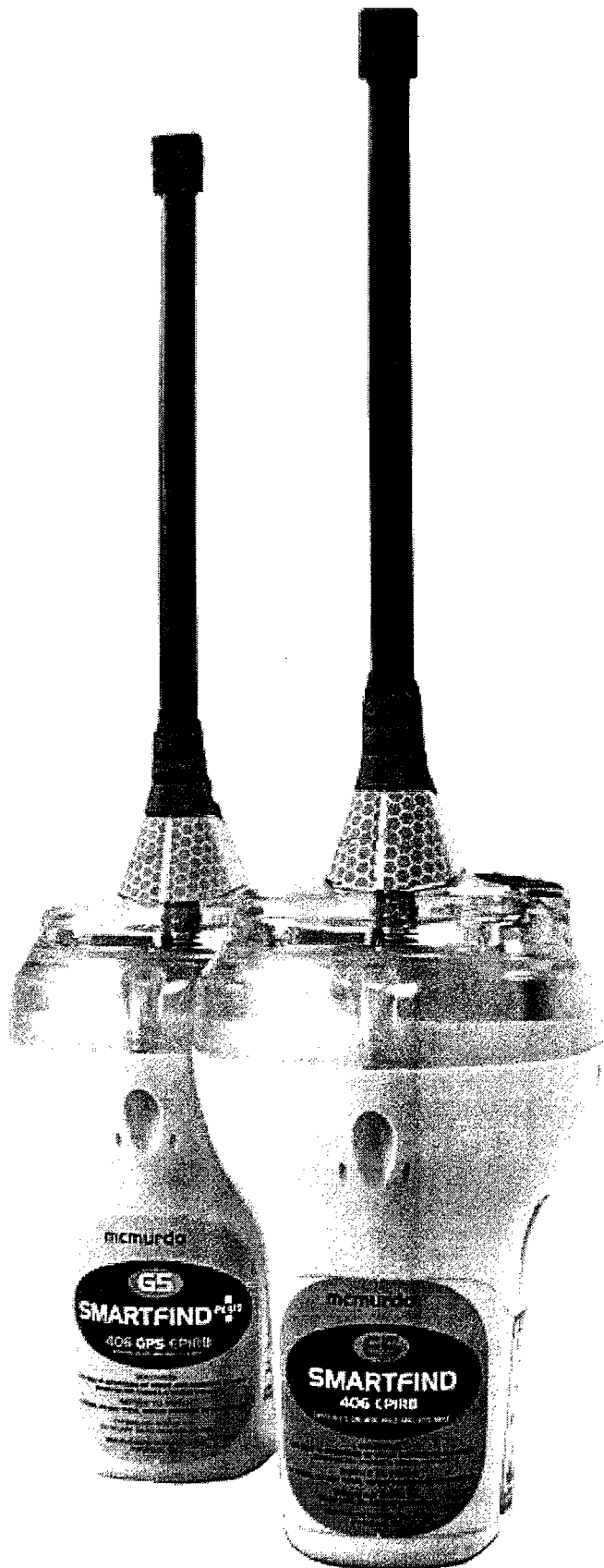


mcmurdo



SMARTFIND

E5/G5

USER MANUAL

This manual is applicable to both the E5 Smartfind and the G5 Smartfind Plus EPIRBs. The Smartfind Plus contains a GPS receiver for improved positional accuracy; some parts of this manual are applicable only to the Smartfind Plus, and are marked accordingly.

APPLICATION

This EPIRB (Emergency Position Indicating Radio Beacon) is designed for use in maritime emergencies, and is approved for these contingencies.

It is not designed or recommended for use on land or in the air.

Use the EPIRB only in situations of grave and imminent danger. Intentional false alerts may result in penalties.

REGISTRATION

This EPIRB must be registered with the appropriate national authority.

The function of the EPIRB is to send an alert to the COSPAS-SARSAT satellites, as described in the Appendix. How soon an alert is received depends on the positions of the satellites at the time, and can be influenced by overhead obstructions aboard the vessel. Rescue time following an alert depends on the overall performance of the Search and Rescue organisations, which is outside the control of McMurdo.

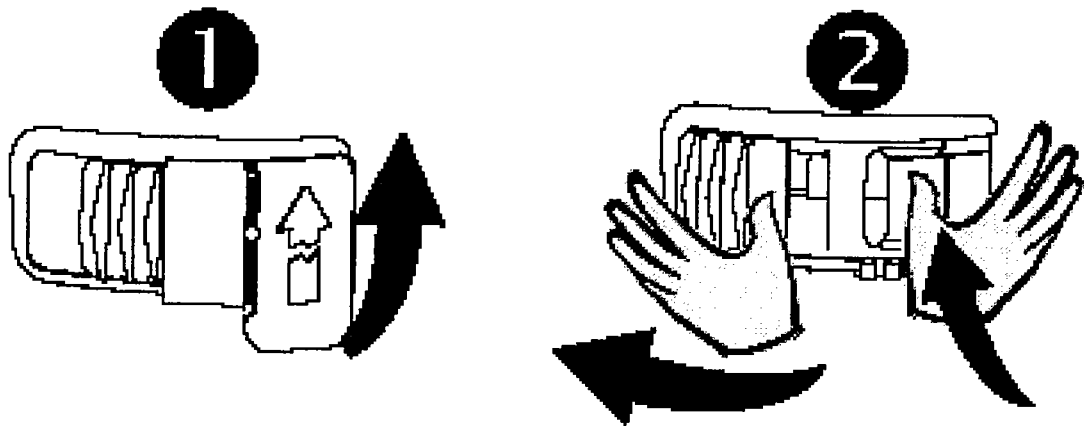
IN EMERGENCY

Remove the EPIRB completely from its bracket or enclosure

Hold the lanyard spool and throw the EPIRB into the water where it will self-activate

OR

If time permits, pull the tear-off tab up, then press the activation button and slide the switch left



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1 RECOMMENDATIONS AND SAFETY NOTICES

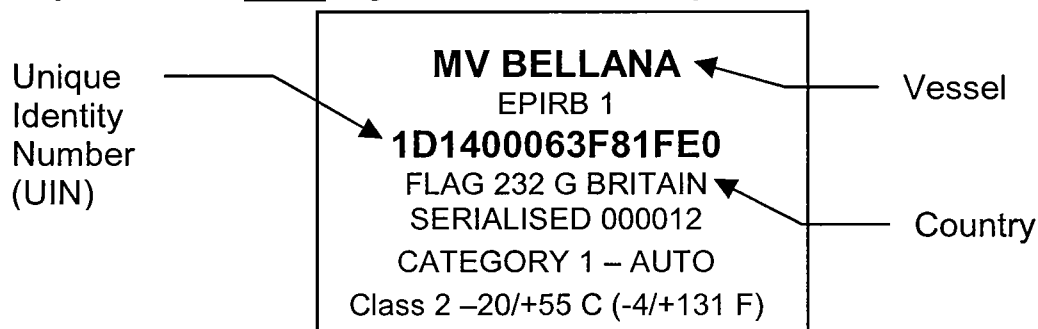
- **This EPIRB is an emergency device for use only in grave and imminent danger.**
- **False alerts endanger lives. Help to prevent them; understand how to activate and de-activate your equipment. Intentional false alerts may involve penalties.**
- **Read the complete manual before installing, testing or using the EPIRB.**
- **Ensure you test the EPIRB monthly – see section 10.1**
- **Ensure the EPIRB is registered with your local authorities (Flag State nation) – see section 2.**
- **The EPIRB contains no user serviceable parts. Do not open. Return to your dealer for battery replacement or other service.**
- **This device contains Lithium batteries; do not incinerate, puncture, deform or short-circuit. Take care if you need to dispose of these batteries or the complete EPIRB – refer to section 10.3**
- **This device emits radio frequency radiation when activated. This radiation is not classed as harmful; however, it is advisable not to handle the antenna while the unit is activated.**
- **It is advisable not to stare directly at the strobe LEDs.**

2 MANDATORY REGISTRATION

**You must register your EPIRB with the appropriate authorities.
Failure to register may slow the rescue and lead to loss of life.
In the USA failure to register may result in a fine.
In the UK you are legally required to register your EPIRB.**

2.1 Overview

Every EPIRB is pre-programmed with a unique identity before it reaches the customer. This is done by the manufacturer or, in some cases, the distributor. The identity includes a 3 digit country code. This is the country that takes responsibility for storing that particular EPIRB's registration details. In most cases this is the country to which the vessel is flagged. The country programmed into your EPIRB can be found from its rear identity label. You **must** register with this country.



When you activate your EPIRB in an emergency, the nearest maritime search and rescue coordination centre (MRCC) will receive the message and decode the country code (eg 232). They will then access the registration database for that country and expect to find details of your vessel, its radio equipment and who to contact. If they fail to find this information, this may slow down any rescue.

2.2 How to register

Three registration forms are provided, two are for future use and one must be completed immediately. These forms are pre-printed with your EPIRB's identity; all you have to do is complete details of your vessel and provide contact numbers. Wherever possible the forms are also pre-printed with the correct mailing address and a faxback number. If your form does not have a mailing address, contact your supplier. When you have completed the form, you can choose to fax it or mail it.

It is usual to receive confirmation when you register. In the UK and USA you will also receive a "Decal" sticker which you must fit to the EPIRB itself. The Decal is proof of registration. Not having a Decal is an offence.

Useful registration contacts are:

USA Sarsat Beacon Registration

E/SP3, RM3320, FB-4
NOAA, 5200 Auth Road
Suitland MD 20746-4304
Tel 888 212 7283 Fax 301 568 8649

UK EPIRB Registry

HM Coastguard (Southern)
Pendennis Point, Castle Drive
Falmouth TR11 4WZ
Tel 01326 211569 Fax 01326 319264

Details of the North American on-line registration systems are given on Page 44.

COSPAS-SARSAT provide registration details for many countries; use the web address www.cospas-sarsat.org and follow the links to *406 MHz Beacons* and *Registration*; alternatively, there is direct access to the database on www.406registration.com

2.3 Warranty form

Please complete the warranty form supplied and fax or mail it to McMurdo. Failure to do this may delay any future warranty claim.

2.4 Radio licence

An EPIRB is a radio transmitter and must therefore be added to your radio licence. If you have been allocated a radio callsign, then you already have a radio licence for your VHF or MF radio set. You should update your licence to include your EPIRB. For further details see your licence or use these contact numbers:

USA FCC Tel : 888 225 5322 Website : www.fcc.gov/Forms/Form506/506.pdf

UK Ship Radio Licensing, Radio Licensing Centre, The Post Office, PO Box 1495
Bristol BS99 3QS Tel: 0870 243 4433 Fax: 0117 975 8911

Minicom: 0117 921 9550 Website: www.radiolicensingcentre.co.uk/

2.5 Sale or transfer

EPIRBs registered in the USA, Canada, UK and Australia do not need to be re-programmed when transferred to a new vessel. Simply complete another registration form to inform the authorities of the transfer. Use one of the spare forms provided or contact McMurdo for a blank form. (See warranty section at rear for address).

For most other countries, the EPIRB must be re-programmed with either the new vessel's Maritime Mobile Station Identity (MMSI) or its radio callsign, whichever is required by the country controlling the new vessel.

Since the EPIRB identity contains a country code, it follows that changing the flag state of the vessel also means the EPIRB must be re-programmed. Programming can be carried out at McMurdo or any of our designated agents. For details of your nearest agent, either contact McMurdo using the details in the warranty section, or visit the McMurdo web site at www.mcmurdo.co.uk.

2.5.1 Mandatory information for Oceania

(The term *Oceania* is normally used to designate all the islands of the Central and the South Pacific including Australia and New Zealand.)

Advice to owners of Emergency Position Indicating Radio Beacons:

Registration of 406 MHz satellite Emergency Position Indicating Radio Beacons (EPIRB) with the EPIRB Registration Section of the appropriate Maritime Safety Authority (MSA – see below) is mandatory because of the global alerting nature of the system.

The information provided in the registration card is used only for rescue purposes. Fill in the owner registration card immediately on completion of the sales transaction. Mail the registration card immediately.

If the beacon is to enter service immediately, complete the registration card and fax the information to the MSA. The original card must still be mailed to the MSA for hard-copy reference and filing.

If the current owner is transferring the beacon to a new owner, the current owner is required to inform the MSA by letter, fax or telephone of the name and address of the new owner.

The subsequent owner of the beacon is required to provide the MSA with the information shown on the owner registration card. This obligation transfers to all subsequent owners.

*The MSA is the Australian Maritime Safety Authority or the Maritime Safety Authority of New Zealand, as appropriate, whose respective fax numbers are 06 257 2036 (Australia) and 04 382 6482 (NZ).

3 DESCRIPTION

The EPIRB is a powerful self-contained distress transmitter. It is powered by a Lithium battery that has a replacement interval of 5 years. An EPIRB is intended to be a one-shot device; once activated it will operate for at least 48 hours. It operates best while floating in water, but it can also be operated while on board a vessel or in a liferaft.

The key components of your EPIRB are:

Antenna	This is a flexible whip. It must be near vertical when operating. If the antenna gets bent, gently straighten it out.
Strobe light	These are the bright white LEDs visible through the clear lens dome. When the EPIRB is activated they will flash every few seconds.
Red LED	Visible through the clear lens dome at the rear of the EPIRB. This stays on or flashes to show which mode the EPIRB is in.
Green LED	Where fitted (beside the red LED), this flashes when the GPS acquires a position fix.
Sea switch	The two studs on the sides of the EPIRB are sea switch contacts. Submerge these in water to activate the EPIRB automatically. Keep these contacts clean – see section 10.2
Activation switch	Pull the tear-off tab upwards to release the switch, then push the switch in and move it fully left.
Test button	This button enables the user to run test sequences to verify the readiness of the EPIRB.
Lanyard	Pull the lanyard spool down to free it. Use the cord to tether the EPIRB to a survival craft.

Strobe

Antenna

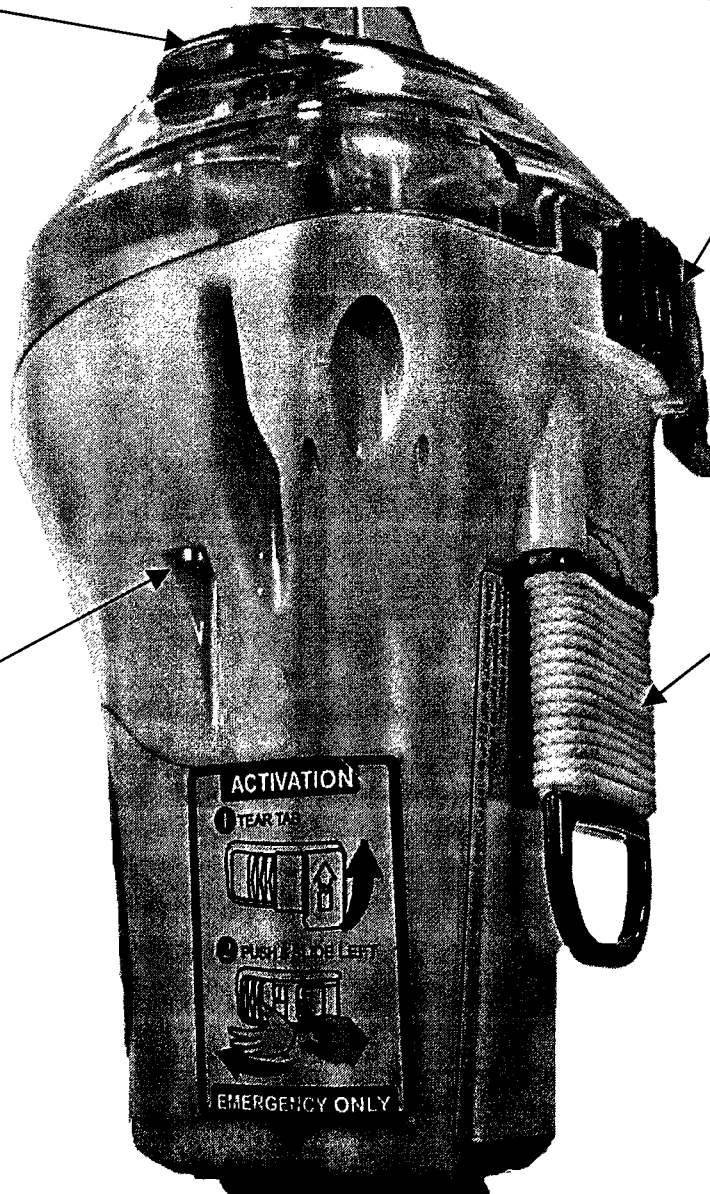
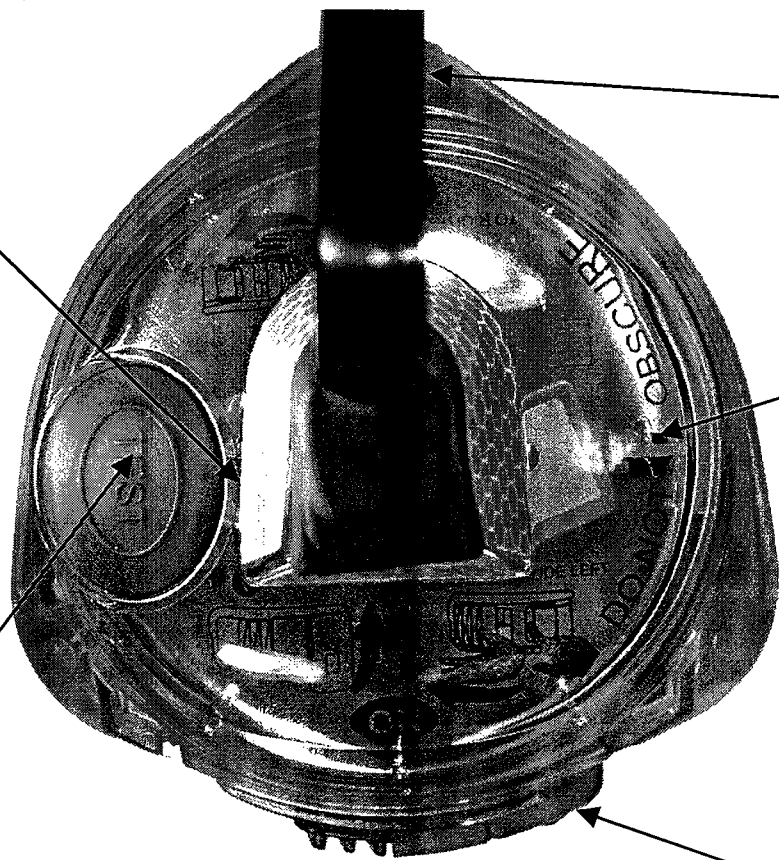
Red LED
Green LED

Test
button

Activation
switch

Sea switch

Lanyard



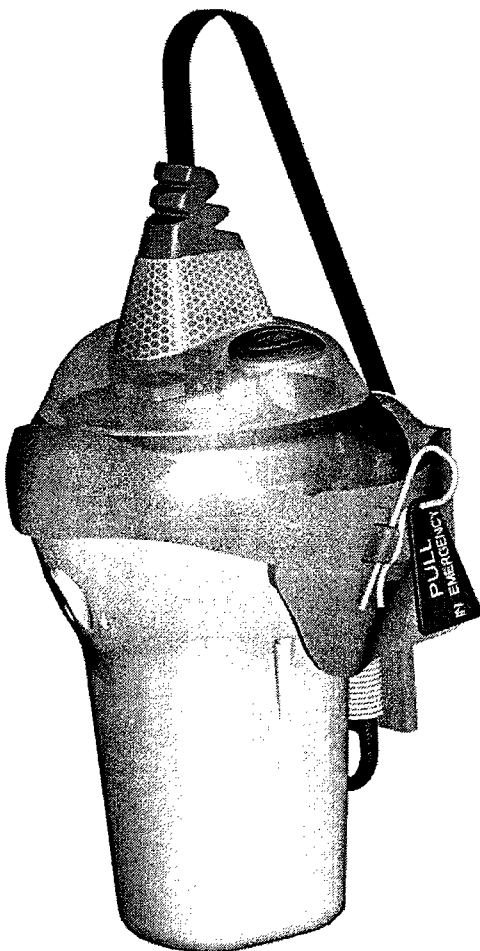
ACTIVATION
1. TEAR TAB
2. PUSH SLIDE LEFT
EMERGENCY ONLY

3.1 Bulkhead bracket

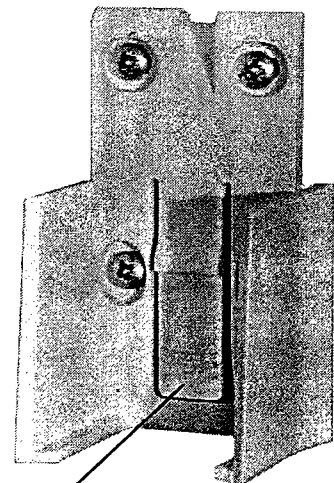
If you purchased the manually activated EPIRB version, this is normally supplied with a bulkhead mounting bracket (see section 8). The EPIRB is released by pulling out a R-clip.

The bulkhead bracket should be sited in plain view near an emergency exit.

To avoid accidental activation if the EPIRB is removed from its mounting, the bracket is in two sections. The removable collar section contains the deactivating magnet for the EPIRB, so the demounted EPIRB with its attached CARRYSAFE collar cannot be activated by moisture. This allows it to be removed easily and transported in, for example, a wet grab bag.



EPIRB in CARRYSAFE
removable collar



Press to release
CARRYSAFE collar

Fixed bulkhead mount

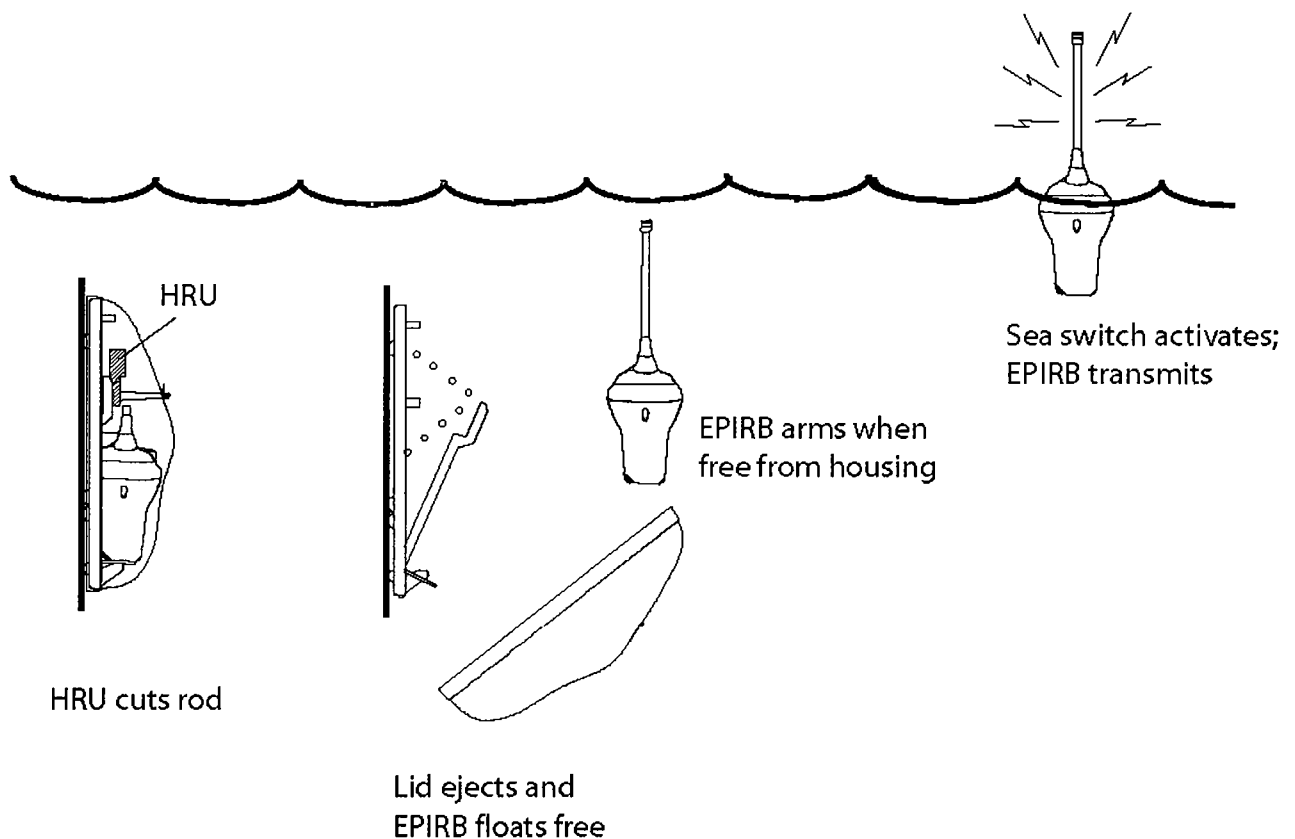
WARNING

The EPIRB will NOT be activated by moisture while it is in the bracket or in the CARRYSAFE collar (but it may activate if placed in close proximity to a magnet). The EPIRB must be removed from all parts of the bracket; it will then activate if immersed or if switched on manually.

3.2 Float-free enclosure

If you purchased the automatically activated version ('a' suffix), also known as the "float-free" version, then your EPIRB is supplied in a plastic enclosure (see section 9). This is much more than just a protective housing; it contains a spring-loaded lever which automatically pushes the enclosure lid off and releases the EPIRB if your vessel sinks. This automatic ejection is controlled by a device called a Hydrostatic Release Unit (HRU). If the enclosure is sinking then before it reaches 4 metres (13 feet) depth the HRU cuts a plastic rod that retains the lever; this ejects the lid and releases the EPIRB which floats to the surface and switches on automatically, as shown below:

1. As the vessel sinks, the enclosure fills with water. The HRU contains a blade which is released due to water pressure acting on a diaphragm. Before it reaches a depth of 4 metres, the HRU will operate and cut the plastic rod, releasing the coil spring.
2. The spring pushes the EPIRB and the enclosure lid outwards. As the lid pivots off it disengages from the moulding lip that helped hold it in place. The lid is weighted so it rolls over and falls away.
3. As the EPIRB floats away, it moves out of range of the magnet. Once away from the magnet its sea switch becomes armed.
4. The sea switch activates. The EPIRB then floats on the water surface with its strobe light flashing. After 50 seconds it makes its first distress transmission.



If you need to activate your EPIRB manually, it can be freed from the enclosure after pulling out the R-shaped retaining pin and removing the lid.

4 CONTROLS

4.1 Activation switch

This slide switch is protected against accidental activation by a red tear-off seal which indicates if the EPIRB has been activated previously.

The EPIRB can be activated manually by tearing the seal upwards, depressing the locking button on the switch and sliding the switch to the left.

When the EPIRB is activated the strobe will start to flash immediately, but the EPIRB will not make any distress transmissions for 50 seconds. This gives you a chance to turn off if you activated it accidentally. During this time the red LED illuminates continuously. When the red LED starts to flash, the 50 seconds delay has passed and distress transmissions have started.

4.2 TEST button

This control allows various test sequences to be run on the EPIRB. Details of these tests are given in Section 10.1.

4.3 Sea switch

It is important to realise that the only time the EPIRB is completely off is when it is fitted in its mounting bracket or enclosure. As soon as you take it out, a magnetic switch activates and puts the EPIRB into its “ready” state. It will not drain the battery in this state, but it will turn on automatically if the sea switch contacts are immersed in water. The sea contacts are the two studs, one on each side of the EPIRB.

Although you can control the EPIRB manually with the activation switch, the sea switch overrides any manual settings. For the manual switch to operate properly the EPIRB must first be dry so that the sea switch is de-activated.

To ensure the sea switch operates properly in rough seas, it has a built-in time delay. It has to be wet for at least 2 seconds before it will activate and it has to be dry for at least 8 seconds before it will de-activate.

4.4 LEDs

4.4.1 Strobe (white)

The strobe is the visual means of locating the EPIRB. When activated, the strobe flashes (approximately) 21 times per minute, with a pause during the time when the EPIRB is transmitting on 406 MHz.

4.4.2 Red LED

The red LED is used to indicate transmissions by the EPIRB. When activated, it flashes alternately with the strobe to indicate a good transmission on 121.5 MHz. Every 50 seconds it illuminates for 2 seconds to indicate a good transmission on 406 MHz; immediately before the transmission the LED flashes rapidly as a warning to the user.

When the EPIRB is first activated the red LED is illuminated continuously until the EPIRB begins to transmit, when it begins to flash.

4.4.3 Green LED (fitted to Smartfind Plus only)

The green LED flashes alternately with the strobe to indicate that a valid position has been obtained by the GPS receiver. Every 50 seconds it illuminates for 2 seconds to indicate that the position is being transmitted on 406 MHz.

Every 20 minutes the GPS receiver updates its position information. If a fix is not obtained, the green LED stops flashing, and illuminates only every 50 seconds (when the previous position information is transmitted).

All LEDs also indicate the results of self-test – refer to section 10.1

4.4.4 Interpreting the LEDs:

There are three principal indications to the user:

- If the red LED is ON continuously, the EPIRB is active but has not yet made a transmission. There is time to turn it off without causing an alert.
- If the red and green LEDs flash together and alternate with the strobe flash, the EPIRB has a valid GPS position which it is transmitting regularly. This is the normal operating condition which requires no user action.
- If the red and green LEDs flash at different rates, the EPIRB is attempting to obtain a GPS fix. If this indication persists, it is advisable to move the EPIRB to a different location; something may be affecting its ability to see the GPS satellites.

The LEDs can give many other indications; these are principally for diagnostic purposes.

4.5 Buzzer

The EPIRB contains a buzzer to give audible feedback.

When the EPIRB is activated the buzzer pulses rapidly (whilst the red LED is ON continuously) as a warning that the EPIRB is about to transmit. Once the first transmission is complete, the buzzer sounds synchronously with the strobe.

The buzzer is also used to indicate the results of self-test.

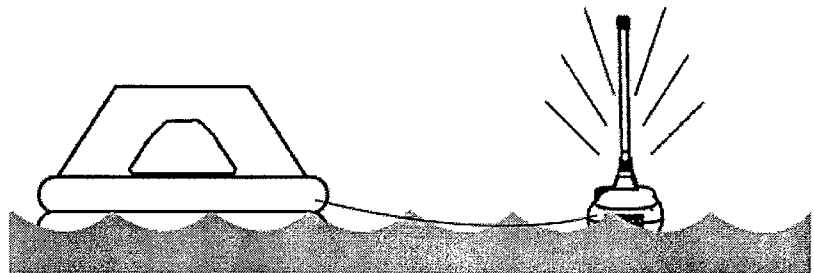
5 OPERATING PROCEDURE

An EPIRB is a piece of life saving equipment. Its sole purpose is to call for help. It must only be used in situations of grave and imminent danger. Misuse can involve a severe penalty.

5.1 Sinking

If you have a category 1 “float-free” enclosure (see marking on enclosure label), then if your vessel sinks, the EPIRB will automatically release itself from its enclosure before it reaches a depth of 4 metres. The EPIRB will float to the surface and start to operate because its sea switch is activated.

If possible, the EPIRB should be recovered and tied (using its lanyard) to the survival craft. An EPIRB is meant to mark survivors, not the accident scene.



For best operation leave the EPIRB floating in the sea near the survival craft, as this is the condition for which it was designed and tested.

NOTE: Satellite coverage at the time an alert is transmitted and, if activated onboard a ship or raft, overhead obstruction on the ship or raft, may affect whether and how soon an alert is received by the satellite system.

5.2 Abandon ship

If the vessel is sinking and there is time to fetch the EPIRB then this should always be done. Release the EPIRB from its mounting bracket as described in section 5.4 or 5.5 and carry it to one of the liferafts. Once the liferaft is in the water, uncoil the lanyard and tie it to the liferaft, then throw the EPIRB overboard so that it floats next to the liferaft. The EPIRB will operate because its sea switch will activate.

5.3 GPS Operation (Smartfind Plus only)

The GPS receiver needs a clear view of as much sky as possible in order to acquire signals from sufficient satellites to determine its position. Should it fail to do this, the beacon will still transmit the 406 MHz distress signal, and its position will be determined by the COSPAS-SARSAT satellites using Doppler techniques.

Getting the best from your EPIRB

Your EPIRB is designed and optimised to be used floating in the sea. However, if you have to use it in other situations, this section provides guidance on how to get the best from your EPIRB.

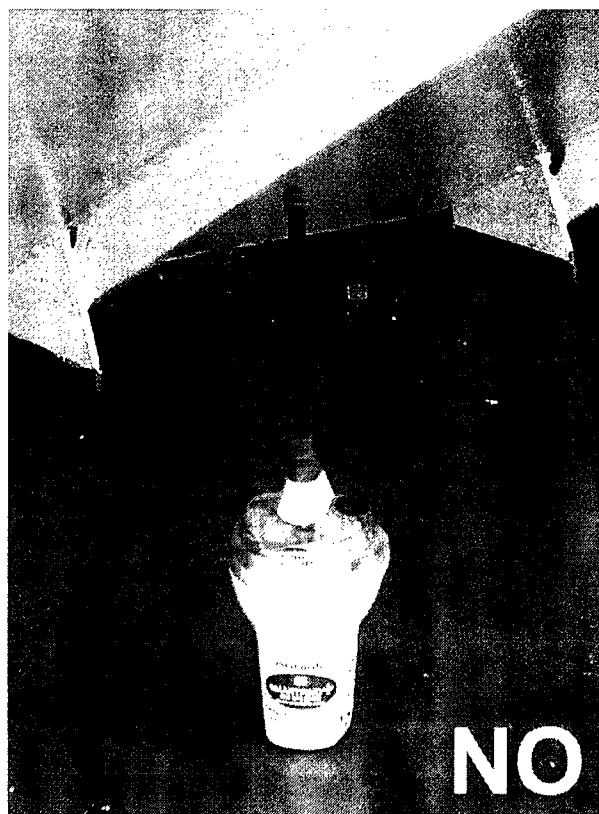
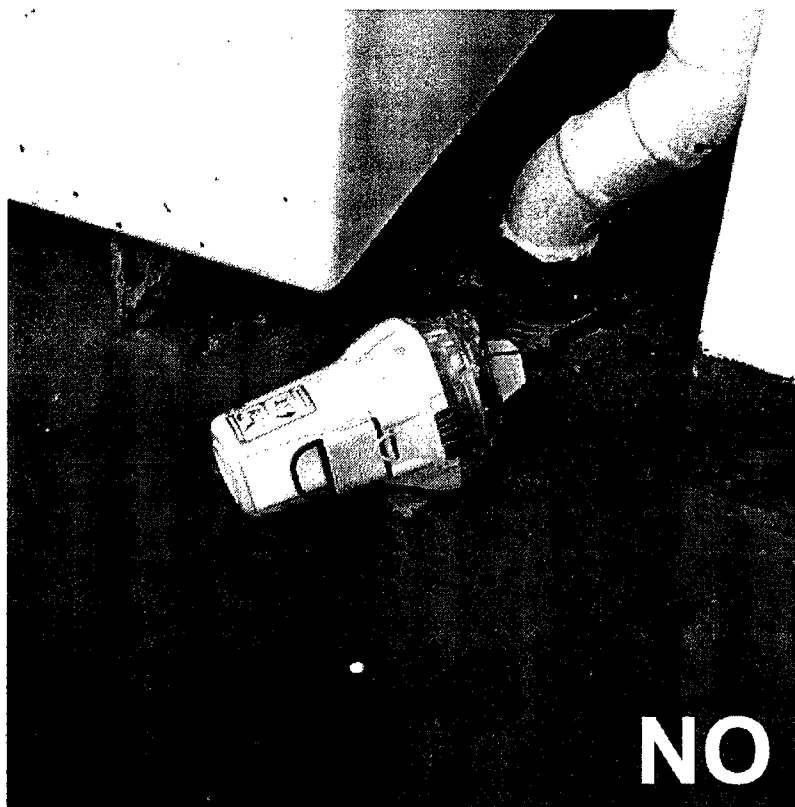
Aboard ship:

DO:

- Place the EPIRB in the open, clear of overhangs
- Keep the EPIRB upright (hold it if necessary)
- Switch on the EPIRB

DON'T:

- Place the EPIRB close to large structures
- Lay the EPIRB on its side
- Place the EPIRB under cover



In a liferaft:

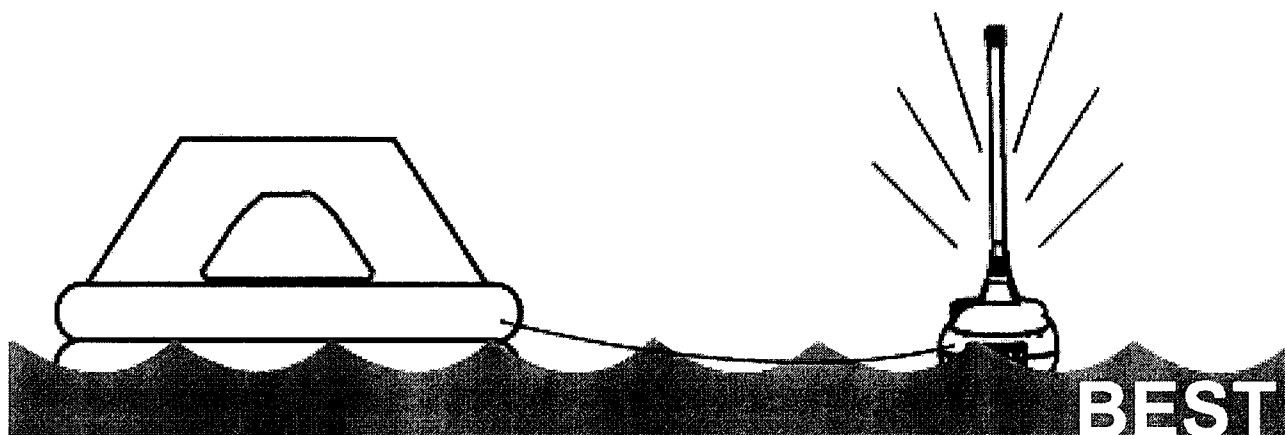


DO:

- Make sure you switch on the EPIRB
- Hold the EPIRB up as high as possible.

Note: the high intensity flashing strobe light may cause discomfort if viewed for prolonged periods.

We recommend that the EPIRB is used floating in the sea



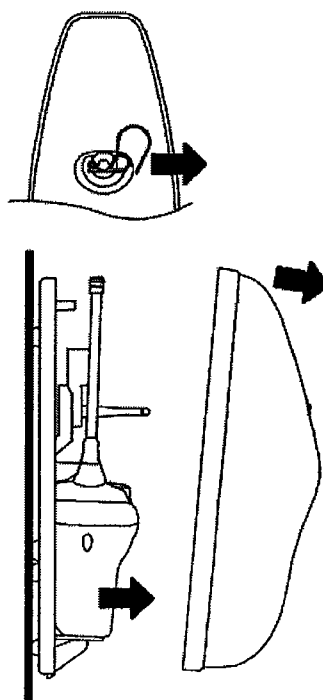
5.4 Releasing EPIRB from a bulkhead bracket

If you have an EPIRB fitted into a bulkhead bracket, pull the R-clip out of the bracket to release the retaining strap. Hold the antenna to prevent it springing loose and lift the EPIRB out of the mounting points.



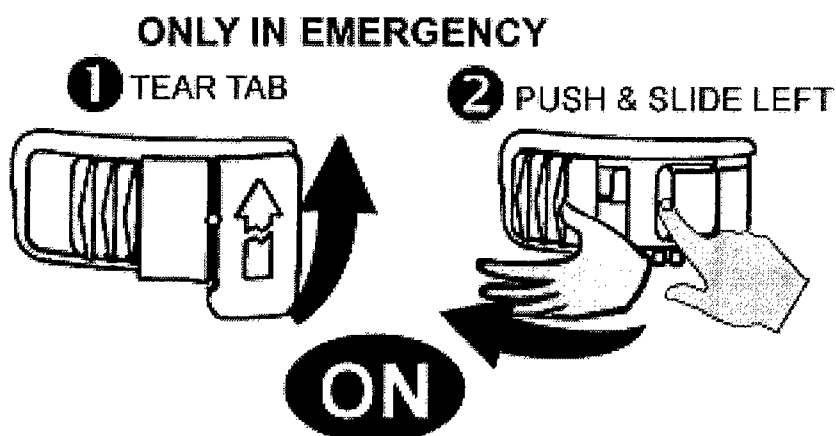
5.5 Releasing EPIRB from an enclosure

If your EPIRB is fitted inside a full enclosure, first remove the R-clip from the retaining rod, then pull off the enclosure cover and remove the EPIRB.



5.6 Manual activation

If the vessel is not sinking but there is imminent danger, remove the EPIRB from its bracket and activate it manually as shown below. Note that once activated it will flash immediately, but it will not transmit a distress call for 50 seconds. This gives you a chance to turn it off if you activated it in error.



Once activated the EPIRB **must** have its antenna as upright as possible and it must have a clear view of the sky for proper operation. Laying it on its side or placing it next to a metal bulkhead will impair its range and may fail to alert the rescue services. Avoid handling the antenna, as this will also impair performance.

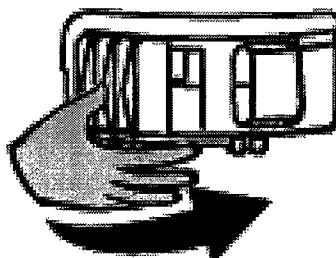
5.7 Deactivation

If your EPIRB has been activated for a cumulative period in excess of 6 hours then its battery should be replaced. This is necessary to ensure that in an emergency it will operate for the full 48 hours required by international regulations. See section 10.4 for battery replacement instructions.

If the EPIRB was activated by mistake or if the emergency ends then the EPIRB can be reset back to its “ready” state as follows:

**REMOVE FROM WATER
AND DRY EPIRB**

**IF ON, SLIDE SWITCH
TO RIGHT**



If EPIRB is still flashing then it has a fault. Refer to section 6 on False Alerts.

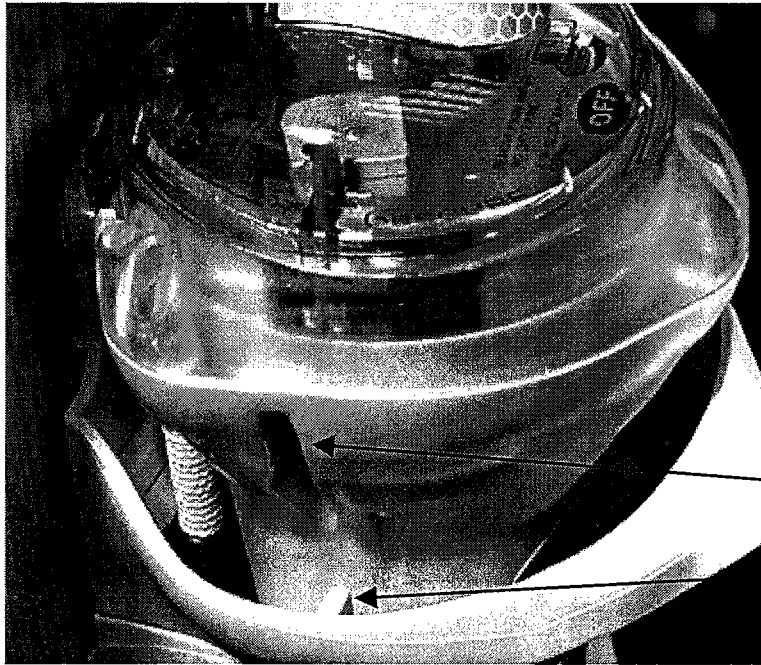
5.8 Re-fitting EPIRB

5.8.1 Refitting into bulkhead bracket

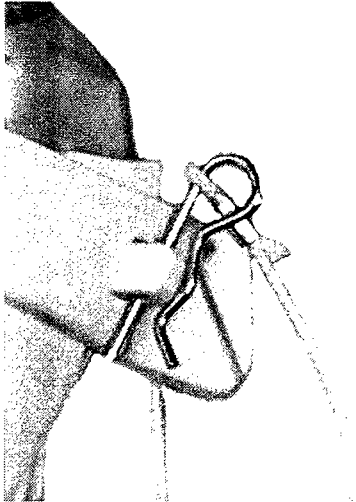
The EPIRB is now in its “ready” state, but its sea switch is still armed and will activate if it gets wet. To de-activate the EPIRB fully it must be replaced in its mounting bracket, where a magnet in the bracket will make the EPIRB safe.

Hold the bracket collar open and drop the EPIRB into the bracket. The slots in the EPIRB fit over the locating lugs in the bracket.

Hold the collar shut and fit the R-clip to secure the EPIRB. Fold over the antenna and locate the end moulding in the retaining slot.



Align
slot
with
lug



Fit R-clip



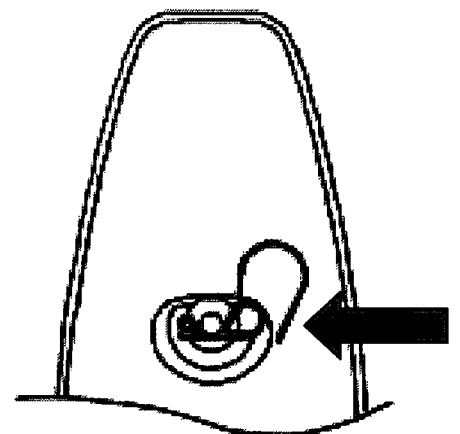
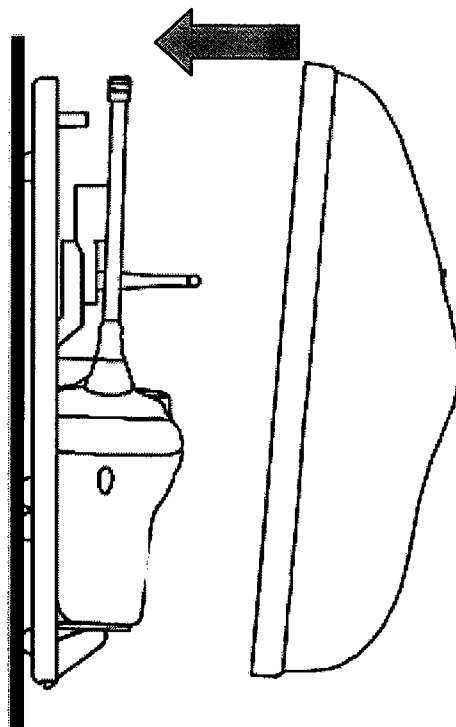
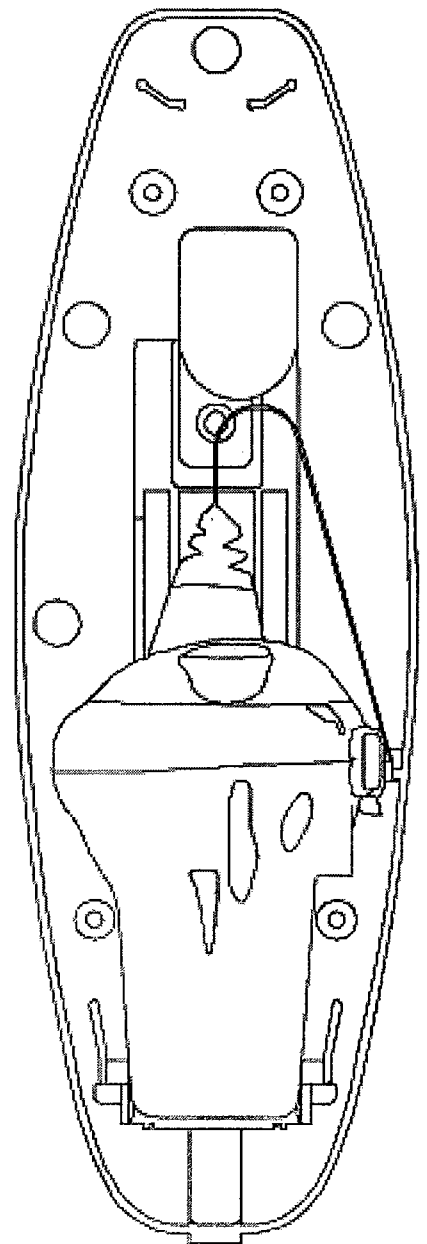
Locate end of
antenna in slot

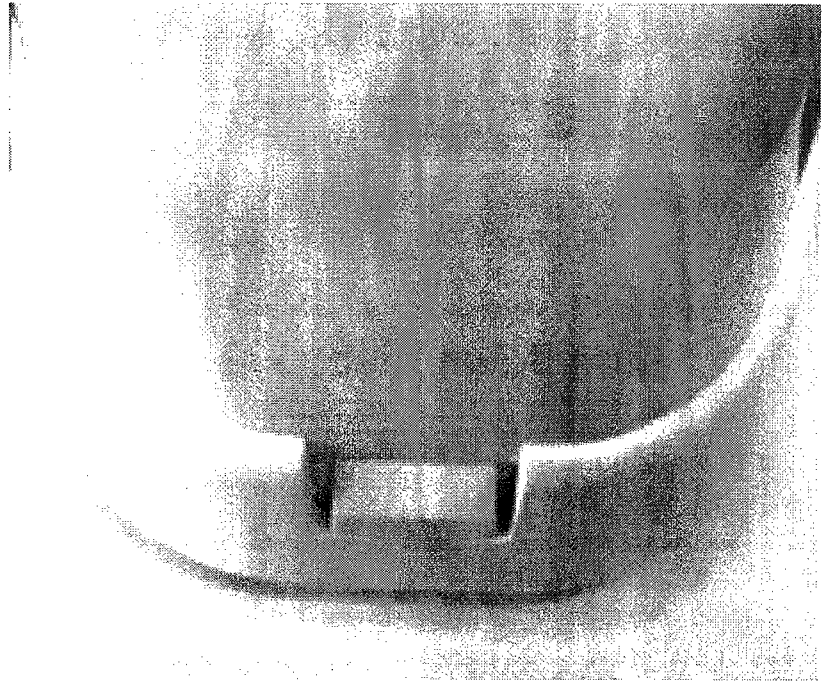
5.8.2 Re-fitting into enclosure

- Referring to the illustration, place the EPIRB on its side in the enclosure. As illustrated, the TEST button is furthest from the back of the enclosure.
- Engage base of EPIRB into the recess in the lever arm.
- Push the EPIRB into the enclosure to engage the retaining clip.
- Bend the antenna as shown and retain it in the recess.
- Refit cover squarely, engaging the guides at the top end and the rod through hole in cover.
- Locate cover onto backplate, then snap down over locating lug. Check that the cover is correctly located (see following page).
- Refit R-clip through hole in end of release rod.

CAUTION

Failure to fit EPIRB correctly may impair its ability to float free in an emergency





Cover correctly fitted to base

6 FALSE ALERTS

False alerts are a serious problem for the rescue services. About 90% of EPIRB-initiated distress alerts turn out to be false alerts. If your EPIRB should cause a false alert, follow the instructions below.

6.1 Stand down rescue services

It is most important that you contact the nearest search and rescue authorities and tell them it was a false alert, so that they can stand down any rescue services. Use any means at your disposal to make contact. Often this can be by VHF radio to the local coastguard or mobile phone if you are within coastal range, but MF/HF DSC and Inmarsat A, B, C, M may also be used.

Useful contacts:

Country	Region	Telephone	What to report
USA	Atlantic / Gulf of Mexico	(212) 668 7055	EPIRB Unique ID (UIN)
	Pacific	(510) 437 3700	Date, time & duration
	From any location	(800) 323 7233	Cause of activation
UK	From any location	01326 317 575	Location when activated

6.2 Turn off the EPIRB

If the EPIRB was activated by mistake, then turn it off:

- Remove the EPIRB from any water and dry its sea switch contacts.
- Wait about 8 seconds for the sea switch to de-activate.
- If the EPIRB is still flashing then it must have been turned on manually
- Slide the activation switch fully to the right.
- The EPIRB should now stop flashing.
- Refit the EPIRB correctly into its mounting bracket or enclosure.

Modern EPIRBs have sea switches and it is not uncommon for the sea switch to activate in rough seas or heavy rain simply because the EPIRB has been badly fitted in its mounting bracket. The EPIRB bracket contains a magnet to hold the EPIRB in an off state. If the EPIRB is wrongly fitted the magnet has no effect, so heavy seas may activate the sea switch. The cure is to ensure the EPIRB is correctly fitted as shown in section 5.8.

6.3 Dealing with a transmitting EPIRB

In the unlikely event that your EPIRB develops a fault and will not turn off, then prevent its radio signal from reaching the satellite using one of the following methods:

- Cut off or fold down the antenna. Wrap the EPIRB in metal foil and take it below decks.
- or
- Cut off or fold down the antenna and place the EPIRB in a metal container or locker.

Take care when dealing with the antenna. Handle the antenna as little as possible. Refer to Section 1 for warnings.

Leave the EPIRB in this condition for 3 days until its battery is dead, then refer to section 10.5 for instructions on returning the EPIRB for servicing. See also section 7.

7 FULLY DISABLING AN EPIRB

In the unlikely event that your EPIRB refuses to turn off then it may have a fault. Procedures for dealing with a faulty EPIRB are covered in section 6 on false alerts; in simple terms you should do the following:

- De-activate the EPIRB as described in section 6.2
- Suppress its signal by removing the antenna and wrapping the EPIRB in metal foil, as described in section 6.3
- Leave for 3 days until the battery is used up.

WE DO NOT RECOMMEND ANY OTHER COURSE OF ACTION.

However, if it is absolutely necessary to fully disable an EPIRB (by unplugging its battery), proceed as follows:

- Take the EPIRB below decks into a dry area.
- Locate a cross-headed screwdriver.
- Unscrew and retain the 3 sealing screws.
- Lift the lens dome off. This will lift the circuit board.
- **Avoid touching the circuit board if possible**
- Using fingers, unplug the three white battery connectors.
- The flashing will now cease.
- Collect all the parts and return them to your nearest service agent.

