

Accident Narrative

Sunday morning, June 4, 2017, at approximately 8:15 AM, I was returning to Double Eagle Airport from a flight along the Rio Puerco (a river bed ten or so miles west of Double Eagle Airport). I had just climbed to pattern altitude (6,800 feet msl) approaching the West Escarpment (the edge of the mesa upon which Double Eagle Airport is located), when my fore-and-aft control went berserk. I was flying straight and level at approximately 75 mph with the engine at 6,500 rpm at the time. The stick started slamming fore and aft to the limits and the nose began pitching up and down, while I tried to hold onto the stick. The plane began buffeting like it was going to come apart. At the time the control malfunction occurred, I had been flying a little over an hour since take-off at Double Eagle Airport, without apparent problems.

I declared an emergency, and reduced to minimum power (@2,000 rpm) and to around 50 to 60 mph, which slightly lessened the fore and aft stick slamming and the nose up and down movement, but did not control it. Not having enough altitude to reach the mesa without power, I turned back West to clear the steep and broken terrain just west of the escarpment. There was nowhere suitable to land, but I still had directional control, so I was able to make final corrections to get to a relatively flat piece of ground between broken terrain, mesquite, etc. I was afraid to either add power or attempt much of a flare as the nose was still gyrating up and down uncontrollably.

I basically flew it into the ground with a nose-up attitude at around 40-45 mph and estimated 200 to 300 fpm rate of descent, without stalling. The plane stayed upright, but the nose gear and the left main gear sheared off. It gouged a shallow trench in the desert floor and skidded about thirty yards, turning 180 degrees in the process, ending up with the left wing and horizontal stabilizer in the dirt. I turned off the ignition and master power, exited the plane and called for rescue. It took about an hour and a half, but the Bernalillo County Sheriff Metro Air Support unit eventually picked me up with their helicopter, and flew me back to Double Eagle.

The Fire Department EMTs checked me over, and let me go after I signed their release form. I did not suffer any observable injuries. At the time this narrative is written, approximately 24 hours after the accident, I am sore in a few places, but still don't have any apparent injuries.

After I had made all the calls I could, and was waiting for rescue, I examined the plane to see if I could determine what went wrong. I found a broken elevator control rod.

By design, the elevator on the Excalibur is split in two, with two linked control rods, each controlling one half. They are both connected to one central elevator control rod, before splitting in front of the empennage. The control rod attached to the right side of the elevator was broken in the center, apparently having come apart in the air. The forward piece of the broken control rod (facing aft) was only slightly bent, and sheared off cleanly. The aft portion (facing forward) was bent where it had dug into the ground when the aircraft hit. The broken control rod may have caused the extreme flutter (uncontrolled up and down elevator movement) or, conversely, the elevator may have gone into extreme flutter for some other reason, and that broke one of the two control rods. In any event, the flutter was not eliminated by reducing power or speed. It continued until impact.

As to other potential causes of the extreme elevator flutter, none of the expected pre-conditions seemed to exist. The aircraft was going well below VNE, approximately 75 mph at the point the extreme flutter started. The hinges and hinge bolts appeared normal on preflight and on a recent annual. The aircraft had only approximately 64 hours total time at the time of the accident, so hinge or hinge bolt wear is unlikely.

The control rod that separated was a factory-supplied part - a 1/2 inch aluminum tube with bearings at each end. The bearings were still connected and safetied, as were all other control rod linkages and connections. I tried all the controls on the ground, and all still worked perfectly, excluding the right side of the elevator..

Once the plane is recovered, the FAA will take a look, and probably send the control rod off for fracture analysis. I'll just have to wait and see what they think.