

N201HH FAA Inspector Field notes of tear down

July 7 2020, removed complete engine/propeller assembly from aircraft located at Air Transport Storage location. 3011 W. Buckeye Rd. Phoenix AZ. 85009. The engine assembly was removed by severing the engine mounts with a Sawzall and cutting any existing connections, Throttle, mixture, propeller control ETC.

Engine was transported to Aircraft Engine Specialist location; 2330 S. Airport Blvd., Suite 5, Chandler AZ. 85286 by Mr. Tim Varga. Aircraft Engine Specialist technicians: James Wheeler and William Dale Whelan conducted the tear down and the operation was observed by FAA Representative Thomas M. Dickerson, Aviation Safety Inspector assigned to the Scottsdale AZ. FSDO.

At the Aircraft Engine Specialist Location the propeller was removed and the engine placed on a mobile dolly. The engine was moved to an isolated location and teardown began. Removal of accessories and baffling was normal. When the propeller governor was removed it was noted to be seized. The accessory drive mechanism that drove the governor was stiffer than normal to rotate indicating a mechanical bind of some type, possibly a bent shaft.

The oil pan was removed and two large holes in the crank case were observed, these holes appeared to have been caused by connecting rods #3 and 4 when they broke free of the crankshaft. There was a massive amount of metal and debris in the oil pan from the engine failure. The oil screen was removed and observed to be jam packed with metal fragments, the fragments removed from the screen were fairly large in size. The accessory section was removed, the numbers one and two cylinders were removed using compressed air to force the cylinder off the piston.

The numbers three and four cylinders could not be removed. The rods flailing around had flared the bottom of the cylinder to the point the cylinder could not be removed. The case halves were separated and the damage was apparently caused by either number three or number four connecting rod coming loose and damaging the adjacent rod causing both rods to become disconnected from the crankshaft. The flailing components punched two holes through the crankcase, one hole caused by number three rod, the second hole caused by number four rod. Additionally the number four lifter was driven through the top of the case and caused a large crack in the case visible from outside the engine. The number four rod had been forced up against the cam shaft and caused some heat damage and discoloration. Number two rod bearing inserts were loose in the rod end and rod cap. The number one rod bearing inserts were tight in the rod and the rod end cap.

Investigators were able to locate the number three and four rod cap pieces and bolts and placed them in separate plastic bags and sent to the NTSB investigator Steven Stein. Additionally the EDM700 Engine monitor and digital tachometer were retrieved from the aircraft and sent to the NTSB investigator.

All of the tear down was documented with digital pictures and are available upon request. All pictures taken by Inspector Dickerson were sent via E-mail to NTSB investigator Stephen Stein.

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