

Newsletter # 3

Welcome to another *Model Engine Builder* Newsletter

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0-80 Tap in Stainless Steel

by Robert C. Johnson

Northeast Wisconsin Model Engine Builders

I needed a 0.040" thick plate for a project and the only thing I had in the shop was stainless steel. It was going to be a small part and eventually I learned I needed to drill and tap several 0-80 holes. 2-56 is generally the smallest hole I'll tap, but I really needed the smaller hole, but stainless, geez.

I had two small tap handles so I took one and removed the cross handle then drilled and reamed a hole down the length 0.251", a nice sliding fit for a 1/4" rod. Then I mounted the part and drilled the tap hole.

Then, leaving everything setup I installed the 1/4" rod in the chuck and slipped on the tap handle. Everything lined up and is quite rigid. I put a dab of Anchor Lube on the tap, and slowly turned the tap in by hand.

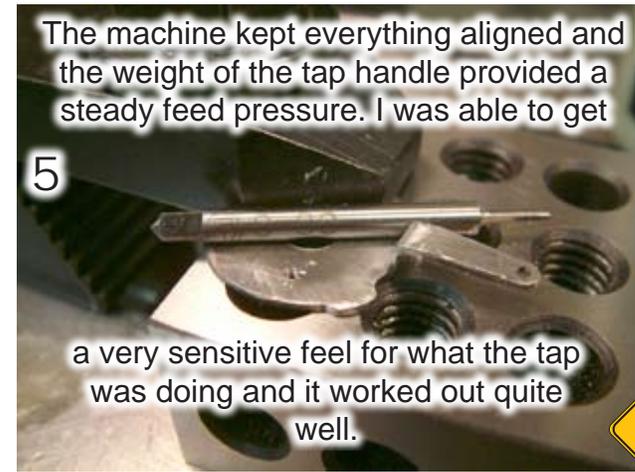
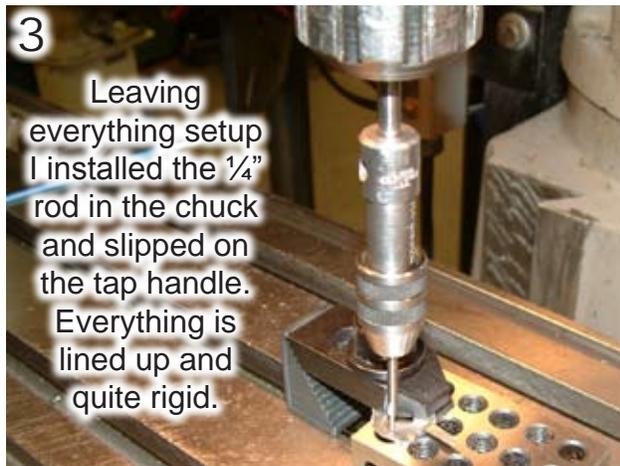
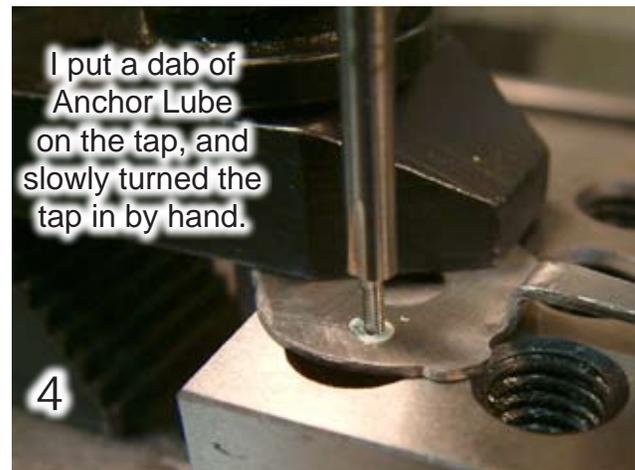
The machine kept everything aligned and the weight of the tap handle provided a steady pressure on the feed. I was able to get a very sensitive feel for what the tap was doing and it worked out quite well. "No Worry" as they say, and it works just as well in the lathe.

Pictures follow



All Pictures in this article by Robert C. Johnson

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High Speed Addition to Your Mill

By Chris Reynolds in an e-mail to Mike Rehmus

Chris Reynolds solved the problem of needing a high-speed spindle for his CNC mill by making up a hollow draw bar and then grabbing parts from an old Dremel tool flexible shaft accessory. He disassembled the handpiece to extract the bearings and spindle which, in his copy, were just the right size to hold in a 3/8" collet. He did slide them closer together on the handpiece spindle using his arbor press (lots of substitutes for an arbor press in a normal shop). The flexible shaft is run down through the draw bar and driven on the top end by another motor. Details will be forthcoming at a future date. You are reminded to leave the mill unplugged when you have this modification installed for all the obvious reasons. Chris builds customized Harmonicas so if you need one of those, find him on www.blowyourbrassoff.com.

Chris' comments on this tip led me to wander out to the ole Bridgeport to see how large the draw bar actually is and how big the hole is in an R-8 collet. As I walked in from the shop, I chanced to see a very high speed pencil-sized air-driven grinder I bought a few year back and used once. Hmmm. Hollow draw bar delivering air to this guy would make a serious high speed grinder. Some modification required.

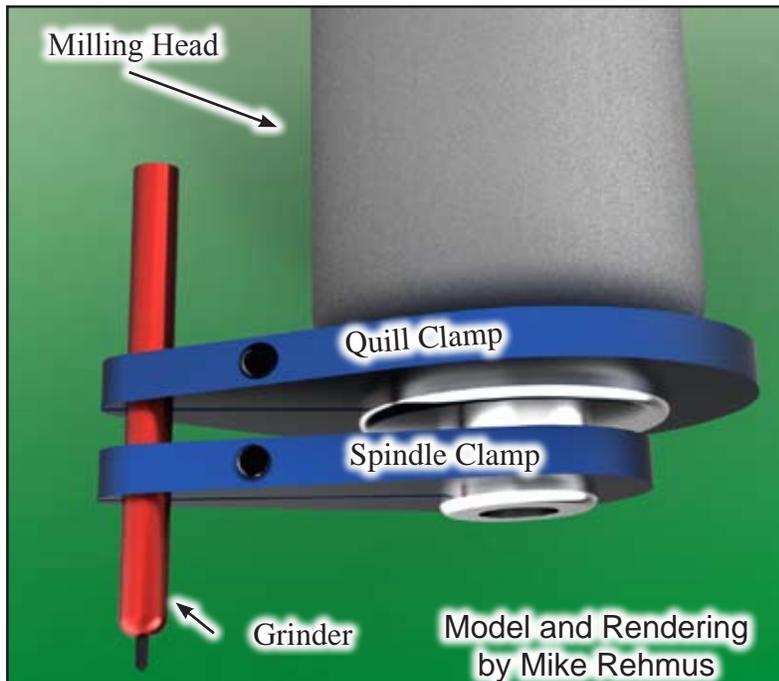
That led me to the next idea (I'm not building it yet so the idea is free): Why not just mount the grinder in an offset position on the milling spindle? Easy to make a set of clamps that will hold onto the spindle



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and quill and hold the grinder off to the side where it will not interfere with the bits and pieces hung off the milling machine's head. It might look like the model rendering below. Remember that these grinders are only useful for small bits and even smaller loads. So it isn't as if you are going to stress the setup even with the overhang. I've included a sketch of a possible design for a Bridgeport. It is on page 6 but do check your mill's dimensions and don't depend on mine.

You might wonder how much one of these little grinder jewels costs. I found them via the Internet from \$19.99 U.S. to almost \$400 U.S. I'm guessing there is a fair range of quality represented between those two price points.



Here is a rendering of how one such setup might play out. Many modifications could be made to this layout and one would have to be certain the quill doesn't move when the quill clamp is engaged.

So here is the question: What can you come up with in this general area? You don't need to have a CNC mill to take advantage of a high-speed spindle. Many small cutters cannot be run at their best speed in a Bridgeport.

Caution about high speeds: These grinders can throw swarf and their own (broken) parts very hard and over long distances.

See Chris' pictures on page 7

Photographing Shiny Objects

By Mike Rehmus

Of *Model Engine Builder* magazine and Bay Area Engine Modelers

I've been asked a number of times to talk about taking good pictures of model engines and other hard-to-photograph objects. I've given a seminar or two but I've not put words to paper in the magazine because it is all about building engines, not photography. But this newsletter has no restrictions and I am much more free to spend digital bits on all sorts of subjects.

There are no secrets to how I do create good photographs but I suppose part of the success I've had is in knowing which techniques to use and how to avoid trouble. Avoiding trouble is probably the biggest problem in the art of taking nice pictures. I've had about 40 years of practice in taking bad (and some good) pictures. Why so many bad pictures? Because that's how you get the experience that allows you to take that one picture that stands out. Sort of like Babe Ruth striking out so many times while setting home run records.

I should differentiate nice pictures from art pictures. It isn't my objective to make a beautiful picture of a model; however the picture may be beautiful because of the inherent beauty of the model itself. We should not strive to make a dramatic picture such as an Ansel Adams might have done for one simple reason. We want to see all of the details of the model as clearly as possible. We want the beauty of the model to stand out, not the beauty of the photographic technique. So even though I spent a few years learning to make dramatic pictures, I won't discuss them in this series of articles.

First let's cover a little background in the tools we'll be using. This will be a light once-over, we'll get into more detail as we need it.



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First Step

You have to have a camera. Or borrow a camera. It doesn't have to be a top-of-the-line unit but it is good if it has some basic controls. If I had a choice between a completely manual and adjustable film camera or a basic automatic digital camera, the film camera would win out every time. Control is the big need here because if you don't start with a good image in terms of exposure and focus, you don't have a chance of turning out a good photograph. No amount of Photoshop expertise will improve the photograph as much as having taken a good photograph in the first place.

That isn't to say that I don't use Photoshop a lot in *Model Engine Builder* magazine. I do. The magazine would not have its good reputation for photographs without it.

The Camera

What do we want in a camera? Here is a reasonable list:

- A fair image size. Probably, depending on our needs, at least 35mm film or 6 megapixels if the camera is digital. This will allow us to achieve reasonable pictures sized up to 11 x 17 inches ($\approx 279 \times 432$ mm). Until quite recently, I've used a 6 megapixel camera (Nikon D70) for the photos I've taken for *Model Engine Builder* magazine.
- A tripod socket and a tripod to go along with it. More on this later.
- A zoom lens would be good but a close focusing lens is more important. What the camera manufacturers call a Macro capability. What we will also like is a good lens meaning that it doesn't have color fringes at the edge of objects in the pictures it delivers. More about that later.
- Controllable exposure. I prefer to set shutter speed and aperture manually but sometimes they remain tied together with the user able to set a preference for an aperture or shutter speed and the other value being set by the camera. Manual controls are always to be preferred. Strangely enough, in film cameras, manual controls were cheaper as compared to automatic operation. In digital cameras, the reverse is true.
- If the camera has an on-camera electronic flash, we want to be able to turn it off. Most on-camera flashes are not suitable for the type of photography we need.
- Some way of taking a picture without touching the camera at the instant the picture is taken. This can be with a remote control, a shutter release cable or a self-timer.

The Tripod

Perhaps we should call it a camera support. Quite often, especially if we are taking pictures of workpieces mounted in a lathe or mill, a tripod is not the correct tool. Since almost all cameras have a 1/4-20 threaded tripod socket (usually 1/4" deep or 6 mm) you can arrange any manner of support for the camera.

If you have a tripod or are going to buy a tripod, the more adjustments it offers, the better. The tripod should be reasonably sturdy, certainly sturdy enough to hold your camera without allowing the camera's weight to change its position.

We will investigate camera supports in a future installment of this series.

Lighting

This part of the photographic process is where many problems occur. Usually lighting problems come from three aspects:

1. Not enough light: It doesn't matter whether you are using film or a digital sensor, if there isn't enough light, details get lost, colors go wrong and visual noise appears in the image. This situation is not really recoverable if you are looking for a good picture.
2. Too much of the wrong kind of light: Oddly enough, outside on a bright sunny day is usually the wrong light for a couple of reasons. The strong and directional light creates specular highlights and impenetrable shadows. The range of light intensity reflecting off the subject is too great for the reproduction mechanism, be it film or digital sensor.



3. Different colors of light: Many pictures I get are OK in all respects except they have been taken with lights of different colors. To be precise, the lights have different color temperatures. What does this mean? In photographic terms, if we take a picture of something where ½ is bathed in the reddish light from an incandescent lamp and the other half by the rather blue light from the Sun, one half of the picture will be reddish and the other bluish. The camera, through film selection or through 'color balancing' of the digital sensor, will reproduce one half of the 'something' naturally but the other half will be colored unpleasantly. You cannot, really 'fix' this type of photograph.

Many pictures are made under florescent lights. Natural since many shops use florescent lights. Except light from florescent lamps usually looks green, except for the special Grow lamps or those lamps made for sewing, etc. On top of this color, many florescent lamps do not put out a continuous spectrum but put out what is called line spectra. What this means in practical terms is the film or digital camera cannot deal with this type of lighting. So turn the florescents off. More next time.

See a sample Centerfold picture on page 8—original size was 11 x 17 inches in the magazine.



Editor's Note: We intend to evolve this newsletter to fit your expectations. So your feedback is important. You can do so by clicking on www.modelenginebuilder.com/contactus.htm to send us your message. Clicking on the link will take you to a Contact MEB page on our Web site where you can type and send your message.

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Model Engineering Clubs

- **Bay Area Engine Modelers**
U.S.A., San Francisco www.baemclub.com
- **Bournemouth & District Society of Model Engineers**
U.K., www.littledownrailway.co.uk
- **Chicago Model Engineers Association**
U.S.A., e-mail: edsmerz@webtv.net
- **Colorado Model Engineering Society**
U.S.A., e-mail: jbeall303@juno.com
- **Florida Association of Model Engineers**
U.S.A., www.floridaame.org
- **Hamilton Model Engineering Club**
Canada, www.hamiltonmodelengineeringclub.com
- **Kansas Association of Model Engineers**
U.S.A., www.geocities.com/steammodel/index.html
- **Model Engine Collectors Association (M.E.C.A)**
U.S.A., www.modelengine.org
- **New England Model Engineering Society**
U.S.A., www.neme-s.org
- **Northwest Model Engineers Association (Chicago)**
U.S.A., dyoung1228@aol.com
- **Portland Model Engineers**
U.S.A., tomten@easystreet.net.
- **The Society of Model & Experimental Engineers**
U.K., www.sm-ee.co.uk/
- **Southern California Home Shop Machinists**
U.S.A., www.schsm.org
- **Toronto Society of Model Engineers**
Canada www.tsme.ca

To add your club to this list, please send contact information by clicking on:
www.modelenginebuilder.com/contactus.htm

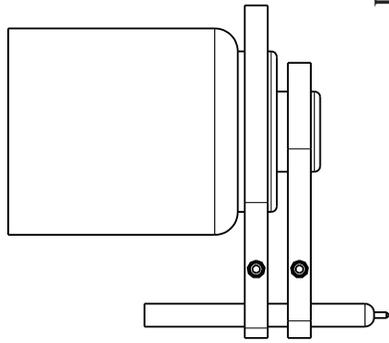
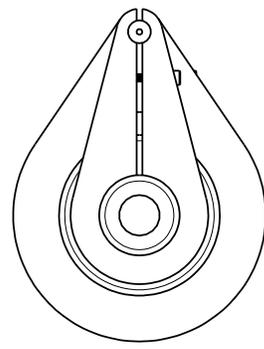
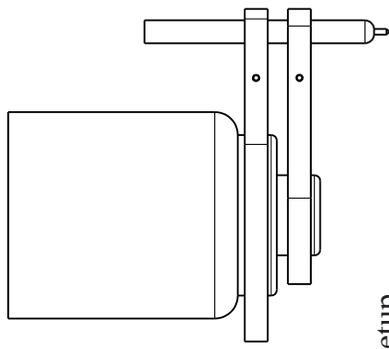
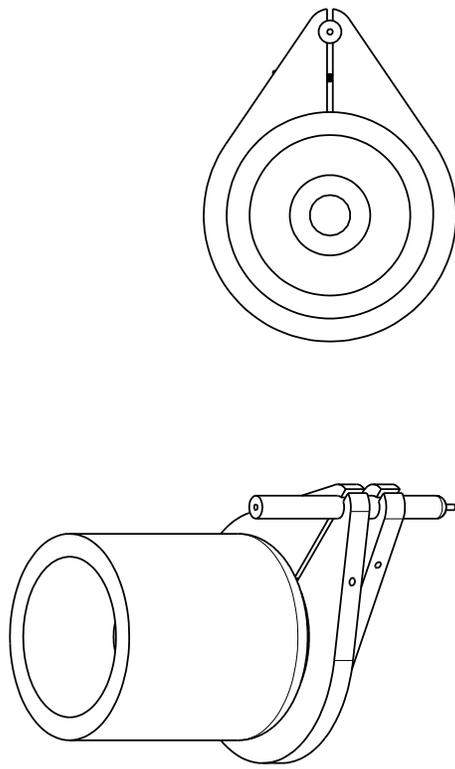
Auction of Garland Jobe's Model Engines

Visit <http://www.rogersauction.com/Estate-of-the-Late-Garland-Jobe-a161218.php>

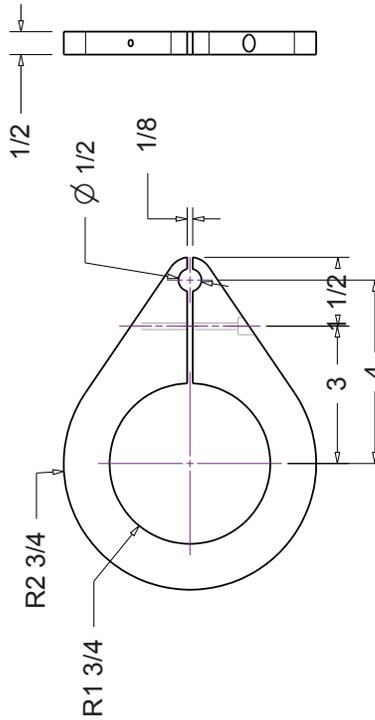
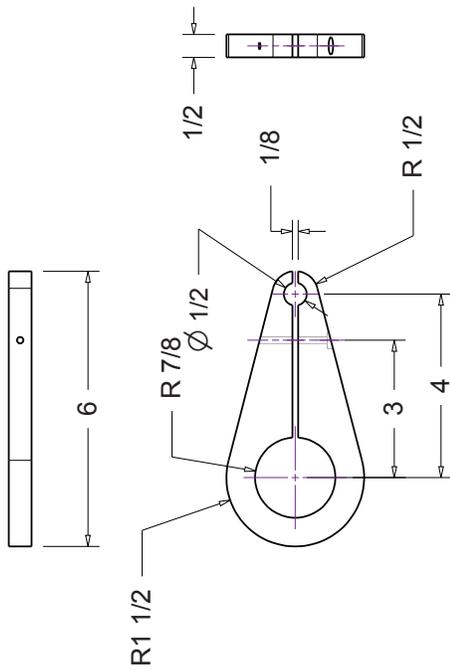
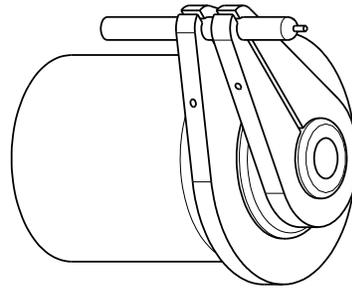
Date is October 1, 2011, on-line bidding
Greensboro, North Carolina

If you are interested in
Model Engine Builder magazine,
Please visit our Web site
www.modelenginebuilder.com
Great articles, big drawings on separate
sheets of 11 x 17 inch paper
All back issues are available

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Dummy Setup



ANGLE PROJ.
3rd

DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED

METRIC	IMPERIAL
1 PLACE ±0.3	2 PLACE ±0.01
2 PLACE ±0.03	3 PLACE ±0.001
3 PLACE ±0.005	4 PLACE ±0.0005

Do Not Scale
 Break or deburr edges unless otherwise specified

Drawn By
 Mike Rehmus

Designed by
 Mike Rehmus

DWG 1 OF 1

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Pictures of Chris Reynolds' high speed spindle setup



Chris used a piece of water pipe for the hollow draw bar.



Another thought I had was to build all of this into a special R-8 collet. It would be especially easy to hold onto an air-driven spindle this way and pipe air into the side of the 'collet.' Or you could drive the high speed spindle from the mill by using a planetary gear speed increaser and prevent the body from rotating in the same manner a tapping head is prevented from rotating.

Send us your ideas on this.



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Original 11 x 17 inches
Camera-Nikon D70 DSLR

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Model Engineering Internet Resources

Click on these to explore the Web sites:

<http://www.homemodelenginemachinist.com/>
<http://modelengineneeds.org/>
<http://www.floridaame.org/>
http://groups.yahoo.com/group/Min_Int_Comb_Eng
http://groups.yahoo.com/group/R_and_R_engines
<http://www.practicalmachinist.com/>
<http://bbs.homeshopmachinist.net/>
<http://www.cnczone.com/>
<http://forums.americanmachinist.com/>
<http://www.machinistweb.com/forum/>
<http://www.chaski.com/homemachinist/>
<http://www.machinetools.com/us/forums>
<http://www.modeleng.org/>

Do you have more links? Send them to us via this link www.modelenginebuilder.com/contactus.htm.



Machinist's hand tools do not come with operating instructions. This video will provide that training.

Learn to set up and operate the Sherline Lathe

By Mike Rehmus, Editor of *Model Engine Builder* magazine

A ByVideo Production

Purchase them directly from:

LittleMachineShop 396 W. Washington Blvd. #500 Pasadena, CA 91103 USA 1 - 800 - 981-9863 1 - 626 - 797-7850 www.littlemachineshop.com	Sherline Products, Inc. 3235 Executive Ridge Vista, California 92081-8527, USA 1-760-727-5857 1-800-541-0735 www.SherlineDirect.com
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Events

See Us At:

GEARS

September 24 & 25, 2011
Kliever Armory
10000 N.E 33rd Drive
Portland, Oregon
www.oregongears.org

Other Events

Blackhills Model Engineering Show

September 17 & 18, 2011
Rapid City, South Dakota
<http://www.blackhillsmodelengineeringshow.net/>

CMEA Model Show

September 24, 2011, 10 am - 4 PM
Emmanuel Episcopal Church
203 S Kensington Ave
La Grange, IL

Estevan Model Engineering Show

October 15 & 16, 2011
Wylie Mitchell Building
Estevan Fairgrounds.
Estevan, Saskatchewan, Canada
<http://www.estevanmodelengineeringshow.com/>

MidEast Model Engineering Expo

October 21 & 22, 2011
Muskingum County Fairgrounds
1300 Pershing Road
Zanesville, OH 43701
<http://deboltmachine.com/id13.html>

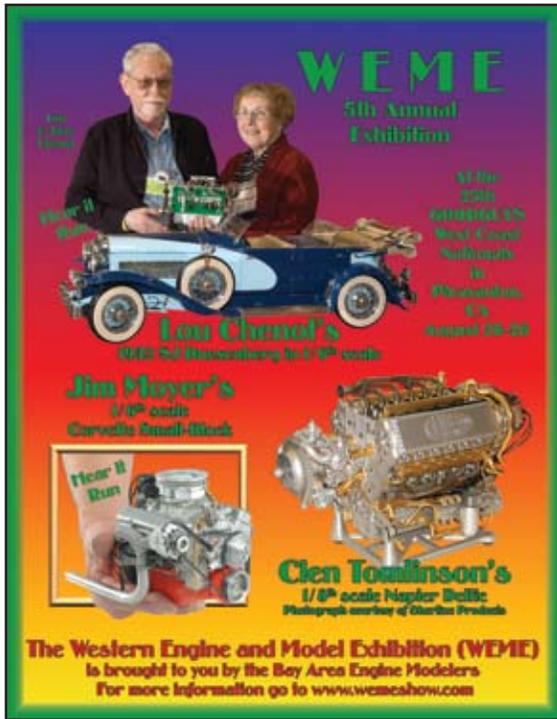
Alberta Metal Enthusiast Network

Sept. 17, 2011 1 to about 4:00 pm
Humpty's Family Restaurant
4503 Gateway Blvd.
Edmonton, Alberta, Canada
hbjacob@telus.net

Do you have an upcoming event? Send information to us at this link:

www.modelenginebuilder.com/contactus.htm

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WEME Show Report

I think the only statement I can make about WEME is WOW! Those of us who had taken a few engines to the Goodguys' Hot Rod Shows over the past years were maybe a bit more prepared for the tremendously positive reception the model engines and the model Duesenberg made on the show attendees. But their response was overwhelming and WEME was the hit of the Goodguys 25th West Coast Nationals held August 26-28 in Pleasanton, California. Most of us were hoarse from talking.

We had some very notable models on display including the Marquee model, Lou Chenot's 1932 1/6th scale Duesenberg automobile. He had removed the engine from the chassis and was running it for the last time in public. After this, the engine will be installed back in the chassis and never run again.

We also had perhaps the greatest collection of V-8 engines ever seen at a single show. Eight of them frequently bellowed their come-hither song to all the car nuts in the crowd. Thanks to them and some of the other notable models, I.C., Steam

and Stirling, we probably had in excess of 5,000 visitors in the 3 days of the show. The security guard would have to shoo the last visitors out at the end of the day. We had, by far, the busiest pavilion at the car show.

That model engines are popular will not come as a surprise to most of us. A few months ago, a small group of the Bay Area Engine Modelers attended a small car show in Martinez, California. They came away with the trophy for Best Engine in the show!

WEME has already been asked to come back next year, same place and the same weekend. So watch these pages for the announcement. If you haven't been to a show this large, you should try to attend. Great models, great people to talk with and oh yea, they had a few thousand hot rods scattered around the fairgrounds too.



11TH Annual

Black Hills Model Engineering Show

September 17 & 18th

Pennington County Fairgrounds

Fine Arts Building

Rapid City, South Dakota

Open 9AM to 5PM Saturday

&

9AM to 3:30 PM Sunday

Contact: Clif Roemmich

P.O. Box 45

Piedmont, SD 57769

Phone: 605 716-4647

E-mail: modelbuff@rushmore.com



Model Engine Builder™



MODEL SHOW

**EMMANUEL EPISCOPAL CHURCH &
CHICAGO MODEL ENGINEERS ASSOCIATION**
cordially invite you, your children, and your friends
to a showing of operating scale models

See the fine workmanship of Association members who derive pleasure from building working models of prime movers from early industrial development to the present day. Chicago Model Engineers Association members are dedicated to mentoring and encouraging people in model building and design.

Saturday, September 24, 2011

10:00 am – 4:00 pm

Emmanuel Episcopal Church

203 S. Kensington Ave.

La Grange, IL 60525

(Entrance on Catherine St., 4 blocks S. of Metra tracks and 3 blocks W. of La Grange Rd.)

- Steam engines and tractors
- Internal combustion engines
- Electro-magnetic engines
- Hot air (Stirling) engines
- Elliptical (Coomber) engines
- Atmospheric engines
- CO₂ powered engines
- Machinery
- Carousels
- Airplanes & aircraft engines
- Helicopters
- Boats

DOOR PRIZE

A drawing for a radio-controlled gyrocopter will be held near the end of the show. Winner need not be present, but will need to pick up the prize at the church office sometime after the show.

For safety reasons, steam engines will be operated on compressed air.

Children are welcome; however, those under 12 years of age must be accompanied by a responsible adult. During this showing, docents from Emmanuel Episcopal Church will be available to conduct tours of the church to view the magnificent stained glass windows and wood carvings.

FREE ADMISSION & REFRESHMENTS

We look forward to seeing and welcoming you at our show!

Model Engine Builder™

8th Annual:

September 24 and 25, 2011

GEARS Model Engineering Show



- ▶ Exhibition of old world craftsmanship from Home Machine Shops
- ▶ Working models of **aircraft**, **automotive**, **steam**, and **hot-air** engines
- ▶ Tools, machinery, farm equipment, locomotives, and more.
- ▶ Foundry metal casting demo
- ▶ New and used tools, books and equipment sales

Quilt Display

Daily Admission: \$9 adults, 12 and under FREE! (With adult)



Times: Saturday: 9 - 5 Sunday: 9 - 3 Ticket sales stop 1 hour before closing.

Location: Kliever Armory 10000 NE 33rd Drive, Portland, OR

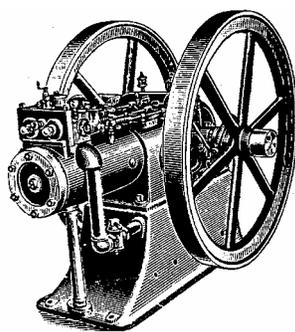
Mailing Address: GEARs PO Box 1212 Tualatin, OR 97062

WWW.OREGONGEARS.ORG

Model Engine Builder™

** 24th Annual **

ESTEVAN MODEL ENGINEERING SHOW



October 15 & 16, 2011

Saturday 9-4 & Sunday 11-4

Wylie Mitchell Building, Estevan Fairgrounds
Estevan, Saskatchewan

Contact Kelly @ (306) 634-3214 or E-mail emes@sasktel.net
www.estevanmodelengineeringshow.com



Joey's Place
Main street Crosby ND

Frosty's
MOTORCYCLES
PARTS & SERVICE INC.

"If it wasn't for us, the fast lane would rust"



Fourth Annual Mid-East Ohio Model Engineering Expo!

Saturday, October 22, 2011 • 9 a.m. to 6 p.m.

**Muskingum County Fairgrounds
1300 Pershing Road • Zanesville, Ohio**

**Fully
operational
Models!**



Aircraft Engines
Automobile Engines
Farm Machinery
Miniature Guns
Motorcycles
Stationary Engines



Vendors/Exhibitors

- ◆ Set-up Friday, October 21, 9 a.m.-7 p.m. (No exhibitor/vendor will be admitted prior to 9 a.m.) Electric included with booth fee.
- ◆ Register (check-in) first, then coordinate unloading. You will receive a registration packet along with admission pins for each person in your party.
- ◆ All exhibitors, vendors, and visitors must be members of the Mid-East Model Engineering Expo Association. Insurance requires this membership, which is included in the \$8.00 per person admission fee.
- ◆ No compressed air will be available.
- ◆ Vendors contact us for vendor contracts and pricing.

Model Enthusiasts/Vendors/Exhibitors

- ◆ General admission \$8.00 per person (children 11 and under free).
- ◆ **Free Parking**, RV parking **Free** without hookup
- ◆ Convenient location to local hotels and restaurants
- ◆ Precision machined gasoline and sterling cycle engines
- ◆ Fully operational models, miniature machine tools and supplies

For further information contact:

Debolt Machine, Inc. E-Mail: DEBOLT@columbus.rr.com
 4208 West Pike Website: www.deboltmachine.com
 Zanesville, OH 43701 Phone: (740) 454-8082