

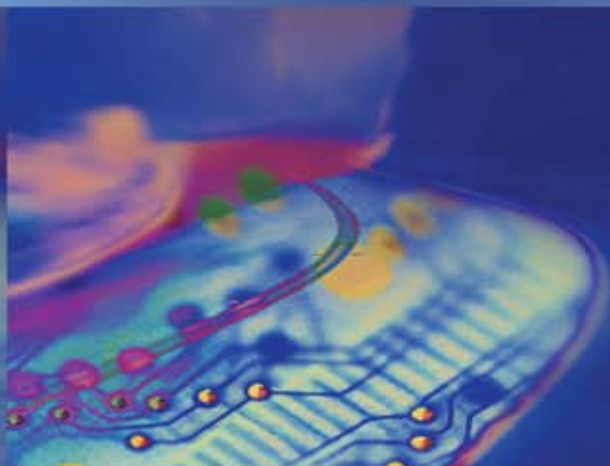
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*"Woman Owned Small Business"*

**Volume 7, Issue 6**

**October 2008**



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If everything goes as planned, this will be my last article written from our building on Tribble Drive. We've been here since 1993 and the building has changed considerably as have we as a company. Thousands of you have visited the building over the years but I know many of you haven't made it to Madison yet so let me tell you a little about 102 Tribble Drive.

We moved from 4,000 ft<sup>2</sup> in San Dimas, CA into this 8,000 ft<sup>2</sup> giant wondering the whole time what we were going to do with all of this extra space. In its prior life on 102 Tribble Drive it was home to a contract



manufacturer and an auto body repair shop. The building had been vacant for a couple of years prior to us moving in. The freight door in the back of the building had been left up about a foot during these vacant years (or so we are guessing). Jim & Ellen came from California to get the building ready for occupancy and tell stories of spiders the size of birds. There were so many layers of dirt on the floor that they weren't sure there was concrete under it. They cleaned it and built walls for a lab and two classrooms while I kept the business running in San Dimas. Once we moved in business picked up and we kept taking up more and more room. We remodeled a couple of times and then within a couple of years had to add on an additional 4,000 ft<sup>2</sup>. We've since remodeled at least three more times and we added a clean room that cost three times more than the original building. We also completely ran out of space and began leasing first 4,200 ft<sup>2</sup> and then another 2,100 ft<sup>2</sup> of space on Palmer Road (across the parking lot) which currently houses the classrooms, kit room, sales & accounting.

We've had several occasions where power surges have caused us to lose all or part of our power. On one of the occasions we learned that the problem was a squirrel (having a really bad day) at a substa-

tion and on another occasion it was a similar issue with a snake.

Being near the airport, we've been buzzed by a Concorde and the Blue Angels among others. We were also pleased to have Air Force One make a low pass while we were having a company cookout on the front lawn of our building. Many things we are proud of hang on the walls here in addition to Ellen's 400+ spoon collection. Two INC 500 awards as well as a new INC 5000 award (we're #4675!!). The INC 500 and 5000 awards illustrate why we need more space. Our Small Business of the Year award, ISO 9001 plaque and our IC/DT Patent also symbolize some of the successes we have enjoyed over the past few years.

We've come a long way from wondering what we were going to do with 4,000 ft<sup>2</sup> and as we prepare to move into a brand new 54,000 ft<sup>2</sup> facility, I have some of the same fears of how we are going to pay for it and what are we going to do with all of that space. Hopefully, I'll be writing to you in a few years with fond memories of 261 Palmer Road as we prepare for something bigger and better.



Thank you for your support over the years and we look forward to serving you better in the future.

*David E. Raby*

President/CEO  
draby@stielectronicsinc.com



# Training Services 2008: **Schedule**

## Madison Alabama



### October

- October 14-17 IPC/WHMA-A-620 CIT Certification
- October 20-24 IPC Rework/Repair and Modification CIT Certification
- October 27-31 MSFC/NASA-STD-8739.4 Cable/Harness Certification

### November

- November 03-06 IPC-A-610 CIT Certification
- November 03-06 MSFC/NASA-STD-8739.1 Staking and Conformal Coating
- November 10-14 IPC J-STD-001 CIT Certification
- November 17-18 IPC Rework/Repair and Modification CIT Recertification
- November 19-20 IPC/WHMA-A-620 CIT Recertification

### December

- December 01-04 IPC/WHMA-A-620 CIT Certification
- December 08-09 IPC-A-610 CIT Recertification
- December 10-11 IPC J-STD-001 CIT Recertification
- December 12 J-STD-001DS Update, Space Application Addendum to J-STD-001D
- December 15-19 IPC Rework/Repair and Modification CIT Certification
- December 15-19 J-STD-001 CIS Certification



Ann Duncan  
Training Coordinator

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).

## Training Services: **IPC-7711/7721B CIT and CIS Courses Now Available!**



Dan Foster



Greetings from Training Services! I am pleased to announce that we are now offering the IPC-7711/7721 revision "B" CIT and CIS Courses. These courses were beta tested in the United States and in Europe. Some of the changes that were made to these courses include more information on lead-free, decrease in the number of projects (in some areas), and the addition of a conductor repair project that lets the students repair a SMT land with a trace. We have worked very hard on both the CIT and CIS courses to make them more "Real World".

The course lengths are the same for the CIT courses and a few hours less for the CIS. This course can be conducted at our facility in Madison, Alabama or at your facility. These courses have been filling up fast so you will want to register as soon as possible to ensure you get a spot. I look forward to seeing each of you in the future.

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)

# Engineering Services: Evaluation and Detection of Counterfeit Components

By Marietta Lemieux, Analytical Lab Manager



Counterfeit electronic components have become a common problem for both military and commercial electronic assemblers and producers. If counterfeit components are inadvertently used in the assembly

process, the result is often unexpected premature failure of the assembly. To minimize the economic effect, early detection is of the utmost importance so that protective measures can be taken.

STI's Analytical Laboratory offers various services to investigate for counterfeit devices. Some of these services include the following:

- **Functional Testing**

Basic functional testing applicable to the type of component; if any of the basic functional tests fails for a lot, it should be presumed that the lot is either bad factory build or counterfeit.

- **Optical Inspection**

Optical inspection can help in the investigation of changes in the component architecture /materials and overall external features of the component.

- **X-Ray Analysis**

X-Ray analysis can be utilized to evaluate the internal features of the component, like die and wirebond size and location.

- **FT-IR Testing**

FT-IR testing can be useful in the comparison analysis of overmold material between different samples.

- **Elemental Surface Analysis (SEM/EDS)**

High magnification microscopy in combination with elemental analysis can be helpful in the evaluation of the overmold material and component lead metallization.

- **Chemical/Mechanical Decapsulation**

Chemical/mechanical decapsulation of components is used to expose the internal features of the component, such as the die surface and wire bonds. Several components can then be evaluated under high-magnification (SEM) and compared for physical and elemental differences.

The following images show some examples of counterfeit cases investigated in STI's lab. In all three cases these parts exhibited the same part numbers and date codes:

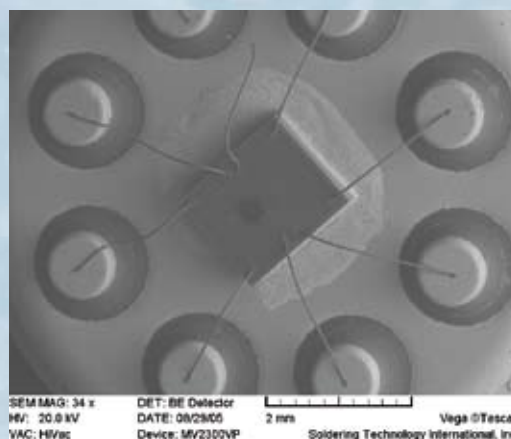


Figure 1a: Wire-Bond Locations Part 1

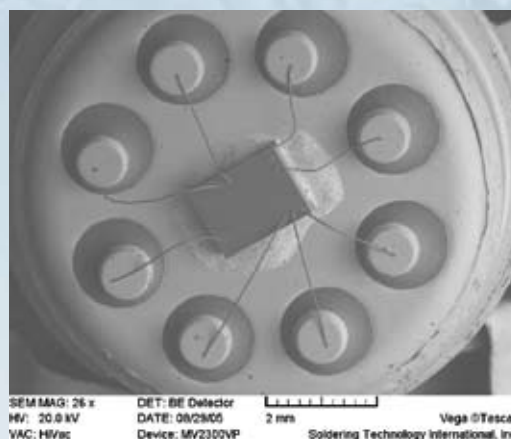


Figure 1b: Wire-Bond Locations Part 2

*Continued on next page*

# Engineering Services: Evaluation and Detection of Counterfeit Components

By Marietta Lemieux, Analytical Lab Manager

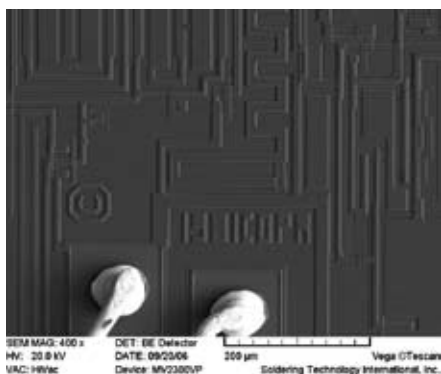


Figure 2a: Die Markings Part 1

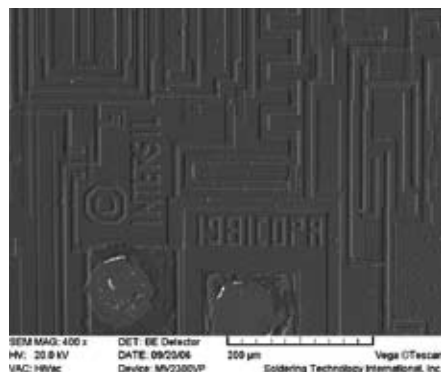


Figure 2b: Die Markings Part 2

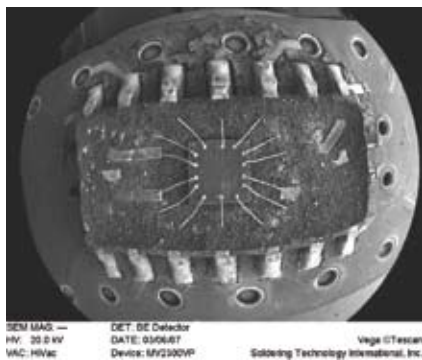


Figure 3a: Internal Features Part 1

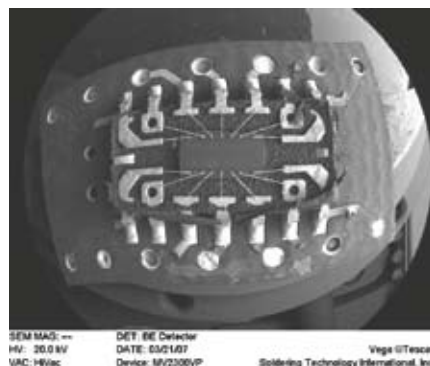


Figure 3b: Internal Features Part 2

For additional information on this article or analytical services, please contact Marietta Lemieux at [mlemieux@stielectronicsinc.com](mailto:mlemieux@stielectronicsinc.com).

## Counterfeit Electronics

Counterfeit electronics are becoming an increasing concern for the defense as well as commercial industries. Counterfeit electronics are not limited to those that seek a profit advantage by making parts that replicate a qualified component or material but additionally they may include functional capability. The counterfeit component or system could be designed to cause serious functional faults as desired or to transmit operational information to another unintended recipient when directed from an outside source. Routers are especially a concern since they are often imbedded in production hardware.

For more information on this and/or other security related issues go to the following web link:

[http://www.infoworld.com/article/08/09/15/US\\_government\\_focuses\\_on\\_securing\\_back\\_doors\\_in\\_tech\\_products-IDGNS\\_1.html?source=rss&](http://www.infoworld.com/article/08/09/15/US_government_focuses_on_securing_back_doors_in_tech_products-IDGNS_1.html?source=rss&)

To receive future issues of STI's newsletter electronically,  
please go to [www.stielectronicsinc.com](http://www.stielectronicsinc.com).



# Sales & Distribution: Features LUXO'S New 23mm Microscopes

By Sissie Eckstein, Sales Manager



Sissie Eckstein

*The right light*



Luxo has extended its industry-leading microscope line to include a new range of 23mm-based systems. These new System 273 Binocular and System 373 Trinocular microscopes offer 25% greater magnification, 15% greater field of view and 20% greater working distance than traditional models.

Luxo's traditional System 250 Binocular and System 350 Trinocular Microscopes provide an optical magnification of 225X while new System 273 and System 373 microscopes provide a total optical magnification of 270X. Similarly, while Luxo's traditional System 350 Trinocular microscopes provide a digital magnification of 255X, new System 373 microscopes provide a digital magnification of 400X. Magnification of both System 273 and System 373 models can be further increased with the use of eyepieces and accessory lenses.



Field of view is increased when viewed through the eyepieces of the System 273 and System 373 microscopes. Versus the traditional System 250 and System 350 microscopes, Luxo's 23mm line offers 15% greater viewing area.

The smaller, sleeker body of System 273 and System 373 microscopes occupy a lesser footprint on the worksurface. Working distance is 2" greater than that of traditional Binocular and Trinocular scopes when used with a 0.5X reducing lens. This increased working distance not only provides additional space for operator maneuverability, but also decreases the chance that products may become damaged during inspection.

System 273 and System 373 microscopes have heavy-duty aluminum housings and come standard with 10X, 23mm widefield eyepieces and eyeshields. The microscopes rotate 360° in their focus mounts. Both Binocular and Trinocular models have a zoom range of 0.7 to 4.5 giving them a magnification range of 7X to 45X. The zoom ratio of 7:1 is adjusted via dual graduated control knobs located on the side of the head. System 273 and System 373 microscopes can be used with Luxo single boom stands or dual boom ball-bearing stands.

For a demonstration or to place an order, contact one of our customer service representatives at (800) 858-0604 or [sales@stielectronicsinc.com](mailto:sales@stielectronicsinc.com).



## **PACE IR3000 BGA REWORK STATION**



BRAND NEW! The IR 3000 is the newest and most advanced component rework system available on the market. The IR 3000 is fully Area Array (BGA) capable and can also be used to remove and install most other SMT (and thru-hole) components. Infrared heat is used on the top and bottom side (no nozzles necessary!) and a witness camera monitors the reflow process. Software is easy to use and operators can be trained in less than an hour! For a demonstration contact our sales office at (800) 858-0604.



**Contact us at [www.stielectronicsinc.com](http://www.stielectronicsinc.com)  
to receive your FREE Catalog!**



# ***Training Materials: Real Parts, Dummy Parts and Interlopers***

***By Mel Parrish, Director of Training Materials***



Mel Parrish

Over the last year we have focused some effort to advise our industry counterparts on the reality and dangers of counterfeit parts and materials. While this is certainly not a new issue, since we dealt with it in the 80s also, it has become more difficult to detect the counterfeit products from the real ones. Counterfeiters have become much more creative in their efforts, even including quality documentation. Within our local Tennessee Valley SMTA chapter we were able to bring in an expert speaker (Leon Hamiter, CTG Inc.) who provided case studies that were very enlightening for both the technical and procurement sides of operations.

Often with the issue of counterfeit components or even counterfeit materials, we don't find out that they are involved until production or test. This is after the soldering process has occurred. Often this causes rework to be the only solution if scrap is not feasible.

STI has a full complement of Rework Training Kits that support consistent skill development using realistic assembled and unassembled boards. They were specifically created to support the IPC-7711/21 Training Program but work well for overall rework training. We also have a selection of components (sometimes Dummy parts) that can be used for practice or development of a particular procedure before the actual repair is undertaken. Let us help you find the best approach.

Of course the very best course of action is to use good procurement practices as an effort to avoid the counterfeit component and materials before they are incorporated. Buy from a reputable source.

## **FEATURED PRODUCT OF THE MONTH!**



The STI Wire Holder is better than an extra pair of hands when wiring up a connector or even just a terminal. Mention this article and receive 10% off of the regular price during October.

To place an order contact our customer service representative at (800) 858-0604.

## **Surplus Inventory Sale**

STI Electronics, as one of the largest distributors of electronic assembly and solder supplies, occasionally has overstock on some items. We have created a surplus inventory list with prices drastically reduced. The surplus inventory list is available at our website, [www.stielectronicsinc.com](http://www.stielectronicsinc.com), and is updated monthly. Please call (256) 705-5545 and ask for Sales or (800) 858-0604. Quantities are limited so don't delay.



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## **Jim's Corner**

*By: Jim D. Raby, PE, Technical Director*



As one becomes older, strange events occur. I just had the pleasure of attending the Republican National Convention in St Paul, MN. It was certainly a lesson in Civics 101. Each day was extremely tiring for one my age. Also, I had an opportunity to take part in several unexpected events. Events

that play a role in the very government that we gripe about.

I had the opportunity to shake hands with television faces. Faces that I never dreamed of seeing in person, those that you only see during news events and hear about in scandalous or extreme times when activity in our government seems to be out of control. I had the opportunity to tell congressmen and senators things that are of interest to "we the people" that they don't hear otherwise. Things like, I don't want to pay for health insurance of able bodied people who just will not work. I believe in paying taxes, fair and equal, but would like very much to see a national sales tax which would let the ones that spend the most money pay the most taxes. I want to see government stay out of the business of making laws that are already covered by the constitution but not implemented. Let the states take care of local needs, let local officials do their job, and down size government.

Every one of the politicians that I talked to about the above stated that they shared my views. Now isn't that scary? If they did, then why aren't they doing something about it?

It was great to hear the speeches by Fred Thompson and Rudy Giuliani. The "one liners" they had really got the crowd going. The show really blossomed when Governor Sarah Palin took the stage and the crowd with her speech. It was such an awesome speech and delivery was perfect. Then to close the show on Thursday night, John McCain was very strong, assertive and aggressive. I think he was empowered by Governor Palin.

So at this age of 74, I was in attendance at a history making event, the first time a lady has been nominated as a Republican Vice Presidential candidate. It was a tremendous opportunity for me and I can only thank my family and God for providing this opportunity to me.

May your days be filled with happiness as mine are.

Jim D. Raby  
Technical Director  
[jraby@stielectronicsinc.com](mailto:jraby@stielectronicsinc.com)