

Panel Presentation: Perspectives on TRM Training for Maintenance - Komarniski

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INTRODUCTION

When we look at and hear about aviation incidents the focus is usually on the cockpit. I guess this is why they have had CRM training for the last 20 years. It only has been the last couple of years since we have even heard the words "Human Factors Training" mentioned in the maintenance department. Most companies provide their maintenance personnel with excellent technical training, and yet very few companies provide any form of Human Factors (or Human Element) training for the very thing that causes about 80% of their maintenance errors. The more progressive companies have implemented programs in their organizations during the last 5 years, others are still reading about the concept. In Canada it has taken 10-15 years just to get used to the idea of technical initial and recurrent training, never mind Human Factors.

But I guess, in this group today we have the converted, so we all realize the importance of having an effective *Human Factors Awareness* program available to us.

As John Stelly indicated yesterday Continental Airlines has seen a great benefit in their organization from Human Factor training and are moving forward with a Phase II. John and his group at Continental Airlines were a great influence with the development of our program.

John Goglia indicated that US Air has seen great paybacks from a Human Factor Awareness Program.

In Canada, the tragedy of an F28 crash at Dryden, Ontario on March 10, 1989, due to snow and ice on the wings resulted in the largest investigation and inquiry to an aviation incident in Canada to date. The inquiry recommended that Human Factors training be extended beyond the cockpit to include among others, maintenance personnel. Thus funding became available to create the HPIM (Human Performance in Maintenance) program.

HUMAN FACTORS WORKSHOP

We have made available to the aviation community in Canada and just recently in the United States our Human Factors Workshop for Aircraft Maintenance Technicians.

The objective of the two-day workshop is: "To examine the chain of events that cause an aviation occurrence and develop ways to prevent the occurrence." The workshop gives an insight on the human factors that affect aircraft technicians' good judgement and how to create safety nets to prevent us from being a contributing link to an aviation incident.

As we mentioned, this is a new concept in aviation so we start off slowly. We give them a two day general overview of the major Human Factors, about 12 total - discuss each human factor - the safety nets that could be created to prevent a factor affecting our judgement. We also look at about 6 documented case studies from the industry ([Figure 12-1, appendix](#)) that these human factors had a direct bearing on.

In this same workshop we talk briefly on our emotional and rational ego states and how they effect our judgement at critical moments throughout the day. We start right back at the basics with an event to which there is a reaction. But before the reaction can take place the mind has to give the event both thought and meaning. A simplified version of the Transactional Analysis model helps us understand the thought process. The brain is divided into two parts, the conscious and sub-conscious or the rational and the emotional or the adult and the child ([Figure 12-2, appendix](#)). When we are born only the child (emotional) mind exists and as we grow, the adult (rational) mind begins to develop and the child becomes lost in the subconscious (habits). The workshop gives examples of the adult/child interaction and how it can effect a person's judgment while at work.

To date between Gordon Dupont and myself this workshop has been presented to about 1,000 of the 10,000 AME's in Canada. All of the critiques indicate that human factor awareness training for the AMT is long overdue.

We have developed a follow-up session (Phase II) to deal with specific human factors: Fatigue; Complacency; Communication; and Awareness along with relevant case studies. We hope to have a Phase III Workshop developed by mid spring on attitude/ego states related to aircraft maintenance.

We will not facilitate to a total maintenance organization unless the top managers have committed to the workshop themselves. Otherwise it is very frustrating for the employees after the workshop to communicate to the supervisors their thoughts and concerns (the effectiveness). We focus on what the employees can do for themselves and the company vs what the Company can do for them (most people want responsibility - it gets them motivated).

There are several levels of foundation that have to be poured before this program is effective in an organization:

1. Driven top down
2. Managers attend workshops, Director of Maintenance / Director of Q.A.
3. All employees attend
4. Attendees - participate in a behavioural analysis

CONCLUSION

We believe that this is the first time a Human Factors workshop has been put together by maintenance personnel for maintenance personnel. The pilot community has had a 20 year head start on applying the principles of "cockpit resource management" - so lets not forget that AMTs are human too and we are all responsible for the safety of the aircraft.

APPENDIX

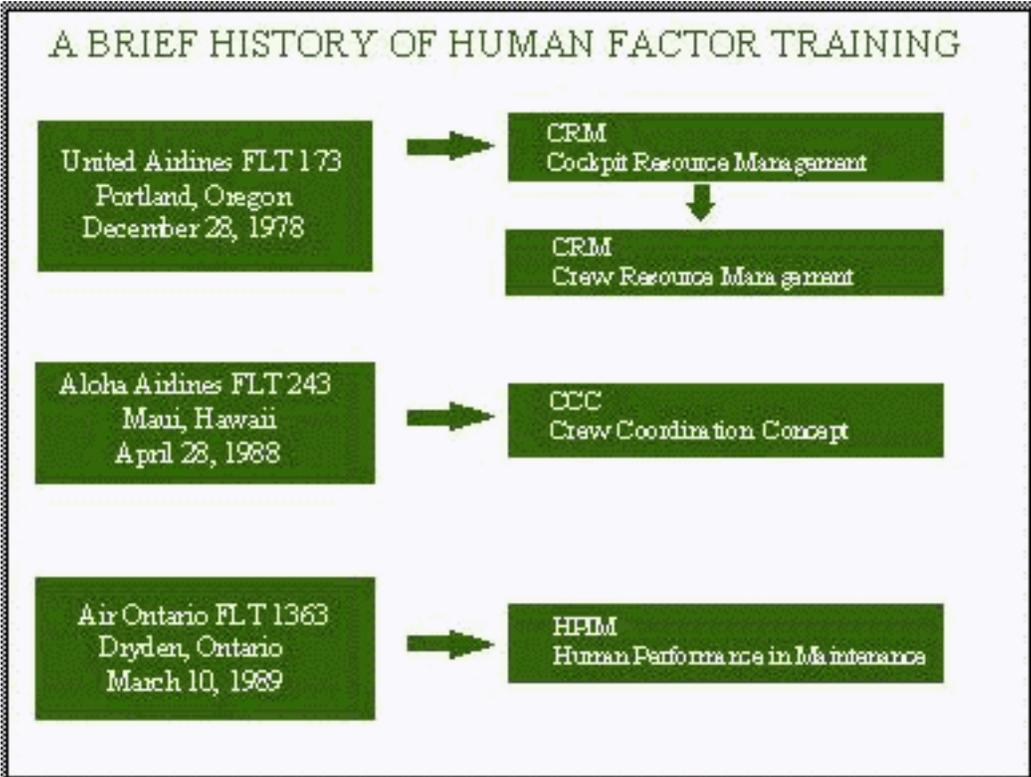


Figure 12-1: Brief History of Human Factor Training



Figure 12-2: Ego State