

# Meeting Welcome

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I would like to welcome all attendees to the Second FAA Meeting on Human Factors Issues in Aircraft Maintenance and Inspection. I particularly appreciate your attendance in view of the snowstorm we are having just now.

I was able to address this group at last year's meeting and, at the conclusion, made one strong recommendation to Dr. Shepherd. This recommendation was that more of these meetings be held and that they be at frequent intervals. I am pleased to see that this recommendation is being followed and that human factors meetings will become frequent and regular events. I think that it is very difficult to overstate the value of getting people together in a relatively informal setting such as this to discuss problems of common interest from the perspectives of different disciplines.

The topic of today's meeting is "communications and information exchange" because this was identified as a crucial factor at last year's meeting. Communication ties the maintenance operation together and, in fact, is the thread that runs through aviation safety from any point of view. Personally, I am concerned about whether our approaches to communication and information exchange are really working well today. Are we making best use of existing knowledge and technology? In point of fact, I should say that I am convinced that we are not making the best use of new technologies. That being the case, as the aviation fleet grows and the industry expands, how will we meet our communications needs in the 1990's and into the next century?

Anyone who reads the Airworthiness Directive and the associated Service Bulletins for the cargo door on the Boeing 747 airplane will be convinced that we need help with communications. Aircraft systems are growing much more complex and maintenance needs are growing exponentially. We talk today about mechanical, electromechanical, and hydromechanical components. We also have fly-by-wire systems and soon perhaps will have fly-by-light, with all the computers and complex interfaces associated with such equipment. On top of this, inspection and maintenance problems for air carrier aircraft that are aging present special information problems.

A major issue concerns the interface with the person we must address. Repair and service details for all of these airplanes and systems have to be communicated to maintenance organizations in a timely manner and, above all, in an understandable manner. We must make good use of the experience that we have gathered, the mistakes we have made in civil aviation, and draw on progress made in the military and space fields. As I said earlier, for those who have not done so, it will be interesting to read an actual Airworthiness Directive and the Service Bulletin that goes with it. Pick one at random, read it, and you will be convinced that we need to do a better job.

Much maintenance documentation today looks like it was written by a lawyer. The reason for this is that it was. The process that the Federal Aviation Administration and aircraft manufacturers go through in writing an Airworthiness Directive requires a legal review. While the legal review serves useful purposes, it can introduce problems. For example, words like "proscribed" appear. How many people working in aircraft maintenance understand the difference between something being "prescribed" and something being "proscribed?" I would venture to say that not a high percentage do. This is of real importance when you consider the kind of accuracy we want in aviation maintenance. We hear about this all the time from airline operators. It is up to us in the FAA and to us in industry to do something about this problem. The attendees at this meeting can be very helpful by giving us some direction as to the best things for us to do to improve this situation.

Maintenance information must be understandable. Maintenance information also must be easily accessible. If it is not, people just aren't going to look for it. It is not a responsible act to place critical maintenance information into thick binders and assume that this information will get to the people who need it. If it does, it is likely to be torn out of the book and become so dirty that one cannot read it. We have an obligation not only to deliver messages, but to deliver them in a usable form and in a user friendly manner. Of the many new technologies available today, certainly some can be adapted for problems of the shop floor. These technologies should become standard rather than unusual in maintenance operations.

The fact that we need to implement new information transfer technology in maintenance does not mean that we need to move away from personal relationships. At one time, maintenance staffs were relatively small and so was the fleet size. It was possible for a given mechanic to work on a particular airplane enough to actually understand its history and to have a real sense of the problems with that aircraft. The advantages to this are such that at least one airline, in Japan, is reinstating a program to reconnect aviation personnel with specific airplanes.

Today, maintenance operations for U.S. and international airlines are big and specialized. Maintenance for a given airplane may be done at many places. Implementation of communications and database technology will provide an opportunity for maintenance personnel to be more closely coupled with the aircraft they maintain. There is no reason this cannot be done, in concept, with the computer technology available today.

Current technologies can give maintenance workers access to training, technical, and procedural information without a need for tons of paper and can present this information in a way more interesting to those who must use it. The repair histories of individual airplanes can be followed and needed information quickly provided. All of this can be done today and, indeed, some airlines are beginning to do it. A system that lets a worker know the status of the airplane he or she has worked on will increase his or her personal involvement with the process. It seems to us that this sense of personal vesting in an airplane and its status would be of benefit for the worker. In turn, the increased worker involvement should be of benefit for the airline. Finally, this tracking technology would be of value for us in the FAA to support our Service Difficulty Reporting System. Since the benefits seem so obvious, and the technologies are available, it is time for us to work together to bring these maintenance communication technologies online within the next decade.

The adoption of advanced communication technologies, procedures, and philosophies has the commitment of the Federal Aviation Administration and, I believe, the senior management in U.S. airlines. What we need to do now is build some momentum behind the program. Over the next two days, you who are attending this meeting will be discussing issues of information exchange, hearing presentations, and, I hope, beginning to build that momentum. By so doing, you will be making a valuable contribution to the entire aviation maintenance community.

Finally, I would like to note that I recognize the difficulty many of you have in taking time from your busy schedules to attend these meetings. I appreciate your interest and your efforts and urge you to continue working with us as we strive to build an aviation maintenance system suitable for the demands of the 21st century. Thank you.