



National Transportation Safety Board Aviation Accident Data Summary

Location:	Granbury, TX	Accident Number:	CEN14LA334
Date & Time:	07/02/2014, 0842 CDT	Registration:	N9898W
Aircraft:	PIPER PA-28-140	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The flight instructor reported that, after takeoff, when the airplane was about 500 ft above ground level, the engine started to run roughly and lose power. The engine rpm decreased to about 1,100 rpm as the flight instructor attempted to turn the airplane 180 degrees back toward the airport. However, he was unable to land at the airport, so he made a forced landing to a field short of the runway. During a postaccident engine test run, the engine initially ran roughly, and black smoke was observed coming from the exhaust. After a brief warmup, the engine could only produce about 1,600 rpm at full throttle, and the engine test run was stopped. The examination of the No. 3 cylinder revealed that the exhaust valve was broken in several pieces and that some fragments remained in the cylinder, which produced gouging and scraping to the piston and cylinder head. The broken exhaust valve, spring, exhaust valve keepers, and rotating cap exhibited carbon buildup. Examination revealed a wear pattern on the top of the No. 3 cylinder exhaust valve rotator cap consistent with rocker arm wear. No rotational signatures were observed along the edge of the cap near the heavy carbon buildup, indicating that the rotator cap had stopped rotating, which subsequently led to a hot spot on the exhaust valve and caused the valve to fail.

Flight Events

Takeoff - Loss of engine power (partial)
Takeoff - Collision with terr/obj (non-CFIT)

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The partial loss of engine power due to the failure of the exhaust valve.

Findings

Aircraft-Aircraft power plant-Engine (reciprocating)-Recip eng cyl section-Failure - C

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	71
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; Glider; Instrument Airplane
Flight Time:	10341 hours (Total, all aircraft), 250 hours (Total, this make and model), 111 hours (Last 90 days, all aircraft), 43 hours (Last 30 days, all aircraft)		

Student Pilot Information

Certificate:	None	Age:	51
Airplane Rating(s):	None	Instrument Rating(s):	None
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	43 hours (Total, all aircraft), 43 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	Registration:	N9898W
Model/Series:	PA-28-140	Engines:	1 Reciprocating
Operator:	Iron Compass Aviation	Engine Manufacturer:	LYCOMING
Air Carrier Operating Certificate:	None	Engine Model/Series:	0-320-E2A
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	GDJ, 778 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:	27° C / 21° C	Visibility	10 Miles
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Granbury, TX (GDJ)	Destination:	Waco, TX (ACT)

Airport Information

Airport:	Granbury Regional Airport (GDJ)	Runway Surface Type:	Asphalt
Runway Used:	14	Runway Surface Condition:	Dry
Runway Length/Width:	3603 ft / 60 ft		

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC):	James P Silliman	Adopted Date:	01/14/2015
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=89589		

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