ERA13MA139 - Brief

The purpose of the flight was to return employees of a vein care practice to their home base at Thomson-McDuffie County Airport (HQU), Thomson, Georgia. The pilot was the pilot flying, and the copilot was the pilot not flying. (The National Transportation Safety Board [NTSB] notes that although the copilot is referred to as such in this report, his role in the cockpit is not required by federal regulations.) The departure from John C. Tune Airport, Nashville, Tennessee, and en route portions of the flight were uneventful. During the flight, the copilot reminded the pilot about a speed restriction and also reminded the pilot to adjust his altimeter. The pilot responded to the altimeter reminder by stating, "say, I'm kinda out of the loop or something. I don't know what happened to me there but I appreciate you lookin' after me there." About 4 minutes later, on approach to HQU, the pilot lowered the landing gear, and the ANTI SKID FAIL message illuminated in the cockpit; the copilot commented on the illumination. The pilot continued the approach; he did not respond to the copilot and did not refer to the Abnormal Procedures section of the Federal Aviation Administration (FAA)-approved Abbreviated Pilot Checklist to address the antiskid system failure message. The airplane touched down on runway 10 about 2005, and about 7 seconds later, the pilot initiated a go-around. (In postaccident interviews, neither the pilot nor the copilot recalled the reason for the go-around.) The airplane lifted off near the departure end of the 5,503 ft-long runway. According to enhanced ground proximity warning system (EGPWS) data, when the airplane was about 63 ft above ground level, the left wing struck a utility pole, which was 72 ft high and about 1,835 ft from the runway threshold, severing the outboard portion of the wing. The airplane continued another 925 ft before crashing in a wooded area.

Examination of the wreckage revealed no evidence of any preimpact failures or malfunctions of the engines or flight controls. The reason for the antiskid system malfunction could not be determined due to the general destruction of the wreckage.

For an antiskid inoperative condition, the Abbreviated Pilot Checklist only provides landing distance values for flaps up and flaps 10 degrees. The pilot should have selected one of those two flap settings for landing and determined the landing distance required. The first data recorded by the EGPWS showed that the airplane was configured at flaps 30. The flaps were transitioning through flaps 15 at the time of impact.

When the antiskid system fails, the landing distance required for full stop increases greatly: according to the Abbreviated Pilot Checklist, the landing distance would increase about 130 percent with flaps up and 89 percent with flaps 10. Thus, the required landing distance for the weather conditions that prevailed at HQU at the time of the accident with flaps up was 7,066 ft, and the required landing distance with flaps 10 was 5,806 ft. HQU runway 10's available runway length for landing was 5,208 ft, which did not meet the flaps up or flaps 10 performance penalty requirements with an antiskid system failure, thus requiring a diversion to a longer runway. It is likely that after touchdown, the pilot recognized that the airplane was not slowing as he expected and might not stop before the end of the runway. Rather than risk a high-speed overrun, he elected to conduct a go-around.

The NTSB determined that at the time the airplane struck the utility pole, the landing gear was extended, the flaps were in transit (retracting) toward the 10-degree position, and the lift dump system was deployed. Lift dump is a critical system to assist in stopping the Beechcraft 390 Premier (Premier 1A) during landing. Section 3A of the airplane flight manual (AFM) (Abnormal Procedures) included the following warning: "Extending lift dump in flight could result in loss of airplane control leading to airplane damage and injury to personnel. Continued safe flight with lift dump extended has not been demonstrated." The wreckage examination as well as drag estimates based on recovered EGPWS data indicate that the lift dump remained extended during the airplane's go-around attempt. The airplane drag associated with lift dump, flaps, and landing gear likely resulted in only marginal climb performance. While Beechcraft does not publish a procedure for a go-around after touchdown, aerodynamic data for the 390 Premier (Premier IA) suggest that if the airplane were configured with lift dump retracted and flaps 10 degrees or less, it would have been capable of a significantly higher climb rate after the failed landing attempt.

The pilot displayed a lack of systems knowledge of the accident airplane. First, the pilot demonstrated a lack of understanding of the antiskid system. Although the pilot had received antiskid system failure training during his recurrent simulator training on January 4, 2013, he stated in postaccident interviews that he did not think they needed the antiskid system for the landing at HQU and that the performance penalty would only apply if you were "trying to make your numbers." Because of this faulty belief, when the antiskid failure illumination occurred, the pilot did not take action. Second, the pilot selected a flap position (flaps 30) that was prohibited by the antiskid failure procedures in the AFM. Third, he performed a go-around with the lift dump extended. Both the AFM and a placard in the cockpit warned against extending the lift dump in flight. When the pilot decided to go around, he should have immediately retracted the lift dump per the AFM restriction for lift dump extension in flight.

The utility pole (Pole 48) that was struck was erected, along with several others, in 1989 by Georgia Power. ~~The FAA was not notified before the construction of the utility poles in 1989; accordingly, no obstruction evaluation was done, and no depictions or mention of possible obstructions in the area were included on associated aeronautical charts.~~Although Georgia Power did not notify the FAA about the poles after they were constructed, the information about the obstructions was available to the FAA through other sources. After the accident, Georgia Power submitted FAA Forms 7460-1 for four utility poles east of the airport, including Pole 48. The FAA conducted aeronautical studies on the poles and, on May 31, 2013, determined in its initial findings that Pole 48 did not comply with FAA obstruction standards and was "presumed to be a hazard to air navigation." The study also stated that if the pole were lowered to a height of 46 ft or less, it would comply with obstruction standards. After the FAA issued the preliminary obstruction determinations, Georgia Power requested that the FAA conduct further study on the four obstructions to determine if a favorable determination could be achieved. On August 12, 2013, the FAA published public notices announcing the four aeronautical studies and invited interested parties to submit relevant comments before September 18, 2013. According to an FAA official, the final determinations for the four obstructions were not completed at the time of this report. Since the initial aeronautical studies were conducted, the FAA Flight Data Center issued several notices to airmen to alert pilots about obstructions and also to amend the approach and departure procedures at HQU accordingly. ~~In addition, the FAA increased the glideslope angle~~

~~for the runway 28 precision approach path indicator from 3.00 to 3.50 degrees.~~ Although the FAA has deemed the pole a presumed hazard, the pilot's attempted flight with the extended lift dump made airplane control and continued safe flight unlikely.

In evaluating the pilot's performance, the NTSB considered that the pilot experienced a sleep restriction, a circadian disruption the night before the accident, and long duty hours and extended wakefulness. The pilot normally slept about 8 hours per night; however, he only slept 5 hours the night before the accident (February 19). Further, the pilot awoke about 0200 on the morning of the accident, which was significantly earlier than his normal waking time of about 0600. On the day of the accident, he reported that upon arrival in Nashville, he slept for about 4 hours in a chair in the pilot lounge. However, his cell phone activity indicated outgoing calls during that time, suggesting interruptions to his sleep, which would have fragmented any sleep the pilot did obtain and degrade its restorative quality. Additionally, the accident took place about 2006, indicating an extended period of wakefulness based on the early awakening. Based on the available evidence, the pilot was likely suffering from fatigue at the time of the accident. Research indicates that fatigue associated with sleep loss, circadian disruption, and long duty hours can lead to increased difficulty in sustaining and directing attention, memory errors, and resultant lapses in performance. An NTSB safety study found that flight crewmembers who were awake for more than 12 hours made more procedural errors, tactical decision errors, and errors of omission than those awake less than 12 hours (NTSB. 1994. *A Review of Flightcrew-Involved Major Accidents of U.S. Air Carriers, 1978 through 1990*. SS-94/01. Washington, DC). Twice during the accident flight, the copilot gave the pilot reminders (one about the speed restriction and one about the altimeter). The pilot responded by indicating that he was "out of the loop." Further, the pilot did not refer to the Abbreviated Pilot Checklist for the antiskid system failure (for which the copilot commented on the illuminated light) or retract the lift dump when he elected to go around. Had the pilot not been fatigued, he likely would have paid closer attention to the flight and not had lapses in performance.

Both pilots survived, with serious injuries, and all five passengers, who were seated in the back, died. Postaccident examination showed that the seat buckles in the back were not fastened and the shoulder harnesses were not attached or pulled out. According to the copilot, the "fasten seatbelt" sign was on (the seatbelt chime was recorded by the cockpit voice recorder), but he did not remember giving a briefing on seatbelts. The pilot indicated that he did not remember seeing if the passengers had their seatbelts on. All six of the passenger seats had been forcibly detached from the airplane fuselage, and three were consumed by fire. All of the passengers sustained multiple traumatic injuries. Although proper use of restraint systems in survivable accidents can dramatically lessen or prevent serious injuries to occupants, due to the high impact forces and fragmentation of the cabin in this accident, it is unknown whether the use of restraints would have affected the survivability of the passengers.

Member Sumwalt filed a concurring statement that can be found in the public docket for this accident. Member Weener joined the statement.