

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23LA066

ENGINE EXAMINATION

April 11, 2023

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. ENGINE EXAMINATION.....	3
C. SUMMARY.....	3
D. DETAILS OF THE EXAMINATION.....	3
1.0 ENGINE.....	3
2.0 PROPELLER.....	6

A. ACCIDENT

Location: Harrison, Arkansas
Date: December 19, 2022
Time: 1505 CST
2105 UTC
Airplane: Beech A36, N8137P

B. ENGINE EXAMINATION

IIC	Jason Aguilera National Transportation Safety Board Denver, CO
FAA	Danny Brickey Federal Aviation Administration (FAA) Little Rock, Arkansas

C. SUMMARY

On December 19, 2022, about 1505 central standard time, a Beech A36 airplane, N8137P, was substantially damaged when it was involved in an accident near Harrison, Arkansas. The pilot was not injured. The airplane was operated under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight.

The pilot reported that the flight was normal until the airplane was on short final to runway 18 at the Boone County Airport (HRO), Harrison, Arkansas. The engine stopped producing power. Unable to restore engine power, the pilot performed a forced landing to a field about one mile short of the runway. During the forced landing the airplane's fuselage was substantially damaged and a postimpact fire ensued consuming a majority of the fuselage.

D. DETAILS OF THE EXAMINATION

1.0 Engine

The engine was removed from the airplane and examined at a salvage facility in Clinton, Arkansas. The propeller remained attached to the engine via the propeller flange.



Figure 1 Right Side of Engine



Figure 2 Left Side of Engine

The engine exhibited signatures consistent with exposure to a postimpact fire. Thermal distressing of the No. 1 cylinder area was evident. Heat damage was also sustained to the engine accessories.

The top spark plugs were removed and photo documented. The rocker box covers, and engine driven fuel pump were removed. The propeller was rotated by hand and thumb compression, valve train continuity and crankshaft continuity to the accessories were all established.

All cylinders were borescoped and were unremarkable. Both magnetos were removed and driven using a powered drill. Spark was obtained to all leads. Thermal and impact damage precluded a thorough examination of the ignition harness.

The fuel-air mixture unit was examined. All arms remained properly secured to the unit. The mixture arm was impact distorted but could still be rotated from stop to stop. The throttle arm moved freely. The fuel screen was removed and found to be clear of debris.



Figure 3 Throttle Body Fuel Screen

All fuel nozzles were removed and found to be clear of debris. The fuel divider was opened and was unremarkable. The screen was clear of debris

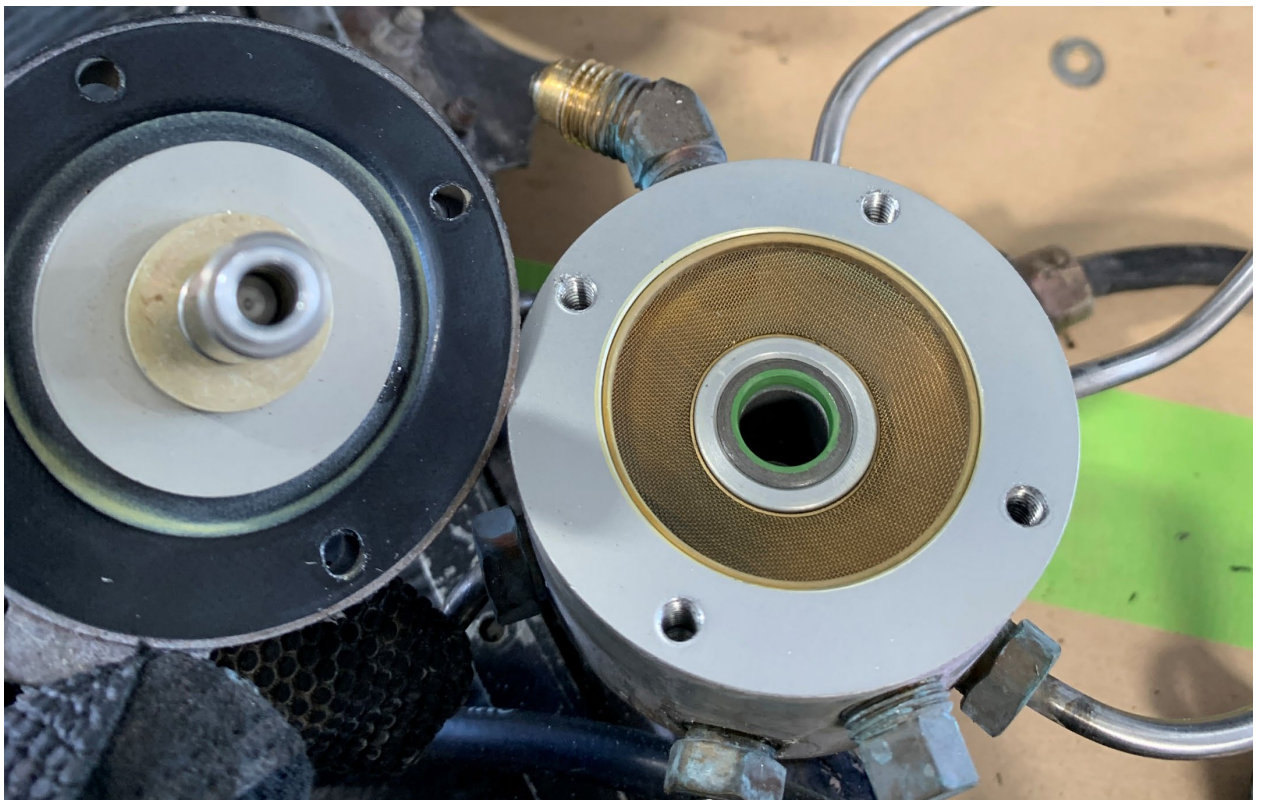


Figure 4 Fuel Divider and Screen

All 12 spark plugs were bench tested and all found to operate normally.



Figure 5 Top Spark Plugs

The oil filter was removed, and the filter element cut open. No debris was noted in the filter

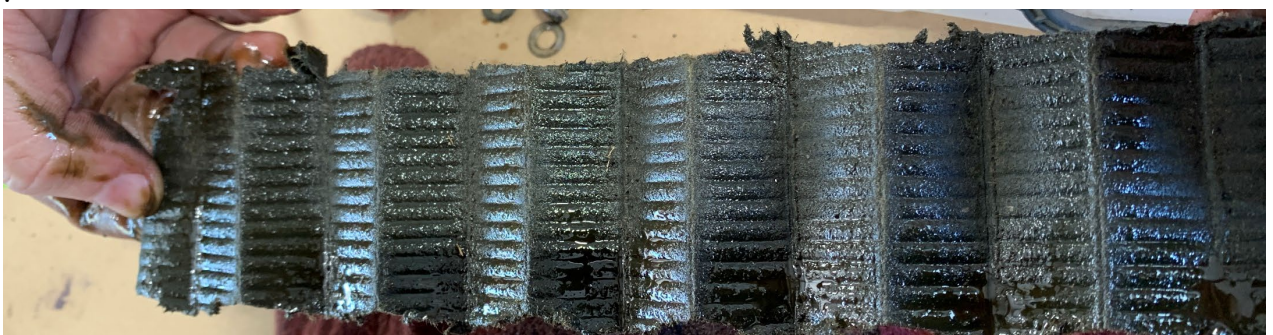


Figure 6 Oil Filter Element

2.0 Propeller

All three propeller blades were examined. The blade faces all exhibited chordwise scratches and were twisted towards the non-cambered side. All leading edges displayed polishing and had nicks and gouges on their leading edges.

Blade A displayed chordwise and angular scratches. There were several gouges in the leading edge of the blade.



Figure 7 Blade A

Blade B was fire damaged. There were nicks in the leading edge and chordwise scratches.



Figure 8 Blade B

Blade C exhibited chordwise scratches, leading edge polishing and several gouges on the leading edge.



Figure 9 Blade C

Submitted by:

Jason Aguilera
Senior Air Safety Investigator