Drones
Use and Potential Insurance Exposures
Loss Control Executive Forum
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Presenters

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Introduction

• Drones taking off
  – Estimated $89 billion in spending in next 10 years
  – Estimated 7,500 small commercial drones by 2018

• Federal legislation 2012
  – FAA to develop safe integration plan by 09/30/2015
  – FAA 2013 “Roadmap”

• February 2015
  – FAA proposed new rules for small unmanned aircraft systems

Drones in the Headlines
Drones in the Headlines

Crash:
http://www.washingtonpost.com/local/drone-crashes-into-virginia-bull-run-crowd/2013/08/26/424e0b9e-0e00-11e3-85b6-d27422650fd5_story.html

What is a drone?

• Popular name for a Unmanned Aerial Vehicle (UAV)
• “Device used or intended to be used for flight in the air that has no onboard pilot” (FAA Roadmap)
• Part of an Unmanned Aircraft System (UAS)
Drone Types and Sizes

• Types
  – Fixed-wing
  – Single rotor
  – Multi-rotor

• Sizes
  – PD-100 Black Hornet
    • 18 grams
    • 4.7 inch rotor span
  – RQ-4 Global Hawk
    • 12,133,596 grams
    • 720 inches long
    • 1,584 inch wingspan

Drone Manufacturers and their Products

- 3D Robotics Solo
- DJI Quantum Copter
- Parrot Snow Drone
Drone Capabilities

- **Flight features**
  - Mini: low altitude, short duration
  - Tactical: low to medium altitude, up to several hours, line-of-sight
  - Strategic: medium to high altitude, hours or days, long-range

- **Operational control**
  - Control by remote pilot (VLOS)
  - Autonomous control systems (BLOS)

What is an Unmanned Aerial System?

- **Components of a system**
  - Drone
  - Command and control link
  - Control station
  - Other system components
Payloads

- Sensing devices
  - Still cameras
  - Video cameras
  - Electro-optic cameras
  - Infra-red camera
  - Side Aperture Radar (SAR)
  - Other
- Load carrying devices
- Load application devices (e.g., crop sprayers)
Possible Uses

• Delivery
  – Packaged goods and other mail
  – Specific destinations and hubs
  – Time and cost factors

• Surveillance
  – Security of commercial properties
  – Wildlife poaching deterrent
  – Crime investigation
  – Neighborhood watch
  – Border protection

Possible Uses

• Agriculture
  – Monitor crop health
  – Locate livestock and assess available
  – forage
  – Crop spraying and pollination
  – Cloud seeding

• Weather-related data collection
  – Weather and meteorological information
  – Real-time data on storm intensity
  – Storm tracking
  – Generate maps and models
Possible Uses

• Military and paramilitary operations
  – Terrain otherwise inaccessible
  – Dangerous areas (e.g., mine fields)
  – Search and rescue
  – Delivery of supplies and food to disaster areas
  – Fight wildfires

• Inspection
  – Infrastructure evaluation (e.g., bridges and dams)
  – Underwriting inspections (e.g., roof)
  – Insurance claims evaluation
  – Property valuation for municipal tax assessment

Possible Uses

• Communications
  – News footage
  – Movie filming
  – Education in remote locations
  – High altitude drone internet access for developing regions

• Advertising
  – Aerial photos of real estate for sale
  – Drone “blimps” at outdoor venues
Possible Uses

- Firefighting
- Law enforcement
- Search & rescue
Flying a Drone in the US

• FAA regulates National Airspace System (NAS)
• FAA policy is that no person may operate UAVs in NAS without specific authority.
• Types of authority differ depending on type of user
• Model airplane exemption

Types of Operating Authority

• Certificate of Authorization or Waiver (COA)
  – Public operators
  – Specific aircraft, operation, area
• Special Airworthiness Certificate (SAC)
  – Civil operators
  – Test flights, demonstrations, training
• Section 333 Exemption
  – Civil operators
  – Commercial operations in low risk environments
Section 333 Exemptions

• 159 Petitions granted as of 4/16/2015
• Approvals for:
  – Film production
  – Aerial surveying
  – Power line/chimney inspection
  – Precision agriculture
• Four insurer exemptions granted; two insurer petitions pending
• FAA Section 333 information
  https://www.faa.gov/uas/legislative_programs/section_333/

Insurer Approvals

<table>
<thead>
<tr>
<th>Drone</th>
<th>AIG</th>
<th>Erie</th>
<th>State Farm</th>
<th>USAA</th>
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<tbody>
<tr>
<td></td>
<td>Hawkeye Lancaster MK-III, IRIS+, Phantom 2 Vision, and senseFly eBee.</td>
<td>DJI Phantom 2 Vision Plus quadcopter</td>
<td>Aerialtronics Altura Zenith ATX8 and Altavian Nova F6500</td>
<td>PrecisionHawk Lancaster UAS platform</td>
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Applications

- Risk assessment
- Survey and inspection of damage after CAT
- R&D Surveys U/Writing
- Roof inspections
- Property inspections after CAT events
FAA Proposed Rule on small UAS

• Covers UAV under 55 lb.
• Limits flights to:
  – Altitude under 500 ft. above ground level
  – Visual Line Of Sight (VLOS) only
  – No flying over crowds
  – Daylight-only operations
  – Max speed of 100 mph
• Requires:
  – Pre-flight inspection by the operator
  – Marking of UAVs

Insurance Considerations
Loss Exposures

• Drone operators
  – Property damage
  – First and third party liability
  – Personal Injury
  – Data protection
  – Data ownership
• Manufacturers / servicers
• Users of drone services

Damage to Drone/UAS

• Exposure exists:
  – In use or during flight
  – In transit
  – In storage
• Repair/replacement costs highly variable
• Who owns payload?
• What is operating environment?
• Who pays for time when drone cannot be used?
• Will uninsured drone coverage be needed?
Damage to Other Property

- Exposure exists in use, transit, or storage as well
- How is drone transported to site?
- Where is drone fueled?
- What fail-safes are in place in case of loss of power/control?
- Does drone deploy objects?

Bodily Injury

- Potential for both first-party and third-party injuries.
- Drones in use can cause injuries by:
  - Direct or indirect strikes
  - Misapplication/delivery of payloads
  - Other falling objects
- Accidents getting to and from use location
- What about near-misses?
Personal Injury

- Any camera- or microphone-equipped drone may be used to:
  - Invade privacy
  - Stalk or harass
- Internet permits wide dissemination
- Drone use may also cause a nuisance
- Coverage B doesn’t have aircraft exclusion

Other Exposures

- Data protection
  - Corruption/Damage
  - Misdelivery/Interception
  - Sharing with Others
- Data ownership
- Non-owned liability for users of drone services
Risk Assessment

• No reliable data on damages that may be caused by a UAV
• E&S reviewed several insurance applications
• Key risk parameters identified:
  – UAS characteristics
  – UAS storage/maintenance
  – Operator qualifications
  – Mission/operating environment

UAS Characteristics

• Make and model of drone
• Type of propulsion system or fuel
• Weight and lift capacity
• Speed or operating range
• Launch and recovery methods
• Safety features/attributes
• Payload
Storage/Maintenance

• Storage:
  – Location
  – Building construction
  – Fire protection
  – Security
  – Fuel storage

• Maintenance:
  – History
  – Maintenance in accordance with manufacturer specifications
  – Recordkeeping and reports

Operator Qualifications

• Skill level
• Aviation experience
• Medical fitness
• FAA has not defined knowledge requirements
• Pilot training varies in content/quality
• No MVR equivalent
Mission/Operating Environment

- Purpose of drone use
- Location of work
- Duration of flight
- Weather conditions
- Time of day
- External hazards

Manufacturer / Servicer Liability

- Traditional hazards such as:
  - Product liability or completed operations exposures
  - Parties involved
  - Loss control analysis
- Areas of concern:
  - Limited product safety standards
  - Dynamic ‘state of the art’
  - Post-sale obligations are unclear
  - Manufacturer’s product safety experience varies
Coverage Options

• Common coverages:
  – Physical damage to UAS
  – Third Party Liability
• Most coverage is written on modified aviation or liability forms
• ISO multi-state drone endorsements for CGL and Excess/Umbrella programs go into effect on 6/1

Additional Coverages

• Professional liability (E&O)
  – Software developer/programmer
  – Drone operator
• Workers compensation and employers liability
• Management liability (D&O)
• Developing exposures
• Start-up companies

http://77rus.smugmug.com/Military/Interpolitex-2013/i-8Kxd6Wg/0/N/Interpolitex2013part06-47-M.jpg
Additional Information

- ISO Emerging Issues Portal

Questions/Comments

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