



# National Transportation Safety Board Aviation Accident Final Report

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|--------------------------------|-----------------------------------|-------------------------|-------------|
| <b>Location:</b>               | PHOENIX, AZ                       | <b>Accident Number:</b> | LAX00LA015  |
| <b>Date &amp; Time:</b>        | 10/15/1999, 0918 MST              | <b>Registration:</b>    | N627AW      |
| <b>Aircraft:</b>               | Airbus Industrie A-320-231        | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         |                                   | <b>Injuries:</b>        | 94 None     |
| <b>Flight Conducted Under:</b> | Part 121: Air Carrier - Scheduled |                         |             |

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## Analysis

On pushback from the gate, the tug driver was positioning the nose wheel on a painted stop mark on the ramp known as the "T" when the tail struck a walkway between concourses. Company procedures require each tug driver to put the nose wheel on the "T" during pushback. This procedure had been previously discontinued at this gate due to the construction of the pedestrian walkway that did not allow sufficient clearance. On the morning of the accident, the ramp coordinator advised the ramp 1 supervisor that pushbacks to the "T" at this gate would resume that morning. The ramp 1 supervisor asked for confirmation due to concerns over adequate clearance, and the instruction was reconfirmed that all gates on ramp 1 would push to the "T." No coordination was made with the ground operations safety supervisor. During the accident sequence, ramp control cleared the flight to push to the "T" and the captain relayed the clearance to the tug driver. The wing walkers were properly positioned. When the aircraft was about 20 feet from the walkway, the right wing walker saw the impending collision and signaled the tug driver to stop. The tug driver said he was focused on correctly positioning the nose wheel on the "T" and did not see the signal in time to stop the aircraft. About 10 feet before reaching the "T," the aircraft's right horizontal stabilizer struck the pedestrian walkway. There is no voice communication capability between the crew chief at the gate, the tug driver, and the wing walkers. The completed walkway had reduced the amount of ramp space available during pushback to substantially less than the length of the airplanes operated by the airline. The "T" had not been repositioned. The original decision to resume the pushback originated with the ACS project manager but should have been coordinated with the ground operations safety supervisor prior to any operational changes being implemented.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The airline's failure to fully review the obstruction clearances and revise the pushback procedures in an area of the ramp where new construction had impinged on the available ramp space. Also causal was the failure of the tug driver and the wing walkers to maintain adequate communications during the pushback. A factor in the accident was the failure of the airline to follow its own internal decision processes when implementing the procedural change on this

ramp.

## Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: TAXI - PUSHBACK/TOW

### Findings

1. OBJECT - HANGAR/AIRPORT BUILDING
2. AIRPORT FACILITIES,RAMP FACILITIES - CONGESTED
3. CLEARANCE - INADEQUATE
4. (C) UNSAFE/HAZARDOUS CONDITION - NOT IDENTIFIED - COMPANY/OPERATOR MANAGEMENT
5. (C) PROCEDURES/DIRECTIVES - NOT VERIFIED - GROUND PERSONNEL
6. (F) INADEQUATE SUBSTANTIATION PROCESS,INSUFF REVIEW - COMPANY/OPERATOR MGMT
7. (C) COMMUNICATIONS - NOT MAINTAINED - GROUND PERSONNEL

## Factual Information

On October 15, 1999, at 0918 hours mountain standard time, America West Flight 2433, an Airbus A320-231, N627AW, collided with a pedestrian walkway during pushback in Phoenix, Arizona. The aircraft sustained substantial damage; however, none of the 89 passengers nor the 5 crewmembers were injured. The aircraft was being operated by America West Airlines, Inc., as a scheduled domestic passenger flight under 14 CFR Part 121 when the accident occurred. The airplane was originating as a nonstop flight to Tucson, Arizona. Visual meteorological conditions prevailed at the time and an IFR flight plan was filed.

At each gate, America West has a mark painted on the ramp called the "T." This "T" marking is the target point for each tug driver to place the nose wheel during pushback operations.

The captain reported that he was at gate A-2 when he received a clearance from ramp control that he was to push to the "T" and to advise when ready to taxi. The captain read the clearance to the tug driver over the intercom. The tug driver read back the clearance and began the pushback about 40 seconds later. Approximately 10 feet before reaching the "T," the aircraft's right horizontal stabilizer struck the pedestrian walkway that connects concourse A to concourse N-1. The tug driver then reported to the captain that, "I may have hit something." The captain made an announcement to the cabin about the nature of the problem and then received permission from ground safety supervisors to pull back to gate A-2.

The first officer said he noted the pushback time as 0917 but was not listening to the captain or tug driver as they pushed back.

According to statements from America West's new terminal project manager and the ramp control tower manager, during a 0845 conference call, the ramp coordinator advised the ramp 1 supervisor and team leads that pushbacks to the "T" at gate A-2 would resume as of that morning. This procedure had been previously discontinued due to the construction of the new pedestrian walkway between concourses A and N-1 that did not allow sufficient clearance for the pushback. The ramp 1 supervisor asked the ramp coordinator in the tower, as well as the A-2 team lead, for confirmation due to her concern over clearance between the airplanes and baggage carts and construction equipment that were in the vicinity. The tower coordinator and board agent both reconfirmed that all gates on ramp 1 would push to the "T".

On the America West ramp, there is no voice communication capability between the crew chief at the gate, the tug driver, and the wing walkers. According to statements of the involved ground personnel and nearby witnesses, the wing walkers were positioned in accordance with company procedures during the pushback. When the aircraft was about 20 to 25 feet from the walkway, the right wing walker signaled the tug driver to stop the push. The tug driver said he was focused on correctly positioning the nose wheel on the "T" and did not see the signal in time to stop the aircraft.

Safety Board investigators examined the ramp area and found that the completed walkway structure between the concourses had reduced the amount of ramp space to 94 feet 4 inches from the "T" to the walkway; the A321 airplane is 146 feet long from nose to tail. According to the company's internal report on the event, the decision to resume the pushback to the "T" originated with the ACS project manager but should have been coordinated with ground operations safety supervisor prior to any operational changes being implemented.

## Pilot Information

|                                  |   |  |                            |
|----------------------------------|---|--|----------------------------|
| <b>Certificate:</b>              | Airline Transport; Commercial   | <b>Age:</b>                              | , Male                     |
| <b>Airplane Rating(s):</b>       | Multi-engine Land; Single-engine Land   | <b>Seat Occupied:</b>                    | Left                       |
| <b>Other Aircraft Rating(s):</b> | None  | <b>Restraint Used:</b>                   | Seatbelt, Shoulder harness |
| <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--no waivers/lim.  | <b>Last Medical Exam:</b>                | 06/23/1999                 |
| <b>Occupational Pilot:</b>       |   | <b>Last Flight Review or Equivalent:</b> |                            |
| <b>Flight Time:</b>              | 18300 hours (Total, all aircraft), 4200 hours (Total, this make and model), 178 hours (Last 90 days, all aircraft), 48 hours (Last 30 days, all aircraft) |  |                            |

## Aircraft and Owner/Operator Information

|                                      |                                      |   |                    |
|--------------------------------------|--------------------------------------|---|--------------------|
| <b>Aircraft Manufacturer:</b>        | Airbus Industrie                     | <b>Registration:</b>                      | N627AW             |
| <b>Model/Series:</b>                 | A-320-231 A320-231                   | <b>Aircraft Category:</b>                 | Airplane           |
| <b>Year of Manufacture:</b>          |                                      | <b>Amateur Built:</b>                     | No                 |
| <b>Airworthiness Certificate:</b>    | Transport                            | <b>Serial Number:</b>                     | 066                |
| <b>Landing Gear Type:</b>            | Retractable - Tricycle               | <b>Seats:</b>                             | 156                |
| <b>Date/Type of Last Inspection:</b> | 09/23/1999, Continuous Airworthiness | <b>Certified Max Gross Wt.:</b>           | 164569 lbs         |
| <b>Time Since Last Inspection:</b>   | 199 Hours                            | <b>Engines:</b>                           | 2 Turbo Fan        |
| <b>Airframe Total Time:</b>          | 32206 Hours                          | <b>Engine Manufacturer:</b>               | Int'l Aero En      |
| <b>ELT:</b>                          |                                      | <b>Engine Model/Series:</b>               | V2500-A1           |
| <b>Registered Owner:</b>             | WILMINGTON TRUST COMPANY TRUST       | <b>Rated Power:</b>                       | 24800 lbs          |
| <b>Operator:</b>                     | AMERICA WEST AIRLINES, INC.          | <b>Air Carrier Operating Certificate:</b> | Flag carrier (121) |
| <b>Operator Does Business As:</b>    |                                      | <b>Operator Designator Code:</b>          | AWXA               |

## Meteorological Information and Flight Plan

|                                  |                   |                               |              |
|----------------------------------|-------------------|-------------------------------|--------------|
| Conditions at Accident Site:     | Visual Conditions | Condition of Light:           | Day          |
| Observation Facility, Elevation: | PHX, 1135 ft msl  | Observation Time:             | 0917 MST     |
| Distance from Accident Site:     | 0 Nautical Miles  | Direction from Accident Site: | 0°           |
| Lowest Cloud Condition:          | Clear / 0 ft agl  | Temperature/Dew Point:        | 24° C / 1° C |
| Lowest Ceiling:                  | None / 0 ft agl   | Visibility                    | 10 Miles     |
| Wind Speed/Gusts, Direction:     | 7 knots, 100°     | Visibility (RVR):             | 0 ft         |
| Altimeter Setting:               | 29 inches Hg      | Visibility (RVV):             | 0 Miles      |
| Precipitation and Obscuration:   |                   |                               |              |
| Departure Point:                 | (PHX)             | Type of Flight Plan Filed:    | IFR          |
| Destination:                     | TUCSON, AZ (TUC)  | Type of Clearance:            | IFR          |
| Departure Time:                  | 0917 MST          | Type of Airspace:             | Class B      |

## Airport Information

|                      |                                |                           |      |
|----------------------|--------------------------------|---------------------------|------|
| Airport:             | PHOENIX SKY HARBOR INT'L (PHX) | Runway Surface Type:      |      |
| Airport Elevation:   | 1135 ft                        | Runway Surface Condition: |      |
| Runway Used:         | 0                              | IFR Approach:             |      |
| Runway Length/Width: |                                | VFR Approach/Landing:     | None |

## Wreckage and Impact Information

|                     |         |                      |             |
|---------------------|---------|----------------------|-------------|
| Crew Injuries:      | 5 None  | Aircraft Damage:     | Substantial |
| Passenger Injuries: | 89 None | Aircraft Fire:       | None        |
| Ground Injuries:    | N/A     | Aircraft Explosion:  | None        |
| Total Injuries:     | 94 None | Latitude, Longitude: |             |

## Administrative Information

|                                   |   |               |            |
|-----------------------------------|---|---------------|------------|
| Investigator In Charge (IIC):     | ROBERT R CRISPIN  | Adopted Date: | 05/17/2001 |
| Additional Participating Persons: | RONALD J ROSENHAHN; PHOENIX, AZ   |               |            |
| Publish Date:                     |   |               |            |
| Investigation Docket:             | NTSB accident and incident docket serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> . |               |            |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.