

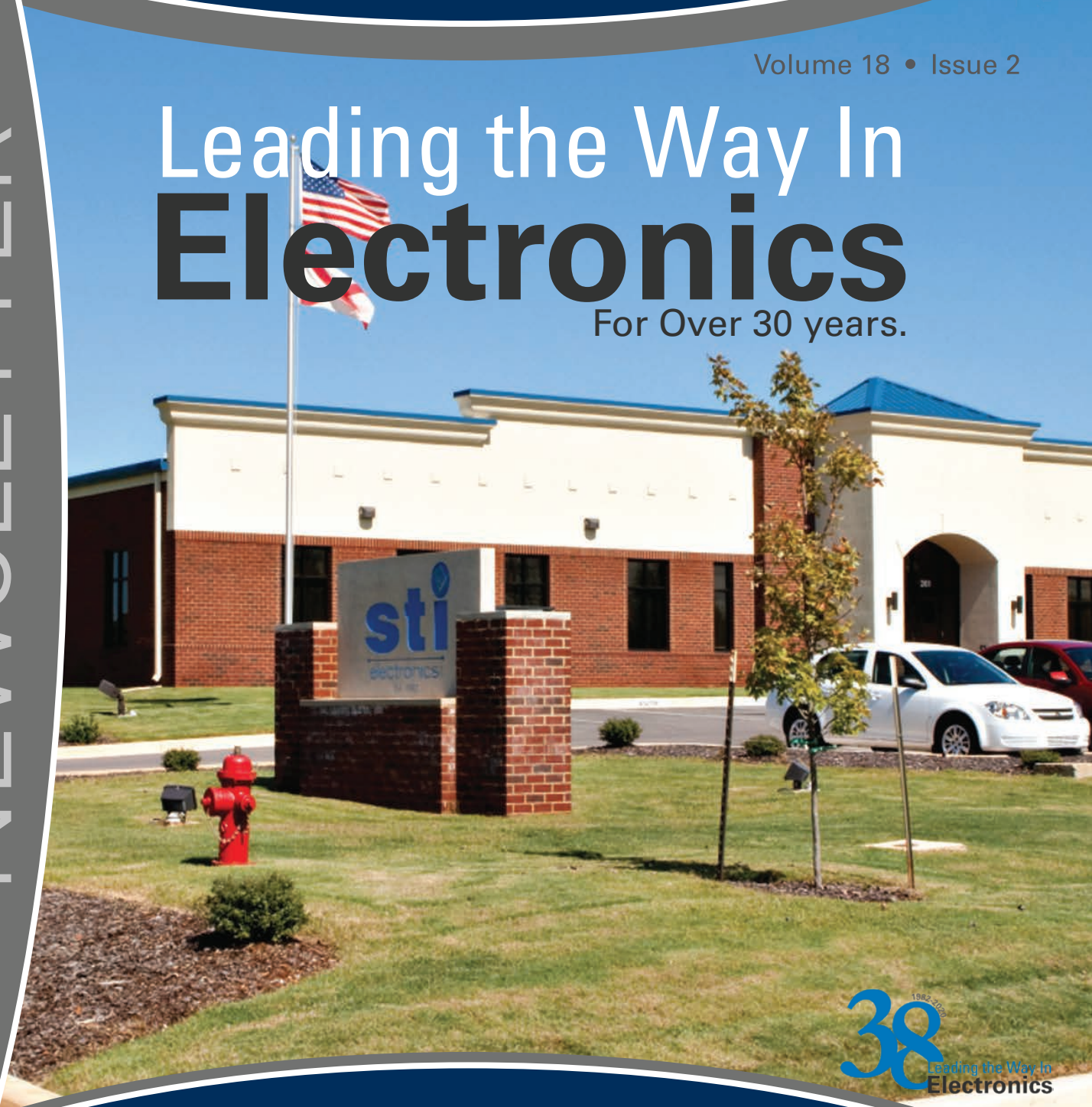


Volume 18 • Issue 2

# Leading the Way In **Electronics**

For Over 30 years.

NEWSLETTER



[www.stiusa.com](http://www.stiusa.com)

261 Palmer Road, Madison, AL 35758 • Tel: (256) 461-9191 • Fax: (256) 461-9566

# Contents

Volume 18, Issue 2, NEWSLETTER, 2020

## features

- 03 Dave's World**  
March, 2020
- 05 Tribute to Mel Scott**  
July, 1949 - May, 2020
- 07 Up Close & Personal**  
Chris Cosgray
- 08 Celebrating 38 Years**  
1982 - 2020
- 09 Engineering Services**  
Planar Micro-Voiding
- 13 On-line Classes**  
IPC Training & Certification
- 14 Training Materials**  
Mixed Technology Training Kit
- 15 On-line Chat**  
Chat With Us
- 16 Happenings**  
Anniversaries
- 17 IPC/WHMA-A-620D**  
While Supplies Last
- 18 Training Services**  
By: Frank Honyotski
- 19 On-line Proctored Exams**  
Solutions

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# Dave's World

June 2020

Mel Scott passed away May 10. Mel spent 17 years at STI Electronics where he served in many capacities including his last several years as Director of Quality. He was much more than any title he may have had. He was a friend and a mentor during his time at STI but also well before. I first met Mel and Pat (she's STI's Training Manager) back in the 1980s when Mel was at China Lake with my father. Mel eventually moved from China Lake to Indianapolis with the EMPF. We were able to persuade him and Pat (they always came as a couple or package deal) to move to Alabama and join STI (and rejoin Dad) in 2000. He brought a lot of industry and real-world experience to our team and helped shape the company we are today. Mel retired from STI in 2017 to enjoy time with family and assume full-time the title he cherished most which was "Papa".

I'll always remember in September of 2018, Pat told me Mel had been diagnosed with cancer and his long-term outlook didn't sound good. It is hard to describe how well Mel handled the situation. He visited STI a couple of times including our 2019 Christmas party. But it was his first visit that said the most about Mel. Pat called one morning and said they were going to be coming close by on their way home from a doctor's appointment and Mel wanted to know if he could stop by for a few minutes and talk with certain managers. I quickly agreed and gathered the team members he requested in our main conference room not really knowing what to expect. Mel came in and with both dignity and humor, told us the whole story of his diagnosis, treatment plan, and prognosis. He said he wanted to spend more time with family but he was also ready to leave this world. He knew his family wasn't ready to let him go so he was preparing for cancer treatments to buy him some more time. He then hugged each of us and went on his way. I remember telling my wife afterwards that I certainly hoped I never had to personally face what he did, but if I did, I could only wish to handle it half as well as he did.

Pat has been amazing through the whole process but if you are lucky enough to know Pat,

## David Raby

President/CEO

[draby@stiusa.com](mailto:draby@stiusa.com)





you wouldn't expect anything else. She has been with Mel every step of the way and somehow still managed STI's 3 training centers. We grieve with her but look forward to seeing her smiling face around STI again.

Things were strange when I last wrote my article for the newsletter and the past few months haven't changed that, although we have somewhat adapted to all the new procedures and recommendations as our standard way of operating. We've now reached the point (like the rest of the world) where we are relaxing rules either consciously or unconsciously and hoping we don't go too far. We had a customer visit in person last week and it seemed like a completely new experience since even most of our internal meetings now include people in rectangles on my computer screen. Business slowed considerably in April and improved some in May but now is back to at least where we had expected before the pandemic. Training has slowed because of travel restrictions but the second half of June is looking encouraging.

Frank Honyotski's 20th anniversary at STI was in May. If you've ever had any training experience with STI, you probably remember Frank and you've definitely heard him. He's been a Master Instructor and also serves as our Lead Instructor. Frank represents STI on multiple IPC standards committees including Chair of 7-34 Repairability Sub Committee and Co-Chair of the

7-34T IPC7711/7721 Training Committee. He's spoken at many SMTA chapter meetings and other industry gatherings. (Remember industry gatherings?) Frank represents STI well and we are proud to have him as part of our team. We'll have a 20th Anniversary celebration once we can get together again and Frank will get his own parking spot in front of the building. Additional work anniversaries include Christy Hill, Executive Administrative Assistant, 15 years, and Chuck Callahan, Kit Room Lead, 15 years. We are thankful for the work both do for STI and we look forward to celebrating many more anniversaries with them all.

While we look forward to our world getting back to "normal", it is obviously going to be different than our previous "normal". Be assured that STI is still manufacturing, analyzing, training, providing training supplies and maybe have a few surprises we can't talk about yet.

Thank you for your support over the years and we look forward to working with you moving forward. Please let me know how we can help you. Stay well.

*David Raby*





In Loving Memory of

*Melvin Arthur Scott*

JULY 7, 1949 - MAY 10, 2020

Mel was a unique and rare person who had principles that drove him throughout his life. Many remember him as a man passionately devoted to his family, an avid fisherman, and a collector of Invicta watches. Many more of us saw Mel Scott as a fighter. Although he succumbed to Stage IV lung cancer on May 10, 2020 at the age of 70, he put up a fight against this horrific disease and resisted the effects this sickness placed upon his body.



married at the Methodist Church in La Habra, CA on May 19, 1984. Pat loved Mel's two children from a previous marriage as her own. The two

welcomed another two daughters in 1987 and 1991 and their family was complete.

Mel worked for many years as Quality Manager at electronics manufacturing companies including EMPF and EMS. He began working at STI as Manufacturing Manager in October, 2000 and later retired as Director of Quality in October, 2017.

As a devoted family man, Mel loved spending time with his entire family and especially his grandchildren. He went out of his way to make sure they never missed an opportunity to participate in any activity they desired from dance at the Huntsville Ballet Company to Tae Kwon Do, soccer, wrestling, and many other activities.

Mel made an impression upon our lives and his memory will stay with us forever and although we have to say goodbye to Mel for now, he will continue to remain in our hearts.



Mel was born July 7, 1949, in Yakima, Washington. He was the second of five children. He went to school at A.C. Davis High School in Yakima and at the age of 18 he entered the U.S. Army and served in the Vietnam War. He earned his Associates Degree after he returned from the war.

Mel met the love of his life in an electronics engineering class in China Lake, California, and the rest is history. Patricia and Mel were





# UP CLOSE *and* PERSONAL

**“ATTITUDE  
*is everything*”**

## Interview with Chris Cosgray

*Meet Chris*

Manufacturing Manager

How long have you been part of STI Electronics, Inc.? **A little over 4.5 years**

What do you do for STI? **I ensure that STI's Engineering Services unit is successful in meeting customer requirements when it comes to schedule, quality, and cost all while conforming to our AS9100 Quality Management System**

*Just For Fun*



Do you have a favorite place to visit? **The beach**

What's your favorite type of music/song/artist? **Dave Matthews Band**

What is your favorite movie or TV show? **Favorite movie is Rudy. TV shows is anything on Food Network.**

What's your favorite meal/food? **A good cheeseburger or coal fired pizza**

Tell us about any hobbies that you enjoy. **I enjoy mountain biking, although its been a while. Believe it or not, I spend a lot of time in my yard mowing (sickening I know). Trying to get that golf course/baseball field look**

What's one fun thing to know about you? **I used to be an extremely quiet person. Those who know me now, probably wouldn't believe that. Not sure that's a "fun" thing though.....**

What's your favorite thing about working at your company? **The people. STI is filled with a great group of people who bring many different areas of expertise under one roof.**

What is your favorite non-profit to support and why? **The Humane Society or MARF (Madison Animal Rescue Foundation). We rescued our dog and my step-son enjoys volunteering there.**

Anything else you'd like to share with your team members? **No, I think I've pretty much summarized above. I'm kind of boring.**



38

1982-2020



Leading the Way In  
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**Thank You For 38 Years &  
We Look Forward To Many More!**





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# Planar Micro-Voiding

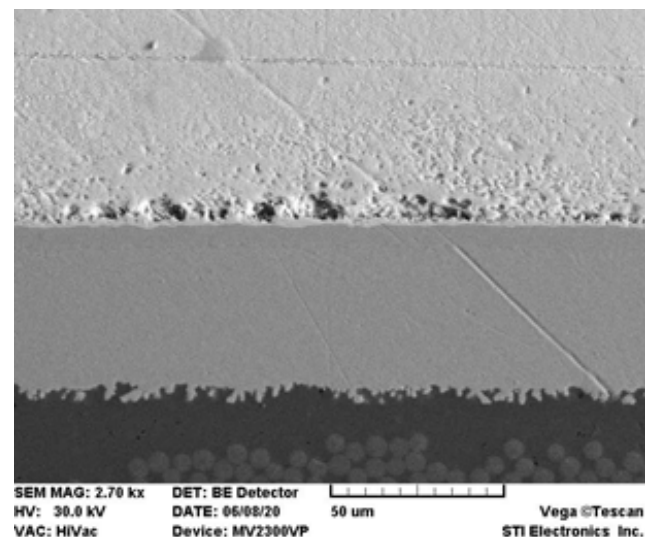
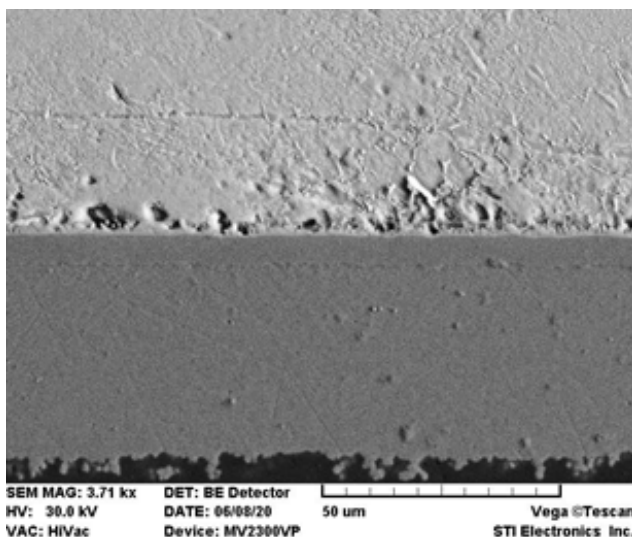
What is planar micro-voiding and why is it a reliability risk? Planar micro-voiding occurs along the intermetallic compound layer (IMC), typically at the PCB pad interface. They are observed to be very small voids ( $<25\text{ }\mu\text{m}$ ) along the topside of IMC layer. Planar micro-voids, however, differ from IMC micro-voids in their location. Planar micro-voids are found at the land-to-solder joint interface whereas IMC micro-voids are found within the IMC or between the IMC and the nickel barrier on electroless nickel immersion gold (ENIG) finished printed circuit boards. The presence of planar micro-voids can lead to areas of the IMC that are insufficient or inconsistent and subject to micro-fracturing and thus reliability related

issues. This allows for the IMC, which is already the weakest link and interface within an electrical solder joint or interconnection, to become even weaker and negatively impact long term reliability.

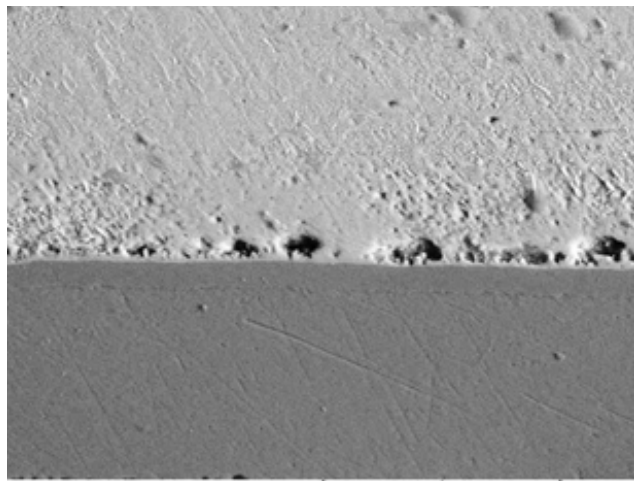
Currently, there is not a lot known in the industry on the root cause of planar micro-voids. It is believed to be a PCB plating issue, with variability seen from lot to lot – process control of the plating bath on a lot to lot basis. In some instances, a correlation has been observed between planar micro-voids and plating process control anomalies. However, this is not always the case and sometimes more

than one underlying issue can lead to the formation of these planar micro-voids, meaning the approach to mitigating the problem can be a multi-step or multi-variable solution. Analytical techniques are often used to help determine what could be the specific issues occurring on the PCB. This can include ionic contamination testing, XRF testing to evaluate the plating thicknesses, and an internal evaluation of the board through cross-sectioning and Scanning Electron Microscope (SEM) imaging. Solutions to try and reduce the presence of planar micro-voiding can include, but are not limited to, pre-cleaning the bare boards to remove any surface contamination that may be present, adjusting the reflow profile to aid in outgassing of volatiles with a longer dwell time in liquidous state, or changing the paste type or paste manufacturer to a more aggressive flux . Research is ongoing to better understand the science behind planer micro-voiding and mitigating this issue going forward.

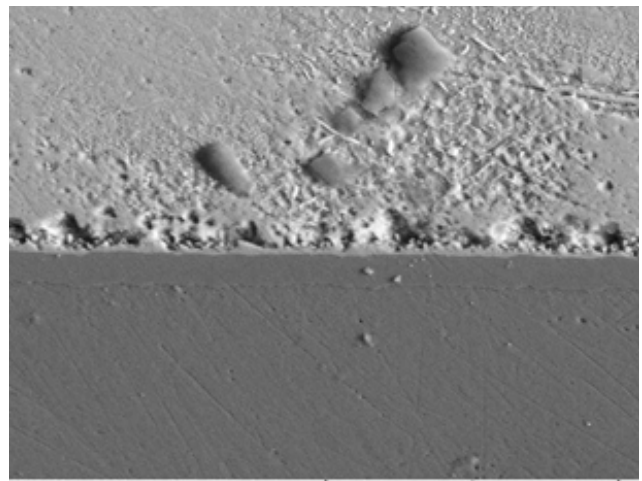
One hypothesis is the organic brighteners and chemical temperature stabilizer within the plating baths used in the electroless nickel or immersion gold bath is being released and concentrating along the intermetallic formation. These organic chemistries are outgassing during the intermetallic formation stage of the tin / nickel intermetallic and thus are creating this micro-voiding condition. More work is being done on this hypothesis in hopes of finding the root cause. Right now it is found as a potential reliability risk on a lot to lot basis or within a lot itself. Please see the following pictures for a visual aid in the location and size of the planar micro-voiding. Note some planar micro-voiding and IMC micro-voiding could be created by the same source since IMC growth inhibition could be caused by the same outgassing chemistries and thus the source of the problem may be interrelated. More to come as we dive deeper into this problem facing the industry.



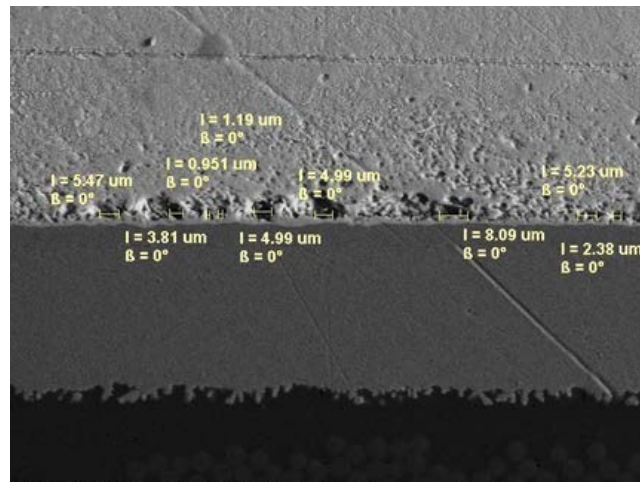




SEM MAG: 3.70 kx DET: BE Detector  
HV: 30.0 kV DATE: 06/08/20  
VAC: HiVac Device: MV2300VP  
50 um Vega ©Tescan  
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If you have any questions or comments  
please feel free to  
call or email

**Caroline Spencer, Ph.D.**

256-705-5531

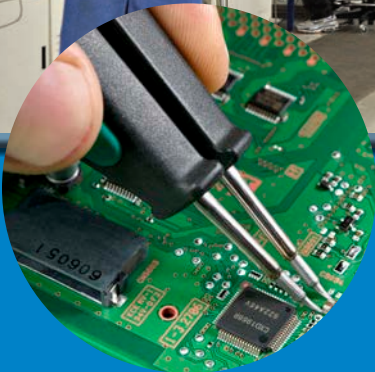
[cspencer@stiusa.com](mailto:cspencer@stiusa.com)

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[mmcmeen@stiusa.com](mailto:mmcmeen@stiusa.com)



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# On-line IPC Training & Certification

✓ Register Now



In response to the COVID-19 pandemic, IPC has worked diligently to develop a remote testing solution that will allow certification/recertification candidates the ability to take certification exams remotely.

In addition to our classroom and on-site training courses, starting immediately STI will be offering on-line training and remote testing for the following IPC lecture based Certification/Recertification courses:

- IPC-A-610 Certified IPC Trainer (CIT) and Certified IPC Specialist (CIS)  
-Standard required for class
- IPC/WHMA-A-620 CIT, and CIS  
-Standard required for class
- IPC-A-600 CIT and CIS  
-Standard required for class

Note: Currently hands-on courses are not available for on-line training or remote testing for CIT's or CIS's.

The following on-line courses will be available for Certified Subject Matter Expert's (CSE's) as of April 13, 2020.

- IPC-A-610, IPC/WHMA-A-620, IPC-A-600, IPC-7711/7721 and J-STD-001  
-Standard required for class

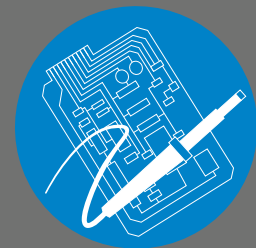
Exams that are required for these courses can now be proctored remotely using IPC EDGE.

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# MIXED TECHNOLOGY TRAINING KIT with LEAD Free Option



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*Online*

Now available in both Lead Free and Tin Lead versions, the Mixed Technology Solder Training Kit offers a realistic mixture of Through-Hole and SMT technology. It contains many of the common components found in mature technology applications for both through-hole and surface mount production. It is our most popular training kit due to its tremendous flexibility for production training. The Solder Training Kits provide a cost effective and consistent approach to solder training. Instructors no longer have to spend their valuable time keeping track of inventory and sorting through production scrap. The parts are packaged in static shield bags to promote ESD practices. The kits are a reliable and economical way to ensure that each student and each class receive the same training materials. All parts and boards are guaranteed solderable. Custom boards, kits, and individual parts are also available. The Combination Kit has increased focus on SMT as reflected in additional component count.

**To place an order or  
for more information click on  
the link below.**

**<https://stiusa.com>**

**(800) 858-0604**







Chat Live with Us

**Do you have a question?  
Do you need information?  
CHAT with us online!**



# HAPPENINGS



## Frank Honyotski's 20th Anniversary

STI would like to thank Frank for his 20 years of service he has given to the company. With each passing year you bring professionalism and positive attitude to this organization.

Success never comes in a day. Success comes with time and hard work. Frank has proven this over the years with his dedication and contributions he has brought to STI.

Congratulations on another successful year and many years to come.



## Christy Hill's 15th Anniversary

STI would like to thank Christy for 15 years of hard work and dedication she has brought to this company. Your creativity and vision are exemplary and brings a unique work ethic to the team.

Hard work is the most important key to success. Without being willing to work hard and put forth your best effort success is nearly impossible to accomplish. Christy has shown this throughout the years and we wish you many more years to come.



## Chuck Callahan's 15th Anniversary

STI is grateful for Chuck's contribution and dedication to the company. As he celebrates 15 years with STI, he continues to climb new heights with his hard work and commitment.

The most successful individuals are those who are willing to put in a productive day's work before they even receive success. Chuck is one that exemplifies success. His hard work has proven itself over the years.

Thank you and we wish you many more successful years.

# Congratulations

*Teamwork is the ability to work together toward a common vision and the ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results. ~ Andrew Carnegie, business magnate and philanthropist*



# IPC/WHMA-A-620D



IPC/WHMA-A-620D is the only industry-consensus standard for Requirements and Acceptance of Cable and Wire Harness Assemblies. IPC/WHMA-A-620D describes materials, methods, tests and acceptance criteria for producing crimped, mechanically secured and soldered interconnections and the related assembly activities associated with cable and harness assemblies.

IPC/WHMA-A-620D was developed by IPC and the Wire Harness Manufacturers Association (WHMA, an affiliate of IPC).

Number of Pages: 420

Release Date: 1/22/2020

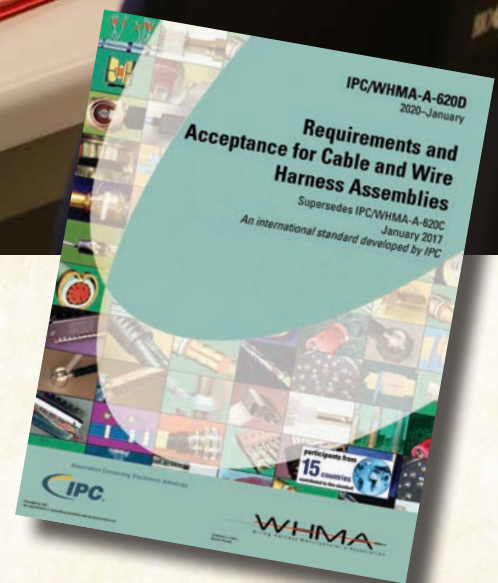
ISBN: 978-1-951577-07-0

Product ID: A620-STD-0-P-0-EN-D

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Training Services Manager  
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## TRAINING SERVICES



*Frank Honyotski*  
Lead Master Instructor  
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As the world is in quarantine mode, you may feel that there is nothing productive that can be accomplished for your workforce while they are confined to their homes. IPC has started remote proctoring of lecture-based courses (IPC-A-600, 610, and 620). STI has successfully conducted remote training and we can provide this service to your organization as well. We are using Zoom for the lectures which runs on almost any device. The testing portion requires a lock down browser which

only runs on Windows and Mac OS. Contact customer service if this sounds like it could work for you.

IPC has released an update on the IPC/WHMA-A-620D training materials. They expect to release the material in August and if you are a currently certified CIT in that course you can download and start training to the new revision the very same day the material is released. Just download it from the IPC Edge account where you schedule your testing.

The IPC-7711/21C AM1 file is ready for ballot and you can access it and comment on the amendment on the IPC Works platform. If you have not used IPC Works, sign-up and you will use the same credentials as the IPC

Edge log in. IPC uses SSO technology which allows single log on. If you have not logged on to any IPC sites since March 2020, you will need to request a password reset from IPC due to a platform upgrade.

We are conducting on-site training so if you need a certification or recertification course please contact customer service and speak to:

Michelle Moring  
or  
Melissa Huffman  
for assistance.

**(800) 858-0604**





## On-line Proctored Exams



As a result of the requirement for many employees worldwide to shelter-in-place, we have received several inquiries asking us how company employees can receive their IPC certifications.

STI and IPC have been working diligently to provide a solution for our customers. As a training center, we can provide virtual training for all IPC certifications (CIS, CSE and CIT), except for the hands-on modules of IPC J-STD-001 and IPC-7711/21.

We have been working closely with IPC to provide “online proctored exams” so your employees do not need to take the certification exam in a classroom setting. To take the exam, your employees will need a broadband internet connection, a webcam, and a microphone, as well as administrative rights to install the proctoring app on the computer they will use to take the exam. A [comprehensive user guide](#) (currently in English, Mandarin, French, German and Spanish) provides instructions on how to set up and take the remotely proctored exam. Everything else is the same. Simply complete your training, schedule the exam with your instructor, and take your certification exam.

For more detailed information watch the [IPC Proctored Exam Webinar](#) (remember to use the Access Password: S8#31?23)

We look forward to supporting your certification needs. Please contact STI to schedule your virtual training or your proctored online exam.

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For more information or to register

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