

# ACK TECHNOLOGIES INC.

## MODEL E-04 ELT INSTALLATION MANUAL OPERATION MANUAL

**IMPORTANT** VISIT OUR WEBSITE [WWW.ACKAVIONICS.COM](http://WWW.ACKAVIONICS.COM) FOR THE LATEST SERVICE BULLETINS AND INSTALLATION INFORMATION BEFORE STARTING THE INSTALLATION.

THE CONDITIONS AND TESTS REQUIRED FOR TSO APPROVAL OF THIS ARTICLE ARE MINIMUM PERFORMANCE STANDARDS. IT IS THE RESPONSIBILITY OF THOSE DESIRING TO INSTALL THIS ARTICLE ON A SPECIFIC TYPE OR CLASS OF AIRCRAFT TO DETERMINE THAT THE AIRCRAFT INSTALLATION CONDITIONS ARE WITHIN THE TSO STANDARDS. THE ARTICLE MAY BE INSTALLED ONLY IF FURTHER EVALUATION BY THE APPLICANT DOCUMENTS AN ACCEPTABLE INSTALLATION AND IT IS APPROVED BY THE ADMINISTRATOR.

### APPROVALS

FAA /TRANSPORT CANADA

TSO C-126b

TSO C-142a

TSO C-91a

EASA

ETSO 2C126

ETSO 2C91a

ETSO C142a

COSPAS/SARSAT

T.007

INDUSTRY CANADA

1863A-E04AF

Brazil ANAC

ANTEL



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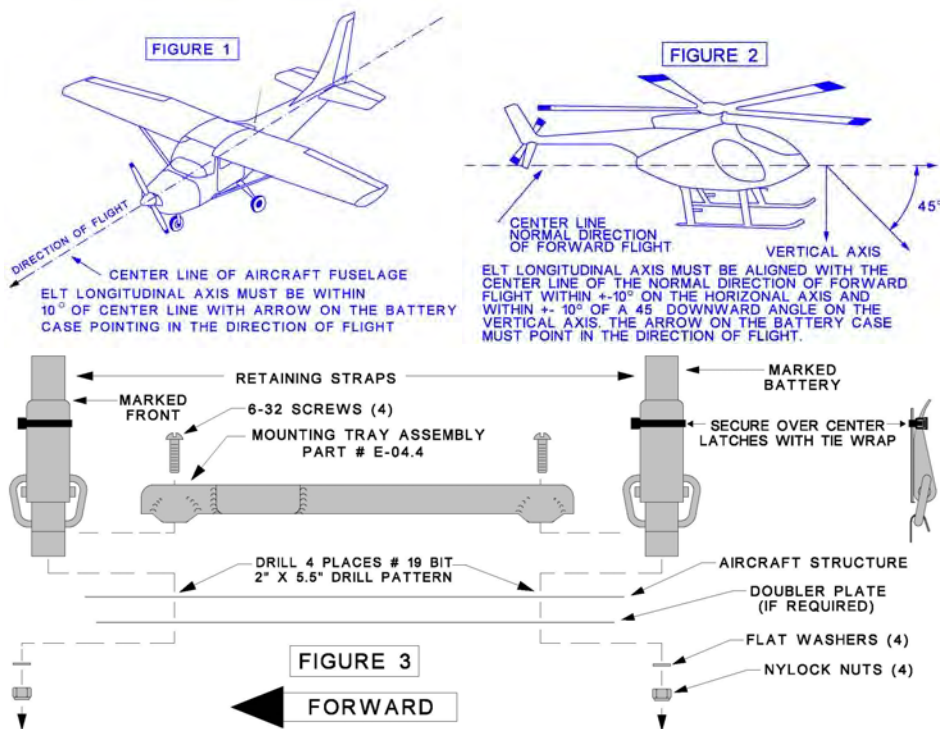
be made with reference to another part of the airframe not less than 0.3 meter (1 foot) nor more than 1.0 meter (3 feet) from the mounting location. After selecting a suitable location meeting all of the above requirements. Drill and mount the ELT tray assembly as shown in Fig 3. A doubler plate may be required. Secure latches with tie wrap as shown.

### **IMPORTANT**

The quick release retaining straps which secure the ELT to the tray are slightly different in size. The strap that fits around the front of the ELT, (transmitter assembly) is marked "front." The strap that fits around the battery case end of the ELT, is marked "Battery."

#### **Helicopter installation**

The model E-04 ELT is suitable for helicopter installation. The procedures for installation, maintenance, and operation, are the same as for fixed wing aircraft, except for the orientation of the ELT in relation to the helicopter longitudinal axis. The arrow on the battery case of the ELT should be pointed in the normal direction of forward flight. The longitudinal axis should be aligned within  $\pm 10$  degrees of the longitudinal axis horizontally, and at a 45 degree downward angle as shown in Fig 2.



## **SECTION 3 ANTENNA INSTALLATION**

In order to meet the requirements of COSPAS/SARSAT TSO C-126b, TSO C-91a, and FAR 91.207 an approved antenna must be used. The antenna supplied with the ELT P/N E-04.8 is a monopole, dual frequency antenna design. It has a recommended operating speed of up to 260 knots. We have a high speed blade antenna available, part number S65-1231-1 which is rated to Mach 1.0. Other antennas may be used provided they meet the minimum VSWR requirements as noted in the specifications section of this manual, (Section 15) and meet COSPAS/SARSAT approval for use with the model E-04 ELT. The coaxial cable supplied is RG-58, and is 5 feet long. A longer or shorter cable may be fabricated using RG-58 or equivalent cable, and Amp 227079-5 connectors. The insertion loss of the cable assembly at 406 MHz should not exceed 2 dB. At 121.5 MHz the insertion loss should not exceed 3 dB. The cable should be a minimum of 2 feet in length.

**The antenna may be mounted internally in composite construction, and tubular fabric covered aircraft, as long as the fabric or composite material is of a non conductive nature. The antenna must be mounted externally, on airframes of metallic construction. The antenna should be mounted as close to the ELT transmitter as practical. The coaxial cable connecting the antenna to the ELT transmitter, should not run in close proximity to comm radio coaxial cables, and should avoid crossing aircraft production breaks. (i.e. Riveted fuselage sections) The antenna must be mounted within 30 degrees of vertical, when the aircraft is in normal flight attitude. The installed antenna must be able to withstand a static load of 100 (one hundred) times it's weight (13 lbs.) applied to the base of the antenna, along the longitudinal axis of the aircraft. The antenna should be mounted a minimum distance of three feet (1 meter) from any vertically polarized communication antennas. (i.e. Antennas radiating in the 118-137 MHz band.)**

#### MODEL E-04.8 WHIP ANTENNA

- 1.) Drill a 1/2" (13mm) diameter hole in the aircraft at the antenna mounting location (Fig. 4)
- 2.) Install the antenna, and determine if the antenna meets the static load requirements. If not, a doubler plate should be fabricated.
- 3.) If the antenna is being mounted on a non conductive portion of the airframe, a supplementary ground plane must be installed. The supplemental ground plane must have a minimum diameter of 24" however 48" will provide maximum power at 121.5 MHz and is recommended. The ground plane must be centered around the base of the antenna. This may be fabricated out of copper, or aluminum tape. The tape should be cut into six elements 12" long, and the tape elements should be evenly spaced, radiating in a circular pattern from the base mounting point of the antenna. (Fig. 4) Make sure all elements are electrically bonded to the base of the antenna. The tape may follow the contour of the fuselage. The metallic airframe of fabric covered aircraft may be used as the ground plane. When installing the antenna, make sure the base of the antenna is electrically bonded to the tubing frame. A static suppressor is supplied install as shown in (Fig 4)
- 4.) Assemble the antenna as shown in figure 4. Make sure the rubber washer that forms a moisture seal between the antenna base, and aircraft structure, is in place before installing the antenna. Also make sure the serrated locking washer is in place. If the aircraft skin at the mounting point is less than .060" thick when installing the P/N E-04.8 whip antenna, a 2" diameter doubler plate must be fabricated using .040" thick 2024, or 7075 T6 aluminum.

