

# NATIONAL TRANSPORTATION SAFETY BOARD

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



December 30, 2005

MATERIALS LABORATORY FACTUAL REPORT

Report No. 05-136

## A. ACCIDENT

Place : Los Angeles, California  
Date : September 21, 2005  
Vehicle : Airbus 320  
Operator : JetBlue  
NTSB No. : LAX05IA312  
Investigator : Mike Hauf, AS-40

## B. COMPONENTS EXAMINED

Nose landing gear upper support found fractured during maintenance on December 12, 2005, in West Palm Beach, Florida on Airbus A320, N547JB (not the incident airplane). The upper support was brought to the laboratory by JetBlue representative Boris Rogoff on December 29, 2005.

## C. DETAILS OF THE EXAMINATION

An overall view of the nose landing gear upper support is shown in figure 1. The lower side of the upper support has four lugs that form slots that engage lugs on the upper end of the nose landing gear inner cylinder assembly. As can be seen in this figure, two diametrically opposite lugs were fractured from the lower side of the upper support. Figure 2 shows close-up views of one face of the two lug fractures. Fracture features were typical of fatigue cracking, with initiation at the base of the lugs, near the corner between the slot side of the lug and the inner diameter of the upper support. Arrows "O" in figure 1 indicate the origin areas. Fatigue features were found through a large majority of the fracture surfaces. Adjacent to the fatigue origin areas, the fracture plane was smooth and did not contain shear lips, indicative of lower stress propagation. Further from the origin areas, the fracture became rougher, indicative of higher stress propagation.

Detailed optical examination showed that the origin area for the fracture shown at the top in figure 2 was located on the upper side of the corner radius in an undamaged area and that the origin area for the fracture shown at the bottom in figure 2 was located lower on the lug in an area of contact wear from an anti-rotating lug of the inner cylinder assembly.

James F. Wildey II  
Supervisory Metallurgist

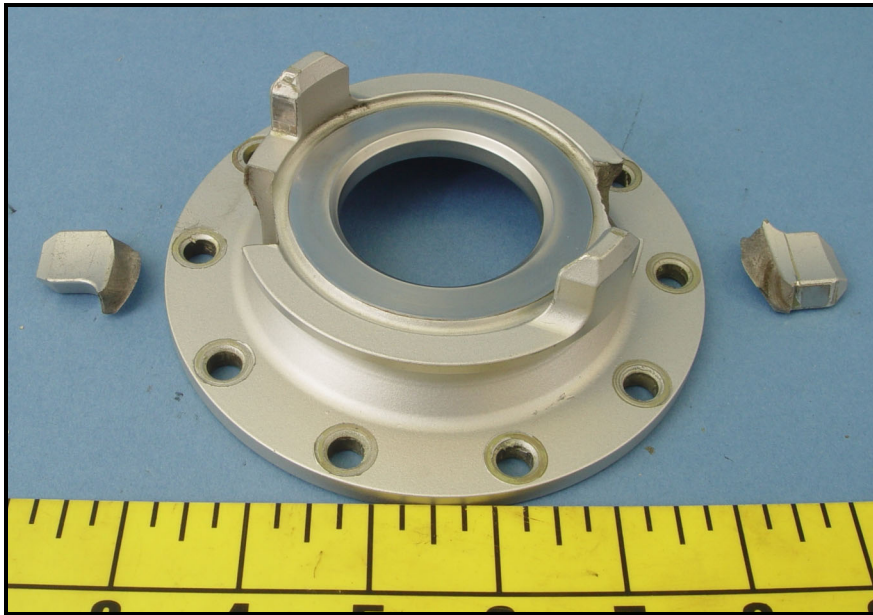
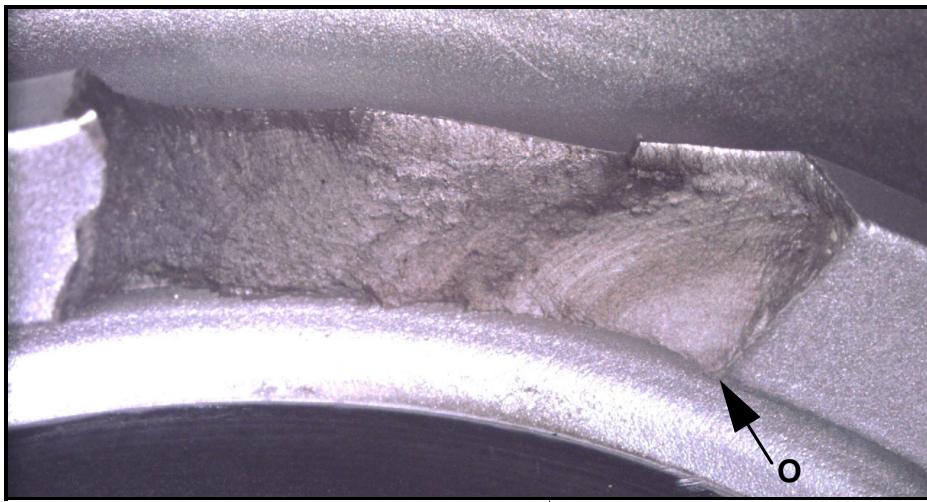


Figure 1. Overall view of the upper support with the fractured lugs. View looking obliquely upward.

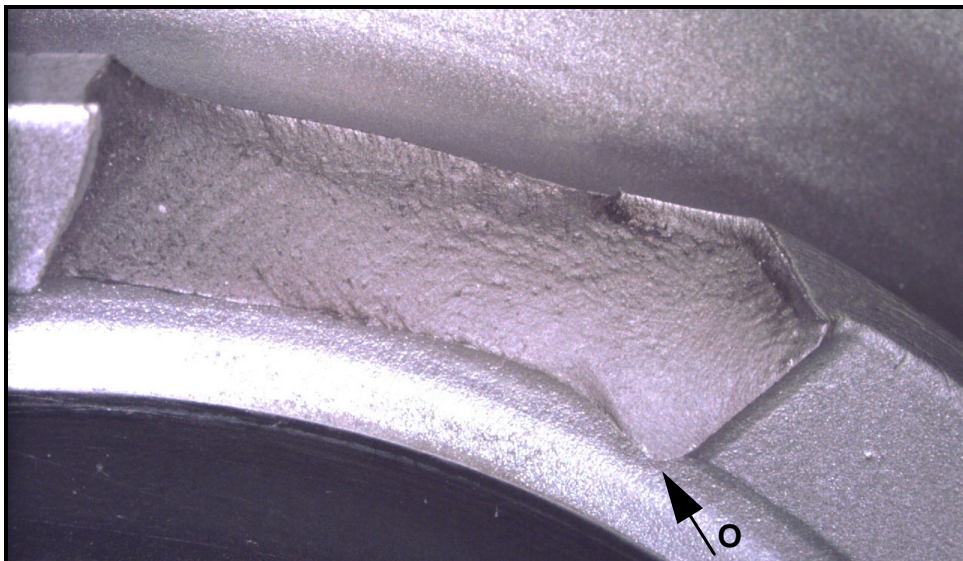
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500 mils

Figure 2. Closer views of the lug fractures on the main portion of the upper support. Arrows "O" indicate the approximate location of the fatigue origin areas. Views looking upward.



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