



The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

No. 111

July 2005

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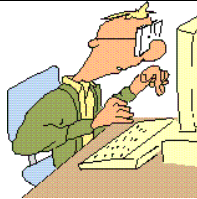
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Editor's Desk

Victor Kozakevich

Shopping at a flea market a few weeks ago, I came across an old pocket watch movement for sale, at a price I could well afford. It's the kind made in England about two hundred years ago, with a tiny chain connecting the mainspring barrel to the spiral fusee in the gear train.

Watch movements of that time were mostly hammered and filed out of chunks of cast brass, with the steel shafts turned on hand-cranked lathes, and flat surfaces polished by hand. The parts were sold from one shop to the next as the work became more precise, until the master watchmaker put his name on the movement, declared it finished, and offered it for sale.

Watch collector friends offer that time had a different value back then, before electric motors and high-speed cutting tools changed days to minutes.

Well, given that the tiny chain is broken, and the ratchet mechanism that retains the winding has worn down over the many hours, I'll get to turn back the years, slowly make the repairs, and learn what those skilled men with files knew about watches.

Next Meeting

Thursday, July 7, 2005

7:00 PM. Meetings held at:
Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Membership Info

Annual dues of \$25 (via checks made payable to "NEMES" and mailed to our treasurer) for the calendar year are due by December 31st of the prior year.

Missing a Gazette? Send mail or e-mail to our publisher.

Addresses are in the left column.

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President's Corner

Norm Jones

The Meeting

The July meeting will be one of our traditional semiannual "poster sessions". For those of you not familiar with this format, it is an informal meeting where everyone is encouraged to bring in a project in progress to show off, as well as an opportunity to discuss any subject that comes to mind. We have a great deal of collective expertise among our members. This is a great opportunity to share that knowledge.

A Great Weekend

The middle of June is when I usually take one of my longer road trips of the year, to the Coolspring Power Museum Antique Engine Show in Coolspring, PA. The weather forecast for the area was not very favorable. The memory of three or four years in a row of rainy weather was enough for me to decide not to make the trip this year. A five hundred mile trip in the rain did not seem too appealing. This is the first time in many years that I have not gone to this show. Coolspring is a great museum, featuring probably the best collection of antique engines in the country. I also missed out on the opportunity to get to visit with many friends that I don't get to see at any other show during the year.

I checked the show directory for an alternate destination for that weekend and selected "The Historic Joanna Furnace & Hay Creek Historical Association Show in Morgantown PA. I had never been there before. My friends Harold and Dorothy Seibert, in Hummelstown, PA suggested that I stay with them on Friday night and go to the show with Harold on Saturday morning. With directions in hand, I set out on Friday morning. I arrived around 4:00 PM and Dorothy suggested that we go to the "Old Country Buffet" for supper. Those of you who went on this year's "Cabin Fever" bus trip will remember that we went to an "Old Country Buffet" on Saturday night and that it was very well received. It turns out that this chain also

has a restaurant in Medford, MA that I have gone to on a few occasions. Thanks for the tip Dorothy!

Harold and I set out for Morgantown at 6:00AM after enjoying a great breakfast that Dorothy prepared. We arrived at the show around 7:30AM and picked out a nice shady spot to display our model engines. During the course of the day, I met a number of friends who didn't expect to see me there. Gary and Jared Schonely (Cabin Fever and Iron Fever show promoters) were there among others. Gary mentioned that the "Iron Fever" auction scheduled for August 12 will include various patterns and castings from the former "Breisch-Peters Engine Co". Each model will be auctioned separately for those of you who might like to get into the model engine casting business. Check out Gary's ad in the July/August HSM or at <http://www.cabinfeverexpo.com>.



In this photo, a young fellow and his father showed a great deal of interest in our model engine displays. Seated is fellow modeler Dick Upshur. I always like to encourage young people to get into our hobby. I expect to see them again in August at Kinzer PA.

The pictures below are Harold Seibert (on the left) at his display, as well as individual pictures of Harold's models. As you can see, Harold does beautiful work.

Harold and I spent Sunday morning looking over his shop. It is very spacious and includes both metal and woodworking tools. I am especially envious of those of you who have your shop on ground level with plenty of windows.



The Meeting

Max ben-Aaron

June 2005 meeting -- Minutes

The June meeting came to order in the Jackson Room of the Charles River Museum of Industry, Thursday June 2, 2005, under the gavel of President, the Venerable Norm Jones.

NEMES elects its officers at the June meeting, so this is the beginning of the administrative year. After welcoming our new members and making some personal observations, Norm took the opportunity, on behalf of the entire membership, to thank the members who made the last year such a success:

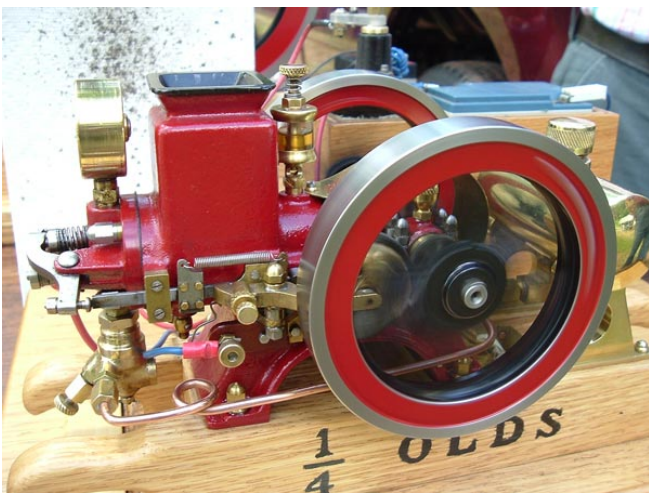
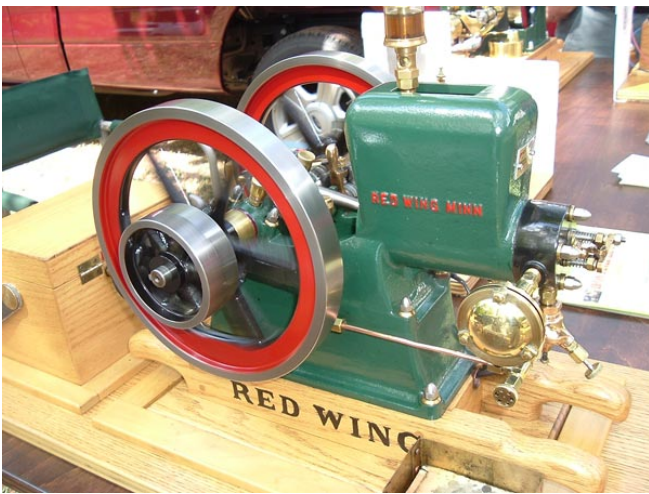
Gail Martha and the Ladies Auxiliary, V.P. Steve Cushman, ex-Treasurer Rob McDougall, Director Mike Boucher, Gazette Editor Victor Kozakevich, Publisher Bob Neidorff, Meeting Notes Editor Bill Brackett, Webmaster Errol Groff, Rollie Gaucher and Mike Boucher Aprons and Haberdashery, Frank Dorion Legal Affairs and Max ben-Aaron Meeting Notes.

A motion to elect the following slate of officers for the coming year was unanimously approved.

President	Norm Jones
Vice President	Steve Cushman
Treasurer	Dick Koolish
Director	Mike Boucher
Membership Secretary	Ed Borgeson
Secretary	Max ben-Aaron

The advertised speaker was obliged to cancel at the last moment, so several members bravely stepped up to the podium to speak extempore.

Alan Bugbee regaled us with a tale of an ornamental lathe and mill and some of the



I departed for Chelmsford at around noon. I would like to thank Harold and Dorothy Seibert very much for their hospitality and a great weekend! See you on July 7.

Norm

accessories available for fine work. "If you can imagine it, you can do it."

Dick Boucher had previously told us about using toolmakers' buttons for precisely locating holes in a part. Many members had approached him for more details, so he repeated the gist of his talk, describing the buttons. He explained how to drill and tap holes at the marked out positions (but not with ultimate precision) and mount the buttons, adjusting their positions precisely. Then, with the part on a face-plate, the buttons are successively set up to run true, removed, and the holes bored.

Members indicated that they would like to have more speakers addressing workshop practices. Norm Jones noted this as a guide to scheduling future meeting topics. All feedback and suggestions are welcomed.

The meeting ended with Walter Winship talking about boiler construction and maintenance for his Stanley Steamer. The original Stanley design, a type used since the beginning of the twentieth century, is a fire-tube boiler, with a diameter of 23" is capable of providing steam for a 20 horsepower steam engine, with a superheater in the combustion chamber. It is wrapped with piano wire to provide the strength to resist the 650 lb/sq. in pressure. It has some shortcomings, particularly poor circulation. An alternative design, the Doerr boiler, has advantages, which he discussed. He described the construction and testing of the Doerr boiler that he built for his car.

Max



Treasurer's Report

Richard Koonish

As of June 23, 2005:

Income from memberships	\$ 75.00
Cost of June gazette	\$ 152.70
Balance in checking account	\$ 8034.72

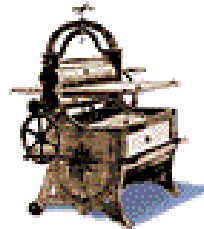
Richard



Web Sites of Interest

Sign up for the NEMES mailing list at:
<http://groups.yahoo.com/group/nemes>

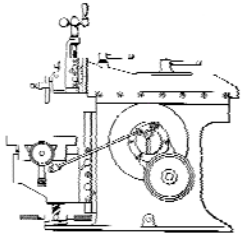
Sparqs Industrial Arts Club Woburn, MA
 Sparqs offers classes, events, and monthly memberships that give businesses and Extreme DIYers access to industrial-quality tools and spacious project areas.
<http://www.sparqs.com/>



NEMES Gazette Editorial Schedule 2005-2006

Here are the closing dates for Gazette written contributions in the coming months:

<u>Issue</u>	<u>closing date for contributions</u>
August	7/22
September	8/19
October	9/23
November	10/21
December	11/18
January	12/23



Shaper Column

Kay Fisher

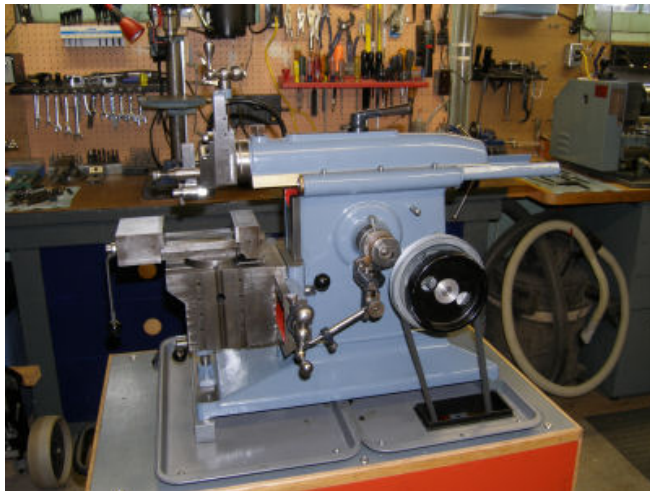
1941 or early 1942, the 7" model was introduced, with the elevating crank coming out on the right side of the base casting. Other changes included 3 oilers on each side of the ram ways (vs. 1) and the motor/countershaft unit nestled up vertically behind the main body.

I found a number stamped on the underside of the ram protector casting that reads "01 : 40". I am not sure about the "1" as it is indistinct and could be a "2". So perhaps it was cast in 1940.

This machine originally came with a flat belt and pulleys (counter shaft to pinion shaft). I guess that it was changed to v-belts sometime in the early 1950s when Ontario's electrical systems changed from 25 cycles to 60 cycles AC. A new motor would have to have been installed. This motor is a Tamper Electric $\frac{1}{3}$ -HP unit which appears to be the correct vintage.

6 Inch AMMCO Shaper Rebuild

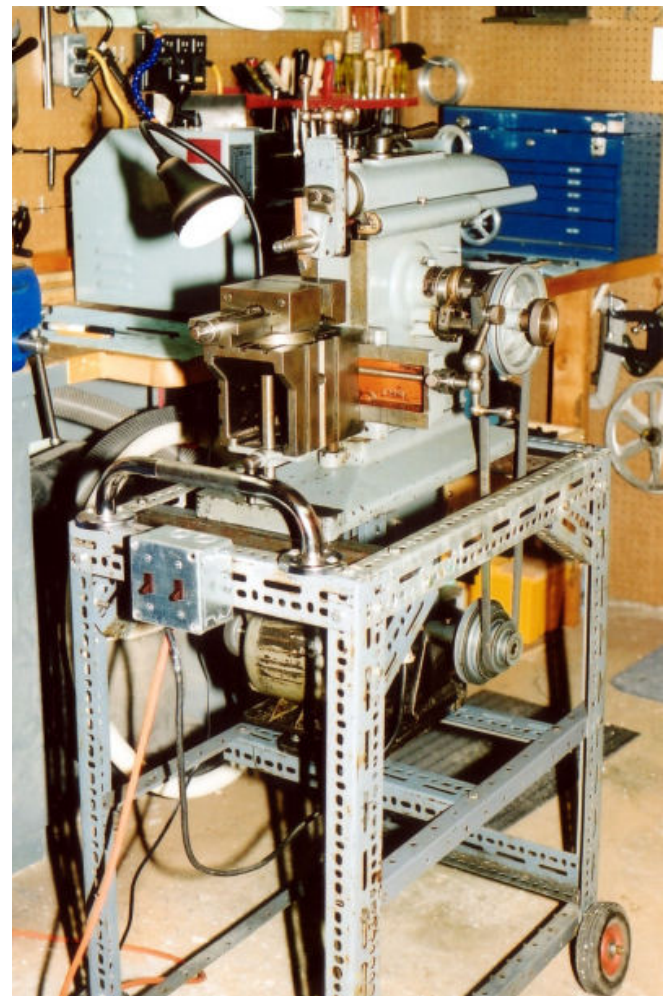
This month's shaper story is from Geoff Kingma in Ontario Canada.



6" AMMCO Shaper

Photo by Geoff Kingma

"In June, 2003, I purchased a 6" AMMCO Shaper. It was complete except for the belt guards. This shaper was designated as a 6" unit but it actually has a 7" maximum stroke.



Old Shaper Stand

Photo by Geoff Kingma



Shaper Label

Photo by Geoff Kingma

The 6" model manufactured until 1941 has the drive unit mounted behind the machine but mounting it below, as the previous owner had done, was an excellent idea since the depth of the stand could be reduced. The table elevating screw is underneath the base. Sometime in late

It had been mounted on a Dexion frame but wasn't very stable due to a lack of mass and no locking casters.

My first task was to make a plywood stand. This has double side panels (1.5" thick) and angle iron cross members under the mounting holes to strengthen the top. The drawer had not yet been finished when I took the photo. I used an entire 4 x 8 sheet of 3/4" plywood for the stand and mounted it on 4" castors with brakes on the front swiveling units. The edging is recycled oak flooring strips. Now it is stable and can be moved easily.



New Shaper Stand Photo by Geoff Kingma

I used it until late 2004, getting to know its capabilities and being fascinated and hypnotized by the rhythmic motion as it cut metal. The finish was quite good but it wasn't very accurate when blocks machined on it were measured front to back and side to side. I also found that I could not ever get the ram gibs adjusted correctly – if I

adjusted it correctly for a short stroke operation, it would be too tight when a long stroke job was required. Also, the cross feed table gibs couldn't be adjusted correctly – good on one side was too tight on the other. In addition all the bearings were sloppy so there was a good deal of "clanking" when it operated.



New Bushings Photo by Geoff Kingma

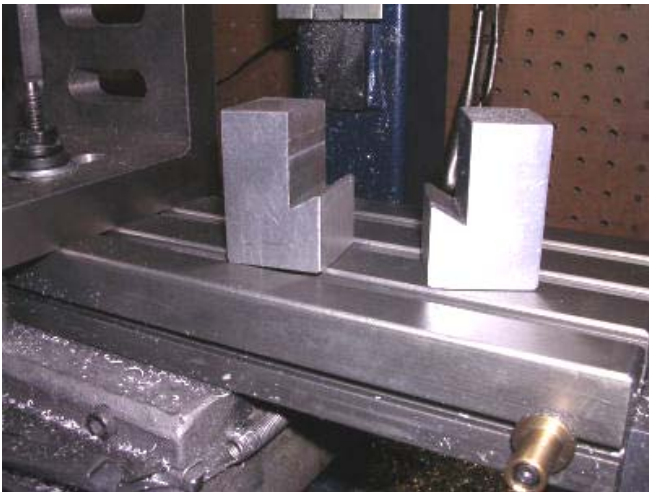
In December of 2004 I decided it was time for a rebuild. All the bushings (available from Boston Gear) and most of the shafts were replaced and the cross feed eccentric was rebored and sleeved. A new rocker arm shoe was made from 660 bronze as the previous one had been attacked by a hammer. After replacing the two bushes for the pinion shaft, I found that the one opposite the drive side was located 0.017" lower.

Putting the main frame on my Taig Mill to rebore the hole was a trifle tricky but worked out well. The new shaft I had made slid in freely but with no discernible play.



Boring Bushing on Taig Photo by Geoff Kingma

I can only figure that the original pinion bushings had been line bored/reamed on an angle. Was this machine assembled on a Monday?



V Blocks Photo by Geoff Kingma

After I pressed in the new bull gear bushing, it was slightly too tight a fit. This is where scraping was in order as I don't have a 1 3/8" diameter reamer. To my surprise it worked and I was able to get the 0.0015" clearance required.

I then made a matched pair of V-way blocks to support the cross rail. When I measured the width of the cross rail (placed on these blocks on a surface plate) it was 0.006" wider on the right side than the left. No wonder gib adjustment was a problem.

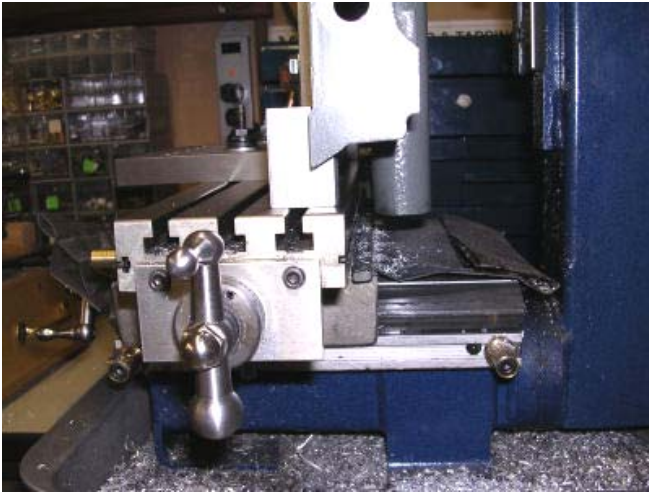


Measuring Cross Rail Photo by Geoff Kingma

Mounting it on the Taig was a challenge. The piece of wood (1/8" plywood) between the angle plate and the casting was to give clearance for the cutter as both parts happened to be the same height.



Cross Rail on Taig Photo by Geoff Kingma

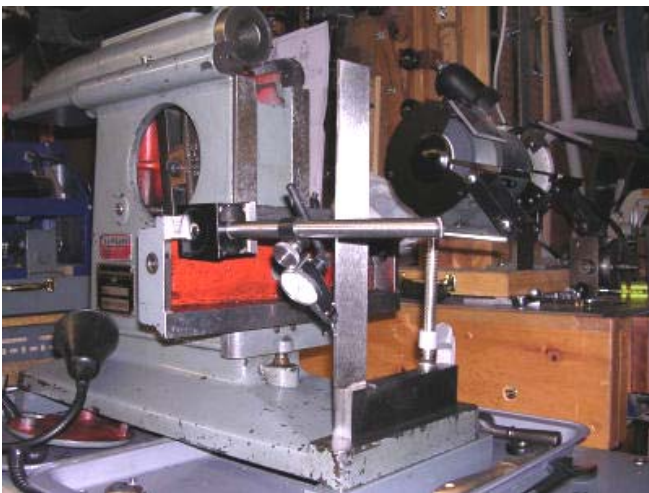


Cross Rail on Taig Side Photo by Geoff Kingma

Since the X-travel on the Taig is less than the part length, some creative sliding was required. When I remounted the table to the cross rail to check for fit, it was amazing how smooth it was with the gib snugged up.

I had scraped out some minor errors on the ways. It was probably not needed but was satisfying to see the improvement in "spots per inch". However, I have a long way to go as far as neat scrape marks are concerned!

Next came the vertical ways on the main frame.



Measuring Vertical Wear Photo by Geoff Kingma

The results from measuring was a lean to the right of 0.007' over 4½" of vertical travel. The top of the cross rail had been machined parallel to the shoe support on the base casting. I am beginning to think that this shaper had been made on the day after a long weekend!

So, after a quick calculation, I figured that a 0.002" shim placed under the right side between

the main frame and base was a good starting point. Separating the base from the frame was easy (6 bolts under original red paint). I cleaned up some crud on the mounting surfaces and re-assembled after inserting the shim strip. Measuring again reveals a lean to the left!

Out with the shim and voila – perfect.

To verify that all was ok, I put a 0.001" feeler under the shoe when the table was at the left and then checked at the opposite end. Result: no difference. Was this machine actually assembled the day after an annual shutdown?

The vice was next. The round base was checked for height on the surface plate and there was a 0.0015" difference from low to high point. Cleaning up both surfaces, re-countersinking one mounting screw hole and a skim in the lathe brought it back to no movement on the indicator. Next the assembled vice was placed on 1-2-3 blocks and the bed was checked. Now there was less than 0.0005" variation. I figure I'll leave it for now.

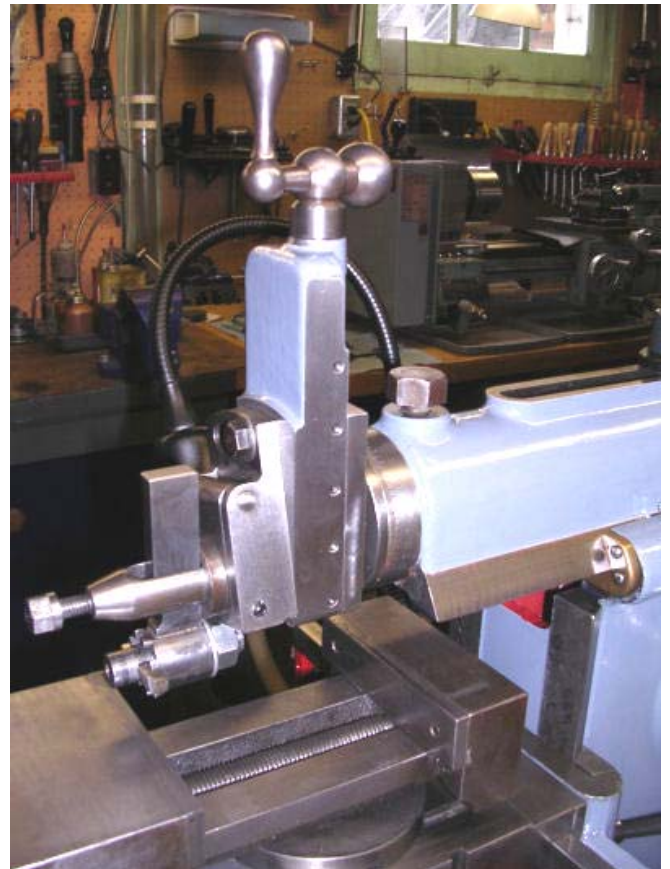
Stripping was next. I used "Citrus Strip" and was pleased with the results. As long as the stripper was not left on too long, I found that it did not affect the filler material used on the casting. However, many spots had to be refilled due to dings and bangs over the years. I used a two-part auto body filler to patch those spots and the ones where the stripper was left in place too long (I learned quickly).

All the flat metal surfaces were cleaned using a sheet of 400 (wet-or-dry) on a glass plate with oil as the lubricant. Round parts were buffed clean. After masking off the exposed metal areas I sprayed the castings with gray auto primer from an aerosol can.



Gray Auto Primer Photo by Geoff Kingma

The final but most complicated item was the V-ways on the ram and main frame. Measuring the height of the way on the frame showed a drop of 0.005" from back to front. More problematic was that the sloping part of the way was 0.012" wider at the front compared to the rear. No wonder I couldn't adjust the gib. The gib itself was 0.005" narrower in the middle compared to the ends. To help minimize future wear, I drilled 4 extra holes for oilers in the frame per the 7" model.



Clapper After Photo by Geoff Kingma

The main frame was next and I located it using the gib side as a reference. This took over an hour. First the horizontal part of the ways were machined. Then I raised the quill by 0.003" and proceeded to machine the sloping part of the way opposite the gib side. This took a while as I only cut 0.002" per pass. Cutters this big make lots of noise in a hollow casting! It was amazing to see how the part had worn in an undulating pattern. As each pass was completed, some high spots disappear. Someone suggested that I use power feed to get a smooth surface. I did one pass manually feeding the table and was amazed how different the surface was, even though the mill's table appeared to have no play. This operation took the better part of a day to complete.

Once I got back to my place I realized that the new gib strip had to be wider than the original. I picked up a piece of 3/16" ground stock and cut the required angles on the Taig using the "sliding" method once again. After a quick clean up of machined surfaces, a check was done on the ram assembled in the frame with the new gib snugged up. It was smooth and consistent over the full length.



Milling Ram V-Way Photo by Geoff Kingma

The frame was clearly too big to fit vertically in my Taig Mill so I called a fellow model club member. Before I went to his shop I had to get a 60 degree dovetail cutter of a size to do the ram and frame. This cutter was huge for my small mill but his mill was up to the task. The ram was bolted to the mill bed with a bar machined to fit the shaper vertical slide hole and also through the ram adjuster locking slot. Only a few thou had to be taken off the top (bottom) surface and v-way to true it.



Old AMMCO Decal Photo by Geoff Kingma

After repainting using Varathane Liquid Plastic grey with a touch of blue added (a fairly large touch) and automotive engine enamel red, assembly could finally begin. New oilers from MSC were installed and the felts on the rocker arm shoe and ram ways was replaced. Even though the cross feed nut is worn, I left it as is since a bit of backlash isn't an issue.



New AMMCO Decal Photo by Geoff Kingma

The logo for the door was recreated by my son from a photo kindly sent to me by Cecil Walker, who has an original, unrestored machine. My son used some high-powered software to recreate the logo. To get it to print properly (at the correct size), he put 8 images on a page which took up 10Mb of memory. This "fixed" them to the correct width and height. About 8 members of the Yahoo chat group requested copies so I printed the images onto a transparency (for overhead projectors - becoming extinct!) with a reversed image so that the ink side would be protected. I

stuck it onto the door with 3M #77 spray adhesive. I think it will last longer than the original which appears to be very thin and brittle. I don't think Mylar based plastic had been invented in those days. The only problem is that I probably won't be around long enough to verify this.



AMMCO Shaper After Photo by Geoff Kingma

On my first test run, I was amazed how quietly it ran. The only sounds were hum from the motor along with the click/hiss as it peeled metal. I used the machine to skim the table as it was about 0.005" higher at the front than the back. It is able to cut front to back within 0.002" over 6" and is less than 0.001" side to side. After running it in for a while, I'll do another check and maybe true up the vice to get this down to less than 0.001".

It was a fun project and I am now a very happy camper. I figure that with proper lubrication which it lacked in the past, this baby is good for another 50 years. I am using SAE 20 way oil which doesn't seem to evaporate as does straight non-detergent oil and it sticks on surfaces - highly recommended."

Thanks Geoff for that great story and pictures.

Keep sending me e-mail with questions and interesting shaper stories.

My e-mail address is:

KayPatFisher@yahoo.com

Kay



In the News

Brown & Sharpe stays in RI

Brown & Sharpe, maker of precision measuring instruments, has decided to stay in Rhode Island after considering a move to Connecticut. Hexagon Metrology North America (parent company of Brown and Sharpe) has leased property and is planning to build a 115,000 square foot facility at Quonset Point. The development is on 14 acres in North Kingston, and will house engineering, manufacturing, and distribution of its products.

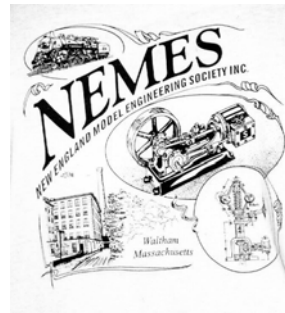


For Sale

Shaper Work CD

Put out in 1944 by the New York State education Department this 326 page manual is chock full of valuable tips and information on using the King of Machine tools....The Shaper. Covered is everything you need to know about the care and feeding of the shaper, use of the shaper, even how to sharpen tools for the shaper. Scanned and saved in Adobe Acrobat format. \$5.00 shipping included.

Errol Groff
180 Middle Road
Preston, CT 06365 8206
errol.groff@snet.net

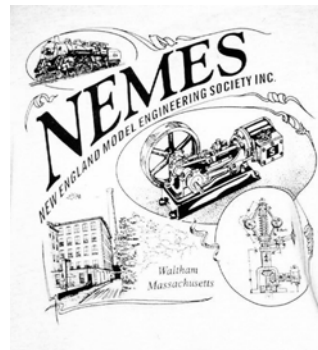


NEMES clothing

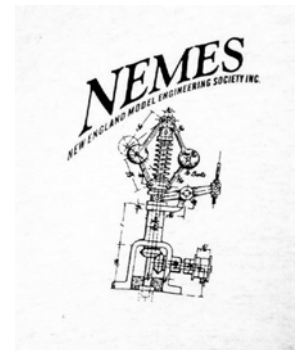
NEMES Tee Shirts

NEMES tee shirts and sweat shirts are available in sizes from S to XXXL. The tee shirts are gray, short sleeve shirt, Hanes 50-50. You won't shrink this shirt! The sweat shirts are the same color, but long sleeve and a crew neck. Also 50-50, but these are by Lee. The sweat shirts are very comfortable!

Artwork by Richard Sabol, printed on front and back:



Rear



Front

Prices:

	Tee Shirts	Sweat Shirts
S - L	\$12.00	\$22.00
XXL	\$14.00	\$24.00
XXXL	\$15.00	\$25.00

Add \$5 shipping and handling for the first tee shirt, \$1 for each additional shirt shipped to the same address. Sweat shirts are \$7 for shipping the first, and \$1.50 for each additional sweat shirt.

Profits go to the club treasury.

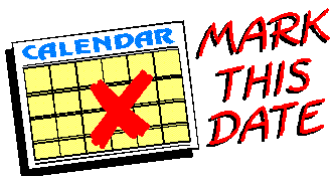
Mike Boucher
10 May's Field Rd
Lunenburg, MA 01462-1263
mdbouch@hotmail.com

NEMES Shop Apron



Look your best in the shop! The NEMES shop apron keeps clothes clean while holding essential measuring tools in the front pockets. The custom strap design keeps weight off your neck and easily ties at the side. The apron is washable blue denim with an embroidered NEMES logo on top pocket.

Contact Rollie Gaucher 508-885-2277



Upcoming Events

Bill Brackett

To add an event, please send a brief description, time, place and a contact person to call for further information to Bill Brackett at wbracket@rcn.com or (508) 393-6290.

Bill

July 2-3 Owls Head Transportation Museum
The Fabulous '50s, Sensational '60s & Antique
Aeroplane Show

July 7th Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry 781-893-5410
Waltham, MA

July 10th Pepperell Show
RT 111 Pepperell, MA Ken Spalding 978-433-5540

July 17th MIT Flea Market
Albany Street Garage, Cambridge MA

July 23-24 Owls Head Transportation Museum
Trucks, Tractors, Commercial Vehicles & Antique
Aeroplane Show

July 30-31 Raitt Homestead Show
Eliot ME. Lisa Raitt 207-748-3303

July 30-31 Owls Head Transportation Museum
Wings & Wheels Spectacular; Classic Cars &
Antique Aeroplane Show

Aug 4th Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry 781-893-5410
Waltham, MA

Aug 6-7 Scribner's Mill Show
Sebago-Long Lake Region Near Harrison, ME
207-583-6455

Aug 7th Owls Head Transportation Museum
Convertible Meet & Antique Aeroplane Show

Aug 12-14 Iron Fever Expo
Model Engineering show and auction
Gary Schoenly 800-789-5068

Aug 13-14 Straw Hollow Show
Boylston, MA J.A. Resseguie 508-869-2089

Aug 17-20 Rough & Tumble Show
Kinser, PA 717-367-4970

Aug 20th Owls Head Transportation Museum
28th Annual New England Auto Auction

Aug 21st MIT Flea Market
Albany Street Garage, Cambridge MA