

# Panel Presentation on Airline Maintenance Human Factors - Mortensen

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## INTRODUCTION

Good Morning, it certainly is a pleasure to be here and share with you the evolution and the experience of United Airlines with human performance in aviation maintenance. It looks like we are a little short on time, so I'll try to keep this within 10 or 15 minutes. For those that need to be advised of the acronym that's used in United Airlines -- MOD is the Maintenance Operation Division. This is our division's response to human performance initiatives.

## SCOUTING THE FIELD

The first thing, of course, you have to do anytime you are going to initiate a plan is to develop a steering committee. The steering committee was initially set up by the senior executives of the maintenance division to set our performance policy, oversee the integration of human performance and related initiatives into the MOD. I have the privilege of heading that steering committee. Because our initial thrust in the education and work in this arena is going to be in line maintenance, the sponsor is Ron Utech who happens to be the Vice President of line maintenance. Very importantly, early on we recognized the need to develop a partnership with our friends in flight operations who have spent years working in the area of human performance in flight operations. Cal Hutchins is my advisor from the flight training organization and he also manages the training program for United Airline pilots. The membership, most importantly, includes members from the IAM -- Andy Buttafuccho, who is the Assistant General Chairman and Director of flight safety of District 141 and the flight safety coordinators, Michael Pete, Tom Rollin and Wayne Gallimore. Some of these gentlemen are in the audience today; as are important members of quality assurance. We are also fortunate to have Ken Highlander, Carl Pape, the education, development and training organization and our People Services, or personnel, on the team.

## THE WIND-UP

In United we have a real opportunity because of our ESOP company, to really perform somewhat of a miracle in getting a partnership with all three participants that can play a role in the development of these programs. The first thing we did was to establish our objective. This was "to eliminate the causes", and I emphasize causes, "of maintenance-related error events to enhance safety and advance the professionalism of the MOD employees". We say maintenance-related because it is not just the mechanics that do the work and pull the wrenches that can be a participant in maintenance-related error. So we emphasize that; we also emphasize the issue of professionalism. We heard earlier today what that is really about. For those of us that are licensed mechanics, there is a very strong need for us to continue and evolve our profession.

The strategies that came out of the committee were to do these four things:

1. Create a division steering committee -- of course, we did that right away.
2. Create awareness -- awareness has got to go all the way to the top of the organization. Certainly one of the human factors in errors that occur can very well be the organization itself, the leadership and management -- the tone that is set by that organization.
3. To develop and deliver the learning -- decide what it is and how we are going to approach this in the way of educational activities.
4. To implement an analysis process of maintenance-related error occurrences.

It does not mean that for years we haven't had a strong investigative process within our division, it's just that we had to develop some new ways of approaching investigation and data gathering to put it into a form that we can analyze.

## THE PITCH

I'm going to talk a little bit about the individual strategies to create the awareness. In September of last year we had a leadership conference which focused on maintenance-related errors and human performance. Among others we had John Goglia, who joined us as one of the keynote speakers to kick this off. We had about 200 manager-level and above employees in the division. IAM leadership, we had a contingent from USAir (they are from the IAM), We spent a day and a half with them talking about human factors -- what is it? what is going on in the industry?, some insight as to what's going in the FAA and NTSB activities that John brought to us. It was a very, very intense session on getting everybody up to speed on what it is we were dealing with. We needed, of course, the use of additional communication vehicles. Joe mentioned earlier the need to give some wide publicity to the error events that go on within your company. For those of you who can look back ten, twelve years ago in the flight Ops arena, who ever would have thought that you would pick up a company document where pilots would openly talk about busting an attitude, wrong heading, etc. Where they can come out in a company publication that clearly describes and discusses the details of what went wrong. We see that today.

We need to do that in the maintenance arena, and for the last two or three years, in the line maintenance area particularly, we have a quality bulletin that goes out quarterly that talks about these events and captures, and discusses why things went wrong. We need to also look into the area of the support organizations that contribute the product which we use to perform maintenance. To that extent, the Director of Engineering and I spent about three weeks conducting human performance in engineering discussions, talking about the products they turn out, the job cards, the drawings, the engineering variations, etc. To make sure that they understood the product that they put out can either enhance or create safety, or be a contributing factor in maintenance-related error events.

## THE DELIVERY

In our learning effort we wanted to develop a human performance introductory workshop. Members of my steering committee traveled around the country, and even made some foreign travel, to talk to carriers that had been involved in human factor and human performance training. One of the best programs that we've seen in our travels and studies is one that's put together in Canada, by Gordon DuPont, of the Canadian Ministry of Transport who is in the audience today. That program, I believe, really captures the essence of what we need to do in the way of technician training programs.

When we examine our training effort, we need to integrate the human performance, human factor information into all of our technical training. Again, if you talk to the people in flight operations human factors, you will find that any training that occurs within our company has an element in it of the human factor aspect of the training that's going on. That's one of our main objectives -- to integrate human factors into all technical training and make it an integral part of the training. We also need to have an annual recurring learning opportunity. This may be in the form of a video or what have you, but that's something to plan for the future. The event-driven recurring learning is something that we will need to use when we have a maintenance-related error and we have an investigation that needs to, among other things, make people go back and redo the human factor training element that probably touched on the issue that was found to be in error. Lastly, we need to address the delivery of our training, which will be a two-day workshop. We call it a workshop because it really has to be the type of environment where people get involved. The workshop will be delivered by members of the IAM as well as our education and training staff; that is a team of people who will deliver this training program.

## THE FOLLOW THROUGH

This is a very ambitious schedule for us. We are targeting the line maintenance organization, and for us that's over 4000 mechanics around the world, who in 1996 will sit through a two-day workshop session. We think we can do it; we have the commitment. The main thing now is to get this product together, which we will have by the middle of February, develop a couple of prototypes, have them critiqued and get everything ready to be put into place.

Finally, I'd like to talk a little bit about MEDA. I believe Jerry Allen is here from Boeing and he is going to talk later in the program about MEDA. I would just like to give a strong support and a pitch and say that this effort is something that really has focused the need in an investigative process not only to have a disciplined, consistent way we look at maintenance error events, but also it will lead us eventually to a database where we can all share our information, our chain of events, our root causes. All of this so we can take the event apart and look at it to improve upon our future training activity. MEDA, of course, is a pioneer program that Boeing put together some two and half years ago. We were one of the carriers that was involved in initial development. It went through a number of critique sessions to create improvements in the process, in the investigative form and so forth, so it really is a very good program. I know it's not the only one; there's other companies now that are coming out with similar systems. But it's exactly the sort of thing that we need so that we can gather this information.

## NEXT UP

In closing, let me just say that on a personal note, that for the last 25 years in my career, I have had the privilege of being the head of QA at two different airlines. During that time, we had literally hundreds of events of maintenance-related error occurrences, and it seemed like we were always on the defensive. An event would occur; we'd react; we would try to do a good analysis. To me, this program is the first thing that we've really seen that allows us to get on the offensive. I believe our training program reaches our objective; that it will not only define what "human factors" is, but also it will remind the people of their responsibility as mechanics in terms of abiding by the FARs. Earlier we heard mentioned the old shift change job turnover problem. It has plagued us for years and years. Many of the FARs need to be revisited to reinforce the idea that those regulations which have been place for 30, 40, 50 years were put in there for a darn good reason. We really have to do our best to abide by them, and eliminate future maintenance errors.