Aviation Investigation Final Report

Location:	Lincoln, California	**Accident Number:**	SEA07LA092
Date & Time:	April 6, 2007, 11:45 Local	**Registration:**	N4379A
Aircraft:	Piper PA-32R-301T	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot experienced an in flight fire after takeoff and force-landed the airplane short of the runway. The pilot performed a preflight and run up that were uneventful. As the airplane climbed through 1,000 feet, he saw a puff of white smoke. He elected to return to land and as he neared the airport, a fire erupted, and he landed in a field. At 5.4 hours prior to the accident, the number 5 cylinder was replaced. Post accident examination showed that the fuel injection line of the number 5 cylinder was disconnected at the fitting of the manifold assembly, located below the number 3 cylinder assembly. The b-nut was off the threads of the fitting and floating along the steel fuel line. The fuel line and b-nut were visually undamaged. The fuel line b-nut was reassembled to the manifold assembly without binding, and then it was tightened. No other anomalies were noted. The engine manufacturer representative stated that there are no manufacturer published torque values for the b-nut.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight fire occurred during the initial climb as a result of the aviation maintenance technician's failure to sufficiently tighten the b-nut that was found disconnected post-accident. A contributing factor was the engine manufacturer's failure to specify a torque value.

Findings

Occurrence #1: FIRE
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) FUEL SYSTEM,LINE FITTING - DISCONNECTED
2. (C) MAINTENANCE,ANNUAL INSPECTION - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
3. (F) INSTRUCTIONS,WRITTEN/VERBAL - INADEQUATE - MANUFACTURER

Occurrence #2: LOSS OF ENGINE POWER
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: LANDING - ROLL

Findings
4. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On April 6, 2007, at 1145 Pacific daylight time, a Piper PA-32R-301T (Saratoga), N4379A, experienced an in flight fire shortly after takeoff from Lincoln Regional Airport/ Karl Harder Field, Lincoln, California, and the airplane was substantially damaged during a forced, off-airport landing. The pilot was operating the airplane under the provisions of 14 CFR Part 91 for the local personal flight. The private pilot and one passenger were not injured. Visual meteorological conditions prevailed and no flight plan was filed.

The pilot stated that after departing runway 15, the airplane climbed to approximately 1,000 feet above ground level. He noticed a puff of white smoke emit from the defrost vents. The pilot brought the nose of the airplane down and there was a fire on the right side of the engine. He elected to immediately return to the airport to land. As he rolled onto the base leg of the traffic pattern, he heard a "pop" noise and black smoke poured from underneath the cowling. The engine lost complete power and the pilot force-landed the airplane in a field.

The wreckage was examined on April 11, 2007, at Plain Parts, Pleasant Grove, California. The National Transportation Safety Board investigator, the Federal Aviation Administration accident coordinator, and representatives from New Piper Aircraft Company and Textron Lycoming were present.

The top and bottom cowlings were removed. The majority of the thermal damage was evident on the right side of the engine as viewed from the pilot's (left) seat. Investigators noted that the fuel injection line of the number 5 cylinder was disconnected at the fitting of the manifold assembly, located below the number 3 cylinder assembly. The b-nut was off the threads of the fitting and floating along the steel fuel line. The fuel line, b-nut, and fitting threads were visually undamaged. The fuel line b-nut was reassembled to the manifold assembly. The b-nut threaded onto the fitting without binding and was tightened as required. No other anomalies were noted.

At the time of the accident, the tachometer indicated 1,178.9 hours. Review of the maintenance records showed that the last annual inspection was performed on December 6, 2006, at tachometer time of 1,173.5 hours. During the annual inspection, the number 5 cylinder assembly was changed, corresponding to 5.4 hours prior to the accident. Since the annual inspection, no additional maintenance had been logged in the maintenance records.

According to the Textron Lycoming representative, there are no Textron Lycoming published torque values for the subject b-nut.

The National Transportation Safety Board investigator interviewed the aviation maintenance technician with inspector's authorization (AMT/IA) who inspected the last work completed on

the airplane. He indicated that the aviation maintenance technician (AMT) performing the work used standard maintenance procedures as specified in the Textron Lycoming Overhaul Manual to change the number 5 cylinder. Following the work, the engine was run for 5 minutes. It was then brought through a full run up and to full power. No fuel leaks were noted. The AMT/IA stated that there was no Textron Lycoming specified torque value for the fuel lines, and they were tightened as required. After the work was completed, the AMT/IA performed the final inspection and the airplane was signed off as airworthy.

Pilot Information

Certificate:	Private	**Age:**	55,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	April 1, 2005
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 1, 2004
Flight Time:	912 hours (Total, all aircraft), 362 hours (Total, this make and model), 872 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N4379A
Model/Series:	PA-32R-301T	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32R-8529013
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 1, 2006 Annual	**Certified Max Gross Wt.:**	3617 lbs
Time Since Last Inspection:	5.4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1173.9 Hrs as of last inspection	**Engine Manufacturer:**	Textron Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TIO-540-S1AD
Registered Owner:	DF Properties Inc.	**Rated Power:**	300 Horsepower
Operator:	On File	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AUN,1536 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	11:50 Local	**Direction from Accident Site:**	80°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.92 inches Hg	**Temperature/Dew Point:**	22°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lincoln, CA (LHM)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:50 Local	**Type of Airspace:**	

Airport Information

Airport:	Lincoln LHM	**Runway Surface Type:**	
Airport Elevation:	121 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	38.909168,-121.351387

Administrative Information

Investigator In Charge (IIC):	Dunks, Kristi
Additional Participating Persons:	Brian Allen; Federal Aviation Administration; Sacramento, CA Mark Platt; Textron Lycoming; Burbank, CA Charles Little; The New Piper; Covina Hills, CA
Original Publish Date:	November 29, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65545