New SAILOR 4065 EPIRB Family

NEW MULTI FREQUENCY SAILOR EMERGENCY POSITIONING INDICATING RADIO BEACONS (EPIRBS)

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1 Executive Summary

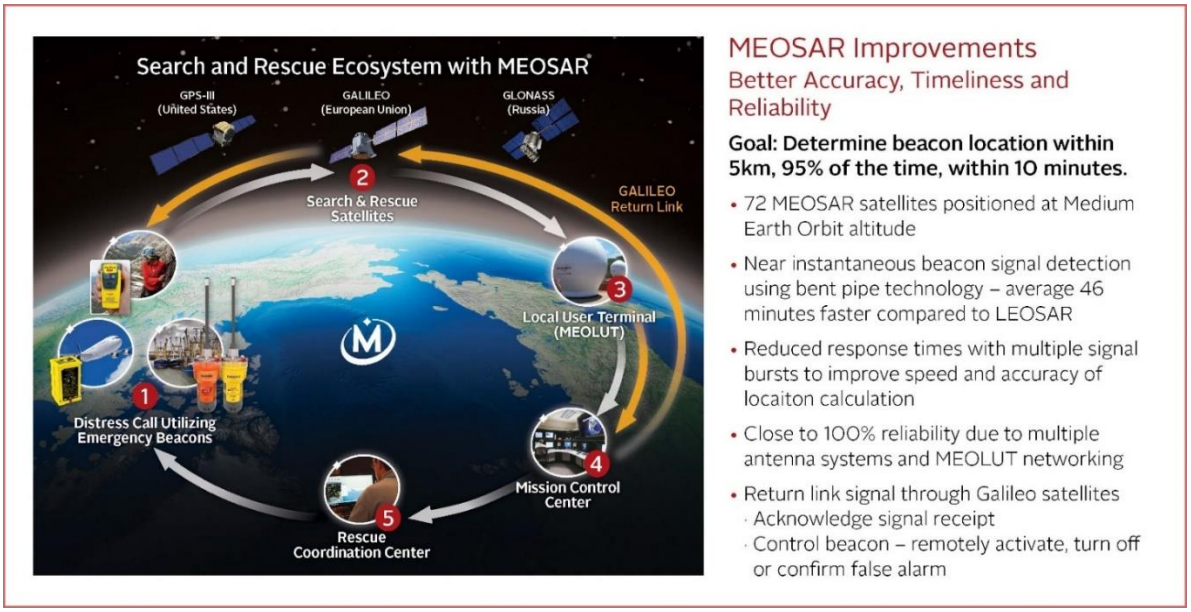
Going out into one of the most unpredictable environments is an adventure in its own. The seas of the world can be calm one minute and filled with total unpredictability the next. The introduction of Emergency Positioning Indicating Radio Beacons (EPIRB's) have been designed for the purpose to save lives.

In this Sales Introduction there will be a base introduction into the latest beacon to hit the market of safety equipment. There will be insight into the technologies involved in the unit as well as the new features and how these new features will make this beacon the preferred beacon in the maritime market. For more detailed information on the beacon, please refer to the user manual of the product.

2 Product description

An EPIRB is used to alert search and rescue services in the event of an emergency. It does this by transmitting a coded message on the 406 MHz distress frequency via satellite and earth stations to the nearest rescue co-ordination centre. Some EPIRBs also have built-in GPS which enables the rescue services to accurately locate you to +/- 50 metres.

406 MHz EPIRBs work with the Cospas-Sarsat polar orbiting satellite system, giving true global coverage. There is an alert delay of about 45 minutes dependant on when the satellites come into view on the horizon with the current LEOSAR and GEOSAR constellations. With the new MEOSAR constellation which is currently being installed, the goal will be to get instantaneous detection. The MEOSAR constellation is up and running with the full system working by 2021.



The messages sent from the beacon is a coded message which allows the receiving rescue authorities to identify the vessel the beacon belongs too. The additional information attached to the vessel like the emergency contact information can then be picked up via the registered information.

This will allow the rescue authorities to get in touch with the relevant parties to determine if the alert was false or indeed actual. Most EPIRBs include a 121.5 MHz frequency which is used for "homing" purposes. When the rescue services are in the region, this frequency allows them to determine the direction on the signal.

3 Frequencies

3.1 What is 121.5MHz?

121.5MHz is a homing in frequency that is used by aircraft to determine the direction of where assistance is required. this is dependent on the transmit range of the 121.5MHz frequency, which can be influenced by several factors like sea condition, weather and atmospheric conditions. The estimated range for a 121.5 signal, taking the mentioned conditions into account, is as follows:

- Ship to device – typical 5 miles
- Aircraft at 1000ft – 15 – 20 miles
- High Altitude Aircraft – 35+ miles

It must also be noted that the 121.5MHz frequency does not provide any positioning of range to target information. The reason for this is that it is an analogue signal.

3.2 What is 406MHz?

406MHz is a digital signal that travels up to the satellite upon activation of a 406-emergency beacon. Due to the fact that this signal is digital, it will carry additional information in is transmitted signal. The typical information will be the identification number of the beacon. If the beacon has a built in global navigation satellite system receiver, the co-ordinates of the distress will also be transmitted.

3.3 What is GNSS?

GNSS standards for Global Navigation Satellite System. These systems are made up of several orbiting satellites which can provide positioning information for devices such as beacons. From a general public perspective, GPS (Global Positioning System) in the main system. However there are several GNSS systems that operate around our planet:

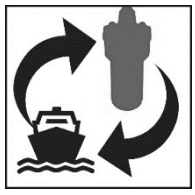
- GPS - American managed system.
- GLONASS – Russian managed system
- Galileo – European Managed system

3.4 How does the EPIRB work?

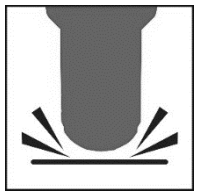
1. The beacon is activated and transmits a message via the 406MHz frequency
2. The receiving satellites receive the message transmitted from the beacon and relays this to a Local User Terminal (LUT)
3. The LUT then decodes the message received from the satellite and sends this onto the Mission Control Centres (MCC)
4. The MCC then does the administration of contacting the relevant parties to confirm whether the alert is false or real. once determined that the alert is real, the MCC then sends the information to the Rescue Coordination Centres (RCC)
5. The RCC will then send out the Search and Rescue teams for retrieval

4 Product Overview

4.1 Product Features



Transfer – Safety Bracket for transporting the EPIRB without the risk of accidental activation.



Base – strong impact resistant base to limit damage to EPIRB if dropped.

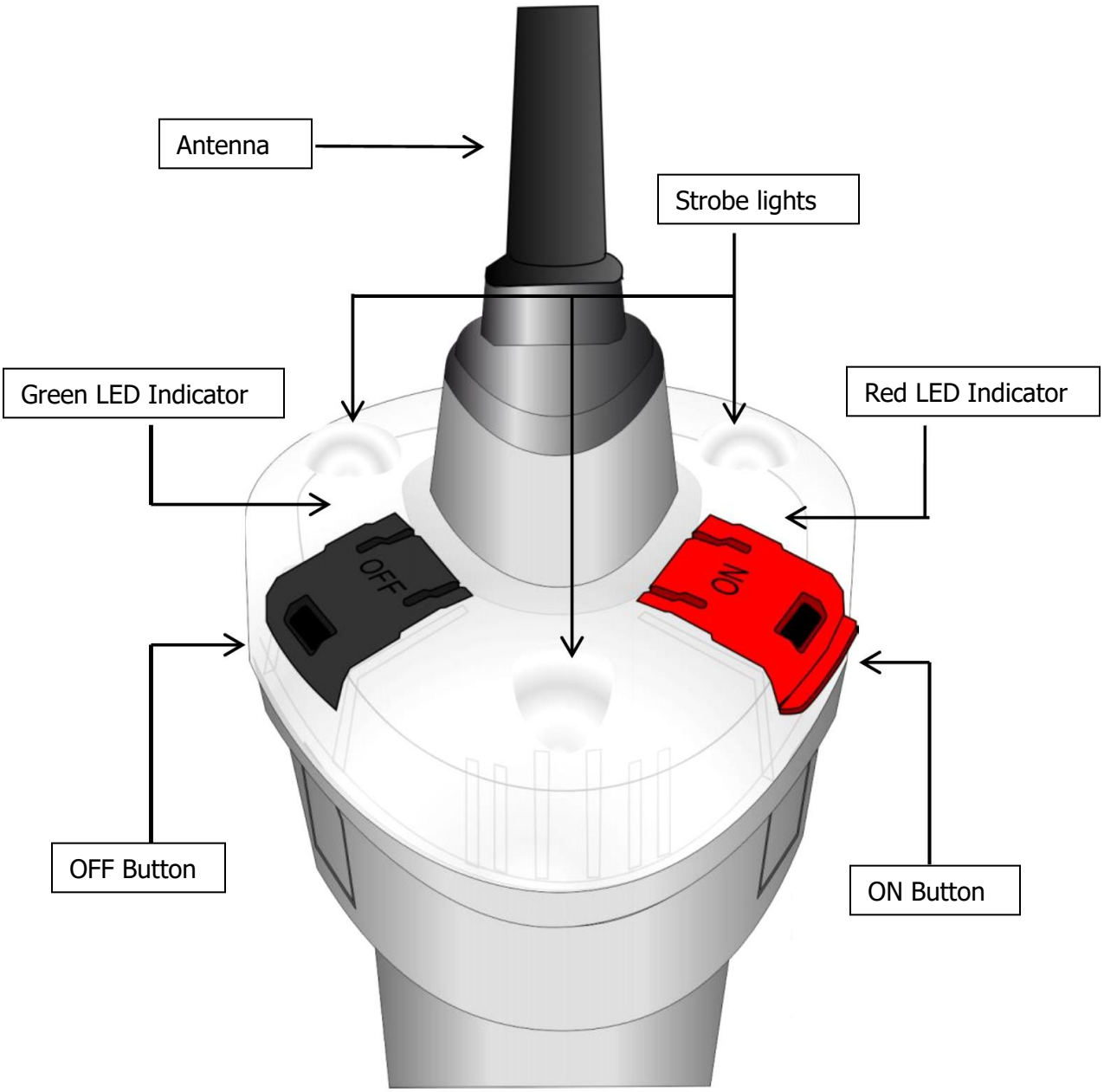
Carry – concealed hands-free emergency carry strap.

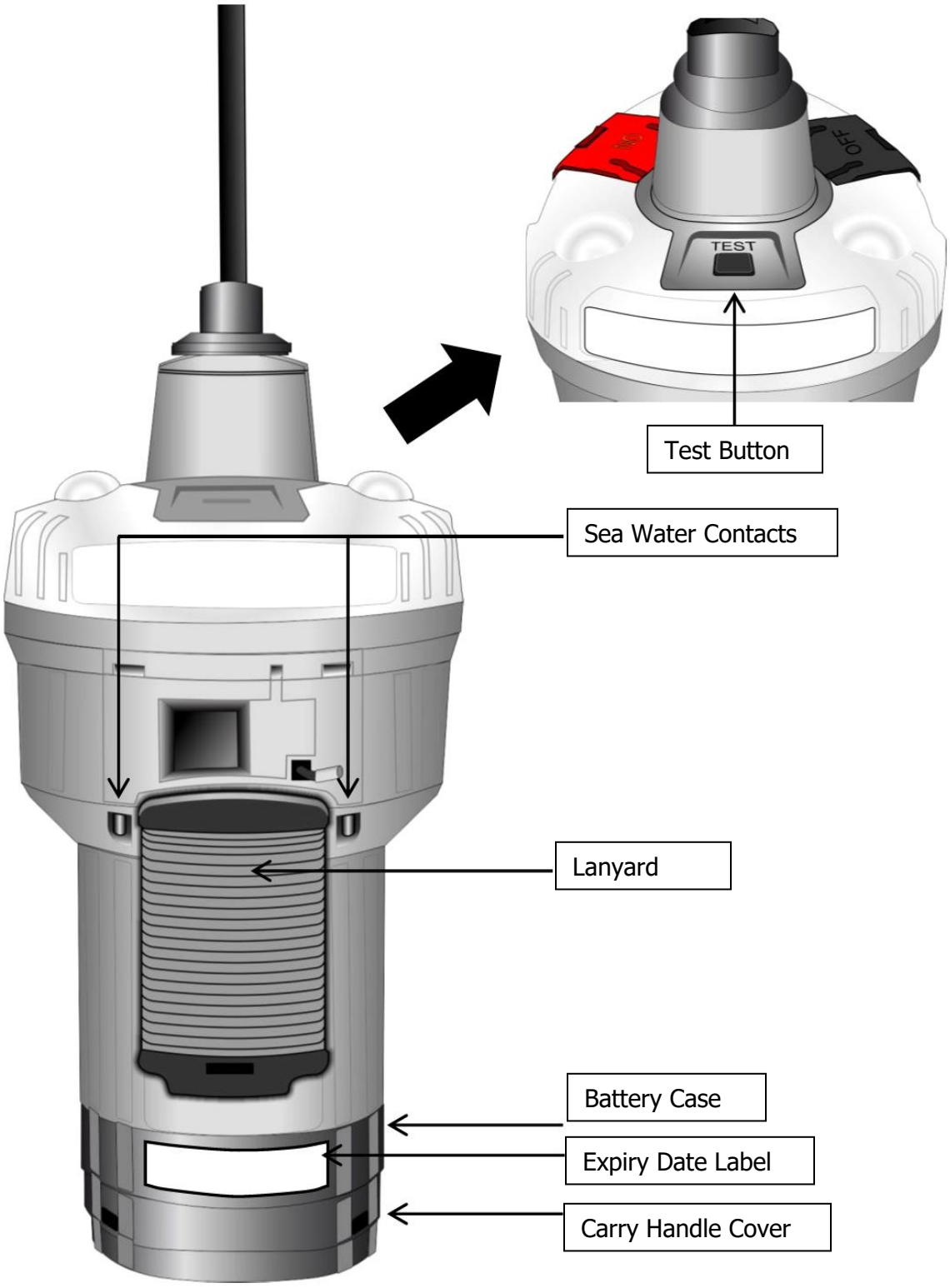
Switch – prevents accidental activation through a protective cover

Change – easy to replace battery back.

Light – 3 Powerful LED's which together generate a true 360-degree flash

4.2 EPIRB Controls and Indicators




TEST
OFF
Test Button
Sea Water Contacts
Lanyard
Battery Case
Expiry Date Label
Carry Handle Cover

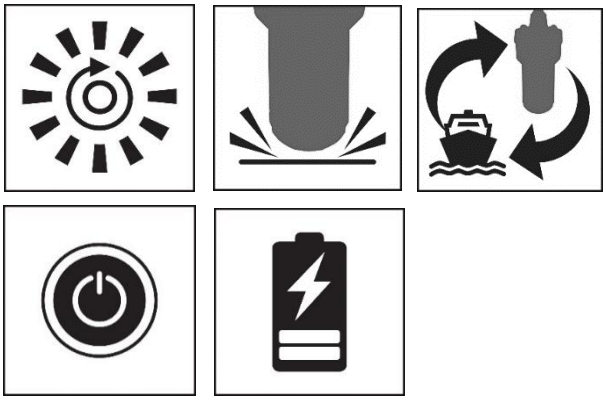
4.3 Product variants

Basic EPIRB version

Communication Channels:

- 406MHz
- 121.5MHz

- 10-year battery life
- Manual/Auto release option
- Sealed Electronic Unit
- Sealed Battery Unit

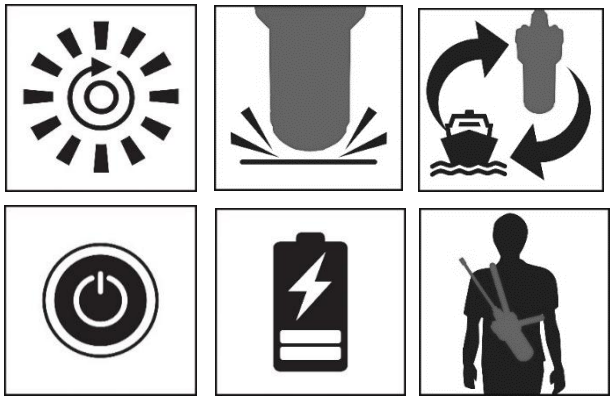


GNSS EPIRB version

Communication Channels:

- 406MHz
- 121.5MHz
- GNSS

- 10-year battery life
- Manual/Auto release option
- Sealed Electronic Unit
- Sealed Battery Unit



4.4 Specifications

406 MHz transmitter	Frequency	406.040 MHz ± 1 kHz
	Power output	5 W nominal
	Modulation	Phase (16K0G1D)
121.5 MHz transmitter	Frequency	121.5 MHz ±3.5 kHz
	Power output	100 mW nominal
	Modulation	Swept tone AM (3K20A3X)
GNSS receiver (Note 1)	Constellations	GPS, GLONASS, Galileo
	Frequencies	1575.42 MHz (GPS, Galileo) 1602.00 MHz (GLONASS)
	Sensitivity	-167 dBm minimum
	Satellites tracked	72 channel

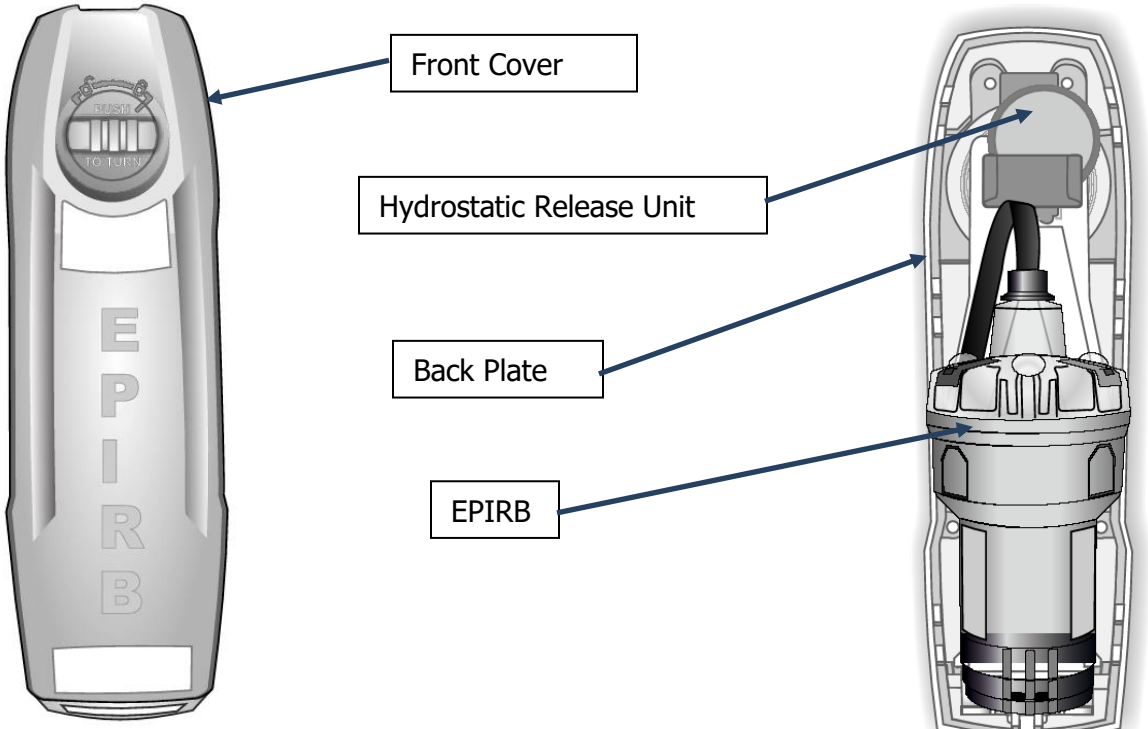
Strobe light	Type	3 high intensity LEDs
	Light output	0.2 cd minimum
	Flash rate	23 flashes per minute
Battery	Type	Lithium iron disulphide
	Operating life	48 hours minimum
	Shelf life (In Service Life)	**10 years typical in service (see note 2)**
Environment	Operating temperature	-20 °C to +55 °C (-4° F to +131° F)
	Storage temperature	-30 °C to +70 °C (-22° F to +158° F)
	Automatic release depth	4 m maximum
Dimensions (EPIRB)	Weight	710 g
	Height/Width/Depth	425 x 105 x 105 mm (incl. antenna)
	Length of antenna	225 mm
Dimensions (Manual bracket)	Weight	110 g
	Height/Width/Depth	135 x 125 x 125 mm
Dimensions (Float free enclosure)	Weight	1075 g
	Height/Width/Depth	415 x 135 x 135 mm
Standards Applied (Note 3)	COSPAS-SARSAT	C/S T.001 C/S T.007
	Europe	MED (wheelmark)
	USA	USCG & FCC FCC ID: TBA 47 CFR Parts 80, 2 Dependant on variant
	International standards	IEC 61097-2 IEC 60945 incl. Corrigendum1 IEC 61108-1 (GNSS variant) RTCM 11000.4 Industry Canada RSS-287 AS/NZS 4280.1 IMO MSC/Circ. 862
	IMO regulations	A.662(16); A.694(17); A.810(19); A.814(19)

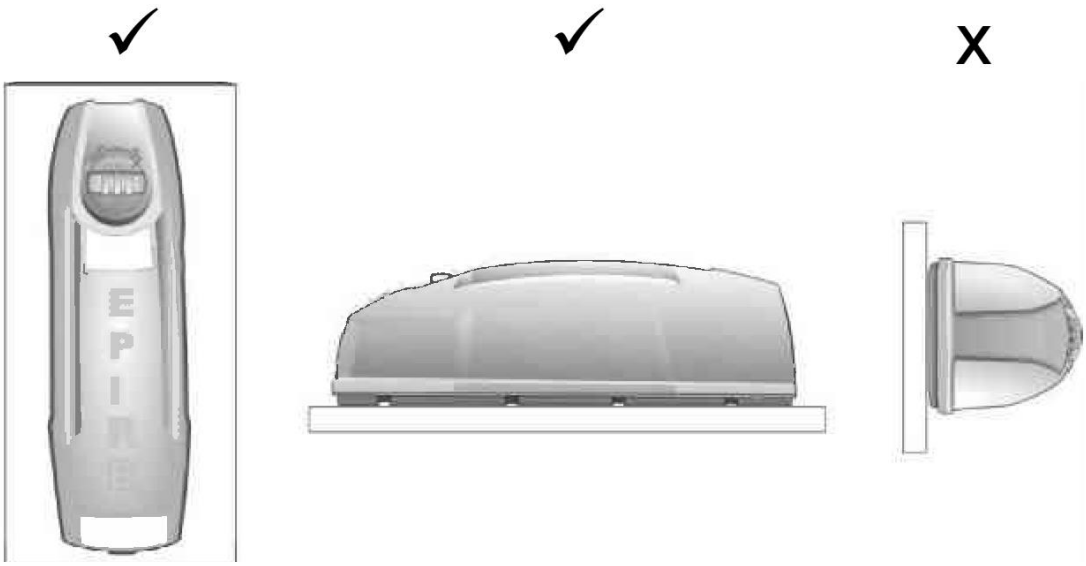
Note 1: GNSS is available on the SAILOR 4065 EPIRB – GNSS – Manual and the SAILOR 4065 EPIRB – GNSS – Automatic versions only

Note 2: As a responsible manufacturer, Cobham SATCOM recommends a 5-year health check at the nearest approved service agent. Shore-based maintenance mandated vessels, battery health check or replacements should be carried out in accordance with flag Administration requirements and not exceeding 5 years.

Note 3: Approvals for the various standards are pending

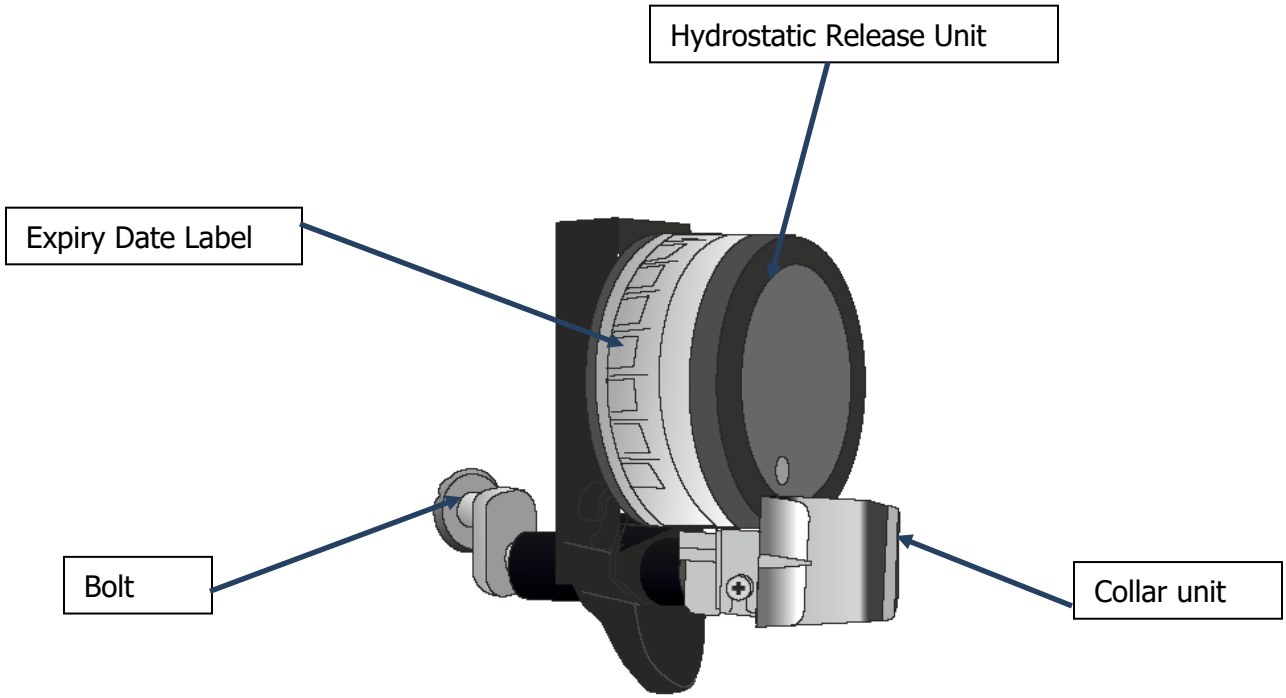
4.5 Auto Release Housing





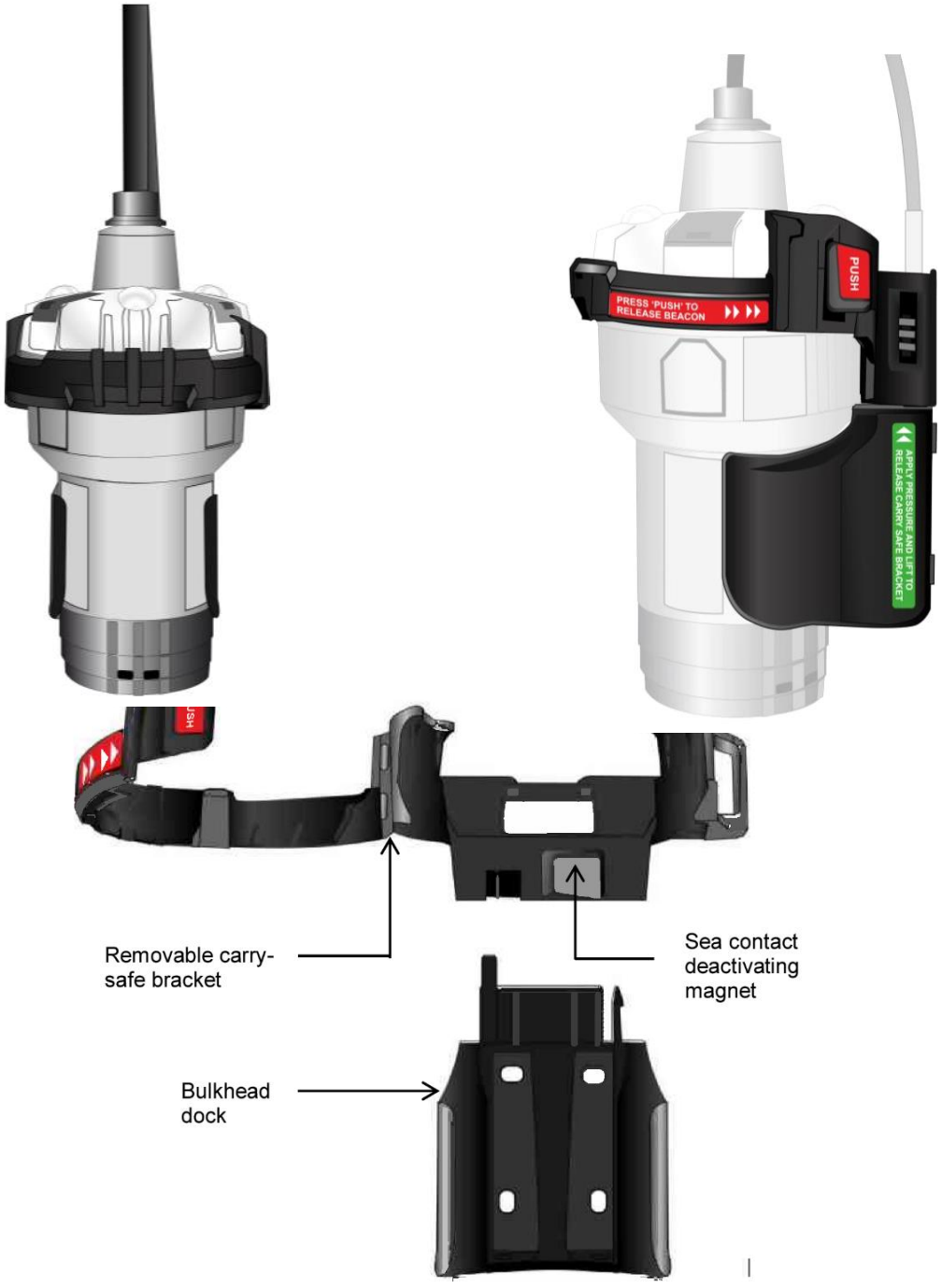
Mounting options

4.6 Hydrostatic Release Unit for Auto Release Housing



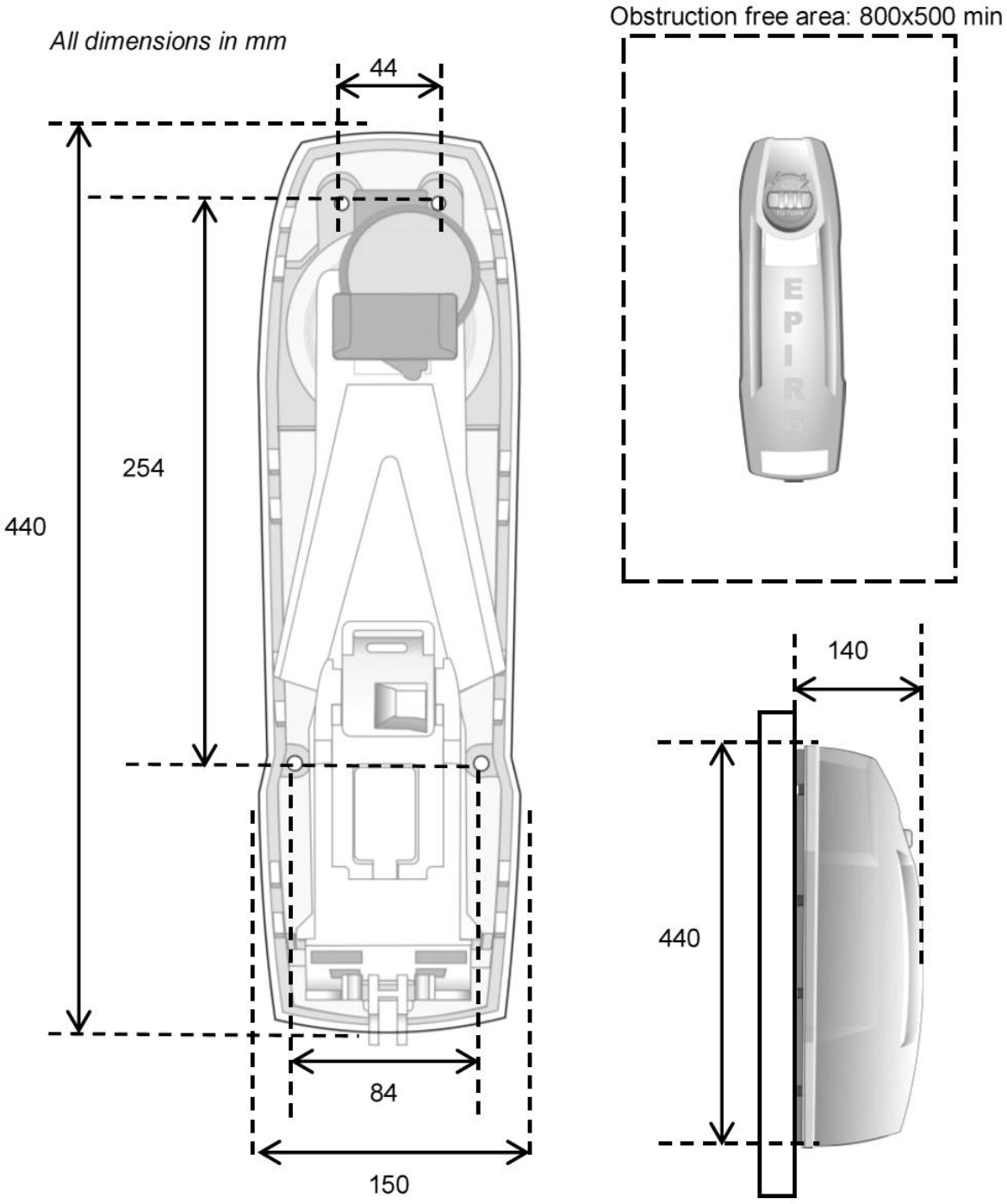
Hydrostatic release units need to be replaced every 2 years

4.7 Manual Release Bracket

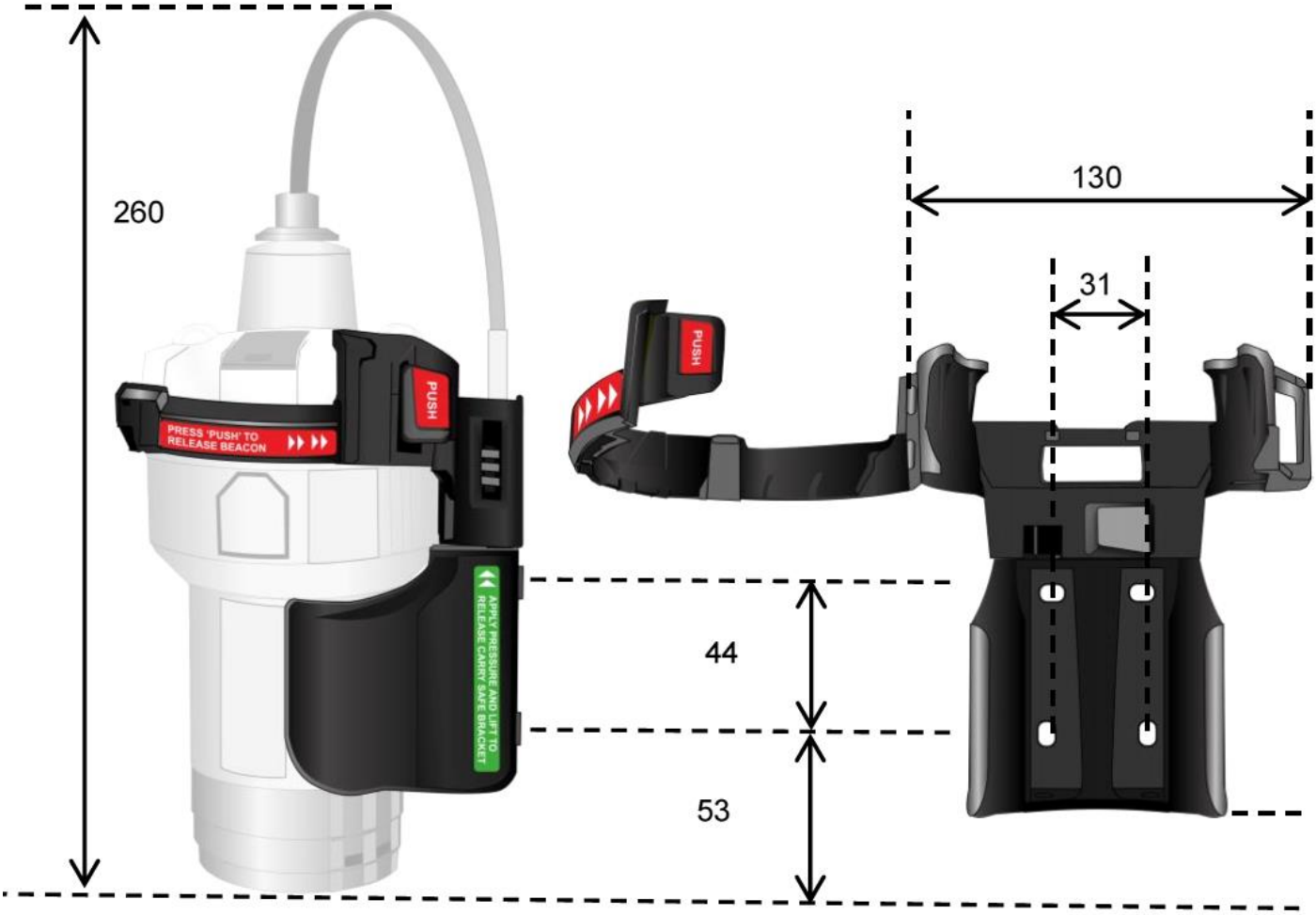


4.8 Dimensions

4.8.1 Auto Housing Dimensions



4.8.2 Manual Housing Dimensions



5 Product Part numbers, Accessories and Spares

5.1 EPIRB Part Numbers

Part Number:	Product
404065A-00500	SAILOR 4065 EPIRB - Manual
404065B-00500	SAILOR 4065 EPIRB - Automatic
404065C-00500	SAILOR 4065 EPIRB – GNSS - Manual
404065D-00500	SAILOR 4065 EPIRB – GNSS - Automatic

Pricing: See the Official Cobham SATCOM Maritime – Radio, Safety & Tracking MSRP Price list.

5.2 EPIRB Accessories – can be used on all variants unless stated

Part Number:	Product
TBA	Replacement Battery kit – includes battery, 2 battery seals, new bolt, bolt seal, 4mm hex key
TBA	Replacement HRU kit - includes rod Kit pre-assembled with Hammar H20E HRU
TBA	Replacement HRU Bolt and Collar (Rod kit of parts) - Without Hammar H20E HRU
TBA	Manual Bracket Kit – includes the Removeable carry safe bracket, sea contact deactivating magnet (installed) and bulkhead mount bracket
TBA	Auto Housing assembly - without HRU

5.3 EPIRB Spares – can be used on all variants unless stated

Part Number:	Product
TBA	Button cover kit - Grey cover + RED cover with tamper label seal
TBA	Lanyard kit
TBA	Carry Handle Kit - with cover base
TBA	Antenna Assembly - with antenna and main body sealing kit
TBA	Service main body sealing kit - O-rings and screws
TBA	Placard - user instruction label

6 EPIRB programming requirements

6.1 Required Tools – Programming Pen

- Computer (Windows 10 or less)
- Free USB ports on selected computer
- New USB Ir/IrDA programming Pen
- Pen Holder
- FPROG 3 Software downloaded from Partner Portal
- Beacon Manager V0.4 from Partner Portal
- Programming guide from the Partner Portal
- Printer

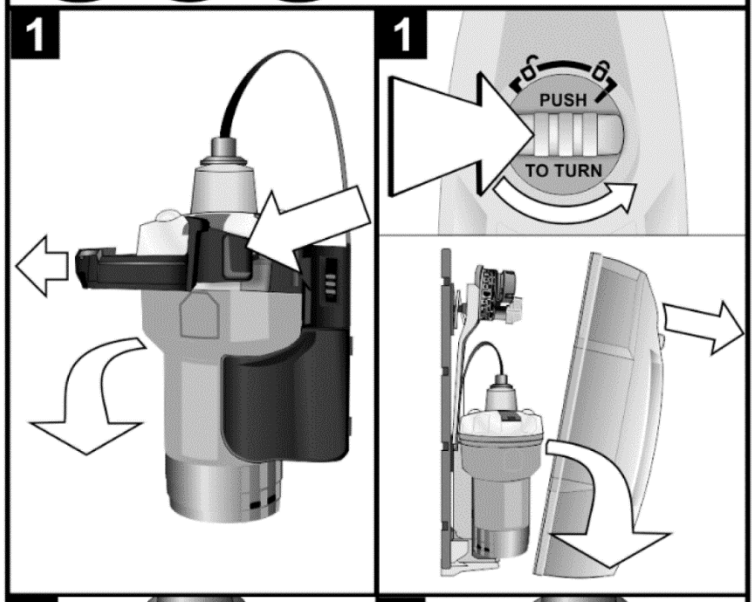
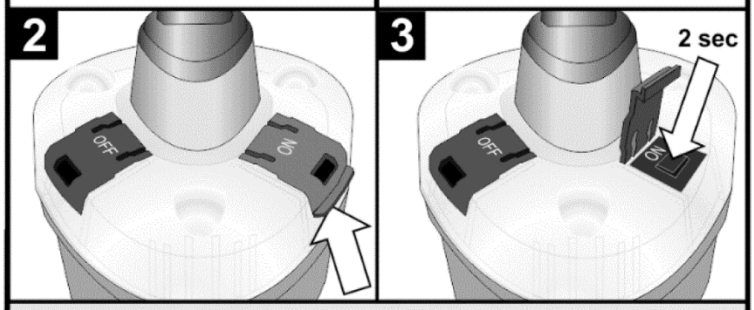
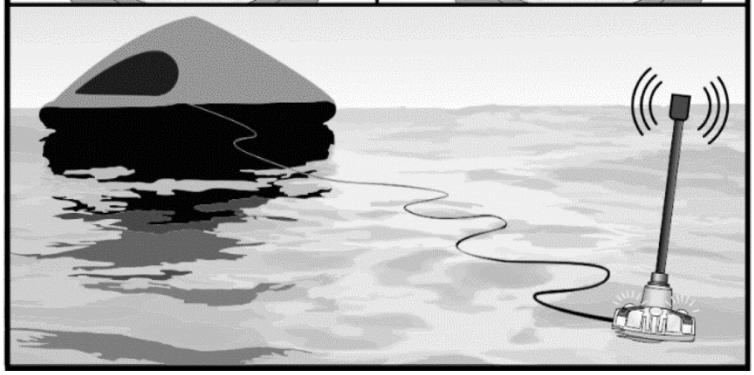
Part number SAILOR EPIRB Programming Pen : 404065-950

Pricing: See the Official Cobham SATCOM Maritime – Radio, Safety & Tracking MSRP Price list.

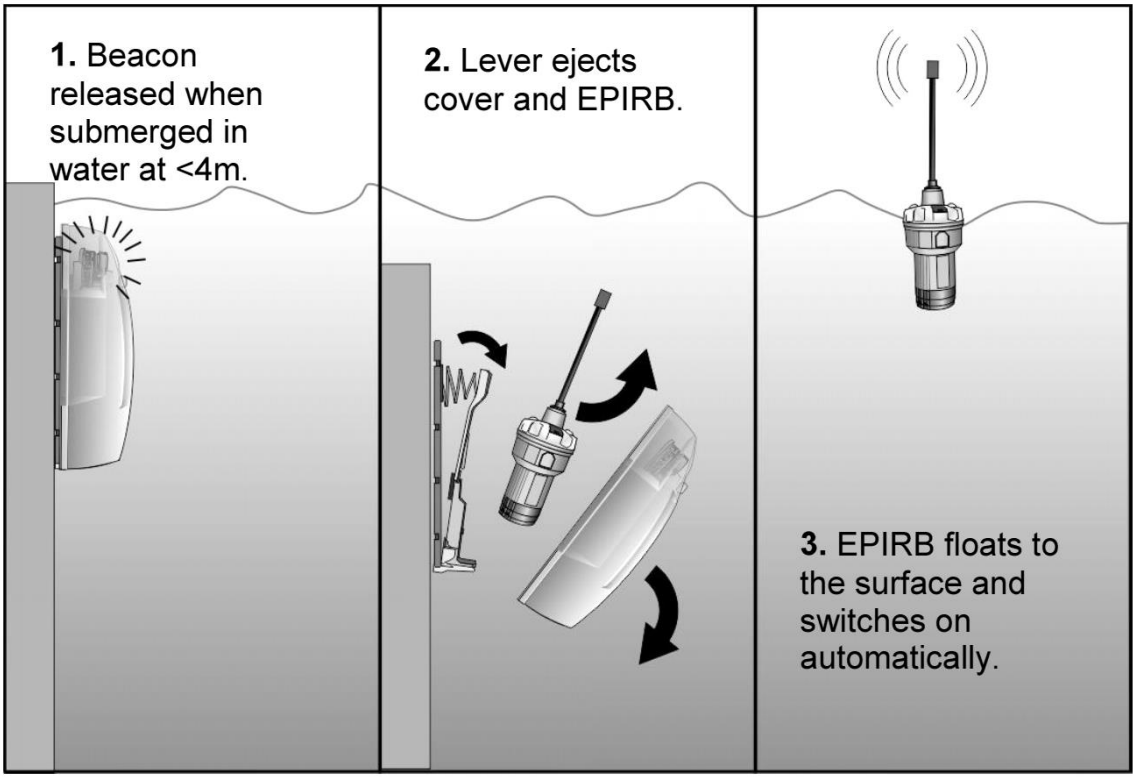
NOTE: The Programming pen for SAILOR SE406-II and SAILOR SGE406-II will not work on the new EPIRBs

7 Basic Operating Instruction

7.1 Manual activation

ONLY IN EMERGENCY FALSE ALERTS ENDANGER LIVES.	
1. Remove the EPIRB completely from its bracket (left) or enclosure (right). **The enclosure is spring loaded to automatically release the EPIRB if your vessel sinks.**	
2. If time permits, lift the red "ON" cover, then press the activation button for 2 seconds.	
3. Hold the lanyard spool and throw the EPIRB into the water (it will self-activate if you did not have time to press the activation button).	

7.2 Automatic Activation



8 Important Notes to Consider

- Makes sure the new beacon is registered with the relevant authorities
- Good practise to follow up with the relevant authorities every two years to make sure the beacon details are correct and up to date
- Recommendation for short and long tests on the unit are as follows:
    - Short test – once a month
    - Long test – twice a year, six months apart at least.
        - When a long test is done, there will be no need to perform the short test in the month the long test is done. this is due to the EPIRB doing a full system test when performing the long test.
- Hydrostatic release units need to be replaced every 2 years

9 Frequently Asked Questions & Answers

Does the 10 year battery life apply to SOLAS vessels?

– As a responsible manufacturer, Cobham SATCOM recommends a 5-year health check at the nearest approved service agent. Shore-based maintenance mandated vessels, battery health check or replacements should be carried out in accordance with flag Administration requirements and not exceeding 5 years