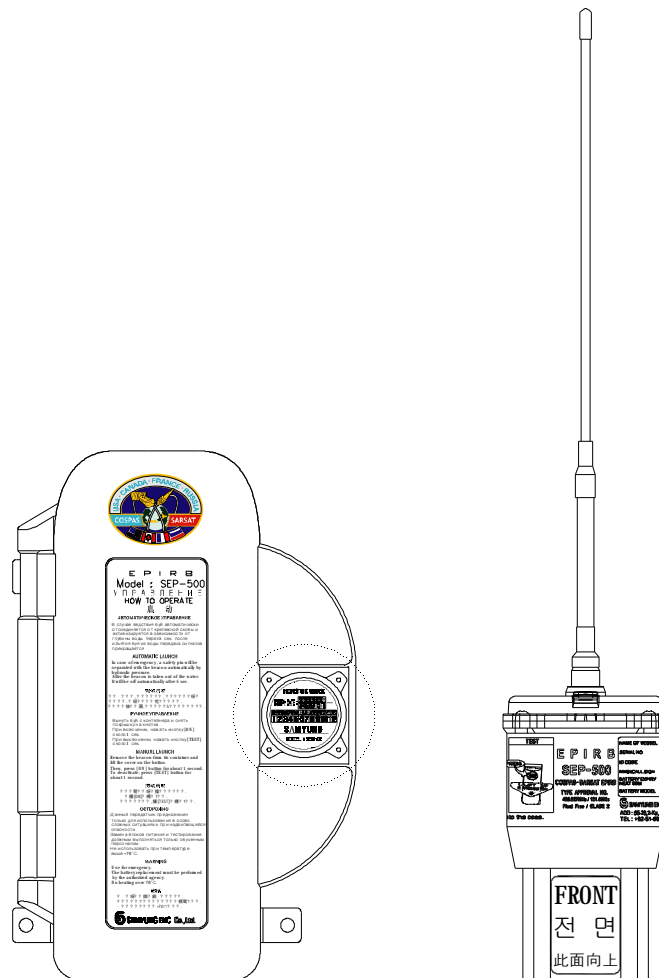


Emergency Position Indicating Radio Beacon

FOR GMDSS CLASS II

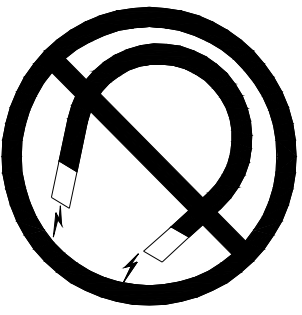
SEP - 500 GPS EPI RB INSTRUCTION MANUAL

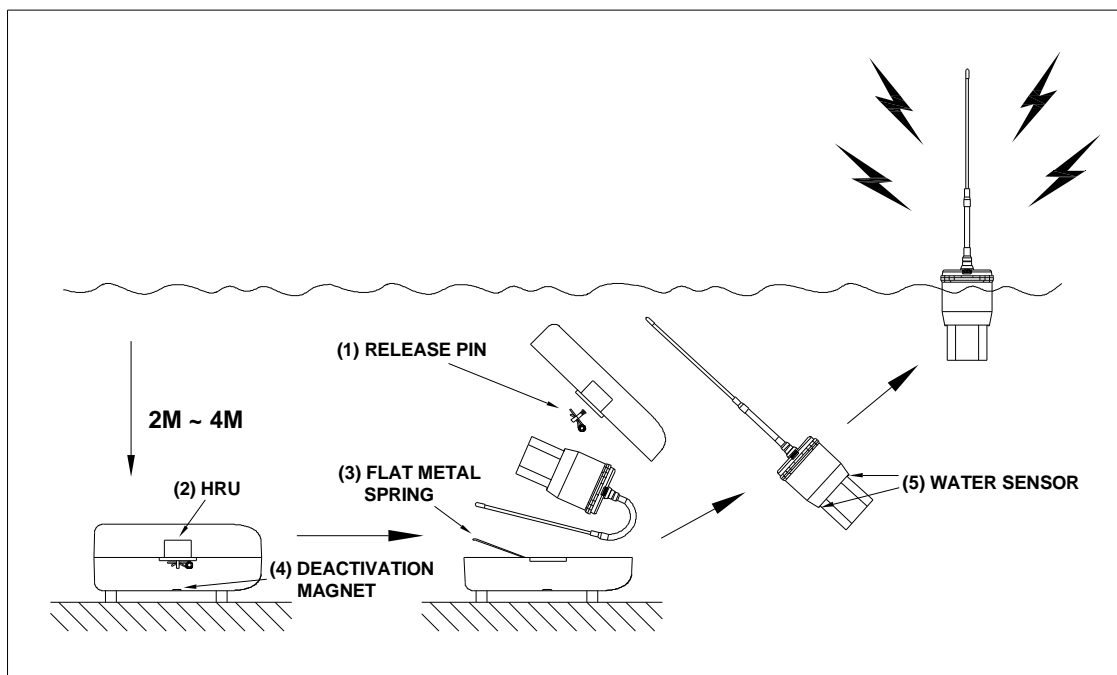


<<< NOTE >>>

Use this equipment in case of emergency situation only as such distress.

The intentional misuse may cause enormous chaos and this is accordingly responsible for the users.

 <p>MAGNET Safety Distance 1M</p>	<p>To prevent the malfunction of the equipment, install the equipment minimum 1 meter away from any speakers or compass equipment.</p>
---	--



In emergency situation as such distress, (1) the release pin automatically

comes off (2) the HRU (Hydrostatic Release Unit) in water of 2M~4M depth. The main unit comes out of the case by the force of (3) the flat metal spring and operates when detached from (4) the deactivation magnet by (5) the water sensor. Then, It floats on the sea and transmits a distress signal after a few seconds.

- ☞ Study this manual before the operation.
- ☞ Don't lose this manual.
- ☞ Don't look at the flash lamp directly.
- ☞ In case of malfunction, contact the distributors or HQ.
- ☞ Thank you for purchasing SEP-500.

<<< CONTENTS >>>

CHAPTER 1. REGISTRATION OF INFORMATION	5
1.1 Necessity of Registration	5
1.2 Radio Station License	5
CHAPTER 2. FALSE ALARMS	6
2.1 Prevention of False Alarms	6
2.2 Reporting of False Alarms	6
CHAPTER 3. SPECIFICATION/ OVERVIEW	7
3.1 COSPAS-SARSAT System Overview	7
3.2 Specification	8
CHAPTER 4. HOW TO USE	10
4.1 How to Use and Cautions	10
4.2 Automatic Operation (Distress Signal TX)	11
4.3 Manual Operation (Distress Signal TX)	12
4.4 Test TX (Self-Test)	13
4.5 GPS Test	14
CHAPTER 5. INSTALLATION	15
5.1 Test before Installation	15
5.2 Installation Site	15
CHAPTER 6. MAINTENANCE/ CARE	16
6.1 Basic Notice	16
6.2 Visual Test/ Unit Test	16
6.3 Hydraulic Release Unit Replacement	16
6.4 Battery Replacement	16
6.5 Transportation	17
CHAPTER 7. WARRANTY INFORMATION	18
7.1 Warranty Period	18
CHAPTER 8. PACKING LIST	19
CHAPTER 9. STORAGE OF EPIRB	21
CHAPTER 10. BATTERY REPLACING METHOD	22
CHAPTER 11. EPIRB INSTALLING METHOD	23
CHAPTER 12. EXTERNAL DIMENSION FOR THE CASE	24
CHAPTER 13. EXTERNAL DIMENSION FOR THE EPIRB	25

CHAPTER 1. REGISTRATION OF INFORMATION

1.1 Necessity of Registration

The users of 406MHz beacons need to fill out the registration card containing vessel name, Identification Data and Nationality and register the equipment to the government and the service company. If you use unregistered equipment in the emergency situation, the search and rescue operation cannot be done immediately owing to nothing information about ships in distress. The SEP-500 GPS EPIRB will be delivered to the customers after saving all information for the users.

1.2 Radio Station License

An EPIRB is a radio transmitter and must therefore be added to your radio license.

If you have been allocated a radio callsign, then you already have a radio license for your VHF or MF radio set. You should update your license to include your EPIRB.

For further details see your license or use these contact numbers.

- I **USA** FCC TEL: 888 225 5322, Website: www.fcc.gov/Forms/Form605/605.pdf
- I **UK** Ofcom TEL: 020 7981 3000, Website: www.ofcom.co.uk/licensing/olc

CHAPTER 2. FALSE ALARMS

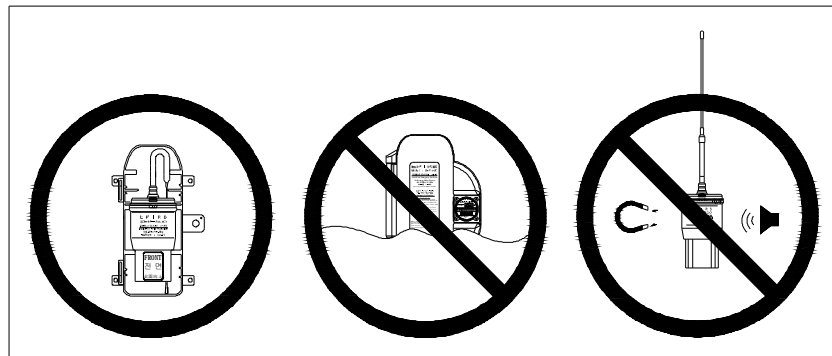
2.1 Prevention of False Alarms

The EPIRB operates under the following situations.

- I If the main unit is in the sea, its sea switch operates and it transmits a distress signal.
- I In case [ON] switch on top of the equipment is pressed, it transmits a distress signal.

Please be aware of the following to prevent the wrong distress signal TX.

- I Stay the equipment away 1meter from magnetic objects (speaker, compass etc.).
- I Do not clean the equipment with water.
- I Store it in a case with the sticker on the front side.
- I Do not take out the wet equipment from the case.
- I Do not store it in water.
- I In case no stopping by the button, put it in the case with the front sticker on the face. The whole function is stopped by compulsion so that it cannot be transmitted.



< Fig. 2-1 > Prevention of False Alarms

2.2 Reporting of False Alarms

Should there be, for any reason, 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 EPIRB 15-digit Unique Identifier Number (UIN), date, time, duration and cause of activation, as

well as location of beacon at the time of activation.

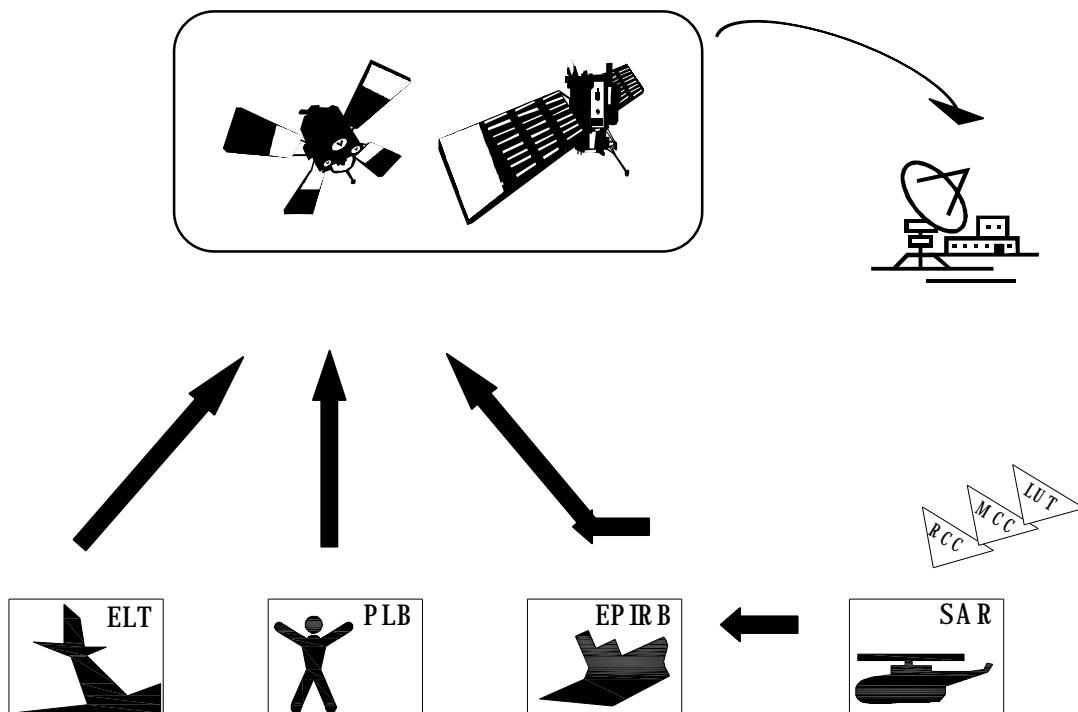
To report False Alarms in the USA and the UK contact the following.

- I USA From any location TEL: (800) 323 7233
- I UK From any location TEL: 01326 317 575

To report False Alarms Worldwide contact the national authority where your beacon is registered.

CHAPTER 3. SPECIFICATION/ OVERVIEW

3.1 COSPAS-SARSAT System Overview



< Fig. 3-1 > COSPAS-SARSAT System

When COSPAS-SARSAT satellite receives a distress signal, the signal transmits to the MCC (Mission Control Center) via the LUT(Local Users Terminal). The MCC delivers the distress signal to the nearest RCC(Rescue Coordination Center) and the RCC performs Search and Rescue operations. The SEP-500 receives the GPS information and it transmits more accurate distress position than the EPIRB without the GPS so that it makes to perform prompt search & rescue operations.

3.2 Specification

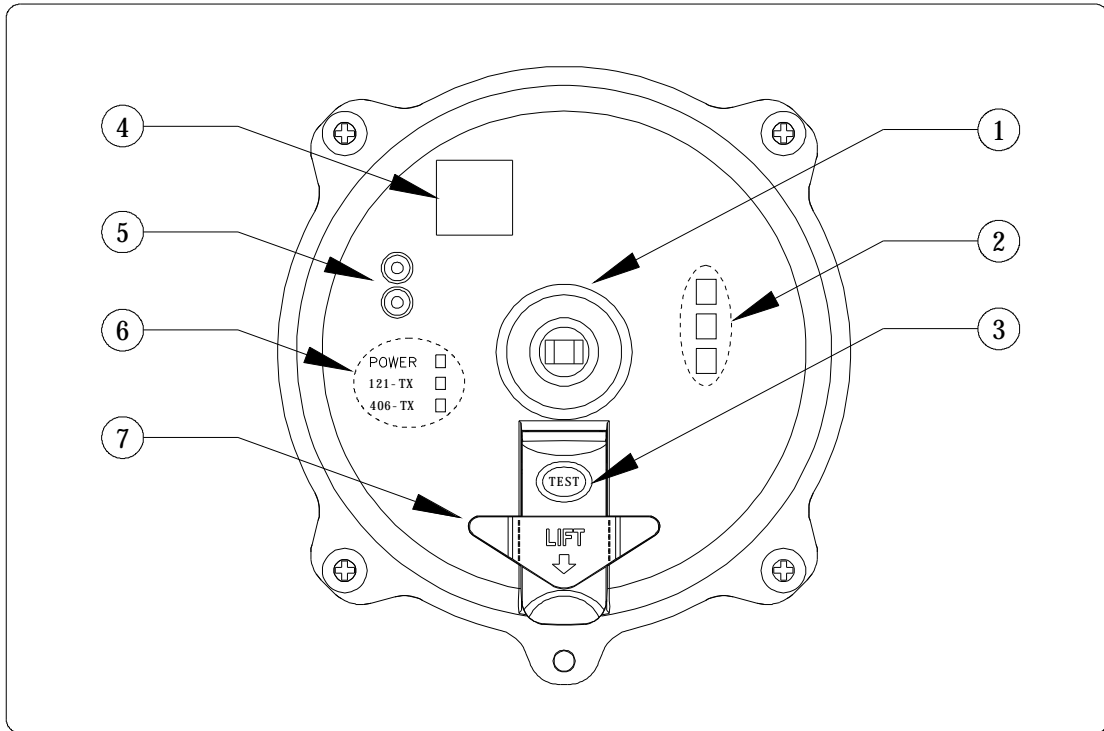
406.037MHz Transmitter			
Frequency	406.037MHz \pm 1KHz	Output power	5W \pm 2dB
Duration	520ms \pm 1%	Modulation	PM \pm 1.1radians \pm 0.1
Rate	400bps	Encoding	Biphase L
121.5MHz Transmitter			
Frequency	121.5MHz \pm 50ppm	Output power	50mW \pm 3dB
Modulation	AM (3K20A3X)	Sweep range	300Hz ~ 1600Hz
Sweep rate	2Hz ~ 4Hz	Duty cycle	33% ~ 55%
Battery			
Voltage	14.4V	Replacement	Every 5 years
Part number	4SW-D02 (4 x SW-D02 D size cells)	Operating temp.	-55°C ~ +85°C (-67 F ~ +185 F)
Type	LI-SOCl ₂		
Antenna			
Frequency	121.5MHz / 406.037MHz	Polarization	Vertical
VSWR	< 1.5	GPS antenna	Patch Antenna
General			
Operating temp.	-20 C ~ +55 C CLASS II (-4 F ~ +131 F)	Storage temp.	-30 C ~ +70 C (-22 F ~ +158 F)
Color	Orange color	Dimensions	653 X 141 X 141mm
Operating time	More than 48 hours at -20 C	Weight	1.5Kg
EPIRB material	PC, ABS plastic	Waterproof	5 min. under 10 meters

Flash brightness	> 0.75 candela	Flash rate	21 times per min.
GPS Module	16 Channel simultaneous RX		

CHAPTER 4. HOW TO USE

4.1 How to Use and Cautions

The SEP-500 is designed to operate in automatic and manual mode. Use this equipment only in the emergency situation. The major functions are as below.



< Fig. 4-1> Equipment Composition

Major Function		
①	Antenna	406MHz / 121.5MHz Distress Signal TX antenna
②	Flash Lamp	Flash lamp with above 0.75cd for test TX & night operation.
③	[TEST] button	Press about for 1 second and the 406.037MHz/ 121.5MHz test signal transmits. Press for 1 second to stop emergency TX.
④	GPS Antenna	GPS Signal RX patch antenna
⑤	Data Coding Sensor	Data Input & Output for coding

⑥	Status Lamp	<p>POWER LED (Red) : Power is On</p> <p>406-TX LED (Green): The 406.037MHz signal is transmitting</p> <p>121-TX LED (Yellow): The 121.5MHz signal is transmitting.</p> <p>If the status lamp is blinking, it is the status of low-battery.</p>
⑦	[ON] button	<p>In the emergency, lift the cover of button. Then the “LIFT” sticker is torn and the cover is opened. Then, press [ON] button for about 1 second, it transmits an emergency message. Check the operation of the Status lamp.</p> <p>Use only in the emergency situation.</p>

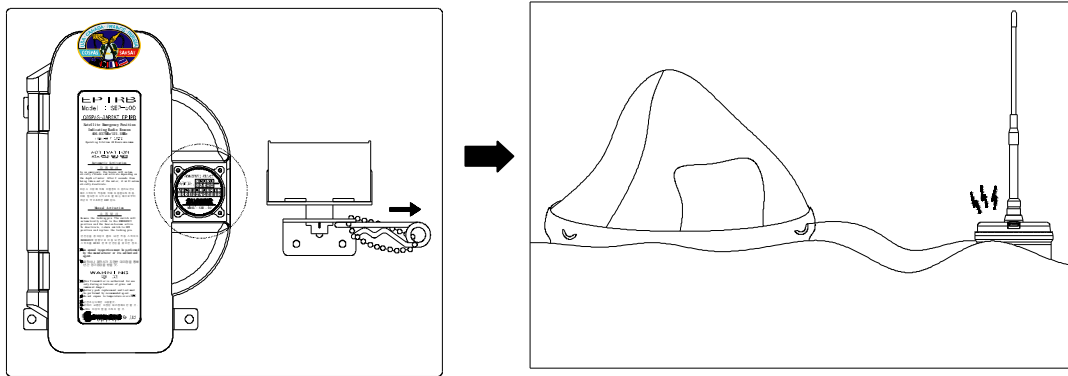
4.2 Automatic Operation (Distress Signal TX)

The SEP-500 is designed to transmit a distress signal, in case the vessel sinks, the hydrostatic release is operated in depth of 2m-4m, which makes the main unit to be released and float. In the emergency situation, it can be used as below.

- I Take out the main unit from the case after unfastening the locking device.
- I Throw the unit to the sea after tie up lanyard onto a device as such a lifeboat.

Caution – Never tie up lanyard onto your vessel or the case.

- I Check the flash lamp & status lamp
- I To stop the operation, take out the equipment from the sea
- I The power will be turned off automatically about 5 seconds later. (The red LED is out)



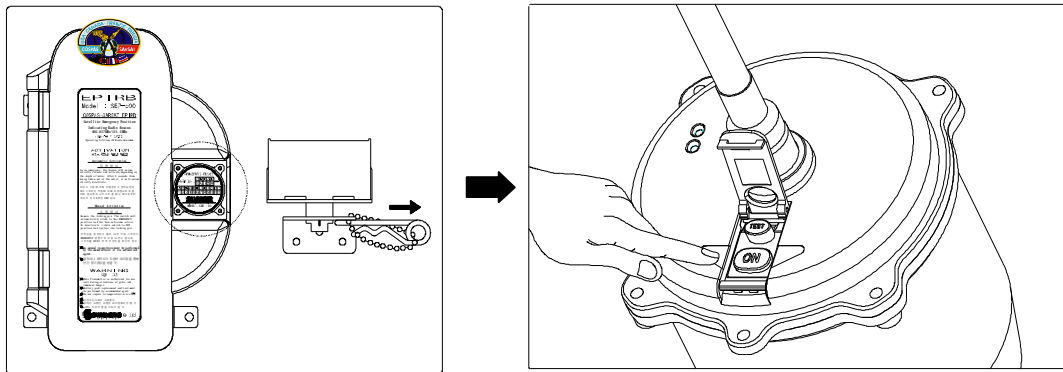
<FIG.4-2 > Automatic TX

4.3 Manual Operation (Distress Signal TX)

The SEP-500 is designed to transmit a distress signal in the emergency situation. In the emergency situation, use the equipment as below.

Take out the SEP-500 from the case after unlocking the locking device.


- I The cover is opened when you lift the cover on the button with “LIFT” sticker torn apart.
Then, press [ON] button for about 1 second, within 2 seconds, flash lamp blinks with the beep sound and the operation starts.
- I After the operation starts, just before the distress signal starts transmitting, the red LED blinks and the alarm sounds, and then, in about 50 seconds, the 406.037MHz/ 121.5 MHz distress signal transmits. Check the blinking of the red LED (406-TX) and the yellow LED (121-TX).
- I To stop the operation, press [TEST] button more than 1 second.

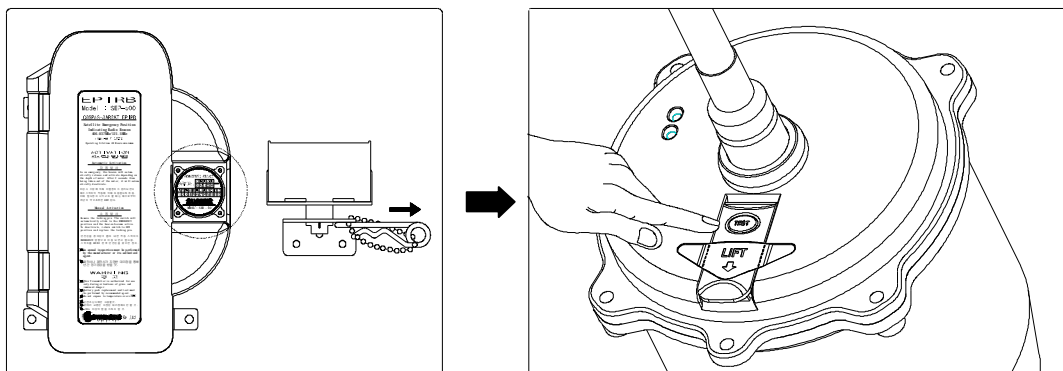


< Fig. 4-3 > Manual TX

4.4 Test TX (Self-Test)

The SEP-500 can transmit test message for a test.

- I Take out the SEP-500 from the case after unlocking the case.
- I Press [TEST] button on top of the SEP-500 for about 1 second.
- I In about 5 seconds, the flash lamp blinks with the beep sound and it transmits the 406.037 MHz/121.5MHz test message. Check the blinking of the green LED(406-TX) and the yellow LED (121-TX). It takes about 9 seconds to finish the test.
- I Recommend that the number of annual Self-Test is limited in 12 times by the battery life.
- I  When the test for TX is finished, the power will be turned off. (The red LED is out).
- I Put the SEP-500 in the case and lock the case.

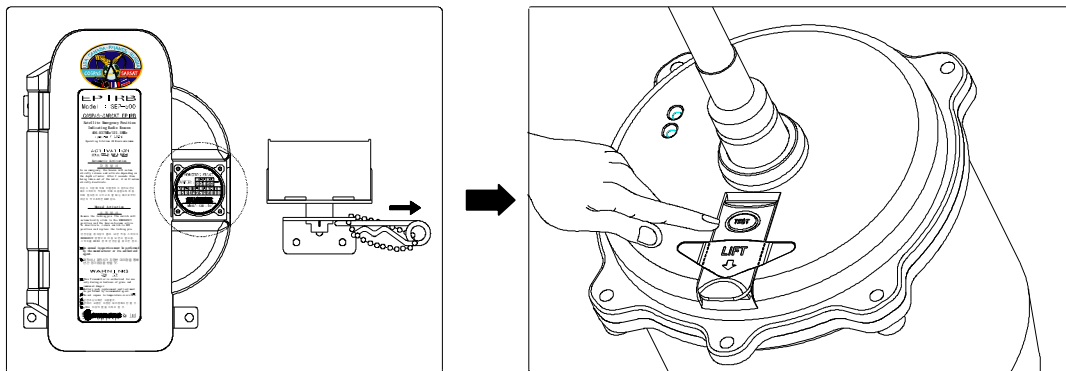


< Fig. 4-4 > Test TX

4.5 GPS Test

The GPS test is to check if the unit can receive the GPS signal well. The test environment should be in a site of seeing sky entirely as well as enough wide sites and there is no barriers as such people around units to be tested. **The GPS test is executed only one time during the five-year life of the battery** so that it should be done with very careful. Send the SEP-500 to SAMYUNG ENC if test needs to be repeated.

- I After you remove the unit from the case of the SEP-500, press [TEST] button more than 10 seconds then, the yellow LED (along with the beep sound) turns on. Then, if you get off your hands from the [TEST] button, the GNSS Self-Test is executed.
- I The GNSS Self-Test is on process in the yellow LED turns off (along with the beep sound) and the test is finished in ending time of max about 5 min. The Self-Test as well as receiving accurate position data. Then, it takes place one time 406.037MHz test transmitting along with one time light emitting of flash lamp and then, continuous the beep sound for 20 seconds and indicates turning on of status lamp (Red=Receiving failure of position data, Green=Receiving success of position data) and the power turns OFF.
- I The unit can get the position data in opening area within 1 minute regularly. If it receives the position data, the green LED turns on (along with beep sound) and the power turns OFF 20 seconds later automatically.



< Figure 4-5 > GPS Test

CHAPTER 5. INSTALLATION

5.1 Test before Installation

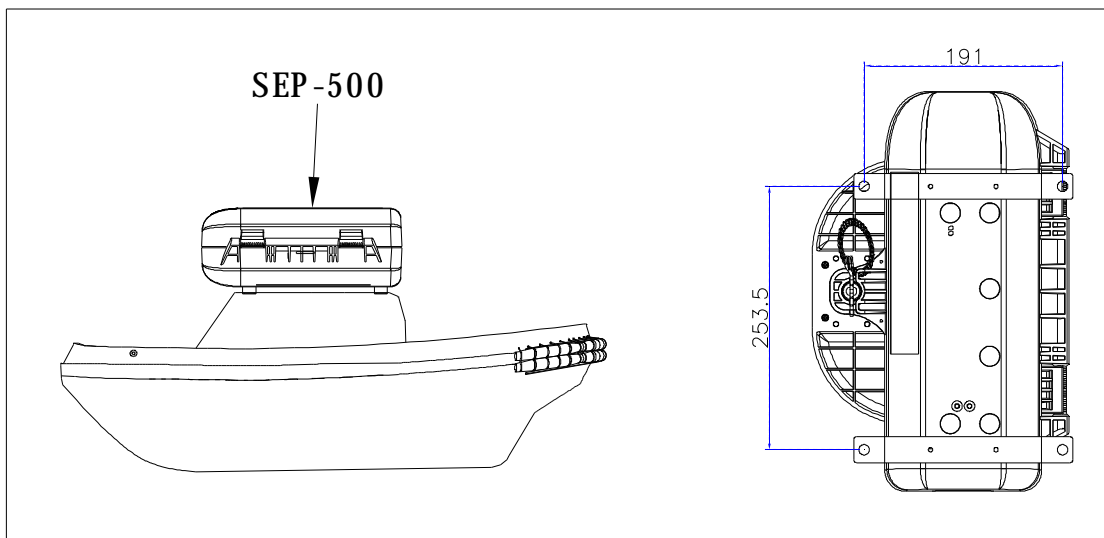
Check if the components are same with an order status. Check points are as follows and please contact agent or manufacturer, if you find any problems.

- I If no matters at main units / case
- I If the maturity of battery is overdue
- I If the "LIFT" sticker is damaged
- I If no defects on test

5.2 Installation Site

The installation site should be considered of the follows in order to work well in emergency.

- I Installed horizontal / vertical site, which can endure the weight of unit.
- I Installed safe site, which has enough space in order to emerge in emergency (Should be installed at highest site in a small ship.)
- I Don't be installed at a site in 2 meters apart from radar antenna.
- I Installed at site, which can be approached with ease in order to operate by hand.



< Figure 5-1 > Installation

CHAPTER 6. MAINTENANCE/ CARE

6.1 Basic Notice

In order to maintain the lifetime and efficiency of unit well, the units should be treated with care.

In order to keep best efficiency, the units should be inspected from qualified engineers periodically.

Shouldn't be repaired or dissembled it by an engineer not in charge to avoid errors, out of order, electronic shock and so on of the units.

6.2 Visual Test/ Unit Test

The visual test should be executed one time per minimum 3 months if outside of the unit / case is damaged.

Remove a unit from the case and make a test if the transmitting is working well.

6.3 Hydraulic Release Unit Replacement

It should be replaced per 2 years. Remove month indication, year indication indicated onto front sticker to identify the replaced date of the hydraulic release.

If it is not replaced on time, the user should keep the periodical time (2 years) for replacement because the hydraulic release might not be operated in emergency.

6.4 Battery Replacement

The battery should be replaced per 5 years and please contact an authorized agent or a manufacturer to replace it in the maturity.

The battery is complied with a regulation of working more than 48 hours. In case the maturity is overdue, we cannot guarantee normal operation as well as working more than 48 hours so that you should replace the battery according to the following status.

- I After the EPIRB is emerged in emergency

- I In case the maturity of battery was overdue
- I In case it was working more than 10 hours by wrong operation
- I In case the status lamp is blinking fast in transmitting test (Warning of low-battery)

Don't throw used batteries out to protect environment.

Don't cut, recharge, burn used batteries.

6.5 Transportation

The battery used in this EPIRB has been tested in accordance with the requirements of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition as required by the –

- I UN Recommendations on the Transport of Dangerous Goods Model Regulations
- I IATA Dangerous Goods Regulations
- I International Maritime Dangerous Goods Code (IMDG Code)
- I ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air
- I European Road Regulations (ADR)
- I USA Hazardous Materials Regulations (49CFR 173.185)

The battery also has been tested in accordance with IEC62281 (Safety of primary and secondary lithium cells and batteries during transport).

For further information, please refer to the SAMYUNG ENC website www.samyungenc.com .

CHAPTER 7. WARRANTY INFORMATION

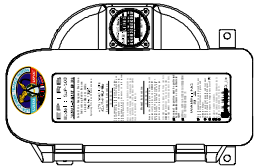
7.1 Warranty Period

The warranty is a 1 year since it was supplied except the damage is effected by inappropriate operation / not registered modification by users.

HQ After-sales Service	
ADDRESS	65-20 Namhangdong 2, Yungdogu, Busan
DEPARTMENT	SAMYUNG ENC Co. Ltd. A/S workshop
CONTACT POINT	TELEPHONE : 051-416-5516
	F A X : 051-406-5515
We support After-sales service more prompt if you advise the defective symptom, serial number, model by a phone or fax.	

AREA (Branch, Agent) After-sales Service	
CONTACT PERSON	
CONTACT POINT	TELEPHONE :
	MOBILE :
Please record contact points when you purchase items	

CHAPTER 8. PACKING LIST

SEP-500 EPIRB					
NO	ITEM	SHAPE	SPECIFICATION		REMARK
1	Main & Case		SEP-500		1
			CODE	SEP-500	
2	Instruction Manual		SEP-500-M		1
			CODE	SEP-5001	

Property Transfer for SEP-500 EPIRB

Name of Ship	
ID number	
Loading Port	
Installation Date	
Registration Date	

Name of Ship	
ID number	
Loading Port	
Installation Date	
Registration Date	

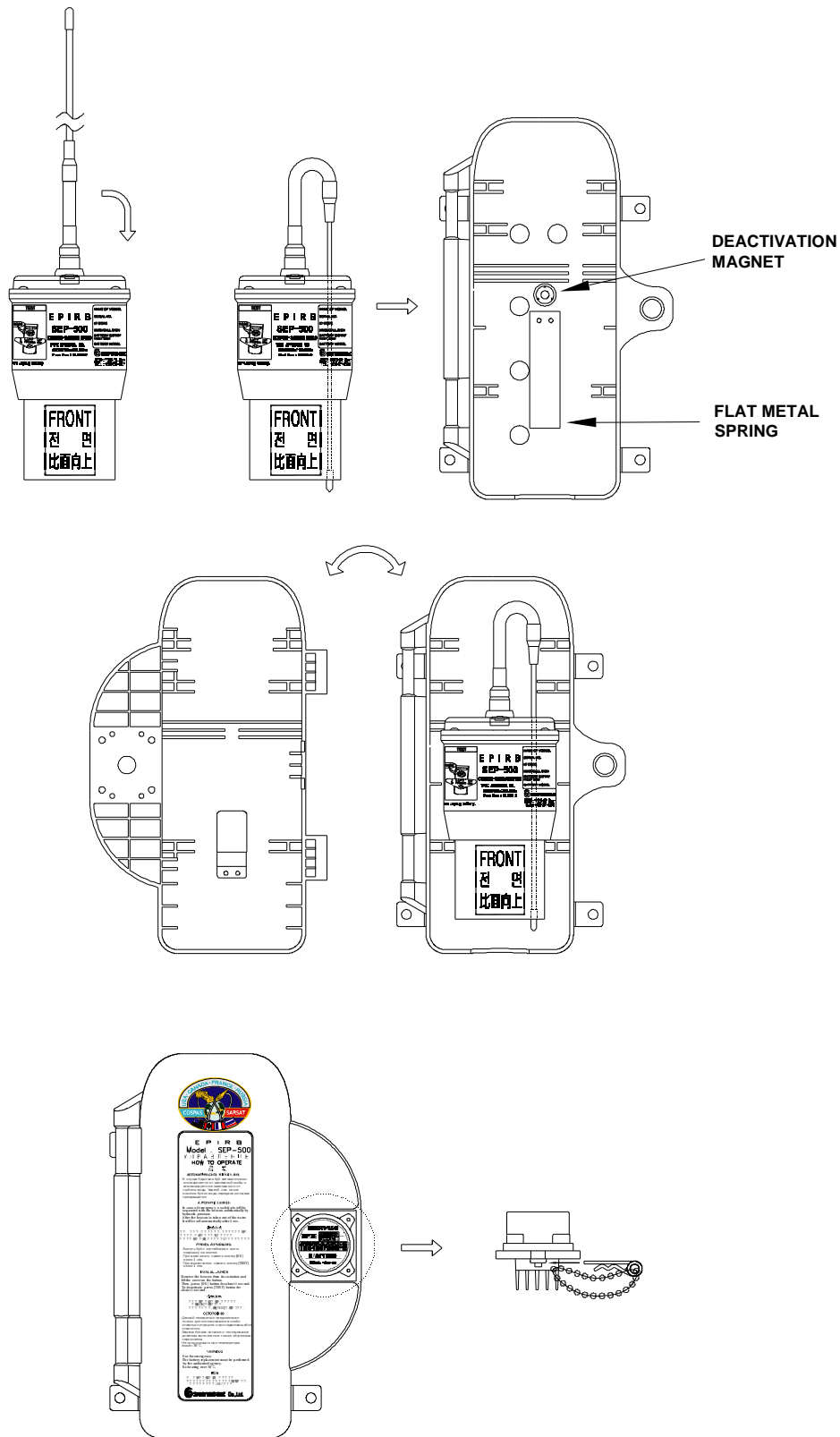
Name of Ship	
--------------	--

ID number	
Loading Port	
Installation Date	
Registration Date	

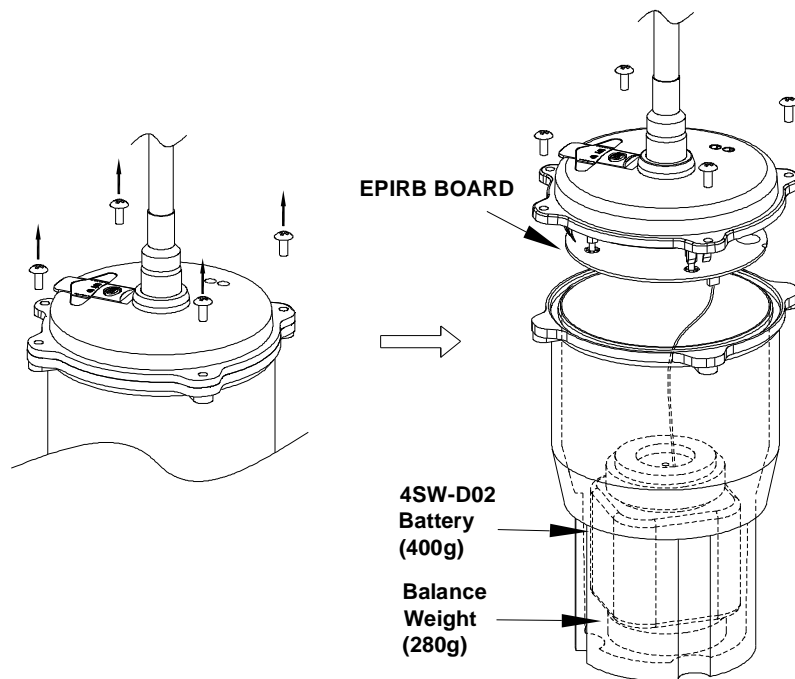
Name of Ship	
ID number	
Loading Port	
Installation Date	
Registration Date	

Name of Ship	
ID number	
Loading Port	
Installation Date	
Registration Date	

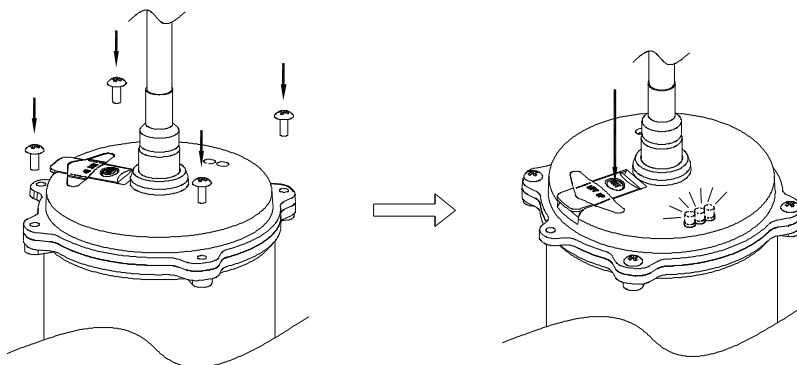
CHAPTER 9. STORAGE OF EPIRB



CHAPTER 10. BATTERY REPLACING METHOD



1. Remove 4 screws and then unplug battery.
2. Change to new battery case on bottom part.



3. Close the screws.
4. Check the indicator LED on SELF-TEST mode.

