



National Transportation Safety Board Aviation Accident Final Report

Location:	Buckland, Alaska	Accident Number:	ANC19LA045
Date & Time:	August 1, 2019, 14:00 Local	Registration:	N451CE
Aircraft:	Douglas C 118A	Aircraft Damage:	Substantial
Defining Event:	Landing area undershoot	Injuries:	3 None
Flight Conducted Under:	Part 121: Air carrier - Non-scheduled		

Analysis

The flight crew was landing the transport-category airplane at a remote, gravel-covered runway. According to the captain, the terrain on the approach to the runway sloped down toward the approach end, which positioned the airplane close to terrain during the final stages of the approach. A video recorded by a bystander showed that while the airplane was on short final approach, it flew low on the glidepath and dragged its landing gear through vegetation near the approach end of the runway. The video showed that, just before the main landing gear wheels reached the runway threshold, the right main landing wheel impacted a dirt and rock berm. The captain said that to keep the airplane from veering to the right, he placed the No. 1 and No. 2 engine propellers in reverse pitch. The flight engineer applied asymmetric reverse thrust to help correct for the right turning tendency, and the airplane tracked straight for about 2,000 ft. The video then showed that the right main landing gear assembly separated, and the airplane continued straight down the runway before veering to the right, exiting the runway, and spinning about 180°, resulting in substantial damage to the fuselage.

On-site examination of the runway revealed several 4-ft piles of rocks and dirt at the runway threshold, which is likely what the right main landing wheel impacted. Given that the airplane landing gear struck vegetation and rocks on the approach to the runway, it is likely that they were below the proper glidepath for the approach.

The crew stated there were no preaccident mechanical malfunctions or anomalies that would have precluded normal operation.

Probable Cause and Findings

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

The pilot's failure to maintain an adequate glidepath during the approach, which resulted in the airplane impacting rocks and dirt at the runway threshold, a separation of the right main landing gear, and a loss of directional control.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Descent/approach/glide path - Not attained/maintained
Aircraft	Directional control - Attain/maintain not possible

Factual Information

On August 1, 2019, about 1400 Alaska daylight time, a Douglas C-118A (DC-6A) airplane, N451CE, sustained substantial damage while landing at Candle 2 Airport (AK75), Candle, Alaska. The captain and first officer, both certificated airline transport pilots and the certificated flight engineer were uninjured. The airplane was registered to Tatonduk Outfitters Limited and operated by Everts Air Cargo as a Title 14 *Code of Federal Regulations* Part 121 supplemental air-cargo flight. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed. The flight departed Fairbanks, Alaska about 1140.

According to the captain, after overflying AK75, they entered the traffic pattern for landing on Runway 20, a remote, 3,880 ft. long, by 90 ft. wide gravel-covered runway. He added that down sloping terrain at the approach end of Runway 20 positioned the airplane closer to the terrain during the final stages of the approach. He stated that during touchdown near the runway threshold, he felt a bump, and the first officer exclaimed "we caught the right main gear." He said that in an effort to keep the airplane from veering to the right, he placed number 1, and number 2 engines in reverse pitch. In addition, the flight engineer applied asymmetric reverse to correct for the right turning tendency, and the airplane tracked straight for about 2,000 ft. It then veered sharply to the right and spun 180° resulting in substantial damage to the fuselage.

The crew stated there were no preaccident mechanical malfunctions or anomalies that would have precluded normal operation.

A postaccident inspection of the runway revealed several 4 ft tall piles of rocks and dirt at the threshold of runway 20.

A video, recorded by a bystander, captured the accident sequence and revealed that the airplane, while on short final approach, was low on the glide path and dragging its landing gear through vegetation located near the approach end of the runway. The video shows that, just before the main landing gear wheels reached the runway threshold, the right main landing wheel impacted a dirt and rock berm. The right main landing gear assembly separated, and the airplane continued straight down the runway before veering to the right, exiting the runway, and spinning about 180°. A copy of the video is included in the public docket for this accident.

Following the accident, the operator implemented several changes that included, but were not limited to, the following:

1. Develop a written short field procedure for the DC-6/C-46 aircraft and include the procedure in the Operations Manual.
2. Develop a short field flight and ground training segment to be included in the Flight Operations Training Manual.
3. Adjust airport risk assessment to account for high-risk/short-field airports, elevating the management alert criteria.
4. Develop a strict policy regarding conduct associated with visual means of glide path calculation/factors.

5. Develop a list of aircrews, to be maintained by flight control, that have had the appropriate training and may be used for high-risk/short-field airports.

The closest weather reporting facility was Buckland Airport (PABL), Buckland, Alaska. At 1356, PABL was reporting, in part: wind 250° at 11 knots, gusting 15 knots; visibility 10 statute miles; few clouds 4,100 ft; temperature 57°F; dew point 39°F; altimeter 30.01 inches mercury.

History of Flight

Landing	Landing area undershoot (Defining event)
Landing	Collision during takeoff/land
Landing	Landing gear collapse
Landing	Runway excursion

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer	Age:	51, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	July 17, 2019
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 1, 2019
Flight Time:	9910 hours (Total, all aircraft), 147 hours (Last 90 days, all aircraft), 73 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight engineer	Age:	64, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	July 18, 2019
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 25, 2018
Flight Time:	8316 hours (Total, all aircraft), 69 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Flight engineer Information

Certificate:		Age:	Male
Airplane Rating(s):		Seat Occupied:	Center
Other Aircraft Rating(s):		Restraint Used:	Lap only
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	3025 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Douglas	Registration:	N451CE
Model/Series:	C 118A No Series	Aircraft Category:	Airplane
Year of Manufacture:	1953	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	43712
Landing Gear Type:	Retractable - Tricycle	Seats:	5
Date/Type of Last Inspection:	June 27, 2019 Continuous airworthiness	Certified Max Gross Wt.:	100000 lbs
Time Since Last Inspection:		Engines:	4 Reciprocating
Airframe Total Time:	42037.3 Hrs at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	C126 installed, not activated	Engine Model/Series:	R-2800-CB3
Registered Owner:		Rated Power:	2400 Horsepower
Operator:		Operating Certificate(s) Held:	Supplemental, Commuter air carrier (135), On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PABL	Distance from Accident Site:	
Observation Time:	21:56 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 4100 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	11 knots / 15 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	250°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.01 inches Hg	Temperature/Dew Point:	14° C / 4° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Faribanks, AK (PAFA)	Type of Flight Plan Filed:	IFR
Destination:	Buckland , AK (AK75)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	Candle 2 AK75	Runway Surface Type:	Dirt;Gravel
Airport Elevation:	15 ft msl	Runway Surface Condition:	Dry;Rough
Runway Used:	20	IFR Approach:	None
Runway Length/Width:	3880 ft / 90 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	65.907775,-161.926391

Administrative Information

Investigator In Charge (IIC): Banning, David

Additional Participating
Persons:

Original Publish Date: November 19, 2020

Investigation Class: 3

Note: The NTSB did not travel to the scene of this accident.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=100050>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).