



National Transportation Safety Board Aviation Accident Final Report

Location:	DORADO, PR	Accident Number:	ATL97LA012
Date & Time:	10/31/1996, 0330 AST	Registration:	N37AP
Aircraft:	Douglas C-47	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Serious, 1 Minor

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

After takeoff from runway 9, a climbing left turn was made. At about 1,000 feet, the #2 (right) engine backfired, emitted flames, & lost power. The captain instructed the copilot to feather the #2 propeller, which the copilot initiated with the feathering button. When the captain requested gear & flap extension, the copilot released the feathering button which did not remain engaged, contrary to system design. The airplane had arrived on a left downwind abeam the landing area at 500 feet & 95 to 100 kts. The captain turned toward the runway, then he ordered the gear & flaps to be retracted & initiated a go-around by increasing the left throttle without increasing propeller speed. A right turn was then made, & the airplane eventually crashed about 3 miles from the runway. During a postaccident examination, the propellers were found unfeathered, & the right engine fuel selector was in the main tank position. The emergency procedure listed the best single engine speed as 85 kts. The procedure for engine fire/failure was to feather the propeller & to move the respective fuel selector to 'OFF.' Examination revealed the number 11 cylinder on the right engine was cracked. There was evidence of fire, adjacent to the cylinder on the cowling, which consisted of scorching, sooting, & a burned through area of the underside of the right engine cowling. The copilot indicated a previous problem with the feathering system, but maintenance records did not contain any previous discrepancies regarding this anomaly.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: failure of the #11 cylinder on the right (#2) engine, which resulted in an in-flight fire and loss of power in that engine; and a malfunction/failure of the #2 feathering system, which led to a subsequent forced landing before the flight crew could return to the airport. A factor related to the accident was failure of the flight crew to increase the left (#1) engine rpm (in accordance with emergency procedures) after loss of power in the #2 engine.

Findings

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

Findings

1. (C) ENGINE ASSEMBLY,CYLINDER - CRACKED

Occurrence #2: FIRE
Phase of Operation: CLIMB

Occurrence #3: FORCED LANDING
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings

2. (F) EMERGENCY PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
3. (C) PROPELLER SYSTEM/ACCESSORIES,FEATHERING SYSTEM - MALFUNCTION
4. (F) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - PERFORMED - COMPANY/OPERATOR
MANAGEMENT

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings

5. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On October 31, 1996, about 0330 Atlantic standard time, a Douglas C-47, N37AP, collided with the ground during a forced landing at Dorado,, Puerto Rico. The airplane was operated by Flamenco Airways under the provisions of Title14 CFR Part 91, and visual flight rules. Visual meteorological conditions prevailed. A flight plan was not filed for the positioning flight between the Fernando Luis Ribas Dominicci (SIG) airport and the Luis Munoz Marin International Airport (SJU). There were serious injuries to the captain and first officer, minor injuries to the airplane loader, and the airplane was substantially damaged. Origination of the flight was the Dominicci Airport, San Juan, Puerto Rico, minutes prior to the accident.

The flight crew reported that after takeoff on runway 9, the airplane was turned left, and headed west, to climb. During the climb, about 1,0000 feet, the right engine began backfiring. According to the pilots, sparks were observed from the front of the right engine, subsequently discovered to be from a cracked cylinder. An unsuccessful attempt was made to feather the right propeller, while attempting to position the airplane for a landing at the origin airport. The copilot reported that the airplane arrived at a position that was abeam the approach threshold for runway 9, at 500 feet above the ground, with an airspeed of about 95-100 knots. The airplane was turned south toward the departure runway. A decision was then made to divert to the international airport. According to the copilot, the throttle was placed in the maximum power position without increasing the propeller control. The airplane then turned right, back to a westerly heading, and subsequently crashed beside a canal about three miles west of the departure runway (see attached map).

The Federal Aviation Administration Inspector who examined the airplane reported that the number 11 cylinder on the right engine cracked. There was evidence of fire, adjacent to the cylinder on the cowling, that consisted of scorching, sooting, and a burned through area of the underside of the right engine cowling. Both propellers were in the low pitch, high rpm position, at the accident site. He also reported that the feather hold circuit on the right engine did not hold the propeller in feather when the copilot attempted to feather the right propeller. Although the copilot indicated this had occurred previously, the maintenance records did not contain previous discrepancies regarding this anomaly. The inspector indicated that the operator attempted to test the feathering system after the engine had been recovered from the crash site. When the inspector arrived at the recovery location for the engine, the feathering pump would not operate. The inspector stated he observed the right fuel selector on the right main tank, in the wreckage. A copy of the DC-3 emergency check list was provided by the inspector. The check list indicates that V2 is 85 knots, that a failed engine's propeller should be feathered, and that the affected engine's fuel selector should be placed "OFF" in the event of a fire.

Pilot Information

Certificate:	Airline Transport	Age:	41, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	09/30/1996
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	4242 hours (Total, all aircraft), 1256 hours (Total, this make and model), 2987 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Douglas	Registration:	N37AP
Model/Series:	C-47 C-47	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	4430
Landing Gear Type:	Retractable - Tailwheel	Seats:	3
Date/Type of Last Inspection:	10/28/1996, AAIP	Certified Max Gross Wt.:	26000 lbs
Time Since Last Inspection:	7 Hours	Engines:	2 Reciprocating
Airframe Total Time:	16179 Hours	Engine Manufacturer:	P&W
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	R-1830-92
Registered Owner:	AIR CHARTER, INC	Rated Power:	1200 hp
Operator:	FLAMENCO AIRWAYS, INC	Air Carrier Operating Certificate:	Commuter Air Carrier (135); On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	FLMA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Bright
Observation Facility, Elevation:	SJU, 10 ft msl	Observation Time:	0458 AST
Distance from Accident Site:	10 Nautical Miles	Direction from Accident Site:	280°
Lowest Cloud Condition:	Clear / 0 ft agl	Temperature/Dew Point:	23°C / 23°C
Lowest Ceiling:	None / 0 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	Calm	Visibility (RVR):	0 ft
Altimeter Setting:	29 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	SAN JUAN, PR (SIG)	Type of Flight Plan Filed:	None
Destination:	, PR (SJU)	Type of Clearance:	None
Departure Time:	0330 AST	Type of Airspace:	Class E

Airport Information

Airport:	DOMINICCI (SIG)	Runway Surface Type:	Asphalt
Airport Elevation:	10 ft	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	None
Runway Length/Width:	4820 ft / 100 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 Serious, 1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	In-Flight
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious, 1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	PRESTON E HICKS	Adopted Date:	09/30/1997
Additional Participating Persons:	STANLEY SANTIAGO; SAN JUAN, PR		
Publish Date:			
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.nts.gov/pubdms/ .		

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