National Transportation Safety Board
Washington, DC 20594

Printed on : 08/14/2014 01:03:35 PM

Brief of Accident

Adopted 08/11/2014

ANC13FA030
File No. 32935 | 03/08/2013 | Aleknagik ,AK | Aircraft Reg No. N116AX | Time (Local): 08:15 AST

Make/Model:	Beech/1900C
Engine Make/Model:	Pratt&Whitney / PT6A-65B
Aircraft Damage:	Destroyed
Number of Engines:	2
Operating Certificate(s):	On-demand Air Taxi
Name of Carrier	ALASKA CENTRAL EXPRESS INC
Type of Flight Operation:	Non-scheduled; Domestic; Cargo
Reg. Flight Conducted Under:	Part 135: Air Taxi & Commuter

	Fatal	Serious	Minor/None
Crew	2	0	0
Pass	0	0	0

Last Depart. Point:	King Salmon, AK
Destination:	Dillingham, AK
Airport Proximity:	Off Airport/Airstrip

Condition of Light:	Day
Weather Info Src:	Weather Observation Facility
Basic Weather:	Instrument Conditions
Lowest Ceiling:	1500 Ft. AGL, Overcast
Visibility:	7.00 SM
Wind Dir/Speed:	100 / 017 kts
Temperature (°C):	1
Precip/Obscuration:	Light - Rain

Pilot-in-Command Age: 38

Certificate(s)/Rating(s)
Airline Transport; Multi-engine Land; Single-engine Land

Instrument Ratings
Airplane

Flight Time (Hours)

Total All Aircraft:	5770
Last 90 Days:	390
Total Make/Model:	5470
Total Instrument Time:	UnK/Nr

*** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. ***

The airplane was operating in instrument meteorological conditions and, as it approached the destination airport, the pilot requested the RNAV/GPS runway 19 approach and asked for routing directly to ZEDAG, the initial approach fix (IAF). At the time of the pilot's request, the airplane was about 30 miles southeast of the IAF at an altitude of about 5,900 feet mean sea level (msl). The air traffic controller cleared the airplane to fly directly to the IAF followed by the ZEDAG transition and the RNAV/GPS runway 19 approach, stating, "maintain at or above 2,000" feet until established on a published segment of the approach. The flight crewmembers repeated the clearance back to the controller as "maintain 2,000" feet until established, and they began descending the airplane toward the IAF. About 6 minutes later, the pilot requested to enter the holding pattern while they checked on runway conditions on another radio frequency, and the controller cleared them to hold "as published." At the time of the pilot's request, the airplane was at an altitude of about 2,200 feet msl.

As depicted on the published instrument approach procedure, the terminal arrival area (TAA) minimum altitude when approaching the IAF from the southeast (the direction from which the accident flight approached) is 5,400 feet msl, and the published holding pattern at the IAF is 4,300 feet msl due to rising terrain in the area.

Therefore, the flight crewmember's acceptance of what they believed to be a clearance to 2,000 feet, their descent to that altitude, and their initiation of a hold at that altitude indicates a lack of awareness of the information contained on the published procedure. Such a lack of awareness is inconsistent with pilot-in-command responsibilities and company procedures that require an instrument approach briefing during the descent and approach phases of flight. If the flight crewmembers had reviewed the published approach procedure and briefed it per the company's descent and approach checklist, they should have noticed that the minimum safe altitude in the TAA southeast of the IAF was 5,400 feet msl and that the minimum altitude for the hold was 4,300 feet msl. Examination of the wreckage and debris path evidence is consistent with the airplane having collided with rising terrain at 2,000 feet msl while flying in a wings-level attitude on the outbound leg of the holding pattern, which the flight crew should have flown at 4,300 feet msl.

However, the air traffic controller did not adhere to guidance contained in Federal Aviation Administration Order 7110.65, and his approach clearance to "maintain at or above 2,000 feet" msl until established on a published segment of the approach was ambiguous. The controller's approach clearance should have instructed the pilot to "proceed direct to ZEDAG, enter the TAA at or above 5,400 feet, cleared RNAV runway 19 approach." Instead, he instructed the pilot without specifying the segment of the approach that should be flown at 2,000 feet. Further, the controller did not notice the pilot's incorrect readback of the clearance in which he indicated that he intended to "maintain 2,000 feet" until established on the approach. Further, he did not appropriately monitor the flight's progress and intervene when the airplane descended to 2,000 feet msl. As a result, the airplane was permitted to descend below the minimum instrument altitudes applicable to the route of flight and enter the holding pattern well below the published minimum holding altitude.

Air traffic control (ATC) recorded automation data showed that the airplane's trajectory generated aural and visual minimum safe altitude warnings on the controller's radar display. However, the controller did not issue any terrain warnings or climb instructions to the flight crew. The controller said that he was not consciously aware of any such warnings from his display. These automated warnings should have been sufficient to prompt the controller to evaluate the airplane's position and altitude, provide a safety alert to the pilot in a timely manner, and instruct the pilot to climb to a safe altitude; it could not be determined why the controller was unaware of the warnings. The airplane was equipped with three pieces of navigation equipment that should have provided visual and aural terrain warnings to the flight crewmembers if they had not inhibited the function and if the units were operating properly. Damage precluded testing the equipment or determining the preaccident configuration of the units; however, the flight crew reported no equipment anomalies predeparture.
Updated at Aug 11 2014 10:59AM

ANC13FA030
File No. 32935 | 03/08/2013 | Aleknagik ,AK | Aircraft Reg No. N116AX | Time (Local): 08:15 AST

OCCURRENCES

Enroute-holding (IFR) - Controlled flight into terr/obj (CFIT)

FINDINGS

Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Flight crew - C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-ATC personnel - F
Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Low ceiling-Contributed to outcome

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

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

The flight crew's failure to maintain terrain clearance, which resulted in controlled flight into terrain in instrument meteorological conditions. Contributing to the accident were the flight crew's failure to correctly read back and interpret clearance altitudes issued by the air traffic controller, their failure to adhere to minimum altitudes depicted on the published instrument approach chart, and their failure to adhere to company checklists.

Also contributing to the accident were the air traffic controller's issuance of an ambiguous clearance to the flight crew, which resulted in the airplane's premature descent, his failure to address the pilot's incorrect read back of the assigned clearance altitudes, and his failure to monitor the flight and address the altitude violations and issue terrain-based safety alerts.