Aviation Investigation Final Report

Location:	Hesperia, California	**Accident Number:**	WPR18FA171
Date & Time:	June 14, 2018, 17:00 Local	**Registration:**	N580B
Aircraft:	Beech A35	**Aircraft Damage:**	Destroyed
Defining Event:	Abrupt maneuver	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a personal flight; witnesses reported that the takeoff and initial climb appeared normal, however something came off the airplane near the end of the runway. The airplane climbed to about 800 ft before the nose dropped and it made a "radical left turn." After the turn, the wings appeared vertical and the airplane lost about 400 ft. The airplane leveled out and appeared to be going back toward the airport, however the nose remained low. The airplane turned right and appeared to align with a road. The airplane then struck powerlines that were parallel to the road, impacted the ground, caught on fire, and came to rest inverted. The mechanic who worked on the airplane the day before the accident, reported that the airplane had quite a few maintenance issues; he completed a few maintenance items that the pilot wanted fixed. However, the mechanic indicated to the pilot that he shouldn't fly the airplane until the remaining work could be completed.

The pilot purchased the airplane less than a year before the accident. The airplane's most recent maintenance logbook entries were inconsistent and contained date corrections. In addition, there was a 6-7 year gap between the most recent logbook entries with about 27 hours recorded on the tachometer during that time.

Wreckage documentation revealed that several pieces of the spinner and spinner bulkhead had separated shortly after takeoff and were found on the departure end of the runway. Some of the screws remained attached to the spinner and were undamaged, however, a majority of the screw holes were ripped. Metallurgical examination revealed that the fractures across the rivets and rivet holes were consistent with progressive fatigue crack growth.

However, postaccident examination of the airframe and engine revealed no other anomalies that would have precluded normal operation. Damage signatures to the propeller blades were consistent with the engine producing power at the time of impact and it appears that the pilot should have been able to maintain sufficient altitude and airplane control to return to the airport.

Further, the pilot was likely attempting to return to the airport when he abruptly reversed course and lost excessive altitude that resulted in the collision with the powerline. Because the maintenance on the airplane had not been completed yet by the mechanic, the pilot's decision to fly an unairworthy airplane was improper.

Whether the pilot's underlying medical conditions or effects from his use of tramadol, an opioid, and meprobamate, a tranquilizer, both impairing substances, contributed to his unsafe decision-making, could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain airplane control during an attempted return to the airport following the separation of the spinner bulkhead during takeoff as a result of fatigue cracking. Contributing to the accident was the pilot's improper decision to fly an unairworthy airplane.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained
Aircraft	Prop/spinner section - Failure
Aircraft	Prop/spinner section - Fatigue/wear/corrosion
Aircraft	Prop/spinner section - Not serviced/maintained
Personnel issues	Decision making/judgment - Pilot
Personnel issues	Scheduled/routine maintenance - Pilot
Aircraft	(general) - Not serviced/maintained

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Initial climb	Part(s) separation from AC
Initial climb	Abrupt maneuver (Defining event)
Initial climb	Collision with terr/obj (non-CFIT)

On June 15, 2018, about 1700 Pacific daylight time, a Beech A35 airplane, N580B, was destroyed when it was involved in an accident in Hesperia, California. The pilot and passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

A witness located on the road at the south end of the airport reported that the takeoff appeared normal. When he saw the airplane again it was traveling in the opposite direction from the departure and at an altitude about powerline level. He then observed a fireball about 10 ft above the airplane before it impacted the ground in a nose low attitude with the wings vertical to the ground. The airplane then cartwheeled before it came to rest. Another witness located in a parking lot south and west of the departure end of the runway reported that the airplane's climb appeared normal, however, something came off the airplane near the end of the runway. The airplane climbed to about 800 ft before the nose dropped and it made a "radical left turn." After the turn, the wings appeared vertical and the airplane lost about 400 ft. The airplane leveled out and appeared to be going back toward the airport, however, the nose remained low. The airplane then turned right and appeared to align with a road before it went out of his sight.

An off-airport video captured the airplane's initial climb. The airplane climbed to an undetermined altitude when it made a steep left descending turn. The airplane completed about a 180^{o} turn back in the direction of the airport as it descended in a wings level attitude below the terrain and out of the cameras view.

Pilot Information

Certificate:	Private	**Age:**	44,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	August 31, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 13, 2017
Flight Time:	1605 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N580B
Model/Series:	A35	**Aircraft Category:**	Airplane
Year of Manufacture:	1948	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	D-1599
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 18, 2017 Annual	**Certified Max Gross Wt.:**	2650 lbs
Time Since Last Inspection:		**Engines:**	Reciprocating
Airframe Total Time:	2481 Hrs as of last inspection	**Engine Manufacturer:**	Continental Motors
ELT:	Not installed	**Engine Model/Series:**	O-360 SERIES
Registered Owner:		**Rated Power:**	225 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane was purchased by the pilot in September 2017. The airplane's most recent maintenance logbook entries were inconsistent and contained date corrections. The airplane's most recent logbook entries in the airframe, engine, and propeller logbooks referenced an annual inspection. The propeller logbook indicated the annual inspection was completed on August 17, 2017, at a tachometer time of 176.9 hours. The annual inspection in the engine logbook was dated September 18, 2017, at a tachometer time of 176.9. The airframe logbook indicated the annual inspection was completed on August 17, 2017; however, the date was darkened with unreadable numbers underneath. The previous maintenance entry in the logbooks indicated an annual inspection was completed on June 16, 2010, at a tachometer time of 149.7 hours and a total airframe time of 2,474.5 hours.

The mechanic, who worked on the airplane the day before the accident, reported that the airplane had quite a few maintenance issues, however, he completed a few items that the pilot wanted fixed. He replaced some side paneling and cowling, secured the left exhaust stack, and helped find the source of

an oil leak. When the engine was running to find the oil leak, the mechanic noted that the engine was not running particularly well. In addition, he noted that the throttle was only going to about 3/4 power despite the throttle lever being full forward. He observed that the oil leak was coming from the oil pressure line, so he capped the line. Since he did not have any oil lines with him, he informed the pilot that he could not fly until after he replaced the line the next day (the day of the accident). The pilot appeared unhappy about this because he needed to fly to a nearby airport, but he did not elaborate why. The mechanic noted that he did not record a maintenance logbook entry because the maintenance had not been completed at the time of the accident.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KVCV,2885 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	16:48 Local	**Direction from Accident Site:**	346°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	22 knots / 35 knots	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.75 inches Hg	**Temperature/Dew Point:**	33°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hesperia, CA (L26)	**Type of Flight Plan Filed:**	None
Destination:	Torrance, CA (TOA)	**Type of Clearance:**	None
Departure Time:	17:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Hesperia Airport L26	**Runway Surface Type:**	Asphalt
Airport Elevation:	3390 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	21	**IFR Approach:**	None
Runway Length/Width:	3910 ft / 50 ft	**VFR Approach/Landing:**	None

The pilot departed from runway 21 at L26. The departure end of the runway was about 650 ft from an abrupt ridgeline that descended to an east/west roadway below.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	34.372776,-117.309722(est)

The airplane came to rest on a road that was perpendicular to and about 100 ft below the runway. The first identified point of impact were about 36-ft high powerlines next to the road. The powerlines were severed.

The wreckage debris path was scattered about 325 ft eastward along the road starting near the severed powerlines and ending at the main wreckage. The debris path began with parallel slash marks that were along the right lane of traffic. A gouge was in the centerline of the roadway, followed by a 4-ft-wide and 12-ft-long stretch of disturbed concrete. Included in this area were two distinct propeller blade marks, one of which was distinctly curved. Continuing along the debris path were small fragments of blue glass, sheet metal, plexiglass, and engine components scattered along the roadway.

About 35 ft before the main wreckage was half of the upper cowling along with fragments of cylinder. The engine and most of the remaining engine cowling came to rest in the dirt along the right side of the roadway about 21 ft prior to the main wreckage. The main wreckage came to rest upside down and was heavily burned. The cabin area was destroyed by thermal damage. The inboard portion of the left wing was thermally damaged and not present. The right wing was bent aft towards the empennage. The inboard portion of the wing exhibited heavy thermal damage and was mostly melted; the outboard portion also exhibited heavy thermal damage. The aft fuselage was melted. The empennage was mostly intact.

Postaccident examination of the airframe and engine revealed no anomalies that would have precluded normal operations. Visual examination of the engine revealed no obvious signs of catastrophic engine failure. The two blade, variable pitch propeller, remained attached to the crankshaft spline and was properly secured. Both propeller blades remained within the propeller hub and both blades displayed impact damage signatures. Blade #1 displayed significant S-bending deformation, twisting deformation, leading edge gouging, and chordwise scratches at the blade tip. Blade #2 displayed minor aft bending deformation, significant tip curling deformation, and chordwise scratches at the blade tip. The propeller was rotated by hand and continuity was established throughout the engine. All cylinders exhibited thumb compression and suction, with the exception of the No. 5 cylinder, which exhibited significant impact-related damage. The oil pressure indicating line was capped off. The magnetos were removed from the engine and spark was produced when rotated. The fuel pump was disassembled, and no anomalies were noted with the internal components. Flight control continuity was established throughout the airframe.

The airplane's spinner and fragments of spinner bulkhead were located in the grass next to the departure end of runway 21. The spinner bulkhead was found separated into several pieces; some of the screws remained attached to the spinner and were undamaged, however, a majority of the screw holes were

ripped. The fractures in the spinner bulkhead pieces were located across rivets or rivet holes. Metallurgical examination indicated that each fracture surface showed crack arrest marks, consistent with progressive crack growth, which was identified as fatigue cracking.

Medical and Pathological Information

The San Bernard County Coroner, San Bernardino, California performed an autopsy on the pilot. The pilot's cause of death was multiple blunt force injuries with inhalation of combustible products and thermocutaneous burns.

The FAA's Forensic Sciences Laboratory performed toxicology testing on liver and muscle tissue samples. The testing identified tramadol and its metabolite O-desmethyltramadol as well as meprobamate in the available tissues. Tramadol is an opiod pain medicine available by prescription as a Schedule IV controlled substance. It carries warnings for the risk of addiction with its use, and increased risk of seizures. Meprobamate is a prescription tranquilizer available by prescription as a Scheduled IV controlled substance used to treat anxiety. Both medications carry the warnings that they may impair the mental and/or physical abilities required for performance of potentially hazardous tasks such as driving or operating machinery. Both of these are considered impairing and carry specific warnings about their use in combination.

Administrative Information

Investigator In Charge (IIC):	Link, Samantha		
Additional Participating Persons:	Michael Baudoux; Federal Aviation Administration; Riverside, CA Kurt Gibson; Continental Motors; Mobile, AL Andrew Hall; Textron Aviation; Wichita, KS		
Original Publish Date:	December 3, 2020	**Investigation Class:**	2
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97484		

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.