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CROSS TOOLS Co. Trademark

News & Tips

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Cook it and . . . Kill it or . . . How to Destroy Metal Parts in Seconds Without Even Trying!

"A first stage turbine wheel... subsequently experienced a catastrophic uncontained failure. This failure caused the loss of the aircraft . . ."

These terse statements are an extract from the Australian Aviation Department's safety bulletins. The stark message concerns not only aircraft personnel, but every one of us involved in any form of engineering or mechanical repair work. Basic Principles were neglected in the case of this helicopter. Maybe in your case the lives of people don't depend on what you do but the lives of machines depend absolutely on the basic laws of metallurgy. That's where this helicopter engine met with disaster.

"A catasrophic uncontained failure" means, of course, that the part just disintegrated - exploded into pieces by itself!

The cause was overheating. No, not because the copter turbine overheated in flight . . . the part was damged by heat or flame *before* it was installed. Now, let's take a searching look at workshop practice:

- Did you ever apply oxy to release a siezed part?
- Did you know that some metals are tempered at a temperature nearly as low as boiling water?
- Did you realize that even a few second's intense heat may reduce the life of a precision made part - perhaps from years down to a few hours?

The turbine wheel mentioned was actually a secondhand part salvaged from a fire damaged helicopter. But the fact is that something subjected to an ordinary fire would probably be much less heat affected than something deliberately heated with a workshop blow torch.

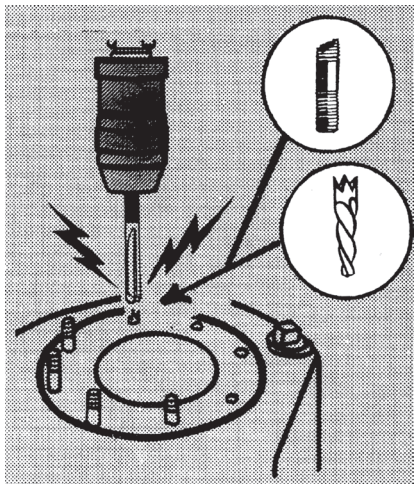
The Message is Loud and Clear

Think ten times before you hit something with the "oxy" or before you try to weld. Localized heat is generally worse than an overall heatup.

Now that we've mentioned welding, it's quite a few years since aviation safety authorities drastically cut the allowed number of hours in service for any aircraft part repaired by welding. This was for exactly the same reasons given above. Parts that had been welded were either softened and wore quicker or were weaker and consequently fatigued earlier to a piont where they could fail.

"Heatless" Repairs – You can do them easily . . .

Any workshop with a drill press or even just hand held power tools can avoid the cause of most heat damage problems simply by using Cross Tools *Diamohard Disintegrator Drills™.*



Sketch above shows Diamohard Disintegrator™ drill in a drill press and ready to drill a broken hi-tensile stud. With care, you can even drill ezy-outs using these drills.

With Diamohard™ drills you can also make precision holes in new metal parts that have been hardened. Things like bearing housings, crankshafts etc. are now easy to customize.

Other "Heatless" Suggestions

Although Cross Tools doesn't sell Loctite products because they're classed as "Dangerous Goods" and can't be shipped economically in air bags, they have a brilliant, relatively new product "Freeze & Release". It's an aerosol can that spot freezes threaded parts and releases them.

Incidentally, something like 80-90% of broken bolts that people think are hard to get out can be drilled out backwards with another Cross Tools product - Pow-er-Out™. You simply use your power drill in reverse and once the Pow-er-Out™ "bights" it drives the broken part out backwards under power. This is because most broken bolts are not "frosted in" at all, they're simply snapped off and perhaps jammed in the hole. If they are corroded, then a hit with Loctite's "Freeze & Release" plus reverse drilling with Pow-er-Outs™ will very often beat the problem.

Now In Stock

Number Drill Sets

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oddball tap

and die needs

Know Anyone that would like to get our newsletters or a thread chart. Just phone us and ask.

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