RCAPA Recommended Operational Guidelines
AERIAL PAK IS ADMINISTERED BY HILL & USHER INSURANCE

One of the many goals of this association is to help define recommended operational guidelines for it's members to use. As is the case with all aircraft, operational safety is the first and most important consideration.

THE GUIDELINES ARE CATEGORIZED AS FOLLOWS:

* General Guidelines
* Proper Building of the Aircraft and Testing
* Flight Operation Checklists
* Maintenance and Log Books
* Other Recommendations

General

All RCAPA members shall abide by the following:

1. Be aware of and abide by FAA regulations, NOTAM's, and TFR's
2. Manned aircraft have right-of-way at all times
3. Avoid flight over persons or property
4. Do not fly while under the influence of alcohol or drugs
5. Aircraft shall remain in line of sight at all times
6. Optical systems use by pilot is allowed if a designated spotter is used
7. Aircraft stability devices and GPS failsafe returns are allowed
8. Autonomous fights are NOT allowed during any RCAPA operations
9. Have a clear understanding of the FAA regulations applicable to the airspace used
10. Flight operation will not be undertaken unless the aircraft is airworthy

Proper Building of the Aircraft and Testing

Since the types of aircraft used by the members of this association are wide and varied, the building techniques are going to be as diverse. The main considerations to be aware of in all types are:

1. Aircraft is large enough to be seen in all flight operations
2. Aircraft is small enough to operate within a landing zone
3. Aircraft coloration makes it's orientation visible at all times
4. Aircraft is built to carry the added weight of photography equipment intended for use
5. Aircraft is capable of the increased load factors in-flight
6. Aircraft are test flown and deemed airworthy before being put in service
7. Aircraft final test flights to include all photo equipment installed

Flight Operation Checklists

Flight operations checklists are typically separated into six phases of flight checks which are Pre-Flight, Control Systems Check, Before Take Off, In-Flight Operations, Landing, and Post-Flight Operations.

Pre-Flight:
1. Before the first flight of the day, verify all transmitter, on-board aircraft, and camera batteries are fully charged.
2. Check all control surfaces for signs of damage, loose hinges, and overall condition.
3. Check the control linkages are secured and the condition of the control horns and brackets.
4. Check the wing to make sure it is in good structural condition and properly secured and aligned to the airframe.
5. Check the motor/engine and mounting system to make sure it is firmly attached to the airframe.
6. Check the propeller or rotor blades for chips, cracks, looseness and any deformation.
7. Check the landing gear for damage, for secure attachment, and the wheels are in good shape and rotate freely.
8. Check that the servos are firmly attached to the airframe and all receiver connections are secure.
9. Check all electrical connections making sure they are plugged in and secured to the airframe.
10. Check that the photography equipment and mounting system are secure and operational.
11. Perform an overall visual check of the aircraft prior to arming any power systems.
12. Repair or replace any part found to be unairworthy in the pre-flight prior to take-off.
13. Fill fuel tank if applicable.
14. Perform assessment of operational area to identify hazards that may interfere with operation.
15. Determine if barriers or crowd control personnel are needed to protect public from harm.
16. Install barriers and/or assign duties to crowd control personnel as needed.

Control Systems Check:
1. Make every effort to assure that no one in the area is using your radio's frequency before turning on your transmitter.
2. Make sure that all of your body parts, clothing, other obstructions, and bystanders are well away from any propeller or rotor and its arc before turning power on to any systems. Make sure the aircraft is secure and will not move if the motor was suddenly powered up.
3. Announce out loud - "CLEAR PROP".
4. Turn on the transmitter. If it displays information such as aircraft memory and battery voltage, be sure these numbers are correct.
5. Make sure that the throttle stick on the transmitter is in the power off position.
6. Connect the battery and/or turn on the power switch to the aircraft.
7. Follow the recommended range test procedures as outlined in your radio transmitter/receiver owner's manual.
8. Check for proper operation of control surfaces.

9. Check that all servos are steady and not chattering or making any other abnormal noise when in operation or idle.
10.Check the motor/engine for proper operation. Firmly secure the aircraft and gradually increase the throttle to full power and back down to idle - checking for lack of thrust, vibration or other possible anomalies. Check that the motor stops completely when the throttle stick is at the off position.
11. Check that photo/video equipment power is on. Check to make sure the triggering device is working correctly.

Before Take Off:
1. Confirm transmitter antenna is fully extended.
2. Confirm transmitter trims settings in proper position.
3. Confirm receiver antenna is fully extended.
4. Check that the take off area is clear of obstructions and people.
5. Double check weather conditions and review potential emergency landing areas.
6. Set flight timer alarm.
7. Announce out loud - "TAKE OFF".
8. Launch aircraft.

In-Flight:
1. Climb to a safe altitude away from potential hazards and check control systems. Reset trims if necessary.
2. Keep aircraft at a safe operating distance from people and buildings.
3. If aircraft must be flown over buildings or people, maintain a safe altitude for recovery & make every effort to minimize that time.
4. Continually scan the flight and ground areas for potential hazards.

Landing:
1. Check the control systems and set the trims that if necessary, an emergency abort landing can be made.
2. Scan landing area for potential obstruction hazards and recheck weather conditions.
3. Announce out loud - "LANDING".
4. Always be prepared to go around.
5. Carefully land the aircraft away from obstructions and people.

Post-Flight:
1. Turn the power off to the aircraft and/or disconnect the batteries.
2. Turn off the transmitter.
3. Turn the power off to the photo equipment.
4. Visually check aircraft for signs of damage and/or excessive wear.
5. Remove the unused fuel if applicable.
6. Secure the aircraft.

Maintenance and Log Books

Any damage or worn out parts need to be replaced or repaired before the next flight occurs. Log books are not only used to log aircraft flight times with a running total, but to record all maintained, i.e. component installation, repairs, and replacement. Each aircraft should have an identifying number that can be connected to the aircraft and corresponding aircraft log book.

The logbook should be kept with the aircraft. All repaired aircraft shall be tested, deemed airworthy, and so noted in the maintenance logbook before resumption of AP duties.

Other Recommendations

The use of a Spotter at all times is highly recommended. A Spotter can alleviate much of the burden to the pilot of scanning for possible hazards in the air and on the ground. An experienced spotter can be helpful in lining up particular shots by directing the best place and angle in the sky to photograph the target on the ground. They can head off and talk to those bystanders that invariably wander over to talk to you while you are concentrating on your flying and photography. And, it's more fun to have someone else around that you know while you're flying...

A valuable tool to consider adding to your flight equipment is a frequency monitor, especially in higher density population's areas. There are handheld units available to tune to your radio's frequency and "listen" for any signals that could interfere with your aircraft in flight.

Know yourself. There is quite a bit of difference between the types of aircraft, photography equipment, and configurations that the association members use. There is also a wide range of differences in pilots, photographers, builders, inventors, technicians, engineers, and personalities in RCAPA. Never "bite off more than you can chew" when it comes to flying - know your own personal limitations. This will almost always make you a safer remote control aerial photographer.