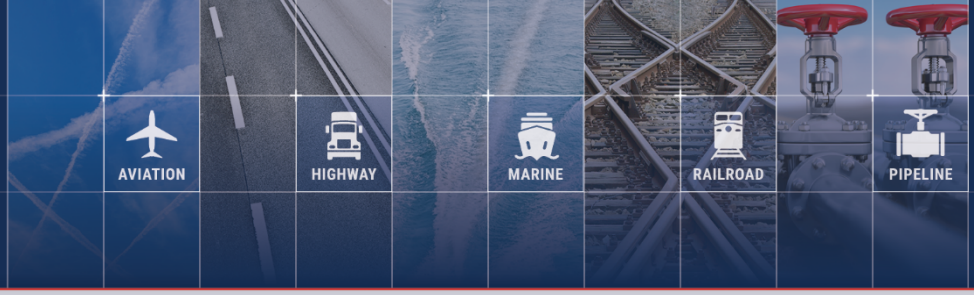

Aviation Investigation Final Report

Location:	Calexico, California	**Accident Number:**	LAX05LA085
Date & Time:	February 4, 2005, 13:15 Local	**Registration:**	N4530L
Aircraft:	Air Tractor AT-401	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The airplane veered off the runway, collided with a berm, and came to rest in a ditch following a loss of control during landing. During the landing flare the pilot encountered a left crosswind and he input right rudder to compensate for the crosswind, but the pedal would not move. After the accident the pilot noticed that he was still depressing the right rudder pedal. He looked down and saw that the rudder pedal adjusting pin was caught on the aft edge of the hopper. When he relaxed pressure on the rudder pedal, the pedal moved to the left and was free of the hopper. Post accident examination by a Federal Aviation Administration (FAA) inspector revealed a groove the pin had carved into the side wall of the hopper over time. The groove began at a radius in the hopper wall where the wall turned 90 degrees from a cross cockpit orientation to a longitudinal direction. When he depressed the rudder pedal, he noted that the adjusting pin contacted the groove the entire length of travel. He further noted that despite the contact of the pin in the groove, there was no restriction of movement of the rudder pedal. A gouge dimensionally identical in shape and size to the pin was observed in the hopper just to the right of where the adjusting pin contacted the groove. The FAA inspector noted no groove or gouge on the left side of the hopper.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a loss of directional control due to a jammed rudder pedal, which prevented the pilot from exercising full rudder control authority.

Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. (C) MISCELLANEOUS,DOWEL/PIN - BINDING(MECHANICAL)
2. (C) FLT CONTROL SYST,RUDDER CONTROL - JAMMED
3. (C) DIRECTIONAL CONTROL - NOT POSSIBLE - PILOT IN COMMAND
4. GROUND LOOP/SWERVE - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: LANDING - ROLL

Findings
5. TERRAIN CONDITION - BERM

Factual Information

On February 4, 2005, at 1315 Pacific standard time, an Air Tractor AT-401, N4530L, came to rest in a ditch after experiencing a rudder pedal control malfunction on touchdown at Johnson Brothers Airport (61CL), a private dirt strip in Calexico, California. Frontier Agricultural Service, Inc., operated the airplane under the provisions of 14 CFR Part 137, as an agricultural spraying operation. The airplane sustained substantial damage. The commercial rated pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed for the local area flight, and no flight plan had been filed. The flight departed 61CL about 1300.

In the pilot's written statement he reported that he had started operations out of 61CL about 1100. He was returning to pick up his sixth load of the day when the accident occurred. On the first flight of the day he performed the standard walk-around preflight. After startup, he taxied for takeoff and verified the flight controls were "free and easy." He flew to Johnson Brothers Airport for his first load, and returned for four subsequent loads. While on short final, the airplane encountered a left crosswind condition. He immediately applied pressure to the right rudder pedal to correct for the crosswind, but the pedal would not move. The airplane touched down on the runway, veered to the left exiting the runway, collided with a berm, and came to rest in a ditch. During the accident sequence, the left wing dragged on the ground displacing the fuselage about 60 degrees along its lateral axis.

After the airplane came to a stop the pilot noticed he was still applying pressure to the right rudder pedal. He looked down and saw the rudder pedal adjusting pin contacting the aft edge of the hopper. When he released pressure on the pedal, the entire pedal assembly, to include the adjusting pin, moved to the left and returned to its normal position.

The pilot further reported that a 100-hour inspection had been completed on February 1, 2005, 3 days prior to the accident.

In the post examination of the wreckage, an inspector from the Federal Aviation Administration (FAA) discovered a groove in the right side of the hopper wall. The groove began at a radius in the hopper wall where the wall turned 90 degrees from a cross cockpit orientation to a longitudinal direction. When he depressed the rudder pedal, he noted that the adjusting pin contacted the groove the entire length of travel. He further noted that despite the contact of the pin in the groove, there was no restriction of movement of the rudder pedal. A gouge dimensionally identical in shape and size to the pin was observed in the hopper just to the right of where the adjusting pin contacted the groove. See photograph 2 in the docket materials for this accident. The FAA inspector noted no groove or gouge on the left side of the hopper.

ADDITIONAL INFORMATION

The closest official weather observation station was Imperial, California (IPL), located 10 nautical miles (nm) north of the accident site. The elevation of the weather observation station was -56 feet mean sea level. An aviation routine weather report (METAR) for IPL was issued at 1253. It stated: winds from 330 degrees at 11 knots; skies clear; temperature 22 degrees Celsius; dew point -02 degrees Celsius; altimeter 29.99 inHg.

The Airport/ Facility Directory, Southwest U. S., indicated the runway was 2,500 feet long and 50 feet wide; the runway surface was dirt.

Pilot Information

Certificate:	Commercial	**Age:**	33,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	**Last FAA Medical Exam:**	September 1, 2004
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 1, 2004
Flight Time:	4800 hours (Total, all aircraft), 1200 hours (Total, this make and model), 4700 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Air Tractor	**Registration:**	N4530L
Model/Series:	AT-401	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	401-0761
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	February 1, 2005 100 hour	**Certified Max Gross Wt.:**	7860 lbs
Time Since Last Inspection:	101 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	7154 Hrs as of last inspection	**Engine Manufacturer:**	Garrett
ELT:	Not installed	**Engine Model/Series:**	TPE-331
Registered Owner:	Frontier Agricultural Service, Inc.	**Rated Power:**	715 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	NJGG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	IPL,-56 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	22°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Calexico, CA (61CL)	**Type of Flight Plan Filed:**	None
Destination:	(61CL)	**Type of Clearance:**	None
Departure Time:	13:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Johnson Brothers Airport 61CL	**Runway Surface Type:**	Dirt
Airport Elevation:	-1 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	9	**IFR Approach:**	None
Runway Length/Width:	2500 ft / 50 ft	**VFR Approach/Landing:**	Full stop

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:**	32.673332,-115.558891

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Gary Glenn; Federal Aviation Administration; San Diego, CA
Original Publish Date:	December 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60965