Drones—What Could Possibly Go Wrong?

A Discussion of the Legal and Liability Aspects of Operating Drones for Business Purposes
What is a “DRONE”

**Fixed Wing:**
- Longer Range
- Aerial Mapping
- More Expensive

**Quad (Multi)-Copter:**
- Most Common
- Heavier Payload
- Most Inexpensive

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**What’s in a Name:**
Drone = indicates REMOTE pilot operation (operator away from aircraft)
UAV = Unmanned Aerial Vehicles
UAS = Unmanned Aerial System – including aircraft/operator/remote
Why use a Drone (UAS)?
Practical Uses of a Drone

Three D’s—Work That is Dangerous, Dull or Dirty

- Inspections of flare stacks at factories
- Bridge inspections
- Powerline/pipeline patrol
- Security at large facilities
- Wildlife conservation/fire patrol
- Search and rescue

Cost Effective Aerial Mapping/Photography

- Commercial helicopter = $1,500 per hour
- Drone = $1,500 one-time purchase
Top Industries Using Drones

✓ Agriculture
✓ Film Production
✓ News Media
✓ Real Estate
✓ Construction
✓ Mining
✓ Utilities
✓ Energy
Legal Timeline of Drones

Oct 2011
The FAA fined a filmmaker $10,000 for “careless or reckless UAS operation” (Pirker) Univ of Virginia

March 2014
NTSB ALJ Dismisses FAA’s $10,000 Civil Penalty Against UAS Operator “No Enforceable FAR” (Pirker)

Dec 2014
FAA announces “333 Exemption” and “Certificate of Authorization (COA)” Process for commercial drone operators as a “Stopgap” measure until the FAA can develop specific UAS rules/regulations.

August 2016
FAA Rules (Part 107) for Business Use of Small UAS operations
Legal drone operations
Operating Drones under the FAA rules (Part 107)

**FIRST** – Operator must obtain a “Remote Pilot Airman Certificate” from the FAA and pass a TSA background Check

**SECOND** – The aircraft must be registered with the FAA.

**THIRD** – Must operate in accordance with FAA Rules (Part 107)

How do you secure a “Remote Pilot Certificate” from the FAA?

- Be at least 16 years old
- Be vetted by TSA
- Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center (approximately $150)

Sample Questions:

What is the floor of the Savannah Class C airspace at the shelf area (outer circle)?
A) 1,300 feet AGL
B) 1,300 feet MSL
C) 4,100 feet MSL

What are characteristics of a moist, unstable air mass?
A) Turbulence and showery precipitation
B) Poor visibility and smooth air
C) Haze and smoke
Register Your Drone with the FAA

You need to register your aircraft if it weighs between 0.55 lbs. (250 grams) and up to 55 lbs. (25 kg). You will be subject to civil and criminal penalties if you meet the criteria to register an unmanned aircraft and do not register.

$5.00 registration fee

Register Online: faa.gov

You must use the paper (N-number) registration process if
• Your unmanned aircraft is 55 pounds or greater
• You want to qualify a small unmanned aircraft for operation outside the United States
• You hold title to an aircraft in trust
Operations under Part 107 (Summary)

- Unmanned aircraft must weigh less than 55 lbs. (25 kg).
- Visual line-of-sight (VLOS) only - unaided
- Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle.
- Daylight-only operations
- No careless or reckless operations.
- No carriage of hazardous materials.
- Maximum groundspeed of 100 mph (87 knots).
- Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure.
- Minimum weather visibility of 3 miles from control station.
- No operations from a moving aircraft.
- No operations from a moving vehicle unless the operation is over a sparsely populated area.
Operations under Part 107 (Summary)

- Operations in Class B, C, D and E airspace are allowed with required ATC permission.
- Operations in Class G airspace are allowed without ATC permission.
Operations under Part 107

- Most of the restrictions discussed above are “waivable” if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.
Government Entities Operating UAS

Government entities or organizations (e.g. law enforcement agencies, public universities, state governments, local municipalities) have 2 options for flying UAS:

1) Fly under the small UAS rule – follow all rules under 14 CFR part 107, including aircraft and pilot requirements

Or

2) Obtain a blanket public Certificate of Waiver or Authorization (COA) – permits nationwide flights in Class G airspace at or below 400 feet, self-certification of the UAS pilot, and the option to obtain emergency COAs (e-COAs) under special circumstances
Certificates of Authorization (COA)

❖ Only government entities – such as federal and state government agencies, law enforcement agencies and public colleges and universities – can receive a COA for public UAS aircraft operations.

❖ Public aircraft operations must be conducted for a governmental function.

❖ The FAA thoroughly evaluates each COA application to determine the safety of the proposal.

❖ Public Aircraft Operators can “self-certify” airworthiness and pilot certification.

❖ Completion of application at FAA.gov, which will include:
  1) Type of mission
  2) Launch/recovery/operations location(s)
  3) Operational altitudes
  4) Flight procedures
  5) Communications
  6) Emergency procedures such as lost communication and loss-of-control link
  7) Pilot in command (PIC), and observer qualifications and training requirements
State/Local Laws

More than ONE HUNDRED municipalities have passed their own ordinances/laws regarding the use of drones including: Miami/Chicago/Seattle/Pittsburgh/Los Angeles (the majority of the laws make it illegal to use drones to invade someone’s privacy.

- Los Angeles passed an ordinance that approximately mirrors FAA recreational drone guidelines with a punishment for violators of up to $1,000 and six months in jail

**FAA RESPONSE**: “If municipalities enacted ordinances regulating UAS in the navigable airspace and a significant number of municipalities followed suit, fractionalized control of the navigable airspace could result. In turn, this ‘patchwork quilt’ of differing restrictions could severely limit the flexibility of FAA in controlling the airspace and flight patterns, and ensuring safety and an efficient air traffic flow. **A navigable airspace free from inconsistent state and local restrictions is essential to the maintenance of a safe and sound air transportation system.**”

Know and understand “Federal Preemption” for the first lawsuit challenging State/Local law is coming...
Potential Legal Battle Brewing???

FAA Controls Airspace

States control Privacy Issues
Safety & Risk Management
Safety and Risk Management

❖ Select aircraft right for your mission
   ➤ Size

➤ Flight Duration
   ✤ Fixed Wing: 40-50 Minutes Per Flight
   ✤ Rotor Wing: 20-25 Minutes Per Flight

➤ Type of Images to be gathered
   ✤ Camera
   ✤ LIDAR
   ✤ Heat
Safety and Risk Management

- Development of Safety Management System (SMS) for safe drone operations

  - Crew Training –
    - Written Program to be documented (purchased or developed in-house)
    - Practical Flight Training (minimum skills to operate drone)
    - Initial & Recurrent Training
    - Just a manned aircraft require pilots to maintain “proficiency” so should drone operators
      - Operators should “Log” annual hours of flights and cycles
      - Establish corporate minimum standards for operators to maintain “proficiency”
      - Part 107 Regulations Knowledge, including FAA Airspace Knowledge

  - Weather
    - Understanding forecasts/weather patterns
    - Establish weather standards for safe operations
      - Wind Maximums
      - Visibility Minimums
      - Temperature (minimum and maximum)
Establish Operational guidelines (just because it’s legal, doesn’t mean it’s safe)
- Maximum Distance from Operator
- Maximum Altitude
- Situations where Observer would be required
  - Near Populated/Residential Areas
  - Dense Vegetation/Obstacles
  - Indoors

Flight Tracking
- Software (Typically built into drone)
- Written Record (Logbook)
- Maintenance Log
Safety and Risk Management (SMS Continued)

- Pre- and post-flight checklists
  - Flight Risk Assessment (FRAT)
  - Flight and Operations Planning
  - Site Preparation

- Corporate policy for handling images captured
  - Restricts access to images captured until reviewed internally
  - Images edited to remove anything you don’t have written permission to publish

- Recommended Safety Equipment

![Image of safety equipment]

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### LOCKTON PHANTOM 3 TRAINING AND SAFETY MANUAL

The objective of this training manual is to provide operators of the Phantom 3 Drone with a full understanding of the aircraft capabilities (hardware and software) and safe aircraft operations (including FAA rules and best practices). This is designed to be an eight hour course including six hours of classroom/video training and two hours of aircraft operations (including simulator).

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Safety and Risk Management

Lockton Training and Safety Manual – Phantom 3 Professional

Storage & Transport

- Drone should be stored in a cool, dry location between 14°F - 104°F – this prevents damage to the internal components of the drone as well as damaging the batteries. Above 122°F can lead to battery explosion/fire and below 10°F can lead to permanent battery damage.
- Always use the storage case when transporting the drone.
- Drone batteries should be stored at approx. 25% of full charge if not to be used for three days or longer.
- Batteries should be fully discharged prior to airline travel with drone.

Data/Images Captured

- The data/images captured by the Phantom 3 is the property of Lockton Companies and must be treated as such.
- All data/images must be downloaded to Lockton operated PC that is password protected. Do not download these images to your personal PC.
- All data/images must be reviewed carefully prior to sharing these images with any outside personnel.
- Any images captured of property we do not have specific permission to use, must be edited out prior to sharing with outside personnel.
- While the ability to stream videos live or upload directly to public web sites (YouTube) is available, all images must be downloaded and reviewed for proper content prior to uploading to any public web site.
Safety and Risk Management

Lockton Training and Safety Manual – Phantom 3 Professional

TAKE OFF
Warn bystanders of imminent takeoff “CLEAR.”
Power up motors.
Hover 3–5 feet AGL for 10–20 seconds—look/listen for defects.
Confirm expected controller operations working properly.

LANDING
Check landing area clear of obstacles (approx 10 feet from operator).
Hover 3–5 Feet AGL for 10–20 seconds prior to landing.
Slow controlled landing to ground.
Power off motors.
Confirm rotor spin stopped.
Drone OFF/remove drone battery.

FLIGHT
Monitor battery level.
Maintain line of sight with drone at all times.
Monitor signal strength.
Fly safely.

POST-FLIGHT
Visually check aircraft/propellers.
Remove SD card from camera.
Log flight in Pilot application—make notes where needed.
Controller OFF.
Tablet OFF.
Remove propellers for storage.
Store all equipment and secure storage case.
Be a good ambassador for Safe Drone Operations

- In public settings, try to inform others you’ll be taking pictures or video of them before you do.
- If you believe someone has a reasonable expectation of privacy, secure their permission prior.
- Don’t fly over private property without permission if you can easily avoid doing so.
- Don’t gather personal data for no reason, and don’t keep it for longer than you think you have to.
- If someone asks you to delete personal data about him or her that you’ve gathered, do so.
- If anyone raises privacy, security, or safety concerns with you, try to educate them with what you are doing and how the information will be used. Listen to their concerns as long as they’re polite and reasonable about it.
- Treat drones a business tool, not as a toy.
Drone insurance
Frequently Asked Questions Regarding Drone Insurance

- Do I need insurance for my drone?
- Do I need to be approved by the FAA to obtain drone insurance?
- What would commercial drone insurance cover/not cover?
- How much does drone insurance cost?
- Does the FAA require we have insurance?
Do I Need Insurance For My Drone?

Yes; aviation has been and always will be a litigious environment – and the first BIG claim is waiting to happen...

- April 17, 2016 - Airbus A320 landing at Heathrow Airport strikes small drone operating near airport.

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<td>1,148</td>
<td>1,765</td>
<td>1,695 (Projects Annually ~2,200)</td>
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More than 770,000 people have registered their drones from December 2015 to March 2017. The FAA estimates small, hobbyist UAS purchases may grow from 1.9 million in 2016 to over 4 million by 2020.
If I need insurance - Where can I find Coverage?

Drone Operations Typically falls into one of the following:

- Employee Owned Drones
- Hire a Commercial Drone Operator
- Establish In-House Drone Operations
If I need insurance - Where can I find Coverage?

Where will Employee Owned Drones find insurance?

- Insurance provided via Home Owner or “Hobbyist” Policy.
- Policies will EXCLUDE coverage for commercial/business operations

(This is not a viable solution)
If I need insurance - Where can I find Coverage?

Where will a Commercial Drone Operator find insurance

- Treat drone operator just as any other sub-contractor you may hire for your business. They should provide their own liability coverage for drone operations on your behalf.

- Require a current and valid certificate of insurance be issued to your business.
- Get named as “Additional Insured” with respect to liability coverage.
- Minimum limits of $1M each occurrence are easily secured. Your specific exposure may require higher limits of liability and should be reviewed closely.
- The certificate should specifically include:
  - “Personal injury” coverage.
  - “Premises Liability” coverage
  - 30 Day Notice of Cancellation
In-House Drone Operators will find insurance:

• Look to General Liability Policy for insurance
• Purchase Aviation Specific Drone Liability Policy
Where can I find Coverage?

**General Liability Policy**

- Standard coverage only applies while aircraft “is operated per the procedures and practices specified in the FAA Small UAS Rules”

- **Liberty Mutual**: “When used in compliance with all FAA rules and regulations, unmanned aircraft usage”

- **AIG**: Bodily injury or property damage arising out of the operation of an unmanned aircraft system which (i) is remotely controlled by an operator, (ii) is operated per the procedures and practices specified in the FAA Part 107, (iii) has an airworthiness certificate or an exemption under Section 333 of the FAA Modernization and Reform Act of 2012, and (iv) does not weigh more than ten (10) pounds (hereinafter referred to as Unmanned Aircraft Systems).
Do I Need to be Approved by the FAA To Obtain Aviation Specific Drone Insurance?

**Aviation Specific Policy**
- No Exclusion for violating FAA Part 107
- More expensive than GL policy.

**Data Needed:**
- Confirmation your operators maintain “Remote Pilot in Command” certificate and drones are registered with FAA.
- Make and model name of drone including size and weight.
- Description of area of operation (urban/rural).
- Use of operation: mapping; agriculture; law enforcement; **aerial survey**.
- Operators experience level and pilot ratings (if any) & training information
- Description of corporate policy for handling of images captured. Are images kept in secured server/password protected laptop? Images reviewed prior to publishing to public (editing images you don’t have authority to make public).
What Would Aviation Specific Drone Insurance Cover?

**Physical Damage**

- Some insurers willing to provide physical damage on values as low as $1,000.
- Standard Rates (10% Rate / 10% Deductible)
- Explore adding to Corporate Property Insurance Program (flight coverage excluded)

**Liability—Bodily Injury and Property Damage**

- Drone Liability – arising out of the ownership/operation/use of Drone
- Premises Liability – arising out of operations of the operator
- Personal Injury - includes: *Oral or written publication, in any manner, of material that violates a person’s right of privacy*

- Up to $10M readily available for any operator
- $10M to $25M for available for operators with documented training procedures.
What Would Commercial Drone Insurance Cover?

**Additional Coverages:**

- Medical Payments
- Worldwide Territory
- Fire Damage Liability
- Coverage includes “All Operations of the Named Insured”
- Non-Owned Drone Liability Coverage
- Contractual Liability – review the requirements for submitting contracts to insurer.
Standard Drone Liability Policy Exclusions

- Expected or intended injury
- Workers compensation (or similar laws) & Employers Liability
- Damage to property owned by or in the Care, Custody and Control of the insured - some insurers will remove this exclusion
- Discharge of any munitions
- Dispensable Loads (releasing anything from the drone)
- Consequential Loss
- Fines or Penalties from Government Agencies
  October 6 2015 – FAA Fined SkyPan International Inc., $1.9 million penalty for reported 65 illegal flights between March 2012 and Dec. 2014 in Class B Airspace. FAA Penalties range from $100 for small entities or individuals to $25,000 per violation for large businesses.
How Much Does Drone Insurance Cost?

Recent Example of Aviation Specific Policy

- DJI Phantom 4 (3 Lbs / 28 Minute Flight Time / Range 3.1 Miles)
- Public Entity
- Aerial survey
- Liability $3MIL
- Physical Damage—$1,500
- Annual Premium
  - Liability $3M : $1,280
  - Hull $1,500: $134.
  - Total Premium: $1,414

“Fleet” pricing (Liability Only)—Examples

- Up to TEN Drones - $1M Liability = $4,000 ($400 per)
- Up to TEN Drones - $10M Liability = $16,000 ($1,600 per)
How Much Does Drone Insurance Cost?

History of Drone Liability Pricing (Single Drone)

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<td>2017</td>
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Does the FAA Require We Have Insurance?

No - FAA does not require Drone aircraft operators to maintain insurance.

No mention of insurance requirements within Part 107.

Very likely that operators who are “operating UAS for hire” will need to secure some type of liability coverage (just a commercial aircraft operator is currently required to maintain).
Questions?
Our Mission

To be the worldwide value and service leader in insurance brokerage, employee benefits, and risk management

Our Goal

To be the best place to do business and to work