



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	BEAVER DAM, AZ	<b>Accident Number:</b>	LAX95FA319
<b>Date &amp; Time:</b>	09/02/1995, 0838 MST	<b>Registration:</b>	N6234G
<b>Aircraft:</b>	CESSNA 421C	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	8 Fatal

**Flight Conducted Under:** Part 91: General Aviation - Executive/Corporate

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## Analysis

After climbing to 18,400' msl, the pilot reported a turbocharger problem & reversed course. He said he 'may lose the left engine' & that he was unable to maintain altitude. He diverted to an alternate airport. During a right turn onto final approach, the airplane was observed to cross (overshoot) the extended centerline of the runway. It continued in a right turn back toward the centerline, and then entered a left turn to intercept the inbound course. The turn steepened, and then the airplane entered a spin & crashed 1/2 mile short of the runway. A warped flange & evidence of exhaust gas leakage were found on the Inconel exhaust system Wye collector, at the wastegate outlet of the left engine. Neither propeller was in a feather position. There was evidence that the left engine was providing low power during impact. A note on the pilot's clipboard indicated that the (left engine) fuel flow & cylinder head temperature went to zero, & the manifold pressure dropped to 10 inches. The note also indicated that the pilot switched the 'boost pump' to high, the fuel flow went to 260 psi, & manifold pressure increased to 18.5 inches. Calculations showed that the airplane's gross weight (GW) & center-of-gravity (CG) were 7,645 pounds & 158.32 inches. The maximum allowable GW & CG were 7,450 pounds & 158 inches. During impact, the flaps were fully extended. The 'Engine Inoperative Landing' procedure stated, 'Wing Flaps - DOWN when landing is assured.' Most of the pilot's flight time in the Cessna 421 was before 1985; no record was found of recurrent training in the airplane since 1984. Annual and turbocharger inspections were made at 78 and 120 flight hours, respectively, before the accident, but no logbook entries were made concerning maintenance or replacement parts for the exhaust system.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the pilot to maintain adequate airspeed, while maneuvering on approach, which resulted in an inadvertent stall/spin and uncontrolled collision with terrain. Factors relating to the accident were: the pilot allowed the aircraft weight and balance limitations to be exceeded; the pilot's lack of recurrent training in the make and model of airplane; inadequate maintenance/inspection of the engine exhaust systems; a warped and leaking exhaust system flange on the left engine, which resulted in a loss of power in that engine; and the pilot's

improper use of the flaps.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: CLIMB - TO CRUISE

### Findings

1. 1 ENGINE
  2. (F) EXHAUST SYSTEM,MANIFOLD/PIPE - WARPED
  3. (F) EXHAUST SYSTEM,MANIFOLD/PIPE - LEAK
  4. EXHAUST SYSTEM,TURBOCHARGER - OUTPUT LOW
  5. (F) MAINTENANCE,INSPECTION - INADEQUATE
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Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

6. (F) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
  7. (F) INADEQUATE RECURRENT TRAINING - PILOT IN COMMAND
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Occurrence #3: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

### Findings

8. PROPELLER FEATHERING - NOT PERFORMED - PILOT IN COMMAND
  9. (F) FLAPS - IMPROPER USE OF - PILOT IN COMMAND
  10. (C) AIRSPEED(VREF) - NOT MAINTAINED - PILOT IN COMMAND
  11. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
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Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

On September 2, 1995, at 0838 hours mountain standard time, a Cessna 421C, N6234G, collided with hilly desert terrain about 1/2 mile northeast of the approach end of runway 19 at the Mesquite Airport, Mesquite, Nevada. The accident site is located about 600 feet east of the state boundary in Arizona, about 5 miles west of the community of Beaver Dam. The airplane was destroyed by impact forces. The certificated airline transport pilot and seven passengers all received fatal injuries. The airplane was being operated as a corporate/executive flight by Adventure Airlines L.L.C., Las Vegas, Nevada, under 14 CFR Part 91 when the accident occurred. The flight originated from the North Las Vegas Airport (VGT), Las Vegas, Nevada, at 0726 hours and was destined for West Yellowstone (WYS), Montana. Visual meteorological conditions prevailed at the time and an instrument flight rules (IFR) flight plan was filed.

At 0706 hours the pilot contacted the Reno Flight Service Station and requested a standard weather briefing for his route from the North Las Vegas Airport to West Yellowstone. After receiving the weather briefing the pilot filed an IFR flight plan.

The director of maintenance for Adventure Airlines L.L.C., assisted the pilot in preparing the airplane for the flight. He indicated that he checked the airplane fuel caps for security and the fuel tanks for quantity. He noted that all the fuel cells were full; to include the wing locker tank in the left engine nacelle. The airplane was loaded at the Adventure Airlines L.L.C., facilities at the North Las Vegas Airport about 0715, and taxied about 0720 hours. After takeoff at 0741 hours, the pilot contacted the Los Angeles Air Route Traffic Control Center (LAX ARTCC) and reported climbing to 17,000 feet. LAX ARTCC sector controller obtained information concerning the destination of the flight from the pilot and then coordinated a higher altitude and direct routing. At 0748 hours, the sector controller cleared the flight to FL210. At 0756 hours, the sector controller cleared the flight direct to West Yellowstone.

At 0806 hours, the pilot contacted the LAX ARTCC sector controller and requested clearance to return to Las Vegas. According to radar data the airplane was at FL184 and at a position about 98 nautical miles northwest of North Las Vegas Airport. The sector controller issued a clearance to return to Las Vegas and asked the pilot if he would like to declare an emergency. The pilot indicated he was not declaring an emergency at this time and reported an unspecified turbocharger problem.

At 0808 hours, the pilot requested a slow descent to 14,000 feet mean sea level (msl). The sector controller issued a descent clearance to 14,000 feet msl at the pilot's discretion. At 0811 hours, the pilot advised the sector controller he "may lose the left engine," and was unable to maintain altitude. At 0819 hours, the pilot declared an emergency and reported eight people onboard with 3.5 hours of fuel left.

At 0821 hours, the LAX ARTCC sector controller advised the pilot of the location of the Mesquite Airport, and subsequently issued a radar vector. The airplane was at a position 25.2 nautical miles northwest of the Mesquite Airport. Radio contact with the airplane was lost as it descended below 6,500 feet above msl. Communications with the accident airplane were relayed to the LAX ARTCC by a Skywest Airlines commuter flight. The Skywest Airlines flight was orbiting at 10,000 feet msl northeast of the Mesquite Airport at the request from LAX ARTCC. Radar contact was lost with the accident airplane as it descended below 5,000 feet msl.

The first officer from the Skywest Airlines observed the accident airplane in a right turn fly past the extended centerline of the runway 19. The accident airplane continued the right turn back to the runway extended centerline. The accident airplane then turned left, as to intercept the final approach course. According to the Skywest Airlines first officer, the accident airplane continued the left turn past the centerline. The accident airplane's angle of bank became steeper. The first officer told investigators the airplane entered a spiral that tightened into a nose-low spin. The airplane spun three to four times before hitting the ground.

Witnesses on the ground reported seeing the airplane flying between 200 to 250 feet above the ground. The airplane then banked from left to right, and then climbed straight up while turning. The airplane then reached an altitude of 400 to 450 feet AGL where, according to a witness, it stalled, descended out of control, and spun to the ground.

One of the witnesses drove to the Mesquite Airport and reported his observations to airport personnel. The witness led the personnel to the area where he last saw the airplane and discovered the wreckage. There were no survivors.

#### Pilot Information

The pilot held an airline transport pilot certificate for multiengine airplanes which was issued on October 15, 1987, as the result of issuance of an additional type rating in the Douglas DC-3. The pilot also held a commercial pilot certificate for single-engine airplanes and helicopters which was issued on March 1, 1972, on the basis of military competence. The pilot received his first military rating on October 20, 1969, from the United States Army.

The most recent second-class medical certificate was issued to the pilot on April 25, 1995, and contained the limitation that correcting lenses be available for near vision while exercising the privileges of his airman certificate.

The pilot's aeronautical experience listed in this report was obtained from a review of the pilot's most recent logbook dated from March 23, 1981, to present. In addition, information was obtained from a review of Adventure Airlines L.L.C., forms found in the accident airplane, the pilot's resume, and FAA airmen records on file in the Airman and Medical Records Center located in Oklahoma City, Oklahoma.

The pilot's total aeronautical experience consists of about 18,624 hours, of which about 14,390 hours were in multiengine airplanes. Review of available records revealed approximately 86 hours were accrued in the Cessna 421C, of which 56.7 hours were accrued prior to the end of 1984.

Review of the pilot's employment history revealed most of the pilot's multiengine flight experience was gained in the Convair CV600/640, the Douglas DC-3, and the Dehavilland DHC-6. The pilot satisfactorily completed an airman competency/proficiency check on May 20, 1995. The flight check was administered by the pilot's previous employer's check airmen in a Beech King Air 90. According to the FAA, the completion of the flight check is regarded as equivalent to the requirements for the completion of a biennial flight review, and would allow the pilot to act as pilot-in-command of a Cessna 421C.

In the preceding 90 and 30 days prior to the accident, the Adventure Airlines L.L.C., forms listed a total of 29.1 and 20.1 hours, respectively, flown in the Cessna 421C by the pilot. There was no record found of the pilot receiving any formal recurrent training in the Cessna 421C since 1984.

## Airplane Information

The Cessna 421C, serial number 421C0264, was manufactured on April 4, 1977, and was acquired by Adventure Airlines L.L.C., on April 13, 1995, for use as a corporate aircraft. The airplane was configured with a 28.4 gallon wing locker fuel cell in the left nacelle and a baggage compartment in the right nacelle. The airplane was not used for air tours and, therefore, was not listed on Adventure Airlines on-demand air taxi certificate. The airplane was operated and maintained under 14 CFR Part 91. The airplane had accumulated a total time in service of 5,461 flight hours. Examination of the maintenance records revealed that the most recent annual inspection was accomplished on April 1, 1995; 78 flight hours before the accident.

Two Teledyne Continental GTSIO-520L engines were installed in the airframe. According to the airframe manufacturer, the engines produce 375 horsepower at 39 inches of manifold pressure up to an altitude of 20,000 feet. The pilot operating handbook (POH) lists a 255- to 275-pound-per-hour fuel flow for takeoff and climb to an altitude of 18,000 feet.

On September 2, 1995, the left and right engines had accrued a total in service time of 2,751 hours, respectively. The maintenance records note that major overhauls were accomplished on both engines 1,156.4 flight hours before the accident. Annual inspections on the engines were accomplished on the date specified above for the airframe.

## Turbocharger Operation

Each engine is equipped with a turbocharger system that allows rated power to 20,000 feet. According to the airframe manufacturer, anything that affects the flow of induction air into the compressor, or the flow of exhaust gases into the turbine, will increase or decrease the speed of the turbocharger. The POH for the airplane states; " When the wastegate is closed, any change in the turbocharger speed will mean a change in engine operation. Anything that causes an increase or decrease in turbine speed will cause an increase or decrease in manifold pressure. If turbine speed increases manifold pressure increases; if turbine speed decreases, manifold pressure decreases. Any change in exhaust flow to the turbine or ram induction air pressure, whether it is an increase or decrease, will be magnified approximately 8 to 10 times by the compression ratio and the change in flow through the exhaust system."

## Weight and Balance

The maximum certified gross takeoff weight for the accident airplane was 7,450 pounds. The center of gravity limits for takeoff are between 152.6 to 158 inches. The airplane was last weighed on February 14, 1994. The airplane's empty weight was listed at the time as weighing 5,264 pounds with a useful load of 2,186 pounds. The moment was listed at 795,880 inch/pounds. The airplane's takeoff weight was computed using the record of last weighing, the weights of victims supplied by the Mohave County Sheriff/Coroner's Office, full fuel tanks (234 gallons), and an estimate of the weight of baggage found in the cabin (15 pounds), and right wing locker (10 pounds).

The airplane weight and balance for the flight was computed as follows:

Basic Empty Weight	5,264 lbs.	Pilot and passenger weights	1,267 lbs.	Wing locker and cabin baggage	25 lbs. (Estimated)	Fuel weight	1,404 lbs.	TOTAL	7,960 lbs.
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The airplane's gross weight was computed at 7,960 pounds, or about 510 pounds more than the maximum certificated takeoff weight.

The maximum landing weight for the airplane is 7,200 pounds. Fuel consumption calculations by the airframe manufacturer estimated about 315 pounds of fuel were burned during the 1 hour 12 minute flight. The weight of the airplane at the time of the accident was computed to be 7,645 pounds.

The airplane's center of gravity at the maximum gross weight of 7,960 pounds was computed at 158.5 inches. The airplane's center of gravity at the time was computed at 158.32 inches.

#### Aircraft Performance

The aircraft manufacturer does not publish any performance data for aircraft that exceed their maximum gross weights.

#### Meteorological Information

The closest official weather observation station is Saint George, Utah, which is located 26.3 nautical miles northeast of the accident site. The elevation of the weather observation station is 2,938 feet msl. At 0834 hours, a surface observation was reporting in part: sky condition and ceiling, clear; visibility, 10 statute miles; temperature, 76 degrees Fahrenheit; dew point, 52 degrees Fahrenheit; winds, 280 degrees at 3 knots; altimeter, 30.01" Hg.

#### Wreckage and Impact Information

The wreckage was located about 0.46 nautical miles northeast of the approach end of runway 19 at the Mesquite Airport. The coordinates of the wreckage were determined by use of a Global Position System satellite receiver. The coordinates of the wreckage site were 36-50-36.54 degrees north latitude, and 114-02-36.54 degrees west longitude.

The nose of the airplane was crushed upward at a 30-degree angle from the tip of the nose to the leading edge of the wing where it attaches to the fuselage. There was no evidence found of the airplane striking any terrain or adjacent shrubbery before coming to rest in the draw. The upward crushing conforms to the shape of the terrain directly in front of the nose. About 8 feet of the left wing tip was bent upward and twisted aft. The deice boot had sand impinging into the rubber on the bottom side. There was no evidence of ground contact on the leading edge or top of the deice boot.

The pilot was found in the left front seat with his seatbelt fastened. His feet were positioned on the rudder pedals. His right leg was found fully extended while his left leg was bent at the knee. The right front seat passenger was also found with the seatbelt fastened. The remaining six passengers in the cabin did not have their seatbelts fastened, but remained seated in their respective seats.

A piece of paper containing notes was found on a clipboard next to the pilot. The note was dated "9-2-95." The notes contained pilot shorthand resembling the flight's air traffic control clearance. The numbers, "0720," and the pilot shorthand symbol for direct were written on the note paper. Additionally, the notes listed instrument readings as follows "cyl tem" [cylinder head temperature] 0 degrees., "man pres" [manifold pressure] 10, "FF Drop" [fuel flow drop] to 0, and "wich boost pump on H" [switch boost pump on high] "mp" [manifold pressure] 18.5, "FF" [fuel flow] 260.

Both propeller levers were found in the upper midrange towards the low pitch/high rpm position. Both throttles were found in a midrange with the left throttle advance slightly ahead of the right. Both mixture levers were found in a midrange position. The left engine mixture

was found slightly retarded, or at a leaner setting when compared to the position of the right engine mixture lever.

The retractable landing gear and wing flaps were found extended. According to the airframe manufacturer, the position of the flap drive chain on the flap motor sprocket corresponded to a full flap extension of 45 degrees.

Both three-bladed propellers were separated from the engines through fractures in the propeller hubs and were found next to their respective engines.

The right propeller blades were broken out of the hub. Two blades were found under the right engine nacelle and the third blade was found about 10 feet forward of the engine. The blades exhibited chordwise scoring, leading edge nicks and gouges, blade twist and forward bending.

The left propeller was found with all three blades attached to the hub in their normal position. The left propeller blade angles were found in a low pitch/high rpm position. One blade exhibited chordwise scoring on the cambered side, and on the other blade the paint was polished off on the leading edge. The pitch changed links were attached to the propeller blade pins and to the yoke.

The left engine propeller governor linkage sustained impact damage. The linkage was bent past the low pitch/high rpm stop, further away from the feather position.

Examination of the left engine exhaust system revealed cracks in the right and left collector tube inlet joints, the Wye duct collector on the right side, and at the output flange to the turbocharger turbine. The Wye duct collector flange was found warped at the outlet to the wastegate. The warpage was about 1.5 inches long, and the maximum deflection was measured at 0.090 inches using a pin gage.

#### Medical and Pathological Information

A post mortem examination on the pilot was conducted by the Mohave County Coroner's Office on September 3, 1995, with specimens retained for toxicological examination. The specimens were sent to the Federal Aviation Administration Civil Aero Medical Institute (CAMI) for analysis.

The results of the toxicological analysis revealed positive findings of ethanol and its metabolite acetaldehyde. According to CAMI, the ethanol found in this case is not from ingestion of ethanol.

#### Tests and Research

##### Engine Examination

The engines were disassembled and examined at the manufacturer's facilities in Mobile, Alabama, on October 2, 1995. Both engine's fuel system manifold valves and fuel injector nozzles were tested on a flow bench and found to be within specifications. The magnetos from both engines were also bench tested and found to operate properly. Continuity was established for rotating and reciprocating parts. There was no evidence found in the engines that would have affected their operation. A copy of the manufacturer's report is attached to this report.

##### Propeller Examination

The propellers were examined at Air Transport, Inc., facilities in Phoenix, Arizona, on October 24, 1995, under the supervision of the Safety Board. According to the propeller manufacturer,

there was no evidence of propeller failure or malfunction prior to impact, and all the propeller damage was attributed to impact. Both propellers were further examined to determine the blade angle at the time of impact. According to the propeller manufacturer, neither of the propellers were in the feather position at the time of impact, as indicated by the position of witness marks on the butt of the blades and the lack of damage to the feather stop mechanisms.

Additionally, the propeller manufacturer indicated the left propeller was being operated under conditions of low power at the time of impact, and the blade angle was at or near the low pitch stops. A copy of the manufacturer's report is attached to this report.

#### Turbocharger Examination

The turbocharger systems were examined at the manufacturer's facilities in Torrance, California, on September 11, 1995, under the Board's supervision. There was no evidence of mechanical failure or malfunction found with the turbochargers, the wastegates, the variable absolute pressure controllers, and relief valves.

Examination of the left engine variable absolute pressure controller revealed the safety wire was missing from four screws that clamp the cam mechanism to the body of the controller. Two of the screws had backed off. The left engine variable absolute pressure controller sustained impact damage, preventing it from being tested. One of the screws that backed out was bent; consistent with the impact damage.

Examination of the two remaining screws revealed they were tight and still clamping the cam mechanism to the controller body.

#### Exhaust System Examination

Parts of the left engine exhaust system were examined by the Safety Board materials laboratory. Metallurgical examination of the warped Wye collector flange revealed numerous fractures. None of the fractures were found to extend through the thickness of the inconel. There was no evidence found of exhaust gases leaking through the fractures. The deformed portions of the warped Wye collector waste gate flange contained areas that exhibited a flow pattern of escaping exhaust gases. The Wye collector was determined to be manufactured from inconel.

The right side collector was also examined and contained several fractures. The collector was composed of stainless steel and inconel welded together. One fracture in the inconel portion of the collector tube that attached to the Wye collector was covered with a heavy scale of high temperature oxides.

#### Airworthiness Directive (AD)75-23-08 R5

AD 75-23-08 R5 was issued to combine in one document inspections and parts replacement required on previous ADs. The amended AD applies to the Cessna 421C and other twin-engine turbocharged Cessna airplanes. The AD specifies the inspected components and inspection intervals by listing the components in one of three tables. The tables are identified by roman numerals.

A recurring 50-hour inspection is required for all components not listed in Table II or III. A recurring 100-hour inspection is required for all components listed in Table II. Components listed in Table III of the AD are exempt from the inspection requirements. The inconel exhaust parts for the Cessna 421C are listed in Table III.



## Identification of Exhaust System Parts and Materials

The Wye collector assembly and the right slip joint assembly could not be identified by manufacturer's part number. There was no material identification or part numbers found on the Wye collector assembly and the right slip joint assembly from the accident airplane. There were no entries found in the logbooks which indicated the parts had been replaced or that maintenance had been performed.

Advisory Circular (AC) 65-9A, "Airframe and Powerplant Mechanics General Handbook" states inconel is a nickel-chromium alloy closely resembling stainless steel. The AC further indicates the two metals look much alike and a distinguishing test is often necessary. The AC outlines a procedure using a cupric chloride and hydrochloric acid solution which will plate a copper colored spot on stainless steel.

The test was applied to several exhaust components during the engine examination at the engine manufacturer's facilities. The results of the test were inconclusive in that several parts did not plate a copper colored spot. The parts were later identified to be stainless steel. The same test was applied to some stainless steel exhaust parts submitted to the Safety Board's Material Laboratory. There was no conclusive evidence of discoloration when the solution was applied to oxidized surfaces of these exhaust parts.

## Airplane Emergency Procedures

The POH describes the recommended procedures for emergency situations. The handbook provides the emergency procedural action in a abbreviated checklist and amplified form. Immediate action items are outlined in a black box and should be committed to memory.

The immediate action item for the emergency procedure for engine roughness states in item 5, that the engine should be secured if roughness cannot be cleared. The emergency procedure for engine failure during flight also specifies the engine should be secured. The procedures for securing an engine indicate the propeller of the inoperative engine should be feathered. The emergency procedure for landing with an engine inoperative states: the landing gear should be down when within gliding distance of field; the wing flaps positioned down when the landing is assured; and the speed decreased below 111 KIAS only if the landing is assured.

## Additional Information

### Wreckage Release

The wreckage was released to the representatives of the owner on October 31, 1995. Parts of the left engine exhaust system were retained and sent to the Safety Board's Material Laboratory for further examination.

Additional Parties to the Investigation are:

Steven G. Macon Allied Signal Engines Phoenix, AZ 85038

Tom Knopp McCauley Accessory Division Vandalia, OH 45377

Charles R Mote, Jr. NATCA 11725 Windcrest Lane San Diego, CA 92128-4279

## Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	50, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	04/25/1995
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	18628 hours (Total, all aircraft), 86 hours (Total, this make and model), 14536 hours (Pilot In Command, all aircraft), 29 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CESSNA	<b>Registration:</b>	N6234G
<b>Model/Series:</b>	421C 421C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	421C0265
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	8
<b>Date/Type of Last Inspection:</b>	04/01/1995, Annual	<b>Certified Max Gross Wt.:</b>	7450 lbs
<b>Time Since Last Inspection:</b>	78 Hours	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	5461 Hours	<b>Engine Manufacturer:</b>	CONTINENTAL
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	GTSIO-520-L
<b>Registered Owner:</b>	ADVENTURE AIRLINES L.L.C.	<b>Rated Power:</b>	375 hp
<b>Operator:</b>	ADVENTURE AIRLINES L.L.C.	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SGU, 2898 ft msl	Distance from Accident Site:	27 Nautical Miles
Observation Time:	0834 PDT	Direction from Accident Site:	41°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	24° C / 11° C
Precipitation and Obscuration:			
Departure Point:	LAS VEGAS, NV (VGT)	Type of Flight Plan Filed:	IFR
Destination:	W. YELLOWSTONE, MT (WYS)	Type of Clearance:	None
Departure Time:	0726 PDT	Type of Airspace:	Class G

## Airport Information

Airport:	MESQUITE (67L)	Runway Surface Type:	Asphalt
Airport Elevation:	1975 ft	Runway Surface Condition:	Dry
Runway Used:	19	IFR Approach:	None
Runway Length/Width:	5100 ft / 75 ft	VFR Approach/Landing:	Full Stop; Straight-in

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	7 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	8 Fatal	Latitude, Longitude:	

## Administrative Information

**Investigator In Charge (IIC):** THOMAS H WILCOX **Report Date:** 06/26/1996

**Additional Participating Persons:** VICTORIA ANDERSON; WASHINGTON, DC  
THOMAS MC WHIRTER; LAS VEGAS, NV  
ANDREW L HALL; WICHITA, KS  
R. S BOYLE; MOBILE, AL

**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/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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](#).