



National Transportation Safety Board Aviation Accident Final Report

Location:	Lancaster, CA	Accident Number:	WPR16LA149
Date & Time:	07/23/2016, 1113 PDT	Registration:	N5103
Aircraft:	SWARTZ GENE TITAN T 51 MUSTANG	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot reported that, while flying the experimental, amateur-built airplane in the airport traffic pattern, the engine experienced a total loss of power. He quickly attempted an engine restart, but was unsuccessful and decided to land on a nearby road. The airplane landed hard and the right main landing gear collapsed. The airplane subsequently veered to the right and impacted a sign.

Postaccident examination of the engine revealed that a loose magnet in the flywheel struck the attachment bracket for the primary and secondary ignition, which disrupted the timing of the ignition system and rendered it inoperative; the engine subsequently experienced a total loss of power.

Probable Cause and Findings

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

A total loss of engine power due to the separation of a flywheel magnet, which impacted the attachment bracket for the primary and secondary ignition and disrupted the timing of the ignition system, rendering it inoperative.

Findings

Aircraft	Ignition system - Damaged/degraded (Cause)
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Factual Information

On July 23, 2016, about 1113 Pacific daylight time, an experimental amateur-built Swartz Gene, Titan T-51 Mustang, N5103, sustained substantial damage during a forced landing after a reported loss of engine power while on downwind at the General William J Fox Airfield (WJF) Lancaster, California. The private pilot and passenger were not injured. The airplane was registered to and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan was filed. The local flight departed WJF about 1040.

According to the pilot, the airplane was about 1,000 ft above ground level, initiating the base turn to final, when the engine lost power. He quickly attempted an engine restart but was unsuccessful and decided to land on a nearby road. He selected full flaps over the road and landed hard. Subsequently during the landing roll, the airplane's right main landing gear collapsed, causing the airplane to veer to the right and strike a highway traffic sign, which resulted in substantial damage to the right wing.

Postaccident examination of the airplane's engine, under the supervision of a Federal Aviation Administration inspector, revealed that while accessing the engine, a loose portion of a bolt was observed at the bottom of the cowling. It was determined that the loose bolt portion came from the timing pickup bracket that secures the primary and secondary electronic ignition pickups to the engine.

The magnetic flywheel, a part of the ignition system, consisted of four magnets. One magnet became loose and backed out and then struck the secondary timing pickup. Markings were consistent with the impact. The impact force on the secondary timing pickup caused one of the two bolts on the support bracket to separate and break off. Subsequently, the bracket moved about 2 inches, to the right and aft, which effected the primary and secondary ignition system's timing and rendered them inoperative.

The broken bolt was replaced and the attachment bracket was secured back into it's support. The engine started and ran on the primary ignition system with no anomalies noted. However, on the secondary ignition system, the engine could not be started due to the damage sustained to the secondary system.

History of Flight

Approach-VFR pattern downwind	Loss of engine power (total) (Defining event) Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Private	Age:	59, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without Waivers/Limitations	Last FAA Medical Exam:	03/31/2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	06/12/2015
Flight Time:	(Estimated) 936.6 hours (Total, all aircraft), 42.1 hours (Total, this make and model), 763.1 hours (Pilot In Command, all aircraft), 1.5 hours (Last 90 days, all aircraft), 1 hour (Last 30 days, all aircraft), 0.5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	SWARTZ GENE	Registration:	N5103
Model/Series:	TITAN T 51 MUSTANG NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	2009	Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	M06SV6C0HK0111
Landing Gear Type:	Retractable - Tailwheel	Seats:	2
Date/Type of Last Inspection:	05/28/2016, Condition	Certified Max Gross Wt.:	1800 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	153.7 Hours at time of accident	Engine Manufacturer:	AMA/EXPR SUZUKI
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	UNKNOWN ENG
Registered Owner:	On file	Rated Power:	183 hp
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	WJF, 2350 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1056 PDT	Direction from Accident Site:	240°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.89 inches Hg	Temperature/Dew Point:	36° C / 9° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lancaster, CA (WJF)	Type of Flight Plan Filed:	None
Destination:	Lancaster, CA (WJF)	Type of Clearance:	Traffic Advisory; VFR
Departure Time:	1040 PDT	Type of Airspace:	Air Traffic Control; Class C

Airport Information

Airport:	GENERAL WM J FOX AIRFIELD (WJF)	Runway Surface Type:	Asphalt
Airport Elevation:	2350 ft	Runway Surface Condition:	Dry
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	35.250000, -118.300000 (est)

Administrative Information

Investigator In Charge (IIC):	Albert P Nixon	Report Date:	09/06/2017
Additional Participating Persons:	Frank Motter; Federal Aviation Administration; Van Nuys, CA		
Publish Date:	09/06/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=93665		

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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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).