National Transportation Safety Board
Aviation Accident Final Report

Location:	Nenana, AK	**Accident Number:**	ANC07LA016
Date & Time:	01/17/2007, 1550 AST	**Registration:**	N82FA
Aircraft:	Douglas C54G-DC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 125: 20+ Pax,6000+ lbs		

Analysis

The flight crew was delivering a cargo of fuel in the four-engine airplane under Title 14, CFR Part 125, when the airplane lost power in the number 2 engine. The captain elected to shut the engine down and return to the airport. He said during the shutdown procedure, the engine caught fire, and that the fire extinguishing system was activated. The crew thought the fire was out, but it erupted again, and the captain elected to land the airplane gear-up on the snow-covered tundra. Once on the ground, the left wing was consumed by fire. An inspection by company maintenance personnel revealed that an overhauled engine cylinder had failed at its base, resulting in a fire. The airplane was not examined by the NTSB due to its remote location.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of an engine cylinder during cruise flight, which resulted in an in-flight fire, and subsequent emergency gear-up landing on snow-covered tundra. A factor in the accident was the failure of the fire suppression equipment to extinguish the fire.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE - NORMAL

Findings
1. (C) ENGINE ASSEMBLY,CYLINDER - FAILURE,TOTAL

Occurrence #2: FIRE
Phase of Operation: CRUISE - NORMAL

Findings
2. FIRE EXTINGUISHING EQUIPMENT - ACTIVATED
3. (F) FIRE EXTINGUISHING EQUIPMENT - INADEQUATE

Occurrence #3: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #4: WHEELS UP LANDING
Phase of Operation: EMERGENCY LANDING

Occurrence #5: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
4. TERRAIN CONDITION - SNOW COVERED
5. TERRAIN CONDITION - TUNDRA

Factual Information

On January 17, 2007, about 1550 Alaska standard time, a Douglas C54G-DC airplane, N82FA, sustained substantial damage following an in-flight engine fire and subsequent gear-up landing on the tundra, about 5 miles west of Nenana, Alaska. The airplane was being operated by Brooks Fuel Inc., Fairbanks, Alaska, as a visual flight rules (VFR) flight under Title 14, CFR Part 125, when the accident occurred. The airline transport certificated pilot and the commercial certificated co-pilot were not injured. Visual meteorological conditions prevailed, and a VFR flight plan was filed. The flight departed the Fairbanks International Airport, Fairbanks, about 1530.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on January 17, the owner of the company said the pilot reported that during cruise flight, the left inboard (number 2) engine started running rough, and he elected to shut it down and return to the Fairbanks airport. He said the pilot told him that during the shutdown procedure, the engine caught fire, and that the fire extinguishing system was activated. According to the owner, the pilot said the fire flared up a second time, and unable to extinguish the fire, he elected to land the airplane gear-up on the snow-covered tundra. The pilot told the owner that once on the ground, the left wing was consumed by fire.

An inspection by company maintenance personnel revealed that an overhauled engine cylinder had failed at its base, resulting in a fire. The airplane was not examined by the NTSB due to its remote location.

Pilot Information

Certificate:	Airline Transport	**Age:**	33, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without Waivers/Limitations	**Last FAA Medical Exam:**	11/01/2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	11/01/2006
Flight Time:	2750 hours (Total, all aircraft), 1550 hours (Total, this make and model), 2200 hours (Pilot In Command, all aircraft), 65 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Flight Instructor; Commercial	**Age:**	23, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Single-engine	**Toxicology Performed:**	
Medical Certification:	Class 2 With Waivers/Limitations	**Last FAA Medical Exam:**	05/01/2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	01/01/2007
Flight Time:	796 hours (Total, all aircraft), 61 hours (Total, this make and model), 653 hours (Pilot In Command, all aircraft), 76 hours (Last 90 days, all aircraft), 65 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Douglas	**Registration:**	N82FA
Model/Series:	C54G-DC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	35906
Landing Gear Type:	Retractable - Tricycle	**Seats:**	3
Date/Type of Last Inspection:	01/01/2007, Continuous Airworthiness	**Certified Max Gross Wt.:**	66670 lbs
Time Since Last Inspection:		**Engines:**	4 Reciprocating
Airframe Total Time:	28933 Hours at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	R-2000-7M2
Registered Owner:	Brooks Fuel Inc.	**Rated Power:**	1450 hp
Operator:	Brooks Fuel Inc.	**Operating Certificate(s) Held:**	Commuter Air Carrier (135); On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	B20B

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	PANN	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	1553 AST	**Direction from Accident Site:**	88°
Lowest Cloud Condition:	Few / 12000 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	Calm /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.81 inches Hg	**Temperature/Dew Point:**	-19°C / -21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fairbanks, AK (PAFA)	**Type of Flight Plan Filed:**	VFR
Destination:	Nixon Fork Mine, AK	**Type of Clearance:**	None
Departure Time:	1530 AST	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	In-Flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	64.543056, -149.276111

Administrative Information

Investigator In Charge (IIC):	Lawrence R Lewis	**Report Date:**	07/25/2007
Additional Participating Persons:	David W Maranville; Fairbanks, FSDO-01; Fairbanks, AK		
Publish Date:	01/25/2011		
Investigation Docket:	NTSB accident and incident dockets 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.ntsb.gov/pubdms/.		