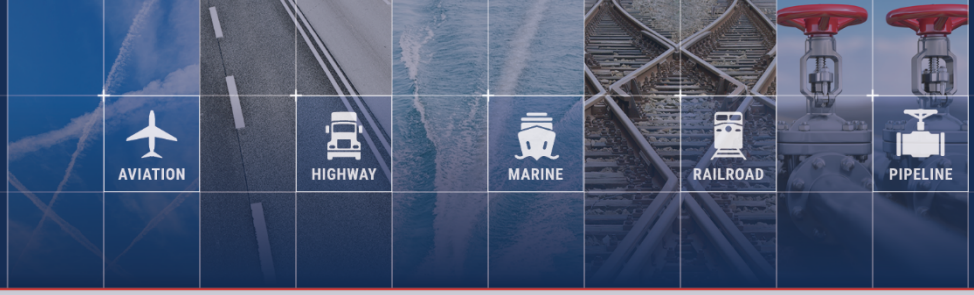

Aviation Investigation Final Report

Location:	West Palm Beach, Florida	**Accident Number:**	ERA14LA107
Date & Time:	January 28, 2014, 12:45 Local	**Registration:**	N16389
Aircraft:	Piper PA-34-200	**Aircraft Damage:**	Substantial
Defining Event:	Landing gear collapse	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot/owner reported that, during the approach, he noted that the nose landing gear (NLG) indication light was not illuminated. He aborted the landing and chose to fly by the air traffic control tower to have a controller check the position of the landing gear. An air traffic controller reported that the landing gear appeared to be down. The airplane was then cleared to land, and, during the landing roll, the NLG collapsed, and the airplane came to rest on the runway.

Postaccident examination revealed that there was a hydraulic leak above the NLG actuator and that the NLG drag links were not secured in accordance with the manufacturer's maintenance manual. Over 9 years before the accident, the manufacturer issued a mandatory service bulletin (SB) that required inspections of the NLG, including inspection of the NLG actuator mounting bracket for cracks, elongation of the holes where the retraction link attaches, and loose mounting rivets, and the lubrication of the NLG assembly at a frequency interval not to exceed 50 hours. Subsequently, the Federal Aviation Administration issued an airworthiness directive (AD) requiring the actions contained in the SB.

The postaccident examination also revealed that a microswitch appeared to have recently been replaced; however, no associated maintenance entry was found during a review of the airplane's maintenance logbooks. The review did reveal that the airplane's most recent annual inspection was performed about 2 years and 300 flight hours before the accident, that the AD was complied with at that time, and that no defects were noted. No other entries regarding annual inspections or compliance with the SB or AD were noted. Therefore, it is likely that the airplane was not in compliance with the SB or AD at the time of the accident, which likely resulted in the NLG being unable to operate properly and in its collapsing on landing. If the airplane owner had maintained the airplane in accordance with the SB and AD, the hydraulic leak and the improperly secured NLG drag links could have been detected and corrected, which could have prevented the NLG collapse.

Probable Cause and Findings

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

The pilot/owner's failure to maintain the airplane in accordance with a mandatory service bulletin and an airworthiness directive, which resulted in the nose landing gear collapse during landing.

Findings

Aircraft	Scheduled maint checks - Not serviced/maintained
Aircraft	Scheduled maint checks - Not inspected
Personnel issues	Scheduled/routine maintenance - Owner/builder
Aircraft	Nose/tail landing gear - Failure
Aircraft	Nose/tail landing gear - Failure
Aircraft	Nose/tail landing gear - Incorrect service/maintenance
Personnel issues	Aircraft/maintenance logs - Pilot

Factual Information

History of Flight

Landing-landing roll	Sys/Comp malf/fail (non-power)
Landing-landing roll	Landing gear collapse (Defining event)

On January 28, 2014, at 1245 eastern standard time, a Piper PA-34-200, N16389, experienced a nose landing gear collapse on landing roll at Palm Beach International Airport (KPBI), West Palm Beach, Florida. The airplane sustained substantial damage to the fuselage. The certificated private pilot and passenger were not injured. The airplane was registered to and operated by a private owner, under the provisions of Title 14 Code of Federal Regulations Part 91, as a personal flight. Visual meteorological conditions prevailed and a defense visual flight rules flight plan was filed for the flight that originated from Marsh Harbour Airport (MYAM), Marsh Harbour, Bahamas, about 1130.

During the approach, the pilot noted that the nose landing gear indication light was not illuminated. He aborted the landing and elected to fly by the air traffic control tower in order to check the position of the landing gear. An air traffic controller confirmed that the landing gear appeared to be down. The airplane was cleared to land; during the landing roll, the nose landing gear collapsed, and the airplane came to rest on the runway. The pilot and passenger were not injured and both egressed the airplane without incident.

A postaccident examination of the airplane revealed substantial damage to the fuselage. Both the left and right side of the fuselage exhibited buckled skin. In addition, the nose section of the airplane exhibited crush damage. The tachometer indicated 6617.32 hours.

The pilot held a private pilot certificate for airplane single-engine and multiengine land. In addition, he held a third-class medical certificate issued on August 13, 2014. Despite several attempts, the pilot would not return phone calls nor did he return Pilot/Operator Aircraft Accident Report, NTSB Form 6120.1.

According to Federal Aviation Administration records, the airplane was manufactured in 1973. It was equipped with two Lycoming, IO-360 series, engines. The most recent annual inspection was performed on January 20, 2012, and at that time the left tachometer read 6383.0 hours and the right tachometer read 6359.0 hours.

The airplane was equipped with retractable landing gear that utilized hydraulic pressure and gravitational forces to hold the landing gear in the desired position. According to Section 7 of the Pilot's Operating Handbook, the landing gear description stated that "during the gear extensions, once the nose gear has started toward the down position, the airstream pushes against it and assists in moving it to the downlocked position. After the gears are down and the downlock hooks engage, springs maintain force on each hook to keep it locked until it is released by the hydraulic pressure."

A Federal Aviation Administration inspector performed a postaccident examination of the nose landing gear. The examination revealed that there was a hydraulic leak above the nose landing gear actuator and

the upper and lower nose landing gear drag links were not secured in accordance with the maintenance manual. The inspector stated that "lubrication and wear measurements of the [service bulletin] and [airworthiness directive] have not been accomplished for some time." In addition, the inspector noted that the nose landing gear microswitch "appear[ed] to have been recently replaced," however, this was not noted in the airplane maintenance logbooks.

The FAA inspector interviewed the mechanic who had performed the most recent two annual inspections on the airplane and the mechanic stated that "he hadn't seen the aircraft for two years and was unsuccessful in his attempts to contact [the pilot]."

Beginning in November 2004, the manufacturer issued a mandatory service bulletin (SB) 1123, with subsequent revisions A and B, which introduced the revised inspection requirements and identified those parts which had undergone design modification improvements. Included in the service bulletin were revisions and refinements of the rigging procedures pertaining to the Nose Gear installation. Inspections were to take place at the next regularly scheduled maintenance event, not to exceed 50 hours of time in service, and thereafter on a recurring basis, at a frequency interval not to exceed 100 hours. In addition, an inspection of the nose landing gear actuator mounting bracket for cracks, elongation of the holes where the retraction link attaches, and loose mounting rivets, as well as lubricating the nose landing gear assembly was to be performed on a recurring basis, at a frequency interval not to exceed 50 hours.

An Airworthiness Directive (AD) 2005-13-16 was issued by the FAA on August 8, 2005, to detect, correct, and prevent failure in certain components of the nose landing gear, lack of cleanliness of the nose landing gear due to inadequate maintenance, or lack of lubricant in the nose landing gear or nose landing gear components. According to the FAA inspector that examined the wreckage, the AD was applicable to the accident airplane, and could have been complied with by inspecting the nose landing gear every 100 hours per the Piper Aircraft Mandatory Service Bulletin No. 1123B.

Review of the airplane's maintenance log entries revealed that the AD had originally been complied with and that the most recent entry, which was also the most recent annual inspection, dated January 20, 2012, stated that AD 2005-16-14 was complied with as well and "no defects noted."

Pilot Information

Certificate:	Foreign; Private	**Age:**	60
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
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:**	August 14, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N16389
Model/Series:	PA-34-200	**Aircraft Category:**	Airplane
Year of Manufacture:	1973	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	34-7350138
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	January 30, 2012 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	6617.3 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-C1E6
Registered Owner:	Richard Roberts	**Rated Power:**	
Operator:	Richard Roberts	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PBI,20 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 3300 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	26°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Marsh Harbour (MYAM)	**Type of Flight Plan Filed:**	VFR
Destination:	West Palm Beach, FL (PBI)	**Type of Clearance:**	Unknown
Departure Time:	11:30 Local	**Type of Airspace:**	

Airport Information

Airport:	PALM BEACH INTL PBI	**Runway Surface Type:**	Asphalt
Airport Elevation:	20 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	10R	**IFR Approach:**	None
Runway Length/Width:	3213 ft / 75 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:**	26.683055,-80.095558(est)

Administrative Information

Investigator In Charge (IIC):	Moats, Heidi
Additional Participating Persons:	Rene Marders; FAA/FSDO; Miramar, FL
Original Publish Date:	May 13, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=88736