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PLAY METER

Volume 4, Number 13

July 15, 1978

Service Issue

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**Pinball
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PLAY METER

Vol. 4, No. 13

July 15, 1978

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PLAY METER

A Guide to Buying Electronic Parts..... 25

Tom Howarth puts together an excellent buyer's guide of what you'll need, where to find them, and how many of each.

Operators Discuss the Advent of Solid State..... 31

The technological revolution has now manifested itself upon the industry, and Dan Hanson asked around to get operators' reactions to the maintenance problems and answers that have come with it.

Determining Your Cash Flow..... 47

In the second in the series on a business analysis of your operation, David Pierson covers the subject of cash flow and the time value of money.

Wooden Pegs and Wooden Heads..... 65

Did you know that pinball tournaments are havens for gamblers? Well, according to the I.R.S., they are. PLAY METER investigated the problem.

Don't Take the Money and Run..... 74

Roger C. Sharpe has some suggestions on how operators can improve their images, and why they should bother about improving their public image.

From the Editor.....	4
Mailbox.....	6
Coinman of the Month.....	8
Operating.....	16
Distributing.....	34
Music Programming.....	38
Technical Topics.....	50
Critic's Corner.....	54
On the Move.....	59
Manufacturing.....	60
New Products.....	68
International News.....	76
Classified.....	79

From the Editor

Being involved with a publication that serves a national, as well as a worldwide, industry, I have numerous opportunities to travel and keep in touch with operators around the country. Often I find the opportunity to seek out the local arcade or "watering hole" that features coin-operated games.

It's more than my eagerness to play the games which compels me to visit these spots. I am always curious to see what equipment is in there, how well it's being kept, and how it is set up and arranged.

Having been in the operating/distributing business for six years before starting PLAY METER, I find myself missing your end of the business, and these visits give me the chance to stay in touch. It's also a chance for me to reminisce. I have always enjoyed seeing how the rest of you guys are doing.

It's grown to be a habit with me—these "inspection" visits of mine. Whenever I find myself in an airport with a little time to spare, I always make it a point to see if there's an arcade there. When I'm out with friends in another city, I make it a point to play any music or game equipment we happen to run across. Besides the plain simple fact I enjoy playing the games during these "inspections," I find it also helps the business. After all, when someone sees you playing the equipment, it encourages them to play.

The past few years have shown dramatic increases in play appeal, reliability, and the earning power of the solid state equipment presently being manufactured. The diode and resistor have truly come of age in the industry.

The operators of America ought to be congratulated for their success in taking in this new technology so rapidly and for doing such an outstanding job of keeping the equipment going.

The most important thing about this business is, and always will be, SERVICE. No matter how great the equipment is or how good your location might be, if the machine doesn't work, it doesn't earn for you. Thankfully, most operators today have kept pace with the rapidly-changing technology and are enjoying some of their best years ever.

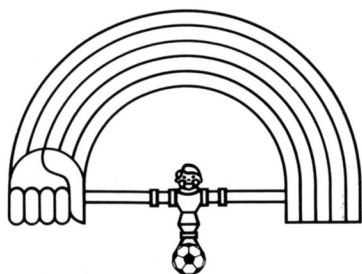
To the progressive service-oriented operator and to those striving to be, we dedicate this issue. May your best years be still to come.



Ralph C. Lally II
Editor and Publisher

50¢ FOOS

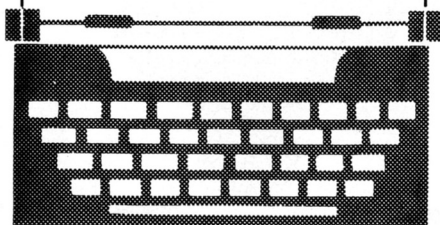
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Mailbox



high quality and order sheets to replace used parts would be supplied after the initial order is purchased.

Steve Kaplan
118-18 Union Turnpike
Queens, New York 11415

[*Ed—Our technical editor thinks it's a good idea. Word from Robin Minnear, the Game Doctor, is "Do it to it!" To those of our readers who would like to give their opinions to Steve about the idea, please send your responses directly to him at the above address.*]

Well-voiced

The article by David Pierson regarding the Chicago Sun-Times ("Witch Hunts, Head Hunts—Here Comes The Times," PM, Mar., p. 25) was well-voiced.

Charles K. Mulhall
North Ireland

No schematics

We purchased a game that needs repair. We do not have the schematics for it, and we find the company is out of business. Would you know how to go about finding out if anyone took over the company? The game is called *Race*, and it is by Fun Games.

C. Mirable
United Automatic Coin
N. Bay Shore, New York

[*Ed—We've been unable to locate*

anything for you on Race by Fun Games. Yes, the company is out of business, and there's no forwarding address, at least one that we have.]

Books?

I would like to know if there are any books available on the theory and repair of T.V. video games and games with micro-processor circuitry. A list of any books that you are aware of would be greatly appreciated.

These books seem impossible to find.

Ronald E. Olcott
Morrisville, New York

[*Tech. Ed—The only books written were by Kush N Stuff Amusement Electronics and include a textbook of video game logic and several other data books. Some of these may still be available through Wico Corporation, 6400 W. Gross Point Road, Niles, Illinois.*]

Follow through

Your efforts to have a coin machine show in your town are, I think, well worth following up, especially with the combination of giving our customers the chance to broaden their outlook. It is high time someone follows this idea through.

Peer v. Oertzen
Lowen-Automaten
West Germany

Opinion sought

I would like to get your opinion (and that of your readers) as to what you think of an I.C. company that would supply kits for the major pin manufacturers (Bally, Stern, Gottlieb, Williams). The I.C.s would be of a

Murphy revisited

Expanding on Murphy's Law by Dick Welu (PM, May, p. 48) was fantastic. How true...How true...It's fun to laugh and kid about our problems.

Just a minute! The phone's ringing...

Well, I got a service call 38 miles down the road, one of Holbert's Trade-In's I'll bet! Great work!

Charles H. Martin
CSSK Amusements
York, Pennsylvania

Location lost

I recently lost a good location when my supplier sold the owner four brand new games without finding out who the operator was. My *Power Play* and *Eight Ball* were set by a *Mata Hari* and three uprights.

The sales manager of the distributorship told me he made a

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lot of money selling the equipment.

The distributor is really high class?

Harry Steinberg
Wingate Enterprises

I.R.S.

I thoroughly enjoyed your May 15 issue featuring tournaments and promotions. Our whole industry benefits from each and every well-planned promotion.

Being one of many people responsible for the Bally Super-Shooter tournament, I would like to enlighten the authors of some of your articles as to a point of which they are probably unaware. The U.S Internal Revenue Service has ruled any pinball machines used in a tournament where an entry is charged, or if the contestants must pay to play the games, and where prizes or trophies are awarded, then such machines require a \$250 federal gambling stamp.

The danger in running a pinball tournament contrary to this ruling could promote litigation and subsequent publicity which could be construed to indicate pinball machines are gambling devices.

The question also arises that if the \$250 federal tax stamp is purchased for a tournament machine, then this is admission by the operator he is operating a gambling device and, henceforth, illegal in most states.

Merrill Millman
Aladdin's Castle, Inc.
Chicago, Illinois

[Ed—We have received several such letters from other operators throughout the country, and this spurred PLAY METER to investigate the reason for such a regulation. Our story on this problem of pinball machines being labelled gaming devices appears in this issue. Also, operators should note a related story in the "Operating" section of this issue which contains a similar ruling by the I.R.S. designating some new video card and dice games as gaming devices].



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Coinman of the Month



MICHAEL MENDELSON

Michael Mendelsohn, July's Coinman of the Month, is 26 years old and is one of the New Breed in the industry.

Spurred on by the huge success of Pong, he decided to try his hand at operating coin-operated amusement devices five years ago. He was in college at the time, majoring in Business Administration, but when he saw the opportunity come open in the coin-op field, he was quick to jump. He and his father, Seymour, started Games Unlimited in April, 1973 with only four video games, and though his father is no longer part of the firm, Games has grown to a sizable operation of more than 400 pieces. It speaks well for the Mendelsohn business sense.

Headquartered in Los Angeles, Games Unlimited spreads out far in three directions—to the south about 125 miles away to Chula Vista, to the north about 175 miles to San Luis Obispo, and to the east about 160 miles. His operation is very strong in video games and unusually strong also in wall games (since, as he explains it, many of the patrons in his locations like to play games from their tables). Video games make up 55 percent of his entire operation. Wall games and pingames make up twenty percent apiece, and arcade pieces account for the remaining five percent of his business.

"I think being a good businessman is more important than being a good mechanic," claims Mendelsohn. His suggestion to fellow operators is a simple one—you're never too old to learn. And, toward that end, he suggests that taking business courses at city colleges in the area is a good idea for today's operators.

His businessman's approach to Games Unlimited

is reflected in a well-devised plan for landing new locations. He studies one type of location at a time and specializes in selling himself to that particular group of locations. As an example, recently while he was focusing his energies into the restaurant market, he embarked on an all-out drive to canvas as many restaurateurs as possible at a restaurant convention. He developed a slick brochure, sponsored a cocktail party, and landed several new contacts. And, of course, he places great emphasis on referrals—word-of-mouth advertising.

Though he places supreme importance on being a good businessman, Mendelsohn has by no means forsaken the service end. In fact, it is his strong service department which compelled PLAY METER to interview him for this year's Service Issue. He employs six service mechanics (his arrangements with them makes for rather interesting reading), a shop technician, a vice president of operations who supervises the mechanics, a secretary, and a bookkeeper. Service and maintenance is a strong suit with Games. And the company is keeping up with the changes in the industry. As he reports in the interview, Games now does over fifty percent of its own board repair and plans to be up to seventy-five percent in the near future.

His wife's name is Barbara. He's an active participant in baseball, football, skiing, and racquetball (his association with racquetball clubs also helped land him some additional locations).

He's innovative in many of his approaches to the business, and could supply a good clue to the New Breed of operators who are finding their way into the industry.

PLAY METER: Has solid state technology, in your opinion, led to an increase or decrease in downtime?
MENDELSON: An increase in downtime initially. I do think, however, that in the long run it will cause us all a decrease in downtime.

PLAY METER: Do you have any figures which lead you to the conclusion that solid state technology has increased downtime?

MENDELSON: We have developed a service ratio for each type of game which is actually a ratio of how many calls we get on a game to how much money that type of game makes. Right now, out of all our games—and that includes mechanical pinballs, digital pinballs, video games, wall games, and arcade pieces—digital pinballs have the worst ratio of service to revenue.

PLAY METER: How did you come up with that ratio?

MENDELSON: It's a two-step formula. First, you take the amount of service calls for a month on each type of machine and divide that by the number of those kinds of games that you have on your route. Then, in the second step, you divide that figure by the average amount of revenue that type of game generates for you each month. For instance, if you have a hundred digital pinball machines and you have 75 service calls per month, your figure after the first step would be .75. Then you take that .75 and divide that by your average share of the take on digital pinball machines for the month. Let's say that figure is \$125, that means you divide .75 by 125. Actually, we should be dividing by 125, but we reduce that figure to only a tenth so that we don't have too many decimal points. So, for the purpose of our ratio, 125 becomes 12.5. The result is a ratio of the amount of service to how often that type of game is played. Now this ratio obviously doesn't show how often the game is being played; it's not intended to do that. It doesn't give us a total financial picture of that machine but rather a service picture of the machine. After all, a game could have a poor service ratio and still be a good earner since the more often the game is played, the more often it will break down.

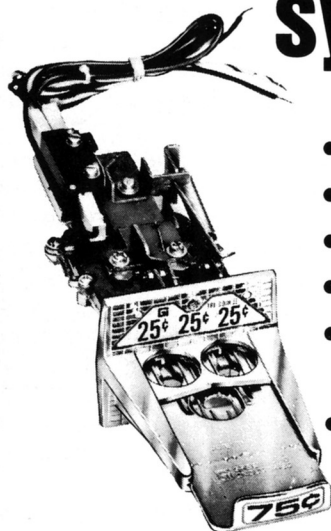
PLAY METER: And using this formula, you have found that digital pinballs have the highest ratio of service to revenue?

MENDELSON: Yes, but you have to bear in mind that you have increased earnings with digital pinballs. You have to weigh all this into consideration. Digital pinballs may have the highest ratio, but they are also the most played. Digital pinballs have increased our revenue by twenty-five to thirty percent. This ratio only gives the service picture of the machine, not its financial picture.

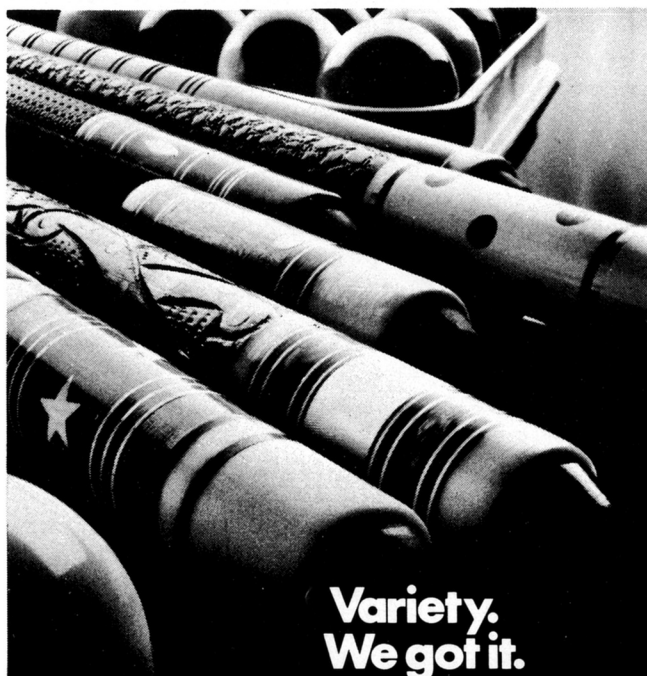
PLAY METER: Could you give us an example of what those ratios have been for you?

MENDELSON: For this past month, for instance, digital pinballs had a ratio of .15; mechanical pinballs, .10; video games, .06; and arcade pieces, .02. You'll note that the higher the number, the worse the ratio of service calls per machine. By the

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"We're trying to educate our servicemen to gear themselves toward the logic end of the machines rather than the mechanical end"

way, I have to qualify that .02 on arcade games because we don't have that many arcade games on our route. But those that we do have are the result of having narrowed the field of arcade pieces to the most reliable. I should also add, by the way, that this same formula can be used to see which manufacturer's games are proving most reliable.

PLAY METER: How do these ratios help you?

MENDELSON: They serve as a gauge and give me an idea of my profit. This ratio is what I look to, to reflect the service end of my business. There are, of course, other things which I have to consider, like how much my parts cost. So I have my parts broken down too. For instance, up to this time, mechanical pinballs have been costing me about three dollars per part, and digital parts around seven dollars. That includes parts and repairs that we may have to have done by a distributor.

PLAY METER: Is there any particular problem you find that keeps cropping up in solid state equipment?

MENDELSON: Obviously the downtime increases with solid state games because your mechanic can no longer fix all the machines right there on location. And that's a problem. We're trying to deal with this by educating our servicemen to gear themselves toward the logic end of the machines rather than the mechanical end.



Games Unlimited key personnel (from left) Michael Mendelsohn, president; Mike Watts, service manager; and Greg Stephens, vice president of operations.

PLAY METER: Do you do your own board repair?

MENDELSON: Yes. Right now we're doing a little over fifty percent of our own logic repair. We've got a relatively new technician, and we're still in the stage of educating him. But our goal is that within a half a year we hope to be back up to doing 75 percent of our own board repair. That's about where I want to be at the moment. If we can do 75 percent of all our own board repair, I think the distributors are capable enough to handle the rest for us, and we'll come out ahead in the profit picture. As far as our wall games, though, we have had to do almost all our own board repair. We're pretty heavy into wall games—about twenty percent of our entire operation is in this area, but unfortunately, none of the distributors have done a really good job on their repair of wall games. In fact, the manufacturers don't give us too much help either; so we have been forced to develop all our own testing and repair equipment on wall games.

PLAY METER: Now that you're doing your own board repair, what are some other problems you're faced with?

MENDELSON: When a machine is out of order in the field and cannot be fixed by that mechanic, and he has tried to get help from our technician and maybe sometimes even from our distributor, that piece will come into the shop. We try to avert problems by stocking the parts, but it can get quite expensive to stock all the parts that you might need to fix any logic monitor. And it can be really time consuming too, especially with all the new games that we're buying. Also, there used to be a big problem getting the manuals and the schematics when a game first came out, but that's getting better. We're still having problems getting the schematics sometimes when the game first comes out, but the situation is improving. Another problem with doing your own board repair is the availability of qualified technicians and what it costs you. There's a lot of competition from other fields that can afford to pay higher for this type of technical help.

PLAY METER: Where do you find a qualified technician who has experience in logic board repair and digital electronics?

MENDELSON: Very often there are people switching jobs around, and this is always a good source. But my favorite source is to go to the electronics departments of the city colleges and talk to the teachers and find out if they have students who'll be graduating soon who might be interested and qualified for this type of position. There's quite a bit of training involved. But it's really worthwhile if you get the type of person with the right attitude. I might be a rebel when it comes to hiring, but I don't believe in going too much into our field to find qualified help. There are three things that are

important to me when I'm hiring somebody—attitude, aptitude, and responsibility. If they have the aptitude for electronics, and they're hard workers with the right kind of attitude toward work, and they're responsible people you can rely on, you can train them. And there are people who will help you—there are manufacturers that will give you a hand. Very often when you go into the same field to hire someone, you find people who are set in their ways.

PLAY METER: Do you try to keep a certain ratio of servicemen to machines?

MENDELSON: We have a different way of doing it. Our servicemen are almost like individual contractors. Over the years of breaking down our costs, we have come to a specific amount that we use to pay a mechanic, fifteen dollars per machine per month. That includes the service of the machines, the use of their own vehicles, and they do their own collections on their games. We've developed certain areas and have the mechanics based in those areas; so the mechanics can live in the areas where their machines are. At this time, our average mechanic has about seventy machines, but I believe that a good mechanic, when he's fully trained, can have anywhere from 100 to 125 machines. With this, we find that the person develops a certain pride in his own machines.

PLAY METER: You mentioned earlier that you're trying to educate your servicemen in the logic end of the machines. How do you plan to accomplish this?

MENDELSON: We have classes for all our technicians here at the shop once a month. A step up from that, we send the people down to the distributors to learn about specific machines. And a step up from that is occasionally a distributor will set up a manufacturer, like Atari, to go in there and train us. As far as service schools, all our servicemen are required to go to the seminars that are put on by the different manufacturers because some of these are very helpful. But there is quite a need for more service schools in this area. To the average operator, there really isn't enough available today.

PLAY METER: Could you tell us some more about the monthly schools you have at your own shop?

MENDELSON: Our school is usually conducted either by my vice president of operations, Greg Stevens, or my service manager, Mike Watts. One or both of them will give the class, or they will choose one of the service technicians who is really qualified in an area that they feel the people should learn. So we all learn from one another because we all have different aptitudes. And besides, it's just a good idea to get everybody together once a month like this because it creates unity in the company. Some of our areas are so far away that you can lose track of who you work for. Now one of the things we go over each month at these classes is all the different modifications that we have come up with on our own, because with all the units that run through our shops, we are always finding things

PLAY METER, July, 1978

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that aren't built properly. And we try to deal with each of these problems. And now, as a result, we have our men in the field doing modifications on the games.

PLAY METER: What kind of preventive maintenance program do you have?

MENDELSON: With each man having his own games, he's expected to keep them in top shape. And preventive maintenance is part of that. We have a card for each game; so when any type of service call comes in on a game, it will be written on that card. That way, when it seems that we're having too many problems or too many of the same kinds of problems, we'll get out the cards to review those games and look for trends. Now that information is being developed into our computer system so that we'll be able to get a complete service history of any particular game to see where we can cut down on costs, and what kinds of modifications are necessary.

PLAY METER: And this, I assume, will also show if a serviceman is lagging behind in his work?

MENDELSON: Right. My vice president of operations has as one of his jobs the supervision of all the mechanics. He sets up a list of what kind of spare parts each man should be carrying; and that way we can see if he couldn't fix the game because he wasn't carrying a part he should have been carrying. Also, my operations man will be out on each man's entire route at least once a month to see that the equipment is being taken care of properly. He'll talk to the owners and check out the games.

PLAY METER: Are you radio-dispatched?

MENDELSON: We're radio-dispatched through a repeater, but the farther areas cannot be radio-dispatched so they have their own answering services, and the locations call into them. We get back a complete record of these calls.

PLAY METER: Do you find the self-test devices on some of the newer games helpful?

MENDELSON: For the most part, the feedback from my technicians has been that they are helpful, although occasionally when a game is broken, the self-testing device is broken too. But I feel the self-test feature is a good idea. But there's room for improvement in that area.

PLAY METER: What are some tools your servicemen use with solid state equipment?

MENDELSON: Logic probes, for one, are a "must." It's becoming more of a "must" all the time. Within a few years, I think all servicemen will have to be qualified enough to use a logic probe or else they won't be too worthwhile. On monitors, we use mostly oscilloscopes, and we have a Cyclops video game monitor game tester.

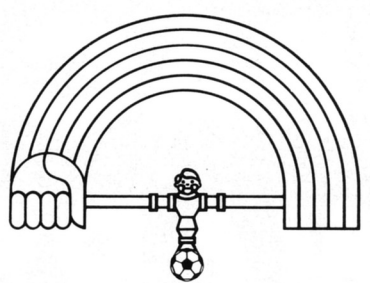
PLAY METER: Do you have any problems getting spare parts from your distributors?

MENDELSON: Not usually. Although going back to a game that isn't recent or that comes from

continued on page 80

PLAY METER, July, 1978

Tournament Soccer



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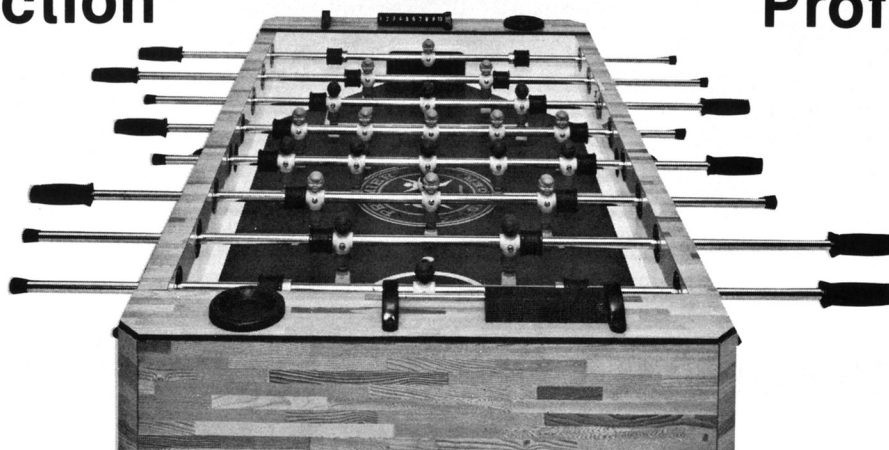
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I.R.S. rules Card games are gambling devices,

The Internal Revenue Service has determined that two new video game products—simulated dice games and “Twenty-One” card games—are “coin-operated gaming devices and are, therefore, taxable under the Internal Revenue Code of 1954.

The special occupational tax that the I.R.S. will assess against these games is \$250 per machine per year (see related story in this issue on I.R.S.’s ruling concerning pinball games).

The I.R.S. ruled that the video dice game where two players compete for a favorable roll of the dice “indicates that the machine operates by application of the element of chance that makes it peculiarly adaptable for gambling purposes.”

Similarly, the card game, the

I.R.S. ruled, is “designed and constructed to play a game of chance, that simulates an actual card game, and to calculate and keep account of each player’s winnings or losses. Thus, the machine has features and characteristics that indicate that it is peculiarly adapted to use for gambling purposes.”

The I.R.S. ruling (Revenue Ruling 78-66) went on to say, “Accordingly, the tax imposed by section 4461 (a) is to be paid by every person who maintains for use or permits the use of such gaming devices on any place or premises occupied by such person.”

A 1957 federal court ruling maintains that machines can be determined to be coin-operated gaming devices even if the game bears the words “For Amusement Purposes Only.”

Operators stop bill

The importance of individual operators and state and local operator groups being on constant alert is clearly illustrated by recent developments in Springfield, Illinois where there was an attempt to raise the per piece annual license fee for coin-operated games and phonographs from \$10 to \$50.

The license hike was reported out of the Illinois Senate Revenue Committee without even the benefit of notice or hearing to or for the industry.

However, the efforts on the part of individuals—such as Kem Thom, president of the Illinois Coin Machine Operators Association, and others—succeeded in slowing down the progress of the bill. Further, a good deal of strength has been mustered has been in the House to provide vigorous opposition to the bill.

Said Joe Robbins of Empire Distributing of the developments, “Higher taxes and adverse legislation are two prices you pay for lack of organizational strength and inattention to legislative developments.”

New Yorkers get schooling

For about twenty employee members of the New York State Coin Machine Association (NYSCMA), the Holiday Inn has become a Saturday morning classroom.

Aware of the need to upgrade and increase the knowledge of the mechanic, the NYSCMA has instituted its own series of training sessions. This was done in preference to waiting for schools to be scheduled in the area.

A successful search for a competent teacher, resulted in the selection of Art Seglin who brings a knowledge of the subject, acquired during many years in the business and is cognizant of the problems facing the mechanic. In addition, he is a professional teacher, skilled in the art of instructing.

An innovative approach to training was worked out between NYSCMA and Seglin. Rather than have the mechanics away from their jobs for extended periods of ten days to two weeks to attend school, the school is brought to them. Saturday morning was selected so everyone would be fresh and not suffer from

fatigue after a full day’s work. Each session is being run for about three hours, as this is about the maximum time the average student can successfully absorb and retain information.

Ten sessions are in progress covering “Flipper Games,” starting with the electro-mechanical and proceeding through solid state.

To give continuity during the intervening time between classes, the participants are involved in self-applied learning using the discussed topics and techniques during the work week.

Other subjects will be covered in the same manner, as needed by the group. Some “one-shot” training sessions in certain areas are also planned.

Among those attending the schools are operators and service-men from Mulqueen Enterprises, Catskill Amusement, Square Amusement, Hudson Valley Amusement, Nekos Vending, Kupryck Brothers, Modern Vending, Highland Amusement, Cortland Amusement, and A&N Vending.

More schools, MOM urges

The service school committee of the Music Operators of Michigan has been contacting distributors in the area, urging them to hold more frequent service schools.

The committee—consisting of Dick Hawkins, D&R Novelty, Rochester; Al Eggermont, Music Service Company, Marshall; Sam Nilva, National Amusement Company, Minneapolis; and Phil Smith, Perry Amusement Company, Minneapolis—is also consulting with the Brainerd Area Vocational School in an effort to set up a course on servicing amusement games and jukeboxes, similar to Brainerd’s vending machine course.

The committee is also urging operators throughout the state to contact their local legislators in an effort to push through this venture, which would save operators the cost of training new people.

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SYBARIS 473 — where space is at a premium but the location demands the best. Sybaris 473 creates a fun-loving, pleasure-seeking mood. New 100-play selection center simplifies play, adds to player excitement.

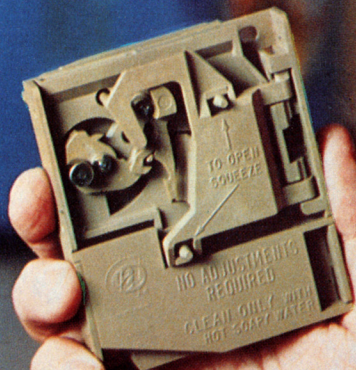


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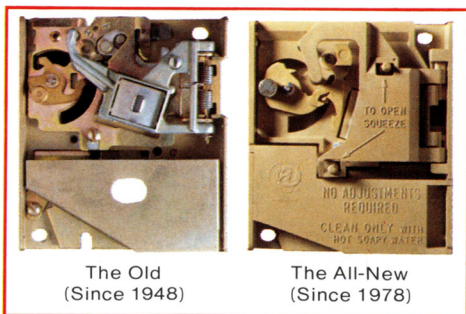


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Coinco's new 5000 Series Acceptor costs less than a single service call. That's why it's cheaper and more profitable to replace all old, often-coin-jammed mechanisms now. For the name of your nearest Distributor, call your Coinco representative today. He's listed in the Yellow Pages under "Vending Machine Supplies and Parts." Or call Jim Douglass, V.P. Marketing, at (314) 664-5550.



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In-fighting begins on collections, ASCAP insists on location lists

The anticipated in-fighting of the performing rights societies—ASCAP, SESAC, and BMI—over collections generated by the jukebox copyright law, has apparently begun. And, with it, has come a new attempt by ASCAP to get operators to list their jukebox locations.

A proposed regulation before the Copyright Royalty Tribunal would require operators to file a complete list of their jukebox locations, update that list as changes occur, and allow performing rights societies the right to inspect the interior of jukeboxes on spotchecks for the purposes of determining the popularity of the records. This spotcheck of jukebox interiors would apparently yield a guideline to judge which records are being played the most so that the performing rights societies could determine how to allocate their collections.

ASCAP, much to the chagrin of the other performing rights societies, has contended that it should receive 75 percent of all the collections, leaving SESAC and BMI with just one fourth of the collections to split between them.

The proposal, which was steadfastly opposed by the Government Relations Committee of the A.M.O.A., is also, interestingly enough, opposed by BMI which, like the A.M.O.A., contends that the music charts of the trade magazines provide as sound a popularity measure as can be ascertained.

In an appearance before the Copyright Tribunal concerning this proposal, Garland Garrett, the chairman of the Government Relations committee, voiced A.M.O.A.'s opposition: "Jukebox operators are concerned. They are fearful you [the Copyright Tribunal] may end up imposing severe requirements through your rule-making efforts, that will be unintentionally detrimental to our industry."

He said the proposed regulation is unfair and is not allowable under the provisions of the law (The U.S. Copyright Office has already agreed that it does not have the right to require location listings). Garrett also pointed out that if the new regulation were to go into effect it would create extra bookkeeping problems for operators.

"I cannot emphasize too strongly how objectionable these proposed requirements are to us. To a man, every operator I have talked to says he cannot live with these requirements. Some of them," he continued, "are prepared to go to court, if necessary, to get judicial protection."

Garrett also submitted A.M.O.A.'s proposal as to how the collections could be fairly divided up between the performing rights societies. "We submit that location listing is not necessary and is of no practical use for the sampling of music popularity of the equitable distribution of royalties. BMI has already told the Tribunal in this proceeding that BMI agrees with us, that the popularity charts in the trade magazines for this industry provide the most useful and reliable information in this regard."

Garrett then attacked the central issue, reiterating A.M.O.A.'s longstanding contention concerning the

confidentiality of locations: "Operators guard the confidentiality of their jukebox locations just as many businesses guard their customer lists. The operators consider this to be vitally important, confidential information that they have a right to withhold from public disclosure. It is information that is the product of the operators' diligent efforts to secure and retain location customers. Forced disclosure of this information would intrude upon the operators' business relationships with their customers. Operators would not disclose this information unless they are lawfully compelled to do so. Compulsory disclosure of this information, we believe, violates the spirit, if not the letter, of the Federal Privacy Act."

Both sides must now file legal briefs on the proposal by July 28, and the Copyright Royalty Tribunal will make its ruling by August 4.

New Orleans firm initiates TV campaign

A.M.A. Distributors, Inc., a New Orleans distributor, is currently waging a test advertising campaign on a local television station to promote the sale of pool tables, games and recreation room accessories for the home.

In making the announcement, Robert E. Nims, A.M.A. president, said two separate 30-second color films will run a total of 60 times on WGNO-TV, an independent station, through July 23, 1978. The commercial spots began appearing on May 2, 1978 in and adjacent to various types of programs carried on the only UHF station in the area.

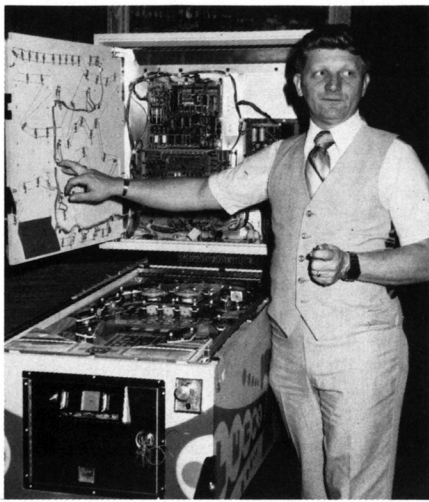
Nims pointed out that the current television campaign has been designed to test the effectiveness of the new commercial films in expanding the Metro New Orleans home market for A.M.A. products. "If the spots prove successful," Nims added, "we will run them on other television stations here this fall."

Produced by WGNO, the A.M.A.

commercial films cover the gamut of home games and recreation accessories sold by the firm. One film concentrates solely on promoting pool tables for the home. It was filmed almost entirely in a local fashionable private home where a Brunswick "Orleans" pool table is featured. The other film was photographed in the A.M.A. showroom on St. Charles Avenue. It features many of the firm's other home recreation products as well as pool tables.

The theme of both commercial films is incorporated in the tag line voiced at the end of each film: "A.M.A. Distributors...We have the fun you've been missing at home."

A.M.A. sells several brands of home recreation equipment, including Brunswick, Fischer, Renaissance and Tiffany. Founded by Nims in 1958, the distributorship is the sister company of Lucky Coin Machine Co., Inc., an operator of coin-op music and amusement machines.



Bob Prinzing makes a point during the Williams Electronics service school at Bally Northeast Distributing.

Distributor holds schools

Bally Northeast Distributing, formerly Robert Jones International held two two-day electronic seminars recently at the Ben White Restaurant in Norwood, Massachusetts.

Jack O'Donnell conducted the two-day Bally seminar May 9-10 with over 250 people attending. Classes both days of the Bally seminar ran from 9 a.m. to 5 p.m.

The second service school featured Williams Electronics' equipment and was conducted by Robert Prinzing. This school ran from 9:30 a.m. to 4:30 p.m. and was attended by about sixty servicemen and operators.



Jack O'Donnell of Bally conducted a two-day seminar at Bally Northeast Distributing, of Dedham, Massachusetts (formerly Robert Jones International, Inc.).

New York association elects officers

Highlighting the recent general membership meeting of the Music and Amusement Association of New York (MAA) was the annual election of officers for the state association.

Irving Holzman of Dolene Industries, Inc. was elected as the association's president and Sam Schwartz of Lincoln Amusement, Inc., vice president. Other officers elected included Michael Bruck, Long Island Tobacco Co. Inc., who was elected secretary and Sam Morrison of Music Moments, Inc. who was voted in as sergeant-at-arms.

Six others were elected to the body's board of governors. They were Frank Calland (E&S Music Corp), Tilford Gross (Madison Amusement Corp), Howard Herman (County Amusement Corp), Richard Hohman (Royal Vending Corp.), Joseph Jacobs (Herald Amusement Corp.) and Jack Hearn (La Salle Vending Corp.).

Also at the April 19 meeting, Jim Ferguson from the New York State Coin Machine Association unveiled plans for the MAA to conduct a metropolitan area pinball tournament. Ferguson outlined the structure of the competition, with scoring, points, etc. He exhibited the parts to

a kit which each operator will be expected to purchase for his locations. President Holzman said negotiations are underway with a beer company to underwrite the costs of sponsorship. It is hoped that something concrete can be arranged for the fall (See related story on this year's New York tournament in this issue).

Discussion on legislation included debate about the federal copyright royalty license fee. Many operators expressed disgust with the new regulations claiming they were unconstitutional. MAA Public Relations Counsel Danny Frank said that a New York State Legislature attempt to authorize free play games for achieving a certain score has been aborted by the lawmakers who originally pushed this proposal.

In other news, MAA Legal Counsel Theodore Blatt discussed the question of copyrighted contracts being used by operators who were no longer members of the Association. Blatt said the association's legal staff would immediately begin to call non-member operators into federal district court for prosecution, on infringement and violation of the copyright laws.

Dollar play has possibilities

Two bits or four bits? Just make it a dollar.

Darrel Clark, who operates Hemet Music and Games in Hemet, California, is experimenting with dollar play on a new Gottlieb pingame, and he's reporting a ratio of about 25 percent bills in the collection.

The location for his experiment is a bowling center, and the price on the machine is set at 1/25 cents, 5/\$1.

Clark started his experiment on pinball machines after getting favorable results from converting his jukeboxes to dollar-bill pricing.

He operates about 250 pieces of

equipment in the Hemet-Riverside area in Southern California area and has already converted eleven jukeboxes to feature dollar bill validators. "Jukeboxes that were grossing \$43 a week are now doing as much as \$70," says Clark.

"I want people to get used to spending a dollar because I feel the government will be pushing the dollar coin and the two dollar bill soon. It is common knowledge that the one dollar bill doesn't last physically long enough before it has to be replaced," he said.

The cost of each validator, Clark told PLAY METER, is approximately \$300.

Statewide pool tournament?

The Music Operators of Minnesota (M.O.M.) are investigating the possibility of setting up a statewide pool league and an annual pool tournament. Presently the state association is trying to find out how many operators in the state are interested in running local leagues and assisting in the regional and state playoffs.

The tournament would be fashioned after an innovative league program run by Dick Hawkins of D&R Novelty in Rochester, Minnesota.

Hawkins' pool leagues are organized like bowling leagues, with men's, women's, and mixed doubles teams of five members each being sponsored by locations which have an operator-owned table. Typically, the teams meet at about 7 or 8 p.m. on a slow night of the week and play fifteen games. Teams play for 26 weeks, alternating home and away games.

The location charges \$2 per person per night of play. Of the \$20 collected from the two teams, the cost of playing the table is taken out, and the balance goes into the prize fund. The teams play on a point basis, with the winner of each match scoring points for his team. The prize money is distributed on a basis of points accumulated during the season's play.

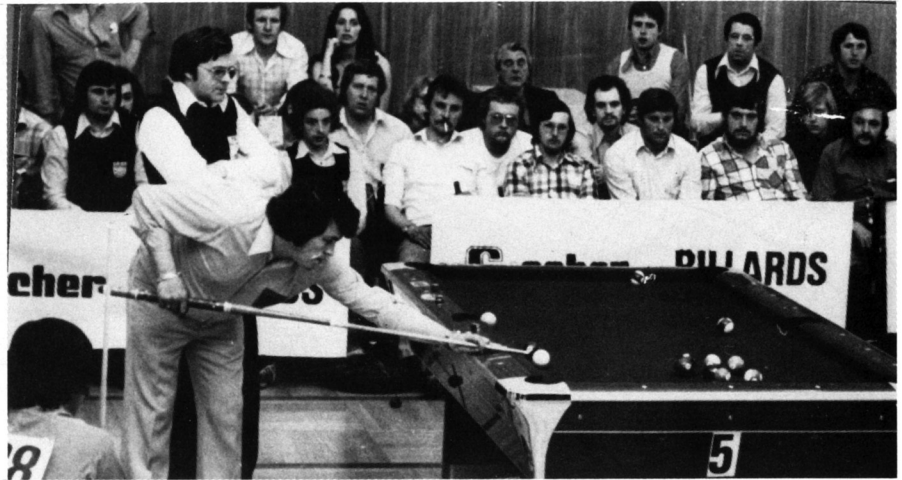
When league play is completed, an invitational tournament is held for the first- and second-place teams. New tables are set up, judges assigned, and a \$1000 purse is created from entry fees (\$50 per team), with the top eight places winning cash prizes.

Hawkins' most recent tournament was held April 1-2 at the Holiday Inn in Rochester, Minnesota. It sold out two hotels totaling 380 rooms and earned press coverage.

"The league establishes a good rapport between the operator and the actual customer who plays the table, and also between the operator and the locations," said Hawkins. "And it doesn't cost the operator anything but his time."

He added that the league directly benefits the location owner because the play takes place on the premises, with the people paying to use the table and buying at his bar. There is no cost for shirts—as there is in bowling and softball leagues—and the league collects its own prize money.

Hawkins said that over 2,000 people participated in his D&R



Is a statewide pool tournament in the offing for Minnesota operators?

leagues this year, and next year he anticipates that that figure will climb to as high as 3,500. He said that the number of participants has doubled every year, indicating "the number of people out there waiting to play pool in a league."

Hawkins emphasized that the real money is in the local leagues, and that is where the effort must be made. While it takes a lot of work to organize the league the first year, Hawkins said, once it is established, the league runs itself. Each league elects a president, vice president, secretary, treasurer, trophy committee and banquet committee, and they do their own planning, record-keeping, and banking.

Hawkins suggests that each opera-

tor interested in joining the Minnesota league attempt to set up one or two teams per location to start and have six to twelve locations per league. Travel distance between locations should be limited to 25 miles per league.

League winners, under the M.O.M. plan, would appoint a committee to run the playoffs.

"This would not be a free ride," Hawkins warned. "The league must be operated on a local basis, and the operators must really work the first year." Operators in Minnesota interested in joining the league should contact Dick Hawkins, D&R Novelty, 1211 Seventh Street N.W., Rochester, Minnesota 55901.

License fee fought, reduced

There was another example recently of the power of state associations.

The City of St. Joseph, Michigan, which was planning to assess a \$25 per machine license fee on all vending and amusement devices, had to settle for much less than that when it locked horns with the Michigan Tobacco and Candy Distributors and Vendors Association (MTCDDVA), an affiliate of the Music Operators of Michigan.

Notified by area operators of the impending action by the city commission, the MTCDDVA appeared before the city body to file an immediate protest which delayed any further action on the ordinance.

MTCDDVA General Manager Walt Maner reported, after meeting with

city officials, that the feeling of the city commission was that operators were not paying proper personal property tax on all the machines they had located in the city. A licensing ordinance, the commission felt, was the way to insure better compliance.

So the state association officials met with the city attorney and the city manager and hammered out a compromise. The proposed license fee was reduced from \$25 per machine to one dollar per machine, and that assessment was to be made only on amusement devices. Vending machines were exempted because cigarette and beverage machines are already heavily taxed by the state and counties in Michigan.

It's just another tale of the strength that comes with numbers.

PLAY METER

ANNOUNCES

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WRITER'S CONTEST



In an attempt to find new writing talent within the ranks of the industry, PLAY METER Magazine has created a writer's contest with prize money totalling \$1,350. The contest runs from February 1 through November 1 and is open to all paid subscribers (PLAY METER staff members and those who have written for PLAY METER on a professional basis are ineligible).

Prizes will be awarded for the best editorial (\$500); the best feature article (\$500); the second-best feature article (\$250); and the third-best feature article (\$100).

All articles and editorials will be judged by the PLAY METER staff on the basis of their applicability to the industry, the research and originality of the article, the quality of writing, and, finally, the importance of the article. The decision of the judges is final. All articles and photographs which are published will also receive PLAY METER's usual payment, in addition to being eligible for the cash prizes awarded at the end of the year.

CONTEST RULES

1. All entries must be typewritten on only one side of the paper and double-spaced.
2. All feature stories must run AT LEAST one full page in the magazine (or at least four typewritten pages).
3. Editorials must run no more than four typewritten pages and no less than two typewritten pages.
4. Pen names are not acceptable. Each entry must bear the writer's real name, his address, and telephone number.
5. All photographs which accompany articles must be clearly identified on separate sheets of paper.
6. All entries should bear one of the following two statements— "Entry for PLAY METER's Editorial Contest" or "Entry for PLAY METER's Feature Article Contest."
7. All entries must be accompanied by a self-addressed, stamped envelope (PLAY METER accepts no responsibility for articles not accompanied with return postage. All articles not used will be returned).

All entries should be mailed to:

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A Guide to Buying Electronic Parts

With the ever increasing growth of electronic games in our industry, there has been much written on how to fix them. However, where do you buy all those magical widgets to repair them with.

With this article, I would like to share from my experience how an aspiring amusement game technician can put together an effective bag of tricks and have a good chance of having with him the parts he needs to repair these mysterious electronic monsters without spending a small fortune.

The bag

It is tough finding transistors and ICS which are stuffed into little brown envelopes in a cardboard box. Half of the envelopes will end up empty when you need the parts the most.

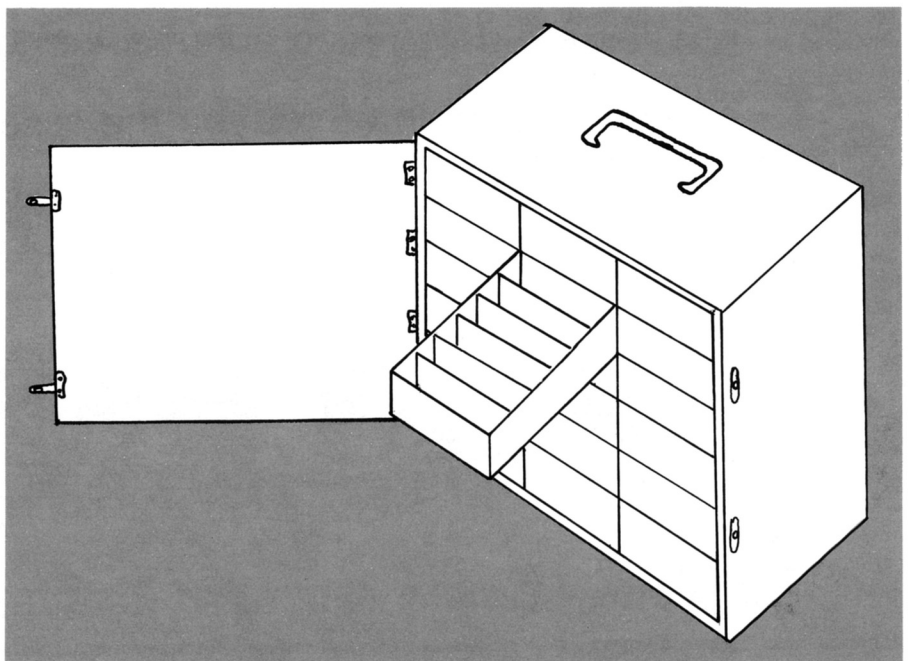
Here is a method of filing parts which can be used in the shop and is always ready to go on the street.

Select a plastic drawer parts cabinet with as many drawers as possible, with a carrying handle on top. Each drawer should be dividable into 6 or 8 sections. Parts cabinet manufacturers never provide you with enough drawer dividers to do this job, so you will have to make many of your own drawer dividers.

Art supply stores sell thin plastic sheets approximately 1/16 inches thick, which I believe artists use for etchings. This clear plastic material can be cut to size with a Plexiglass cutter and a metal straight edge. If your home-made dividers don't fit snugly enough, tack them in with a little model cement.

Next, we must prevent all these little drawers from flying out during transportation and creating an ugly mess. A Plexiglass door will do the job.

At your local hardware store, buy a piece of window pane type Plexiglass, the same size as the front



of your parts cabinet, less a half inch top and bottom. You will also need some jewelry box hardware to fasten your Plexiglass door to the parts cabinet. Four hinges and two clip-type fasteners should be sufficient. Mount hinges and fasteners to Plexiglass door with #2 or #4 machine screws and nuts. Be careful drilling holes in Plexiglass. Mount hinges and fasteners to parts cabinet with #2 or #4 sheet metal screws.

At a stationery store select some self adhesive labels about the same size as your drawer dividers.

The labels should be big enough for the part number, the quantity you want to keep on hand, cross-reference information, and where to buy it.

This electronic parts filing system should put everything you need at your fingertips, is portable, and can be quickly checked when ordering parts.

The parts cabinet should ride right side up at all times. (See illustration.)

Stuffing the bag

When buying electronic components, part numbers play an important role; however, one should pay particular attention to what the device actually is.

As an example, Atari uses the

MR501 Diode, a Motorola product, on many of its video game logic boards. If we are to order this device by part number, we are limited to shopping at Motorola parts distributors only. However, if we shop for a 3 AMP 50 Volt Diode, we can buy them almost anywhere.

This stresses the need for a good cross-referencing system. Two good and easy to obtain references are Motorola HEP Program Semiconductor Cross-Reference Guide and Catalogue, two dollars at your Motorola Semiconductor distributor and the RCA SK series top of the line replacement guide at your RCA SK parts dealer. These catalogues will show you the device specifications and also what other part number will do the job. I do not recommend buying either of these lines, because they are expensive; however, they are great if you need them right away or on a onsie-tuosie basis.

If we were all located near Silicone Valley, California, or another area of the country where the electronic manufacturing industry is heavy, we wouldn't have much of a problem locating parts distributors which carry the stuff we need. We all don't, so one should start a file to guide us to who has it before we need it.

An easy way to get your parts

source file started is to buy a copy of a "Popular Electronics Magazine" where you will find many advertisers (electronic parts distributors) who sell the parts we use, reasonably priced for small quantity users. There is an information referral card in the magazine or for faster results you can write the advertisers directly for their catalogues.

If you are fortunate enough to have a parts distributor in your area who does an over-the-counter business, touch base with him. Find out what lines he carries and try to get catalogues from him on the products you intend to buy. These are usually very busy places; so if you work with his counter people by having the part numbers of the things you need on your order list, you can get in and out in a minimum amount of time.

Most electronic parts distributors hand out line cards which show the products they sell and the manufacturers they represent. Give the ones in your area a call and ask them to send you one. Be sure to let them know that you are servicing amusement games and not another budding IBM, so as to not waste the time of their sales people.

Another source of electronic shopping where some great buys can be found, and is perhaps the most fun,

A FEW QUESTIONS

- Who gave you a step-by-step approach to running your own tournaments?
- Where did you read about token operations?
- Who documented for you the case of pinball — skill versus chance?
- What publication goes on the line every month with its equipment evaluations?

PLAY METER

...and only PLAY METER

"The World's Leading Amusement Machine Trade Publication"

is the electronic surplus dealer. These places appear to be piled high with junk and cater to the ham radio buff or the hi-fi nut. As you browse through the surplus store, you can usually find all the parts you need to build that special test kluge you always wanted to build. Things to buy are switches, line cords, electrolytic capacitors, power supplies, power resistors, pots, used test equipment, wire, and three-dollar logic boards with 100 ICS to practice your de-soldering technique.

Things not to buy are transistors, diodes, and ICS. Scan these places frequently, as there is always new merchandise coming in and the good stuff doesn't stay long. When shopping the surplus market, be careful and don't go bananas; I once thought I found a real score, beautiful 5K pots for 50 cents. I bought a whole bunch and passed them on to a couple of local customers, only to find out that they last about a week in a *Breakout*, and then you can't turn them with a Stilson wrench.

Where to buy

In the following section, I will discuss the various components in general and where to buy them based on price and service. Those mentioned are dealers who I have

dealt with. There are, I am sure, many others who are just as good. I would also like to point out that the fastest service you can get is from your local dealer if he stocks what you need.

RESISTORS 1/4 OR 1/2 WATT

Every technician needs an assortment of these little dudes. To develop the bag of tricks you can buy them in the economy grab bag and sort them or by the sorted assortment from Jameco Electronics, 1021 Howard Street, San Carlos, California 94070, Phone (415) 592-8097.

CAPICATORS-ELECTROLYTIC

For timing and coupling functions 1MFD through 500 MFD shop Jameco Electronics or Active Electronic Sales Corp., P.O. Box 1035, Farmington, Massachusetts 01701, Phone (617) 879-0077.

Buy power supply filter capacitors locally if possible, keeping in mind that if they don't have exactly what you need as long as you can buy more Micro Farads and more voltage than you need, it will do the job. Also with games we don't have the problem of making things fit that other electronic products have.

CAPACITORS-CERAMIC AND MICA

The well-equipped tech should have an assortment of these little fellows in the 50 to 1000 Pico Farad range for Glitch Snuffing (Mica). Also, ceramics for by-pass applications and Micas for timing in the .00, .000, and .000 micro farad range. Jameco Electronics and Active Electronic Sales.

TRANSISTORS AND DIODES

If one had the time to research all the cross-referenced material available against all the schematic and logic drawings of the products manufactured for our industry, he could probably come up with a list of about twelve transistor numbers which could serve as replacements for everything we have to fix. He could then do the same thing with diodes excluding Zeners, Bridge Rectifiers and Hi Voltage Rectifiers and come up with about six numbers. The best assortment of numbers and prices for transistors and diodes I have found is New-Tone Electronics, P.O. Box 1738A, Bloomfield, New Jersey 07003, Phone (201) 748-6171.

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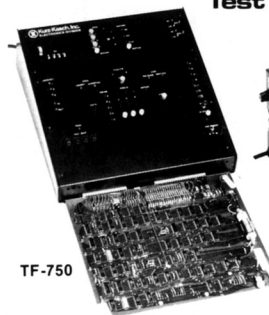
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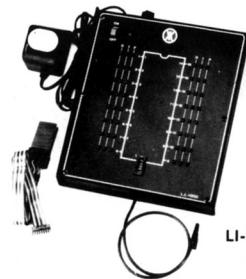
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INTEGRATED CIRCUITS

For ICS priced from \$.11 to \$1.50 both TTL and Linear, try Jameco Electronics or Active Electronic Sales. Above \$1.50 if you have a good local supplier, his prices should be close enough to these mentioned that you can wait till you need it or are almost out of stock. When buying electronic parts or anything of significant dollar value one must keep an eye open for cash flow and not tie up a lot of bucks.

One item you may find yourself using from time to time is the 3245 clock driver used on most Midway Mother boards. This is an Intel

product and can be purchased from Hamilton/Avnet Electronics who have offices all over the country.

What to buy

The following is a list of ICS, transistors and diodes most commonly used in our industry to repair video games, wall games, and arcade pieces. Although some items will apply, there are some which should be added to repair the solid state pins.

The quantities to have on hand are based on maintaining a 100 to 250 piece route of electronic games.

The list is further broken down as to what to carry versus the technical ability of the carrier. We are all not yet space-age scientists; so it would be a waste to send a novice out with a kit designed for one; however, we have to start somewhere.

These technical categories break down as follows:

Novice—Man with multimeter, capable of resolving power supply problems and the ability to consult with distributor and factory people. Will repair about 30 percent of problems encountered.

Pro—Man with multimeter and logic probe. This man will consult with the experts when he needs to, has some experience, and will resolve about 60 percent of the problems.

Super Pro—Man with multimeter, logic probe and perhaps a scope. Has several years experience and can repair about 98 percent.

The remaining 2 percent is for the guy who can get inside roms and microprocessors and fix them. He usually can be found walking on water and perhaps is better suited for other lines of work.

ICS, Transistors, and Diodes most commonly used

PART NUMBER	NOVICE	PRO	SUPER PRO	PART NUMBER	NOVICE	PRO	SUPER PRO
7400 IC	5	5	10	4001 IC		2	2
7402	5	5	10	4066		3	5
7404	5	5	10	LM305		3	5
7406	5	5	10	LM324		3	3
7408	5	5	10	LM377	3	5	5
7410	5	5	10	LM380	5	10	10
7414		3	3	LM3900		3	3
7416		3	3	LM741	3	5	10
7420	5	5	10	LM747		3	3
7425		3	3	NE555	3	5	10
7427		3	3	NE556		2	3
7430		3	5	NE566		2	3
7432		3	3	3245		3	3
7437		3	3	25S10		2	2
7442		3	3	Regulators			
7448		3	3	LM323K (+ 5V3A)	1	1	1
7450		3	3	78H05KC (+ 5V5A)	1	1	1
7451		3	3	LM340H-12 (+ 12V)	2	2	3
7454		3	3	LM320H-5 (-5V)	2	2	3
7474	5	5	10	LM309K (+ 5V)	1	1	2
7475		2	2	OFTO STUFF			
7476		2	2	2N5777	3	5	5
7483		3	5	ME7124	3	5	5
7485		2	3	Transistors			
7490		3	5	2N2905		3	5
7492		3	5	2N3643	10	100	100
7493		3	5	2N3644	10	100	100
74107	3	3	5	2N4123		3	3
74109		2	2	2N4125		3	3
74121		2	2	T1P29		5	5
74151	3	3	5	T1P31	3	5	5
74153	3	3	5	T1P32	3	5	5
74157		3	5	T1P41		5	5
74161		5	10	T1P42	3	5	5
74165		3	3	Diodes & Rectifiers			
74166		3	3	1N270	2	5	5
74174		3	5	1N914	2	5	5
74175		3	5	1N4004	100	100	100
74192		3	5	3A50	10	20	20
74193		3	5	Zener Diodes 1W			
74194		3	5	1N4732 (4.7V)	3	3	3
74LS00		3	5	1N4733 (5.1V)	3	3	3
74LS02		3	5	1N4734 (5.6V)	3	3	3
74LS04		3	5	1N4737 (7.5V)	3	3	3
74LS08		3	5	1N4742 (12V)	3	3	3
74LS74		3	5	1N4745 (16V)	3	3	3
74LS153	3	3	5	1N4752 (33V)	3	3	3
74S04		3	5	Most Monitors			
74S112		3	5	25P300 (H&V out)	1	2	2
9316		5	10	HEP 7004 or SK3027 (73 vreg)	1	2	2
9602		3	3				

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by Stern



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(205) 834-3455

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San Francisco, Ca. 94103
(415) 864-0400

C. A. Robinson Company

2301 W. Pico Blvd.
Los Angeles, Ca. 90006
(213) 380-1160

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Denver, Colorado 80223
(303) 778-7778

Rowe International

2830 W. Ninth Ave.
Denver, Colo. 80204
(303) 534-6308

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Belam Florida Corporation
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Miami, Florida 33169
(305) 621-1415

Rowe International

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Jacksonville, Fla. 32202
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Peach State

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Atlanta, Ga. 30312
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Telex: 660540

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Operators discuss the advent of solid state



By Dan Hanson

It doesn't take a Congressional subcommittee with a 200-man staff to figure out that many longtime operators are still awash in the solid state age. The games have proven themselves to be good earners, but along with that has come bigger problems too, and not the least of these is the difficulty of many operators to adapt to maintaining the new solid state pieces.

Although manufacturers say that solid state technology is an advance that produces relatively trouble-free machines compared with their predecessors in the electro-mechanical "age," many operators want to debate the point.

"Put side by side," Leon Sokolic, owner of Amusement Service Company in Atlanta, says, "and from what we've experienced so far, solid state games have given us almost as many problems as electro-mechanical."

For most of the operators interviewed, solid state has reduced the number of maintenance problems,

but reduced, these operators are quick to point out, does not mean eliminated. In fact, while reducing the number of breakdowns, solid state has introduced a whole new set of problems; and, for the moment, during this transition phase in the industry, the new kind of problems seem to waylay many operators.

This whole new set of problems is forcing operators to adapt, to change to meet the challenge, and according to T&D Amusements and Repair owner, Tony Desiderio, Staten Island, the changes "are going to weed out a lot of them." A sort of natural selection process, a "survival of the fittest" with only those that can adapt to the new changes surviving into the next age.

Most are adjusting.

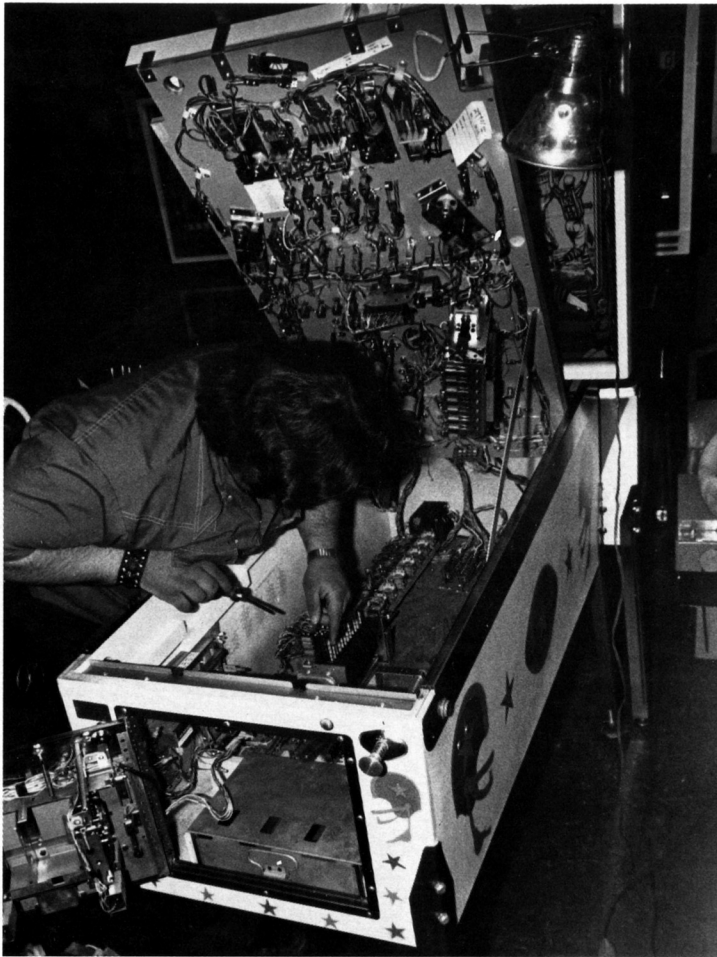
Solid state games mean solid state technology and while manufacturers have taken steps to help operators understand the new schematic of things, it remains that the operator is the one picking up the heaviest end of the game when it comes to service and maintenance.

When asked for their opinions about maintaining solid state pieces, operators reiterated three kinds of problems associated with solid state: the complexity of the technology, a lack of updating information, and difficulty in getting parts. In some cases, operators had developed their own solutions to the problems, and most said they felt manufacturers as a whole could do more to improve the situation.

The complexity of solid state technology is obvious. This problem is the first and most frequently-mentioned problem that popped into operator's heads. The new electronic machines, most operators seem to feel, require a battery of servicemen with PhDs in electronics.

"We're getting into a new, higher degree of education," Desiderio says of the technicians who are coming into the industry.

What this has done, of course, is created a shocking environment for those technicians who have been with the industry for some time but who have yet to adapt to the



microprocessor technology. As B.H. Williams of Dallas's B&B Vending pointed out, "Our people in the field could figure out what was wrong with an electro-mechanical game. But now we're in the electronic world, and not too many of these boys have the electronic knowledge.

"It's a new world," he added, "and until someone explains things, these boys are just flying in the dark."

The response among some operators has been to continue with their old staff, upgraded slightly with moderate training. In other cases, operators are going all out, bringing in highly skilled electronic technicians, and paying them the salary their expertise warrants.

Sokolic, an operator who complained of experiencing numerous problems with solid state technology, took the bull by the horns. "We have an expert technologist over here. Joe Kent. One of the top men in the city. Excellent. We nail the problem right away."

On Staten Island, Desiderio says he anticipated the switch to solid state. "The transistor was out when I was growing up," he said, and now he's personally trained to deal with the electronic problems that arise.

For Desiderio, his time is limited; but, interestingly, he has been able to meet the demands solid state maintenance forces on him by holding down the number of solid state machines he operates. "About two-thirds of our games are still electro-mechanical," he said, adding that that ratio does not overburden his time with repairs.

By keeping an eye on the ratio of solid state to electro-mechanical games, many operators have been able to ease into the electronic age without having to rush out and hire a shopful of expensive electronic technicians.

Manufacturers, too, have come out with new ways to help out in the transition. One of the most used is the manufacturer's direct line, the toll-free number straight to the people who built the machines. According to most of the people interviewed, the lines are helpful, as have other manufacturer assistance measures, such as service schools. Both are steps that operators feel are aiding them in adapting to new demands solid state has thrust on them.

But to some operators, the helping hand is offered too seldom and does too little.

Said one operator, "We need more schools. Schools last ten days, and we have to wait for them to come around. We need more schools and the programs need to last longer. We're talking about

oscilloscopes. They can teach a little theory in ten days. But they need to take the time to get right down into the machines."

To operators, if the schooling program is upgraded, existing staffs could be adequately trained to meet the challenge of these new machines that promise to double the operator's earnings.

Adapting for many operators means developing the expertise needed to meet solid state maintenance problems. The character of in-shop knowledge will change over the next few years.

But knowledge is not a static field. Modifications, the stepping stones of technological progress, change the picture steadily. And in this, PLAY METER found another area of distress among operators.

"Manufacturers make changes and don't make the operator aware of it in advance," complained Mike Leonard, operations manager for Leonard Amusement and Vending Company in Adrian, Michigan.

"The machine defaults. We reset it. It defaults again. So we get on the hotline to the manufacturer. They ask if our machine has serial number such-and-such and then tell us they put a modification kit in it. Then they tell us where we should have looked."

Manufacturers are notifying distributors of the modifications, he said; but, in many cases, the people carrying the burden of repairing machines, the operators, aren't getting the bulletins. Some distributors, it appears, aren't getting the word out to their customers. "Maybe the manufacturers could mail these bulletins out to the operators and not just the distributors," he said.

Equipped with solid state knowledge, and updated information, what other maintenance problems can the operator run into?

Parts shortages, according to Donald Anderson, A&A Amusement in Portland, Oregon.

Difficulty in getting parts is not something that is peculiar to solid state, of course. But, according to Anderson, a parts shortage or difficulty in getting parts has a greater impact on the operators who have solid state machines. If he had trouble getting electro-mechanical parts, Anderson said, "I could usually fix the machine myself. A little bubblegum, some scotch tape, and I'd have the game running again." But solid state dynamics don't lend themselves to "bubblegum" mechanics.

Anderson said he has found some help lately via the hotline. Using the "800-number," he circumvents distributors. "We can call direct to the

manufacturer and shake him up ourselves."

Dallas' B.B. Vending Company manager, O.H. Williams, suggests operators won't always find it necessary to circumvent distributors. You have to know what you're dealing with, he points out. Then, "don't take no for an answer.

"Most of the distributors you deal with do a lot of work—answer the phone a lot—so when you call, you're just one more problem for them. You have to remember they might be tired. So you have to stay on top of them."

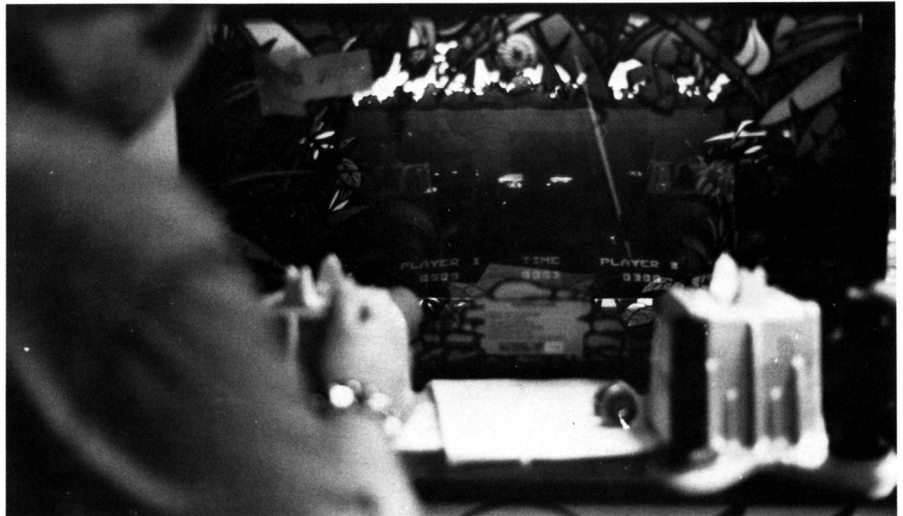
Anderson said one reason he has experienced a parts problem stems from the fact he bought from some of the new companies. As a consequence, he developed a new rule, one that may hinder competitive growth in the industry somewhat, but one that emerges from experience. "New companies began popping up overnight. I bought their equipment.

up and complain about parts delays. But beyond the 800-number, manufacturers are working toward simplifying the parts problem by standardizing their machines. As the trend continues, a few boards will satisfy all machines in a given brand, thus reducing the stockpile inventory, and boards in one machine can be switched with boards in another machine in a pinch.

With time, solid state will mature and manufacturers will build a larger stockpile of parts themselves.

"The picture is improving," Anderson said.

Overall it appears the maintenance picture is improving. Operators are responding to the befuddling new electronic wizardry that has the industry zinging like a tight new pinball machine, with their own techniques. Manufacturers have taken steps to improve the picture; hot lines, service schools, simpler designs, and built-in self-test systems,



They went out of business. Now, no parts. I avoid buying from new companies these days. I figure if a new company develops something good, the bigger companies are going to copy it sooner or later anyway." The philosophy—one that applies to the automobile industry as readily as it does to the game industry—may hurt new companies but protects the operator.

Most operators agreed there are delays sometimes in getting needed parts, and the widest response has been to stockpile parts that may be needed. Several operators said they carried a complete set of boards for their machines. Expensive? Yes. But those who stockpile parts measure the expense against losses accrued during long periods of downtime while waiting for some needed part to arrive.

When manufacturers installed their hotlines, they unwittingly gave operators like Anderson a way to call

for example. But there remains room for more improvements.

The biggest maintenance problem facing operators right now is diffusing the knowledge manufacturers used in creating the new machines across the industry landscape.

Some operators are saying they need more schools and that the schools should last longer and teach more. Others add that operators need updated information from the manufacturers.

"All the factory is interested in is selling," one operator complained. "They could care less about servicing." But selling is something that goes beyond the first sale, to the second, and serviceability plays a part in the operator's purchase-decision the second go-around. While much of the burden of acquiring servicing knowledge seems to fall on the operator, the competitive manufacturers are making notes of the operators complaints.

Rowe distributorship giving the world and Hawaii too

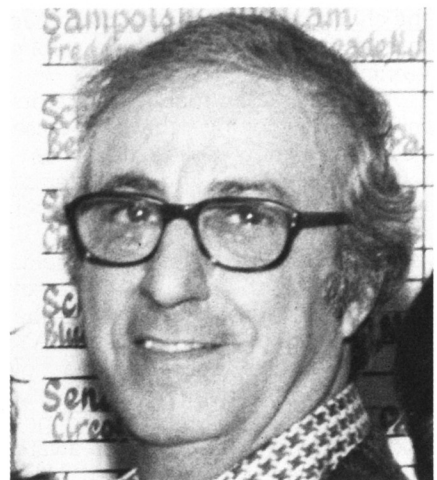
Rowe's northeast regional distributorship is sponsoring a "Round-The World" promotion by offering five trips for lucky winners who purchase R-82 phonographs between June 1 and September 1 from its Dedham, Massachusetts outlet.

First place in the contest is a nine-city, all-expenses paid trip for two around the world with stops in, among other places, London, Paris, Moscow, Hong Kong, and Tokyo. There will be first-class reservations throughout, air fare, limousine services, and \$500 in traveler's cheques.

Second prize in the contest is a seven-day trip-for-two Caribbean cruise, and third- through fifth-prizes will get a week for two in Hawaii.

Said Charles Arnold, Rowe's general manager in Dedham, "We've been saying we would give you the world for your business, and now we're proving it."

The Round-The-World promotion applies only to the Dedham, Massachusetts distributorship and purchases of R-82 phonographs. The drawing for lucky winners will be in mid-September.



Paul Cohen

Cohen expires

Paul Cohen, the senior vice president of Banner Specialty Company of Philadelphia, died June 4 of a heart attack. He was 64.

A veteran of the industry, Mr. Cohen had been associated with B.D. Lazar Company in Pittsburgh before joining Banner 22 years ago.

He is survived by his wife, Bernice, three daughters, a son-in-law, two grandchildren, six sisters, and a brother.

Playmatic to hold schools

Universe Affiliated International, Inc. and Playmatic have started a series of service schools around the United States acquainting distributors and operators with the Playmatic RCA C-Moss system employed in Playmatic's flipper games.

The first service school was held at State Music Distributors in Dallas, Texas June 3 and was well-attended.

Playmatic's first solid state game which came out in January, was called Space Gambler, and the company is now releasing its second such flipper game, *Big Town*. In late August, the company will be turning out *Last Lap*.

Universe Affiliated International mentioned that the boards for all Playmatic models will remain completely interchangeable for all future and previous models.



Williams Electronics' distributors check out the play action on Williams' new pingame World Cup. Distributors got a look also at some upcoming games from Williams at a special distributor showing May 23 at the new Chicago Marriott Hotel.

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- Extended Play Option
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- Color Overlays on Playfield
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DON'T BE A SPECTATOR. Meadows takes this centuries old performers' art off the stage and passes it onto the players of the world. This is one form of insanity we feel everyone has a right to experience. The skill involved in getting 1, 2, 3, 4 objects to dance around your hands has always held that small sense of magic.

1 TO 4 PLAYERS. Players can compete for high score against opponents or against themselves. High skill factor makes Gypsy Juggler tough to master and invites replay for higher scores.

HOW TO PLAY GYPSY JUGGLER. After coin(s) are inserted (accompanied with sound), each player presses PLAYERS button *before* dropping first egg to be juggled. Each player's score area is flashed up with zeros (5 figure value) to sound effects.

ADD-ANOTHER-EGG. Your first egg is served to the juggler from the overhead chute by pressing ADD-ANOTHER-EGG button. You've got the first step mastered, now add additional eggs and watch your score "zoom" up.

SCORE. 1 egg = 5 points; 2 eggs = 50 points; 3 eggs = 100 points; 4 eggs = 200 points. *No points for bouncing off head!* Eggs hit on fingertips arc wide; hits closer to the head are more controlled, building your skills.

PEEP-PEEP-PEEP. You just missed (dropped an egg) and a chicken pops out of the egg and exits off the screen in the shortest direction with "peeping" sounds. Next player (written on TV) and next player's score flashes indicating which player up.

EXTENDED PLAY. Operator adjustable at 5,000; 15,000; 35,000. Tells player when extended play reached by sound and written 2 places on screen.

MULTITUDE OF SOUNDS. Eleven individual standard sounds; intermittent sound in attract (operator option). Separate volume control for game sounds and music.

MORE PROFIT OPTIONS. Operator selectable intermittent theme music during attract mode; # misses per game (2-9); coins per player; and Free Play for showroom demo and trade shows.

SPECIAL FEATURES. External On/Off switch. Credit accumulator to 99. Hi Score For The Day. Interlock switch inside back door. Slide out step. And introducing Meadows new texture-tuf, scratch resist, perma-print control panel.

AUTOMATIC SELF-TEST. ROM/RAM test every time unit powered up.

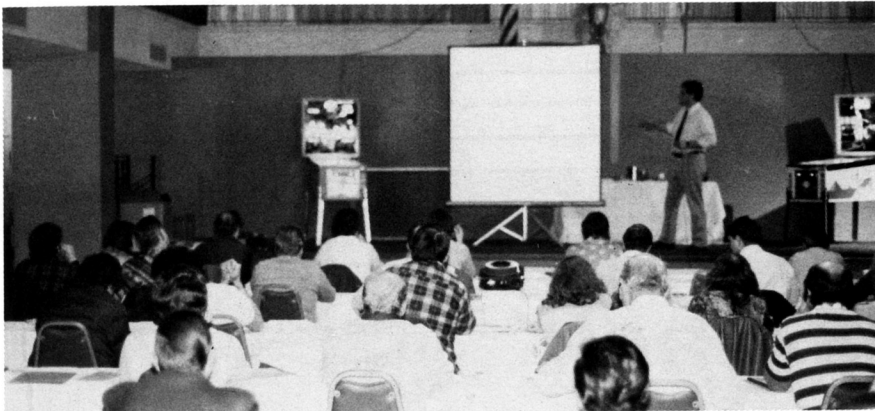
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Gottlieb's field service technician Dick Fingers was among the manufacturers' representatives who took part in the week-long service school sponsored by Advance Automatic Sales. Each day of the school was devoted to one of the manufacturers' solid state pinball machines.

Advance Automatic hosts 'Pinball Week'

In what was apparently the first service school of its kind in the country, a single distributor (Advance Automatic Sales of San Francisco) brought together service technicians from the five major American pinball manufacturers in a week-long solid state pinball school for operators and servicemen.

Bally, Gottlieb, Williams, Atari, and Stern were all represented with each manufacturer's service technician taking one of the five days to explain his company's product and to answer questions. Classes each day of the school ran from 9 a.m. to 5 p.m.

Average attendance for each school was 60 with some of the schools reporting turn-away crowds after the maximum number of 85 students had been registered.

The school was held at the San Franciscan Hotel from April 3-7, and Advance Automatic Sales was represented by its president Chet MacMurdie.

The service technicians who conducted each school (and the manufacturer each represented) are as follows: Dick Fingers (Gottlieb), Bernie Powers (Bally), Darrell Blendowski (Stern), Bob Prinzing (Williams), and Fred McCord (Atari).

Good-bye snow! ASC moves south

They've had it with the snow! Amusement Systems Corporation, along with ASC Distributor Sales Company and Electronic Amusement Report, have moved south to a new and larger facility at 7011 North Atlantic Avenue, Cape Canaveral, Florida.

Reportedly, there will be a fifty percent increase in the technical staff of Amusement Systems. The company maintains the move will mean

faster UPS service to all parts of the country with no delays due to the unpredictable New England climate.

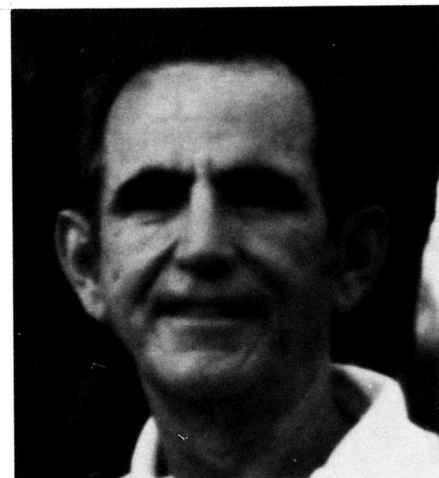
The new plant will include in-house facilities for programming out-of-manufacture ROMS and PROMS.

Amusement Systems, ASC Distributor Sales, and Electronic Amusement Report were formerly located at 265 Willard Street in Quincy, Massachusetts.

Bergeron passes on

Harold W. Bergeron, service manager and route coordinator for Lucky Coin Machine Co., Inc., a coin-operated music and amusement equipment operator in New Orleans, died suddenly May 18, 1978.

Bergeron, 57, had been affiliated with the coin machine business for more than thirty years. He had been associated with Lucky Coin and its owner, Bob Nims, for twenty of those years.



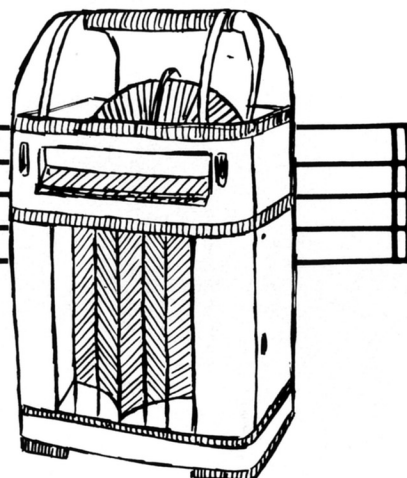
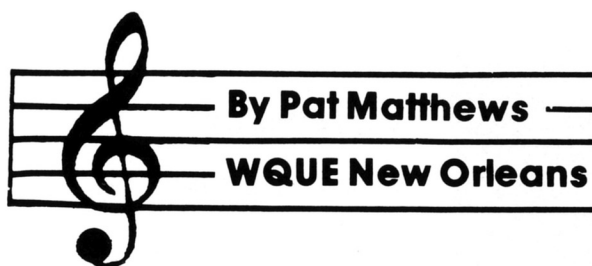
Harold W. Bergeron

A native of New Orleans, Mr. Bergeron was a resident of nearby Kenner for the last 20 years.

He was a veteran of World War II, serving in the U.S. Navy for four years.

He is survived by his wife, Carolyn Crawford Bergeron, two children and a brother and sister.





A cold six-pack and eight hot ones

Gearin' up for the Fourth, I'm loaded down with a cold six-pack and an armful of the latest wax. So let's get down to business.

Two Tickets To Paradise—Eddie Money—Columbia 3-10765

The man's HOT! Plus, he's got a pledge of support from his record company. They're out to make him the David Cassidy of the late '70s, maybe even the biggest thing since sliced bread. Not to equate his talents with David's or to detract from Cassidy's, but he wants to be a teen-age heart-throb (he says so in one of his tunes on the lp), and he's got the looks and the voice to do it! This one's even more powerful than his smash hit, "Baby Hold On"—if you can believe that! I look for "Two Tickets" to be even bigger than his first. And if this one doesn't make the debut album, "Eddie Money" platinum, nothin' will. (A-Pop)

Use Ta Be My Guy—MFSB—Philadelphia International ZS8-3650

Nicely done! First of all, I'd like to take this time to say, I'm happy for the O'Jays' success with "Use Ta Be My Girl." It's a hit! And this is the same song done in a different gender. Basically, it's instrumental, but the girls are there to sing the title

and refrain. Listen for the super sax rides—they carry the song. (C-Pop) (A-R&B)

The Other Side (So When I See You Again)—Fotomaker—Atlantic 3485

Their debut single didn't fare too well, but maybe they're on the right track with this one. The group consists of Dino Danelli and Gene Cornish (formerly of The Rascals) and Wally Bryson (ex-Raspberry), so what gives? It's a solid tune with expert musicianship and vocals. As an added bonus the harmonies are so, so familiar (Beatles?). This just may do it for them. (C-Pop)

You're All I Need To Get By—Johnny Mathis & Deniece Williams—Columbia 3-10772

Let's see if this duo can "duo" it again, so to speak. Of course, it's the old Marvin Gaye-Tammi Terrell hit of the sixties re-done nicely by the Odd Couple of music. (B-Pop) (A-R&B)

Night—John Hall—Asylum E-45499-A

Fresh from a rather successful national tour, the former leader of the much-talented Orleans (Dance With Me, Still The One) embarks on a solo career. This debut disk is just as impressive as his compositions and performances with the group.

He's in with the clique of other Asylum heavies such as Andrew Gold and Linda Ronstadt, so maybe with the right publicity...? Besides it's got the "feel" to be a mutha! (A-Pop)

Spanish Fever—Fania All-Stars—Columbia 3-10760

Unlike getting the "fever" exclusively on one week end night, here's your chance to "catch it" any night, particularly if you're Latin. You may or may not know that the Fania All-Stars were one of the pioneer groups in the disco field, and therefore their efforts are generally warmly received in disco circles, usually without so much as a listen to the product. This one is disco-ed up with Spanish (natch!) horns and a taste of Flamenco. And as always, features no lyrics to speak of. This aside, catch it before it catches up with you. (A-Disco) (B-R&B)

Locomotive—Passport—Atlantic 3487

I've always like the progressive jazz stylings of this German ensemble and this tune is certainly no exception. They've never been able to crack the singles scene, but this one has a definite disco beat and therefore could be the key to the success of the record. The sax and flute work on

The records are rated as follows: **A**—Superb, destined to be a top ten record on somebody's chart; **B**—Good, but only enough to crack the top 25; **C**—Maybe not a financial success, but with a little exposure will keep those coins clinking in the jukeboxes.

this particular cut is some of the best I've heard recently. Look out! This one's armed with a Passport and it's movin' like a Locomotive! (B-Disco) (C-Pop) (B-R&B)

1,2,3 Kind Of Love—Wild Cherry—Epic 8-50551

It opens with an old tavern piano feeling, then moves into some solid rhythm and blues stylings. A heavy bass line gives this very danceable tune a definite Four Tops—Sixties feel. It's been a while since Wild Cherry has tasted success, but this one should do it! It's easy as 1,2,3. (B-Pop) (A-R&B)

WORTH A LISTEN

Celebrate—Brass Construction—United Artists

5.7.0.5.—City Boy—Mercury

Lucky Stars—Dean Friedman—Lifesong

Slow Drivin'—Kenny Starr—MCA

When I Stop Leavin' (I'll Be Gone)—Charley Pride—RCA

Editor's Note: Our apologies for last month's jumbling of the Music Programming section. Here is a correct listing of last month's selections and Pat Matthews's ratings: "Your Love is a Miracle" [B-R&B and C-Pop]; "I Don't Wanna Go"

[B-Pop and A-MOR]; "There Ain't No Good Chain Gang" [B-C&W]; "Free Me" [C-Pop]; "Will You Still Love Me Tomorrow" [A-Pop, A-

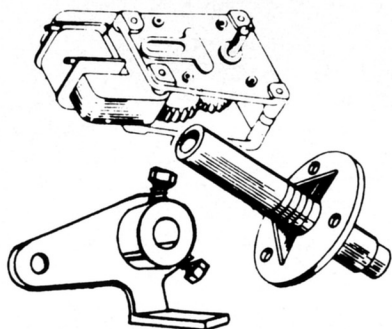
MOR]; "Baby Sinister" [B-R&B]; "Hollywood Squares" [A-R&B]; "Portrait He Knew" [A-Pop]; "FM" [B-Pop].

PLAY METER TOP 25

1. **You're The One That I Want**—Travolta & Newton-John—RSO
2. **Shadow Dancing**—Andy Gibb—RSO
3. **Because The Night**—Patti Smith—Arista
4. **Baby Hold On**—Eddie Money—Columbia
5. **Baker Street**—Gerry Rafferty—United Artists
6. **It's A Heartache**—Bonnie Tyler—RCA
7. **Use Ta Be My Girl**—O'Jays—Philadelphia International
8. **You Belong To Me**—Carly Simon—Elektra
9. **Two Out Of Three Ain't Bad**—Meatloaf—Epic
10. **Miss You**—Rolling Stones—Rolling Stones
11. **Dance With Me**—Peter Brown—Drive
12. **The Groove Line**—Heatwave—Epic****
13. **You're The Love**—Seals & Crofts—Warner Brothers****
14. **Still The Same**—Bob Seger—Capitol
15. **Last Dance**—Donna Summer—Casablanca****
16. **With A Little Luck**—Wings—Capitol
17. **Take A Chance On Me**—Abba—Atlantic****
18. **Bluer Than Blue**—Michael Johnson—Capitol
19. **Heartless**—Heart—Mushroom
20. **Love Is Like Oxygen**—Sweet—Capitol
21. **Feels So Good**—Chuck Mangione—A&M
22. **On Broadway**—George Benson—Warner Brothers
23. **Prove It All Night**—Bruce Springsteen—Columbia****
24. **Three Times A Lady**—Commodores—Motown
25. **Runaway**—Jefferson Starship—Grunt****

****denotes records reviewed by PLAY METER.

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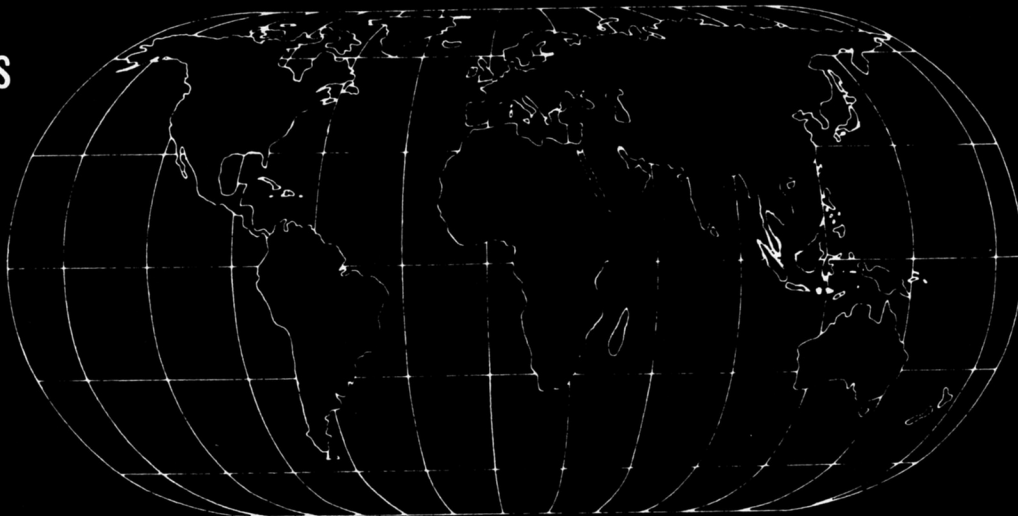
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Top Soul Hits

Now	Was		
1	1	USE TA BE MY GIRL	THE O'JAYS/Phila. Intl. 83642
2	8	CLOSE THE DOOR	TEDDY PENDERGRASS/Phila. Intl. 83648
3	3	RUNAWAY LOVE	LINDA CLIFFORD/Curtom 0133
4	4	SHAME	EVELYN "CHAMPAGNE" KING/RCA 11122
5	7	STUFF LIKE THAT	QUINCY JONES/A&M 2043
6	2	THE GROOVE LINE	HEATWAVE/Epic 8 50524
7	5	DUKEY STICK (PART ONE)	GEORGE DUKE/Epic 8 50531
8	10	ANNIE MAE	NATALIE COLE/Capitol 4572
9	14	YOU AND I	RICK JAMES STONE CITY BAND/Gordy 7156
10	6	TAKE ME TO THE NEXT PHASE (PT. 1)	ISLEY BROS./T-Neck 2272
11	16	BOOGIE, OOGIE, OOGIE	A TASTE OF HONEY/Capitol 4565
12	12	(LET'S GO) ALL THE WAY	WHISPERS/Solar 11246
13	19	LAST DANCE	DONNA SUMMER/Casablanca 926
14	15	SHADOW DANCING	ANDY GIBB/RSO 893
15	9	DANCE ACROSS THE FLOOR	JIMMY "BO" HORNE/SHS 1003
16	11	TOO MUCH, TOO LITTLE, TOO LATE	JOHNNY MATHIS/DENIECE WILLIAMS/Columbia 3 10693
17	18	FEEL THE FIRE	PEABO BRYSON/Capitol 4573
18	13	DAYLIGHT AND DARKNESS	SMOKEY ROBINSON/Tamla 54293
19	47	THREE TIMES A LADY	COMMODORES/Motown 1443
20	20	MS	DAVID OLIVER/Mercury 73973

Top Country Hits

Now	Was		
1	2	I'LL BE TRUE TO YOU	OAK RIDGE BOYS/ABC 12350
2	3	IT ONLY HURTS FOR A LITTLE WHILE	MARGO SMITH/Warner Bros. 8555
3	7	I BELIEVE IN YOU	MEL TILLIS/MCA 40900
4	5	I CAN'T WAIT ANY LONGER	BILL ANDERSON/MCA 40893
5	1	TWO MORE BOTTLES OF WINE	EMMYLOU HARRIS/Warner Bros. 8553
6	11	THERE AIN'T NO GOOD CHAIN GANGS	JOHNNY CASH/WAYLON JENNINGS/Columbia 3 10742
7	13	ONLY ONE LOVE IN MY LIFE	RONNIE MILSAP/RCA 11270
8	12	I NEVER WILL MARRY	LINDA RONSTADT/Asylum 45479
9	9	IT'S A HEARTACHE	BONNIE TYLER/RCA 11249
10	10	SLOW AND EASY	RANDY BARLOW/Republic 017
11	18	TONIGHT	BARBARA MANDRELL/ABC 12362
12	20	LOVE OR SOMETHING LIKE IT	KENNY ROGERS/United Artists 1210
13	19	NEVER MY LOVE	VERN GOSDIN/Elektra 45483
14	15	LET ME BE YOUR BABY	CHARLY MCCLAIN/Epic 8 50525
15	16	WEEKEND FRIEND	CON HUNLEY/Warner Bros. 8572
16	4	NIGHT TIME MAGIC	LARRY GATLIN/Monument 45 249
17	17	HERE COMES THE REASON I LIVE	RONNIE MCDOWELL/Scorpion 159
18	24	WHEN CAN WE DO THIS AGAIN	T.G. SHEPPARD/Warner Bros. 8593
19	25	SPRING FEVER	LORETTA LYNN/MCA 40910
20	26	YOU NEEDED ME	ANNE MURRAY/Capitol 4574

RECORD WORLD SINGLES CHART

TITLE, ARTIST, Label, Number, (Distributing Label)

JULY 1	JUNE 24		WEEKS ON CHART
1	1	SHADOW DANCING ANDY GIBB RSO 893 (5th Week)	12
2	2	BAKER STREET GERRY RAFFERTY/United Artists 1192	12
3	4	USE TA BE MY GIRL O'JAYS/Phila. Intl. 8 3642 (CBS)	11
4	3	IT'S A HEARTACHE BONNIE TYLER/RCA 11249	15
5	5	YOU'RE THE ONE THAT I WANT JOHN TRAVOLTA AND OLIVIA NEWTON-JOHN/RSO 891	14
6	9	STILL THE SAME BOB SEGER & THE SILVER BULLET BAND/ Capitol 4581	8
7	7	THE GROOVE LINE HEATWAVE/Epic 8 50524	10
8	8	YOU BELONG TO ME CARLY SIMON/Elektra 45477	11
9	10	TWO OUT-OF THREE AIN'T BAD MEATLOAF/Epic/ Cleveland Intl. 8 50513	16
10	13	TAKE A CHANCE ON ME ABBA/Atlantic 3457	11
11	11	DANCE WITH ME PETER BROWN/Drive 6269 (TK)	18
12	19	MISS YOU ROLLING STONES/Rolling Stones 19307 (Atl)	6
13	6	WITH A LITTLE LUCK WINGS/Capitol 4559	14
14	12	LOVE IS LIKE OXYGEN SWEET/Capitol 4549	19
15	16	BLUER THAN BLUE MICHAEL JOHNSON/EMI-America 8001	9
16	20	LAST DANCE DONNA SUMMER/Casablanca 926	7
17	14	FEELS SO GOOD CHUCK MANGIONE/A&M 2001	23
18	15	TOO MUCH, TOO LITTLE, TOO LATE JOHNNY MATHIS/ DENIECE WILLIAMS/Columbia 3 10693	16
19	24	COPACABANA (AT THE COPA) BARRY MANILOW/ Arista 0339	4
20	21	EVEN NOW BARRY MANILOW/Arista 0330	9
21	22	YOU'RE THE LOVE SEALS & CROFTS/Warner Bros. 8551	9
22	25	RUNAWAY JEFFERSON STARSHIP/Grunt 11274 (RCA)	6
23	28	LOVE WILL FIND A WAY PABLO CRUISE/A&M 2048	5
24	26	ONLY THE GOOD DIE YOUNG BILLY JOEL/Columbia 3 10750	7
25	32	GREASE FRANKIE VALLI/RSO 897	5
26	27	WONDERFUL TONIGHT ERIC CLAPTON/RSO 895	8
27	34	LIFE'S BEEN GOOD JOE WALSH/Asylum 45493	4
28	31	FOLLOW YOU, FOLLOW ME GENESIS/Atlantic 3474	10
29	29	I CAN'T STAND THE RAIN ERUPTION/Ariola 7686	16
30	48	THREE TIMES A LADY COMMODORES/Motown 1443	2
31	18	EVERY KINDA PEOPLE ROBERT PALMER/Island 100	14
32	36	KING TUT STEVE MARTIN/Warner Bros. 8577	7
33	38	MY ANGEL BABY TOBY BEAU/RCA 11250	8
34	35	STONE BLUE FOGHAT/Bearsville 0325 (WB)	7
35	17	BECAUSE THE NIGHT THE PATTI SMITH GROUP/Arista 0318	13
36	44	STAY JACKSON BROWNE /Asylum 45485	5
37	42	FM (NO STATIC AT ALL) STEELY DAN/MCA 40894	5
38	23	ON BROADWAY GEORGE BENSON/Warner Bros. 3542	17
39	33	OH WHAT A NIGHT FOR DANCING BARRY WHITE/ 20th Century 2365	11
40	30	I WAS ONLY JOKING ROD STEWART/Warner Bros. 8568	10
41	52	MAGNET AND STEEL WALTER EGAN/Columbia 3 10719	5
42	43	ROLL WITH THE CHANGES REO SPEEDWAGON/Epic 8 50545	8
43	56	I'M NOT GONNA LET IT BOTHER ME TONIGHT ATLANTA RHYTHM SECTION/Polydor 14484	4
44	49	IF EVER I SEE YOU AGAIN ROBERTA FLACK/Atlantic 3483	5
45	53	THANK GOD IT'S FRIDAY LOVE & KISSES/Casablanca 925	7
46	41	IT'S THE SAME OLD SONG KC & THE SUNSHINE BAND/ TK 1028	8
47	37	ALMOST SUMMER CELEBRATION FEATURING MIKE LOVE/ MCA 30891	11

CHARTMAKER OF THE WEEK

48	—	HOT BLOODED FOREIGNER Atlantic 3488	1
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49	58	WILL YOU LOVE ME TOMORROW DAVE MASON/ Columbia 3 10749	5
50	54	YOU CAN'T DANCE ENGLAND DAN & JOHN FORD COLEY/ Big Tree 16117 (Atl)	5
51	67	STUFF LIKE THAT QUINCY JONES/A&M 2043	4
52	69	BOOGIE, OOGIE OOGIE A TASTE OF HONEY/Capitol 4565	3
53	60	HOT LOVE, COLD WORLD BOB WELCH/Capitol 4588	4
54	62	SONGBIRD BARBRA STREISAND/Columbia 3 10756	4
55	65	PROVE IT ALL NIGHT BRUCE SPRINGSTEEN/Columbia 3 10763	3
56	70	I'VE HAD ENOUGH WINGS/Capitol 4594	2
57	64	CAN WE STILL BE FRIENDS TODD RUNDGREN/Bearsville 0324 (WB)	4
58	66	LOVE OR SOMETHING LIKE IT KENNY ROGERS/ United Artists 1210	5
59	61	PORTRAIT (HE KNEW) KANSAS/Kirshner 4276 (CBS)	5
60	39	HEARTLESS HEART /Mushroom 7031	13
61	68	SHAME EVELYN "CHAMPAGNE" KING/RCA 11122	5
62	73	MR. BLUE ELO/Jer 5050 (CBS)	2
63	47	CHEESEBURGER IN PARADISE JIMMY BUFFETT/ABC 12359	11
64	45	BABY HOLD ON EDDIE MONEY/Columbia 3 10663	20
65	46	NIGHT FEVER BEE GEES/RSO 889	22
66	—	YOU RITA COOLIDGE/A&M 2058	1
67	71	I DON'T WANNA GO JOEY TRAVOLTA/Millennium 615 (Casablanca)	4
68	72	TRANS-EUROPE EXPRESS KRAFTWERK/Capitol 4460	5
69	79	CLOSE THE DOOR TEDDY PENDERGRASS/Phila. Intl. 8 3648 (CBS)	3
70	—	TWO TICKETS TO PARADISE EDDIE MONEY/Columbia 3 10765	1
71	76	DAYLIGHT AND DARKNESS SMOKEY ROBINSON/Tamla 54293 (Motown)	6
72	80	HOT CHILD IN THE CITY NICK GILDER/Chrysalis 2226	2
73	82	YOU'RE A PART OF ME GENE COTTON/Ariola 7704	2
74	85	MACHO MAN VILLAGE PEOPLE/Casablanca 922	2
75	83	NEVER LET HER SLIP AWAY ANDREW GOLD/Asylum 45489	3
76	77	ANYTIME JOURNEY/Columbia 3 10757	4
77	57	WARM RIDE RARE EARTH/Prodigal 0640 (Motown)	7
78	63	OVER THE RAINBOW GARY TANNER/20th Century 2373	6
79	55	TAKE ME BACK TO CHICAGO CHICAGO/Columbia 3 10737	7
80	88	YOU DON'T LOVE ME ANYMORE EDDIE RABBITT/Elektra 45488	3
81	87	CHATTANOOGA CHOO CHOO TUXEDO JUNCTION/ Butterfly 1205	3
82	93	RUNAWAY LOVE LINDA CLIFFORD/Curtom 0318 (WB)	5
83	84	RIVERS OF BABYLON BONEY M/Sire/Hansa 1027 (WB)	3
84	—	I NEED TO KNOW TOM PETTY AND THE HEARTBREAKERS/ Shelter 62010 (ABC)	1
85	40	THE CLOSER I GET TO YOU ROBERTA FLACK (WITH DONNY HATHAWAY)/Atlantic 3463	20
86	89	DREAM LOVER MARSHALL TUCKER BAND/Capricorn 0300	2
87	96	ON THE WRONG TRACK KEVIN LAMB/Arista 0316	2
88	99	YOU AND I RICK JAMES STONE CITY BAND/Gordy 7156 (Motown)	2
89	—	GET OFF FOXY/Dash 5046 (TK)	1
90	91	HE'S SO FINE JANE OLIVOR/Columbia 3 10724	5
91	92	NEW ORLEANS LADIES LOUISIANA'S LE ROUX/Capitol 4586	3
92	86	THAT ONCE IN A LIFETIME DEMIS ROUSSOS/Mercury 73992	5
93	59	I WANT YOU TO BE MINE KAYAK/Janus 274	9
94	50	DANCE ACROSS THE FLOOR JIMMY "BO" HORNE/SHE 1003 (TK)	16
95	81	(LET'S GO) ALL THE WAY WHISPERS/Solar 11246 (RCA)	6
96	98	ANNIE MAE NATALIE COLE/Capitol 4572	2
97	51	IMAGINARY LOVER ATLANTA RHYTHM SECTION/Polydor 14459	19
98	100	FEEL THE FIRE PEABO BRYSON/Capitol 4573	2
99	90	SOMEONE TO LAY DOWN BESIDE ME KARLA BONOFF/ Columbia 3 10751	5
100	94	DUKEY STICK (PART ONE) GEORGE DUKE/Epic 50531	6

9

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Determining your cash flow

By David Pierson

Editor's Note: In this the second of a three-part series on cash planning, we will examine cash flow and the time value of money. This series is based upon the lecture and workshop conducted by Dr. John Malone at the A.M.O.A.-Notre Dame Seminar March 3-4. Dr. Malone, who is a professor of marketing at Notre Dame, used a mythical operation called "Shamrock Music Company" to demonstrate how an operator can analyze the business end of his operation.

There's a rare bird called "extra money" which we sometimes think flies around only in the mansions of people like Nelson Rockefeller and J. Paul Getty. But, according to Dr. John Malone, a professor of marketing at Notre Dame University, it's quite possible you have such a bird flying around your office somewhere; and, if so, then it's in your best interest to catch the darn thing and put it to work for you.

Extra money? you say with a disbelieving laugh. *I have extra money?*

As strange as it may sound, it's very likely that you do. Extra money, as it turns out, isn't rare like the whooping crane; there have been many sightings lately.

The reason you may have some extra money on hand, and not even know it is that you have probably never determined exactly how much money you need on hand to run your business on a daily basis. As a result, your checking account is probably swollen with idle cash that could be put to better use elsewhere. If you're like most people in this regard, you figure it's not really important to get too specific with how much cash you should have on hand; so you keep a nice round figure in the bank to cover your tracks for that rainy day.

What you need is a system to determine exactly how much is enough cash on hand, and then put the excess cash to work for you.

The way you determine exactly how much is enough, is by keeping a record of your cash flow, preferably on a daily basis. Charting your cash flow on a weekly basis is a viable alternative here, but it won't be as accurate as a daily cash flow analysis.

In the case of the mythical Shamrock Music Company (See

Shamrock's Daily Cash Flow chart), the operator has calculated his cash flow on a daily basis for one year of workdays, 260 days. His daily average for cash-in is \$962 and for cash-out, \$808.

What the Shamrock operator did next was calculate his standard deviation so that he would be able to see how much variance (up or down) he had from his daily average.

The formula he used to find his standard deviation looks forbidding:

$$\sqrt{\frac{d^2}{N-1}}$$

But it's not really that complicated. With the use of a hand calculator that performs the square root function, you should be able to determine your standard deviation by following this step-by-step procedure:

STEP ONE: Add or subtract from

your average each daily figure to find out what your deviation is on a day-by-day (or week-by-week) basis. For instance, on Day 1 for Shamrock Music, the actual deviation from the cash-in average was \$62. For Day Two it was \$77 off. And for Day Three, it was \$108 off the average (Note: it doesn't matter if it's \$108 more or \$108 less for the purposes of this calculation; what matters is that your actual cash collections for that day were \$108 off the average of \$962). After you have done this for cash-in, do the same thing for cash-out.

STEP TWO: Now that you have the daily deviations for both cash-in and cash-out, you have to square each one—that is, multiply \$62 by \$62, \$77 by \$77, and the \$108 by \$108, and so forth (IMPORTANT: Do not total all the deviations together and then multiply it. This will give you the wrong answer. You have to square

Shamrock's Daily Cash Flow		
Business Day	Daily Cash (In)	Daily Cash (Out)
1	900	750
2	885	900
3	1070	825
↑	↑	↑
258	995	700
259	860	800
260	1062	873
Daily Average	\$962	808
Standard Deviation	120	200
95% Confidence Limits	722-1202	408-1208
Worst Combination	722	1208
Minimum Cash Balance	1208-722 =	486
Present Cash Balance		5000
Excess Cash		4514

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Certificate of Deposit (270-365 Days)	7.375-7.50%
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Commercial Paper (60-89 Days)	6.625%
Commercial Paper (90-179 Days)	6.75%
Commercial Paper (180-270)	6.75%
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each figure individually).

STEP THREE: Now add all the squared totals from cash-in together and, in a second grouping, add all the cash-out squared totals together; and divide both figures by one less than the number of days (or weeks) you're using in your sampling. In the case of Shamrock Music Company, for example, since he is working with a sampling of 260 workdays, he would divide by 259.

STEP FOUR: The final step is easiest, if you have the hand calculator with the square root function. Press the square root button and get your final cash-in and cash-out figures. That is your standard deviation.

Easy, wasn't it? Next month we'll move on to something simple like $E = MC^2$.

In the case of Shamrock Music Company, the standard deviation was 120 for cash-in and 200 for cash-out. By the way, if you were testing yourself on the standard deviation by using Shamrock's numbers, you would not get 120 and 200 as your answers. The reason is that you're missing the other 254 daily samples.

Now that you have the standard deviation, multiply it by two, and this will show you what range from the average you can be reasonably sure your daily cash flow will vary. With Shamrock, the operator's variance could be as much as \$240 either high or low of the daily average in cash-in and \$400 either high or low of the cash-out average.

The worst possible combination, therefore, according to the standard deviation is that collections would be \$240 below average and cash-out would be \$400 more than anticipated. For Shamrock, that would mean that on a bad day, according to his standard deviation figures, the operator of Shamrock would have cash-in of only \$722 and cash-out of \$1208. That means he would have to have \$486 on hand to cover that

worst combination. However, Shamrock, we find out, keeps \$5000 on hand for daily cash failings such as this. He's courting around that strange bird called "extra money" to the sum of \$4,514. All he needs in the checking account on any given day is \$486, but it turns out where the operator, to feel extra safe is carrying over \$4000 in insurance on a daily basis.

He could put that \$4514 to work for him in maybe new equipment purchases, outside investments, in countless revenue producing means, but he has squandered it by keeping it in the bank for defensive purposes.

According to Malone, if you have such a bird in your cash flow, "You're wasting valuable income producing power. In a day when cash is precious," he stresses, "don't leave it idle."

Of course, cynics will point out that this formula only promises you a 95 percent confidence rate, that you are still not protected against those really bad days. But Malone's argument is that by making hay while the sun shines with that extra money, you'll come out ahead of what you're going to be losing in a loan to cover your worst day. It's not a gamble; it's called business sense.

After all, you expect your employees to be as efficient as possible, and maybe you have gone to some extremes to get them as efficient as possible—time cards, schedules, location reports, etc. Well, why not make your money be as efficient as possible?

Besides the obvious way of reinvesting your money—buying new equipment, etc., you might want to investigate the possibilities of short term investment media (See chart). This can improve your return on idle cash and give it back to you in case you need it on short notice. It should be noted that these percentages are not accurate, they are constantly changing, but they give you an indication of what the short

term investment looks like. It doesn't give a big return, but it's better than the zero interest you were getting with it in the checking account. For treasury bills, the minimum purchase is \$10,000; for certificates of deposit, a minimum purchase of \$1,000 is required; and there's a minimum purchase of \$25,000 for commercial paper.

Check out these options with your banker.

Time value of money

It's an easy thing to overlook the time value of money. But, like the ostrich, itself not so rare a bird, you cannot avoid the problem of ducking your head in the sand. Whether you like it or not, money has a time value—inflation, interest rates, affect this. And its effect can be damaging to your business if you choose to ignore them. However, recognizing the time value of money can keep you earning at your projected rate of return.

To illustrate, let's take the example of an operator who is planning to invest \$60,000 in a project, probably a large equipment purchase.

The estimated life of this project, he figures will be six years, and the machines after that period of time will have no further value to him. According to his present earnings, he figures the purchase of this new equipment will yield an annual cash flow of \$15,000. That looks to be an

annual rate of return of 25 percent on his investment—\$15,000 a year for six years for an initial investment of \$60,000. And he's about to jump because a 25 percent rate of return is okay with him when he remembers that the value of his money won't be as valuable then as it is right now.

He wants to know by today's standards how much earning power will that \$15,000 annually mean to him two, three, four, five, six years down the road.

So he consults a business management book and finds a table there designed specifically for this ("The Present Value of \$1 Received Annually For N Years"). That table, which appears in *Management Accounting* by Bob Anthony and published by Irwin Publishing, has been reprinted in many other business management books and is also reprinted here.

First the operator calculates the ratio of the cost of the project to his anticipated annual return on that investment. Since an investment of \$60,000, in this instance, would net \$15,000 annually, the project cost represents four times the anticipated annual return. This means that the operator will have to invest four dollars now to get back one dollar each year for six years.

Refer now to the chart. The operator follows down the lefthand column until he comes to the correct number of years for his project, in

this case, six. Then he follows along this line until he comes to the closest figure to four dollars. It falls between 4.111 and 3.889. By referring to the top of the chart, the operator's suspicions are confirmed. The project would not give him a return of 25 percent, but rather a return between 12 and 14 percent—or, more specifically, 13 percent.

Now this 13 percent return is before taxes, which means it will be cut maybe in half before you get to realize any of your investment. So what this should tell the operator is that the investment would yield a poor return, an investment which will net him only a 13 percent rate of return before taxes will fall short of his target rate of return.

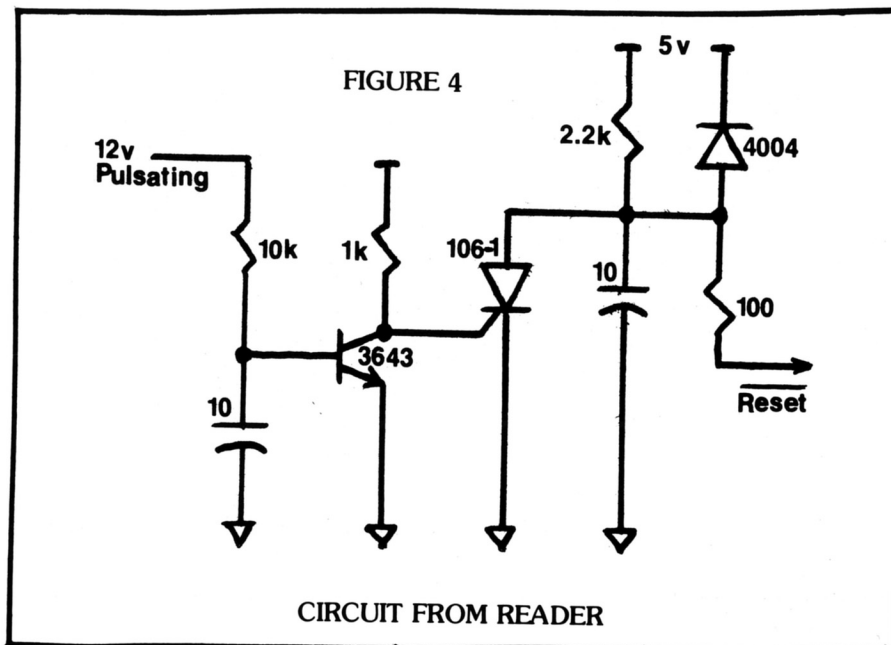
Remember, according to Dr. John Malone, you should be shooting for a rate of return of somewhere around thirty percent before taxes ("What's Your Return?", PM, June, P. 27).

Of course, each operator has to figure out exactly what his taxes would be; perhaps taxes wouldn't take that big a bite out of your return. But by considering the time value of money, you can determine beforehand what your return will be on a certain investment so that you can make sound cash planning decisions which will keep you in line with your target rate of return. Getting a good return on your investment, it turns out, doesn't come with luck. It comes with sound financial planning.

Table B
PRESENT VALUE OF \$1 RECEIVED ANNUALLY FOR N YEARS

Years (N)	1%	2%	4%	6%	8%	10%	12%	14%	15%	16%	18%	20%	22%	24%	25%	26%	28%	30%	35%	40%	45%	50%
1	0.990	0.980	0.962	0.943	0.926	0.909	0.893	0.877	0.870	0.862	0.847	0.833	0.820	0.806	0.800	0.794	0.781	0.769	0.741	0.714	0.690	0.667
2	1.970	1.942	1.886	1.833	1.783	1.736	1.690	1.647	1.626	1.605	1.566	1.528	1.492	1.457	1.440	1.424	1.392	1.361	1.289	1.224	1.165	1.111
3	2.941	2.884	2.775	2.673	2.577	2.487	2.402	2.322	2.283	2.246	2.174	2.106	2.042	1.981	1.952	1.923	1.868	1.816	1.696	1.589	1.493	1.407
4	3.902	3.808	3.630	3.465	3.312	3.170	3.037	2.914	2.855	2.798	2.690	2.589	2.494	2.404	2.362	2.320	2.241	2.166	1.997	1.849	1.720	1.605
5	4.853	4.713	4.452	4.212	3.993	3.791	3.605	3.433	3.352	3.274	3.127	2.991	2.864	2.745	2.689	2.635	2.532	2.437	2.220	2.035	1.876	1.737
6	5.795	5.601	5.242	4.917	4.623	4.355	4.111	3.889	3.784	3.685	3.498	3.326	3.167	3.020	2.951	2.885	2.759	2.643	2.385	2.168	1.983	1.824
7	6.728	6.472	6.002	5.582	5.206	4.868	4.564	4.288	4.160	4.039	3.812	3.605	3.416	3.242	3.161	3.083	2.937	2.802	2.508	2.263	2.057	1.883
8	7.652	7.325	6.733	6.210	5.747	5.335	4.968	4.639	4.487	4.344	4.078	3.837	3.619	3.421	3.329	3.241	3.076	2.925	2.598	2.331	2.108	1.922
9	8.566	8.162	7.435	6.802	6.247	5.759	5.328	4.946	4.772	4.607	4.303	4.031	3.786	3.566	3.463	3.366	3.184	3.019	2.665	2.379	2.144	1.948
10	9.471	8.983	8.111	7.360	6.710	6.145	5.650	5.216	5.019	4.833	4.494	4.192	3.923	3.682	3.571	3.465	3.269	3.092	2.715	2.414	2.168	1.965
11	10.368	9.787	8.760	7.887	7.139	6.495	5.937	5.453	5.234	5.029	4.656	4.327	4.035	3.776	3.656	3.544	3.335	3.147	2.752	2.438	2.185	1.977
12	11.255	10.575	9.385	8.384	7.536	6.814	6.194	5.660	5.421	5.197	4.793	4.439	4.127	3.851	3.725	3.606	3.387	3.190	2.779	2.456	2.196	1.985
13	12.134	11.343	9.986	8.853	7.904	7.103	6.424	5.842	5.583	5.342	4.910	4.533	4.203	3.912	3.780	3.656	3.427	3.223	2.799	2.468	2.204	1.990
14	13.004	12.106	10.563	9.295	8.244	7.367	6.628	6.002	5.724	5.468	5.008	4.611	4.265	3.962	3.824	3.695	3.459	3.249	2.814	2.477	2.210	1.993
15	13.865	12.849	11.118	9.712	8.559	7.606	6.811	6.142	5.847	5.575	5.092	4.675	4.315	4.001	3.859	3.726	3.483	3.268	2.825	2.484	2.214	1.995
16	14.718	13.578	11.652	10.106	8.851	7.824	6.974	6.265	5.954	5.669	5.162	4.730	4.357	4.033	3.887	3.751	3.503	3.283	2.834	2.489	2.216	1.997
17	15.562	14.292	12.166	10.477	9.122	8.022	7.120	6.373	6.047	5.749	5.222	4.775	4.391	4.059	3.910	3.771	3.518	3.295	2.840	2.492	2.218	1.998
18	16.398	14.992	12.659	10.828	9.372	8.201	7.250	6.467	6.128	5.818	5.273	4.812	4.419	4.080	3.928	3.786	3.529	3.304	2.844	2.494	2.219	1.999
19	17.226	15.678	13.134	11.158	9.604	8.365	7.366	6.550	6.198	5.877	5.316	4.844	4.442	4.097	3.942	3.799	3.539	3.311	2.848	2.496	2.220	1.999
20	18.046	16.351	13.590	11.470	9.818	8.514	7.469	6.623	6.259	5.929	5.353	4.870	4.460	4.110	3.954	3.808	3.546	3.316	2.850	2.497	2.221	1.999
21	18.857	17.011	14.029	11.764	10.017	8.649	7.562	6.687	6.312	5.973	5.384	4.891	4.476	4.121	3.963	3.816	3.551	3.320	2.852	2.498	2.221	2.000
22	19.660	17.658	14.451	12.042	10.201	8.772	7.645	6.743	6.359	6.011	5.410	4.909	4.488	4.130	3.970	3.822	3.556	3.323	2.853	2.498	2.222	2.000
23	20.456	18.292	14.857	12.303	10.371	8.883	7.718	6.792	6.399	6.044	5.432	4.925	4.499	4.137	3.976	3.827	3.559	3.325	2.854	2.499	2.222	2.000
24	21.243	18.914	15.247	12.550	10.529	8.985	7.784	6.835	6.434	6.073	5.451	4.937	4.507	4.143	3.981	3.831	3.562	3.327	2.855	2.499	2.222	2.000
25	22.023	19.523	15.622	12.783	10.675	9.077	7.843	6.873	6.464	6.097	5.467	4.948	4.514	4.147	3.985	3.834	3.564	3.329	2.856	2.499	2.222	2.000
26	22.795	20.121	15.983	13.003	10.810	9.161	7.896	6.906	6.491	6.118	5.480	4.956	4.520	4.151	3.988	3.837	3.566	3.330	2.856	2.500	2.222	2.000
27	23.560	20.707	16.330	13.211	10.935	9.237	7.943	6.935	6.514	6.136	5.492	4.964	4.524	4.154	3.990	3.839	3.567	3.331	2.856	2.500	2.222	2.000
28	24.316	21.281	16.663	13.406	11.051	9.307	7.984	6.961	6.534	6.152	5.502	4.970	4.528	4.157	3.992	3.840	3.568	3.331	2.857	2.500	2.222	2.000
29	25.066	21.844	16.984	13.591	11.158	9.370	8.022	6.983	6.551	6.166	5.510	4.975	4.531	4.159	3.994	3.841	3.569	3.332	2.857	2.500	2.222	2.000
30	25.808	22.396	17.292	13.765	11.258	9.427	8.055	7.003	6.566	6.177	5.517	4.979	4.534	4.160	3.995	3.842	3.569	3.332	2.857	2.500	2.222	2.000
40	32.835	27.355	19.793	15.046	11.925	9.779	8.244	7.105	6.642	6.234	5.548	4.997	4.544	4.166	3.999	3.846	3.571	3.333	2.857	2.500	2.222	2.000
50	39.196	31.424	21.482	15.762	12.234	9.915	8.304	7.133	6.661	6.246	5.554	4.999	4.545	4.167	4.000	3.846	3.571	3.333	2.857	2.500	2.222	2.000

More Power, More Parts



The power-on reset circuit you proposed in "Technical Topics" January, 1978, does not protect the game from players obtaining free plays by disconnecting-connecting the power cord very quickly.

The reason is the same that makes the original power-on reset system fail: the discharge of the 10 Mf capacitor takes place through the reverse biased diode that becomes forward biased when power is interrupted, permitting the discharge through the five-volt supply. The five-volt supply, takes almost a quarter of a second to fade out, and the 10 Mf cap. cannot discharge faster than that. So when the player quickly reconnects power, and the 10 Mf cap. is still half charged, there will be no reset pulse, and a free game might be obtained.

The enclosed circuit discharges the original 10 Mf cap. with the aid of a thyristor whose gate is held at near-ground potential by Q1, as long as we have 12 volt pulsating in the system. A few milliseconds after power is missing, Q1 is cut-off and

Q2 discharges the 10 Mf cap. immediately, so when power is again connected, the proper reset pulse appears in the system (Q2 latching current should be 5 MA or greater).

The "Technical Topics" section is excellent. Keep up the good job.

Jorge L. Mochkovsky
Argentina

You're right about your circuit giving you more protection against short duration power interruptions. Generally, the more elaborate your circuit, the more protection you have against power failure problems.

Here are a few more configurations which I have never "plug-unplug" defeated.

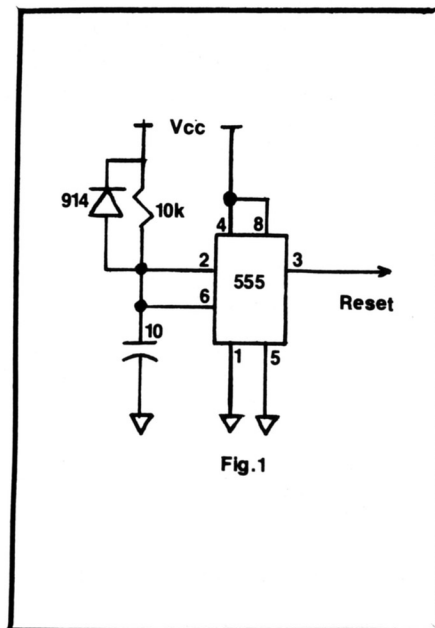
Figure One is my favorite power-on reset circuit. It employs a 555 timer used as a one-shot. Because of the nature of the 555, whenever Vcc drops much below five volts, its output (pin 3) goes high (reset).

When power is restored, the

10 Mf capacitor starts to charge through the 10 k OHM resistor. When the capacitor charges to two-thirds Vcc, the timer triggers and pin 3 goes low. Therefore, this circuit produces a high going reset pulse whose duration is controlled by C1 and R1.

As another safety measure, a diode is added across the resistor. This quickly takes off some of the charge on C1. Note: in this circuit it is not necessary to discharge C1 completely to achieve a reset pulse. In fact, if this is used in a 5 volt system, taking a very small amount of charge off C1 generates the reset.

If pre-rectified AC is available on your PCB, you can easily assemble another fast-acting reset pulse. This is because AC drops out within a cycle or two. Figure Two is an example employing a Reed-relay. The Reed relay shown has a normally closed contact. While AC is present the relay contacts are open and the capacitor is charged. When AC drops out, the contacts close and discharge the capacitor. Reapplying the AC causes the capacitor to



By Robin Minnear

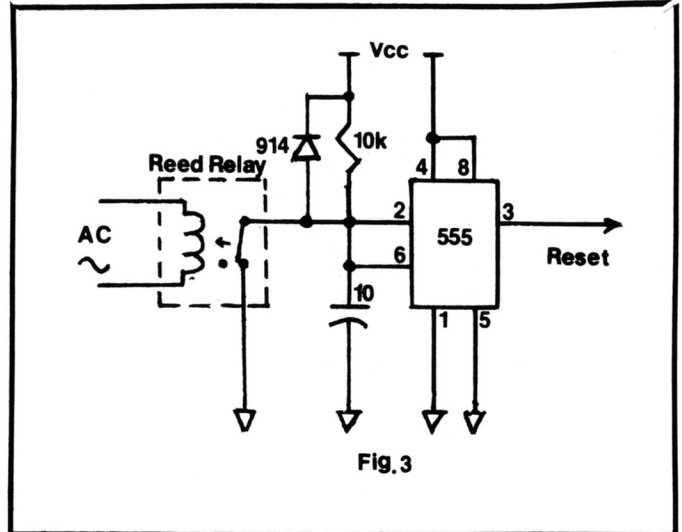
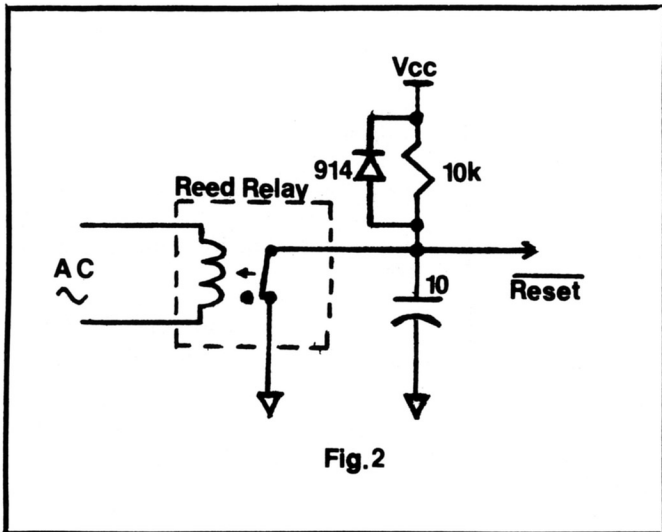
The Game Doctor

charge slowly (speed is determined by the value of the capacitor and resistor) to Vcc. Therefore, this is a low going reset pulse.

Figure Three is a combination of the two previous circuits. This time the Reed relay discharges the timing capacitor of the 555 causing the

reset. This has the added advantage of controlled reset pulse duration.

Figure 4—Aw, come on. Enough is enough.



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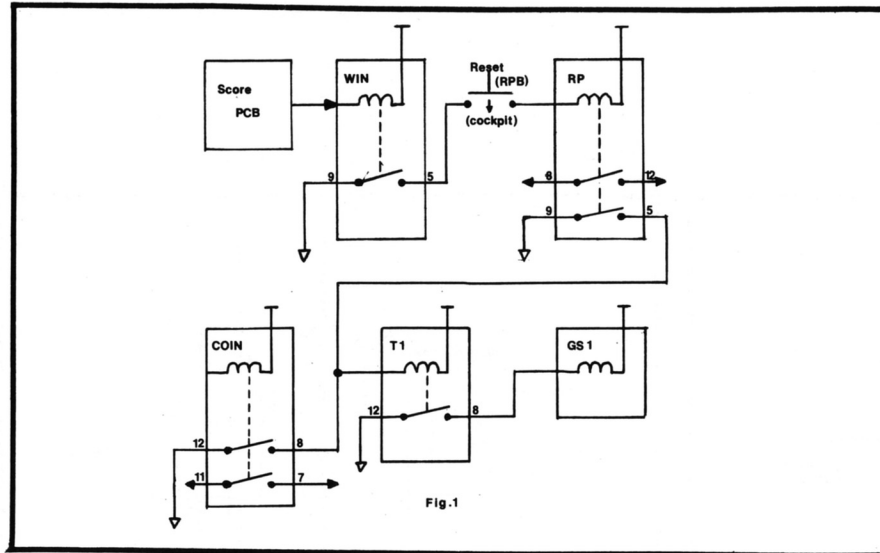
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An A-1 F-1 Modification



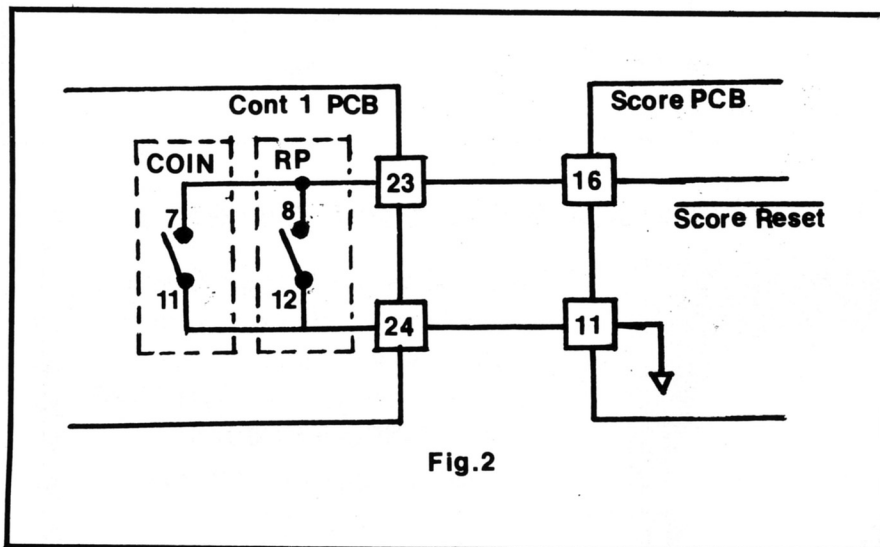
I was wondering about the possibilities of making some modifications to Atari's F-1 game.

The machine comes from the factory set up for free play which is awarded for a score of 3,000 points. The start button is used to activate only the replay.

Our machine is set to operate on 50-cents. When the second quarter is inserted, the machine starts automatically.

I would like the game altered to award extended play so high scores can be received. Also, I would like the start button to actually start the game.

Kenneth F. McKinney
Wichita Falls, Texas



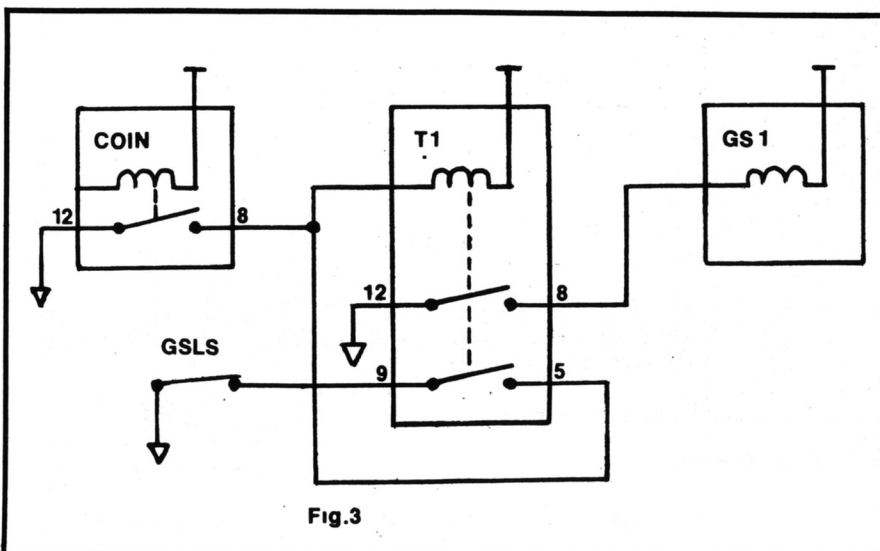
Whether F-1 is set on one coin or two coins, the game is designed to start automatically when the proper coins are inserted. The button you called "start" is actually labeled "reset push button" (RPB) on the schematic. Its function is to energize the "replay" relay (RP) only when a free-game has been achieved (Figure One).

The "replay" relay then energizes the "timer" relay and also resets the score to zero. The timer relay (T1) energizes the "game start" relay (GS1) and the game begins.

To achieve the "bonus time" effect, you must first make the game continue without stopping when the regulation time is up.

To do this, you must cut the wires going to the reset push button (RPB) close to the switch itself and solder them together. This will make the replay start immediately after the game stops. By performing this near the switch instead of a jumper on the "Cont. 1" PC Board, you will not cheat a player out of his or her replay, should another PCB be substituted.

Now you must stop the score from resetting when the bonus time starts. The score is reset by a set of contacts on the "coin" relay and contacts on the "replay" relay (Figure Two). By disabling the contacts on the replay relay (pins 8 and 12), the reset pulse will not reach the score PCB. You can easily do this by opening up the replay relay and taping the contacts so they won't make. Now the game continues after regulation time and the score does not reset.



By Robin Minnear

The Game Doctor

To add a functional start switch to F-1 is a little tricky but physically simple to do. This modification also involves the "Cont.1" PCB. The existing start circuit is shown in part in Figure Three.

When the "coin" relay is energized, pin 8 of the "coin" relay is pulled to ground. This pulse energizes the "timer" relay (T1). The energized timer relay causes its pin 8 to also go to ground. This energizes the game start relay, and the game begins. Therefore, pins 8 and 12 of the timer relay constitute the switch that physically starts the game sequence.

If you disable the contacts that are connected to pins 8 and 12 of the "timer" relay, the game will not start automatically. But the coins have been registered because the "timer" relay is held in the energized position through hold in contacts 5 and 9 of the "timer" relay and the "game start limit switch" (GSLS).

If you put a push button switch (the now unused reset switch) across pins 8 and 12 of the timer relay, you can start the game at your leisure. But you would soon find that you can start the game without putting in money. Hum???

Instead, try putting the switch across pins 5 and 8 of the timer relay (Figure Three).

Pin 5 of the timer relay is pulled to ground and held there when credit is registered. Pin 5 leaves ground shortly after the game begins as the GSLS opens and the timer relay turns off. The best way to do this is to run two wires from the unused reset switch to the "Cont.1" PCB and install a two conductor connector near the PCB so it can be removed without unsoldering. It is also a good idea to label the "Cont.1" PCB stating it has been modified to award extended play.

You will find the Atari Service Manual is very helpful in locating the described areas.

SPECIAL NOTE: When I performed this modification, I discovered that you had to hold the start switch (formerly the replay reset switch—RPB) down for a short period of time before the game locked in the play sequence. To remedy this, I readjusted the game-start limit switch (GSLS) which is located next to the Score PCB behind the front display panel.

Update in Atari's Interchangeability Chart

Editor's Note: This is a reprint from our June 30, 1978 Update Edition. It deals with the interchangeability of other pinball manufacturers' coils with Atari devices.

This information is based on current games from the manufacturers; so it is possible there may be other coils from older equipment that would work. However, without adequate testing on a particular part, Atari cannot recommend random replacement.

It is important that all the footnotes be read and heeded.

On all coils listed below (except Bally coil #AQ-25-500/34-5050) diodes must be replaced with 1N4005 diodes before installing these coils in Atari machines. Before removing coil from Atari machine identify harness wire connected to coil terminal on the striped (cathode) end of diode. Connect this wire to similar terminal on replacement coil.

INTERCHANGEABILITY CHART WITH ATARI DEVICES

ATARI DEVICE	MANUFACTURER / Part Number			
	GOTTLIEB	BALLY	STERN	WILLIAMS
Flipper†	***	AQ-25-500/ 34-5050 #	***	***
Sling Shot	A-5195	AN-26-1200	J-25-1050	G-25-1100
Thumper Bumper	A-5195‡	AN-26-1200 ‡	J-25-1050	G-25-1100
Drop Target	***	***	J-25-1050	G-25-1100

Not necessary to replace diodes, but the coil is wound opposite therefore when installing it in Atari machine swap the harness wires going to the two outer terminals of the coil. May not be used for an extended period because it is likely to shorten life of the flipper button switch

† Interchange only with Atari part no. A020470-01 (Orange wrapper) coil. DO NOT REPLACE the retrofit flipper coil (Red wrapper) Atari part no. A020498-01 with any other coil

‡ Thumper Bumper action will be noticeably weak

***DO NOT USE—Tested and found unacceptable for use in Atari machines



Florida sun . . .

Going down south to the land of sun was an enlightenment this time around as I visited my parents for their anniversary as well as Father's Day. The surprise was not just that my folks have assimilated to living in Florida versus Chicago, but that this part of the country, which had been virtually dormant regarding arcade and game room growth, has suddenly begun a transformation. There were some new places around the Ft. Lauderdale area that were more than just promising. And above and beyond the exterior cosmetics, the games were new and in working order (a far different story than was the case around Thanksgiving when I last visited).

Some things however, were disturbing, such as the Aladdin's Castle in Lauderhill Mall where the machines featured slow and inconsistent action due to an overabundance of rubbers. How about a flipper that not only has its own rubber but also an additional one wrapped around a bit lower on the flipper? The result? Rather than more power, the effect was to make the action sluggish at best.

If that wasn't enough, the bottom kickers on such games as *Mata Hari*, *Black Jack*, etc. featured not only one normal rubber, but an array of up to five. Why? There's no purpose to it and lessens incredibly the play of the game. Something should be done to rectify the situation, because if you choose to travel only a few miles away to Nathans at the Gateway center, the same games are on display and working in perfect order.

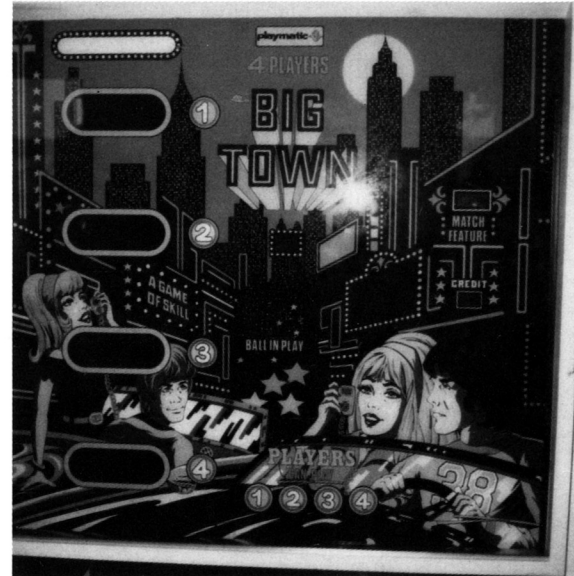
The lesson should be clear: if there's a fault to the play of the game, be very careful in how you try to modify it. Sometimes, you can do more harm than good and turn a decent game into something that isn't going to return your investment.

But all wasn't bad news as I indicated earlier. I saw some operations that truly impressed me and reminded me of some of the finer

efforts I saw in California some years ago. One was a place called "The Castle" which sits off of I-95 at the foot of the Ft. Lauderdale airport. Picture a boldly lit miniature golf course, a giant Water Flume, which seems to be to Florida what skateboards are to the West Coast, and an arcade that rivaled the castle in Sherman Oaks, California. The place was packed as I visited it with my lady and began to assail the pinball machines to see how they were playing (pretty well) and how they were set (one play, five-ball seemed to be the rule). Add to a brilliant array of pins, a total complement of video games, air hockey tables, and food, drink, and a gift shop and you get an idea of the size of the operation. A great, great place that caters to all ages and types.

Move to another part of Ft. Lauderdale, again off of I-95, and one finds the Indy 500 go-kart speedway arcade, which was a nice alternative combining outside and indoors recreation. Their machines were fairly new and also in good working order. Next, was a place at the foot of the Interstate in North Miami, a game room that sparkled with its newness and offered new equipment to boot in a setting that may be the trend—no smoking, drinking, or eating. And once again a miniature golf course supplied the exterior cosmetics.

Unfortunately, due to lack of time, but not effort I didn't make it to a whole slew of other places to see how they were holding up. Diversions or Dimensions on Federal Highway up near Delray Beach (I can't remember the name) was still going strong with its foosball and pinball layout, and the arcade by the sea in Ft. Lauderdale was showing brand new equipment, while Capt. Kidd's had finally reopened after a long rest period, although the latter was lacking in the games they had. But all in all, things looked great this time around for Florida and showed



Playmatic's *BIG TOWN*

and flipper fun

that things were indeed progressing and not stagnating. Hopefully, it will continue.

But enough of my Florida adventure. The games in the news are varied and a brief visit to Chicago to the CES show offered an opportunity to test the waters of some games that are going to be making the news in the not too distant future.

I encountered one machine that left me excited for its potential on many different levels above and beyond what the playfield had to offer. I got the *fever* (Saturday Night type) from another game that is really flipped out. Came in *contact* with another that really impressed me. And *treked* before another that's going to be a winner, as well as game after game that kept on looking better. Time will tell, but the big four in Chicago are doing some great things and with a push from California, Florida, and Spain—the end of summer, fall, and winter should prove very interesting as everyone jockeys for position in the marketplace.

This time around five games are in the spotlight that have tapped some old ideas, new themes, and a bit of everything to capture the business of pinball seekers the land over.

Playmatic's BIG TOWN

After many months of anticipation, and finally through the efforts of Barry Feinblatt this past weekend, I got the opportunity to play this newest four-player from Spain. In many respects, it was worth the wait since the game is pretty damn good.

PLAYFIELD: Using a playfield opening they had some success with on *Rio* and *Carnival*, Playmatic once again goes to the center of the field plunger shot thus opening up the top of the field for a few more angles and skill shots. At top left are two lanes (A&B), move a bit to the center and you'll find a mushroom bumper which is one of only two ways to gain out-hole bonus point build-ups. Move over a bit more to the right and

there's a Playmatic first—a bank of drop targets fashioned after the finest in the business—Gottlieb's. There are five in this top bank, C-C a diamond D-D. Behind this set-up is a rollover lane worth a step up of two out-hole bonus values. And, finally, move over a bit more to the right and snugly set in is a kick-out hole with varying values of anywhere from 500 to 5000 to 10000 to 30000 to Extra Ball lit feature.

Next on the field at the left and further down is yet another bank of drop targets (A-A a diamond B-B) and a lane sweep behind this with a top left flipper fronting the entire configuration. The center is pretty much a wide open affair except for two small rollover buttons that control the bumper and when it's lit. That one lonely bumper by the way, with the distinctive Playmatic rectangular cap fronts a small post and rollover sweep at the right just below the plunger shot opening.

The bottom offers a mix and match with a kicker and flipper left side and a Gottlieb borrowed C&D lane with post and flipper set at the right. Off balance with much on the left and a bit to the right of center, *Big Town* offers much as well as a 2X and 3X bonus potential.

ANALYSIS: Much of the play on *Big Town* is tied into the beginning plunger shot—not enough velocity will kill you and too much may not get the action you really want. The A&B lanes seem to be the prime targets from this vantage point, with a nice roll down into the interior lane just behind the bottom drop target bank and top left flipper. Cupping can be done from this flipper with a nice spray shot that can get not only top drop targets but even a few from this bottom bank. And if either bank is dropped it's double bonus, with both being dropped gaining the triple bonus.

However, one of the biggest obstacles to this game isn't on the field so much as it is the nature of any Spanish game—the playfield slope is



Bally's BLACK JACK

deadly for the average player. This can be lessened, although most will want to keep it steep to insure fast play and a faster turnaround time. The action is pure and simple as well as being fairly direct from the flippers, with the drop targets being the main accent, and the building up of bonus points offering yet another focal point. And tied into the drop targets as well as the A, B, C & D lanes is the chance to light up big point values on the field. 10000 points here and 30000 points there. Specials can be gained from the drop targets as well as out the right hand side, while the kick-out hole at the top right and the bottom left side out lane control the extra ball feature.

Look for players to work the flippers to get at the drop targets first and if there is some difficulty to get to the top bank you might just consider lowering the back legs in order to reduce the incline of the field. This is especially true since the flippers are a must if anyone is to get anything on this game. With the thumper bumper being placed down so far any rebound action is minimally effective in the long run.

GRAPHICS: Deep blues and the hint of the *big apple* are the theme of *Big Town*, while reds predominate on the playfield. But it is the big city that gets the play graphically here with a far less impressive treatment than was the case on *Space Gambler*. But the effect is still there although somewhat subdued, CB radios and all. It's nice, just not striking compared to some of the other efforts in the market place.

PLAY: *Big Town* has drop targets in its favor, good ones to boot, and scoring possibilities that may make this game as effective on five-ball as it is on three-ball. Either way you don't lose too much in the translation only because out-hole bonus is such a task to accumulate. Scoring is either going to be very high or very low depending upon a player's proficiency, but even more so than it is on other games. Try a limit of 250,000 to start, 400,000 and 600,000 points for a spread when it comes to free play. With add-a-ball lower these to about 100,000 points on each for a pretty fair margin for most players.

RATING: ##3/4

Bally's BLACK JACK

This new four-player effort from Bally features memory and recall that was so successful on *Eight Ball*, but that's about it in a game whose concept harkens back to an old Williams' machine—*Lucky Lady*.

PLAYFIELD: Four lanes start the action and are appropriately labeled clubs, diamonds, spades, and hearts.

Move over to the right side and a lane with kick-out is in evidence which controls the capturing of a bonus multiplier that advances from 2X to 3X to 5X to extra ball to special. A slight opening is at the left of this for access from the triangular thumper bumper configuration which butts two targets (red at left and yellow at right).

Further down on the playfield at the left is a spinner and two more targets (red and yellow again). Then it's on to the Gottlieb bottom which finishes off the layout of the game.

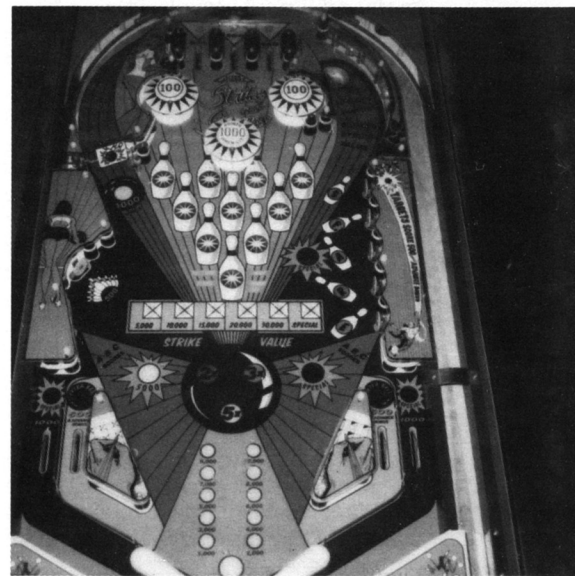
ANALYSIS: *Black Jack* on the surface looks like it has a winning concept, unfortunately, it doesn't work any better this time around than it did when Williams tried it. Although here the player has more of a chance to "beat the dealer" which is the premise of the whole game. Everything, from the top lanes to the targets and spinner is tied into the counter at the middle of the playfield where you or the dealer can get anything from 17 to 21. Pushes count as winners for the player although the only way to capitalize on it is to land in the kick-out hole at the right time, and that's the bitch of the less than skilled player. Because this is a skill machine where timing is everything as is control of the action.

And where this may be the strength of the game, it's also the weakness of the design since most players just can't gauge their shots in such a way as to maximize any given play. However, for the home, this machine would be a dream since it is such a difficult game to beat and would provide many, many hours of frustrating joy where no money would have to be spent play after play.

But, alas, we're talking about the commercial possibilities for *Black Jack*.

GRAPHICS: The snap and pizzazz of previous Bally games is lacking here, as is color coordination since this isn't a home-grown effort. Instead, one is assaulted with reds, blues, yellows, oranges, greens, and a bit of everything that almost works to the advantage of the game in a rather strong statement versus other company models. But one does sense that this machine was really a throwaway, which is too bad since, as I said before, it would be great for the home.

PLAY: On first playing *Black Jack*, I thought the scoring would be relatively low, but this hasn't necessarily been the case out in the field. Still in all for three ball play, which could just as easily withstand five-ball the game can sustain itself with a 250,000 points, 400,000 and 600,000 point limit for free play and



Bally's STRIKES AND SPARES

a 180,000 point, 360,000 and 500,000 point scale for extra ball territories.

RATING: ##

Bally's STRIKES AND SPARES

How about a bowling theme for a memory-based pinball machine?

Well, that's what you'll find on this four-player which offers a little bit of everything from targets to rollovers to spinner to big bonus multiplier.

PLAYFIELD: A three lane set-up starts off the action (A-C-B) with the middle lane when lit controlling the strike build-up and extra point values denoted at the middle of the playfield. Just below this set are three thumper bumpers which are placed in such a way to allow some good nudging and rebound possibilities. The right side is a wide lane with a ridged kick-out hole, while at the left is the proverbial and seemingly everpresent spinner. Move to the center and picture a set of pins in bowling, then transpose it to rollovers much the same way as Williams did in *Triple Strike* a few years back.

At the right, at a steep angle are five targets (S-P-A-R-E) with another target recessed at the left side. The bottom is a Gottlieb matter with the inner lanes holding out extra ball play when lit and the outer lanes offering specials when lit.

ANALYSIS: With its memory *Strikes and Spares* builds up the action from ball to ball where getting out A-C-B once will mean 2X bonus, twice means 3X bonus and three times means 5X bonus; neatly carried through from ball to ball. So if you manage this feat on the first ball, for the rest of the game any out-hole bonus points will be multiplied by 5X value—which isn't too shabby. The center lane also controls strikes which are also tied into the kick-out hole at the right and can mean 5000 points all the way to 30000 points and a special every time you land in the hole. Also tied into the special is the side targets and finally the rollovers for a game filled with strikes and spares and a multitude of points.

Maybe the best part of the continuation of play on *Strikes and Spares* is that the last ball suspense does hold out the hope for big ball totals and a chance to beat the game on one ball, although what you've done previously goes a long way to say how far you ultimately can go. But the nice thing about this machine is that you can have 5X bonus for the total game once you've gotten it. And that doesn't mean that any part of the game is dead, it's all alive and very worthwhile with the top lanes also holding out the promise for specials.

GRAPHICS: Gratuitous sexuality is something that pinball doesn't need for its image. And unfortunately, *Strikes and Spares* is a game that shows how far someone can go in the wrong direction just because the new way seems to encourage buxomy girls. On *Mata Hari* one felt that the theme substantiated the

female form so elegantly draped at the foot of the backglass. Here, we're faced with a sexy young thing in crotch-tight hot pants and a white hugging tube top. Oh, she is holding onto a bowling ball, but there really is no purpose to it (although I wouldn't mind meeting the girl responsible for this creative urge, I'm sure she could bowl me over) but this is really a sexist and chauvinistic use of the female form. Reds, yellows, oranges, it's all there and the back glass is striking and will gain attention. My only concern is that the attention is positive in nature.

PLAY: *Strikes and Spares* is a good three-ball machine where the memory is going to go a long way to keep the action alive and the scoring possibilities high. Point totals and levels however should reflect the degree of difficulty in accomplishing too much on the first ball. For free play areas, a good standard should be 250,000 points, 400,000 and 600,000 point limits. Extra ball areas can lower this by 100,000 points for each level in order to give players a chance.

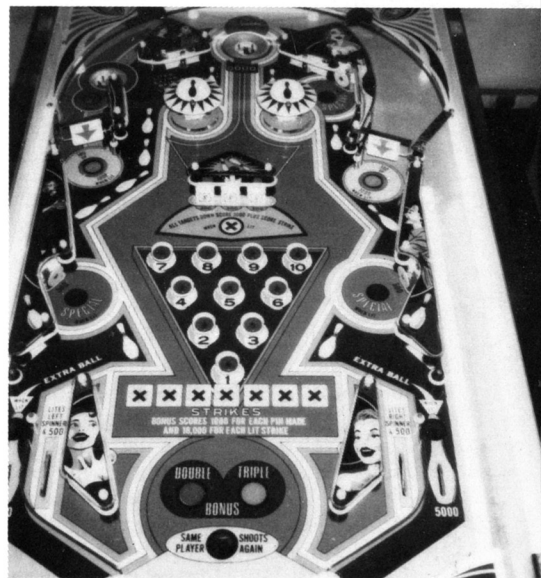
RATING: ###

Stern's MEMORY LANE

So you say you like bowling themes in your pinball machines. You say you want one with a memory built in. Well, my friends, here is yet another effort and this one from those wonderful folks who brought you *Pinball*, *Stingray*, and *Stars*. Well, now Stern goes to the battle with its first really and truly symmetrical game that just happens to be tied into something similar to the last machine reviewed (And to think that Steve Kordek just scratched his own bowling game; all we need is one from Gottlieb and Atari to make the cycle complete). Anyway, on to *Memory Lane*.

PLAYFIELD: A saucer kick-out hole begins the proceedings and also controls 3X bonus once 2X has been reached. Also tied in to the top are the kickers and the on-again, off-again X light in the middle of the field. Move down a bit to the center and two thumper bumpers are in residence with a target at the right and a kick-out hole at the left in a short lane that controls 2X bonus value. Two spinners are also on the field at left and right in a return to some of the action on Williams games such as *Triple Action*, *Star Pool* and others.

The middle is the basis for this game and offers three drop targets which are tied into a seven strike maximum build-up just as long as the X is lit just in front of the targets. Another strike tie in is the rollover



Stern's MEMORY LANE

buttons shaped just like the old bowling pins we've all come to know and love. Add two targets, one on each side and a Gottlieb bottom complete with two rubber ringed posts just above the wire and you have the simplistically difficult layout of *Memory Lane*.

ANALYSIS: This four-player is infinitely easier than Bally's bowling game, and thus may garner a fairly large portion of the pinball playing and paying public this summer. The concept is simple and to the point, with the drop targets and rollovers controlling everything from ball to ball. Each strike is worth 10,000 points and each rollover 1000 points, so that the playfield on this Stern game with maximum points has finally caught up with the real world and supplies far greater totals than was possible on the successful *Stars*. What is good here is that Stern has gone back to good, solid pinball basics in design and has taken advantage of the fact that most players are center oriented.

GRAPHICS: Give Stern a welcome to the world of mirrored back glass graphics in this theme that captures the Grease rage, complete with vintage T-Bird. I think it's great art for the game and a definite step ahead for Stern. *Memory Lane* is memorable and the artwork only adds to the total effect of a nostalgic craze that hasn't even come close to peaking.

PLAY: For an extra ball territory, *Memory Lane* can live with a 150,000 first level and a following 300,000 points and 550,000 top. Definitely three-ball play is in order and if you're dealing with free play, try a 300,000 first level and follow it with 550,000 and 800,000 points.

RATING: ###1/2

Gottlieb's JOKER POKER

Last, but certainly not least this time around, is the newest Gottlieb solid-state four player (although the game is also available in an EM version sans the 5X bonus). It's all cards and drop targets; two proven commodities from this North Lake manufacturer.

PLAYFIELD: The action begins with a three lane set up that's just to the right of center (A-B-C). Just below is a thumper bumper and target and lane combination that offers specials and extra balls when lit. Move to the top left and the first bank of drop targets faces you (four aces and a joker). Down a bit on this side is the second thumper bumper and also a surprise—a small flipper controlled by the right flipper button.

The middle of the field offers six drop targets at a slight angle with the ten alone at the left, two jacks together at the left of center and three queens just to the right of center. Farther down and at the right are the last bank of drop targets (four kings) and a rather enlarged Gottlieb bottom with rubber ringed posts

flanking the outside lanes.

ANALYSIS: *Joker Poker* offers a subtle chance for the drop target fiend in all of us. Just keep hitting away to fill in the board much the same way as was the case on *Royal Flush*. But the nice touch is that once you finish any drop target set, ten, jacks, queens, kings or aces, each drop target is then worth 5000 points for that set. Add in a step up for the 5X bonus that jumps from the ten on the first ball to the queens and aces for three-ball play while a single step up on five-ball play and the actual scoring potential becomes fairly rapid. To get the 5X, just hit out what's indicated when the ball is first in play. Complete all the banks and then just keep hitting targets and watch the points accumulate, with an out-hole bonus value being 75,000 points, although this isn't a true indication of the glut of points you can get.

The nice touch is the small top flipper for getting the ball back up to the top lanes or pointing it in the direction of the aces and joker drop targets.

Joker Poker will prove to be no exception and follows closely on the heels of a real winner—*Sinbad*. So watch out for this game.

The good shots are there from both sides of the flippers and the real pinball aficionado will love the play back up to the top and to the sides, with a less than balanced bottom set of kickers.

GRAPHICS: Should they be called "jokerettes?" Well, the Gottlieb lady on the backglass art isn't the most revealing and voluptuous in the world, but she is cute in this fantasy of colored smoke and playing cards. Blues, reds, yellows and a touch that is pixish to say the least. It may not be as striking as an *Eye of the Tiger*, but it is workable for summertime fun.

PLAY: *Joker Poker* has the potential to be a higher scoring game than *Sinbad* or so it seems from the play I've witnessed and partaken in in various locations. For three-ball play or five-ball the game works, although here I do prefer the five-ball game only because of the 5X potential built-ups and the steps it takes from the ten up to the aces on the last ball. Try the following for extra ball areas with 150,000 being a good start and 300,000 fair for the next level, with 450,000 for the final limit. In free play you may want to be a bit stricter and start it at 200,000 points following this with 400,000 and 600,000 points. See what the traffic will bear and how well your players are doing with the game, then gauge it from there.

RATING: ###3/4



Gottlieb's JOKER POKER

And so July comes to a rapid end even before it begins. Five games that will be making the cash box ring with joy and a look at Florida. Not too bad for this time around. Next month the corner will set its sight on yet another Gottlieb effort, *Hit the Deck*, *Recel's Fair Fight*, *Interflip's Alaska* and a whole lot more. So stay tuned.

Keep rooting for the Chicago White Sox and Cubs, who knows this could be the year. Enjoy your summer season and keep your games in top working order. Ask your players how they feel about the machines. And just be sensitive to what they have to say. And until next time, take care...be well, and, or course, prosper.

ON THE MOVE...

Coin Acceptors promotes Johnson

William M. Johnson has been appointed national sales manager, a new position, by Coin Acceptors, Inc., it was announced by James Douglass, vice president-marketing.

Based at the company's St. Louis headquarters, Johnson will oversee the company's national and international service operations, as well as the training of Coinco service personnel. He will also help customers solve technical problems with Coinco electronic equipment. Coin Acceptors, Inc., manufacturing under the trade name "Coinco," is a producer of electronic and mechanical coin mechanisms.

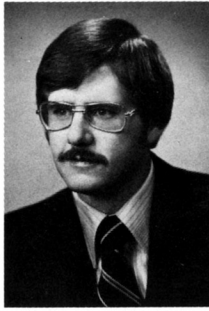
Johnson joined the HR Electronics division of Coin Acceptors as an engineer in 1969. He was transferred to Coinco's engineering division in 1974, serving there as a field service engineer until his recent promotion.

Babb named controller

Russell Babb, a 16-year veteran in the coin-op industry, has been named to the controller post of The Seeburg Corporation.

Babb formerly held the same position with Williams Electronics, Chicago, from 1962 to 1978, and with The Wander Company from 1949 to 1962.

In making the announcement, Charles Metter, Seeburg president stated, "Babb's primary function will have its center in the area of financial planning and administration, an area in which we will rely heavily on his expertise and experience."



William Johnson



Russell Babb

Nicastro becomes treasurer

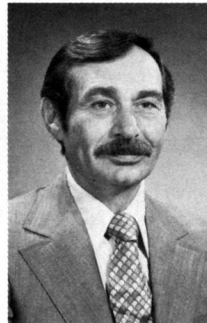
John Nicastro has been appointed treasurer of Seeburg Corporation, a Chicago-based phonograph and vending equipment manufacturer.

Nicastro has been affiliated with the Seeburg organizational family and with the coin operated industry during the past ten years. Prior to his Seeburg appointment, he was general manager for the firm's distributorship in Atlanta, Georgia.

He has also held the positions of vice president-treasurer of See-North Distributing, vice president of Seeburg Security Systems, and credit manager of See-West Distributing in Los Angeles.



John Nicastro



Harry Schwartz

Rowe picks Schwartz

Rowe International, Inc. has announced the appointment of Harry Schwartz to the post of director of market development for the company.

According to Merrill Krakauer, Rowe's President, Schwartz's main responsibilities will be analyzing marketing needs and formulating related equipment developments.

"I see this position as providing a central 'listening post' between the operating industry and our company," Krakauer stated.

Schwartz has more than twenty years experience in the vending industry. In addition to early experience with operating and managing his own vending organization he has held executive positions with ARA Services as director of capital assets and, later, as director of vending services. He had also previously been associated with RMI in varied engineering and market research programs.

Elkins advances with Empire

Charlie Elkins has been appointed vending sales manager at Empire Distributing's Chicago office.

Elkins has served in the coin machine business for 25 years, 15 as a serviceman for both independent and national vending companies. The last ten years he worked at Empire, Grand Rapids, as sales representative and assistant branch manager.

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Bally granted patent on its electronic flippers

Bally has been granted a patent on its electronic flipper pinball machines using a microprocessor. This type of electronic system is employed in all of the flipper-type pinball machines currently manufactured by Bally.

William T. O'Donnell, chairman of the board and president of Bally, said, "this patent grant is another confirmation of the company's technological leadership in the area of design and engineering of amusement equipment."

In 1977, Bally's revenues from sales of flipper-type pinball machines rose 90 percent to \$68.6 million compared to 1976 revenues from sales of flipper-type pinball machines of \$36.1 million. For the first quarter of 1978, Bally's flipper-type pinball machine revenues were \$23.5 million compared to \$9.5 million in last year's first quarter. Flipper-type pinball machines contributed approximately 28 percent to Bally's total 1977 revenues of \$244.98 million.

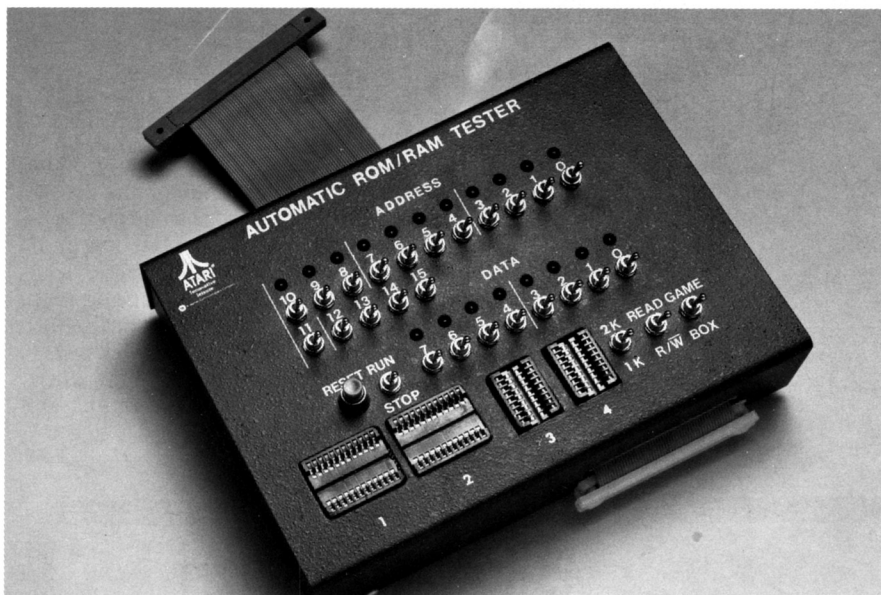
Atari schools

Atari's field staff will be conducting technical service schools in the cities listed below for the month of August.

It is recommended that operators in these areas either contact their local Atari distributor to confirm the dates and the space available or that they call Fred McCord at 1-800-538-6892.

The dates and places of the Atari schools are as follows: August 1-2 at Rowe in Kansas City; August 3-4 at Rowe in Denver; August 14 at Great Falls, Montana and August 16 in Salt Lake City (both the August 14 and 16 Atari service schools are being sponsored by Struve Distributing); week of August 28 at Rowe and Robert Jones in Syracuse. Robert Jones and Rowe will be sponsoring this school.

Atari develops portable test unit



Atari has developed the portable ROM/RAM test unit for simplified troubleshooting in the service shop or in the field. With this accessory, Atari says, technicians should be able to pinpoint problem areas on games.

The tester can be used on the majority of Atari's microprocessor

pinball and video games. Troubleshooting time can be saved since technicians can test the ROMs and RAMs on most PC boards in a few minutes. The tester will also test each function.

By plugging the testing unit into the microprocessor edge connector

after the microprocessor chip is removed, the technician will find that the unit simulates the functions of the chip while testing the game. Each function of the game can be checked separately.

The ROM, RAM, and PROM memory components on the majority of games are checked without removing them from the board. A ROM, RAM, or PROM that is working correctly can be plugged into the test unit and compared to the one on the board to determine any problems. A reference of address codes or "memory maps" is provided for each game to test the other functions of the game. As the switches on the tester are changed to the address of each function, that circuit is checked and any problems will appear either on the video screen, the playfield on a pinball, or on the test unit itself.

The ROM/RAM tester for technicians to test circuits and components is available through Atari distributors for under \$300. This unit supplements the self-test program and can be used, if the built-in test program is not operating.

Williams turns to sound innovations in pingames

With strains of the "William Tell Overture" announcing the start of each game, "Good Night Ladies" sounding the close, and Tchaikovsky's "1812 Overture" heralding the high score to date—Williams' latest four-player solid state flipper game represents several innovations in sound for the Chicago pinball manufacturer.

The result of nine months of intensive planning by Williams, *World Cup* features a unique dual electronic sounds system which lends itself to location versatility because of the game's emphasis on sound. One month of effort was concentrated on the software alone to develop the game's intricate sound system.

In a relatively quiet location, such as a theater or restaurant, melodious

chime-like notes can reward a player's accomplishments. In an arcade atmosphere, however, *World Cup*'s audio rewards for skillful playing may be set to provide attention-getting, futuristic sounds reminiscent of outer space adventures.

The sound system is largely due to the accomplishments of three men. Electronic engineers Paul Miller and Ken Fedesna were responsible for the hardware of the sounds system, and Randall R. Pfeiffer, system analyst, handled the programming.

Calling it a "way of producing sounds that had never been done before," Pfeiffer explains that in addition to the microprocessor that controls the mechanism of the game, a second independent microprocessor converts digital outputs to sound

waves.

"Notes with chime-like qualities are hardest to duplicate," Pfeiffer says. "We started out with at least 100 variations before we found eight that were pleasing to the ear. By the same process, many different combinations of squirts, burps, and gurgles were tried before we settled on the eight futuristic sounds we finally used."

Explaining that sounds are a "backup to a good playfield," Pfeiffer points out that they boost a player's "ego spirit" by rewarding major playing accomplishments such as getting extra balls or spelling the word "STAR."

"I view the sounds as an audio 'pat-on-the-back' for skillful maneuvering on the playfield," he says, "along with accumulating the score."

Elcon markets 'Six-Pack'

Elcon Industries of Royal Oak, Michigan is marketing a new video game kiosk called "Six Pack."

Included among the Six Pack (games selection) are the following games *High Jumpers*, *Video Bowl*, *Flipperball* by Cinematronics, *The Casino*, *Brickyard* by Ramtek, *Depth Charge* by Gremlin, and *Blockbuster* by Elcon.

Another important feature is that the whole game, with the exception of the 19-inch monitor and cash box, is easily mounted in the front door. It can be changed in minutes without removing the back part from the wall. This enables operators to change the games easily.

The Six Pack can be set up in one hour with wingnuts and can be placed around a column or post or can be free-standing. The Six Pack can also be used with two, three, or four modules against a wall.



Williams Electronics' president, Michael Stroll, meets with Kyle Rote Jr., the N.A.S.L. soccer star who has teamed up with Williams to promote the company's new flipper game, *World Cup*.

United Laboratories updates safety standards

Underwriters Laboratories Inc. (UL) has released the third edition of its "Standard for Safety for Vending and Amusement Machines" (UL-751).

This Standard is also recognized as an American National Standard.

The new requirements cover self-contained, coin-operated vending machines that vend non-refrigerated products and amusement machines to be employed in accordance with the National Electrical Code. Vending and amusement machines as covered by this Standard are intended for indoor use only, except that they will be investigated for outdoor use or use in a protected location if so designated by the manufacturer. Refrigerated sections of vending machines that vend a non-refrigerated product are judged under the requirements for refrigerated vending machines.

These requirements do not cover coin-operated or sound-recording and -reproducing machines or carnival rides.

Copies of UL-751 are now available from Underwriters Laboratories Inc. for \$3.50 per copy, or \$9 for the third edition and any future revisions that are made to the edition while it is in effect. A Catalog of all UL Standards is available without

charge. Order with prepayment should be sent to: Underwriters Laboratories, Inc., Attn: Publications Stock Dept., 333 Pfingsten Road, Northbrook, Illinois 60062.

Gottlieb develops Test Prom

D. Gottlieb and Company has developed an additional item of test equipment, the Test Prom, to aid in the troubleshooting of its solid-state pinball games.

The previously introduced Playboard Simulator, a tool for pinpointing defective circuit boards or wiring in a game, can now be used in conjunction with the newly developed Test Prom to permit individual circuit troubleshooting at the board level in a game.

A recently published Gottlieb service manual provides complete information regarding the use of the Test Prom, along with voltage and waveform references at various test points. All of these items are now available through Gottlieb distributors.

No more Suzo wish books

Suzo Trading has run out of its spare parts catalogues and will not have another edition ready for the industry until either the end of this year or else the beginning of next year.

In a letter from Leo J. Suverein, manager of the Rotterdam, Holland firm, those who requested catalogues but who did not receive them have been placed on Suzo's mailing list and will be sent a new catalogue and related material from the firm.

Suverein also writes that the next Suzo spare parts catalogue will include all electronic parts.

An outlet for spare parts for all kinds of amusement and gaming machines, Suzo recently released a new replacement kit for the A613-2 core-plug, listed under Stock Number K002.

Atari promo items

Now available are Atari's newest promotional items which have proved to be high in appeal to players. Handcrafted brass and leather belt buckles and jumbo Sheaffer "No-Nonsense" pens are excellent for a variety of creative promotions, or as an extra to sell in locations.

Atari game players will increase their enthusiasm when these promo items are awarded in tournaments or for high scores on games. These Atari specialty items can provide further incentive to players and added profits to operators as sales items in locations.

In addition, T-shirts with the *Middle Earth* and *Breakout* designs are still available. Attractive pinball posters are enclosed in each new game to be displayed in game locations. Additional posters for special promotions are available upon request.

Belt buckles, pens, and T-shirts can be ordered through Atari distributors for a minimal charge. Each item is of highest quality, practical, and sure to attract players and encourage Atari game play.



Andy Ducay (standing eighth from right) conducted a service school May 2 and 3 in Hanover, West Germany, covering the Seawolf II Z80 system and the new 25-inch color monitor. Fifteen technicians attended the school, as well as Stan Jarocki of Midway, Bernie Powers of Bally, and J.G. Deickhaus and Gunter Schneider of the Wulff Automaten distributorship.

Atlas Leisure puts new wrinkle in pool tables

A long-time industry veteran, Jack J. Mitnick, appears to have added a new wrinkle to one of the standard pieces on an operator's route, the pool table.

May 20 and 21 at the Eden Roc Hotel in Miami, Florida, he brought together 73 people representing distributorships all across the United States and unveiled before them a new type of pool table, Computer Pool.

The table, which is being marketed by Atlas Leisure Products of Hialeah, Florida, a newly-organized firm headed by Mitnick, is being manufactured by the Irving Kaye Company.

Specific applications for the table seem to be that it has possibilities to help operators go for fifty-cent play on their tables; and, because of the technical nature of the table, it may be a discouragement for locations which would otherwise consider buying their own tables.

The unveiling of the new table took place May 20 after a welcoming address to the 73 attendants. Afterwards, there was a demonstration of the game's play characteristics and, following that, a business meeting.

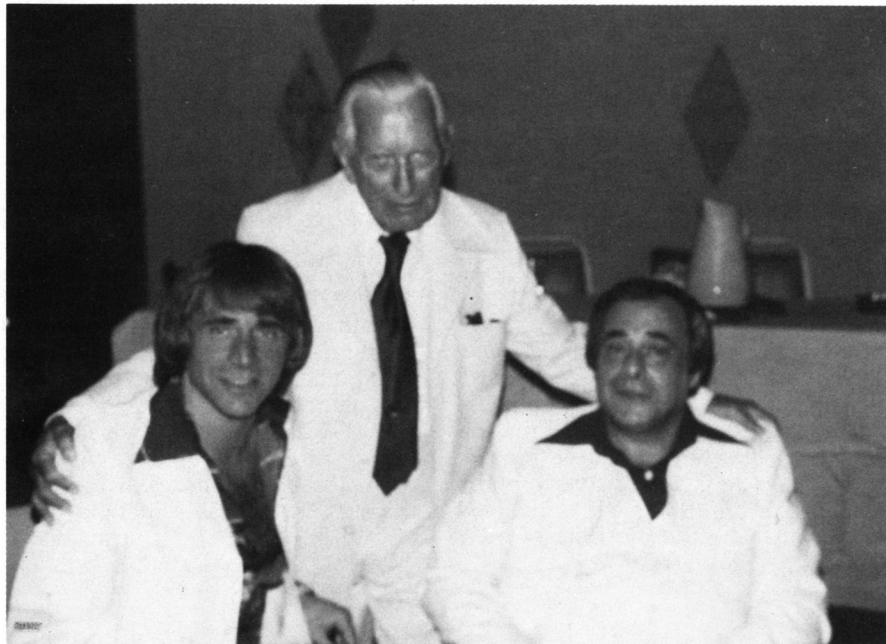
Following a night of entertainment and a full course dinner, the

distributors returned the next day for another business meeting and a long question-and-answer period.

Many operators expressed favorable comments about the Computer Pool

Table's applicability in the industry.

Mitnick's associate in this venture is Peter Budd, who has been an arcade operator in Canada for 25 years.



The hosts and representatives of Atlas Leisure Products at the Computer Pool Table unveiling in May included, from left, Stanley Budd, Jack J. Mitnick, and Peter Budd. Mitnick is a long-time veteran of the industry; and Peter Budd is an arcade operator in Canada.

Hurricane hits Big Apple

The \$5000 Hurricane Soccer Metropolitan New York City Championship took place June 2-4 at the Westchester County Center in White Plains, New York with the Ohio team of Jim Fernalla and Terry Jones fighting their way up through the losers' bracket to claim the \$500 first place money in the main event, the pro doubles competition.

Other events in the championship included competition in pro singles, mixed doubles, women's doubles, novice open doubles, novice singles, and rookie doubles.

Irving Kaye also sponsored a \$5000 July 4 Hurricane Soccer tournament at the Cannonsburg Ski Lodge in Cannonsburg, Michigan. That event was handled by tournament coordinator Jim Ferguson and sanctioned by the United States Players Table Soccer Association.

Foosball Facts

July 14-16

\$3,200 Louisville Open, M & M Louisville, Louisville, Kentucky, Sponsored by M & M Distributing, Inc. Table—Tournament Soccer

July 15-16

Fun Factory \$1,000, Fun Factory Arcade, Hot Springs, Arkansas, Co-sponsored by Godwin Distributing and Marks Vending Service. Table—Hurricane

July 21-23

M & M \$10,000 St. Louis Classic, Ramada Inn Fenton, Fenton, Missouri, Sponsored by M & M Distributing, Inc. and Tournament Soccer. Table—Tournament Soccer

July 28-30

\$5,000 Canadian Tour Kickoff,

Howard Johnson, Toronto, Sponsored by Tournament Soccer. Table—Tournament Soccer

August 4-6

\$2,500 Canadian Mini-Tour, Pallister Hotel, Calgary, Alberta, Sponsored by Tournament Soccer. Table—Tournament Soccer

August 11-13

\$2,500 Canadian Mini-Tour, Sheraton Plaza 500 West, Vancouver, Canada, Sponsored by Tournament Soccer. Table—Tournament Soccer

August 18-20

\$2,500 Canadian Mini-Tour, Regency Hotel, Edmonton, Alberta, Sponsored by Tournament Soccer. Table—Tournament Soccer

New pingame is entirely electronic

Bally has launched *Strikes & Spares*—the first Bally game in some time that does not feature a licensed personality, such as Bobby Orr or Elton John—with a Hollywood-style promotional effort developed and coordinated by New York's TRG Communications, Inc., a leading sales promotion agency.

Strikes & Spares is a generic pinball game, i.e., it offers a fast-action simulation of the action and scoring of one of America's most popular recreations, bowling. Unlike older types of pinball games, essentially electromechanical in operation, *Strikes & Spares* is entirely electronic, with a sophisticated, computer-type scoring system and flipper-type play made possible by microprocessor circuitry.

This space-age development, for which Bally was recently granted a U.S. patent, has played an important role in Bally's continuing growth in the pinball field. By Bally's own

estimate, electronic flipper-type machines contributed approximately 28 percent to the company's revenues last year of \$244.9 million.

The new Bally game is very much the product of integrated, in-house Bally capabilities in a number of design and manufacturing disciplines.

Electronic parts for *Strikes & Spares* are manufactured by Bally-owned Midway.

The game's principal artist and designer of backglass graphics was Kevin O'Conner. Paul Farris was art director and Norman Clark was executive design engineer. Playfield graphics director was Margaret Gray, and the design of the playfield for the new game was under the direction of Gary Gayton. Electronic design was Frank Bracha, manufacturing coordinator was Jim Barrett, and Chester Nytko was screening director.

Bally sponsors promotion

Bally Manufacturing unveiled its newest coin-operated pinball machine *Strikes & Spares*, June 27 in Chicago, with a full-scale send-off that included a radio sweepstakes promotion, a charity pinball tournament for local residents, and a cocktail reception "premiere" for city officials and dignitaries.

The two-week *Strikes & Spares* sweepstakes, which began June 14, involved three dozen bowling alleys under the auspices of the Chicago-Land Bowling Proprietors Association and was promoted by a local radio station.

The semi-finals took place June 20 and the finals June 27 at the Haymakers club in Wheeling, Illinois.

The first evening of competitive tournament play featured the new game and brought together approximately 100 contestants, with the top fifty players moving on to the tournament finals June 27.

Prizes included 25 AMF bowling balls and bags, 100 Hilton bowling shirts, 25 one-year subscriptions to "Bowling Journal," 50 Don Carter bowling gloves, 50 copies of "Winning Bowling" by Earl Anthony, and 300 copies of a poster-size version of the new Bally game's "backglass."

The sweepstakes and the tournament was promoted extensively with a heavy schedule of over 200 commercial spots on WLUP-FM, during the June 14-27 period. A supporting print advertising schedule ran in the Chicago Tribune and suburban publications such as Near North News, North Loop News and Readers.

Each of the two tournament finalists with the highest scores got one of the event's two Grand Prizes: the *Strikes & Spares* pinball machines used in the tournament, plus a winner's citation. Third-, fourth-, and fifth-place winners each got a selection of 10 major-artist record albums.

Australian firm gets exclusive distributorship

Atari, Inc. has announced the appointment of Leisure & Allied Industries as its exclusive distributor for the Southeast Asian area, with the exception of the Philippines.

Leisure & Allied, headquartered in Perth, West Australia, is the largest distributor of coin-operated equipment in that country. It has its own production facilities, complete service facilities, and a network of branch offices throughout Australia.

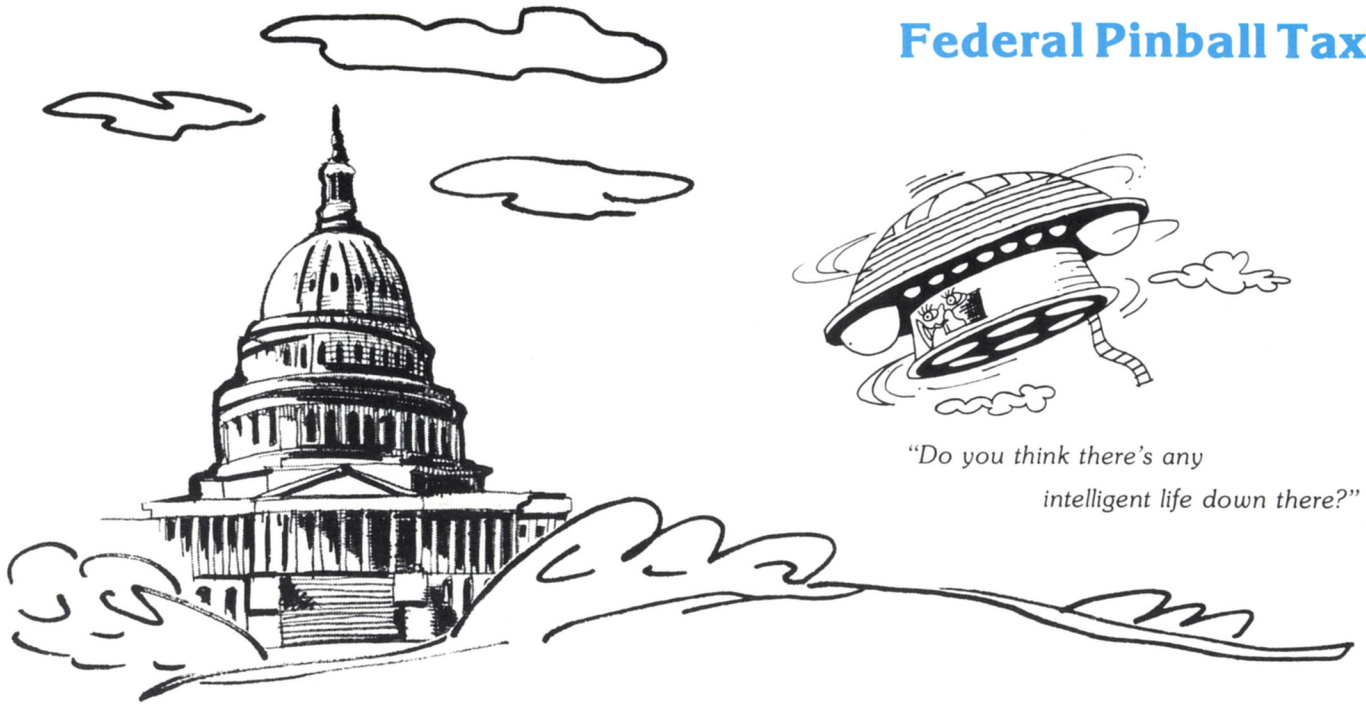
"Leisure & Allied Industries has shown excellent support of Atari products in its market. We are confident that it will provide the same superior representation for Atari in

Southeast Asia," reported Sue Elliott, international administrator at Atari.

This Australian firm has an exceptionally good rapport with its customers. Leisure & Allied distributes a monthly publication to keep local operators informed on industry news; service seminars are conducted on a regular basis, and Atari technicians visit the offices one or two times per year to lead service schools. This, together with their close proximity to the Southeast Asian market, Atari feels, makes Leisure & Allied well qualified to support product sales in that area.

PLAY METER

THE MAGAZINE PEOPLE READ!



Wooden Pegs and Wooden Heads

By David Pierson

Editor's Note: The following article was prompted by responses from several readers to the May issue of PLAY METER which featured tournaments and promotions.

Remember those cute wooden work benches you used to get for Christmas when you were a child? It came with a hammer and about ten little wooden pegs of different shapes and colors. And your job was to hammer the pegs into their respective holes—you know, square pegs into square holes, round pegs into round holes, all that. And while you were hammering your fingers more than the pegs, your parents would be sitting there over you watching, smiling nervously every time you looked up, but wondering all the same why they couldn't get a baby with a genius I.Q. like the Joneses instead of just another dolt who'd probably spend six years in the fourth grade.

Ah, fond memories.

Well, I don't know for sure, but it's beginning to look like the federal government uses those same little wooden work benches for testing

individuals to see if they deserve to be promoted to higher positions within the organization. But instead of a hammer, the applicants are issued knives, and their job is to make each peg fit into as many different holes as possible. The applicants are then ranked according to their whittling abilities.

As I said, I'm not sure about this, but it seems to be a fairly certain estimate since it would take such a federal mentality to carve a round peg like a pinball machine and try to fit it into a square hole so that it can be assessed a special tax along with slot machines.

The problem arises from a \$250-per-machine tax that the federal government levies against pinball operators if they hold tournaments and award prizes. According to the tax provisions of Section 4461 of the Internal Revenue Code of 1954 and Revenue Ruling 76-25 which was published in 1976, operators do not have to pay the tax on their pinball machines unless they use the machines in tournaments. But if they do, those games become fair game for a special occupational tax.

According to the I.R.S., when pinball machines are used in tourna-

ments, they magically transform right before your very eyes and become (at least in the eyes of the I.R.S.) "coin-operated gaming devices."

Now the crux of the problem is that even if the operator were to pay for the federal gaming stamp at \$250 per machine per year, he still wouldn't be able to hold his tournament because then local authorities would come down en masse and confiscate the machines because they would be gambling machines.

Got it! It's reminiscent of another catch in a popular American classic! "That's some catch, that Catch-22."

"It's the best there is."

So operators, thanks to the wisdom of our federal fathers, have had their pinball tournaments legislated out of existence. It was a subtlety that escaped even the federal officer who deals with this matter.

"Are you aware," I asked him, "that this in effect regulates pinball tournaments out of existence?"

Dumb silence at the other end of the telephone.

"Why aren't these same regulations used to tax tennis tournament promoters or football games. They

also sponsor competition for prizes.”
“But they’re not coin-operated machines.”

“Then why aren’t these same taxes assessed against video game tournaments? Pool tournaments? Foosball tournaments?”

Another dumb silence at the other end of the telephone line.

“Could it be,” I ventured, “that in all the other cases you found that these games were not gaming devices because they are predominantly games of skill?”

“Yes, that basically was it.”

“But it is the belief of the I.R.S.,” I continued, asking, “that pinball machines are not dictated by skill, but rather are games of chance, is that true?”

“Yes, that’s the extent of it.”

At this point I told my federal friend that I was really embarrassed that my government was the last to find out that pinball machines are not games of chance but rather are games of skill. Uncle Sam, it turns out, still thinks pinball is a bingo-type game. I told my federal friend that I was embarrassed because Uncle Sam was apparently the last to find this out. I told him that all the major cities had long since learned this fact, in court—Los Angeles, New York, Chicago, etc. If my country is about ten years behind the times when it comes to something like this, I said,

how can I be sure they aren’t just as far behind in their assessment of other matters, like how many bombs the Russians have.

Dumb silence at the other end of the telephone line.

At this point, the federal employee informed me that he, in fact, liked pinball. He said that he plays pinball quite often with his friend who has a machine down in his basement. “I never can beat him,” he said.

“Wouldn’t that seem to indicate,” I countered, “that perhaps the game is a game of skill and not a game of chance, that your friend is better than you at the game?”

The federal employee was quick to his own defense. “Let’s just say he’s luckier than me.” He laughs.

So there you have it. Pinball is a game of chance. It was decided in someone’s basement. And even though the evidence was weighted in pinball’s favor, that still doesn’t matter because the other guy is just lucky all the time. And, silly you, you thought all along that governmental decisions were made in the light of day.

Your turn to laugh.

What is obviously the problem here is that no one has bothered to tell Uncle Sam that pinball machines have changed since 1954 when the law was made. And so operators who want to hold pinball tourna-

ments today are caught up in a twenty-four-year-old Catch-22 situation.

The question is what has to be done to change that law.

There are two options.

STEP ONE: Someone must officially request the I.R.S. to revise its ruling. They should submit recent court testimony which shows the game to be a game of skill and not a game of chance and hope the I.R.S. sees the error of its ways. The operator or manufacturer who does this should contact Richard L. Crain, chief of the Wage, Excise, and Administrative Provisions Branch, 1111 Constitution Ave., NW, Washington, D.C. 20224. His telephone number is 202/566-6628.

STEP TWO: If Step One does not provide a satisfactory solution, and it probably won’t, you should go ahead with the tournament, pay the \$250 per machine tax under protest, and sue for a refund in federal district court. This would create still another court battle of pinball skill versus pinball chance, but the track record of these court cases is definitely in favor of the operator.

Of course, there’s a third option, and that’s to resign yourself to a totally senseless and stupid law which has no more application today than do laws governing horse-drawn wagons on city streets.

Gobbledygook Update

In an article in the February issue of *PLAY METER* (“Jukebox Sex Habits,” pages 31-33), we noted a peculiarity of federal agencies called *gobbledygook*.

Gobbledygook, it was noted, is the craft of saying something in as many words as possible. For instance, instead of writing *jukebox*, the U.S. Copyright Office felt compelled to use the phrase “coin-operated phonorecord players, better known as jukeboxes.”

But another governmental agency, the Internal Revenue Service, in a recent ruling concerning the special gambling stamp tax (see related story), exceeded even the Copyright Office’s verbal overkill. Instead of letting the term *pinball* suffice for a description of the type of machine that would be used in the proposed tournament, the I.R.S. felt obliged to launch into a more complete (albeit useless) description of the machine:

“The type of machine the Corporation would use in the proposed tournament consists of a rectangular table approximately 22X50 inches mounted on four legs. The playing surface is a glass-covered inclined plane, inclined upward away from the player, onto which the player propels a ball. A square backboard is mounted vertically at the back end of the table for the purpose of registering the player’s score, which is done automatically and electrically. When the machine is activated for play, it automatically animates the playing field and backboard, and mobilizes the mechanism for the first ball to be shot onto the playing surface. A player is allotted five shots per game. The player retracts a calibrated springloaded plunger which propels the ball to the upper and far end of the playing field whereupon it descends down the plane by gravity through various

indicated targets and play features. On each side of the playing surface, near the bottom of the incline, there is a small flipper (mechanical bat) which the player may actuate by pressing a button, to strike the ball back up into the field of play again.”

Yet even with a description as thorough as this, the I.R.S. failed to see any difference between flipper games and slot machines; so the two of them are taxed accordingly.

Of course, some people may question why federal agencies have to waste so much government ink and paper with their inane descriptions of objects as readily recognizable as pinball machines. These people also fear that someday they may uncover a governmental regulation which describes in detail the internal combustion engine and the types of vehicles that use them on federally-subsidized highways.

Space Wars man starts company

Larry Rosenthal, who holds the patent on the Vectorbeam system used in Cinematronic's smash hit video piece *Space Wars*, has started his own company and will soon begin producing a very similar outer space battle game called *Space War*.

The new company, Vectorbeam Inc., will be headed by Rosenthal with Bill Cravens, the former director of marketing for Cinematronics, taking over in that same capacity for Vectorbeam. Other officers at Vectorbeam include Gil Livine as general manager and Ken Beuck who will be in charge of purchasing.

Livine has twelve years of manufacturing experience, and Beuck has previously been employed with Atari and Cinematronics.

The new company, which has its offices at 2180 Bryant Street in San Francisco, plans to be in production with *Space War* by August.

According to Cravens, Rosenthal has always maintained the right to start his own company with the *Space Wars* Vectorbeam system patent. "Cinematronics is his sole licensee," said Cravens. "But though he has started his own company, we will continue to give them [Cinematronics] technical support when needed."

Cravens added that Rosenthal is presently working on two other games, but there are no immediate production plans.

Technical Tips

1. Free games that are obtained by kicking the coin door can be fixed by installing a coin switch retrofit kit—part number A030688-01. The kit consists of: OMRON switch, actuator wire, mounting plate and instructions. This kit is available through your local Atari distributor.

2. Recurrent score display failures on Atari pinball machines can be resolved by ordering a set (score & match/credit) of discrete boards. This is a new design and eliminates the problem that occurred in the originals.

—Fred McCord, Atari Field Service Manager



Restaurant owners have expressed interest in the profitability of the coin-op games market. At a recent restaurant owners convention, Atari's booth was a center of activity as restauranteurs inquired about the earning potential of the games.

Restaurants offer location possibilities

Atari's showing at the National Restaurant Association trade show was a tremendous success in stimulating new interest in games as a profit opportunity in food service locations, according to Don Osborne, western regional sales manager for the Sunnyvale, California firm.

"The response to the concept is a strong indicator of potential location growth for the coin-op game industry, Osborne said. "Operators should further investigate this opportunity for growth."

There are approximately 416,000 commercial food service locations in the United States presently, according to *Institutions Magazine*. Their forecast shows a net increase of about 20,000 locations over the next two years. The National Restaurant Association and a 1977 study by Arthur D. Little both project an annual sales growth in the food service industry of 11 percent, which is attributed to location growth and to a significant increase in away-from-home meals.

The substantial growth in the food service industry is one indicator of potential location growth for coin-op games. At the NRA show alone, Atari representatives spoke with over 200 interested people who requested further information on games for their locations. These leads are being referred to Atari distributors to be passed on to local operators.

Atari's pinball games attracted much attention at the show. *Middle Earth*, *Airborne Avenger*, and *The*

Atarians were on display. Many of the food service representatives were not aware of Atari's pinball games and expressed interest in having them in their locations. The new *Two Game Module* also was of interest, especially for the locations that are restricted by space availability. *Avalanche*, *Sprint 1*, *Starship 1*, *Sky Raider*, and *Tournament Table* were also current popular games on display at the show.

Two new game design concepts were also presented at this show to obtain location reactions. The *Wall Unit* is another Atari concept designed for space saving placement, and many representatives commented that this unit would fit better into their locations than the standard upright cabinets. Atari is also in the process of developing a *Game Booth* primarily for food service locations. The prototype booth on display attracted much attention at the show. Many good ideas for the booth concept were discussed with the restaurant people, which is of value for further product development.

Frank Ballouz, national sales manager, commented, "Atari's attendance at the Restaurant Show and other potential location shows is part of our overall marketing objectives to stimulate expansion of the game market. The response from NRA was exceptionally promising to help meet these growth objectives. Atari distributors and operators should be actively pursuing these new locations to realize the benefits from our efforts."



Remember The Fifties

Stern Electronics has introduced a new four-player solid state flipper game called *Memory Lane* which features a memory system that carries over features from ball to ball, enabling the player to achieve a high bonus value by either knocking out all ten pins (yes, it's got the bowling game motif) or hitting the drop targets when lit.

A double bonus can be achieved by getting the ball into the top left eject hole. A triple bonus can be won by getting the ball into the center eject hole after getting the double bonus.

Specials are lit after the player gets three or more strikes, and production starts after the highly-successful, *Stars*.

Two lanes lead back up to the top of the playfield, and there is an extra ball feature.



In living color

Sprint 1, Atari's popular one-player driving game, is racing ahead with red, orange, and yellow graphics on its new cabinet design. Now the versatility and profitability of Sprint 1 is available in both the sleek woodgrain cabinet or in this new bright design to fit even more locations. "Atari is making the new design in Sprint 1 available due to the many requests we have had from the field," reported Frank Ballouz, national sales manager.

Sprint 1 in both cabinet styles offers driving excitement with its many features and options, all geared for fast action and challenge. There are twelve different tracks that change automatically as the player sprints the clock around as many tracks as possible. Two computer "drone" cars give the realism of traffic and the challenge of competitive racing. The four-speed shifting, acceleration, and quick response steering intensify the speed and driving action. Live racing sounds of roaring engines and screeching tires add to the game's excitement and fun. Operator optional oil slicks will increase the skill level required.

Ten Pins

Bally's newest four-player electronic flipper game, *Strikes and Spares*, has bowling as its theme.

But the making attraction of *Strikes and Spares* is Bally's memory and recall system.

As in *Eight Ball*, the scoring points achieved by each player on *Strikes and Spares* are "remembered" by the machine. Practically all major features on the playfield are subject to the magic of memory and recall.

The strike value is scored by shooting the ball in kickout hole. If during the play of one ball, the strike value is advanced to, say, 15,000, without being scored, when player is up again, his strike value of 15,000 will be remembered.

The strike value advances each time a strike is scored by one of two methods—either by crossing the top center rollover when strike light is lit or by crossing all ten bowling pin rollover buttons when lit.

In addition to strike Specials, the spare Special is scored by hitting five side targets to light S-P-A-R-E for the third time during a game. Lighting S-P-A-R-E for the second time lights special signals at left and right outlanes, qualifying the lanes to score Special. And the first time S-P-A-R-E is lit is the key to extra balls.





Sybaris short

The key visual and operating features that have made *Sybaris 474* popular are now available in a cabinet measuring just over a yard wide.

Sybaris 473, the new Rock-Ola 100-selection phonograph, provides space-starved locations with all the visual appeal and player attractions of the larger model. The condensed cabinet features the same multi-colored, three-dimensional display areas that are in the 474.

Sybaris 473 also has the new up-top record selection center featuring the instantaneous L.E.D. "Record Now Playing" indicator, easy-to-follow lighted instructions, and simple record selections.

Servicing improvements start with the dome lid. It swings open with gas-operated springs. All electric components are located up top, are 100 percent solid state, and tilt out for maximum servicing ease.

Price changing on the *Sybaris 473* is accomplished with a new electronic credit unit.

A new feature of the *Sybaris* phonographs is the mechanical power override switch. Power is returned to the record player mechanism when the dome is closed even if the player control switch is inadvertently left in the "Off" position.

An access door in the rear of the phonograph makes additions such as wallboxes, public address systems, and supplementary speakers, simple and fast.

Double play

Atari's Two-Game Module is now available with two different game combinations. The popular Super Bug driving game and the new Avalanche are included in one model. The classic winner, Breakout, and the racing excitement of Sprint 1 are back to back in the other model.

The two-game module is based on the concept that two games back-to-back in a single cabinet can bring in double income using the same space as one unit (less than 6½ square feet).

Measuring 69 inches high by 36 inches wide, the 2 Game Module is designed to fit in even more locations. A contemporary graphic design in brown and beige tones is suitable for sophisticated and elegant decor locations, as well as a game room environment.



One-eyed Jacks

Gottlieb has introduced a new four-player solid state pingame called *Joker Poker*.

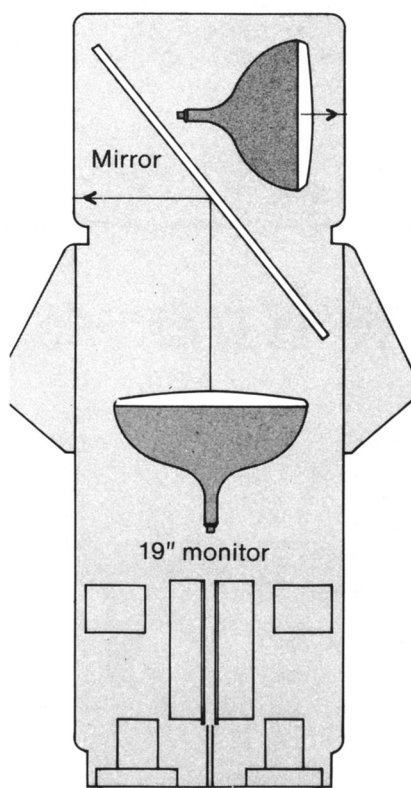
The new game features five sets of drop targets, lettered appropriately Ace through Ten. These five sets of drop targets control a 5X bonus feature. Additionally, hitting all the drop targets in the "Ace" group or making the A-B-C rollovers lights an extra ball target and the special score rollover. The extra ball target is located in the upper righthand corner of the playfield.

Advancing multiple 5X bonus scores up to 75,000.

The game has three flippers—the third one being hidden behind the bank of Queen-card drop targets.

The backglass features three enticing female jokers with a trail of cards winding its way past the three ladies and through clouds of pink and blue.

The game is also available as an electro-mechanical machine.





Sitdown pingame

Mirco Inc. Games Division has introduced a third generation, micro-processor-controlled cocktail-style pinball game called *Lucky Draw*.

The four-player flipper machine measures 28 inches wide by 38 inches deep by 26 inches high, and because of its compact size, dual purpose, attractive wood cabinetry and optional sound control, "it opens the door to many new high-profit locations heretofore unavailable to operators," according to Bernie Shapiro, Mirco sales manager.

The new game also features a triple-coated polyurethane playfield specially produced in Europe to assure greatly extended life for the playfield surface.

Shapiro added that *Lucky Draw* is the first Mirco game with electrical and mechanical parts which are interchangeable with parts from Williams Electronics' games.



Computer card play

A new coin-operated electronic game that is computerized to play an accurate game of blackjack has been recently introduced by Computer Kinetics of Westlake Village, California.

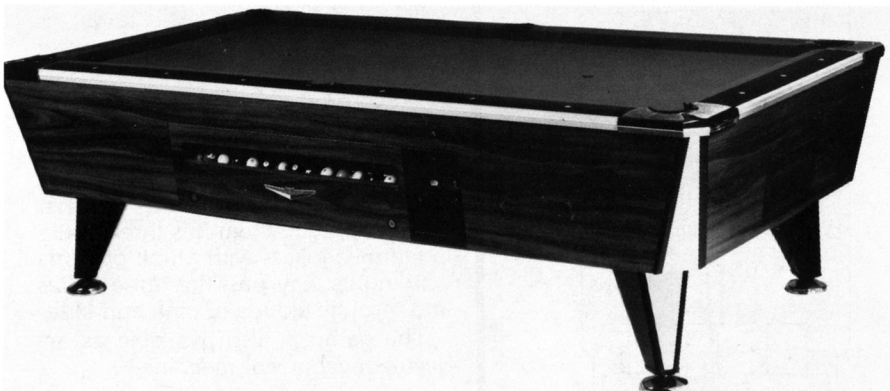
Called *Vega 21*, the non-video machine contains a microprocessor, a tiny computer that is programmed to count, calculate, duplicate real odds, and monitor the progress of the game via a display screen.

The *Vega 21* acts as dealer and scorekeeper. The instruction plate shows how many points credit and how many hands are allotted for each coin inserted. The game continues until the player runs out of credit points or has used up the allotted hands.

Vega 21 allows splitting of pairs, doubling down, and insures dealer aces.

The *Vega 21* is programmed also to test itself to make sure it is functioning properly. If there is a problem, it will show up on the message screen.

The shadow knows



A new design of coin-op pool table, *The Silver Shadow*, has been released by The Irving Kaye Company.

The table incorporates many of the proven features of the Apollo line, including cabinet construction of all 3/4-inch plywood and the all-steel, tamper proof coin box and ball gate assemblies.

New features in the redesigned cabinet include 2-inch additional pitch to the ball tracks, fixed top rail with chrome plated cast corner, all steel lower corner with chrome plated mirror insert, matching mirror insert in the new all steel legs, redesigned leg levelers and feet, and new double lock viewer door mounting.

PLAY METER

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Jeanne Werner
Communications Director
Wisconsin Music Merchants
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George A. Miller
Past Executive Director
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"Recently my boss and I have been doing a great deal of studies on pinball with the use of a computer. We have compared the different features of a machine with the income it earns over a period of time. Also we have studied the playing habits of individuals and what they like in playing different pinball games. It is surprising how they correlate with your magazine. Keep up the good work."

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Don't take the money and run

By Roger C. Sharpe

Some ways to improve your image

Last month we explored some happenings in legal hassles plaguing a couple of places in the northeast. Hopefully, there was a lesson to be learned and a new receptivity to ideas that can firm up your own position in the community. After all, any size operation in any neighborhood, no matter how well things may be going, can also fall victim to the hazards of local politics and civic unrest surrounding any game room or arcade.

One of the first things you have to do is establish yourself. And this means more than just opening up for business everyday. The greatest error any operator can make is to take his position in the community for granted. If you have a restaurant, gas station, retail store, or any other *normal* business, it's different. But with a game operation, none of the other rules apply—you have to make your own and be more innovative in what you do. It's that simple. You just have to be special and take special steps to insure your business's success and acceptance. Here are some of the things you can do.

Whether you're operating two pieces of equipment or two hundred, make sure you're not invisible to the community. A public face is vital for survival and if things ever do get bad you'll be glad you have it.

Let people know who you are and that you care about your fellow businessmen. So if there is a fund raising going on for the local school or a charity, get involved. Don't lay

back or ignore the contribution you can make. Even if it means some money out of your own pocket, think of it as an investment in the future, and ultimately a chance to make even more money down the road.

Initiate your own community programs. Fun Time in Watchung, New Jersey, run by Drew and Murray Wollman, jumped on a telethon bandwagon some months back and not only raised money for a very important cause, but also garnered some important local publicity as well as an increase in business. The bottom line? While other people may be having some problems getting a variance to operate in the area, Drew and Murray are enjoying some great business and no repercussions from some of the surrounding areas which are in trouble. A little indeed goes a long way.

But telethons don't happen every day. And in the meantime you don't have to feel discouraged because there isn't anything that you can do. There is something to do.

How about going to the local PTA and offering your establishment for any funds they may want to raise? Tell them that you're more than willing to allow some of the school's kids to play pinball or any video games, or really any piece of equipment you have, for free.

Maybe the kids can get local sponsors, it happens all the time for many charities, to back them for the hours they're able to play, or even on

a percentage of the points they score or the games they win. All proceeds go to the charity. You get your name in the paper. And suddenly, the arcade has become the place for civic responsibility. It's easy and all it takes is the time for you to make the contacts and the energy to coordinate the whole thing. Small prices to pay for something so worthwhile.

High school athletic programs, and local little leagues are always looking for ways to raise money. You can drive through any town or suburb and car washes are being held as well as the kids stopping cars at intersections asking for contributions. Offer your place and do the same thing as I've just outlined for the charities. Maybe you can even sponsor a little league team. Can't you just picture a team with your arcade name on the back of their uniforms? Instant advertising, again for a very small investment.

High school year books are notorious for their need regarding local advertisers, even the athletic programs during sporting events always feature some type of business support. Well, buy a page or half a page. Get your name before the public in this positive fashion.

Even the local penny savers and community papers are a good place

to run small ads. Business may be booming and you don't need to, but to channel some of your funds back into the community is a great move and shows that you care a lot more than just how much you've gotten off the kids in the past week.

Make yourself and your establishment available for day-care facilities if your community has this type of set-up. And if you have the space, offer your games for a day or two during the week. Pick some of your slow hours, usually during the day when school is in session, and make it open for the mothers of the community if they need the space. Getting these people on your side is vital. It really is.

You can also begin and sponsor your own events. Does the local baseball league need a new stadium or some extra seats, etc., or does the high school want to finance some improvements in the building or add on an extra building, etc? Well, what about throwing a tournament in your place, where a percentage of the money you get in, goes back out to the community? Can't you just see a wing of a building or part of the stadium having your name on it because you were instrumental in getting it built? Well, anything is possible if you're open to it and

willing to get involved.

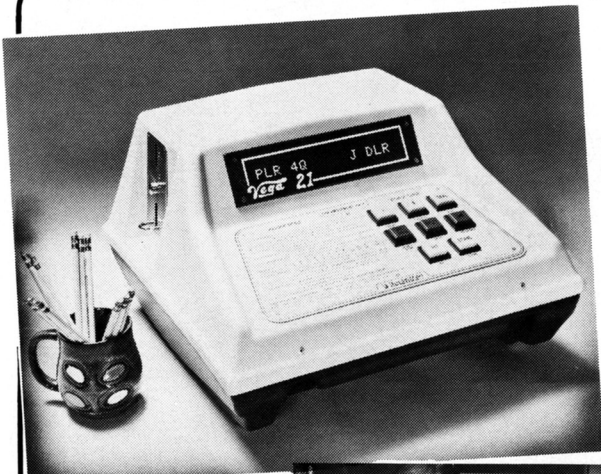
Tournaments can also be run for any variety of things and a couple of issues back I gave some pointers on how to set one up. The same things apply this time around, so refer back to that issue of PLAY METER and if you have any other questions—let me know and I'll see what I can do.

I guess what all this boils down to is that you have to show that you care. You can't just take the money and run and hope that at some point in time it doesn't all catch up with you.

Arcades and game rooms are a special breed and need special solutions to combat any number of problems that wouldn't ordinarily befall other businesses. Just beware of the possibilities and don't hide hoping that people will forget about you—because when the going gets tough they'll be coming at you with both barrels cocked and ready to put you away forever.

So save yourself the grief and aggravation. Act now and do something good. And if you have been doing things all along, let me know. I'd like to hear anything anyone has been doing. I'll write it up so the world sees what you're doing. For now, just take care and care about the people around you.

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Berlin Show:

Well-organized but not well-attended

The International Coin Machine Exhibition (IMA Show), which was held April 26-28 at the AMK Exhibition Centre in West Berlin, proved to be a well-organized show; but, all the same, it fell short of achieving major status because of a poor attendance and a small variety of equipment on display.

Undoubtedly, the largest and most impressive stand at the show was that of Lowen Automaten. Besides exhibiting the German wall game, *Rotamint*, and, of course, the latest NSM phonograph, the firm represented two major American companies at the show—Atari and Tournament Soccer.

The highlight of the Lowen Automaten stand was Atari's *Middle Earth* pinball game. Lowen Automaten sponsored a special tournament promotion around the game with the high scorer each day winning a prize. And to further highlight the game, the sound effects were connected to approximately 100 colored spotlights which flashed on and off as the machine was played.

The emphasis throughout the show appeared to be on pinball machines, with all the major American lines being represented. Bally's *Mata Hari* was in the Wulff-Apparatebeau stand. A line of Gottlieb's *Sinbad* machines were

prominently displayed under the Nova Apparate banner. Williams' *Lucky Seven* was represented by one of Germany's largest firms, Seevend Automaten. And Stern had two solid state pins, *Stars* and *Stingray*, in the Schneider Imports booth (an ironic note to this is that the word *Stern* in German means *Stars*). Also, among the pinballs on display at the show was Playmatic's *Big Town*, which was in the Sportstatten-Betriebs booth along with the new Valley pool table which has an electronic timer and bonus system.

In addition to exhibiting the Williams' line, Seevend Automaten featured arcade pieces from Taito, Gremlin, and Atari, as well as the



International Dateline

new Seeburg 100-selection Celesta jukebox, which was presented for the first time in that country.

Midway, which was under the Wulff-Apparatebau name with Bally, showed the new *Seawolf II* with a color monitor which appeared to be very popular. Also, Wulff Service Systems showed some interesting test equipment which appeared able to cope with all types of modern solid state equipment.

The city itself proved to be extremely expensive. The food and shopping was mediocre. But there was always the grim reminder that things could be worse; and all it took was one peek over the wall into East Berlin.



The International Coin Machine Exhibit hall (opposite page), though well laid out and organized, had a poor attendance. In other views of the West Berlin show (clockwise from upper right hand corner), Nova Apparate displayed a line of solid state Sinbads from Gottlieb. And Atari's Middle Earth was the scene of an ongoing tournament; here Claes Arrhen, managing director of Cherry Leisure in the United Kingdom, tries his hand at getting the top score. Seevend Automaten of Hamburg exhibited Williams' pinball machines and Seeburg's 100-selection Celesta jukebox. And, finally, there's the sober look over the wall into East Berlin.

Freedom of Choice

Reading PLAY METER also gives you the freedom to compare product information from the coin-operated amusements manufacturers and service companies. If you would like to learn more about our advertisers and their products or services, feel free to find them in this alphabetical listing, then circle corresponding number on our Reader Service Card, between pages 10 and 13.

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3. Atari, Inc.....	2	17. Meadows Games, Inc.	35,36
Sunnyvale, California		Sunnyvale, California	
4. Bally Corp.....	82	18. Midway Manufacturing Corp.....	81
Chicago, Illinois		Chicago, Illinois	
5. Belam Export.....	40	19. Nevada Gaming Schools.....	48
New York, New York		Las Vegas, Nevada	
6. Betson Enterprises.....	7	20. Robinson, C.A.....	13
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7. Cinematronics, Inc.....	13	21. Rock-Ola Manufacturing Co.....	17
El Cajon, California		Chicago, Illinois	
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St. Louis, Missouri		Whippany, New Jersey	
9. Computer Kinetics Corp.....	75	23. Standard Change Makers.....	14
Westlake Village, California		Indianapolis, Indiana	
10. Gottlieb & Co., D.	43	24. Stern Electronics.....	29,30
Northlake, Illinois		Chicago, Illinois	
11. Great Amusement Emporium, The.....	51	25. Suzo Trading Co.....	39
Denver, Colorado		The Netherlands	
12. Greenwald Industries.....	9	26. Taylor Distributing Co.....	14
Brooklyn, New York		Cornelius, Oregon	
13. Imperial Billiards, Inc.	15	27. Tournament Soccer.....	5
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**You saw it in
PLAY METER**

continued from page 14

a small manufacturer may sometimes prove difficult. That's one of the reasons we stick to the large manufacturers. We have much less problems getting parts from them. We usually don't have to go to the manufacturers, though, except for wall game parts. They have been by far our hardest area to keep spare parts on hand for. Generally speaking, when we have had problems with spare parts, I think the problem is probably the fault of the manufacturer and not the distributor. There are times when certain parts that are not often used, even though they may be common parts, won't be available because the game is still in mass production, and we'll have a new game down for weeks waiting for that part.

PLAY METER: Have you had any problems with warranties?

MENDELSON: Warranties is a kind of pet peeve with me because when the manufacturers went to a three-month warranty, I think it really hurt. The manufacturers seem to be making more profits, especially with digital pinball games. Once they get them into mass production, they're not more expensive to make than the mechanical games, but they're costing us more. The manufacturers are relying solely on demand, which is what they did with the guarantee. There are so many operators today who really need help with the new trend toward digital. And by cutting the warranty down from a year to three months really hurt us operators. When they made the move toward digital, we needed more help. Our distributor has developed an excellent service department, and when it comes time to bring in a game that's still under warranty that they can fix, there's no problem; we get the game back pretty quick. But when there's a part that has to be gotten from the manufacturer or to be sent to the manufacturer, that's when it takes us an average of four or five days at least to get it back. But we really don't have that problem that often.

PLAY METER: In your opinion, are manufacturers standing behind their warranties, or are they leaving this to the individual distributors?

MENDELSON: I'm not sure if the manufacturers are shrugging this off or what. It seems that they are possibly shrugging this because we are having some difficulties with the distributors giving us the three-month guarantee when they do the work themselves. Distributors really don't want to guarantee it more than a month if they're going to work on it. So it seems from my end that the manufacturer might be causing a problem by not backing up the distributors on this.

PLAY METER: How do you decide what games to buy?

MENDELSON: There are many factors that have proved themselves, but I still do not buy them sight unseen. It's based mostly on your judgement of a game, what I think of a game, though there are some games that I will hold off on buying either

because the manufacturer is new or I have heard that the game still hasn't proved itself mechanically. But if the game proves itself, eventually I will buy it. A good example is *Space Wars* by Cinematronics. I was very wary of it at first. But Cinematronics corrected all of their problems, and now it's proved to be our highest earner. And we've got quite a few of them.

PLAY METER: What do you look for in a game?

MENDELSON: Number one, play appeal, what attracts me to the game. The cabinet should be attractive, it should be pleasing to look at. I am wary of getting a game that may appear to be too much of a novelty because the play appeal may soon be gone on it. But if the game has enough competition to it that it can still be fun after the fad dies out, then I'll buy.

PLAY METER: What kind of split do you get?

MENDELSON: We have a 50/50 and in some places 55/45, with the location getting the 55 percent. The reason for that is that we're in a very competitive area. Because of the area we're in and the quality of the accounts, my locations have on the average two or three vendors approaching them every month, and 55 percent is the most most of them have to offer. We have lost accounts to vendors who gave away sixty percent, but we've gotten back most of these accounts because the locations found out that to sacrifice quality for a few percentage points in the end made them less money. I can't stress how important our service is to us. If you have poor service, even if you have good games, you're going to lose your accounts.

PLAY METER: Have you had any problems with location loans?

MENDELSON: We have lost locations that way, but we just don't feel it's necessary to extend a loan to win a location. I think the quality of your business is more important than putting up front money.

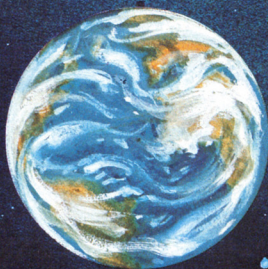
PLAY METER: You mentioned earlier that you were on a computer. What made you decide to go to that?

MENDELSON: As you grow, it becomes necessary to start doing some reports. And if those reports start to get to be too much, then you should check into a computer service. They really aren't that expensive. The time to go with the computer service is when it comes time to hire another person just to keep up with all these records. At that time, the computer will probably be cheaper for you. We're paying about \$400 a month totally, and that includes storage, computer time, and rental on the phone line out there. We don't have the computer in our office. We have a terminal, and the terminal is connected to the computer service, but you operate it just as if you were operating a computer. And the computer service will program it for you. With that, you have a terminal that can print out a report anytime you wish—profit loss reports, high-low reports, location-by-location reports, game earnings reports. It's really worth it.

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