



**ACM**  
Aerospace Components  
Manufacturers

TOGETHER. A WORLD OF EXPERTISE.

**ACM UPDATE**  
**May 31, 2011**  
AS-1-053111

**Aerospace Components Manufacturers, Inc.**  
**P.O. Box 736, 1090 Elm Street Rocky Hill, CT 06067**

**(860) 513-3205 \* FAX (860) 529-5001**

**[www.aerospacecomponents.org](http://www.aerospacecomponents.org)**

**E-mail: [alsamuel@acm-ct.org](mailto:alsamuel@acm-ct.org)**

The ACM Update & Calendar (and previous issues) are also available for viewing on the ACM website.

## **Annual President's Meeting**

The Annual President's Meeting took place on May 18<sup>th</sup> at Habco Inc. in Glastonbury.  
The only formal business elected the following to our Board of Directors:

**Chris DiPentima, Pegasus Mfg.**  
**Andrew Gibson, AeroCision LLC**  
**Kristin Muschett, Habco Inc.**

**Scott Summers, SPX Precision Components**  
**Jim Wendell, Dell Mfg. Co.**

who join these Directors, whose seats remain current:

**John Delaney, Stowe Machine**  
**Bruce Fiedorowicz, Volvo Aero CT**  
**Paul Murphy, AGC Inc.**  
**Michael Polo, Adchem Mfg Technologies**  
**Kirk Smallidge, Aerodyne Alloys**

Following the Annual Meeting, Board members met to elect ACM's Officers:

**Paul Murphy, President**  
**Bruce Fiedorowicz, Vice President**  
**Kirk Smallidge, Secretary / Treasurer**

**Congratulations to All!!**



ACM President Paul Murphy opened the Annual Meeting, welcomed members and introduced our host, Habco's President, Kristin Muschett. Next, Paul introduced a special guest, Connecticut's Dept of Economic & Community Development (DECD) Commissioner Catherine Smith. Having recently been appointed to the position by Governor Malloy, Commissioner Smith told the ACM President's she was on a "listening tour" to better understand "what is working, what is getting in the way and the challenges facing those doing business in Connecticut"; she invited members to make direct contact with her regarding these issues. The Commissioner also commented that "aerospace manufacturing is a cornerstone of what we want to grow" in this State.



CT DECD Commissioner  
Catherine Smith

Paul Murphy addressed the meeting calling attention to the excellent participation, with representatives of 27 firms (over 50 persons) in attendance. He commented, "two years ago we talked about the economic downturn and last year we talked about getting ready for the upturn and hopefully, the upturn is here and now we can talk about the development of our workforce. We are all challenged to find new employees with the right match of skillsets....But, perceptions of our industry by the kids, what kids think about our industry, is not necessarily what we think of the industry....They (the kids) have literally spent half their lives in economic turmoil watching Enron and other companies fail... We need to challenge ourselves in terms of their perceptions.... We need to dispel these perceptions.....We are looking for innovators and creators who can make our businesses and processes better". He reviewed the actions taking place this last year including the growth of ACM's training activities, the trade show which serves in business collaboration and the increasingly popular workforce fair. "The Business Development Team, this year, is producing a marketing DVD to provide our prime customers insight into why they should be expanding their business with ACM firms". In summary, Paul advised "ACM will be twelve years old in July, starting with 6 companies and today, having 67 firms, over 5000 employees and almost \$1.4 billion in annual sales. Firms have joined for different reasons.... Our biggest success is our longevity... What creates this longevity is our culture, based in lean, development of our workforce and candid discussions at our business development meetings. Basil Whiting wrote in a National Association of Manufacturers study, "ACM is a poster child for an industrial cooperative...they have what other people have yet to obtain". We have obtained this because of the trust we built with each other, we can openly talk and keep it going....The greatest testament to ACM is the people, our leadership, our company leadership; retired leaders are making their experience available to ACM asking nothing in return.— that's what makes ACM great!"



ACM President Paul Murphy  
(Genl Mgr, AGC Inc.)

Next Paul introduced the leaders of ACM's Team to report to the Presidents. The WorkForce Development Team is led by Judy Boyle (Stowe Machine). Highlights of Judy's comments:

"Our Team consists of company presidents, human resource managers and business development managers; we also have the support of CBIA, where Judy Resnick sits in on almost every meeting. The most important task is filling the huge vacuum of our ageing workforce; manufacturers must get involved in introducing young workers to our industry".

Judy discussed the Powerpoint presentation developed by the Team, to be used by members to discuss aerospace manufacturing career opportunities at our local schools,. "It still

surprises how many students know nothing about manufacturing”. Judy asked attendees who have still not interfaced with local schools to do so and to attend our Team meetings where other members will assist in making you comfortable with the presentation. “The relationship of the Team with the CT Technical High School system is growing through the efforts of the Team with their consultant, John Murphy; Supt Pat Ciccone plans to attend our October Workforce Fair. We must maintain our strong working relationships with these and other institutions so they may effectively educate and train productive employees for our future workforce. Open your doors to a very well screened group of interns that are in training”.

Judy also reviewed the many training courses offered by ACM and requested members to respond to ACM’s training emails!

“I encourage you to attend Oct 19<sup>th</sup> (Tradeshow and) *Future Workforce Opportunities Fair*, last year, we had over 300 genuinely excited students attend from all over the State!”.

Paul Murphy commented on his experience of going to high schools to make the aerospace career presentation, saying “there is nothing more rewarding than that...these are great kids, bright kids, but not yet sure what they want to do!”.

The Progressive Manufacturing Team is led by Bob Castonguay (Trumpf). Bob said:

“We are trying to get better attendance at our meetings; these meetings offer great stories and process improvements to share, and are a good way to network with colleagues who can provide assistance. We discuss kaizen, quality and state of the art technology improvements. Lean thinking is systematic. The bottom line is, we need our company Presidents to support; ask your CI person whether they attended and what they learned”.

Bob presented a summary of the past 12 months of Team meetings and their diverse topics. “We discussed lean tools and shop floor improvements, even how Boeing moves its aircraft assembly line. We need members to volunteer to share their experiences. We provide good and meaningful topics, but you need to participate! Sharing of best practices is greatest benefit of this Team.

And Paul Murphy commented, “best practices are one of the things that founded ACM.....the benefit of seeing what other companies do is a huge benefit”.

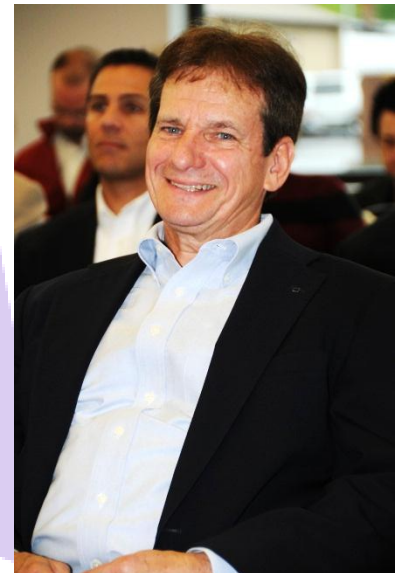
The Purchasing Team led by Gary Carle (Delta Industries).

Gary provided a Team overview, discussing the sharing of best practices and discussions regarding raw material costs and lead times, “anything that impacts the cost to our companies”.

Examples of ideas offered, this year, by members: MESCA freight logistics to lower shipping charges and provide free classes regarding shipping related issues; Turtle & Hughes’ agreement, which can help to eliminate the crib attendant position while providing continuously stocked inventory; Global Insight’s economic data useful in negotiating Government contracts.



Judy Boyle,  
HR Manager, ATI Stowe Machining



Bob Castonguay,  
SYNCHRO Manager, Trumpf Inc.



Gary Carle,  
Purchasing Manager, Delta Industries

Gary closed saying “the best way to benefit is to participate – better attendance will provide us with better ideas for cost savings”.

Paul Murphy noted how “some companies pay their annual dues with the rebates received from ACM’s agreements. There are too many synergies among the 67 companies not to have more agreements; please think about that and bring your suggestions to the Team’s meeting”.

The Business Development Team is led by Bruce Fiedorowicz (Volvo Aero CT). Paul Murphy commented on the importance of this Team and how its “discussions are very candid but not published; to get the benefit, you need to attend!” Al Samuel presented for Bruce Fiedorowicz who was unable to attend today’s meeting.

Al thanked Bruce for his great enthusiasm and the energy which he brings as leader of this Team. Al said “this team’s meetings are the best attended of ACM’s teams, a monthly President’s meeting. It is here where ACM’s culture really comes forward, in sharing insights into programmatic issues, into business opportunities and assisting each other. This type of sharing is the bottom line, the essence of ACM, especially when considering most of these firms are competitors”.

Al continued, “often, we have guest speakers, customer’s procurement managers, and coming in June, we will have Al Altieri of Sikorsky Aircraft address the Team. We also have had our own speakers, such as Joakim Andersson of Volvo Aero CT discussing the importance of the local supply chain and ACM member’s role in Volvo’s business plan”.

“ACM is investing in the production of a marketing DVD, to be made available to members at no cost. As members frequently report of speaking with their Customers about ACM as a part of their business conversations, the DVD will provide added support in this process. Talking about ACM and the other member businesses .... it’s amazing.... you are asking your customer to not only do business with you, but with the other companies in this area!”

The ACM October Tradeshow, a highlight of the Business Development Team’s year, has a dual purpose; firms display to each other to promote local support and offload as well as promoting to outside OEM customers. Please call your customers now and have them put the Tradeshow on their calendars”.

### **“PREPARING for the ECONOMIC UPTURN – DEVELOPMENT OF OUR FUTURE WORKFORCE”**

Paul Murphy introduced the first of three speakers, the Executive Director of CBIA’s Education Foundation, Judy Resnick, calling Judy an ‘awesome’ advocate for manufacturing and supporter of ACM.

Highlights of Judy’s comments:

- I come from Detroit and my father was a manufacturer!
- Why do we (CBIA Educational Foundation) do the work we do? It is about assuring CT has a skilled workforce. We encourage communication and cooperation and focus on bringing the proper people together to create unique and effective business education partnerships.
- We focus on young students, adults and teachers.
- We are not an endowed foundation; we look to find funds, leverage resources and serve as a neutral broker. We have recently had two large Federal grants, the last in which ACM was heavily involved; we also work with the National Science Foundation, the United Way, DOE and UTC as funding sources.
- Today’s manufacturing floor has changed. The way we do it, where we do it and how employees



Judy Resnick,  
Executive Director, CBIA Education Foundation

interact with each other, along with significant technology changes, all require different skill sets.

-Aging of senior employees, specifically in CT, is a serious issue; what will happen when they leave? Where is the available new workforce? Likely, 40% of the incoming workforce will come from urban centers. What are the biggest issues?? Skills and an educational achievement gap. CT has the largest achievement gap in the country! Employees need high level math, high level interpersonal skills and high level analytical thinking! All this is cascading! These are the issues of the Educational Foundation. We need to create systemic change!

-We also work very hard with the CT Technical High Schools and Community Colleges. Asnuntuck is a national model for its manufacturing program.

-CBIA supports ACM's WorkForce Fair (every year) and nothing impresses young people more than seeing and touching.

In summary, Judy said, "we bring business, government and educators together to address these issues. And it's really fun working with ACM, you are forward thinking, nobody says no, rather, how do we get there?"

Paul next introduced Dr. Martha McLeod, President of Asnuntuck Community College (Enfield) to discuss their Manufacturing Program. Martha advised that the Director of the Manufacturing Program Frank Gulluni, "one of my favorite people in the world", could not be at today's ACM meeting. Frank was in Washington DC to receive an award as *System Builder for Career Contributions to Manufacturing* from the National Association of Workforce Professionals. "Frank is your greatest supporter!" Some of Dr. McLeod's comments:

-If our country is to move forward, it will do it on the strength of manufacturing, not its services!

-Manufacturing was out of synch when I came to Asnuntuck eight years ago. We recognized the need to move the manufacturing program from non-credit to credit, so students could go smoothly from a certificate into industry.

-I learned from my background at a tribal college in the upper peninsula of Michigan; in the tribal nations, you must listen to the people you serve! You (ACM) knew what you needed, Frank knew what you needed and so, we developed the curriculum for ACM member's needs.

-Paul Murphy and ACM members went to the State Legislature to help prevent shutting down Asnuntuck's manufacturing program; today, we have a budget line item for \$720K for manufacturing operations and some expansion. Thank you!!

-We need to continue to work with high school guidance counselors. You (ACM firms) helped with scholarships, which opened even more doors for students.

Dr. McLeod ended advising "the dream is to get you what you need and keep the economy moving. Tomorrow rests with you; we will listen to you and we will respond to you!"

The third speaker, John Kornegay, PhD., recently retired was the President of Kamatics Inc., Kaman Precision Products and the ACM. "John led his company (Kamatics) in its Lean transformation like no other, he totally changed it", said Paul Murphy, "doubling its revenues and quadrupling its earnings; how is that for a lean success!". John's comments:

-Workforce development is one of my hot buttons because it so crucial in growing our companies. We are relatively lucky that the recent downturn kept the sliver tsunami at bay, but we know as the economy picks up and 401(k) market values return, people will want to retire.



Dr. Martha McLeod,  
President, Asnuntuck Community College

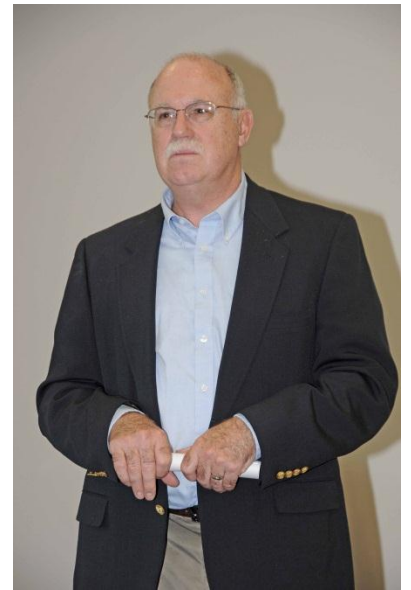
-I try to approach all problems with the kaizen mindset. One thing missing from today's discussion is the concept of standard work. What is the standard for what we want from the education system and how do we measure this? If I hire an engineer from an accredited college, I know what I am getting. If I hire a machinist from Frank Gulluni's program, I know what I am getting because of Frank; yet, I don't know if Frank's equivalents are elsewhere.

-It's very difficult to test new employees for skills because of the difficulty in assuring such a test is only reflective of the required skills of the worker, so as not to become discriminatory.

-What I have found is there are some standards, but none are really standards! Two are being used in North Carolina; CRC (Career Readiness Certificate) is an example of tying a worker to specific skill levels. We need to start looking at CRC. The other being used is NIMS (National Institute for Metalworking Skills) accreditation, which is beginning to be used in Connecticut.

-How do we use accreditation to tie into job requirements? what does it mean to our current employees? does this threaten current employees, or is it a tool to help train and grow? This is both an opportunity and a challenge for us; we need to support the high schools and community colleges that are bringing these accreditations forward.

-And my latest hot button – the business system personnel, such accounting and finance, purchasing agents dealing with the supply chain, and engineers! How do we broaden and manage the competencies of the lean professional?



John C. Kornegay, PhD.

Questions and Answers for the Panel and Audience followed these presentations. In summary, *So many organizations are doing so many things, who do I call, where do I go?*

John: I share that frustration! The concept of centers of excellence is something we need, but the concept of competition is of some value. It's hard to believe you don't know what is happening in this State. The Community Colleges are beginning to have synergy. I push hard for collaboration.

Martha: It is hard from the community college standpoint. Working together is more important than it ever was as college budgets are being cut. It's just not feasible to have what exists at Asnuntuck everywhere else, but a student can take Manufacturing Technology at Asnuntuck and calculus at Gateway; a student can move seamlessly to Central CT State University.

Judy: As dollars have decreased, it is becoming a necessity to collaborate, especially among the community colleges.

Judy: Not sure if different areas of the State want the same type of curriculum; aerospace machining is located around Hartford, but not necessarily in other parts of the State, where other technologies may be more prevalent. Basic skills, such as math and blueprint reading, should be broader.

*Perception being a strange thing; what do we think is the best way to change the perception of manufacturing?*

Martha: perception of manufacturing is still dark and dirty. We have open houses for parents and students and visits to high schools. Scholarships are high profile and are increasing the registration for manufacturing programs.

Judy Boyle: It's difficult to get invited into academic high schools to address the perception. We need State of CT to be concerned about this and to help get the word out. Active PTO's are hard to find.

Andrew Gibson: We celebrate a mentor system within our company of older employees assisting newer and younger employees. We teamed a young employee with a 72 year old. Also, we have sent employees to learn basic math and blueprint reading they need a lot of nurturing!

*We nearly lost Tech High Schools to local school systems under the Governor's budget plans and*

now, Community Colleges are being rolled into the State University system.

As of July 1, at Board of Regents will be created to include senior and community colleges. Likely, community colleges will lose power and money under this system.

## Business Development

- Business Development Team members participated in the ACM Annual President's meeting, in lieu of their regular monthly session.

- The next meeting of the Business Development Team will take place on Tuesday, June 28<sup>th</sup> at 8:15am at CERC, Rocky Hill. **This special meeting will feature guest speaker Al Altieri, Vice President, Supply Management, at Sikorsky Aircraft. Please be sure to attend this informative meeting.**

- Update of GE/Rolls-Royce F135 Engine Program

Reported in the April, 2011 edition of the *ACM Update*:

"Following on the U.S. Air Force's Stop Work Order, suppliers began receiving stop work notices from General Electric on their F136 engine. It was noted that although GE announced 'self-funding' of the development program (for the near term), USAF owned drawings and fixtures cannot be used due to the Stop Work Order."

Reuters reported on May 11<sup>th</sup>:

"The House Armed Services Committee voted 54 to 5 to make sure that General Electric Co and Rolls-Royce Group Plc. could go on working on their alternate engine using their own funds, despite the Pentagon's formal cancellation of a competitive engine program last month.

The panel acted on an amendment to the defense authorization bill put forward by Rep. Robert Andrews (Democrat, New Jersey). The legislation would require that the secretary of defense, at no cost to the federal government, allow for the continued development and testing of the alternate engine if this is self-funded, as GE and Rolls have proposed to do at least through the end of fiscal 2012.

The Defense Department cut off the contractors' access to the hardware after Congress omitted funding for it in a long-delayed budget deal last month. The hardware and related intellectual property belongs to the U.S. government. The Pentagon's position on the program has not changed, a spokeswoman said last week in response to the GE-led team's renewed push to keep its engine hopes alive."

and from DefenseNews on May 26<sup>th</sup>:

**U.S. House Passes Defense Authorization Bill**

By KATE BRANNEN

"By a vote of 322 to 96, the U.S. House of Representatives on May 26 passed the National Defense Authorization Act for 2012, which includes a \$690 billion Pentagon budget.

The Pentagon had requested a \$553 billion base budget and \$118 billion to fund the wars in Iraq and Afghanistan. The House bill fully funds those requests and also provides funding for the Department of Energy's National Nuclear Security Administration and the Department of Transportation's Maritime Administration. Before becoming law, the Senate will have to vote on its own version and then the two bills will need to be reconciled before heading to President Barack Obama for his signature.

There are several measures in the House legislation that will make reconciliation with the Senate very difficult. And the White House announced earlier in the week that it objects to several of the bill's amendments.....

**The legislation also includes language that allows for continued development on a second engine for the F-35 Joint Strike Fighter, a program the Pentagon has repeatedly said is unnecessary. However, the bill does not include additional funding for the General Electric-Rolls Royce engine.**

"If the final bill presented to the president includes funding or a legislative direction to continue an extra engine program, the president's senior advisers would recommend a veto," the White House statement said.

Measures to reduce the defense budget did not pass, despite growing concern about federal discretionary spending and its contribution to the national deficit."

- **SAVE THIS DATE!!**

**Wednesday, October 19<sup>th</sup>**

**"Future WorkForce Opportunities" Fair & Business Development Tradeshow**

**Hartford-Windsor Airport Marriott Hotel**

**Registration Information will be forwarded to Members in June!!**

## Progressive Manufacturing

- The Progressive Manufacturing Team has a broad purview which includes 'traditional' Kaizen, technology and quality assurance related matters and, on May 3<sup>rd</sup>, conducted ACM's fifth Technology

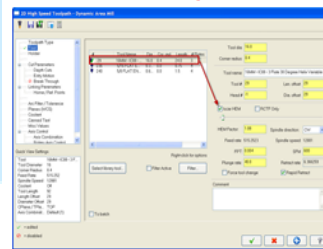


(above), Mike Gugger, Mgr, Machining Consulting Services, Connstep

Workshop on the subject of **“Software and Controls – A Key Components to Success”**. This workshop was planned and managed for ACM by Mike Gugger, Connstep’s machining and machine tool specialist, and was presented at the R.E. Morris Co. in Windsor. Our thanks to both Connstep and RE Morris for their great support of ACM! The workshop was attended by 50 ACM members and featured the latest developments in Software & Controls, providing information on how to get the most out of current CNC programming software, machine controls and what is coming next.



### Common Thread that makes this partnership work



Manufacturing Technologies that add value...

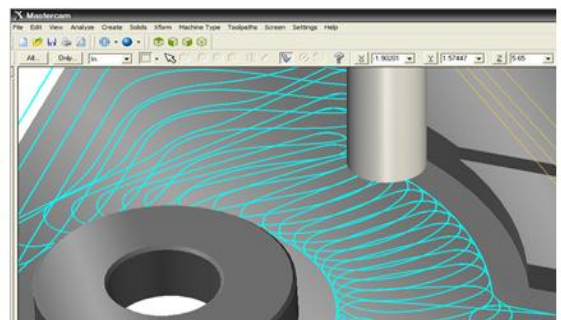
- **Existing Capital** - Many shops already use these products, but do they use it the best way possible? “e.g. efficient”
- **Integrating intelligence** for cutting tools into the software.
  - Make it easy to use.
  - Dynamic Milling and H.E.M. Technology
- **Productivity** - Combining the technologies to enable customer to yield the best possible benefit.
  - **Utilization & Efficiency**

Steve Bertrand (Director – International Sales) of *Mastercam* presented his widely used software system as a means of increasing efficiency and capability in the context of a *partnership* with the machine tool and the cutting tool. Many programmers think of these technologies separately and rarely address the issue as a total system. He said, “using the machine tool that you already have, the two components that will make the greatest impact are the cutting tool and the software”. Steve stressed their need be “a different way to think about how to use a machine” and presented a partnership which utilizes *Mastercam’s* integrated HEM (High Efficiency Machining) capability with, in this case, specialized tooling developed by Iscar Metals Inc., to optimize feed, speed and tool life.

### High Efficiency Machining

Key to utilizing HEM

Do not proceed without good programming  
-Dynamic Milling



Key to utilizing HEM

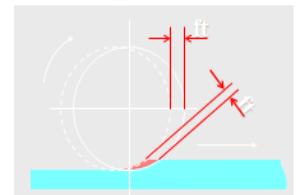
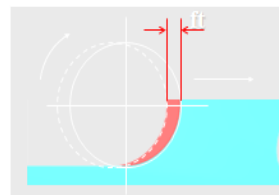
Feed & Speed Optimized



(left), Steve Bertrand, *Mastercam*, and his presentation, (right)



Steve displayed a video of *Mastercam’s* “dynamic milling” capability and showed how it can be used to generate a novel cutter path using an Iscar cutter. Rather than the traditional approach of maximizing depth of cut and tooth load, dynamic milling can optimize feed, speed and spindle motion to produce many rapid shallow cuts which, at significantly higher spindle speeds and axis



Example: ½” End Mill  
Vc = 450 SFM  
Fz = .0015”  
(20.62 IPM)

HEM Example: ½” End Mill  
Ae = .05xD  
Vc = 1125 SFM  
Fz = .0103”  
(442.0 IPM)

motions, can result in the dramatic reduction in total machining time. This concept was also demonstrated during a workshop break using a machining center operating on RE Morris' shop floor (*photo, right*). For additional information on *Mastercam* and its HEM capability, contact Steve Bertrand at [steve.bertrand@mastercam.com](mailto:steve.bertrand@mastercam.com).

*CNC Engineering* (Enfield, CT) is a firm offering services to customers seeking to better utilize and control their machining equipment and specializes in Fanuc controls. Gary Caravella, President of *CNC*, discussed what is new in machine controls including features already available in many existing controls, yet not commonly used by the programmer. Machine control processing time today is more than 200 times faster than a 1980 vintage system and machine speed has doubled every seven years since that time. Because of this, he emphasized the importance of understanding and not undervaluing the control when buying or retrofitting a piece of equipment. Gary discussed advanced functions within the control such as straightness, bi-directional pitch error, volumetric compensation and compensation for spindle and tool thermal expansion (along the tool's axis). In discussing "Tool Center Point" control, he indicated "traditional 5-axis programs come to the machine with axes defined at the control pivot point; by using TCP control, the CAM and post can produce axes point data based on the part versus the control pivot point". Other advanced functions addressed included tool posture control, 3D cutter compensation, five axis nano smoothing, tilted work plane command, rotary table dynamic fixture offsets and workpiece setting error compensation.

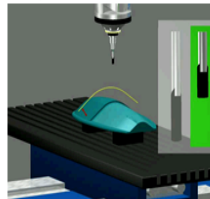
And the point of all of this – cost reduction thru reduced machining time, improved quality and the ability to machine more complex shapes. Gary Caravella and Patrick Harrington (*CNC Engr* Vice President), who addressed advances in grinding of aerospace components, may be reached at 860-749-1780; *CNC's* website is: [www.cnc1.com](http://www.cnc1.com).



### Tool Center Point Control

#### Benefits of TCP:

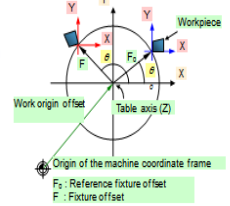
- Ability to adjust the tool length at the control
- Keeps the machine in operation
- Ability to offset part using machine work piece offsets
- Tool center does not move when only commanding rotary axis
- Programs are transferable to like machines
- No need to repost programs when tool length changes
- One feedrate per feature



### Rotary Table Dynamic Fixture Offsets

#### Function

- Shifts the work origin offset in 3D as the rotary axes are positioned

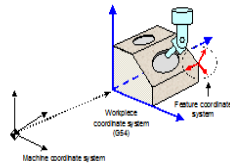


#### Benefits

- Easier Operation
- Faster Setup
- Easier Programming

### Tilted Working Plane Command (TWPC)

- Automatic rotation of the tool and table
- TCP can be used in converted coordinate
- Coordinate representation in the format of Euler angles, RPY angles, 3-point, 2-vector and projection angles



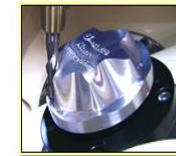
G68.2 IP\_L\_J\_K\_R

...

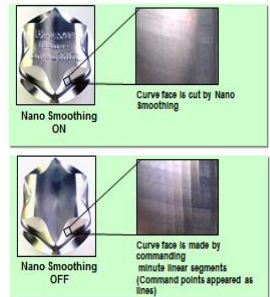
G53.1

...

G69



Feedrate: 1000mm/min  
Spindle Speed: 10000 RPM



### Summary

Many 5-axis machining functions have been developed on CNC to make programming and operation easier

- Tool center point control and 3D cutter compensation eliminate requirement for qualified tooling in 5-axis machining so that programming time and tooling cost are reduced
- Workpiece Setting Error Compensation and Rotary Table Dynamic Fixture Offset greatly reduce machine setup time
- Tilted Working Plane Command (coordinate system conversion) and 3D manual feed simplifies positional 5-axis machining, which is widely used in prismatic part cutting
- Spline interpolations, such as NURBS and Nano Smoothing, together with 5-axis compensation improve sculptured surface accuracy
- 3D manual feed allows a broken tool retracted in tool vector direction
- 3D interference check prevents collision in both manual and auto operations

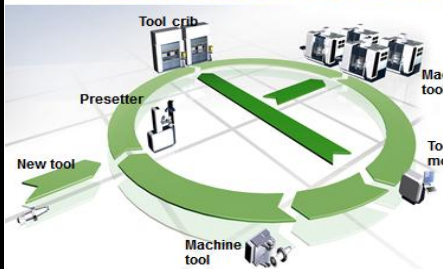
Slides (*above*) excerpted from (*left*), Gary Caravella's *CNC Engr.* presentation

Rob Caron of Caron Engineering (Wells, ME) made the final presentation of the Workshop and discussed process control functions and how they relate to programming and the machine control. Addressed were tool offsets and the issues relating to mechanical, laser and automatic tool setting, manual tool management and the advantages of an automatic tool management system, in-process monitoring of machine horsepower and vibration to improve cutter life and the use of adaptive control techniques. Rob is the President of Caron Engr and may be reached at 207-646-6071 or [rcaron@caron-eng.com](mailto:rcaron@caron-eng.com).



Rob Caron's *Caron Engr.* (right) and (below) slides from his presentation

## Automatic Tool Setting



### The Process Improvements

- Automatically track tool usage issues  
Eliminate possible misleading reporting
- Tool crash
  - Broken Tool
  - Normal wear
  - Excessive wear
  - Lost Tool Tracking
  - Operator setup
  - Recurring setup problem
  - Base-line wear
  - Using the right tool
  - Machining Traceability



### How Adaptive Control Works!

- By measuring the actual cutting horsepower in real-time, the system can adjust the feedrate to maintain a constant horsepower
- This allows the tool to cut at its optimum horsepower and also reduce air cutting
- Any variation in the cutting environment such as material, tooling and even coolant delivery will be compensated for.
- Feedrate adjustments are made constantly and in small increments (typically 1% of the programmed feedrate) to allow a smooth adjustment

[www.caron-eng.com](http://www.caron-eng.com)



The complete presentations of all the Workshop speakers are available on the ACM website; go to the Members Only page, Progressive Manufacturing folder and download [Software - Controls Techn Seminar Presentations 5-3-11.pdf](#).

- In a productive and active month, the Progressive Manufacturing Team met on May 26<sup>th</sup> at Kamatics Corp. in Bloomfield, in what was best attended Team meeting in over a year! Alice Power, Kamatics' Continuous Improvement Manager hosted the meeting discussing a recent change made to Kamatics' manufacturing facility. As part of their corporate "Business Continuity Plan", one of Kamatics' four current value streams was moved to a new facility across Bloomfield Avenue from their main plant, to reduce loss risk in the event of a catastrophe. Alice discussed the issues related to planning the movement of the manufacturing line and the kaizens conducted to prepare and implement the transition. This value stream, producing track roller bearings (typically used in wing flap-tracks and aircraft doors), was selected as being the easiest to move (using the smallest of Kamatics machines) and utilizing the most versatile equipment. Kaizens addressed the new plant layout, comparing straight line vs. U-shaped options, material flow between the two manufacturing facilities, lot size, staffing and the development of display boards used to manage production and level load the bearing components. In addition to reducing the risk of loss, a major goal was to reduce flow time of finished product to ten days, from a historical 15-20 day process. Team members toured the new facility where value stream manager Glen Galvin explained the production control boards in detail, answering many of the Team's questions. This meeting again illustrated the great benefit available to ACM members in openly sharing their accomplishments, and sometimes difficulties, for the benefit of all. The Team, and Team Leader Bob Castonguay (Trumpf) look forward to other Team members stepping forward to suggest topics for future meetings, or volunteering to conduct similar session to that presented at Kamatics. Bob Castonguay may be contacted at [robert.castonguay@us.trumpf.com](mailto:robert.castonguay@us.trumpf.com), or Allen Samuel at the ACM office at [alsamuel@acm-ct.org](mailto:alsamuel@acm-ct.org) or 860-513-3205.

- The next Progressive Manufacturing Team meeting will take place on Thursday, June 16<sup>th</sup> at 8:00am at Aerospace Techniques in Middletown. This meeting will address **Increasing Competitiveness through Controlling Energy Costs in your Facility**. Judy Wlodarczyk, Connstep's specialist in the application of "green" in the manufacturing environment will discuss energy management and using energy at the exact time, location and quantity required to produce a quality product. There is no lack of opportunities for manufacturers to trim energy consumption, but a lack of know-how can hinder the ability to take advantage of these opportunities. This presentation will introduce you to ways to uncover those opportunities to reduce your energy usage and therefore costs. Judy will provide a brief overview of the key concepts of energy conservation and efficiency in manufacturing settings, understanding your electric usage, and how to employ four easy to use tools to identify energy opportunities in your operations. Success stories will be discussed to show how energy efficiency changes provided significant savings that had a direct impact on the bottom line. Please be sure to attend this informative and important Team meeting.

### Workforce Development

- The next meeting of the WorkForce Development Team will take place on Thursday, June 9<sup>th</sup> at 8:00am at Sterling Engineering, Barkhamsted. Please plan to attend!

### Consolidated Purchasing

- The Purchasing Team will hold its next meeting on Thursday, June 2<sup>nd</sup> at 8:00am at Adchem Mfg Technologies, Manchester.
- Suppliers having Agreements with ACM are:

	<u>Supplier:</u>	<u>Key Contact:</u>	<u>Telephone:</u>
Shop Supplies, Abrasives, Cutting Tools, etc	<b>Turtle &amp; Hughes</b>	Dave Howard	203-497-1555
Raw Materials: Nickel, Cobalt, Titanium – Sheet, Plate & Bar Stock	<b>Aerodyne Alloys</b>	Kirk Smallidge	860-508-1271

## News from ACM Members

Please forward significant company news and announcements to Allen Samuel at [alsamuel@acm-ct.org](mailto:alsamuel@acm-ct.org) for posting on the ACM website and publication in the UPDATE

Another former ACM leader, Roger Fabian, advises of his interest in “giving-back” by providing technical support to the members of our association.

-----  
I have been in the heat treating and metals joining business for 47 years and associated with Connecticut’s aerospace metal working community since 1964. I retired on 1-1-11 realizing, at the age of 70½ years, I probably have 15 good active years left. My wife and I have a new granddaughter, my golf handicap is too high and I have not caught all the species of fish on my “bucket list”. Having said that, people were right, YOU CAN’T STAY AWAY ENTIRELY!!

When I realized what John Kornegay is doing with ACM to ‘give back’, and how it provides valuable Lean help for our members, I decided to offer the same effort to our members.

If you have questions, or would like another opinion, regarding:

- Material processing or joining issues, such as distortion problems or how to braze details.
- Internal heat treating or in-house brazing equipment, or equipment you anticipate setting up.

I would be happy to help you.

My advice is free and comes with strict confidentiality.

Please contact me at:

Roger J Fabian, Consulting LLC  
[FabianRJ@aol.com](mailto:FabianRJ@aol.com)  
860-518-8354

### ACM Information

As a program of CCAT’s Connecticut Center for Advanced Technology Inc, CMSCI assists small and medium sized manufacturers in Connecticut to adopt the digital technology and business practices needed to fully participate in the next generation manufacturing supply base.

Available at no cost through August 2012, through a grant from the CT Department of Economic and Community Development (DECD), CMSCI will provide a free **Business Assessment** to manufacturers in developing the business and technical strategies necessary for enhancing competitiveness in the global economy. The assessment includes a technical evaluation examining elements such as equipment, work instructions, the quality system, product /process technology, information technology and innovation. It also includes an assessment examining operating efficiency, lean maturity and a product maturity evaluation. Following each assessment CMSCI will tie the opportunities identified into an integrated improvement plan. For implementation of the integrated plan, manufacturers will be free to choose from a list of service providers. The manufacturer is under no obligation to use CCAT for implementation. Implementation will generally consist of a combination of focused training and projects to implement rapid and lasting improvements, time-phased with ongoing production demand. No funding is provided for this phase, however assistance programs will be identified that may be available to the participant.

Contact CCAT’s Bob Torrani for more information at 860-282-4223 or [rtorrani@ccat.us](mailto:rtorrani@ccat.us).