



# National Transportation Safety Board Aviation Incident Data Summary

<b>Location:</b>	GRAND CANYON PK, AZ	<b>Incident Number:</b>	LAX991A085
<b>Date &amp; Time:</b>	02/01/1999, 1010 MST	<b>Registration:</b>	N32GA
<b>Aircraft:</b>	Aerospatiale AS350B	<b>Injuries:</b>	7 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled - Sightseeing		

## Analysis

While descending on an aerial tour flight with six passengers, the left side bubble window separated from the helicopter and impacted a tail rotor blade. The pilot made a precautionary landing in the canyon without further incident. Neither the separated window nor its doorframe attachment seal (gasket) was recovered. Examination of the helicopter's tail rotor blade found it bent and scratched with areas of debonded material. The damaged blade was not repairable. During preflight inspection the pilot did not see any damage to the window, and during the flight the left seated passenger was not observed pressing on it. Due to observed cracks in the previous window 4.5 months and 589 flight hours earlier, it had been replaced with a window removed from another helicopter. No maintenance record entry was found for the window installation. The operator's replacement window was manufactured under a FAA Supplemental Type Certificate. The STC holder said that if its 'wedge' window is not properly installed, or if it becomes cracked or damaged due to exposure to harmful cleaning solvents, its integrity may be compromised. The operator reported that if a small crack existed near the window's edge, it may not have been noticed/reported by the pilot due to a lack of conspicuity. The reason(s) for the window separation could not be determined.

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be:  
The in-flight separation of a side window for undetermined reasons.

## Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: DESCENT - NORMAL

### Findings

1. WINDOW,CABIN - SEPARATION
2. (C) REASON FOR OCCURRENCE UNDETERMINED

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	46
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Instrument Rating(s):</b>	None
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Instructor Rating(s):</b>	None
<b>Flight Time:</b>	781 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Aerospatiale	<b>Registration:</b>	N32GA
<b>Model/Series:</b>	AS350B AS350B	<b>Engines:</b>	1 Turbo Shaft
<b>Operator:</b>	SILVERADO HELICOPTERS, INC.	<b>Engine Manufacturer:</b>	Turbomeca
<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)	<b>Engine Model/Series:</b>	ARRIEL 1B
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled - Sightseeing		

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	IGM, 3449 ft msl	<b>Weather Information Source:</b>	Weather Observation Facility
<b>Lowest Ceiling:</b>	None / 0 ft agl	<b>Wind Speed/Gusts, Direction:</b>	7 knots / , 340°
<b>Temperature:</b>	2°C	<b>Visibility</b>	10 Miles
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	LAS VEGAS, NV (LAS)	<b>Destination:</b>	GRAND CANYON, AZ (GCN)

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	6 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>	WAYNE POLLACK	<b>Adopted Date:</b>	01/18/2001
<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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