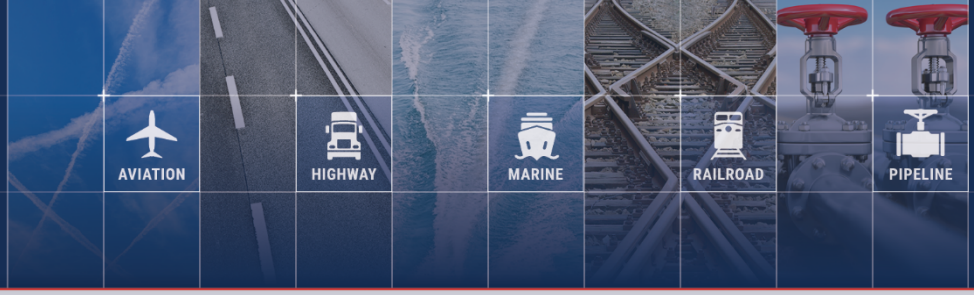

Aviation Investigation Final Report

Location:	Chandler, Arizona	**Accident Number:**	WPR11LA246
Date & Time:	June 2, 2011, 20:00 Local	**Registration:**	N101MY
Aircraft:	Scottish Aviation SERIES 100 MDL 101	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the engine surged and sustained a partial loss of engine power during a local night flight. He attempted to restore engine power, but was unsuccessful and made a forced landing to an open field where the airplane impacted a ditch, collapsing the landing gear and bending the firewall during the landing roll. The pilot said that the entire flight was performed with the fuel selector on the “BOTH” position and that when the engine first began to surge, the fuel gauges registered a quarter of capacity in each tank.

The fuel system consisted of inner and outer interconnected tanks in each wing, which supplied fuel through a non-return valve to a fuel selector, a filter, and a booster pump grouped together near the front left seat, then through the engine-driven pump to the injector unit. Unusable fuel in each wing is 0.5 gallons. Airplane recovery personnel said that no fuel was found in the left wing tanks and about 8 gallons of fuel were found in the right wing tanks, although the gear collapse may have allowed fuel to migrate from the high wing to the low wing. The airplane was examined and no fuel system discrepancies were found. The engine was test run in the airframe and it started and ran normally.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power during cruise flight for reasons that could not be determined because postaccident examination did not reveal any anomalies that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Approach	Loss of engine power (partial) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Nose over/nose down

On June 2, 2011, about 2000 mountain standard time, a Scottish Aviation, Series 100 MDL 101, N101MY, experienced a partial loss of engine power during cruise flight about 4 miles east of Chandler, Arizona. The pilot made a forced landing in an open field. During rollout, the airplane's nose gear collapsed upon overrunning a ditch in the soft terrain, and the firewall was bent. The airplane was substantially damaged. Neither the airline transport pilot nor passenger was injured. The airplane was owned by the pilot, and it was operated under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed. No flight plan was filed for the local area personal flight that originated from Chandler about 1915.

The pilot reported to the National Transportation Safety Board investigator that the airplane was equipped with two interconnected fuel tanks in each wing. When the engine surged and power was lost, both of the wings' fuel tank gauges registered about 1/4-full. The pilot stated that he attempted to reacquire engine power, but he was not successful. As the airplane's altitude decreased, he redirected his attention to executing the forced landing. The pilot said that the entire flight was performed with the fuel selector on the “BOTH” position.

Airplane recovery personnel reported to the Safety Board investigator that no fuel was found in the left wing tanks. About 8 gallons of fuel were found in the right wing tanks.

According to the Pilot’s Operating Handbook, the fuel system consists of an inner and outer interconnected tank in each wing supplying fuel through a non-return valve to a fuel selector, a filter and a booster pump grouped together beneath the floor in front of the left hand front seat and thence through the engine-driven pump to the injector unit. The fuel selector is marked FUEL. OFF-L (ie, Left tank) - BOTH - R (ie, Right tank). Unusable fuel on either wing is 0.5 gallons.

On June 15, the airplane was examined by Federal Aviation Administration inspectors, who reported that no fuel system discrepancies were found. The engine was test run in the airframe and it started and ran normally.

Pilot Information

Certificate:	Airline transport	**Age:**	64,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	April 12, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	February 21, 2011
Flight Time:	28000 hours (Total, all aircraft), 300 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft), 10 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Scottish Aviation	**Registration:**	N101MY
Model/Series:	SERIES 100 MDL 101	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Aerobatic; Experimental (Special)	**Serial Number:**	166
Landing Gear Type:	Tricycle	**Seats:**	3
Date/Type of Last Inspection:	August 14, 2010 Condition	**Certified Max Gross Wt.:**	2350 lbs
Time Since Last Inspection:	13 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4815 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-A1B6
Registered Owner:	On file	**Rated Power:**	200 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:	In the vicinity - None -		
Departure Point:	Chandler, AZ (CHD)	**Type of Flight Plan Filed:**	None
Destination:	Chandler, AZ (CHD)	**Type of Clearance:**	None
Departure Time:	19:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Chandler Municipal CHD	**Runway Surface Type:**	
Airport Elevation:	1243 ft msl	**Runway Surface Condition:**	
Runway Used:		**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:**	33.266666,-111.75(est)

Administrative Information

Investigator In Charge (IIC):	Pollack, Wayne
Additional Participating Persons:	Bill Sapp; Federal Aviation Administration; Scottsdale, AZ
Original Publish Date:	January 15, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=79294

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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.