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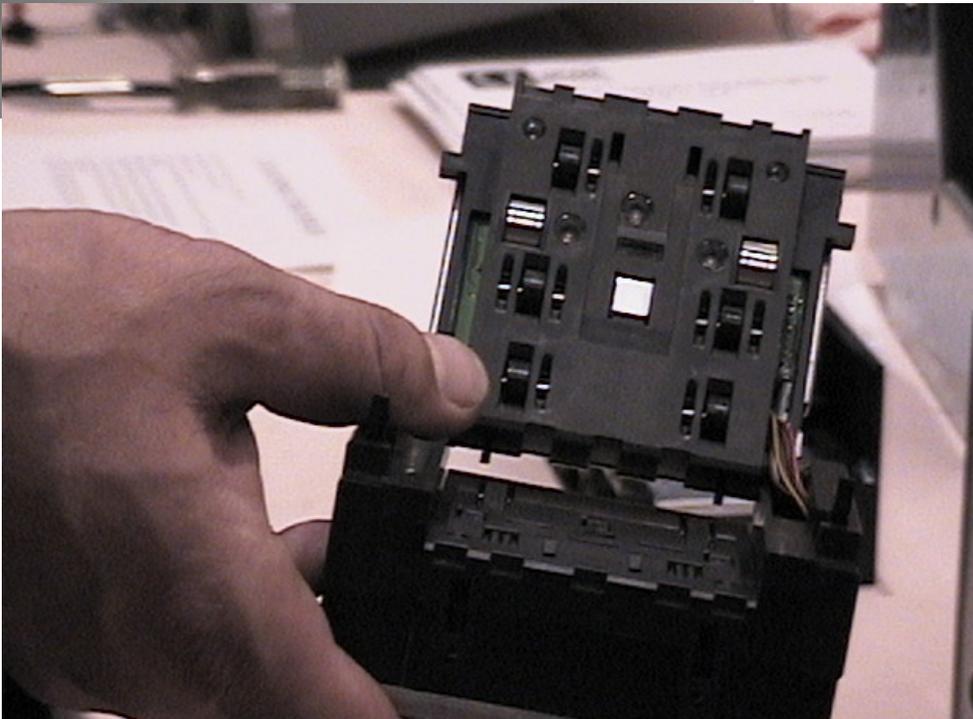


Kevin Locke

Michael Harris



Slot Tech Magazine is an official publication of the Global Gaming Expo



Slot Tech Editorial

This is the second anniversary issue of Slot Tech Magazine. When I began the magazine, I gave myself two years to make a go of it. Well, here we are, two years later and, judging by you, our readers, we're here to stay. Your response to the magazine has been overwhelming and I couldn't be more pleased with the work that has been produced by our contributing writers.

Speaking of writers, I finally had a chance to meet Kevin Noble. Kevin drove in from

Windsor, Ontario Canada to attend TechFest 6, held March fourth through sixth at Soaring Eagle Casino in Mount Pleasant, Michigan. It was nice to finally get together. Unfortunately, we weren't able to get in any quality beer-drinkin' time together. Maybe next year. Kevin sent in a nice (and totally unexpected) review of TechFest 6. Normally, we don't assign a lot of space in the magazine to such reviews but since Kevin was so kind as to write it up, you'll find it beginning on page 16.

Kortek has a digital monitor out that you'll begin seeing soon. Read about it on page 26. Looking for a 15-inch touchscreen monitor for only \$299? WHAT? Yep! Touch International is offering this monitor below cost in order to introduce their product. You'd be nuts to pass this up. Tell 'em you read about it in Slot Tech Magazine and maybe they'll advertise. Go to page 28.

Oh, just one other point. I recently visited the slot department of a large casino. I won't mention which one but they are a Slot Tech Magazine subscriber. The slot manager was going on and on about how much they like Slot Tech Magazine; so much, in fact, that when they receive their issue each month, the first place it goes is not to the slot shop but to the secretary's office where she duly makes sixty copies of the magazine for distribution to all of their slot managers and slot techs. I was more-or-less flabbergasted at this as the proper



way for a legitimate business to operate is to purchase a subscription for each person that needs it. That having been said, I know that this casino meant it as a compliment (See, Randy. We like your magazine so much, we copy it and give it to everybody.) and had no malicious intent at all.

FYI, copying the magazine works against things in a couple of ways. Obviously, it means that the casino is paying for just a single subscription. Other gaming magazines are happy to give away copies to anyone and everyone that asks. This boosts their circulation. Due to our extremely low advertising costs, Slot Tech Magazine depends on subscriptions to offset the cost of production and circulation. Also (and perhaps most importantly) when advertisers inquire about Slot Tech Magazine's circulation, the number of subscribers appears to be significantly lower than the actual number of eyeballs that see the magazine.

Slot Tech Magazine offers a discount program for those who need multiple copies. Give me a call and we'll work something out. 'nuff said?

Randy Fromm - Publisher

April, 2003

Randy Fromm's Slot Tech Magazine

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Mikohn Progressive Programming

By Kevin Noble



Currently at our site we are running IGT and Bally reels, link and stand-alone progressives, but we use three different programs in our progressive link signs. The first is the PSP program to set up the base, increment, and current values to name a few. Mikohn download for animation and text, and lastly PCID to display to the customer the location of the machine that won.

Operation

A progressive jackpot represents an amount of money held in reserve, which is paid out for a specific win. The jackpot starts at a selected base value and increases by a percentage of the money wagered on the machines connected to the progressive.

Requirements

A progressive display requires a controller. The controller is a computer that keeps track of the main or hidden (cur-

rently we do use at our site) jackpot amounts. The display is a device which communicates progressive jackpot information to a player, display the winning machine, and to show off animation to attract customers.

Progressive Types

Progressives can be divided into two basic groups; STAND-ALONE and LINKED. A STAND-ALONE is set up in an individual machine. A LINK consists of a group of machines that share a common progressive jackpot. A wide-area progressive can link machines in several areas in the casino, several casinos in a market, or several markets in a region.

Proper Progressive Operation

When the machine and the progressive controller are connected and programmed correctly, the progressive jackpot will increase by each wager as shown by the display. The wager required to increment the amount shown on the progressive display depends upon the percentage allotted to the progressive jackpot called the increment rate.

When the jackpot is won, the machine signals the controller. The controller locks the jackpot until the First Coin signal from the machine resets it to the starting jackpot or base amount.

PSP Progressive Options

PSP SOFTWARE

PSP software is what we use to configure our parameters into the super controller. There are fourteen pages in the program but what we are mainly concerned about is the first page (Jackpot programming)

The first page consists of the following values:

BASE VALUE This is the start-up amount of the jackpot; also the amount of the rest after a jackpot has been hit.

CURRENT JACKPOT This is the current amount of the jackpot. This includes the BASE value and any incrementing that has taken place. This is usually set to the last known amount if the controller has failed.

HIDDEN JACKPOT The pur-



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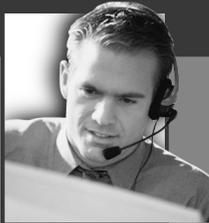
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pose is to increment the reset value of the next jackpot BASE amount, once the current jackpot has reached its limit.

JP LIMIT This is the maximum amount we want the jackpot to reach. When the amount has reached its maximum, no incrementing will take place.

INCREMENT 1 This is how much value is added to the main jackpot for each coin or credit wagered on any link progressive game on the bank

FUNCTION KEYS (JACKPOT PROGRAMMING)
F1 (SEND) Used to upload our data to the controller

F2 (LOAD) Used to retrieve data from the controller

F3 (JP GROUPS) Used to define the number and type of jackpot groups.

F4 (MACHINE TYPE) The machine type that we have connected to a link. This also helps with the pulse patterns and duration for the coin in and jackpot signals

F5 (JACKPOT PULSE LENGTH) The amount of time needed for the jackpot pulse length in time

F6 (JPGROUPSETTING) This is used to scroll each specific jackpot group. You can set and view the values of the jackpot group selected. Because F# is set at SNGL (at



12-cell Mini-Display Board

our site) we have to use JP0.

F7 (CURRENCY FORMAT) The Mikohn display will show the currency or coin format.

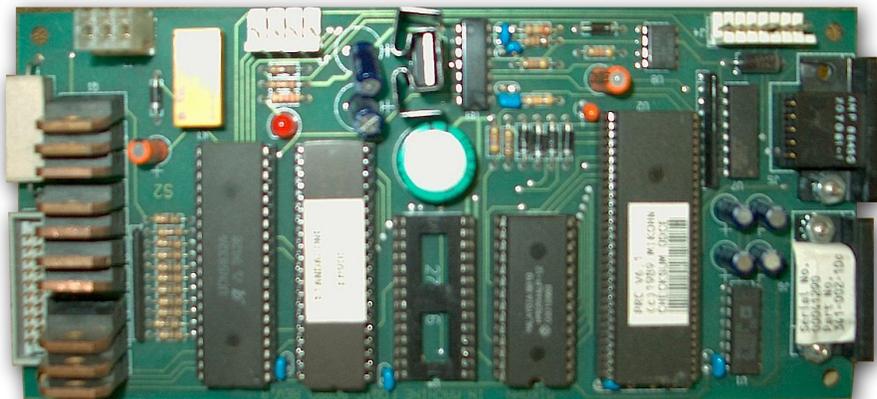
F8 (SERIAL COMMUNICATION) This is used to set serial communication between machines and controller. This values also various from slot machine depending on the manufacturer.

F9 (HELP)

F10 (EXIT)

Entering the PSP Program

* Click on the PSP icon * Press the scroll down button to CON 2 * Press "ENTER" to accept * Enter the password and hit F10 to enter * Press "ESC" now your into the "CONFIGURATION MENU" * Now you have the option to create your own path (F1), enter an existing file (F2), and controller (F3). * (as an example, we will use a existing file that is on the floor) * "NAME CONFIGURATION FILES" menu comes up. * Going (F2) SUB-PATH -> XXXXXXX "ENTER" * Press 1 to see function key settings, set (or check)



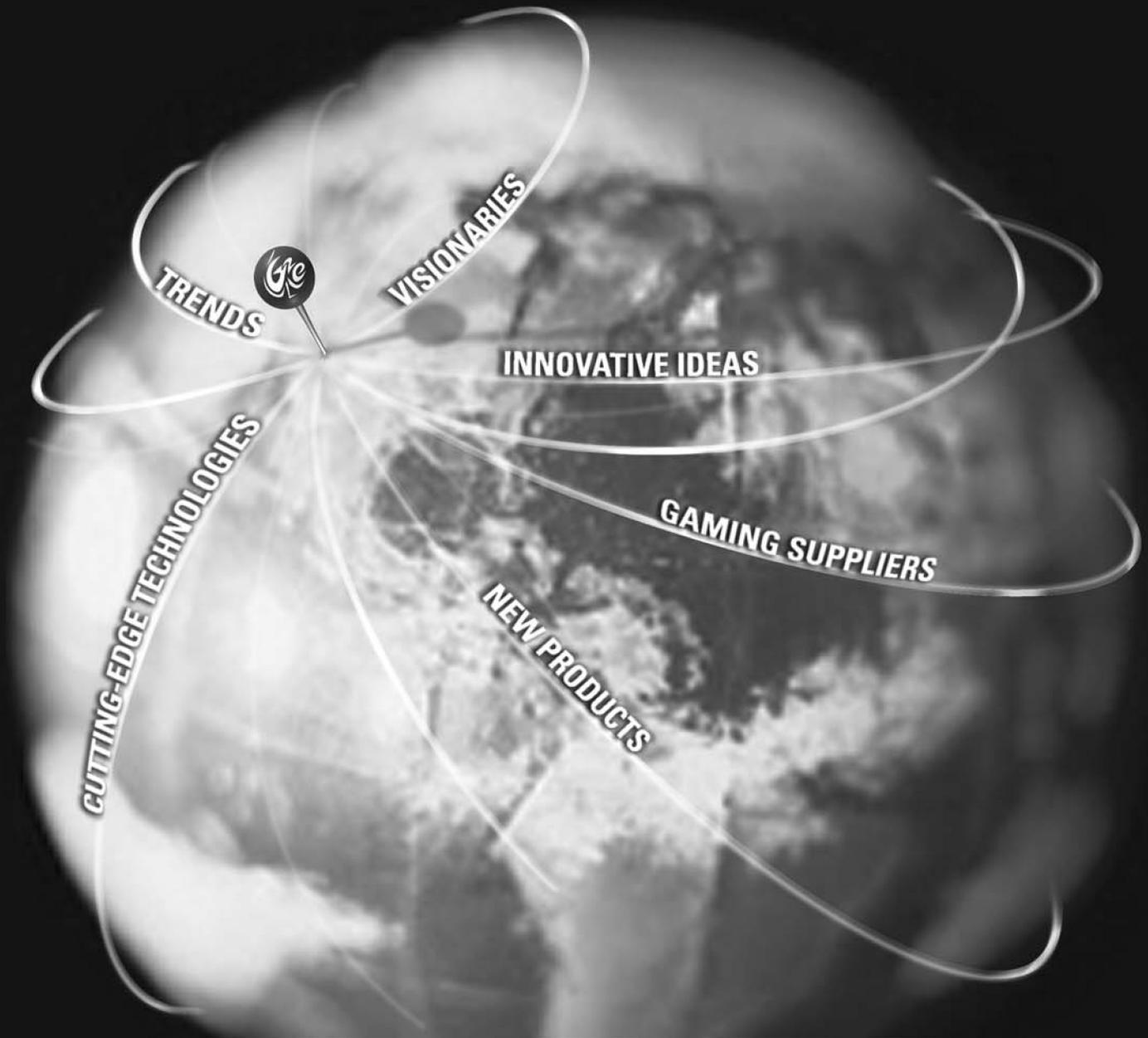
OUR SITE'S OPTIONS	
IGT	BALLY
F3 - SNGL	F3 - SNGL
F4 - M-08	F4 - M-08
F5 - 3 SEC	F5 - 3 SEC
F6 - JP0	F6 - JP0
F7 - \$\$\$\$	F7 - \$\$\$\$
F8 - MS04	F8 - MS00

to a desired value * Press F10 to "EXIT" * Press F10 again to "EXIT" * Press F2 to save configuration file on exit.

Downloading Animation (Supreme Logic Boards)

1. Type "T" to get into drive "C" (or left side of program) 2. Press the down arrow key to scroll through the different files 3. Select the file you desire, and press enter, this

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allows you to select the desired file 4. Type "M", this transfers the file to the EPROM on the driver board 5. Now, go back to the file you desired and press enter. (this allows you to unmark and clean the file) 6. This now tells backgrnd.bat to run your file. 7. Press the Esc key, this enables you to enter the main menu screen. 8. Type "O", this allows you into the DOS program.

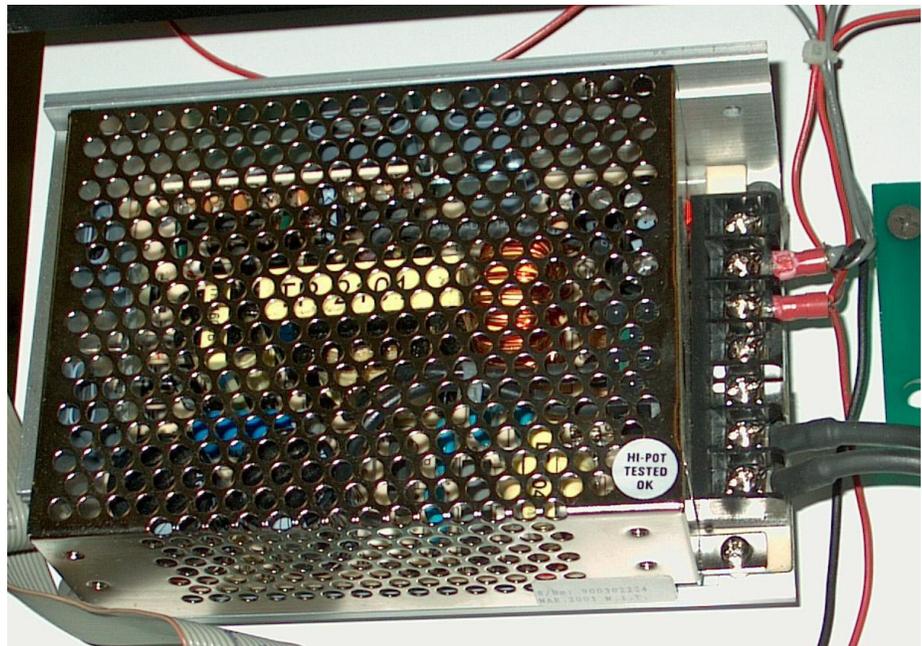
In DOS

1. Type "EDIT backgrnd.bat" and enter
2. Type "PLAY B: name of desired file.mik"
3. Press "ALT" key, then "F" key and "E" key
4. At the prompt command to save file? Yes or enter
5. Type "exit"
6. The message "this will unmark files: 7. Type in "Y" and "enter"
8. Now you go back to drive C9. Type "T", scroll down to backgrnd.bat
10. Hit the "enter" key
11. Now the sign will load and the file now has been downloaded to the driver board EPROM

Download Program

* Plug in serial port into driver board * Start downloads program from desktop. All info from the driver will automatically be copied to the laptop. (right side of the screen) * There are 2 files that will run jpwin0.bat (for when the jackpot hits) and Backgrnd.bat (at all other times)

Backgrnd.bat File * This file



The Mikohn Power Supply

can be retrieved from the EPROM and edited. * Step #1, Press "R", highlights the file to be edited (backgrnd.bat). * Press "M", this will transfer the file from the EPROM to the C:\ drive of the laptop * NOTE: UN-select any file that was transferred the same way it was selected. * Step #2; Press the "Esc" key then press "O" to enter into the operating system. * Type "edit backgrnd.bat" <enter>. * At this point the file can be changed.

Running the backgrnd.bat file * After the edit has been completed, save the file, and exit the editing process by typing in "exit". * Press "Y" to "WARNING this will unmark files" * Press "T" and select the edit backgrnd.bat file by pressing enter. * Press "M" to transfer file to the EPROM. * NOTE: all files that are listed to run under the backgrnd.bat

file must also be copied over to the EPROM. * After the files are done being transferred, they should run automatically.

Commands for Backgrnd.bat
 File * PLAY
 B:\FILENAME.MIK * TEXT
 B:\FILENAME.TXT * NOTE:
 (MIK) files are animation programs * (TXT) files are the text files * There are many more commands that could be found in the manual * Making a text file is the same as making a bat. File, but the commands are different and the file must be saved with the file extension TXT. * For the text file to run at all times the command must be entered into the backgrnd.bat file.

PROGRAMMING PC-ID * After the Mikohn sign has been set up with your PSP program, we can now enter ma-

PSP program, we can now enter machine locations using the PC-ID. * Click on the PC-ID icon * Enter the file name of the progressive to be set up. * A screen with 32 boxes comes on the screen * Select "all" using the F5 key * Enter the locations in each box, starting with the first game on the bank to the last in order. * Press the F9 key to set to COM#1 * Press F3 to save the configuration * Press F4 to retrieve your information * You are now ready to send the PC-ID

Special Thanks

I would like to thank Robert E. Sult for his time in reading my article for any inconsistencies, the pictures, and his valued opinion. You can find

a lot of his slot machine information on his web site at www.slotnotes.net. Be sure to stop by and check out his site. And special thanks to Karen Royce (Slot Shift Manager) who also provides much

needed English lessons on all my articles.

- Kevin Noble
knoble@slot-techs.com

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LM2984 Microprocessor Power Supply System

By Herschel Peeler

Hi! I'd like you to meet a new friend. Mister LM2984 is a very comprehensive creature. He does multiple functions that would otherwise take up six to ten square inches of board space. Many medium size microprocessor based boards (read Player Tracking System) all contain about the same functions. The LM2984 takes many of these circuits and crams them all into one chip.

The LM2984 has, among other things, three separate 5-volt regulators. One rated at 500 mA for the main circuit, another rated at 100 mA for the interface circuits to the game, and a 7.5 mA output for RAM. The 500 mA and 100 mA are controlled by an "On / Off" input that can be under microprocessor control (from the game). The 7.5 mA output stays up as long as power is applied to the circuit. Typically a 1-Farad Super Capacitor is hung on the 7.5 mA line to act as a battery

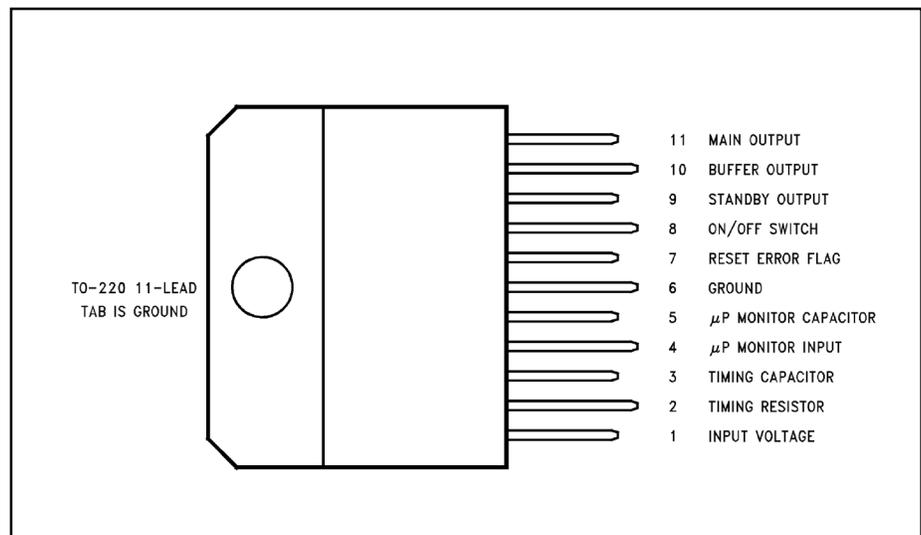
to the RAM when total power to the board is lost.

Other than the three regulators the chip also has circuitry to provide a Reset input to the microprocessor on Power up. This reset may be delayed by selection of a resistor and capacitor on pins 2 and 3 of the chip. Power loss is sensed by monitoring the 500-mA output. (After the 500-mA power line comes up, Reset is active for a certain length of time, set by the resistor and capacitor.)

The On / Off control input is TTL compatible. This line being high turns the regulators on. This is actually a secondary use of the built in Thermal Shutdown circuit built

into the LM2984. In over-current conditions the LM2984 500 mA regulator gets hot and triggers the On / Off circuit.

Another popular feature on most microprocessor-based circuits used in the gaming industry is the Watchdog Timer. Well, it's in there. The Microprocessor Monitor input would come from the microprocessor-controlled circuit somewhere. The microprocessor enables this line every so often as a "Sanity Check." If software gets confused or malfunctions, the Watchdog Timer does not get its pulse and causes an error condition. A capacitor on pin 5 determines how long it should be before this timer



times out and the Watchdog Timer kicks in, pulling on the Microprocessor's Reset line in an attempt to restart the microprocessor.

So much for a quick "over all." Let's take a closer look at each circuit and treat it like a lesson in reading a spec sheet.

The three regulators are Low Dropout Regulator designs. This means that power in (V_{IN}) need only be about 0.6 Volts higher than the output voltage of 5-Volts. Compare this to a more common variety like the LM7805 design that requires that the input voltage be about three volts higher than the output voltage. Actual allowable input voltage range can be from 6 Volts to 26 Volts, and the LM2984 works fine. The fine print here is that as V_{IN} is higher, the allowed output current gets lower. The package can only sustain a certain wattage. This is a factor of $(V_{in} - V_{out}) \times \text{total current}$. As V_{in} gets higher the current it can supply becomes less. How much depends on how big a heat sink is used to pull this heat away from the package. The data sheet does not specify this, nor does it mention this problem explicitly.

Output voltage is nominally 5.0 Volts. Normally this will vary a little with each part, but it is guaranteed to be between 4.85 and 5.15 volts at normal room temperature. Being a semiconductor device, these characteristics will vary as temperature varies also. Over the full tempera-

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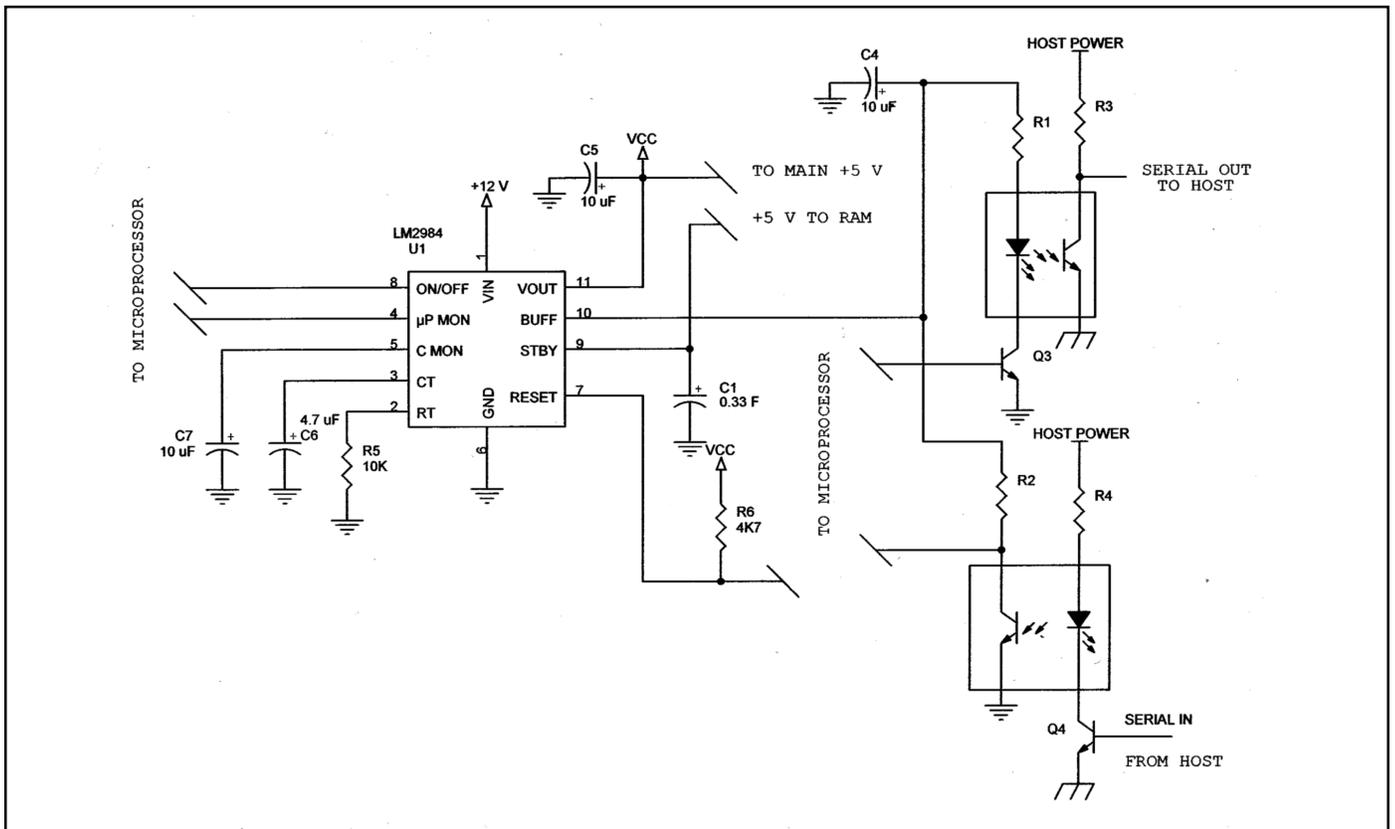
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reset once puts the microprocessor back into the proper track. If there is a serious

system failure that keeps the microprocessor from running properly, the Watchdog Timer

keeps the microprocessor re-setting, in an attempt to prevent anything seriously bad

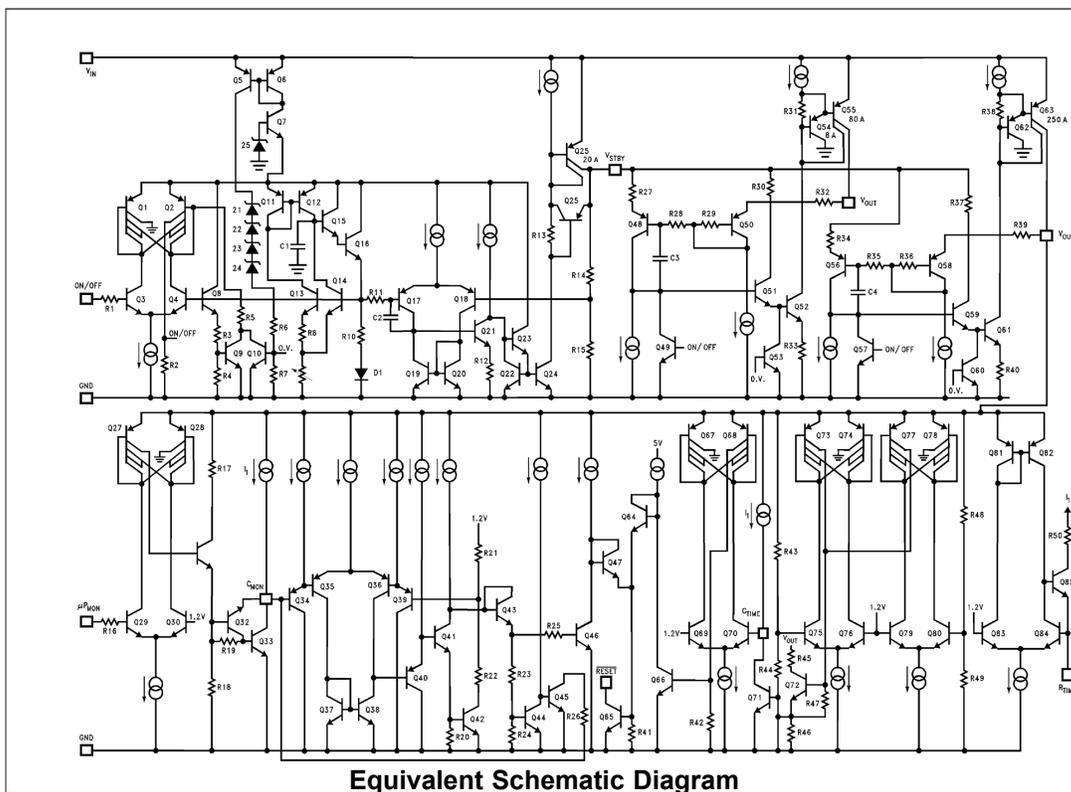
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happening in a gaming machine.

The reset output is an open collector design, and a resistor to VCC is required before you can see the output go high.

Troubleshooting

Confirm V in (Pin 1) is good. Check it with a scope, not just a meter. It should be around 12 Volts, normally, give or take a few. Measure this voltage on a good one if in doubt. Vout should be 5 Volts at all three pins (9, 10 and 11). Again measure them with a scope. Oscillation on any of these lines may be due to an open filter capacitor on that output. A voltage that is too high indicates a bad LM2984. A voltage that is too low may be a bad LM2984 or a short on that output to ground (shorted filter cap, most likely). If the 500 mA (pin 11) and the 100 mA (pin 10) are at 0 Volts, but the 7.5 mA

output (pin 9) is okay, check for the On / Off input to be low (PIN 8).

WDT and Reset

In normal operation you should see a pulse on Microprocessor Monitor (pin 4) every once in a while ($0.82 \times R \times C$, as mentioned above). If all else is okay, the Reset output should be high. If Reset is pulsing it means that the Watchdog Timer circuit has been activated (a bad capacitor on pin 5 is probable).

Gotchas

Many of these circuits use a Super Capacitor (0.33 F to 1 F) on the 7.5 mA 5 Volt line. If the board has been off for a long while (or is new) it may take a while for this capacitor to charge up at only 7.5 mA. It's a good idea to apply power to such boards an hour or so prior to actually putting them into operation. This is actually normal since the Player

Tracking controller is usually powered by an unswitched AC power line (still hot when the game is turned off).

EGM INIT

Acres, and most other Player Tracking systems I imagine, notes an error condition if the Controller can not communicate with the game it is connected to. Acres calls this condition an EGM INIT (Electronic Gaming Machine Initialization Failure). For boards that use a separate power source for the game interface, like those using the LM2984, it may mean that this voltage has failed. In this case it would be the 100 mA output. You wouldn't be the first to find the general 5 Volt power up, and assume it wasn't a power problem on the board.

- **Herschel Peeler** -
Hpeeler@slot-techs.com

Slot Tech Company News

JCM American Enters Into Agreement With Tovis Co., LTD.

Currency handling manufacturer JCM American Corporation (JCM) announced that it has entered into a strategic partnership with Tovis Co., Ltd., in Korea. Under the agreement, JCM is the exclusive gaming industry representative for Tovis products in North America and Australia. JCM will also represent Tovis products in non-gaming lines of business.

Under the agreement, Tovis products will continue to bear the Tovis name. JCM will represent the products in terms of sales, service and repair.

"We are excited about this agreement. This new relationship with Tovis will allow JCM to expand the high quality products and services we offer to our customers, and allow us to continue to serve the growing needs of the gaming industry," said JCM President, Aki Isoi. "Further, this will allow JCM to solidify our expansion into non-gaming lines of business and bring our high standards of quality and service to new industries."

President/CEO Yong Beom Kim said, "This agreement is a very positive move for Tovis. JCM has an impeccable reputation in the gaming industry, and the relationships

JCM has formed will allow Tovis to gain critical exposure through their customer service representatives to both the gaming OEMs and directly to the casino users."

Tovis products include its CRT monitors, LCD monitors and next-generation visual display equipment, including 3-D and plasma monitors. Tovis products are widely used in the gaming industry.

About Tovis

Tovis Co., Ltd. is a technology driven manufacturer of CRT and LCD monitors targeting the gaming, amusement and other monitor



markets. Tovis is moving into a new 53,000 sq. ft. headquarters in June 2003 located in Wonju, Korea. Overseas operations include an office in Vienna Austria, Sydney Australia and a United States office in Las Vegas Nevada. Superior electronics design and flexible manufacturing processes, allow Tovis to produce reliable monitors with high power factors and offer customization for customer's unique applications. For more information, visit www.tovism.com.

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TechFest 6 @ Soaring Eagle Casino

TF6

Slot Tech Magazine's TechFest 6 was held March 4th to the 6th 2003, at Soaring Eagle Casino in Mt. Pleasant, Michigan. TechFest training seminars are designed to help benefit technicians who want to learn about troubleshooting and monitor repair.

I could not imagine the amount work and preparation that must have been done to bring in all the guest speakers, arrange for the training rooms, badges, and the million other things that go along with the job. I personally was fortunate and honored to attend the meetings along with the pleasure of meeting Randy in person. I only wish I could download all the information stored in his head into mine.

Another person I was anxious to meet was Chris Rosetti from Happ Controls. Chris and I have spoken numerous times over the phone regarding part orders and quotes.

We covered a wide variety of products from BVs and hoppers to test equipment and

coin acceptors but the most important factor for me was the basic repair of a monitor. We received many handouts from the various manufacturers along with pocket protectors, screwdrivers, and even an LED bouncing ball from MEI. I have also learned about downloadable programs to help me troubleshoot various gaming software used out on the floor.

The Special Guests

We had such a variety of guest speakers attending the Tech Fest to help benefit ourselves. To the following people, if you read my article, I would like to thank you personally for all the information and most of all your time and effort.

- Brian Carty - Advanced Electronic Systems
- Rich Raley - Advanced Electronic Systems
- Chris Felix - MEI
- Bob Buesing - 3M Touchsystems
- Dan Flomm - Medeco High Security Locks
- Bo Pheng - Asahi Seiko
- Michael Harris - Coin Mechanisms, Inc.
- Jeff Murray - Sencore
- Armando Gomez - Money Controls
- Tom Talbot - JCM American

Summary Day 1

This day started with Randy teaching us the basic parts and operation of the monitor, breaking down the monitor into 7 different sections,



Sixty-seven slot techs from across the country attended TechFest 6 at Soaring Eagle Casino in Mt. Pleasant, Michigan.



Left: Rich Raley of Advanced Electronic Systems, Inc. addresses the group as the first guest presenter at TechFest 6, held at the Soaring Eagle Casino in Mt. Pleasant, MI. Rich presented a technical look at MEI's ZT1200 series bill validator.

Right: Advanced Electronic Systems, Inc.'s Brian Carty presented complete disassembly and repair of Seiko ticket printers.



MEI's Chris Felix showed their new Cashflow SC66 bill validator, approved for use in Michigan just the week before TechFest 6 began.

and showing us how to eliminate many sections of the monitor by watching what the monitor is doing and most important not doing.

MEI and Advanced Electronic Systems started with tossing bags of M & M products at the class. This was very interesting as they made a point of talking about making the candy and how they needed to invent a bill validator in order to accept the money in the vending machines.

I was introduced to the MEI Cashflow SC series BV and I'll tell you that the whole class was impressed with this Technician's-Dream-Come-True BV head, transport, and cashbox: No belts, flush mounted cashbox, accessible and interchangeable interface cards. The cashbox itself was receiving a round of applause with every feature mentioned. The cashbox is made of durable power tool plastic with windows in the corners to tell you what denomination was the last bill accepted. The locks are recessed with a hooked cam so the cashbox can't fly open no matter how it is dropped, and there is no gap between the head and cashbox. I could go on and on about this cashbox but you can check it out for yourself.

The final presentation of the day was on Seiko printers. I was introduced to the disassembly, cleaning and reassembly of the thermal printers. Typical failures and repairs were also covered.

Summary - Day Two

This day begins with 3M Touchsystems teaching us the theory of operation, proper cleaning techniques, changing the screens, diagnostics and repairs. We were also shown how to use the MicroCal program to calibrate, test and diagnose problems with the touchscreens. Randy gets another crack at us showing us how to understand the seven different sections and how easily to identify in which section to begin our troubleshooting.

Medeco arrived after Randy's sermon, showing us their locks. It is amazing you can change out the whole barrel of the lock without removing fingers, cams, or washers and cut down the time to about one-third the time when new locks need replacing. Medeco sponsored lunch on day two. Thank you, Medeco.

Asahi Seiko stopped in to
Page17



Asahi Seiko's Bo Pheng provided a detailed look at the coin hopper from a repair perspective. He also demonstrated hopper denomination conversion. Both side-exit and escalator hoppers were presented.



Coin Mechanisms' Mike Harris was peppered with questions during break time. Participation at TechFest 6 was an heroic effort for Mike as he had just returned from a training mission in France two days before and had to drive from Chicago through a blinding snowstorm. Thanks, Mike.

demonstrate the correct way to do a hopper conversion and how to set the optic flag. Also in this presentation Bo Pheng rolled out a new hopper that did not require any more shims behind the knife, and an easier way to

remove the escalator that now has a plug that mounted on it. One thing that really impressed me with Bo was he took our concerns about the hopper seriously. He took notes to pass along when he returned back to

Las Vegas.

The last presentation of this day was Michael Harris from Coin Mechanisms. Michael had just flown in from France and had driven through the snowstorm the night before.



Attendees at TechFest 6 included: Dan Kealy, Anilogic, E. Norman Cameron, Simon Jahnke, Bay Mills resort & Casino, Jim Whitehurst, Tri Hoang, Isle of Capri Casino Kansas City, Andy Clifton, Dave Kucharczyk, Fran Wright, Shawn Seymour, Marquette Ojibwa Casino, Mark Russell, Mohegan Sun, Bill Welch, Bobby Warren, Deb Weylin Haataja, Ojibwa Casino Resort, Bill Hewlett, Brian Baird, Dan Trevino, Darrell Chippeway, David Cotter, Resort, Alistair Bediker, Bill Lang, Dave Kozlowski, James Erickson, John Bivens, John Cervenka, Traverse Bay ER Noble, Ontario Lottery/Slot Tech Magazine, Louis Edgecombe, MGM Grand Casino – Detroit, Chris Younce, Chr Casino, Gene Barfield, George Shomin, Jeremy Spencer, Tom Gould, Chris Batog, Little Traverse Bay Band of O



Sencore's Jeff Murray discussed test equipment during their sponsored breakfast meeting at TechFest 6. Sencore makes a range of test equipment that is specifically tailored toward monitor repair.



Bob Buesing, Field Applications Engineer for 3M Touchsystems, Inc., presented a look at touchscreen technology during Wednesday's special breakfast meeting.

He explained to us how the Coin Comparators work, showed us the differences in their products, how the smart mech reads the bar codes, and showed us sample wave forms on the board using their laptop storage oscilloscope unit. This unit is

available from Coin Mechanisms, Inc.

Summary Day 3

On this last and final day, we began with a presentation from Sencore. Sencore's presentation was all about the

test equipment they offer us technicians to help minimize the down time in repairing monitors. Jeff also handed out a CD that contained all the schematics for all the monitors used out on the floor. They had a lot of excel-



ino, Chad Neal, Andy Koressel, Steve Lane, Casino Aztar, Pat Porath, Shannon Gill, Tom Bourdeau, Chip-In Island
 nk Beaudoin, James Warren, Scott Lindquist, Mike Hillier, Bryan Thompson, Rick Smith, Kewadin Casinos, Edwin
 o Tousey, Jyles Bowman, Lenny Welch, Preston Raasch, Mohican North Star Casino and Bingo, Gerald Cadeau,
 Derek DeVerney, Karen Scholl, Mike Smith, Rob Snyder, Joe Whitman, Tony Federico, Soaring Eagle Casino &
 Entertainment (Turtle Creek Casino, Chris Delorme, Dan Stead, Mark Henderson, Ron Willis, Victories Casino, Kevin
 is Rossetti, Happ Controls, Brandie Chappell, Jerome Newell, Lucky Eagle Casino, Michael Mennel, Motor City
 dawa Indians, Lynn Marriott, Tina McPherson, Richard Edmonson, Little River Casino & Resort.



Money Controls' Armando Gomez demonstrates the Gamesman hopper. He also demonstrated Money Controls' Condor coin acceptor. This was Money Controls' first appearance at TechFest.

that allow the hopper to clear jams. A twister plate allows the coin that lays on a slight angle to snap into a 90-degree angle before it is pushed up the escalator. No agitator. The disc runs on only 3 nylon bushings that never need replacing. No knife. Quieter, more torque, and a thick bridge plate to stop the coins from shingling.

The last presentation was from Tommy Talbot of JCM American. We could not stump

lent products to offer the slot tech department. There were so many products it is best to check out their web site at www.sencore.com.

Our last teaching presentation by Randy covered identifying the different sections on a schematic diagram, and the most common components that will fail, and how to test them.

Armando Gomez from Money Controls came in to demonstrate the Condor coin mech along with a hopper that is current in the Astrocrat slant top machines. This was another product that caught my eye. It is called the GAMESMAN hopper. Here are some of the features that impressed me: The motor is not mounted to the frame but on rubber mounted supports

Tommy with any problems, and he was well aware of everything. I even presented him with a problem that we have come across many times and, to my pleasant surprise, the problem was already taken care of. I was told to expect a BV EPROM upgrade in the near future. Tommy ran through all the correct ways of cleaning, calibrating, and troubleshooting the WBA heads and transports. We could have spent hour and hours with Tommy.

Special Thanks

I would like to thank Soaring Eagle Casino and Resort for hosting the event and handing out screwdrivers, Chris Rosetti and Chris Younce from Happ Controls who donated three LED flash lights for raffle along with the



Blame it all on this guy. Joe Whitman of Soaring Eagle Casino invited the TechFest Team of Technical Trainers to his crib in Mt. Pleasant.

screwdrivers, pocket protectors and pens, Sencore for three \$200 multi-meters for raffle, 3M for the LED bouncing ball and note pads, JCM for their pocket protector, screwdrivers and flashlights, Asahi Seiko USA INC for their screwdrivers, Randy Fromm who donated three complete boxed sets of Slot Tech Magazine for raffle, and all the manufacturers for their handouts, business cards, and hospitality.

Observations

Between the breaks, and lunch hours, many of the techs would congregate out in the hall and just chat. It was fun reading the



TechFest mainstay and anchor presentation belonged to Tom Talbot of JCM. As usual, this dynamic presentation discussed cleaning and calibration procedures for WBA bill validators as well as repair issues.

nametags to see where everybody was from and what casino they worked for. It was fun just walking the casino floor watching the way other departments go about their business, checking out their policies and procedures. One time I actually stood behind one technician repairing a game to see what steps he made to repair the game. I never introduced myself, but just sat back and watched. And on another occasion I spoke to one technician all about ticket printers (in the future we will be getting them) and picked his brain on the subject. Currently, we do not have these installed on our gaming floor but it was very interesting to see how they are used with

the gaming floor.

Overview

Attending TechFest was very informative from the seat I was sitting in. I would highly recommend it from the entry-level technician to experienced. Some of the products currently were not on our gaming floor but it was interesting to learn about how other manufacturers produce and manufacture their products. Just when you thought you have seen the very best, somebody designs it better. I was impressed with Bo Pheng's willingness to listen to our concerns and write them down in his notebook. MEI's design of the BV head, transport



Slot Tech Magazine publisher Randy Fromm with Ontario Lottery's Kevin Noble.

the machines. When I switch the technician's thinking cap to the customer's playing cap, I really thought it was a lot better concept then carrying all those cups and tokens around

and especially the cashbox, Money Controls' Gamesmanoppers (especially the slant top) and Medeco's high security locks. All the products mentioned above have looked at the technician's job and tried to make it better.

I had to save the best for last. Randy Fromm, what can I say about him? The time and energy he put into making the class interesting, informative, and most of all simple. I feel comfortable now to look at a monitor problem and try to troubleshoot it. He has armed me with some basic knowledge and some troubleshooting skills, enough to feel comfortable in trying to diagnose and repair a problem at the same time being aware of my surroundings. I hope one day I will be able to attend his two-week class to expand my monitor troubleshooting and electronic level. Armed with this new knowledge that he presented to me, I especially want to thank him. The future now is in my hands to expand the knowledge, take what he has taught me and run with it.

**- Kevin Noble
knoble@slot-techs.com**



International View

By Martin Dempsey



Polish Parliament Passes Gaming Bill

The Polish Parliament debated the amendments to the Gaming Bill in recent weeks and finally passed the Bill on 12 March.

The Act must now go to the Senate for approval and then be signed by the President. It is hoped the long awaited new law will be in place by May or June.

It looks like the tax will be good for Polish operators, probably around 50 euro per month per machine, for this year, 75 euro next year with further increases in the following years.

Further information to follow or go to <http://www.sejm.gov.pl> and click on Prace Sejmu - Projekt 771. Druk 1216 and 1216-A.

Svet Zabavy - World Of Entertainment Exhibition

The 11th edition of Svet Zabavy - World of Entertainment exhibition will be held

traditionally on Prague's Exhibition Grounds from May 13th - May 15th, 2003.

Exhibition will be open the first day for trade only from 12:00 noon to 20:00 p.m. On May 14th, from 10:00 am - 18:00 p.m. and May 15th, from 10:00 - 16:00 p.m. the show is open for trade and also general public, but visitors under 18 years of age are not allowed.

For the first time, the exhibition days were moved to the middle of the week - maybe giving to out of town exhibitors and visitors the opportunity to spend a weekend in beautiful spring Prague. But it was mainly the effort of the organiser to split the extremely busy trade of the last year first day to all three days of the exhibition.

The show will present a wide variety of equipment including AWP's, electronic roulettes and casino equipment, spare and accessories, audio and lighting systems, and equipment for casinos, etc.

Zdenek Kocik, Director of the exhibition says "One of our main goals is to help every visitor to the exhibition to discover what they need to set up and operate casinos and operations in bars and other locations."

The majority of exhibitors at the 2002 exhibition expressed their interest in participating in the 2003 show and enlarging their stands, so that almost all of the exhibition space in the Right Hall was reserved before the end of the year 2002 and by the end of February 2003 the fight for the last available square meters came to a close.



The 11th edition of Svet Zabavy - World of Entertainment exhibition will be held on Prague's Exhibition Grounds from May 13th - May 15th, 2003.

Among the “mega” stands in this year’s exhibition, with companies like European Data Project (joined by Paradise Casino Admiral, Austrian Gaming Industries and Novo-NMN Automatentechnik), Comax Leisure CZ and Synot W, are joined the company Play & Win with 190 square meters of exhibition space.

Altogether in the Right Hall (2500 sqm. of exhibition space) there will be 40 companies exhibiting on 34 stands. This year again, much stronger than in previous years, will be electronic roulettes and other casino equipment. Also in the Right Hall will be the representatives of “Institute for testing and certification” and “EZU” - a state testing institute. They will be right on the spot to answer all questions about the operation of gaming machines in the Czech Republic.

Even though traditionally in the Middle Hall exhibited billiard companies, companies with entertainment machines and jukeboxes, electronic darts, football tables, novelty, kiddie rides and equipment for entertainment centers, as well as spares and accessories, it is most likely that this year there will be also companies with gambling machines and roulettes here also.

Into the Middle Hall will also be moved the “Media Center”, occupied by 14 trade magazines from around the world, with a seating area and refreshment for their

guests. The Middle Hall and the Foyer will also offer just for exhibitor’s and visitor’s after a hard day “the best toys for big boys”, such as luxurious cars, cigars and good label wines.

By February 28th 2003 there were a total of 87 exhibitors registered. The organiser still

hopes that the American Amusement Machine Association and their members, who had very nice exhibition stands in last year’s show, will still confirm their participation despite that they are reluctant to travel overseas due to the threat of war.

The exhibitors’ party will be

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The Worldwide Amusement Trade Email Newsletter
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(Monthly)

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held on May 14th at the “Fountain”, near the exhibition halls, presenting guests with the popular water, music and lights show. A list of exhibitors will be available on the website <http://www.svetzabavy.cz> from March 15, 2003. On this website you can not only get to know about details of “Svet Zabavy 2003”, but also read about the exhibition in the past years.

Bell-Fruit Games In Italy

Bell-Fruit Games are delighted to announce they have



concluded discussions on the Italian market, and will be working exclusively with SO.GE.MA. to distribute BFG product in Italy.

BFG’s John McLoughlin commented: “Having visited SO.GE.MA.’s highly impressive facilities in Bologna, we are convinced they are the ideal candidates to represent us in this exciting new phase of Italian gaming”.

COPS’N’ROBBERS GOLD - an update of a hot favourite - has been chosen to launch BFG’s portfolio of Italian games, and will have its first outing at the Rimini show.

SO.GE.M.A. General Manager, André Wessling, said that he believes the new rela-



The European Casino Summit will take place at the luxurious Hyatt Regency Hotel in the favoured tourist destination of Thessaloniki, Greece on 8-9 May, 2003

tionship with Bell-Fruit Games will be extremely fruitful. “Experience possessed by Bell-Fruit Games coupled with SO.GE.MA. is a very exciting prospect indeed” he said.

For further information email mariakidulis@bellfruitgames.co.uk

Casino Industry Conference Set To Tackle Broad Range Of Key Issues

The European Casino Summit is set to become one of the industry’s most important talking shops, if this year’s programme released by organisers, ATE is anything to go by. The Summit, taking place at the luxurious Hyatt Regency Hotel in the favoured tourist destination of Thessaloniki, Greece on 8-9 May, will cover a wide range of issues pertinent to land-based operators, which also carry significance for other

industry professionals including regulators, lawyers, analysts, manufacturers and suppliers. The European Casino Summit 2003 is being sponsored by Atronic, Austrian Gaming Industries and IGT. For further information, including the latest schedules and online delegate bookings, visit

<http://www.ATEOnline.co.uk/conferences> Email: info@sjc.co.uk



Vivid Discovers The Treasures Of The Deep

Vivid Gaming is delighted to announce the launch of Atlantic, its new hi-tech AWP which has gained a raft of

major retailer approvals. Atlantic is a new game with a climbing trail which plays on the mystical tale of the lost city at the bottom of the Atlantic. Graphics depict a temple on the sea bed with 3 levels leading the player up to better features and bigger cash awards. Players should also try to make the most of the Vivid features and flashing Vivid button which awards game play hints and tips. For further information please contact: Clare McMillan / Sam Drakeford @ England. Tel: + 44 (0)113 234 5600. Fax: + 44 (0)113 234 5601. Email:clare.mcmillan@englandagency.com

- Martin Dempsey

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Kortek Digital Monitor

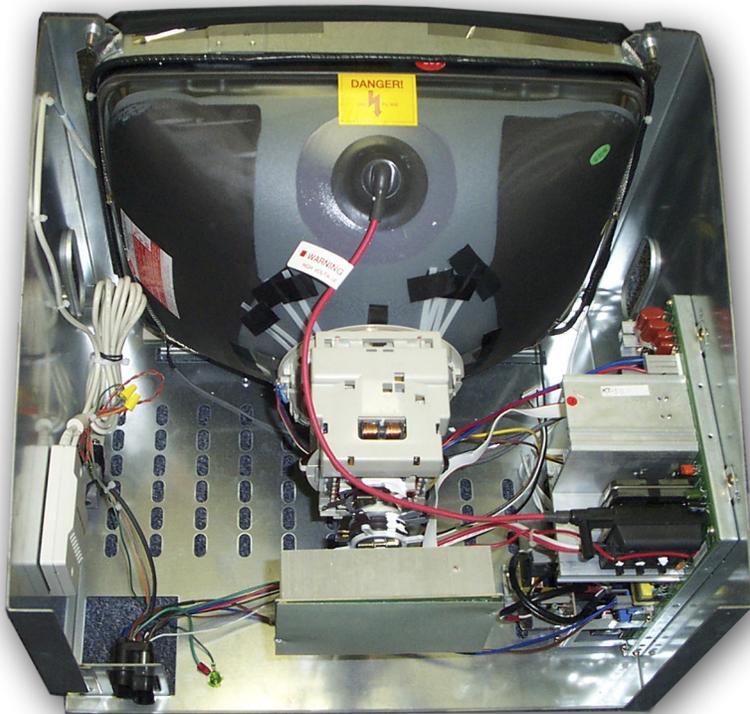


Many different gaming machine manufacturers are hard at work developing new hardware platforms that take advantage of modern PC technology and performance. Gone are the days of dedicated but slow, proprietary technology. The next generation of games utilize high performance data and video processors which allow a higher level of game play and graphics. To keep up with this technology, video monitor companies need to develop high-performance digital gaming monitors capable of supporting high-resolution graphics.

Kortek's digital monitor is offered in 17" and 19" sizes. It is fully digital, supporting On Screen Display, Auto-Sync circuitry and microprocessor-based factory settings custom to the specific game machine. It is an 82Khz monitor supporting up to 1280 x 1024 resolution. Because of its high resolution, it can meet the 1024x768 games currently being developed, as well the higher resolution games of the future. They are also designed to be backward compatible and work in older games as well.

They implement the latest CRT types with matching touchscreens. Three CRT styles are available: DynaFlat (full-flat), FST (semi-flat) and FST-Shortneck (semi-flat with shallow depth - designed for upright cabinets). They are all high-resolution, data-grade tubes.

Kortek Corporation introduced its digital gaming monitor in 2001. Its first widespread use was in Europe meeting the higher demands of the European gaming market. By way of its large customers in Reno, Kortek is now introducing its digital monitor to the US gaming market. This monitor will be used in the new generation of high-end game machines coming from these manufacturers. This digital monitor will become the new standard of video monitor on the market, and replace its analog predecessors.



To aid in the roll out their new monitors, Kortek is releasing service manuals and schematics to key casinos and distributors. Copies are available through CasinoTech, their authorized service center in Las Vegas. They also are submitting full technical information and sample monitors for analysis and review by the technical staff of Slot Tech Magazine. CasinoTech is already trained and stocked up with parts to fully support any warranty or out of warranty repair on these new monitors. CasinoTech has also recently announced that they can retrofit these advanced monitors into older games from various game manufacturers.

For further information on Kortek's new monitors, you can contact their US branch at:

Kortek USA
1320 Freeport Blvd. #108
Sparks, NV 89431
Contact: Richard Landry,
775-359-2204
RJL60@FLASH.NET

To receive technical service and support on these monitors, or to find out about retrofitting them, you can contact CasinoTech, Kortek's authorized service center at:

CasinoTech
2470 Chandler Ave., #7
Las Vegas, NV 89120
Contact: David Copron,
702-736-8472,
CASINOTECH@LVCM.COM

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Touch International Introduces CGT

**Touch International Offers Integrated Touch Monitors Below
Factory Cost to Promote New Capacitive Touch Screen**

Touch International, a global supplier of touch-input products, has introduced CGT, the newest addition to its capacitive touch screen product family. CGT is designed for pin-to-pin compatibility with existing touchscreens. The company claims that lab tests show Touch International's CGT as outperforming its competitor in optical clarity - a key feature for gaming.

For a limited time, customers can evaluate the new touch screen by purchasing a 15" capacitive CRT touch monitor for just \$299, a 15" open-frame touch LCD monitor for \$499, or a 15" desktop LCD touch monitor for \$599.

"As a touch screen component manufacturer and supplier, we want to make it easy for customers to test our new product", stated Gary Barrett, Co-founder and Chief Technology Officer, Touch International. "So, we're temporarily offering integrated touch monitors at 50% off retail, making it inexpensive and hassle free to evaluate Touch International as a new source for high-quality ca-

pacitive touch screens.

Touch International's CGT joins RGT and XGT in the company's capacitive touch screen product family. In addition to pin compatibility, RGT is Touch International's highly durable, ruggedized touch screen designed for industrial and extreme environments. Like, CGT, XGT is designed to offer high optical clarity combined with durability to withstand public access environments. Additionally, CGT is fully compatible with competitor controllers, providing integrators drop-in replacement options with the new Touch International touch screens, tested to provide increased light transmission up to 91 percent.

"The introduction of our CGT product rounds out our capacitive family offerings," said Michael Woolstrum, CEO at Touch International. "Customers will no longer be at the mercy of a single supplier. We are ready today to deliver high-quality touch screens in volume to OEMs and system integrators."

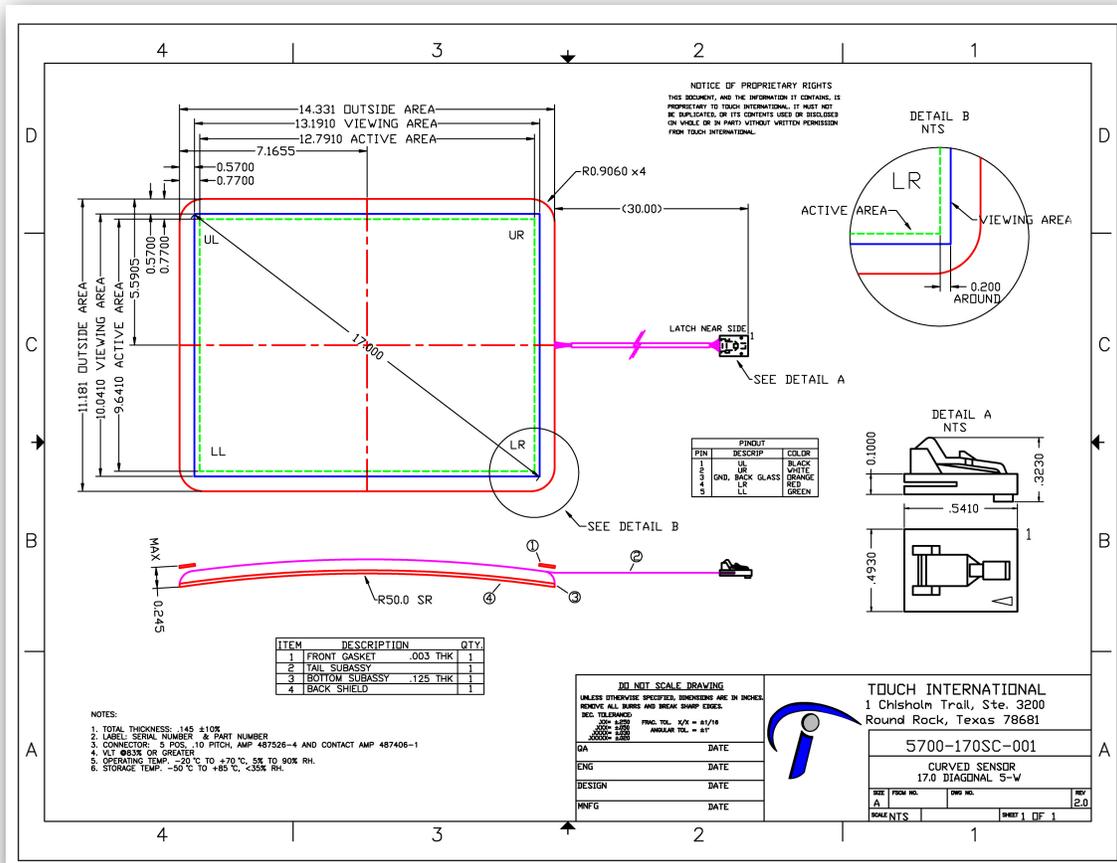
CGT features drift-free calibration and is offered in polished, anti-reflective, and

anti-glare finishes. There is immediate availability for flat sizes 12.1, 15, 17 and 18.1 inch, as well as curved sizes 15, 17 and 19 inch. Touch International touch screens can be custom designed to meet specialized application requirements or configured as drop-in replacements for competitors' displays.

The new product offers superior touch life, with cosmetic durability (surface wear and degradation) exceeding 250 million touches and electrical durability surpassing 35 million touches. CGT comes standard with a five year warranty and is tested to work with the following operating systems: MS-DOS, Windows 9X/2000/CE/ME/NT/XP, OS2, MAC, and Linux.

About Touch International

Founded by three industry veterans, Touch International, Inc. is a privately held, worldwide supplier of high-quality, touch-enabled monitors and touch screen components. Through its multi-source partnership strategy, Touch International is able to offer a wide variety and rapid delivery of lower-priced, high-reliability products. Based in



Texas, the Custom Solutions Center provides custom design and production to meet customer needs and specifications. The company has formed partnerships with leading touch screen component manufacturers with state-of-the-art, high-volume production plants in Taiwan and Southeast Asia. Touch International has headquarters in Austin, Texas and Trier, Germany, with additional sales and support offices on four continents.

For More information, Contact: Touch International, Inc. Michelle Sims, Marketing Director
Ph: 512.388.0090x26
msims@touchintl.com

Specifications

Touchscreen: analog capacitive

Provided Sizes (custom sizes available):

Curved - 15", 17", 19"

Flat - 12.1", 15", 17", 18.1"

Optical Material: pure glass

Finish: polish, anti-glare, and anti-reflective

Light Transmission: 83%~91%

Electrical

Chattering Time: 10 msec or less

Mechanical

Touch Activation Force: 125 grams

Surface Hardness: Scrape hardness 6H of ASTM D3365 and 5H JIS K5400

Supported Operating Systems

MS-DOS, Windows 95/98/2000, CE/ME/2000NT, OS/2, MAC, Linux, etc.

Sensor Thickness (glass)

3.0 +/- .25mm

Reliability

Operation Environment: 0°C~5°C

Storage Temperature: -10°C~50°C

Humidity: 90% RH or lower, No dew condensation

Electrical Touch Durability: 35 million touches in a single location

Cosmetic Touch Durability: 250 million touches in a single location

Chemical Resistance: ASTM D 1308 87(1993), ASTM D 15989 95: Resistant to such as coffee, tea, vinegar, juice, and coke.

Input Method: finger only

Operation Voltage: D.C. 5V

Insulation Impedance: 20M ohm or > @ DC 25V

Linearity: 99% with calibrated electronics

High light Transmission - 88~91%



CMS Declares SR Series a Winner Money Controls' coin acceptor range and ccTalk scores with Cotswold Microsystems

Cotswold Microsystems (CMS), manufacturer of amusement and gaming machines, has achieved outstanding results following the implementation of Money Controls SR Series of coin acceptors.

CMS plans to sell the SR range throughout Europe, focusing on Germany, Holland and Scandinavia and targeting the AWP, gaming machine and jukebox markets, then further afield in the Ukraine.

All new CMS machines are to be supplied with SR products, following successful tests carried out in the German market, which clearly demonstrated their versatility.

Money Controls' leading SR coin acceptor range, which can perform more coin readings at more frequencies for over 95% of the world's currencies, includes the first true remotely programmable mechanism. This advance allows the coin acceptor to be

programmed with factory quality coin specifications either on the bench, or with support tools - or now significantly through the host machine. This allows the factory calibrated coin acceptors to be configured by the host machine itself to suit application and coin set, giving customers the ultimate in flexibility and the fastest response to currency changes, security alerts and system and product maintenance.

This additional functionality is combined with the leading capabilities of the SR5 coin acceptor, designed for European 5ins format, and offering full compatibility with the latest bicolour and multi-layer coin technology and true 16 coin acceptance. Utilising ccTalk, the open standard serial communications protocol for the money processing industry, this enhanced capability has increased security, comprehensive diagnostics and detailed status reporting.

This range is especially suited to CMS, whose business includes building interface cards for acceptors. Having recently developed a serial note interface which would convert the parallel outputs from all note validators to a serial protocol, the next step was to interface serial coin mechanisms - and CMS opted immediately for the SR Se-

ries.

Steve Whitelaw Managing Director at CMS explained: "We previously used C435 coin validators therefore the transition to the SR range was the obvious choice.

"We had also heard about the inclusion of a remotely programmable mechanism and believed that this would add even greater versatility to our machines. Its capability to programme any tokens required has been greatly welcomed in Germany and has proved to be an excellent time-saver for all our customers.

"Overall, the SR Series has been widely accepted by our customers who are pleased with its performance and are already benefiting from the extra features."

Money Controls' sales executive Andrew Bassam said: "The mechanism for coinless and remote programming allows the units to be updated via the machine, so the information can be uploaded to the machine before it is sent out.

"It also gives CMS the versatility to send a raw unit out to any location and be sure that it will function. Additional advantages are that it is flexible and easy to use."

Performance of the SR Series is enhanced by Money Controls' serial protocol, ccTalk, which has been developed as easy-to-implement and designed with the minimum of software and hardware overhead. Its advantages are well documented by manufacturers and operators alike, who find it reliable and simple to use.

From the outset, unlike other serial protocols, ccTalk was specifically designed for the AWP/amusement industry. It is a multi-drop, protocol, which allows many peripheral devices, including multiple hoppers and coin and note validators, to be connected together on the same serial bus. This obviously allows for greater efficiency in

the management of key elements of an amusement machine – simplifying communications, increasing reliability and allowing OEMs to supply machines with greater security.

Additionally, ccTalk negates the need for the usual plethora of wiring often found inside amusement machines and offers far superior protection against fraudulent manipulation.

Reliability is enhanced through the detailed reporting of faults from any of the peripheral devices through to the host machine via ccTalk, enabling it to take appropriate action or enable the engineer to diagnose the problem immediately.

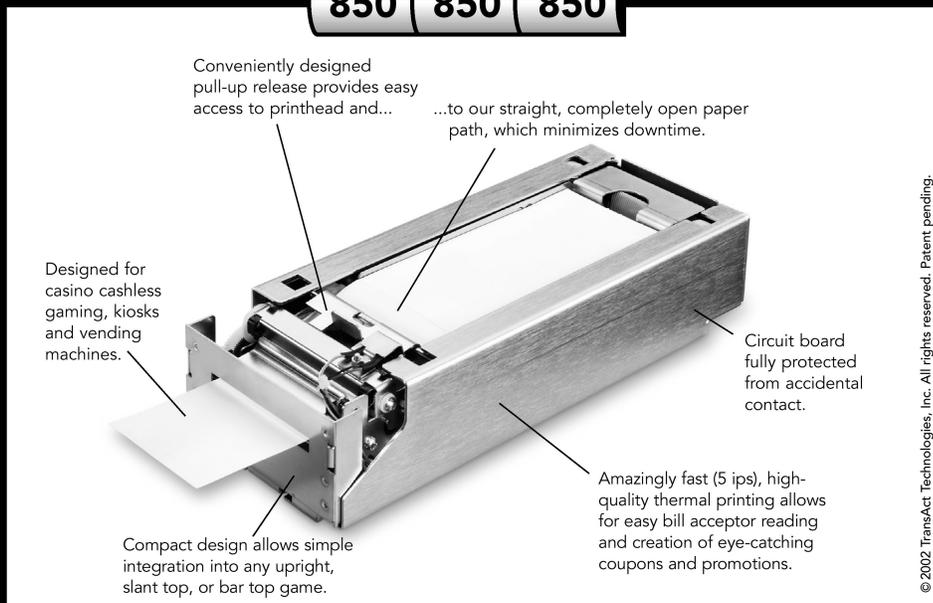
The increasing success of the SR range and ccTalk illustrates Money Controls' unique breadth and technological knowledge and its ability to design complete amusement and gaming systems.

The provision of ccTalk within each major component of the amusement range means that the creation of a state-of-the-art secure money processing system has never been easier. With over 40 years of experience in developing innovative solutions Money Controls is uniquely placed to help provide complete amusement and gaming solutions.

- Slot Tech Magazine

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Simply put, you win. Thanks to exhaustive research and testing, the Ithaca Model 850 answers the exact needs of casino operators around the world. For example, tickets taken prematurely are a leading cause of ticket errors – the Model 850 prints so quickly, players don't have time to take the ticket before it's fully printed. The Model 850 is even flexible enough to integrate into any existing machine. Looking for speed, reliability and worry-free operation? Don't chance it. Call us.

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Bet on the Ithaca[®] Model 850 thermal ticket printer.

AmEx 2003

Ireland's International Gaming and Amusement Industry Event



The AmEx 2003 official opening ceremony was performed by Jon Sander, Secretary N.I.A.C.T.A.; Jim McCann, President I.A.E.A. and Alan Willis, BACTA.

The 24th Irish Amusement Trade Exhibition & Seminars, was held on Tuesday 4 & Wednesday 5 March 2003 at Lynch's Green Isle Hotel, Dublin. This year's event was even more international than ever before, attracting exhibitors and visitors from Northern and Southern Ireland, Britain, Germany, Italy, Spain, Austria, Netherlands, Hungary, Slovenia, Russia and the USA.

The official opening of AmEx 2003 was performed by Jon Sander, Secretary N.I.A.C.T.A.; Jim McCann, President I.A.E.A. and Alan Willis, BACTA. Representatives of other Trade Associations and Gaming Regulators also attended the show. Good news at show time was that the legislation governing the operation of gaming machines in Northern Ireland is currently being examined and it is likely that changes, bringing it into line with mainland GB legislation, will be introduced in the near future, creating a demand for additional gaming products.

AmEx is organised by MD Associates, supported by IAEA - The Irish Amusement Equipment Association (Member Of Euromat) and promoted by Coin-Op News Europe, AmusEmail and it's Online News Service. The 25th Anniversary of AmEx, which will be held on 2 and 3 March 2004, will include an extended Seminar & Conference

Programme, which it is hoped will attract representatives from many international trade associations and gaming regulators. The Green Isle Hotel has new owners, having been recently purchased by the Lynch Group from the Jury's Group for EUR 11m. The same management and staff remain in place and there is talk of an expansion plan to include the provision of additional exhibition space and bedrooms.

Gaming & Lotteries Act

As a result of recent contacts with the Department of Justice, IAEA - The Irish Amusement Equipment Association, understands that the process of reviewing the Gaming & Lotteries Act, which resulted in the publication of a report almost three years ago, will be delayed further. A conclusion to the matter had been promised within a year, at that time, but it now seems that unforeseen issues will slow the process even further. The report made a number of recommendations, some of which were unclear and required further dis-

cussion. Although a Bill is still due for publication this year, it now seems that this is unlikely as the issue of setting up a Gaming Authority, which was recommended in the report, has now run into some difficulties. The structures and functions of the Authority have to be seen in a regulatory reform context and this is more likely to be a long term issue, which would require considerable input from the policy section of the Department. However, in the short term, it is possible that some more pressing matters, including the updating of stakes and prizes, could be dealt with, leaving the more complicated issues for another day.

- Slot Tech Magazine



Gerald Gartland, Colin Pritchard, Ann Agnew and Jon Sander, J.H.S. Associates with a range of machines from manufacturers Global, Bell Fruit and Maygay.



Geoff Spencer, Happ Controls with a range of their spares and accessories.

ADVERTISEMENT



Randy Fromm's Casino School

On-Site Technician training

Randy Fromm's Casino School is a practical, no-nonsense look at how gaming machines work and how to repair them when they don't. **No previous knowledge of electronics is required** to get the most out of the school. The Casino School is geared for those who want to learn how to fix gaming devices without having to learn complex electronic theory or purchase expensive test equipment.

Be prepared for six hours of accelerated learning each day. Class begins at 9:00 am sharp each day and continues until 4:00 pm. The Casino School provides each student with reference materials and troubleshooting guides that will be valuable aids for repairing equipment on location and in the shop.

Students learn how to work with:



THE DIGITAL MULTIMETER

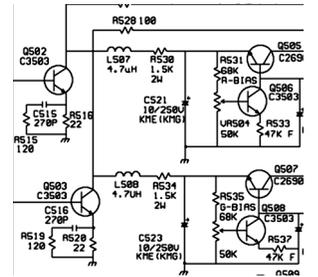
This relatively inexpensive piece of test equipment is easy to operate. Casino School students learn to use the digital multimeter to perform tests and measurements that will pinpoint the cause of a failure down to a single component.

ELECTRONIC COMPONENTS

The individual components used in games are introduced. Parts such as resistors, capacitors, diodes, potentiometers and transistors are covered individually. Students learn how the components work and how to test them using the meter.

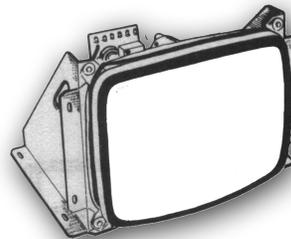
SCHEMATIC DIAGRAMS

Schematic diagrams are the "blueprints" for electronics. Learning to read schematics is easy once you know how the parts work!



POWER SUPPLIES

Power supply failure is a common complaint in many different types of systems. Power supply failures are discussed during the class, along with shortcuts for troubleshooting and repairing them.



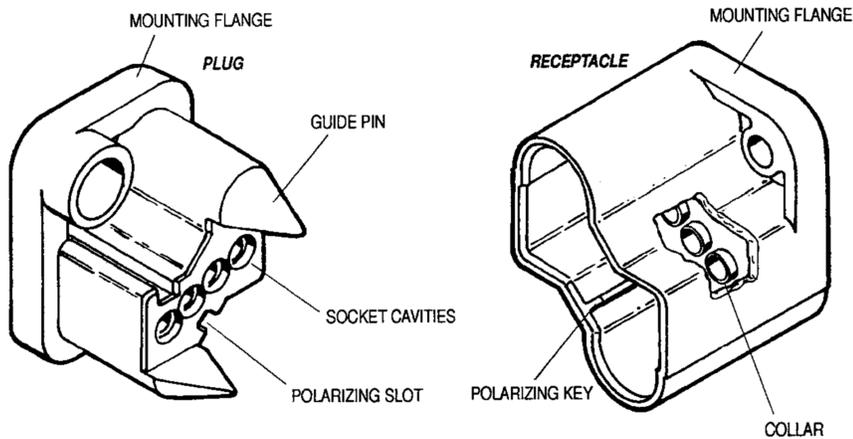
MONITOR REPAIR

The monitors used in video slots are designed for quick, easy, and safe repair. Students will learn the theory of operation of all types of monitors and how to repair monitors down to the component level. Of course, monitor safety will also be discussed.

You do not have to send your slot techs to Las Vegas or Atlantic City for training. The Casino School brings the training to you. Contact Randy Fromm's Casino School today to reserve a date for your tech school

**Randy Fromm's Casino School 1944 Falmouth Dr. El Cajon, CA 92020-2827
tel.619.593.6131 fax.619.593.6132 e-mail CasinoSchool@slot-techs.com
For a complete brochure, visit the website at: slot-techs.com**

Not a "Beau Plug"



male connector is also known as a "socket housing."

AMP Pins Part Numbers

There are quite a few different types of connector pins and sockets for Metrimate. Different pins use different crimping methods and/or have different plating materials. For the full rundown, visit the website at amp.com.

- 208210-2 socket housing 19 pin**
- 208209-2 pin housing 19 pin**
- 66101-2 18AWG Female Contacts**
- 66105-2 22AWG Female Contacts**
- 66099-2 18AWG Male Contacts**
- 66103-2 18AWG Male Contacts**

I don't know how this got started but for some reason, many slot technicians refer to the connector at the back of many monitors and coin hoppers as a "beau plug." This is not the real name of this connector. This is actually a "Metrimate" drawer connector, manufactured by AMP (division of Tyco Electronics).

about the connector pins. Male and female may refer to the "plug" (male) and the "receptacle" (female). If we're talking about the connector pins, a male connector is one that houses the "pins." A male connector is also called a "pin housing." A female connector is one that houses the "sockets." A fe-

The "Beau Connector" is a type of connector manufactured by a company called Bulgin Components PLC, Alfreds Way, Barking, Essex, England, IG11 0AZ. You can visit their website at <http://www.bulgin.co.uk/>. As you can see, they are completely different animals.

While we're on the subject of "correctness" let's all get on the same wavelength regarding "male" and "female" connectors. It kind of depends on whether you're talking about the housings themselves or



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Slot Tech Magazine is strictly technical. As such, the magazine's contents are not time critical. The repair information and technical data contained in past issues is just as valid today as it was the day it was published.

Additionally, current and future articles more-or-less assume that readers are already familiar with what has been covered in past issues. This editorial policy assures that Slot Tech Magazine's contributing writers are not limited to "writing down" to the level of a novice technician but are free to continue to produce the most comprehensive technical articles in the gaming industry.



Randy Fromm's

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