

Alternator Failure While Under the Hood

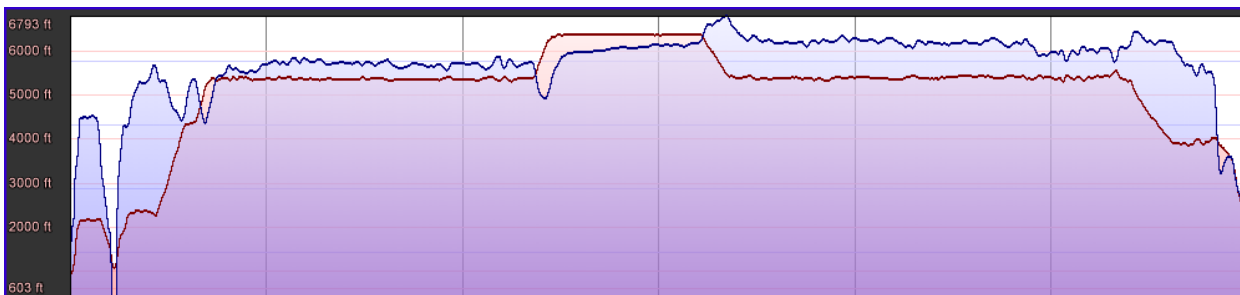
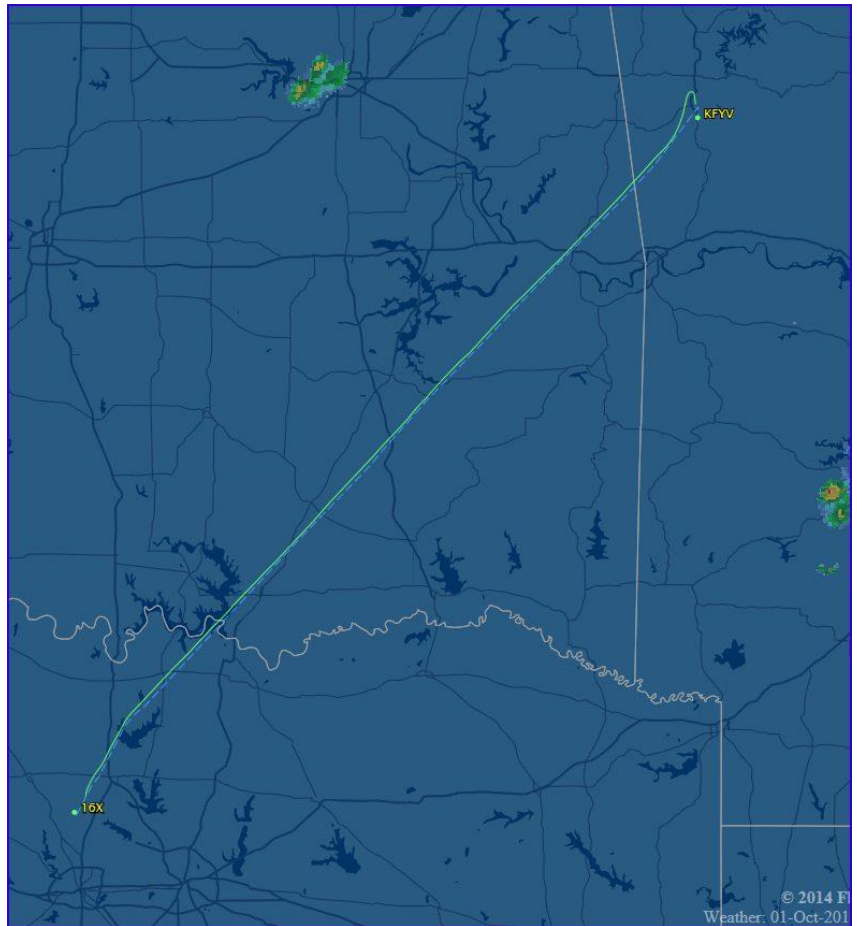
Doug Reeves (Oct 2014)

As some of you know, I've decided to finish up my IFR rating. My friend Bill needed to go up to Fayetteville, Arkansas to retrieve a Stearman for the CAF. He's also a CFII, and I still needed 2.6 hrs under the hood to get my required 'with an instructor' time total to the required minimum. Win win.

My RV-6 is down for its condition inspection, but my friend Scott has me on his RV-7's insurance. He has one of those jobs where you don't get a lot of free time, so he has asked me to fly his plane occasionally to move the oil around. He says I don't need to ask, but I do. I've known him 40+ years, having grown up two blocks from his house. He and I enjoy what we call a 'mutually assured destruction' friendship – he knows all my embarrassing secrets, and I his.

The pic at right is the flight up in Scott's RV-7 – screen grab from flightaware.com. I logged 1.5 hours under the hood, talking to center, got vectored to the final course.

Bill had me use the autopilot in the middle of the trip for a few minutes to prove I could, it was when center asked me to climb another thousand for traffic. It's the nice straight line there in the middle in red (pic below). Blue line is groundspeed.



In the last five minutes of the flight, call it a big downwind for the pattern, dropping voltage got our attention (suspected alternator failure). My bad for not checking it more often. The engine monitor started to blink, the radio was cutting in and out, and we were glad to be in good weather. Here's the transcript while talking to Razorback approach as best as I can remember as we started turning off nonessential electrical items.

Approach: *Experimental 23KT your transponder not reporting.*

Us: *We're looking at it. (I don't think they heard this)*

Approach: *If you read 23KT click your mic twice.*

US: *click click*

Approach: *If you see the runway 23KT, click the mic twice.*

Us: *click click*

Approach: *OK, we here the clicks. 23KT cleared to land Fayetteville Drake field. We're talking to the tower for you.*

Us: *click click*

Razorback approach made it easy as you could hope for. Thank you Razorback approach! You're rock stars. I had the plastic card with light gun signals in the pocket near my knees, and was a little bummed I didn't get to try. Ironically, Bill and I discussed earlier in the flight what we would do if we had a comm failure. Oral test practice pays off.

Two regular 'ol Slick mags and a carburetor meant the engine didn't care, but I wasn't convinced the alternator belt couldn't be wrapped up around something, so I kept it high and didn't reduce power until I could glide down to the runway. KFYN is a long, long runway. Bill, a man of dry humor, suggested I do a no-flap landing (electric flaps). Funny guy.

On the ground, top cowl off, belt intact...so it's either a broken wire, bugged up connector, or the alternator is toast. The alternator is over a decade old, so it wouldn't be unheard of. Some nice folks at the museum had a battery charger, so we used that for a half hour while we did other things. Bill and I discussed options, called our mechanic, discussed some more, pre-flighted and fueled the Stearman while the battery charged some more, and had a Dr. Pepper. Good things to do. Bill is a corporate pilot now, but has spent a few decades in the front of a Delta airliner. All this was a good teaching moment and I learned a few things.

Plan 'A': If the RV will start, I'll fly it back. Flight of two takeoff with Bill talking to the tower. Turning on the battery for a quick glance at the engine electronics every fifteen minutes or so. Sixty minutes in I'll turn on the battery over an airport to use the boost pump for a tank change. I've my iPhone and iPad running the Garmin Pilot app, and GLO Bluetooth GPS antennae for them both, and a D2 GPS watch I'm doing some long term ~~testing~~ abuse on. I'm down to three GPSs, two of which contain current charts for the whole country. I have two good mags and a battery-backup-equipped EFIS that will run for 30 minutes on its internal battery. CAVU Wx. I can turn the radio on for a bit if I have to. Not quite Lindbergh crossing the Atlantic.

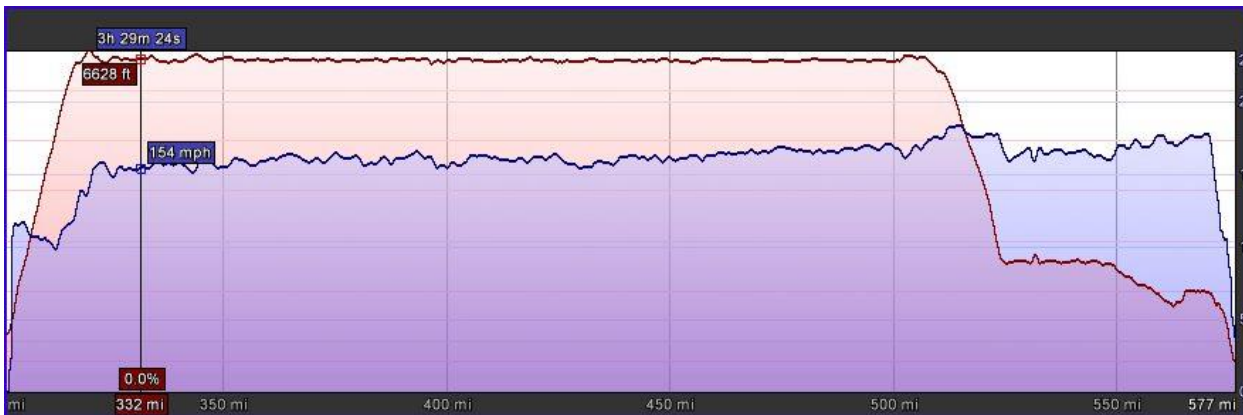
Plan 'B': Plane won't start. I go home in the Stearman at 80kts.

It started.

Just for grins I decided to navigate from Fayetteville, Arkansas back to Dallas, Texas using my Garmin D2 wristwatch and a round altimeter. Here is a picture of me level at 6,500 feet, with my home airport punched in the wristwatch. It is in HSI mode. Of note in the background all electronics turned off. All switches down. You don't see that very often ;-).



The red line on the graph below shows me manually holding altitude on the return trip using only the wristwatch and altimeter. The dip down to a lower altitude on the last fourth of the trip was when I entered the Dallas-Fort Worth area. I turned the battery on at that point and turned on the transponder. I'm particularly proud of the straightness of the red graph line. 3.6 hours on the day, 3.4 of which hand flown. 1.5hrs under the hood.



After I landed I sent Bill a text that simply said "On deck 52F." He called me about an hour later, while I was at Sonic getting a hamburger, saying he was at a fuel stop halfway home. The Stearman cruises at 80 kts ;-).

I'm glad there was enough battery left to start the RV.

New alternator is on order for Scott's airplane and should be installed this week, and in addition to gaining a little more simulated IFR time, I learned a few tricks that I can use down the road.

Win-win.