



# Aviation Investigation Final Report

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|--------------------------------|----------------------------|-------------------------|-------------|
| <b>Location:</b>               | LAKE MEAD, Nevada          | <b>Accident Number:</b> | LAX97LA242  |
| <b>Date &amp; Time:</b>        | July 15, 1997, 15:20 Local | <b>Registration:</b>    | N2914K      |
| <b>Aircraft:</b>               | Cessna 180K                | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         |                            | <b>Injuries:</b>        | 1 Minor     |
| <b>Flight Conducted Under:</b> | Part 91: General aviation  |                         |             |

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## Analysis

The pilot reported that while climbing to cruise flight he heard a bang from the engine, followed by a major vibration. The engine continued vibrating and he was unable to maintain altitude, so he pulled the aircraft into a stall to stop and feather the propeller. He stated that he attempted to land in a parking lot, but came in too high and too fast. He touched down on a road and collided with a berm. A FAA inspector examined the aircraft and noted two holes in the engine case above the forward cylinder's connecting rods. Further examination of the powerplant revealed that the Nos. 2 and 6 cylinders were intact. Neither piston displayed any sign of heat discoloration around the skirts. Combustion deposits were noted on the piston crowns. There was no staining or piston crown edge erosion. Both skirts were failed. The No. 4 cylinder piston was disintegrated around the pin. The piston rod was bent and the piston pin was still intact through the rod wrist. Neither the rod nor the pin displayed any indication of heat distress. There was no scoring noted inside the cylinder barrel. The No. 4 bottom sparkplug was fouled with metal. The sump contained oil and large chunks of pistons. The pilot reported that the Continental O-470-U engine had 2536.1 hours of total time, 75.2 hours since the last inspection, and 806.8 hours since the last overhaul. The maintenance records revealed that the six pistons, each with a Superior Air Parts, Inc., part number SA 648029, were installed during the last major engine overhaul on February 19, 1990.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the number 4 piston for undetermined reasons.

## Findings

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

Phase of Operation: CLIMB - TO CRUISE

### Findings

1. (F) ENGINE ASSEMBLY,PISTON - FAILURE
2. REASON FOR OCCURRENCE UNDETERMINED

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Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

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Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: LANDING - ROLL

### Findings

3. TERRAIN CONDITION - BERM

## Factual Information

On July 15, 1997, about 1520 hours Pacific daylight time, a Cessna 180K, N2914K, collided with terrain during a forced landing at the Lake Mead National Recreation Area in Lake Mead, Nevada, after a loss of engine power. The airplane sustained substantial damage and the certificated private pilot received minor injuries. The airplane was being operated as a business flight under the provisions of 14 CFR Part 91 by the pilot/owner when the accident occurred. The flight originated from the Boulder City Airport, Boulder City, Nevada, at an unspecified time, and was destined for Spanish Fork, Utah. Visual meteorological conditions prevailed and no flight plan was filed.

The pilot reported that he had been flying over Lake Mead, about 3,500 feet msl, and was climbing slightly to remain underneath the inbound traffic to McCarran International Airport (Las Vegas). He stated that he heard a "bang" from the engine, followed by a "major vibration." He reversed direction to head back to Boulder City. The pilot reported that the engine continued vibrating and he was unable to maintain altitude, so he pulled the aircraft into a stall to stop and feather the propeller. He stated that he attempted to land in a parking lot, but came in too high and too fast. He touched down on a dirt road. The road curved to the right and the aircraft continued off the road and onto the beach approximately 400 feet. The pilot stated that he was approaching a large berm with excessive speed. He pulled back and was able to get enough lift to hit the berm with only the aircraft belly. The aircraft bounced and came to a stop on the opposite side of the berm. The landing gear was sheared.

The airplane was examined by the Federal Aviation Administration and two holes were found in the engine case above the forward cylinder's connecting rods.

Further examination of the powerplant revealed that the Nos. 2 and 6 cylinders were intact. Neither piston displayed any sign of heat discoloration around the skirts. Combustion deposits were noted on the piston crowns. There was no staining or piston crown edge erosion. Both skirts were failed.

Inspection of the No. 4 cylinder revealed that the piston was disintegrated around the pin. The piston rod was bent and the piston pin was still intact through the rod wrist. Neither the rod nor the pin displayed any indication of heat distress. There was no scoring noted inside the cylinder barrel. The No. 4 bottom sparkplug was fouled with metal.

The sump contained oil and large chunks of pistons.

The pilot reported that at the time of the accident, the aircraft engine, Continental O-470-U, had 2536.1 hours of total time, 75.2 hours since the last inspection, and 806.8 hours since the last overhaul. The maintenance records revealed that the six pistons, each with a Superior Air

Parts, Inc., part number SA 648029, were installed during the last major engine overhaul on February 19, 1990.

## Pilot Information

|                                  |  |  |               |
|----------------------------------|--|--|---------------|
| <b>Certificate:</b>              | Private  | <b>Age:</b>                              | 55, Male      |
| <b>Airplane Rating(s):</b>       | Single-engine land   | <b>Seat Occupied:</b>                    | Left          |
| <b>Other Aircraft Rating(s):</b> | None   | <b>Restraint Used:</b>                   |               |
| <b>Instrument Rating(s):</b>     | None   | <b>Second Pilot Present:</b>             | No            |
| <b>Instructor Rating(s):</b>     | None   | <b>Toxicology Performed:</b>             | No            |
| <b>Medical Certification:</b>    | Class 3 Valid Medical-w/<br>waivers/lim  | <b>Last FAA Medical Exam:</b>            | June 24, 1997 |
| <b>Occupational Pilot:</b>       | UNK  | <b>Last Flight Review or Equivalent:</b> |               |
| <b>Flight Time:</b>              | 3792 hours (Total, all aircraft), 3692 hours (Total, this make and model), 3792 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft) |  |               |

## Aircraft and Owner/Operator Information

|                                      |                        |                                       |                 |
|--------------------------------------|------------------------|---------------------------------------|-----------------|
| <b>Aircraft Make:</b>                | Cessna                 | <b>Registration:</b>                  | N2914K          |
| <b>Model/Series:</b>                 | 180K 180K              | <b>Aircraft Category:</b>             | Airplane        |
| <b>Year of Manufacture:</b>          |                        | <b>Amateur Built:</b>                 |                 |
| <b>Airworthiness Certificate:</b>    | Normal                 | <b>Serial Number:</b>                 | 18053127        |
| <b>Landing Gear Type:</b>            | Tailwheel              | <b>Seats:</b>                         | 6               |
| <b>Date/Type of Last Inspection:</b> | August 26, 1996 Annual | <b>Certified Max Gross Wt.:</b>       | 1500 lbs        |
| <b>Time Since Last Inspection:</b>   | 75 Hrs                 | <b>Engines:</b>                       | 1 Reciprocating |
| <b>Airframe Total Time:</b>          |                        | <b>Engine Manufacturer:</b>           | Continental     |
| <b>ELT:</b>                          |                        | <b>Engine Model/Series:</b>           | O-470U          |
| <b>Registered Owner:</b>             | GOODFELLOW SALES INC   | <b>Rated Power:</b>                   | 235 Horsepower  |
| <b>Operator:</b>                     | GOODFELLOW, LYNN U     | <b>Operating Certificate(s) Held:</b> | None            |
| <b>Operator Does Business As:</b>    |                        | <b>Operator Designator Code:</b>      |                 |

## Meteorological Information and Flight Plan

|   |                                  |   |                   |
|---|----------------------------------|---|-------------------|
| <b>Conditions at Accident Site:</b>     | Visual (VMC)                     | <b>Condition of Light:</b>                  | Day               |
| <b>Observation Facility, Elevation:</b> | LAS ,2179 ft msl                 | <b>Distance from Accident Site:</b>         | 25 Nautical Miles |
| <b>Observation Time:</b>                | 14:56 Local                      | <b>Direction from Accident Site:</b>        | 270°              |
| <b>Lowest Cloud Condition:</b>          | Unknown                          | <b>Visibility</b>                           | 10 miles          |
| <b>Lowest Ceiling:</b>                  | Broken / 22000 ft AGL            | <b>Visibility (RVR):</b>                    |                   |
| <b>Wind Speed/Gusts:</b>                | 11 knots / 16 knots              | <b>Turbulence Type Forecast/Actual:</b>     | /                 |
| <b>Wind Direction:</b>                  | 80°                              | <b>Turbulence Severity Forecast/Actual:</b> | /                 |
| <b>Altimeter Setting:</b>               | 29 inches Hg                     | <b>Temperature/Dew Point:</b>               | 41°C / 3°C        |
| <b>Precipitation and Obscuration:</b>   | No Obscuration; No Precipitation |   |                   |
| <b>Departure Point:</b>                 | BOULDER CITY , NV (61B )         | <b>Type of Flight Plan Filed:</b>           | None              |
| <b>Destination:</b>                     | SPANISH FORK , UT (U77 )         | <b>Type of Clearance:</b>                   |                   |
| <b>Departure Time:</b>                  | 00:00 Local                      | <b>Type of Airspace:</b>                    | Class E           |

## Airport Information

|                             |   |                                  |                |
|-----------------------------|---|----------------------------------|----------------|
| <b>Airport:</b>             |   | <b>Runway Surface Type:</b>      |                |
| <b>Airport Elevation:</b>   |   | <b>Runway Surface Condition:</b> |                |
| <b>Runway Used:</b>         | 0 | <b>IFR Approach:</b>             |                |
| <b>Runway Length/Width:</b> |   | <b>VFR Approach/Landing:</b>     | Forced landing |

## Wreckage and Impact Information

|                            |         |                             |                           |
|----------------------------|---------|-----------------------------|---------------------------|
| <b>Crew Injuries:</b>      | 1 Minor | <b>Aircraft Damage:</b>     | Substantial               |
| <b>Passenger Injuries:</b> |         | <b>Aircraft Fire:</b>       | None                      |
| <b>Ground Injuries:</b>    | N/A     | <b>Aircraft Explosion:</b>  | None                      |
| <b>Total Injuries:</b>     | 1 Minor | <b>Latitude, Longitude:</b> | 36.239208,-115.03083(est) |

## Administrative Information

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| <b>Investigator In Charge (IIC):</b>     | Wilcox, Thomas  |
| <b>Additional Participating Persons:</b> | ROGER T WALKER; LAS VEGAS , NV  |
| <b>Original Publish Date:</b>            | January 28, 2000  |
| <b>Last Revision Date:</b>               |   |
| <b>Investigation Class:</b>              | <a href="#">Class</a>   |
| <b>Note:</b>                             |   |
| <b>Investigation Docket:</b>             | <a href="https://data.nts.gov/Docket?ProjectID=29836">https://data.nts.gov/Docket?ProjectID=29836</a> |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).