



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Central Region

November 8, 2018

AIRFRAME AND ENGINE EXAMINATION

CEN18LA213

(3 Pages)

A. EXAMINATION PARTICIPANTS:

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B. SUMMARY

On June 7, 2018, about 1025 central daylight time, a Beech F33A airplane, N3291X, experienced an engine failure inflight and made a forced landing near Annandale Ranch Airport (2XS7), Uvalde, Texas. The private pilot sustained serious injuries and the airplane was destroyed by a post-impact fire. The airplane was registered to and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed at the time and no flight plan had been filed. The flight departed from Live Oak County Airport (8T6) George West, Texas, about 0930 and was en route to Sierra Blanca Regional Airport (SRR), Ruidoso, New Mexico.

C. DETAILS OF THE INVESTIGATION

1.0 Engine Examination

Teledyne Continental IO-520-BA(2) Serial Number 249335-R

The wreckage was initially examined at Air Salvage of Dallas (ASOD) on September 11, 2018. The engine was crated and shipped to Continental Motors where a detailed examination was conducted on November 8, 2018.

The engine was partially burned. Pieces of metal were visible in the oil pan. The internal components showed signs of heat distress.

Crankcase - There was a hole in the top of the crankcase above the No. 2 cylinder. The hole was from the top of the cylinder opening to the center backbone of the crankcase.

Bearings – All of the crankshaft bearings were intact and in place.

Crankshaft – Intact. Area around the No. 1 connecting rod was rusted as was the crankshaft drive gear.

Cam Shaft – Intact

All of the accessories were removed from the engine.

Vacuum pump- No data plate visible. The pump was burned. The pump coupling was melted. The pump was not opened, but the carbon splines rattled within the pump when it was moved. Left Magneto – Bendix – The magneto was burned and there was a hole in the case. The inner components of the magneto were melted.

Right Magneto – The magneto was burned.

Oil Cooler - Intact but had been subjected to heat.

Fuel Flow divider – Burned, but intact. The injector lines remained attached as did the fuel nozzles.

Propeller Governor – McCauley C2900 3J/T23 – Intact and not burned.

Fuel Pump – Burned

Oil Filter Mount – The mount was intact and had heat damage. The filter was not on the mount and not included with the engine. The safety wire was attached to the mount. The safety wire had been installed backward.

Connecting Rods – No. 2 connecting rod was burned off the crankshaft and remained attached to the cylinder. The No. 1 connecting rod was rusted. All of the other connecting rods showed signs of heat distress from oil starvation.

Cylinders – No. 1, 3, 4, 5, and 6 – Cylinders were intact. The inside of the cylinders contained light brown deposits. The valves were intact and appeared normal. Cylinder No. 4 was intact and the piston was stuck inside the cylinder. All of the cylinders had external heat discoloration.

Pistons – No. 1, 3, 4, 5, and 6 - Pistons were intact and light brown in color. The piston rings were intact. Little deposit on the piston faces. Piston No. 2 – Piston was stuck in cylinder.

All of the valve lifters were discolored from the heat.

Spark plugs – Exhibited normal wear signatures.

Turbocharger – Intact and free to turn.

Submitted by: Pam Sullivan – NTSB Senior ASI