



# National Transportation Safety Board Aviation Incident Data Summary

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<b>Location:</b>	SPANISH FORK, UT	<b>Incident Number:</b>	DEN00IA133
<b>Date &amp; Time:</b>	07/01/2000, 1300 MDT	<b>Registration:</b>	N991CT
<b>Aircraft:</b>	Diamond Aircraft Industries 20C-1	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot had just departed on a cross-country flight, and had climbed to 9,500 feet. He said that he began to feel a 'heavy vibration' in the aircraft, and immediately turned towards the closest runway. Soon thereafter the propeller separated from the airplane, and the pilot performed a forced landing without further incident. Postincident examination of the maintenance records indicated that the attachment bolts for the wooden propeller were last torqued 110 hours before the incident. The manufacturer of the propeller recommends that their wooden propellers be torque checked every 50 hours of flight. Examination revealed that the propeller attachment bolts showed signs of fatigue failure. There was also fretting damage on the propeller extension flange and bushing shanks. The above-mentioned signatures are suggestive of the studs being insufficiently torqued by the mechanic during assembly or periodic maintenance procedures not being followed, and subsequently becoming loose during propeller operation.

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The company maintenance personnel's inadequate torquing procedures of the propeller attachment bolts which resulted in the fatigue failure of the propeller attachment bolts and the in-flight separation of the propeller.

## Findings

Occurrence #1: PROPELLER FAILURE/MALFUNCTION  
Phase of Operation: CRUISE

### Findings

1. PROPELLER SYSTEM/ACCESSORIES - SEPARATION
2. (C) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - UNDERTORQUED
3. MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - FATIGUE
4. (C) MAINTENANCE,ADJUSTMENT - INADEQUATE - COMPANY MAINTENANCE PERSONNEL

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Occurrence #2: FORCED LANDING  
Phase of Operation: DESCENT - UNCONTROLLED

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Instrument Rating(s):</b>	None
<b>Other Aircraft Rating(s):</b>	None	<b>Instructor Rating(s):</b>	None

**Flight Time:**

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Diamond Aircraft Industries	<b>Registration:</b>	N991CT
<b>Model/Series:</b>	20C-1 20C-1	<b>Engines:</b>	1 Reciprocating
<b>Operator:</b>	SMITH AND BARLOW ENTERPRISES	<b>Engine Manufacturer:</b>	Continental
<b>Operating Certificate(s) Held:</b>	None	<b>Engine Model/Series:</b>	IO-240
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	, 0 ft msl	<b>Weather Information Source:</b>	Pilot
<b>Lowest Ceiling:</b>	None / 0 ft agl	<b>Wind Speed/Gusts, Direction:</b>	10 knots / , 200°
<b>Temperature:</b>	29° C	<b>Visibility</b>	10 Miles
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	PROVO, UT (PVU)	<b>Destination:</b>	EPHRAIM, UT (41U)

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Latitude, Longitude:</b>			

## Administrative Information

<b>Investigator In Charge (IIC):</b>	JAMES F STRUHSAKER	<b>Adopted Date:</b>	04/19/2001
<b>Investigation Docket:</b>	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> .		

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