

Regulatory Differences and Resultant Risk Levels

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Premise

- The cargo fleet is unnecessarily subjected to higher levels of risk
- Regulatory inconsistencies
- Cargo fleet composition
- Results in a two tiered risk exposure for the US passenger vs. cargo fleets



Method

- Identify the regulatory differences
 - That result in higher risk levels for cargo operations
- Quantify their effects
- Propose recommendations
 - To reduce, minimize or eliminate the resulting safety deficiencies



US Cargo Fleet

- Over 1500 large aircraft
- During the next 20 years, the cargo fleet is expected to double
- The associated risk will also increase if the rules remain the same



Certification and Operating Rules

- Do not provide equivalent levels of safety for cargo and passenger airlines
- Exact same aircraft models subject to different rules and limitations
 - Function of whether they are carrying passengers or cargo



Equipment and Certification Rules

- FAR equipment requirements for cargo aircraft differ from those of passenger aircraft
- Many cargo airlines operate older aircraft
 - Different and less stringent cert regulations than current generation
- Differences result in lower minimum levels or margins of safety for cargo airlines



Fire Detection and Protection

- FAR 121.857 does not require cargo aircraft to be equipped with main or lower deck suppression systems
- Detection without active suppression is a flawed principle
- Active, rather than passive, suppression should be mandatory

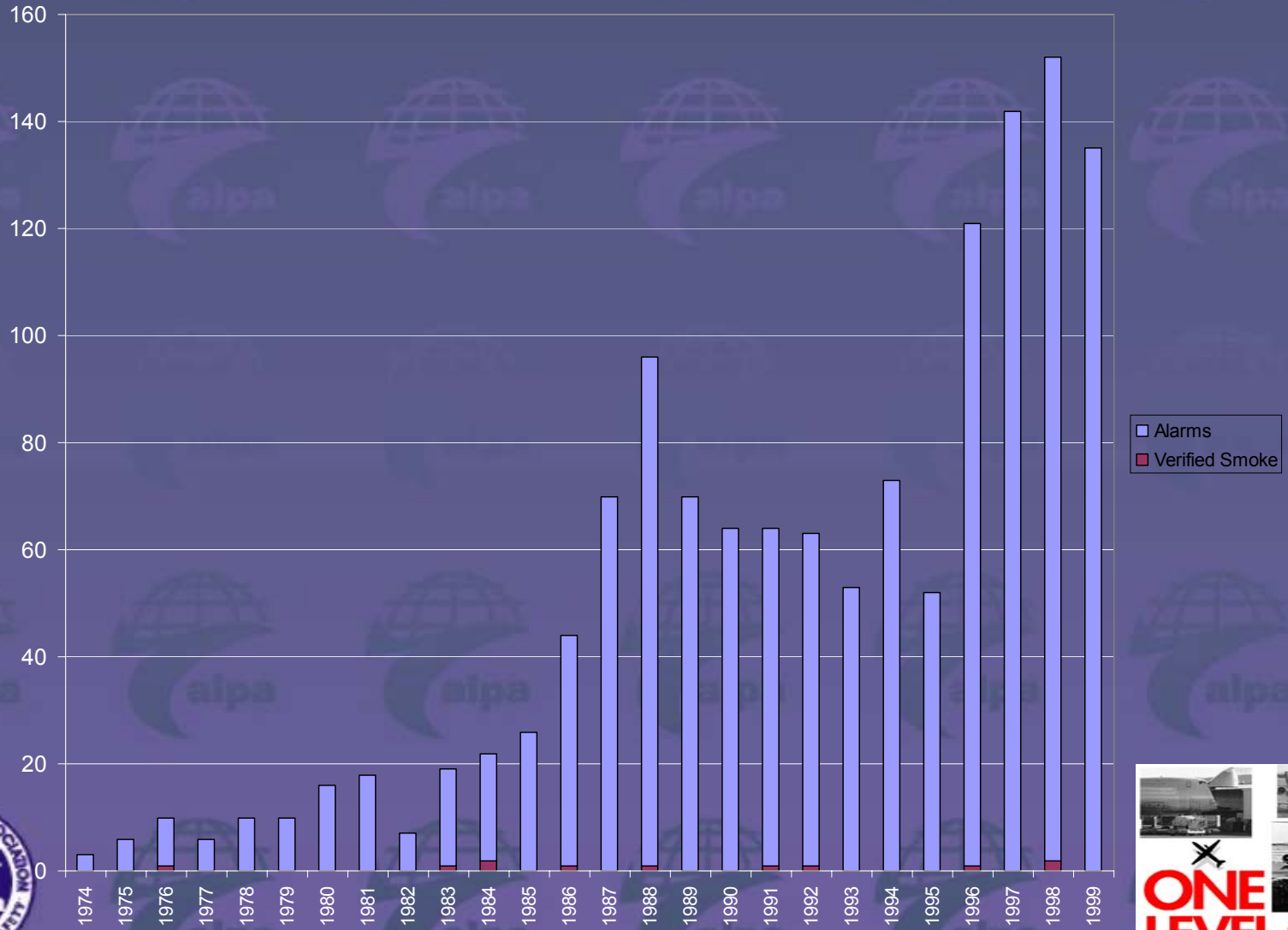


Temperature Monitoring

- Existing standard is 'light(s) only' detection
- Systems provide binary ('fire/no fire') information only
- Technology is available but not utilized
- Can significantly assist flight crews
 - Status of on-board fires
 - Accuracy of fire warnings



Verified Smoke Events Vs. Smoke Alarms



Recommendations

- Require that all compartments of cargo aircraft be equipped with:
 - Smoke and fire detection capability
 - Provisions for active, remotely operated fire suppression
 - Temperature trend monitoring capability



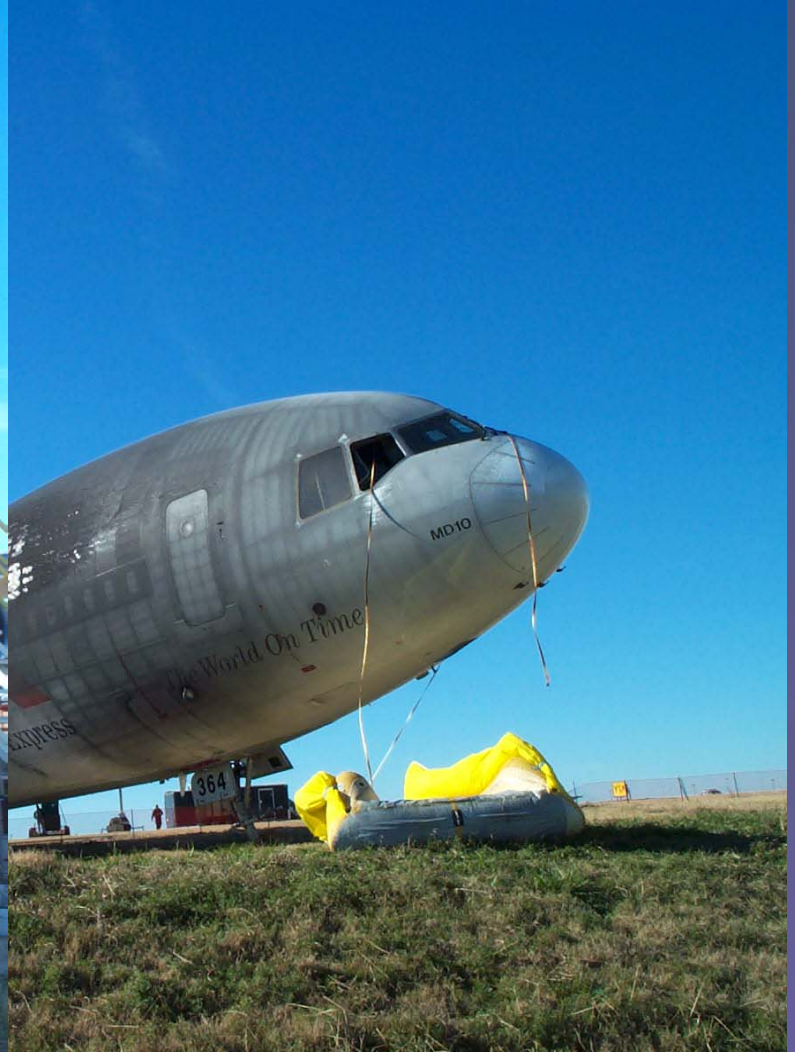
Escape Mechanisms

- Widebody cockpit windows are approximately 20 feet (or more) above the ground
- Cargo aircraft are not required to be equipped with escape slides for emergency egress
- Primary egress: Escape ropes or descenders
 - Slow process
 - Difficult or impossible for injured persons
- Slides are essentially intuitive to use
 - Allow rapid or near-simultaneous egress



Cargo Aircraft Escape Mechanism





Actual Egress Times From A Recent Cargo Aircraft Accident

INDIVIDUAL	R/H WINDOW		L/H WINDOW		EGRESS DURATION (seconds)
	START	STOP	START	STOP	
A	1:03	1:06			3
B			1:05	1:21	16
C			1:58	2:26	28
D			2:40	2:56	16
E			2:48	3:13	25
F			3:03	3:20	17
G			3:17	3:40	23

Times represent when individuals were visible in the videotape

Due to heavy smoke, camera angle, and other factors, there is some uncertainty regarding when these individuals actually began their egress



Recommendation

- Require cargo aircraft to be equipped with a means of emergency egress (e.g. slides) that permit rapid self-exit or assisted escape (rescue) of injured or non-ambulatory personnel from cargo aircraft



Traffic Alert and Collision Avoidance System (TCAS)

- For over a decade, US cargo aircraft were not required to have TCAS
- FARs modified to require most aircraft to be equipped with TCAS by 2005
 - Cargo aircraft below 33,000 lbs MTOW exempt (B-1900, EMB-120, S-340 etc.)
- ALPA maintains its position that TCAS should be required for these aircraft



Fleet Modifications

- Many cargo aircraft have had numerous post-delivery modifications
- Many of these STC companies are no longer in business
- Maintenance and parts support becoming difficult or impossible to obtain
- Divergence from original engineering

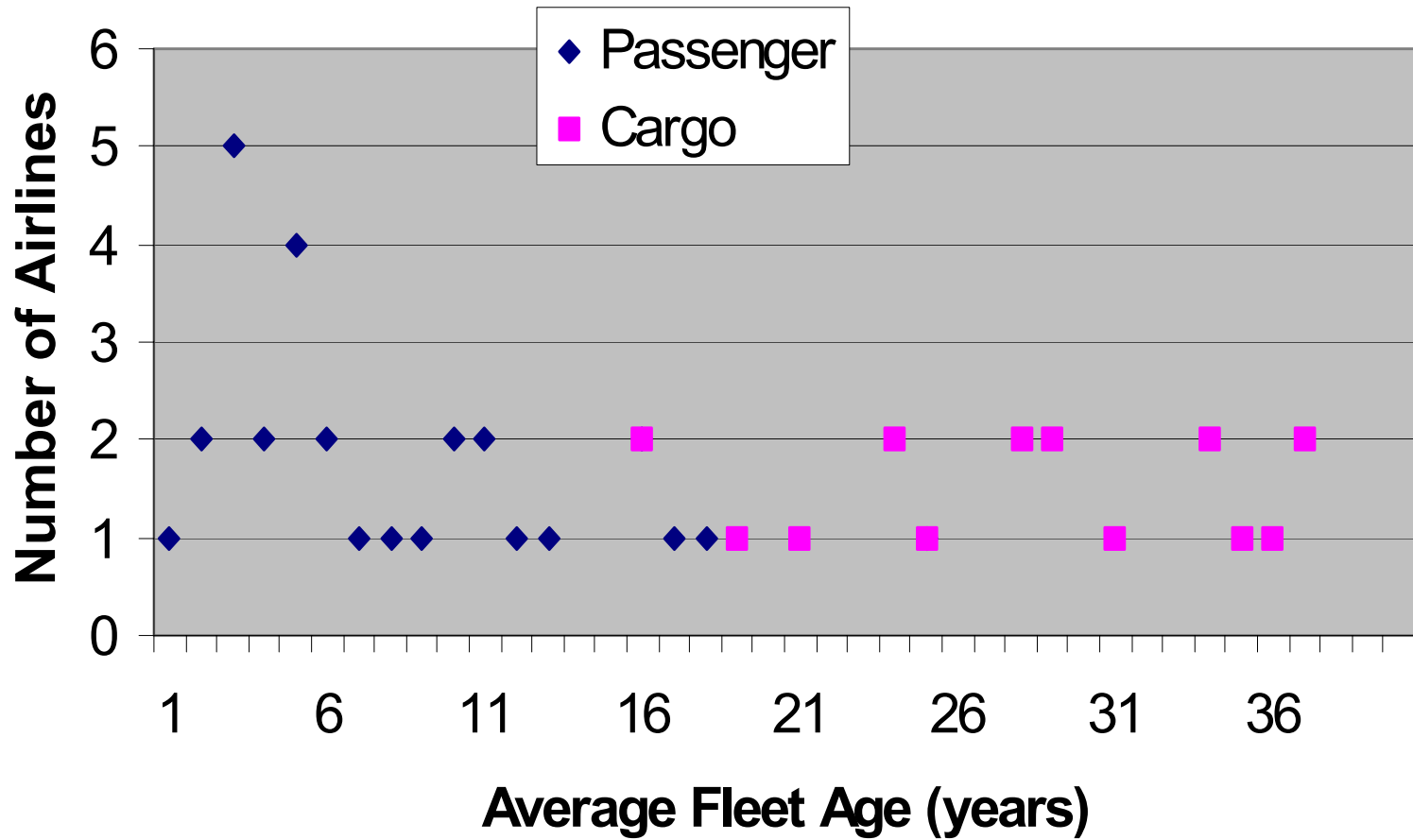


The Aging Cargo Aircraft Fleet

- Average age of the US cargo fleet is significantly higher than that of the passenger fleet
- Cargo: approximately 28 years
- Passenger: approximately 7 years



AVERAGE FLEET AGES



The Aging Cargo Aircraft Fleet

- New generation aircraft are designed according to improved standards
- The older cargo fleet does not benefit from these improvements, and is therefore exposed to higher risk
 - Improved standards are not retroactive to older aircraft



Recommendation

- Require that aircraft in Part 121 commercial service that do not incorporate certain safety improvements developed since their original certification be modified to be in compliance with those standards



Operating Rules

- Cargo airlines frequently operate under FAR 121 Supplemental regulations
- FAR Part 121 Supplemental regulations are less restrictive in several aspects
 - Dispatch
 - Airports & Routes
 - Flight time/Duty time
- Previously discussed in this forum



Flight Dispatch

- Effective means of providing redundancy and operational control
- ‘Big picture’ perspective of interaction within the overall operational environment
- NTSB: "Although pilots may be the last line of defense in ensuring a flight's safety... dispatchers...are undoubtedly the front line."



Flight Dispatch

- Dispatchers FAA licensed
 - Qualifications
 - Responsibility and accountability
- Joint responsibility and decision making
- Multiple services (Weather, routing, etc)
- Real time, continuous in-flight monitoring and communications



Flight Following

- Dispatch capabilities and services not required
 - Only less stringent 'flight following'
- None of those previous items are provided by flight following



Flight Dispatch

NTSB found:

"...inadequate operational control and inadequate collaborative decision making have been contributing factors in air carrier accidents. Effective management of available resources by aircraft dispatchers is one essential deterrent to such accidents"



Recommendation

- Modify FAR Part 121, particularly Subparts 'F' and 'S', (dealing with Supplemental operators) to provide equivalent levels of safety for all operators



Cargo Preparation and Loading

- Until recently, formal FAA guidance and regulation was relatively sparse and unconsolidated
- FAA ACIP a positive step
 - Additional progress is appropriate and must be pursued
 - Uniformity among vendors/subcontractors



Airport Facilities and Equipment

- Part 139 prescribes airport-related requirements
 - Marking and lighting standards, snow and ice control programs, etc.
- Part 139 does not apply to cargo aircraft
- ARFF not required for cargo operations
 - Frequently transporting greater quantities of hazmat



Recommendation

- Modify FAR Parts 121 and 139 to require the availability of Airport Rescue and Fire Fighting (ARFF) services for all-cargo operations



Conclusions

- Regulatory inconsistencies exist
- Results in a two tiered risk exposure for the US passenger vs cargo fleets
 - Cargo fleet is unnecessarily subjected to higher levels of risk
- Cargo fleet is expected to double
- Now is the time to make the decisions that will truly result in One Level of Safety



Thank You

