Global Aerospace | A Brand Name in Aviation

- Global Leads 20% of the World’s Airlines
- Global Leads 50% of the World’s Aerospace Manufacturers
- 30,000 General Aviation Aircraft currently insured

Overview/ regulations  | Potential uses  | What is covered?  | Risk management
What do we bring to UAS?

- A dedicated team
- Policy forms developed for UAS
- A commitment to safety
- The backing of some of the best in the business
- 90 years of aerospace experience

Terminology

- UAV – Unmanned Aerial Vehicle
- UAS – Unmanned Aircraft System
- RPAS – Remotely Piloted Aircraft System

System = Platform + Payload + Ground Control Station

Drones

Regulation

Hobby and Recreation
- Advisory Circular 91-57A:
  - Strictly for hobby or recreation
  - Community based guidelines
  - Less than 55lbs MTOW
  - Give way at all times
  - Minimum 5 miles from airport

Commercial or Business
- FAA Authorization needed via Section 333 approval
Government or Public Entity

Certificate of Waiver or Authorization (COA) needed:
- Particular aircraft, particular purpose, particular area
- Defined block of airspace and time
- Broader operator requirements
- email the FAA/UAS Integration Office at 9-AJR-36-UAS@faa.gov to get started

Regulation

Regulation – the next few years

- Operations:
  - <55 lbs, <500 feet agl, <87 knots
  - Visual line of sight - Daylight only - 3 miles visibility
  - Restricted airspace
- Pilot / Operator:
  - Aeronautical knowledge test
  - Small UAS rating / recurrent written test every 24 months
- Aircraft Requirements:
  - No airworthiness cert required
  - All aircraft must be registered and display an N#

No insurance requirements
Potential Market for UAS

- AUVSI (Association for Unmanned Vehicles Systems International) predicts for U.S.:
  - $83bn economic impact over next 10 years
  - 100,000 jobs
- 10% of commercial aviation unmanned by 2025?
- Commercial vs. Military?
- Payload vs. Platform?
- Reality vs. Fiction?

Potential Applications

- Agriculture
- Conservation
- Construction
- Disaster Relief
- Defense contractors / Border patrol
- Energy
- Engineering
- Entertainment / Movie / Media
- Forestry
- Forest Fire
- Insurance assessments
- Mapping / Geophysical survey
- Mining
- Municipal authorities / Police / Fire
- Parcel delivery
- Photography / Videography
- Realty
- Search and Rescue
- Security
- Sports teams
- Universities / Colleges
- Utility companies
- 3rd world medicine delivery
Fire prevention

Fire support

Survey

Mapping/geophysical survey
Third world medicine delivery

Search for "Matternet TED talk"

The insurance market for drones

The merger of two markets

“Its only a drone”

Insurance options

- Insurance Service Office (ISO) have developed endorsements to extend General Liability policies to include drones
- Specialist Aviation Insurers have:
  - Specific policy forms
  - Dedicated loss adjusters
  - Loss control services
**Physical Damage (hull)**

- Typical values between $1,500 and $150,000
- Payload often 90% of the total value

**Liability to Third Parties**

- Limits from $1m upwards
- Customers determining limits purchased

**War and Allied Perils**

**Personal Injury (Invasion of Privacy)**
Product Liability

Underwriting Considerations

Overall Professionalism

Risk to third parties

Model

Use

Operator

Loss control

Risk Management

Safety Management – UAS is an industry with some growing up to do.

Safety Management System?
Lessons learned in blood

But we have the opportunity to do better.....

Risk Management

Use of SOP

Launch and Recovery
Navigation
Ceiling and visibility
Winds

Continuous Training and Development
Risk Management

Maintenance

Risk Management

Operating Environment

The future of drone risk management

- Geo-fencing
- Sense and Avoid
- Operator ID
- Automation
- UTM (NASA)

Henry Ford: “If I had asked people what they wanted, they would have said faster horses”
Rear Admiral Melville, USN said in the *North American Review*: “A calm survey ... leads the engineer to pronounce all confident prophecies at this time for future success as wholly unwarranted, if not absurd.”