**Mr. Ed Ingram, Lockheed Martin**

Ed began his association with Lockheed in 1974 as a stress engineer on the C-130. He retired in 2013 after nearly 40 years of service. His career was spent entirely in the field of aircraft structures, but included varied assignments that resulted in experience in most of the structural sub-disciplines. At different times, he was involved in stress, fatigue, damage tolerance, finite element, structural dynamics and risk analysis.

By 1980, Ed was a Lead Engineer on the Durability and Damage Tolerance Analysis (DADTA) of the Air Force C-130s. In this assignment, he participated in developing many of the models and methods that would be used in the assessment and are still largely used on C-130 today. Throughout this project, the development and application of the methods was reviewed quarterly by Dr. Lincoln. Ed considers the interactions with Dr. Lincoln over the course of several years on that project to have been an invaluable learning experience.

Next, Mr. Ingram was assigned another DADTA Lead engineer responsibility. This time, in Burbank California for the assessment of the SR-71, where once again he benefitted from technical interaction with Dr. Lincoln.

Over the next few years, Ed held engineering leadership positions on the C-5B and Special Projects. Following the 1986 Challenger accident, Ed supported NASA during the Space Shuttle Recertification. He continued to work with NASA on several structures research projects throughout the 1990s, culminating with the High Speed Civil Transport.

In the early 2000s, Lockheed Martin and the Air Force began the C-5M Program to modernize the C-5 with new engines and pylons, along with the avionics upgrades. Assigned once again to C-5, Ed served as Chief Technical Advisor and Chairman of the Fracture Control. In this time frame, the C-5 encountered several structural problems with stress corrosion cracking in a number of airframe components, including a major fitting called the Tiebox. The Tiebox problem led to Ed working again with Dr. Lincoln to find a solution that would maintain risk to safe levels until new fittings were available.

Following the peak of the C-5M work, Ed was asked to support the Widespread Fatigue Damage Assessment of the aging commercial transports, by preparing the Methodology Plan and by consulting throughout the assessment.

In 2002, he was selected as a Technical Fellow, and in 2008, Senior Fellow. In these capacities, Ed was asked to provide engineering support to a number of projects, including F-22 and F-35. He was also honored to be a member of the writing team for revision C of Mil-Std-1530.

Ed has authored several technical papers as well as numerous Lockheed Martin engineering reports.

Mr. Ingram earned a B.S. in Aerospace Engineering from Auburn University and a M.S. in Aerospace Engineering from Georgia Tech. He and Jan have been married for 44 years, and are blessed with two wonderful daughters and seven amazing grandchildren.

