

Brief of Accident

Adopted 04/15/2009

ANC08MA038
File No. 25058 01/05/2008 Kodiak, AK Aircraft Reg No. N509FN Time (Local): 13:43 AST

Make/Model:	Piper / PA-31-350	Fatal	1	Serious	0	Minor/None	0
Engine Make/Model:	Lycoming / TIO-540 Serie	Crew	1				
Aircraft Damage:	Substantial	Pass	5		3		1
Number of Engines:	2						
Operating Certificate(s):	Commuter Air Carrier; On-demand Air Taxi						
Name of Carrier:	Servant Air, Inc.						
Type of Flight Operation:	Non-scheduled; Domestic; Passenger Only						
Reg. Flight Conducted Under:	Part 135: Air Taxi & Commuter						

Last Depart. Point:	KODIAK, AK	Condition of Light:	Day
Destination:	HOMER, AK	Weather Info Src:	Weather Observation Facility
Airport Proximity:	Off Airport/Airstrip	Basic Weather:	Visual Conditions
		Lowest Ceiling:	
		Visibility:	10.00 SM
		Wind Dir/Speed:	300 / 017 Kts
		Temperature (°C):	-4
		Precip/Obscuration:	

Pilot-in-Command	Age: 50	Flight Time (Hours)
Certificate(s)/Rating(s)		Total All Aircraft: 9437
Airline Transport; Multi-engine Land; Single-engine Land; Single-engine Sea		Last 90 Days: 179
		Total Make/Model: 400
Instrument Ratings		Total Instrument Time: 700
Airplane; Helicopter		

*** Note: NTSB investigators traveled in support of this investigation and used data obtained from various sources to prepare this aircraft accident report. ***

The airline transport pilot and nine passengers were departing in a twin-engine airplane on a 14 Code of Federal Regulations Part 135 air taxi flight from a runway adjacent to an ocean bay. According to the air traffic control tower specialist on duty, the airplane became airborne about midway down the runway. As it approached the end of the runway, the pilot said he needed to return to the airport, but gave no reason. The specialist cleared the airplane to land on any runway. As the airplane began a right turn, it rolled sharply to the right and began a rapid, nose- and right-wing-low descent. The airplane crashed about 200 yards offshore and the fragmented wreckage sank in the 10-foot-deep water. Survivors were rescued by a private float plane. A passenger reported that the airplane's nose baggage door partially opened just after takeoff, and fully opened into a locked position when the pilot initiated a right turn towards the airport. The nose baggage door is mounted on the left side of the nose, just forward of the pilot's windscreen. When the door is opened, it swings upward, and is held open by a latching device. To lock the baggage door, the handle is placed in the closed position and the handle is then locked by rotating a key lock, engaging a locking cam. With the locking cam in the locked position, removal of the key prevents the locking cam from moving. The original equipment key lock is designed so the key can only be removed when the locking cam is engaged. Investigation revealed that the original key lock on the airplane's forward baggage door had been replaced with an unapproved thumb-latch device. A Safety Board materials engineer's examination revealed evidence that a plastic guard inside the baggage compartment, which is designed to protect the door's locking mechanism from baggage/cargo, appeared not to be installed at the time of the accident. The

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airplane manufacturer's only required inspection of the latching system was a visual inspection every 100 hours of service. Additionally, the mechanical components of the forward baggage door latch mechanism were considered "on condition" items, with no predetermined life-limit. On May 29, 2008, the Federal Aviation Administration issued a safety alert for operators (SAFO 08013), recommending a visual inspection of the baggage door latches and locks, additional training of flight and ground crews, and the removal of unapproved lock devices. In July 2008, Piper Aircraft issued a mandatory service bulletin (SB 1194, later 1194A), requiring the installation of a key lock device, mandatory recurring inspection intervals, life-limits on safety-critical parts of forward baggage door components, and the installation of a placard on the forward baggage door with instructions for closing and locking the door to preclude an in-flight opening. Postaccident inspection discovered no mechanical discrepancies with the airplane other than the baggage door latch. The airplane manufacturer's pilot operating handbook did not contain emergency procedures for an in-flight opening of the nose baggage door, nor did the operator's pilot training program include instruction on the proper operation of the nose baggage door or procedures to follow in case of an in-flight opening of the door. Absent findings of any other mechanical issues, it is likely the door locking mechanism was not fully engaged and/or the baggage shifted during takeoff, and contacted the exposed internal latching mechanism, allowing the cargo door to open. With the airplane operating at a low airspeed and altitude, the open baggage door would have incurred additional aerodynamic drag and further reduced the airspeed. The pilot's immediate turn towards the airport, with the now fully open baggage door, likely resulted in a sudden increase in drag, with a substantive decrease in airspeed, and an aerodynamic stall.

Updated at Aug 4 2011 11:00AM

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OCCURRENCES

Initial climb - Sys/Comp malf/fail (non-power)
Initial climb - Aerodynamic stall/spin
Initial climb - Loss of control in flight
Uncontrolled descent - Collision with terr/obj (non-CFIT)

FINDINGS

Aircraft-Aircraft structures-Doors-Cargo/baggage doors-Incorrect service/maintenance - C
Personnel issues-Task performance-Maintenance-Repair-Maintenance personnel - C
Organizational issues-Support/oversight/monitoring-Training-Emergency proc training-Manufacturer - F
Organizational issues-Management-Policy/procedure-Availability of policy/proc-Manufacturer - F
Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained - F

Findings Legend: (C) = Cause, (F) = Factor

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of company maintenance personnel to ensure that the airplane's nose baggage door latching mechanism was properly configured and maintained, resulting in an inadvertent opening of the nose baggage door in flight. Contributing to the accident were the lack of information and guidance available to the operator and pilot regarding procedures to follow should a baggage door open in flight and an inadvertent aerodynamic stall.