

NATIONAL TRANSPORTATION SAFETY BOARD

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



January 23, 2012

MATERIALS LABORATORY FACTUAL REPORT

Report No. 11-123

A. ACCIDENT INFORMATION

Place : Dixie, GA
Date : 10/8/2011
Vehicle : Luscombe 8A, N41907
NTSB No. : ERA12FA017
Investigator : Jose Obregon

B. COMPONENTS EXAMINED

1 damaged connecting rod assembly (#2 cylinder), 1 exemplar connecting rod assembly (#4 cylinder from same engine), remnants of metal flakes and pieces from the damaged connecting rod bearing cap (figure 1)

C. DETAILS OF THE EXAMINATION

The two connecting rods submitted for examination were removed from a Continental AC-65 engine with S/N 3748068. The damaged connecting rod from the #2 cylinder had the following manufacturing markings on it:

AL ATLAS 11 5561

The undamaged connecting rod from the #4 cylinder had the following manufacturing markings on it:

RR ATLAS 5 5561 2

The damaged connecting rod assembly from the #2 cylinder was deformed and had sustained considerable damage to the end which would attach to the crankshaft (figure 2). Examination under the stereo microscope of the damaged end of the connecting rod assembly revealed a region with a flat fracture surface exhibiting crack arrest fronts consistent with a fatigue fracture (figure 3). The mating fracture surface was found attached to the #2 connecting rod's bearing cap which was recovered from inside the engine (figure 4). The mating fracture surface had a similar flat fracture region with crack arrest fronts (figure 5). The mating fracture surfaces associated with #2 cylinder connecting rod assembly are both consistent with a fatigue fracture. The fracture origin area was diffuse with no apparent defects.



Figure 1: Accident parts as received



Figure 2: Damaged connecting rod assembly from the #2 cylinder

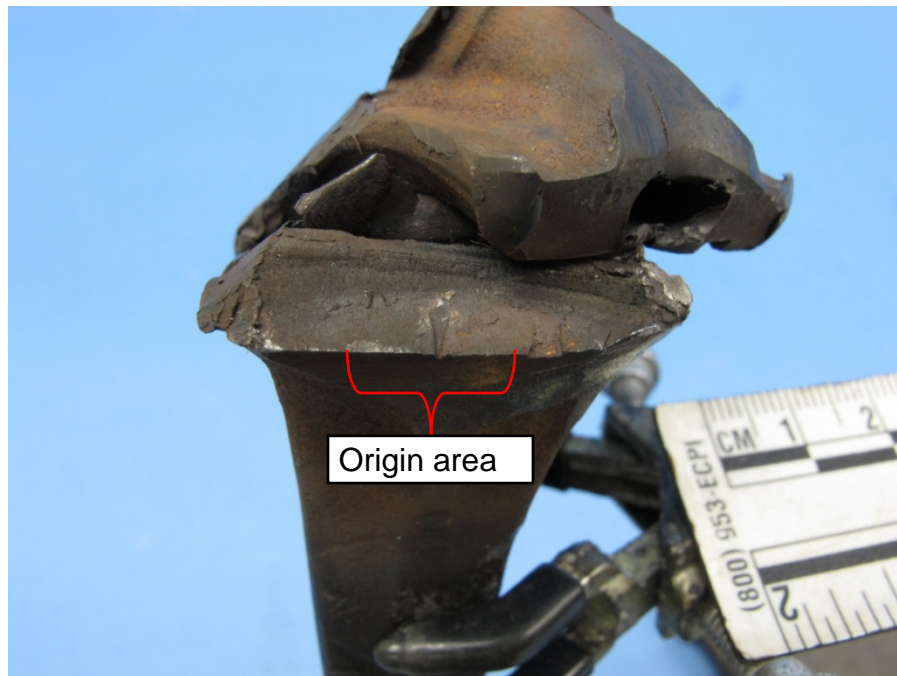


Figure 3: Damaged end of #2 cylinder connecting rod assembly exhibiting a flat fracture region and crack arrest fronts.



Figure 4: #2 piston rod bearing cap with portion of connecting rod attached (circled in the photo)



Figure 5: Mating fracture surface to the one shown in figure 3.

Joseph Panagiotou
Fire & Explosion Investigator