

I have been flying this aircraft regularly doing agricultural operations over the past 2 years. I have approximately 850 total hours in this aircraft. Approximately 250 hrs of this flight time has been in the past 3 months doing agricultural operations of a very similar nature, so I would consider myself to be very familiar with the aircraft. During this time I have routinely had the aircraft fueled during the day approximately every hour. I typically run the aircraft during spray operations between 20% and 50% fuel quantity replenishing at approximately 20% indicated on the fuel quantity gauge. The fuel quantity gauge has operated normally during this time period. Occasionally when I would be on the low side of 20% I would get a fuel quantity light flicker and immediately replenish the fuel. This indicates to me that the low fuel quantity light has been operational.

On October 22, 2016 I finished a job in southern Oregon and ferried to Baker City, Oregon where I topped off the fuel tank and then ferried to the Leading Edge Aviation hangar (WT33) in Clarkston, WA. The distance between these two points is approximately 100 nautical miles and I estimate that it took approximately 50-55 minutes to complete the flight. The aircraft indicated approximately 85% upon landing.

On October 28, I had a 137 application job to do near Little Goose dam. There was some early morning fog in the area, so I waited for it to burn off. At approximately 10:30 am I started the helicopter to leave for the job. The fuel quantity still indicated 85% upon departure. I had a load of chemical mixed onboard the aircraft and started the spraying at 10:39 AM from my spray records. I completed that load at 10:52 and then closed that job. I then ferried approximately 45 nautical miles to the location where I met my mix truck. I landed at our mixing area and had the helicopter at an idle for approximately 10-15 minutes while a load was mixed and loaded into the spray tank. At 11:37 I started spraying again. I completed one spray block and then moved on to the next. When block #2 was completed I moved on to block #3. On the 5th load that I had taken from this spot, I maneuvered for my spray run. I completed 5 spray passes on this block and made a turn and lined up on the 6th pass which was from West to East and uphill. The time of this pass was 12:40 PM. I commenced the spraying and was between 10 and 15 feet above the ground level traveling at approximately 70 knots. I was spraying the pass and got a fuel pressure warning light on the dash. I scanned to the fuel pressure gauge and it indicated low fuel pressure as well. At this time I tapped the fuel pressure gauge with my collective hand to see if it was reading faulty for some reason. At this same time I looked at the fuel quantity gauge and it read between 40% and 50%. I placed my collective hand back on the collective and approximately 3-4 seconds later I developed a loss of engine power. I lowered the collective and maneuvered for the nearest and flattest location in the canyon for a forced landing. I had to pull in a small amount of collective to make it to a flatter spot during the glide and my rpm bled off. I rotated the aircraft from the flare angle to a horizontal flat angle before touchdown and landed hard. The aircraft did remain upright. I immediately pulled the emergency fuel lever to the off position as well as positioned the throttle to the off position. I engaged the rotor brake until the rotors stopped turning. I then shut off the main power supply switches and exited the aircraft.

In hindsight looking back at the amount of time that the helicopter had accumulated since refueling I have some observations:

1) The helicopter was fueled in Baker City, Oregon (KBKE) on October 22, 2016. The aircraft was fueled to full and this quantity is 143 gallons. I estimate that the flight time to Clarkston, WA (WT33) was approximately 55 minutes. The fuel quantity gauge indicated 85% upon landing.

2) There were multiple days between the aircraft returning to Clarkston, WA and then departing for the next job on Oct. 28th. The fuel quantity gauge still read 85%.

3) From the maintenance records of when the helicopter returned to Clarkston, WA on October 22 and the accident on Oct. 28th, 1.6 hrs were recorded on the Hobbs meter. This would indicate that at least 2.5 hrs of flight time had accumulated on the helicopter since the previous fueling. There was also approximately 20 minutes of ground run time between the time of the refueling and the accident. At the time of the accident, the fuel quantity gauge indicated between 40 and 50%. This quantity does not coincide with the amount of fuel that should have been used in flying for 2.5 hrs. It is my belief that the fuel quantity gauge was giving an erroneous indication with regard to the actual fuel quantity.