

Organisation requirements: New elements on Human Factors and Fatigue Risk Management

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EHFAG – Who we are



European Human Factors Advisory Group

Role:

Provide advice to EASA, NAAs and industry in the form of independent high level Human Factors expertise

'Human factors is anything that effects human performance'

Focus Groups:

- Operations & Licensing
- Certification & Design
- **Maintenance & Continuing Airworthiness** (Industry, Academia, FAA/NAAs, European Associations).

EHFAG – What is our role?



Group Functions:

- To respond to EASA, NAA's and industry requests for HF expertise
- To provide Human Factors expertise for the development and implementation of the European Aviation Safety Plan
- To propose or review existing and proposed changes to the regulatory framework
- To propose or review compliance material and develop or review guidance material
- To promote harmonisation between NAA's, including the FAA, and co-operate where possible with international bodies.

(EHFAG, TOR, 08.06.2011)

Continuing Airworthiness Focus Group - Outcome Statement



To reduce the likelihood that human error in airworthiness and maintenance activities will contribute to aviation accidents.

To raise individual and organisational awareness and understanding in order to improve the management of human performance in the workplace.

To integrate HF into the organisation's management system to deliver improved safety performance.

Proposed changes to Part 145

Internal Safety Reporting Fatigue Risk Management Competency of HF Trainers



Background – Statement of the Issue (Part 145)



- Maintenance errors continue to occur
- Do we know all the unknowns?
- We need to understand why things happen to prevent reoccurrence.
- Fatigue is a risk throughout the aviation system
- HF Training is not being consistently delivered to achieve the desired outcomes

145.A.62 Internal Safety Reporting



Previously 145.A.60(b) Internal occurrence reporting system:

- Reflects the need for proactive hazard reporting
- Enables the collection and evaluation of those errors, near-misses, and hazards reported internally.
- Identifies and addresses contributing factors to reduce the likelihood of reoccurrence;
- Identifies adverse trends and takes proactive action
- Ensures immediate action is taken when there is an impact on safety
- Cooperates with the Part-M Subpart-G organisation on occurrence investigations.

AMC1 145.A.62 Internal Safety Reporting



The internal safety reporting scheme should contain the following elements:

- Aims and objectives with demonstrable corporate commitment;
- A just culture policy;
- An investigation process to identify contributing factors:- technical, organisational, managerial or human factors issues;
- Appropriate corrective action;
- In complex organisations there are trained investigators and trend analysis carried out;
- Exchanging relevant safety information with the Operator / Part M G Organisation;
- Assure confidentiality to the reporter
- Feeds into the continuation training
- Feedback should be given to reporters and the wider organisation
- Additional GM includes definitions....

Just / Safety Culture



Safety Culture: An enduring set of values, norms, attitudes, and practices within an organisation concerned with minimising exposure of the workforce and the general public to dangerous or hazardous conditions. In a positive safety culture, a shared concern for, commitment to, and accountability for safety is promoted (Source: Safety Management International Collaboration Group)

Just Culture has been defined as a culture in which front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated. (Source: Eurocontrol)

Its not about the definition...its how it is applied!

AMC1 145.A.47 (b)

Fatigue Risk Management



- Fatigue related risks should be managed by:
 - Policy, procedures and duty time schedules;
 - Duty time schedule should not exceed EU working time directive
 - Temporary derogations and opts out should be risk assessed
 - Ensure existing reporting systems enable and encourage fatigue related risks being identified.
 - Manage fatigue related risk and monitor effectiveness of mitigations
 - Provide training on the management of fatigue (individual responsibilities)
- Where an organisation wishes to routinely operate outside of the EU working time directive then it should establish a Fatigue Risk Management Scheme

AMC2 145.A.47 (b)

Fatigue Risk Management



Duty time schedules should address:

- Maximum scheduled hours per day;
- Maximum hours with overtime
- Maximum hours per month
- Minimum rest between shifts
- Minimum uninterrupted rest hours per week

Where hours are temporarily exceeded for unforeseen operational reasons mitigations may include:

- Additional supervision and independent Inspection
- Limitation of tasks to non-safety critical
- Use of additional breaks
- Controlled Napping

AMC2 145.A.65 (a) (3)

Fatigue Risk Management Scheme



- Integrated into the management system
 - Based on scientific principles and knowledge
 - Manage the operational risk of fatigue on an ongoing basis;
 - Ensure mitigation actions are implemented promptly
 - Provide continuous monitoring and assessment of the scheme
 - Provide continuous improvement of the scheme
 - Supported by the organisation's just culture
 - Fatigue Risk Management Training
- Additional Guidance material on;
 - FRM Policy
 - FRM Documentation
 - Fatigue Hazard Identification
 - Fatigue Risk assessment and Mitigation
 - FRM Promotion

Competency of HF Trainers



AMC2 145.A.30(e) para 3

- The organisation should ensure the training is delivered by a competent trainer.

GM2 145.A.30(e) HF Trainer

- Attended a Part145 HF Initial training course
- Trained to train and influence 'attitudes and behaviours'
- 3 years experience in the aviation industry
- An appropriate level of understanding of Human factors (esp. module 10)

HF in Part M



Addressing Human Factors and Human Performance Limitations

- within the CAMO
- within the instructions and interfaces with the Part 145

Internal Safety Reporting

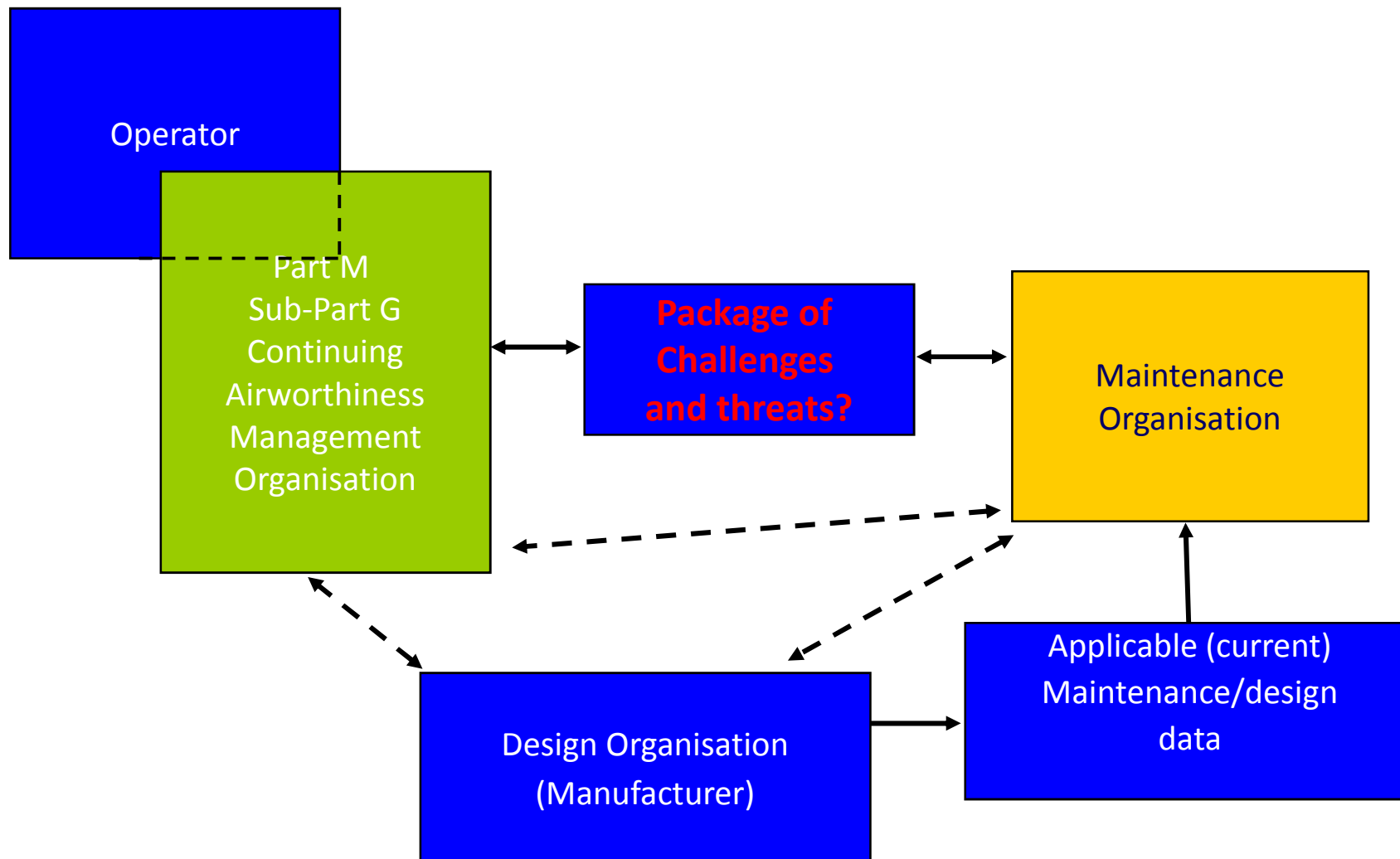
HF Competency and Training

Background – Statement of the Issue



- At present there are no HF requirements within Part M
- Human error within the Part M G organisation can directly or indirectly affect aviation safety (i.e. Airworthiness Directive overrun)
- The Operator and the Part M G generate hazards that can result in a maintenance error within the Part 145 organisation. (i.e. unclear work instructions or unrealistic timescales)
- The introduction of hazard and error reporting, investigation, analysis and system improvements will lead to continuous improvement of overall safety performance which is fundamental to an effective SMS

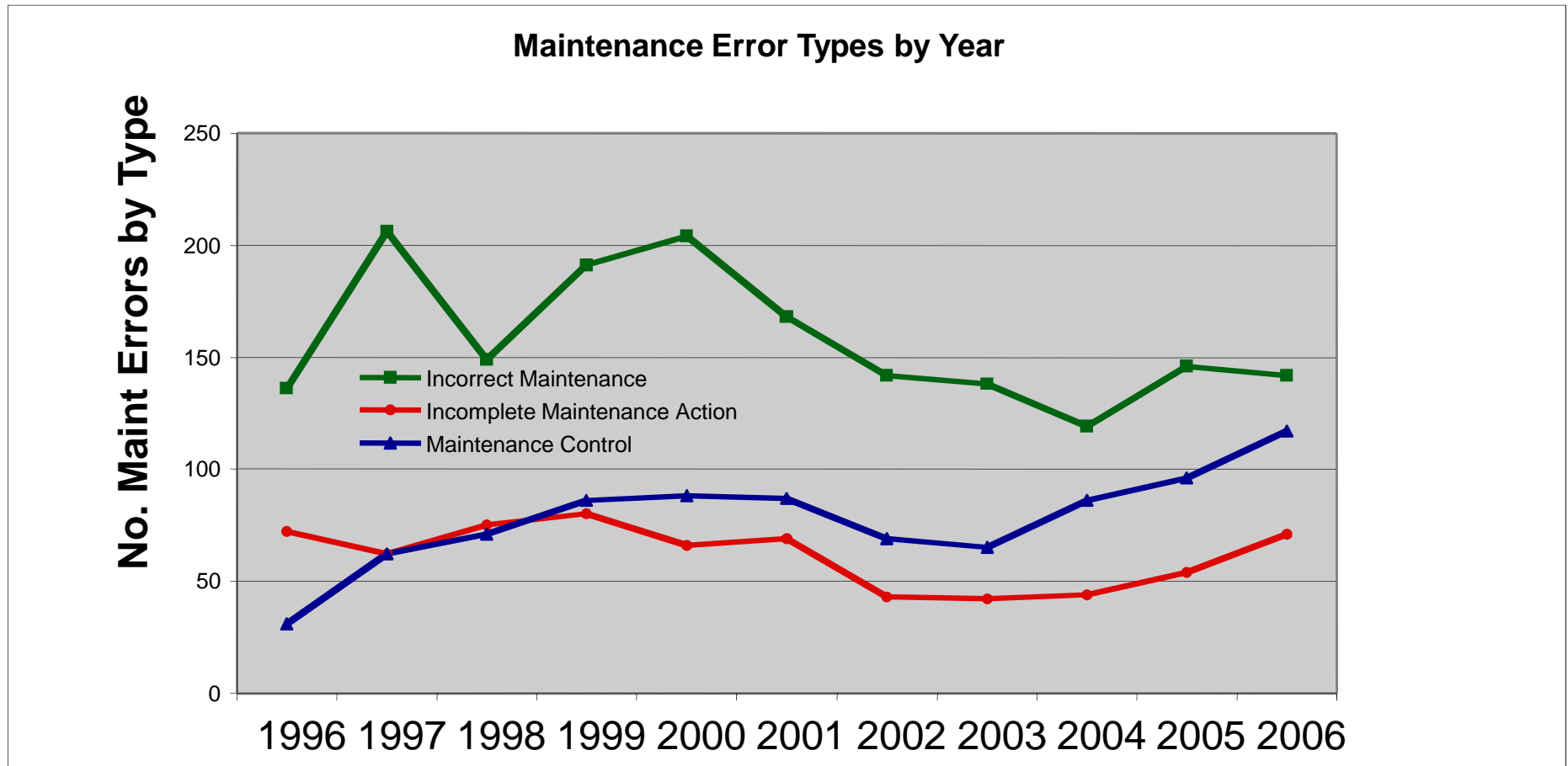
The Operator's responsibilities



The Operator as a threat generator?

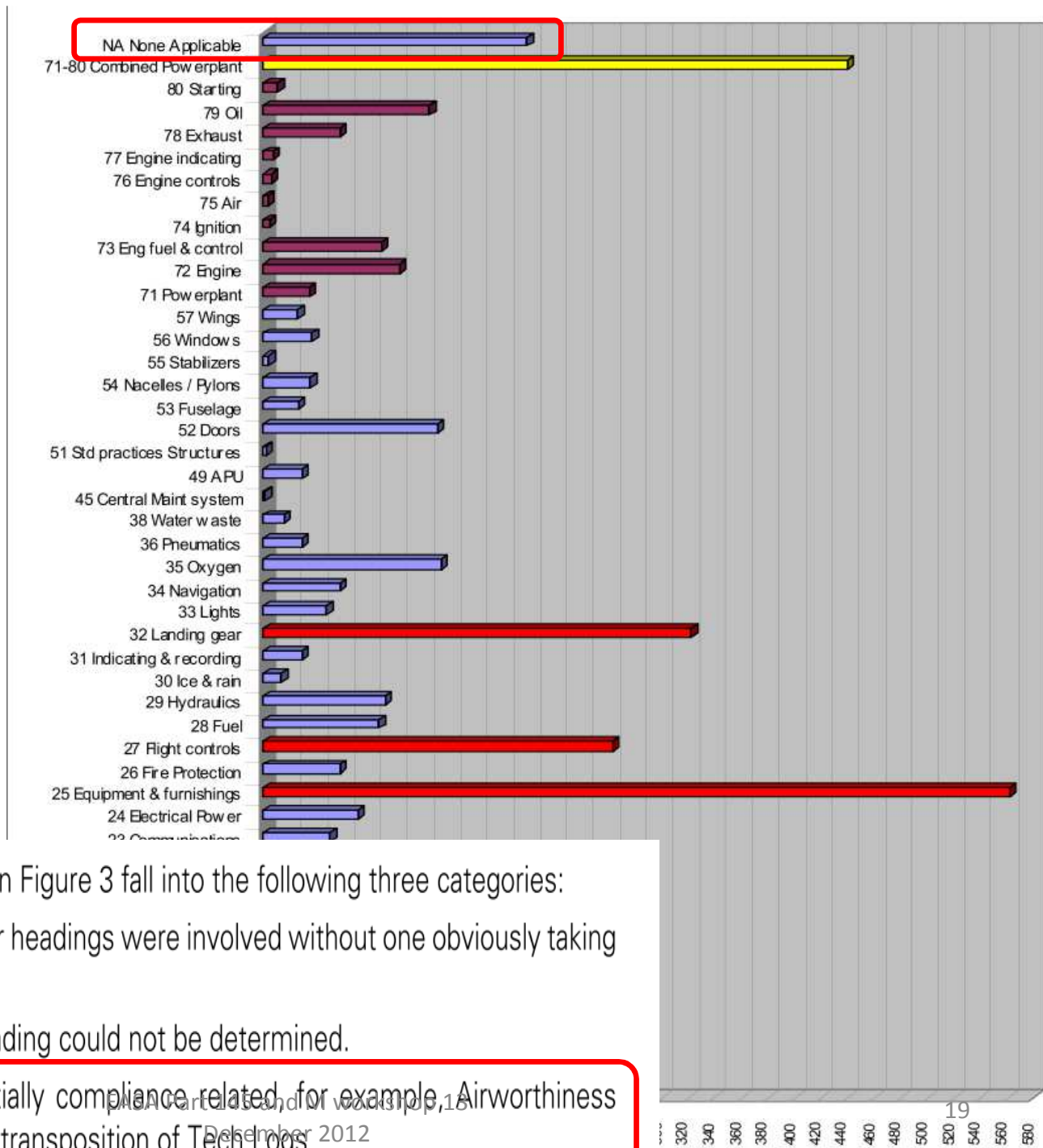


UK CAA's MOR Analysis



5th largest heading

This heading at 195 events reported is described as:



4.2.1.2 The "none applicable" entries in Figure 3 fall into the following three categories:

- Where multiple ATA Chapter headings were involved without one obviously taking precedence.
- Where the ATA Chapter heading could not be determined.
- Where events were essentially compliance related, for example, Airworthiness Directive (AD) overruns and transposition of Tech Logs.

195
December 2012

Some real examples



- Work pack not being frozen in a timely manner
- Maintenance Programme and Airworthiness Directive overruns
- Scheduled tasks being carried out in inappropriate environment
- Final Work Pack and Maintenance Manuals delivered in the hold of the aircraft at the start of the check
- Late delivery of work pack and scope of work to MRO
- Escape slides out of date
- Ineffective Maintenance Programmes (Alaskan MD83 / Aloha)
- Overly complex and / or ambiguous work instructions / task cards
- A flap track called 'Dave'

M.A.706

Competency and training of personnel



- Reflects Part 145.A.30(e)
- Applies to
 - organisations involved in Commercial Air Transport (CAT) and management of Complex Motor Powered Aircraft (CMPA)
 - personnel involved in continuing airworthiness management activities
- HF training delivered by a competent trainer to the GM.145.A.30 (e) syllabus

M.A.708(d) Addressing Human Factors and Human Performance Limitations



- Taken account in all Continuing airworthiness Management Activities
 - Including the development and delivery of the maintenance programme to the Part 145 Organisation.
 - Enabling good maintenance practices to be achieved within the CAMO and the Part 145 Organisation



AMC1 M.A.708(d) Addressing Human Factors and Human Performance Limitations

- Identification of flight safety sensitive tasks
- Maintenance planning taking Human Factors issues into account:
 - Human performance limitations within the Part 145 organisation;
 - The content and delivery of the work order or tasks in a timely manner;
 - Whether tasks should be carried out in line or base maintenance.
- Procedures and maintenance documentation development includes:
 - Using standard format and layout
 - Using simplified English.
 - Avoiding acronyms and abbreviations
 - Verification and validation of documentation
 - Reviewing and updating documentation as appropriate

Internal Reporting System



The same as Part 145.A.62

- Applies to Part M Sub Part F and G organisations
- Part M G should cooperate with maintenance organisations on occurrence investigations .



Competent Authority Requirements

Competent Authority Oversight

- The Competent Authority will need to assess HF and Error Management Programmes as part of its oversight programme
- The Competent Authority will also need to ensure that it has inspectors trained and competent to be able to assess HF and Error Management Programmes within the maintenance and Continuing Airworthiness Management environment especially the interfaces.

Thank You for Listening



Any Questions?