



# National Transportation Safety Board Aviation Accident Final Report

---

<b>Location:</b>	ALEXANDRIA, MN	<b>Accident Number:</b>	CHI96LA226
<b>Date &amp; Time:</b>	07/01/1996, 1000 CDT	<b>Registration:</b>	N838MM
<b>Aircraft:</b>	Bellanca 17-30 VIKING	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Serious, 1 None

**Flight Conducted Under:** Part 91: General Aviation - Instructional

---

## Analysis

The airplane's owner hired the flight instructor to give him instruction so he could qualify as pilot-in-command. After about 1 hour of flight an owner-devised fuel tank change alarm sounded. The instructor said he thought the owner had switched the fuel tanks. The instructor was flying the airplane as it entered a base leg for landing when the engine stopped. The instructor selected another fuel tank and the engine would not start. The airplane landed gear up near the runway. The on-scene investigation revealed empty main fuel tanks. The flight had started with an empty left and full right main tank. The fuel tank selector was on the left main tank. The auxiliary fuel tanks were full. The instructor said he gave the owner 6 to 10 minutes of ground instruction regarding flight maneuvers to be performed. He said he did not observe the owner's preflight inspection.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the flight instructor's failure to assure a proper fuel tank selector position. Factors associated with the accident were improper preflight preparation and complacency by the flight instructor.

## Findings

---

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL  
Phase of Operation: APPROACH - VFR PATTERN - BASE TURN

### Findings

1. (F) PREFLIGHT PLANNING/PREPARATION - IMPROPER - PILOT IN COMMAND(CFI)
2. (F) COMPLACENCY - PILOT IN COMMAND(CFI)
3. (C) FLUID,FUEL - STARVATION
4. (C) FUEL TANK SELECTOR POSITION - IMPROPER - PILOT IN COMMAND(CFI)

-----

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

-----

Occurrence #3: WHEELS UP LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

## Factual Information

On July 1, 1996, at 1000 central daylight (cdt) a Bellanca 17-30 Viking, N838MM, was substantially damaged during a gear up landing following a total loss of power while on base leg for landing. The airplane landed on the clearway area next to runway 22 (4,800' X 75' dry asphalt) at Chandler Field, Alexandria, Minnesota. The airplane was piloted by a commercially certificated flight instructor who was giving a checkout in the airplane to a private pilot. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 dual instructional flight was not operating on a flight plan. The private pilot reported serious injuries and the flight instructor reported no injuries. The flight departed Alexandria, Minnesota, at 0900 cdt.

The airplane's owner said he was receiving dual instruction to act as pilot-in-command in the Bellanca 17-30. He said the instructor was flying the airplane as it turned onto base leg for runway 22 when the engine stopped running. The owner said the instructor landed "...within the airport perimeter, making wheels up landing." He said the instructor checked "...one of the right wing tanks, and indicated that he had plenty of gas."

The instructor's written statement said they had flown "...around for approximately an hour..." before returning to the airport. During an interview with the instructor it was revealed he had allowed the owner to do an unsupervised preflight inspection. He said a mechanic reviewed the fuel system with the owner for about 45 minutes. When asked if he gave the owner any preflight ground instruction the instructor said he had spent about 6 to 10 minutes covering the flight maneuvers for the flight.

The instructor said the owner had a timer that sounded an alarm when the fuel tanks needed to be switched. He said the alarm sounded during the flight and that he believed the owner had switched the fuel tank selector. He said he didn't check the owner's response to the alarm. N838MM's engine quit when the airplane was maneuvering to make its first landing. He said the owner became frustrated and that he helped him with the emergency procedures. The instructor said he switched the fuel selector from the right to left main fuel tank.

The on-scene investigation revealed empty main fuel tanks. The right and left auxiliary fuel tanks were full. The Federal Aviation Administration (FAA) Principal Maintenance Inspector (PMI) stated the mechanic who gave the airplane its annual inspection said the left main tank was empty. There was no record of any fuel being added to the airplane before the accident flight. According to the PMI, each main tank holds 15.5 gallons of usable fuel. The airplane consumes about 14 gallons per hour according to the PMI. The PMI said it was estimated that the airplane had about 19 gallons of fuel in its right tank before departing on the accident flight.

## Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	48, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land; Single-engine Sea	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	07/31/1995
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	1594 hours (Total, all aircraft), 176 hours (Total, this make and model), 1516 hours (Pilot In Command, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bellanca	<b>Registration:</b>	N838MM
<b>Model/Series:</b>	17-30 VIKING 17-30 VIKI	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	30014
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	06/28/1996, Annual	<b>Certified Max Gross Wt.:</b>	3000 lbs
<b>Time Since Last Inspection:</b>	1 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	3500 Hours	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-520-D
<b>Registered Owner:</b>	RICHARD W. NICHOLSON	<b>Rated Power:</b>	300 hp
<b>Operator:</b>	RICHARD W. NICHOLSON	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	AUX, 1259 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	0954 CDT	Direction from Accident Site:	1°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 4700 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	21° C / 14° C
Precipitation and Obscuration:			
Departure Point:	(AEL)	Type of Flight Plan Filed:	None
Destination:	(AEL)	Type of Clearance:	None
Departure Time:	0000	Type of Airspace:	Class E

## Airport Information

Airport:	CHANDLER FIELD (AEL)	Runway Surface Type:	Asphalt
Airport Elevation:	1259 ft	Runway Surface Condition:	Dry
Runway Used:	22	IFR Approach:	
Runway Length/Width:	4099 ft / 75 ft	VFR Approach/Landing:	Forced Landing

## Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	FRANK S GATTOLIN	Report Date:	09/19/1996
Additional Participating Persons:	EDWARD LOOMIS; MINNEAPOLIS, MN		
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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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](#).