



National Transportation Safety Board Aviation Accident Final Report

Location:	Houston, TX	Accident Number:	DFW05LA165
Date & Time:	06/20/2005, 1826 CDT	Registration:	N7KF
Aircraft:	Cessna 401A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The 1,608-hour commercial pilot departed on a scheduled cargo flight. Prior to departure, he preformed a preflight inspection and visually verified all five fuel tanks were full. The flight took approximately 1 hour for the 162 nautical mile cross-country flight. Prior to his return flight, he again checked the fuel and oil. He noted that, he had 3 hours of fuel on board. About 15 minutes after departure, the pilot switched to the auxiliary tanks. The pilot stated, "after 10-15 minutes on taking fuel from the auxiliary tanks, I switched to the right locker tank." Shortly thereafter, air traffic control instructed him to start a descent, and he selected the main fuel tanks. During the approach, the right engine began to "sputter". As the pilot was going through the engine failure checklist, the left engine "started sputtering." The pilot switched the auxiliary fuel pumps to high; then changed from the main tanks to the auxiliary fuel tanks. The airplane landed short of runway 12R. Inspection of the aircraft revealed, both auxiliary fuel tanks were "dry", the right main fuel tank contained approximately 3-inches of fuel, and the left main tank was "dry", but had been breached during the landing. The right wing locker fuel tank was full of fuel, and the transfer switch was in the off position. The left fuel selector was found in the left auxiliary position and the right fuel selector was found in the right auxiliary position. The main fuel line on the right engine had no fuel in it, and the line to the fuel manifold valve was empty as well. The left main fuel line had a "couple teaspoons" of fuel in it, and the fuel line to the left fuel manifold valve was absent of fuel.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power to both engines due to fuel starvation as a result of the pilot's improper fuel management. A contributing factor was the lack of suitable terrain for the forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (C) ALL ENGINES
2. (C) FUEL MANAGEMENT - IMPROPER - PILOT IN COMMAND
3. (C) FLUID,FUEL - STARVATION

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING

Findings

4. (F) TERRAIN CONDITION - NONE SUITABLE
5. OBJECT - FENCE
6. OBJECT - VEHICLE
7. OBJECT - POLE

Factual Information

On June 20, 2005, at 1826 central daylight time, a twin-engine Cessna 401A airplane, N7KF, was substantially damaged during a forced landing after a reported loss of engine power at William P. Hobby Airport (HOU) near Houston, Texas. The commercial pilot, sole occupant of the airplane, sustained minor injuries. The airplane was registered to a private individual and was being operated by Amigo Aviation of Harlingen, Texas. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed for the 14 Code of Federal Regulations Part 135 air cargo flight. The cross-country flight originated from the Corpus Christi International Airport (CRP), near Corpus Christi, Texas, at about 1715, and was destined for the William P. Hobby Airport.

During the approach, the pilot reported to the tower that he "had engine failure." The airplane landed short of runway 12R, and impacted two vehicles and a sign. The airplane came to rest in an upright position on airport property.

According to the pilot, prior to his departure from HOU he preformed a preflight inspection and visually verified all five fuel tanks were full of fuel. He then departed for CRP at about 0830, and the flight took approximately 1 hour for the 162 nautical mile cross-country flight. Prior to his return flight, he again checked the fuel and oil. He noted that he had 3 hours of fuel on board. He departed CRP about 1715 for the return flight to HOU. About 15 minutes after departure, the pilot stated he, "switched to the auxiliary tanks, which were full". He further stated, "after 10-15 minutes on taking fuel from the auxiliary tanks, I switched to the right locker tank." Shortly thereafter, ATC instructed him to start a descent, and he noticed he had approximately 30 gallons of fuel in each main tank. He then went through his checklist and switched to the main fuel tanks in preparation for his landing at HOU.

The pilot added that "during the approach the engines came out of sync, and the right engine began to sputter." As he was going through the engine failure checklist, "the left engine also started sputtering." The pilot switched the auxiliary fuel pumps to high; then changed from the main tanks to the auxiliary fuel tanks, "which had approximately 3 gallons of fuel left in them." The engines did not recover, and the pilot tried to avoid hitting surface traffic on a road near the end of the runway.

According to an Federal Aviation Administration (FAA) inspector, who responded to the accident site, the airplane sustained structural damage to the left wing. Examination of the aircraft revealed both auxiliary fuel tanks were "dry", the right main fuel tank contained approximately 3 inches of fuel, and the left main tank was "dry", but had been breached during the forced landing. The right wing locker fuel tank was full of fuel, and the transfer switch was in the off position. The left fuel selector was found in the left auxiliary position and the right fuel selector was found in the right auxiliary position. The inspector also noted that the main fuel line on the right engine had no fuel in it, and the line to the fuel manifold valve was empty as well. The left hand main fuel line only had a "couple teaspoons" of fuel in it and the fuel line to the left fuel manifold valve was found to be absent of fuel. The inspector also noted that both propellers were not feathered, and had indications of "no power".

This Cessna 401A was equipped with 5 fuel tanks, for a total of 160 gallons of useable fuel; two main fuel tanks, two auxiliary tanks, and a single wing locker tank. A review of the Owners Manual describes that fuel is supplied to the engine, by a main tank located on each wing tip (50 gallons), or an auxiliary tank (20 gallons) in each wing. The respective fuel valve selector

directs fuel to the engine, from either the auxiliary or main fuel tank position. The right wing locker tank (20 gallons useable) has no separate fuel selector control. Fuel from the wing locker is pumped directly into the right main tank with a fuel transfer pump.

The 1,607-hour commercial pilot reported to have accumulated a total of 221 hours in twin-engine airplanes, of which 92 hours were in the same make and model airplane.

At 1753, the automated weather observing system at HOU, reported wind from 050 degrees at 10 knots, 10 statute miles visibility, few clouds at 6,500 feet, temperature 90 degrees Fahrenheit, dew point 55 degrees Fahrenheit, and an altimeter setting of 29.98 inches of Mercury.

Pilot Information

Certificate:	Flight Instructor; Commercial; Private	Age:	28, 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:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	03/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	01/01/2004
Flight Time:	1608 hours (Total, all aircraft), 92 hours (Total, this make and model), 1489 hours (Pilot In Command, all aircraft), 138 hours (Last 90 days, all aircraft), 66 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N7KF
Model/Series:	401A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	401A0110
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	6300 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	IO-520
Registered Owner:	Michael Carey	Rated Power:	
Operator:	Amigo Aviation, Inc	Operating Certificate(s) Held:	Commuter Air Carrier (135)
Operator Does Business As:	Amigo Aviation	Operator Designator Code:	VWYA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	HOU, 45 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1753 CDT	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 6500 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	50°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.98 inches Hg	Temperature/Dew Point:	32° C / 13° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	CORPUS CHRISTI, TX (CRP)	Type of Flight Plan Filed:	IFR
Destination:	HOUSTON, TX (HOU)	Type of Clearance:	IFR
Departure Time:	1715 CDT	Type of Airspace:	

Airport Information

Airport:	WILLIAM P HOBBY (HOU)	Runway Surface Type:	Concrete
Airport Elevation:	46 ft	Runway Surface Condition:	Dry
Runway Used:	12R	IFR Approach:	Unknown
Runway Length/Width:	7600 ft / 150 ft	VFR Approach/Landing:	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	29.500833, -95.285000

Administrative Information

Investigator In Charge (IIC):	Craig R Hatch	Report Date:	01/31/2006
Additional Participating Persons:	James Moore; FAA FSDO; Houston, TX		
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.ntsbt.gov/pubdms/ .		

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