



# Aviation Investigation Final Report

<b>Location:</b>	Fort Lauderdale, Florida	<b>Accident Number:</b>	DEN07LA077
<b>Date &amp; Time:</b>	March 20, 2007, 10:36 Local	<b>Registration:</b>	N128SL
<b>Aircraft:</b>	Piaggio Industrie P180	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Positioning		

## Analysis

The first officer was flying the airplane and was being radar vectored for an ILS (instrument landing system) approach to runway 09L. The flight was subsequently cleared for a visual approach to runway 09R. The airplane was 3 miles from the runway when the crew was informed that the wind was from 020 degrees at 7 knots. The CVR recorded crew confusion as to which runway or taxiway they were tracking towards. Both pilots thought that they had been aligned with a taxiway, not the runway. The tower instructed the flight to make a 360-degree turn. The captain took control of the airplane and subsequently the flight was cleared to join the right downwind leg for runway 09R. The captain then returned aircraft control to the first officer and continually cautioned him about excessive speed and altitude. The first officer said his speed was 120 KIAS. The last radar contact showed the airplane's ground speed at 138 knots. The captain said the airplane touched down on centerline and reverse thrust was selected. The airplane then began drifting or "pulling" to the left. The first officer attempted to correct with right rudder and then right brake. As the airplane decelerated to 60 knots, the captain engaged nose wheel steering and tried to help the first officer. The left wing then dropped and the airplane veered to the right. The captain thought they had "blown a tire." The left main landing gear collapsed and the airplane slid to a halt. The crew then evacuated the airplane. FAA inspectors and Piaggio representatives inspected the airplane and found the left main tire had blown out and separated from its rim, and fuel was leaking from the airplane onto the runway. The tire had a flat spot in the tread, with scuffing in an inboard-to-outboard direction. The left main landing gear retract actuator was fractured on the upper pivot pin. In the lower pivot area, the main gear "drag brace" was forced out of the mounting structure and bushing assembly. It was their opinion that only a strong impact with abnormal side load would cause the pivot actuator area to fail, inducing excessive bending loads on the main landing gear drag brace. This load condition could cause the tire to blow out. The crew later reported an abnormally large number of blown tires, and that the company had attributed these blowouts to "pilot error."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The first officer's loss of directional control during landing causing the left main gear to collapse. Contributing factors in this accident were the flight crew's excessive use of brakes causing the left main tire to blow out, and the captain's inadequate supervision of the first officer.

### Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER

Phase of Operation: LANDING

Findings

1. (C) DIRECTIONAL CONTROL - NOT MAINTAINED - COPILOT/SECOND PILOT
2. (F) LANDING GEAR, TIRE - BURST
3. (F) BRAKES(NORMAL) - EXCESSIVE - FLIGHTCREW

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Occurrence #2: GEAR COLLAPSED

Phase of Operation: LANDING - ROLL

Findings

4. (F) SUPERVISION - INADEQUATE - PILOT IN COMMAND

## Factual Information

On March 20, 2007, at 1036 eastern daylight time, a Piaggio Industrie P180, N128SL, operated by AvantAir, Inc., and piloted by a airline transport certificated first officer under the command of an airline transport certificated captain, was substantially damaged when the left main landing gear collapsed during landing at Hollywood International Airport (FLL), Fort Lauderdale, Florida. Visual meteorological conditions prevailed at the time of the accident. The positioning flight was being conducted under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91. The captain and first officer, the only occupants on board the airplane, were not injured. The flight originated at Teterboro (TEB), New Jersey, at 0700.

According to the cockpit voice recorder (CVR) transcript, as the airplane was descending during its initial approach to Fort Lauderdale, crew conversation was mostly about weather in the area and their fuel status. At 1019:54, when Miami Approach Control gave them a vector, the captain asked, "How many miles are you showing that cell in front of us?" The Miami controller replied, "The heading you're on right now it's going to take you through the clear area, so I'm showing a cell off to your left about three miles, and there's a cell off to your right about two o'clock about ten miles." The captain said, "Yeah, okay, that's what we're thinking." The Miami controller asked, "Do you have weather radar on board?" The captain said they did and the Miami controller said, "Okay, is it not working or what?" The captain replied, "It doesn't seem to be painting exactly what's in front of us." The captain said to the first officer, "It's always great to be picking your way through weather with six hundred pounds of fuel."

The first officer was flying the airplane and was being radar vectored for an ILS (instrument landing system) approach to runway 09L. At 1028:10, Miami Approach Control asked that they maintain 180 knots until reaching NOVAE (the final approach fix). Shortly thereafter the flight was handed over to Fort Lauderdale tower. Local control-north asked the pilot if he had the runway in sight and if he would accept a runway change to runway 09R. The flight was subsequently cleared for a visual approach to runway 09R and handed over to local control-south. Landing clearance was given at 1029:36 and the flight was told, "...winds zero two zero at seven." At that point the airplane was about 3 miles from the runway.

At 1030:23, the captain told the first officer: "Just keep an eye on your speed." Radar ground speed at that time was 171 knots. There was a thunderstorm cell to the right of the localizer and the captain said, "Just watch it. You're right on the edge of this cell...don't drift too much. Come to the localizer."

Between 1031:43 and 1032:49, there was some confusion as to which runway or taxiway they were tracking towards. At 1032:52, the radar altimeter made a 500-foot callout and the local controller asked the crew to verify they were turning towards runway 09R. "You're lined up still for nine left," he said. "Turn right heading \* three zero."

At this point, the captain took control of the airplane, and they were instructed to go around. The flight was subsequently cleared to join the right downwind leg for runway 09R. Shortly thereafter, the captain asked the first officer if he wanted to continue flying the approach and landing. The first officer said yes, and control of the airplane was returned to him. Subsequent conversation revealed both pilots thought that they had been aligned with a taxiway, not the runway.

At 1034:17, the first officer said: "All right, I'm coming down." The captain replied, "Just be careful and hold your speeds right." Radar ground speed was then between 178 and 181 knots. The local controller then asked if they "still had the airport in sight," and when told they did, he said, "Reduce to your final approach speed. Cleared to land on runway niner right. That's the south runway south of the tower." The captain replied, "Yeah, we got a bit confused in the rain."

At 1034:56 the captain said, "Speed is one thirty... Okay, we're high. Let's get ourselves down, but don't get too steep of a descent rate." Radar ground speed was between 154 and 160 knots. The radar altimeter then made a 500-foot callout. At 1035:11 the captain said, "Slow down, slow down." The first officer replied, "I am slow... We can't slow. We got one twenty." Radar ground speed was between 143-144 knots. The captain said, "Be careful, be careful, be careful." The first officer replied, "Aw, not again, man." At 1035:33, the captain said, "Get it down, man." The last radar contact was at 1035:34 and at that time, the airplane's ground speed was 138 knots.

The sound of touch down was recorded at 1035:40. The captain said, "Gently, gently, gently, gently." The first officer, "Give me some steering, give me some steering." The captain asked, "\* you on the brakes?... We've popped a tire." The sound of impact was recorded at 1036:00. The airplane then veered right and the left main landing gear collapsed. The airplane skidded down the runway and came to rest west of taxiway Echo. The pilot then advised the control tower that the landing gear had collapsed.

According to the accident reports submitted to NTSB, the captain reminded the first officer about altitude and speed as the airplane turned onto final approach. Airspeed was 10 knots above Vref (120-125 knots), and the first officer began slowing the airplane. "The landing gear was down and three greens were noted," the captain wrote, and the approach was "stabilized." As the airplane was flared for landing, it "floated a little" and the first officer was instructed to reduce power. The airplane touched down on centerline and reverse thrust was selected. The airplane then began drifting or "pulling" to the left, and the first officer attempted to correct the excursion with right rudder, then right brake. As the airplane decelerated to 60 knots, the captain engaged nose wheel steering and tried to help the first officer. The left wing then dropped and the airplane veered to the right. The captain thought they had "blown a tire." The airplane slid to a halt and the crew had evacuated.

FAA inspectors and Piaggio representatives inspected the airplane and found the left main

landing gear had collapsed, the left main tire had blown out and separated from its rim, and fuel was leaking from the airplane onto the runway. The tire had a flat spot in the tread, with scuffing in an inboard-to-outboard direction. An estimated 50 gallons of fuel leaked from the airplane, but there was no fire. Protein foam was applied to the runway surface and surrounding area. The left main landing gear retract actuator was fractured on the upper pivot pin. In the lower pivot area, the main gear "drag brace" was forced out of the mounting structure and bushing assembly. It was their opinion that only a strong impact with abnormal side load would cause the pivot actuator area to fail, inducing excessive bending loads on the main landing gear drag brace. This load condition could cause the tire to blow out.

In a letter submitted to NTSB, the captain reported an abnormally large number of blown tires on AvantAir Piaggios, and that the company had attributed these blowouts to "pilot error."

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	44, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	March 1, 2007
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 1, 2007
<b>Flight Time:</b>	4500 hours (Total, all aircraft), 1000 hours (Total, this make and model), 3938 hours (Pilot In Command, all aircraft), 220 hours (Last 90 days, all aircraft), 72 hours (Last 30 days, all aircraft)		

## Co-pilot Information

<b>Certificate:</b>	Airline transport; Flight instructor	<b>Age:</b>	42, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	October 1, 2006
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 1, 2006
<b>Flight Time:</b>	3000 hours (Total, all aircraft), 300 hours (Total, this make and model), 1500 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piaggio Industrie	<b>Registration:</b>	N128SL
<b>Model/Series:</b>	P180	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1011
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	9
<b>Date/Type of Last Inspection:</b>	January 1, 2007 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	11550 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo prop
<b>Airframe Total Time:</b>	3841 Hrs at time of accident	<b>Engine Manufacturer:</b>	Pratt & Whitney Canada
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	PT6A-66
<b>Registered Owner:</b>	Avantair, Inc.	<b>Rated Power:</b>	850 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	V2JA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	FLL,9 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	09:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 2500 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 3500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	20°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.31 inches Hg	<b>Temperature/Dew Point:</b>	21°C / 16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Teterboro, NJ (TEB )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Fort Lauderdale, FL (FLL )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	07:00 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Hollywood International FLL	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	9 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	09R	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	5276 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	26.0725,-80.152778

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Scott, Arnold
<b>Additional Participating Persons:</b>	Michael R Ohannesian; Fort Lauderdale FSDO
<b>Original Publish Date:</b>	December 20, 2007
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=65469">https://data.nts.gov/Docket?ProjectID=65469</a>

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