



Aviation Investigation Final Report

Location:	Fort Lauderdale, Florida	Accident Number:	MIA07LA076
Date & Time:	April 16, 2007, 13:37 Local	Registration:	N4946R
Aircraft:	Piper PA-46-350P	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he confirmed all landing gears were down and locked before landing. After a reported normal touchdown, the airplane started veering to the left. He applied right rudder input but the airplane traveled off the runway onto grass, and collided with a runway light. The nose landing gear collapsed and the airplane came to rest upright. Examination of the airplane following recovery revealed the right two (2) piece foot was fractured at the nose landing gear actuator attach location. NTSB examination of the right foot revealed evidence of fatigue, which covered a 90-degree arc and approximately 55 percent of the .07 inch wall thickness of the foot. Service Bulletin (SB) 1103B, which is not mandatory for the operator of the accident aircraft and had not been complied with, calls for repetitive inspections of the engine mount for cracks in the area where the fatigue crack was located.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate design of the engine mount by the manufacturer, resulting in collapse of the nose landing gear.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: LANDING - ROLL

Findings

1. ENGINE ASSEMBLY,MOUNT - FATIGUE
2. (C) AIRCRAFT/EQUIPMENT INADEQUATE - MANUFACTURER
3. ENGINE ASSEMBLY,MOUNT - FAILURE,TOTAL

Occurrence #2: NOSE GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Factual Information

"THIS CASE WAS MODIFIED APRIL 16, 2008."

On April 16, 2007, about 1337 eastern daylight time, a Piper PA-46-350P, N4946R, registered to Lizard Group, experienced collapse of the nose landing gear during the landing roll at Fort Lauderdale Executive Airport (KFXE), Fort Lauderdale, Florida. Visual meteorological conditions prevailed at the time and a visual flight rules (VFR) flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91 personal flight from Treasure Cay International Airport, Treasure Cay, Great Abaco Island, Bahamas, to FXE. The airplane was substantially damaged and the private-rated pilot and one passenger were not injured. The flight originated about 1215, from Treasure Cay International Airport.

The pilot stated that when the flight was approximately 25 miles from the destination airport, he listened to the automated terminal information service (ATIS) which indicated the wind was from 310 degrees at 12 or 14 knots. The flight continued to the destination and after establishing contact with the KFXE air traffic control tower (ATCT), he was cleared to land on runway 31. He turned onto final approach for runway 31, and confirmed all landing gears were down and locked. He maintained approximately 85-87 knots on final, and landed with two notches of flaps extended. The landing at the "numbers" was smooth, and during the landing roll, the airplane started veering to the left. He applied right rudder to correct but was unsuccessful. The airplane continued uncontrolled to the left off the runway onto grass and collided with a runway light. The nose of the airplane then went down and the propeller contacted the ground. After coming to rest, he secured the airplane then he and the passenger evacuated.

Examination of the airplane following recovery by an FAA airworthiness inspector revealed the right foot of the engine mount was fractured at the nose gear actuator attach location. Damage to the firewall and left wing were noted. The airplane was equipped with a two (2) piece foot style engine mount P/N 89137-41.

Sections of the engine mount were submitted to the NTSB Materials Laboratory located in Washington, DC. The results of the examination revealed the mount was painted black in the area of both nose actuator attach feet, indicating non compliance with The New Piper Aircraft, Inc., Service Bulletin No. 1103B. No cracks were noted in the weld joint for the left attachment foot and support tubes, but the right attachment foot was separated. The fracture surface was covered by an oxide layer, and the fracture at the forward edge had smooth crack arrest markings on multiple planes consistent with fatigue cracking from multiple origins. The fatigue cracking initiated along the edge of the weld joining the right attachment foot to the two forward tubes in the assembly. The fatigue cracking was evident over an arc of approximately 90 degrees, and at its deepest penetration propagated through approximately 55 percent of

the estimated .07 inch wall thickness of the foot.

The New Piper Aircraft, Inc., prepared Service Bulletin (SB) Nos. 1103B, dated November 25, 2003, which is not mandatory for 14 CFR Part 91 operations, but is applicable to the accident aircraft by make, model, and serial number. The SB occurred because of previous occurrences involving engine mount cracks in the area of the nose gear actuator attach feet, and specified repetitive inspections each 100 hours time in service or annual inspection, whichever occurs first, to identify cracks in the specified areas of the engine mount. Compliance with the SB required removal of paint for inspection, followed by application of a corrosion inhibitor in the area where the paint was removed.

The airplane was manufactured in 1997, had accumulated 923 hours since manufacture at the time of the accident, and was last inspected in accordance with an annual inspection on May 1, 2006.

Pilot Information

Certificate:	Private	Age:	61, 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:	May 1, 2005
Occupational Pilot:	No	Last Flight Review or Equivalent:	May 1, 2006
Flight Time:	2435 hours (Total, all aircraft), 643 hours (Total, this make and model), 2435 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N4946R
Model/Series:	PA-46-350P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	4636131
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	May 1, 2006 Annual	Certified Max Gross Wt.:	4318 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	923 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TIO-540-AE2A
Registered Owner:	Lizard Group	Rated Power:	350 Horsepower
Operator:	Richard Hewitt	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KFXE, 13 ft msl	Distance from Accident Site:	
Observation Time:	13:39 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 3000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	11 knots / 17 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	320°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	19°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Treasure Cay (MYAT)	Type of Flight Plan Filed:	VFR
Destination:	Fort Lauderdale, FL (KFXE)	Type of Clearance:	None
Departure Time:	12:15 Local	Type of Airspace:	

Airport Information

Airport:	Fort Lauderdale Executive FXE	Runway Surface Type:	Asphalt
Airport Elevation:	13 ft msl	Runway Surface Condition:	Dry
Runway Used:	31	IFR Approach:	None
Runway Length/Width:	4000 ft / 100 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	26.197221,-80.170829

Administrative Information

Investigator In Charge (IIC): Monville, Timothy

Additional Participating Persons: Tracey L Egan; FAA Flight Standards District Office ; Fort Lauderdale, FL
Robert Martellotti; The New Piper Aircraft, Inc.; Vero Beach, FL

Original Publish Date: April 30, 2008

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.ntsb.gov/Docket?ProjectID=65593>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).