The NEMES Gazette

Vol 05, No 052
August-2000

The Newsletter of the New England Model Engineering Society
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Our next meeting is at 7:00 PM on Thursday 3-August-2000 (first Thursday of every month) at
The Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Annual dues of $20 covers from Jan to Jan. Please make checks payable to NEMES and send to our treasurer. (Address in letterhead).

This Months Contents

Group Purchase

By Kay R. Fisher

Larry Twaits received his copy of the scraper book and video and gave it a favorable review.

"I think it's pretty good and a great compliment to the Connelly's Machine Tool Reconditioning book. While the reconditioning book focuses on the application of scraping and assumes that you know the basic technique for removing metal, the new Michael Morgan book does a great job of dealing with how to handle the tool but doesn't say much beyond how to generate a flat surface. I give it a thumbs up."

I have been reading positive comments on the Internet about both the book and the video so I placed the club order. The price had increased significantly since I had originally started the list but I managed to negotiate a reduced price at an educational discount rate (education is part of our club charter). The books and videos have arrived. I will be distributing them at the next meeting. If you are one of the 12 people who signed up please bring in a check for $50 made out to NEMES. If you can't make the meeting please arrange for someone to pick them up for you.

Kay

The President's Corner

By Ron Ginger

August Meeting

Our treasurer, Rob McDougall has arranged for a friend of his to be our speaker at the August meeting. Cal Guiry worked as a bearing engineer for many years, (spent 25 years with Fafnir) and has a wealth of knowledge about bearings. He should be able to help us all better understand

these simple devices we all use, and probably misuse! Cal has actually been a member of our group since the first meeting, but he has trouble driving at night, so cannot make it to many of the meetings. (Should the club try to organize a car pool for members like this? any volunteers?)

Future meetings.

I'm still working on September, but I've got a great speaker lined up for October. Denis Edkins has attended a couple of our shows, and brought in a nice steam plant to the July Poster Session. I was talking with him, and it turns out he is a real expert, and pioneer, in the jet engine world. He was a classmate of the inventor of the Jet engine, Whittle, and did some of the very early research work. He was the designer of a jet engine built by GE that has become one of the most built jets ever. He has a wealth of both technical and historical info about jets, and this should be a great meeting.

Cabin Fever

Gary Schoenly called me with the news that they will be moving the show to a much larger and nicer location. The show will be at the Lebanon Expo Center in Lebanon PA. Although this is slightly further for us (maybe 20 miles more) it is closer to the freeway so should not add more than a few minutes to our ride. It's also close to Hershey and Lancashire so there will be even more interesting things for wives to do.

What we get is 40,000 square feet of fine, indoor space. More vendors, more tables, better ventilation for running the gas engines, room for seminars, a better food service, just an all around better venue.

Gary has asked if NEMES is willing to run a demonstration booth. At the NAMES show in April the Detroit Club set up an area with several machines and ran a continuous demo of building a balloon powered oscillating engine. Gary has offered to ask the vendors like Sakai, Prazi, and Sherline for the loan of some equipment. What we would have to do is plan a project, build any jigs or fixtures needed to make it, and setup a schedule for volunteers to run the demo. Gary will also try to get volunteers to work it from other places, but it would be the NEMES group that plans it.

This sounds like a lot of fun to me, and a good way to get some of the visitors interested in really making things. If you want to be part of this please let me know ASAP. I would like to let Gary know in plenty of time if we cannot do it so he can try to get someone else.

I also need suggestions for a thing to make. The balloon engine was nice, but that's already been done. I'd like it to be something interesting, that the kids would want. We won't make enough to give everyone one, but we will make enough to give some away through a raffle. It needs to be simple, should use both a lathe and a mill.

Ok guys, I know we have a bunch of real sharp engineers among us lets hear some ideas. And everyone start making plans for the best Cabin Fever show yet, TWO buses from NEMES!

October Show at Precision Museum

There have been a couple mentions here and at meetings that the American Precision Museum in Windsor Vermont is going to hold a major model show on the 21st and 22nd of October. I'm sure many of us would like to attend that show, so the question is, shall we try to make a bus trip out of it? It's only about a 2 1/2 hour ride. We could make it a single day trip, or we could make an overnight. I need some input on this. Please let me know if this is of interest.

Ron

Calendar of Events

By Bill Brackett

Aug 3, 2000 Thur 7PM NEMES Club Meeting
Waltham, MA.
Charles River Museum of Industry 781-893-5410

Aug. 5-6 Scribner's Mill Show
Sebago-Long Lake Region Near Harrison, ME
Call 207-583-6455

AUG. 5-6 26th Anniversary Transportation & Aerobatic Spectacular
Owls Head, ME
207-594-4418

Aug. 10-13 Pagent Of Steam
Canandaigua, NY
Gary Love 716-394-8102

Aug. 11-13 Cumberland Valley Show
Twin Bridges Campground, Chambersburg, PA
John Bricker 717-263-5588

Aug. 12-13 Straw Hollow Show
Boylston, MA
J.A. Resseguie 508-869-2089

Aug 16-19 Rough & Tumble
Kinzers, PA
Call 717-442-4249

August 19 Owls Head
23rd New England Auto Auction

Aug 19-20 Antique Marine Engine Show
Mystic CT
Geo King 860-572-0711 X5956

Aug. 26-27 CT River Ant. Col.Club Show
Rt 5 At Old Ely Store, Ely, VT
Call: Douglas Driscoll 802-333-3243

September 3 Owls Head
Antique Motorcycle Festival

Sept 7, 2000 Thur 7PM NEMES Club Meeting
Waltham, Ma.
Charles River Museum of Industry 781-893-5410

Sept. 8-10 Granite State Steam and Gas
Dublin NH Rt. 101
Phil Barker 603-495-3640

Sept 10-17 Lake Winne. Steamboat rally
Lees Mills, NH
Jackquie Dearborn 603-726-3257

Sept. 14-17 Fitchburg Show
Fitchburg Airport, Fitchburg MA
Grover Ballou Jr. 413-253-9574

Sept. 15-17 Powow Cove Show
Powow Cove Campground, Amesbury, MA
Bruce Eaton 603-394-7660

Sept. 16-17 Tobacco Valley Flywheelers
Valley Rxr, Essex, CT
Allen Koch 860-635-4287

September 17 Owls Head
Tribute To Convertibles

Sept. 22-24 Cranberry Flywheelers Meet
Edaville RR, South Carver,MA
David Moore 508-697-5445

Sept 23-24 CAMA Fall Fest
Rt 7, Kent CT
Josh Reynolds 860-868-0283

Sept. 23-24 Lion's Fall Foliage Show
U.S. Rt. 2 St. Johnsbury, VT
James Young 802-748-3994

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@ultranet.com or (508) 393-6290

Bill

Treasurer's Report

By Rob McDougall

As of 6/30/00

Balance 5/31/00	**$3,303.58**
Dues Received	170.00
Donation – Jim Paquette Used Machinery	62.50
Interest Income	3.97
Less:	
Printing of bank checks	-16.75
Balance 6/30/00	**$3,523.30**

Note: Maintenance of the official membership database now resides with the Treasurer. Please notify Rob McDougall of any updates in your contact information.

Rob

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The Meeting

By Stephen C. Lovely

The July meeting was a poster session, so it didn't really have a beginning; people just sort of drifted in and set up displays.

Henry Szostek brought in a collection of model airplane engines. They were all compression ignition (everyone calls them diesels, but they aren't really) engines for model airplanes. He had a can of fuel that he said had been sitting sealed up for twenty plus years. It must have been sealed up good, because when he put a couple of drops into the venturi of a Quickstart Dart .036 cubic inch engine he was holding in his hand and flipped the prop it sputtered into life and ran long enough to use up the fuel. All through the meeting as I wandered from table to table looking at what people had brought I'd keep hearing the brrrrrp of one of the two running engines Henry had brought with him. He had several of them with him, but only two that were running. I was impressed - I've spent hours trying to get a model diesel engine to run and never got more than a pop-pop for all the effort.

Larry Keegan had a collection of interesting books on display this time, and I noticed several people sitting down to flip through them.

Over the four years that NEMES has been in existence Dave Piper has been working on his steam launch. It started out as an engine design, and then we saw patterns for the engine, then the castings, and finally the engine itself.

This meeting Dave had the start of the boiler. It's going to be a Blackstaff Horizontal Water Tube Boiler. He had the steel part welded up and on the table. When completed there will be 12 copper water tubes connecting the top and the bottom headers. He also had the beginnings of the engine that he will be using to drive the boiler feed pump and the air pump to keep the air out of the condenser. This is a 1 1/2 size version of the Workhorse engine that Rudy Kouhoupt currently has in Livesteam magazine. I asked him about the legal considerations for the boiler he's building for his boat and he says that for non commercial boats under forty feet long the US Coast Guard Rules that apply, say the steam plant is exempt. New York State and Michigan are the only two states that currently have separate rules.

Denis Edkins is not a NEMES member, but has been to a couple of our winter shows to exhibit and this time he had a "Mery" steam engine and the power plant from a radio control boat. (He's in the model boat club with Ron Ginger who encouraged him to come to the poster session.) The boat power plant has a two-cylinder Tiny Power engine in it that Denis built. The power plant is very impressive looking, being set up as a module that can be removed from the boat and controllable by the servos getting instructions from the radio on shore. There are two vaporizing burners with baffles to control the flame so it spreads out and covers the boiler-heating surface. The orifices are made from brass. Denis drills from the back with a large drill, and leaves a little pip on the end of the brass part with the orifice in it. Then he drills the orifice hole with a number 60 drill, which is small but still way too big for the orifice. After drilling the #60 hole he brings a steel swage in the tailstock, with a small cone cut in it to go over the pip, and pushes the swage up against the brass. The steel swage takes the formerly cylindrical pip and pushes it into a cone to match the cone cut into the steel. This closes up the hole made by the #60 drill. It may take a little while to get things set up to produce the size orifice you want, but once you're set up you can make a bunch of them that are the same quite easily.

Larry Twaits had another one of his exquisite little tools that looked like it came out of a tool making book from pre WWII. This time he had a set of dead centers to go on a surface grinder. As it was sitting at his table it was set up for the sharpening of tapered reamers. There was a indexer for it so you could move from flute to flute, and also a vernier so you could set the relief angle and have it be the same for all the flutes as you went around again. Then he had a pulley that you could use to rotate the work. By setting the unit up on a sine plate you can grind a taper.

Rob McDougall had a bunch of pictures showing the progression from old and grubby looking to gorgeous for his "new" South Bend Shaper. He had his Rider-Ericsson hot air water pump project on the same table.

Bill Bracket came over to my house several months ago to make the casting for a honing gauge that he wanted to make so he could sharpen his own planer and jointer blades. He had found what he wanted in a catalog, and that was the basis of the pattern he made. We cast it from some aluminum scrap he brought with him and he brought it home to machine. This time he brought it to the meeting finished, along with some jointer blades he'd sharpened using it. It works nice, and looks nice with a coat of gray paint and a shiny brass adjusting screw to control the angle of the blades to the sandpaper that is used to hone them.

Bob McIlvaine has been busy lately doing some work in his shop for Paul Gauffin who has been active making half scale models of firearms. Mac brought in a partially completed walnut holster for a Mauser pistol. The block of walnut is machined out on the inside so that the pistol slides into it. Deep inside the holster the hole for the site blade near the muzzle end of the barrel is a circular hole with its center about on the outside edge of the hole already drilled for the barrel. To cut this hole Mac had made a special tool to go onto the spindle of his mill. It had a rod the size of the hole for the barrel, with a tube mounted on the side of it in a cutout area so that a small cutter could be mounted near the end of the rod. This cutter then cut the semi-circular hole for the site to slide into in perfect alignment with the hole for the barrel. It was a lot of work to do to cut the hole, but Mac is making more than one and it gives an excellent result. Mac also had a dovetail tool post that he had made, along with some holders. He says that if he had it to do over he'd make a round tool post along the lines of the ones that the British model engineers make.

Max ben-Aaron had a small mill that he got from a flea market. He's not sure exactly what it was used for. He also had a small rotary table that he had made. It's about one and a quarter inches in diameter and has a delrin plastic base. He says he made it because he had a worm gear that size that he needed to use for something and that he learned a lot about how not to make a rotary table.

It wasn't model engineering, but Gail Martha's food display was extremely popular. She got a book of cookie recipes at Cabin Fever, and was trying out a couple of them on us. Her husband Gene had some Ohlson model engine crankcases. Ohlson made a .29 and a .33 cubic inch version, and Gene is trying to tell them apart. The two sizes have the same bore but a different stroke. The engines are welded together so you can't look down the bore to see when the piston covers and uncovers the timing ports and Gene is trying to figure out how to measure the timing, since he's got a bunch of mixed parts to build into engines. If you've got an idea how to do it he'd like to hear it. He'd also like to know where he might be able to get some spring material .116 wide and .008 thick to replace broken coil springs from Tatone timers that he uses to time the engine run on his model planes. He also had a cart that he made to go model flying that Gail used to bring the food in with.

Joe Donahue had a Rudy's Stirling engine project that he's working on. He also brought in a puzzle he'd made from a couple of horseshoes, some chain, and a ring. The puzzle went together real easy, but he says it took one of his kids to show him how to work it and to get the ring on and off.

Ed Wlodyka had his constant pointing man on display. The man stands on a two-wheel chariot and is connected to the wheels with a differential such that whatever way you steer the chariot his arm continues to point the same way. Ed also had a set of wooden gears on a base with a battery-powered motor to turn them. They are not at right angles to the shafts, but closer to 30 and 60 degrees. They seem to wobble as they turn, but stay engaged as nicely as if they were square to the shafts.

Despite the fact that it was a poster session, President Ron Ginger got on the speaker system to make some announcements after we'd all been milling around having a good time for an hour.

Walter Winship has a line on a 24 inch Cincinnati Shaper in Berwick Maine that is free to a good home. The owner has a new CNC machine coming and has to get it out of the shop to make room.

Don Strang is helping Paul Budlong's widow to sell Paul's model engineering stuff. There are a lot of models that he started but didn't finish, quite a few magazines, a Phase II 10" rotary table, a Bridgeport with a Heidenhone DRO, and $2000 worth of materials and plans towards a little engines 7¼ gauge Pacific Locomotive.

Roland Gaucher had a run-in with a fan belt and lost part of two fingers on his left hand. He was home recovering and couldn't make the meeting. I know I join the rest of the club in wishing him a speeding recovery. [Editors note – Roland's address is 90 S. Spencer Rd., Spencer MA 01562 if you want to send a card]

Somebody had a set of Raritan castings and drawings available, but I didn't get who it was. See Ron Ginger if you're interested.

Walter Winship is rebuilding a 1925 SV, which is what the Stanley Steamer was called after the Stanleys sold the business. He had all the parts for the automatic oil control that he's building to control the burners on his car. He cast the brass himself, and had most of the parts machined. It consists of a beryllium copper diaphragm with an adjustable spring on one side and boiler pressure on the other side. The spring tension is adjusted until it is set so that the oil valve opens and sends oil to the burner when the boiler pressure goes below the desired setting and then shuts the valve again when the pressure goes over the desired setting. It is an effective control that keeps the boiler pressure where it should be without the driver having to constantly worry about the firing level.

Jerry Weiss had a bunch of stuff for sale at his table. He used to own a machine shop and since he's retired is selling most of his stuff.

Dave Stickler brought in a Stuart Turner Number 4.

Earl Rich brought in a Sapphire disk picker upper. They are hot and hard to grab, so he put the thing together and it works good.

We were all glad to see Errol Groff out and about at the meeting. He seems to be doing well with the recovery from his bypass operation. He also brought an interesting little box along with him to lend to Ron Ginger. It had a Henrob Torch in it. Hopefully we'll soon be getting a report from Ron about whether the Henrob Torch is really magic or if it's the guy doing the demo that has magic hands.

I had the patterns, the core box, and the resulting whistle bell casting that is part of my ongoing but slow moving calliope project.

It was a good meeting and everyone seemed to be talking, looking, and having a good time. If I missed you're display I apologize - there was a lot of stuff on the tables and some people left early so I'm not sure I saw everything. See you next time when I hope to learn a lot of good stuff about ball bearings.

Scl

Good Book - Cheap!

By Bob Neidorff

Well, I bought this book and liked it so much; I thought I'd share the deal with you, too. I've got no affiliation with the bookseller, no affiliation with the author, publisher, etc. I'm just trying to do you a favor.

The book is:

Machine Tool Practices
by Kibbe, Neely, Meyer, and White

It's a college textbook of sorts, 864 pages. It's full size, hard bound, and chocked full with information on every contemporary machining technique. I own the 4th edition and use it frequently. It's got a tutorial on each machining operation as well as some advanced information on how industry does it. It's not really a reference book like Machinery's Handbook, but it's a great reference for the beginner or intermediate machinist. The authors are with Lane Community

College, Oxnard Community College, and San Jose State University.

My most recent sales catalog from Edward R. Hamilton shows the 5th edition is for sale for $9.95 plus shipping. They charge a flat $3 per order for shipping regardless of the number of books ordered. Perhaps people here would want to pool an order. But you can't beat this book for its intended purpose. I really recommend it highly, especially at this price.

http://www.hamiltonbook.com
Edward R. Hamilton Bookseller
Falls Village, CT 06031-5000

They require a check with order. This book is their item 0047058. Here is how they describe it:

NEW 0047058 MACHINE TOOL PRACTICES, FIFTH EDITION, By Richard R. Kibbe et al. Textbook. Covers hand tools, dimensional measurement, materials, layout, preparation of machining operations, sawing, drilling, turning, vertical and horizontal milling machines, rotary tables, gears and gear cutting, grinding, and more. Well illus. 864 pages. Prentice-Hall 8.5 x 11. Pub at $85.00 $9.95

If anyone's interested in seeing my 4th edition, just ask. My 4th edition is 800 pages, so this is probably an expanded version.

Bob

Museum Shop Project

By Bob Neidorff

This is a good time to start thinking about the museum shop project.

Jeff DelPapa, Rollie Gaucher, John Wasser and I have volunteered to do some of the tasks, but we can't do it all.

Is anyone else interested in helping? Some of the tasks required are listed below. You can volunteer to help with any one job, the whole project, or any combination. We need your help!

Some of the tasks:

- Plan the shop
- Move machines
- Make posters
- Work with a photographer to get photos for posters
- Make parts to accompany posters
- Modify machines for overhead flat belt drive
- Install overhead flat belt drive in the museum

Now's your chance to make your mark on this fine public representation of New England history!

It is important to have this project completed by October of this year. To volunteer call me at (603)472-2237

Thanks for your help.

Bob

American Precision Museum Show

By David Stickler

The American Precision Museum in Windsor VT is planning:

First Annual Model Engineering Exhibition at the American Precision Museum

Saturday and Sunday, October 21 & 22

The following is from the Museum web site:

www.americanprecision.org/Default2.html

The model-engineering hobby has grown immensely in recent years. Exhibitors are invited to display and demonstrate their latest accomplishments and machines, boats, trains, planes, and automobiles. Vendors are invited to offer products to the hobbyist to help model engineers at all levels of experience to begin, continue, or expand their passion for building model engines. The general public is invited to see these wonderful creations of skilled craftsmen.

The event will be held in the old Windsor High School Gymnasium, a short walk from the American Precision Museum.

Vendor and Exhibitor Packets will be available towards the end of March. To be put on the mailing list contact the museum and be sure to note whether you are an exhibitor, vendor, or just interested in attending. Be sure to check this site for more information on the show, local attractions and accommodations, and other events in the area as it becomes available.

To obtain more information contact:

American Precision Museum
196 Main Street,
Windsor, Vermont 05089
Phone (802) 674-5781
Fax.... (802) 674-2524

Cost:

Vendors: $125
(includes one year membership to museum)
Admission:
$5 for adults
$2 for children (12 and under) and seniors
$25 for a family (Includes one year membership to Museum)

I expect to attend, and to stay in a local B&B. The museum is pretty enjoyable for machine tool addicts. The info packets are not yet available, despite the March date quoted, but I am on the list for one, and will provide it to the NEMES Gazette when it arrives.

Dave

Plastic burning and Old South Bends

By Steven S. Cushman

For applications such as tool post grinding which require covering the lathe surfaces, I've often used plastic bags (the kind you get in stores like Home Depot) with good success. They seem to have about the correct amount of flexibility and stiffness. However, I've recently (in another context) discovered that the current Home Depot bags (which are thinner and more brittle) are extremely flammable, and I certainly won't use them near any sparks. What coverings are others using?

At the last Eastec, I spent some time chatting with the South Bend reps.

Their current 10" offering is nice, but the price is not small. They told me that SB is starting a program of buying back old lathes to use them as the base of a line of remanufactures / upgrades which should be better priced and available in sizes other than 10" (they are most interested in 13").

Steve

Questions from way out west

By Jay W. Stryker

Free and Pure Boiler Water?

Now that summer with the high humidity is upon us, we may be running our dehumidifiers to prevent (or reduce) rust in the workshop. This water is great for boilers. This makes the cost of electricity for running the dehumidifier easier to pay, in my opinion.

Question... should this "pure" water (apart from the bits of dust and pollens which get drawn in the air flow by the dehumidifier fan) be treated in any way? What might be added for copper and/or steel boilers? Since there are no dissolved solids, in theory, there is not the need for the boiler treatments that keep precipitates in suspension. However, even this "pure" water is a mild carbonic acid due to picking up carbon dioxide from the atmosphere, and perhaps other gases to make mild sulphuric and nitric acids, etc. Should the pH be increased using a small amount of a base, such as sodium hydroxide? What is the recommended pH of feed water for small boilers?

Bridgeport Zerk Oilers

Bridgeport milling machines were originally fitted with a lot of oil points using the 'Zerk" type spring and ball closing fitting. Unfortunately, these are the same as the commonly used grease fittings and I am always coming across Bridgeport mills being greased. This happen a few days ago at work and the (young) foreman did not know that he was supposed to be using way oil.

(Most of the machines in the shop have one-shot lube with way oil.) He wondered why the older ones took grease!

I spoke with Peter at Brother's Machinery, and he says that they always lube the machines they sell with way oil and that they have their own pressure oil gun. No, he only had one, and said such guns used to be supplied by Bridgeport with each new machine. He had none to sell.

In calling various suppliers, they all said that the old style pressure oil gun is off the market.... but also Alemite has just put one back on the market, at about $120.

I was told once that an ordinary oil gun, or a modified grease gun, will do the job.

Question: who in NEMES uses a pressure oil gun on their Bridgeports?

Is it a Bridgeport original? A modified grease gun? A modified oil pump gun? Custom built? A new one?

Steam Locomotive Expert in Cuba

I have been told that one of the world's last steam locomotive designers is alive and well and working on locomotive designs, in Cuba! Dr. Porta worked in Argentina for many years on the locomotives used for copper ore hauling. When they were replaced with diesels, he was invited to Cuba to help boost locomotive efficiency on the sugarcane hauling locomotives.

Would it be possible for some engineering group, perhaps a venture between MIT and NEMES and the various live steam clubs, to contact him and learn about his latest designs?

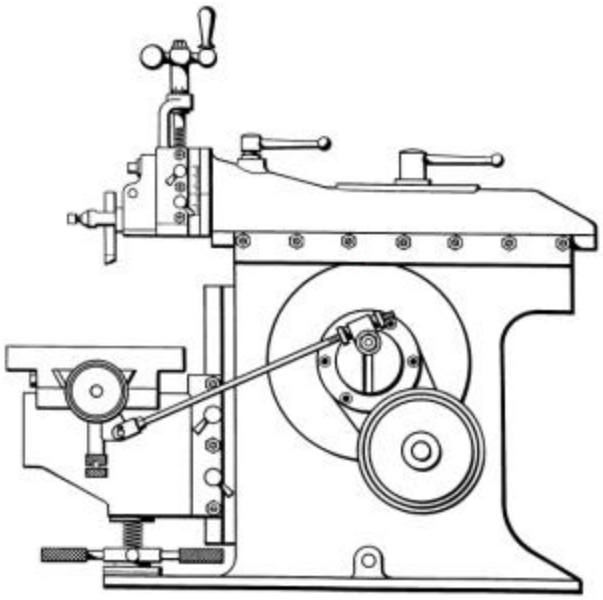
I understand he is elderly but still in reasonable good health. He would be the last in a line stretching back to Trevithick and Stephenson.

At the least, those of us interested in steam locomotives should recognize such a designer.

Perhaps, at the grandest, he could be brought to Boston for a series of technical lectures (via translator?).

Thanks for the info. [Editors note – if you think you have a good answer for Jay he is at (413) 665-3125 in South Deerfield]

Jay



Metal Shapers

This month Rob McDougall tells us how he refurbished his newly acquired shaper. Take it away, Rob.

By Kay R. Fisher

Diamonds in the Rough – Part 2

By Rob McDougall

I was able to disassemble the little beast and got it into my basement shop.

Normally, upon obtaining a "new" machine, I would get it up and running first to see how it performs and what kind of things go "Bang!" in the middle of the night. In this case, given it was all seized up, there was no choice but to strip down to bare bones. I have one of those "Safe-T-Kleen" degreasing troughs - the Museum of Industry has one I think. The fluid in those things must have some Magic Dust mixed into it because when you finish washing a part and let it dry, it comes up real clean and without much of any residue left on it. Most other degreasers I have used leave an oily film on the metal.

My process of "renewing" is to first degrease, then wire buff, first with a heavy duty steel wire wheel, then a fine brass wire wheel. Any burrs or scratches will be hand filed off then the file marks rubbed down with a ScotchBrite deburring wheel. These are remarkable inventions that will buff anything to a bright finish. After that, I may use a cloth wheel and rouge to put a final luster on the part. For something like a ball handle or someone's wedding ring, I might also use one of those metal polishing liquids "as seen on TV" which you rub on with a rag then buff up like the shoeshine boy does. That deals with all the exposed metal surfaces. No scraping or re-fitting was necessary on my little shaper because it had virtually zero wear anywhere that I could find. As suspected, old Mr. Clapp must have had it since new and he had not used it that much. (How much does anyone use a shaper in their lifetime?)

The electric motor was interesting. As I said, it was seized up solid when I took it off. I pried it apart (carefully) and discovered it was in perfectly good condition. The main bearings were full of solidified goo - like steam oil. I soaked them in degreaser for 12 hours or so, cleaned out the bearings, air blasted them, then sprayed them through with WD40. They were fine. Re-assembled and a new power cord (obtainable from Home Depot), the motor run nice and smooth on the bench.

Next were the painted surfaces. Again, normally I would try to preserve the original paint scheme either by touch-up or "cut and polish". In this case, the paint was so chipped and faded, it was not recoverable. The alternatives were to give it an acid bath, have it sand blasted, or rub it down by hand with sandpaper. I chose the last and easiest course knowing it would not finish up as well as the first two alternatives. Partly because I was in a hurry to get it up and running and partly because I don't have access to the more thorough methods. I had left the primary pulley cover at the barn, which Henry picked up for me and dropped by. He had it sandblasted for me with another job and you can really tell that that part was cleaned up versus the rest of the machine.

After giving the badly chipped areas a rub down with paper, I taped up all the exposed metal surfaces - not an easy task by the way. Especially for the inside of the main pedestal where I wanted to give it a fresh coat of brown oxide heavy-duty primer. I always like the look of that on the "underbody" of machines. I then used 3 cans of the Professional Rustoleum Heavy Duty Primer all over the parts, including the underside of the base. I gave that 12 hours to dry, lightly sanded, then another coat. Next was the first color coat. I use that "John Deere" green on my machines – mostly because that is the color on my Hercus 9 inch lathe. (The Hercus is made in South Australia originally under license from South Bend. It is still made today in a modernized form with ball bearing headstock.)

Parts Being Refinished photo by Rob McDougall

Now here is a mistake I wouldn't like to repeat. In my anxiousness to finish the machine I applied a second coat of color paint after waiting only 12 hours. The surface seemed perfectly dry to the touch and of course, I don't read instructions unless in doubt. So, as the spray went on, the surface, initially nice and smooth, turned into a "crinkle" finish as it all started to bubble up. These Rustoleum sprays require either 1-hour between coats or 48 hours, not 12. Oh dear, what to do. I wasn't about to strip it all down again to bare metal so I now have a crinkle finish on much of the shaper. I have rationalized it by saying it gives the machine old age character.

Final assembly! New parts required were two V belts, the power cord, and the little rubber bumpers that the belt cover sits on. Not bad at all I would say. All went together well. I adjusted all the gibs for smooth movement by hand. Oiled all moving parts as I put them together - I use 90-140 Mobil Gear Oil. I did replace the gib screw on the top slide, which had a 5/8-inch bolt attached to the end of it. This was the only damage on the machine where this gib had been tightened up by a wrench and had bent the gib. I straightened the gib in a vice by sight then surface ground it on the contact side. Then I made a replacement gib screw with a knurled handle integrated into the screw.

Turning on the machine with the belts positioned for the slowest speed – it started up beautifully. Ran like a clock. I let it sit on the bench running for about a minute. Turned it off and checked everywhere for anything coming loose, then started it and let it run for about 1/2 hour to "run-in". There is something mesmerizing about the way a shaper runs. The slow forward speed, the fast back speed, the quietness, and the peacefulness. Now eager to cut something I decided to use one of my Armstrong lathe tool holders with a tool bit, which I thought best matched the profile that Rudy had recommended at the workshop. Knowing the amazing surface that Rudy showed us, I thought I would try to get close to that kind of finish. I set up a block of aluminum in the vice, set the tool bit at the beginning of the edge, set the travel for a 1/4 inch lead-in and about 3/4 inch lead-out, then "let 'er rip!" Slowly the curls came off. Each cut, the table advanced 5 thou for the next cut. I took about a 5 thou depth of cut too. I couldn't believe the finish - like glass - better than I could have expected.

My last job of "re-conditioning" was to make a stand to put the machine on. I welded up a steel stand using 1 1/2 inch box framing and 1/4 steel plate for the oil tray/top surface and the shelf below. I welded on 3/8 inch feet and mounted leveling pads under the feet. That finished up the machine and I installed it into the corner of my shop between the lathe and drill press.

After now having a real working shaper for the past couple of months I am surprised how much I use it. I had thought I would use it 3 times during my whole life. Turns out there are a lot of things, that although they can be done quicker in the vertical mill, I prefer to set them up in the shaper for two reasons. One, it gives a much nicer surface than a 4 flute end mill or single bit fly cutter. And two, I can set up the part in the machine, turn it on and walk away. It is such a peaceful little critter that eats up metal in its own good time. It is also fascinating to watch - goes well with a cup of coffee. Much better to watch with a cup of coffee than that stupid hourglass on the computer while you wait for files to download.

If anyone is thinking of getting a shaper I can thoroughly recommend it to anyone who already has a lathe and a mill. Remember, they don't make shapers in our size anymore. They are a useful addition to the modelers shop and a piece of industrial history that is quickly becoming extinct.

(P.S. Any NEMES member that would like to stop by my shop and see it or wants to bring something over to be shaped, are very welcome to contact me and set up a time.)

Rob

For Sale

24" Cincinnati Shaper

$Free – estimated weight 4,000lb
Walter Winship (207)748-0975
Berwick ME

Enco Vertical Milling Machine

- Full Size Model with 3 ft. Table
- DRO on X and Y
- Vise
- Rotary Table
- Collets
- $3,000 obo

James Conery (603)895-4958 evenings
Raymond NH

Vertical Milling Machine

- Van Norman No. 1/2 (age unknown)
- Bridgeport "M" Head
- Table 7"x27" with 3 T-slots
- 18" Longitudinal Travel
- 5 ½" Cross Travel
- 7" Ram Travel
- 10 ½" Spindle Nose to Table
- 3 Phase Power
- $500 obo

Frank Stauffer (978)443-2895
Sudbury MA

Classic 1972 Mustang

- Red with White Vinyl Top
- Completely Restored
- 7,000 Miles on Rebuilt Engine
- $8,750 obo

Gene Martha (508)695-5158
N. Attleboro MA

Web Sites of Interest

Edward R. Hamilton Bookseller (who sells "Machine Tool Practices")
www.hamiltonbook.com
Official Nevil Shute web site (author of "Trustee from the Tool Room" and "On the Beach")
www.changeover.com/shute
Michael Morgan's Scraper site
www.machinerepair.com/scrapingbook.html
Metal Lathe Accessories
www.sc-c.com/metallathe
Enco Manufacturing (remember Henry's vise)
www.use-enco.com
American Precision Museum
www.americanprecision.org/Default2.html

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