, set S1 to the high (H) position and S2 to the low (L) position.

2. Apply power, both -6V and +3V. The lamp corresponding to the Q2 output should be off and the lamp corresponding to the Q1 position should be on.

When operated as such, transistors Q1 and Q3 are saturated while transistors Q2 and Q4 are cutoff.

3. Set S1 to the low (L) position. The flip-flop does not change state.

When both the S and R inputs are at a logic 0, transistors Q2, Q3, and Q4 are cutoff. Transistor Q1 remains in saturation because the collectors Q2 and Q4 are at a high level.

4. Flip S2 to the high (H) position and then back to the low (L) position. The flip-flop should change state.

When the switch is operated as such, a pulse is formed. In this case, the pulse has been applied to the R input. At this time transistors Q1, Q3, and Q4 are cutoff and Q2 is saturated.

S	R	Q	Q̄
0	0	*	*
1	0		
0	1		
1	1		

Truth Table No. 1

5. Set S1 and S2 to the high (H) position. Both lamps are lit.

With both inputs, S and R, at a high level transistors Q1 and Q2 are cutoff and Q3 and Q4 are saturated. When operated in this fashion the flip-flop is providing a logic 0 at both outputs.

6. The student should complete the Truth Table #1 for lines 2,3, and 4. Since the output for line one— both inputs at a logic 0— depends on the previous state of the inputs, the circuit can be used as a storage device.

7. "Wire up" the circuit in figure 2 on the breadboard. Before applying power, set S1 to the [H] position and S2 to the [L] position.

8. Apply power, both -6V and +3V. The lamp corresponding to

the Q output should be *off* and the lamp corresponding to the *not-Q* output should be *on*.

The operating state of the flip-flop is such that: transistors Q1 and Q3 are saturated, and Q2 and Q4 are cutoff. When Q2 and Q4 are cutoff, the *not-Q* output is at a logic 1. The Q output is at a logic 0 because transistors Q1 and Q3 are saturated.

9. Set S2 to the high position. The state of the flip-flop does not change.

When S2 was changed to the high position, transistor Q4 tried to saturate, but transistor Q2 is held at cutoff and prevents it from doing so. Therefore the flip-flop does not change state. Also notice that the flip-flop has memory when both inputs are at a logic 1. The circuit in *figure 1* has memory when both inputs are at a logic 0 (*refer to your Truth Table*).

10. Flip S1 to the [L] position and then back again to the [H] position, so as to generate a pulse. The flip-flop changes state.

When the S input was pulsed, transistor Q3 was cutoff. The Q output went to a logic 1 and transistors Q2 and Q4 went into saturation. The *not-Q* output went to a logic 0 and cutoff Q1. Notice that the flip-flop changed state when the input went to a logic 0. The flip-flop of *figure 1* changed state when the input went to a logic 1. This is an important point when the designer must decide which flip-flop to use.

11. Set S1 and S2 to the [L] position. Both lamps go *off*.

When operated in this fashion the Q and *not-Q* are providing a logic 1 output. Transistors Q3 and Q4 are cutoff while Q1 and Q2 are attempting to saturate.

12. The student should complete the Truth Table #2. When completed, the student should compare the two truth tables and *figure 1* versus *figure 2*.

S	R	Q	\bar{Q}
O	O		
I	O		
O	I		
I	I	*	*

Truth Table No.2

Five Years Ago In Play Meter's Pages

May 1976

Legalized pinball in New York City, a new name for Music Operators of America, and much other industry news was abuzz in PLAY METER's pages five years ago this month.

A view of the future of coin games was seen in Technical Topics that month. Perry Miller, technical writer, said it: "As a rule I don't write about pinball machines because that's not my bag....But in the future you will see more articles about pinballs as these machines go electronic. Presently, there are only two electronic pinballs--Micro's *Spirit of '76* and Allied Leisure's *Dyn-O-Myte*. But as time marches on, more solid state pins will come forth." Miller, of course, was correct in his foresight.

The introduction to Coinman of the Month, May, 1976: "Pinball destroyed Roger Sharpe's mind. Why else would an otherwise normal magazine journalist want to write a book about pinball's history and the vital sense of Americana it conveys?" Well, he did, and it does, and so came forth Sharpe's book "Pinball!" which was to be available later that year, a lavishly illustrated historical reference for the game.

Directors of the Music Operators of America (MOA) had just attended their annual business and policy meeting in Honolulu that year, and a name change for MOA was high on the agenda. The board of directors resolved to change the name of the association to better reflect both music and games operating interests. Of three suggested names, the association's membership would later choose Amusement & Music Operators Association.

New York City's city council had delayed until mid-May, 1976 a final vote on lifting its 35-year ban on pinball in Gotham, but legalization would soon come about. In hearings, Roger Sharpe had demonstrated the skill required to play the game.

Ramtek Games had staged a distributors showing in San Mateo, California, with comedian Pat Paulsen as the featured speaker. Bowled in at the showing were two new games, *Hit Me* (a video version of the card game Twenty-One for

one to four players) and *Sea Battle*.

In other new product news: Atari was bringing out its eight-player *Tank* at its San Francisco distributors show....Sega's *Derby Day* game was being imported.... Mirco, Inc. released its new video air battle game, *Skywar* Allied Leisure had out a new *Astro Print* computer portrait machine capable of "computer charcter portraits of any subject."....A four-way solid state pinball cocktail table game was announced by Diversified Entertainment of San Diego....Playmatic SA shipped its *Fandango* pingame to the United States and Canada....and Project Support Engineering bowed its video upright called *Knights in Armor*, featuring two knights with maneuverable lances and shields.

In international datelines, the three formerly estranged West German operators' associations agreed to "co-exist", and amalgamation as the IMA was in the making.

The feature spotlight in May, 1976 was on the three pingame producers, D. Gottlieb, Bally, and Williams. One article noted: "Whatever the cause, the pinball industry seems to be enjoying its best years since World War II, when operators were trying to get their hands on just about everything available.

Jim Sneed of Kurz Kasch noted in another feature article: "Every pin manufacturer now has or is about to have a digital pin—come the second revolution. You as operators, servicemen, or distributors are not going to survive unless you learn digital technology and acquire the tools and test equipment required to service these new games." (The revolution has now come full swing, and Kurz Kasch and PLAY METER offer a continuing series of courses in digital circuit design in these pages.

Industry news of the month included the announcement that Sam Stern had resigned as president and chief executive officer of Williams Electronics Inc. He had become president of Williams in 1959 when it was an independent company, and he would continue as a director of Williams Inc.



FRANK'S CRANKS

By Frank Seninsky

GORF, DEFENDER on review

Secure the marquee!

Since the introduction of this column I have seen many improvements on both video games and pinball games. Whether or not these writings had anything to do with the manufacturers' incorporating some of the "cranks" is difficult to assess. At any rate I'll continue to be a "crank" and see where it takes us.

The marquee used on just about every video game could stand to be improved. For those who don't know what the marquee is, (you find out when one breaks and you try to order it), it is the plastic display on the top of a video game which usually has the name of the game and some artwork screened onto it. Behind the marquee is located the speaker (most of the time) and a light (either a fluorescent or a regular light bulb or bulbs). Behind the speaker and the light is the "hollow inside" of the cabinet.

First let's focus on how a marquee breaks or disappears. Often it is held in place by two molding guides, one on the top and one on the bottom. To remove the molding guides all one needs is a common phillips screwdriver. Some manufacturers get fancy and use screws with allen wrench holes. In either case, the moldings can be removed from the outside of the cabinet by anyone who feels up to removing one. They make nice decorative signs for sign collectors.

Since there is nothing but top and bottom guides to hold the marquee in place, they can be easily broken by the fist of a four-year-old (providing he or she can find a ladder to reach one). Once the marquee is gone, it is very tempting to smash or tear the speaker and break the light bulb.

This doesn't seem so bad, now

does it? Well, let's go one step further. Where should a person holding a cup of, let's say, soda put his cup while playing this video game with the broken marquee? Yes, you guessed it. The soda cup will be placed in the nice "cubby hole" which the marquee had covered. Oh no! The soda cup falls over into the back of the machine. After the smoke clears we find that the game just won't work any more. The service people are called in to discover they need a new power supply, new monitor, new logic boards, new speaker, new light bulbs and holders, new marquee, and new moldings. After six to eight weeks the game is back in operation and the whole process starts over again.

Is all this really necessary? No, absolutely not! All that need to be done is to put the marquee on a wooden panel which latches to the inside of the cabinet exactly as does the front control panel. There could be holes for small light bulbs so the marquee will be just as appealing as it is now.

This issue we review two high grossing video games: *Defender* by Williams Electronics and *Gorf* by Midway. In the next issue, *Scramble*, *Crazy Climber*, and *Radar Scope* will get their just review.

DEFENDER/Williams With *Defender* being the first video game from Williams, it should be expected that there would be numerous new design features. Williams had made a good choice in using a black, glossy paint for the lower portion of the cabinet sides and front. With very little effort, sneaker and shoe marks can be removed, thus keeping the cabinet clean and attractive.

The coin door assembly is the same for *Defender* as it is for past Williams pinball games. All of the positive aspects of the coin door have been retained: the coin lockout coil and assembly, the slam switch, metal coin return flaps, coin entrance lights, and a strong coin return actuating system.

Coin switch blades have been used instead of coin micro switches. Both types of methods for putting up credits are satisfactory. Retaining the coin lockout coil assembly is a good idea. Some video games will "eat" coins with the power off, and quite often a player will put in a quarter without first checking to see if the monitor screen is on.

To protect against free games being "credited" by kicking or punching the coin door, a slam switch has been included. Whether a game uses coin switch blades or micro switches, a slam switch is the only protection a video game has against abusive players. It would be nice if video games had vibration switches and "tilts" that would cause an over-zealous player to lose a turn or a whole game.

The metal coin return flaps are strong enough to insure against being snapped or pulled off. Those video games having plastic coin return flaps which can easily be snapped off, only invite trouble for the operator. As stated in past reviews, the coin return flaps help protect against "penny flipping" as a means of putting up "free credits."

Defender comes with two quarter and one SBA dollar chutes. There are no separators in the coin box to divide the dollar coins from the quarters. Williams is working on a simple method of separating the two types of coins and has promised this feature on future models. If an

'Williams is working on a simpler method of separating quarters on future models.'

operator chooses to give bonus games when one dollar is deposited, he should be aware that the credit memory on *Defender* will not reset when a game is played.

For example, if the game is set at 50¢/play, 3 plays/dollar, the player can put in 50¢, play one full game, and then deposit 50¢ and be credited for two additional games instead of one. To eliminate this from occurring, set the game to give one game for 50¢ (two quarters) and three games for a SBA dollar coin *only*. It may be that this error in programming could increase player appeal. A bonus game could be given out for every other 50¢ deposited if set on 50¢ per play, or a bonus game or games could be awarded for every fourth quarter if the game is set on 25¢/play, 5 or more games/4 quarters.

The coin box is also the same type as used on Williams pinball games, but is larger (deeper). The coin box area is completely open to the back of the game except for a section of "cardboard" about four inches wide running the width of the cabinet behind the coin box. Coins can still find their way to the back of the game and fall onto open components or terminals and the cashbox can be "lifted" from the back of the game.

The front panel contains seven buttons controls and a two-directional joystick control. Two gold leaf blade switches are opened and closed by the base of the joystick. Metal slots act as the mechanical stops in both directions. Insulated plastic backing strips and the switch blades themselves act as the return force of the joystick to center position. Most joystick controls utilize springs or rubber grommets to "centerize" the joystick. After a short time, I feel the joystick will tend to get weak and sluggish. The whole joystick assembly is housed by a 3" X 2" bracket held in by four wood screws. The whole assembly has the potential to come loose and wear out. When this happens the operator

should bolt the bracket assembly to the panel. The backing strips and switch blades will have to be changed if they lose their stiffness. The whole joystick assembly is manufactured by Wico Corporation and can be ordered from Wico. Williams is working on developing and manufacturing its own control system for future games.

The monitor is easily removed by unfastening four bolts and sliding out the chassis. When troubleshooting the monitor it should first be determined which type of monitor you have. Williams has used two types based on availability: Electrohome and Wells Gardner. If two *vertical*, small circuit boards are present, you have a Wells Gardner monitor; if one *flat* circuit board is used, it is an Electrohome monitor. Either monitor can be used in any *Defender* games.

The power supply board is located on the floor of the cabinet, fully exposed to stray quarters, screws, and metal objects. A very large heat sink has been installed on the power supply board. This in addition to the screened vents located near the bottom and the top of the cabinet should reduce the frequency of heat failure related component problems.

Three red LEDs (light emitting diodes) have been designed into the power supply system. These will tell you if voltage is present in the +5 volt, +12 volt, and -5 volt systems. If an LED is lit, it means that "some" voltage is present but not necessarily the correct voltage. If a problem arises, it is good procedure to actually measure these three voltages before assuming that they are correct just because the LEDs are lit.

The next step is to go through the diagnostic procedures outlined in the service manual. These are easy to follow and very well written, so don't be afraid of them. Williams has been improving the diagnostic capabilities of *Defender* throughout the production run and at the same

time adding operator options. By checking the color labels on the ROM board, you will be able to distinguish which model you have. The first model had white labeled ROMs, the next used blue or white labels with blue lines running across, then came white with green lines, and the latest has red labeled ROMs. The field service engineers will most likely ask which type of ROM you have, so make note before calling to save time.

Four boards are used in *Defender*: the ROM board just mentioned, the CPU video board, inter-face board, and the sound board. These are located on the side of the cabinet and are easy to work on while inside the game. The sound board is the same sound board used in Williams pinball games, which makes it easy to swap for troubleshooting purposes.

Pluses in the cabinet include front panel control latches for easy removal and replacement of the control panel, volume control which is easily reached from the front coin door, a 110-volt convenience outlet, a large cashbox, and an on-off switch. The on-off switch is located in the front panel under the coin door and although it cannot be seen (it's under an overhang), it is in a bad location. It is easily reached by small children who just seem to enjoy going around shutting off games. There would be less "downtime" if the switch were located on the top of the cabinet as is the case with *Berzerk*, for example.

Negative aspects of cabinet design are that the game is almost impossible to tilt back onto a hand truck without additional help because there is nothing to grip onto (a handle has been promised on future models); the vent cutouts are beveled to the outside so you can't hold onto them either; the marquee moldings and top monitor cover moldings are so easily removed from the outside; and the safety interlock switch in the back is located too high on the back door, making the

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possibility of an electrical interruption or shut-down greater. This switch could be lowered nearer to the bottom of the rear cabinet door and covered with a common pinball plunger tip to further decrease the possibility of game interruption. The back door lock should also be checked periodically to make sure that the door fits "snugly" against the cabinet frame.

Lastly, the memory protect switch has been retained. This switch is located on the inside of the front door frame and is not an interlock safety switch. Its purpose is to prevent "rewrite" or "zeroing out" of the programmable memory. If there is a failure in the power supply, the CPU video board, a "glitch" or electrical surge, a thermal failure, or a static discharge, when the switch is in the "on" position (door closed), none of the bookkeeping functions will be changed or erased.

GORF/Midway Although *Gorf* is doing well as far as collections are concerned, there are some design features that have caused service problems for operators. The first aspect of *Gorf* that one notices is the large joystick control. After nothing but trouble with the *Berzerk* control, now we have this "monster control." Players like nothing better than to smash the control in all directions, banging the cabinet forward, backward into a wall, and side to side (usually into another game). The longer the handle, the more leverage that can be exerted. There are fewer service problems with small, compact controls and there are hardly any problems when button controls are used.

The joystick control uses a steering board with four photoelectric cells, similar to those on Stern's *Berzerk*. The joystick handle travel is limited in all directions by nylon plastic stops. The first *Gorf* I saw had loose steering board connections, so be sure to take the control panel off and check these connections. The small plug connector pins were so loose that just moving the stick caused them to slip off. These pins can be taken out of the connector and spread apart to put more pressure against the steering board pins. On other *Gorfs* these connections were found to be tighter.

As was done with *Space Encounters*, the wires leading to the firing trigger on the joystick have been placed inside tightly wound flexible spring. This reduces the chances of the wires vibrating loose at the trigger connection. This

method has worked satisfactorily on *Space Encounters* and should hold up on *Gorf* as well. The "return to center position" of the joystick control is accomplished by placing a large rubber grommet around the base area of the joystick handle. This keeps the return action steady and equal in all directions. I like this method much better than the common practice of using return springs. Springs sometimes will wear out faster than grommets and have the high probability of either falling off or breaking at the connection points where constant rubbing occurs. Applying a heavy grease lubricant at the spring connection points will help increase spring life.

The cashbox cover is made of sturdy metal and rests on a wooden box as did *Pac-Man* and *Rally X*. The cashbox cover must be bent down in the middle so the center of the lip rests below the door frame opening. If the cover is above the door frame, it can slide forward, causing coins to get stuck between the top of the cover and the coin chute guide. A plastic cashbin fits loosely (not snugly) into the enclosed cashbox frame. On later models of *Pac-Man* and on *Rally X*, a spacer was used to push the cashbin to the front, keeping it from sliding back and forth in the cashbox frame. Without some sort of spacer or wedge, the cashbin could slide out of position—causing a massive coin jam-up. All of the *Gorfs* I have seen so far did not have a cashbin spacer.

The coin door is the standard coin door used on past Midway games. The plastic guides under the coin chutes have been working fine and have been a welcome improvement over the old metal guide used on *Space Invaders*. The Midway coin returns are difficult to operate and fix. If the coin door becomes bent, it is almost impossible to readjust the coin return buttons so they will operate smoothly.

The *Gorf* cabinet leaves much to be desired. The light gray paint is one step better than using white, as far as its potential to become smudged and dirty. Side decals have been used instead of a graphic paint design. Most of the decals came with chipped edges and bubbles underneath. After a few days on location, most of the decals had been partially peeled off.

The monitor chassis has been placed in such a way that one corner sticks out past the back of the cabinet. A black "bubble type" extension cover has been added to the back door. This is a poor design for two reasons: the first is that there are many operators who must move games by laying them on their back

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in a van or pick-up truck. If this is done to *Gorf*, the cabinet will roll from side to side if it isn't braced. The second thing is that the game will be slammed into the wall while it is being played. Either way, the monitor has a great chance of being damaged if the extension cover is cracked. If one looks at the chassis in relation to the back of the cabinet, it would be a simple matter to cut off part of the chasis so the whole frame would be housed inside a flat back door. If the high voltage supply was moved over, there would be no monitor components in or near the section that could be cut.

There are three plastic sections on the cabinet that crack easily when hit or pressed on with "less than excessive force"—the plastic section under the control panel, the marquee at the top of the cabinet, and a small plastic section on the joystick. These should be made of a much more durable plastic.

Gorf comes equipped with five cylinder-type light bulbs exactly the same as those used on *Galaxian*. These bulbs have a very short life mainly due to the increased vibration they absorb because of their length. All of the bulbs were very loose when our games first arrived, so be sure to tighten them (or replace them with regular 25-watt "long life" bulbs).

The monitor was difficult to remove because there is no track to slide it out on; it has to be lifted out of the game very carefully. The monitor adjustments are located on the rear of the monitor chassis and are easy to reach. The six logic boards, all neatly stacked, are vertically mounted on the floor of the cabinet. These are very difficult to troubleshoot because you can't get at the components. On past Midway games, all of the components have been easily accessible.

The power supply is mounted on the cabinet wall and has an extra large heat sink which should reduce thermal failure frequency. The transformer and fuse terminals are also mounted onto the cabinet floor and are completely open to stray metal objects falling from above.

The back door now comes with its own separately keyed lock. Midway has finally run out of 1350 keys.

All in all, I would not consider *Gorf* as a typically well-built Midway game. I hope future models would not be "slapped together" as quickly as was *Gorf*.

Contributor Frank Seninsky is president of Alpha-Omega Amusements, Inc. which operates a route including over 50 college game-rooms and Wizard's World Arcade on the New Jersey Shore.

Play Meter camera at FAVA Show



Gremlin's Jack Gordon, left, and Stan Jarocki of Midway talk trade talk at the Orlando show.



Jerry Reeves, of Southern Music Distributing is greeted by Exidy's Chris Minarik, right.



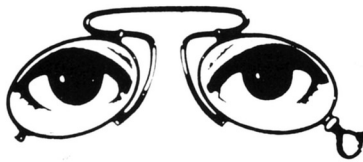
Frank Sola, Ed and Laura Miller, and Joyce and Ivan Rothstein—The Centuri crew with their new video, Route 16.



Tom and Sally Nieman beaming at Play Meter's camera. Behind them is Bally's Eight Ball Deluxe.



Bob Haim of R.H. Belam & Co., left, with Hal Watner of Universal USA with video hit Space Panic.



Critic's Corner

By Roger C. Sharpe

JUNGLE LORD is viewed

Complex play features can intimidate players

Although the number of models coming out has decreased a bit, the news surrounding the development of pinball trends hasn't. In fact, it seems at the date of this writing that we may yet get an upward swing in games, since the pins are finally beginning to have more of an impact in the marketplace.

Ideally, with *Play Meter's* new twice-monthly format, I'll be able to comment more in this space on just the individual machines themselves and also get into some of the observations and findings that are having an effect on the games. Hopefully you'll like this new balance and will find it more informative than the information you were previously getting. I know I'm excited about the possibilities and also the hope that this column can continue to be as timely as possible for your needs.

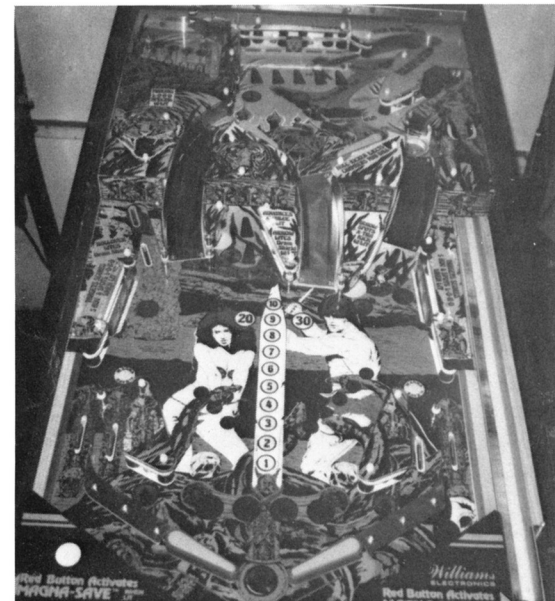
In trying to put current trends in proper perspective, I marvel at the evolution that is seemingly happening faster. A recent short business trip to Florida, where I had a chance to travel around to a variety of locations, only reinforced some of the things I've been finding. What is interesting is that everyone is still continuing to put their own versions of multi-level games (this issue's corner spotlight game included) onto the street to show that they're not getting left behind. Gottlieb's version of a *Xenon*-type tube on *Mars* and Stern's new hope that "lighting" will strike for their most recent effort, as well as other models are coming down the pipe.

As I stated last time, it was my hope that the novelty of such a design wouldn't be abused to the point that it took pinball back to where it started: looking for something yet again to change its

facade; and I equated this concern with the drop off in impact with the celebrity tie-in games that were done to death and faded into history. The same can happen with a design concept if it is overused, no matter what some distributors and manufacturers may feel. This is the reaction from the street and the players—which is where the final test really comes.

And the problem goes beyond this to the crux of the matter that maybe the games themselves are just becoming too much, too soon. The simplicity of design and continuity of play on games is almost being overlooked in the hope of juicing up each succeeding game, and players might not be as sophisticated as some would think—especially the average player and new convert to the flipper games. They're being blown away by more complex and intricate games that can ultimately be far too intimidating for the majority of players. It was for this reason that *Eight Ball Deluxe* (reviewed in the June 1 issue) was such a relief and break from what had been the norm. It was a simple game, without all the gimmicks, that offered skillful play almost anyone could understand, and yet, the repeat play wasn't diminished by this simplicity, in fact, it might have been enhanced because the game was a challenge. The same held true for such forgotten, yet solid efforts, as *Frontier* and *Alien Poker*. They were and are just good plain pinball machines that the steady player could get comfortable with over the long haul.

The point to be made, which is supported by what I've seen in the field, is that there is a growing movement of older players to pinball machines. Long thought of as the



Gottlieb's *JUNGLE LORD*

domain for the younger player, pins are finding a new market while, surprisingly for video games, the influx of new players, many of them older (in the college age and young executive range) are slowly turning, not totally away from, but more toward pinball and less to video. It's almost as if they are finding the TV games less intriguing or different *per se*, and now are suddenly seeing these steel ball wonders that seem to have everything under the sun.

And even the games themselves are reflecting this by their reliance on more complex and difficult play strategy and design. The result can be seen as two-fold, since the games are moving in specific patterns, but along with this must come the realization and acceptance, if the trend is to continue, that some players are going to be frightened and intimidated by the new applications of technology and design. It's why *balance* becomes such a key to all future equipment. There must always be a full spectrum of games, both video and pinball, that can appeal to their own unique type of players. There are so many players hungering for a game they can readily understand, might not so readily beat, but which can be a bit of calm from the storm.

This even comes into play in looking at this month's game, Williams' *Jungle Lord* which is a multi-level, multi-ball effort that's crammed to the gills with some innovative touches, but is a really a difficult machine to get comfortable and close with. There's just so much happening, and happening so quickly, that there's no time to breathe and lay back for the most part in trying to develop a style of play. And most of your frequent pin ball players—as well as video players, I would venture to guess—are willing to invest some amount of money into each new game to see what it has to offer and whether it will be on their list of "must plays" when they go to their favorite place of play.

It all comes down to balance and not trying to blow everybody out of the race with each new game. There has to be a give and take in terms of design and programming that takes into account how quickly (or slowly) the player is in catching on to the new nuances and whether he feels he's getting his money's worth. And this isn't to suggest that I am trying to match up or compare *Jungle Lord* with *Eight Ball Deluxe*, because both are valid efforts on their own, but rather that the type of games they represent is indicative of the schizophrenic changes pinball is going

through in its attempt to regain its market appeal and create some design image and foundation for itself.

After all, what is pinball today? There are a lot of answers to that when you look at what the games are offering, and that's the key problem and salvation of the equipment for the future.

Unfortunately, there is no clear-cut direction for the games only because the audience is still growing and being redefined. Since earnings, for the most part, are still less than what they were, say, a year and a half ago, there is still that wait-and-see attitude of trying to compete with some creation against the earnings figures of video. The challenge is misplaced only because of the nature of the games and their individual audiences. But the bottom line still rules, and so the search continues for that right touch which will catapult pinball back into the mainstream. It will never be one single effort or innovation that will turn around pinball's fortunes, but rather a methodical evolution of ideas and refined technology that will allow players to grow with the games. Hopefully it would happen this way, but I fear that the haphazard approach will remain at least for the time being while manufacturers try to get some solid footing.

One can almost sense the tentativeness from machine introduction to machine introduction and from company to company. Each game is an uncertain adventure for those outside the factory walls and it is this unpredictability that has kept things in a state of flux for pinball in general because no one really does know what to expect from anyone. It is a situation vastly different from past eras when everyone knew what a Gottlieb game meant, or a Williams, Bally, Stern, or whatever. There was a corporate personality that somehow came through with the finished product, and that has now changed to uncertainty and an overall lack of continuity or rationale for why things are the way they are.

Williams has attempted to keep things rolling following *Black Knight* with its newest double-level game which takes center stage in this edition of the Corner. So, enough philosophizing and on the game at hand.

Williams' JUNGLE LORD

This company continues to refine its innovations from game to game, as well as trying new wrinkles to keep the momentum going. The hope is that it won't feel locked into an

irreversible direction that could ultimately lessen the excitement it has created in recent years and continues to enjoy.

PLAYFIELD: The action begins on the top level of this two-tiered machine with an entry that leads directly to a top set of flippers. Over in the right corner is a kick-out hole, while right in the middle is a drop target bank of "double trouble targets" which begin with one standing and build up to a five-drop target bank. At the left is a self-contained mini-playfield, complete with its own little mini-ball and four lanes (L—O—R—D). Just above the left top flipper is a target(1) and the first of three ramps on the field. There's another ramp in between these flippers, and over on the right side is a kick-out hole at the top of a third ramp.

Move down to the lower playfield and there's a three-drop-target bank on the right of the base of the ramp, and just across this is a bulls-eye (3). Move between the middle ramp and the left ramp and there's another bulls-eye (2) just in front of a hidden loop-around horseshoe shot that controls a timed multiplier value when lit. Farther over to the left is another access point to the horseshoe which lights a "drain shield" on the outlanes for continued play on "lost" balls, and along with this is another three-drop-target bank. The bottom is a conventional set up of lanes (4 & 5) leading down to the flippers, as well as the return of a slightly changed Magna Save which first appeared on *Black Knight*.

ANALYSIS: There's a lot going on in *Jungle Lord*. In fact, almost too much. The basic strategy of this multi-level, multi-ball game is tied into landing in the kick-out holes which propels the mini-ball onto the mini-field in order to light up the lanes and spell out L-O-R-D, with the letters also being spotted when either of the lower playfield target banks are completed. Get this going and there's the potential for multi-ball, two ball play complete with a timer that offers 35 seconds but is operator adjustable. And if a ball drains during this, lock up the other and the player can continue for the length of the time remaining. Add to this the scoring of double values during the duration of time, and that's one aspect of this complex chock-full of almost everything game.

Another feature is the top playfield "double trouble" drop target bank which is reminiscent of Stern's *Trident*. Here, the deal is first to get one target, then two, three, four, and

all five before extra scoring is possible when the bank becomes a time feature with random targets popping up, which if gotten down before the timer elapses, increase in value from 100,000 points all the way up to 160,000 points which isn't too shabby if a player can ever accomplish the feat.

Moving to the bottom playfield one finds some interesting touches including the two-drop-target banks which not only fill in a lettered lane in the mini-playfield but also tied into the newly refined Magna Save. Both the left and right saves are built up by hitting down the drop targets, up to five time units. The extra set of flipper buttons on the side of the cabinet are now what I'll call "touch sensitive" since the Magna Save goes off if there is still time left on it. The control is a nice improvement on this new innovative feature.

Also on the bottom and tied into time is the horseshoe with its multiplier value that is activated when the ball goes down the lanes to either flipper and builds from 2X up to a top of 10X. Also part of the horseshoe is a slight departure on the Williams bonus ball concept which appeared on *Black Knight*. Here, if a player can go through the left side entry, a "drain shield" is activated on the outlane; go through twice and it activates for both sides, so that any ball going out the sides will be put back in the shooter for a continuation on the same ball.

For the most part that's the game breakdown, with some nice reverses possible and a decent amount of play on the top as well as the bottom, although the action is a bit fast and winds up being more of a gun-and-run-situation.

GRAPHICS: *Jungle Lord* is bold and colorful, with a motif that hopefully continues the movement away from space and back to the

fantasy atmosphere that has long been associated with pinball. Its eye-catching bold use of colors, and the detail work on the playfield is an added touch that just enhances the entire package along with the flashing lights, good sound effects and minimal use of voice.

PLAY: Even with the potential point build-ups on the board, *Jungle Lord* is a tough game to score on, and your limits might want to be more lenient to the players to compensate for what undoubtedly will be a drain-filled existence for many who try it—and this is the case even with the added enhancement of the drain shield feature.

For extra ball play, you should be fairly safe with a 400,000 point start followed by 800,000 and 1,500,000 points. On free play you might want to increase these limits by about 200,000 points each, depending once again on the caliber of your players and your percentaging.

PROS & CONS: First things first: personally, I've never liked the idea of multipliers on a game that aren't achievable by specific skill shots on a playfield, whether tied into getting down drop targets, going through or around lanes, making some sequence of shot, or whatever. Here, although the feature is locked into a time setting, the ball still must find its way down those lanes to the flippers, which isn't necessarily a skill shot. It might have served better if the bottom drops had been used for this rather than for the mini-field lanes, but it's a programming and design feature that was chosen, rightly or wrongly so.

What I mentioned earlier does hold true in terms of the game being one that might not generate that continued repeat play, only because it is so difficult to get comfortable with it. Developing a constant playing strategy is also a veritable

impossibility that tends to detract from the machine, and the degree of difficulty inherent in trying to master the game and its nuances may well be a negative factor for those new players returning to, or first trying, pinball machines. In those locations where the level of play is for more sophisticated than the norm, *Jungle Lord* may find a niche among the diehards, as well as in some bars, but in many street arcades there's going to be a battle to see if the game can sustain itself over the long haul once the players see what they can and can't do on the game.

The issue here really is that *Jungle Lord* represents a particular direction of pinball that may well be forgetting the little guy: that sometime player who wants to have fun without having to take lessons to learn what to do. For the skilled player the challenge to try to beat the game may be enough, but it's a question of whether that investment in time and money may not eventually be felt to be better served elsewhere on a more simpler and basic machine. The fear being that in an attempt to overload almost every entry into the sweepstakes, the fundamentals may be forsaken. Even *Black Knight* for all the extra offered and the impressiveness of the package, still held to some very basic shot sequences and programming that followed this through so that the novice and expert could both enjoy what it had to offer. The bottom line is that *Jungle Lord* is that satisfying an experience.

RATING: ##³/₄

And that's the Corner this time around. Hopefully next time some words on *Mars* as well as *Lighting* and maybe even a few other surprises. Until then, may it be a good summer ahead for one and all and as always, be well and prosper.

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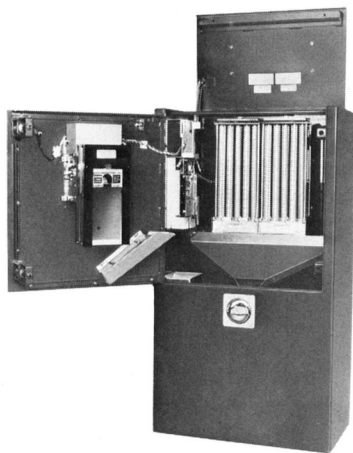
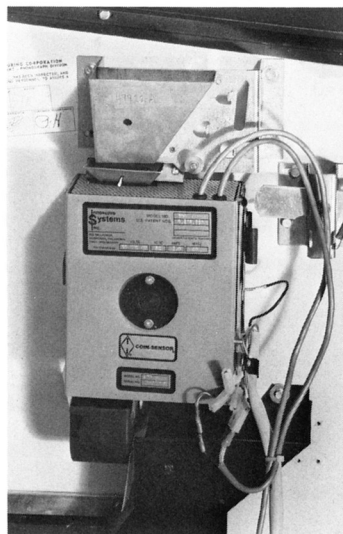
No jams, no yo-yos

Coin Sensor Model 100 from Innovative Systems Inc. promises jukebox operators "absolutely no coin jams," says the Muskogee, Oklahoma manufacturer. The Model 100 electronically rejects tokens, slugs, and foreign coins, while it accepts bent or mutilated U.S. coins.

Model 100 units are available for jukeboxes produced by Seeburg, Rowe/AMI, Rockola, and Centuri. It accepts rapid coin feeding but is anti-fish, anti-yo-yo and anti-string, said the manufacturer. It retro-fits into standard mountings and reduces maintenance calls and down-time, said Innovative Systems.

The unit also features built-in computer memory for use with the Coin Com system.

For further information, contact Innovative Systems, P.O. Box 1288, 903 Talledega, Muskogee, Oklahoma 74401; telephone: 918/683-0397.



Big loader

Standard Change-Makers, Inc. of Indianapolis has introduced a deluxe new magazine-load floor-console \$1 bill coin changer. The new changer, Series 8602B, changes \$1 bills, 50¢, 25¢, 10¢, and 2/5¢ coins with a capacity of changing up to \$440 in bills and 1,200 coins. It replaces Standard's oldest Series 6802B machine and features new maximum security cabinetry with front and top-opening doors for easier access and a built-in lighted cap kit.

While Standard Change-Makers also manufactures a complete line of hopper-load change-makers, the traditional magazine-load continues to be popular among many changer owners. With this system, conventional coin tubes are arranged in freestanding magazines which can be filled right at the changer or be totally removed and replaced with another magazine that has been prefilled in a private service area.

The Series 8602B Changer's cabinet features a simple, straight-line design that blends with any decor. It stands 50" high with a 5" lighted cap-kit on top. Standard finish is cocoa brown with chrome trim. The 8602B also features Standard's bill verification and patented solenoid dispensing system. There is an optional bill stacker available and both the changer and its money content are insurable under an optional insurance program.

Breakfast in space

Stern Electronics, Inc. has announced plans for production of its latest video game, *Scramble* scheduled for distribution in late April.

A solid-state one- or two-player game, *Scramble* has already proven popular in selected test markets. The game features non-stop play/action and synchronized sound effects.

Object of the game is for the player to navigate his aircraft through enemy territory and successfully penetrate five *Scramble* defense systems, then reach and destroy the enemy base.

Game and scoring features include:

—Player moves aircraft up and down, accelerates and decelerates by moving the joystick control.

—Player destroys attackers by pressing laser and bomb buttons.

—Player earns extra fuel for aircraft with destruction of enemy fuel tanks.





Quasar encounters

U.S. Billiards' new *Quasar* video features four different encounters in space, where the player fights the multi-phase battle. Progressive challenges face the player as he completes each of the series of encounters.

In phase one, the player's ship maneuvers left and right as he uses the fire button to destroy flying saucers which appear from the top of the screen. Phase two allows the player to depress a button to bring the ship forward and, using three buttons, to move the ship into any position and fire at the invading forces from the left and right.

At the top right side of the screen is the supply of energy for the ship. The player must complete phase two before all the energy is exhausted—or the ship will explode. When the phase is completed with energy remaining, the amount is added to the score.

In phase three, the ship enters the time tunnel, and the player must maneuver the ship to avoid descending meteorites. He must also fire missiles to hit the eye of the *Quasar* at the top of the time tunnel in order to climb higher.

Final phase four puts the ship in the center and in danger of destruction from the white meteors which advance from all sides. The player must rotate the ship and fire to avoid a collision. If all the meteors are destroyed, the ship will descend to the bottom of the screen and the game will start again.

The U.S. Billiards video game is marketed under license from Zaccaria of Italy.



Pulsar key

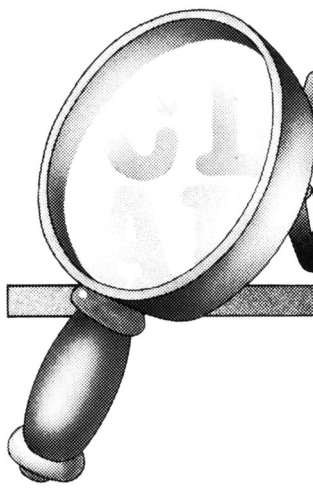
Gremlin/Sega is now shipping its newest video entry, *Pulsar*, which was officially introduced in March at the Amusement Operators Expo in New Orleans to the delight of operators attending, said the manufacturer.

European distributors got a sneak preview of *Pulsar* at the ATE in London. "Popularity of the game has exceeded our expectations; in fact, we've beefed-up our production schedule to accommodate multiplying sales' orders," explained Bob Harmon, director of marketing.

Pulsating alien creatures roming through an ever-changing maze field challenge players in search for the Pulsar keys. Players map a course of action, capturing the keys and depositing them in a color-coded keyhole. Once the keys are in place, the lock is turned, opening up a new game with the addition of more difficult alien defense.

Vivid sound effects including the heart throbbing of the master Pulsar keep player in constant suspense. "Our game room observations indicate *Pulsar* is a real teeth-gritter. Players get so involved, they hold their breath an entire round," Harmon said.

Pulsar, a one- or two-player game, available in standard upright and cocktail cabinets, is now at local distributors, said Harmon.



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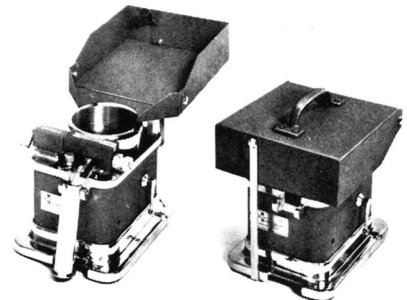
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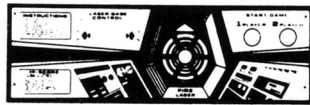
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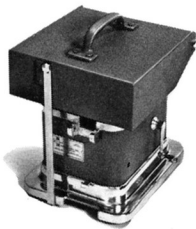
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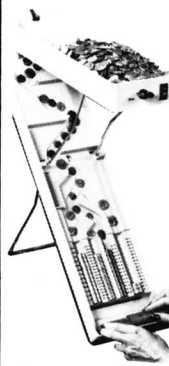
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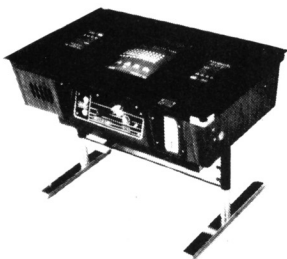
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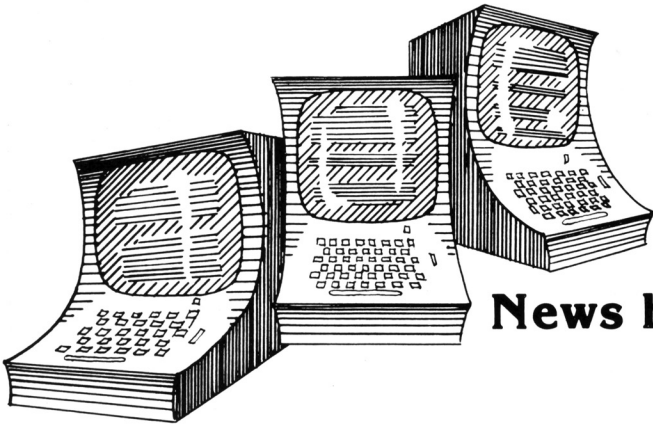
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News briefs...news briefs....news l

.....The AMOA's 1982 exposition will be held in Chicago rather than Las Vegas as originally set, AMOA President Norman Pink announced on April 27, after this issue of PLAY METER had gone to press. He had recently traveled to Las Vegas with Executive Vice President Leo A. Droste to negotiate with planned Expo site, Caesar's Palace, which agreed to cancel the prior AMOA agreement without any penalty. Pink said the AMOA is "holding space at two locations in Chicago, and an announcement will be made soon as to the specific Chicago location." (See story inside this issue on the manner in which AMOA officers formed their decisions regarding Las Vegas.)

.....European manufacturers were holding an April 28 meeting in London to discuss possible actions to ward off copycat games. An invitation was extended to representatives of the Japanese and American producers' associations, JAMA and ADMA respectively, to have input into an international effort against games piracy. Business schedules prevented chief officers of JAMA and ADMA from attending, but spokesmen said joint meetings between the three groups, including the new British Video Manufacturers Association (see story inside this issue), will take place this summer.

.....The AMOA has been given a re-hearing before the Copyright Royalty Tribunal on the matter of jukebox location lists which are required to be given to the CRT by operators. At press date for this issue, AMOA General Counsel Nicholas Allen could not detail the procedures open for argument in the new hearing, set for May 13. However, the location lists have apparently never been used by the agency in securing per-jukebox fees which are collected to produce royalties for music copyright owners--as reported by PLAY METER, July 1979 issue, pages 24-28.

.....Stern Electronics, which has taken action to prevent apparent copies of its video game, Astro Fighter, from being distributed, recently announced its intentions to take legal measures to protect its rights in manufacturing a new game, Scramble. (This game is introduced in the New Products section, this issue.) Details of the action will follow in PLAY METER....


.....Nintendo of America, Inc. will be introducing two new games at a special distributor preview in New York City at a date to be announced, in June, said a Nintendo spokesman. Nintendo is currently marketing the color video game Radarscope.

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