



President's Letter

### Why We Do So Much Free Consulting and Research

Our free consulting lets us know what you really want. It has lead to some of our most successful products.

I spoke at the 21<sup>st</sup> Annual Workshop on Saws. (See attendees list P. 7) After one speech a young filer (younger than I am anyway) came up and asked me about using brake cleaner to clean saw blades. His company was using it and he had his doubts. He thought it was expensive, he wasn't sure how effective it was and he didn't like the smell. It turns out he was really right. (See P. 3)

Switching from brake cleaner to a Caustic solution can save the company better than \$1,000 a year as well as giving better quality and a safer workplace. I didn't get the filer's name. If he will call Emily has a present for him and we will give him credit for a really good question.

### Our Pretinning Makes a Huge Difference



This is a carbide tipped knife. We butt-brazed a piece of carbide to a piece of steel. Both were only 0.025" thick. The blade was flexed several times a minute at the braze joint and still cut for months. When we say we can prevent tip loss, we mean we can totally eliminate it. **Specify us for pretinning, please?**

# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter May, 2006

3847 S. Union Ave. Tacoma, WA. 98409 (800) 346-8274

sales@carbideprocessors.com [www.carbideprocessors.com](http://www.carbideprocessors.com)

## Carbide

### We Make it Easy to Buy

Odds Are 97% in Your Favor That We Will Have It

Peerless Saw Co. has a big inventory here that we can sell out of. We also have our own inventory as well as access to other, local inventories. So far we have been able to fill 97% of the requests for carbide we have gotten.



Paul Duclos, Peerless (left) and our Emily Erskine (right.)

We are happy to take orders for Peerless. If it is something they don't sell we are happy to get it for you.

Make one call and get your carbide now.

## Turn Sump Sludge into Whiskey



This much sump sludge, dried out, powder dry, was worth over a dollar. A quart of dry sump sludge will about buy a quart of whiskey. See P. 2

**Official carbide specifications**  
<http://www.ccpa.org/pubs.html>

## Super "C" Carbide Grade Is Becoming Very Popular Because It Really Does Work



Super "C" Sales are Really Taking Off

Super "C" is an extremely tough, hard to break grade that also gives very long wear. Use it to replace grades C- 1 through C-3. If you want extremely long wear try our Comet X, for very tough applications try our comet M

### Tires and Saw Tips

Car tires used to wear out in about 20,000 miles. Now they go 50,000 miles routinely. Car tires used to blow out on the Interstate. Now they slowly go flat with no disastrous blowouts. The same kind of science that gives you much better tires now gives you much better saw tips.

### Want to Sell Super "C" ?



Call us and come play. It is fun selling something this good.

## Turn Sump Sludge into Whiskey



This is very dry sump sludge. It tested 88% Tungsten Carbide and 11% cobalt. It was worth \$0.90 a pound.

This makes it worth about \$5.00 a quart. The state of Virginia sells 1 liter of Aristocrat Blend Whiskey for \$8.95. This makes the value of very dry sump sludge worth about the price of a quart of whiskey. (There's some fudge there but it makes a good headline and its pretty close.)



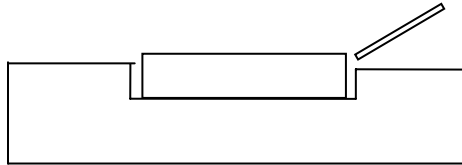
Your sludge has to be powder dry. Emily says it reminds her of toner for copiers.

How much we pay for sludge depends on what you are grinding. If you are grinding steel it is probably not worth the trouble. If you are grinding lots of carbide you probably have a valuable commodity.

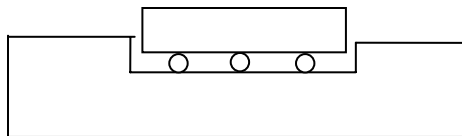
## Official Competition Stump



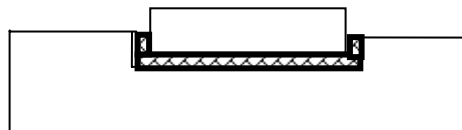
## Brazing carbide in a notch - three methods



Put the carbide in the notch with a little clearance. Then heat it and use a fluxed rod and let the alloy wick down into the gaps. This way you get a pretty good layer on each side depending on how carefully the parts are positioned. You get an extremely thin layer or no layer at all on the bottom. Minimal strength and very high susceptibility to heat stress cracking.



Lightly flux the sides and bottom of the notch. Put one or more pieces of fluxed alloy wire under the carbide. Heat until the carbide settles in place. This gives a nice even layer of braze alloy on all three sides of the part. This can be pretty well a self-centering operation. The secret is to use as little pressure as possible to hold the part in place while heating. Heat until you get nice, even, thin line of braze alloy around all the edges. This is probably the most efficient and most effective.



In the third method you use a trimetal or solid ribbon material and pre-place it. Then you heat until you see a nice, even, and small flow all the way around. This is the surest method and gives the most protection against cracking from thermal stress. It is also much more expensive than the other two methods in terms of material cost (generally about twice) and labor (generally three to five times.)

## Candy and Saw Tips Telling the Difference



We usually put a little candy in each shipment. It's just a nice way to say "thank you." If you work in shipping you know this, if you work in the office you may not know this.

This has never been a problem until lately. Mike West of Cascade Hardwoods emailed Emily that some of our tips were hard to braze. It turns out that he was trying to braze a Jolly Rancher.



Here is a close up of candy. It is different shapes, is covered in paper and has writing on it.



Here are some saw tips. They are all the same color and shape and do not have writing on them.



These are Jolly Ranchers and they are candy.

# Saw Cleaners



It is important you clean saw blades before brazing or welding tips. The questions come up as to what is the best cleaner.

## Dip Tanks

There are a variety of chemical preparations available. Oakite #3 is a product that was recommended to us. It is effective on oxides and scale as well as oil and grease. Oakite is in New Jersey at 908 464-6900.

Pretty well any strong caustic solution from a janitorial supply will work. The problem with caustics is the danger. Hot caustic can burn skin and eyes.

Working with a dip tank can make the danger much worse.

Caustic is popular and effective so We tested Easy off oven cleaner in spray can as well as "Oven & Grill Cleaner" from our local janitorial supply house.

## Citrus based

We have been hearing good things about these so we tested a couple. Citrus – from Orange Fresh and Orange Clean form Orange Clean

We also tested 409 as well as Simple Green and Brakleen

	\$ / oz.
<b>Brake cleaner - spray can</b>	<b>0.33</b>
<b>Simple Green</b>	<b>0.24</b>
<b>Caustic - Spray cans</b>	<b>0.23</b>
<b>Orange Clean</b>	<b>0.15</b>
<b>409</b>	<b>0.12</b>
<b>Caustic - spray bottle</b>	<b>0.10</b>
<b>Citrus - spray bottle</b>	<b>0.09</b>
<b>Citrus - spray bottle</b>	<b>0.06</b>

**One stood out for being really horrible:**

**Brakleen is far and away the most expensive. It is the worst cleaner, it causes cancer and it can explode.**

This is a great product for getting in very tight spaces and dissolving greases and other packed crud. However this is not what we are doing with saw cleaning. We want to dissolve a thin layer of light materials on a flat surface.



We tested the sprays with a 2 second spray and 8 wipes. We tested the liquids by holding the towel over the top of the bottle and tipping it to soak a patch on the towel and then giving that 8 wipes.



The cheap oven and grill cleaner was far and away the best cleaner followed by the Easy Off then the orange cleaners (no real difference among them). The 409 and Simple Green were not as effective and Brakleen was the worst at cleaning.

## Safety

Brakleen is Carcinogenic as well as having other problems. All the rest cause skin and eye irritation. It looks like the caustic might be worse than the citrus which might be worse than the 409 and Simple Green.

All recommend gloves and goggles. Aprons are a good idea and some recommend them. Brakleen mentions a respirator (not just a mask) if there is a possibility that the exposure limits maybe exceeded.

Basically the stronger they clean the more likely they are to irritate skin. Skin has oil sort of like any other oil so this makes sense.



## Advice:

For best cleaning use a strong caustic such as an oven and grill cleaner.

Avoid brand names. Most of the extra ingredients are to make it easier to spray. You also get butane as a propellant and spraying butane in a saw shop doesn't sound like a good idea.

We know one very good shop that uses an orange cleaner and likes it because they don't have to rinse it off. Caustic compounds can be a bit hard to rinse.

Buy concentrate and mix your own. You can drop your cost in half and you can get the mixture you wish.

For comparison I used the website [www.bettymills.com](http://www.bettymills.com). You can pretty well find a wholesale janitorial supply most anywhere.

We use Sarco Supply in Tacoma (253) 474-0477  
3902 S 56th St  
Tacoma, WA

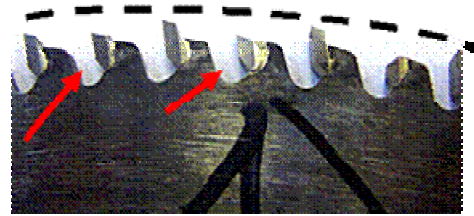
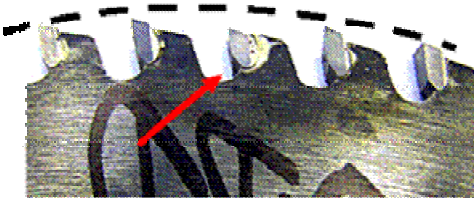
# How to Tell a Quality Sharpening Job

These are bits from analyses we have done over the years. We have problems selling good quality against lowball prices for cheap goods. If you are a customer with similar problem we can provide you with some fliers explaining the differences between good and bad work.

**With cheap equipment, sloppy work and a lack of knowledge a “saw butcher” can ruin a \$100 blade, thousands or dollars worth of material and tens of thousands of dollars worth of customers.**

What follows are true stories of tools sent to Carbide Processors, Inc. in Tacoma, WA for analysis.

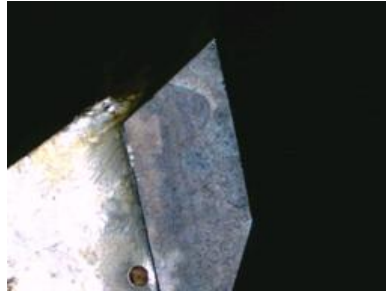
## Inspecting Saw Blades



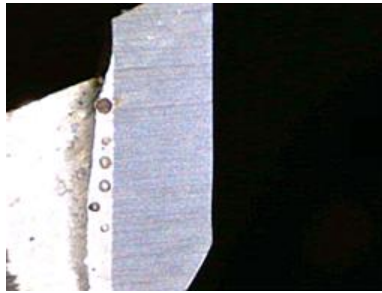
1. All the tips are the same height. This is a picture of a saw sold to a Weyerhaeuser mill. The supplier used two different sizes of tips.



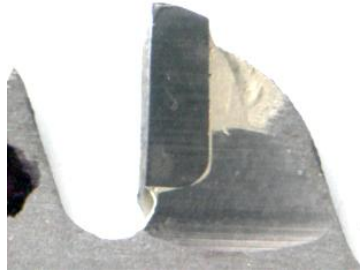
2. There are no cracks – not even microscopic cracks. A cracked saw is dangerous. Shoulder rebuilds are acceptable and good practice.



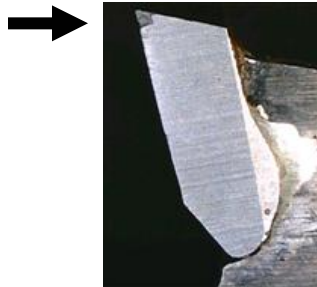
3. All the tips are ground. This tip was not side ground. You can see it is too short since it does not clear the saw shoulder.



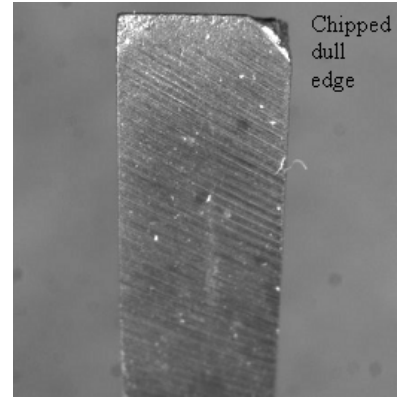
4. Solder is not burnt. Here the solder (brazing alloy) was overheated enough to bubble the zinc out of it



5. The carbide is ground but the steel is not. Here there is a big cut into the shoulder. (Exception some saws have the shoulder behind the tip roughed to give a rasp like, polishing effect.)



6. There are no chipped corners or edges



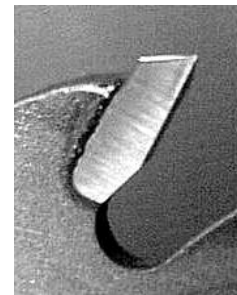
7. There are no dull edges



8. Grinding is done on solid, precision equipment. Above is a big solid grinder in a saw shop. (Notice how the floor shines.)

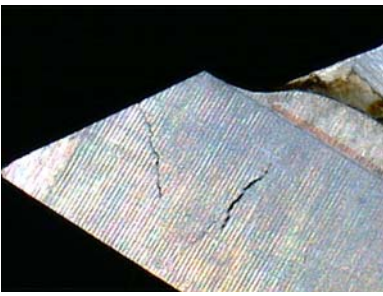


9. A good person can do a very good job on the one above but it takes some time and a very high skill level which doesn't go with lowball prices.



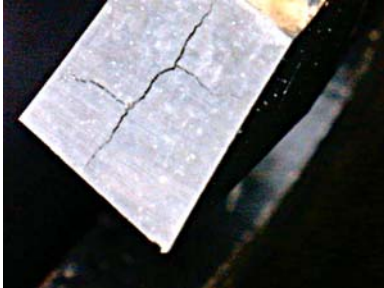
Top of face is “dubbed”

10. This top of this tip was dubbed by a fast job on a cheap grinder.

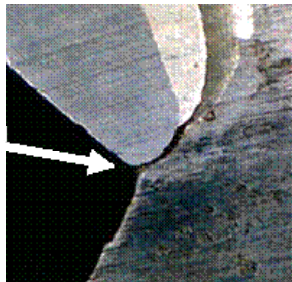


14. Good blades are ground evenly and exactly to close tolerances. Below is a grind on a custom blade from a top end shop. The blade is within one half of a thousandth inch.

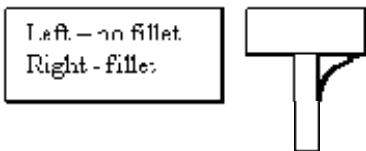
This is currently as good as it gets. .001" is a very good job and .002" is pretty common.



11. Here are two teeth ground way too fast. The excess heat of "hogging off" a lot of carbide in a single pass was more than enough to fracture the carbide. It is cheaper to slap a blade on, grind off a lot of carbide and then ship it back without inspecting it. Good shops don't do it because teeth like these shatter ruining the work if nothing else.



12. Good blades are brazed so that there are no gaps between the steel and the carbide.



13. Good blades have some braze alloy (not a whole lot) behind the tip and on the steel. These are fillets and act like shock absorbers as well as guy wires to keep tips in place and absorb shock. A good fillet can improve impact resistance by up to 40%.

tooth #	Variance	
	Side 1	Side 2
1	-0.0005	0
2	0	0
3	0	0
4	0	0
5	0	0
6	-0.0005	0
7	0	0
8	0	0
9	0	0
10	-0.0005	0
11	-0.0005	0
12	-0.0005	0.0005
13	0	0
14	0	0
15	0	0.0005
16	0	0
17	0	-0.0005
18	0	0
19	0	0
20	-0.0005	0
21	-0.0005	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	-0.0005	0
28	0	0
29	0	0
30	0	0.0005
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	-0.0005	0
38	-0.0005	0
39	-0.0005	0
40	-0.0005	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	-0.0005	0
48	-0.0005	0



15. A good sharpening has the grinds straight and square to each other (above). A bad sharpening has strange angles and (below) a missed corner



16. A saw blade that is sharpened well cuts straight and square and clean (above.) A sloppy, cheap job of sharpening gives crooked cuts with a lot of splintering.



# Improving profits with filtering

- Good shops make more money.
- They are cleaner.
- They take good care of the people and the machines.



## Operator wearing a white shirt

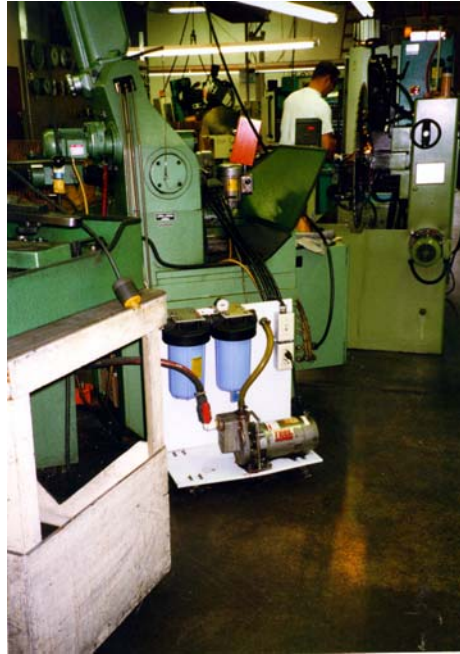
This is one of the best shops in the country. The fact that the operator wears a white shirt is only important because it stays white for the whole shift. In this shop the air is clean, the floor is clean, the machines are clean and the shop is successful. (CP 2020 in middle of picture)



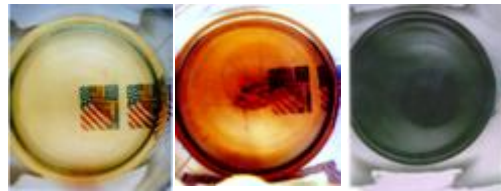
**CP 2020 \$2398**  
4 times the filter life

The filter unit that comes with the machine is good but usually not good enough.

Machine supplied filter systems are good but not good enough. A lot of machines come with filter systems, which shows that they are important. These are good, general, light-duty filter systems but they are not designed for the kind of high speed, highly abrasive grinding that is done with saws and tools.



**CP 2002 \$2038**  
Over one month filter life



Dirty      Filtered      Unused

## This is what filtering does.

These are pictures shot through three bottles of coolant. The red color in the middle comes from cobalt in the coolant. Filtering greatly helps reduce cobalt in coolant and extends coolant life.



## Getting started inexpensively

Filtering definitely makes you more money in the long term but there is the problem of buying the unit in the first place. The CP 2000 was designed as a starter unit. It is on casters so you can roll it from machine to machine. It starts at \$999. You usually get about three days between filter changes. We can also put it on a credit card.



**CP 2002-2 \$2454**

Easily switch between 2 machines without moving hoses.

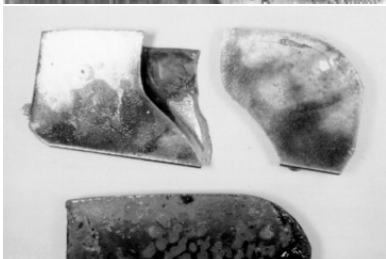
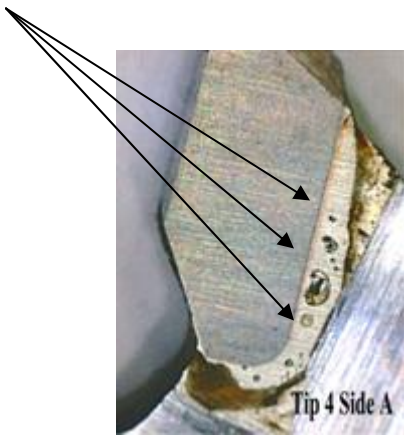
# Identifying Cracks In Carbide

## Heat stress from Brazing



Heat stress from brazing is characterized by smooth curves in the broken part.

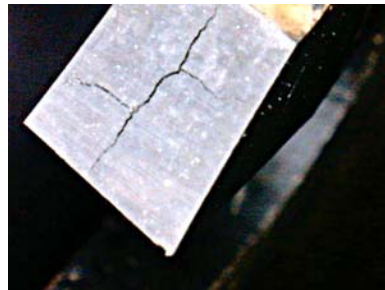
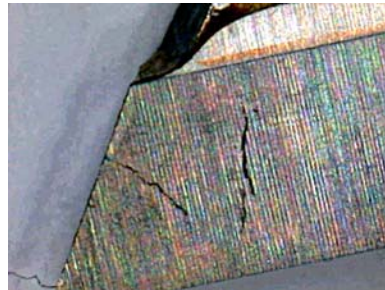
Look for bubbles in the braze alloy as a sign of overheating.



## Grinding Stress



These cracks are more typical of heat stress during grinding. This can be from too much pressure or a dull wheel. The wheel may be dull or clogged with oils or greases.



## Manufacturing Defects



# 21st Annual WMI Workshop on Design, Operation and Maintenance of Circular and Band Saws

Ryszard Szymani runs these and they are very good. Every session seems to be better driven by the quality of the attendees. The filers are getting smarter and more sophisticated. They are also asking much tougher questions.

Attendance is very limited which makes for very good conferences but you have to register early.

For information on the next one contact:

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E-mail: [szymani@woodmachining.com](mailto:szymani@woodmachining.com)

## **21<sup>st</sup> wood machining Attendees**

Dan Elkins, Head Filer, at Bennet Lumber Products, Inc.; Mark Foote, Saw Filer, at C & D Lumber Co. ; Matt Gross, Manufacturing Manager, at C & D Lumber Co. ; Steve Stier, Saw Filer, at C & D Lumber Co. ; Dee Brown, Sawmill Supervisor, at Collins Co. ; Mitch White, Head Filer, at Guy Bennet Lumber Company ; Dick Smith, Superintendent, at Herbert Lumber Co. ; Mike Watson, Saw Filer, at International Forest Products Limited ; Rich Fraser, QC Tech at Potlatch ; John Miller, Saw Filer, at Potlatch ; Ron Oliver, Filer, at Roseburg Forest Products Co. ; Randy Richardson, Head Filer, Roseburg Forest Products Co. ; Lincoln Savage, Filer, at Roseburg Forest Products Co. ; Royse Morrison at RSG Forest Products, Inc ; Sam Sanders at RSG Forest Products, Inc. ; Gerry McQuillan at Timber West ; Bill Albin at Tolko Industries Ltd., Wms. Lake Div. ; Ron Collum at Tolko Industries Ltd., Wms. Lake Div. ; Rock Lamont at Tolko Industries Ltd., Wms. Lake Div. ; Laura Gonzales De Lucci at Uddeholm S.A. ; John Owens, Round Saw Benchman, at Warm Springs Forest Products Industries , Ross Stock at Western Cascade Industries



**Not only a pretty face but also great customer service**

Here is Emily, who is always perky and always happy to help customers. Emily's job is to help people find carbide, silver solder, filter systems and everything else we sell. If we can't supply you but we know who can we will refer you. No matter what you want we will work really hard to find it.



**Go Ahead – Try Something New**

If you don't want this much excitement, try our Super "C" and Comet Grades of Carbide

**Who Loves Ya Baby?\***

We'll sell you really good new carbide and buy it back as scrap when you are though with it. We will even give you a Tootsie Pop if you wish.

**Scrap Carbide \$200 a coffee can**

A coffee can of scrap carbide weighs about 40# to 60#. It costs \$8.10 to ship it by flat box USPS (US Mail) and \$12 if you want to send it certified. It is worth at least \$5.00 a pound now and maybe more. That comes to about \$200 to \$300 for a coffee can of carbide.

**\$1.50 a pound for Stellite® scrap.**

**Ship Your Scrap to Us Cheaply**

U.S. Post Office has Flat Rate boxes. They are \$8.10 each. You can ship as much weight as you want, anywhere you want for just \$8.10. 2 sizes available- 11.875" X 3.375" X 13.625" (514 cu .in) and 11" X 8.5" X 5.5" (546 cu. in.) You can't track them but they are a cheap shipping method for heavy objects.

\* Telly Savalas was Kojak in a hit TV show in the 70's. He used to ask "Who loves ya, Baby?" and he sucked on Tootsie Pops. (Lord, I am getting really old.)

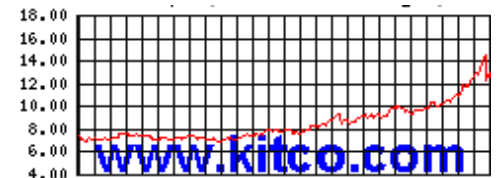


**Used Equipment for Sale**

ICE 24" Knife grinder; FOLEY- Retipping fixture; Cincinnati - #2 Cutter Grinder with tooling, Cincinnati- Powered Work Head OLIVER- Ace Cutter Grinder with tooling call Marvin Miller at Midwest Sharpening Holton, MI 49425 (231)924-5953

**Switching from brake cleaner to a Caustic solution can save a company better than \$1,000 a year as well as giving better quality and a safer workplace. See P. 3**

**Silver Prices**



Silver prices in the last year Low \$6.74 and High \$14.31. Silver dropped to \$10.81 but is now back up to \$12.84 and still climbing.

**Buy Braze Alloy from US**

Because of our volume and low mark up we can help. Today's prices are 10 tr. oz. \$ 12.00 each and 100 tr. oz. \$10.50each. These change daily so call for a quote.

**Carbide Processors, Inc.  
Northwest Research Institute, Inc.  
3847 S. Union Ave.  
Tacoma, WA. 98409**