

June 2011

SLOT TECH

MAGAZINE

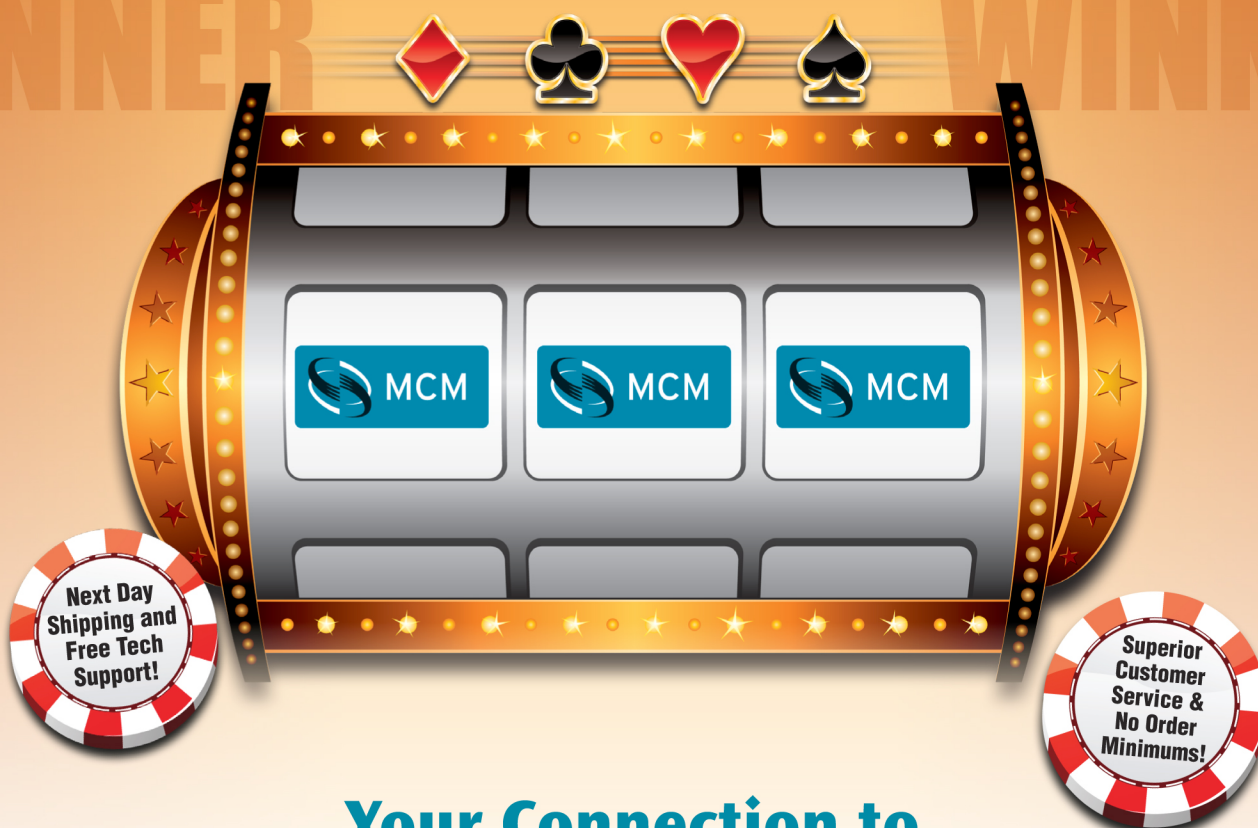
Slot Machine Technology for the International Casino & Gaming Industry



Slot Tech Magazine

AVP Trim-Line 2.0
A Shot in the Dark
TechFest 22 Report
Whose Job is it Anyway?
Quick & Simple Repairs #75
Slot Tech Training Fortune Bay Casino

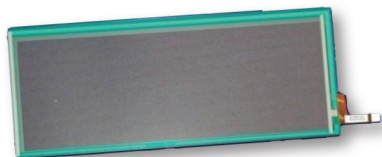
\$10.00



Your Connection to Electronic Products and Components!

MCM Electronics has supplied high-quality electronic components, equipment and accessories to the electronics industry for more than 35 years. Each order is backed with our satisfaction guarantee. MCM saves you time and money by carrying a full-line of system replacement parts for all major slot machine manufacturers, and a large selection of tools and test equipment for casino technicians.

Get all your Pacific Illumination products from MCM!



4 Wire Touch Screen for 6.2" Hitachi LCD

•IGT NexGen Player Tracking System
MCM Part #25-3605 Mfr. #8560



Protective Mylar Sheet for 6.2" Hitachi LCD

•IGT NexGen Player Tracking System
MCM Part #25-3725 Mfr. #8610



Single Cold Cathode Lamp Assembly for 6.2" Hitachi LCD Panel

•IGT NexGen Player Tracking System
MCM Part #25-3600 Mfr. #8500

Call or visit us today!

800-551-1522

www.MCMelectronics.com



MCM Electronics, Inc.
650 Congress Park Dr.
Centerville, OH 45459
A Premier Farnell Company

Slot Tech Magazine Editorial

June 2011

Page 3-Editorial

Page 4-A Shot in the Dark

Page 14-TechFest 22 Report

Page 16-Regional Slot Tech Training at Fortune Bay Casino

Page 17-AVP Trim-Line 2.0

Page 18-Quick & Simple Repairs #75

Page 22-Whose Job is it Anyway?

Page 26-Subscriptions & Back Issues



Randy Fromm

Dear Friends of Slot Tech Magazine,

This month, our Maltese correspondent James Borg gives us a good example of slot machine troubleshooting. He takes us on a rather deep and involved journey until he finds the culprit. The journey begins on page four with A Shot in the Dark.

If you attended TechFest 22, you no doubt want to see your picture in the magazine. It's on page 14. If you attended the regional slot tech class at Fortune Bay Casino, your picture is on page 16. Everyone else, turn to page 17 for a Quick Tip on the AVP Trim-Line 2.0 from Kelly Harless.

Pat Porath's Quick & Simple Repairs #75 touches on some interesting error codes and some simple repairs (that is, after all, the title of his column) while our old friend Herschel Peeler has a contribution that is more editorial than technical and I have declared it as such on page 22. Read Whose Job is it Anyway?

I am looking at a location in Washington state for the site of TechFest 23, sometime in the fall, likely in October. I'll let you know when the details are finalized.

A handwritten signature of Randy Fromm in black ink.

Randy Fromm - Publisher

On the Cover: This attractive WMS slot machine was seen at the Atlantis Casino in Reno, Nevada and photographed on 4/20/2011. They were nice there and allowed me to photograph the machines as long as I didn't include identifiable patrons. Great food too! I really love that property.-rf

Randy Fromm's Slot Tech Magazine

Editor

Randy Fromm

Technical Writers

James Borg, Chuck
Lentine, Craig Nelson,
Kevin Noble, Pat Porath

Slot Tech Magazine is published
monthly by
Slot Tech Magazine
1944 Falmouth Dr.
El Cajon, CA 92020-2827
tel.619.593.6131 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

Copyright 2011 under the Universal
Copyright Convention. All rights re-
served.



An official publication of the
Global Gaming Expo



In my line of work during my many travels, I've come to conclude that all that glitters is certainly not always gold and that something that seems easy, straightforward and plain-sailing is anything but that (the voice of gloom and doom or the voice of experience?).

When a machine starts up and goes off within a second, the first conclusion that comes to mind might be a FUBAR PSU. Fair enough. Failure of the power supply unit is common.

Or perhaps the fact that you now measure zero volts at the DC outputs might not be a power supply problem at all. It could also be the case that something external to the PSU itself has gone FUBAR, which would cause more current drain than the PSU is rated for, sending the supply into overload mode (also known as Over-Current Protection or OCP) killing its output off in the process.

The beauty, the fun bit or even the excitement about a typical straightforward state of affairs trailing from the above would be if the PSU was changed and still the PSU goes into overload. Aha! Did I just say fun and excitement? That would be a

A Shot in the Dark

By James Borg

rather hair-raising issue, not to mention the fact of having to go back to the drawing board of early days and trying to decipher Ohm's Law once more or attempting to change the known laws of physics.

It all happened barely a few hours ago, following a three day absence from work. I was told that an Aristocrat MKVI was down. I found a note mentioning 'its PSU needing replacement' but I was then told that somebody had already replaced it but the machine was still down. When a failed attempt at repairing something hits my eardrums, I tend to go into 'challenge mode' and go round the problem with all guns blazing a fearsome and deadly broadside... in simpler terms, "I'll go round to have a little mosey."

True enough, the machine

was completely off. Flicking the juice switch at the front made it illuminate a soft reddish light (indicating that the machine was on) but all I heard was the Setec PSU's relay clicking and nothing else happened.

The only sign of life was an LED on the bill acceptor, a JCM UBA. The indicator came on for a very short

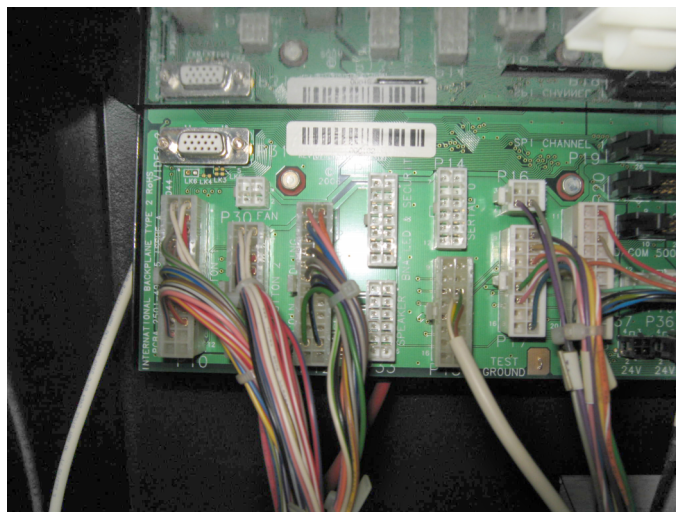


Fig. 1 Backplane (left side)

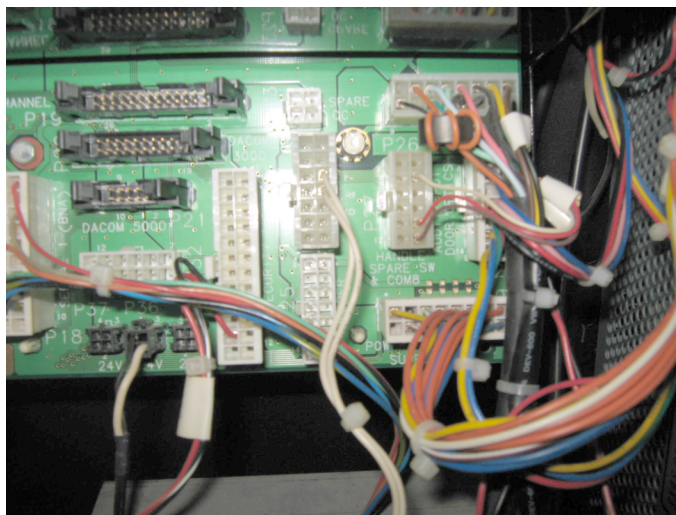
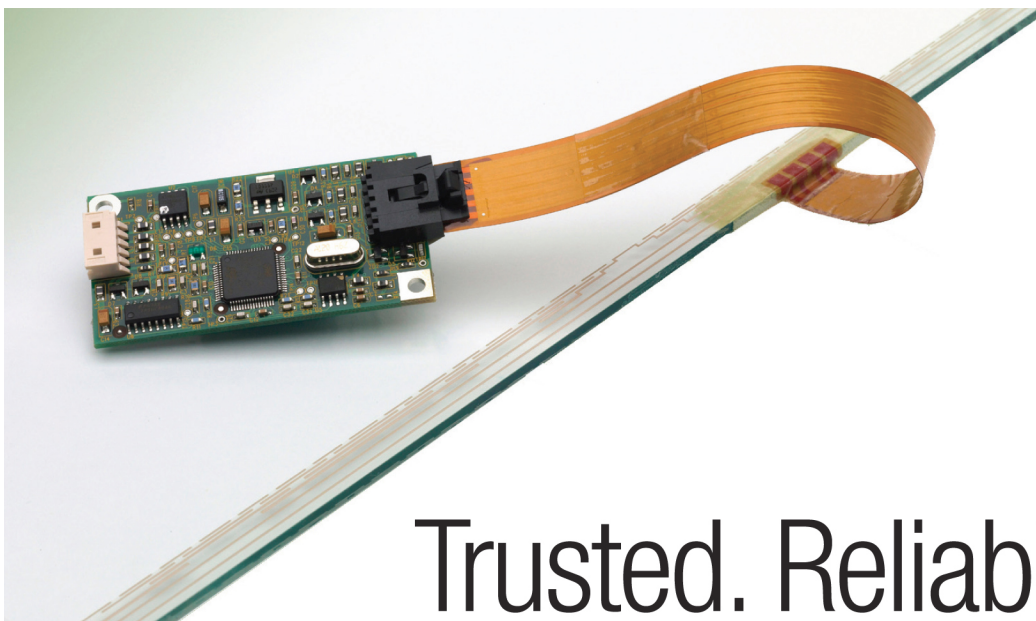


Fig. 2. Backplane (right side)



Trusted. Reliable. Available.

3M™ MicroTouch™ Touchscreens and Controllers

The gaming machines on your casino floor rely on **3M MicroTouch** touchscreens and controllers to help provide 24/7 operation and up time.

Leading game machine manufacturers have made **3M MicroTouch** touchscreens and controllers the “gaming touch standard” due to their strong track record for performance.

Casino operators rely on manufacturer recommended **3M MicroTouch** replacement parts for “plug and play” integration and the assurance that 3M products “just work” out of the box.

3M MicroTouch touchscreens and controllers for your gaming machines are readily available from these authorized gaming distributors.



Information about 3M MicroTouch products is available at www.3m.com/touch.

Visit www.youtube.com/3mtouchsystems for videos featuring 3M MicroTouch products.



period of time and died off very soon after. Then total silence reigned all around, apart from Demis Roussos singing in the background “Goodbye My Love, Goodbye” on the PA system.

Editor’s Note: If you’re reading this online and you’re anything like me, you have likely already copied the name Demis Roussos and are ready to “control-v” it into Google or YouTube as soon as you’re done reading this article. Don’t bother (unless you like Yanni or Michael Bolton). It’s like elevator music or, in this case, exactly what it was, casino background music. Innocuous.

The first thing to do, the obvious thing to do, would be to replace the PSU again, with a known working one, but since I was told that it was already done, I decided to refrain from doing that for the time being. I opted to remove anything from the machine that could in one way or another pose some sort of load on the supply, starting with the bill acceptor. Result = Zilch.

I then removed all the plugs from the backplane (figures 1 and 2, previous page), trying the machine again each and every time a plug was pulled out. With each attempt (and the machine still not growling into life) it cut me down a bit more every time. Eventually I ended up pulling all the plugs out, apart from the one that’s coming directly from the PSU, obviously.

The result after all this was Zilch again. OK, no big deal as yet since there was still loads to do so I didn’t start to panic at that point in time. I decided to pull both the

ballast plugs out (since these are coming directly from the PSU itself) and try again (see figure 3).

However, pulling these two plugs out still didn’t shift my problem, i.e. Result = Zilch again.

At this point in time, I was beginning to have very serious doubts if the PSU that had been previously replaced was indeed a good unit. I had to check it out myself to make sure as I was finding myself in a rather awkward situation where I still didn’t know where the problem originated.

With that line of thinking in mind, I pulled out the PSU from a working machine and plugged it in my faulty MKVI. I was happy for a fraction of a second as the replacement PSU took just a little bit longer before it went off again but still, the end result was the same. Zilch.

To recap, the supply was replaced, the bill acceptor was out of circuit, both the ballasts were eliminated, I had pulled all the plugs on the backplane one at a time and still NADA. I was dreading my next move, my next suspicion but I had to face cruel reality, the possibility



Fig. 3 Ballast Feed Plugs

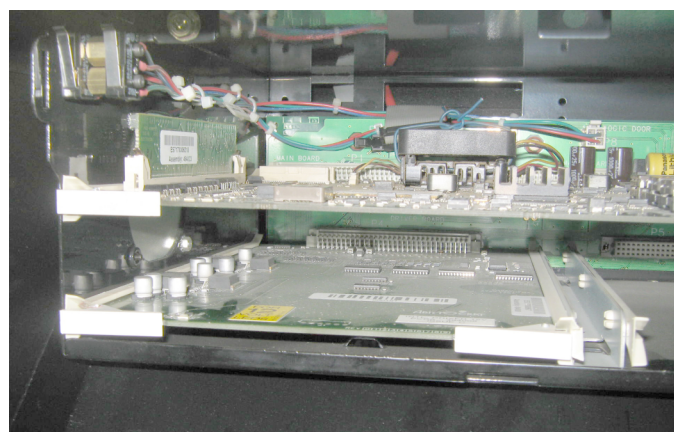


Fig. 4 Inside the Logic Box

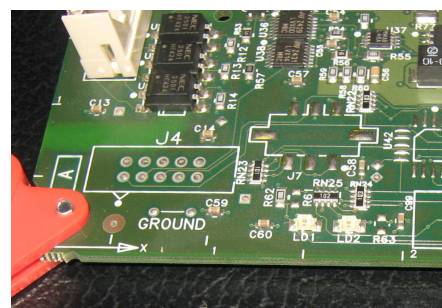


Fig. 5 LED Indicators on Motherboard



Fig. 6 LED Indicator on Driver Board

FUTURE-PROOF



GEN2 Universal

Tomorrow's Printing and Couponing Solution ... TODAY!

The Universal Solution for Promotional Couponing,
TITO, and Ticket-Out Applications

The Number One Globally Preferred Printer for
Slots, Server-Based Games, VLTs, Class II, and AWP Games

Over 1,400,000 TITO Printers
Shipped Worldwide

50% More Standard Ticket Capacity
Than All Other Gaming Printers

Eliminates Paper Waste by
Taking Ticket Stack Down to Last Ticket

FutureLogic
group of companies



futurelogicinc.com/gen2universal

that my motherboard could have gone to meet its Maker.

'Goodbye my love, Goodbye', echoed in my ears. HELP! I didn't have a spare board at hand and so far, I haven't managed to repair an Aristocrat faulty motherboard. This machine needed to be up and running, like pronto, otherwise Anta, my manager, wouldn't be impressed, have me shot at dawn, hung, drawn and quartered or even worse, personally beat me up (In real life, she really is a joy and I wouldn't have any other manager apart from her to work with).

I had no choice but to dig deeper into my dilemma. I don't enjoy getting too close to this section as it usually means trouble with a capital T but I had run out of options.

The nose plays an important role in fault finding but mine couldn't smell anything out of the ordinary. A quick visual without pulling either board out didn't expose anything worth more attention, so I was somewhat stuck. With the logic door open, I applied juice again to the machine, and had a slight reaction, a minor form of life.

The two red LEDs on the motherboard, namely LD1 and LD2 flashed for a second, and died (see figure 5). Not very reassuring that, not very reassuring at all. I then noticed that D7 on the driver board did the same trick (see figure 6).

Things were certainly not looking too good, especially since I had pulled both these boards out and nothing at all was obvious. Carrying out some meter checks on them proved fruitless.

I needed to know where I stood so I dared to pull both the motherboard and the driver board from a working machine. This is something which I loathe doing, because there is no way of telling if the faulty machine might blow a perfectly working board to pieces but I had no choice. My back was against the wall and the wall wasn't budging.

Pushing in the working boards in the faulty machine, while trembling like a leaf in the process, I decided not to turn the machine on before I go for a quick nicotine shot. It was stressing me out all this. BIG TIME! What if I ended up with TWO machines down, instead of just one? How was I going to explain it? Was Armageddon closer than had I cared to imagine. I had a crafty hot chocolate while inhaling some fumes as that helps to calm my nerves somewhat. After having finished both my drink and my smoke, I walked the plank back to the machine. Everything was as I had left it. Nothing moved. Nothing changed. No elves coming round to fix it for me while I was away. It's not fair how they helped a shoe-maker but not a slot tech.

Well, no use crying over a fairy tale. I summoned enough oomph to put my finger on the red switch and held my breath while I pushed it on. I closed my eyes somewhat but not com-

pletely as I wanted to see what happens after all. What transpired left me somewhat perplexed. Actually, the proper description is 'well and truly confused.' Exactly the same thing happened with the new boards as with the old ones. On turning on the juice, the LEDs flashed for a second and died again.

I sighed and sat down, lost in thought. I didn't know what else to do, and yet I was annoyed at myself as this was, or seemed to be, a perfectly straightforward job, even more so once the motherboard and the driver boards were out of it too. What on Earth could be causing the supply to trip as it was doing? There was nothing else left to remove or change. Nothing! I had a good look inside the logic box to see if I was missing something. I couldn't see any capacitors there that could have shorted out. There weren't any components at all (unless they were hiding on the other side of the board) but I assumed that there weren't any. So what is the problem? What is causing the power supply unit to go into overload mode?

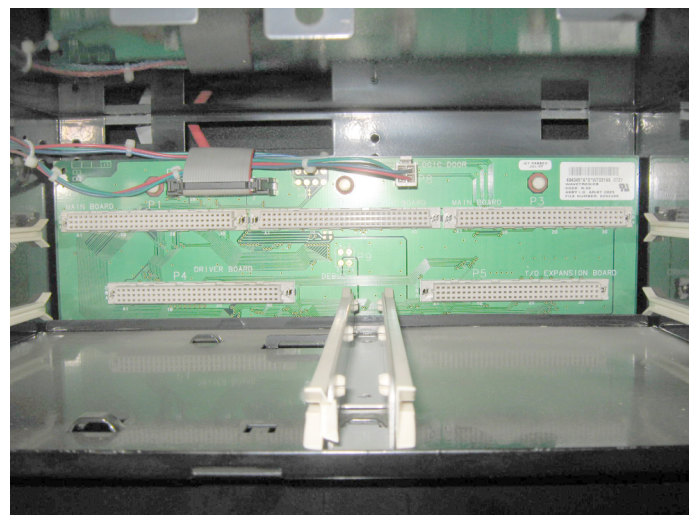


Fig. 7 Backplane View



Our factory trained technicians guarantee that your business can run as efficiently as possible. We will restore your equipment to the manufacturer's original specifications, using only factory approved parts.

To aid in this endeavor, you will have access to a responsive and intuitive service support staff. From original equipment manufacturers to end users; our trusted services and proven quality speak for themselves.

SERVICE PROGRAMS

Flat Rate Repairs
Reconditioned Products
On-Site Maintenance
Pick-up & Delivery Services in select areas

REPAIR SERVICES

LCD / CRT Monitors
Game Boards / Power Supplies
Bill Validators
Ticket Printers

All repairs have a 90 day warranty.

WARRANTY SERVICES

TransAct
JCM

Authorized Service Center for Ceronix and Wells Gardner.



PATRIOT DISTRIBUTION

Patriot Gaming & Electronics offers over 15,000 different new and used gaming parts.

We also buy and sell used gaming devices and gaming parts.



www.patriotgaming.com



Gamesman

TRANSACT
Technologies Incorporated



PATRIOT WEST

[P] 702.249.0996
[F] 702.818.4000

PATRIOT MIDWEST

[P] 866.367.5666
[F] 219.922.6466

PATRIOT EAST

[P] 609.294.4560
[F] 609.294.4563

On the backplane (see figure 7) were two connectors which I honestly had no idea what they were at a glance. The white one, P8, was feeding the two micro switches on the logic door, while the flat ribbon cable was going . . . Basically, I had no idea where that was going as I had never even known it existed before. A quick look at the wires attached to these two switches (see figure 8) showed nothing that shouldn't be there so that line of thinking was quickly put aside.

On the other hand, the grey flat ribbon cable (see figure 9) was, at that moment in time, a total mystery. I pulled it out, put the original boards back in again and low and behold, the machine started to come to life. The LED indicators that initially had flashed only once before had now changed their tune completely. The monitor came to life as well, with white text coming up on a black background, which eventually went on to show the game along with the credits that had been left in it by the unfortunate customer playing on it at the time.

Just to confirm to myself that it wasn't all a fluke, I turned the machine off, plugged back in again this mysterious grey cable, and the fault returned. Pulled out the wire again and the machine started off normally. Where does this cable go? It doesn't seem to be all that important as the machine started up fine, although there was a list of errors as long as my arm on the screen, those can wait a bit.

Tracing the cable, I found out that it actually goes out of the logic box and goes upwards, just where, I had no idea. The only way to find out was to follow it. It went up and up, (see figure 10) behind the monitor and up further still. I pulled out the sliding section where the hard meters are located to have a look in there and there it was, looking at me.

It seemed like I had found the fault. It looked like there was a problem in the hard meter module itself. A quick peek inside didn't show it to be a complicated piece of circuitry so I started removing the three connecting plugs to take it to the workshop for repair.

Something in me wasn't happy though. I couldn't quite explain it, a gut feeling if you wish. Once the hard meters were actually out of the machine and on a chair, I decided

to plug in the grey flat ribbon cable from inside the logic box, just for kicks if anything. The machine should start up fine and the worst thing that can happen would be for the hard meters not to be detected and the machine would stop on that error which would make perfect sense. I turned the machine on and waited, although I didn't have to wait long for the result.

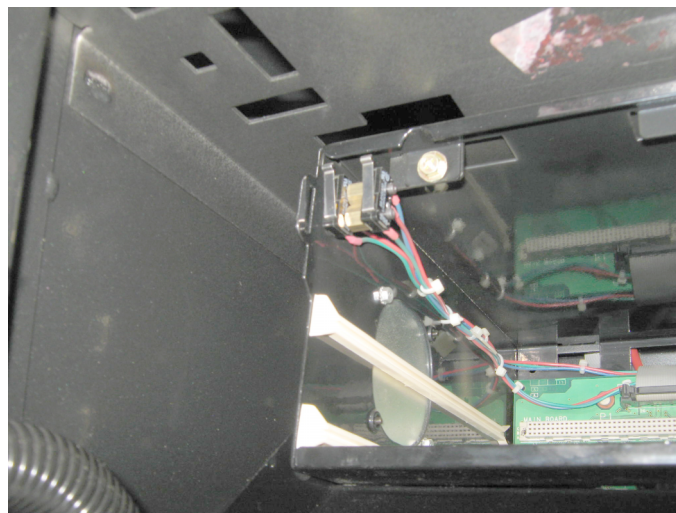


Fig. 8 Logic Door Switches

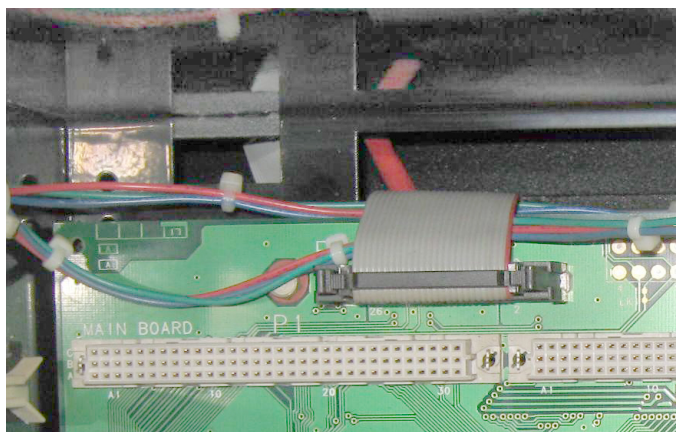


Fig. 9 Grey Flat Ribbon Cable

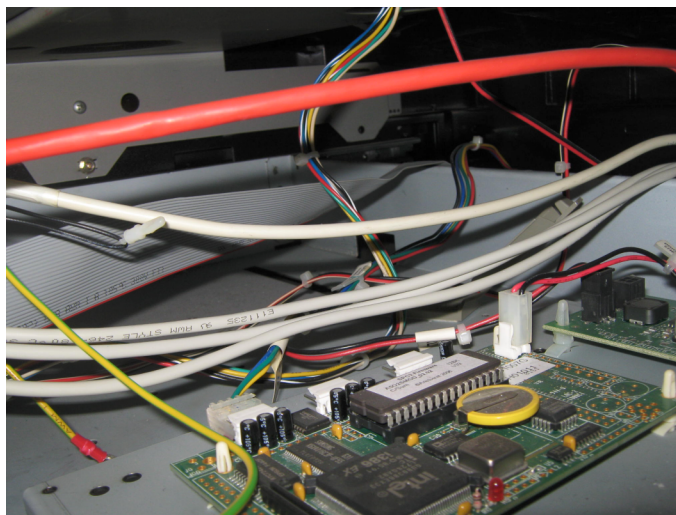
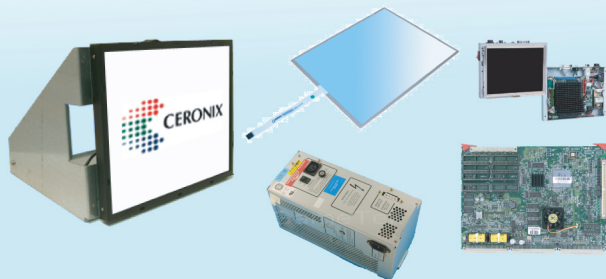


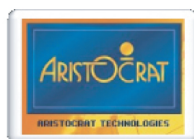
Fig. 10 Grey Flat Ribbon Path

CasinoTech

INDUSTRIAL MONITORS



Parts & Service For:



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

Now Repairing Select Power Supplies



Don't spend money on replacing your broken power supplies! We are now able to help you out with some of your more popular power supplies from IGT and Aristocrat.

Authorized Ceronix Service Center

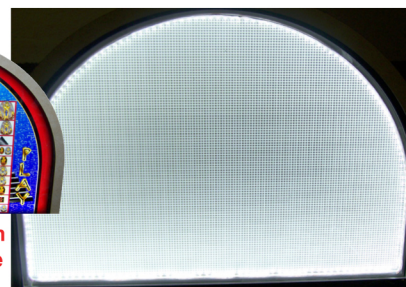
P: 702.736.8472 P: 281.255.2884 F: 702.920.8678
981 Empire Mesa Way - Henderson, NV 89011

SALES@CASINOTECH.COM
www.CASINOTECH.com

NEW!
Prism Series from
Kiesub Electronics
Complete LED Solutions
for
IGT S2000 • IGT S2000 Slant Tops
IGT Game King • Bally 6000
WMS Bluebird
TOP & BOTTOM GLASS
BILL VALIDATOR PANELS
DENOM PANELS
REEL LIGHTS



Super-bright, even
light improves the
look of graphics-
No hot spots!



"Plug and play"
LED Panels
replace lamps &
bulbs in most
machines



Benefits of LEDs vs. INCANDESCENT BULBS

- Lower power consumption
- LEDs can last up to 100,000 hours
- No heat generation saves on replacement costs of other heat-sensitive components

**Energy-efficient LED technology from
Kiesub can save you thousands of \$\$\$\$
per year in energy costs**

Replacing belly glass lamps with LED panels
in just 100 machines can result in
cumulative savings over 5 years of **\$30,195.00!!!**

Contact Mike Johnsen,
Director of Manufacturing
(800) 544-7007 x120 or email: mikej@kiesub.com

KIESUB
ELECTRONICS

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

Half of me was glad I turned it on, while the other half wasn't. Hang on a second, and let me rephrase that. My heart stopped in its tracks as the same problem surfaced again! AGAIN! Why? Didn't I crack it? Didn't I just trace the fault? What was going on? Wasn't the hard meter module on a chair next to me? Was somebody hurling curses at me and hit me right where it hurts? I had to sit down and think about what was going on as the results annoyed the living daylights out of me. I unplugged the grey wire again from inside the logic box and the machine started up fine. Plugged it back in again and the fault returned. The other side of the cable was basically floating as I had unplugged the hard meter module. I was beginning to sweat out of sheer frustration and annoyance.

Surely it can't be it. Nah... it just can't be... can it? Can the cable itself be damaged, somehow? It just had to be. There was NOTHING else left, nothing at all. This was certainly a shot in the dark. I pulled the cable totally out of the machine and started laughing (an early sign of insanity perhaps).

I couldn't believe my eyes when I saw the damage (see figure 14). The copper was exposed and it must have been shorting to ground somewhere inside the cabinet. I couldn't really explain what happened as there was plenty of slack in the wire and where it was, it wasn't readily accessible. Definitely weird.

This was one of the strangest faults I've ever come across. We've had that machine for quite a while and it's always behaved itself. Recently, its location has been changed by about 20 meters. It wasn't bashed about; it wasn't kicked or abused as I was there when the move was carried out. Weird but stranger things have happened and, as the old saying goes, put it to experience.

Did somebody just offer me a hot chocolate to celebrate?

- James Borg - Malta
jborg@slot-techs.com



Fig. 11 Hard Meters

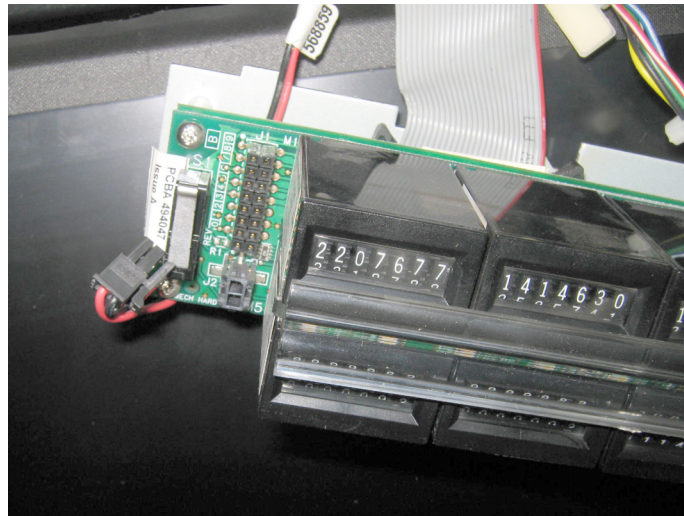


Fig. 12 Hard Meter Connections

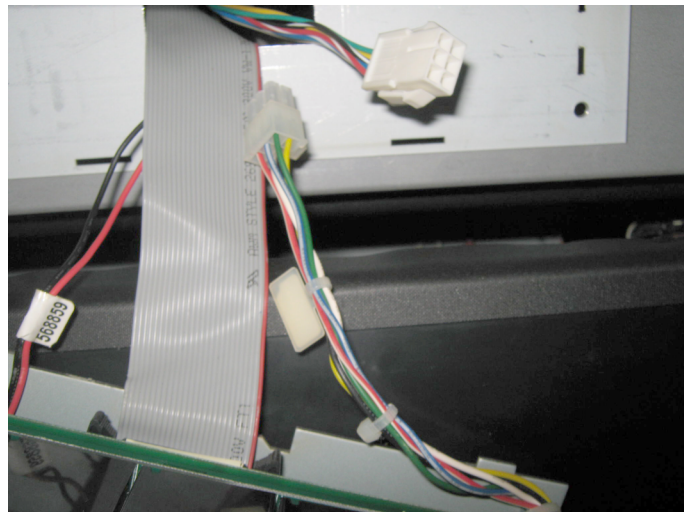


Fig. 13 Hard Meter Connections



Fig. 14 Damaged Flat Ribbon Cable

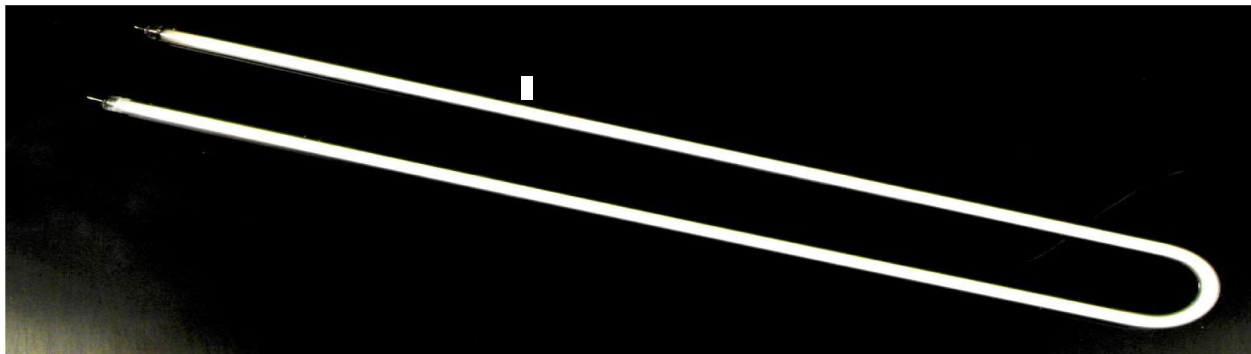
New Cold Cathode Lamps Available

Part #1500 For IGT

**Raw "U" shape cold cathode lamp for 22 inch Samsung
LCD #LTM220M3 in Kortek monitor KTL220S**

Part #1670 For Konami

**Raw "U" shape cold cathode lamp for 22 inch Samsung
LCD #LTM220M3**



**For more info or to place an order contact one of our distributors
below or contact us at pacificillumination@gmail.com**



SUZO  HAPP



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

Slot Tech Event

TechFest 22 - Mystic Lake Casino

For eight years in a row, TechFest has been held at Mystic Lake Casino, home to one of the finest slot shops in the world. If you come to the event, you are invited to take a backstage tour of the facility. You will be amazed and will return with all sorts of ideas about how a real slot shop should be organized.

At TechFest 22, we concentrated a bit more on some “hands-on” training, something that is arguably challenging with over 60 people in attendance. For my part, every attendee received a handful of sample electronic components for testing and their own digital multimeter to take home with them. Troy Nifziger of Ceronix was a real hero to the event as he brought with him a dozen LCD panels so everyone could practice disassembly and reassembly of the units in order to replace the CCFLs. He also brought a dozen, working and complete units for examination. Thanks, Troy. Ceronix also provided some nice door prizes for the event including some coffee mugs, poker sets with cards and chips and even a really nice Galileo Thermometer, won by Jonathan Red Owl of Prairie Wind Casino.





Opposite above: Transact Technologies' Russ Wige. Opposite left: David Oldham (Suzo-Happ) presented FutureLogic Printers and MEI bill validators.

Above left: JCM's Dan Petersen discussed UBA as well as JCM's latest, the iVIZION. Left: 3m's Paul Hatin and Mark Roberts. Above: Ceronix's lead technician, Troy Nofziger.



Regional Slot Tech Training @ Fortune Bay Casino

This training was way up north in Minnesota, about 30 miles or so from the Canadian border. In addition to the slot techs from Fortune Bay Casino, Black Bear casino (also in Minnesota) sent Dawn Robinson, John Kaikkonen, Ray Lorincz, Eric Kowalski, Mark Huntington, and James Abrahamson. A couple of techs each attended from Casino Omaha (Onawa, Iowa) and Elwha River Casino, one of Ameriaca's smallest casinos in Port Angeles, Washington. Casino Omaha sent Billy Warren and Samuel Hundley. From Elwha River Casino, Romy Laungayan and Melanie Worley. If you are interested in sponsoring a slot tech class at your casino, please contact Randy Fromm. editor@slot-techs.com 619.838.7111



AVP Trim-Line 2.0

By Kelly Harless

Recently my tech staff and I were trained under fire on an issue we were having with an IGT Trim-Line AVP 2.0*. It seems the game had frozen in the bonus round. Power resets and the like proved ineffective and when we attempted to RAM clear the game it would stall after the first tilt screen 'RAM ERROR'. After further trouble shooting it was determined the faulty component was the logic box.

We only had three spare logic cases to work with. Normally that would be more than sufficient but lately we had been having issues with "repaired" items returned to stock (nothing makes your troubleshooting endeavors more futile than working with defective parts). The first box we put in had no power on boot, the second yielded the same results as the initial problem and the third was no power again. Trying to resolve an involved issue in a casino that requires scheduling and involving several different departments can be challenging... but we digress.

As it turns out, the lever used to remove and replace the logic box is designed to operate a switch when it is fully closed. If this switch is

not 'made' no power will be supplied to the box... good to know. Also involved in that mix is an I/O board that piggy backs the main PCB. Either one of these components can cause a no power symptom. (No illuminated LED on logic box)

Once we figured that out we were able to get a couple of boxes to work. We sent the others out for repair and although we never heard what repairs were made to the logic boxes it was good information we learned for the future.

Although the AVP machines can be finicky, (overheating, filter issues, video cards, etc.) they still make us money so the more we know about them the better our bottom line will be.

-A version 2.0 can be distinguished from a 2.5 by many ways. Two of which are...

- o The 2.5 does not utilize a CD-ROM.
- o The 2.5 uses an ATX power supply mounted to the exterior of the brain box.

- Kelly Harless



YOUR TRUSTED CHOICE
for reliability and unparalleled service

PERFORMANCE YOU CAN DEPEND ON:

- Zero defects: no jamming, no downtime
- Easy-lift, banded packs simplify unpacking & loading
- Multiple plants for expeditious production & delivery
- Inventory management services
- Exceptional, one-to-one customer service

Approved for use by all TITO peripheral
equipment OEMs and slot machine
manufacturers worldwide



For exceptional service,
contact Susan Mitchell

901-377-1849
susan.mitchell@slot-tickets.com
www.slot-tickets.com

Slot-Tickets™
WORLDWIDE
a WS Packaging Group Company
1655 Wynne Rd., Cordova, TN 38016

June 2011



Quick Simple Repairs #75

By Pat Porath

IGT AVP “Battery Low”

In some cases when a slot machine has a “battery low” it may just be an error and a power cycle could fix the problem. Turn the game back on and it works. After a power cycle is done and the error appears again, now there may be a problem. In many situations, replace the battery on the board, set game options, verify game options and it is ready for play.

What happens when the “battery low” error does not go away even after the battery is replaced on the processor board? Well, on a newer AVP games there is also a 3.6v battery pack on the backplane board. It kind of looks like a battery pack that is in cordless home telephones. Check the voltage with a multi-meter and if the voltage is below 3vdc, I would replace it. Once all the batteries have been replaced, the

error should be resolved. Note: I have heard of bad video cards showing a battery error too. If all of the batteries test OK, there is a possibility that a bad video card may be to blame.

Bally Cinereel-No Video

A first question may be, “Cinereel” no video? Cinereel games have reels right? These do have reels, along with a LCD in the top box area. Another question may be what caused the LCD to go black? The answer: main power in the casino flickered. As I walked from our shop to the gaming floor, I came upon a Bally Cinereel with a top LCD that was black. A power cycle was done on the game without success, along with reseating the 5/12v and 24v power supplies. It seemed like the game didn’t have much life in it at all so I reseated the game and OS CF cards. I also reseated the brain box. Nothing seemed to help.

A co-worker stopped by to give me a hand and asked what I had done so far. Now it was time for good old-fashioned troubleshooting and swaptronics. We started with swapping the

5/12v power supply (which didn’t help) then swapped the 24v one. That didn’t help matters either. Next, the brain boxes were swapped and still nothing. When all of the original parts were put back into the original games, BOTH didn’t have an upper LCD display. Now what the heck happened? It was time to try a known good part. A replacement LCD was tried in the game that first had an issue. The game graphics came up right away. Instead of completely installing the LCD, we unplugged the connections from the bad one, set the replacement on top of it so the cables would reach, and then plugged it in. After we saw that the unit did in fact work, then we installed it into the game. Replacing the part fixed one game, what was going on with the other one? Another spare LCD was tried in that game, and it worked. It ended up that both games had bad LCDs.

WMS Bluebird “Door Open” Definitions

Door Open B—belly door open

Door Open S—stacker box

may be removed

Door Open D-drop door open

Door Open T-top box main door open

Door Open H-hatch door open, a.k.a hood door

Door Open V-bill acceptor door open

Door Open L-logic door open on C.P.U. board

Door Open M-main slot door open

Door Open P-top box logic door open

WMS Bluebird Error Code Definitions

The following are some of the WMS error codes, not all. Some are pretty much self explanatory such as "coin acceptor jam" which is a physical coin jam in the coin-in optic or a foreign object obstructing the optic. Another few would be "printer COM error" in

which the printer lost communication with the game, a "printer paper jam," clear the paper that is stuck inside of the printer. "Bill jam," clear the bill or ticket that may be stuck inside of the bill acceptor.

Here are errors and definitions that aren't so common:

Touch Screen Data Error-the touch screen controller sent invalid information to the CPU board

Touch Screen Device error-the touch screen controller had an initialization error

PREPART DSS Signature Validation failed-check to see if the non-conductive battery tabs were removed from the CPU battery holder, make sure the CF cards are snug and secure, and in the proper sockets.

Protocol Com Error-a communication port error, check host communication

settings

Progressive Disabled-the game has received progressive info from the controller, and is waiting for the controller to enable game play OR the game lost communication with the progressive controller.

Printer Timeout Error- the ticket print started OK but a "ticket complete flag" was not received.

Printer Not Set-the game options may need setup for the printer

Printer Offline-check the printer cable to see if the connection is loose or if the cable is damaged

Printer Device Error-may be a printer head failure, a voltage problem, or a temperature problem

IGM Bad Firmware Version-software in the progressive meter isn't the correct version

In Game Meter Config Error-the progressive meter

NEURON
Electronics, Inc.

- APPROVED SUPPLIER FOR:

BALLY

ARISTOCRAT / CDS

MIKOHN

SPIELO

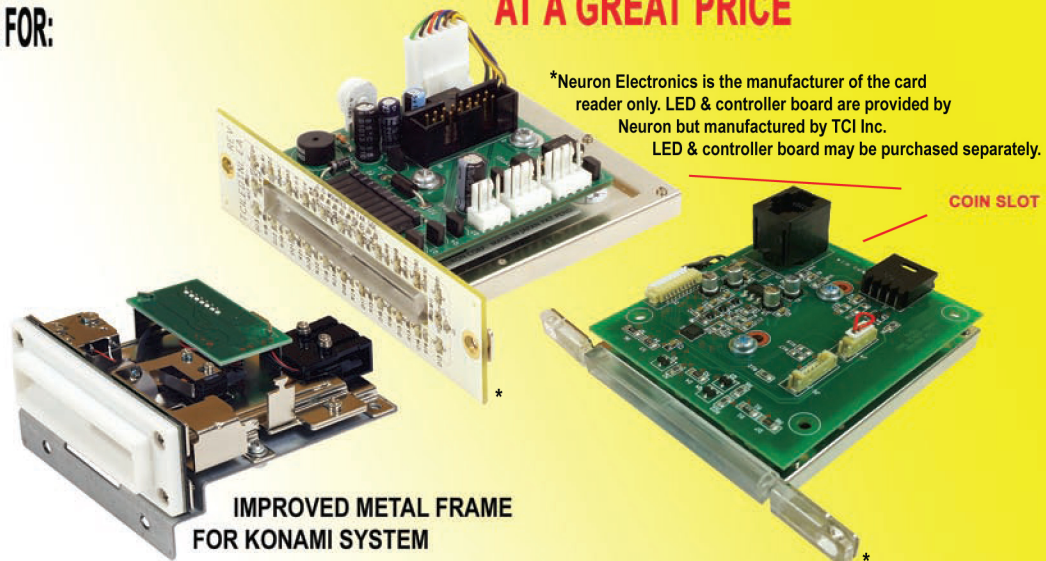
IGT (IMPROVED DESIGN)
COIN SLOT

- 1 YEAR WARRANTY

- MADE IN JAPAN

GET 99.9% OUT OF YOUR INVESTMENT
OVER 1 MILLION UNITS SOLD

**REPLACE YOUR CARD READERS WITH ONLY THE BEST
AT A GREAT PRICE**



8541 WELLSFORD PL, SUITE E, SANTA FE SPRINGS CA 90670
(562)789-1322 - www.neuron-usa.com - mario@neuron-usa.com

wasn't able to configure itself properly or the meter may not be supporting all of the different levels in the physical display, also check the software version

Double Call Attendant—if two separate “call attendant” messages are displayed, the BIOS chip may need to be replaced, the SPI chip or the CPU may need to be replaced.

EPROM System Error—an invalid signature identification was detected, the game needs a RAM clear or the CPU may need to be replaced.

Lamp Matrix Command Timeout—the lamp matrix didn't respond to the command sent, the lamp matrix control board may need to be replaced

Power Cycle Required—device settings were changed in the game options, reboot the game.

Power Reset—this is displayed after the game was rebooted and it hasn't been played yet, after one spin, the error clears.

Single Row Universal Animator Command Timeout—the Universal Animator Button, such as the “Bonus bet Fish button” on a “Goldfish” game, didn't respond to the command that was sent. The button, button board, or CAT5 cable or cables may need to be replaced.

Assert Fail—check RAM clear chip, check CPU, check memory card check software. Could be a bad OS card or a bad game card.

20-Line Payline Command Timeout—the payline lights didn't respond to the command sent, check CAT5 cables and connections that run to and from the board, the payline light board may need to be replaced.

Mech Reels Bad Command Response—internal failure of the reel board, the board may need to be replaced.

Mech Reels Bad Firmware Version—the reel software is incompatible with the game software.

Mech Reels Bad Optic Band Reel—the reel optic film may be dirty or damaged.

Mech Reels Invalid Opto At Stop Reel—the optic film strip number of the stop positions doesn't match the game requirement, the correct optic film may need installed and a pay table test will need to be performed.

NVRAM Device Error—an improper device or non-functional device was detected.

NVRAM System Error—an invalid signature identification was detected, a RAM clear needs to be done or the CPU board may need to be replaced.

NVRAM Corruption—RAM error, turn attendant key twice for a restart, perform a RAM clear or replace the CPU board.

Program Error—a program detected an unrecoverable error, similar to RAM error, turn attendant key twice to restart game, a RAM clear may be needed.

Bally “Hot Shot Progressive” Sign-No Graphics

After the power flickered (among other problems) the “Hot Shot Progressive” sign screens were totally black. I thought I would take a quick look at it. The sign graphics controller was located and it looked like it didn't have any power to it; no lights were on at all. My first guess was a bad power supply but I was wrong. How about simply pressing the power button on the controller to see what happens? Bingo! Graphics started to load on the sign display. After a couple of minutes, the sign looked perfect. The power fluctuation must have made the unit turn itself off. All it needed was to be turned back on.

IGT AVP 2.5 or 3.0-Voltage Out of Range Error”

If an AVP 2.5 or 3.0 has a 3.3V out of range or 5V out of range error, two power cables may need to be replaced because of something called “fretting.” A quick definition of “fretting” is to corrode, rub, or chafe, when applied to the slot machine field. Oxidation (fretting) may occur when small vibrations occur within the power supply connectors. Of course this would cause a voltage resistance. Both the internal brain box power supply cable and the external power supply cable need to be replaced. They need to

be replaced as a pair because the new ones have gold plated pins which will cure the oxidation problem. Depending on which cabinet type and which version brain box you have on the floor, there are different cables that you need. One quick way to tell which brain box you have is to count the number of pins on the power supply connector that is on the FRONT side of it. The front side is where the video ports are, the three 1/8th

inch sound ports, and USB ports. An AVP 2.5 brain box has a 20 pin Molex type power connector, and a 3.0 has 24 pins. The brain box part numbers (for both versions) that may be affected are 50061400W, 50062001W, 50062100W, and 50062102. The replacement part numbers for the cables vary depending on which version of brain box and which cabinet type you have. Cabinet, version, and part numbers are as follows:

As a quick temporary fix for the error, turn the game off, then unplug and re-plug the cable connectors (on both of the cables, on both ends) several times. This may remove a bit of the oxidation from the cables, make a better connection, and the game should function until the replacement cables arrive.

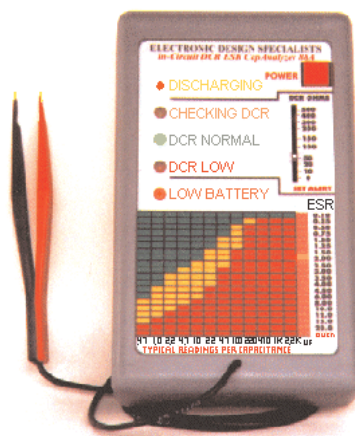
- Pat Porath
pporath@slot-techs.com

G23, G20, GMLD, Trimline, GL22—2.5—60501400W with 60500400W (both cables)
G22—2.5—60501300W with 60500400W
SAVP, SMLD, and G17 type, 2.5—60501100W with 60500400W
G20BT—2.5—60501200W with 60500400W
G20, GL22, G23, GMLD and Trimline 3.0—60500600W with 60500500W
G22—3.0—60500800W with 60500500W
G17, SAVP, or SMLD 3.0—60500700W with 60500500W
G20BT 3.0—60500900W with 60500500W
GL20 and BC20 3.0—60501500W with 60500500W

For schematic diagrams, drivers, diagnostic software, podcasts, service manuals and more, visit the Slot Technical Department at slot-tech.com.

For batch downloads, use ftp. Point your ftp client to slot-tech.com user=Slot Tech Password=kxkvi8

Repair Monitors, Power Supplies, Gameboards? Check any Electrolytic Capacitor *In-Circuit* with 100% Accuracy in 3 Seconds---**GUARANTEED***



Automatically discharges capacitor

Checks DCR with alerts for shorts

Measures DCR to 500 ohms

Measures ESR from 0.1 to 20 ohms

Checks caps from .47uF to 2200uF

Beeps one to five beeps for quality

Three-color chart for good-fair-bad

*range 0.47uF - 2.2K uF 90-day money-back guarantee

Portable, Easy to Use, Inexpensive, Highly Recommended by leaders in the industry. **CapAnalyzer 88A** by EDS, Inc.

At your favorite distributor, or call 561-487-6103 or www.eds-inc.com

Whose Job is it Anyway?

By Herschel Peeler

For the Lead Tech or Slot Manager

Yes, there is more to running a casino than just changing parts in a game, setting game options and doing RAM Clears. Somebody in your company has access to reports from the system that gives them more game info. We use Acres Advantage. It has Bill Validator Rejection Reports, Duplicate Game ID Reports, Games not Dropped Reports and much more. There are probably a dozen or more trouble reporting and testing options available to the Lead Tech or Slot Manager. I have to assume other systems have similar software tools available. Acres comes with an Event Monitor that allows the tech to monitor events on the games such as when was the last time the BE2 (game control interface board) was Reset, game doors were open, the BE2 had correctable or uncorrectable memory errors, illegal door openings, auditor's, tech's or player's card were inserted, bills or tickets accepted or rejected, low battery, reel disconnected and such things. Acres has about 300 such events that can be monitored. Acres also has dozens of

reports for telling what the current slot win on a game is, orphan can reports, drop exception reports (compare what is reported in the drop against what the game reports), duplicate machines on the floor, games not registered and such handy info the Slot Manager or Lead Tech needs to keep the casino running right.

For the Bench Tech

Depending on whether or not you have a bench tech and what their duties are we can also include designing test fixtures. Here we have schematic generating software, PC Board designing software, software to develop software for smart test fixtures and such things. Of course this goes without mentioning the typical available computer to write reports on and create excel files for a Down Games List, parts inventory and doing electronics design operations. I use ORCAD for schematic Capture but there are other programs out there that are more popular. I am just more familiar with ORCAD. ORCAD has a PCB Layout function also, but I like ExpressPCB. It works well with the company I have made the boards. Again there are others out there.

Auditing

All systems have reports available to the auditors for bookkeeping purposes. These track credits wagered, credits paid, tickets in and out, meter readings and such. While this isn't directly needed by the tech it is important to the tech to understand what these reports are all about so you can make sense of the feedback you get from auditing when the tell you some certain game may have a problem. It is also important for you to realize what things the tech can do to give the auditors a headache; like not taking meter readings when you do a RAM Clear.

We also have reports available that might be used to investigate an incident associated with a ticket, for instance. Who put in cash or a ticket, who cashed it out, who played what games and such?

Player's Club

These are the marketing tools we need that monitor who is playing how much, what they play, how long they play and how much they win or lose. If we realize business is slow on Wednesday nights we can get a list of players and send them a Special

PORTABLE. FAST. SECURE.



BlueWave™ 2.0

Ride the wave of high-speed data transfer with the BlueWave 2.0 from JCM Global®. This amazing handheld tool is the perfect and easy way to load and upgrade your validator firmware right at the machine. Lightweight and powerful, the BlueWave 2.0 easily connects by USB or Serial interface and gets you up and running again in seconds.

FEATURES

- Load firmware at the machine
- LED indicators for battery charge state
- Operates on 2 AA size alkaline batteries
- Fast USB and Serial transfer
- Firmware storage and transfer via SD Cards
- USB connection for iVIZION®, TBV™, UBA® & Vega™; optional serial adapter for DBV-3x®, EBA 3x™, Taiko™ & WBA®

BENEFITS

- Quickly and easily updates your validator firmware
- Avoid inconvenient power failure
- Always ready, always working
- Quick & convenient for greater uptime
- Easily interchangeable SD cards for all protocols
- Easy standard connection for all JCM products



jcmglobal.com

US: 702.651.0000 • US: 800.683.7248 • EU: 49.211.5306.4550 • JAPAN: 81.6.6703.8400

Invitation for some special happening made just for them. We may also get a request from a player that says how much they won or lost for tax purposes. This is part of the system that tracks comps a given player has earned. This may be tied in to the computers for the restaurant or hotel to redeem these comps.

Let's go through a few of these in more detail than the Lead Tech is more likely to use. The Event Monitor is more typically a Lead Tech thing. Some Slot Managers prefer to do it just because they like being the manager and leave the tech to do floor things. In Acres we can get a status screen that shows what games are talking on the system. If they are not talking we usually get an indication of whether the systems just doesn't find a board at all or whether the system finds a board but the board isn't talking to the game. This is also a tool the Slot Manager can use to investigate game, Slot Attendant or Technician behavior. Yes, there is a reason you are required to insert your card when entering a game. The system monitors who got into the game, what they did, and what the game status was before and after. Every button pushed, door opened or thing powered down is noted as a general rule. If it shows up on the Event History of the game, it shows up on the Event Monitor available to the Lead Tech or Slot Manager in real time, or close to it.

The more popular Slot Manager Reports cover things like Bill Rejections. This tells which games have bill acceptors that may be in need of cleaning. Zero activity reports tell that the bill validator may be totally out of order. Printers out of paper, games turned off or games not communicating are reported to the system and should motivate Lead Techs to create a list of game problems passed on to the technicians.

Unfortunately I don't think there are any games that monitor light bulbs and tell you what lights need to be changed. Some things we just need the tech to pay attention to and take care of on their own. Most systems monitor how long it takes to do a hopper fill and who does them the most; who does the hand pays and avoids the tip-less hopper fills. Some systems tie the time clock into this system and the Slot Manager can tell who comes in late. Our system has that function, but we have never used it. If your people have ID cards that are inserted to identify them as they get into a game, creating those cards is also a part of the system. In some this is a manager's duties. For us all the techs can create these cards and most of them have supervisor authority in the system but we are a small casino and generally speaking the Slot Attendant is the Slot Tech and Lead Tech on their one-man shift. - **HP**



SPECIALIST
OEM
SOLUTION
PROVIDER



sales@internationalbrandgaming.com
SALES +44 (0) 1865 600030
www.internationalbrandgaming.com



TO THE FABULOUS
LAS VEGAS
NEVADA

G2E

IDEAS INNOVATION INSIGHTS

G2E brings them all together.

**NEW DATE. NEW LOCATION.
STILL AT THE CENTER OF GAMING.**

OCTOBER 4-6, 2011

**THE SANDS EXPO AND CONVENTION CENTER
LAS VEGAS, NEVADA**

**October 3—iGaming Congress, Security & Surveillance
Institute, Leadership Academy, G2E Advanced
Gaming Institute**

October 2-3—National Center for Responsible Gaming (NCRG)

**September 30-October 2—International Association of Gaming
Advisors (IAGA)**


www.globalgamingexpo.com

global.
gaming
expo



An American Gaming Association Event

Organized by

 Reed Exhibitions

Subscriptions & Back Issues

Why back issues of Slot Tech Magazine are important to own . . .

Slot Tech Magazine is strictly technical. As such, the magazine's contents are not time critical. The repair information and technical data contained in past issues is just as valid today as it was the day it was published.

Additionally, current and future articles more-or-less assume that readers are already familiar with what has been covered in past issues. This editorial policy assures that Slot Tech Magazine's contributing writers are not limited to "writing down" to the level of a novice technician but are free to continue to produce the most comprehensive technical articles in the gaming industry.

Randy Fromm's 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

Subscription rates:

Domestic (USA & Canada)

1 year - \$60.00
2 years - \$120.00

International

1 year - \$120.00
2 years - \$240.00

Back Issues

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.

Invoice me!

PO Number _____

Company Name _____

Contact _____

Address _____

Address _____

City _____ **State/Prov.** _____

Country _____ **Zip/Postal Code** _____

Telephone _____

E-mail _____

Type of card: ☐ American Express

☐ Discover

☐ MasterCard

☐ Visa

☐ 1 year subscription, domestic

☐ 1 year subscription, international

☐ 2 year subscription, domestic

☐ 2 year subscription, international

Account Number: _____

Expiration Date: _____



**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!



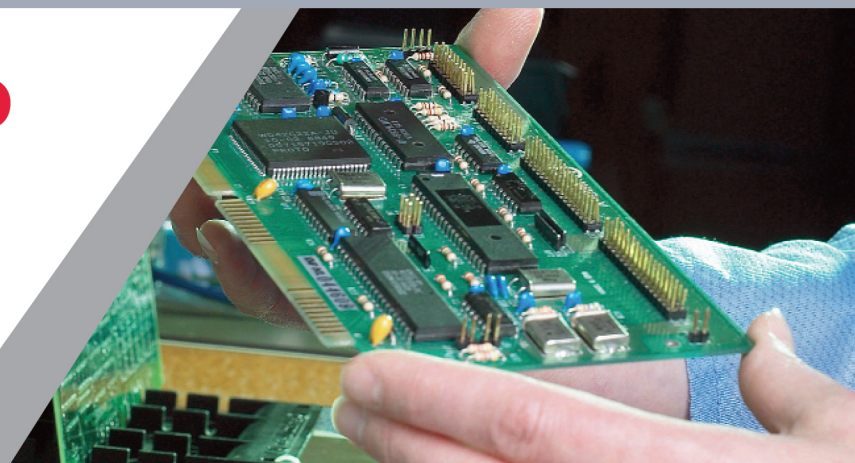
About Randy Fromm: I am the publisher of Slot Tech Magazine. First published in 2001, Slot Tech Magazine is a monthly trade journal focusing on casino slot machine repair. I have been repairing electronics for the gaming industry since 1972. I really enjoy what I do and I love showing others how easy 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**

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.

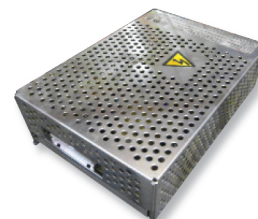
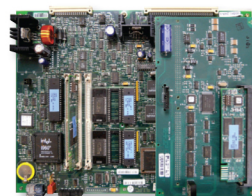
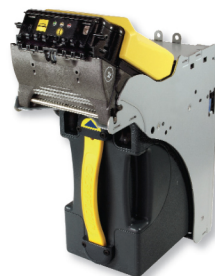
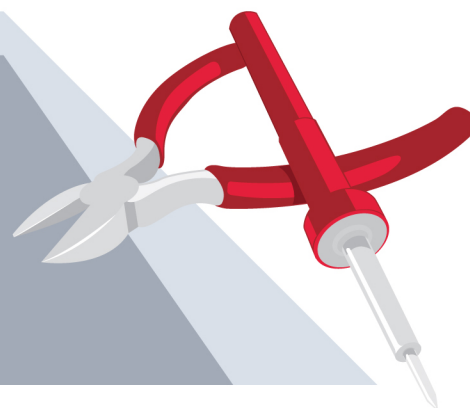
GAMING

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