



Wings in Orbit: Scientific and Engineering Legacies of the Space Shuttle, 1971-2010 (Illustrated Edition, Part 1 of 2)

By Wayne Hale

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This excellent NASA document has the dramatic tale of the development and operation of the most complex machine in history, with unique behind-the-scenes engineering and scientific information. Although there is some predictable recounting of familiar history, this book contains an extraordinary amount of new information revealing the true complexity of the Shuttle system and the extreme challenges faced by NASA. Even long-time Shuttle observers are sure to find something new and interesting on almost every page. There is an honest and open discussion of the Challenger and Columbia accidents, along with a fascinating overview of the use of the Shuttle for military and national security missions.

NASA describes the book: "Authoritatively documents the many accomplishments of NASA's Space Shuttle Program from its origins to the present. Beginning with a Foreword by astronauts John Young and Robert Crippen, this compelling book provides clear, accurate, and authentic accounts from NASA's best subject matter experts, including aerospace engineers who worked with the shuttle program, and leading experts from the science and academic communities. The book captures the passion of those who devoted their energies to the program's success for more than three decades. It focuses on their science and engineering accomplishments, the rich history of the program, and the shuttle as an icon in U.S. history. Its comprehensive overview of the shuttle and its accomplishments, combined with its lucid prose, makes *Wings in Orbit* a unique resource for anyone interested in the history and achievements of American space exploration."

Contents of Part 1 include: Magnificent Flying Machine - A Cathedral to Technology * The Historical Legacy * Major Milestones * The Accidents: A Nation's Tragedy, NASA's Challenge * National Security * The Space Shuttle and Its Operations * The Space Shuttle * Processing the Shuttle for Flight * Flight Operations * Extravehicular Activity Operations and Advancements * Shuttle Builds the International Space Station * Engineering Innovations * Propulsion * Thermal Protection Systems * Materials and Manufacturing * Aerodynamics and Flight Dynamics * Avionics, Navigation, and Instrumentation * Software

NASA's space shuttle fleet began setting records with its first launch on April 12, 1981 and continued to set high marks of achievement and endurance through 30 years of missions. Starting with Columbia and continuing with Challenger, Discovery, Atlantis and Endeavour, the spacecraft has carried people into orbit repeatedly, launched, recovered and repaired satellites, conducted cutting-edge research and built the largest structure in space, the International Space Station.

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