Aviation Investigation Final Report

Location:	CATON, New York	**Accident Number:**	NYC96FA002
Date & Time:	October 4, 1995, 19:34 Local	**Registration:**	N9461E
Aircraft:	CESSNA 172N	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During arrival at night, the pilot contacted approach control (located in the control tower) and received vectors for an ILS runway 6 approach. During the first approach, the radar controller observed that the airplane drifted left of course and descended below the glideslope. This resulted in a low-altitude aural alarm, and the radar controller issued a low-altitude alert. The pilot made a missed approach and stated that he 'had a mismatch of the two compasses.' He was vectored for a second approach and was instructed to maintain 3,000 feet until established on the approach. The pilot was then transfered to tower frequency and was cleared to land. About 6 miles from the runway, the airplane again drifted left of course and another low-altitude alert was activated. The tower controller stated that he did not hear the low-altitude aural alarm, because he was focused on another airplane that was landing. A supervisor controller, situated on the other side of the control cab, heard the alarm and prompted the tower controller to take remedial action. However, the airplane crashed into an open field outside the outer marker in a wings-level attitude. Impact occurred at an elevation of 1,500 feet. The ILS glideslope crossing altitude at the outer marker was 2,800 feet. The extent of a 'mismatch of the two compasses' was not verified; no preimpact mechanical malfunction of the airplane was found. The pilot had flown nine instrument approaches since receiving an instrument competency check on 4/27/95 and had logged 15.7 hours of night flight time.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper IFR procedure by failing to maintain proper altitude, while on the initial approach for an ILS. A factor relating to the accident was: failure of the tower controller to issue a safety advisory.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH - IAF TO FAF/OUTER MARKER (IFR)

Findings
1. LIGHT CONDITION - DARK NIGHT
2. WEATHER CONDITION - LOW CEILING
3. FLIGHT/NAV INSTRUMENTS,HEADING INDICATOR - UNDETERMINED
4. (C) IFR PROCEDURE - IMPROPER - PILOT IN COMMAND
5. (C) PROPER ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND
6. (F) SAFETY ADVISORY - NOT ISSUED - ATC PERSONNEL(LCL/GND/CLNC)

Factual Information

HISTORY OF FLIGHT

On October 4, 1995, at 1934 eastern daylight time, a Cessna 172N, N9461E, was destroyed by impact with the terrain in Caton, New York, while performing an instrument approach to the Elmira/Corning Regional Airport, Elmira, New York. The private pilot and one passenger were fatally injured. Instrument meteorological conditions prevailed, and an instrument flight plan (IFR) had been filed for the flight, which departed Dunkirk, New York. The personal flight was being conducted under 14 CFR Part 91.

N9461E was returning to Elmira from Dunkirk, after having dropped off another passenger. At the Dunkirk Airport, the airplane's fuel tanks were filled, by adding 29.4 gallons of aviation fuel.

The pilot had earlier filed an IFR flight plan for the flight to Dunkirk and return to Elmira. At 1818, the pilot contacted ATC that he was airborne, and the airplane was radar identified and provided with vectors and assigned an altitude of 5,000 feet.

The pilot of N9461E contacted Elmira Approach Control at 1910, and acknowledged that he had the Airport Terminal Information Service (ATIS) "Mike." This reported the Elmira weather as: 1300 scattered, measured ceiling 3300 broken, visibility 7 miles and the wind from 040 degrees at 7 knots.

The Elmira Approach Controller vectored N9461E for the ILS approach to runway 06, and assigned the pilot an altitude of 3,000 feet to intercept the approach course.

The NTSB Air Traffic Control Group Chairman's Factual Report stated: (Times are expressed in UTC.)

During his first attempt, he declared a missed approach after declaring a problem with his compasses. The radar controller received a low altitude alert and observed a course deviation from the final approach course. The pilot was vectored for a second approach. About 6 miles from touchdown, the local controller observed a course deviation and lost radio and radar contact with the airplane.

At 2323:24, the radar controller transmitted, "cessna six one echo looks like you went through the localizer turn left heading zero three zero to join." The pilot replied, "six one echo zero three zero to join." At 2324:58, the radar controller transmitted, "...are you established."....the pilot replied, "...that's a negative we would like to declare a missed approach please and take vectors...for the ILS six again."...the...controller responded,

"...climb immediately maintain three thousand there is a low altitude alert minimum vectoring altitude in your area in three thousand."

...the...controller inquired,"is there a reason why you went through the localizer twice."...the pilot replied, "no sir uh I just had a mismatch of the two compasses and was trying to re-establish them and uh got out of whack and decided to try again."

After issuing several changes in the heading...the... controller transmitted, "cessna...six miles from CHEMU turn left heading zero niner zero maintain three thousand til established on the localizer cleared I-L-S runway six approach." ...the pilot acknowledged...

...the pilot established radio contact with the local controller and advised, "Elmira tower six one echo is with you on the I-L-S six." ...the local controller transmitted, "cessna six one echo...runway six cleared to land wind zero three zero at six." At 2333:58, the local controller transmitted, "cessna six one echo verify you're established on the localizer." ...the pilot replied, "six one echo has drifted is re-establishing." At 2334:15, the local controller transmitted, "cessna six one echo say your altitude." ...There was no response.

A search was initiated, and the wreckage was found by use of the emergency locator transmitter (ELT) in the airplane.

The accident occurred during the hours of darkness, about 42 degrees, 10 minutes North, 76 degrees, 53 minutes West.

PERSONNEL INFORMATION

The pilot was issued an FAA Private Pilot Certificate on November 21, 1972, with a rating for single engine land. He was issued an instrument rating on November 14, 1994.

He was issued an FAA Airman's Third Class Medical Certificate on February 21, 1995, with the limitation that he must wear corrective lenses.

According to his logbook, he had a total of 406 hours. It was reported that all of his flight time was in this make and model.

On April 27, 1995, he received an instrument competency flight check. Since that date, his logbook indicated 9 instrument approaches, and 13.5 hours of hood or instrument time.

The logbook showed a total of 15.7 hours of night time, with his most recent night flight on September 28, 1995.

METEOROLOGICAL INFORMATION

A special weather observation at the airport was taken at 1949, which reported: ceiling

measured 1100 overcast, visibility 4 miles with haze, winds from 040 degrees at 8 knots.

AIDS TO NAVIGATION

The ILS to runway 06, at the Elmira/Corning Regional Airport, was ground checked immediately after the accident. No discrepancies were noted.

There were no published notices to airmen (NOTAMS) for this approach.

The FAA conducted a flight check of the runway 06 ILS, on October 6, 1995. The Flight Inspection Report stated, "Facility performance was satisfactory."

WRECKAGE

The airplane wreckage was examined at the accident site on October 5, 1995. There were ground scars on the top of a hill, in an open field. Two of these scars matched the width of the landing gear, and two of them matched the width of the airplane wing tips. These scars were about 300 feet left of the ILS extended centerline, as investigators observed other airplanes conduct approaches to the airport. Pieces of wingtip navigation light frames were located near the outer ground scars. The wreckage path continued on a magnetic heading of 090 degrees. Approximately 70 feet beyond the initial ground scars, there were pieces of the fuel system, including parts of the carburetor and fuel strainer. More pieces of the carburetor were located about 150 feet further along the path.

The main wreckage came to rest about 323 feet from the initial scars, along a line of trees at the end of the open field. The wreckage was on a magnetic heading of about 010 degrees. Both wings had separated from the fuselage attach points. The fuselage was laying on its left side. There was no evidence of fire.

The elevation of the impact site was estimated at 1500 feet above mean sea level (MSL). The airport elevation was listed as 955 feet MSL.

The fuel selector was slightly left of the BOTH position; however, there was impact damage to this area.

The wing flap position was estimated at 10 degrees. The actuator was measured at 7 degrees.

All flight control surfaces were accounted for at the site, and control continuity was established to the ailerons, elevator and rudder.

Examination of the seat tracks indicated no malfunctions.

The wreckage was removed from the accident site on October 5, 1995, and additional

examination was conducted on October 6, 1995, at a hangar at the Elmira/Corning Regional Airport.

The vacuum pump was examined and no discrepancies were observed. The gyroscopic instruments were also examined and no malfunctions noted.

The engine was partially disassembled. There was impact damage to the forward cylinders, including the number 1 intake pushrod, and the oil sump area. Engine was rotated and compression was noted in all cylinders, using the thumb method. Continuity was confirmed to the accessory drive train.

The carburetor was in pieces and scattered along the wreckage path.

Spark was obtained from the magneto distributor towers.

The propeller blades were bent, and there were chord wise scratches and gouges on the leading edges of both blades.

No discrepancies were found with the engine, instruments or airframe.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted on the pilot, on October 5, 1995, by the Monroe County Medical Examiner, Rochester, New York.

Toxicological testing was also conducted by the Monroe County Medical Examiner, on October 5, 1995. The results were negative for alcohol, drugs or carbon monoxide.

ADDITIONAL INFORMATION

The NTSB Air Traffic Control Group Chairman's Factual Report stated: (Interview of Supervisor)

He was going to relieve the radar controller. At this point he heard the low altitude aural alarm go off. He ...walked over to the local control position. He heard the local controller ask the pilot if he was established on the localizer. He heard the pilot respond that he was correcting, but he did not observe a Mode C associated with the data block. He then asked the local controller to have the pilot check his altitude. He noted that there was no response and he started scanning to the southwest to see if he could see the airplane. At that point he assumed there was something wrong.

....When asked if the ATC Handbook contained a specific phraseology pertaining to a pilot being left or right of the localizer, he replied , no. When asked if there was specific phraseolgy pertaining to a low altitude alert he replied, yes.

When asked to paraphrase what the phraseolgy might be, he said, november so and so, low altitude alert in your area minimum vectoring altitude is such and suggest you climb immediately to an altitude...depending on what the appropriate altitude in your area is....When asked if the local controller would have been required to issue a safety alert, he nodded yes.

FAA Advisory Circular 61-27C, Instrument Flying Handbook, revised 1980, states on page 57:

The following cross-check faults are frequent problems:

1. Fixation, or staring at a single instrument, usually occurs for a good reason, but with poor results....

2. Omission, of an instrument from your cross- check is another likely fault....

3. Emphsis on a single instrument, instead of on the combination of instruments necessary for attitude information, is an understandable fault....

The airplane wreckage was released to Joseph Shelby, the insurance representative on October 11, 1995.

Pilot Information

Certificate:	Private	**Age:**	53,Male
Airplane Rating(s):	Single-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 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 21, 1995
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	406 hours (Total, all aircraft), 406 hours (Total, this make and model), 363 hours (Pilot In Command, all aircraft), 47 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N9461E
Model/Series:	172N 172N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	17272271
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 1, 1995 Annual	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:	19 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4610 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	O-320-H2AD
Registered Owner:	GEORGE O. COWBURN	**Rated Power:**	160 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	ELM ,955 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	19:34 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:	Unknown	**Visibility**	4 miles
Lowest Ceiling:	Overcast / 1100 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	16°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DUNKIRK (DKK)	**Type of Flight Plan Filed:**	IFR
Destination:	ELMIRA (ELM)	**Type of Clearance:**	IFR
Departure Time:	18:18 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	ELMIRA/CORNING REGIONAL ELM	**Runway Surface Type:**	Asphalt
Airport Elevation:	955 ft msl	**Runway Surface Condition:**	
Runway Used:	6	**IFR Approach:**	ILS
Runway Length/Width:	6999 ft / 150 ft	**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	42.140651,-77.050315(est)

Administrative Information

Investigator In Charge (IIC):	Leonard, Charles
Additional Participating Persons:	SERGIO PEREZ; ROCHESTER , NY JAMES BROWN; WILLIAMSPORT , PA DAVID RYAN; WICHITA , KS
Original Publish Date:	February 26, 1997
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=39072