

Training September 2009 – DEAD-STICK CAUSES --

Several months ago we talked about dead-stick landings and how we can practice and prepare for that unforeseen (and usually unexpected) occurrence. We said then that we would talk about the causes of dead-sticks at a later date. Let's start to do it now.

There can be a number of reasons our little engines decide to "quit" while we are making an otherwise perfectly good flight. One of the most obvious and common problems is that the engine simply runs out of fuel. Why out of fuel? Well, of course we may simply fly longer than the size of our tank allows. How can you prevent that? Well, if you make a short flight on a new plane/engine, you can then see if you used half a tank or a quarter or whatever and extrapolate how much longer you could have flown. You will of course have to adjust for circumstances such as whether the engine was running rich, or if you ran the engine wide open most of the time or simply "loafed" around the sky a lot. After that deliberately short first flight, you can fly a little longer and double check how much more fuel you used. After a few flights you have zeroed-in on how long you can normally fly with the existing tank size.

So, how do we know how long we have been flying? Well, numerous little timers are available that can easily be used by the RC modeler. Some of the newer transmitters even have built-in timers to assist you. I personally use a small Radio Shack timer that hangs around my neck on a strap and gives intermediate warning signals at appropriate times. These signals come at 10 minutes prior to the end, and at 5 minutes. This helps me know roughly where in the flight plan I am. No excuse to run out of fuel now!

What else can cause the engine to quit while we are flying? Because of the way our typical two-tube fuel systems are usually configured, there exists the chance that under certain conditions, air or fuel vapor, can be drawn into the "clunk" instead of liquid fuel. If too much vapor is ingested, the slug that gets to the engine will cause it to run out of fuel and die. A smaller bubble might just make it slow or "sputter" and then continue. Generally the clunk is plumbed so it stays near the back of the tank. This means though, that if for any reason the fuel runs to the front of the tank, the clunk becomes exposed to vapor...and a short time later the engine sees a slug of vapor and maybe dies. I experienced this several times when making extended climbs followed by a "tail-slide" into a long dive (throttle at idle) and then level flight at or near the original line. The trouble with this is that the fuel in the tank can "fall" faster than the plane because the plane has friction from the air or "wind-resistance" when it is falling (particularly with the engine at idle) and the fuel does not. The result is that the remaining fuel in the tank falls away from the clunk and goes to the front of the tank during the vertical dive. When you get to the level flight the slug of vapor gets to the engine and it is "dead-stick" time. There are ways to plumb your fuel system to avoid this, but to many of us that is not easily done, particularly with ARF type planes. In the case above, I found that simply shortening the dive and adding power was a way to avoid the problem.

There is more to this issue, but we will continue at another time...and always

Remember to try something new each time you fly!

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