

COSPAS SARSAT: 25 Years of Saving Lives

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Cospas-Sarsat is a humanitarian Search and Rescue Satellite-Aided Tracking (SARSAT) System that became operational in 1982 when the first satellite in the System was launched and the first emergency distress beacon signal from a downed aircraft was picked up by a low earth-orbiting satellite. Three people were saved. 2007 marked the 25th year of successful operation for the International Cospas-Sarsat System which has been credited with more



than 22,000 rescues worldwide, including more than 5,700 in the United States and its surrounding waters. In 2007, there were 353 people saved in the U.S. with the assistance of Cospas-Sarsat alert information. The system has continued to track and locate activated emergency beacons carried by ships (EPIRBs), aircraft (ELTs), and individuals (PLBs) in distress ever since. In many cases this system has proven to be the last resort for people in trouble at sea or in the wilderness. The International Cospas-Sarsat Program is a partnership between the U.S., Canada, France, and Russia and involves nearly 40 other countries that participate in the System. The U.S. component of the SARSAT system is managed and operated by the National Oceanic and Atmospheric Administration (NOAA), the U.S. Air Force, the U.S. Coast Guard, and the National Aeronautics and Space Administration (NASA).

Will your satellite beacon save you after February 2009?

Beginning 1 February 2009, the 121.5 MHz signal used on older emergency beacons will no longer be processed by search and rescue satellites that make up the Cospas-Sarsat System. Beacons that transmit to satellites on the 121.5 and 243 megahertz frequencies should be replaced by early 2009, when 406 megahertz beacons will become the new standard and the only type of satellite beacon that will automatically alert search and rescue authorities. It's critical that everyone gets the message now to make the switch to 406 MHz beacons.

At present there are two internationally sanctioned satellite alerting distress frequencies—406 MHz (digital) and 121.5 MHz (analog). Older model EPIRBs and ELTs send a distress signal on only 121.5 MHz (243 MHz for some military beacons). This signal is little more than a homing signal. The newer, more advanced models send out an encoded, digital 406 MHz transmission which provides more accurate location and identification information. PLBs have only been manufactured with 406 MHz alerting capabilities



Remember the date-- 1 February 2009!

Beacon owners and search and rescue personnel should be aware of the change that will happen on 1 February 2009, when the 121.5 MHz and 243 MHz frequency bands will no longer be processed by search and rescue satellites. They should also know why the decision was made. It was a decision made by the International Cospas-Sarsat Program with guidance from the United Nations due to numerous signal reception problems, a high incidence of false alerts (over 99%) and a host of other limitations associated with the 121.5 MHz frequency.

Over the years, 406 MHz beacons have proven superior performance capabilities. They transmit a much stronger signal, are more accurate, verifiable and traceable. Each 406 MHz beacon has a unique ID encoded with its signal. As long as the beacon ID has been registered (which is required by law), search and rescue authorities can quickly confirm that the distress is real, who they are looking for and where they should look. This means a search can be launched even before a final distress location has been determined.

It should be noted that even 406 MHz beacons contain an integral 121.5 MHz signal, but this signal is not transmitted to the satellites, it is only used for homing or direction finding purposes by search personnel once they are near the activated beacon location.

Using distress beacons properly

The search and rescue satellite system called Cospas-Sarsat has truly been a lifesaver for thousands of people around the globe. It is international in scope, operates 24 hours a day, 7 days a week and is free of charge to anyone in distress. Unfortunately, with all the successes attributed to beacons, there are still too many false alerts that are primarily caused by human error during beacon installation, maintenance, testing and disposal. Not only does this needlessly endanger rescue personnel, but it also degrades the search and rescue resources available to respond to actual emergencies. Beacon owners must realize that they have a responsibility to keep the system working as effectively as possible. Here are some things to remember:

All 406 MHz EPIRBs, PLBs, and ELTs in the U.S. are required to be registered with NOAA.

This registration is free and can be done on the internet (www.beaconregistration.noaa.gov) or mailed/faxed to NOAA. Beacon registrations are good for two years, but must be updated when information such as emergency contact phone numbers and other vital information changes. This registration information is protected and only available to authorized search and rescue personnel.



Class A, B, and S 121.5 MHz EPIRBs became prohibited for use in the U.S. on 01 January 2007.

There are a few exceptions to this regulation and it does not prohibit Man Overboard devices that transmit a signal for local homing operations. Owners with a prohibited EPIRB should replace it with a 406 MHz beacon as soon as possible.

Handle beacons carefully and know how they work.

Beacon owners should prevent mishandling of beacons by inexperienced persons to avoid possible damage to the beacon or transmitting a false alert. (Note: Certain beacon models can be placed in their bracket backwards. As a result, the magnet, which prevents automatic activation when stowed in the beacon bracket/housing, can't work properly.) Beacon self-tests should only be conducted according to the instructions provided by the manufacturer. This is important to ensure that the beacon is working properly and to avoid an accidental activation.

Care and maintenance.

EPIRBs, ELTs, PLBs, and mounting brackets or housing units should be examined regularly for any physical damage. If there appears to be any damage, corrosion, cracking, water ingress, etc., the beacon should be replaced immediately. When taking a beacon out of regular use (i.e.: putting in storage or transporting between locations) ensure the beacon is turned off and/or the battery is disconnected.

The U. S. Coast Guard Office of Search and Rescue (CG-534) manages the SARSAT program along with partners from NOAA, the U.S. Air Force, and NASA. See the following sites for more information on each agency's efforts:

- *USCG Office of Search and Rescue: www.uscg.mil/hq/g-o/g-opr/g-opr.htm*
- *NOAA SARSAT Program: www.sarsat.noaa.gov*
- *U.S. Air Force Rescue Coordination Center: www.1af.acc.af.mil/units/afrc/*
- *NASA Search and Rescue: searchandrescue.gsfc.nasa.gov*
- *International Cospas-Sarsat website: www.cospas-sarsat.org*

There are four types of Cospas-Sarsat distress beacons available for use:

- *EPIRBs (Emergency Position-Indicating Radio Beacons)—for boats and vessels;*
- *ELTs (Emergency Locator Transmitter beacons) – for aircraft;*
- *PLBs (Personal Locator Beacons)—for general outdoor use (hiking, mountain climbing, etc.);*
- *SSAS (Ship Security Alert Safety beacons)—for discreet alerting in cases of piracy or other hostile acts against a ship and crew*