

HUMAN FACTORS IN AVIATION MAINTENANCE: CHALLENGES FOR THE FUTURE

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INTRODUCTION

Research and development related to human factors in aviation has traditionally focused on the pilot and the cockpit. However, recent reports have attributed 18% of all accidents to maintenance factors. The aircraft inspection/maintenance system is a complex one with many interrelated human and machine components. The linchpin of the system is however, the human. Since it is difficult to eliminate errors altogether, continuing emphasis must be placed on developing interventions to make inspection and maintenance more reliable and/or more error tolerant. For over ten years extensive research has been conducted to promote aviation safety and enhance human performance in the aircraft maintenance and inspection environment. This research has been pursued by various entities that include the Federal Aviation Authority, NASA, Aircraft Manufacturers, Airlines, Companies and Universities.

Over the years, the research has suggested several ergonomic changes to both the system and the human. These interventions can be broadly classified as (1) changes to the system – (e.g., maintenance resource management, design of work cards, error reporting systems) and (2) changes to the human (e.g., training programs, computer-based decision tools, job-aids, simulators). Thus, the research has provided the aviation industry with specific interventions and usable products in the form of published software on CD-ROM's, training workshops and the Human Factors in Aviation Maintenance guide. As we move in to next millennium, the aircraft maintenance industry will be faced with new challenges. The advent of newer and modern aircraft will necessitate the upgrading of maintenance skills. Simultaneously, the continued use of aging aircraft will necessitate an increased emphasis on improving the inspection and maintenance operations. Moreover the continued emphasis on increasing the efficiency and effectiveness of the existing maintenance and inspection process that are used to fix both older and newer aircraft will bring about its own challenges. If human factors has to make a contribution in this changing environment a proactive approach to error identification and reduction is necessary. In response to this need the symposium provides a sampling of recent human factors related research efforts being pursued across the country. It also provides directions for future research. The symposium is divided into two parts – a panel discussion followed by two separate lecture symposia entitled "Usable

Products for the Aircraft Maintenance Industry: Application of Human Factors Research" and "Improving Human Performance in the Aircraft Maintenance Environment."

The panel will consist of recognized experts in the aircraft-maintenance human factors arena. The panel will highlight the achievements and lessons learned from the last ten years of human factors research. It will provide directions for future research identifying new avenues of research.

DISCUSSANTS

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