



# Aviation Investigation Final Report

<b>Location:</b>	NEWELLTON, Louisiana	<b>Accident Number:</b>	FTW99FA004
<b>Date &amp; Time:</b>	October 8, 1998, 08:20 Local	<b>Registration:</b>	N4531M
<b>Aircraft:</b>	Air Tractor            AT-401	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

## Analysis

The agricultural airplane, flown by the non-instrument rated commercial pilot, descended into a lake following a loss of control during an inadvertent entry into adverse weather conditions. A 'very dense' fog bank extending from the ground to 300 to 400 feet agl moved rapidly into the area. The National Weather Service reported that throughout northeastern Louisiana, the weather conditions were: winds calm to 3 knots from the north, 1/4 statute mile visibility in fog, ceiling of 100 feet, and a temperature dewpoint spread of 2 degrees Celsius. The pilot had accumulated over 20,000 hours of aerial application flying including over 4,000 hours in the accident aircraft. The aircraft was not equipped for flight into instrument meteorological conditions. No pre-impact anomalies were found with the airframe or the engine.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain aircraft control during an inadvertent entry into adverse weather conditions. A related factor was the fog.

## Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER  
Phase of Operation: MANEUVERING - AERIAL APPLICATION

### Findings

1. (C) FLIGHT INTO ADVERSE WEATHER - INADVERTENT - PILOT IN COMMAND

2. (F) WEATHER CONDITION - FOG  
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Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings

3. (C) AIRCRAFT CONTROL - NOT OBTAINED/MAINTAINED - PILOT IN COMMAND  
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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

### HISTORY OF FLIGHT:

On October 8, 1998, at 0820 central daylight time, an Air Tractor AT-401 agricultural airplane, N4531M, was destroyed while maneuvering near Newellton, Louisiana. The non-instrument rated commercial pilot, who was the only person aboard the airplane, received fatal injuries. The airplane was owned and operated by Kifer Flying Service, Inc., of Newellton, Louisiana, under 14 Code of Federal Regulations (CFR) Part 137. Instrument meteorological conditions prevailed in the area of the aerial application flight for which a company flight plan was filed. The local flight originated from Newellton, Louisiana, approximately 5 minutes prior to the accident.

During personal interviews, conducted by the NTSB investigator-in-charge (IIC), local authorities and company pilots reported that the day before the accident a front moved through the area producing several inches of rain, high humidity, and winds. The morning of the accident, the weather was the coolest morning for the season. Humidity remained high from the previous day's rain and the area was clear until about 0800. Between 0800 and 0820, a heavy fog bank moved rapidly into the area.

On the morning of the accident, the pilot began his day at 0700 to spray 130 acres of cotton with an insecticide (Cheminova Methyl 4EC with Methyl Parathion as the main active ingredient)). After performing the preflight and fueling the aircraft, the pilot departed the Newellton Municipal Airport at approximately 0715 with the first hopper load (340 gallon mixture of water and the Methyl Parathion chemical). At approximately 0750, the pilot returned to the airport for the second chemical load.

Personal witness interviews were conducted by the IIC. Two witnesses, driving to a work shop located at the cotton field being sprayed by the pilot, reported that at 0745 there was no fog in the area. The witnesses observed the airplane flying toward the airport. One of the witnesses walked out of the shop approximately 0820 and heard the airplane flying toward the cotton field. This witness could not see the airplane in the fog; however, he could see the cotton and the tree line below the fog. This witness stated that he "caught a glimpse of the yellow airplane in the fog above the tree line [height estimate 75 feet], walked back toward the shop, and heard a boom." Two of the witnesses reported that the engine was running "good and smooth." One of the witnesses stated that when the airplane approached to spray "the engine sounded normal on the approach when heard a muffled thud and then no engine." This witness stated that the "fog came in and got thick next to the ground." This witness telephoned the operator, who initiated a search. The "very dense" fog extending from the ground with tops at 300 to 400 feet agl hampered the search. Approximately 0900 as the fog started to dissipate, a company pilot located the accident airplane in Lake St. Joseph,

approximately 6 miles southeast of the Newellton Airport and approximately 150 yards north of the cotton field.

#### PERSONNEL INFORMATION:

During personal interviews, conducted by the IIC, the operator and company pilots reported that the pilot had flown for the operator for the previous 18 years and for other operators in the area for 10 years. The pilot had accumulated over 20,000 hours of aerial application flying including over 4,000 hours in N4531M. According to other company pilots, the pilot had successfully performed 34 emergency landings throughout his aerial application career.

A review of the FAA records revealed that the pilot was issued his Commercial Pilot Certificate on March 8, 1967. He was issued his current second class medical certificate on December 9, 1997. On this medical application the pilot indicated 21,112 hours of total flight time.

#### AIRCRAFT INFORMATION:

The AT-401 airplane, serial number 401-0764, was manufactured and issued an airworthiness certificate in June 1990. The aircraft was purchased new by the current owner and registered with the FAA on August 14, 1990.

A review of the maintenance records revealed that the last annual inspection was performed on February 2, 1998, at a total aircraft time of 4,902.5 hours. Total time on the Pratt & Whitney R-1340 AN-1 engine on April 21, 1998, was 10,603.3 hours. The last engine overhaul was performed in June 1998, and the engine had accumulated approximately 500 hours since overhaul. The propeller was overhauled in July 1998 and reinstalled.

Flight instruments installed in the airplane were the airspeed indicator, turn indicator, altimeter, and magnetic compass. The aircraft was not equipped for flight in instrument meteorological conditions (IMC).

#### METEOROLOGICAL INFORMATION:

According to the National Weather Service reporting station at Natchez, Louisiana (20 miles south of the accident site), the weather from 0554 through 0834 indicated calm winds to winds at 3 knots from the north, a 1/4 statute mile visibility, a ceiling of 100 feet, and a temperature dewpoint spread of 2 degrees Celsius. Throughout northeastern Louisiana, at the time of the accident, fog was reported, and the temperature dewpoint spread was zero to 3 degrees.

#### WRECKAGE AND IMPACT INFORMATION:

The airplane came to rest nose low and left wing low, on a measured magnetic heading of 270 degrees, in approximately 3 feet of water. The main wreckage was located approximately 150 yards from the southwest bank of Lake St. Joseph. One main wheel, the wings and the engine

were separated from the fuselage. Flight control continuity was confirmed to the rudders and elevators. The cockpit was found intact except for the windshield. Cockpit readings included the airspeed at 105 mph and the manifold pressure at 31 inches. See supplement B for additional readings. The engine was found in the mud under the forward area of the airframe. A recording tachometer, installed on September 20, 1998, indicated 62.59 hours.

The airplane was released for recovery from the lake. Subsequently, it was transported to Lancaster, Texas, for further examination.

#### MEDICAL AND PATHOLOGICAL INFORMATION:

The autopsy was performed by the Mississippi State Medical Examiner's Office, in Pearl, Mississippi. Aviation toxicological testing was performed by the FAA Civil Aeromedical Institute (CAMI) at Oklahoma City, Oklahoma. The toxicological findings were positive for 76(ug/ml, ug/g) Salicylate (aspirin) in the urine.

#### SURVIVAL ASPECTS:

Company procedures require that the pilots wear their seat belt, shoulder harness, helmet, and gloves during aerial application flights. The shoulder harness was found frayed, twisted, and separated at the webbing. Air Tractor, Inc., issued Service Letter #152 dated August 22, 1996. The letter applies to all Air Tractor models and recommends that the shoulder harness be replaced every 5 years. There was no record found that the shoulder harness in the accident airplane had been replaced.

#### TEST AND RESEARCH:

On November 24, 1998, the airplane was examined, under the surveillance of the IIC, at Lancaster, Texas. The leading edges of both wings were crushed aft and upward. The left wing spar cap was separated from the spar. Fuel system integrity was compromised. The inboard leading edge area of each wing was pushed outward in the area of the fuel tanks. The aileron bellcrank and rigging continuity was established. Aileron rods that were found separated exhibited uneven deformation and dimples at the point of separation. The flap actuator jack screw and ball nut assembly were found in the wreckage. The flap actuator nut was found on the jack screw, located 5/16 inch from the gear box housing. According to the manufacturer representative, in this position, with the system assembled, the flaps would be retracted. The right flap and the flap motor were not recovered.

The engine supercharger vanes were intact. The propeller remained attached to the engine crankshaft. One propeller blade was bent aft approximately 30 degrees and the other propeller blade was bent and twisted. Both blades exhibited scoring with gouges at the tip.

#### ADDITIONAL INFORMATION:

The airplane was released to the owner.

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	60, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	December 9, 1997
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	21112 hours (Total, all aircraft), 10000 hours (Total, this make and model)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Air Tractor	<b>Registration:</b>	N4531M
<b>Model/Series:</b>	AT-401 AT-401	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Restricted (Special)	<b>Serial Number:</b>	401-0764
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	February 20, 1998 Annual	<b>Certified Max Gross Wt.:</b>	6000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>		<b>Engine Model/Series:</b>	R-1340 AN-1
<b>Registered Owner:</b>	NATHAN O. KIFER	<b>Rated Power:</b>	600 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	
<b>Operator Does Business As:</b>	KIFER FLYING SERVICE	<b>Operator Designator Code:</b>	SFNG

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	NTZ ,272 ft msl	<b>Distance from Accident Site:</b>	20 Nautical Miles
<b>Observation Time:</b>	08:14 Local	<b>Direction from Accident Site:</b>	185°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	0.25 miles
<b>Lowest Ceiling:</b>	Overcast / 100 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	360°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	13°C / 11°C
<b>Precipitation and Obscuration:</b>	N/A - None - Fog		
<b>Departure Point:</b>	(9M2 )	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>		<b>Type of Clearance:</b>	
<b>Departure Time:</b>	08:15 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	32.070323,-91.230407(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Roach, Joyce
<b>Additional Participating Persons:</b>	DWIGHT O'NEILL; BATON ROUGE , LA
<b>Original Publish Date:</b>	March 31, 2000
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=44131">https://data.nts.gov/Docket?ProjectID=44131</a>

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