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DECEMBER 1, 1984



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# PLAY METER

Twice a Month Publication for the Coin Operated Entertainment Industry

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Volume 10, Number 22/December 1, 1984

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#### Video Slottery

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At many state association shows, there are panel discussions on video lotteries. However, the panel discussion at the New York State Coin Machine Association show was quite different from earlier discussions.

#### Future Shock

**74**

The coin-op industry has gone through more changes in the last 10 years than in any time in its history. What's going to happen in the next 10 years? Manufacturers, distributors, and operators offer their predictions.

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**Cover Credit:** 'Thayer's Quest' rises above the others. Cover by RDI Video Systems—Bob Barrett, staff artist.

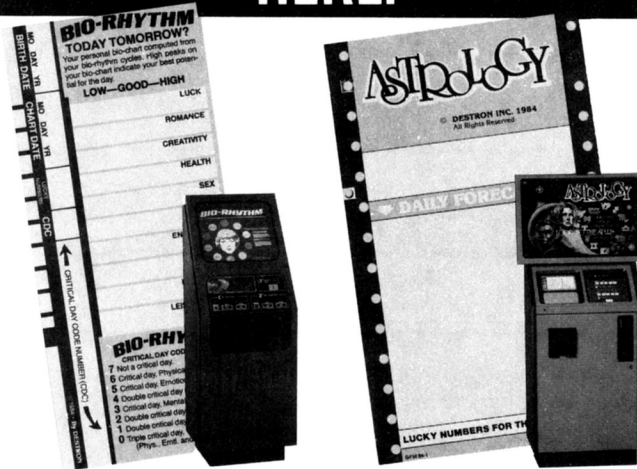
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While walking the aisles at the AMOA, check what those exhibitors have in theirs. If you look closely, you'll probably see a distributor or two in every back pocket. But you won't find us in any of them. That's because Central Distributing is one of the few independent distributors left in the industry.

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UP FRONT

# AMOA '84

## The Door to the Future

It is becoming more and more apparent that the leadership and direction once provided by a number of the industry's large manufacturers are rapidly fading away. These manufacturers once were unmatched in their dedication and commitment to the industry, and its future was virtually unlimited. "Innovation" was the word of the day. Imagination and creativity resulted in new exciting products that vaulted this industry out of the Dark Ages and into the Space Age. Now, these days are gone.

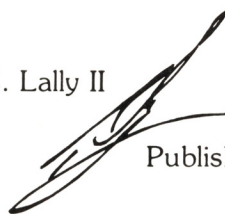
Victims of their own greed, these manufacturers are fading away one by one. Some made it big, real big, and took the money and ran and are now looking for other horizons. Others are now seeing their last sunset. Left behind are the remains of an industry exploited to the hilt—one that is wandering around aimlessly searching for new leadership, direction, and, most of all, a bright, promising future. But when this year's AMOA convention opens, the search for new leadership and direction may finally be over.

When the AMOA show doors are

opened, they may very well reveal the future of the industry. Inside the exhibit hall will be some 40-plus companies that have never exhibited at the AMOA show before. These companies obviously realize the vast potential the industry still has to offer. Otherwise they wouldn't be there. The words "innovation," "creativity," "imagination," "excitement," "dedication," and "commitment" may become part of this industry's vocabulary once again.

There is a very good chance that the companies that will be shaping the industry's future will be among these new exhibitors. If you were fortunate enough to afford the expense of coming to this year's AMOA show, I urge you to seek out these new exhibitors and find out who they are and what they have to offer. You may very well find yourself talking face-to-face with the leaders of tomorrow. If you are among the many operators who could not afford the trip this year, you can depend on *Play Meter* to bring you back the real story that unfolded. If the future is here, you will be the first to know about it.

Ralph C. Lally II

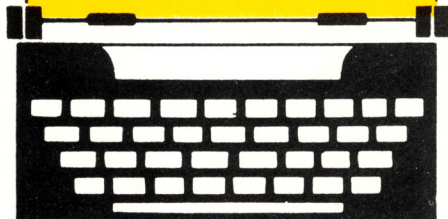


Publisher and Editor

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## Letters to the editor...



### 'Chexx' at home

Even *Chexx* hockey has entered the home market. With the addition of a coin door, you've got a new game.

Tonawanda is a suburb of Buffalo, New York, so you can imagine how shocked the Buffalo vendors felt when we read this ad in the Sunday *Buffalo News* sports section. ICE flattened the dome, put scoring in the playfield, and omitted the coin door.

Bill Johnston  
Buffalo, New York

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*Editor's Note: Here's a reply from ICE in regard to Bill Johnston's letter.*

*As is normally the case of a successful coin-operated game, a substantially modified version of our Chexx game has been offered to the retail market. I will elaborate on some of the details regarding the*

*retail model to emphasize why it is emphatically not appropriate for coin-op settings.*

*We have incorporated the electronics in the game cabinet eliminating the overhead scoreboard, the independent light source, and the internal power supply. Weight has been reduced substantially necessitating that this lighter game be somehow fastened to the floor or it will easily shift during game play in a coin-operated setting. While the home game does have sound effects,*

*some of these have been eliminated in order to reduce cost to the retail market.*

*The dome has been flattened resembling a dust cover, which would allow game players in a coin-op setting to put drinks, food, and trays, and anything else they choose to on the top of the game, making it totally inappropriate in a coin-op setting. The game time sequence is fixed and does not allow the operator variable time settings as provided in the coin-op game. The puck*



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(Myl.) <i>M.A.C.H. 3</i> \$1695	(Nin.) <i>Mario Bros.</i> \$1095
(Nin.) <i>VS System</i> call	(Zaccaria) <i>Farfalla</i> \$1795
(Nin.) <i>Punch-Out</i> call	

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Spyhunter . . . . .	call
Punch Out!! . . . . .	call
Vs. System . . . . .	call
Turkey Shoot . . . .	call
Gaplus . . . . .	call
Pole Position I . . . .	\$1595
Pole Position II . . . .	1995
Track & Field . . . .	1195

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Vs. Baseball . . . . .	295
Mega Zone . . . . .	695
Time Pilot '84 . . . .	695
Tag Team Wrestling	595
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Seicross . . . . .	545
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## NEW GAME SPECIALS

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Eight-Ball Deluxe Ltd. (pin) . . . . .	1995

The Industry's Bottom Line

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ejection, contrary to the coin-op game, is manual and thus undesirable in a coin-op setting. The internal electronics have been totally redone and no provision for tying to a coin mechanism has been made.

Since the introduction of Chexx into the coin-operated market, we have prided ourselves on the indestructibility of the machine as a unit including the dome, base, and cabinet. In re-engineering to a retail market, we have substantially reduced cost by eliminating some of the critical internal workings which made Chexx adaptable as a hockey game to a coin-operated setting. The nature of the retail market is such that the owner of a game will certainly take the necessary precautions so as to preserve the operation of the game.

We strongly feel that exposure of the game to a retail market will serve to enhance the play of the game in coin-operated settings, similar to what has been borne out with other games in the coin-operated market.

Emphatically the Chexx retail game is a far cry from the arcade model. We have not sold the retail game nor would we recommend use of the game in the coin market for all the reasons noted above.

**Ralph A. Coppola**  
President  
ICE

Tonawanda, New York

## 'Rebound Report'

Contrary to Herbert Weaver's hopes as expressed in his letter to *Play Meter* (September 1, p. 7), I nor the *Rebound Report* "possess the solution to all his (our) problems."

*Rebound Report* is meant to provide a number of valuable insights and soon-to-happen developments that will affect the video game industry so that he and others in the industry can create their own solutions. There is no Messiah! But there are some intelligent and objective minds who are on top of what is happening (technology-wise and in the marketplace); these are the people I asked for input. Solutions

can be created by taking that input and molding it to one's own needs. The contents of the *Rebound Report* will not be published in *Play Meter*.

**Malcolm E.A. Kaufman**  
**Malcolm E.A. Kaufman & Associates**  
Beverly Hills, California

*Editor's Note: The Rebound Report can be purchased from Malcolm E.A. Kaufman & Associates: 9744 Wilshire Boulevard, Suite 305, Beverly Hills, CA 90212. Telephone 213/859-9158. Price—\$250.*

## Pin improvement

Having been an operator now for the past seven years, it's been very exciting to see the rapid advancement in new games and the industry.

But yet, we all know now more than ever. More attention has to be given to keeping it healthy and to put it on a solid footing for the future.

Video games have been given lots of attention and there is always a new gimmick. Now it is time for new good pins and it is back to basics, but what about competition? It is now time, and well past due, for pinball players to be able to put their initials or their name with their score, for other players to want to come and beat them as in video games. This can be done by way of a small monitor or some type of digital print.

This will add new revenue and competition to pinball. I am all for buying new pins, and I cannot get enough!

This business is alive and well. It is great and it is what you make it. Let's hustle!

**D.J. (Jeff) Furneaux**  
**D.J. Furneaux Ltd.**  
Newfoundland

*Something on your mind you want to vent? Got a gripe? Full of praise? Have a question? If you have comments on the coin operated entertainment industry, write to Play Meter. Our "Letters to the Editor" columns are dedicated to you, the operator/reader.*





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# Adventure Game Shows Steady Earnings

By Dawn Adorno

This issue's cover is supplied by RDI Video Systems, maker of *Thayer's Quest*, the new conversion for *Dragon's Lair* and *Space Ace*.

*Thayer's Quest* is an animated laser fantasy adventure game that incorporates several features unlike those on most conventional videos. The machine has a glowing computer keyboard rather than a joystick and fire button, calls the player by name, and is capable of remembering up to 10 players. Game play challenges the player, as Thayer Alconred, to find the five powerful relics before the wizard Sorsabal does. (*Play Meter*, Sept. 15, p. 34)

Sample shipments of *Thayer's Quest* were sent to various locations in late summer. Earnings on the game have been stable, according to Rick Dyer, president of RDI. Four of the machines have been on location at the Yellow Brick Road arcade in San Diego for the last 15 weeks, Dyer said, and earnings have stabilized at between \$300 and \$400 per week.

"In terms of arcades," Dyer commented, "it has been earning \$300 to \$500 per week depending on the size of the arcade. The game starts out at a certain money level and stays at that level. Normally, games peak and then drop in earnings," he added. "But with *Thayer's Quest*, the better the player gets, the more it costs him to play. Some arcades are reporting \$800 per week, but that's been the exception, not the rule."

Players pay for time increments rather than for lives, Dyer explained, and some are depositing quarters every 90 seconds. "United Artists Entertainment, which has machines in theaters nationwide, plans to convert every *Dragon's Lair* and *Space Ace* to *Thayer's Quest*," he said. "They were just delighted."

The game "has done very well," said Jack Boasberg of New Orleans

Novelty, a large operator and distributor. "*Thayer's Quest* reduces the machine vs. man element and tries to give a more personal touch," he continued. "It's a game that requires intelligence and memory and an effort to learn to play the game. And there's a market for that type of player. You may get fewer people to play it, but they play it a lot."

## Game back-ordered

RDI began shipping units in mid-September to distributors nationwide, and Dyer said that the

company is now back-ordered for *Thayer's Quest*. Other Halcyon Technology games to come from RDI include *Thayer's Quest—The Sequel*, which should be available in November, *The Spirit of Whittier Mansion*, and *Orpheus*.

*Thayer's Quest* will also be available in November as a conversion for Mylstar's *M.A.C.H. 3*, and the company is also manufacturing a compact sit-down dedicated version of the adventure game.

RDI will preview all six of its adventure titles at the AMOA show. ●



Notice *Thayer's Quest's* computer keyboard. This location posted the game's instructions.

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# NATIONAL PLAY METER

## Poll Information

On the "National Play Meter," each game's rating represents its average performance as compared to the top game's average in that category. Averages are compiled by Play Meter through its operator survey. Games on the survey (except for novelty equipment) are currently (within the last six months) being marketed in the United States.

Operator/readers who want to participate in the survey should write Play Meter, "National Play Meter," P.O. Box 24170, New Orleans, LA 70184.

### DEDICATED VIDEOS

Arcade Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. <i>Spy Hunter</i> /Bally Midway	100.0	3*	19
2. <i>Punch Out!!</i> /Nintendo	92.8	1	13
3. <i>Two Tigers</i> /Bally Midway	88.1	2	5
4. <i>Hyper Sports</i> / Konami/Centuri	83.3	7*	7
5. <i>Crossbow</i> /Exidy	68.2	5	17
6. <i>Pole Position</i> /Atari	65.2	9*	21
7. <i>Birdie King II</i> /Coin-It	59.7	6	13
8. <i>Track &amp; Field</i> / Konami/Centuri	58.8	8	22
9. <i>10-Yard Fight</i> /Taito	57.7	12*	12
10. <i>Tag Team Wrestling</i> / Data East	50.7	11*	9
11. <i>Circus Charlie</i> / Konami/Centuri	50.1	14*	6
12. <i>Major Havoc</i> /Atari	45.8	13*	10
13. <i>Discs of Tron</i> / Bally Midway	42.3	17*	17
14. <i>Tapper</i> /Bally Midway	42.3	16*	14

### DEDICATED VIDEOS

Street Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. <i>Punch Out!!</i> /Nintendo	100.0	3*	13
2. <i>Spy Hunter</i> /Bally Midway	95.5	1	19
3. <i>Karate Champ</i> /Data East	94.0	—	1
4. <i>Gaplus</i> /Bally Midway	91.9	2	2
5. <i>Hyper Sports</i> / Konami/Centuri	69.6	5	7
6. <i>Pole Position</i> /Atari	55.7	8*	21
7. <i>Tag Team Wrestling</i> / Data East	51.7	13*	9
8. <i>10-Yard Fight</i> /Taito	47.3	12*	12
9. <i>Track &amp; Field</i> / Konami/Centuri	46.8	11*	22
10. <i>Birdie King II</i> /Coin-It	44.6	10	13
11. <i>Tapper</i> /Bally Midway	41.8	19*	17
12. <i>Circus Charlie</i> / Konami/Centuri	38.3	7	6
13. <i>Motorace USA</i> /Williams	37.1	14	11
14. <i>Root Beer Tapper</i> / Bally Midway	31.8	—	9
15. <i>Major Havoc</i> /Atari	31.3	17	10

### CONVERSIONS

Arcade Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. <i>VS. Baseball</i> /Nintendo	100.0	1	7
2. <i>VS. Tennis</i> /Nintendo	94.7	3*	13
3. <i>Pole Position II</i> /Atari	87.9	2	21
4. <i>Time Pilot '84</i> /Konami	74.0	4	11
5. <i>Up and Down</i> / Bally Midway	70.4	6*	8
6. <i>Exerion</i> /Taito	67.2	13*	11
7. <i>Mega Zone</i> / Konami/Interlogic	63.7	9*	11
8. <i>Champion Baseball</i> /Wico	59.0	7	7
9. <i>Elevator Action</i> /Taito	58.4	5	19
10. <i>Junior Pac-Man</i> / Bally Midway	44.0	11*	13
11. <i>Mr. Do's Wild Ride</i> / Universal	40.3	15*	12
12. <i>Cloak &amp; Dagger</i> /Atari	30.7	12	8
13. <i>Superbike</i> /Crown Vending	28.7	14*	8
14. <i>Donkey Kong 3</i> /Nintendo	27.2	17*	11

### CONVERSIONS

Street Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. <i>Pole Position II</i> /Atari	100.0	3*	21
2. <i>VS. Baseball</i> /Nintendo	98.7	2	7
3. <i>Mega Zone</i> / Konami/Interlogic	75.9	9*	11
4. <i>Exerion</i> /Taito	74.0	12*	11
5. <i>VS. Tennis</i> /Nintendo	71.8	4	13
6. <i>Time Pilot '84</i> /Konami	70.1	5	11
7. <i>Motorace USA</i> /Williams	69.1	15*	3
8. <i>Millipede</i> /Atari	67.4	10*	8
9. <i>Elevator Action</i> /Taito	60.0	6	19
10. <i>Nova 2001</i> /Universal	59.2	13*	8
11. <i>Champion Baseball</i> /Wico	56.1	17*	7
12. <i>H.B.'s Olympics</i> / Magic Conversions	51.3	—	2
13. <i>Mr. Do's Wild Ride</i> / Universal	49.3	19*	12
14. <i>Cloak &amp; Dagger</i> /Atari	49.3	—	9
15. <i>Superbike</i> /Crown Vending	48.2	—	9
16. <i>Junior Pac-Man</i> / Bally Midway	43.7	7	13
17. <i>Donkey Kong 3</i> /Nintendo	41.9	—	12
18. <i>The Glob</i> / Magic Conversions	35.5	—	5

### LASER DISCS

Arcade Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. Firefox/Atari	100.0	2*	11
2. Star Rider/Williams	90.9	4*	9
3. M.A.C.H. 3/Mylstar	90.9	5*	22
4. Dragon's Lair/Cinematronics	66.9	3	23
5. Astron Belt/Bally Midway	64.7	7*	17
6. Space Ace/Cinematronics	57.1	6	16

### LASER DISCS

Street Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. Cobra Command/Data East	100.0	—	5
2. Star Rider/Williams	72.0	1	10
3. Firefox/Atari	64.4	—	11
4. M.A.C.H. 3/Mylstar	53.0	4	22
5. Space Ace/Cinematronics	50.5	3	16
6. Dragon's Lair/Cinematronics	44.1	2	23
7. Astron Belt/Bally Midway	30.3	5	17

### PINBALLS

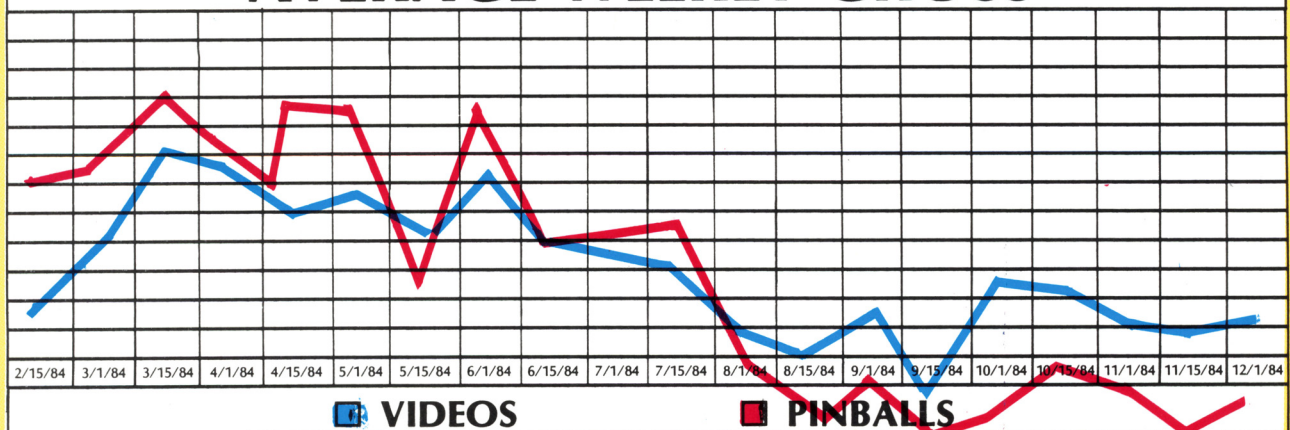
Arcade & Street Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. Touchdown/Gottlieb	100.0	—	1
2. Firepower II/Williams	76.5	1	20
3. Black Pyramid/Bally Midway	73.7	4*	7
4. Alien Star/Gottlieb	72.7	—	1
5. Eight Ball Deluxe/Bally Midway	71.4	5	14
6. The Games/Gottlieb	71.1	2	8
7. Jacks to Open/Gottlieb	69.1	9*	14
8. Sharpshooter II/Game Plan	63.6	3	19
9. Pennant Fever/Williams	59.1	7	7
10. Laser Cue/Williams	58.4	10	14
11. Kings of Steel/Bally Midway	57.3	13*	14
12. X's & O's/Bally Midway	45.8	14*	17
13. Rack 'em Up/Gottlieb	40.0	6	15
14. Royal Flush Deluxe/Gottlieb	32.7	15	14
15. Granny & the Gators/Bally Midway	27.3	17*	17

### NOVELTIES

Arcade & Street Locations	Rating		
	Average Dec. 1 1984	Rank Last Issue	No. of Times on Poll
1. High Ball/Norton	100.0	1	20
2. Bowler Roller/Bob's Space Racers	75.4	6*	10
3. Whac-A-Mole/Bob's Space Racers	58.0	—	22
4. Skee-Ball/Skee-Ball	54.8	2	19
5. Shoot Away/Namco	52.2	9*	19
6. Big Bat/Bally Midway	46.4	7*	5
7. Boom Ball/Meltec	46.4	—	22
8. 10-Pin Deluxe/Bally Midway	46.4	4*	7
9. Big Strike/Williams	46.4	8	18
10. Super Shifter/Bob's Space Racers	34.8	11*	7
11. Triple Strike/Williams	34.8	5	17
12. English Mark Darts/Arachnid	29.0	12	13
13. Mr. Muscle/Zamperla	23.2	13	6
14. Fire Escape/ICE	23.2	14	9
15. Ninja Gun/American Arcade	23.2	—	10
16. Whirly Bucket/Exidy	19.3	10	16

NOTICE: The sole purpose of this survey is to determine on a regular basis the top performing games in the country. Any attempt to use the results of this survey for any other purpose is unauthorized, wrongful, and misleading.

## AVERAGE WEEKLY GROSS



### Poll Update

Driving games have always fared well on the "National Play Meter." *Spy Hunter* is the number one dedicated video in arcades. *Pole Position II* is the number one conversion in street locations.

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# NEWS

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## FLORIDA UPHOLDS LOCATION LEASE AGREEMENT

A Florida District Court of Appeals ruled recently that a location agreement which provided a vending company reserved rights to terminate the contract under certain conditions was enforceable.

The decision came after a case involving a vending machine company that had terminated a lease contract with one of its locations. The vending company had contracted to install cigarette,

music, and other game machines in the location, provided the location did not permit other machines to operate on its premises. The location agreed. But when the location later allowed competitive equipment to operate in the location, the vending company sued, claiming damages for loss of profits.

A lower court ruled in favor of the location, stating the contract

was unenforceable because it was subject to termination without restriction by the vending company. The vending company appealed and, in reversing the decision, the District Court of Appeals ruled that since the location management admittedly violated the contract, and since the vending company could only terminate the contract under certain conditions stated in the contract, the agreement was legal and enforceable. ●

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## AGMA GAINS ALLY AGAINST COPIERS

The Federal Trade Commission has requested that the Amusement Game Manufacturers Association supply the agency with information regarding ongoing industry copyright suits in an effort to prevent counterfeiters convicted in civil court from copying other amusement games in the future.

According to AGMA Executive Director Glenn Braswell, the request came during a September 11 meeting on Capitol Hill with AGMA; Rep. James T. Broyhill (R-NC), ranking minority member of the House Energy and Commerce Committee; and FTC officials.

Braswell said that the FTC staff present agreed that amusement game counterfeiters are in violation of federal fair trade practices and are subsequently subject to stringent cease and desist orders once convicted on civil counterfeiting charges.

"Our biggest problem to date has been that once counterfeiters are convicted on civil charges, there's nothing to stop them from paying the fines and going back to copying a different type of game. But after the FTC steps in and issues a cease and desist order against the individual for the class of activity, a

counterfeiter had better think long and hard about copying any game again. If he's caught, he'll face a criminal contempt of court charge and those aren't too easy to shrug off," Braswell explained.

Braswell said he believes that the industry now has a solid rapport with federal law enforcement agencies involved in counterfeiting, including the U.S. Customs Service, the Federal Communications Commission, the Federal Bureau of Investigation, the International Trade Commission, the Department of Commerce, and the Federal Trade Commission. ●

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# NEWS

## ENGINEERS TO ASSIST UL REVISION

As a follow-up to its July submission to Underwriters Laboratories of a new amusement machine safety standard, the Amusement Game Manufacturers Association has nominated five industry engineers to facilitate the testing center's internal review process, according to AGMA Executive Director Glenn Braswell.

In a letter to UL Vice President and Chief Electrical Engineer Robert Seelbach, the following persons were nominated to become members of the UL Industry Advisory Group: Lance Dekker, Bally Midway Manufacturing Corporation; Donald P. DeVale, Industrial Design Electrical Associates, Inc.; Robert Kapoun, Stern Electronics; Ray Musci, Universal

USA, Inc.; and John Pederson, Nintendo of America, Inc.

Additionally, AGMA requested that its Legislative Counsel, Peter Kopke, participate as an observer and liaison to the AGMA Technical Advisory Committee and the AGMA Board of Directors.

Braswell explained that advances in electronics and computer technology have evolved beyond the parameters of UL 22, the existing safety standard for amusement machines. The industry-prepared draft now being considered by UL will cover all current and future amusement games.

UL is expected to finalize a new amusement machine safety standard by early 1985. ●

## GOTTLIEB NEGOTIATIONS UNDERWAY

"I will revolutionize and rebuild the pinball industry," claims Steve Kirk, game designer (of *Meteor* and others) and engineering/marketing consultant.

Kirk, who is reportedly trying to negotiate to run the now-defunct Gottlieb, said if that attempt fails he will "get the backing to form my own pinball company. The downfall of Mylstar/Gottlieb is representative of the total failure of a suicidal industry to meet the needs of the operator and the players," Kirk said.

"For the past 20 years, I have accumulated design ideas; and, for the past several years, I've been developing new engineering and game concepts as well as marketing strategies. And the one-by-one demise of pinball companies like Gottlieb is not going to deter me now. I fully intend to rebuild the pinball industry." ●

Kirk will be interviewed in a future issue of *Play Meter*. Kirk can be reached, appropriately enough, at (312) PINBALL. ●

## POLETT JOINS RAND

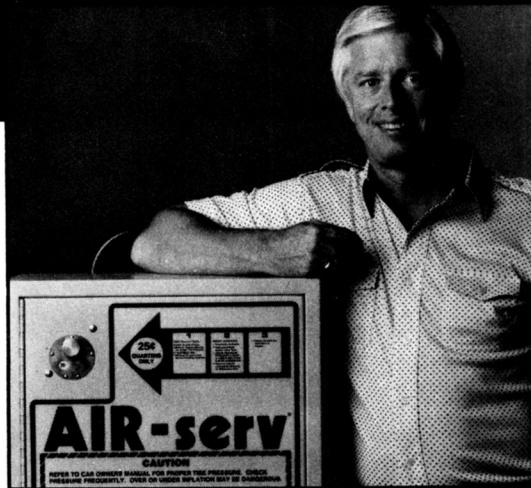
Rand Of Phoenix, Inc. has appointed Lou Polett as vice president of marketing. Polett brings sales and marketing expertise to this newly created position.

Prior to joining Rand, Polett was vice president of a public company (O.T.C.) where he was in charge of marketing telecommunications devices for the speech and hearing impaired. His past experience also includes manufacturing and distributing telecomputers, and serving as a District Representative for Fabrege. ●



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## SPECIAL NOTICE

The purchased of **used** single player **Karate Champ™** PC boards is also a violation of **Data East's** copyright and trademark rights. **Data East USA, Inc.** has shipped only samples of the single player game and know the location of these units. Therefore, the discovery of illegally purchased **used** single player **Karate Champ™** PC boards will be a simple task. **Data East** will move just as aggressively against the **used** boards as we will against those that are counterfeit.

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# NEWS

## BALLY DISTRIBUTING APPOINTS 2

Ron Carrara has been promoted to operations manager at Bally Advance and Frank Huss has been appointed assistant director of credit management for Bally Distributing.

"Mr. Carrara will assist Will Laurie as operations manager, overseeing all areas of music, games, and vending sales," said Charles Farmer, president of Bally Distributing. "Ron brings to this position over 20 years experience in the coin industry."

Huss joined Bally Distributing after a career with the Alberto Culver Company where he held several credit positions. "Frank will become a valuable addition to the staff of G.L.A.C., will work directly for Nat Fredman, and be an asset to the continuation of solid credit programs," said Vice President William G. Malloy. •

## NAMA APPOINTS WESTERN MANAGER

Edgar R. Nield, an attorney and former vending company manager, has been named Western manager and counsel of the National Automatic Merchandising Association. (NAMA).

Nield is in charge of the NAMA Western office, responsible for government affairs in the 10 Western states, and will act as counsel to the NAMA State Councils in the West, including California, the Northwest, Intermountain States, Arizona, and Hawaii.

"Ed has considerable experience in the vending business, having joined the Canteen distributorship in Denver in 1976," said NAMA President Richard Schreiber. He advanced to supervisor of the service division which comprised some 30 people and had gross sales over \$2,000,000. From 1978 to 1980, he managed the Canteen Corporation branch in Colorado Springs. •

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## LONDON DISTRIBUTING HOLDS OPERATOR'S DAY

More than 100 Wisconsin operators converged on the Midway Motor Lodge (Mayfair) August 24 for London Distributing Corp.'s "Operator's Day-84."

Attendees participated in a wide variety of seminars covering current topics such as *Conversion Kits*, *Return of the Pinball*, *A New Look At Music*, and *Electronic Dart Leagues*. Factory reps conducted learning sessions and answered questions during the day-long event.

Participants were treated to a "Pre-AMOA" look at some new equipment during the lunch hour, courtesy of Williams Electronics, Mylstar Electronics, Exidy, and I.D.E.A. darts. Operator Roger Schimm of Video Vend was the grand prize winner of a conversion kit during the afternoon's door prize drawing.

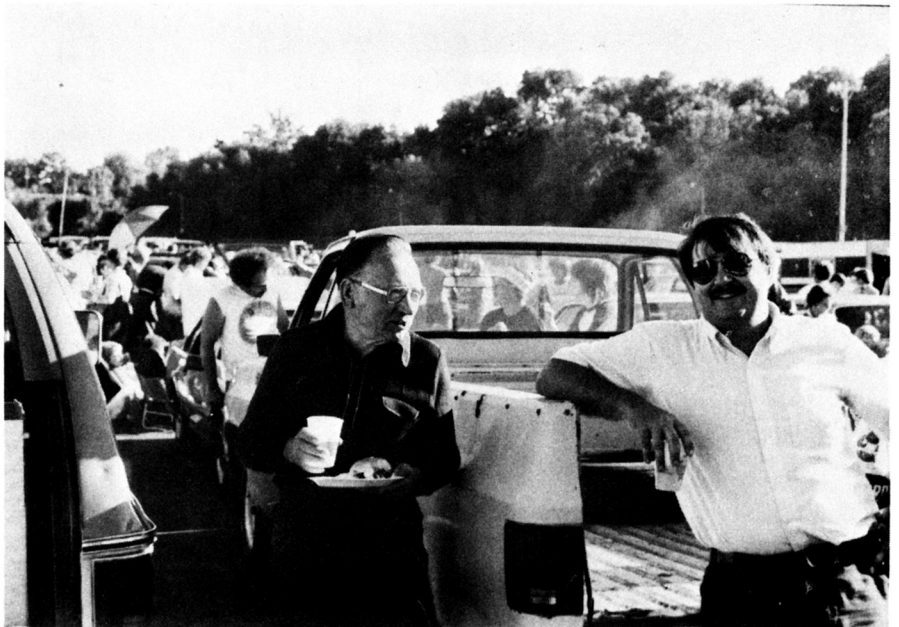
Following an amusing and informative presentation by Ed Blankenbeckler of the Seeburg Phonograph Corporation, operators and their families were treated to an old-fashioned tailgate party at Milwaukee's County Stadium, just prior to the contest between the Brewers and the Texas Rangers.

W.A.M.O.'s Joe Phillips was on hand to invite non-member operators to join the state association and urged attendance at the upcoming fall conference.

According to London's General Manager Steve Isaacson, "the turnout was so large and enthusiastic, we hope this will become an annual event." ●



*London Distributing's General Manager Steve Isaacson (sweater) visits with operators at the tailgate party.*



*Steve Kordek (l), Williams' master pinball designer, and Milwaukee operator Bruce Dentice of H&G Amusement (r), enjoy the company at the tailgate party.*

# NEWS

## UNIVERSAL DEBUTS 'DO! RUN RUN'

Universal USA unveiled its latest video game, *Do! Run Run*, to operators in the San Francisco Bay Area September 29.

Hosted by Universal USA Distributing, the open house was attended by more than 100 locals in the amusement industry during the four-hour event.

As with each previous open house held to introduce Universal USA's conversion kits *Mr. Do!*, *Mr. Do's Castle*, and *Mr. Do's Wild Ride*, this coming out party for the latest in the *Mr. Do!* adventure series featured food, fanfare, and fun, including a number of door prizes.

The winner of the *Do! Run Run* dedicated cabinet was Rick Schott of Cal Distributing. In the "High Score" contest, Jason Stern of American Amusement and Marcie Hartman of Silver Flipper won kits for the highest scores of the day on *Do! Run Run*.

Don Edwards, sales manager of Universal USA Distributing, said the operators' response to the new game was very encouraging. "All I keep hearing is how good the game looks. I've even had a number of operators tell me they think it's better than *Mr. Do!* It's a slow starter which gathers steam fast in street locations. It's not another rocket that drops like a rock."

Universal USA Distributing is planning another open house in November to showcase a new product introduced at the AMOA. ●

### Vending International

*Frog Hunter*, *Frog Ball*, *Catcher Frog*, *Arm Wrestling*, *Cappy Cotton Candy*, *Fanky Malloon*, and *The Crane* are manufactured by Vending International in San Juan Capistrano, California--not the companies listed in the October 1 Buyers' Guide. *Play Meter* regrets the error.

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# EXPO CAPSULE

## Tuesday, October 23

*Noon - 4:30 p.m.*  
Registration Open

## Wednesday, October 24

*8 a.m. - 5 p.m.*  
Registration Open

*9:30 a.m. - 4:30 p.m.*  
Concurrent Education Sessions

- "Video Jukebox Technical Seminar"
- "How to Conduct a Needs Assessment for Computerizing Your Business"
- "Laser Up-Date"
- State Association Meeting
- "Making the '80s Pay"
- "Pool and Dart Leagues = The Cue to Right on Target Profits"
- "Short Cuts to Trouble Shooting & On-Site Repairs"
- "Programming Your Jukebox for Double Revenue"
- "Let's Talk ACTUAL Depreciation"
- "How to Re-Market Your Second & Third Ranked Equipment for First Rank Profits"

## Thursday, October 25

*8 a.m. - 6 p.m.*  
Registration Open

*9 a.m. - Noon*  
AMOA General Session

*Noon - 6 p.m.*  
Grand Opening of Exposition Hall

## Friday, October 26

*8 a.m. - 6 p.m.*  
Registration Open

*8:30 - Noon*  
Concurrent Education Sessions

- "Conversion Kits Technical Seminar"
- "Merchandising Merchandise Equipment"
- "Jukebox Licensing Procedures"

- "Entrepreneurship/Evaluating and Passing On a Closely Held Business"
- "How to Use Taxes & Economics to Make Conversion Kits a Winner"
- "Cigarette Vending/Merchandising Subsidies & Controls"
- "A Business Plan for Profit"
- "Jukebox Industry Legislative Report"
- "Security for Personnel & Family"
- "How to Re-Market Your Second & Third Ranked Equipment for First Rank Profits"
- "Benefits"
- "The Basics of Writing Location Contracts"

*10 a.m. - 6 p.m.*  
Exposition Hall Open

*10 a.m.*  
AMOA Member...Ladies Brunch

## Saturday, October 27

*8 a.m. - 4 p.m.*  
Registration Open

*8:30 a.m. - Noon*  
Concurrent Education Sessions

- "Technical Seminar/Williams Pinball Machines"
- "How to Conduct a Needs Assessment for Computerizing Your Business"
- "Jukebox Licensing Procedures"
- "Security for Personnel & Family"
- "Merchandising Merchandise Equipment"
- "Entrepreneurship/Evaluating and Passing On a Closely Held Business"
- "Benefits"
- "Making the '80s Pay"
- "Cigarette Vending/Merchandising Subsidies & Controls"
- "The Basics of Writing Location Contracts"

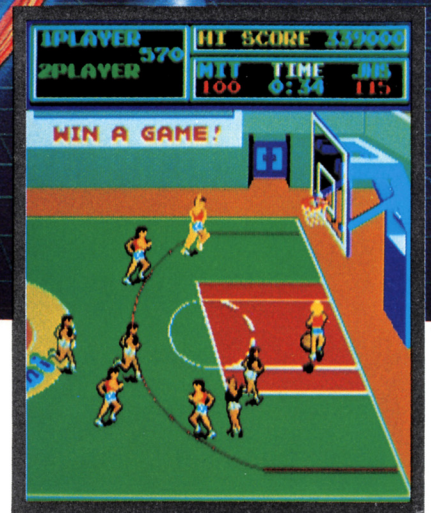
*10 a.m. - 4 p.m.*  
Exposition Hall Open

*6 p.m. - 7 p.m.*  
AMOA Cash Bar Reception

*7 p.m. - 11 p.m.*  
AMOA Banquet/Awards and Stage Show

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# A SNEAK PREVIEW OF AMOA SHOW PRODUCTS

By Dawn Adorno

*Play Meter* contacted manufacturers to get a preview of what they will exhibit at the AMOA show. The following is a listing of those companies and a brief description of their new product.

## Arachnid

Arachnid will show its electronic dart game, *English Mark Darts*.

## Bally Midway

Bally will show three new dedicated videos, a pinball, a shuffle alley, and its six-pack program of conversion kits. *Pac-Land*, available as a dedicated game, is based on the Saturday morning cartoon show. It features 19 magical adventures as Pac-Man makes his way to fairyland.

*Timber*, a one- or two-player game, has players compete in chopping down a tree. Each player controls a lumberjack with a joystick and button in a race against each other or against the computer. *Crater Raider*, also a dedicated video, is a futuristic game in which the player controls a tank in a search and destroy mission.

Bally's latest pin, *Spy Hunter*, is based on the same theme as its popular video game. The company will also introduce *Ten Pin Champ*, an improved version of its electronic shuffle alley, *Ten Pin Deluxe*.

Bally's six-pack of conversions includes *Water Match*, *Up & Down*, *Mr. Viking*, *Flicky*, *S.W.A.T.*, and *Bullfight*. Operators can convert these games through a ROM change. Other kits shown will include *Power of Druaga* and *Future Spy* to convert *Zaxxon*, *Frogger*, and other games.

## Bally Sente

The company will feature a variety of titles for its SAC I interchangeable game system.

## Bhuzac International

In addition to its *Devil Riders* pin, Bhuzac will also exhibit *Magic Castle*, a new pin with animated backglass and speech. Two versions of the company's video *Shooting Gallery* will be shown along with *Jackrabbit*, a fast-moving, multi-phase maze game. Bhuzac will also show *Jackrabbit* in kit form.

## Crown Vending

Crown Vending will have *Superbike*, a conversion for *Donkey Kong* and *Donkey Kong Jr.*, and cocktail versions of each. A new conversion for the preceding games called *Hero in the Castle of Doom* will also be shown. *Hero* is an adventure game.

## Data East

Data East will have its laser conversion, *Cobra Command*, along with its new dedicated video, *Karate Champ*, designed for one or two players. The company will also show its numerology game, *Destiny*.

## Dynamo Corporation

In addition to its *Dynamo Soccer* table and *Big D* pool table, the Texas-based company will also exhibit Data East's *Karate Champ* in its contract manufacturing service display.

## Exidy

In addition to *Cheyenne*, a follow-up gun game to *Crossbow*,

Exidy is readying a sit-down, non-conventional video for the AMOA show. Exidy will also display its new LED readout system.

## Funai/ESP Company

The maker of the laser game, *Interstellar*, is back with a conversion laser called *Zangus*. The game is partly animated and partly computer graphics. The player, Ken, attempts to get to the mysterious planet, Zangus, and must fight warriors and other hazards as he lands on different planets. *Esh*, which will be available as a dedicated laser, has a "damsel in distress" theme. Don, the hero, attempts to rescue Cindy from the clutches of the evil emperor Esh in this animated adventure game.

## Game Plan Inc.

The company will show its new pin, *Agents 777*, which has a gangster/slot machine theme.

## IDEA, Inc.

IDEA will preview its new software and mini-computer for its dart games. The new software is an extension of Tru-Score which will allow operators to set the price of games and to score missed darts. The company's mini-computer makes it possible to control four dart games at once. IDEA will also exhibit *Century Darts*, *Royal Darts*, *All-American Darts*, and a brand new dart game.

## Konami Inc.

*Super Basketball*, Konami's new dedicated video with voice synthesis, will be shown at the company's

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booth along with five other new games. *Super Basketball* is a one-player game in which the player controls a team in a game against other teams of varying skill levels. Players pass and shoot the basketball and can foul or be fouled by other players. Patty Vaccarro of Konami said, "I have no doubt that this will be the hit of the show."

#### Magic Conversion Co.

Along with its conversions *H.B.'s Olympics* and *Atlantic City Action*, Magic will show *Driving Force*, *8-Ball Action*, and *Taxi Driver* conversion kits. *Driving Force* is a driving game which converts *Pac-Man* while *8-Ball Action*, a conversion for *Donkey Kong* and *Donkey Kong Jr.*, has a pool theme. *Taxi Driver*, as a dedicated board, is a racing game in which the player has to pull over and pick up passengers.

#### Memetron Inc.

This new company plans to show *Punch Power*, an English punching bag machine, designed primarily for arcade use. It will also preview a laser disc conversion which Larry Siegel describes as "sensually oriented," and a video conversion with a comedy chase theme. The video conversion will convert any raster scan monitor game.

#### Movie Hut

The *Breath Alcohol Scanner*, *Fun Chicken*, and *Heart Beat Scanner* will be on display in this booth, along with the company's *Vend-A-Sticker* machine and a collection of prismatic stickers.

#### Nichibutsu USA Corp.

The maker of *Seicross* will exhibit *Tube Panic* and two new games tentatively titled *Lovely Angel* and *Roller Jammer*. *Seicross*, which will convert vertical raster scan monitor games, is a futuristic motorcycle adventure game. *Tube Panic* is also a conversion, and players control a spaceship on a moving screen or in a revolving tunnel. *Lovely Angel* is also a space game.

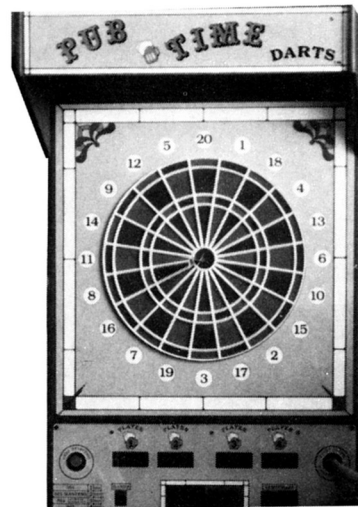
*Roller Jammer* is a "very playable roller derby type game," said Dave Siller, sales manager at Nichibutsu. "It's got the perspective of *Pole Position*, the intensity of *Track & Field*, and the punching capabilities of *Punch Out!!*," Siller added.

#### Nintendo

Nintendo will show its latest kit for the VS. System, *VS. Pinball/Golf*, and a game called *Wrecking Crew*. The company says it will also premier a kit for *Punch Out!!*.

#### Nomac Ltd.

*Pub Time Darts*, an electronic dart game, can be seen at Nomac's booth.



*Pub Time Darts*

#### The Norton Company

In addition to its *High Ball*, *Ticket Vendor*, and *Humphalump* game, Norton will present a new version of *Happy Feet* called *Stomper* and a six-player bowler called *League Meister*.

#### Lou Pavloff & Associates

The company will show two countertop card games, *Mini Boy 7* and *Mr. Computer*, both for amusement only, and a new countertop frog race game which is an additional game for *Mini Boy 7*.

#### SNK Electronics

*Vulgus*, a kit for vertical monitor games, is a space shoot-'em-up themed game with multiple scenes.

SNK will also introduce *Mad Crasher* which will be exclusively distributed through Bally. It will be sold only as a kit for horizontal monitor games and features a futuristic motorcycle shoot-em-up theme.

#### Status Game Corporation

A trivia game with 3,000 questions called *Triv-Quiz* will be shown at the Status booth. The game is available in upright and countertop models.

#### Stern Electronics

Stern will share a booth with Kitco. The company plans to show *Black Beauty*, a new shuffle alley, and a pin called *Laser Lord*. Kitco will display *Crown's Golf*, a golf themed video licensed from Sega, along with other kits.

#### Universal

Universal will exhibit four new games in addition to its latest kit, *Do! Run Run. Le Cible*, a space game, and *Kick Rider*, a motorcycle adventure game, are available as kits. The company will also introduce two new laser games—*Top Gear*, a racing game in a cockpit cabinet, and *Super Don Quixote*, an adventure game.

#### Wico Corporation

Wico's first pinball effort, *Aftor*, will be introduced at the AMOA along with *The Wiz*, a countertop trivia game, and kits *Regulus* and *Champion Baseball II*. Wico will also show its electromechanical gun game, *Treasure Cove*.

#### Williams

*Aeroboto*, a conversion for any horizontal monitor game, will be shown at the Williams booth. The company will also exhibit *Strike Zone*, its new shuffle alley with a new cabinet design, and *Gridiron*, a conversion for *Pennant Fever*. Williams will show its *Star Light* pin and *Turkey Shoot* video.

*Play Meter* also contacted other game manufacturers for information on their new products, but information was unavailable at press time.



# OPERATORS DISCUSS FUTURE PURCHASES

By Dawn Adorno

*Play Meter* contacted operators to ask them what types of equipment they will consider buying at the upcoming AMOA show. Some operators are still interested in buying video games; others say they can't afford to go to the show or to purchase any equipment at this time. Their comments follow.

I plan to attend the show. From personal experience, we're going to be looking for good games with novelty type themes—not space games. Shoot-'em-up space games have run their course. *Punch Out!!* has been a super good game, and *Karate Champ* and *Turkey Shoot* are also good. We'll also be looking for some good pinball machines. We recently bought Mylstar's *The Games* which is the first decent pin in a long time.

We might also be interested in foosball and hockey games. In one of our arcade locations, foosball has been excellent. Kids are ready for something physical.

Video games started to get so sophisticated that the younger kids couldn't get their money's worth. In 1979, about 25 or 30 percent of our arcade business was kids from ages nine through 12. As the games became more sophisticated, that crowd has gone. We need games that will challenge the 12- and 13-year-olds.

We won't be looking at any laser disc games because there are too many technical problems with them. We spent \$1,500 to convert *Dragon's Lair* to *Space Ace* and watched collections go from \$80 per week to \$40. Our technicians can fix

anything, but these games are broken down half the time. They weren't built to run; they were built to sell.

In 1983, we didn't feel the pinch until the fall. We're much more selective in our purchases than we were in the past, and we don't believe anybody's test reports. We test a game ourselves, and if it's good, we might buy two or three more.

**Howard Shanahan**  
Vertical Investment Inc.  
Waterloo, Iowa

Like all operators, I'm trying to stay in business. We're not going to the show because we've gone for the last four years or so and there's never been anything worthwhile there. The hit of the show each year has never turned out to be a money-maker for me.

I'm much more particular this year, and the amount we buy is way down. I have bought a lot of conversion kits, but videos are terrible right now. We converted *Dragon's Lair* to *Space Ace*, and I'm still trying to get it paid off. I'm not happy with lasers because they are a lot of trouble for the amount of money you make.

Pool tables are the best thing here now, and phonographs are about the same. Pinballs are down too—they went up a little bit, and now they are down again.

**Eugene Rovai**  
Rendezvous Music Co.  
Eureka, California

We won't be buying much of anything. All business in Michigan is down, but videos are down about

75-80 percent. Our buying has definitely changed since last year—we bought 20 times more last year than we'll buy this year. The cash just isn't there.

We've been in a similar situation before in the '30s and the '50s, and we don't get excited about business being slow. We know how to control our spending.

I think the manufacturers brought this on themselves by overpricing machines. A lot of operators overbought, and now they are out of business.

**Vic Massa**  
H. Gregory Inc.  
Battle Creek, Michigan

I'm planning to go to the show to look for something I think will do well. It doesn't have to be any particular type of game, like a driving game, but just something I think will do well. The latest videos such as *Spy Hunter*, *Karate Champ*, and the Nintendo VS. System games are earning well.

I haven't really changed my buying strategies but have basically bought better games. We've staying away from lasers, although it's possible that I'll convert the ones I have if the conversion is a good game.

I have very few phonographs and haven't bought a video jukebox because I want to see how they do and if they get the bugs worked out of them.

**Gary Vicars**  
Gameland  
Kingsport, Tennessee

I hope to go to the show to look for some new videos and conver-

sions. But good equipment is not out there to buy like it used to be, so I haven't bought like I used to. We need something to get the tokens and quarters back.

**Alan Rose**  
Cloverleaf Game Room  
North Miami Beach, Florida

I'm going to the show and will probably look at Midway and Atari videos. I probably won't buy any pins because they give us too much trouble. I bought a few laser games, and will consider conversions for them if there's a good one. We've bought quite a few conversions this year and are more interested in them than in dedicated games.

**Henry Cato**  
Kiwi Arcade  
Atlanta, Georgia

No, I can't go to the show this year. As far as buying is concerned, it's kind of wait and see what's moving and what the other vendors are putting in. I've got some older equipment like gun games and ball bowlers that I've put back out and

that's doing well.

I put a foosball table in one of my summer locations, and I did real well with it. I'll be buying a lot less this year. Pinball is picking up, but I've stuck to the same machines and rotated them. If a good one comes around, I might buy another pinball. Pool tables are steady, and jukeboxes do well as long as I keep the records up to date. We're an old company anyway and are reviving older equipment.

**Nathan Weldon**  
E.J. Foy Amusement Co. Inc.  
Watertown, New York

I'm not going to the show because business is too poor. It's not likely I'll buy anything this fall because the present prospects don't look good. I didn't buy much this year compared to last year.

**Walter Hamilton**  
W. Hamilton Inc.  
Willcox, Arizona

Price is going to be an important factor this year. The days of high priced equipment are over if we

intend to survive. Our buying strategies have definitely changed.

We've got to be more cautious because our gross is down from what it was. It's down from two years ago, but we are better off than last year because we've been able to get conversions and used videos we hadn't had at a reasonable price. On those games, you don't have to have a high gross to make a return.

All through the video boom, we had pins out, and there are quite a few dedicated pinball players. While pins didn't do what videos did, they hung in there and started coming up last year. We bought a few used pins for that reason, and pinball is now equalizing videos.

We stay about even on jukeboxes. It's too hard to make any money on them because we've never been able to get quarter play in this area. It's the same with 50-cent play on videos or pool tables—they just won't play them, so we had to go back to 25 cents.

**Vic Kilmer**  
Kilmer Amusements Inc.  
Muncie, Indiana

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## DISTRIBUTORS SPECULATE ABOUT PRODUCT AT THE AMOA

*Play Meter* talked with distributors nationwide to get their feelings about the AMOA show and to find out what kind of equipment they hope to see. We also asked what their operator customers are telling them. Here are their responses:

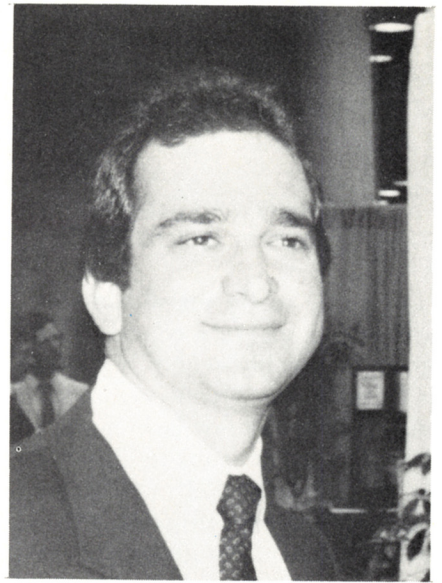
The manufacturers had just too many games too quickly.

The operators who are at the show will be looking for a way to keep their heads above water—looking for answers. Operators were forced to buy a lot of games because the fly-by-nighters who got into the industry put operators in a position to have to buy more games than they needed just to compete with those people. They already spent too much on games that are sitting in warehouses.

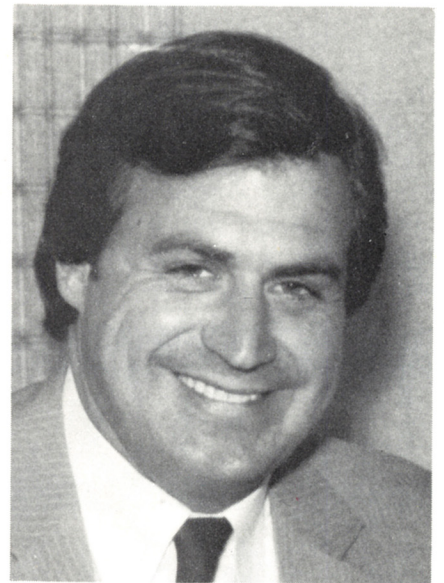
Conversions are the only way to go right now because of the number of cabinets available. If the manufacturers came out with games to replace the dead games, it would help more than coming out with more cabinets.

We are definitely back to basics and they will stand out at the show. Jukeboxes have been priced too high (the increases in prices) but the laser video jukebox may be the way for operators to get back locations that were lost to sound systems.

Pinballs are also making a comeback and even used pinballs are hard to come by these days. Pool tables have always made money, and the best way I've found to keep locations is to offer the locations a pool league program like Valley has. It starts with the player, and if a location has something to offer that another one doesn't, like the chance



*Chris Kanellakis*



*Bill Kraft*



*Jim Libby*



*John Margold*



*Mike Dodson*

to be eligible for a tournament, that's where the players will go.

**Chris Kanellakis**  
AMA Distributors  
New Orleans, Louisiana

My overall outlook is that we are not out of the woods yet as far as a turnaround in the industry. Many operators are having serious problems, and it may not look bright for another 6 or 8 months.

Many operators may be looking strictly at the dollars and cents of attending the show and may not feel it is worth it for them to spend the money to go instead of using that money to buy some new equipment or make a monthly payment.

I don't think there will be anything too exciting at the show. Lasers didn't do what we hoped, and I think operators feel they can see whatever is at the show at the distributors shortly afterward.

**Rubin Piha**  
Greater Southern Distributing  
Atlanta, Georgia

If people are going looking for that revolutionary game, they won't find it. I will be looking at the smaller manufacturers and what they have to offer. I expect no surprises.

I think the operators who will be attending will send fewer people and spend less time. Clearly there is a benefit to attending the show. It gives the operators a chance to talk to distributors, other operators, and manufacturers on neutral turf. That interaction is invaluable.

I just hope that people aren't pinning stars on this show as a cornerstone of what the industry is doing—if a good turnout, the industry is doing good; if a bad turnout, the industry is doing badly.

We must get back to the central theme of the industry and that is entertainment. The public has a certain attention span and they need new things. It could even be pinball which isn't new to us but it is different to the players—a change. Another phenomenon is operators who are putting out older videos. They are new to the market and the key is that it is a change.

America changes its entertain-

ment moods, and we have to cater to that change even if it's with old equipment.

**Steve Koenigsberg**  
State Sales  
Baltimore, Maryland

I definitely don't think there will be a game to bring the industry back like there was in the past.

The Sente system should be popular with the operators because it has a lot of flexibility. They are introducing six games to go with the system. I am excited about it.

In terms of interest, I think phonographs, darts, and pool tables will be what operators will be looking at. They need things like this to see a fair return on their investment.

**Bill Kraft**  
Shaffer Distributing  
Columbus, Ohio

I would like to see any well-built machine that takes in money at a fast rate, producing short ROI periods and high profits for the operator. In addition, I would like to see jukebox innovations to revitalize this potentially great investment.

As usual, I'll be looking for good pins. But most of all, I'll be looking for some happy faces once again, especially on my friends' faces in this industry. Isn't two years of attitude adjustment long enough?

**Dave Sandler**  
Sandler Vending  
Minneapolis, Minnesota

This show should be a talk and listen show with the emphasis on listen. Many have taken a defeatist attitude, and once you get this, you may as well not be in business. The operators who let the show slip by may see their businesses slip by too.

I think we may see some smaller manufacturers who were overlooked in the past garnish more attention. Operators need to realize they can't base their businesses on what might be; they need to make the best of what they have. There are some good pieces out there that have been overlooked, but they need to be promoted. You can't set games out and not give them another thought.

It's time to get on an even keel through hard work. No one is going to do it for us.

**Mike Dodson**  
Southwest Vending  
Shreveport, Louisiana

First, I am not going to look for that one incredible machine to change the industry. I won't come back with one game and expect to sell 600 units. I want a variety of equipment and even sell less of each one.

I think the interchangeable games will be popular. The Sente and Nintendo systems are good concepts, but there must be good games for the hardware. It makes so much sense to build a library of games for systems. How many movie theaters keep one movie until no one comes to see it anymore? Well, we have been using the concept of leaving a game until it dies and we must get away from that. Our vending machines are doing very well, but if the customer wants popcorn instead of chips, we don't change the whole machine—just the contents. Systems have the same logic.

What will bring health to the industry is not one hot piece, but a variety of product. I'm hoping to see a good pin, shuffleboard, and darts.

**John Margold**  
Bally/Banner  
Philadelphia, Pennsylvania

I think there will be interest in alternative equipment because we were interested in it last year.

Very few operators are going to make buying decisions at the show like they have in the past. Now they wait to see results of testing. Look at *Spy Hunter* and *Punch Out!!* which are the hottest pieces right now. It took operators awhile to feel confident to buy them, and they started out by buying small quantities. No one is buying on speculation anymore.

Systems may have a significant part in the industry, but it depends on the games that are offered for the system.

**Jim Libby**  
Peach State  
Atlanta, Georgia



# COINMAN INTERVIEW



## Dock Ringo

By Valerie Cognevich

*Dock Ringo got started in this business right after graduating from high school. With the help of his father, he purchased two jukeboxes and put them out on location. He had his own route in 1951, and while running that, he also worked for Wallace Distributing Company. He worked for it for 10 years and then bought half interest in the company. It is still operating under that incorporation, but the company is called Ringo and Ball in Mineral Wells, Texas.*

*Ringo got involved in the AMOA while he was with Wallace Distributing when, in the 1950s, they asked him to attend a convention in Chicago. At that time he believed the AMOA was the leader in the industry when it came to helping the operators and he still respects the association.*

*The AMOA was fortunate to have Dock represent it as president this year. Dock and his wife Betty attended about 25 state association conventions oftentimes bringing their son Bryan and daughter Amy.*

*Does one thing stand out in your presidency?*

If I had to point out just one thing, it would be that I have realized the importance and the need for the services the AMOA is providing. I see better now the future need of those services. While some are talking about doom and gloom, we shouldn't be distracted by that attitude.

*What are some of the accomplishments of AMOA?*

AMOA has always assisted state associations, and this year that is coming to a peak with the help of a great state association manual. I think more operators are realizing there needs to be cooperation on a state and national level to survive.

The reason it was formed in the beginning was the copyright fight when they were able to get an exemption for (phonographs) for many years. They finally lost that and are now fighting to reach a fair compromise with the performing rights societies since once the exemption was lost, increases got out of hand.

Another thing AMOA started this year is the Wayne Hesch scholarship award. AMOA has also been instrumental in promoting education and an example is the seminar program at this year's show. Another example is the Notre Dame Seminars



● Any factory that is out to promote this equipment (video lotteries) to the state or national government or anyone else is in direct competition with our locations. ●

sponsored by AMOA. Those who have not taken advantage of the Notre Dame Seminars are missing a good opportunity.

*Tell us briefly about the status of the copyright problem.*

This year Senator Zorinsky of Nebraska and Congressman Breaux of Louisiana sponsored legislation to have operators pay a one-time fee on jukeboxes. There was once a question whether jukeboxes should be covered under the copyright laws and that question has been answered that yes, they should be. It started out with an \$8 fee and most operators could afford to pay that but now the fees have risen 525 percent. It became the objective of legislation to reduce fees. Members of the performing rights societies have convinced Congress that it should be more than just a one-time fee.

*Do you see an end in sight to the situation?*

There is still hope but there is no hope for legislation this year. We are still talking with the copyright society people, and I guess we will decide it's all off and start off next session with new legislation. We will be starting at square one and we are prepared to do that. The best that could happen is we could reach some kind of agreement with copyright societies that operators could live with economically. There's a chance it can be worked out.

*What does AMOA need most from its members?*

That takes me back to one of the services AMOA has planned to undertake and that is a grass roots lobbying effort. We need an organized grass roots political action committee. There's no one that can overcome that if you are right in what you are doing.

*You have traveled to many state association meetings and have had a rare opportunity to talk with different operators. What are some of their common problems?*

I guess when you think of traveling to that many meetings you think it would get repetitious, but what surprised me was how different they were. There were many kinds of problems, but one that I heard often was the problem of "gray area" games. The questions came up about should I operate them or not,

and there are probably as many different answers as there are states. That needs to be answered in each state.

*Why has AMOA never made a stand on the issue of gray area games?*

I don't see how a national association which is supposed to be representing all of the operators in the nation could just make a declaration because state laws are different. And that is the way it needs to be. If we don't want something in Texas, I don't think we should have to ask AMOA or anyone else.

*Do you operate gray area games?*

I don't.

*What are the laws pertaining to gray area games in Texas?*

There are some operating here, no doubt about it. Last summer there seemed to be an influx of them from other states. However, the Alcoholic Beverage Control Board has been the strongest enforcer of the problem. They just say it's illegal for a licensed location to have a gambling device, and we think this is a gambling device and you either move it or we'll take your license away. Of course, there's no contest there. I understand in Dallas they picked up some machines. The Houston vice squad told members of the Texas association that they had over 200 cases still pending. But the influx has slowed. I had a competitor in my area putting them out, and I don't know what happened but I don't see them anymore.

*There were some senate hearings recently on gray area games. What do you think about the federal government getting involved?*

It bothers me that AMOA has spent a full year, and it has been a tough year, trying to get some relief from a federal regulation and then some other folks start begging for federal regulations. Generally the more regulations you get, the worse it gets.

*Did they approach AMOA for a statement at the senate hearings?*

We only found out three days before. That's how much input they wanted from us.

(continued on next page)

**We need an organized grass roots political action committee.  
There's no one that can overcome that if you are right  
in what you are doing.**

*But NCMI had a statement so why do you think they ignored the AMOA?*

The people who were doing the inviting to testify wanted the results to come out one way, and it might not have come out the same from the AMOA members. I know in our senate hearings for the jukebox copyright it was all one-sided in the copyright society's favor. We asked them why it was so one-sided. They replied that their side had been there telling their story, but no one from our industry had told them our story so they only knew one side of the story. I learned something there. So sometimes these hearings are loaded up from one side.

*But didn't AMOA make a declaration against video lotteries?*

We surely need to point out that there is a great deal of difference between state-operated video lotteries and gray area games. I don't think a state ought to be our competitor. They shouldn't be operators of these machines and that is what we are opposed to. Any factory that is out to promote this equipment to the state or national government or anyone else is in direct competition with our locations. We have been there for years as independent businessmen trying to make a livelihood, and then the state wants to come in as a competitor for the quarters. There are just other ways to handle it.

*Since AMOA made that stand against video lotteries, what is it doing now about the problem?*

There is only one state that has video lottery machines and it's only in the experimental stage. Bally made arrangements with Illinois to put out 300 machines with the intention to get into some locations that weren't being covered with lottery ticket sales. But other than that, there is not much activity except states looking at the possibilities. But we are watching the test in Illinois where there is no profit except for the state. It is my understanding they haven't even been able to place all of the 300 machines

so far. The problem might solve itself.

*Has the membership of AMOA remained fairly constant?*

There have been some dropping out, but one thing that delights me is those who never bothered to join are joining up. It may be a necessity. State associations have said they see the same trend.

*As an operator, what has affected your business the most?*

The rise and fall of video games is significant. I think right now we are in a transition. We are organizing pool leagues. I've seen a flurry of activity in pinball. But it's just a flurry. I haven't organized dart leagues yet but I'm going to. I really haven't had time to pursue kiddie rides. If a location has videos and kiddie rides, the kiddie rides are making twice as much as the videos. I don't operate kiddie rides, but I'm interested in looking into it. There may be a chance for diversification there.

*What is your philosophy on buying equipment?*

I've bought my share of it over the years. I can tell you my mistakes, but as far as correcting them, I don't know if I could tell you that. I think I made a mistake particularly with videos in using the shotgun approach in trying to buy a little of all of it. Things are slowing down and now that I have put my business on computer, I feel I have a better handle on what is going on.

*What do you hope you will find at the show?*

I'll be looking at conversion kits. I would hope that there will be something that would create a new wave. Our market is still there still playing, but we burned them out on video games with too many saturating the market. The manufacturers need to come up with some creative approaches for the existing market. There are obviously some good games out there, but the price and the return are pretty rough. ●

**I don't operate kiddie rides, but I'm interested in looking into it.  
There may be a chance for diversification there.**



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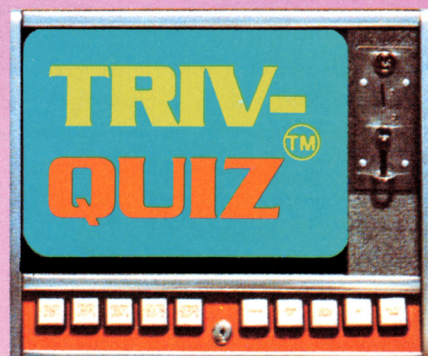
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# FRANK'S CRANKS



By  
Frank "The Crank"  
Seninsky



## What I 'Seriously' Look for at the AMOA

For the past few years, *Play Meter* has asked me to write on what I think will be shown at the AMOA. It's supposed to be humorous and help put you in a good mood at the show. Well, I'm going to this year's show with very serious intentions.

I'm serious because for the past several years, I have gone to shows and have been overwhelmed with new games and kits that would get our businesses through the next several months. We have picked what we thought were the winners and have no doubt made many mistakes and wasted a lot of money. This year, with the depressed state we're in, we simply can't afford to make *any* mistakes in our buying.

### Present state of the industry

I believe the industry has hit the bottom of one of its cycles and is on the upswing. But this time around, the upward trend will be very gradual and will, I hope, last a long time. I don't feel this business will ever be as popular as it was in '81 - '82, and I don't think any of us really want it to get like that again.

Most of the well-known manufacturers will have equipment to display. Data East has winners with *Karate Champ* and the *Cobra Command* kit; and Bally has *Two Tigers*, *Gaplus*, *Spy Hunter*, and its six-pack of conversion system games. Nintendo is loaded with good games with its two-in-one system conver-

sion *VS. Golf/VS. Pinball* and an update kit for *Punch Out!!*. Sente plans to show its new library of eight games for its conversion system. Atari will show *Return of the Jedi* and a few other new games; Exidy has *Cheyenne*. Centuri and Konami have new product but are not saying what it is this early. Stern is back with *Black Beauty*, its shuffle alley, and Monroe has *Birdie King III*, in upright and kit. Crown will have *Hero*; Kitco is making a golf game called *Crown's Golf*. Williams has a kit and *Turkey Shoot*.

All this new equipment will get most of us through the next several months. But do we go to shows only to see the new games that we can see in the distributor's showroom? In the past it may have been, but now I also want to take a good look (I didn't say buy) at the small new companies who wish to enter this industry.

I hope some of them have innovative ideas that we can experiment with that will help bring creativity back to our industry. Experiment for me means putting one game out on location or obtaining accurate data on the game from a competitor who is experimenting. *Competitors can help each other* avoid making many buying mistakes. Only a couple of new companies made it last year, and there may not be any this year.

Many of us will buy some of these new games and try to eke out a

living. This time around, we will buy less new equipment so we don't get into debt again. Be careful not to overbuy; this won't happen if you budget your purchases and stick to your plan no matter what.

### Show objectives

I'm going to this show with two objectives. The first is to search for creative new games that will stimulate interest. At past shows we saw *Pong* and *Space Invaders* introduced as new concepts and we tried them. At last year's AMOA, laser games drew most of the attention. We tried some and found that they were not the new concept we were looking for.

The second objective of a route operator is to look for ways to make his business more efficient. Products, modifications, and ideas that will decrease service, time, and costs are greatly needed. It makes sense to maximize what you already have. Many valuable and innovative ideas may come from the seminars. Try to attend a few on topics that you know you are weak in.

Part of the reason I buy new games is because my customers demand something new. Let's look at some of the purchases I made based on last year's AMOA. I bought *M.A.C.H. 3* because it was the best of the lasers shown, and locations wanted a laser. Luckily, I bought only a few. The high grosses weren't

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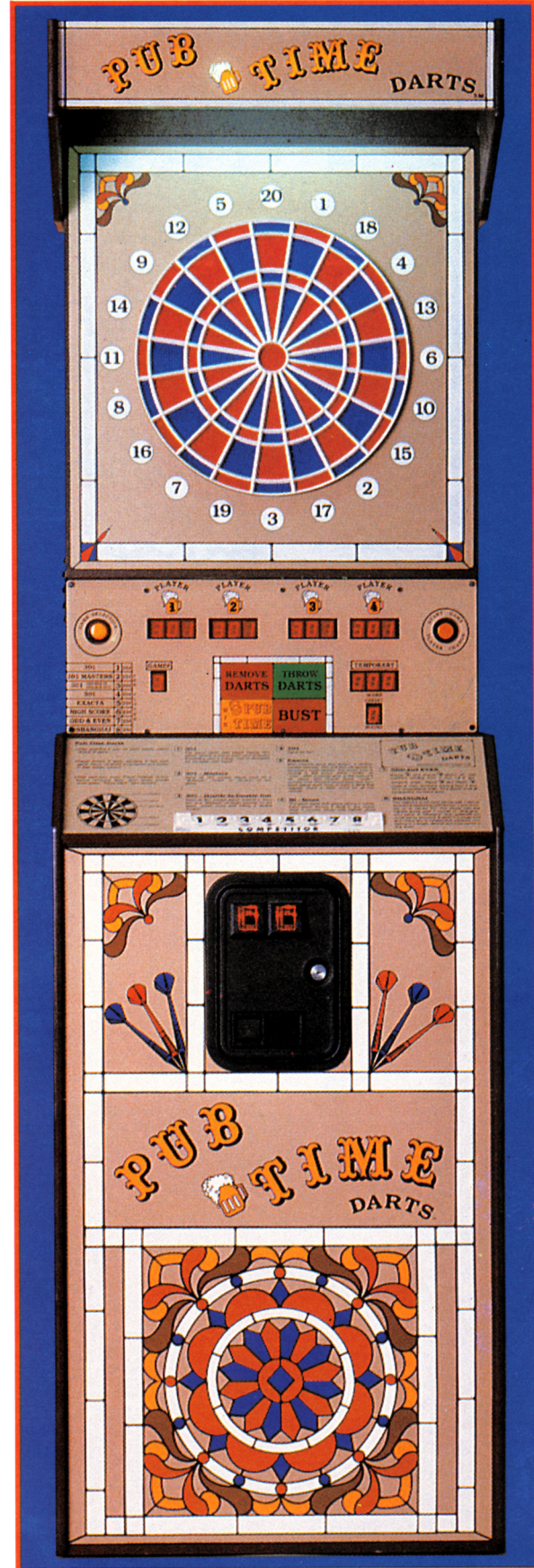
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there so I stopped buying lasers.

*Ice Cold Beer* attracted many of us because it had a low price and was something different. It's my nature to experiment, and so I did. But it didn't work out because the game had too many service problems. Let's all learn from this. If we see what looks like a good mechanical game, promise we'll wait until the game is completely location tested before we buy one.

*Track & Field* was the best game at the show and it turned out to be a great game. Note that *Spy Hunter* was also shown but very few paid attention to it, and it turned out to be the best buy of the show. There were many kits to choose from: *Pole Position II* was bought to increase the earnings of *Pole Position* and it really didn't show any significant increase in earnings.

*Donkey Kong 3* was bought because I wrongly felt that I *had* to buy something to increase collections slumping on my *Donkey Kongs*. The *Junior Pac-Man* kit was bought for the same reason (to improve *Pac-Man*) and both kits were a waste of money. Let's not make these mistakes again. I also purchased other kits: *Time Pilot*, *Elevator Action*, and *Mega Zone*. In general, these were good, smart buys for me.

Another game concept that is finally gaining acceptance is the "system" concept. Systems are becoming popular because the video game is and will remain a staple piece of equipment on our routes, although the overall percentage will surely decrease as new game forms and other staple types are introduced and (pins, guns) increase in number. Nintendo has a big lead over its competitors and is certainly proving that it has a good variety of new games for its VS. System.

I advise you to buy your first system game based almost solely on the merits of the game itself. If you take this approach, you will know you made the right decision when future changes that are excellent earners are introduced. Paying for

your original investment is your main objective.

What can we all learn from the actions we took at last year's show? The main lesson is that there is absolutely no reason to jump in and buy everything that looks good. There are a lot of games here that the majority of us feel are winners. Remember that a hit is a hit and will be so for several months. Be cautious and buy the best games possible, but buy slowly.

Never buy a kit just because it's a kit that will update a certain game that you are stuck with or have many of. Make sure that a kit is a good investment in itself, just as you would a dedicated game. If it's a winner, then just count yourself fortunate that you happen to have the old game needed for the conversion; you don't have to buy it special.

In general, if a conversion kit is doing good numbers for several weeks, you can't get hurt too badly by trying a few, especially if you have a good variety of locations where you can rotate the converted game through.

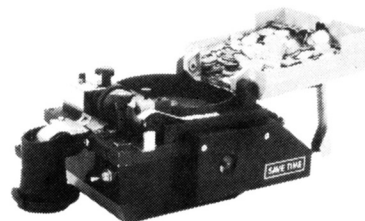
Knowing what games will do well in your specific locations, as one operator told me, is much more important than buying new games. You can often make more bottom line dollars by putting the right types of games (driving, fast or slow, cute, skill, etc.) in the right types of locations. If you can do this successfully, and it isn't easy, you can substantially cut down your buying.

Before buying dedicated games, research the manufacturer. Make sure that the manufacturer is sound and will continue in the business for some time. Find out how many of a model is going to be produced and during what period of time. If the run is reasonable, several thousand for a very good game, the game will have a better chance of holding its value. Remember that the runs of the biggest hits of the year, *Spy Hunter* and *Punch Out!!*, have been under 10,000 to date.

So enjoy the show, and I'll give you my reactions in an upcoming issue. As always. . .keep cranking. ●

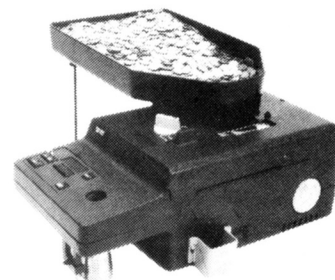
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# YOUR GUIDE TO CHICAGO

*(Photos by the Chicago Convention & Tourism Bureau)*

As you drive and walk around Chicago during the AMOA show, you may find it hard to believe that more than 5 million tourists like you visit Chicago each year. But Chicago has a lot to offer including 20 major museums, 30 art galleries, and the Sears Tower—the tallest building in the world at 110 stories and 1,454 feet.

All these buildings fit into 228.1 square miles of city limits. That means there are 3,679 miles of street and 53.7 miles of expressway (according to 1983 figures). But don't worry—it isn't that hard to get around the city because Chicago utilizes a grid system of north-south and east-west numbers. The zero point is at State and Madison streets.

Each mile of the city has a rich history. The Indians were the first inhabitants of the area known today as Chicago. They named the area "Checagou" which means "powerful" or "onion creek," depending on the tribe. Later came the explorers Louis Jolliet and Jacques Marquette. The French claimed the territory but the British got it back in 1763. In 1779, Jean

Baptiste Pointe du Sable opened a trading post on Lake Michigan's shore. The area belonged to the United States by the end of the 18th century.

There were 43 houses and 350 people in Chicago when the town became incorporated in 1833. The immigrants began coming when the rail line from New York was completed in 1953. Prominent immigrants included the Swifts, Armours, Palmers, and Fields.

And just about everybody remembers the O'Leary barn. When the barn caught fire in 1871, 17,500 wooden buildings burnt in 30 hours of flames.

But by the end of the 19th century, Chicago was rebuilt and more than a million people lived there. And according to figures from the 1980 census, Chicago has 7,102,328 residents.

Chicago has a lot to offer the tourist. No matter the type of food you like, the type of art you admire, or the type of music you like to listen to, Chicago has it in abundance.

---

## RESTAURANTS

---

**Ambria**  
Belden Stratford Hotel  
2300 N. Lincoln Park West  
472-5959  
*Nouvelle cuisine*

**Armando's**  
Superior and Rush Street  
337-7672  
*Italian dishes*

**Arnie's**  
1030 N. State Street

266-4800  
*seafood, veal, beef, pasta*

**Benihana's of Tokyo**  
166 E. Superior  
664-9643  
*Japanese cuisine*

**Blackhawk Restaurant  
(Don Roth's)**  
110 E. Pearson Street  
943-3300  
*seafood and steaks*

**Cafe' Provencal**

1625 Hinman Avenue, Evanston  
475-2233  
*classic & Nouvelle French specialties*

**Carsons The Place for Ribs**  
612 N. Wells Street  
280-9200  
*ribs, steak house fare, some seafood*

**Chestnut Street Grill**  
Mezzanine Level  
Water Tower Place  
835 N. Michigan Avenue  
280-2720  
*grilled seafood*





**Chez Paul**  
660 N. Rush Street  
944-6680  
*French cuisine*

**Como Inn**  
546 N. Milwaukee Avenue  
421-5222  
*Italian food*

**The Consort**  
Westin Hotel  
909 N. Michigan Avenue  
943-7200  
*American cuisine & entertainment*

**Cricket's**  
Tremont Hotel  
100 E. Chestnut Street  
280-2100  
*fish, veal*

**Dianna's Restaurant "OPAA"**  
212 S. Halsted Street  
332-1225; 332-1349  
*Greek food*

**Doro's Restaurant**  
871 N. Rush Street  
266-1414  
*Northern Italian dishes*

**Eli's "The Place for Steak"**  
215 E. Chicago Avenue  
642-1393  
*prime ribs & steaks, calves' liver*

**George's**  
230 W. Kinzie Street  
644-2290  
*Northern Italian dishes*

**Gitanes**  
2350 N. Clark Street  
929-5500  
*French, Northern Italian, Brazilian,  
& regional American dishes*

**Gordon**  
512 N. Clark Street  
467-9780  
*varied cuisine*

**Golden Ox**  
1580 N. Clybourn  
664-0780  
*German dishes including wiener  
schnitzel, roast duckling, &  
liver dumplings*



*Stanley Field Hall in the Field Museum of Natural History features the famous fighting bull elephants from Africa, a free-standing skeleton of a Gorgosaurus dinosaur, and two totem poles from British Columbia.*



*Chicago is one of the greatest inland ports in the world and boasts a magnificent "front door" of parks, beaches, and marinas.*



Here's one of a pair of famous bronze lions standing in front of the Art Institute of Chicago designed by Edward Kemeys. The Art Institute houses one of the finest collections of French Impressionist and Post Impressionist paintings, as well as many famous masterpieces spanning 40 centuries of great art.

**Greek Islands**  
200 S. Halsted Street  
782-9855  
*American Greek dishes*

**Hy's of Chicago**  
100 E. Walton Street  
649-9555  
*beef & seafood specialties*

**Jimmy's Place**  
3420 N. Elston Avenue  
539-2999  
*Nouvelle cuisine*

**Kona Kai**  
Marriot O'Hare  
8535 W. Higgins Road

693-4444  
*Polynesian cuisine*

**Kon-Tiki Ports**  
Hotel Continental  
505 N. Michigan Avenue  
944-4100  
*Polynesian specialties*

**Le Ciel Bleu**  
Mayfair Regent Hotel  
181 E. Lake Shore Drive  
951-2865  
*French cuisine*

**Le Francais**  
269 S. Milwaukee, Wheeling  
541-7470

*French haute cuisine*

**Morton's**  
1050 N. State Street  
266-4820  
*steak & lobster*

**Nick's Fishmarket Restaurant**  
One First National Plaza  
621-0200  
*fresh seafood*

**The Ninety Fifth & Images**  
John Hancock Center  
172 E. Chestnut Street  
787-9596  
*varied menu*

**The Palm**  
Mayfair Regent Hotel  
181 E. Lake Shore Drive  
944-0135  
*steak & lobster*

**Pizzaria Due**  
619 N. Wabash  
943-2400  
*deep-dish pizza*

**Pizzaria Uno**  
29 E. Ohio  
321-1000

**Randall's**  
41 E. Superior Street  
Wabash Avenue  
280-2795  
*barbecue*

**Rupert's**  
1701 W. Golf, Rolling Meadows  
952-8555  
*ribs, chicken, steaks*

**Rusty Scupper**  
5725 N.E. River Road, Rosemont  
693-8220  
*seafood & steaks*

**Sage's Sages**  
75 W. Algonquin  
Arlington Heights  
593-6200  
*prime beef & seafood*

**The Tango Restaurant**  
3172 N. Sheridan Road  
935-0350  
*French seafood & prime steaks*

**Trumpets**  
1260 N. Dearborn Street  
266-8000  
*varied menu*

**Yesterday's Party Tavern & Grille**  
230 N. Michigan Avenue  
726-1850  
*Italian, cajun, & French dishes*

**Yoshi's Cafe'**  
3257 N. Halsted Street  
248-6160  
*French dishes*

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## NIGHT SPOTS

---

**Acorn on Oak**  
116 E. Oak Street  
944-6835  
*piano bar*

**Andy's**  
11 E. Hubbard Street  
642-6805  
*jazz*

**The BBC**  
9 W. Division Street  
disco dancing, open till 4 a.m.

**The Blue Max**  
Hyatt O'Hare  
9300 W. Bryn Mawr  
696-1234  
*well-known nightclub entertainment*

**Butch McGuire's**  
20 W. Division Street  
787-4318

**Byfield's**  
1301 N. State Parkway  
787-6433  
*cabaret*

**Earl of Old Town**  
1615 N. Wells Street  
642-5206  
*folk music*

**Faces**  
940 N. Rush Street  
943-0940  
*dancing*

**Joe Segal's Jazz Showcase**  
636 S. Michigan Avenue  
427-4300  
*jazz*



*The Water Tower, Chicago's most famous landmark, was one of the few buildings to survive the Great Chicago Fire of 1871. The Neo-Gothic Water Tower was designed by W. W. Boyington. Located on Michigan Avenue between Chicago Avenue and Pearson Street, it has been restored and now serves as a Visitor Information Center.*

---

**Mother's**  
26 W. Division Street  
642-7251

**The New York Lounge**  
5151 N. Lincoln Avenue  
334-8953

**Orphan's**  
2462 N. Lincoln Avenue  
929-2677  
*folk music, blues, rock, jazz*

**Park West**  
322 W. Armitage Avenue  
929-5959  
*various music*

**The Playboy Club**  
1800 E. Golf Road, Schaumburg  
885-1234  
*video, laser, & sound display setting*

**Rick's Cafe Americain**  
644 N. Lake Shore Drive  
943-9200  
*jazz*

**Second City**  
1616 N. Wells Street  
337-3992  
*comedy*

**Showcase**  
636 S. Michigan Avenue



Carson Pirie Scott & Co.'s ornate wrought iron entrance facade at 1 South State Street is a Chicago landmark. It was designed by Louis H. Sullivan and completed in 1904 and is just one example of the Chicago School of Architecture.

427-4300  
*jazz*

**The Snuggery**  
15 W. Division Street  
337-4349

**Studebakers**  
1251 E. Golf Road, Schaumburg  
843-3434

**Theresa's**  
4801 S. Indiana Avenue  
285-2744  
*blues*

## SHOPPING

**Oakbrook Center**  
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654-0250  
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**Oak Park Mall**  
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Oak Park  
383-4145  
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**Water Tower Place Atrium Mall**  
835 N. Michigan Avenue  
440-3460  
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four cinemas, open 7 days*



Chicago Promotion Council, 1982

**Woodfield Shopping Center**  
Golf Road (58) & Route 53  
Schaumburg  
882-0220  
*more than 200 shops & services  
open 7 days*

## MUSEUMS

**Art Institute of Chicago**

Michigan Avenue at Adams Street  
443-3600  
*hours 10:30-4:30 weekdays, until 8  
Thursday; 10-5 Saturday; noon-5  
Sunday & holidays*

**Chicago Historical Society**  
Clark St. at North Avenue  
642-4600  
*hours 9:30-4:30 Monday-Saturday;  
noon-5 Sunday*

**Chicago Public Library  
Cultural Center**  
78 E. Washington Street  
346-3278  
*hours 9-7 Monday-Thursday; until 6  
Friday & 5 Saturday*

**Field Museum of Natural History**  
Roosevelt Rd. & Lake Shore Dr.  
922-9410  
*hours 9-5 daily*

**Museum of Contemporary Art**  
237 E. Ontario Street  
280-2660  
*hours 10-5 Tuesday-Saturday;  
noon-5 Sunday; closed Monday*

**Museum of Science and Industry**  
57th St. & Lake Shore Dr.  
684-1414

*hours 9:30-4 Monday-Friday; until  
5:30 Saturday, Sunday, & holidays*

**Oriental Institute**  
University of Chicago  
1155 E. 58th Street  
962-9521

*hours 10-4 Tuesday-Saturday;  
noon-4 Sunday; closed Monday  
& holidays*

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## THEATER

**Arie Crown**  
McCormick Place  
23rd St. & Lake Shore Dr.  
791-6000

**Apollo Theatre Center**  
2540 N. Lincoln Avenue  
935-6100

**Blackstone Theatre**  
60 E. Balbo Drive  
977-1700

**Civic Theatre**  
20 N. Wacker Drive  
346-0270

**Court Theatre**  
5535 S. Ellis Avenue  
962-7300

**Drury Lane Water Tower**  
175 E. Chestnut Street  
266-0500

**Goodman Theatre**  
200 S. Columbus Drive  
443-3800

**Shubert Theatre**  
22 W. Monroe Street  
977-1700

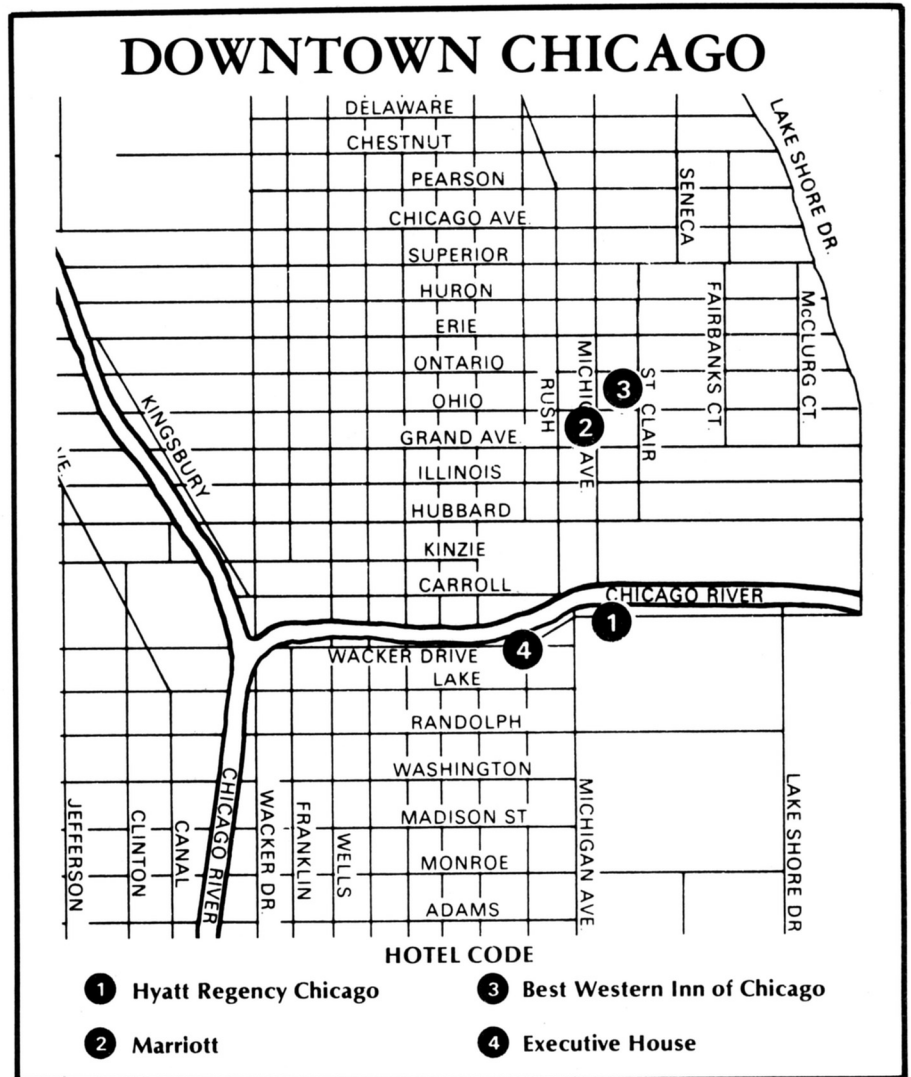
**Steppenwolf Theatre Company**  
2851 N. Halsted Street  
472-4141

**Victory Gardens Theater**  
2257 N. Lincoln Avenue  
871-3000

**Wisdom Bridge Theatre**  
1559 W. Howard Street  
743-6442

## Visitor Information Centers

**The Water Tower Visitor**  
Information Center — 225-5000  
**Travelers Aid:**  
O'Hare Airport — 686-7562  
Union Station — 435-4500





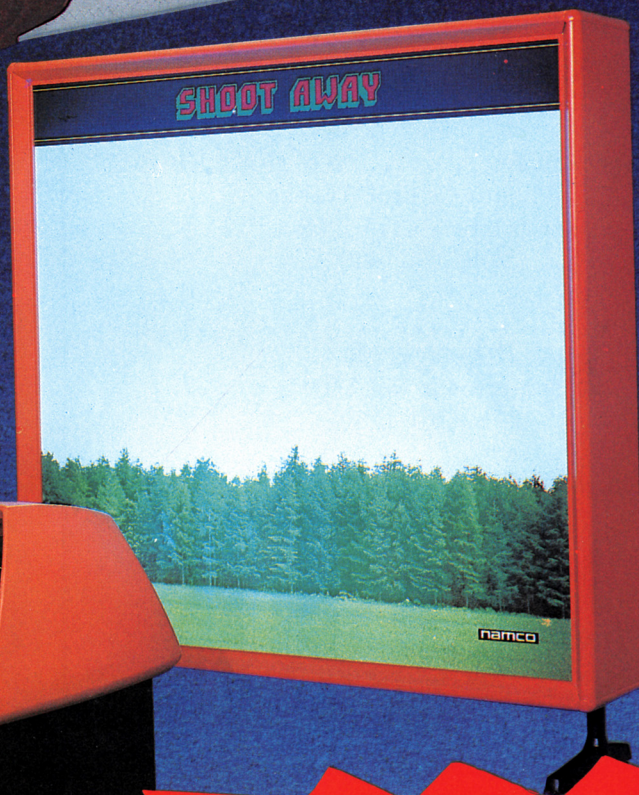
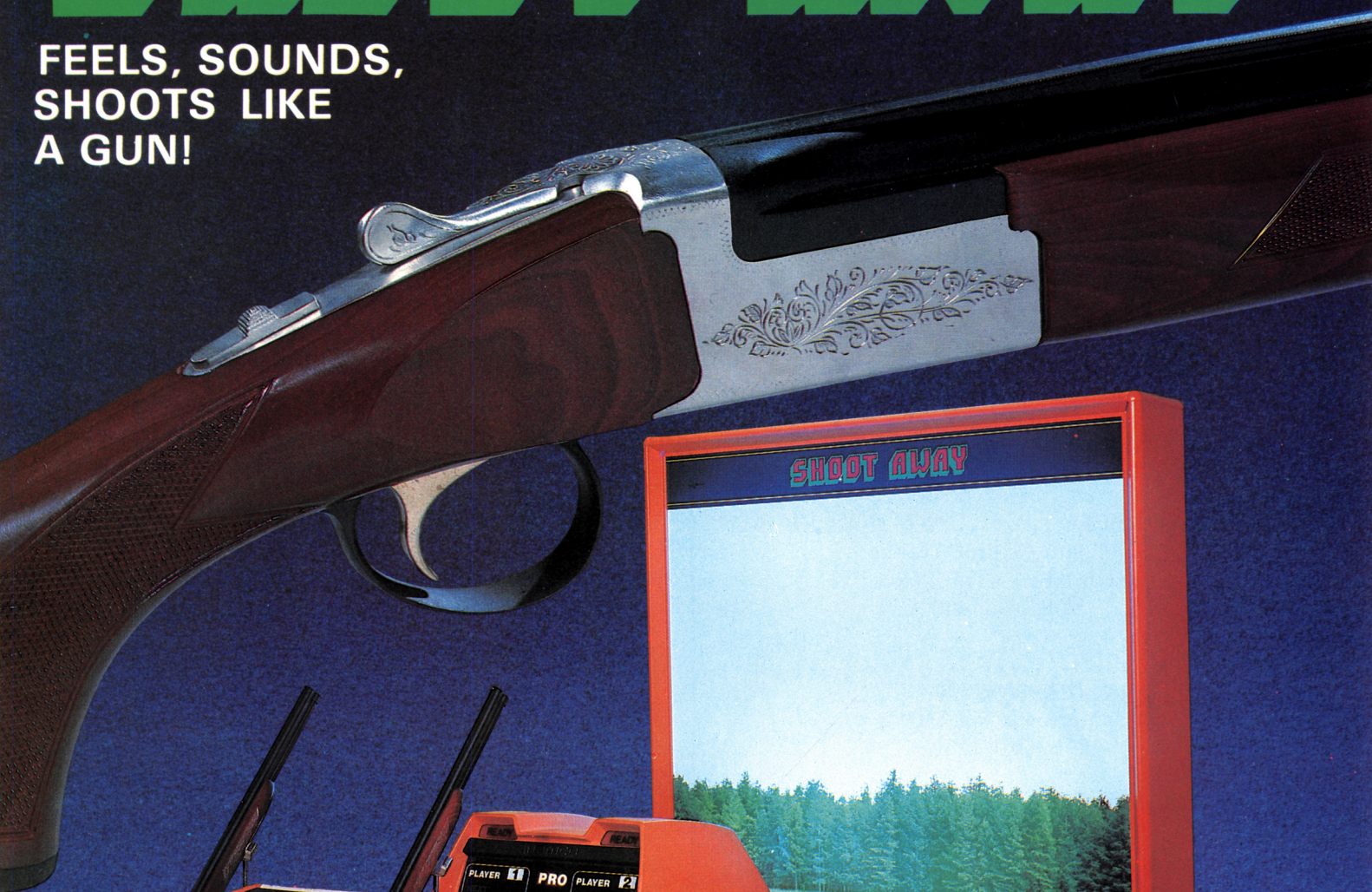
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- Acme Premium Supply Corp.** ..... 2406,2408  
4100 Forest Park Blvd.  
St. Louis, MO 63108  
314/531-8880
- Acme Vending Inc.** ..... 2002,2004  
1300 Gardner Street  
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412/231-7221
- Air-Vend, Inc.** ..... 2000,2001  
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Eden Prairie, MN 55344  
612/944-3604
- American Dispensing Systems (ADS)** . 2102,2104  
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- American Shuffleboard  
Co., Inc.**..... 1215,1217,1310,1312  
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Union City, NJ 07087  
201/865-6633
- Amusement Emporium, Inc.** ..... 102,104,106  
6880 South Emporia Street  
Englewood, CO 80112  
303/790-0885
- Amusement Technology** .... 2511,2513,2612,2614  
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Asbury, NJ 07712  
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- Arachnid, Inc.**..... 416,418,1012,1014  
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- Ardac, Inc.** ..... 511  
34000 Vokes Drive  
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- Atari, Inc.** ..... 202-214,205-217,300-312  
P.O. Box 906  
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- Atlantic Marketing** ..... 2505,2507  
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- Audio Visual Engineering Corp.** ..... 1124,1126  
486 Merrick Rd.  
Oceanside, NY 11572  
516/764-2473
- Automated Production Equipment** ..... 1138  
142 Peconic Ave.  
Medford, NY 11763  
516/654-1197
- Automatic Musical Instruments, Inc.** ..... 2009  
P.O. Box 1537  
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803/654-1711
- Automatic Products Company** ..... 606,608  
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415/341-5200

Bob's Space Racers, Inc. .... 2807,2809,2811,2813  
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Bombay Speedways ..... 2906,2908,2910,2912  
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Dan Brechner & Co. .... 100,101  
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800/645-8142

Bumper Tube, Inc.....2413  
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313/636-2040

Cal Omega, Inc. .... 1238,1330,1332  
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Carlsbad, CA 92008  
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Cardinal Amusement Products .....2100  
507 Stage Rd.  
P.O. Box 2219  
Auburn, AL 36830  
800/421-0667

Ron Care Corporation .....2108  
18203 E. 9 Mile  
East Detroit, MI 48021  
313/772-3637

Carousel International Corp. .... 913,915,917  
P.O. Box 307  
Eldon, MO 65026  
314/392-7122

Centuri, Inc. .... 1219-1225,1314-1320  
1780 West 4th Ave.  
P.O. Box 1510  
Hialeah, FL 33011  
305/558-5200

Chicago Lock Company .....509  
4311 W. Belmont Ave.  
Chicago, IL 60641  
312/282-7177

Cinematronics, Inc. .... 2403-2411;2502-2510  
1841 Friendship Drive  
El Cajon, CA 92020  
619/562-7000

CIO Systems/Software .....1136  
1608 E. Burnett St.  
Long Beach, CA 90806  
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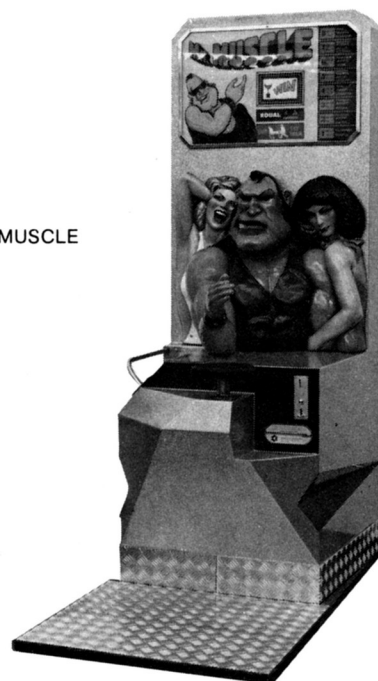
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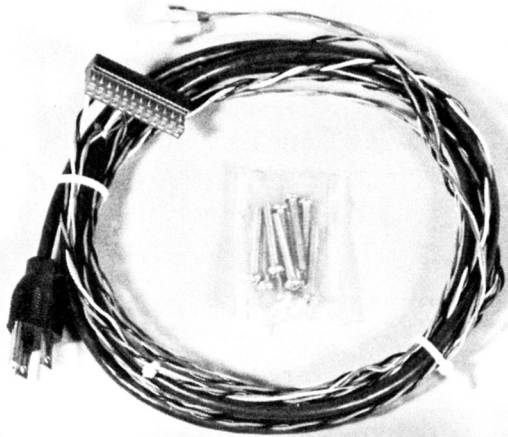
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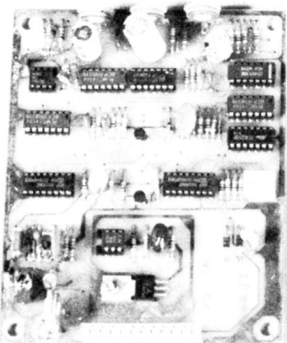
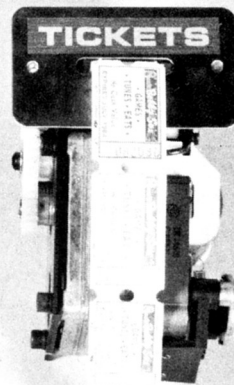
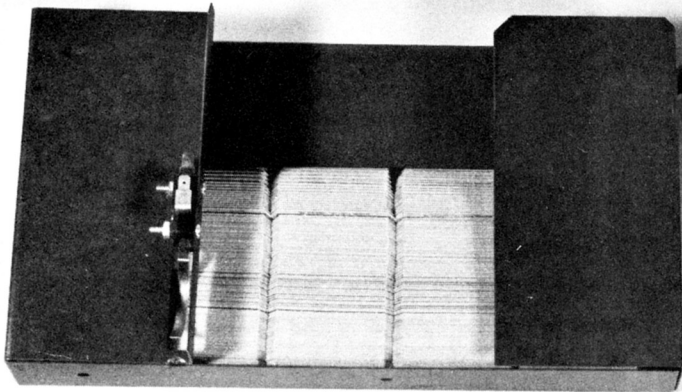
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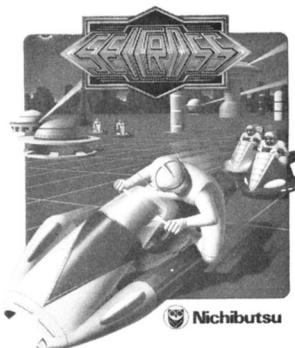
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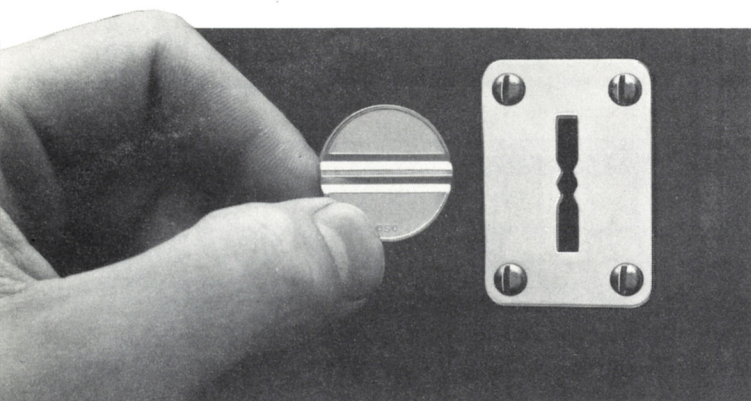
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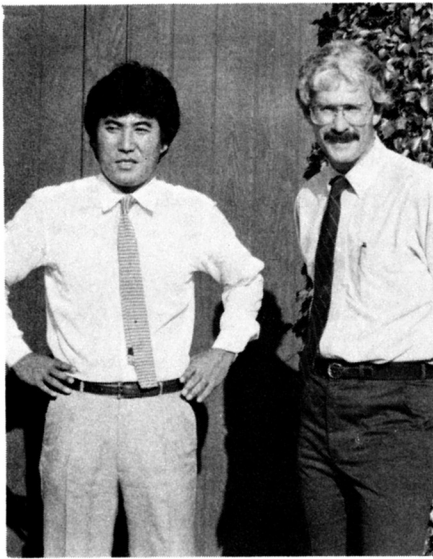
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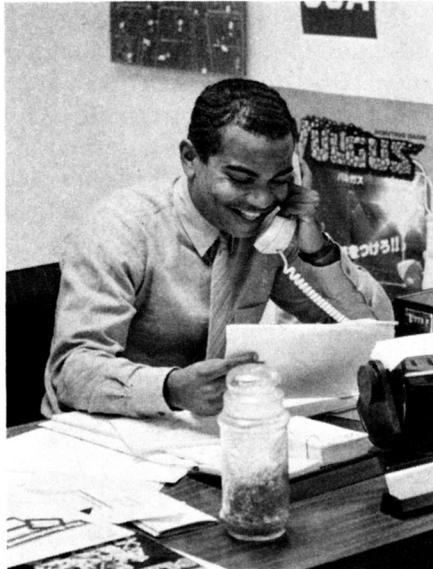
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## COMPANY PROFILE

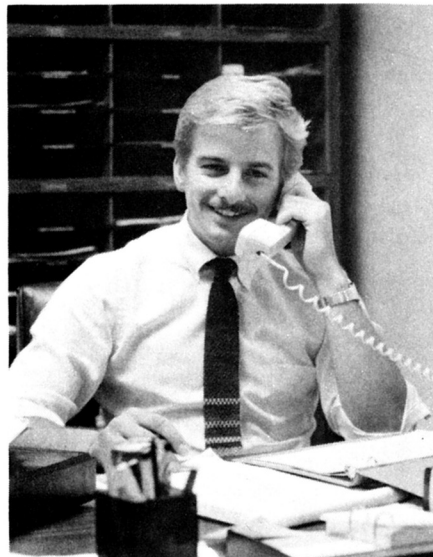
# SNK to Expand in United States



The future of SNK is in the hands of Takahito Yasuki (l) and John Rowe.



Marketing Manager Timothy Jackson shares industry information with a local operator.



Operations Manager Shawn Zenker arranges shipping routes.

Twelve years ago Eichi Kawasaki founded SNK Japan and was successful in developing games for the Japanese market. The company licensed games such as *Vanguard*, *Munchmobile*, *Fantasy*, and others to the American manufacturers. It also did software development for Texas Instruments and developed and licensed software to Atari for its home computers.

Two years ago Takahito Yasuki opened the SNK America office in Torrance, California. He became its president and hired John Rowe as vice president. The company now has a staff of 12.

SNK is currently manufacturing and marketing conversion kits in the United States and is planning to expand in the next 18 months as it anticipates taking a strong position in the industry.

"Every industry has cycles, and this one is no exception but there is still a solid base," Rowe noted. "The companies who survive will be the ones who sincerely care about the operator." Rowe also feels that as the large American manufacturers develop problems, there will be a

need for companies like SNK who will provide low cost equipment to fill the void left by the industry giants who may not have paid attention to the market signs.

"I think it is imperative that we as an industry get our act together," Rowe said. "Operators need low cost conversion kits right now. As long as the market continues to contract, kits will be strong. If the lawyers and firemen who jumped into the industry finally leave, there may slowly be a need for good dedicated games and we will be able to provide those too. But until we see that need, we will concentrate on kits.

"There will always be an industry, but operators must keep their routes and equipment updated," Rowe emphasized. "Some have hurt the industry because they haven't paid enough attention to making their games and locations attractive, clean, and well-maintained. It is time now to take pride in their equipment if they want to be successful."

SNK will be exhibiting *Vulgus*, its latest game, at the AMOA. •



The SNK USA office is located in Torrance, California.

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# Senate Holds Hearings on

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The United States Senate Permanent Subcommittee recently held hearings to examine the problem of video poker machines.

Live testimony came from Roger Baldwin, owner of a truck stop in Maryland; Bill Holmes, special agent for the FBI; Angelo Aponte, commissioner of the department of Consumer Affairs in New York City; and several Baltimore prosecutors. Statements were read from others including Herb Beitel of NCMI and Clayburn Peeples, a district attorney in Tennessee.

Senator William Roth's opening statement told how high technology has moved into illegal gambling. "These devices are slot machines in sheep's clothing," he said. Machines that lend themselves to gambling are increasingly finding their way into bars, truck stops, arcades, and other businesses, Roth pointed out.

However, one point Roth made should have been viewed differently. He stressed concern over the illegal use of the machines rather than the machines themselves. But it has been a major contention that it should be the games themselves that are illegal, just as a slot machine is illegal, and payoffs do not need to be witnessed to prove the machines' illegality.

Roth made this distinction because as the laws are now, a machine is only illegal when actual cash payouts are made to winners. Anyone would be hard pressed to prove that a game labeled Amusement Only with no visible signs of pay-out was designed for illegal gambling.

Roth went on to express his concern about the problems police departments are having as they

attempt to remove these machines. Roth calls money derived from these machines as "underground economy because the millions of dollars in profits go untaxed, which is a major drain on the economy at the expense of our law-abiding citizens," he said.

## Organized crime

Roth also voiced the possibility of the involvement of organized crime. "The lucrative nature of this business certainly invites the attention of organized crime, and the profits could be used to finance other criminal activities," he noted.

William L. Holmes of the FBI laid out the history of gambling equipment going back to 1890 when the first slot machine was invented, 1895 for the first marketable slot called Liberty Bell, 1925 for the "guaranteed jackpot" on slot machines, 1950 when slot machines were put in wooden torsos of cowboys and Indians (presumably when the term one-armed bandit originated), to 1951 when the Johnson Act provided law enforcement agents with the means to confiscate slots if they were transported across state lines.

Holmes noted that as early as 1902, plays and diversions were incorporated into the design of slot machines to disguise the true purpose of the devices. A music box was added in one implying the customer wanted to hear music instead of gamble.

Holmes demonstrated four machines to show how modern day machines are using techniques to disguise the machines' true purpose. One machine utilizes a "code" to change the program from a gambling

mode to an amusement mode.

One machine automatically goes into an amusement mode when it is unplugged, and a special code is needed to change it back to the gambling mode. In "Dwarfs Den," characters are used instead of cards to disguise gambling.

"It is obvious that this concept is designed to foil law enforcement in their effort to investigate gambling violations," Holmes said. This demonstration also brought up the issue as to whether a device is a gambling device *per se* when there are interchangeable programs using a gambling and amusement format.

## Gambling devices

Holmes noted that there are two types of video gambling devices—a casino type that dispenses coins and a non-casino type that does not contain a hopper (for coins to be awarded to winners) but registers credits awarded on a meter displayed on the video screen. Except for the payoff method, they function identically.

Knock-off switches (to record credits removed from the credit meter when a player is reimbursed for the unused credits), meters (one meter records the number of coins inserted and another records unused credits removed from the credit meter), and video display credit meters are characteristics not present on the casino-type devices. Built into the wiring harness, they enable the owner to monitor the operation of the device.

An amusement device does not require a knock-off meter but simply has one meter to record the number of coins accepted by the device.



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# Gray Area Games

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Non-casino video devices also have a PIC (power interrupt circuit) which is activated during a power failure to prevent the loss of accumulated credits recorded. This feature is not needed on an amusement device because there are no large accumulations of credits or games.

The multiple coin feature was also discussed as a comparison of amusement and gambling devices. Gambling devices and slot machines enable the player to insert multiple coins before play begins and the coins are recorded on the credit meter.

An amusement device only accepts multiple coins if two or more players can play simultaneously, or it will accept more than one coin although the player can play only one coin for each game. Holmes pointed out that this is one of the obvious differences between amusement and gambling devices.

## Replay vs. credit

Holmes also pointed out several other differences including replays vs. credits. Credits can only be used on gambling devices since players can accumulate credits and use one or several on each replay. Credits are used to increase payoff ratios. A replay, on the other hand, could also be called a free game.

Skill vs. chance, the age old debate, was brought up again. Gambling device play is normally of short duration, and it operates on a timed cycle not allowing the player to alter the cycle. However, an amusement device will begin a sequence of events once a coin is inserted. On an amusement game, the player can extend the play by

skill.

Angelo Aponte, the commissioner of Consumer Affairs in New York, told the committee that he has regulatory responsibility including the licensing of games. He said he has become concerned about the illegal use of various video card games.

His concern is between the games that physically pay off, used where gambling is legal, and a "second version" designed for use where gambling is a crime. Those machines don't pay out directly, but the location owner pays off winners.

"This design is not a slot machine under New York's penal law. But when used as part of a payoff scheme, it is no less a gambling device and use is no less illegal under our criminal code," Aponte said.

Aponte also brought up the argument about players being able to also bet on *Pac-Man* but said, "It takes no skill to play Joker Poker. It is simply a game of chance." He closed by insisting that it is time for federal action.

## Machines' income

Roger Baldwin of Baldwin's 76 Auto Truck Stop in Newburd, Maryland, had video poker machines seized from his business and pleaded guilty to a misdemeanor count of possessing a slot machine.

Baldwin explained that only because of the income from the machines, \$100,000 per year, was he able to make improvements and pay staff salaries. "With that money gone, I've had to cut back on the number of employees...there is no question that the loss of money was felt immediately," Baldwin said.

*"The lucrative nature of this business certainly invited the attention of organized crime, and the profits could be used to finance other criminal activities," Roth noted.*

*"With that money gone, I've had to cut back on the number of employees... there is no question that the loss of money was felt immediately," Baldwin said.*

*"Members of my staff were harassed and ridiculed, as were members of the law enforcement community who supported our efforts," Peeples' statement read.*

*"The selective non-enforcement of gambling laws as they relate to video gambling devices has made up the history of Tennessee law enforcement, and I fear this will be our future as well, absent federal intervention," Peeples' statement read.*

*"Just the stealthy way it was handled proved they knew they were handling an illegal item. The camouflage was a 'For Amusement Only' sign. You never saw a 'For Amusement Only' sign on a Pac-Man or Space Invaders."*

*—Millie McCarthy*

**By Valerie Cognevich**

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A statement by Clayburn Peeples, an attorney general in Tennessee, was read. He described problems his office has encountered attempting to enforce anti-gambling laws in West Tennessee as they relate to video poker machines.

After hearing about bribes to police officers and receiving reports that extensive criminal activities were taking place in Tennessee, several district attorneys issued a joint request that the Tennessee Bureau of Investigation conduct an investigation into gambling. The investigation resulted in video poker machines being seized, about 342 in Peeples' jurisdiction alone.

"Members of my staff were harassed and ridiculed, as were members of the law enforcement community who supported our efforts," Peeples' statement read.

However, Peeples went on to say some district attorneys feel their time is better spent on more serious matters. Some have also taken a position that the games are not gambling devices unless proof develops showing they had been gambled on.

The Tennessee Court of Appeals declared certain types of machines to be gambling devices under the law whether or not there was proof of gambling. It is now being appealed to the State Supreme Court.

A U.S. attorney, Hickman Ewing of the western division of Tennessee, has successfully tried several cases relating to video poker games. Others are waiting trial.

### Intense pressure

Peeples' statement noted that pressure to ignore the gambling laws in Tennessee is immense and unrelenting.

Peeples ended his statement by stressing the need for federal intervention. "The selective non-enforcement of gambling laws as they relate to video gambling devices has made up the history of Tennessee law enforcement and I fear this will be our future as well, absent federal intervention," Peeples' statement read.

Millie McCarthy, past president of the New York State Coin Machine

Association, had a statement read which emphasized that the industry had been battling intrusions of organized crime but was slowly shedding its stigma until gray area games started penetrating the industry.

"Just the stealthy way it was handled proved they knew they were handling an illegal item. The camouflage was a 'For Amusement Only' sign. You never saw a 'For Amusement Only' sign on a *Pac-Man* or *Space Invaders*."

Her statement continued, "As this activity progressed and continued without problems with the police or suspension or revocation of liquor licenses, the proliferation began. Had this been stopped in the beginning, it never would have become a national problem."

A statement also was read from Steve Hochman, newly elected president of the New York Coin Machine Association, who described the proliferation of illegal coin operated gambling devices as an insidious danger. In his statement he said, "This is a problem which transcends the popular conception of innocent gambling fun."

### Impact on industry

NCMI's Herb Beitel filed a statement. NCMI has taken a firm stand against the gray area games arising from concerns about their real and potential impact on the coin-op industry and its members.

"Our established operators report intense competitive pressures at their locations (because of gray area equipment). Many locations are demanding gray area games. Operators are finding their continuing business with these locations for legitimate amusement games as well as cigarette and music machines is jeopardized," Beitel's statement read.

He noted that the federal government abandoned all direct jurisdiction over gambling equipment except for interstate shipments with the repeal of the Coin Operated Gambling Device Stamp Tax on July 1, 1980.

However, many gray area games can be easily converted from amusement or skill only configura-

tions to gambling units after having been legally shipped in interstate commerce.

Beitel also pointed out that legal standards for determining if machines are gambling equipment once out of interstate commerce depend on laws in the states. These are far from uniform even within individual states.

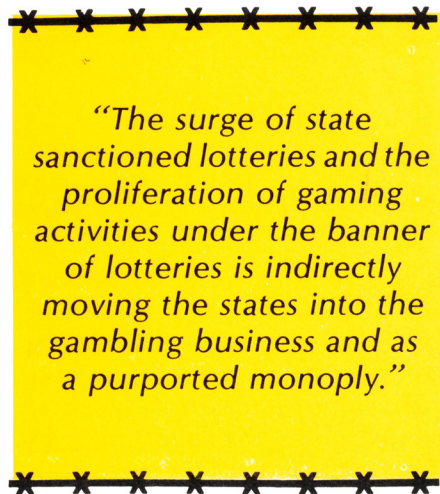
As a result of the confusion in laws, many law enforcement agencies have taken the stand that they do not have the manpower or funds to obtain the necessary evidence for successful prosecutions. And they claim closing down gambling operations is only temporary since they pop up in other areas and cases are strung out in court.

Beitel also stated that the general public has developed a high degree of cynical tolerance for these illegal activities because of apparent law enforcement indifference. Spotty law enforcement provides fertile ground for official corruption. Beitel mentioned the indictment and conviction of several policemen

in Philadelphia and similar cases as proof.

### No-win alternative

Beitel's statement read, "Our



established operators are clearly faced with the no-win alternatives of seeing the business they have worked so hard to build being progressively destroyed by illicit invasions of their markets or becoming criminals themselves. It is

a positive duty of government to protect legitimate businesses and their employees."

"At the core of the problem are the confusing and conflicting standards for determining what are and not pieces of gambling equipment and paraphernalia. We believe clearly defined federal standards coupled with federal regulations and enforcement activities against illicit operations are basic to an effective program of protecting the public and legitimate businesses and employees."

Beitel also touched on the looming problem of video lotteries. "The surge of state sanctioned lotteries and the proliferation of gaming activities under the banner of lotteries is indirectly moving the states into the gambling business and as a purported monopoly."

The AMOA was conspicuously absent from the hearings and no statement was submitted. *Play Meter* asked Dock Ringo about the situation in the "Coinman" interview in this issue. •



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# Slottery Preoccupies New York Convention

By Mike Shaw

*Photo Credit: Photos by Bill LaHart*

*New York State Coin Machine Association President-elect Steve Hochman blasted "gray area" operators in his acceptance speech on September 22. That night, New York operators sat through a stormy session on video lottery gambling at the dinner meeting.*

"Those who voted against me last year aren't here; they've been arrested for operating gray area games."

So began another year and a new leader in the turbulent history of the New York State Coin Machine Association. Steve Hochman (Crown Vending in Corona) accepted his

election as president of the association, and blasted those who kept him from winning in 1983, pointing the finger at New York City gray area game operators recently arrested during gambling raids by Westchester County police.

Hochman was disappointed in 1983 when he had failed to take the presidency after Millie McCarthy retired from her 25-year reign. Made nervous by Hochman's vocal stance against gray area operating, New York selected a less caustic leader, gumball machine operator Roger Folz.

Nor was Hochman without opposition this year, although at

election time there was no other name in nomination. Just prior to the voting, a coalition of operators from western New York state (Buffalo-Rochester-Syracuse) requested and received a private meeting with Hochman.

"They threatened to put up an opposing candidate," Hochman told *Play Meter* later. "But we reached a compromise. I promised them more representation in the executive ranks of the association."

It was, in fact, just the kind of deal Hochman wants to make statewide. Announcing the theme of his presidency would be "to act rather than react," Hochman told convention attendees he will seek to increase association membership—there are just 100 of 1,109 state registered operating companies enrolled—and position the association in a leadership role for the several other associations that exist throughout the state.

## Association battles gambling

Throughout its history, the New York State Coin Machine Association has waged its main battle, in and out of the Legislature, against gambling, reasoning that any expansion of gambling diminishes amusement returns. After a one-year cooling off period, Hochman and the association intend to pick up right where McCarthy left off, with direct attacks and tough words against any infiltration of gambling into amusement circles.

There are apparently no immediate plans to implement a video lottery in New York. In fact, a recent opinion from the state's attorney general argued the lottery statutes would have to be overhauled to



*President's Row: 1983 NYSCMA President Roger Folz presents Millie McCarthy with a silver tray and a bouquet of roses to commemorate her 25 years as president of the association. She is applauded by her protege and newly elected association president, Steve Hochman.*

permit one. Still, New York is a lottery state and the video lottery is being proposed as the next logical step in lottery operation.

Too, the lottery has already invaded the realm of the vending industry in New York, replacing some over-the-counter sales with ticket vending machines. Therefore, New York operators chose to feature a panel discussion of the video lottery at their main dinner meeting.

Several state associations have focused recent annual meetings around the video lottery debate, and many of the same panel members who spoke in Ohio in May and in Pennsylvania in August again appeared in New York to give information and opinion.

Most often, panel members—with the exception of Bally's Scientific Games President Daniel Bowers—offer invectives to arouse operator anxiety over the video lottery as the next major threat to amusement earnings. Bowers consistently promotes video as an inevitable extension of current lottery games.

This time the message from the video lottery opposition was quite different from earlier panel discussions. This time, operators heard that the video lottery (or slottery, as opponents refer to it) may not be the threat the industry has feared. Not only is there little proof lottery games hurt other amusement and vending machines in locations where they are placed, but it appears that video lottery systems will not be accepted on a side scale.

### Problem lotteries

To date, video lotteries that have been tried in Nebraska and Illinois are encountering difficulties. The Nebraska games, sponsored by cities or charitable organizations, have been legislated out of business. The games, which opened August 11, 1983, in Fort Calhoun, will be thrown out by January 1.

Although the Nebraska games are being lauded by local politicians for creating substantial revenue, the public did not take to being inundated with what were, in effect, video slot machines.



*National Coin Machine Institute Executive Director Herb Beitel explains the intricacies of the video lottery to NYSCMA convention attendees.*



*Roger Folz (l) presents Upstate Vending's Bill LaHart with a well-deserved award for organizing the association's annual meeting in his home region in Lake Placid.*



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The Nebraska failure has been explained away by video lottery proponents. The ill-fated "off-line" system (see inset) is not what the rest of the country's lottery commissioners would consider if they were to institute a video lottery.

Instead, all concerned parties have been keeping a close watch on Illinois, where Bally's Scientific Games is participating with the lottery commission in a six-month test of an "on-line" system. The results of that test will influence lottery commissioners in many more states than just Illinois.

When New York operators convened September 21-23 in beautiful Lake Placid, the Illinois lottery test was concluding its second month. But already indications were that it would fail, or even if adopted by the state on a more permanent basis, would not have a major impact on amusement operators or their collections.

Since the video lottery threat surfaced, operators have been more concerned that they would not be able to participate in the system than they have been about its existence. But the Illinois test indicates that operators not only would not have a part to play, but probably wouldn't want one.

#### **Lottery disadvantages**

The first two months of video lottery testing in Illinois have revealed that few are enthusiastic about the games. Local politicians have expressed concerns they might be too appealing to youngsters, players have been indifferent to the games, and locations are disappointed in the revenues and agitated by the demands the games have made on their time. The test is going so poorly, in fact, that attorneys for Illinois operators are advising them to hold off committing large sums of money for a campaign to legislate the games out of existence.

The aim of the video lottery is to draw the video game player, who, Scientific Games research has revealed, has not been playing the traditional lottery games. But the evidence to date is that the new video games are frustrating who-

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ever they are attracting. The games are too uninteresting to captivate arcadeniks and are too drawn out for gamblers.

Nor do gamblers like their chances of winning the video lottery in Illinois. The 45 percent pay back is a poor return compared to what machines pay in traditional gambling settings.

Consequent with the placing of video lottery games in Illinois, authorities have increased their pressure on gray area games. Barroom gamblers used to the 80 percent and better pay outs of gray area games have not been impressed with the new video lottery terminals.

Little profit and government intervention is turning locations against the games. According to Illinois Coin Machine Association President Kem Thom, locations are so displeased with the system that the state is having trouble finding places to put the 300 games proposed for the test.

Lottery executives have been stingy with information about the test, but it seems locations don't want to undergo the governmental scrutiny or hassle with the lottery paperwork for a mere 5 percent of collections.

Even if the games were pulling in what the state and Bally propose they should—about \$1,000 per week per machine—a location's take would only amount to \$50. And reports are that, in most cases, collections are falling far short of the \$1,000 plateau.

### Coin-op revenues up

Operators whose locations have the video lottery terminals are reporting the games are neither taking in big money nor stealing from coin-operated amusement games. Games in locations that have video lottery terminals have actually shown improved revenues during the test, said Thom. But he added that there is not yet enough analysis to prove why that is happening or even if collections are affected in any way by the lottery games.

Most importantly, operators in Illinois have decided they probably will not want to be a part of the

video lottery if it was offered to them. International Game Technology Chairman of the Board Si Redd told *Play Meter* that any role an operator might play in a system like the one in Illinois would be limited to servicing the machines.

Even at that level of commitment, profits would be minimal. If a state gets 45 to 50 percent of the gross and winners take 45 percent, even the best split remaining for operator and location is insufficient for either to be a partner with the government.

While the Illinois test is far from complete, indications are it should lessen the fear of video lotteries among members of the coin-op industry community. Still, several states are watching attempts to instigate video lotteries.

Ohio has discussed such a possibility, but Ohio's lottery commissioner returned from observing the Illinois test to report he was "unimpressed." In Pennsylvania, the lottery commissioner told a recent gathering of amusement operators the current lottery was so successful there was no need to consider a video lottery.

In Connecticut, operators have formed a corporation to bid on any state video lottery contract that might be offered. And in Washington, operators are watching the state closely in the wake of a recently written lottery law that specifically includes expansion into video.

### Operators cautioned

New York will continue to be observant under Hochman's leadership. After more than three hours of speeches and debate, Hochman brought the discussion to a conclusion by confirming the association's stand against the implementation of a video lottery in New York and by reminding attendees of what several speakers before him had warned.

"The current appearance of failure does not mean video lottery proponents will not find a way to make things more effective," Hochman echoed. "And if they are successful in turning it around, it could prove as difficult on us as we originally had feared." ●

## Video Lottery Systems

National Coin Machine Institute Executive Director Herb Beitel offers the following distinctions between the two types of video lottery systems: "on-line" and "off-line."

On-line systems use games that are connected to a central base or bases by telephone lines. The "remote terminals" offer lottery plays to the player and then transmit information to the central data base. The terminals can offer games, self-selection numbers, or dispense tickets.

Video lottery "games" do not require skill. A player's win or loss is predetermined and is a matter of programmed chance. Whether a player wins or loses is conveyed to him by the outcome of the game he has selected to play.

All states considering video lotteries will use on-line systems.

Off-line systems consist of free standing, self-contained terminals. Though off-line systems also select winners and losers by chance, they are self-programmed to provide a certain percentage of winners and losers.

The Nebraska lotteries—sponsored by localities or charitable organizations rather than by the state—are off-line systems. In fact, the Nebraska video lottery games are actually gray area games in video lottery clothing. ●

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# THE COIN-OP INDUSTRY IN 1994

By Bill Kurtz

The two-player video game features the latest electronic technology. Each player maneuvers a free-flying 3-D WWI biplane, trying to gun down his opponent's plane.

The biplanes, X-Y type outlines made of electrical beams and controlled by a trigger joystick, can fly up to 8 feet above the transmitting cabinet, a circular pedestal about 3 feet in diameter.

Don't look for this game at your distributor, though—at least not for another 200 years. It appears in "Star Trek III: The Search For Spock" as a preview of what may lie ahead for coin-op entertainment.

The amusement game industry has gone through more changes in the last 10 years than in any other time in its history. A decade ago, video games had begun appearing as fillers in some locations, next to the

pinballs and rifle games. Terms like "conversion kit" and "laser disc" were years away. Solid-state circuitry was just being developed.

Today's games are radically different from what was around in 1974, and you can expect the games of a decade from now to be far removed from what's operating today. Everyone in the industry has a different vision of what's to come, and several manufacturers, distributors, and operators have provided their insights into the future.

In the last two years, we've seen laser disc games—which were expected to usher in a new era in coin-op entertainment—fade from view as quickly as they appeared.

## Lasers may work

Mark Ritchie, a game designer with Williams Electronics, said laser

disc games may be practical a decade from now, but probably not in their present form. To be successful, he said, laser disc games must offer more than just fancy graphics.

"Laser disc games were a neat idea, but no one presently has the technology to make them profitable—they're not worth 50 cents to play," he said. "When total interaction play is achieved, then they'll become practical."

While the fate of laser disc games may already be sealed, there's some disagreement about the future of conversion kits.

John Lotz, director of marketing for Betson Pacific Distributing, said conversions will not be a significant part of the industry in 10 years. According to Lotz, the hardware will become quickly outdated because of the rapidly increasing sophistication of the software, making conversions impractical. "Technology will overtake the games after two or three conversions," he said.

Ron Malinowski, director of Equipment Services for Bally's Aladdin's Castle arcades, projected a different view.

In a few years, he said, game rooms may contain empty cabinets housing the latest video hardware. The attendant would have a variety of game software selections, possibly stored on cassettes, which would fit into the cabinets much like today's home video cartridges.

"In 5 or 10 years, a player might come in and rent the software he wants to use for the day," Malinowski said. "Conversions will be the wave of the future."

## Conversions

How important conversions become may depend on the manufacturers. David Solish of Darwin



*Williams Electronics' pinball design staff includes (left to right): Mark Ritchie, game designer; Dave Rzepka, programmer; and Barry Oursler, game designer. They're posing by Williams' latest pin, Starlight, designed by Oursler.*

Amusements, a large street operator in Los Angeles, said that some manufacturers have prevented the widespread acceptance of conversions by releasing their better videos only as dedicated games while offering the weaker games as conversions.

"Unless the manufacturers get real, real honest, there'll be no conversions on good games," he said.

And who will be the manufacturers a decade from now? Ten years ago, there were four "biggies"—Bally Midway, Williams, Gottlieb, and Chicago Coin. Many small amusement game manufacturers, including the fledgling Atari, were just getting into the industry through *Pong*-type videos. Most of these companies faded quickly.

In 1994, we can expect three or four major manufacturers on the scene. Most of today's smaller companies will be gone—either merged with a competitor into a larger company or simply out of business.

"Someone new could be the industry leader, not one of today's small companies because most of them are too bogged down in debt," Solish said. "And there'll always be independent manufacturers coming out of the woodwork."

Ritchie said the next six to eight months may be crucial in determining which of today's manufacturers will survive. "The toughest guy around will be the one who makes it," he said, adding "A company is only as good as its last game."

### Used Equipment

Along with fewer manufacturers than today, there will probably be fewer new games released and shorter production runs on the ones that do appear, which will be good news for operators.

Fewer games will produce higher earnings and keep the value of used machines up, which discourages location owners from buying their own games.

And we'll probably see more games designed for specific locations, as Bally's *Tapper* was meant for taverns while *Root Beer Tapper* went into arcades. Taito's *Ice Cold Beer* and *Zeke's Peak* also offered two variations on the same game for

different locations.

"The long-term health of the business is a good mix of arcade and street type games," said Dale Larcey, manager of Shaffer Distributing's Macedonia, Ohio, office. "As long as games are made for only one segment of the operating community, there are going to be problems."

Larcey cited the failure of laser disc games in street locations as an example of a type of game intended for arcades, which hurt many operators who tried running them in the wrong locations.

### Another boom

Lotz even predicted that in another four or five years, the industry may experience another boom. "But this boom will be different from the last one. There won't be the large numbers of new people getting into the business" because the lessons of a few years ago will still be remembered.

Some industry observers feel that part of the recent drop in revenue was due to the flood of mediocre games on the market. It was inevitable that players would get bored.

Many of today's video game designers had no previous experience in the amusement industry—only in computer programming. Norm Clark, manager of Bally's Pinball Division, said these industry newcomers lacked the "game sense" that veteran designers had developed—and it showed in the products. "These people came into the business without any knowledge of the industry," he said.

Steve Kordek, head of Williams Electronics' Pinball Division, said there just aren't enough talented game designers around today. "The people who will make or break the industry in 10 years are the designers," he said.

The games of 1994 may look different from today's games. Lotz said the trend may be toward simulation games—environmental equipment similar to mini amusement park rides, like the *Saker One Space Probe*, in which the player sits in a capsule that tilts and turns to match his video maneuvers.

The games may have motion

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effects, stereo sound, and maybe even odor effects as part of a trend toward realism in amusement games.

Rather than joysticks, buttons, or trackballs, games may react to responses picked up from the player's eye movements or brain waves, without any physical contact with the game.

Clark said future videos might let players become "part of the game," with 3-D graphics and curved, wraparound screens surrounding the player.

### Long distance play

Another possibility, Clark said, is that players in two different locations could compete head-to-head on a game like *VS. Tennis*, in which each player has his own perspective of the action.

Game rooms in distant cities could be linked by cable to coordinate the games. When a player in New York drops a token into the machine, a similar game in a Los Angeles arcade would begin beeping loudly to attract attention.

After a Los Angeles player inserts his token, both players would compete head-to-head. For a personalized touch, players could enter their names on the screen at the beginning of the game.

Solish said videos will be "more of a learning experience," with sophisticated computer programs allowing players to try to outthink the game.

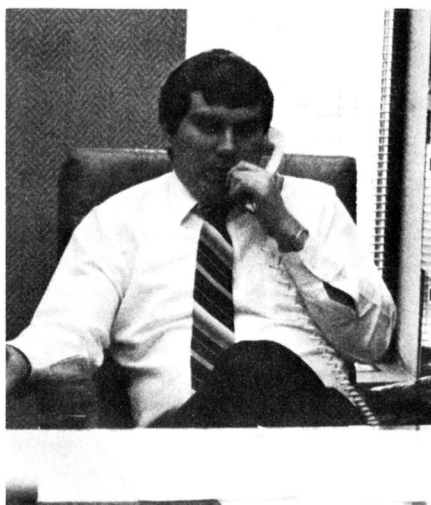
But what will these technical marvels cost you? Probably at least \$12,000 apiece in 10 years, with dollar play the norm, according to Lotz. "Bargain pricing on older games will probably be 50 cents," he added.

Remember that ever since videos first appeared in late 1972, they've all been shipped with only quarter acceptors, while pins, bowlers, and rifle games still had optional dime chutes at that time.

For the last 10 years, the price of playing a video has remained at 25 cents, while in many cases, the length of the game has increased along with the cost of the machine. A decade from now, like it or not, operators will have to get their



*Norm Clark, manager of Bally's pinball division.*



*Mike Pacak, director of operations for Fun-N-Games.*

players used to dropping more money into the games.

### Bill acceptors

Games may have bill acceptors in a decade—for both \$1 and \$5 bills—if manufacturers can market a dependable and inexpensive acceptor.

But Mike Pacak, director of operations for the 59-room Fun-N-Games mall arcade chain, said that even if game pricing rises to 75 cents or \$1, bill acceptors will never replace coin chutes.

"Customers are more prone to drop in three or four quarters or tokens than a bill," he said. "Bill acceptors aren't cheap enough, and the bills end up everywhere inside the game. The mechanics just aren't there."

Tokens will probably still be around, although they'll be selling at

two or three for \$1.

Fun-N-Games went to token operation about four years ago and still sells four tokens for \$1.

"Down the road we might have to go to three tokens for \$1," Pacak said, adding that he expects minimum pricing to be at least 50 cents per play in a decade because of the increasing cost of new games.

Despite any advances in technology in the next 10 years, you can expect the "basics" to still be with us.

"Phonographs will always have a permanent place with street operators," according to Larcey. "The jukebox is the backbone of the street operator's business."

### Video jukeboxes

Larcey added that technology may change the form of phonographs, with video jukeboxes becoming more common thanks to the popularity of cable TV's Music Television (MTV). "We may see more video jukeboxes in the next few years because the music industry is heavily involved in recording videos. It's not a fad; it's a trend."

Solish was also confident of a strong future for phonographs, with recent collections improving because of Michael Jackson's popularity, he said.

Pool tables will also remain popular among players, but according to Solish, operators may not share in the benefits. Many taverns are buying their own tables "when the location sees how little work is needed to maintain them," he said.

Pinball will certainly be around as well, with games similar to those of today. The most radical change in pins in the last decade was the switch from mechanical to solid-state games, although the fundamental design principles have remained the same.

"Pins traditionally have always been around," said Bally's Clark. "They'll probably be the same shape and size as today's games."

Williams Electronics' Ritchie said he also sees a promising future for flipper games. "Pinball machines have suffered for a long time, but they always manage to come back. The days of the mediocre pinball

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# A Humorous Look at the Future

By Bill Kurtz

**W**hile we're looking ahead at the industry a decade from now, here's a glance into a slightly cloudy crystal ball at some news that we aren't likely to see:

**Video Sequels Still Popular:** *Grandpa Pac-Man*, *Donkey Kong 12*, and *Mr. Do's Nursing Home* are the latest games featuring these ever-popular video characters. Industry rumors are that we can expect *VS. Horseshoe Pitching* soon.

**New Conversion Kit Introduced:** A major manufacturer has introduced what it calls the "hottest" conversion kit around. With it, you can convert any video game into a shuffle alley. The company also announced plans to market another kit which can convert a foosball table into a jukebox.

**Space Invaders Video Selling For \$3,000:** Collectors are paying record amounts for this classic game. Everyone wants one of these now-rare videos, because most of them simply disintegrated from disuse years ago.

**Parents Want Arcades Open 24 Hours:** A group of New York PTA mothers, worried because their children have no place to go at night, are demanding that city council pass an ordinance requiring all game rooms to be open around the clock. "It's better than having our kids hanging out on street corners—or, heaven forbid—at the library," declared one of the parents.

**Token Wars Heat Up:** Two rival Los Angeles arcades are offering 56 tokens for a dollar in an effort to lure players inside. Trouble is, the games in these arcades are set at 62 tokens per play.

**Hot Coin-Op Dispenses Cold Water:** The newest craze is the coin-op drinking fountain; for a quarter, customers get 30 seconds of ice cold water. Industry experts hope that this product fares better than last

year's fad, the coin-op ashtray.

**Arcades Enforce Dress Code:** Game rooms everywhere are refusing to admit anyone not wearing blue jeans. "These guys in their three-piece suits—who needs them!" one arcade owner complained. Reportedly, many game rooms are also considering allowing only those 17 and younger inside.

**Old Favorite Scores Again:** The video game that started it all—*Pong*—has been reissued and is racking up record collections. Players are calling it "fresh and original," adding that they can finally understand how to play a game on their first quarter.

**Laser Disc Games Declared Healthy:** The Surgeon General has determined that watching the images generated on laser games actually strengthens eye muscles, and is encouraging everyone to play a few games each day. "I have a *Goal To Go* in my office, and I threw away my glasses three months ago," he said.

**Dollar Coin In Short Supply:** The U.S. Treasury Department has asked all amusement game manufacturers to no longer equip their games with S.B.A. dollar coin acceptors. Use of the coin in amusement games has been so heavy that Treasury officials said the Mint can't produce the coins fast enough to keep up with the demand.

**Licensing Ordinances Repealed:** The city of Mesquite, Texas, has eliminated its \$500 per game licensing fee. To encourage amusement game play, the city will instead pay operators \$500 for every game they operate in town.

**Sophisticated Pinballs Debut:** The first of a new line of pinballs was introduced last month, featuring six levels and 14-ball multiball play. According to the manufacturer, the game represents the company's "back to basics" flipper philosophy.●

machine are gone, too," he said, adding that there are still many innovations to be explored for the silver ball.

Barry Oursler, another Williams game designer, said that in 10 years, mechanical games may replace many of today's video screens, as the novelty of manipulating a two-dimensional video image wears off.

Clark also predicted that other old-time coin-op amusement games might be revived, with cranes, baseball, and rifle games making a comeback. "Arcades will become more than just video showrooms," he said.

It's possible that in a decade, we could be playing a kind of game not yet even imagined. For example, if Williams' *Hyperball* and Bally's *Rapid Fire* had caught players' fancy, we might have seen a long line of these kinds of games.

Or remember those old coin-op kinetoscopes of the 1930s and '40s, where you could watch a flip-card show of a boxing match for a dime? These gadgets are now relegated to amusement parks, but some enterprising manufacturer might put together a two minute flip-card excerpt from "The A-Team," and charge a quarter a pop to players (by today's standards, of course).

"There's always somebody looking for an angle to sell a coin-op product," Solish said.

Any new type of game, though, may meet resistance from within the industry because of the losses that so many people suffered on laser discs. "Any new technology, because of the laser game fiasco, will be much harder to move for the operator and distributor," Larcey said.

## Street, mall locations

Without a secondary attraction such as ticket dispensers on the games or a snack bar, street arcades could become extinct in the next decade. On the other hand, mall arcades may have a more secure future. Unless American shopping habits change dramatically and unexpectedly away from malls in the 1990s, these arcades will have a steady player base.

Pacak said mall arcades will

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always be around, no matter how much of a downturn the industry experiences. "About 80 percent of our mall arcade customers are already in the mall," he said. "Much of our play has always been an impulse-type deal."

However, even with a "built-in" customer base, you've still got to provide an incentive to attract players to mall arcades. Although food service, for example (which might be an option for street arcades), is impractical in a mall location, Pacak said other attractions, like game tournaments, coin-op rifle galleries, or animated robots will become increasingly common in mall arcades in a decade.

And in 10 years, arcades may truly be "family fun centers." The children who've grown up since the '70s have accepted arcades as legitimate amusement locations, unlike previous generations who've looked down on game rooms.

By the mid 1990s, today's generation of players could be bringing their own children into your arcades, bridging the generation gap. Ironically, the players of the '70s could represent more business for your game room in a decade than the children of the '90s, whose interests might lie elsewhere.

According to Pacak, game rooms will become more than just oversized street locations in 10 years. "Arcades will approach an amusement park-type atmosphere," he said.

Pacak said that sit-down videos are usually money-makers in his arcades because these large games can't fit into many street locations like grocery stores and pizza parlors. And large simulator games may become popular in arcades partially because they will be limited in the locations that can accommodate them.

### Lost locations

Street locations will also become more scarce in a decade. "We've going to lose a whole lot of locations that should not have been locations to begin with," said Solish. "These false locations, like shoe stores and others where games never belonged, will disappear."

And while locations may still have coin-ops, the operators may not be there. Solish said gambling machines, such as the video lotteries that are owned and operated by the manufacturer or the state, could replace amusement games if location owners think there's more money in gambling games than *Pac-Man*.

"A lot of small cities are looking to the gambling machines as a panacea for tax problems, but some of us (amusement game operators) don't want to get our fingers dirty," he said.

Solish added that these gambling machines are the biggest threat to the future of amusement games, since local taxes and licensing ordinances have been passed in just about every city already.

However, another threat to today's arcade videos could be eliminated in 10 years. The faster technology advances, the more home video games will fall behind. Home games will be even less of a threat to your business in the future if you're operating more pins, *Skee-Balls*, and novelty equipment—games that can't be duplicated in the home.

Advertising new arcade games might be commonplace in 10 years. Some manufacturers already are advertising their coin-ops in the pages of home video game magazines, and Cinematronics is now promoting its *Dragon's Lair* sequel in television commercials.

Amusement games will still be around in 10 years. There'll certainly be new manufacturers on the scene, and probably some old familiar ones will be gone.

The games themselves will seem incredible by today's standards. Technology that hasn't even been dreamed of yet will be encouraging players to drop their quarters (or rather, dollars) into the games.

Unfortunately, there's no way to accurately predict what kinds of equipment we'll be seeing in 1994. Two years ago, laser disc games looked like a sure bet to be the hottest thing around in the future.

Look at your business, look at the trends, but most of all, look at your players who'll ultimately decide the future of this industry. ●

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# Operator Designs Select-A-Game System

By Dawn Adorno

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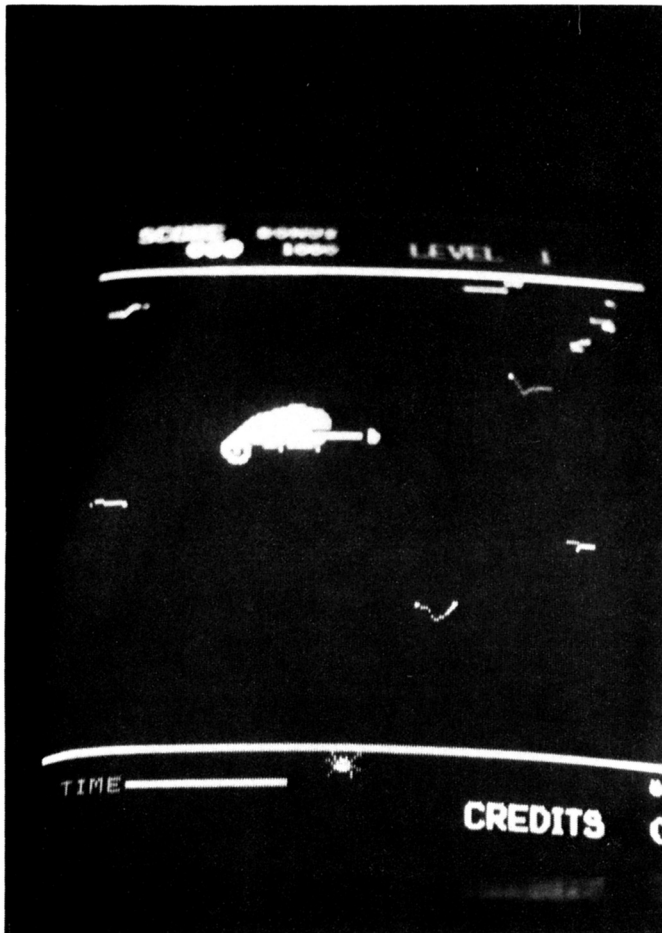
In a recent *Play Meter* poll, operators said they anticipate buying fewer video games this year (*Play Meter*, Nov. 1, p. 53). Although videos will probably constitute a smaller portion of operators' routes than they have in the past, most operators acknowledge that the games, in some form, will remain a staple in the industry. While sales of dedicated videos dropped off this year,

conversion sales increased to 70,000 in 1984 as compared to 60,000 units sold in 1983.

As a means to supply new game software without the expense of new cabinets, several game manufacturers, such as Nintendo and Bally Sente, are offering multiple game conversion systems. While operators still have to buy cabinets initially for both systems, they

purchase only the software later.

Another manufacturer, New Technology, offers a slightly similar idea in its Time Machine. The player can select from up to 32 games contained in one cabinet. Multiple game systems are not only a feasible innovation in game design, but can be profitable if the games in the system are good. Nintendo's *VS. Tennis* and *Baseball* videos have done well



Here are some scenes from games designed by a Texas operator for his Select-A-Game system.

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for operators, according to the "National Play Meter."

Bresnahan Technologies, a Texas operating firm, feels that game systems are the way of the future for operators, and has designed a system called Select-A-Game. The company is run by Roger Bresnahan and his son Michael who have been operators since 1979.

Designed by Michael Bresnahan, Select-A-Game is a conversion package which converts *Pac-Man*, *Frogger*, *Centipede*, *Donkey Kong*, and any other color vertical raster-scan monitor game.

At a cost of \$875, the initial package includes the reprogrammable game module, game software for three new games, and a book-keeping system which records each of the games' earnings individually. The company plans to offer one new game for the system every 12 weeks. These additional games will cost \$195 each.

Operators need only one game module per location, Bresnahan said. Because each additional conversion requires only the CPU unit, there's no need to purchase the same game twice for one location. New games can be electronically transferred to all converted cabinets.

### Inexpensive games

"We designed the system because we had to find a way to have new games very inexpensively," Roger Bresnahan said. "The main way to do that is to eliminate having to buy new cabinets or monitors every time you want a new game. Buying dedicated games every time you need a new game is like buying a new jukebox every time you want a new tune," he commented.

Bresnahan is testing the system which should be ready by mid-October. "We don't have any high traffic locations," he noted, "but we are averaging \$75 per week on the system's games. The Select-A-Games have done better than the games we had. The cost of the games is a low investment, and they should continue to yield good returns," he added.

The three games completed for the system are called *Airport*, *Amazon Race*, and *Chameleon*. Players select the game they want from the menu on the screen. *Airport* players are air traffic controllers readying planes for landing at an increasingly busy airport. The game also features a screen change in which the player becomes a pilot who has to land his plane safely on the runway. Increasing difficulty levels present the player with more problems such as additional planes and clouds which obscure some planes from view.

"There's quite a bit of random action as the computer generates more planes and clouds, so players can't learn the game and learn to beat it," Bresnahan explained.

*Amazon Race* is set in the jungle on the Amazon River. The player controls a boat which has to get to certain villages to pick up fuel in a predetermined amount of time. Obstacles like rocks, docks, and crocodiles make the journey more difficult. The game ends if the player fails to arrive at the fuel stops before his time runs out.

In *Chameleon*, the player is a spider who must eliminate a mass of worms while protecting himself from the chameleon's deadly tongue. After the game begins, the chameleon disappears except for his eyes, so players have to try to remember which way the chameleon was pointing to avoid being attacked.

When the spider drops through a window on the screen, *Chameleon* becomes a different game. The player then has to shoot at balls the chameleon is throwing at him. Advanced levels are more difficult because more chameleons appear, and the mass of worms can attack the spider.

The games and boards have been tested at the family's arcade, and the company is now looking for distributors for its multiple game system. For more information, contact Roger Bresnahan, Bresnahan Technologies, 913 Cordell, Denton, TX 76201 or telephone 817/382-2112.



# GENE'S GUDGEMENTS

By  
Gene  
Lewin

## 'Seicross' should earn well

### *Seicross/Nichibutsu*

(available as a conversion for any raster scan game)

**Play:** The player is represented as a hero, Gilgit, who is the rider of a space bike. The object is to rescue the Petra People by picking them up as they hitchhike and take them to the end. Gilgit must destroy the enemy bikes by shooting or bumping them off the road.

**Controls:** An eight-way joystick is used to control the bike and fire button for shooting.

**Graphics:** Futuristic and spacey. It looks like you are riding through a city from the year 2200. The cabinet graphics are very attractive.

**Sound:** The normal space sounds are used along with some catchy tunes.

**Originality:** It is somewhat similar to the *Spy Hunter* theme—players bump and shoot enemies while driving. It is not quite a driving game because it has no steering wheel or gas pedal.

**Opinion:** *Seicross* may look like just another average game, but it does not earn like it. For a con-

version kit, it will earn very well. It is challenging as well as fun to play.

**Rating:** 8 as a conversion.

### *I, Robot/Atari*

(available as a dedicated game)

**Play:** The player first is given a choice, Doodle City or the game. In Doodle City, the player can use the joystick to draw all sorts of colorful pictures on the screen. The game is the main feature. The player is represented by an interface robot in rebellion of "Big Brother"—the storyline is from the book *1984*.

The player's object is to maneuver the robot to run over the red areas and paint them blue. Jumping from one point to another is OK unless the eye is red in which case the player is destroyed. There are 26 different playfields with obstacles like space birds, sharks, and beach and soccer balls to avoid. After turning all areas blue, the robot jumps to the eye and destroys it, only to go into a space shoot-'em-up scene.

The play gets progressively harder as the level increases. There

is a transponder which takes the player to level 1-5 or any higher level achieved in the previous game.

**Controls:** An analog joystick is used, but it is much improved over the one used in *Food Fight*. It has a nice feel to it, but I cannot see any need for it. It seems like a normal eight-way joystick would be sufficient. There is also a fire button on each side and two buttons for changing the viewing level.

**Graphics:** Very colorful. There is a lot of variety in the shapes of objects. The cabinet is the new unusually shaped one used on the original *Major Havoc*.

**Sound:** Normal space shoot-'em-up sounds.

**Originality:** This is an original game. The Doodle City feature is new to a coin-op game, although home computers have had drawing programs for some time. The game play is different and new.

**Opinion:** This game caters to the good players. The graphics are very unusual and extremely colorful. But somehow it lacks the excitement necessary to make it a top earning

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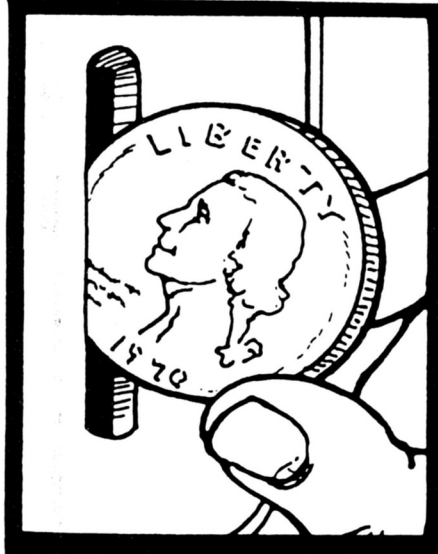
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game.

An average player will not be very interested in *I, Robot*. Atari never should have come out with this game in dedicated form, just as a conversion. Expect to see *I, Robot* as a closeout and conversion in the near future.

**Rating:** 2 as a complete \$2,600 game. When Atari wises up and offers it as a conversion, 7.

Note: *Hyper Sports* is being offered as a conversion by Konami/Centuri. The conversion comes with a new PCB board, control panel overlay, marquee overlay, side stickers, instructions, and a wiring harness.

Make sure you do a good job covering the old holes on the control panel because this game lends to pounding as *Track & Field* did. The retail price is less than \$800, and it should earn as well as *Track & Field*, which is still pretty good for an \$800 investment.

Rating as a conversion: 9. •

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- 4 Below average. Closeout around the corner.
- 3 Pretty bad. I'm not buying any.
- 2 Don't waste your money. Move over *Gravitar*.
- 1 Terrible. Not even worth playing.
- 0 They've got to be kidding. Buy pesos instead.

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# CRITIC'S CORNER

By  
Roger C.  
Sharpe

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## 'Attila the Hun' offers a solid layout

It's easy to see change within the industry. The mood remains cautious and production has been nothing more than a trickle.

For some manufacturers, the next two months will determine whether they can compete effectively in the market. These firms are out to have a last gasp shot in the sun, hoping to generate positive reactions (and sales) so that they might weather the storm and survive until the next turning point—the spring convention.

I am trying to keep optimistic, although I do have doubts about the level of product advancement we might be seeing from those companies who are still in the race. The old fire seems to have been taken out of even the staunchest battlers, replaced, instead, by an operating philosophy that falls slightly short of immobilization. This isn't to suggest that there are no new machines worth their weight in quarters, only that the pickings are going to be slimmer than what we have come to expect when it's AMOA time of year. This issue's offerings are probably a reflection of this lack of cohesiveness in current game design. They run the gamut from the return-to-basics approach all the way up to some above-average applications of state-of-the-art technology.

### Atari's *I, Robot*

Here's a company that has been in the news for everything *but* its coin-op operation which, admittedly,



*I, Robot*

has had to be severely influenced by the surrounding carnival atmosphere. Whatever the effects might be on Atari, it hasn't stopped the coin-op games group from introducing a new 3-D raster video animation system.

**PLAY:** Housed in a cabinet design for uprights which began with *Major Havoc*, *I, Robot* (inspired by the Isaac Asimov sci-fi classic) features an Orwellian conflict between an Interface Robot (known as #1984) and the forces of Big Brother and his Evil Eyes. So it's man/robot against the system with more than 100 levels of play and more than 20 screens, as well as space wave and bonus screens.

The objective of the game is for players to maneuver their on-screen robot via an analog joystick and fire buttons. In addition to these controls, *I, Robot* also presents the player with the option of selecting

one of two playfield viewing angles which can give a head-on or overhead perspective to the action on screen. With variations in the layout of configurations of multi-dimensional structures floating in space, as well as a host of obstacles and enemies, *I, Robot* reinforces a learned playing strategy that remains fairly constant within the main screens.

The robot must be kept safe while it rapidly fires at a large eye at the top of the field, which can be destroyed only when a given number of shields have been destroyed. However, besides this basic dodge and shoot scenario, the game also incorporates a bit of *Crystal Castles* where players had to cover an entire structure before moving to the next level. The same is true here in this combination effort that stresses and rewards timing, precision movement, and thoughtful strategy.

Once the eye has been destroyed, *I, Robot* brings into play a space, or bonus, wave that looks incredibly similar to the action in Williams' *Blaster*, although the graphics are a bit more detailed as objects hurtle through space to stop a player's advancement.

These events are repeated, gaining in degree of difficulty, and some nuances are added. In one screen, a floating head must be shot repeatedly to inflict any damage. In a special bonus screen, the player must move his robot around a space structure collecting jewels which dot the area.

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a more active and personalized role in controlling their destiny, *I, Robot* features a special "transporter" character on screen at higher levels of play. When a player moves his robot into this graphic, the player decides whether he feels confident enough to skip ahead to higher levels, to somewhere in between, or stay at the same pace. It's a nice touch that most advanced players should welcome.

**ANALYSIS:** *I, Robot* isn't dramatically different compared to many of the other space adventures. But the integration of the basic elements strengthens the potential following of the game. Given the expanse of screens and even the ability of players to sometimes skip ahead, the machine breaks the predictability pattern associated with so many other video games.

And, in today's strange market, *I, Robot* isn't so difficult that the sometime player can't feel comfortable after a few plays, while the skilled individual looking for a challenge should have his hands full for at least a few weeks.

One final point to make here is that *I, Robot* is really two games in one. The folks at Atari liked their graphics so much that they started doodling around in the lab. "Doodle City" was born and appears at the beginning of play as an alternative for the curious videophile.

**GRAPHICS:** If you go back to the early days of raster graphics, you probably can appreciate the evolutionary changes which have provided this format with more detail, richer textures, and the methodical advancement to dimensionalized screen images. Atari has taken a next step in refining the art.

**PROS & CONS:** When someone takes the time and energy to get into *I, Robot*, the ingredients of play become readily apparent. Just dodge, shoot, and move around a structure until you've traveled its width and length and then travel on to another challenge of basic slide and shoot.

This should be enough to entice an ample portion of the playing public; however, the game doesn't totally succeed in conveying this measure of familiarity due to its graphics treatments which tend to

overwhelm and steal attention away from what this machine wants to deliver to players. This can pose a considerable problem for *I, Robot* as it tries to get that initial rush of players. Instead, the game's success will be fairly dependent upon its potential for attracting a limited audience in the beginning, who will serve as the demonstrators of the machine's basic play action. Others will watch and observe, then decide if it's worth the investment. But *I, Robot* looks more inviting and less intimidating when it is being played than when it's in instruction set and attract mode.

**RATING:** I like the intent, and even the execution of *I, Robot* but fear that today's diversified playing public may pass it by. In many ways, it's the same type of dilemma that kept *Crystal Castles* from getting its fair due as an original and sophisticated video game. *I, Robot* won't be a sure-fire sensation, but it does exhibit "sleeper" qualities. We'll go with a ###.

### Bally Midway's *Black Pyramid*

The growing revival in pinball machines continues slowly, but progressively, gaining more fans with each succeeding game, and one of the manufacturers which has helped nurture this positive trend is Bally Midway.

**PLAYFIELD:** With everyone talking about pinball machines that display fundamental basic ingredients, the folks in Franklin Park have tried to take this view to heart and create a very straightforward, uncluttered game. The action begins with a top, center kick-out hole saucer that offers five letter values (B-L-A-C-K) as well as scoring totals of 5,000 to 25,000 points.

At either side of this feature are two roll-over lanes which lead down to a complementary number of thumper bumpers, while just above, to the right and left respectively, are stand-up targets (P & Y). Slightly angled long rubber-ringed posts confine this area on either side, while accentuating the placement of a mid-center swinging target.

This classic pinball feature, which hasn't been used in quite

some time, returns to deliver the potential of gaining eight different "spots." At the extreme left and right of the target's movement, when hit, the player will light a corresponding star that can multiply point totals. In between these displays are lights for 2-0-0-0-0-0 points if a player can complete the sequence.

Meanwhile, over at the left is a long, narrow lane which provides access back to the top of the board as well as spotting a letter in either B-L-A-C-K or P-Y-R-A-M-I-D and additionally building up in point value from 20,000 to a possible extra ball and special when lit. Continuing the symmetry of the game, at the right is another similarly long, narrow lane which, besides spotting a letter, also features three in-line drop targets. Hitting these down will award 2X, 3X, and 5X bonus multiplier values while a fourth time through the sequence will mean an additional 50,000 points.

Finishing off the board, at the lower left and right, are two perpendicularly placed targets (R & A), while the bottom offers a conventional wire form lane and flipper configuration. The inside lanes do double duty by providing a way to get out M & I, and the right side also features an open gate to salvage an otherwise lost ball when lit.

**ANALYSIS:** Play on *Black Pyramid* is almost totally dependent upon the flippers, although there is some decent rebounding off the bottom kickers and the top bumpers. The objective is simple enough for even beginner pinball players to understand—spell the letters and then keep doing it again and again. The inclusion of a hold-over bonus keeps the game alive, while ensuring the skilled player of some continuity from beginning of game to end, not to mention the potential of having 60,000 or 120,000 points in the bank. Exceeding this point will reward a special for the next completion of the sequence, although this is a difficult task at best.

The primary shots are those narrow side lanes, but making them on a consistent basis is the challenge that should sustain interest in the machine. There is also the oppor-



*Black Pyramid*

tunity for some close-range precision shot making for the lower targets at the side and that swinging target which is always an alluring feature that's almost impossible to ignore. *Black Pyramid* is a pinball classic that never seems to wear out its welcome—spell some words and reap the rewards.

**GRAPHICS:** Trying to capture a bit of the feeling of an Indiana Jones type character, *Black Pyramid* offers a scenic backglass of discovery within the depths of an ancient vault. Nicely rendered, the major problem I have with the execution is the preponderance of dark colors. Depending upon the lighting of a given location, this can cause considerable glare for players—something I have encountered in a number of game rooms.

**PLAY:** When setting limits for extra balls or specials, it's important to remember that *Black Pyramid* is a "build-up" game. The scoring is going to be low until a player completes the appropriate sequences. For today's player, this can be a problem of interpretation if he is looking for big number scoring, because what he does on the first ball will have an impact on following balls. Be generous in setting a first limit of about 600,000 points for free play and a second level of 1,200,000 points. On extra ball play,

you can get away with a 400,000 point level followed by 1,000,000 points.

I have been seeing something around 1,200,000 points to start. That's outrageous for this game, and it's a turnoff for players who don't think they have a chance to get close to this amount.

**PROS & CONS:** The major difficulty I have with *Black Pyramid* is that it is so dependent upon flipper skill. A player really has to make shots in order to get anything accomplished and that isn't so bad, but I take into consideration the number of individuals who are just beginning to play pinball. They're still trying to learn the nuances of play—to put everything on their shoulders isn't fair. Some extra rebounding off bumpers or a layout that can help a mistake seems to be the most desirable situation, and this game doesn't offer that option.

In fact, there's really very little play from the bottom kickers except for some side to side rebounding, and with the bumpers, play deadens rapidly because of the basic design of the board.

A saving grace is the symmetry of the layout which equalizes both sides of the board, but this game is almost too Spartan and lacking in imagination for some exciting ball movement. Still and all, for talented players, *Black Pyramid* can provide some challenging moments. My concern is whether there are enough talented players so that the game will get extended repeat play.

**RATING:** I can understand the desire to come up with an uncluttered game that's easy to learn but difficult to master; however, this doesn't have to mean that there's a sacrifice in offering a twist or two along the way. I'm afraid that *Black Pyramid's* only saving grace is the lack of a strong lineup of competition. We'll go with a ##½ because this flipper game doesn't seem to have the legs to remain active over the long haul.

### *Mylstar's The Three Stooges*

This year marks the Golden Anniversary of the zanies. Their appeal and brand of humor remains timeless and maybe it's fitting that

someone should pay tribute to them with a video game.

**PLAY:** There's Curly, Moe, and Larry out to cause some bedlam as they try to rescue Nora, Dora, and Cora from the clutches of a mad doctor, I.M. Acad, in a game subtitled "Brides is Brides." From first look the one thing that stands out about this machine is its lineup of three joysticks along the control panel.

And, lest you think that the designers at Mylstar have lost their minds by building a machine for some unknown three-handed people, play is for any combination of one to three players, who must choose which stooge they want to be. Although it's possible for a player to attempt to maneuver two of the stooges (or even three), it's more likely that he'll single which stooge he wants by jiggling the appropriate joystick at start-up and then contending with only the stick and a button for throwing a pie, slapping a face, or pounding a hammer. In fact, these options are the only defenses a player has, besides skillfully maneuvering his stooge around the board.

Players will find themselves in various rooms against a full cast of villains and an assortment of objects which must be hammered into dust in order to reveal a key or other bonus symbol. The keys are important because players can only exit a screen by gaining all three keys which are hiding somewhere in the scene. Once done, it's on to the next screen in a game that features 28 rounds of action.

**ANALYSIS:** One gets the sense of a *Food Fight* type of playing style as a player makes his way around the room, throwing, avoiding, and destroying in an effort to safely escape. The array of screens does present a variety of layouts, although the basic premise of play doesn't deviate from beginning to end. The real challenge is in establishing and refining a strategy of play to survive the layouts. The game is physically involving because the joystick must be manipulated, but a more thoughtful approach must be used when deciding how to proceed.

**GRAPHICS:** The artwork on the cabinet is enough to bring back memories to my after-school days when I would rush home to watch a half-hour of the incomparable Three Stooges. The opening visual of the three guys—Curly, Moe, and Larry—calling out to you is very nicely done. From this point, the graphics lose some of their detail, although the images of our three heros are distinctive enough to stand out from the rest of the board.

Added to this is the use of some very impressive sound effects—Three Stooges-style—and a few words of speech thrown in for good measure to enhance the package.

**PROS & CONS:** The strong point of *The Three Stooges* may also be its weakest link, with play action that remains constant from begin-

ning to end. This repetitiveness might be a turnoff to some players who won't find enough variability to the game, although others might be comforted to know that once they've devised an approach to play, they can pretty much stick with it time and time again.

It's vital that the player feels his controls are responsive to his movements and *The Three Stooges* achieves these results, although it could be much better and have a "truer" feel. Is there enough of a challenge to keep players interested? Will the characters help raise this effort a notch?

**RATING:** I'm pleased to see a tie-in for a video game, especially one that is humor-based, but I don't know if the play of *The Three Stooges* is strong enough to get a devoted following. The machine might get some novelty attention in the beginning and then fade from view against other, more aggressive or interactive models. There's something here, but it might have been better developed and more intricate. I can't dismiss *The Three Stooges*, but my reaction to it falls short of the mark with a less than stable ##½ for a nice try.



*Attila the Hun*



*The Three Stooges*

### Game Plan's *Attila The Hun*

Hoping to follow up on the success of its re-release of *Sharpshooter*, we have a next effort that offers solid layout and nice shot possibilities. In this mini-overview of *Attila the Hun*, we find a machine in which players spell out letters to increase out-hole bonus and multiplier values.

There are three lanes on top which lead down to an array of three thumper bumpers. Over at the right is a short little, curved loop-around lane with a spinner for access back to the top of the board resting just below. The upper left balances this off with the appearance of an interesting multiple captive ball design that can also provide necessary letters. Move down and a three bank of drop targets fronts a roll-over lane, while at the right, there's another three bank of drop targets.

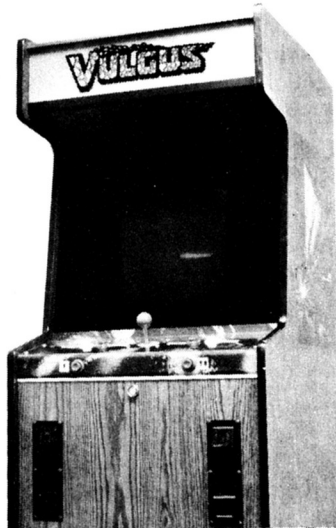
Finishing off the board is a conventional lane and flipper arrangement, although it's a bit more squat

in appearance than what we usually expect from such a layout.

Tying in all these features, the folks at Game Plan have resurrected a center playfield scoring card with four horizontal rows of three lights corresponding to A-T-T-I-L-A T-H-E H-U-N. In addition, there are also 14 arrows around the edges of these 4 by 3 lights which signal when a row has been completed.

The action on *Attila the Hun* is fairly balanced from side to side and top to bottom, with features that allow for some satisfying and long range shots from left to right and right to left. Close-up play hasn't been ignored with access for reverses to all points of the board in a game that should be challenging enough for players of all skill levels.

There's nothing fancy or flashy here, but Game Plan has come back with a credible effort that should more than hold its own for the next few months. Although *Attila the Hun* might not look like much, the layout and relationship between features is enough to carry it to a respectable ##¾.



*Vulgus*

### SNK Electronics' *Vulgus*

By way of Japan, SNK is marketing conversion kits of this fly and shoot adventure. Interestingly, when I traveled to Tokyo for the Konami/Centuri *Track & Field* international competition, *Vulgus* caught my eye at one arcade after another. There isn't anything intrinsically different or innovative

about it, but it seems to have a compelling quality. American players are going to discover its *Xevious*-like motif that adds in an extra touch to keep things interesting.

Players must maneuver a ship over a scrolling landscape while a legion of enemies swoop down from the top of the screen and move in an array of patterns. The rapid fire and non-stop action make *Vulgus* a very involving game that should provide some thrills for video game players of all types.

The immediate reflex is to dismiss *Vulgus* as a dated effort that repeats action already done to death, but somehow the execution of the game tends to draw players in and keep them there. I have always been a fan of the basic joystick/fire button fly and shoot. It's not that difficult to feel comfortable with this type of game the minute you walk up to the machine. I feel many players probably share this sensibility, which might keep *Vulgus* around for awhile. The verdict here is a ### for getting the most out of a previously tapped design direction. ●

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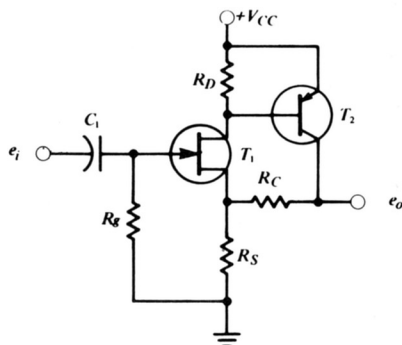
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## Lesson Eight: Hybrid Circuits

**Lesson Eight – Hybrid Circuits.** This lesson covers the design of amplifiers using bi-polar and JFETs in differential amplifiers. I.C. op-amp circuits are also discussed.

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To get the best of two device types, FETs can be used directly with bipolar transistors in a hybrid arrangement. This allows utilization of the high input impedance of the FET and the linear current relationship of the bipolar. As an example, consider the hybrid JFET-PNP pair shown in Fig. 8-1. The input impedance is essentially  $R_g$  which can be several megohms; while, the feedback from the collector to the source produces a stable value of gain and low output impedance. The voltage gain  $A_v$  of



**Fig. 8-1. Hybrid JFET – PNP Pair in an Amplifier Circuit.**

this stage can be found by writing voltage and current equations from the equivalent circuit in Fig. 8-2. It is assumed that  $h_{ie} \ll 1/g_{ds}$  so that  $g_{ds}$  can be neglected.

Therefore,

$$A_v = \frac{e_o}{e_i} = \frac{g_m R_S (1 + \beta') + g_m R_C \beta'}{1 + g_m R_S (1 + \beta')} \quad (8-1)$$

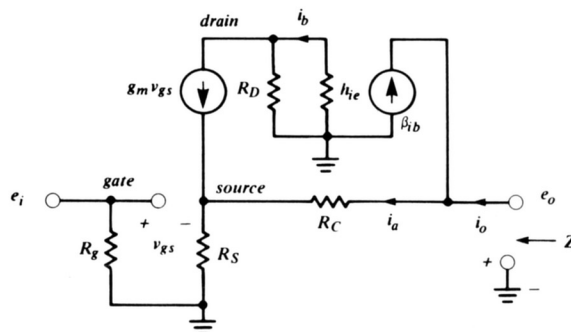
where

$$\beta' = \frac{\beta R_D}{h_{ie} + R_D}$$

By assuming that  $1 + \beta' \approx \beta'$  and that  $g_m R_S \beta' \gg 1$  then

$$A_v \approx 1 + \frac{R_C}{R_S} \quad (8-2)$$

which indicates that for large values of  $g_m \beta'$ , the voltage gain reduces to a ratio of the feedback resistors. The output



**Fig. 8-2. Equivalent Circuit of the Hybrid JFET – PNP Amplifier.**

impedance seen at the output terminals can be found to be:

$$Z_o = \frac{e_o}{i_o} = \frac{R_S + R_C (1 + g_m R_S)}{1 + g_m R_S (1 + \beta')} \quad (8-3)$$

Again, assuming that  $g_m R_S (1 + \beta') \gg 1$  and  $\beta' \gg 1$ , the above expression reduces to

$$Z_o = \frac{1}{g_m \beta'} \left[ 1 + \frac{R_C}{R_S} \right] + \frac{R_C}{\beta'} \quad (8-4)$$

which illustrates the dependency of the output impedance upon the feedback resistors. By replacing the terms in brackets with Eq. 8-2, the output impedance can be seen to be directly related to the voltage gain. That is,

$$Z_o \approx \frac{A_v}{g_m \beta'} + \frac{R_C}{\beta'} \quad (8-5)$$

where it is assumed that  $A_v/g_m \beta' \gg R_C/\beta'$ .

### EXAMPLE 1:

The parameter values for the Hybrid JFET-PNP amplifier shown in Fig. 8-3 are given below.

For the PNP:

$$\beta = 150 @ I_c = 200\mu A$$



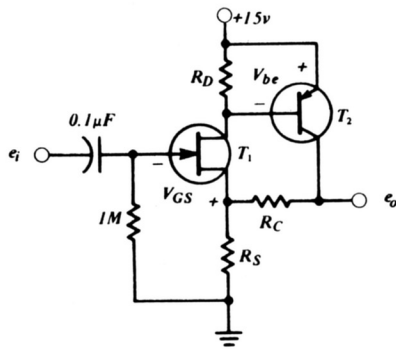


Fig. 8-3. JFET – PNP Amplifier Design Example.

$$h_{ie} = 2K @ I_c = 200\mu A$$

$$V_{be} = 0.6v @ I_c = 200\mu A.$$

For the JFET:

$$g_m = 800\mu mhos @ I_D = 500\mu A$$

$$g_{DS} = 30\mu mhos @ I_D = 500\mu A$$

$$V_{GS} = 1.8v @ I_D = 500\mu A.$$

STEP 1: Compute the resistor values necessary to bias the devices at an  $I_D$  of  $500\mu A$  and an  $I_c$  of  $200\mu A$  for the JFET and PNP, respectively.

$$R_D \cong \frac{V_{be}}{I_D} = \frac{0.6v}{500\mu A}$$

$$R_D = 1.2K \Omega$$

$$V_D = V_{DD} - V_{be}$$

$$V_D \cong 14.4v$$

$$R_S = \frac{V_{GS}}{I_D + I_c}$$

$$R_S = 2.57K \Omega$$

Choose nearest value, 2.6 K  $\Omega$ .

To require that  $T_2$  is biased properly, it is necessary that  $V_D > V_c$ .

$$V_D > R_C I_c + V_{GS} = V_c$$

$$R_C < \frac{V_D - V_{GS}}{I_D}$$

$$R_C < 63 K \Omega$$

STEP 2: For a voltage gain of 10, compute the value of  $R_C$  and then determine the output impedance.

$$R_C = R_S (A_v - 1)$$

$$R_C = 23.4 K \Omega < 63 K \Omega$$

$$\beta' = \beta \cdot \frac{R_D}{R_D + h_{ie}}$$

$$\beta' = 54.5$$

$$Z_o = \frac{A_v}{g_m \beta'} + \frac{R_C}{\beta'}$$

$$Z_o = 657\Omega$$

One of the more common applications of this stage is found for the case where  $R_C = 0$  such that the gain of the amplifier becomes unity. This allows a high input impedance, low output impedance, unity gain amplifier which is very useful in certain active filter designs. Since these are only two active elements, the cost of such an amplifier is kept at a minimum. There are some manufacturers who make the FET and bipolar transistor into an

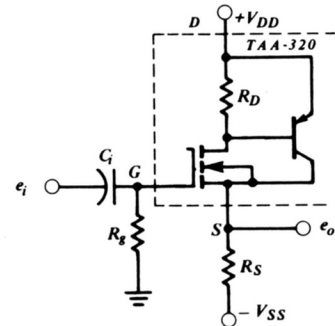


Fig. 8-4. Hybrid JFET – PNP Unity-Gain Amplifier.

integrated circuit. Amperex, for example, makes an enhancement mode MOSFET and a PNP transistor in a three lead package. Fig. 8-4 shows the TAA-320 connected as a unity gain amplifier. The portion of the stage within the dashed lines is the actual IC.

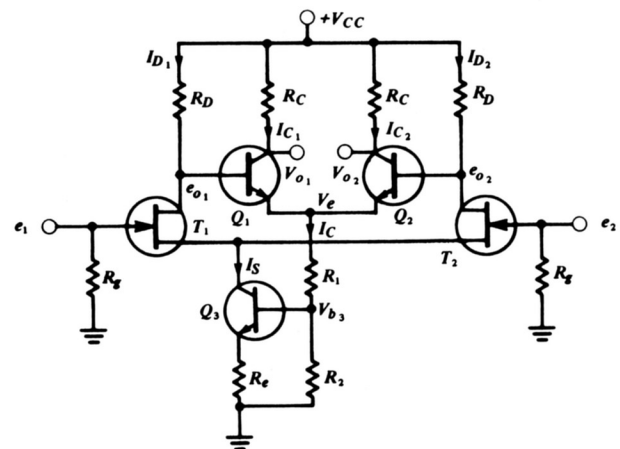


Fig. 8-5. Hybrid JFET – NPN Differential Amplifier.

This particular circuit has an input impedance seen by  $R_g$  of about  $100 G \text{ ohms}$  ( $1G\Omega \cong 10^9 \Omega$ ), a forward transconductance of  $40,000 \mu mhos$  (which is the product of the  $g_m$  of the MOSFET and  $\beta'$ ), and an output impedance of about  $25 \text{ ohms}$ . This circuit has found many applications in timing circuits, active filters, and impedance converters.

Another interesting application of a hybrid FET bipolar circuit is the differential amplifier. Fig. 8-5 shows a D.C. differential amplifier using a matched pair of JFETs and a matched pair of NPN transistors. The single NPN ( $Q_3$ ) serves as a constant current sink which is controlled by the bias voltage on

$Q_1$  and  $Q_2$ . The bias on  $Q_1$  and  $Q_2$  is determined by the drain currents in the JFETs,  $T_1$  and  $T_2$ . The sum of these drain currents equals the current through  $Q_3$  which is constant. Thus, there is a D.C. feedback loop in the circuit which stabilizes the D.C. bias currents in each of the matched pairs.

Assuming that the NPN differential stage does not load the JFET stage, the total differential gain is equal to the product of the gain of the JFET stage and the NPN stage. From Eq. 8-6.

$$A_{d1} = \frac{e_{o1} - e_{o2}}{e_1 - e_2} = \frac{-g_m R_D}{1 + g_{DS} R_D} \quad (8-6)$$

The differential voltage gain of the NPN stage is given by

$$A_{d2} = \frac{V_{o1} - V_{o2}}{e_{o1} - e_{o2}} = -\frac{R_c I_e}{25mV} \quad (8-7)$$

The total voltage gain is found then to be

$$A_d = A_{d1} \cdot A_{d2} = \frac{g_m R_D R_c I_e}{(1 + g_{DS} R_D) 25mV} \quad (8-8)$$

which can be quite large if the values for the drain and collector resistors are properly chosen.

#### EXAMPLE 2:

**STEP 1:** If the JFETs and the NPN transistors in Fig. 8-5 are ideally matched, then the drain and collector currents will be functions of the passive elements in the circuit.

To show this, a set of voltage equations can be written which illustrate the effect of D.C. feedback. Assume that

$$I_{D1} = I_{D2} = I_D$$

$$e_{o1} = e_{o2} = e_o$$

$$I_{C1} = I_{C2} = I_C$$

$$v_{o1} = v_{o2} = v_o$$

Then

$$e_o = V_{cc} - R_D I_D$$

$$V_e = e_o - V_{be} \cong e_o$$

$$I_e = \frac{V_e}{R_1 + R_2} = \frac{e_o}{R_1 + R_2}$$

$$I_s = \frac{V_{b3}}{R_e} = \frac{R_2}{R_e (R_1 + R_2)} e_o$$

$$I_D = \frac{I_s}{2} = \frac{R_2}{2 R_e (R_1 + R_2)} e_o$$

$$I_D = \frac{R_2 V_{cc}}{2 R_e (R_1 + R_2) + R_D R_2} \quad (8-9)$$

This shows that the drain currents are totally independent of the  $V_{GS}$  values of the devices. The collector currents can be found in the same manner. Since

$$I_e = \frac{e_o}{R_1 + R_2}$$

$$I_C = \frac{I_e}{2} = \frac{e_o}{2(R_1 + R_2)}$$

$$I_C = \frac{V_{cc} - I_D R_D}{2(R_1 + R_2)}$$

$$I_C = \frac{R_e V_{cc}}{2 R_e (R_1 + R_2) + R_D R_2} \quad (8-10)$$

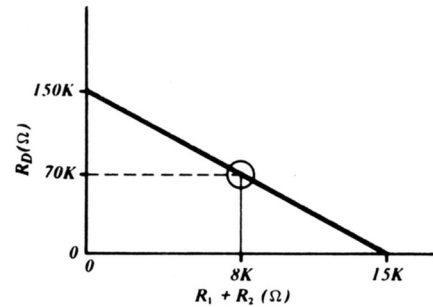
or,  $I_C$  can be written in terms of  $I_D$

$$I_C = \frac{R_e}{R_2} I_D \quad (8-11)$$

**STEP 2:** For the same circuit in Fig. 8-5, it is required that the JFET stage have drain currents of  $200\mu A$  while the NPN stage has collector currents of  $1.0mA$ . Assuming that the supply voltage is  $30V$ , design the circuit. From Eq. 8-11,

$$\frac{R_e}{R_2} = \frac{I_C}{I_D} = \frac{1.0mA}{200\mu A} = 5$$

$$R_e = 5 R_2$$



**Fig. 8-6.  $R_D$  vs.  $R_1 + R_2$  for Optimum Resistor Choice.**

Substituting this into Eqs. 8-9 and 8-10 yields the following for  $I_D$  and  $I_C$

$$I_D = \frac{V_{cc}}{10(R_1 + R_2) + R_D}$$

and

$$I_C = \frac{5 V_{cc}}{10(R_1 + R_2) + R_D}$$

From which an expression for  $R_D$  in terms of  $R_1 + R_2$  can be obtained. This expression is

$$R_D = \frac{5V_{cc}}{I_C} - 10(R_1 + R_2)$$

$$R_D = 150K \Omega - 10(R_1 + R_2)$$

Now, a plot of  $R_D$  vs.  $R_1 + R_2$  shown in Fig. 8-6 can be used to determine the optimum values of these resistors. These optimum values can be chosen by trying one value and checking to see if the results are favorable. For example, choose  $R_1 + R_2 = 8K$  which is near the center of the graph. This gives an  $R_D$  of  $70K$ . From this information, the values for  $R_e$  and  $R_2$  can be chosen. That is, choose  $R_2 = 1.2K$  then

$$R_1 = 8.0K - 1.2K = 6.8K \Omega$$

and

$$R_c = 5 \cdot (1.2 \text{ K}) = 6.0 \text{ K } \Omega$$

The D.C. values of  $e_o$  and  $V_{b_3}$  can now be found

$$e_o = 30\text{v} - (0.2\text{mA})(70 \text{ K}) = 1.6 \text{ v}$$

and

$$V_{b_3} = \left(\frac{1.2}{8.0}\right)16\text{v} = 2.4\text{v}$$

The value of  $e_o$  puts a lower limit on the value of collector voltage and therefore limits the value chosen for  $R_c$ . Since

$$v_o = V_{cc} - R_c I_c > e_o$$

$$R_c < \frac{V_{cc} - e_o}{I_c}$$

$$R_c < \frac{(30 - 16)\text{v}}{1.0\text{mA}} = 14\text{K } \Omega$$

then choose  $R_c = 7.5 \text{ K}$  as a safe value. The completed circuit has the resistor values and D.C. currents and voltages as shown in Fig. 8-7. Notice that the values of  $R_c$  and  $R_1$  have been changed somewhat to allow for the base emitter voltages which were not accounted for in the basic equations.

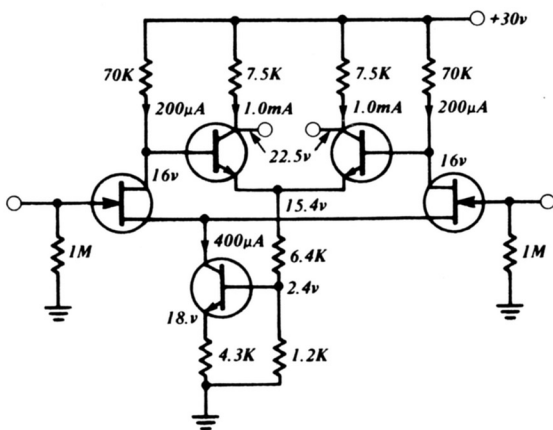


Fig. 8-7. Practical JFET - Bipolar Differential Amplifier Design.

## IC OP AMPS:

Because of its D.C. stability and high input impedance, the dual JFET/bipolar differential pair finds many applications in the front end sections of operational amplifiers. In the past, the main problem with using JFETs was the difficulty in building them on a single monolithic substrate along with bipolar transistors. However, there are some IC manufacturers who have devised certain techniques which allow high quality JFETs to be integrated with bipolars.

The basic advantage of using FET devices in op-amp circuits is, of course, the increase in input impedance. But because of the low gate current needed by an FET, it is therefore possible to have extremely low input bias currents (5pA for example) to operate the op-amp. Any mismatch in the gate currents will not affect the output voltage which reduces the effect of input current drift. Fig. 8-8 shows a dual JFET used as the front end to an op-amp. The JFET stage has no voltage gain but offers a very high value of input impedance. The pot ( $R_1$ ) is adjusted to reduce the input offset voltage to the amplifier.

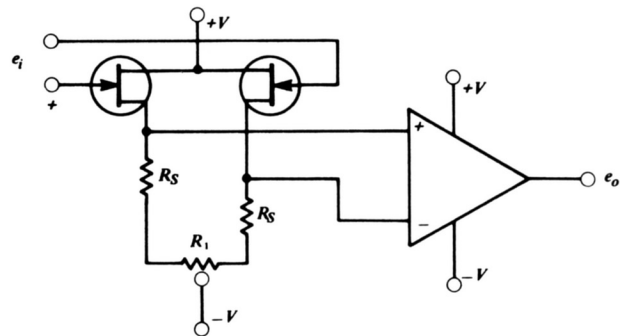


Fig. 8-8. JFET Front End Circuit to an Operational Amplifier.

MOSFETs can also be used in circuits on the front sections of op-amps. Their simple manufacturing process and their small size relative to integrated bipolar transistors allow them to be an advantage over conventional op-amp front sections. Even though there are very few manufacturers of linear ICs who use the MOSFET in their designs, it is expected that as the technology in the process art advances, MOSFETs will have their share in many linear circuits.

# Lesson Nine: Oscillators

Lesson Nine - Oscillators. This lesson is a study of the design of RC oscillators using FETs.

## RC OSCILLATORS:

Because of the high input impedance of an FET, these devices are well suited for oscillator circuits. This is especially true for low frequency RC oscillators since the FET does not load the frequency selective network. At high frequencies such as RF, the gate loading effect (which is mostly capacitive) must be considered and in most cases is found to limit the frequency range. The basic feedback circuit for an FET RC oscillator is shown in Fig. 9-1. The block labeled  $\beta$  is a passive three

terminal RC frequency selective network (such as phase shift,

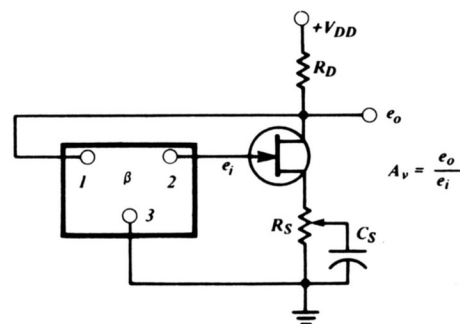


Fig. 9-1. Typical JFET Oscillator Circuit.

Wein bridge, or twin-T, for example) and  $A_v$  represents the A.C. voltage gain of the FET amplifier. The necessary condition for oscillation is that the feedback from drain to gate be positive, or that the loop gain be defined as

$$A_v \beta = 1 \angle 0^\circ \quad (9-1)$$

Usually the RC network selects the frequency at which the phase shift from input to output is  $180^\circ$ . The FET amplifier makes up for the loss at this frequency by supplying a fixed amount of negative gain which allows the total loop phase shift to equal  $0^\circ$ .

A popular type of FET RC oscillator is the three section phase shift type. Fig. 9-2 shows a typical phase shift network consisting of three equal RC sections. The frequency at which the phase shift is  $180^\circ$  which is also the oscillation frequency is given as

$$f_{osc} = \frac{1}{2\pi\sqrt{6}RC} \quad (9-2)$$

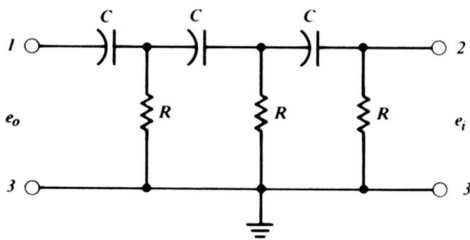


Fig. 9-2. RC Phase Shift Network.

At this frequency, the output attenuation is  $1/29$  which requires the FET stage to supply a gain of  $-29$  to sustain oscillation. Because Eq. 9-1 must be maintained exact, the gain of the amplifier must be highly stable. Any gain drift will cause the output signal to distort or even to cause the circuit to cease oscillating. Fig. 9-3 shows the entire oscillator circuit which has variable gain adjust resistor,  $R_s$ .

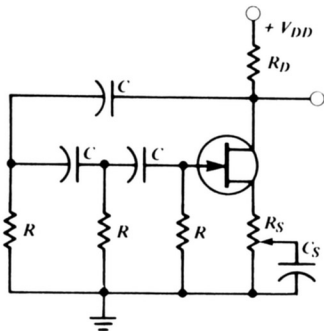


Fig. 9-3. JFET RC Phase Shift Oscillator.

Since the gate of the FET does not load the RC network, the values for  $R$  can be chosen quite large which allows the first resistor to bias the gate. This also allows the capacitor values to be smaller for a given frequency.

MOSFETs can also be used in low frequency oscillator circuits with either RC or LC feedback networks. A good example of an LC MOSFET oscillator is shown in Fig. 9-4 for which the tapped inductor is used to bias the gate as well as set the oscillation frequency. Positive feedback is achieved with the tapped coil and the capacitor  $C$ . The frequency of oscillation is given as

$$f_{osc} = \frac{1}{2\pi\sqrt{(L_1 + L_2)C}} \quad (9-3)$$

The obvious advantage in this circuit is that the gate does not load the feedback network allowing it to bias the device as well as select the frequency.

**EXAMPLE 1:**

Design a 1 KHz phase shift oscillator using a JFET which has the following parameters

$$g_m \quad @ 1 \text{ KHz and } 500\mu\text{A} = 2000\mu\text{mhos}$$

$$g_{DS} \quad @ 1 \text{ KHz and } 500\mu\text{A} = 20\mu\text{mhos}$$

$$V_{GS} \quad @ 500\mu\text{A} = 3.1 \text{ v}$$

Using Eq. 9-2 with  $R = 500 \text{ K } \Omega$ ,

$$C = \frac{1}{2\pi\sqrt{6} \cdot f_{osc} \cdot R}$$

$$C = \frac{F}{6.28 \cdot 2.45 \cdot 10^3 \cdot 5 \cdot 10^5}$$

$$C = 130 \text{ pF}$$

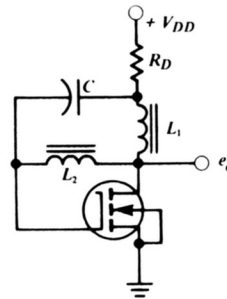


Fig. 9-4. MOSFET LC Oscillator.

Select a supply voltage of  $+30\text{V}$  and select  $R_s$  such that  $I_D$  will equal  $500\mu\text{A}$ .

$$R_s = \frac{V_{GS}}{I_D}$$

$$R_s = \frac{3.1\text{v}}{0.5\text{mA}}$$

$$R_s = 6.2 \text{ K } \Omega$$

$R_s$  will now be chosen to be a  $6.2 \text{ K } \Omega$  variable resistor (potentiometer) such that part of the source resistance can be bypassed to ground allowing a certain amount of gain control. The expression for the voltage gain is given as

$$A_v = \frac{-g_m R_D}{1 + g_m R_s}$$

The maximum limit on the gain is when  $R_s$  is fully bypassed for which

$$A_v (\text{max}) = -g_m R_D$$

and the minimum limit is when  $R_S$  is fully unbypassed

$$A_v (\text{min}) = -g_m R_D / 14.4$$

For good control on the oscillation, choose  $R_D$  so that the voltage gain is somewhere in the center of the minimum and maximum values. This, therefore, requires that

$$A_v (\text{mid}) = -0.465 g_m R_D$$

For a gain of -29,

$$R_D = \frac{29}{0.465 g_m}$$

$$R_D = \frac{29}{0.465 \cdot 2 \cdot 10^{-3}} \Omega$$

$$R_D = 30 \text{ K } \Omega$$

And  $R_S$  at this value of gain and  $R_D$  is

$$R_S = \frac{R_D}{A_v} - \frac{1}{g_m}$$

$$R_S = \left[ \frac{30 \cdot 10^3}{29} - 500 \right] \Omega$$

$$R_S = 530 \Omega$$

Therefore,  $R_S$  must be tapped at approximately  $530 \Omega$  to enable

the gain to be -29.

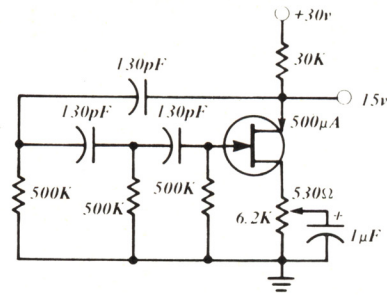


Fig. 9-5. A Practical 1 KHz JFET RC Phase Shift Oscillator.

The bypass capacitor can be selected such that the circuit formed by the remainder of  $R_S$  in parallel with  $C_S$  has an impedance much less than  $530 \Omega$  at a frequency of 1 KHz. In other words

$$\frac{1}{2 \pi R_S' C_S} \ll 1 \text{ KHz}$$

where  $R_S'$  is about  $5.6 \text{ K } \Omega$ . This requires  $C_S$  to be

$$C_S \gg \frac{1}{2 \pi \cdot (5.6) \cdot 10^3 \cdot 10^3} \text{ F}$$

$$C_S \gg 0.0286 \mu \text{ F}$$

A logical choice for  $C_S$  would be  $1.0 \mu \text{ F}$ .

Fig. 9-5 shows the completed oscillator circuit.

# BURNED

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## I spy

The newest pinball from Game Plan Inc. is *Agents 777*.

According to Wendell McAdams, executive vice president, "This new flipper is loaded with enormous player appeal designed to generate substantial profits."

Players join *Agents 777* (Elliot Nest, Melvin Nervous, and J. Edgar Snooper) in an entertainment adventure with slot machine characters symbolized by DA Barker, Cherries Jewel Ballie, Bella D. Ball, the Orange Crusher, and Al Caplum.

Among other features, this new flipper includes maximum ball control, a multitude of skill shots, dual access to top, slot machine playfield area awards, up to 10X regular multipliers, plus 2X-3X-4X super bonus multiplier, stationary targets, drop targets, spinner, and an extra flipper. In addition, there are a get-away car, sirens, explosions, gun fire, and jack pot bell sounds.



## Maximum sound

Entertainment Video, Inc. of South Plainfield, New Jersey, introduces *MAXX II*, its new laser disc video jukebox.

"*MAXX II*'s unique state of the art features make it the most sophisticated and intelligent video jukebox in the marketplace today" said EVI President Lou Martino. "With its eight laser discs and computer driven system, *MAXX II* has the capability of playing up to eight hours of video. Also, a computerized search and find elevator gives *MAXX II* rapid access to plays," Martino added.

Some component features include a Disc Center with a multi-level elevator that holds eight laser discs. The discs are selected and placed on a solid-state industrial laser disc player by a micro-computer.

*MAXX II* has rapid access from 75-150 selections that will be continuously updated, company officials said.

Other component features include a three-way equalized 120 watt sound system, a 25" video signal monitor, two-digit entry key pad with plastic overlay, LCD entry, and selection read-out display.

*MAXX II* has separate external coin mechanism access for easy maintenance, built-in outputs for a large screen, monitor, and additional stereo system.

*MAXX II*'s computer has a modum which can be tied into for accounting information. Factory training is available and EVI offers all components that are exchangeable.

*MAXX II* also features commercial advertising capabilities.



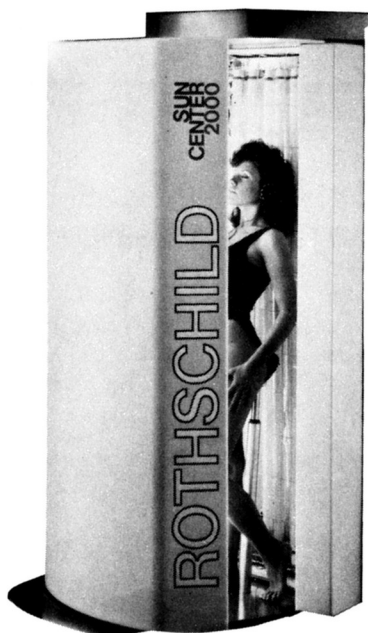
## Rating reflexes

Imperial Investment Company of Louisville, Kentucky, has introduced its newest electronic entertainer named *Speed Zone*.

*Speed Zone* is designed to test a user's reflex. It can be played alone or people in groups may wish to challenge one another. Instructions for using the machine are clearly printed on the unit.

"We're excited about our new *Speed Zone* for a number of reasons," stated Ned Bass, spokesman for Imperial. "Most of all, we're pleased with its size which is just one square foot. This allows a buyer to expect a tremendous return on a minimal investment.

"We've been very successful with the small entertainment units," said Bass. "Our *Heart Rate* machines are still doing very well in a wide variety of locations."



## Tan, don't burn

*Suncenter 2000* is a new 10 minute UV-A (non-burning) tanning system suited for the coin-operated entertainment industry.

*Suncenter 2000* is the first computer generated replacement for old-fashioned sunbeds and booths, company officials said. Rothschild Power Bronze tanning lamps tan in 10 minute sessions. Features include super durable polymer/fiberglass construction, an air cushion relaxation seat, adjustable extra-wide tanning panels to fit any body size, and a sunsurround elliptical shape for total body coverage.

The *Suncenter 2000* is ideal for recreation facilities, hotel/motel resorts, amusement parks, shopping malls, bowling centers, and of course, tanning salons.



### Did You Know ...



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# Aids to the Trade



## Service island

The Rand Port from Rand of Phoenix Inc. is an automotive service island designed to provide various automobile maintenance services in one convenient location. Its triangular shape allows easy access on all three sides. A steel canopy covers the island providing lighting and protection from the elements.

International pictographs on polycarbonate plastic, backlit and inserted into the canopy, depict the available services.

The possible components of the Rand Port include a tire-inflating and a water-dispensing system, a commercial-strength vacuum, an air/vacuum combination system, and a coin-operated telephone. These products can be selected to suit the needs of a location. Owners may also wish to add vending machines, towel dispensers, trash receptacles, or other service machines.

For more information, contact Rand of Phoenix, 2000 N. 25th Dr., Phoenix, AZ 85009. Telephone: 602/944-1024.

## Universal test fixture

A universal test fixture which can check monitors and boards from

color raster-scan games by all manufacturers is now available. It's also the first test fixture which can be used on almost every conversion kit, company officials said.

The Univid 1000, manufactured by Cleveland Coin International, is the first tester designed especially for operators and will sell for \$895, according to Univid designer John Batistic.

"For most games, it will be the only test fixture that's available," Batistic said. "And right now, the Univid 1000 is the only test fixture which can test kits."

Unlike some test fixtures, the Univid simulates game play through built-in joysticks, fire buttons, and a control ball. The unit also has dual audio amplifiers to test stereo sound.

An optional Panasonic monitor is also available, or the operator can use a monitor from any raster-scan video game.

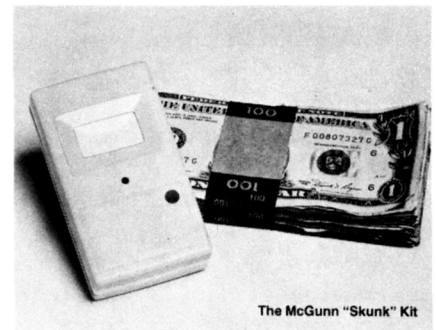
Testing harnesses will be available at a small additional cost to fit boards from each manufacturer. Batistic added that he can design special-order harnesses for low-production videos from a game's wiring diagram, so any color video can be tested with the Univid.



The test fixture, which Batistic said will be compatible with games of the future, is designed for video game operators who have little or no electronics background. It comes

with a 90-day warranty.

Orders are being taken now for the Univid 1000, with a six to eight week delivery time. For further information, contact John Batistic, Cleveland Coin International, 17000 S. Waterloo Road, Cleveland, OH 44110. Telephone: 1-800/321-2778 (outside Ohio) or 1-800/362-1296 (in Ohio).



## Skunk Money Pack

Stop criminals cold with the new Skunk Electronic Money Pack from McGunn Safe Company.

The Skunk Money Pack is a band of currency that looks like a normal stack but with one difference. The hollow center of this stack contains a digital coded receiver and pyrotechnic charge.

As the perpetrator of a holdup demands money, the clerk or cashier gives out the Skunk Pack along with the other stacks of bills. The Skunk not only looks the same as normal currency, but feels the same in the hand, company officials said. As the criminal leaves the store, the cashier pushes the button on a pocket-sized transmitter that can activate the Skunk up to 700 feet. Once activated, the Skunk Pack simultaneously releases billowing clouds of red smoke and tear gas, then mimics the sound of a .38 caliber pistol before releasing a spreading dye and invisible tracer.

The Skunk Pack is safe for use by



untrained or unsophisticated personnel, company officials said.

For more information, contact McGunn Safe Company, 2017 South Wabash, Chicago, IL 60616. Telephone: 312/326-5577.

## Token alternatives

Intec of Lagune Hills, California has developed a new magnetic card reader to replace coin-op and token systems. The company's Intercard for coin-operated vending machines and games gives the operator full control and allows for the safety and security of his coin-op equipment.

Able to be attached to existing equipment, Intercard eliminates change hassles, sorting, and wrapping of coins. The unit is designed to accept only coded cards, thus eliminating other company's cards from being validated in your machines. The purchase part of the card cannot be reused and the price per vend is operator-adjustable.

Those interested in this alternative to coin or token vending, should contact James Bailey at Intec, 23132 La Cadena, Laguna Hills, CA 92653 or call him at 714/859-3800.

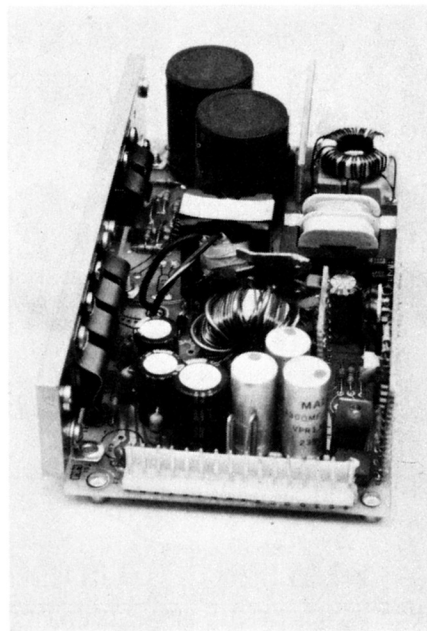
## Switchers

CEI Corporation announces a new line of 150-watt switchers designed to fit into tight spots.

The XL150 series delivers more than 3 watts/cubic inch of dc power and is typically 80 percent efficient, company officials said. Combined with little moving air requirements, these power supplies are designed for applications where space is of prime importance.

The XL150 series features Power-FET design for reliability, standard over-voltage protection, current foldback short circuit protection, and operates at 100KHZ. Noise and ripple is limited to a maximum of 25MV and load regulation is +/-5 percent.

Designed for use in micro-processor based systems, industrial control systems, and in the telecommunications industry, the XL150



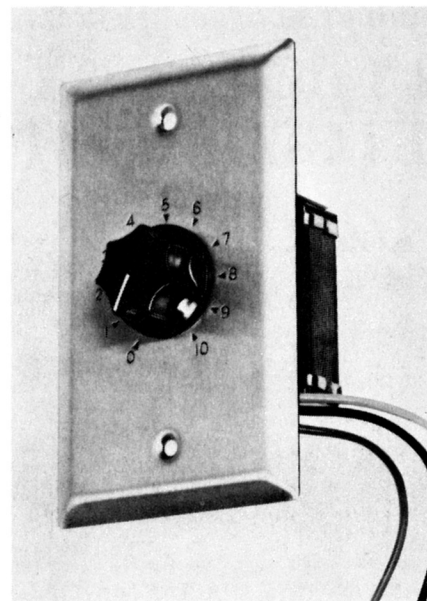
series has the following models:

XL150-10	5V @ 30A
XL150-11	12V @ 12.5A
XL150-12	24V @ 6A

Multiple output models are also available.

The 100-piece price is \$136.30 per unit with delivery in two to four weeks A.R.O.

For further information, contact Matt Pierson, Marketing Manager, CEI Corporation, Box 501, Londonderry, NH 03053. Telephone: 603/623-8888.



## Volume control

Quam-Nichols Company announces a new wall-mount volume

control for controlling the output level of public address and music systems.

The Quam Model QC-10 is an autotransformer attenuator that controls the output level of a single loudspeaker or a group of loudspeakers totaling up to 10 watts of power, without the high power dissipation of resistive devices, such as "L" and "T" pads. It has 10 steps of attenuation plus an "off" position, and is designed for use with either 70.7 volt or 25 volt lines.

Total attenuation of the Model QC-10 is 36 dB. It attenuates in 6 dB steps at positions 1 and 2, and in 3 dB steps at positions 3 through 10. To prevent damage to the control, there is no stop between position 10 and 0 (off).

The unit features silver-plated switch contacts, a brushed stainless steel gang wall plate with embossed position indicators, and a black control knob with white position indicator. It includes two stainless steel screws for installation to a standard outlet box.

For complete information, contact Quam-Nichols Company, 234 East Marquette Road, Chicago, IL 60637. Telephone: 312/488-5800.

## Free catalog

A new catalog of precision tools is offered by Jensen Tools Inc. Illustrated in color, the 160-page catalog contains more than 3,000 tools of interest to field engineers, technicians, computer and telecommunication service persons, and electronic hobbyists.

Major categories covered are test equipment, soldering equipment, tweezers, screwdrivers, cutters, drafting supplies, power tools, computer accessories, and circuit board equipment. Also included are many new products from Jensen and more than 40 pages of service kits and tool cases for electronic specialists and technicians.

To obtain a free copy, contact Jensen Tools Inc., 7815 S. 46th Street, Phoenix, AZ 85040. Telephone: 602/968-6231.

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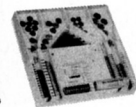
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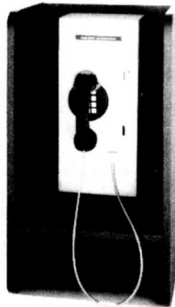
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## COMMENTARY

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**Leo A. Droste**

mate. It is also a tribute to all AMOA members and especially to those individuals who have given of their time, devotion, and money to serve on the Board of Directors and on committees throughout the years to further the goals and objectives of AMOA.

As we celebrate the 35th AMOA International Exposition of Games and Music, it is only fitting that this is our largest exhibit space ever. In visiting the exhibit area, you will find many first-time AMOA exhibitors displaying new products for our industry. Our regular exhibitors are proudly introducing new equipment that you will want to examine and discuss closely with their representatives.

Take advantage of the many education seminars available and plan your daily schedule accordingly. The

AMOA Education Committee has been working hard to select those programs which are of major interest to operators and distributors.

As executive vice president of AMOA, I want to offer my special thanks and appreciation to every member of the AMOA Board of Directors who give up their time to work on the many committee assignments during this exposition. Without their assistance, it would not be possible for this exposition to flow smoothly. Also, my special thanks to the AMOA staff who have spent many hours during the past months attending to the many details that are part of this great convention.

We know that you will find the 35th AMOA Exposition to be an informative and exhilarating experience.

**Leo A. Droste, CAE**  
**Executive Vice President**

## Welcome to Expo '84

On behalf of the officers and staff of the AMOA, I would like to welcome you to AMOA's 35th Annual International Exposition of Games and Music.

The exciting outline of the 1984 Exposition seminars will include programs to meet the needs of operators, presented by some fresh and talented lecturers. There will also be the greatest number of exhibit booths ever displayed at any show of games and music, now known as "The American Expo."

So, let this be your personal welcome to the October 24-27 show at the Hyatt Regency Chicago, from the AMOA president.

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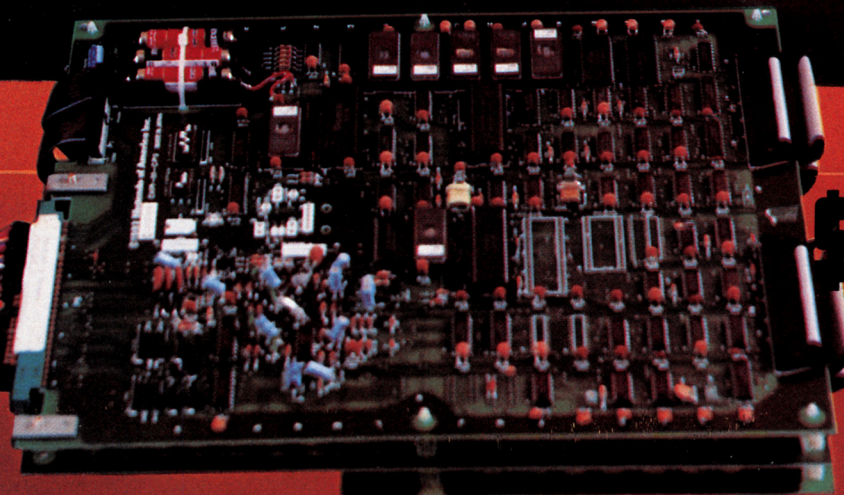
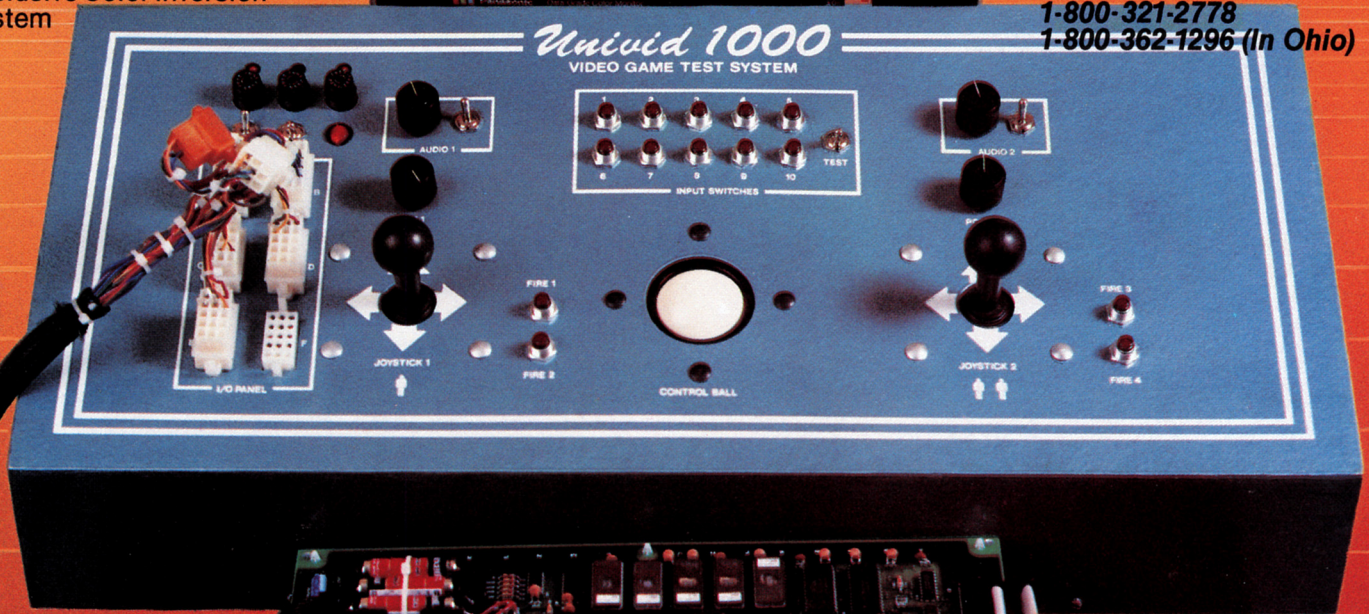
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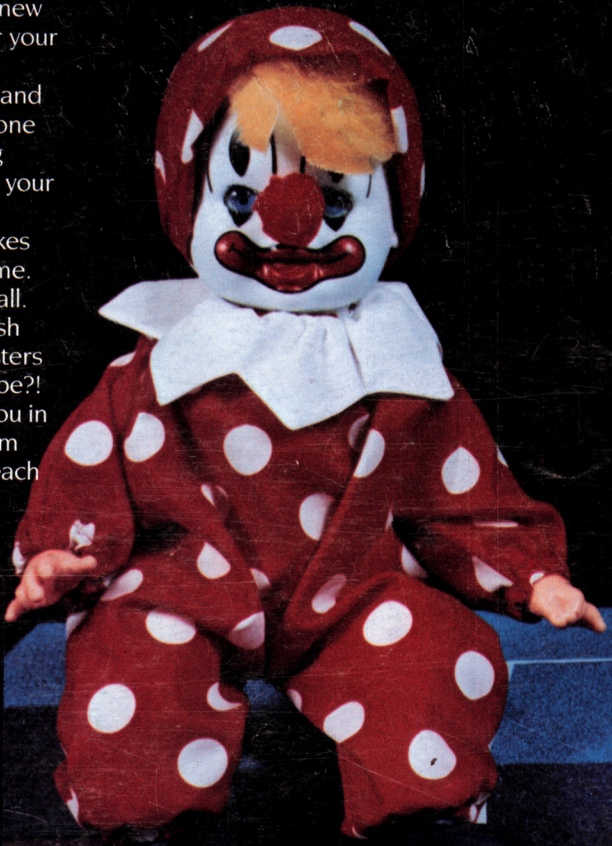


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