



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Steamboat Springs, Colorado	Accident Number:	CEN22FA069
Date & Time:	December 10, 2021, 18:09 Local	Registration:	N744Z
Aircraft:	Piper PA46-500TP	Aircraft Damage:	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a solo night cross-country flight in low visibility through mountainous terrain. The pilot was then cleared by an air traffic controller to conduct a RNAV (GPS)-E instrument approach into the destination airport. After passing the final approach fix and before the missed approach point, the pilot, for an unknown reason, executed a left turn, consistent with the missed approach procedure. During the turn toward the holding waypoint, the airplane did not climb. Shortly thereafter, the airplane impacted steep rising terrain. The local weather at the time of the accident indicated a cloud ceiling of 1,200 ft above ground level and 1 statute mile visibility, which was below the weather minimums for the approach. Data retrieved from the onboard avionics revealed that although the pilot flew the published route in accordance with the instrument approach procedure, the minimum required altitudes were not adhered to.

A review of the ForeFlight weather briefing data indicated that a route weather briefing had been generated by the pilot with the filing of the instrument flight rules (IFR) flight plan. While no weather imagery was reviewed during the period, the pilot had checked METARs for the destination and another nearby airport before departure and viewed the RNAV (GPS)-E approach procedure at the destination airport. A review of the data that was presented to the pilot indicated that visual flight rules conditions prevailed at the destination with light snow in the vicinity at the time it was generated. Based on the preflight weather briefing the pilot obtained, he was likely unaware of the IFR conditions and below minimum weather conditions at the destination until he descended into the area and obtained the current local weather during the flight.

It is probable that, based upon the weather and flight track information, as the pilot was on the instrument approach, he became aware of the below minimum weather conditions and elected

to initiate the missed approach, as evident by the turn away from the airport similar to the missed approach procedure and the flaps and landing gear being in transition. This investigation was unable to determine why the missed approach procedure was prematurely initiated and why the airplane failed to climb. Additionally, there were no preimpact mechanical malfunctions or anomalies found during a postaccident examination that would have precluded normal operation.

Probable Cause and Findings

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

The pilot's failure to adhere to the published instrument approach procedure, which resulted in controlled flight into terrain.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Identification/recognition - Pilot
Environmental issues	Below approach minima - Decision related to condition
Environmental issues	Missed approach procedure - Compliance w/ procedure
Environmental issues	Instrument approach procedure - Compliance w/ procedure

Factual Information

History of Flight

Approach-IFR missed approach	Controlled flight into terr/obj (CFIT) (Defining event)
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On December 10, 2021, about 1809 mountain standard time, a Piper PA46-500TP, N744Z, was substantially damaged when it was involved in an accident near Steamboat Springs, Colorado. The pilot and sole occupant was fatally injured. The airplane was operated under Title 14 *Code of Federal Regulations* (CFR) Part 91 as a personal flight.

A review of archived Federal Aviation Administration (FAA) automatic dependent surveillance-broadcast (ADS-B) data revealed that the airplane departed Cody, Wyoming (COD), about 1705 and was en route to Steamboat Springs/Bob Adams Field (SBS). FAA air traffic control data showed that the pilot was operating on an instrument flight rules flight plan and at 1757 was cleared by an air traffic controller to conduct the RNAV (GPS)-E instrument approach procedure at SBS (see figure 1).

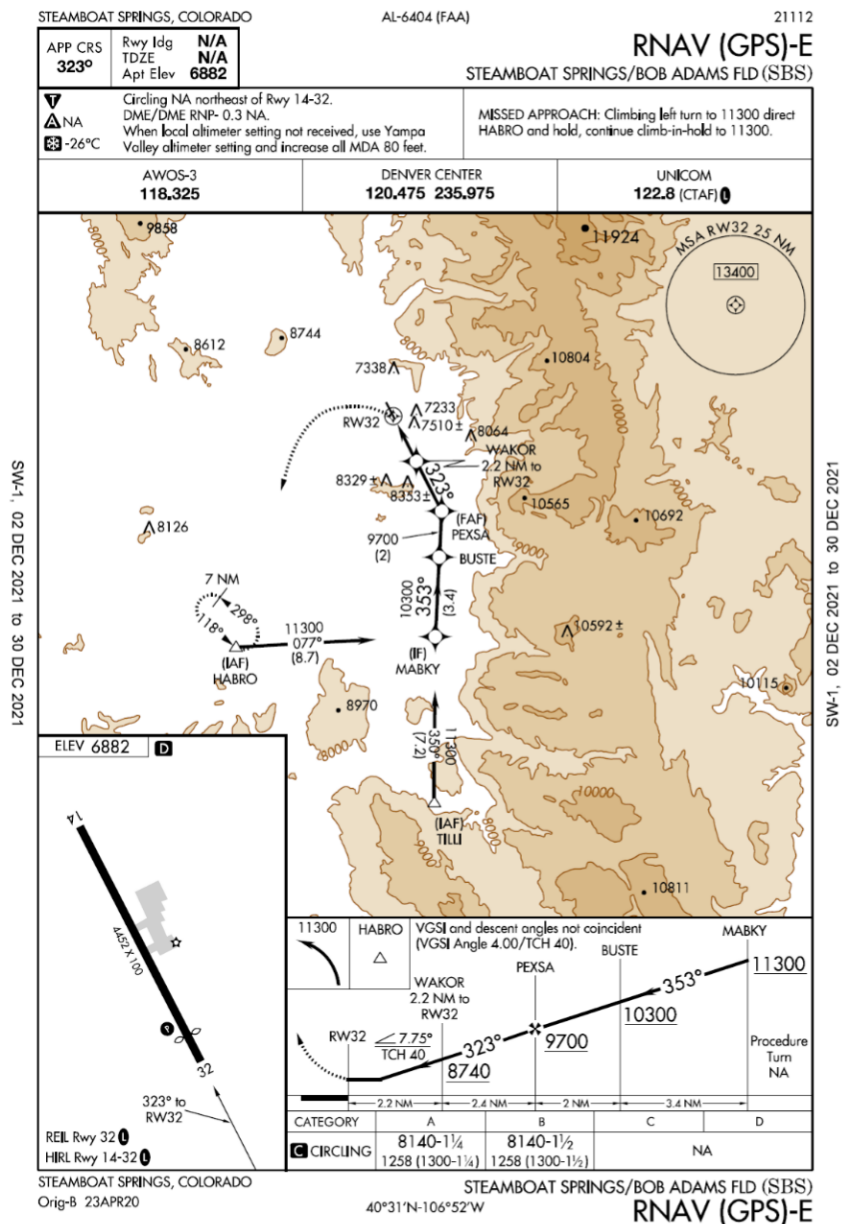


Figure 1: Published Instrument Approach Procedure

For terrain clearance, the procedure required the airplane to cross the final approach fix PEXSA at or above 9,700 ft mean sea level (msl) and WAKOR, the next waypoint located 2.2 nm from runway 32 threshold, at or above 8,740 ft msl. The ADS-B data showed that the accident airplane crossed PEXSA about 9,100 ft msl and WAKOR about 8,200 ft msl respectively.

The procedure allowed for a descent to the minimum descent altitude of 8,140 ft msl or 1,258 ft above ground level after passing WAKOR. The missed approach point for the procedure was

the runway 32 approach end, and then required a climbing left turn to 11,300 ft msl and indicated the pilot should proceed direct to the HABRO waypoint to enter a holding pattern. Immediately after passing WAKOR, the airplane made a left turn as shown in figure 2 and descended to an altitude of about 7,850 ft msl. The airplane subsequently began to climb, and the last ADS-B data point recorded at 1808:49 indicated an altitude of about 8,125 ft msl and was located about 3.5 miles north of the accident site.

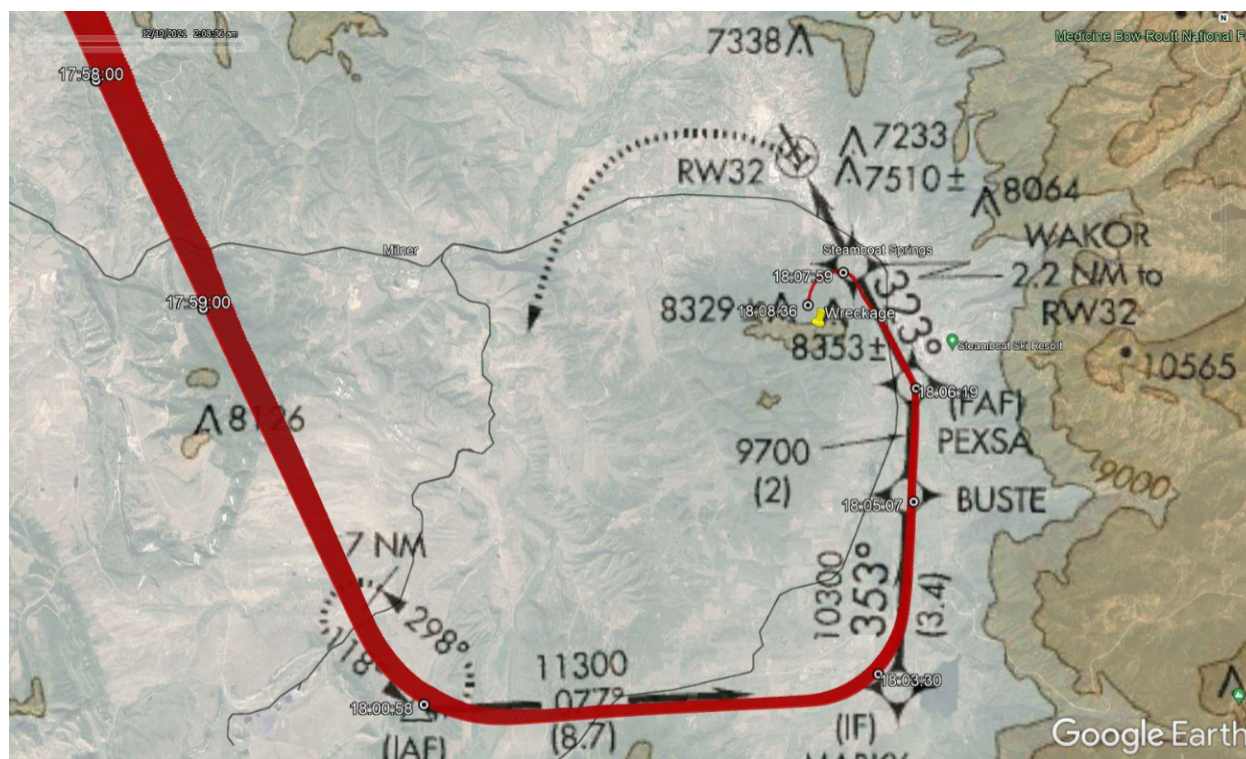


Figure 2: A Google Earth plot showing the accident aiplane's ground track in the vicinity of the KSBS terminal area. An FAA published approach plate for the RNAV (GPS)-E approach has been overlaid with a 50% opacity. A yellow pin has been added indicating the position of the wreckage.

Pilot Information

Certificate:	Private	Age:	43, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	March 4, 2021
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 581 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N744Z
Model/Series:	PA46-500TP	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	4697134
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Turbo prop
Airframe Total Time:		Engine Manufacturer:	Pratt and Whitney Canada
ELT:	C126 installed, activated, aided in locating accident	Engine Model/Series:	PT6A-42A
Registered Owner:	Cowboy Air LLC	Rated Power:	
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Night
Observation Facility, Elevation:	KSBS, 6879 ft msl	Distance from Accident Site:	7 Nautical Miles
Observation Time:	17:55 Local	Direction from Accident Site:	342°
Lowest Cloud Condition:		Visibility	1 miles
Lowest Ceiling:	Overcast / 1200 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	5 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.95 inches Hg	Temperature/Dew Point:	-9°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cody, WY (COD)	Type of Flight Plan Filed:	IFR
Destination:	Steamboat Springs, CO (SBS)	Type of Clearance:	IFR
Departure Time:	17:00 Local	Type of Airspace:	Class E

A search of the FAA contract automated flight service station Leidos indicated that they had no contact with the pilot nor did any third-party vendors utilizing the Leidos Flight Service system on December 10 or 11, 2021. A search of ForeFlight indicated that they had an account with the pilot who filed an IFR flight plan through their system for the flight between COD to SBS. Before the accident flight the pilot did not view any weather imagery but did enter the flight route into the system, which generated a general route briefing. As a part of that briefing, the pilot was provided the current METAR for SBS, which indicated a broken cloud ceiling of 4,500 ft and 7 sm visibility.

Airport Information

Airport:	STEAMBOAT SPRINGS/BOB ADAMS FLD SBS	Runway Surface Type:	
Airport Elevation:	6882 ft msl	Runway Surface Condition:	Snow
Runway Used:		IFR Approach:	Global positioning system
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	40.459893,-106.85728

The airplane first impacted Emerald Mountain about 8,172 ft msl on a heading of about 164° as evidenced by broken and cut tree branches. After the initial impact, the airplane bounced and came to rest about 8,216 ft msl, and sustained substantial damage to the fuselage, tail and both wings.

A postaccident examination of the airframe, engine, and propeller revealed no pre-accident mechanical malfunctions or anomalies that would have precluded normal operation. The positions of the landing gear and flap actuator were consistent with both being in transit at the time of impact.

Additional Information

Data recovered from the Garmin GPS revealed that the airspeed varied between 89 and 110 knots during the instrument approach. 14 CFR 97.3 states that approach category is determined by either the reference landing speed (V_{REF}), if specified, or if V_{REF} is not specified, $1.3 V_{SO}$ at the maximum certificated landing weight. The Piper PA46-500TP Pilot's Operating Handbook did not specify a V_{REF} but did state that V_{SO} at maximum certificated landing weight was 69 knots. When multiplied by a factor of 1.3, the resultant value was 89.7. 14 CFR 97.3 further stated that if the speed was less than 91 knots, the airplane would fall into a Category A approach category and if it was between 91 knots, but less than 121 knots, it would fall into a

Category B approach category. The instrument approach procedure for a Category A aircraft required 1¼ sm flight visibility for landing and a Category B aircraft required 1 ½ sm flight visibility for landing. It could not be determined if the pilot decided his approach category based upon 1.3 V_{SO} or the actual approach speed flown.

Administrative Information

Investigator In Charge (IIC):	Williams, David
Additional Participating Persons:	Matt Cady; FAA - FSDO; Denver, CO Kathryn Whitaker; Piper Aircraft; Vero Beach, FL Les Doud; Hartzell; Piqua, OH
Original Publish Date:	June 8, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=104385

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