

National Transportation Safety Board

Office of Aviation Safety

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CEN25LA018

INVESTIGATION SUMMARY

May 20, 2025

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A. ACCIDENT

Location: Van, Texas
Date: October 17, 2024
Time: 0946 Central daylight time
Airplane: N81481, Piper PA-32R-301

B. PARTICIPANTS

IIC	Joshua Lindberg NTSB Dallas, TX
Party Coordinator	Curtis Anthony FAA Irving, TX
Party Coordinator	Jon Hirsch Piper Aircraft Vero Beach, FL
Party Coordinator	David Harsanyi Lycoming Engines Williamsport, PA

C. SUMMARY

On October 17, 2024, at 0947 central daylight time, a Piper PA-32R-301, N81481, was substantially damaged when it was involved in an accident near Van, Texas. The pilot and two passengers received minor injuries. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot reported to the responding Federal Aviation Administration (FAA) inspector that he had just received 60 gallons of fuel at Terrell Municipal Airport (TRL), Terrell, Texas. While in cruise flight, the engine experienced a gradual loss of power, so he switched to the left fuel tank and partial power was restored. He then switched back to the right fuel tank, but the engine was unable to regain power. During the decent for an emergency landing, the pilot kept the landing gear and flaps retracted. During the gear-up landing the airplane collided with a wood utility pole, which separated the left wing from the fuselage and the fuselage into two pieces.

The FAA inspector examined the airplane and found 30 gallons of 100LL aviation fuel gallons of fuel in the right fuel tank and 35 gallons in the left tank. The fuel samples

were free of water contamination; however, both samples contained dirt contamination that was introduced into the fuel sample jars when the samples were taken.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

An examination was completed on January 16, 2025.

During the post-recovery examination of the wreckage, the forward portion of the fuselage was upright and resting on some supports elevating it above the floor. The tailcone and empennage were separated from the forward fuselage between the aft cabin door and the aft baggage door. The forward baggage door, forward cabin door, aft cabin door, and aft baggage door all remained attached by their hinges. Seat Nos. 1 and 3 remained attached by their respective mounts. Seat Nos. 2, 4, 5, and 6 were all separated from their mounts and loose in the cabin. All of the aircraft windows remained installed in their respective openings. Flight control cable continuity was confirmed from the cockpit to each of the flight control surfaces except for separations consistent with overload or recovery cuts. The throttle, propeller, and mixture control levers in the cockpit were in the full forward position and continuity from the cockpit levers to the fuel servo and propeller governor was confirmed. The fuel lines from the wings were separated at the sides of the fuselage. Low pressure air was applied to the fuel lines at the cabin sides and was able to pass through the fuel selector valve and fuel pump before discharging from the fuel line on the left side wall of the fuselage where it was separated due to impact damage. An electrical power supply was connected to the terminals on the electric fuel boost pump and it was heard to operate. The battery master switch and electric fuel pump switches located on the left cabin sidewall were both in the Off position. The fuel selector valve was intact and rotated smoothly between the off, left, and right positions with the detents readily observed. The fuel strainer bowl was removed to facilitate examination of the strainer screens. The strainer screens appeared intact and free from blockage. The tachometer displayed 3,978.1 hours.

The left wing was separated from the fuselage and the main spar fracture surfaces appeared consistent with separation due to impact forces. The aileron and flap exhibited impact damage and both remained attached to the wing by their respective hinges. The main landing gear appeared intact and was in the retracted position. The pitot mast was partially displaced from its mount consistent with impact forces. The lift detectors remained installed in the leading edge with some impact damage visible around the lift detectors consistent with impact during the accident sequence. The fuel filler cap remained captured in the fuel filler neck opening. The fuel cap seal appeared intact. The wing was crushed and torn in the area around the outboard fuel cell. It was not determined whether the cell was breached or not. Low

pressure air was applied to the fuel line at the wing root and could be heard at the fuel filler neck opening.

The right wing was separated from the fuselage and the main spar fracture surfaces appeared consistent with having been disassembled from the fuselage by recovery personnel. The aileron and flap exhibited impact damage and both remained attached to the wing by their respective hinges. The main landing gear appeared intact and was in the retracted position. The fuel filler cap remained captured in the fuel filler neck opening. The fuel cap seal appeared intact. Low pressure air was applied to the fuel line at the wing root and could be heard at the fuel filler neck opening.

The stabilator had been disassembled from the tailcone. The balance tube and weight remained attached to the stabilator. The pitch trim tab remained attached to the stabilator. The pitch trim jackscrew was extended above the drum with about 10 threads exposed which corresponds to a partial aircraft nose up trim setting. The rudder remained attached to the vertical stabilizer by its hinges.

The air induction filter was installed and appeared free from blockage. The air induction tubing was separated from the fuel servo consistent with impact damage.

A second airframe examination was completed at the same time as the engine test run on March 20, 2025. The team revisited the condition of the airbox, bracket filter, air plenum and hose connections leading up to the fuel servo. The hose from the airbox to the 90° servo inlet adapter was an orange scat duct (figure 1-2). It did not have any part numbers or identifying markings. The scat duct had several tears on the outside that were covered with an orange sealant. The sealant was ripped and torn but appeared to have been previously covering tears in the scat duct. The metal wire on the inside of the scat duct was loose and had been rubbing/chafing on the inside of the airbox. The oily substance from the bracket air filter was covering the inside of the scat duct. There was complete oil coverage on the inside of the scat duct, indicative of the wire not being in place for an extended period of time, which allowed the oil to cover the surface completely. The scat duct was able to collapse easily when light hand pressure was applied to the outside of the scat duct. The internal wiring shifted easily and allowed the scat duct to collapse. There was no evidence of impact damage to the scat duct or the internal wiring.

The orange scat duct was the incorrect part and should have been a double wall, flexible air duct p/n 99849-08, alternate p/n 565-458.



Figure 1. Inside view of the failed scat duct.



Figure 2. Outside view of the failed scot duct with several holes and orange silicone on and near the holes.



Figure 3. Air scoop, air filter, airbox, and failed scot duct at the postaccident exam.

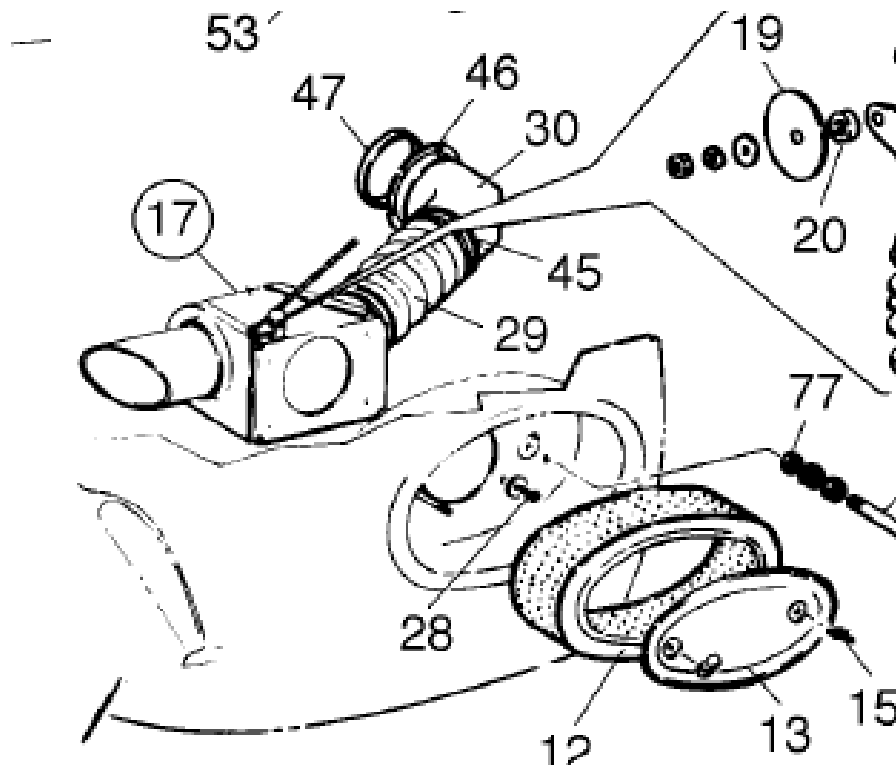


Figure 4. Piper PA-32R parts catalog showing p/n 99849-08 flexible air duct (No. 29).

2.0 Engine

Lycoming IO-540-K1G5D, s/n L-20113-48A

The engine remained attached to the fuselage but suffered damage to its engine mount in the form of bends and fractures. The engine was canted nose down approximately 20 degrees and the lower right engine mount was found fractured. All three top engine mounts to the aircraft's firewall were pulled away from the firewall by impact forces. The upper and lower cowl were loosely attached and removed for the exam. All rocker box covers were found tightly installed and removed. All top spark plugs were tightly installed along with their corresponding ignition harness leads. All top plugs were removed and examined using a lighted borescope, the examination was unremarkable. Engine rotation was achieved by rotating the aircraft's propeller in the direction of normal rotation. Valve continuity was confirmed on all 6 cylinders and suction and compression was noted on all cylinders. The single drive dual magneto was found tightly installed to the rear of the engine. The P lead for the right-hand portion of the magneto was not attached at the time of the exam. Magneto timing was checked and confirmed at 20 degrees BTDC.

3.0 Propeller

The three-blade Hartzell constant speed propeller remained attached to the crankshaft propeller flange. All three blades exhibited varying amounts of polishing to the leading edge and cambered faces. All three blades were bent aft about mid-span. The propeller was removed to facilitate checking of the crankshaft propeller flange runout with a dial indicator. The maximum runout when measured perpendicular to the flange face was about .012".

4.0 Engine Test Run

On March 20, 2025, the engine was prepared for a functional test run. In preparation, the No. 2 intake pipe was replaced, all exhaust pipes were replaced, the propeller was replaced, the alternator was removed, a damaged engine mount leg was replaced, a new fuel boost pump was installed, the original engine driven fuel pump remained installed, 10 quarts of oil were added to the engine since it was void of oil after the accident, and the engine was attached to a test stand. The spark plugs were then removed and the engine was rotated through to ensure it would make oil pressure. Finally, a fuel can was plumbed to the fuel line.

The engine started normally. The oil pressure was normal at 2,000 rpm. The engine produced full power at 2,700 rpm and 29.5" manifold pressure. The propeller pitch was changed using the propeller control knob and performed as expected. A magneto check was performed; the right mag had a 50 rpm decrease while the left mag had a 250 rpm decrease. The engine was run for 10 minutes with no issues noted. After the engine was shut down, a hot cylinder compression check was performed and the results were: No. 1 72/80, No. 2 72/80, No. 3 70/80, No. 4 68/80, No 5 68/80, No. 6 70/80. There were no leaks or anomalies noted with the engine driven fuel pump.

5.0 Aircraft Information

Accident Hobbs time: 4,220.3

Accident tachometer time: 3,978.1

Annual inspection: 8/1/2024 at 3,969.8 hrs tach and 4,211.3 hrs Hobbs

Annual inspection: 3/25/2024 at 3,962.3 hrs tach. During this inspection the lower cowl induction air scoop was rebonded to the engine cowling. The failed scat duct would have been removed and reinstalled to the airbox during this work (figure 3-4).

An FAA SAIB (CE-14-23), was issued on August 6, 2014, to address this scat duct issue. The SAIB recommended that owners, operators and maintenance personnel of Piper Models PA-28, PA-32, PA-34, PA-44, and PA-46 series airplanes inspect the air inlet hose of each airplane's engine(s) within the next 25 hours of time in service to

verify that it is an approved Piper part and that it does not exhibit any of the following conditions:

1. Broken or loose cords on external surface.
2. Loose or displaced supporting wire.
3. Signs of wear, perforation, deterioration or collapse.

If an air inlet hose is observed exhibiting any of the conditions listed above or is not an approved Piper part, then replace the hose with an approved Piper part before the next flight. Refer to the appropriate Piper Parts Catalog for approved part number information.

Submitted by:

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