Beechcraft Starship to be evaluated in aging aircraft study

The National Institute for Aviation Research (NIAR) at Wichita State University (Wichita, Kan.) has begun research expected to increase understanding of the aging process in composite aircraft structures. The Institute’s Aging Aircraft and Composites laboratories are investigating the Beechcraft Starship, an all-composite aircraft that entered commercial service in 1992 (see HPC May/June 1996, p. 24). Production of the Starship ended in 1994, after production of only 53 aircraft.

The work is being done on behalf of NIAR’s FAA Center of Excellence for Composites and Advanced Materials (see HPC March 2004, p. 14). Principal investigators are NIAR’s executive director John Tombline and Lamia Salah, manager of the Fatigue and Fracture Lab. According to NIAR, the program will investigate changes in mechanical properties (using coupon and element level testing); the degradation in physical properties (including resin chemistry); the effectiveness of old repairs; bearing conditions or failures around holes and fasteners; and material degradation due to humidity, UV radiation and heat. The investigation’s first phase, expected to take 15 months, will address materials and element-level aging. A second 15-month phase will address a full-scale test to assess the residual fatigue life of the wing after years of service. Data will be used by the FAA to assess the efficiency of flaw detection performed with current and emerging nondestructive investigation (NDI) technologies.

In addition to the Starship, a decommissioned Boeing 737 tail, which was in service for 18 years, also is being investigated through destructive and nondestructive testing. The testing will be accompanied by detailed structural evaluation to determine changes in thermal, chemical and mechanical properties.

News Brief:

Bell/Agusta Aerospace Co. (Ft. Worth, Texas) announced that the Irish Department of Defence has selected the company’s AB139 helicopter for utility duties, including air ambulance, inland search and rescue and VIP transport. Four aircraft will be delivered. The AB139 achieved Italian and European certifications early in 2004, with FAA certification expected by year’s end, says Bell/Agusta.