

Queensland Ultralight Association

OCTOBER 2004 NEWSLETTER

Watts Bridge Memorial Airfield, Silverleaves Road, via Toogoolawah Qld

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Impressive

At the last QUA meeting Richard Faint bought along part of an all metal home build project. The centre section of a low wing with the control mechanism and bell-cranks attached. The top skins were removed allowing full view of the rib positions, seat attachments, control stick swivel connection and main spar construction.

Both Richard and Glenda are to be congratulated on their mammoth effort (building two identical aircraft simultaneously) and their outstanding workmen ship. Myself and other members of the Wanna B's (a builder club) were salivating as the project looked very good and all the more impressive given they are designing as they build. The materials used to build the two projects are a combination of locally available marine grade sheet and 6061 T6 angle for the main spar. Thank you for the inspiration. If only I could turn off the TV.



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Wet Wings (a re-print from *US June 2003 Experimenter*).

Welcome to Summer flying!

It's great to be enjoying beautiful summer weather, and it's great to be in the air. But, regardless of the time of year, when it's time to preflight your plane prior to flying, one of the most important things to look at is your wing and how the elements may have affected it. This is especially true in wet conditions or when frost is prevalent. Both of these conditions can be hazardous to your health should you take to the air without taking some very important precautions.

This month we will look at what is a more common experience for most of us this summer season—a wet wing. Next month, we'll explore what happens when frost is present on our wing.



Don't Do the Morning Dew!

I am not talking about a wing that's wet because you landed in a lake with wheels only nor am I talking about a heavy rainstorm having just passed through your area, though the latter is significant to what I am about to discuss.

Most of us will encounter wet wings because of early morning dew. Let's say you're attended a weekend fly-in. On the second morning you woke up for a dawn patrol raid on a local breakfast establishment, which has a landing field across the road. The night was humid, as is so often the case in many parts of the United States in the summer, but everyone is eager to get going. You do a quick preflight, jump in, and start your engine. It will be warmed up by the time you taxi to your departure position on the runway threshold.

You checked the wing for obvious problems on your preflight walk-around, and you noticed heavy dew in the grass and on your frame during that inspection. You also noticed heavy dew on your Dacron wing's top surface, but we all know that once we get up to speed, that water will just roll off the top as it does on our cars early in the morning.

Wrong....make that possibly dead wrong! That's how you may end up if you decide to take off and try to blow away the water droplets with airspeed.

Everyone knows that if you are caught out in a light shower, your plane will get wet but will still be safe to fly. That is if it's a brief, light shower. As a Dacron wing becomes more saturated with water, it will begin to handle differently. It may even become more sluggish in control; its lifting capabilities will diminish as you continue your flight in the rain.

Of course, heavier rain will also destroy your propeller rather quickly if you are using a wooden prop. It's generally more prudent if you get caught in rain to turn back, divert, or land as quickly as possible. But having a wet wing before you start flying is different than flying into rain with a dry wing. It will be more difficult to determine just how wet or saturated a wing covered in early morning dew has become.

Performance degrades when a wing is wet, and although the engine will quickly evaporate any moisture trapped around it's many nooks any crannies once it is running, a wing is not so quick to dry itself off. The last thing you want to do is fly it to dry it out.... because it might be the last thing you do.

When you have dew on the top surface of your wing, you must wipe off all the dew droplets on the first third of wing from the leading edge, as a minimum. But I would strongly suggest you wipe down the entire top surface of the wing and the leading edge. Then let the wing dry out in the sun before attempting flight. This will assure you of a safe takeoff and subsequent safe flight with a landing when and where you want to be. I instruct all my students to follow this important practice, but there are others who do not know that flight with a dew-laden wing may cause the ground to rise up and smite thee.

A Case Study

A local flier here in Kentucky who had been well informed during his training of the importance of checking his wing thoroughly took to the air one morning after only a brief rubdown of his wing's leading edge. He was flying out of his homestrip and knew his aircraft and performance wing well as he had a few hundred hours under his belt. He felt his actions were sufficient to prepare the wing for flight.

With about a 450-pound pilot/passenger payload capability, his light 175-pound weight would be no problem in getting off the ground this morning, or any other day for that matter. He jumped in his plane, gave the engine full throttle, and roared down his grass runway. He was rather surprised at the extra long takeoff roll, but he assumed it was because of the wet grass causing more drag. Still full of confidence, he kept the throttle open as the end of the runway was approaching. Finally, the plane lifted off, and he felt that all was well.

Quickly, however, he realized he was wrong; the altitude he now had was as high as he was going to get. He began to increase the angle of attack, but felt that the situation was just getting worse. He decreased the angle of attack to where it had been, and was now getting dangerously close to the quickly approaching treetops outlining his property. His runway had been built at the far end of his property because the ground was a bit of a hill running downward toward the property line. When he put the runway in, he built up the earth at the end to extend the runway, which now made it a little like the end of an aircraft carrier. Are you getting the picture here?

After liftoff and as ground effect ended at the end of the runway, he actually felt the plane drop slowly as the end of the runway passed below him. He was now at the point of no return. If he were to put the aircraft into a turn to go around inside the tree line, he would lose altitude and possibly crash. He prayed he could maintain altitude and manage to clear the treetops at the end. Then with a few degrees of bank- because he would no

longer be limited to a tight turn radius because of the tree line-He would do the flattest turn he had ever done and get the plane back on the ground. He was lucky that day. He was able to clear the treetops by a few feet, get the plane turned back around, and land it safely. He will never again attempt a takeoff unless his wing is completely clear of all water droplets and also mostly dried out. He is also lucky that he had no one on board with him that morning because they would have definitely crashed with the added weight brought into the equation.

Will the wing dry off in flight? Yes, it will, as long as the wing is not so saturated with water before takeoff that a safe climb-out is compromised. But it will not sustain lift if water droplets are on the top surface.



Editors Note

Smile (a re-print)

A man in a hot air balloon realized he was lost. He reduced altitude and spotted a woman below. He descended a bit more and shouted, "Excuse me, can you help me? I promised a friend that I would meet him an hour ago, but I don't know where I am".

The woman below replied, "You are in a hot air balloon hovering approximately 30 feet above the ground. You are between 40 and 41 degrees north latitude and between 59 and 60 degrees west longitude".

"You must be an engineer", said the balloonist. "I am", replied the woman, "How did you know"?

"Well", answered the balloonist, "everything you told me is technically correct, but I have no idea what to make of your information, and the fact is I am still lost. Frankly, you've not been much help so far".

The woman below responded, "You must be in Management". "I am", replied the balloonist, "but how did you know"?

"Well", said the woman, "You don't know where you are or where you are going, You have risen to where you are, due to a large quantity of hot air. You made a promise which you have no idea how to keep, and you expect people beneath you to solve your problems. The fact is you are in exactly the same position you were in before we met, but now, somehow, it's my fault.

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