



# Aviation Investigation Final Report

<b>Location:</b>	ALBUQUERQUE, New Mexico	<b>Accident Number:</b>	FTW97LA334
<b>Date &amp; Time:</b>	August 31, 1997, 17:40 Local	<b>Registration:</b>	N16NM
<b>Aircraft:</b>	Beech E90	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Non-scheduled - Air Medical (Medical emergency)		

## Analysis

During initial climb following takeoff from Santa Rosa on a medical evacuation flight, with a patient and 2 flight nurses aboard, the right main landing gear failed to fully retract. Prior to landing at Albuquerque the right main landing gear did not lock in the down position. During landing roll, the right main landing gear collapsed. Examination of the landing gear provided evidence that the retraction/extension torque tube failed in fatigue.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Fatigue failure of the right main landing gear retraction/extension torque tube.

## Findings

Occurrence #1: MAIN GEAR COLLAPSED  
Phase of Operation: LANDING - ROLL

### Findings

1. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - FATIGUE
2. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - FAILURE,TOTAL

## Factual Information

On August 31, 1997, at 1740 mountain daylight time, a Beech E-90, N16NM, operating as a lifeguard flight from Santa Rosa, New Mexico, to Albuquerque, New Mexico, collapsed the right main landing gear during landing roll at Albuquerque. The airline transport pilot, 2 flight nurses, and the patient were not injured and the aircraft sustained substantial damage. Visual meteorological conditions prevailed and an IFR flight plan was filed for this Title 14 CFR Part 135 medical flight which departed Santa Rosa, New Mexico, at 1634.

According to the pilot, when the landing gear was raised after departure, he heard a grinding noise emitting from under the cabin floor and noted that the "gear in transit" light in the landing gear handle remained illuminated. The pilot said he pulled the landing gear motor circuit breaker and the noise stopped. He then attempted to recycle the gear with negative results. When the landing gear was lowered on arrival at Albuquerque, an unsafe right main landing gear indication was present. The pilot secured the right engine, feathered the right propeller, and made a precautionary landing. During landing roll, the right main landing gear collapsed. As a result of the right main landing gear collapse, the right wing sustained buckling damage.

Examination of the right main landing gear by a FAA airworthiness inspector provided evidence of a failure of the torque tube assembly (part number 50-810240). No other deficiencies were noted during the examination. The part had a total of 5,616 cycles since factory overhaul and had been in service approximately 3.5 years. The part is required to be overhauled at 7,500 cycles or 5 years whichever occurs first. The affected part was removed and sent to the Board's Materials Laboratory. According to the laboratory analysis, the torque tube failed in fatigue. The origin of the fatigue could not be determined.

The aircraft has since been repaired and returned to service with no further difficulties noted.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	48, 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>	No
<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 31, 1997
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	12050 hours (Total, all aircraft), 200 hours (Total, this make and model), 10640 hours (Pilot In Command, all aircraft), 74 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N16NM
<b>Model/Series:</b>	E90 E90	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	LW62
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	7
<b>Date/Type of Last Inspection:</b>	August 5, 1997 AAIP	<b>Certified Max Gross Wt.:</b>	10100 lbs
<b>Time Since Last Inspection:</b>	62 Hrs	<b>Engines:</b>	2 Turbo prop
<b>Airframe Total Time:</b>	9965 Hrs	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	PT6A-28
<b>Registered Owner:</b>	SEVEN BAR FLYING SERVICE	<b>Rated Power:</b>	550 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>	SB AVIATION	<b>Operator Designator Code:</b>	GNLA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	ABQ	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	350°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 9000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	230°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	29°C / 7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	SANTA ROSA , NM (Q58 )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	(ABQ )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	16:34 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	ALBUQUERQUE INTERNATIONAL ABQ	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	5313 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	21	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	10000 ft / 150 ft	<b>VFR Approach/Landing:</b>	Precautionary landing;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 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>	3 None	<b>Latitude, Longitude:</b>	35.06047,-106.620025(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Wiemeyer, Norman
<b>Additional Participating Persons:</b>	WALTER P TIDMORE; ALBUQUERQUE , NM
<b>Original Publish Date:</b>	May 4, 1998
<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=20333">https://data.nts.gov/Docket?ProjectID=20333</a>

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