



## **A Passion for Fuel Tanks**

### **Q&A with Paul Beck**

#### **Owner of Weep No More (Fuel tank repair specialist)**

#### **With Bruce Jaeger**

It's not every day you have the chance to visit with someone who has a passion for Mooney fuel tanks. I've heard Mooney owners use all kinds of words not nearly so flattering. Is it possible that someone actually enjoys fixing them? There is such a person and his name is Paul Beck.

Since September of 2000 Paul has dedicated his life to Mooney fuel tanks. That's more than fourteen years and I was advised well over 600 Mooney airplanes. The introduction of a Polysulfide chemical digestant, Paul's dedication and a whole lot of patience are the reasons for success.

From the beginning Paul wanted to help the Mooney owner and he knew that someone needed to find a way to make a difference. Leaking fuel tanks and few repair options were compromising the value of the entire Mooney fleet. When Paul was approached with an idea by Bruce Jaeger, then owner of Willmar Air Service, he agreed to give it a try. This interview is prompted by Paul's continued service with Weep No More. To follow are details of my interview with Paul.

#### ***Just how significant are tank problems?***

Fuel tanks are a concern for every airplane type, from airliner to a trainer. The integral Mooney tank is a great design that doesn't compromise strength or add weight. When properly sealed they also provide a very long life. There are serviceable tanks out there as old as me and that's over 37 years. However, it is inevitable that at some time every tank will start to leak. With over 10,000 Mooney airplanes worldwide, many having reached their 40<sup>th</sup> birthday, tank repairs are going to be around for a long time.

#### ***How did you get selected to work on fuel tanks?***

Bruce was asking for help and no one else volunteered. Imagine that. Having experienced cleaning tanks by hand, there just had to be a better way and I was very interested in the chemical process. It looked like there would be plenty of job security and this was something new where I could get in on the ground floor.

#### ***Were there growing pains?***

The obvious answer to that question is yes. I still recall the first project. It was a 1978 201. The chemical digestant did its job and there was hope. I was excited for the next airplane which turned out to be a nightmare. The chemical would not digest foreign sealant someone applied really thick inside

those tanks. What makes the unique chemical formula work in fuel tanks is that it picks and chooses what it attacks. It turned the sealer soft which made hand removal even more difficult. This project tried my nerves. In the end, the chemical manufacturer got involved and we were on the way to a new formula. Today, I know exactly which chemical to use as there is more than one choice. Protecting paint was another challenge. It isn't possible to remove covers without touching the paint. I have learned how to limit paint blemishes to an absolute minimum. There were a host of other minor problems, each handled by developing a procedure.

***Is there special equipment required?***

We called the special equipment an apparatus. The original equipment continues to do the job today with only minor modifications. New tools have also been designed to help isolate leaks.

***When are tank repairs required?***

Fuel tank leaks have become a way of life for the vintage Mooney owner. Minor repairs to tank covers are quick and can be completed almost while an owner waits or as part of an annual inspection. An owner may not be given a choice to delay tank repair when required by a mechanic as part of an aircraft inspection. The service manual gives some direction, but in general, if fuel dries as fast as it leaks, repair can be deferred. A smell of fuel in the cabin needs to be addressed. Of course, fuel leaks will stain paint and I can assure you will not get better or go away on their own. The question whether to totally clean and reseal or repair is in part based on the age. We start to draw the line at 25 years. If you are considering repainting your Mooney it is important to first address the condition of your tanks.

***Is total clean and reseal the only choice?***

Minor cover leaks are quickly and effectively repaired. Leaks in the seam forward of the main gear tire are also quickly isolated and can be repaired. These leaks are quite common in later long body models. Leaks in the wingwalk area are often only a screw that can also be corrected without removing a cover. Even seam leaks can be isolated and repaired. More difficulty comes when leaks are in multiple locations or in the top of the tank. These top leaks result in fuel seeping from drain holes outside the tank. These are hard to isolate, even using some tricks I have learned. The biggest factor may be history and number of years in service. Attempts to repair an old or dried up tank may be wasted effort and added expense.

***How long does it take and what is your warranty?***

I have developed a routine for removal of old sealer which generally takes relatively short time, at least in comparison to scraping by hand. Preparation inside the tank, application of various sealers and required curing time takes multiple days. I have learned that being in a hurry does not save time. Once work is complete, tanks are fueled to absolute capacity. I have again learned that fuel will search out the smallest defect. I request 48 hours following completion of work before scheduling delivery. This leak-free time creates comfort for both me and my customer. I ask two to two and a half weeks to complete the entire process, based on the size of tanks being worked on. Though factory warranty was limited to three years, my confidence in the latest sealers and tank repair methods results in a better than new warranty, we employ a 5 year warranty.

***Have you ever had a leak in a newly sealed tank?***

Again the answer is yes. Preparing the cleaned surface to accept new sealer was relatively simple. However, the best way to apply sealer had to be learned. I had plenty of difficulty in the first few years as the sealer we used simply did not flow and coverage took multiple applications. Research resulted in discovering better sealers and concerns went away. Applying filler, base and top coat sealers for me became an art. I am as proud of no leaks as I am the appearance of a professional install. Being patient is an area where I sometimes have difficulty. When it came to applying sealer and time to cure, I learned the importance of taking enough time.

***Is it expensive?***

Expensive is when it's not done right the first time. As fuel tanks have a typical useful life, just like an engine or any other accessory, it should not be a surprise when repairs are needed. When it is time to market a Mooney for sale, fuel tank history is part of determining a value. Yes any tank repair is expensive, but professional tank repair also adds value and will be a factor when you consider selling or trading your Mooney.

***Is repairing Mooney fuel tanks your only business?***

In addition to Mooney, other manufacturers have similar designs. I am in the process of determining if there is a way to help frustrated owners of other wet wing airplanes. The process of repairing fuel tanks provides the opportunity to closely inspect areas of the airframe not often exposed. This is a great time to assure the tubular structure and windows are in compliance with Service Bulletin M20-208.

***Is there a way to keep my tanks from leaking?***

I have wondered how in the world a 1960's Mooney could still have original tanks when a much newer airplane has a problem. Some of this may be related to the sealer, but I personally feel tank life is extended by keeping them full and skin temperatures under control. A Mooney parked in the sun on a hot summer day is stressed. This stress is aggravated even more when the tank is not filled. Keep your tanks full and if concerned about the weight of extended range fuel, consider alternating topped tanks between flights. At least this will keep sealer moist half the time.

***What is next for Weep No More?***

As the owner of Weep No More, I intend to provide the best tank repairs possible. It is also my desire to expand service to other wet wing airplanes.

As a rated mechanic with substantial Mooney experience, I am aware of aging airplane issues. I have seen the facial expression of an aircraft owner who just learned his or her airplane has a serious corrosion or needed expensive maintenance problem. Part of my service will be to help an owner set priorities which may come before or after tank repair.

***How does anyone get to Minnesota?***

Though my location is both geographically and environmentally challenged, Mooney's come to Willmar nearly every day. Getting to Minneapolis is a 30 minute flight. Pick-up and delivery at a Twin Cities airport can be arranged. If your schedule is a problem an experienced Mooney pilot can be sent to pick up your airplane.

***Is the Weep No More service offered at other locations?***

We have expanded to the Netherlands! Mastenbroek Aeroskill is now offering Weep No More to all of our European Mooney friends.

***Conclusion*** For most of thirty years a typical Mooney fuel tank does a great job. Then the inevitable blue stain or distinctive smell of avgas appears. You were hopeful that facing a leaking fuel tank would be for someone else, but no such luck. So now what can you do?

It is time to make a call. Not just to anyone and that may include your local mechanic. Tank repair is a unique service that requires an experienced technician. There are many locations willing to work on fuel tanks, but very few that have the experience to know what's best. Carefully consider your options and invest wisely. Paul was very willing to give credit to anyone who offers to repair fuel tanks and warranty their work.