



National Transportation Safety Board Aviation Accident Final Report

Location:	BETHEL, AK	Accident Number:	ANC92FA106
Date & Time:	07/13/1992, 1230 AKD	Registration:	N20086
Aircraft:	Short Brothers SC7	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

THE AIRPLANE ROLLED 200-300 FT BEFORE BECOMING AIRBORNE IN A VERY NOSE HIGH ATTITUDE. IT MAINTAINED THIS ATTITUDE, MADE A RIGHT, THEN A LEFT BANK, AND FELL TO THE GROUND IN A NOSE HIGH ATTITUDE. THE CARGO CONSISTED OF EIGHT 55-GAL DRUMS OF FUEL, LAID ON THEIR SIDE AND SECURED BY ONE CARGO STRAP RUNNING FORE AND AFT AND ANOTHER CARGO STRAP RUNNING DIAGONALLY ACROSS THE BARRELS. THE TIE DOWN RING ULTIMATE STRENGTH RATING WAS 1600 POUNDS. THE WEIGHT OF THE CARGO WAS 2863 POUNDS. THREE OF THE CARGO HOOKS ASSOCIATED WITH THE CARGO STRAPS WERE FOUND STILL ATTACHED TO THE TIE DOWN RINGS, AND ONE HOOK AND TIE DOWN RING WERE NOT LOCATED. POST-IMPACT FIRE DESTROYED THE CARGO STRAPS, AND THE BARRELS WERE STREWN RANDOMLY THROUGH THE CABIN/CARGO AREA. ACCORDING TO THE MANUFACTURER, THE DAVIS TIE DOWN RING INSTALLATION IS NOT APPROVED BY THE MANUFACTURER. THE MODIFICATION SHOULD HAVE BEEN ACCOMPLISHED UNDER A SUPPLEMENTAL TYPE CERTIFICATE. THE LOGBOOKS SHOWED ONLY AN ENTRY. THE CERTIFICATED MAX GROSS WEIGHT WAS CALCULATED TO HAVE BEEN EXCEEDED BY 324.8 LBS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: INADEQUATE SECURITY OF THE CARGO WHICH SHIFTED REARWARD DURING THE TAKEOFF ROLL. FACTORS WHICH CONTRIBUTED TO THE ACCIDENT WERE: THE OVER GROSS WEIGHT CONDITION, AND THE IMPROPER ALTERATION OF THE TIE DOWN RINGS BY THE OVERHAULING MAINTENANCE FACILITY.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) SECURITY OF CARGO - INADEQUATE - PILOT IN COMMAND
 2. (F) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
 3. (F) MAINTENANCE, MAJOR ALTERATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Factual Information

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	31, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	12/02/1991
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	5000 hours (Total, all aircraft), 2000 hours (Total, this make and model), 4800 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Short Brothers	Registration:	N20086
Model/Series:	SC7 SC7	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	SH-1918
Landing Gear Type:	Tricycle	Seats:	20
Date/Type of Last Inspection:	05/14/1992, 100 Hour	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:	94 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	6390 Hours	Engine Manufacturer:	GARRETT
ELT:	Installed, not activated	Engine Model/Series:	TPE331-2-201A
Registered Owner:	SCOPE LEASING INC.	Rated Power:	715 hp
Operator:	ARCTIC CIRCLE AIR SERVICE INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	ARCTIC CIRCLE AIR SERVICE INC.	Operator Designator Code:	ACSA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BET, 123 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1231 ADT	Direction from Accident Site:	360°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	25 Miles
Lowest Ceiling:	Overcast / 1500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	28°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	11° C / 7° C
Precipitation and Obscuration:			
Departure Point:	(BET)	Type of Flight Plan Filed:	Company VFR
Destination:	CHEVAK, AK (VAK)	Type of Clearance:	VFR
Departure Time:	1230 ADT	Type of Airspace:	Class D; Class E

Airport Information

Airport:	BETHEL (BET)	Runway Surface Type:	Asphalt
Airport Elevation:	123 ft	Runway Surface Condition:	Dry
Runway Used:	18	IFR Approach:	None
Runway Length/Width:	6398 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	GEORGE KOBELNYK	Report Date:	12/09/1993
Additional Participating Persons:	GENE CORDELL; ANCHORAGE, AK		
Publish Date:			
Investigation Docket:	NTSB accident and incident docket serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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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](#).