

National Transportation Safety Board

Office of Aviation Safety

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ANC24FA092

AIRFRAME AND ENGINE EXAMINATION

January 23, 2025

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A. ACCIDENT

Location: Wasilla, AK
Date: September 14, 2024
Time: 9:30
17:30
Airplane: Jon Bergstedt

B. AIRFRAME AND ENGINE EXAMINATION

Investigator	Stacia Joyce NTSB Anchorage, AK
Subject Matter Expert	Dave Harsanyi Lycoming Texas Laurence Clyde FAA Anchorage, AK Chris Curtis A&P Wasilla, AK

C. SUMMARY

On September 14, 2024, at 0930 Alaska daylight time, an experimental amateur-built, JP Flyer, N1202Y, was substantially damaged when it was involved in an accident near Wasilla, Alaska. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulation* Part 91 personal flight.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The accident airplane came to rest just off of a residential road near a private airstrip. An initial National Transportation Safety Board (NTSB) on-scene wreckage examination revealed that all major components of the airplane were accounted for at the accident site.

There was tree debris in the area immediately surrounding the wreckage, there were also branches and debris slightly further from the airplane.

2.0 Airframe Examination

2.1 Fuselage

The fabric was burned completely from the fuselage and empennage in the post crash fire. During the recovery, the frame around the cockpit was cut. The engine compartment was impact and fire damaged. The landing gear was still attached to the fuselage and was impact damaged and exhibited thermal damage from the post crash fire.

2.2 Empennage

The empennage was largely in tact, the fabric was consumed in the post crash fire. The tailwheel, rudder and tail feathers were attached to the airplane with impact damage.

2.3 Wings

At the time of the examination the wings had been removed from the fuselage. The wings were observed to have PSTOL flaps installed. Both wings were observed to have impact and postcrash fire damage.

3.0 Engine Examination

The Lycoming O-360 A2A Serial number L-21426-36A engine was cut from the fuselage for the engine exam. The engine was black in color consistent with a post impact fire and sooty to the touch. Signs of corrosion were observed throughout and consistent with high heat exposure. The logbooks could not be located therefore the total time in service and any historical information concerning the engine is unknown.



Figure 1 Engine data tag

The engine sustained impact damage to various components. The starter ring was dislodged from the aluminum flywheel. The exhaust pushrod on cylinder No. 2 was deformed and bent midspan limiting engine rotation.

Ignition harness leads to the top and bottom spark plugs were impact damaged or thermally destroyed. Oil cooler and fuel hoses were thermally damaged and pulled from their corresponding components, no testing could be performed. The exhaust system suffered impact damage in the form of dents and crushing and required to be cut from the engine. The engine was not equipped with an engine driven fuel pump or a vacuum pump. Blanking plates were installed to the respective ports at the rear of the engine.

The oil filter was attached to the engine and observed to be safety wired. The filter sustained high thermal damage, no paint was left on the filler can. The filter was impact damaged in the form of crushing to the filter can. The oil filter was not cut open for further examination. The oil cooler was present but mostly consumed by fire, no data tag was visible.



Figure 2 Engine presented at examination

The rocker box covers and upper spark plugs were removed. Engine rotation was achieved by driving the engine from the rear mounted vacuum pump port. Thumb compression was noted on all cylinders except the No. 2 cylinder. The rocker arms and springs were intact and the push rods were straight, except for cylinder No. 2, the exhaust push rod tube was observed to have impact damage and had to be cut in order to achieve rotation. The intake pushrod tube on the No. 2 cylinder was also cut from the engine to isolate lack of rocker arm movement. The rocker shaft on the No. 2 cylinder was driven out using a mallet, the shaft did not exhibit any corrosion or oil present on the surface. The intake rod from cylinder No. 2 was straight with no bending. Both hydraulic lifters were removed from the engine and functioned under finger pressure. The check valve of each hydraulic lifter functioned normally when the ball was manually pushed from the seat. Both idler gears rotated normally with rotation of engine's crankshaft.

The valve rockers on cylinders No. 1, 3 and 4 moved smoothly and equally. A borescope inspection was performed on the engine. All cylinders were examined through the spark plug holes revealing little to no combustion deposits on the piston faces and no observed damage to the piston faces. Cylinder walls were shiny with cross hatch striations visible and unremarkable. All valve faces were unremarkable with no observed damage or heat signatures. Holes were drilled through the engine case and a borescope was used to inspect the engine camshaft. The camshaft lobes were found unremarkable with no observed damage.

The oil suction screen was found tightly secured to the oil sump with safety wire intact. The screen was removed and found to be unobstructed with clean transparent oil draining from the sump. The oil dip stick filler neck was thermally damaged but remained attached to the engine case via safety wire at the base of the neck.

The magneto drive gear was observed to be in good working condition. Both electronic E-Magnetos were firmly attached to the accessory section. Both magnetos were thermally damaged and partially consumed by fire leaving only the drive gear and a portion of the housing attached to the accessory section.



Figure 3 Left E-Mag



Figure 4 Left E-Mag gear



Figure 5 Right E-Mag



Figure 6 Right E-Mag gear

All eight of the NGK BR8ES spark plugs were removed. The electrodes were in good condition, no damage was noted, the ceramic insulator of the No. 3 spark plug was damaged, likely during impact.



Figure 7 Engine spark plugs



Figure 8 Inside diameter of inlet fitting and steel braided line

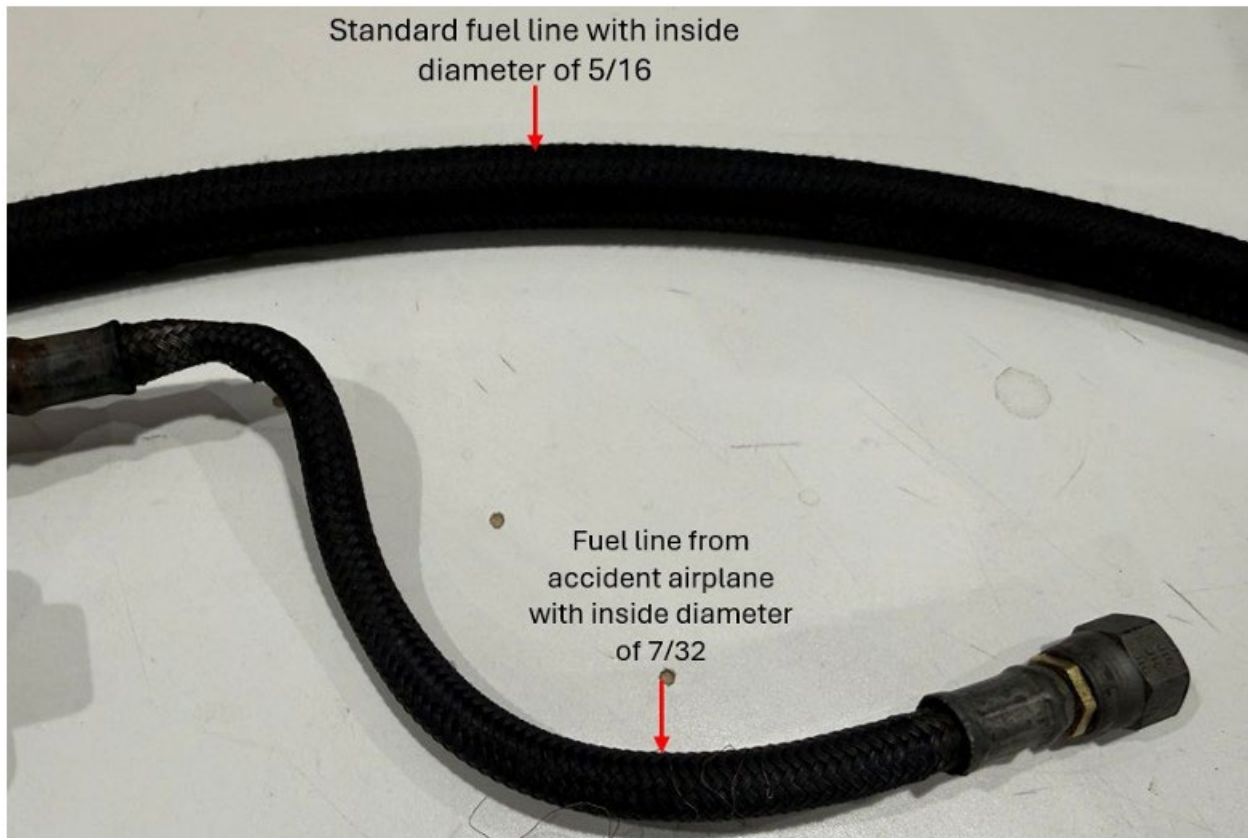


Figure 9 Standard and non-standard fuel line

The steel braided hose was observed to have a kink near the output of the fuel transducer (see figure 10).

The subject matter expert stated that the steel braided hose that connected the fuel transducer to the carburetor on the accident airplane is considered non standard for this application, smaller in diameter than a standard fuel hose (see figure 9).

The inside diameter of the 45° carburetor inlet fuel fitting was 9/32 and the inside diameter of the steel braided fuel line was 7/32. The normal inside diameter of a fuel line and associated fittings is 5/16" or -6 (see figure 8).

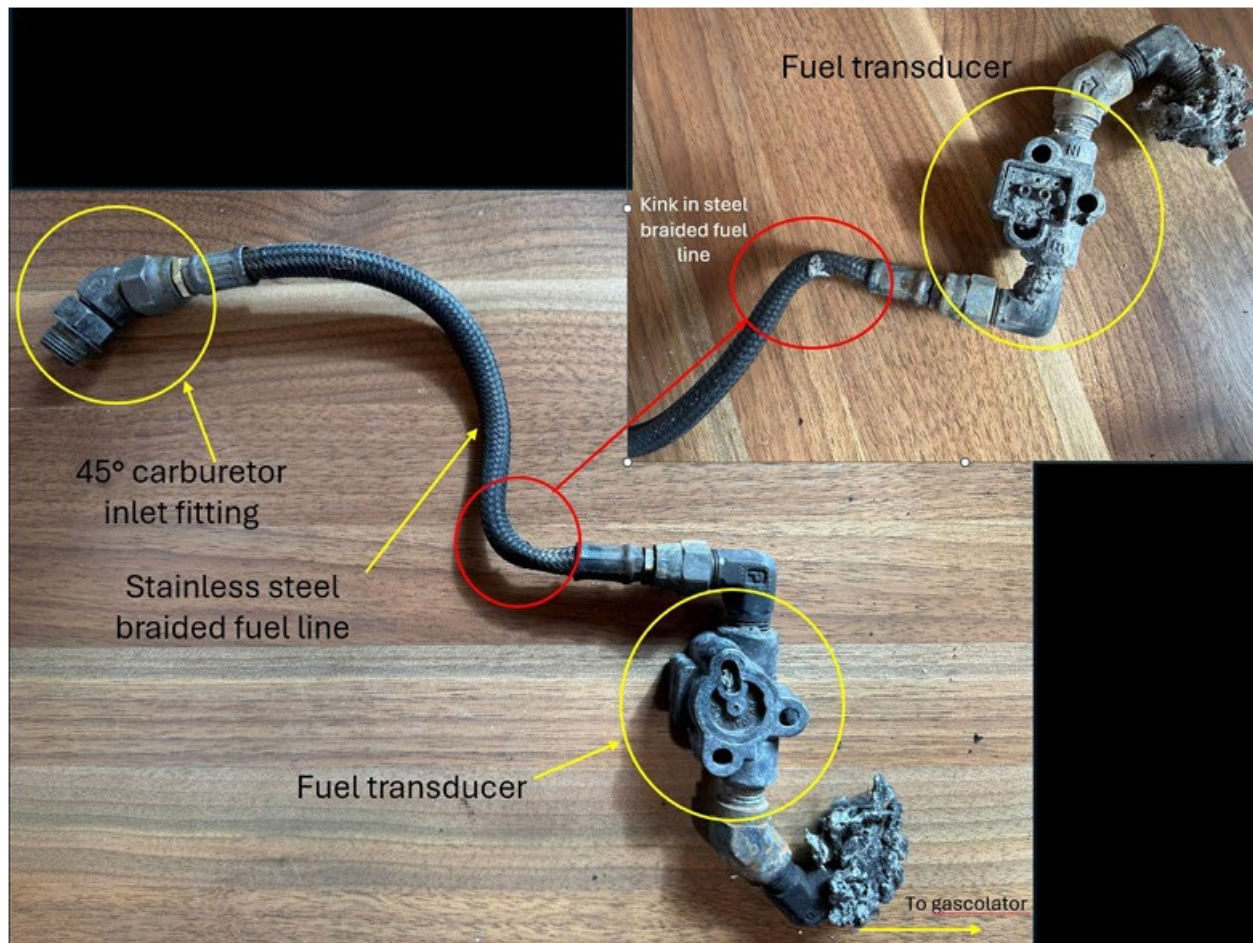


Figure 10 Stainless steel braided fuel line with kink



Figure 11 Engine carburetor



Figure 12 Carburetor disassembled

The Marvel Schebler MA-4-5 carburetor, serial number G-51-9134 was found firmly attached to the oil sump with both the mixture and throttle arms attached in its original condition, with no modifications. The throttle and mixture arms both moved freely through their full range of motion. Both control cables were attached to their respective arms, but impact separated behind each control arm. The fuel inlet screen was present and found to have a small amount of sediment within the screen. The float bowl was removed revealing the remains of the foam floats which were blistered, partially melted and brown in color. The floats were moved up and down, no resistance was observed. The carburetor needle was removed and found to be intact with no damage. The corresponding seat was found to be clean and damage free. A small amount of sediment consistent with impact debris was found in the carburetor bowl. Fluid was present in the carburetor bowl, it had no color and no odor. Water finding paste was used and it was confirmed to be water, likely from the post crash fire and storage condition of the engine since the accident.

The foam floats were observed to be blistered and thermally damaged (see figure 15). According to the subject matter expert, over time these foam floats are known to absorb fuel which can cause the system to run rich.



Figure 13 Engine carburetor



Figure 14 Carburetor disassembled



Figure 15 Foam floats from inside the carburetor

4.0 Propeller Examination

The composite Cato propeller was largely consumed in the postcrash fire.



Figure 16 View of propeller

Submitted by:

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