

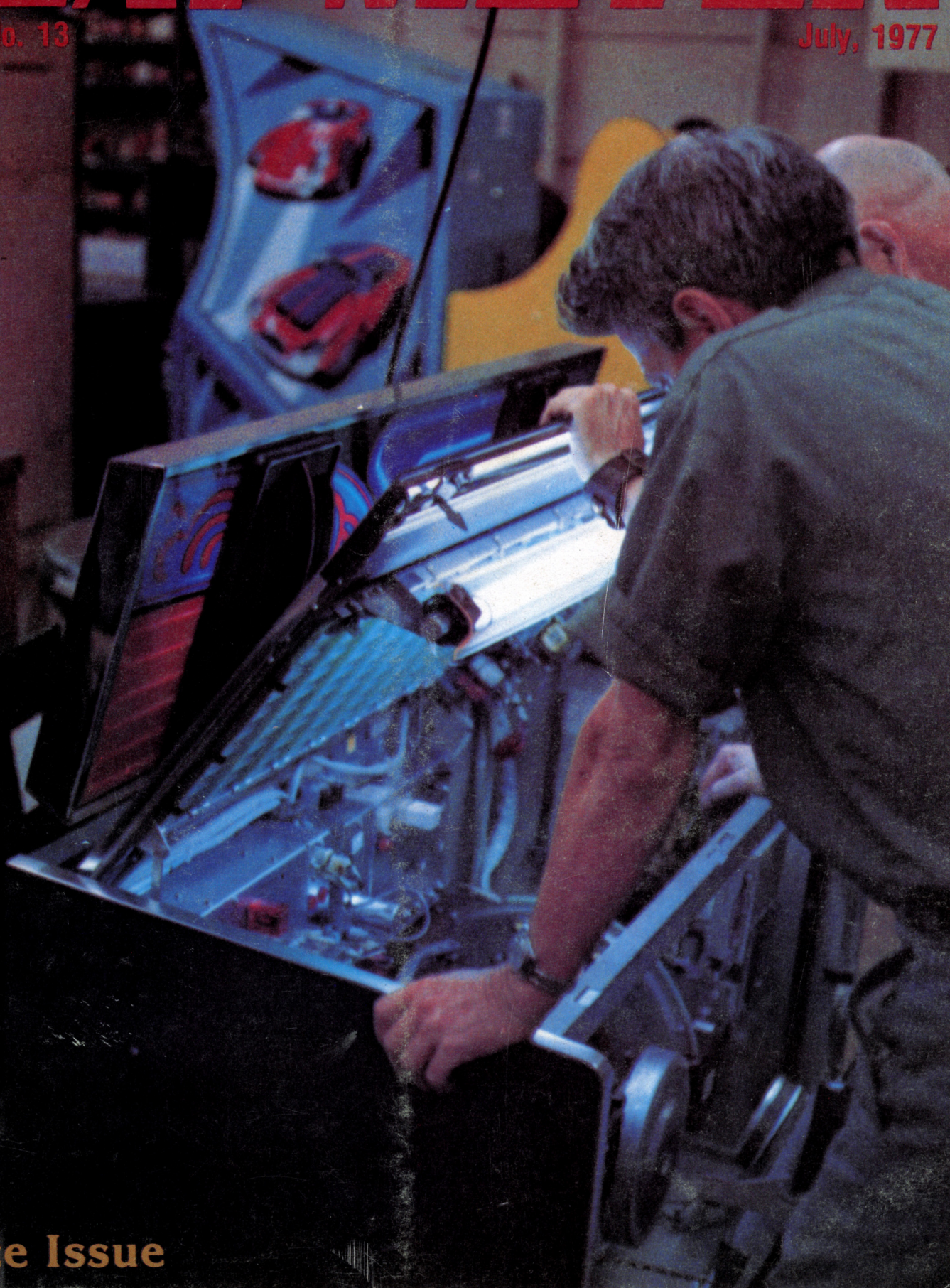
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Volume 3/No. 13

July, 1977



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PLAY METER

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FROM THE EDITOR

It's almost impossible to underestimate the importance of service as it applies to our particular industry. The word "service" is thrown around quite often these days, yet I wonder how many of the "word-throwers" have stopped to think about the word's full meaning?

There are some operators, I fear, who tend to think of only the nuts and bolts meaning of service. But there is more to it than just being able to fix a machine promptly whenever it breaks down. For indeed service comes into play long before any piece ever hits location.

Service is selling and selling is really what it's all about. The old adage that says nothing happens until something is sold holds true in this industry as much as it does in any other. You can get the finest piece of equipment that can be had and yet it is valueless if you have no location to put it in and no players to play it. The location has to be sold/serviced and the players have to be sold/serviced.

Sell the location owner on your reputation for prompt, reliable, professional service and deal with him openly and honestly. In most cases operator and location owners are partners 50/50. By virtue of the partnership, the location owner should be instructed that he too has to share in the responsibility of service. As partner, the location owner should be more than willing to help promote play on the machines, to protect them from public abuse and to report breakdowns promptly and accurately.

Sell the player by simply giving him what he wants [and indeed has come to expect]—clean, well running machines. Give him a clean attractive machine that works, give him the music he likes most, give him a fair share of incentive on the games of skill, and you have made a sale. Sell the players and you'll end up with a lot of new partners.

The players will tell their friends about your machines—they'll actually do some selling for you—and the word service will have taken on an additional meaning for you—profit.

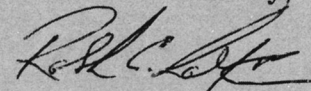
We've dedicated this issue to service, and I think you'll enjoy in particular the special technical section put together for us by Technical Editor Robin Minnear. In it Robin writes about a modification to Atari's Breakout, Zac Oliver describes the Williams flipper assembly, and Randy Fromm, *Update's* technical writer, explains why you should have a volt-ohmmeter.

In other features, Ernest Fair explains how to keep your trucks running better and longer at no additional expense, and Susan Brenna covers this year's Summer Home Electronics Show. This month's Coinman interview also carries the service theme; it is with Nathan Bush of Steed's, the Texas-based "service company."

With this issue, we all say "good-bye" to my friend and associate Rick Dietrich. Rick has been accepted into the program at Union Seminary of Virginia in Richmond and will have to give up his post of Managing Editor. While we all wish Rick every success in his new endeavor, we will miss his dedication to *Play Meter* and must acknowledge his contribution to the magazine's present success.

The difficult task of filling Rick's shoes falls to David Pierson. David brings to *Play Meter* years of experience in the trade publication field, and we welcome him with anticipation of even better issues to come.

Sincerely,



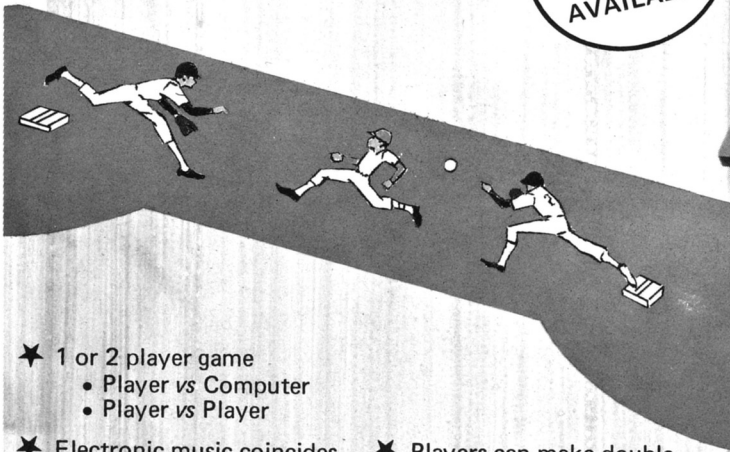
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FAREWELL

This July issue is the fourteenth and last issue of *Play Meter* I will have worked on. I leave the magazine at the first of the month to enter Union Theological Seminary in Richmond, Virginia. My friends tell me that I shall have quite an adjustment to make. Well, we'll see about that.

I want to take this opportunity to thank those many people in the coin industry, manufacturers, distributors and operators, who have made my association with your industry both fun and rewarding. I have enjoyed working with you, and I hope you will make my successor David Pierson as welcome as you have made me.

Particular thanks to my writers, Roger Sharpe, Dick Welu, Robin Minnear, Randy Fromm, Michael B. Klein, Tim Jarrell, Gene Beley, Susan Brenna, Mary Claire Blakeman, Thelma Fair and J.W. Sedlak.

Rick Dietrich

TECH TOPICS PRAISED

First of all, I'm to congratulate you for the most useful "Technical Topics" section of what we consider "Our Magazine." We have subscribed to *Play Meter* since the first issue, and we consider it a "must" for every operator in the trade.

I consider one of the best contributions to your service department Robin Minnear's articles "Building a Logic Comparator" in the issues of February and March. Thanks.

Ramon Rodriguez,
President

Raymond Amusement Corp.
Gaynabo, Puerto Rico

Recently my boss and I have been doing a great deal of studies on pinball with the use of the computer. We have compared the different features of a machine with the income it earns for 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.

Dan Dever
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THANKS

Being an avid reader of your magazine, I want to express my appreciation for your articles on Gremlin Industries. All of us at Gremlin that receive subscriptions, share our copies with our fellow employees.

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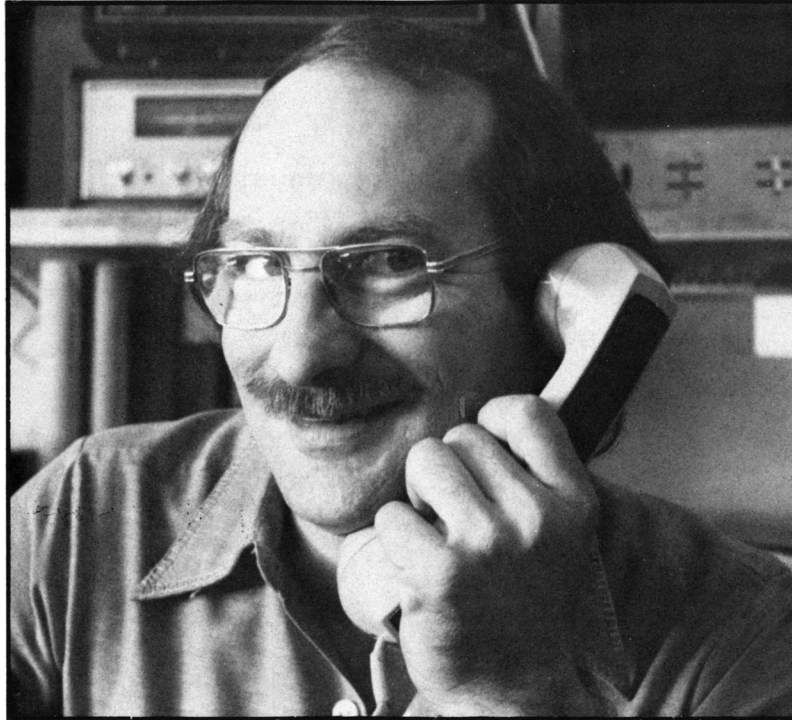
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COINMAN OF THE MONTH



NATHAN BUSH

Last month we received a letter asking that Play Meter recognize the need service companies fulfill in our industry. The letter was from Nathan E. Bush of Steed's in Garland, Texas, a suburb of Dallas. We answered that we did indeed recognize that and to prove it, we are featuring Mr. Bush as Coinman of the Month for our July issue which is, in fact, dedicated to service.

Both Bush and his partner at Steed's, Arthur "Doyle" Modesto are relative newcomers to the industry. Just over five years ago, Bush was working for a CPA firm and Modesto was designing for Texas Instruments. Then Bush brought a pool hall, as a tax write-off. Soon he had decided to turn it into a profitable investment, and when foosball became popular in Dalls, he went into operating as a full-time venture.

Meanwhile his partner-to-be had gone to work as chief technician for Steed's Furniture & Appliance, which was conveniently next door to the pool hall.

From foosball operating, Bush went into games operating in general, and of course he had service problems. "One day," he told us, "I talked Doyle into fixing one of my games, and he decided if we could get mine fixed that easily, we could probably get other people's fixed as well." The idea for Steed's was born.

The service company didn't happen overnight, however. At first it was strictly small time. "We were fixing a few games of our own," Bush recalls, "and a few games for friends. Then somebody approached one of these friends with an Indy 800. None of the distributors would work on it because they hadn't sold it, and because it was a complicated monstrosity compared to what was available then. None of the independent people in town wanted to work on it. The guy was sitting on a \$10,000 Indy 800 machine and for two weeks he could not even pay anybody to look at it." Well, Bush and Modesto decided they could look at the thing.

"So we looked at it," Bush continued, "and we thought, 'This is complicated, but it's not that bad.'" They offered to fix the machine, and they did, "and that got us full-fledged into the business. We fixed that Indy 800 and we had five other people in Dallas call us with Indy 800's to fix; the distributors were referring people to us. It just took off from there."

Doyle provided the original electronics expertise. Now Steed's has three technicians on a full-time basis and experts, including engineer J. Lowell Kaywood, that consult on a part-time basis.

Bush is married. He and wife Ida have one son, Kurt, 5½ years old.

PLAY METER: Service companies in our industry seem to be a fairly recent phenomenon. Why are service companies starting up the way they are?

BUSH: The knowledge required to work on a solid-state digital circuit is fairly new in itself. Take a man that's been working for a distributor or operator, fixing pinball machines. No matter how smart he is, that knowledge wasn't available to him five years ago. The whole field has to have been learned in the last five or so years. The service companies have arisen out of special circumstances, the need for specialized knowledge due to changing technology.

PLAY METER: Do you expect that there will be an increase in the number of service companies as the technology becomes even more complicated?

BUSH: I certainly do. They're not going to spring up on every corner like TV shops, because there are not that many things to be done for that many people. But the expertise has got to be there somewhere—either the distributors are going to have to hire the people to do it, or the manufacturers are going to have to provide the facilities to have it done, or there are going to have to be service companies.

PLAY METER: And you see a pretty rosy future for the service company?

BUSH: Yes. The important point is that we can do everybody a favor. We can do the distributor a favor, the manufacturer a favor, the games operator a favor. Time-wise, cost-wise, we've got something that they can't really get anywhere else. Not just us at Steed's, but any service company.

PLAY METER: You don't think then that as individual operator's technicians become better educated in this field that the need for the service company will disappear?

BUSH: No, I don't, because a video game or a solid-state game's circuitry doesn't break often enough to allow the operator to train a technician to fix it. There has to be a large number of boards or a large number of machines out there breaking down more than a few times a year and there aren't—there's not the volume of repair necessary for an individual operator to be able to afford to train a technician.

PLAY METER: What about the machines that test themselves? Can they take your place?

BUSH: No. You can train a pinball mechanic to run the RAM test on an Atari game or a Midway game, but so it tells him something—what's he going to do then?

PLAY METER: I'm thinking particularly about the new Bally pins, for example—they have a self-test feature.

BUSH: We work almost entirely on video games, but we have worked on one Night Rider, and the problem was that the power supply was broken, which meant that nothing worked, not even the self-test. The guy bought it, paid \$1500 or so, had it on location for a month and a half, and made a bundle of money on it. Then it broke. He went out to fix it himself and pushed his self-test button, being proud of that function, and it didn't do anything for him. He took it back to the distributor;

the distributor punched the self-test button and it didn't do anything. So they brought it to us.

PLAY METER: What kind of services do you provide specifically, and what do you charge for these services?

BUSH: Let me put it this way, first of all: probably 80 per cent of our business is done for distributors, so we give them a better price than we would give to Joe Blow who walked in off the street, because of the volume of business they bring to us. Basically, for a distributor, we'll fix a board for \$25. They'll turn around and charge \$35 to the operator. They make that \$10 for handling it, shipping it, receiving it, making the bill out, carrying the accounts receivable, etc. And that's reasonable. If I were charging \$35, I'd be glad to reduce my price to \$25 for them to do that. That's essentially what we do. To the average guy who walks off the street with a broken video game of some kind, it's \$35 per unit work done on it. And the unit can be a PC board or a monitor or a cabinet dropped off the truck. A lot of problems are related to wiring—somebody's kicked the door in and broken all the switches off, that sort of thing.

PLAY METER: Do you do the actual servicing?

BUSH: No. I can change microswitches, fancy things like that. And I can do some of the functional stuff of getting the business done. Doyle is our chief technician—he's the electronics smarts. He decides that chip A-7 is bad. With our equipment, I can go change chip A-7. We have some pretty sophisticated desoldering equipment.

Also, working for the CPA firm and back in college, I had some computer training. And we have our own little computers down here so that we can run diagnostics of our own, and this is very non-technical really. You plug it up and put it through the computer and the computer spits out on the TV screen what's wrong.

PLAY METER: What's Doyle's background then?

BUSH: Before Steed's, he was working with Texas Instruments here in Dallas for seven years, working primarily on space related projects, designing Mariner probes and moonshot and Viet Nam radar type equipment. That's basically, I guess, where the video games industry came from. If we hadn't decided to go to the moon, there wouldn't have been an Atari or a Midway.

PLAY METER: What kind of training would you people recommend for the average operator's mechanic?

BUSH: He should train himself in observation, to sit back and use his head to figure out what does the machine do that it's not supposed to do? What does it not do that it's supposed to do? For example, is the screen blank and if it's blank, is it blank white or blank black? If the car is supposed to turn to the right, does it turn to the right or does it turn to the left, or does it turn to the left if you turn the steering wheel either direction? What *does* it do? Don't ever send a board in and just say, "It's broke," because we could spend literally hours trying to find out *why* it's broke. But if you send a board in and say, for example, "You turn it on and it gives a free game," then we can go to a specific



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circuit and look at it and figure out what's wrong. Lots of times people will send us a PC board and tell us that it blows the lamp fuse in the TV monitor and we'll check the board and come to find out that the board's okay; that it's blowing the fuse in the TV monitor means that the TV is broken. So we've spent two hours checking the board out and we've still got to charge \$25 or \$35, and the guy still hasn't got his game fixed. We've spent two hours and he's spent the time to send it in, but he sent us the wrong thing. So what the operator ought to do is concentrate on figuring out where the problem is. In other words, he should take note of the basic symptoms and indicate *all* of them to us.

PLAY METER: Let's say that an operator is big enough to hire his own digital repair technician—where would he find such a person?

BUSH: Well, he would have to be a pretty good sized operator, I'd think. But I understand that a couple of colleges, like Texas State Technical Institute in Waco, have digital courses. I have run across some people, too, that came from a school up in Tennessee somewhere, where they teach digital logic, not necessarily to work on game boards although they do have that as a sort of side feature. They teach them to work, I think, on TV cameras, but they mention during the course that they can go work on game machines, too. I've run across one guy who had gotten out of that school—and I don't recall the name of it now—who was pretty good.

Cal's Coin College up in Oklahoma—I don't know of anybody who has really gone through it for the electronics portion, but I know some pinball mechanics that have gone through it, and it is apparently quite good from that point of view, phonograph repair, pinball repair. There's also a school in Vegas that I understand is pretty good too.

PLAY METER: Have you ever been to any of the schools the manufacturers give?

BUSH: No. I have been to some of the smaller distributor seminars they put on.

PLAY METER: Are they a valuable thing?

BUSH: They probably are to the pinball mechanic who doesn't know the difference between a 7400 and an 8080. They're pretty basic, but they can teach the mechanic what to observe. And I understand that that is what they emphasize. They don't teach them how to fix the PC boards, they teach them how to figure out which piece of board to send in, and that's the best thing they can do.

PLAY METER: Assuming this big operator found a digital repair technician, what would you imagine that he would have to pay him?

BUSH: Well, we can't find anybody for less than \$300 a week. And we've got a whole lot more work than anybody else in town.

PLAY METER: What sort of test and repair equipment do you have in your shop?

BUSH: The technical electronic type equipment, oscilloscopes and voltmeters, and we have a couple of logic probes. We tried the Kurz-Kasch machine, but ended up basically building our own, so we have a Kurz-Kasch *type* test jig of our own for standard boards. We've also built a special test jig for all the Midway game boards, Sea Wolf, Gun Fight,

Baseball, Night Driver, all of those games, because there are a lot of them around; they're quite popular and fortunately, from our point of view, they broke a lot when they were brand new. We had to learn to fix them quickly because they were such very popular games. So we built a special test jig for Midway games. Of course we've also got our general diagnostic machine for anything that's built on an 8080. It's put out by Intel, the people who make the 8080. It's not designed to fix game machines; it's designed to fix computers that use the 8080, but that is what the Midway games use.

PLAY METER: What about schematics and other diagrams? Do you have any difficulty acquiring these?

BUSH: That's a good point. As a matter of fact, I have on my desk right in front of me an invoice that I got in the mail this morning COD from Nutting Associates, to use a name. They charged me ten bucks for a schematic, which I thought was absurd. But everybody else will give you one, if you can get hold of them. COD charges and air mail charges brought the bill to \$13.00. I don't really mind paying the \$13.00, but here I'm trying to do them a favor by fixing *their* game for one of *their* customers and they're going to charge me for the schematic. That seems to be just a little bit on the shaky side.

Some games you can't get them for, like the Chicago Coin games that were popular ten years ago. Where are you going to get a schematic for that? The people that have really strong distributor programs, Midway for instance, want to insist that you go through their distributors. I wouldn't mind that if I could deal through their distributor easily, but the distributor, State Music here in Dallas, has so much to do that I hate to bother the guy. He doesn't really have time to mess with me to get me a free schematic. You know, I'd just as soon call up Andy Ducay up there in Chicago and say, "Andy, send me one." And he usually does. But he didn't used to. We'd call Midway and they'd say, "Go to State Music."

PLAY METER: Is this true of most of the major manufacturers—they like you to deal through their distributors?

BUSH: Yes. And I don't really blame them, considering their point of view, but then they're not really considering our point of view. I don't mind going to O'Connor or State Music to get an Atari schematic, particularly if they've got one sitting on the shelf, but if I'm going to have to order it, I'd just as soon order it from Atari direct as to order it through O'Connor, have it sent to O'Connor, have O'Connor call me on the phone, and then have to drive all the way across town to pick it up and bring it back—there's a waste of time and effort. And O'Connor is not going to make any money of it, so why bother.

PLAY METER: So schematics are available; they're just sometimes difficult to get hold of?

BUSH: Right. They're available except for some machines made by those people who have gone out of business or some of the old Allied Leisure machines, for example.

PLAY METER: What do you find to be the major cause of PC board failure? *(continued on page 52)*



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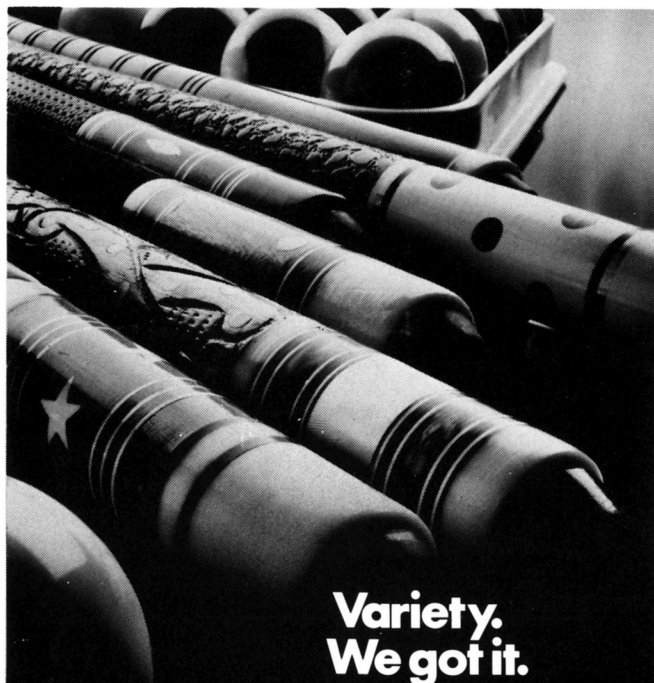
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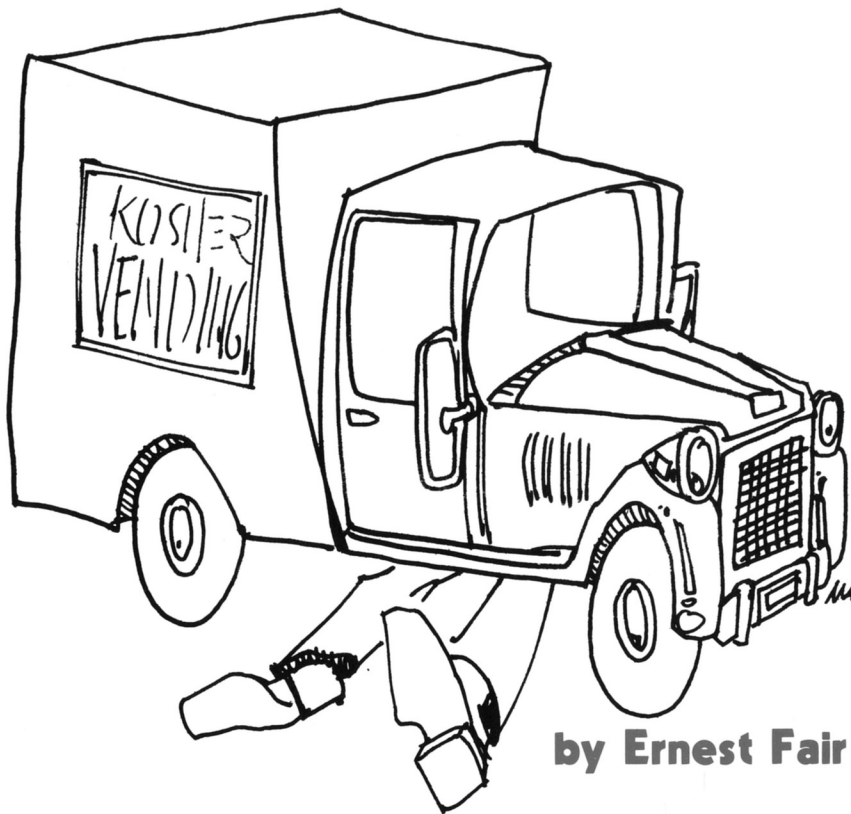
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by Ernest Fair

KEEP ON TRUCKIN'

A good truck purchase, in the first place, is the best method of making sure repair and maintenance bills do not get out of hand. Of almost equal importance, however, is a program of instructing the men who use the vehicles in how to do so economically.

Setting up and enforcing rules for keeping truck repair bills at a minimum should include the following major points:

Watch for the small warnings. It costs little to tighten a bolt, for example, but a great deal to repair the broken part which resulted from failure to do so.

Small hand tools should be in the dashboard compartment of every truck. These should include screwdriver, pliers, small wrench and hammer. Together these require only a minute investment.

Nineteen out of twenty body and accessory maintenance chores can be handled by the truck driver in a moment or two if such tools are available and such maintenance procedure is made a part of his responsibilities.

Pace that truck driving. Fast starts, jumps, speed-ups, etc., all exert unnecessary strain on every part of any truck, small or large. The times when they are necessary are few and far between.

Developing the habit of such pacing, experience shows, actually means handling routes and deliveries in less time than where it is lacking. And the reduced maintenance which follows will be of immense value. Check oil, water, brake fluid, etc. every morning before the truck is put into use. In large firms, such check-ups are usually made by a garage crew overnight, but in others, it is more often completely ignored than applied unfortunately.

It will require only about five extra minutes for any driver to do these things each morning before he puts his truck into service. They can be the most rewarding five minutes in saving truck operations costs the small firm can have.

Require that drivers develop a habit of checking all dials on the dashboard at least once each half hour while driving. The average driver glances only at the truck's

speedometer during the day.

All of the other instruments are there for the specific purpose of providing information and giving warning of possible need for maintenance in one part or another of the truck. Unless that warning is discovered quickly, it can be costly. If discovered immediately, it usually results in only a few dollars' expense for the firm.

Study proper loading methods and use them. Unbalanced loads put extra strain on a truck chassis and motor. Modern trucks are being designed and built to such a level of ruggedness that all of us, and particularly their drivers, tend to ignore such things as proper loading today.

Still even spread of load over the truck body, keeping within the rated load capacity as recommended by the manufacturer, and adherence to all such standards are three more sure ways of holding down truck maintenance costs for any firm.

Let the engine do most of the truck's braking, particularly that involved in slowing down and reducing speed. Use lower gears for braking purposes on hills. Every step which can be followed to save the brakes on a truck prolongs their life and also preserves them for the moment in driving when they will be desperately needed. More brake replacements are made, expert mechanics tell us, because of the actions of the man who drives a truck than because of friction at the point of contact.

Know what protects long life on good tires; stick with these driving rules. Tire manufacturers have literature in the hands of their dealers. See that drivers receive and read it from time to time. Truck tires are too costly today to disregard any of these suggestions.

Teach the men who drive the trucks to use their gears properly. The truck salesman from whom your trucks are purchased can be depended on to do this willingly. Costly strains result from forcing pick-up in the wrong gear on a heavily loaded truck, from failure to change gears at the proper time in climbing steep grades, and other such lapses of good truck driving procedure. Most truck manufacturers print a great deal of literature on how to use their product. Have your dealer supply copies of such information for each of your drivers and see that they read it from time to time.

Every one of the firm's drivers should have impressed on him at the start of his employment (and from time to time thereafter) that even

the best of trucks is not a sports car. Corners should be turned the way a truck should take them and in no other way. The same rule applies to every other phase of driving a truck.

"Trucks always win in accidents" is a big misconception on the part of too many of their drivers. The real damages are never obvious. Usually, with a truck, the big repair and maintenance bills come later on and too often it is forgotten that they were brought on by such an accident. This is an important point which needs constant impression on the firm's drivers.

A good company policy is to do away with the all too prevalent procedure of "saving up" on the maintenance of small things in order to have them all at one time. Doing so just multiplies their number and escalates a modest repair cost into a major one.

See that chipped paint is repaired immediately. Letting such chips go contributes to further damage and of course rust to the truck body in the long run.

Make sure that the inexperienced employees of the firm stay away from driving its trucks, even as "fill in" for a short run. Good truck usage is not something which comes automatically to any employee. The proper procedures take time and experience to master.

See to it that every driver that does drive regularly knows the speed capabilities of his truck under all load conditions and stays within them, as well as those prescribed by law. Excessive speed, under heavy load, for example, can exact strains on every part of the vehicle which are sure and certain contributors to added maintenance and repair cost.

And finally, of prime importance, avoid the temptation to perform make-shift repairs. Invariably these lead to more expensive garage bills in the long run.

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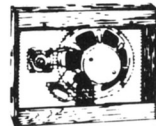
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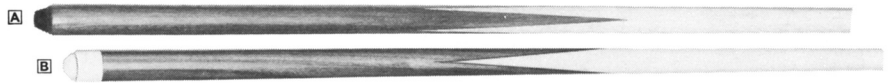
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OPERATING

Minnesota Ops Meeting Huge Success

A new and simple method of determining a fault in a microprocessor game was described at the annual convention of the Music Operators of Minnesota by Jim Sneed, general manager of Kurz-Kasch, Inc., of Dayton, Ohio.

Sneed outlined the process, called "logic signature," during a speech and service workshop on Sunday, May 22, at the Holiday Inn-Downtown in Minneapolis.

"Each microprocessor, like each of us, has a signature peculiar to itself," Sneed explained. "By comparing a known signature we can determine if the processor in question is operating properly. If the signature is not valid, we can determine where the malfunction is."

The elements which make a signature peculiar to each microprocessor, Sneed continued, are the signals to be found on its pins. By using a logic probe, it is possible to determine whether an inverter is "healthy," i.e., whether the signals on the pins are identical to the logic signature card for that machine.

If the processor system is not functioning in a valid mode, the indications on the testing device will determine where the processor is malfunctioning.

With the aid of diagrams, Sneed described the basic operation of a

microprocessor game. He then described a common failure in the system and showed how to use a logic signature card to locate the malfunction.

Sneed distributed a Kurz-Kasch kit to each member present containing logic signature cards for several games plus a blank 40 pin card. He explained how to devise a logic signature card. Once a game's particular logic signature has been recorded on the card, it can be used to locate processor failures rather quickly, Sneed said.

The annual meeting on Saturday was opened by M.O.M. President Dick Hawkins, who introduced the officers and directors and welcomed operators from North and South Dakota, Iowa and Wisconsin who had been invited to attend the Minnesota convention.

A.M.O.A. President Garland B. Garrett, Sr., gave a brief report on industry activities in his home state of North Carolina and described the operations of the A.M.O.A. Board of Directors.

A.M.O.A. Executive Vice President Fred Granger gave an update on national activities and the A.M.O.A. convention and reported on copyright legislation.

Al Eggermont, chairman of the nominating committee, presented the slate of officers and directors,

which was unanimously approved. The only new director is Doug Smart of Northern Amusement, Inc., Bemidji, who filled the position vacated by Pat Clennon of Albert Lea.

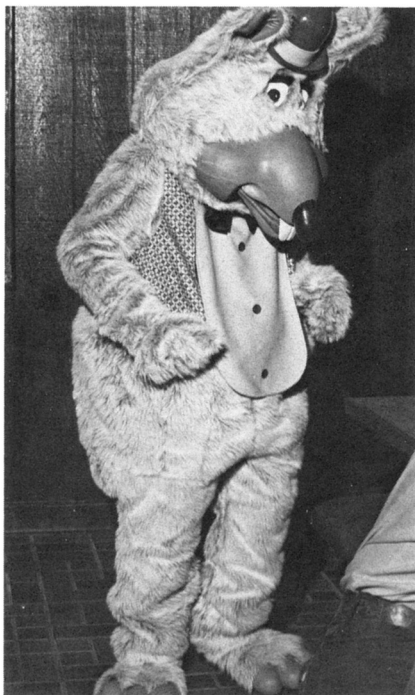
Re-elected to second one-year terms were Richard Hawkins of D & R Novelty and Vending, Rochester, president; Martin Kallsen of Martin Music, Worthington, vice president; Darrell Weber of Weber Music & Vending, Blue Earth, secretary; Jess Farkas of Twin City Novelty, Minneapolis, treasurer; and Harlow Norberg of C & N Sales Co., Inc., Mankato, executive officer.

Directors re-elected at the meeting were Al Eggermont, Jr., of Music Service Co., Marshall; Vern Ness of Ness Music & Games, St. Cloud; Steve Dahlin of Dahlco Music & Vending, St. Paul; Bob Kervina of Twin Ports Vending & Amusement, Duluth; and Hy Sandler of Sandler Vending, Norman Pink of Advance-Carter, and Phillip Smith of Perry Amusement, all of Minneapolis.

Clayton Norber will remain A. M.O.A. sergeant-at arms, and Norman Pink is A.M.O.A. director.

The show itself was well attended and included 14 exhibitors occupying 30 booths. Displays contained all the latest in music, games and amusements.

Introducing: Chuck E. Cheese



Chuck E. Cheese's Pizza Time Theatre had its premiere May 16. Janet Gray Hayes, mayor of San Jose, together with many other influential people from the community and press attended the festive opening of this new concept in family entertainment.

Combining a pizza restaurant with computer-animated performing characters and game rooms, the Pizza Time Theatre is another entertainment innovation from Atari, Inc.

In addition to serving pizza and sandwiches, the restaurant features humorous 48 in. computer-animated characters in gilt frames above the dining area. Chuck E. Cheese, alias The Big "C" with his straight man Crusty the cat, Jasper T. Jowls, the country hillbilly dog, and The Warblettes, soul-singing magpies, provide musical delight together with Pasqually, an Italian opera singing chef. A life sized Chuck E.

Cheese (an employee in full costume) also appears to greet the patrons.

Over thirty video, pinball, foosball and air hockey games are located in controlled room environments surrounding the dining area. Three specially designed "Pizza Game Booths" in one game room are available for dining and player competition on Breakout, Tank and Dominoes.

All the games are adjusted to accept either quarters or special "In Pizza We Trust" tokens. Free tokens are given with food orders and other specials such as birthdays or anniversaries to encourage game play. To preserve the atmosphere of family entertainment, controls have been established to assure that play on the games is limited to restaurant patrons only.

The Pizza Time Theatre has been developed and is operated through the Restaurant Operating Division of Atari, managed by Gene Landrum.

OPERATING

Bally Holds Schools on New Pins

A total of 235 operators and operator representatives attended the recent electronics service program sponsored by Bally Mfg., Chicago. Almost all the states of the Union—including Hawaii and Alaska—were represented in the attendance. And there were service people there from Canada and Europe as well.

The program, co-ordinated by Bally Field Service Engineer Bernie Powers, consisted of three separate three-day schools, held Monday, Tuesday and Wednesday of each of the first three weeks in May. The schools were held at the Howard Johnson's near O'Hare Airport in Chicago.

Powers has been responsible for many Bally schools in the past, but this was the first of such magnitude sponsored by the company. "It took us six months to arrange these schools," he said.

The program was prompted, according to Powers, by the fact that Bally's new electronic equipment "was designed with the operator in mind. This means," he went on, "that unlike any other electronic device he has ever been given before, the operator can quickly and easily test our machine electronically down to a component level, and without having to buy bulky, fancy test equipment. And this can be done right on location."

The procedure is, in fact a simple one, but, said Powers, "it is difficult to explain to an operator without showing him exactly how it is done.

"The recently concluded seminar accomplished this end," he said.

The first two days of each school were devoted exclusively to Bally electronic pins. The third day was a comprehensive study of Midway video equipment. A special guest in the Midway class was Chris Petri of Motorola, who explained the monitor made by his company and used on Midway games.

Instruction for the session was divided into four parts: an introduction to electronic games with emphasis on basic electronics and safety, what the serviceman should know before he even approaches the machine; the theory behind the electronics of the Bally pinball; a full-day of workshop in all areas of electronic pinball with class participation; and a comprehensive session on Midway video equipment.

"Our intention in structuring the classroom courses was to convey as much knowledge as possible in a manner that would hold everyone's interest," Powers said. "We wanted to teach them all we could and instill confidence, so that everyone who completed the course would be qualified to work on an electronic pinball.

"We told our students Monday morning that by Tuesday afternoon they would all be able to troubleshoot Bally pins to a component level," he continued. "And this was accomplished."

Demonstration models for the course were Freedom, Night Rider and the just-released Evel Knievel. These contain interchangeable boards, Powers said, and have similar systems.

Diplomas were awarded to all who successfully completed the course. These were signed by Ross Scheer, Bally's director of marketing and by all four instructors, Powers, Jack O'Connell, Chuck Wellestat and Andy Bucay.

Also provided for students were lunch each day and discussion cocktail parties each evening. Classroom facilities remained open all night, and many students took advantage of the study opportunity thus afforded.

Participants in the seminar, according to Powers, were generally operators or service personnel representing operators. Schools for distributor personnel had been held previously.

Attendants' skills varied from one week's experience to over thirty-five years in the industry.

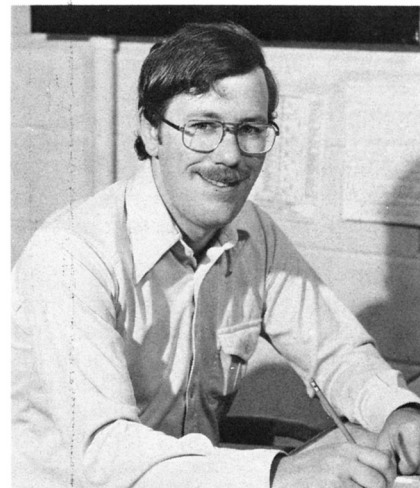
The three schools were separated geographically with the first group largely from the west coast, the second largely from the east coast and the third largely from the midwest.

Most students signed up through their distributors, Powers said, but no operator who either called Bally direct or just showed up at the school was turned away.

Response to the program has been gratifying to Powers. Already he has been getting calls asking when the next sessions are to be held. "I hadn't really planned to start working on another school just yet, but if customer demand dictates it, Bally will certainly sponsor a second program.

"What the whole program re-

vealed to us," Powers continued, "is that operators are very concerned about their industry. When an operator willingly will pay the price of a round trip ticket from as far away as many of them came to attend the classes, it certainly tells us what the industry is all about and where it's going."



*Bally Field Service Manager
Bernard "Bernie" Powers*

AMOA

In response to requests from members, the Amusement and Music Operators Association (AMOA) has established a program of schools for mechanics. The first will be held at the Sheraton Winchester Motor Inn, Smyrna, Ga. (a suburb of Atlanta) from July 11 through July 20.

The ten-day course, titled "Schematics and the Fundamentals of Troubleshooting Flipper Games," will be taught by Don Miller, a man of long experience in teaching the repair of coin machines. Miller will teach schematic reading and how to apply that knowledge to flipper game repair.

Registration for the school is limited to 20 persons. The registration fee is \$150.00, payable by check to Amusement and Music Operators Association and sent to: AMOA, 35 East Wacker Drive, Chicago, Ill. 60601.

Room reservations should be made directly with the Sheraton Winchester Motor Inn, 1200 Winchester Parkway, Smyrna. Special rates have been arranged for AMOA students.

HOME ENTERTAINMENT

by Susan Brenna

Bally and Atari created such a sensation at the Summer Consumer Electronics Show that the Pacer CB Equipment Company put a Fireball home game in front of its exhibit to draw traffic. Even without the Bally game demonstrators, attired in red hot pants, silver jackets, and dazzling smiles, the games would have been the hit of the convention.

"I learned a new word," gushed a demonstrator. "Microprocessor."

Such a long word for such a tiny piece of equipment, and such a big change it is making in the amusement games industry. The microprocessor is the little gadget that runs the video game systems you can plug into your TV to create a home arcade.

Both Atari, the California company that has pioneered in the production of solid state games, and Bally, currently the biggest seller of coin-op games, displayed their new home games at the June 5-8 convention in Chicago. In addition to the video games, Bally introduced the Evel Knievel home pinball game.

And what an introduction! Evel himself was at McCormick Place for two days to sign autographs (causing the lines to stretch from the Bally location into the stereo exhibits) and play a little pinball.

Apparently Evel's last disastrous visit to Chicago (when he broke a few bones during a test run for a jump over a tank of sharks) hasn't hurt his popularity locally.

Bally has already released the new Evel Knievel coin-op game this summer to coincide with the release of Evel's first movie, "Viva Knievel." Tom Neiman, the man behind the Elton John and Ann-Margaret Bally promotions, has become pretty chummy with the man Bally hopes will be the newest pinball wizard—in sales, at least.

"I told him if I put on the outfit and mumbled, no one would know the difference between us," said Neiman.

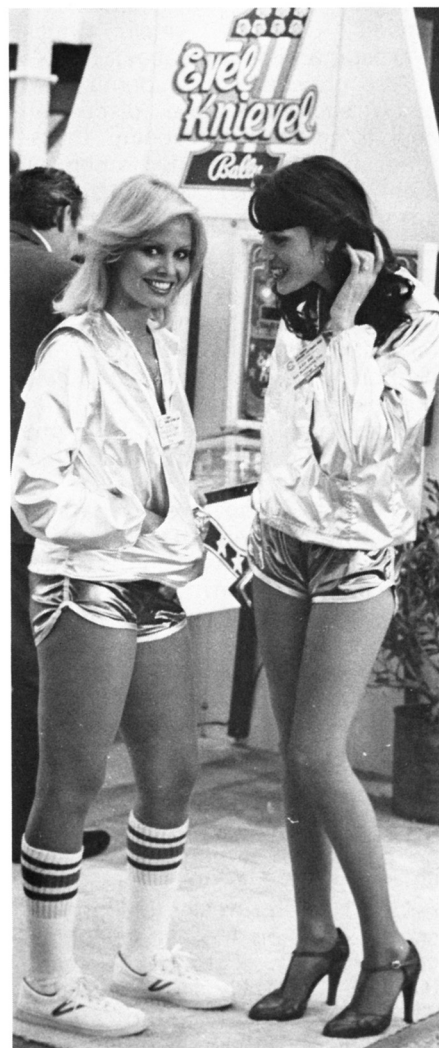
According to Carol Mart of Bally, the motorcycle daredevil has a game at home for the kids to play, and he seemed to be a fair shot himself. Mart says he is "really excited" about the game.

Neiman says the home version has a play identical to the coin-op version, although the home game can be adjusted to match the skill of each player. The consumer version also reproduces almost the same



Above: The Atari display booth.

Below: Two of Bally's Red & Silver.



sounds. It is solid state, and has a commercial size playfield. The machine stands thirty-four inches from the floor, so the small fry can play.

The big difference between the home and the coin-op version is the graphics. The scoreboard is different, as is the positioning of the figures on the backglass. But something is missing from the home version.

All those braless beauties in tight T-shirts who dance before the eyes of the arcade player are gone from the home game, as Neiman pointed out. Bally thinks they're great in bars, but inappropriate in the family playroom.

Bally had eight Evel Knievel and Fireball home games at its convention exhibit, most of which were in constant use. There were also two working models of the new Professional Arcade Home TV Entertaining Center, the home game that plugs into the TV.

Serving to further interest in the Bally booths was a bank of coin-op games, including the new Road Runner target game and such popular items as Sea Wolf, both from Midway.

Across the aisle, Atari also offered plenty of free entertainment to conventioners. Those footweary and timid could watch a full program on Atari's new line of consumer products, but many chose to get in some practice on the games.

Businessmen in three-piece suits waged fierce battles of Video Pinball, while Ultra-Pong, Stunt Cycle, and the rest of the colorful games enjoyed constant use.

Howard Liberman of Paragon Entertainment Products, Canadian distributors of Atari and other games, estimated that the two game booths attracted more traffic than any other of the hundreds of exhibits at the convention. "It's been excellent, sensational."

"One of the keys to a convention is time in the booth, and we've got it," said Neiman. "We've had people who spent hours here—you get to recognize faces. I couldn't believe how many people stood around waiting to get Evel's autograph."

Neiman was approached by supermarket chain representatives, among others, asking if they could rent out machines for their own exhibits in the future. "At times

there were no coin people at all, they'd just come by and ask, 'Gee, where can I buy those?'

If the excitement the games inspired at the convention is an indication of product appeal, both companies' home games will enjoy excellent sales next year. Neiman says the Bally games have sold spectacularly to retailers.

"Ever since Tuesday," Neiman declared on the closing day of the convention, "in theory we're not selling the product anymore. We're just getting ready for next year."

Leading Atari's line of five new television unit games is the Video Computer System. Variety is the key appeal of this system, which includes six game programs, each offering between fourteen and fifty game variations.

Players can choose between Combat, Space Mission, Air-Sea Battle, Street Racer, Indy 500, and Video Olympics, the fifty game unit. All are available in cassette form, retailing for \$19.95.

New cassettes will be available monthly after Christmas. These include educational cartridges as well as new games.

Liberman predicts that Video Pinball will be next year's biggest seller among consumer games. But can any home stand such excitement? Atari says "people kicked walls and screamed uncivilized noises," when the outfit, featuring seven game variations, was consumer tested.

Stunt Cycle, which includes four adapted from successful Atari coin-op games. Ultra-Pong, a two player game, and Ultra-Pong Doubles, for four players, succeed last year's home game, Super-Pong. In addition to being more exciting and varied than super-Pong, Ultra Pong retails for forty per cent less.

Bally introduced only one home video game the Professional Arcade Home TV Entertainment Center. The system includes two games, Checkmate and Gunfight, and a four function, ten memory calculator with screen display.

The games can accommodate four players, and have additional equipment that comes with other game cassettes, including gear shifts and steering wheels. Bally, like Atari, will market cassettes at comparable prices monthly after Christmas.

The Bally game has a capability of projecting 256 different colors on the screen at one time. Figures have 360 degree movement, which Neiman claims is more natural than in other games. Bally's micro-processor produces more than twice



Top: Two convention goers compete at Atari's home Breakout.

Below: A young man tries to decide which Bally he game he will play.

as many scan lines as any other machine.

In addition to the usual game sounds, Bally machines play music. When a cowboy is shot in Midway's Gunfight, the losing player is consoled with "Taps" or "Streets of Laredo."

Liberman says that the difference between the Atari and Bally game lines is that Atari is more game oriented, while Bally is interested in education.

Neiman explained the reason behind putting mathematical functions on what has traditionally been non-cerebral leisure time entertainment.

"I can take my son, say he doesn't understand math very well. Now I can visually show him two times five." Neiman also thinks adults can use the machine to work out simple math and household budgets, replacing the adding machine.

This is all pretty respectable stuff for a pinball manufacturer. And there's more. The Professional Arcade has the capacity for a full typewriter keyboard to be installed, so Mom, for example, can record her entire recipe file on the kids'

game.

The machine has memory and recall, as well as a computer tape system. It also has the capacity for a print-out unit to be added, as well as a light pen that will project written messages on to the screen.

As if this wasn't enough, you can also attach telephone receivers to the unit so that kids can call their friends and play Combat over the phone, or write messages to each other.

Atari machines do not have these capabilities built in, but plans for such expansion are in the offing. Because the company is owned by Warner Brothers, says Liberman, they are hoping to be able to show Warner Brothers movies on the game screens.

"It's very spacey, what these things can do. They're talking inter-continental broadcasts off satellites so we can play games with people in Europe," Neiman rolled his eyes in amazement.

Perhaps the leisure game industry has found the answer to kids watching too much TV. Now they can spend whole days playing with the TV instead.

•••••



All Electronic Pin



Hustle, Hustle

The score is in. Gremlin Girls 1,233. Challengers 7. That's the way it added up when Gremlin Girls Sabrina Osment and Lynn Reid completed a 12-city tour challenging all comers to a fast game of Hustle, Gremlin Industries' newest coin-operated video game.

The rules were simple. Beat the Gremlin Girl two out of three and win a cool \$100. The competition took place at flamboyant operators' parties co-hosted by Gremlin and local distributors.

New York's Sheraton Hotel near La Guardia was the scene of the inaugural reception April 15. The next stop was Minneapolis, April 26, then on to Chicago's posh Zorine's Club, followed by stops at Columbus, Boston, St. Louis, Dallas, Houston, and Miami, all covered by Gremlin marketing director Malcolm Baines and Ms. Osment.

Company president Frank Fogleman and Ms. Reid traveled to Los Angeles, San Francisco and Seattle.

According to Fogleman, operators were "impressed with the new game. They insisted on buying them off the floor, and ordered-sales have exceeded our original projections."

Baines comments? "The show was a hit. Both the Gremlin Girls and Hustle played every city to rave reviews."

In a recent discussion of Evel Knievel, Bally's first all electronic pin, Ross Scheer, director of marketing for Bally, emphasized that "The introduction of electronic technology in Bally pinball is not merely an effort on our part to follow a 'fashionable' trend to the future."

"The practical aspects of electronics," Scheer said, "convinced Bally, after years of research and development and side-by-side location tests of identical games in both electro-mechanical and electronic models, that electronic technology in pinball assures a new era of excellence.

"First, at the factory, replacement of complex cables, numerous soldered connections and relays with compact, positive-action, time-tested solid-state components—produced by world famous electronics manufacturers—assures dependable quality beyond the range of electro-mechanics. Positive, simplified inspection methods, adaptable only to electronics, prevent escape of the slightest defect, insure delivery of a product as perfect as the human mind can produce.

"The operator, already familiar with electronic technology, through operation of video and other electronic games, quickly sees the increased reliability of performance

which is characteristic of Bally electronic pinball," Scheer continued. "He sees the amazing simplicity of maintenance. He sees the uncanny, speedy, positive "troubleshooting" ability of the push-button self-test procedure built into Bally electronic games. He sees the computer accuracy of total coin chutes accountability and other accounting advantages, possible only with electronics. He sees the convenience of readily replaceable modules when prolonged and profitable play requires replacement. He sees increased earnings through practically zero down time.

"The player," according to Scheer, "sees in electronic pinball his old friend, pinball, with all favorite features, as exciting and skill-challenging as ever. But he also sees with delight the big, brilliant, easy-to-read digital read-out score counters, which never miss a point, because, if points are scored too fast for instant display, the electronic 'game brain' actually 'remembers' every point, quickly adds every point to the score. He sees, too, the new 'highest score to date' feature, a goal with which to compete. And he soon feels the improved ball action, particularly in flipper play.

"Everyone, in short, sees in electronic pinball the perfect pinball for the present and the future."



Allied Leisure Continues Operations

Creditors of Allied Leisure Industries, Inc., the Hialeah, Fla. based games manufacturer, recently received notification of the company's petition for reorganization under Chapter 11 of the federal bankruptcy laws. As reported in *Update* for March 15, the petition was announced on March 4.

The letter comes from Stanley Tulchin of Stanley Tulchin Associates, credit and collection consultants, and announces the election of the official Creditors' Committee. The Committee consists of Evert M. Williams of Graphic Products, Inc., Sidney F. Hooper of Alco Electronic Products Inc., Carl Stromberg of Signetics Corp., Jack A. Cooley of Hamilton Avnet Electronics, Dan Green of Oak Industries, Inc., and Robert G. Jacobs of National Circuits, Inc.

Tulchin was selected secretary to the Committee, and pursuant to a court order, Lawrence M. Schantz of the firm of Friedman and Britton has been retained as Counsel to the Committee.

Tulchin's letter announces that the Committee met on May 12 to review the debtors Plan of Arrangement filed on April 23, 1977.

"The Committee has taken the position that it will not recommend the Plan of Arrangement until such time as it has been demonstrated

that the debtor has the ability to implement the proposed Plan," the letter continues.

Creditors should file proof of claim directly with the Hon. Thomas Britton, Bankruptcy Court, 808 Ainsley Building, Miami, Fla., Tulcin says.

Allied Leisure remains, contrary to rumor, still in operation. Normally under Chapter 11, the incumbent management continues to run the company declaring bankruptcy while protected against creditor claims by the courts.

Pins in production at the Hialeah, Fla. plant, according to Allied President Mort Mendes, include the new Hoe Down. Allied is also making a cocktail table pinball under a private label, Mendes said.

Production is being wound up on the driving game, Sebring X-11, but the company expects to begin production on a new arcade piece, Battle Station, in August.

A court hearing on June 20 requested by the Creditor's Committee resulted in Allied's being given an additional 90 days to fund the proposed Plan of Arrangement. Meanwhile, the company is actively seeking financing, according to Mendes.

"We are very much alive," the Allied president said. "And we have every intention of surviving."

FUN GAMES CREDITORS MEET

Mike Crady of Vidar has been elected chairman of the Creditor's Committee for Fun Games, Inc. The election was held May 4 at a general creditor meeting. As reported in *Play Meter's* March 15 *Update* and in the May issue of the magazine, certain of Fun Games' assets were acquired by Meadows Games when Fun Games ceased operation.

Other members of the Creditor's Committee are Harold D. Glassberg of Marshall Industries, Carl J. Stromberg of Signetics and Karl F. Nigg of Kooyers Mfg. Co.

By a common law arrangement, the Committee has negotiated a plan with Fun Games for the orderly retirement of the company's indebtedness.

Briefly, the plan calls for all of Fun Games assets (primarily accounts receivable) to be liquidated as quickly as possible and the proceeds delivered to attorney John S. Burd of San Francisco for benefit of

creditors who consent to the creditors' agreement proposed. The funds, after payment of expenses set forth in the agreement, will be distributed to creditors on a pro rata basis at the end of each quarter beginning with the second quarter of 1977.

Corobilt Container Co., who has a perfected security interest in the assets of Fun Games, has agreed to subordinate its claim in favor of the general creditors of the company. Likewise the former landlord of Fun Games has agreed to subordinate his claim for back rent to the claims of general unsecured creditors.

In addition, according to Crady, Fun Games intends to prosecute antitrust action against Atari, Inc. pending in the United States District Court for Northern California in hopes of obtaining through such litigation additional funds for the retirement of creditor obligations.



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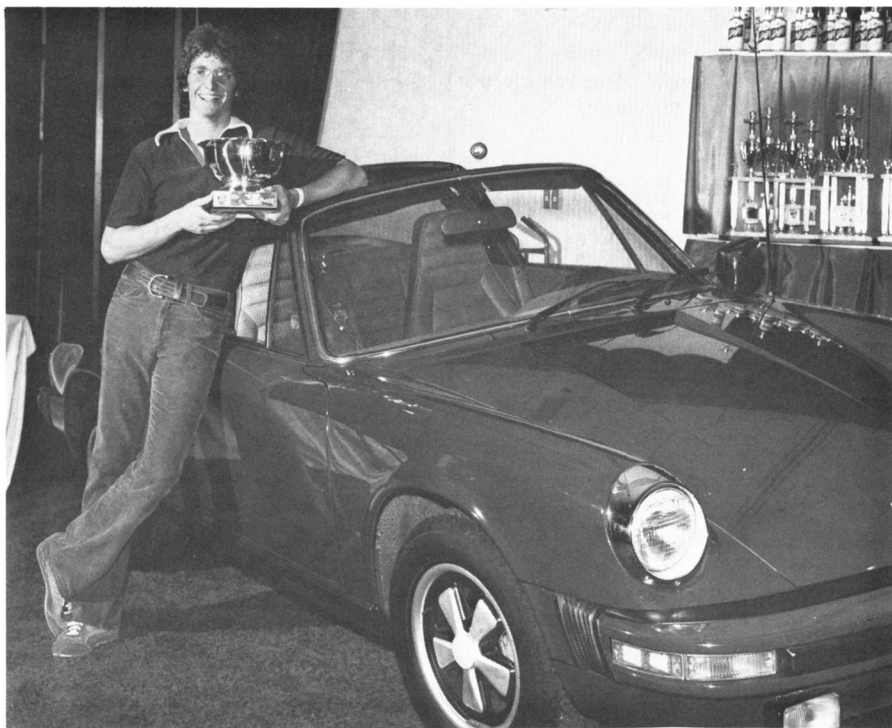
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T S SUPER SINGLES HOMETOWN WINNER



Crowds and Schlitz: much in evidence at the Minneapolis tournament.



Super Singles Champ Doug Furry poses with his trophy and Targa.

Minneapolis's luxurious Radisson South Hotel was the scene of one of foosball's most dramatic moments as hometown Doug Furry triumphed in a special handicapped playoff, to be crowned the Tournament Soccer 1977 Super Singles Champion. Furry drove away from the Memorial Day competition in his prize, a 1977 Porsche 911 S Targa, the most expensive prize ever awarded in a foosball singles tournament.

Furry earned his way into the Super Singles event by taking the event's Pro Singles Championship, defeating fellow Minnesotan Mark Scheur. Pre-tournament favorite Steve Simon of San Antonio finished third. In the Super Singles final, Furry overcame a one goal handicap to down Novice Singles Champ Robert Garvin of Edina, Minn. Garvin had been down 2 games to 0 in his playoff with Women's Novice Champion Georgia Schabillion of Davenport, Iowa, but he came back to take the match 3-2. Ms. Schabillion had dispatched the Pro Women's winner Lori Schranz, after the talented Texan was unable to overcome a stiff handicap.

Defending World Champions Mike Belz and Brent Bednar of St. Paul took the prestigious Mixed Doubles event, winning their way through the losers bracket after an early loss, to take the final in two sets from Jim Wiswell and Marcio Bonilla. Simon, playing out of St. Louis, teamed with Barb Anderson to win the Mixed Doubles Championship. Schranz and partner Karen Gililand, also of Dallas, were the best of the Womens Doubles teams, but suffered a rare defeat in an early match and had a long way to come back through the losers bracket to take the crown.

The Radisson's Grand Ballroom was impressively decked out with the event sponsor Jos. E. Schlitz Brewing Co. if Milwaukee much in evidence. The brewery's participation included banners, an impressive display of trophies, and a Saturday night party for the participants. Chuck Morrison and Peter Dang, representing the sponsors, treated the foosers to a barbecue and dance with live music in the hotel's indoor courtyard.

Next stop on the \$500,000 Tournament Soccer 1977 Tour is slated for Los Angeles. The World Championships have been set for November 3-7 in the Gateway Convention Center in St. Louis.

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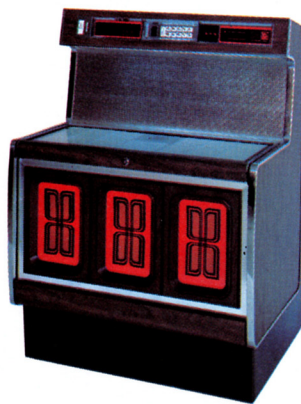
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BALLY SCHOOLS NOW SOLID-STATE

Since its series of three-day schools in May, Bally Mfg. Corp., Chicago, has changed its one-day distributor seminars from electro-mechanical to solid-state flipper schools.

In all, Bally service representatives Jack O'Donnell and Bernie Powers conducted seven schools during the month of June and have so far three more scheduled for July.

On June 1, a school was held in Des Moines, Iowa for Philip Moss and Company, and O'Donnell went on the road at mid-month for three more pin schools: in Minneapolis on June 13 and in Fargo, N.D. on June 15 both for Sandler Vending; and in Sioux Falls, S.D. on June 16 for J-Mak Distributors. Jack was joined by Midway's Andy Ducay for the last.

On Monday, June 20, both O'donnell and Powers were home in Chicago for a school for Empire Distributing. Powers reports that 150 attended that event. The following Monday, July 27, Bally held a school at Playtime Distributing in New

Orleans.

The July schools will be held on the 12th for Central Distributing, St. Louis; on the 14th and 15th (again with Midway) for Struve Distributing, Salt Lake City; and on the 21st for Robt. Jones International, Dedham, Mass.

O'Donnell will take some time off

in July, however. He plans to married to Miss Lisa Wall on July 23. The wedding will take place on the East Coast.

Field Service Manager Powers also reports that Bally has installed a Wats line since the beginning of electronic flipper production. The toll free number is 800/621-0108.

Belam to Export for Wico

R.H. Belam Co. Inc. has been appointed exclusive export agent for Wico Corp., Games Division. Belam's first assignment will be the international marketing of the new Wico electronic home pinball machine, Big Top.

Having researched the home pinball market and followed it closely for a year and a half, Belam Vice President Robert Haim declared himself pleased with the new association.

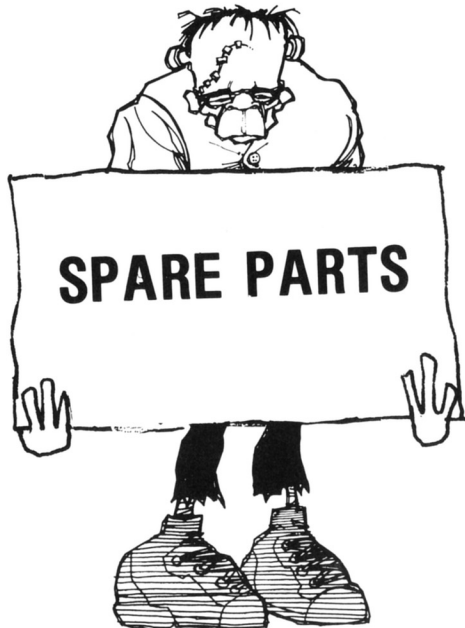
"Of all the home pinball machines in the price range, this is the only one worthy of being called a pinball

machine," Haim said. "We expect Big Top to be in huge demand for the Christmas season."

Wico, the giant parts supplier, has opened a brand new manufacturing facility near San Diego, Cal. All Wico games will be built there. Production has already started on big Top and orders are coming in.

Belam will send its executives throughout the world to establish a distribution and service network for the new game. Haim expects arrangements to be completed by October, just in time for the Christmas season.

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Service Sells!

When I was notified that the theme of this month's *Play Meter* was going to be service, I was elated. For this subject is something that is near and dear to my heart. Service is of the utmost importance to me, and it seems as though it is also important to the average consumer. Although it might not be readily noticeable on the surface, when you begin taking a look around...it becomes obvious.

For example, in my area most gas stations have two choices for the same gas. One can go to the "Mini-Serve," where they will only put gas in your tank, or one can go to the "Full-Serve" side where the attendant will wash the windows, check the hood, put air in the tires and generally be more friendly. For this service, it usually costs approximately two cents more per gallon. And there are always more cars in the Full Service area.

That's one example, but let's take one that directly applies to our industry. Why is it that people could very easily go to the so-called discount department stores to purchase their records, but choose to go to a "regular" record store, where they will probably pay more for the same record? The answer is simple. At a record store, people get service. If they don't know the title of a tune, or what album it's on, the sales person will surely know. That's service. Why patronize a discount store where the person waiting on you was in the appliance department three hours ago? He can't answer your questions!

So, what I am saying here is that to be especially successful, perhaps you should consider a service for your customers that they can't get anywhere else. What about a

section of your jukebox that's devoted to brand new singles...at a cut rate? Or how about giving away the records that are either worn out or old, the ones you can't use again. I'm sure that there must be other ideas that you have to service your customers. Try them out: they may very well increase your business. It's a proven fact, people like, want and will pay additional money, within reason, for service.

Stolen Love—Barbara Dickson/
RSO Records-RS-875

When one receives as many singles as I do, it's not often that I get excited about *another* record, by a new "star." But this one is certainly an exception. *Stolen Love* is what she has done to me. I'm in love with Barbara Dickson's style, her voice and the arrangement.

The tune was produced by Mentor Williams, the man behind many hits in Nashville. But this tune is not strictly country. It is a crossover, much the way Emmylou Harris' songs are. It has a country feel about it, but it really isn't a country song. It will appeal to both country and rock people.

Barbara's voice is beautiful, not harsh or strident, but relaxed with no hesitation or jerky movements. This is an outstanding single that evidences a warm relationship between her, and the listener. Just great!

Who Was It Stole Your Heart Away—Barbara Dickson/RSO-875

I don't mean to dwell on the subject, but here we have another great one from Barbara. This one isn't as "country" as the other, yet it still contains the feeling which I mentioned above, The warmth.

This is an original tune written by Barbara. It is somewhat average lyrically, but rather potent melodically. This song is a definite YES for rock folks. The sidemen are superb. And the tune has intensity, vividness, conviction and integrity. Need I say more?

Sunshine After The Rain—Elkie Brooks/A&M 1953

Come on...what a trite title for such an original and "heavy" singer! This is a fine tune, until all of the unnecessary back-up junk comes in. It was ideal just listening to Elkie's voice. It is original. It has strength and gentleness at the same time.

On this disc, Elkie's voice is pure, pleasant; the record has those melodic-basic rock-type vocals that become more infectious as you listen but seldom reach any innovative heights. Original, yes, but innovative, no. The only exciting moments come in the first few bars, where she sings alone. This solo was too brief.

Unfortunately, the back-up vocals do nothing but simply distract from her voice. I think the main problem here, are those back-up people. The producers were looking for that "full sound," but the attempt to find it did nothing except bother me. I'm looking forward to hearing Elkie's next single, without the vocalists.

Since Barbara Dickson is a new artist, perhaps you could put her singles in your jukeboxes, and offer a unique service. Be the first to give your customers brand new, good singles at a special "Get-acquainted" price. It might pay off in the long run...yes?

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Top Twenty Soul

Now Was

1	3	EASY	COMMODORES/Motown M 1418F
2	1	GOT TO GIVE IT UP	MARVIN GAYE/Tamla T54280F (Motown)
3	14	BEST OF MY LOVE	EMOTIONS/Columbia 3 10544
4	5	I DON'T LOVE YOU ANYMORE	TEDDY PENDERGRASS/Phila. Intl. ZS83622 (CBS)
5	4	SIR DUKE	STEVIE WONDER/Tamla T54281F (Motown)
6	8	SEE YOU WHEN I GET THERE	LOU RAWLS/Phila Intl. ZS83623 (CBS)
7	2	HOLLYWOOD	RUFUS FEATURING CHAKA KHAN/ABC 12269
8	6	I'M YOUR BOOGIE MAN	KC AND THE SUNSHINE BAND/T.K. 1022
9	16	SLIDE	SLAVE/Cotillion 44128 (Atlantic)
10	7	HIGH SCHOOL DANCE	SYLVERS/Capitol P 4405
11	10	GOOD THING MAN	FRANK LUCAS/ICA 001
12	18	THIS I SWEAR	TYRONE DAVIS/Columbia 3 10528
13	11	IT FEELS SO GOOD (TO BE LOVED SO BAD)	MANHATTANS/Columbia 3 10495
14	15	I'M GOING DOWN	ROSE ROYCE/MCA 40721
16	12	AIN'T GONNA BUMP (WITH NO BIG FAT WOMAN)	JOE TEX/Epic 850313
16	9	WHODUNIT	TAVARES/Capitol P 4398
17	17	DO WHAT YOU WANNA DO	T. CONNECTION/Dash 5032 (T.K.)
18	13	THE PRIDE	ISLEY BROTHERS/T-Neck ZS82262 (CBS)
19	19	TRYING TO LOVE TWO	WILLIAM BELL/Mercury 73839
20	20	UPTOWN FESTIVAL	SHALAMAR/Soul Train SB 10885 (RCA)

Top Twenty Country

Now Was

1	1	LUCKENBACH, TEXAS	WAYLON JENNINGS/RCA PB 10924
2	2	MARRIED BYT NOT TO EACH OTHER	BARBARA MANDRELL/ABC Dot DO 17688
3	5	THAT WAS YESTERDAY	DONNA FARGO/Warner Bros. WBS 8375
4	4	YOUR MAN LOVES YOU HONEY	TOM T. HALL/Mercury 73899
5	3	I CAN'T HELP MYSELF	EDDIE RABBITT/Elektra 45390
6	6	IT'S A COWBOY LOVIN' NIGHT	TANYA TUCKER/MCA 40708
7	11	I WAS THERE	STATLER BROTHERS/Mercury 73906
8	8	BURNING MEMORIES	MEL TILLIS/MCA 40710
9	13	HEAD TO TOE	BILL ANDERSON/MCA 40713
10	12	DON'T GO CITY GIRL ON ME	TOMMY OVERSTREET/ABC Dot DO 17697
11	14	IF PRACTICE MAKES PERFECT	JOHNNY RODRIGUEZ/Mercury 73914
12	16	I'LL BE LEAVING ALONE	CHARLEY PRIDE/RCA PB 10975
13	15	BORN BELIEVER	JIM ED BROWN & HELEN CORNELIUS/RCA PB 10967
14	21	IT WAS ALMOST LIKE A SONG	RONNIE MILSAP/RCA PB 10976
15	23	MARGARITAVILLE	JIMMY BUFFETT/ABC AB 12254
16	19	CHEAP PERFUME AND CANDELIGHT	BOBBY BORCHERS/Playboy ZS85803
17	7	IF WE'RE NOT BACK IN LOVE BY MONDAY	MERLE HAGGARD/MCA 40700
18	20	IF YOU WANT ME	BILLIE JO SPEARS/United Artists XW985 Y
19	25	I DON'T KNOW WHY (I JUST DO)	MARTY ROBBINS/Columbia 3 10536
20	27	MAKIN' BELIEVE	EMMYLOU HARRIS/Warner Brothers WBS 8388

JUNE 25, 1977



THE SINGLES CHART

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

JUNE 25	JUNE 18		WKS. ON CHART
1	2	DREAMS FLEETWOOD MAC Warner Bros. WBS 8371	11
2	1	GOT TO GIVE IT UP MARVIN GAYE/Tamla T 54280F (Motown)	12
3	5	UNDERCOVER ANGEL ALAN O'DAY/Pacific 001 (Atlantic)	10
4	4	GONNA FLY NOW (THEME FROM "ROCKY") BILL CONTI/United Artists XW940 Y	10
5	10	DA DOO RON RON SHAUN CASSIDY/Warner/Curb 8365 (WB)	7
6	3	I'M YOUR BOOGIE MAN KC & THE SUNSHINE BAND/T.K. 1022	17
7	6	LONELY BOY ANDREW GOLD/Asylum 45384	15
8	7	SIR DUKE STEVIE WONDER/Tamla T 54281F (Motown)	13
9	9	FEELS LIKE THE FIRST TIME FOREIGNER/Atlantic 3394	14
10	12	JET AIRLINER STEVE MILLER BAND/Capitol P 4424	9
11	14	LOOKS LIKE WE MADE IT BARRY MANILOW/Arista 0244	8
12	13	HIGH SCHOOL DANCE SYLVERS/Capitol P 4405	11
13	8	WHEN I NEED YOU LEO SAYER/Warner Bros. WBS 8332	18
14	11	LUCILLE KENNY ROGERS/United Artists XW929 Y	15
15	20	I'M IN YOU PETER FRAMPTON/A&M 1941	5
16	18	LIFE IN THE FAST LANE EAGLES/Asylum 45386	11
17	21	MARGARITAVILLE JIMMY BUFFETT/ABC 12254	17
18	19	ANGEL IN YOUR ARMS HOT/Big Tree BT 16085 (Atlantic)	17
19	22	I JUST WANT TO BE YOUR EVERYTHING ANDY GIBB/RSO RS 872 (Polydor)	9
20	24	DO YOU WANNA MAKE LOVE PETER McCANN/20th Century 2335	9
21	15	AIN'T GONNA BUMP (WITH NO BIG FAT WOMAN) JOE TEX/Epic 8 50313	15
22	26	WHATCHA GONNA DO? PABLO CRUISE/A&M 1920	8
23	16	HEARD IT IN A LOVE SONG MARSHALL TUCKER BAND/Capricorn CPS 0270 (WB)	16
24	29	(YOUR LOVE HAS LIFTED ME) HIGHER & HIGHER RITA COOLIDGE/A&M 1922	8
25	31	KNOWING ME, KNOWING YOU ABBA/Atlantic 3387	7
26	17	HOTEL CALIFORNIA EAGLES/Asylum 45386	17
27	34	IT'S SAD TO BELONG ENGLAND DAN & JOHN FORD COLEY/Big Tree BT 16088 (Atlantic)	8
28	30	BACK TOGETHER AGAIN DARYL HALL & JOHN OATES/RCA PB 10970	8
29	33	MY HEART BELONGS TO ME BARBRA STREISAND/Columbia 3 10555	6
30	32	LUCKENBACH, TEXAS WAYLON JENNINGS/RCA PB 10924	8
31	23	COULDN'T GET IT RIGHT CLIMAX BLUES BAND/Sire 736 (ABC)	17
32	38	YOU AND ME ALICE COOPER/Warner Bros. WBS 8349	9
33	40	BARRACUDA HEART /Portrait 6 70004	5
34	35	LOVE'S GROWN DEEP KENNY NOLAN/20th Century 2331	13
35	37	ARIEL DEAN FRIEDMAN/Lifesong 45002	12
36	44	EASY COMMODORES/Motown M 1418F	5
37	42	YOU'RE MY WORLD HELEN REDDY/Capitol P 4418	7
38	50	YOU MADE ME BELIEVE IN MAGIC BAY CITY ROLLERS/Arista 0256	4
39	41	PEACE OF MIND BOSTON/Epic 8 50381	8
40	39	GONNA FLY NOW (THEME FROM "ROCKY") MAYNARD FERGUSON/Columbia 3 10468	9
41	27	SOUTHERN NIGHTS GLEN CAMPBELL/Capitol P 4376	18
42	25	SLOW DANCIN' (DON'T TURN ME ON) ADDRISI BROTHERS/Buddah BDA 566	12
43	28	DON'T GIVE UP ON US DAVID SOUL/Private Stock 129	22
44	43	SPIRIT IN THE NIGHT MANFRED MANN'S EARTH BAND/Warner Bros. WBS 8355	10
45	55	THE KILLING OF GEORGIE (PART I & II) ROD STEWART/Warner Bros. WBS 8396	3
46	36	HOLLYWOOD RUFUS FEATURING CHAKA KHAN/ABC 12269	9
47	56	TELEPHONE MAN MERI WILSON/GRT 127	4
48	45	RICH GIRL DARYL HALL & JOHN OATES/RCA PB 10860	22
49	46	I'VE GOT LOVE ON MY MIND NATALIE COLE/Capitol P 4360	21

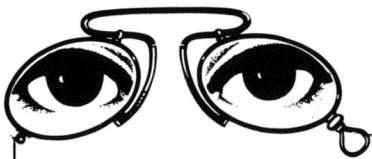


50	47	MAINSTREET BOB SEGER/Capitol P 4422	10
51	48	WHODUNIT TAVARES/Capitol P 4398	15
52	49	LIDO SHUFFLE BOZ SCAGGS/Columbia 3 10491	16
53	63	I DON'T LOVE YOU ANYMORE TEDDY PENDERGRASS/Phila. Intl. ZS8 3622 (CBS)	9
54	51	CALLING DR. LOVE KISS/Casablanca 880	16
55	52	RIGHT TIME OF THE NIGHT JENNIFER WARNES/Arista 0223	18
56	70	BEST OF MY LOVE EMOTIONS/Columbia 3 10544	2
57	65	GIVE A LITTLE BIT SUPERTRAMP/A&M 1938	6
58	67	RUNAWAY BONNIE RAITT/Warner Bros. WBS 8382	5
59	57	GOING IN WITH MY EYES OPEN DAVID SOUL/Private Stock 45150	9
60	61	GOOD THING MAN FRANK LUCAS/JCA 001	7
61	64	I'M GOING DOWN ROSE ROYCE/MCA 40721	8
62	54	I WANNA GET NEXT TO YOU ROSE ROYCE/MCA 40662	16
63	75	HANDY MAN JAMES TAYLOR/Columbia 3 10557	2
64	72	JUST A SONG BEFORE I GO CROSBY, STILLS & NASH/Atlantic 3401	4
65	69	AMARILLO NEIL SEDAKA/Elektra 45406	4
66	58	WATCH CLOSELY NOW KRIS KRISTOFFERSON/Columbia 3 10525	6
67	53	HELLO STRANGER YVONNE ELLIMAN/RSO RS 871 (Polydor)	14
68	70	ALL YOU GET FROM LOVE IS A LOVE SONG CARPENTERS/A&M 1940	6
69	66	SLOWDOWN JOHN MILES/London 5N 682	7
70	74	SLIDE SLAVE /Cotillion 44218 (Atlantic)	3
71	83	BLACK BETTY RAM JAM/Epic 8 50357	4
72	81	IT FEELS SO GOOD (TO BE LOVED SO BAD) MANHATTANS/Columbia 3 10495	7
73	60	SHOW YOU THE WAY TO GO JACKSONS/Epic 8 50530	13
74	59	TRYING TO LOVE TWO WILLIAM BELL/Mercury 73839	20
75	85	TELEPHONE LINE ELECTRIC LIGHT ORCHESTRA/United Artists 1000	2
76	93	SEE YOU WHEN I GIT THERE LOU RAWLS/Phila. Intl. ZS8 3623 (CBS)	3
77	86	LIVIN' IN THE LIFE ISLEY BROTHERS/T-Neck ZS8 2264 (CBS)	2
78	79	SAVE ME MERRILEE RUSH/United Artists XW993 Y	4
79	87	NEON NITES ATLANTA RHYTHM SECTION/Polydor PD 14397	2
80	88	LADY (PUT THE LIGHT ON ME) BROWNSVILLE STATION/Private Stock 45149	4
81	77	UPTOWN FESTIVAL SHALAMAR/Soul Train SB 10885 (RCA)	8
82	68	ON THE BORDER AL STEWART/Janus 267	9

CHARTMAKER OF THE WEEK

83	—	HERE COMES SUMMER WILDFIRE Casablanca NB 885	1
84	—	BABY DON'T CHANGE YOUR MIND GLADYS KNIGHT & THE PIPS/Buddah 569	1
85	—	SOMETHING ABOUT YOU LE BLANC & CARR/Big Tree BT 16092 (Atlantic)	1
86	89	WHILE I'M ALONE MAZE/Capitol P 4392	6
87	90	SAVE ME DONNA McDANIEL/Midsong Intl. MB 11005 (RCA)	2
88	92	SEASIDE WOMAN SUZIE & THE RED STRIPES/Epic 8 50403	3
89	—	SWAY INTO THE MUSIC (SLOW DANCIN') JOHNNY RIVERS/Big Tree BT 16094 (Atlantic)	1
90	94	PEOPLE IN LOVE 10cc/Mercury 73917	3
91	—	SMOKE FROM A DISTANT FIRE SANFORD-TOWNSEND BAND/Warner Bros. WBS 8370	1
92	95	LOVIN' IS REALLY MY GAME BRAINSTORM/Tabu 10961 (RCA)	3
93	97	ONLY THE LUCKY WALTER EGAN/Columbia 3 10531	2
94	—	IF IT'S THE LAST THING I DO HELMA HOUSTON/Tamla T 54283F (Motown)	1
95	—	FLOAT ON FLOATERS/ABC 12284	1
96	—	THE DOODLE SONG FRANKIE MILLER'S FULL HOUSE/Chrysalis 2145	1
97	—	ON AND ON STEPHEN BISHOP/ABC 12269	1
98	100	THIS I SWEAR TYRONE DAVIS/Columbia 3 10528	2
99	—	WALK RIGHT IN DR. HOOK/Capitol 4423	1
100	—	WHAT'S ON MY MIND KANSAS/Kirshner ZS8 4270 (CBS)	1





CRITIC'S

THREE FOR THE ROAD

Well, here it is July and the summer should be in full swing no matter what part of the country you're in. If you're lucky enough to have an arcade or amusement center somewhere near the beaches or community pools you're in good shape; if you're in the inner city however, you're probably hoping to hold you own at least until the fall arrives and returns your happy patrons. Whatever the case, I sit here finding it hard to believe that this column is entering into its second year of existence. It seems like it was only yesterday that I was stating why criticizing games wasn't such a bad thing and that it wasn't going to wound anyone.

Obviously, there was some validity to that, otherwise I wouldn't be writing what I am writing now. As I have mentioned in recent months, this year's crop of games has been remarkably good compared to some of the efforts of years gone by. Nothing truly innovative, from a playfield feature standpoint (besides The Atarians) has occurred, but we are finally being exposed to solid-state in increasing numbers. The true test will come in the next few years when we view the longevity and staying power of today's efforts. Although there hasn't been anything so sensational from a dramatic breakthrough standpoint, we are seeing inroads being made in terms of refinement of particular features such as drop targets and spinners.

Another interesting aspect of today's pinball machines is the level of sophistication of play, which greatly parallels player's skills and desires. There is more of a continuity of action (something I've been stressing lately in this space) on the playfield, as well as a building up of suspense on most of the games.

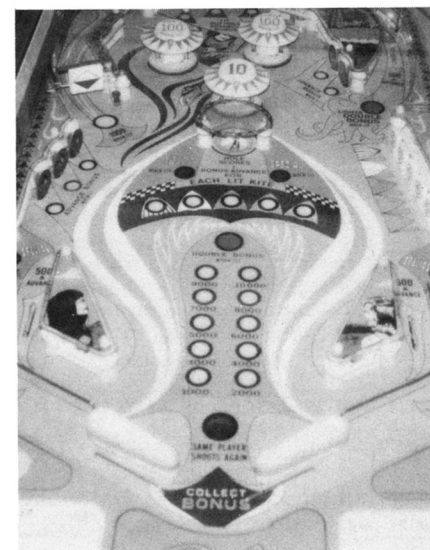
The random element of hitting something 'there' and then aiming for something 'here,' although not totally removed from the play action, has taken a back seat to what has become a rather orderly and systematic level of play. Suddenly, when faced with 'targets,' one is called upon to hit the top three first and then the bottom five. I think this is great for no other reason than that it intensifies and

further solidifies the concept of skill in relation to pinball play.

A final word before we get into this month's games: thanks for the continued notes and questions I've been receiving lately; I will endeavor to answer all and every problem you may have as soon as is humanly possible. In response to Greg, who I feel has become somewhat of a pen-pal over the past couple of years, the feature on *Bronco* that I was referring to was the bottom kickers or kicking rubbers and not the side 'tiltenrods.' Sometimes I may name something differently from the technical term applied, for that I apologize, but at least I've taken your suggestion and now have visual back-up to help cover any semantical errors I may be making. By the way Greg, when will I see the next 'red' post?

Also, to answer a question I have been lately bombarded by, and this is in no way a commercial interruption—the book? Well, I can safely and accurately state that the first ad for *PINBALL!* (the new and working title) ran in *Publisher's Weekly* (a trade journal for the book industry) in the beginning of June. The book, which includes over 250 color pictures and over 15 pages of game and manufacturer lists, as well as interviews and the most detailed history of the game ever assembled in one place, will be available to the industry by late summer. In fact letters will be going to many of you for advanced orders so that you can save money on the retail price that the 'real' world will be forced to cough up. Next month I'll try to give a more detailed description of this 9" by 13" coffee-table extravaganza that I think we've all been waiting for—at least I've been waiting for it. Anyway, prices, delivery times, etc. will be following in the August issue, and that's not just because my birthday leads off that month, but rather because I'm a bit sentimental; but then that's another story.

The time has come to end this paid political announcement and get down to the matters at hand...the pins of July.

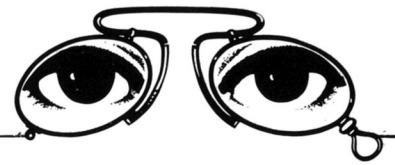


Bally's HANG GLIDER

This four-player should find its way into many arcades over the summer if for no other reason than because it's a knock-off of a recent Bally game called *Hi-Deal*. Remember the big monkey and the brochures that clarified the call to D.C. flippers? Well, with some subtle variations and a change in artwork, this game is substantially the same. In fact the only thing that's really different is the use of drop targets at center right of the playfield rather than aiming for "cards," one is now aiming for "kites."

Anyway, at the top we once again find those little white rollovers that gained some prominence back in the days of Odds and Evens and Monte Carlo. Here, as was the case with *Hi-Deal*, the bonus is tied into

CORNER



which lit roll-over is hit and when it's hit. There's a three thumper bumper configuration which offers some good rebounding angles back to the top roll-overs, or off to the right side where one finds two targets that are tied into the bonus set-ups when they're lit.

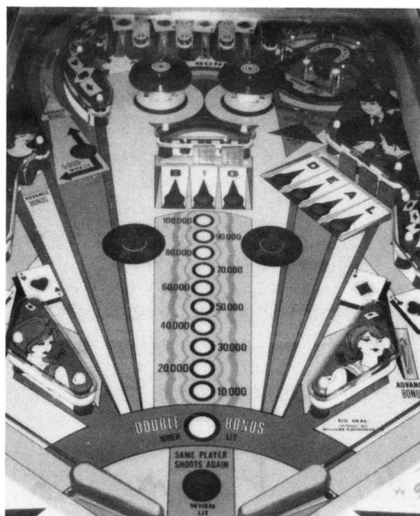
The left side lane features an opening about three-quarters up for access into the thumper bumper area, and also has the front spinner which has become such a staple on most recent pinball efforts. The opposite side right lane doesn't feature a spinner, or even access back to the plunger, but it does offer a double bonus when particular targets have been hit.

At the center of the playfield is a guarded kick-out hole that can be the biggest sucker shot on the board if one isn't careful when aiming for it, but it does offer a special as well as advancing the bonus, so players will probably include it in their repertoire of shots. At the side left are three targets which advance the bonus if they're hit when they're lit, and at the facing side are the five drop targets, which when hit down offer all sorts of rewards such as extra games and extra balls, as well as a great deal of satisfaction. The bottom is a Gottlieb bottom, and saving the ball on the flipper to line up one's shots are the order of the day.

All in all I liked this game better as a single player; in fact it was one of my favorites. Here, the drop targets tend to slow down the action since there is an intrinsic delay once the ball has made contact; with Hi-Deal the action on this side was faster and more true in terms of rebounding capabilities. But the game should get some play since it offers a little bit of everything in a fairly standard pinball package. The best shots are going to be those that head for the left spinner lane or the right double bonus lane. Drop targets are better left for rebounding off the kicking rubbers, and only when one or two are left standing does it pay to aim for that direction of the playfield.

In terms of artwork, the treatment is uninspired and doesn't hold up to other Bally efforts or the bright hues of other manufacturers. The subtle pastels are totally wasted, giving an almost washed-out appearance to what is truly a very contemporary theme.

Rating: ## 3/4



Williams' BIG DEAL

Here's one company that just seems to go along turning out good, sound pinball machines, in less numbers than Bally or even Gottlieb, but you just know that Williams will be right around the corner with some kind of effort. I do this lead-in only because Williams seems like the silent one of the Big Three. They're there, you and I know they're there, but they just don't leap up and shout about it. Instead, they methodically turn out games with no raves or super-hype.

This four-player in fact, may or may not be available when you read this, lead times being what they are, but I'm almost positive it will be, and you should give it a long hard look. On the surface it doesn't look like a world beater, but it's a good standard Williams' pin, which means that the action is fast and the scoring possibilities are high.

The motif is cards and so one finds four top lanes appropriately labeled Clubs, Hearts, Diamonds and Spades. Two thumper bump-

ers, parallel to each other and a stationary target at the top left of this set-up finish off the mid-top of the game. At the right, you'll recognize the round-about that was featured in Space Mission; in fact if you look closely enough at this entire top part of the field, you'll find that with some subtle variations, it is the twin sister of Williams' long time winner. There is a left top return lane, which surprisingly offers no spinner, and at mid-left field there's a target for advancing the bonus.

The major part of the game rests with the seven drop targets, which appropriately spell out the words B-I-G D-E-A-L. There are three at the center (where the swinging target was on Space Mission) and four at the mid-right of the field. Just knock down either set twice or both once each concurrently on one ball and the *same player shoots again* lights up in the roundabout. The bottom is pure Gottlieb although the lanes have been modified for a faster and steeper roll to the flipper. Also part of this bottom are the card suits once again, and the hope that if all four are hit, the double bonus will majestically appear.

Once again, the scoring is high on this six-digit game; it definitely needs One Million Lights on the back glass, since it's not that difficult to build the bonus up to 100,000 points and then double it. This is especially true when the machine is set on three-ball since the red suits will go out simultaneously when one or the other is gone through.

The most popular shots should be back up the lane at the left in order to get the double bonus lit and lastly the drop targets which will probably be hit by rebound shots off the side rubbers more often than not, especially since the center targets are sucker shots if the shooting angle is too straight from the flippers.

The artwork of *Big Deal* isn't too bad although it reminds me of Segasa d.b.a. Sonic's Casino Royale. Maybe the thing that's lacking is a wit and charm in the graphics, which tend to be fairly sterile and unassuming. To view Roy Parker's work versus this and even such Gottlieb efforts as King of Diamonds and Kings & Queens, one can easily sense the difference between the extraordinary and the

ordinary. But the artwork only gets the *first* quarter in I've been reminded, so that this part of pinball design isn't up there on the list of priorities all of the time.

Rating: ## 3/4



Sonic's MARS TREK

It seems that Marty B. and his Spain Gang just won't quit. They're turning out games faster than I can review them and even pulling some surprises along the way. Just when you were getting used to Faces, you found yourself looking at Prospector; then suddenly Super Straight popped up, and now there's *Mars Trek* to totally befuddle your timing of when and what to buy.

Well, just by looks alone, this is a dynamite game and falling close on the heels of *Star Wars*, it should keep players "spaced-out" this summer and even into the fall. Rather than sticking to any one formula, Sonic is trying to innovate and offer a wide variety of playfield designs and that has, I think, all of us on our toes.

In *Mars Trek* they have the opportunity for a real winner since the playfield offers a bit of everything along with some new wrinkles. At the top one finds the old angled lanes that Gottlieb used

many years back on such games as Aquarius (sometimes my memory even astounds me!), as well as a top kick-out hole which is far from being a cinch shot. There are also two thumper bumpers up here, but one of the problems of the layout as it now stands is that for balls coming through the lanes the action is fairly slow off the rubbers that buffer this section from the rest of the playfield. In fact, all one gets is a roll and not a "kick" no matter how hard you try to nudge the machine.

Since the name *Mars Trek* is so concisely lettered, you just know that it's going to be worked into the playfield somehow and so it is. At the left of the field stand four targets which spell out the word M-A-R-S (have you ever thought that the Board of Education of any state should love pinball for the spelling it provides young players?). Anyway, there's also a center target, which is at a slight angle, and offers the letters E-K. ((T-R can be picked up in the lanes at top.) At the right of the field we see something new, with a double spinner set-up shielding a round-about and also a center kick-out collect bonus hole. (This center hole should be adjusted so that the ball shoots to one flipper at least, and not down the out-hole which was the case on the machine I played, so be careful of this since it's an instant turn-off to the game.)

Neatly tucked into the right side is an extra flipper for those who liked the action on Capt. Fantastic and Dealers Choice. The bottom flipper set-up is the old Gottlieb bottom, but with the severe angle that's found on many Williams' games. Once again, on this Sonic game, as is the case with the others they've made, the flipper stroke isn't what it should be to appeal to American players. The easiest way to describe it is to say that the power zone is far less, somewhat like choking up on a bat in baseball, so that in order to hit the ball so that it travels in a straight path, you have to use the end tip of the flipper. Try this on American games and you'll see what I mean. The adjustment shouldn't be that hard to make and would infinitely improve every Sonic effort that has hit these shores.

The action is basically simple here, just light up the M-A-R-S T-R-E-K on the playfield by hitting targets, going down the lanes at the top of the field and at the bottom flipper area; and then reap the benefits of specials and the double bonus. The best shot however may be the left side return to the top, which is further spiced with a big

red advance bonus roll-over. The targets on the left will also get some play from the right flippers (the top one included) while the spinners and round-about and kick-out hole area should be the best bet for the left flipper.

Anyway you look at it, there's a lot to do, almost too much in a three-ball game (but that's a story best left for another time). The scoring is in six-digits, but the bonuses are hard to really accumulate so players should find this a challenge and a half when it comes to playing some pinball in the next few months.

In terms of the artwork, there's going to be a lot of *first* quarters going in with the girl and the spacy striped hair and rockets traveling back and forth. The motif is striking, I don't know if the main character is supposed to be god(dess) of the heavens—but it all works in today's hottest phenomenon; the science fiction rage.

Rating: ### 1/2

Well, that's it for July's pins, but if you remember when last we left, *The Atarians* was trying to hold its own in the polls, and doing a fairly respectable job, if I might add. Well this month's update has some interesting developments, possibly because some of the respondents had also seen the next Atari effort (which I will endeavor to review in a future issue.) Since lead times are what they are, I'm lengthening this report and final analysis of *The Atarians* also considering the fact that they've modified the playfield somewhat) until next issue. But here are the running totals of the vote so far:

Rating: ####	31
Rating: ###	25
Rating: ##	39
Rating: #	22

So that's it for this month's edition of Critic's Corner, and as always, take care, be well, and prosper.



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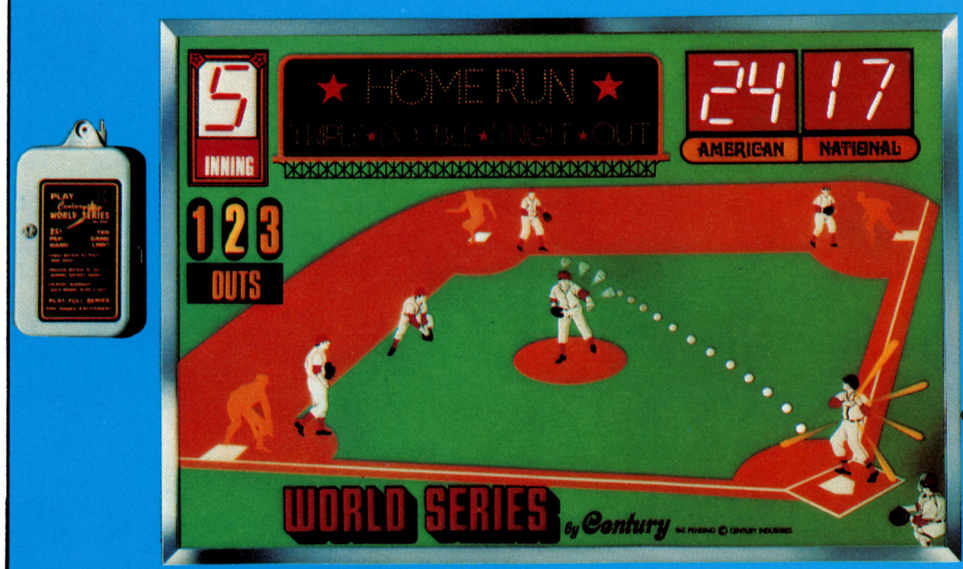
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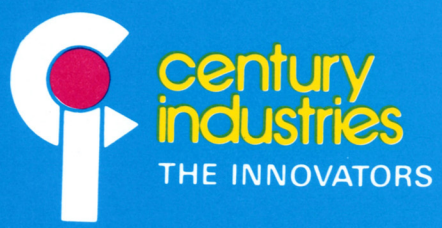
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UPDATE

June 20, 1977

Volume 3/No. 12

Rowe Gets New President: Merrill Krakauer Succeeds D.J. Barton

Edward Simmons, president of Triangle Industries, Inc., parent corporation of Rowe International, Inc., has announced the election of Merrill Krakauer to president of Rowe. He replaces D.J. Barton who requested to be relieved from his responsibility as president, expressing a strong desire to remain with Rowe in a limited capacity and to move back to the South.

Simmons stated, "Recognizing full well the excellent job he has done for Rowe over the past many years, it is with reluctance that we have granted Joe's request. We are pleased that he will continue his association with Rowe in an advisory capacity."

Krakauer was promoted from vice president and general manager of Rowe's Whippany facilities where he was responsible for the engineering and manufacturing of many refinements to the vending line as well as innovative new machines. His varied experience within the automatic merchandising industry includes many executive positions.

Krakauer first joined Rowe in 1955 as director of engineering, and in 1957, at the age of 29, was appointed vice president. In 1961 he left to form his own consulting and engineering firm, Autovend Corporation. There, as president and chief executive officer, he designed and manufactured special items for the vending industry.

Krakauer sold this firm in 1967 and joined The Macke Company as vice president. As a corporate officer he was responsible for all capital equipment purchases and asset control. While there, he was the chief executive officer of Macke's

largest vending food service region. Krakauer again joined Rowe in 1974 as vice president and general manager of the Whippany facility. Throughout his career, Krakauer has been responsible for designing and introducing into the marketplace many vending machines that are now standards of the industry. He holds in excess of 20 patents in this field.

Announcing his retirement, D.J. Barton stated, "I am grateful for the support the many people within Rowe and this industry gave me during my tenure. I am also appreciative of the considerations allowing me to continue on a limited basis in an industry and with a company that I love. My change of status is not a farewell because I'll be

active in my new capacity and I look forward to seeing all my friends and associates for many years to come."

Barton, a well-known industry leader for 40 years, accepted the presidency of Rowe in 1974 after serving previously as senior vice president and general manager of distributor operations, vice president of marketing, vice president of sales and in other executive positions. He began his career as a route service man in South Carolina. Barton plans to move back to the South.

Simmons pointed out that Krakauer's wealth of experience in all aspects of the automatic merchandising industry will assure Rowe's leadership in providing the best operator-oriented equipment in the business.

Pinball Featured in Newsweek

"Pinball Lives!" reads the headline over the splashy lead story in the "Life/Style" section of *Newsweek* for May 30. Underneath are full-color photos by Allen Tannenbaum of Elton John playing Capt. Fantastic, of the playfield and backglass of Fireball, and of the backglass art for Space Time, another Bally machine.

"Once upon a time, pinball was a tacky game played by punks who hung out in seedy lunchettes," the article begins. "Now it's a respectable diversion for the leisure class. Suburban crowds man the petted arcades; singles play the games in neighborhood bars; parents have even begun buying pinball machines for their children—and themselves."

The article goes on to chronicle the increase in commercial sales of the machines and the burgeoning of the home market. "The new interest in pinball has been stimulated by its identification with well-known personalities," it says. Elton John is cited and Bally's plans to bring out a machine dedicated to Hugh Hefner (something of a pinball wizard himself) are revealed.

Players interviewed say they play as "a form of therapy" and because "it's a definite high to beat the machine."

The article throws no new light on the pinball phenomenon. Still the recognition of the game's respectability by a national magazine with paid circulation of over 3 million is significant media coverage for the industry.

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ON THE MOVE...

Promotion for Seeburg's Hughes



Louis J. Nicastro, board chairman of Seeburg Industries, Inc., has appointed James J. Hughes to the post of chief operating officer for the company.

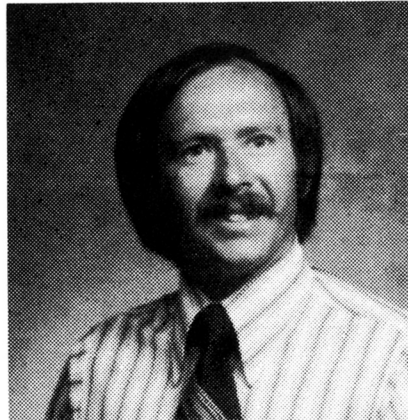
Hughes, formerly executive vice president and treasurer of the corporation, has been with Seeburg since 1965. He is currently a member of the Board of Directors.

Prior to joining Seeburg, Hughes was a financial analyst associated with the Brunswick Corporation, Chicago.

"Jim has always been an active participant in the financial and administrative aspects of our company", Nicastro commented. "His continual record of achievement over the years provides a strong background which is well suited to the broadened responsibilities of his new position."

Hughes, a former U.S. Marine, was graduated from Suffolk University in Boston. He resides with his wife and family in the Chicago suburbs.

Kessler Rejoins Mirco



Robert M. Kessler, Jr., one of the original founders of Mirco, Inc., has rejoined the company in his former position of vice president of engineering for the Systems Division. Kessler is a nationally recognized leader in simulation software and test systems design for the test equipment industry.

Also rejoining the company is Ripley B. Sartell, Jr. Sartell becomes systems sales manager, a position he formerly held. He will be responsible for the sales of Mirco's logic-circuit tester, test generation software and programming services.

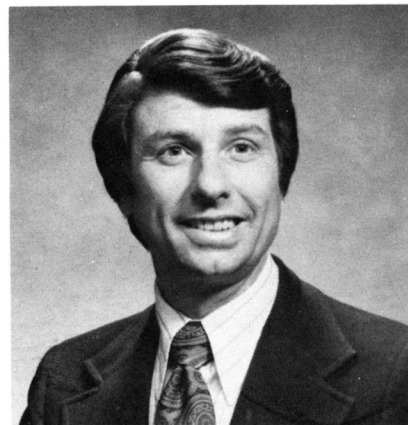
A veteran of 15 years in the electronics industry, Kessler has been previously employed by Honeywell and its predecessor General Electric as manager of maintainability design engineering at the Phoenix computer operations. He served also as manager of equip-

ment and systems qualification engineering.

He had previously been employed by the General Electric Company as manager of advanced test and diagnostic engineering for the Computer Department. Prior to joining General Electric, Kessler was an engineer for Standard Computer Corporation in the field of computer design.

Sartell, a veteran of 11 years in the electronics industry, was most recently western regional sales and marketing manager for the Sperry Microwave Electronics Division. Prior to joining Mirco previously, he was the account representative for Control Data Corporation responsible for various sales and marketing services to customers of the Computer Products Division.

Sartell holds a B.A. degree in physics from St. Cloud State College in Minnesota.



Raymond, Disney Receive Promotions



John L. Walsh, president, Mirco Inc., has announced two recent appointments. Richard N. Raymond has been appointed vice president, director of European operations. And LaVerne W. Disney, Jr. has been appointed the corporation's controller.

In his new position, Raymond will oversee Mirco's German subsidiary, Mirco Games GmbH, located outside of Frankfurt in Neu Isenburg.

Prior to this appointment, Raymond was president of the domestic games division of Mirco. He joined Mirco upon the acquisition of Arizona Automation, Inc., a company founded by him. He was president of Arizona Automation for four years.

Raymond was previously emp-

ployed for 18 years by the General Electric Company in various management and professional positions in product service engineering and program management.

He holds a BS degree from Stanford University in California.

Disney has 23 years of accounting and administrative experience, most recently as the business manager and controller of Motorola Incorporated's business systems unit. Prior to this he was financial analyst for Motorola's western area controller's office.

Disney holds a BS degree in accounting from Arizona State University and is a member of the National Association of Accountants and the Planning Executives Institute.

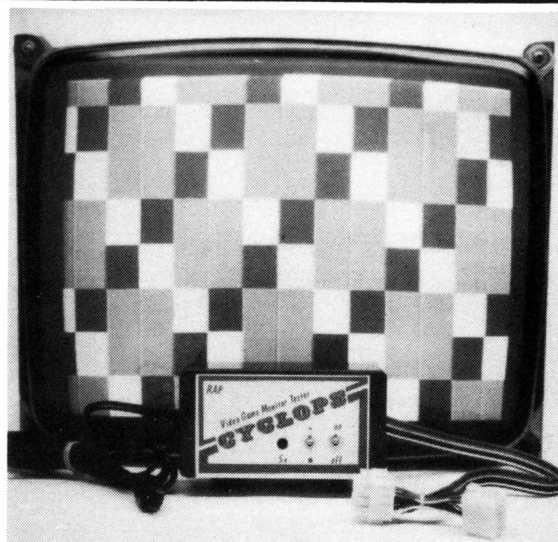
Top to Bottom: Mirco's Kessler, Sartell, Raymond and Disney.

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CITY, STATE, ZIP _____



Full-Throttle Flipper Game

Announcing volume delivery recently of Evel Knievel, Bally's new four-player flipper game, Paul Calamari, sales manager for the company, emphasized the dynamic backglass, achieved through a stylistic tie-in with Evel Knievel, world renowned motorcycle daredevil.

"The fame of Evel Knievel," Calamari said, "insures tremendous player fascination and provides operators with the opportunity for local Evel Knievel promotions."

"However," Calamari continued, "we do not depend solely on Evel Knievel publicity to make the game Evel Knievel one of the best ever to come off the Bally assembly lines. The play pattern of the playfield provides new and exciting skill challenges, a total of 35 ways to pile up high scores."

Evel Knievel offers three ways to score specials, including double specials. Special can be scored when S-U-P-E-R is lit. This calls for tricky timing, hitting the center target or shooting the ball into the kickout hole when the advancing arrow-light points to a letter not yet lit. "With liberal adjustment," Calamari stated, "lit S-U-P-E-R gives the player two specials."

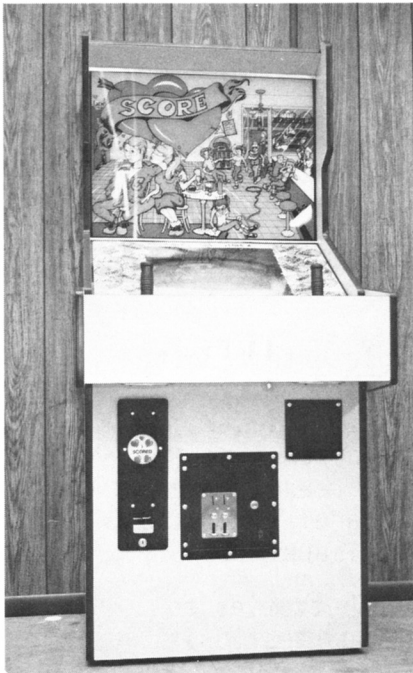
Suspense is added to play by also giving out-balls the power to score

special. A ball exiting the playfield through the left or right lane can score special if the adjacent special light is on. This is accomplished by lighting Cyc-Le, a maneuver which calls for kickback skill to return the ball to the top of the playfield for repeat performances. The out-ball also adds built-up bonus to the totalizer. And it may return to the shooter as an extra ball.

The third way to score special is by knocking down all five drop targets for a third time in one ball's play.

"Drop targets are very important in Evel Knievel," Calamari said. "Each drop target hit scores 500 and advances the bonus 1,000," he said. "Otherskill objectives also build the bonus, which is doubled when all five targets are downed for the first time." First down also scores 5,000 points and increases the value on each spin of the spinner gates from normal 10 to 1,000 points. The extra ball signal lights when all targets are downed for the second time in each ball play.

"Prolonged location tests in all parts of the world indicate that Evel is destined to join Wizard and Capt. Fantastic in Bally's pinball hall of fame for player appeal, earning power and extended location life," Calamari said.



Scoring . . .

Now in production, Exidy's latest video release, Score, is a battle of the sexes, with males chasing females and vice versa. When contact is made, a realistic whistle sound is emitted and a flashing heart appears on the screen.

As soon as one female (or male) figure is caught, another immediately runs onto the screen. Accumulated hearts form obstacles for future chases and also remain flashing after the game ends in order to attract new players.

An optional feature on Score is a token dispenser which, in extensive location testing, has proven to be a tremendous impetus to earnings. The game can be adjusted to dispense a token at a variety of score levels.

The tokens are marked "1 Win—No Cash Value," but their redemptive potential is fettered only by players' imaginations. For those areas where the operator may not wish to use tokens, a cover plate fits over the dispenser.

The upright Score comes in a bright yellow cabinet with vivid plexiglass artwork. It measures 68 in. high, 30 1/2 in. wide and 29 in. deep. A cocktail table version of the game is also available.

ALARM!!!

Wico Corp., Niles, Ill., has announced the production of an Anti-Abuse Alarm Kit for video, arcade and flipper games.

The kit is designed to eliminate players' attempting to get free plays by kicking and bouncing games. It also protects video games on which free plays can be generated by rapidly removing and inserting the AC cord.

Provision is also made to sound alarm when a machine door is disturbed or forcible entry is attempted (providing power to machine has not been cut). When the unit is tripped by kicking or bouncing, the kit will disconnect all power (110V) from the game and produce a loud, pulsating signal for 20 seconds to quickly discourage further attempts to damage or enter forcibly.

At the end of 20 seconds the alarm will reset and restore power to the game. Instructions provided for simple installation in about 15 minutes.



Bally's Evel Knievel



BIG Deal

Williams Electronics, Inc., Chicago, Ill., has announced distribution of Big Deal, a new four-player flipper pinball game.

"Wild ball action, play-arousing features and continuity build-up add suspense and play-again appeal to this new game," a Williams spokesman said.

Big Deal features include four top roll-over lanes and two left and right bottom roll-over lanes which advance bonus and score the four aces feature for double bonus; a horse-shoe turnaround that advances bonus and scores an extra ball when lit; and B-I-G and D-E-A-L drop targets which light the number 1 and number 2 stars for the extra ball light and replays for the drop targets.

Also featured is a left back to the top playfield lane which advances bonus.

The backglass of the colorful game is decorated with a casino scene in shades of orange, pink and blue. The game measures 69½ in. high by 52 in. deep; the cabinet is 22½ in. wide, the back box 30¼ in. wide.

Tempered playfield glass comes as standard equipment on the game, and an instruction manual is shipped with every machine.



M-79 Ambush— Cannon Game From Ramtek

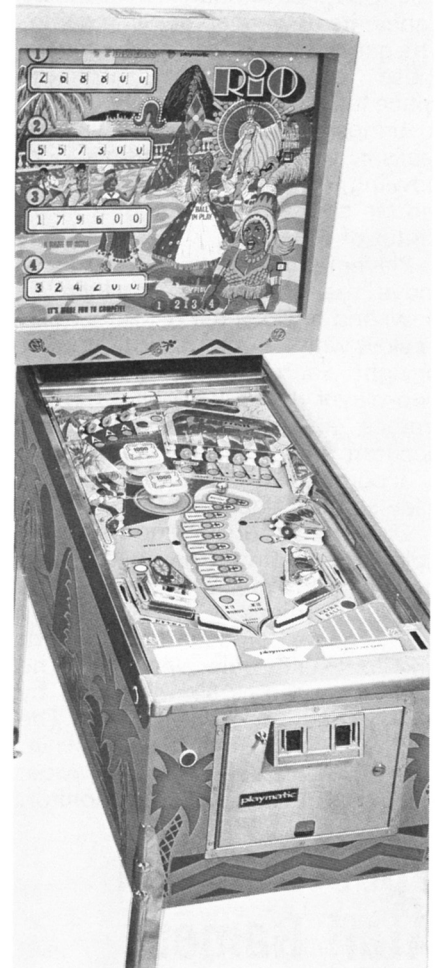
Ramtek Corp., Sunnyvale, Cal., has announced distribution of their new twin cannon shooting game, M-79 Ambush. The game may be played by one player against the machine or two players competing against each other.

Tanks, Jeeps, Motorcycles and UN Observer Trucks cross the screen randomly in different directions and at different elevations. Each vehicle has a distinctive sound and travels at a different rate of speed. Points for hits, from 100 to 700, are scored according to the speed of the vehicle. If a UN Truck is hit, the player is penalized by not being able to fire for three seconds.

Exciting sounds include the cannons firing, projectiles screaming, tanks rumbling and motorcycles roaring.

The neatly styled cabinet has a pull-out step for smaller players. The cannons are of heavy duty cast aluminum.

Length of play and extended play are operator adjustable. High score of the day can be featured.



RioRioRioRio

Universe Affiliated International, Hillside, N.J., has announced U.S. distribution of Rio, a new four-player flipper game from Playmatic.

Rio features a new playfield design with the ball entering the field halfway up rather than at the top. Play features also include a new style captured ball unit and a new backfield kick-out system.

Rio's playfield is polyurethane coated. The game has DC power with adjustable voltage on flippers and bumpers.

Rio is available at both three- and five-ball play and is convertible to add-a-ball. It is basically an electro-mechanical machine but it does have an electronic sound system on the playfield.

The new flipper is also available in a two-player model as Carnival.



Meadows Lanes

Meadows Games, Inc., Sunnyvale, Cal., has announced Meadows Lanes, its new video bowling game. The game is designed particularly for those locations with insufficient space for the big bowling games and it brings to the screen "all the realism, fun and excitement of bowling, one of the world's favorite indoor sports," according to Lyla Zinter of Meadows.

Player features include controls to move the bowler into position to bowl and to bowl the ball either fast or slow with a hook either to the left or right. Each bowler in this one or two-player game is allowed ten full frames, and the game records an accurate score frame by frame. Play is accompanied by realistic bowling alley sound effects.

Operator features include a double coin door, indestructible push button controls, and adjustable time and coin options.

The game comes in both upright and cocktail table versions. The upright measures 55 1/2 in. high by 24 1/2 in. deep by 26 1/2 in. wide. The cocktail version measures 28 1/2 in. high by 35 in. deep by 35 in. wide. Both use a 19 in. solid-state monitor.

Update Kit for Atari Games

ASC Distributor Sales, Quincy, Mass., now offers two easy-to-install updating kits for Atari games.

Kit One fits all Gran Traks and Formula K's and provides changing race tracks in the attract mode with track changes as well during actual play. A "tighter" steering gives the player the real "feel" of the game, an ASC spokesman indicated.

Kit Two fits all Tank games and provides changing battlefields in the attract mode as well as strategically timed field changes during play to distract the enemy. Long range guided missiles also provide opponents with exciting play possibilities.



Bally Kicks Off Production On New Pin Game

"Kick Off is a pinball not a foosball game," said Paul Calamari, sales manager, Bally Mfg. Corp., announcing that the Bally factory in Chicago has swung into big volume production of the new four-player flipper game. "But," Calamari added, "many of the back-and-forth thrills of soccer are built into the game."

Kick Off features a simulated soccer field on which a lit soccer ball advances from left goal to right and return when the ball in play contacts various skill objectives. Depending on the light lit directly above the soccer field, each goal scored awards special, extra ball or 5,000 points added to the totalizer.

Soccer ball action also advances the outhole bonus, which is doubled if collected with the double bonus light lit. The double bonus is adjustable to light during play of the third ball, fifth ball or third and fifth ball.

Special is also scored when all seven drop targets are knocked down with the special light lit. The drop targets at mid-playfield right, also speed the soccer ball's advance on the soccer field, as does the spinner gate, at mid-field left.

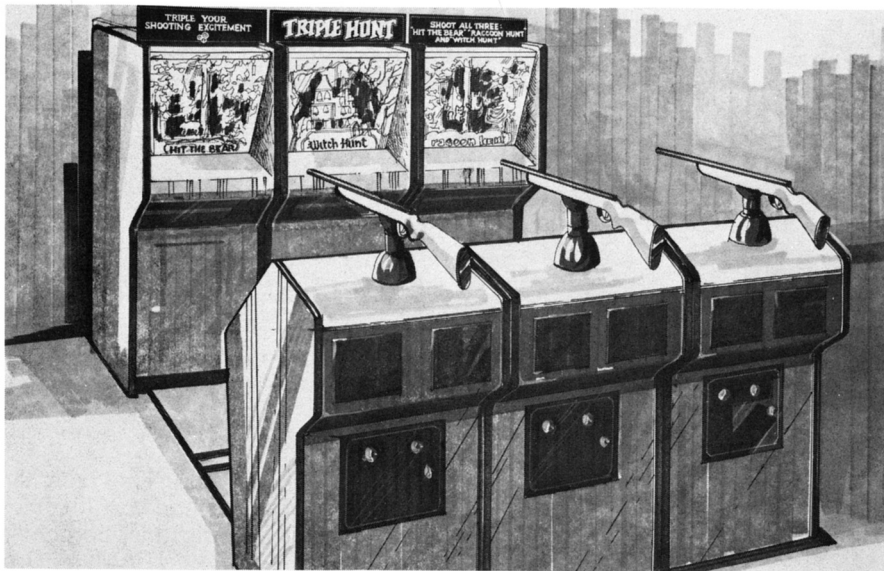
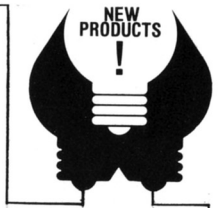
Specials can likewise be scored when the bonus hits 15,000 points.

"Two new techniques delay the dive of balls into the outhole," Calamari said. "The first is called 'cluster flippers.' This means a total of four flippers at the bottom of the playfield to give players extra skill control, extra shots back to the panel, extra protection from the demon outhole.

"The second new technique consists of two 'ball-saver' bumpers. A ball headed for the outhole may hit one of the live rubber bumpers at the playfield's bottom and bounce back into the action area," Calamari said.

"Operated with three or five balls, with or without match feature, any coinage, Kick Off combines the action suspense and play appeal that add up to top collections month after month," he added.

Calamari announced at the same time that Bally has also released the two-player flipper game, Quarterback. The two-player game has a playfield almost identical to Kick Off except that it carries a football rather than a soccer theme.



Triple Bank Triple Hunt

Because they believe a bank of three Triple Hunt games can create high impact and even higher collections in a large arcade, Atari has designed a special attraction panel to increase this impact and create a total unit effect to the bank of games.

Three durable 16-gauge steel panels which are easy to install above the plexiglass retainer are provided in the attraction package. Designed to fit together when three cabinets are banked side by side,

the bright orange panels with black and white lettering will convert the games into a spectacular three-dimensional shooting arcade.

"Triple Your Shooting Excitement," "Shoot All Three: Hit the Bear, Raccoon Hunt and Witch Hunt," and "Triple Hunt" are the messages on these attraction panels to entice players to try their skills on all three shooting games. The result, Atari believes, will be a significant increase in potential income from all three units.



Queen of the Jungle

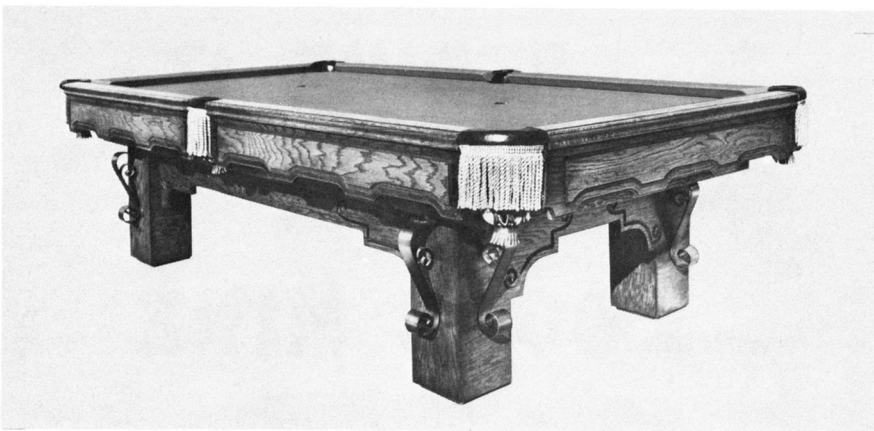
Gottlieb's latest four-player flipper game is Jungle Queen. The game is also available in a two-player model, Jungle Princess.

The new pinball features four flippers, a smaller pair just above the two larger ones, four places to score extra balls and four positions to score special.

Various combinations of the drop targets, banks of five each left and right at mid-playfield, and the A-B-C roll-overs, in lanes at top, light extra ball and special features. The A-B-C roll-overs—A and C can be picked up at bottom as well—and last ball light the games double bonus feature.

Also featured, for the first time on a Gottlieb game, are 100,000 lights, so that scores are recorded to 199,990.

The backglass features a scantily clad jungle queen looking out over her domain which seems threatened by a menacing volcano. The colors are primarily reds, yellows and blues.



Kaye Intros New Tables

Designated El Matador and Le Monte Carlo, the two non-coin units feature one-inch thick genuine slate, oversized, matched and registered; hand-rubbed solid oak and oak veneer cabinetry; understructure fabricated entirely of two by six inch kiln dried lumber; traditionally fringed leather pockets; and highest quality pure gum rubber cushions.

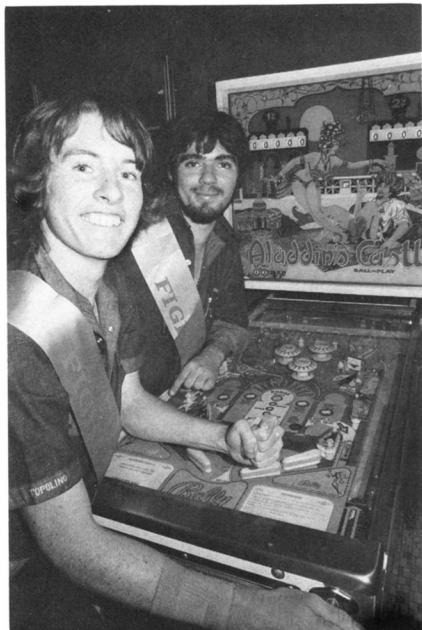
According to firm executive Arnold Kaye, "After a solid year of intense development we are able to offer a new line of professional quality home pool tables that are

exceptionally beautiful and within the price range of the average consumer."

El Matador is styled in the tradition of Spanish Mediterranean furniture and features distinctive wrought iron trim with hand routed detail. Le Monte Carlo is French in style, reminiscent of the ageless furniture of the French Renaissance era.

Both tables are available in regulation 4 ft. by 8 ft. and 4 ½ ft. by 9 ft. sizes.

INTERNATIONAL DATELINE



Pinball Record

What is the record for marathon pinball playing? The latest claim comes from Australia.

Two Queensland youths set out to break the world record in early May. Ian Jameson and Phil Wain began their marathon at 12:30 p.m. Wednesday May 4, with a Guinness Record Book official and a doctor on hand. Breaking every three hours for fifteen minutes, the boys worked against what they thought was the record.

The official record, according to Jameson, was 86 hours set in the U.S. But late last year in Northville, Michigan's Arcade 5, a young woman, Vilia Zemaitis, played for 93 consecutive hours, and notification of her performance, which followed Guinness marathon rules, was sent to the record book company.

Playing five separate machines supplied by United Coin at their Focal Point Arcade in Brisbane, Ian and Phil played until 8:30 a.m. on Sunday, May 9—92 hours. But was that a record?

No matter. Ian was at any rate not satisfied with 92 straight hours of pinball play and on May 11, he began a new marathon attempt, this time joining with another Brisbane youth Phil Saicca. Sponsored by a local radio station, the boys played 136 consecutive hours, a new record for sure. We think.



Rowe Holds School

In a two day session held recently, AMD's Leo Ankus and Val Umashev of United Coin, Brisbane, combined to introduce Rowe AMI's first solid-state service school in Queensland. The school was held at United's Fortitude Valley showroom.

The R-81 unit was subjected to an intense examination by enthusiastic operators and technicians who converged from as far as 1,000 miles to view and study the new equipment.

Operators present also had a preview of a Bally solid-state pinball. All agreed that machines such as those displayed should reduce effectively field service and associated costs.



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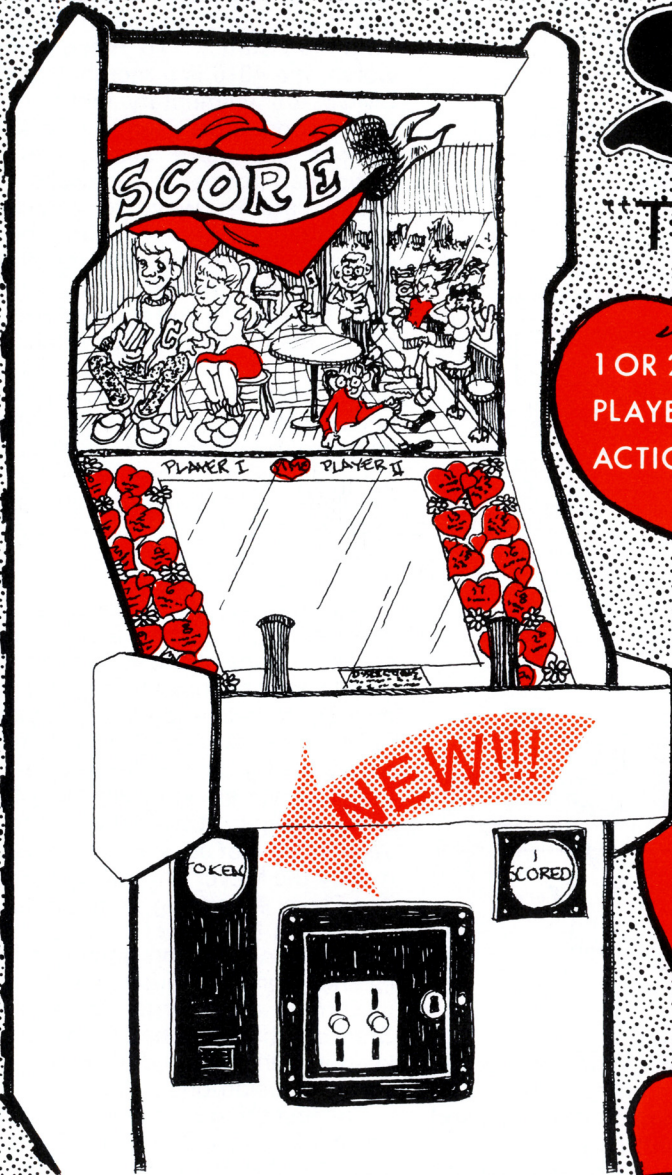


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Atari's Breakout - A Problem Solved

by Robin Minnear
of Game Doctors

As kind of a follow-up to May's "Technical Topics," this month I will describe a modification that will help to eliminate a very common problem that occurs on Atari's Breakout.

Breakout is available in an upright and a cocktail table version. The upright model has one pot that is shared by both players. The cocktail version has one pot for each player. The picture also flips to face each player when it's his turn.

Because the cocktail version has two pots, when two people play, the logic board must listen first to one pot and then to the other pot. This switching is achieved by the circuit in Figure 1. This is also where the problem occurs.

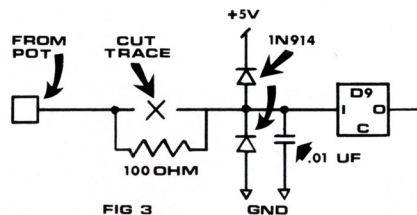
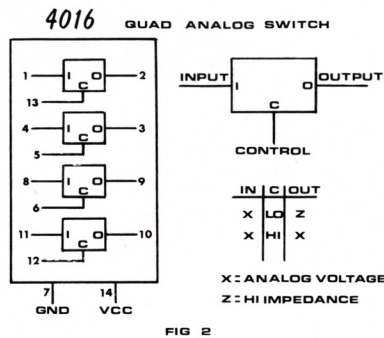
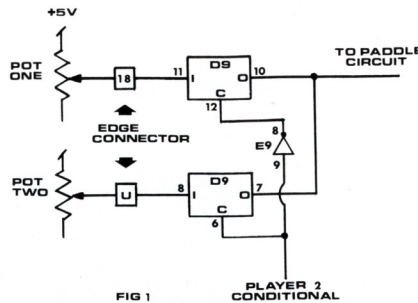
In Figure 1 you can see that there are provisions for two pots. Pot # 1 is the pot that is used in the upright version. Pot # 2 is the pot that is used for the second player in the cocktail version.

Unlike the input circuit discussed in May, the pots put out a voltage between zero and five volts, depending on where the pot is set. This variable information is commonly called analog information.

Because this information is analog, digital devices can't deal with it. So a special device called an analog switch is used.

Figure 2 is the diagram for the 4016 quad CMOS analog switch that is used in Figure 1. The 4016 has four separate analog switches in one package. Each analog switch has one input, one output and one control or enable pin.

According to the truth table in Figure 1: whatever analog voltage level that is present on the input, appears on the output when the



control pin is "hi". When the control pin is "low," the output changes to the "Z" or high impedance state and acts like it doesn't exist.

Looking again at Figure 1, we find that two of the four analog switches are used to choose which pot's information will be let through to the paddle circuit. This is achieved by the addition of a 7404 inverter (E9) placed between the control pins of the two analog switches. Because of this inverter, if D9 pin 6 is "lo" (disabling the # 2 analog switch), D9 pin 12 is "hi" (enabling the #1 analog switch), and vice-versa. A signal labeled "Player 2 conditional," which is generated elsewhere, determines which analog switch is

enabled. The outputs of both analog switches are tied together and go onto the paddle generation circuit.

The problem that commonly occurs is that the 4016 D9 keeps blowing which causes the loss of paddle movement. The reason that this 4016 goes so often is that "Old Man Static." To make things worse, the 4016 is a member of the CMOS (complimentary metal-oxide semi conductor) family. CMOS devices are more susceptible to static than normal TTL devices.

There are two ways to eliminate this situation. The first, and best, way is to try to eliminate the static from reaching the 4016. This can be done by adding a few components to the inputs of the analog switches.

Figure 3 is a schematic of a static filter network. By adding this network to the inputs of both analog switches (pins 8 and 11), most of the static is filtered out before it reaches the 4016's. Each network consists of two signal diodes (1N914 or equiv.), one .01 microfarad capacitor and one 100 OHM resistor.

The best way to perform this modification is to first install an IC socket in place of the 4016. This will enable you to quickly replace the chip in the field should it go again.

Then you can add the static filter network. If your Breakout is in the upright cabinet, you can get off a little cheaper than the cocktail version. First of all, you only have to modify the Player # 1 analog switch. The Player # 1 analog switch input is at location D-9 pin 11.

I have on occasion gone out to a location on a Friday night and performed an emergency fix on a Breakout that had a bad 4016. Please keep in mind that I did this on the upright version only.

The first thing I did was to clip and lift pins 8, 9, 10 and 11 on device D-9. Then I put a jumper wire from the pad of D-9 pin 11 to the pad of D-9 pin 10. In short, I disabled the analog switches and by-passed the player #1 analog switch with a jumper. But until the 4016 is replaced, this logic board will not work in the cocktail version.

I generally do not recommend that people by-pass input buffers, optoisolators, etc. but I do believe that down time kills. If you are unsure about how to perform any modifications, feel free to give me a call at Game Doctors (408/294-7752) or write to me at *Play Meter*.

Though the flipper units of most manufacturers perform essentially the same function, each is distinctly designed. Some use Direct Current (DC), most Alternating Current (AC). Plastic or metal flippers come in a variety of sizes and shapes. Coil-windings differ as do bushings, coil stops, coil brackets, springs, plungers, flipper buttons and rubber rings. Differences in any of these elements will effect flipper response in different ways. Some good, some not so good. Perhaps the ideal flipper would be the synthesis of all manufacturer's models.

Let's look at the flipper unit produced by William's Electronics. You probably know and recognize every part but since the Williams terminology may differ from yours, you should refer to the diagram below.

Unit performance begins with a press of the flipper button; and since it is an extension of the player's hand, the entire mechanism should respond to its maximum design capabilities. Briefly, here's what happens when the player presses the flipper button. The coil magnetic field (large gauge winding, FL20-300) pulls the plunger. It's connection, the fiber link, swings the flipper pawl which is pivoted by the shoe and shaft. On the playfield board, the plastic flipper and rubber ring hits the ball. The pawl's swinging motion opens the end-of-stroke switch

(E.O.S.) which shorts-out the small gauge winding (28-400). This winding, now in series with the large gauge winding, increases the coil resistance, thus, preventing it from burning regardless of how long a player may hold the flipper buttons. Performance depends on several factors. Assuming normal voltage, the following problems will result in weak or sluggish flipper action:

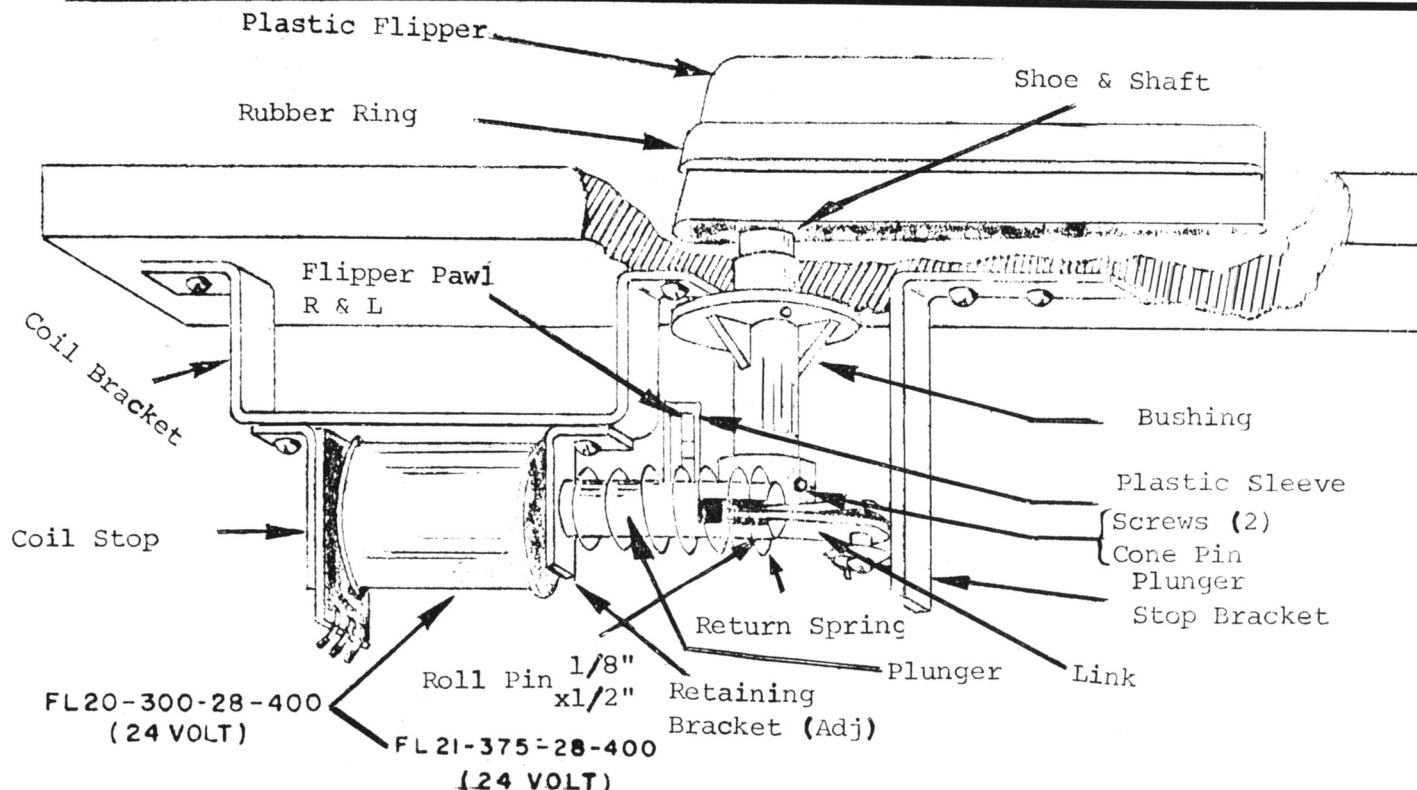
- Dirty or improperly adjusted contact points
- A worn out coil sleeve
- Loose or broken bushing
- Wrong coil or connections (Note the two large gauge windings used by William's)
- Worn out fiber links
- Weak or broken return spring
- Loose coil between retaining bracket and coil-stop

There are other performance factors to be considered. Depending on the game, a large or narrow flipper rubber ring will be used. A narrow rubber ring will rebound less providing better control; a larger one rebounds more, cutting down control. Proper alignment of the plastic flipper is the key to skill shots. A bent shoe will scratch the playfield, and a missing plastic sleeve will "eat up" the E.O.S. switch long-blade which will eventually burn out the coil. When the machine warms up, a flipper may "stick" if a pawl is swinging too close to the bushing or if it is fouled with grease and dust. (Please, never lubricate the plunger,

spring or bushing. Lubrication, at best, is a temporary remedy for sticking that will cause more problems later. Besides, you will find most of the time that the causes of sticking are hardly ever lube problems).

Flipper performance can be affected by other potential problem areas. Just remember that because of its heavy usage, maintenance of the flipper and coil assembly is required more often than any other part of the machine. It can be awfully annoying to play a game with bad flippers. Our friend Roger Sharpe can tell you! So tighten screws periodically, check mechanical connections; replace a coil stop when needed, also, sleeves, links (especially), springs, rotate rubber rings, file the plunger end that strikes the coil stop; file and adjust switch contacts, including the switches; and give special attention to the E.O.S. switches.

The William's flipper unit is very reliable. With proper care it will work trouble-free for many, many games. Before setting up on location, however, even if your machines is factory fresh, check the flippers. Make sure they are corresponding to the game's demands (flipper adjustments will make the game liberal or conservative, also). Keep your players satisfied. Good flipper response will attract more of those silvery discs. That's what our business is all about.



The Valuable, Versatile Voltmeter

by Randy Fromm of Game Doctors

The volt-ohmmeter or V.O.M. is the most important and versatile piece of equipment in a serviceman's tool kit. Because you cannot see the current flow in an electronic circuit, the meter becomes your "eyes" and lets you look at circuits and components to determine their conditions. In addition to making simple voltage and resistance checks with it, you can use the V.O.M. to test diodes and transistors as well.

Choosing Your Meter

Fortunately, it isn't necessary to spend a whole lot of money on a V.O.M. The more expensive meters will have a greater degree of accuracy and perhaps a larger selection of ranges, but for most applications a V.O.M. that costs between \$20 and \$40 will perform quite well.

The unit that I have found to be especially well adapted to field service is made by Lafayette Electronics and is affectionately known as Model 99-50841. This meter is inexpensive, has a wide selection of ranges, a mirrored scale and a built-in continuity tester.

This "buzzer" type tester is a handy device for working on electro-mechanical games. Because with it you don't have to look at the meter to read a continuity indication, you can work between the mech panel and litebox of a pin game without running back and forth. An audible continuity tester lets you check a bank of fuses in seconds. It's a trick feature that I've found to be very useful at times.

The small "pocket-sized" V.O.M.'s are okay in a pinch, but most of them lack an adequate selection of ranges, and they are notoriously inaccurate. It's worth a little extra investment to get an accurate piece of test equipment.

Using Your V.O.M.

It is possible to check the condition of diodes and transistors by performing a static test with the V.O.M. A static test is made with the power off and the V.O.M. set to the ohms or resistance scale.

To perform a static test on a diode, set your V.O.M. to the X100 or X1K scale. Place the positive meter lead on the cathode end of the diode, and

the negative meter lead on the anode. Note the meter reading. [See Figure 1A] Next, reverse the diode (or meter leads and note the meter again. [Figure 1B]

A good diode will show a meter deflection (low resistance) one way, and little or no deflection (high resistance) when the leads are reversed. This test is known as checking the "front-to-back" ratio of a semi conductor. If a diode gives you a reading in both directions, then it's shorted. Conversely, if you can obtain no reading at all, the diode is open. A leaky diode will show up as having a poor front-to-back ratio. In any of these cases, the diode is not performing its intended function as a one-way gate for electron flow, and it should be replaced.

This same test can be applied to transistors as well. Electronically speaking, a transistor is the same as two diodes "back-to-back." [Figure 2] You test a transistor by measuring between the base and collector, and the base and emitter, and then reversing the meter leads and performing the same test. [figure 3]

As with the diode, you will get a low reading in one direction and a high reading in the other. A typical front-to-back ratio is 100 to 1 for small transistors and slightly less for power transistors. Those of you who operate solid-state wall games will find this method ideal for checking the multitude of transistor lamp drivers found in these games.

If you have a lamp that stays illuminated all the time, or one that doesn't light at all, it's probably just a bad transistor. Even without a schematic, it's easy to go down a bank of lamp drivers and determine which one is faulty. Explosion light failures on Sea Wolf can also be traced to bad transistor lamp drivers. These transistors are found on the game board and can be tested easily with the V.O.M.

Note: The negative lead of a V.O.M. is often the more positive of the two. This sounds stupid, but many ohmmeters are designed that way. If your readings are opposite those shown in the illustrations, then this is the case with your meter.

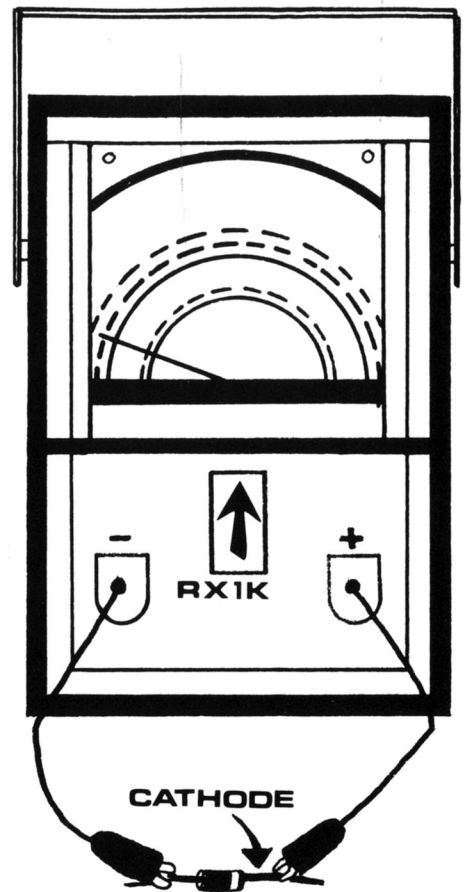


FIG. 1A

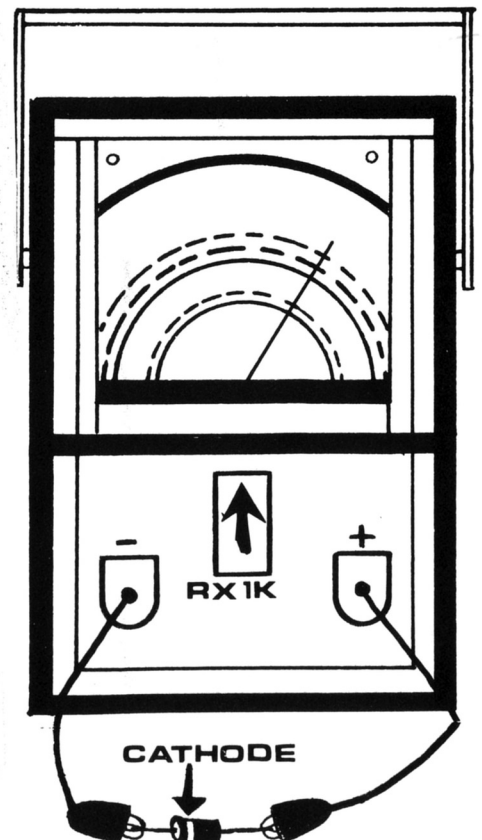
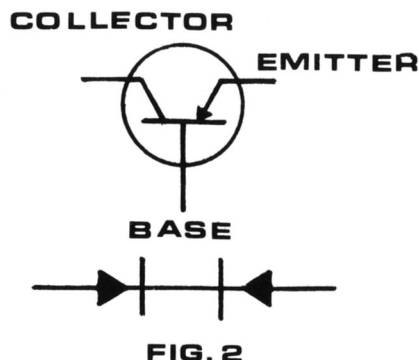
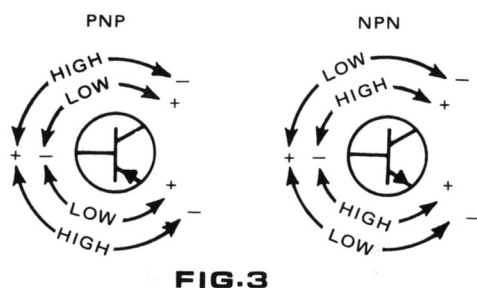


FIG. 1B



For this test, + and - of ohmmeter probes must be known and connected as indicated in the following illustrations.



Motorola's Two New Monitors

Two new color monitors will soon be available from Motorola Data Products. The CM5000 (19 inch) and CM8000 (25 inch) monitors will be totally modular to facilitate field service and will feature a state of the art, inline electron gun and dot mask C.R.T.

Only four static and four dynamic controls are required for complete convergence of the monitor. Because of this simplified design, a service technician can be taught to converge the monitor in as little as five minutes.

The details of production and availability on the new monitors are not yet available, but Terry Van Huis of Motorola indicates that all systems are go at their Carol Stream facility. With advanced processor programming and this new monitor, we should be seeing some incredible new games coming out.

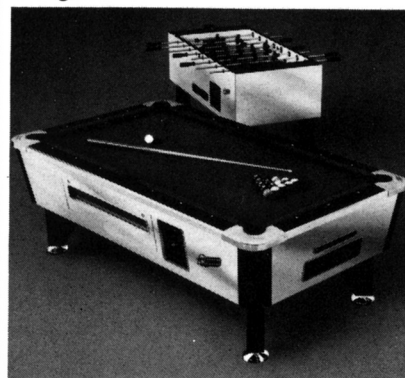
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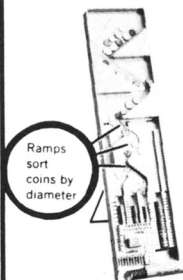
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(continued from page 13)

BUSH: Poor design or inadequate design.

PLAY METER: Could you give me a couple of examples?

BUSH: I hate to point fingers, but yes, I can give you examples. When Midway came out with the Gun Fight machines, they used a 560 ohm resistor in the circuit that makes the arms of the men move up and down, the photo-optical isolator circuit. This is the bumper circuit between the control panel and the computer. They used a 560 ohm resistor and the thing started burning up a month after the games were brand new. So we got them and looked at them and said, "Ah ha. What's wrong is that the resistors are too small." What they should have used probably was an 800 or 840 or 860 ohm resistor, but to be safe we put in 1000 ohm resistors. We just damn near doubled the resistance value.

A year later, when they came out with Night Driver, a much later game, they were using 1000 ohm resistors. It's got the same circuit, but they had gone from a 560 ohm resistor to a 1000 ohm resistor. You'd be amazed at how many operators had trouble with that arm movement problem, could never get it fixed but kept replacing the 560 ohm resistor and the photo-optical isolator. And at the time photo-optical isolators were hard to get—we were having to pay maybe \$13.00 apiece for them from State Music. We've got a better supply of them now, and we're buying them for three bucks apiece. But back then, you had the hottest game to come down the pike in ten years, right? It plays for a month and then goes down. It earns \$200 a week, then up and dies. Guys were sick about it, and it was strictly a design problem.

But I don't want to point fingers just at Midway—I think they do a great job. Let me give you another example. Allied Leisure. They designed that arcade piece, the ski machine, where you stand on it and listen to Alpine music and move your feet back and forth. They drew a schematic and published the damn thing and one place it said, "This is a four-way bridge rectifier," (and they drew a picture of it). And it was not a four-way bridge rectifier. It just wasn't. Whoever drew it, whoever designed it, just did not know what he was doing.

Now, I personally don't know a four-way bridge rectifier from the Golden Gate Bridge, but we've got help here that does. And one of our guys looked at the schematic and said, "Hey, that's wrong." And I said, "Surely not. This is a major manufacturer. Surely they wouldn't make that kind of mistake." And the guy said, "Yeah. Look: here's what a four-way bridge rectifier looks like, and here's what they did. And that's not the same as that." So we sat down and we wrote a letter to Allied and said, "Hey, did you print this wrong or did you make it wrong after you designed it right or did you really in fact design it wrong? Surely you didn't do that." And they wrote us back a letter and said, "Yes, you're right. We did it. We're sorry."

PLAY METER: Do you find though that the games of today are generally more reliable than the older ones?

BUSH: Some of them. A manufacturer has got an altogether different set of problems from anybody else. He's got different problems from the service business he's got different problems from the magazine business. The manufacturers have production deadlines just like you've got publishing deadlines. They've got a game on the drawing board and they've got a plant that's going to become idle at the end of three weeks unless they're ready to build something else, right? So they've got that engineer back there humping to get that machine designed so that they can begin building it, so that they don't have to lay off all those production workers. So the fact that they sometimes rush into something to keep the line going, to keep up production, doesn't really surprise me. In fact, it surprises me that they don't make more mistakes, because when you're designing a game and putting it all together, with all the different areas of expertise you've got to have to put one together, you're bound to have problems. They do damn well, I think.

PLAY METER: Most manufacturers do put out prototype games though, and they should work through most of the problems with the prototype, don't you think?

BUSH: What about P.S.E.'s Bazooka, for example? That thing was a piece of junk when it first came out. Everything just fell apart and broke on it. Then they went back and completely redesigned the circuitry, redesigned the cabinetry. It looks much the same from the outside, but it's an altogether different game now.

PLAY METER: Are there any methods of preventive maintenance that can be used in solid-state equipment? You mentioned putting the 1000 ohm resistor in place of a 560 ohm resistor in Gun Fight. Are there any other forms of preventive maintenance that you can think of to keep the equipment operating?

BUSH: Power supplies are very important. A good deal of the time, the power supply is the problem or at least the power supply causes the problem. TTL logic is designed to run on five volts, plus or minus five per cent, so it'll run from 4.75 to 5.25 volts. And that is not very much differential. It takes a damn good voltmeter to get that kind of accuracy. The average pinball mechanic has never seen that kind of voltmeter—it's a three hundred dollar instrument. Still that's what he ought to have, because if he lets that thing run at 5.4 volts, it'll probably do a few things wrong, but it'll also burn that board up in half its normal life-time. That five volts is very, very critical.

PLAY METER: So if you had to recommend one piece of test equipment to get, it would be a voltmeter that registered that accurately.

PLAY METER: Yes, a good one per cent voltmeter.

PLAY METER: Still, even if today's games are generally more reliable, and even if preventive maintenance is practiced, there are going to be some breakdowns. Is the actual repair of these games becoming more or less complicated?

BUSH: It's becoming more and more complicated,

more and more difficult, but also more and more interesting, more challenging and more fun. When Midway hit with the Gun Fight, based on a microprocessor—they used RAM and ROM based logic before—it was a complete turnaround in the industry. It was like everybody else was working in the automobile industry, and Midway went out and invented the airplane. Now they've shut down their automobile plants, and everybody is building airplanes. And it's a whole lot different working on airplanes than working on automobiles.

PLAY METER: We hear constantly that the microprocessor is going to bring down the price of equipment. Do you think this is going to happen?

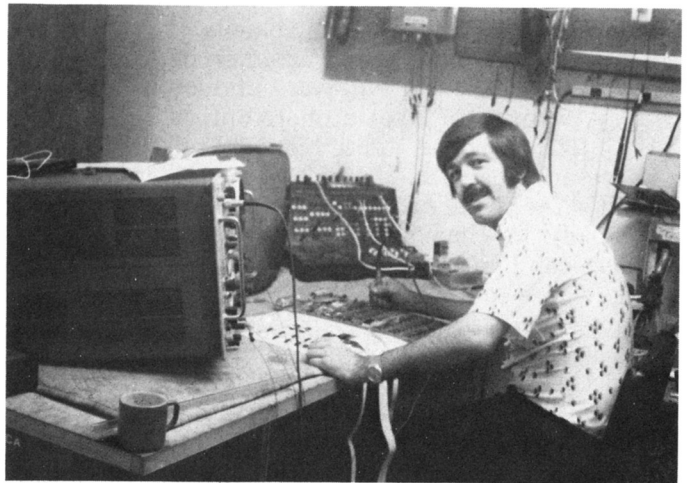
BUSH: For sure. Not just because of the microprocessor but because of all the related electronics that go along with it. You know, the RAMs that Doyle was using out at Texas Instruments five years ago designing space equipment were costing him hundreds of dollars apiece; you can now buy them for two or three dollars apiece. Still the microprocessor won't make a *significant* dent in the cost of the machine. A large portion of the cost must be in the cabinet, in the switches and the control mechanisms. The electronics is not really that much any more. You know, for \$300 or \$400, you can build a full-fledged, honest-to-god, sophisticated computer. But when you start putting on it steering wheels and gas pedals and gearshift knobs and fluorescent lights and plexiglass and particle board and speaker covers, it turns into a \$1500 piece of equipment. So you drop the price of the computer down from \$500 \$400, you still have a \$1500 machine.

PLAY METER: But the repair will become less expensive because parts will be less expensive.

BUSH: Parts will be less expensive, but the largest portion of the repair bill is not in parts. It's in the technical labor involved in finding the parts. It might be a 29 cent resistor, but it will cost you \$25 to have somebody change it. The part is cheap, but you still have to take the old one out and put the new one in, and you're talking about a \$25 flat rate. I'd say that generally 80 per cent of your repair cost is labor, and quite often 99 per cent of it. But it's highly sophisticated and well-trained labor. The guy is making \$300-\$350 a week. If he's working back there changing resistor packs, he can still only change so many a day and you've got to charge \$25 for his time in order to pay his salary. Otherwise he can just go across the street to the computer firm and get his \$350 a week there.

PLAY METER: Do you have any trouble getting parts?

BUSH: Yes and no. Yes in that sometimes it's hard to determine what it is. Used to, in the "early" days—five years ago—they would paint over the chip numbers, so the serviceman didn't know what it was and he didn't know what to go down and get to replace it. Then they decided, "That's not very logical. We'll leave the numbers on it, but let's design it so that the chips have our own numbers on them." So the manufacturer, the games manufacturer, would go to a parts manufacturer and say, "Take this standard part and put my number on it."



Steed's "electronics smarts," Doyle Modesto.

Then when somebody wanted to buy that part, he'd have to use the manufacturer's number. This is a favorite trick of the people in the TV business, like Zenith and RCA. Their parts are made by typical parts manufacturers but they've got Zenith numbers on them and RCA numbers on them; it may be the same identical part, but you've got to buy it by the Zenith number or the RCA number, or the Midway number, in this case, or the Atari number.

PLAY METER: In that case, the parts could be obtained only from the distributors?

BUSH: Right and they're extremely expensive. The expense is probably related to the distribution system. The parts manufacturer makes it and gives it to the games manufacturer, and the games manufacturer turns around and gives it to the distributor and everybody's got to inventory it, everybody's got to stock it, pay the parts man, the counter man, and by the time the 29 cent part gets to its ultimate user, it's a five-dollar part. If they had never put the Atari number on it, we could go down to the local Radio Shack and pick it up for 29 cents.

PLAY METER: So generally, you do have to get your games parts from the distributor?

BUSH: Well, not any more. In Phase I you got your parts from the distributor because they'd painted over the number. In Phase II they had their parts private labeled, so for all practical purposes, you couldn't get them from just anybody. Phase III has been okay. Midway and Atari have decided they're not in the parts business; they don't want to be in the parts business—it's just too much trouble. I can understand that. So now they tell you, "If you want a microprocessor, don't even bother to go to State Music, for example. Go to an Intel representative somewhere."

PLAY METER: And that makes parts cheaper?

BUSH: It makes them much cheaper but it also makes them a little bit more difficult to find, especially in what I would call remote areas. Here in Dallas, there is a lot of electronics: we can find most anything. But what would I do if I were in Tyler, Texas or Waco? I don't know what the electronics industry is like in Waco—I use that just as an example. But I don't know where I would get

an Intel 8080 if I were in Waco. In Dallas I know where to get them. And people call us. Say Commercial Music has a customer in Amarillo or somewhere, the guy will call Commercial and say, "Hey, where can I get a photo-optical isolator, an ILD 74?" So Joe tells him, "Well, you don't necessarily need an ILD 74, you can use an ILTC 6—it's the same thing, just made by a different company in Houston." So the guy says, "Well, where can I get one of those?" And the guy has no idea where to get it.

Joe then turns around and says to us, "Can you put a couple of ILD 74's in a piece of styrofoam and mail them to this guy in Amarillo?" And I say, "I don't want to do that," because it's too much trouble. And he says, "Do it anyway, because the guy has had the game down for three days and he can't get it fixed." That puts us into the parts business, which I don't really want to do. But the guy's got a broken game and he's got to get it fixed. You can get the part in Dallas from probably ten different sources at \$3.00. You can go to a distributor and buy them for \$10 apiece, or you can do without them. What do you do?

PLAY METER: So even on the Phase III games, you can get the parts from the distributor?

BUSH: Yes, you can still get them from the distributor, but they are generally a little bit more expensive. Another thing, I've found out: the distributors have quit buying from the manufacturers in a lot of cases; they've gone out and bought

from the general electronics industry. And they're stocking industry parts rather than manufacturers' parts. They have brought their prices down, too, by buying right.

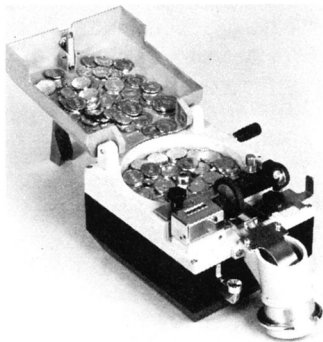
PLAY METER: How do you see the role of the service company in the industry's future?

BUSH: This is an age of specialization and the industry that we're associated with and we have been moving that way in a hurry in the last three or four years. When did Midway come out with Gun Fight, two years ago? There has been a major turnaround since then. We weren't prepared for Gun Fight. When the first microprocessor games came out, we found we didn't even know what a microprocessor was. We didn't know anything more about it than any pinball mechanic, but we had to learn because they were bringing them to us at the rate of eight or ten a day—you either learn pretty quickly or you end up with just piles and piles of boards. And it was either the distributor had to learn how to fix them or we did, or Midway was going to have to fix everybody's boards. Midway couldn't fix everybody's boards, so we did learn how to fix them.

The games are going to get more and more sophisticated and I don't really think the distributors or operators should even worry about trying to fix their own games. They ought to rely on the service companies to take care of them. We can afford to hire the sophisticated help; we can do the volume of business to pay the sophisticated help. •

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