

April 2008

SLOT TECH MAGAZINE

Slot Machine Technology for the North American Gaming Industry

Whoopsie-Doodle...or Oops I
Just Blew Away the Hard
Drive... Now What?

Quick & Simple Repairs #37

Lost Netplex Error

SETEC MK5 Power Supply

Seating by Gary Platt

Slot Tech Magazine

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Replacement parts for LCD displays in: Player Tracking Systems.

IGT NexGen

New 70,000 hour cold cathode lamp assembly for NexGen LCD display.



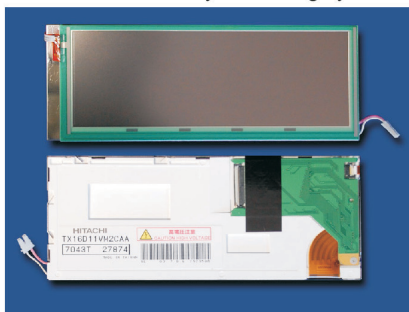
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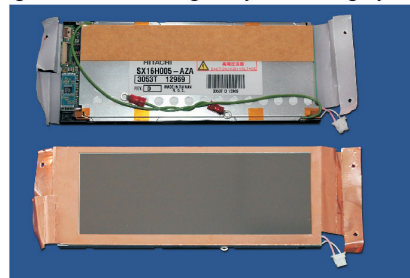
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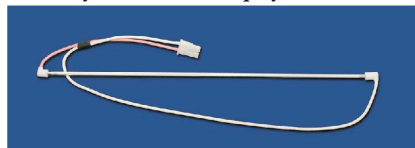
Bally I-View

6.2 inch "IDW" LCD display with separate 5 wire touch screen for 1st generation I-View Player Tracking System.



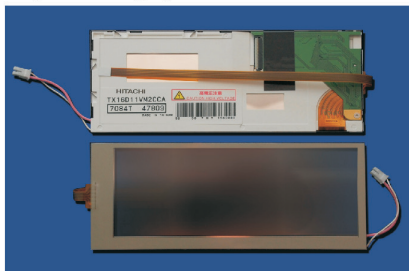
Part #8660 Price \$325

New 70,000 hour cold cathode lamp assembly for Bally I-View LCD display.



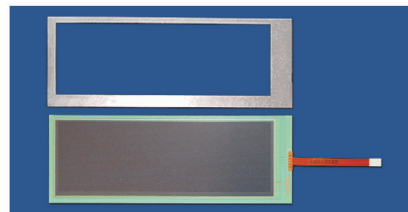
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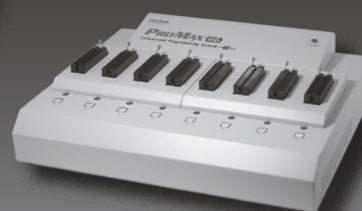
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I am writing this in the hotel at Northern Lights Casino in Walker, Minnesota. For the past two weeks, I have been on a training mission here with a group of their lead techs. The temperature last week was 27 degrees below zero.

It was sort of a mini TechFest with a lot of hands-on repair lab thrown in. We had a really great monitor lab where we fixed dozens of bad monitors including one 37 inch Kortek LCD monitor which we repaired in less than a half hour with a 15 cent capacitor. That's what being a technician is all about! A \$1500 monitor (I'm guessing) repaired for less than two bits.

Joining me for the training were some folks with whom Slot Tech Magazine readers are familiar: Jack Geller (JCM), David Oldham (Suzo-Happ) and Paul Hatin (3M Touch Systems). Thanks gentlemen, for making this a really awesome Slot Tech training class!



Randy Fromm
Randy Fromm

Jack Geller - JCM



Randy Fromm's Slot Tech Magazine

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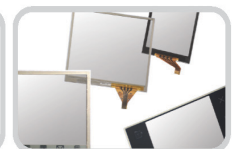
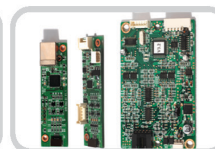
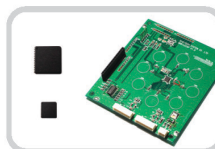
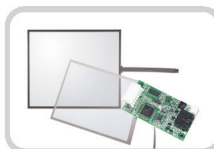
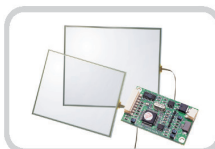
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Whoopsie-Doodle...or Oops I Just Blew Away the Hard Drive... Now What?

By TedBefus



As the title implies, this is a how-to on what to do (say that three times fast) when you accidentally (or intentionally I guess) blow away the hard drive on the IGT AVP® platform. Of course this stems from real world — mishaps we'll call them, brought on by one of our guys wiping a hard drive when it really wasn't necessary. These examples are from an emulated game (I-Game running on an AVP platform). The true AVP games may react differently than as described in this article.

Firstly, let me say that if you don't have to intentionally blow away a hard drive, DON'T. I can almost guarantee that you probably don't have the CDs necessary to remedy this (but I guess that depends on whether or not you asked IGT for those when you

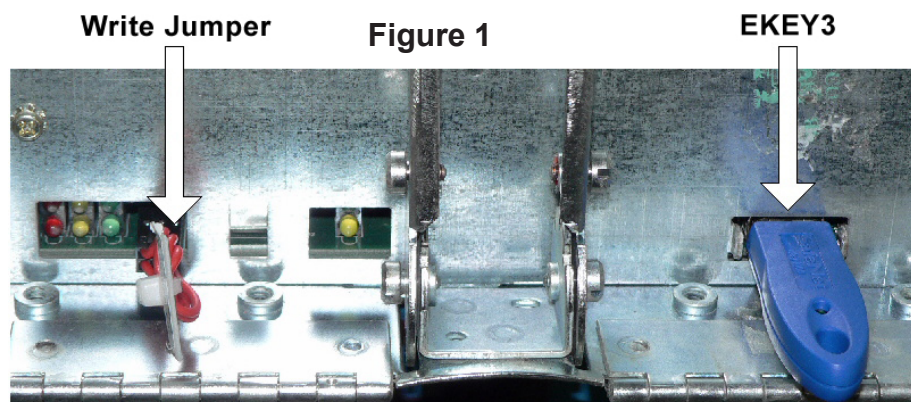
purchased those games, we as a habit do just that). The only time you should need to do this is if you need to install an operating system upgrade to run newer games (the newer games come with a USB licensing key to keep you from running rampant installing games on your floor, these require the latest operating system).

I guess we'll start by actually going through the procedure on how to wipe the hard drive to start with. You're going to need a few things in order to do this job. You will need a diagnostic CD, along with a write jumper and an EKEY3 (installation key). For the locations of the EKEY and the write jumper, refer to figure #1.

The diagnostic CD version will depend on the operating system. First off, we're

going to have to start the game, open the CD drive, install the CD, close the drive and cycle power on the game (the game is setup to look at the CD ROM for its first boot attempt, so we need to restart the game to see the CD just installed.). After a few minutes, the diagnostic screen will appear as shown in figure #2. Note: If you don't have EKEY3 installed it, will not unlock the all of the diagnostic features. You must have this installed in order to wipe the hard drive clean.

To wipe the drive clean is very simple. Press the HARD DRIVE tab. From there, you enter the wipe screen. To complete the wipe, you must first make certain that the write jumper is installed. If it is not, you will see a red warning on the top of the screen telling you to install



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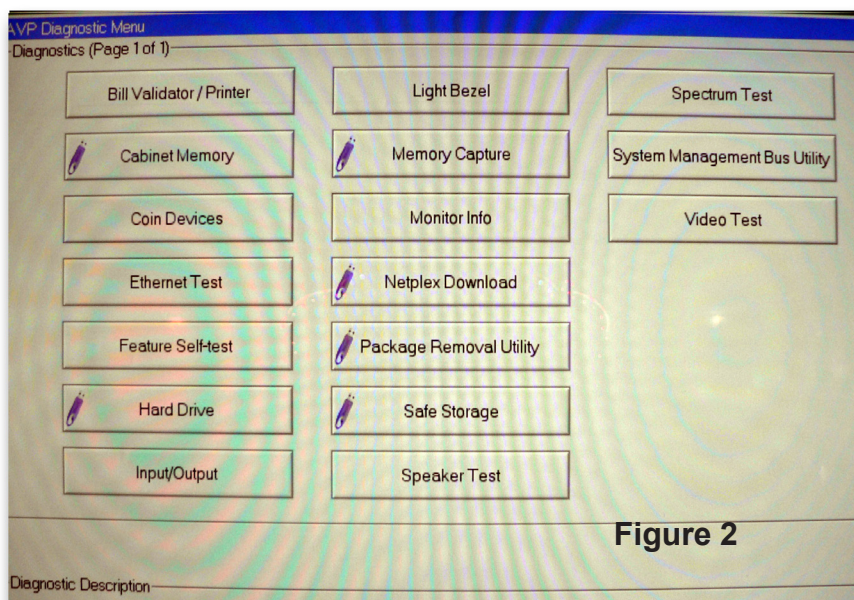


Figure 2



Figure 3

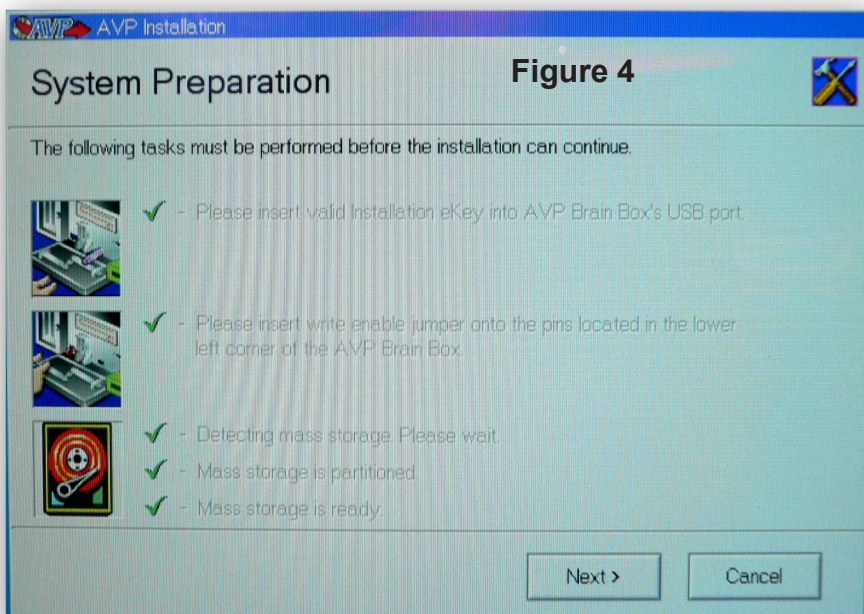


Figure 4

the write jumper. In the top left hand corner of the screen is a check box titled "wipe this drive." Make certain that it is checked as well. All that's left after that is to press the "WIPE" tab and wait for everything to finish.

Now that we've wiped away everything this machine needs, we're going to re-install it. Remove the diagnostic CD and replace it with the Operating System CD. You can leave the EKEY and write jumper installed to save you the trouble of having to put them back in. The game will boot off the CD and come up with the screen seen in figure #3. By pressing the continue button you can continue with the installation of the new operating system. The machine will then check to see if you all the necessary hardware installed (EKEY and write jumper). If you do not, it will prompt you step by step to install what is needed. When all the criteria are met the game will then prepare to install the new operating system. By pressing the NEXT tab the machine will commence with installation, see figure #4.

Well, we've gotten this far, all that's left is for the machine to do its thing, if everything is working you should see figure #5 which will show you that everything is installing ok.

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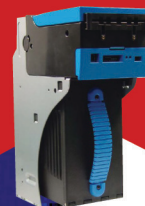
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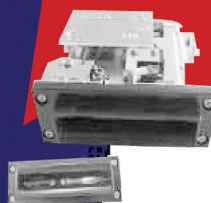
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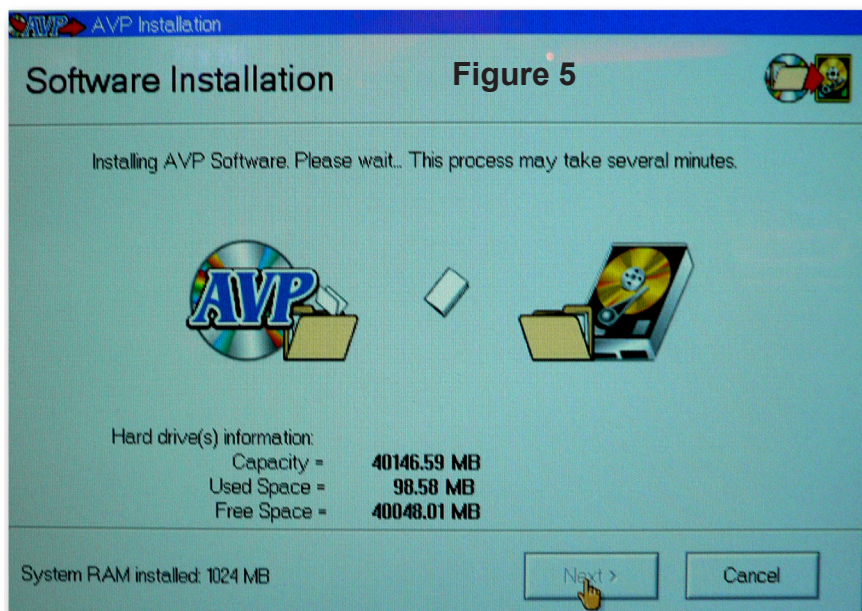


Figure 5

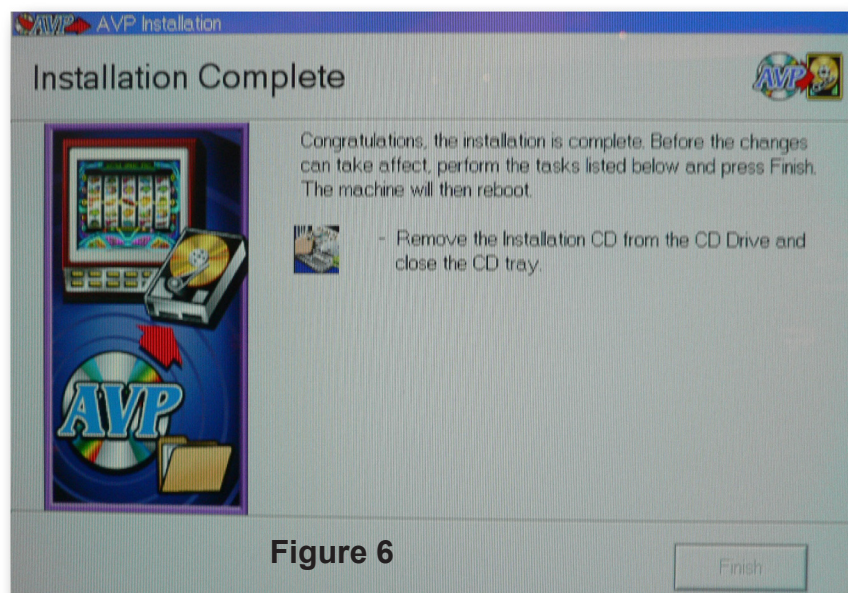


Figure 6

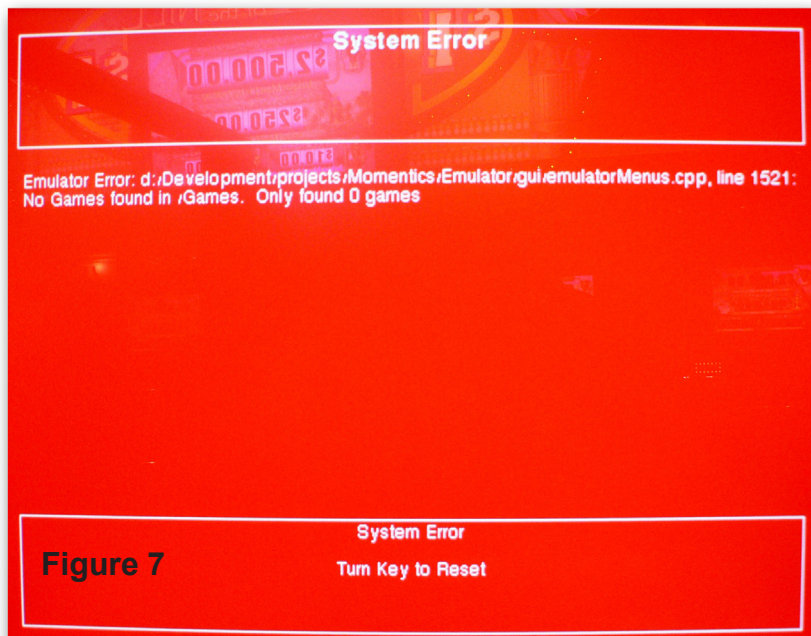


Figure 7

Once complete you should see figure #6, the machine will prompt you to remove the CD, write jumper and EKEY. Once that is complete, simply press the FINISH tab and the machine will reboot.

Ahhh, but it doesn't end there! Remember we wiped that hard drive clean didn't we? That means that there are no games installed. Did you forget to install the game software after the operating system? If you did, after you boot the game you will see figure #7, if you look closely at the picture you can see just how good my photography skills are, you can see the reflection of Mysteries of the Nile in the monitor.

Loading the game onto the hard drive is basically the same procedure as outlined above, uses the same EKEY and write jumper, the only difference is that you don't have to wipe the hard drive to install it.

As far as turning that game on goes, Robert Jewell covered that in his article in the May 2006 issue of Slot Tech magazine, but remember that this article and Robert Jewell's article cover the emulated game themes. The procedure for turning games on for true AVP games will differ greatly!

- Ted Befus
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Quick and Simple Repairs #37

By Pat Porath



WMS Bluebird Upright Ballast Repair

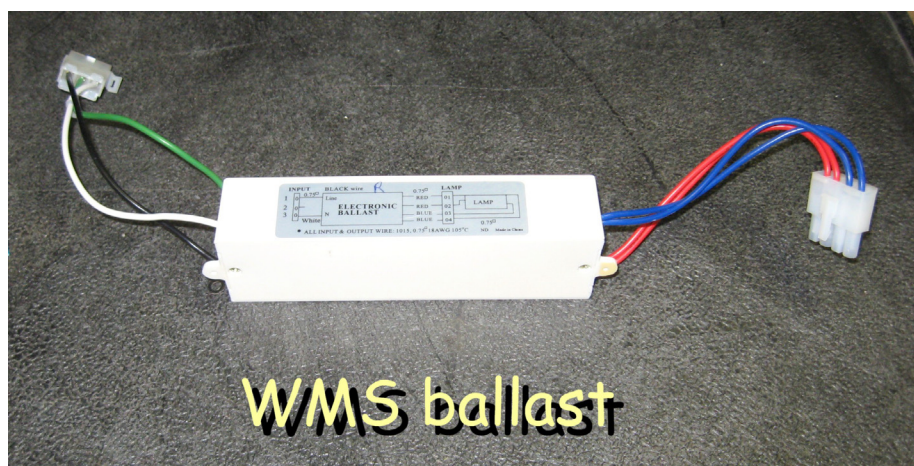
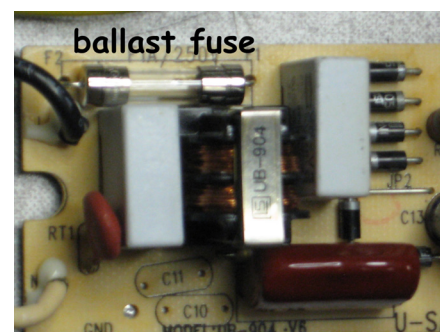
A slot attendant notified me that the top lights weren't working on a Bluebird game. He said he tried two different florescent tubes and neither of them worked. I grabbed a bulb from the game next door and put it in the game. No doubt the problem was more than just changing the light bulb. Why not try replacing the ballast? I swapped the complete upper light bulb assembly with the game next door, and it lit up right away. This indicated that more than likely it was a ballast problem. Once it was replaced and the game turned back on, the bulb lit right up. Simply replace the bad part and the game is fine. Now what about taking it a step further? What is wrong with the ballast? After taking out the two small screws to remove the cover, we can see the various components inside.

A co-worker was inspecting the unit when he noticed that the fuse was blown. Could it be that simple, with only a blown fuse? Well, not likely. The fuse usually blows for a reason and in this specific case, as soon as he replaced the fuse, it blew almost instantly. Upon further inspection of the ballast assembly, he noticed that there was a small 220pf 1kv ceramic capacitor that was burned. As the picture shows, the one on the right hand side (obviously) is burned and bad. It is supposed to look like the component on the left. The replacement is "new and blue" while the fried capacitor is "burned and black." Even the top was cracked open on it.

We replaced the bad ceramic capacitor and

replaced the bad one amp fuse. This unit was tested on the bench and it worked great with no problems at all.

Note: this capacitor is not polarized so it doesn't matter which way it is installed. The Digi-Key part number is 490-4154-ND. (www.digi-key.com) The fuses that we have in stock are from Newark electronics www.newark.com, the description is PCB 1A 250v. With a new capacitor in



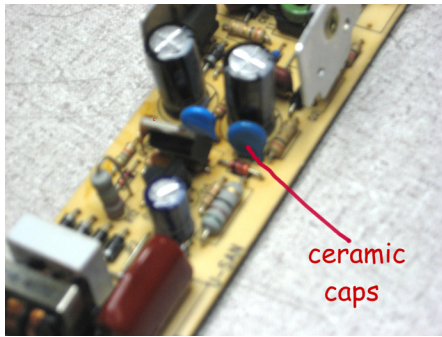


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place and a new fuse, the ballast is RFI (ready for installation.)

Ithaca 850 only printing ½ a ticket

I recently ran into an Ithaca 850 that only printed ½ a ticket, well “one side” of the ticket; lengthwise. By looking at the “misprinted” ticket, it looked as if there was an obstruction of some type on one side of the thermal board. After opening it up and cleaning the printer head, I couldn’t see anything wrong. Another “self test” ticket was printed and the same thing happened, only ½ of it was legible. The small “thermal board” was replaced, nothing too major to take apart and reassemble, and another ticket was printed. Unfortunately the same error occurred again. One of the problems is the replacement “thermal board” was NOT marked GOOD or BAD. Why it

wasn’t marked, I don’t know. There was a good chance that the part was NOT new because it wasn’t in a sealed package, which leaves me to believe that the part was removed out of the printer head for a reason. THE POINT IS....it is a very, very good idea to identify parts with whatever information you may have. I’m not saying write a three page essay on it, only a short phrase. This not only applies to printer parts, it applies to all parts. Some can even be sent in for repair. You send them the bad one, and they send you a good one. Anyway, parts that are marked “TESTS OK” or “MAYBE GOOD” can save a lot of time. Take the example of the thermal board, it was not marked “GOOD” “BAD” or otherwise. It was replaced and more than likely was a bad part. Now when I get the chance I need to test two more that are in the bin and see if they are good or not because they aren’t marked either. It’s not difficult to replace, it just takes a bit of time to do so. Luckily I had a spare printer head, replaced it, and the “self test” ticket printed ok. On the 850, simply pull upward closest to the printer bezel and disconnect the three wires. When re-connecting it, always check to see that all of the pins are straight on the “motherboard”. In conclusion, if you have an 850 that is only printing ½ a ticket, try a different

printer head; it just may do the trick.

A WMS “Bluebird” not communicating with CDS

I’ve only ran into a couple of these, but however it’s an easy fix. The question was why did it lock up for a payout instead of printing a ticket? There was paper loaded in the printer, but when the C.D.S. display did not show a slot door OPEN and CLOSED status, I knew communication had been lost. The Sentinel was rebooted and it had a good green L.E.D.

communication status between the Sentinel and the system, but the problem was from the game TO the Sentinel. Instead of clearing RAM on the Sentinel, replacing chips, or even replacing anything, why not try a “power cycle” on the game. (Simply reboot it.) In the later part of boot up, the C.D.S. display should show a slot door CLOSED, and go to OPEN. Even though the main door wasn’t physically opened or closed at that time, it will show that it was...meaning communication has been re-established. So if a “Bluebird” is locking up for payouts and the printer has paper in it, try a power cycle on the game.

IGT S-Plus Chewing Up Bills

I recently received a complaint that a game was “chewing up” bills. It was

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TechFest 16 also includes a presentation on monitor repair (CRT & LCD) presented by Slot Tech Magazine publisher Randy Fromm. Learn some very easy ways to fix monitors without wasting time and without an extensive background in electronics.

Who Should Attend?

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an IGT S-Plus that has a DBV 200. You may ask why we may still have a DBV 200 on the floor? Well, fortunately there are only a handful of them left, especially with the new \$5.00 bill that has hit circulation this spring. Also, they are in fact on the floor and some of the customers still like to play them so they must be working properly. Before heading to the shop and grabbing a spare bill acceptor and stacker box, why not take a peek inside and see if there is a bill jammed in the box? With proper signatures and proper personnel, the stacker box was opened to find a single five dollar bill that didn't stack properly. It had gotten caught between the "bill pusher" and the frame of the box. I removed the bill, properly stacked it, and a customer tried a \$20.00. This time it worked great. A jammed bill in the stacker was the problem all along.

IGT Slant-Top Game With a Lot of Ticket Out Jams

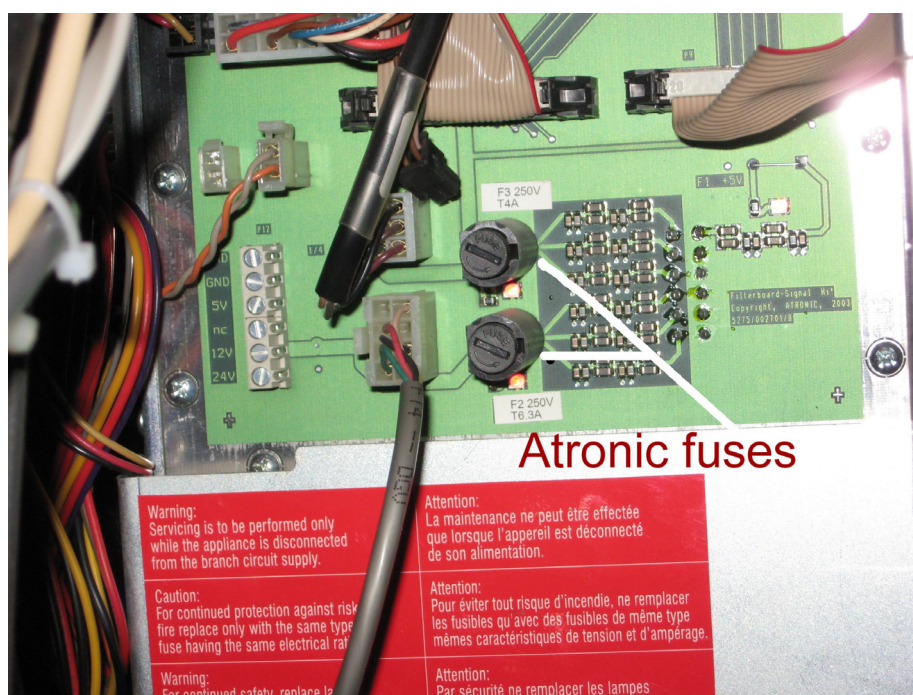
Do you have a couple of games that have a lot of "ticket out" jams? This doesn't mean "paper out," it means that when the ticket is exiting the game, it has an error. I admit I had forgotten about the "upgraded" IGT slant-top printer bezels but the minute I opened the package that was sitting on the printer bench, I saw it

right away. The "upgraded" bezel is equipped with a clear plastic piece that is in the inside part upon which the paper slides. For some reason or another, not all of the original type of bezels would jam up tickets; some would and some wouldn't. We had two games that would periodically have "ticket out jams" and when I looked closer at them, the games had the older type bezel. Of course the newer ones were installed and I haven't heard of a problem with the two games since.

Is an upright Bluebird with "ticket out" jams? It may be that the alignment could be off between the printer and the bezel. On an upright Bluebird, in order to fill the paper, a small release button needs to be pulled so the printer slides downward a bit. Simply push it back up and it locks back into place. HOWEVER, if it so happens that the

individual who has the game open is in a hurry, and FORGETS to push the printer BACK into "home position" and tries to close the main slot door, guess what just happened? There is a chance that the printer frame assembly just got bent. The repair? A small shim (such as a small steel flat washer) needs to be installed on the lower part of the assembly to bring it back so it is more or less in a level position. It makes sense though, if the printer is crooked and doesn't line up with the bezel, paper will not print out of the game properly. Once the shim is in place, it is a good idea to print out an actual ticket to make sure it is working properly and doesn't jam up. If it tests OK, the game will be fine.

Atronic e-motion: Bad Power Supply Was Only Part of the Problem



Atronic fuses

I was told that an Atronic emotion "Deal or No Deal" game had a bad power supply, and one was on the way. The reason that a power supply was on the way is because we didn't happen to have a spare for it at that specific time. I didn't have much going on at the time, so I thought that I would verify that the unit was definitely bad. The game was turned on and the cooling fan in the power supply didn't even rotate once, therefore indicating a bad power supply. Connections were reseated, the COM board, and the main processor board were reseated too. Still, the cooling fan didn't rotate on the power supply and both of the game's LCDs were black.

At this point it did indeed appear that the unit was in fact bad. I should have swapped power supplies with the game next door to make sure nothing was wrong at the game side, but I was confident enough that it was bad. When we received the replacement, I installed it in practically no time at all. There isn't a whole lot of work needed to put one in, only four connectors and the mounting hardware.

Once installed, the power switch for the game was turned on, and everything looked great! The bill acceptor cycled, the game was booting up normally. Then I noticed there wasn't any power to the ticket printer. Now we have a "horse of a different color" (Phrase taken from the

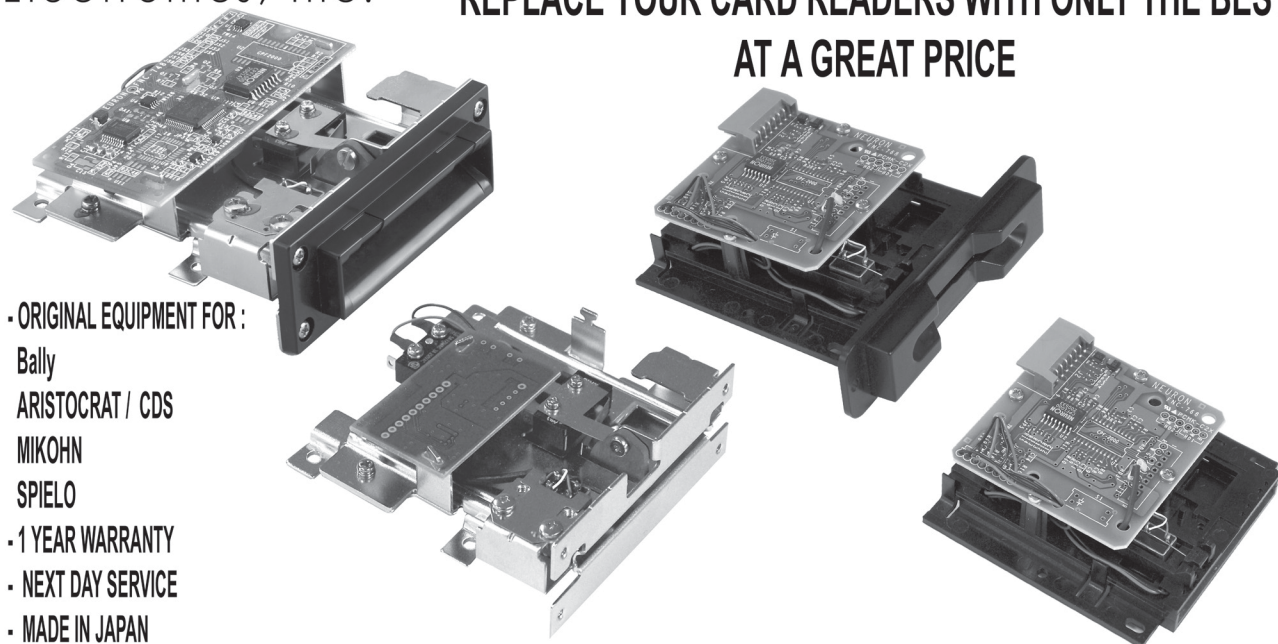
famous movie "The Wizard of Oz" and the movie happens to be a newer game out by WMS gaming.) A new power supply had just been installed and we have a power problem. Definitely not good. Now all kinds of things are coming to mind. For example: did the something with the printer cause the power supply to go bad? Was the printer the main problem? Is the printer ribbon cable connected properly? Is there a fuse that is blown somewhere? Where do I even start?

I decided to start with the fuses in the game. Right next to the three fuses that are located to the left of the COM board and processor board, are three beautiful little red LED.s. These more or less indicate if the fuse is

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good or bad. Guess what, one of the LEDs was not lit up. I pulled the fuse and it was blown. With the game turned off, I grabbed a spare, put it back in, and applied power back to the game. Luckily the fuse held and I didn't see or hear of any complaints about the game for the remainder of my shift (I had around two hours remaining.). If a device, other than the power supply, did in fact have a power issue, the item should have failed by now. In this case, the game not only needed a power supply, but it needed a fuse replaced as well.

An IGT Trimline Not Communicating Very Well With CDS

It's tough to say where exactly to start troubleshooting when there are problems with CDS and game communication. I was told that the game lost COM, but was it the game, the Sentinel, the chips, or the wiring? When I first walked up to the game I noticed that the CDS Display was flashing capital then lower case letters. This indicated a Sentinel COM problem and not a game problem. Another indication was the green LED on the Sentinel was flashing very, very slowly. It was flashing at the speed of one flash every five seconds, when it should be flashing multiple times per second. Now I knew it wasn't a game problem and

I could continue with the CDS part of it.

A power cycle was done on the Sentinel, which didn't help, and the COM in and COM out connectors were all nice and snug. Maybe there was a loose connection on either side of the game? All four COM in and COM out connections were checked (one game on each side, two per game). All of them appeared to be fine. I took a closer look at the Sentinel that was in the problem game and didn't see anything out of the ordinary either.

Next, the Sentinel was RAM cleared but that didn't make a difference either. I still had very poor communication between the Sentinel and the CDS system. Before checking the connections and cables in the drop area of the game, how about replacing the COM chip which is located next to the e-square chip on the Sentinel board? Power was removed and a new chip was installed. Now for the test. Will we or won't we have "lift off?" Power was back at the Sentinel and after about 15 seconds or so, a beautiful green LED started to flash, rapidly now. I waited for a few minutes to make sure that the speed of the flash didn't slow down but it was fine. The problem was a bad COM chip on the Sentinel board.

Atronic e-motion Bill Acceptor Problem

The game displayed a "bill acceptor not connected or not initialized" error. First off, I checked the obvious things, such as a stacker box that might not be seated properly, and made sure that nothing was in the bill path of the bill acceptor. I reseated the bill acceptor (which happened to be a WBA 13) a few times but it didn't cycle at all. It was almost as if it didn't even have power to it. Dip switches 5, 6, 7, and 8 were turned on to see if the unit would "cycle" in calibration mode. It did cycle and all of the switches were turned back in the off position so it would cycle and accept bills. When the unit was installed back into the game, there was still nothing. It wouldn't even make a sound.

I knew that there was power to the unit but why wouldn't it work in "accept bills" mode? I swapped bill acceptors with the game next door but something really bad happened. Now BOTH games had the error and would not accept bills. I made a mistake and tried a reboot (with customers playing) on the original game and unfortunately it happened to be the "master game" for the "Game of Life" progressive bank. What happens when the "master game" is shut down? The progressive communication

disables on the rest of the games. I now had two customers that had to wait until the game booted up so they could play their machines. Even after it booted, the bill acceptor still would not work properly. A while later a co-worker checked it out, rebooted the game again, and it worked fine. We never resolved the cause. Another “FM” repair.

As for the other game that had the exact same problem as the original (now with the original problem bill acceptor in it) I didn’t have any luck fixing it either. Finally after replacing the bill acceptor with a spare, and resetting it with the “audit key” the game was fine. A customer inserted a bill and credits were given.

IGT Trimline With a System Error

This specific game had a “system error” that was displayed on the screen. Not a good sign. I tried a key reset and rebooting the game but neither helped the problem. It looked like the only way to resolve the problem was to use the IGT “E-key.” If you never heard of an “E-key”, it looks and works like a USB memory stick or thumb drive. When the unit is inserted into the “brain box” (which is located behind the main LCD, in this case) the error could be cleared. Insert the “key” that is identified as the “system key” into the

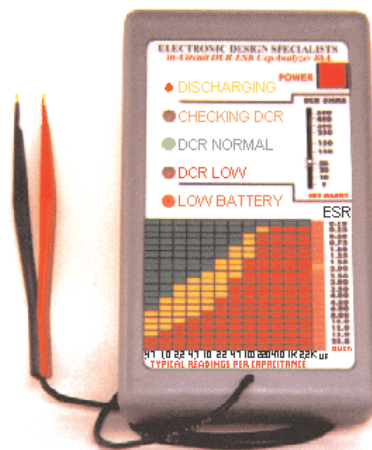


USB port on the brain box of the game, and select the game program that the machine is supposed to be (The USB socket is located near the brain box locking assembly.).

When the key is inserted, the game program should

come up automatically. This game was a “Coyote Moon” and that was the only selection available. In addition, the “award glass” needs to be selected. Of course the award glass is actually a LCD with the graphics and animation on it but it needs to be selected.

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After that, make sure to select the "SAVE" option. Once this was selected, the system error was cleared and the game was ready to be played again. This was the first time in quite a while that I needed to use the E-key to clear an error on a Triline. When we first got them in and released them to the public to play, errors would have to be cleared with the "key" daily or even on every shift but after the game software had been upgraded to a newer version, we have had very little problems with them at all. They run very well and our customers love to play them.

IGT AVP Slant Top LCD Power Supply Replacement

On an IGT AVP slant top that has a "Version 1 Win-Tact" 150 watt power supply for the LCD, it may need to be replaced. Some (not all) of the units have an issue with the LCD not starting back up right away once it was turned off. Of course, if the game doesn't have a power issue, then it doesn't need to be replaced. But if the LCD won't turn on right away, then the power supply needs to be replaced with a "Version 2 Win-Tact" 150 watt unit. They can be identified as part number WP207F11 PR1 being "Version 1", and part number WP207F11 PR2 being "Version 2" (PR1 or PR2). The IGT replacement part number is 40012100W. It is a 12vdc and 24vdc output unit with

110vac input. A different manufacturer of power supply may be used, only if the specifications are exactly the same. The problem with the power supply is within the voltage regulator circuit. There is a capacitor that doesn't discharge right away. The time may be up to 45 seconds. If power is applied to the LCD before the capacitor is discharged sufficiently, the unit simply won't work. So, if there are power problems with the LCD on a slant top AVP, check the version of the LCD power supply and replace it if necessary.

- Pat Porath
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Slot Tech Press Release

Suzo-Happ Group Acquires Suzo Polska Sp. z.o.o. Gaming Distributor in Poland Long-Time Suzo-Happ Distribution Partner Provides Access to Eastern European Markets

Suzo-Happ Group has announced completion of the acquisition of Suzo Polska Sp. z.o.o, located in Wysogotowo, Poland. Suzo Polska, a distributor of parts and components for gaming equipment in Poland, has grown very rapidly during the last several years. The company will operate as part of Suzo International, the European arm of the Suzo-Happ Group, with the same local leadership responsible for its recent growth. The Suzo Polska facility will be expanded in 2008. Pfingsten Partners, a private equity firm in Deerfield, Illinois is Suzo-Happ's majority shareholder.

Suzo Polska is the eighth company to become part of the Suzo-Happ Group. All eight companies

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combine to strengthen Suzo-Happ's position as the leading global supplier of amusement and gaming parts and accessories with over 30,000 SKUs, customers in 80 countries, and more than 600 employees in 14 locations.

"This acquisition continues our expansion strategy by investing in the rapidly growing Eastern European market" said Marcel Oelen, Managing Director of Suzo International. "It provides us a physical presence which enables us to serve our customers better and further penetrate the market."

Pedro Garcia, Managing Director of Suzo Technical Components Espana S.A., the Spanish subsid-

Slot Tech Magazine

iary of Suzo International acquired in 2006 said, "As a member of the Suzo-Happ Group, we have access to many more resources allowing us to better serve our customers. These additional resources enabled us to achieve a rapid growth rate beginning in 2007 immediately after joining the team. I'm sure our colleagues at Suzo Polska will similarly benefit from Suzo-Happ's ownership." Tomasz Andrzejewski, General Manager Suzo Polska, reports that "We are very pleased to be part of the Suzo-Happ Group. Our business continues to grow at a very rapid rate. The additional resources and commitment to the future is very important at this stage of our company's life."

April 2008

About the Suzo-Happ Group

The Suzo-Happ Group was formed in 2004 with the merger of Suzo International, headquartered in The Netherlands, and Happ Controls, headquartered in Elk Grove Village, IL. The combined organization holds a global leadership position in the gaming and amusement parts and accessories market with customers in 80 countries. The company has manufacturing, engineering, distribution and service capabilities with over 600 employees on three continents. More information is available at www.suzohapp.com, www.suzo.com, www.gamingstuff.com and www.happ.com

About Suzo International
Founded in Rotterdam in 1955, Suzo supplies systems and components for the amusement, gaming, casino, and vending industries. Suzo develops and manufactures branded components, electronics, software and systems under the proprietary STC label. Headquartered in the Netherlands, with additional operations in Spain, Belgium, Germany, Poland, and the United Kingdom, Suzo serves customers in over 80 different countries and has achieved a reputation for providing exceptional customer service. For more information on Suzo International, visit: www.suzo.com.

About Suzo Polska Suzo Polska is centrally located in Wysogotowo (near Poznan), Poland. The Company was founded in 2004 as a 50/50 joint-venture between the Suzo-Happ Group and Horthel Systems BV ("Horthel Systems"). Horthel Systems is a Dutch limited company with manufacturing facilities and operating activities in the gaming and amusement industry in Poland.

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Lost Netplex Error

By Slot Tech Juan

While working as a slot floor tech, there are times when you receive a call to an IGT reel machine (S-2000) where the bill validator will not reset after the attendant has closed the main door. When you arrive at the machine you find that the bill acceptor will reset normally while the main door is open but if you close the main door, the validator will not respond. Well, chances are you have a game that is in a Lost Netplex error, not to be confused with Netplex link down, which usually shows up after a power reset as the result of a weak power supply.

In some cases, if we removed the bill acceptor the game would come up and function properly for as long as the machine is not powered off. This will not fix the root cause of the problem but would allow the game to be available for play. To accomplish fixing the root cause, you would need to remove the weak power supply and install a refurbished or known good power supply.

The best way to verify if the game is truly on a Lost Netplex error is to:

- a. Open the main door
- b. Press the test switch
- c. Scroll through the options menu (press the diagnostic switch)

The options on the menu should be in the following order:

1. Accounting
2. History
3. Options
4. I/O Test
5. Game Test
6. Out of Service
7. Key Chip Config.

Press either:

- a. CASH OUT = To scroll forward
- b. SERVICE = To scroll backwards

When you go through the menus and you notice that some categories are missing, then indeed you have a lost Netplex error.

I was once told during an IGT training session that Netplex is like a language spoken by IGT machines when communicating with devices that require two way communications, such as the bill validator, touch

screen, and printer as opposed to the player panel buttons which communicate using the Senet for simple one way signals.

With that said, we can deduce that one of the aforementioned components has malfunctioned sending the machine into the lost Netplex error. However, I would not focus my attention on these components just yet.

Computer programmers use what is called a while-loop to check the status of the components on a slot machine. If any of the components is not operating within the programmed parameters, then the game goes into a tilt.

Sometimes the displayed tilt is not a true representative of the malfunction. The malfunction has occurred as the result of another component or device malfunctioning. If we want to prevent the problem from coming back in the near future, we need to find the root cause of the problem.

In my personal opinion, the most common reason for this type of error has been after a bill validator reset, where the stacker was near

full or had jammed. Also, when I have had a weak power supply, it appears to me that the current draw (especially by the BV) is higher than usual and the weak power supply cannot maintain the needed current flow, therefore the validator cannot complete the cycle, sending the game into the error.

On occasion, the lost Netplex error will follow a printer malfunction or be the result of grounding or a pinched harness on the 7 segment display or the validator assembly.

To clear a lost Netplex error, we perform a simple soft RAM clear (swapping the RAM chips). I do not know how you would be able to clear the error without access to the MPU cabinet.

It is very important to verify the set options after a soft clear since on some occasions you can lose your game settings. Like I said before, these fixes will not cure the root cause of the problem but will make the game available for play.

Clearing the error is great for bringing the game back into play. However, it is only a temporary fix unless you find the root cause of the problem. Therefore some troubleshooting is in order at this time. The following is how I would proceed with the troubleshooting in this particular scenario:

First incident: As a floor tech, the first thing I would
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do is to verify that there are no pinched or damaged wires (especially the printer and display harnesses) or the Validator harness (especially after the drop crew has dropped the game). If I do not find any damage, then I would remove and label the power supply for future reference. After installing a known good power supply, I would deliver the suspected power supply (with an explanation) to the bench tech for testing and repairs (if I had a bench tech).


Second incident: If the power supply has been already replaced or it has been tested and is known to be good, I would swap the 7 segment display with the game next to the one in error and observe the game for a couple of days after the incident to see if the error follows the 7 segment display or if the error returns to the same game.

More times then not, the error would not return after these steps but if it did, then I would look at the touch screen controller as a possible source of the problem or perhaps the printer. If nothing else, it is a good opportunity to practice removing the Netplex devices.

Good luck.

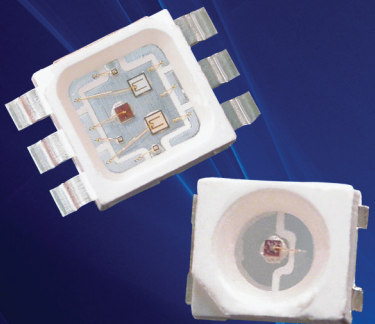
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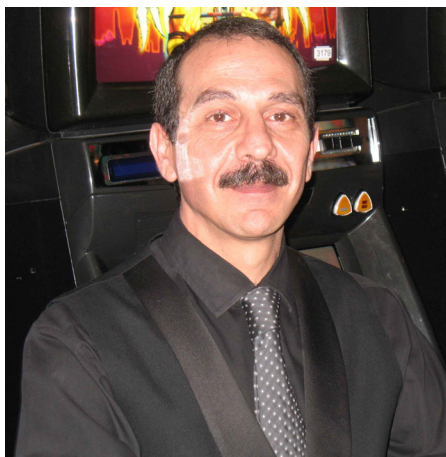
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By James Borg

mitted to repeat. The latter wouldn't be so bad but it's something easier said than done to offer a refund on his "future winnings" since the machine never completed them...

So at that point, a small black cloud starts to loom overhead with the occasional lightning bolt shooting out of it and finding myself trying to keep calm and smile at the client doing my best to re-assure that everything's going to be fine. It's not healthy coming to blows with a frustrated client, especially if that frustrated client happens to be a very frustrated client and one who's lost all his cash and it becomes even worse than that since no security personnel are visible in the vicinity. Oh joy.

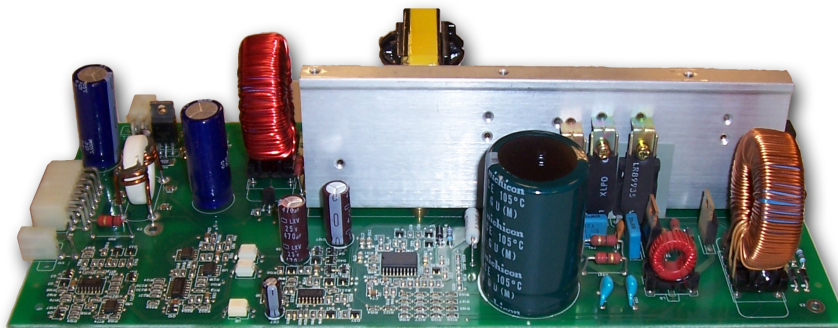
This sort of touchy situation tends to happen when you least expect it (like for

example when you're in a bad mood, probably caused by a nice old lady who has made me walk the whole length of the casino a few times to show me something on a slot machine but can't remember which machine she was on and when she finally finds it, she can't remember what it was she wanted to show me in the first place! Woe is me. Another trigger for a bad mood is ordering a nice, juicy and very yummy hot chocolate and it gets cold due to delays on jobs that have to be seen to on the floor. Oh yes, what a wonderful world we live in.

The machine in question happened to be an Aristocrat Xcite MK6. Pretty neat machines that hardly ever fail. My heart sort of pounds about more than usual when one of these babies decides to pull a fast one as it's not usually easy tackling these. Not forget-

It can be awful when a client's having fun on a slot machine and then it suddenly dies on him with credits and winnings, past, present and future, still stuck in it. It's worse than awful for the poor tech, in this case yours truly, who has to deal with the client trying to explain that it's a very complex machine after all and just like a light bulb this can suddenly die when one least expects it. It would be no use throwing in the old "MACHINE FAILURE VOIDS ALL PAYMENTS" line as this doesn't usually work in such situations. With the preliminaries out of the way and the client foaming at the mouth and hearing him grumble in the background heart warming comments like "this place sucks" and "the thieving swine" and "I'll never set foot in this place ever again" and "I demand to be paid for the winnings" and other colorful comments which I'm not per-

Page 24



ting the waiting and most un-amused client who's still foaming at the mouth and standing very straight, arms crossed and guarding his machine so that nobody goes to play on it. Incidentally, I have had cases of people trying to put money in a slot machine that's well and truly dead. Proof of this would be that it won't be illuminated, no music coming out of it and nothing at all is moving. I also have to include the fact that the mains plug would be running around the floor and not plugged into an electric outlet. All these clues that the machine is for some reason not working don't seem to matter and clients still expect such a machine to accept their money.

Rolling up my sleeves and

having a look inside using my trustworthy little LED flashlight (a Christmas present from my youngest son) whilst holding my breath leads me to conclude what I didn't want to know in the first place, namely

that electric current was entering the power supply unit, the mains on/off switch was working perfectly too, but nothing was coming out of it. It's died a death!

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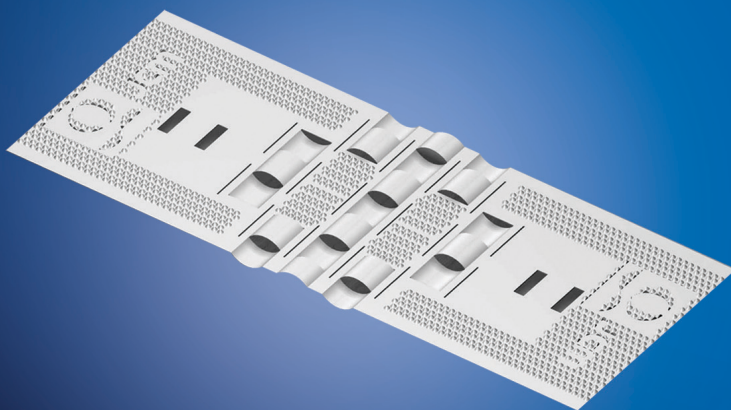
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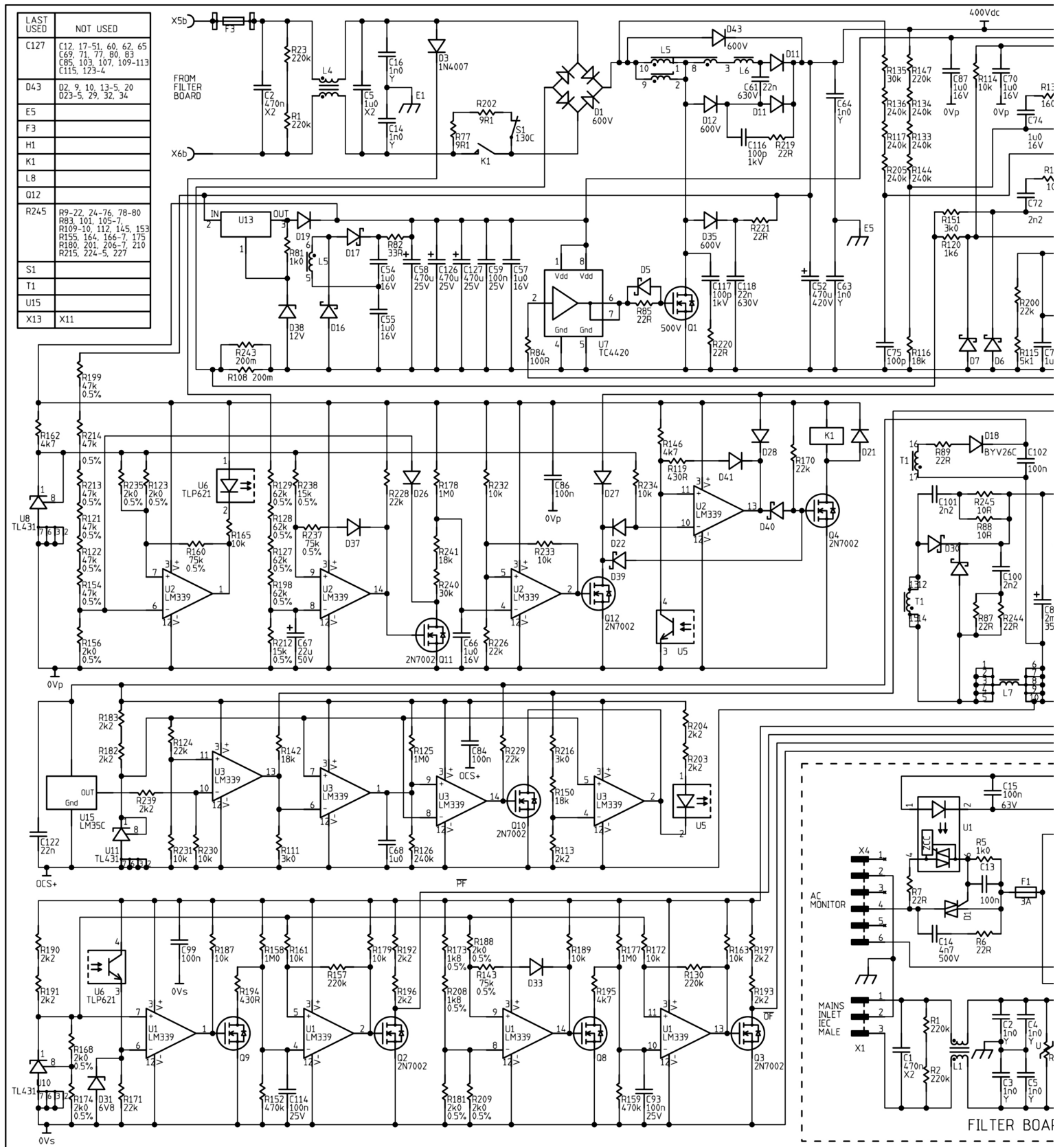
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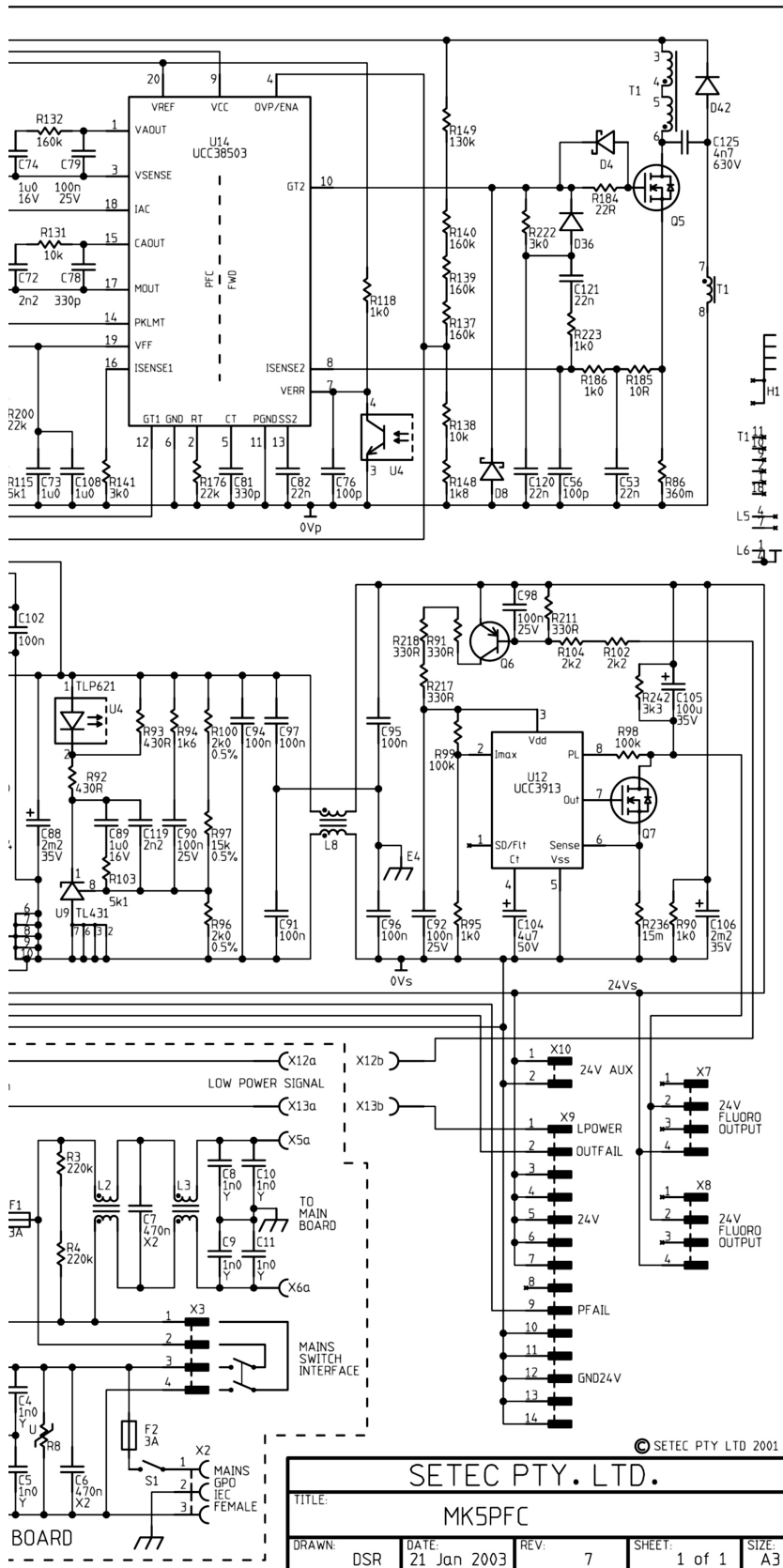
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Before all was lost, I decided to start removing individual output plugs, things like the monitor juice, the ballast juice and all the other juices I could

think of, in the hope that one of these was overloading it and hence it wouldn't start. I pulled all the juice lines there were to pull but dead it was, and dead it

remained. My trusty multi-meter confirmed it without a shadow of a doubt. It was certainly one FUBAR power supply.



I wasn't quite sure how to tell the client that it wasn't his lucky day and that he has to leave the machine 'till it's fixed. It wasn't my lucky day either as I didn't have a similar unit for replacement. So after unscrewing its mounting screws, unplug-

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ging the monitor mains feed, the ballast feeds, the motherboard feeds and anything else that could come away from it, pulling here and tugging there, the supply eventually was dislodged and came out. I held it in my hands looking down at it and thinking to myself "Why did you do this to me? Why didn't you fail when there was nobody playing on the machine? I don't deserve this!"

I approached the client showing him the big power supply and said: "Look, this is the problem. It's Kaput." His blank look staring back at me didn't help me feel any better at all. I asked him to have a few coffees at the bar while I see to his problem that won't take too long to solve. It's amazing how good a liar you get to become when dealing with frustrated clients. I wonder if he noticed that my nose had grown two inches longer.

The power supply is model MK5 PFC. It's one of those that has as many screws to undo as it has components inside. A lot! Once the cover is off, two separate boards are revealed, one bigger than the other. One has the mains directly onto it whilst the other is where all the inverting, regulating and processing is done on, which is obviously the more complex board of the two. Visually, nothing was evident but tests with my trusty multi-meter proved

otherwise. The main fuse on the complex board was open circuit. It's not usually good news when this happens in a supply. Fingers crossed that it was only the bridge rectifier that had gone. The bridge was fine. Ouch!! Further testing showed that the chopper MOSFET (Q1 - IRFP 460C) was shorted out. Closer inspection of the area showed a couple of burnt fusible resistors. Bigger ouch!! This was going to be painful as that level of damage in a power supply usually means that a few other components, namely semiconductors, would be shot to pieces and it would be most difficult to give the client sipping away at his coffee at the bar a crash course in electronics to try and explain how complex the problem turned out to be.

At this point it was time to hit the panic button and pull out my trusty flashpen and see if I have this supply's schematic on PDF. I did. Silent hoorays and secret smiles soon followed. I wonder how many coffees have been downed so far.

The transistor shorted drain to source to gate which would have passed quite some current through Resistors R108 and R243 (both .2 Ohms) which makes sense them blowing. My greatest worry was the feed on the gate of this transistor as this was coming from chip U7 (TC4420)

which is a surface mount device that I didn't have it in stock. I hoped that its internal protection was enough to shield it from any damage. Luckily I had the chopper transistor and the resistors readily donated from another board that had gone to meet its maker. The parts pulled out from it were fine so there is a God after all.

Soldering back these cannibalized parts on to my board with a certain level of excitement building up gradually, I had to go and get myself a cup of tea as it was too much to handle. Once the parts were all in place and the two boards connected together it was time to do the deed. I couldn't take it any more so I had to dash off to the loo for a quick pee. The time has come to see if all my efforts were fruitful or a load of wasted time. Fiddling around with the power leads and getting it all ready to plug in and actually turn on was a nerve wracking experience. I put in the probes of the multi-meter in the connector feeding the slot's motherboard to indicate if there's any voltage coming out once I turn the supply on. Visions of an explosion, a flash of light and a cloud of smoke suddenly came to mind. A do or die moment as my hand slowly approached the switch at the power outlet and finger pushing slowly at the switch. The tension was so

thick it could have been cut with a knife. The silence was so that I could hear a pin drop. My ears were honed and hoping to hear the familiar and most welcome noise of a switched mode PSU coming alive. It's now or never (mainly because I had to go home pretty soon as my shift was about to finish and I couldn't quite imagine the bar remaining open all night long to serve coffee). Flicking the switch, pulling a face, holding my breath (all three actions at the same time) the familiar noise of a switch mode PSU coming alive was heard. It's alive... ALIVE! Yipppee!

A big "phew" followed quickly and it was a mad rush putting everything back, including all the screws in their proper place. It would be a shame

if a screw went in the wrong place and ended up stabbing one of the boards. Heaven help me if that was to happen.

It was all put together with all the screws in their correct place. One last flick on to see if everything's fine once assembled and the good old faithful noise was still there. A dash followed to go to the dead machine. The coffee-sipping guy forced a smile as he saw me approaching the machine carrying the supply. Opening up the machine, forcing in the power supply unit back in, fitting the two screws on the bottom and all the plugs back in again and standing back catching my breath and ready to turn the machine on. This time it was worse as I had an audience present. The

red ON/OFF button was pushed and the machine came to life. Monitor high tension was heard crackling. The game started up and carried on where it had left off due to the power going bad. A bigger phew, a sign of relief and smiles all round, even the coffee-sipping guy was happy! Another happy client, another challenge met and conquered, another problem solved, another tack stuck in my rifle butt and another day done.

- James Borg
jborg@slot-techs.com

For files, software, drivers, schematic diagrams, etc., visit the Slot Technical Department at slot-tech.com

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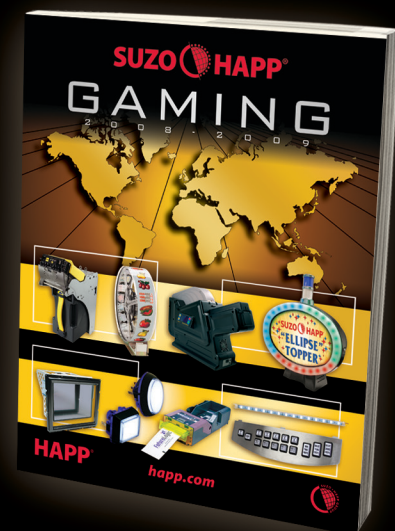
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Projects such as conversions, machine moves, service reports, and EPROM upgrades place a lot of additional duties on technicians in comparison to the everyday routine. As technicians, we encounter floor responsibilities that include burned out lights, preventative maintenance projects, printer jams, and Bill Acceptor problems which are now the norm. With the introduction of TITO, the typical coin in and coin out jam has been replaced with more RAM clears and, in my opinion, more advanced troubleshooting problems such as games freezing up, many CPU board problems, and games not communicating, all of which have become a regular occurrence. RAM clears and machine options now take more time in some models compared to others with have seen in the past. Software upgrades and Multi-Denomination games are loaded with additional options that need to be set up for TITO. The elimination of hoppers and coin mechs has enabled us to turn our focus to fiber cable, fiber boards, poll numbers and CVTs. The

Teamwork

plus - Out of Order Procedures

By Kevin Noble

technicians I work with take pride in having the floor 100 % up and running and the machines looking great.

Working within the Ontario Lottery and Gaming Departmental site structure, most of the time we have three technicians working on these major projects in addition to our regular floor responsibilities. Depending on the number of machines and complexity of the project, we sometimes have warehouse field service technicians available at our disposal. We do not have a technical supervisor or manager within our structure so we have developed a great working relationship with our slot shift managers for project submissions from our slot operations manager. One of our biggest assets is the exceptional customer service the slot operations staff brings to our customers. We as technicians play a large part in our customer service with our quick response time. The technicians can be at the machine, interacting with the customer, troubleshooting, repairing, and wishing the customer "Good Luck" after the task is completed.

During these major projects, the floor duties are still our number one priority but most of the time, the technician is either laying on his back

wiring a bank of machines, in the middle of a RAM clear, or in a midst of a security escort. During these hectic periods, our response time is nowhere near where we want it to be therefore we need to rely on our extended family, the slot operations supervisors. Two people really stick out when these projects are in full swing. We know things will be take care of to the best of their ability. Jim Leblanc and Shelly Schneider are those two exceptional people upon whom we rely to help us get through these projects without us having to pick ourselves up off the ground, brush off all the saw dust and rearrange our uniforms to get a call on the floor that was common sense. Jim and Shelly have gone that extra mile to learn different aspects of the technical job to help us concentrate on the task at hand and minimize the machine down time.

When new machines arrive and the Manufacturer's representatives are eager to pass on operational information such as how the game is played, bonus rounds, last game and bill recalls, Jim and Shelly stick around for the technical information that the representatives pass on to the technicians, including RAM clears, setting game options and the "do's and "don't's of the machine's



Bob Yabroff
President

“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.”



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functions. They have been an extension of our department and we have often relied on them when these additional duties are in progress. There is a sigh of relief when one or the other is scheduled, knowing that I won't be called away for an unnecessary reason.

The benefit of having a well trained operations staff is the customer service we can provide to our patrons. We can make decisions, solve problems and answer questions from your patrons. We cannot compete with larger commercial casinos in marketing or in being the first to receive the latest and greatest products from the manufacturers but we can respond to the patrons' needs in a friendly, knowledgeable, and timely manner. We can interact with the patrons one on one and develop better relationships with the customers. Ask any slot attendant out on the gaming floor and they can point out the regulars that frequent our second home. This means teamwork. This means making yourself more knowledgeable to the product or service. This means going that extra mile that Jim, Shelly, Reggie, Gary, Chris, and I practice everyday on the gaming floor.

Training and knowledge is practiced and taught at our establishment. It is important that we excel in customer service to attract and maintain our patrons. As a department, having supervisor's like Shelly and Jim that respond to the call first and solving the problems first hand might take some floor calls away from us but

getting up from the floor a half dozen times a shift sure saves the wear and tear on our bodies and is well received in our department. Having both skilled technicians and knowledgeable slot supervisors is important in explaining how the games work, solving disputes and minimizing game down time.

Having worked with Jim a thousand times, we have worked together in many situations such as opening/closing doors for CVT reports, bill & game disputes, placing games out of service, questionnaires, training and everyday operational procedures. I thank Jim every day for his help and contribution on my shift. Those thousand times I have worked with him, the handful of times with Shelly, and the million times I did not have to get up.

Out of Service Procedures

These are the machine "Out of Service" procedures we have provided to the Slot Supervisors for disabling games when we are unavailable during any of those moves, conversions, and upgrades.

ARISTOCRAT VIDEO

- Using the black barrel key, turn and hold in the " " position
- Using the "SERVICE BUTTON" scroll down to #6 (miscellaneous)
- To enter the desired option, press the 2nd button from the right on the top row.
- Scroll down using the "SERVICE BUTTON" to #6.3 (out of service) and release the black barrel key.
- The machine will now display "OUT OF SERVICE" on the monitor.

- To place back in service, turn the reset key first, then turn the black barrel key.

ATRONIC VIDEO e-motion

- Open the main door and press the "SERVICE BUTTON" on the CPU board
- Select the "OUT OF ORDER" icon on the top right side of the monitor.
- The machine will now display "OUT OF SERVICE" on the monitor.
- Open the main door and press the "SERVICE BUTTON" to place back in service.

ATRONIC VIDEO

- Open the main door and press the "GREEN" diagnostic button on the CPU board.
- Scroll down using the right lit up button to the "OUT OF ORDER" written on the bottom of the screen.
- Press the middle lit button to enable.
- The machine will now display "OUT OF SERVICE" on the monitor
- Open the main door and press the "GREEN" diagnostic button on the CPU board to place in service.

- BALLY ALPHA VIDEO & REELS
- Turn the reset key
- Select the "OUT OF SERVICE" box
- Select "SET" and the game will go out of order.
- Turn the reset key to place back in service

BALLY S6000 REELS

- Open the main door and turn the "COIN MECH" switch "OFF" or in the "DOWN" position.
- NO CREDITS MUST BE ON GAME AS THEY COULD BE CASHED OUT
- Open the main door and turn the "COIN MECH" switch "ON" or in the "UP" position to place back in service.

BALLY 7200 VIDEO

- Open the main door and turn the reset key

- Select the “OUT OF SERVICE” bar
- Select the “OUT OF SERVICE” red box and the game will display “GAME DISABLED”.
- Open the main door and turn the reset key
- Select the “OUT OF SERVICE” bar
- Select the “IN SERVICE” red box and the game will be placed back in service.

MIKOHN (SIGMA VIDEO)

- Turn the reset key and select the “MORE” box
- Select the “CABINET LOCKOUT” (out of order) box
- Game will now go “OUT OF SERVICE”
- Turn the reset key and the game will be placed in service.

KONAMI VIDEO & REEL

- Open the main door
- Turn and hold the reset key in the “ON” position
- Scroll down to “OUT OF SERVICE” using the left lit button and press the right lit button to enter.
- Release the reset key and the game will be placed out of service.
- Turn the reset key to place back in service.

WMS VIDEO

- Turn the reset key
- Select the “OUT OF SERVICE” box
- Select “SET” and the game will go out of order.
- Turn the reset key to place back in service

WMS REEL

- Open the door and press the white diagnostic button
- **OUT OF SERVICE - OFF** appears
- Press the “SPIN” to turn “ON” and close the main door
- Open the door and press the white diagnostic button
- **OUT OF SERVICE - ON** appears
- Press the “SPIN” to turn “OFF” and close the main door

IGT VIDEO (BLUE & RED SCREEN)

- Turn reset key with main door closed
- Select the “OUT OF SERVICE” box
- “OUT OF SERVICE” screen will now be displayed.
- Turn the reset key to place back in service

IGT S2000 Reel

- Open the main door and press the “DIAGNOSTIC SWITCH”
- Press the “CASHOUT BUTTON” to #6 “OUT OF SERVICE” mode.
- Select the “SPIN” button to enter and the “SERVICE” button to place the game in “MACHINE OUT OF SERVICE” mode.
- Close the main door
- Open the main door and press the “DIAGNOSTIC SWITCH”
- Press the “CASHOUT BUTTON” to #6 “OUT OF SERVICE” mode.
- Select the “SPIN” button to enter and the “SERVICE” button to place the game in

“MACHINE IN SERVICE” mode.

- Close the main door

IGT S+ REEL

- Open the main door and press the white diagnostic switch located behind the on/off switch until **option #90** is displayed in the coin played window or two “0s” are split in the winner paid window
- Press the “SPIN” button until two 1s are now displayed and close the door.
- Open the main door and press the white diagnostic switch located behind the on/off switch until **option #90** is displayed in the coin played window or two “1s” are split in the winner paid window
- Press the “SPIN” button until two 0s are now displayed and close the door.

- Kevin Noble

knoble@slot-techs.com



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

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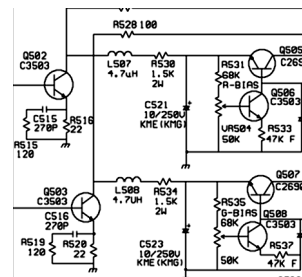
This relatively inexpensive piece of test equipment is easy to operate. Casino School students learn to use the digital multimeter to perform tests and measurements that will pinpoint the cause of a failure down to a single component.

ELECTRONIC COMPONENTS

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

SCHEMATIC DIAGRAMS

Schematic diagrams are the "blueprints" for electronics. Learning to read schematics is easy once you know how the parts work!



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Power supply failure is a common complaint in many different types of systems.. Power supply failures are discussed during the class, along with shortcuts for troubleshooting and repairing them.



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

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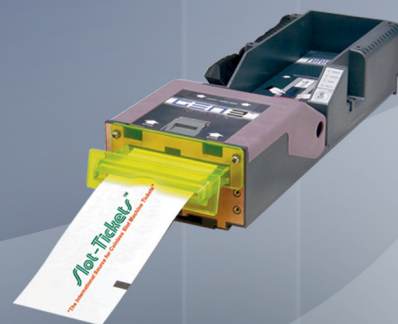
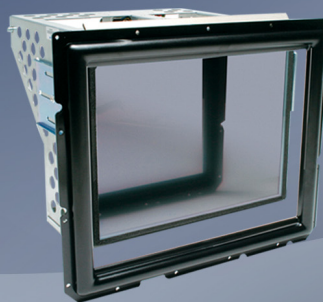
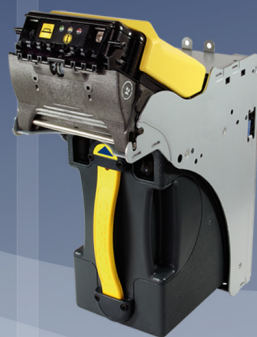
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