



National Transportation Safety Board Aviation Accident Final Report

Location:	Palo Alto, CA	Accident Number:	LAX08LA055
Date & Time:	02/01/2008, 0830 PST	Registration:	N49811
Aircraft:	CESSNA 152	Aircraft Damage:	Substantial
Defining Event:	Hard landing	Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

Prior to the accident flight, a maintenance inspection was performed. A piece of the baffling was found in the throat of the carburetor venturi. The carburetor was inspected and reinstalled on the airplane. On the accident flight, the pilot/mechanic performed a post maintenance run-up with no mechanical problems noted. She taxied the airplane to the runway for takeoff and performed another run-up. Again there were no mechanical problems noted, and all the gages showed normal indications. On the takeoff roll the engine developed 2,300 rpm's. About 500 feet mean sea level (msl), she noticed a hesitation in the engine and decided to make a 180-degree turn back to the runway. The airplane was still high on the approach, so the pilot reduced the airspeed, performed S-turns, and then slipped the airplane to lose altitude. She was still high, and about halfway down the runway, she further reduced the airspeed, which increased the sink rate. She lowered the nose to slow the sink rate, and was in the process of raising the nose again to flare for landing when the nose struck the runway. An inspection of the engine revealed zero compression of the number 1 cylinder with blow-by past the piston rings and exhaust valve. Maintenance personnel also noted that the bottom number 1 cylinder spark plug was "excessively" fouled with carbon deposits. There were no problems noted with the carburetor.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Loss of engine power during the takeoff initial climb due to lack of compression to a cylinder.

Findings

Aircraft	Recip eng cyl section - Damaged/degraded (Cause)
Personnel issues	Repair - Maintenance personnel

Factual Information

On February 1, 2008, at 0830 Pacific standard time, a single-engine Cessna 152, N49811, experienced a loss of engine power on takeoff and landed hard following an emergency landing on runway 13 at Palo Alto Airport of Santa Clara County (PAO), Palo Alto, California. West Valley Flying Club operated the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a positioning flight. The commercial pilot, the sole occupant, was not injured. The airplane sustained structural damage to the firewall and fuselage. Visual meteorological conditions prevailed for the local area flight that was originating at the time of the accident. The flight was destined for San Carlos Airport (SQL), San Carlos, California, and no flight plan had been filed.

According to the pilot's written statement, she reported that during maintenance work the previous day, a piece of baffling was found in the throat of the carburetor venturi. The carburetor was removed, cleaned, inspected, and reinstalled. The following morning, she performed a post maintenance run-up inspection and then intended to return the airplane to SQL. After start up, she performed a run-up, and all indications were normal. She taxied to runway 31 where she performed another run-up with no problems noted.

On the takeoff roll, the engine developed 2,300 rpm's, and all gages were in the "green." On climb out, she reported a 600-foot-per-minute climb at 70 knots. She lowered the nose to reduce the climb rate, but left the throttle and mixture in the full forward position. About 500 feet mean sea level (msl), the engine experienced a "hesitation." The pilot stated that she did not believe she could complete the pattern and land on runway 31, so she made a 180-degree turn back to runway 13 and informed the controller of her intent to land. With the runway in front of her, she reduced the airspeed to just above a stall and performed a "couple of S-turns and then slipped the [airplane]."

The pilot stated that the airplane was still high and she was concerned about overshooting the runway. About halfway down the runway in an attempt to lose altitude, she reduced the airspeed as much as possible and the sink rate increased. She lowered the nose and attempted to slow the sink rate, and then raised the nose again to flare prior to landing; however, the sink rate was too high and she was not able to raise the nose before it struck the runway.

Rossi Aircraft, Inc., Palo Alto, California, performed an engine inspection. The engine inspection revealed that the bottom number 1 cylinder spark plug was "excessively" fouled with carbon deposits. The other spark plugs exhibited normal operating signatures. Maintenance personnel performed a compression check of all the cylinders. Cylinder numbers 2, 3, and 4 showed normal compression results. The number 1 cylinder had zero compression. Maintenance personnel reported blow-by past the piston rings and exhaust valve of the number 1 cylinder. The carburetor heat box was inspected with no damage noted that would have restricted the airflow; however, the seals were missing. The carburetor was removed and inspected with no mechanical discrepancies noted; they did note about 2 ounces of water in the fuel bowl.

History of Flight

Prior to flight	Aircraft maintenance event
Takeoff	Loss of engine power (total)
Landing-flare/touchdown	Hard landing (Defining event)

Pilot Information

Certificate:	Commercial	Age:	37, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	07/01/2005
Occupational Pilot:	No	Last Flight Review or Equivalent:	06/03/2007
Flight Time:	1000 hours (Total, all aircraft), 300 hours (Total, this make and model), 905 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N49811
Model/Series:	152	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	15281332
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	11/01/2007, 100 Hour	Certified Max Gross Wt.:	1670 lbs
Time Since Last Inspection:	50 Hours	Engines:	1 Reciprocating
Airframe Total Time:	6730 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-235-L2C
Registered Owner:	Kevin R Pinger	Rated Power:	110 hp
Operator:	West Valley Flying Club	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	PAO, 4 ft msl	Observation Time:	0847 PST
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Scattered / 4000 ft agl	Temperature/Dew Point:	7°C / 6°C
Lowest Ceiling:	Broken / 20000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, Variable	Visibility (RVR):	
Altimeter Setting:	30.29 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palo Alto, CA (PAO)	Type of Flight Plan Filed:	None
Destination:	SAN CARLOS, CA (SQL)	Type of Clearance:	VFR
Departure Time:	0815 PST	Type of Airspace:	

Airport Information

Airport:	Palo Alto Airport (PAO)	Runway Surface Type:	Asphalt
Airport Elevation:		Runway Surface Condition:	Dry
Runway Used:	13	IFR Approach:	None
Runway Length/Width:	2443 ft / 70 ft	VFR Approach/Landing:	Forced Landing; Precautionary Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None		

Administrative Information

Investigator In Charge (IIC):	Tealeye Cornejo	Adopted Date:	12/24/2008
Additional Participating Persons:	James Friel; Federal Aviation Administration; San Jose, CA		
Publish Date:	12/24/2008		
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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