SLOT TECH
MAGAZINE

Slot Machine Technology for the International Gaming Industry

**SlotFest 2007
Las Vegas, Nevada
December 4-6 2007**

**Paltronics
Jackpot Controller**

**Ticketing
Ins and Outs**

**Slot Machine
University**

Professor Ray

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Inside Slot Tech Magazine

November 2007

Peace

Slot Tech Editorial

Hello to the 3000 of you that picked up this magazine at the Global Gaming Expo. That's how many copies of Slot Tech Magazine are slated for distribution at the show, anyway. We didn't do anything special for this "show" issue. It's really pretty typical of what Slot Tech Magazines brings to our readers each month. It's sort of a mix of new products, slot systems and slot repair, the raison d'être of Slot Tech Magazine. We are dedicated to technical education and training for slot machine technicians, from the novice floor tech to the experienced bench tech who is looking to pick up on a few new techniques.

Some of those experienced and talented slot techs are our contributing writers. Our technical articles are penned by working technicians and engineers in the gaming industry. Some work in casinos from across the globe. Others work for slot machine manufacturers or the makers of peripheral devices such as bill validators, ticket printers, coin validators and monitors. Readers are guaranteed to stay informed with accurate technical information.

If your property is Ticket in-Ticket-out (and who isn't these days?) it is important to understand the exact sequence of events in a TITO transaction. Specifically, the ticket itself, a bearer instrument, must work together with the backend system in a foolproof chain of events that allows credits to be issued and redeemed with complete accountability and security. This month, Jason Czito takes us through the entire process with his outstanding contribution to the Slot Tech Magazine knowledgebase, Ticketing Ins and Outs. His lengthy article begins on page six.

Randy Fromm

In September's issue of Slot Tech Magazine, the PAL193 in machine interface board was introduced, configured and connected to a slot machine. Now comes the fun part, as my longtime technical associate Vic Fortenbach (I have known Vic for more than 25 years) returns with part two of his look at Paltronics' Jackpot Controller, the BSK100. The article highlights configuring and connecting the jackpot controller as well as troubleshooting issues (not many. According to Vic, the thing's as solid as a rock).

There is much more, of course, including perennial favorite Pat Porath with his "Quick & Simple Repairs."

Enjoy the Expo. See you at the casino.

Randy Fromm

Randy Fromm

The Ins and Outs of Ticketing

By Jason Czito

As the casino industry moves away from handling coin in favor of ticketing alternatives, many previously coin-based operations find themselves using a ticket system with unfamiliar nuances. Tickets (or Vouchers, depending on jurisdiction) are notes that must be honored by the casino that owns the EGM (Electronic Gaming Machine, typically a reference to a slot machine) or System that created the ticket. These tickets are audited differently, variances are checked differently, inventory has specific requirements, etc. This article will *attempt to explain* how the IGT™

SAS™ Enhanced Validation used by Aristocrat's OASIS Ticket in and Out system works. This is also an attempt to clarify some of the questions and myths that surround tickets in general. The assumption is made that the reader is familiar with the hardware pieces in OASIS (Poller, DPU, Sentinel, etc). If not, please review Slot Tech Magazine October 2006–March 2007 for a complete understanding of the system.

First let's look at what is needed for a Ticket system. In order for a ticket to be processed:

1. The EGM must be configured for Ticket in, out or both.
2. The Host system must be configured for Ticket in, out or both.
3. The Host and EGM must agree on a validation type (IE Standard, Enhanced, Secured Enhanced, or System Validation)
4. There must be a ticket printer present and enabled in the EGM.

Now we'll cover some general ticket-related concepts.

There are two main processes to consider regarding the life cycle of a ticket: the creation of the ticket and the end of the ticket life cycle. Let's consider the creation of a ticket first. The player presses the cash-out button on an EGM with a value of $50.00 worth of cashable credits. The EGM notes that it should print a ticket for the amount of the credit value and sends the information to the printer's queue. If the printer is working fine then it will print the ticket. The EGM will then start a ten second timer and respond to the Host's next general poll with a priority transaction. The Host then acknowledges the priority transaction and requests from the EGM to verify its ID (Secured Enhanced Validation), the cash-out amount in cents, cash-out type (cashable ticket or hand pay), in this case cashable ticket and 16 digit validation number. The Host then validates the EGM ID, verifies the validation number and validates that the number has been used for a cash-out ticket. The ticket is now stored in the system database. The EGM

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then responds back to the Host acknowledging that it has received and confirmed the amount, time, date, and validation number. The EGM will then clear the memory buffer for that ticket.

At this point, the cashout is documented in two places: as an entry in the system database and the paper ticket in the player's hand. The paper ticket is basically a receipt for this database entry. If the ticket is damaged beyond recognition or if any other issues with the ticket are present, it doesn't matter. Multiple copies of the ticket's data exist. The record is in the database of a note that was issued by the casino and it is now a liability; the casino must tender the note as long as it remains a valid note.

Here are some examples of how these contingencies may be handled:

If the printed ticket is damaged in such a way that the barcode and/or validation number is unreadable, rendering it useless or if the printer produces no ticket, you may still look up the validation number for that cashout either at the machine or using a system tool. With the EGM information or the system information, the ticket can be manually keyed for payment, thereby changing the ticket status from printed to redeemed and thus maintaining the integrity of that cashout transaction. It is up to the

property and their regulators to decide on how to handle this scenario. The audit department, for example, may require additional documentation. Some Compliance departments may ask that this be treated as a short pay, which comes with its own set of rules in the M.I.C.S.

If a cashout ticket is printed several times by a malfunctioning printer, resulting in duplicate copies of the same ticket (or a counterfeiter makes a few copies of their own tickets), there will still only be one instance of this ticket in the database. Whichever ticket is redeemed first (as soon as a ticket is checked by an EGM for redemption but before it's actually redeemed, the ticket is unavailable for other transactions. This prevents the fraud caused by simultaneous insertion of duplicated tickets) will make the other tickets unavailable for redemption. The redemption of the first ticket changes the status of the cashout transaction in the database to "redeemed," so when the other duplicate tickets are checked against the database for payment, they're denied.

If identical validation numbers are generated for different tickets (which is fairly rare, even given the volume of tickets typically generated by a coinless operation), the OASIS Quickets software will open a dialog box prompting the

cashier to select the corresponding ticket.

The end of a ticket life cycle may happen in several ways. For example, it may be redeemed for cash, redeemed for credits, expire after a designated period of time, be expired manually, be voided manually, etc. A ticket goes through different states throughout its life, and each of these states is assigned a number as follows:

Status 1: Issued:
This ticket status is not used with this validation type, although it may be seen in some machine histories during malfunctions.

Status 2: Printed:
This is the status that a normal ticket has, which is available for redemption.

Status 3: NA:
This is the status of a ticket that is currently in the middle of a process elsewhere in the system. This status is sometimes referred to as, "Locked for Redemption" (more on this later).

Status 4: Redeemed:
A ticket with this status has successfully been cashed in (at a slot machine, kiosk, cashier, or wherever) and is no longer a liability to the casino.

Status 5: Expired:
This is the status of a ticket that has been expired, either automatically or manually (more on this later). Expired tickets are still considered
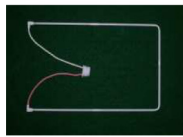
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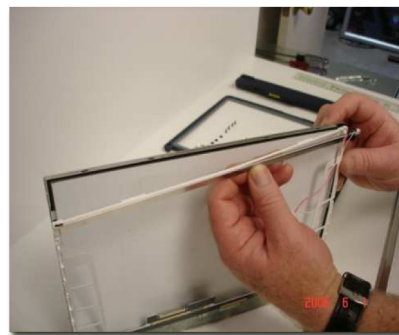
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part of a machine's accounting history.

Status 6: Voided:
Tickets may only be voided by way of the Quickets software by someone with the proper access privileges. Voided tickets are no longer considered part of a machine's accounting history.

First, let's review a typical process of ticket redemption by a cashier using Quickets, as it's the simplest. The cashier scans the barcode of the ticket, which allows the software to automatically look up the validation number and report its status back to the cashier. If the status is 2 (Printed), the cashier simply clicks the redeem button and pays the player. If the status is not "Printed," it will inform the cashier that the ticket isn't available for payment. The ticket should be investigated at this point but check your own casino policies regarding this.

Second, let's review a typical process of ticket redemption by a slot machine. As before, several conditions need to be in place for this transaction to occur: The machine must be set up to accept tickets, options for handling mismatched currency denominations may need to be in place, the validation system needs to be working correctly, no tilts may be present on the machine, etc.

When the ticket is inserted into the bill acceptor, the ticket is put into "escrow" (this just means that the bill acceptor will hold onto the ticket until it hears back from the EGM) and sends the validation number from the barcode to the machine. The machine then sends the validation number to OASIS for verification against the database. If the ticket is good (the status is 2 - Printed), OASIS returns the necessary information back to the machine to vend the ticket and changes the status of the ticket to 3 or "NA." The machine now knows the amount of the ticket and that it's good to keep, so the command is sent to the bill acceptor to take the ticket out of escrow and to stack it in the cash box. Once the ticket is successfully stacked, the bill acceptor reports this condition to the machine, which reports it back to OASIS, which changes the status of this ticket from 3 "NA" to 4 "Redeemed."

If this seems like a lot of steps, there's a very good reason for doing this. When the machine is first presented with a ticket, it doesn't know whether or not the ticket is good so it puts the ticket into escrow; it shouldn't be stacked because once it's in the box, it can't come out without manual intervention and it shouldn't be returned to the player because the machine will need to stack the ticket if it turns out to be good.

When OASIS gets word from a machine that it has a ticket in escrow for redemption, it doesn't change the status to "redeemed" immediately because there's the possibility that the ticket will not make it into the cash box (a player may try to string the ticket, the cash box/transport may malfunction, etc.). This is the reason that there's an intermediate status between "Printed" and "Redeemed." After OASIS tells a machine that it may redeem the ticket being held in escrow, the status is changed to "NA." This does two things: it allows the machine the option of rejecting the ticket if things go amiss during the stacking process and it prevents other tickets with the same validation number from being redeemed at the same time.

In the first scenario, the bill acceptor/stacker hardware may malfunction, causing the machine to reject the ticket. At this point, the machine will tell OASIS that it did not successfully stack the ticket and OASIS will change the status of this ticket from "NA" back to "Printed." In the second scenario, duplicate tickets are put into machines simultaneously. Once one of the tickets is checked against the database (and this is done serially, so there are no 'simultaneous' checks as far as this is concerned), the status is changed to "NA" while the machine tries to stack the ticket. The

duplicate ticket being inserted at another machine is checked against the database and finds the status to be "NA" and is summarily rejected. During the time needed for the first machine to stack the ticket, no other tickets with the same validation number may enter into a transaction.

Ticket Expiration

If you subscribe to the NIGC MICS, have a look at section 542.13, n, 2 for a bit about why this process exists:

> "The cash-out ticket shall be valid for a time period specified by the Tribal gaming regulatory authority, or the gaming operation as approved by the Tribal gaming regulatory authority."

The expiration process basically gives cash out tickets a shelf life, after which the ticket status changes. Let's say, for example, a casino has tickets set to expire after a week. If a ticket isn't redeemed (or voided) by the time a week has passed, it will expire. Expired tickets are not redeemable without authorized intervention, typically by a supervisor. While this is convenient for

easy compliance with this MICS standard, it's also nice for keeping a casino's ticketing liability in check. If these otherwise unpaid tickets were not expired, a casino's ticket liability would continually increase with no end in sight. Regular expiration of unused cash out tickets can keep the ticket liability at a level with which the business is comfortable. In OASIS, this expiration is handled automatically at a certain day and time by the system. Tickets may also be manually expired if necessary.

Note: Expired tickets aren't technically un-payable; they just need authorized approval to be redeemed because they've passed the expiration date. Refer to your company policy regarding this.

Diagnostic Monitor Transactions

Diagnostic Monitor is an OASIS software module. One of its functions is to track communication between the machine and the system, which allows a viewer to see the dialog explained above, and can be viewed in the Current notebook on the Ticketing tab.

Figure one is a screenshot of this notebook.

Some of the column headers are self-explanatory (Timestamp, Amount, Validation#).

The Action column will have a number which refers to a call between a machine and the system.

The Result column will have the response to the call.

The Sub column will have a number specific to some rarely used responses.

The Ticket # is the sequential number of the ticket produced at the machine since the last time its memory was cleared (which can usually be found printed on the ticket itself).

Status In contains the status number of the ticket before the dialog occurs.

Status Out contains the status number of the ticket after the dialog occurs (allowing a user to see the changes to the ticket status as a result of the dialog).

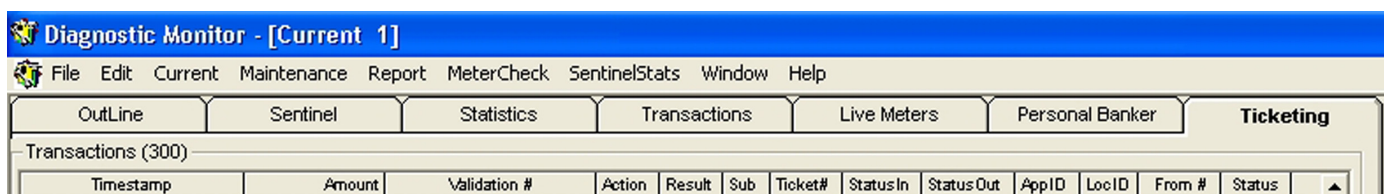The App ID tells which software module in OASIS the machine was having this

Figure 1. Diagnostic Monitor is an OASIS software module. One of its functions is to track communication between the machine and the system.

exchange with (Poller, Quickets, a gateway, etc.)

The LocID shows the workstation on which this application was located. These will be casino specific and will include kiosks, so you will either need to coordinate with your IT department or do some experimentation on your own to determine the workstation/kiosk location IDs.

The From # shows the number of the machine that was engaged in the dialog.

The Status column shows the current status of the ticket. This is different from the Status In and Out information that are specific to the transaction.

Below are some typical calls and responses found during normal ticketing transactions.

1) "Request Vend Authorization" (2). Machine is asking the system for verification on a ticket being held in its bill acceptor.

2) "Authorized to Vend Ticket" (131). The system recognizes the ticket validation number that machine sent as okay to redeem (Printed). The ticket status is now changed to 3 (N/A) while the Poller waits to hear from the machine that the ticket gets stacked correctly.

3) "Vend Complete" (19). A machine sends this signal to the system if the ticket was successfully stacked and the machine incremented the credit meter. (If something goes wrong with the machine at this point, and it doesn't send OASIS a reply regarding the outcome of the attempt to stack the ticket, the ticket status will remain at "3").

4) "Acknowledged" (0) System receives the "Vend Complete" signal from the machine and changes ticket status to "4".

Tickets that are created when a Guest cashes out will have a different sequence of communications.

1) "Print Complete – Game Generated Validation Number" (18) Cashout button hit, game generates validation number and it's sent to the system.

2) "Acknowledged" (0) System received and recorded the validation number. The Ticket In status starts blank because before this transaction, the ticket didn't exist.

Take the following ticket as an example. The first transaction (starting at the bottom of the list and moving up) is the creation of the ticket. It starts with an action code of 18, followed by a response of 0, the Status In is null, and the Status Out is 2. This is a typical transaction for the generation of a ticket. The next two transactions are the redemption of this same ticket. First, it's being checked by the machine (2), being approved by the system (131), and the status going from Printed to NA. Second, note the machine reporting a successful stack (19), the acknowledgement from the system (0) and the changing of the status from NA to

Timestamp	Amount	Validation #	Action	Result	Sub	Ticket#	Status In	Status Out	AppID	LocID	From #	Status	
9/23/2007 9:35:57 PM	42.75	0093445282469992588	19	0	0	6028	3	4	8	1	13090	4	
9/23/2007 9:35:53 PM	42.75	0093445282469992588	2	131	0	6028	2	3	8	1	13090	4	
9/23/2007 9:35:45 PM	42.75	0093445282469992588	18	0	0	6028		2	8	1	13090	4	

Figure 2

Redeemed. Our AppID for our Poller is 8 (see figure 2, below).

In this example, the ticket is being redeemed by a Quickets workstation (AppID 19 for us). Ticket redemptions by this software module do not need to go through the intermediate step of status 3, and the ticket simply goes straight from Printed to Redeemed (see figure 3).

In figure 4 we have a ticket being manually voided...

Figure 5 is a ticket being automatically expired...

Figure 6 is a ticket being rejected by a machine.

Note that the machine instigated the transaction and the system locked the ticket for redemption. When the machine rejected the ticket (in this case, the ticket limit at the machine was set to $300), the system unlocked the ticket and returned its status back to Printed.

Other Action codes in Diagnostic Monitor include (but are not limited to) the following:
1) "Ticket Rejected by Game" (53) This is typically what you'll see when a machine malfunctions during ticket validation or if a setting is off.

2) "Ticket Automatically Expired" (203) This is seen when the system automatically expires tickets.
3) "Ticket Manually Expired" (207) This shows up when somebody manually changes a ticket's status to "Expired".
4) "Ticket Manually Voided" (240) This shows up when somebody manually changes a ticket's status to "Voided".

Sentinel Ticket History

The Sentinel boards maintain their own local ticketing history that can be quite useful.

Diagnostic Monitor - [Current 1]   **Figure 3**

File Edit Current Maintenance Report MeterCheck SentinelStats Window Help

OutLine   Sentinel   Statistics   Transactions   Live Meters   Personal Banker   **Ticketing**

Transactions (300)

Timestamp	Amount	Validation #	Action	Result	Sub	Ticket#	Status In	Status Out	AppID	LocID	From #	Status	
9/23/2007 12:08:05 AM	38.50	004947908535462215	19		0	5993	2	4	19	12	13090	4	

Diagnostic Monitor - [Current 1]   **Figure 4**

File Edit Current Maintenance Report MeterCheck SentinelStats Window Help

OutLine   Sentinel   Statistics   Transactions   Live Meters   Personal Banker   **Ticketing**

Transactions (300)

Timestamp	Amount	Validation #	Action	Result	Sub	Ticket#	Status In	Status Out	AppID	LocID	From #	Status	
9/23/2007 1:01:03 PM	50.01	006332490746143918	240	0	0	360	2	6	19	9	10002	6	

Diagnostic Monitor - [Current 1]   **Figure 5**

File Edit Current Maintenance Report MeterCheck SentinelStats Window Help

OutLine   Sentinel   Statistics   Transactions   Live Meters   Personal Banker   **Ticketing**

Transactions (300)

Timestamp	Amount	Validation #	Action	Result	Sub	Ticket#	Status In	Status Out	AppID	LocID	From #	Status	
9/17/2007 5:00:16 AM	0.04	006248425865089533	203	0	0	125	2	5	19	0	10002	5	

Diagnostic Monitor - [Current 1]   **Figure 6**

File Edit Current Maintenance Report MeterCheck SentinelStats Window Help

OutLine   Sentinel   Statistics   Transactions   Live Meters   Personal Banker   **Ticketing**

Transactions (300)

Timestamp	Amount	Validation #	Action	Result	Sub	Ticket#	Status In	Status Out	AppID	LocID	From #	Status	
9/13/2007 6:26:13 PM	361.00	002587114568644786	53	0	0	14349	3	2	8	3	15263	4	
9/13/2007 6:26:20 PM	361.00	002587114568644786	2	131	0	14349	2	3	8	3	15263	4	

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CPA4089L	17" Konami Upright	LCD for Konami p/n 530002	$728
CPA4090L	17" WMS Upright	LCD for WMS	$707
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CPA4095L	17" Atronic Upright T/S	LCD for Atronic 65024300	$718

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CPA4056L	19" Aristocrat Upright	Aristocrat WGF1990-TSLS92F	$778
CPA4062L	19" IGT Upright 25 pin	LCD for IGT Game King Plus	$864
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CPA4078L	19V / 20" Aristocrat Upright	LCD for ALI 19V (20")	$839
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Arrow down to "View" and hit enter Arrow down to "Ticketing Log"[1] hit enter, there the tickets will be listed by a timestamp followed by the last four digits of the validation numbers.

Align the arrows next to the ticket you wish to see and press Enter.

It will now display the entire validation number, the amount of the ticket, the action taken on the ticket (Printed, Redeemed, or Rejected), the time of the transaction, the date of the transaction, and the sequence number of the ticket.

Conclusion

I'm frequently asked how to handle "NA" tickets when they show up at cage windows. It's really up to casino management how a property will handle these but knowing how and where they're generated will hopefully help you make an informed decision (and possibly mitigate some occurrences of this). For example, routine database maintenance may cause tickets to show up as NA as the server is busy handling these transactions. These should return to normal status when the server is finished, however. Some problems that may appear to be caused by system issues can in fact be caused by EGM issues. Some EGMs have issues with the SAS clear buffer commands that may

cause them to not clear their own internal ticket buffer (not to be confused with the ticket buffer in the Sentinel board). Going after the system in this case might prove fruitless. Low credit or ticket limits on games, as well as communication hardware/ software problems at the game level, can cause EGMs to go into small handpays or to reject tickets. Finally, the Poller, DPU, and Sentinel can all buffer a certain amount of ticket transactions *if* you have BufferTickets set to **Y** in TK_CONFIG. If this is set to **N**, a break anywhere in the communication chain between the EGM and the server may cause EGM to lock up for handpays after a single cashout.
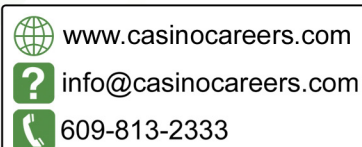
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• Key measures / revenue maximization / floor performance

Who Should Attend?

Slot managers, supervisors, and anyone who works with the slot department and needs a clear understanding of the entire slot operation.

COMPLETION:

The University will provide a certificate of completion to each course participant. Students will also earn 2.1 Continuing Education Units (CEU's) upon completion of the course. This course will also count towards 21 hours to earn a Certificate in Gaming Management and is part of a series of courses offered through the Gaming Management Series.

To enroll: Visit the website at slot-techs.com for an enrollment form or contact a Slot Tech Magazine representative at 619.593.6131. You may also fax a purchase order to 619.593.6132. Be sure to include the students' names and whether they wish to attend TechFest or SlotFest. Tuition is $595.00 per person

Slot Tech LCD Repair Training at CSN

Written by :
Ray Holdren, Service Mgr /
Kristel
Sencore Instructor and now
Adjunct Teacher for College of
Southern Nevada (CSN),
Cheyenne Campus

Hello, everyone from the College of Southern Nevada (CSN), Cheyenne Campus in North Las Vegas. I know you are all used to seeing me connected with either Sencore or Randy's Classes or TechFest but now I am teaching (as usual) a new CRT/LCD: Theory, Troubleshooting and Repair class. The class complements the college's Associates of Applied Science Degree (AAS) in Electronics Engineering Technology with Slot Repair Emphasis and the Certificate of Achievement in Electronics Engineering Technology with Slot Repair Emphasis.

The Class has started off with a bang. We thought we'd only have about ten students in the class but we were surprised when 15 students showed up on the first day of class. Students range from major strip casinos to locals casinos on Boulder Highway. A few of the students are taking the class to fill requirements of their two year associate degree.

The Class is held in the school's Slot Lab. It is a lot more comprehensive and goes into more detail than the three day classes offered by Sencore. We'll have almost twice as much time to cover the subjects in this 16 week course.

The college purchased $20,000 worth of test equipment which shows their to train technicians in the latest technology. We're using the same manuals, test and training equipment as in the Sencore classes. We have

The Students in the Class from front left to front right:
Joseph Koranda, Karl Bracken, Brian Reilly, Paul Wheeler, Larry Wheeler (Paul's Dad), Sam Alkaradsheh, Jeremiah Mote, Thomas Dasilva, Oscar Carnias, David Taggart, Juan Viera, Manuel (Manny) Pastor, Marcos Remirez, Keith McCollum and Pete Garza.

the open labs, monitored by Paul Bulver, so that every student has a chance to operate the equipment themselves. Having more individual hands-on labs is one of the goals of the class.

Presently the prerequisites are job related experience or AC & DC electronics courses offered at the college. Most of the students have over two years experience as a slot or bench technician so they shouldn't have any difficulty with the class.

The class is being coordinated by Jim Jennings, the slot machine technology program director. Jim can be reached at jim.jennings@csn.edu or by phone at 702.651.2614. In 2000, Jim started the slot machine technology program seeing the need for a quality slot technician program in Las Vegas. Jim was awarded the CSN Legacy of Achievement award in 2007 for development of the slot machine technology program. In addition to the award, a Jim Jennings $10,000 scholarship will be given to qualified students. Jim's favorite saying is "Others show you how, we teach you why."


Ray Holdren (Adjunct Instructor), Jim Jennings (Program Director Slot Machine Technology), Joe Miller (Pending Program Director) and Paul Bulver (Slot Tech & Lab Assistant) in front of the new equipment for the CRT/LCD class offered at CSN.

Slot Tech Press Release

Kingbright 0.4mm Ultra-Thin 0805 Blue SMD LEDs

Kingbright Corporation unveils its latest innovation in developing the 0.4mm Ultra-Thin 0805 Blue SMD LEDs (part number APHCM2012-ZCR13) with utmost reliability. This distinctive element comprises a built-in zener diode which can withstand ESD voltage up to 5000V providing superior protection against ESD (ElectroStatic Discharge) damages at the production line. Kingbright 0.4mm Ultra-Thin 0805 Blue SMD LEDs vibrancy and compact design of 2.0m x 1.25mm x 0.4mm extend further aesthetic benefits for various gaming applications. Operating under current as low as 1mA, this low power consumption, IR reflow solderable, and automation friendly device meets industrial temperature ratings of -40C to +85C. The product's advanced feature is specially designed for automatic pick-and-place mounting process increasing productivity and reducing assembly cost.

Kingbright PN: APHCM2012-ZCR13

Kingbright Corporation
225 Brea Canyon Road
City of Industry, CA 91789
Tel: 909-468-0500
Fax: 909-468-0505
E-mail: sales6@us.kingbright.com
Website: www.us.kingbright.com
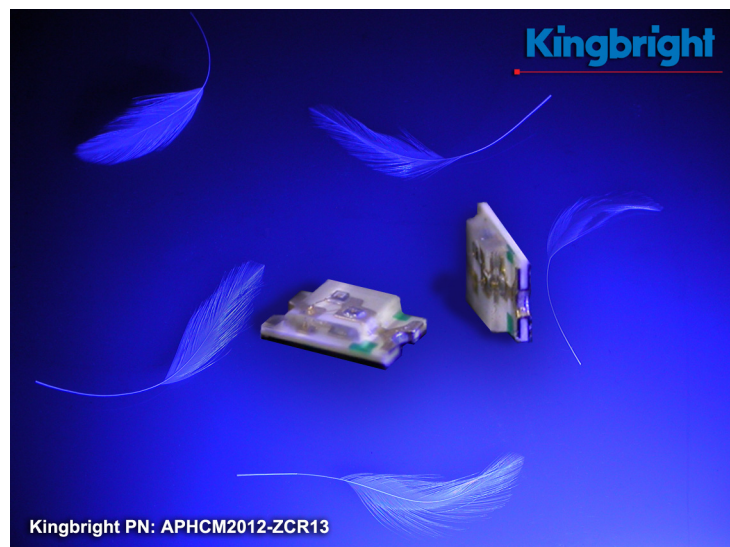
Heber Launches X15

Heber Limited, designers and manufacturers of electronic gaming control systems, will be launching X15 – a new X-Line USB PC Gaming I/O interface at G2E, Las Vegas, in November.

Designed to work with any PC gaming control system equipped with a USB port, or with Heber's Axis 945 gaming control system, X15 provides all the important features required by gaming control systems. X15 incorporates 1MB battery-backed SRAM, Smart Card security utilising Triple DES Encryption and an optional Heber standard backplane to provide additional inputs and outputs for gaming machines.

"I'm delighted to be launching the new X15 at G2E," said Richard Horne, Technical Marketing Manager. "X15 is the latest addition to Heber's X-Line range of USB PC Gaming I/O interfaces and provides important new features that will appeal to international PC gaming system manufacturers".

The new X15 Development Kit will be available after G2E and X15 samples will be given to key customers. The X15 Development Kit enables rapid evaluation and game development with X15 and PC based gaming control systems. Heber will be exhibiting on Booth number 2341 at G2E on 13th – 15th November at the Las Vegas Convention Centre.

An X15 datasheet with full specification is available from: www.heber.co.uk/pdfdownloads/x15.pdf
For further information about Heber Limited visit www.heber.co.uk or phone +44 (0) 1453 886000.

Quick and Simple Repairs # 31

By Pat Porath
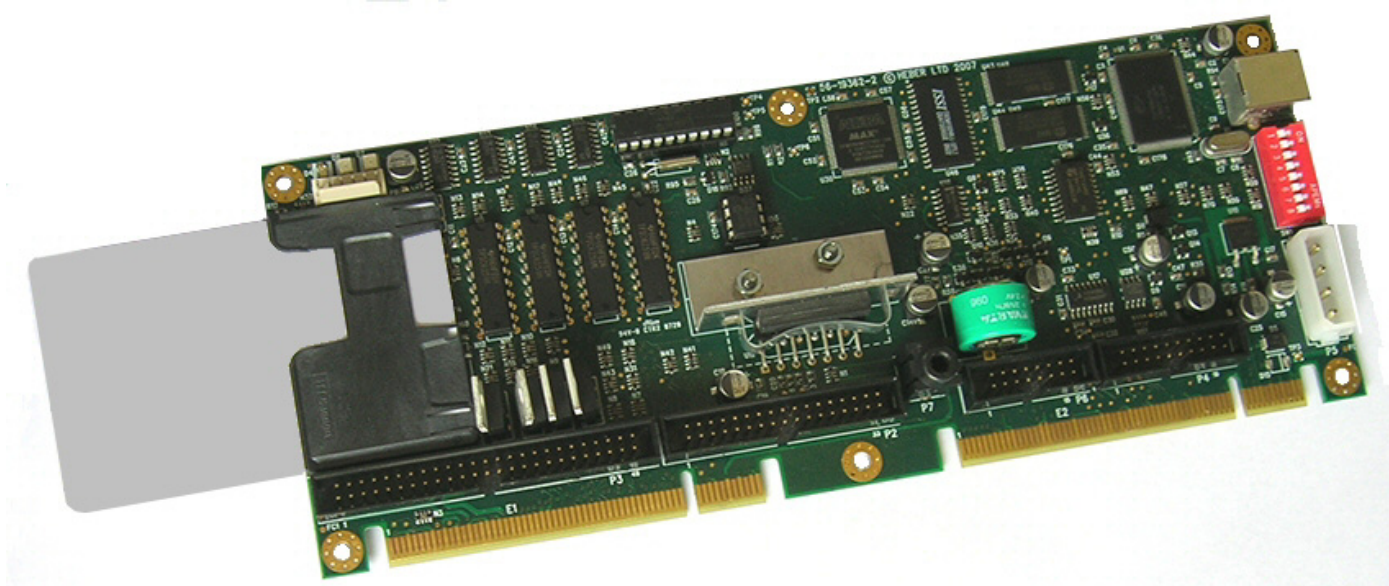
Ithaca 850 Status LED

I like to call it a diagnostic LED (Light that EDucates). While working with the Ithaca 850 it is safe to say the majority of us techs already know about the shielded ribbon cable that has a plastic cover over it to protect it while in the game. On the gaming floor, when I remove a printer that has the old type, I immediately replace the cable with the upgraded one. Some that I have replaced have been so damaged it is amazing that they even worked.

The status LED on the 850 can tell us all kinds of things about the state of the unit. The unit conditions are shown in figure 1.

This will give you an idea what to look for during troubleshooting. One example would be if the LED flashes at a medium speed, which means "printer head up" or "door open" check the microswitch that is located directly under the print head.

The head is very easy to remove from the print assembly. Simply grasp the front part of the head close to the bezel area (with bezel removed) and pull upward. The head will snap out of place. Next you will see three connectors that each has a different number of pins so they can't be reversed. Directly under the head, once removed, you can see the microswitch that is used to show the print head in an OPEN or CLOSED status. Take a meter, set it to continuity and make sure the switch is working properly. If the LED is blinking slowly, take a look at the sensors (or optics) on the head. Are the sensors clear of all obstructions? Look for a buildup of dust on any of the sensors.

Aristocrat That Wouldn't Print a Ticket

This specific Aristocrat game, equipped with the COM board up top and an Ithaca 850 printer would NOT print a ticket for a customer at all. The game would go into a lockup state and the credits that were being cashed out would have to be hand paid. The slot attendants did not like this at all. They were doing some payouts for $.40 cents, $1.30, etc. We tried all kinds of repairs to have the game print but it just wouldn't. We knew the game had COM with the system because it had main door open and closure on the CDS display and there was activity in the "transactions" area in the tracking system. A few

Condition	Status LED/Bezel
Unit Ready	On
Head Up	Med Blink
Door Open	Med Blink
Paper Out	Slow Blink
Temperature Error	Fast Blink
Paper Jam	4 Blinks Pause
Ram Error	2 Blinks Pause
Checksum Error	5 Blinks Pause

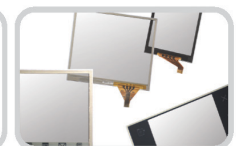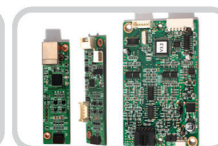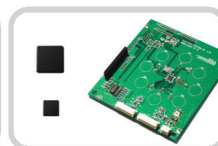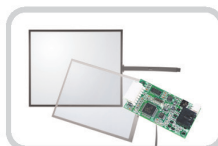**Figure 1. The status LED on the 850 can tell us all kinds of things about the state of the unit.**

different printers were tried, a known good printer was tried, a new printer power board (located directly behind the printer) was tried and a new printer cable was tried too. Still nothing seemed to work.

Maybe the game COM board was a bit corrupt even though we had game COM. The RAM was cleared on it but no luck there either. It was time to call an Aristocrat tech to find out what in the world the problem was. Once I explained my problem and what had already been changed on the game, he stated it may be a bad main processor board. What? Part of the main processor board could make the printer not work properly? Sorry but I had never heard of it and didn't buy it. He also said that the small removable board which is located on the main board could be bad, or maybe the game IO board. I thought to myself, maybe a bad IO board or small board on the main but not the main board itself. I didn't listen. There was a game on the other side of the bank that was exactly the same so we swapped out the IO boards first. Of course, no change in the problem; it still locked up for a payout. Next, we swapped the small board which is on the main processor (it looks like a sound card for a pc or a memory card for a pc) and still the game locked up. FINALLY we installed the main processor board from the known good game and on the FIRST at-

tempt it printed a ticket. I made a mistake and should have listened to the Aristocrat tech and gone for the main board first of all. No doubt a mistake on my part, even though I had never ever heard of that solution before. Now I know (guess I'm a tad stubborn). A note on IGT S2000 games: when nothing seems to get the printer to work, try changing the game mother board. I've seen that a time or two. Of course only try it once all other options have been exhausted.

IGT "Reel Touch" CD Error

What an ordeal it was to figure out what was wrong with this game. The problem was the game was showing a "CD read error" on the LCD. For those who don't know what an IGT "Reel Touch" is, it is basically an S2000 with reels and a LCD with a touch screen up top. These games are supposed to have the data stored in the hard drive, which is located in the LCD assembly. Why wouldn't the data boot up though? I was told once in a while the power supply which is located behind the unit sometimes goes bad, loses the 5 VDC and doesn't power up the hard drive, causing an error. I replaced the power supply, which is very simple. Pretty much four screws and some connectors. There wasn't a change in the error.

The next plan of attack was to check connections in the LCD assembly. Once the unit is out of the game, remove

only five screws and it opens right up. All of the connections looked good, unfortunately, so I had to keep seeking the cause of the problem. I grabbed a spare LCD unit from the shop and installed it. During the boot up process (yes I did feel like kicking it at this point) I noticed that a hard drive was recognized. I thought that it was interesting because the other unit did not see the hard drive like this one did. I needed some help to load the software back into the game, which happened to be a "Bucks Ahoy." There were two disks. When we were done, finally the game was back online. To indicate what disks we needed, we simply checked the software of the "Bucks Ahoy" that was right next to it.

Aristocrat "Loco Loot" Progressive Sign Problem

Have you ever had a progressive sign (which includes a plasma and PC controller) not show a display? This particular sign didn't have a display at all. I cycled the power strip which the sign and the pc controller had plugged into it. Not always, but most of the time, a simple reboot will bring back the sign. Not this time. On our Atronic "Cash Fever" bank once in a great while the sign will have an error on it or no display at all. The pc controller has a reset button on it. Simply press the button, the sign reboots and it comes back great. This didn't happen with the Aristocrat "Loco

Loot" bank. I cycled the power twice but all it would say is something like "establishing communication" and nothing else.

Finally I learned the trick to it. The PC sign controller itself had to be unplugged directly for around 30 seconds and plugged back in. Once plugged back in, I pressed the power button on it and BINGO! The sign came back up perfectly. The progressive amounts were incrementing and everything. If only the numbers on the sign don't increment, then the progressive controller needs to be rebooted. A simple reboot of the PC controller and the sign worked great.

IGT S2000 "7 segment display mismatch"

I don't know what in the world caused the "display mismatch." I tore the door apart to replace the latch assembly and when I powered up the game, it had this unusual error. It was an upright S2000 with the multi-denom touchpad. The seven segment display, door optics, and reel glass had to be taken out to replace the door latch. Once everything was put back together (I didn't have any extra parts) this error came up and would not clear. We even swapped the seven segment displays with the game next door and it didn't make a difference. Connections were checked to make sure none of the pins were bent but they all looked good.

What did I do wrong? The only things that were touched were the seven segment display, the VFD, the fluorescent tube, and the denomination selection part of the reel glass. The problem HAD to be within those components. I knew the seven segment display was good because we had swapped it and with no change. I also knew the main door optic was good because I had a "door opened" and "door closed" signal. I also knew it shouldn't be the tube because it was lit up fine. About the only thing left was the denomination selection area which is located on the reel glass. I didn't want to, but had to tear it somewhat apart to see if there was a problem and there sure was. A wire was pinched within the denom assembly. The wire was repaired and it was time to fire the game up once again. Finally with a couple of door resets, the error was not on the game anymore and the denomination touch pad worked as well.

JCM Training at the Island Resort & Casino

We recently had a JCM training class at the Island Resort & Casino. (The casino I work). It was held on three different days with WBAs in the morning and UBAs in the afternoon. I was sure glad I made it to one of the afternoon classes because there was A LOT of cool information and of course, I would like to pass the info on to other techs.

The UBA doesn't have a fixed bill path. What does this mean to a tech? Well, if you live near the Canadian border it means a lot. We don't deal with it at my casino but others do. The UBA, with the proper software, can accept Canadian AND American currency. With the Canadian Dollar on a par with ours now, there's no reason not to accept them. Pretty wild I think. The UBA also has ultraviolet sensors that "look" at bills. An example is the strip in the $5 bill that glows blue under the ultraviolet light. The UBA checks it out when a bill is inserted to see that it is valid. The unit also has a "retry" feature that will try the bill three times before it will reject it. This is built into the program and cannot be taken out.

The amounts of memory that the UBA has are as follows: the 10 = 8 Meg of flash memory, the 11 has an 8 Meg EPROM, and the 14 has 16 Meg of Flash memory. The UBA 14 is also USB compatible. JCM used to work with the Dell Axim PDA to download new programs, but now, from what I was told, Dell is getting out of the PDA part of the business and doesn't support it much. This means JCM is looking at other PDA manufacturers or will be coming up with their own unit to download direct to the UBA 14. There would be a CF card and a USB cable that would plug direct to the UBA, and in 58 seconds, with the press of a few buttons, the unit would have new software.

Other interesting information about the UBA 14 is the front part of the unit has been strengthened. You may have run across a few units where the bezel part would break off, rendering it useless. There are also steel plates available to strengthen the bezel part. I installed them on some of the Aristocrat games that are on our floor.

Have you ever run into a UBA where you couldn't open the cover on it to retrieve a jammed bill? The first thing to try is reseating the unit. Power down and power back up. Sometimes this will do the trick. If not, you need a 2.5 mm "adjustment tool" to open it. These are available through JCM and probably Happ Controls. The shaft is solid so the adjustment can be made from either side. Once it is opened and powered back up, it should reset itself.

- Ambulance – BLUE
  - Validator shut down – communication lost or immediate attention required
- Key – RED
  - Requires Cash Box access
- Crossed Circle – RED
  - ROM Verification error or jammed motor – shop repair required
- Eye – RED
  - Possible cheat attempt – If only eye is lit – multiple bill rejects occurred in a short period of time
- Crossed Hammer & Wrench – RED
  - Minor service required at the machine
- JCM Logo – RED
  - Cash Box full.

UBA adjustment tool
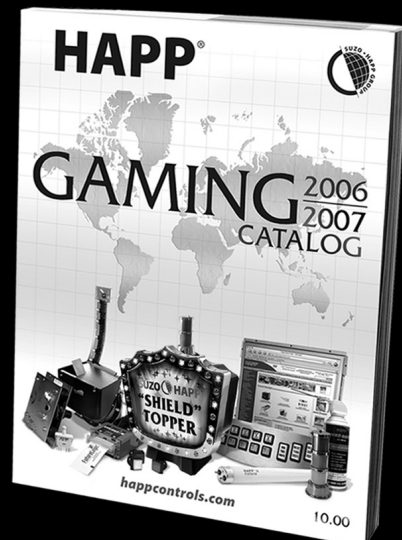
A note on downloading or calibrating a unit with a laptop or PC: Windows Vista will NOT work. JCM is working on the problem to get it resolved.

What is the purpose of the "Smart Bezel" also known as the Sentry bezel? The idea is to give the attendant or technician information without even opening the slot door. The symbols definitions are shown in the chart.

UBA Stacker Boxes

We've had a few belts come off of gears on stacker boxes. JCM's newer boxes have improved gears so this doesn't happen. To tell if you have an older type or newer, the newer will have 3 circles on the front of it. Contact your JCM representative to see if your old boxes are still under the three year warranty.

More information can be found at www.jcm-american.com.

- Pat Porath
- pporath@slot-techs.com

Slot Tech Freebie!

Website Update, Free Power Supplies From Ceronix

Ceronix Launches New Website Design

Auburn, California: International, technology manufacturing company Ceronix, Inc., based in Auburn, California, has recently launched a new, comprehensive and interactive website design.

The new website design, presented on www.ceronix.com, should be more visually appealing to the site visitor, featuring dozens of color photos, animation and web links. Additionally, the website content contains much greater information about the history of the company and its leadership, a more

comprehensive display of Ceronix's new products, services and existing models, highlights Ceronix's unique, state-of-the-art and solar-powered manufacturing facilities, and provides customers greater options for comparing and ordering products and services.

Ceronix, Inc., is the leading U.S. developer and manufacturer of custom color video displays and circuit boards. The company manufacturers high-tech monitors that are used in gaming, lotteries, horse racing, bowling, automated score keeping, automotive diagnostics, amusement, point-of-sale, or anywhere there is a need for high resolution, su-

perior performance and low maintenance video monitors.

Ceronix's primary operations take place in a 63,000 square foot state-of-the-art technological and manufacturing facility on 21 park-like acres, surrounded by mature oaks and rolling hills. And the majority of its manufacturing and business energy needs are met using solar energy. Ceronix invested over $3.6 million into solar silicon, photo-voltaic modules within its facilities, which generates over 400,000 watts of electricity for Ceronix operations.

The Ceronix manufacturing fa-

cilities are located at:
Ceronix, Inc.
13350 New Airport Road
Auburn, CA 95602
Phone: (530) 886-6400
FAX: (530) 888-1065

For further information regarding Ceronix, Inc., or to view Ceronix's new website design, please check: www.ceronix.com.

Free Replacement Power Supplies

Editor's Note: On a recent training mission in Puerto Rico, we repaired a number of Ceronix LCD monitors, all with the same problems. Their output electrolytic capacitors were blown and the DC output connector was burned. We were able to repair them on-site because I bring a big suitcase full of spare parts with me when I teach one of these two-week classes but I was doubly surprised by this because A: They weren't that old and B: These were Ceronix brand monitors. Ceronix is well-known for their extraordinary reliability.

Additionally (and ironically) I happened to visit the Ceronix factory at the time that this particular product (the LCD Monitor) was under development and, at that time, had a fairly in-depth discussion with Ceronix engineer Paul Alexander about their quest in selecting a good power supply for the unit, one of the few items over which they have no manufacturing control. They simply purchase a power supply from an OEM. Paul showed me a number of different power supplies that they were evaluating, including burn-in testing.

But the best laid schemes o' Mice an' Men, gang aft agley and some of these units have been failing as I mentioned above. In order to make your life easier, Ceronix has implimented an easy, no questions asked exchange policy for their monitors. Basically, you just count the number of monitors for which you'll need replacements (a five minute job) and give Ceronix a number. They'll send replacement power supplies to you, along with a new little harness that takes care of the burned connector problem. As tempting as it might be to repair the power supply, if the connector is burned, Ceronix recommends replacement.

All they ask in return is that you toss them in a box so they can return them for credit from the OEM. No special packaging required, they're junk.

November 2007   **- Slot Tech Magazine**

Paltronics Progressive System - part 2

By Vic Fortenbach
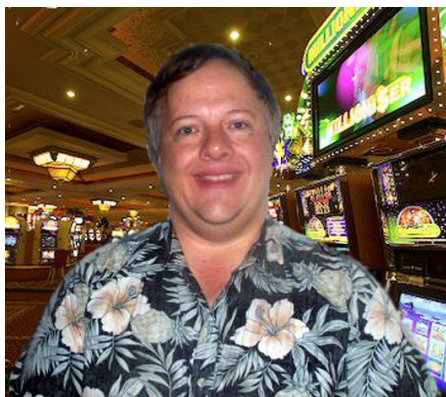
I n September's issue of Slot Tech Magazine, the PAL193 in machine interface board was introduced, configured and connected to a slot machine. Now comes the fun part, introducing, configuring and connecting the jackpot controller.

Since the PAL193 boards are all daisy chained together, there is a starting point and an end. Some progressive systems require a complete loop or circle of the connected boards with a cable. Not so with the Paltronics system. You just need one end to connect to the jackpot controller, preferably the starting end nearest to the PAL193 board with the machine address of one. This will make trouble shooting a lot easier.

But what do you do with the other end? Basically, nothing. You can leave it unconnected for future use. This makes it easier to add progressive slot machines. There is no need to terminate it as required by other systems.

The jackpot controller does what its name implies. It actually controls and keeps track of which machine has hit a progressive jackpot and updates the various displays with the correct jackpot information. The BSK100 jackpot controller is one of the easy controllers to set up and use. The BSK100 can be networked to with other BSK100s on the slot floor with standard category 5 cable to form a complete progressive jackpot system. The

BSK100 is housed in a sleek, all black case that can be rack mounted. The only user interface is a small touch screen and a key switch. The key switch is used to turn the power to the BSK100 controller on and off. You're probably thinking that the key switch is kind of redundant if you have the BSK100 installed under a slot bank. To turn off power, you just unplug it. Please do not just unplug the controller, instead of using the key switch. The controller is a computer with a hard drive inside. Unplugging the power could cause errors on the hard drive. The key switch acts just like the start button on a windows PC, gently turning off the computer after all of the files have been closed and the hard drive heads
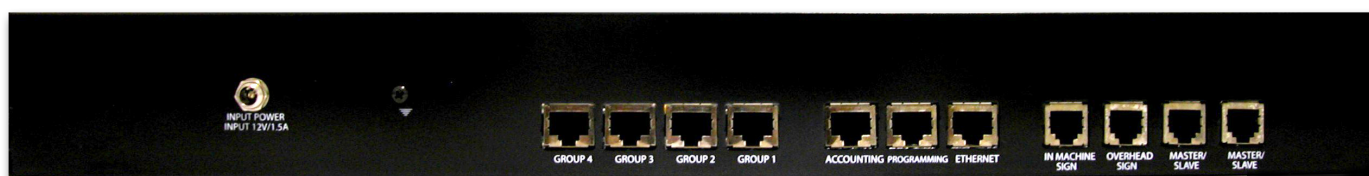
properly parked.

The touch screen can be used to set up the BSK100 but using a computer makes it much easer. The BSK100 can be configured into one of two operating modes: standalone or networked. In a networked configuration, the BSK100 controller is connected other BSK100 controllers on the slot floor and then to a Jackpot server. The jackpot server is usually located somewhere off the slot floor in an IDF closet or in the IT room. The neat thing about using a jackpot server is that no physical configurations of the server are required once it has been set up. Just set it and forget it. The entire updating and new machine configuration is done from a networked computer on a desk in an air conditioned office instead of the slot floor.

In the standalone mode, programming is done with a laptop running Paltronics OneLink software and a single category 5 crossover cable. Each progressive jackpot slot bank is connected to the BSK100. This can be several banks of machines all connected together with category 5 cable. Keep in mind that if you do have several banks of machines all connected to one BSK100, each machine must have a unique ID. Setting the machine's ID was covered in last month's article. The maximum number of slot machines that can be connected together with the same progressive amounts is 32. If you want

to have a different set of machines (either one bank or several banks) you can set up the BSK100 to control up to four different progressive jackpot slot groups or machine areas. The one thing to keep in mind is the maximum number of machines allowed for one BSK100 is 128. In one configuration

with which I am familiar, the BSK100 controller was installed under a slot machine with ID number one in the slot base. Fourteen Bally Alpha quick hit machines were used for the progressive game group. Each game has five different progressive amounts displayed on the upper machine's LCD dis-

play. Precautions were taken for both power dips and bumps with a UPS to the BSK100. Protecting the controller from drink spills can be accomplished with a simple Plexiglas protective cover over the controller. A fan was installed on the base wall with a protective grill to cool the controller.

On the rear of the BSK100 are several RJ45 connectors for standard category 5 cable and a receptacle for the power connection. The power is provided by a small switching power supply connected to the power cord. The power required for the BSK100 is 12 volts at about 1.5 amps. Make sure that the power supply is also protected from drink spills.

There are two sets of four, RJ45 connectors. The first set is for connection to the different groups of machines. Remember that one group has a maximum count of 32 machines.

This group of connectors is labeled 1 through 4. The second group of four RJ45 connectors is for connection to one or two large overhead LED signs. The ones I'm referring to are about four feet long and installed in a casino sign above the individual slot machines. The remaining two RJ45 connectors are labeled master/slave and are reserved for future use by Paltronics.

Last but not least is the most important RJ45 group of con-nectors. These three RJ45 connectors are labeled Ac-counting, Programming and Ethernet. The accounting port is for future use, the pro-gramming port is the connec-tion you use to program the BDK100 and the last con-necter (labeled "Ethernet") is the connector for additional BSK100 jackpot controllers connected through a hub or switch using standard cat 5 cable.

If you're still fuzzy on the slot machine configurations, here it is in a nut shell: The Paltronics BSK100 jackpot controller can have four groups of machines. Each group can have up to 32 slot machines connected. Each slot machine in that group can have up to eight progres-sive amounts. The limit for actual progressive amounts on any one machine is based on the slot machine's inter-nal progressive program-ming. For poker machines' progressive amounts, most casinos set their machines to display only four amounts, based on a special combina-tion of cards such as a royal flush. IGT Game King and their poker series of ma-chines do have the capabil-ity of eight separate progres-sive amounts.

When you start the actual BSK100 set up or program-ming, you have to keep in mind several controller op-tions. The default setup is the basic set up for a standalone operation. If you choose to change the default password for the BSK100, keep the new password in a very safe place. Changing the default pass-word on the BSK100 is not recommended. Keep the de-fault password the same on the laptop also. You can re-set a forgotten password on the laptop by uninstalling and reinstalling the Paltronics OneLink software. It's just easer to just keep the default password.

If you're using the BSK100 in standalone mode, the soft-ware will still ask you for a controller address and file locations. Again, they're all default so just press "enter" to move on without changing anything. The BSK100 needs some basic information about your progressive bank. The software will ask you for a name for your progressive group. Since you can have up to four different groups on one controller, you need to have different names for each group. Try to use names that make sense, B22, B23, B30 and C61 for example. Keep in mind that you're limited to five characters for each name.

If you choose to have multiple jackpot amount levels, you will need to name each one of those also. In this case, you're limited to ten charac-ters for each level. Paltronics recommends names like JPLVL01.

There are a few more set up options required, such as the base amounts for each jack-pot amount and the incrementation. The last step is to download the configu-

ration file you just created in to the BSK100. After that, just run and go. The BSK100 is trouble-free while it's running.

Troubleshooting the BSK100 Paltronics progressive controller is straightforward. Most of the problems can be traced to human error, things like a cat 5 cable not "snapped" completely into the connector on the PAL193 board or on the back of the BSK100. A pinched category 5 cable under a slot base may also cause problems.

Keeping the BSK100 connected to a UPS and making sure that UPS is functioning properly keeps problems to a minimum. The touch screen on the front of the BSK100 can be used to reset a hit jackpot if the machine failed to send jackpot reset command to the BSK100. When preventative maintenance is done on the slot bank, remember to clean out the fan grill in order to keep the BSK100 cool.

- Vic Fortenbach
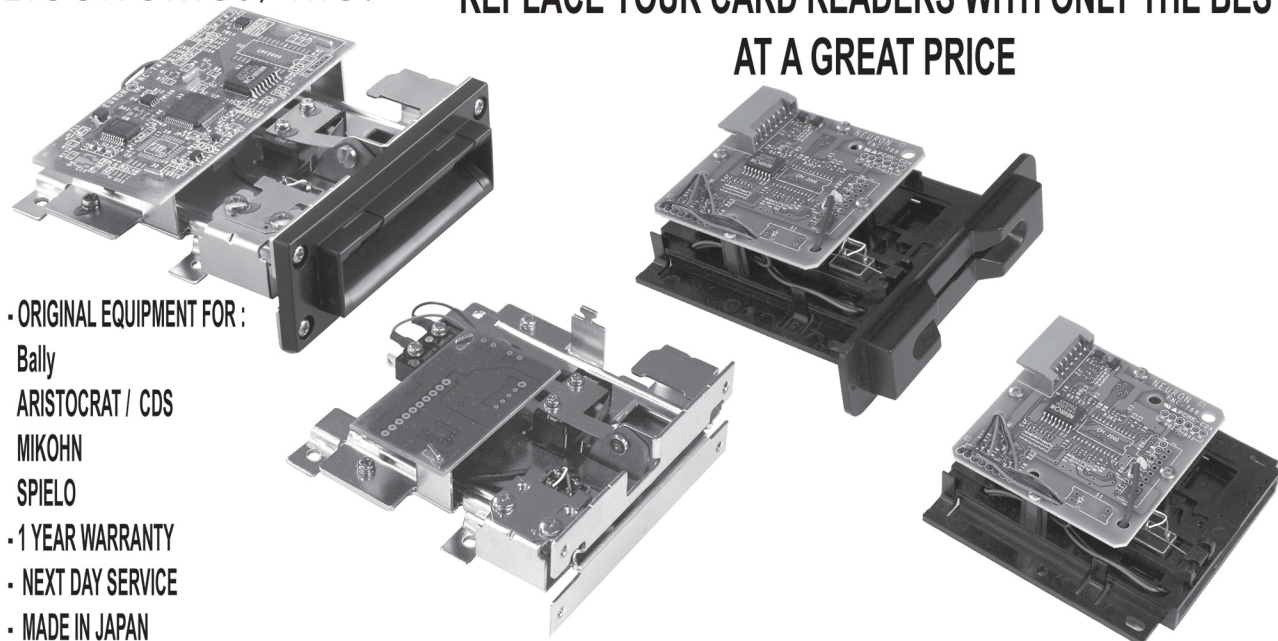**vfortenbach@slot-techs.com**

Slot Machine University

By Kevin Noble

The rapid infusion of advanced computer technology and networked devices in the "next generation" slot machine has changed the rules for service technicians, creating an urgent need for high-tech skills. Anything that provides new competencies to service technicians is an asset to both the technician and the employer, but as I've learned, the benefits of training are personal: completing each new level is a special gratification, and every new skill makes me more of a hot commodity.

The right training can boost employee confidence, helping technicians assume more gaming floor responsibilities. These are things such as installing games, removing and replacing major internal components, troubleshooting and maintaining peripheral devices, troubleshooting and servicing progressive and networked games, installing and maintaining gaming device networks and systems, and troubleshooting and resolving network performance and interoperability problems. Some practical business and office skills and customer service training is useful as well. So, how does a slot technology professional get all of this training without quitting a full-time job to go back to school? I found the answer in Slot Machine University.

For WMS, the Slot Machine UniversitySM project started for the purpose of answering an increasingly urgent question: How do you train 100 Field Service (Slot) Technicians internally, without any of them leaving their states or provinces? And, equally as important, how do you prepare this vastly distributed workforce to support the upcoming generation of server-based gaming products? Simple. Design a bunch of on-line simulated virtual environment programs on the internet so that technicians can learn how to troubleshoot, test, configure game options and use test equipment to help develop and upgrade their troubleshooting skills.

The increasing costs of training development and delivery and the high demand for trainers have made this learning program a necessity. The idea was to not leave any region without tech support or to send trainers to different regions to train only one person. On-line training gives technicians the chance to update their skill levels, develop on-going skills, and develop new troubleshooting techniques from either work or home.

The man behind the program is Christopher K. Challender, Director of Slot Machines University (SMU). Challender has worked with various aspects of learning and performance solutions since 1988, for organizations that include the Department of the Navy, Cablevision Systems (Long Island, NY), Educational Testing Service (Princeton, NJ), and WMS Gaming before he took his current role as Director of Customer Services and Core Operations.

Challender has spent the past two years working with strategic learning solutions partner Element K, developing and implementing the SMU solution. Element K has more than 25 years of experience with helping the world's most prestigious companies improve their business through a tailored combination of e-Learning, flexible learning management system options, content de-

velopment, and managed learning services.

SMU's goal is to provide the tools needed to succeed in the ever changing industry of gaming technology and to set the standard for technology supporting professionals in every gaming environment through training and certification. SMU offers anyone working in the gaming industry a flexible online learning and certification program applicable to all gaming platforms and network/systems. SMU combines a series of custom-developed slot machine courses with a unique array of network and systems courses selected from industry-standard IT certification programs to create a complete learning and skill-developing solution.

SMU launched the gaming industry's first one-stop resource for vending-neutral gaming technology training and certification program at G2E in 2006. It attracted a great deal of interest and its customer base is expanding rapidly.

WMS gaming is continually marketing this program to Slot Floor Managers, Directors, Slot Technicians and large Gaming Corporations. The program is designed not just for Slot Technicians, but for Lottery Terminal Technicians, Field Service Technicians, Gaming Network/Systems Support Technicians, Slot Attendants, Bench Technicians, Slot Accountants, Gaming & Compliance Officers, Test Personnel and more. The program delivers the most current training to both the novice and the experienced technician, introducing new technicians to the basic functions, offering experienced Slot Technicians new technologies, or allowing Network and Systems personnel to troubleshoot, diagnose, and resolve network problems.

One hour of asynchronous online learning through SMU can provide students with more useful information than several hours of traditional classroom training. Students can complete nearly any SMU course in about an hour, move on to the next level, skip a concept they are already skilled in, focus on only the content most important to them and skip irrelevant content, or go right to the test. For students who feel confident, a certification exam is waiting. A passing

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grade of 85% allows the student to print out a certificate and move on to another skill track. Students who don't achieve this grade get ample opportunities to study and retake the exam.

These self-paced, flexible classes can be completed from home, work, or even a public library during any time of the day or evening. These highly interactive modules are available 24/7, at students' convenience and on demand. A central server delivers new material and content, making it easy to update old material, add new material, and correct errors. SMU customers can appoint local administrators to run reports, track student activity and monitor progress instantly.

The SMU program includes 85 courses in five certification tracks:

Gaming Support Certification (Beginner)

Installation, conversions, and optioning gaming machines

Gaming Service Certification (Intermediate)

Performing preventive maintenance, basic service, and basic repair on gaming machines

Gaming Machine Expert Certification (advanced)

Troubleshooting, diagnosing, and resolving complex problems with gaming machines, peripheral devices, and network interoperability with games.

Gaming Network/Systems Specialist Certification

Setting up and installing network/systems infrastructure for connecting gaming machines

Gaming Network/Systems Expert Certification

Troubleshooting, diagnosing, and resolving problems with networks/systems.

Students who receive certification will have the basic knowledge they need to service and support a broad array of slot products and gaming network systems. For the casino manager, these programs offer a way to identify, attract and retain the best talent, reduce training time and cost, reduce game downtime, enhance skill of slot support staff, and get new support staff productive faster. For the student, the programs offer industry-recognized certificates that can be proudly displayed in a shop, at home, or create a career track by serving as a prerequisite for advancement. As if that weren't enough, SMU courses are fully accredited by the International Association of Continuing Education and Training (IACET), and courses can be applied for CEUs at colleges throughout the world.

In addition to the certification programs, SMU offers non-certificate courses in Slot Attendant training and Business Skills.

But how does it work? Cris Challender showed me in person. He invited me to hear presentations to potential customers, and even audit a Slot Technician training overview from Seattle. He e-mailed me reading material so I could follow the presentation and take notes and allowed me to experience SMU learning levels in a demo mode environment.

Without firsthand experience of any one of the 85 courses, a chance to navigate through the different screens, and a stab at one of the quizzes, I'd never have understood fully what this product is about. Challender provided me a username and password so that I could explore some of the many different learning units within the courses, perform some of the navigation controls, and experience the text, graphics, animation, and audio narrations that make up the learning units.

Short learning units within each course usually lasted between 30 seconds to two minutes, with the chance to view the presentation in a text version and view additional information relating to the subject in the additional reading tab located on the right side of the primary viewing area. What made it even more interesting was the high level of interactivity. You don't just view and online presentation, you actually participate in an interactive learning experience that keeps you engaged in the program at every step.

I also had the chance to take part in the multiple-choice or true & false assessment questions and quizzes that are intertwined into the

learning units. After completing each course's content I was able to take an assessment test, answering a handful of questions that tested the knowledge I needed to earn a printable certificate. Clicking on the "Take Assessment" button began the assessment quiz for whatever module I had just completed. I could verify my answers by selecting the "Check Answers" tab at the top of the page, where it told me whether my answer was right or wrong. Clicking on the "Next" tab took me to the next question, through the end of the assessment. At the end of the assessment, I saw my results immediately, along with my correct and incorrect answers.

I really enjoyed the challenge of the assessment quizzes and just scratched the surface in the Networking learning level that I need to brush up on and get up to speed (I've been told that our company is currently field testing this concept, with the possibility of bringing this into to our workplace.).

Once enrolled into SMU, students can see their own personal information in the "Account" tab. The information provided allows students to verify and update their personal information, set general preferences, view information on the courses they've accessed, and find detailed information on orders they've placed. In the transcript drop-down box, students can see the self-paced courses, progress, recent scores and their status on each learning level. The "Content" tab lists courses or events that will be displayed automatically if the student's training provider recommends or requires them. The "Catalog" tab contains all content that you can access with your current subscription.

WMS Gaming has made a similar demonstration available online. Visit http://www.slotmachineuniversity.com for the opportunity to take part in your own course sample. All the information needed to participate in a sample learning level course, a navigational and assessment demo and a brief message of SMU orientation video is at your fingertips.

- Kevin Noble
knoble@slot-techs.com

On-Site Slot Tech Training
Customized Classes Available

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

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

**Students learn how to work with:**

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

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

SCHEMATIC DIAGRAMS
Schematic diagrams are the "blueprints" for electronics. Learning to read schematics is easy once you know how the parts work!
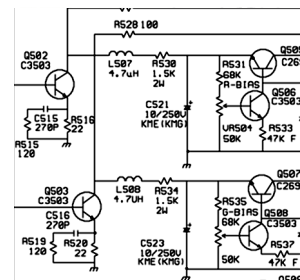
POWER SUPPLIES
Power supply failure is a common complaint in many different types of systems.. Power supply failures are discussed during the class, along with shortcuts for troubleshooting and repairing them.

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

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

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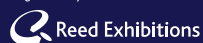
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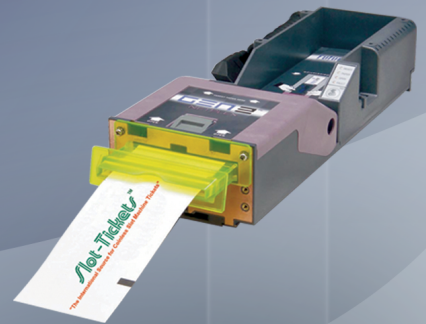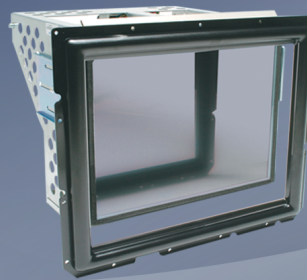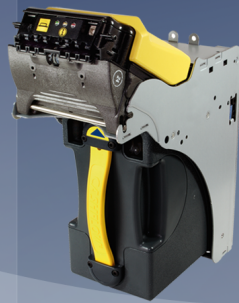
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