

The World's Leading Amusement Machine Trade Publication

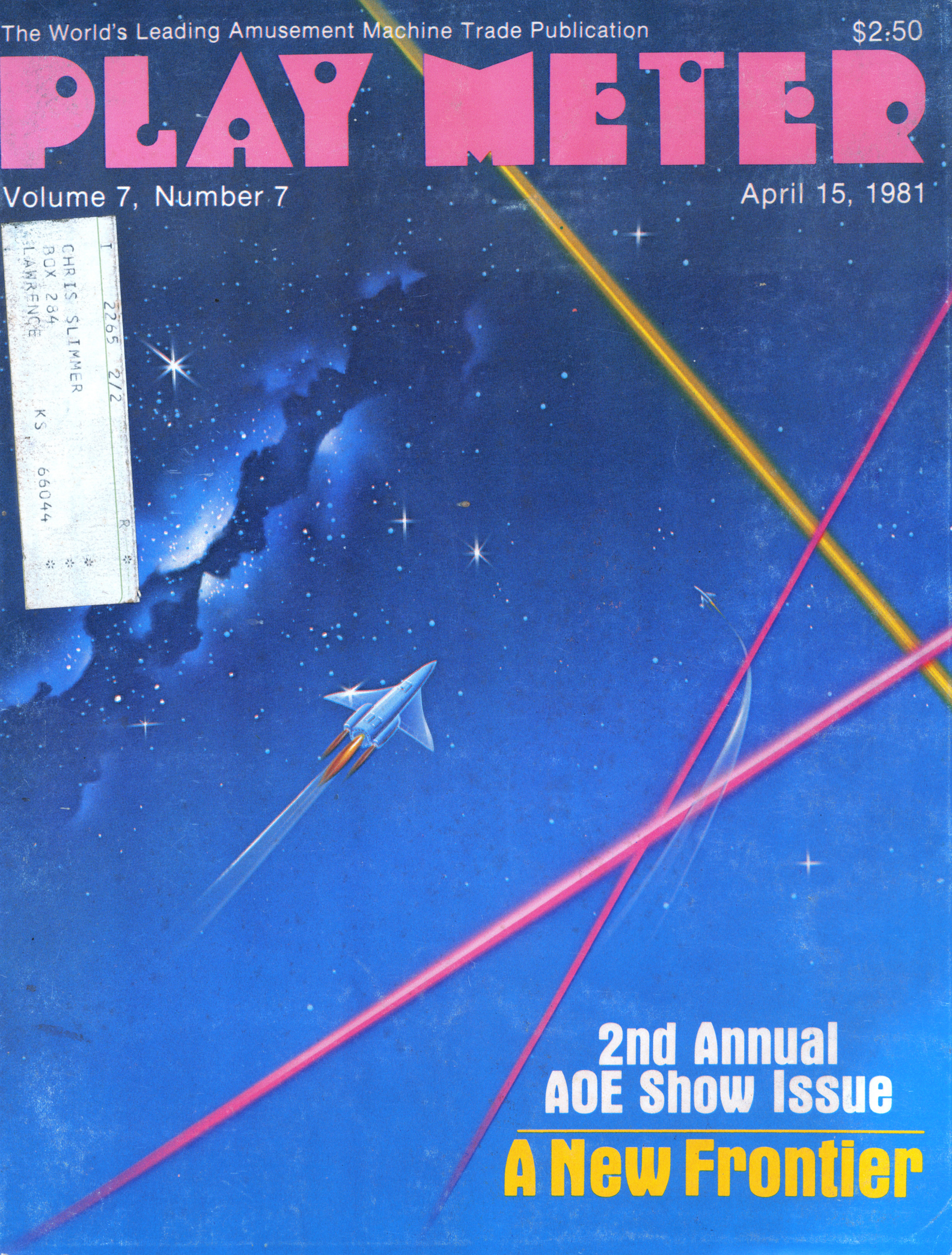
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PLAY METER

Volume 7, Number 7

April 15, 1981

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2nd Annual
AOE Show Issue

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PLAY METER

Vol. 7 No. 7

April 15, 1981

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PLAY METER, April, 1981

PLAY METER

AOE Show Preview20

The show designed specifically for operators scored some impressive "firsts" in its first time out of the gate. And this time around, there will be some curious effects observed in the second annual Amusement Operators Expo, as Play Meter Editorial Director David Pierson observes. His is an analysis of the AOE in New Orleans—which is becoming the coin industry's closely-watched show.

New Orleans Attractions36

There are plenty of "extras" around the old city to occupy coin-op industry visitors' time outside the show. Here we offer a guide to a variety of restaurants, sights, and amusements of "The City That Care Forgot."

Pinball's Growth: Coming or Going?60

Our critic's optimism over the resurgence of pinball has been on the wane. Roger Sharpe tells what he feels it will take to bring back the players: Some new approaches in the pinball factories and on location.

Polling Pinball Players64

Some insight into *casual* and *regular* players of pinball may be gained from contributor Stephen Craig's "First Annual Southwest Florida Unofficial Recreation Pinball Survey." Craig, at least, learned that many players share his "pinball fever" and for similar wholesome reasons. Read how it's so.

Vertical Statement Analysis68

AOE seminar leader Charles C. Ross gives another look at the performance of the Income Statement. If the operator recognizes how to utilize them, the statement's figures can be a vital reading of his business' health.

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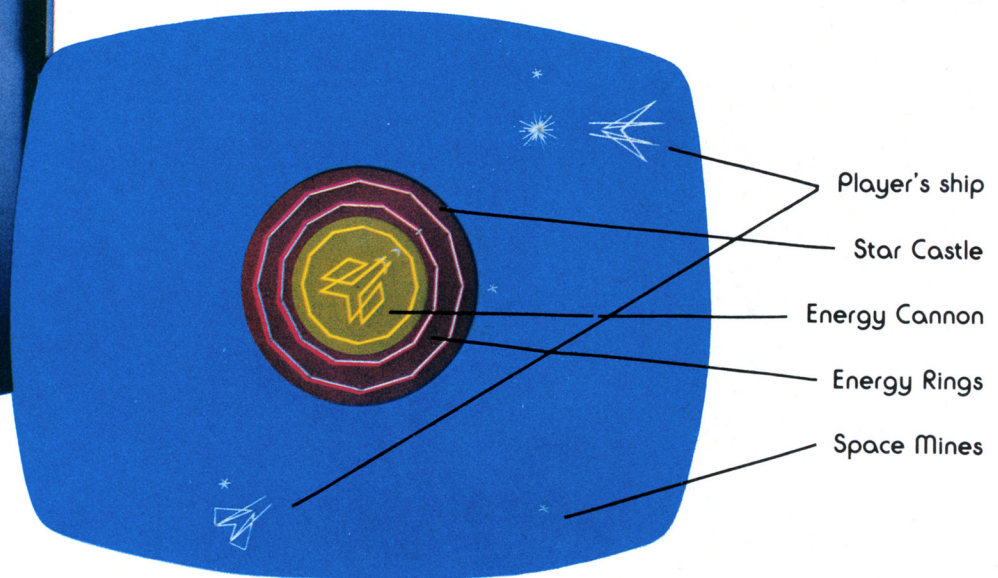
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From the Editor

In the past few months, you have read a lot in PLAY METER about the problems of game copying. Up until just recently, little had been accomplished in preventing the game pirates from increasing in number. It now appears something is finally being done about the problem.

Evidence of this long-awaited retaliation by such concerned manufacturers as Williams and Midway surfaced at the ATE Show in London, England. There, Williams Electronics became the first manufacturer ever to legally oust a pirated game from the show. At almost the same time, back in the United States, Midway obtained a favorable ruling from the International Trade Commission.

To further their cause, a manufacturers' association (ADMA) has been formed. Almost all the major U.S. game manufacturers have become members of this newly-formed association which will have as one of its main goals to fight game copying on behalf of all manufacturers. A full-time legal counsel representing the association will probably spearhead the attack.

Hopefully, it will only be a matter of time before the whole problem is resolved. After all, it should be a simple matter of outright theft, but as we know, the technology in this case makes the problem more convoluted than that.

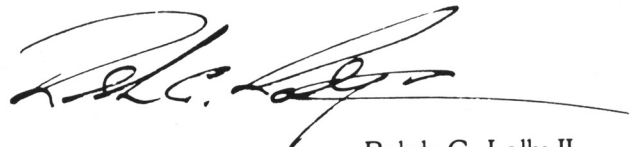
What operators have to watch for is that they may find themselves faced with the problem of having their equipment seized and not being able to get their money back. Such appears to be the future lot of one who knowingly buys stolen merchandise.

Let's face it, if there weren't any buyers out there, the game copiers couldn't stay in business. If a market for pirated games didn't exist, there wouldn't be a copying problem. But the problem is that there are many short sighted operators out there who are guilty of looking for the fast buck. What these operators don't seem to realize is that by encouraging the pirate manufacturers, they are hurting themselves and the rest of the industry in the process.

The pirate manufacturers are only rarely beaten at their own game. They're here today and gone tomorrow. Gone with your money, gone with their profits, and gone with any service backup you may have expected. And guess what happens when you want to trade in a pirated game? Your distributor will tell you to trade it back to the guy you bought it from.

But one of the biggest problems with buying pirated games is going to be the legal one. It may soon be illegal to buy a pirated game. In which case, one will be faced with legal charges as well as confiscation.

PLAY METER applauds the creation of a manufacturers' association. For only by protecting a manufacturer's proprietary rights can we all be assured of better, more challenging, and more profitable games for tomorrow. These are the game makers which have made our industry strong. They are here not only for today but also for tomorrow.



Ralph C. Lally II
Editor and Publisher



When it comes to Coin-op
games, music and Vending...

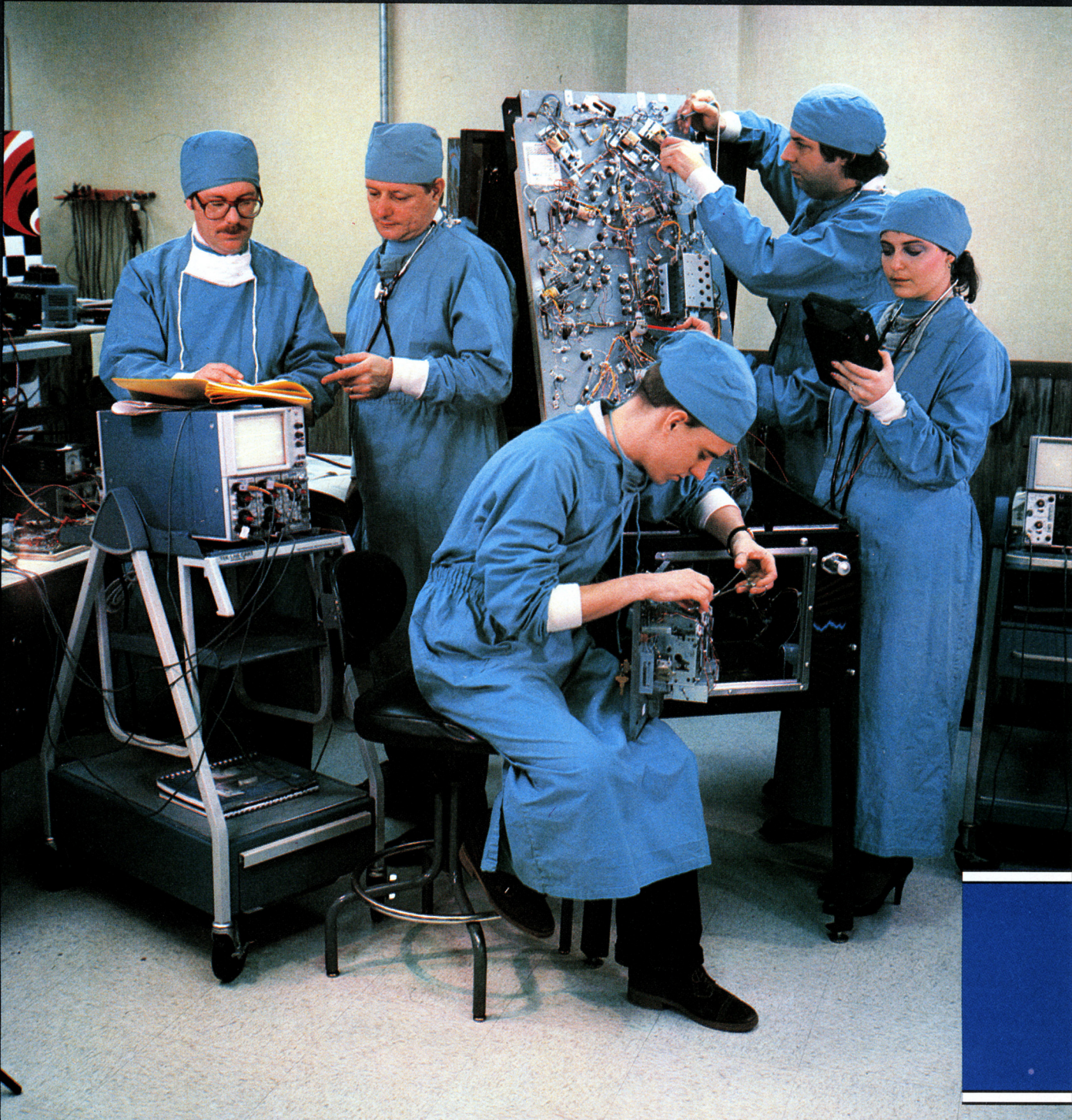
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Our service manuals are specifically designed to simplify repairs and are always packed in every game we ship, saving you unnecessary time and money locating one.

We know that you appreciate our efforts. Star-Tech magazine's reader survey speaks for itself... Bally leads the industry in service.

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1. Which amusement machines are easiest/most difficult to service?

PINS		Difficult	
Very Good		Williams	71%
Bally	100%	Atari	36%
Stern	79%	Gottlieb	36%
Gottlieb	57%	Game Plan	21%
Williams	21%	Playmatic	7%
Atari	14%	Sonic	7%
Game Plan	7%		

Comments

- (pro)
- Bally has easy check out.
 - Gottlieb and Bally use superior materials.
 - Bally, Williams, and Gottlieb provide excellent information and detailed schematics.
- (con)
- Williams' system is a bit too complex for easy service.
 - Gottlieb and Williams schematics are hard to follow.

2. Whose machine do you feel most comfortable trouble-shooting?

PINS			
Bally	71%	Stern	14%
Gottlieb	43%	Williams	7%

- Why?
- Bally schematics are easier to follow.
 - Bally has easy component location on top side of PCB's.
 - Bally's power-up routine saves a lot of time pin-pointing problems.
Bally uses plug-in components.

3. Which manufacturers, in your opinion, design their products with service in mind?

PINS			
Bally	79%	Game Plan	14%
Gottlieb	43%	Williams	7%
Stern	43%		

4. Who, in your opinion, seems to ignore the service aspect?

PINS			
Williams	57%	Game Plan	14%
Atari	21%	Stern	7%
Gottlieb	21%	Bally	7%

Every survey returned listed Bally as one of the easiest pins to service.

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GUEST EDITORIAL



Jukebox Royalty Fees: *Where do we go from here?*

When I was asked if I would write an editorial about my impressions of what the coin-operated amusement industry should do about the jukebox royalty fees, my first thoughts were that this is a damned if I do and damned if I don't situation because there are so many different opinions on this subject. But, since I do care about this industry, and, since I also feel that the jukebox royalty fee schedule that was announced by the Copyright Royalty Tribunal in December is unjust, I felt that the editorial should be written.

The first thing that all operators should remember is that, as much as it is disliked, the law has been passed. Jukebox operators must pay a royalty fee on each jukebox that is placed on location. Failure to do so could result in civil or criminal actions being brought against the operator. This has already happened several times around the country.

Any future decisions by the Copyright Tribunal could possibly be affected by the percentage of operators that are in compliance of the law.

Secondly, I believe that the industry should seek relief from this law by trying to get new legislation enacted by the U.S. Congress. However, this legislative effort

should not be undertaken until the proper groundwork has been laid through a long, exhaustive grassroots campaign by the operators and distributors in each state. This legislative effort should be coordinated through the AMOA office and the state associations.

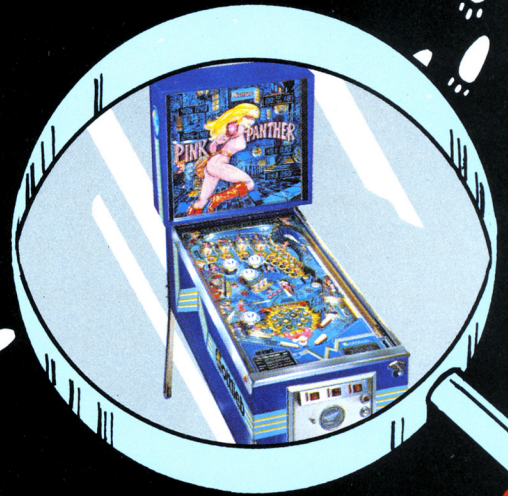
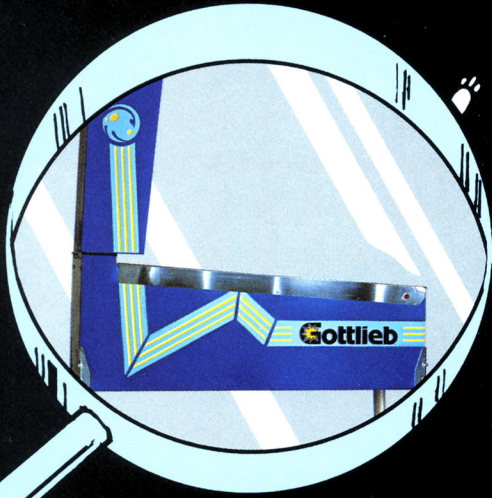
All manufacturers in this industry should be more than willing to join in this effort if it is undertaken because the difference between the \$50 per jukebox royalty fee that comes into effect in 1984 and the current fee of \$8 per jukebox will take about \$6,000,000 a year out of the industry.

Think about how much money will be taken out of this industry after 1987 when the inflationary adjustment comes into effect.

My question is this: Are the people in this industry willing to pay to make this or some other similar effort? Or, are they going to be like the Ostrich and stick their heads in a hole in the ground and hope that things will get better?

Milton Hobbs
Southern Automatic Music & Vending
Hickory, North Carolina

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SCARED OF THE DARK? The Hidden Staircase hides another captive ball hole, which is activated by completing the white target bank. Bring your flashlight... it's dark in there.

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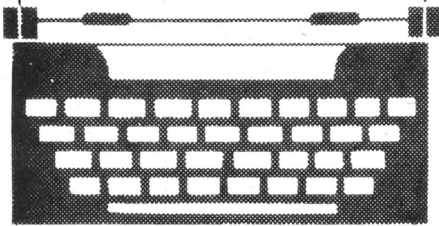
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No imitation

Mr. Welu's article entitled "AMOA Show Diary" in the January 15th issue is well written and informative. However, as the manufacturers of the *Tomahawk Missile* game, we would like to correct an unintentional error in his description of *Tomahawk Missile* as an "imitator" of other games. As a matter of interest, *Tomahawk Missile* was on the international market prior to *Polaris* or *N-Sub*.



Our congratulations to your staff on a very well done issue.

Tom Pierce
Electro-Sport, Inc.
Irvine, California

Ed. note: The Dick Welu article, page 32, January 15, was a look at the AMOA exhibits in a humorous vein. His "AMOA Show Diary" ran on pages 32-35 (subtitled: "Dick Welu Takes an Unabashed Look at What's on the Floor")

Coinco flap

Coin Acceptors, Inc.'s advertising of its 2800 series coin door assemblies might sound impressive on the surface, but I would like the company to address itself to some problems operators are experiencing with these doors.

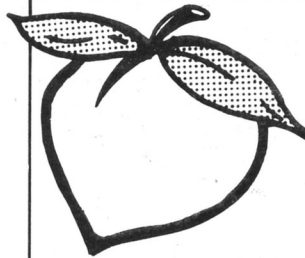
The main problem is with the plastic flap in the "large tamper-proof

coin return cup." The flap, which prevents penny flipping as experienced in all coin doors used by Midway Mfg. (which have no flaps), is easily cracked by any hoodlum with a screwdriver.

In many of today's game locations (such as bowling alleys, convenience and department stores), these flaps are broken routinely as soon as they are replaced.

And only a fool would keep on replacing them. Why? Here in Los Angeles these seemingly cheap pieces of molded plastic cost \$3 apiece! Worse yet, the semi-useful Midway anti-penny kits cannot be accommodated on these doors.

In the final analysis, there is no plastic part on the outside of a



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The Play Meter Equipment Poll — which each month surveys participating subscribers/operators on their best-earning pins and video games — now appears in PLAY METER NEWS UPDATE editions.

Coinco 2800 door assembly that I have not had to repair or replace. And all replacement parts are as ridiculously priced as the flaps.

It seems the only video games with well-built front doors available to operators now are the ones produced by Chicago's pinball manufacturers, who use pinball doors in their videos.

Paul M. Thiele
Los Angeles, California

Ed. Note: Coinco's reply follows:

"I will try to explain why various parts of our coin door are made the way they are, and at the same time offer some useful suggestions.

The plastic flap on the coin return cup is there only to keep coins from bouncing out on the floor if they are rejected by the acceptor. It is the de-

sign of the metal coin return cup that eliminates tampering with the coin switches, or blocks access to the cash box. So with the flap door completely removed, the door is still secure and completely functional.

The reason for using plastic on that flap and on other external parts of the door is that it is assumed that vandals will attempt to damage the door in order to gain easy access to the game, to play for free, or to get into the cash box. It was felt that if the external parts came off without destroying the rest of the door and were simple and relatively inexpensive to replace, the operator would benefit in the long run.

So, except for the cost of replacement parts, the reasons are valid. On the subject of replacement parts, operators can purchase them from Coinco branch offices located in the major cities in the U.S. and Canada. Look for Coin Acceptors, Inc. under "Vending Machines—Supplies and Parts" in the Yellow Pages. Parts prices are lower when purchased directly from the manufacturer.

Mr. Thiele had supposed that the flap was on the coin return cup to eliminate "penny flipping." Actually, there is a bar approximately 1/4" inside the coin return cup and

located near the top that is there for the sole purpose of discouraging penny-flipping. Early doors did not have it. With the flap removed, it is very difficult to balance a penny and then flip it with the bar restricting the travel of the finger.

I trust my comments may provide your readers with some useful information and I sincerely appreciate the opportunity to respond to Mr. Thiele's letter through your fine publication."

James C. Douglass
Vice President/Marketing
Coin Acceptors, Inc.
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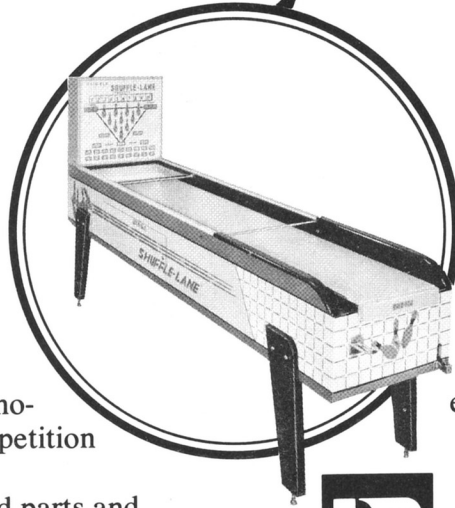
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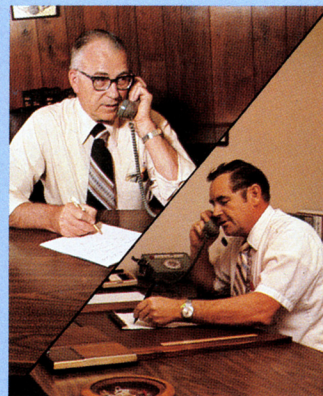
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TO THE HEADACHES OF STOCKING A DIFFERENT DOOR FOR EVERY GAME

NOBLE EFFORT, STAGE II

The AOE becomes the industry's most closely watched event

By David Pierson

A lot of people took a wait-and-see attitude toward the first-ever Amusement Operators Expo in New Orleans.

Everyone agreed almost from the outset that it was a noble effort.

Never before had such a wide-ranging series of operator-oriented seminars been offered, dealing in particular with the "nuts and bolts" of operating, as many came to call it.

And manufacturers were delighted they finally had a nationwide trade show timed for the release of their spring lines of new equipment.

But there was a lot of negativity, too, a lot of head shaking the first time around for the AOE. Many industry people said the coin-op amusement industry was too small to accommodate two major shows.

Although Great Britain, with an industry many times smaller than the U.S. trade, could stage two shows within one month, one of which draws attendances in the five-figure range; and although another industry trade show on the Continent could establish itself while being separated from the British events by only a few days—many in the United States have clung tenaciously to the belief that the mammoth U.S. market, with 7,500-plus fulltime operating firms, could not support two major coin-op trade shows, even though they were spaced a half year apart.

But with all the naysaying, one simple fact has been overlooked—the coin-operated amusement industry is not as small as everyone is making it out to be. In 1980, in-

stance, the U.S. coin-op amusement industry grossed \$7.15 billion (based on Play Meter's Annual Industry Survey), and that figure did not take into account the manufacture and

Although the U.K., with an industry much smaller than the U.S. trade, can stage two shows within a month—many still insist that the mammoth U.S. market will not support two large trade shows, even though spaced a half year apart.

sales of the games, only the collections!

The figure was staggering. No one had ever conceived the industry was as big as that.


Chet McMurdie, president of the Advance Automatic Sales distributorship in San Francisco, has put it another way at his company's

distributor showing in December. He pointed to the phenomenal earning ability of Atari's *Asteroids* and observed: "There's been \$500 million worth of business on one particular game. There's never been a movie that's grossed \$500 million!" Again, staggering.

Still, despite all this, the Amusement Operators Expo has had its share of negative blasts by those who still insist on the smallness of the industry. Many of these have resorted to the worn-out saw that there are already too many shows in the United States. They point to trade shows which touch the coin-op amusement industry only peripherally (such as the IAAPA) as an example of the multiplicity of shows. State association shows, of course, they agree, don't figure in this regard because the attendance at these events is by nature generally restricted to that state or region, and the exhibitors are not the actual manufacturers of the equipment but rather the local distributors.

So there has existed for some time a void as far as a major industry show for the springtime, and the Amusement Operators Expo came to fill that void last year.

Manufacturers responded with enthusiasm. In retrospect, some manufacturers confided they were perhaps too enthusiastic and came out with elaborate exhibits that were too much for a first-time show. The result, as it can be expected, will be less booth space the second time around, but probably pretty close to the same amount of equipment on

A dark-stained wooden door with a multi-paned window. The window is divided into a 3x3 grid of rectangular panes, with the top row having arched tops. The panes show a blurry, brightly lit interior scene with people. A white rectangular sign is taped to the door, partially covering the window panes. The sign has the words "STANDING ROOM ONLY" written in black, hand-drawn capital letters. To the right of the sign, a black metal door pull is visible.

STANDING
ROOM ONLY

"ALERT, ALERT . . . INVADER SHIPS IN SECTOR ONE . . . BATTLE STATIONS!!"

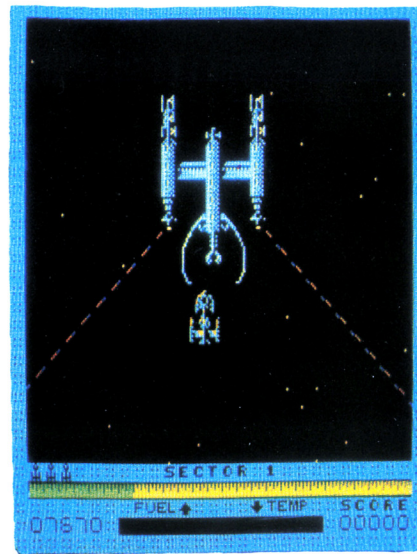
With that exciting warning, the synthesized Mission Control voice signals the start of your most challenging, thrill-packed video adventure.

Starting with 3 to 5 fully fueled ships (the number determined by the operator), your mission is to blast all targets before refueling by the Mother Ship. Then, advance to the next game sector where you meet more missile-firing, multi-colored invaders.

"LASER TEMPERATURE CRITICAL!!"

Make every shot count.

Because if you don't manage your firing efficiently, laser temperature rises and the voice of Mission Control warns you firing



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8401 Aero Drive
San Diego, CA 92123
TLX: 910-355-1621

Sega Enterprises
One Century Plaza
2029 Century Park East, Ste. 2920
Los Angeles, CA 90067
TLX: 688433

FEATURES THAT SPEAK FOR THEMSELVES!

could stop completely until the laser temperature cools.

Mission Control also gives you voice updates on fuel supply, ships remaining and more, playing a vital role in your successful star battle.

"WARP ACTIVATED . . . 10, 9, 8, 7 . . ."

The ASTRO BLASTER game also lets you play for time, using the Time Warp.

When the action is toughest, each of your ships gives you one chance to hit the Time Warp button, slowing down invader ships and their missiles. Meanwhile, Mission Control counts down your remaining Warp Time.

Point value is determined by target size and speed, with the smaller, faster targets earning you the most points. You also win bonus



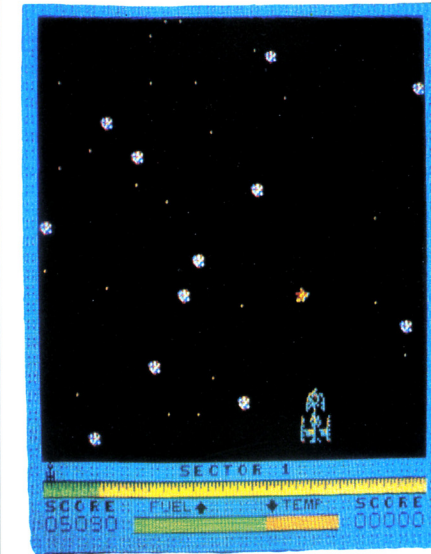
points by completing specific tasks. But the bonuses are secret, adding even more excitement to the game.

"ONE SHIP REMAINING . . . EXERCISE EXTREME CAUTION!!"

To keep the ASTRO BLASTER game a thrilling challenge to both experienced players and beginners, Gremlin/SEGA's exclusive MultiPhase™ makes each new game sector tougher than the one before, with enemy targets coming faster and firing more missiles.

The game ends when you've lost all ships, run out of fuel, or if you destroy your ship while docking to refuel. But even though the game's ended, with ASTRO BLASTER the fun never stops!

For more information, call your nearest Gremlin/SEGA distributor. Or write:



Sega Europe, Ltd.
15 Old Bond Street
Mayfair
London, England W1X 30B
TLX: 847777

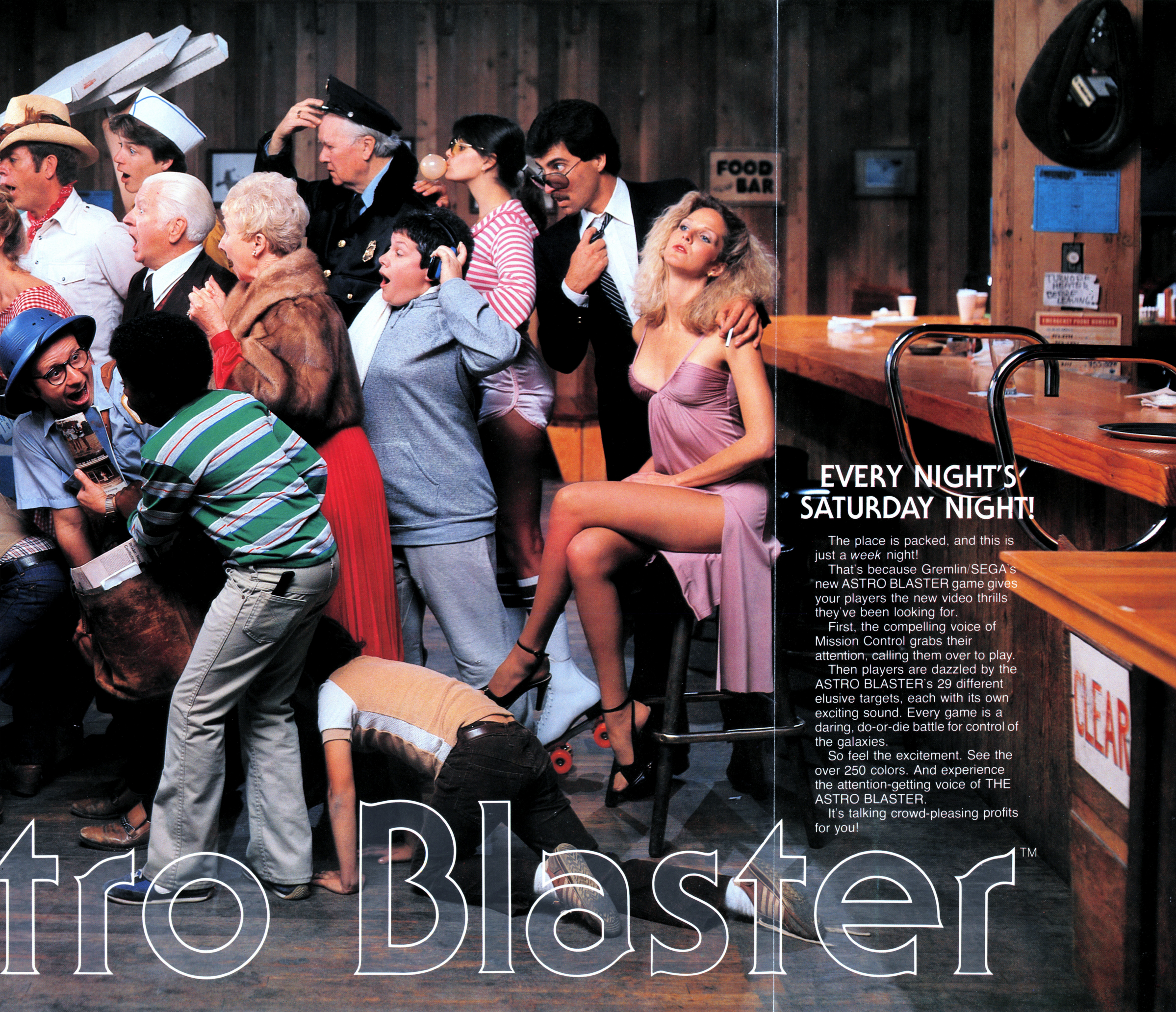
Sega Enterprises
#2-12 1-Chome Haneda
Ota-Ku
Tokyo, Japan

Gremlin/SEGA

Gremlin/SEGA



A S



EVERY NIGHT'S/ SATURDAY NIGHT!

The place is packed, and this is just a *week* night!

That's because Gremlin/SEGA's new ASTRO BLASTER game gives your players the new video thrills they've been looking for.

First, the compelling voice of Mission Control grabs their attention, calling them over to play.

Then players are dazzled by the ASTRO BLASTER's 29 different elusive targets, each with its own exciting sound. Every game is a daring, do-or-die battle for control of the galaxies.

So feel the excitement. See the over 250 colors. And experience the attention-getting voice of THE ASTRO BLASTER.

It's talking crowd-pleasing profits for you!

tro Blaster™

display as last year.

It was clear from the outset that the first-ever AOE Show had more than a hard-hitting seminar program and impressive exhibits, however. The manufacturers also responded with some of their best efforts of the year, adding to the contention that there are two major buying seasons in this industry—the spring and the fall.

Williams introduced *Firepower* and Bally its *Space Invaders*, and those two games battled it out with Williams' *Gorgar* for top honors of the year, with *Firepower* finally winning out and claiming the 1980 Play Meter Award as the highest-earning pinball game of the year, as voted by the nation's operators.

In video, Cinematronics took the wraps off its highly successful *Rip Off*, giving AOE attendees a leg up on those not attending. And Data East previewed its *Astro Fighter* for the first time stateside (the game was later licensed to Gremlin and finished a strong fourth place among the year's top videos).

But the reaction to the first-ever AOE Show was mixed.

Interestingly enough, industry reaction to the first AOE Show divided almost evenly along product lines between those who had videos and those who had pinballs on exhibit. For, the AOE also proved to

Last year's AOE proved to be the bellwether for the phenomenal video buying trend which snowballed following the springtime show.

be the bellwether for the phenomenal video trend which snowballed starting with the second quarter of last year. Video makers were enthused by the first year's showing for the AOE and, by and large, are back for more the second time around.

The pinball makers, however, not prepared for the sudden cold shoulder their product was to receive in the coming months, sounded very negative about the viability of a springtime show. Only a short time later, however, the industry itself was sounding very negative about the viability of the pinball product being turned out.

Yet, the pinball makers, still smarting from the collective cold shoulder they got last year, have not completely absolved the AOE Show of blame for their poor showing. Some of the manufacturers are not exhibiting at all this year, attributing their no-show to what they saw as a low attendance last year.

And what about the numbers?

Last year the AOE drew a total attendance of 1200, a figure which many people downplayed against the AMOA's perennial 7500 figure (Many are not aware that there were only 500 at the first MOA show). But an analysis of the attendances brings a few interesting points to light:

This past AMOA Show attracted attendance from about 1200 U.S. operating firms, and the AOE Show—on its first time out of the gates—attracted attendance from about 400 U.S. operating firms. In other words, the actual representation of the number of buying companies was not as disproportionate as some had been led to believe.

Then why the disparity in numbers?

The AMOA is an international show and draws heavily from overseas visitors, and the AOE has restricted itself to drawing only nationally—which it did with operators coming from 41 states, the District of Columbia, and some sizeable representation from the neighboring countries of Mexico and Canada.

Second, there were a larger number of attendees from each of the operating companies represented at the AMOA Show than at the 1980 AOE Show. This again was reflecting many operators' wait-and-see attitude. Instead of taking along most of their key people, they came alone the first time to see if the show was worth it.

The result is that the AOE Show drew a quality audience its first time around, though at first glance it didn't appear "to have the numbers."

What can be expected this time around? Well, because of the high-powered seminars and the quality equipment on display last year, a phenomenal 98 percent of those who attended last year have stated they plan to attend again this year.

Additionally, a large percentage of those who did not attend but who adopted a wait-and-see attitude last year have gotten the word-of-mouth approval from fellow operators who did attend the show, that it was to their extreme advantage to attend the 1981 show.

The result will be curious. We can expect to see a smaller exhibit area this year, but probably with just about the same amount of

On its first time out of the gate, the AOE attracted about 400 U.S. operating firms—a sizeable one-third of the number represented at the 1980 AMOA Show.

equipment as was shown last year. But there will probably be a lot larger attendance.

It's an interesting irony. Less exhibit, yet a larger attendance. Manufacturers who restricted or eliminated their booth space after last year's show are beginning to make a move toward couching their bets by making sure their games will be on the display floor.

The reason?

Those operators who came alone last year are not only coming back again, they're bringing more people with them this second time around.

So the AOE Show will probably be the most closely watched industry event of the year, bar none. Not because of its size, which is still dwarfed by comparison to such established shows as the AMOA and ATE events, but because if there is any show which holds promise of breaking into the tough trade show field, it's the Amusement Operators Expo.

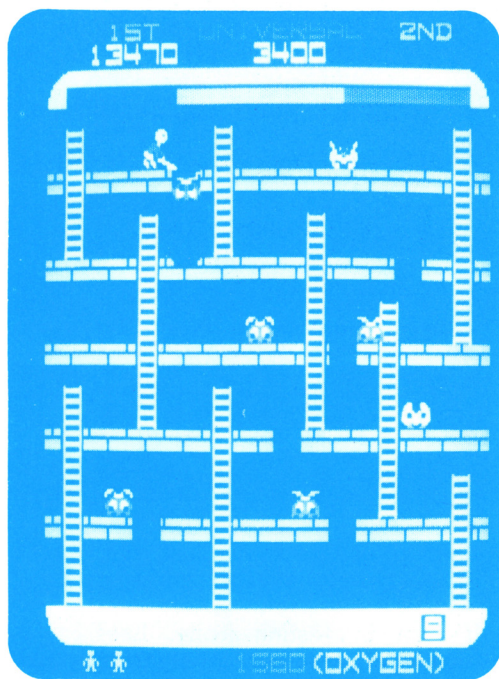
And the reason for that potential is because the show is designed specifically for the amusement operator. And that, after all, is who a coin-op amusement trade show should be for. ●

**COSMIC
SERIES**

UNIVERSAL SPACE PANIC

HOW TO PLAY

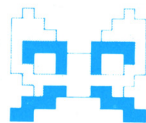
- ★ Dig holes by operating the man. When a space monster has fallen into a hole, fill it up before the space monster creeps out of it, and you are awarded points.
- ★ The man can escape by jumping down through the hole he has dug to the next lower floor.
- ★ When oxygen is rarefied, a warning buzzer 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.



SCORE



MONSTER 100~800 PTS



BOSS 300~1,200 PTS



DON 800~2,000 PTS

SPECIFICATIONS

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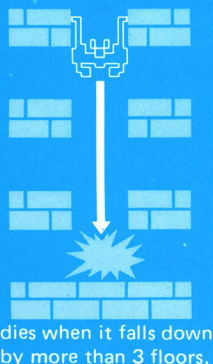
550 m/m (D) AC 100V/115V/230V
842 m/m (W) 50/60Hz
650~850 m/m (H) 140W
▽ 95-1859

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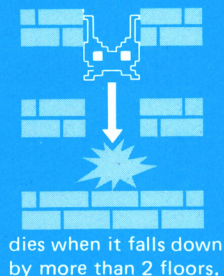
800 m/m (D) AC 100V/115V/230V
640 m/m (W) 50/60Hz
1750 m/m (H) 180W
▽ 95-1653

HOW TO SCORE POINTS

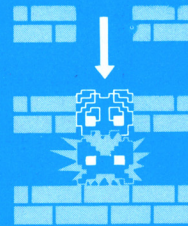
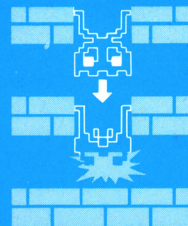
DON



BOSS



MONSTER



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1981

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—JUNE

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AOE Show

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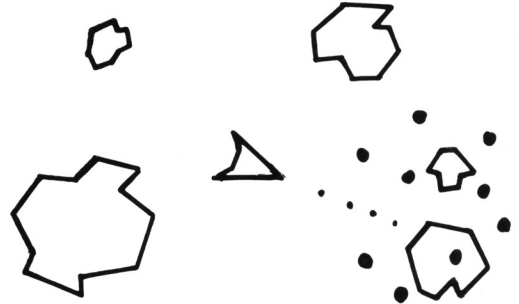
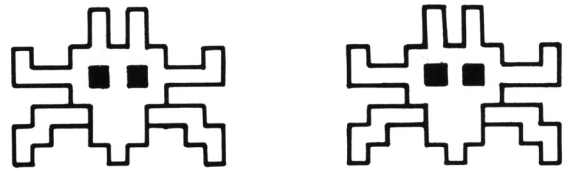
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PLAY METER, April, 1981



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"The Quick Fix"
Panel of industry personalities
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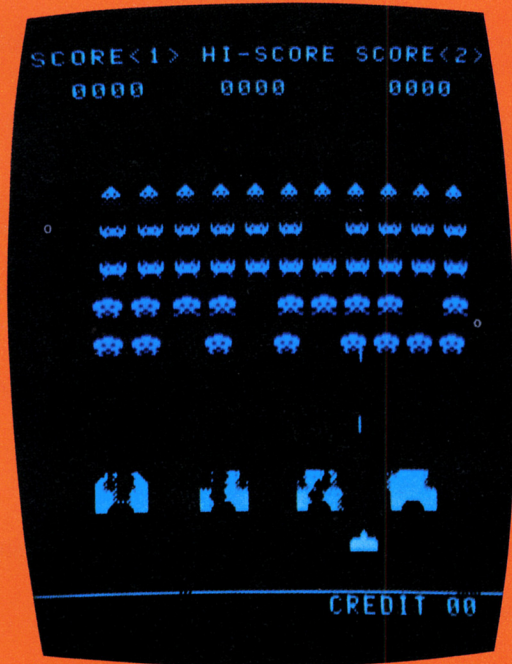
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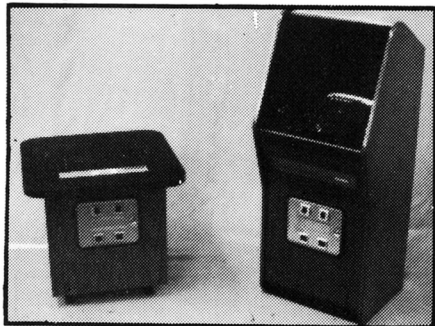
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Hand the second receipt to the location owner. Your collector takes all the cash.

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Call or write us for details. You owe it to your business to find out more.

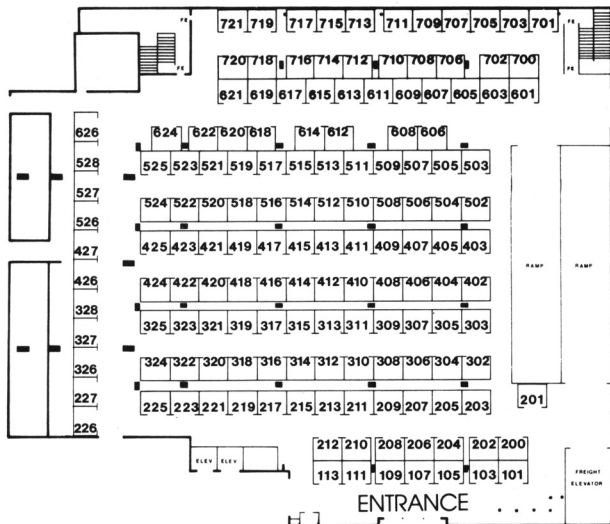
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Floor Plan



1981 AOE Show

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201 Elden St.
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(703)471-6510

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(516)842-4242

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UNIVERSAL U.S.A. 323, 325, 422, 424

3250 Victor St.
Santa Clara, CA 95050
(408)727-4591

will feature various TV game machines, both upright and table-type, along with pinball machines.

UNIVERSAL VISUAL AUDIOTRONICS CORP.

221, 223, 225

604 Main St.
Davenport, IA 52801
(319)326-6467

will feature its line of kiddie rides.

THE VALLEY CO. 407, 409

333 Morton St., P.O. Box 656
Bay City, MI 48707
(517)892-4536

will exhibit Cougar pool tables, Bumper Pool tables, one-piece and fancy two-piece cues.

WICO CORP. 210, 212

6400 Gross Point Rd.
Niles, IL 60648
(312)647-7500

will exhibit replacement parts for amusement and vending machines, security equipment and accessories, billiard accessories, conversion kits, coin-handling equipment and supplies.

ZAMPERLA, INC. 411

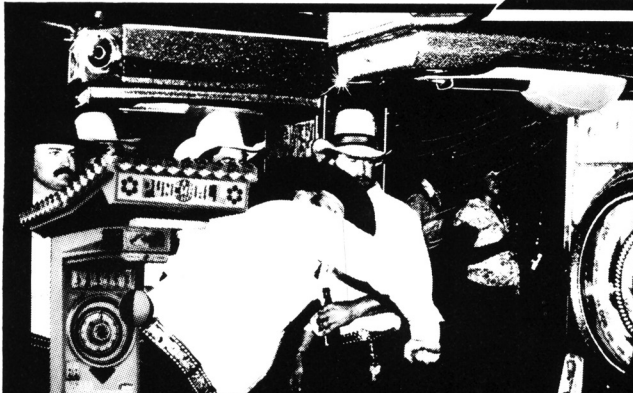
16 Edgeboro Rd.
East Brunswick, NJ 08816
(201)238-6280

will feature coin-operated machines and strength-measuring machines.

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AOE Show 1980: 400 U.S. operating firms attended
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in AOE's first-ever show!

Why?

Why do you suppose more operators read Play Meter than any other industry-related trade publication?

We think it must have something to do with the fact that Play Meter is independently-owned and honest with its readers.

We are, after all, the only publication that evaluates pinball machines.

Not only that, our articles (such as the recent three-part series on business profitability) are thought provoking, useful, and written specifically for the operator.

And we cover more industry news than anyone else, month after month.

Then, of course, there's our "Technical Topics" section, which is written by independent technicians who have firsthand experience in the field.

There seem to be as many reasons for reading Play Meter as there are readers.

PLAY METER

New Orleans awaits AOE-goers with its abundance of 'extras'

The Amusement Operators Expo, March 12-14, will provide a full schedule for the attendee at the Hyatt Regency Hotel in New Orleans. But the city has much to offer for the industry persons who also want to enjoy local color and flavor during those days, or in the evenings.

"Lagniappe" is the local phrase, a Cajun term meaning "a little something extra," like 14 oysters for the price of a dozen, or a free play. And lagniappe is what is offered in sights, sounds, and tastes—a riot of pleasures for the visitor, all within walking distance or a short taxi ride from the AOE Show site.

Not the least of the bonuses is the food. New Orleans enjoys its food, and its restaurateurs love to serve fine dishes, from excellent seafood to the heartier Cajun menus.

Then there are the sights and activities. Here you can bring your family, your special flame, or your Cousin Kate and find enjoyment for an afternoon—or as long as you please.

First, the food.

Following is a sketch of some of the more notable venues of dining. A more extensive listing is available from the Tourist and Convention Commission, 334 Royal Street in the French Quarter. Ask for a booklet, *New Orleans Visitors' Guide*, which may also be available in your hotel. (For a look at room accommodations available at various rates, go to the same source—or check **PLAY METER**, March, 1981, page 8: "Guide to a New Orleans Visit.")

Restaurants

Antoine's, 713 St. Louis Street in the French Quarter, a famous restaurant since 1840; oysters Rockefeller and much else in elegant dining; make reservations: 581-4422.

Galatoire's, 209 Bourbon Street, another of the more famous; no reservations accepted, but you may expect in wait in a line; seafood dishes make it worth the wait; and French, Spanish, and Italian are spoken.

Pascal's Manale, 1838 Napoleon Avenue in the "uptown" or Garden District environs; known for its



St. Louis Cathedral, the oldest active cathedral in the nation, is the best-recognized landmark, its facade fronting Jackson Square and the hero's statue.



The French Market in New Orleans, seen here, offers a special delicacy, beignets, and a cup of coffee after a tour of the Old Quarter.

original barbecued shrimp; also, Italian cuisine, steaks, and seafood; casual attire, free parking.

Toney's Spaghetti House, 212 Bourbon, facing Galatoire's; a simpler surrounding but a good dish of shrimp remoulade.

Also on Bourbon Street: Original Papa Joe's, 610 Bourbon; Creole cooking and casual atmosphere; and not to be confused with Original Papa Joe's Cafe, 600 Bourbon—which features food in the local style, plus music and drink.

The Bon Ton, 401 Magazine Street, near the Marriott Hotel, features old Cajun family recipes: Louisiana seafood a specialty, reservations preferred.

Broussard's Restaurant, 819 Conti Street, features New Orleans-style dining and elegant surroundings; excellent wine list is promised; French, Spanish, and Italian are spoken.

For simplicity of setting and a French Quarter location, try Felix's, 739 Iberville for its raw oysters on the half shell specialty; a complete line of live seafoods as well as steaks.

If you are simply hungry, A&G Cafeteria is located at 2661 Canal Street and other locations, and serves meals competently with the southern tendency toward corn bread (spiced or mild), greens, chicken, and such; opens 11 a.m.

For those staying in or near the Hyatt Regency and wishing to remain near the AOE Show, the hotel offers the menu of Jonah's, or the more modest prices of the Top of the Dome which revolves at penthouse level for a view of the city, or the Courtyard and dining in its atrium garden atmosphere.

Nearby the Hyatt is Le Pavillon Hotel, Baronne at Poydras, and its Chateaubriand Restaurant: beef and New Orleans seafood dishes.

On into the French Quarter, you will find The Court of Two Sisters, 613 Royal Street, having a daily "jazz brunch buffet" with more than 50 dishes offered; dinner by gaslight in an historic patio.

At the French Market, 1001 Decatur Street, you may take coffee and beignets (a kind of doughnut or fritter) or a seafood dish in an area open to the street. At 800 Decatur, convenient to a walking tour of the Quarter, is Cafe du Monde, open day and night to serve coffee and beignets.

At 215 Bourbon Street is Ralph & Kacoo's Seafood Restaurant, where the specialty is catfish.

Ruth's Chris Steak House is a short drive from the downtown area but worth that for its specialty: beef and the trimmings; various locations but easy access by car from the central district to 700 N. Broad.

At a location approximately halfway from New Orleans Airport to downtown is Sclafani's, 1301 N. Causeway Blvd., with fine Italian, seafood, and steak dinners at moderate prices and family setting.

"Ethnic" restaurants are many and varied in New Orleans. To name but a few, they include the Chinese Kitchen, 3327 S. Carrollton Avenue; Genghis Khan, 4053 Tulane Avenue (Korean dishes); El Ranchito Mexican, 1811 Elysian Fields Avenue, having served Yucatan-Mexican food for over 40 years.

In the Garden District: Delmonico's, 1300 St. Charles, near Lee Circle (a trolley ride from Canal),

combining Old South atmosphere and Creole food; the Caribbean Room of the Ponchartrain Hotel, 2031 St. Charles, with seafood, steaks, and chops in an elegant setting.

Rounding out our diet: Ruby Red's at 435 Esplanade Avenue, steak-burgers and drink in an atmosphere of the 1920s; Commander's Palace Restaurant, Washington Avenue and Coliseum, original dishes since 1880, "jazz brunches" on weekends with live, high-talent performers; Anything Goes, 727 Iberville, with booths designed as an igloo, tee-pee, or cuckoo's nest, etc., etc., and a waiter may be dressed as Julius Caesar or as a rabbit.

There is a saying that once you drink from the Mississippi River's water, you are bound to return to New Orleans. That may or may not be so...but the food alone will certainly entice a return to the Crescent City.

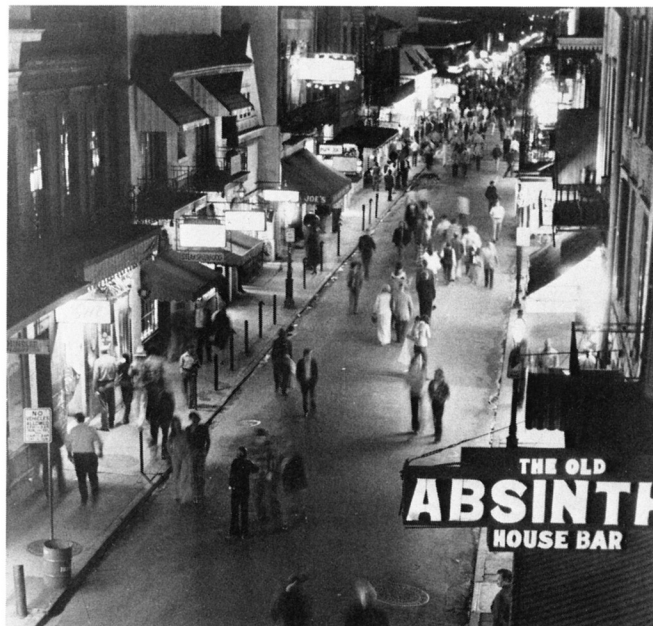
Many who came to the first Amusement Operators Expo—a big 98 percent of those who answered one survey—said they will return for its seminars and exhibits and industry contacts again this year. For them and for the first-time visitor, the ambience of the nation's second busiest port city is an attraction. Certainly, all of New Orleans' offerings cannot be touched in even the most hurried visit to what has been called "America's most interesting city."

Amusements

In "the city care forgot" there are slower-paced modes of travel available which are suited to the leisurely enjoyment of its sights: ride



Iron grillework is a noted architectural feature typical of New Orleans: evidenced here on a French Quarter street.



Bourbon Street by night: activity until the wee hours is ready for the visitor to 'The City that Care Forgot.'

a streetcar (40 cents, exact-change fare, plus 5 cents for a transfer) through the Garden District and among its opulent mansions; take a paddlewheel steamboat or ferryboat for a ride on the Mississippi (*The Natchez* has luncheon and dinner cruises, boarding at the end of St. Peter Street beyond Jackson Square at the river); or catch a horse-drawn carriage at the corner of Royal and St. Louis streets for a ride through the old quarter. All of these can be done on one day, with planning.

Your hotel's desk should be able to provide information on the tour-bus services that take you through the Quarter and other parts of the city daily.

It is the French Quarter that you can't miss. How will you explain to the folks back home, otherwise, that you didn't walk on Bourbon Street? The original sixty-plus square blocks of the Vieux Carre, that were the original city, are like a living history lesson. There are such landmarks as St. Louis Cathedral, the oldest active cathedral in the United States, and the Cabildo, seat of Spanish rule over Louisiana and the place where the Louisiana Purchase was signed with France. On Jackson Square, the heart of the Quarter, artists display their wares in the manner of a Paris street bazaar; you may have a portrait or a charcoal sketch made of yourself or your family. The shops of the French Quarter offer antiques, memorabilia, and food delicacies to be taken home.

Here, too, is Preservation Hall, the "home of jazz" in the New Orleans tradition: 726 St. Peter Street.

On the lake side of the city, the Ponchartrain area offers a respite

from the pace of the business district, within easy reach to the north via main thoroughfares.

A stop of interest to the coin-op trade is again in the French Quarter. Big Jim's, a roomy bar and dance hall at 327 Bourbon, features the mechanical bucking bull and country music, a natural combination if this is your kind of bag.

Plays and concerts are presented at Saenger Performing Arts Theatre, 143 N. Rampart Street, a renovated former movie house with classic facade; 3,000 seats; phone 524-0876.

Beverly Dinner Playhouse, 217 Labarre Road, a short ride west of the city, features the performances of Broadway and Hollywood stars regularly; group rates; phone 837-4022.

Louisiana Superdome, scene of sports battles at 1500 Poydras and adjacent to the Hyatt Regency, provides daily tours, 9:30 a.m. to 3:30 p.m.; phone (504) 587-3645.

Local ways

It's said that New Orleans never sleeps—and that it's a good thing, because if she did, she would wake with a terrific hangover. The city knows no blue laws on the sale of liquor. (But, strangely, clothing or hardware cannot be purchased on Sundays, under a state law.) Liquors can be bought at many drug stores, as well as in grocery markets.

Taxi cabs in New Orleans may have a roof light lit or not: it means nothing about their being for hire or not. Hail one at your hotel or phone; two of the larger taxi services are United Cabs (522-9771) and White Fleet (895-6605).

City government action has fixed the maximum that a limosine company can charge at \$35 an hour, with a minimum rental period of three hours.

The weather in March? Probably it will be cool (in the 60's) and sunny. But a fast change of weather is the norm for New Orleans. Take a raincoat and plan to dress in layers of clothes that can be shed during the day.

Expect to be treated courteously by your hosts. Local people who serve the public are accustomed to tourists and are most usually helpful with giving directions and so forth. But use common sense when touring after dark; the city has crime, as all cities do, so don't ply the back streets alone at night.

Finally, about the local jargon. It's rich and colorful, though the language may mystify the visitor at first hearing. For example, when a local person says to you, "Where y'at?"—don't reply, "Why, I'm right here, of course," and don't think him daft. It's a local expression, meaning roughly, "How are you today, my good fellow?"

A tip on how to pronounce the city's name. Say "New Or-leenz, and you will be recognized as an out-of-towner. Regardless of that pronunciation by numerous singers—the Orleanians say the name more like "Noo Or-lens," or in purest form, "N'orlins." Practice this, and you'll fit right in.

You will hear, too, about *crawfish*, gumbo, the bayou, the neutral ground...and you will get used to the talk. It comes with the territory. •



Homes in the grand manner of the past two centuries stand proudly: this one, a short walk from the business district.



Lively jazz is another earmark of the Crescent City: here is a view of a jazz funeral procession at Jackson Square.

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now available in North America
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AN ANALYSIS

Fast quarters and slow 50¢

By Louis Boasberg

“On extremely fast videos and regular flippers, 25¢ is enough, at the average location.”

Some manufacturers think that, because of the increasing cost of manufacturing flippers and the demand growing smaller due to video games, they can solve their problem by sending their games out set for 50¢ play (two quarters).

The sensational flippers, with entirely new features, never seen before, such as *Black Knight*, *Flash Gordon*, and to a lesser degree, *Flight 2000* and *Xenon*, may be able to demand 50¢ play in certain large centers of population, e.g., New York, Chicago, Los Angeles, San Francisco, Philadelphia, and a few other cities—but in the average-size city or town, there are few locations where any flipper game can be operated very long on a half dollar. The exceptions may be transient locations, such as airports, bus stations, hotel game rooms, and those locations where only one flipper game is operated. But, when games such as *Black Knight* or *Flash Gordon* are operated in an arcade or game room where there is a large amount of competition from many other flippers and video games, the maximum time that even these super flippers can be operated on 50¢ play is approximately eight to ten weeks.

It is my opinion that a fast quarter is much better than a slow 50¢, and if anyone thinks that 50¢ play will prolong the life of a game they are mistaken. A case in point: *Space Invaders* pinball. We initially put them all out on 50¢ play. After two or three weeks, in spite of the game's beauty and appeal, the play began to decrease and could not compete with the other games on location, especially *Fire Power*. We then put all of our *Space Invaders* pinballs on a quarter and put signs on top of the

backboard advertising this fact. The play immediately picked up, and it was one of the best flipper games we ever operated.

In spite of the growing inflation and spiraling cost of manufacturing, we believe that any manufacturer makes a mistake in sending out a game on 50¢ play, unless it is a high priced sit-down game or perhaps a flipper such as *Black Knight* or *Flash Gordon*—so sensational that all players will put in 50¢ a few times, just to see how these games work.

In the case of a video game, the playing time is so short that a game can take in plenty of money on a quarter. So if and when a manufacturer sends out a video game on 50¢ play, he is only hurting his own distribution, inasmuch as many operators are not only lazy, but believe the factory is all-knowing and all-wise and thus follow the factory's dictates of 50¢ play.

I don't say that there won't be 50¢ play on games in the future. If the runaway inflation keeps up, we may have \$5 chutes! For the present, on extremely fast video games and the regular flipper games, 25¢ is enough on the average location, although there are some exceptional locations where an operator can get 50¢ on all of his games.

Perhaps in the case of flippers, manufacturers can solve their problem by cutting down on the time consumed in playing. They may add additional features, then go to two balls or even one ball, which would be a novelty.

Williams and Bally have tough acts to follow, with their current *Black Knight* and *Flash Gordon*, but this is a resourceful, ingenious, surprising industry. We shall see what we shall see! ●

**Just when you thought
it was safe to go
into the arcade...**

(Open if you dare)



SHARK ATTACK

SHARK ATTACK

SHARK ATTACK
PACIFIC NOVELTY INC.

SHARK ATTACK
PACIFIC NOVELTY INC.

AVOID SPEARS
AT ALL COSTS

AVOID SPEARS
AT ALL COSTS

PUSH TO EJECT
START
START

PUSH TO EJECT
START
START

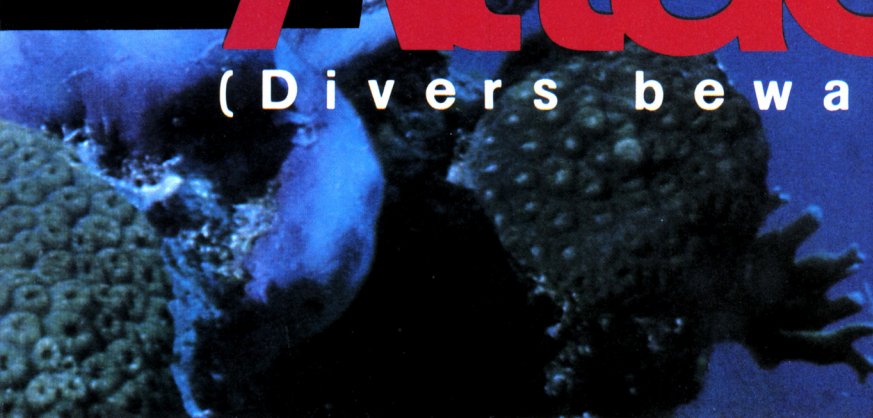
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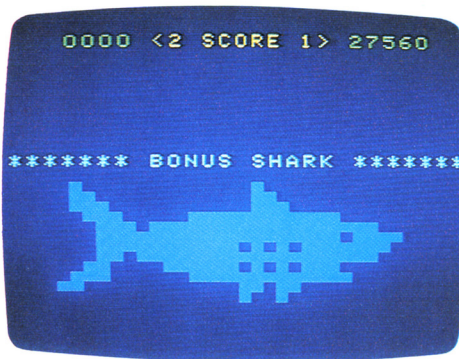
Shark Attack™

(D i v e r s b e w a r e)



Shark Attack: a game of underwater adventure

Departing from tradition, the player of Shark Attack becomes a shark in pursuit of divers! The divers are heard talking to each other... their heartbeats noticeably racing... the shark gets closer... excruciating cries of pain are heard as divers are eaten... the divers become wiser as more and more of their comrades are consumed... FOR A DIVER, CAN ALSO KILL THE SHARK!



BONUS SHARK:

Eat 7 squadrons of divers to receive BONUS SHARK for continued play.



THE PLAY OF THE GAME:

Player controls the shark.

Player receives points for elimination of divers.

Devour complete squadron of divers for BONUS SKULL.

Game is over when all sharks are eliminated.



HIGH SCORE TO DATE:

The personal touch... player initializes high score to date.

SPECIAL FEATURES:

Quadraphonic four-way sound creates an environment beyond the realm of realism.

Brilliant underwater color on a 19" monitor.

Challenge increases with player ability.

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SPECIFICATIONS:

UPRIGHT
24½" W x 69" H x 30" D

**Pacific Novelty
Manufacturing, Inc.**

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(213) 822-0399

AMOA rate appeal in court, operators file '81 licenses

CHICAGO—An appeal by the AMOA of the higher scale of jukebox royalty fees lingered in federal court where the legal procedure had been assigned to the Seventh Circuit Court of Appeals in February. The status of the appeal from the Copyright Royalty Tribunal's rates was in a "wait and see" attitude, said AMOA counsel Nicholas Allen.

Meanwhile, jukebox operators were faced with the legal requirement to register machines in operation on January 1 with an \$8 fee per box. Registrations in early 1981 were coming in at a rate near that of one year ago, said an official of the licensing agency.

The agency is the Licensing Division of the U.S. Copyright Office, Library of Congress. That division's chief, Walter D. Sampson, Jr., has appealed to jukebox operators to comply with the requirements to register. Also, his office seeks "potential operators," who are not known to be operate jukeboxes but who show up on the larger U.S. cities' lists of licensees for vending.

Renewal applications were mailed in the last week of December to operators licensed in 1980—with a total of 135,000 machines on the Licensing Division's lists. A turnaround time of about 20 days is taken to process an application once it is in the Division's offices. Operators are required to have registration certificates on machines by March 1, or 10 days after the certificate's issue date, whichever is later, under the copyright law.

George Lanier, licensing specialist with the Division, noted the generally declining numbers of jukeboxes registered over the past several years. The burden remains on the operator to file for the required certificate, however, or else he may face civil charges by the performing rights societies or their clients.

One operator, from Falls Church, Virginia, was concerned enough with getting certificates for his two machines that he "walked in his application" in the licensing office last month, said Lanier.

That operator had said he did not receive an application for his

machines' registration last year. According to Lanier, if an application is lost in mails or otherwise undelivered, a \$4 replacement cost must be paid by the operator making application.

Lanier commented also that the federal appeals court could send the fees case back to the CRT for re-hearing. The licensing office itself, like the operators and the AMOA, are in something of a "twilight zone" of legal requirements for the amount of the fee until court action is settled.

Attorneys for the AMOA appealed to federal court to maintain royalty fees on jukeboxes at \$8 per box, while counsel for the performing rights society ASCAP asked the court to increase the scale set in December by the Copyright Royalty Tribunal. BMI filed motions to intervene in both cases.

The AMOA asked the court to "review, vacate, modify, or correct the final ruling by the CRT." The position of maintaining the \$8 phonograph fee also opposes the sliding scale and cost-of-living adjustments as passed down in December.

AMOA asked for the transfer of the New York federal appeal to the Seventh Circuit court in Chicago, based on the AMOA's filing an appeal there first.

The AMOA's stand on the jukebox licensing fee issue took a severe setback December 10 when the Copyright Royalty Tribunal resolved to fix fees to jukebox operators at the \$50 level, phased in over a seven-year period, after which the fee will be given an "inflationary adjustment" to be based on the change in the consumer price index over that period.

The AMOA, in arguing the fees issue before the CRT in 1980, stood for no increase in the present \$8 per box fee. The association, through its attorneys, won its position only insofar as the \$8 fee will remain in effect for 1981. On January 1, 1982, however, the fee set by the CRT will rise to \$25 per jukebox; as of 1984, the \$50 fee level will go into effect and last until 1987, at which time a rate will be determined to go into effect with the inflation adjustment included.

AMOA's position before the CRT in month's-long hearings was that a decline in jukebox activity over the past few years should convince the arbitrating panel to freeze the fee at \$8 per machine.

A public vote by the CRT disclosed a shift from a scale of \$30 in 1982, \$60 in 1984 to the lower scale approved by commissioners Berg, Brennan, and Coulter.

Divergent views on the amount of the eventual fees were expressed on the copyright royalty panel, and the December recommendation appeared to be a compromise between them.

CRT Chairman Clarence James, in a conversation with PLAY METER, said recently, "I think the fee should be \$130" per box.

Commissioner Mary Lou Berg explained her motion to reduce fees from the \$30/\$60 level: "My concern was and remains for the small jukebox operator. I tried to approach that problem with a graduated scale."

Her original proposal, which found no support among the other commissioners, was for a three-tiered scale: one fee set for operators of less than 60 jukeboxes, a mid-range fee for the operators with more than 60 but less than a given number, and the highest fee per box for the largest set of operators.

"There was no initial support for this, but I continue to believe that it is the most fair and equitable approach," said Berg. Without support for this scheme, she motioned for the \$25/\$50 fee phase-in which passed.

ASCAP's General Counsel Bernard Korman has commented, "The operators and establishment owners can well afford these modest rates."

The added cash for performing artists was argued by ASCAP on the basis of "marketplace analysis," or what jukebox operators and the performing rights organizations would theoretically negotiate face-to-face, if there were no Copyright Tribunal involved.

—by Ray E. Tilley

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Betson/Pacific vending arm

Betson/Pacific president, Peter Betti, announced the opening of the firm's new vending division in its Los Angeles headquarters office. John Lotz has been appointed director of marketing for the vending division.

"We wanted the new division to be headed by someone with a strong experience base in vending," Betti commented, "With John's background and qualifications having worked at all levels of the industry, Betson/Pacific has the best person to help make us the leading vending supplier in the Southwest."

Betson/Pacific handles Moyer-Diebel and Rock-Ola vending equipment in the area. It will also distribute other product lines such as Automatic Products, National Rejectors, Ardac Bill Changers, and complementary equipment. John Lotz said, "Our intention is to have the largest supply of parts and equipment on the West Coast and thus we can best serve our vending

customers." This southern California distributor also serves operators in Arizona, Nevada, and Hawaii.

Lotz has been in the vending industry for over 12 years. In his previous position as marketing manager for Moyer-Diebel, he worked to develop a Cooperative Service Vending leasing program for operators. "The program has had excellent results," Lotz reported, "There are many innovations to allow the vending industry to adjust to today's conditions. CSV leasing is one viable avenue."

Betti looks forward to the growth of the new venture, "We are making a strong commitment to the future of vending in the Southwest. The vending industry deserves a distributor dedicated to filling their special needs in equipment availability, an immediate parts supply, and technical services. We are going to fill their needs. We will be the best," he stated.

Pac-Man runs away — in sales

CHICAGO—Sales of Midway's *Pac-Man* exploded in February, according to Larry Berke, Midway's director of sales. "There is a four week wait for delivery and that is climbing," he told PLAY METER.

He described initial demand for *Pac-Man* as unusual. A lot of orders came in right after its introduction to the AMOA Show, then things slowed down. The calm, however, preceded an explosion of new orders, according to Berke.

He estimated sales from the first 10 weeks of production at greater

than either *Space Invaders*, or *Galaxian* in the same period of time.

Berke expressed particular gratification at the sales of mini models as well as cocktail tables for *Pac-Man*. "We have sold more *Pac-Man* minis than minis for any other game we have produced," he said.

Berke described the appeal for *Pac-Man* as crossing all age and sex barriers, unlike the initial appeal of *Space Invaders* which he said appealed primarily to males. He thinks this is one of the reasons for the heavy demand for cocktail tables and minis.

ADP-Automaten takes Exidy line

SUNNYVALE—Exidy video games are now represented in the German market exclusively by ADP-Automaten of Espelkamp, West Germany. "ADP-Automaten is one of our largest European distributors, and we are pleased that it has become one of the strongest links in Exidy's international marketing efforts," said Lila Zinter, marketing manager.

With this distribution agreement, Exidy became the first U.S. video game manufacturer to be represented directly by this handler in the German market, said Zinter.

ADP-Automaten is known for its progressive marketing in the German coin-op industry, she noted. In addition to import and distribution of equipment, it operates one of the largest arcade chains in that country and manufactures equipment at headquarters in the northern area of West Germany. Other sales offices in the central and southern areas of Germany facilitate its customer service.

Zinter met with ADP-Automaten principal Paul Gauselman and his executive staff last fall to finalize the arrangements for distribution of Exidy products.



Bumper Pool's on the Rebound!

...and Valley's still leading the way with our all-new

It all began with Valley . . .the real breakthrough in coin-operated pool table games. And Valley Bumper Pool Tables quickly became the big money-makers of the '50's and early '60's. Today, it's a "brand new" game. Redesigned and re-engineered, our pioneering concept is better than ever. The all-new Tiger Cat is a compact "winner", ideal to turn unused areas into dollar-earning space. Comeback? We've never been away!

Tiger Cat †

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Watch for the NEW **Tiger Cat** BUMPER POOL TABLE from Valley

better than ever



Booths
407
&
409

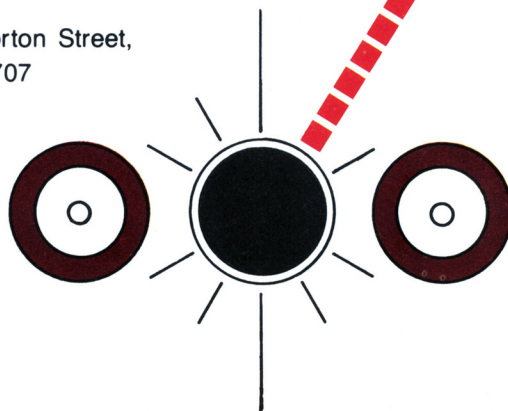
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March 12, 13 and 14, 1981
Hyatt Regency Hotel
New Orleans, Louisiana



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Industry watches Ohio:

By RAY E. TILLEY

A legal battle rages on several fronts in Ohio, which may go down as the "Gettysburg" of the coin-op amusement games industry.

The "house divided" in this case is the coin machine industry, in which games that allegedly depend on chance more than skill are in the seat of controversy. Operators represented by the Ohio Music & Amusement Operators Association (OMAA), however, reportedly without dissent among themselves, have filed legal briefs as friend of the court in an appeal of the prosecution of a video card machine operating firm in Cleveland.

Paul Corey, spokesman for the OMAA, explained that the association wanted the Court of Appeals to see that a decision in the case involving card machines owned by Mills-Jennings of Ohio would impact not only the state's jurisdiction but subsequent court actions nationwide.

A lower court had ruled last year that the card machines, seized by the Ohio Department of Liquor Control at the Fraternal Order of Eagles lodge in Cleveland, were games of chance and in violation of state law. Mills-Jennings argued that the videos were games of skill, depending on players' grasp of mathematical logic in producing winning poker hands. The card

games handler then appealed the ruling.

A judgement in the appeal may be forthcoming in March, court observers said.

Meanwhile, amusement games were being put in tests of fire elsewhere in the Buckeye State.

Dateline: Troy, Ohio. The legal department of this west-central Ohio town at early February was drawing up legislation that would ban pinball machines if a determination is made that such a law were constitutional. The Troy chief of police, Marvin Avey, had asked that the Troy City Council "tax them, license them, or outlaw them."

The law officer cited Middletown, Ohio's recent ban on pinball machines (which is being appealed in a court), and he said pinball operators were "trying to move more of them into Troy." Forty pin-games were found operating in his town, said Avey, with some producing \$200 revenues per day.

A committee of city council was told that the machines paid off in additional play and/or free games, which the chief of police saw as "gambling, and that is illegal in Ohio."

Police also cited a finding that most of the money going into the pingames comes from children.

Over in Middletown, pins fell victim to a re-drafting of the city

Gray game maker warns AMOA:

Claiming that a "good number of AMOA's members run a mix of equipment," Robert Meyer, president of Meyco Games in Sunnyvale, California, warned that the AMOA would be well-advised to take a look at the problem of so-called "gray area" machines before leaping to any pronouncements about the games.

"They could alienate a tremendous number of their members," Meyer said.

Meyer, who markets "gray area" games which have recently come under fire by various industry groups [PLAY METER, January, pages 6-7, 28-31] said he's selling "in a lot of states and to a lot of people who operate both types of equipment. And many of those buyers are, in

fact, AMOA members."

But there's a move within the industry to alienate gray area machines by saying they're detrimental to the industry, he said. "So we probably won't show at the AMOA Show anymore. We don't know if they'll allow us, but a line is being drawn; so I don't think we'll show being there anymore."

He said he had not been contacted by anyone with the AMOA but that the decision not to exhibit was his own and was spurred by the recent furor that has stirred up over the games. He referred to numerous suits to stop gray area machines and said, "I can even understand their point of view, but most of the people who are talking this way don't know

Coin-op woes foreboding?

code. Flippers had been outlawed in the 1960s when gambling on the machines had been alleged to city officials. When the city ordinances were recodified in 1978, the pinball ban was overlooked—but a new prohibition was written in later, officials said. Enforcement against the flippers was held off until early 1980 and operating firms were given notice to remove the games.

One operating firm (a branch of American Automatic Vending of Cleveland) balked at the Middletown measure and went to court. County judges upheld the city, but the issue remained in early March to be resolved by the state's appeals courts.

In this matter, no assistance was asked of the OMAA by the operating firm, said Corey.

However, in Middletown's county of Butler, a separate allegation of gambling on coin-op machines was made by state authorities, and OMAA interceded on behalf of the state prosecutors, asking appellate judges to uphold the county trial court in its ruling that gambling was shown in the use of the machines in question.

In these matters, Corey told PLAY METER, "We think this is a crossroads for the industry." Ohio may well become a bellwether state for the nation in terms of defining

what are illegal gaming devices and what are games of skill that are legal under local statute.

Defeat of the OMAA's position against gambling machines would be "a dance of the elephants—one step forward and two steps back," as Corey termed the situation arising now after court precedent in 1978 (the Progress Vending case) found flipper pingames to be skill devices. That was the "one step." Two large retrograde steps would be stricter legislation that could potentially bring about the end of all coin-operated games in the state.

Messages from other state associations have been "very supportive" of the OMAA and its anti-gambling stand, Corey said, naming operators' associations in Illinois, Minnesota, Michigan, South Dakota, and North Carolina, though he added the operators' national association, the AMOA, has remained noticeably silent on the matter.

In the area of "gray area" games, there has been "no dissention" among OMAA members, said Corey; the association is solidly behind the stand against coin-op games of chance, if that is what they be.

The confusion by officials of which game categories are which is illustrated by recent action in Lorain, in

northeast Ohio. The mayor reportedly issued an order for the chief of police to remove draw poker machines from the town. The chief initially interpreted the official order to include pingames and began to sweep all the coin-ops out within the mayor's 24-hour time frame.

The Lorain mayor corrected the chief, and the pins finally remained. But not before local location owners protested that they had (1) taken out legitimate licenses for the machines and (2) had seen their eating establishments' customers disappear after the flippers were taken out.

The last mentioned factor adds ammo for the amusement games operators' arsenal: the weight of public opinion. The sentiment of location owners and the playing public alike "has to be tapped for the side of amusement games," said an Ohio operator. It may well be a powerful force in the legal fight now raging and which could easily sweep across other states as it has made Ohio a judicial armed camp in terms of coin-op games.

Corey said his association took its steps in order "to protect the integrity of the industry" where amusement games are involved.

"Our battle, if we are successful, will be a guide to operators in other states," he commented. ●

'A stand against our games will alienate members.'

anything about our business."

He stated the trend across the country is for more liberalized statutes. "There are more states considering liberalizing their laws than states considering more restrictive laws. In fact, it's a worldwide trend," he said. Opponents claim gray area games will create an adverse climate for all coin-op games.

Meyer stressed, however, that gray area games won't make any problems for amusement machine people because "with the novelty equipment today, I don't see how the coin-op amusement industry can be affected by adverse publicity or legal decisions affecting our business."

The 1982 AMOA Show has become something of a symbolic

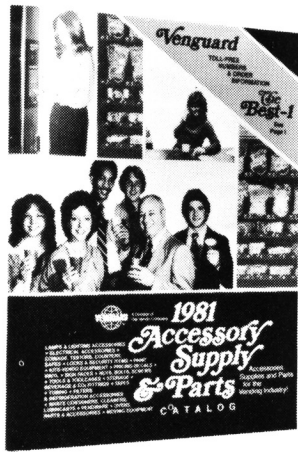
focal point in much of this controversy surrounding gray area games. Many amusement machine manufacturers have stated flatly they will refuse to exhibit there because of the ready identification of Las Vegas with gambling, something which they state would only hurt the image of an amusement industry that has already suffered too many setbacks because of gambling and underworld connections in the past. But Meyer seemed to be of the same mind as the manufacturers on this matter, though for different reasons: "I think Las Vegas is a good place for the show, but I don't think you can beat Chicago. Chicago is more centralized, and there are more operators there. In Las Vegas, there would be

more distractions, and that would probably lessen the traffic flow considerably."

He said the activity meters in the machines he manufactured were designed to adjust the winning percentage, not to disguise payoffs. "People won't play anything if they don't feel they've accomplished anything," he reasoned.

He did add, however: "I know some operators and locations find ways of using them like that, but that is not the principal purpose of the games." He said federal laws prevent the games from being manufactured in a manner that facilitates disguised payoffs.

—by David Pierson



Vanguard publishes

The new Vanguard Accessory Supply & Parts Catalog was released February 15, said Mark Ruehl, manager of Vanguard Accessory Supply, 10500 Barkley, Overland Park, Kansas. "The low prices, product variety, and free freight over \$100, (except as noted), are the three big selling features," Ruehl reported. Quality merchandise throughout the catalog is backed by a 30-day money-back guarantee of satisfaction.

This new and expanded catalog serves the vending, bottling, amusement games, billiards, hotel, motel, and health care industries. A new quick-thumb index, a toll-free (800) number, better merchandise display, expanded lines of paint, hardware, and electrical supplies make Vanguard an easy place to shop in 1981.

Vanguard is a division of the Vendo Company.

SBA loses to casino tokens

The general unpopularity of the "Sue buck" has prompted the New Jersey Casino Control Commission to allow an Atlantic City casino to re-tool some of its slot machines to accept tokens.

Resorts International was granted permission to re-equip its \$1 slots to take tokens, after an attorney told the commission that gamblers shy away from using the Susan B. Anthony \$1 coin as a replacement for the larger, heavier Eisenhower dollar that has been long out of circulation.

The decision made the casino the first in Atlantic City to get approval to use tokens on a permanent basis. Caesar's Boardwalk Regency obtained permission to use them temporarily when it first opened, the Newark Star-Ledger newspaper reported.

Seminars set for NAMA Western Convention

PHOENIX—An integrated management seminar format will be the core of the 1981 NAMA Western Convention-Exhibit of Vending and Foodservice Management, April 3-5.

The site of the Western Conference will be the downtown Phoenix exhibit hall. It will be the first site for the Western Convention outside California since NAMA began the spring conference in 1960.

NAMA's director of conventions and education, G.H. Tansey, said key topics of the seminars will include: how to get employees to understand and contribute to company goals, achieving success in motivating employees through skillful supervision by management, managing time, and conserving energy.

Several of the workshop sessions will be conducted by management development consultant Harold Reimer of Reimer Associates, Menlo Park, California. He regularly holds management development seminars for the University of California at Berkeley, Davis, Santa Cruz, and Santa Barbara and for the California Institute of Technology. Last fall he presented a highly regarded session for the California Automatic

Vendors Council, Tansey said.

Al Baron, president of American Hot Coffee Service, San Francisco, will be chairman of the convention. He is an officer and director of the California Automatic Vendors Council.

Mrs. Art Kaufman, wife of the president of Valley Vendors, Phoenix, will be chairperson of the Ladies' Activities Program and Newton Stewart, Frito-Lay, Inc., Dallas, is chairman of the trade show advisory committee.

NAMA members will be able to register free of charge and the fee for nonmember operating company personnel will be \$15 per person. Nonmember manufacturer company representatives will be registered for \$75 for the first person and \$50 for any additional persons from the same firm.

Official convention hotels are the Adams and the Hyatt Regency. NAMA will handle reservations at these hotels through its own Housing Bureau at #7 South Dearborn Street, Chicago, Illinois 60603.

The record number of 144 exhibitors in 1980 is expected to be topped, said Jack Reilley, NAMA's director of sales.

Slots on view at gaming conference

The Public Gaming Research Institute announced that it has received permission from the New Jersey Casino Control Commission to have exhibits of slot machines and other gaming equipment at its 1981 Spring Conference on Public Gambling. The conference will be held March 17 and 18 at the Golden Nugget Hotel/Casino in Atlantic City.

The institute expects to make its annual spring and fall conferences "showcases for the very latest in gaming industry technology," said an announcement.

Brendan T. Byrne, governor of New Jersey, will be the special guest speaker at the spring conference. Governor Byrne will speak at a noon luncheon at 1 p.m. March 18 at the Golden Nugget.

For the Atlantic City showing, suppliers of casino-related equipment will need a "demonstration license," "temporary license," or

"permanent license" from the state of New Jersey in order to exhibit. Exhibitors of equipment, tickets, and services for state lotteries, off-track betting, sports betting, or jai alai will require no license or prior approval from the state.

Arrangements for this new exhibition are coordinated through the offices of the Public Gaming Research Institute, GBS Building, Suite 501, Rockville, Maryland 20850.

The spring conference theme is "The New Jersey Experiment with Casino Gaming—A Timely Review." Each of the institute's conferences are open to government and industry persons. Theme topics of the March 17-18 meetings include economics, financing, law enforcement, public issues, casino operation, and casino regulation. The program runs from 8:30 a.m. on March 17 through 5:00 p.m. on March 18.

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Data East game cassette system ready for U.S. distribution

Data East, Inc., the California manufacturer of amusement games, has announced changes in its staff's responsibilities.

T. Fukuda, Data East president, announced that Satish Bhutani, corporate executive vice president and general manager, will take on the duties of K. Iwamoto, who is no longer with the trading company.

Data East last fall occupied new facilities in Santa Clara, California and is currently marketing the *Mad Alien* and *Astro Fighter* video games in various models.

In March, the company will be releasing its Deco Cassette System which was introduced at the JAA Show in Tokyo, was shown at the AMOA in Chicago, and by the

ATE/London showtime was ready for marketing in Europe, said Bhutani.

By the time of the Amusement Operators Expo (AOE) in New Orleans, the cassette system will be ready for delivery through exclusive U.S. distributors, Bhutani stated.

"Deco Cassette System is the operator's dream," said Bhutani. "He doesn't have to move or rotate games. All the time he spends is less than 5 minutes to change the tape and key module, and he has a brand new game at less than one-quarter the cost of a new game."

Five games were currently available on the Deco Cassette System, and Data East planned introduction of a new game on tape

about every two months. Maintenance procedures are simplified with the tape system, said the manufacturer, and introduction of other Japanese manufacturers' games under license was also planned.

Data East provides back-up of its products sold with a 24-hour turnaround time for printed circuits, replacements and spare parts. In charge of these services is Lyn Watson. He replaces Aldo Donnalioia as customer service supervisor. For service, the Data East toll-free number is 1-800-538-5129. Office telephone is 408/727-4490.

Data East, Inc. is wholly owned by Data East Corporation (DECO) of Tokyo.

Betson boosts Long Island trading

LONG ISLAND, NY—Betson Enterprises, in a move to further serve its customers in the Long Island area, has recently opened another sales and full service office at 1045 Route 109, North Lindenhurst, Long Island, New York.

Mel Kaufman, Betson sales representative in Long Island for many years, will head up the sales responsibilities in Long Island under

the direction of Art Warner, divisional sales manager. The Service Department will be headed by Evan Watson, a veteran electronic technician who will be moved from Betson's main office in Moonachie, New Jersey to further strengthen Betson's commitment to back-up service.

The opening of the Long Island, New York office in addition to its

Moonachie, New Jersey and Milford, Connecticut branches gives Betson sales and service representation covering the tri-state area. "Betson has continually recognized its obligation to the manufacturers it represents, but even more importantly, its obligation to render the best possible service to its operator customers. Service is still the cornerstone of Betson's continued success as a complete full service distributorship," said Jerry Gordon, chief officer at Betson.

Last year, Betson re-entered the export market with very successful results. The export division is headed by Joseph Migueles, a 20-year veteran in the coin machine business with considerable experience in the export field. It is anticipated at Betson that the export business will continue to be a major asset in future growth.

Exporting is not a new experience for the company. H. Betti, Sr., the founder of the company was one of the first to export coin machines immediately after World War II. "The policies established over 45 years ago regarding business ethics, fair play, and service, which have helped Betson grow in the domestic market, will also be adhered to in doing business with its many foreign customers," said Gordon.

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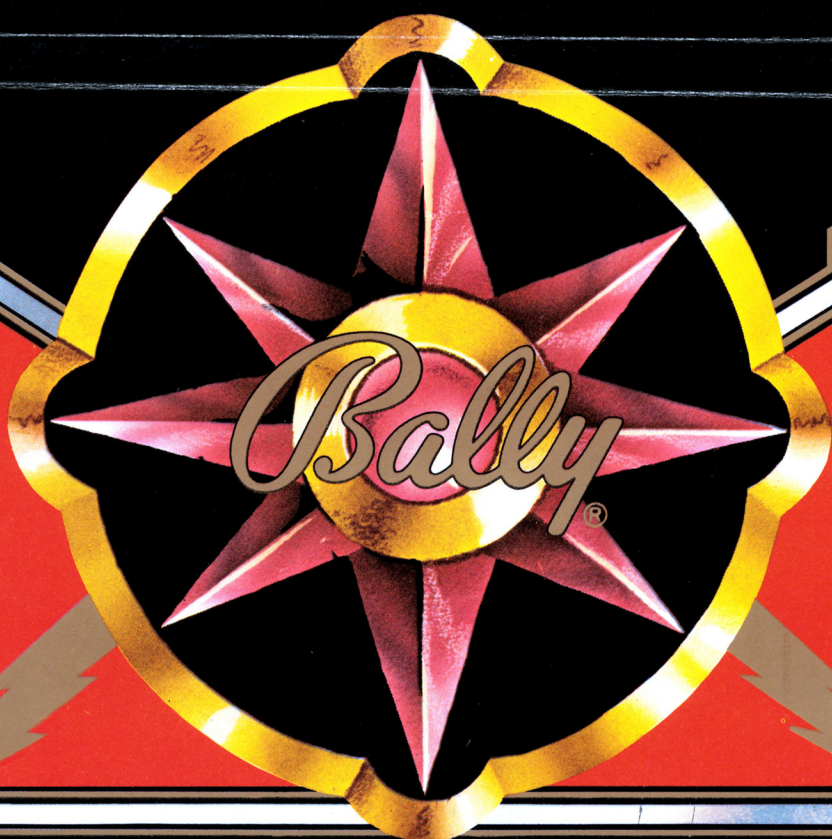


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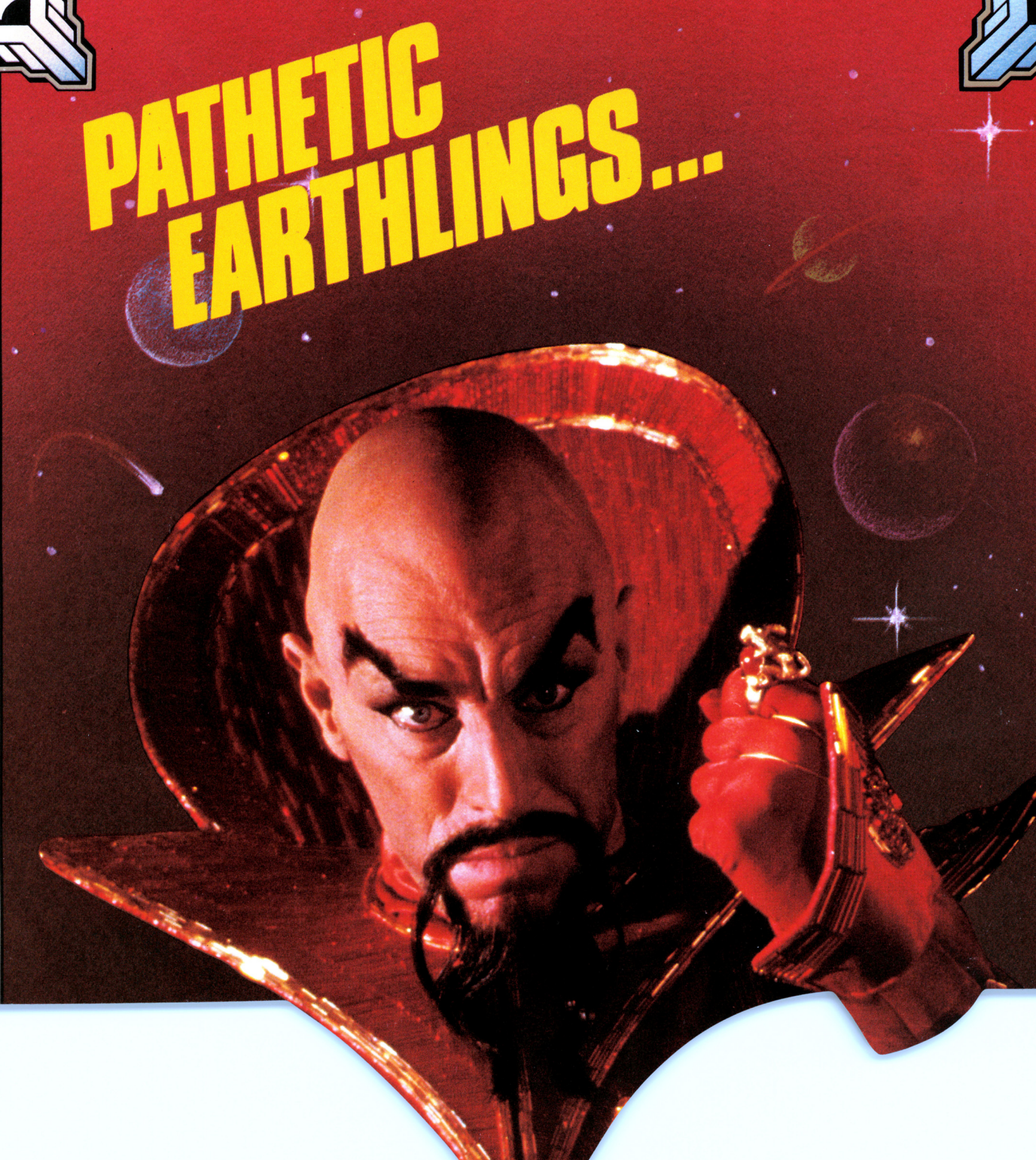
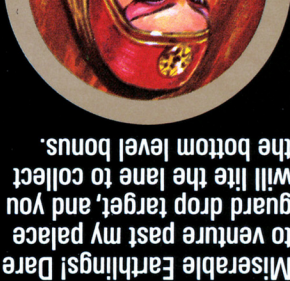
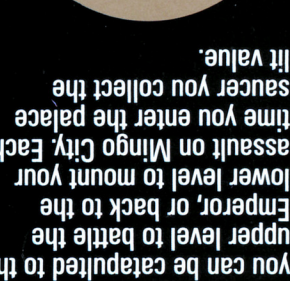
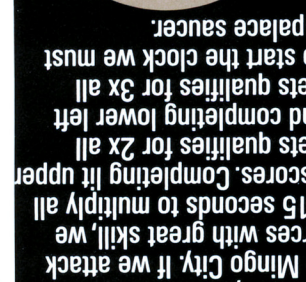
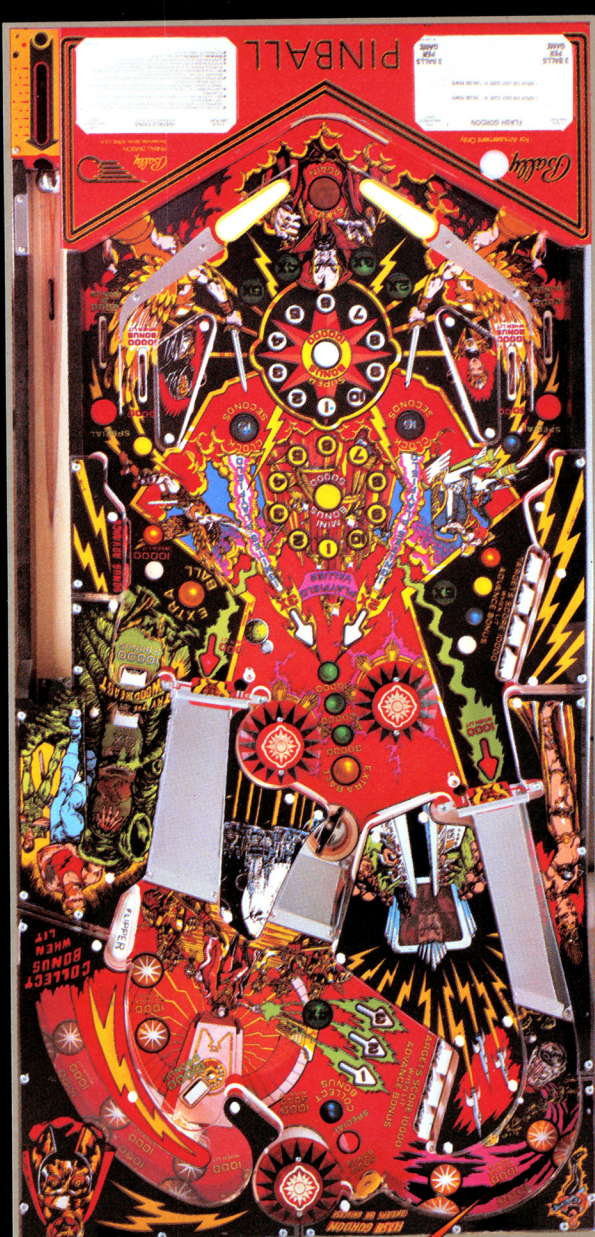
Join my Hawkmen and attack Ming the Merciless in his palace. There are 4 bonuses needed to defeat Ming. There is a bonus worth 19,000 points on both the upper and lower playfield. There is also an upper level mini-bonus worth 50,000 points which is earned by dropping the upper level targets when they are flashing. The fourth bonus is the 100,000 point Super Bonus, which is earned by dropping the lower targets when flashing and lighting the other 4 lights on the lower playfield (2 in return lanes and 2 on right side targets).

Try the hideous Wood-Beast of Arboria if you want to multiply your bonus 2x or 3x. Then you must venture up into Ming's palace and drop the upper targets to achieve 4x bonus. To achieve 5x bonus you must leave the palace and drop the left targets on the lower playfield.

Jump aboard my rocket-sled and challenge Mingo City. If we attack Ming's forces with great skill, we will have 15 seconds to multiply all playfield scores. Completing lit upper drop targets qualifies for 2x all scores, and completing lower left drop targets qualifies for 3x all scores. To start the clock we must enter the palace saucer.

Miserable Earthlings! Dare to venture past my palace guard drop target, and you will live the lame to collect the bottom level bonus.

Challenge my father's Empire by entering the saucer at the foot of Ming's throne, where you can be catapulted to the upper level to battle the Emperor, or back to the lower level to mount your assault on Mingo City. Each time you enter the palace saucer you collect the lit value.



PATHETIC EARTHLINGS...

ADMA seeks members

The newly-formed Amusement Device Manufacturers Association (ADMA) is actively seeking new members to enlarge its rolls.

That's the word from Joe Robbins, Atari's president and the president of the fledgling association.

"It's been something that's been long overdue," he told PLAY METER about the non-profit organization which was incorporated February 10 in the State of Illinois.

"The manufacturers' association will work closely with the operators' and distributors' associations for the betterment of the entire industry in all possible ways," said Robbins.

His reference was obviously taking into consideration a similar meeting in Chicago of leading distributors, for purposes of possibly forming their own association.

"It's a different age," Robbins continued. "You have a more enlightened group of distributors and operators and manufacturers than you had in the past."

When asked what were the pressing problems confronting the newly-formed association, Robbins said they would try to protect their game copyrights and licenses, and would try also to dissociate themselves from makers of so-called

"gray area" machines which they contend create a negative view of the industry as a whole.

But he added a third consideration of the new association: "In a lower area, there is attention being given to some problems in regulations which we have addressed and which we now appear to have under control with the FCC" (PLAY METER, November, pages 68-69).

"This was one of the things that brought us manufacturers together," he continued, "realizing that we had common problems which we must address and should address collectively."

"As a matter of fact, when we first went before the FCC, the head of the FCC said to us, 'Don't you gentlemen have an industry organization to represent you?'"

Charter members of the new association include Stern, Atari, Williams, Rock-Ola, Gremlin, Exidy, Gottlieb, Game Plan, Cinematronics, Taito America, Centuri, and U.S. Billiards.

ADMA officers include Robbins as president; vice president, Michael Stroll of Williams Electronics; and treasurer, Robert Bloom of D. Gottlieb & Co.

Florida show set March 26

Florida's state convention and trade show for the vending, music, and games industry kicks off March 26 at Sheraton Twin Towers, Orlando. Exhibitors will set up and register on the morning of the 26th, while at the Cypress Creek Golf Course, a golf tourney will tee off, in conjunction with the show, at 11 a.m.

The Florida Amusement-Vending Association Show promises to be the largest in FAVA's history, said Bob Rhinehart, executive director.

Registration desk at the Sheraton opens at 9 a.m., Friday, March 27. FAVA members are entitled to free registration; the fee for non-members is \$15 per name badge. Admittance to the annual banquet on Saturday costs an extra \$25 and should be noted on pre-registration. Deadline for registration is March 13, and after March 20, registration fees are non-refundable.

Rhinehart noted that Stern Electronics will provide a service

school on electronic pinballs for the trade show, Friday at 9 a.m.

Seminars to be held on Friday, March 27, will deal with various phases of food preparation. Featured speaker will be Jim Brady of Brady Enterprises, Inc. Workshop hours are 10-11 a.m., 11:15-12 p.m., 1:30-2:45 p.m., and 3-4 p.m. Friday.

The trade show exhibition opens at 2 p.m. March 27. At late February, nearly 100 booths were committed, said Rhinehart.

Cocktails will be served at the Sheraton exhibit hall at 6:30 p.m. Friday.

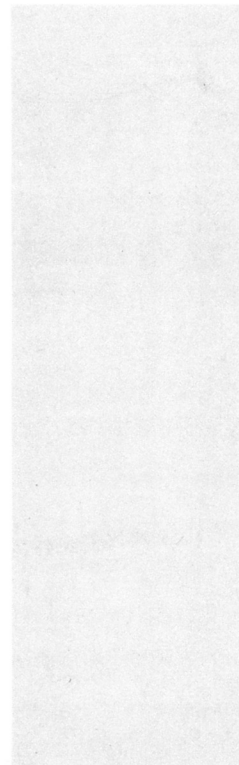
The annual banquet is from 7:30 p.m. "until," on Saturday.

Trade show hours Saturday are from 12 noon and from 9 a.m. Sunday.

Hotel arrangements must be made directly with the Sheraton Twin Towers, 5780 Major Blvd., Orlando, 32805; phone: 305/351-1000.

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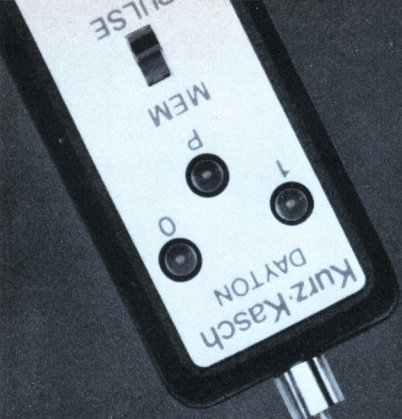
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Five Years Ago in Play Meter...

March, 1976

With the springtime of recreation approaching, PLAY METER five years ago took an overview of the arcade season.

Coin industry contributors to the March, 1976 issue included Robert Wick, Morris Nahum, Marshall Caras, and Nolan Bushnell. Founder and then-chairman of Atari, Inc., Bushnell authored an article on a need he saw for new U.S. coin denominations, arguing that inflation has forced consumers "to carry an increasing amount of weight for an equivalent amount of buying power in their pockets." Bushnell advocated pressuring the U.S. Treasury to both abolish the 50-cent piece and remake a dollar coin. "A one-dollar coin and a five-dollar coin should be instituted in their place, the one-dollar coin being larger than a nickel but smaller than a quarter, and the five-dollar coin being larger than a quarter but smaller than a 50-cent piece," wrote Bushnell. The compact coins would facilitate carrying \$5 to \$10 worth of purchasing power for games, jukeboxes, or automatic vending machines, he reasoned.

Coinman of the Month was Izzy Yodlin, Massachusetts operator, who had in recent years left a park rides operation to enter the trials and tribulations of opening and operating indoor arcades.

On the political front, the U.S. Senate in the past month had voted 97-0 for the copyright royalty revision bill which led to the Copyright Royalty Tribunal and the upward-moving fee on jukeboxes. In Ohio, operators were gearing to fight state taxation of \$50 to \$100 on amusement games. Impending taxation in Florida had threatened a three percent usage tax on all amusement games.

In Greece, operators had formed their own trade association. A leader in the move was Nikos Koukoulas, Belam representative in Greece, reported PLAY METER.

Outer space, magic, and music were backglass themes of pingames introduced in the New Products pages...Williams bowed in a four-player pin, *Space Mission*...Gottlieb unwrapped *Pioneer*, a two-player version of its *Spirit of '76* pin, saluting the pioneers from Daniel Boone to Neil Armstrong...Bally came out with *Hokus Pokus*, with its "over the top" scoring for 99,999-plus points made...Allied Leisure Industries (now Centuri, Inc.) introduced its solid state pingame, *Dyn-O-Mite*, with a theme cued to the disco.

Other new products on display five years ago: *Ace* from Allied Leisure, a video game of air battle...a UBI cocktail table called *Omicron*, a tennis game with various player options...and Elcon's video game cabinet in the form of an old oaken barrel.

PLAY METER's coverage of arcades and the arcade buying season will continue with May 1981's Annual Arcade Issue.



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GROWTH OF PINGAMES:

Coming or going?

By Roger C. Sharpe

The time may be right to analyze the industry as it now stands with a look at the near future for trends. The reason is that some of the optimism I felt a short while ago has begun to melt slowly away by what I've been seeing and hearing in regard to—what else but pinball. It seems that things have not gone according to what many believed would be the case—that pinball will be enjoying a resurgence because of the quality of the equipment that was going to be hitting the streets after the AMOA Show. However, this hasn't been the case.

I had the opportunity to visit Florida a couple of weeks ago and was disappointed by what I encountered at a few of my standard stops I always make whenever I'm in that part of the country. One location, which used to have at least thirty to forty pins, only had about fifteen to twenty. Video games were in greater abundance and, interestingly, an entire area had been set up for cocktail table videos and was busy when I made an appearance on a Saturday night.

Another spot had about the same amount of equipment and even the same mix, with more pins than video, but it was all old stuff and nothing new, which was strange for a set up that at one time was a test location. And a third place has diminished their pinball attractions and added on video. Pure and simple, the times haven't been changing. If anything, things have gotten worse, yet better, if you're willing to accept this contradiction in terms.

On the one hand, there are some interesting video machines that deserve all the attention and excitement that they can get. But by the same token, if one can look objectively, the nature of the pinballs that are now on the market, are

probably some of the finest and most innovative in the history of pinball. But they're not just hitting the way everyone expected, or so it seems from some of the talk I've heard. People are reevaluating their purchases because the times are tight with money, but even more to the point is that pinball has become a victim of itself. Everyone was waiting for so long for something to happen with pinball and suddenly it did, but maybe the time frame for the wait was a bit too long to have things turned around quite as rapidly as many thought.

It's going to take time to bring back the players, it's going to take a belief in the product on the manufacturing level—and it's going

to take some new approaches on the location level for operators to steer players to new equipment and let them know there's a multi-level, multi-ball game in the arcade, or some other type of pingame that's worth a small investment to see what the reaction is. The best operators do this anyway, but now the time has come to increase the efforts.

Why? Not just because I happen to be partial to pinball, but rather that the competition within the coin-machine industry is healthy and the options are healthy for the playing public. Give them choices on many different levels, whether on a TV screen or under glass on a pinball playfield. However, it comes down to numbers and even I am sensitive to



Keeping the quality up and the number of models down could be a manufacturing move to insure technical performance and raise resale values.

'Some of the good pins aren't getting a fair chance to show their worth.'

the fact that no one wants to play crusader or savior when there are bucks on the line. After all, it is a dollars and sense business and always be. And if you're talking about a piece of equipment that pays for itself in two months versus one that gets back a profit in four months—then, of course, the choice is obvious. And if you get hot with a piece and make that money back in less than a month versus that four months, well, it doesn't take an Einstein to figure it out.

What is distressing, however, is that some of the good pins just aren't getting a fair chance to show their worth. Just take a look at the "Knights," "Gordons," "Falls," and the few other worthy models to see what I mean. These are damn good games, machines that less than three years ago would have been going through the roof, but, instead, they're not turning out those "video numbers" supposedly that many are trying to put on them, and that's where the problem has come in. Everyone is quick to judge or even make hasty decisions, but what is the answer and the remedy besides just

riding out the crest of the storm? In some respects the solutions are fairly simple and straightforward.

In financial times like these the selection process for equipment has to be very well thought out, with balance really being the key. The percentage will undoubtedly fall in favor of video, maybe on the ratio of two- or even three-to-one. But the two types of games really need to go hand in hand if your location has more than four to five pieces. Because you should not forget that there are people who want to play pinball, those who want to play video, and others who want to play both. And given the nature of the present pins on the market, you're not in jeopardy of getting burned.

As for the future, things will ride their crest until the summer, and then equipment of all types will find itself in demand and pinball will be a part of the groundswell. It is the glamour product, truly and the one that gets the majority of publicity both good and bad. Video? It is drawing strength almost daily, and holography and new techniques are bound to materialize before the year

is out, but how long will it be before the home computer takes its own piece out of the pie (which is something I have speculated about in past issues.)?

The point that maybe should be made is that although in the past the industry has always thought of itself as being recession and inflation proof, it may now be that this factor no longer holds the kind of power and validity that it once did. Everyone is hurting and those with loose change to spare are no different, no matter how much they want to play games. And let's be realistic about it: even though video games are tied into *time* far more than pinball, they're offering longer plays than the steel ball machines as witnessed by anyone who has ever observed people partaking of a *Missile Command*, *Space Invaders*, *Berzerk*, *Asteroids*, *Battlezone*, or many other models.

Even average players are finding themselves enjoying 3-to-5 minute games when playing video, while pinball is really in that 2-to-4 minute interval—again, for the sometime player and not the regular who might

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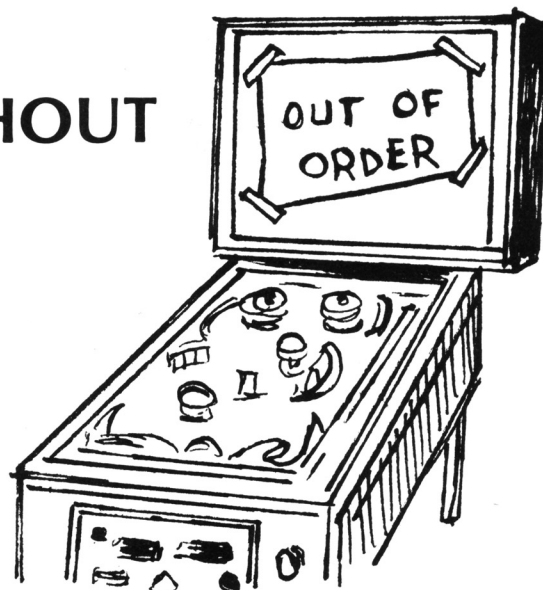
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'Game makers zeroed in on video efforts, put pinball on back burner.'

well lengthen this time frame by 10-to-15 minutes, no matter what the machine.

Producing pinball quality

In general the hope here is that no one take any drastic measures, such as stopping their production of pinball machines. And in truth this gets back to what I alluded to in the beginning of this article: the good news, bad news kind of thing whereby, if anything, pinball might well have the opportunity to get back on the track.

What I've noticed is that machines aren't being churned out this year as much as in the past. For the most part a few of the companies are seemingly zeroing in on their video efforts and pinball has been on the back burner. This may well be a healthy thing for the industry if we can look at it in terms of having equipment produced for quality and not just quantity. Fewer models and longer runs—games that incorporate the best of all possible worlds—that's the secret to pinball's ultimate success: each company doing their best on four to six models a year or a

grand total of about 24 models a year—which is still two machines a month.

The result of such an industry-wide approach would be to the benefit of the resale market as well as the opportunity to not inundate the poor operator who is no longer replacing models but rather filling in the location to round out what he has to offer. Admittedly there has been just too much equipment in the past so that many operators just don't have the funds or space to take in some of the newest games, and their trade-in values on present machines leaves them holding what they have for as long as they can—a far different scenario than is true with video, but something that pinball manufacturers are going to have to adjust to. It's not a statement against the machinery today, but rather a cause and effect of something that has been growing for years and has finally caught up to the games on many different levels of business.

As for the future, video will continue to boom, there's no question about it. Pinball will still be viable and profitable for all

concerned with this lessening of model glut where someone buys a new game for about \$2,000 and then three weeks later finds that he can buy that same new game for four to six hundred dollars less. That's been the illness that's eaten into the business and has soured many operators.

But keep the quality of the equipment up and the number of models down (no longer playing the battle of 200-machine production per day), and thinking rather in terms of a few months' run on a game where everything is not pushed through and instead is amply tested and checked out. This would lessen the problems in the field and thus raise the value of the machine over the long haul, while also giving players on the street the time needed to get comfortable with the game before they are deluged with a host of newer models that split their playing and collections in each of the cash boxes.

Time will tell, but I for one am optimistic about what's happening and the hoped for results that should still make this a year of upward transition for pinball. ●



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Polling the pin players

By Stephen R. Craig

What would happen if I were to combine my love for pinball with my hobby of writing off-beat interview articles? Well, read on, for during a three month period recently, I interviewed almost 500 pinball players. The interviews were conducted as they played in locations all along the southwest coast of Florida.

First I compiled a brief list of questions and had several hundred copies made. Upon observing a group of pinball players, I would distribute the questionnaire and pencils and wait for the forms to be completed. After reviewing the forms on the spot, detailed interviews were conducted with those who I felt would offer the most candid or interesting observations.

Surveyed were 456 people, 114 were women. The age range of the respondents was as follows:

	Men	Women
(under 12:)	23	2
(12-19:)	53	7
(19-25:)	106	66
(25-30:)	63	14
(30-40:)	73	22
(over 40:)	25	3

The survey form attempted to ascertain how many were casual players versus those who actively sought out pinball activity.

Of the men, 63% or 216 of them actively sought out time to play pinball, while the majority of women, 89% or 101, considered themselves to be casual players. Many of the women stated that they played only when asked by male companions, husbands, boyfriends, etc.

Women frequently expressed frustration at not being able to play well, to "bump" the machine properly, or to keep the ball in play for very long. The active women players were, in the majority, in their 20s and 30s and tended most frequently to play while gathered with other friends after a day's work. One such enthusiast suggested a "For Women Only" machine that was constructed to be less difficult than other machines so that women

and young beginners could learn the basics of pinball play and still get "their money's worth."

Three basic questions were posed in the survey. The first was, "Why do you play pinball?"

No one answer, obviously, was given by everyone, yet certain common themes were a part of most all of the answers:

"I win...What else could I win at...it's me against the machine...." Whether it's the lure of final victory over a machine in this mechanized world or the chance to compete with a friend on an impartial playing field, the win aspect of pinball is its greatest lure. Victory can be measured by flashing lights, noise generated, credits received, or total score. The competitor may be a friend, but it is always also the machine. Without the feeling that there is a chance to win, however, the machine will not be played with

any frequency by those who are familiar with its limits.

"The noise is it...machines with bells are out, sound effects are in...the sounds are a challenge. To get them louder means I'm playing well...." Noise (sound effects) was mentioned in some fashion more often than any other factor. Can it be that in an age of concern over noise pollution, people pay money to compete against it? Rocket sounds, vibrations, machines that say they beat you, and electronic reverberations all seem to have captured an audience who would not have enjoyed the bell-type machines of another day.

"...And it really relaxes me... I leave my frustrations at the machine instead of taking them home to my family."

To many, pinball represented a form



Should there be a pingame 'for women only'...? Some lady players thought so.

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of relaxation, or at least a way to unwind. The speed of the ball, machine noise, concentration—all tended to offer some type of pacifying effect or a temporary escape from...something.

“Do you have a favorite place to play pinball, and why?” Negative responses to this question matched, with great frequency, the indication that they came from a casual player. Casual players most often participated just to pass the time—in locations such as shopping center arcades, airports, motel or resort lounges, and bars.

An amusement center of some type was the preferred location for, obviously, those under 19 who were dedicated players; 96% of all of those over 19 preferred a favorite bar or pub.

Positive factors given for the selection of a preferred place to play were few. For sure, the place had to be one also frequented by friends and/or associates. In addition, proximity to home or location on the way to or from work was mentioned often.

But strangely enough, more numerous negative factors caused those who were more than just casual players to decide where they would not play.

“...And there’s always something wrong with the machines...only three balls and impossible scores... won’t let you smoke...”

To briefly summarize, here is a description of a place preferred by the adult (over 19) pinball player:

A casual bar on the route to and from work that keeps the machines in good working order and changes the machines occasionally (rotating the games). The play is set at 25¢ for 5 balls (of course), the machines are digital electronic noisemakers and there is room to play without bumping and dodging. Smoking is allowed, and abusive and belligerent customer behavior is not tolerated. Finally, women would not feel out of place nor uncomfortable in the location preferred by the adult players’ majority.

“What changes would you like to see in pinball machines or in the places where pinball is played?”

Many of those surveyed expressed interest in both pinball tournaments and a pinball league of some sort. None knew of any local tournaments that had been held, but had heard of them elsewhere and thought they would be fun.

“...And sometimes I have a good day and rack up lots of credits...”

This individual and eleven others approached the subject of credits (free games) earned while playing pinball machines. Several wished proprietors would give them tokens of some kind to be redeemed in the machines at a later time or to be played off in other machines.

There were three other specific suggestions that were novel, yet interesting thoughts.

One person wanted a pinball machine to allow for selecting a degree of difficulty. This machine, probably by adjusting flipper openings or gates, could be played at beginner, intermediate, or master levels, with scoring and crediting aligned to the skill level selected.

A true “pinball pinhead” (his term) wished for a digital clock readout that operated like a stopwatch and would record the length of time that each ball was kept in play.

And finally, one practical solution to a frequently messy situation: “They should provide some type of ashtray/drink holder that could clamp to one side of the machine....” Why not? Cigarettes are often rested on the machines or ground out on the floor. Drinks are spilled or balanced precariously on machine edges. This holder could flip up for use or fold down when space is at a premium.

So much for the First Annual Southwest Florida Unofficial Recreation Pinball Survey. I discovered that many others share my “pinball fever” and for similarly wholesome reasons. The moods and methods that I observed were many, and the styles of play ranged from animated excitement and intense concentration to entertaining ineptitude and practiced non-chalance. But of all my observations, one pleased me the most:

A real pinball lover is not abusive—to the machines or to others. Instead, there is a respect for the machine. Not wholly because of a realization of its cost, but because of an appreciation for it as an opponent that—if massaged and stroked properly—can be beaten. ●

Ed. note: Freelance writer Craig of Ft. Myers, Florida reported that as one result of his survey, “a local tavern operator—of my favorite watering hole—is sponsoring the first pinball tournament ever held in our town, and the response has been amazing.”



To many of the players, the game—with its speed, sounds, and excitement—is a form of relaxation.



The under-19s prefer to play in an amusement center, those over 19 favor a pub location.

Vertical Statement Analysis

By Charles C. Ross

For yet another look at the income statement

The second in a series of articles on income analysis. Horizontal Statement Analysis appeared in the March issue of PLAY METER.

The author is a seminar speaker in the Amusement Operators Expo in New Orleans.

In the March issue of Play Meter magazine we looked at horizontal analysis, a very useful tool to determine how your firm is performing compared to prior time periods and to see how your firm is faring as compared to inflation. Now we need to see what items have gotten out of control over time and which items we have maintained control of over time. Vertical

analysis of the Income Statement is an extremely useful tool for studying which items have gotten out of hand during the past year.

Performing vertical analysis (sometimes called a "common size statement") brings all the Income Statement numbers into sharp perspective so that errors become glaring and your home runs become obvious.

To perform vertical analysis you simply set revenues equal to 100%. All the other income statement items will be expressed as a percentage of sales. Exhibit I shows the 1980 Income Statement for "Games Galore" which probably looks similar to the Income Statement you

have, or should have, recently received from your accountant.

To perform vertical analysis on your Income Statement you simply use your machine revenues as the denominator of a fraction to see what percentage of the total revenues the expense was. For example:

Payroll Expense	\$97,500	=	30%
	\$325,000		
Depreciation Expense	\$91,000	=	28%
	\$325,000		

EXHIBIT I	
GAMES GALORE INC. INCOME STATEMENT For year ending Dec. 31, 1980	
Machine Revenues	\$325,000
Operating Expenses	
Payroll Expenses	\$97,500
Repair Expense	3,000
Rent Expense	36,000
Permit Expense	2,000
Advertising Expense	2,500
Supplies Expense	1,800
Auto Expense	13,000
Depreciation Expense	91,000
Insurance Expense	<u>3,900</u>
TOTAL OPERATING EXPENSES	<u>250,700</u>
Operating Income	\$ 74,300
Other Expenses	
Interest Expense	<u>4,160</u>
Net Income Before Taxes	\$ 70,140
Less Income Taxes	<u>14,040</u>
Net Income After Taxes	<u>\$ 56,100</u>

EXHIBIT II	
GAMES GALORE INC. VERTICAL ANALYSIS For 1980 Income Statement	
Machine Revenues	100%
Operating Expenses	
Payroll Expenses	30%
Repair Expense	1%
Rent Expense	11%
Permit Expense	.6%
Advertising Expense	.8%
Supplies Expense	.6%
Auto Expense	4%
Depreciation Expense	28%
Insurance Expense	<u>1%</u>
TOTAL OPERATING EXPENSES	<u>77%</u>
Operating Income	23%
Other Expenses	
Interest Expense	<u>1.3%</u>
Net Income Before Taxes	21.7%
Less Income Taxes	<u>4.4%</u>
Net Income After Taxes	<u>17.3%</u>

In Exhibit II the entire Income Statement has been converted to percentages and you are ready to perform some simple yet meaningful analysis. First, just what exactly do all those percentages mean? Take the total of operating expenses which is 77% of sales in Exhibit II. The 77% simply means that for every \$1 of revenues your company received, 77¢ of that dollar was consumed in expenses. The most important of all the percentages is, of course, net income after taxes. For Games Galore, Inc. 17.3¢ out of every dollar they bring in falls out the bottom in the form of net income.

While the Net Income After Taxes percentage is the most important percentage of all, it must be remembered that the Net Income percentage is only an indicator. It does not explain why the percentage is what it is, it only says that is the percentage. Obviously everything between the top and the bottom of the Income Statement determines the Net Income After Taxes percentage.

The study of your common size statement should not stop with looking at just your most recent income statement, simply because by looking at the most recent Income Statement it is impossible to know if the 17.3¢ which falls out the bottom is good or bad. The glaring realities, good or bad, of your changing financial scene can be seen when you compare your present statement to a past statement. In Exhibit II, note the changes which have occurred in Games Galore over the past year. For example:

If Payroll had remained at 28% of sales, Operating Income would have increased \$6,500:

$$30\% \times \$325,000 = \$97,500$$

$$28\% \times \$325,000 = 91,000$$

Increase in Operating Profit: \$6,500

In other words, payroll is rising faster than sales. You say, "Well, I had to give my employees a raise because of inflation." That is not the point, or the solution. It is simply a fact that \$6,500 of your profits were chewed up by your rising payroll. If sales don't keep pace with the increase in payroll, the company will continue to show less profit as a percentage of sales.

Now for one simple statement of fact. This type of analysis, as with all ratio analysis, does not tell you what action to take. However, just because it does not give solutions, does not make it a useless analysis,

PLAY METER, April, 1981

EXHIBIT III

GAMES GALORE INC.
COMPARATIVE VERTICAL ANALYSIS
For 1979 and 1980 Income Statements

	1980	1979
Machine Revenues	100%	100%
Operating Expenses		
Payroll Expense	30%	28%
Repair Expense	1%	2%
Rent Expense	11%	10%
Permit Expense	.6%	.9%
Advertising Expense	.8%	1.5%
Supplies Expense	.6%	.6%
Auto Expense	4%	2%
Depreciation Expense	28%	29%
Insurance Expense	<u>1%</u>	<u>1%</u>
TOTAL OPERATING EXPENSES	77%	75%
Operating Income	23%	25%
Other Expense		
Interest Expense	1.3%	1%
Net Income Before Taxes	21.7%	24%
Less Income Taxes	<u>4.4%</u>	<u>3%</u>
Net Income After Taxes	<u>17.3%</u>	<u>21%</u>

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anymore than a thermometer is useless. If your temperature, according to a thermometer, is 98.6° we assume that to be normal. If your temperature, according to a thermometer, is 103° you know that you are not well, but the thermometer does not tell you what is wrong. The thermometer is only an indicator, and the same is true of statement ratio analysis.

something may be wrong. You then must look deeper and analyze the situation to determine what and why things are wrong.

For example, for Games Galore, Net Income After Taxes was 21% in 1979 and it has slipped to 17.3% in 1980. In terms of dollars that translates as follows:

$$17.3\% \times \$325,000 \text{ Sales} = \$56,225$$

$$21.0\% \times \$325,000 \text{ Sales} = \$68,250$$

Drop in Net Income After Taxes:
\$(12,025)

Had Games Galore held a 21% net

income percentage, profits would be \$12,025 higher.

The logical question is, of course, to ask why did net income fall from 21% of sales to 17.3% of sales? To get the answer we must analyze each common size statement item and determine if it increased or decreased as a percentage of sales. The biggest increases seem to have occurred in payroll, rent, and auto expenses. The manager should study these items to see why they increased as a percentage of sales. He may find that both payroll and auto expenses have been rising faster than sales, and rent expense increased as the result of a new lease. Perhaps as solutions to the payroll problem he should think about motivating employees with something besides money. He can obviously take no raise away from his people but perhaps he should plan employees' future raises more carefully. The auto expense increase is probably due to rising gasoline prices and new auto prices. A possible solution may be to use smaller trucks, or extend machinery rotation periods by one week, or work out a more economical servicing schedule. As with any proposed change, be sure to weigh out the benefits versus the cost to see if it is an economically sound solution.

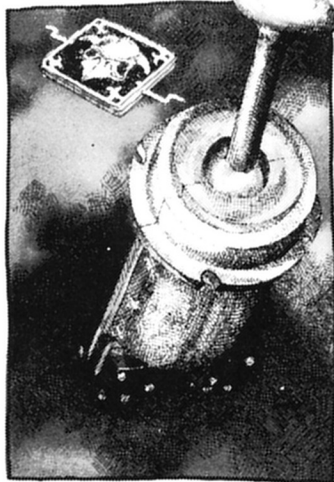
While most of your attention will be directed to the items which have increased as a percentage of sales, do not overlook those which decreased as a percentage of sales. There are normally two reasons for a decrease; either it would have decreased anyway, being beyond your control—such as a fixed rent which will drop as a percentage of sales as sales increase; or, the other reason, of course, is that you did something right. Advertising expense may have dropped as a percentage of sales because you targeted your advertising more to the people in your market area, instead of just an arbitrary cut in the advertising budget. Remember, the decreases are just as important as the increases. The increases may cost you money, and the decreases may save you money, but both are equally important in vertical analysis.

Vertical Analysis or Common Size Statements can be very useful tools. Just looking at dollar amounts alone, you get incomplete data. You can even get misleading data. So take time to perform vertical analysis and you may find some pleasant and unpleasant surprises.

Finding answers

The results you get are merely indicators that something is right or

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How to Prepare for an IRS Audit

By Irving L. Blackman

Franklin Delano Roosevelt said it —“The only thing we have to fear is fear itself.” Most tax return examinations start with a letter to the taxpayer from the IRS or by a direct phone call from the examining agent. Instantly, the average businessman is paralyzed with fear.

Is this fear justified? Sometimes, yes...and sometimes, no. Experience has taught me that a tax return prepared with the knowledge that a call from the IRS can bring trouble, usually does...and the trouble is seldom worth the anticipated tax savings.

This is about the time of year when most businesses have just filed or are about to file a tax return. What are the chances of that return being audited? Corporations are examined based on assets. The higher your assets, the greater your chances of being examined. The following schedule shows the probability of your hosting an examining IRS agent:

Corporate Assets	/Percent of Returns Examined/
Under \$100,000	4%
\$100,000 under \$1 M	12
\$1 M under \$10 M	40
\$10 M under \$100 M	50
\$100 M and over	75

Your chances of an audit are enhanced by showing a low gross profit for your operation, high officers' salaries, high bad debt deductions, or similar expenses that are out of line with your company's sales and income.

All IRS agents do not deserve the same fear level. There's confusion over the different types of Internal Revenue Service agents that exist and their function. You should recognize that the agent, no matter what his purpose, is just doing his job. However, while doing his job, he is in a position to use up your time, your professional advisor's time, and assess additional taxes.

Essentially, there are three types of agents: Internal Revenue Agent—the most common type; his job is to audit either your personal return, your business return, or both. Revenue Officer—this type of IRS representative will usually do no more than ask you to visibly display your income tax returns, payroll tax returns, and excise tax returns. He will not conduct an audit. Special Agents—these are from the Intelligence Division of the District Director's Office. They are responsible for conducting criminal investigations. Simply put: they are cops. Their job is to put you in jail. They usually travel in pairs.

More important than the types of IRS agents is to remember: (1) if you have done nothing wrong, you have nothing to fear, and (2) do not give any IRS representative any information but (3) *call your professional advisor and follow his suggestions to the letter.*

In the meantime, conduct yourself towards the IRS representative in a cordial and friendly manner. Quite often business people antagonize an agent, then must spend a lot of time and money defending themselves—not because they really had a tax problem but because the agent just wanted to “hang in there” until he found something to “pin” on the antagonistic taxpayer.

Play it straight

The IRS has issued rigid guidelines prohibiting its agents from accepting anything of value while examining a taxpayer's return. The agent cannot even accept an invitation to join you for lunch unless there are no public dining facilities readily available. The message is clear: “Don't offer anything of value to an agent.” Well, maybe a soft drink or a cup of coffee is okay. But don't stretch it.

Usually the agent will work at the taxpayer's place of business. Have your professional tax advisor contact the agent. Yes, your people can work with the agent, but limit the number of such people and have your advisor spell out their duties before the agent arrives. Let your professional be the quarterback for the entire examination.

One warning: *never*, but never make a false statement to an agent during an audit. It is not only a criminal offense, punishable by imprisonment, but seldom will your false utterances save you money. Changing corporate minutes, documents, or dates is the same as making a false statement. Remember Nixon?

The time to prepare for a tax examination is long before the agent shows up. Preparation means proper records and the right tax planning moves. It is purely mechanical. The goal is to save tax dollars without getting clobbered by the IRS. That takes planning. The planning thrusts may be simple or mind-boggling because of complexity.

Why not start planning now to save tax dollars next year?

Consider such tax-saving devices as LIFO (last-in, first-out) inventory, defined pension plans, component depreciation for real estate, use of

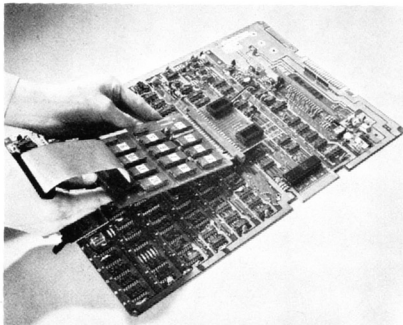
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multiple corporations...ah, the list could go on and on. Stripping the government of tax dollars with legitimate tax-saving devices will not prevent you from getting the coveted "no change report" (that means the IRS accepts your tax return as filed) from the examining agent.

If your records are not properly kept, legitimate tax planning will not only save you big tax dollars, but will assure you of a fearless, devil-may-care attitude the next time an IRS agent calls.

Vacation Homes Tough to Deduct

The American taxpayer is a very innovative animal. The I-am-going-to-deduct-my-vacation taxpayer is a well known species. He is a sort of masochistic roadrunner; his adversary is the IRS; he usually

loses.

Here is another in this cartoon-like series. Everyone knows that the IRS has declared war on trying to deduct expenses attributable to the rental of a dwelling unit personally used by the taxpayer as a residence or vacation home. This time our "vacation-taxpayer" tried to claim that a mini-motorhome escaped the regular vacation home rules.

No way, held the tax court. (*Ronald L. Haberhorn* (1980) 75 TC 17.) The Internal Revenue Code (Section 280A) defines a dwelling unit to include a "mobile home...or similar property." The court held that the mini-motorhome, "like the other dwelling units listed in Section 280A, provides shelter and eating and sleeping accommodations... whether a dwelling unit is primitive, cramped, or palatial is not determinative of its use as a 'vacation

home," concluded the court.

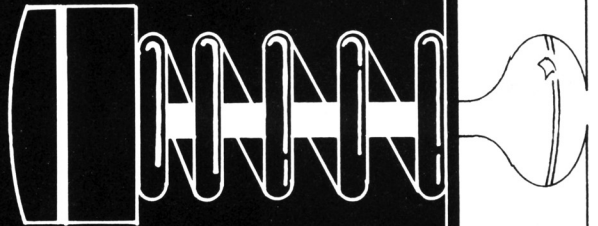
If you own a vacation home that you personally use and also rent out to others, deductions are possible. But, I strongly suggest you closet yourself with your professional advisor and maximize your vacation home deductions. If you use the home (1) more than 14 days a year or (2) more than 10 percent of the number of days during the year for which the home is rented, you are probably in big trouble.

Don't be a loser, plan the use of your vacation home. ‡

Irving L. Blackman is a practicing tax partner of Blackman, Kallick & Company, Ltd., Certified Public Accountants, offices in Chicago and Coral Gables. Blackman, also an attorney is a nationally known author, tax lecturer, and seminar leader.

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MUSIC PROGRAMMING

By Pat Matthews

Calling for creativity

By the time you read this, the Grammy Awards will have come and gone. The so-called "academy awards" of the music industry will have been handed out on a glamorous evening of thank-yous to everyone from Mom to God. The Grammy nominations and winners, like every other music awards show, usually have the same names being tossed around for the past five years, at least. Those to whom I'm referring shall remain nameless, so as to not embarrass...but, come on. Powers that be, let's get some creativity back into the selection process by recognizing some new blood, or end up like the NBA All-Star team or the crummy People's Choice Awards (chosen by the public). Either that or end up handing out statuettes to the players with the biggest salaries or the artists who sell the most records.

Lovers After All—Melissa Manchester & Peabo Bryson—Arista/AS0587

Quite a strange combination, huh? Well, not really. You might think so at first, but then upon a listen your tune will probably change like mine did. There has always been a touch of soul in the sandpaper velvet vocals of Ms. Manchester; add

to that the very soulful textured voice of Mr. Bryson and you've got not quite so strange a combination that could pop. It's kind of pretty and may cross over. Guessing which (soul or pop) category it'll hit in is like trying to figure out what Iran is going to do next. Give it *8 out of 10* on highest chart, at any rate.

Fade Away—Bruce Springsteen—Columbia/11-11431

What can you say about "The Boss" that hasn't already been said? From the platinum lp *The River*, we see another side of the multi-talented '80s king of Rock'n'Roll—the acoustically melodic side. Piano and acoustic guitar ring out the bluesy feel to this definite ladies' heart melter. The influences of Dylan and Costello are very much in attendance; *10 out of 10*, for sure.

Falling Again—Don Williams—MCA/51065

It's certainly not "I Believe In Love," yet it's more in the vein of what Don is known for by his vast legion of fans who didn't need a pop music crossover to realize the great music being generated by one of the pure Country singers today. The vocal harmonies throughout are what carry this very up-tempo, toe-

tappin' country tune replete with steel guitar from start to finish. I don't think this one will cross over, but it is definite number one Country material—which translates to *10 out of 10*.

Too Tight—Con Funk Shun—Mercury/76089

And now it's time for a newcomer to the Pop Charts to emerge from behind a mask of funk. An infectious beat backs vocals reminiscent of Earth Wind & Fire and makes this one more than just your run of the mill "get down and get funkiness" waste of vinyl; *10 out of 10* cinch on the the R&B lists and at least a *9 out of 10* on the Pop Charts. Imagine that.

What Kind of Fool—Barbra Streisand & Barry Gibb—Columbia/11-11430

I reviewed the first two singles from the now-classic lp collection of the hottest duo in the music biz today, and couldn't go wrong, so why not add another feather to my cap and tell you a little bit about this latest hit offering. First off—if I haven't said it before—Barry Gibb has, and still comes up with some of the most beautiful melodies I've ever heard. This one is no exception and,

if it's possible, this one is probably his best. Barbra is once again in fine form and the way she interprets the melody and lyrics written by Gibb is simply incredible. The first time I heard the album, I thought this would be the single before the lp's title tune. I guess I was "Guilty" on that account; *10 out of 10*.

Fantastic Voyage—Lakeside—Solar/YB-12129

Every once in a while a real get down, get funky song comes along. And this is it. Known for quite a while in Black radio, this jammin' band should come closer than ever to getting their super danceable funk on the tight Top 30 playlists of the so-called Contemporary stations of America. This band features the best of the Ohio Players in their prime and a George Clinton (Parliament) feel. Add that to some original hand-clapping chants and you've found the new Masters of the Groove: Lakeside— *10 out of 10* on the highest chart, with excellent crossover potential.

Treat Me Right—Pat Benatar—Chrysalis/CHS 2487

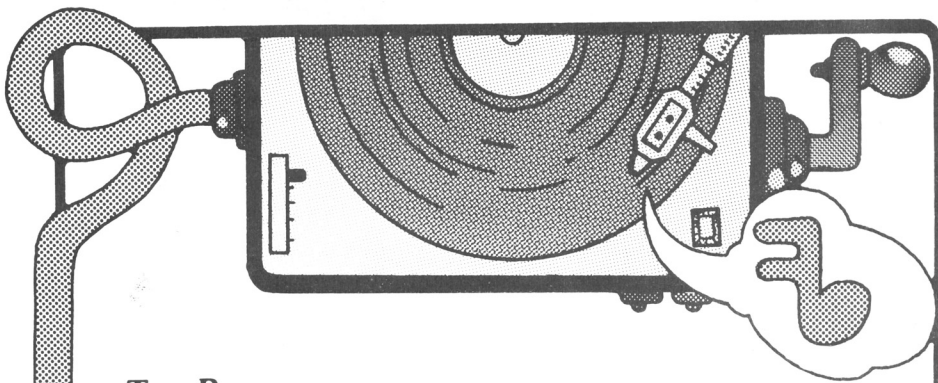
It's rockin', but not as "loud" as previous Benatar outings. The fabulously sensuous vocals are the highlight once again, as is the excellent guitar work of Roger Capps. The song never quits throughout its three minutes, seventeen seconds and is Ms. Benatar's best and most commercial effort to date; *9 out of 10* easy.

Living In A Fantasy—Leo Sayer—Warner Brothers/WBS49657

Leo has definitely found the niche with co-writer and producer Alan Tarney, who has kept busy with Sayer and the equally resurgent Cliff Richard. The first smash, "More Than I Can Say," almost made it to the top (it peaked at No. 2) and this one features the grittier side of Sayer's adaptable vocals. As a matter of fact, this song comes closer to the sound of the "Endless Flight" years than anything Leo's done recently. I believe it is time for Leo Sayer to leave the fantasy and enter the real world of musical success—something he will do with this, his second consecutive hit record; *10 out of 10*. ●

The records are rated as follows:

10 out of 10 — Top Ten peak; 9 out of 10 — Top 20 peak; 8 out of 10 — Top 30 peak; 7 out of 10 — Top 40 peak; 5 or 6 out of 10 — somewhere in Top 100; 4 or less — forget it, loser, break in half. ●



Top Pop

- CELEBRATION—Kool & The Gang—DeLite***
- WOMAN—John Lennon—Geffen***
- FLASH'S THEME/AKA FLASH—Queen—Elektra
- (GHOST) RIDERS IN THE SKY—Outlaws—Arista***
- 9 TO 5—Dolly Parton—RCA
- HEY NINETEEN—Steely Dan—MCA***
- THE BEST OF TIMES—Styx—A & M
- KEEP ON LOVING YOU—REO Speedwagon—Epic***
- THE TIDE IS HIGH—Blondie—Chrysalis***
- LIVING IN A FANTASY—Leo Sayer—Warner Brothers***
- A LITTLE IN LOVE—Cliff Richard—EMI America
- HEARTBREAK HOTEL—The Jacksons—Epic***
- GUITAR MAN—Elvis Presley—RCA***
- AH! LEAH!—Donnie Iris—MCA
- GAMES PEOPLE PLAY—Alan Parsons Project—Arista***
- I AIN'T GONNA STAND FOR IT—Stevie Wonder—Tamla***
- GIVING IT UP FOR YOUR LOVE—Delbert McClinton—Capitol
- CRYING—Don McLean—Millenium***
- KISS ON MY LIST—Daryl Hall & John Oates—RCA***
- HELLO AGAIN—Neil Diamond—Capitol***
- RAPTURE—Blondie—Chrysalis***
- HEARTS ON FIRE—Randy Meisner—Epic
- SEVEN BRIDGES ROAD—Eagles—Asylum***
- SMOKY MOUNTAIN RAIN—Ronnie Milsap—RCA
- THE WINNER TAKES IT ALL—Abba—Atlantic
- PRECIOUS TO ME—Phil Seymour—Boardwalk

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***

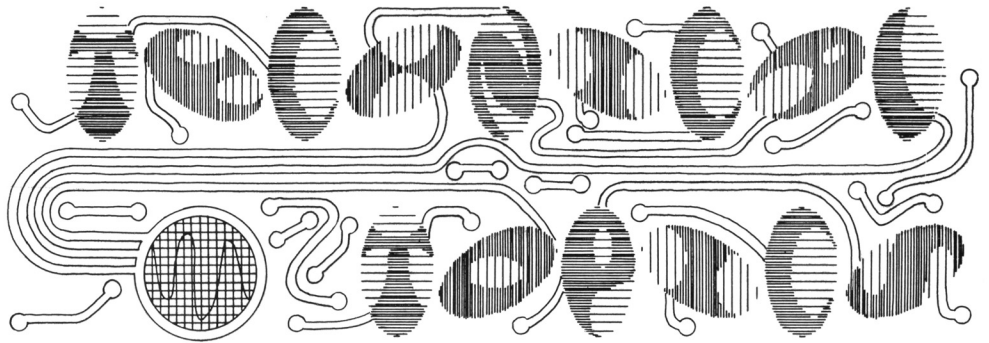
Rhythm & Blues

- 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



By
Randy
Fromm



FUN WITH VIDEO:

Getting those nice, bright colors

The transition from black and white to color in video games has added a new dimension to the images players see on the screen. New games are now being produced that depend on different colors to signal the player that certain game play conditions have occurred. Midway's *Pac-Man* for instance, tells the player that it's time to chase the "monsters" when it changes their colors to blue. *Missile Command* changes the colors from round to round, to let the player know how he's progressing in his war against nuclear destruction. Gremlin/Sega's *Monaco GP* changes from a green field to a blue field to indicate that the player has entered into the extended play mode.

In addition, the use of color has created a "beauty and sex appeal" image for games, making them more alluring to players or potential players. With few exceptions, the colors have been chosen because the designer felt that certain color combinations would be aesthetically pleasing to most people.

The assignment of color is a subjective decision, however, and there is nothing that says you can't change the colors around on your own video games. On *Moon Cresta*, I reversed the green and the red inputs to the monitor. The color change revealed something to me that I hadn't noticed before. Each of the three rocket stages are labeled with the Roman numeral I, II, or III. The color change made the numerals

(especially the numeral I) much easier to see. Also, some of the color combinations are pretty darned neat. I really like the colors of the second wave of whatever-they-are critters that come after you on *Moon Cresta*. A similar change in *Missile Command* created some mixed reactions from regular players (we're talking about your 600,000-pointers here). Some of the new color combinations were hard to work with. One of the combinations gave a light green cross on a yellow field. Another combination gave the player a light purple cross on white. Some players enjoyed the extra challenge, some did not. Obviously, there are some games that you wouldn't want to change at all. *Pac-Man* would certainly be one. It would be pretty silly to have a light blue monster named "Pinky"!!

Color video games use a simple system to display the different colors on the picture tube. The system is known as the RGB System. Color monitors use the three primary colors of light to create the many colors that we see on the screen. The three colors are red, green, and blue—hence the name RGB System. Different combinations of two or three colors produce the many hues displayed. Red and blue, for instance, when combined create purple. Red and green make yellow. Adding all three together, creates white. The computer sends three separate signals to the three color inputs of the monitor to create the colors we see on the screen.

How to do it....

Mixing the colors around is easy and fun! The first step is to locate the three color inputs to the monitor. Many manufacturers have made this job easy by using red, green, and blue coated wires to carry the three color signals. If you can locate a plug that has these three colored wires on it, chances are excellent that you have found the color inputs. Typically, the monitor will have six wires as inputs: the three-color inputs, a vertical sync input, a horizontal sync input, and ground. A few monitors use a composite sync input which allows a single input for both vertical and horizontal sync.

The easiest way to swap the colors is to cut the wires that carry the color signals, and splice the wires back together. This is a little sloppy, however; the best way being to extract the pins at the connector and reinsert them in different positions.

That's all there is to it! Some of the new color combinations are great, some are hideous. I changed by *Galaxians* so the aliens were predominantly green to match the graphics on the cabinet. Pretty neat, huh? I will not say that changing the colors will improve the income from a game, necessarily. It will set your game apart from all of the others of the same type, and possibly spark some new interest.

Remember, there are six different combinations to be had with the three inputs, so there may be many interesting variations. ‡

DIGITAL CIRCUIT DESIGN COURSE

Lesson Four: Inverters

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.

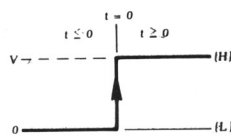


Fig. 4-1: A step-voltage waveform. At $t \leq 0$, $V = 0V$. At $t = 0$, V instantly rises to V . And, at $t \geq 0$, V remains at V .

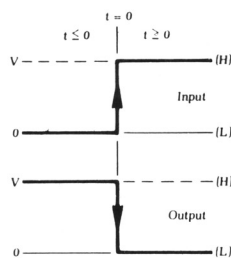


Fig. 4-2: The input and output waveforms of an inverter circuit. The output is always of the opposite polarity of the input.

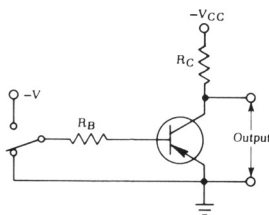


Fig. 4-3: A transistor inverter circuit. When the input voltage is at a low level the output voltage is at a high level. The output switches to a low level when the input raises to a high.

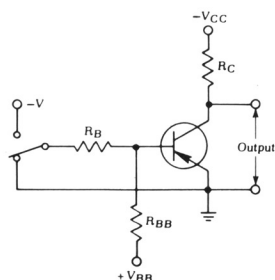


Fig. 4-4: A transistor inverter with a circuit to reverse bias the base when the input is at a low level.

This first design lesson in the course is about inverters. It covers the operation and design of this important circuit. As the student progresses through the program, he will constantly be referred back to this lesson. For this reason, he will do well by learning to operate efficiently and effectively with the formulae.

A Step Voltage:

A step voltage is one which maintains a value zero for all times t is less than 0 and maintains the value V (V can be plus or minus) for all times t is greater than 0. The step occurs at $t = 0$ and is accomplished, for all practical purposes, instantaneously. Figure 4-1 illustrates the waveform of a step-voltage. At times t is less than 0 the voltage is 0V or at a low level (L), at $t = 0$ a transition occurs and the voltage changes from 0V to a voltage V or a high level (H), and will remain at a high level for the time t is greater than 0.

Inversion:

An inverter is a device whose output is of a polarity opposite of the input. Referring to figure 4-2, it can be noted that the output waveform is at a high level while the input is low during all time periods t is less than 0. At $t = 0$ both the input and output change levels but in opposite directions; but remember the output is reacting to a change of input voltage. For time periods t is greater than 0 the input is now at a high level, causing the output to remain at a low level.

The Transistor Inverter:

When the transistor is used as an inverter it is operated in its most popular mode; that is, the common emitter configuration. It is most important to understand

the common emitter mode of operation since it is the basic part of almost all digital circuits.

The operation of the circuit is as follows: When the input is at a low level, the base-emitter diode is not forward biased and $I_B = 0$. This operating condition is defined at point B in figure 3-6A. Note that the collector current is almost zero milliamps (ma), and the output voltage [VCE] is approximately the battery voltage. Therefore, RCE (resistance collector to emitter) must be very high, but less than that of the original switch since a small current is flowing. When the input raises to a high level, the base-emitter diode is then forward biased and base current will flow. The forward biased base-emitter diode will cause the current generator to produce a current, $\text{Beta} \times I_B$. (Remember, $\text{Beta} \times I_B = \text{collector current}$.) If in the circuit of figure 4-3, the collector resistor were short-circuited, and if the base voltage were permitted to rise indefinitely, the collector current would also continue to rise until the transistor were destroyed.

With the collector resistor in the circuit, however, this collector current causes a voltage drop across R_C that subtracts from the battery voltage causing the voltage collector to emitter to decrease as the base voltage and collector current increase. This condition VCE decreasing and the voltage across R_C increasing continues until the collector current is no longer determined by $\text{Beta} \times I_B$ but by the Ohm's Law value of R_C and the battery voltage. When operated in this state, the transistor is said to be saturated. This operating condition is defined at point A in figure

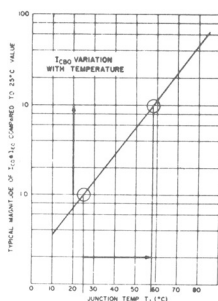


Fig. 4-5. Typical curve for describing variations in I_{CO} with changes in junction temperature.

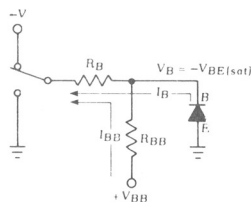


Fig. 4-6A. The base circuit and currents for the circuit shown in Fig. 4-4 when the input is at a high.

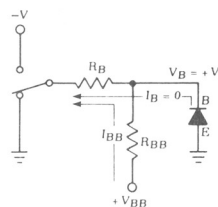


Fig. 4-6B. The input circuit and resultant currents when the input is at a low level. V_B is at a positive value which reverse biases the base-emitter diode.

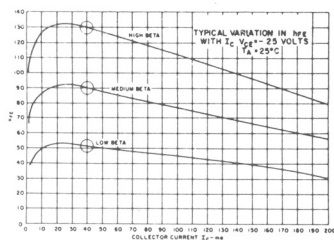


Fig. 4-7. A typical curve for determining the values and magnitude of β .

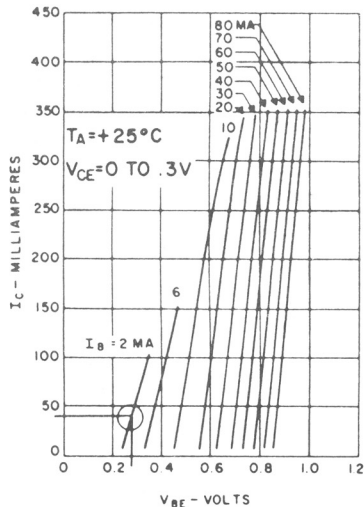


Fig. 4-8. A typical curve for determining the magnitude of V_{BE} for various values of I_B .

3-6A. Figure 3-6B is an enlarged view of the saturation region of figure 3-6A. Notice that when the transistor is saturated there is a small voltage drop, termed $V_{CE(sat)}$, a less-than-ideal characteristic.

The term inverter applies because when the input is low V_{CE} is high (approximately V_{CC}), and a high on the input causes the transistor to saturate and V_{CE} is then low (approximately 0V).

Thermal effects:

When the transistor is operated at the cutoff region, a small current is flowing. This current is the result of minority carriers within the device. Minority carrier flow is termed I_{CO} or leakage current. As was the case with the diode, as the temperature increases the availability of carriers (holes or electrons) increases with the result of an increase in leakage current.

In the case of silicon transistors the rate at which I_{CO} increases is very small and is, therefore, of very little consequence unless operated at extreme temperature (100°C or higher). However, in the case of germanium the increase in I_{CO} with temperature is considerable, and steps must be taken to correct the effect.

Figure 4-4 illustrates a technique for reverse biasing the base-emitter diode. It involves the use of a second power supply ($+V_{BB}$) connected to the base through a resistor (R_{BB}). The idea is to reverse the base-emitter diode when the input is at a low level. Up to now, all cutoff transistors have been operating under the condition of zero bias. Reverse bias will drive the transistor deep into the cutoff region and eliminate the effects of I_{CO} to increase tenfold as compared to 25°C .

Design Procedure:

Before stating the steps required to design an inverter, it should be noted that these steps are for reference only. For, in practice, the designer must know the quantities given and values dictated. By this, it is meant that the designer must start with what is known. For example, one time the designer may have to design a circuit with R_B at a certain value; however, the next circuit may require a certain R_C . This will be true of all the procedures in this program. If one is to become an

accomplished circuit designer, he must learn to start at any point in the procedure.

STEP 1: Find $[I_C]$.

$$I_C = \frac{|V_{CC}| - |V_{CE(sat)}|}{R_C}$$

$V_{CE(sat)}$ is generally given on the data sheets for switching transistors. However, as a general rule: silicon transistors $V_{CE(sat)} = 0.3V$ and for germanium transistors $V_{CE(sat)} = 0.1V$.

If the device being switched is in the collector circuit, $R_L = R_C$.

Supplemental Information

Since this is a course in which you study the practical application of semiconductors into actual circuits, it is advantageous to state all voltages as they would be read on a voltmeter. Secondly, all waveforms are shown as they would appear on an oscilloscope.

Beginning with this lesson, you will be studying complex circuits in terms of voltage drops, magnitudes and forms, and magnitudes of currents. Therefore, in order that you may better understand the material, it is best to define the terms used.

1. Voltages measured to ground are stated: V and a subscript. The subscript designates the point at which the voltage is read. For example, in figures 4-6A and 4-6B, the term V_B indicates the voltage as measured from base to ground. In figure 4-6B, V_B is below ground and, therefore, is indicated as *negative*. In figure 4-6A, V_B is above ground, hence the positive indication.

2. Voltages measured across resistors: V and a subscript. The subscript designates the resistor's functional purpose in the circuit. For example, the term V_{RC1} designates the voltage measured across resistor R_{C1} .

3. Voltages measured across transistor terminals: V and a two-letter subscript. The first letter of the subscript designates the lead with the highest magnitude of voltage above or below ground and the second, the lowest. For example, in figure 4-6A the term $-V_{BE(sat)}$ designates the voltage measured base to emitter when the transistor is saturated. Also, the base is further from the ground than is the emitter. The minus sign indicated the voltage sense is negative.

4. Current flow: I and a subscript. The subscript will

designate the functional purpose of the current. The direction of current flow is designated by an arrowhead. All of the current directions indicated will be in accordance with the current flow conversion established in an earlier lesson.

STEP 2: Find I_B .

$$I_B = 2 \text{ or } 3 \text{ times } \frac{|I_C|}{\beta}$$

Beta is generally given on the data sheet. By making the base current 2 to 3 times greater than the current required to saturate the transistor, some allowance is made to correct for aging and tolerance of parts.

Supplemental information:

In order to generate a design procedure which will work for both NPN and PNP transistors, all of the formulae given in the Design Procedures ask for the absolute value of voltages and currents. The absolute value is signified by placing two vertical bars on each side of the term. For example:

$$|I_C| = \text{the absolute value of } I_C$$

To state the absolute value of a term, simply drop the sign. For example, Step 1 in the Design Procedure, above, asks you to calculate the absolute value of I_C . To do so, you must insert the values of V_{CC} and $V_{CE(sat)}$ into the formula below. Both of course are signed values—minus for a PNP and plus for an NPN. By using the magnitudes only, you can avoid confusion and needless effort.

If, however, the direction of current flow is required, you can simply restore it by adding the proper sign at the end of the calculation.

STEP 3: Find $V_{BE(sat)}$.

$V_{BE(sat)}$ is generally given on the data sheets for switching transistors. However, as a general rule: for silicon transistors $V_{BE(sat)} = 0.7V$ and for germanium transistors $V_{BE(sat)} = 0.3V$.

STEP 4: Establish I_{BB} .

$$I_{BB} = \frac{I_B}{10}$$

There is no hard and fast rule to establish I_{BB} . However, because R_{BB} will shunt drive current away from the base, it is best to make I_{BB} very small, so R_{BB} will be a high resistance. A good general rule is to make I_{BB} ten times smaller than I_B .

STEP 5: Find R_{BB} .

$$R_{BB} = \frac{|V_{BB}| + |V_{BE(sat)}|}{I_{BB}}$$

Referring to figure 4-6A, note that when the input is high the base is $V_{BE(sat)}$ above ground and the voltage across R_{BB} is the sum of V_{BE} and V_{BB} .

STEP 6: Find R_B .

$$R_B = \frac{|(-V)| - |V_{BE(sat)}|}{I_B + I_{BB}}$$

Again in referring to figure 4-6A, note that the currents I_B and I_{BB} both flow through R_B and because the base is at $V_{BE(sat)}$, the voltage across R_B is $-V$ minus $V_{BE(sat)}$.

STEP 7: Check to see if the base-emitter diode is reverse biased when the input is low.

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

Remember that the purpose of R_{BB} is to reverse bias the base-emitter diode when the input is at

a low level. The signs are added only to remind the designer to check that the base is reverse biased, and they hold no mathematical significance in the formula. Figure 4-6B illustrates the conditions when the input is low. Notice that the only current flowing in the base circuit is I_{BB} .

Design Example:

Design a PNP inverter which will drive a 6V, 150-ohm lamp (the circuit configuration is the same as in figure 4-4). Use a germanium PNP transistor type 2N404 and use $V_{BB} = +3V$; $-V = -V_{CC}$.

STEP 1 Find absolute value I_C .

$$I_C = \frac{|V_{CC}| - |V_{CE(sat)}|}{R_C} = \frac{5.9V}{150\Omega} = 39\text{ma}$$

Here the general rule for germanium transistors, $V_{CE(sat)}$ was used.

STEP 2: Find I_B .

$$I_B = \frac{|I_C|}{\beta} = \frac{39\text{ma}}{50} = 0.78\text{ma}$$

Use $I_B = 2\text{ma}$.

Beta was found by the use of the I_C vs beta curve for the 2N404 in figure 4-7, as it is given on the data sheet. Notice that there are three values of beta given: low, medium, and high. This indicates there will be a variance in beta between different 2N404s. The choice of 50 represents the lowest beta possible at 40ma; therefore the transistor will be saturated regardless of beta for the actual transistor used.

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STEP 3: Find $V_{BE(sat)}$.

$$V_{BE(sat)} = 0.3V$$

Figure 4-8 is the $V_{BE(sat)}$ vs I_C curve as given on the 2N404 data sheet. Plotting 40ma to the $I_B = 2ma$ curve, V_{BE} is found to be approximately 0.28 volts. For ease in calculation, the general rule for germanium transistors has been chosen.

Notes on Calculations:

All calculations performed in the lesson text were made with a slide rule. As a result there is considerable "rounding off" of the calculated values. Also, since the designer must ultimately choose a standard value resistor, many of the answers given to formulae will appear to deviate considerably from your calculations. Do not be alarmed or confused; the examples simply include the practical steps taken by accomplished circuit designers.

The student will do well to perform the indicated math with a slide rule,

then compare his answers with those given in the text. By doing so, he gains considerable know-how toward problems of picking standard parts.

STEP 4: Establish I_{BB} .

$$I_{BB} = \frac{I_B}{10} = \frac{2.0ma}{10} = 0.2ma$$

STEP 5: Find R_{BB} .

$$R_{BB} = \frac{V_{BB} + |V_{BE(sat)}|}{I_{BB}} = \frac{3.3V}{0.2ma} = 16.5K$$

(Use 16K)

STEP 6: Find R_B .

$$R_B = \frac{|(-V)| - |V_{BE(sat)}|}{I_{BB} + I_B} = \frac{5.7V}{2.2ma} = 2.6K$$

(Use 2.7K)

STEP 7. Check if the base is reverse biased when the input is low.

$$V_B = V_{BB} \left[\frac{R_B}{R_B + R_{BB}} \right] = +3V \left[\frac{2.7K\Omega}{18.7K\Omega} \right] = +0.43V$$

A voltage of +0.43 is enough to reverse bias the base-emitter diode and drive the transistor deep into the cutoff region. As a general rule, a voltage of 0.1V is sufficient to reverse bias a germanium transistor.

End of Lesson Four.

PROGRAMMED TEST

Instructions: The purpose of this test is to guide you step-by-step through actual circuit design problems. Most important, these tests will provide you with a gauge to establish your degree of understanding of the material covered in the lesson text. The test is programmed: start at block 1 and follow the numbered instruction associated with your answer.

1

The objective of the test for Lesson Four, and all subsequent tests in the course, is twofold. First, successful completion should reinforce the fact that you can design an inverter and the other circuits. Secondly, it will provide you with a design technique beyond that covered by the text. All tests associated with a design lesson, such as this one, will be centered on a design problem: in this case, the design of an inverter.

PROBLEM: Design an inverter with an R_C of 1K. Use a silicon NPN transistor with a beta of 50. Make $V_{CC} = 12V$, $V_{BB} = -12V$ and $V = V_{CC}$.

What is I_C ?

$$I_C = \frac{\quad}{\quad} \quad \text{GO TO BLOCK 20}$$

2

$V_{BE(sat)} = 0.7V$ The general rule for silicon transistors is good enough for this case.

What is I_{BB} ?

$$\text{answer: } \frac{\quad}{\quad} \quad \text{GO TO BLOCK 19}$$

3

$$R_B = \frac{11.3V}{0.66ma} = 17K$$

We will use the standard value resistor, 18K.

When the input is at a low level, the voltage from base to emitter will be

a. Negative

GO TO BLOCK 13

b. Positive

GO TO BLOCK 18

4

$$V_B = -12 \left[\frac{18K}{218K} \right] = -1.0V$$

A voltage of -1.0V will drive the transistor very deep into the cutoff region.

You have completed the test for Lesson Four. The above solution is a first approximation of the circuit to be designed. The next step is to breadboard the circuit and check its performance against the operating specifications of the circuit. An adjustment in the calculated values may be required.

11

$$R_{BB} = \frac{12.7V}{0.06ma} = 200K$$

Again the general rule is not good enough. Did you get the same result? If not, DO NOT go on but check your calculations.

What is R_B ?

$$R_B = \frac{\quad}{\quad} \quad \text{GO TO BLOCK 3}$$

12

$$I_B = 2 \text{ or } 3 \times \frac{12}{50} \dots$$

$$0.48ma \leq I_B \leq 0.72ma$$

We will use $I_B = 0.6ma$.

Did you get the same results? If not, DO NOT go on but check.

What is $V_{BE(sat)}$?

$$V_{BE(sat)} = \frac{\quad}{\quad} \quad \text{GO TO BLOCK 2}$$

13 YOU ARE CORRECT!

A negative voltage from base to ground will reverse bias the base-emitter diode for an NPN. The transistor will be operating deep in the cutoff region.

What is V_B ?

$$V_B = \frac{\quad}{\quad} \quad \text{GO TO BLOCK 4}$$

18 YOU ARE INCORRECT!

You may be confusing PNP and NPN transistors. Remember the purpose of V_B is to reverse bias the base-emitter diode and drive the transistor deep into the cutoff region.

Refer to the text and go back to BLOCK 3

19

$$I_{BB} = \frac{0.6ma}{10} = 0.06ma$$

In this case we are using a general rule. In practice the amount of I_{BB} will require more thought. It will determine the value of R_{BB} , and therefore, V_B , the reverse bias voltage. V_B , of course, relates to the operating temperature.

What is R_{BB} ?

$R_{BB} = \underline{\hspace{2cm}}$
GO TO BLOCK 11

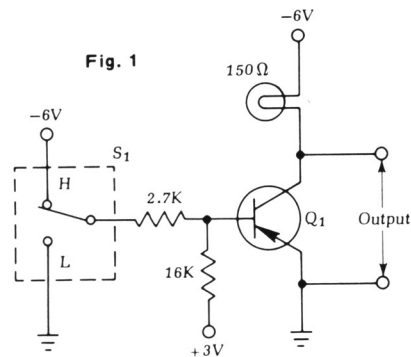
$$I_C = \frac{11.7V}{1K} = 11.7ma$$

We will use 12 ma for ease in calculation; and since the tolerance in parts will effect the circuit to a higher degree, there is typically no need for extreme accuracy. If you did not get the same results, DO NOT GO ON until you find your error.

What is I_B ?

$I_B = \underline{\hspace{2cm}}$
GO TO BLOCK 12

BREADBOARD PROJECT / Lesson Four Inverter Design



1. "Wire up" the circuit in figure 1 on the breadboard. Before applying power, set S_1 in the low (L) position.

2. Apply power both -6V and +3V.

3. The lamp should *not* light. The transistor is operating in the cutoff region, at a point *below* B in figure 3-6A. The equivalent circuit of this operating condition is shown in figure 4-6B. A voltmeter (if one is available), connected from base to ground, would indicate the base as being positive.

The output voltage, measured from collector to ground, is at a high (H) level, -6V. The only current flowing in the collector circuit is I_{C0} , which is much too small to cause a voltage drop across the lamp worth accounting for.

4. Set Switch S_1 to the high (H) position. The lamp should light. The transistor is now operating in the saturation region above point

A in figures 3-6A and 3-6B. The equivalent circuit of this operating condition is shown in figure 4-6A. The voltmeter would now indicate the base as being negative or forward biased.

The output voltage is a low (L) level, $V_{CE,sat}$, -0.1 volts as a general rule for germanium transistors. The voltage across the lamp is -VCC minus $V_{CE,sat}$. The current in the collector circuit is determined by the Ohm's Law value of the voltage across the lamp and the resistance of the lamp.

5. Notice that when the input switch is *high* the output is *low*; and when the input switch is *low* the output is *high*. This is the inversion action of this circuit.

Breadboard projects will appear from time to time with various lessons in the course. Kurz Kasch has suggested that operators and technicians interested in completing the breadboard projects could find the suitable hardware being offered by AP Products of Euclid, Ohio. AP Products, which markets through electronics hobby distributors and radio and television parts supply houses, offers an inexpensive breadboard. Components for the individual exercises can be gotten from Radio Shack outlets or from the operator's own inventory.

Next in the course series, which continues in PLAY METER NEWS UPDATE, will be lessons five and six — Emitter Followers and Diode-Transistor Gates. Breadboard projects are included. •

Digital repair book issued

Technicians needing to learn the principles behind digital electronic circuits in order to troubleshoot and maintain them have available a 350-page reference work, recently issued by Tab Books, Blue Ridge Summit, Pennsylvania 17214.

"Digital Electronics Troubleshooting (Tab Book No. 1250), by Joseph J. Carr, an electronics engineer with the U.S. government, is available in hardbound at \$16.95 and in paperback at \$9.95.

It's a thorough guide that'll take the reader from the beginning of digital troubleshooting through total working familiarity with all the terms and methods. Begins with a chapter that unmask the mystery of digital circuits, and ends with discussions of common problems and every type of equipment...making this the book one needs to enter the world of digital repair. One can easily get in the know about logic gates, circuits, register, and just about any other digital device, and learn the real intricacies of troubleshooting step-by-step along the way.

Anyone who's in the dark when it comes to number systems, like binary, octal, and hexadecimal shouldn't worry...this book contains a complete course, with 331 diagrams, schematics, and illustrations to make it all clear. There's even complete data on binary arithmetic, logical operations, and digital codes—including binary coded decimal, gray, excess-3, alphanumeric, baudot, ASCII, and EBCDIC, plus full instructions on converting from one system to another.

Carr shows how logic gates really work—NOT, OR, AND, NAND, NOR, Exclusive-OR—along with a summary of logic gate actions with experiments. This volume teaches all about those useful flip-flops—both clocked and unclocked. Next comes digital counters and decoders, with complete info on synchronous, decimal, and preset counters, simple binary readouts, Nixi tubes, seven-segment readouts, display multiplexing, and many TTL/CMOS examples of digital devices.

Other highlights include digital servicing test equipment, plus common problems like power line foulups, glitches, radio-frequency interference, and bus disconnections. Covers printers, paper tape readers, magnetic storage devices, plotters, and recorders. Plus, there are four fact-filled appendices.

FRANK'S CRANKS



By Frank Seninsky

A quarter's place is not on the logic board.

This month I only had enough time to go through three video games: *Berzerk* by Stern, *Rally X* by Midway, and *Polaris* by Taito. Most of my time was spent explaining to clients and customers why their *Pac-Man* was giving them so much trouble. As soon as the cold weather appeared, static problems made operating games such as *Pac-Man* impossible. Anti-static kits are available from Midway but they are scarce. At present, word is out that orders are running at least three weeks behind. So just keep handing out refunds and wait for Spring, or hurry and install the anti-static kits you can get your hands on.

BERZERK/Stern: This fine game has a multitude of new design features, more than I've seen on any one model. The new Z-80 Processor System is much faster than the old 6800 system used on past video games. The system includes a memory coin credit so all credits will be registered even when coins are deposited one behind the other or at the same time using the two coin chutes. The same Z-80 system will also be used on future Stern pinball games. This makes it possible to "swap" circuit boards between Stern video and pinball games. With the current emphasis on video games, it would be an operator's delight to be able to keep a video game "working" by taking the good board out of the pinball game.

The joy stick control uses no switches. All the directional moves are made through the use of four photoelectric cells. There are no moving parts to go out of adjustment

or switches to get dirty or broken. However, there are still problems. On the test model, the control bracket became loose due to shock vibration. The application of "lock tight" easily solved this problem. The nuts holding the bracket to the panel should be checked often. The steering board also receives a high degree of vibrations. Our board went bad because the soldered leads of the photo cells broke off. Our service people also discovered that replacing the steering board was difficult. The hole was too small to easily fit over the handle.

The "return to center position" spring on the control handle has to be checked periodically and replaced or tightened. Due to the heavy jolts the spring encounters during play, the handle becomes sluggish.

The bookkeeping functions are vastly improved. Besides reading out total plays, and coins through both left and right chutes (both displayed on the monitor), the operator can determine average scores. This last bit of information can be used to optimize revenues and determine switch settings. A test game can also be played without affecting the bookkeeping functions. All this information is appreciated, but there is no excuse to eliminate the good old total play, or coin meters. *Berzerk* has a tendency, as do pinball games, to lose its memory and put up "garbage" readings. It's still important to install a mechanical coin counter.

The cabinet design is also well thought out. The cabinet is one of the heaviest and sturdiest on the

market. A panel through which the entire logic board can be pulled out has been added on the front of the cabinet. This makes troubleshooting much easier. The game contains five logic boards and one power supply board. The power supply is mounted vertically so there is less chance of stray quarters landing on its "vital areas." Presently, sound and voice boards are separate, but future Stern games will contain a combination of the two as one board, making it easier to troubleshoot. From the back door, a serviceman can get in and work on almost every section of the board, including the monitor components. The monitor has been tilted back, making all circuit components clearly accessible.

The coin door (when opened) is stopped by a safety travel bar so the metal door won't contact the logic boards if they are pulled out. The travel bar if pushed down with normal hand pressure will not return to its horizontal position. In order to take the cashbox out, the coin door must be opened past the safety travel bar stop position. Collectors should make sure the travel bar is positioned correctly.

The cashbox can easily be lifted out from the back door; but Lou Rudolph, a field service manager for Stern, assured me that they will again be coming out with a fully barricaded cashbox by the second next game.

Other pluses include a front door volume control, latches to hold down the front control panel, an on-offswitch, and left and right "fire" buttons. This last item not only gives

**"(On *Berzerk*) the bookkeeping functions are vastly improved....
It's still important to install a mechanical coin counter."**

the player a choice of using his or her right or left hand to fire, but if one fire button malfunctions, no down time will result. The players can always get by with one fire button.

Stern has been kind enough to install a convenience outlet for servicemen who don't carry flashlights or battery operated soldering irons. Finally, an outlet in a video game!

POLARIS/Taito: Taito has made a super effort to supply a strong, well-made cabinet. The coin door and coin chute are reinforced and "lock tight" has been applied to all nuts and screws. Extra cam brackets have been added to both the coin door and the door frame.

The cashbox is located below the coin door in its own separate compartment, which is completely sealed off from the rest of the game by a heavy metal frame. Once the quarters are in the cashbox, it would be difficult to get them out without a key. The problem is getting them into the cashbox. The coin slide opening below each micro switch is too narrow and the chute has no adjustment slots. It is common for quarters to get hung up between the coin micro and the chute leading to the cashbox. The quarters can also miss the chute if the coin chute and the slide get out of alignment.

Unlike the easily breakable coin return flaps on Atari games, Taito's are sturdy metal flaps. This will help to eliminate "penny problems." (Call or write for further information to avoid these problems on all games.)

The angle of the monitor protective glass and the control panel is the same. This makes it difficult for people to place drinks or cigarettes on the panel without having them fall off. Maybe these panels will remain clean.

Micro switches have been used instead of blade switches for the "fire," "1 player," and "2 player" buttons. These switches have slots for easy adjustment and nuts to keep them in position. When micro switches were used on past games for control assemblies, they always seemed to come loose. It's too early to tell, but in one month not one micro switch has failed or come

loose for us.

The joy stick is very interesting. Four micro switches with roller-arm levers have been used. A metal square attached to the bottom of the joy stick pushes a metal plate which pushes the roller-arm — which pushes the micro switch button. This metal square has a travel stop so the micro switches won't take too much punishment. The player control is excellent. The joy stick return action is good.

As far as troubleshooting goes, the logic boards are difficult to work on. The boards are "piggy-backed" which makes on-location troubleshooting difficult, if not impossible.

RALLY X / Midway: Since many of the features of *Rally X* are the same as Midway's *Pac-Man*, which I have written about in last issue's Cranks, only the differences will be highlighted here.

A spacer has been added on the back of the plastic cashbox bin so the bin won't slide. This spacer was added on some of the later *Pac-Man* models. If the plastic bin slides back, there is enough space for a quarter to get stuck between the micro switch guide and the top of the bin.

Plastic coin guides have been placed under the coin micro switches. These replace the metal guides that we have all just gotten used to adjusting so the quarters won't get stuck on the micro trip wire. If all these guides are manufactured to tolerance, the quarters won't get hung up. It's always a good idea to hold a finger on the bottom of these guides and drop a quarter through the chute. When the quarter hits your finger, slowly let the quarter slide past and out the bottom of the guide. If it can get stuck going this slow (this is the worst possible case) then the trip wire needs adjusting.

Starting with *Space Invaders*, Midway has done a fair job of separating the cashbox from the back of the game. But on *Rally X*, they have "cut corners" and one can reach the cashbox from the back door. This also means that quarters can reach the power supply and logic boards—which should never be allowed to happen, since quarters conduct electricity!

The cashbox covers can easily slide over the door frame lip even with the door closed. If this occurs, quarters will get stuck between the cashbox cover and the micro switch guide and jam up. A simple solution would be to bend the cashbox cover down in the middle so it can't jump the lip.

The volume control is still on the game logic board, which makes it difficult to adjust volume without moving the game out of position to get to the back door. How difficult would it have been to put the volume control near the front door as does almost every other manufacturer?

The control knob, although small, has leather and plastic bushings. After three weeks of testing there were no problems, nor do I foresee any in the near future concerning the controls on *Rally X*. The return action on the control knob is consistently good. The car response to changes in direction is good.

Midway still hasn't run out of 1350 keys; I hope they run out soon. It seems that some of our customers have their own keys.

Troubleshooting: Vibration shut-off

As a general preventative maintenance on any video game, a pinball plunger tip should be placed over the safety switch pressing against the back door. This will insure a tight fit and reduce the chance of the game shutting off due to vibration. It is also a good idea to adjust the slam switch (if there should be any) on the coin door. It's best to have the weighted blade resting snugly against the door and the shorter back blade spaced about 3/16" apart. You should be able to gently bang the front door without the blades making contact.

This will also decrease the chance of an undeserved "game over" situation due to vibration. However, don't space the blades too far apart, for this is the only protection a video game has against the punching or kicking of a disgruntled player.

•
Ed. Note: Frank Seninsky operates Wizard's World Arcade and Alpha-Omega Amusements, Inc., game room specialists, in Edison, New Jersey.

"On *Rally X* they have cut corners and one can reach the cashbox from the back door....The return action on the control knob is consistently good."

HAVE A GREAT IDEA

FOR THE INDUSTRY?

Play Meter invites tech solutions

Fame awaits great ideas! Why hide your modification or repair solutions under a barrel? An idea for a technical solution can apply to games' technicians over the whole industry.

PLAY METER, in the interest of sharing technical information, will reward "Great Ideas"—and give the originators a bit of fame by printing in these pages their worthwhile solutions for repair or modification of a particular game problem or feature that can be improved.

For each "Great Idea" accepted for publication, the sender will receive \$25. At a later time, a number of "Great Ideas" printed here may be judged for further reward.

In the meantime, fame is the name of the game. Let the coin-op world know how *you* can solve a practical problem. Here are the rules for sending "Great Ideas":

1. The idea must be applicable to a coin-operated amusement game only. New game designs are *not* being sought. The idea must have a definite application, which you have shown to be workable in practice.

2. Submit your entry on standard sized typing paper. State the problem and the solution clearly. Use definite terms for parts, etc. Written material must be double-spaced, typewritten or clearly printed: this is a must! Include diagrams, line drawings, or glossy photos (black and white) if appropriate: no more than three pieces of art work. Since diagrams and drawings will be reproduced on a press, blue pencils or pens must not be used: a black drafting pen is best.

Length of written material can vary, but it should not exceed 500 words. PLAY METER may edit the copy, but the sense of the Idea will not be altered.

3. To submit your Idea: Entry should include your name, job title, address and zip code—and your company and telephone number if

you wish to state them (telephone number is for editors' use only).

4. Any person working in technical aspects of the coin-operated industry is eligible—except employees of coin-op *manufacturers*. No partiality will be shown to persons associated with PLAY METER or other publications. PLAY METER's editorial staff will judge all entries' acceptability for publication in this magazine.

5. All entry material becomes the property of PLAY METER, but the technician can assume that all rights to his Great Idea remain his, except that it may be published in this magazine.

The editors will make an effort to return material after it is used, or

after a decision not to publish it, but *only* if sufficient postage and a self-addressed envelope is sent with the Great Idea entry.

The reader assumes responsibility for assuring that his entry is an original idea. In the event of duplicates received, the editors will decide which of similar entries may be printed. Submissions will not be discussed by telephone.

Remember: state the technical problem and your solution clearly. Make sure the terms you use will be understood by other technicians.

All that's left is to get to work!

Address Great Ideas to PLAY METER, P.O. Box 24170, New Orleans, LA 70184.





Big guns from Chicago

By Tony Licata

This month we look at the output of two of the industry's heavy-hitters. Williams Electronics, creators of immortal pinball machines such as *Gorgar*, *Flash*, and *Firepower*, introduced its initial video offering, *Defender*, at the 1980 AMOA Show. Midway, of *Space Invader* fame, also debuted its *Pac-Man* at the show. The fact that they both came out publicly at the same time is about all they have in common, however. That and an extremely high level of quality which should surprise no one.

Defender puts the player at the controls of a space ship in "cosmic enemy territory." His mission is to protect stranded "humanoids" on the planet's surface. His challenge consists of several different kinds of enemy vessels that want to capture the humanoids so they can mutate them into additional enemies.

Pac-Man also takes the player out of the current "real world," but puts him in a fantasy-like imaginary one. His task is to control a bodiless cartoon head through a maze, eating round circles with his huge mouth as he goes. The challenge is that he finds himself pursued by other colorful, bodiless "monster-heads" that want to devour him.

Before actually getting into the reviews, I think it's worth putting the Williams entry into perspective in the video/pinball confrontation wracking the industry.

Some months ago, Stern Electronics saw the handwriting on the wall about the future of video and jumped into the fray in something like six weeks. It chose to get in as soon as possible and licensed their first game from a Japanese company, rather than spend the time developing their own original.

Williams, on the other hand, made a decision to enter the video scene

around the same time, but decided to go it on their own, forsaking several months lead time.

I think it will be fascinating to watch this encounter work itself out. These are two top class companies faced with the same problem, who each chose to compete in a different way.

Because of the quality of both firms' management, I don't think either will sink or swim as a result of this single divergent decision, but in a year or two, the results should be evident in a clear perspective. Whatever the outcome, the entire industry stands to benefit.

DEFENDER/Williams

Defender constitutes a solid entry by a strong competitor into the video arena. Space themes are sexy right now and *Defender* has one.

The game gets high marks for playability. Its complexity ranks several notches above most other videos on the market. I consider it to have high repeat play value because of the initial complexity. Instead of left and right direction buttons and a fire button, players find themselves facing a console with five different buttons as well as a stick that controls the ship's altitude.

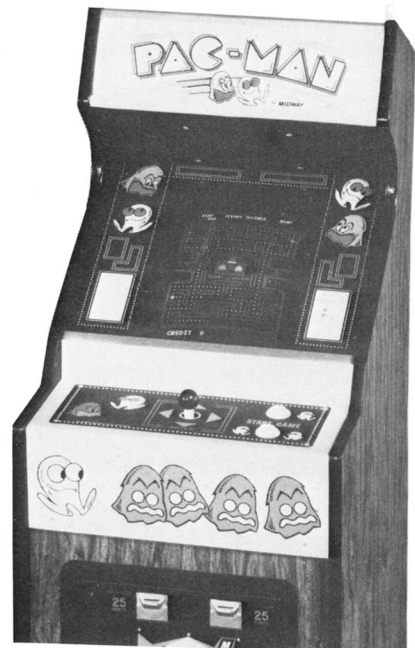
Although this will put off a small percentage of players, it will hook most experienced video gamers with the variety of options it affords them.

Several years ago, *Space Wars* introduced and, more recently, *Asteroids* popularized the hyperspace features, giving players a chance to play a wild card by hurling their ship to a random place on the screen.

Defender has a similar functioning hyperspace button, but other options include a thrust which allows increased speed, a reverse to let the



Defender



Pac-Man



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PLAY METER

"I'd be surprised to see any machine in 1981 outdraw

player do exactly that with the ship's direction of flight, and lastly the player has a "smart bomb" button.

The smart bomb is described as a last resort, like the hyperspace option. It destroys all the enemies in sight, but has limited use.

The skill of Williams planners can be seen by the fact that they have included a scanner on the screen that shows the player the entire panorama of the planet, where his ship is and where the enemies are located. Needless to say, players have to learn to integrate use of the scanner into their play if they want to really progress.

The monitor graphics on *Defender* qualify as excellent and you have to take your hat off to the ingenuity and attention to detail they display. They include eight different characters, including the actual defender ship, all in full color. There is also a humanoid, a lander, mutant, baiter, bomber, pod, and swarmer.

I have to admit to one reservation about the graphics. When the *Defender* is actually shot, it explodes like something on the Fourth of July—all beautiful white lights fill the screen in a circular pattern. I didn't care for that. It just seemed like too much. I felt more like I was seeing how good some programmer could make an explosion than something actually integral to the game. Other players I have spoken to liked it, however, so maybe it fits. Although I thought the massive fireworks display unnecessary, I want to give them credit for trying. Perhaps they tried too hard, but I respect the effort. No one can accuse them of skimping on it, or taking an easy way out.

Williams also did a super job on the sound aspect of *Defender*. They have achieved an exciting electronic "hiss" that works perfectly. It does the job just right and I think exhibits admirable restraint, much more than they showed on the graphics.

Overall, *Defender* ranks a 9-plus out of a possible 10. I took away slight marks for what I thought were overdone explosions. Also, I am not really thrilled with the space theme, although I know it is as commercial as hell and will attract players. That is a subjective judgement based on the premise that the best game is also totally original.

PAC-MAN/Midway

And now for *Pac-Man*. How to

explain this game? If you haven't seen it, you can't imagine it and if you have seen it you might doubt your eyes.

I played *Pac-Man* one time at the AMOA Show and watched it played once and walked away. Its appeal totally escaped me. However, when I watched a kid playing it in a game room, I found myself turned on to it and couldn't wait to play. I don't know how to explain that. Maybe I just O.D.'d on video games at the show and couldn't appreciate the appeal of the game.

Now that I am a *Pac-Man* believer, I want to tell you about several aspects of the game I consider super.

First of all, *Pac-Man* is nonviolent. This is a welcome change. There are no guns involved, no enemies have to be blown to bits, or vice versa. What a relief!

Despite the lack of weaponry in *Pac-Man*, the game gives up nothing in excitement or suspense. The game contains few elements: the player controls a head with a joy stick. There are several opposing heads that move through the maze in the direction of the player. If they catch up with his head, they bite it and it deflates. However, if the player eats one of four energy balls, he can then eat the heads that have been pursuing him—for a short time.

For originality, Midway's *Pac-Man* gets top marks. This game is so original it's ridiculous. The game's designers made no attempt to use the microprocessor to create or reproduce any kind of exciting simulation. They just used some very simple elements to construct one of the most captivating games I have ever encountered.

Graphics, while simple, are also superb. The player controls a yellow head, that looks like a circle, half of which opens into a mouth. The monsters, also only heads, are just colorful cartoon shapes that look cute enough to eat. This is a classic example of one picture being worth a thousand words: the graphics may not read like anything special, but they are. Each one is perfect to achieve the cartoon-like world the designers were striving for.

There are also some very colorful edible objects, such as cherries, strawberries, and lemons that appear from time to time. If the player can eat them, he gets bonus points, from 100 to 2000.

The simplicity of play about *Pac-*

this one (Pac-Man)''

Man can be hard to believe. The player puts his money in and works the single control to direct the head. That's all there is to it, simple but not easy. Much like *Space Invaders*. I wouldn't be surprised if the creator of *Space Invaders* didn't have something to do with *Pac-Man*. After playing it a couple of times, I knew I had exactly the same thought in my head as when I first encountered *Space Invaders*. "There's nothing to this! How come I can't beat it?! Where's another quarter?!"

Playability on *Pac-Man* also has to be put at the top of the scale. Its simplicity proves seductive. And the more I played, the more the game showed me. For one thing, the screen wraps around horizontally. This allows the player to exit on the right and reappear at the left—a very important maneuver sometimes.

The game's key element turns out to be balance. There are four energizers placed around each of the corners. When the player's head eats one of these, the monsters pursuing him turn blue and he can eat them, if he can catch them. This option lasts only a short time, however, and as the energizer wears off, the monsters start flashing their regular colors. Once that happens, they turn around and chase the player's Pac-Man again. He is forced to find another energizer in another sector of the playfield before they trap him and eat him. This guarantees that the player will use the entire field.

Overall, I rank *Pac-Man* as a 10. Of all the video games produced this year, I think *Pac-Man* has a chance to bring in the kind of revenues you saw from *Space Invaders* and *Asteroids*.

I'll be very surprised to see any machine outdraw this one in 1981.

Feedback

As both of these games have already hit the street, some feedback has come in. Ken Fedesna of Williams told me that *Defender* was so well-received that the company is using two production lines to put out machines. He also said they have held up introduction of the next Williams video because of the demand.

One operator in Chicago told me *Pac-Man* was bringing in \$500 a week in some locations. He added, unnecessarily, "Not a lot of machines do that." •

PLAY METER, April, 1981

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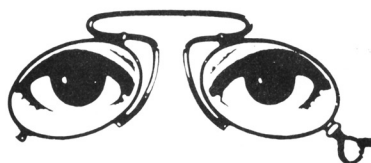
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By Roger C. Sharpe

Pins in the springtime

April showers may bring May flowers but what will this month do for pinball? As I've stated elsewhere in this issue, pinball in general is in a state of flux. New models undoubtedly will be introduced at the March 12-14 New Orleans Expo and some may even tickle the fancy of those waiting to see the direction the industry is taking before deciding on whether or not pinball is truly on the comeback trail. But, the fact is that the newest machines are good, better than those of the last few years, overall, and each manufacturer is trying to pack in as much as possible on each effort.

The result is that with a widening production run, people are not bombarded with equipment and may well think that pinball is dormant or standing still. But don't take the lack of news as being a sign that there is no news, because there is. Each of the major four are gearing up spring releases and offering hints for the summer market, while rumblings are even being heard from other companies who may well be entering into the business or getting back in. Time will show the fruits of their labors.

For the present we should remain with the expectations that the great strides taken will continue, that each succeeding effort will be as strong as the previous, and that the industry will continue to evolve and experiment with maximizing what the essence of pinball is and can be.

On another front, there is no update at this writing, as to what is

happening with pinball in New York City. However, as soon as this writer hears, so will you. Interest in the games is continually growing as witnessed by the efforts of a major network show to spotlight pinball, and rumors of tournaments are surfacing. So things are happening on the upswing which is positive for the most part.

This month finds two games on review that offer two different corporate approaches to directions being taken. One is an attempt for something different while the other is different un- and to itself. Change is going on with pinball and maybe these efforts reflect this.

Bally's FLASH GORDON

Finally, after a triumphant introduction at the AMOA comes this stellar performer that's far better than the movie of the same name and will be around a helluva lot longer. It's a total package and continues this company's efforts to move ahead and better itself each succeeding time.

PLAYFIELD: A two-level job, the action begins at the top with a little arch leading down to a top right small flipper. There's also a free standing, lone drop target just above that pops up after the ball enters the field. Just below this flipper is a ramp leading down to the main playfield. Move over at the top and there's a lone thumper bumper and a left-of-center set up of three drop targets. Farther left is another ramp, fronted by a spinner at the bottom field and at the

top by a short arch and two roll-overs. Meanwhile, in the middle is a short ramp leading down to a dual-directional kick-out hole that can send the ball down or up on an alternating basis. At the middle to the lower board are two thumper bumpers, a spinner at the right leading to the ramp and balancing the other at the left. Also at the right are two in-line targets (the Wood Beast) with two targets just below also at the right side. At the left is a four-drop-target bank and the bottom is a conventional wire lane and flipper set up.

ANALYSIS: Although not as glutted as Williams' *Black Knight* in terms of comparing two-level playfield design, *Flash Gordon* does integrate the play on both levels of the board. The top three bank of targets can lead to specials being lit as well as a timer on the game for increased scoring values and an opportunity for 5X bonus when lit. Move down to those left side targets and values are increased in the center kick-out hole up to 30,000 points and extra ball as well as lighting the spinners for increased values. The right side in-lines offer bonus multiplier and a chance for extra ball in a game that's coordinated throughout and ties in by color in some features and play action with others. There are two sets of bonus build-up complete with mini bonus and super bonus tied into the drop target banks. There's some good play side to side, reverses are makeable—and the center is uncertain for play although that kick-

Roger's Ratings At-A-Glance

Bally's FLASH GORDON ##### Gottlieb's ASTEROID ANNIE #3/4

out hole when the values are there is something that can't be ignored, and it's better gotten by going back on top. What helps *Flash Gordon* is there's a build up of action during the ball in play and from ball to ball during the course of the game.

GRAPHICS: Well, after you get by the strobe in the backglass and the integration of speech and the other sound effects and light effects, you're left with some incredibly good artwork that's both eye-catching and faithful to the subject matter. The detail work is super and if you get a chance to look at the game brochure or see the machine from overhead, you'll see just how integrated everything is from backglass down to the playfield. It's impressive and something Bally initially heralded when it made art an important part of their design and total product packaging. The effect here is striking.

PLAY: With all the build-ups and point potentials and the saving grace of a seventh digit, *Flash Gordon* can be a machine that will enable you to try out a few options. For extra ball areas you should be all right with a 500,000 point start followed by 1 and 2 million point levels. On free play you might want to increase these limits by about 200,000 to 300,000 points each.

PROS & CONS: First off we get to the problem of whether particular games are worth 50-cent play, three for a dollar. *Flash Gordon* may be able to sustain this pricing initially for a period of weeks, but the basic game characteristics are such that over the long haul, quarter play is going to prove more profitable, although you could start at the higher price and bump it down when the game begins to tail off a bit.

One of the problems is that the machine is tight on the bottom and doesn't offer much play unless you want to move down those lower side posts and loosen the action that many times is drain city. For a quarter, a player will live with a game that drains an inordinant amount of the time, but on fifty cents you're talking only about the diehards of which there is a vanishing number at this conjuncture.

Flash Gordon is a game you have to play and play in order to appreciate the nuances and set up a play strategy. Pricing can effect this commitment and take away from the game's draw. I know for me that it's taken weeks to get the feeling of being comfortable with some of the shots and knowing what to avoid.

The concept of the multiple values for scoring, similar to *Black Knight*, is a nice touch and although on the surface many of the shots of these two games are similar, *Flash Gordon* has its own personality of play that lets it stand alone as the two games appear in their finished form.

RATING: ####

Gottlieb's ASTEROID ANNIE and the ALIENS

With a game that is being set for a limited run, this company is trying valiantly to touch a responsive chord for a part of the industry that may have been needlessly forgotten and overlooked as pinball moved onward in its development.

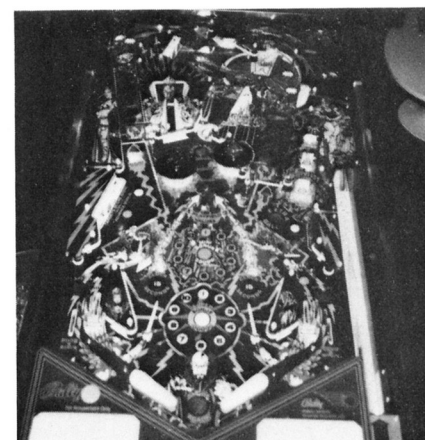
PLAYFIELD: Four lanes start the action of this card theme, corresponding to the different suits. Two parallel thumper bumpers are next, at the middle of the top with a bulls-eye at the left and a five-drop-target bank at the right. At the left is an outside roll-over lane behind another five bank of drop targets. Move down to the right and there's a spinner for access back to the top and a kick-out hole just below this. The left side bottom is a longer running lane to the flipper and longer stretch rebounding rubber, while the right side has a short lane leading down to a post and opening to the wire form leading to the flipper, so it's a hit or miss proposition.

ANALYSIS: The concept on *Annie* is to fill out the suits and cards corresponding to the drop targets on the field, pure and simple. It is a motif that has long been successful for pinball and almost works here on this single-player effort. There are some good shots from the flippers and full access to the field, but not much lateral action to sustain the flow of play.

GRAPHICS: It's not the same as *Alien Poker* but the card playing table has its own version of *Aliens* playing sweet little Annie. It's a cute effort that does manage to blend in an array of colors that's pinballesque enough to pull it off, and the lack of displays on the backglass does offer more room for continuity of artwork.

PLAY: The scoring is fairly basic on the game, with points scored according to the targets hit and limits of 150,000 points to start followed by 400,000 and 750,000 points should be okay for extra ball play. On free play you may want to go with only two limits of about 450,000 points and 900,000 points.

PROS & CONS: What can one say about *Asteroid Annie* except that



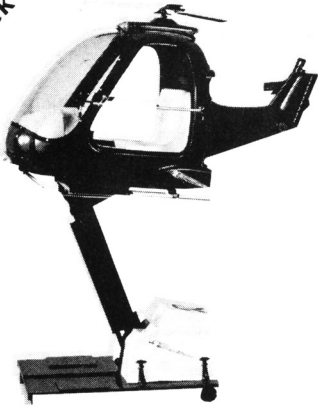
Bally's FLASH GORDON



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more could have been done if Gottlieb were serious in testing the one-player market. But even if we're talking about a single-player game, why couldn't the same thing be done to expand the capabilities, as was the case with Bally and Brunswick on their home models. With these efforts a single read-out was used for all four players, or any combination up to this number. Surely the same thing might have been attempted here.

On a design and continuity aspect, this effort could have integrated memory from ball to ball much as the old single players from days long past, and with memory drop targets and other uses of features we have become familiar with in solid state days, you're talking about a machine that would have had a better than even shot to have some impact on the market.

As for the basic design, something like the old *Jacks Open* still stays in mind as a game slightly ahead of its time that could be helped by memory and electronics in an updated package that would make it a real winner whether it be single or multi player.

What Gottlieb is trying is great, but the follow-through in product doesn't hold up, which is not a knock on the idea of single versus multi-play, but rather the recognition that it's the board and logic that ultimately sells the game and slightly more cost could have made this game a real winner if approached from that sensibility. I, personally, hope to see more standard size games from this manufacturer and whether they be single or multi player will be incidental to the play action.

RATING: #3/4

So two games in April, both diverse renditions of pinball and offering their own hopes for the future. Next time around, a look at those machines from the New Orleans show and a closer critical look at Gottlieb's newest Series 80, *Pink Panther*, and maybe even Stern's *Free Fall* which show you can go multi-level without going multi-level, as well as a hoped-for few surprises. Until then, let me know how your business is faring in the pinball market and what you'd like to see the manufacturers doing if they could; for an upcoming Critic's Corner will be set aside for you, the reader's views. And as always, be well and prosper. ●

Man against war birds

Phoenix, a dramatic space war game that incorporates "exceptional graphic impact and superb software," is the latest release from Centuri, Inc.

"*Phoenix* was initially introduced in Europe and Japan where income reports were outstanding," said Ed Miller, president and chief executive officer of the Hialeah, Florida manufacturing firm. "Our extensive field testing has not only supported those findings, but has been even more encouraging."

Armed with a missile, the player launches a five-phase mission into space. The first two frames feature small dots that materialize into war birds. The player scores points while defending himself against the attacking birds. Brilliantly colored eggs that hatch into the violent *Phoenix* war birds appear during frames three and four. The final frame introduces a huge pulsating alien spacecraft protected by a flock of war birds.

The player's success during the first round determines whether he will proceed to round two.

At all times during the game, the player can find momentary shelter from the onslaught by activating a "protective barrier" button.

"We are extremely enthusiastic about the introduction of several significant advances in hardware technology that *Phoenix* has to offer," said William Olliges, Centuri executive vice president. "Keeping in mind player visibility, Centuri engineers spent a great deal of research time before the final positioning of the monitor was made."

"A game on location takes a great deal of abuse," Olliges said. "The *Phoenix* cabinet is made of a unique low pressure laminate that is designed to take the wear and tear of every day use. By installing an extremely reliable low temperature switcher-type power supply," Olliges added, "we have greatly reduced the chances of excessive heat build-up."

Centuri has the exclusive rights for both upright and maxi models in North, Central, and South America under a licensing agreement with Amstar Electronics Corporation.



What if the chute doesn't open?

Stern Electronics, Inc. has announced plans for international distribution of a new solid state four-player pinball game, *Freefall*.

Designed by pinball pioneer Harry Williams, *Freefall* features multiple ball play. A bonus feature picks up and transports the ball across the playfield by tramway, to an elevated launch site. The ball accumulator is activated following completion of the Skydiver scoring sequence and can launch as many as three balls simultaneously onto the playfield.

Freefall's three-dimensional, richly-colored backglass of azure blues, deep purples, and other dawn-to-dusk sky colors, emphasizes the game's theme of celestial winged nymphs free-floating under an impressionistic, scripted logo.

Among scoring features are:

— "Lighted line selector changer," player-controlled option enables the player, by depressing both flippers, to change lighted line selector on bonus multiplier scoring feature.

— Bonus multiplier increases point value up to 14X; numerical drop targets score 10,000 points or if made in sequence score 50,000 points.

— Twenty-word vocabulary signals game "Take Off," identifies players 1, 2, 3, and 4, and alerts player to completion of sequenced scoring features.

Freefall's advanced solid state electronic system was designed and manufactured by Universal Research Laboratories, Inc., a Stern subsidiary.



Inspector Clouseau's Gem

Pink Panther, Gottlieb's new multiple-ball pingame, is currently being shipped to distributors.

Marshall Caras, Gottlieb vice president/marketing, said: "We feel *Pink Panther* makes the most imaginative use of the multiple-ball feature with some really unique design twists."

Gottlieb engineers have energized the ball action by adding power to the mechanical elements of the playfield. "Achieving a balance between hyper-action and skill shooting is a difficult task, but our designers have pulled it off," Caras continued. "For one thing, the multiple-ball feature, which has been so difficult to attain for the average player in previous games, is now achieved with considerable more frequency. This has widened the appeal of multi-ball tremendously."

Players activate the captive holes by completing the *Pink Panther* target banks. When both balls are captured, the third ball releases both captive balls by passing over any top rollover.

During the multi-ball play, a player tries to collect diamonds by hitting the nine spot targets or the black drop targets. A "diamonds" scoreboard is featured on the backglass, showing the player's total and the "total to beat"—which leads to special if it is beaten. The player's higher total then becomes "total to beat."

Caras noted the wide variety of games available to operators today and said: "The test period has shown quickly and dramatically that *Pink Panther* is going to be one of the top games in 1981, and we are, needless to say, more than gratified."

He noted also, "Our preceding game, *Force II*, sported an unusual two-ball feature, but *Panther* is in a class by itself."



Video+voice= Astro Blaster

Gremlin's first entry into the talking video market boasts the clarity of a finely tuned jukebox, the result of a sophisticated voice synthesis technique. Gremlin software programmers and creators of *Astro Blaster*, Barbara Michalec and Gary Shannon, capitalized on the voice quality by incorporating it into game play. The Mission Control voice offers helpful instructions and warnings to players such as "Laser temperature critical," and "One ship remaining. Exercise extreme caution."

Visually, *Astro Blaster* is an extravaganza, displaying more than 250 colors and 29 different targets, each with its own unique motion and sound.

Fuel and temperature gauges monitoring fuel supply and temperature of player's firing weapon, a time warp that reduces target speed, and a docking sequence for refueling are all special features that call upon players to rise to the *Astro Blaster* challenge.

An intriguing feature of *Astro Blaster* is 29 secret bonuses that pop up throughout game play. To maximize secret bonus points, players must discover the formula by which the bonus is awarded.

Astro Blaster is a 1- or 2-player game that has been test marketed very successfully at 50 cents per play, according to Gremlin Industries.

The San Diego, California manufacturer boasted that *Astro Blaster* was the hit of the Amusement Trade Exhibition in January.

As the Gremlin plant geared up for its biggest production run ever, Gremlin vice chairman Frank Fogleman and president Duane Blough were on hand in London accepting accolades from eager buyers.



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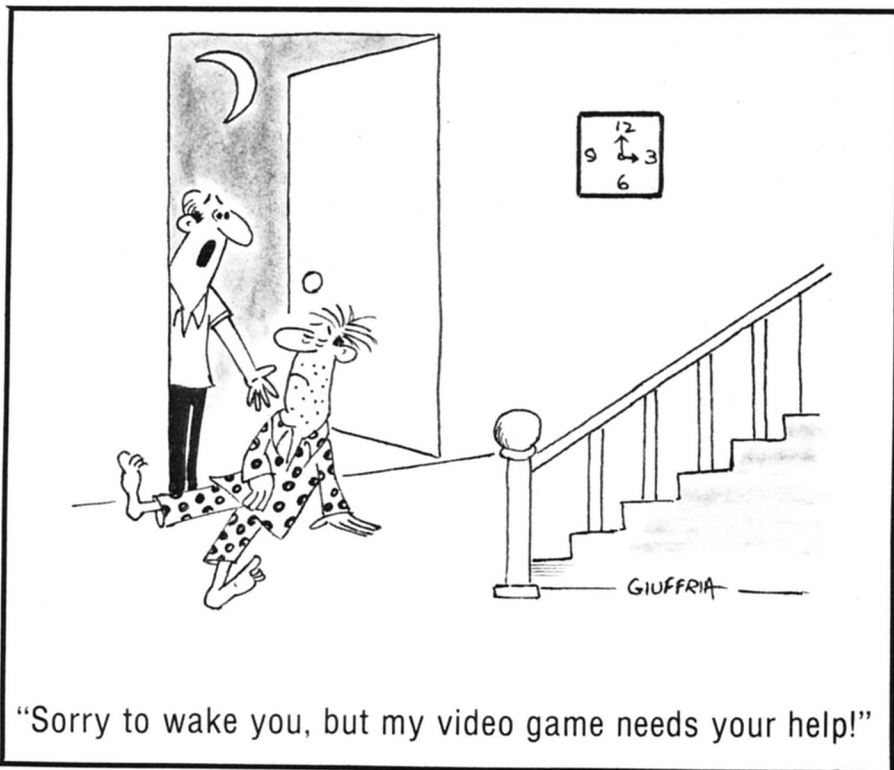
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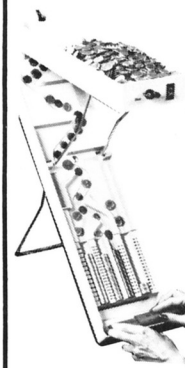
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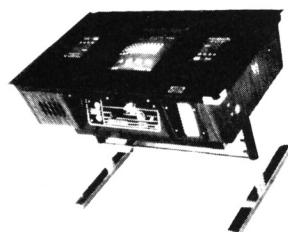
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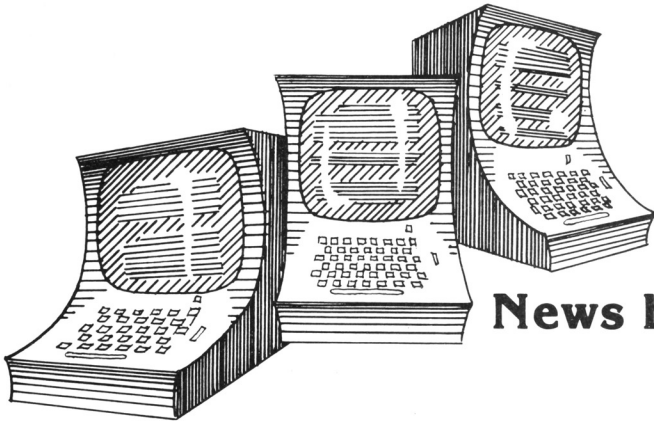
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News briefs....news briefs....news b

.....Corporate management additions were announced by D. Gottlieb & Co. at late February. Marshall Caras came aboard at the Chicago manufacturer as vice president of marketing, according to Tom Herrick, vice president. Caras was most recently affiliated with R.H. Belam. Also, Howard Rubin signed on with Gottlieb in a new position, vice president of product management. Meanwhile, the company's marketing group, including the Eastern and Western U.S. regions' sales managers Jim Newlander and Jim Phillips, had met in Chicago for a two-day review of the new Gottlieb pin, Pink Panther, and strategy making for a promotional blitz for the game, said Herrick.....

.....Top U.S. distributors have apparently planned a second gathering for the purpose of discussing common problems of games handlers, with the possible goal of establishing a distributors association. After their first meeting in Chicago recently, plans were left in the discussion stage, sources told PLAY METER.....

.....A new company known as Kiddie-Rides, U.S.A. has been formed for marketing kiddie rides, with the same principals as the people who own and operate Universal Visual Audiotronics Co., Davenport, Iowa. Kiddie-Rides, U.S.A. is currently importing its rides from Europe and recently signed an exclusive sales agreement with Waite Mfg. of Brush, Colorado. Kiddie-Rides, U.S.A. claims the status of the world's largest rides distributor. Company president is Robert Versman.....

.....Stern Electronics, Inc. reports that its video game Berzerk has become the biggest-selling game in the Chicago games maker's history. To meet the market demand, Stern's production of the 2-player "talking" video was extended into the spring, said Marketing Director Tom Campbell..

.....Century Electronics, a British firm producing video games, reportedly has developed a completely interchangeable game system. Called Century Video System, it was developed through the major European electronics company Philips and introduces a module of three micro-processors and five American-built chips, which can change one game into another within a few minutes. (A cassette system with similar capacity was introduced last fall by Data East, Inc., which will be marketing its Deco Cassette System in the U.S. this spring, beginning about the same time of the Amusement Operators Expo in New Orleans, where Data East will be exhibiting.).....

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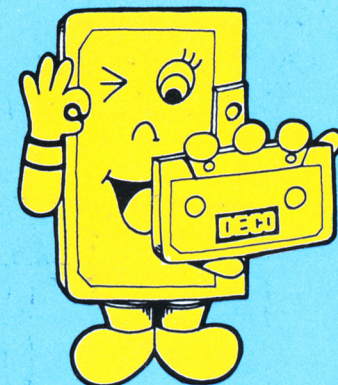
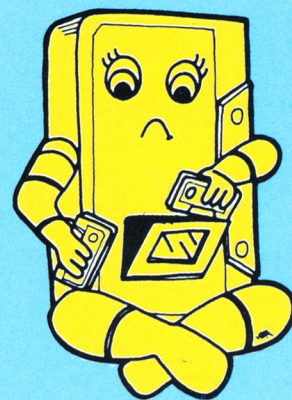
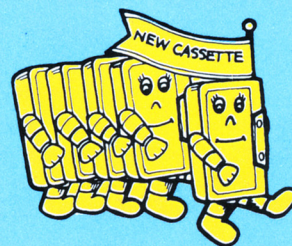
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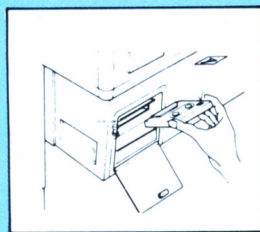
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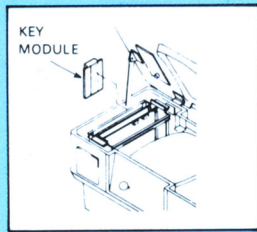
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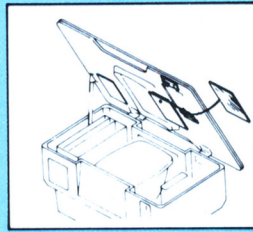
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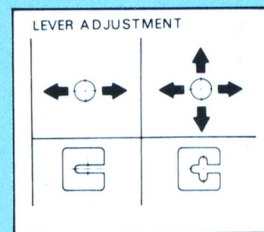
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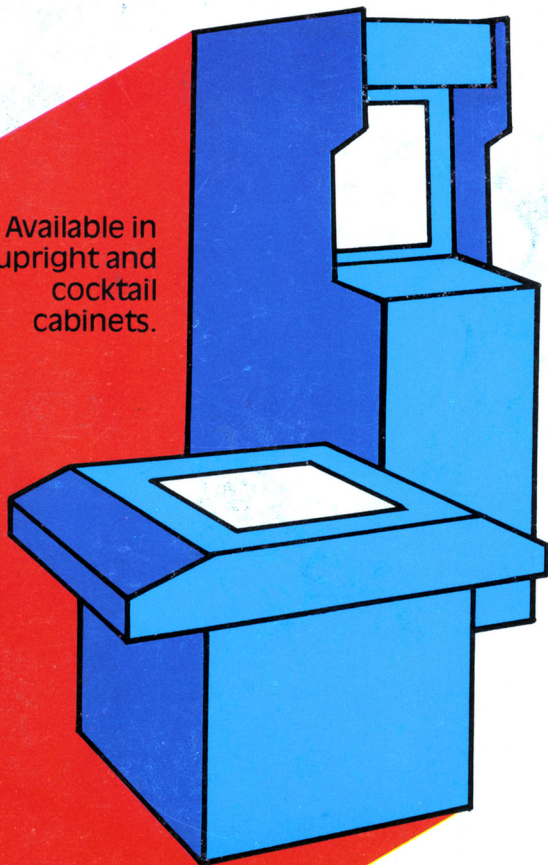
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