The Submarine Emergency Position Indicating Radio Beacon or SEPIRB is a radio signaling device used for locating a submarine in distress. The SEPIRB is stored onboard the submarine, and at the time of the emergency retrieved from storage and launched. The submarine may be surfaced or submerged at time of launch.

The SEPIRB surfaces and transmits a digital message to the COSPAS-SARSAT satellite network, which obtains the position of the SEPIRB to within 100 yards using an onboard GPS receiver. The transmitted message contains the current elapsed time since activation and the Unique SEPIRB ID (ID) until a valid location is obtained from GPS (the "initial location"). Once the initial location is obtained from GPS the transmitted message contains the current elapsed time, ID, initial location obtained by GPS, and elapsed time associated with the initial location. If no GPS location is obtained and/or transmitted by the Submarine EPIRB then its location (to within approximately two miles) will be determined by standard COSPAS-SARSAT methods.

Six hours after actuation, the SEPIRB begins to transmit a 121.5 MHz beacon which is used both in locating/retrieving the buoy and as a backup to the COSPAS-SARSAT message transmissions. The SEPIRB continues both the message transmissions and beacon until either the batteries are exhausted or until the device is retrieved and manually deactivated.
SEPIRB Features & Specifications

- Simple and rugged single unit assembly
- COSPAS/SARSAT (406 MHz) compatible function and 121.5 MHz beacon using McMurdo Marine EPIRB electronics
  - 406 MHz satellite message (national user format)
  - 121.5 MHz beacon (6 hour delay)
- COSPAS-SARSAT data transmission of unique submarine ID, GPS information, elapsed time from activation, initial GPS position fix, and a special encoded message
  - GPS positioning using Rockwell receiver
- CG/CB separation optimized to ensure performance in high sea states
- Shelf life: 5+ years
- Operating life: 48+ hours
- Stowage temperature:
  - Short term; -20 ºC to 55ºC
  - Long term; -5 ºC to 40ºC
- Operating temperature: -20 to 55ºC
- Submarine launched certified - survives launch from a submarine in transit
- Designed to survive severe shock and vibration requirements
  - Shock: Type I Table 1 of MIL-STD-167
  - Vibration: 110 G 1/2 sine wave of eleven milliseconds
- Bending moment requirement (200 lb end load)
- No lanyard, no strobe
- Launch from a 3 or 4 inch launcher (with adapter sleeve) or manual release via an emergency escape trunk
- 100% tested for survival for 8 hours
- BIT function and autonomous operating modes
- Easily replaceable battery pack at depot level; LiMnO₂ chemistry, NSWC battery safety instruction S9310 approval for use on a submarine

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter:</td>
<td>3 in (7.6 cm)</td>
</tr>
<tr>
<td>Length:</td>
<td>39.5 in (100 cm)</td>
</tr>
<tr>
<td>Weight (approx.):</td>
<td>8 lbs (3.6 kg)</td>
</tr>
<tr>
<td>Buoyancy:</td>
<td>20.7%</td>
</tr>
<tr>
<td>CG/CB separation (submerged):</td>
<td>5.21 in (13.2 cm)</td>
</tr>
<tr>
<td>CG-CB separation (surfaced, static):</td>
<td>0.98 in (2.5 cm)</td>
</tr>
</tbody>
</table>

Nose cap / radome for COSPAS-SARSAT, 121.5 MHz, and GPS antenna performance
- Low cost/low dielectric material
- Joint design based on over 40 years of experience in expendable device design and manufacture

Antenna 406.025/121.5 MHz (center loaded)
Rockwell GPS receiver (COTS)
Aluminum drawn tube - based on sonobuoy design and manufacture experience
McMurdo EPIRB electronics and 406.025/121.5 MHz
Water line
UltraLife battery pack
BIT push-button access hole
Dual O-ring seal - User serviceable for battery replacement

Sound Solutions

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