

Why Power Saws Fail — And How To Avoid

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WHEN it comes to equipment maintenance, Art B. knows what he's talking about. He was repairing power saws before I was old enough to know what they were. He still is. When I asked him what was the major cause of power saw failure in his very experienced opinion, he said, "Simple. It's the dummies that run them."

Ouch!

Blunt? Yes, but oh, too true! Art tells of saws damaged by water in the gas tanks, excess dirt in the air filters, being run without chain oil or without oil in the gas mixture, and now with the lightweight saws, an alarming number of "fallout" casualties.

Over a period of years these results of carelessness have accounted for thousands of dollars of needless loss to Art's employer. A few dollars here, a few there. It soon adds up to big money.

Is it adding up on you?

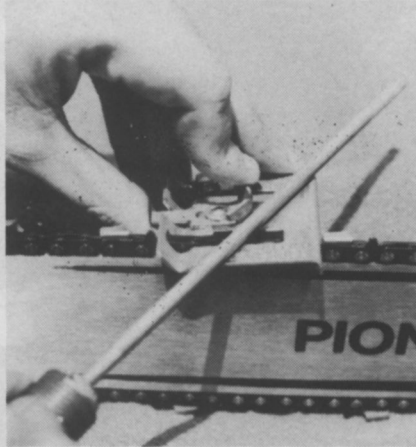
The best investment you can ever make in a power saw is the few minutes of extra time you will need to spend to prepare your saw for use each day. There will be times when you'll be rushed and it will seem like a pain to spend the time, but your reward will come by *not* having your saw fail you when you least expect it. And when you do *not* have to repair or replace it prematurely when you can least afford it. Here's what you should do *daily*:

Sharpen chain and adjust tension on it. A power saw with a dull chain works much too hard for the amount of work it gets done. Engine overheats and sprocket wears unnecessarily. The chain gets hot and stretches. If the chain tension is too loose than can also cause stretching and sprocket wear. Or if it's too tight that will cause unnecessary friction resulting in wear on sprocket and strain on the engine.

Clean and inspect air and fuel filters. Inspect and brush off or tap off dirt and sawdust deposits. Also, take your finger on a rag and wipe out dirt or chips from near carburetor where it could be sucked in. Fuel filters should be checked for gummy shellac deposits. Even a little speck



For best cuttings, chain guides should be checked regularly and filed to recommended clearance. (All photos are courtesy of Jeff Dobbs.)



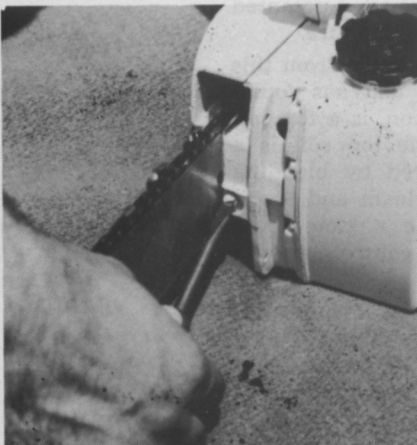
Daily "touching-up" of cutting teeth will get extra "mileage" for chain, sprocket, engine and saw operator.



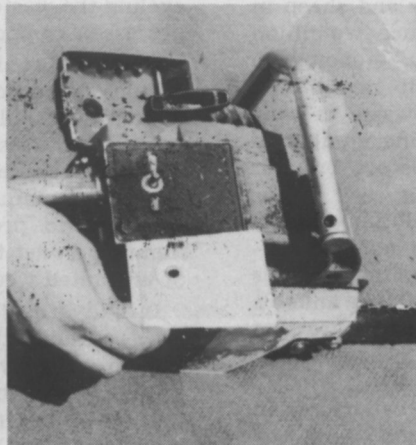
These are the tools that should be in every chain saw user's "kit." The right tools can save much needless downtime.



A pull at the bottom of the bar will tell if chain is too loose or tight. (Proper tension shown.)



Adjust chain tension daily for maximum chain, sprocket and bar life.



A spare, clean air filter is a handy item to save time. Just change filters and clean other one later. Then use it for the spare.

Trouble

of dirt can cause BIG carburetor trouble.

One system I found to work out well was to always keep an extra filter available. That way I always had a fresh, clean one to put in immediately if one was dirty or oily. I would soak the dirty one in a solvent for the day and take it out to dry that night. It saved me a lot of time by not having to clean the filter when I was already rushed.

Fill chain oil reservoir and check chain oiling pump. It only takes a few seconds but many don't take the time. Actually oil should be filled every time you gas up, but it's *essential* at the beginning of the day because it's most likely empty from the previous day's use. A few pumps on the thumb-pump and a hand pull on the chain will tell if it's working o.k. The small squirt holes from the oil reservoir are easily and frequently clogged. When you're cutting with the saw it isn't always easy to tell since you still have pump pressure which you don't have when you're out of oil.

Checking these items out daily will save you hours of downtime and possible trouble on the job for an investment of a couple of minutes.

IN THE FIELD

No matter how well you maintain your saws, there is always the possibility of an in-the-field failure.

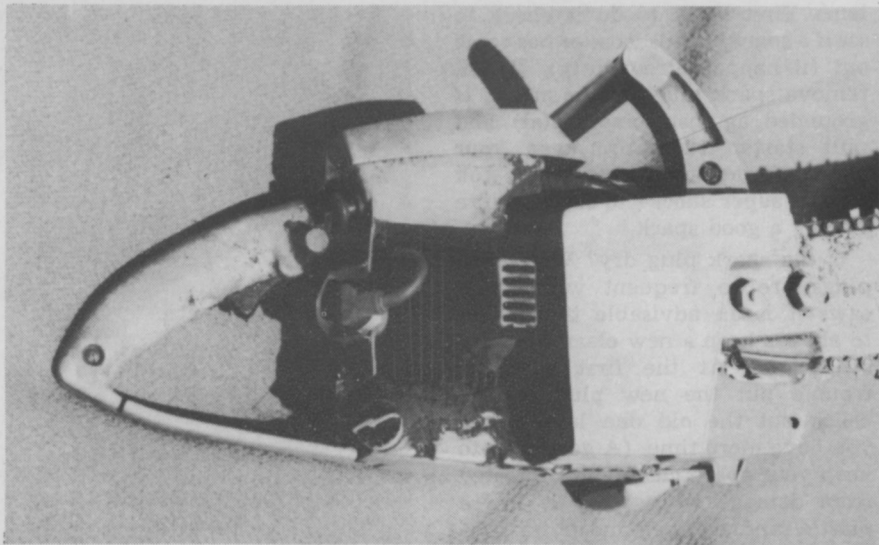
What are the most common on-the-job failures? What can you do about them?

The most common problem, according to the experts I have queried (and years of my own experience) is hard starting. This can be caused by a number of possibilities from dirt in the carburetor, to a faulty ignition to overheating to clogged fuel lines, etc.

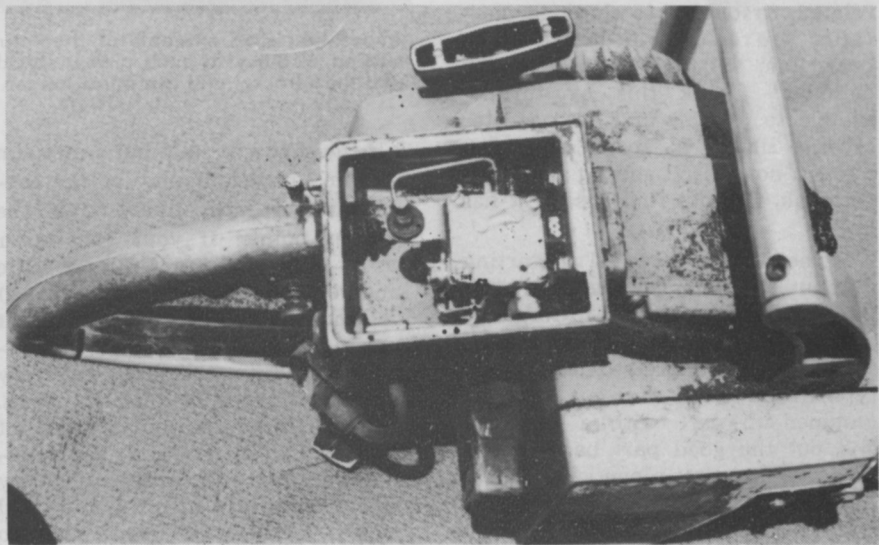
One frequent but seldom recognized cause of hard starting is too much oil in the gasoline mixture, caused by not shaking up the gas can before refueling. The oil in the gas floats to the top after it has set for a while and is poured out first. The only way to remedy this is to pour the mixture out of the saw and start again with a well mixed batch.

Spark plug failures account for the single most on-the-job starting problem.

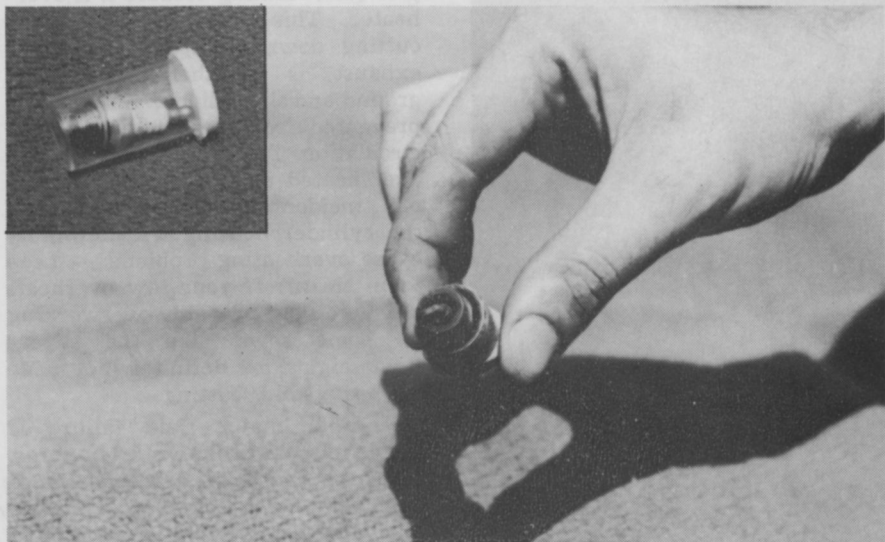
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Dirt and grease around spark plug can cause spark to "jump" or short out.



Dirt accumulation near carburetor can create a danger of dirt particles getting into the carburetor or fuel line, thus causing a breakdown.



Sparkplug should be checked regularly to see that it is not fouled with oil or excess carbon deposits. (Inset) An empty pill container makes a good spare sparkplug container.

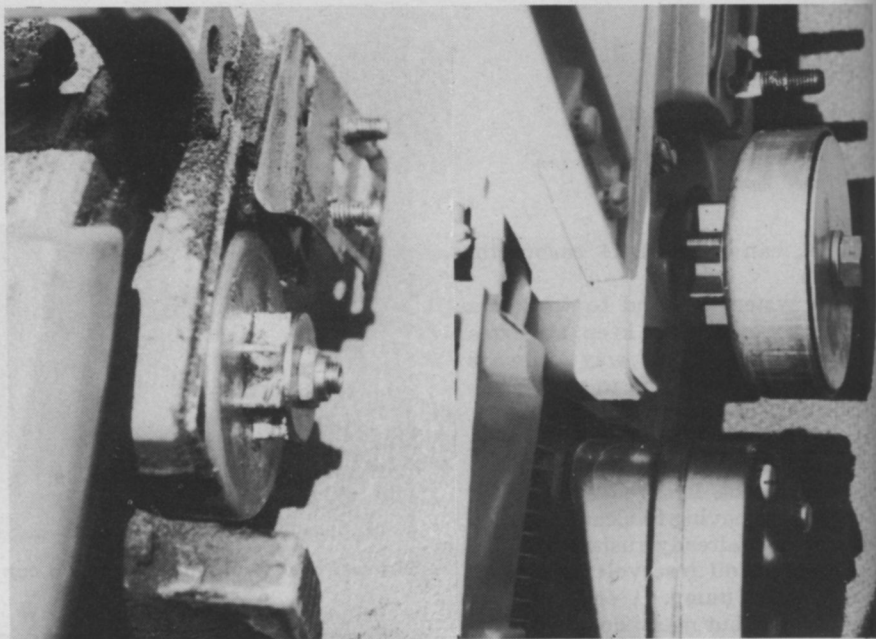
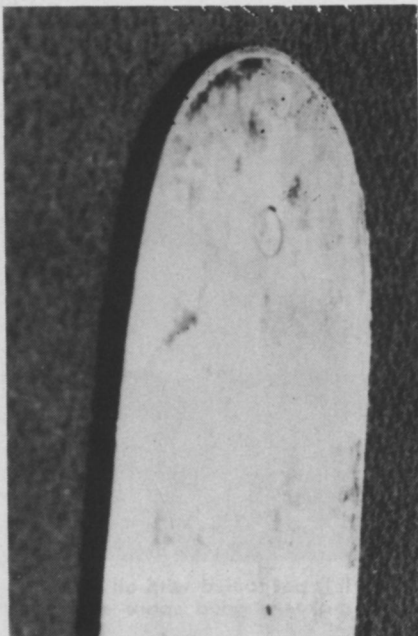
lems. First thing to do is check to see if a spark wire is loose or has come out (it happens frequently). If not, remove spark plug (make sure it is grounded against some metal) and pull starter (**warning: keep your hands off the spark plug unless you want a super shock**) to see if you're getting a good spark.

Is the spark plug dry? Wet spark plugs are so frequent with chain saws it is an advisable time saver to always keep a new clean-and-dry spare one. At the first show of trouble put the new plug in and check out the old one later when you have more time. (A good way to keep your spare clean and protected from damage is to wrap it in a plastic sandwich bag and put a rubber band around it, or to put it in a plastic pill bottle.)

If your trouble is not spark plug-related, first thing to check is gas—(after you're sure you aren't out of gas) line. Is fuel getting to the cylinder? Check this by turning switch to "OFF" and pull starter several times. Is spark plug wet now? If not, it isn't getting gas. Open gas tank, fish out fuel hose if it has one.

Is the filter clogged? Try starting without the filter to see. If that is the problem be sure not to forget to put in a clean filter as soon as possible. (If it is a pressed-felt "plug" type filter, you can cut off the gummed-up part with a penknife and put the good part back in the holder till you get a new one.)

Excess bar-tip wear caused by inadequate oiling. (Note heat line.) Abuse like this will cut bar life in half. Use lots of oil and check oiler frequently.



Above left is an example of premature sprocket wear caused by improper chain tension. Photo at right is a new sprocket. Keep your power saw in proper tension and the sprocket will last much longer.

If the saw will start but won't run with any power, it may be the carburetor but most likely it is the breaker points. If your carburetor has a high speed adjustment (the kind you can turn with your fingers) it's worth trying to adjust it till it runs right. If you can't get any improvement from that, it is probably a bad condenser or burned points. Both are shop jobs and should not be attempted in the field. The regular carburetor adjustments are very seldom responsible for in-the-field failures. *Avoid the temptation to tamper with them unless you are very certain of what you're doing.*

Sometimes a saw runs poorly or just quits running because it is overheated. This often happens when cutting down stumps, because the exhaust is smothered into the ground and the cylinder fins are also prevented from getting enough air circulation. The only remedy for an over-heated engine is to let it cool off. (incidentally, dirt in the fins on the cylinder housing will definitely cause overheating problems — **keep them clean!**) If your saw overheats often, you are probably overworking it. Some saws, like the super-lightweights, are definitely not made for heavy-duty cutting.

Another major field failure is pulled out or broken starter cords. These can cause real headaches. Once again, it's not a bad idea to have a ready-to-go spare. Only change these in the field if it is almost an emergency. And never attempt it in the field for the first time. *Do try to*

repair one in your shop sometime and try to get good enough to do it in the field if you have to.

Most guys pull them out because they extend the cord too far when starting. If you have a good wrist snap when you pull, you shouldn't need more than about a 6" stroke to start your saw.

Practice it. It's a lot easier, too. Especially up in a tree.

Tools you should always have with your power saw at all times would include spark plug wrench, a screwdriver, chain file, pair of pliers and /or vice grips. Spare parts should include spark plug, fuel filters, starter rope.

PERIODIC MAINTENANCE

In addition to the daily care you give your saw, there are a few items which should get attention at regular intervals.

A real good cleaning with an air jet (most gas stations have them) will get dirt and grease out of the recoil starter, cylinder fins, sprocket housing, and from around the spark plug and the carburetor.

A good wide down with a clean rag after the air cleaning will remove the dirt-collecting oily film.

Now check the saw for excess wear; on the sprocket, bar, etc.

Tighten up all loose screws, nuts and bolts.

Check spark plug and replace if necessary.

Check the air and fuel filters and replace if necessary.

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POWER SAW FAILURES

(from page 18)

Remove the chain and grind down tooth guides to proper clearance. This will make teeth cut better and make your work and the saw's easier.

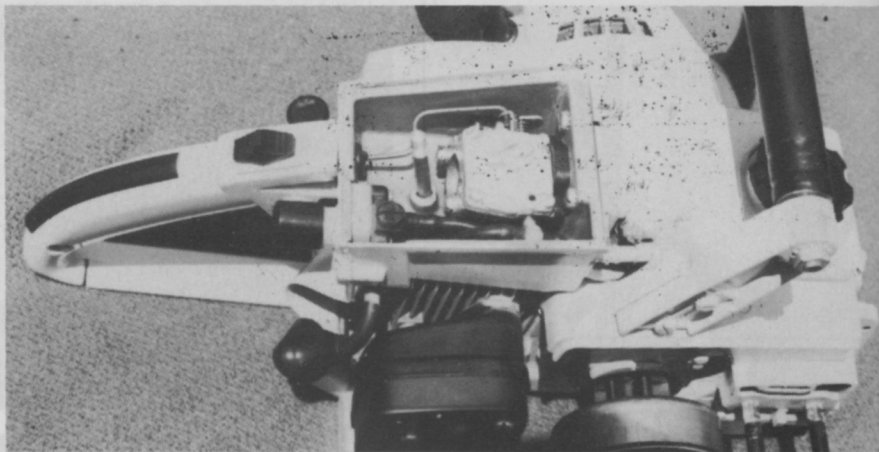
Clean out the sludge deposits in bar groove. (A cheap awl or ice pick makes a good tool for this job.)

Check bar-end for heat wear (caused by not using enough chain oil). If it has sharp or uneven edges, file or grind them off, *lightly*.

If your saw is not starting easily or not running well, you should consider a professional tune-up. When did it have one last? If you are fortunate enough to have a good saw mechanic near you, frequent tune ups will pay for themselves in eliminating down-time, increased performance and fuel economy. Of course if the guy charges you an arm and a leg every time he gets your saw in, it may be well to stay away as long as the saw is running o.k.

Curtailing carelessness among operators is a good way to get more miles out of your saw between shop stops. One major saw-killer is long falls from tree tops. This is largely preventable. One way is for climbers to utilize a good saw-holding device which attaches their saw securely to belt or saddle when not in use. (There is at least one good one commercially available from arborist supply houses.) This eliminates the need to hang saws on branches, and rest them in forks of limbs, etc. where they can easily fall to their destruction.

Better yet, use an extra utility line to hold the saw. This is the safest method and also allows the trimmer to move about freely in the tree.



When was the last time your saw was as clean as this new one? A clean saw will run better, longer.

(See WTT, August 1972, page 18)

Another way to prevent premature saw damage is to make sure every saw operator knows never to let chain cut into ground or dirt on stumps or other wood that has dirt on it. And be sure every operator uses plenty of chain oil (it's lots cheaper than new bars, chains and sprockets).

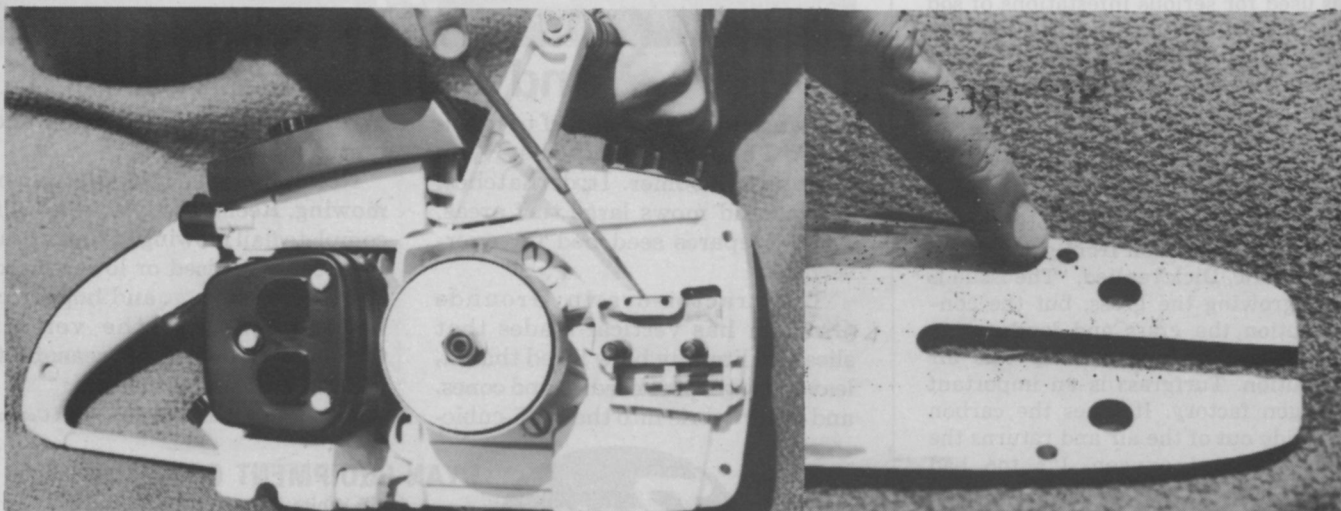
Here's a good tip an old-timer told me to save plenty of \$\$: Use old crankcase oil for chains. Sure, it's "had it" viscosity-wise, but it has plenty left to go around the bar once or twice. In fact, some claim it is better for chains because it isn't as "stiff" as new oil. I don't know about the last part, but old oil is definitely good enough for chain oiling, very cheap to use, and certainly in keeping with the current trend of "recycling" everything possible.

Basic common sense tells us most of other principles of non-abuse of a power saw. Like not "revving" it up when it's cold or not actually cutting

wood or by being careful where we set it — to avoid contact with heavy metal that could crack housing or other tools that could damage teeth of chain. Or not to let saw run out of gas, thereby letting fuel line suck in dirt particles which could clog it up or foul the carburetor. Or not to store saw for long periods with gas in the tank which could get old and stale, build up gum and shellac to cause trouble.

Most of these things are obvious when we think about them. **If** we think about them!

Jim Pinto of Pinto, Inc., a power saw dealer near Philadelphia, has fixed literally thousands of power saws and other small engines. He tells me "most all power saw failures are due to negligence." Ten years of School-of-Hard-Knocks experience tells me he's right. It is a lot less grief and definitely cheaper to use your head *before* a power saw failure than your precious time and hard-earned cash *after* one.



Clogged oil holes can cause a chain to run dry. Photo at left shows where to check on the engine housing to determine oil flow. Photo at right is where oil enters the bar. Keep both clean.