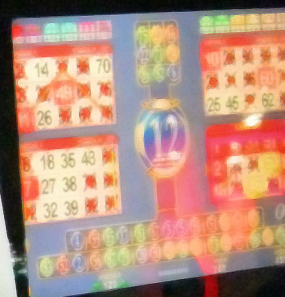
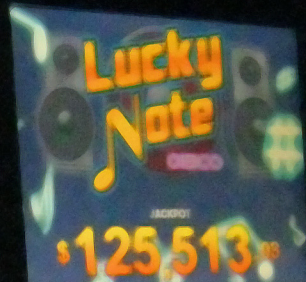


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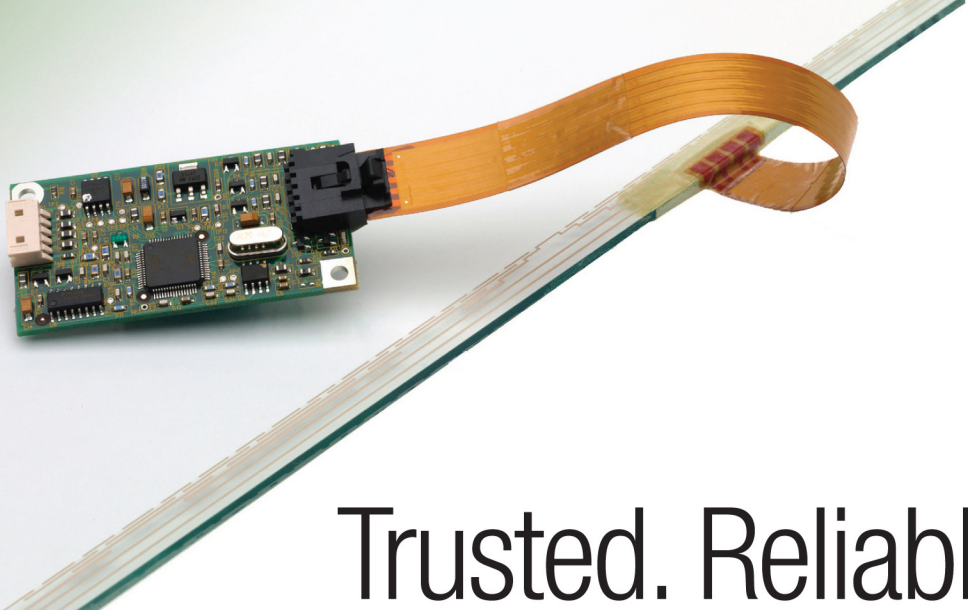
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**The Justification of
the Tech**

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The Justification of the Tech**

Page 8-Advanced Repair of Ithaca Epic 950 Printers

Page 20-Quick & Simple Repairs #94



Randy Fromm

Dear Friends,

This month, we have another contribution from Darrin Pachman and once again, he is not showing us how to fix equipment, he is discussing the business of being a slot tech and what the slot techs mean to the casino. I think all of us technicians feel that we are what really keeps the casino running (call it pride or call it ego, your choice). This article discusses ways to organize your tasks and present it to casino management in such a way that they can understand all that we do.

Also in this issue is a detailed look at the Epic 950 printer and how to repair/rebuild it. The article was contributed by Henry Kollar and was originally written in Slovakian, Henry's naive language. It was machine translated by Google so, despite some light editing, it is not exactly perfect English. Please don't be too critical as I elected to limit my editing. I'm certain you'll comprehend what he's saying so be gentle.

Pat Porath has an interesting contribution this month. I am particularly pleased with his description of a fiber-optic failure. Great job, Pat. Thanks.

That's all for this month. See you at the casino.

Randy Fromm

Publisher

Slot Tech Magazine

Randy Fromm's Slot Tech Magazine

Editor

Randy Fromm

Technical Writers

James Borg, Jason Czito,
Vic Fortenbach, Diana
Gruber, Henry Kollar, Chuck
Lentine, Craig Nelson,
Kevin Noble, Pat Porath

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Cost of Doing Business (part 1) The Justification of the Tech

By Darrin Pachman

Let's continue to talk about how we can "Fix The Tech." Let's face it, without hoppers and coin mechanisms, is there really a lot for the slot tech to do on a daily basis (that is, other than removing pennies from the card readers. Really, I don't understand it, how can people actually think this is where a penny goes? Like the machine actually takes a penny, right)?

Editor's Note: Yes, Darrin. There is A LOT to do on a daily basis. A slot tech's day is still completely full with repairs and PMs. I know you're just being facetious but let's not "poo-poo" the tech's daily battle against the foe of failure.

Anyway, let's talk a little about automation. If you're lucky enough to have a slot system that has a module for recording repair services, request for services and response times, then lucky you and move on to read the next article about how to adjust the "what's u ma call it, on the thing a mabob." But wait a minute, do you really know the

purpose of that module or better yet, you don't have one and wonder what's it for and how can you do whatever it does without it? Well I'm glad you stopped and gave this some consideration.

Let's understand the main point that I'm trying to drive home here. There are two factors to consider, the technician and the machine.

Technician:

1. How long does it take for them to perform a task?
 - a. How does this time fit in with the average or estimated time to perform the task?
2. What tasks are they performing and what tasks are they not?
 - a. For the tasks they are not, is it in their level of permission, if so, why are they not doing it?
3. Is there a certain machine manufacturer or model the tech seems to stay with?

Machine:

1. How often does a part need to be replaced or serviced?
2. What is the time allotted to perform each task, replacement part or service?

3. What is the cost of the part?

4. What other miscellaneous items are needed?

- a. This is always a problem. Really nothing is miscellaneous and everything is accounted for and should be.

Now what we have to do next is to kind of tie these together. Think about that attorney you went and saw a while back and when you got his final bill you saw charges for copies, phone calls, transportation charges, even a darn surcharge for the fish tank in his lobby. Well, think about it, everything has a cost of doing business, and so does slot machine repair.

Machines are no different than technicians, some services are faster on some machines and some technicians can perform certain tasks faster than others. You can't expect a tech with one year of experience to be able to perform the same task as a seasoned tech with five years at the same speed with both having the same overall level of workmanship. Just like to replace a component on one machine takes an average of XX time while on the



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other manufacture it takes XXXX time. Why the difference? Cabinet design. Why the difference in technicians performing the task? Competence and skill level.

So you get an email from the slot director telling you there are 15 machines coming from this new manufacturer called "Best Slots." You're smart and ask the questions: Who else has these, where can I find information on them, what issues can be expected, do they have a local tech... and the list goes on. As expected, you get the response. The sales rep says they are doing \$200.00 a day in season in the Arizona market. You think "yeah great. A gum ball machine can do that and heck, that's only 50 percent of the house average of most of the casinos there.

Thinking to yourself "Fat Boy over here must have got a free steak dinner and a trip to that club down on central, got sold a bill of goods, and now expects me to perform miracles with it".

So here it is six months later and the machines have been on the floor for five months. Your techs are screaming they need to be in these machines constantly for one thing or another. You hate these things but because the slot director doesn't want to look like a putz, the warranty period has expired and you're stuck with them.

You want to do a comparison of cost of labor to income produced to prove that these things are a waste. So here is what you need to do.

1. You need to record time spent on services and repairs on each machine model.
2. Then group this by manufacturer.
 - a. So basically you will have a list of each manufacture and its models.
3. Now, how many machines of each model.
4. Service time, this should be broken down into two categories:
 - a. Being caused by human interaction like a customer abusing the machine or an employee not performing a task correctly.
 - b. Machine service needed do to normal wear and tear and or bad design.
 - b.i. It's this "b", that we are concerned about.

So you're the lucky Technical Manager and have that module, you open it for the first time and find...woops, you never added in all the specifications of expected service times, project coding, inventory parts pricing, expected parts to perform task and so on. Well, who is the putz now?

So you and the Technical Manager at the casino down the street that is still using a DOS based accounting system are in the same boat; you need to build up this system. The difference is, once yours is built, it will row the boat

automatically, your friend next to you still needs to use manual labor but you both are using the same method.

Specifications:

Tasks

1. List all tasks that could be performed from a technical standpoint. Understand this will grow over time. Listing them in categories help like, lighting, monitors, power related, software issues, bill validation, player tracking components, cabinet and so on.
2. Now, once you have a category, list the services in each. Let's take lighting as an example. Belly lamp, top lamp, button lamps (realize getting to certain ones may take longer than others, you can separate this out or average it out), candle and so on.
3. Now how long does it take to perform this task, need to include testing, physical repair, going to get the part, completing the MEAL Book and noting the service on the technicians small note logbook he keeps on him at all times.

Machines

1. List all the manufacturers and break this down by model. As an example: Bally, S6000, V32, V22/22 and so on.
2. For each task you listed before, give an estimated time to perform that task for that machine model.
 - a. If a machine model does not have that task, just list it as N/A.
3. Now average out the time

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FOR BALLY

#8650 - Single cold cathode lamp assembly for Bally IView player tracking system 6.2 inch "IDW" LCD

#8680 -- Single cold cathode lamp assembly for Bally IView player tracking system 6.2 inch "IDW" LCD

#9890 – 5 wire touch screen for Bally IView 6.2 inch Hitachi LCD

#8950- 5 wire touch screen kit for Bally Iview 6.2 inch "IDW" LCD

#1240 – 6.2" Hitachi LCD \$TX16D11VM2CCA

FOR KONAMI

#9780-"L" shape cold cathode lamp assembly for 7 inch AU Optronics LCD

#8550 – "U" shape cold cathode lamp assembly for 7 inch Sharp LCD

#1010 –7 inch AU Optronics LCD #C070VW02 for bonus screen

#1250 - 7 inch Sharp LCD #LQ070T3AG02 for bonus screen

FOR WMS (Williams)

#8520- Triple cold cathode lamp assembly for WMS slot machine with an 18" LCD monitor

#9300- Single RAW cold cathode lamp for WMS games with 19 inch LCD monitor

#8490 - 6.4" "LG" LCD #LB064V02 for bonus screen (does **NOT** come with touch screen)

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between all the machine models for each task, this is the estimated time it takes to perform that task.

a. When doing this, if a model does not have that task, DO NOT ADD IT TO THE AVERAGE CALCULATION.

Coding (assuming you don't have an automated system)

1. Create a coding that will incorporate the following items:

- a. Manufacturer
- b. Model
- c. Task group
- d. Task

2. If may look something like this:

- a. BA020412
- b. BA = Bally, 02 = V32 model, 04 = Lamp, 12 = Top candle

Technicians

1. List your levels of technical skills. Some use levels like Tech 1, Tech 2 and Tech 3 with each having a different skill level.

2. Assign an expected time to each task for that technical level; some may be the same while others may not be. This is up to you and how your training is set up (you do training, I hope).

Parts

1. This will be a fixed cost in most cases from each task, no matter the tech, the parts used should be the same for that task.

a. Now this may not be the case and this system, once it's done, will tell you this.

Everything has a cost, remember and so does this so let's stop here for now.

Start to create the list like I explained (using excel for it is best).

In my next article, we'll continue on how to build and use this.

Darrin Pachman

For schematic diagrams, service manuals, software, etc., visit the Slot Technical Server at slot-tech.com

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Editor's Note: Many of you know Henry "Heno" Kollar from his numerous posts on the Slot Tech Forum. The following article was written in Slovakian with machine translation by Google. As editor, my job is to make the reading a bit easier but, to be honest, because this is a technical article, you likely can understand it just as well as I can without editing. I've made a few revisions but, by-and-large, I have published it just as Google translated it. Don't be critical. There is a lot of very useful technical information here. Original Slovakian available upon request. Just drop me a line. editor@slot-techs.com

This article deals with the complete repair these printers by a bench tech at general repair without using expensive spare parts. In our



situation the greatest emphasis is placed on a quality repairs that are able operate with minimal inter-

vention over the next five years, nonstop.

The first recurring failures

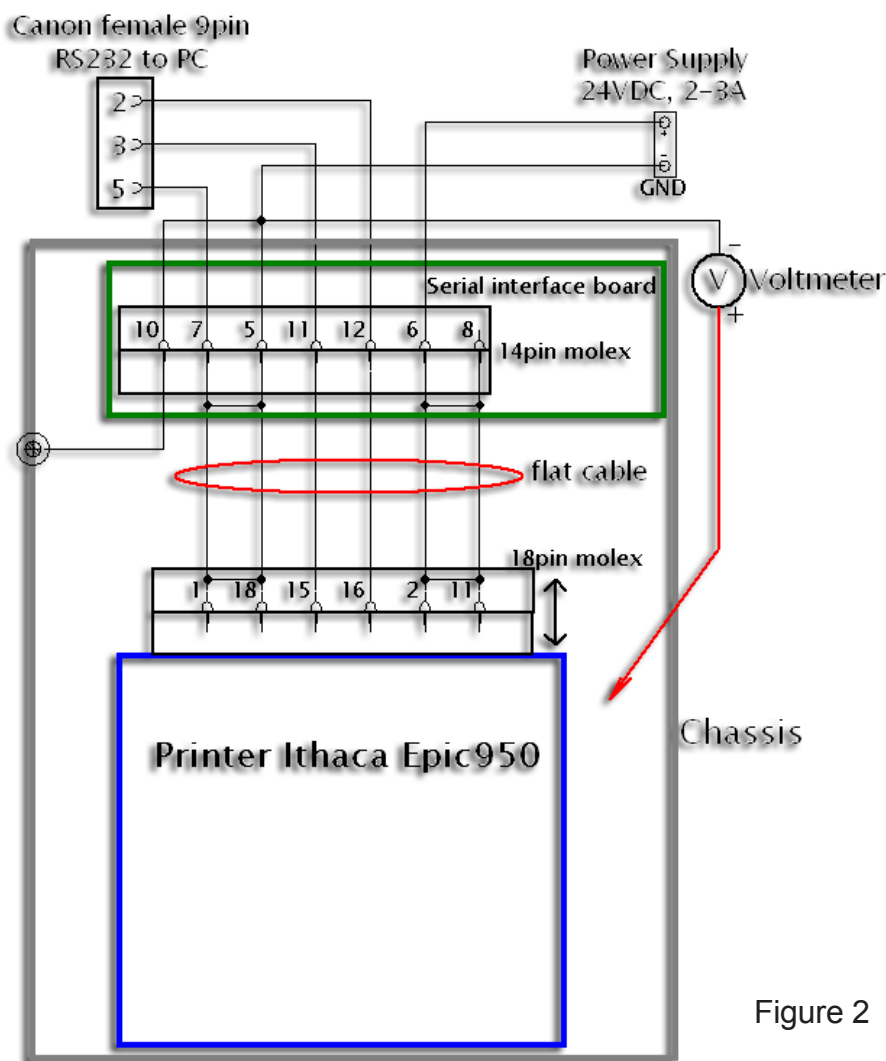


Figure 2

of new printers will begin after three-to-four years of continuous operation. After this time, the layer of dust on mechanical units (optic sensors, thermal heads) becomes so thick that it causes disturbances such as paper jams and low-quality printing in ever more frequent intervals. Also, some opto-electronic sensors after cleaning may not have sufficient sensitivity, resulting in the inability to take paper or sending incorrect reports on the presence or absence of paper.

Of course you can use the so-called cleaning card but I think that this solution is only temporary.

Less common are disorders in main PCB (control board) eg. printer dead or dysfunctional data communication.

For these reasons, I will try to describe the most common disorders and how to fix them.

All information about the spare parts will cover the estimated lifetime after correction for at least another three to five years, with an emphasis on using the least expensive parts.

Getting started with the repair - Fig. 1.

While we test the printer, you need to build a workplace where we can connect the printer to 24VDC power supply (2-3A) and PC using Windows OS, or use an external connection to the slot machine via data cable RS232.

We need:

Spare "Outer Chassis Assembly" for better handling of printer at a fixed location to the nearby desk when plugged into a PC (the original chassis can be purchased separately or is included part of each new printer).

Recommended type "interface board game" (Communication board) is "serial" 95-04998, 95-05017, or any type with 14-pin molex connector.

Other types of interface boards eg. Netplex

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or USB can not connected without modifying connections for RS232 PC port. Since the connection to the PC via RS232 is the easiest, I chose this path using the diagnostic program “Epic 950TM Ticket Printer” (Demo and Debug Utility) installed on a PC in Windows XP, where it is possible to test the data communication, the printer status and print demo tickets.

This program works with all the printers that are currently using firmware type series SXXXXX.

Wiring diagram interface board type “serial” with a 14 pin connector, PC RS232 port and power supply is shown in Figure 2.

If in your conditions it is not possible connect the printer (do not have spare serial interface board), you can use any type of “Outer Chassis Assembly” with direct connection to printer without interface board and flashing any SXXXXX firmware version.

Only for measurement sensors is not necessary to connect the printer to the computer and can be used with any version of firmware.

In Figure 3 we have an example of the test facility.

In Figure 4, we see a drawing a mechanical unit of printer, which helps us with the orientation of the

individual parts.

Basic test and description most printer malfunctions:

A) After connecting the printer to 24VDC (chassis fully insert and printer must have a closed door “Ticket Cover” item 17, fig. 4) should be after a few seconds to hear the sound of “feed” motor (item 2, fig. 4) and three beeps.

If it does not, it is probably power failure, or failed control PCB - see section 3.1, or damaged microswitch “Cover Open” (item 29, fig. 4) - see sec-

tion 1.3, otherwise go to step B.

B) Wait five seconds, put the stack of tickets into the printer, take the first ticket and insert it into the printer (black mark on the lower end of the ticket into the printer) - should start and run “feed” motor, ticket to enter in mechanic unit and “feed” motor stop. If the printer does not respond to the insertion of the ticket, is probably dirty or damaged optic sensor “Top of Form” (item 16, fig. 4) - see section 1.1, otherwise go to step C.

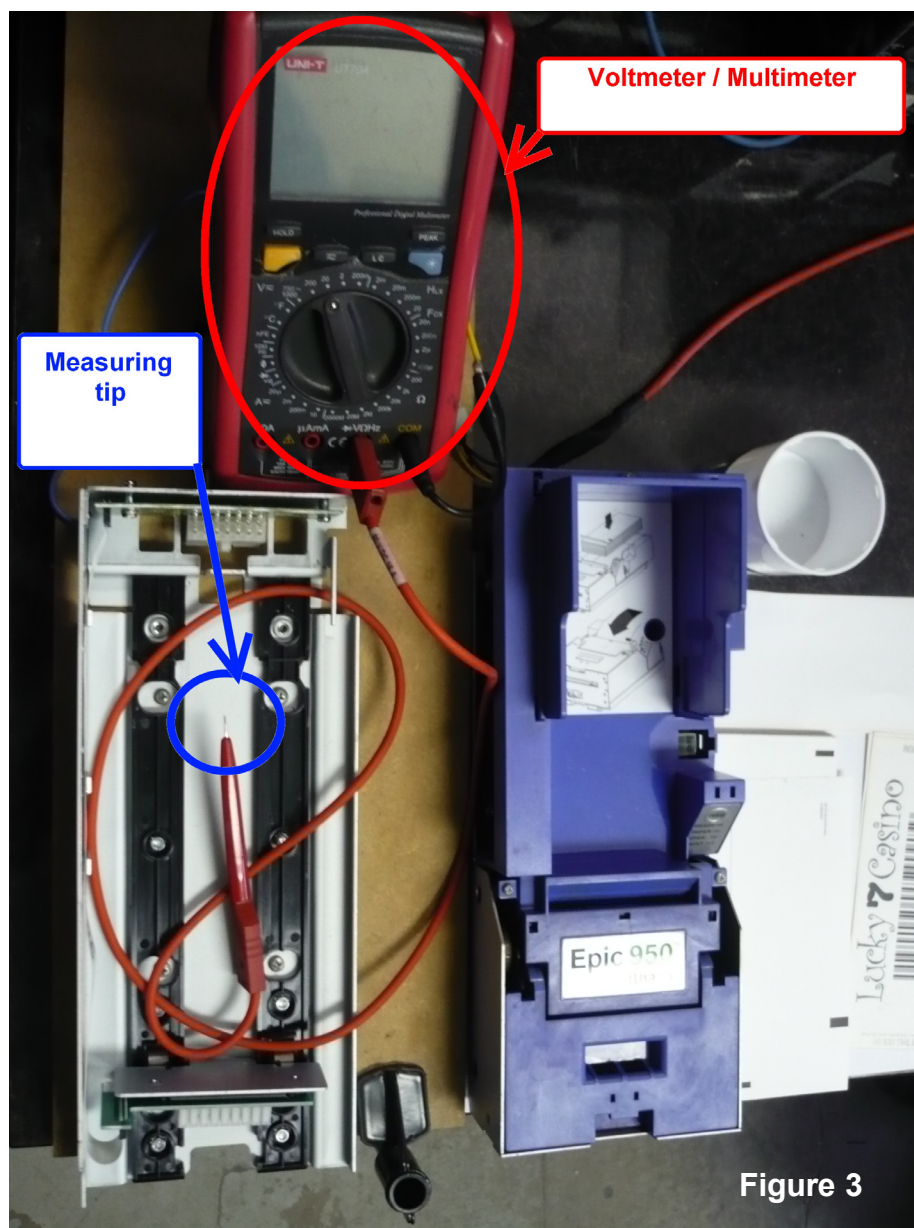


Figure 3

C) Press and hold the “FEED” button until start “feed” motor.

The printer prints a configuration ticket, which will be written model, firmware version, CRC, serial number, data communication settings and print settings.

If missing serial number or other parameters, it is probably a problem with the content EEPROM memory 24C08 U12 - see section 3.4.

If the printer does not respond to holding the “FEED” button (ticket does not enter into the mechanical unit), probably is also dirty or damaged optic sensor “Top of Form” (item 16, fig.4), or damaged optic sensor “Burst” (item 24, fig.4) - see point 1.1 or 1.2, or is damaged itself the “FEED” button.

“FEED” Button testing: try briefly press then printer eject one blank ticket.

If the print quality is poor, is probably jammed thermal head “Heatsink Assembly” or heavily polluted (item 5, fig.4) - see point 2.0.

If the printer prints the ticket, but not pops out, probably jammed “Transport” motor (mostly heavy dirt wheels) (item 3, fig. 4) - see point 2.0.

The delay printed ticket eject caused by

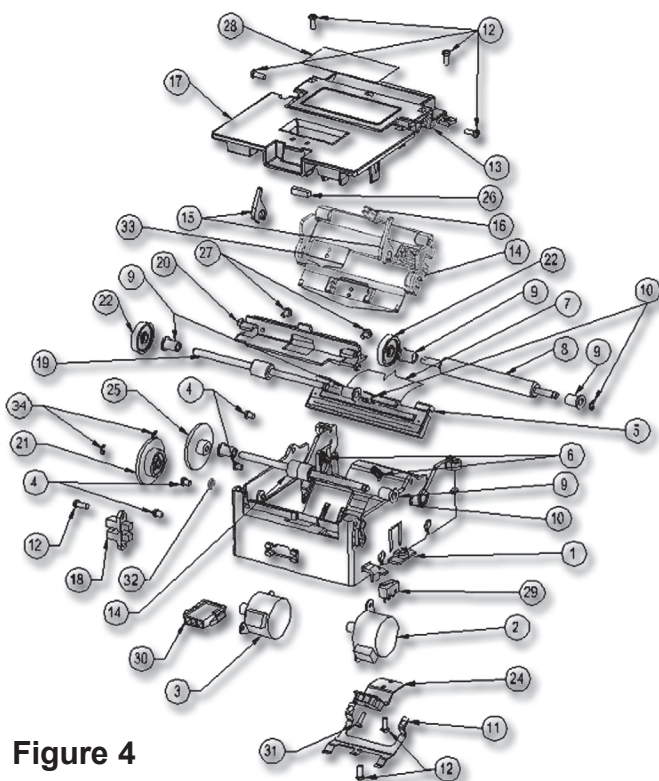


Figure 4

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dirty optic sensor “Ticket Taken” (item 18, fig.4) - see point 1.5, or is zero stock of paper.

Otherwise go to step D.

D) If the printer is connected to a PC via RS232 and you are running program “Epic 950TM Ticket Printer”, then after proper communication settings, tick to “Debug Mode” and click the “Start Polling” which changes to “Stop Polling” and PC starts communication with the printer, as shown in Figure 5.

You can see the status of the printer, or print a demo ticket.

1.0) Checking the parameters of optical sensors using a voltmeter.

Before measuring the parameters of sensors, pull and unplug the printer, remove the cover of “Ticket Supply Bucket” and disconnect the ribbon cable to the status lights, “FEED” button and connector from optical sensor “Ticket Low”. Spray cleaning foam in the space as shown in Figure 6 and 7, residues shoot out with compressed air to evaporate.

This procedure cleaning the slit optical sensor “Ticket Taken” (item 18, fig.4) and sensor “Top of Form” (item 16, fig.4).

Alternatively, use another method of cleaning, but careless handling sharp objects can damage the sensor or the thermal head. Cleaning before measuring the real state of sensors is necessary, because these sensors are very dusty and the dust settles sensor parameters will be deterioration, so distort the measurement results.

1.1) Sensor “Top of Form” has two functions:

- Senses the presence of a new ticket after insertion into the mechanic unit,
 - Senses the position of the black square on the ticket.
- This sensor is connected to

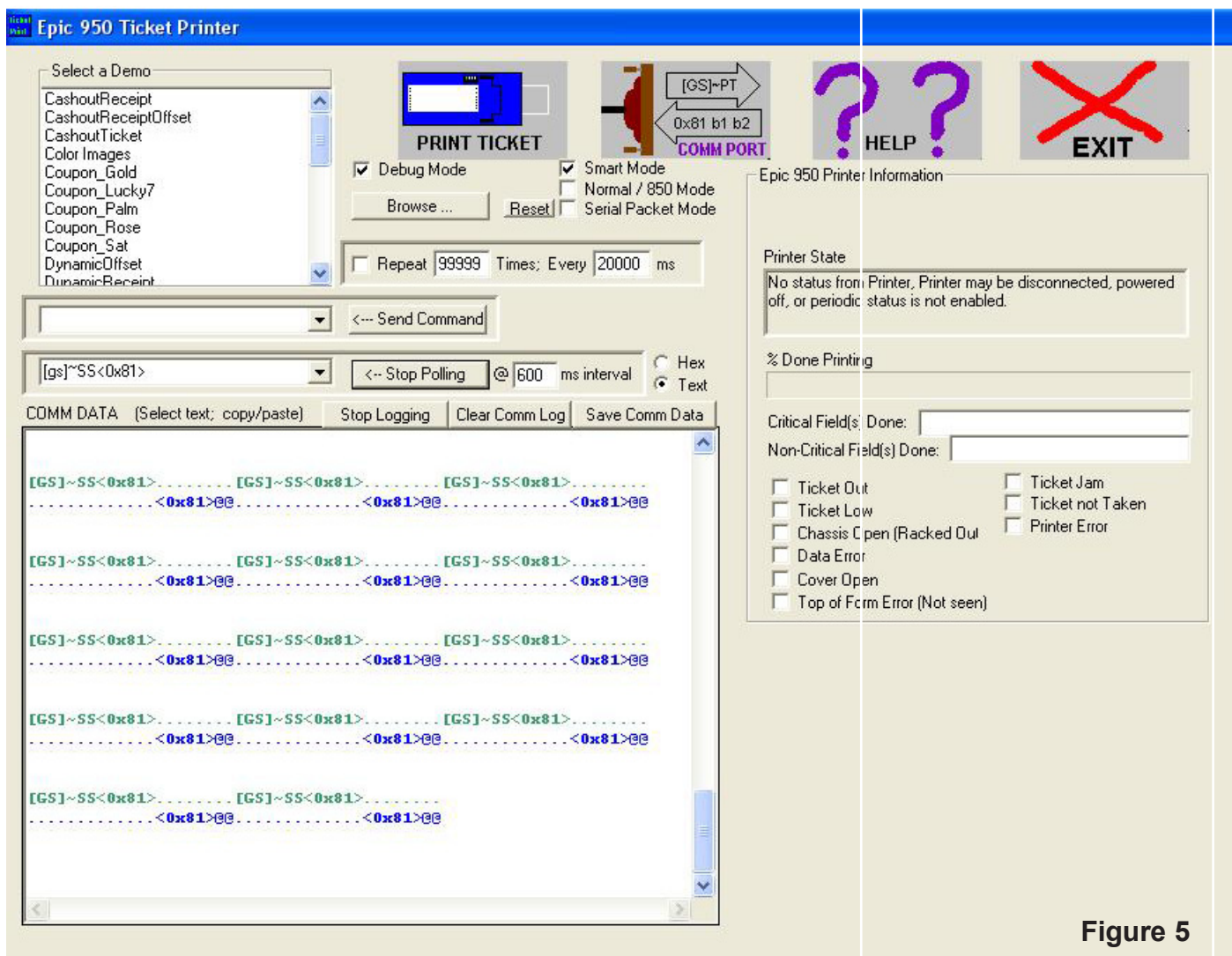


Figure 5

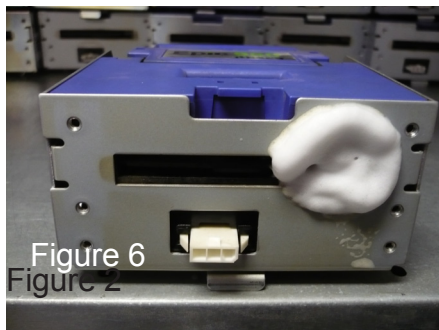


Figure 6
Figure 2

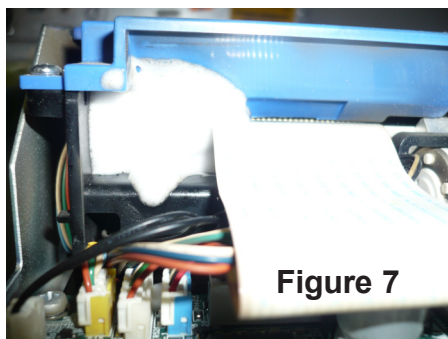


Figure 7

the control PCB on yellow 4-pin connector CN5 and cables are marked with a yellow sleeve.

For detection of values of the sensor please connect a voltmeter to the white wire connector CN5 (best pin directly to the control PCB

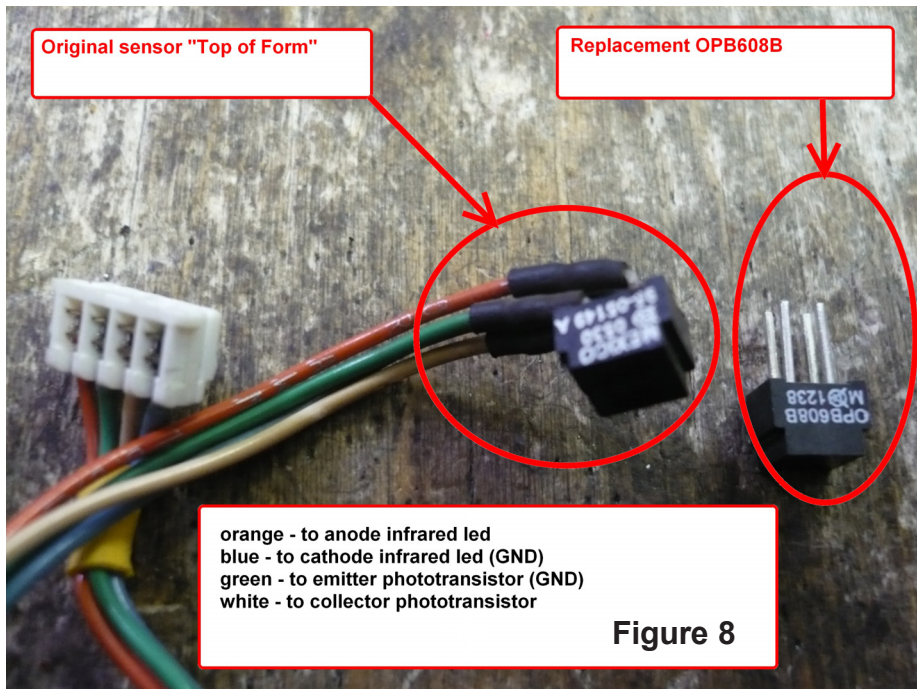


Figure 8

by measuring tip). The other terminal a voltmeter please connect to GND.

The correct parameters are: (doors "Ticket Cover" is open)

- Without ticket above than 3.5V (typically nearly 5V).
- With ticket less than 0.2V,

(typically 0.18V) while fast dragging a ticket up and down value highest variation is 0.02V.

- With ticket to black square above than 3.5V (typical 4.5V).
- If the sensor is worn, inferior quality or heavily

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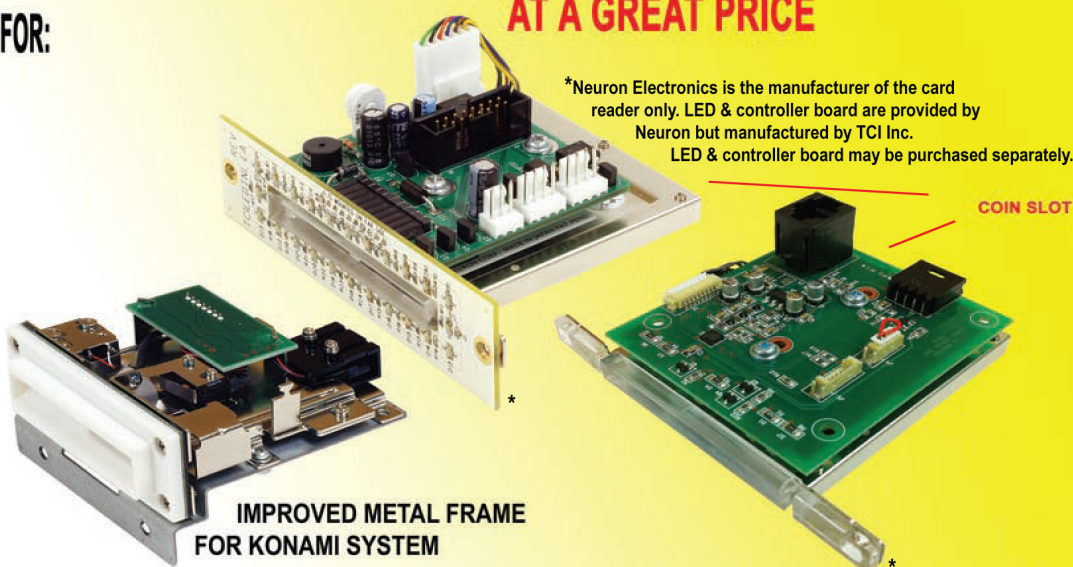
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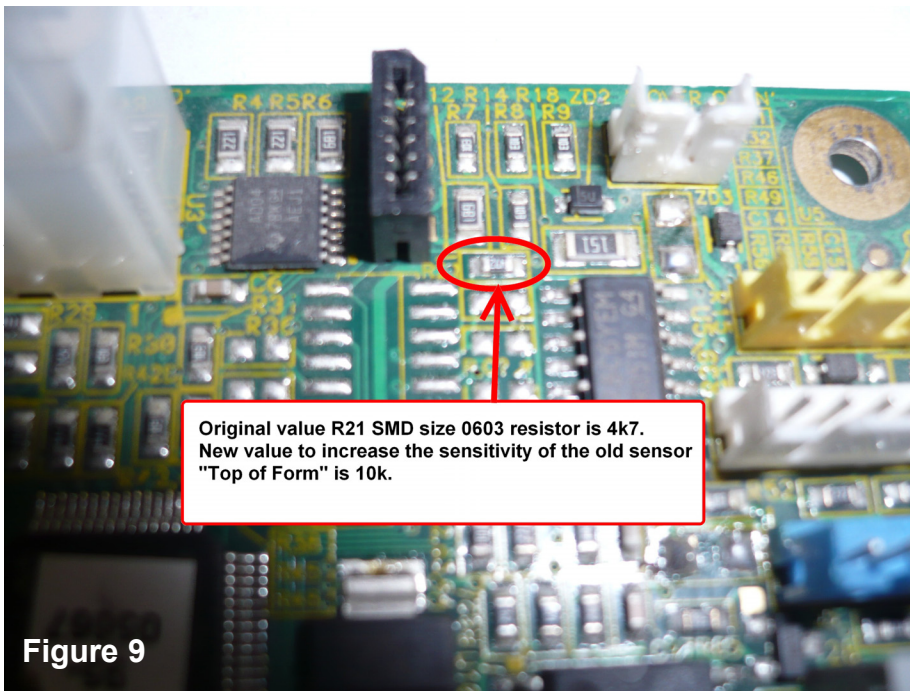


Figure 9

Possible replacements without original use: OPB608B or OPB608C, manufacturer Optek (Mouser, Farnell Element 14, www.rlx.sk \$ 2-4 one piece).

In Figure 8 is shown the original versus replacement sensor OPB608B.

Modification older, worn or less sensitive the sensor is achieved by replacing the original value of the resistor R21 4k7 (SMD size 0603) change to 10k.

This will increase the sensitivity of the old, worn or less sensitive sensor. After making modifying or replacing the sensor, I recommend re-measure parameters.

Figure 9 shows the position of the resistor on the control PCB.

Stability parameters modified sensor depends on the dust environment and the size of the deviation of measured parameters before modification.

0.4V is 2-3 years
- More than 0.4V is less than 2 years.

presence or absence ticket of paper after printing a single ticket secession. Sensor not need to be cleaned, little accumulation of dust.

This sensor is connected to the control PCB on white 5-pin connector CN6, and cables without color sleeve. For detection of values of the sensor please connect a voltmeter to the white wire connector CN6 (best pin directly to the control PCB by measuring tip). The other terminal a voltmeter please connect to GND.

The correct parameters are: (doors "Ticket Cover" is open)

- Without ticket above than

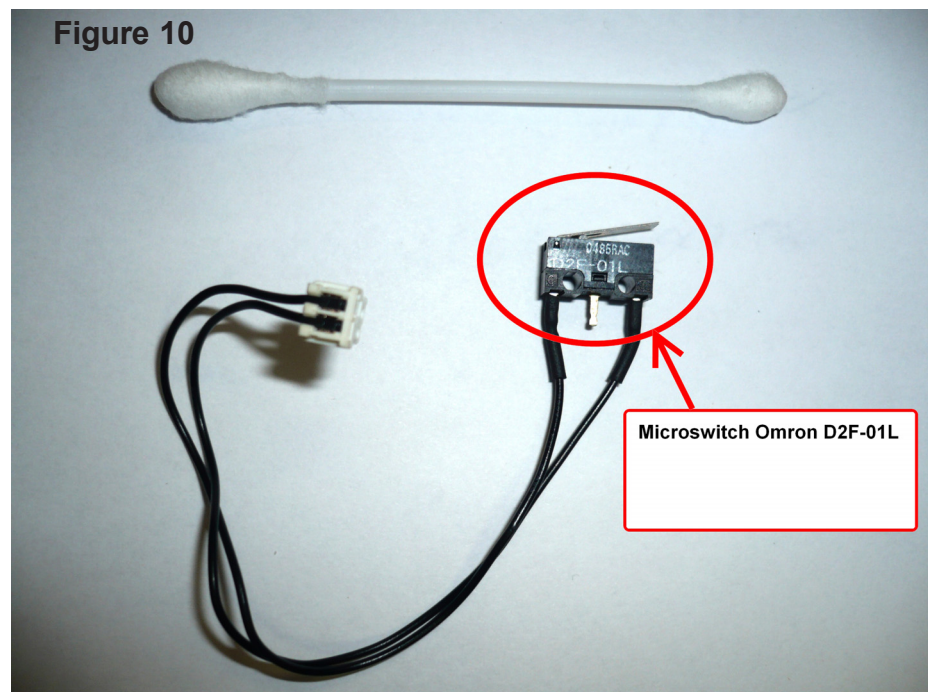


Figure 10

1.2) Sensor "Burst":

This sensor senses the presence of the ticket paper after it is inserted into mechanic drive at a time when the sensor "Top of Form" sees black square. Also, this sensor senses the

3.5V (typically 4.5V).

- With ticket less than 0.2V, (typically 0.15V) while fast dragging a ticket up and down value highest variation is 0.02V.

If the sensor is worn, inferior quality, then value with

retracted the ticket is higher than 0.2V and changes more than 0.03V during ticket fast dragging. This is because the infrared LED beam from sensor reflected from the ticket paper is too weak for perfect completely saturation the phototransistor in sensor. If the measured parameters are not all right, then it is appropriate to modify or replace the sensor. Modification the old sensor I will describe later. Possible replacement except the original: OPB702R manufacturer Optek (Mouser, www.rlx.sk).

1.3) Microswitch "Cover Open". This microswitch senses the position of printer doors "Ticket Cover" item 17, Fig.4. To the control PCB is connected with 2-pin connector CN4. In the event of a fault not possible writing new settings and uploading new firmware into the printer when the microswitch contacts are perma-

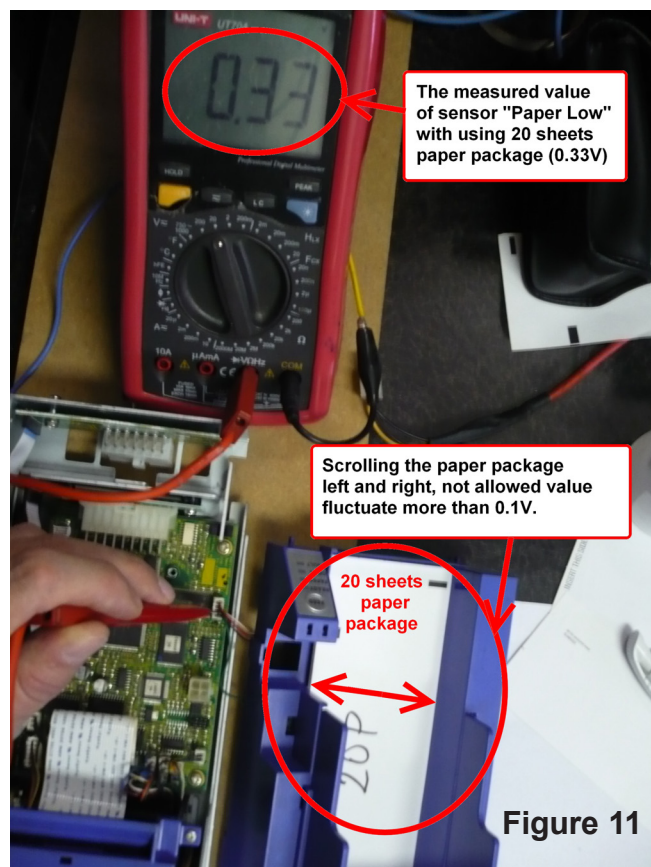


Figure 11



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nently disconnected (but "Ticket Cover" is open). Or if microswitch contacts are permanently switched (but "Ticket Cover" is closed) the printer is unresponsive to inserting paper after power on.

Microswitch parameters measured with voltmeter connected to the pin connector CN4 closer to the flat cable to the "FEED" button and the second terminal a voltmeter is connected to GND.

The correct parameters are: "Ticket Cover" open - less than 0.02V, the value should not be variation (bad microswitch contact). "Ticket Cover" closed - typically nearly 5V.

If after repeated opening "Ticket Cover", the value varies, it is necessary to replace the microswitch. The microswitch is in Figure 10.

Possible replacement: D2F-01L manufacturer Omron (Mouser, Farnell Element 14, <http://www.soselectronic.com/> \$ 1.2 each) or equivalent with maximum current of 0.1A for voltage to 30V.

1.4) "FEED" button and status leds.

This button is used to: activation the printer to upload mode for write a new firmware together with during power is turned on with the "Ticket Cover" open and eject the printer from chassis.

for leaving one blank ticket - short press in normal

mode.

for to print the configuration ticket which shows the current printer settings - press and hold the button in normal mode.

LEDs are used to display the preliminary status of the printer.

1.5) Sensor "Ticket Taken". The sensor senses the presence or absence ticket for output of the printer.

His total lifetime is very long, but the accumulation of dust too high so it needs to be cleaned about once during the three years.

This is only single sensor that will not last set service interval of five years without cleaning, but this sensor fault (soot dust) cause a relatively insignificant error that manifests itself quick flashing exit bezel, which indicates false report that the printed ticket was not pulled.

To the control PCB is this sensor connected 4-pin

blue connector CN7 and cables with a blue sleeve. Sensor parameters measured by a voltmeter connected to the white wire (pin connector CN7) and a second terminal voltmeter is connected to GND.

The correct parameters are:

- without ticket in printer output - less than 0.3V
- with ticket in printer output - more than 3.5V (typical 4.5V).

If that value without ticket after cleaning is more than 0.3V, then is suitable sensor to replace or modify.

Modification the old sensor I will describe later.

Possible replacement except the original:

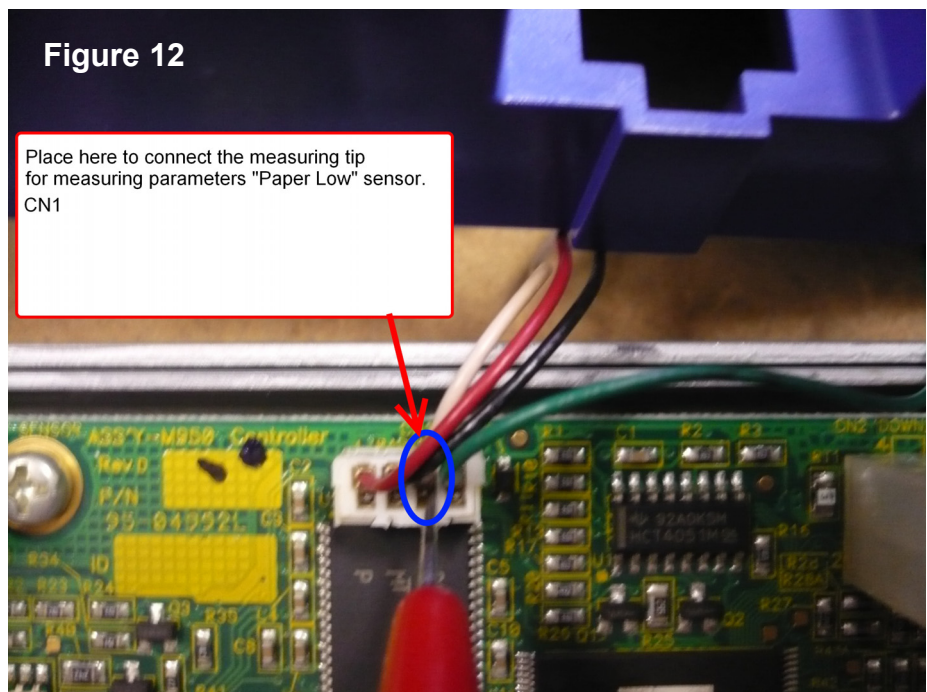
OPB891T51Z manufacturer Optek (Mouser, www.rlx.sk \$ 4.4 each).

1.6) Sensor "Paper Low".

If you need this attention to a short supply of tickets, then the sensor is very important, but if you do not need this feature it is pos-

Figure 12

Place here to connect the measuring tip for measuring parameters "Paper Low" sensor. CN1



sible to block the sensor information by switching DIP switch #2 to OFF on the control PCB.

To the control PCB, the sensor is connected to 4-pin connector CN1.

Sensor parameters measured by a voltmeter connected to the white wire (pin connector CN1) and second terminal a voltmeter is connected to GND.

The correct parameters are:

- without tickets - more than 3.5V (typically nearly 5V)
- with 20 pieces of tickets is less than 0.3V and the package of tickets you scroll left and right may variation maximum 0.1V.

In the event that the value of 20 pieces of tickets more than 0.3V or variable, then it is appropriate to modify or replace the sensor. Modification the old sensor I will describe later.

Possible replacement except the original:

OPB755TZ manufacturer Optek (Mouser, www.rlx.sk \$ 2.50 per piece), but some pieces of the manufacturing tolerances are poor, so it is appropriate to perform modifying.

In Figure 11a, 11b is shown the sensor measurement procedure "Paper Low" and other sensors.

To be continued

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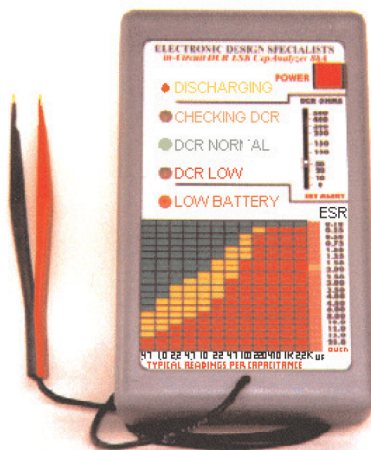


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Quick & Simple Repairs #94

By Pat Porath



Fiber Optic Troubleshooting

I had the opportunity to assist with troubleshooting a fiber optic problem. At first, we didn't know if it was a computer switch problem, connection, broken cable or a problem at the fiber hub. The Cisco 12 channel switch (fig A) wasn't working properly. We knew this because there weren't any lights ON at the fiber transmit and receive port. Also the lights above the CAT-5 cables weren't flashing rapidly, two indications we had an issue somewhere. I've run into a couple of situations where a reboot of a computer switch fixed the problem. No so in this situation. During a reboot, a switch goes through a self test and all of the indication and channel lights should light up. They did but shortly thereafter, it was still dead. Fiber optic connections were reseated which didn't help either.

Our IT department had to be called to check out the

switch. One of them did and he replaced the fiber port. Back at the bank of Wage Net WMS games, the switch was reconnected and booted up. The same error occurred once again, no rapidly flashing lights indicating communication. A co-worker grabbed one of our pieces of fiber optic testing equipment. This unit connects to fiber cable or a fiber connector such as a fiber optic hub (kind of a junction box of fiber, where a bunch of cables meet from different banks of games). When connected and turned ON, it sends LASER light through the cable to the end and the light will be easily visible if the cable and connections are good. It may get a little confusing, I admit I was a

little at first. Our configuration or map of fiber on one of our WMS Wage Net game banks (original problem, games wouldn't boot up from server) comes FROM a computer switch in one of our computer rooms, TO a fiber block in same room, from there TO a fiber hub located near the center of the gaming floor. From there it goes TO the switch located under a game in the bank. Since we looked at a bunch of things at the bank of games, we moved on to the fiber hub. As pictured in fig. B, this is a fiber hub with the cover on. Sort of a bunch of fiber cables with a butt connector joining the two cables together. Picture fig. C shows the hub with the cover off. The picture also

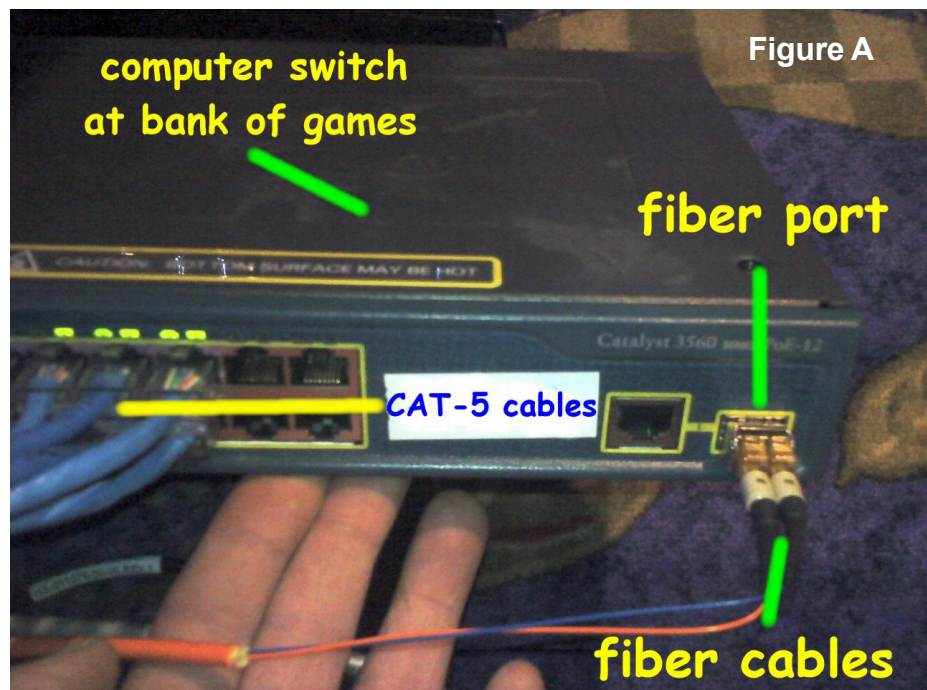
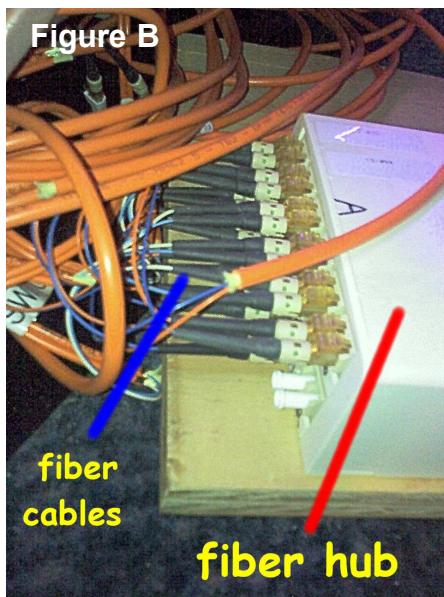
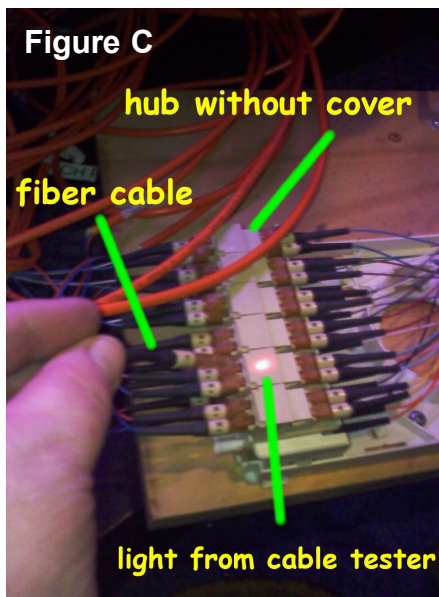


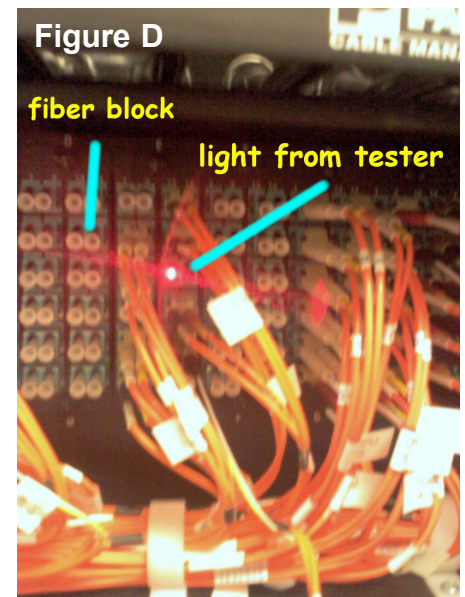
Figure A



shows the “fiber test light” connected to a suspected bad cable. The cable test good because light was easily seen, which also can easily be seen in the picture. When the cable is connected to the butt connector in the hub, only a tiny amount of light should be seen around the connector. If a large amount of “lost light” is seen, the connection may be bad. From the hub, we went to the fiber block in the computer room (Fiber block, picture D). With the light emitter still connected, you could see light, as pictured. One cable looked good while the other was a little dim (one cable for transmit, the other receive). Since one had dim light, a new cable end was put on. When tested once again, there was strong bright light which meant now it was good and should work. Different channels were also tried in the computer room switch (picture E is large computer switch in computer room). The suspected channel tested OK with a known good cable so we knew that one was OK.

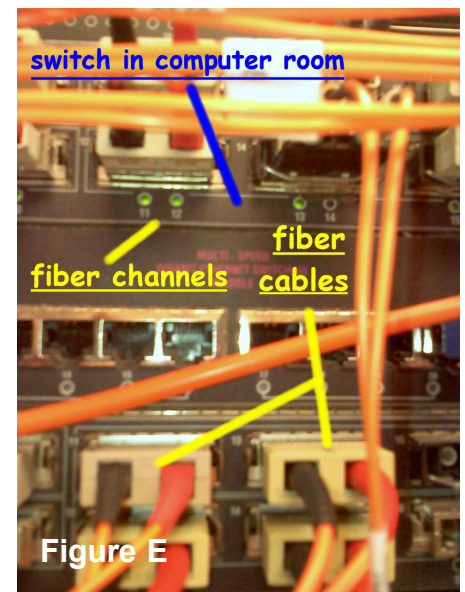


So, one connection was a little bit loose at the hub, along with a possible bad cable end which was replaced. Now it was time for the real test. Everything was plugged back in to their original channels and connections. The switch at the game was power cycled; it should work this time. After a minute or so, lights were flashing rapidly which was a very good sign. Now we even had a transmit or receive light next to the fiber port on the switch. To make sure, the channel on the switch in the computer room was checked too. It also looked good. Since the original problem was a WMS Wage Net game not booting up because of lost communication from the server, it was powered up. The game started booting normally and continued unit game graphics appeared. Everything finally looked good, the game was back online. It appeared the main failure was a bad cable end located in the fiber block and a slight loose connection at the hub didn't help either.



IGT “sign in problem” with games

The bank of games were IGT “Wheel of Fortune Experience 2,” a new model video slot slant top. The problem was that customers weren't able to sign in to enter the leader board when playing the game. Wheel of Fortune Experience 2, Texas Tea, and WMS' Lord of the Rings and Star Trek (to name a few) all have a customer sign-in area in where they can enter their user name along with their password to continue bonus levels or



to put their name on a leader board when they achieve high score. On the IGT Wheel of Fortune video slots, the customers were unable to sign in. After money was inserted, the virtual button of the game wouldn't even light up; it would remain dim indicating a problem.

A tech from IGT arrived in the morning to do a follow-up to make sure it was working. The previous afternoon it wasn't working either, the IGT tech wasn't sure exactly what was done but it was working again. When we tested it in the morning, it was not working again (In my opinion, one of the worst problems are when they are intermittent). We started with minor things such as rebooting the games, rebooting computer switches and checking connections. Nothing seemed to help the problem. On a computer switch in our DPU room a.k.a. phone room or data room, the switch channel number 5 wasn't even lit up, indicating the unit didn't even see the CAT-5 cable plugged into it. A CAT-5 cable tester was used and it showed a short in the cable. Maybe the cable ends were bad? New CAT-5 cable ends were installed on both the game side and the switch side. Still a no go, the tester showed a short once again.

What was left? Possibly a pinched or bad cable. The cable was inspected as it was traced FROM the game TO the DPU room and right

at the bank of games it was obvious the cable had a bad pinch in it, perhaps caused by a game sitting on it. The cable was straightened out and tested once again. This time it had a different error, so it looked like the pinched cable was indeed the problem. It was straightened out, games rebooted, and it worked! When a test ticket was inserted into the game I was able to sign in and all was good. However, if it happens again, the suspected bad part of the cable will have to be cut and a new CAT-5 end put on providing there is enough slack in the cable. The pinch was around three feet or so from the end, so it may be close. Otherwise, a replacement cable will have to be run from the DPU room to the games.

Kind of crazy but later on in the day, we had our Bally Michael Jackson games go into a "broadcast progressive error." One of my first thoughts was "Oh crap, was something bumped in the DPU room that knocked them out? What the heck was it...slot machine network problem day?"

The computer switch, progressive controller and cable extender were rebooted at the game without success. In the DPU room, the computer switch for the Bally games was rebooted too. Once it had completed the boot up process, I did not have both TX and RX LEDs lit up (transmit and receive data). A co-worker called Bally.

They informed us that they were having issues on their end. A bit later, the errors cleared and the games were back up.

WMS Bluebird, Screen Frozen "Call Attendant"

While checking our "Oasis Floor Logics Monitor" I noticed a game that it had a serial communications down, where the game wasn't talking to the Oasis system. When checking out the game, the screen was totally frozen on "call attendant." The screen didn't show a door open M, it didn't have the audible door open beep, and when pressing the diagnostics button, nothing happened. As stated...totally froze up. A quick power cycle may do the trick but what CAUSED the game to freeze up? Since it was a Bluebird 1, there wasn't a hard drive involved so maybe a faulty processor board or power supply was to blame?

Immediately after opening the logic board door (processor board, main board, logic board...all basically the same) I almost thought a dust bunny was going to come out and bite me! There was a lot of dust covering and caked on and in key components such as both cooling fans and cooling fan vent areas. No doubt the board had to be removed and blown out with compressed air. With a little luck, nothing over heated too badly and fried. It was very simple to remove, even if the board was locked and if it had security tape on the exterior, it still

had to be removed and blown out. After it was removed, blown out with compressed air, cooling fans quickly inspected to make sure they turned easily, it was installed back into the game. Once powered up, everything appeared to be loading fine, then the game graphics appeared. All looked good, I had my “door opened” and “door closed” on my Oasis display which meant game to Sentinel COM. After the main slot door was closed for the final time, the bill acceptor lit up and the touch screen worked too. It appeared nothing fried on the processor board and all was OK.

Bally “Pawn Stars” Game-Spin Button Not Working
I received a complaint that a “Pawn Stars” spin button wasn’t working. The button itself appeared OK; it had snug connections and when it was removed, the mini cherry switch made the correct “clicking sound” when pressed ON and OFF. Most of the time, the mini cherry switch is good when it “clicks.” A meter should be used to verify.

So, why doesn’t it work in diagnostic mode? A quick inspection of the button, connection and wiring looked very good. I Next, the wiring needed to be traced FROM the button TO the backplane board. Along the slot door and down the side of the game, on the way to the backplane... what was this? The darned wire harness was totally unplugged! Who knows how or why. I couldn’t even

guess. Simply plugging the connector into the correct socket fixed the problem. The button NOW worked in test mode and was OK.

IGT AVP Slant Top Mystery Progressive Not Communicating

On most mornings, I try to check our “SPC machine status” which has a total of 53 games on it, 40 tri-level progressive games along with an additional 13 games on a single level Mystery Progressive for our Prize Bank. While taking a look at the “Secure Progressive Controller machine status,” one game had a slash (—) which meant the SIB board (progressive board inside game) wasn’t communicating with the system. There is a spot in the program to click on that is marked “reset” but after a few tries, it was time to check into the problem further. Once at the game, the problem was very obvious. Why didn’t the SIB board have power? For some unknown reason the power cable had become a little bit loose, just enough not to have a connection. After it was snug in place, power was established to the SIB and it looked fine. Just to make sure, machine status was checked again at the controller. One more reset with a click of the mouse and it was fine.

Oasis Sentinel III No Display

In some cases with Sentinel IIs and Sentinel IIIs, if you have a display problem it may in fact be a bad dis-

play. Replace it and done. What if an easy replacement doesn’t fix the problem? With this particular Sentinel III, a replacement display did not fix it. We also replaced the OS card, cleared RAM and tried a few reboots of the Sentinel. Even the Sentinel itself was replaced but still no display; the screen was dark. I was asked if I knew any tricks to fix it. My only response was possibly a RAM clear, which had already been done.

During all of the troubleshooting only a red LED and a yellow LED would light up. When the unit is functioning properly, there is supposed to be lots of lights blinking and flashing such as a blinking red and green light signaling game TO Sentinel communication. So, what was one item that was original during all of the troubleshooting? The answer is the graphics CF card. One card is the OS, the other is for graphics that display things such as advertising for a casino restaurant. For some unknown reason, the bad graphics CF card didn’t allow the unit to boot up. When the card was removed, the display worked fine. After a replacement card was installed into the Sentinel, there weren’t any more problems. Kind of unusual but a bad graphics CF card didn’t allow the display to work.

- Pat Porath
pporath@slot-techs.com

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