# National Transportation Safety Board
# Aviation Accident Final Report

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| **Location:** | Newellton, LA | **Accident Number:** | CEN12LA500 |
| **Date & Time:** | 08/01/2012, 1430 CDT | **Registration:** | N5128U |
| **Aircraft:** | AIR TRACTOR INC AT-502B | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Runway excursion | **Injuries:** | 1 None |
| **Flight Conducted Under:** | Part 137: Agricultural | | |

## Analysis

The pilot reported that, during the takeoff, the airplane's tail rose when the airplane was about halfway down the runway, but the airplane did not get airborne. The airplane exited the end of the 2,750-foot-long, 75-feet-wide, asphalt runway; struck a road embankment; and continued rolling about 600 feet into a cotton field, which resulted in substantial damage to the wings and empennage. The pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation. The examination of the airplane's electric flap actuator jackscrew revealed that it was extended out about 2.5 inches, which indicates that the flaps were set at 20 degrees at the time of the accident.

The pilot reported that the operating weight at the time of the accident was 10,283 lbs and that the airplane's maximum gross weight was 10,480 lbs; however, the airplane flight manual specified a maximum certificated takeoff weight of 8,000 lbs. Regulations and guidance related to agricultural application flights in restricted-category airplanes allowed for operations at weights up to 31 percent above the certificated gross takeoff weight, or 10,480 lbs; however, the airplane manufacturer did not authorize takeoffs with flaps extended more than 10 degrees. Performance data indicated that, at a maximum certificated gross weight of 8,000 lbs with 10 degrees of flaps, a takeoff distance on a hard surface runway of about 2,800 feet was required. The airplane flight manual did not contain takeoff data for weights or flap settings more than 8,000 lbs and 10 degrees, respectively; however, a 2,750-foot-long runway was inadequate.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate takeoff planning and his use of an improper flap setting, which resulted in a runway excursion and collision with terrain during takeoff.

## Findings

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| **Aircraft** | Trailing edge flaps - Incorrect use/operation (Cause) |
| **Personnel issues** | Performance calculations - Pilot (Cause)<br>Use of equip/system - Pilot (Cause) |

## Factual Information

On August 1, 2012, at 1430 central daylight time, an Air Tractor AT-502B, N5128U, sustained substantial damage during an attempted takeoff from Kifer Airport (LS83), Newellton, Louisiana. The pilot was not injured. The airplane was registered to Precision Air of Franklin, LLC, and operated by Delta Dusters, LLC, under the provisions of the 14 Code of Federal Regulations Part 137 as an agricultural application flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The flight was originating at the time of the accident.

The pilot reported that he had loaded 400 gallons of water and chemical onboard the airplane. He lowered the flaps for takeoff. During the takeoff roll, he checked that the engine temperature remained within the normal range during takeoff. He did not check the torque during takeoff, but it had been normal for the previous flights that morning. The airplane's tail came up about half way down the runway, but the airplane was unable to get airborne. The airplane went off the end of runway 24 (2,750 feet by 75 feet, asphalt), struck a road embankment, and continued rolling about 600 feet into a cotton field, which resulted in substantial damage to the wings and empennage. The pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Federal Aviation Administration inspectors' examination of the airplane's electric flap actuator jackscrew revealed that it was run out about 2.5 inches, indicating the flaps were set at 20 degrees. The airplane flight manual stated that takeoffs with a full chemical hopper load from a short field should be made with a 10-degree flap deflection. The flight manual did not authorize takeoffs with flaps extended in excess of 10 degrees.

The pilot reported an operating weight at the time of the accident of 10,283 lbs., with a maximum gross weight of 10,480 lbs. The airplane manufacturer's documentation specified a maximum certificated takeoff weight of 8,000 lbs. Regulations and FAA guidance allow agricultural operators of restricted category airplanes to operate at weights in excess of the maximum certificated weights. In accordance with Civil Aeronautics Manual (CAM) 8 and Advisory Circular 20-33B, the airplane manufacturer demonstrated operations at 9,400 lbs. However, the guidance allowed operations of the AT-502B at weights up to 31-percent above the certificated takeoff weight (10,480 lbs.) provided that the operator performed a flight check confirming safe flight characteristics at that weight.

The airplane flight manual noted a takeoff distance required to clear a 50-foot obstacle of about 2,800 feet. This distance was applicable to departure from a hard surface runway, at a gross weight of 8,000 lbs. with 10 degrees flaps, at a pressure altitude of 0 feet (sea level), and an ambient temperature of 35 degrees Celsius. The flight manual did not contain takeoff data for weights or flap settings in excess of 8,000 lbs. and 10 degrees, respectively. The airplane manufacturer did not recommend that takeoffs be attempted with more than 10 degrees of flap.

At 1453, the surface weather observation at the Vicksburg Tallulah Regional Airport, Vicksburg, Mississippi, located about 25 nautical miles northeast of LS83 was: wind 200 at 6 knots, 10 miles visibility, few clouds at 4,700 feet, temperature 36 degrees Celsius (C), dew point 24 degrees C, altimeter 29.93 inches of mercury. Calculations of the relevant meteorological data indicated that the density altitude was 2,765 feet.

## History of Flight

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| **Takeoff** | Runway excursion (Defining event)<br>Collision with terr/obj (non-CFIT) |

## Pilot Information

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| **Certificate:** | Commercial | **Age:** | 67 |
| **Airplane Rating(s):** | Multi-engine Land; Single-engine Land | **Seat Occupied:** | Single |
| **Other Aircraft Rating(s):** | Helicopter | **Restraint Used:** | Seatbelt, Shoulder harness |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 2 With Waivers/Limitations | **Last Medical Exam:** | 01/11/2012 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | 12/17/2011 |
| **Flight Time:** | 22835 hours (Total, all aircraft), 2500 hours (Total, this make and model), 200 hours (Last 90 days, all aircraft), 75 hours (Last 30 days, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Manufacturer:** | AIR TRACTOR INC | **Registration:** | N5128U |
| **Model/Series:** | AT-502B | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | No |
| **Airworthiness Certificate:** | Restricted | **Serial Number:** | 502B-0477 |
| **Landing Gear Type:** | Tailwheel | **Seats:** | 1 |
| **Date/Type of Last Inspection:** | 07/25/2012, 100 Hour | **Certified Max Gross Wt.:** | 10480 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Turbo Prop |
| **Airframe Total Time:** | 7554 Hours | **Engine Manufacturer:** | P&W |
| **ELT:** | Not installed | **Engine Model/Series:** | PT6-34AG |
| **Registered Owner:** | PRECISION AIR OF FRANKLIN LLC | **Rated Power:** | 750 hp |
| **Operator:** | Delta Dusters LLC | **Air Carrier Operating Certificate:** | Agricultural Aircraft (137) |
| **Operator Does Business As:** | | **Operator Designator Code:** | ZDWG |

## Meteorological Information and Flight Plan

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| **Observation Facility, Elevation:** | TVR, 86 ft msl | **Observation Time:** | 1453 CDT |
| **Distance from Accident Site:** | 21 Nautical Miles | **Condition of Light:** | Day |
| **Direction from Accident Site:** | 240° | **Conditions at Accident Site:** | Visual Conditions |
| **Lowest Cloud Condition:** | Few / 4700 ft agl | **Temperature/Dew Point:** | 36°C / 24°C |
| **Lowest Ceiling:** | None | **Visibility** | 10 Miles |
| **Wind Speed/Gusts, Direction:** | 6 knots, 200° | **Visibility (RVR):** | |
| **Altimeter Setting:** | 29.93 inches Hg | **Visibility (RVV):** | |
| **Precipitation and Obscuration:** | No Precipitation | | |
| **Departure Point:** | Newellton, LA (LS83) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Newellton, LA (LS83) | **Type of Clearance:** | None |
| **Departure Time:** | 1430 CDT | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | Kifer Airport (LS83) | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 77 ft | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 24 | **IFR Approach:** | None |
| **Runway Length/Width:** | 2750 ft / 75 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | N/A | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 None | | |

## Administrative Information

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| **Investigator In Charge (IIC):** | James P Silliman | **Adopted Date:** | 07/30/2014 |
| **Additional Participating Persons:** | Matthew Green; FAA Baton Rouge FSDO; Baton Rouge, LA | | |
| **Publish Date:** | 07/30/2014 | | |
| **Investigation Docket:** | http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=84537 | | |

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