



European Aviation Safety Agency

2010 US/Europe International Aviation Safety Conference

Workshop

Safety Culture in Action

Panel

**Human Factors (HF) in Maintenance
service providers**

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Contents of the presentation

- Human factors:
 - ✦ What are we talking about?
 - EASA rules in relation with maintenance human factors:
 - ✦ What is addressed: see attachment I
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 - ✦ Standardisation findings; accident recommendations; Study on Job-cards
 - Identified rulemaking tasks:
 - ✦ Active: When relevant draft working methods with FAA and TCCA are identified
 - ✦ Inventory
 - Next steps:
 - ✦ An action plan resulting from the questionnaire
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Human factors:

➤ What are we talking about?

- ✦ **HF are widespread issues and relate with humans, technology and organisations.**
 - ✦ **Key issue as**
 - ➔ it reduces the potential for human error and providing greater awareness when errors do occur
 - ➔ 4.2% of all fatal accidents have a primary causal factor related to maintenance or repair error/oversight/inadequacy (12 Fatal accidents/ 499 fatalities)
 - ➔ "Maintenance/ground handling" is the second highest causal factor group behind "Flight Crew"
 - ✦ **Enabler of SMS**
 - ✦ **Compliance with ICAO standards**
 - ✦ **The nature of HF is changing due to complex and integrated systems**
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EASA rules in relation with maintenance human factors:

- **What is not addressed?**
 - ★ **Part-M (Continuing Airworthiness Management organisations in particular)**
 - ★ **Drugs and alcohol**
 - ★ **Duty times**
 - ★ **Medical**
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Experience with such rules:

- **Standardisation findings; accident recommendations, study on job-cards**
 - ★ **No major standardisation findings on HF issues**
 - ★ **3 accident recommendations related to**
 - ➔ Pre-planned work process for safety critical tasks
 - ➔ Double checking of safety critical tasks
 - ➔ Defences to detect major configuration differences
 - ★ **Study on common worksheet/ work card system**
 - ➔ Was about maintenance documentation and which system of job-cards to use
 - ➔ Recommendation for a safety policy process
 - ➔ http://www.easa.europa.eu/ws_prod/r/doc/research/Study%20for%20task%20145-020-%20work%20card%20system.pdf
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Identified rulemaking tasks

➤ Active in the 2011-2014 Rulemaking Programme (I):

★ **145.020: review of the maintenance job-cards.**

→ Start 2013

→ Reciprocal information with FAA and TCCA?

★ **145.022: control of contracted maintenance personnel.**

→ On-going

→ Reciprocal information with FAA and TCCA?

★ **145.012 single multiple release.**

→ To be completed this year.

→ Reciprocal information with FAA and TCCA?



Identified rulemaking tasks

- Active in the 2011-2014 Rulemaking Programme (II):
 - ★ **MDM.020: definition of critical system.**
 - On-going
 - Reciprocal information with FAA and TCCA?
 - ★ **MDM.042: detection of major configuration differences.**
 - To start 2012
 - Reply to accident investigation recommendation
 - Reciprocal information with FAA and TCCA?
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Identified rulemaking tasks

➤ Active in the 2011-2014 Rulemaking Programme (III):

★ **MDM.055: SMS embodiment and new rule structure.**

➔ Start 3 quarter 2010

➔ EHFAG is conducting a full review of EASA rules, Part M and CAMO will be aligned with Part 145 in terms of HF for CAT and the concept of "fatigue" may be introduced as part of SMS

➔ Reciprocal information with FAA and TCCA?

★ **MDM.056: Instructions for Continuing Airworthiness.**

➔ On-going

➔ EASA lead



Identified rulemaking tasks

➤ Inactive:

- ★ Drug and alcohol

- ★ Role and responsibility of B1/ B2 support staff





Next steps:

- An action plan resulting from the questionnaire
 - ✦ Questionnaire on HF (not limited to maintenance issues) was open until December 2009
 - ✦ Reciprocal information with FAA and TCCA
 - ✦ 155 replies received including 95 from maintenance organisations and 22 from certifying staff
 - ✦ 94% rank HF as high or highest safety issue
 - ✦ Wide variations in views on EASA performance
 - ✦ Specific maintenance issues ranks as 4 in the top 10 choices
 - ✦ Regulation ranks first to address HF issues
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Next steps:

- **An action plan resulting from the questionnaire**
 - ★ **Actions resulting from the questionnaire will be analysed by the Agency using:**
 - An external HF advisory group which has a specific focus group on continuing airworthiness
 - An internal HF group
 - ★ **Data needed to back-up priorities**
 - ★ **Action plan could be available at the next annual conference**
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- **PURPOSE WAS TO PROVIDE AN OVERVIEW OF EASA ACTIVITIES TO HELP LAUNCHING A DEBATE**
 - **THANK YOU FOR YOUR ATTENTION**
 - **COMMENTS AND REACTIONS WELCOME**
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Attachment I

- **EASA rules in relation with maintenance human factors**





EASA rules in relation with maintenance human factors:

➤ What is addressed:

★ Part 145:

- ➔ Facility requirements (145.A.25); availability of equipment and tools (145.A.40 a); availability of maintenance data (145.A.45 f)
 - ➔ Manpower hour plan/ production planning shall take into account human performance in particular for tasks and shift handover (145.A.30 d; 145.A.47)
 - ➔ Competence in human factors and HF training (145.A.30 d and e; 145.A.35 d)
 - ➔ Safety and quality reporting (145.A.65 and 70 a)
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EASA rules in relation with maintenance human factors:

➤ What is addressed:

★ Part 145 (II):

- ➔ Procedures to take into account HF, design and presentation of procedures, error capturing, sign-off tasks (145.A.65 b)
 - ➔ Procedures for reporting poor or inaccurate maintenance (145.A.45 c)
 - ➔ Occurrence reporting and investigations (145.A.60)
 - ➔ Appendix IV to 145.A.30 J items 1 and 2 for personnel of foreign repairs stations not qualified to Part-66
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EASA rules in relation with maintenance human factors:

➤ What is addressed:

★ Part-66:

- ➔ Module 9 for basic knowledge covering the following topics:
 - ➔ **General, human performance and limitations, social psychology, factors affecting performance, physical environment, tasks, communications, human errors, hazards in the work place.**
- ➔ AMC to 66.A.45 d: HF aspects relative to type rating training

★ Part-147:

- ➔ 147.A.105 h: instructors and examiners must undergo a continuation training including HF.
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