

# Current State of Pilot Training for Emergency/Abnormal Situations – *a preliminary report*

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# Our Mission

- 1 Understand in detail how the industry today trains air carrier pilots for emergency and abnormal situations.

# What We're Doing

- 1 On-Site Visits to U.S. Part 121 Air Carriers
  - Large & Small
  - Passenger & Cargo
  - AQP & 'Traditional' (Part 121 subparts E/F/N/O, Appendix H)
- 1 2 fleet types at each carrier (*if available*)
  - Glass & Round-Dial cockpits

# Current Project Status

- 1 Initial stages of data collection
- 1 Several more visits scheduled, more still in planning
- 1 No analysis yet – still raising questions

# Today's Presentation: *a preliminary report*

- 1 Our Process
- 1 Common Issues
- 1 Panel Discussion

# Our Process

- 1 5 day visit @ each airline by 2 researchers
- 1 Data Collection, via:
  - Interviews
  - Observations
  - Document Reviews
- 1 All data are *de-identified*

# Our Process: Interviews

- 1 Who we interview:
  - Training Department Managers
  - Instructors & Check Airmen
  - Line Pilots
- 1 Method
  - Semi-structured interviews
  - 2 Interviewers
  - Instruments:
    - 1 Question Guides
    - 1 Notepad

# Our Process: Observations

## 1 What we observe:

- Simulator sessions (including CPT/FTD) (*primary*)
  - 1 Initial, transition, upgrade, recurrent
- Classroom instruction (*secondary*)
  - 1 CRM

## 1 Method

- “Fly-on-the-wall”
- 1 observer in simulator
- Instruments:
  - 1 Data collection worksheets
  - 1 Notepad



# Our Process: Document Reviews

- 1 Which documents:
  - Aircraft Manuals
  - Ops Manual
  - QRH or Emergency/Abnormal Checklists
  - Training syllabi
  - Instructor guidance material
- 1 What we're looking for:
  - Training philosophies
  - Training methods
  - Course Footprints

# Common Issues

*(raised by nearly everyone we've seen)*

- 1 Fixed Footprint Tradeoffs
- 1 “Train to Proficiency”
- 1 LOFT
- 1 Long-Term Single-Type Pilots
- 1 Measuring the Effectiveness of Training
- 1 Lack of Standards in Certain Areas
- 1 Systems Knowledge – How Much is Enough?
- 1 Rushing, Stress, and Workload Management

## Common Issues

# Fixed Footprint Tradeoffs

- 1 Footprints vary across airlines, but...
- 1 For each given airline, footprints remain essentially fixed, so...
- 1 With limited time, what should be trained?
  - Emerg./abnormal vs. normal procedures
  - Which specific emerg./abnormal procedures?
  - Risk Evaluation

# Common Issues

## “Train to Proficiency”

- 1 What does this mean?
  - Original implication: No formal ceiling on the amount of training.
    - 1 This has not been raised as a concern so far.
  - Current implication: No formal floor on the amount of training.
    - 1 This has been raised as a concern.
  - If student does something once, and does it right, is he/she proficient? (*Trained vs. Exposed*)

## Common Issues

# LOFT

- 1 Near universal support – everybody likes it, or wants it, or wants more of it.
- 1 “Decision Making” training desired – but does current LOFT methodology provide this?

## Common Issues

# Long-Term Single-Type Pilots

- 1 This can arise at both single-fleet carriers, and at multi-fleet carriers where some pilots tend to “homestead” on one type
- 1 Concern raised with long term skill retention, since such pilots:
  - Never repeat initial sim training
  - Never repeat systems ground school
- 1 Reported trends in pilot performance on recurrent

# Common Issues

## Measuring Effectiveness

- 1 How do you know how well your training program is working?
  - Real world, operational data?
    - 1 E.g., FOQA/ASAP data, irregularity reports, accident/incident reports, etc.
    - 1 “We aren’t killing people, so we must be doing well.”
  - Checkride data (Grading)?
    - 1 E.g., Pass rates, first look grades, etc.
    - 1 “Our pass rates (grades) are excellent; that shows we’re doing well.”

# Common Issues

## Measuring Effectiveness – AQP vs. Part 121

- 1 Traditional 121 philosophy: FAA requirement-driven
- 1 AQP designed to let data indicate problems and demonstrate corrective response
- 1 AQP carriers apparently have adopted data-driven philosophy
- 1 Questions about effectiveness in practice



## Common Issues

# Lack of Standards

- 1 There don't seem to be standards, either within individual airlines, or across airlines, for:
  - Assignment of duties during EAS
    - 1 PF (Capt, FO, or current PF)
    - 1 Radios (PF, PM)
    - 1 Memory items (PF, “whoever gets to it first”, etc.)
    - 1 Guarding/Confirming critical items
  - Use of automation during EAS

# Common Issues

## Systems Knowledge

- 1 Level of systems knowledge impacts pilot's ability to analyze the situation.
  - Old view: “You should be able to build the airplane.”
  - New view: “If you can't see it, touch it, or affect it, you don't need to know about it.”
- 1 “Light-Driven” responses.
  - Analysis may be lacking.
  - Problems with “unannunciated” and misleading situations.
  - Greater burden on QRH authors -- QRH has to be a ‘cookbook’ – just read it, and it should fix the problem.

## Common Issues

# Rushing, Stress, and Workload Management

- 1 Problems seen in training and on the line may not always involve technical or procedural knowledge/abilities, but rather, human reactions to stress and overload
- 1 Simulator emergencies vs. real emergencies
- 1 Training for workload and stress management

# What do *you* think?

- 1 Study is still in its initial stages...
- 1 We welcome your input!

# Panel Discussion

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