

# Tom's Tool #1 Oil Filter Cutting Tool



**A tool designed and built by seven time airplane builder and pilot Tom Martin. The above picture was taken at the 2006 Rocket Race 100 where Tom placed 2<sup>nd</sup> in the class. He also holds the Canadian speed record at the Sun & Fun Sun 100 race.**

**“I did not like the tools that were commercially available so I made one myself, using a different concept, which resulted in a tool that is both easy to use and economical.”**

## **Tom's Tool #1 Oil Filter Cutting Tool**

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Thank you for purchasing this oil filter cutting tool. It will allow you to inspect your filters in an efficient manner. Most filter cutters work like a pipe or tubing cutter in that you have to go around and around the filter, adjusting cutter depth with each pass. Although you could do that with this tool, the real beauty of this new product is that the cut can be easily made in one pass. The task of inspecting filters can be a bit messy but it is also quick and easy to do and should be part of your regular maintenance program.

The tool, as supplied, is set up for Lycoming oil filters that have a threaded insert sticking out of the end of the filter. This should cover almost all Lycoming engines, however, some of them and almost all Continental engines do not have this insert. A "center bolt" supplied with the tool can be used in these cases. To use the tool on smaller filters, such as Rotax filters, remove the cutter handle and reposition the pivot bolt to the inner hole on the base handle. The "centre bolt" may have to be used on these filters as well.

This tool will also work on a number of automotive filters. If it a good idea for your airplane, why not for your car?

The actual cutter wheels supplied are a Brass Craft product, part number T029, which are used on their T007 cutting tool. These can be purchased at Home Depot if required. One extra wheel is included with the tool and it is found stored on the main pivot bolt. During normal use the wheels should last a long time.

I have found that a bench mounted vice is the best way to hold the filter, either by clamping on the nut on the end of the filter or by clamping on the filter itself.

If you have any questions regarding the tool, or its use, contact me by phone, or email, as shown above. I have included a description of how to cut the filter can and then how to inspect the actual filter itself. If you are new to the process take your opened filter to a local mechanic and get him/her to show you what to look for.

The Lycoming website has a lot of good information; the following is a link to their Key Reprints section; which has a good section on inspecting filters

<http://www.lycoming.com/support/tips-advice/key-reprints/pdfs/Key%20Maintenance.pdf>

## Cutting steps

1. As delivered the tool is ready for use on almost all Lycoming filters. If your filter does not have the threaded insert extending from the filter use the supplied "centre bolt"



2. Clamp the filter securely in a bench vice using the "nut" on the end of the filter and place the Tool on the filter as shown above

3. Using both hands squeeze the Tool handles together while rocking the unit back and forth about an inch or so; The cutter wheel should break through the side wall as shown below



4. While keeping some down pressure on the unit to hold it steady pull the cutter handle around the filter until there is only a half inch or so of the side wall left to be cut

5. Tip the Tool and top of the filter up and open to allow access to the filter as shown below



6. Remove the inner filter and discard the can and rubber spacer seen above. If you are not in a hurry, leave the filter sitting on top to drain for a while as shown below.



## Inspecting the filter

1. Remove the filter element from the can and place the filter on a clean bench. I put a piece of heavy plastic on the bench to reduce mess and speed up clean up time afterwards.
2. With a pair of side cutters, or pliers, pull or lever out the metal strip as shown below



2. Using a sharp knife cut inside the cap on the top of the filter. Cut right down to the metal core and then pry off the top, It should pull off easily if cut all the way through.



3. Now cut off the other end of the filter and remove the element from the core. Cut the filter element where the metal strip was and lay the paper out for inspection.



4. Pull the pleats apart and inspect the filter for contaminates as discussed in the Lycoming article <http://www.lycoming.com/support/tips-advice/key-reprints/pdfs/Key%20Maintenance.pdf>

