Alternative Lecture for 23rd Nov 2015

Ice

https://www.youtube.com/watch?v=6IrclNLxKt8

PA46 Ice

https://www.youtube.com/watch?v=EOApWiLBgb0

One lucky pilot; terrible decisions (in my opinion). Based on what was recorded, can you diagnose the cause?

https://www.youtube.com/watch?v=6IrclNLxKt8

Question:

Dr O'Neill,

Interesting case study on the Cessna tail. I have never thought of the possibility of stalling the tail of an aircraft. What do you suppose the characteristics of a tail stall would be? I think a departure from controlled flight might be reasonable, but a subsequent spin would require a stalled wing. When I was flying gliders I was very confident in the stability of a slip. I would frequently slip with a smooth application of full rudder deflection. I knew that for any stall in a slip to progress to a spin would require the aircraft to roll back into the direction of the yaw and in that time the stall would have likely already been broken. Additionally, in engine out slipping conditions I usually would have enough speed and low enough AOA trying to keep the nose down toward my landing field that I wasn't very concerned with wing stall.

<Anonymous Student>

The large Fowler flaps on a Cessna are perhaps sufficient to stall the tail in aggressive maneuvering. I haven't succeeded in doing so. My slips were just aggressive enough to get yelled at by the examiner but not physics (not hard to manage that small feat!). Horizontal tail stall would be characterized by a nose-down pitch moment not correctable with aft elevator. Vertical stall would likely be characterized by a loss of directional stability and a possible spin entry.

You probably can't stall the tail on a glider. The tail is too far aft (and often T tail) and out of most severe downwash regions.

Just a warning, some aircraft tend to roll off in the opposite direction (i.e. over the top).