Unmanned Aircraft Systems (UAS) 101

Presented to:  Contract Management Conference

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Overview

• Unmanned Aircraft Systems
  – What & Why
• FAA Authority
• Types of UAS Operations
  – 333 Exemptions
  – Hobby/Recreational Operations
  – Small UAS Rule (Part 107)
• Outreach Efforts
What is a UAS?

- **Unmanned Aircraft System**

- **A UAS is a system:**
  1. Unmanned Aircraft
  2. Ground Control Station
  3. Command & Control Link(s)

- **Also known as:**
  - Unmanned Aerial Vehicle (UAV)
  - Remotely Piloted Aircraft System (RPAS)
  - RC Model Aircraft
  - Drone
Why Use a UAS?

- UAS operations are particularly effective for missions that are dangerous or dull
  - Humans are not put at risk
  - Continuous operations are possible

- Operations with UAS often cost less than using manned aircraft
What is the FAA’s Authority?

• U.S. airspace is public space
  – 49 U.S.C. §40103(a)(1)

• UAS are aircraft subject to regulation
  – 49 U.S.C. §40102(a)(6) ; PL 112-95 §331 & §336; 14 CFR 1.1
    – An aircraft is any device used, or intended to be used, for flight

• UAS must comply with FAA regulations
## Types of UAS Operations

<table>
<thead>
<tr>
<th>333 Exemption Operations</th>
<th>Model Operations</th>
<th>Part 107 Operations</th>
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</thead>
<tbody>
<tr>
<td><strong>Pilot Requirements</strong></td>
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<tr>
<td>Must have Part 61 pilot certificate</td>
<td>No FAA pilot requirements</td>
<td>Must have Part 107 Remote Pilot certificate</td>
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<tr>
<td><strong>Aircraft Requirements</strong></td>
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<tr>
<td>Must be listed in the exemption</td>
<td>&lt; .55 pounds must be registered</td>
<td>Must be less than 55 pounds</td>
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<td>&lt; 0.55 pounds must be registered</td>
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<tr>
<td><strong>Location Requirements</strong></td>
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<tr>
<td>Must comply with the Certificate of Authorization (COA)</td>
<td>Must notify all airports and air traffic control (if applicable) within 5 sm</td>
<td>Class B, C, D, and surface E require ATC permission</td>
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<td>Class G, &amp; the rest of Class E without ATC permission</td>
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<tr>
<td><strong>Operating Rules</strong></td>
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<tr>
<td>Operator requires an exemption.</td>
<td>Must keep aircraft in visual line-of-sight</td>
<td>Must comply with Part 107.</td>
</tr>
<tr>
<td>Must comply with Part 91, and the Conditions &amp; Limitations in the exemption.</td>
<td>Must follow community-based safety guidelines</td>
<td>Operator may have waiver from certain parts of the rule.</td>
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<tr>
<td><strong>Purpose</strong></td>
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<tr>
<td>Any Civil operations allowed by the exemption</td>
<td>Only Recreational or certain Educational flying</td>
<td>Any Civil operations allowed under the rule.</td>
</tr>
</tbody>
</table>
The Small UAS Rule (Part 107)

- First rules for routine operation of small UAS (<55 pounds)
- Took effect August 29, 2016
- Recreational operators may fly under part 107 or Public Law 112-95 Section 336/Part 101 criteria
Part 107 Operating Rules

- Visual line-of-sight only
- Daylight or civil twilight only
- No operations over people
- Must yield right-of-way to manned aircraft
- One UAS per operator
- Max groundspeed of 100 mph
- External load operation permitted if the load does not affect flight operations or control
The Basics

• Remote Pilot Certificate required
• Must not have any known medical issues
• <400’ AGL or within 400’ of a structure; other airspace use requires authorization
• UAS must weigh <55 lbs.
• Registration required
Part 107 Airspace Requirements

- Class B, C, D & surface Class E require ATC authorization
- Class G and the rest of Class E without ATC authorization
- Phased approach to airspace authorizations
- Online portal available at https://www.faa.gov/uas
Waivable Provisions of Part 107

- Operation from a moving vehicle or aircraft (§ 107.25)
- Daylight operation (§ 107.29)
- Visual line of sight aircraft operation (§ 107.31)
- Visual observer (§ 107.33)
- Operation of multiple small UAS (§ 107.35)
- Yielding the right of way (§ 107.37(a))
- Operation over people (§ 107.39)
- Operation in certain airspace (§ 107.41)
- Operating limitations for small UAS (§ 107.51)

Online portal available at [www.faa.gov/uas/request_waiver/](http://www.faa.gov/uas/request_waiver/)
UAS - Evolving Policy, Encouraging Innovation

- Unmanned Aircraft Systems Act (PA 432 of 2016, Amended 2018)
  - State Preemption, State Authorization for Use
  - Extension of self
  - Interference with public safety official
  - Interference with key facility
  - Harassment, restraining order, sexual offense
  - Protection of privacy rights
  - Michigan Aeronautics Commission – UAS Program Office
  - Some State Agency Restrictions
  - UAS Task Force

- Federal Aviation Administration 2018 Reauthorization and Rulemaking
  - Draft Notice of Proposed Rulemaking (NPRM) for beyond visual line of slight (BVLOS), flight over people
  - Hobbyist registration reinstated
  - Part 135--esque commercial rules
  - Remote ID and UAS Traffic Management (UTM)
Internal MDOT UAS Guidance Draft

- MDOT Guidance Document
  - Establish internal MDOT procedural and operational requirements in order to ensure the safety and efficiency of all UAS flight operations conducted by MDOT personnel or on behalf of MDOT
  - To ensure that MDOT, its employees, and other on behalf of MDOT remain compliant with 14 CFR Part 107 and/or MDOT Public Certificate of Authorization, and all other federal, state, and local laws.

- UAS Operational Policy & Guidelines for Small Unmanned Aircraft Systems
  - MDOT UAS Program Office & Program Manager / Training Officer
  - Bureau/Office Director, Region Engineer, or designee / UAS Coordinator
  - Procurement, Registration, Maintenance, SOPs

- Comments are welcome!
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