Information Bulletin

Governor's Office of Emergency Services
Law Enforcement Branch
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Personal Locator Beacons ("PLB")

In California

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This bulletin is to advise all law enforcement agencies and search and rescue organizations of the Federal Communications Commission's (FCC) approval for the general public (usually hikers and outdoor enthusiasts) to access technology once only available to aircraft and vessels. This nationwide authorization, effective July 1, 2003, allows the sale and use of personal satellite distress beacons, "Personal Locator Beacons" (PLB). These PLB's are pocket sized, lightweight, handheld distress beacons designed to be carried by individuals and can be manually activated in the event of an emergency to summon assistance.

BACKGROUND

Aviators and mariners have had access to satellite distress beacon technology since 1982, in the form of Emergency Location Transmitters (ELT) for aircraft and Emergency Position Indicating Radio Beacons (EPIRB) for vessels. Since it's inception, this technology is said to have resulted in the rescue of more than 14,000 people worldwide. In the wake of the 20th anniversary of this global distress beacon system, extensive testing has been completed with PLB's. This testing was very successful and resulted in the efficient rescue of many persons actually in distress and false alerts were minimal. This successful testing prompted legislation to allow PLB's to be utilized throughout the United States.

BENEFITS

With advances in technology, the sophistication of PLB's promises to be a very effective tool to alert authorities and search and rescue teams to true emergencies. The PLB has the capability to transmit a radio distress signal on 406 MHz that is capable of being located to a 3-mile area by the satellite constellation. It can transmit data as well. Purchasers of PLB units are required to register their beacon, to include emergency contact information. This data will be transmitted with the distress beacon alert message. The registration data provides authorities with the means to conduct an investigation into the distress beacon activation prior to launching a full-scale emergency response. Many PLB units also possess a built in GPS receiver which will transmit the coordinates of the unit to the satellite, increasing the accuracy of the beacons location to within 200 feet. Another good feature is that each PLB transmits simultaneously a low power 121.5 MHz homing beacon that will allow the unit to be pinpointed by common direction finding equipment, identical to the current ELT locating process.

HOW DOES IT WORK

When a person possessing a PLB is faced with an emergency, they have to manually activate the unit by completing several deliberate steps, designed to minimize accidental activations. Once the steps are complete, the unit must be placed in a location where it has a clear view of the sky. Once activated, a distress signal continuously transmits on 406 MHz for satellite detection and a homing signal simultaneously transmits on 121.5 MHz. The beacon can continue to operate for 24 hours or longer, depending on battery condition. These radio distress signals are detected by a constellation of orbiting and geostationary satellites that are operated by the National Oceanic and Atmospheric Administration (NOAA) known as the "COSPAS-SARSAT" Program. These satellites are linked with a network of ground stations to the U.S. Mission Control Center (MCC) in Suitland MD. When a distress signal is received, the MCC combines the data received from the satellites to the ground station network, refines the location, generates an alert message, that includes the PLB registration information, and routes it to the appropriate search and rescue coordination center. This routing is based upon the activated beacon's geographic location. These distress signals can also be detected by aircraft, passing within range, which monitor the 406 MHz or 121.5 MHz distress frequencies.

Each State will have one 24-hour designated contact "dispatch center" to receive these alerts. For California, the designated point is the Office of Emergency Service's 24-hour "Warning Center" (W/C). When the W/C receives a PLB alert, they will notify the Law Enforcement Branch Duty Officer who will then coordinate the response to the alert. This coordinator will try to contact those listed in the information transmitted by the beacon (registered owner) by telephone or other means. This contact will also be to attempt to determine if the signal is an actual emergency as well as activity that may cause the beacon to be activated. Once determined to be an actual distress activation, coordination will include narrowing down the specific location where the signal originates. When this information is solidified, the Law Enforcement Branch Duty Officer will contact the agency(ies) with jurisdiction over the location where the signal is being generated for additional follow-up, as well as any search and rescue action that is deemed necessary.

ISSUES OF CONCERN

One major concern is the subjective definition of "grave and imminent danger" which may vary from one person to the next. The need for the activation of a PLB will be within the "mind of the beholder" in whatever situation they perceive is the risk to them. Authorities will regard an activation of a distress beacon as a "life at risk" situation. The PLB manufacturers are doing a diligent job in creating informational pamphlets, provided with each PLB, to define what could be considered "grave and imminent danger" prior to activating. Regardless, there are laws in place to allow authorities to pursue criminal charges against those knowingly and willfully making or causing to be made a false report of an emergency such as California's 148.3 P.C. Another downside to PLB's is the cost of the units. Ranging from around $700.00 to $1,200.00, their actual purchase may not be affordable to many who may benefit from the technology. Another potential problem is that rental units will most likely be made available from major outdoor recreational outfitters. These rental units will obviously transmit the registration information of the outfitter. The outfitter will in turn be responsible for maintaining 24-hour contact to identify whom the beacon was rented to, their contact information, as well as trip plans.

CONCLUSION

The actual use and application of Personal Locator Beacons within California is yet to be determined. Yet the intended purpose for their inclusion promises to be very beneficial. As one article states, "Taking the Search out of Search and Rescue", this technology will enable authorities and search and rescue teams to quickly locate and rescue those facing true emergency situations. For further information, please contact the author at 559-445-5674 or the OES Law Enforcement Branch Headquarters at 916-845-8700.