Aviation Investigation Final Report

Location:	BOULDER CITY, Nevada	**Accident Number:**	LAX00LA202
Date & Time:	May 20, 2000, 18:49 Local	**Registration:**	N9591Y
Aircraft:	Beech 35-B33	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with a berm during a forced landing following a catastrophic engine failure as the airplane descended toward the destination airport. The pilot reported that the flight was uneventful until they were preparing to start a descent over Lake Mead. Suddenly a loud 'pop or clunk' noise came from the engine compartment and the engine began to vibrate and run roughly, then quit altogether. This was accompanied by a large amount of smoke. The pilot setup for a landing on a paved model airplane field and landed successfully; however, he could not stop the airplane prior to colliding with a berm and collapsing the landing gear. Following recovery of the aircraft, the engine was examined by an FAA airworthiness inspector. A large hole was observed in the upper left rear engine case in the area of the Nos. 1 and 2 connecting rods. The No. 2 connecting rod had separated from the crankshaft with the journal end severely peened and damaged. The rod end was protruding from the hole in the case. The No. 2 bearing insert was destroyed, with heat discoloration noted on the journal saddle. The corresponding portion of the crankshaft was also heat discolored and scored. The inspector observed that the oil pressure line from the engine to the Hobbs meter pressure switch was broken at the switch's fitting. Oil was noted covering the engine compartment area around the broken fitting.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The fracture and separation of the oil pressure line fitting, which resulted in a loss of oil and an oil starvation failure of the engine.

Findings

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

Findings
1. (C) LUBRICATING SYSTEM,OIL LINE - FRACTURED
2. (C) FLUID,OIL - LOSS,TOTAL
3. (C) ENGINE ASSEMBLY,BEARING - OVERTEMPERATURE
4. (C) ENGINE ASSEMBLY,CONNECTING ROD - SEPARATION

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

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

Findings
5. TERRAIN CONDITION - BERM

Factual Information

On May 20, 2000, at 1849 hours Pacific daylight time, a Beech 35-B33, N9591Y, collided with a berm during a forced landing near Boulder City, Nevada. The forced landing was precipitated by a catastrophic engine failure during cruise. The aircraft was operated by Glendale Aviation of Glendale, Arizona, and rented by the pilot for a personal cross-country flight. The airplane sustained substantial damage. The private pilot and the two passengers on board were not injured. Visual meteorological conditions prevailed and a VFR flight plan was filed. The flight originated from the Glendale airport at 1650 as a nonstop cross-country flight to Las Vegas, Nevada.

In written statements and a telephone interview, the pilot and the right seat passenger, who also holds a private pilot certificate, reported that the flight was uneventful until they were preparing to start a descent over Lake Mead. Suddenly a loud "pop or clunk" noise came from the engine compartment and the engine began to vibrate and run roughly. This was accompanied by a large amount of smoke. Las Vegas TRACON had been providing radar vectors for sequencing into the Las Vegas McCarran airport and gave the pilot a vector toward the lowest and flattest terrain. During this time the engine quit altogether. The pilot set up for a landing on a paved model airplane field on the shore of Lake Mead and landed successfully; however, could not stop prior to colliding with a berm and collapsing the landing gear.

Following recovery of the aircraft, the engine was examined by a Federal Aviation Administration airworthiness inspector. A large hole was observed in the upper left rear engine case in the area of the Nos. 1 and 2 connecting rods. The No. 2 connecting rod had separated from the crankshaft with the journal end severely peened and damaged. The rod end was protruding from the hole in the case. The No. 2 bearing insert was destroyed, with heat discoloration noted on the journal saddle. The corresponding portion of the crankshaft was also heat discolored and scored.

During the initial assessment of the engine prior to removal from the airframe for disassembly, the inspector observed that the oil pressure line from the engine to the Hobbs meter pressure switch was broken at the switch's fitting. Oil was noted covering the engine compartment area around the broken fitting. The oil line was supported by Adel clamps. According to the inspector, the fracture surfaces were shiny and granular.

According to the maintenance records, the engine had accumulated 481 hours since major overhaul. The fractured line was estimated to have about 1,500 hours of operation.

Pilot Information

Certificate:	Foreign; Private	**Age:**	23,Female
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	November 20, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	147 hours (Total, all aircraft), 82 hours (Total, this make and model), 102 hours (Pilot In Command, all aircraft), 76 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N9591Y
Model/Series:	35-B33 35-B33	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	CD-546
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 24, 2000 Annual	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:	55 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5130 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-470K
Registered Owner:	VINCENT M. RIVERA	**Rated Power:**	260 Horsepower
Operator:	GLENDALE AVIATION	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LAS ,2179 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	18:51 Local	**Direction from Accident Site:**	250°
Lowest Cloud Condition:	Scattered / 12000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	30°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	93°C / 38°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GLENDALE , AZ (GEU)	**Type of Flight Plan Filed:**	VFR
Destination:	LAS VEGAS , NV (LAS)	**Type of Clearance:**	VFLF
Departure Time:	16:50 Local	**Type of Airspace:**	Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	35.989131,-114.810287(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	FRED WEIR; LAS VEGAS , NV MIKE GONZALES; SCOTTSDALE , AZ
Original Publish Date:	July 17, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49247

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