Drones – A Challenge and an Opportunity

SOUTHERN CALIFORNIA CASUALTY ACTUARIAL CLUB
May 10, 2017
The Federal Aviation Administration (FAA) estimates that combined total hobbyist and commercial UAS sales will rise from 2.5 million in 2016 to 7 million in 2020.
Agenda

• Regulation and Current Applications
• Potential Exposures & Underwriting Considerations
• Evolving Nature of Risk
• ISO – Response to Drones
Regulation and Current Applications
FAA Modernization And Reform Act

• Creation and publication of a five-year Roadmap to support safe and efficient UAS operations

• Section 333 Exemption process

• Proposed rules for commercial use published February 2015
  – In part, limit flights to daylight and visual-line-of-sight operations

• Recreational Use
FAA Final Rule - Commercial Use

• Effective August 29, 2016

• Visual line of sight requirement

• Drone speed and Altitude restrictions

• Drone plus Payload
  – weigh less than 55 pounds

• Requirements for a remote pilot certificate with a UAS rating

• Nighttime Restrictions

• No flights over non-participants
Review of Approved Exemptions (Section 333)

- **Key findings**¹
  - Over *90% are small business* (less than $1 million revenue)
  - Over 80% are *rotary wing*
  - Almost all *weigh less than 55 lbs*
  - Exemptions most common in *CA, FL, and TX*
  - Median endurance of *45 minutes*

¹ Association for Unmanned Vehicle Systems International (AUSVI) reviewed the first 5,500+ approved FAA Section 333 exemptions
Source: http://www.auvsi.org/advocacy/exemptions
## Top 10 Industries Using UAS via Exemption

<table>
<thead>
<tr>
<th>Industry / Operation</th>
<th># of Exemptions</th>
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</thead>
<tbody>
<tr>
<td>Aerial photography</td>
<td>4,789</td>
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<tr>
<td>Real estate</td>
<td>3,434</td>
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<tr>
<td>Aerial inspection</td>
<td>3,144</td>
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<td>Aerial survey</td>
<td>3,040</td>
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<tr>
<td>Construction</td>
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<td>Infrastructure</td>
<td>2,331</td>
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<tr>
<td>Agriculture</td>
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<td>Filmmaking</td>
<td>1,869</td>
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<tr>
<td>Event</td>
<td>1,675</td>
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<tr>
<td>Advertising</td>
<td>1,402</td>
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</tbody>
</table>

Technology And Design

• **Types**
  – Fixed wing
  – Quad rotors and octo-copters
  – Micro air vehicles (MAVs)

• **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 to days, long-range

• **Navigation**
Potential Exposures & Underwriting Considerations
Potential Drone Exposures – Operation of Aircraft

- Lost link
- Fly away
- Depleted battery
- Pilot skill
- Human factors
- Maintenance
- Nature
  - Weather
  - Operating environment
  - Wildlife
# Potential Drone Exposures - Coverage Implications

## Liability
- Design/manufacture defect
- Collision
- Data-link transmission failure

## Personal Injury
- Invasion of privacy
- Trespass and nuisance
- Infringement and defamation

## Property Damage
- First-party property damage
- Perils of aircraft and falling objects
- Business interruption losses
- Hacking
Drone Rating Considerations

• Crashes
  – Bodily Injury
  – Property Damage
  – Will all crashes yield one or the other -- or both?
Drone Rating Considerations (Cont’d)

• Location
  – Rural
  – Urban
  – Weather

• Drone Characteristics
  – Size
  – Capabilities and Operations (photography, spraying, payload capabilities)

• Operator
  – Experience
  – Training
Exposures & Underwriting Considerations

Exposure Range: Nuisance to Catastrophe
Potential Data Sources

• Data - Major Challenge Today

• Limited Non-Military Drone Usage until recently

• Information from the FAA

• Insurance Loss and Premium/ Exposure Information

• Flight information
  – Encryption
  – Flight Logs
Evolving Nature of Risk due to Emerging Issues - Drones
Evolving Nature of Risk

• New Technology and Processes

• Benefits to Society

• Potentially Greater Risks

• Insurance Impact
  – Benefits
  – Challenges
Reported And Potential Uses

• Military
• Law Enforcement And Security Surveillance
• Search And Rescue Operations
• Agriculture
• Communications
• Delivery
• Photography
• Inspection
Food Warehouse
Sampling of Emerging Risks

- Alternative energy solar, wind, geothermal
- Artificial intelligence
- Bring Your Own Device
- Climate change
- Cybersecurity
- Counterfeit/hazardous products
- Driver/vehicle issues autonomous vehicles
- Drones
- Food-related issues
- Genetically Modified Organisms
- Green Movement
Food Warehouse Example - A More Complicated Risk Today

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Inspection - Drones
Agricultural Use - Drones
ISO - Response to Drones
ISO Drones Options

• Liability endorsements implemented 6-1-2015
  – 3 exclusionary endorsements
  – 3 limited coverage endorsements

• Commercial Lines property products
  – Commercial Inland Marine released February, 2016
  – Commercial Property and Capital Assets filed in April, 2016
  – Rating information released/filed in December, 2016

• Businessowners
  – Liability endorsements filed in May, 2016

• Homeowners
  – Endorsements filed in August, 2016
Questions?
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Thank you.