## *Accident - November 5, 1978 - N74676*

The loss of N74676 on November 5, 1978 was very disappointing for several reasons. The following is my account of what led up to that unfortunate event.

Following the Sept. 2nd accident of N7777V, the FAA made several changes to the operations of the Grumman Goose G21A at Antilles Air Boats.

- Reduced the operating weight of the aircraft from 8,500 lbs. to 7,800 lbs. (NTSB -Report AAR-79-9, excerpts below) based on Hartzell Propeller STC SA-3630 WE.
- Reduced the time intervals between engine and airframe inspection by 50% (100 hrs. to 50 hrs. - making alternating inspections engine/airframe/engine every 25 hrs.)

The restrictions made the economics of operating the Goose difficult. Maintenance cost increased and losing 700 lbs. of usable pax/baggage/freight weight was a direct revenue loss. The escalation of inspection periods pushed aircraft quickly to major 6C airframe inspections and N74676 was the first to reach this threshold.

N74676 was brought into STX maintenance to do a complete overhaul. We worked 24 hours a day for several weeks to ensure we produced the revised base line aircraft as quickly as possible. This aircraft was the first to be thoroughly overhauled and once completed was to be reviewed by the FAA to establish a true operating gross weight as well as return to 100 hr. inspection intervals.

The FAA scheduled their test flight to determined single engine performance regarding the 3 bladed Hartzell Propeller, STC SA 3630 WE.

Capt. Bob Scott, Chief Pilot for AAB was assigned to work with the FAA Southern Region to perform these test flights scheduled for Nov 2, 3, 4, and 5. Capt. Scott was a senior pilot with the experience and comfort level to perform all aspects of these flight. Each day the weight was increased, flights flown, data recorded. Each day we would be interested in the aircrafts performance. Each of the first three days, the tone was positive and we were encouraged that we would ultimately gain some additional gross weight. We did not believe we would see 8,500 lbs. but certainly needed to exceed 7,800 lbs.

At the same time, we were involved with the test flights, some were getting ready for the NTSB Hearings scheduled for November 6th at the Frenchman's Reef Hotel.

Chief Pilot, Capt. Bob Scott would be scheduled to testify at the hearings, so on November 5th he elected to reassign the test flight to a line pilot.

Capt. Bud Orpen was not on the AAB line schedule that morning, so was asked to fill in for Capt. Scott on the final day of flight tests. The final day, the heaviest day.

Capt. Bud Orpen joined AAB less than a year before. During that year, Capt. Orpen was married and during a trip to Europe with his new bride, his wife died in a horrific auto accident. I remember Capt. Orpen having difficulty with this tremendous loss as anyone could understand. I believe he returned to the flight line sooner than he should have but the powers to be stated that 'the best thing for him was to fly to keep his mind off his loss". During this period, Capt. Orpen was involved with incidents while landing in both STT and STX. On one occasion, he landed long into STX and went past the AAB ramp and into the sail boats moored in the harbor, clipping a mast and damaging the wing of the aircraft. I was a maintenance coordinator and flight operations was not my concern as told. It never kept me from expressing my opinion.

I expressed to Capt. Bob Scott my concerns of assigning Capt. Orpen to the test flight. There was a lot at stake for AAB and asked if we could postpone the test until a later date when he was available. The test would proceed as scheduled with Capt. Orpen.

The pilot and two FAA engineers boarded and proceeded down the ramp and taxied to takeoff position. The takeoff run started further west so when they became airborne I could see the aircraft as it went past the AAB ramp. I could see water coming from the left float indicating the ramp guys (loading, unloading, fueling, general hand signals) had not replaced the plugs. Both floats and bottom of the fuselage had plugs that were pulled upon turnarounds before reloading passengers. The aircraft didn't take on much water during takeoff/landing/taxiing but any additional weight would be unacceptable so plugs were pulled to drain any water.

Even though I notice that the plug was not put back, I was not overly concerned. Nothing I could do at this point. The aircraft would return and come back with a

little bit more water and start draining as soon as they came up the ramp. I notified the ramp guys to ensure they put it back on return.

A little while later, I was returning to the maintenance office by way of operations when I heard the “Distress Call” from N74676. They had both engines out and were making a dead stick landing about ten miles north of Christiansted.

An AAB Mallard was just preparing to board passengers when I jumped in the aircraft and closed the door and told the crew (pilot/co-pilot) that N47676 just lost both engines and we need to get airborne and on site... NOW! We were airborne very quickly and it seemed we were on site in no time. N74676 had landed in nearly 10 ft. seas and was intact. Capt. Orpen was able to restart both engines and started to taxi. The Mallard continued to circle the Goose but It was quickly recognized that the left float was taken on water. Once the float goes, the wing starts to fill and turning over and down is next.

The Capt. and the two FAA Engineers exited the aircraft got into the life raft which was stored in the aft compartment by the door. I was hoping for a little more effort on saving the aircraft. Tie life preservers onto the left float, get on top of the aircraft wing all the way to the right to keep the left float out of the water but I know that the three were focused on their survival and I can truly understand. Easy for me to be yelling options from the circling aircraft. The aircraft circling made it easier for those rescuers making their way to the scene. Capt. Don McDermott (AAB Mallard/Goose Pilot) was out fishing on his boat and heard the call and made his way to the Goose or now it was a raft. He was one of the first on scene. The U.S. Coast Guard were also in the vicinity and quickly arrived on scene and picked them up and returned to the AAB ramp.

It was just difficult to see N74676 take a dive to a place we will never see. A lot of effort working around the clock for weeks to produce a great Goose that would serve AAB once again.

It was not difficult to recognize what had happen in the cockpit that morning after a brief discussion upon the return of the crew. The pilot and engineers had finished their single-engine tests, were recording their data and ready to restart the left engine and return to the STX ramp. Capt. Orpen preparing to restart the left engine

still had the left prop lever in feathered position and before he repositioned the FAA engineer sitting in the right seat opened the prop unfeathering valve prematurely. The oil pressure from the running right engine to unfeather the left prop went overboard and loss of oil pressure in right engine automatically feathered that prop. Not sure what had just happened, Capt. Orpen focused on a no engine landing, which he did a very good job, especially meeting up with 10 ft. seas.

Improper cockpit procedures resulted in the loss of N74676*. (see AAB G21A Airplane Operating Manual - 2/20/75 – 1.9.2 Hartzell Full Feathering Propellers)*

I am glad that the three individuals returned safely. Capt. Bud Orpen was a good man, I was just disappointed that a decision was made to use a pilot that was less than prepared to complete the test flights. Never a dull moment at AAB.

The following day I took the stand at the NTSB hearings and I continued my testimony into the second day.

Then back to work.

*Tom Anusewicz*

<u>Excerpts from NTSB Report on N7777V regarding Hartzell Propeller / N74676</u>

*On September 8, 1978, the Southern Region placed a 7,800-lb weight restriction on the operation of Antilles Air Boats G2lA aircraft while extensive maintenance program revisions were made. When the revisions were complete, Antilles Air Boats requested that the weight restriction be removed, The Southern Region scheduled a series of G2lA test flights to determine if the typical Antilles G21A could perform at 8,000 lbs. and higher weights.*

*A series of test flights were conducted by the FAA Southern Region on November 2, 3, 4, and 5, 1978, at weights between 7,609 lbs. and 8,179 lbs. The right propeller had been filed to minimum limits and considered to be a typical minimum service propeller.*

*Four single engine flight test with the left engine at zero thrust were flown before the aircraft experienced an inadvertent auto feather of the operating right engine. A forced landing was made, and the aircraft sank into the water shortly thereafter.*

*Most of the flight test data was lost in the accident. However, from data FAA personnel could recall, a graph was constructed which indicated that at sea level, on a standard day, positive single -engine climb could be achieved at a maximum gross weight of about 7,775 lbs. Level single-engine flight could be maintained at a maximum weight of about 7,750 lbs. FAA personnel involved in the flight tests stated that because the flight testing had not been completed and since they did not have full benefit of all the data, the information was inconclusive. Furthermore, the minimum service condition of the propeller detracted from the validity of any of the data.*

*After the Southern Region test flight which resulted in the loss of the G21A, the data recalled was passed to the Western Region Flight Test Branch, along with the details of the accident. As a result of the information passed by the Southern Region shortly after the November 5th accident, the Chief, Western Region Flight Test Branch stated that they began to have second thoughts on the validity of STC SA3630 WE regarding the "remarkably lower climb performance" which was observed by the Southern Region. However, on November 13, 1978, then Chief, Western Region Flight Test Branch, the reviewing authority for STC SA 3630 WE, approved the type inspection report on the STC.*

*The Western Region began a plan for a new flight tests to revalidate the STC performance data. Meanwhile, the Southern Region, on December 7, 1978, conducted two evaluation flights in Antilles G21A aircraft to explore the single-engine performance at 8,000 lbs. and 8,200 lbs. The evaluation flights were conducted by San Juan GADQ but were not conducted according to FAA-accepted test flight procedures according to the Western Region Chief, Flight Test Branch.*

*During the evaluation flights, the aircraft was found to be able to meet Bulletin 7A requirements at 8,200 lbs. Based on these data, the Chief, San Juan FSDO, wrote a letter to the Chief, Southern Region Flight Standards Division, stating, "Armed with this data, we recommend that Antilles Air Boats be permitted to resume operations at 8,000 lbs. gross takeoff weight." The request was not approved by the Southern Region.*

*On February 13, 1979, the Western Region attempted to duplicate the performance data which was the basis for the original issue of STC SA 3630 WE. In contrast to the April 1978 test, the Western Region required verification of the aircraft weight and calibration of the instruments. The left engine feathered during the single-engine climb tests. At 8,750 lbs. and at an altitude of 1,500 ft., a 3-minute single engine, single-heading climb was attempted. At the end of 3 minutes, a rate of sink of 72 f t per minute was established. At that point, the flight test was terminated. It was obvious that 72 ft. minimum (rate of sink) wasn't going to meet (Bulletin 7A)." As a result, the Western Region cancelled the STC on February 26, 1979.*

*The Chief, Western Region Flight Test Branch, stated that the reason there was such a marked difference in performance between the April 1978 and the February 1979 flight tests was: (1) One used zero thrust while the other employed actual feathering of the left engine; (2) in the second test, instruments were calibrated; (3) in the second test, power was set properly according to the type of engines; and (4) in the second test, aircraft weight was proper. He also stated that in the first Western Region flight test, cooling, not performance, had been the principal objective, and that overall, the first flight test was not as rigorously conducted as it should have been.*

*After the February 13, 1979, test, the Chief, Western Region Flight Test Branch, required the computation of the maximum gross weight at which the Grumman G2lA could meet the climb requirements of Bulletin 7A using 400 brake horsepower. The computations were based on data, which were described as "mediocre quality;" these data were measured on February 13, 1979. The maximum computed weight at which the G2lA would meet Bulletin 7A requirements was 8,150 lbs. on a standard day.*