Saracom®

INSTRUCTION

Emergency Position Indicating Radio Beacon

EPIRB(Class II)

EB-10

Saracom Co., Ltd.

Contents

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1. Description of the EPIRB

406MHz satellite EPIRB is used to COSPAS-SARSAT system in the GMDSS(Global Maritime Distress and Safety System) such as Fig.1. It is a global distress warning system operating on an exclusive identification and distress signal at emergency situation, is consisted beacon and safety container.

▣ COSPAS-SARSAT system composition groups

- Five satellites on low-altitude in near-polar orbits
- Local User Terminals
- Mission control center / Rescue Co-ordinate Center
- Satellite Emergency Position Indicating Radio Beacon

▣ Signal processing procedure from EPIRB

1) EPIRB **ON**
2) EPIRB transmit a 0.44 second long message carrying the vessel identification code or serial number every 50 seconds.
3) Satellite accept input from 406MHz EPIRB, retransmit a message in memory to any LUT in the satellite's view.
4) The signals are then relayed to a ground receiving station, which processes the signals to determine the beacon location within 1NM (2km), transmit the information to RCC.
5) The 121.5MHz beacon signals also provide for homming by SAR units and overflight monitoring by aircraft.

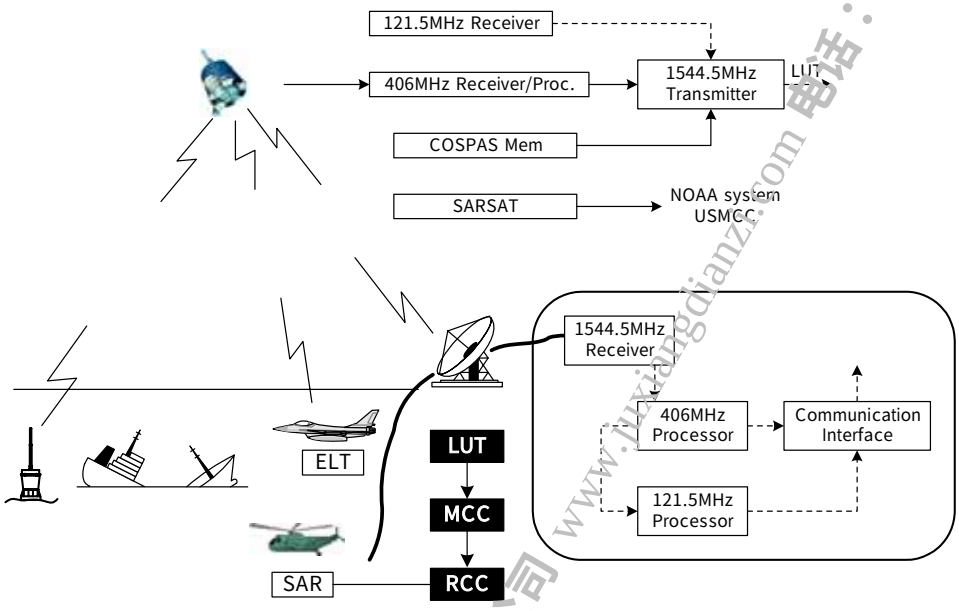

Fig. 1 Basic concept of COSPAS-SARSAT

2. EB-10 EPIRB General

▣ EB-10 is automatically floated radio beacon to transmit signal for search and rescue activation in emergency situation.

▣ EB-10 is a global distress warning system operating on satellite with global coverage. The emergency signal can be pick up anywhere and quickly positioned an identified to within 1 nautical mile.

▣ EB-10 is meet requirement for COSPAS-SARSAT satellite EPIRB (Class II) and operates with two transmitter as follows.

- UHF band 406.025MHz frequency to position and identify the signal through the COSPAS-SARSAT satellite.
- VHF band 121.5MHz aeronautical distress frequency to facilitate the final search by the "Homming" procedure.

▣ EB-10 can be used on board vessels of any size with the following advantages :

- **Easy installation** and **storage**(Optimal design).
- **Easy** and **safe** operation.
- **Easy handling at emergency state**(Ergonomic design).
- **Incorrect operation is protected** multi switching system. ***(Water Activation Switch, Magnet Switch)***
- **Float free construction** to be release at depth of 4 to 12 ft, and rise to surface.
- Housing made of bright orange **ABS plastic** with a high resistance, **Watertight at 1 bar.**
- **Manual Switch for selftest.**

3. Specifications

- Operation temperature range : -20℃ ~ +55℃
- Storage temperature range : -30℃ ~ +70℃
- Lithium battery : 4 years lifetime
- Operating life : 48 hours at -20℃ or 80 hours at +20℃
- Housing : ABS Plastic
- Watertight : contain at 1 bar
- Dimension : ϕ 124/240 mm (exclude antenna)
- Weight : 1.5Kg
- Strobe light : 20 times per minute(Min. 0.75 candela)
- Battery test

406MHz Satellite Transmission

- Frequency : 406.025MHz ± 0.002MHz
- Frequency Stability
  - Short term : ≤ 0.002 parts/million
  - Medium term : Mean slope : ≤ 001 parts/10^6/minute
    Residual frequency variation : ≤ 003 parts / 10^6
- UHF power output : 37dBm(5W) ± 2dB
- Phase modulation : 1.1 ± 0.1 radians peak
- Repetition period : 50 secs ± 5%
- Transmission time : 440 msec ± 1%
- Code type : Bi-phase L code
- Transmission frequency deviation rate : within ± 1Hz
- Phase shifting time of modulated signal : 150 ± 100 μs

121.5MHz Homing Transmission

- Frequency : 121.5MHz
- Frequency Tolerance : 50 parts / million
- Output : 75 mW
- Modulation : 3K20A3X
- Modulation duty cycle : 50%
- Continuous transmission
- Complies with the new ICAO recommendation

4. Installation and Operation

1) Installation instruction for the Container (Fig. 2)

- Solidly fixed to the top bridge deck with 4 screws.
- Clear area to allow the beacon to rise to the surface, should the ship sink. Watch rigging, antenna or shroud that could build obstacles.
- Easy access to the crew for manual operation.

2) Installation instruction for EPIRB (Fig. 3)

- Solidly Fixed Container as 1) Installation instruction for container.
- Place beacon in container according to position indicated.
  - Antenna should be place on bottom of the container with container.
  - Place beacon to be seen front label.
  - Be care of not touching switch because of beacon already standby state to operate in the water.
- Close the container cover and slide the release metal ring.
- Lock the release pin through the release metal ring.

Remark : When the installation of the EPIRB in the container, check that the arrow indicator, the top side of the EPIRB, is installed to the outward. If you install to the inward, it has possibility of the unwanted emission.

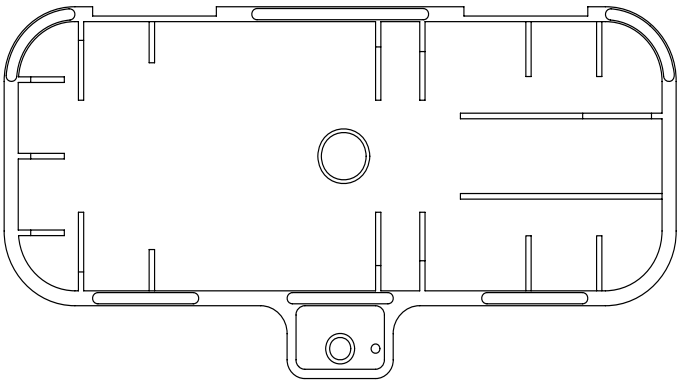

Fig. 2 Container installation

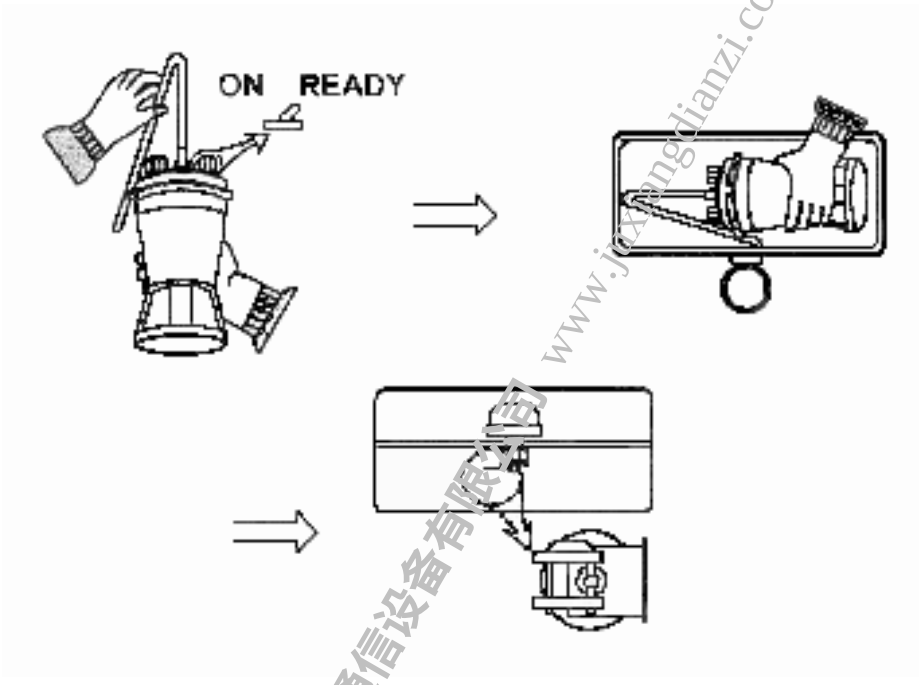

Fig. 3 EPIRB installation

3) Instruction of emergency situation

- Remove beacon from container
- Throw beacon into water using tether line.
- Check flashing light(Control operation)

4) Manual operation(Fig.4)

- Remove beacon from container(Antenna is deployed).
- Open plastic cap and switch ON.
- Check flashing of red lamp and close plastic
- Put beacon stable place.
- For a halt of operation, Switch READY.

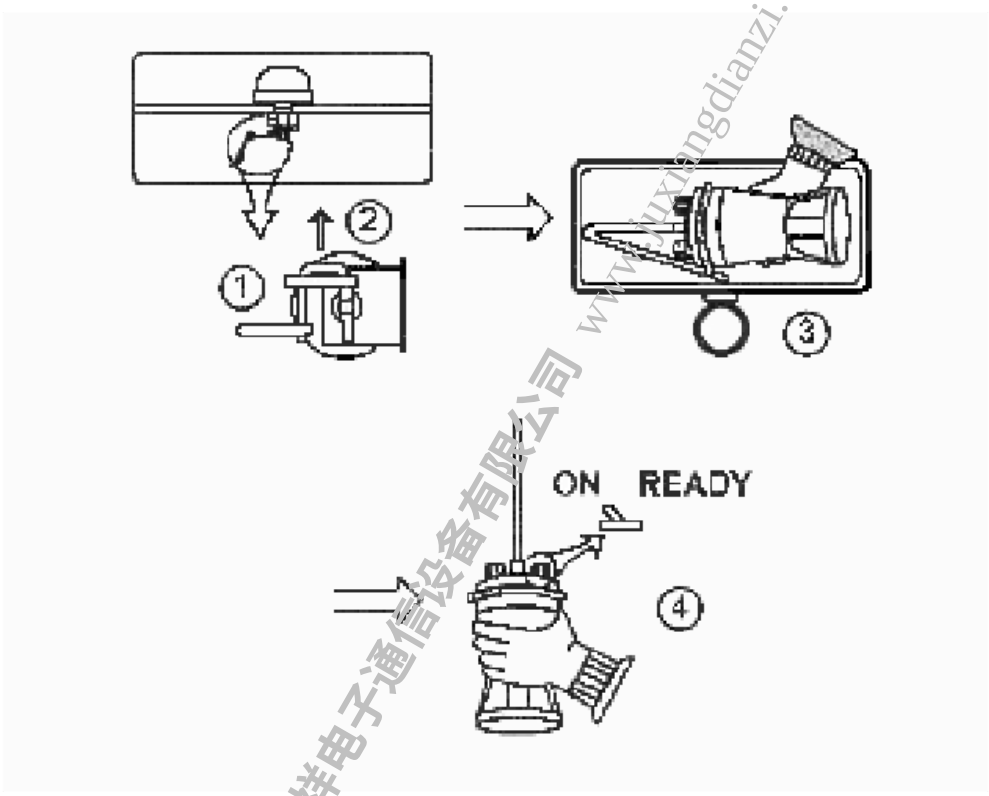

Fig. 4 Manual operation

5. Maintenance and Coding

1) Every 6 months

- Check that the date on automatic release system (Hydroaulic gauge) has not expired.
- Check that beacon's removal from container.
- Switch **ON** and check that lamp flashes regularly after a few seconds.
- Switch **READY** and **replace beacon** into container.

WARNING :

DO NOT EXCEED 30 SECONDS TO AVOID ANY REAL DISTRESS TRANSMISSION.

- If flashing light flashes regularly 20 times per minute, the beacon operates correctly.
- If flashing light flashes in an irregular fashion, it is defective. To ask advise from manufacturer or contacting agent.

2) EVERY YEAR

Annual control performed by Navigation Inspector.

3) EVERY 2 YEAR

We recommend that servicing should be performed by a recommended agent who will check the beacon completely, change the seals, check the watertightness.

Release system's expiration of the validity time is **2 years.**

4) EVERY 4 YEAR

Test performed by recommended agent. The battery pack must be replaced and the beacon operation checked thoroughly.

Battery pack's expiration of the validity time is 4 years.

WARNING :

The battery replacement must be performed only by a recommended agent who will dispose of it.

-)o not open beacon.
-)o not charge battery.
-)o not placing near fire.
-)o not expose to temperature over 70℃
-)o not short circuit.

ADIVISORY :

Please contact your airline for guidance if you intend to utilize air transport for an EPIRB(Lithium pack).

5) Coding

For a Coding of programs, RS232C cable connect to coding pins (EB-10 EPIRB). And then switch ON, "BATTERY" LED flashes and the new code program coded EEPROM during 5 seconds, simultaneously.

6. Dimension and Drawing

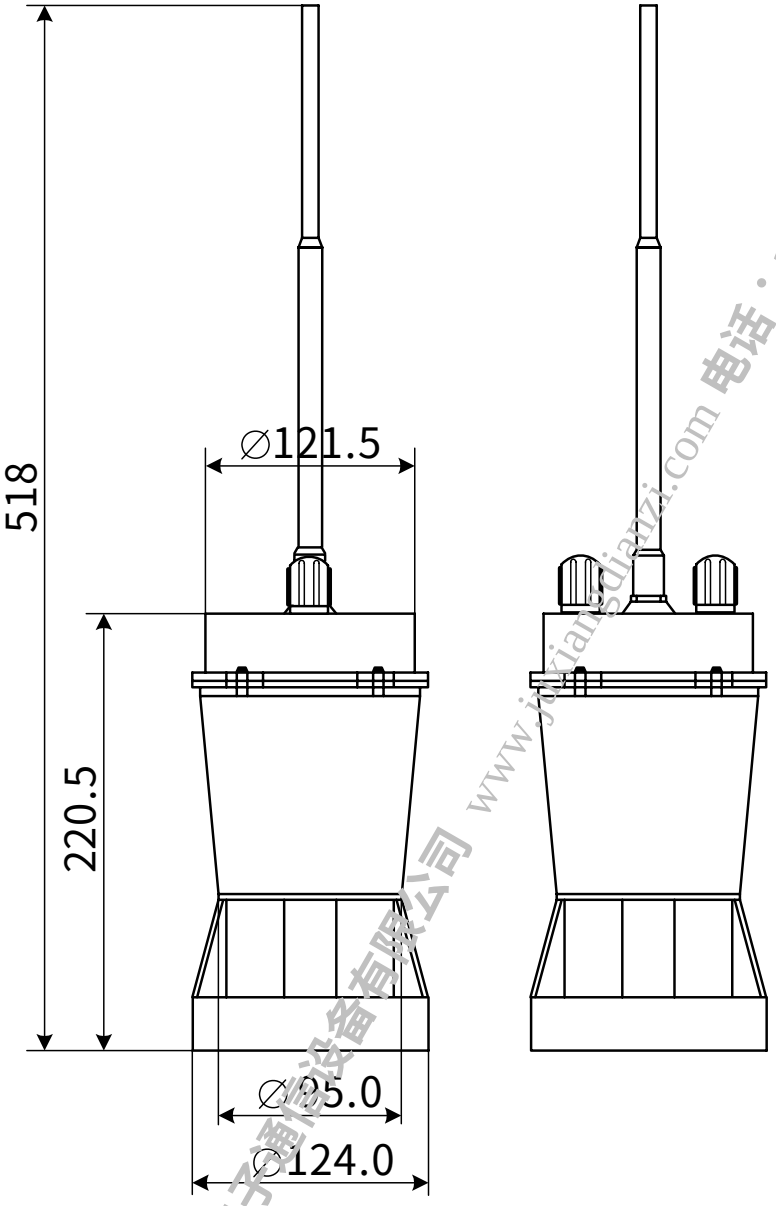

Fig. 5 Dimension and drawing of EPIRB

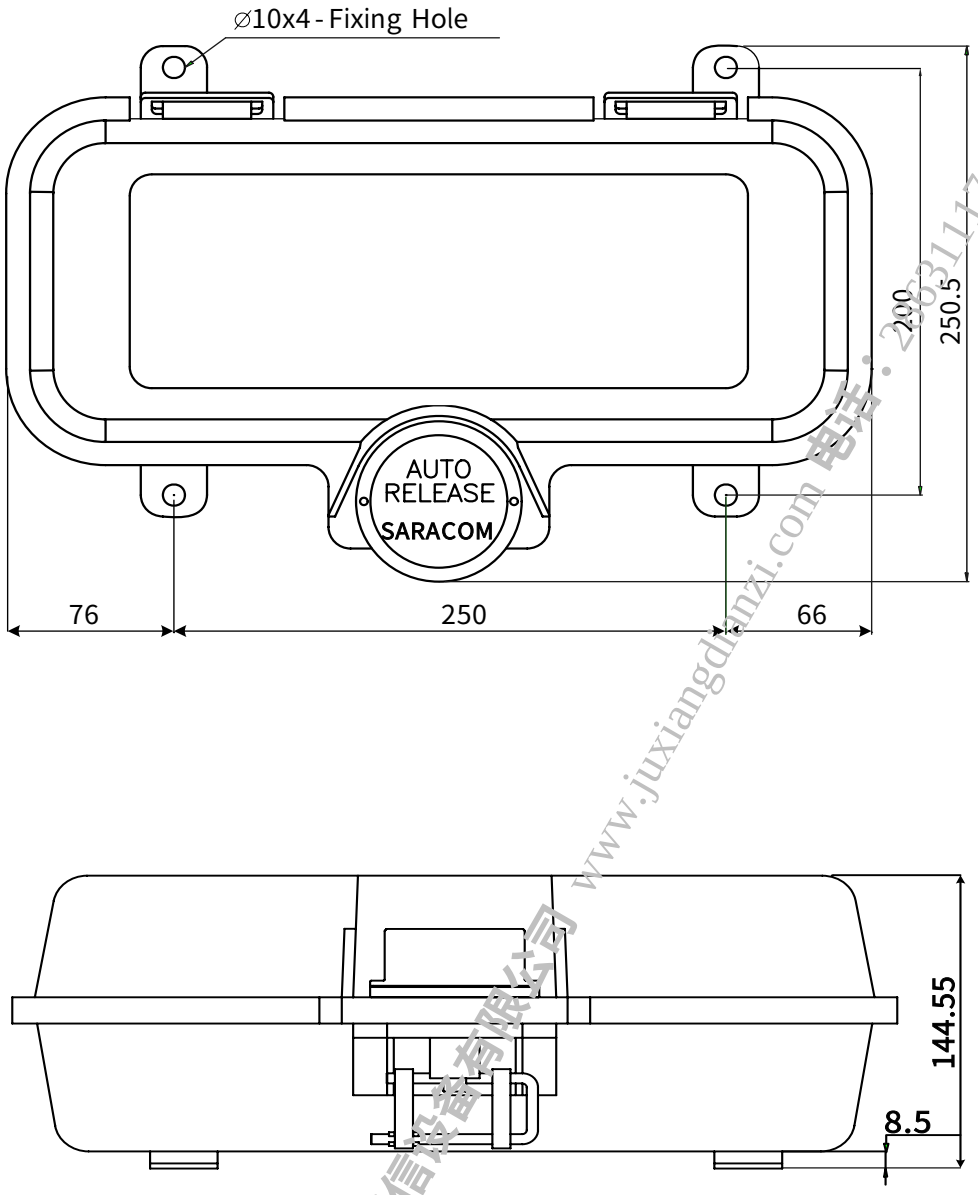

Fig. 6 Dimension and drawing of container

HOW TO KEEP OPERATION MANUAL AND THE REGISTRATION CARD

1. This booklet must follow the Radio Beacon in all its successive assignments.
2. It must be kept on board with the other safety documents and be shown on request to the Maritime Authorities.
3. On termination of each periodic inspection carried out by the service station an authorized by the manufacturer, this booklet must be completed in and signed.
4. After any periodic or unexpected inspection, the booklet has to be signed by the Maritime Authorities.
5. In case of a new assignment of the radio beacon or change of Vessel's name or owner, advise the relevant Registration Service and the manufacturer's authorized agent so that maintenance may be continued.

REGISTRATION :

The code programmed into the EPIRB and imprinted on the registration card will not be changed during the life of the unit. It is very important that the registration details held by the SAR authorities are up-to-date.

Upon purchase of the EB-10 EPIRB, the end-user should complete the registration card and mail it to the relevant Registration Services.

RECOMMENDATION

In the case where the beacon has been activated but the vessel and its crew are no longer in danger, it is very important not to disarm the beacon until the SAR services have been informed by whatever means possible that the distress situation in over.

Beacon activation initiates a world-wide COSPAS-SARSAT alert with rapid deployment of costly rescue operations and turning off the beacon too early could cause great disruption to SAR operations which may already have begun.

WARNING

If the beacon transmits other than in an emergency (test lamp flashing), INFORM THE LOCAL SAR SERVICES of the false alarm to cancel the research operations and stop it immediately.

It is unlawful to transmit a distress signal unless an emergency exists. Turning this unit on initiates a signal on the international distress frequencies. Any unjustified alert will involve penalties.

PRE-DELIVERY INSPECTION LOG

☒ Battery :
Batch date: .....
Replacement date : .....

☒ Release system :
Batch date : .....
Replacement date : .....

☒ Housing Inspection :

☒ Watertight verification :

☒ 121.5 MHz transmission :
☒ 406 MHz transmission :
☒ Frequency adjustment :
☒ General operation :

Next Inspection due on : .....

Inspection service : .....
.....

Date : .....
Signature and Stamp

PERIODIC INSPECTION LOG

☒ Battery :
Batch date: .....
Replacement date : .....

☒ Release system :
Batch date : .....
Replacement date : .....

☒ Housing Inspection :

☒ Watertight verification :

☒ 121.5 MHz transmission :
☒ 406 MHz transmission :
☒ Frequency adjustment :
☒ General operation :

Next Inspection due on : .....

Remark : .....
.....

Inspection service : .....
.....

Date : .....
Signature and Stamp

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☒ Watertight verification :

☒ 121.5 MHz transmission :
☒ 406 MHz transmission :
☒ Frequency adjustment :
☒ General operation :

Next Inspection due on : .....

Remark : .....
.....

Inspection service : .....
.....

Date : .....
Signature and Stamp

EPIRB LOCATION LOG

Vessel Name : .....

ID No. : .....

Port of Registry : .....

Installation Date : .....

Registration Date : .....

Inspection Stamp

Date, Signature

Vessel Name : .....

ID No. : .....

Port of Registry : .....

Installation Date : .....

Registration Date : .....

Inspection Stamp

Date, Signature

EPIRB LOCATION LOG

Vessel Name : .....

ID No. : .....

Port of Registry : .....

Installation Date : .....

Registration Date : .....

Inspection Stamp

Date, Signature

Vessel Name : .....

ID No. : .....

Port of Registry : .....

Installation Date : .....

Registration Date : .....

Inspection Stamp

Date, Signature

WARRANTY

EB-10 EPIRB carries a 12 month warranty for any in-service defects proven to have been caused by faulty materials or workmanship. The warranty period will commence from the date of purchase and excludes the battery pack.
See your dealer.

NOTES

Distributed by

Model No. : EB-10
Type Approval No. :
Serial No. :

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