



MEMORANDUM FOR RECORD

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Air Safety Investigator

(GAAID) General Aviation Accident Investigation Division JUN 4th, 2019

NTSB Accident Number: GAA19CA108

Aircraft Registration & Make/Model: N501J, DeHavilland, DHC-2

Accident Location: Hollister, CA

Accident Date: 28MAY2019@1530 (PDT)

Subject: Memorandum for Record

In support of the NTSB Air Safety Accident Investigation involving accident airplane N501J, the NTSB Investigator-in-charge (IIC) has provided below, the pilot's narrative from the NTSB Form 6120.1 page #9, and the pilot's recommendations from page #10 of the NTSB Form 6120.1. The statement was not visible in totality, given the restrictions of the fillable form.

NTSB Form 6120.1 Full Pilot Narrative

Every winter we hanger the Beaver at Hollister airport. Every summer we take it up to British Columbia. My main job is to fly a Cessna Citation Excel and a Swearingen Merlin IIIC. When I am up in Canada on a trip in the Citation or Merlin, I do local flights in the Beaver. Since it is not good to have a Beaver sitting idle for the winter months I try to go down once per month if my schedule allows it. I typically go for a local flight of one hour or less and practice landings on water and land. On May 28th I departed Hollister Airport to exercise the Beaver by myself.

I started the engine about 1450, warmed it up, ran engine and systems checks using a checklist. A little after 1500 I departed runway 24 with headwinds of about 12 knots. I was pretty light but still with these amphibian floats and their drag, could only get 300-400 fpm at best rate of climb and this is normal. I got the flaps to the climb position and set power to 30" mp and 2000 rpm. I was so intent on having the best climb speed that I completely forgot to raise the landing gear. It took me about 8 minutes to get to 3000'. I leveled off and set power to 28" and 1800 RPM and speed increased to about 110 mph which is normal for the airplane with the gear up and the flaps in cruise position. At 1525 I surveyed a place to land off Quiene Sabe Point on San Luis Reservoir. As the water was glassy I chose the point to help with depth perception as it is hard to judge the water when it is glassy. During the downwind portion I did a pre-landing flow check: Primer locked, fuel selector on the rear tank (which had about 15 gallons in it based on departing with 25 in rear tank and 35 in middle tank. Forward tank was empty), Flaps were moved to takeoff (and then to landing position on base), Prop lever full forward, mixture rich, carburetor

heat not used as it was about 80 degrees and carb temp was well above 32. Then glancing at gear lights I saw green and it did not register after 40 years of looking for green lights in land airplanes that I should have looked for blue lights. On final about 25 feet above the water I had the nose up and added power to establish a 60 mph speed and a very shallow descent of about 100 feet per minute. When I made contact with the water there was an immediate sensation of drag (main wheels) and then a very fast forward pitch forward and down (as the nose gear dug in). I saw a wall of water coming toward me as the Beaver went vertical. Within a second, I was upside down hanging from my seat belt, (I had my shoulder harness on), shocked, and water started rushing in. As the water quickly approached my head I took a gulp of air and became almost completely immersed. Underwater, I looked for the door and handle but could not see it as the water was full of algae and visibility was about 2-4 feet. I also could not move as I still had my seat belt on. I realized this and thought "seat belt" and released it. Once free, I dropped down to the ceiling and turned around and came up for air. By then there was about two feet of air between the water and the floor (which was now the ceiling). I took another breath of air and submerged to locate the door and handle. I could not see the door or find the handle and it did not help that everything was upside down. When I came up there was about a foot and one half of air and I thought this is how people drown... I looked to the rear of the cabin and saw there was air back there and also knew there was a baggage door there that could be my escape route. Confused and upside down I attempted to swim/climb over the rear two seats with the foot of air remaining. In reality I was trying to squeeze under the 6 inch clearance between the seats and floor. I figured it out and took another breath and swam under the back rests of the rear two rows of seats. I came up in the baggage area and there was still about a foot of air remaining. I quickly punched the baggage door out and open. I swam out and got on top of the upside down Beaver. I watched the last few bubbles come up from the cabin. It was completely full of water. It had taken me about 20 seconds to get out and within 30 seconds it was completely full of water. I rested and looked out on the lake and shore. Not a boat, vehicle or soul could be seen. I had lost my glasses and my hearing aids were in the airplane or in the lake. My cell phone also had vanished. Somehow a half empty bottle of fresh water floated up and I grabbed it. I did not know how long the airplane would float and I did not want to lose its location. I attempted to paddle it with one of the oars that was on one of the floats. (the airplane would float for about 10 hours before it was removed from the lake after drifting slowly about 2 miles from the impact site). I swam about 300 feet to shore and dried my clothes (t-shirt, jeans, boxers, socks and running shoes).

I stacked rocks to mark the location of the airplane in case it sank, and prepared for what I thought would be a 7-10 mile hike to the visitor center on the far side of the lake off Highway 152. After about a 2 mile hike and about 1630 I came upon two fishermen that let me use their phone. They also directed me to the road that leads to the Basalt Day Use Area toll/inspection station. After about 1 mile a car picked me up and took me to the toll/inspection station where I was helped by the Park Rangers to start the recovery of the aircraft. It was about 1730 by this time. A airplane mechanic and another friend arrived about 1830. Action Towing arrived about 2000. They brought a tow truck and a boat. I got in the boat and went out to where the airplane was floating. They tied a line on it and dragged it inverted back to the boat ramp. They ordered another tow truck to come and I decided there was no need to stick around. I left the scene at

about 2200 with a ride from my good friend back to Hollister Airport. Action Towing removed the aircraft from the lake shore about midnight.

NTSB Form 6120.1 Complete Pilot Recommendation Section

CHECK LIST: I should have used the checklist once airborne. Both the after take off and before landing checks would have saved me from this event. I use them in the jet and turboprop but became complacent in the easy to fly Beaver....

GEAR WARNING SYSTEM: This Beaver aircraft should have a gear warning system that provides both voice and visual warning if the landing gear is not in the correct position for either a runway landing or a water landing. Airspeed activation speed could be set for 80 mph. a female voice that would say "wheels up for water landing" if the gear is up. A male voice that would say "wheels down for runway landing" The cost is about \$600-800 plus installation. Insurance companies could offer a \$1000 rebate to encourage the installation of these devices. Shops that do the annuals on amphibians should go on a campaign to offer installation of these devices and work with the insurance companies to get the rebate money.

<https://www.aircraftspruce.com/catalog/avpages/amphibiangear1.php>

INTERIOR DOOR HANDLES: The interior door handles on this beaver are recessed and require the use of a thumb and fingers to operate. They are hard even if you are right side up and dry. So hard to operate that I made a plywood handle to engage the interior door handle for the passengers. They all should be replaced with lever style like the outside handles or automobile handles. this could be another insurance company/maintenance facility campaign.

<https://www.theglobeandmail.com/news/british-columbia/seaplane-operators-to-fit-fleet-with-new-door-handles/article571826/> :

"After 60 years, the de Havilland DHC-2 Beaver aircraft door handle - counterintuitive to use, and difficult to reach for passengers on the centre bench - is getting an upgrade. The improvement is part of an ongoing effort to make it easier for float plane passengers to escape in a worst-case scenario, said Philip Reece, director of Salt Spring Air. The original handle is a recessed horizontal bar, about the width of a coffee mug. To open the door, simply insert hand and turn the bar, as you would a knob. Sounds easy enough, right?

The problem, Mr. Reece said, is that in an emergency situation, when the goal is to escape the six-seat aircraft as quickly as possible, most passengers would be reaching for something more familiar - such as a car door handle. (Pilots will keep the old handles, on the assumption they know how).....

https://www.vikingair.com/customer-support/spares-support?gclid=EAIaIQobChMIgKfG3t3I4gIVhrXACH0T4ALeEAAYASAAEgJHfvD_BwE

WINDOWS SHOULD BE SHUT FOR WATER OPERATIONS: The front vertically sliding windows were partially open when I landed in the lake. it was warm but this contributed to the cabin filling with water faster.

LIFE PRESERVERS: I was not wearing one. If I had been wearing one, i would not have been able to egress through the baggage door. It would have been ok if i could have found a door handle.