



National Transportation Safety Board Aviation Accident Factual Report

Location:	Modesto, CA	Accident Number:	LAX07LA263
Date & Time:	09/01/2007, 1748 PDT	Registration:	N13WA
Aircraft:	Piper PA-22-150	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

HISTORY OF FLIGHT

On September 1, 2007, about 1748 Pacific daylight time, a Piper PA-22-150, N13WA, was consumed by fire and destroyed after landing at the Modesto City Airport, Modesto, California. The airplane was owned and operated by the pilot. Visual meteorological conditions prevailed at the time of the personal flight, and no flight plan had been filed. The private pilot received minor injuries, and the passenger received serious injuries. The flight was performed under the provisions of 14 Code of Federal Regulations Part 91, and it originated from Modesto about 1745.

The pilot reported to the National Transportation Safety Board investigator that earlier during the day he refueled his airplane at the Modesto Airport in preparation for a return flight to Livermore, California. Then, the pilot and passenger boarded the airplane. In preparation for takeoff, the pilot performed an engine run-up. During the run-up the engine backfired. The pretakeoff checks were concluded, and the pilot took off.

The pilot stated a few minutes after departure that he smelled smoke in the cockpit. The pilot stated he advised the air traffic controller of his situation and requested to immediately land. The pilot's landing was uneventful, and he parked his airplane.

Airport based fire department personnel responded to the event, but no fire suppression activities were undertaken. There was no externally visible evidence of fire, and the firemen returned to their station.

The pilot reported that he looked under the engine's cowling to see if he could locate the source of the problem. The pilot stated to the Safety Board investigator that he observed an orange colored hose (SCAT tubing) had become detached from the muffler, and a clamp was missing. The pilot stated to the Safety Board investigator that he believed the hose had routed air between the air intake and the exhaust, but he was not certain. He stated that he then acquired assistance from an unidentified person who was on the tarmac.

The person on the ramp possessed a Leatherman tool. The person cut a wire in the engine compartment. The pilot stated he did not know if the person who was assisting was an FAA certified airplane mechanic. After working on the airplane the person went into an "employee only" area of the nearby fixed base operator's (FBO) establishment. The FBO did not have a clamp to secure the hose.

The pilot borrowed a motor vehicle, drove to a nearby Wal-Mart, purchased a clamp, and returned to the airport. According to the pilot, the FBO's personnel assisted in attaching the hose and the newly purchased clamp that he had acquired. Upon completion of the attachment project, no logbook maintenance entries were made, and no work order for the maintenance was generated. The pilot and passenger then attempted to fly back to Livermore.

Minutes after take off, during initial climb out, the pilot noticed that the engine was smoking again. The pilot advised the air traffic controller of his situation, and he landed.

Fire department personnel responded to the event, but no fire suppression activities were undertaken. There was no externally visible evidence of fire.

The pilot stated he again looked beneath the engine cowling. At this time he observed that the same hose had partially unraveled and was detached at one end. The pilot opined that he had observed the source of the fumes. Upon consulting with an employee of the FBO, the pilot acquired another hose that was a "bit longer." The reconnection project was completed, and the pilot indicated to the Safety Board investigator his belief that the problem had been solved. Again, no logbook maintenance entry or work order was generated.

According to the pilot, he performed another run-up and, finding everything in order, he took off. During initial climb a "small amount of exhaust appeared." The pilot turned the airplane onto the downwind leg and advised the air traffic controller that he would be returning for landing. By the time the airplane progressed to midfield, the conditions had deteriorated and a small visible flame appeared forward of his left foot. The pilot reportedly immediately aimed for the runway, turned final, and landed as smoke was filling the cockpit.

The pilot stated that on approach it became difficult to see, and during the landing rollout he could see only inches ahead. So, he opened a window to look outside. The airplane's brakes became totally dysfunctional. As the smoke intensity further increased and the fire spread, the passenger exited the rolling airplane via the right cabin door. The pilot followed the passenger's exit from the airplane. The airplane came to rest and was consumed by fire.

PERSONNEL INFORMATION

The pilot holds a private pilot certificate, with an airplane single engine land rating. He does not possess any mechanic certificates.

WRECKAGE AND RECORDS EXAMINATION

Federal Aviation Administration (FAA) personnel examined the airplane. According to the FAA, it found that the engine exhaust muffler had failed in a manner that permitted engine exhaust (flame) to be directed into the engine compartment and toward the firewall. An approximate 2-inch diameter hole was observed burned through the muffler at its bottom left end. The FAA personnel opined that after repeated departures the exhaust heat also ruptured an aluminum hydraulic brake line, mounted on the firewall, which added "fuel to the fire."

An examination of the airplane's maintenance records revealed that an annual inspection had been performed on July 6, 2007. The airplane's listed time in service was 3,104.3 hours. The logbook signoff included the statement that the airplane was found to be in an airworthy condition, and airworthiness directive 68-05-01 (exhaust inspection) had been complied with.

The FAA further reported that the pilot-owner's logbook and interviews evidenced the fact that the airplane had been operated about 2.5 hours since the annual inspection.

TESTS AND RESEARCH

Airworthiness Directive 68-05-01 became effective in 1968. In pertinent part, it requires inspections of exhaust mufflers installed in specific models of airplanes, including the accident airplane. The inspection directs that muffler assemblies (with over 950 hours in service) be examined for signs of cracks, corrosion, burn-throughs, heat damage, collapsed stack, or weld separations.

According to Piper Service Letter number 324C, which was incorporated in the airworthiness directive, an exhaust and heat exchange system which has been permitted to deteriorate due to age, poor inspection and maintenance, can conceivably cause "engine compartment originated fires in flight."

ADDITIONAL INFORMATION

Modesto City Fire Department records and FAA interviews with a responding fireman indicate that the first alert call occurred at 1447. The call was for smoke/fumes in the cabin, and the fire department responded to the airplane.

At 1644, the second alert call was received, and the responding fireman noted it involved the same airplane, for the same reason. A fireman approached the pilot and, according to the fireman's report, advised the pilot that "he should not fly anymore today the way his luck was going." The fireman's report further states that the pilot "just laughed" and walked back to his airplane. The pilot had also stated to the fireman that he did not need any help from the fire department. During a subsequent interview with FAA personnel, the fireman recalled that he also had informed the pilot that "...this isn't a good day to be flying. You need to come up with a new plan to get home."

At 1748, the third alert call was received. The same fireman returned to the runway, attended

to the injured occupants of the airplane, and commenced extinguishing the flames.

Pilot Information

Certificate:	Private	Age:	52, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last FAA Medical Exam:	04/01/2007
Occupational Pilot:		Last Flight Review or Equivalent:	05/01/2007
Flight Time:	350 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N13WA
Model/Series:	PA-22-150	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	22-6912
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	07/01/2007, Annual	Certified Max Gross Wt.:	1950 lbs
Time Since Last Inspection:	2.5 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3106.8 Hours at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-A1A
Registered Owner:	William A. Supan	Rated Power:	150 hp
Operator:	William A. Supan	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MOD, 97 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1753 PDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	330°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.76 inches Hg	Temperature/Dew Point:	39° C / 3° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Modesto, CA (MOD)	Type of Flight Plan Filed:	None
Destination:	(MOD)	Type of Clearance:	VFR
Departure Time:	1745 PDT	Type of Airspace:	

Airport Information

Airport:	Modesto City (MOD)	Runway Surface Type:	Asphalt
Airport Elevation:	97 ft	Runway Surface Condition:	Dry
Runway Used:	28R	IFR Approach:	None
Runway Length/Width:	5911 ft / 150 ft	VFR Approach/Landing:	Forced Landing; Full Stop; Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Serious	Aircraft Fire:	In-Flight
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	37.625833, -120.954444

Administrative Information

Investigator In Charge (IIC):	Wayne Pollack
Additional Participating Persons:	Gene Schmidt; Federal Aviation Administration; Fresno, CA
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .