Aviation Investigation Final Report

Location:	Saffell, Arkansas	**Accident Number:**	CEN23LA228
Date & Time:	May 31, 2023, 17:30 Local	**Registration:**	N8405K
Aircraft:	GRUMMAN ACFT ENG COR-SCHWEIZER G-164	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot reported that shortly after takeoff on an aerial application flight to apply fertilizer to rice fields in a remote area the airplane unknowingly flew through a dust devil (also called a whirlwind), and subsequently lost lift.

The pilot estimated the dust devil was between 8 to 10 ft in diameter and reported no visible debris. The airplane subsequently impacted a dirt ditch, nosed over, and came to rest inverted. The pilot was able to egress from the airplane without further incident. The airplane sustained substantial damage to the engine mount, the fuselage, both wings, and the empennage.

The operator reported there were no preimpact mechanical malfunctions or failures with the airframe or the engine that would have precluded normal operation. The pilot reported that he had encountered several dust devils in earlier flights that day for the operating area. The pilot did not perform a hopper load dump during the accident sequence, as he reported flying the airplane was the priority. A review of the Federal Aviation Administration Aviation (FAA) Weather Handbook (FAA-H-8083-28) and the FAA Aeronautical Information Manual found no detailed information listed about dust devils or the potential hazards of flying through dust devils.

Probable Cause and Findings

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

The airplane’s encounter with a dust devil after takeoff, which resulted in a loss of lift, and a subsequent loss of control. Contributing to the accident was the presence of a dust devil in the airplane’s flight path.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Altitude - Attain/maintain not possible
Environmental issues	Dust devil/whirlwind - Effect on equipment
Environmental issues	Dust devil/whirlwind - Ability to respond/compensate
Environmental issues	Dust devil/whirlwind - Contributed to outcome

Factual Information

History of Flight

Takeoff	Other weather encounter
Takeoff	Attempted remediation/recovery
Takeoff	Loss of control in flight (Defining event)
Landing	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)
Landing	Nose over/nose down
Post-impact	Hazardous material leak/spill
Post-impact	Evacuation

Pilot Information

Certificate:	Commercial	**Age:**	51,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	March 1, 2023
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 14, 2021
Flight Time:	(Estimated) 16038 hours (Total, all aircraft), 15669 hours (Total, this make and model), 15915 hours (Pilot In Command, all aircraft), 145 hours (Last 90 days, all aircraft), 115 hours (Last 30 days, all aircraft), 12 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GRUMMAN ACFT ENG COR-SCHWEIZER	**Registration:**	N8405K
Model/Series:	G-164 B	**Aircraft Category:**	Airplane
Year of Manufacture:	1982	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	688B
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	January 23, 2023 Annual	**Certified Max Gross Wt.:**	6000 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo prop
Airframe Total Time:	12146 Hrs as of last inspection	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	Not installed	**Engine Model/Series:**	PT6A-34AG
Registered Owner:	On file	**Rated Power:**	750 Horsepower
Operator:	MJ AVIATION INC	**Operating Certificate(s) Held:**	Agricultural aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KARG,273 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	16:56 Local	**Direction from Accident Site:**	349°
Lowest Cloud Condition:	Few / 200 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	None / Convective
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	N/A / Unknown
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	31°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Saffell, AR	**Type of Flight Plan Filed:**	None
Destination:	Saffell, AR	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	35.934087,-91.2504(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Nathan Bradshaw; FAA Little Rock FSDO; Little Rock, AR
Original Publish Date:	July 7, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=192317

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