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FAA-APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

for the

uAvionix tailBeacon

as installed on

_____

Airplane Make and Model per AML

Registration Number: _____
Serial Number: _____

This supplement must be attached to the FAA-approved Airplane Flight Manual when the tailBeacon is installed in accordance with Approved Model List Supplemental Type Certificate SA04427CH.

The information contained herein supplements the basic manual only in those areas listed. For limitations, procedures, performance and loading information not contained in this supplement, consult the FAA-approved Airplane Flight Manual, markings, or placards.

FAA Approved By: ROBERT KLASE Digitally signed by ROBERT KLASE Date: 2020.09.14 08:37:40 -05'00'

For Monica Merritt
Manager, Southwest Flight Test Section, AIR-713
Federal Aviation Administration
Ft. Worth, TX

Date: SEP 14 2020

Log of Revisions

Revision No.	Pages Affected	Description	FAA Approved	Date
A	All	Initial release.	9/12/2019	9/12/2019
B	4, 10	Transponder monitor description update, remove Mode S references.	ROBERT KLASE	Digitally signed by ROBERT KLASE Date: 2020.09.14 08:37:07 -05'00'

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1 GENERAL

1.1 tailBeacon

tailBeacon is a tail mounted unit that contains a 978 MHz transmitter, powerline transponder monitor, GPS/SBAS receiver, and LED rear navigation light. This device transmits ownship Automatic Dependent Surveillance-Broadcast (ADS-B) data through the UAT data link.

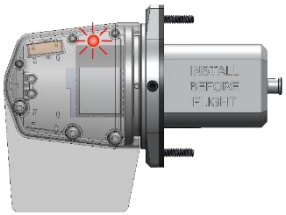
tailBeacon performs the following functions:

- Position determination
  - An internal GPS/SBAS receiver allows the unit to function as its own position source.
- Transmission of ADS-B Out data on 978MHz UAT
  - Integration of data from internal and external sources to transmit data in compliance with 14 CFR 91.227.
- Transponder monitoring
  - The integrated Power Transcoder ensures proper synchronization of data elements between Secondary Surveillance Radar (SSR) replies and ADS-B transmissions. These elements include Mode A squawk code, Mode C altitude, and IDENT status. In remote areas where you may not be interrogated by Secondary Surveillance Radar, aircraft Mode A squawk code may be broadcast as unavailable (0000) or the last know transponder reply code.
- Altitude encoder with Continuous Calibration™
  - The integrated altitude encoder provides pressure altitude information and is continuously adjusted for correspondence with the transponder's altitude encoder.
- "Anonymous" mode
  - "Anonymous" mode transmits a temporary randomized address instead of the aircraft's FAA assigned ICAO address, and "VFR" instead of the aircraft's call sign. When this option is configured during installation, it may be enabled by selecting a squawk code of 1200 on the installed transponder. The temporary address and

Call Sign are disabled if the operator selects a non-1200 squawk code on the transponder.

- When enabled, and after January 1, 2020, the operator will be unable to operate on an IFR flight plan, unable to receive IFR or VFR separation services, and may experience other effects such as potential loss of enhanced search and rescue benefits.

- Annunciator LED
  - A red annunciator LED is visible beneath the lens cover on the device, indicating the operating status of the tailBeacon. This indicator is not visible in flight and is advisory in nature only.



Red LED	Status	Meaning
On (Steady)	Failed	Internal self-test failure, Invalid ICAO configured
Blinking On/Off (each second)	Failed	No GPS fix, ADS-B broadcast failure
Off	Normal	No Failure **

  - NOTE: ** It is possible that the OFF indication could be a rare failure of the LED annunciator. To confirm proper LED operation, illumination may be observed immediately after navigation lights being powered on.

- White rear position light
  - A TSO-C30c Type III (white) LED position/navigation light replaces or supplements existing lighting.

1.2 Required Equipment

The tailBeacon must have the following system interfaced equipment fully functional to be compliant with the requirements for 14 CFR 91.227 ADS-B Out operations:

Interfaced Equipment	Number Installed	Number Required
Mode A/C Transponder	1	1

In remote areas where you may not be interrogated by Secondary Surveillance Radar, aircraft Mode A squawk code may be broadcast as unavailable (0000).

1.3 Capabilities

The tailBeacon as installed on this aircraft has been shown to meet the equipment performance requirements of 14 CFR 91.227, when operating in accordance with this supplement.

2 LIMITATIONS

2.1 Navigation Lights

The navigation lights must remain on at all times that ADS-B Out operation is required. The following placard should be installed:

NAVIGATION LIGHTS MUST
REMAIN ON FOR ADS-B OUT

2.2 Maximum ADS-B Operating Altitude

In accordance with 14 CFR 91.225, operation of tailBeacon ADS-B Out UAT on 978 MHz is prohibited at altitudes of 18,000 feet MSL and above.

3 EMERGENCY PROCEDURES

No Change.

4 ABNORMAL PROCEDURES

4.1 ADS-B Transmission Incomplete

When GPS position information is unavailable or the transmitter is experiencing broadcast failures, the annunciator LED will blink. tailBeacon will continue attempting to transmit, but the ADS-B messages will be incomplete and non-compliant.

tailBeacon Location . . . . . **ENSURE CLEAR VIEW OF SKY, NOTE INITIAL FIX COULD TAKE UP TO 20 MINUTES**

4.2 Device Failure

When the device experiences a self-test failure or has not been properly configured, the annunciator LED will be constantly illuminated. Resolving may require a maintenance action, but the pilot may attempt cycling the power once to resolve.

Navigation Lights . . . . . **CYCLE POWER ONCE**

4.3 Loss of Aircraft Electrical Power Generation

In the event of the electrical charging system becoming inoperative, attention must be paid to aircraft battery power. tailBeacon uses minimal electrical power, considerably less than a traditional incandescent navigation light, but the pilot should be familiar with electrical load-shedding methods and equipment requirements for various phases of flight. If an electrical emergency exists, the pilot should consider turning off the tailBeacon to preserve the operation of essential avionics.

Subject to aircraft equipment electrical load-shedding priorities,

Navigation Lights Circuit Breaker Position . . . . . **CONSIDER**

4.4 tailBeacon Unit Disable

The tailBeacon may be disabled by turning off the Navigation Lights. Doing so will disable the aircraft Navigation Lights. 14 CFR 91.209 requires these lights to be lighted on the surface and in flight from sunset to sunrise. Consideration should be given to the consequences of disabling aircraft lighting.

Navigation Lights . . . . . **OFF**

5 NORMAL PROCEDURES

The tailBeacon requires no pilot intervention or direct control for normal operation. The tailBeacon is powered on with the navigation lights and will be fully operational once the configured Mode A/C transponder is set to ALT and a GPS/SBAS position is available.

Primary user interface controls are provided by the aircraft's existing transponder, including selection of Mode A squawk code and IDENT.

Additional configuration and control may be provided through the "uAvionix skyBeacon Installer" app.

5.1 tailBeacon Unit Power On

The tailBeacon should be powered on after starting the engine, and prior to entering an airport movement area. This is typically part of the TAXIING or BEFORE TAKEOFF procedure, or when avionics power is enabled.

Navigation Lights . . . . . **ON**

Transponder . . . . . **ALT, Code set**

NOTE

In addition to in flight use requirements, AIM 4-1-20. a. 3. encourages pilots to operate with the transponder in the altitude reporting mode and ADS-B Out transmissions enabled at all airports, any time the aircraft is positioned on any portion of an airport movement area.

After power on, the tailBeacon Annunciator LED may illuminate momentary as the unit begins to receive input from external systems, including the GPS/SBAS position source.

The configured Mode A/C transponder must be set to ALT and the tailBeacon Annunciator LED must be **EXTINGUISHED** for the system to meet the requirements specified in 14 CFR 91.227. This system must be operational in certain airspaces after January 1, 2020 as specified by 14 CFR 91.225.

5.2 Call Sign

The configured aircraft call sign may be adjusted on the ground using the "uAvionix skyBeacon Installer" app. It may not be adjusted in flight. If an aircraft will use identification other than an N-number for a given flight (as referred to by ATC or in flight plans), the configured call sign must be adjusted. Example applications are commercial, medical, or volunteer flight operations.

Within five minutes of tailBeacon being powered on, connect to the device with the app. Adjust the Call Sign field but not the ICAO Number. When changing the Call Sign ensure no other installation parameters are adjusted. The configured Call Sign persists through power cycles.

If necessary after the flight, cycle power to the device, connect with the app, and adjust the Call Sign field to back to the appropriate (N-number) value.

For more information on using the app, see the "tailBeacon TSO User and Installation Guide".

5.3 tailBeacon Unit Power Off

The tailBeacon should remain powered during flight and when in airport movement areas. The unit should be powered off immediately prior to stopping the engine, or may be powered off upon exiting the airport movement area.

Navigation Lights . . . . . **OFF**

6 PERFORMANCE

No change.

7 WEIGHT AND BALANCE

No change.

8 RELATED DOCUMENTATION

The uAvionix tailBeacon documents, part numbers, and revisions listed below contain additional information regarding tailBeacon system description and function.

Part Number	Revision	Title
UAV-1002185-001	E (or subsequent)	tailBeacon TSO User and Installation Guide
UAV-1002514-001	C (or subsequent)	tailBeacon STC Installation Manual
UAV-1002513-001	B (or subsequent)	tailBeacon STC Instructions for Continued Airworthiness and Maintenance Manual