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NEWS

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Report Offers Clues to Higher Accident Probability in Cargo-flight Operations

The National Aerospace Laboratory (NLR)–Netherlands, U.K. Civil Aviation Authority and Directorate General of Civil Aviation (RLD) Netherlands found that there is an increased accident risk at night for cargo operations.

An international study of differences between worldwide air cargo operations and passenger transport has found four main areas of study that may increase understanding of the statistically higher accident probability among cargo flights. As a follow-up to unpublished 1998 cargo-aircraft-accident research by the U.K. Civil Aviation Authority, the 1999 report said that compared to passenger operations, a higher proportion of cargo flights operate at night, aircraft are significantly older, the average fleet size is lower, and flight crews have lower average experience.

The findings appear in “Safety Aspects of Air Cargo Operations,” a paper presented by Alfred L.C. Roelen, research scientist with National Aerospace Laboratory (NLR)–Netherlands, at Flight Safety Foundation’s 11th annual European Aviation Safety Seminar (EASS) held March 8–10, 1999, in Amsterdam, Netherlands. The authors are Roelen; Gerard W.H. van Es of NLR; Hok Goei of the Netherlands Directorate of Civil Aviation (RLD); and Adrian G. Sayce and Sarah Doherty of the U.K. Civil Aviation Authority.

“Although accidents with cargo aircraft do not necessarily generate the same massive media attention as accidents where fare-paying passengers are involved, the impact of those accidents on society can be as important as passenger accidents,” said Roelen. “This cooperative investigation focuses on examining factors that are presumed to be associated with an increased operational risk of cargo operations.” The study identified, quantified and analyzed the most significant differences between cargo operations and passenger operations, and produced the following findings:

- An association exists between night operations and increased probability of an accident for cargo operations (a probability more than four times higher than for cargo aircraft operated during daytime);

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- A steady increase has occurred in the average age of Western-built cargo aircraft, from 14 years to 22 years, since 1980;
- There is a statistically significant difference in the lower average experience of the pilot-in-command for cargo accidents (10,948 flight hours) — with large differences in age between captains and copilots — compared with the average experience of the pilot-in-command for passenger accidents (12,459 flight hours);
- No significant difference exists in the relative number of nonprecision approaches for cargo operations compared with passenger operations; and,
- The distribution of types of causal factors in fatal accidents was approximately the same for both types of operations.

Data analysis also revealed a relatively high accident rate for the ad-hoc type of cargo operators (those characterized by a very high percentage of unscheduled flights on routes not served by major operators, typically with a few aircraft used strictly for cargo operations). No significant differences were detected between cargo operations and passenger operations in the diversity of aircraft types within the fleets and the quality of safety oversight.

Cargo operations, for purposes of this study, were those in which no fare-paying passengers were carried and the flight essentially was for the purpose of carrying cargo or freight (including mail). Passenger operations, as defined in the study, were those in which the flight was conducted with an aircraft that was equipped primarily for the transportation of fare-paying passengers (that is, the upper half of the aircraft fuselage did not contain any significant cargo area although generally some cargo was carried in the lower half of the fuselage). Combi-flights, in which part of the passenger cabin was used to carry cargo, were excluded.

Aviation-safety professionals representing organizations from throughout the world attended the seminar, "Aviation Safety: Management, Measurement and Margins." The seminar had 18 presentations, including reports by the FSF Approach-and-landing Accident Reduction Task Force and recognized specialists from industry, government and academia. Presentations included reports of the latest research into flight-crew response to aircraft-engine malfunctions, joint training to improve communication between pilots and air traffic controllers, passenger misconduct, enhanced ground-proximity warning systems (EGPWS), safety issues in crosswind landings, nonprecision approach accidents, implementation of satellite-based technology for controlling helicopter flights over the North Sea, alertness technology, year 2000 preparations for information systems, and prioritization of aviation safety programs in Europe.

The presentations have been published in proceedings of the meeting, available in print and on compact disc (CD). Place proceedings orders with David Grzelecki, librarian, FSF Jerry Lederer Aviation Safety Library, at +(703) 739-6700, extension 103. Prices for the CD edition are US\$29 (FSF members)/\$79 (nonmembers); for the print edition, \$95 (members)/\$165 (nonmembers). The CD edition includes a built-in search engine and a built-in installation program for Microsoft Windows® and Macintosh® operating systems.

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Flight Safety Foundation is an international membership organization dedicated to the continuous improvement of flight safety. Nonprofit and independent, FSF was launched in 1945 in response to the aviation industry's need for a neutral clearinghouse to disseminate objective safety information, and for a credible and knowledgeable body that would identify threats to safety, analyze the problems and recommend practical solutions to them. Since its beginning, the Foundation has acted in the public interest to produce positive influence on aviation safety. Today, the Foundation provides safety leadership to more than 700 member organizations in 77 countries.

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