

The logo for sti electronics inc. features the word "sti" in a large, bold, blue sans-serif font. Above the dot of the "i" is a circular icon containing a stylized circuit board with a diagonal line. To the right of "sti" is the word "NEWS" in a white, bold, sans-serif font. Below "sti" is a horizontal line with a small circle at each end, followed by the word "electronics" in a smaller, white, sans-serif font, and "inc." in an even smaller font with a registered trademark symbol.

# sti<sup>®</sup> NEWS

electronics<sup>inc.®</sup>

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## DAVE'S WORLD



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## A CLEAN START

We've had an interesting start to our year with our community spending a lot of time on the national news for all of the wrong reasons. We had a plane crash at the end of our street, a shooting at a junior high (that one was particularly close to home), and the UAHuntsville shootings. Those things have always happened somewhere else but when they all happen within 10 miles from the office and all within a few days of each other makes you take notice and really appreciate all the good things that happen every day. If you watched any of the coverage of the UAH shootings, you may have noticed in some of the broadcasts the ground was covered in snow. We've had five different snow events already this year which is about 4½ more than usual. It is a Southern thing that whenever snow is in the forecast everyone goes to the store to stock up on eggs, milk, and bread. We all have plenty of French toast now.

Businesswise, STI is off to a good start in 2010 and I hope the same is true at your business. Overall sales are up 30% over last year and the next couple of months look good also. Although in the kind of business we are in, looking much beyond this afternoon gets fuzzy really fast.

We were excited to win the contract from IPC to write the Training and Certification Programs for both IPC-A-610E and J-STD-001E. Writing a program like either of these is a lot of work so you can imagine writing two and having only a short time to do it. Pat and the rest of her staff will certainly be busy for the next couple of months. We have written several of these before and appreciate IPC's continued confidence in STI to develop a quality program based on these truly worldwide standards.

We recently welcomed Jessica Rheame to our staff of the world's best assembly and solder instructors. Jessica comes to us from the US Navy where she was a 2M Instructor. She already had the technical knowledge but has been immersed in learning the IPC specifications and most importantly "The STI Way". If you are one of our many "regulars" for your

certs and re-certs (and I thank you for being one), I'm sure you'll be meeting Jessica soon and I'm anxious to hear what you think.

We shipped an order of Training Kits to Bucharest in February which made Romania the 46th country we have sold in. (Of course, along with all 50 states.) Know anyone in any place ending in "stan"?

We recently received our ISO 14544-1:1999 Clean Room Certification. A lot of work has been put into making our clean room first class in every way and Casey Cooper and David Robinson deserve the credit.

The world and our industry lost a great person on February 7th when we lost Rich Freiberg. I wrote in an article a few years ago about walking into my first SMTA Board of Directors meeting and there were eleven really smart people and me. Rich was there and became a good friend and a trusted advisor. Rich had been putting up a fight against cancer for well over a year. Mom, Dad, and I were fortunate to have dinner with Rich and Liza at SMTA in San Diego in October. Our thoughts and prayers go out to Liza and their daughters. Rich will be missed.

We will be exhibiting at the Atlanta SMTA Vendor Day in Lawrenceville, Georgia on April 15th (an easy day to remember). If you are going to be in the Atlanta area that day, come by and say hello and have one of Mom's famous chocolate chip cookies.

You can follow us on Twitter (daveraby) and/or Facebook (sti electronics) and get regular updates on STI's happenings.

Thank you for your support and please let us know how we can help you be more successful.

*David E. Raby*

## SOON TO BE RELEASED CHANGES FOR J-STD-001E AND IPC-A-610E

BY: PAT SCOTT

For the past five years the electronics world has been evolving and IPC has been on the forefront of these ever changing requirements. Industry has been waiting for the new E revision of the J-STD-001 and IPC-A-610 to be completed to be able to implement better process control and design. IPC has

documented these changes and both documents are getting ready for print. The curriculum is being developed as this article is being written. So let's focus on some of the major changes in both J-STD-001E and IPC-A-610E.

### J-STD-001E

- Criteria was added for non-collapsing solder balls to the BGA section
- Appendix changes:

J-STD-001D	J-STD-001E
Appendix A: Summary of Criteria Requiring Disposition to Nonconforming Conditions	Appendix A: Guidelines for Soldering Tools and Equipment
Appendix B: Guidelines for Soldering Tools and Equipment	Appendix B: Minimum Electrical Clearance – Electrical Conductor Spacing
Appendix C: Material and Process Compatibility Testing	Removed from E Revision. A separate process qualification methodology document is being developed.
Appendix D: Minimum Electrical Clearance – Electrical Conductor Spacing	Now Appendix B

- Criteria for heat sinks and thermal shunts are combined.
- No more text boxes. The requirements for each class are in brackets next to the shall requirement. Example [A1P2D3] .
- Materials criteria are all in one section.
- General assembly and solder criteria is all in one section.
- Criteria for staking and conformal coating has been expanded.
- Criteria for solder sleeves has been expanded to match IPC/WHMA-A-620.
- Table 3-1 Maximum Limits of Solder Bath Contaminants has been updated to include lead free.
- Added new SMT termination style (Flattened Post).

### IPC-A-610E

- Added more hardware pictures instead of drawings
- Addition of "shall" instead of "are to be", "need to be"
- Moved all damage criteria to one section
- Expanded solder sleeve criteria
- Criteria was added for non collapsing solder balls to the BGA section
- Added new SMT termination style (Flatten Post).
- Terminals – reorganized assembly/solder criteria for all terminals.
- Criteria for staking and conformal coating has been expanded.

These are only a few of the changes being made to the current documents. Be sure to look for additional criteria changes and updated curriculum in the near future.

STI is the only training center in the United States that will be conducting Certified IPC Trainer (CIT) and Certified IPC Specialist

(CIS) Beta classes for both documents. We look forward to providing you training once the curriculum has been completed. Be sure to check our web site for the latest update on availability. If you have any questions regarding this article please contact me at [pscott@stielectronicsinc.com](mailto:pscott@stielectronicsinc.com) or 256-705-5528.

## TRAINING SERVICES



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## NEW INSTRUCTOR JESSICA RHEAUME



We would like to introduce our newest Instructor, Jessica Rheaume. Jessica came to us from ESN in Chesapeake, Virginia where she worked in Gold Disk Program as a Gold Disk Verifier and as a Module Test and Repair Instructor. Prior to working at ESN, Jessica spent 10 years in the United States Navy as a 2M(Miniature/Micro Miniature) technician, three of those years as a 2M Instructor, before spending a year as a contract 2M Instructor with L3 Communications in their 2M repair shop. We welcome Jessica to our team and look forward to working with her.



## 2010 TRAINING SCHEDULE



### MAY/JUNE/JULY 2010

MONTH	DATE	CLASS	LOCATION
May	10-14	IPC Rework/Repair Instructor (CIT) Certification	Madison, AL
	17-18	IPC-A-610 Instructor (CIT) Recertification	Madison, AL
	19-20	IPC J-STD-001 Instructor (CIT) Re-certification	Madison, AL
	21	IPC J-STD-001DS Space Application Addendum to J-STD-001D	Madison, AL
	24-27	IPC/WHMA-A-620 Instructor (CIT) Certification	Madison, AL
June	01-04	Basic Soldering	Madison, AL
	02-04	IPC-A-610 Application Specialist (CIS) Certification	Madison, AL
	02-04	IPC Rework/Repair Instructor (CIT) Recertification	Madison, AL
	09-10	IPC/WHMA-A-620 Instructor (CIT) Recertification	Madison, AL
	21-25	IPC J-STD-001 Instructor (CIT) Certification	Madison, AL
	28-July 1	IPC-A-610 Instructor (CIT) Certification	Madison, AL
July	12-15	IPC/WHMA-A-620 Instructor (CIT) Certification	Madison, AL
	12-13	IPC-A-610 Instructor (CIT) Recertification	Madison, AL
	14-15	IPC J-STD-001 Instructor (CIT) Recertification	Madison, AL
	16	IPC J-STD-001DS Space Application Addendum to J-STD-001D	Madison, AL
	19-23	IPC Rework/ Repair Instructor (CIT) Certification	Madison, AL

To register for a course or for additional information go to [www.stielectronicsinc.com](http://www.stielectronicsinc.com) or e-mail us at [training@stielectronicsinc.com](mailto:training@stielectronicsinc.com).

## NEW RELEASES

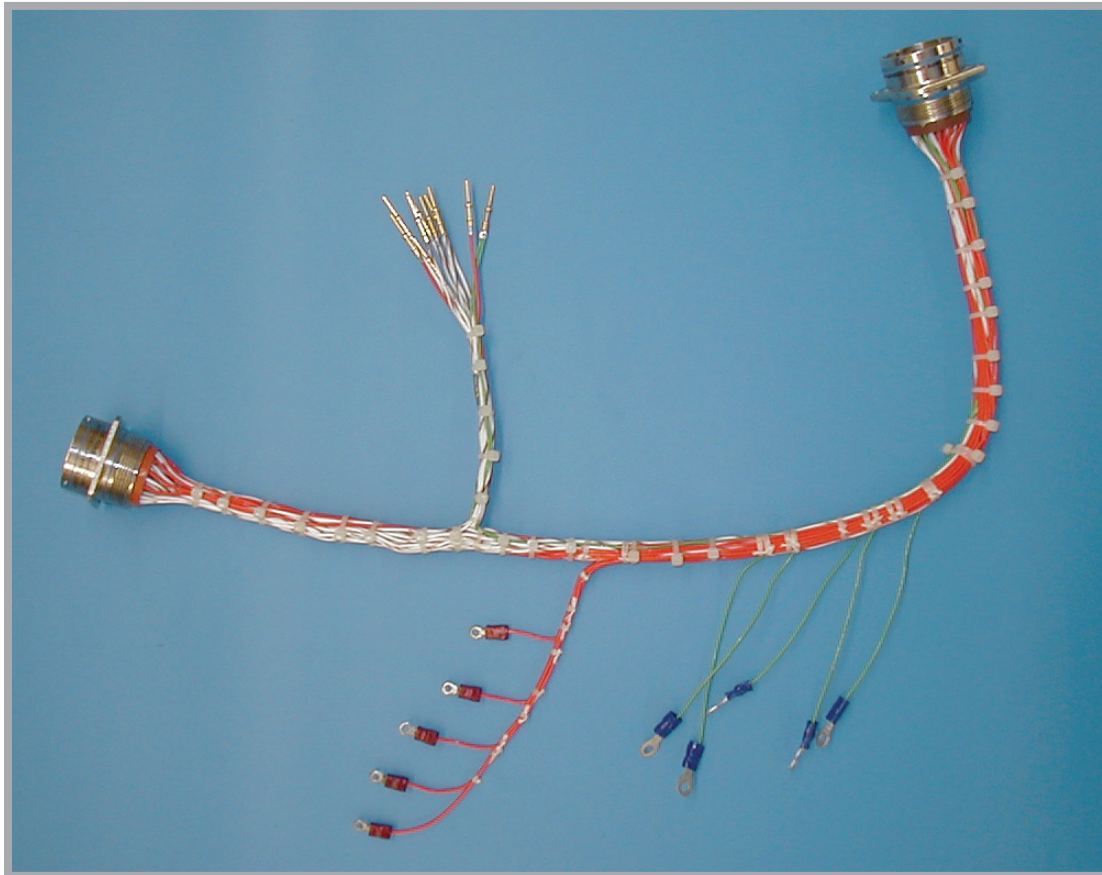
### BY: MEL PARRISH

The new STI Training Materials Catalog is available both as Hard Copy or On Line for viewing and/or downloading at [http://www.stielectronicsinc.com/catalog/STI\\_Training.pdf](http://www.stielectronicsinc.com/catalog/STI_Training.pdf). The new Training Materials catalog is a handy desktop size that was popular with many of our customers years back and includes solder training/process profiling kits, dummy/mechanical components, training aids, and training materials (specifically IPC standards and specifications). If you haven't received your copy yet, please let us know and we'll get it right out to you.

Our feature Training Kit for this edition is the

STI Cable and Harness kit. Originally designed to support Military and NASA cabling requirements it has broad application for many other facets of Quality Cable Process Training. The kit supports training for the IPC-A-620A Standard and that segment of the industry. Mention this article and receive a 10% discount from retail for your Cable and Harness Kits through the end of May 2010.

If you would like to receive a free copy of STI's Component ID Poster or a sample Lead Free Kit, please contact me [mparrish@stielectronicsinc.com](mailto:mparrish@stielectronicsinc.com) and we will get one out to you today.



**STI CABLE AND HARNESS KIT.**

## TRAINING MATERIALS



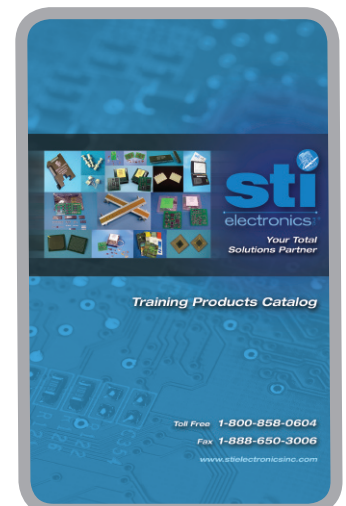
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## CHECK OUT OUR NEW TRAINING PRODUCTS CATALOG



VISIT OUR WEBSITE AT

**[WWW.STIELECTRONICSINC.COM](http://WWW.STIELECTRONICSINC.COM)**

## ANALYTICAL LAB



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## LEADTRACER-ROHS XRF SYSTEM

### BY: MARIETTA LEMIEUX

The LeadTracer-RoHS XRF system is a hand-held XRF system using a cobalt-57 x-ray source, designed specifically for the electronic industry to provide a fast, accurate and portable elemental screening capability. Rather than performing just a surface analysis, this XRF system analyzes the entire body of components in a short period of time. Its ability to analyze the entire energy spectrum

eliminates the possibility of false-negative indications in components.

This is especially useful when performing a quick screen for RoHS compliance. A decision will be made as quickly as possible to determine if an element is confident above or below the threshold with a 95% confidence level (pass/fail).

Figure 1 below shows an example of a RoHS compliance test performed on an electronic component:

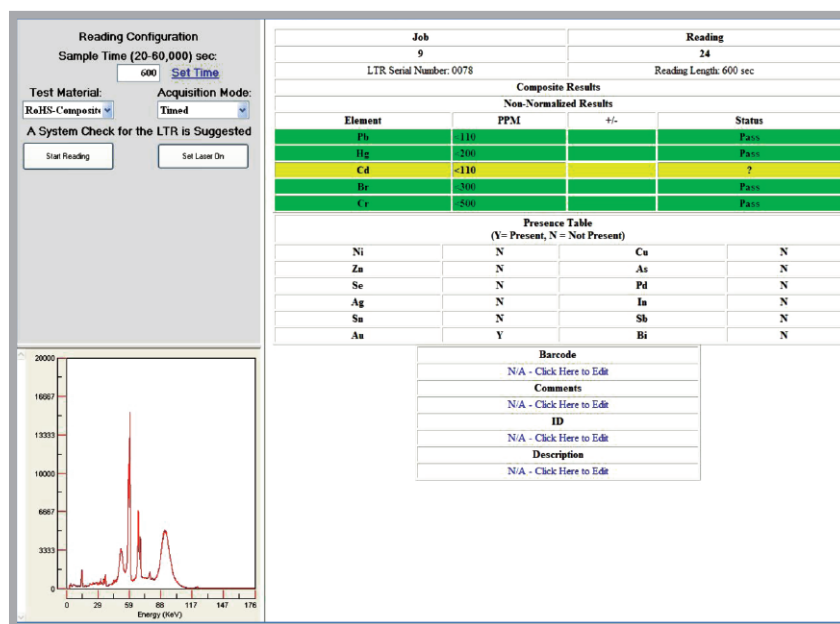


FIGURE 1: EXAMPLE OF RoHS COMPLIANCE SCREENING

As seen in figure 1, the screening covers the RoHS prohibited elements: lead (Pb), mercury (Hg), cadmium (Cd), bromine (Br) and chromium (Cr). It does not distinguish between the hexavalent and trivalent chromium, but rather analyzes the total amount of chromium present within the sample.

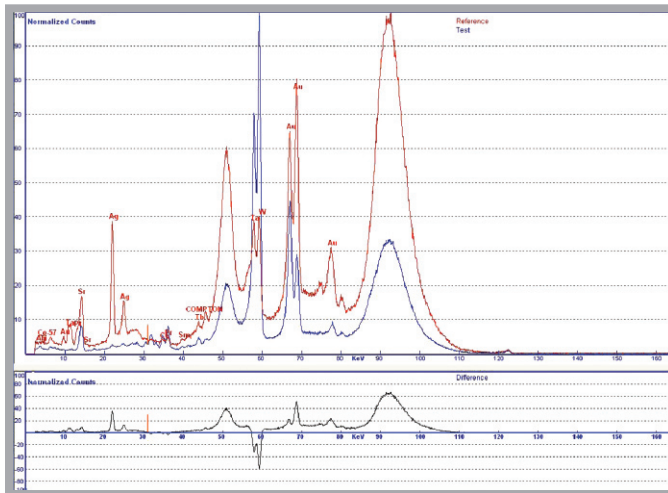
The system can also be used in the analysis of counterfeit components. As we all know,

counterfeit or substandard components are a major issue facing the electronic industry today. Counterfeit suppliers are getting more sophisticated and counterfeit or substandard components are getting much harder to detect visually. The system offers a quick and accurate elemental comparison between a known good (reference) component and a suspect counterfeit/substandard sample (test).



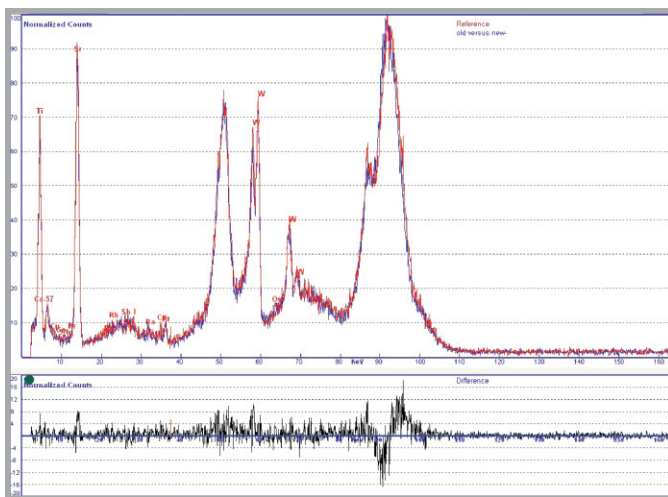
## LEADTRACER-ROHS XRF SYSTEM (CONT.)

Figure 2 shows an example of such an elemental comparison:



**FIGURE 2: ELEMENTAL COMPARISON COMPONENTS – ELEMENTAL MAKE-UP DIFFERENT**

Figure 3 shows another example of an component comparison, where the elemental make-up of the two components was found to be identical:

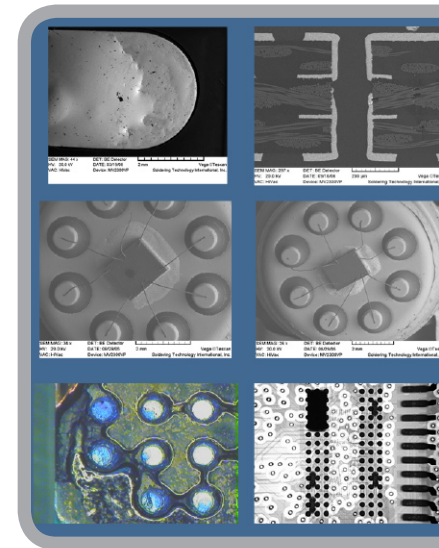


**FIGURE 3: ELEMENTAL COMPARISON COMPONENTS – ELEMENTAL MAKE-UP IDENTICAL**

XRF analysis services can be performed on any type of component or finished assembly to insure compliance and authenticity. Cobalt -57 is a deep penetration radioactive isotope and thus can gather elements below the surface which adds to its unique capability of nondestructively capturing elements and placing them into a spectrum for comparison as shown above.

If you would like to have more information on XRF analytical lab services, please contact Marietta Lemieux, Analytical Lab Manager, at [mlemieux@stielectronicsinc.com](mailto:mlemieux@stielectronicsinc.com) or 256-705-5531.

## ANALYTICAL LAB



## ELECTRONIC SALES & DISTRIBUTION



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## STI PROVIDES YOUR TOTAL SOLUTIONS FOR ESD BY: SISSIE ECKSTEIN

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## 3M EM EYE METER OFFERS VERSATILE SOLUTION FOR ESD, EMI AND RF DETECTION



The new 3M brand EM Eye Meter provides three devices in one unit. The meter consists of a base unit and three separate sensors for electrostatic discharge (ESD), electromagnetic interference (EMI) and radio frequency (RF) detection. The modular design can save manufacturers money by allowing them to purchase

the functionality they need, when they need it.

The EM Eye Meter instantly displays information on its color touch screen and logs data on an SD card. The 3M meter is the only known one of its kind currently on the market that offers a touch screen display, offering incomparable convenience and ease of use. The meter's hand-held size provides portability and allows manufacturers to check their control plans more often, po-

tentially reducing production disruptions.

The ESD sensor identifies steps in the process where ESD events occur and verifies that ESD control methods are functioning as designed, helping to reduce the cost of controls and increase the speed of diagnosis. It also contains an ESD event counter that tracks the number of events above the set threshold and records discharge strength so that immediate, effective adjustments can be made.

The EMS sensor detects and measures transient signals, minimizing interference with normal operation of sensitive equipment. The RF sensor detects receptions of transmitted signals. The sensor provides for exceptional sensitivity and true RF input.

The EM Eye Meter can be used in a broad range of manufacturing settings, including printed circuit boards, hard disk drives, defense and aerospace, medical equipment and semiconductor. The meter is also a good fit for companies that install and manage mobile phone towers.

## ELECTRONIC SALES & DISTRIBUTION



## UPCOMING ESD SEMINAR - APRIL 27, 2010 - 8:30AM TO 4PM COST \$40 PER PERSON

*Topics to be presented are as follows:*

### GENERAL INFORMATION

#### **EOS (electrical overstress) and static events**

**(ESD):** detection, measurement, prevention

**Foundations of ESD:** terminology, basic electricity and its relationship to ESD, basic ESD controls, how parts fail, models (HBM, CDM, MM)

**Grounding Principles:** how to measure ground and electrical potential on tools for potential EOS

### STATIC CONTROL FLOORING

**Surfacing & Grounding Materials:** applications and techniques

**Static Safe Packaging Materials:** applications and technical requirements

**Ionization:** what is it, how to properly test

ionizers, how to effectively use ionization, different systems

**Personnel Grounding:** examples, applications, considerations, methods

**Testing and measuring:** frequency of tests, methods, equipment, interpreting results, using and understanding appropriate tests, functional testing

**Continuous Wrist Strap and/or Workstation Monitoring:** principles of operation, attributes, trends, and systems used

**Program Design and Implementation:** static control as part of a Quality Management System

### ESD STANDARDS

**ESD S20.20:** what it is, how it works, implementation, use as a QMS

## ESD INSTRUCTOR BILL PELLEGRIN

Bill is a Technical Training Manager for 3M and works as a Static Control ESD Engineer. He was trained by the ESD Association as a Professional Program Manager for ESD S20.20 as a Lead Auditor for ISO 9000-2000. He is also a Six Sigma Green Belt and has thirty years experience with 3M Static Control, serving in various responsibilities.

To register for the ESD seminar or if you need additional information, please contact us at [sales@stielectronicsinc.com](mailto:sales@stielectronicsinc.com) or 256-705-5541

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## JIM'S CORNER



### JIM D. RABY, PE, TECHNICAL DIRECTOR

When time comes to write this short burst of news it is difficult to decide if it should be technical, political or about the last adventure taken by Ellen and I. I have many requests for each but I think I'll tell you about a magnificent trip Ellen and I had in January.

We went on the cruise ship Coral Princess from San Pedro, California down the coast of Mexico with frequent stops in Mexico as well as Central America. That part of the trip was nice and relaxing as well as educational. It was encouraging to see that in the cities we visited there appeared to be plenty of work (construction). The people we met were extremely nice and very proud of their countries.

Now let me tell you the real reason for this trip. We had heard and read about all the engineering challenges and ingenuity that went into the design of the canal. We had also heard of all the issues that arose as well as the people that lost their life during the construction of the canal.

What we saw was a true wonder of the world and to pass through it was a tremendous opportunity for which I will always be grateful. Did you know that with all the locks on the canal, there are no pumps? It's true. The locks are gravity fed from a great lake (Gatun) that feeds the upper lock. That lock then feeds the next and then finally feeds the sea level lock. For each ship

that passes through the locks it uses more than 1 million gallons of fresh lake water. The lake is very large and is fed by several rivers. As a result, the water level is never affected by this activity. The same process is followed going from the lake down to the Gulf of Mexico so it really takes 2 million gallons to bring a ship through. I sat on my balcony as we went through part of it and was able to watch the activity better in the locks beside us than the one we were in.

They are in the process of building a wider canal for larger ships to go through, such as the giant container ships and larger cruise ships as well as aircraft carriers and men of war. It should be an awesome process.

I suggest that you look at the Panama Canal trip as you plan your next vacation. Did you know that the canal runs north and south, rather than east and west as one would think? And the reward for going through are the wonderful memories that you will have. It is worth the money.

Well thanks for letting me ramble and thanks for all of the feedback I have received from previous articles. I look forward to hearing from you all soon.

Jim D. Raby  
[jraby@stielectronicinc.com](mailto:jraby@stielectronicinc.com)