

Executive Summary

The Federal Aviation Administration sponsored a two-day meeting in December 1989 as part of a continuing program to address issues of human factors and personnel performance in aviation maintenance and inspection. Presentations were given by some 15 individuals representing the full spectrum of interests in commercial aviation. Presentations also covered related efforts from other fields and new technologies having possible application to aviation maintenance. Each presentation, as well as the following question-and-answer period, was recorded for transcription and study.

The focus of the December meeting was on issues of "information exchange and communications." An earlier FAA meeting identified communication, in all its forms, as being of great importance in aviation maintenance and a matter in need of attention. The primary goal of the present meeting was to consider means of ensuring that the exchange of information within the industry responsible for the maintenance of the U.S. air carrier fleet is accurate, efficient, and responsive to the particular needs of this industry.

Recommendations presented to the Federal Aviation Administration are summarized as:

1. The movement toward a central data base to support aviation maintenance should be expedited as feasible. The Service Difficulty Reports data base maintained by the Federal Aviation Administration is a beginning, although this data base is not truly responsive to air carrier needs at this time. In continuing work toward a central data base, the FAA should consider carefully the strong initiatives made by other agencies such as the U.S. Nuclear Regulatory Commission.
2. The exchange of maintenance information will be improved significantly with greater standardization and consistency in the development and presentation of technical data. Data standardization projects should be encouraged.
3. Efforts to develop a [Simplified English](#) are excellent. However, care should be taken to avoid multiple versions of Simplified English.
4. The time required for transmission of much maintenance information is unsatisfactory. New and improved systems of electronic transmission should be developed. A fully responsive data system will require that all transmissions of maintenance information, particularly those with safety implications, be done electronically.
5. Safety analyses and trend analyses using the FAA Service Difficulty Reporting System must be improved to provide needed information more rapidly. Software should be developed to allow trend analyses for industry upon request, with rapid distribution of trend results.
6. The format for presentation of maintenance information is important, whether the presentation is in paper or electronic form. The FAA should consider the development and publication of a brief document containing an explicit list of guidelines for the preparation of maintenance manual-type information. The maintenance industry itself should consider incorporation of relevant parts of the electronic presentation technologies being developed by the U.S. Air Force in its Integrated Maintenance Information System.

7. The Federal Aviation Administration and the Air Transport Association both have programs considering information exchange in aircraft maintenance and inspection. Coordination between these programs is excellent. Anyone interested in the topic of information exchange should be familiar with each of these programs.
8. Traditional topics in human factors such as (1) use of visual displays, (2) information processing, (3) performance measurement, (4) feedback requirements, and (5) decision making were given little reference during this meeting. However, one can assume that each of these topics plays some role in determining maintenance efficiency. As the FAA Human Factors Program proceeds and more direct human factors data are developed, findings of these efforts should be incorporated into new procedures and systems to improve information exchange in aviation maintenance.