Aviation Investigation Final Report

Location:	Needville, Texas	**Accident Number:**	FTW04LA158
Date & Time:	June 10, 2004, 08:30 Local	**Registration:**	N4968X
Aircraft:	Rockwell International S-2R	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The 26,400-hour pilot reported that while maneuvering at an altitude of 110 feet above ground level while performing an aerial application on a field, the engine "blew," and he noticed that "the propellers did not feather." The pilot stated that during the forced landing, an in-flight fire ensued. After landing in an open field, the pilot evacuated the airplane and noted that the airplane was still on fire. Examination of the remaining portion of the engine revealed that the first and second stage turbine wheel, first and third stage stator, and the stator liner and assembly were fire damaged. No anomalies were observed during the examination. The reason for the loss of engine power and subsequent in-flight fire was undetermined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power and subsequent in-flight fire for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FIRE

Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings
2. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #3: FORCED LANDING
Phase of Operation: EMERGENCY LANDING

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
3. TERRAIN CONDITION - OPEN FIELD

Factual Information

On June 10, 2004, approximately 0830 central daylight time, a Rockwell International S-2R, single-engine, tailwheel-equipped, agricultural airplane, N4968X, registered to and operated by Farm & Ranch Aerial Service, Inc., of Wharton, Texas, sustained substantial damage during a forced landing following a loss of engine power and subsequent in-flight engine fire while maneuvering near Needville, Texas. The commercial pilot, who was the sole occupant of the airplane, sustained minor injuries. Visual meteorological conditions prevailed and a flight plan was not filed for the 14 Code of Federal Regulations Part 137 aerial application flight. The local flight departed from a private grass airstrip located near Eagle Lake, Texas, approximately 0753.

The 26,400-hour pilot reported that while maneuvering at an altitude of 110 feet above ground level while performing an aerial application on a field, the engine "blew," and he noticed that "the propellers did not feather." The pilot stated that during the forced landing, an in-flight fire ensued. After landing in an open field, the pilot evacuated the airplane and noted that the airplane was still on fire. The local volunteer fire department arrived to the accident site approximately 10 minutes later and extinguished the fire.

Examination of the wreckage by an Federal Aviation Administration (FAA) inspector, who responded to the accident site, revealed that the right wing spar was bent and the engine firewall was fire damaged. Continuity was established from the propeller hub to the turbine shaft joint.

A review of the aircraft logbooks revealed that that airframe and engine underwent its most recent 100-hour inspections on May 2, 2004. At the time of the inspection, the engine had accumulated 3,472.7 hours since overhaul. The airframe had accumulated a total of 12,024 hours of flight time.

The automated surface observing station at the Bay City Municipal Airport (BYY), located 23 nautical miles south from the accident site, at 0825 reported wind from 140 degrees at 8 knots, visibility 7 statute miles, clouds scattered at 2,200 feet, temperature 26 degrees Celsius, dew point 22 degrees Celsius, and an altimeter setting of 29.93 inches of Mercury.

On December 9, 2004, at the facilities of Honeywell Product Integrity Teardown Facility, near Phoenix, Arizona, the remaining components of the TPE331-1-151K turboprop engine were examined under the supervision of an FAA inspector. The first and second stage turbine wheel, first and third stage stator, and the stator liner and assembly displayed fire damage. No anomalies were observed during the examination.

The reason for the loss of engine power and subsequent in-flight fire was undetermined.

Pilot Information

Certificate:	Commercial	**Age:**	63,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 11, 2004
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	January 17, 2003
Flight Time:	26400 hours (Total, all aircraft), 5000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Rockwell International	**Registration:**	N4968X
Model/Series:	S-2R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	5013R
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	May 2, 2004 100 hour	**Certified Max Gross Wt.:**	6000 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo prop
Airframe Total Time:	12024 Hrs as of last inspection	**Engine Manufacturer:**	Garrett-AiResearch
ELT:	Not installed	**Engine Model/Series:**	TPE-331-1-151
Registered Owner:	Farm & Ranch Aerial Service, Inc.	**Rated Power:**	665 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	FRVG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 2200 ft AGL	**Visibility**	7 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	26°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Eagle Lake, TX (NONE)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	07:53 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	29.321111,-96.01889

Administrative Information

Investigator In Charge (IIC):	McGill, C Frank
Additional Participating Persons:	John Loomis; Flight Standards District Office; Houston , TX
Original Publish Date:	March 30, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59420