



Flight Deck Doors

Initial Response
to
Current Status



Initial Response By DOT

- Mineta Commission Formed
- Rapid Response Teams Established to Develop Security Recommendations
 - Door Specific
 - RRT Recommendations 1, 2, 3 & 4
 - Flightdeck Access (Procedure/Video)
 - RRT Recommendations 5, 9



Industry Framework that Provided RRT Input

- First Meeting in Seattle: Sept 27th
 - Approx 130 attendees from the industry
 - Brainstorming approach for a “Total Solution”
 - All ideas considered
 - Each idea assigned a spot in a timeline
 - 48 hours/30 days/6 mos/1 yr



Industry Framework that Provided RRT Input [con't]

- Subsequent meetings every 2 weeks in Seattle
- Established weekly telecon schedule on specific subjects
- Congress initially approves \$500M for doors and related security items



Existing Flight Deck Door FAR Requirements

Commercial Airplanes Flight Deck Door FAR Requirements

(Airline) Operating Requirements

121.313

- F. Lockable flight deck door to prevent pax from opening without pilot permission.
- G. Key available for (cabin) crew to permit flight deck emergency evacuation

121.587

Pilot ensures door is closed and locked in flight

Airworthiness (Design) Standards

25.772

- Can evacuate without opening door
- Must be able to open a jammed door

[Door cannot hinder evacuations]

25.365

- Decompression path between compartments – flight deck and pax cabin

[Door has to vent]

25.777

- Fit for use by 5'2" to 6'3" crew

[Door size]

25.809

- Exits must be operable from the inside and outside

[Be able to get out in an emergency]

25.771

- Must prevent unreasonable fatigue
 - Light
 - Noise
 - Odors

[Door has to seal]

25.853

- Flammability reqmts for door material

[Limits door material]

***FAA/JAA regulations satisfy multiple safety objectives;
they are major drivers of flight deck door design***





Phase I Doors: Interim Locking Devices

- First Katy Bar shown at 2nd Seattle Meeting By DAL, AA
- Phase I doors included mods to locking mechanisms
 - Removal of door knobs/D-rings
 - Covering lock mechanisms so keys could not be used
 - Gap covers and latch improvements



Phase I Doors: Interim Locking Devices [con't]

- Some doors remain vulnerable through the vent panels
- Approval for the installations soon became the problem
- SFAR 92-1 waived FAR requirements until April 2003



Installation of Phase I Door Modifications

- Phase I Door Mods initially voluntary
- Approval through an FAA “Tiger Team”
- Clock started October 1st with 30 days to submit the design
- Coincided with Presidential Announcement
 - 1 – Restrict door opening in flight
 - 2 – Fortify doors to deny access
 - 3 – Improve methods of flight deck alerting
 - 4 – Continued operation of transponder
- Subsequent SFAR 92-3 made Phase I door mods mandatory





Installation of Phase I Door Modifications [con't]

- \$500 million initially allocated for aircraft modifications
 - Actual final funding much less
- Initial estimates: 70% of aircraft in 60 days, complete in 90 days



Phase II Door Standards

- Must be in full FAR compliance by April 9, 2003
- Pilot compartment intrusion resistance
 - AC 25-795-1
 - 300 Joule impact energy
 - From National Institute of Law Enforcement and Criminal Justice Standard 0306.00





Intrusion Resistance Test Procedure

Cockpit door reinforcement Phase II (Cont'd)

◆ Pilot compartment intrusion resistance:

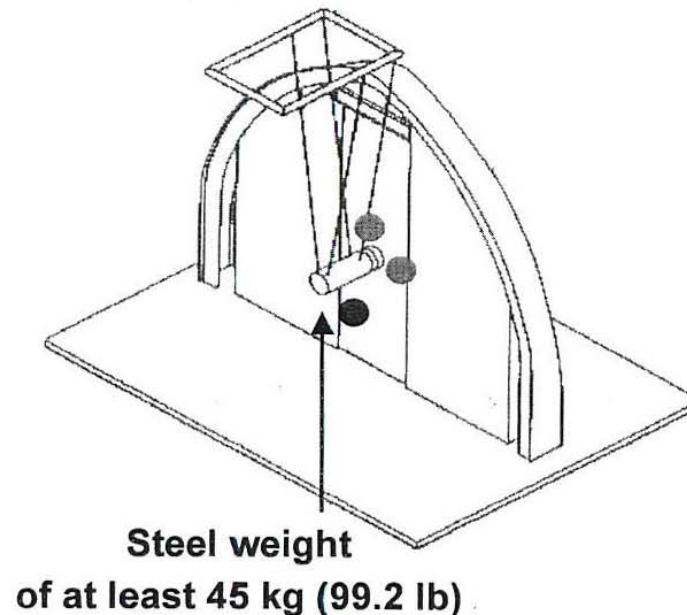
- ❖ Procedure: test ability to resist forced entry by a person
- ❖ Four basic test/validation requirements:

① Door impact
2 blows of 300J

③ Hinge impact
2 blows of 300J

② Bolt impact
2 blows of 300J

④ Pulling on handle/knob
up to 250 lbs





Phase II Door Standards [con't]

- Pilot compartment penetration resistance, AC 25-795-2
 - 6 rounds from 9 mm/44 magnum weapon
 - From National Institute of Justice Standard 0101.04, Type IIIA
- **Note: Standards did not address floor or bulkhead areas (FAA Rulemaking Pending)**



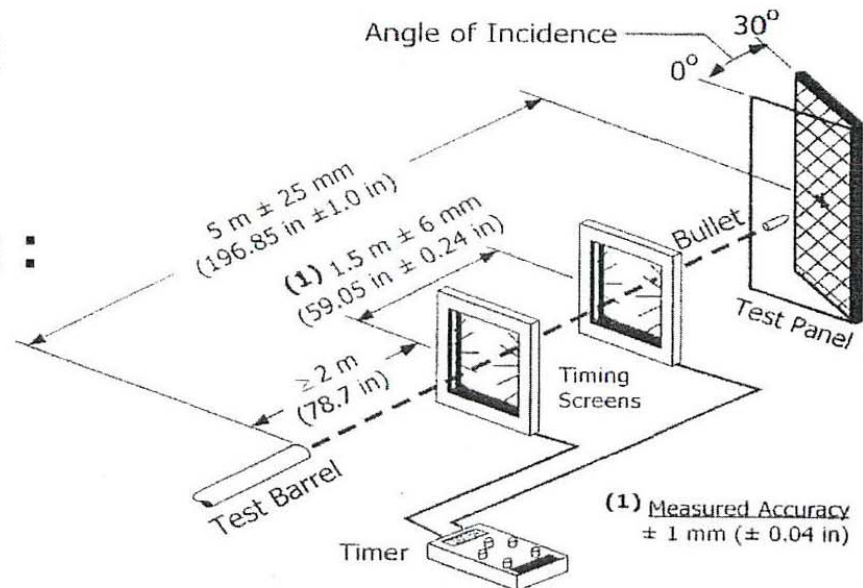


Ballistic Resistance Test Procedure

Cockpit door reinforcement Phase II (Cont'd)

- ◆ Pilot compartment penetration resistance :
 - ❖ Procedure: test protection against ballistic threats with pass/fail criterion
 - ❖ Defined projectile categories (9 mm and 44 magnum handgun); must be brought to zero velocity
 - ❖ Bulkhead protection not required

Test description :





Additional Phase II Door Design Characteristics

- Keypad access (no more keys)
- Doorbell and Emergency Access modes through keypad entries
- Door operation controlled from cockpit
- Flightcrew to verify visually
 - ICAO
 - FAA Rulemaking language pending





Additional Phase II Door Design Characteristics

- ICAO Annex 6
 - *“means shall be provided for monitoring from either pilot’s station the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat.”*
- ALPA comments to January 2002 Flightdeck Security Final rule
 - Included recommendation for visual verification
- FAA
 - NPRM in process to comply with ICAO language for cabin monitoring





Flight Deck Door Modes

- Normal Operation
 - Keypad code entered by cabin attendant
 - Chime sounds on flightdeck
 - Pilots visually verify person at door
 - Pilots select Open
- OR
 - Pilots select Deny and lock cockpit door



Flight Deck Door Modes

[con't]

- Emergency Operation
 - To be used in event of perceived flightcrew incapacitation
 - Emergency code entered at Keypad
 - If no flightcrew response, door opens automatically after predetermined time
 - OR
 - Flightcrew can override Emergency Operation, Deny access and lock flightdeck for finite time



Current Phase II Door Approvals

- Initially anticipated in Mid June 2002
- Airbus door received initial DGAC approval
 - Temporary
 - Pending resolution of minor technical issue
 - Issue resolved in July 2002
- First Boeing door – B737NG
- Current FAA approvals:
 - A319, 320, 321
 - B757-200
 - B737-300, 500, 700, 800
- Others pending





Likely Installation Scenario

- Most Airlines will complete installations prior to April 9, 2003 deadline
- Current government funding allocated ~\$100M
 - Equates to ~\$13,000 per door
 - Operators having to fund an additional \$22,000 per door
- FAA unlikely to extend deadline
- Foreign carriers may fall behind due to cost and availability of kits
- FAA considering rulemaking to require some form of visual verification of cabin side of cockpit door

