



National Transportation Safety Board Aviation Accident Final Report

Location:	WENATCHEE, WA	Accident Number:	SEA95LA159
Date & Time:	07/28/1995, 2100 PDT	Registration:	N51816
Aircraft:	CESSNA 402B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

THE ELEVATOR TRIM JAMMED SHORTLY AFTER TAKEOFF. THE PILOT RETURNED TO THE DEPARTURE AIRPORT, WHILE HOLDING ABOUT 150 POUNDS OF BACK PRESSURE ON THE CONTROL WHEEL. WHEN HE MOVED ONE HAND TO THE THROTTLES TO REDUCE THE POWER, HE WAS UNABLE TO HOLD THE NOSE UP, AND THE AIRCRAFT IMPACTED TERRAIN ABOUT 300 FEET SHORT OF THE APPROACH END OF THE RUNWAY. INVESTIGATION REVEALED THAT COMPANY MAINTENANCE PERSONNEL HAD FAILED TO INSTALL A COTTER KEY, AND THE TRIM TAB PUSH ROD ATTACHMENT BOLT, NUT, AND COTTER KEY WERE MISSING.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: IMPROPER INSTALLATION (FAILURE TO INSTALL COTTER KEY) BY COMPANY MAINTENANCE PERSONNEL.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) FLT CONTROL SYST,ELEVATOR TRIM/TAB CONTROL - JAMMED
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - COMPANY MAINTENANCE PERSONNEL

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings

3. PROPER TOUCHDOWN POINT - NOT POSSIBLE - PILOT IN COMMAND

Factual Information

On July 28, 1995, approximately 2100 Pacific daylight time, a Cessna 402B, N51816, impacted the terrain while attempting an emergency landing at Pangborn Memorial Airport, Wenatchee, Washington. The commercial pilot, who was the sole occupant, was not injured, but the aircraft sustained substantial damage. The Part 135 cargo flight, which had just departed Pangborn Airport for Boeing Field, Seattle, Washington, was being operated in visual meteorological conditions at the time of the accident. The pilot had filed an IFR flight plan, and there was no report of an ELT activation.

According to the operator, the elevator trim actuator rod failed during the takeoff sequence when the aircraft was about 100 feet above ground level. The rod then became jammed in a manner that resulted in a nose-down trim greater than the normal full nose-down position. The pilot therefore immediately attempted an emergency landing on the runway from which he had just departed. During this attempted landing, the aircraft impacted the terrain about 300 feet short of the runway threshold.

The pilot stated that he estimated about 150 pounds down force on the yoke. He let go of the yoke with one hand to retard the throttles, and was unable to keep the aircraft from impacting short of the runway threshold.

FAA investigators found that the elevator trim tab was in the extreme nose-down trim position, while the cockpit trim wheel was found in the extreme nose-up trim position. The trim was tested with no effect. Inspectors then noted that the attaching bolt, nut, and cotter key for the trim-tab push rod to the trim-tab actuator-assembly was missing. The disconnected end of the trim-tab push rod was wedged behind the elevator spar, forcing the trim tab into its extreme nose-down trim position. Maintenance logs showed that the right elevator had been replaced on July 15, 1995, 24.9 flight hours prior to the accident. The mechanic performing the repair stated that he had used the old hardware to perform the installation, but he was certain he had installed the cotter key.

The operator provided an incomplete portion of the NTSB form 6120.1/2, which is attached.

Pilot Information

Certificate:	Commercial	Age:	34, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	11/04/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	4000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N51816
Model/Series:	402B 402B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	402B0816
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	06/05/1995, 100 Hour	Certified Max Gross Wt.:	6300 lbs
Time Since Last Inspection:	110 Hours	Engines:	1 Reciprocating
Airframe Total Time:	7162 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Installed	Engine Model/Series:	IO-520-E
Registered Owner:	AEROFLIGHT EXECUTIVE SER.	Rated Power:	310 hp
Operator:	AEROFLIGHT EXECUTIVE SER.	Operating Certificate(s) Held:	On-demand Air Taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	EAT, 1245 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	2054 PDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	13 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	24° C / 8° C
Precipitation and Obscuration:			
Departure Point:	(EAT)	Type of Flight Plan Filed:	IFR
Destination:	SEATTLE, WA (BFI)	Type of Clearance:	
Departure Time:	2100 PDT	Type of Airspace:	

Airport Information

Airport:	PANGBORN MEMORIAL (EAT)	Runway Surface Type:	Asphalt
Airport Elevation:	1245 ft	Runway Surface Condition:	Dry
Runway Used:	30	IFR Approach:	None
Runway Length/Width:	5500 ft / 150 ft	VFR Approach/Landing:	Precautionary Landing

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	ORRIN K ANDERSON	Report Date:	02/14/1996
Additional Participating Persons:	PETER UNDEM; RENTON, WA		
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 pubinquiry@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](#).