



Aviation Investigation Final Report

Location:	KELLER, Washington	Accident Number:	SEA90GA180
Date & Time:	September 11, 1990, 17:46 Local	Registration:	CGKQH
Aircraft:	BELL 204B	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Public aircraft		

Analysis

THE PILOT WAS CONDUCTING FIRE FIGHTING MULTIPLE WATER DROPS USING AN EXTERNAL LOAD 'BAMBI BUCKET'. EARLY THAT DAY THE BUCKET'S CINCH STRAP HAD BEEN REPLACED. ON THIS DROP THE PILOT RADIOED THAT HE WAS HEAVY...3600 POUNDS. A PUFF OF SMOKE WAS OBSERVED, AND THE HELICOPTER CRASHED. INVESTIGATION REVEALED THAT A LOSS OF POWER HAD OCCURRED DUE TO THE LOSS OF ALL 2ND TURBINE ROTOR BLADES, PRECIPITATED BY A STRESS RUPTURE FAILURE OF 3 CONSECUTIVE BLADES INDUCED BY HIGH OPERATING TEMPERATURES. THE CINCH STRAP WAS BOUGHT AT A HARDWARE OR SPORTING GOODS STORE - IT WAS NOT THAT PROVIDED BY THE MANUFACTURER. DISASSEMBLY OF THE BUCKET CONTROL HEAD WIRING ASSEMBLY REVEALED EVIDENCE TO SUPPORT INTERMITTENT OPERATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE TOTAL LOSS OF ENGINE POWER DUE TO TURBINE BLADE SEPARATION WHILE THE PILOT WAS OPERATING IN THE AIRCRAFT AT A GROSS WEIGHT THAT EXCEEDED PERFORMANCE SPECIFICATIONS FOR EXISTING METEOROLOGICAL CONDITIONS. FACTORS INCLUDE THE FAILURE OR INABILITY TO JETTISON THE EXTERNAL LOAD, THE USE OF AN IMPROPER CINCH STRAP, AND AN IMPROPERLY ASSEMBLED AND MAINTAINED WIRING CONNECTOR.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF

Phase of Operation: CRUISE

Findings

1. (C) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED
2. (C) MISC EQPT/FURNISHINGS - IMPROPER
3. (C) MAINTENANCE,REPLACEMENT - IMPROPER - COMPANY MAINTENANCE PERSONNEL
4. (C) TURBINE ASSEMBLY,TURBINE BLADE - SEPARATION
5. (F) LOAD JETTISON - NOT POSSIBLE - PILOT IN COMMAND

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

Pilot Information

Certificate:	Commercial	Age:	53, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	August 27, 1990
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	6682 hours (Total, all aircraft), 1900 hours (Total, this make and model), 6600 hours (Pilot In Command, all aircraft), 182 hours (Last 90 days, all aircraft), 32 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	CGKQH
Model/Series:	204B 204B	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:		Serial Number:	2006
Landing Gear Type:	Skid	Seats:	11
Date/Type of Last Inspection:	August 24, 1990 100 hour	Certified Max Gross Wt.:	8500 lbs
Time Since Last Inspection:	16 Hrs	Engines:	1 Turbo shaft
Airframe Total Time:	18980 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	T53-11A
Registered Owner:	CAN-ARC HELICOPTERS LTD	Rated Power:	1100 Horsepower
Operator:	CAZN-ARC HELICOPTERS, LTD	Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	,2000 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	17:00 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots / 9 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	225°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	32°C / 21°C
Precipitation and Obscuration:	N/A - None - Smoke		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	16:39 Local	Type of Airspace:	Class G

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:	0 ft msl	Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:	0 ft / 0 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	48.100849,-118.710487(est)

Administrative Information

Investigator In Charge (IIC): Stockhill, Michael

Additional Participating Persons:

Original Publish Date: July 2, 1993

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=41131>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).