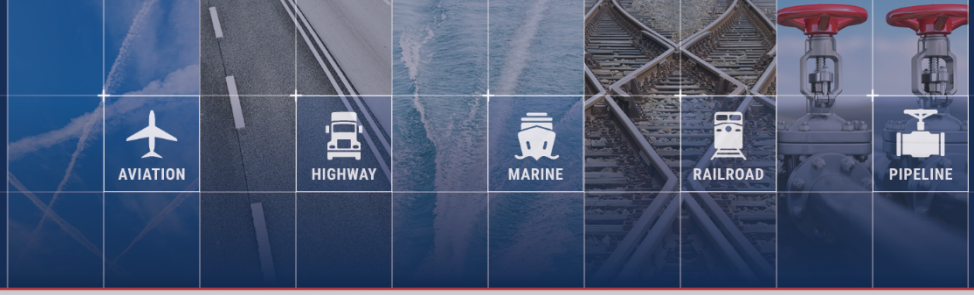

Aviation Investigation Final Report

Location:	Banning, California	**Accident Number:**	WPR23FA044
Date & Time:	November 22, 2022, 18:24 Local	**Registration:**	N101BH
Aircraft:	GALLAGHER XLT-RG	**Aircraft Damage:**	Destroyed
Defining Event:	Fire/smoke (non-impact)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Multiple witnesses observed fire and a trail of smoke coming from the rear of the experimental, amateur-built airplane as it flew overhead; the airplane was equipped with a rear-mounted engine. The airplane appeared to be in a level flight attitude and the fire progressively worsened as it continued toward a nearby airport. The airplane subsequently impacted the ground about 11/2 miles northeast of the airport, where most of the airplane was consumed by a postcrash fire.

Postaccident examination of the airplane revealed that the inflight fire likely started near the turbocharger; however, the exact origin could not be determined due to damage from the inflight and postcrash fires. There were no other mechanical malfunctions or failures identified during the postaccident examination that would have precluded normal operation.

Probable Cause and Findings

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

An inflight engine fire for reasons that could not be determined that resulted in impact with terrain.

Findings

Aircraft	Turbocharger - Unknown/Not determined

Factual Information

History of Flight

Enroute	Fire/smoke (non-impact) (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)
Post-impact	Fire/smoke (post-impact)

On November 22, 2022, about 1824, Pacific standard time, an experimental, amateur-built XLT-RG (Velocity), N101BH, was destroyed when it was involved in an accident near Banning, California. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Witnesses in the local area as well as people driving on Interstate 10 observed an airplane on fire, and it appeared to them that it was attempting to land at a nearby airport. One witness reported that the airplane did not exhibit any erratic movements and appeared to be in stable flight as it crossed the interstate. As the airplane continued its flight path toward the Banning Municipal Airport (BNG), Banning, California, the fire progressively worsened. Shortly thereafter, the airplane entered a right bank and impacted terrain.

Video footage from a nearby weight station security camera showed the accident airplane on fire before impacting desert terrain. A dashcam video provided by a motorist traveling on the interstate showed the accident airplane on fire before it impacted terrain.

Recorded ADS-B data showed that the airplane departed from Eagle Roost Airpark (27AZ), Aguila, Arizona, about 1809 mountain standard time, and proceeded on a westerly heading toward California. About 6 miles from BNG, ADS-B data was lost for the remainder of the flight, with the last reported altitude of 5,975 ft mean sea level. The last recorded ADS-B target was north of Interstate 10.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	October 26, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 14300 hours (Total, all aircraft), 0 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	GALLAGHER	**Registration:**	N101BH
Model/Series:	XLT-RG	**Aircraft Category:**	Airplane
Year of Manufacture:	2003	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	01
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540-EXP
Registered Owner:	On file	**Rated Power:**	350 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane logbooks were not located for the accident airplane; they may have been on board the airplane and destroyed in the postcrash fire.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KPSP,409 ft msl	**Distance from Accident Site:**	18 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	111°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	16°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Aguila, AZ (27AZ)	**Type of Flight Plan Filed:**	
Destination:	Banning, CA	**Type of Clearance:**	None
Departure Time:	18:09 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	BANNING MUNI BNG	**Runway Surface Type:**	
Airport Elevation:	2222 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	Unknown
Runway Length/Width:		**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	Both in-flight and on-ground
Ground Injuries:		**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.9285,-116.83644(est)

Examination of the accident site revealed that the airplane impacted hard-packed flat desert terrain about 11/2 miles northeast of BNG. All major structural components of the airplane were observed at the main wreckage and within the debris path. The airplane was mostly consumed by the inflight and postcrash fires, with the surrounding vegetation also fire damaged. The first identified point of contact was about 86 ft from the main wreckage.

The main wreckage came to rest upright on a magnetic heading of 020°. The right canard and various portions of the airplane were in the debris path. The forward elevators remained attached to the fuselage and were mostly thermally consumed. All three landing gear remained attached to the main wreckage. The instrument panel and avionics were thermally destroyed.

The rear-mounted engine remained attached to the engine mounts; it was partially separated from the firewall and was thermally damaged. There were no obvious holes to the engine case. The oil cooler and hydraulic pump were in the debris field. A portion of the turbocharger was visible at the accident site and remained partially attached to the engine.
Flight control continuity was established from the cockpit to each control surface via cables and hardware. The wing spars remained attached to the engine and engine firewall. The right-wing spar sustained more fire damage to the wing root area than the left-wing spar.

The postaccident examination of the engine revealed no mechanical anomalies except for the area surrounding the turbocharger. The entire firewall had varying degrees of thermal discoloration and sooting with significant whitening and oxidation in the lower right quadrant. The aluminum cover on the "cold" side of the turbocharger was melted, with a large amount of missing material. The "hot" side of the turbocharger remained attached at its mounting pad at the engine, along with the turbocharger intake tube. The turbocharger intake tube was sooted internally but not damaged. The turbocharger relief valve remained attached to the heat shroud and sustained thermal damage.
A distinctive V-shaped burn pattern was found to the right of the oil filter, oil pump, and right magneto plate. The pattern extended down to the right toward the turbocharger.

Medical and Pathological Information

An autopsy of the pilot was performed by the Riverside County Sheriff's Coroner Division. According to the autopsy report, the cause of death was blunt force trauma and thermal exposure.

The Federal Aviation Administration Forensic Sciences Laboratory performed toxicological testing on specimens from the pilot. The toxicology was positive for glucose, 46 (mg/dL) in vitreous, diphenhydramine 45 (ng/mL, ng/g) in blood and cetirizine 38 (ng/mL, ng/g) in blood and 1,644 (ng/mL, ng/g) in urine.

Diphenhydramine is a sedating antihistamine (commonly marketed as Benadryl) and is available over the counter in many products used to treat colds, allergies, and insomnia. Diphenhydramine carries the warning that use of the medication may impair mental and physical ability to perform potentially hazardous tasks, including driving or operating heavy machinery. The therapeutic range is 25 to 100 ng/mL, and it has a half-life of 3 to 14 hours.

Diphenhydramine undergoes postmortem redistribution, and central levels may be two to three times higher than peripheral levels. Cetirizine is a second-generation antihistamine used to relieve hay fever and allergy symptoms. It is available over the counter, commonly marketed as Zyrtec. Although designed to be less sedating than the first-generation antihistamines, cetirizine does have some sedating properties. The therapeutic range is between 190 and 1,450 ng/mL; the elimination half-life is between 6.5 and 10 hours. FAA provides guidance on wait times before flying after using these antihistamines.

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Robert Michaelson; Federal Aviation Administration; Riverside, CA
Original Publish Date:	November 26, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106352