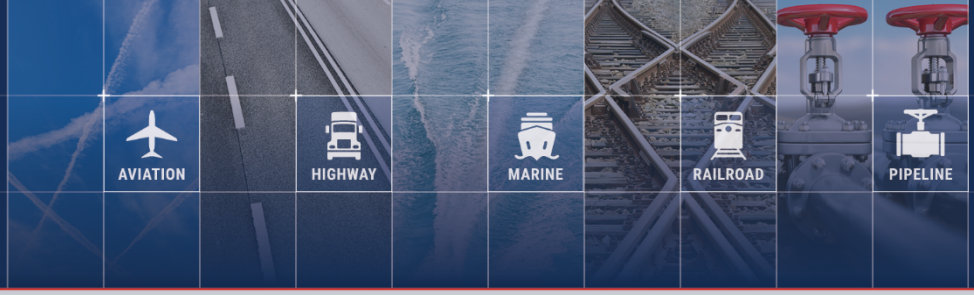

Aviation Investigation Final Report

Location:	TELLURIDE, Colorado	**Accident Number:**	FTW94FA114
Date & Time:	April 1, 1994, 11:45 Local	**Registration:**	N59715
Aircraft:	AEROSPATIALE AS-350-B2	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 4 Minor, 1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

WHILE CONDUCTING A VISUAL APPROACH TO A LANDING ZONE AT 12,800 FEET MSL IN MOUNTAINOUS TERRAIN, THE PILOT MADE A RIGHT TURN FROM DOWN WIND TO BASE TO FINAL WHICH PLACED THE HELICOPTER IN A DOWN SLOPE WIND CONDITION. THE HELICOPTER SETTLED, TURNED TO THE LEFT AROUND THE VERTICAL AXIS, AND IMPACTED THE SIDE OF THE MOUNTAIN BELOW THE LANDING ZONE. THE TAIL BOOM SEPARATED AND THE FUSELAGE ROLLED DOWN THE MOUNTAIN SIDE DURING WHICH TIME THE PASSENGERS WERE EJECTED. THE INVESTIGATION PROVIDED NO EVIDENCE OF PREIMPACT FAILURE OR MALFUNCTION. MAXIMUM GROSS WEIGHT WAS 4960 POUNDS. ACTUAL GROSS WEIGHT WAS 4375 POUNDS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE BY THE PILOT TO MAINTAIN CONTROL OF THE AIRCRAFT. FACTORS WERE UNFAVORABLE WINDS AND IMPROPER APPROACH PLANNING.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings
1. TERRAIN CONDITION - HIGH TERRAIN
2. TERRAIN CONDITION - MOUNTAINOUS/HILLY
3. (F) WEATHER CONDITION - UNFAVORABLE WIND
4. (F) PLANNED APPROACH - IMPROPER - PILOT IN COMMAND
5. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

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

Factual Information

HISTORY OF FLIGHT

On April 1, 1994, at 1145 mountain standard time, an Aerospatiale AS350 B2 helicopter, N59715, impacted terrain approximately 7 miles southwest of Telluride, Colorado. Of the six persons on board, one received serious injuries, four minor injuries and one no injuries. The helicopter sustained substantial damage. Visual meteorological conditions prevailed for this commercial, on demand, CFR part 135 air taxi flight and no flight plan was filed.

According to the pilot, the flight originated from a landing zone known as Bridal Vail Falls at 1130. The purpose of the flight was to deliver the passengers to Waterfall Canyon landing zone at 12,800 feet above mean sea level for skiing. The pilot stated that he overflew the landing zone headed in a westerly direction and made a right hand turn to final approach. The landing zone, which was being used, was located in a saddle with rising terrain to the north and south. A passenger was taking a video at the time of the approach and it indicates that a right hand turn was made which placed the helicopter to the southwest and below the rising terrain to the north of the landing zone. The person taking the video dropped the camera so the accident sequence was not taped. (See attached pilot supplied diagrams.)

Interviews provided information that as the helicopter was turning final, it began to settle and turn to the left around the vertical axis. According to the pilot, the helicopter rotated one or possibly two times with right pedal having no effect. Witnesses provided information that the turns were not rapid. The helicopter impacted the slope below the landing zone and rolled down the 40 degree slope. Snow depth on the slope was approximately 4 feet.

Available information indicates that the occupants were thrown from the helicopter during the roll down the slope; however, no evidence was found of restraint system failure or malfunction. A seating diagram is attached.

PERSONAL INFORMATION

According to information provided on the enclosed National Transportation Safety Board Form 6120.1/2, the pilot had approximately 3,900 hours flight time in helicopters. About 500 hours was in this make and model. No evidence was found during the investigation which documented the amount of mountain flying experience of the pilot or if he had any formal mountain flying training.

AIRCRAFT INFORMATION

According to the manufacturer's information, maximum certified gross weight for this aircraft

was 4,960 pounds. Estimated weight at the time of the accident was 4,375 pounds based on the weights provided in the attached seating diagram.

METEOROLOGICAL INFORMATION

According to the pilot, there were scattered clouds at 5,000 feet above ground level and the wind was from the northeast at 10 to 15 mph in the vicinity of the accident site. Wind from the direction indicated would place the helicopter in a down slope wind while the turn to final approach was being executed.

WRECKAGE AND IMPACT INFORMATION

The tail boom separated from the aircraft and was located below and to the north of the landing zone approximately 150 feet. Rotational marks were found in the tail rotor drive tunnel at the separation point. The tail boom separation point at the fuselage junction was buckled inward on the left and bottom and rotational twisting was present at the separation point of the tail rotor drive shaft at the transmission deck exit. The tail boom and tail rotor system incurred minor damage.

The remainder of the helicopter was scattered down the slope from the tail boom for a distance of approximately 300 feet. The transmission remained attached and the main rotor blades fractured near the hub. The left portion of the nose and fuselage top were crushed inward.

The engine separated from the airframe during the impact sequence. It was later placed on a test cell and functioned normally. (See attached engine report).

The two front seats separated from the aircraft with the separation point being in the composite support structure above the seat attach point. The rear bench seat exhibited minor downward crushing of the support structure.

Examination of the helicopter during the course of the investigation provided no evidence of preimpact structural failure or system failure or malfunction.

ADDITIONAL INFORMATION

The wreckage was released to Mr. D. K. Jason, Jason and Associates, on June 13, 1994. No parts were retained.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	35,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Glider; Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	August 19, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	7100 hours (Total, all aircraft), 500 hours (Total, this make and model), 7025 hours (Pilot In Command, all aircraft), 110 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	AEROSPATIALE	**Registration:**	N59715
Model/Series:	AS-350-B2 AS-350-B2	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2581
Landing Gear Type:	Skid	**Seats:**	6
Date/Type of Last Inspection:	February 9, 1994 100 hour	**Certified Max Gross Wt.:**	4960 lbs
Time Since Last Inspection:	55 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	560 Hrs	**Engine Manufacturer:**	TURBOMECA
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	ARRIEL 1D1
Registered Owner:	ALPINE PACIFIC, INC.	**Rated Power:**	732 Horsepower
Operator:		**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:	ALPINE PACIFIC AIR	**Operator Designator Code:**	OMGA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TEX ,9086 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:	Scattered / 6000 ft AGL	**Visibility**	25 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 28 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:	(TEX)	**Type of Clearance:**	None
Departure Time:	11:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious, 4 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 4 Minor, 1 None	**Latitude, Longitude:**	37.940532,-107.900825(est)

Administrative Information

Investigator In Charge (IIC):	Wiemeyer, Norman
Additional Participating Persons:	MAX MCCARTHUR; SALT LAKE CITY , UT
Original Publish Date:	December 7, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=18889