# OPERATION MANUAL FOR SATELLITE PERSONAL LOCATOR BEACON

Part No.: AK-451-PLB

Harsh/ Robust/ Heavy Duty PLB with Long Lasting Batteries 24 hrs for 406.028 MHz 78 hrs for 121.5 MHz 78 hrs for 243.0 MHz

#### **AMERI-KING CORPORATION**

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#### \*\*\* WARNING \*\*\*

# THIS TRANSMITTER IS AUTHORIZED FOR USE ONLY DURING SITUATIONS OF GRAVE AND IMMINENT DANGER

#### \* \* \* DELIBERATE MISUSE MAY INCUR A SEVERE PENALTY \* \* \*

#### PLEASE READ ALL INSTRUCTIONS BEFORE PERFORMING ANY OF THE TESTS

Congratulations and thank you for purchasing the Ameri-King AK-451-PLB Satellite Personal Locator Beacon. The combination of superior design, high quality raw materials and quality controlled manufacturing produce a product that will perform for years to come. This assures that the life saving devices can stand up to the rigors found in any environment on earth. With proper care and maintenance, your will be in service for years to come.

The PLB is designed to exceed the requirements of RTCM Paper 76-2002/SC110-STD, FAA TSO-C126 and FAA TSO-C91a and the mandatory automatic PLB requirements of FAR Part 91. The PLB meets the requirements of Canadian DOT Aviation Regulations Section 3, Chapter 3, Part 2.

This manual provides operation and maintenance instructions for the Ameri-King AK-451-PLB, hereinafter referred to as the PLB. This manual also describes the characteristics and details of the System.

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#### SECTION 1 - REGISTRATION OF 406 MHz PLBS

#### 1.1 Registration Importance

It is mandatory that the owner of this 406 MHz registers it with the National Authorities\*. All 406 MHz PLBs transmit a Unique Identifier Number (UIN) when activated. This UIN is programmed in the based on the country in which the PLB was purchased. Registration provides the Search and Rescue (SAR) forces with emergency contact information, and will speed the launch of a rescue operation. The National Authorities use the information to verify if an actual emergency exists. Valuable Search and Rescue resources are wasted every year responding to false alarms. For PLBs that are not registered, SAR authorities will not know who you are, or who to contact regarding additional information of your current situation. This could delay the launch of a rescue operation. \*A National Authority is the governmental body that is responsible for Registration Database administration for the country for which the PLB is programmed.

#### 1.2 Where to register

The owner of a 406 MHz should register it with the National Authority of which the PLB was programmed, (typically the country where purchased), regardless of where you use your PLB. Each is programmed with a UIN for the country where the unit is shipped, and will only be accepted for registration in that country. To verify the country, for which a PLB is programmed, see the label with the UIN on the back of the unit. Units that do not have a country specified on the UIN label are programmed for the United States. For a list of the national authorities in your area, please view them at <a href="http://www.cospas-sarsat.com/Management/listOfParticipants.htm">http://www.cospas-sarsat.com/Management/listOfParticipants.htm</a>

#### 1.3 Registration in the United States

It is the Owner's responsibility and required by law to Register 406 MHz PLBs that are programmed for and purchased in the United States. The National Authority that accepts registrations in the United States is the National Oceanic and Atmospheric Administration (NOAA). The owner should complete the enclosed registration form (Do not confuse this with the Ameri-King Corp. Electronics Warranty Card) and mail it with the pre-addressed; postage paid envelope to:

SARSAT Beacon Registration, E/SP3, RM 3320, FB-4 NOAA/NESDIS 5200 Auth Rd. Suitland, MD 20746-4304

PLB registration is also available online at: <a href="www.beaconregistration.noaa.gov">www.beaconregistration.noaa.gov</a>

The information provided on the Registration Form is used only for rescue purposes. The Registration Form should be filled out and mailed immediately. Registration can be expedited by faxing the registration form or by completing the form online in the event the PLB is to be placed in immediate use.

Typically, registration forms will be entered in the 406 MHz Registration Database within 48 hours of receipt. A confirmation letter, a copy of the actual registration and a proof-of-registration decal will be mailed to you within two weeks. When you receive these documents, please check the information carefully and affix the decal to your PLB in the area marked "Place Beacon Decal Here". If you do not receive confirmation, contact NOAA for additional information at: +1-888-212-7283.

#### 1.3.1 Registration in Canada

The National Authority in Canada is the NSS (National Search & Rescue Secretariat). Canadian residents can register online at http://eacons.nss.gc.ca. For more information please contact the NSS at (613) 966-1504 or (800) 727-9414.

National Search and Rescue Secretariat 400-275 Slater Street Ottawa, Ontario K1A 0K2

#### 1.4 Registration Outside of the United States and Canada

In countries other than the United States, 406 MHz PLBs are registered with that country's National Authority at the time of Purchase. The Sales agent should assist in filling out the forms and sending to that country's National Authority. To verify that the unit is properly programmed for that country, view the UIN label on the side of the unit. In the event that this is not programmed for the country in which it has been purchased, the sales agent, (if properly equipped) can reprogram the unit for that country.

#### 1.5 Change of ownership or contact information

It is the owner's responsibility to advise the National Authority of any change in the information on the registration form. If the current owner of the is transferring the to a new owner, the current owner is required to inform the National Authority by Letter, Fax or telephone, of the name and address of the new owner. The new owner of the PLB is required to provide the National Authority with all of the information requested on the Registration form. This obligation transfers to all subsequent owners. Registration forms are available from NOAA, call +1(888) 212-7283 or visit our website at <a href="https://www.ameri-king.com">www.ameri-king.com</a>

#### 1.6 Lost PLB's

Inform NOAA immediately at 1-888-212-SAVE (7283), or your national authority, that your PLB has been lost. They will update your registration information with the appropriate information.

#### 1.7 Stolen PLB's

Things That You Need To Do:

- Report to your local police department that the PLB has been stolen.
- Contact NOAA at 1-888-212-SAVE (7283), or your national authority, with the following information so your registration information can be updated with the appropriate remarks:
  - Police Department Name
  - Police Phone Number
  - Police Case Number

If your was to activate, the information you provide will be forwarded to the appropriate Search and Rescue Authorities who will ensure that your gets back to you. And, if someone attempts to register a reported as stolen, NOAA or your national authority will notify the appropriate Police Department.

Visit the COSPAS-SARSAT website for more detailed information: www.cospas-sarsat.org

#### **SECTION 2 - RESPONSIBLE USE**

#### 2.1 The Ameri-King AK-451-PLB should only be used in situations of grave and imminent danger!

What exactly does this mean? Technically speaking you should only activate your when all other means of self rescue have been exhausted. This means you have tried to use your cellular/satellite phone, signaling mirrors, strobe lights, or any other safety device you may have. When all else fails and you feel your situation has truly become extreme, ask yourself the following questions: Am I in danger of losing life, limb, eye sight, or valuable property if I am not rescued soon? Am I in danger of not surviving the night or upcoming hours if not rescued soon?

If you answer yes with confidence to these questions, it is time to activate your PLB.

The Ameri-King AK-451-PLB models are designed to be manually deployed and activated. It is only to be activated when all other means of self-rescue have been exhausted. Activation of the PLB tells Search and Rescue who you are, where you are, and that you are facing a life threatening situation.

#### **SECTION 3 - FALSE ALARMS**

- 3.1 Preventing False Alarms
  - Ensure that your PLB is registered with NOAA or your national authority. This does nothing to reduce false alarm rates, but does have a dramatic effect on the impact of a false alarm. If the is properly registered, the situation will be resolved with a phone call most of the time. It will also help speed rescue in an actual distress.
  - Test your in accordance with the recommendations enclosed in this manual.
  - Use care when leaving your and with whom you leave it with. Ensure that they are aware of the device and know the ramifications of causing a false alarm. A lot of false alarms are generated by curious individuals.
  - Maintain your PLB. Ensure that the batteries are within their expiration date and that all manufacturer recommendations
    are followed. Finally, realize that the COSPAS-SARSAT satellites are very good at what they do, detecting emergency
    PLBs. An activation of a 406 MHz for just a few seconds will usually be detected. After a few minutes, it will usually
    be detected and located. This is good if you're in distress, but if you're not, you just generated a false alarm.
- 3.2 Should there be an inadvertent activation or false alarm, it must be reported to the nearest search and rescue authorities. The information that should be reported includes the Unique Identifier Number (UIN), Date, Time, duration and cause of activation, as well as location of at the time of activation. Outside the United States contact your National Authority.
- 3.3 To report false alarms in the United States contact any of the following:

Atlantic Ocean / Gulf of Mexico

USCG Atlantic Area Command Center Tel: (757) 398-6390

Pacific Ocean Area

USCG Atlantic Area Command Center Tel: (510) 437-3700

USCG HQ Command Center (From any location) Tel: (800) 323-7233

NOAA Tel: 1-888-212-SAVE (7283)

AFRCC Console Tel: 800-851-3051

(For official mission correspondence only)

#### **SECTION 4 - OPERATION**

#### 4.1 GENERAL

This section describes the operation of the Satellite Personal Locator Beacon, model AK-451-(PLB).

The following types are applicable for the model AK-451:

The AK-451 is a "third generation PLB," transmitting on 406.028, 121.5 and 243.0 MHz. The PLB is designed to meet or exceed the requirements of RTCM Paper 76-2002/SC110-STD, FAA TSO-C126 and TSO-C91a and the mandatory automatic PLB requirements of FAR Part 91. The PLB meets the requirements of DOT Aviation Regulations, Section 3, Chapter 3, Part 2.

The PLB transmits the standard swept tone. The LED ON lights flashing, indicate when the PLB is activated. The ON switch allows you to turn on the PLB manually.

The PLB unit is able to withstand extremely harsh environments. Units exactly like yours have been subjected to numerous 500 G shock pulses; 1000 pounds crash weights and severe penetration tests, and continue to operate normally. Continued operation in a temperature range of -20 degrees Celsius to +55 degrees Celsius is assured.

The AK-451-PLB supports the following protocols:

<u>User Location Protocol (Long Message)</u>: This option is formed by coding bits 1 through 106 of the PLB as a User Protocol.

<u>Standard Location Protocol (Long Message)</u>: This option uniquely identifies the PLB using a unique serial number allocated by either the competent national authority or the beacon manufacturer accompanied with the Cospas-Sarsat beacon type approval certificate number.

<u>National Location Protocol (Long Message)</u>: This option uses a unique serial number allocated by the competent national authority to uniquely identify the beacon.

Serial User Protocol (Non-location protocol) (Short Message): Coded with PLBs Unique Beacon Serial Number.

Note: PLB's leave Ameri-King Corp. with Standard Location Protocol (Long Message), but can be reprogrammed at a service center to other Protocol, including nationality of registration.

The PLB may accept GPS/NAV position input by connecting the external GPS/NAV to the programming connector

#### 4.2 OPERATION

The AK-451 PLB, Personal Locator Transmitter, is a state of the art Micro controller technology, long lasting, solid state based equipment. It is an extremely reliable, highest standard of quality, designed to meet TSO-C126 and TSO-C91a requirements for critical application.

Upon selected ON, it transmits the standard swept tone on 243/121.5 MHz lasting until battery power is gone, 78 hours approximately. This 243/121.5 MHz signal is mainly used to pinpoint the beacon during search and rescue operations.

For the first 24 hours of operations, a 406 MHz signal is transmitted at 50-second intervals. This transmission lasts 520 ms and contains identification data programmed into the beacon and is received by COSPAS-SARSAT satellites. The transmitted data is referenced in a database (maintained by the national authority responsible for PLB registration) and used to identify the beacon and owner.

#### **Accuracy:**

Doppler positioning is employed using both 121.5 MHz and 406 MHz signals. The Position accuracy of the 406 MHz signal is about 110 meters at 9.5 degree Cross Track Angle (found in Satellite Qualitative Test at a COSPAS-SARSAT approved Laboratory).

#### 4.3 TRANSMITTER FUNTIONAL TEST

The PLB should be tested every month.

#### 4.3.1 Switch ON / OFF / SELF TEST Operation:

The PLB has an "OFF" position. This allows the beacon to be handled or shipped without 'nuisance' activation. Care should be taken when transporting or shipping the PLB not to move the switch or to allow packing material to become lodged such as to toggle the switch.

Switch, alternate / alternate / momentary positions:

- "ON" Alternate position. Lift & flip the Switch to the ON position: PLB transmits immediately. ON LED light on the unit flashes, 1 second ON, 4 seconds OFF.
- "OFF" Alternate position. Lift & flip the Switch to the ON position: The PLB is turned off.
- "SELF TEST" Momentary position. Lift & flip and hold the Switch to the SELF TEST position: PLB self-test is confirmed after the switch is held for 25 seconds. If the self-test is passed, the ON LED light must be extinguished. The PLB system is fully self-tested.

#### 4.3.2 Transmitter Self-Test:

Lift & flip and hold the main switch, from the "OFF" position to the "SELF TEST" position. The ON LED light shall illuminate for 4 seconds then extinguish. This is to allow coding programming during next 20 seconds window and self-test for 1 second thereafter.

The PLB may be coding programming during the aforementioned 20 seconds window period. If no programming happened the PLB will then enter the Self Test Mode for 1 second thereafter.

Self-test results after (4+20+1) = 25 seconds, is: If the self-test is passed, the LED is steadily extinguished.

If the self-test is failed, the LED flashes as shown below:

- **1 flash:** Internal Data stored in Memory at fault.
- 2 flashes: Distress ID stored in Memory at fault.
- **3 flashes:** Battery voltage is low < Useful Life Battery Voltage setting.
- 4 flashes: Vcc supplies for F3, F2, or F1 at fault.
- **5 flashes:** F3 RF power level < 33 dbm @ 406.028 MHz
- **7 flashes:** F1/F2 VHF RF power level < 17 dbm @ 121.5/243 MHz.
- **9 flashes:** PLL locked in F3 or F1 or F2 at fault.

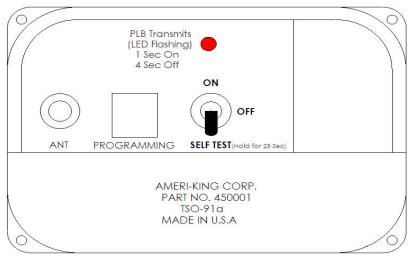
Continuous flash: no F3/F2/F1 RF output power, PLB shuts down completely.

#### NOTE:

The self-test mode that transmits a 406 MHz test code pulse monitors certain system functions before returning to the SELF TEST mode. The 406 MHz test pulse is ignored by any satellite that receives the signal, but the PLB uses this output to check output power and correct frequency.

- Self-test is 520 ms long message burst on the 406 MHz signal. Synchronization pattern is 011 010 000.
- Self-test is then 121/243 MHz (VHF) Continuous Wave during 1s.

The PLB may accept GPS/NAV position input by connecting the external GPS/NAV to the programming connector. The PLB can be reprogrammed at Ameri-King's service center to other Protocol, including nationality of registration.



Top Label



Figure: PLB complete assembly with antenna

To Activate: Lift & flip the switch to the "ON" position Verify: The red "ON" light flashes 1 sec on, 4 sec off Self Test: Lift & flip and Hold the switch to the "SELF TEST" position and wait for 25 sec Verify: The red "ON" light must illuminate for 4 sec then extinguishes. Wait for an additional 21 sec. Pass: The red "ON" light must remain extinguished Fail: The red "ON" light flashes. Please see Operation Manual for detail fault code analysis PLB PERSONAL LOCATOR BEACON Operation: 24 hrs @ -20°C to +55°C (-4°F to +131°F) Stowage:  $-30^{\circ}$  C to  $+70^{\circ}$  C ( $-40^{\circ}$  F to  $+158^{\circ}$  F) \*\*\* WARNING \*\*\* FCC: L79AK-451 CE **USE ONLY DURING** IC: SITUATIONS OF GRAVE AND **IMMINENT DANGER!** Replace batteries after use or by date shown: \*Battery type: Lithium LiMn02

**Deliberate misuse may incur a severe penalty** *Notice to the Public*: Do not move if found. Report its position to the proper authorities

## DO NOT OPEN, TAMPER, INCINERATE OR RECHARGE BATTERIES

Compass safe distance 1m (3.3 ft) Warranty void if opened This satellite PLB will NOT float

#### PLACE BEACON DECAL HERE

USA: PLB owner must register with NOAA the identification code contained on this product: SARSAT Beacon Registration NOAA SARSAT Beacon Registration: NSOF, E/SP3, 4231 Suitland Road, Suitland MD 20746 or at <a href="https://www.beaconregistration.noaa.gov">www.beaconregistration.noaa.gov</a> Outside USA: register with your national authority

BEACON REGISTRATION IS MANDATORY

Front Label Back Label

AMERI-KING CORP.

MADE IN U.S.A.

17881 Sampson Lane Huntington Beach, CA 92648, USA

PLB PERSONAL LOCATOR BEACON Model AK-451-( ) Series, Type: PLB Part No.: AK-451-(PLB)

Part No.: AK-451-(PLB) FCC ID: L79AK-451

FREQ: 406.028 / 121.5 / 243.0 MHz PERP. 50 mW for 50 HRS (121.5 & 243.0) MHz PEIRP: (25-100) mW for 48 HRS (121.5 & 243.0) MHz PERP: 5 W EIRP: 6dBW for 24 HRS (406.028 MHz)

Software Version A

Serial No.:

15-DIGIT HEX ID: COUNTRY (3-DIGIT CODE):

Name Plate

#### **SECTION 5 - CARE AND MAINTENANCE**

- 5.1 Carefully inspect the case and gasket for any visible cracks. Cracks may admit moisture, which could cause a malfunction. In the event of any cracking or structural damage, the PLB should be immediately sent to Ameri-King Corp. for evaluation and repairs.
- 5.2 Do Not clean your with household cleaners and hydrocarbon materials such as gasoline, benzene, bleach, sanitizers, soaps, etc., simply wipe your down with a damp cloth until clean.

#### 5.3 Battery Replacement

Power is provided by self contained long life batteries with a five-year recommended replacement cycle. See Factory Authorized Service Center for replacement.

The battery Package must be replaced by the date indicated on the PLB. At each inspection, check the time remaining until replacement is required. Batteries should be replaced if the has been activated for any use other than the self test. Batteries should be replaced at an Authorized Battery Replacement Center for the warranty to remain in effect (if the 5 year warranty has not expired). Services include: replacement of battery packs and disposal of expired lithium batteries, gasket and O-ring examination and replacement if necessary, lubricated gaskets and O-ring, air pressure test to ensure water tight integrity, and a full electronics diagnostic check.

<u>NOTE:</u> This unit is a life saving device and all repairs and replacements need to be made by Ameri-King Corp. or an authorized Ameri-King Corp. battery replacement center to ensure the beacon will perform properly when called upon. Batteries can be replace in the field if necessary (replacing your own batteries will void your warranty, contact Ameri-King Corp. for a replacement battery dealer nearest you), however it is highly recommended to have your beacon serviced once you have returned from the field to ensure the integrity of the beacon has not been compromised.

For the nearest location of an authorized Ameri-King Corp. service center, call 1-714-842-8555 or visit our website at www.ameri-king.com

- 5.4 The Ameri-King AK-451-PLB contains 1 lithium battery pack.
- 5.5 Battery Disposal

Please dispose of Lithium batteries in accordance with local waste disposal regulations

#### SECTION 6 - THE SEARCH AND RESCUE SYSTEM

#### 6.1 General Overview

The Ameri-King AK-451-PLB provides distress alerting via radio transmission on 406 MHz to satellites of the COSPAS-SARSAT network and to the GEOSAR network that includes GPS latitude and longitude coordinates when GPS data is present.

The message transmitted by the Ameri-King AK-451-PLB is unique for each PLB, which provides identification of the transmitter through computer access of registration files maintained by the National Oceanic and Atmospheric Administration or other National Authority. Remember, if your PLB is not registered, Search and Rescue (SAR) Authorities do not know who you are, or how to contact anyone who might know anything about your situation (Refer to section1).

Once the Ameri-King AK-451-PLB signal (406 MHz) is relayed through the LEOSAR and/or GEOSAR network, SAR forces determine who is closest, and then track the signal using the 121.5 MHz homing frequency for intermediate and short-range location.

#### 6.2 Satellite Detection

- 6.2.1 The Ameri-King AK-451-PLB transmits an encoded phase modulated radio signal to the satellite portion of the COSPAS-SARSAT System. The system was developed and implemented by the COSPAS-SARSAT Partners (Russian Federation, Canada, France and the United States).
  - 6.2.2 COSPAS-SARSAT is an international system that uses Russian Federation and United States low altitude, near-polar orbiting satellites (LEOSAR) that assist in detecting and locating activated 121.5/243 MHz PLBs and 406 MHz Satellite PLBs.
  - 6.2.3 COSPAS and SARSAT satellites receive distress signals from satellite PLBs transmitting on the frequency of 406 MHz. The COSPAS-SARSAT 406 MHz signal consists of a transmission of non-modulated carriers followed by a digital message format that provides identification data. The 406 MHz system uses Satellite-borne equipment to measure and store the Doppler-shifted frequency along with the digital data message and time of measurement. This information is transmitted in real time to an earth station called the Local User Terminal (LUT), which may be within the view of the satellite, as well as being stored for later transmission to other LUTs.
  - 6.2.4 The LUT processes the Doppler-shifted signal from the LEOSAR and determines the location of the PLB; then the LUT relays the position of the distress to a Mission Control Center (MCC) where the distress alert and location information is immediately forwarded to an appropriate Rescue Coordination Center (RCC). The RCC dispatches Search and Rescue (SAR) forces.
  - 6.2.5 The COSPAS-SARSAT System includes 39 LEOSAR LUT stations, 9 GEOSAR LUT stations and over 19 Mission Control Centers that provide real-time as well as global-mode coverage for the Northern Hemisphere, while the Southern Hemisphere is presently served primarily by the global mode. Additional LUTs and MCCs are planned for installation in the near future both in the northern and southern hemispheres.

The addition of the GEOSAR Satellite system greatly improves the reaction time for a SAR event. This satellite system has no Doppler capabilities at 406 MHz, but will relay the distress alert to any of the LUT stations.

6.2.6 Because most of the search and rescue forces presently are not equipped to home in on the 406 MHz Satellite signal, homing must be accomplished at 121.5 MHz and 243.0 MHz

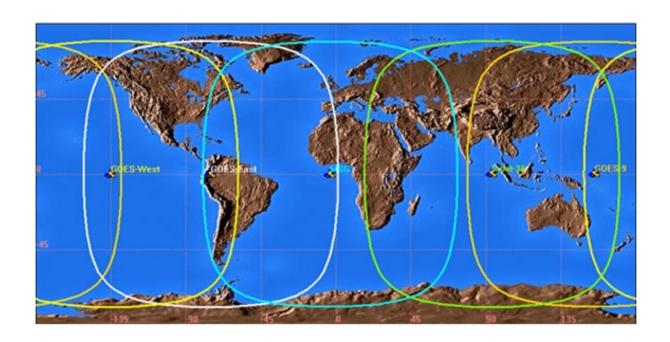


Figure GEOSAR SATELLITE COVERAGE

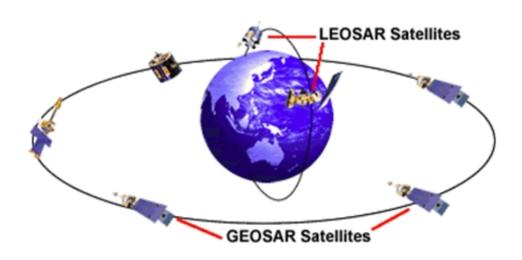


Figure SATELLITE ORBIT

#### **SECTION 7 - AUTHORIZATIONS**

7.1 The Ameri-King AK-451-PLB meets the requirements of Federal Communications Commission (FCC) Part 95 Subpart K, European R&TTE Directive.

#### 7.2 Characteristics

The Ameri-King AK-451-PLB is a non-buoyant, battery operated Personal Locator Beacon. The case, with its external antenna, is waterproof. The semiconductor circuits are mounted within the case assembly which also contains the battery power supply. An ON / OFF / SELF TEST switch and an LED "ON" light on the case,

#### **SECTION 8 - TECHNICAL DATA - 406**

8.1 Applicable Documents

NSS PLB01-01 Standard for 406 MHz Satellite PLB's Canada

COSPAS-SARSAT Document C/S T.001 & T.007 (spec for 406 MHz distress beacons)
RSS 187 Radio standards Specifications for Emergency Position Indicating Radio

Beacons, Emergency Locator Transmitter, and Personal Locator Beacon

FCC Part 95, Subpart K ETSI 302152/1 version 2003

8.2 Specifications RTCM Paper 76-2002/SC110-STD

406 MHz Transmitter (16K0G1D), G1D Emission

Frequency 406.028 MHz

Frequency Stability ±1 parts per billion/100ms

Output Power 5 watts

Digital Message

**Format** 

Long message / serialized

Message protocol Standard / National / User Location

 $\begin{array}{ccc} \text{Duration} & 520 \text{ ms} \\ \text{Rate} & 400 \text{ bps} \\ \text{Encoding} & \text{Biphase L} \\ \text{Modulation} & \pm 1.1 \text{ radians peak} \end{array}$ 

PLB's leave Ameri-King Corp. with Standard Location Protocol but can be reprogrammed at a service center to other Protocol, including nationality of registration.

121.5 MHz Transmitter

Frequency 121.5 / 243.0 MHz

Frequency Tolerance  $\pm 50 \text{ ppm}$ Output Power  $\pm 50 \text{ ppm}$ 

Modulation

Type AM

Sweep Range 400 to 1200 Hz

Sweep Rate 3 Hz Duty Cycle 40.0%

Morse P AM (2K00A2A)

Antenna

Frequency 406.028, 121.5, and 243.0 MHz

Polarization Vertical VSWR Less than 1.5/1

General/Environmental

**Battery Life** 

Operating Class II 24 hours @ -20°C for 406.028 MHz

78 hours @ -20 deg C for 121.5 MHz 78 hours @ -20 deg C for 243.0 MHz 5 years or after use in an emergency

Replacement Interval 5 years or after use in an emergency

Size

PLB less Antenna 3.0" x 3.0" x 5.9"

Material High impact and UV resistant plastic

Color International Orange

Weight 14 oz (397 grams) - excluding antenna

Waterproof TSO C-126

Temperature Range

 $\begin{array}{ccc} \text{Operating} & \text{Class II} & -20^{\circ}\text{C to } +55^{\circ}\text{C } (-4^{\circ}\text{F to } +131^{\circ}\text{F}) \\ \text{Storage} & \text{Class II} & -30^{\circ}\text{C to } +70^{\circ}\text{C } (-40^{\circ}\text{F to } +158^{\circ}\text{F}) \\ \end{array}$ 

#### **SECTION 9 - WARRANTY AND REPAIR SERVICE**

#### 9.1 LIMITED WARRANTY

- All equipments manufactured by Ameri-King Corp. are guaranteed against defective materials and workmanship for a period
  of two years.
- Any equipment found to be defective due to material and workmanship during this limited warranty will be repaired and put in original manufactured operating condition.
- An option of extended third and fourth year limited warranty becomes valid at the end of this second year, which will warrant to the original owner.
- This Ameri-King Corp. warranty is void unless the Warranty Registration Card is filled out and returned to Ameri-King Corp. within 15 days after original installation.
- Ameri-King Corp.'s liability under this warranty is limited to servicing, repairing, replacing or adjusting any equipment returned prepaid to the factory by express written or oral authorization for that purpose and to repair or replace defective parts thereof. This limited warranty does not include any damage caused by the leakage of batteries. Repaired equipment will be returned to the equipment user freight pre-paid. Shipping charge will be paid one way only by Ameri-King Corp.
- Upon discovery of a condition believed to be caused by a defect in manufacturing, Ameri-King Corp. without prior authorization. Any equipment returned to Ameri-King Corp. without prior authorization. Any equipment returned to Ameri-King Corp. should be accompanied by a failure report, in writing, giving full particulars in support of the claim.
- This limited warranty does not cover or apply to any of the followings, including: misuses of the equipment; installation or operation not in accordance with factory instructions; accidences or negligent damage; alterations of any manner; repair by other factory; changes in calibration occurring as a result of normal use of equipment; the cost of labor, material, or other expense incidental to the repair, installation, removal from the aircraft or replacement of the equipment; damaged during shipment or installation; any personal injuries or damage to property resulting from the installation or the operation of the equipment user assumes the risks of all such injuries or damage. In such cases, the repair will be billed at cost. An estimate will be submitted for approval before repair is initiated.
- Any equipment that is returned for warranty and found not to be defective shall be charged a minimum handling and service charge and returned C.O.D.
- No warranty will be activated for Ameri-King Corp. products unless the installation is approved by an FAA Certified Installer and the warranty card is completed by the supplying dealer or upon receipt by Ameri-King Corp. of form(s) 337 or 8130-().

THE IMPLIED WARRANTY AND ALL OTHER IMPLIED WARRANTIES ARE HEREBY EXCULED. AMERI-KING CORP. MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

AMERI-KING CORP.'S MAXIMUM LIABILITY HEREUNDER IS LIMITED TO THE PURCHASED PRICE OF THE PRODUCT. IN NO EVENT SHALL AMERI-KING CORP. BE LIABLE FOR ANY DAMAGES OF ANY NATURE ARISING FROM THE SALE OR USE OF THE PRODUCT, WHETHER BASED IN CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE.

#### 9.2 REPAIR SERVICE

All equipments manufactured by Ameri-King Corp. must be repaired at the facility of Ameri-King Corp.

The entire repair service shall be performed and completed within 3 days upon repairing estimate is approved by equipment user or installation dealer.

#### 9.3 FACTORY COMPREHENSIVE TEST SERVICE

Factory Comprehensive Test Service including RF Peak Effective Radiated Power, Operating Carrier Frequency, Modulation Characteristics, Duty Cycles and Digital Coding Message are available. There is a service charge for this service. All equipments returned for Factory Comprehensive Test Service must be sent freight prepaid.



Save Time! Register your beacon online at: www.beaconregistration.noaa.gov

Mail or Fax to: NOAA/SARSAT NSOF, E/SP3 4231 Suitland Road Suitland, MD 20746

Fax No. 301-817-4565

## Official 406 MHz Registration Form

PLB Information		
Beacon ID (Unique Identifier Number)		
(15 digit character ID provided by manufacturer)		
PLB Manufacturer Model No		
PLB Registration		
□ New Registration □ Replacemen	nt of Decal	
Renewal of Registration Check here if this is a replacement for a previously registered PLB.		
Change of Information or Ownership Please enter the old unique ID number		
Owner/Operator Information		
Name(Last, First, Middle Initial)	_ Telephone	
Mailing Address	( ) Home Work Cellulat Fax Other	
	Area Code Home Work Cellular Area Code	
City State/Province	( )	
ZIP (Postal) Code Country	Area Code  Home Work Cellular Fax Other	
E-mail	Area Code Total Code	
General Use Data		
Usage □ Commercial □ Non-commercial □ Government Military □ Government Non-military		
Specific Usage  Hiking Hunting Fishing Other		
Туре		
□ Land Vehicle □ Boat □ Aircraft □ None □ Other		
Additional Data		
Emergency Contact Information (Please indicate someone other than the owner)		
Name of <b>Primary</b> 24-Hour Emergency Contact:	Name of <b>Alternate</b> 24-Hour Emergency Contact:	
Telephone	Telephone	
( ) Home Work Cellular Fax Other	( ) Home Work Cellular Fax Othe	
( Home Work Cellular Fax Other	Area Code Home Work Cellula Fax Othe	
( ) Home Work Cellular Fax Other		
( ) Home Work Cellular Fax Other		
Signature	Date	

If you have any questions about this form or with registration in general, please call 1-888-212-SAVE (7283) or 301-817-4515. For information on the U.S. Search & Rescue Satellite-Aided Tracking system, please visit: www.sarsat.noaa.gov

OMB (0648-0295) Expires: 31JAN 2008

#### **Important Notice - Please Read Before Completing Registration**

Registration is an important facet for all Cospas-Sarsat 406 MHz emergency beacons. Not only is it required by Federal Regulations but the information you furnish is used by Search And Rescue (SAR) agencies in the event of beacon activation. The registration information is an important tool to assist the United States Coast Guard, United States Air Force, and other SAR agencies in locating and quickly responding to you, your vessel, or your aircraft. Failure to register your beacon may delay a rescue response. Accurate, up-to-date registration information will also be used to conserve resources by helping to eliminate false alert deployments, as an inadvertent activation can be resolved with a phone call.

There is no charge for beacon registration. This is a service provided by the U.S. National Oceanic and Atmospheric Administration (NOAA).

All online registrations will be entered into the National 406 MHz Beacon Registration Database on the same day of entry. Registration forms received via postal mail will be entered within 2 business days of receipt. For online registrations, a confirmation letter with your completed registration information form will be sent immediately via e-mail or fax (if provided). Confirmation letters sent via postal mail should arrive within two weeks. Once your registration confirmation is received, please review all information. Any changes or updates to your registration information can be done via the internet, fax, e-mail or postal mail. If you do not receive your registration confirmation from NOAA on the same day you submit it over the internet or within two weeks if you submit it by postal mail, please call NOAA toll-free at: 1-888-212-SAVE (7283) or 301-817-4515 for assistance.

After initial registration (or re-registration) you will receive a NOAA Proof of Registration Decal by postal mail. This decal is to be affixed to the beacon and should be placed in such a way that it is clearly visible. If for some reason you do not receive the registration decal within two weeks, please-6 call NOAA toll-free at: 1-888-212-SAVE (7283) or 301-817-4515.

Failure to register, re-register (as required every two years), or to notify NOAA of any changes to the status of your 406 MHz beacon could result in penalties and/or fines being issued under Federal Law. The owner or user of the beacon is required to notify NOAA of any changes to the registration information at any time. By submitting this registration the owner, operator, or legally authorized agent declares under penalty of law that all information in the registration information is true, accurate, and complete. Providing information that is knowingly false or inaccurate may be punishable under Federal Statutes. Solicitation of this information is authorized by Title 47 - Parts 80, 87, and 95 of the U.S. Code of Federal Regulations (CFR). Additional registration forms can be found on the NOAA-SARSAT website at: www.sarsat.noaa.gov or at: www.beaconregistration.noaa.gov.

Please note, NOAA will complement or update your registration information accordingly if your registration has expired and credible information is provided from SAR sources. NOAA will also seek information from other databases to update and/or complement the existing information for an expired beacon registration. Although the information provided will become a matter of public record, there is no intent to circulate beyond its intended purpose, i.e., to assist SAR agencies in carrying out their mission. Public reporting burden for the collection of this information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, and completing and reviewing the collection of information. Comments regarding this burden or any other aspect of this collection of information, including suggestions for reducing this burden should be sent to:

NOAA/SARSAT NSOF, E/SP3 4231 Suitland Road Suitland, MD 20746

Or, fax the signed form to NOAA at 301-817-4565.

If you have any questions or comments pertaining to beacon registration, please call 301-817-4515 or toll-free at 1-888-212-SAVE (7283).

Or you may e-mail your question to the Sarsat Webmaster: <a href="mailto:osdpd.dsd.reception@noaa.gov">osdpd.dsd.reception@noaa.gov</a>

Finally, false alerts remain a chief concern for SAR agencies. We ask that you carefully refer to the beacon's user manual for instructions on properly operating, installing, testing, performing required maintenance, and/or stowage of your beacon. We find that these are important factors in reducing the number of false alerts. Please use the utmost care at all times!