



# National Transportation Safety Board

## Aviation Accident Data Summary

<b>Location:</b>	Slaton, TX	<b>Accident Number:</b>	CEN15LA138
<b>Date &amp; Time:</b>	02/05/2015, 1510 CST	<b>Registration:</b>	N602PB
<b>Aircraft:</b>	AIR TRACTOR INC AT 602	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Ferry		

### Analysis

The pilot, who had 3 hours of flight time in the agricultural airplane, was taking off on the planned cross-country flight, which was the first flight after the installation of a digital engine data monitor (EDM) on the airplane 6 days previously. The pilot reported that the initial takeoff seemed normal but that, halfway down the runway, red warning lights illuminated on the EDM. Although he reported that he thought the airspeed was low, the pilot was able to climb the airplane to 150 ft. The airplane lost altitude, and the pilot landed in a field. The landing gear dug into the soft dirt, and the airplane nosed over and came to rest inverted. The pilot added that, although he added full throttle, the engine never developed full power.

Examination of the airplane did not reveal any anomalies that would have prevented the engine from producing normal power. A review of the airplane's maintenance records showed that the EDM was installed under a supplemental type certificate, which included instructions and initial setup and installation checklists. However, a completed copy of neither the setup nor installation checklists were found in the records. The maintenance entry noted that ground runs and leak checks were completed, and no defects were noted.

Review of the EDM data revealed two files that contained engine starts; one from 3 days before the accident flight and one from the accident flight. The first data file showed that the engine propeller rpm reached a maximum of 950 rpm, indicating that this was a ground run and that the engine power setting was not increased above flight idle. During the accident flight, the engine propeller rpm reached a maximum of 1,730 rpm at an engine torque of 1,304 ft-lbs. Although the pilot said he advanced the throttle to obtain full power, a review of the EDM data revealed the torque was below its maximum value and was reduced several times during the flight.

Postaccident examination revealed that the EDM's engine operating range for the propeller was correctly set at the maximum 1,700 rpm; rpm readings above 1,700 would have been indicated by red warning lights. Based on the information, it is likely that the aircraft manufacturer set the maximum propeller rpm higher than 1,700 rpm (using the airplane's analog instruments), allowing the propeller rpm to exceed 1,700 rpm, which resulted in the red lights illuminating, as reported by the pilot. If maintenance personnel had followed the initial setup/installation checklists that were included in the installation instructions for the EDM, they likely would have identified that the maximum propeller rpm was not set properly and corrected it. The accident is consistent with the pilot reacting to the EDM's warning indications, likely due to his lack of experience in the airplane make and model.

### Flight Events

Prior to flight - Aircraft maintenance event

Takeoff - Miscellaneous/other

Emergency descent - Collision with terr/obj (non-CFIT)

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Maintenance personnel's improper installation of the engine data monitor (EDM), which was not in accordance with the supplemental type certificate instructions and resulted in engine warning indications and the pilot's subsequent reaction to the warning indications due to his lack of experience with the EDM and airplane.

## Findings

Aircraft-Aircraft handling/service-Maintenance/inspections-(general)-Incorrect service/maintenance - C

Personnel issues-Experience/knowledge-Experience/qualifications-Total experience w/ equipment-Pilot - C

Personnel issues-Task performance-Maintenance-Installation-Maintenance personnel - C

Personnel issues-Task performance-Use of equip/info-Use of available resources-Maintenance personnel - C

Environmental issues-Physical environment-Terrain-Wet/muddy-Contributed to outcome

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	23
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Instrument Rating(s):</b>	Airplane
<b>Other Aircraft Rating(s):</b>	None	<b>Instructor Rating(s):</b>	None
<b>Flight Time:</b>	561 hours (Total, all aircraft), 3 hours (Total, this make and model), 514 hours (Pilot In Command, all aircraft), 24.1 hours (Last 90 days, all aircraft), 10.5 hours (Last 30 days, all aircraft), 2.2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	AIR TRACTOR INC	<b>Registration:</b>	N602PB
<b>Model/Series:</b>	AT 602	<b>Engines:</b>	1 Turbo Prop
<b>Operator:</b>	Frontier Ag Inc.	<b>Engine Manufacturer:</b>	P&W
<b>Air Carrier Operating Certificate:</b>	Agricultural Aircraft (137)	<b>Engine Model/Series:</b>	PT-6A
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Ferry		

## Meteorological Information and Flight Plan

<b>Observation Facility, Elevation:</b>	KLBB	<b>Weather Information Source:</b>	Weather Observation Facility
<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Lowest Ceiling:</b>	None
<b>Condition of Light:</b>	Day	<b>Wind Speed/Gusts, Direction:</b>	5 knots, Variable
<b>Temperature:</b>	6°C / 2°C	<b>Visibility</b>	10 Miles
<b>Precipitation and Obscuration:</b>	No Precipitation		
<b>Departure Point:</b>	Slaton, TX (F49)	<b>Destination:</b>	Oakley, KS (KOEL)

## Airport Information

Airport:	Slaton Municipal (F49)	Runway Surface Type:	
Runway Used:	18	Runway Surface Condition:	
Runway Length/Width:	4244 ft / 75 ft		

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	Craig Hatch	Adopted Date:	01/05/2016
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=90696">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=90696</a>		

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