FEDERAL AVIATION ADMINISTRATION
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From: Dr. William K. Krebs, Aviation Maintenance Human Factors Program Manager, Office of the Chief Scientist for Human Factors (AAR-100), Federal Aviation Administration

To: Ms. Peggy Hain, Director of Quality Control / Chief Inspector, Goodrich Aviation Technical Services, Everett, WA

Subj: BROADBAND AVIATION MAINTENANCE HUMAN FACTORS EXECUTION PLAN

Ref: (a) 11/06/02 telcon between Dr. Krebs, Dr. Nelson (Civil Aeromedical Institute), and Ms. Hain
(b) e-mail between Dr. Krebs and Ms. Hain, dated 10/29/02
(c) AAR-100's aviation maintenance human factors project entitled "An Evaluation of Broadband Applications to Aircraft Maintenance Safety"

1) Per reference (a) and (b), AAR-100 is very interested in investigating broadband technologies in the aviation maintenance facilities. The Federal Aviation Administration is interested in determining the extent to which human-centered design contributes to the successful application of emerging technologies that include, but are not limited to: training-on-demand, video-on demand, wireless access to technical documentation. In particular, how does the state-of-the-art of broadband applications affect maintenance operations?

2) Per reference (a), AAR-100 would like to use Goodrich Aviation Technical Services to help the Federal Aviation Administration understand the human factors issues pertaining to the integration broadband technology into the maintenance environments. To complement the proposed project, Dr. Steve Casner, NASA Ames, is investigating broadband technology issues at several other maintenance facilities – reference (c).

3) AAR-100 proposes the project to be executed as follows:

    i. Identify the advantages and disadvantages in using electronic signatures, portable display units, and electronic manuals in the aviation maintenance work environment. Organizational issues and attitudes will be measured

to determine the affects of broadband technologies on aviation maintenance personnel performance.

- Drs. Nelson and Krebs will conduct several site visits to Goodrich Aviation Technical Services to address this issue. If convenient, we propose the first visit late January 2003

ii. Conduct a task analysis to compare and contrast electronic methods to non-electronic methods. The task analysis will compare and contrast electronic and non-electronic devices by examining the number of steps required to perform a maintenance task, evaluate the efficiency of each device in completing a maintenance task, and assess the effects on training, productivity, and safety.

iii. Quarterly (December, March, July, and September) research progress status reports will be distributed to Ms. Hain

Deliverables:

Final report containing:

a. Recommendations in maximizing efficiency, productivity, and safety when using electronic signatures, portable display units, and electronic manuals in the aviation maintenance work place.

Schedule:

- *Complete by June 2003*, Identify the advantages and disadvantages in using electronic signatures, portable display units, and electronic manuals in the aviation maintenance work environment.
- *Complete by October 2003*, Organizational issues and attitudes will be measured to determine the affects of broadband technologies on aviation maintenance personnel performance.
- *Complete by March 2004*, Conduct a task analysis to compare and contrast electronic methods to non-electronic methods.
- *Complete by July 2004*, Complete final report.