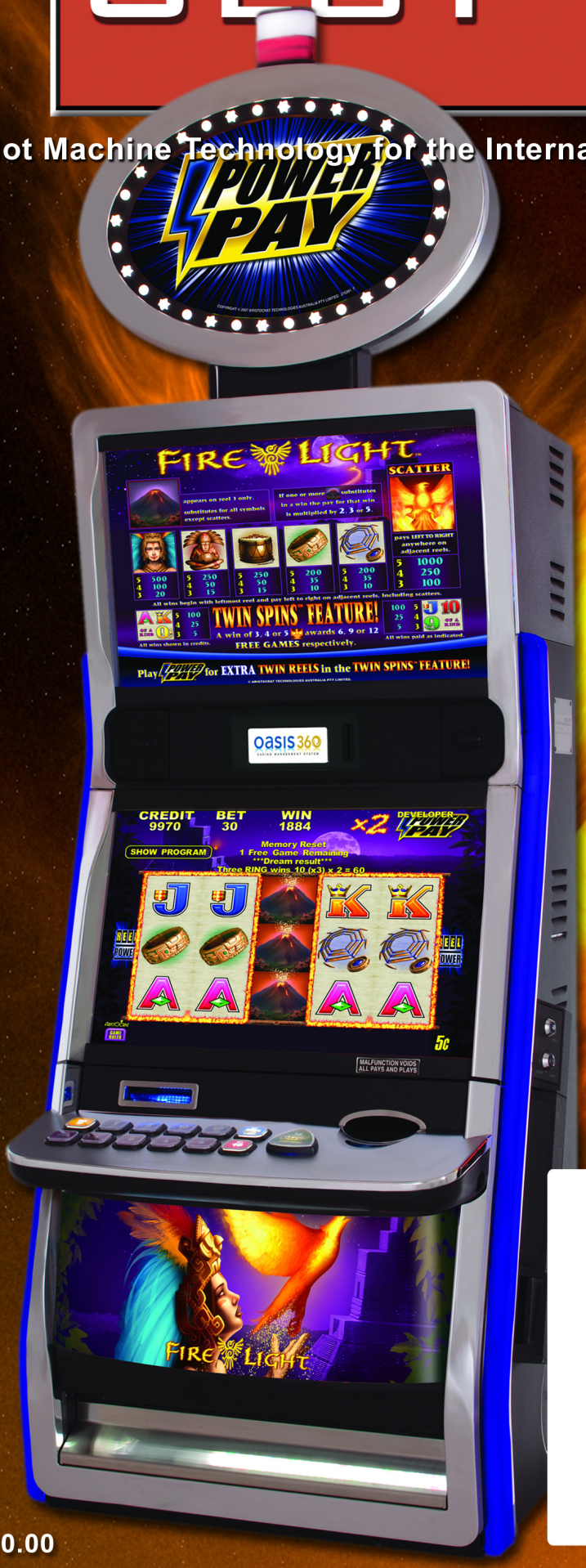
June 2010

Slot Tech Magazine

Slot Machine Technology for the International Casino & Gaming Industry



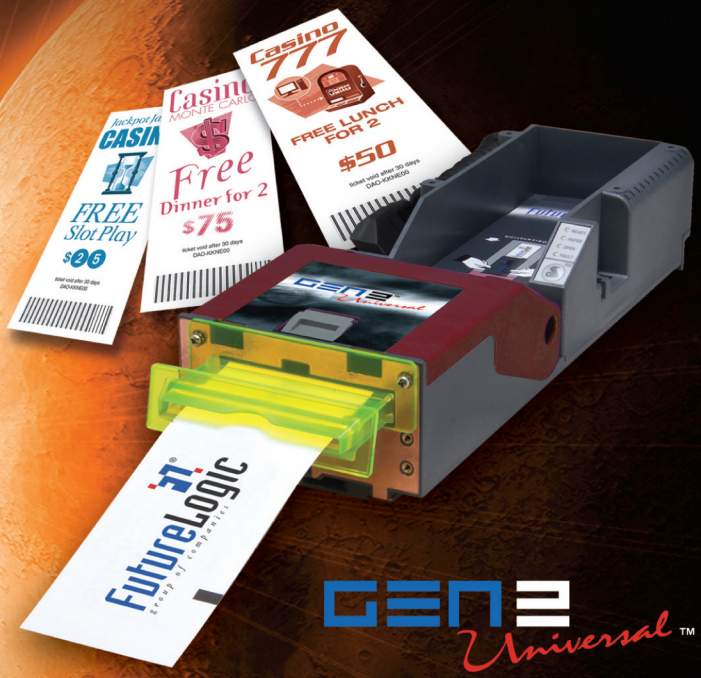
Aristocrat FIRE LIGHT

- Double the Fun
- Good LED Driving
- TechFest 20 Sold Out!
- Quick & Simple Repairs #63
- Palace Casino Redux Redux
- Preventive Maintenance is the Key
- Training for Casino Operations Staff

Slot Tech Magazine

$10.00

Evolution
in gaming printers



GEN2 Universal™

Ready for Promotional Couponing and Server-Based Games

Over 1,200,000 TITO Printers Shipped Worldwide

50% More Standard Ticket Capacity Saves $200/Printer Annually

Paper Waste Eliminated by Taking Ticket Stack Down to Last Ticket

FutureLogic®
group of companies

futurelogicinc.com

Visit our Website to Order Online
www.kiesub.com
Free Shipping on Qualifiying Orders Over $200 See Website for Details!

Soldering & Desoldering Equipment

Hakko 808-Kit Desoldering Gun
This handy,portable desoldering tool features a built-in vacuum pump and thin grip that's easy to hold. Comes with .039" i.d. desoldering tip, filters, cleaning pin and carrying case.
808-KIT/P SALE PRICE: $159.94
Qualifies for 1/2 price shipping online!

Hakko Soldering Station
Features a compact unit, thinner grips for easier use and a lock screw to prevent inadvertent changes to the temperature setting. ESD safe.
• Temp range: 392°F - 896°F
Includes medium chisel tip
936-12/P SALE PRICE: $74.94

Cleaners & Chemicals

Techspray Duster
• 10 oz
• Non-flammable
SALE PRICE:
1-11 $5.95 ea
12+ $5.49 ea
Larger quantities: Call for Price

Tools & Tool Cases

PowerPlay® PT-540
30 Tools-in-one!
This tool is beyond ordinary -
it's the ultimate solution!
6520 SALE PRICE: $99.94

Meters & Test Equipment

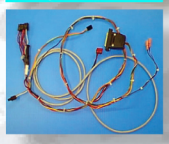
3-1/2 Digit Digital Multimeter
• 10A with hold
• Diode, transistor & continuity
DVM830BL
SALE PRICE: $9.95

Roller Tool Bag with Telescoping Handle
• 32 pockets inside and 10 outside
• Multi-compartment plastic tray organizes small parts.
• Large, easy-roll wheels.
• 18"l x 10"w x 14"h.
1168 SALE PRICE: $59.95

LED Flashlights
MANY MORE AVAILABLE ONLINE!

Streamlight MicroStream High-Powered LED Penlight
• Super-bright 30,000 hr LED
• Unbreakable pocket clip, key ring and safety lanyard included
• 3.5" l
66318 SALE PRICE: $15.99

Cable Assemblies & Wire Harnesses



Battery Packs

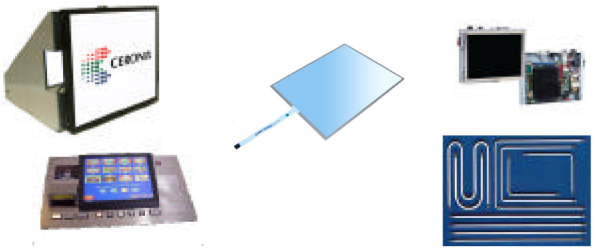
YOUR COMPLETE SOLUTION FOR
ELECTRONIC PARTS AND SUPPLIES
TEST EQUIPMENT • BATTERY PACKS
CABLE HARNESSES • CHEMICALS
& MORE!

(Prices limited to quantities on hand)

KIESUB ELECTRONICS

3185 S. Highland Dr. Las Vegas, NV 89109
Call: 702-733-0024 Fax: 702-733-0026
info@kiesub.com www.kiesub.com

CasinoTech
INDUSTRIAL MONITORS



Parts and Service for:

IGT · WMS GAMING · Bally TECHNOLOGIES · ARISTOCRAT · KONAMI · ATRONIC

Free warranty Service for all Ceronix LCD and CRT Monitors	Low cost out of warranty service on LCDs and CRTs
Expedited Services available	Service Info for all Ceronix Monitors
CRT Chassis Boards, Touch Screens, and Controllers	Low Cost replacement LCD and CRT Monitors
Retrofit LCD monitors	LCD Panel Repair and Backlight Replacement
Player Tracking System Displays, Touch Screens, and Backlights	Cold Cathode Fluorescent Lights for Panels and Slot Lamps

Power Supply Services

CasinoTech is working to increase our repair abilities and are now offering repair services on select power supplies used on IGT and Aristocrat games! Contact us today to learn how we can support you.

Authorized
Ceronix Service Center
P: 702.736.8472
P: 281.255.2884
F: 702.920.8678

SALES@CASINOTECH.COM
www.CASINOTECH.com

June 2010

Randy Fromm

An IGT salesman, an Atronic engineer and a Nevada slot tech are driving in a car when, just outside of Las Vegas, they get a flat tire. The three of them get out of the car and scratch their heads.

The IGT salesman says, "Maybe I should walk into town and get us a new tire. I know that I can bargain with the man at the parts store and get us a great deal."

The Austrian engineer stops him, saying, "Wait! Before you do that, we'll have to do some computations, figuring the grade of the road, the asphalt temperature and the average rate of speed we will be traveling to know what kind of tire you should buy."

The slot tech laughs and shakes his head. "No, no, no! What's wrong with you guys? We have a spare tire in the trunk. All we have to do is start swapping tires until we find the flat one!"

Randy Fromm

Randy Fromm - Publisher

Randy Fromm's
Slot Tech Magazine

Editor
Randy Fromm
Technical Writers
Dean Auger, James Borg, Vic Fortenbach, Chuck Lentine, Kevin Noble, Herschel Peeler, Pat Porath,Scott Reynolds

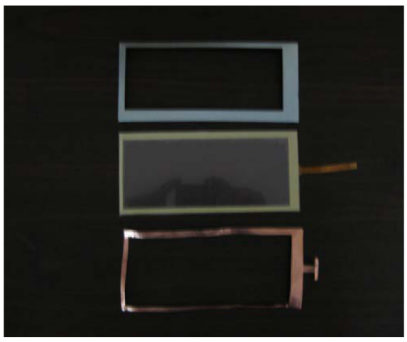
Slot Tech Magazine is published monthly by
Slot Tech Magazine
1944 Falmouth Dr.
El Cajon, CA 92020-2827
tel.619.593.6131 fax.619.593.6132
e-mail editor@slot-techs.com
Visit the website at slot-techs.com

SUBSCRIPTIONS
Domestic (North America)
1 year - $60.00
2 years - $120.00
International
1 year - $120.00
2 years - $240.00

Subscribe online at slot-techs.com

Printed back issues are available for only six months from the date of publication. All single issues of Slot Tech Magazine are $10.00/ea. For further details on the contents of each issue, please refer to the website at slot-techs.com. To order, fax a PO or e-mail a note listing the issues you need.
Complete archive (2001 to present) available online. Visit slot-techs.com for details.

Touch Screen Available Now For 6.2 inch IDW & Hitachi LCD s in Bally IView Player Tracking System



Part #8950

Part #8950

PARTS FOR BALLY IVIEW PLAYER TRACKING SYSTEM

#8950 - 5 wire touch screen kit for 6.2 inch "IDW" LCD (includes touch screen, metal housing & copper foam gasket)
#9890 – 5 wire touch screen for 6.2 inch Hitachi LCD #TX16D11VM2CCA (does NOT include metal housing or copper foam)
#8650- Single cold cathode lamp assembly for 6.2 inch "IDW" LCD
#8680- Single cold cathode lamp assembly for 6.2 inch Hitachi LCD #TX16D11VM2CCA
#9190- Mylar protective sheet (peel & stick) for touch screen on 6.2 inch "IDW" LCD
#9200- Mylar protective sheet (peel & stick) for touch screen on 6.2 inch Hitachi LCD #TX16D11VM2CCA
#9800- Single output cold cathode inverter for 6.2 inch "IDW" LCD

For more info or to place an order contact one of our distributors

PATRIOT GAMING & ELECTRONICS INC.
1-866-367-5666

CasinoTech 702-736-8472

MCM 937-424-1222

AG&E 702-798-5752

SUZO HAPP

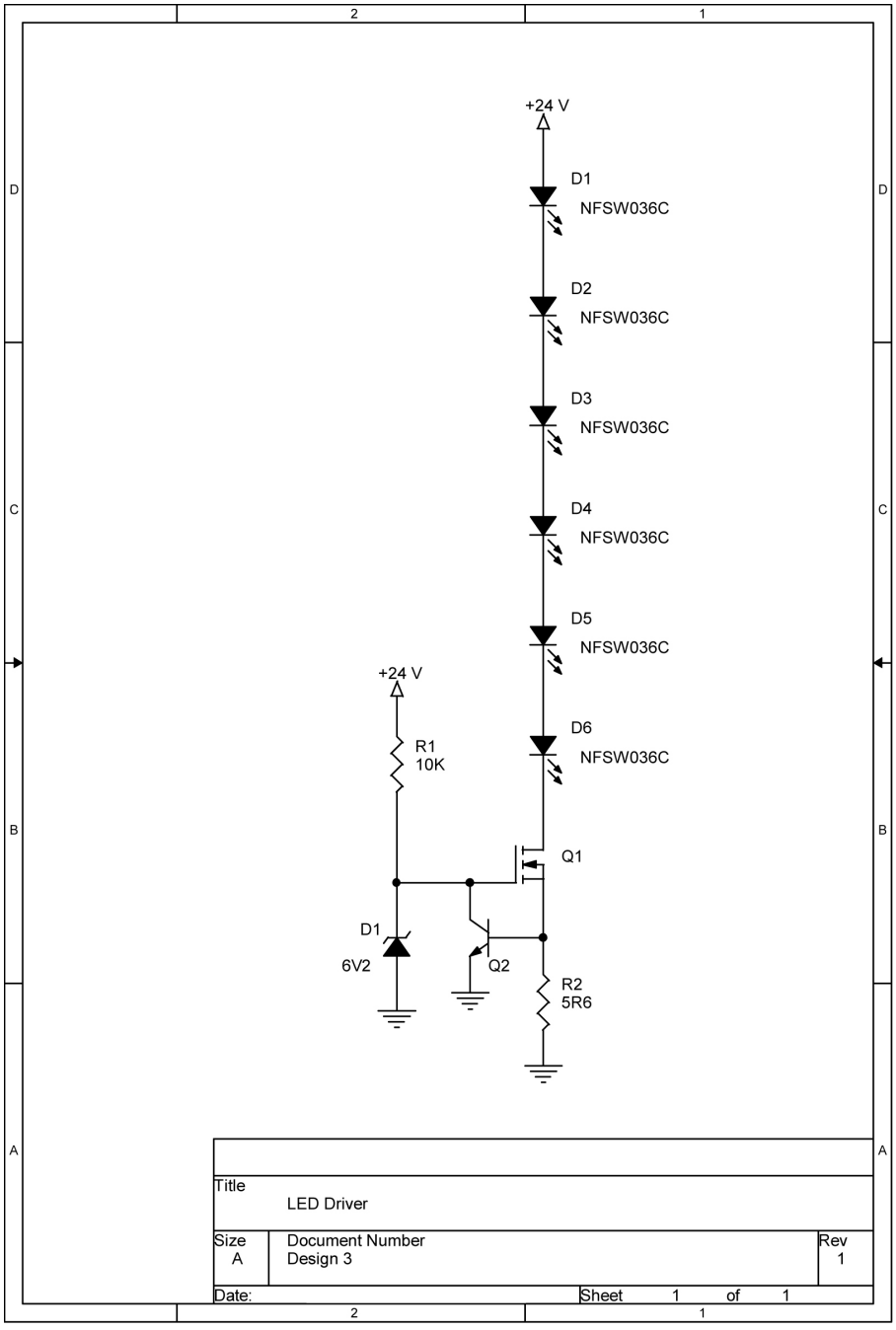
PACIFIC ILLUMINATION 949-429-3896 or pacificillumination@gmail.com

Good LED Driving

By Herschel Peeler

At the latest gaming show I noticed there were very few fluorescent lamps used for general illumination. White LEDs have just about replaced fluorescent lamps of all kinds. In theory, the LEDs should last the life of the games. Reality does differ. There are good ways to drive LEDs and there are bad ways. Here is one of the good ones. The problems experienced with LEDs come when the designer tries to drive the LED at the very limits of its designed capability. The life of the LED is shortened. They grow dim after a while. A good design runs the LED at a level well below these limits.

Looking at the schematic we can see that the LEDs are not just powered directly by a source. The driver has a current limiter. Q1 is the main driving transistor (an N-channel Enhancement Mode MOSFET). When current flows through the LEDs and Q1, it passes through the 5.6 Ohm resistor also. As the voltage across the resistor increases to about 600 mV the NPN transistor starts to conduct. The more the NPN conducts, the lower will be the Gate voltage to the MOSFET. At 5.6 Ohms, limited to 600 mV,



“I have always supported Slot Tech Magazine”

“But to tell you the truth, the content of this magazine is gobbledygook to a seating guy like me.”

SLOTS · POKER · TABLE GAMES

GARY PLATT

PERFORMANCE CASINO SEATING

800.969.0999 · garyplatt.com

this sets the current through the LED at about 107 mA. If we look at the data sheet for the LED (NFSW036C by Nichia) we find out the LED has a maximum drive current of 350 mA, continuous, and is rated at 150 mA for most of the normal specs. Driving it at around 100 mA is well within the safe operating limits of the LED.

The assembly this design came from has five strings of six LEDs in each string, running off of 24 V DC, and replaces an F15T8 fluorescent lamp. At 107 mA per string we are running at just over 500 mA at 24 V. We don't save a lot of power here, but we do save a bit. Normally an F15T8 and its driver would draw about 600 mA to 700 mA (up to 1 Amp as the bulb ages). The big differences are longer life expectancy, considerably less heat, cleaner power, no UV rays that decay plastic components, no static electricity build up from the high voltage of the fluorescent lamp and thus no accumulated dust it attracts.

Normal voltages we should find in troubleshooting this circuit are pretty predictable. At the Drain (LED side) of the MOSFET we should find about 3 Volts, and this tells us the health of the LEDs. (24 V applied. Six times 3.6 V gives us about 21 V across the LED string. The rest, about 3 V, is dropped across Q1 and the resistor on its source lead). At the Source (resistor side of the MOSFET) we should find about 600 mV. Specific gate voltage will vary depending on the characteristics of the specific transistor. Expect it to be between 2 V (the threshold voltage for the gate to turn on) and 6.2 V, limited by the zener.

The LEDs are running at about 66% of the manufacturer's suggested current. The MOSFET are passing 100 mA and rated at 2.7 Amps. Max voltage for the MOSFET is 60 V and running at 24 V. Maximum wattage of the MOSFET is about 100 mA times 2.5 V (250 mW) while the transistor is rated at 2 Watts. The zener diode is passing less than 2 mA at 6.2 V (24 V across the 10,000 ohm resistor gives us about 1.8 mA) for less than 13 mW and the BZX84 device is rated to 300 mW. This should prove to be a very reliable circuit.

- Herschel Peeler
hpeeler@slot-techs.com

Slot Tech Feature Article

Double the Fun

By Kevin Noble

IGT S2000 "King Cash" No Reel hold Voltage

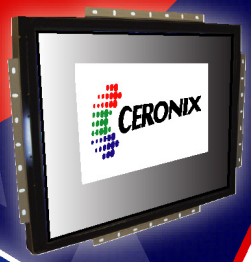
This game started out as a project game that allowed us to upgrade the current posts (with two studs bolted in top box) that support the monitors above with new and improved posts (with four studs) that are more firm and rigid and thus not allowing the monitors to lean forward. After completing 12 of the 16 on our shift, we passed on the last four games to the next crew coming in. When I came back in after my weekend, I saw up on the whiteboard that this game was down; it needed a new CPU board. I figured that somebody had troubleshot (troubleshooted?) this game down to a CPU being bad. A couple of days later, the new CPU board arrived and I was summoned upstairs to come and get it. I installed it in the game and

Authorized Distributor

3M

LCD Retro Kits
Authorized Distributor

CERONIX

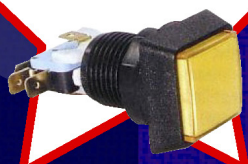


We Buy and Sell Used Machines and Gaming Parts

Remanufactured
Bill validators
Monitors
Printers
LCD's

Lighting & LED's

Buttons & Switches



JCM AMERICAN CORPORATION

Bill validators

Patriot Gaming has product solutions to fit every budget.

We focus on you the customer. To provide the very best service and products to fit your ever changing needs. Our pride rests on the fact that we offer a wide variety of products and alternatives, lower cost solutions and top notch repair services.

TRANSACT
Technologies Incorporated

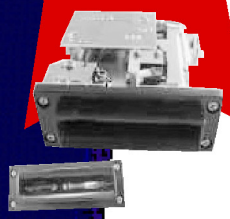
Printers

Monitors
Ceronix
Tatung
Kristel
WG
Tovis
Kortek

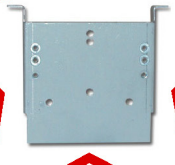
Cleaning Supplies

Repair Center
Bill validators
Monitors
Printers

Used OEM Slot parts



Seating



Metal Fabrication Brackets

One Call...One Voice... One Choice!

Call Patriot today for your FREE Catalog!

Service Center
- All repairs have a 90 day warranty

PATRIOT GAMING & ELECTRONICS INC.

217 N. Lindberg Street • Griffith, Indiana 46319 • Office: 219-922-6400 • Fax: 219-922-6466

performed a RAM clear (the game allowed me to complete the entire procedure) when I noticed that there was no hold voltage on the reels, but the reel lights were brightly lit up. Another thing that was odd was the fact that the "Keychip" procedure would not take.

I next decided to replace the motherboard (which only took a couple of minutes) seated the CPU and the exact same things happened. Ruling out the power supply behind the reels was going to be next on my list when I noticed that all the lights went out except reel #1. The reel light on #1 had started blinking really fast. I decided to revert back to the original CPU board. There were no changes except now the message "Netplex display" error message would not clear. I figured that something on "Netplex" was defective so I decided to start unplugging Netplex devices (with the power off) to see if the error would rectify itself, which it did not. I decided to unplug the tower light in the top box (because it was part of the project and you had to rewire the cables and tower light through the new posts) and started to receive a "COIN IN JAM. error. I opened and closed the main door a couple of time to see if the code would clear but it did not. I decided to start swapping I/O cards with the game next to it and found out that when I swapped the I/O card that was housed on the CPU, the error moved to the other game. Fellow Tech Reggie climbed up to remove the tower light and noticed that a wire from the candle light had been pinched and another frayed, shorting out and causing all this mess. The cable was repaired, the I/O replaced and the game was passed on to Gary. First thing in the morning I went out to the location and noticed the game was powered up and out of order. The game was now ready for AGCO. Gary was able to RAM clear the game and set the options. After speaking with Chris the next day (sharing our troubleshooting adventures) he stated that he did everything the same. Even the same results for all the different parts were swapped and tested. The only thing we could figure was that the I/O card blew during one of his repairs.

IGT S2000
CVT Going Offline

Every Friday during Seniors Day, this one CVT would go offline for about ten minutes causing all kinds of manual jackpots for the Slot Attendants and come back on line after everybody complained. It seemed like every time we tried to troubleshoot the CVT, it would start working again. We would check the CVT and it would display "Fiber Loop Down." We would go out on the floor opening up games looking for a signal when all of a sudden the manual jackpots would go away. The following Friday came along and we would start from the last reference point and move a couple of machines forward. Finally after some time had passed we narrowed it down to one IGT S2000 game. We did all the routine stuff like swapping COMM boards, ribbon cables, and even starting replacing all the fiber lines to glass to rule out any problems. The only thing that changed now was that the problems were happening more frequently and the problem usually went away when you opened the main door. Now we thought something must be rubbing and shorting out on the cabinet frame because of the problem going away when the door was opened. We starting swapping everything that we could think of with the game beside it to see if the problem moved, which it did not. The motherboard was also swapped out with a brand new one. I suggested that we swap out the CPU if by chance this would clear up the problem. And if you can believe it, the problem stopped.

Editor's Note: These types of repairs frustrate me as I ALWAYS want to know EXACTLY what REALLY

The New Las Vegas Strip.

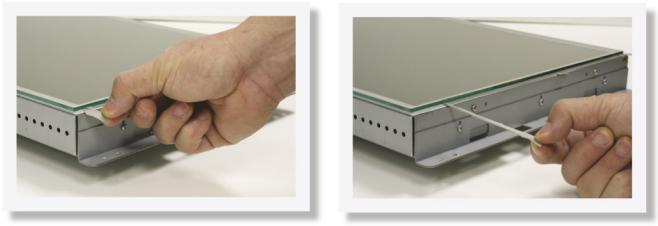
Command™ Strips for Touch Sensors

Quick Removal and Easy Integration

Command Strips for Touch Sensors help save slot technicians time and casinos money with a quick-to-remove and easy-to-integrate solution for touch displays. Once a touch sensor is mounted with Command Strips it takes only seconds to remove a damaged touch sensor or the working sensor from the damaged LCD display, and then only minutes to reintegrate it. Compared to today's 45-60 minute industry average for removing and integrating a touch sensor, that's time and money saved.

Quick to Remove

When a touch sensor needs to be removed, use Command's "stretch release technology" by pulling the "pull tab" at a 90 degree angle so the sensor pops free in seconds. And, these "no mess" strips don't leave an adhesive residue that can be difficult to clean up.



1 Pull Tab at 90 Degrees

Easy to Integrate

Using "peel and stick" Command Strips, a touch sensor can be easily integrated to a display in minutes and quickly put back into service.

1 Apply First Four Strips

2 Apply Next Four Strips

3 Mount The Touch Sensor

Watch Video

See how easy it is to use Command Strips for Touch Sensors to integrate sensors and to remove sensors at www.3m.com/touchstrips. Seeing is believing.

www.3m.com/touch

Command™ Strips

NOTICE: Command™ Strips for Touch Sensors were developed for use with the 3M™ MicroTouch™ System SCT3250EX (previously known as the 3M™ MicroTouch™ ClearTek™ II System). Customers must determine whether Command Strips are suitable for use with their particular touch sensor and in their intended application.

3M

happens to cause faults and in cases like this, although the machine is fixed, it was a modular repair and we don't really know what actual component/interface/ software failed. If this CPU PCB now goes to a bench tech for repair, how is he/ she going to handle it? Even with a detailed report about the nature of the failure, this could be a tough one.

OTOH, the repair could be something as simple as re-seating all socketed components and/or reflowing a fractured solder joint. Casino technicians run into this type of thing every day. In the end, sometimes all you can do is shrug your shoulders and be really grateful for low-tech approaches to repair like "swaptronics," remembering that in the end, your job description says a lot about fixin' stuff but doesn't include anything about proving how smart you are while doing so. Whew!

WMS Video Keeps Rebooting

I was called to this machine by the Supervisor. This machine had a "NO SYNC" error. I noted that another Technician had been in it that morning and read that he had powered down the game and fired it back up. I flipped through the MEAL book and noticed this rebooting entry in the MEAL book for some time but it was getting progressively worse now. I placed the game out of service and called WMS because it was a leased game. Soon after placing the game out of service, we starting getting manual jackpots on the same CVT. I went into the CVT and checked the CVT and found numerous duplicate addresses and sequence errors. As fast as I could clear them, another location with a different problem popped up. Alsom, the Slot Supervisor, handed me a list of games that were offline so I decided to check them out. As I walked by the game I had just placed out of service, I noticed that it had started rebooting itself in "Out of Service" mode. I decided to power off the game but at the same time, I looped it out of the system so I could eliminate this as being part of the problem. Much to my surprise, the bank of IGT SAVP's tower lights shut off and came back online. Now I have the starting point of my troubles. The original WMS game that was rebooting itself was also causing my CVT problems. The next day Marty from WMS Gaming arrived and starting troubleshooting his leased game and discovered that the power supply was wrecking havoc and causing all the problems. Once it was swapped out and placed back in service, the problems disappeared.

Atronic e-motion Stuck in Atronic Screen Saver Mode

I could write an entire article just on this one game alone. We had a MEMEX board problem, RAM CLEAR chips go bad, and COMM board clears would not clear, swapped game EPROMS and even had the large security chip die on us.

And now, the latest. The problem started after AGCO removed the EPROMS, verified them and reseated them on the CPU board. The CPU was placed in the game, the game started up normally, went through all the checks, the front housing moved up and down, the ATRONIC screen saver then displayed like normal but never moved. It just sat there, and sat there, and sat there like it was frozen. The game was powered back off and then back on again to the point where we last left off. Reggie started compiling a list of things he did, swap CPU, COMM boards, Multimedia board, CD ROM, CD and the Security chip. We next decided that it had to be one of the game's EPROMS so we ordered a new set along with a new CPU board just in case. When they arrived, they were all swapped out. To much of our surprise the problem still existed. This list was passed on to Gary Smith on the next shift.

When we came in the next morning we were surprised that Gary had gotten the game working except for the BV. He stated he spent a number of hours on this game, got it working (except for the BV) and ran out of time. That morning we later found out the motherboard had been replaced. Gary asked for one of us to check the connections just in case the BV was plugged in wrong or mis-pinned. It was found that the BV must have gotten hit also because it would not cycle. The unit was replaced and the game up.

Atronic e-motion
Game Heap Out of Memory

When I came in following my days off, the game was down stating it needed a RAM clear because during patron play, the machine went into this "Game Heap out of Memory" error that could not be reset by the reset key. After having the seals removed, I started to RAM clear this game. The boot up sequence was fine, press the reset button to reform RAM appeared, OK, the logo appeared and then boom! The error message reappeared. I surfed around on our instant messaging and found Richard Haddow still on line and floated him the problem that I was encountering. He suggested changing the RAM on the multi-media board. I started with the first stick of RAM located on the top. Rebooted the machine and much to my surprise, the game went right into the option menu and allowed me to set my lines and percentages. The only other problem I did encounter was that I had to re-clear the COMM board, which was no big deal.

Aristocrat
Duplicate Tickets – Unverified Tickets – Machine Responding/Not Responding

This was the classic "removed every part possible to see what the problem was until we ran out of parts" story. When you plug in the fiber lines, the game brings down the CVT. Duplicate and unverified tickets start to emerge, the games begin to go off line and then come back online in no order or sequence. SPC II boards have been changed, cleared, and exchanged; fiber boards and power supplies have been included in the exchange. The CPU was left out of the game, the RS 232 board replaced, the I/O board was swapped, and even the printer was removed out of the loop just to eliminate any second guessing. When I started I had to think outside the box and come up with other stuff that might bring the system down. We decided to plug the game into another power outlet just to get it off the circuit it was on. We plugged the fiber board straight from a another independent power supply that had nothing to do the game but every time we plugged in this one game, the CVT would go down. We decided to start to loop out banks associated with this CVT. First was a bank of IGT, next a bank of Bally and another lone bank of IGTs but the problem still existed when this one game was placed into the system. We knew that the problem lay with the bank of Aristocrat so we decided to loop out one side of the bank. Eliminating five games from one side with the troubled game plugged in the problem seemed to go away. Finally we were making progress. Slowly adding one game at a time and checking the TPE log to see the results had changed. We got the game right beside the troubled game was the only one left out of the loop. We plugged the game in and the troubles started all over. We had a handful of parts to swap out just like the game before it. First was the crap shoot, so I decide to swap out the fiber board. We plugged the lines in, checked the TPE log and the problems, dunt-dunt-dunt-dunt-stayed away. We solved this problem that had been plaguing us for days and days. High fives all around.

- Kevin Noble
knoble@slot-techs.com

Slot Tech Event

TechFest 20 Sold Out!

The twentieth iteration of Slot Tech Magazine's popular TechFest training for slot machine technicians was held at Mystic Lake Casino May 4-6, 2010. In addition to presentations on power supply repair and LCD monitor repair, the three-day event featured guest speakers and training representatives from some of the gaming industry's most prominent manufacturers including FutureLogic (ticket printers), MEI (bill validators), 3M Touch Systems (touch screens), Ceronix (CRT and LCD monitors), Transact Technologies (ticket printers) and JCM-Global (bill validators).

TechFest 20 also featured the debut of video game manufacturer turned slot machine OEM, Incredible Technologies. IT, as it is known to the industry, is often credited as producing the most innovative and highest-earning games in the business with long legs that allow the operator to bank a substantial ROI. At TechFest, they came to show us the outstanding operational and service features of the system.- **STM**

Good food at Mystic Lake!

Above: Lefty Gomez (Atlantic City) enjoys the buffet!

Above: Russ Wigé from Transact Technologies.

Above: Jeff Siegrist (l) and Nick Frank demonstrate Incredible Technologies' new slot machine system. VERY NICE!

Right: What is this object and why is Ceronix's head technician, Troy Nofziger smiling about it?
Below: We ended up with 72 slot techs from 27 properties attending TechFest 20 (yes, you'll see some people duplicated in the picture. stiched together from six images).

In honor of TechFest 20, 3M Field Engineers Paul Hatin (l) and Mark Roberts donned anti-static lab coats for the occasion. Their new diagnostic software is available on the Slot Technical Server at slot-tech.com/interesting stuff/3m/techfest20 handouts.
Right: Dan Peterson from JCM shows Ivizion.

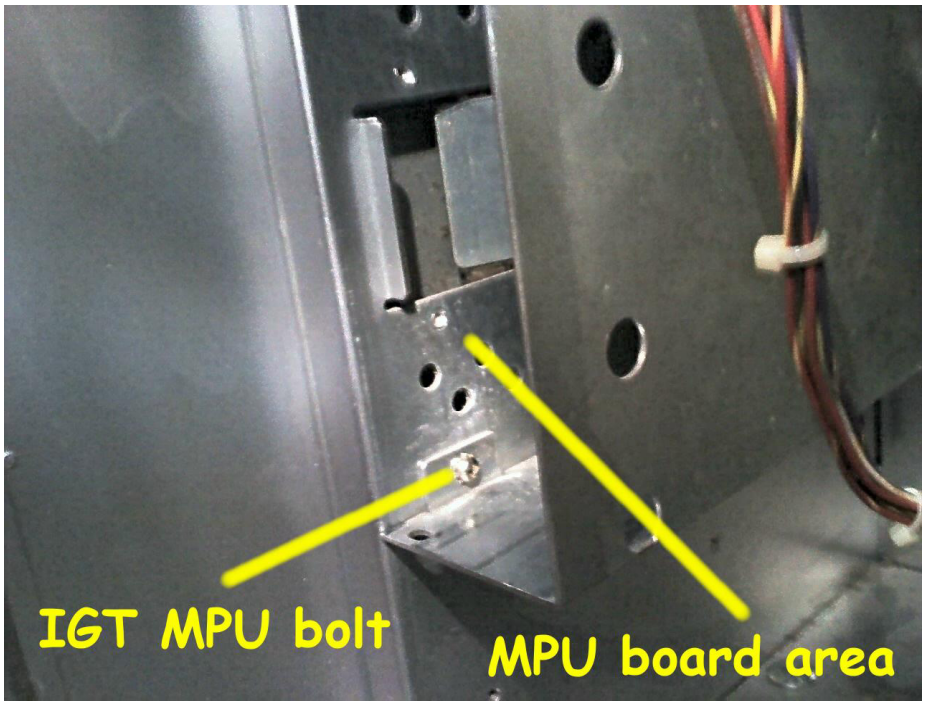
Quick & Simple Repairs #63

By Pat Porath

WMS BB2
Main Slot Door Wouldn't Close

A call was received to look at a WMS BB2 (WMS Bluebird 2) game as to why the main slot door wouldn't close. First I took a look at which part of the door wasn't closing correctly. What section of it was binding? As I was closing the door, I noticed that the bottom section wasn't closing completely. The top area looked correct but the bottom part was about a ½ inch away from the frame of the game. As I looked closer, the problem appeared to be a misalignment with the bill acceptor. When I attempted to line it up to the bill acceptor entry area on the slot door, the whole unit was very loose. The complete assembly needed to be picked up a couple of inches or so and put back down in its proper place. There is a large nut on the left hand side that had come loose. Once the assembly was in place, the nut was tightened and now it was easy to close the door on the game. Simply a case of a loose bill acceptor assembly.

It reminded me of an IGT S2000 that I helped work on. That game had a main slot door issue too (by the way, both games are upright models). We tried everything we could think of to get the main door to close and lock easily. Here are the things that we looked at: coin tray, printer bezel, Oasis faceplate, bill acceptor bezel, the F15 light fixture at the top area of the door, and door lock areas. Even a new "door lock bar" was installed. The game still would not lock easily. Both "lock bars" were compared and looked at side by side and it was noticed that the original one had a little bit of grinding done to it. Just enough metal was taken off to make a circular part ever so slightly oval. Thus, when the original was ground "a touch more" (maybe an 1/8th inch), the door closed and locked quite easily. I am NOT saying when you have a door problem to grab



a grinder. MOST of the time there is a logical explanation as to why the door won't close and lock properly. Utilize ALL resources first. The only reason we used a grinder on it is because nothing else would work that we could think of. ONLY use grinder as LAST resort. Like I said, the majority of the time there is a reason why the door won't close. Some examples are: a foreign object under coin tray (such as a small bolt), a misaligned ticket printer causing the bezel to bind on the door, a bent "door lock bar," or a bent latch assembly.

IGT S2000
MPU Board Won't Seat Properly

Have you ever had an IGT S2000 upright game in which the MPU board would seat properly? When trying to install the board, it would not go in all the way? Recently, some of our S2000s were converted and on two different games, the board would not seat properly. After trying a few things, I found out that the small bolt that holds the "board frame" to the game had to be taken out. Once out, the frame could be moved around slightly so the board would fit properly, then the bolt was put back in to hold it in place. It worked on the first game, so the same was done on the second game, and it worked too. The following day I had another board that would not go in all the way so logically, the same repair was made. But this time it didn't work. The frame was moved slightly upward, downward, and sideways. I checked to see if anything was obstructing the "MPU path" as it went into the motherboard but everything looked fine. The motherboard (or backplane board) was replaced but the MPU board would not fit into it. Replacing the motherboard and MPU board was part of the conversion process. I looked the MPU board over and the

motherboard over. I tried everything I could think of but nothing worked. It was time to ask for help.

Right after I asked, a call was received to a game that had had a drink spilled on it. The slot attendant was concerned as to which area the liquid went. I told the attendant to shut the game off right away. As we both cleaned up the mess, I checked the game out but it didn't look like any major harm was done, so the game was turned back on and it was fine.

When I got back to the S2000 conversion area, my coworker told to take a closer look at the motherboard and the MPU board. What the heck? I already did that, I didn't see anything wrong. He told me to look even closer (as I have written in the past, sometimes the solution to the problem is right in front of you). After I looked even closer at both boards, I was embarrassed when I saw what was wrong. I was trying to install an older type MPU board into a newer "deluxe" motherboard. On the newer type MPU board there are MORE PINS on the connectors! Duh! Without thinking, I had grabbed the old MPU. It was like trying to put a square peg in a round hole. When the newer MPU board was installed with a newer motherboard, it fit. Amazing how that works.

Konami "Advantage" Video Slot
No Game Graphics

I was told that a Konami video slot was "practically dead" but nobody knew what had happened.

"Pat can you fix it?"

Well, I can take a look. Lights were lit up on the game but it didn't have anything on the screens. I knew it had power going to at least some of the areas of the game and I also knew that the main processor board (a.k.a. MPU board, main board, CPU, all pretty much the same thing) had been taken out and put back in. So, why not start off by reseating the board and go from there. Of course with power off, the main board was reseated and power turned back on. Bingo! Within a few seconds I had text on a screen and the game was starting to load. It seemed to me like the board wasn't seated all the way in, thus the game graphics couldn't load. Once it was in all the way, the game worked fine.

- Pat Porath
pporath@slot-techs.com

WHAT'S NEXT ?

We've spent ten years on the cutting edge to help you face today's challenges.

NOVEMBER 16-18, 2010 - LAS VEGAS CONVENTION CENTER

November 15—G2E Leadership Academy • G2E Advanced Gaming Institute • Security & Surveillance Institute

REGISTER AT WWW.GLOBALGAMINGEXPO.COM

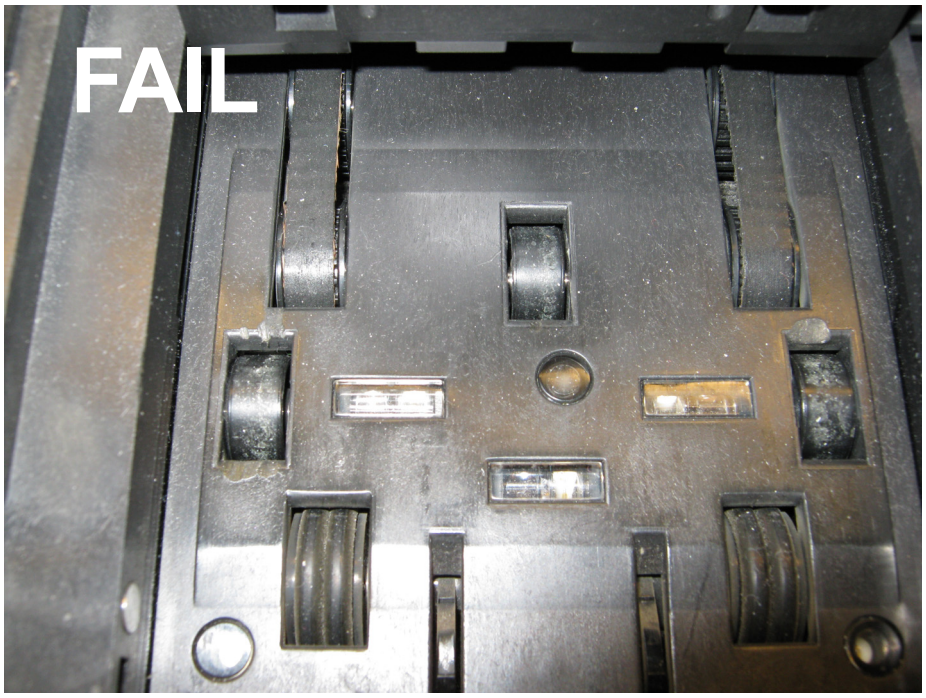
global. G2E gaming expo

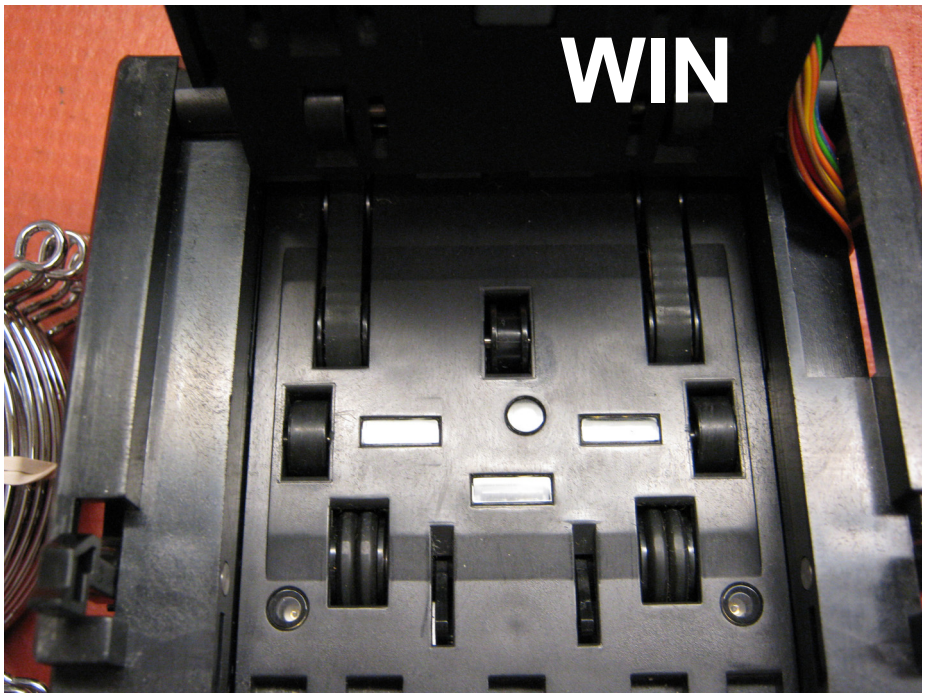
An American Gaming Association Event

Organized by Reed Exhibitions

Preventive Maintenance is the Key

By Dean Auger





I have a tendency to stress (*preach* as my staff will sometimes say) about the importance of our preventive maintenance program but it is my belief that it has played a large part in our success at keeping the machines in proper working order. Our customers enjoy non-stop action while playing our games and the cost of repair to the machines has been decreased.

We'll start with the WBA which is a flash or chip programmed validator from JCM. Repair and preventive maintenance go hand in hand. If you keep problem areas that can build up with foreign material clean and free, the chances of failure are greatly diminished therefore keeping the machines in proper working condition.

The UBA validators have become my favorite. They are the units I request

when we order new games as they are more durable and have had a great success and long life on the floor. They also have the added benefit of a quick flash while still in the game when upgrades for newly released bills are required. These units are a one piece unit, which means they do not have a removable head as the WBA units do.

In the picture titled dirty head you will notice the white marks on the wheels that assist in transporting the bill past the optics for verification. We use the Dremel as pictured with the 535 ¾" brass brush. When cleaning, we always have the brush at a slight angle as indicated in picture titled cleaning with the RPMs set to about mid range. It is vitally important that the wheel spins during the cleaning process. If the wheel does not spin, the brush will literally grind groves into the wheels creating a whole additional problem which we do not need. To assure this will happen, technicians are trained to hand spin all the wheels with the thumbs prior to using the Dremel to assure the wheels are free moving and do not need replacement.

We do not apply any pressure to the wheel as the Dremel and the 535 brush will literally do the work in seconds for you. After all the wheels on the top and bottom of the head have been cleaned, we clean the wheels on the back side of the transport as well.

Our next step is to use compressed air to blow out any loose debris from the head of the unit. Each unit is then carefully inspected for any other damaged parts.

We now use a spray bottle of 1 quart water and one (1) drop of mild dish detergent spraying only a soft lint free cloth to dampen only. We use this to whip and clean the optics. We allow the unit to air dry while we move onto the next repeating these procedures.

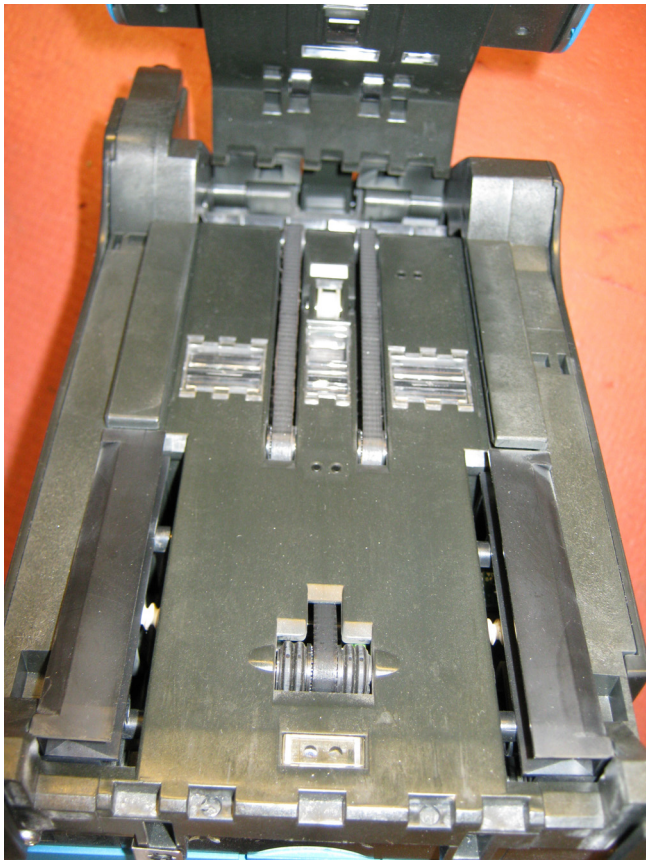
After heads have been

cleaned, we then put them into our test station and we do a calibration and bill test to assure they are functioning properly. When they have passed our tests, we tag them and put them on the shelf.

This is where we may differ from some technical shops. Part of our maintenance is to take the heads on the floor on a cart and swap them out with a whole bank of machines, then those heads are returned to the shop to go through the cleaning routine. Although the Bill Validator has many working parts, we concentrate on routinely swapping out the cleaned heads as that is where most of the dirt and debris build-up occurs. This allows the work to be done at the bench where, if needed, the technician can still quickly answer a call on the floor and yet a complete bank of machines was taken care of.

Cleaning the UBA differs, as it is a single unit, as described above, so the method is the same, we just don't have the ability to quickly swap heads. The UBA has a whole different design and actually can be cleaned properly at the machine in a few short minutes.

When cleaning the whole validator, a more thorough cleaning and inspection occurs. This includes hand spinning the wheels on the motors to assure they spin with the proper amount of pressure applied. We also check the tension and condition of the belts as well as a complete visual inspection of all parts and wires, checking F-out guide, etc



I would also like to thank our Security Manager, James, for his assistance on the photography in this article.

As always, I hope this may have been informational and something may have been gained to assist you in your position with your Casino. **- Dean Auger**

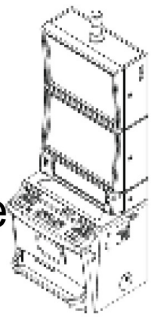
Palace Casino Redux Redux

It's always nice to be asked to return to a casino for another round of slot tech training. It means, of course, that the casino was satisfied with the training and that makes me feel great as an instructor. In this case, I was asked to return to Tachi Palace Casino for a quick, two-day course on LCD monitor. I repeated the same class to two groups in order to accommodate the different shifts and still cover the floor. It was nice to see some familiar faces. **- Randy Fromm**

Hands-on labs are important. We had time for three labs in two days. This is the semiconductor testing lab. Lots of beeping as we located bad transistors and diodes with digital multimeters.

KONAMI

For more Konami training material, visit the Slot Technical Server at slot-tech.com. Thanks to Konami's Dale Russell for the contribution.



TRAINING FOR CASINO OPERATIONS STAFF

Podium K2V 2.0 Model Upright Video Slot Machine

MACHINE FEATURES

All pays left to right only, unless otherwise specified in the game pay table.

One Key Reset Switch:

Clockwise operation ***TILT/RESET*** switch used to reset attendant pay/jackpot conditions and clear tilt conditions.

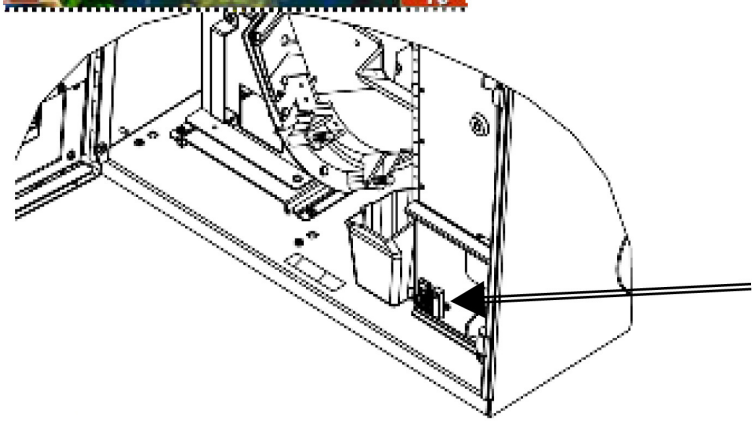
Counterclockwise ***AUDIT*** switch used to access Konami Maintenance System (KMS) for Meter Information, Game Recall, Events, Setup Options, Diagnostics and Out of Service.

Many tilts require a turn of a reset key switch.

Candle: An illuminated top light means the customer needs assistance (change button pressed). The top candle light will flash for tilts, door open and for attendant pays. Both candles will flash synchronized for an attendant pay. Both lights will flash whenever a door has been opened, the top will go out and the bottom will stay lit steady when all doors are closed and only goes out after a customer plays a game.

Game Information: Displayed in 3 Places:

1. Credit, Bet and Win Area (Top of the Screen)
2. Game Area (Middle of the Screen)
3. Help and Denomination Buttons including the lower Margin of the screen (Lower Section of the Screen)



Power Switch Location: Open the main door. The main power switch is a green rocker switch located under the bill door in the front lower right of the main cabinet.

Player Tracking/Accounting System: Remember to follow all standard operating procedures involving player tracking/accounting system regarding inserting your card for door openings, jackpots, and clearing of tilts.

JCM WBA, JCM UBA, Mars ZT, Mars CashFlow Bill Acceptors: Accepts currency and tickets face up in both direction and displays denomination of accepted bill in bill entry pathway.

LCD Monitor & MicroTouch Touchscreen: Flat screen with touchscreen for bonus rounds, help, pay table, cash-out, bet selection and denomination selection if enabled.

Coin Hopper: Operates on 24VDC and **does not have a brake release**.

Coin Acceptor: Accepts coins using a Micro-Comparator, IDX or Condor coin comparator.

Don't replace
REPAIR IN-HOUSE AND SAVE!

Buying Replacement Units!

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

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

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

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

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

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

Slot Tech Magazine 1944 Falmouth Dr. El Cajon, CA 92020-2827
tel.619.593.6131 fax.619.593.6132

KONAMI

PAY TABLE / HELP

Each game has a unique pay table and help screens that may only be accessed by touching the on-screen ***PAY TABLE*** and ***HELP*** button. Includes playable lines, bonus information, special features, and disclaimers. To view other pages, touch the ***PREVIOUS*** or ***NEXT*** on-screen button. To exit, press on-screen ***PAY TABLE*** **or** ***HELP*** button again. Can be an excellent source of information during player disputes.

ATTENDANT HANDPAY / JACKPOT RESET

The machine will display ***ATTENDANT PAY*** or similar jackpot message on the Game Area (Middle of the Screen) of the monitor. Verify the hand-pay or jackpot amount. Complete the necessary casino hand-pay procedures regarding verification/payment/player tracking. Insert reset key into ***TILT/RESET/AUDIT*** key switch, turn it clockwise 90° and return, resetting the machine into game play mode.

CLEARING A MACHINE TILT CONDITION

The machine will display the tilt condition message on the Game Area (Middle of the Screen) of the monitor. Read the information on the screen, fix the tilt and reset the game if needed.

COMPLETING A HOPPER FILL CONDITION

The machine will display ***HOPPER EMPTY or JAM*** on the Game Area (Middle of the Screen) of the monitor. Open the main door to verify the empty hopper condition. Close door. Retrieve coin for fill, following all standard casino procedures. Open main door and fill hopper. Close the door. The machine will continue paying out coins.

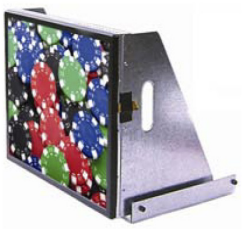
PRINTER JAM

The machine will display ***PRINTER JAM*** message on the Game Area (Middle of the Screen) of the monitor. Clear the paper jam from the printer and reset the paper. Insert reset key into ***TILT/RESET/AUDIT*** key switch, turn it clockwise 90° and return, resetting the machine into game play mode.

BILL JAM

The machine will display ***BILL JAM IN ACCEPTOR or similar*** message on the Game Area (Middle of the Screen) of the monitor. Clear the bill jam from the acceptor and reset the validator. Reset the game if necessary.

AG&E
American Gaming & Electronics



W-G LCD MONITORS & KITS

LIGHTING & COMPONENTS

CURVED & FLAT TOUCH SCREENS

Your #1 Source for Gaming Parts & Service

"AG&E" A WELLS - GARDNER COMPANY

BV / PRINTERS
NEW / REFURBISHED
REPAIRED

WELLS-GARDNER
ELECTRONICS CORPORATION

PLAYER TRACKING

BUTTONS

USED GAMES

TOOLS & SUPPLIES

Service Center

⇒ Authorized JCM Repair Center
⇒ Monitor & LCD Repairs for: IGT, Bally, WMS, Aristocrat and Konami

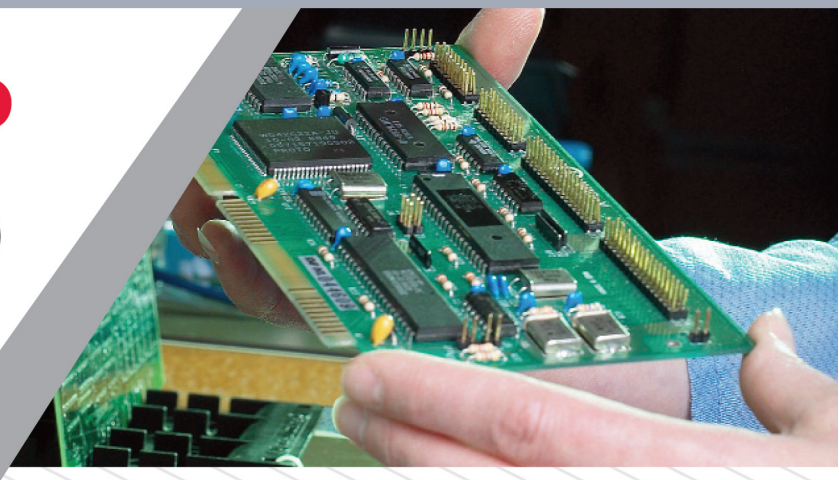
Contact Us

American Gaming & Electronics
4630 S. Arville Street
Suite E
Las Vegas, NV 89103

P: (702) 798-5752
TF: (800) 727-6807
F: (702) 798-5762

WWW.AGEGAMING.COM

SUZO HAPP SERVICE GROUP



Suzo-Happ provides warranty and repair services on a variety of gaming, amusement, retail and vending products.

Suzo-Happ Service Programs

- Flat Rate Repairs
- Reconditioned Products
- On-Site Maintenance
  In Select Locations
- Pick Up & Delivery Service
  In Select Locations

Factory trained technicians located across the United States ensure your products are restored to original equipment manufacturer's specifications using factory approved parts.

Responsive service support staff provide ease of processing your service needs.

Trusted and proven service quality from original equipment manufacturers to end users.

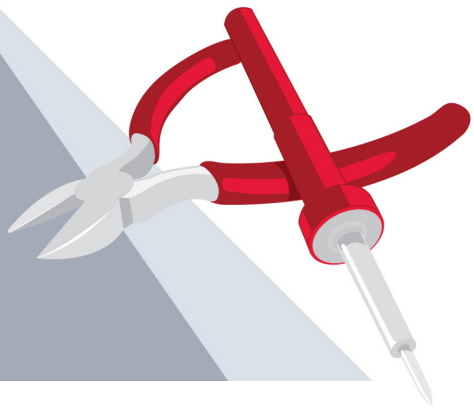
GAMING

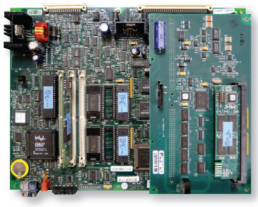
Authorized Warranty Services

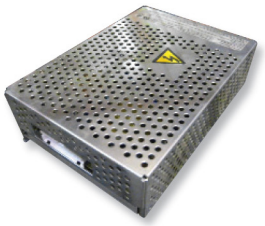
- ✓FutureLogic (Exclusive)
- ✓MEI (Exclusive)
- ✓Kortek (Exclusive)

Repair Services

- ✓LCD Monitors
- ✓CRT Monitors
- ✓Game Power Supplies
- ✓Game Main Boards
- ✓Bill Validators
- ✓Ticket Printers







Service RMA and Inquiries
PHONE (866) 736-2374 FAX (702) 597-5360 EMAIL SERVICE@SUZOHAPP.COM