
Landing gear failure, Boeing 727-257, July 4 1995

Micro-summary: Directional control failure following main landing gear failure for this Boeing 727-257


Event Date: 1995-07-04 at 1103 PDT


Investigative Body: National Transportation Safety Board (NTSB), USA


Investigative Body's Web Site: <http://www.nts.gov/>

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|--|--|---------------------------------|----------------------------------|--------------------------------------|------------------|
|  | | NTSB ID: LAX95IA246 | | Aircraft Registration Number: N712RC | |
| | | Occurrence Date: 07/04/1995 | | Most Critical Injury: None | |
| | | Occurrence Type: Incident | | Investigated By: NTSB | |
| Location/Time | | | | | |
| Nearest City/Place LAS VEGAS | | State NV | Zip Code 89115 | Local Time 1103 | Time Zone PDT |
| Airport Proximity: On Airport | | Distance From Landing Facility: | | Direction From Airport: | |
| Aircraft Information Summary | | | | | |
| Aircraft Manufacturer BOEING | | Model/Series 727-257 | | Type of Aircraft Airplane | |
| Sightseeing Flight: No | | | Air Medical Transport Flight: No | | |
| Narrative | | | | | |
| Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident: | | | | | |
| <p>On July 4, 1995, at 1103 Pacific daylight time, a Boeing 727- 257, N712RC, right main landing gear collapsed while landing at Las Vegas, Nevada. The aircraft was operated by Northwest Airlines as flight 1191 under 14 CFR Part 121 of Federal Aviation Regulations. Visual meteorological conditions prevailed and an IFR flight plan had been filed. None of the three crew members, four cabin attendants or 46 passengers were injured; however, the aircraft sustained minor damage. The flight originated from Detroit Metropolitan Wayne County Airport at 0930 central daylight time on the day of the incident.</p> <p>After touching down on runway 25L at McCarran International Airport, the aircraft slowed to about 70 knots. At that time, the flight crew felt the aircraft lurch to the right. The captain thought the right main tires had blown and as a precaution brought the aircraft to a halt on the runway 15 feet to the right of the runway centerline. He declared an emergency and emergency equipment was dispatched to the aircraft. After the aircraft was inspected by crash-rescue and Northwest maintenance personnel, all the passengers were disembarked through the main cabin door. The aircraft was later towed off the runway.</p> <p>A subsequent inspection of the aircraft revealed that the right main landing gear outer cylinder trunnion had sheared at the main landing gear beam trunnion support. The outer cylinder translated upward, damaging the main landing gear beam upper chord. The flight data recorder was recovered and forwarded to Northwest Airlines maintenance facilities.</p> <p>The average time in service for the effected component is 10 years. The time since the overhaul for this trunnion assembly was approximately 3 years. A review of the aircraft logbook pages onboard the aircraft failed to identify any discrepancies related to the landing gear.</p> <p>The failed main landing gear outer cylinder trunnion was sent to Boeing for detailed metallurgical analysis. In addition, two other failed trunnions were submitted for examination. According to the laboratory report (attached), all three trunnions failed as a result of a fatigue fracture and stress corrosion which initiated in the blendout transition radius between the machined down trunnion journal and the cylinder. The blendout transition radius was found to be below the specified 1.00-inch minimum and nickel plating extended into the blendout transition radius in excess of the length permitted by the overhaul manual. Severe through-thickness chicken wire cracking in the chrome plating was also found in all three trunnions.</p> <p>Northwest Airlines reported a similar incident on May 24, 1995, during takeoff roll at San Francisco International airport. The Las Vegas Federal Aviation Administration (FAA) Flight Standards District Office (FSDO) airworthiness inspector reported that the service history of the 727 includes about 20 occurrences of a trunnion shearing.</p> <p>According to Northwest Airlines, Boeing 727 landing gear overhaul rework is performed in-house.</p> | | | | | |
| FACTUAL REPORT - AVIATION | | | | | |
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|--|--|--|-------------------------------------|--------------------------------------|------------------------------|---------------------|
|  National Transportation Safety Board FACTUAL REPORT AVIATION | | NTSB ID: LAX951A246 | | | | |
| | | Occurrence Date: 07/04/1995 | | | | |
| | | Occurrence Type: Incident | | | | |
| Landing Facility/Approach Information | | | | | | |
| Airport Name MCCARRAN INTERNATIONAL | | Airport ID: LAS | Airport Elevation 2175 Ft. MSL | Runway Used 25L | Runway Length 8900 | Runway Width 150 |
| Runway Surface Type: Asphalt | | | | | | |
| Runway Surface Condition: Dry | | | | | | |
| Type Instrument Approach: ILS-complete | | | | | | |
| VFR Approach/Landing: Full Stop | | | | | | |
| Aircraft Information | | | | | | |
| Aircraft Manufacturer BOEING | | Model/Series 727-257 | | Serial Number 22020 | | |
| Airworthiness Certificate(s): Transport | | | | | | |
| Landing Gear Type: Retractable - Tricycle | | | | | | |
| Homebuilt Aircraft? No | | Number of Seats: 155 | Certified Max Gross Wt. 197000 LBS | | Number of Engines: 3 | |
| Engine Type: Turbo Fan | | Engine Manufacturer: P&W | | Model/Series: JT-8-17R | Rated Power: 17000 LBS | |
| - Aircraft Inspection Information | | | | | | |
| Type of Last Inspection Continuous Airworthiness | | Date of Last Inspection | Time Since Last Inspection Hours | | Airframe Total Time Hours | |
| - Emergency Locator Transmitter (ELT) Information | | | | | | |
| ELT Installed? | | ELT Operated? | | ELT Aided in Locating Accident Site? | | |
| Owner/Operator Information | | | | | | |
| Registered Aircraft Owner FIRST SECURITY BANK OF UTAH | | Street Address 79 S. MAIN STREET | | | | |
| | | City SALT LAKE CITY | | State UT | Zip Code 84111 | |
| Operator of Aircraft NORTHWEST AIRLINES, INC. | | Street Address 5101 NORTHWEST DRIVE | | | | |
| | | City ST. PAUL | | State MN | Zip Code 55111 | |
| Operator Does Business As: NORTHWEST AIRLINES, INC. | | | | Operator Designator Code: NWAA | | |
| - Type of U.S. Certificate(s) Held: | | | | | | |
| Air Carrier Operating Certificate(s): Flag Carrier/Domestic | | | | | | |
| Operating Certificate: | | | Operator Certificate: | | | |
| Regulation Flight Conducted Under: Part 121: Air Carrier | | | | | | |
| Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only | | | | | | |
| FACTUAL REPORT - AVIATION | | | | | | |

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|  <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p> | NTSB ID: LAX95IA246 |
| | Occurrence Date: 07/04/1995 |
| | Occurrence Type: Incident |

First Pilot Information

| | | | | |
|-----------------|-----------------|------------------|--------------------------|-----------|
| Name On File | City On File | State On File | Date of Birth On File | Age 33 |
|-----------------|-----------------|------------------|--------------------------|-----------|

| | | | |
|--------|---------------------|--------------------------------------|-----------------------------|
| Sex: M | Seat Occupied: Left | Principal Profession: Civilian Pilot | Certificate Number: On File |
|--------|---------------------|--------------------------------------|-----------------------------|

Certificate(s): Airline Transport; Commercial

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane

| | |
|---|---------------------------------|
| Type Rating/Endorsement for Accident/Incident Aircraft? Yes | Current Biennial Flight Review? |
|---|---------------------------------|

| | | |
|------------------------|--|------------------------------------|
| Medical Cert.: Class 1 | Medical Cert. Status: Valid Medical--no waivers/lim. | Date of Last Medical Exam: 02/1995 |
|------------------------|--|------------------------------------|

| - Flight Time Matrix | All A/C | This Make and Model | Airplane Single Engine | Airplane Multi-Engine | Night | Instrument | | Rotorcraft | Glider | Lighter Than Air |
|-----------------------|---------|---------------------|------------------------|-----------------------|-------|------------|-----------|------------|--------|------------------|
| | | | | | | Actual | Simulated | | | |
| Total Time | 6856 | 2626 | | | | | | | | |
| Pilot In Command(PIC) | | | | | | | | | | |
| Instructor | | | | | | | | | | |
| Last 90 Days | 234 | 234 | | | | | | | | |
| Last 30 Days | | | | | | | | | | |
| Last 24 Hours | 8 | 8 | | | | | | | | |

| | | | |
|--------------------|----------------------------|--------------------------|-------------------|
| Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? No | Second Pilot? Yes |
|--------------------|----------------------------|--------------------------|-------------------|

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

| | | | | |
|----------------------------|-------------|---------------------------|------------------------|------------------|
| Departure Point DETROIT | State MI | Airport Identifier DTW | Departure Time 0930 | Time Zone CDT |
|----------------------------|-------------|---------------------------|------------------------|------------------|

| | | | |
|---|-------|---------------------------|--|
| Destination Same as Accident/Incident Location | State | Airport Identifier LAS | |
|---|-------|---------------------------|--|


Type of Clearance: IFR

Type of Airspace: Class B

Weather Information

Source of Briefing: Company

Method of Briefing:

| | |
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| | Occurrence Type: Incident |

Weather Information

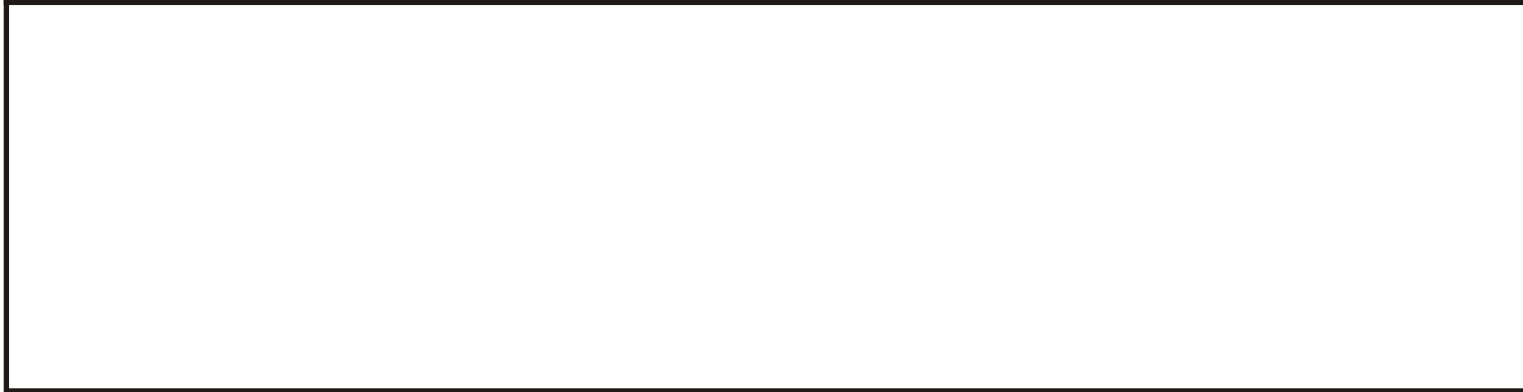
| | | | | | |
|-----------------------------------|-----------------------|--|---------------|---------------------------------|------------------------------|
| WOF ID | Observation Time | Time Zone | WOF Elevation | WOF Distance From Accident Site | Direction From Accident Site |
| LAS | 1150 | PDT | 2175 Ft. MSL | 0 NM | 0 Deg. Mag. |
| Sky/Lowest Cloud Condition: Clear | | | 0 Ft. AGL | Condition of Light: Day | |
| Lowest Ceiling: None | | | 0 Ft. AGL | Visibility: 50 SM | Altimeter: 29.00 "Hg |
| Temperature: 35 °C | Dew Point: 4 °C | Wind Direction: 80 | | Density Altitude: Ft. | |
| Wind Speed: 10 | Gusts: | Weather Conditions at Accident Site: Visual Conditions | | | |
| Visibility (RVR): 0 Ft. | Visibility (RVV) 0 SM | Intensity of Precipitation: Unknown | | | |
| Restrictions to Visibility: None | | | | | |
| Type of Precipitation: None | | | | | |

Accident Information

| | | |
|------------------------|---------------------|--------------------------|
| Aircraft Damage: Minor | Aircraft Fire: None | Aircraft Explosion: None |
|------------------------|---------------------|--------------------------|

Classification: U.S. Registered/U.S. Soil

| - Injury Summary Matrix | Fatal | Serious | Minor | None | TOTAL |
|-------------------------|-------|---------|-------|------|-------|
| First Pilot | | | | 1 | 1 |
| Second Pilot | | | | 1 | 1 |
| Student Pilot | | | | | |
| Flight Instructor | | | | | |
| Check Pilot | | | | | |
| Flight Engineer | | | | 1 | 1 |
| Cabin Attendants | | | | 4 | 4 |
| Other Crew | | | | | |
| Passengers | | | | 46 | 46 |
| - TOTAL ABOARD - | | | | 53 | 53 |
| Other Ground | 0 | 0 | 0 | | 0 |
| - GRAND TOTAL - | 0 | 0 | 0 | 53 | 53 |



National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: LAX95IA246

Occurrence Date: 07/04/1995

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

ROBERT R. CRISPIN

Additional Persons Participating in This Accident/Incident Investigation:

RANDY JONES

WP-FSDO-LAS

LAS VEGAS, NV 89119