



MEMORANDUM FOR RECORD

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National Transportation Safety Board
Office of Aviation Safety - Western Pacific Region

NTSB Accident Number: WPR21LA268
Aircraft Registration & Make/Model: Bell 212 N911KW
Accident Location: Weed, CA
Accident Date: July 7, 2021

Narrative:

The following is a summary of the information provided by United States Forest Service Helicopter Inspector Pilot, James Arbaugh, in a phone conversation with the accident Pilot on July 7, 2021, about 1830 PDT, to include the inspector's observations:

Background

Ben called and wanted to discuss the details of his helicopter accident at Lake Shastina earlier in the day.

Summation

It was his second day on a 12-day shift, previous day flew around 3 hours but not out of this dip. Had just returned from 12 days off after flying the previous 12 days on this contract. Well rested, in good shape, good condition.

The mission was water dropping, dip out of Lake Shastina. Using bucket (240 at 90%) on 100-foot-long line. He had not used this dip site before, but saw two other helicopters departing the dip, one a yellow H-60, and set up to use the same general area.

Upon establishing a final approach course, did a sweep of the instrument panel, checked radar altimeter slightly over 400 feet, and put his head in the bubble. Continuing his approach to the dip site, he had items near the shoreline in sight to dip near, was conscious of headwind between 15-20 mph, and aircraft response confirming a headwind. As he entered the bubble, bucket was still trailing, confirming forward speed and headwind.

Moments after putting his head in the bubble received a significant aircraft vibration. It started immediately, no onset, no buffet.

Initially, it felt like a 'one per' which indicates an imbalance in main rotor head or main rotor blades, but this was much stronger than typical vibrations used for aircraft maintenance analysis. He chose to break off the approach to dip and return to base, but aircraft was now settling towards the lake.

He at first thought of vortex ring state and initiated forward flight with power addition, but the aircraft would not stop the descent. Controls were not unresponsive, but he did not have sufficient power to stop the descent. He avoided over torquing the engines and transmission, thinking that if pulling beyond max power didn't stop the descent, he may not be able to cushion the touch down, so elected to focus on cushioning the touch down. He landed on the water, holding what power he could, but was still unable to initiate a takeoff.

Realizing he was stuck on the water's surface, he rolled both throttles to idle and closed both fuel valves, which secured both engines. As rotor blades slowed, he rolled the aircraft to the right. He waited for movement to stop, then got his door opened, exited, started swimming to shore.

Details mentioned by Ben, prompted by me:

Ben is absolutely certain this was not a case of vortex ring state, commonly called power settling. He still had forward movement and significant headwinds. Additionally, he is very aware of this condition, and normally flies in a manner to avoid these conditions. Ben is also certain he did not inadvertently drag the bucket in his approach profile. His approach is gradual, and he was in the bubble prior to descending below 400 feet.

He added that all aircraft systems and engines were operating normally before the onset of the vibration. Up until the water landing, engines were running, and he did not perceive any aircraft or engine malfunctions. He was trying as hard as he could to identify the source of the vibration, then finally decided to cushion the landing instead of trying to fly away, perhaps unsuccessfully.

The pilot did not jettison the long line and bucket. He said he regrets this in retrospect but felt until the end he could still fly away. Additionally, when prompted by me, said he is in the habit of not arming the cargo hook electrical jettison. He commented that he was concerned about possibly over controlling which might lead to the vibration; pilot claims a history of overcontrolling in the vertical reference environment. Radio communications within the fire and with other aircraft were normal. Operations that day and previous day were normal. He had no cargo, equipment, or other people in the aircraft. Bucket was still empty on approach to the dip, and he probably had around 1250 pounds of fuel.

Inspector comments and observations after this conversation:

I flew an evaluation flight with Ben Neel earlier this year. Oral discussion and flight were both excellent. He demonstrated a slow and stable approach style with an external load and without. He demonstrated some over controlling, what we call 'stirring the pot' during vertical reference, not an abnormal trait. We discussed it during and after the flight. I'm confident this

tendency has been reduced or eliminated as he gained time in this particular aircraft. I'm also confident the control motions I saw would not lead to a vibration as described. I'm concerned he did not arm the cargo hook release, however, it's not an uncommon tendency. He did not attempt to release the hook manually. I asked him several times about altitude, he confirmed several different times through the conversation that he was somewhat above 400 feet upon entering the bubble, and the approach continued at his normal speed until the onset of vibration. He was also certain that he had some forward speed on the aircraft all the way to the water landing, describing pushing the nose over to simulate a run-on landing. He remembers the bucket still trailing behind upon entering the bubble which indicates forward movement and/or headwind, but he can't remember when the bucket and line entered the water as he had shifted his attention to the vibration and descent he couldn't arrest.