

**CHAPTER 8**  
**EQUIPMENT**  
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## CHAPTER 8

### EQUIPMENT

#### 1. GENERAL.

- a. Purpose. The purpose of this chapter is to establish guidelines for the procurement and tracking of Small Unmanned Aircraft Systems (sUAS) equipment.
- b. Responsibility. Procurement, inspections, and maintenance are vital for the longevity of sUAS equipment and the safety of sUAS missions. It is the responsibility of the command to ensure all inspections are performed and logged, and appropriate replacement parts are properly stocked. The sUAS are entire systems including the aircraft, control station, communication links, and all other components necessary for safe and efficient operations.

#### 2. APPROVED SMALL UNMANNED AIRCRAFT SYSTEMS. Purchase of an sUAS different from currently owned departmental sUAS must be approved by the Assistant Commissioner, Field (ACF).

- a. At a minimum, the following features must be met for consideration:
  - (1) The ability to monitor the command-and-control link between the ground controller and the sUAS.
  - (2) The ability to monitor the battery charge level.
  - (3) The ability to monitor the altitude of the sUAS.
  - (4) The ability to display flight telemetry and store flight telemetry for logging and diagnostic purposes.
  - (5) An autonomous return to home function.
  - (6) Anti-collision capabilities (may be omitted for sUAS used primarily indoors with proper propeller guards installed).
  - (7) Built in anti-collision lights, or the ability to add aftermarket anti-collision lights (with approval from the Office of Air Operations (OAO)).
  - (8) Any other equipment required by the Federal Aviation Administration (FAA), Title 14 Code of Federal Regulations, Part 107.

- b. Procurement of desired equipment for the sUAS program outside of the approved equipment stated in this manual shall be approved by ACF, in concurrence with the OAO.
    - c. Non-Departmental Small Unmanned Aircraft Systems. Departmental employees shall not utilize personally owned sUAS. An sUAS purchased by and assigned to an interagency task force may be utilized, with Division commander approval, only if the sUAS meets the minimum standards set forth in this chapter and is flown by an approved remote pilot in command (RPIC) as set forth in this manual.
3. PROCUREMENT. Funding for procurement of sUAS shall come from the purchasing command's annual equipment budget or other approved funding, and only with Division commander approval.
  - a. Procurement of any accessories, consumable items, and maintenance items (e.g., batteries, propellers, propeller guards, software) and repairs are the sole responsibility of the command.
4. REGISTRATION. Departmental sUAS shall be registered with the FAA and display a proper registration number in accordance with current FAA regulations.
5. CONTROLLER FLIGHT MODES. Departmental sUAS shall remain in flight mode 2 with the left control stick to control elevation and rotation, and the right control stick to control forward/backward and yaw motion to ensure consistency in all flight operations.
6. MODIFICATION. Modification of sUAS in any way that alters flight characteristics is prohibited. All non-original manufacturer equipment attached to sUAS must be approved by ACF.
7. BATTERIES. Many mechanical and electrical related failures can be attributed to poor battery health. The following are recommended guidelines to maintaining healthy sUAS batteries.
  - a. Limit exposure batteries to excessive or prolonged heat.
  - b. Allow batteries to cool to room temperature after each flight prior to charging.

- c. Fully charge and discharge the battery once every three months to maintain optimal battery health.
- d. Store batteries indoors at room temperature. Batteries should not be stored in a vehicle for an extended period.
- e. Do not use a battery expanded by heat or one that does not securely fit in the sUAS.
- f. Do not remove or install a battery from an sUAS while it is turned on, unless it is specifically designed to handle hot swapping of batteries.
- g. Do not leave lithium-ion batteries on a charger, unattended, due to the risk of fire.

8. FLIGHT MANAGEMENT SOFTWARE. The Department should maintain appropriate sUAS flight management software to ensure pertinent flight information, maintenance records, and equipment information are quickly accessible. The sUAS flight management software shall, at a minimum, include the following features:

- a. Flight logs.
- b. Equipment management.
- c. Maintenance management.
- d. Custom checklists.
- e. Mission planning.
- f. Live streaming capabilities.

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