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Contents

Does Anybody Care?	3
Chairman's Corner	4
In Memoriam	5
NTMA Members Named "Best Machine Shops"	6
Foundries Find In-House Core Shops No Longer a "Core Necessity"	6
IRS Reminds Taxpayers that Keeping Good Records Reduces Stress at Tax Time	8
Mori Seiki Opens American Headquarters	9
NTMA 2010 Annual Convention	10
Meet Your Team Leaders! Next Generation	11
Managing During Turbulent Economic Times	12
Newly Elected Officials Visit Weiss-Aug	13
Do you have an Exit Plan? Why Not?	14
Calendar of Events	15
Why Branding Matters?	16
The Retention Knob	17

The editorial content of the NTMA Record does not necessarily reflect the opinion of the National Tooling & Machining Association or its Chapter affiliates.

General Tool Co. Receives NTMA Technology Award



(Left to right) Bill Kramer, Jr., A.J. Schaeper and Bill Kramer, III at the presentation ceremony.

General Tool Company, of Cincinnati, Ohio, is the most recent recipient of the NTMA Manufacturing Technology Award. The award was created to recognize and honor NTMA member companies that

have implemented a manufacturing business or technology solution that delivers a significant positive business impact.

General Tool Company received the award for its innovative use of Friction Stir Welding as a game-changing option for manufacturing assemblies for the U.S. Navy's Electromagnetic Aircraft Launch System. Jack Thompson, Chief Engineer at General Tool Company, presented this technology and its use in this application at the Manufacturing Technology Roundtable during the 2009 Fall Conference in Indianapolis.

Tri-State Chapter President A.J.

Schaeper presented the award to Bill Kramer, Jr., owner of General Tool Co. during a meeting in November.

Founded in 1947, General Tool Company is a world class, privately held U.S. firm that, through the years, has grown from a small job shop to a full-service contract manufacturing business supporting a large number of the aerospace, defense, power generation and commercial industries' needs for specialty machines, equipment and components. For more information, visit the company's Web site at www.gentool.com.

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Does Anybody Care?

By Dale Collie

A friend of mine said that technology has made him more of a number than ever before. Last quarter he topped all sales records for his company, but instead of kudos, he received a text message raising his quota for next quarter. He called the boss and wound up leaving a message – after he pressed “1” for English.

Take a look at the trend in your own company. If you want to re-personalize things, try using handwritten notes to recognize the value of employees. Time, distance and hectic schedules should not prevent personal recognition for a job well done.

Simple, personalized remarks written on the face of routine memos can make all the difference to employees who otherwise do their jobs and clock out at quitting time.

Put notes right on the face of paychecks or statements. Send postcards to home addresses so families see the recognition. Compliment individuals in letters to the head honcho and send a cc to the person to let them know what you’ve done.

Your remarks might be the only compliments some people ever receive. Some of these meaningful remarks will become “souvenirs” that are kept forever.

Not long ago I received a phone call from an officer I knew in the Army more than 30 years ago. He explained that he had tracked me down when he came across a memo he had prepared for me back in those days. He kept the document because I had penned a compliment in the margin, thanking him for a job well done.

Some leaders I know keep a list of complimentary phrases in their desk drawer as a ready reference in complimenting people. What can you add to this list:

- Well done!
- Good work!
- Keep up the good work.
- This is excellent.
- Nice timing.
- Good advice.
- Insightful.
- Good perception

- One of the best ideas I’ve heard this year.
- Good teamwork.
- Awesome.
- Brilliant.
- You hit a home run.
- Go for it.
- Let’s talk about this great idea.
- Thanks.
- Thanks again!

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Chairman's Corner

Ron Overton, NTMA Chairman of the Board

I would like to take this opportunity to follow up on October's announcement of NTMA's re-location to Cleveland, Ohio, and also update our members on the progress of the 7 NTMA goals for 2009 that were identified at the Annual Conference in Palm Springs, Calif.

Our 1st Goal is to financially breakeven or finish 2009 in the black (operate within the budget). As we have seen in our own businesses, this has been challenging at best. Given the economic downturn, several factors have caused our revenue projection to fall short. Membership acquisition decreased during the prior year and membership attrition increased, resulting in fewer members and less revenue. Once the books are closed in the next

couple of weeks, NTMA's expenses will exceed its revenues by approximately 4 percent.

While those things would force most associations into reclusion, the NTMA continued to push forward and invest in the future of our industry and this Association. Some of these initiatives and investments include: Government affairs, aggressive public relations efforts, PJAM (Precision Jobs for American Manufacturing) and NRL (the National Robotics League). We have some encouragement considering that your Association is experiencing a fraction of what is happening with similar organizations. The work we are doing is having a positive impact, and our members are realizing the value of membership. We are optimistic that the

effects of the downturn NTMA is experiencing will revert itself, and we will come out a much stronger organization.

Our 2nd Goal is to resolve the relocation issue. As we discussed in the October Record, the Trustee's ratified the recommendation of the Executive Team to relocate to Cleveland and co-locate with PMA, creating a jointly owned LLC named Manufacturing Services Incorporated (MSI). MSI will act as an

Association management company for manufacturing associations and will leverage economies of scale to provide greater efficiencies with basic operations. The MSI legal entity has been established and we are currently searching for an Executive Director (using the same process as the President search). Our time frame to completely relocate to Cleveland is no later than the end of 2010. We have had one-on-one discussions with our staff and have employment agreements in place. All staff will have the opportunity to interview with MSI if they so desire. A significant portion of work is already completed, but there is still much to do. Your Executive Team and NTMA staff are committed to retaining the essence of this Association and are taking careful steps to ensure we continue to provide the value expected from our members.

Our 3rd Goal is to have a formal marketing plan developed for NTMA. This plan will consistently market the Association to other manufactures and will provide infrastructure to promote and advance our industry, making NTMA the "go to" Association for government issues, technology and workforce development.

While this goal has not been completed, we have begun working with outside professionals to develop pieces of this effort and already have one proposal in hand, with others to review before making a decision by the end of January.

Our 4th Goal is to improve the NTMA Web site by streamlining the navigation and making the valuable content more accessible. For those of you that have been on the Web site recently, we can proudly say that this goal has been accomplished. Again, a special thanks goes to Ben Belzer and the Web site development subteam who volunteered their time to make this possible.

Our 5th Goal is to resolve the NTMA President position. While this goal is not complete as of today (early December), great strides have been made to accomplish this by year-end



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2009. Obviously, selecting the right person is considerably more important than the time frame; however, we are still working to make this happen as soon as possible. Grady Cope, NTMA Treasurer, heads up the search team and they have a job description written, a process identified, resumes in-hand and are currently conducting interviews. We realize the importance of making the right hire and how critical the future success of NTMA depends on the leader we select. The relocation of NTMA and the hiring of a President are major decisions that will have tremendous impact on the future and direction of NTMA.

Our 6th Goal is to assist members in Marketing. We committed to providing the membership with additional mechanisms to aid in steering business to our member companies. And we have made progress on this goal. First, we implemented the "Members First" program – a system that allows members to source work to other members and allows customers to search and procure work to member companies. If you have not logged in to the Web site to fill out your shop profile, I strongly urge you to do so. In addition, the Industry Marketing, Meetings & Business Development Team is preparing for two Contract Manufacturing Purchasing Fairs next year; one of which

will be specifically focused on getting OEM's to bring work currently manufactured overseas back to the U.S. Our entire Fall Conference was dedicated to helping improve your business through a successful Purchasing Fair, information on emerging markets, and ways to improve your marketing and sales efforts.

Lastly, our 7th Goal is to clearly define our Value Proposition and we have done so:

Your membership in the National Tooling & Machining Association will position your company among the best in the industry by providing the resources and tools necessary for world class performance.

Your return on investment is immediate as you leverage the vast knowledge that resides within the Association and apply it to your business.

An advocate for our industry, NTMA leads the charge for precision manufacturing through networking, lobbying, education, procurement, advice and assistance, and focused cost savings programs.

So while we have made great strides, there is still a lot of work to do and a great deal of uncertainty to navigate. However, we are confident that by working together we can make NTMA – already a great association – even better.

In Memoriam

Len Tamasi
Boston Centerless
Woburn and Avon, Mass.

Len Tamasi, founder of Boston Centerless, passed away on November 4. Born in Italy, Len immigrated to this country at the age of 17. He founded Boston Centerless in 1958. In 1967, he joined the NTMA and became Trustee of the Boston Chapter. During his years of involvement, he served as Chairman of the International Relations Committee and Vice Chairman of the Membership Committee, as well as serving as a member on many other committees. He received the NTMA Honor Award in 1986 for his commitment and dedication to the industry and association. He also was a Delegate to the International Special Tooling Association.

In addition to gaining business knowledge from his involvement with NTMA, he also made many lifelong friends through the association.

Our deepest sympathies go to the Tamasi family.



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NTMA Members Named “Best Machine Shops”

Every year American Machinist Magazine selects 10 companies to be on their “Best Machine Shop” list.

According to American Machinist, these companies are selected through the American Machine Shop Benchmarks program based on their elite operating metrics, along with site visits and interviews by the American Machinist editorial team.

“They represent an ideal in manufacturing machine shops that make strategic use of accepted principles for improvement in order to thrive and compete in a global marketplace,” according to the magazine.

In 2009, two NTMA members are on that list and we would like to congratulate them.

NTMA member Precision Aerospace in Grand Rapids, Mich., and a member of the West Michigan chapter, serves the aerospace and defense industries in a state seemingly married to the automotive markets. They are constantly expanding their capabilities to meet changing customer demands. They rely on well-trained machinists who are given continuous training on the newest equipment to upgrade skills and only provide top quality parts.

NTMA member Thayer Manufacturing in Parker, Colo., and a member of the Rocky Mountain chapter, serves the aerospace, military and medical industries. They are fostering a closer relationship with customers to bring in new business, even in a down economy. The business has grown as a result of being willing to take on work that others wouldn’t and coming up with ideas to improve the parts the customer has.

To read more on these shops and to see more about the rest of the Top 10, go to www.americanmachinist.com. To learn more from the 10 Best Machine Shops, consider attending the 2010 Machine Shop Workshop, April 21-22, in Cleveland, Ohio. For details visit www.machineshopworkshop.com.

Foundries Find In-House Core Shops No Longer a “Core Necessity”

Many foundries outsource cores to gain significant benefits that far outweigh those of producing cores in-house

The sand core shop is an almost universal facility that can be found in foundries around the world. At one time considered a vital part of the foundry for constructing complex molds – particularly those with passages and cavities – the foundry core shop might now be fading into the past, due to higher costs, overall core quality and production issues.

Although many foundries still maintain the classic in-house core shop, others are finding conclusive evidence that core making is no longer a core necessity central to their success, and is best outsourced from core specialists.

“For many foundries, in-house core production has been a sort of necessary evil that for several reasons is no longer practical,” said Dick Holden, an industrial consultant with Advanced Sales

Dynamics in Cranberry Township, Pa. “I think it’s fair to say that in-house core production is often a deterrent to productivity and profitability and could be the source of considerable waste.”

Lowering core costs

Given that foundries are in the business of making and finishing castings, for them to have core shops often creates a hidden source of overhead, Holden said. For example, the core shop consumes energy, compressed air, air scrubbers, floor space and other resources, yet often labor is the only cost considered by the foundry when calculating core making costs.

“If you want to learn the true costs of cores, you can get those from an outside core making specialist,” Holden added. “Not only do they track overhead completely and accurately, but they also help to keep the outsourcing of cores competitive and affordable. Just consid-

ering the foundry’s unidentified overhead, it is highly possible for them to lower core costs by going outside to a core specialist.”



Although many foundries still maintain the classic in-house shop, others are finding conclusive evidence that core making is no longer a core necessity to their success, and is best outsourced from specialists.

Improved, consistent quality

While many in-house core makers are skilled craftsmen, their capabilities are sometimes thwarted by foundry policies that inadvertently compromise casting quality. For example, sourcing the optimum sand or silica used to make cores might be unfamiliar or overlooked.

Holden said core specialists such as Humtown Products in Columbiana, Ohio, use all virgin sand that is consistent in quality and composition.

"Many foundries recycle sand for use in making cores," he explained. "So, there might be a mixture of fine and coarse materials in it, or it might be coarse this time and fine the next. Without consistency, your core results, and possibly casting results, will vary all over the place."

Holden added that it is important to use special types of sand for certain types of castings, including the many different kinds of iron and steel, steel alloys, copper, brass and zinc. For example, for manganese steel, a certain pH property is required, such as olivine sand from Green Mountain, S.C.

If you want the casting to chill faster in the mold, you should use chromite sand, which comes from Africa," advised Don Covert, Humtown's Technical Sales Representative. "Zircon sand is more for steel castings, and much of that material comes from Florida. Not only do the sand types and quality make a difference, but also the types of powder additives. If you want to capture nitrogen out of a certain kind of steel, you should add the black iron oxide, spherox, or an appropriate powder additive to the sand and blend," Covert said.

Reducing waste and machine time

Sand cores that are used to make passages are often very intricate. For example, oil pump passages for jet engines have very fine and small passages throughout the casting. If the core is not prepared properly, such as with an incorrect sand mix, flaws such as "burn in" can result.

"It can be very challenging to correct that kind of problem," Covert said. "The effect of burn-in is like metal spikes protruding into the casting passages. These will restrict the flow of the pump, and when they do a flow test on the casting it will fail the test. Or, if you get something with too high of a resin, you can have gas pockets in the casting, which can result in leakage. If you have those types of defects in an internal passage, it can be difficult to remedy them."

Holden added that many cores produce castings with excessive stock that require unnecessary machine time. On the other hand, cores that produce castings with too little clean-up stock for machining usually end up wasting valuable machine time and the castings ultimately have to be re-melted.

"If those castings are tested after machining and the flaws are undetected, then both the machine time and testing are wasted, plus delivery may be thrown off schedule," Holden said.

Covert said that Humtown checks core quality very carefully, and because the firm also has longtime pattern design and fabrication capabilities, worn or out-of-spec tooling can be quickly and accurately corrected, a significant value-added service to foundry and OEM customers.



It is important to use special types of sand for certain types of castings, including the many different kinds of metals and alloys. In this example, Humtown uses a chromite sand from Africa, which causes the casting to chill faster in the mold.

Leveraging capacity

One of the main reasons foundries are outsourcing their cores is faster turnaround time. While foundries are used to outsourcing cores with difficult configurations, in many instances they inadvertently hold back production by making simpler cores in-house.

"Some foundries struggle to make 10 sets of cores per day," Covert said, "where an outside core specialist like Humtown can produce 100 sets of those same cores every hour."

He added that turnaround time for the outside core specialist might be a

matter of days to two or three weeks, compared to several weeks or even months for the in-house core shop.

When it comes to large volumes of cores, the capabilities of the outside specialists are not lost on many foundries. But Holden said there are many instances when the foundry should not be in the core business, even for smaller volumes, because the real estate occupied by a core shop can be put to more profitable use, whether making castings or providing space to finish equipment.

Avoiding compliance issues

Like outside core specialists, foundry core shops are subject to EPA requirements, some of which are very stringent. Core shops have to scrub all of the air within the department or building because of the hazardous catalyst used to cure the cores. In the case of outside core shops, the entire building must be sealed and air scrubbed before it can be recycled. Foundries are held to even stricter standards. Because the building cannot be sealed, air scrubbers are required for every core-making machine – at very substantial cost. Even with this equipment, cores continue to off-gas for periods up to 24 hours, exposing the area to the catalyst, and subjecting the core facility to EPA compliance issues.

"Foundries already have enough air quality issues to deal with," Holden said. "When you consider the capital investment required for air scrubbing equipment, the many months it takes to get those systems installed, approved and permitted, plus the tasks of dealing with continual monitoring, the already marginal benefits of having an in-house core production facility become all the more problematic."

For more information, contact Humtown Products, 44708 Columbiana-Waterford Rd., Columbiana, OH; Phone: 330-482-5555; Fax: 330-482-9307; E-mail sheri@humtown.com. Humtown Products delivers quality cores to the 48 Continental United States and Canada. Visit its Web site at www.humtown.com

IRS Reminds Taxpayers that Keeping Good Records Reduces Stress at Tax Time

The tax filing season is just around the corner, so if you haven't already done so, it's time to organize your records.

Whether you are a business owner or an individual taxpayer, you can avoid headaches at tax time with good records, which will help you remember transactions you made during the year.

Keeping well-organized records also ensures you can answer questions if your return is selected for examination, or prepare a response if you are billed for additional tax. In most cases, the IRS does not require you to keep records in any special manner. Generally speaking, you should keep any and all documents that may have an impact on your federal tax return.

Small Business Owners

If you are a small business owner, you must keep all your employment tax records for at least 4 years after the tax becomes due or is paid, whichever is later. Examples of important documents business owners should keep include:

- Gross receipts: Cash register tapes, bank deposit slips, receipt books, invoices, credit card charge slips and Forms 1099-MISC
- Proof of purchases: Canceled checks, cash register tape receipts, credit card sales slips and invoices
- Expense documents: Canceled checks, cash register tapes, account statements, credit card sales slips, invoices and petty cash slips for small cash payments
- Documents to verify your assets: Purchase and sales invoices, real estate closing statements and canceled checks

Individuals

Individual taxpayers should usually keep the following records supporting

items on their tax returns for at least three years:

- Bills
- Credit card and other receipts
- Invoices
- Mileage logs
- Canceled, imaged or substitute checks or any other proof of payment
- Any other records to support deductions or credits you claim on your return

For more information about record-keeping, check out IRS Publications:

- Pub 552 at www.irs.gov/pub/irs-pdf/p552.pdf, Recordkeeping for individuals;
- Pub 583 at www.irs.gov/pub/irs-pdf/p583.pdf, Starting a Business and Keeping Records
- Pub 463 at www.irs.gov/pub/irs-pdf/p463.pdf, Travel, Entertainment, Gift, and Car Expenses

These publications are available on the IRS Web site, IRS.gov or by calling 800-TAX-FORM (800-829-3676).

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Mori Seiki Opens American Headquarters

NTMA member Mori Seiki held the Grand Opening of its new American headquarters on Nov. 5, 2009. The event was successful by all accounts, with 2,200 visitors to the new facility during four days.

The event opened with a ribbon-cutting ceremony. Some of the honored guests were Dr. Masahiko Mori, Mr. George Hiseada, Consul General for Japan, and Mr. William McLeod, Mayor of Hoffman Estates. The following three days focused on machining demonstrations, seminars and tours of the facility, including Mori Seiki University.

A highlight of the tour was Mori Seiki University's Learning Lab. The Lab houses three of MSU's 7 machines dedicated for training, including one multi-axis machine. The Lab is an ideal environment for hands-on learning. The space is adjacent to classrooms and separate from the showroom to minimize distractions. Work tables accommodate entire subassemblies so students can learn important points for maintenance.

The new showroom, quality control room and workroom comprise 40,000 sq. ft., or roughly 40 percent of the facility. During the Grand Opening, there were 23 machines under power.

Guests were treated to demonstrations of several new 5-axis machines that are making in-roads in the medical parts field, as well as larger parts for the aerospace sector. Also on display was a new VTL designed to support the heavy loads and large-diameter disks found in construction, aircraft, ship and large bearing applications.

More than 20 suppliers (Mori Seiki partners in MSQP) supported the Grand Opening by demonstrating tooling, workholding, accessories and other services to provide complete manufacturing solutions. The MSQP program (Mori Seiki Qualified Peripherals) identifies suppliers and products that meet Mori Seiki standards of performance. These products comply with their two-year new machine warranty and offer customers single-source support.

Mori Seiki also introduced the newest version of the company's CNC software, MAPPS IV. The latest release is designed to support more diversified and complicated

workpiece production, with built-in CAM software and post-processor for 5-axis programming.

During the Grand Opening, 19 different seminar topics were presented in the 100-seat auditorium. The schedule was packed with guest speakers from the automotive, medical and energy industries sharing strategies for success. A senior economist from the Chicago Federal Reserve presented a regional outlook for manufacturing in the Midwest. Mori Seiki's VP of Engineering, Greg Hyatt, shared an overview of the newest technology in development at Mori Seiki, and a sneak preview of products for future release.

Each day concluded with door prize drawings, MSQP partner awards, and a reception in the showroom and adjacent auditorium.

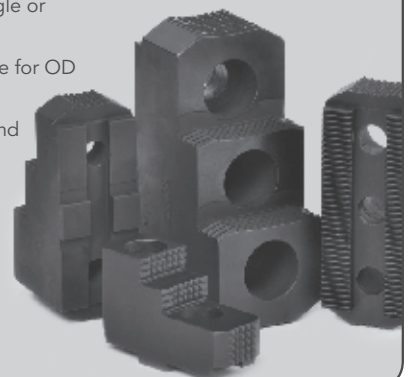
Manufacturers who were unable to attend the Grand Opening should mark their calendars for Mori Seiki's next big event, Innovation Days, planned for the second week of May 2010.



Official ribbon cutting at new American Headquarters (From left: Natsuo Okada, President, Mori Seiki Americas; George Hiseada, Consul General Japan; Masahiko Mori, President, Mori Seiki Ltd; William McLeod, Mayor, Hoffman Estates; Thomas Dillon, President, Mori Seiki USA).

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NTMA 2010 Annual Convention

Schedule of Events

Frenchman's Reef Resort, St. Thomas, USVI

Saturday, February 27

9:00 AM	4:00 PM	Executive Team*
1:00 PM	5:00 PM	Registration
3:00 PM	5:00 PM	Chapter Execs. Round Table
5:00 PM	7:00 PM	Chapter Execs. Mixer

Sunday, February 28

8:00 AM	5:00 PM	Registration
8:00 AM	10:00 AM	Continental Breakfast
8:30 AM	10:00 AM	Membership Growth & Retention Team
8:30 AM	10:00 AM	Robotics Team
8:30 AM	10:00 AM	Industry Marketing, Meetings & Business Development Team
10:15 AM	11:45 AM	PJAM Team
10:15 AM	11:45 AM	Education Team
10:15 AM	11:45 AM	Manufacturing Technology Round Table
11:45 AM	1:30 PM	NTMF Board Meeting*
12:00 PM	1:00 PM	Group Networking Lunch
1:15 PM	2:45 PM	Next Generation Team
1:15 PM	3:15 PM	Website Development Round Table
1:30 PM	4:30 PM	Government Affairs Team
1:30 PM	4:30 PM	Chapter Development Program
3:00 PM	4:30 PM	National Associate Members Team
3:00 PM	4:30 PM	Budget & Finance Team*
4:45 PM	5:45 PM	Meeting of Team Leaders
6:00 PM	7:00 PM	Reception for First Timers
7:00 PM	10:00 PM	Opening Night Party by the Pool

Monday, March 1

8:00 AM	5:00 PM	Registration
8:00 AM	9:30 AM	Continental Breakfast
8:00 AM	9:15 AM	General Membership Assembly & Awards Presentations
9:30 AM	12:00 PM	Transition Planning: Building Bridges to the Future (Les Banwart)
12:30 PM	2:30 PM	Inaugural Luncheon
3:00 PM	5:00 PM	Chapter Executives Team
3:00 PM	5:00 PM	Next Generation Round Table w/ Les Banwart
5:00 PM	6:00 PM	Next Generation Reception
7:00 PM		Next Generation Dinner Reservations Free Evening

*Indicates closed meeting.



Tuesday, March 2

7:30 AM	12:00 PM	Registration
7:30 AM	10:00 AM	Continental Breakfast
8:00 AM	9:30 AM	General Session, Team Reports and Industry Update
8:30 AM	10:00 AM	Spouse Breakfast, Shopping Talk & Fashion Show
9:45 AM	12:00 PM	Industry Round Tables: Precision Machining Tools, Dies, Molds & Special Machines
10:30 AM	3:30 PM	Optional Tour: Island Tour & Shopping
12:00 PM	1:30 PM	Robotics Team*
12:00 PM	2:30 PM	Past Chairmen's Luncheon*
2:00 PM	6:00 PM	ISTMA Board of Directors Meeting* Free Evening

Wednesday, March 3

7:30 AM	12:00 PM	Registration
7:30 AM	10:00 AM	Continental Breakfast
9:00 AM	11:00 AM	Surviving the Present by Preparing for the Future (Dan Pring)
11:30 AM	6:00 PM	Golf Tournament at Mahogany Run (1:00 p.m. shotgun start)
12:30 PM	4:00 PM	Optional Tour: Catamaran & Snorkel Sail
7:00 PM	9:00 PM	Networking Reception & Dinner

Thursday, March 4

7:30 AM	12:00 PM	Registration
7:30 AM	10:00 AM	Continental Breakfast
8:00 AM	9:30 AM	Board of Trustees
10:00 AM	12:00 PM	Keeping an Eye on Washington (Omar Nashashibi & John Guzik)
12:00 PM	1:30 PM	Executive Team Meeting*
6:30 PM	7:00 PM	Chairman's Reception
7:00 PM	11:00 PM	Annual Dinner Dance

Register online at www.ntma.org

Meet Your Team Leaders! Next Generation

In 2010 the Next Generation Team will be led by Frank Burch from Southern Machine Works in Duncan, Okla. The Next Generation Team's goals are to:

- Provide networking opportunities for new and future business leaders
- Increase involvement of new and future business leaders in the NTMA
- Provide a rotational education and training program to help businesses plan and train for leadership transition

Southern Machine Works (SMW) has been in business since 1964 and an

NTMA member since January 2004. SMW was purchased by Frank's grandfather in 1974. Frank is the 3rd generation to serve in the business.

Although he grew up around the business, Frank decided early on to make his own career path. At Oklahoma State University he majored in Accounting and Finance, with minors in Economics and International Business. After college he worked as an auditor for Coopers and Lybrand and then Halliburton, where he attained his Masters in Business Administration. Halliburton transferred him to

Houston, but the desire to go back to Oklahoma was big. He moved back to his home state and took a job as an auditor with Ernst & Young.

When Frank's grandfather passed away in 2000, Frank started doing the accounting for SMW in his spare time. In 2001 Frank's father, Terry, asked him to work for the company full-time and he's been there ever since.

SMW serves the oil and gas industries along with some automotive. They provide CNC Turning and Milling services to customers, as

well as some fabrication and assembly work. Frank said the company is committed to thriving, even in this time of uncertainty. They have a continued focus on investment in new technology. While their customers don't currently require it, SMW is working on achieving ISO 9001/AS 9100 certifications to help improve product and process quality while differentiating them from their competitors.



Frank (left) and Terry Burch at the helm of Southern Machine Works.

About his NTMA membership, Frank said, "Actively participating in NTMA has been one of the best business decisions we have made. The NTMA programs have either saved us money or helped us make better informed business decisions. The networking opportunities have allowed us to learn from others and share our successes and failures. NTMA's legislative initiatives ensure that the members' needs are not ignored by Congress or the Administration."

Frank and his wife, Misty, took up scuba diving in 2004 as a way to get away from the business and do something together. Since then, they've taken dive trips to the Dominican Republic, Bonaire, Roatan Honduras, Cayman Brac and Cozumel. This year they dove with blacktip reef sharks and dolphins during a trip to Roatan.

Frank invites all NTMA "next generation" members to join him for the 2010 Annual Convention in St. Thomas.

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Managing During Turbulent Economic Times

by Jeff Kvilhaug

"It was the best of times, it was the worst of times."

While Charles Dickens used this famous line to begin *A Tale of Two Cities*, it could easily be used to describe today's economy as well. Based on the recent musings of our economic pundits, our economy seems destined for some unsettled times. So as an entrepreneur, how do you survive these interesting times? If you are one of the fortunate few who are prospering, keep focused and continue your current course. But, remember to pay attention to the things that you can and will need to improve.

If you are one of the many who find themselves in a lull or worse, here are a few practical suggestions that are often overlooked in times of stress.

Get close to your customer, if you aren't already

Sales is a people business, and there's nothing like a personal relationship to help you understand what is important to your customers and how you can help them with it. A word of caution: don't go at this like a used-car salesman. Do it with a genuine interest in learning what your customers want and need – with their best interest in mind. The minute you begin selling, you'll lose the opportunity to learn what really matters to your customers. Listen, get close and take a genuine interest in their business. Yours will be better for it.

Develop a plan and use financial models

While many entrepreneurs are highly creative and independent – critical attributes

during the start-up and growth phases of a business – surviving a less prosperous time requires the discipline of a plan to provide consistent direction. This goes beyond the financial model but certainly involves it. Avoid including unrealistic sales in your plan. I consistently see people trying to sell their way out of a financial crunch rather than adapting their resources to the reality of the business. When the sales don't happen, they struggle to adjust – usually very late. Be realistic.

Stay focused on your plan and follow through

It may be a lot of basic blocking and tackling, but a sound plan is valuable. Bring the discipline to see it through, and help instill it in others. Consider course corrections, but execute the plan consistently.

Get lean and manage cash tightly

Watch capital expenditures and new investments, and reconsider discretionary expenses, deferring or eliminating as appropriate. If you have inventory, get lean there as well. Cut safety stock, increase inventory turns, and try to migrate to a just-in-time concept. Use Pareto's principle: 20 percent of your inventory accounts for 80 percent of your sales and cash flow. Conversely, 80 percent of your inventory accounts for only 20 percent of your sales and cash flow. This is the portion of inventory to attack and turn to cash. Get people focused and motivate them to get lean in this area.

Get close to your lenders

When things are going well, it's easy for you to treat your lender as your best friend. But everyone wants to hide when they hit challenging times. Resist this temptation. Communicate with your lenders, bring them into our plans, and tell them your story. Be honest and ask for suggestions. Your lender's input will strengthen our plans. Lenders want to know what's going on, and in the absence of information, they typically dream up scenarios far worse than reality. Communicate with them openly and honestly.

Although these suggestions sound simple, they are not easy to do. Many talented people and businesses fail at these basic things. While they might not guarantee your survival, they might provide you with the chance to see another day. And with that day, you can still chase the opportunities that these times create. Odds are your competitor isn't doing these things very well. And that creates your next real opportunity.

Jeff Kvilhaug is a manufacturing principal at Larson Allen. Contact Jeff at jkvilhaug@larsonallen.com or 704-998-5209.

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NTMA Welcomes LarsonAllen as Newest National Associate Member

NTMA is pleased to announce that LarsonAllen has joined the NTMA membership.

LarsonAllen LLP is an accounting, tax and advisory services firm. They are a

nationally recognized professional service firm with expertise in serving over 2,000 manufacturing and distribution clients throughout the United States and abroad. They work with middle-market organizations and understand the unique challenges of building a sustainable business in today's marketplace. LarsonAllen knows manufacturing and distribution businesses from a financial, operational, and strategic

standpoint. Nationwide they have over 1,200 professionals with offices in Minnesota, Wisconsin, Missouri, Pennsylvania, North Carolina, Washington DC, Massachusetts, Florida, Texas and Arizona.

For more information, visit their website at www.larsonallen.com. Or contact Erik Skie, Principal, Manufacturing and Distribution at eskie@larsonallen.com or phone (612) 376-4629.

Newly Elected Officials Visit Weiss-Aug

On Monday, Sept. 28th, a little more than a month before New Jersey's gubernatorial elections, NTMA member Weiss-Aug had the opportunity to host a visit from Kim Guadagno, the newly elected Lieutenant Governor of New Jersey. Guadagno was in the midst of campaigning for Chris Christie, the new Governor.



Newly elected Lieutenant Governor Kim Guadagno tours Weiss-Aug Co. in East Hanover, N.J.

In visiting Weiss-Aug, Guadagno, along with Assemblyman Alex Decroce, was able to see the high level of engineering and technology that make up today's American manufacturing facilities. Weiss-Aug is a contract manufacturer for mostly medical and automotive OEMS. The tour was given by Dieter Weissenrieder, President of Weiss-Aug, and as they toured the various areas of the facility, discussions centered on the many issues faced by manufacturers trying to continue to grow their businesses in New Jersey.

Guadagno noted the high level of skill required by the tool & die makers that were building the tools, and the difficulty of finding qualified people locally also was discussed. On the manufacturing floor, the cleanliness and the

amount of automation and engineering were examined, which resulted in a discussion about the significant investments businesses needed to make in both equipment, people and processes to compete in the global marketplace.

After the plant tour, Guadagno met with several employees, addressing concerns about shortages of skilled

workers, high costs for doing business in New Jersey, incentive programs offered by other states to lure businesses out of New Jersey and the overall high cost of living in New Jersey. Guadagno mentioned many changes that she and Chris Christie would make that would positively affect New Jersey's businesses, and promised to visit the company again.

Weiss-Aug hopes to see change in the new administration so that New Jersey can be a manufacturing friendly state in which businesses can continue to grow and prosper.

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Do you have an Exit Plan? Why not?

(This is another article in a series about a process of ongoing improvement using TOC, Lean and Six Sigma.)

There is nothing as fundamentally important as having an Exit Plan. The purpose of exit planning is for owners to achieve their financial and lifestyle objectives after they leave their business. It covers when you plan to exit, how much you'll want or need from a sale/transfer of ownership, and to whom you want to transfer (a third party, family or employees/co-owners).

Dr. Lisa: What does Exit Planning have to do with TOC, Lean, Six Sigma and continuous improvement?

Brad: It is consistent with TOC's three questions. What to change, what to change to and how to cause the change. When a business owner decides

how much he or she needs from the sale of the business by when, we can calculate the growth needed to accomplish the objective. A business that has put in place excellent processes — the kind TOC, Lean and Six Sigma provide — coupled with a management team that can operate without being dependent on the owner, is much more valuable.

Dr. Lisa: How is exit planning done?

Brad: First, the business owner works with an exit planning advisor to develop the framework for his exit plan. This is usually developed by answering a series of questions aimed at determining when he wants to exit, how much is needed from the sale/transfer of the

business, in addition to other personal resources, and to whom the business owner wants to sell/transfer the business.

Next, the exit planning advisor coordinates the business owner's other advisors — like the CPA, Estate Planning attorney, financial/insurance advisor and business consultant — to flesh out the plan. From then on, apart from course corrections, the plan is being implemented over time until the ultimate exit.

Dr. Lisa: Are most businesses ready to sell?

Brad: No, most are not ready to sell. And a business that is not ready to sell will either be sold for less than the business owner needs, or it will be liquidated.

Dr. Lisa: In real estate, it is well known that before you buy a property, you have an exit strategy. Is this true for businesses, too? Do most business owners go into business with an exit plan?

Brad: No, most businesses are owned and run by entrepreneurs that have grown their business with time. Most of these owners are totally consumed by running their business, and have not thought enough about their eventual exit from the business. This is unfortunate because it can take several years to make the business valuable enough to meet their financial and lifestyle objectives after they leave the business.

Dr. Lisa: What's the impact of the economy on exit planning?

Brad: Unless the business managed to maintain its sales and profit levels and growth rates, the business is probably less valuable. So even business owners with exit plans have probably extended the date of their exit and/or reduced the amount they are willing to accept for the business.

Dr. Lisa: How about demographics of business owners?

Brad: With so many businesses owned by baby boomers, there are a lot of business owners out there that would like to exit in the next few years. I heard a statistic the other day that half of all business owners are emotionally — not financially — ready to sell, but are waiting for a white knight to appear, meaning they aren't doing anything to properly prepare the business for sale.

Dr. Lisa: What are the choices a business owner has for selling or transferring his business?

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Brad: The business owner would usually make the most money by selling to a third party. But many business owners have different objectives, and would prefer to transfer the business to a family member(s), or another owner(s) or to an employee(s). Exit planning helps in both cases.

In a sale to a third party, exit planning can minimize taxes and yield the greatest amount of after-tax proceeds from the sale. In a transfer, exit planning can help the owner keep control as long as necessary, minimize risk, and maximize the amount of after-tax money received.

Dr. Lisa: We work with owners of small businesses all the time. I see how exit planning fits. Business owners need to put in place robust processes — using TOC, Lean and Six Sigma — that help their company grow and become more and more profitable. And they need to put in place a management team to run the business without being dependent on the owner. Both make the business more valuable.

Brad: Correct. Without an exit plan, a business owner does not have an end in mind. However, even with an exit plan, growing more and more sales and profits is not a given. The TOC approach to marketing and sales fits perfectly. Most of these business owners

do not now have an offer that is “unrefusable” to their customers and prospects (a “Mafia Offer”) and a robust sales process to deliver it. Improved marketing and sales is a requirement for every company, with or without an exit plan. But coupled with an exit plan, the business owner is more likely to meet his exit planning objectives.

Want to have an Exit Plan? Go to www.ScienceofBusiness/ExitPlan.com and take the first step.

The Science of Business, www.ScienceofBusiness.com, helps companies rapidly increase sales and profitability by implementing the Theory of Constraints (TOC), Lean and Six Sigma.

“Dr. Lisa” Lang is President of the Science of Business. She recently served as Dr. Goldratt’s Global Marketing Director, and is a member of the Board of TOCICO. She can be reached at 303-909-3343 and DrLisa@ScienceofBusiness.com.

Brad Stillahn is a business owner who successfully implemented TOC in his own business, and is now helping other business owners do the same. Set up a TOC Advisory Board for your company! Brad can be reached at 303-886-9939 and Brad@ScienceofBusiness.com.

NTMA Customer Value Proposition

“Your membership in the National Tooling & Machining Association will position your company amongst the best in the industry by providing the resources and tools necessary for world class performance.”

“Your return on investment is immediate as you leverage the vast knowledge that resides within the Association and apply it to your business.”

“An advocate for our industry, NTMA leads the charge for precision manufacturing through networking, lobbying, education, procurement, advice and assistance, and focused cost savings programs.”

Calendar of Events

2010 NTMA Annual Convention

Frenchman’s Reef & Morning
Star Beach Resort
St. Thomas, U.S. Virgin Islands
February 28-March 4, 2010

NTMA/PMA Legislative Conference

Westin Washington, D.C. City
Center Hotel
Washington, D.C.
April 20-21, 2010

NTMA/PMA Contract Manufacturing Purchasing Fair

Hyatt Regency Irvine
Irvine, Calif.
May 12, 2010

38th Annual NTMA/NIMS National Apprentice Competition

Indianapolis, Ind.
Hosted by Indiana Chapter,
NTMA
June 9-12, 2010

13th ISTMA World Conference

Caesar’s Windsor
Windsor, Ontario, Canada
June 20-24, 2010

Joint NTMA Fall Conference & PMA Annual Meeting

Amelia Island Plantation
Amelia Island, Fla.
October 6-10, 2010

NTMA/PMA Contract Manufacturing Purchasing Fair

MGM Grand at Foxwoods
Mashantucket, Conn.
October 29, 2010

Why Branding Matters

By Craig Johnson, Matchstic

What keeps you up at night?

Most business owners lay awake at night thinking about one thing: growth. How do we increase sales? Do we have the right employees? What new products can we introduce? Are our customers telling their friends about us?

There are a lot of factors that contribute to organizational growth, but they all start at the same place. In order to grow, a company needs to address the following three things: unity in leadership, motivated employees and creating happy customers. These three groups are vital in a company's growth for different reasons.

What is the value of these three things?

Starting with the last group first, traditionally speaking, Happy Customers **buy**. The end all, be all of sales figures boils down to customers purchasing a product or service and being happy with

their decision. The second group, Motivated Employees, intrinsically creates happy customers by **servicing**. Too often we see customers switch brands or service providers because of a lack thereof. And finally, motivating employees starts at the top. United Leadership **gives direction**. Without clearly defined goals from leadership, the result is not likely happy customers.

Interestingly, those are all behaviors. In order to get the intended behaviors from each of these groups, we need to manage perception. Perception is the cornerstone of branding and tells us who we are and why we matter.

If customers are going to buy, they have to **see value**.

If employees are going to be motivated, they need to **see purpose**.

If leadership is going to give direction, they need to be **united around a clear vision**.

So if there is a growth problem, it means more realistically, there is a perception problem.

A brand is someone's **perception of you**. Branding is all about what people say, think and feel about you. It's not what you say it is, it's what they say it is. Ultimately they have to decide whether you are worth their investment.

Notice that we're not talking about actuality, but what others **think** about you. So if a brand is perception and growth is about managing percep-

tion, then the path to growth starts with developing your brand.

So how do we go about developing a brand? There are three steps:

1. Define intended perception

It starts with defining the perception you want people to have of you. In order to accomplish this, leadership has to be united in the vision for the company. I talk to business leaders all the time and find that few leadership teams are truly united in the overall vision. That is always the first step. A simple task would be to get your leadership to agree on the answers to the following questions:

- How do we want others to define our company to a friend?
- What is the core value we can offer to customers that makes us unique?

2. Build your culture around the company's larger purpose

It's not enough for leadership to simply agree on the direction of the company. It needs to be filtered throughout the entire organization. Be very clear about the vision. Get people on board. If someone isn't on-board with the direction, understand why and then decide if they are right for the company's future. If the entire company doesn't believe in the vision, how do you expect customers to believe in you?

3. Design the customer's experience

Now that the leadership and the entire organization is on board, it's time to invite your customers on board. Everything you do affects their perception of you. Every. Single. Thing. Don't take anything for granted. Walk through your customers' experience and determine what they are thinking at every point of interaction with your brand.

Ultimately, when you have achieved alignment among the leadership's vision, your employees' passion and what your customers value, then you have built a great brand and are on the road to growing your company to its deserved legacy.

Craig Johnson is co-owner of Matchstic, a brand identity house in Atlanta, Ga. He can be reached at craig@matchstic.com or at 404-446-1511.

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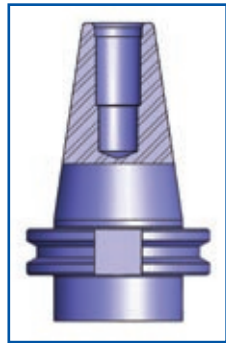
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The Retention Knob

Let's review what we know about retention knobs and toolholders. In the Spring 2009 edition, the CTMA VIEW published "Do Your Toolholders Fit Your CNC Spindles? (We've Taken a Second Look)" which was followed by an article in Modern Machine Shop's June 2009 edition entitled "The Knob Problem." These articles were written by or with information supplied by John Stoneback, President of J&M Machine Inc. New information was brought to light about V-flange tools and the relationship of the retention knob and the marks found on toolholders used in today's CNC machining centers. In this article, we'll review the information provided in previous articles and update the findings with information from companies that have begun using the new High Torque retention knobs and test fixture.

Retention Knob 101

Think back to the time before "NC" and "CNC" machines were introduced into the machine tool market. The NMTB toolholders, which were used as early as 1940, had a straight diameter at the small end of the toolholder and the machine spindles had a hole with clearance for that diameter. The draw bar was used to hold the toolholder in place but did not project into the tapered areas of the toolholder. When the toolholder was put into the machine spindle, and the draw bar was threaded into the toolholder and tightened, there was no expansion at the taper end of the toolholder because the straight diameter was in the clearance hole in the spindle. If there was any tendency for growth of the tapered area, the spindle would restrain it.



The retention knob of today came into the picture in the 1970s. Caterpillar designed a retention knob and toolholder standard so the tooling for the different

machines they purchased would have interchangeable tooling. The Cat standard was adopted by the ANSI (American National Standards Institute) in 1978 (ANSI B5.50-1-1978). Unlike the other standards in existence at that time, the Cat retention knob standard had no pilot and the thread length was shorter. The standard for the toolholder, however, had a tap depth which was 0.260" deeper than the knob length and a c-bore for a pilot with a plus 0.0156

diameter tolerance. This design was intended for general use, not high speed or unusually high accuracy requirement machining.

The tightening of retention knobs has not been addressed by any of the international standards. In most cases, operators don't use a socket and torque wrench when installing the retention knob. The logic used when tightening is: if the rpm of the tool is high, or the metal is hard, or the cutter is a rougher, or when using a slab mill, make sure the retention knob is tight so the toolholder will not pull out of the machine. Wrenches used can be 2-3' long and often a hammer is used to make sure the knob is tight enough.

The torque pressure used to tighten the retention knob has nothing to do with the size of the cutter, the hardness of the metal or the rpm of the cutter. The axial pressure of the retention knob on the toolholder should be greater than the draw bar force exerted by the Belleville washer pack to ensure that

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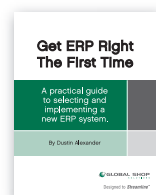
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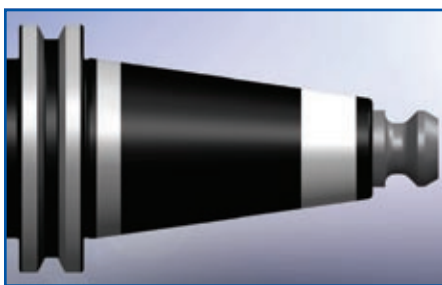
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the tool will pull out of the machine before the retention knob pulls away from the toolholder. Tightening the retention knob to a torque setting that exerts a force 1.2x the draw bar pressure is adequate to achieve our goal. Exerting a greater force is not necessary and is counterproductive. J&M designed a chart for determining retention knob torque settings for 30, 40, 50 and 60 size spindles. Note that using the same settings for standard retention knobs is not recommended.

The problem:



The marks at the gauge line and at the threaded area of the toolholder shanks started to show up after the retention knob was used, rather than the draw bar. The area between the gauge line and the threaded area have no marks. The tolerances of the toolholder tapers were suspected as the cause of the marks. In response, the tool manufacturers tightened the grinding tolerances from 0.000130", the tolerance spec for the NTMB toolholder, to the AT3 limit of 0.000079", but the marks on the toolholder shanks are still present today. The spindle grind tolerances remain the same for both types of toolholders.

The machine and toolholder manufacturers were aware of the problem for years, but did not want to deviate from the 5 present standards (ISO, DIN, JIS, JMTBA and ANSI). They also did not have a gauge to accurately, reliably and inexpensively check out the problem. There was no easy fix for the problem. Having no gauge to check the growth of the shank when the retention knob was installed made the problem very hard to detect. The companies that had

equipment capable of checking a taper that was as close as the toolholder found them to be very costly and needed an inspection room environment to maintain the accuracy that was required.

A new product developed by J&M Machine, "The Taper Shank Test Gauge," makes it possible to detect minute changes in diameter and detect the amount of looseness at either end of the toolholder. This gauge can detect growth in the diameter of the toolholder shank as little as 0.000007" and movement at the gauge line and the threaded area of 0.000025". The test fixture has a tapered hole ground to the same tolerances as the spindle of a CNC Machining Center. The gauge has three indicators which measure movement of the toolholder out of the test gauge. The gauge has an indicator at the gauge line of the toolholder (large end) and at the small end of the toolholder at the threaded area. These indicators detect any movement perpendicular to the center line of the toolholder at either end of the toolholder caused by a bulge at either end of the holder. The gauge is stable and needs no calibration standard. The cost is \$1500.00 for the 40 taper and should pay for it self in a month or two.

Manufacturers of machine tools, toolholders, touch probes, grinding attachments, boring heads, thread milling tools, end mills and insertable mills, are realizing that to get the best performance from their products, the expansion problem must be dealt with.

Before evaluating your CNC machine's performance, make sure the drawbar pressure is at least 80 percent of the original manufacturer's specifications. The drawbar force should be checked on a regular basis. The Belleville washers have a life span that is determined by the number of times they cycle. Testing of your draw bar force should be done every 90 days, or 500 hours of use. If your facility is working three shifts a day, then check once a month. It's important to note that once the Belleville washer pack begins to degrade and the pressure readings begin

to diminish, the failure rate accelerates. The frequency of checking should increase to anticipate the required replacement of the washer pack and replacement or maintenance of the gripper device (collets or ball).

Findings

All the major brands of toolholders and retention knobs were tested at various torque settings from 20 ft/lbs through 160 ft/lbs and growth at the gauge line was detected in all tests. The results of the tests proved that when tightened, retention knobs made to any one of the 5 world standards would expand the toolholder shank at the small end, causing the indicators at the gauge line (large end) to show movement when pressure was applied 90 degrees to the axis of the toolholder. The tests showed that the increase in diameter of the toolholder in the test varied from two to 12x the grind tolerance. The movement of the toolholder out of the spindle was as much as 0.0032".

The following information was compiled with the test gauge and feedback from companies who have used the new High Torque Retention Knob. Testing with the new gauge made it easy to find and solve many of the problems listed below.

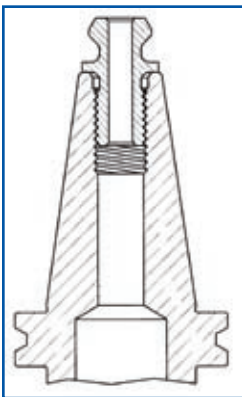
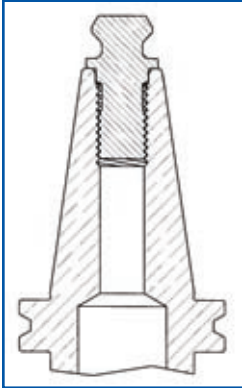
Toolholder expansion at the threaded area causes the following problems:

- Increased tool breakage
- Reduced depth of cut
- Increased machine vibration
- Reduced feed rate
- Increased tool wear
- Reduced RPM
- Increased costs
- Reduced boring accuracy
- Increased tool chatter
- Reduced Probe accuracy
- Increased spindle bearing breakdown
- Reduced Belleville washer life
- Increased toolholder shank wear
- Reduced accuracy of tools
- Increased noise
- Reduced drilled hole straightness
- Increased power consumption
- Reduced balance of high speed tools

- Spindle gauge line flare
- Reduced contact area of toolholder & spindle

Thinking outside of the box

After building the Taper Shank Test Gauge it was easy to solve the problem of the marks on the toolholder.



After comparing the ANSI toolholder and retention knob standards, J&M has developed a new design retention knob. By making the retention knob as long as possible to fit the toolholder, adding a pilot, increasing the undercut length and designing the threads to be balanced, the new "High Torque Retention Knobs" solve or

reduce all of the problems listed above. The instructions for tightening the knobs are included with each shipment. The High Torque knobs cost only about 25 percent more than the standard retention knobs on the market today, but with the amount that will be saved on tools, the initial cost should be recuperated within one or two months.



J&M Machine Inc. is looking for manufacturing facilities to test the new retention knobs. If you experience any of the problems listed above with your CNC mills and would like to solve



them, are willing to participate in a tool study, and maintain well-detailed cutting tool usage records, High Torque Retention Knobs will be supplied at no cost for the study. Participating companies must be willing to

document the test and allow J&M to publish the test results.

John W. Stoneback, J&M Machine Inc.

J&M Machine, Inc. has manufactured retention knobs for 35 years. Visit our Web site and download information about our products at www.jmmachineinc.com. Test documentation on this subject can be downloaded at www.retentionknob-torquetest.com. If you have further questions call 440-357-1234 or e-mail sales@jmmachineinc.com.

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