



# Aviation Investigation Final Report

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<b>Location:</b>	Chandler, Arizona	<b>Accident Number:</b>	WPR12LA423
<b>Date &amp; Time:</b>	September 17, 2012, 09:54 Local	<b>Registration:</b>	N1356Y
<b>Aircraft:</b>	BARNEY STARDUSTRER SA-100	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Hard landing	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot reported that he entered the airport traffic pattern and that the engine stopped developing power. He initiated a forced landing to an open area adjacent to the intended runway, which resulted in a hard landing. The pilot estimated that the airplane contained about 6 gallons of fuel at takeoff and that the flight required about 2 gallons of fuel. Postaccident examination of the airplane revealed that a fuel supply line had failed, which resulted in the loss of about 4 gallons of fuel in flight. This left less than 1 gallon of total fuel remaining, which was less than the usable fuel. It is likely that the loss of engine power was due to fuel exhaustion. The most recent conditional inspection of the airplane, which should have been completed about 12 months before the accident in accordance with the airplane's operating limitations, was actually completed about 16 months before the accident. If a conditional inspection had been completed, it is likely that the fuel line would have shown signs of deterioration that may have been seen during the inspection.

## Probable Cause and Findings

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

A loss of engine power as a result of fuel exhaustion due to a fuel line failure. Contributing to the accident was the pilot's failure to adhere to the maintenance inspection criteria for the airplane.

## Findings

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<b>Aircraft</b>	Fuel distribution - Failure
<b>Aircraft</b>	Fuel - Fluid level
<b>Personnel issues</b>	Scheduled/routine maintenance - Maintenance personnel
<b>Aircraft</b>	Scheduled maint checks - Inadequate inspection

## Factual Information

### History of Flight

<b>Approach</b>	Powerplant sys/comp malf/fail
<b>Approach</b>	Loss of engine power (total)
<b>Emergency descent</b>	Off-field or emergency landing
<b>Landing-flare/touchdown</b>	Hard landing (Defining event)

On September 17, 2012, about 0954 mountain standard time, an experimental amateur-built Barney Starduster SA-100 airplane, N1356Y, sustained substantial damage following a loss of engine power and subsequent hard landing at the Chandler Municipal Airport (CHD), Chandler, Arizona. The private pilot, the sole occupant of the airplane, was not injured. The airplane was registered to the pilot, and operated as a visual flight rules flight under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the flight that originated from Casa Grande, Arizona, about 14 minutes before the accident.

In a written statement to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the pilot reported that the engine stopped developing power as he entered the airport traffic pattern at CHD. The pilot initiated a forced landing in an open area adjacent to runway 22L and landed hard.

Postaccident examination of the airplane by a representative of the FAA revealed structural damage to the right wing and fuselage.

The pilot reported that postaccident examination of the airplane revealed that the Number 4 steel braided fuel line that supplies fuel from the fuel pump to the fuel pressure sending unit, lost "integrity." The pilot estimated that he lost about 3.5 gallons of fuel during the 14-minute flight; the airplane subsequently lost engine power about 3 minutes before landing.

The pilot stated that he departed Casa Grande with about 6 gallons of fuel onboard, and estimated that the flight would require about 2 gallons of fuel. The airplane's digital fuel totalizer showed about 4.2 gallons of fuel remaining within the main fuel tank after the accident; however, examination of the fuel tank (not breached) showed less than one gallon of total fuel remaining.

The airplane's most recent conditional inspection was completed on May 11, 2011, about 16 months prior to the accident. Review of the operation limitations for the airplane revealed that item 12 states in part "...no person shall operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with Appendix D of Part 43 and found to be in a condition for safe operation."

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	68
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<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>	Class 3 Unknown	<b>Last FAA Medical Exam:</b>	June 29, 2010
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	525 hours (Total, all aircraft), 148 hours (Total, this make and model), 452 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BARNEY	<b>Registration:</b>	N1356Y
<b>Model/Series:</b>	STARDUSTRER SA-100	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	B-1
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	May 11, 2011 Condition	<b>Certified Max Gross Wt.:</b>	1275 lbs
<b>Time Since Last Inspection:</b>	20 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	783 Hrs at time of accident	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	O-320 SERIES
<b>Registered Owner:</b>	STILL MICHAEL J	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	STILL MICHAEL J	<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>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<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>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	/ None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.01 inches Hg	<b>Temperature/Dew Point:</b>	30°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Casa Grande, AZ (KCGZ)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Chandler, AZ	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	09:40 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Chandler Municipal Airport KCHD	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1243 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	22L	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4850 ft / 75 ft	<b>VFR Approach/Landing:</b>	Forced landing;Traffic pattern

## 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>	33.26889,-111.81111

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hogenson, Dennis
<b>Additional Participating Persons:</b>	Steve C Baker; FAA FSDO; Scottsdale, AZ
<b>Original Publish Date:</b>	March 7, 2014
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=85074">https://data.nts.gov/Docket?ProjectID=85074</a>

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](#).