



# Aviation Investigation Final Report

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<b>Location:</b>	Mesa, Arizona	<b>Accident Number:</b>	WPR14LA368
<b>Date &amp; Time:</b>	September 6, 2014, 12:26 Local	<b>Registration:</b>	N5966P
<b>Aircraft:</b>	Piper PA 24-250	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Landing gear collapse	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The airline transport pilot reported that, during the approach to land, the right main landing gear (MLG) would not extend and lock, and the locked gear-down position would not illuminate. The pilot attempted to manually extend the gear and get it to lock without success. The pilot then conducted a normal landing, and during the rollout, the right MLG collapsed.

Examination of the airplane revealed that the two landing gear cables were rigged slightly differently and that the right bracket that connected the landing gear transmission to the airframe was broken off. Examination of the break with a magnifying glass revealed that it likely had not occurred recently. With the airplane on jacks and the landing gear cables disconnected, the MLG successfully locked down, and the MLG could be manually returned to the "up" position with no restrictions.

The airplane experienced a gear-up landing 13 years before the accident, and it is likely that the differential rigging of the two gear cables had existed since that time and led to the MLG being just on the edge of locking. The broken bracket that connected the MLG transmission to the airframe likely fractured some time before the accident and eventually separated from the airframe. The separation of the right MLG transmission bracket coupled with the differential rigging of the two landing gear cables likely prevented the right MLG from moving over center to the "locked" position and resulted in the gear-up landing.

## Probable Cause and Findings

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

The failure of the right main landing gear (MLG) transmission mounting bracket coupled with the differential rigging of the two landing gear cables, which prevented the right MLG from moving to the down-and-locked position before landing.

## Findings

<b>Aircraft</b>	Main landing gear - Damaged/degraded
<b>Aircraft</b>	Main landing gear - Failure
<b>Aircraft</b>	Main landing gear - Not specified

## Factual Information

### History of Flight

<b>Landing-landing roll</b>	Landing gear collapse (Defining event)
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On September 6, 2014, at 1226 mountain standard time, a Piper PA24-250, N5966P, had the right main landing gear collapse during the landing roll at Falcon Field Airport, Mesa, Arizona. The airline transport pilot and one passenger were uninjured; the airplane sustained substantial damage to the right wing. The owner/pilot was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The cross-country flight departed Nephi, Utah, about 0930 with a planned destination of Mesa. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported that on approach to land the right main landing gear would not extend and indicate a locked gear down position. After a low fly by, the pilot attempted to manually extend the gear but was unable to get a safe gear indication.

The pilot made a normal landing and during the roll out the right main landing gear collapsed.

The pilot stated that the airplane and engine had no mechanical failures or malfunctions during the flight.

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	83
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Glider	<b>Restraint Used:</b>	Lap only
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	July 1, 2014
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	May 1, 2013
<b>Flight Time:</b>	13201 hours (Total, all aircraft), 1223 hours (Total, this make and model), 13071 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N5966P
<b>Model/Series:</b>	PA 24-250	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1959	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	24-1059
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	December 1, 2013 Annual	<b>Certified Max Gross Wt.:</b>	2899 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	C91 installed, not activated	<b>Engine Model/Series:</b>	O-540 SERIES
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	250 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KFFZ, 1394 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	19:59 Local	<b>Direction from Accident Site:</b>	329°
<b>Lowest Cloud Condition:</b>	Scattered / 15000 ft AGL	<b>Visibility</b>	40 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	210°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.88 inches Hg	<b>Temperature/Dew Point:</b>	37°C / 16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	NEPHI, UT (U14)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Mesa, AZ (FFZ)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:30 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	FALCON FLD FFZ	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1394 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	22R	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	3799 ft / 75 ft	<b>VFR Approach/Landing:</b>	Full stop;Go around;Precautionary landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<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>	33.460834,-111.728614(est)

## Tests and Research

A Federal Aviation Administration inspector examined the wreckage. He discovered that the rigging of the two landing gear cables was slightly off. The bracket that connected the landing gear transmission to the airframe was broken off; when examined with a magnifying glass, the break did not appear to have occurred recently. With the airplane on jacks and the landing gear cables disconnected, the gear successfully locked down, and the gear could be manually returned to the up position with no restrictions. He determined that the airplane had a gear up landing in 2001.

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Jones, Patrick
<b>Additional Participating Persons:</b>	Joesph Chaundy; Federal Aviation Administration; Scottsdale, AZ
<b>Original Publish Date:</b>	November 15, 2017
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=90036">https://data.ntsb.gov/Docket?ProjectID=90036</a>

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