Aviation Investigation Final Report

Location:	Helena, Montana	**Accident Number:**	SEA05LA176
Date & Time:	August 20, 2005, 07:50 Local	**Registration:**	N5467F
Aircraft:	Alon A-2A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After taking off on Runway 27 (9,000 feet X 150 feet) and climbing to an altitude of between 100 and 150 feet above ground level, the engine began to run rough. The pilot applied carburetor heat, which resulted in a further loss of engine rpm, prompting the pilot to make a left turn for a landing on Runway 9. The airplane touched down on the pavement near the departure end of Runway 27, bounced once and contacted the pavement a second time. The airplane then rolled about 10 to 15 feet before exiting the runway surface and impacting a grassy dirt surface, which resulted in the nose gear collapsing and the airplane nosing over, coming to rest in an inverted position. Examination of the airframe and engine revealed no anomalies that would have prevented normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power for undetermined reasons, which resulted in a forced landing and nose over. A factor contributing to the accident was the ground bordering the runway

pavement.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
2. TERRAIN CONDITION - GROUND

Occurrence #4: NOSE OVER
Phase of Operation: EMERGENCY LANDING

Factual Information

On August 20, 2005, approximately 0750 mountain daylight time, a single-engine Alon A-2A airplane, N5467F, sustained substantial damage following a forced landing after experiencing a loss of engine power near Helena, Montana. The airplane was registered to and operated by a private individual. The certificated private pilot and his sole passenger sustained minor injuries. Visual meteorological conditions prevailed for the local flight, which was operated in accordance with 14 CFR Part 91, and a flight plan was not filed. The flight was originating at the time of the accident.

In a written statement the pilot reported that he spent 5 to 10 minutes in the run up area prior to departing; carburetor heat and magneto checks were normal. The pilot stated that after taking off the engine was performing normal, but after reaching an altitude of approximately 100 to 150 feet above ground level (agl) he noticed that the engine was running rough and rpm dropping. The pilot applied carburetor heat, which resulted in a further loss of rpm, prompting him to return the carburetor heat control to OFF. The pilot reported that after informing the control tower operator of the rough running engine, he was cleared for a 180-degree turn to the left for a landing on Runway 9. The pilot reported that his decision to land on Runway 9 was prompted by the reduced engine power available, the lack of runway remaining, and the obstacles at the end of the runway; a fence and a road. The pilot stated that he applied carburetor heat, but due to the additional loss of power, he returned the control to its normal position. The pilot reported that the airplane touched down on the pavement near the departure end of runway 27, bounced once and again contacted the [pavement]. The pilot stated that the airplane then rolled about 10 to 15 feet before leaving the asphalt. The nose gear subsequently collapsed, resulting in the airplane nosing over and coming to rest inverted. The pilot reported no anomalies with the airplane or engine prior to the flight. The temperature and dew point recorded at the airport about the time of the accident were 52 and 31 degrees respectively. A review of a carburetor icing probability chart placed the reported temperature and dew point in the "serious icing - descent power" area of the chart.

A Federal Aviation Administration (FAA) airworthiness inspector, who examined the airplane, reported that both magnetos exhibited proper timing, all spark plugs appeared normal, with the exception of the #4 spark plug, which was fouled. Flight control continuity was found at all control surfaces. Damage to the airplane included both propeller blades bent aft, the nose gear collapsed aft, damage to the firewall, the left wing root area and aft spar damaged, and the horizontal stabilizer being bent downward.

Pilot Information

Certificate:	Private	**Age:**	29,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 1, 2004
Flight Time:	191 hours (Total, all aircraft), 156 hours (Total, this make and model), 152 hours (Pilot In Command, all aircraft), 4 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Alon	**Registration:**	N5467F
Model/Series:	A-2A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	B-267
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	October 1, 2004 Annual	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:	14 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4084 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	C90-16F
Registered Owner:	Nickolas J. Keilman	**Rated Power:**	90 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HLN,3877 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	90°
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:	30.15 inches Hg	**Temperature/Dew Point:**	11°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Helena, MT (HLN)	**Type of Flight Plan Filed:**	None
Destination:	Helena, MT (HLN)	**Type of Clearance:**	None
Departure Time:	07:48 Local	**Type of Airspace:**	

Airport Information

Airport:	Helena Regional Airport HLN	**Runway Surface Type:**	Asphalt
Airport Elevation:	3877 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	9000 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	46.606666,-111.98278

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Terry L Van Natta; Federal Aviation Administration; Helena, MT
Original Publish Date:	February 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=62296