



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Chester, California	Accident Number:	WPR11FA090
Date & Time:	January 6, 2011, 18:45 Local	Registration:	N5866S
Aircraft:	Beech S35	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The 76-year-old private pilot departed during the hours of darkness on a return trip to his home airport. Radar data revealed a flight track consistent with the pilot hand flying the airplane without the assistance of an autopilot at altitudes appropriate for the terrain elevation. No radar data was available for the approach segments and accident sequence of the flight. Based on witness reports, the airplane appeared to perform a normal crosswind approach over a town and toward the airport runway. During the airport approach, the pilot made a normal radio call and did not appear to be in distress. As the airplane rounded the turn from crosswind to downwind, it continued in a shallow, high-speed descent, directly into the frozen surface of a lake adjacent to the runway.

The debris field was on a heading which approximated the downwind segment of the landing runway. The debris field length was consistent with a high-speed, right-wing-low, gradual descent into the ground. The landing gear and flaps were not in the landing configuration, and the speed brakes were not deployed. All sections of the airplane were located at the accident site, and no anomalies were noted with the airframe or engine that would have precluded normal operation. The damage to the propeller was consistent with the engine producing power at the time of impact.

The airport was located on the outskirts of a town, adjacent to a lake and a sparsely populated national park. The moon, which exhibited a 6 percent visible disk, would have provided limited illumination and would have been located low on the horizon and behind the airplane during the crosswind and downwind turns. The pilot's forward view would also have been dominated by a dark void as the airplane passed over the town, and began the landing approach. The pilot

did not possess an instrument rating, which, coupled with the lighting conditions, could have made him vulnerable to spatial disorientation. Additionally, the airplane's impact trajectory was consistent with him encountering this phenomena.

The pilot had experienced a mild heart attack 6 years prior to the accident, with placement of stents in two coronary arteries, and a diagnosis of diabetes. He had denied any medical history in applications for FAA medical certificates. It was not possible to conclusively determine what role, if any, the pilot's unreported medical conditions played in the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control while maneuvering to land, most likely due to spatial disorientation.

Findings	
Personnel issues	Spatial disorientation - Pilot
Aircraft	Directional control - Not attained/maintained
Environmental issues	Dark - Effect on personnel
Personnel issues	(general) - Pilot
Personnel issues	Recent experience - Pilot

Factual Information

History of Flight

Approach-VFR pattern crosswind	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On January 6, 2011, about 1845 Pacific standard time (PST), a Beech S35, N5866S, impacted the frozen shoreline of a lake adjacent to Rogers Field Airport (005), Chester, California. The pilot/owner was operating the airplane under the provisions of Title 14 Code of Federal Regulations Part 91. The certificated private pilot and passenger were killed. The airplane sustained substantial damage to both wings and the entire fuselage forward of the tailcone. The cross-country personal flight departed Charles M. Schulz-Sonoma County Airport (STS), Santa Rosa, California, about 1745. Visual night meteorological conditions prevailed, and no flight plan had been filed.

At the time of the accident a witness, who was a neighbor of the pilot, was positioned in the kitchen of his residence, which was located about 4,500 feet northeast of the departure end of runway 34 at Chester Airport. The location approximated the beginning of the right downwind leg for that runway. The house was surrounded by 70-foot-tall pine trees, with kitchen doors that opened to a north-facing deck. The witness reported that his radio scanner was on, and he heard a faint radio call from the pilot over the common traffic advisory frequency (CTAF), reporting that he was inbound for landing.

A few minutes later he heard the pilot clearly report that he was overflying the airport, with the intention of entering the right base for runway 34. The pilot then transmitted, "Thanks Vic for turning the lights on!" The witness explained that the pilot knew he was listening on scanner, and usually makes the call in jest as he approaches the airport.

The witness then opened his kitchen door, and walked onto the deck in an effort to observe the airplane. He was facing north, and could hear the sound of an airplane to his left. The sound continued to travel in front of him from left to right. He stated that this was consistent with the normal sound that he would often hear as aircraft joined the traffic pattern. He could not see the airplane, but explained that this was not unusual due to the trees.

The sound continued to pass to his right, and towards the south. He reported that the sound of the airplane was unremarkable, with no indication of distress. He then went inside, and continued to listen to his scanner; he heard no more radio transmissions. He stated that this was unusual because the pilot usually transmits a position report as he approaches the right

base, followed by a final report after he clears the runway. About 5 minutes later, the witness heard radio transmissions of emergency personnel responding to the report of an airplane accident.

A second witness was walking her dogs along First Avenue, which is located between the airport and Lake Almanor parallel to, and east of, runway 34. The witness was located at the southern end of the avenue, about 1,900 feet northeast of the runway 34 threshold. Seventy-foot-tall trees lined the road to her east and west, leaving an unobstructed view both along the avenue back to the north, and through a clearing towards the southwest. She heard an airplane to the southwest, and observed lights flying over the airport in a northbound direction. She stated that the engine sound was normal and appropriate, and she thought nothing more of it. A short time later she heard an airplane to the north, but this time the engine was much louder, with a sound she described as, "full-bore, pinning it." Looking to the north, she then observed red, green, and white lights fly from left to right in a gradual descent. The lights descended behind trees, and towards the lake. She then heard the sound of a thud, followed by the noise of cracking ice.

The Federal Aviation Administration (FAA) provided radar data for the flight. The data revealed a target at 1551, displaying a 6313 beacon code, about 12 miles northeast of Sonoma County Airport. The target indicated a mode C altitude of 4,900 feet, and continued on a meandering northeast track for the next 45 minutes and 100 miles, while incrementally climbing to 11,100 feet. The final radar return occurred a few seconds later, at an altitude of 11,000 feet, about 18 miles southwest of the accident location. The airplane flew above 10,000 feet for about 31 minutes while under radar surveillance. The highest obstacle elevation along the airplane's route of flight was Spring Valley Mountain, the peak of which was at an elevation of 6,859 feet.

PERSONNEL INFORMATION

A review of FAA airman records revealed that the 76-year-old pilot held a private pilot certificate with ratings for airplane single-engine land. The pilot did not possess an instrument rating.

The pilot held a third-class medical certificate issued on April 21, 2009, with limitations that he must wear corrective lenses. A set of damaged spectacles were located within the cabin area.

An examination of the pilot's logbook indicated an estimated total flight time of about 2,700 hours as of February 19, 2010, about 600 hours of which were flown at night. A set of loose pages within the logbook indicated that during the period between the last logbook entry and December 1, 2010, the pilot had flown 23 flights, the duration of which had not been documented. The pilot had amassed about 467 flight hours during the period between June 2001 and the accident, the majority of which occurred in the accident airplane, while based at Chester Airport. The flight logs indicated that during the 90-day period prior to the accident, the pilot had performed a total of two night takeoffs and landings. During the period from September 22, 2010, to November 6, 2010, he had performed a total of eight night takeoffs and

landings, with all landings occurring at the accident airport.

Federal Aviation Administration Regulation, Part 61.57, states, in part, that no person may act as a pilot-in-command of an aircraft carrying passengers during the period beginning 1 hour after sunset and ending 1 hour before sunrise, unless within the preceding 90 days that person has made at least three takeoffs and three landings to a full stop during the period beginning 1 hour after sunset and ending 1 hour before sunrise.

AIRCRAFT INFORMATION

The low-wing, retractable-gear airplane, was manufactured in 1965. It was powered by a six-cylinder, fuel injected Teledyne Continental Motors (TCM), IO-520-BA (3) engine, serial number 814453-R, and equipped with a three blade aluminum Hartzell constant-speed propeller.

The maintenance logbooks revealed that the airframe, engine, and propeller last received an annual inspection on December 6, 2010, at a total airframe time of 3,217 flight hours, 5 flight hours prior to the accident. At the time of the accident, the engine had accumulated 477 flight hours since its last major overhaul, which occurred in February 2000.

The airplane was equipped with attitude, direction, and navigation instruments required for flight in instrument meteorological conditions, and the original factory equipped autopilot.

The airplane was not equipped with a supplemental oxygen system.

METEOROLOGICAL INFORMATION

A remote automated weather station (RAWS) was located in Westwood, California, about 10 miles east of the accident site at an elevation of 4,994 feet. An automated weather observation was issued about 2 minutes after the accident. It reported calm winds; a temperature of minus 2 degrees C; dew point minus 6 degrees C; and an altimeter setting at 30.25 inches of mercury.

Local fire and law enforcement officers, who located the airplane shortly after the accident, reported calm winds, clear skies, and unlimited visibility at the time of their arrival. They did not observe the presence of the moon.

According to the U.S. Naval Observatory, Astronomical Applications Department, the computed sunset occurred in Chester, at 1654, with civil twilight ending at 1724. There was a waxing crescent moon, with 6 percent of its visible disk illuminated. Moon transit occurred at 1408, and moonset occurred at 1936 at an azimuth of 254 degrees.

WRECKAGE AND IMPACT INFORMATION

The accident site elevation was 4,500 feet mean sea level (msl), and was located about 3,500 feet northeast of the approach end of runway 34 at Chester Airport, on the frozen shallows of

the western shore of Lake Almanor. The airport was situated on the southern outskirts of Chester, adjacent to the west side of the lake, at an elevation of 4,528 feet msl. The lake was about 12 miles long, and about 3 miles wide at the area of the accident site. The banks of the lake beyond Chester, and the area surrounding both it and the town were sparsely populated, and within the confines of Lassen National Forest.

The debris field spanned a distance of about 900 feet, on a bearing of 160 degrees magnetic, parallel to runway 34. The first identified point of impact was characterized by a 12-inch-deep, 7-foot-long, teardrop-shaped swath of excavated snow. The ground excavation was oriented on a bearing of about 150 degrees. A second swath was located about 15 feet beyond the initial impact. The swath continued 40 feet further expanding to about 20 feet in width, and exposing the mud surface of the lakeshore. A single separated propeller blade was located within the initial ground scar, and the odor of aviation gasoline was present. The blade appeared bent aft in an s-shape, and exhibited chordwise abrasions, and leading edge gouges. The remaining two blades and the propeller hub were located, along with the right wing tip, about 40 feet beyond the first blade. Both blades remained firmly attached to the hub and exhibited trailing edge wrinkling. The propeller flange remained attached to the hub, and had separated from the crankshaft just forward of the engine case. The crankshaft fracture surface exhibited torsional granular features, on a 45-degree conical plane around its circumference.

The debris field expanded for another 100 feet, and appeared enveloped with an oily residue. The oily area contained fragmented sections of the right wing, with its associated flap and aileron, clear plastic material, and the engine cowling. The left wing was located 150 feet further downrange, had become separated at the wing root, and exhibited upward curling damage midspan. The debris field continued 500 feet further, and contained the right main landing gear, cabin door, fragments of engine accessories, the control yoke, and various cabin items.

The main fuselage came to rest 700 feet beyond the initial impact point on a heading of about 020 degrees. The entire cabin, forward of the aft seats, had sustained crush damage through to cockpit controls, instrument panel and firewall, which had become canted 90 degrees to the left. The airspeed indicator displayed a speed of 182 knots.

The tailcone and empennage sections remained attached, and were largely undamaged.

The engine was the last component located along the debris field, coming to rest 200 feet beyond the fuselage. Both the left and right forward seats were separated from their seat tracks, and were located midway between the fuselage and engine.

The fuel selector valve/strainer assembly was located within the crushed cabin area. Examination of the strainer revealed residual quantities of a fluid within the chamber, the odor of which was consistent with aviation gasoline. The fluid was tested with SAR-GEL water indicating paste, and no water was present.

All major sections of the airplane were accounted for at the accident site, and no indications of pre or post impact fire were observed. The positions of occupants relative to the airplane structure were consistent with the pilot being located in the left forward seat, and the passenger in the right seat. The airplane was equipped with a single arm, throw-over type yoke control installation, which appeared set to the left-side position.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot's two most recent applications for a third-class Airman Medical Certificate, dated 5/1/2007 and 4/21/2009, indicated "No" in response to "Do You Currently Use Any Medication," and to all items under "Medical History," including specifically "Heart or vascular trouble," "Diabetes," "Admission to hospital," and "Other illness, disability, or surgery." Personal medical records noted a history of "mild heart attack" in October 2005, treatment for high cholesterol since that time, and a diagnosis of diabetes in November 2005. The personal medical records did not note any cardiology visits or cardiac symptoms since 2005.

The report of autopsy performed on the pilot for the Plumas County (California) Sheriff/Coroner noted the cause of death as the result of multiple blunt force injuries. The report further stated that the heart weighed 500 grams and that, "The coronary arteries arise normally and follow the usual distribution of a right dominant pattern with severe calcified atherosclerotic stenosis. The left anterior descending coronary artery has a stent present in the proximal and mid sections. The first branch of the left anterior descending coronary artery has also stents present in it. The right coronary artery is about 20% to 30% narrowed by the calcified atherosclerotic plaque in its mid section.

The circumflex coronary artery is 80% to 90% narrowed by the atherosclerotic plaque in its mid section. The chambers and valves bear the usual size and position relationship and are unremarkable. The right ventricular wall is 0.3 cm and the left is 1.9 cm in thickness. The myocardium is dark red-brown, firm and unremarkable; the atrial and ventricular septa are intact. The aorta and its major branches arise normally and follow the usual course with severe atherosclerosis. The vena cava and its major tributaries return to the heart in the usual distribution and are within normal limits."

Toxicological tests on specimens from the pilot were performed by the FAA Civil Aeromedical Institute. Analysis revealed no findings for carbon monoxide, or cyanide. The results were negative for all screened drug substances and ingested alcohol. Refer to the toxicology report included in the public docket for specific test parameters and results.

TESTS AND RESEARCH

Engine

The NTSB investigator-in-charge (IIC) and a TCM representative examined the engine at the accident site. The engine came to rest inverted, and had become separated from its engine

mounts. The alternator, starter, fuel pump, fuel control with throttle body, right muffler, and induction manifold assembly had become liberated from the engine, and were located within the debris field. The forward crankcase sustained crush damage, exposing the forward gear assemblies. The gears appeared oil wetted, and free of damage.

The throttle body sustained impact damage and had become separated from the engine. The throttle valve appeared in the full open position. The throttle, mixture, and governor controls had sustained varying degrees of fragmentations, and were accounted for at their respective engine controls.

All cylinder heads except number three had sustained varying degrees of crush damage to their cooling fins and rocker covers. The rocker covers were removed, revealing all the valves to be wet with oil and free of distress. The spark plug electrodes were light gray in color, with light gray deposits.

The vacuum pump remained undamaged, and was removed from the engine to facilitate the rotation of the crankshaft. Rotation of the pump drive shaft by hand resulted in smooth and unrestricted movement. Disassembly of the pump revealed the four vacuum blades to be intact. The splined shaft remained attached to the rotor, and no evidence of catastrophic malfunction was noted.

Rotation of the crankshaft by hand utilizing the vacuum pump drive gear resulted in smooth and free movement. Thumb compression was obtained for all cylinders, and all valves exhibited similar amounts of lift. Gear train continuity was confirmed through to the accessory case and forward gear assemblies. The magnetos remained firmly attached to their mounting pads and rotation of the crankshaft resulted in a spark at each magneto lead output.

Left Wing

The left wing remained largely intact, with both the aileron, flap, and main landing gear still attached at their respective fittings.

The fuel tank had not been compromised; recovery personnel reported draining approximately 2 gallons of fuel from the fuel supply lines during recovery. The fuel cap remained firmly in place; the cap sealing o-rings appeared pliable and free of cracks. Examination of the tanks contents utilizing a 'dip-stick' revealed it to be approximately 1/3 filled with fluid consistent in color and odor to aviation gasoline. Both flaps remained attached to the wings by their respective hinges. The dimension from the flap horn bolt to the actuator cap of the right wing was 1.75 inches, with a corresponding left wing dimension of 1.72 inches. These values corresponded to zero degrees flap extension when compared to Beech reference material.

Empennage

Both the left and right ruddervator remained attached to the tailcone, and appeared largely

undamaged. The elevator tab actuating arm remained attached to the tab actuator. The dimension between the base of the actuator jackscrew and the actuator bolt was about 1 inch, which corresponded to about 5 degrees tab up, when compared to Beech reference material.

Speed Brake

The airplane was equipped with a Precise Flight, Inc., cable/electric wing-mounted speed brake system. The systems circuit breaker was noted in the 'in' position. The inboard and outboard speed brake paddles for both wings appeared retracted. Examination of the paddles upper surfaces, flush with the wing when in the retracted position, revealed longitudinal witness marks, 1.5 inches from the paddle outer edges. With the paddles extended, the witness marks corresponded with curling damage along the edges of the wing skin, adjacent to the paddles. No scratches were noted along the forward or aft edges of the paddles, and no damage was noted to the forward and aft sections of the paddle wing slots. The witness marks were consistent with retracted speed brakes prior to impact, with subsequent extension, and paddle over-travel caused by cable pull-through during impact.

Landing Gear

The left main landing gear remained attached to the wing, and was observed stowed within the wing structure at the accident site. Both the nose landing gear, and the right main landing gear, had become separated from the airframe, and were located within the debris field.

The landing gear drive box, 'star' arm, and motor were located within the crushed forward cabin. According to Beech documentation, the position of the 'star' arm relative to the gearbox was consistent with the landing gear being in the retracted position.

A post impact examination did not reveal any anomalies with the airframe or engine that would have precluded normal operation. Refer to the engine and airframe report included in the public docket for further details.

ADDITIONAL INFORMATION

Fueling records recovered from Cloverdale Municipal Airport revealed that the pilot purchased fuel prior to his departure from Santa Rosa. The manager of Cloverdale Airport, who was also the local Chief of Police, reported that the accident airplane was serviced with the addition of 41.5 gallons of aviation gasoline at 1537. The fuel was tested earlier in the day at 1049, and again at 1626 the following afternoon, with nominal results. The manager further stated that he serviced his own airplane from the same pump the evening prior, and that the fuel appeared free from debris, light blue in color, with no indications of water. He subsequently departed in his airplane for an uneventful flight of about 90 minutes in duration.

The airport manager reported that subsequent to obtaining fuel, the airplane departed and then returned for landing. While in his car, he witnessed the airplane turn from base leg to final

about 200 feet in front of the runway. During the turn, the airplane reached a bank angle of about 60 degrees. He became concerned that the pilot would not be able to safely complete the landing, and as such, he stopped his car to watch the remaining sequence. The airplane subsequently landed, and the manager departed. He did not know if the pilot was performing a full-stop landing, or a touch-and-go. A second witness recounted a similar observation, reporting that during the turn the airplane's bank angle was such that the airplane overshot the runway center-line by an excessive amount, and ultimately landed about 1/3 of the way down the runway.

The manager of Chester Airport witnessed the airplane departing from Chester about 1100 on the morning of the accident. He stated that he was familiar with the pilot, and has observed him takeoff and land on multiple prior occasions. He described the pilot as generally performing normal landing approaches, but reported that he often performs aggressive departure maneuvers. On that morning he observed the airplane depart on runway 34, and during the climb-out it made a 45-50 degrees banking turn over the town. His attention was drawn to the airplane, because he was concerned with how the pilot would react should the airplane lose engine power over the town.

The airport manager tested the runway lights at 2000 on the evening of the accident. The lights were again tested the following night by the NTSB investigator-in-charge. All runway lights were operational, responded appropriately to commands from the CTAF, and were free of snow obstructions.

Runway 34 at Chester Airport was designated for a right traffic pattern approach, and there were no published instrument approaches.

FAA Advisory Circular 60-4A states in part, "The attitude of an aircraft is generally determined by reference to the natural horizon or other visual references with the surface. If neither horizon nor surface references exist, the attitude of an aircraft must be determined by artificial means from the flight instruments. Sight, supported by other senses, allows the pilot to maintain orientation. However, during periods of low visibility, the supporting senses sometimes conflict with what is seen. When this happens, a pilot is particularly vulnerable to disorientation. The degree of orientation may vary considerably with individual pilots. Spatial disorientation to a pilot means simply the inability to tell which way is 'up.'...Surface references and the natural horizon may at times become obscured, although visibility may be above flight rule minimums. Lack of natural horizon or such reference is common on over water flights, at night, and especially at night in extremely sparsely populated areas, or in low visibility conditions.... The disoriented pilot may place the aircraft in a dangerous attitude... Therefore, the use of flight instruments is essential to maintain proper attitude when encountering any of the elements which may result in spatial disorientation."

Pilot Information

Certificate:	Private	Age:	76, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	April 21, 2009
Occupational Pilot:	No	Last Flight Review or Equivalent:	March 3, 2009
Flight Time:	(Estimated) 2700 hours (Total, all aircraft), 467 hours (Total, this make and model), 2650 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N5866S
Model/Series:	S35	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Utility	Serial Number:	D-7755
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	December 6, 2010 Annual	Certified Max Gross Wt.:	3300 lbs
Time Since Last Inspection:	5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3222 Hrs at time of accident	Engine Manufacturer:	CONT MOTOR
ELT:	C91A installed, activated, did not aid in locating accident	Engine Model/Series:	IO 520 SERIES
Registered Owner:	On file	Rated Power:	285 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:	A488,4994 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	18:47 Local	Direction from Accident Site:	90°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.25 inches Hg	Temperature/Dew Point:	-2°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Santa Rosa, CA (STS)	Type of Flight Plan Filed:	None
Destination:	Chester, CA (O05)	Type of Clearance:	None
Departure Time:	17:45 Local	Type of Airspace:	

Airport Information

Airport:	Chester Rogers Field O05	Runway Surface Type:	Asphalt
Airport Elevation:	4528 ft msl	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	None
Runway Length/Width:	5000 ft / 100 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	40.279724,-121.228614

Administrative Information

Investigator In Charge (IIC): Simpson, Elliott

Additional Participating Persons: Don K Newport; Federal Aviation Administration FSDO; Reno, NV
Andrew Swick; Teledyne Continental Motors; Mobile, AL
Paul Yoos; Hawker Beechcraft Corporation; Wichita, KS

Original Publish Date: December 27, 2011

Last Revision Date:

Investigation Class: [Class](#)

Note: The NTSB traveled to the scene of this accident.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=78119>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).