

# FAA Part 107

Key Concepts and Terms to gain a basic understanding

# Agenda

- ▶ Introduction
- ▶ History of the CFR 107
- ▶ Terms
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- ▶ FAA Part 107 Certification
  - ▶ Test Structure
- ▶ Tying it all together
- ▶ Waiver Process
- ▶ References

# Introduction

- ▶ Why are you here?
  - ▶ Interest in understanding the regulatory structure
    - ▶ Certifications
    - ▶ Waivers
    - ▶ Exemptions
  - ▶ Interest in using drones in current operations
  - ▶ Interest in validating compliance requirements for drone subcontracting structure

# History of the CFR Part 107

- ▶ Drones have existed in different forms since the early 1900s
- ▶ Mid-2000s, it was illegal to operate drones for commercial purposes
  - ▶ The FAA allowed non-commercial flights under 400 feet if drone pilots followed Advisory Circular 91-57, Model Aircraft Operating Standards, published in 1981.
- ▶ On September 16, 2005, the FAA issued guidelines on the domestic use of UAVs. The agency then released a policy document concerning the operation of drones on February 13, 2007. Between the two documents, the FAA's hesitation to institute the use of drones in the United States for non-recreational purposes becomes clear. Certificates of Waiver or Authorization (COAs) were required and granted to businesses with a public entity as a sponsor. For example, when British Petroleum used the Aeryon Scout drone to observe oil spills, BP needed a COA granted to the University of Alaska Fairbanks.
- ▶ Politicians, pursued by lobbyists and special interests, recognized the need to work with the drone community. The result was the FAA Modernization and Reform Act of 2012.
  - ▶ In Section 333 of the Reform Act of 2012, Congress noted that the “Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the plan and rule making required by ....” Section 333 allowed commercialized drone flights on a case-by-case base. Sure, it still took forever, longer than six months typically, to get a 333 exemption.
- ▶ June 21, 2016, The new commercial regulations are explained in a 624-page publication by the FAA, the Office of the Secretary of Transportation, and the Department of Transportation. Part 107 establishes drone laws for the commercial operation of drones in Class G airspace (under 400 feet), accommodating future growth and pursuant to a set of operational and safety requirements.

# Terms

- ▶ Section 333 Exemption

- ▶ The Section 333 Exemption process provides operators who wish to pursue safe and legal entry into the NAS a competitive advantage in the UAS marketplace, thus discouraging illegal operations and improving safety. It is anticipated that this activity will result in significant economic benefits, and the FAA Administrator has identified this as a high priority project to address demand for civil operation of UAS for commercial purposes.

- ▶ **SEC. 333. SPECIAL RULES FOR CERTAIN UNMANNED AIRCRAFT SYSTEMS. (a) IN GENERAL.**—Notwithstanding any other requirement of this subtitle, and not later than 180 days after the date of enactment of this Act, the Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the plan and rulemaking required by section 332 of this Act or the guidance required by section 334 of this Act.

# Terms

## ▶ Part 107

- ▶ The Small UAS rule adds a new part 107 to Title 14 Code of Federal Regulations (14 CFR) to allow for routine civil operation of small Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) and provide safety rules for those operations. The rule defines small UAS as unmanned aircraft weighing less than 55 pounds. To mitigate risk, it will limit small UAS to daylight and civil twilight operations with appropriate collision lighting, confined areas of operation, and visual-line-of-sight operations.
- ▶ FAA Extension, Safety, and Security Act of 2016 (FESSA) 2210
- ▶ SEC. 2210. OPERATIONS ASSOCIATED WITH CRITICAL INFRASTRUCTURE. Any application process established under section 333 of the FAA Modernization and Reform Act of 2012 shall allow for a person to apply to the FAA to operate an unmanned aircraft for purposes of conducting an activity described 2 in subsection (b)—(1) beyond the visual line of sight of the individual operating the unmanned aircraft system; and (2) during the day or at night.

# Terms

- ▶ Certificate of Waiver Authorization
  - ▶ COA is an authorization issued by the Air Traffic Organization to a public operator for a specific UA activity. After a complete application is submitted, FAA conducts a comprehensive operational and technical review. If necessary, provisions or limitations may be imposed as part of the approval to ensure the UA can operate safely with other airspace users. In most cases, FAA will provide a formal response within 60 days from the time a completed application is submitted.

# CFR Part 107: Major Provisions

- ▶ Unmanned aircraft must weigh less than 55 lbs. (25 kg) □
- ▶ Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS □
- ▶ 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 or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting □
- ▶ Must yield right-of-way to other aircraft □
- ▶ May use visual observer (VO) but not required □
- ▶ Maximum groundspeed of 100 mph (87 knots) □
- ▶ Maximum altitude of 400 feet above ground level (AGL) or, within 400 feet of a structure, 400 feet above that structure □
- ▶ Minimum weather visibility of 3 miles from control station and must remain 500 feet from clouds (no ceiling requirement) □
- ▶ Operations in Class B, C, D and Class E surface areas are allowed with ATC approval □
- ▶ Operations in Class G airspace are allowed without ATC permission □
- ▶ sUAS cannot be operated from a moving aircraft □
- ▶ sUAS cannot be operated from a moving vehicle unless the operation is over a sparsely populated area □
- ▶ No careless or reckless operations □
- ▶ No carriage of hazardous materials □
- ▶ FAA airworthiness certification is not required



# FESSA 2210

- ▶ FAA Extension, Safety, and Security Act of 2016 (FESSA) 2210
  - ▶ SEC. 2210. OPERATIONS ASSOCIATED WITH CRITICAL INFRASTRUCTURE. Any application process established under section 333 of the FAA Modernization and Reform Act of 2012 shall allow for a person to apply to the FAA to operate an unmanned aircraft for purposes of conducting an activity described 2 in subsection (b)–(1) beyond the visual line of sight of the individual operating the unmanned aircraft system; and (2) during the day or at night.

# Part 107 Certification

## ► Test Structure

UAS Topics	Percentage of Items on Test
I. Regulations	15 - 25%
II. Airspace & Requirements	15 - 25%
III. Weather	11 - 16%
IV. Loading and Performance	7 - 11%
V. Operations	35 - 45%
Total Number of Questions	60

# Part 107 Certification: Knowledge Areas

- ▶ The information in this study guide was arranged according to the knowledge areas that are covered on the airman knowledge test for a Remote Pilot Certificate with a Small Unmanned Aircraft Systems Rating as required by Title 14 of the Code of Federal Regulations (14 CFR) part 107, section 107.73(a). The knowledge areas are as follows:
  1. Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
  2. Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operation;
  3. Aviation weather sources and effects of weather on small unmanned aircraft performance;
  4. Small unmanned aircraft loading;
  5. Emergency procedures;
  6. Crew resource management;
  7. Radio communication procedures;
  8. Determining the performance of small unmanned aircraft;
  9. Physiological effects of drugs and alcohol;
  10. Aeronautical decision-making and judgment;
  11. Airport operations; and
  12. Maintenance and preflight inspection procedures.

# Tying it all together

## ▶ Section 333 Exemption

- ▶ If you have a fleet of aircraft, have you applied to receive a section 333 exemption for your aircraft?

## ▶ Part 107 Certification

- ▶ Do I have Part 61 Pilots in my organization?

- ▶ Submit an online application using IACRA. Meet with an FAA authorized individual [3] to validate your: • IACRA application ID number • FAA Tracking Number (FTN) • Identification • Online course completion certificate • Pilot certificate • Flight review documentation Receive a temporary certificate in person (or if meeting with a Certified Flight Instructor (CFI), receive email notification to print and sign a temporary certificate through IACRA) [4]. Receive a permanent

- ▶ Do I have designated people in my organization that do not have certifications?

- ▶ Take and Pass Knowledge course
- ▶ Submit an online application using Integrated Airman Certification and/or Rating Application (IACRA.) Receive email notification to print and sign a temporary certificate through IACRA. Receive a permanent certificate by mail.

## ▶ Certificate of Waiver/Authorizations

- ▶ For our concept of operations, do we have all of the necessary waivers in place?

## ▶ Operational Liability

- ▶ Do our subcontractors have comprehensive coverage?