Slot Tech Magazine

July 2012

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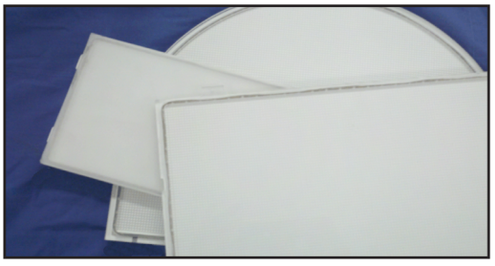

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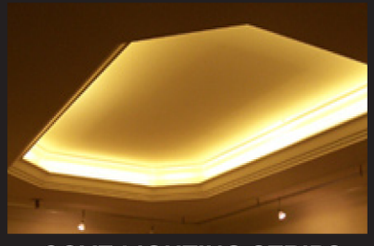

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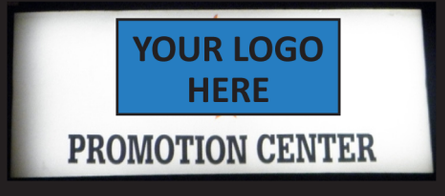

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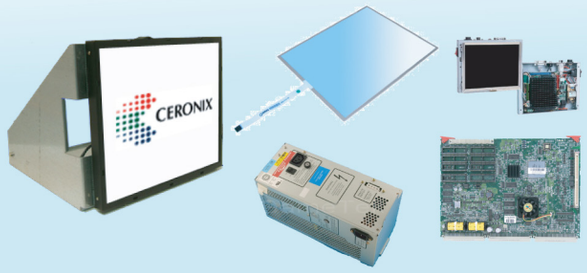

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Slot Tech Magazine Editorial Opinion

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Randy Fromm

Open Letter to Gaming Commission:

Your slot shop's ability to perform component-level repairs can have a profound effect on your casino's bottom line. Many electronics repairs can be made quickly and cheaply if the parts are available to your slot techs. Unfortunately, many slot shops are crippled by regulations that require ALL vendors to obtain a (sometimes costly) license to do business with your casino.

I recognize that the impetus for this regulation is that the casino cannot do business with any entity that is not squeaky clean. However, the upshot of this licensing prerequisite is that casinos often have to purchase complete (read "expensive") replacement assemblies because the discrete components or integrated circuits (usually with a cost of just a dollar or two, often less) required to effect the repair are unavailable through any of your licensed suppliers. As wonderful as it is to have a full-line supplier like Suzo-Happ or Patriot Gaming, they simply cannot stock the plethora of components required to fix everything down to the component level.

Some casinos work around this requirement by allowing some "outside" purchases, placing a strict limit on what can be purchased (and from whom) and with a low dollar limit (such as $100-$300/month). Purchasing a handful of capacitors and transistors from a reputable electronics distributor such as Kiesub Electronics, MCM Electronics or Mouser Electronics (or dozens of others) doesn't expose your casino to anything except a more efficient slot department and higher profit. Clearly this low dollar limit precludes any sort of "criminality" just as nobody counterfeits one-dollar bills.

With all due respect to your vigilance and duty, I am begging you, Mr. or Ms. Commissioner, to consider a modification to your regulations that will allow your slot department to become much more efficient through the purchase of electronic components from reputable (but otherwise unlicensed) sources.

Thank you for your consideration in this matter.

Randy Fromm
Publisher-Slot Tech Magazine

Randy Fromm's
Slot Tech Magazine

Editor
Randy Fromm
Technical Writers
James Borg, Vic Fortenbach, Chuck Lentine, Craig Nelson, Kevin Noble, Pat Porath

Slot Tech Magazine is published monthly by
Slot Tech Magazine
1944 Falmouth Dr.
El Cajon, CA 92020-2827
tel.619.838.7111 fax.619.593.6132
e-mail editor@slot-techs.com
Visit the website at slot-techs.com

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For IGT

#8500 - Single cold cathode lamp assembly for IGT 6.2 inch LCD
#8610- Protective Mylar sheet W/ copper tape attached for 6.2" Hitachi LCD in IGT NexGen
#8570-6.2 inch Hitachi LCD #TX16D11VM2CAA with 4 wire touch screen for IGT NexGen

FOR BALLY

#8650 - Single cold cathode lamp assembly for Bally IView player tracking system 6.2 inch "IDW" LCD
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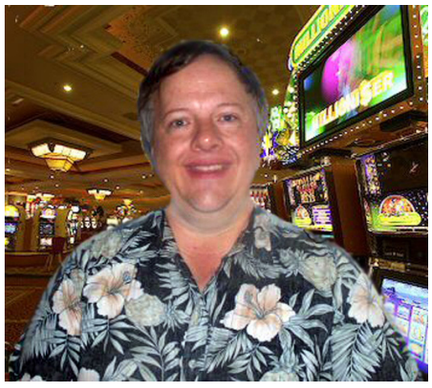
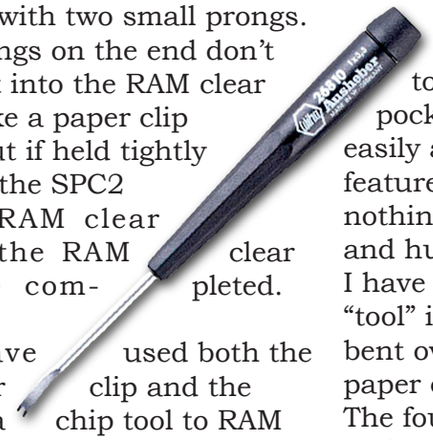


It's a Writing Pen!
No, it's an SPC2 RAM Clear Tool!

By Vic Fortenbach

RAM clearing an SPC2 board is a challenge that increases depending on where the SPC2 board is mounted. Inside older Aristocrat slot machines, some SPC2 boards are mounted on the left side wall near the main door hinge. Other boards are mounted way in the back, behind the florescent fixture in the top of the cabinet. No matter where the SPC2 board is mounted, it seems like you need multiple hands to complete the RAM clear.

The most popular way to RAM clear the SPC2 board is to use a paper clip as the RAM clear tool. A small sized paper clip is reformed into two, closely spaced, parallel prongs. The prongs fit into the RAM clear holes on the SPC2 board. It's not very elegant but it gets the job done. Other slot technicians use a Wiha chip extractor tool to RAM clear the SPC2 board. While Wiha tool is obviously intended to remove chips, it can also be used to RAM clear the SPC2 board since the end is forked and shaped with two small prongs. The prongs on the end don't really fit into the RAM clear holes like a paper clip does, but if held tightly against the SPC2 board RAM clear holes, the RAM clear can be completed.



I have used both the paper clip and the Wiha chip tool to RAM clear the SPC2 board. While both tools have their positives and negatives, I thought there had to be a better way to complete the RAM clear. I looked at all the tool catalogs for a tool that would work, only to be disappointed. Since there was no true SPC2 RAM clear tool that was easy to use and easy to hold, the only option was to make one. The parts that I used are not exotic and can be purchased at Wal-Mart and Home Depot or Lowe's. This SPC2 RAM clear tool that you can make is not some hokey looking homemade tool; it looks professional, and does the job, easily.

In the process of creating this tool, I had five specific design features I wanted to incorporate. The first and most important was the size and shape. You have to be able to hold on to it (unlike the paper clip); the size and shape of a ball point pen would be perfect. The second factor is loss prevention. A pocket clip is a must so the tool can clip to your shirt pocket. This also makes it easily assessable. The third feature is safety. I wanted nothing sharp that can poke and hurt anyone. Many times I have placed the paper clip "tool" in my front pocket and bent over, only to have the paper clip prongs stab me. The fourth feature of the SPC2 tool is that it has to be hands free; the tool should stay connected to the SPC2 ram clear holes in the PCB without falling out. Having the tool connected to the SPC2 board holes and not having to hold onto it makes removing power from the SPC2 board easier. The fifth feature is that it has to look cool.

With the features defined, I came up with the perfect solution; modify a click-able ball point pen. The pointed end of the pen where the ball point sticks out had to be plastic since the end point needs to be cut or ground off

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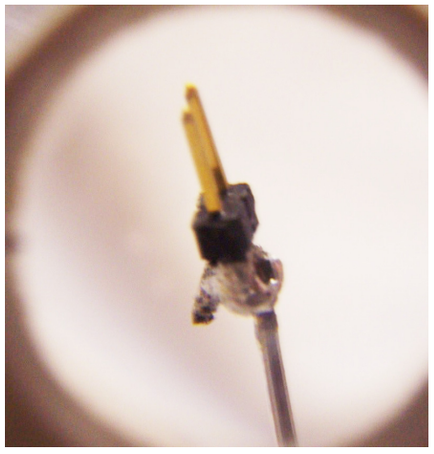
to make the end opening larger. I went to Wal-Mart and chose a Paper Mate Profile 1.4B click-able pen. These pens are available in packages of two for about two dollars. I wanted to keep the click function of the pen intact so the two (sharp) pins used to RAM clear the SPC2 board would retract and not cause a safety hazard. I disassembled the pen by unscrewing the top click part. The pen looks like the middle part would unscrew, but it's the top section with the pocket clip that unscrews. On my pen, the top part was screwed on very tight; I had to use pliers to unscrew the top. Be careful not to damage the plastic pocket clip when unscrewing the top.

With the pen disassembled, I removed all the parts, including the pen's cushy grip (it just slides off). As I mentioned, the point end of the pen needs to be removed. Be sure to remove the spring from inside the pen; it's not attached to the ink cartridge. Using the shop grinder, I ground down 3/8 of an inch of the plastic from the point end of the pen, leaving a plastic lip to hold the cushy grip.

Next, I needed the actual prongs that will be used to RAM clear the SPC2 board. I found and removed a two-pin header from a non-working Bally Pro-slot 6000 logic board. This two-pin header is actually two straight gold-plated pins with a black plastic base. The Bally logic board has several of these two-pin headers that are used for option jumpers. I found that a JCM UBA CPU board also has this same two-pin header that can be used as well. These headers are pretty common on other logic boards so there should be no problems finding one. When removing the two-pin header from the logic board with a soldering iron, use caution not to overheat and melt the plastic base of the two pin header, melting the plastic base will cause the pins to be misaligned or fall out.

The center actuator is the part that replaces the long ink cartridge. I reformed a large paper clip to be completely straight. At one end I bent a very small "U" shaped hook. This hook will make it easier to attach the header to the straightened paper clip. The two pin header will be soldered to the U-shaped end. The two-pin header solders easily to the paper clip end, but because the header is so small, it will move around when trying to solder to it. Use some tape to hold the header to the workbench top. This makes it easier to solder the wire to the header. When you solder the header to the paper



clip, it's important to keep everything straight and in line. Once the header has been soldered to the paper clip end and cooled, this becomes the header wire. Cut the header wire to 4 3/8 inches long end to end counting the pins of the header. Compare the inside dimensions of the ground down pen end to the header size. The header must fit inside the pen and slide easily; it must not be a tight fit. Most likely the plastic base part of the header and your soldering job will be too large. The header base and wire can filed along with the solder to make a smooth looking round con-

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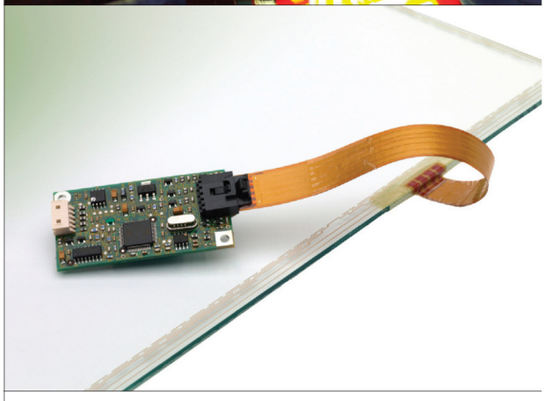

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nection. If part of the wire hook you bent is sticking out from the base of the header, trim or file it off. The header wire must completely fit smoothly and slide inside the pen case. When filing the plastic base for size, don't file too much of the plastic base as it still has to hold the two pins securely. Check to make sure the two-pin header wire slides easily, in and out of the pin with no binding.

The click action of the retractable part of the pen uses a spring at the end of the ink cartridge. Since we have ground down the pen end, this spring has to be relocated. The new place for the spring is in the middle area of the pen. The Paper Mate pen case is reduced in its center area to a smaller size, which is perfect area for the spring. Moving the spring to this location will provide the new click action for the two-pin header. Two new "spring stops" will have to be created. The new spring stop has to have a small enough hole to allow the straightened paper clip to slide thought it, but not the spring. A 4-40 hardware nut fits into the pen perfectly. The nut has the required hole for the header wire but it is not large enough for the spring. The nut is sized to allow it to wedge horizontally into the small area of the pen case. The size of the nut needs to be loose for assembly, but the nut must NOT slip past the middle part. This is one of the spring stops.

Assemble the nut, spring, and second nut onto the header wire as shown. Two solder blobs will have to be added to the header wire. I know the solder blobs are not the best looking, but when the SPC2 tool is assembled you will not see them. Solder sticks very well to the paper clip. The first solder blob is attached to the header wire at 3 7/8 inches, when measured from the header end; the second blob is at the opposite end of the header wire (See picture of the completed header wire). Once everything has cooled, slide the header wire into the pen case. The first nut will stop at the part of the pen case that is reduced.

Some trial and error may be necessary. You may have to reform the end solder blob so it does not bind inside the top part of the pen. The blob has to be large enough so the header wire will not slide into the pen cap. Look inside the pen cap to judge the size of the solder blob you have to create.

After you have assembled the tool, check the click action. If the two-pin header just moves in and out of the pen casing without clicking and staying "locked," the paper clip wire is too long or the solder blob is not correctly placed. The visible part of the two pin header can be adjusted by making the header wire longer or shorter. If you need to make the wire longer you will need to start off with a new straightened paper clip.

With this tool, it is much easier to clear a SPC2 board, not to mention the looks I get from the other technicians when I use my "pen" to RAM clear an SPC2 board.

Parts List
1 – Paper Mate 1.4 B Profile Click Pen - Wal-Mart
1 – Large Paper Clip
1 – 2 Pin header – from old logic board
2 – 4-40 Hardware Nuts – Lowes, Home Depot

- Vic Fortenbach
vfortenbach@slot-techs.com

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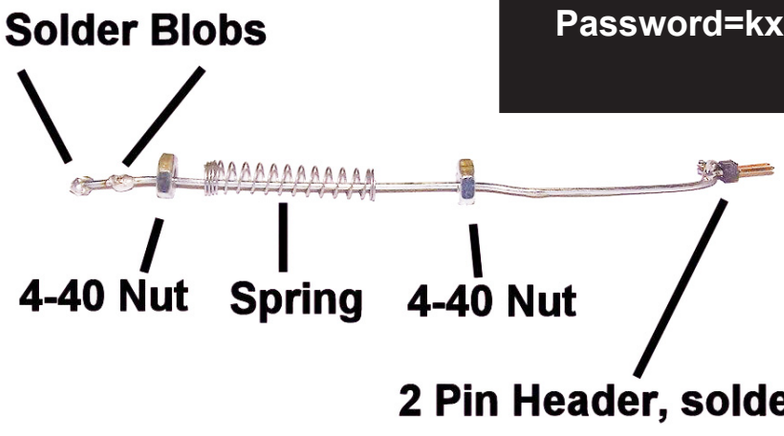

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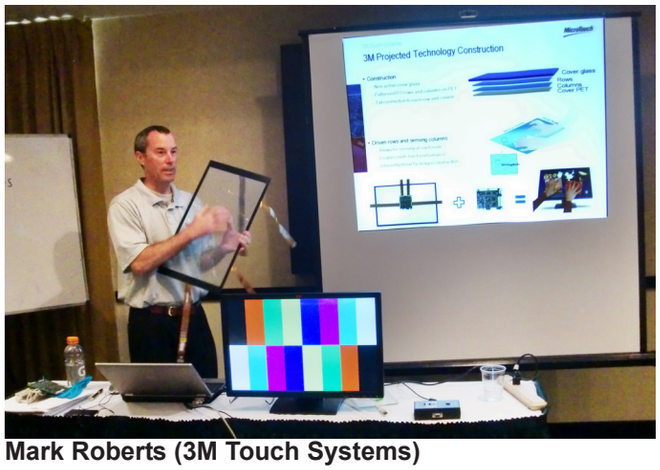

Mark Roberts (3M Touch Systems)

Eagle Mountain Casino's homeboys Tou Cha, Herman Ecobiza, Dustin Paguia, Mike Hensley and Lisandro Sandoval pause for a group photo before heading home after the event.

Yep! There are more pictures of happy slot techs this month. TechFest 25 was held in Las Vegas. We had an excellent turnout, especially considering that this was an "overflow" event due to a sold-out TechFest in December 2011. President Obama was in town and although he didn't stop by to see me personally, Air Force One did fly 1000 feet directly over my head upon his departure as

the venue is located near the airport just 3/4 of a mile from the departure end of runway 25R. I was outside at the time. Dang, that is one shiny aircraft! It really was a pretty awesome thing to see.

TechFest 25 was the usual good time all-around (this was Las Vegas, after all), with special thanks to Eagle Mountain Casino and Tachi Palace Casino for sending five slot techs each to the event. Also a shout-out and danke schön to Osterreich Lotterien GMBH (the Austrian Lottery) for sending Michael Grotzl and Markus Pesendorfer all the way from Vienna, Austria. This was their second time attending TechFest as they attended TechFest Austria in 2008. Twenty-nine slot techs from a dozen properties attended TechFest 25.

TechFest 26 is scheduled for Motor City Casino in Detroit, Michigan, November 6-8, 2012

My Own Private Idaho

Through some schedule juggling and coordination with Colista Farmer, Slot Manager for the Fort Hall, Bannock Peak and Sage Hill Casinos, I was invited to train the following week at the Ft. Hall Casino near Pocatello, Idaho. It's just a day's drive from Las Vegas to southern Idaho (some sections are posted at 80 MPH so you can imagine how fast people actually drive-not that I am admitting anything, mind you).

The weather was awesome and the slot techs that work there (we had 15 in the class) are really a pleasure to know. We covered the usual mix of component-level repair, concentrating mostly on Power Supply repair and LCD monitor repair.

If you are interested in sponsoring training at your casino, feel free to contact me. -
Randy Fromm

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Quick & Simple Repairs #87

By Pat Porath

IGT Denomination Touch Pad Not Working

First off I thought I had heard that a keypad needed to be replaced, not a touchpad so I grabbed an Oasis Sentinel II keypad and headed to the game. What the? The keypad looked fine, I tested it and it worked OK. I asked again over the radio what needed to be replaced. The denomination touch pad. Ah, OK. These are very easy and simple to replace. Of course, power off the game, remove the two small screws that hold the metal bracket in place, remove the touch pad cover, then remove the touch pad board from the glass. There is only one connector on the board. Simply remove the old denomination sticker from the original and put it on the replacement. One of the four denoms wasn't working before the replacement. It didn't matter where you touched, the thing just would not work. After replacing the denomination touch pad board, it worked perfectly. These are multi-denomination IGT S2000s that have four different denomination selections that can be made right at the game.

UBA Error in a Spielo Game

I received a call that a Spielo game had a bill acceptor error that wouldn't clear. When I arrived, the JCM UBA transport assembly was reseated and made kind of a funny noise when it was cycling. The cashbox was removed, the area was inspected for any foreign material (such as a torn bill) then it was reinserted. The transport assembly was removed from the game, opened up, inspected and closed. Nothing unusual was found in that area either. With the unit removed from the game, I looked at the top area of the bill acceptor housing. Located on an optic was a very small torn piece of printer paper, just small enough to cause an error. After the tiny piece was removed and the transport assembly put back in the game, it cycled normally. When the slot door was closed a blank ticket was tested to make sure the bill acceptor grabbed it properly, which it did. The bill acceptor was working once again.

Repairs After Three Main Power Interruptions

We had a couple of moderate thunderstorms roll though our area and had three power interruptions within a 24 hour period. The first was a bit after midnight during which the main casino power went off for a few seconds then came back on. The second was around 4:30am with the third occurring around 9:30am. The gaming floor was a mess.


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Reed Exhibitions

The previous shift stated that they had started off with around 23 games down. When I arrived, I received a list of 11 that were still down. This was before the last power interruption at 9:30am. At the time of the last power failure, I happened to be working on a Konami game trying to figure out a denomination display failure error. When the main casino power went off for a few seconds then came back on, my co-worker and I were like "The heck with it, might as well wait to repair anything else until the storm passes."

Repairs were mostly normal ones such as power supplies, LCDs, RAM clears, and such. A few of the Ainsworth games needed to have their main power supplies replaced, some of the WMS WAGEnet and IGT SBX games needed to be rebooted, a couple of WMS Bluebirds needed a RAM clear. A few LCDs needed to be replaced on different manufacturers of games. A few power supplies were replaced in Bally CineReel and or Cinevision games. A flash board had died in an IGT Wolf Run Party game which had to be ordered (The game flash board connects to the top of the main game processor board, it could also be called a piggyback board).

On the Konami denomination display error, I looked at game options, I tried a couple of reboots, and boards were reseated. I was unable to clear the error. The following day, I asked a co-worker what in the world was with that denom display error. I learned that a RAM clear was done without clearing everything, the one cent denomination was selected, then it was good to go. On a few stepper WMS Bluebirds (CPUs without the hard drive) were the game has physical reels and a small LCD on the bottom, a few of the LCDs were black. A simple reboot or two of the game and they were working again. If the text doesn't appear on the first try, try another reboot. I've run into a few of them where on the third reboot, the LCD would come back to life. In a nutshell, all techs worked their butts off to get the floor looking good again after not two but three main power failures within a 24 hour period.

WMS Monopoly Topper, Totally Dark

I had a WMS Monopoly topper on a game that was totally dark. None of the light bulbs nor the LCD had any power at all. Maybe the main power cable that runs to the top part of the game came loose? The outer part of the topper was removed and the LCD was removed to see what was going on. It appeared the power cable was in place and snug and the upper power switch was in the ON position. I checked below to make sure the cable was plugged into a receptacle, which it was. Could a fuse be blown? Located near the 110v input power cable is a fuse holder. I disconnected the power cable from the power supply and looked at the fuse. Since it was a small ceramic type (non-explosive) you can't tell by looking at it. A multi-meter has to be used to check for continu-

ity. After verifying that the fuse was bad (open), it was replaced. It was replaced with the same rating fuse, the IEC power cable was plugged back in, then the upper power switch was turned ON. The topper lit up beautifully. For some odd reason the topper had simply blown a fuse. Now the game was working properly once again.

IGT AVP 3.5, No Game Power

While taking a walk around the gaming floor, I noticed a game that looked like it was shut off for no reason. What the heck, why wasn't it documented in our log book? Why wasn't there a work order for it? Why didn't the previous shift tell me why it was shut off? To my surprise, right after opening up the door on the game I noticed that the main power switch was still

in the ON position so my assumption was totally wrong (I make my share of mistakes, no doubt). Nobody had turned the game OFF, it just died. At some point, power failed to keep the game running but secondary power remained ON because the Oasis display was lit up. My first thought was the failure of either the AC power supply or the DC power supply. The Alternating Current power supply has the 110v power outlet we use to power our Oasis Sentinels. The Direct Current power supply gives the voltage needed for the game such as the 24vdc ticket printer. I turned the power switch ON and OFF a few times to see what would happen and the numerous interior LEDs on boards would only flash for a fraction of a second, then go black. This failure also pointed me toward the direction of a bad power supply. First the AC supply was swapped with the game next door, then the DC. No difference was noticed when the AC supply was swapped but when the DC power supply was exchanged, the game lit right up. It started the boot up process right away. A spare was grabbed to replace the bad unit and now both games are back up and running.

- Pat Porath
pporath@slot-techs.com

The Name of the Game

By James Borg

The name of the game in any casino is with out a shadow of a doubt, money. It's the blood that flows through its veins. Without this precious commodity, a casino could just pack it in, close its doors and die permanently.

What good is having an attractive looking and sounding slot machine? What good is having a super game on it? What good is having a queue of people waiting to play on it, if nobody can insert any money into it? I'd say it would be pretty useless and it might as well be switched off.

Fig. 1 Coin Comparator

Technology has come to the rescue, once again, as it has brought about more ways than one of feeding cash into a hungry slot machine. The oldest method in the book of inserting money into a slot machine is by means of a coin. This could be the currency of the casino's country or the casino could have its own customized tokens, bearing the equivalent in value to the actual currency. Typically 10c, 25c or higher can be used. Once these are slotted into the machine (and accepted) they are registered as credits by means of a clever piece of equipment called a Coin Comparator, as shown in Fig 1. In simple terms, a coin (or token) is inserted as a reference into a holder and all the coins entering the coin comparator are compared, using different parameters, to this reference slug. If the coins entering the unit match the reference, they are accepted, otherwise, they will be rejected. Simple, straightforward, and effective. They did have their limitations but overall, these comparators did their job efficiently and without any major hassle.

However, for many casinos, the days of the coin are long gone, making room for more advanced technology with the introduction of bill validators. A bill validator (AKA bill acceptor) scans currency by means of optic and magnetic sensors. The scanned 'image' is compared to the signature held in the validator's pre-programmed memory and the currency is then accepted into the cashbox or rejected back accordingly. Their built-in high-tech avoids casinos ending up with their cashboxes full of counterfeit money.

Venues that have kept both the coin comparators and also upgraded to bill validators could then boast of having slots with two sources of inputting cash. If the coin comparator went FUBAR, then there was always the bill validator option, or vice versa, which

Fig. 2 UBA Bill Acceptor Head

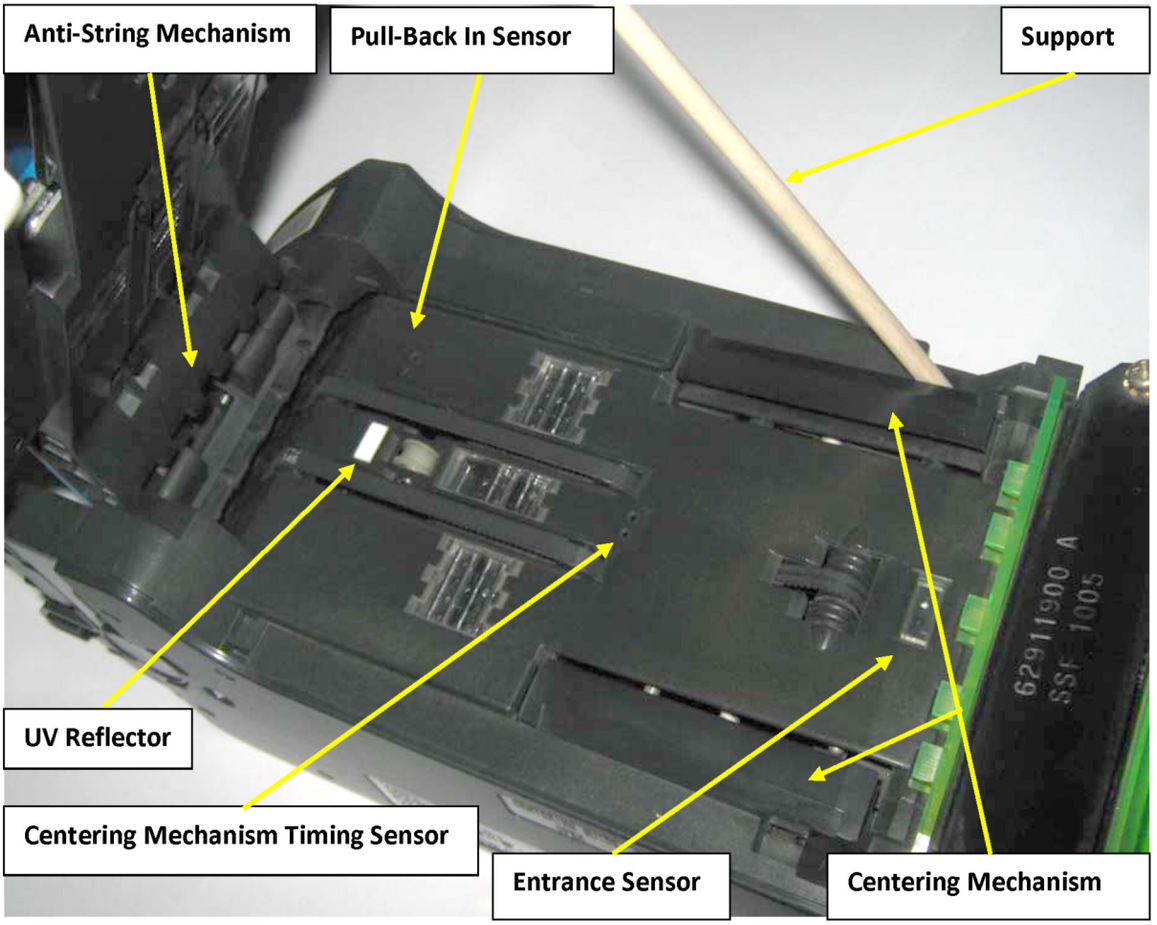

Fig. 3 Bottom Bill Path

meant a client could then carry on playing, without loss of revenue for the casino. However, not having a machine accepting coins, for any reason whatsoever, would put the coin community off, especially if their budget consisted of only a handful of coins. The procession of going round machine after machine while holding a bucket of coins and religiously inserting a coin or two, in every machine passed by (in the eternal hope the next one played would be the lucky one) would come to an abrupt end.

Cashless systems were eventually introduced, as well as Ticket-In-Ticket-Out (TITO) systems. There was just no stopping the various options so money can find its way into slot machines.

Without doubt, even though cashless systems and TITO have become very popular, the bill validator still remains tops.

A common bill validator is one by JCM: Japan Cash Machine. Founded January 11, 1955, over the years, they have developed the bill acceptors currently found in many new slot machines, the UBA (Universal Bill Acceptor), which followed its predecessor, the WBA (World Bill Acceptor). These bill acceptors are very popular and reliable, provided proper care and maintenance is given to them. Of the many features the UBA boasts, automatic centering and anti-stringing technology are perhaps two of its most interesting. The UBA's weight is about 4kg. It can be powered by either 12v or 24v. The latter requires a 24v to 13.5v conversion board. In use at 12v, this unit consumes approx 1.6 Amps, while at 24v, it consumes approx 1 Amp. In standby mode, the consumption is that of 300mA and 150mA respectively.

Normally, UBA acceptors are followed by a number, for example, 10, 11, 14, 24 and 25. These numbers simply mean 8 Meg Flash Memory, 8 Meg EPROM, 16 Meg Flash - USB compatible - SS configuration, 16 Meg Flash – USB compatible – SU configuration, and 16 Meg EPROM – USB compatible – SU configuration, respectively.

Brilliant, efficient and effective as it might be, it will be, however, totally useless if it doesn't operate properly. Preventive maintenance is a must for these units to keep them running in top gear. Having a customer attempting to input currency repeatedly into a slot machine, will eventually put anybody off playing on that particular game. As much as a client would love to try 'lady luck' on that particular game, frustration will undoubtedly prevail. If the person is particularly superstitious, comments like: "The machine is obviously showing me it will not pay out by not accepting my money. It doesn't like me today, so I'll go on another machine." Unfortunately, I've actually heard comments similar to these

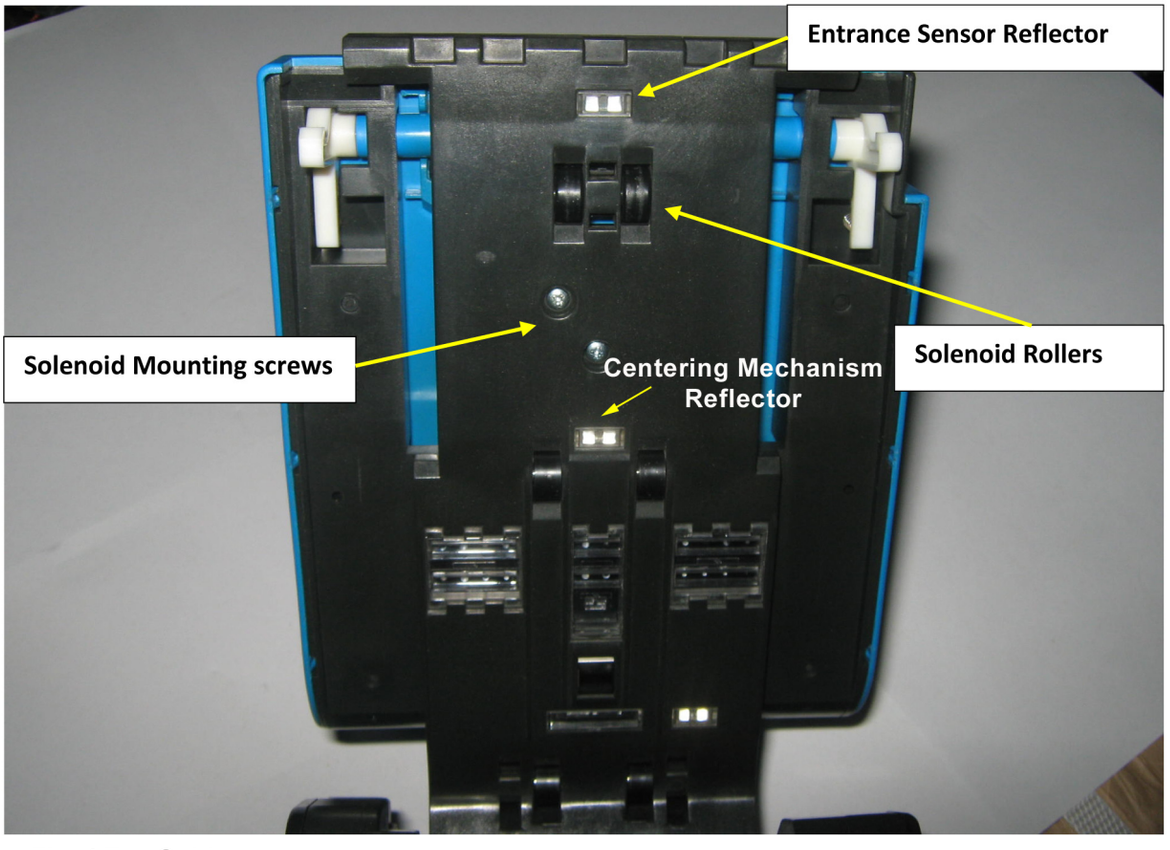

Fig. 4 Top Guide

myself on more than one occasion, and they can be quite annoying, especially if I know for a fact that that particular acceptor has been recently serviced. Out of pure curiosity, just lifting the lid would usually show half the lenses blinded by cigarette ash. Wonder of wonders why the poor thing wouldn't accept the currency. It's a shame how certain types don't seem to recognize the difference between an ashtray and a bill acceptor but that's a different story altogether.

The frequency of these babies needing some TLC depends on the number of bills inserted over a given time and on their natural habitat. In a clean environment, months could pass before another cleaning session is required. In a dusty and smoking zone, the rate of cleaning has to be more frequent.

It is very important that no form of alcohol is used during the process, unless it's Isopropanol alcohol (C3H8O), and this is only to clean the wheels and the belts, BUT NOT THE LENSES. Applying alcohol or solvents to the transparent lenses will eventually make them go cloudy, which will impair the amount of light going through them. Alcohol hurts the equipment and might even make it end up working less efficiently, reducing its acceptance in a drastic way once the 'maintenance' has been carried out. Just using soapy water is more than enough and is highly recommended. The belts, rollers, bill path and the lenses can be 'washed.' 'Washing' doesn't mean immersing the lot in a bath but just wiping down gently the concerned areas with a damp cotton bud (Q-tip) or a soft, lint-free cloth.

Lifting the lever to raise the upper guide (see figure 3) exposes the bill path, along with the belts, optics, and everything else concerned to make this bill validator work smoothly. Please note that the upper guide does not stay up on its own so either hold it with your hand or insert a support to keep it open. Should this come down suddenly, damage might occur (even to your fingers). The bottom lenses and rollers can easily be cleaned, as well as the UV reflector, which is situated at the back.
Some rollers need more cleaning than others and care must be exercised not to damage these in the process. The use of metal objects (such as screw drivers) to scrape off material stuck to these rollers isn't recommended at all. The same applies for the parts in the upper guide.

Compact as it might seem,

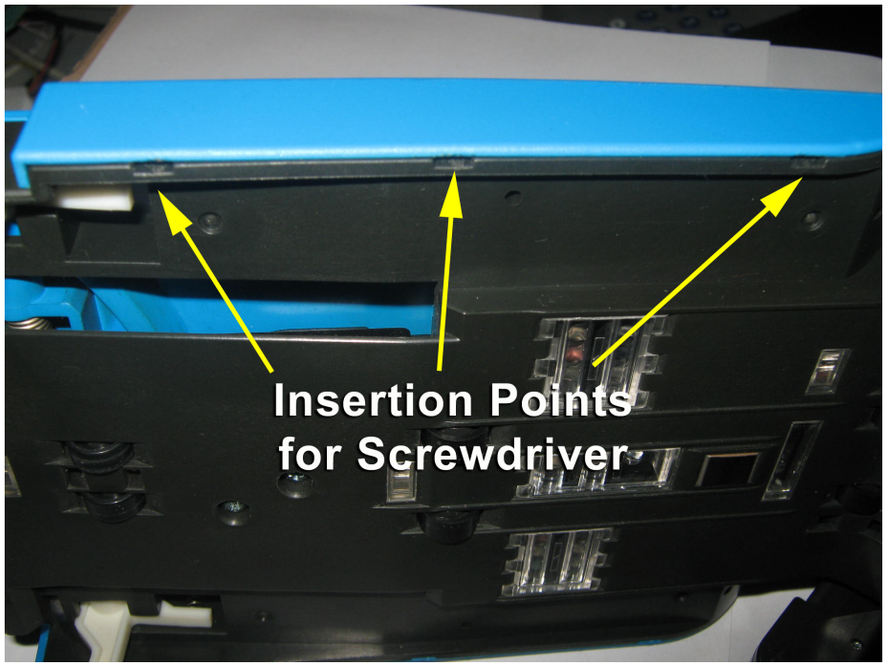

Fig. 5 Insertion points for screw driver

the top guide is bursting with versatile components inside, all of which have their particular important function (see figure 4).

General cleaning and wiping down is all well and good but at times, it is just not enough and the acceptor has to be stripped down to pieces. This can be done in two steps. There's the top part (simple) and then there's the bottom part, which is more complex to dismantle. The top cover is easily removed by sliding a small flat screwdriver in the areas shown in figure 5.

A similar set of tabs is also found on the other side. Once all the points have been released, the blue cover can then come away, exposing the upper electronics board (see figure 6).

The upper electronics board needs to be removed by unscrewing the six mounting screws. The solenoid connector, shown in the picture with the red wire, needs to be unplugged before the board can be lifted gently back.

- James Borg
jborg@slot-techs.com

Part 2 Cont. Next Month

“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.

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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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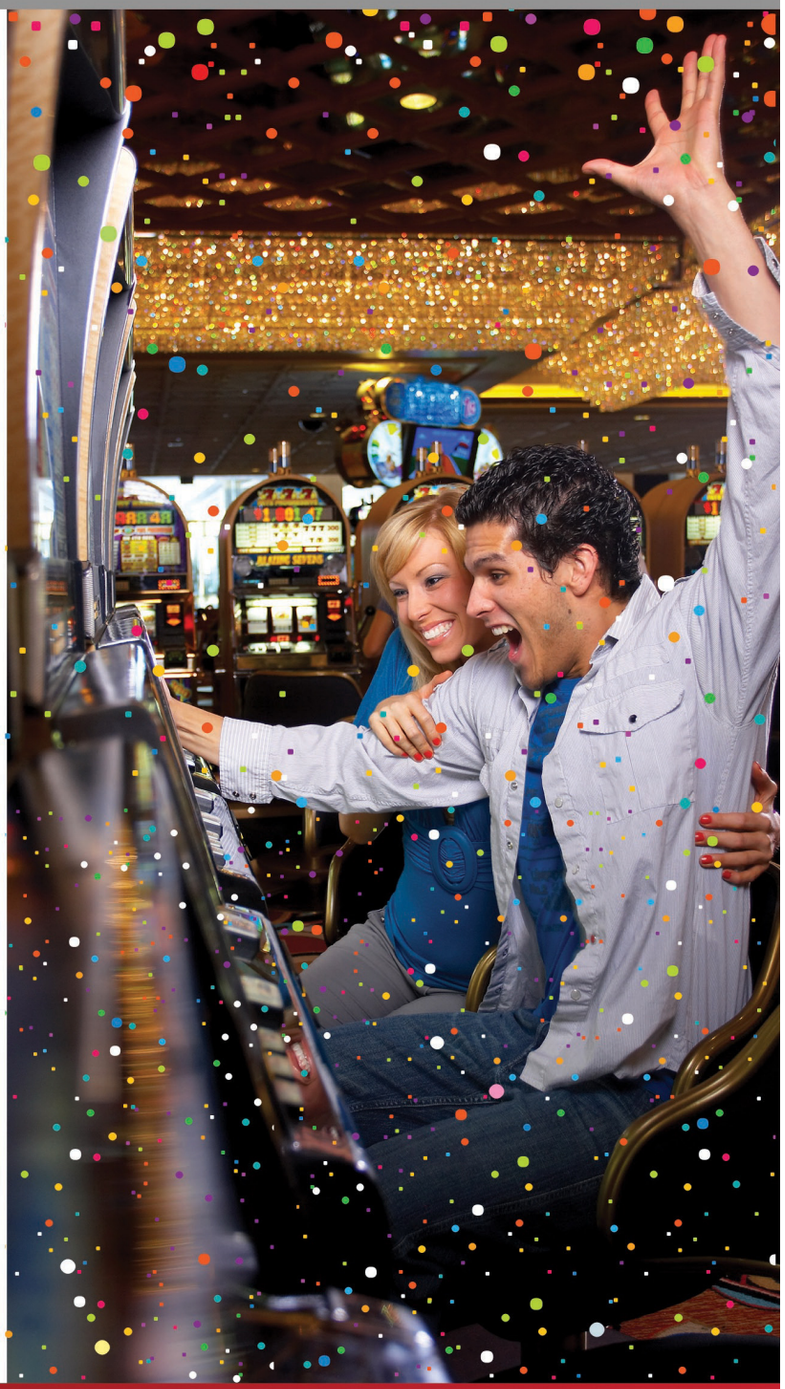

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