Aviation Investigation Final Report

Location:	Hope, New Mexico	**Accident Number:**	DEN06LA062
Date & Time:	April 13, 2006, 16:10 Local	**Registration:**	N82LL
Aircraft:	Piper PA-46-350P	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that while in cruise flight, the engine manifold pressure dropped followed by a loss of oil pressure. The pilot elected to divert to a nearby airport. During the descent, the engine began to fail. The pilot elected to force land the airplane on a road. While setting up for the landing, the engine seized. During the landing roll, the airplane's right wing struck a road sign, causing substantial damage to the airplane. An initial examination of the airplane showed oil adhering along the full length of the bottom fuselage. The oil originated at the engine right side exhaust pipe. An examination of the airplane's engine showed the right hand turbocharger impeller blades were worn at the tips. Some of the blades were fractured. There was also excessive play noted in the compressor assembly. An examination of the turbocharger was conducted at the NTSB Materials Laboratory. The examination determined that the impeller's aluminum bearings were heavily worn and distorted. There was no sign of overheating in the bearings. Attempt to do a Rockwell hardness test were made, but accurate readings could not be gained due to the softness of the metal. Further examination showed damage to the oil seal at the impeller shaft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to failed bearings in the turbocharger and the subsequent oil seal

failure leading to oil exhaustion. Factors contributing to the accident were the fractured oil seal and the road sign.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings
1. (C) EXHAUST SYSTEM,TURBOCHARGER - FAILURE
2. (F) LUBRICATING SYSTEM,OIL SEAL - FRACTURED
3. (C) FLUID,OIL - EXHAUSTION

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

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
4. (F) OBJECT - SIGN

Factual Information

On April 13, 2006, about 1610 mountain daylight time, a Piper PA-46-350P, N82LL, was substantially damaged when it struck a road sign during a forced landing 4 miles west of Hope, New Mexico. Visual meteorological conditions prevailed at the time of the accident. The personal flight was operating on an instrument flight rules flight plan under the provisions of Title 14 CFR Part 91. The private pilot on board the airplane was not injured. The cross-country flight originated at Las Cruces, New Mexico, and was en route to Clovis, New Mexico.

The pilot said he was cleared to flight level 230. Going through 21,000 feet, the airplane experienced a "reverse surge," that is, "a noticeable loss of power." The pilot said he then felt a bit of a surge, followed by a second loss of power. The pilot then noticed that the airplane was losing cabin pressurization. He said he called center (Air Traffic Control - ATC) and told them that he had an engine surge and required an immediate descent. ATC cleared his airplane to 11,000 feet and direct to Artesia, New Mexico. The airplane was approximately 35 mile south of Roswell, New Mexico.

The pilot said he was flying in instrument conditions and was busy flying the airplane and looking around the instrument panel for other system failures. He said he knew that he was losing power and that the cloud bottoms were at 13,000 feet.

The pilot extended the airplane's landing gear and performed an "aggressive" descent at 2,000 to 2,500 feet per minute, down to 11,000 feet. When he leveled off at 11,000 feet, the pilot noticed the reduced manifold pressure (mp) and then, that the oil pressure gauge read just below 70 PSI. The pilot added throttle but noticed no noticeable increase in manifold pressure. The mp was about 20 inches.

The pilot said the airplane flew for another 8 minutes, then the engine lost all oil pressure. He said the airplane flew another 4 minutes without oil pressure. The pilot elected to land on a road. He said that he was about 800 to 1,000 feet above the road when the engine started to come apart. He said that up to that point, his propeller was wind milling. The pilot pulled off the mixture and turned off the magnetos. Right after that, the engine seized and the propeller froze. The pilot said after the engine seized, the airplane went down fast. The pilot performed a forced landing on the road. During the emergency landing, the airplane's right wing struck a road sign, causing substantial damage to the airplane.

An examination of the airplane at Artesia, New Mexico, showed oil streaks running along the full length of the bottom fuselage. The oil originated at the engine right side exhaust pipe. The right wing showed impact damage to approximately 10 feet of the wing's leading edge, beginning at mid-span extending outboard, and aft approximately 12 to 14 inches. The right wing tip was broken aft longitudinally.

An examination of the airplane's engine showed the right hand turbocharger impeller blades were worn at the tips. Some of the blades were fractured. There was also excessive play noted in the compressor assembly. The turbocharger was disassembled and examined at Kelly Aerospace Corporation, Fort Deposit, Alabama, on June 12, 2006. The examination showed that in addition to the impeller disc damage, there was scoring of the impeller shroud, damage to the turbine and exhaust housing, mashed bearings, and unidentified debris found between the impeller and turbine blades.

The turbocharger components were examined at the NTSB Materials Laboratory in Washington, DC, on August 31, 2006. The debris noted between the impeller and exhaust turbine blades was consistent with exhaust products. An examination of the impeller's aluminum bearings showed heavy wear and distortion. There was no sign of overheating in the bearings. Further examination showed damage to the oil seal at the impeller shaft.

Pilot Information

Certificate:	Private	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	March 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 1, 2006
Flight Time:	1782 hours (Total, all aircraft), 163 hours (Total, this make and model), 1660 hours (Pilot In Command, all aircraft), 16 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N82LL
Model/Series:	PA-46-350P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4636289
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 1, 2005 Annual	**Certified Max Gross Wt.:**	4100 lbs
Time Since Last Inspection:	63.6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	980.4 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540-AE2A
Registered Owner:	Curtis & Curtis Inc.	**Rated Power:**	350
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ROW,3671 ft msl	**Distance from Accident Site:**	35 Nautical Miles
Observation Time:	15:51 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	31°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Las Cruces, NM (LRU)	**Type of Flight Plan Filed:**	IFR
Destination:	Clovis, NM (CVN)	**Type of Clearance:**	IFR
Departure Time:	15:00 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	32.8525,-104.467781

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	Aaron Robinson; Federal Aviation Administration; Albuquerque, NM Mike McClure; New Piper Aircraft Company; Vero Beach, FL Troy Helgeson; Textron Lycoming; Williamsport, PA Randy Knuteson; Kelly Aerospace Corporation; Fort Deposit, AL
Original Publish Date:	January 31, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=63500