

Script for Leslie Cary – Unmanned Aircraft Systems

Tuesday, Block C

Good morning everyone. It is my pleasure to start off the presentations on unmanned aircraft systems – a field of aviation that in many ways is in its infancy.

Unmanned aircraft, pilotless aircraft, drones, have been around for decades. They were specifically referred to in the Paris Convention of 1919 and the Chicago Convention of 1944. That being said, we don't yet have the international Standards and Recommended Practices, Procedures or guidance material for the regulatory framework.

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This presentation will provide a brief overview of what ICAO is doing to fill that gap so UAS can be integrated into the global ATM system.

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The Air Navigation Commission established the UAS Study Group in 2007. We currently have members from 15 States and 8 international organizations.

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The Study Group is the focal point within ICAO for all issues related to unmanned aircraft systems.

The important point to note in the Terms of Reference are "...to support a safe, secure and efficient integration of UAS into non-segregated airspace and aerodromes."

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Article 8 of the Convention on International Civil Aviation is the starting point for any work on UAS.

Pilotless Aircraft – "No aircraft capable of being flown without a pilot [and we can interpolate here "on board"] shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft."

The two requirements underlined here in green are remarkably similar to the requirements placed on State aircraft within Article 3 of the Convention, which requires State aircraft to obtain "special agreement" before flying over another State's territory and have "due regard for the safety of navigation of civil aircraft".

A further point to note here is that pilotless aircraft are clearly understood to have a level of control associated with their trajectory.

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When the UAS Study Group began its work, we had extensive discussion on the breadth of UAS subjects – visual line of sight operations, aerial work, small UAS, large UAS, instrument flight rules, visual flight rules, etc.

Considering the purview of ICAO is international civil aviation, International Operations was clearly the place to start – what is needed to ensure safety, security and efficiency of international operations.

We agreed that we would focus first on operations conducted in controlled airspace and at controlled aerodromes.

State aircraft are exempt from the provisions of the Chicago Convention per Article 3. However, if they request to integrate into the civil ATM system – they either have to comply with the civil rules or coordinate special agreements.

Lastly, we agreed not to address requirements for the accommodation of persons on-board the aircraft, whether as flight crew or passenger.

This still left us with a huge volume of work, so we had to narrow the focus further.

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Our next question was – what are the requirements for UAS to fit into the system from an ATM perspective?

In a simplistic response, the aircraft has to **communicate** with ATC – respond to clearances, exchange information, etc.

The aircraft has to be able to **navigate** in accordance with the airspace or the operation.

The aircraft must have appropriate **surveillance** capability, i.e. transponder, ADS-B, etc.

The aircraft must be able to **sense and avoid** collisions with other aircraft, terrain, obstacles, adverse weather, etc.

And – the actions of the aircraft must be **predictable** for air traffic control and other aircraft in the vicinity.

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The other side of the integration issue is – what are the requirements for aircraft operations?

Again, a simplistic answer – the aircraft must be **airworthy**. Unlike a manned aircraft where the flight controls and instruments are on-board the aircraft – they are external. Being external does not exempt them from compliance with the airworthiness Standards.

Operator certifications will be handled in a similar fashion as for manned aircraft. Likewise, the **documentation**.

Fundamental to integration is that the **pilot-in-command is a licensed pilot**. That being said, a full range of licenses for the categories of aircraft, along with class and type ratings will need to be developed. Included with this will be medical provisions appropriate for the type of license and operation.

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One of ICAO's key functions is to provide a lexicon for aviation so we can be assured of understanding each other.

It has been evident from the beginning that many terms in use for unmanned aircraft cause confusion or do not correctly reflect the meanings, particularly when used in the civil aviation arena.

We have established through the ICAO process that unmanned and pilotless mean there is no pilot on board the aircraft. This does not necessarily mean there is no pilot.

An aircraft is an aircraft and needs to be referred to as such.

The terms shown here are still draft in nature, but are likely to be proposed for consideration.

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The UAS Study Group has developed a draft Circular which contains extensive information on UAS and how we expect them to be accommodated within the ICAO framework. The Circular should be available as a near-final draft, pending editorial review, by mid-2010.

We have nearly completed a gap analysis of all 18 Annexes to determine what SARPs apply as written, which will need to be modified in some way, and what new SARPs will need to be developed.

This leads us to the point where we can prioritize the work to be done, identifying inter-dependencies and scoping the work so it can be evaluated and fit into the work programmes of the appropriate Panels, Study Groups, Secretariat offices or external bodies.

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In conclusion, the UAS Study Group is laying the foundation for development of the SARPs, PANS and guidance material.

We are taking a comprehensive approach to the subject.

We are collaborating with States, industry associations and technical specifications-making bodies.

Finally, this is a long-term effort that will be on-going for many years to come.