



National Transportation Safety Board Aviation Accident Final Report

Location:	Nuiqsut, AK	Accident Number:	ANC14CA012
Date & Time:	11/25/2013, 1021 AST	Registration:	N100CE
Aircraft:	DOUGLAS DC-6	Aircraft Damage:	Substantial
Defining Event:	Miscellaneous/other	Injuries:	3 None
Flight Conducted Under:	Part 121: Air Carrier - Non-scheduled		

Analysis

According to the operator, the purpose of the short, 22 minute flight was to deliver a load of oversized, oil drilling tools to a remote oil production site. The flightcrew reported that shortly after takeoff the first officer noticed that the airplane's elevator control movements appeared to be "momentarily stiff."

While en route to the destination, the flight engineer was asked to inspect the cargo, and he subsequently discovered that two of the four, 31-foot long oil drilling tools had shifted aft, damaging the aft pressure bulkhead. The captain did not declare an emergency, and the airplane landed at the destination without incident.

A postflight inspection revealed substantial damage to the aft pressure bulkhead assembly, as well as various frames, stringers and structural longerons. In addition, several attachments for the elevator flight control pulleys and flight control cable guides were damaged. The operator noted that the airplane's pressurization system had been removed years ago, when the airplane was converted to a cargo configuration.

The operator reported that after loading the airplane, just before departure, the crew inspected the five nylon strapping mechanisms that secured the four drilling tools to the floor of the airplane. The crew reported that all five of the nylon straps were tight before departure, but gathered that one or more had loosened slightly during taxi and takeoff, allowing two of the tools to shift aft during takeoff. The crew also noted that the drilling tools were covered with ice and snow, which likely aided in the tools sliding along the aluminum, diamond plate-covered floor of the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A load shift during takeoff, which resulted in substantial damage to the aft bulkhead and associated structures.

Findings

Aircraft

Cargo compartments - Incorrect use/operation (Cause)

Factual Information

History of Flight

Prior to flight	Aircraft loading event
Takeoff	Miscellaneous/other (Defining event)

Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	50
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	12/12/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	11/01/2013
Flight Time:	14100 hours (Total, all aircraft), 12100 hours (Total, this make and model), 9100 hours (Pilot In Command, all aircraft), 115 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	52
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	07/18/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	06/13/2013
Flight Time:	4516 hours (Total, all aircraft), 968 hours (Total, this make and model), 160 hours (Last 90 days, all aircraft), 45 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Flight Engineer Information

Certificate:	Commercial; Flight Engineer	Age:	
Airplane Rating(s):		Seat Occupied:	Center
Other Aircraft Rating(s):		Restraint Used:	
Instrument Rating(s):		Second Pilot Present:	
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	DOUGLAS	Registration:	N100CE
Model/Series:	DC-6	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	44662
Landing Gear Type:	Retractable - Tricycle	Seats:	3
Date/Type of Last Inspection:	11/21/2013, Continuous Airworthiness	Certified Max Gross Wt.:	100000 lbs
Time Since Last Inspection:		Engines:	4 Reciprocating
Airframe Total Time:	32042 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	C126 installed, not activated	Engine Model/Series:	R-2800
Registered Owner:	TATONDUK OUTFITTERS LTD	Rated Power:	2000 hp
Operator:	TATONDUK OUTFITTERS LTD	Air Carrier Operating Certificate:	Supplemental; On-demand Air Taxi (135)
Operator Does Business As:	Everts Air Cargo	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:		Observation Time:	
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	-21° C / -22° C
Lowest Ceiling:	Overcast / 1100 ft agl	Visibility	4 Miles
Wind Speed/Gusts, Direction:	10 knots, 210°	Visibility (RVR):	
Altimeter Setting:	30.33 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Light - Blowing - Snow		
Departure Point:	Nuiqsut, AK (AK15)	Type of Flight Plan Filed:	IFR
Destination:	Deadhorse, AK (PASC)	Type of Clearance:	IFR
Departure Time:	AST	Type of Airspace:	Class E

Airport Information

Airport:	ALPINE AIRSTRIP (AK15)	Runway Surface Type:	Gravel
Airport Elevation:	21 ft	Runway Surface Condition:	Dry
Runway Used:	03	IFR Approach:	None
Runway Length/Width:	5005 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	70.344167, -150.944722

Administrative Information

Investigator In Charge (IIC):	Clinton O Johnson	Adopted Date:	04/23/2014
Additional Participating Persons:	Fairbanks FSDO; FAA; Fairbanks, AK		
Publish Date:	07/06/2015		
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88574		

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.