

# Field Maintenance Guide - Atmospheric Filtration Drone Swarm

This guide contains core maintenance procedures for drone operators and technicians. It ensures safe, modular servicing of filtration drones in field environments with minimal tools or downtime.

## 1. Daily Visual Inspection

- Check for visible cracks, dust clogging, or propeller damage
- Confirm solar panel is clean and connected (if applicable)
- Inspect filter module seal integrity
- Verify LED and status indicators

## 2. Battery Swap Protocol

- Power down drone completely
- Use insulated gloves for removal
- Replace with fully charged unit
- Verify battery serial number in registry

## 3. Filter Replacement

- Detach lower chassis module
- Remove saturated filter cartridge
- Insert new filter (ensure match with mission type)
- Log replacement in DAO or manual logbook

## 4. Firmware Update (Offline)

- Connect USB-C to onboard port
- Use FieldOS or mobile sync tool
- Verify hash signature post-upload
- Restart drone before mission

## 5. Emergency Reset Steps

- Hold power button for 10s
- Drone will enter safe mode (blinking blue)
- Reconnect to swarm once stable
- Run diagnostics before redeployment

## **6. Component Swap Matrix**

- Propellers: Phillips head + dampeners
- Filter shell: Quick-release tabs under body
- Sensors: Modular LIDAR and AQI sensors hot-swappable
- Arms: Detachable using hex key size #3