

Profiler-B/Aeropod Operating Procedures

April 7, 2010 revised May 14, 2012

Flight operations require a minimum of three qualified participants.

All actions shall be verbally announced and acknowledged

1) PREFLIGHT PLANNING SESSION

- Review mission objectives, flight profile, and contingency plans
- Review flight hardware and status
- GO/NO GO Criteria (wind limits, etc.)
- Determine personnel roles and responsibilities (*Flyer, Launcher, Spotters, etc.*)

2) KESTREL 4500 PREPARATION

- Install two AAA alkaline batteries using provided shim
- Set date and time to accurate reference (Date & Time)
- Calibrate digital compass (System>Compass Cal)
- Turn auto shutdown off (System>Auto Shtdwn>Off)
- Turn automatic data storage off (Memory Options>Auto Store>Off)
- Set data store rate to 2 seconds (Memory Options>Store Rate>2s)
- Turn Kestrel 4500 off until ready to fly

3) TRANSPORT TO FLYING SITE

- Verify safe flight area (people, property, obstructions, etc.)
- Re-evaluate GO/NO GO conditions and record (wind, weather, etc.)
- Re-evaluate flight plan with regards to local conditions (wind, sun, etc.)

If conditions are GO, proceed to step 4

4) AEROPOD PREPARATION

- Slide two #32 rubber bands over aft end of 1/4" x 24" boom (~10")
- Seat a 4" x 12" fin to bottom of boom in the forward (horizontal) location
- Stretch the #32 rubber bands over aft end of boom, securing fin

- Slide two #32 rubber bands over aft end of 1/4" x 24" boom (~4")
- Seat a 4" x 12" fin to side of boom in the aft (vertical) location
- Stretch the #32 rubber bands over aft end of boom, securing fin

- Attach a leader (10-15 feet) to the *Profiler/AeroPod* pylon attach point
- Suspend assembled *Profiler/AeroPod* by leader and observe orientation
- Pylon attach point may be moved fore/aft to level boom/pitch axis
- Pylon attach point and/or vertical fin may be flipped left/right to level roll axis

5) PROFILER-B/AEROPOD KESTREL 4500 PAYLOAD PREPARATION

- Clear memory log (Memory Options>Clear Log>Go)
- Reset min/max/avg data (Memory Options>Reset MMA>Go)
- Turn automatic data storage on (Memory Options>Auto Store>On)
- Install Kestrel 4500 payload in the *AeroPod* boom assembly

NOTE: In this configuration, the Kestrel 4500 will gather data every 2 seconds as long as the unit remains powered. To conserve battery power, the Kestrel 4500 will not automatically record data at the 2 and 5 second intervals while powered down (as it would normally do at slower data rates). The Auto Shutdown feature was disabled in the Kestrel Preparation (Step 2) to prevent premature shutdown and data loss.

6) KITE ASSEMBLY AND LAUNCH

- Verify that operating area is clear of non-participants and other hazards
- Assemble kite following manufacturer's instructions
- Attach 225 ft leader to kite bridle/attachment point
- Install attachment ring on leader lower swivel
- Attach flying line to leader via ball bearing swivel
- Launch kite and ascend to end of 225 foot leader
- Record launch time

7) PROFILER/AEROPOD FLIGHT AND DATA COLLECTION

- Attach *Profiler-B/AeroPod* leader to attachment ring
- Gently release *Profiler-B/Aeropod* while spooling out line
- Smoothly release line to allow kite to ascend to desired altitude
- Carefully walk to position kite for optimum data collection

8) RECOVERY

- After desired data is collected move to recovery site
- Recover kite until *Profiler-B/Aeropod* is near ground
- Gently "catch" the *Profiler-B/Aeropod* and detach from attachment ring
- Complete kite recovery
- Record recovery time

9) PAYLOAD SHUTDOWN AND DATA RECOVERY

- Turn automatic data storage off (Memory Options>Auto Store> Off)
- Remove Kestrel 4500 from the *Aeropod* boom assembly

NOTE: The Kestrel Weather Meter Communicator software must be installed on a PC and the Bluetooth USB receiver must be attached and configured for proper operation.

- Follow manufacturers instructions to establish communication between Kestrel 4500 and PC using Bluetooth wireless capability.
- Access the Kestrel 4500 using the Kestrel Communicator software
- Download the flight data from the Kestrel 4500
- Select the Data Log tab to view, chart, and export data

NOTE: We recommend exporting the entire data in the native .xml format as well as the user's preference of .csv and/or .txt formats so that the original data set is always available. The .csv or .txt files may then be imported into the user's choice of software (Excel, etc.) for analysis.

Document the flight (flight time, anomalies, observations, etc.) using the **ICCARS Field Data Collector App** for iPad/iPhone, available free from the iTunes store. You may also use a flight logbook or similar to record the mission information. An example of a Flight Log is appended to this procedure.

TKM 04/07/10 mod PAH 05/11/2011

AEROKATS Mission/Flight Log (Modified for ICCARS)

Date:	Location:
Mission/Flight#:	Pilot:
Aeropod Handler(s):	
Other Personnel:	
Mission Objective:	

Atmospheric Conditions

Wind Speed/Dir:	Temperature:
Humidity:	Barometric Pressure:
Cloud Cover:	

Site Details

Latitude:	Longitude:
Altitude (at site)	
GCP 1 – Lat:	GCP 1 – Long:
GCP 2 – Lat:	GCP 2 - Long
GCP 3 – Lat:	GCP 3 – Long:
GCP 4– Lat:	GCP 4 - Long

Launch Time (Kite)	Launch Time (Aeropod)
Landing Time (Aeropod)	Landing Time (Kite)
Total Flight Duration	
Max line-out length:	Azimuth \angle to sensor
\angle to sensor at peak:	\angle to apex of line drag:

Mission Result:	
Successful?	
Problems?	
Kite/Payload Post Flight Status	

AEROKATS Mission Field Equipment Checklist

	Description	Qty	Notes
<input type="checkbox"/>	Aeropod(s) and Sensor(s)		
	<input type="radio"/> MonoCam-B <input type="radio"/> TwinCam-Lite <input type="radio"/> Air Column Profiler-B		
<input type="checkbox"/>	Hoop(s) with line		
<input type="checkbox"/>	225 ft leader(s)		
<input type="checkbox"/>	15 ft pod leader(s)		
<input type="checkbox"/>	Carabiner(s)		
<input type="checkbox"/>	Rubber Bands		
<input type="checkbox"/>	Gloves		
<input type="checkbox"/>	Log Book/Pens		
<input type="checkbox"/>	iPad / iPods		
<input type="checkbox"/>	Wireless hub (if available)		
<input type="checkbox"/>	Kestrel/Weather vane		
<input type="checkbox"/>	Tripod		
<input type="checkbox"/>	GPS		
<input type="checkbox"/>	Camera		
<input type="checkbox"/>	Phillips screwdriver (small)		
<input type="checkbox"/>	Multipurpose tool		
<input type="checkbox"/>	Gaffers Tape (or comparable)		
<input type="checkbox"/>	Extra Rubber Bands (size 12)		
<input type="checkbox"/>	Extra batteries (AA), (AAA)		
<input type="checkbox"/>	Extra Kite(s)		
<input type="checkbox"/>	Extra line and hoop		
<input type="checkbox"/>	Extra Leader		
<input type="checkbox"/>	Extra Swivels		
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			