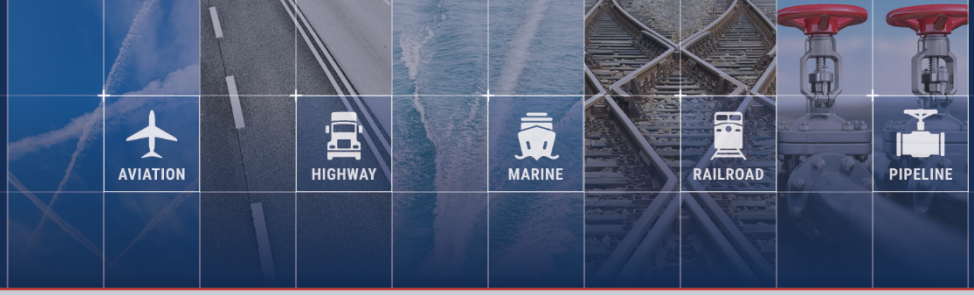

Aviation Investigation Final Report

Location:	Kingfisher, Oklahoma	**Accident Number:**	CEN23FA079
Date & Time:	January 16, 2023, 12:42 Local	**Registration:**	N8266D
Aircraft:	Piper PA-32-301T	**Aircraft Damage:**	Destroyed
Defining Event:	Fire/smoke (non-impact)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The instructional flight was to familiarize the pilot with newly installed avionics. Recorded flight and engine monitor data showed the airplane departed the airport and was maneuvering when the data ended about 28 minutes after departure. Witness video showed the airplane with a trail of thick black smoke before its impact with the ground. Engine monitor data showed that the engine's operational parameters were normal until about 2 minutes before the end of the flight, when the oil pressure dropped to zero. Shortly after, several recorded parameters went offline. The recorded outside air temperature increased from about 10° C to over 800° C before the end of the data.

Debris found on the engine's oil suction screen was consistent with the material for a magneto drive cushion that was found within the oil sump. No other anomalies were found with respect to the engine.

Oil streaking opposite the direction of flight on the airplane's horizontal stabilator was consistent with a significant oil leak. No other anomalies with respect to the airplane were discovered; however, the amount of impact and fire damage to the airplane impeded comprehensive examination. The witness video, oil streaking, and engine monitor data were all consistent with an engine compartment fire due to an oil leak. The extent of the impact and fire damage precluded determination of the exact source of the oil leak.

Although toxicology testing of specimens from the flight instructor revealed several drugs that are not approved for pilot use, or that are generally used for disqualifying conditions, the nature of the accident and the presence of an additional qualified pilot in the cockpit suggests that the flight instructor's use of these drugs had no bearing on the outcome of the accident flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

An oil leak of undetermined origin that resulted in an in-flight engine compartment fire and subsequent loss of airplane control.

Findings

Aircraft	(general) - Unknown/Not determined
Aircraft	(general) - Attain/maintain not possible

Factual Information

History of Flight

Maneuvering	Powerplant sys/comp malf/fail
Maneuvering	Fire/smoke (non-impact) (Defining event)

On January 16, 2023, about 1242 central standard time, a Piper PA-32-301T, N8266D, was destroyed when it was involved in an accident near Kingfisher, Oklahoma. The pilot and certificated flight instructor were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

According to witnesses, the airplane was seen trailing black smoke before it rolled over and dove into the ground. A witness-provided cell phone video confirmed the presence of the black smoke and an explosion after impact (Figure 1).

Figure 1. Still frame image from witness-provided cell phone video.

The accident flight was the first flight after the airplane had undergone maintenance, including the installation of a new autopilot system and an annual inspection. The flying club that owned

the airplane reported that club members were required to fly with one of the club instructors to become acquainted with the operation of the new autopilot system. The accident flight was such a flight.

ADS-B data showed that the airplane departed the Wiley Post Airport (PWA), Oklahoma City, Oklahoma, about 1214. After takeoff, the airplane turned and travelled about 17 nm west before turning north and travelling another 14 nm. The airplane then began maneuvering. At this time the airplane was about 5,700 ft above mean sea level (msl) and remained between 5,500 ft and 6,000 ft until about 1241, when it began descending. The final recorded position was about 4,000 ft msl, and the airplane was heading southeast. The accident site was about 1 nm east of the final recorded position.

Flight instructor Information

Certificate:	Commercial; Flight instructor; Remote	**Age:**	68,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	March 16, 2022
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	15000 hours (Total, all aircraft)		

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	October 17, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	18000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N8266D
Model/Series:	PA-32-301T	**Aircraft Category:**	Airplane
Year of Manufacture:	1980	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32-8024049
Landing Gear Type:	Tricycle	**Seats:**	7
Date/Type of Last Inspection:	January 6, 2023 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4535.4 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	TIO-540-S1AD
Registered Owner:	ENGINEERS FLYING CLUB	**Rated Power:**	300 Horsepower
Operator:	ENGINEERS FLYING CLUB	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KGOK,1065 ft msl	**Distance from Accident Site:**	18 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	94°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.64 inches Hg	**Temperature/Dew Point:**	15°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Oklahoma City, OK (PWA)	**Type of Flight Plan Filed:**	None
Destination:	Oklahoma City, OK (PWA)	**Type of Clearance:**	Unknown
Departure Time:	12:14 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	Both in-flight and on-ground
Ground Injuries:		**Aircraft Explosion:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	35.874283,-97.792645

The airplane impacted a firm, level field with little vegetation. The initial impact location was a crater that contained the airplane's propeller. The rotation axis of the propeller was near vertical, consistent with the airplane impacting the ground in a near-vertical attitude. All components of the airplane were in the immediate vicinity of the accident site (Figure 2).

Figure 2. Overall view of the accident scene (NTSB Photo).

The main portion of the fuselage, wings, and tail surfaces came to rest about 100 ft north of the initial impact point. The wings were damaged from impact but continuous from tip to tip except for the center spar section, which was melted and consumed by fire. The ailerons and

flaps remained attached to the wing. The wing's leading edge was crushed aft, and all four fuel tanks were ruptured. The fuselage forward of the tail surfaces was almost completely consumed by fire. The aft fuselage from the leading edge of the vertical stabilizer and aft was intact with the tail surfaces still attached. The vertical tail surfaces were intact and the horizontal tail surfaces were intact but with impact damage to the right tip. Control continuity was confirmed from all surfaces to the cockpit with all breaks in the control system consistent with impact damage.

Figure 3. Main wreckage at the accident site (NTSB Photo).

The horizontal tail surfaces had oil streaking from the leading edge toward the trailing edge in the longitudinal direction, consistent with an in-flight oil leak (Figure 4).

Figure 4. Oil streaking on the underside of the left horizontal stabilator.

The examination of the airframe did not reveal any identifiable preimpact deficiencies; however, the extent of the impact and fire damage impeded comprehensive examination.

Engine examination confirmed crankshaft rotation, although with difficulty. Accessory gear continuity was confirmed, and valve action was noted on all cylinders. The fuel injection throttle body and induction plenum were separated from the individual cylinder intake tubes. The single-drive dual magneto was separated from the accessory case and was found in the debris field. The magneto case was fractured, exposing the internal components of the magneto. The oil suction screen was removed, and debris was found that was retained for further examination. Less than 1/2 quart of oil was drained from the engine at the accident scene. There were several separations in the engine exhaust system. The turbocharger was displaced and had a hole in the induction side of the housing. All exhaust V-band clamps were located. The tailpipe had separated from the turbocharger, but the V-band clamp was still in place on the turbocharger side. The tailpipe and V-band clamp exhibited physical deformation. Subsequent removal of the engine oil sump revealed the presence of an undamaged rubber magneto drive cushion within the sump. There were no breaches in any of the core engine components that would explain a loss of engine oil. Other than the debris found on the oil

suction screen, no preimpact defects were found with respect to the core engine or accessories.

The amount of impact and fire damage to the airplane precluded determination of the remainder of the airplane's preimpact oil system integrity.

Medical and Pathological Information

The Office of the Chief Medical Examiner (OCME), Central Division, Oklahoma City, Oklahoma, performed the flight instructor's autopsy. According to the flight instructor's autopsy report, his cause of death was blunt force and thermal injuries, and his manner of death was accident.

The FAA Forensic Sciences Laboratory performed toxicological testing of postmortem muscle and lung tissue specimens from the flight instructor. Delta-9-tetrahydrocannabinol (delta-9-THC) and its metabolites were detected in lung and muscle tissue. Quetiapine was detected in lung and muscle tissue. Norquetiapine was detected in lung and muscle tissue. Bupropion was detected at 98 ng/g in lung and muscle tissue. Hydroxybupropion was detected at 1602 ng/g in lung and muscle tissue. Venlafaxine was detected at 7238 ng/g in lung and muscle tissue. O-desmethylvenlafaxine (desvenlafaxine) was detected at 9340 ng/g in lung and muscle tissue. Notably, all detected substances were drugs or metabolites of drugs that the flight instructor had a documented history of using per reviewed medical records.

Delta-9-THC is the primary psychoactive chemical in cannabis, including marijuana, hashish, and cannabis edibles. Marijuana is a federal Schedule I controlled substance, and the FAA considers its use by pilots unacceptable, regardless of state laws.

Quetiapine is a prescription antipsychotic medication. Norquetiapine is a metabolite of quetiapine. Bupropion is a prescription medication that acts on the central nervous system and can be used to treat depression and to help people quit smoking. Hydroxybupropion is a metabolite of bupropion. Venlafaxine is an antidepressant medication.

The OCME, Central Division, Oklahoma City, Oklahoma, performed the pilot's autopsy. According to the pilot's autopsy report, his cause of death was blunt force and thermal injuries, and his manner of death was accident.

OCME screening of aortic blood from the pilot for selected drugs of abuse did not detect any screened-for substances.

The FAA Forensic Sciences Laboratory performed toxicological testing of postmortem muscle and lung tissue specimens from the pilot. Most of the same substances were detected as had

been detected in the flight instructor's specimens, except at lower levels. These results were considered unreliable for purposes of this medical investigation. No substances other than those found in the flight instructor's specimens were detected in the pilot's specimens.

Tests and Research

A J.P. Instruments model EDM-830 engine monitor was recovered from the accident site. The data included a time index that did not coincide with the ADS-B data; however, the recorded flight track matched the ADS-B data. The data recovered from the engine monitor indicated normal engine operational parameters for most of the flight. About 2 minutes before the end of the data, the engine oil pressure began to drop, reaching 0 psi about 12 seconds later. During this time, the exhaust gas temperature for cylinder No.1 increased from about 900° F to 1450° F. The engine parameters remained stable until about 24 seconds before the end of the data, when all cylinder head temperatures, the turbocharger inlet temperature, and the oil temperature went offline. At the same time, the outside air temperature began increasing from about 10° C to over 800° C by the end of the data.

The debris collected from the oil suction screen was examined with a Fourier Transform Infrared (FTIR) spectrometer and showed a strong match to the known material from the magneto drive cushion found within the oil sump of the engine.

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	David Amann; FAA - OKC; Oklahoma City , OK Jon Hirsch; Piper Aircraft; Vero Beach, FL David Harsanyi; Textron Lycoming; Williamsport, PA
Original Publish Date:	February 5, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106579