

# EUGENE 5160 CLUB ~ SEPTEMBER 2016

<https://www.facebook.com/5160Club>

newsletter archive: <http://www.elementalforge.com/5160Club/>



## SEPTEMBER MEETING

September 1<sup>st</sup> – 6:00pm at David Thompson's shop. If you didn't get the directions in the meeting notice, email me for them: [michael@elementalforge.com](mailto:michael@elementalforge.com).

Bring your share-and-tell!

Note from the Thompsons:  
"Please **drive very slowly** down our lane. The maintenance is all ours. Thanks."



## NOTES AND REMINDERS

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**Northwest Blacksmith Association** – see <http://blacksmith.org/events/> for all events.  
**Mentoring** at the Cowlitz Expo Center – Longview, WA: generally on the 4<sup>th</sup> Sunday of the month.

We had a great time at the hammer-in – see more photos near the end of the newsletter.



## HOME-BUILT GRINDERS

During our last meeting there was quite a discussion of home-built grinders – and a challenge went out to send in a description & pics of 'em to give folks on a budget ideas about building their own.

**WAYNE GODDARD** is, of course, the knife makers' patron saint of doing more with less. Chapter 7 of his book "The \$50 Knife Shop" is devoted to home-built grinders... so I would be remiss if I didn't mention it. Wayne's books are available at Amazon: <http://www.amazon.com/Wayne-Goddard/e/B001JS9M10>  
Or email Steve Goddard [wgoddard44@comcast.net](mailto:wgoddard44@comcast.net)

Also – you can check out the "Equipment" section of links at the end of this newsletter for a number of grinder links - from about \$28 for plans from USA Knifemaker, to Polar Bear's Grinder-in-a-Box, on up through Coote and Pheer to full priced grinders from Burr King (USA Knifemaker) and Wuertz.

Two folks in the club also sent me something on their home-built grinders. If you built a grinder, consider sending me pics and notes for the next newsletter.

Here are photos of **ERIK LAND'S** grinder. He notes that he used a variable speed 1-1/2 HP motor controlled by a VFO (variable frequency oscillator). He built a rotary head to switch quickly between flat, hollow, and slack belt grinding. So this is pretty sophisticated for a home-built rig!



**MIKE JOHNSTON** sent the following detailed notes and photos of his grinder building project. I've also posted a PDF of his notes to the 5160 Club archive page: <http://www.elementalforge.com/5160Club/>

My grinder is designed straight from The \$50 Knife Shop by my mentor Wayne Goddard (with a few modifications).



Wayne told me that a two wheel grinder has the most torque. Each additional wheel added to the system reduces the grinder's efficiency. By bolting the frame together rather than welding (not one of my specialties at that time), the frame can be adjusted when it's not aligned.

I found a 220V, fully enclosed fan cooled 3450 RPM motor at a farm sale and bolted it to a large box tube.

I could not get any cart wheels or hand truck wheels to run true, so I turned a 7" wheel out of two pieces of 1" oak laminated to 2". There is no crown on this wheel.

I bored a hole with a Forstner bit in the center of the wheel where the wood lathe left the index points. The motor shaft had a keyway, so I cut a slot in the wood, starting with my sawzall and finishing with a narrow chisel. The wood drive wheel wanted to wander on the shaft and I did not want it to fly off the end. I drilled and tapped the motor shaft, and bolted a large washer



on the end of the shaft. This kept the wheel from flying off, but not wandering. I drilled and tapped the wheel opposite the keyway. Inserting a long alan set screw into the hole and tightening it down helped, but still didn't stop the wandering until I drilled a recess into the motor shaft for the set screw to tighten into.



The idler/tracking wheel is a different story. 2" thick oak, turned to 4" diameter was a good start. For the 2"x72" grinding belt to track straight and adjust from side to side, the idler/tracking wheel has to be slightly crowned. Since it was still on the wood lathe, working a slight crown with a file was easy.

This wheel has to turn freely, so high quality bearings are

in order. I selected two bearings with an inside bore of 5/8" because my "shaft" is a 5/8" diameter bolt. I recessed both sides of the idler/tracking wheel using a Forstner bit so that the bearings were a tight press fit and still slightly above the sides of the wheel. Oops! The standard grade and grade 8 bolts were slightly too small. They rattled slightly in the bearings. Success! Galvanized bolts were JUST enough larger that I had to LIGHTLY sand it and throw it in the freezer to get it through the bearings.



I tried a couple different tracking adjustments that worked (poorly). This system works well.

I ran a nut down on the 5/8" bolt until the large body washer was snug on the inside bearing. Add some washers to the bolt to place the idler/tracker wheel over the drive wheel. I drilled the aluminum block (it's what I had about the

right size) for the 5/8" bolt near the top and front to back for a 1/4" bolt for a pivot. This allows the Idler/tracker wheel to move.

Double nut the end of the 5/8" bolt on the back side of the aluminum block.

I attached an "L" bracket to the back side of the aluminum block and drilled a hole through the bottom of the "L". The tracking screw is double nutted above the "L", a spring is placed below the "L" to keep upward tension on the "L". The "L" bracket below the spring is drilled and tapped so when the tracking screw is turned, the whole aluminum block with the idler/tracking wheel pivots up and down. When the belt is running, this pivoting of the idler/tracking wheel makes the belt move side to side over the platen and drive wheel.



You may notice extra holes in the top pivot arm. Failed attempts!

This whole idler/tracking mess is mounted on top of the top pivot arm that is attached to the mast. A strong spring on the end of the top pivot arm gives the tension needed to make the belt keep traction on the drive wheel.

I was having problems breaking belts, which Wayne diagnosed right away. "The belts too tight. The tension is right when you hold the drive wheel stationary you should be able to slide the belt with some resistance." A chain and a hook for adjustment of the tension solved the problem.





A "U bolt" attached the receiver for the platen. I found that I needed to adjust the receiver tube to align the platen. A thin wedge of wood on the back side of the mast took care of the problem.

The receiver type set up makes adjusting the platen against the back of the belt very easy. Loosen two bolts and push and pull the platen

against the inside of the belt.

The platen is not ideal, but it works. It should be made of heavier material so it won't heat up as fast. The 12" platen gives me lots of working surface while still allowing for a long slack belt area above and short slack belt area below the platen.

One of the things that Wayne talked about was not having straight lines in a knife blade. Curves, however slight are more pleasing to the eye. Straight lines tend to create a stopping point when looking at the knife rather than allowing a continuous flow.

Taking this to heart, how is the easiest way to create a consistent curve in the clip and spine of a Bowie in particular?

My answer, curved platen adapters.



I started out with a 2X4 on my band saw to rough out the shape. I used an adjustable auto body filing tool as a template to set the curve. This is a tool with handles and a plate that has a turn buckle on the back to create a wide variety of curves in auto body repair.

With this tool I am able to create numerous different

radius for different platens. It is very easy to build the wooden platen, so making a new one with a different radius for a new knife is not hard. I typically use two different wooden platens on a knife blade. One large radius platen for the spine and a smaller/tighter radius platen for the clip. I currently have made 4 different wooden platens that serve for most larger knives.

In this photo I used two sheet rock screws at the top of the wooden platen to hook over the top of the metal platen. The belt tension holds the wooden platen in place without further clamps.

I was not sure how long a wooden platen would last, but they have held up well over several years.

Another different platen attachment is a felt platen. Wayne used a harder felt than I had, but mine seems to work.

Make sure to use wool felt because the friction of the belt running over the felt would make synthetic felt melt.

I used contact cement to glue one 1/2" layer of soft wool felt to a piece of thin stainless steel. I formed a lip at the top to slip over the top of the platen and two tabs on the sides near the bottom to keep the felt platen in place.

I use this platen for a couple different applications.

First, the felt gives a firmer surface than a true slack belt, but enough give in the surface to allow a very controlled convex grind to a blade.

The felt platen behind an A30 Trizac Gator (600 grit) with a light touch and slow side to side motion leaves the blade with a nice satin finish.



### Advantages to this belt grinder.

It's simple! If you have ANY scrounging abilities, you can build this grinder for very little.

It can be changed or rebuilt or parts replaced with ease since you made most of the parts yourself.

It's got power! A 3 HP motor MAY be a little overkill, but its what I found cheap. I have tried to stop a 36 grit belt by pushing a piece of truck leaf spring into the belt with all my weight. All that happened was the spring got shorter FAST.

It's got speed, between 5000 and 6000 belt feet per minute.

### Disadvantages to this belt grinder.

It's got speed! You will learn to use a light touch when grinding. At this speed it seems to glaze the belts quick.

It's got ONE speed. I have worked on a couple variable speed belt grinders and they are easier to control and more versatile. However if you are daring and get used to this type belt grinder, you can use any type grinder.

It's harder to adapt this grinder to some of the common accessories used on some commercially made belt grinders.

There may be things I could do easier with a commercially built grinder with all the attachments. Since I am ignorant for these advantages, I do what I can with what I have. I grind "freehand", without a guide or rest. It's just the way I learned to grind blades. There are even some silly people that think some of my knives are almost acceptable.

Mike Johnston

Johnston's Custom Knives and Leatherwork

[bladesmith97116@gmail.com](mailto:bladesmith97116@gmail.com)



## 2016 HAMMER-IN

We had a **great** day – starting around 9:00am with folks coming in and setting up throughout the morning. The weather was perfect: not too hot and a gentle breeze. There were coal and propane forges. One brick forge. Hand bellows forge. Nice big anvils.

Homemade little anvils. Experienced smiths and knifemakers. Newbies. I think everybody had fun! I didn't take any photos – but a visitor (who wishes to remain anonymous) did and shared them with us – here you go:







Have fun all – and work safe (don't be like me and wind up with stitches)!

~ ~ ~ Michael Kemp



## FREE DE-CLASSIFIEDS

Email me a brief description of what you are selling/buying/looking for with your preferred contact (phone/email/...). Unless you let me know you want a shorter run, I'll run the note for 3 months and then send you an email to see if it's still valid. No charge – just email me at [Michael@ElementalForge.com](mailto:Michael@ElementalForge.com)

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25# L6 Power Hammer  
Complete Rebuild  
2 hrs use  
\$3,000  
Eric Sprado  
541-964-3224  
[spradoeric@gmail.com](mailto:spradoeric@gmail.com)

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Starting Position – Foundry/Casting at Oregon Pattern & Foundry.

Sand casting etc. Hard work. Rewarding.  
Must be 18+. Hours: Monday-Thursday 6:00am-4:30pm Friday being overtime day. Very real opportunity to grow and learn all foundry skills. Starting wage \$10-12 depending on experience.

Contact: [terry@oregonpattern.com](mailto:terry@oregonpattern.com)

If you know anyone who would be serious about learning the foundry business - pass this on!

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## WEBSITE LINKS

### 5160 CLUB

5160 Club Newsletters are archived at:  
<http://www.elementalforge.com/5160Club/>

Hint: to Google the archive for a specific knife style or presenter name, use a search like this:

**sami site:**<http://www.elementalforge.com/5160Club>

or this:

**ron lake site:**<http://www.elementalforge.com/5160Club>

### OREGON KNIFE COLLECTORS ASSOCIATION (OKCA)

The OKCA hosts monthly dinner meetings where you are guaranteed to see treasures from the wide world of “things that go cut!” OKCA also puts on the big knife show in April – if you haven't seen it you've been missing something special!

<http://www.oregonknifeclub.org/index.html>

Go to the “Knewsletter” link and scan a recent newsletter for a membership form and contact info.

### FORUMS

Bladesmith's Forum aka Don Fogg Forum

<http://www.bladesmithsforum.com/>

Knifedogs Forum (USA Knifemaker)

<http://knifedogs.com/forum.php>

American Bladesmith Society

<http://www.americanbladesmith.com/ipboard/>

Usual Suspects Network

<http://www.usualsuspect.net/forums/forum.php>

Blade Forums  
<http://www.bladeforums.com/forums/forum.php>

Julious Griffith groups on Facebook:

- Custom Knives For Sale by Maker - Available now
- Knifemaking - Works in Progress (w.i.p.'s)
- Knifemaking Equipment Buy, Sell, or Trade (used only)
- Knifemaking - Masters to paying Students connection
- Knife shop photos
- Knife Calendar - Events, shows, hammer-ins, schools, misc.

These are all closed groups – to keep them focused – so if you want to join one of the groups, click the “+ Join Group” button and also message Julious and give him some info on yourself so he knows you have real interest in the group.

## REFERENCES

Our own Wayne Goddard's books are available at Amazon:

<http://www.amazon.com/Wayne-Goddard/e/B001JS9M10>  
And you can email the Goddards directly for his DVD at [wgoddard44@comcast.net](mailto:wgoddard44@comcast.net)

Most of the companies in the “Knife Maker General” links (below) have a section for how-to books and DVDs.

Verhoeven's Metallurgy For Bladesmiths PDF – this is a very deep dive, not an introduction.  
<http://www.feine-klingen.de/PDFs/verhoeven.pdf>

Verhoeven's updated book:  
<http://www.amazon.com/Steel-Metallurgy-Non-Metallurgist-J-Verhoeven/dp/0871708582>

ZKnives – Knife steel composition/comparison/etc.  
<http://zknives.com/knives/steels>

Kevin Cashen's Bladesmithing Info  
<http://www.cashenblades.com/info.html>

Tempil Basic Guide to Ferrous Metallurgy  
[http://www.tempil.com/wp-content/plugins/download-monitor/download.php?id=Basic\\_Guide\\_to\\_Ferrous\\_2010.pdf](http://www.tempil.com/wp-content/plugins/download-monitor/download.php?id=Basic_Guide_to_Ferrous_2010.pdf)

From the Heat Treating Society of the ASM – the Heat Treater's Guide Companion for Android devices. Look up heat treating details on hundreds of steels in the palm of your hand.

<https://play.google.com/store/apps/details?id=com.pfiks.mobile.heattreaters&hl=en>

My “Knife Info” has some knife musings and cheat sheet charts – plus Oregon and Eugene knife laws:  
[http://elementalforge.com/tips\\_notes/](http://elementalforge.com/tips_notes/)

## CLASSES FOR KNIFE MAKING, ETC.

Gene Martin offers personal instruction at his shop south of Grants Pass for a daily rate.  
<http://www.customknife.com/>

Michael and Gabriel Bell of Dragonfly Forge offer an ongoing series of small group classes in Japanese style sword forging and fittings. Located on the southern Oregon Coast.  
<http://dragonflyforge.com/>

Murray Carter offers small group classes in a variety of subjects, primarily focused on traditional Japanese cutlery. Located in Hillsboro, Oregon.  
<http://www.cartercutlery.com/bladesmithing-courses/>

David Lisch is an ABS Master Smith who teaches classes in Seattle. I've heard rave reviews from his students. Lisch is very skilled at blacksmithing in general and bladesmithing in particular.  
<http://www.davidlisch.com/Learn.html>

Jim Hrisoulas now offers both formal classes and mentoring sessions in 2 hour blocks at his shop in Henderson, Nevada:  
<http://www.atar.com/joomla/> and click the “Bladesmithing Classes” link.

The ABS (American Bladesmith Society) offers classes in Washington, Arkansas and elsewhere – if you are up for traveling across the country to take classes, check out their “Schools” link:  
<http://www.americanbladesmith.com/>



James Austin offers forging classes in Oakland, CA – axes, tongs, viking anvil, etc.:

[http://forgedaxes.com/?page\\_id=148](http://forgedaxes.com/?page_id=148)

Blacksmithing and some bladesmithing workshops are hosted regularly by the Northwest Blacksmith Association: <http://blacksmith.org/>

USA Knifemaker has a lot of fun & informative videos on their YouTube channel:

<https://www.youtube.com/user/USAKnifemaker/videos>

... and hey - “free” is a hard price to beat!

Nick Wheeler also has a good YouTube channel with a lot of how-to videos:

<https://www.youtube.com/user/NickWheeler33/videos>

## **GENERAL TOOLS & SUPPLIES**

Woodcraft of Eugene – thanks to Joe & the crew for six years of hosting 5160 Club meetings – we've had to move on, but the hospitality was appreciated.

<http://www.woodcraft.com/stores/store.aspx?id=515>

MSC Direct

<http://www.mscdirect.com/>

McMaster-Carr

<http://www.mcmaster.com>

Grainger

<http://www.grainger.com>

Surplus Center

<http://www.surpluscenter.com/>

Victor Machinery Exchange

<http://www.victornet.com/>

## **KNIFE MAKER GENERAL**

Knife kits, steel, tools, machines, supplies such as handle material, fasteners, belts, glues, finishes, etc.

Jantz Supply

<http://www.knifemaking.com>

Texas Knifemaker's Supply

<http://www.texasknife.com>

USA Knife Maker's Supply

<http://www.usaknifemaker.com/>

Knife and Gun (K&G)

<http://www.knifeandgun.com/>

Alpha Knife Supply

<http://www.alphaknifesupply.com/>

True Grit

<http://www.trugrit.com>

## **KNIFE STEEL SOURCES**

New Jersey Steel Baron

<http://newjerseysteelbaron.com/>

Kelly Cupples (High Temp Tools) – Alabama

<http://www.hightemptools.com/steel.html>

Niagara Specialty Metals – New York

<http://www.nsm-ny.com> (click Products/Knife Steels)

SB Specialty Metals – New York & Texas

<http://shop.sbsm.com/>

Bohler Uddeholm – numerous U.S. locations

<http://www.bucorp.com/knives.htm>

Sandvic – stainless steels – Texas & Pennsylvania

<http://www.smt.sandvik.com/en/products/strip-steel/strip-products/knife-steel/sandvik-knife-steels/>

Pacific Machinery & Tool Steel – Portland, Oregon

<http://www.pmtsco.com/tool-die-steel.php>

## **EQUIPMENT**

Beaumont (KMG) [Ohio] – the industry's benchmark  
2x72 belt grinder

<http://www.beaumontmetalworks.com/shop/>

Travis Wuertz [Arizona] – premium versatile grinder  
[http://www.twuertz.com/Home\\_Page.php](http://www.twuertz.com/Home_Page.php)

Pheer [Gresham, Oregon] – affordable grinder made in Oregon  
<http://www.2x72beltgrinder.com>

AMK [Ohio] – affordable grinder, quick-change between platen & contact wheel  
<http://amktactical.com/>

Coote [Port Ludlow, Washington] – affordable, simple grinder – you supply the motor  
<http://www.cootebeltgrinder.com>

Marinus Kuyl [Hillsboro, Oregon] – another affordable grinder made in Oregon – and parts – you provide the motor.  
<http://oregonblademaker.com>

Grinder-In-A-Box – grinder kit, assembly required  
[http://www.polarbearforge.com/grinder\\_kit\\_order.html](http://www.polarbearforge.com/grinder_kit_order.html)

The “No Weld Grinder” plans can be purchased from  
<http://usaknifemaker.com>  
either as a booklet or as a download – just use the search box to enter “no weld grinder”

Wayne Coe [Tennessee] – grinders, motors, VFDs...  
<http://www.waynecoeartistblacksmith.com>

Contact Rubber Corp – wheels etc.  
<http://contactrubber.com/contact-wheels.asp>

Sunray – drive wheels  
<http://www.sunray-inc.com/drive-wheels/>

Renaissance Metal Art [Mulino, Oregon] – 80# ram air hammer  
<http://www.rmetalart.com/tools.htm>

Anyang [Texas] – air hammers from 20# to 165#  
<http://www.anyangusa.net/>

Meyer Machine Tool [Ohio] – treadle hammer  
<http://www.meyermachinetool.com/Blacksmith-div-.html>

Spencer/Clontz tire hammer plans/workshops  
[http://www.alaforge.org/Trading\\_Post.html](http://www.alaforge.org/Trading_Post.html)

Appalachian Power Hammer plans  
<http://www.appaltree.net/rusty/index.htm>

Helve Hammer and Quick-Change Dies Video – from a BladesmithsForum.com thread.  
<https://www.youtube.com/watch?v=uzruqYkKGNM>

## **FORGE & REFRACTORY**

Chile Forge  
San Marcos, Texas  
<http://www.chileforge.com/>

Mankel Forge – Muskegon, Michigan  
<http://mankelforge.com/forges.html>

Western Industrial Ceramics Inc.  
All things refractory – Tualatin, Oregon  
<http://www.wicinc.com/>

High Temp Tools (scroll down the page for the category buttons) Tuscaloosa, Alabama  
<http://www.hightemptools.com/supplies-mainpage.html>

High Temp Inc. has also been recommended for Kaowool etc. Portland, Oregon  
<http://hightempinc.net/>

Omega – thermocouples & measuring equipment  
Stamford, Connecticut  
<http://www.omega.com/>

Auber – more thermocouples and controllers, etc.  
Alpharetta, Georgia  
<http://www.auberins.com>

Hybridburners – home of the venturi T-Rex  
Smithville, Georgia  
<http://www.hybridburners.com/>

Pine Ridge Burners – for ribbon burners and all associated fittings, blowers, valves, etc.  
Conway, Massachusetts  
<http://www.pineridgeburner.com>

Zoeller Forge – low cost venturi & parts: Z Burners  
Lanesville, Indiana  
<http://zoellerforge.com/>

Here's the original article on making a ribbon burners that John Emmerling wrote back in 2005 for the NWBA Newsletter:

<http://blacksmith.org/2005-1-hot-iron-news/>

You can download the PDF from that site. John's article starts on page 11.

## **BLACKSMITH**

Blacksmith Depot

<http://www.blacksmithsdepot.com>

Pieh Tool

<http://www.piehtoolco.com>

Centaur Forge

<http://www.centaurforge.com>

Quick and Dirty Tool Co.

<http://quickanddirtytools.com/>

## **LOGO/ETCHING**

Ernie Grospitch – Blue Lightening Stencil

<http://www.erniesknives.com/>

IMG International Marking Group

<http://img-electromark.com/>

Electro-Chem Etch

<http://www.ecemmi.com/products.html>

## **HEAT TREAT SERVICES**

Here are some folks who provide heat treating services for blades. While all of these have been recommended by one reputable person or another I have not had experience with them. If you use one, let us know how it went!

Paul Bos Heat Treating at Buck Knives. Paul Bos has retired and handed the torch to Paul Farner. Highly

reputable. Post Falls, Idaho:

<http://www.buckknives.com/about-knives/heat-treating/>

Peters Heat Treating is another highly reputable operation. Meadville, Pennsylvania:

<http://www.petersheattreat.com/cutlery.html>

Texas Knifemaker's Supply offers heat treat services. Houston, Texas:

<http://www.texasknife.com/vcom/privacy.php#services>

Tru-Grit provides heat treat services. Ontario,

California: [https://trugrit.com/index.php?main\\_page=index&cPath=34](https://trugrit.com/index.php?main_page=index&cPath=34)

K&G also provides heat treat services but I can't find a reference on their web site – you'll have to contact them for details. Lakeside, Arizona:

<http://www.knifeandgun.com/default.asp>

Byington Blades heat treat service is in Santa Clara,

California: <http://www.byingtonblades.com/>

It's my understanding that Chris Reeve Knives uses ACE Co in Boise Idaho – which is enough for me to add them to the list:

<http://www.aceco.com/heattreat/index.html>

## **WOOD SUPPLIERS**

Burl Source – handle blocks/scales – So. Oregon

<http://www.burlsales.com/>

Shelton Pacific – stabilized wood – Shelton, WA

<http://stores.sheltonpacific.com/>

Gilmer Wood – N.W. Portland

<https://www.gilmerwood.com/>

North Woods Figured Wood – Gaston, OR

<http://www.nwfiguredwoods.com/>

## **OTHER GOODIES**

Sally Martin Mosaic Pins – So. Oregon  
<http://customknife.com/index.php?cPath=13>

Oregon Leather – 810 Conger Eugene and 110 N.W.  
2ND Portland  
<http://www.oregonleatherco.com/>

Coyote Steel – wide variety of new steel, scrap,  
copper, brass, bronze – Garfield & Cross St. Eugene  
<http://www.coyotesteel.com>

Cherry City Metals – Salem, Oregon – metal  
recycling and useful objects  
<http://www.cherrycitymetals.com/>

Amtek – tool steel & cutting tools  
<http://websales.amtektool.com>

Rio Grande – jewelry tools/supplies  
<http://www.riogrande.com>

Otto Frei – jewelry tools/supplies  
<http://www.ottofrei.com>

M3 Composite – space age mokume & other  
<http://www.m3composite.com/>

Minarik automation & control  
<http://www.minarik.com/>

Valley Stainless (that does water-jet cutting) is one of  
Craig Morgan's customers. They told Craig “bring in  
a pattern” and they'd work with you on small batch  
cutting. They don't have a website yet. 29884 E Enid  
Rd, Eugene, Oregon 97402 (541) 686-4600.