Aviation Investigation Final Report

Location:	Animas, New Mexico	**Accident Number:**	WPR21LA141
Date & Time:	March 24, 2021, 00:21 Local	**Registration:**	N74786
Aircraft:	Mooney M20B	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During a night instrument flight rules cross-country flight, the airplane encountered weather that included clouds and icing conditions. Shortly thereafter, the engine began to run rough and lose power; radar contact was lost, and the airplane was located in mountainous terrain.

Postaccident examination of the airframe and engine revealed no mechanical anomalies that would have precluded normal operation.

Weather conditions reported at the time of the accident were conducive to the formation of serious carburetor icing at cruise power settings. The pilot reported that, during a climb into clouds, with the carburetor heat off, the engine began to run rough and was losing rpms before he applied carburetor heat. Therefore, it is likely that carburetor ice accumulated during the climb, which resulted in a partial loss of engine power.

Probable Cause and Findings

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

The pilot's delayed use in the operation of carburetor heat which resulted in a loss of engine power due to carburetor icing.

Findings

Personnel issues	Delayed action - Pilot
Aircraft	Intake anti-ice, deice - Not used/operated
Environmental issues	Conducive to carburetor icing - Effect on equipment

Factual Information

History of Flight

Enroute-cruise	Fuel related (Defining event)
Enroute-cruise	Loss of engine power (partial)
Enroute-cruise	Off-field or emergency landing

HISTORY OF FLIGHT

On March 24, 2021, 0021 mountain daylight time, a Mooney M20B, N74786, was substantially damaged when it was involved in an accident near Animas, New Mexico. The pilot and passenger were seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, while on an instrument flight rules (IFR) flight plan from Fort Stockton-Pecos County Airport (FST), Fort Stockton, Texas, to Tucson International Airport (TUS), Tucson, Arizona, the airplane was accumulating light rime ice at 8,000 ft mean sea level (msl). He contacted Albuquerque Air Route Traffic Control and was instructed to climb to 14,000 ft msl. During the climb to 14,000 ft, the pilot reported climbing into clouds; the engine began to run rough and lost partial power. He applied carburetor heat and checked both magnetos. The pilot believed that he had lost both magnetos.

The airplane became the subject of an alert notice (ALNOT) after radio communication and radar contact was lost.

According to responding law enforcement, the airplane came to rest in mountainous terrain at an elevation about 5,010 ft msl about one mile northwest of Pinkey Wright Mountains.

A postaccident examination of the airframe and engine revealed no mechanical anomalies that would have precluded normal operation. The magnetos remained secured and attached to their respective mounting pads on the engine. Both magnetos were removed and manually rotated with spark observed at each P-lead.

Flight control continuity was established from the cockpit to all the flight control surfaces via their respective cables and hardware.

METEOROLOGICAL INFORMATION

The closest recorded aviation weather station was Grant County Airport (KSVC), Silver City, New Mexico, about 44 miles northeast of the accident site at an elevation of 5,446 ft msl. Recorded weather at 0015 included wind from 300° at 9 knots, 10 miles visibility in light rain, a

broken ceiling 1,300 ft above ground level (agl), an overcast cloud layer at 2,200 ft agl, temperature 35° F, dew point 33°F, altimeter 29.79 inches of mercury (inHg).

AIRMET advisories for mountain obscuration conditions, moderate turbulence below 16,000 ft, and moderate icing between the freezing level and 20,000 ft msl were valid for the area of the accident site at the time of the accident.

The atmospheric sounding supported an overcast layer of clouds with bases near 200 ft agl and tops to 16,000 ft msl, rain showers, and a freezing level of 1,400 ft agl (6,400 ft msl). The sounding also supported the potential for light to moderate turbulence between 5,800 and 17,000 ft. Light rime to clear type icing in the clouds was identified between 6,400 ft and 16,000 ft. The Federal Aviation Administration Special Airworthiness Information Bulletin CE-09-35, Carburetor Icing Prevention, stated the following:

Pilots should be aware that carburetor icing doesn't just occur in freezing conditions, it can occur at temperatures well above freezing temperatures when there is visible moisture or high humidity. Icing can occur in the carburetor at temperatures above freezing because vaporization of fuel, combined with the expansion of air as it flows through the carburetor, (Venturi Effect) causes sudden cooling, sometimes by a significant amount within a fraction of a second. Carburetor ice can be detected by a drop in rpm in fixed pitch propeller airplanes and a drop in manifold pressure in constant speed propeller airplanes. In both types, usually there will be a roughness in engine operation.

The special airworthiness information bulletin included a chart that showed the probability of carburetor icing for various temperature and relative humidity conditions. According to that chart, the weather conditions at the time of the accident were conducive to serious carburetor icing at cruise power.

Pilot Information

Certificate:	Private; Remote	**Age:**	29,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Unmanned (sUAS)	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	September 1, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	November 25, 2020
Flight Time:	(Estimated) 900 hours (Total, all aircraft), 400 hours (Total, this make and model), 800 hours (Pilot In Command, all aircraft)		

Passenger Information

Certificate:		**Age:**	28,Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	Lap only
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N74786
Model/Series:	M20B	**Aircraft Category:**	Airplane
Year of Manufacture:	1961	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1786
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 15, 2020 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5001.35 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	O-360-A1D
Registered Owner:	On file	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KDMN,4301 ft msl	**Distance from Accident Site:**	38 Nautical Miles
Observation Time:	01:29 Local	**Direction from Accident Site:**	71°
Lowest Cloud Condition:		**Visibility**	9 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots / 20 knots	**Turbulence Type Forecast/Actual:**	Terrain-Induced / Unknown
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	Light / Unknown
Altimeter Setting:	29.8 inches Hg	**Temperature/Dew Point:**	4°C / 2°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Ft Stockton, TX (KFST)	**Type of Flight Plan Filed:**	IFR
Destination:	Tucson, AZ (KTUS)	**Type of Clearance:**	IFR
Departure Time:	11:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	FORT STOCKTON-PECOS COUNTY FST	**Runway Surface Type:**	
Airport Elevation:	3011 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	32.0779,-108.7278(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Michael Petrofes; Federal Aviation Administration; Albuquerque, NM
Original Publish Date:	April 19, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102801