



HOVERFLY

LIVESKY™
TETHER-POWERED UAV

EXPANDED CHECKLIST

Model LSP-6205

Version 1.0

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Hoverfly Technologies, Inc.

12151 Research Parkway, Suite 100, Orlando, FL 32826

Telephone: +1 407-985-4500 Main

Technical Support Line: 833-HVERFLY (483-7359)

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LiveSky 6205 Checklist-Expanded

NOTE: An operating procedure, condition, or statement, which is essential to highlight.

CAUTION: An operating procedure, practice, condition, or statement, which if not strictly observed, could result in damage to or destruction of equipment, loss of data, loss of mission effectiveness, or long-term health hazards to personnel.

WARNING: An operating procedure, practice, or statement, which, if not correctly followed, could result in personal injury or loss of life.

System Unpack

1. Two (2) System Transit Cases.....Identify
2. Ethernet, Power Cables.....Identify
3. Controllers.....Identify
 - Tablet and X-box controller, as equipped
4. Tether kit (TK)Remove
5. Landing RingRemove and Install on TK
6. LiveSkyRemove and Inspect
 - Inspect for any immediate anomalies
7. PayloadRemove/Install

CAUTION: Visually Inspect all equipment prior to flight, and do not operate if damage is visible to propellers or any part of the LiveSky System

Pre-Flight (Tether Kit)

1. Drains.....Verify Clear
 - Verify Two (2) drain ports are free and clear of debris to allow adequate drainage
2. Screws/Latches.....Verify Secure
 - Verify screws around tether funnel neck are secure Six (6) in total. Do not overtighten as damage to funnel neck will occur
 - Verify lid is secure to with screws and/or latches, as equipped
3. Tether Kit.....Set Level/Secure
 - Tether Kit must have less than 10 degrees of tilt for take off and landing
4. Ground GPS (2).....Flip up and verify unobstructed view of the sky
 - Verify click locks engage

Pre-Flight (Aircraft)

1. Propellers.....Verify correct configuration
 - Verify no nicks or cracks
 - Verify Propeller washer/plate is secure
 - 2x screws per propeller
 - Motors rotate freely in both directions
 - Verify level with each other
2. Battery..... Inspect/Install
 - Verify battery is sufficiently charged this can be noted via a low battery indication on the GUI or if the battery voltage is below 24.5v
 - Secure battery and door

WARNING: Damaged or puffed batteries can lead to fire or even explosion and will cause personal injury; do not fly with damaged battery

CAUTION: Observe all safety warnings regarding LIPO batteries. Damaged or puffed batteries can lead to catastrophic failure or injury to personnel

CAUTION:
If ambient temperatures are below 32°F, pre-heat LiPo safety battery to 40°F prior to launch. LiPo batteries rapidly lose capacity below 32°F. Even if the voltage reads above 24.5V, capacity will be diminished significantly in cold temperatures and the safety landing battery may fail.

If main or tether power is lost, while safety landing battery is compromised, aircraft will lose all power and fall to the ground, causing damage or destruction of the aircraft. Above 120F, system may Auto-Land/Self Protect

3. Check ScrewsTop Fuselage
 - Motor Booms 3x screws per boom (Top)
 - Verify lid screws are present and secure (12x screws, do not overtighten to prevent damage to O-rings)
4. Craft..... Flip over
 - Recommend the craft be placed on its back on the ring
5. Check Screws..... Bottom Fuselage
 - Landing gear connection to ATS cone (4x screws)
 - Motor Booms (Bottom) 2x Screws per boom

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6. ATS ConeVerify screws secure
 - Verify screws are present and secure (2x screws)
7. ATS Gimbal.....Verify free movement
8. Fan..... Inspect
 - Verify free and clear of debris and rotates freely
9. Sonar.....Verify "Frogskin"
 - Check in place and for rips or tears
10. Tether Connector.....Verify
 - Verify Amphenol strain relief screws are secure (2x)

Setup

1. Controller, Ethernet, Power Cables.....Remove
2. Power Switches..... OFF
 - Verify "CRAFT" and "REEL" switches are off
 - Verify lights extinguished
3. Tether Connector.....Connect to Aircraft
 - Verify Amphenol connector "Click Locks"
4. Craft.....Place in ring
 - Hold craft with one hand by a motor boom
 - Flip the "REEL" Switch and swiftly take hold of the tether to carefully guide the tether as it reels in to prevent any sudden tension and damage.
 - Verify the "REEL" switch light is illuminated red. This will verify the reel backup battery is functional
 - Power off "REEL" switch

Note: To prevent damage, carefully guide the tether as it reels in

5. Ethernet..... Connect to Internal Port
 - Verify Amphenol connector "Screw Type" is secure
6. AC Power..... Connect to TK **THEN** to 1,500W Power Supply
7. Cordon Area.....Establish

Power Up

1. Power Source.....Check/Verify
 - Verify Adequate 1500W power source
2. Power..... On
 - Switch on "CRAFT" and "REEL" switches
 - Verify both red lights are illuminated
3. Gimbal (If Equipped)....Verify pointing forward
 - Verify camera completes start up sequence and is pointing forward prior to connecting to the system on the GUI
4. Safe Distance..... Attain
 - Move outside the established 50ft/15m Cordon area
5. Connect.....Via GUI
 - Press "CONNECT" on GUI
 - Verify GUI status indicators are illuminating from red to green
6. Video.....Verify
 - Verify video is displaying and accurate
7. Area Clear..... Verify
 - Verify Cordon area is clear

Note: System requirement: 50ft/15M radius

8. GUI Status Indications (Four Green).....Check
 - Top right hand side on the GUI
 - Verify Ethernet, Power, Battery and GPS Status are all green
9. "Ready to ARM"Verify
 - On top right corner of GUI

Launch

1. Limitations..... Verify within limits
2. Craft..... ARM
 - GUI- Press **ARM**
 - Xbox Controller – both triggers for 0.5 Seconds
3. Propellers.....Verify correct rotation
4. Area Clear..... Verify
 - Verify Cordon area is clear

Note: System requirement is 50ft/15M radius

5. Aircraft.....Launch
 - GUI – Press **LAUNCH**
 - Xbox controller – **Blue "X"**

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6. Climb.....Observe for Anomalies
 - IF Halting.....Press **LAND**
 - IF Uncontrolled flight will endanger personnel.....**E-STOP**

WARNING: Emergency stop function stops all motor rotation but does not kill power to the aircraft. The aircraft WILL fall to the ground. Ensure the area is clear PRIOR to executing E-STOP

Warning: Tether will still be powered after E-STOP is initiated. If the Tether has been cut, turn off power before handling tether to avoid high voltage shock

Inflight

1. System.....Monitor/Scan
 - Messages on the GUI
 - Modes
 - GUI Status Indications

Landing

1. Cordon Area.....Verify Clear

Note: System requirement is 50ft/15M radius
2. Limitations..... Verify within limits
3. Land..... Initiate
 - GUI – Press **LAND**
 - Xbox Controller – Press “**RED B**”
4. Descent..... Observe for Anomalies
 - IF Abort..... **HALT**
 - IF Uncontrolled Flights incur damage to personnel or property.....**E-STOP**
5. Landing Complete.....Verify “Ready to Arm”

WARNING: Emergency stop function stops all motor rotation but does not kill power to the aircraft. The aircraft WILL fall to the ground. Ensure the area is clear PRIOR to executing E-STOP

Warning: Tether will still be powered after E-STOP is initiated. If the Tether has been cut, turn off power before handling tether to avoid high voltage shock

- Top right hand side of the GUI

Power Down

1. Area Clear.....Verify prior to approaching
2. Power off..... “CRAFT” and “REEL” switches
 - Place Switches to off position
 - Verify Red lights are extinguished
3. System.....Inspect/prep for next flight

System Pack-up

1. Perform System Unpack in reverse order
 - Verify system is properly packaged for transport or ready for next flight

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EMERGENCY CHECKLIST

1. **INDICATION:** ANY anomaly observed during the takeoff sequence and/or to prevent injury or damage to personnel or property.
ABORT TAKEOFF.....**LAND**
 - On GUI Press **LAND**
 - Xbox controller: press **RED "B"**

2. **INDICATION:** ANY anomaly observed during the takeoff sequence and/or to prevent injury or damage to personnel or property.
ABORT LANDING BELOW 15FT.....**HALT-REPOSITION-LAND**
 - On GUI Press **HALT**
 - Xbox controller yellow **"Y"** or green **"A"**
 1. Allow the aircraft time to climb back to **MINIMUM ALTITUDE** to stabilized hover
 2. Reposition the aircraft to center over the ring
 3. Reinitiate the **LAND** command
 4. Repeat, as required

3. **INDICATION:** Aircraft begins moving in on direction, without being commanded to do so.
UNCOMMANDED FLYAWAY.....**LAND**
 - On GUI Press **LAND**
 - Xbox controller: press **RED "B"**
 1. After the aircraft begins to return press **HALT**
 2. Use D-pad or GUI to reposition over the landing ring
 3. Reinitiate **LAND** command
 4. Repeat, as required

4. **INDICATION:** The aircraft begins to spin rapidly; un-commanded
UNCOMMANDED ROTATION/SPIN.....**LAND and AREA CLEAR**
 - On GUI Press **LAND**
 - Xbox controller: press **RED "B"**
 1. Visually observe that the rotation has ceased, and landing has begun

5. **INDICATION:** Aircraft begins flying in a large un-commanded circular pattern
MAGNETOMETER FAILURE/EMI.....**LAND and AREA CLEAR**
 - On GUI Press **LAND**
 - Xbox controller: press **RED "B"**
 1. Repeat **HALT** and **LAND** Commands, as required
 2. Most likely to occur at lower altitudes, recommend flight above Minimum altitude (15ft/30FT, as equipped) for best performance.

6. **INDICATION:** Aircraft is unable to climb to a commanded altitude and tether is not reeling out.
TETHER LOCKUP.....**LAND and AREA CLEAR**
 - On GUI Press **LAND**
 - Xbox controller: press **RED "B"**
 1. Visually observe that the aircraft is going to land in the ring
 2. Use **ABORT LANDING BELOW 15FT** as needed

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7. **INDICATION:** User cannot control aircraft and/or data fails to update on the GUI
COMMUNICATION FAILURE.....**AREA CLEAR AND ACCOMPLISH STEPS BELOW**
1. Unplug and reconnect ethernet cable that goes to the control tablet or computer
 2. Close and reopen the control GUI, then attempt to reconnect to the air vehicle
 3. If unsuccessful, continue. Otherwise resume normal operations
 4. Unplug Ethernet cable from control tablet or computer, leave cable unplugged
 5. Immediately clear the area and wait for the landing sequence to complete
 6. Disconnect power if observed that the craft will not land.
8. **INDICATION:** Any status indicators on the GUI are **RED** or the craft is observed to be descending un-commanded.
UNCOMMANDED LANDING.....**STOP GROUND VEHICLE**
1. Observe for anomalies
 2. IF aircraft is not going to land in the ring**POWER OFF**

SYSTEM FAILSAFE FEATURES

CAUTION: Communication Failsafe: If communication is interrupted with the controller for 60 seconds or as user defined, the Aircraft will Autoland. If communication fails between the Tether Kit (TK) and aircraft for 5 seconds, the Aircraft will Autoland. Ensure the area is clear

CAUTION: Battery Landing Failsafe: If the Tether Kit (TK) power is interrupted or battery falls below 24.0V. The Aircraft will Autoland. Ensure the area is clear

CAUTION: Power limit descent feature will automatically descend the aircraft in 10M increments to 10M minimum altitude **IF** the aircraft senses that it is at its Power Limit Line. This feature is strictly to protect the system and not to be used to determine max operable altitude or in lieu of the performance charts.

WARNING: Precision Land Disabled: ATS IMU failure detected, Aircraft will no precision land. Exercise extreme caution if this indication is seen as the craft will descend in place and will NOT land in the ring.