March 2011

SLOT TECH MAGAZINE

Slot Machine Technology for the International Casino & Gaming Industry

Ride JCM's BlueWave

FutureLogic's PromoNet®

$10.00

Slot Tech Magazine

PromoNet

Intelligent Promotional Couponing

Tailor Your Rewards Program to Carded and Non-Carded Players
Reward your most valuable players, boost club membership, and reach out to all your players with coupons

Link Your Slot Promotions to Customer Behavior
Promotional triggers are based on live real-time game play metrics

Integrate Couponing Programs Across Your Operation
Win and redeem promotional coupons across slots, restaurants, hotels, and shops

Run Your Coupon Solutions 24-7
Fully automated process with no additional resources

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Inside Slot Tech Magazine

March 2011

I am such a dork. Last month, our friends at Kiesub Electronics sent me a new advertisement that featured a new product. It was an LED replacement panel called Prism. It was so cool, I asked them if we could run a little feature article about the product, which, as you know, we did in the February 2011 issue. Then, I proceeded to publish the magazine without the new advertisement! Anyway, I am running it this month (page 11) but I wanted to point it out to you and say mea culpa to Kiesub for the omission last month.

Congratulations to my friend Agustin "Lefty" Gomez, slot tech from Atlantic City, on his retirement. Lefty was one of my earliest students when I first began holding classes in the gentle art of electronics repair. In a sweet letter, he writes "I, Lefty Gomez, made a future because of you and today, I am good to retire. I will never forget the good thing that you have done."

An instructor lives for stuff like that. Teach a man to fish . . ..

TechFest 22 is now open for registration. See the website for details. Isn't it YOUR turn to attend? Perhaps I'll see you there.

Randy Fromm

Randy Fromm - Publisher

Randy Fromm

Randy Fromm's
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Registration Now Open!
TechFest 22
Mystic Lake Casino
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BlueWave

Ride the wave of high-speed data transfer with the BlueWave from JCM Global. This handheld, portable tool is the latest, easiest way to upload and upgrade your JCM validator firmware, right at the machine. The lightweight and efficient unit easily connects to the BV by USB or serial port. Programming time varies by device (the BlueWave does them ALL, by the way) from 35-200 seconds for USB to 3-5 minutes for serial @ 34,800 baud.

The BlueWave 2.0™ is a small portable device used to update the iVIZION, UBA, TBV and/or Vega Validator Software via the USB Port of these various Banknote Acceptors. To use it with a JCM WBA, DBV 30x, Pub 7/11 and EBA 3x Unit, an optional Serial Adapter Cable will be required. The DT-200 BlueWave 2.0™ Handheld Down-load Tool is available separately, or as a Kit with necessary Harness as follows:

BLUEWAVE 2.0 TOOL COMPONENTS

BlueWave 2.0™ Download Tools available:
Download Tool Only (JAC Part No. 550- 100729R)
iVIZION/UBA Kit (JAC Part No: 700- 000212R)
WBA Kit (Part No: 700-000213R)
PUB Kit (JAC Part No: 700-000214R)
EBA-3X Kit (JAC Part No: 700- 000215R)
DBV-30X Kit (JAC Part No: 700- 000216R)

NOTE: Connector Harnesses are also available as separate individual items

Table 1 DT-200 Specifications

Compatibility	USB Interface: iVIZION, UBA, TBV, Vega or with a RJ45 Serial Cable Adaptor: WBA, Pub-7/11, DBV-30x, EBA-3x.
Download Time	USB Interface: 35 – 200 seconds (beginning to end) depending on Validator memory size. Serial Cable Adapter: Approximately 3 to 5 minutes @ a 38.4K Baud Rate.
Switches	Power, Load & Function (not used at this time).
Interfaces	USB 1.1 or 2.0 Full Speed; Serial (opto-isolated)
LED Indicators	Three LEDS displaying RED, GREEN or YELLOW. a) Top (LED 1): Device Status b) Middle (LED 2): File and SD Memory Card Status c) Bottom (LED 3): Battery Life Indication
Voltage	2 AA Alkaline Batteries (3.0 Volts DC total) Operating levels: 1.5 VDC to 3.0 VDC
Memory	SD Card, 128 Megabytes or larger

Figure 1 Typical BlueWave 2.0 Kit Component Parts

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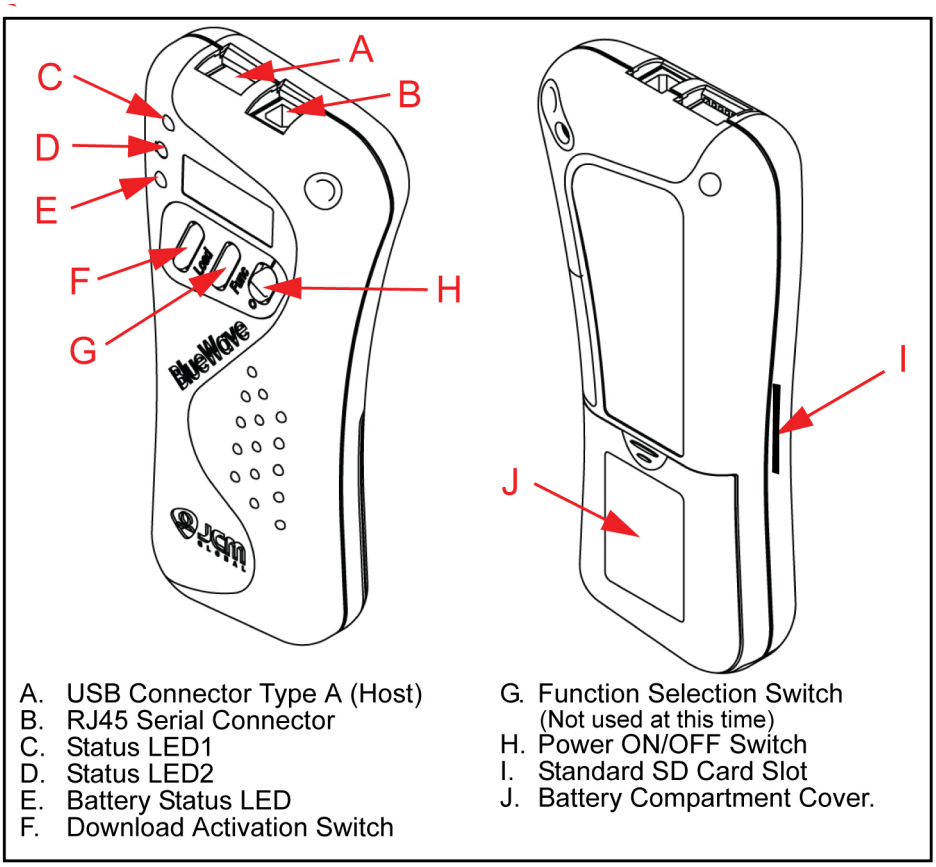
The BlueWave works in much the same manner as other uploading and flash memory tools we use in the gaming industry. In a nutshell, you begin by loading the device with the software you want to transfer to the validator. In this case, the software is loaded onto an SD card (JCM recommends using a brand name SD card such as SanDisk or Kingston) first, then the SD card is inserted into the BlueWave. Finally, you have a use for all of those 512 MB SD cards you have laying around! The device requires a card of at least 128 MB. Do they even make them so small anymore?

Then, it's just a simple matter of plugging the BlueWave into the unit to be programmed. In most cases, you don't have to do anything special to the unit before the process begins. However, with a virgin CPU or a CPU that has corrupted memory, the BV will have to be put into the "Forced Download" mode prior to flashing.



A. USB Connector Type A (Host)
B. RJ45 Serial Connector
C. Status LED1
D. Status LED2
E. Battery Status LED
F. Download Activation Switch
G. Function Selection Switch (Not used at this time)
H. Power ON/OFF Switch
I. Standard SD Card Slot
J. Battery Compartment Cover.

Figure 2 DT-200 BlueWave Primary Components

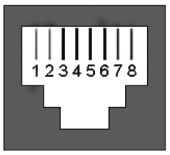
DT-200 BlueWave Connections

To properly connect a BlueWave Device to your validator, proceed as follows:
1. USB Type A Connector (Host) to USB Type B (Function) Connector, or USB Type A (Host) Connector to Mini-Type B (Function) Connector depending on the validator's Software being updated.
2. Serial Connection (9600 Baud or 38.4K Baud only) Optional RJ45 Serial Adapter Cable for communications depending on the validator's Software being updated.
3. Validators containing an Opto-isolated Interface (e.g., WBA) should be connected to pins 1 and 4.
4. Validators containing a low Voltage TTL Interface (e.g., Pub 7/11) should be connected to pins 5 and 4.
5. DBV-30x Units uses a straight-through connected RJ-45 Cable.

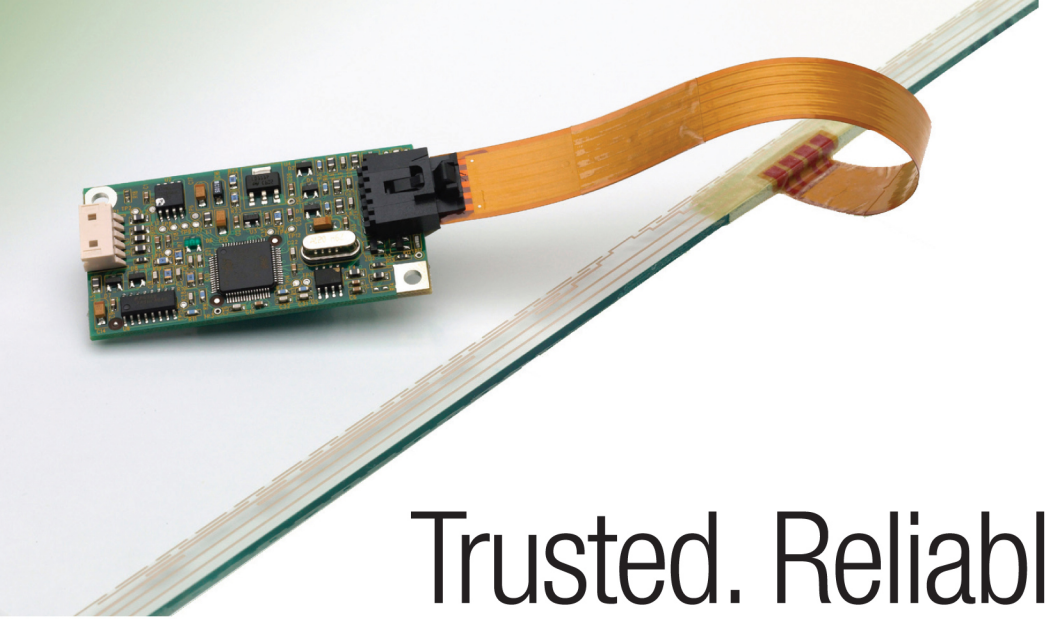
WARNING: The BlueWave Tool will be damaged if RJ-45 pin #5 is connected to a higher Voltage Opto-isolated input!

Table 2 RJ-45 Pin Connections

RJ 45 Pinout



RJ45 Pin No.	Signal
1	Serial Output to Validator, open collector, 24V DC tolerant
2	Ground
3	External power in, 6 volts to 24 volts, (12VDC nominal)
4	Serial In from Validator, 24 VDC tolerant
5	Serial Out to Validator, 3.3VDC CMOS level
6	Ground
7	Not Used
8	Not Used



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

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

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

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

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

3M

To upload software into a validator, proceed as follows:

1. Insert the pre-programmed Standard SD Card into the memory slot on the BlueWave tool.
2. Turn ON the DT-200 BlueWave handheld device. The BlueWave tool will calculate the CRC and check the file within the DOWNLOAD folder to ensure its integrity and verify that it is a valid file type for JCM products. This process will take 20-30 seconds. If a file has not changed from its last usage, the integrity will not be checked again.
3. LED #2 will light **YELLOW** during the integrity check.
4. LED #2 will light **GREEN** when the file check is complete. The BlueWave 2.0™ Tool is now ready for use.
5. Ensure the validator being updated has power applied.
6. Connect the validator to the BlueWave with the appropriate cable for the unit type. The BlueWave will determine if the file in the DOWNLOAD directory is suitable for the selected validator. If the file is suitable, LED #1 will light **GREEN** and LED #2 will turn **OFF**. If there is an error, (e.g., the file is not suitable), LED #1 will flash RED.
7. When LED #1 lights **GREEN**, start uploading to the validator by pressing on the BlueWave's "**LOAD**" Button. LED #1 will turn **YELLOW** during the validator software erase period. LED #1 will alternately flash between **RED** and **GREEN** during the software upload to the Validator. LED #1 will turn **YELLOW** again during the final CRC verification process.
8. LED #1 and LED #2 will both light **GREEN** to indicate a successful upload or LED #1 will light **RED** or flash **RED** indicating an error occurred during the upload cycle. - **STM**

LED Error and Operational Indications

LED #1*	LED #2†	Condition
OFF	OFF	IDLE
OFF	RED Flashing	SD Card not found
OFF	YELLOW Flashing	Verifying file on SD Card
OFF	1 RED Flash	Unable to open SD Card
OFF	2 RED Flashes	Unable to open File
OFF	3 RED Flashes	File Error – wrong type or corrupted File
OFF	Lit GREEN	CRC File check complete, ready to start
YELLOW Flashing	OFF	USB Connecting
RED Flashing	OFF	Validator Connection Issue (No response)
Lit GREEN	OFF	Connected, ready to start
1 RED Flash	OFF	Error connecting to Validator (incorrect response)
Lit YELLOW	OFF	Waiting for Validator to report
RED/GREEN alternating Flashes	OFF	Busy Programming
Lit GREEN	Lit GREEN	Program finished, CRC verification complete, Successful Download occurred
3 RED Flashes	Lit GREEN	Program failed, CRC error

* LED #1 indicates a BlueWave Status or Communications occurance.

† LED #2 indicates a File or Memory Card Status occurance.

VALIDATOR CABLE AND SET-UP REQUIREMENTS

NOTE: New CPU Boards without Software loaded, or Validators Units with corrupted Memory may need to be placed in Forced Download Mode; others can be in a normal Operational Mode. To identify the proper settings type, check the specific Validator's Service and Operations Manual that will be receiving the BlueWave Software download.

Table lists the various Setup and Cable Requirements for the JCM Validators accessible via Bluewave 2.0™ Tool.

Setup and Cable Requirements

Banknote Validator	Switch Setting	Cable Connection	Notes
iVIZION	None or DIP Switches 6,7 & 8 ON	UBA Type A to USB Mini-Type B	
UBA	None or DIP Switches 6,7 & 8 ON	USB Type A to USB Type B	
TBV	DIP Switches 1,6,7 & 8 ON	USB Type A to USB Mini-Type B	
WBA	DIP Switches 1,6,7 & 8 ON (38.4K Baud) or DIP Switches 7 & 8 ON (9600 Baud)	RJ45 to WBA 12/14	Adapter cable required
DBV-30X	DIP Switches 1, 6, 7 & 8 ON	RJ 45 to RJ 45	Straight thru connection
Vega	DIP Switches 1, 7 & 8 ON	USB Type A to Mini-Type B	
PUB 7/11	DIP Switches 1,7 & 8 ON	RJ45 to PUB	Adapter cable required
EBA 3x	DIP Switches 1, 5, 6,7 & 8 ON	RJ 45 to EBA 3x	Adapter cable required

PORTABLE. FAST. SECURE.

BlueWave™ 2.0

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

FEATURES

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

BENEFITS

- Quickly and easily updates your validator
- Quickly know your battery status
- No need to carry unit charger
- Quick & convenient for greater uptime
- Portable and compact handheld device
- Easy standard connection for all JCM products

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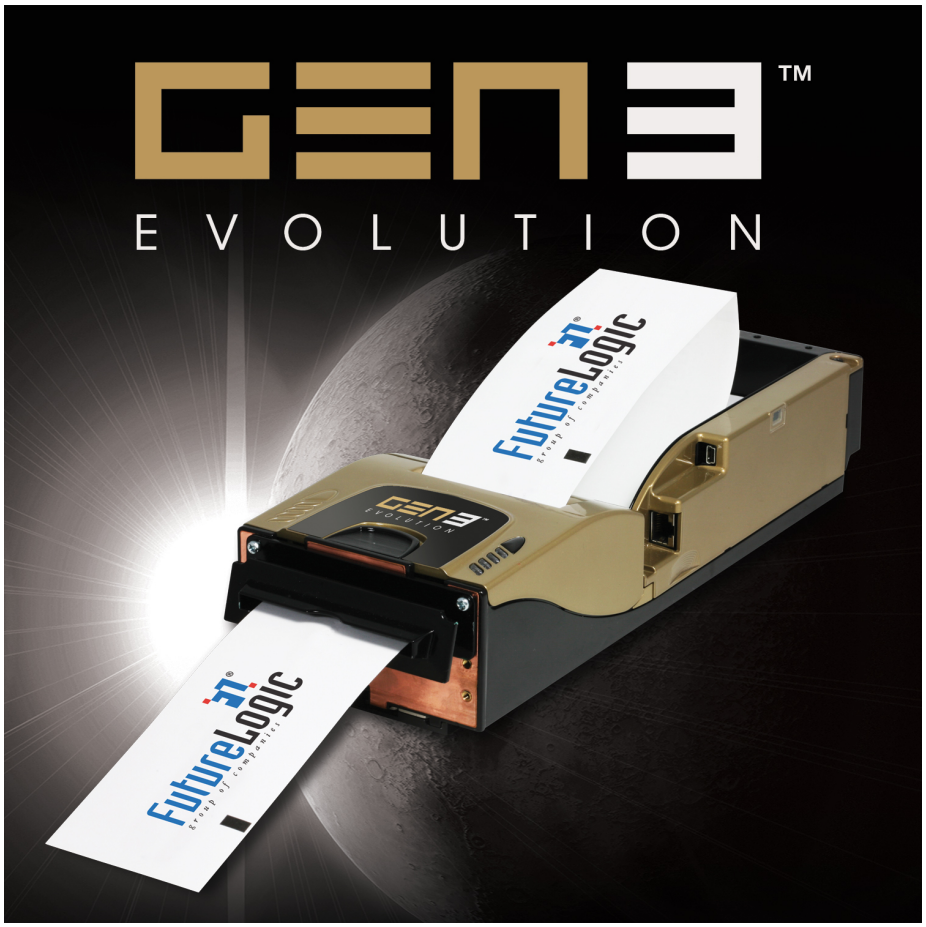
FutureLogic's GEN3 Evolution® Ticket Printer and PromoNet® Promotional Couponing Solution Keep Pace with the Evolution of TITO Gaming

At G2E in November of last year and at ICE this past January, slot managers and casino marketers enjoyed hands-on demonstrations of FutureLogic's new GEN3 Evolution® ticket printer and PromoNet® Promotional Couponing Solution. Installed on a variety of manufacturers' gaming machines, the demonstrations highlighted the ease-of-use, flexibility, and effectiveness of promotional couponing at increasing game play and enhancing players' experience.

The PromoNet solution is unique in its ability to create campaigns for both carded and non-carded players; rewarding a casino's most valuable players, boosting club membership, and reaching out to all players with promotional coupons. Promotional campaigns can be downloaded via a secure network to the slot floor, Players Club, restaurants, hotels and shops, providing an integrated couponing solution across the entire operation. Business analytics applications can then monitor the success and return of individual campaigns, enabling operators to identify which promotions are the most popular and customize them to reward their most valuable players.

"By directly linking promotional campaigns to specific player actions, activities or behavior, TITO printers become multifunctional marketing tools," said Nick Micalizzi, Vice President of Domestic Sales and Marketing for FutureLogic. "The PromoNet solution allows casinos to automatically trigger a marketing campaign based on game play metrics, player tracking information, POS systems and redemption terminals. This gives casino marketers the ability to issue a coupon at the game to attract and retain customers. For players, these offers provide valued savings and incentives, thereby enhancing their casino/resort experience."

FutureLogic's new GEN3 Evolution printer can be seamlessly integrated with



The GEN3 Evolution® printer offers dual-processing capability.

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

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

Energy-efficient LED technology from Kiesub can save you thousands of dollars per year in energy costs. Replacing belly glass lamps with Kiesub LED panels in just 100 machines can save $30,195 in power bills over 5 years. (Documentation available by email)

- LEDs last up to 100,000 hrs
- No heat generation saves on replacement costs of nearby components
- No ballast failures
- Machines can be opened or moved with no filaments to break

KIESUB ELECTRONICS

Call: Mike Johnsen, Director of Manufacturing

Ph (702) 733-0024 x120 Fax (702) 733-0026 www.kiesub.com mikej@kiesub.com

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the PromoNet solution. Designed specifically with promotional couponing in mind, it is the first gaming printer to offer an optional on-board promotional system module, creating a separate and secure processing environment for TITO and promotional couponing. It also offers these advanced features:

- An easy and reliable direct system connection over an Ethernet (TCP/IP) interface
- Photographic-quality printing to produce vivid, eye-catching promotional coupons
- Large 450-ticket capacity tray that saves operators up to 30 refills or $300 per printer annually
- At eight inches-per-second, the unit prints and presents a ticket in less than one second
- An optional expansion card providing 32GB of additional memory for fonts, promotional databases, clip art and logos.

"We are proud of the fact that the GEN3 Evolution printer's forward-looking features were recognized with an Honorable Mention in the Best Productivity Enhancement Technology category in Global Gaming Business magazine's annual Gaming and Technology Awards competition," said Micalizzi, "We designed the printer to leverage the latest printing and communications technologies, providing our customers with a future-proof ticketing and couponing solution in an industry that evolves at lightning speed."

The GEN3 Evolution printer is designed to keep pace with current – and future – demands of server-based gaming, promotional couponing and the continually evolving TITO market. The printer's game ports include USB 2.0 (GSA, GDS, SPC/IGT, SBG) RS-232 and Netplex. Promotional ports include Ethernet, USB 2.0 and RS-232. To facilitate couponing, the printer features a Programmable Bursting Scheme (PBS) that can be used to burst single or multiple coupons directly into the player's hand during or after a play session. Like the GEN2™ series of printers, the GEN3 Evolution is hot swappable, and features ITH® Intelligent Ticket Handling, which ensures tickets are only available after they are fully printed and burst.

"Since the company was founded in 1983, FutureLogic has developed many of the TITO gaming printer features and functions that have become today's industry standards," said Micalizzi. "Since then, our products have been in the vanguard, setting new standards for reliability and innovation. By collaborating with our EGM customers, casinos and regulatory agencies we are effectively providing "tomorrow's innovative printing solutions today."

- STM

Eye-catching coupons can be created using the PromoNet® couponing solution.

NEW!
Prism Series from Kiesub Electronics
Complete LED Solutions

for

IGT S2000 • IGT S2000 Slant Tops
IGT Game King • Bally 6000
WMS Bluebird

TOP & BOTTOM GLASS
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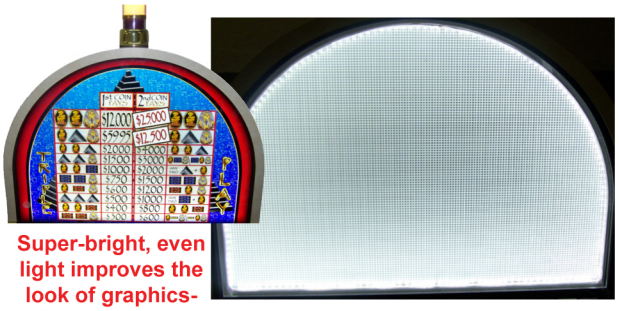
DENOM PANELS
REEL LIGHTS



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

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

Benefits of LEDs vs. INCANDESCENT BULBS

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

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

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

Contact Mike Johnsen, Director of Manufacturing
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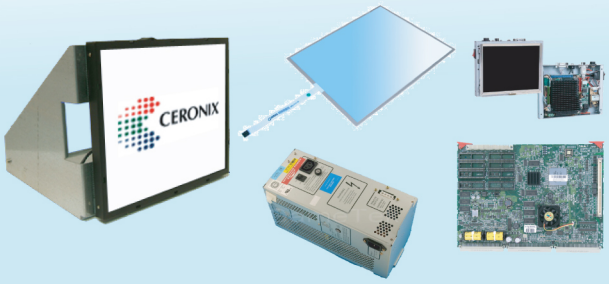

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9890 NEW 5 wire touch screen for Bally IView 6.2" Hitachi LCD #TX16D11VM2CCA, DOES NOT include metal base or copper foam grommet
1060 NEW 5 wire touch screen for Bally IView 6.2" "IDW" brand LCD, DOES NOT include metal base or copper foam grommet
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9200 Protective Mylar sheet for Bally IView 6.2" Hitachi LCD #TX16D11VM2CCA
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9670 Single raw cold cathode lamp for 17 inch LCD monitor in IGT games
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KONAMI

8700 Dual cold cathode lamp assembly & 12 volt inverter for Konami belly glass that is edge-lit with cold cathode lamps
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1260 Dual cold cathode lamp assembly for Konami edge-lit belly glass
9240 LED edge- lit panel for belly glass in Konami K2V cabinet
8670 Single RAW cold cathode lamp for Konami belly glass that is back-lit with cold cathode lamps
9780 "L" shaped cold cathode lamp assembly for Konami 7 inch bonus screen LCD
1050 Single raw cold cathode lamp for 15 inch LCD monitor in Konami games
8600 Dual cold cathode lamp assembly for Konami slot machine with 17" LCD monitor
9680 Single raw cold cathode lamp for 17 inch LCD monitor in Konami games
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1100 Single raw cold cathode lamp for 22 inch LCD monitor in Konami games
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9760 Single raw cold cathode lamp for 19 inch LCD monitor in Spielo games

WMS

8490 NEW 6.4" LG LCD #LB064V02 (TD)(01) for WMS Bluebird bonus screen **(does NOT come with touch screen)**
8470 Single cold cathode lamp assembly for 6.4" LG LCD #LB064V02 (TD)(01) in WMS Bluebird bonus screen
8510 Triple cold cathode lamp assembly for WMS Bluebird 17" LCD monitor
8520 Triple cold cathode lamp assembly for WMS Bluebird 18" LCD monitor
9300 Single raw cold cathode lamp for 19 inch LCD monitor in WMS games
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9970 Raw cold cathode lamp 2.6mm X 316mm
1190 Single raw cold cathode lamp 2.6mm X 342mm
8420 Raw cold cathode lamp, color white, size 2.4mm x 381mm
1330 Single raw cold cathode lamp 2.6mm X 385mm
1340 Raw cold cathode lamp, color white, size 2.6mm x 390mm
8400 Raw cold cathode lamp, color white, size 2.4mm x 394mm
1350 Single raw cold cathode lamp 2.6mm X 420mm
1020 Single raw cold cathode lamp, **purple color,** 4.0mm X 580mmRaw
1070 Single raw cold cathode lamp for Wells Gardner 6.4" LCD
8450 Single raw cold cathode lamp for 15" LCD in Touchtunes Maestro Monitor
9920 Single raw cold cathode lamp for 15 inch LCD in Touchtunes Genesis General Touch monitor
9960 Single raw cold cathode lamp for 17 inch ELO LCD
8440 Single raw cold cathode lamp for 19" LCD in MackVision LCD Monitor
1210 Silicone end cap for 2.6mm cold cathode lamp
1220 Single “O” ring for 2.6mm cold cathode lamp
1230 Figure 8 “O” ring for 2.6mm cold cathode lamp
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Quick & Simple Repairs #72

By Pat Porath

WMS Bluebird Dead Power Supply

I received a call to a WMS upright progressive Bluebird game that had a black screen. Upon arrival, the screen was definitely black. After the door was opened, I noticed a couple of more things right away. The cooling fan on the LCD wasn't spinning and the fan that is located inside of the power supply wasn't spinning. To me, this indicated a possible bad power supply. I gave the game a power cycle which concluded with the same results. It appeared the LCD and the power supply did not have power. (Note: the LCD receives its power from the power supply.) So, off to the shop I went. I grabbed a spare, went to the game and started to remove the original one. Once the power supply was taken out of the game it was obvious what had happened. (Please see picture.) The unit simply could not breath so it overheated and failed. Preventive maintenance (also known as "PMs) hadn't been done on power supplies for a while so this was the result. I replaced the bad unit with a spare, it booted up ok, and was ready for play.

Since the original was very dusty, during the morning hours in my spare time, I would remove the others in the bank of games and blow the dust out of them. We are fortunate that we are allowed to exit the building and blow the power supply out outdoors. We have to let surveillance know what we are doing of course. We actually have two different areas where we can step outside to do so, one location in the front and another in the back. Anyway, the following week I removed all six of the power supplies (even though the one had just been replaced) and removed the covers and took them outside. With an air compressor, all of the dust was easily blown out. I had to work kind of fast

Bob Yabroff
President

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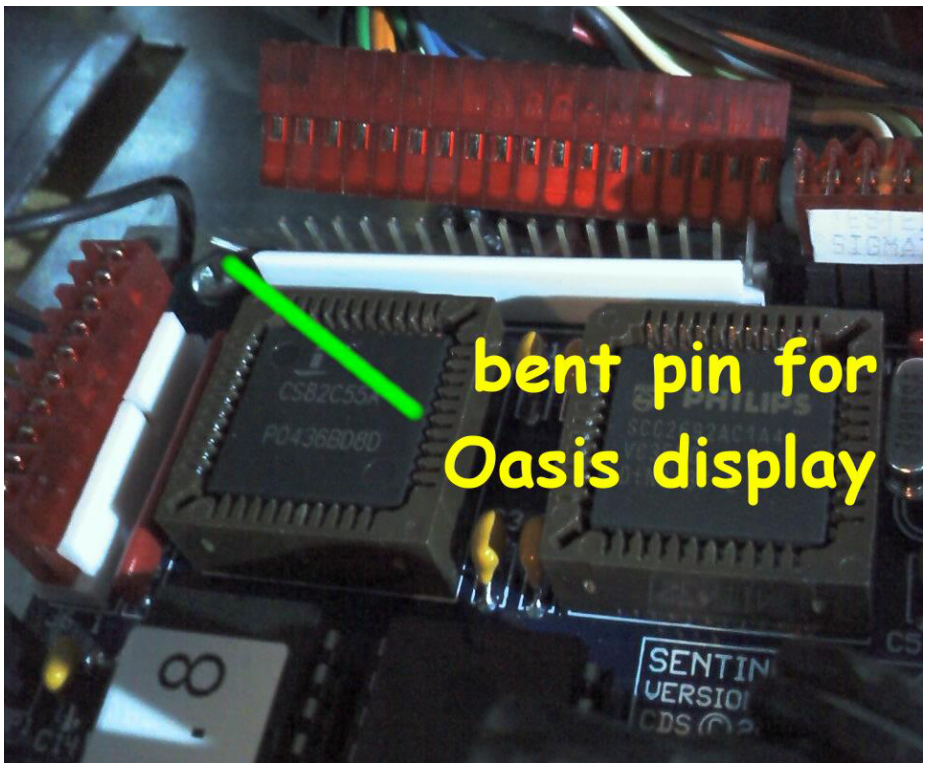
though, on that particular morning it was only 14 degrees Fahrenheit out. (Kind of cold. Is it a bad thing for capacitors to freeze? LOL) Once complete, the covers were put back on INDOORS and the power supplies were put back into the games. I checked out another bank of upright WMS Bluebirds to see how the power supplies looked in them. Sure enough, they were quite dusty too so I started removing some of them for cleaning as well. If the gaming floor isn't really busy, if time allows and there isn't much going on at the time, why not do a little preventive maintenance on games? On more than one occasion, I've found minor problems BEFORE they became major ones simply by doing a little preventive maintenance. A couple of times while vacuuming out Atronic e-motion games, I found the interior of the game very hot. It was because a cooling fan had died on the CPU. The game was still OK but the fan needed to be replaced right away. After the cooling fan areas and fans were cleaned, and replaced if bad, the game remained running. If PMs weren't done and if nobody had noticed it until it was too late, the board would have failed because of heat. A little preventive maintenance goes a long way.

IGT AVP "lua instance error"

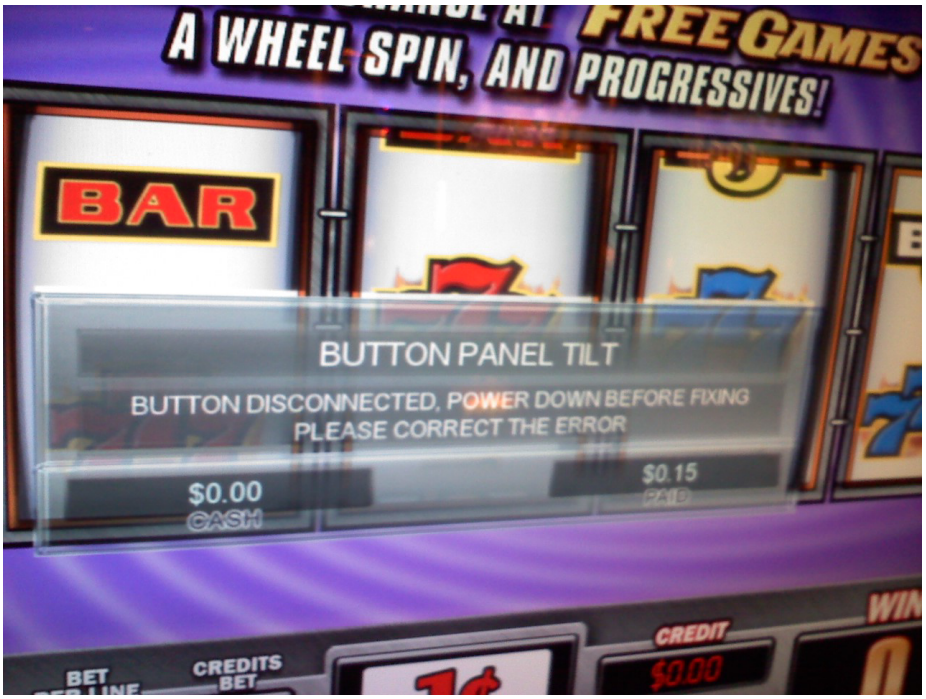
Have you ever run into a "green screen" and when the main door is opened, a "lua instance error" appeared on the screen? Well, here is a possible solution. Simple disable the "game specific attracts" to the NO option. In other words turn off the attract feature. This will prevent the error from occurring. It reminds me of some "Trimline" games that had issues when they were new. They would go into a "red screen of death" and the "E-key" was used to clear the error. If I remember correctly, the software was upgraded and the problem was cured.

Oasis (CDS) No Display

When setting up a new bank of games or sometimes even moving games, somehow problems arise. Games, Oasis and such were functional before they were moved but now something isn't. The following is an example. We recently received a bunch of new games. We installed the locks and the Oasis equipment such as the Sentinel, keypad, display, power supply and such. When power was applied to the Sentinel, there wasn't any text on the display. There is a very good chance that the Sentinel was removed from a game and it should have worked then, but didn't now. I have no idea how these things happen. So after plugging in all of the main power for the games in a bank of eight, I thought I would go back and take a quick look as to why the Oasis display wasn't working. My first thought was a bad EPROM, but I was wrong. When I



looked at the display connection on the Sentinel side it was quite obvious that the connector had missed the first pin on the board. (As seen in picture.) I powered down the Sentinel, straightened the pin and put the display connector back on and applied power once again. The problem was simply a bent pin on the Sentinel. Now the Oasis display worked.



IGT AVP 3.0 "Button Panel Tilt"

A call was received that a game had a "button panel tilt." Since the button panel communicates with a USB cable, I thought maybe reseating it would resolve the error. No such luck though. I reseated it once again and checked a few other connections which looked OK. I knew I had power because I could see an LED lit up on a button board that is located inside of the game. How about a power cycle of the game? The power was cycled and after the main slot door was closed, the error cleared. Why did the game have the error? I'm not quite sure yet. We'll see if I run into another like this on an IGT. This was my first time running across a "button panel tilt" on an IGT AVP 3.0. Time will tell if an item is starting to fail such as a possible bad USB cable or a bad button board.

Cont. Over

WMS BB2 Upright Cabinet Features I Like

While setting up a bank of new upright WMS BB2s, I noticed a couple of new things that I really like. The first item was rounded, oblong mounting holes in the cabinet. (Please see pictures.) To some it may be only a minor thing but to me, I personally love the idea. It makes bolting down the games so much faster and easier. At the casino in which I'm employed, we use heavy duty steel slot bases. Before the oblong holes it sometimes took a bit of time to line up the drilled mounting holes in the base with the mounting holes in the game. Now WMS gaming has made it simple. Simply align the holes near where they need to be, drop the bolts in, straighten the game on the base, then tighten down the bolts. Another feature I noticed on the BB2 cabinet was a nice bright interior LED that lights up the inside of the game beautifully when setting up or servicing.

Bally V32 Deck Gadget Board

First of all the Bally V32 is short for a Bally game that has a 32 inch vertical, portrait style LCD in it. An upright game like the "U-Spin" type. Next, what is a "deck gadget board"? Well, I call it simply a button board. It is the control board that works with the computerized player buttons. The following is some information on the button board that may come in handy some time. Locations on the board are as follows: J1-USB connector J2-power connector J4-button cable connector, and D2-is the diagnostic light. When D2 (the diagnostic LED) is OFF, the board doesn't have any power. When the light is on SOLID, the board may be offline, may be a hardware problem, a bad board, or wrong software. when the light BLINKS ONCE, the board is online without errors. When the light BLINKS TWICE, the board may be offline, the main board sees the board but doesn't recognize it, possible wrong software. When the light BLINKS THREE times, the board is online but has an error. It may be a hardware or software issue, even a possible communication problem with the board. With FOUR BLINKS of the diagnostic LED the board is offline with the game, either hardware or a communication problem from the game to the board. Hopefully this will help when working on Bally button boards.

Other Button Issues

When working on IGT games that have the computerized type button errors, so far I've gotten lucky with a reboot of the game. It was rebooted and the error went away. On Bluebird games that have button errors, such as the "feature button" not the USB type, sometimes reseating the CAT5 cable on the backplane board clears the error. If that doesn't do it, try replacing the CAT5 cables that run from the button board to the "side board" and the cables that go from that to the backplane. If there are problems still, replace the button board and the "side board". Thus far, I haven't had very many problems with the computerized USB type buttons on the WMS BB2 games. A few button panels were replaced though. I even heard that some of the BB2 games have a spill resistant button panel but haven't verified the information yet.

Editor's Note: Yes! It is true that there are some improvements to the button panel to make it more rugged and spill-resistant. Look for a report in a future issue of Slot Tech Magazine.

WMS BB2 Wouldn't Boot Up, Bad Hard Drive?

We had a WMS Bluebird 2 game that was shut down; the problem was the game wouldn't boot up all the way. Once at the game, the power was turned on and the boot up process started to look normal. Then there were items on the screen referring to "partitions," then the game would only load (in the text section) up

to 99%. After that it showed an "I/O" error. I thought this was kind of interesting, I've never seen these types of errors on Bluebird games before. This type of Bluebird 2 has the "CPU NXT 2" boards in them with a 40 gig hard drive. With partition errors, I suspected a bad hard drive. I reseated the CPU board and tried a RAM clear (clear card version 1810) without any success. I went to the shop and found a new replacement board that looked like it was a perfect match for the game.

I replaced the CPU with the spare and preformed a RAM clear. So far, so good. Everything looked normal. The game card was put back in and it was time to apply power once again. This time, the game booted up past the 99% part and continued with the regular WMS logo and loading screen. After the game booted up all the way and options were set, the game was tested. Everything looked good and the game was back online. I may have been able to get away with simply replacing the hard drive itself from a bad board, but since I had spares it didn't seem necessary at the time and I was kind of in a hurry to fix other games that had problems.

Another Bluebird 2 game didn't want to boot up all the way and that problem was a bad BIOS chip. I didn't really know what else to do with that game so I asked for assistance. RAM clears were tried, the CPU was reseated, the CF cards were reseated, the jurisdiction (8 pin) chip was checked for bent pins, along with connections on the motherboard. First, the jurisdiction chip was replaced and the same thing happened. The game would boot up until the WMS logo, but no game graphics would appear. I checked on a different game and the logo is only supposed to appear for about one second, then the game screen should appear. Next, the BIOS chip was replaced (a PLCC type chip) and the game booted up all the way perfectly.

IGT I-game Scrambled LCD

This was kind of unusual, an IGT I-game that had a scrambled screen only in idle game mode. When the game was in the diagnostic screen, the graphics were fine. I reseated the LCD, but it didn't help. Next the main processor board was reseated. I checked the chips and "flash board" to make sure they were nice and snug. After the board was put back in the game it booted up normally and the game graphics were normal looking too. Reseating the board must have done the trick.

- Pat Porath
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Vertically Challenged

By James Borg

There is perhaps nothing worse in life (apart from a kick where it hurts most) where a friend asks for your help and by some weird circumstance or a group of them, helping out proves to be something extremely difficult to achieve. It would be even worse if this friend was a good friend to you, has helped you out on more than one occasion and the first time he asks you to help him back in return, you just can't rise to the occasion.

Life can be a bitch and it has been to me on more than one occasion. However, life also goes on whatever the hurdles encountered, whatever the situation. There is no turning back. That was my bit of philosophy for the day. Now back to the dilemma.

Thank goodness that my friend had a problem within my jurisdiction, for it involved giving a helping hand with a monitor (which was something I go in for) without any questions asked. The trouble with it was that it was rolling vertically. That shouldn't be too much of a headache, at least that's what I initially thought, until I saw the monitor.

It turned out to be one from a Sigma Poker. These are pretty good monitors but had two drawbacks in my case. One was that I didn't have the proper signal inputs to connect to it in the workshop. The second problem was that I didn't have the schematic. The monitor was a Fancy 17", model number F-1726J. Scouring the Internet didn't help me in the least and to make matters worse, somebody once told me that the chances of the Company having folded were very high which made my positive attitude towards it take a drastic nose dive.

I connected the unit in the workshop and at least I had a raster, which was fair enough but that was about all I could get on it without connecting it up to a suitable source. The only option left open was for me to go on a slot machine, similar to the one it was pulled out from, and see if I manage to take things a step further.

As luck would have it, I had a data extension cable available, so I could connect the monitor without having to actually slide it inside the slot machine, otherwise performing any form of test on it would have been impossible. Normally, the monitor just slides in place like a drawer and it would be nearly all hidden inside apart from the CRT at the front. This certainly wasn't the best way to try and test it out, especially since I needed it to be switched on and having access to every component inside it. The extension cable saved the day (thank you, Mario).

True to the description given, there was a vertical roll. A slow one, but still it was a roll. Adjusting the V-Hold pot, R303, did have some effect as the picture changed direction when the pot was turned either way but there was no position where the picture actually locked. It was a sign that I didn't have the vertical sync pulse coming from the slot machine's computer going to where it should go to within the monitor.

From previous experience, I've had people tinkering with the adjustment potentiometers at the front and not everybody is as gentle as I am with these little adjustable resistors. It didn't surprise me in the least to think that the possibility of the pots being manhandled took place along the way, especially when most of them were facing any other way, apart from where they should be facing, straight ahead. I had a look on the solder side of this PCB (Fig. 1) but all was correct and no sign of physical abuse was evident. While at this stage, I even had a look at P300 and P600 on the same board, as

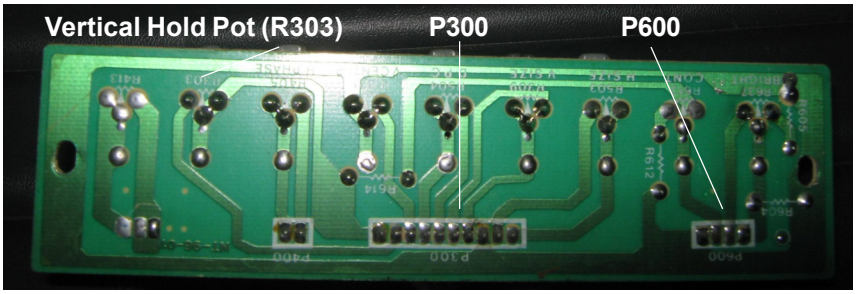

Fig. 1: Underside of Control Potentiometers PCB.

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March 2011

once I had found a dry joint on one of the pins. None were apparent on this board.

Alas, this would have been way too easy and not pose any form of challenge for me. This sort of challenge stimulates me and makes me feel good about myself (I wonder just how many people out there feel good about this type of challenge facing them? Only two people come to mind at the moment, and if you include myself, that would be three people).

Following Sod's law, I'm not brilliant at tracing sync faults without a 'scope to aid me in the process. I only use this instrument when it looks like I'm going to be facing a brick wall, like in this case. I much prefer to use a 'scope in the haven of my little workshop, especially if clients start to come round asking me what it is, if it locates the problem for me (I wish), and if it's the same thing that monitors people's hearts in a hospital. Not to mention them telling me about their TV set at home and what was wrong with it and how much it cost them to repair or worse still, ask me to repair it for them. The classic would be if it can be used on a slot machine to strike its jackpot. Woe is me. Moments similar to these is when I wish I had a bigger workshop to be able to take the slot machine inside and brainstorm in peace, aided with a nice juicy helping of hot chocolate.

I just wasn't looking forward to going on the floor and give lessons to people on the functions of my equipment but the issue that had me really worried was that I was going to be working on a live chassis in the presence of innocent bystanders who tend to be a bit curious. Things would turn very shocking indeed if a client decided to poke his hands where they don't belong, namely on the high voltage areas.

There was no other way out of this but to find a calm time during the night where I could work on it in peace and quiet and, most of all, without people interfering while I handled a potential hazard. I owed it to my mate to help him out, whatever the outcome.

My first step was to set up a portable workshop next to the machine which, luckily for me, was in a distant corner of the place, facilitating my attempts to have this monitor repaired with hassle and interference being kept to a minimum as humanly possible. I wasn't happy about all this in the least but I didn't have any other bright ideas how to go about it all..

Using the scope, I first checked out P901 on the CRT neck board, which was where the vertical sync pulse first entered the monitor, on the white wire, marked with a 'V' (Fig. 2). Tracing where this

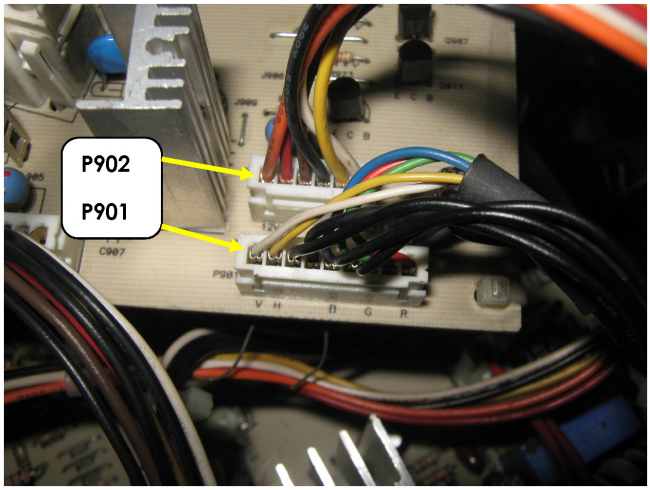

Fig. 2: RGB Connector from Slot Machine

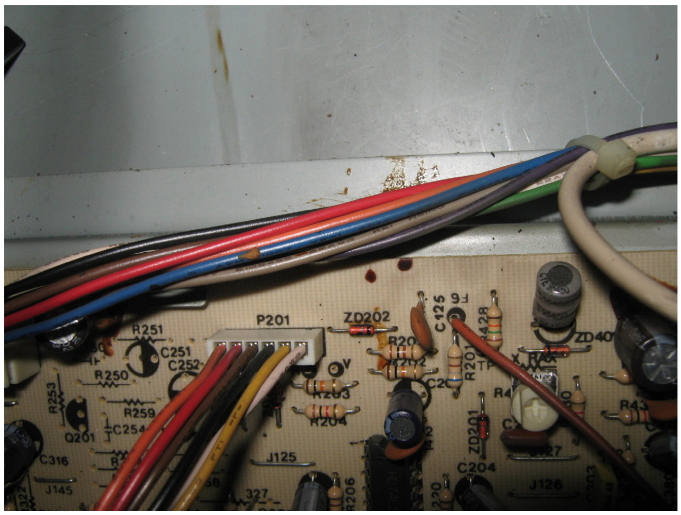

Fig. 3: Vertical Sync Connection on the Main Board.

goes, it ended up on the connector next to it (P902) and came out of the CRT board from another white wire on to the main board to P201 as shown in Fig. 3. The pulse was present at all the test points covered so far.

The interesting and juicy part was about to follow and that was to trace through the maze of compo-

Fig. 4: Vertical Driver Chip (LA7838)

nents (without a schematic of course). The route the pulse takes is anybody's guess. I had to eventually end up on the vertical driver chip IC 301 (LA7838), shown in Fig. 4, which is bolted on to a huge heatsink.

I was pretty much convinced that the chip itself was fine, as the frame was as it should be and showing the entire picture, from top to bottom. Most times, if this chip has gone to meet its maker, there could be some form of distortion on the screen, some form of overlapping, either from the top or from the bottom, the frame doesn't open up as it should, or doesn't open up at all, ending up with a nice and bright horizontal white line across. It didn't hurt to pull the board out and check underneath it for any dry joints, an issue which frame chips are very well known to be prone to, especially the TDA 1675A. The solder connections on this baby were however fine, and didn't need any going over.

The vertical sync pulse enters the main board from P201 (white wire in fig. 5, above) and goes through resistor R205 (Refer to Fig. 7), feeding IC 201 (74LS86), on pin 10. This chip is a quad 2 Input Exclusive OR Gate.

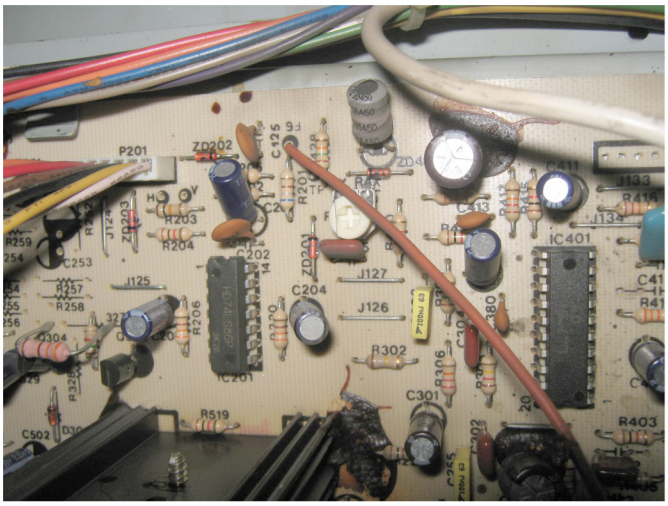

Fig. 5: 74LS86 (IC 201) and LA7851 (IC 401)

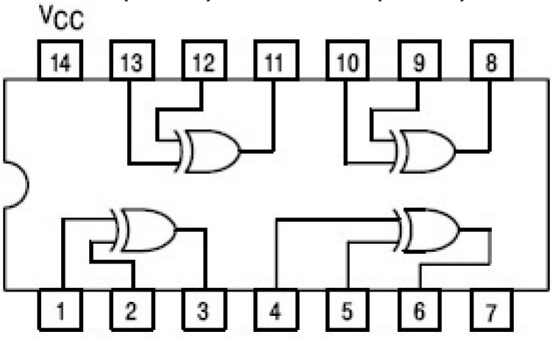

Fig. 6: 74LS86 – Quad 2 Input Exclusive OR Gate.

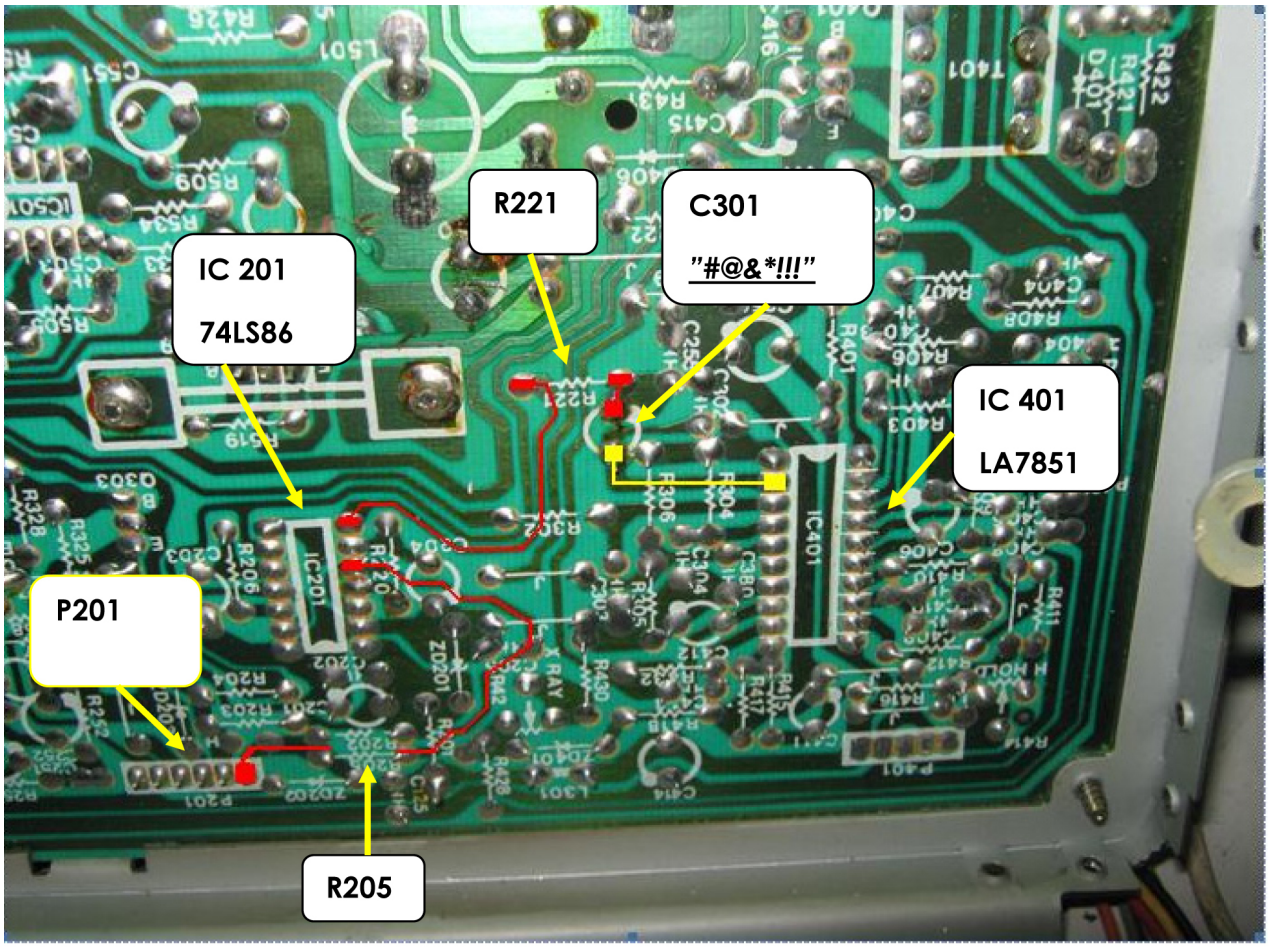

Fig. 7: Sync Signal Paths outlined in Red and Yellow

Following the signal with the scope, it was also found present on pin 8, the gate's output. So far, so good. Things are looking up and I covered quite a bit of ground. The best part of it was that I had come this far without any interference whatsoever from anybody. In a way, I had hoped it would be this chip which was faulty as I had quite a few laying around but if there was another semiconductor device that was FUBAR, I very much doubted had I a spare available. So the search proceeded on to see where the sync pulse ends up…

From pin 10, it then went on to R221 (which looked pretty much like a 100 ohm resistor in the limited light I had at my disposal on my portable workshop) but whatever its value, it wasn't open circuit as I also had a trusty pulse after it.

It then went on to the negative side of capacitor C301, a 10uF/ 50v electrolytic capacitor and after it, I had NOTHING, NADA, ZILCH. Just a DC level. Where did the pulse go? It simply vanished. Before I started jumping up and down, I traced after this capacitor and ended up on pin 19 of IC401, an LA7851. So far I've never come across one that has been faulty, obviously unless a screwdriver tends to fall on it and shorts out its pins, making the poor little thing sweat, then imitate a volcano erupting in all its glory.

Pin 19 of IC401, the LA7851, happens to be called the Vertical Trigger Input. That makes sense, actually that makes a lot of sense. Nobody called it the Vertical Trigger Input just for the fun of it.

Without this pulse feeding the chip, the chip will still work, that is, there will still be a frame and the picture would be fine in itself, except that it will not lock, no matter how many times one adjusts the vertical hold pot. It looked like plain sailing ahead (which was brilliant) and not a moment too soon, as a client decided to come and play on a machine barely a few inches away from where I had set up my mobile workshop.

All that was left after this brilliant discovery was to change this capacitor, put the whole thing together again to resemble a monitor once more, and inform my buddy that his baby was ready for collection.

However, I had cried 'victory' a little too early, for once it was all put together and slid it gently down in its place inside the slot machine, I was a bit disappointed. The vertical hold was indeed holding fast, brilliantly even, and it couldn't have been any better. The only snag was that the degaussing circuit didn't seem to be responding too well. The switch (push-to make) on the bottom of the monitor seemed to be fine, but once toggled, the screen should have degaussed, and I had none of that happening. What a disappointment (yet again).

I thought that that was it. Sync all done, monitor ready for collection, case closed, and Bob's your uncle. I didn't forecast that I had to pull the thing out again. With any luck, I could have just forgotten to plug in either the degaussing coil or the wire from the switch on to the main board. Sadly enough, I hadn't forgotten! Both plugs were in place. It was quite late by then, I was knackered and my eyes were not obeying my instructions to remain open but I couldn't stop now, not when I was so close to actually finishing it off.

Initially, I thought the switch itself was FUBAR but it wasn't the case. The posistor was fine. The degaussing coil was fine. Actually nothing seemed to be wrong, but the unit still didn't degauss when the external switch was activated. After some messing about and a cup of tea to help me concentrate (along with a shot of nicotine) I found out that one of the two pins on the monitor's main board where the plug from the switch goes into, even though it looked fine on the solder side, must have been somehow dislodged. I had come to that conclusion as I couldn't see the little metal pin sticking out underneath, but only a mound of solder. So I pushed the pin down while heating the solder, tried again, and then the switch worked like magic. YIPPPEEEEE!!!

- James Borg
jborg@slot-techs.com

Fig. 8: Degaussing Switch Underneath the Chassis.

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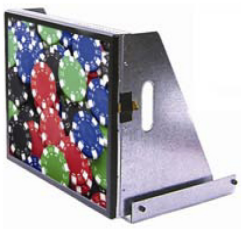

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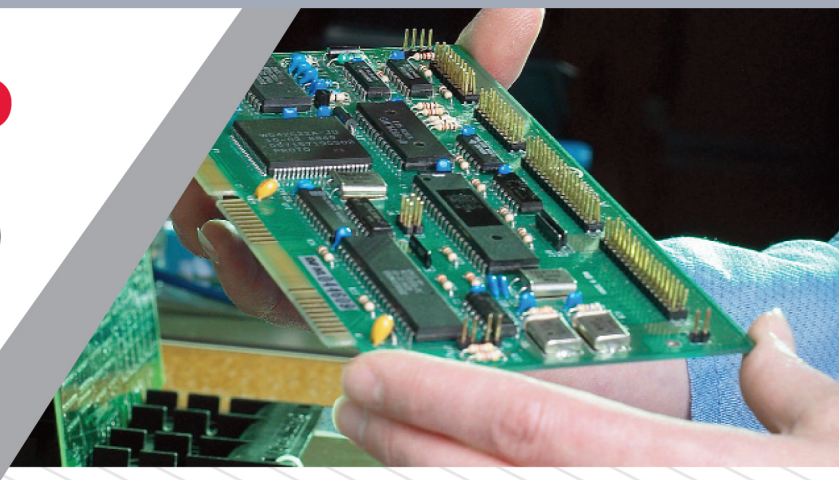


Suzo-Happ provides warranty and repair services on a variety of gaming, amusement, retail and vending products.

Suzo-Happ Service Programs

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

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

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

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

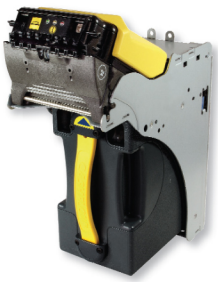
GAMING

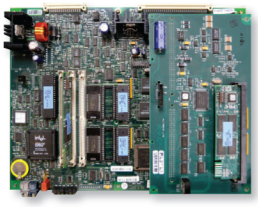
Authorized Warranty Services

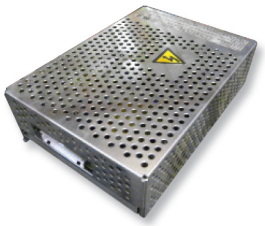
- ✓FutureLogic (Exclusive)
- ✓MEI (Exclusive)
- ✓Kortek (Exclusive)

Repair Services

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







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

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