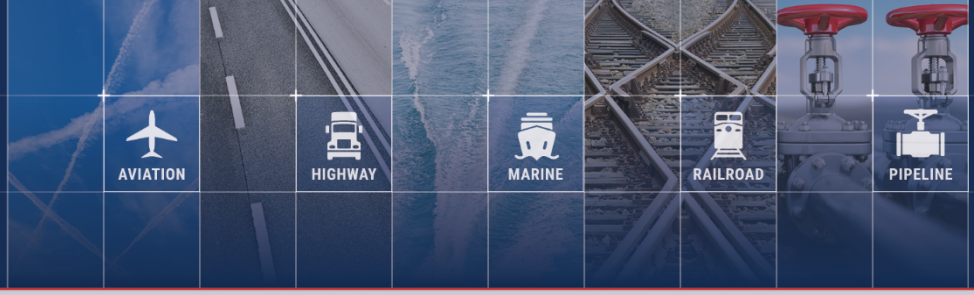

Aviation Investigation Final Report

Location:	Junction, Texas	**Accident Number:**	DFW05FA192
Date & Time:	July 27, 2005, 10:50 Local	**Registration:**	N1029J
Aircraft:	Aero Commander 112	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The 7,000-hour airline transport pilot, filed an IFR flight plan for a personal cross-country flight. An A&P mechanic at the airport, heard the airplane engine start and while the airplane was taxiing, he heard the pilot do a "rolling mag check" and then depart to the north. Several witnesses on a road just north of the airport, saw the airplane low and then impact a tree near a ridgeline. Photographs of the airplane, taken by one of the witnesses prior to the airplane's impact with the trees, revealed that the airplane's flaps were extended. An on-site examination of the airplane wreckage, found the flap jack-screw extended approximately 4 7/8 inches, corresponding to a flap setting of 35 degrees. Control continuity was established for all flight controls to the cockpit, except for the right wing aileron due to fire damage. Ground propeller scars were noted approximately 23 feet from the final resting area; several pieces of angular cut tree branches were along the wreckage path, prior to the ground scars. The Medical Examiner’s report lists the pilots manner of death as natural. Additionally, the report states that the pilot died as a result of cardiac arrhythmia due to a dilated cardiomyopathy; however, the timing of the cardiac event could not be conclusively determined. The density altitude was calculated to be 3,646 feet.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to attain the proper climb rate resulting in the airplane's wing colliding with a tree and subsequent impact with the ground. Contributing factors were the pilot's improper use of the airplane's flaps, and the rising terrain.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) PROPER CLIMB RATE - NOT ATTAINED - PILOT IN COMMAND
2. PHYSIOLOGICAL CONDITION - PILOT IN COMMAND
3. (F) FLAPS - IMPROPER USE OF - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. (F) OBJECT - TREE(S)
5. (F) TERRAIN CONDITION - RISING

Factual Information

HISTORY OF FLIGHT

On July 27, 2005, approximately 1050 central daylight time, a single-engine Aero Commander 112 airplane, N1029J, sustained substantial damage when it impacted terrain while maneuvering near Junction, Texas. The pilot and one passenger were fatally injured. Visual meteorological conditions prevailed and an instrument flight plan was filed for the personal flight, conducted under the provisions of 14 Code of Federal Regulations Part 91. The flight departed from Kimble County Airport (JCT), near Junction, Texas, approximately 1040 with the Neosho Hugh Robinson Airport (EOS), near Neosho, Missouri, as their intended destination.

An airframe and powerplant (A&P) mechanic, who is based at the departure airport, reported that he had a couple conversations with the accident pilot; one the day prior to the accident and one the morning of the flight. The day prior to the accident, the pilot had told the mechanic that he was planning to leave by 08:30 in the morning. The day of the accident, the pilot had pulled the airplane out of the hangar and was in the process of checking/adding air to the tires. The mechanic offered his help, but pilot did not need any assistance and everything seemed normal, so the mechanic returned to his hangar. A few minutes later, the mechanic heard the sound of the airplane engine starting. The mechanic stated that while the airplane was taxiing, he heard the pilot perform a "rolling mag check" and then depart Runway 35.

Several witnesses provided statements to the Safety Board. Below is a summary of their statements:

The first witness was traveling south on Highway 83, when he first observed the airplane heading north and flying at an altitude of "about 300 feet." He stated the airplane flew parallel with the highway for about a mile and a half before the airplane crossed the highway to the left "and proceeded down a ravine and out of sight." The witness concluded that "the plane appeared over trees and then struck a tree and went down."

A second witness was driving north on Highway 83, when he noticed an airplane was "coming up behind him and low". He said, "the airplane [looked] like he took a left turn, went into a ravine and [I] didn't see him until he was trying to bring [the] airplane up the cliff." The witness also noted that the airplane's left wing "clipped a tree" before impacting the ground.

Several family members, who were visiting from a foreign country, were driving north on Highway 83, and observer the accident airplane on the taxiway at JCT. A short time later, a family member stated that the airplane "flew over the road above us only about 100 feet." The witness then stated the airplane turned left and "went down in the valley." The witness added that "he could see it coming up at times, then it disappeared." The witness also stated that his

girlfriend saw the airplane "hit a tree and then flip over."

Since the airplane appeared low, one of the witnesses took digital photographs of the airplane as it flew overhead. A review of the photographs revealed that the flaps were fully extended.

PERSONNEL INFORMATION

The pilot held an airline transport pilot (ATP) certificate with a rating for airplane multi-engine land, and a commercial pilot, with an additional rating for single-engine land. The pilot was issued an FAA first-class medical certificate on July 20, 2005. At that time, the pilot reported having accumulated a total of 7,000 flight hours.

AIRCRAFT INFORMATION

The airplane was a 1973 model Aero Commander 112, configured for a maximum of four occupants, and featured retractable landing gear and a controllable pitch propeller. The airplane was powered by a 200 horsepower IO-360 Lycoming engine, that had accrued approximately 8 hours since major overhaul (SMOH). The engine was driving a Hartzell 3-bladed propeller installed under the approval of a Supplement Type Certificate (STC). The engine and propeller installation were completed in March 2005.

The last annual inspection was conducted on July 3, 2005, at a total time of 3,385 hours. The accident flight was reported to be the first flight after the annual inspection. The previous year's annual inspection was conducted in June, 2004, with reading of 3,369 hours. Additionally, a review of the airplane maintenance records indicted that Rockwell's Service Letter number SL-112-4 was accomplished, which increased the airplane gross weight to 2,650 pounds and limited flap travel to 35 degrees.

METEOROLOGICAL INFORMATION

At 1051, the automated weather observing system at JCT, reported wind from 040 at 7 knots, 7 statute miles visibility, few clouds at 2,400 feet, temperature 82 degrees Fahrenheit, dew point 70 degrees Fahrenheit, and a barometric pressure setting of 30.09 inches of Mercury. The investigator-in-charge calculated the density altitude to be 3,546 feet at the time of the accident.

AERODROME INFORMATION

Runway 35-17 at the Kimble County airport was a 5,000-foot by 75-foot asphalt runway, at an elevation of 1,749 feet (msl). Runway 35 is marked as non-precision, and has a noted obstacle of a 200-foot hill, 4,400 feet from the departure end of the runway.

WRECKAGE AND IMPACT

The airplane came to rest near the crest of a ridgeline that was covered mostly with mesquite trees, on approximate heading of 120 degrees, about 2.6 miles north of the airport. All major components of the airplane were accounted for at the accident site. The accident occurred during daylight hours at the coordinates of, 30 degrees 32.9 minutes north latitude, 099 degrees 46.2 minutes west longitude, and at an elevation of 2,070 feet (msl). The amount of fuel on the aircraft could not be determined, however, patches of vegetation in the impact area displayed signs of fuel contamination.

The main wreckage area included the fuselage, wings, empennage, and engine/propeller. A post-impact fire consumed much of the airframe. The left aileron and portion of the left wing skin was separated from the airplane and was located in front of the main wreckage. The remainder of the left wing was located under the fuselage; the right wing was located above the cabin area; both wing sections and cabin area were heavy damaged by the ground fire. The flap jack-screw was located, and found to be extended approximately 4 7/8 inches, corresponding to a flap setting of 35 degrees. At the tail end of the wreckage area, the empennage was largely intact; the elevator trim tabs were in the neutral position.

The initial impact point was the top portion of a mesquite tree approximately 120 feet from the main wreckage. Along the impact path, on a heading of approximately 325 degrees to the main wreckage, the left wing navigation light assembly was located and just before the second impact point (mesquite tree). The tree/bush impact scars became progressively lower in the direction of the main wreckage. Ground propellers scars were noted approximately 23 feet from the final resting area; several pieces of angular cut tree branches, along the wreckage path were observed prior to the ground scars.

Control continuity was established for all flight controls to the cockpit, except for the right wing aileron due to fire damage.

On-site and post examinations of the engine and propeller were conducted. The propeller remained attached to the engine and located with the main wreckage, both were heavily damaged by the impact and the post crash fire. Due to impact and fire damage, the engine could not be rotated. The engine accessory case was melted away and the engine case had extensive damage, revealing internal components. The magnetos, fuel pump and fuel servo were all fire damaged.

One propeller blade appeared melted, with the outer three-quarters of the blade missing.

The second blade was bend almost 180 degrees approximately at the mid-point, toward the cambered side of the blade. The blade exhibited fire/heat damage.

The third blade was missing the tip and partially melted, however the blade had leading edge gouges and chordwise scratching on both the cambered and non-cambered sides.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on 28 July, 2005 by the Travis County Medical Examiner, Austin, Texas. The Medical Examiner's report list the pilot's manner of death as natural. Additionally, the report states that the pilot died as a result of cardiac arrhythmia due to a dilated cardiomyopathycardiomyopathy; however, the timing of the cardiac event could not be conclusively determined.

Toxicological Testing was conducted by, the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

ADDITIONAL INFORMATION

The wreckage was recovered to Air Salvage of Dallas, in Lancaster, Texas, and released to the owner's representative at the completion of the field portion of the investigation.

Pilot Information

Certificate:	Airline transport; Flight engineer	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	July 1, 2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	7000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Commander	**Registration:**	N1029J
Model/Series:	112	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	29
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 1, 2005 Annual	**Certified Max Gross Wt.:**	2650 lbs
Time Since Last Inspection:	0.2 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3385 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-C1D6
Registered Owner:	On file	**Rated Power:**	200 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	jct	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	10:51 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 2400 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	28°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	JUNCTION, TX (JCT)	**Type of Flight Plan Filed:**	IFR
Destination:	NEOSHO, MO (EOS)	**Type of Clearance:**	IFR
Departure Time:	10:50 Local	**Type of Airspace:**	

Airport Information

Airport:	KIMBLE COUNTY JCT	**Runway Surface Type:**	Asphalt
Airport Elevation:	1749 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	None
Runway Length/Width:	500 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	30.54861,-99.770278

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Hank DiGiovanni; FAA FSDO; San Antonio, TX John Butler; Lycoming Aircraft Engines Tom McCreary; Hartzell Propeller, Inc.
Original Publish Date:	March 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=62061