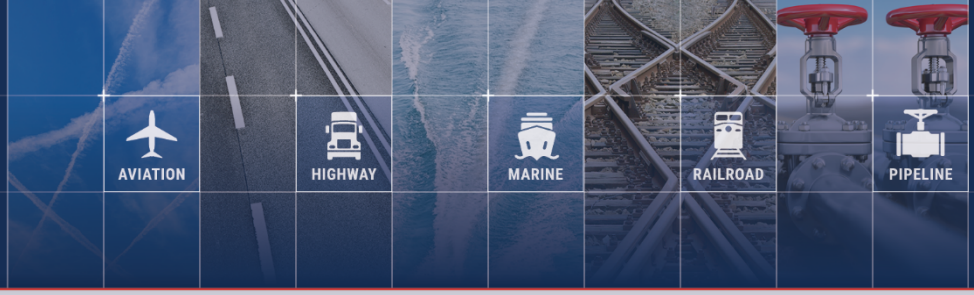

Aviation Investigation Final Report

Location:	Palm City, Florida	**Accident Number:**	ERA23FA239
Date & Time:	May 21, 2023, 15:30 Local	**Registration:**	N6042E
Aircraft:	COMMANDER AIRCRAFT CO 114TC	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

An eyewitness observed the accident airplane flying at low altitude before the engine made an unusual noise and stopped producing power, after which the airplane entered a descending turn to the ground. The airplane was mostly consumed by a post-impact fire. The wreckage was located about 700 yards north of an airport runway, and it could not be determined if the airplane was departing or arriving at that airport when the accident occurred. Examination of the engine revealed normal compression, ignition, and fuel system function. Although the airplane's fuel quantity at the time of the accident could not be determined due to fire damage, no blockages or anomalies were found with the remaining components of the fuel system. Examination of the wreckage confirmed flight control continuity and found no evidence of pre-impact mechanical failure.

Toxicological results indicated that the pilot had used a cannabis product; however, without delta-9-THC or the psychoactive metabolite of delta-9-THC detected in blood, it is unlikely that the pilot was experiencing significant impairing acute psychoactive effects of cannabis at the time of the accident.

Although the circumstances of the accident are consistent with a loss of engine power, the reason for the loss of power could not be determined, as postaccident examination did not reveal any evidence of a mechanical malfunction or anomaly. The descending turn before impact as described by the witness was consistent with an aerodynamic stall and loss of control, likely as a result of the pilot's failure to maintain airspeed following the loss of engine power.

Probable Cause and Findings

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

A loss of engine power for undetermined reasons, and the pilot's subsequent loss of control, which resulted in impact with terrain.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering	Loss of control in flight
Maneuvering	Loss of engine power (total) (Defining event)

On May 21, 2023, about 1530 eastern daylight time, a Commander 114TC airplane, N6042E, was destroyed when it was involved in an accident near Palm City, Florida. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

An eyewitness near the accident site reported that she saw the airplane flying at a low altitude over the trees. The witness noted that the engine sounded normal; however, as the airplane approached, the engine made a strange noise and abruptly stopped. The airplane entered a descending turn and impacted the ground before sliding to a stop in a small ditch. After impact, the airplane caught fire, and the cockpit became engulfed in flames. Despite the efforts of bystanders, the pilot could not be extricated from the airplane. Emergency services arrived shortly thereafter and extinguished the fire.

Pilot Information

Certificate:	Private	**Age:**	69,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	September 21, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1437 hours (Total, all aircraft), 168 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	COMMANDER AIRCRAFT CO	**Registration:**	N6042E
Model/Series:	114TC NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	2000	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	20030
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 20, 2023 Annual	**Certified Max Gross Wt.:**	3260 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1302 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540-AG1A
Registered Owner:	On file	**Rated Power:**	270 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SUA,18 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	15:48 Local	**Direction from Accident Site:**	74°
Lowest Cloud Condition:	Few / 3000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots / 16 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	90°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	30°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palm City, FL	**Type of Flight Plan Filed:**	None
Destination:	Palm City, FL	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	Naked Lady Ranch Airport 64FA	**Runway Surface Type:**	
Airport Elevation:	22 ft msl	**Runway Surface Condition:**	Dry;Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	27.152796,-80.336658(est)

The wreckage was located about 700 yards north of the departure end of runway 36 at Naked Lady Ranch Airport (64FA), Stuart, Florida. All flight control surfaces were accounted for at the accident site. The cockpit and fuselage sustained damage due to impact and the post-impact fire. The flight control cables remained exposed but intact, connected to their respective flight control surfaces and bellcranks. Flight control continuity was established throughout the flight control system. The left and right wings were impact- and fire- damaged, while the vertical and horizontal stabilizers remained intact. The rudder and elevators exhibited signs of soot from the ground fire.

The fuel selector was found in the right tank position and was tested using forced air. All fuel selector positions were checked, and the detent on the selector operated properly. No anomalies were noted with the fuel selector. The amount of fuel each fuel tank could not be determined due to the fire damage of the fuel tanks.

The engine remained attached to the engine mounts and displayed evidence of fire damage. It was equipped with a three-blade propeller. One blade appeared undamaged, while another exhibited chordwise scoring and a bent tip. The third blade was bent aft beneath the fuselage of the airplane.

The examination of the engine revealed continuous valvetrain continuity throughout the engine and accessory components when the crankshaft was rotated 720°. Compression was observed in all cylinders. An unquantified amount of oil leakage was noted from the engine due to the impact-damaged oil supply lines. The spark plugs appeared normal and did not exhibit any signs of malfunction. The magnetos were removed and their input drives rotated,

producing spark on all terminals. The propeller governor oil screen was free of debris. Both vacuum pumps were removed and displayed damage from impact and heat.

The fuel pump was removed and tested, demonstrating continuous fuel pumping as the input shaft was rotated. The fuel injectors were inspected and showed no signs of clogging. A trace amount of fuel was found within the fuel divider. The fuel inlet screen was removed from the fuel injection servo and found to be free and clear of debris.

Both turbine wheels of the turbocharger system were found undamaged and spun freely when rotated by hand. No debris was present on the inlet side.

Medical and Pathological Information

An autopsy of the pilot was performed by the District 19 Medical Examiner. According to the autopsy report, the cause of death was blunt force injuries, and the manner of death was accident.

FAA toxicology testing detected 11-hydroxy-THC in urine at 3.5 ng/mL and did not detect 11-hydroxy-THC in heart blood. Carboxy-delta-9-THC was detected in heart blood at 4.4 ng/dL and in urine at 22.6 ng/mL.

11-hydroxy-THC and carboxy-delta-9-THC: 11-hydroxy-THC is a psychoactive metabolite of delta-9-THC. Carboxy-delta-9-THC is a non-psychoactive metabolite of delta-9-THC. Delta-9-THC (which was not detected in this case) is the primary psychoactive chemical in cannabis, including marijuana, hashish, and other cannabis products such as extracts and edibles. Cannabis may be inhaled or ingested recreationally by users seeking mind-altering effects. The specific psychoactive effects of delta-9-THC vary depending on the user, user history of use, dose consumed, and route of consumption. Effects of cannabis use may impair motor coordination, worsen reaction time, impair decision making and problem solving, distort perceptions of reality, and decrease vigilance.

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Juan Garcia; FAA/FSDO; Miramar, FL Dave Harsanyi; Lycoming Engines; Williamsport, PA
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Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=192205