

# PACDEFF

Queenstown

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CAANZ Presentation



# Human Factors in Aviation

## A CAANZ Perspective

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# Scope

## *Human Factors*

- **Airline Flight Operations**
- **Personnel Licensing**
- **Maintenance**
- **Air Traffic Services**
- **Occurrence Investigation**
- **Systems approach**
- **CAANZ Initiatives**





# Airline Flight Operations

- **Update on Rules development**
- **Update on AC development**
- **Training**
- **Operating Procedures**
- **FRMS**





# Rule Development



**Part 121 (large aeroplanes) –  
Crew member training &  
competency assessment**

- **Final Rule target April 2012**
- **Human Factors training**
- **Flight crew and cabin crew**
- **All phases of training**
- **Instructor & Examiner competency (HF)**

# Rule Development

## **Part 125 (medium aeroplanes)**

### **– Crew member training & competency assessment**

- **NPRM with MoT**
- **Regulatory Impact Statement**
- **Human Factors training**
- **Similar to Part 121**
- **Use of simulators**
- **Line training safety**



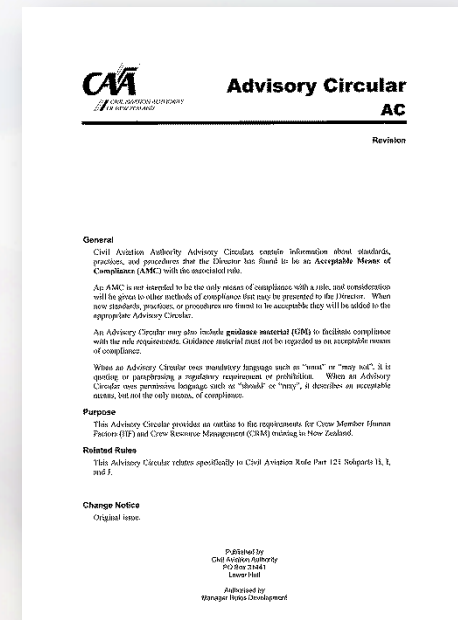
# **Advisory Circular Development**

- **Final draft completed – imminent release for consultation**
- **2 year transition period (per Rule)**
- **Changes to crew member training approach**
- **Investment in instructor/examiner training**
- **Implementation guidance**
- **Joint industry – regulator effort**
- **Need for further and on-going stakeholder engagement**
  - **Airline flight operations seminar being planned**



# Advisory Circular Development

- Integration of technical & non-technical skills
- Classroom → simulator → aircraft
- Flight crew and cabin crew
- All phases of training
- Training standards
  - Objectives
  - Competency requirements
  - Elements of training programme
  - Acceptable training methodologies
- Behavioural marker system not prescriptive
- Instructor & Examiners competent in evaluating HF/CRM aspects of performance



# Training

- *“For they learned that true safety was to be found in long previous training, and not in eloquent exhortations uttered when they were going into action.”* Thucydides, 404 BC
- **HF is an integral part of crew performance (knowledge – skills – behaviours)**
- **CRM training**
- **TEM training / LOSA**
- **Evidence Based Training (EBT)**
- **Non-routine flight operations**
- **RAeS → *resilience* and *professionalism***
- **AF447 Interim Report recommendations**

# Operating Procedures

- **ICAO Annex 6, Part 1, 4.2.6**
  - The design and utilization of checklists shall observe Human Factors principles.
- **CAR 121.77**
  - Procedures, manuals, checklists used by crew members must conform with the principles of Human Factors
- **Reason accident causation model**
  - organisation → policies & procedures
- **ICAO Safety Management Manual**
  - Effective standard operating procedures are one of the eight 'building blocks' of safety management
- **Procedure Assessment Tool (PAT)**



# Fatigue Management

- FRMS – ICAO, IATA, NTSB
- CARs – flight crew, need for new Rules for FAs
- AC 119-2 revision to reflect ICAO/IATA FRMS



## What do the FRMS provisions include?



### ➤ Annex 6 Part 1 – flight and cabin crew

- Standards and Recommended Practices (SARPs)
- Appendix 8

### ➤ Guidance Material

- Operators
- Regulators



# Personnel Licensing

## Human Factors training and examination requirements

- **Flight Crew: AC 61-5 (CPL, IR)**
- **Aircraft Maintenance Engineers: AC 66-2.17**
- **Air Traffic Controllers: AC 65-3**



# Maintenance

- CAA has initiated a project on 'Human Factors in Maintenance'
- Project will result in a Part 145 AC
- Focus is to optimise safety performance and reduce maintenance error
- Considerable international guidance available
- Some NZ Part 145 organisations have HF programmes; industry input will be sought





# Air Traffic Services

- **Part 65 licensing core subject**
- **HF training requirements for Instructors and Examiners**
- **Part 172**
  - **Clearances – error management**
  - **Occurrence investigation – cause analysis to identify HF and system factors**
  - **QA – corrective/ preventative actions**
- **SMS being introduced – proactive risk management (including human factors aspects)**
- **Rule project to introduce fatigue risk management; now achieved by voluntary initiatives**



# **CAA Occurrence Investigation**

- **Guidance for participant investigations AC 12-2**
- **CAA SIU investigators well trained in HF**
- **CAA safety investigations look at human, organisational, and system factors (including regulatory aspects) to determine cause**
- **Current approach relies heavily on Reason model**
- **Project underway to improve investigation guidelines**
- **A range of methodologies are being evaluated (e.g. ICAM, HFACS etc.)**

# Systems Approach

- **HF is a component of the total aviation system**
- **JR & SHEL models include organisational factors**
- **Need to look at systems issues**
- **HF ↔ organisational factors ↔ system factors**
- **ICAO Accident Prevention Programme**
- **SSP and SMS provide a good framework**
  - **Integration of HF into SMS**
  - **Managing Risk → human component**





# Proactive risk based approach

- ***“Complacency or a false sense of security should not be allowed to develop as a result of long periods without an accident or serious incident. An organisation with a good safety record is not necessarily a safe organisation”***
- **ICAO Accident Prevention Manual**



# CAA Initiatives

- **SSP / SMS Implementation**
- **Human Factors projects**
- **CAA Inspector training**
- **CAA Organisation Change Programme**
  - **Improved policy delivery**
  - **Improved regulatory delivery**
  - **Improved safety information analysis and information sharing**
  - **Effective stakeholder engagement**
  - **Risk based, outcome-focused**



# Final Thoughts



**From a CAA perspective...**

- **Human Factors initiatives can be implemented now**
- **Regulatory approach focused on reducing risk, promoting willing compliance with safety standards, and encouraging performance above the minimum standard**
- **Improvements in safety performance are best achieved by constructive engagement with participants**
- **This forum is an excellent example of aviation stakeholders working collaboratively to increase awareness and improve safety**
- **Thank you for inviting our participation**



# Questions?

