



**IFALPA**

The Global Voice of Pilots



# **IFALPA's Views on RPAS**

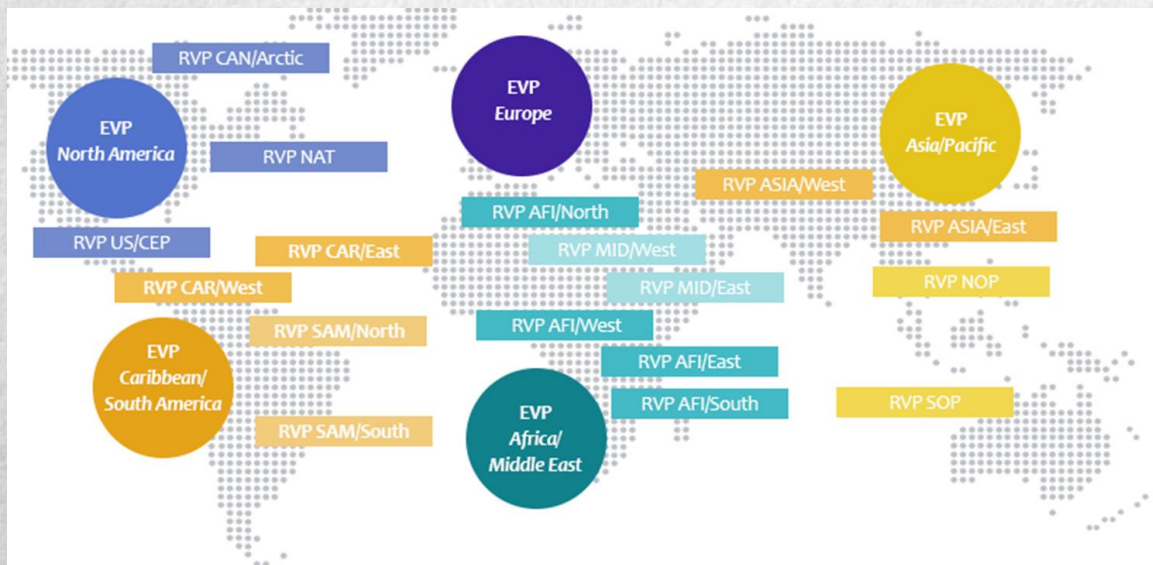
Official Position and Discussion Points

*Capt. Jim Pala*

# ABOUT IFALPA



- Founded 1948
- Over 100.000 Professional Pilots
- Over 100 member associations
- Permanent observer in ICAO ANC
- Active in numerous ICAO-Panels



# WHY IFALPA?



- The mission of IFALPA is to promote the highest level of aviation safety worldwide.
- “Partners” in shared airspace with RPAS.
  - Extensive experience of the traditional airspace user.
- Experts for aviation:
  - Safety
  - Operations
  - Human factors

## Unmanned Aircraft Systems

### Background

IFALPA strives for protecting and enhancing aviation safety by the highest standards and promoting a single level of safety worldwide for all users of civilian airspace. This is especially important when introducing a new technology sector into civilian airspace such as Unmanned Aircraft Systems (UAS).

IFALPA welcomes and recognizes the potential benefits of this new technology. It is critically important to ensure the safe integration of UAS into the common civilian airspace.

Size, performance, type of operation and intended use of UAS vary to a much greater extent than in manned aviation. UAS can vary in size from below 250 grams (similar to a model aircraft) up to UAS with a wingspan similar to that of a Boeing 737. Their use can vary from local to intercontinental flights and from low altitudes up to very high altitudes. They often have unconventional shapes, with widely differing operating characteristics and a large spectrum of performance capabilities.

Accordingly, for IFALPA, three different aspects are paramount:

1. General
2. Unmanned Aircraft (UA) as a collision threat to manned civil aviation in general and in particular in lower airspace and near aerodromes;
3. UA as participants integrated into common airspace.

### 1. General

Although the innovations and technological advances brought by UAS have rapidly progressed, their introduction into non-segregated airspace cannot take place without consideration of existing users. On the contrary, they are being introduced into a highly regulated, often crowded sky. The rules and regulations, which govern these skies, have been written over the history of manned aviation.

**POSITION 1:** *IFALPA believes that all UAS should be integrated into common airspace. Accommodation should only be a temporary measure.*

Only one sky is available for all aviation users. Users with different tasks and roles and with different performance and size characteristics need to share the same airspace – this is generally done via the principle of integration. All users operate according to similar principles and a framework which makes them compatible to the extent necessary. Airspace users that are unable to comply with these common principles are normally separated and kept clear from other traffic. These non-compliant airspace users receive the services necessary to allow operations – a principle referred to as accommodation. This practice however, reduces

the capacity in non-segregated airspace and should therefore be limited. All efforts should be undertaken to transform accommodation into integration.

**POSITION 2:** *IFALPA considers that it is not acceptable to change rules and regulations for manned aviation in order to accommodate UAS integration.*

The regulations for manned aviation have been established over a long period of time based on experience and best practices. These regulations should only change to enhance safety. UAS should be developed to follow these regulations without requiring changes that will burden manned aviation.

**POSITION 3:** *Every UAS should have at all times a responsible person in command, who is suitably trained and qualified with an independent safety mandate, responsible for the safe operation of the flight, mission or task.*

### 2. Collision threat of smaller Unmanned Aircraft (UA) to manned aviation

Manned aviation, from rotary aircraft to air transport, is faced with an exponentially increasing number of sightings and NEARMISSSES with UA in all classes of airspace. This is particularly noticeable below 500 ft AGL, where, there is a mixture of traffic particularly helicopter operations on air ambulance, police or fire fighting duties, aerial work, border control, military and newsgathering. These are all manned aircraft performing their tasks with specific authorization.

IFALPA is concerned that a collision between an UA and a manned aircraft is imminent.

**POSITION 4:** *As a matter of urgency, in-depth research into the impact of collisions between small UA and manned aircraft is necessary to establish the severity of the impact of collisions.*

Currently, there are no figures available from any scientific research to establish the risk of the collision of even small UA's with the critical surfaces and components of manned aircraft. Windscreens/canopies, primary flight controls, engines, rotor shafts of helicopters and their tail rotors are some examples of these. UA's, regardless of size, can cause significant or even catastrophic damage. Of particular concern on small UA are the motors and battery packs. Especially critical are helicopters due to the number of vulnerable safety critical components. Several bird strikes have demonstrated that even impact with small birds (below 200g) can have catastrophic results for a helicopter.

A risk in aviation is defined by the probability of occurrence multiplied by its severity. Since there are no data for the severity, it is not possible at present for a risk assessment to be achieved for the manned or unmanned side. The number of sightings, i.e. the probability of occurrences increases exponentially, therefore it has become a matter of urgency to establish the figures of severity.

**POSITION 5:** *An approved, full and transparent risk assessment should be completed before an operation can be commenced.*

Before qualifying certain small and mid-sized UA, sometimes referred to as drones, as a low risk operation; an approved, full and transparent risk assessment should be completed. This would allow identification of all the risks, including collision with manned aviation, and its possible impact. Operation should only be allowed after all threats have been properly mitigated to an acceptable level.

**POSITION 6:** *As there is no formal qualification for certain categories of UAS, it cannot be assumed that there is a qualified, trained and competent responsible pilot in command of the UA. For operation in airspace where an encounter of a manned aircraft is possible, mandatory training and a certificate/license should be required.*

# IFALPA RPAS Positions:



- IFALPA believes that all UAS should be *integrated* into common airspace. *Accommodation* should only be a temporary measure.
- IFALPA considers that it is not acceptable to change the *rules and regulations for manned aviation* in order to accommodate UAS integration.
- Every UAS should have at all times *a responsible person in command*, who is suitably trained and qualified with an independent safety mandate, responsible for the safe operation of the flight, mission or task.

# IFALPA RPAS Positions:



- An approved, full and transparent *risk assessment* should be completed (including ATM) before an operation can be commenced.
- Currently, IFALPA does not believe that *autonomous* unmanned aircraft can be integrated into common airspace.

# ATC and RPAS Integration:



- RPAS ATC integration must move from accommodation to integration in shared airspace.
  - Crawl, walk, run approach
- RPAS should behave like a manned aircraft and be subject to the Rules of the Air
- Command and Control Link:
  - Lost Link must be extremely remote and have established procedures/protocols.
  - The response time of a UAS must be the same as manned aircraft.
  - Must be secure and prevent “hijacking” or spoofing.

- Detect And Avoid and Avoid Collision:
  - All RPAS that operate in shared airspace must have an approved DAA system to meet the requirement to “remain well clear”
  - RPAS should be equipped to provide collision avoidance at all times and in all airspace. It must be operative even during a lost link event.



# Summary:



- RPAS ATC integration must move from accommodation to integration in shared airspace.
  - Crawl, walk, run approach
  - Full risk assessment before RPAS operations are allowed
- No new regulations for manned aircraft to accommodate RPAS
- One Remote Pilot in Command for every RPAS.
  - No autonomous flight operations
- Command and Control Link must be reliable, secure and lost link must be extremely remote.
- RPAS must be equipped with a DAA and a Collision Avoidance system that operates even during a lost link event.

# Thank you!

**Captain Jim Pala**

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**SPARE SLIDES**

# Introduction/Bio:



- Night Job: FedEx Pilot based in CGN
  - Professional Aviator for over 30 years
- Day Job: RPAS SME for IFALPA
  - Global Hawk Pilot for three years with NGC
  - Remote Test Pilot of the X-47B
  - RPAS Panel/DAA Work Group
- Unique Prospective to the RPAS Issues