



# Aviation Investigation Final Report

<b>Location:</b>	Marysville, Ohio	<b>Accident Number:</b>	CEN16LA243
<b>Date &amp; Time:</b>	June 30, 2016, 12:30 Local	<b>Registration:</b>	N788RH
<b>Aircraft:</b>	Challenger II CW	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The student pilot of the light sport airplane reported that, during the initial climb after takeoff, the engine experienced a total loss of power. The pilot made a left turn to land on a grass runway parallel to the departure runway; the airplane sustained substantial damage during the forced landing. The pilot reported that one of the spark plugs had come out of the 2-cylinder engine; however, it could not be determined if the displacement occurred before or during the impact. No further examination of the engine was performed, and the reason for the loss of engine power could not be determined based on the available information.

## 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 for reasons that could not be determined based on the available information.

## Findings

<b>Aircraft</b>	Spark plugs/igniters - Failure
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## Factual Information

### History of Flight

<b>Initial climb</b>	Loss of engine power (total) (Defining event)
<b>Landing</b>	Off-field or emergency landing
<b>Post-impact</b>	Collision with terr/obj (non-CFIT)

On June 30, 2016, about 1230 eastern daylight time, a Hammer Challenger II CW experimental amateur-built single-engine airplane, N788RH, was substantially damaged during a forced landing following a total loss of engine power during initial climb at Union County Airport (MRT), Marysville, Ohio. The student pilot was 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 had been filed for the local flight.

According to the pilot's accident report, after takeoff and during the initial climb, the engine lost all power. Since the airplane was still over the runway and the winds were calm, the pilot made a left turn in an attempt to land on a grass runway parallel to the departure runway. The pilot made "a hard semi-controlled landing." Post-accident examination revealed the left main landing gear and wing strut were bent, and the left wing tip was crumpled. Further examination revealed a spark plug had blown out of the 2-cylinder engine.

### Student pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	66,Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Sport pilot None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	March 31, 2015
<b>Flight Time:</b>	(Estimated) 92 hours (Total, all aircraft), 44 hours (Total, this make and model), 92 hours (Pilot In Command, all aircraft), 3 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Challenger	<b>Registration:</b>	N788RH
<b>Model/Series:</b>	II CW	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2009	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	0788
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	August 8, 2014 Condition	<b>Certified Max Gross Wt.:</b>	960 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	783 Hrs at time of accident	<b>Engine Manufacturer:</b>	HIRTH
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	3203
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	65 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KMRT, 1021 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	12:14 Local	<b>Direction from Accident Site:</b>	321°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.06 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Marysville, OH (MRT )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Marysville, OH (MRT )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	12:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Union County MRT	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1020 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	27	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4218 ft / 75 ft	<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	40.223888,-83.35083(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Latson, Thomas
<b>Additional Participating Persons:</b>	Paul D Gillenwater; FAA Columbus FSDO; Columbus, OH
<b>Original Publish Date:</b>	November 15, 2018
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=93531">https://data.nts.gov/Docket?ProjectID=93531</a>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).