



President's Message

From: Russell Hartley  
Subject: Tipping table

I always enjoy reading your news letter. I noticed we stirred up a little conflict in the last issue. While the video is meant to show a tipping table with a hold down plate on top of the saw, someone noticed the way we install our tips.

All we really try to do is melt the tin that is on the tips on to the saws. We do not have any trouble holding tips by doing this. We buy all of our saws without the tips to save a little money, and install the tips the same way with out any trouble.

I am wondering if heating tips from the front is a carry over from the days when filers tinned their own tips. I sent this to Emily because I have her e-mail add. I'm sure she will pass a copy on to you. Also she is prettier than you. I know you feel blessed to have these two Ladies working with you. Russell

### Our Heroes

#### Don Wallinger and Russell & Jesse Hartley

A year ago Russell Hartley came up to me and tried to explain a method he had for brazing tips on saws. I didn't get it so he offered to do a video. We combined that with a video of Don Wallinger at West Coast Saws.

This video has helped an awful lot of folks. There has also been discussion as to whether the brazing was being done the 'best' way.

The two situations are very different so the two styles are very different. Both are extremely successful in that they have no tip loss and no thermal stress breakage. In any case it takes a fair amount of guts to put your technique out there for everyone to see. I greatly admire Don and the Hartley's for going to the time and trouble to do this.

(The video is free online at [www.carbideprocessors.com](http://www.carbideprocessors.com))

# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter August, 2008

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

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

## Doing Well in Hard Times

### 1. Do something better than the competition

Tim Saam - Bill's Sharpening in Loves Park, IL has had much success using our advanced grades for his Pallet cutting blades.

Since 1982, Advanced Saw & Supply has provided professional and precise services in sharpening, repairing, rebuilding and renewing old cutting blades, saws and knives, as well as producing new blades and other cutting tools. Both Emily and Jacque work with Tim and his father regularly and they find both a pleasure to work with.

### 2. Get your quotes out fast

We were asked by a big machine company to supply saw blades with our advanced tips. We don't make blades so we asked for quotes. One company quoted, bought special plate, built the blades and has delivered them while the other company is still working on the quote.

### 3. Help people save money

Our carbide really does make saw blades that last 2,3 even 5 times as long. If you ever wanted to get business from that big manufacturer now is your chance.

## Super "C" is now available as STB

(Standard Tooling Blanks.)

Super C is an advanced carbide grade. (It is much more than that but the rest is a secret). It is tougher than C-1 and wears as long as C-4 in most cases. It brazes and grinds just like carbide. It is a great replacement for C-1, C-2 and C-3 tips.

**For really long wear use our Cermet II tips.**

## 102 Filter Units to a Single Customer



CP2002 DB Filtration unit for oil.

After working with one of our customers on designing a custom filtration unit that filters straight oil coolant, we've had such success we are now offering it in our product line permanently.

We recently received a call from a senior buyer from a company who has purchased 50 qty of the CP2002DB units since January of 2008, he told us their coolant costs have been reduced by 2/3. This is because of the coolant changes going, from what was once every 30 days, now, to once every 90 days. This was followed by a purchase order for 52 qty more units to go out over the next 5 weeks.

They already have an existing cleaning unit that does a good job. Our units are inexpensive and remove about 95% of the particles the other units miss.

For more information on the CP2002DB filtration unit give us a call anytime at 800.346.8274 or email [jax@carbideprocessors.com](mailto:jax@carbideprocessors.com).

## A Really Good Joke

Greg P. Toberman  
Atascadero Saw shop

A customer goes into a lumber store and asks to buy some 8-cent nails. The sales guy said "Don't you mean 8 penny nails?"

The customer replies, "I'll have to go to my truck and look at my blue prints." After about 10 minutes he comes back in and tells the sales guy he's right. The sales guy say's "What else do you need."

The customer tells him that he needs some 4 x 2's

The customer service guy said "Don't you mean 2 x 4's."

The customer replies, "I'll have to go to my truck and look at my blue prints." After about 10 minutes he comes back in and tells the sales guy he's right.

Now the customer service guy asks him how long does he want the 2 x 4's The customer replies, "I'll have to go to my truck and look at my blue prints."

About 20 minutes later the customer comes back in and say's

"For a long time – I'm building a house."

Greg P. Toberman  
Atascadero Saw shop  
Atascadero CA

This came in by a real letter written by hand. It has been so long since I have received one that it was pretty exciting.

It turns out that Mr. Toberman runs a nice business with no email and no fax machine. Since we just went through the trouble to buy a new phone system and hire our first, in-house webmaster, my first (and second) impulse is to be a little jealous of him.

**"The only website you will ever need to satisfy all your desires."**

I got this email and it had nothing to do with hunting or fishing or a cabin on the river.

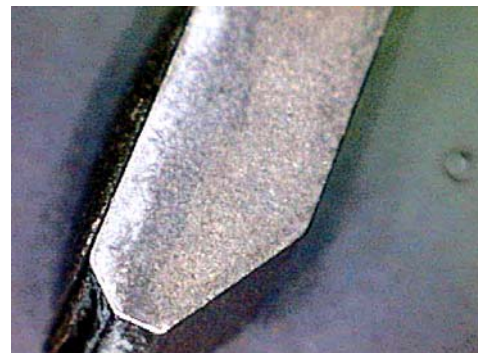
## Tip Analysis: - no

background given, no reason given for analysis

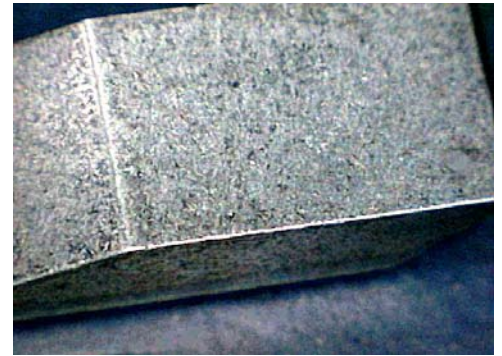
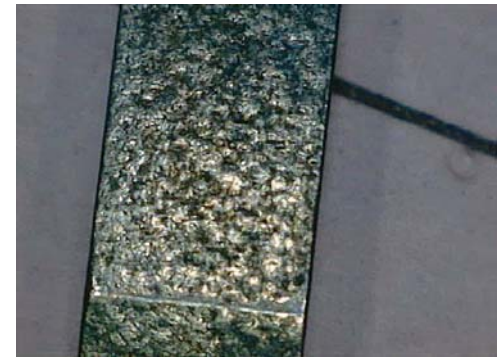
1. Tips seem to be well formed.
2. They are old tips as is evidenced by the oxidation layer.
3. The braze alloy flow is pretty good maybe an eight out of ten.
4. The surface is pretty well receptive to the braze alloy, maybe a seven out of ten.
5. The braze alloy appears to be a standard 50% Silver, Cadmium free alloy. Best guess is AWS BAgG-22. This is a common alloy for light to medium duty applications. Weyerhaeuser tests showed this alloy to be as much as 40% better at preventing tip loss and breakage than BAg-7 or BAg-24.
6. The real cause for concern is the quality of the tips. These have a very pebbly surface that we have seen for years on cheap Chinese tips. Below at 30 x magnification



Rough, pebbly surface



Proven good tips this side – smooth surface



Summation: We would reject these tips upon receipt. We consider tips with this surface condition to be unsuitable for sale or use. The pebbly surface has repeatedly been associated with poor quality tips.

**Dan Lines - Super Nice Guy**  
K&S Precision Grinding & Machine  
Roseburg, OR

While Emily was on vacation Jacques was in charge and I sometimes answered the phones. I would offer to help if Jacques was going to be tied up a while. Everybody wanted to wait for Jacques, which was the really smart choice, but Dan Lines sort of hesitated like he might have been afraid of offending me.

## An Honest man

Bill Bridges  
Pacific N. W. Industrial Saw  
Snoqualmie, WA 98065

We were trying "on line bill pay", which wasn't as easy as the bank said it was going to be, and we paid him twice. He actually went out of his way to bring one of the checks back to us.



# Super "C" Carbide Grade

Tougher than C1 - Better wear than C3

## What Makes Super C Tips Truly Superior

1. Superior Abrasion Resistance - Abrasion or straight wear is countered by smaller, better grain size.
- 2 & 3. Superior Adhesion and Diffusion Resistance (corrosion and chemical attack) Super C grade of carbide has an extremely fine structure so there is very little binder presented to the material being cut. This, combined with the special metallurgical formulation the Super C binder (hint - it's not just plain Cobalt) creates an extremely wear and corrosion material for use in wood, plastic or non-ferrous metals.
4. Superior Fatigue Resistance

**And People Really Like Them - Call Today To Try Them - Most Sizes Readily Available**

Super C	Hardness (HRA)	T.R.S. (psi)
	92.2 - 92.4	530,000 +

### Typical C2 values

	Hardness (HRA)	T.R.S. (psi)
C2	92.1	334,000
C2	91.8	334,000
C2	91.5	377,000
C2	90.4	435,000

### Typical C Values

	Hardness	T.R.S. (psi)
C1	89 - 92.4	350,000 - 360,000
C2	91.2 - 92.9	250,000 - 400,000
C3	91.4 - 93.6	270,000 - 350,000
C4	89.6 - 93	260,000 - 450,000

### Sawmill Grade Tips

- Transverse rupture strength well above 500,000 psi.
- Rockwell A hardness above 92
- Alloy binder for corrosion resistance
- Grain structure to inhibit both crack initiation and crack propagation
- Micro grain or mixed grain for superior wear

**Carbide Processors, Inc.**  
800 346-8274

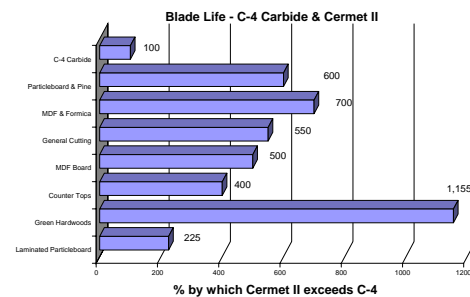


## Cermet II® 8 days instead of 5 in MDF

**Three weeks and three full loads of double side melamine laminate instead of 1 week and 1 load with carbide**

1. 5 blades with standard C-4 carbide cutting 45 lb. single and double sided vinyl-laminated particle board  
\* Cermet II - 15,088 meters / old grade - 6706 meters **225% as much run life**
2. KM-16 industrial saw cutting 101.6 mm x 152.4 mm (4" x 6") Green hardwoods, oak, hickory, maple and walnut using 11 blades with standard C-4 carbide  
\* Cermet II / 462 hrs / old grade - 40 hrs **1,155% as much run life**
3. 406 mm (16") 100 teeth cutting countertops  
\* Cermet II - 4 weeks / old grade - 1 week (4 times) **400% as much run life**
4. 406 mm (16") 80 teeth cutting MDF Board  
\* Cermet II - 10 days / old grade - 2 days (5 times) **500% as much run life**
5. 305 mm (12") 100 teeth TCG Miter cutting oak, Compressed Fiber Board, Plastic  
\* Cermet II - 154 hrs / old grade - 28 hrs (5.5 times) **550% as much run life**
6. 305 mm (12") 60 teeth cutting MDF, High Pressure Laminate (Formica)  
\* Cermet II - 56 hrs / old grade - 8 hrs (7 times) **700% as much run life**
7. G 1060A on Chop Saw cutting Particle Board and Pine Dowel Rods  
\* Cermet II - 48 hrs / old grade - 8 hrs (6 times) **600% as much run life**

**Use Cermet 2 instead of carbide and make your life much easier**



## Cermet II® Successes

Several times the life in a window and door plant.

3 times the life in Corian.

8 days instead of 5 in MDF and we have an even better grade coming.

Twice the life in beetle killed Lodge Pole pine.

### Benefits You Get

- \* Grinds like regular carbide
- \* Gives a better edge than carbide
- \* Stays sharper longer than carbide
- \* Great increase in fracture toughness.
- \* More corrosion-resistant
- \* Better at high temperatures
- \* Cuts faster
- \* Cuts faster & longer yet is tougher
- \* Longer runs and less downtime.

## Report from Marvin Windows

On the saw that we tried. How many times we sharpen a blade before we order new or have retipped we are not sure. Most blades get damaged by hitting something so we have the carbides retipped a lot. How often do regular blades have to be sharpened? We normally have our carbide tipped blades sharpened every week.

The new Cermet II blade normally last twice as long before it gets damaged. The best so far is four weeks and one and a half million cuts before we changed it out which is four times longer.

Hope this helps and keep up the good work on those tips.

Nathan Hull, Grinderman  
Marvin Wood Products

# Laser Cut Steel

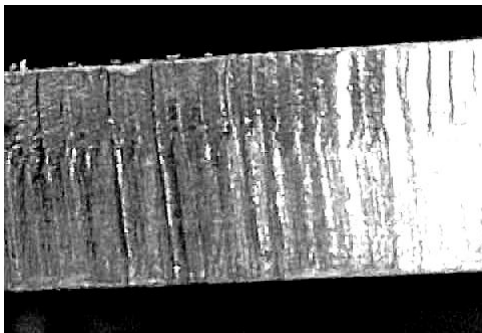
## Grind before brazing

You can braze directly to laser cut steel but it is a very uncertain process. It may work sometimes but sooner or later you will have significant tip loss.

The laser doesn't really cut the steel. While the laser melts steel a jet of gas or air blows the molten metal out the bottom of the cut.

### 1. Remove the iron oxide layer

If oxygen or compressed air is used then you get considerable oxidation and slag on the edge. However it is faster since the air or oxygen reacts with the molten metal. If Nitrogen or any other inert (chemically non-reactive) gas is used then you get much less oxidation. There is still some oxidation because steel oxidizes to create rust even at room temperatures and the effect is worse with any elevation of temperature.



The laser doesn't cut while traveling. Instead it cuts a series of holes as you can see in the picture above. (This is a 30 x microphotograph of the edge of a saw plate.)

### 2. Remove the hardened edge

If the steel's carbon level is above 0.3%, martensitic transformations occur which create a hardened edge. Since the cut edge had to have been heated to the melting point of steel (steel melts around 2800 °F), the material adjacent to the cut must also have been very hot. Steel whose temperature is raised above 1650°F transforms to austenite; rapid cooling of austenite forms martensite, which is what "hard" steels are made of. In our industry the steel saw plate is heat treated after cutting. However

there is still the oxidized edge which does not heat treat back to its original condition.

### 3. Remove carbon from the surface

This has been given as the primary reason to grind the surface. That may be true in some circumstances. At other times it may be the oxidation or the austenite / martensite transformation that is more important.

### Why you need really good steel

"The high process rates typical of laser cutting generate some peculiar microstructures in as-rolled steel. While it is true that steel turns into austenite above 1650 °F, the resulting material is not homogeneous. The carbon, which is usually in the form of iron carbide, must diffuse into the low-carbon ferrite areas. If the original structure was coarse, the time required for diffusion will be greater than the duration of heating. When the steel is cooled, the high-carbon regions will be hard and the low-carbon regions will be soft. Such mixed microstructures generally have poor mechanical properties. If it is desired to produce a hardened edge by laser cutting, it is best to heat treat the sheet prior to cutting so that it has a uniform microstructure"



This is the edge of a laser cut saw plate. All you need to clean up is the area in the tooth notch so that it brazes well.

It appears that you need to gum (grind) out at least 0.005" of steel. More and more you are seeing 0.010" as recommended minimum amount. More is better.

### Hard steel – laser cut and work hardened.

The steel in the saw gullet can work harden over time. This depends on the steel, saw design, what you are cutting and the amount of use. Our customer in Montana, who saws rock, sees a lot of work hardening in the gullet.

When a gullet work hardens due to use it needs to be ground out down to soft steel. A hardened gullet has been beat down and has lost its flex. This greatly increases the chances that a crack will start there. If the steel can't move then it will crack.

Laser cut steel leaves a rough surface and it has been heat treated back to the proper hardness. You do not have to worry about removing the laser cut edge from anywhere except where you are going to braze.

This report was prepared with help from Steve Hartshorn of Peerless Saw Company (800 973-3753), Steve Bergerson of Western Saw (503 781-5013) as well as Emily and Buddy, the dog.



Steve Bergerson working (at least that is what he claims)



Emily trying to look innocent



Buddy, the Dog. The blur in back is his tail.

## Humor

Bob, a handsome dude, walked into a sports bar around 9:58 PM. He sat down next to a blonde at the bar and stared up at the TV. The 10:00 PM news was coming on. The news crew was covering a story of a man on a ledge of a large building preparing to jump.

The blonde looked at Bob and said, 'Do you think he'll jump?'

Bob says, 'You know, I bet he'll jump.'

The blonde replied, 'Well, I bet he won't.'

Bob placed a \$20 bill on the bar and said, 'You're on!'

Just as the blonde placed her money on the bar, the guy on the ledge did a swan dive off the building, falling to his death.

The blonde was very upset, but willingly handed her \$20 to Bob, saying, 'Fair's fair.. Here's your money.'

Bob replied, 'I can't take your money, I saw this earlier on the 5 PM news and so I knew he would jump.'

The blonde replied, 'I did too; but I didn't think he'd do it again.'

(Dave Garrett)

### Friendship between Women

A woman didn't come home one night. The next day she told her husband that she had slept over at a friend's house. The man called his wife's 10 best friends. None of them knew anything about it.

### Friendship between Men

A man didn't come home one night. The next day he told his wife that he had slept over at a friend's house. The woman called her husband's 10 best friends. Eight of them confirmed that he had slept over, and two claimed that he was still there.

If you were around in 1919 (just before prohibition started) and came upon the following poster...



I mean seriously, Would you quit drinking? (Paul Duclos)

### How to Make a Woman Happy

It's not difficult to make a woman happy. A man only needs to be: Friend, companion, lover, brother, father, master, chef, electrician, carpenter, plumber, mechanic, decorator, stylist, sexologist, gynecologist, psychologist, pest exterminator, psychiatrist, healer, good listener, organizer, good father, very clean, sympathetic, athletic, warm, attentive, gallant, intelligent, funny, creative, tender, strong, understanding, tolerant, prudent, ambitious, capable, courageous, determined, true, dependable, passionate, compassionate

### Without forgetting to:

give her compliments regularly, love shopping, be honest, be very rich, not stress her out, not look at other girls

### And at the same time, you must also:

give her lots of attention but expect little yourself, give her lots of time, especially time for herself, give her lots of space and never worry where she goes

### It is very important:

Never to forget: birthdays, anniversaries all arrangements she makes

### How To Make A Man Happy

1. Show up naked
  2. Bring food
- (From Mike West)

## Dear Abby Was At A Loss Answering These

Dear Abby, What can I do about all the Sex, Nudity, Fowl Language and Violence On My VCR?

Dear Abby, I have a man I can't trust. He cheats so much, I'm not even sure the baby I'm carrying is his.

Dear Abby, I am a twenty-three year old liberated woman who has been on the pill for two years. It's getting expensive and I think my boyfriend should share half the cost, but I don't know him well enough to discuss money with him.

Dear Abby, I've suspected that my husband has been fooling around, and when confronted with the evidence, he denied everything and said it would never happen again.

Dear Abby, Our son writes that he is taking Judo. Why would a boy who was raised in a good Christian home turn against his own?

Dear Abby, I joined the Navy to see the world I've seen it. Now how do I get out?

Dear Abby, My forty year old son has been paying a psychiatrist \$50.00 an hour every week for two and a half years. He must be crazy.

Dear Abby, I was married to Bill for three months and I didn't know he drank until one night he came home sober.

Dear Abby, My mother is mean and short tempered I think she is going through mental pause.

Dear Abby, You told some woman whose husband had lost all interest in sex to send him to a doctor. Well, my husband lost all interest in sex and he is a doctor. Now what do I do?



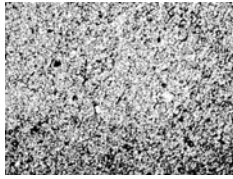


## Purified Flux

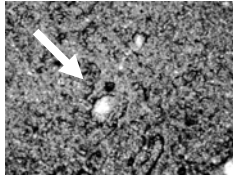
30% To 100% Better  
Braze Joints  
(50x magnification)



Purified flux  
Smooth &  
consistent



Standard flux  
Large grains of  
foreign material



**You can see and feel the difference immediately.**

Purified flux is black flux that has had extra processing steps. These processing steps take the black article out and leave the flux a rich, creamy brown color. If you take a little of each flux and rub it between your fingers you can feel that Purified Flux is not only smoother but the particles are smaller and there are no extra large particles.

Flux is made to prevent oxygen from getting to the parts as they are heated. Steel and especially tungsten carbide oxidize at room temperature. The hotter they get the more they oxidize. Above 1,000 F tungsten carbide oxidizes extremely rapidly and forms an unbrazable surface. Purified flux is good for more time at higher temperatures, up to 1,700 F.

The original idea with flux was that it was to be applied on top of the braze area. However the critical part of saw and tool brazing is what goes on inside the braze joint. Ordinary flux is inexpensively made and has up to 10% odd size particles and non-active minerals in it. These odd size particles and non-active minerals get lodged in the braze area and can seriously effect the strength of the braze joint.

**Purified flux is cleaner, smoother, creamier and much more effective.**

5 # jars

Case (6 jars @ 5#) \$ 464.31

Single jar \$ 87.39

## Braze Alloys (Silver Solders)

The right braze alloy can make a huge difference in performance

Braze Alloy Impact & Bond Strength Tests	
<b>High Impact</b>	<b>100%</b>
S50N - 50% Silver with Cadmium	100%
A50N - 50% Silver - Cadmium free	75%
A56T - 56% Silver with Tin	0%
S50N - 50% Silver with Cadmium	100%
A50N - 50% Silver - Cadmium free	64%
A50N with copper spheres added	67%

### Stop tip Loss - Prevent Carbide Breakage

Saw tips are brazed onto a steel saw using braze alloy. When a tungsten carbide saw tip breaks it is usually bad carbide, the wrong grade of carbide, the wrong braze alloy or a combination of these.

The brazing process forms a three part composite. The success of the composite depends on the tungsten carbide, the steel, the braze alloy and the way it is all put together. The braze alloy has to do three things. 1. It has to keep the tip on the saw. 2. It has to cushion the tip because the tip suffers a lot of impact stress when the saw cuts. 3. It has to compensate for the difference in expansion between steel and tungsten carbide as they are heated and cooled during brazing.

## Buy Our Books

Buy online or call 800 346-8274

1. Carbide Saw Specification Manual  
<http://www.cafepress.com/sawspecs.80466877>

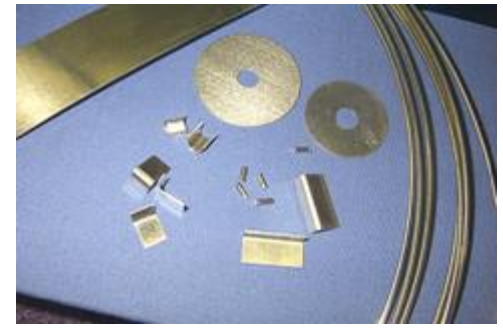
2. Carbide Saw Manual - Lowell freeborn  
<http://www.cafepress.com/freebornmanual.80464996>

3. Managing Coolants from Machining and Grinding Operations  
<http://www.cafepress.com/managecoolants.80458178>

4. Building Superior Brazed Tools  
<http://www.cafepress.com/superiortools.93943435>

5. Chisels on a Wheel by Jim Effner  
<http://www.cafepress.com/chisels.90813670>

6. Braze Failure Analysis  
<http://www.cafepress.com/brazefailure.79434854>



We sell braze alloys (also called silver solders, high temperature silver solders, or braze filler metals.)

We supply the finest information in the world on the selection and use of braze alloys for carbide brazing.



### The Finest, Most Consistent Braze Alloys For Tungsten Carbide

- 26 Different braze Alloys
- All AWS approved
- All inspected to parts per million
- All alloys exceed AWS specifications
- Cadmium free
- With Cadmium
- Hi Impact – developed for Weyerhaeuser
- Ultra Hi Strength – High Temp.
- Low Silver – Very High Strength
- Low Temp. with high strength
- Wire – all diameters
- Ribbon - all sizes
- Sandwich alloy ribbon
- Brazing preforms

### Why Quality Makes A Difference

(American Welding Society AWS 5.8) Braze alloy can be within AWS specifications but it can vary in brazing temperature by as much as twenty degrees. This means that you can have cold joints and tip one end or zinc loss and more broken tungsten carbide tips at the other end.

Our braze alloy is accurate and measured within parts per million. It is typically four times better than it has to be or more according to government certified analysis. It brazes the same way every time.

## Filtering Straight Oil Coolants



We now have a filter system that filters straight oil coolants. Above is our CP 2020 which filters tight oil coolant very well. It is also available as a wall mount unit.



Here is our CP 2002, which has been an extremely good unit on water based coolants for about eight years.

We have tried it on straight oil with very poor results. It filtered for maybe an hour before it plugged up.

Oil is much thicker than water. The filters were good enough to filter the oil for awhile but, as soon as they started to load up with dirt, the oil was too thick to get through.



Here are the two units side by side.

A filter is a series of holes that separates particles from liquid. Oil is thicker than water so it is harder to filter out small particles. In addition oil transfers the pressure from the pump directly to the filter and is much more likely to collapse a filter element.

The secret is a high-tech filter. This is stainless steel inside and outside to handle the pressure. It is smaller than our water filters and has a pleated surface to provide sensational filter surface area at the high pressures oil creates.



We recommend monthly filter changes but many go much longer than that.

## Great Filter Units

For Straight oil, Synthetic and Water-based coolants.

**Really popular – We're selling a bunch of them**



Great prices, pay for themselves readily, cleaner shops, less labor and longer diamond wheel life with better, faster grinds.

**Now accepting Visa & MasterCard**

Call Us at 800 346-8274 or  
Equipment Ltd at 800-533-2006

### Coolant filter Life

We recommend a filter change after one month in use on a single machine which is about 160 hours of use. In our tests we have seen them go 21 days of 20 hour shifts, which is 420 hours. Many folks get 2 or 3 months out of the filters which is 320 to 480 machine hours.

The rating is based on the amount of sludge generated by the machine in an hour. If you run a machine 40 hours and filter one hour then you remove all the sludge from the 40 hours of running.

If you are running 11 machines then you are getting 440 hours life out of the filters in a week.

Two things can happen. 1. If filters are run too long they can load up and releases over and over so they don't do any good past a certain point. It looks like they are working, however. This is like pouring fifty gallons of water in a five gallon bucket. It works because when you are through the 50 gallon drum is empty and the bucket is full. You just ignore the water on the ground. 2. After a long enough time there will be a lot of sub-micron particles in the coolant and this can give it a gray color.



**Not only pretty faces but also  
great customer service  
800 346 - 8274**

Here are Jackie and Emily are always perky and always happy to help. 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.

### **Get Cash for Scrap Stellite® or Carbide**

Emily is paying \$7.00 a pound for scrap and maybe higher. You can ship a lot of scrap for \$9.30 in a US Postal Service flat rate box.



**Sawfiler® brand supplies  
from  
Carbide Processors, Inc.  
(800) 346-8274**

Carbide  
Advanced grades – better than carbide  
Solder & flux  
Filter Systems  
Cool clothing with your picture on it if  
you look like the guy up above (and  
almost all saw filers do look like that.)

**Buy Carbide and Pretinning from  
Us  
Here's One Reason Why**



Here's what you get.



Here's what you never see.

These are tips we bought and had to eat because the braze alloy didn't stick to the surface. You can see the lumps of braze alloy and the gaps. In the bottom right the braze alloy ran too well and ran over the side. Not all the tips were bad but it takes one bad tip to make a bad saw blade and many of these tips were bad enough to jam an automatic brazer.