

January 2012

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Slot Machine Technology for the International Casino & Gaming Industry

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January 2012

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Randy Fromm

Dear Friends of Slot Tech Magazine,

I am deeply concerned about the state of button panel design on some of today's newest slot machines. In fact, I'll go a step further. I am not just concerned, I am disappointed.

As an old-school game tech, I have replaced a lot of buttons, starting off with the open-blade, leaf switches used by the videogame industry. These switches were a direct descendant of the open-blade switches used in pinball machines. They were flipper buttons. I have also manufactured a lot of control panels and installed a lot of buttons for videogame conversions over the years.

So you'll forgive me when I express dismay that the formerly simple event known as a button failure can now cost more than \$40 to repair and, in worst-case scenarios, can cost \$1800 or more and take down the entire machine for a day or more. This is high-tech engineering at its finest worst. As a stand-alone design, these things are a marvel of modern display technology. In the field, they seem to excel at one thing: disappointment. They are expensive. They are unreliable. They are not engineered properly for a casino application as a slot machine button. Read The Legend of Fail, beginning on page four.

I have a new TechFest schedule for 2012. It's on page nine. As usual, if you need training at your own property, contact me with your needs.

Happy New Year to all of our readers. May all your repairs be successful.

Randy Fromm
Randy Fromm - Publisher

Randy Fromm's Slot Tech Magazine

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TechFest 24
Mystic Lake
Casino
May 2012

The Legend of Fail

Expensive, failure-prone button decks are a disgrace to engineering

Are you an engineer, working for a slot machine OEM? Did you have anything to do with designing your company's button panel? Is it a giant POS that breaks frequently under the normal, day-to-day pounding of casino patrons—walkers aside, it's amazing how strong some of our senior-citizen players are, isn't it?—or the ubiquitous drink spill? If so, I am talkin' to you. Everyone else can leave the room.

Are we alone? Good. 'Cause I just gotta ask, what the heck were you thinking when foisted your unreliable piece of crap on the casino industry? Do you not have any real-world experience with man/machine interface in the gaming or kiosk industry? Did you give any consideration to likely modes of failure? Did you consider repair options at all? Did you consider how much the damned thing costs? It's a freakin' button panel, not an Illudium Q-36 Explosive Space Modulator, for goodness sake.

And while we're on the subject of design, let's consider how you actually tackled the "issue" which actually has far less to do

with the buttons as actuators than it does with the legends that indicate the function of the button to the machine operator. Interface and I/O are two of our biggest service issues and nothing takes more abuse than buttons. Engineering an expensive, failure-prone display assembly fully into the single most vibration-prone and failure-prone sub-assembly was a terrible idea. If you had run this idea by anyone with field-service experience, they would have (should have) reacted in horror at the prospect. What was a cheap, fast repair (button replacement) can now cost thousands of dollars and can knock out a machine completely if a replacement unit (likely too costly to stock) is not immediately available.

Surely you considered the myriad of options that were available to you. Could you not have given us an alphanumeric or graphical legend display and normal, rugged buttons that are

inexpensive and quick to replace (while still maintaining some sort of nice, modern aesthetic)? The legend doesn't REALLY have to reside inside the button, you know. Having a legend immediately adjacent to a button would function just as well. Could you not have given us some other, even more clever and cost-effective solution that didn't totally suck from a design perspective? You're an engineer! I'm just a repair technician. You're smarter than I am. What happened there, bro?

"WMS OLED button panels are the top of the heap as far as being the worst."

As a repair technician, anything that breaks frequently is job security to me so am I being foolish when I call you out on your disappointing lack of performance in this regard? I recently had a slot director tell me that she couldn't order some badly-needed



WMS Button Panel
Slot Tech Magazine

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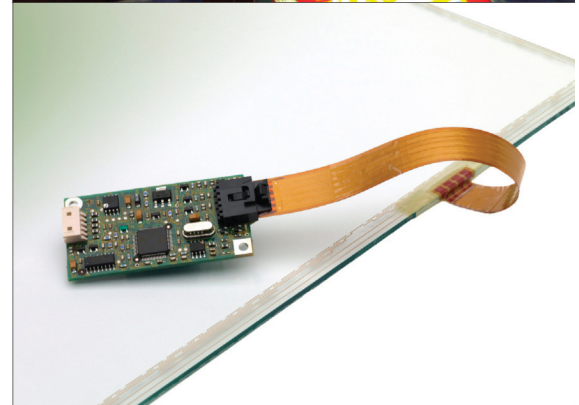
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replacement components and some (really cheap) test equipment for the shop because she had already shot her department's entire budget (for replacements) on a few button panels. It might have even been as few as one or two, I can't recall. One button panel buys a lot of capacitors, that's for sure. So, no. I am not being foolish when I tell you that your crappy engineering has caused real-world issues with the day-to-day repair of other casino electronics and has stressed slot department repair budgets across the country and around the world. Nice going.

It's easy for you to dismiss my complaint. I don't purchase your products. Let's hear what casino customers have to say on the subject. I posed the question to the Slot Tech Forum (completely unaffiliated with Slot Tech Magazine). I mentioned my concerns with reliability and cost. Here are the responses (some edited for brevity or spelling/grammar):

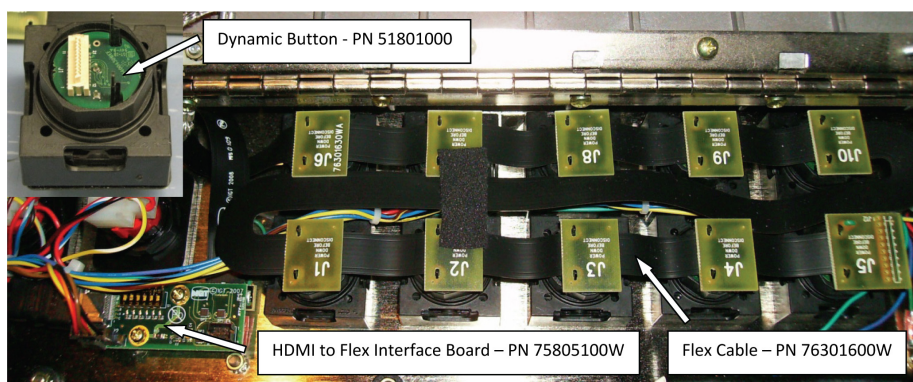
—begin—

Response #1

Previous generations of standard buttons are very close to perfect in my opinion (standardized design, easy to work on, easy to replace). Players should be free to hammer the buttons almost as hard as they can: they're very difficult to break and very cheap and

easy to fix when they do. As I say that, recent generations of non-dynamic buttons have drifted into more and more complicated designs (non-standard designs, difficult to work on, slightly more expensive), and it is this movement into more poorly-designed buttons that continues with dynamic buttons. Current dynamic buttons are fragile, expensive, and relatively difficult to fix. Players who break these now become an operational issue because instead of a \$1 fix and a few moments to replace, the cost of the replacement (both in parts and time) isn't something the casino is as willing to shrug off, which is a drag for both operators and guests. The selling points for these (as have been pitched to me) are 1) 'they make conversions easier because you don't have to replace button inserts' and 2) 'they're needed for server-based games' (and 'guests like them', but we'll pretend we didn't hear that drivel for the sake of this survey). Point number one doesn't fly for us because the

tradeoff in hassle between dealing with dynamic buttons vs. the occasional replacement of button inserts during conversions definitely favors standard buttons. Point number two doesn't fly for us because we do not have any server-based games (nor do we plan on getting any for the foreseeable future). To be fair, they are handy for those IGT AVP games that are set up to be a multi-game (where the games have different line/bet structures), but even this small convenience is being eclipsed by the hassle of dealing with these button failures. My only experience with dynamic buttons involves the IGT and WMS types. To IGT's credit, they have provided some good documentation and parts breakdown, which may allow us to offset the cost somewhat. At the end of the day, however, they can't compete with the non-dynamic buttons from an operational standpoint. Bally's implementation (the LCD panel on their Alpha 2 platforms) seems like the best way to go with these, since it does provide appar-



IGT Button Panel



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ently reasonable protection against damage, but we'll need to see these in the field for a while before making a call. Like most operators, we may find ourselves 'forced' into dealing with these more and more as new slot machine platforms come equipped with these button types.

Response #2

IGT now sells the plain dynamic buttons for about \$40 each and have most individual parts (switch bezels, lens covers, etc.) available as well. They survive drink spills fairly well but the ribbon cable that connects the switches seems very flimsy and the USB board in the button panel area is very open to damage from drink spills.

The Aristocrat Verve button panels are garbage and constantly have issues similar to the WMS OLED panels (switch assemblies don't stand up to play use/misuse, lens covers break on one side or jam into switch housing preventing switch from working). These actually may be as bad or worse than the WMS OLED button panels except for the fact that we have only a few banks and they are leased.

WMS OLED button panels are the top of the heap as far as being the worst. Cheap plastic plungers and poorly designed lens covers which constantly break (the rebuild kits contain the

same flimsy parts), shallow lens covers which do nothing to protect the switch's LED display, and a totally exposed circuit board that just begs to have a drink poured on it. What really bugs me the most is that WMS seems to insist that we buy their games with the OLED panels even though the software/games will support the regular static button panels and we are at least two years out from server based gaming.

The Gamesman switches that are in the Konamis, Viridians, etc. are fairly good but it seems like the plastic used, especially in the switch holder portion, gets brittle fairly quickly as we get a lot of breakage when twisting out the switch holder to change a switch/LED or when the switch gets worn out. They can be expensive when the machine companies want to charge for an entire switch assembly instead of selling a lens cover or legend plate so finding a supplier for individual parts is a must.

Response #3

Our bench tech is good at repairing button panels but the the new games like Aristocrats Tarzan/Rockin' Olive (can't think of the cabinet name, looks like a giant iPod) are giving us problems with the SPIN button getting beat on. It then shorts out and causes the game to reboot, sometimes unsuccessfully. That is one crazy panel. Thank goodness it's a leased machine.

And an instant response to #3 from Aristocrat (editor's note: kudos to ATI):

ATI has acknowledged an issue with the Nteractive button panel found on the Verve. We will have a replacement button assembly that will handle normal abuse coming soon.

I as well as other field techs will be completing a proactive replacement of all of these buttons in the field. This is good for me as we are promoting the Nteractive panel for the Viridian widescreen. It takes me about 10 minutes



Aristocrat Button Panel

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(subject to revision)

TechFest Tulsa-Hard Rock Casino

Tulsa, Oklahoma/April 17-19, 2012

TechFest 24-Mystic Lake Casino Hotel

Prior Lake, Minnesota/May 15-17, 2012

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Las Vegas, Nevada/June 5-7, 2012

TechFest 26-Motor City Casino

Detroit, Michigan/November 6-8, 2012

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FutureLogic-Gen 2 and Beyond-Ticket Printers

JCM-UBA and iVIZION Bill Validators+BlueWave

MEI-CashFlow SC66 Bill Validator

Transact Technologies-Ithaca/Epic Ticket Printers

PLUS-Randy Fromm on:

LCD Repair/Power Supply Repair

Component Identification and Testing

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**Thank you, thank you,
thank you.**

The positive reponse to TechFest has made it difficult to hold just two events this year. I have been invited to bring the event to Motor City Casino (that will be TechFest 26 in November) but since TechFest 23 sold out, I have planned another event in Las Vegas to cover the folks that were turned away. In addition, I have been invited by Hard Rock, Tulsa to hold an event there (they actually will be sending many techs from many of their properties in Oklahoma but the event is open to all slot techs from all properties). That makes four TechFest events this year. There are no plans to make this a regular schedule.

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Publisher-Slot Tech Magazine

to change 1 button because of access and could make me a busier person otherwise.

Part of the issue with the Bash button is that it floats above the LCD panel. A patron can then "BASH" the button and break the plastic tabs that secure it to the button deck. There are also contacts that protrude past the plastic housing base and make contact with fiber shelf thus shorting the switch and potentially damaging the main board. I have been covering these whenever I have had access to them.

Response #4

I think the IGT Dynamic Buttons are ridiculous. Way over priced. We go through a fair amount. They get fried from drink spills. We were going through a lot of WMS BB2 button panels and WMS XD panels as well. Thankfully they aren't breaking as much. Those are like \$1800! Usually just one button goes out and causes the whole thing to crash. We just change the button and download and it works fine.

Response #5

It's really ridiculous how the manufacturers still use cheap plastic parts for their buttons, then charge us an arm and a leg for parts. WMS's OLED button was really a piece of crap when it first came out. The actuators and the lenses break easily not to mention the

constant Button Panel Mismatch error. We had to constantly replace them then flash it. Now they got smart and replace the actuators with metal push tabs and a protective rubber on the oled board. In a way, it didn't hurt us as bad as the other casinos because the management got pissed and made them rewrite a contract giving us a one-year warranty.

IGT's Dynamic button was also a piece of crap when it

first came out. We were always running out of replacements for it. Everything was expensive. HDMI cables, USB board, including the black fin board that somehow always shorts out and when you buy them. You'd have to flash it yourself because apparently they sell you a blank board.

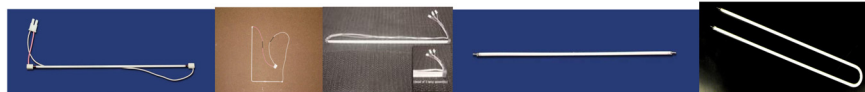
Aristocrat's Verve Nteractive button is still a piece of crap and needs constant replacement. But I heard that they are coming out

#1 supplier of CCFLs to the casino industry.

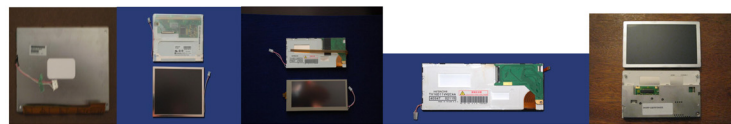
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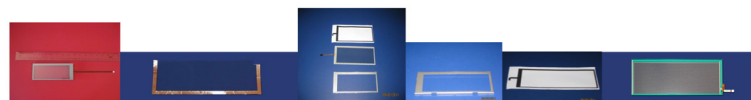
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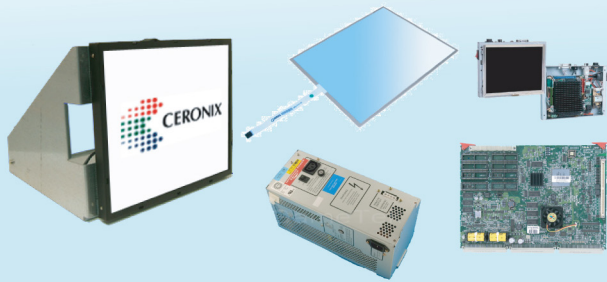
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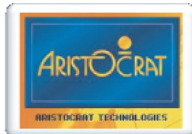


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with a modified version.
(Editor's Note: As stated in response earlier, yes. Modified)

These new "sophisticated button panels" are/were still a work in progress. Slowly but surely they are being modified to where they can last longer. It won't be long (wishful thinking) until the manufacturers finally figure out all the faults and modify their devices. Personally, they should all just buy the bomb proof ideck button panel from Bally then we won't have any problem with buying the buttons.

Response #6

I thought it was way expensive at first as well. Even now I don't think they are cheap but they haven't been as expensive to maintain as I thought they would. The IGT techs would change out the buttons under warranty at first and give us the old "bad" ones. They weren't too hard to fix so we had some spares. The WMS parts department gave us a bunch of panel parts (actuators, bezels, lenses, and modules) under warranty as well. We have had to buy some parts since, and they are pretty expensive compared to the old buttons and switches, but it's tolerable. We're going SBX on our IGT games with these buttons and converting more games to use the new buttons and be added to SBX. Management must not be too concerned with the maintenance costs.

Response #7

I think they are way too expensive but it looks like they are here to stay. Bally, WMS, IGT and Aristocrat all have fancy button panels. I fix an average of 12 WMS button panels a month costing about \$40 apiece to fix versus buying a new one at \$2000. But like someone else said, if the guest wasn't breaking them, they would be ok. Right now I am glad that Aristocrat and Bally button panels are on lease games so no cost to us. Aristocrat had to replace two in one week on one of their games.

Response #8

I work at a smaller club. The [number of] dynamic buttons I have had to replace is quite a few. I have had a high success rate in fixing them. The buttons used to cost \$120 and now I can get them for as low as \$75 dollars a piece.

—end—

So there you have it. The response was 100% negative. Look, I'm not saying that your solution wasn't clever and super-awesome high-tech. It probably "seemed like a good idea at the time" but you improperly addressed (or failed to address) the real-world from the standpoints of reliability, cost and repair.

Can you please give us something better? Can you please do it as soon as possible? Thanks.

**Randy Fromm-Publisher
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FOR BALLY

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#8680 -- Single cold cathode lamp assembly for Bally IView player tracking system 6.2 inch "IDW" LCD

#9890 – 5 wire touch screen for Bally IView 6.2 inch Hitachi LCD

#8950- 5 wire touch screen kit for Bally Iview 6.2 inch "IDW" LCD

#1240 – 6.2" Hitachi LCD \$TX16D11VM2CCA

FOR KONAMI

#9780-"L" shape cold cathode lamp assembly for 7 inch AU Optronics LCD

#8550 – "U" shape cold cathode lamp assembly for 7 inch Sharp LCD

#1010 – 7 inch AU Optronics LCD #C070VW02 for bonus screen

#1250 - 7 inch Sharp LCD #LQ070T3AG02 for bonus screen

FOR WMS (Williams)

#8520- Triple cold cathode lamp assembly for WMS slot machine with an 18" LCD monitor

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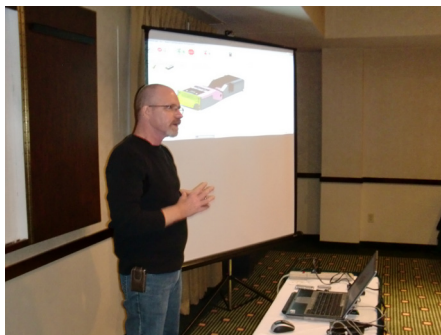


AMERICAN GAMING AND ELECTRONICS

Our last TechFest in Las Vegas was not so well-attended so I was surprised when TechFest 23 was a sold-out event a full month before the start. I apologize to the people that I had to turn away (and to those who never even contacted me after I posted the "sold-out" sign on the website). If you missed your chance to attend, I have planned an identical event (TechFest 25) in the same location for June 2012. Check the website for details if it interests you.

Although most TechFests are more-or-less the same, to me (as a presenter) one of the big differences in each event is the sense of humor of everyone attending. This was a great group and we had a lot of laughs, which is excellent when you're dealing with highly technical stuff for eight hours a day. Thanks to everyone that attended for making this a great event. A special thank-you to my friend Carter Fischer of Coeur d'Alene Casino (formerly worked at Happ Controls) for providing Krispy Kreme donughts! Yum.

Special thanks too to our friends at Kiesub Electronics in Las Vegas for their special presentation.. They showed us their new slot machine LED illumination devices. Too bright to look at! I was so dazzled, I forgot to photo-



Suzo-Happ's David Oldham presented MEI bill validators and FutureLogic printers.



Troy Nofziger(I), head technician for Ceronix, gave us a great presentation on LCD repair. He had some special door prizes as well! Thanks, Troy



Harry Iverson (Pacific Illumination) gave us the low-down on CCFLs and how to obtain any length lamp.

graph the presentation. Oops! They sponsored our coffee breaks too. We had another special presentation from Harry Iverson (Pacific Illumination) who gave us the run-down on how to obtain ANY CCFL of ANY size or shape. He handed out samples to everyone and even slipped me a few CCFL testers to use in my classes on LCD repair. Thanks, Harry. - **STM**



Dan Petersen presented JCM's UBA and iVIZION bill validators



Transact Technologies' Russ Wige and their Epic printers



Slot Tech Training at Sam's Town Shreveport, Louisiana

November's slot tech training was held in Shreveport, Louisiana at Sam's Town Casino, which is one of the many Boyd Gaming properties. This was one of my "hands-on" classes where we really spend some time working with the electronic components themselves and concentrate on Power Supply and LCD Monitor repair. We also had a day of presentations on MEI bill validators and FutureLogic ticket printer repair, presented by David Oldham of Suzo-Happ.

Because they did not have enough slot techs to fill the class (15 is the maximum), one of the surveillance techs sat in on the class. This was interesting because he brought in a Pelco brand PCB from a camera. The board handles all of the control signals going to the motors for tilt, pan and zoom as well as handling the video. He said there was a common fault that causes the camera to blow a fuse. Sure enough, there was a little surge-



suppression device (or something. I couldn't cross the number) right across the AC input to the board. I popped it off and the board worked perfectly! The reason I mention this is a:) you might have the same issue and it's an easy fix. b:) I would like to be able to replace the device but Pelco doesn't release this data. They won't even return my phone calls! Does anyone have

technical data for any Pelco equipment? Maybe we can help our tech buddies in surveillance. The PCB under discussion costs \$179 to replace. They had discarded five of them previous to my visit. Damn. - **STM Randy,**

I heard great reviews about your class from the techs... "Thanks"
Brian Brammer
 Slot Repair Manager
 Sam's Town Hotel and Casino Shreveport

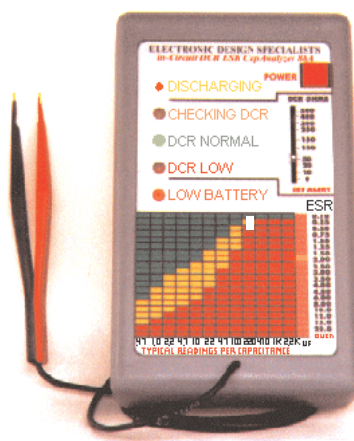


Having fun testing transistors during one of the "hands-on" labs.



James Thomas and Derrick Davis
 January 2012

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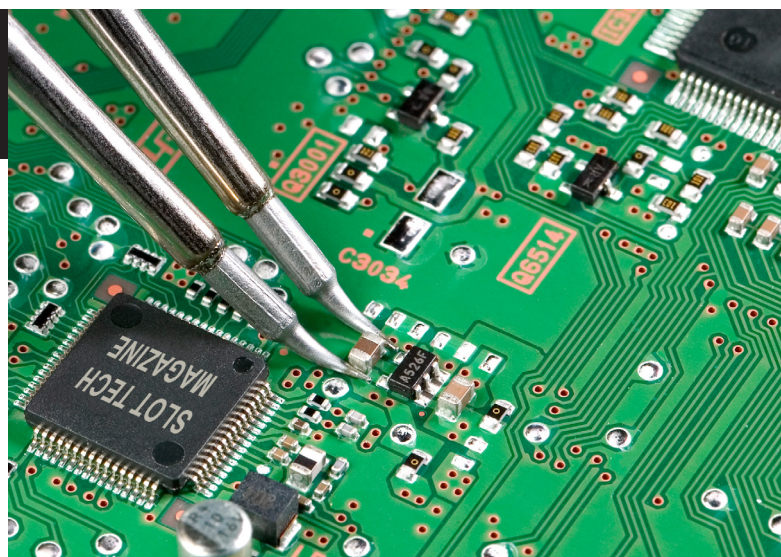
SMD Rework

Slot Machine technicians are continuously faced with the challenge of repairing circuit boards. The old days of the soldering iron, solder sucker and solder braid are no longer the solution that we could always depend on. Soon, through-hole components will be history. We are now faced with a new challenge called SMT (surface mount technology). Now is the time to improve our rework techniques on SMDs (Surface Mounted Devices). The SMD has

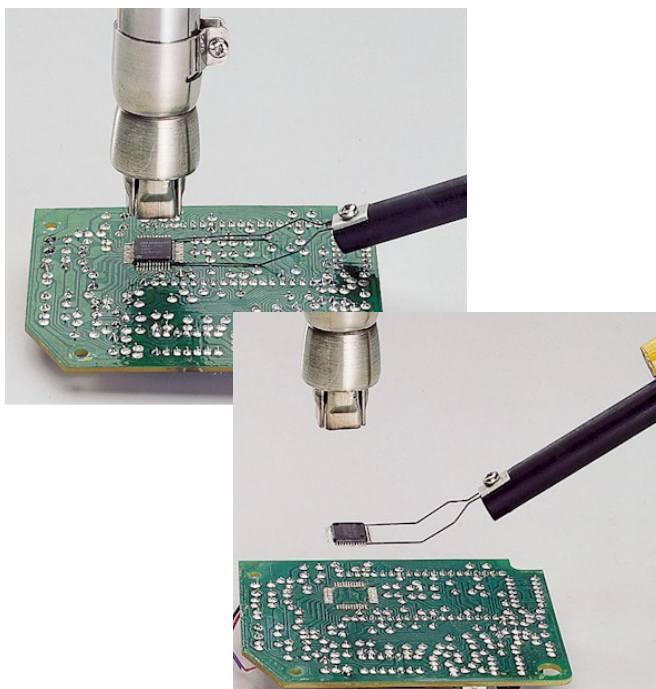
been a major step in miniaturization of modern circuit boards.

A typical SMD may have as few as two pins or as many as 300 or more. The more leads, the finer the pitch (distance between pins). Each SMD pin is connected to a pad on the board, forming a pin pad solder connection. To remove a typical SMD we must simultaneously heat all the

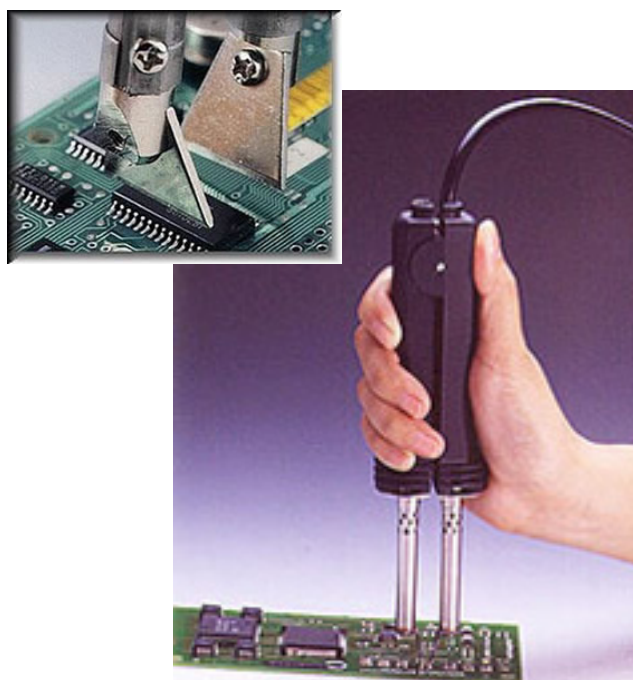
pin pad connections into a molten state long enough to lift off the chip. If one or more pins does not release, a pad will be pulled from the board. Once this occurs, the board may fall into the trash category. As technicians, our job is to repair and save boards. We



Traditional SMD Rework Methods



Left: SMD rework by convection heating uses a hot air tip to heat all of the pins of the device at once. A pick is then used to lift the device from the PCB.

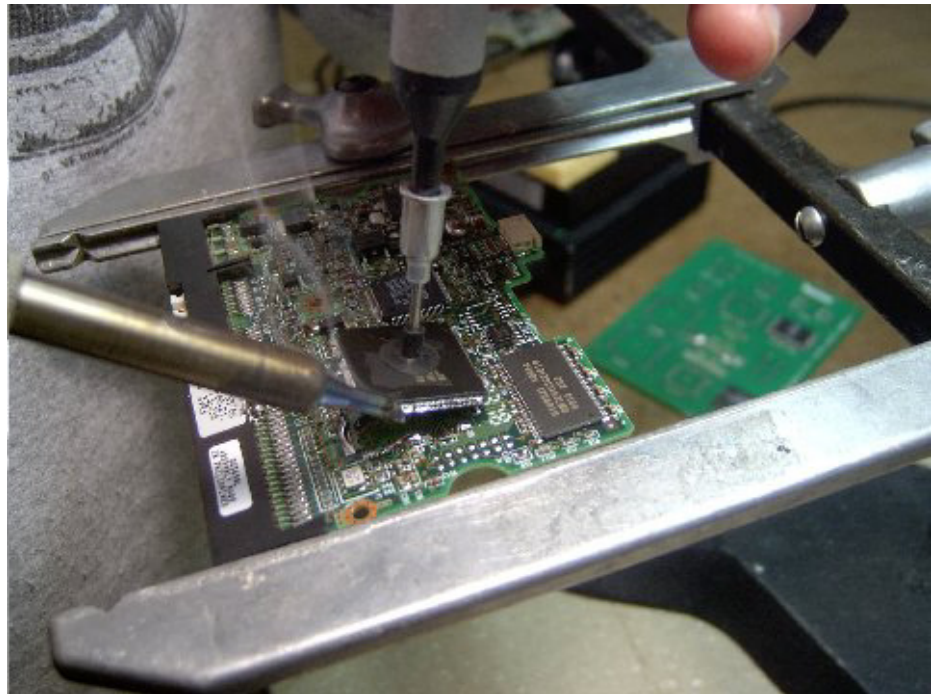


Right: SMD rework by conduction heating uses heated "tweezers" to heat all of the pins at once.

need to begin by developing SMD methods that work best for us.

Rework Inflicted by Rework

Modern PCBs (printed circuits boards) are densely spaced with SMDs and are sometimes double sided with multi-layers. The pads (lands) on the circuit board are only held down by an adhesive. If the soldering iron is set at too high a temperature for too long a period of time, the pads will lift from the board. Blowing hot air on the chip for too long a period of time will also cause pad lifting, adjacent component damage, releasing of underside components and board delamination. The solution to preventing damage to the PCB will require a careful selection of tools



The Chip Quick alloy's low melting point allows the solder on all of the pins to remain molten while the device is picked off the PCB with a vacuum pick.

and a safe practical method. Heat causes damage.

Traditional Rework Methods

Today's slot tech needs a

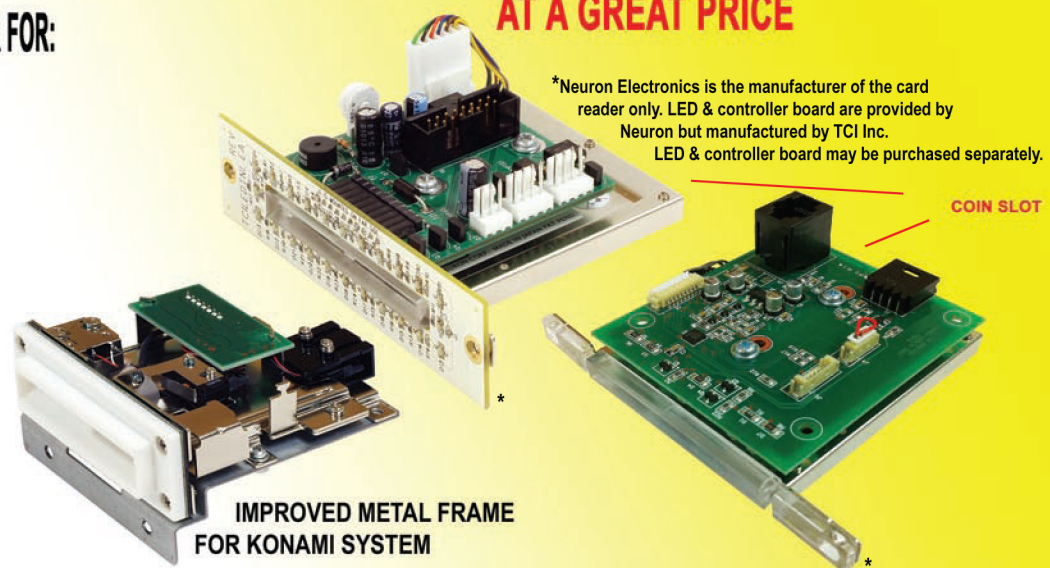
method to solder and unsolder that is safe and affordable for low volume rework. Traditionally, the most common methods of rework have been conduction and convection.

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Conduction is the use of a soldering head that fits over the SMD and applies heat simultaneously to all the pins. The disadvantage is that the iron has to be set at a high temperature and there is no way seeing or knowing when to lift off the chip. Also, a large inventory of tips is needed for the many SMD configurations. If repeating the same procedure, you can develop a method to duplicate results called profiling. This method is not practical for occasional rework.

Convection is the use of focused hot air through a nozzle shaped to the SMD. With convection, the heat transfer to the pins takes longer and some of the heat goes to the adjacent components if they are not shielded. Also, the longer duration of heat increases the risk of releasing the underside components and board de-lamination. This method also requires a large inventory of expensive tips. When performing the exact same procedure again and again, a profile can be set up to duplicate results. The conduction and convection methods are only good for high volume rework where a safe proven profile of temperature, time, heat shielding and tip can be set up.

However, most slot techs are looking for a fast, safe and affordable method that doesn't require special equipment. In the real



Adding the Chip Quick alloy to the pins of the device to be removed.

world of slot machine repair, we have dozens of different problems and we are not always replacing the same component again and again.

A Practical Solder/Desolder Rework Method That Works!

DESOLDER: The most difficult part of rework has always been the safe removal of the SMD from the PCB. Soldering back on the new chip does require a certain skill that most of us can develop. A safe SMD removal solution has long been needed. The Chip Quik SMD Removal Kit is a patented product that has revolutionized the rework industry. Even those that have never done rework can feel comfortable with this unique method. Now you can remove SMDs safely and easily with a regular soldering iron. The Chip

Quik SMD Removal Kit consists of a low temperature removal alloy in wire form with excellent wetting ability that melts at 136F (58C). When melted into the existing SMD connections with a solder iron, the alloy fuses into the interconnect alloy and the two combine to form a new alloy with a melting temperature below 200F. With this lower melting temperature and an increase in thermal mass, the new alloy remains in a molten state long enough to safely remove the chip. While the solder iron temperature is not critical, 550F or lower is recommended. At this low temperature, all potential damage is eliminated. Cleaning of the pads before installing the new chip is important. To clean the pads, use a soldering iron to apply heat while polishing each pad with a swab dipped in flux until thoroughly clean.

Chip Quik Instructions
(supplied with kit)

SMD Removal & Cleanup

- * Apply flux to all leads with syringe
- * While molten use a cotton swab and flux
- * Melt Chip Quik uniformly on all pins to wipe excess off pads.
- * Maintain alloy in molten state long enough
- * While applying heat, polish each pad with a swab and flux until thoroughly clean
- * Lift chip from board with pick-tool
- * Clean residue with alcohol pad
- * You are now ready to install the new chip



Cleaning of the pads before installing the new chip is important. To clean the pads, use a soldering iron to apply heat while polishing each pad with a swab dipped in flux until thoroughly cleaned.

Prepare to Install the SMD

When replacing an SMD, the correct choice of equipment and materials will determine the quality of your work. Recommended items needed to correctly solder on an SMD are:

Soldering Iron: Very important and often neglected. The iron should always maintain a set temperature. This means that when you place the iron into the solder joint (thermal load), the temperature must stay constant at all times. In a quality iron, this specification is called thermal recovery. When using a poor quality iron, the tip temperature will cycle up and down while the solder joint

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is being formed. The time it takes to complete the solder joint (dwell time) will determine the quality of the joint and the amount of potential inflicted damage. Effectively, by using a quality solder iron, the temperature can be set at much lower.

Solder Tip: Use an angle chisel tip wide enough to cover the leads being soldered. Make sure tip is always tinned and clean for better heat transfer. A separate tip for soldering and desoldering is recommended.

Solder: Use 63/37 solder without rosin core and about .030 in. diameter. This solder is eutectic, meaning it liquefies and solidifies at the same temperature. Also the chance of leaving non-activated flux is eliminated.

Flux: Use a good, no-clean rework paste flux. Most rework fluxes are non-corrosive, non-conductive, have excellent wetting characteristics and tend to keep the SMD from sliding on the pads. Flux is a very important part of SMD rework for both soldering and desoldering.

Ready to Install the SMD

Now that you have carefully selected all the recommended items, we are ready to solder the SMD to the circuit board. Inspect all the pads to make sure they are



Clean pads, ready for the new device to be installed

all clean and equal in height. With the syringe, apply a thin bead of tack flux along all the pads. With a Vac-Pen, pick and place the SMD on the pads right into the flux, making sure that pin #1 is aligned with the correct pad. Use magnification with good lighting to make sure the pin pad alignment is perfectly centered on all sides of the SMD. The tack flux helps to keep the SMD from moving out of place. Hold down SMD firmly with a dental pick so it will not move.

Now you are ready to solder. Set the solder iron to 600F. Tin the tip and carefully tack down three or four locations. Check pin pad location once more for this is your last chance to make a correction. Now, drag solder by holding the iron at a 45 angle as you slowly run

the iron along the pins while adding solder and flux as required. You can watch each solder joint as it is being formed. If you create a solder bridge, use solder braid to remove it. Clean area with an acid brush and isopropyl alcohol. Inspect your work.

With a little practice, you can master and perfect this technique. The best part is, you can do your own rework and prevent expensive boards from becoming trash. Happy Rework!

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INTERNATIONAL BRAND GAMING AT ICE 2012

Oxford based - International Brand Gaming (www.ibrandgaming.com), specialist OEM solution provider, will be exhibiting at the forthcoming Totally ICE show in January 2012, along with its partners, Quixant, Elite Casino Products, Elektrosil, Astrosystems and Blue Alpha.

We welcome you to join us and view our complete range of products including the new Nitro XL slot cabinet from ECP, a 46" Elektrosil dreaMTouch table screen, the Quixant QXi-200, the full range of Astrosystems bill and coin validation products and Blue Alpha (SAS 6.02 software module).

It is an opportunity to meet representatives from each of our brands and discuss working together.

ICE is also an opportunity for us to introduce our new DIGITAL MEDIA partner, Piquant Design. Renowned and respected for their commercial media solutions including delivering a complete A/V experience for BMW showrooms, Piquant Design is the ideal addition to our product offering.

Together with Piquant Design we can now offer game designers innovative 2D/3D player interactive attraction software tools.

'This is the first time that International Brand Gaming and all of our partners have exhibited together at the ICE show. It is the perfect opportunity to showcase our entire product offering in one place' said John Malin, Managing Director for

IBG. 'It also enables us to show the strong links between our partners and how we all work together to provide the best solution for each specific customer and their exact requirements.'

Come and meet us on stand number #4044 - International Brand Gaming (opposite Quixant).

For further information, iBrand Gaming can be contacted on sales@internationalbrandgaming.com

For schematic diagrams, service notes, software and more, visit the Slot Technical Department at slot-tech.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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Slot Tech Training at your own casino!



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.

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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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