2018/10-138(I)PP Original Author: Chuck Jones(10/01/2018); POC Guy Minor, AFS-920 A/W Lead, Office 707-704-3530, revised: Original

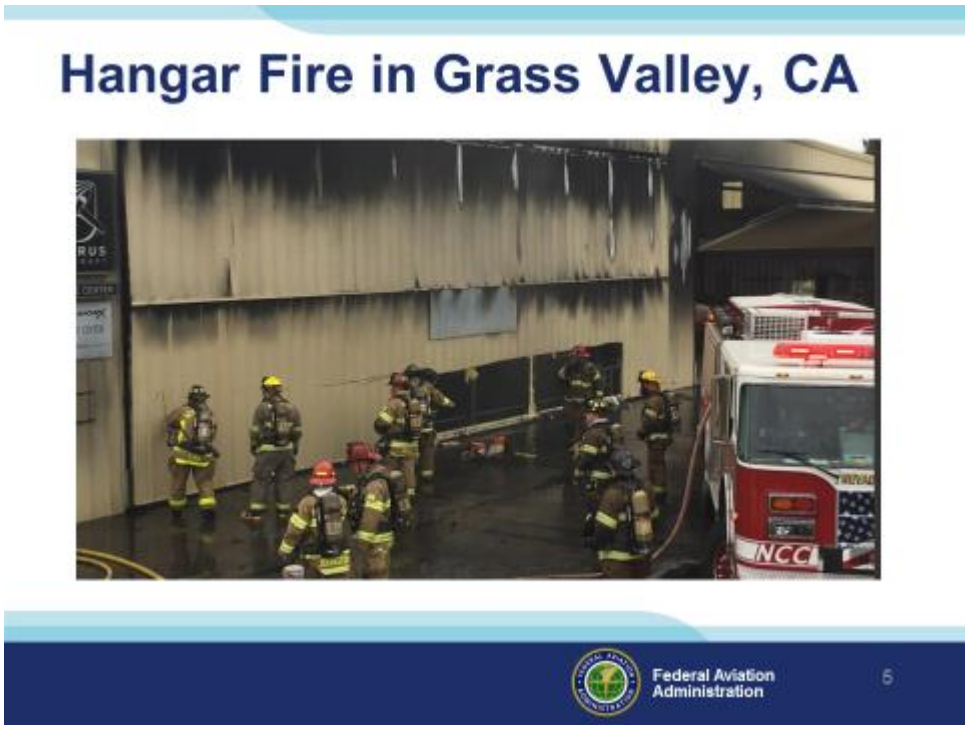
Background:

This situation happened recently to someone I know. After hearing about it I had to ask why or how this same thing never happened to me. I'm sure in the same circumstance most of us would have done the exact same thing. I believe it would be almost imposable to find a hanger not using cordless electric drill/drivers today. My friend's body was found in the corner of the hangar behind a Cessna amphibian 206. That's where he collapsed, and also where a fellow employee extinguished the fire on him. He was assisting with the annual on a Cessna 414 that had not been defueled, and the employees believed there were 100 gallons in that wing. He was supposed to be removing a panel by the left main landing gear for inspection of that area. We can only speculate that maybe he was distracted and attempted to remove the fuel panel by mistake. As he started removing the panel, fuel started leaking and running down his drill and onto his arm and onto his chest and face, he did what all of us would do…. Stop the leak by reinstalling the screws using the drill that is already in his hand. That is when the explosion happened.

The drill driver is on the floor in that photo exactly where he dropped it under the wing. The cause of the fire was the NON-brushless drill motor, this did not have to happen

-Chuck Jones, FPM, Sacramento FSDO

It is even worse to have the hangar fire start right in your face.



On April 18, 2018 there was a hangar fire at the Grass Valley. A mechanic was killed, and another employee was injured trying to help the mechanic. The other employee was the front office manager. She rushed into the burning hangar to rescue the mechanic, but he was in flames, and it was too late.

The mechanic was assisting with an annual inspection of a Cessna 414. He was using a cordless electric drill/screwdriver to remove inspection panels near the left main landing gear. We think he uncovered a fuel tank panel. More than likely as he started removing the panel fuel leaked on his drill, his arm, his chest and face, he probably did what we would all do. He would have tried to stop the leak by reinstalling the panel screws using the drill that was already in his hand. We can imagine that he lifted the screw driver to the bottom of the wing to replace a screw. When he pulled the trigger…boom! He was engulfed in flames.

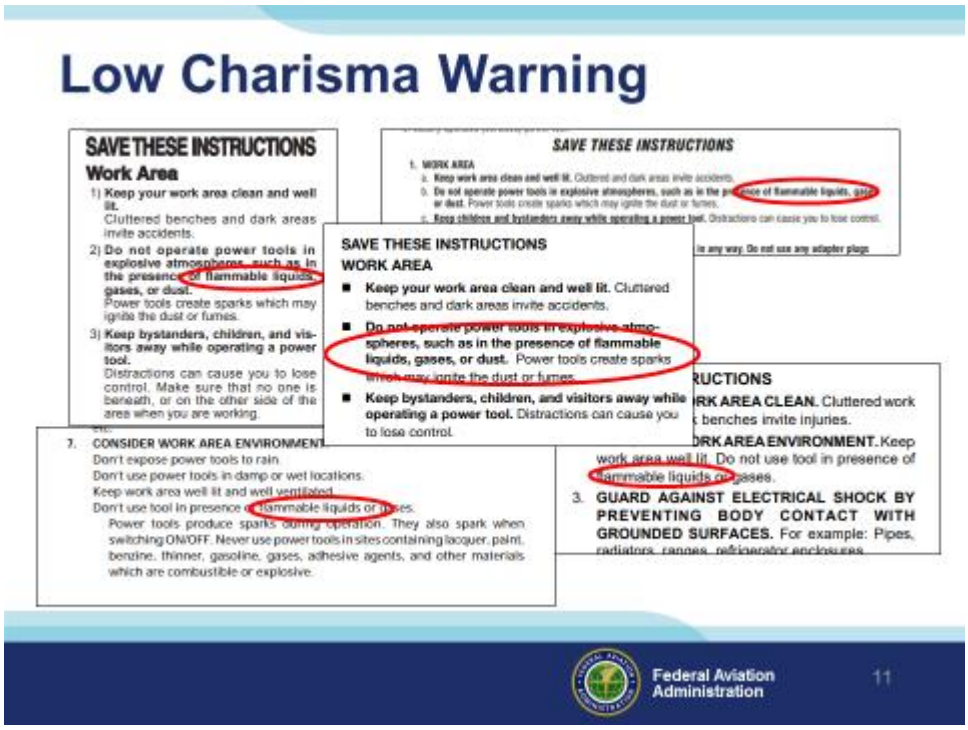
The cordless drill in this photo is exactly where he dropped it under the wing after the explosion.

His body was found in the corner of the hangar behind a Cessna amphibian 206. That's where he collapsed, and also where the office manager tried to extinguish the fire.

Consider you are conducting an owner-assisted annual inspection, or if you are a mechanic, the lead mechanic assigns you the job of opening an aircraft for an annual inspection. As you begin removing panels, you find yourself under the left wing. Work is going well because you are using a nice, cordless drill to remove the screws. As you move along the wing, you encounter a panel that looks slightly different from the rest. When the first screw comes out, it seems to be a machine screw. All of the prior screws have been PK screws. Hmm, you think, maybe someone installed the wrong kind of screw last time. You remove another screw or two. Suddenly, there is a stream of fuel coming from the bottom of the wing. Oh no! You have to stop the leak! You have screws and a screwdriver in your hand. You lift the screwdriver to insert the screw that will stop the flow of fuel. The screwdriver draws near the leak and the stream of fuel hits the cordless drill. You depress the trigger and BOOM!

Does this scenario seem to ring true? Can you see this happening? Could it happen to you?

Let me ask a question, how many of you use cordless drills to do this kind of work, cordless drills, screwdrivers, or any other type of cordless device? You probably could not find a hanger anywhere that is not using cordless electric drill/drivers.



Look at these clips of cordless drill operator's manuals. All of them say, "Do not operate power tools in explosive atmospheres. They mention flammable liquids, gasses or dust. What does this small print bring to mind?

We think of this.

We should be thinking of this. The reality is that this is where the fire happened. It looks safe. There is no explosive atmosphere. Why not use the tool that can take your production over the top!

By the way, the technician in the picture is using the only cordless tool designed to be used to de-panel an aircraft. One manufacturer makes it for the Navy. The FAA is not allowed to endorse products, but look for HAZLOC cordless screw drivers on the interweb.

It seems that only one manufacturer makes a class 1 Division 2 HAZLOC screw driver. It is used by the US Navy to de-panel aircraft such as the V-22 Osprey.

Notice the price. Cheap compared to a life, or perhaps the take away is to **stop using cordless drills to de-panel aircraft!** There are other tools that work quite well.

Here are some cheap alternatives. Pneumatic screw guns, speed handles, ratcheting screw driver, and there are probably many others. What would you suggest?

Are you Aware of these ?

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Federal Aviation Administration 18

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CORDLESS DRILLS PRESENTATION QUARTER FY19 Q1

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