Aviation Investigation Final Report

Location:	Klamath Falls, Oregon	**Accident Number:**	WPR19LA207
Date & Time:	July 9, 2019, 13:20 Local	**Registration:**	N6642M
Aircraft:	Stinson 108	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot had departed on a cross-country flight. About 1,000 ft above ground level, the engine lost partial power. The pilot made a forced landing in an open field, during which the left wing sustained substantial damage as it contacted the ground.

The airplane had a recurring engine performance deficiency that the pilot was aware of, and he used a temporary fix to work around the issue. The mechanic who performed maintenance on the engine before the accident thought that the issue involved the carburetor. Postaccident examination of the carburetor revealed no malfunctions that would have precluded normal operation.

Postaccident examination of the engine revealed multiple incorrectly set valve clearances and multiple cylinders with lower-than-acceptable compression. Thus, the mechanic who performed maintenance on the engine failed to identify the engine's out-of-adjustment valves or the low-cylinder compression.

Probable Cause and Findings

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

The mechanic's failure to identify an engine performance issue, which led to a partial loss of engine power. Contributing to the accident was the pilot's decision to operate the airplane with a known mechanical deficiency.

Findings

Personnel issues	Incorrect action selection - Pilot
Aircraft	(general) - Malfunction
Personnel issues	Scheduled/routine maintenance - Maintenance personnel

Factual Information

History of Flight

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

On July 9, 2019, about 1320 Pacific daylight time, a Stinson 108-3 airplane, N6642M. was substantially damaged when it was involved in an accident near Klamath Falls, Oregon. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot stated that he and a passenger were relocating the airplane to Alaska. The airplane departed from Red Bluff Municipal Airport (RBL), Red Bluff, California, and landed at Crater Lake-Klamath Falls Airport (LMT), Klamath Falls, Oregon, for a refueling stop. The accident occurred after the takeoff from LMT. The pilot stated that the takeoff was normal but that the engine lost partial power when the airplane was at an altitude of above 1,000 ft above ground level. The pilot initiated a forced landing to a nearby field, where the left wing contacted the ground.

The pilot stated that he had experienced previous problems with the carburetor. He stated that, after the carburetor underwent an overhaul, the engine ran better but that it would occasionally not get up to full engine speed, so the airplane would not have top end power. To work around the issue, the pilot used a procedure of slowly advancing the throttle to the first three-quarters of travel and then applying the remaining throttle rapidly to attain full power. The pilot stated that this issue did not occur during the first leg of the trip.

The mechanic who worked on the airplane before the accident flight stated that the owner, who was not the accident pilot, reported the maintenance problem. The mechanic also stated that he checked the timing, valve lash, induction system, and fuel line to the airframe fuel filter and found no problems, so he determined that the carburetor was the issue. The mechanic temporarily replaced the carburetor with another one and detected a noticeable increase in engine power, which confirmed that the maintenance problem was due to the original carburetor. The carburetor was then provided to the facility that had previously performed an overhaul, and repairs were made. Afterward, the carburetor was reinstalled on the airplane.

Postaccident examination of the carburetor revealed no malfunctions that would have precluded normal operation. The engine rocker box covers were removed, and valve clearance on the right-side intake and exhaust valves (Nos, 2, 4, and 6) was found to be within acceptable limits. Valve clearance on the left-side cylinders (Nos. 1, 3, and 5) were found to be greater than 0.20 inch. According to the manufacturer's engine service manual, the valve clearance is 0.04 inch.

A compression test was conducted on each cylinder. Each cylinder held 80 pounds per square inch (psi). Cylinder No. 1 held 62 psi and leaked air past the exhaust valve. Cylinder No. 2 held 48 psi and leaked air past the piston rings and from the exhaust valve. Cylinder No. 3 held 73 psi and leaked air past the piston rings. Cylinder No. 4 held 56 psi and leaked air past the piston rings. Cylinder No. 5 held 58 psi and leaked air out of the intake valve. Cylinder No. 6 held 33 psi and leaked air out of the intake valve and past the piston rings. No other anomalies were noted that would have precluded normal operation.

Pilot Information

Certificate:	Private	**Age:**	52,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:			

Passenger Information

Certificate:		**Age:**	Female
Airplane Rating(s):		**Seat Occupied:**	Unknown
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Stinson	**Registration:**	N6642M
Model/Series:	108 3	**Aircraft Category:**	Airplane
Year of Manufacture:	1948	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	108-4642
Landing Gear Type:	Tailwheel	**Seats:**	
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	2401 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Franklin
ELT:		**Engine Model/Series:**	6A4165 SERIES
Registered Owner:	On file	**Rated Power:**	165 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KLMT,1248 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	16:21 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 12000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	24°C / 0°C
Precipitation and Obscuration:			
Departure Point:	Klamath Falls, OR (LMT)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	Unknown
Departure Time:	13:20 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Klamath Falls LMT	**Runway Surface Type:**	
Airport Elevation:	4095 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	Unknown
Ground Injuries:		**Aircraft Explosion:**	Unknown
Total Injuries:	2 None	**Latitude, Longitude:**	42.132778,-121.71971(est)

Administrative Information

Investigator In Charge (IIC):	Salazar, Fabian
Additional Participating Persons:	Darren K. Vaughn; Federal Aviation Administration; Portland, OR Jerold Rose; Federal Aviation Administration; Reno, NV
Original Publish Date:	May 19, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99984