EXECUTIVE SUMMARY

The Federal Aviation Administration sponsored a two-day meeting in October 1988 to address issues of human factors and personnel performance in aviation maintenance and inspection. Presentations were given by some 13 individuals representing the full spectrum of interests in commercial aviation. Presentations also were given by three human factors scientists with backgrounds in vigilance and industrial inspection technology. Each presentation, as well as the following question and answer period, was recorded for transcription and study.

The objective of the meeting was to identify human factors issues of importance, particularly as such issues might contribute to inspection or maintenance error. The desired outcome was to be (1) an improved understanding of personnel performance in aviation maintenance and (2) recommendations, as appropriate, to the FAA concerning needed research efforts and/or possible new or revised regulatory actions.

Recommendations presented to the Federal Aviation Administration are summarized as:

1. More recommendations centered on communication than for any other topic discussed. Apparently the changing structure of the airline industry has disrupted communication networks with existed in earlier years. These networks were quite useful in disseminating maintenance information. Accordingly, it is recommended that the FAA foster at least one additional meeting of this kind to review specific topics noted in subsequent recommendations.
2. The FAA should consider means for encouraging or developing a data base of industry information concerning maintenance technologies, procedures, and problems. Many individual data bases exist. These should be consolidated and expanded.
3. The current review of Part 147 should be expedited as feasible. Results should include provision for specialization training as an advanced part of the curriculum of approved schools. Licensing procedures for avionics technicians also should be reviewed.
4. The supply of trained maintenance personnel is inadequate. The FAA should encourage or develop promotional materials regarding maintenance as a career.
5. "Advances in Training Technology" should be addressed extensively in any future FAA-sponsored meeting.
6. The pressure of "gate time" is an ongoing problem. All parties should consider ways to insulate inspectors from production and from the rest of maintenance.
7. Consideration should be given by the FAA to the conduct of a task analysis, or some modified version, of both mechanic performance and inspector performance. This provides critical information for any job redesign and improvement.
8. A research center, or program, where maintenance concepts could be studied in detail would be of great value. This could exist either at the FAA Technical Center or the Civil Aeromedical Institute.

9. Effective maintenance requires appropriate maintenance information. The FAA should review the preparation and delivery of maintenance manuals to ensure that the latest and most appropriate maintenance data are available to maintenance personnel as rapidly as possible. Particular attention should be given to information concerning wear limits, damage limits, repair schemes, and aircraft wiring diagrams.

10. A number of organizations are conducting research activities relating to maintenance performance. Channels should be established so that details of these activities can routinely feed into the data base noted in Recommendation Number 2. In addition, any future meeting should include a full session devoted to "Requirements and Improvements in the Preparation and Delivery of Maintenance Information."