

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24LA267

ENGINE EXAM ATTENDEES

January 10, 2025

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. ENGINE EXAM ATTENDEES	3
C. SUMMARY OF ACCIDENT FLIGHT	3
D. DETAILS OF THE EXAMINATION.....	4
1.0 ENGINE EXAMINATION	5
2.0 AIRCRAFT INFORMATION	7
3.0 ENGINE RUN	8

A. ACCIDENT

Location: Sacramento, California
Date: August 4, 2024
Time: 1315 Pacific daylight time (PDT)
Airplane: N135DG

B. ENGINE EXAM ATTENDEES

IIC Eleazar Nepomuceno
 NTSB
 Federal Way, Washington

Party Member Julie Crowell
 Continental Aerospace
 Mobile, Alabama

C. SUMMARY OF ACCIDENT FLIGHT

On August 4, 2024 about 1315 PDT, a Piper PA-28R-201T, N135DG, was substantially damaged when it was involved in an accident near Sacramento, California. The pilot sustained minor injuries. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot reported that prior to the flight, he completely refueled both fuel tanks at Mc Clellan Airfield (KMCC), McClellan Pak, California. Afterwards, he completed his preflight and performed an engine runup, verifying that the fuel selector lever was set to the right-wing fuel tank. During takeoff roll on runway 16, he confirmed that he had takeoff power set to 39 inches of manifold pressure. Shortly after the airplane lifted off the ground, the engine sputtered. The pilot glanced at the instrument panel and noticed that the manifold pressure indicated about 31 inches, and he was at an altitude of about 500 ft mean sea level.

The pilot initiated a 180° turn back to the airport as soon as he noticed the propeller had stopped spinning. He then turned the fuel boost pump to the "high" position and declared an emergency with the local air traffic control tower. As he realized he would not be able to make it to the airport, the pilot initiated a forced landing to a nearby golf course. During the off-airport landing sequence, the airplane impacted the ground and subsequently slid into a building before it came to rest upright (figure 1). Postaccident examination of the airplane revealed that both wings were substantially damaged.



Figure 1. View of accident airplane at wreckage site

D. DETAILS OF THE EXAMINATION

The follow-up engine examination took place on January 10, 2025, at Air Transport in Phoenix, Arizona (figure 2). Both wings were removed and both horizontal stabilator were manually cut to transport. The fuselage, at each wing root area, and each wing were substantially damaged.



Figure 2. View of airplane at wreckage exam.

1.0 Engine Examination

Engine Manufacturer: Continental
Engine Model Number: TSIO-360-ECKBCFB
Engine Serial Number: 303566

Examination of the recovered engine revealed that the engine remained attached to the airframe via the engine mounts; however, the forward left and right engine mount had damage consistent with impact and was partially separated. The lower engine truss sustained impact damage. All six cylinders and all engine accessories remained attached. All fuel and oil lines remained secured. No evidence of any mechanical damage was observed to the engine crankcase or oil case.

The upper spark plugs were removed, and all six cylinders were examined internally using a lighted borescope. A normal amount of combustion deposits was observed within the combustion dome of each cylinder and piston face. All the intake and exhaust valves were unremarkable. The crankshaft was rotated by hand using the

propeller. Rotational continuity was established throughout the engine and valve train. Thumb compression and suction was obtained on all six cylinders.

The top engine spark plugs were removed from the engine, and they were the massive electrode type. The sparkplugs exhibited black deposits within the electrode area. All of spark plugs exhibited signatures consistent with NORMAL when compared to the Champion Check-A-Plug comparison chart.

The fuel servo remained attached to the engine and was unremarkable. The throttle and mixture control cable remained attached to the servo and was unremarkable. The throttle and mixture control moved the available length. The fuel selector knob was manually rotated at each position and found to be in good working order.

The air induction body remained attached and found unremarkable. The air induction conduit was clear of obstructions and debris.

The oil case quick disconnect drain was sheared. No oil was recovered from the oil case.

The turbocharger ambient air inlet tube was found unsecured with the rubber interconnect sleeve and corresponding clamps still torqued down on the interconnect sleeve (figure 3).

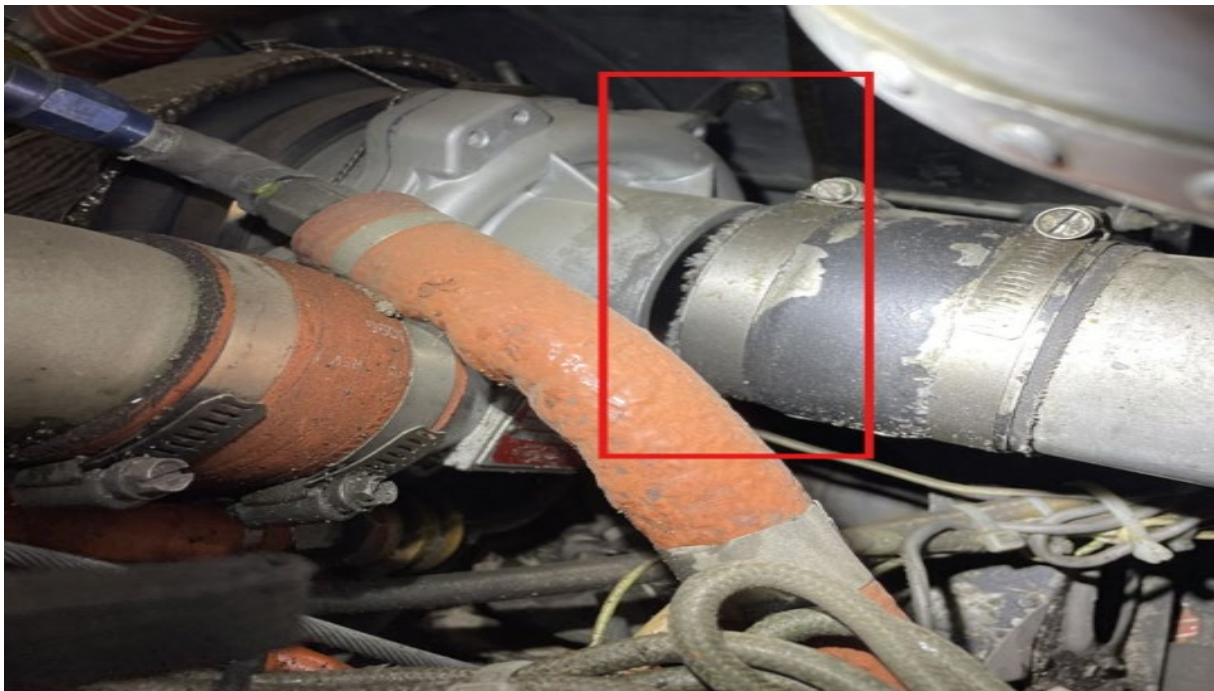


Figure 3. View of detached ambient air inlet tube from the compressor side of the turbocharger.

2.0 Aircraft Information

The turbocharger was last removed and reinstalled on September 22, 2020, after it was repaired (figure 4). The last annual inspection was completed on April 2, 2024 (figure 5).

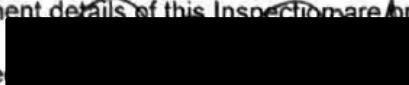
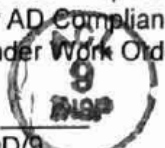
 REC	FAA CRS NA3R703L Reno-Stead Airport 4825 Texas Avenue Reno NV 89506	PH (775) 972-5540
— Date: 9/22/2020; Aircraft: N135DG; Tach: 3941.59; Engine - Type: Continental TSIO-360-EckBcFB, S/N: 303566, Time: 3941.59, SMOH: 308.53 Accomplished a 100 Hour Inspection on this engine in accordance with ACL Form 3, — "100/Annual Checklist," which meets FAR 43, Appendix "D." -Drained engine oil. Removed oil filter and installed new CH48108-1 oil filter. Serviced engine with 10 qts of — Hhillons 20w-50 oil. Completed compression check: CYL #1:78, #2:77, #3:80, #4:77, #5:76, #6:70, @ 80 psi. Checked and cleaned Donaldson induction air filter. Checked induction and exhaust systems. Removed and reinstalled Hartzell turbocharger — p/n:646396, s/n:TR298038, after repair by Main Turbo Systems,Inc.. Dissassembled exhaust system as necessary and removed turbo inlet wye pipe. Installed new turbo inlet — wye pipe p/n:654304AWL and reassembled exhaust system using new exhaust flange gaskets p/n:RA-970 and "V" band clamps p/n:2177-300.. Removed, cleaned, checked, rotated, and reinstalled 12 ea. serviceable spark plugs using 12 ea. new gaskets — p/n:M674. Checked magneto timing. All work done I/A/W current maintenance manual. I certify that this engine has been inspected in accordance with a 100 Hour Inspection and — was determined to be in airworthy condition. See aircraft records for AD Compliance List. Pertinent details of this Inspection are on file at this repair station under Work Order		
— Sign:  Date: Sept. 22, 2020 Insp.  For: Aviation Classics, Ltd. FAA CRS NA3R703L DD/9		

Figure 4. Logbook entry depicting maintenance to the turbocharger.

According to the manufacturer Airplane Parts Catalog, the clamp to be installed is part number 554-641(MS21920-26), a Military Standard flat banded, T-bolt, latch style hose clamp. T-bolts are typically used to fasten flexible, rubber or silicon hoses to pipe ends using a 360-degree tightening band. Inspection of the tightening clamp on the turbo inlet sleeve revealed that it was a lined worm gear clamp (see figure 3). Typically, a lined worm gear clamp often has less gripping force and usually does not withstand vibration as well as a T-bolt clamp.



FAA CRS NA3R703L
Reno Stead Airport
4825 Texas Avenue
Reno NV 89506

PH (775) 972-5540

MI

- Date: 4/02/2024; Aircraft N135DG, Tach 3988 27, Engine - Type: Continental TSIO-360-EcKBcFB, S/N: 303566, Time: 3988.27, SMOH: 355 21
- Accomplished a 100 Hour Inspection on this engine in accordance with ACL Form 3, "100/Annual Checklist," which meets FAR 43, Appendix "D." - Drained engine oil. Removed oil filter and installed new CH48108-1 oil filter. Serviced engine with 7 qts of Phillips 20w-50XC oil. Completed compression check: CYL #1:77, #2:72, #3:79, #4:75, #5:79, #6:71, @ 80 psi. Checked and cleaned Donaldson induction air filter p/n:P617058. Checked induction and exhaust systems. Removed, cleaned, checked, rotated, and reinstalled 12 ea. serviceable spark plugs using 11 ea. new gaskets p/n:M674. Checked magneto timing.
- Removed existing oil sump heat pad, cleaned mounting area, and installed a new E-Z Heat aircraft engine preheater pad Model 540. All work done I/A/W current maintenance manual. I certify that this engine has been inspected in accordance with a 100 Hour Inspection and was determined to be in airworthy condition. See aircraft records for AD Compliance List. Pertinent details of this Inspection are on file at this repair station under Work Order No. 23910

Signed: [Redacted Signature] April 2, 2024 Insp.
For: Aviation Classics, Ltd. FAA CRS NA3R703L



Figure 5. View of last engine annual logbook entry.

3.0 Engine Run

A subsequent engine run was completed on January 31, 2025. The engine plugs and its respective spark plug connectors were replaced. The sheared quick-drain plug was replaced, and 5 quarts of oil was added to the engine. An external fuel tank was connected to the inlet bypassing the fuel selector valve. The ambient air inlet sleeve that was found detached during the examination was reattached. The originally installed clamps were used to hold the sleeve.



Figure 6. View of engine prior to engine run. Photo courtesy of Continental Aerospace Technologies.

The engine (see figure 6) was started with the manufacturer's pilot operating handbook (POH) found in the aircraft. The engine started on its first attempt and ran continuously for 5 minutes at a range of about 50-60% throttle setting which translated to about 1300-1500 rpms, with which takeoff RMP is about 2575 RPM. Due to impact damage to the engine truss, the engine was not run at full power. The engine was shutdown using the POH without anomalies. Inspection of the engine post engine run revealed that the ambient air inlet sleeve was again detached from the turbocharger. The gascolator was removed and no fuel contaminants were observed (see figure 7).



Figure 7. Left photo: view of removed gascolator; right photo: view of recovered fuel from gascolator. Photo courtesy of Continental Aerospace Technologies.

Submitted by:

Eleazar Nepomuceno
Aviation Accident Investigator