



National Transportation Safety Board Aviation Accident Final Report

Location:	HUNT, TX	Accident Number:	FTW00FA245
Date & Time:	08/24/2000, 1549 CDT	Registration:	N421NT
Aircraft:	Cessna 421C	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

Approximately 8 months prior to the accident, during a cross country flight, the owner shutdown the left engine due to low oil pressure and diverted from his intended destination to a nearby airport. During descent, the right alternator failed, and the owner performed the emergency gear extension procedure. Following an emergency gear extension, the landing gear of this model airplane cannot be retracted until the system has been ground serviced. A mechanic reported that about 7 months prior to the accident, with the owner present, he removed the oil filter from the left engine, found it packed with metal shavings and told the owner that the engine needed overhaul. Two other mechanics reported that approximately three weeks before the accident, they installed an oil filter on the left engine, changed the oil, and cleaned the oil pressure regulator. They ground ran both engines with no discrepancies noted. One of the mechanics reported that following the engine run, the left engine oil filter was removed, examined, and no metal was found. The landing gear was not serviced. According to the owner, the pilot was "hired" by one of the two mechanics to ferry the airplane with the gear extended to a location where the gear could be serviced. While en route, the pilot reported a loss of power on the left engine, that he was having trouble feathering the engine, that the airplane would not maintain altitude and he was looking for a place to land. Witnesses observed the airplane flying low, wheels down and losing altitude. They further observed it roll into a steep left bank, hit trees and a fence, catch fire, come to rest inverted on a road and burn. Post accident examination of the left engine revealed a hole in the right crankcase half over the #3 cylinder attach point. Disassembly of the left engine revealed that the #3 connecting rod was separated from the crankshaft, and the rod bolts, rod cap, and top of the rod were deformed. The #5 piston pin had one cap missing. Scoring was noted on the crankshaft journals, and the main bearings exhibited discoloration and deformation consistent with oil starvation. The cylinders exhibited deformation, scoring in the barrels, and deposits on the domes. The camshaft exhibited discoloration and scoring on the camshaft lobes. Disassembly of the left propeller revealed that it was in the vicinity of low pitch/latch position and not rotating at impact. The disassembly of the right engine and propeller did not reveal any discrepancies that would have precluded operation prior to impact. Estimates of the airplane's climb performance indicated that with the landing gear down and the left propeller stopped, it was not capable of sustained flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the loss of left engine power as a result of the owner's failure to overhaul the engine before further flight after the lubrication system was found contaminated with metal. Contributing factors were the pilot's decision to fly the aircraft with a non-operating landing gear system, which resulted in a forced landing, and the lack of suitable terrain for the forced landing.

Findings

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

Findings

1. 1 ENGINE
 2. (C) LUBRICATING SYSTEM - CONTAMINATION
 3. (C) MAINTENANCE - NOT OBTAINED - COMPANY/OPERATOR MANAGEMENT
 4. FLUID,OIL - STARVATION
 5. ENGINE ASSEMBLY,CONNECTING ROD - SEPARATION
-

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings

6. (F) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - INOPERATIVE
 7. (F) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - PERFORMED - PILOT IN COMMAND
 8. AIRCRAFT PERFORMANCE,CLIMB CAPABILITY - LACK OF
-

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings

9. (F) TERRAIN CONDITION - NONE SUITABLE
10. OBJECT - TREE(S)
11. OBJECT - FENCE

Factual Information

HISTORY OF FLIGHT

On August 24, 2000, at 1549 central daylight time, a Cessna 421C, twin-engine airplane, N421NT, struck trees, a fence, and terrain during a forced landing following a loss of left engine power near Hunt, Texas. The airplane was owned and operated by NewTek Enterprise, Inc., of San Antonio, Texas, as a 14 Code of Federal Regulations Part 91 flight. The commercial pilot, sole occupant, received fatal injuries, and the airplane was destroyed by impact forces and fire. Visual meteorological conditions prevailed for the cross-country flight, and a flight plan was not filed. The maintenance ferry flight departed Pecos, Texas, approximately 1416, with a planned destination of San Antonio, Texas.

Personnel at the Pecos Municipal Airport reported to FAA inspectors that on the day of the accident, a Cessna 182D single-engine airplane, N9141X, with four people aboard landed at the Pecos Municipal Airport. The pilot of N9141X and two of the passengers went to N421NT. Subsequently, a battery was installed in N421NT. Both airplanes, N9141X and N421NT, departed Pecos for San Antonio.

While en route, the pilots of N421NT and N9141X maintained communication on the Kerrville Municipal Airport common traffic advisory frequency (122.7 Megahertz). Kerrville is located a few miles north of the route of flight from Pecos to San Antonio. One witness, who was monitoring the frequency, another pilot in the vicinity of Kerrville, and personnel at the Kerrville Municipal Airport heard the pilot of N421NT report that the airplane was about 25 miles on the 087 degree radial to the Kerrville airport and there was trouble with an engine. The pilot transmitted that he could not get the engine restarted and was "shutting" the engine down. Subsequently, the pilot transmitted that he was having trouble feathering the engine. The pilot further transmitted that the flight was at 2,500 feet msl, and he was going to have to find a field for a forced landing. He requested that N9141X come back and follow his airplane.

Airport personnel reported that following the transmissions, N9141X landed at the Kerrville Municipal Airport, and the pilot requested that N9141X be refueled. They recalled the pilot stating that they were taking the accident airplane (N412NT) to San Antonio for gear service following the owner's use of the emergency gear extension system, and that N421NT was being flown with the gear extended. The pilot and his two passengers obtained directions and transportation to the accident site.

Witnesses, in the vicinity of the accident site, reported observing the airplane flying low, wheels down, losing altitude, roll into a steep left bank, descend straight down, hit trees, cart wheel from the trees through a fence and come to rest inverted on Highway 39. Flames started when the airplane hit the trees, and the airplane was engulfed in flames when it hit the ground and exploded.

PERSONNEL INFORMATION

A review of FAA records revealed that the pilot was issued a private pilot certificate with an airplane single-engine land rating in August 1959. In December 1961, the pilot was issued a commercial pilot certificate with an airplane single-engine land rating. In 1963, he added the instrument rating to his commercial certificate, and in 1965, he added the multiengine rating.

In July 1967, the pilot was issued a flight engineer certificate with a turbojet powered rating. In May 1969, the pilot was issued an airline transport pilot certificate with the multiengine land rating. At the time of the accident, the airline transport pilot held airplane multiengine land and Boeing 727 ratings, with commercial single-engine land privileges.

The pilot held a second class medical certificate, issued on June 7, 2000, with a limitation for corrective lenses. On the medical application, the pilot reported 18,185 hours of accumulated flight time, of which 80 hours were in the previous 6 months.

Pilot logbooks and flight records were not received by the Board.

AIRCRAFT INFORMATION

The 1981 model Cessna 421C, serial number 421C1098, was purchased by New Tek Enterprise, Inc., on July 16, 1993. In September 1993, the registration number of the airplane was changed from N749MM to N421NT.

Original 1981 documents indicated that both engines were Continental model GTSIO-520-N, and each engine was equipped with the McCauley propeller, model 3FF32C501, at the time of manufacture.

The 1993 records indicated that the aircraft had accumulated 3,495 flight hours, the left engine 590 hours SMOH, the right engine 1,445 hours SMOH, the left propeller 590 hours SMOH, and the right propeller 165 hours SMOH.

On the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2), the owner/operator reported that Continental engine model GTSIO-520-N, serial number 241031R, was installed in the left nacelle, and serial number 267208R in the right nacelle. The accumulated time since overhaul was 718 hours for the left engine, and 993 hours for the right engine. The last annual inspection was performed on September 30, 1999, at an accumulated airframe time of 4,499 hours. On the date of the accident, the airplane had accumulated 15 hours since the last annual inspection.

The maintenance records were not received by the Board.

The owner/operator reported that on December 23, 1999, during a cross-country flight from Tucson, Arizona, to San Antonio, Texas, the left engine had been shut down and feathered due to a loss of oil pressure. The pilot diverted the flight to the Pecos Municipal Airport, Pecos, Texas. During the descent, there was a failure of the alternator on the right engine. The emergency gear extension procedure was performed by the pilot. Following the landing, the pilot taxied the airplane to the ramp, using the right brake for steering. The brake overheated, hydraulic fluid leaked onto the hot brake, and a fire erupted at the right main landing gear brake. The brake fire was extinguished using a hand held extinguisher.

The owner further reported that in January 2000, a mechanic, who examined the left engine, found metal in the oil filter and described the oil pressure regulator as "feeling rough." The mechanic told the owner that the left engine may have serious problems requiring an overhaul, the right brake needed parts, and the right tire needed to be replaced. The mechanic did not repair the airplane. A few weeks before the accident, a different mechanic installed an oil filter on the left engine, changed the oil, and cleaned the oil pressure regulator. Utilizing a ground power unit, this mechanic performed a ground run on both engines and found no discrepancies. The mechanic told the owner that the oil filter on the left engine was free of metal after the test run and that the aircraft was airworthy. According to the owner, the

mechanic then "hired" the pilot to fly the airplane from Pecos to San Antonio.

The mechanic, who inspected the airplane in January 2000, reported that he flew to Pecos with the owner. According to the mechanic, he visually examined the left engine, removed the oil filter, cut it open, and found it packed with metal shavings. The mechanic did not repair the aircraft. He informed the owner that he would have to find someone local to replace or overhaul the engine. The mechanic did not reinstall the oil filter and left the engine cowling opened.

Two mechanics, who inspected the airplane approximately 3 weeks before the accident, reported finding the oil pressure regulator loose and the oil filter missing from the left engine. One of the mechanics installed a new tire on the right main landing gear and rebuilt the brake cylinder. The mechanics cleaned the oil regulator housing piston and spring on the left engine and installed a new filter. The oil was changed on both engines. The battery was dead and a ground power unit was used for starting the engines. The mechanics further reported that the oil pressure on both engines came up right away and stayed in the normal operating range (green arc) for the duration of the ground run. Both engines were run for approximately 30 minutes with no problems noted. One of the mechanics stated that following the engine run, the oil filter on the left engine was removed and cut open with no foreign matter found in the oil or filter. The engine cowlings were installed. The landing gear was not serviced.

The Cessna 421C flight manual states "landing gear cannot be retracted after emergency gear extension until the system has been ground serviced."

At the request of the NTSB IIC, the manufacturer estimated the climb performance of the airplane with the landing gear down and the left engine propeller stopped. According to the manufacturer's representative, if the airplane was full of fuel on takeoff from Pecos, the estimated rate of climb at the accident location was minus 280 feet per minute (a descent). If the airplane was 1/2 full of fuel on takeoff from Pecos, the estimated rate of climb at the accident location was minus 110 feet per minute.

METEOROLOGICAL INFORMATION

At 1451, the surface weather observation for Junction, Texas, (located approximately 30 nautical miles northwest of the accident site) indicated wind calm; visibility 10 statute miles; temperature 36 degrees Celsius (97 degrees Fahrenheit); dew point 14 degrees Celsius (57 degrees Fahrenheit); altimeter setting 30.09 inches of Mercury.

Local authorities and witnesses near the accident site reported high scattered clouds with a temperature of 100 degrees Fahrenheit and the wind calm.

WRECKAGE AND IMPACT INFORMATION

The GPS location of the accident site was 30 degrees 00.00 minutes North; 099 degrees 23.01 minutes West in wooded rocky and hilly terrain at an elevation of 1,946 feet. The main wreckage came to rest inverted on Highway 39, on a measured magnetic heading of 035 degrees. The left wing and left engine cowling were found at the base of trees with broken branches and scuffed bark, 88 feet south of the main wreckage. Two craters, having dimensions consistent with the engine nacelles, were found between the trees and the main wreckage. One crater contained the propeller hub and blades of the left engine. The propeller hub and one propeller blade of the right engine were found in the second crater. A portion of the left aileron was found between the two craters. The engines were found with the main

wreckage.

Flight control continuity was confirmed. The landing gear was found in the extended position. According to the manufacturer representative, the flap actuator chain's length corresponded to the flaps retracted position. The left fuel valve was in the off position. The cockpit was destroyed by impact and thermal deformation.

The three blades of the McCauley model 3FF32C501A propeller, serial number 812746, from the left engine, were retained in the hub. The three blades of the right propeller, serial number 812613, were found separated from the hub. One blade exhibited twisting, one blade was curled aft, and one blade was bent.

The left engine, Continental model GTSIO-520-N, serial number 241031R, and the right engine Continental GTSIO-520-HCN, serial number 234983R, sustained external thermal damage. Examination of the left engine revealed a hole in the right crankcase half over the #3 cylinder attachment point.

An examination of the aircraft was conducted at Air Salvage of Dallas, Lancaster, Texas, in August 2000. Both engines were disassembled under the supervision of the NTSB IIC.

The disassembly of the left engine revealed that the #3 connecting rod was separated from the crankshaft, and the rod bolts exhibited deformation. The rod cap and top of the rod exhibited thermal deformation. The rod bearings (SA630826M010) were intact. The #5 connecting rod was twisted. The #5 piston pin (SA646303) had one cap missing. The crankshaft journals exhibited scoring, and the main bearings (SA634503M010) exhibited discoloration and thermal deformation. All of the cylinders (10-94-35249-03) exhibited heat deformation, scoring in the barrels, and deposits on the domes. The camshaft (TC6311795) exhibited thermal discoloration and scoring on the camshaft lobes. The spark plugs (Champion RHB-32E) had heavy wear and dark sooty deposits in the electrode areas. The fuel pump unit rotated and the drive couplings were intact.

The disassembly of the right engine did not reveal any discrepancies that would have precluded operation prior to impact.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy was performed by the Office of the Medical Examiner of Travis County Forensic Center at Austin, Texas.

The FAA Civil Aeromedical Institute's (CAMI) Forensic Toxicology and Accident Research Center examined the specimens taken by the medical examiner. According to CAMI, the specimens showed no indication of alcohol or drugs of abuse. Vitreous and urine tested for the presence of glucose with reagent strips and by enzymatic spectrophotometric analysis were positive. The glucose detected in the vitreous was 76 (mg/dl), and in the urine was 265 (mg/dl). According to CAMI, the elevated postmortem glucose levels are considered hyperglycemic conditions, which may or may not have been a factor in the accident.

FIRE

Fire damage to the aircraft wreckage was consistent with a fuel-fed fire erupting on impact.

SURVIVAL ASPECTS

The accident was not survivable.

TEST AND RESEARCH

On March 22, 2001, the propeller drive gear and the front bearings and front bearing journal for the left engine were examined at the Teledyne Continental Motors (TCM) facility at Mobile, Alabama, under the supervision of an NTSB investigator. According to the TCM metallurgists, the fracture surface, at the propeller flange, was consistent with bending and tensile overload. The front journal and bearing exhibited physical evidence of oil starvation.

On September 5, 2000, the #5 cylinder connecting rod for the left engine was examined at an FAA repair station. A measurement of the connecting rod utilizing a feeler gauge indicated that the connecting rod had a .004-inch bend and a .013- inch twist.

On June 12, 2002, both propellers were examined by McCauley Propeller Systems at Vandalia, Ohio, under the supervision of a FAA inspector. According to the manufacturer representative, the left propeller was in the vicinity of low pitch/latch position and not rotating at impact. The right propeller was operating at power higher than that associated with a wind milling propeller; however, the exact amount of power at impact was not determined.

ADDITIONAL INFORMATION

Parties to the investigation were the FAA; Cessna Aircraft Company; Teledyne Continental Motors; and McCauley Propeller Systems.

The airplane was released to the owner's representative.

Pilot Information

Certificate:	Airline Transport; Commercial; Flight Engineer	Age:	64, 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):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	06/07/2000
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	18185 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N421NT
Model/Series:	421C 421C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	421C1098
Landing Gear Type:	Retractable - Tricycle	Seats:	7
Date/Type of Last Inspection:	09/30/1999, Annual	Certified Max Gross Wt.:	7450 lbs
Time Since Last Inspection:	15 Hours	Engines:	2 Reciprocating
Airframe Total Time:	4499 Hours as of last inspection	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	GTSIO-520-N
Registered Owner:	NEWTEK ENTERPRISE, INC.	Rated Power:	375 hp
Operator:	NEWTEK ENTERPRISE, INC.	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	JCT, 1749 ft msl	Distance from Accident Site:	30 Nautical Miles
Observation Time:	1451 CDT	Direction from Accident Site:	315°
Lowest Cloud Condition:	Scattered / 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:	30.09 inches Hg	Temperature/Dew Point:	36° C / 14° C
Precipitation and Obscuration:			
Departure Point:	PECOS, TX (PEQ)	Type of Flight Plan Filed:	None
Destination:	San Antonio, TX (SAT)	Type of Clearance:	VFR
Departure Time:	1416 CDT	Type of Airspace:	Class G

Airport Information

Airport:	Kerrville Municipal (ERV)	Runway Surface Type:	Unknown
Airport Elevation:	1617 ft	Runway Surface Condition:	Unknown
Runway Used:		IFR Approach:	Unknown
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

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:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	30.000000, -99.383611

Administrative Information

Investigator In Charge (IIC):	JOYCE ROACH	Report Date:	01/16/2003
Additional Participating Persons:	EDWARD J TRAYHAN; FAA FSDO; San Antonio, TX John Kent; Teledyne Continental Motors; Mobile, AL Joseph Hutterer; Cessna Aircraft Company; Wichita, KS 36615George M Hollinsworth; Teledyne Continental Motors; Mobile, AL Tom Knopp; McCauley Propeller Systems; Vandalia, OH		
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/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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](#).