



Aviation Investigation Final Report

Location:	Tehachapi, California	Accident Number:	WPR21LA111
Date & Time:	February 13, 2021, 16:27 Local	Registration:	N40TS
Aircraft:	PIPER AIRCRAFT INC PA46R-350T	Aircraft Damage:	Destroyed
Defining Event:	Windshear or thunderstorm	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The non-instrument-rated pilot departed on a cross-country flight. Radar track data revealed the airplane traveled on a relatively straight course to the northeast for about 32 minutes. Near the end of the flight track data, the track showed an increasingly tight left spiraling turn near the accident site. The airplane impacted steep sloping terrain, and a postimpact fire ensued. As a result of the impact, the airplane was segmented into several sections.

Examination of the wreckage revealed no evidence of mechanical malfunction or failures that would have precluded normal operation. The attitude indicator instrument was disassembled, and the vacuum-powered rotor and housing revealed rotational scoring damage, indicating the instrument vacuum system was operational at the time of the accident.

The investigation found no evidence indicating the pilot checked the weather or received weather information before departure. The surrounding weather reporting stations near the accident site reported wind conditions with peak gusts up to 47 knots around the time of the accident. The pilot likely encountered mountain wave activity with severe turbulence, which resulted in loss of control of the airplane and impact with terrain. Contributing to the accident was the pilot's failure to obtain a preflight weather briefing, which would have alerted him to the presence of hazardous strong winds and turbulent conditions.

Postmortem toxicology testing of the pilot's lung and muscle tissue samples detected several substances that are mentally and physically impairing individually and even more so in combination for performing hazardous and complex tasks. However, blood concentrations are needed to determine the level of impairment, and no blood samples for the pilot were available. While the pilot was taking potentially impairing medications and likely had conditions

that would influence decision making and reduce performance, without blood concentrations, it was not possible to determine whether the potentially impairing combination of medications degraded his ability to safely operate the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's encounter with mountain wave activity with severe turbulence, which resulted in a loss of airplane control. Contributing to the accident was the pilot's failure to obtain a preflight weather briefing.

Findings

Personnel issues	Weather planning - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	Terrain induced turbulence - Effect on equipment

Factual Information

History of Flight

Enroute-cruise	Windshear or thunderstorm (Defining event)
Enroute-cruise	Turbulence encounter

On February 13, 2021, about 1627 Pacific standard time, a Piper PA46R-350T airplane, N40TS, was destroyed when it was involved in an accident near Tehachapi, California. The non-instrument-rated pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Flight track data revealed that, the airplane departed from Camarillo Airport (CMA), Camarillo, California, and flew an outbound heading of about 61° true for about 7 minutes before turning to a heading of about 32° true. The airplane remained on this heading and climbed to the track's maximum altitude of 10,650 ft mean sea level (msl), 9 minutes later. The altitude remained about 10,500 ft for about 10 minutes then made a slow descent over the next 5 minutes before dropping off radar. Near the end of the flight track data, the flight track showed a tight left turn follow by a steep descending spiral left turn. The last flight track data was over the accident site.

Concerned family members contacted the Federal Aviation Administration (FAA) the following day and an alert notice (ALNOT) was issued for the missing airplane. The airplane was found on the morning of February 15 in rugged steep terrain.

According to a family member, the pilot regularly flew from CMA to Mammoth Yosemite Airport (MMH), Mammoth Lakes, California, where he had a home. The family member also stated that the pilot had flown his helicopter for about an hour with his flight instructor on the day of the accident before departing on the accident flight.

An FAA accident coordinator interviewed the pilot's flight instructor who reported that the pilot appeared to be in good spirits. The flight instructor stated that the pilot was "very physically capable of flying the accident airplane on that day."

A search of the FAA automated flight service station contract provider Leidos indicated that they had no contact with the accident pilot for any weather briefing on the day of the accident and no third-party vendors that utilized their system made any requests for weather data or to file any flight plans for the pilot.

Accident site photos revealed that the airplane impacted a steep north-facing slope. The airplane was found in several sections and postcrash fire damage was concentrated to the

cabin section and inboard wings. All the airplane's flight controls were identified at the accident site. The accident site was at an elevation of about 4,900 ft msl.

The postaccident examination of the airframe and engine revealed no evidence of mechanical malfunction or failures that would have precluded normal operation. The backup attitude indicator instrument was disassembled, and the rotor and case were removed. The vacuum-powered rotor and housing revealed rotational scoring damage to both the rotor and interior of the housing.

The last entry in the aircraft maintenance logbook indicated an annual inspection that was performed on November 20, 2020, at a tachometer reading of 877.7 hours. The engine was overhauled and installed on August 1, 2019, at a tachometer time of 798.2. Airframe total time was not obtained during the investigation.

PILOT INFORMATION

At his most recent FAA medical certification examination on June 5, 2020, the pilot reported no medication use or medical conditions. He reported a back injury from a car accident in 2014. No personal flight records were located for the non-instrument rated pilot.

MEDICAL AND PATHOLOGICAL INFORMATION

According to the autopsy report from the Sheriff-Coroner-Public Administration Office, Bakersfield, California, the pilot's death was caused by multiple injuries and the manner of death was accident.

Toxicology testing detected diazepam and its metabolites nordiazepam, oxazepam, and temazepam; butorphanol; carisoprodol and its active metabolite meprobamate; and citalopram and its metabolite n-desmethylcitalopram in muscle and lung tissue. No blood was available for toxicological testing.

Diazepam, commonly marketed as Valium, is a sedating benzodiazepine available by prescription as a controlled substance and used to treat anxiety; it is also useful to help treat muscle spasms, alcohol withdrawal, and seizures. It is metabolized to the active metabolites nordiazepam or temazepam. These compounds are further metabolized to the active metabolite oxazepam. Diazepam and its metabolites carry the warning that they may impair the mental and physical ability to perform hazardous tasks.

Butorphanol is a synthetic opioid prescribed for severe pain management. It is an impairing medication and carries the warning that patients should not drive or operate dangerous machinery until they know how they will react to the medication. Concomitant use of opioids with benzodiazepines and other central nervous system depressants such as muscle relaxants and alcohol can result in profound sedation.

Carisoprodol, commonly marketed as Soma, is a muscle relaxant prescribed to relieve acute, painful musculoskeletal conditions and muscle spasms. It is metabolized to its active metabolite meprobamate. Both have sedative properties and can impair the mental and physical abilities required for performing hazardous tasks such as driving.

Citalopram is a prescription antidepressant medication marketed under the trade name Celexa. N-desmethylocitalopram is the active metabolite of citalopram. Both carry the warning that their use may impair mental or physical ability for performing hazardous tasks. The therapeutic range for citalopram is 50 to 110 ng/mL and its half-life is 25 to 35 hours. The FAA will consider a special issuance of a medical certificate for depression after six months of treatment if the applicant is clinically stable and using only one approved treatment medication. Citalopram is one of the FAA approved antidepressant medications.

METEOROLOGICAL INFORMATION

Weather around the accident site was reported as marginal visual flight rules (MVFR) conditions due to low ceilings and visibility in light rain and mist before the accident with peak winds reported to 40 knots. The National Weather Service had advisories current for turbulence over the region and included G-AIRMET Tango and Center Weather Advisory, which bordered the area for severe turbulence below 15,000 ft.

The closest weather reporting station to the accident site was at Tehachapi Municipal Airport (TSP), Tehachapi, California, located approximately 7 ½ miles north of the accident site at an elevation 4,001 ft. The airport had an automated weather observation system (AWOS) and issued observations every 20 minutes. The following conditions were reported at the approximate time of the accident.

TSP weather observation at 1615 PST, automated, wind from 310° at 19 knots gusting to 26 knots, visibility 10 miles or more, ceiling broken at 1,200 ft agl, broken at 1,700 ft, overcast at 2,500 ft, temperature 5° C, dew point 4° C, altimeter 29.92 inches of mercury (inHg).

The next closest weather reporting station was located approximately 12 miles east of the accident site at Mojave Air and Space Port (MHV), Mojave, California, with an elevation of 2,801 ft. The airport also had an AWOS and issued observations every 20-minutes. The following conditions were reported at the approximate time of the accident.

MHV weather observation at 1620 PST, automated, wind from 300° at 33 knots gusting to 47 knots, visibility 10 miles or more, sky clear below 12,000 ft agl, temperature 10° C, dew point temperature 0° C, altimeter 29.75 inHg. Remarks; automated station without a precipitation discriminator.

Pilot Information

Certificate:	Private	Age:	56, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3	Last FAA Medical Exam:	June 5, 2020
Occupational Pilot:	No	Last Flight Review or Equivalent:	April 26, 2017
Flight Time:	1820 hours (Total, all aircraft), 63 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER AIRCRAFT INC	Registration:	N40TS
Model/Series:	PA46R-350T	Aircraft Category:	Airplane
Year of Manufacture:	2010	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	4692156
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	November 20, 2020 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	877.7 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Installed	Engine Model/Series:	TIO-540-AE2A
Registered Owner:		Rated Power:	350 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KTSP,4001 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	16:15 Local	Direction from Accident Site:	341°
Lowest Cloud Condition:	1200 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 1200 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	19 knots / 26 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.92 inches Hg	Temperature/Dew Point:	5°C / 4°C
Precipitation and Obscuration:			
Departure Point:	Camarillo, CA (KCMA)	Type of Flight Plan Filed:	None
Destination:	Mammoth Lakes, CA (KMMH)	Type of Clearance:	VFR
Departure Time:	15:55 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:		Aircraft Explosion:	Unknown
Total Injuries:	1 Fatal	Latitude, Longitude:	35.000407,-118.3874(est)

Administrative Information

Investigator In Charge (IIC):	Swick, Andrew		
Additional Participating Persons:	Mark Platt; Lycoming Engines; Phoenix, AZ Kathryn Whitaker; Piper Aircraft; Phoenix, AZ Jerry Dees; FAA-FSDO; Van Nuys, CA		
Original Publish Date:	April 19, 2023	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=102630		

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](#).