



Aviation Investigation Final Report

Location:	HARRISBURG, Arkansas	Accident Number:	FTW93LA171
Date & Time:	May 31, 1993, 15:30 Local	Registration:	N6051F
Aircraft:	Ayres SR2-T34	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

AN AGRICULTURAL AIRPLANE WITH A FULL LOAD OF PESTICIDES WAS EN ROUTE TO A FIELD TO BE SPRAYED WHEN THE ENGINE OIL PRESSURE DROPPED AND THE ENGINE CHIP DETECTOR ILLUMINATED. WITHIN SECONDS, THE ENGINE LOST POWER AND THE PILOT ELECTED TO EXECUTE A FORCED LANDING TO A CULTIVATED FIELD. DURING THE LANDING FLARE, THE AIRPLANE STRUCK A LEVEE RESULTING IN STRUCTURAL DAMAGE TO THE AIRFRAME AND ENGINE FIREWALL. EXAMINATION OF THE ENGINE REVEALED THAT THE POWER LOSS WAS THE RESULT OF FIRST STAGE PLANETARY SUNGEAR FAILURE DUE TO FATIGUE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE LOSS OF ENGINE POWER DUE TO THE FAILURE OF THE REDUCTION GEAR ASSEMBLY DUE TO FATIGUE. A FACTOR WAS THE LACK OF SUITABLE TERRAIN FOR THE FORCED LANDING.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings

1. (C) REDUCTION GEAR ASSY, REDUCTION GEAR - JAMMED

2. (C) REDUCTION GEAR ASSY,REDUCTION GEAR - FATIGUE

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

3. TERRAIN CONDITION - DIRT BANK/RISING EMBANKMENT

4. (F) TERRAIN CONDITION - NONE SUITABLE

Factual Information

On May 31, 1993, at approximately 1530 central daylight time, an Ayres Corporation SR2-T34 airplane, N6051F, was substantially damaged during a forced landing following a loss of engine power while in cruise flight near Harrisburg, Arkansas. The commercial pilot, sole occupant of the airplane, was not injured. Visual meteorological conditions prevailed for the aerial application flight.

According to the operator, the airplane departed the May private airstrip near Harrisburg, with a full load of pesticides. While en route to the field to be sprayed, the engine oil pressure dropped and the engine chip detector illuminated. Within a few seconds, the engine lost power and the pilot performed a forced landing to a field. During the landing flare, the airplane struck a levee resulting in structural damage to the airframe and engine firewall.

The engine was preserved and transported to an approved repair station for further inspection and examination. Inspection of the magnetic plug and the screen confirmed that ferrous deposits were present. A complete engine teardown was accomplished. According to the engine manufacturer's representative, "the failure of the engine appeared to originate in the first stage planetary system." A detailed examination of the first stage sun gear revealed "some areas of fatigue along the axis of the splines, which resulted in the jamming of the first stage sun gear."

The wreckage was verbally released to the owner at the accident site.

Pilot Information

Certificate:	Commercial	Age:	29,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Center
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--no waivers/lim.	Last FAA Medical Exam:	April 26, 1993
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	8731 hours (Total, all aircraft), 550 hours (Total, this make and model), 8600 hours (Pilot In Command, all aircraft), 500 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Ayres	Registration:	N6051F
Model/Series:	SR2-T34 SR2-T34	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	T34-193
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	Continuous airworthiness	Certified Max Gross Wt.:	9950 lbs
Time Since Last Inspection:	35 Hrs	Engines:	1 Turbo prop
Airframe Total Time:		Engine Manufacturer:	P&W
ELT:	Not installed	Engine Model/Series:	PT6A-34
Registered Owner:	KEN GRUBBS AERO, INC.	Rated Power:	750 Horsepower
Operator:		Operating Certificate(s) Held:	
Operator Does Business As:		Operator Designator Code:	KRPG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	JBR ,262 ft msl	Distance from Accident Site:	19 Nautical Miles
Observation Time:	14:48 Local	Direction from Accident Site:	5°
Lowest Cloud Condition:	Unknown / 2600 ft AGL	Visibility	12 miles
Lowest Ceiling:	Broken / 2600 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	8 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	18°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	13:30 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:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	35.559658,-90.71997(est)

Administrative Information

Investigator In Charge (IIC): Casanova, Hector

Additional Participating Persons: RODNEY L DOSS; LITTLE ROCK , AR

Original Publish Date: June 30, 1994

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=18760>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).