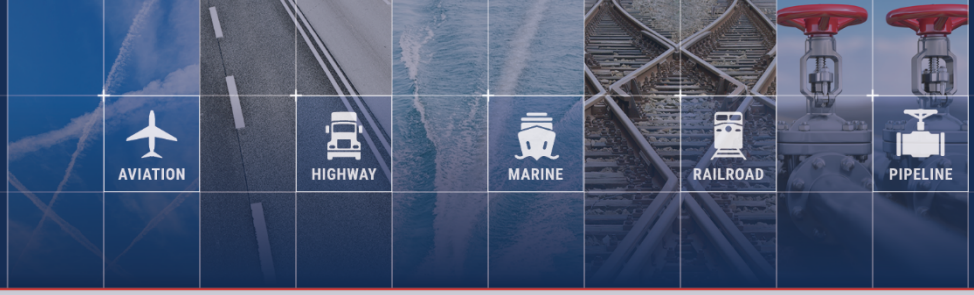

Aviation Investigation Final Report

Location:	DIXON, California	**Accident Number:**	LAX98LA280
Date & Time:	September 2, 1998, 06:30 Local	**Registration:**	N202AW
Aircraft:	Cessna 188B	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The agricultural airplane had flown the day before the accident flight with no discrepancies noted. This was the first flight of the day and the airplane was carrying a full load of sulfur for an application flight. After takeoff, the pilot made a turn to the left and experienced a partial loss of engine power. The pilot made a bank to the right to land in an open field. The airplane landed hard and bounced into the air. After the first bounce, the airplane was simultaneously on fire and rotating 180 degrees. The airplane struck the ground again and the pilot exited the airplane. The chemical manufacturer stated that the powdered sulfur dust compound used in aerial application operations was considered a moderate fire hazard. The airplane was destroyed by a post impact fire.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A partial loss of engine power for an undetermined reason, and the ignition of a highly combustible compound in the application hopper.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: FIRE
Phase of Operation: LANDING - ROLL

Findings
2. (C) AERIAL APPLICATION MATERIALS - OTHER

Factual Information

On September 2, 1998, at 0630 hours Pacific daylight time, a Cessna 188B, N202AW, experienced a loss of engine power after takeoff and made an emergency landing in an alfalfa field near Dixon, California. The aircraft, operated under 14 CFR Part 137 as an agricultural crop dusting operation by the William D. Joslin Corporation, was destroyed in a postimpact fire. The commercial instrument rated pilot, the sole occupant, was not injured. Visual meteorological conditions existed for the flight and no flight plan was filed.

The pilot stated that this was the first flight of the day and he was going to spray sulfur dust on a tomato field. After departure, he reduced power at approximately 100 feet agl. He experienced a partial loss of power, and made a forced landing in an adjacent alfalfa field. The pilot stated that after landing the aircraft caught fire and was destroyed in the ensuing fire.

A Federal Aviation Administration (FAA) inspector responded to the scene and interviewed the owner. Aircraft and engine testing were not conducted due to the postimpact fire. The owner reported that the aircraft had flown the day before the accident flight with no discrepancies noted. This was the first flight of the day and the aircraft was carrying a full load of sulfur. After takeoff the pilot made a turn to the left and the engine quit. The owner stated that the pilot attempted to return to the runway, and when he saw he was not going to make it made a slight banking turn to the right and aimed for an open field. The owner reported that the aircraft was in a nose high attitude with a high sink rate due to the full load of chemicals. The aircraft landed hard and bounced into the air. After the first bounce, the aircraft was simultaneously on fire and was rotating 180 degrees. The aircraft struck the ground again and the pilot exited the aircraft.

The chemical manufacturer was contacted and the representative stated that the powdered sulfur dust compound used in aerial application operations is considered a moderate fire hazard according to the National Fire Protection Association criteria. While the compound has a flash point of 374 degrees Fahrenheit, published studies (page 48, INVESTIGATION OF FIRE AND EXPLOSION HAZARDS IN CHEMICAL, MINING AND FUEL RELATED INSDUSTRIES Bureau of Mines, U.S. Department of Interior) demonstrate that atomized layers of clouds of dust may ignite at ignition temperatures of 190 degrees in air to substance density limits of less than 0.1 ounces per cubic foot. The test was conducted in a Hartman apparatus with a high voltage 24-watt spark source for ignition.

The manufacturer's representative noted that sulfur is processed in an inert atmosphere during manufacture into the powdered form to prevent potential explosions or fires.

Pilot Information

Certificate:	Commercial	**Age:**	31,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	December 5, 1997
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2100 hours (Total, all aircraft), 240 hours (Total, this make and model), 1850 hours (Pilot In Command, all aircraft), 87 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N202AW
Model/Series:	188B 188B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18800835
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	January 24, 1998 100 hour	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	40 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5853 Hrs	**Engine Manufacturer:**	Continental
ELT:		**Engine Model/Series:**	IO-520D
Registered Owner:	WILLIAM D. JOSLIN	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dawn
Observation Facility, Elevation:	SAC ,24 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	06:53 Local	**Direction from Accident Site:**	46°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	17°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, CA	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	06:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	38.389244,-121.809791(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	EARL BENEDICT; SACRAMENTO , CA
Original Publish Date:	June 21, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=43853