

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594



July 19, 1999

MATERIALS LABORATORY FACTUAL REPORT

Report No. 99-136

A. ACCIDENT

Place : East Moriches, New York
Date : July 17, 1996
Vehicle : Boeing 747-100
NTSB No. : DCA96-M-A070
Investigator : Al Dickinson, AS-10

B. COMPONENTS EXAMINED

Access doors in spanwise beam #1 from the wing center section fuel tank.

C. DETAILS OF THE EXAMINATION

The access doors in spanwise beam #1 (SWB#1) were examined by Jim Wildey, NTSB, Joe Kolly, NTSB, and Jon Hjelm, FAA, on June 3, 1999, for the purpose of documenting the deformation of the edge bands of the doors. SWB#1 has two access doors, one on each side of the airplane centerline. The doors attach to the aft side of the beam and are secured using six bolts on each of the vertical sides of the door. The doors are not secured to the beam along the top or bottom. The vertical edge bands between the bolts had previously been noted as being bulged in the rearward direction. Soot tails had been noted on the aft side of the web of SWB#1 associated with each of the bulged areas, consistent with the flow of soot and air through the gap from the front side of the beam to the aft side of the beam.

Measurements of the gap between the web of SWB#1 and the edge bands of the doors were taken on both the forward and aft sides of the beam, using a feeler gauge. Gauges of increasing thickness were inserted into the gap between the web and edge band. The gap was listed as being the size of the largest gauge that could be inserted into the space, even if the gauge penetrated only a small amount.

The following information summarizes the results of the measurements, in inches, with the gap between adjacent fasteners at the top of the door listed first and the gap between adjacent fasteners at the bottom of the door listed last. "No Result" was entered for the top and bottom gaps on the forward side of the beam where the curvature of the

web prevented an accurate measurement directly adjacent to the edge band. A "+" indicates greater than the listed value, a "++" indicates much greater than the listed value.

RIGHT DOOR

aft side of SWB#1, left side of the door

0.011, 0.008, 0.022, 0.020, 0.022

forward side of SWB#1, left side of the door

no results, 0.028, 0.026, 0.026, no results

aft side of SWB#1, right side of the door

0.028, 0.016, 0.018, 0.026, 0.026

forward side of SWB#1, right side of the door.

no results, 0.032, 0.024, 0.035+, no results

LEFT DOOR

aft side of SWB#1, left side of the door

<0.004, <0.004, 0.004, <0.004, <0.004

forward side of SWB#1, left side of the door


no result, 0.035++, 0.035++, 0.035++, no result

aft side of SWB#1, right side of the door

<0.004, <0.004, 0.012, <0.004, <0.004

forward side of SWB#1, right side of the door

no result, 0.024, 0.024, 0.020, no result


James F. Wildey II
Supervisory Metallurgist