



# Aviation Investigation Final Report

<b>Location:</b>	Hutchinson, Kansas	<b>Accident Number:</b>	CHI04FA025
<b>Date &amp; Time:</b>	November 2, 2003, 18:47 Local	<b>Registration:</b>	N6107Z
<b>Aircraft:</b>	Commander Aircraft 114TC	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation		

## Analysis

The airplane impacted terrain during a missed approach at night in instrument meteorological conditions. The pilot had been cleared for the instrument landing system (ILS) runway 13 approach into Hutchinson Municipal Airport. The decision altitude for the approach is 1,724 feet msl (200 feet agl). The pilot reported going missed approach after passing the middle marker at 1,600 feet msl (75 feet agl), based on aircraft radar track data. The missed approach instructions were to climb to 4,000 feet msl on runway heading and contact Wichita approach control. A plot of the radar track data showed the airplane in a climbing left turn. The aircraft's climbing left turn reached a maximum altitude of 2,000 feet msl (460 feet agl) before the airplane entered a descending left turn. The pilot was communicating with Wichita approach control during the left climbing turn. The airplane impacted off the left side of runway 22 on a 334-degree magnetic heading. The airplane impacted left wing first and the total wreckage debris path was approximately 280 feet long. An FAA test aircraft flew the ILS runway 13 approach after the accident and determined the approach was fully operational and tested satisfactory. The pilot held an instrument rating, but was not instrument current as required by federal aviation regulations. The weather at the time of the accident included overcast ceilings at 200 feet agl and visibilities between 1-1/4 and 2 sm. No pre-impact anomalies were found with the airframe or the engine.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's diverted attention during the missed approach which resulted in aircraft control not being maintained. Factors to the accident included the pilot not being current for instrument

operations and the low cloud ceiling at night.

## Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: MISSED APPROACH (IFR)

### Findings

1. (C) MISSED APPROACH - PERFORMED - PILOT IN COMMAND
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (C) DIVERTED ATTENTION - PILOT IN COMMAND
4. (F) LACK OF RECENT EXPERIENCE - PILOT IN COMMAND
5. (F) WEATHER CONDITION - LOW CEILING
6. (F) LIGHT CONDITION - NIGHT

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

### Findings

7. TERRAIN CONDITION - GROUND

## Factual Information

### HISTORY OF FLIGHT

On November 2, 2003, at 1847 central standard time, a Commander Aircraft 114TC, N6107Z, piloted by a private pilot, was destroyed during an in-flight collision with terrain at the Hutchinson Municipal Airport (HUT), Hutchinson, Kansas. Night instrument meteorological conditions (IMC) prevailed at the time of the accident. The business flight was operating under the provisions of 14 Code of Federal Regulations (CFR) Part 91 while on an instrument flight rules (IFR) flight plan. The pilot was fatally injured. The flight departed Wiley Post Airport (PWA), Oklahoma City, Oklahoma, at 1737.

According to Federal Aviation Administration (FAA) air traffic control (ATC) transcripts, the pilot had been cleared for the instrument landing system (ILS) approach to runway 13 at HUT. The pilot had flown the approach and subsequently reported going missed approach after passing the middle marker. The following is a summary of the voice communications between the pilot of the accident airplane (N6107Z), Wichita Approach Control (ICT-Approach), and Hutchinson Control Tower (HUT-Tower):

At 1814:10 (hhmm:ss), N6107Z contacted ICT-Approach and was told to expect the ILS runway 13 approach into HUT. At 1815:42, ICT-Approach relayed the current weather conditions at HUT to N6107Z:

Wind 040 degrees true at 07 knots; 1-1/4 statute mile (sm) visibility with mist; overcast ceiling at 200 feet above ground (agl); temperature 6 degrees Celsius; dew point 6 degrees Celsius; altimeter 30.03 inches-of-mercury. Wind direction was variable between 010 and 080 degrees true.

At 1821:45, ICT-Approach cleared N6107Z from 8,000 feet mean sea level (msl) to 5,000 feet msl. At 1824:48, ICT-Approach cleared N6107Z from 5,000 to 4,000 feet msl. At 1827:28, ICT-Approach cleared N6107Z to fly direct to Hutchinson VHF Omni-Directional Range (HUT VOR), and after passing the VOR to fly 310 degrees magnetic. ICT-Approach also told N6107Z to expect vectors for the final approach course. At 1833:31, ICT-Approach issued missed approach instructions to N6107Z. The missed approach instructions were to fly runway heading and climb to maintain 4,000 feet msl.

Between 1835:15 and 1839:43, ICT-Approach provided vectors for the final approach course. At 1839:43, ICT-Approach cleared N6107Z to maintain at or above 3,200 feet msl until established inbound on the localizer. ICT-Approach also cleared N6107Z for the ILS runway 13 approach. At 1840:44, N6107Z reported being established inbound on the localizer. ICT-Approach terminated radar service and instructed N6107Z to contact HUT-Tower.

At 1840:59, N6107Z reported being outside the final approach fix (SALTT). HUT-Tower cleared N6107Z to land on runway 13 and reported the current surface winds. HUT-Tower also told N6107Z to report either the missed approach or being on the runway. At 1841:58, HUT-Tower told N6107Z the field visibility was 1-1/4 statute miles and there was an overcast ceiling of 200 feet agl.

At 1843:34, N6107Z reported being at SALTT and was inbound on the ILS runway 13 final approach. At 1845:49, N6107Z reported missed approach and HUT-Tower told N6107Z to fly runway heading and climb to maintain 4,000 feet msl. At 1846:01, N6107Z acknowledged the missed approach clearance. At 1846:06, HUT-Tower asked N6107Z if he saw any runway lights during the approach. N6107Z replied, "N6107Z right over the runway now, I just got them too late." At 1846:14, HUT-Tower told N6107Z to contact ICT-Approach and N6107Z acknowledged the frequency change.

At 1846:33, N6107Z reported being on the missed approach to ICT-Approach. At 1846:39, ICT-Approach asked N6107Z what his intentions were. N6107Z replied, "yeah what's the weather look like in Wichita right now." At 1846:46, ICT-Approach reported, "Wichita was showing two thousand seven hundred overcast, visibility is ten miles, winds are uh zero three zero at eight and the altimeter [setting] is three zero zero zero."

There were no additional communications between ATC and N6107Z.

Aircraft radar track data was obtained from FAA ATC. The data indicated there was a single aircraft transmitting a discrete beacon code near the accident location at the time of the accident. The aircraft radar track data was plotted on an ILS runway 13 approach chart, and the plotted track traced back along the final approach course.

According to the supplied data, the first radar return for the accident aircraft was recorded at 1825:51. The plotted track showed the airplane being vectored on a right downwind for the ILS runway 13 approach. At 1838:10, the airplane turned from a northwesterly downwind to a northeasterly heading. At 1839:22, the airplane began a right turn and was established on the localizer centerline at 1842:11, approximately 2.5 nm from the final approach fix (SALTT). The airplane passed the outer marker at approximately 1843:47, at 2,800 feet msl. The airplane passed the middle marker at approximately 1845:48, at 1,600 feet msl (75 feet agl). The plotted track continued along the runway heading until 1846:24, when the airplane entered a climbing left turn. The aircraft's climbing left turn reached a maximum altitude of 2,000 feet msl (460 feet agl) before the airplane entered a descending left turn. The aircraft's last recorded radar return was at 1847:24, at 1,700 feet msl (160 feet agl).

## PERSONNEL INFORMATION

The pilot held a private pilot certificate with airplane single-engine land and instrument airplane ratings. The FAA issued the private pilot certificate on February 26, 2002. FAA records

indicate his last medical examination was completed on January 29, 2003, when he was issued a third-class medical certificate with the following restriction: "Must wear corrective lenses, possess glasses for near/intermediate vision."

According to the pilot's flight logbook, he had a total flight time of 886.7 hours, all of which were in single-engine land airplanes. The pilot had logged 829.8 hours as pilot-in-command (PIC). The pilot's first flight in the accident airplane was on January 7, 2000, and he subsequently accumulated 752.9 hours in the Commander Aircraft 114TC. He had flown 76.0 hours during the previous 3 months, all of which were in the accident airplane. He had flown 24.8 hours during the previous month. The last flight logbook entry was dated October 31, 2003.

The pilot's last flight review, as required by 14 CFR Part 61.56, was completed on February 26, 2002, after the successful completion of his instrument rating checkride.

The pilot had logged 23.9 flight hours in actual IMC and 43.9 hours of simulated instrument conditions. Since the issuance of his instrument rating on February 26, 2002, he had accumulated 21.3 hours of flight time in actual IMC and no additional simulated time.

During the previous 6 months the pilot logged 7.1 hours in IMC and no simulated time. He logged 5 instrument approaches during the previous 6 months. However, only two approaches occurred during flights that included IMC conditions and both were VOR approaches. The pilot had not completed an instrument proficiency check, as required by 14 CFR Part 61.57(d).

The pilot had logged 49.9 flight hours during night conditions. During the previous 90 days he logged 9.0 hours at night and 4.7 hours during the prior 30 days.

## AIRCRAFT INFORMATION

The accident airplane was a Commander Aircraft 114TC, serial number 20007. The 114TC is a low-wing airplane equipped with a retractable tricycle landing gear, electrically actuated wing flaps, and a single reciprocating engine. The fuselage and empennage are of an all-metal semimonocoque design. The wings are of an all-metal design and are fully cantilevered. The airplane is equipped with dual controls and two cockpit seats. The airplane can accommodate four occupants and has a certified maximum takeoff weight of 3,305 lbs.

The airplane was issued a standard airworthiness certificate on December 26, 1995, and was certified as a normal category airplane. The accident airplane had accumulated a total flight time of 2,333.5 hours since new.

The last annual inspection was completed on January 27, 2003, and the airplane had accumulated 182.9 hours since the inspection. The last airframe maintenance was performed on August 14, 2003, at 2,272.7 hours total time. The maintenance included an adjustment of the cowl flap indicator switch, the repair of the aft closeout panel, and servicing the breathing-

oxygen tank. The airplane had accumulated 60.8 hours since the last maintenance was completed. According to the aircraft maintenance logbooks, all applicable FAA Airworthiness Directives had been complied with as of the last annual inspection.

The engine was a 270 horsepower Lycoming TIO-540-AG1A, serial number L-9631-61A. The engine had accumulated 664.5 hours since the last overhaul, which was completed on February 28, 2000. The last engine inspection was performed on October 16, 2003, and the engine had accumulated 17.1 hours since the inspection. The last engine inspection included an oil change, oil filter replacement, cleaning of the induction air filter, engine wash, and a leak check.

The propeller was a three-bladed McCauley B3D32C419-C, serial number 951158.

The altimeter, static system, automatic pressure altitude reporting equipment and ATC transponder were last tested/certified on December 20, 2001. The most current VOR system check was completed on September 21, 2003.

#### METEOROLOGICAL INFORMATION

The Hutchinson Municipal Airport is equipped with an Automated Surface Observing System (ASOS). The following weather conditions were reported prior to and after the time of the accident:

At 1751: Wind 040 degrees true at 7 knots; 1-1/4 sm visibility with mist; overcast ceiling of 200 feet above ground level (agl); temperature 6 degrees Celsius; dew point 6 degrees Celsius; altimeter 30.03 inches-of-mercury; wind direction variable between 010 and 080 degrees true; rain ended at 1711.

At 1851: Wind 040 degrees true at 6 knots; 2 sm visibility with mist; overcast ceiling of 200 feet agl; temperature 6 degrees Celsius; dew point 6 degrees Celsius; altimeter 30.04 inches-of-mercury.

At 1906: Wind 040 degrees true at 9 knots; 1-1/4 sm visibility with mist; overcast ceiling of 200 feet agl; temperature 6 degrees Celsius; dew point 6 degrees Celsius; altimeter 30.04 inches-of-mercury.

The accident occurred at night with 66-percent of the moon's visible disk illuminated, according to data supplied by the U.S. Naval Observatory.

#### AIDS TO NAVIGATION

Runway 13 is serviced by an instrument landing system (ILS) used for precision instrument approaches. The locator outer marker (SALTT) and middle marker are positioned 3.978 and 0.486 nm from the runway threshold, respectively. The decision altitude (DA) for the approach

is 1,724 feet msl (200 feet agl). The minimum runway visibility range (RVR) for the approach is 2,400 feet (0.45 sm).

After the accident, the approach was taken out-of-service until it could be tested. On November 6, 2003, the ILS runway 13 approach was flight tested by the Oklahoma City Flight Inspection Field Office. According to the Flight Inspection Report, the ILS runway 13 approach was fully operational and tested satisfactory.

## AIRPORT INFORMATION

The Hutchinson Municipal Airport (HUT) is located in Hutchinson, Kansas. The airport has three asphalt runways: 13/31 (7,004 feet by 100 feet), runway 4/22 (6,000 feet by 100 feet), and runway 17/35 (4,252 feet by 75 feet). The general airport elevation is listed as 1,543 feet msl. The elevation of the runway 13 threshold is listed as 1,525 feet msl. A medium intensity approach lighting system with runway alignment lights precedes the runway threshold.

There were three notices-to-airmen (NOTAMS) listed for runway 13 at the time of the accident:

- \* The pilot-control unit for the runway 13 approach lighting system was out-of-service.
- \* Runway 13 approach lighting system was out-of-service, except for medium intensity.
- \* The runway 13 alignment indicator lights (RAIL) were out-of-service.

## WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board's (NTSB) on-scene investigation began on November 03, 2003.

A global positioning system (GSP) receiver recorded the position of the main wreckage as 38-degrees 04-minutes 02.6-seconds north latitude, 97-degrees 51-minutes 12.5-seconds west longitude. The main wreckage was located on runway 22, approximately 1,650 feet from the approach end of the runway.

The aircraft impacted off the left side of runway 22. There was a wreckage debris path that measured approximately 280 feet long. The heading of the debris path centerline was measured with a compass and was 334 degrees magnetic. The initial impact ground depression contained portions of the left wingtip. The inboard half of the left wing was found approximately 128 feet from the initial impact point. The left cabin entry door was located approximately 146 feet from the initial impact point. The outboard half of the left wing was found approximately 158 feet from the initial impact point. The main wreckage was located approximately 280 feet from the initial impact point, and consisted of the main cabin, the right wing, and empennage.

All components of the aircraft were located along the wreckage path and all flight control surfaces remained attached to their respective airframe positions.

The left wing was found completely separated from the fuselage. The wing was found broken in two sections, with the separation at approximately midspan. The main wing spar was bent aft approximately 30 degrees at midspan. The left aileron remained attached to the wing and both aileron cables were found attached to the left aileron bellcrank. The aileron actuation push/pull rod was found attached to the aileron bellcrank and the flight control surface. The left flap remained attached to the wing. The left wing fuel tank was ruptured, but residual fuel was noted inside the tank.

The right wing remained attached to the fuselage. The outboard quarter of the leading edge was crushed aft to the main spar. The right flap remained attached to the wing. The right aileron remained attached to the wing and both aileron cables were found attached to the right aileron bellcrank. The aileron actuation push/pull rod was found attached to the aileron bellcrank and the flight control surface. The right wing fuel tank was ruptured, but residual fuel was noted inside the tank.

Aileron flight control cable continuity could not be established due to extensive damage. All aileron flight control cable separations had fracture features consistent with overload.

The wing flap actuator was in the fully retracted position, which is consistent with the wing flaps being fully retracted. The right main landing gear was in the fully extended position. The position of the nose and left main landing gear could not be determined, due to damage.

The horizontal stabilizer, elevator, vertical stabilizer, and rudder remained attached to the aft-fuselage. The elevator remained attached to the horizontal stabilizer. Elevator flight control cable continuity was established from the aft bellcrank to the forward cabin. The elevator flight control push-pull tube was continuous from the aft elevator bellcrank to the elevator surface. The elevator control stops were inspected and no evidence of deformation was noted. The rudder remained attached to the vertical stabilizer. Rudder flight control cable continuity was established from the control surface to the forward cabin. The rudder control stops were inspected and no evidence of deformation was noted.

The engine was found completely separated from its engine mounts. Engine crankshaft continuity was established by rotating the crankshaft at the propeller flange. Rear accessory section and valve train continuity was established while the engine crankshaft was rotated. There was compression on cylinder numbers one, three, four, and six when the engine crankshaft was rotated. The number two cylinder head was cracked. There was extensive damage to the valve assembly for the number five cylinder. The left and right magnetos produced spark on all leads when the engine crankshaft was rotated. The oil pickup tube was not contaminated or obstructed. The upper spark plugs were removed and normal wear signatures were noted.

The propeller remained attached to the engine propeller flange. All three propeller blades had leading edge damage, chordwise scratching, burnishing of the blade backs, and S-shape



bends.

The aircraft was equipped with two engine driven vacuum pumps. One of the pumps was found destroyed at the accident site. The other pump was disassembled and no pre-impact anomalies were noted.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot at the Sedgwick County Regional Forensic Science Center, Wichita, Kansas, on November 3, 2003.

A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma. Negative results were reported for all tests performed.

#### ADDITIONAL INFORMATION

Parties to the investigation included the FAA and Textron Lycoming.

The wreckage was released to a representative of the owner on November 4, 2003.

#### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	60, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	January 29, 2003
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	February 26, 2002
<b>Flight Time:</b>	887 hours (Total, all aircraft), 753 hours (Total, this make and model), 830 hours (Pilot In Command, all aircraft), 76 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Commander Aircraft	<b>Registration:</b>	N6107Z
<b>Model/Series:</b>	114TC	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	20007
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	January 27, 2003 Annual	<b>Certified Max Gross Wt.:</b>	3305 lbs
<b>Time Since Last Inspection:</b>	182.9 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2333.5 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	TIO-540-AG1A
<b>Registered Owner:</b>	Data Center, Inc.	<b>Rated Power:</b>	270 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Night
<b>Observation Facility, Elevation:</b>	HUT, 1543 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	18:51 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	2 miles
<b>Lowest Ceiling:</b>	Overcast / 200 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots / None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	40°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.04 inches Hg	<b>Temperature/Dew Point:</b>	6°C / 6°C
<b>Precipitation and Obscuration:</b>	Light - None - Drizzle		
<b>Departure Point:</b>	Oklahoma City, OK (PWA )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Hutchinson, KS (HUT )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	17:37 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	Hutchinson Municipal Airport HUT	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	1543 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	ILS
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	38.067501,-97.853614

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Fox, Andrew
<b>Additional Participating Persons:</b>	James Lamb; Federal Aviation Administration - Wichita FSDO; Wichita, KS Gregory Erikson; Textron Lycoming; Wayne, IL
<b>Original Publish Date:</b>	March 30, 2005
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=58281">https://data.nts.gov/Docket?ProjectID=58281</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).