

Flight Communications Protocols

Communications Briefing: Safety Procedures and Communication Protocol

A. Mayday

1. Mayday announcements are performed only by the PIC.
2. Mayday announcements force all filming operations to halt and for all crews and participants to take the necessary precautions and/or actions to locate the UAS and, if needed, find shelter.
3. Mayday announcements force all UAS crew to immediately locate the UAS, direct others out of its flight path, and/or if needed, direct them to shelter.

B. Clear the flight location

1. Clear the flight location announcements are performed by the location or UAS crew in charge.
2. Clearing the flight location announcements for emergencies such as fires, explosions or other life threatening dangerous circumstances may be performed by police, security, fire personnel or any of the UAS or location crew.

C. In-Flight Emergency

1. Land-Land-Land Announcements can be initiated by any of the UAS crew before departure, in flight or any other condition that requires the pilot to immediately land the UAS aircraft.
2. The UAS crew can at any time before or during a flight for whatever reason such as he or she feels or observes that the flight is unsafe, can announce, "We have a problem and need to land."

D. Defining In-Flight Emergency

1. Any UAS crew member can call an In Flight Emergency by Announcing to the Pilot / PIC: "We have a problem and need to land."
2. "Stating a problem as clear and concise as possible "the need to land."
3. Pilot Announces Response: "Copy landing immediately."

E. In-Flight Corrections and Announcements

1. Pilot loses orientation of UAS In-flight.
 - a. Pilot Announce: "UAS orientation lost."
 - b. VO Announce: "Last seen position was____."

- 2. Corrective Action
 - a. PIC Announce: “use camera to find ground marker.”
- F. Signal is Lost In Flight
 - a. Pilot Announce: “I have lost control of UAS.”
 - b. Pilot Announce: “UAS is not responding to my commands.”
 - c. PIC Announce: “signal lost informing crews.”
- G. Make all crews aware that the UAS signal is lost and to be on high alert.

Organization and Equipment

- A. UAS Flight, ground crew team and important location crew.
 - i. PIC, UAS Pilot / Camera operator
- B. UAS Team Communication Equipment
 - i. Hand Radios or walkie talkies
 - ii. Head Set w/Mics as required
 - iii. Bullhorn for flight location Flight Announcements
- C. UAS Communication Equipment
 - i. UAS Base Radio Controller

Communications Check

- A. Sync Radio Channels
 - i. Test All Channels
 - 1. Select one Channel for Flight Operations
 - 2. Select one Channel for Emergency Backup
- B. Radio Communications Check
 - i. PIC Announce: Radio Check “Name and Position Radio Check”
 - 1. PIC, Pilot In Command
 - 2. Camera Operator
 - 3. Observer x (Number of Observers)
 - 4. Location Crew x (Number of “Required Only” Location Crew)
 - ii. PIC Announce: “We have Radio Com”
- C. Bull Horn for the Location Flight Announcements Check
 - i. PIC Announce: “Flight and Crew Com Check”
 - ii. Observer (On Radio) Announce: “Bull Horn Check Affirmative”
 - iii. Location Crew (On Radio) Announce: “Bull Horn Check Affirmative”
- D. Clear Communications must be established before each flight.

Communications and Checks Prior to Takeoff

A. Battery Check Before Takeoff

- i. PIC Announce: "Voltage Check _____ Volts _____ % of battery."
- ii. Observer Announce: Mark Voltage in Pilot Log
- iii. Observer Announce: "Repeat Voltage, Before Takeoff" after inputting data into pilot Log.
- iv. PIC Announce: "Powering UAS"
 1. PIC Action: Plug in Batteries Red than Black
- v. PIC Announce: "UAS Has power"
- vi. PIC Announce: "Battery Voltage on Monitor _____ Volts"
- vii. Observer Respond: "Repeat Voltage, inputting voltage into Pilot Log."

B. UAS to Ground Controller Pairing

- i. PIC Announce: Satellite Pairing
 1. Activity: LED Description, "what colors are flashing" ex. Purple-GPS Yellow-Attitude mode
 2. After GPS locks and Home Point is recorded LED will Flash Green
- ii. PIC Announce: "Satellite Lock ___10___ satellites, Home Base Recorded"
- iii. PIC Announce: "Camera on?"
- iv. Camera Operator respond: "Camera is Recording, Batteries are good"

C. Preparing for Takeoff

- i. PIC Announce: "Final Check of Flight Area"
- ii. Observer Respond: "___ name ___ Final Check Complete ready for Take Off"
- iii. Gimbal Operator: "___ name ___ Final Check Complete ready for Take Off."
- iv. PIC Announce: "Ready for Power."
- v. PIC Announce: "1 minute to Power, Take Positions and Ready for Power."
- vi. Camera Operator: "Camera Operator in Position and Ready."
- vii. Observer Respond: "Observer in Position and Ready for Power."
- viii. PIC Announce: "Clear for Take-off, Powering Motors."
- ix. PIC Announce: "Ready for Take Off, Final check of flight area"
- x. Observer Respond: "___ name ___ Clear Ready for Take Off."
- xi. Camera Operator: "___ name ___" Clear Ready for Take Off."
- xii. PIC: "Clear to Power up UAS."
- xiii. PIC Announce Loudly: "Powering Motors and Taking Off."

In Flight Communications

1. Immediately after taking-off, at low level make sure you have full control of UAS.
 - i. PIC Announce: "Systems Check Complete Ready for Flight."
 - ii. Camera Operator: "Camera Ready."
 - iii. PIC Announce: "_____ Voltage on Monitor after take-off."
 - iv. Observer respond: "Repeat Voltage on Monitor."
 - v. PIC: Ready to Initiate Flight Plan.
 - vi. Observer Respond: "____name____ ready".
 - vii. Camera Operator: "____name____ Camera ready for Flight Plan"
 - viii. PIC: Starting Flight in 3, 2, 1"
2. Completing Flight Plan Return to Location or Base
 - i. Observer: "Negative Flight Plan."
 - ii. PIC: Roger, UAS returning to Start Filming Position for a second pass
Or
 - iii. Observer: "Flight Plan Complete."
 - iv. PIC: Roger, UAS returning to base for landing.
3. Landing Communication
 - i. PIC announce loudly: "Landing UAS."
 - ii. Camera Operator: "Roger, landing UAS, returning camera to center."
 - iii. Camera Operator: "Camera centered, ready landing gear."
 - iv. PIC: "Landing gear down and locked, on-final."
 - v. PIC: "Clear Landing zone.
 - vi. Observer: "Landing zone clear."
 - vii. Camera Operator: "Landing check."
 - viii. PIC: motors off.

4. After motors shut-off initiate post flight checklist

In Flight- Observer Commands

- i. Observer: Relays info to Pilot / PIC
- ii. Observer: Announce Altitude every 20 feet in elevation change – if required
If UAS is getting out of sight or hard to locate.
- iii. Observer: “UAS VLOS problem, losing line of sight.”
- iv. Observer: Lost UAS, abort Flight Plan.
- v. Observer Announce: “Aircraft/Danger spotted, Abort Flight.” Describe situation, direction and heading.
- vi. Pilot “Aircraft Landing immediately.”
- vii. Observer Announce: “UAS spotted, Abort Flight.
- viii. Observer Announce: UAS in unapproved air-space, climb, descend, proceed (direction) immediately (as required)
- ix. Ovserver: “UAS is in view, landing immediately.”