



# Aviation Investigation Final Report

<b>Location:</b>	Farmington, New Mexico	<b>Accident Number:</b>	FTW02LA074
<b>Date &amp; Time:</b>	October 26, 2001, 15:30 Local	<b>Registration:</b>	N8117V
<b>Aircraft:</b>	Beech 58	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The pilot stated that as the gear was retracted, following a low approach, a "loud bang or clank," was heard. The landing gear in-transit light remained illuminated and the flight proceeded to a practice area where the pilots consulted with the flight school's maintenance personnel via radio. Attempts to correct the gear problem were unsuccessful. The flight then returned to the airport and executed a low pass near the air traffic control tower (ATCT). ATCT personnel reported that both main landing gear appeared down and locked, but the nose landing gear appeared to be partially extended. Subsequently, the airplane landed, and when the nose gear made ground contact, it collapsed. Post landing examination of the airplane revealed that the nose gear actuator retract arm had fractured and was in two pieces. The nose gear actuator retract arm was examined at the NTSB Materials Laboratory in Washington, D.C. It was determined that the retract arm fractured as a result of fatigue cracking that initiated at multiple origins along machining marks on the upper surface of the fracture.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the nose gear actuator retract arm due to fatigue.

## Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CLIMB - TO CRUISE

Findings

1. (C) LANDING GEAR, NOSE GEAR ASSEMBLY - FATIGUE
2. (C) LANDING GEAR, NOSE GEAR ASSEMBLY - FAILURE

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Occurrence #2: NOSE GEAR COLLAPSED

Phase of Operation: LANDING - ROLL

Findings

3. GEAR DOWN AND LOCKED - NOT POSSIBLE

## Factual Information

On October 26, 2001, at 1530 mountain standard time, a Beech 58 twin-engine airplane, N8117V, was substantially damaged when the nose landing gear collapsed while landing at the Four Corners Regional Airport (FMN), Farmington, New Mexico. The airplane was registered to and operated by San Juan Pilot Training Inc., of Farmington, New Mexico, doing business as Mesa Pilot Development Center. The certified flight instructor (CFI) and commercial pilot receiving instruction were not injured. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 instructional flight. The local flight had originated from FMN at 1400.

According to the flight instructor and pilot receiving instruction, they executed a low approach to runway 07 at FMN and initiated a go-around. A climb was initiated and when the gear was retracted a "loud bang or clank," was heard. The landing gear in-transit light remained illuminated and the flight proceeded to a practice area where the pilots consulted with the flight school's maintenance personnel via radio. Subsequently, the pilots performed the manual gear extension procedures, which resulted in two green lights for the main landing gear; however, the landing gear in-transit light remained illuminated and there was no green light for the nose landing gear. They pushed the annunciator test button to ensure that the cockpit nose gear light bulb was operational, and it illuminated. The flight then returned to FMN and executed a low pass near the air traffic control tower (ATCT). ATCT personnel reported that both main landing gear appeared down and locked, but the nose landing gear appeared to be partially extended. Subsequently, the airplane landed on runway 11, and when the nose gear made ground contact, it collapsed.

The airplane was examined by an FAA inspector and it was discovered that the nose gear actuator retract arm (part number 104-820050-3) had fractured and was in two pieces. According to a repair facility, bulkheads in the nose structure of the airplane were structurally damaged and required replacement.

The nose gear actuator retract arm was examined at the NTSB Materials Laboratory in Washington, D.C. The upper portion of the retract arm displayed two separate areas (upper left and upper right), with surface features that are consistent with fatigue. The upper fracture surface was examined with a scanning electron microscope (SEM). The fractured surface exhibited a fatigue striation pattern that emanated from multiple origins that were oriented along machining marks on its upper edge. The lower portion of the retract arm also displayed features consistent with fatigue.

## Flight instructor Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	27, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<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 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	August 20, 2001
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	August 8, 2001
<b>Flight Time:</b>	1957 hours (Total, all aircraft), 150 hours (Total, this make and model), 1837 hours (Pilot In Command, all aircraft)		

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	29, Male
<b>Airplane Rating(s):</b>	Single-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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	March 8, 2000
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	August 6, 2001
<b>Flight Time:</b>	291 hours (Total, all aircraft), 24 hours (Total, this make and model), 192 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N8117V
<b>Model/Series:</b>	58	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	TH-1628
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	October 23, 2001 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	5500 lbs
<b>Time Since Last Inspection:</b>	11.8 Hrs	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	9842.6 Hrs at time of accident	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-550-C
<b>Registered Owner:</b>	San Juan Pilot Training Inc.	<b>Rated Power:</b>	300 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Mesa Pilot Development Center	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	FMN,5528 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	15:53 Local	<b>Direction from Accident Site:</b>	0°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	280°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.36 inches Hg	<b>Temperature/Dew Point:</b>	22°C / -8°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Farmington, NM (FMN )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	(FMN )	<b>Type of Clearance:</b>	Unknown
<b>Departure Time:</b>	14:00 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	Four Corners Regional FMN	<b>Runway Surface Type:</b>	Dirt
<b>Airport Elevation:</b>	5506 ft msl	<b>Runway Surface Condition:</b>	Dry;Soft
<b>Runway Used:</b>	11	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2783 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop;Precautionary landing;Straight-in

## 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>	36.474998,-108.796669

## Administrative Information

**Investigator In Charge (IIC):** Ragogna, Jason

**Additional Participating Persons:** William E Reisen; Federal Aviation Administration (FSDO); Albuquerque, NM

**Original Publish Date:** April 1, 2003

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.ntsb.gov/Docket?ProjectID=54096>

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