

Eleazar Nepomuceno
Aviation Accident Investigator
Aviation Safety - Western Pacific Region

Date: August 16, 2024
Subject: WPR24LA241, Email Correspondence
Contact: Elliott Peterson, Flight Instructor

Verbatim excerpt from Email Correspondence:

What percentage did the engine RPM go down to when you rolled it off?

When I rolled the throttle off to engine idle the engine died immediately. Engine RPM went down below its idle position. It was at the bottom of the engine rpm limit looking at the video. This is something I did not notice right away, admittedly, as I was focusing on instructing the maneuver. Looking into the proper engine idle position, I have now learned that it was much lower than it should have been, I was not aware the engine rpm idle could be changed or adjusted. The needle split on the sprag clutch check always seemed very fast to me in N6960, but I just thought it might be because of how new the helicopter was. N6960 would idle around 50-52% rpm. The R44 maintenance manual under 10.150 states that the IO-540 should idle between 58-62% engine rpm. Personally, I believe this may have been a contributing factor as idle position was much lower than 58%.

What are some limitations or guidance (both personal or company) do you have or share with the student when rolling off the throttle during simulated autos?

When instructing students, I explain to them that they need to roll the throttle off smoothly and not chop the throttle, as it states in the POH, for a visible needle split so engine rpm is below 80%. However, I have noticed with large collective movements a few of my students would unintentionally roll the throttle up or down with a collective movement during the maneuver chasing the rotor rpm (while holding engine throttle just below 80%), which can create

a challenging situation as an instructor if students are rolling the throttle the wrong way. I teach my students to roll to engine idle position with the throttle and hold it there. Throughout all of my training, all of my instructors, my fellow CFI coworkers, instructors at the Robinson Safety Course, have rolled the throttle smoothly down to, but not into the detent during practice autos. This has been the standard I have been taught and teach to my students.

I explain why we do the sprag clutch check, to ensure the rotor rpm and the engine rpm get a sufficient split between them, checking that the freewheeling unit properly functions. Then to watch the needles go to idle position to ensure it runs smoothly and will continue to run at that position during a simulated power off autorotation.

I explain the importance of ensuring we roll it on smoothly and with sufficient time available for a power recovery. If we do not, we have the possibility of getting low rotor rpm during the recovery from flare to skids level.

What is company policy when it comes to teaching autos, specifically entering the auto? If you have any written guidance, can you please share that with me?

Utah helicopter follows the POH and Robinson Flight Training guide for instructing practice autorotations.

When was the first time you realized that the idle was low? Have you done previous autos in this helicopter? Was it ever brought up to maintenance? Who does the maintenance on the helicopters?

I noticed that N6960 had a lower idle, however, it was not something I knew could be adjusted at the time. I did not notify maintenance regarding the low idle issue. I have done numerous autorotations in this helicopter, all performed the exact same way and experienced no issues while performing them previously. N6960 had recently come out from an annual/100 hour inspection before the flight. Utah Helicopter performs most of the maintenance on the helicopters. To my knowledge, they bring in outside help regarding avionics and annual inspections.