



National Transportation Safety Board

Aviation Accident Data Summary

Location:	Otto, NM	Accident Number:	DCA15CA117
Date & Time:	05/01/2015, 1107 MDT	Registration:	N950TA
Aircraft:	TITAN AEROSPACE HOLDINGS INC SOLARA 50	Injuries:	N/A
Flight Conducted Under:	Part 91: General Aviation - Flight Test		

Analysis

On May 1, 2015 at 11:07 Mountain Daylight Time (MDT), a Titan Solara 50 solar-powered unmanned experimental aircraft registration N950TA crashed shortly after takeoff, near Otto, New Mexico. The aircraft was operated as a scaled, proof of concept test flight. The aircraft was destroyed, there were no injuries.

According to the operator, at 11:02:43 the aircraft began a controlled winch tow and rolled on the ground until liftoff. After the tow release at approximately 30 ft above ground level (AGL), the pilot transitioned to flying the aircraft via instruments and the aircraft was powered up to full throttle for a straight ahead climb. The pilot immediately recognized that the instruments were exhibiting complicating latency and focused on flying the aircraft to a safe altitude and position where the external pilot (copilot) could take control and visually land the aircraft.

The pilot initiated a left hand turn when the aircraft reached approximately 160 feet AGL, which continued until the aircraft reached approximately 385 feet AGL. During this time the pilot made two power reductions, attempting to stabilize the aircraft at an altitude and heading acceptable for handover to the copilot to conduct an external visual landing. Handover of controls to the copilot was not attempted during the flight.

The operator indicated that the aircraft then encountered significant thermal air mass activity and began to both climb and exceed its design airspeed for an extended period of time. Visible deformation of the wing structure was witnessed by ground personnel during the overspeed condition. It achieved a maximum altitude of approximately 520 feet AGL just prior to structural failure of the left outboard wing. These thermal events were not immediately evident to the pilot due to latency of the aircraft instruments. It is believed the subsequent wing deformation caused the aircraft to begin an uncontrollable right hand turn that the pilot was unable to arrest.

Coincident with the significant wing deformation, the aircraft began an uncontrollable and erratic flight path roughly straight ahead in a rapid descent. The left outboard wing section separated from the aircraft during the first portion of the descent and the right outboard wing section separated later in the descent. The aircraft impacted the ground at 11:06:59 with the majority of the structure intact and in a nose down attitude. There were no meteorological indicators that clearly showed evidence of significant pre-launch thermal activity in the test flight area.

The aircraft was destroyed when it struck the ground in a rural unpopulated area. Local terrain surrounding the takeoff area, intended landing area (same as takeoff location), and accident site consisted of flat desert grassland.

Flight Events

Initial climb - Aircraft structural failure

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

structural failure of the left wing due to an overspeed condition.

Findings

Aircraft-Aircraft structures-Wing structure-Spar (on wing)-Failure - C
Environmental issues-Conditions/weather/phenomena-Turbulence-(general)-Ability to respond/compensate - F

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Flight Engineer	Age:	57
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	Glider	Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane
Flight Time:	6000 hours (Total, all aircraft), 1 hours (Total, this make and model), 2400 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Private	Age:	
Airplane Rating(s):	Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	296 hours (Total, all aircraft), 1 hours (Total, this make and model), 250 hours (Pilot In Command, all aircraft), 0 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	TITAN AEROSPACE HOLDINGS INC	Registration:	N950TA
Model/Series:	SOLARA 50 NO SERIES	Engines:	1 Electric
Operator:	TITAN AEROSPACE HOLDINGS INC	Engine Manufacturer:	Ramazani & Assoc.
Air Carrier Operating Certificate:	Certificate of Authorization or Waiver (COA)	Engine Model/Series:	M19
Flight Conducted Under:	Part 91: General Aviation - Flight Test		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	OE0, 6000 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	
Condition of Light:	Day	Wind Speed/Gusts, Direction:	Light and Variable, Variable
Temperature:	22° C / -3° C	Visibility	10 Miles
Precipitation and Obscuration:			
Departure Point:	Otto, NM (NA)	Destination:	Otto, NM (NA)

Airport Information

Airport:	Private Aerodrome (NA)	Runway Surface Type:	Dirt
Runway Used:	N/A	Runway Surface Condition:	Dry
Runway Length/Width:			

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	William R English	Adopted Date:	11/19/2015
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=91125		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.