



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	RICHLAND, WA	<b>Accident Number:</b>	SEA96FA171
<b>Date &amp; Time:</b>	07/27/1996, 0855 PDT	<b>Registration:</b>	N341TL
<b>Aircraft:</b>	Cessna 340A	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Instructional		

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## Analysis

The pilot-under-instruction (PUI) who possessed an expired medical, and the pilot-in-command (PIC), an ATP pilot with 1240 hours in the Cessna 340, departed on the third training flight for the PUI in the aircraft. The second training flight, flown the previous Saturday, had included single-engine work. The aircraft was observed in the vicinity of the Richland airport by witnesses, several of whom reported the left propeller turning slowly. All witnesses reported seeing the aircraft descending rapidly to the ground in a nose down attitude and several witnesses described the descent as a spin. The aircraft impacted the ground in a near vertical, nose low attitude and was destroyed by fire. Postcrash examination of the aircraft revealed the left propeller in the feathered position and power signatures on the blades of the right propeller. Disassembly of both engines revealed no pre-impact mechanical malfunction. The gear and flaps were up and the rudder trim tab showed about 5 degrees of left tab trim. The information manual for the Cessna 340 indicates that the air minimum control speed (single engine),  $V_{mc}$  is 82 KIAS. The manual also indicates that a more suitable airspeed for one engine inoperative training events is 91 KIAS.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot-in-command's allowing the aircraft's airspeed to decrease below the single-engine minimum control speed ( $V_{mc}$ ) resulting in a stall/spin condition. Factors contributing to the accident were the pilot-in-command's allowing the left engine to be shut down as well as his allowing the aircraft's airspeed to decelerate below the manufacturer's recommended intentional one-engine inoperative airspeed. A third factor was the aircraft's low altitude at the stall/spin entry which precluded a successful recovery.

## Findings

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Occurrence #1: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: MANEUVERING

### Findings

1. (F) ENGINE SHUTDOWN - INTENTIONAL - PILOT IN COMMAND
2. (F) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
3. (C) AIRSPEED(VMC) - NOT MAINTAINED - PILOT IN COMMAND
4. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

### Findings

5. (F) ALTITUDE - INADEQUATE

## Factual Information

### HISTORY OF FLIGHT

On July 27, 1996, approximately 0855 Pacific daylight time, a Cessna 340A, N341TL, registered to FBN, Inc., and being flown by a certificated private pilot accompanied by an airline transport pilot, was destroyed upon collision with terrain during an uncontrolled descent following a loss of control in flight while in the traffic pattern at the Richland airport, Richland, Washington. Both pilots were fatally injured and a post crash fire consumed the aircraft. Visual meteorological conditions existed and no flight plan had been filed. The flight was to have been operated under 14CFR91, and originated from the Pasco Airport, Pasco, Washington, located eight nautical miles east of the crash site, at 0832.

According to the private pilot's wife, the flight was to have been conducted for the purpose of instructional training for her husband to qualify him in the aircraft. The private pilot was believed to have occupied the front left seat with the airline transport pilot occupying the front right seat.

A number of witnesses from the south through the west, north and east reported observing the aircraft prior to and at the time of the accident (refer to attached statements).

One witness located south of the accident site and near the southwest boundary of the airport reported seeing the aircraft "fly over the 01 runway at 650 (feet) MSL (mean sea level) with one engine running very badly" - "the left engine was not operating." He further reported "approx(imately) one to two min(utes) later I saw the plane going into the ground at approx(imately) a 70 to 80 degree angle."

A second witness located southwest of the accident site at the local golf course observed the aircraft briefly and reported that "the attitude of the aircraft was banked and in a turn with the nose down heading for the ground at a steep angle" and that "the sound of them (the aircraft) adding full power (sounded like one engine) caused me to look up." The witness also reported that he had heard an aircraft conducting takeoff/landings at the Richland airport earlier but was unsure whether it was the accident aircraft.

A third witness located west of the accident site at the local golf course observed the aircraft and reported that he "could tell it was a twin-engine, flying very low in a north-northwest direction, almost directly toward us" and that "it appeared that only one engine was working." He continued reporting that "then the plane keeled over, and dove straight down."

A fourth witness located northwest of the accident site and driving southeast along highway 240 reported that he "noticed an airplane in what appeared to be a hard banking turn similar to actions I had seen crop dusters do after a pass."

A fifth witness located northeast of the accident site and driving northwest along highway 240 reported that shortly after 0853 he "saw a white twin engine aircraft about 1/3 mile to my left and at a height of about 500 feet" and that "the left engine propeller was barely rotating" estimating that "it was turning at about one revolution every 2 " 'the plane then began turning left all the while loosing (sic) some elevation" and "as the plane turned left the left wing began to drop." He continued reporting that "the plane had made almost a 90 degree turn and was heading pretty much away from the highway and was now about 300 feet off the ground" and "then the left wing dropped rapidly, the plane rolled rapidly counter clockwise and the nose of

the plane went down."

A sixth witness also located northeast of the accident site and driving northwest along highway 240 reported that when he first saw the plane it "was at a low altitude (approx. 200 feet AGL) and in a left bank (approx. 15-20 degrees) also traveling westbound" and "as the plane continued a left turn the bank angle continued to steepen" and "as the plane turned toward the south it appeared to be going very slowly." He further reported that "the plane appeared to lose forward progress and pitched nose down, spireled (sic) (approx. 1 turn) to the ground almost strait (sic) in."

A seventh witness located east of the accident site and in his automobile at the intersection of Highway 240 and the Richland bypass reported seeing the aircraft enter into a one and a half to two turn spin during which the nose traveled from a horizontal to a vertical attitude.

#### PERSONNEL INFORMATION

##### Pilot-in-command

In a telephone interview conducted 04/25/97 with the flight instructor (CFI) referenced under the last flight logged in the PIC's logbook (refer to ATTACHMENT L-IA & B, a copy of the last page entry within the PIC's personal logbook), the following information was ascertained. The CFI reported that this flight was a bi-annual flight review for the PIC, and was conducted on the evening of July 27, 1996, in a Cessna 172. He reported that that the PIC flew well with no problems and that he received several hours of ground training along with the flight check. Although the CFI's certificate expiration date was logged as 05/31/96, this was an administrative error as the CFI had renewed his CFI as of 05/03/96 and the new expiration date was 05/31/98.

This same CFI reported that he ferried N541TL from Waterloo, Iowa, to Pasco, via Rapid City, South Dakota, and Billings, Montana, on March 5/6, 1996, logging a total of 7.8 hours of flight time. He also reported flying the aircraft for the operator on three occasions, 1) March 12 for 2.7 hours, 2) March 28 for 2.0 hours and 3) April 17 for 1.5 hours. He made no other flights in the aircraft and reported that the aircraft was in good condition with no mechanical problems during the flights.

In a telephone interview conducted on 04/25/96 with the safety pilot referenced under the first flight logged in N541TL shown in the PIC's logbook (refer to ATTACHMENT L-IIA & B, a copy of the next to the last page entry within the PIC's personal logbook), the following information was ascertained. The safety pilot, who is the father of the previously described CFI, holds an ATP certificate and confirmed that he flew with the PIC in N541TL on May 14, 1996. He remembered the specific flight and reported that the PIC did conduct simulated single-engine airwork at an estimated altitude of 3,000 feet. He could not specifically remember whether the PIC actually shut down the engine and feathered the propeller or merely brought the engine to idle to during the simulation. He did recall that the PIC established the aircraft in a left hand orbit with 5-10 degrees angle of bank when simulating the right engine out. He speculated that he expected the PIC to actually shut down the engine and feather the propeller during engine out training due to his extensive experience in the aircraft from earlier years.

ATTACHMENT L-IIIA & B is a copy of the PIC's logbook pages immediately preceding the pages referenced in ATTACHMENT L-IIA & B. L-IIIA was the only page with a recognizable "year" reference. Several mid-page entries referenced dated flights as follows; a C172 flight conducted in 1993 followed by a C152 flight conducted in 1994 and a second C152 flight

conducted in 1974. These three sequential entries were the only entries within the logbook where a "year" reference had not been obliterated fire damage. A total of 37 flights were logged following the second 1974 logged flight and the BFR conducted 07/26/96, of which 24 (31.3 hours of flight time (all pilot-in-command)) were conducted in the accident aircraft between 05/14/96 and 07/26/96. The PIC's logbook showed a total of 945 flights logged in Cessna 340 aircraft with a total of approximately 1,240 hours.

#### Pilot-under-instruction

In a telephone interview conducted 09/16/96, with the wife of the pilot-under-instruction (PUI) she reported that her husband flew three successive Saturday flights with the PIC, 07/13, 07/20, and the accident flight (refer to arrows on ATTACHMENT L-IA). She reported having no recollection of the circumstances of the 07/13 flight but did remark that the PUI and PIC conducted single-engine work in N341TL on the 07/20 flight and that the PUI commented that "this airplane flew beautifully on one engine compared to his experience in single engine operations in the Piper Seneca (his previous multi-engine aircraft). She did not know whether the PUI/PIC actually shut down an engine during this flight.

FAA records indicated that PUI's last medical examination was conducted on 05/25/89 and a third class medical certificate was issued. The PUI reported a total of 325 flight hours at the time of the medical.

#### AIRCRAFT INFORMATION

The aircraft's total time was estimated based upon the tach (total) time as of the last annual inspection (conducted 02/23/96) of 2094.5 hours plus the flight time during the delivery flight from Waterloo, Iowa, to Pasco, on 03/05-06/96, plus three known flights out of Pasco not flown by the PIC, plus the total flight time logged by the PIC between his first logged flight in N541TL on 05/14/96 and his last flight in the aircraft logged on or before 07/26/97 as reported below:

03/05/96	3.3 hours	Waterloo, IA - Rapid City, SD	03/06/96
4.5 hours		Rapid City, SD - Billings, MT - Pasco	03/12/96
		Pasco - Corvallis, OR - Pasco	03/12/96
	2.0 hours	Pasco - Portland, OR - Pasco	05/14/96 to
	1.5 hours	Pasco - Lewiston, ID - Pasco	
07/26/96	31.3 hours	PIC flights	

TOTAL: 45.3 hours + 2094.5 hours @ ANNUAL = 2149.8 hours total time

Both left and right engines reflected a total time of 2094.5 hours and 710.4 hours since overhaul as of the 02/23/96 annual inspection.

The aircraft was fueled on 07/25/96 following its return from a trip to Oregon. The fueler reported that the main tanks (wing tip tanks) were topped off to their 50 gallons per tank capacity with the addition of a total of 25 gallons of 100 low lead aviation fuel. It was not known how much fuel was in the aircraft's two 31.5 gallon auxiliary fuel tanks or in the 20 gallon left wing locker tank when the aircraft was fueled.

The information manual for the 1981 Cessna 340A defines Vsse or "intentional one engine inoperative speed" as the minimum speed selected by the manufacturer for intentionally rendering one engine inoperative in flight for pilot training. The information manual also informs the operator that Vmca or "air minimum control speed" for the Cessna 340A is 82 knots indicated airspeed (KIAS) and Vsse is 91 KIAS (refer to ATTACHMENT IM-I).

## WRECKAGE AND IMPACT INFORMATION

The aircraft impacted gently upsloping, grassy terrain approximately 4000 feet west-northwest of the intersection of runways 01 and 07 of the Richland airport. The latitude and longitude of the accident site was approximately 46 degrees 18.84 minutes north and 119 degrees 18.91 minutes west respectively at an elevation of approximately 400 feet above sea level. The slope of the terrain at the impact site was +5 degrees (refer to The CHART I).

The aircraft was observed at the crash site with the longitudinal axis oriented along an approximate northwest/southeast magnetic bearing and the lateral axis oriented along an approximate northeast/ southwest magnetic bearing (refer to photographs 01 through 04). Most of the aircraft had been consumed in a fire with the exception of the empennage, which was skewed counter-clockwise from the aircraft's longitudinal axis approximately 45 degrees. Two impact craters were observed near the aircraft's final resting place. The magnetic bearing between the two was measured at 015 degrees and the northerly crater contained two propeller blades. The southerly crater was 13.5 feet away and contained no propeller blades. This crater was 11 feet from the aircraft's left propeller on a 160 degree bearing line (refer to DIAGRAM I and photograph 05). On site examination revealed a circumferential wreckage distribution pattern surrounding the initial ground impact site.

The aircraft's right wing was heavily fire damaged and the engine, absent all three of its propeller blades, was located within the fire damaged right wing root area (refer to photograph 06). The aircraft's left wing was heavily fire damaged outboard of the engine, and the engine was observed still attached to the wing root area. The left propeller remained attached to the engine and all three blades were observed in a feathered position (refer to photographs 07/08).

The third propeller blade associated with the right engine, and not found within the previously described impact crater, was found lying on the ground approximately 24 feet west-southwest of the two other propeller blades (refer to DIAGRAM I). These three propeller blades were examined. One blade displayed extensive paint abrasion and chordwise scuffing throughout the entire span of the blade (refer to photograph 09). A second blade displayed similar paint abrasions and scuffing as well as a substantial bend approximately one-third out from the blade butt (refer to photograph 10). The third blade displayed very minor leading edge scuffing a no bending deformation (refer to photograph 11). The left propeller blades displayed no significant bending, scuffing or paint abrasions. The empennage, along with its associated horizontal and vertical control surfaces, sustained some impact damage and sooting from the fire (refer to photographs 12/13). The elevator trim tab was observed in a near neutral position while the rudder trim tab was measured to be 5 degrees left of neutral.

Post crash examination revealed no evidence of any control discontinuity from the cockpit/cabin area out to the ailerons, rudder or elevators. The landing gear and flap actuators were found to be in the "UP" position. The left and right fuel selector controls within the cockpit were found to be in the cross feed position. However, the left fuel valve (within the left wing) was found to be in the "MAIN" tank position, whereas the right fuel valve (within the right wing) was found to be in the "OFF" position. Both valves are activated by independent flex lines running from the selector controls within the cockpit out to their respective valves.

## MEDICAL AND PATHOLOGICAL INFORMATION

Post mortem examination of both pilots was conducted by William J. Brady, M.D., at Einen's Funeral Home, Richland, Washington, on 07/31/96. The post mortem report for the PUI

specifically referenced an "absence of apparent antemortem fractures to the hands, wrists, and distal forearms. The post mortem report for the PIC specifically referenced "antemortem traumatic fractures of the right and left wrists and bones of the distal forearm" as well as an "antemortem traumatic fracture of the right femur." Toxicological evaluation of samples from both pilots was conducted by the FAA's Toxicology and Accident Research Laboratory. All results were negative (refer to attached toxicology reports).

#### TESTS AND RESEARCH

Both Continental TSIO-520-NB engines were shipped to the manufacturer's facility for examination and teardown under the supervision of NTSB investigator George Kobelnyk. The engines were disassembled and examined on 11/21/96. There was no reported evidence of any malfunction with either engine and both exhibited normal operational signatures throughout. The engines were subsequently returned to Bergstrom Aircraft and placed with the remainder of the aircraft wreckage.

#### ADDITIONAL INFORMATION

On site examination of the wreckage was conducted on the afternoon of 07/27/96 after which the wreckage was conditionally released and transported to the facilities of Bergstrom Aircraft at the Pasco airport for storage. Final written wreckage release was obtained on 04/29/97 and was documented on NTSB Form 6120.15 (attached).

#### Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor; Commercial	<b>Age:</b>	46, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	01/26/1996
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	4239 hours (Total, all aircraft), 1240 hours (Total, this make and model), 3718 hours (Pilot In Command, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N341TL
Model/Series:	340A 340A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	340A1268
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	02/23/1996, Annual	Certified Max Gross Wt.:	5990 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	TSIO-520-NB
Registered Owner:	FBN, INC.	Rated Power:	310 hp
Operator:	FBN, INC.	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PSC, 407 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	0845 PDT	Direction from Accident Site:	90°
Lowest Cloud Condition:	Scattered / 20000 ft agl	Visibility	40 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	27° C / 11° C
Precipitation and Obscuration:			
Departure Point:	PASCO, WA (PSC)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	
Departure Time:	0832 PDT	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	2 Fatal	Latitude, Longitude:	

## Administrative Information

**Investigator In Charge (IIC):** STEVEN A MCCREARY **Report Date:** 03/31/1998

**Additional Participating Persons:** HAROLD HUTCHINS; RENTON, WA  
ANDREW L HALL; WICHITA, KS  
GEORGE KOBELNYK; ANCHORAGE, AK

**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](mailto: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](#).