



National Transportation Safety Board Aviation Accident Final Report

Location:	Owatonna, MN	Accident Number:	CHI04FA133
Date & Time:	06/01/2004, 2040 CDT	Registration:	N81685
Aircraft:	Cessna U206F	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	4 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane was destroyed on impact with terrain and a house during a precision approach. Instrument meteorological conditions prevailed at the time of the accident. Examination of the airplane systems did not reveal any anomalies that would have precluded normal operation. Pilot logbook records indicated that the pilot did not have a current flight review.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The altitude/clearance not maintained by the pilot-in-command during a precision instrument approach. A contributing factor was the instrument meteorological conditions.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: APPROACH

Findings

1. (F) WEATHER CONDITION - CLOUDS
 2. (C) ALTITUDE/CLEARANCE - NOT OBTAINED/MAINTAINED - PILOT IN COMMAND
 3. QUALIFICATION - PILOT IN COMMAND
 4. OBJECT - RESIDENCE
-

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

Findings

5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On June 1, 2004, about 2040 central daylight time, a Cessna U206F, N81685, owned and piloted by a private pilot, impacted a house and terrain during a precision approach to Owatonna Degner Regional Airport (OWA), Owatonna, Minnesota. Instrument meteorological conditions prevailed at the time of the accident. The personal flight was operating on an instrument flight rules (IFR) flight plan under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The pilot, pilot-rated passenger, and two passengers were fatally injured; there were no ground injuries. The flight departed from Roseau Municipal/Rudy Billberg Field Airport (ROX), Roseau, Minnesota, about 1755, and was en route to OWA.

The Federal Aviation Administration's (FAA's) Report of Aircraft Accident reported the following conversations with N81685, Princeton Automated Flight Service Station (PNM AFSS), and Minneapolis Center Sector 05 Radar Controller (ZMP05), Sector 07 (ZMP07), and Sector 25 (ZMP25), Rochester Air Traffic Control Tower (RST), and an Unknown transmission.

At 1719, a person representing N81685 called PNM AFSS by telephone and requested an update on ceilings from ROX to OWA for a flight departing in about 15 minutes.

At 1735, a person representing N81685 called PNM AFSS by telephone and filed an IFR flight plan for a flight from ROX to OWA departing at 1755.

At 1750, N81685 initiated radio contact airborne after departure from ROX. N81685 was issued an IFR clearance to OWA and assigned an altitude of five thousand feet mean sea level (MSL).

At 1756, N81685 reported level at five thousand feet MSL.

At 1828, N81685 reported a position at the Bemidji very high frequency omni-directional range (VOR) 330 degree radial and requested to climb to seven thousand feet MSL. The ZMP25 controller assigned an altitude of seven thousand feet.

At 2005, N81685 contacted Minneapolis Center, reporting an altitude of 'four point zero.' The ZMP09 controller instructed N81685 to proceed direct to Halfway VOR. N81685 reported direct Halfway VOR now.

At 2013:36, ZMP07 transmitted, "november eight one six eight five contact the minneapolis center the Owatonna zero zero five niner meters reports the wind --- three two zero at one zero visibility four miles with drizzle broken layer at nine hundred overcast one thousand three hundred and altimeter two niner six eight."

At 2013:49, N81685 transmitted, "two niner six eight six eight five"

At 2013:52, ZMP07 transmitted, "november six eight five say type of approach"

At 2014:00, N81685 transmitted, "six eight five we'll take the i l s"

At 2014:03, ZMP07 transmitted, "roger"

At 2014:27, ZMP07 transmitted, "november ah *(six) eight one six eight five how do you wanna do it how do you wanna do that do you wanna go direct the airport and then outbound"

At 2014:34, N81685 transmitted, "six eight five why don't you give me radar vectors direct to

the airport and then outbound"

At 2014:38, ZMP07 transmitted, " *(all right) November six eight five ah five right and proceed direct when able ah I'm not able to ah vector for the approach"

At 2014:47, N81685 transmitted, "six eight five"

At 2015:14, ZMP07 transmitted, "and november six eight five your discretion to three thousand four hundred"

At 2015:19, N81685 transmitted, "three thousand four hundred at *(pilot) discretion six eight five"

At 2017:58, ZMP07 transmitted, "november eight one six eight five report established on a published portion of the approach"

At 2018:04, N81685 transmitted, "six eight five"

At 2020:54, ZMP07 transmitted, "november eight one six eight five do you have the notams for owatonna"

At 2020:58, N81685 transmitted, "six eight five we have the notams"

At 2021:00, ZMP07 transmitted, "ok"

At 2022:43, ZMP07 transmitted, "november eight one eight six five you established yet"

At 2022:46, N81685 transmitted, "six eight five ah we're outbound ah but we're not ah established as yet"

At 2022:51, ZMP07 transmitted, "ah let me know when you're ah procedure turn comes up and you're established"

At 2023:31, N81685, transmitted, "six eight fives established"

At 2023:33, ZMP07, transmitted, "november eight one six eight five roger cleared for the i l s three zero approach to the owatonna airport"

At 2023:38, N81685 transmitted, "cleared the i l s eight five"

At 2023:41, ZMP07 transmitted, "november eight one six eight five change to advisory frequency approved cancellation down time this frequency if unable this frequency through enroute radio"

At 2023:49, N81685 transmitted, "six eight five"

At 2030:45, N81685 transmitted, "ah minneapolis center six eight five can we have vectors back to the v o r *(in fairbault)"

At 2030:50, ZMP07 transmitted, "all right *(you want) you wanna go back to fairbuilt now"

At 2030:54, N81685 transmitted, "ah we wanna go back to the halfway v o r six eight five"

At 2030:57, ZMP07 transmitted, "all right november six eight five do you want me just to put you on three sixty heading until you join the localizer"

At 2031:02, N81685 transmitted, "six eight five i'd really appreciate it"

At 2031:04, ZMP07 transmitted, "november six eight five roger fly heading of ah - - - fly heading of three four zero three forty on the heading of three four three forty on the heading

and join the localizer that should take you there"

At 2031:16, N81685 transmitted, "three four zero six eight five"

At 2033:24, ZMP07 transmitted, "november six eight five turn further right heading three five zero to join report established"

At 2033:29, N81685 transmitted, "three five zero six eight five"

At 2035:50, ZMP07 transmitted, "november eight on six eight five does it appear you're gonna be able to get established on that heading"

At 2035:55, N18685 transmitted, "six eight five we're still not established"

At 2035:58, ZMP07, "november six eight five i understand that does it appear you're gonna be able to get established on that heading"

At 2036:03, N81685, "november six eight five i think we are"

At 2036:05, ZMP07 transmitted, "roger let me know when you're established"

At 2037:16, Unknown transmission, "let me take it"

At 2037:53, RST transmitted, "well let's see looks like ah - - - his tag's just dropping off my radar now right around the tonna the ah final approach fix there"

There were no further transmissions recorded from N81685.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single-engine airplane land rating issued on the basis of a Canadian pilot license and later issued an instrument airplane rating. His last airman medical certificate was a second class medical issued on June 24, 2003, with the following limitation: "Holder shall wear corrective lenses."

On February 10, 1989, the pilot was issued an airplane single-engine land rating on the basis of a Canadian pilot license with a private pilot airplane single-engine land rating.

On November 1, 1993, the pilot failed the flight examination portion for an airplane instrument rating using a Cessna 206. The pilot was issued a first Notice of Disapproval of Application and was to be reexamined on the following: "Pilot Operation 1-2-3-5-". At the time of the examination, the pilot reported a total flight time of 681.2 hours, a simulated instrument time of 298.8 hours, and an actual instrument time of 12.6 hours.

Practical test standard for an instrument rating list the following areas of operation: 1. Preflight Preparation, 2. Preflight Procedures, 3. Air Traffic Control Clearances and Procedures, 5. Navigation Systems, 6. Instrument Approach Procedures.

On December 26, 1994, the pilot failed the flight examination portion for an airplane instrument rating using a Cessna 206. The pilot was issued a second Notice of Disapproval of Application and was to be reexamined on the following: "Areas of Operation 4-5-6." At the time of the examination, the pilot reported a total flight time of 732 hours and an instrument time of 82 hours.

On March 11, 1995, the pilot was issued an airplane instrument rating on his third examination attempt using a Cessna 206. At the time of the examination, the pilot reported a total flight

time of 746 hours and an instrument time of 91 hours.

On December 31, 1998, the pilot was issued a multiengine land visual flight rules only rating using a Beech 76 airplane. At the time of the examination, the pilot reported a total flight time of 1,130 hours and an instrument time of 171 hours.

The pilot's last logbook entry was dated May 20, 2004, with a total flight time of 1,277.6 hours, of which 131.9 hours were night, 12.6 hours were actual instrument conditions, and 300.1 hours simulated instrument conditions.

The NOTES section of the logbook had an entry stating "biannual flight review Aug 3, 2002 [sic]". There were no logbook entries from August 5, 2002, to May 20, 2004, stating the pilot accomplished a flight review as required by CFR Part 61.56.

CFR Part 61.56 states, "Except as provided in paragraphs (d), (e), and (g) of this section, no person may act as pilot in command of an aircraft unless, since the beginning of the 24th calendar month before the month in which the pilot acts as pilot in command, the person has -

(1) Accomplished a flight review given in an aircraft for which that pilot is rated by an authorized instructor; and

(2) A logbook endorsed from an authorized instructor who gave the review certifying that the person has satisfactorily completed the review.

The pilot-rated passenger held a commercial pilot certificate with a single-engine land rating and an instrument airplane rating. His last airman medical certificate was a second class medical issued on March 26, 2004, with the following limitation: "must wear corrective lenses".

On August 10, 1988, the pilot-rated passenger was issued a private pilot certificate with an airplane single-engine land rating using a Piper PA-28-161. At the time of the examination, the pilot-rated passenger reported a total flight time of 54.2 hours and an instrument time of 1.2 hours.

On April 23, 1992, the pilot-rated passenger was issued an instrument rating using a Piper PA-28-180. At the time of the examination, the pilot-rated passenger reported a total flight time of 227 hours and an instrument airplane time of 24 hours and a simulated instrument time of 26 hours.

On October 25, 1994, the pilot-rated passenger was issued a commercial pilot certificate using a Piper PA-28R-180. At the time of examination, the pilot-rated passenger reported a total flight time of 419 hours, an instrument airplane time of 57 hours and a simulated instrument time of 26.6 hours.

AIRCRAFT INFORMATION

The airplane was a 1974 Cessna U206F, serial number U20602294, and was registered to the pilot on May 3, 1989. The airplane was powered by a Continental IO-520-F9, serial number 553214, engine rated at 285 brake horsepower at 2,700 rpm. The airplane received its last inspection during an annual inspection dated September 1, 2003, at a tachometer time of 3,134 hours.

METEOROLOGICAL INFORMATION

The OWA Automated Surface Observing System (ASOS), recorded at 2019, wind 320 degrees at 11 knots gusting to 14 knots, visibility 4 statute miles (SM), moderate drizzle, broken 800 feet above ground level (AGL), overcast 1,300 feet AGL, temperature 12 degrees Celsius (C), dew point 12 degrees (C), altimeter setting 29.69 inches of mercury.

The OWA ASOS, recorded at 2040, wind 310 degrees at 9 knots, visibility 7 SM, moderate drizzle, overcast 600 feet AGL, temperature 12 degrees C, dew point 12 degrees C, altimeter setting 29.70 inches of mercury.

U.S. Naval Observatory sun and moon data for Owatonna, Minnesota, states that sunset occurred at 2049 and the end of civil twilight occurred at 2125.

AIDS TO NAVIAGATION

The OWA Instrument landing system runway 30 (ILS RWY 30) approach depicted TONNA, a nondirectional radio beacon, as the approach's locator outer marker / instrument approach fix located 5 nautical miles on a course of 302 degrees to runway 30. The TONNA frequency was depicted as 379 kilohertz (kHz). The initial and intermediate segment altitudes were 2,900 feet mean sea level (MSL) and the description height for all categories of aircraft was 1,345 feet MSL or 200 feet AGL and 1/2 statute mile visibility.

The ILS RWY 30 approach lists only FARMINGTON VOR, located 33.5 NM on a 172 degree course to TONNA, and ROCHESTER VOR located 29.9 NM on a 302 degree course to TONNA. The VOR / DME (Distance Measuring Equipment) RWY 30 approach lists only HALFWAY VOR.

A flight inspection of the OWA ILS RWY 30 was conducted on June 2, 2004, by the Federal Aviation Administration (FAA). The Flight Inspection Report - Instrument Landing System stated that "facility operation found satisfactory."

AIRPORT INFORMATION

OWA has an airport elevation of 1,146 feet MSL and is equipped with runway 12-30 (5,500 feet by 100 feet, concrete) and is served by VOR/DME and ILS approaches to runway 30. Runway 30 is equipped with a medium intensity approach light system with a runway alignment system and runway alignment indicator lights. Lighting for runway 12-30 consists of high intensity pilot controlled lighting, runway 12 has pilot controlled runway end identifier lights, and runway 30 has runway end identifier lights. Both runways are equipped with 4-identical light unit precision approach path indicator lighting systems.

WRECKAGE AND IMPACT INFORMATION

The wreckage area was located in an agricultural field about 4.36 nautical miles and 301 degrees from OWA at the following Global Positioning System Coordinates: 44 degrees 04.789 minutes North, 093 degree 09.918 minutes West, elevation of 1,267 feet MSL. The wreckage path, which was about 1,900 feet in length and oriented on a magnetic direction of 160 degrees, consisted of a damaged house, trees, and airplane wreckage.

The damaged house had a 3-foot wide swath of roof damage that contained pieces of the airplane's left wing. A 10 foot by 5 foot by 4 foot deep ground scar contained the propeller, which was separated from the engine and buried within the ground scar. Both propeller blades exhibited S-shaped bending, twisting, and chordwise scoring. The engine and nose section of the airplane was located several feet southeast of the ground scar.

Both wing fuel bladders were broken open and a smell consistent with aviation fuel was present at the accident site. The fuel selector contained a liquid consistent in color and smell to 100 low lead aviation fuel, and the selector was between the off and the left fuel tank positions.

The flight control system was destroyed and all control surfaces were located along in the wreckage area. Inspection of the aileron, elevator, rudder, and flap control cables exhibited necking consistent with ductile fracture; no worn or abraded areas were noted at these areas. The trim tab actuator was separated from its mounting surface and was extended approximately 2.2 inches, which equates to a 25-degree tab up (nose down position). The flap jack screw was extended about 0.5 inches, which equates to a flap position of 0-5 degrees.

The engine driven vacuum pump was attached to the engine and removed for inspection. The inspection revealed that the vacuum pump drive shaft was intact and the drive shaft gearing was undamaged. The attitude indicator and directional indicator gyros were moved by hand about their gimbals without binding. Both gyros were then disassembled and noted to have circumferential scoring on the gyro and interior gyro housing.

The instrument panel exhibited impact damage. The tachometer gauge indicated approximately 2,900 rpm and a tachometer time of 2,048.4 hours. The altimeter indicated approximately 1,100 feet MSL and the altimeter's setting window indicated 29.68 inches of mercury. The automatic direction finder receiver indicated a frequency of 379 kHz. The ignition switch was in the "Both" position. The "Stby Vac" control knob was in the full forward position.

The engine components and accessories were intact except for the fuel pump, oil filter, and vacuum pump. The fuel metering unit was connected by a fuel line. The oil sump was crushed and the number six cylinder head was crushed and deformed in the aft direction. The left side intake and exhaust pipes were separated and the forward section of the oil sump was separated. Both forward sections of the crankcase halves were crushed to the aft area of the number six cylinder attachment point. The crankshaft was separated aft of the propeller attachment flange.

The oil filter was opened and inspection of the filter element revealed an absence of metallic debris.

The left magneto was broken in half and the rear half was missing. The right magneto exhibited impacted damage and could not be rotated by hand. The top spark plugs, Champion RHB-32E, were removed and displayed a color about their electrodes consistent with normal wear as depicted in the Champion Aviation Check-A-Plug Card.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies of the pilot and pilot-rated passenger were conducted by the Hennepin County

Medical Examiner's Office on June 3, 2004.

The FAA's Final Forensic Toxicology Fatal Accident Report of the pilot reported that no ethanol and no listed drugs were detected in muscle.

The FAA's Final Forensic Toxicology Fatal Accident Report of the pilot-rated passenger states: 16 (mg/dL, mg/hg) ethanol and 6 (mg/dL, mg/hg) acetaldehyde detected in muscle. The report notes: the ethanol found in this case is potentially from postmortem ethanol formation and not from the ingestion of ethanol.

ADDITIONAL INFORMATION

The FAA, Cessna Aircraft, and Teledyne Continental Motors were parties to the investigation.

Pilot Information

Certificate:	Private	Age:	50, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	06/01/2003
Occupational Pilot:		Last Flight Review or Equivalent:	08/01/2002
Flight Time:	1277 hours (Total, all aircraft)		

Pilot Information

Certificate:	Commercial	Age:	60, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/01/2004
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N81685
Model/Series:	U206F	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	U20602294
Landing Gear Type:		Seats:	6
Date/Type of Last Inspection:	09/01/2003, Annual	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	IO-520-F
Registered Owner:	Gordon A. Welke	Rated Power:	285 hp
Operator:	Gordon A. Welke	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	OWA, 1146 ft msl	Distance from Accident Site:	
Observation Time:	2040 CDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	7 Miles
Lowest Ceiling:	Overcast / 600 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.7 inches Hg	Temperature/Dew Point:	12° C / 12° C
Precipitation and Obscuration:			
Departure Point:	Roseau, MN (ROX)	Type of Flight Plan Filed:	IFR
Destination:	Owattona, MN (OWA)	Type of Clearance:	IFR
Departure Time:	1755 CDT	Type of Airspace:	Class E

Airport Information

Airport:	Owatonna Degner Regional (OWA)	Runway Surface Type:	
Airport Elevation:	1146 ft	Runway Surface Condition:	
Runway Used:		IFR Approach:	ILS
Runway Length/Width:		VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	3 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Fatal	Latitude, Longitude:	44.079722, -93.165278

Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	Report Date:	06/28/2006
Additional Participating Persons:	Jim Brannon; Federal Aviation Administration; Minneapolis, MN Greg W Schmidt; Cessna Aircraft Company; Wichita, KS John T Kent; Teledyne Continental Motors; Mobile, AL		
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/ .		

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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](#).