

Aerospace Medical Research: Making Air Travel Safer

Editorial, by Jon L. Jordan, MD, JD

To many persons outside the Federal Aviation Administration (FAA), the Office of Aerospace Medicine's greatest visibility relates to our administration of the airman medical certification system. There is good reason for this since ensuring that airmen meet sound medical criteria and are free of drugs and alcohol have long been considered our highest priorities. Sometimes overlooked are the significant contributions and support our research organizations provide, not only to the certification process but also to the overall safety of the national airspace system.

The FAA is blessed with having two "World Class" research organizations at the Civil Aerospace Medical Institute (CAMI). Much of the work carried out by these two research organizations is accomplished quietly and without a great deal of fanfare. I can assure you, however, that the contributions these organizations make to system safety provides a big "bang" for the relatively small expenditure of dollars that go to their support.

Human Resources. Research psychologists and supporting staff comprise the Human Resources Research Division. Their goal is to improve aerospace safety and workforce performance through human factors research. In plain language, these folks play a major role in identifying environmental and other factors that impact pilot and air traffic controller performance and cause or contribute to accidents. Among others things, the research includes human performance under various conditions of impairment, human error analysis and impact of advanced automation systems on personnel performance.

Medical Research. The other division, the Aerospace Medical Research Division, is composed of a more heterogeneous group of scientists. Among others, included are research physicians, chemists, and engineers. To name just a few, these folks engage in accident investigation from the medical perspective, look for ways to improve occupant protection and survival in the event of an accident or other life-threatening event, and identify physiological, psychological, and performance factors that threaten safety.

It is impossible to cover in this column all the important aviation safety contributions being made by our two research organizations. I feel compelled, however, to mention at least one. This is the wide-body environmental research facility that was completed in 2001.

The wide-body research facility was developed through refurbishing the hull of a scrap Boeing 747 aircraft. Through ingenuity in securing funds and a lot of hard work by the staff at CAMI, what began as a cast-off hunk of metal has become a unique, multi-purpose, highly

sophisticated, research facility.

Thus far, the facility has been used for a number of research tasks. Included among these is the training of aircraft accident investigators as well as security personnel for dealing with hijackers and unruly passengers. The facility is equipped to investigate cabin airflow that will define molecular, particulate, and microorganism dispersion and aid in studies of contamination of cabin and cockpit air from a variety of potential sources, including possible acts of terrorism. Most recently, the facility was used to determine the time required to secure a passenger cabin following a warning of air turbulence. This research was in support of NASA for the development of an early-warning system for air turbulence. Future potential uses for the facility are virtually limitless.

Those of you who have had the opportunity to visit CAMI recently are familiar with the current high level of sophisticated research going on there. For others who have never been there or have only a dim recollection of our research activities, I simply wanted to let you know or remind you of the dedicated and highly professional staff that- in many ways- is working to make air travel as safe as it can be.

JLJ