

May 2007

# SLOT TECH MAGAZINE

Slot Machine Technology for the International Gaming Industry



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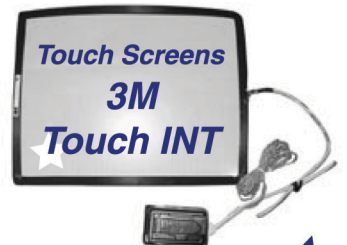
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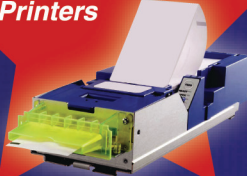


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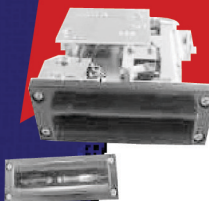
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Straight Tube 400mm CCFL

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Congratulations to my friends at Bally on their 75th anniversary. I have been along for the ride for the past 35 of those years as I began my professional career as a pinball mechanic back in 1972. Bally games were always a little different from the others. A little more advanced in many cases. Where other pinball machines used 24 volts to power the bumpers and flippers, Bally games used 48. Much better in terms of contact wear and tear, it was half the current. Bally also created a driving game called Roadrunner that used a bank of DC servos and servo controllers to control race cars. Way ahead of its time and very sophisticated. Today, it's slot machines and gaming systems and I am happy to still have Bally as a part of my daily, professional life.

*Randy Fromm*

## Randy Fromm's Slot Tech Magazine

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## BALLY TECHNOLOGIES ANNOUNCES EXPANSIVE TECHNOLOGY CONTRACT WITH LAS VEGAS SANDS COVERING RESORTS IN LAS VEGAS, MACAU AND SINGAPORE

LAS VEGAS, April 23, 2007 – Bally Technologies, Inc. (NYSE: BYI) announced today it has signed the gaming industry's largest combined slot, casino management and bonusing systems deal to date, an agreement with Las Vegas Sands Corp. to provide an expansive range of Bally technology at nine casino resorts in Las Vegas, Macau and Singapore.

Upon complete execution, based on successful "go-lives" at multiple properties, the series of contracts is valued at up to \$56 million.

The comprehensive agreement covers The Palazzo Resort Hotel Casino under construction on the Las Vegas Strip, The Venetian Macao Resort Hotel under construction on the Cotai Strip™ in the People's Republic of China (PRC) Special Administrative Region of Macau, six future Las Vegas Sands casinos on the Cotai Strip and The Marina Bay Sands under construction in Singapore.

"This is a milestone event for Bally as we announce the largest contract in the Company's 75-year history," said Richard Haddrill, CEO of Bally Technologies. "To be the technology provider of choice for such a progressive company is a role we take very seriously, and we look forward to working together on all of these integrated resorts around the world."

The contract includes a full range of Bally Casino Management Systems (CMS™) / Slot Management Systems (SMS™) technologies, the complete suite of Bally Power Bonusing™ solutions, eTICKET™ cashless functionality and interactive iVIEW™ displays for up to 16,000 slot machines.

Already the casino management systems provider at Las Vegas Sands' The Venetian Resort Hotel Casino on the Las Vegas Strip and at the Sands Macau, Bally has enhanced its software and product sets for Las Vegas Sands to accommodate the specific requirements of the growing Asian market. Bally CMS/SMS can support dual currencies, multiple chip sets per table, non-negotiable chips, premium player programs, chip purchase vouchers and expanded monetary fields.

With Bally technology dramatically expanding the capabilities of Las Vegas Sands' universal player's card by linking Las Vegas, Macau and Singapore resorts, Las Vegas Sands will also enhance the player experience by deploying Bally Power Winners™, a configurable random progressive jackpot technology that rewards players using their player's club cards.

"We see this as an endorsement of our technology portfolio and product road map," said Tom Reilly, Vice President of Sales, East Region. "Clearly Las Vegas Sands is a company on the move and we're proud to be their partner as they develop some of the most spectacular integrated resorts ever created."

The "go-live" dates for the various Bally technologies will be staggered over the next two years, with The Venetian Macao scheduled to open in Summer 2007, The Palazzo later in 2007 and The Marina Bay Sands in 2009.

Recognized as the industry systems leader with more than 358,000 machines and 667 casino, bingo, Class II, central determination and lottery locations worldwide — including more than 191 locations currently running Bally eTICKET™ on more than 228,000 slot machines — the Bally Technologies systems product line offers slot machine cash monitoring, table management, cashless, accounting, security, maintenance, marketing, promotional and bonusing capabilities, enabling operators to accurately analyze performance and accountability while providing an enhanced level of customer service.

With a history dating back to 1932, Las Vegas-based Bally Technologies designs, manufactures, operates and distributes advanced gaming devices, systems and technology solutions worldwide. Bally's product line includes reel-spinning slot machines, video slots, wide-area progressives and Class II, lottery and central determination games and platforms. As the world's No. 1 gaming systems company, Bally also offers an array of casino management, slot accounting, bonusing, cashless and table management solutions. The Company also owns and operates Rainbow Casino in Vicksburg, Miss. Additional Company information, including the Company's investor presentations, can be found at [www.BallyTech.com](http://www.BallyTech.com).

This news release may contain "forward-looking" statements within the meaning of the Securities Act of 1933, as amended, and is subject to the safe harbor created thereby. Such information involves important risks and uncertainties that could significantly affect the results in the future and, accordingly, such results may differ from those expressed in any forward-looking statements. Future operating results may be adversely affected as a result of a number of risks that are detailed from time to time in the Company's filings with the Securities and Exchange Commission. The Company undertakes no obligation to update the information in this press release and represents that the information is only valid as of today's date.

— BALLY TECHNOLOGIES, INC. —



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# Ryan's Repair Tips

By Ryan Young



## Innovative Gaming Video Card Repair

When an IGI begins to display distorted or fuzzy graphics on screen, or simply fails to display anything, there's a good chance the problem lies in the video card. Once you have tested to make sure the problem stays with the machine, you will want to remove the video card to make repairs.

The following is a complete listing of the capacitors found on the IGI video card. Although these capacitors may test good, it is a smart choice to replace all of them.

Location	Capacitance	Voltage
C41	22uF	16V
C77	22uF	16V
C34	22uF	16V
C64	10uF	25V
C38	10uF	25V
C42	220uF	10V

You will want to replace the capacitors with ones of the same capacitance as the originals. If you are unable to find capacitors of the same voltage, make sure to use ones with a higher voltage than the originals, making sure they can still fit on the board. With this type of installation, it may be difficult to seat the capacitors through the existing holes in the board. If this situation should arise, place a piece of metal through the hole, and solder your capacitor legs the that piece of metal, and simply fold the capacitor over so that it seats sideways on the board, making sure not to let the legs touch one another.

If this does not cure the problem, you will need to further troubleshoot the situation.

## Wells Gardner Aristocrat Monitor

The following addresses the repair of a common fail item on the Wells Gardner monitors manufactured for use in Aristocrat slot machines. Over time there are three capacitors that usually go bad on the main boards of these monitors. You will want to check the

following three capacitors with the Capacitor Wizard: C202, C206, and C132. More than likely they will be physically bad, but don't assume they're good if they look fine. These are all 1000uF 16v Capacitors. If this does not work, further troubleshooting will be required.

## Kristel 17" CRT for WMS 550

C506 (100uf @ 25V) & C512 (47uf @ 50V) - these are in the primary of the power supply, part of the start-up circuit. When these dry out, the start-up time may be drastically increased. I recommend replacement.

C520 (100uf @ 160V), C521 (22uf @ 200V), C522 (470uf @ 25V), C523 (1000 uf @ 35V), C524, C525 (1000uf @ 25V) - these are in the secondary of the power supply. They are filter caps for the various output voltages of the power supply. Failures here can present themselves in a variety of symptoms ranging from noisy display to no operation at all. I recommend replacement.

C315 (220uf @ 35V) - this will affect the linearity and vertical size adjustments. I





## Ceronix LCD Monitors

**CERONIX, INC., the company you have relied upon to provide you with the highest quality video display monitors for over 20 years, now offers exceptional LCD Displays!**

Ceronix LCD Displays are "drop-in" replacements for existing upright and slant top CRT and LCD monitors. Installation requires just a few screws and five minutes of your time.

The Ceronix **"LCD UPGRADE KIT"** includes: LCD touch screen monitor and a **NEW Injection Molded Flat Bezel.**

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### 17" LCD Displays For the following replacements

- |            |                           |
|------------|---------------------------|
| • CPA4050L | 17" IGT Upright           |
| • CPA4051L | 17" IGT Slant             |
| • CPA4090L | 17" WMS Upright           |
| • CPA4089L | 17" Konami Upright        |
| • CPA4067L | 17" Bally Upright         |
| • CPA4095L | 17" Atronic Upright/Slant |

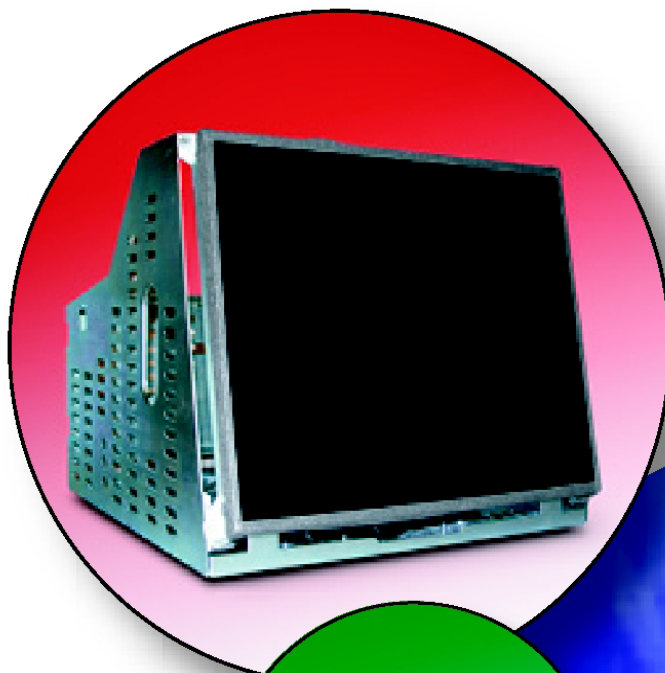
Prices starting at \$560.00 include a touch screen and controller.

### 19" LCD Displays For the following replacements

- |            |                        |
|------------|------------------------|
| • CPA4097L | 19" IGT Slant          |
| • CPA4062L | 19" IGT Upright        |
| • CPA4088L | 19" Aristocrat Upright |
| • CPA4064L | '19V'/20" WMS Slant    |
| • CPA4020L | '19V'/20" IGT Upright  |

Prices starting at \$697.00 include a touch screen and controller.

For further information regarding Ceronix's products or services, please contact Sandi Viscuso at (530) 886-6404 – sandi@ceronix.com or check the website at: [www.ceronix.com](http://www.ceronix.com).



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recommend removal and measurement / replacement.

C609 (100uf@25V) - this sits on the primary side of the horizontal drive transformer. When this component fails, the Horizontal Output Transistor will run excessively hot with a possibility of lack of sweep or width control. I recommend replacement.

C804 (100uf@25V) - this sits across the VCC pins of IC801. Failure here can affect the operation of the circuits that depend on IC801, which includes sync separation, mode determination, vertical sizing and the clamp pulse.

When power is applied to the board, the auto-bias circuit should ramp the levels up and then relax them to a normal viewing level (depending on the contrast setting). You should see a raster, rather bright, on the screen, which will "flash" (or pulse) a few times before dropping out, leaving the video.

If the ramping up and flashing do not occur, check the transistors across the rear of the main PCB (Q601, 602, ... , 606). These control and condition the handshake signals and voltages for the auto-bias circuit

If the ramping up and flashing happen, but you have no video, check C230 on the neckboard. Also check the B+ voltage at the neckboard. (for a 17" dual

focus, it should be ~ 90-110VDC)

If all seems normal, disconnect the power while monitoring the video screen. If there is a bright flash at shutdown, this may be a clamp-pulse problem. This is generated by IC801, but is conditioned by a transistor on the neckboard (Q201)

Also, there is the "glue scenario"! If this glue has turned from a light tan to a dark brown / black, it may be slightly conductive (in the mega-ohm range). If the glue makes contact with a number of components, this could cause a multitude of symptoms. In this condition, the glue will be very brittle and easy to remove by "chipping" or "flicking" it away with a probe or X-acto knife.

### **Kortek 19"/17" Monitors for IGT**

The following is an overview of the most common problem associated with the Kortek style monitor commonly found within IGT machines. If the image becomes very dim or possibly distorted, and you cannot adjust it out, you will want to take the following actions.

When working on a defective Kortek monitor, you will most always want to test capacitors C123 and C126. C123 will almost always test bad. You will want to replace these capacitors if they have not already been previously replaced.

Original manufactured boards come with a 470uF 16V capacitor in these two places, you'll want to replace with a 25V or higher of the same capacitance, 100V max. If problem with picture persists, and you see a sort of pincushion effect, where the middle of the sides is in or out further than the top and bottom, you may wish to replace the dynamic focus board. The dynamic focus board is a small five sided board elevated above the main PCB board directly in front of the flyback transformer.

While the board is out, you will want to check all capacitors with the Capacitor Wizard. If in doubt, replace the capacitor with a known good one. Other problems and resolutions are as follows.

If you have a pincushion problem, you may wish to check and replace IC408 and C420. This should fix the problem.

### **Black Raster**

Q402 if Q402 checks good try C126 (if you change Q402 change C421 also) Q402 is a transistor Part Number: NTE2353

### **Screen Jitters**

C408- 22uF/160V capacitor  
Dark stripes (left side)  
D904- Rectifier Part Number: NTE558

### **Flyback ticking**

H.O.T. Replace the flyback transformer.

# Touch Gaming Standards



## ClearTek™ II Capacitive Touch System

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## Raster Too Wide

C420- 10uF/30V on dynamic focus board.

## Wells Gardner 17" Dual Focus WMS 550

The following is an overview of common capacitor failures associated with the 17" Wells Gardner monitor found in Williams 550 machines. If replacement of the following capacitors does not solve the problem, further troubleshooting will be necessary.

For power issues, the following capacitors should be checked and/or replaced.

Location	Size	Voltage
C506	100uF	25V
C512	47uF	50V
C520	100uF	160V
C521	22uF	200V
C522	470uF	25V
C523	1000uF	35V
C524	1000uF	25V
C525	1000uF	25V

For vertical problems, check C315, a 220uF 35V capacitor.

For horizontal drive problems, check C609, a 100uF 25V capacitor.

For sync separator problems, check C804, a 100uF 25V capacitor.

## Slot line/ Cat 5 Cable Crimping and testing Information

The following is a basic description of how to properly terminate and test slot line. The chart below shows the common wire configuration used on our floor. If you find a cable that does not match this configuration, simply ensure both ends are the same and tests fine.

First you will need to strip about an inch off of the outer casing of the slot line wire. You do not need to strip the individual wires, as the contacts on the end will puncture through the insulation.

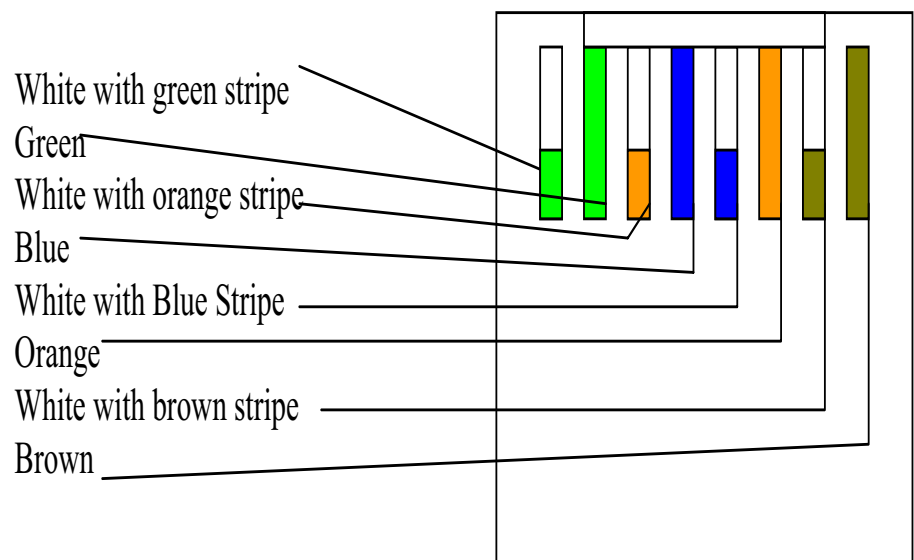
Next, line up your colored wires according to the diagram. They should go as follows left to right: White with green stripe, green, white with orange stripe, blue, white with blue stripe, orange, white with brown stripe, brown.

Once you've gotten the wires lined up, force them into the open part of the end, making

sure you're looking at the pin side of the end, not the lock tab side of the end. If your colors stayed lined up and look good inside the connector, insert into the crimping tool and apply pressure.

Repeat these three steps if necessary for the other end. Test them with the line tester to ensure no crossed wires. Place one end of the slot line in the large gray box, and the other into a three-way adapter with one of the yellow testers in the other end of the adapter. Press the test button on the gray tester and if all come back good, go on to the next tester. If all come back good, the slot line should be good.

- Ryan Young  
[ryoung@slot-techs.com](mailto:ryoung@slot-techs.com)





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### JCM American and KIC Products Create Cleaning System

*JCM Waffletechnology™ Cleaning System Enables Bill Validators to be Virtually Self-Cleaning*

**L**AS VEGAS – Self-cleaning bill validators are now a reality, thanks to a new product developed by JCM American and KIC Products. The JCM Waffletechnology™ Cleaning System activates new cleaning cycle software inside JCM bill validators.

The software was installed in JCM UBA® and WBA® bill validators during a recent update. The cleaning cycle can only be activated by the new design of the JCM Waffletechnology Cleaning System, which is ideally designed to clean the critical validation and transport functions within the JCM Bill Validators. Once activated, the Cleaning Mode Software cycles the new product to precisely and thoroughly clean JCM bill validators to maintain optimal performance.

The new product is available through the JCM sales team and JCM Waffletechnology authorized distributors. For information and a list of distributors, visit  [www.jcmwaffletechnology.com](http://www.jcmwaffletechnology.com).

“The success of the first JCM Waffletechnology Cleaning Card was an important step in creating a more

comprehensive approach to cleaning bill validators. The combination of the software update and the newly designed product allows for fast and thorough cleaning in the dynamic environment of a casino floor. This represents the first combination of software and product design and it is no surprise that it comes from JCM the leader in the Bill Validator Industry,” said Peter Klein President/CEO of KIC Products. “The result is the most advanced cleaning application ever designed for Bill Validators.”

The JCM Waffletechnology Cleaning System incorporates flexible, raised platforms on the system’s top and bottom surfaces, positioned precisely to match the interior design of the JCM Bill Validators. These cleaning platforms are essentially spring-loaded, significantly increasing the pressure applied to the internal components, wiping them clean as the card passes through the mechanism.

KIC Products offers a variety of Waffletechnology designed products available for magnetic card readers found in hotel door locks, POS devices, ATM’s, player tracking virtually all types of

credit card readers. KIC Products has over 25 years experience utilizing the latest technology to custom engineer quality products to clean today’s highly sensitive and technical equipment. Waffletechnology provides products and services built on integrity and quality to a diverse marketplace. For more information, visit [waffletechnology.com](http://waffletechnology.com).

JCM American Corporation is the industry leader in automated transaction handling systems and provides products, software and services to the amusement, gaming, kiosk, retail, transportation and vending industries. JCM’s progressive spirit continually sets worldwide industry standards with innovative and award-winning products such as the Universal Bill Acceptor (UBA®), Intelligent Cash Box (ICB®), Trident® Table Safe System, Optipay® cash recycling system and DMV Self-service Kiosk. JCM is a subsidiary of Osaka-based Japan Cash Machine, with subsidiaries in Düsseldorf, Hong Kong, London, Macau, and Sydney. For more information, visit [www.jcm-american.com](http://www.jcm-american.com).

# For All Your Slot Repair Needs!

**Data Comm**



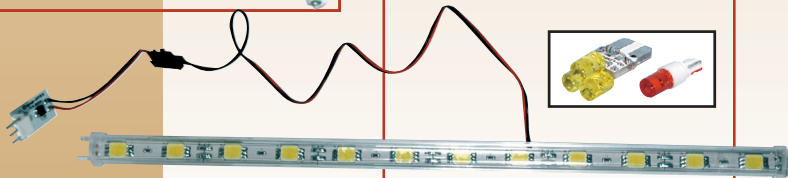
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# Clean and Easy

***Waffletechnology™ products clean quickly and thoroughly***

If you have ever been to a TechFest, you have seen Jack Geller in action. Jack is JCM's itinerant technical trainer, traveling around the world teaching slot techs how to service the ubiquitous WBA and now, their latest UBA bill acceptor. Jack starts every class with a simple question.

"How do you clean your bill acceptors," he asks. "How do you clean the optics? How do you clean the rollers? How do you clean the belts?"

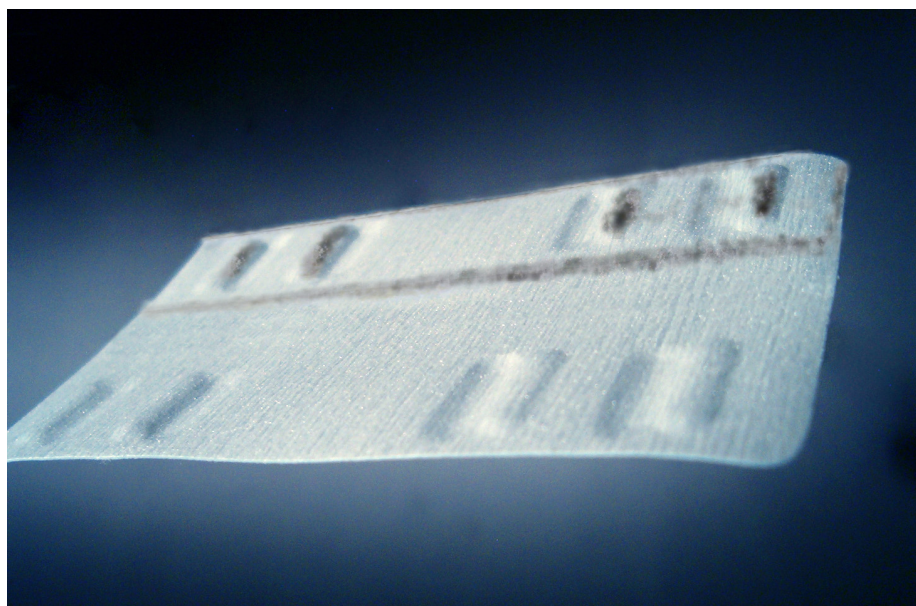
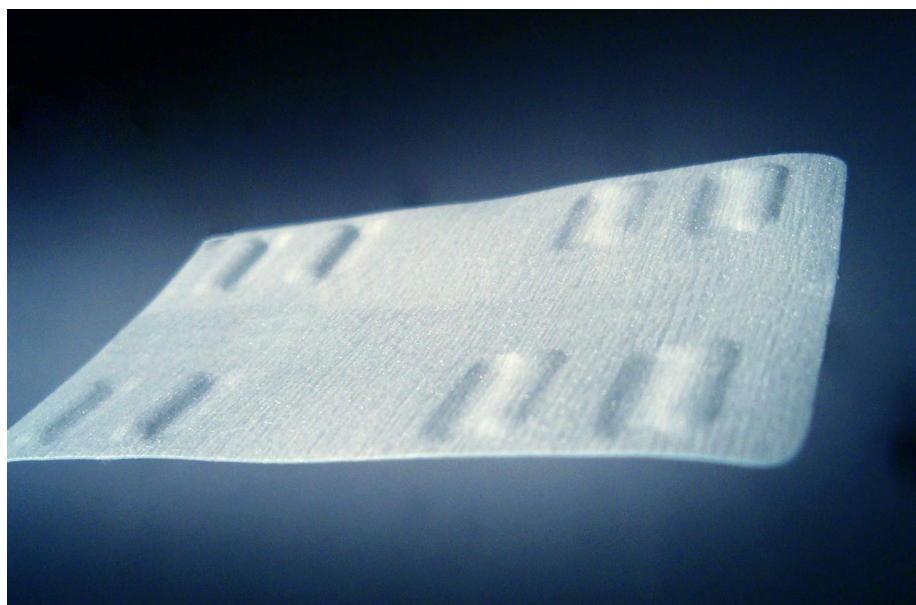
This type of preventative maintenance isn't difficult but it does, of course, require that both the slot machine and the bill acceptor be opened up for the procedure.

An alternative is to use a cleaning card. Previous attempts at using traditional, flat cleaning cards on increasingly complex transaction equipment like gaming bill acceptors did not prove successful. In 2004, Waffletechnology™ was developed, taking cleaning card design to the next level. Slot Tech Magazine first tested and wrote about the

effectiveness of this product in our October 2004 issue.

Waffletechnology was the first cleaning card solution to achieve complete access and

contact to critical components within the electronic transaction equipment. Because optical lenses and sensors sit below the belts, effective contact





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could not be achieved with the use of flat cleaning cards. Flat cards do not contact recessed areas and, at best, only come into contact with the convex tip of a rounded optical lens.

Technological advances in Waffletechnology cards have significantly increased the effectiveness of cleaning, making it possible to effectively and efficiently clean slot machine components with the insertion of a card built specifically for each device. Waffletechnology products are tested and approved by major OEMs such as NCR (for POS equipment) and O'Neil (for thermal printers) and are manufactured to precise specifications, utilizing approved materials.

Recently, JCM's endorsement of Waffletechnology led to the development of software to create an integrated cleaning system that cleans the critical validation and transport functions within JCM's, UBA and WBA bill validators. This system further increases the performance of the product in the validator, enhancing the cleaning capability and simplifying slot machine maintenance. Once accepted into the device, the cleaning system cycles in and out three times, effectively cleaning belts, rollers, and lenses while removing loose debris from rollers. For more

information visit [www.jcmwaffletechnology.com](http://www.jcmwaffletechnology.com)

Waffletechnology incorporates flexible, raised platforms on the top and bottom surfaces of the cleaning card. These cleaning platforms are engineered and precision-cut to create a spring-loaded action, significantly increasing the pressure applied to the internal components as the card passes through the mechanism. Not only is cleaning pressure increased, but also the platforms actually spring up into surface cavities to clean recessed sensors. Additionally, the leading and trailing surfaces of rounded optical lenses are effectively cleaned. As the card is accepted into the mechanism and as it is dispensed by the mechanism, it cleans all surfaces.

Additional features incorporated into many Waffletechnology cleaning cards include embossed traction pads located at both ends of the cards. The pads serve the dual purpose of increasing traction as cards are processed through the equipment and providing an additional cleaning mechanism for the rollers and belts.

With Waffletechnology cleaning cards and products, busy operators can easily and efficiently keep up with scheduled maintenance

programs. Once the presaturated cleaning card is inserted, deposits from dirt, debris, and dust from the environment are removed in a matter of seconds, keeping acceptance rates at optimal levels, keeping casinos operating, and players playing with minimal impact to casino floor operations.

### **Waffletechnology products for slot machines include:**

#### **The .019 Waffletechnology Card Reader Cleaning Card.**

Designed to gently but firmly roll along the magnetic heads. By adding a positive then negative pressure, the Wave Waffletechnology cleans the leading, top, and trailing edge of the magnetic head. The same feature reaches into the pathway of the reader where dirt builds up and migrates to the magnetic heads during ordinary use.

#### **The JCM Cleaning System cleans JCM, UBA and WBA Bill Validators.**

An advanced cleaning application that incorporates a software system and Waffletechnology to clean the critical validation and transport functions within bill validators.

#### **The Waffletechnology Cash Acceptor Cleaning Card.**

For cleaning and preventative maintenance of bill validators other than JCM.

In addition, a **cashless ticket printer cleaning card** is available that cleans thermal print heads. The main cause of premature print head

failure is a buildup of paper flash and other contaminants. By simply feeding the presaturated thermal printer cleaning card through the printer, guide paths and rollers are cleaned. Regular use ensures that customers' transactions (ticket-in/ticket-out) are legible, allowing for accurate redemption.

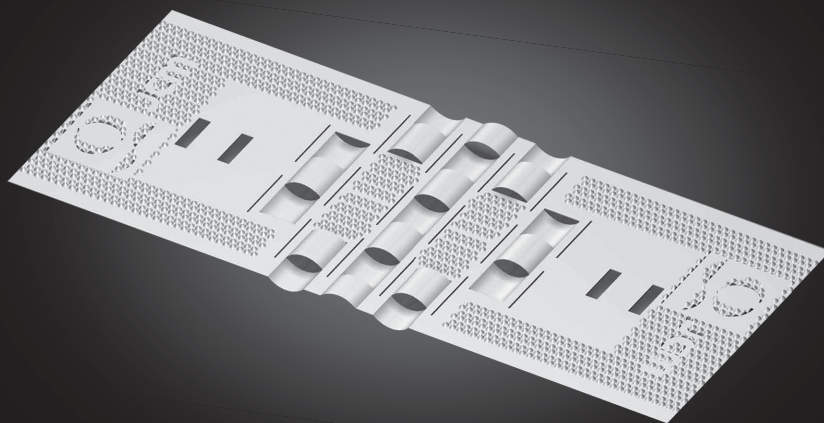
Waffletechnology cleaning cards are available for purchase worldwide from authorized industry cleaning and maintenance dealers and distributors as well as manufacturers of reading devices. Companies currently using Waffletechnology

cleaning cards as part of their preventive maintenance plans include Bank of America, the Department of Defense, Eastman Kodak, IBM, MasterCard, New York City Transit Authority, Pepsi, and the U.S. Postal Service.

The engineers of Waffletechnology have developed numerous technical cleaning products for additional automated data collection devices found in casinos, such as ATMs, magnetic stripe card readers, hotel room door locks, check readers, currency counters, and vending machines. For more

information about Waffletechnology cleaning cards and products visit [waffletechnology.com](http://waffletechnology.com) and [jcmwaffletechnology.com](http://jcmwaffletechnology.com)

**Technical specifications, service manuals and software are available at [jcm-american.com](http://jcm-american.com)**



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# Casino Expansion at The Island Resort & Casino

By Pat Porath

**W**here to even begin? Well, since I'm a slot tech, why not the slot machines, of course! At this current time we have been installing 110 games that were purchased to replace games on the current floor. Why would we be doing this? To get rid of the older games that parts are hard to come by and they are pretty much wore out.

Another reason is our casino is leaning toward more games that have the feature of ticket in ticket out. This eliminates the hassle, weight, dirt and

problems with coins. The games are totally coinless. Bills and tickets in, only tickets out and attendant paid jackpots. Our customers still have a mixed opinion of which they like. I hear both sides. One will say that they like to insert the coins into the games and hear the sound of the coins hitting the tray when the slots payout. Another customer will state that they like the convenience of only taking a ticket up to the cashier instead of two cups of coins.

Once the expansion is com-

plete, there will only be \$1.00 and \$5.00 coin games left, and a bank or two of nickel and quarter games too. There was a situation some time back, where some of our customers complained (dare I say demanded) that we put nickel coin games back on the floor. So, of course, we did and they still get played very well.

The gaming floor is expanding, so the number of slots has to go upward too. Currently, we are running 954 games (give or take. We have been removing and installing

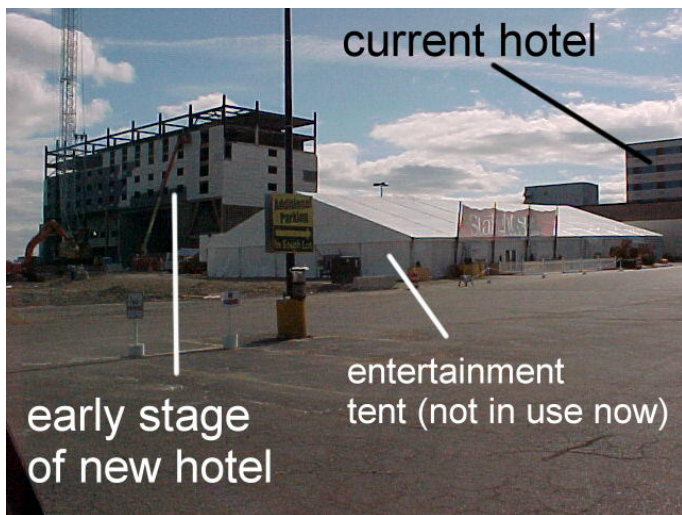




quite a bit). Our expansion number will be around 1438. Using a nice round number, an additional 500 games will be added. Take 500 games at an average of 2.5 amps each and it comes up to over 1200 amps! This is in addition to what we already have. Most homes only have a 200 amp service hookup. No wonder companies are coming up with ways slot machines can use less energy. For instance "cold cathode" lighting uses less wattage, "burns" cooler and enhances colors. Picture tubes in video slots are being replaced by LCDs. They use a lot less energy and run very cool too.

The current casino has, according to our electrician, about two miles of conduit running throughout. What will the new place have? It's hard to answer that one so far. It is simply amazing the amount of cable that is run through the current casino too. There are "cable tracks" in the ceiling of some parts. It is steel framework that is assembled for the intention of holding up bundles of cable. To me, they look somewhat like a miniature steel railroad bridge. Pretty neat though.

Concrete and steel is the obvious framework of most large structures. It is the same with this one and quite a bit of it (for a small community anyway). In addition to the six story hotel we now have, an 11 story hotel tower is well underway. I remember when the "ironworkers" (people that put up the large steel beams) put a Christmas tree (fair sized balsam evergreen tree) on the top of the sixth floor of the current casino. While walking



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into work I looked at it and thought to myself "What in the world is a TREE doing on top of the hotel framework?" I couldn't even take a wild guess at this one. It wasn't very long and I found out the answer. Ironworkers do this to symbolize they have reached the highest point in the construction process. It's called "Topping Out." I don't know why they use a tree, but that's ok. At least I know what the heck a tree is doing on top of a building in the summertime.

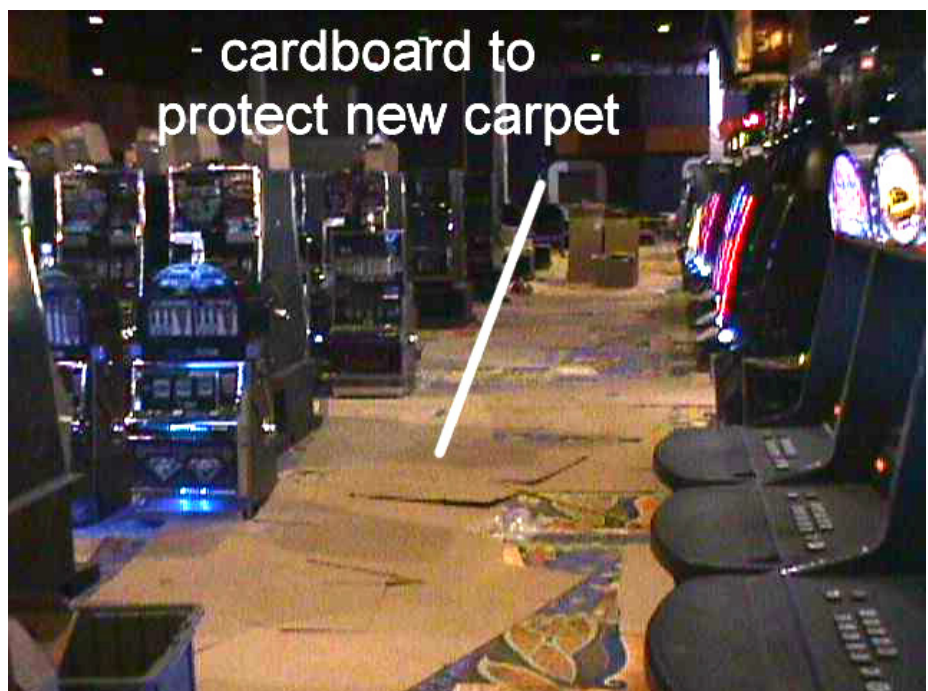
Another neat thing is the "pre-cast" concrete floors can simply be set in place, which saves a lot of time overall, especially with how the weather is in the Upper Peninsula of Michigan. Wet concrete and rain isn't usually a good combination. Anyway, it's neat to see the semi trucks come in with the concrete slabs ready to be installed in the hotel. A truck hauls them in and a huge crane sets them into place. The crane is around 14 stories high, maybe more. There isn't a problem reaching the 11th floor at all. It is cool too. Can you guess what is on the top of that? No, not a tree this time. "Old Glory" the United States of America flag.

Entertainment one might ask, other than gaming? There will be that too, bigger and better than before. The so called old auditorium, only going on eight years, (and now demolished) will have a seating capacity of 1340 people. The other only held

about 750. A few of the stars that were there in the past years were The Charlie Daniels Band, Ronny Milsap, Merle Haggard and George Jones. Obviously, I recall the country stars, there were rock stars too. Other entertainment included a "game show" type atmosphere with Bob Eubanks as the host. I'm excited to hear who the casino has lined up for en-

tertainment once expansion is complete.

The so called "old hotel" has 113 rooms, and with the hotel tower complete, our total will be 323 rooms. Currently there are two places for customers to eat. Soon there will be three. There will be the "Firekeepers" fine dining restaurant, which includes a piano, a huge fireplace and a



bar. The snack bar is a great place to grab a quick bite to eat. They have breakfast cereal, muffins, hamburgers, subs, and such. The additional place to eat will be casual dining, which will include a bar. Expansion plans even include putting in a bakery! No doubt there will be many visitors to that spot in the morning.

Recently it has been quite interesting during the expansion at the Island Resort and Casino. I have been working on the new gaming floor putting in locks, setting up software and unloading trucks of games and signs. One day there were four IGT techs, two WMS techs, two sign techs and a Bally tech plus the regular staff of slot techs on duty working on the new floor. What a week that was. There were signs going up, games being hauled in, and games being unpacked and bolted down.

A bit on slot bases alone. It was a job in itself unloading and unpacking around 450 bases. Each one was in a cardboard box and wrapped in plastic. They include a "cold cathode" light which is on the bull nose of it and displays a cool purple light. They also have a carpeted footrest and came complete with nuts and bolts to connect the bank of games together. Some bases we classified as "universal." They were pre-drilled for a variety of games. Talk about a time saver. We are using the cardboard boxes from the bases

to protect the brand new carpet on the floor. Once the expansion is complete, we will be changing all of our current bases to the new type.

It sure is going to be awesome once the new gaming floor is

opened up. With all of the new games, new slot tournament machines, new entertainment stage, and everything else, no doubt it will be great.

- Pat Porath  
pporath@slot-techs.com

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**Y**eah, that's kind of a weird title, but let me elaborate on what exactly this title means.

We've been mostly TITO® for a little over a year now. We've never really taken the time to stock up on spare printers for each manufacturer. Compounding that problem is the fact that since these printers have been on warranty we haven't really educated ourselves on the inner workings of them. We've dabbled a little bit but never really got right into it until we ran out of Gen2 Netplex printers. We had one fail, which meant that we were really in a pinch, hence the title "printers in a pinch."

I suspected that you could change these printers from RS232 to Netplex with little effort. I was hoping that you could just change the protocol on the Gen2 but it just wasn't to be (at least I couldn't get it to work that way).

# Printers in a Pinch

By Ted Befus

So, I'm going to share with those of you who don't already know how this is done. Since this is going to require a change in jumpers on the main board, we're going to see how to disassemble the printer to get at the main board, where the jumpers are located and how to use the FLI downloader program to change the protocol.

The disassembly is really easy. The main board is located under the paper tray. To access it, you remove the FutureLogic decal that covers the paper tray and re-

move the four screws that hold the tray to the printer.

Once the four screws are removed, you can remove the tray. Be careful and pay attention. The keypad harness is going to be disconnected and the tray can be placed to the side until you're done. Figure 1 shows the printer with the paper tray removed.

Looking at the schematic of the main board shows us the location of the jumpers that need to be changed. Depending on which protocol is used (RS232 or Netplex) this will

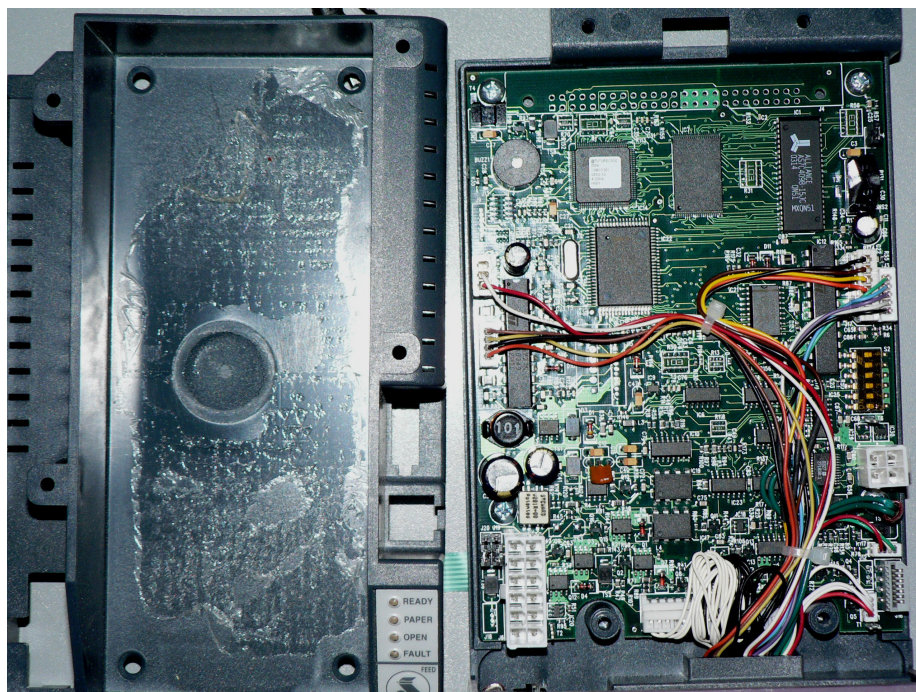


Figure 1 shows the printer with the paper tray removed.



determine the position of these jumpers. For Netplex, jumpers J19 and J20 should be jumped on pins 1 and 2. For RS232, you need to jump pins 2 and 3. Figure 2 shows the location of these jumpers; they are located to side of the 12 pin Molex® Mini-Fit Jr. connector.

Once the jumpers are changed to the protocol you desire, you can reconnect the keypad and install the paper tray and screws. Don't forget to clean the glue residue that's left from the FutureLogic sticker that we had to remove.

Now, we're going to have to make sure that this printer is running at the correct baud rate for the protocol you desire. I'm sure that most of you know that Netplex al-

ways runs at a baud rate of 19200. This appears to be coded directly into the program, since any changes to the baud rate switches do not affect it. For RS232, most games either run at 9600 or 38400. To set the printer to 9600 you must set all switches to OFF. To set to 38400 you should set switch 2 to ON. There are other configurations but these are the most common.

Now that we've got the jumpers changed, baud rate set and the printer re-assembled, we can program it with the protocol we need. For this article, I'll be uploading the program GNUSA5500 tkt 2.3 for the IGT Gen2 Netplex printer. The "N" in the program

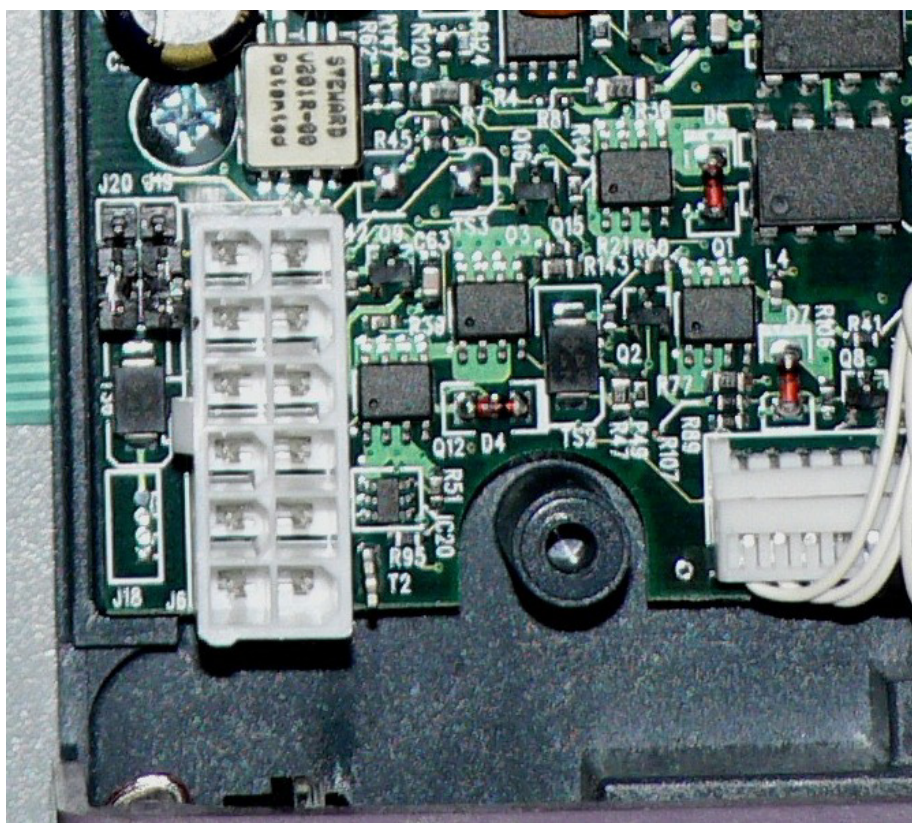


Figure 2



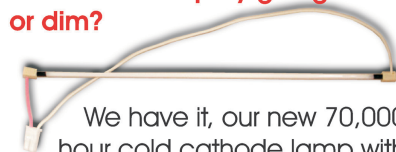
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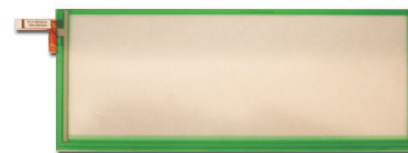
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specifies Netplex protocol. For RS232 the “N” becomes and “R” i.e... GRUSA4009...

There are a couple of different ways to do this. To upload to Netplex printers, you’re either going to need a Netplex converter to interface with the printer or you’re going to have to program it at the game. For the RS232 printers, you just need the appropriate download cables or you can program it in the game also. To program at the game, you need to build a serial cable to interface with the printer firmware download port.

If you want to build cables, you’ll need a DB9 connector, a 3 conductor cable and a 4 pin Mini-Fit Jr. plug. The same cable is used for both the Netplex and RS232 printers. Figure 3 gives you the pinout for this cable. To use this cable, you simply leave the printer connected to the game, connect the 4 pin connector to the firmware upload port on the printer (located next to the dipswitches) and run the FLI downloader pro-

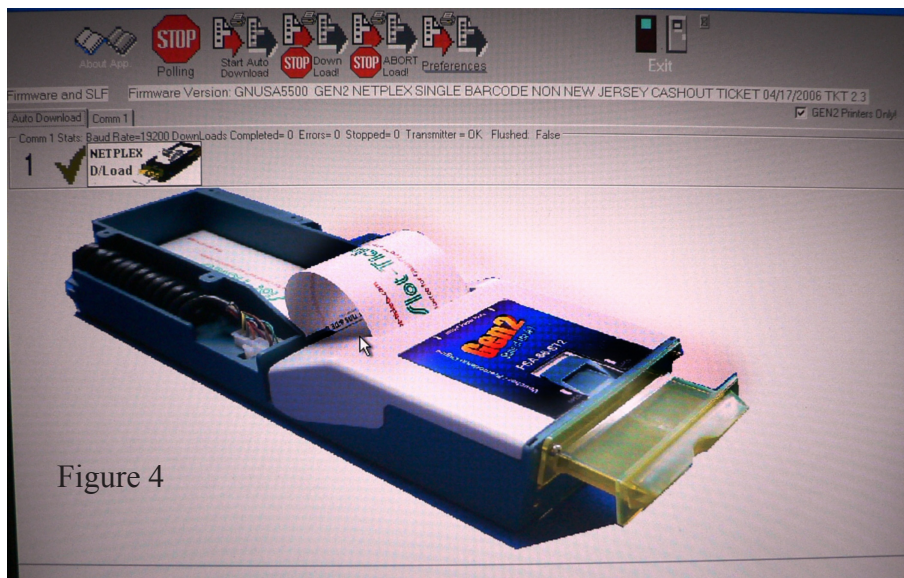
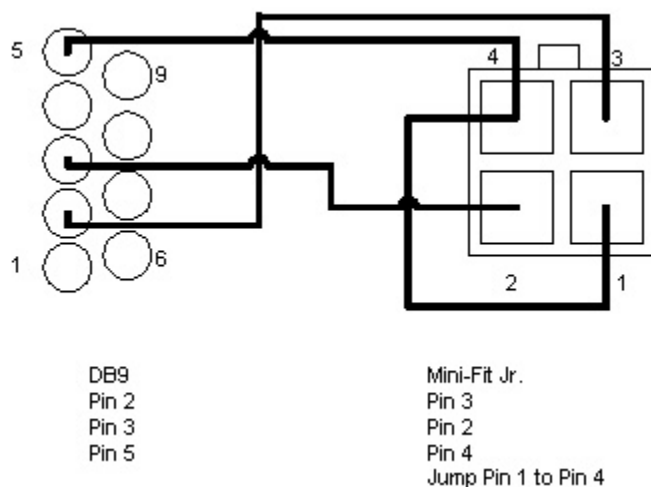


Figure 4

gram.

I’ll show an example of programming at the game, this way, you do not need a Netplex converter. If you want to program these using a computer, you’ll need to purchase one. AESI does have this part in the PSA66 Gen1 manual (p/n# 5005001, Netplex test Kit, PSA66) for the RS232 you can purchase the Download support kit (p/n# 5005000).

The FLI Downloader program is really easy to use. This program can be used for both the Gen1 and Gen2 printers. For this example, we’re going with the Gen2. If you look closely at figure 4 (the opening screenshot for the FLI downloader) there is a box in the upper right hand corner entitled “Gen2 printers

only” with a check box next to it. If you’re going to load a Gen1 printer make sure that this box isn’t checked.

The first thing we’ll do is check that our printer has connected to the programmer. In the top left corner, you should see the printer status. If the printer is online, you should see a check mark, outlining what kind of printer it is (Netplex or RS232). If the printer is not online, it will show no printer connected. If you have a printer connected and it will not show up as connected, go to the preferences tab on the opening page and make sure you have the correct baud rate.

Now that we have our printer connected, we can load our program file into the programmer. This will be done on the preferences page. Figure 5 shows the preferences page. On the bottom right corner you will find the baud rate setting I spoke of. Also, you will find the comm port setting. The settings you set on this page become the de-

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fault setting that you open every time you open this program. To load a new program, we're going to press the "Select Firmware" tab (on the bottom of the screen). From there, we will be prompted to find the file we wish to use in our downloader.

To make things easy, I always keep these files in the FLI Downloader folder. That way, you don't have to search for them. After we've chosen the file, we're going to save this as our default file. To save this, there is a Save File tab located at the top of the page. Press this. It will prompt you to save it as an automatic preference file named AutoDLPref.dat. Once it is saved, you can exit the preferences page and return to the downloader (you can find that button to the left of the save preferences button).

Now that we're back at the downloader page, there are a couple of different ways that you can perform the download. You can press the Comm1 tab. From there you can perform the download by pressing the "Start Download" tab located in the middle of the screen. The other way is to simply press the "Start Auto Download" tab at the top left of the screen.

Each way accomplishes the same thing. For this article, we'll press the Comm1 tab and then press the "Start Download" tab. The programmer will start automatically, following a sequence of

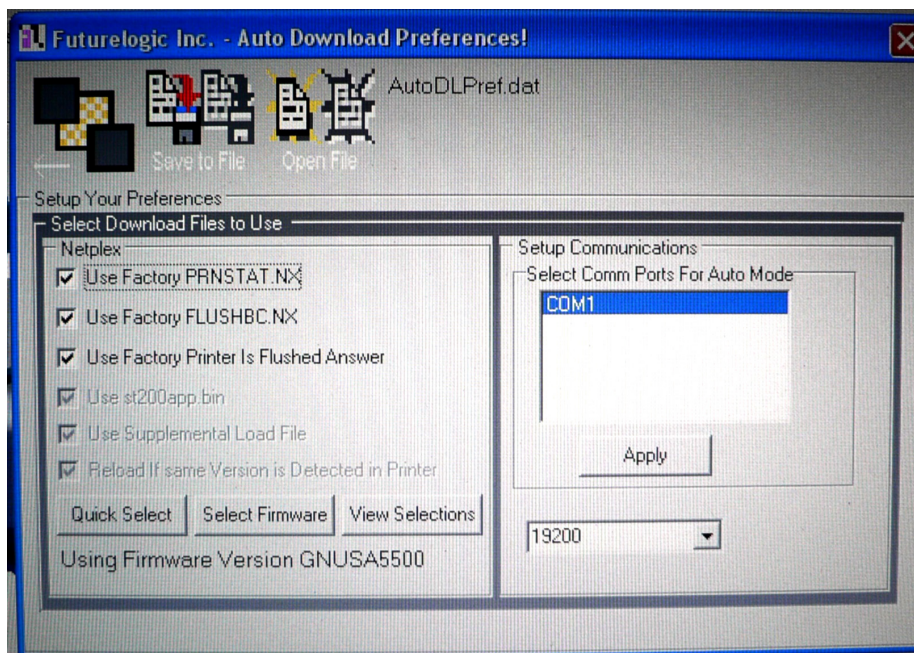


Figure 5

events that will be displayed on the screen (see figure 6). The programmer must first flush the old firmware from the printer, install the new program and finally install the ticket (SLF) file. One thing to note, when you're programming, make sure that the printer is locked at the

back of the housing or fully "pocketed." When it's time to load the ticket file, you must have the printer door closed, or the ticket file won't load (I found this out from experience). When the download is finished, the printer will print out a single ticket showing the user what program and

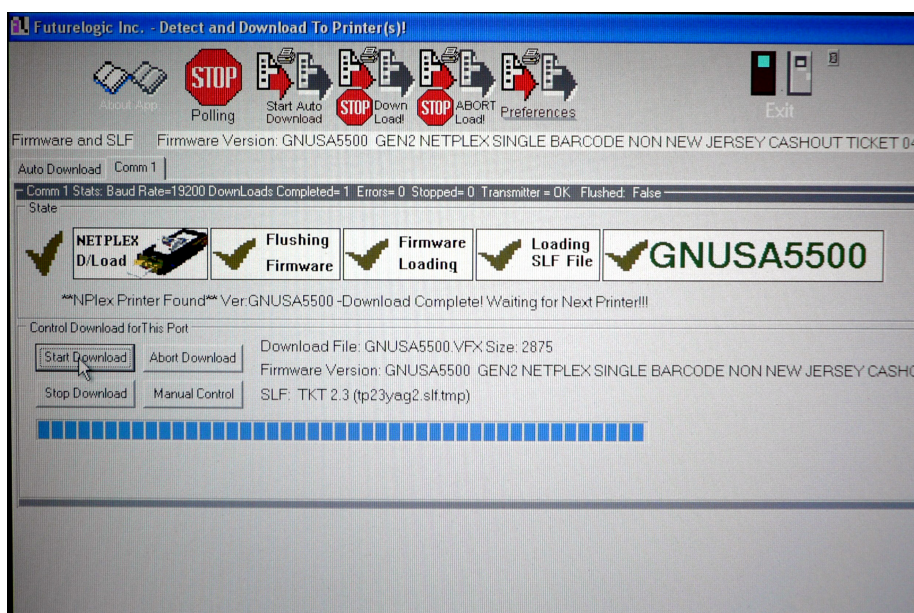


Figure 6



ticket file was just installed.

I think that pretty much covers the Gen2 printer, but what do you do if you have Gen1s that need converting? Simple. Remember the FLI downloader program can do both Gen1 or Gen2. You need to locate the correct program for the manufacturer (By the way, I forgot to mention if you don't know what program you might need, contact the game manufacturer or contact AESI. Dave Oldham is a wizard when it comes to this stuff. I've learned a lot from speaking to him, if he resists just offer to buy him a case of Red Bull. Sorry Dave, I just couldn't resist LOL). The Gen1 manual does list different motherboards for RS232 and Netplex but the motherboard for Netplex firmware will do both (AESI p/n# 140-00004).

Other than loading the Gen1 with the proper program the only thing left to do is change the daughterboard at the back of the printer chassis. For the RS232 printer there is a 12 pin connector for power and data, the Netplex connector uses an 8 pin connector. The only time I've seen where this board isn't changed is with the WMS Bluebird when it's running Netplex protocol; they keep the 12 pin daughter board installed.

To install the programs in the Gen1, you must make sure that all dipswitches are off with the exception of switch 8. Switch 8 must be on to download, this sets the printer baud rate to 38400.

After that just follow the same procedures we went through and you'll get yourself out of that pinch in no time.

- Ted Befus  
[tbefus@slot-techs.com](mailto:tbefus@slot-techs.com)

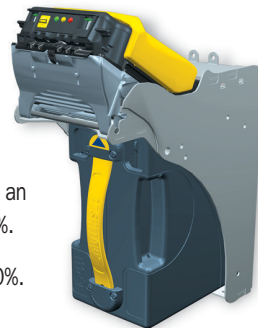
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## The 75 Year History of Bally

Bally Manufacturing Company on January 10, 1932 as the manufacturing arm of parent company, Lion Manufacturing Corporation (Chicago) to develop a small but highly profitable pinball game called "Ballyhoo."

By the mid-1930s, the success of Ballyhoo and other pinball games like "Goofy," "Airway" and the innovative "Rocket" and "Bumper" pinball machines propelled Moloney's Bally Manufacturing Company to the forefront of the rapidly growing amusement game industry. In April 1935, Moloney moved his expanding Bally Manufacturing organization to a modern plant at 2640 Belmont Avenue in Chicago. For the next 48 years, that singular address on Belmont Avenue would be home to Bally Manufacturing Company and its worldwide operations.

While the ubiquitous pinball machine would form the backbone of Bally Manufacturing's success during those early years, it was Moloney's decision to enter the slot machine business that would forever change the fortunes of his company. Although Moloney did not invent the modern three-reel slot machine, he nonetheless became one of the most successful manufacturers and distributors of

the immensely popular gaming device.

Ironically however, it was the overnight success of Bally's "Reliance" automatic dice machine, created in 1936, that catapulted the company into the gaming business. That same year, Bally introduced the first of what was to be a long line of highly successful and innovative slot machines. Called the "Bally Baby," this little tyke of a slot machine measured just five inches by seven and a half inches and weighed only eight pounds. It predated its earliest competitor, the Mills Vest Pocket Bell, by two years. The overwhelming success of the Bally Baby

The Bally of today has truly come a long way from its humble beginnings as a small startup company born in the midst of America's most challenging economic era – the Great Depression. But company founder Ray Moloney had a vision of a game that would make his fortune and ultimately lay the foundation for the modern gaming industry. The year was 1931. People were looking for an affordable escape from the bleak landscape of unemployment, endless breadlines and hard times. At seven balls for a penny, pinball games offered an inexpensive few minutes of fun and amusement. It was the beginning of the heyday of coin-operated amusement machines and the Penny Arcade. The young entrepreneur Moloney just happened

to be in the right place at the right time to take advantage of this booming craze. He founded



convinced Moloney to extend his company's manufacturing line into slot machines, a course that he pursued with great vigor and imagination.

### All For Our Country – The War Years And Uncertain Post-War Times

The Japanese attack on Pearl Harbor on Dec. 7, 1941 changed everything. In the spirit of patriotism and sacrifice that swept the country during World War II, Moloney ceased building gaming and amusement devices at his Belmont Avenue plant. He converted his operations to manufacturing a variety of wartime materials, from bombsights and oxygen regulators to detonator fuses and gunnery trainers. His plant operated 24 hours a day, without ceasing, earning a multitude of military citations for contributing to the war effort and hastening victory.

The return to peacetime in 1945 thrust Bally Manufacturing headlong back into building gaming and amusement devices. Innovations continued to pour out of the Belmont Avenue plant, including the "Hi Boy," an upright console-style slot machine featuring a new electromechanical mechanism that

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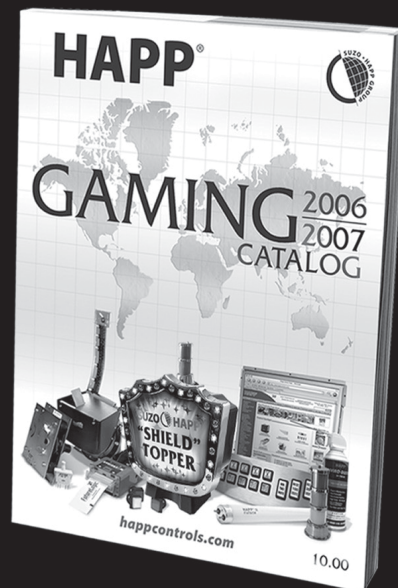


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would become the primary success behind Bally slot machines for the next 30 years. Bally also introduced the very first pinball machine with “flippers.” This revolutionized the pinball game, turning it into a true test of skill and amusement for millions across the country and around the world.

Bally Manufacturing, under the imaginative and aggressive leadership of Moloney, was once again on top. However, the roller coaster ride of success after success was abruptly about to change with the death of Moloney on Feb. 26, 1958.

### **Bally Technologies History**

In the years following Moloney’s death, the company began a slow descent into uncertainty and fiscal insolvency. Moloney’s two sons, Ray, Jr. and Donald, valiantly fought to save their father’s company. The end came on June 17, 1963, when the assets of Lion Manufacturing Corporation, including its subsidiary Bally Manufacturing Company, were sold for a mere \$2.85 million after a failed attempt by Moloney’s sons to convince the company’s banking trustees to give them the money to build a new generation of electro-mechanical slot machines.

### **A New Chapter of Success**

Was it the end of Bally Manufacturing, or just the beginning of a new era for this remarkably resilient company? Happily, a new chapter in the company’s history would be

written by the heir apparent to the enterprising spirit of Moloney, one William T. (Bill) O’Donnell. A close associate of Moloney, O’Donnell worked his way up to head Bally Manufacturing’s sales efforts. He orchestrated the purchase of Bally Manufacturing’s assets and the result was a new Lion Manufacturing Corporation, with O’Donnell as president. Bally was back, and a radically new slot machine product, called “Money Honey” would set the stage for the company’s future success.

November of 1963 marked the debut of Money Honey. This three-reel electromechanical slot machine broke new ground, forever changing the landscape of the gaming industry. The two innovations that the game brought to the casino industry were its reliable electronically controlled construction and the incorporation of a “bottomless” motor-driven payout hopper capable of automatic payouts of up to 500 coins without the use of an attendant. For the next 12 years, Money Honey in its many variations would become the flagship game of Bally Manufacturing’s slot machine division.

Like Moloney, O’Donnell used a combination of personal charisma, business acumen and an iron will to forge a new Bally gaming and amusement empire. By 1968, a whopping 94 percent of all slot machines sold in Nevada were Bally machines. That same year, 1968, saw Bally Manufacturing Corporation incorporated as a pub-

licly traded company. The company’s financial strength in the 1960s and 1970s allowed O’Donnell to pursue an ambitious expansion program resulting in the acquisition of numerous companies, including Wulff-Apparatebau, Germany’s leading manufacturer of wall-mounted amusement devices; Midway Manufacturing, a manufacturer of coin-operated arcade amusement games, and Nevada-based Bally Distributing.

### **An Historic Milestone**

August 12, 1975, marked another milestone for Bally as its ticker symbol “BLY” flashed across the trading floor of the New York Stock Exchange (NYSE). The event marked the first time a gaming company joined the illustrious ranks of the nation’s corporate elite on the NYSE’s trading floor. O’Donnell’s strategy of expansion through mergers and acquisitions was working beautifully. Bally Manufacturing



was on the rise.

In 1976, Bally demonstrated its continuing innovation and leadership of the gaming industry by creating a new division, called Slot Data Systems (SDS). As the first fully computerized data-collection system for the casino industry, SDS ushered in a new era of electronic slot management, slot accounting and slot security previously unheard of in the casino industry. By the end of 1976, Bally Manufacturing sat atop the gaming and amusement industries as the preeminent supplier of slot machines, coin-operated arcade games and slot accounting systems.

That same year, the New Jersey state legislature voted to allow casino gaming in Atlantic City. In a bold move, Bill O'Donnell seized the opportunity to get into the virgin Atlantic City gaming market on the ground floor. In October 1978, construction began on Bally's Park Place Hotel & Casino. The hotel opened with great fanfare on Dec. 29, 1979.

### Growing Pains

In the 1980s, Bally Manufacturing went through a series of important transformations. The company left its main manufacturing plant on Belmont Avenue in 1983 and moved to new facilities in Bensenville, Ill., with Bally moving its corporate headquarters to an office tower near Chicago's O'Hare International Airport and expanding its amusement game operations with distribution agreements with Namco, the Japanese manufacturer of "Pac Man" and "Space Invad-

ers," two of the most successful video games ever developed. Imitating Pac Man's little gobbling video goblins, Bally went on a buying spree of its own. In the mid-1980s, the company diversified its portfolio by gobbling up major theme-park operator Six Flags Corporation, the "Great America" theme park, "Lifecycle" exercise bicycles

and Scientific Games, a leading lottery ticket manufacturer. During this period Bally also purchased the MGM Grand hotels in Las Vegas and Reno, the Golden Nugget Hotel and Casino in Atlantic City and the Health & Tennis Corporation, a major health club operator. Almost overnight, Bally had refocused its corporate iden-

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tity from that of a slot and amusement game manufacturer to that of a global leisure industry giant with more than 33,000 employees and \$2 billion in annual revenue.

At this point in time, Bally moved forward, albeit sporadically, with new product innovations such as its first video slot in 1982 and its first video poker machine in 1984. This was followed by the System 5000 slot series, based on the newest “stepper motor” electronics-driven technology. Another milestone was reached in 1989 when Bally Gaming, the slot manufacturing arm of the company, moved from its cramped Reno facility into its current home, a 150,000-square foot plant on Bermuda Road in Las Vegas.

### **A Decade of New Directions**

In October 1990, New Jersey financier Arthur Goldberg became president and CEO of Bally Manufacturing. Goldberg undertook a massive restructuring of the company, creating Bally Gaming International, Inc. as a separate subsidiary of the newly renamed Bally Entertainment, Inc. In July 1992, the corporation spun off Bally Gaming International completely as its own independent company. The original Bally Manufacturing Company thus completed its metamorphosis into Park Place Entertainment, having merged with Hilton Hotels Corporation’s gaming division in the mid-1990s to create the world’s largest gaming corporation.

Meanwhile, Bally Gaming International, Inc. had returned to its core business of manufacturing slot machines. Energetic and talented Hans Kloss, head of the successful and profitable Bally-Wulff division, became president and CEO of Bally Gaming in May 1993. Thanks to innovation, imagination and sound business planning, Bally Gaming was once more on the rise. The company rebounded in 1994 with the “Game Maker®,” the world’s first multi-game touch-screen video slot machine. This breakthrough game allowed players to enjoy up to 10 different games, from video poker and keno to blackjack, just by touching the screen. Once again, Bally had leapfrogged ahead of the competition with a product that found its way by the tens of thousands to casinos throughout the world.

### **Mergers and Acquisitions**

The latest chapter in Bally’s 75-year history began on June 18, 1996 with the merger of Bally Gaming International, Inc. and Alliance Gaming Corporation. Alliance was a Nevada-based gaming company with a long history of its own in gaming innovation, along with owning and operating casinos and route operations. Bally continued its innovative ways – including launching an innovative wide-area progressive network in 1999, with Betty Boop™ as the flagship game that allows nickel, quarter and dollar players to play for the same life-changing jackpot. Slowly but surely, with Bally leading the way, Alliance produced a re-

markable run of success that saw revenues skyrocket and the stock price grow from \$1.44 to \$126.80 (price adjusted for splits). In fact, from 2001 to 2003, no other publicly traded company in the U.S. produced a larger gain for its shareholders.

This success led to another acquisition spree. Eight separate systems-related acquisitions between 2001 and 2004 are the reason Bally is the undisputed world’s No. 1 gaming systems company today.

On March 3, 2004, perhaps the most significant acquisition occurred, with Bally absorbing Reno-based Sierra Design Group (SDG), a well-respected developer of gaming devices and systems, primarily for the expanding Class II Native American and central-determination markets. With the acquisition of SDG, Bally acquired the rights to the company’s groundbreaking “ALPHA” operating system that ultimately gave Bally the technology it was missing to compete in the video slot segment of the market. Under the direction of SDG founder and current Bally Chief Technology Officer Robert Luciano, ALPHA OS™ development positioned all of Bally’s slot products for success as the anniversary year of 2007 approached.

From a humble, Depression-era tabletop pinball machine that started it all to the 21st century’s latest high-tech gaming products and systems, Bally celebrates more than 75 years as “The World’s Game Maker®.”



### The Bally “Monte Carlo” code 51 and 91 That Wouldn’t Clear

I ended up having to call an official Bally Tech on this one. We knew the problem was somewhere in the main processor board, but where? The original problem was that it would not clear an error code of 51 and 91. A code 51 is a door open error and a 91 is a communication error.

Numerous RAM clears were performed; game options were checked and checked again. The upper control board which runs the “bonus wheel” at the top was swapped with the game next to it but the problem remained. Connections were checked in the top part of the game and on the backplane board too. Nothing seemed to

## Quick Simple Repairs #25

By Pat Porath

help the problem. The main processor board was swapped and finally the problem was found: a bad main board. For some reason, there was a bit of trouble getting a replacement for it. I guess it is understandable as it is an older Bally 6000 platform.

After a bit of time we received two boards, one for replace-

ment and one for a spare. BOTH, YES BOTH boards would NOT work in this game. I could take a board from the game next door which is working fine, put it in this one and it would work great. We checked and double checked the DIP switch setting on DS1, DS2, and DS3, matched them up perfectly and no dice. The jumpers on the board were

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matched up, double checked and set in position, no luck there either.

At this point it was decided to make the call to the guys at Bally Gaming and ask them what could possibly be wrong with this thing. Two replacement boards, all DIP switches set the same, all the jumpers on the board set the same, two full RAM clears and the same problem existed.

The call was placed and I talked to a Bally Tech right away. One of the numbers is 1-800-GO-BALLY. Explaining what was done on the game, he mentioned the jumpers and the DIP switch settings. Also he asked if chip U24 was out of the socket like it was supposed to be and it was. Jumpers JW8 and JW9 were enabled on pins 2 and 3 like they should have been. Then we started talking about the DIP switches. Ah, yes! This is where the problem was all along with the replacement boards. The originals were set as follows:

DS1 off, on, on, on, off, off, on and on

DS2 off, off, on, off on, off, on, and off

DS3 off, on, on, on, off, on, on, and on

The replacement board, which is part number AS-03356-0424, and a newer version has the DIPs set as:

DS1 on, on, off, on, off, on, off, and on

DS2 off, off, on, off, on, off, on, and on DS3 are all on

The game would NOT work with the switches set another way. They had to be set in this fashion. I was unable to see the version of the board because the part number sticker was over top of it and I didn't want to peel it away. With the help of the guys at Bally Gaming, the game is running great.

### **No System COM With a Konami?**

While looking at the computer system, I noticed a game that didn't have any system communication. The game was an upright stepper Konami. The green COM LED (communication status light emitting diode) wasn't blinking at all, thus showing no COM. A Sentinal RAM clear procedure was done and that didn't help it at all. This is where you unplug the power, remove the RAM chip, (the one next to the EPROM), power up the Sentinal, and insert the RAM chip.

Next I replaced the eight-pin COM chip. Makes sense right? This works sometimes, but not always. In this case it did not work. Upon inspection of the Sentinal and its surroundings, it was noticed that a ground wire coming from the board wasn't connected to anything. I moved it and still had the problem. What I didn't do and what I should have done right away

was to REMOVE the unneeded cable. The Sentinal was already grounded to the chassis of the game; it was grounded fine.

With the cable gone and another COM chip installed, the COM LED flashed right away. This told me that the loose ground cable was shorting out part of the Sentinal Board. With the cables correctly installed, and a new COM chip, the game is working great. I have been told that grounding is very important when it comes to CDS. ALL grounds HAVE to be in place: the card reader, Sentinal, game interface cable, display, everything. This will help the game and communication work its best.

### **Reel Tilts Caused by the Belly Door Switch?**

You can get sunburned on a cloudy day the same as a sunny day, right? A cactus grows with very little water, so why can't reel tilts be caused by a faulty belly door switch?

The answer is a faulty belly door switch that causes the slot machine to think that security has been breached. If the game sees the switch "open" during a reel spin, the game thinks that someone is trying to cheat it, which it doesn't like. In turn, the game gives us a tilt code, such as a "41." This would state that reel number one had an error. Code number

42 would be reel number two, and code 43 would obviously be an error with reel number three. So, if a few calls are received on a game and the codes vary, or the code is the same, watch the player and see how the reels are acting.

On an old Bally 5000 game, remember the power supply issue they had? The reel would start to bounce a little when the small "o-rings" would go bad. When they got really bad, the game would have a lot of reel tilts. Simply take the reels off, replace the six "o-rings" per reel, and it would be fine. Don't do just one reel, but do all three.

Back to the faulty belly door switch, on (is it safe to say

all?) the vast majority of up-right slots, located somewhere, there is a belly door security switch. When the cashbox, stacker box, cash can, or what ever you may call it, gets changed, it lets the game and the tracking system know that the door has been opened. On a lot of games, the stacker box access door has a switch too. This particular game had the belly door switch that was out of alignment. I finally noticed by watching the customer play the game. For a split second BEFORE the reel tilt, it would show a "door open M" on the VFD display of the IGT S2000 JUST before the reel tilt condition.

I have only run into belly door

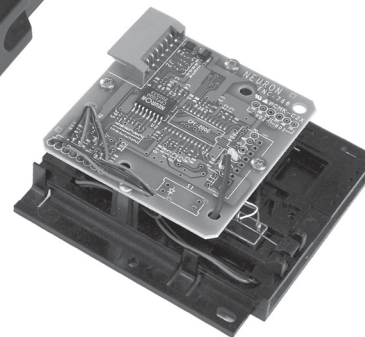
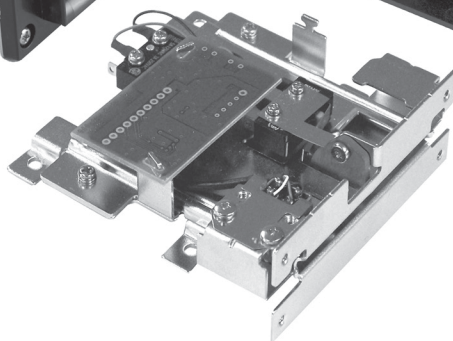
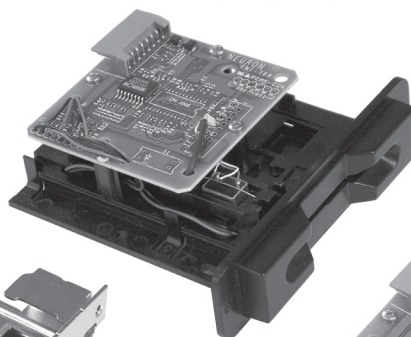
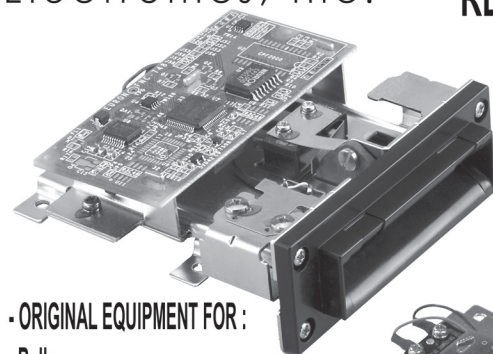
switch problems a few times so first I attacked the main door optics. They were adjusted up and down but no luck. The problem still remained. I even checked the stacker access door switch. It was fine. After enough time was spent on the main door optic, it HAD to be something else. With the slot machine locked up and the handle solenoid working properly, I jerked the handle a bit, not with a lot of force, but like an average player would pull on it. Guess what? It showed another "door open M." Just about every time the handle was jerked it, would show a door open.

Something was definitely wrong here and I knew it

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wasn't the main door optic. The main door cherry switch worked fine and the stacker access door switch was fine as well. All that was left was the belly door. I tapped on it a bit and it caused the fault too. The belly door was opened and a "technical tweak" was done to the switch assembly, using ONLY SLIGHT PRESSURE to bring the switch closer to the door, which would now make better contact once it is in the locked position.

After this was done, I took a 2X4 after the game to make sure it didn't show a door open signal. Naw, just kiddin'. I did "rough it up" a bit though. The handle was jerked as if a customer was playing it, I tapped on the belly door with my fist, the main door was tapped, and even the sides of the game were tapped with my fist to make SURE that ANY sudden blows to the game did not indicate a switch to show a door open. If it did, then there was another chance of a reel tilt.

A couple of customers were looking at me funny when I was hitting the game, like "Sir, is everything ok?" I wanted to tell them that "It was ok, I work here, and I'm making sure this game works properly." Like they would believe me anyway. Knowing my luck, they contacted security personal and I would have to explain my actions. Nothing happened though.

Back to the problem at hand, the game passed the test. I shook it, tapped it, and jiggled it and NO DOOR OPEN signals. The game was A-OK.

I strolled by later in the day and a customer was playing it fine. Had tilted again, I would have heard the four words I hate to hear when on duty: "It did it again." Those four little words bother me. You work on a game, you know the problem is resolved and then a slot attendant calls over the radio: "it did it again." What could possibly be wrong with the game now? In this case, it DIDN'T do it again. I haven't heard a single peep out of it since. Another game back online.

### **JCM UBA Not Working**

Have you ever received a spare UBA bill acceptor, installed it in a game and had it not work? It may need to be programmed and/or the jumpers may need to be set. When you inspect the bill acceptor and there isn't a small sticker ANYWHERE on it indicating that it has been " flashed " there is a good chance it is a "dummy," meaning it is a totally blank bill acceptor. The unit hasn't been programmed so it doesn't know what it is.

A working, programmed bill acceptor will have a small sticker on it identifying the version of software and the IDO. For example, the sticker

may say, IGT IDO 24, and an Aristocrat will have an IDO of 003. These bill acceptors are NOT interchangeable because of the different software. When a unit needs to be replaced, the spare has to have the exact same IDO.

There are small "jumpers" on the bottom side of the unit as well. These need to be configured for certain manufacturers. Once the bill acceptor software has been downloaded (being a flash type) the jumpers have to be checked.

We have the software and the tool to download the software from our PDAs to the unit, which takes around 58 seconds. This is done with a specific CF card inserted into the PDA with a USB cable on the other end to plug into the bill acceptor. This is all cool stuff, but if the jumpers aren't in the correct positions, the unit will NOT work. There is a good chance it won't even cycle properly.

There is a simple way to check the settings once the software is downloaded. Check the settings on the game next to it. With the bottom of the bill acceptor facing upward, look at the far sides of the board and there will be a jumper that is somewhat hidden. About the only way the change its position is to use hemostats or small needle nose pliers.

**- Pat Porath**  
**pporath@skot-techs.com**



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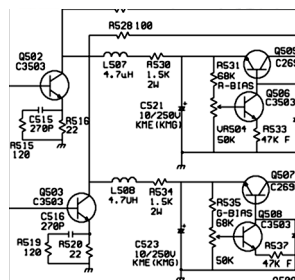
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### ELECTRONIC COMPONENTS

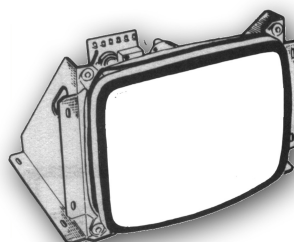
The individual components used in games are introduced. Parts such as resistors, capacitors, diodes, potentiometers and transistors are covered individually. Students learn how the components work and how to test them using the meter.

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- LCD Display Overview
- How LCDs work

### Day 2 - Hands-on LCD Monitor Troubleshooting

- Techniques and Shortcuts
- Block Diagrams and Hands-on Exercises

### Day 3 - LCD Inverter Power Supply and SMPS Troubleshooting

- Intro to Power Supplies and their Uses
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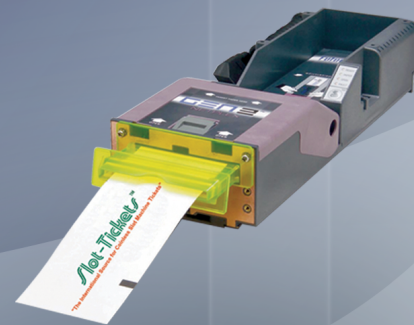
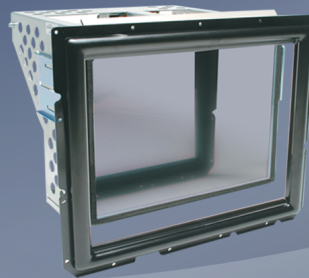
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