“Dealing with Emergency/Abnormal Situations with New Security Guidelines”

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THREAT & ERROR MANAGEMENT
Emergency/Abnormal Situations & Security
Agenda

• Threat & Error Management (TEM)
  – “Error Management” developed from LOSA 1996 data
  – “TEM” developed from LOSA 2000 data

• Use TEM process to determine new strategies to manage emergency & abnormal situations with new security guidelines
LOSA 1996

Error Management
Error Management

Error Management

RESIST
HARDWARE & SOFTWARE THAT EXISTS BEFORE THE HUMAN ENTERS

RESIST

ERRORS

Resist

Resolve

CONSEQUENCE
RESISTANCE

HARDWARE & SOFTWARE THAT EXISTS BEFORE THE HUMAN ENTERS

• GPWS
• TCAS
• TRAINING
• MANUALS

• SOP's
• CHECKLISTS
• AUTOMATION
• ATC
Error Management

RESIST HARDWARE & SOFTWARE THAT EXISTS BEFORE THE HUMAN ENTERS

ERRORS

Resist

Resolve

RESOLVE WHAT THE HUMAN BRINGS TO THE SYSTEM

CONSEQUENCE
RESOLVE

WHAT THE HUMAN BRINGS TO THE SYSTEM

• PROFICIENCY
• VIGILANCE
• ASSERTIVENESS
• MONITORING & CHALLENGING
• DECISION MAKING
• EXPERIENCE
• LEADERSHIP
• SIT. ASSESSMENT
• CHECKLIST DISCIPLINE
LOSA 2000

Threat & Error Management
LOSA data shows another area of vulnerability...

THREATS
Influences that can lead to crew error

- Distractions
- Passenger events
- ATC
- Terrain
- Similar call sign
- Time pressures
- Flight diversion
- System malfunction
- Automation event
- Missed approach

- Cabin Crew
- Weather
- Maintenance
- Ground Crew
- Heavy traffic
- Unfamiliar airport
THREATS

Threats

- Do not equal errors
- Increase error potential

"A threat is anything that increases operation complexity that, if not managed properly, can decrease the safety margins."

• Threats = Red Flags
Strategies

• Industry, corporate and personal countermeasures crews use to manage threats
  – Will reduce the number of hard errors
  – Will improve the error management process by increasing the awareness of potential errors and the proper countermeasures to be used
Threat and Error Management

Threats

Strategies

Errors

Resist

Resolve

Resist

Hardware & software that exists before the human enters

Resolve

What the human brings to the system

Consequence
Security Changes

While many of these initiatives may provide enhanced security protection for crew and passengers alike, it is important that the human performance implications of any changes be carefully considered.
Threat and Error Management

Emerg/Abnormals

Strategies

ERRORS

RESIST
HARDWARE & SOFTWARE THAT EXISTS BEFORE THE HUMAN ENTERS

Resolve

RESOLVE
WHAT THE HUMAN BRINGS TO THE SYSTEM

Consequence
Influences that can lead to crew error

- Terrorist events
- Fatigue
- Weapons
- Assessment of Threat level
- Time pressures
- Flight diversion
- System malfunction
- Locked Door
- Pax overreaction
- Medical emergency
- LEOs
- FAMs
- Pax disturbance
- Screening
- Cabin Crew
  Communication
- Distractions
Threat: Locked cockpit doors & crew isolation
Threat: Locked cockpit doors & crew isolation

- Communication during a disturbance
Threat: Locked cockpit doors & crew isolation

• Communication during a disturbance

• Communication during a Medical Emergency
What Now?
**Threat:** Locked cockpit doors & crew isolation

- **Communication during a disturbance**
- **Communication during a Medical Emergency**
- **Communication with Federal Air Marshals**
FEDERAL AIR MARSHAL

Threat and Error Management
Influences that can lead to FAM error

- Weather
- Maintenance
- Ground Crew
- Familiar with Crew
- Passenger events
- Distractions
- Fatigue
- Other LEO’s
- Medical Emergencies
- Time pressures
- Flight diversion
- Being Identified
- System malfunction
- Unfamiliar airport
- Gate Agents
- Drunks

THREATS
Elements of Briefing

Shared mental model = Outline for Teamwork

Who should be there?
What is briefed?
What can you omit?

GOAL
PLAN
INTENT
Threat: Locked cockpit doors & crew isolation

- Communication during a disturbance
- Communication during a Medical Emergency
- Communication with Federal Air Marshals
- Communication during other Emergency and Abnormal situations
What Have You Seen?

What *STRATEGIES* Will You Develop?
Managing Emergency & Abnormal Situations
(in today’s security environment)

The New “Safety Targets”

• How to properly assess the situation
  • Secured door
  • Video system
• Means for effective crew communication
  • Terminology
  • Technical knowledge
• New checklist formatting due to Security issues
  • Include crew coordination issues
  • New cautions & warnings
• Additional training
  • “Common sense”
Summary

Use Threat & Error Management in Emergency & Abnormal Training to:

• Identify a list of human performance threats, as a result of the current security changes, and develop STRATEGIES to mitigate these THREATS.

• Focus on helping our crews better manage the risks associated with these changes.