

#47

Defueling Procedures

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Jose' Cano says:

Recent events have prompted me to write this Tech Tip. At the local FBO there was an accidental fire this fall that could have been prevented if just a few precautions had been taken. Many of us have drained fuel out of our birddogs to repair fuel tanks, or to replace those leaking O-rings in the quick drain. Have you ever thought what would happen if static electricity came off of your hand when defueling your bird dog? Well, let me give you the scenario as it happened:

The local maintenance facility had recommended to the owner of a Cessna 180 to have his wings rebuilt due to the major corrosion inside the wings. The owner agreed and also wanted the whole plane stripped and repainted. The technicians got busy and started to prepare the wings to be removed. First they had to remove the automotive fuel that was in the tanks.

They brought in a plastic 55 gallon drum with a metal funnel to drain the fuel into. The left wing was drained in a short time by removing the quick drain, then the drum was moved to the right wing where again the quick drain was removed and the fuel allowed to empty into the drum through the metal funnel. Please note that all this was being done inside a large hangar and the plane was about mid hangar. While draining the right wing one of the technicians came out of a carpeted office and walked over to the airplane being defueled to check on the progress. The technician reached to adjust the funnel when suddenly a spark came off of his hand and detonated the fuel. Chaos ensued and then there was burning fuel on the floor and going up the wing fast. By the time the fire department showed up the plane was fully engulfed and there was not much to do except try to keep the neighboring planes from catching fire. One of those planes was a bird dog that suffered minor damage.

This fire could have been prevented if only a few precautions had been taken. These precautions include: Pull the airplane out of the hangar where there is good ventilation and away from other airplanes. Hook a grounding cable to the plane before you do anything else. Do not use a plastic or fiberglass container or a plastic funnel. These tend to build up static. When using a metal container, ground the container if possible. If at all possible do not drain fuel when it is a cool day with low humidity. Try not to wear clothes made of polyester materials. These materials build up static quick. And by all means keep a dry chemical fire extinguisher handy.

I spoke to the maintenance facility owner, who I have worked for in the past, and he said he had been in business since 1982 and had de-fueled many planes the same way and nothing ever happened. If you follow his procedures you are surely gambling. No body was hurt in this accident, which was amazing to me. Luckily the insurance paid for the C180 and most everything else except for smoke damage. The insurance investigator found the repair station negligent which means their insurance will surely go up.

Remember to take your time, use common sense and practice safe fueling and de-fueling.