Slot Tech Magazine

Slot Machine Technology for the International Casino & Gaming Industry

October 2013

Quick & Simple Slot Machine Repairs #100!

Slot Tech Magazine

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On the cover: IGT showed these slot machines at G2E 2013

Randy Fromm

If you don't mind (and even if you do, I suppose) I'd like to take a moment to acknowledge Pat Porath and his "Quick and Simple Repairs" column and, especially, this months column which is number 100. By any metric, this is a noteworthy accomplishment. It represents some 100,000 words or more and many hours/days/weeks of effort.

I am extremely grateful to Mr. Porath for his contributions to Slot Tech Magazine. When I published his first article in March 2005, I never dreamed that he would still be with me all these years later. I am proud to call him my friend as well. Thanks, Pat, from the bottom of my heart.

As you know, Slot Tech Magazine depends on contributions from YOU in order to stay alive and publish good, up-to-date information. Everything you read here has been written by working technicians and engineers who know what they're talking about. And, of course, since we talk about the stuff that FAILS, you can count on our writers to give it to you straight. If you can help Slot Tech Magazine, I am willing to pay you a small fortune (ten whole cents per word!) for your assistance. Keep a log, take some photos, write it up and teach the rest of us how YOU fix slot machines. All contributions are professionally edited so you are GUARANTEED to look AWESOME in print. También aceptamos contribuciones en español.

And finally, a reminder that TechFest 28 is coming up next month, November 12-14 in Las Vegas. We're going to have a big, HANDS-ON LCD monitor repair lab along with presentations on ticket printers, bill validators, touch screens and more. Visit the website at slot-techs.com for more details.

See you at TechFest!

Randy Fromm
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Slot Tech Magazine

Randy Fromm's
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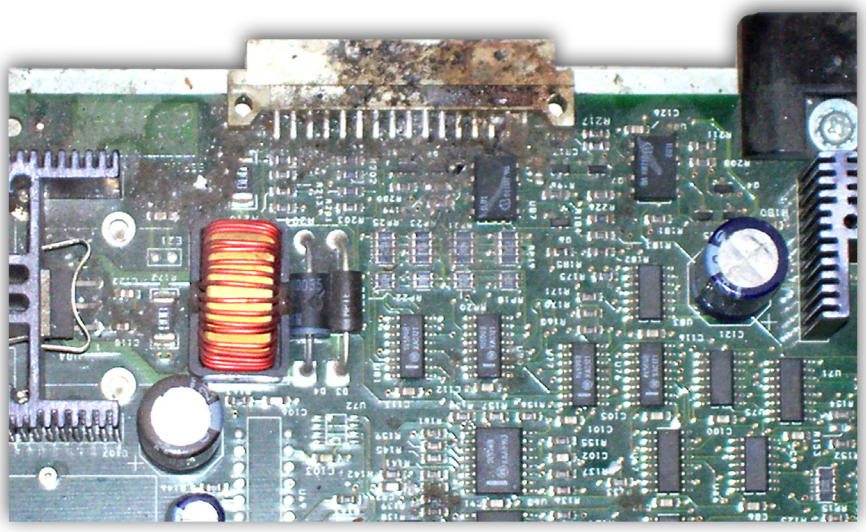
Have a drink… Spill!

By Vic Fortenbach

Drink Spills are not fun for the slot technician. First there is the cleanup after the spill (usually with some cocktail napkins or bar towel) then the cleaning of the interior parts of the slot machine like the bill acceptor and the printer. Later, after the drink spill has dried to a sticky mess of goo, the slot tech gets to deal with it when replacing a logic board or doing preventive maintenance.

When a drink is spilled on a flat bar top machine or deliberately poured into the printer or bill acceptor, time is not on your side. The quicker the cleanup, the less damage and the faster the machine is going to be back online. The more liquid spilled, the longer the machine will be down, since the cleanup efforts have to be extended. Turning off the power to the machine does prevent some damage but in the case of a bar top machine, lifting up the main door to flip the power switch just lets additional liquid run into the machine along the back wall. A drink spill on the touchscreen will not cause any harm. It's glass so a just a wipe down cleans it. However, if the spilled liquid gets under the edges of the touchscreen tape and it comes in contact with the touchscreen traces (the "frit" pattern on the border), this will render the touchscreen inoperable and can put the machine out of service. Unless the monitor is completely removed, wiped down and the tape on the touchscreen edge is replaced, air dry is the only option. The time required to dry out the touchscreen edges varies depending on the amount of liquid. For most of our drink spills, the average dry time is three hours. Wet edges on a touchscreen will not display any error messages on the monitor, since the controller is dry and still communicating with the machine's logic board. Once the touchscreen edges have dried, they will resume working with no intervention on the technician's part.

While the touchscreen edges are drying, this buys some time to work on the bill acceptor and the printer (if they also got wet) and clean the inside walls of the machine where long drips of drink spill happen. When a drink is spilled into a bill acceptor, the damage is minimized due to the small bill slot where bills are inserted. However, liquids can and do get into the bill acceptor. Depending on the type of bill acceptor, most of the time



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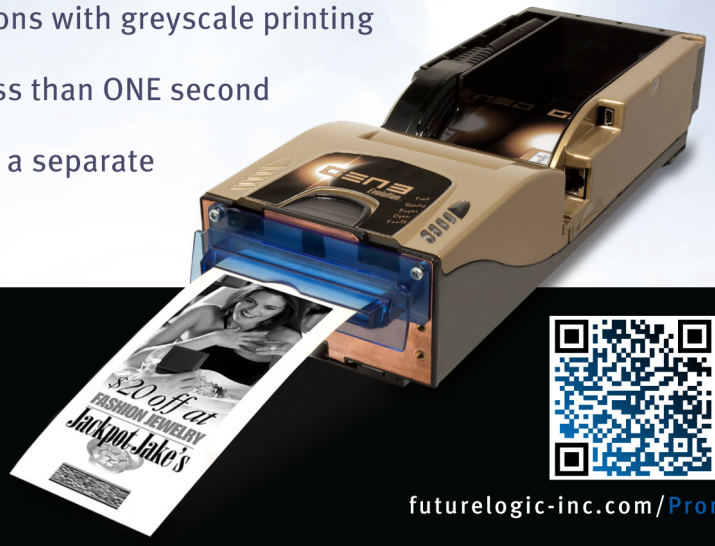

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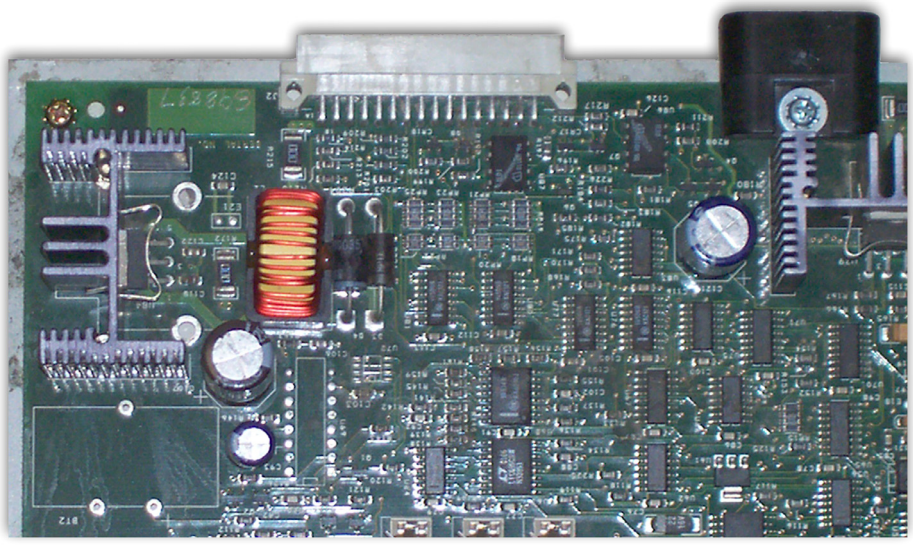
swapping out the B/A head is all that is required to get the bill acceptor back up and operating. Some bill acceptors without a separate, removable head assembly have to be completely exchanged with a working one if there are signs of liquid in the bill acceptor. Drink spill related errors that are displayed on the screen vary from COMM to jam bill messages, even though there are no jammed bills in the bill path.

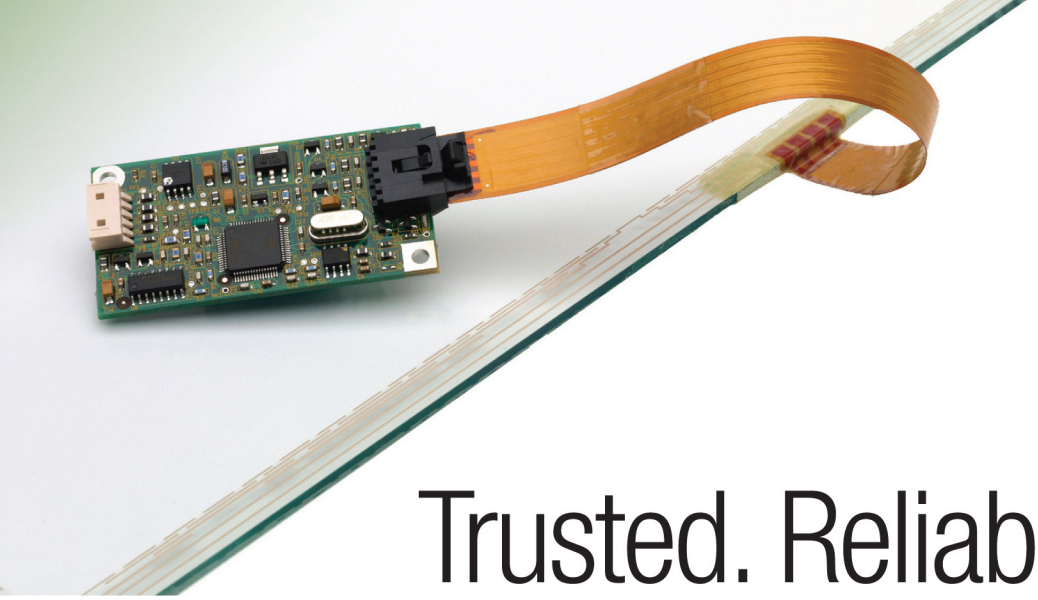
Printers are also subject to drink spills and like the bill acceptors, liquids are limited to the slot, the paper slot. The older, black colored printers that are installed on our bar top machines have a pretty good track record for dealing with drink spills. Usually the edge of the first ticket in the printer gets wet which is easily tossed and replaced. Since the rollers were not turning when the drink spill occurred, the small wet part of the printer roller is cleaned up easily just by opening up the printer. Our print heads have never been affected by a drink spill, I don't know if its luck or somehow the printer head never gets wet but it functions perfectly after everything has dried. On rare occasions when there is a large drink spill, the liquid from the spill finds its way not to the printers control board but to the smaller daughter board at the rear of the printer. The housing used on the black printers has a small lip that prevents most liquids from wetting the daughter board. If the daughter board ever does get wet, replacement is the only option. Mounting of the daughter board to the printer rear housing is by two screws, two white spacers keep the board from touching the metal housing. Use caution when removing these spacers since they are small and easily lost. To remove and replace the daughter board, an eighteen inch long, #2 Phillips screw driver comes in handy.

The printer ribbon cable is basically liquid proof since only the middle area of the ribbon cable can get wet. The placement of the connections on either end of the ribbon cable are high enough above any paths the spilled liquid might take. If the ribbon cable has pinch marks exposing the ribbon cable inside wire, possible damage to the printer might occur when liquid comes in contact with the metal housing and the exposed ribbon cable wire.

The standard square, rectangle lit push-buttons used on most bar top machines do require cleaning after a drink spill. Cleaning this type of button requires button dis-assembly and a wipe down of the buttons clear, white and black plastic parts. We have tried to use glass cleaner and club soda to clean these buttons but this only keeps the button working until the liquid dries inside the edges of the button and gets sticky again. Dissembling or replacing the button is the only way we have found to keep them working after a drink spill. On our bar top machines, sticky buttons are a fact of life even without a drink spill so we pay special attention to keep them clean on a weekly basis.

On some occasions, liquid does find its way into the logic board. The path the drink spill takes runs from the opened main door, down the inside back wall of the bar top machine, hitching a ride on an attached harness and flowing directly to the mother board across another har-





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ness and on to the logic board. Depending on the amount of the liquid, the bar top machine may continue to work until a few days or weeks have passed. Then one day, the picture will look fuzzy or scrambled or the machine will look as if it's not turned on. A small amount of liquid has dried and found a resting place between one or more connectors or component pins. Removing the logic board for a visual inspection confirms the small drop of liquid has now turned into a whitish, yellow blob of corrosion. This corrosion has destroyed some of the metal it's touching, but not enough to do any major harm. The chances are very good no permanent damage has or will occur. This is just a temporary situation that needs to be cleaned. But what do you clean the corrosion off with? More liquid, dish soap and water to be specific. I have found using a mixture of 20 parts water to one part of dish soap. This mixture works great in cleaning corrosion from logic boards and bill acceptor head boards. Using an acid brush, dip the brush into the soapy water and brush away the corrosion. It really is that simple. The corrosion comes off easily. You do not need to clean the whole board, just the part that has the corrosion on it. Once the logic board corrosion has been cleaned with the soap and water mixture, it needs to be dried before re-installation. The quickest way to dry a logic board, player tracking, button board or any PCB is to use a two-step method. First, I use compressed air to push off any moisture from the PCB. You can see the water ripples being moved off the board when using compressed air. Use a trash can or other bucket to catch the water from the board to prevent the water from landing on the floor and causing a hazard. Please use caution on boards with smaller or delicate components, the compressed air will remove the water and those parts too! Once the board has been compressed air dried, letting the board sit and air dry is the next step. We just place the board on a work bench with a dry towel and let it sit. The board will be dry enough to be installed in about two hours. A small desk fan positioned toward the drying board will speed up the air drying process slightly. Once the board has dried, it can be re-installed into the machine just waiting for the next drink spill.

Editor's Note: I use an ordinary hair dryer to heat and dry PCBs after washing. I have even used a household dishwasher machine to wash and dry PCBs.

- Vic Fortenbach
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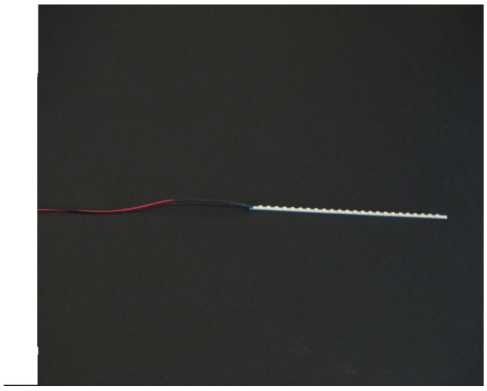

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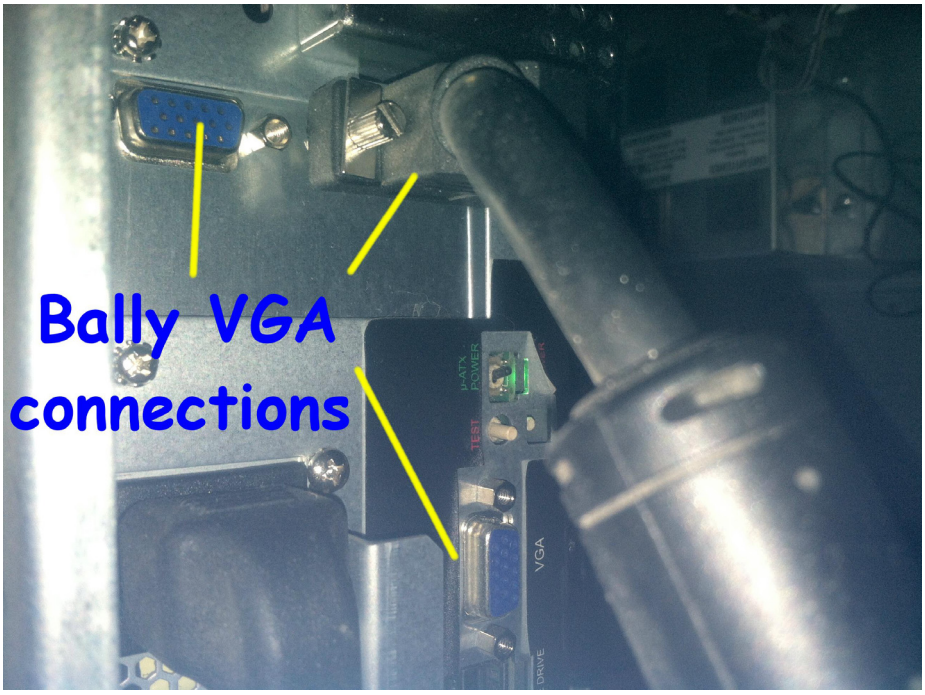
Quick & Simple Repairs #100

By Pat Porath

Bally "Quick Hits" V32 Video Problem

After reading our log book about the game problem, I thought I would check it out. According to our log book, the power supply, an LCD board, and main game CPU had already been changed. My thought was something kind of weird is going on with this thing because it was a very experienced tech who was working on it. At the game during boot up, on the CPU board, the small red "drive" light only flashed a few times then stopped. Under normal conditions, on a Bally the light should continuously flash until the game is loaded for around five minutes or so, give or take. Also, nothing appeared on the game LCD. Since the game power supply has already been changed and to me it looked like a CPU problem, I replaced the CPU with a spare. This time when booting up I did have a flashing small red "drive" LED which indicated more than likely the game was loading up. But why in the world did I have different colors flashing on the screen and not game loading text? I had never seen this on a Bally game that I could remember. If the CPU board looks good (and it was supposed to be a good replacement off of the shelf) maybe the problem now is in the video area? A quick look at the connections on the game LCD looked OK; I had a green power LED and all connections were snug. Just for the heck of it, on the game CPU, I tried a different "video out" port. There wasn't a change in the LCD, so I tried yet another "video out" port. (This particular game had three video ports on the game CPU.) When I plugged the video cable into the third port, game loading text appeared on the LCD! Wow was this game messed up. A bad CPU board and the video cable in the wrong port. After it fully booted up, it was basically OK but not ready to release to the public for play yet. Since the CPU board had been replaced, the game was RAM cleared which "zeroed" the "Quick Hits Progressive" meters. I got the game repaired on a Sunday and had to wait until Monday to talk to my manager about somehow

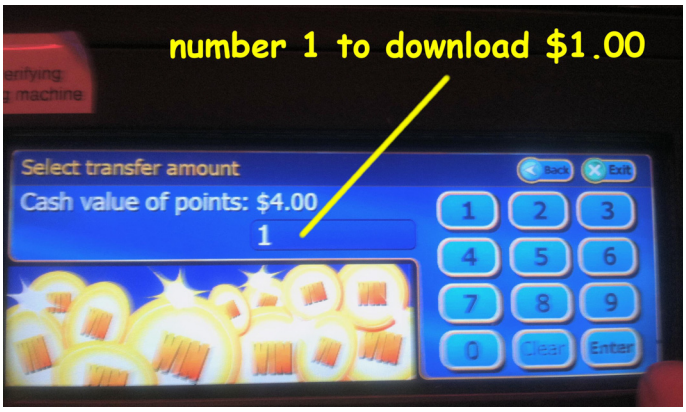


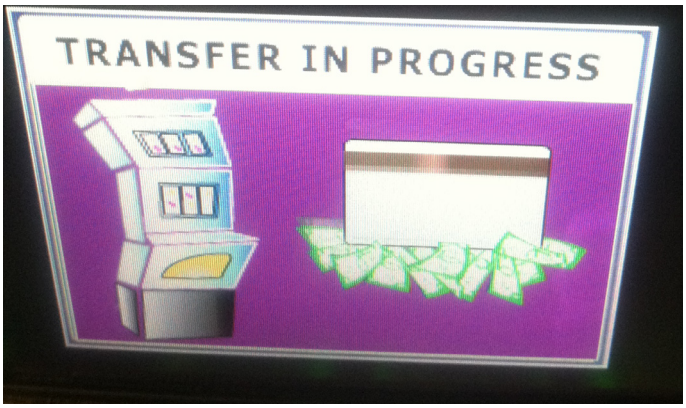
getting the proper accurate progressive amounts. I let him know what was needed. He got the info and passed it to another tech. They entered the proper amounts at the game and it was tested to make sure everything was proper and the progressive incremented. Finally it was ready for a customer to play.

Promo Cash Testing

At the casino where I am employed, we have "promo cash" that is available for customers to download FROM their players card TO the credit meter of a game. Insert player card, enter PIN number, press 2 for promo, then 2 again for promo to go to game, then enter the dollar amount you want to put on the game. An example would be, if you have $20.00 in your promotional cash account and would like to play $5.00 of it, only press the number 5 for $5.00 or 10 for $10.00. (On an Oasis Sentinel II, Sentinel III and N-Compass are very similar.) A customer presses 5 for $5 and like magic credits appear on the credit meter. Customers cannot cash out any of the promo money, only what they win. Such as, $10.00 is downloaded, $1.00 is bet, $50 is won with the bet, a customer can cash out the $50 win and the $9.00 in promo will remain on the credit meter until it is played off. On some manufacturers of games a "cannot cash out promotional credits" message will appear on screen when attempting to cash out promo.

All this is fine and dandy when it works, which is does the vast majority of the time. When it does not function properly is





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where we come in.

How can we prevent a customer from having a promo download error? A co-worker came up with the idea. The individual asked one of our slot analyzers if they could print out a list of games that did not accept or take any promo cash within a seven day period. Sure enough, we had issues on the gaming floor we weren't aware of. Now I believe we get a list once a week or so.

When I was asked to test the games, I ran into a majority of a round bank that did not accept promo, which were Oasis Sentinel IIs. Almost every one needed a Sentinel RAM clear so promo would be accepted.

On Sentinel IIIs and N-Compass, usually a power cycle fixes it. If the Sentinel III or N-Compass has a red or yellow border around it, promo cash won't be accepted either. A red or yellow border around the Oasis display indicates either a game TO Sentinel problem or a Sentinel TO Oasis system problem such as a game lost communication TO the Sentinel or the Sentinel lost communication with the system.

A "soft tilt" may also cause a game not to accept promo cash, such as a ticket printer indicating low paper status. A tower light may blink and or a printer bezel may flash at a slow rate.

Another possibility may be poor Sentinel communication with the Oasis system, where a mechanic card can be used to view COM errors.

Generally, if everything appears to be OK a power cycle was done, RAM was cleared on the Sentinel, communication looks good, no soft tilts and such. I've run into situations where only replacing the Sentinel fixed the problem.

Ithaca Epic 950

I received some parts for the Ithaca Epic 950 ticket printer so I thought I would take a look at a few that were on the "need repaired" shelf.

The first one only need the ticket printer cover (Trans Act part number 95-05924). As I found out when I received the ticket covers, the magnet that holds the cover down, needs to be ordered separately. Luckily I saved two of them and found one other. The Trans Act magnet part number is 986473. I broke one or two ticket covers taking the printers apart and a few came off of the gaming floor broken. Simply replacing the cover, along with the magnet, fixed one of the printers. It was still tested just to make sure it did in fact work, which it did.

The second printer I looked at and put together with parts I had a few problems with. When making connections on the Assy.-controller PCB board, Trans Act part number 95-04992, I was missing a cable that went into the yellow connector on the board. A different PCB board was checked out to make darn sure a cable was supposed to go to the socket and it sure was. The cable even had a small yellow piece of tape identifying which socket it was supposed to go to. I must have run out of top-of-form sensors and had borrowed it from this print head assembly. I had borrowed from Peter to pay Paul and it was time to pay Peter back and replace the missing sensor.

Now the printer has a new ticket cover and a new top of form sensor but it would not automatically feed paper into the print head. The printer was clean, the platen levers were properly functioning and upward, the "fault" LED was not lit on the unit and the LED

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bezel only showed an "out of paper slow flash state."

What was left? I had a few replacement PCB boards so I put one in. This time on the first try it fed the paper properly but I had a different problem. The LED bezel was flashing rapidly. This indicated the ticket taken sensor was bad or obstructed. With a few blasts of compressed air near the sensor, the second set of tests were OK. The unit accepted and printed tickets along with the bezel flashing normally when it was supposed to and not flashing at all when in idle mode.

Two more part numbers, if needed, are Sensor-ticket taken 95-05152L and the long white ribbon cable part number is Cable-Flex 98-06499L.

More information can be found at transact-tech.com, and click on the "Gaming" tab.

WMS BB1 Possible Power Problem

This game was a WMS Blue Bird 1, without a hard drive in the CPU, that appeared to have a power problem. I was told two power supplies had already been put in it but the problem remained.

When the game power was turned ON, all of the voltage indicators on the backplane board would light up for 1/2 of a second, then the majority would go out.

Sometimes this indicates a "dead short" somewhere in a game. Maybe a bad power wire with bare copper touching on metal. I've also seen a service light "short out a game" where a power wire was touching a ground point. Usually if there is a power problem, replace the power supply. Well, two were replaced in this game... Now what?

The printer and bill acceptor were removed and the game was turned ON once again, yet the problem remained. Next, I removed the game CPU board. This time when turning on the game, all of the power LEDs stayed lit up which indicated a bad CPU board. When it was put back in place, no LEDs were lit, just to make sure the CPU was indeed the problem.

When replacing the CPU the jurisdiction chip and BIOS chip, along with the game and OS card needed to come from the original board. The BIOS chip that was in the original was something like a version 1.0 and in the spare board it was version 1.13. Thinking it was an upgraded version it should work so I left the replacement 1.13 in the CPU. Well, the game didn't like it. On the LCD it showed a "drive error." I had to put the original BIOS 1.0 chip into the replacement board so it would work. I also thought the RAM clear 1810 CF card should work. No luck there either, it was too new of a version. A 1310 was needed instead. Finally, the game was optioned, tested and back online.

-Pat Porath
pporath@slot-techs.com

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TechFest is three days of technical training that will make a big difference in your slot shop's ability to fix stuff without a lot of head-scratching and without making the kind of mistakes that cause additional downtime and can really cost the casino a lot of money. TechFest is produced by Slot Tech Magazine.

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"The best investment our casino has ever made."

Thank you for putting on a great TechFest. I've always felt that, when I sent two of my attendants a couple of years ago, it was the best investment our casino has ever made. That feeling was only reinforced this year when I was finally able to attend myself, along with Erika Andrews, one of my attendants. As far as bang for our training buck goes, there is nothing better. Every single session contained practical information to help slot departments save money.

Thanks, again, Randy. I hope to send more of my staff next year.

Pat Owens
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Elwha River Casino
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elwharivercasino.com

Erika Andrews and Pat Owens rocking one of our many "hands-on" labs at TechFest 27. It seems that there's more to "The Button" than meets the eye!

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The American-made ***LeakSeeker 89*** locates the exact spot on a pc board (to within a fraction of an inch) where a shorted or leaky component is bringing a power supply bus or data line to ground. It is the only locator that can locate defects from zero to 300 ohms with no loss of resolution. It can even find *active* shorts that a DVM won't even show. The high GAIN mode can locate shorted components on multi-layer boards with ground planes and a power layer. Three fully automatic range settings allow easy finding of faults along thin, normal, or wide/ground plane copper PCB runs. A YouTube video http://www.youtube.com/watch?feature=player_embedded&v=BUyEe8G50D4 gives a great demonstration, and the EDS website at http://eds-inc.com/leak.html gives additional information on the product. A 60-day satisfaction or money-back guaranty is included. A copy of the operation manual is available before purchasing at http://eds-inc.com/Eds89-om.pdf.

Why Wyoming?

'Cause it's Where the Buffalo Roam

It's also the home of my friend Michael "Big Mike" Evertz and the Wind River Casino (not to be confused with the "Riverwind Casino" in Norman, Oklahoma or the "Win-River Casino" in Redding, California) in Riverton, Wyoming. Big Mike has attended more TechFests than any other person. So many, in fact, that I have long since stopped charging him to attend.

This was a four-day class that covered the usual mix of power supply and LCD monitor repair.

Attending were:Harlan Whiteman, Joanne Jenkins, Rosie Morin, Rick Martinez, Ken Whiteman, Tara Adkison, Austin Willow, Victoria Friday, Nathan Bell, Nicole Whiteplume, Jenni Wildcat, Shawn Delorme, Jocelyn D'Andrea, Lynette Clifford, Vincent Kilcrease, and Merrell Ghostbear.

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FutureLogic's GEN3 Evolution® Printer Reduces Cost of Ownership and Increases Game Uptime

GLENDALE, CA – September 24, 2013– FutureLogic, Inc., the world's leading developer of innovative ticket printing and couponing solutions, today announces the release of an innovative, resource-saving, and easy-to-use printer firmware upgrade process that eliminates the need for costly PCs/laptops, firmware upgrade utilities/tools, and lengthy upgrade processes. The only tool needed to upgrade the GEN3 Evolution® printer, is a USB thumb drive. It's that simple!

The new firmware upgrade process is standard on all FutureLogic GEN3 Evolution® printers. Once the firmware file is obtained and copied onto the USB thumb drive, the entire process is remarkably easy and takes about one minute to complete. Slot technicians will no longer need to take laptops on the slot floor when upgrading FutureLogic's GEN3 Evolution® printers. With the ability to easily upload any firmware on any GEN3 Evolution® printer, this simplified and unique process also makes it possible to interchange/move printers from one slot to another by simply downloading the associated slot manufacturer firmware, yielding to a cost-effective and universal floor. To support slot technicians with the new utility, a comprehensive training video has been developed and can be viewed on the FutureLogic YouTube channel's Download Tool playlist.

"At FutureLogic, we are constantly working with our customers and partners in an effort to enhance our post-sales service and support. The development of this new firmware upgrade process along with the all-important training video, is in direct response to requests from our ever expanding customer base," said Nick Micalizzi, VP of Sales and Marketing, North America. "We are delighted to provide this time/resource saving feature not offered by any other printer manufacturer, giving the operators the ability to upgrade printers on their floors in a fraction of the time required previously."

FutureLogic Launches World-Class Service & Repair Facility and Customer Support Hotline

FutureLogic, Inc. announces the launch of a new world-class service & repair facility in Phoenix, Arizona, a new customer service hotline for US customers and the establishment of a more comprehensive direct sales presence, service and support organization to better serve customers worldwide.

The service & repair facility and customer support hotline 1-855-FL-HELP-U (1-855-354-3578) will offer technical support, customer service, fault diagnostics, product repair, and 24-hour response to customer issues. As a value-added benefit, the new facility will also coordinate the pick-up, delivery and swap out of any FutureLogic printer under warranty within 48 hours at no cost to the customer.

"We are constantly looking for ways to improve all aspects of our customer experience", explained Nick Micalizzi VP Sales & Marketing, North America. "I am delighted to say that FutureLogic's customers will now have access to an industry-best service & repair facility featuring a customer support hotline in Phoenix, Arizona."

"At FutureLogic we strive to put customers first in all that we do", explained John Edmunds, FutureLogic's CMO & CSO. "From the design and development of our award-winning products, to providing the very best technical support and customer service in the industry, our passion for quality, innovation and service is second to none".

About FutureLogic, Inc.

Founded in 1983, FutureLogic is the leading developer of innovative ticket printing and couponing solutions to gaming technology providers and operators around the world. As the premier supplier of super-robust thermal ticket printers to the global gaming industry, FutureLogic has shipped more than 1.5 million printers for casino gaming, video lottery, AWP, LPM, SWP and kiosk applications worldwide. Headquartered in Glendale, CA and with offices across North and South America, Europe, Asia and Australia, FutureLogic's sales and engineering teams are ready to provide direct support and local knowledge for manufacturers and operators around the world. For more information or to contact us, please visit futurelogic-inc.com .

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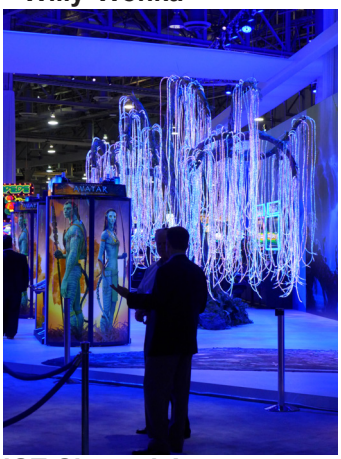
G2E 2013 Features New Slot Machines About Old Movies

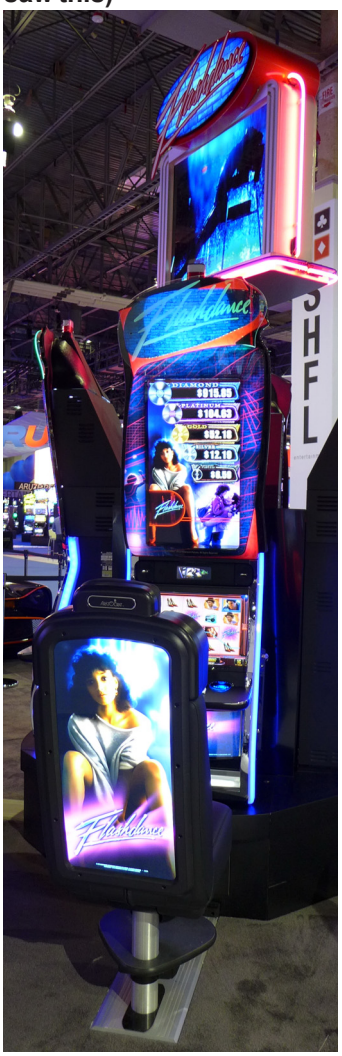
Maybe it's a good thing that I am just a technician and I don't have to select slot machines for a casino. This way, I don't even have to try to comprehend the reasoning behind creating new slot machine titles themed after old (in some cases, REALLY OLD) movies. G2E 2013 was rife with this kind of thing.

Willy Wonka



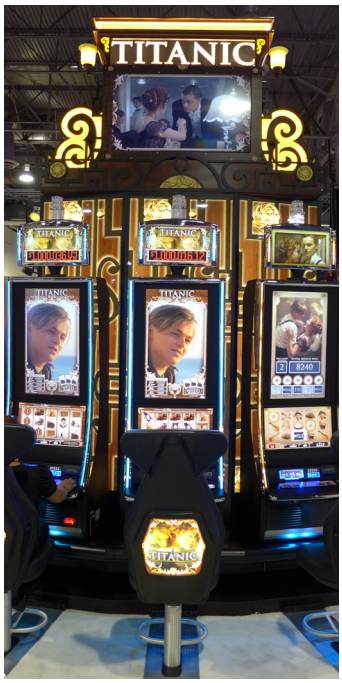
IGT Showed Avatar

Brides Maids (I think I threw up a little when I saw this)



Flashdance. Really?

Beetlejuice



Titanic

Ferris Bueller's Day Off

Back to the Future

Advertising Rates and Sizes

Each month, **Slot Tech Magazine** is packed with technical articles, all on the subject of slot machine technology, new products, repair and electronics geared for slot techs. Slot tech covers it all, from simple "symptoms and solutions" to in-depth technical articles on ticket printers, power supplies, CRT monitors, LCD monitors, bill validators and CPU boards. This is the real deal, written by working, professional slot techs from around the world.

Slot Tech Magazine has the support of the gaming industry's biggest names in OEM and replacement component suppliers. Companies like Suzo-Happ, FutureLogic, 3M Touch Systems and others recognize the importance of slot machine technicians to the casino.

Advertising

Full page	**7.25 X 10.5**	**$880**
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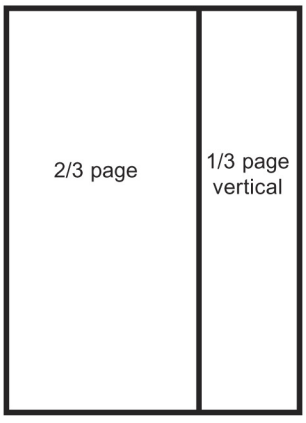
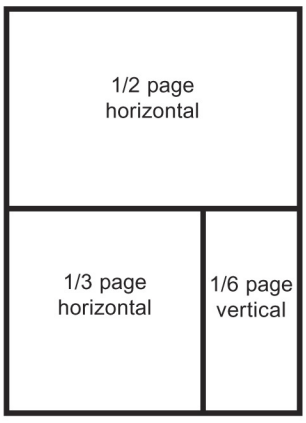
If you offer products or services that are of interest to slot machine manufacturers, slot managers and the technicians themselves, please consider advertising in **Slot Tech Magazine**.

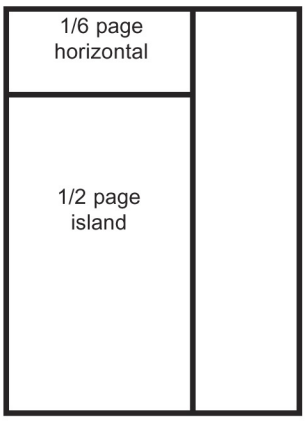
Call 619.593.6131 today to discuss your advertising requirements.

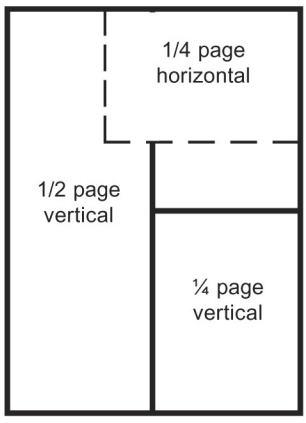
Frequency of Publication - Monthly
Advertising deadline is the first of the month for the month following. E.G. May 1 for the June issue.

Artwork
All submissions to made electronically via e-mail attachment, server or ftp dropbox. Most formats supported. 300 dpi please. Prefer .pdf to assure portability without artifacts. e-mail to **editor@slot-techs.com**









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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.

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“I can help you bring down the cost of casino electronics repairs”

Randy Fromm

Buying Replacement Units!

Is your casino totally self-sufficient in repairing monitors, power supplies, bill validators and ticket printers or are you throwing away hundreds or thousands of dollars purchasing replacement units? While it is not exactly a “hidden” cost to your department, some slot managers simply accept the price of replacements as the “cost of doing business” while it progressively nibbles away at the casino’s bottom line. IT DOESN’T HAVE TO BE THIS WAY.

“**OK**. You asked and I listened. My new tech class eliminates obsolete CRT monitor repair and the associated monitor repair lab. In just four or five days, your slot techs can learn to repair Power Supplies, LCD Monitors, Ticket Printers, Bill Validators and more. It’s easy and it’s fun.“- Randy Fromm

In truth, most electronic repairs are pretty easy. Often, it’s just a matter of testing and replacing a small handful of inexpensive, off-the-shelf electronic components. Sometimes, it’s just one. For example, it costs less than 25 cents in parts to repair the most common failure in Bally power supplies. The entire process takes about five minutes.

LET ME SHOW YOUR SLOT TECHS THE QUICK AND EASY WAYS TO REPAIR CASINO ELECTRONICS
You will see an immediate savings to the casino, starting with the in-house repairs that will be performed during the class!

About Randy Fromm: I am the publisher of Slot Tech Magazine. First published in 2001, Slot Tech Magazine is a monthly trade journal focusing on casino slot machine repair. I have been repairing electronics for the gaming industry since 1972. I really enjoy what I do and I love showing others how easy it can be. ***No previous knowledge of electronics is required.***

For more information, including course offerings and complete pricing information, please visit the website at slot-techs.com

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