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# 8 BULKHEAD BRACKET INSTALLATION

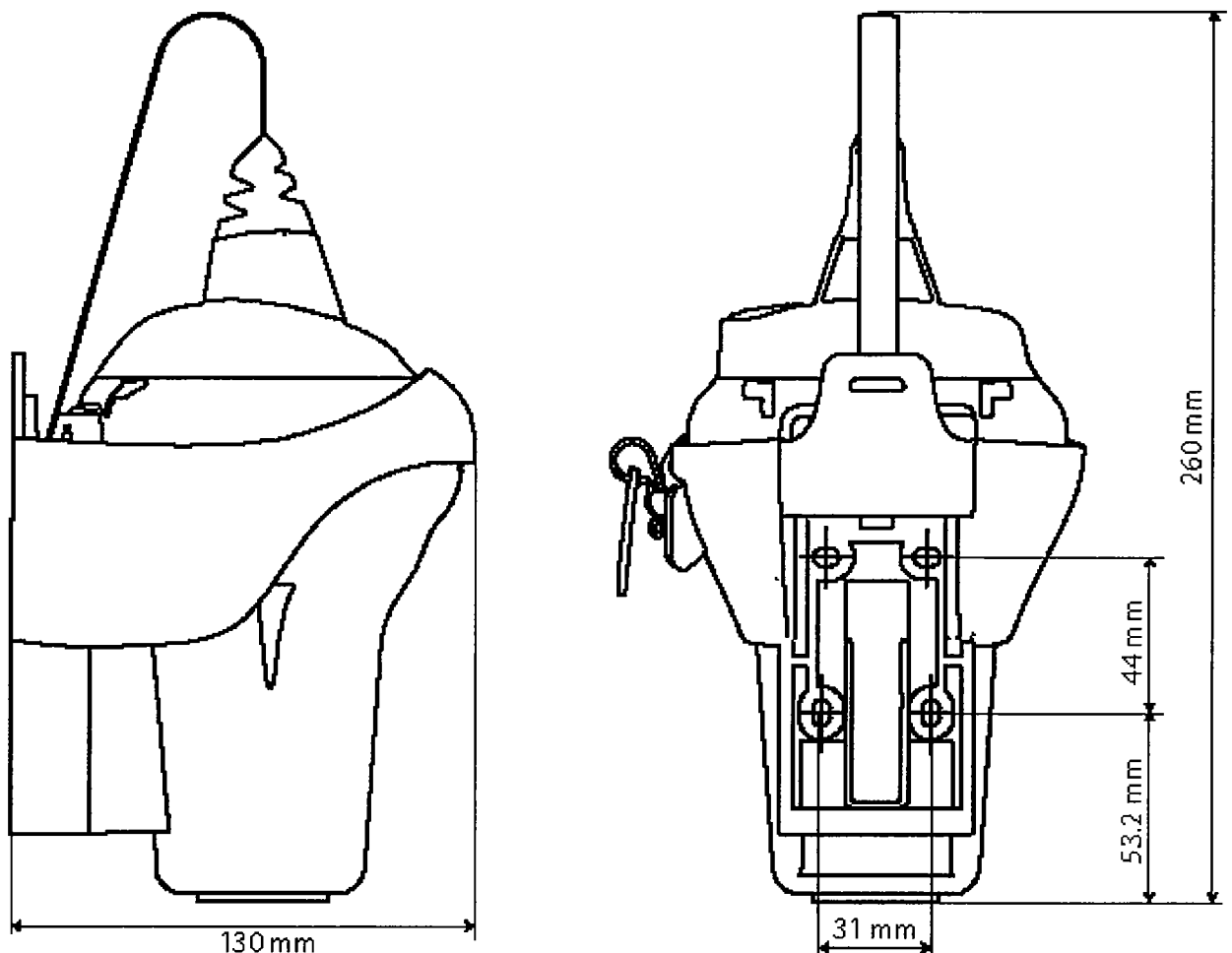
## 8.1 Siting

The bulkhead bracket should ideally be sited in plain view near an emergency exit. When choosing a suitable mounting position you should also consider:

- Ease of access in an emergency.
- Mount at least 1 metre (3') from any compass equipment.
- If there is any likelihood of the EPIRB being replaced in its bracket after activation then ensure that the antenna has as clear a view of the sky as possible.

## 8.2 Mounting procedure

The bulkhead bracket is supplied with four stainless steel screws 25mm (1") in length. The bracket mounts against a flat surface using 4 fixing points. Offer the bracket into the chosen position and mark through the mounting slots and drill 3mm (1/8") holes.

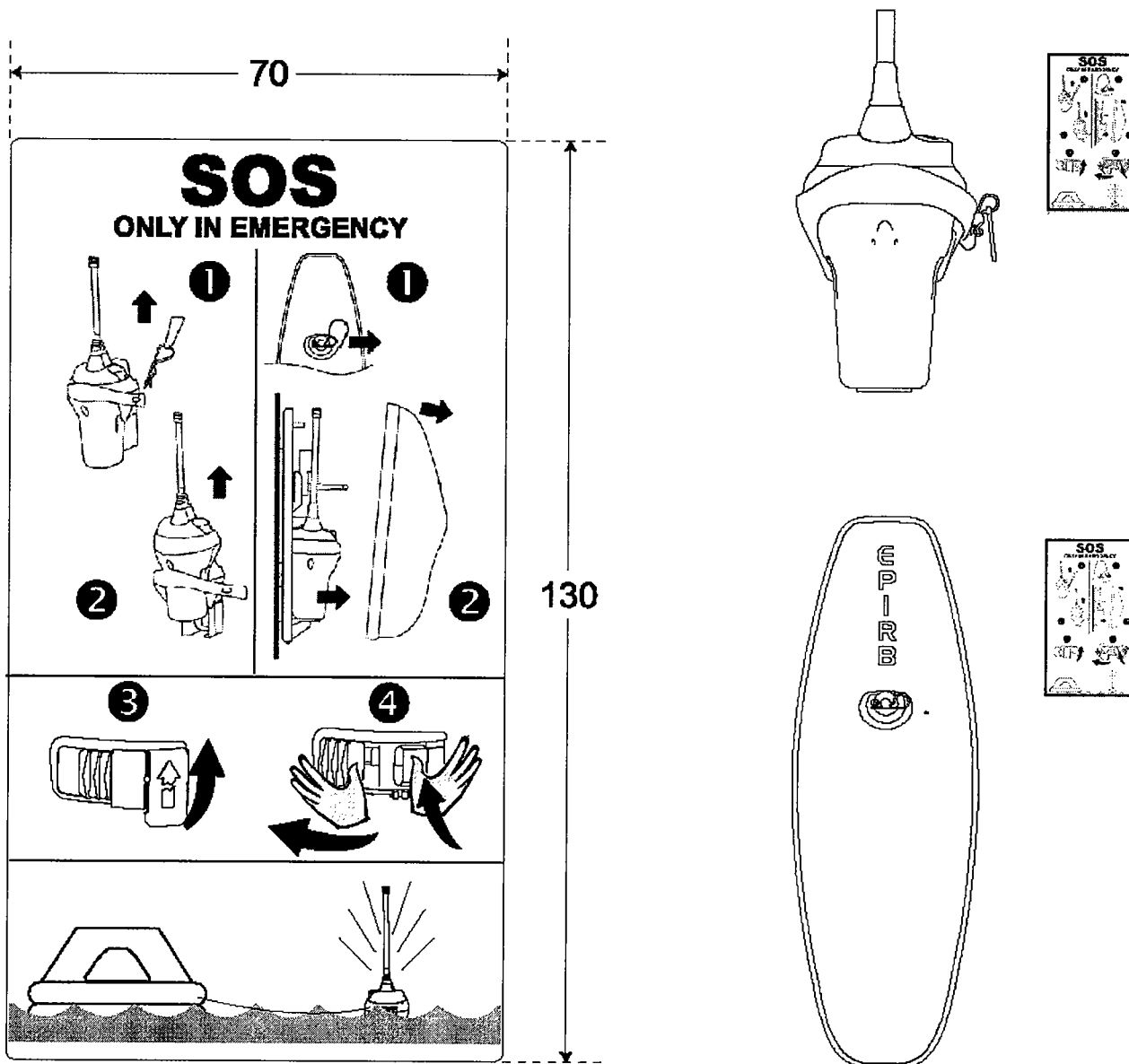


### 8.2.1 Mounting instruction plate

The EPIRB is supplied with a self-adhesive instruction plate, which has basic visual instructions showing how to operate the EPIRB in an emergency.

Mount the instruction plate next to the EPIRB so that it is easily visible in an emergency.

During vessel maintenance, ensure the plate does not get painted over or cleaned down with strong degreasing solvents.

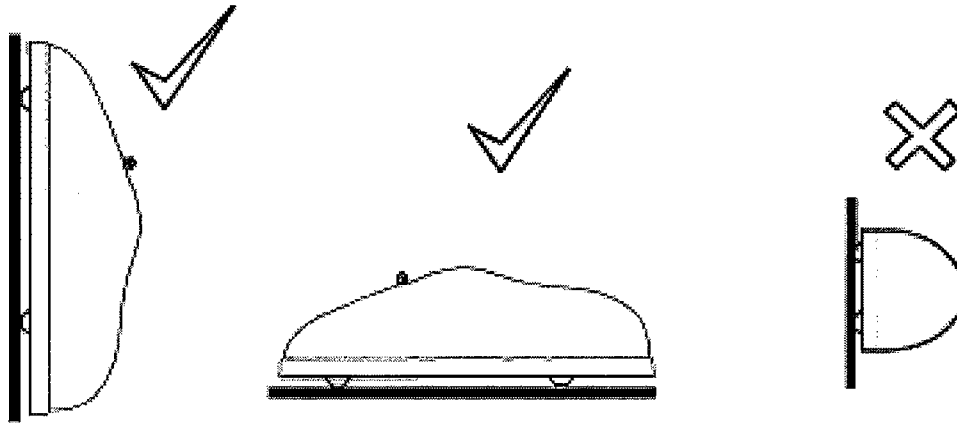


Mount instruction plate next to housing

# 9 ENCLOSURE INSTALLATION

## 9.1 Siting

The enclosure should be mounted upright against a vertical bulkhead. Alternately, it may be mounted horizontally on a flat surface, such as a cabin roof. No other orientations are recommended.



**If you have a float-free EPIRB it is critical that you choose a position where the released EPIRB will not get trapped by overhangs, rigging, antennas etc, should the vessel ever sink.** An expanse of flat surface is required to allow the enclosure lid to eject. Use the list below to choose a suitable mounting position:

- Mount on the outside of the vessel's structure, as high as possible.
- Mount close to the vessel's navigation position.
- Consider ease of access in an emergency.

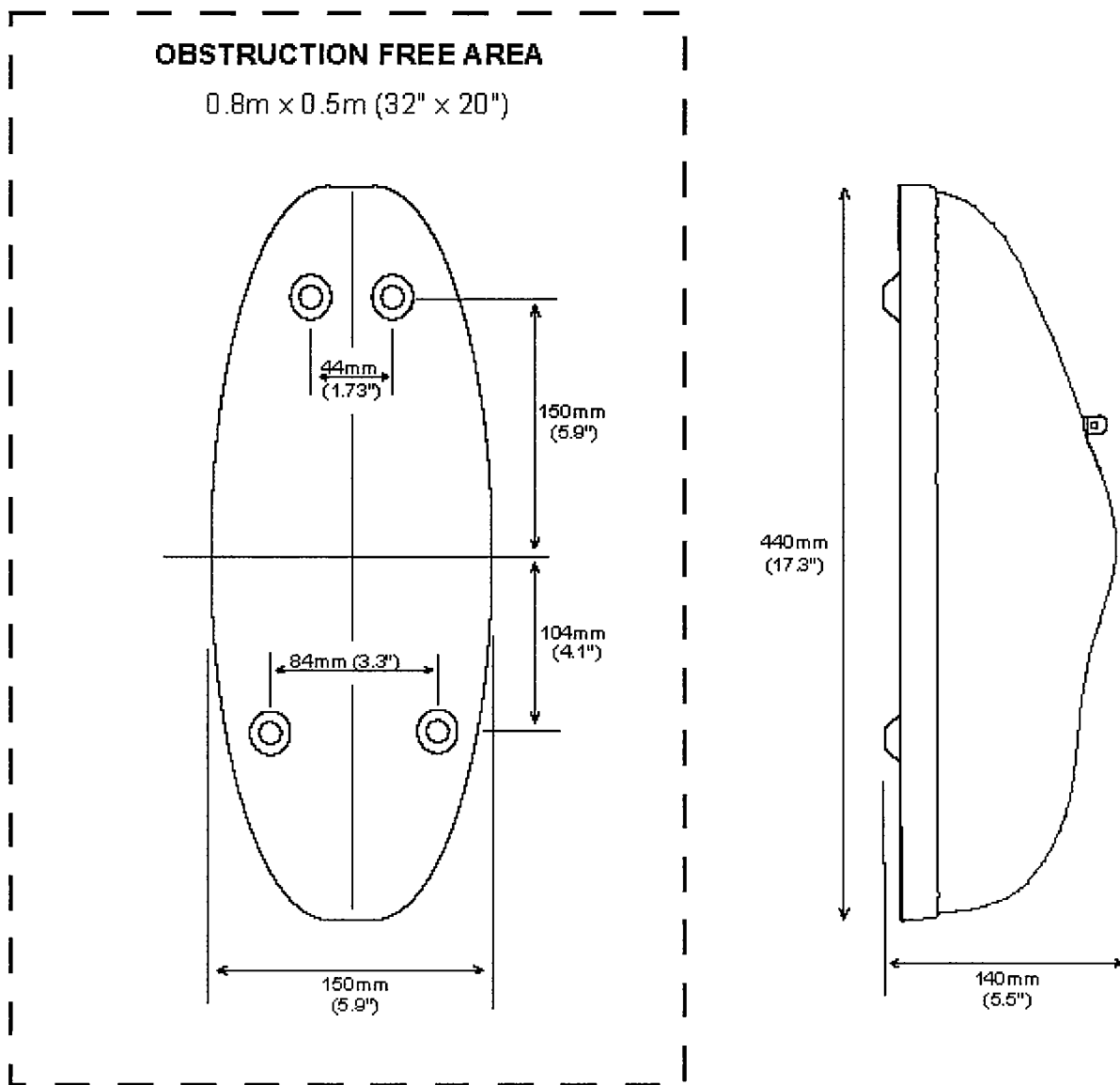
AVOID:

- Positions with insufficient space for lid ejection and maintenance.
- Positions within 1m (3') of any compass equipment.
- Mounting within 2m (6') of any Radar antenna.
- Direct impact from waves
- Siting where damage is likely.
- Exhaust fumes, chemical and oil sources.

## 9.2 Mounting procedure

The enclosure mounts against a flat surface using 4 fixing points. See illustration for mounting dimensions, or use the backplate of the enclosure as a marking guide. To do this, pull out the R-shaped clip and remove the enclosure lid. Note how the EPIRB fits then remove it to somewhere dry (its sea switch is now armed).

Offer the back plate into the chosen position and mark through the mounting holes. The enclosure is supplied with a set of 25mm (1") stainless steel fixings. If you are using the nuts and bolts, drill 6mm (1/4") holes where you have marked. You will need a 4mm Allen key to tighten the bolts. If the rear of the mounting surface is inaccessible, use the self-tapping screws supplied. Always fit washers under heads of the screws to avoid damaging the plastic.



### 9.3 Mounting instruction plate

The EPIRB is supplied with a rigid plate giving visual instructions on how to operate the EPIRB in an emergency. Mount this next to your EPIRB as explained in section 8.2.1.

### 9.4 Marking Hydrostatic Release Unit (HRU) expiry

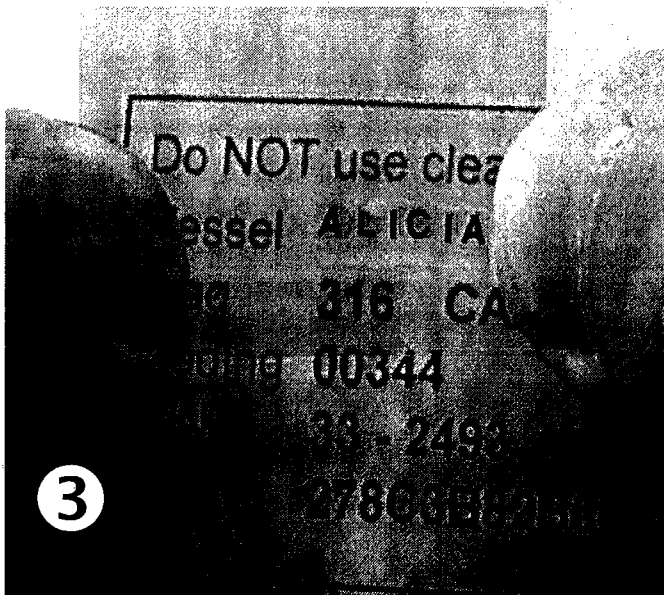
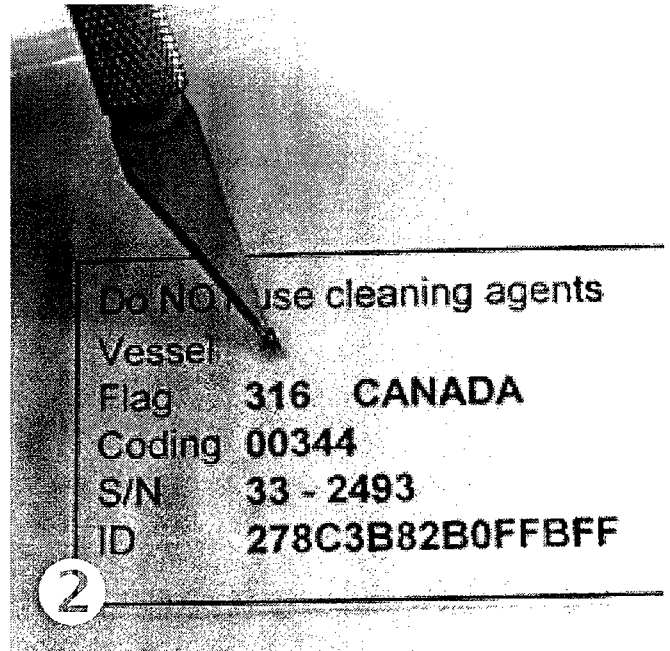
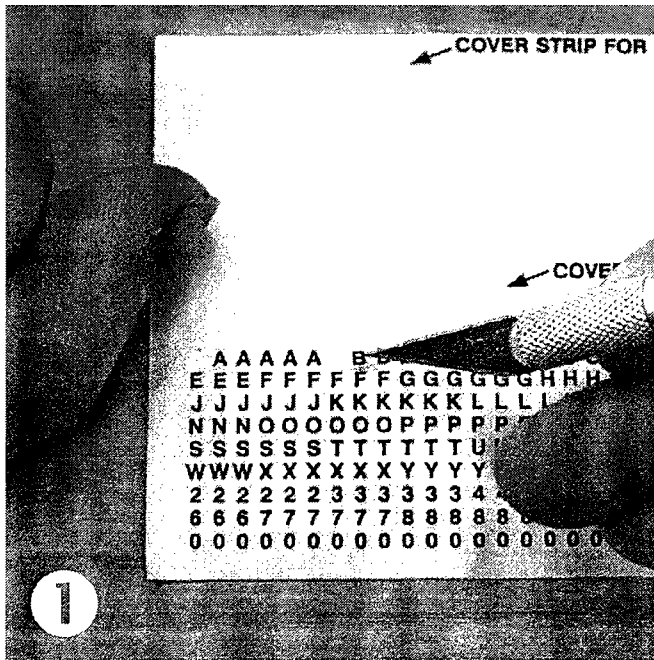
If you are installing a float-free EPIRB you **must** now mark the HRU expiry date. The HRU has a 2 year in-service life which starts as soon as it gets exposure to a marine environment. Hence the 2 years starts at installation and it is left to the customer to mark this date during installation. A date 2 years into the future should be marked on the HRU body and copied onto the label on the side of the enclosure. The HRU is marked by cutting out the corresponding dates on its label, as shown on the separate leaflet.

The enclosure should be marked using the alpha-numeric stickers provided, then covering them with the clear adhesive label provided (but see 9.5 first). The preferred date format is month and year, for example : JUN 2006.

## 9.5 Marking vessel name

In many countries it is usual to have your EPIRB programmed by your supplier (see registration section). Your supplier will then mark all the EPIRB labels accordingly. However, if your EPIRB was purchased in the USA, Canada or UK then your EPIRB will have all the necessary markings except for vessel name. In these countries it is usually left to the customer to mark the vessel name during installation.

It is strongly recommended (and is mandatory in some countries) that the vessel name is marked on the rear of the EPIRB itself and also on the enclosure, if you have one. Use the alpha-numeric stickers provided to mark the vessel name (or its abbreviation) on the top line of the EPIRB's rear label and again on the enclosure label. Protect the markings with a section of the clear adhesive label provided.



1. Pick off required letter (a small knife blade works well)
2. Apply letter to label  
Repeat until name is complete
3. Cover letters with clear label

# 10 MAINTENANCE

## 10.1 Self Test & inspection

As an important item of safety equipment, your EPIRB should be checked regularly. The EPIRB has a built-in test capability that can be used as a confidence check. This self-test confirms that the battery is healthy, that the GPS receiver and both distress transmitters are functional and that the strobe light is operational. The self-test should be performed **monthly**, but not more frequently. It should be performed during the first 5 minutes of the hour, to minimise disturbance on the emergency channel.

### 10.1.1 Standard Self Test

1. Press the TEST button until the red LED lights, then release the button.
2. The EPIRB will test its internal components and then make test transmissions at 121.5 and 406 MHz whilst monitoring the transmitter output.
3. If all tests are successful, the buzzer will sound and the red and white strobe LEDs will flash together a number of times.
4. If any test is unsuccessful, nothing will flash and the red LED will go out.

Operation of this test for the Smartfind Plus is identical, except that the green LED will flash (or not) in step with the red LED.

5. The number of times the LEDs flash is an indication of the accumulated time the battery has been in use

Accumulated Battery Use (hours)	Number of flashes/beeps
0 to 4	3
5 to 6	2
More than 6	1

REGARDLESS OF THE BATTERY STATE, THE EPIRB SHOULD ALWAYS BE ACTIVATED IN AN EMERGENCY – IT MAY STILL GENERATE AN ALERT.

If the EPIRB fails Self Test, it must be serviced.

### 10.1.2 Power consumption warning

If the TEST button is held down after any test has completed, a warning is given: after 20 seconds, the red LED flashes rapidly and the buzzer sounds. This indicates that battery capacity is being reduced for no reason.

If this warning persists after the TEST button is released, the EPIRB is faulty and must be serviced.

### 10.1.3 GPS operation test (Smartfind Plus only)

To comply with COSPAS-SARSAT regulations, the Smartfind Plus EPIRB is also capable of checking the correct operation of the GPS receiver. This test consumes significant reserve capacity of the EPIRB battery, consequently it can only be performed a fixed number of times. It is recommended that this test is performed only if the performance of the GPS receiver is suspect.

This test must be performed only in a location where the beacon may be expected to acquire a GPS position – refer to page 12 for advice.

1. Press the TEST button until the red LED lights, then release the button. Wait while the Self Test routine runs, then immediately the strobe flashes press the TEST button and hold it down for about 15 seconds until the red LED lights again. (If the strobe does not flash, the Self Test failed. In such a case, this test cannot be performed.)
2. Provided that the Self Test was successful, the Smartfind Plus will start the “Long GPS Self Test” mode. The buzzer will sound twice, the red LED will stay lit and the green LED will begin to flash. The TEST button may be released at this point.
3. This test takes 15 minutes to complete. During this time, do not shield the EPIRB and do not stand over it.
4. If the GPS receiver acquires a position, the green LED will light continuously and the buzzer will sound 10 times. If the receiver fails to acquire a position, the red LED will light continuously and the buzzer will sound 10 times.
5. Whether the test passes or fails, the white strobe LEDs flash to indicate how many Long GPS Self Test routines remain available.

If the EPIRB passes Self Test but fails the Long test, it is advisable to have it serviced. It will still generate an alert in an emergency, but it may not provide GPS-precise position information; this may delay a rescue, as the possible search area is much larger.

**NOTE:** New beacons have 10 test cycles available. When the Smartfind Plus battery is changed, it is the responsibility of the service agent to ensure that the Long Test cycle counter is reset, as otherwise this test may not be available.

**WARNING:** While the EPIRB is running this test it cannot generate a distress alert. (Once the test is complete the EPIRB returns to normal operation without any operator intervention.) It is therefore recommended that this test is performed only under conditions where an emergency is unlikely to arise.

If necessary, this test may be terminated (without performing the check) by holding down the TEST button for approximately 5 seconds until the red LED goes out.



## 10.2 Mechanical inspection

During these monthly checks you should take the opportunity to inspect the EPIRB and its mountings visually for deterioration or damage.

Note that the EPIRB is designed to allow water to circulate around the outer edge of the dome (inside the outer clear plastic edge but outside the waterproof seal), consequently a volume of water in this area is of no consequence.

On the EPIRB itself check the following:

- Inspect the EPIRB for any obvious damage
- Check that the lanyard is not tied to the vessel structure
- Check the battery is within its expiry date
- Check that the sea switches are clean and free from paint or grease
- Check that the antenna has not been creased, so that it erects to a near-vertical position when released.

If during these checks it is discovered that the frangible seal has been broken, then the EPIRB may have been activated. The battery condition is thus suspect, and the battery should be replaced at the earliest possible opportunity. It is, however, possible to verify the condition of the battery to a limited extent by using the indication of the self-test, as described in section 10.1.1. If the LEDs flash more than once, then there is a good chance that the battery will provide the specified performance. **IT IS RECOMMENDED THAT THE BATTERY IS REPLACED REGARDLESS OF SUCH VERIFICATION.**

If you have a bulkhead bracket:

- Check the EPIRB is correctly fitted and secure in its bracket
- Check that the two halves of the bracket are securely connected

If you have an enclosure:

- Check the HRU is within its expiry date
- Confirm the cover can be easily removed
- Ensure the EPIRB base is correctly fitted into the D-shaped recess and that the antenna is correctly stowed

If the EPIRB or its mounting needs cleaning then this should be done using warm soapy water and a damp (not wet) cloth. Do not use strong detergents or solvents.

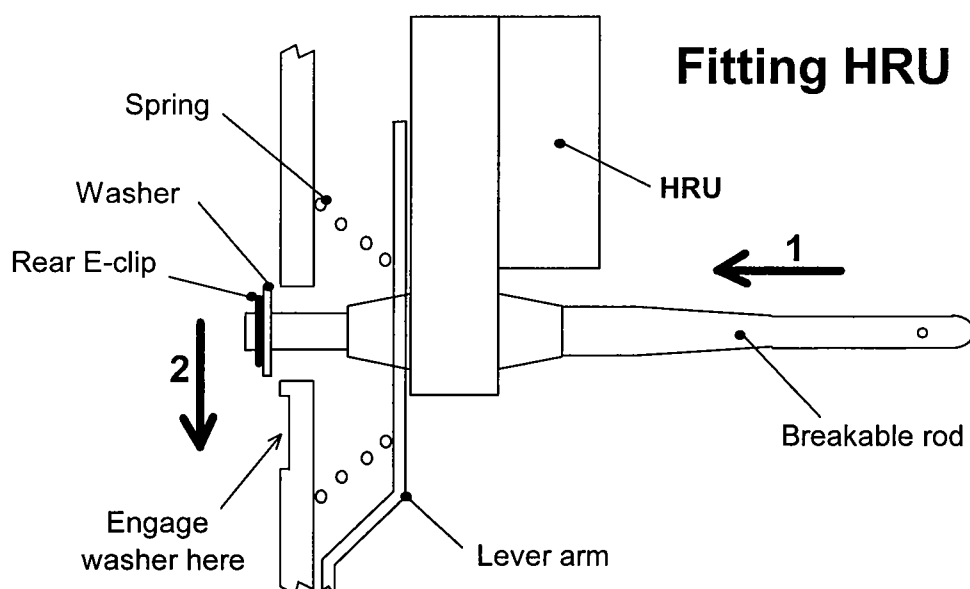
**Do not paint the EPIRB or its mounting**  
**Do not clean with detergents or solvents**  
**During vessel cleansing or painting remove the EPIRB and its mounting.**

## 10.3 HRU replacement

If you have an EPIRB in an enclosure marked Category 1 then it contains a Hydrostatic Release Unit (HRU). This has a 2 year replacement interval. **WARNING: Failure to replace the HRU at 2-yearly intervals may result in it not actuating correctly and releasing the EPIRB in an emergency.** The expiry date, which is marked on the HRU and on the enclosure side label should be checked regularly.

When the HRU expires you can obtain a replacement at a local marine store; ask for a Pains Wessex “BreaktHRU with an EPIRB kit” (Part No. 82-210B). The kit is complete with breakable plastic rod, date labels and instruction sheet. The HRU replacement procedure is as follows:

- On the enclosure, remove the R-clip and pull the cover slowly off.
- Remove the EPIRB and stow it in a dry place. **It will activate if wet.**
- Hold down the lever arm to take up the force of the spring.
- Push the HRU back then upwards out of the slot in the lever arm.
- When the rear clip disengages slowly release the lever arm.
- The HRU with its breakable rod can now be lifted free and replaced.
- Using pliers, remove the rear E-clip and slide off the old HRU.
- Fit the new HRU over the new rod, with its label facing outward.
- Refit the washer and the rear E-clip. Ensure rod moves freely.
- Mark the HRU with an expiry date 2 years into the future.
- Slide the HRU into the slot in the lever arm and push lever arm down.
- Engage rear washer into backplate by pushing back and sliding down.
- Look under the spring and check that the washer is fully engaged.
- Fit the EPIRB as shown in 5.8.2.
- Refit cover by engaging hole over rod and then snapping into place. Check that the cover is correctly fitted.
- Refit R-clip through top of rod.
- On side of cover, remove old HRU expiry date and mark new date.



## 10.4 Battery replacement

The EPIRB uses three 9V Lithium battery packs, McMurdo type 82-939. Typically these will have to be replaced every 5 years. The exact battery expiry date is marked on the rear of the EPIRB lens dome; if you have a full enclosure, it is also marked on the outside of the enclosure. The battery expiry date should be checked regularly. You will need to replace the battery when:

- The expiry date has been reached **or**
- The EPIRB has been used in an emergency situation **or**
- A false activation exceeds 6 hours of use.

**REGARDLESS OF THE BATTERY STATE, THE EPRIB SHOULD ALWAYS BE ACTIVATED IN AN EMERGENCY – IT MAY STILL GENERATE AN ALERT.**

A battery is a one shot device. It is not rechargeable or user replaceable. Battery replacement **must** be carried out by a McMurdo approved service agent. The entire set of batteries should be replaced together.

NOTE: When the battery is changed, it is the responsibility of the service agent to reset the Long GPS Self Test counter in the Smartfind Plus. For a description of this counter, refer to Section 10.1

Lithium batteries have special disposal requirements. Never incinerate a Lithium battery. Never dispose of one at sea. Your service agent will deal with battery disposal.

## 10.5 Servicing

All servicing must be carried out by a McMurdo approved service agent. Always call your nearest agent and talk to their service department before returning equipment. You can find your nearest service agent from:

- The McMurdo web site: [www.mcmurdo.co.uk](http://www.mcmurdo.co.uk)
- Contacting McMurdo direct (see warranty page).
- Contacting a McMurdo distributor

If the EPIRB has to be returned, the original packaging should be used if possible.

## 10.6 Transportation

The battery packs used in these EPIRBs are classified non-hazardous.

For shipping, the battery pack meets exemption A45 of the IATA hazardous transport regulation for categories UN3090 (Lithium batteries), UN3091 (Lithium batteries contained in equipment) and UN3092 (Lithium batteries packed with equipment).

For further information refer to the McMurdo website [www.mcmurdo.co.uk](http://www.mcmurdo.co.uk)

## **10.7 GMDSS inspections**

If your vessel is subject to GMDSS regulations then you can expect to get regular visits from ship surveyors enforcing national legislation. They will check the expiry dates and activate the EPIRB to prove that it really works and they will read the identity message stored inside the EPIRB to check that you have registered it properly. Leisure vessels are not subject to these inspections. However, in some countries passenger and fishing vessels are covered by the legislation.

# 11 HOW DOES IT WORK?

Your EPIRB contains two radio transmitters: one operating at 406 MHz which transmits an alert which can be received by satellites, and one operating at 121.5 MHz which transmits a signal which can be received by overflying aircraft and Search & Rescue (SAR) homing receivers. When you activate the EPIRB, both transmitters start broadcasting signals. Providing the EPIRB's batteries are in good condition, the transmission will continue for a minimum of 48 hours.

The 406 MHz alert signal can be detected by SAR satellites. American, European and Indian authorities operate a series of satellites in low-earth and geostationary orbits to detect and locate aviators, mariners and land-based users in distress. The satellites, together with a world-wide network of ground stations and Mission Control Centres (MCC) form the International COSPAS-SARSAT Program whose mission is to relay distress signals to the international search and rescue community.

Ground stations track these satellites and process the distress signals to obtain a location (by using Doppler location techniques\*) of the distress. The processed information is then forwarded to an MCC where it is combined with other location and registration information and passed to a Rescue Coordination Centre (RCC) which alerts the appropriate SAR authorities. Successive satellite passes refine and confirm this information. Alternatively, beacons such as Smartfind Plus can use the GPS system to obtain a very accurate position. This position is then transmitted as part of the distress signal.

**\* For an explanation, visit the webpage:**

***<http://www.cospas-sarsat.org/DescriptionOverview/doppler.htm>***

The network of orbiting satellites can detect signals over the entire surface of the earth; in addition, there are four geostationary satellites that appear fixed in position and which detect signals over enormous areas (approximately one-third of the surface of the earth, but excluding Polar regions). However, the geostationary satellites, because they are fixed with respect to the earth, cannot determine the position of the EPIRB using Doppler.

The Smartfind Plus EPIRB contains a GPS receiver which can determine its own position. This position is then transmitted as part of the distress signal. GPS reception can be affected by several factors, and GPS systems do require a clear view of the sky in order to work effectively, because the receiver needs signals from several satellites to calculate its position. If the GPS cannot determine its position, it "fails safe"; it does not transmit an inaccurate position, but instead sends information to indicate that no position is available. Position information is then dependent on the orbiting satellite system.

Once it has been activated for a distress situation, an EPIRB should not be switched off until the SAR agency directs this.

## 12 TECHNICAL SPECIFICATION

<b>406 MHz Transmitter</b>	Operating frequency	406.028 MHz $\pm$ 1 kHz
	Power output	5 W typical
	Modulation	Phase (16K0GID)
<b>121.5 MHz Homer</b>	Operating frequency	121.5 MHz $\pm$ 3.5 kHz
	Power output	50 mW radiated typical
	Modulation	Swept tone AM (3K20A3X)
<b>GPS Receiver (Smartfind Plus only)</b>	Centre frequency	1.57542 GHz
	Sensitivity	-175 dBW minimum
	Satellites tracked	12 max
<b>Strobe light</b>	Type	Two high intensity LEDs
	Light output	0.75 cd minimum
	Flash rate	23 flashes per minute
<b>Battery</b>	Type	Lithium manganese dioxide
	Operating life	48 hours minimum
	Shelf life	5 years typical in service
<b>Environment</b>	Operating temperature	-20 °C to +55 °C (-4° F to +131° F)
	Storage temperature	-30 °C to +70 °C (-22° F to +163° F)
	Automatic release depth	4 metres max. (13 feet)
<b>Physical</b>	Weight	770 grams (1.7 lb)
	Height of body	21 cm (8.2 inches)
	Length of antenna	18 cm (7 inches)
<b>Approvals</b>	Satellite system	Cospas-Sarsat T.001/T.007
	Europe	IEC 61097-2 Marine Equipment Directive
	USA	
	Worldwide	IEC 61097-2
	Meets IMO regulations	A.662(16); A.694(17); A.810(19); A.814(19)

The GPS module (where fitted) complies with the relevant sections of IEC 61108-1: 2003.

# Declarations of Conformity

**mcMurdo**

Silver Point  
Airport Service Road  
Portsmouth  
Hampshire UK  
PO3 5PB  
Int + 44 (0)23 9262 3900  
www.mcmurdo.co.uk

## EC DECLARATION OF CONFORMITY

We declare that the following products comply with the essential requirements of Council Directive 96/98/EC on the approximation of the laws of the member States relating to Marine Equipment as amended by Commission Directives 98/85/EC, 2001/53/EC, 2002/75/EC and 2002/84/EC, as evidenced by a EC Type Examination Certificate as detailed overleaf.

Products covered by this Declaration


Product Type: 405 MHz EPIRB  
Annex A.1/5.6

Models: **McMurdo E5 SMARTFIND**

Intended usage of products  
All vessels which must comply with IMO SOLAS regulations in coastal or international waters.

Surveillance conformity assessment is undertaken in accordance with Production Quality Assurance Module D by:

QinetiQ (No. 0191)  
Cody Technology Park, Ively Road,  
Farnborough GU14 0LX,  
United Kingdom




0191  
XX

XX = last two digits of year mark affixed

The product will carry this Conformity Marking:

Issued on behalf of McMurdo Limited

Signed: 

Name: **R N Taylor**  
Title: **Engineering manager**  
Date: 25 March 03

Page 1 of 2

See overleaf for technical information

**EC Type Examination Certificate:**  
Name of Notified Body: QinetiQ (No. 0191)  
Address of Notified Body: Ively Road, Farnborough GU14 0LX, UK  
Certificate: QQ-MED-18/05-01      25 August 2006

**Regulations and Standards complied with:**  
Regulation IV/7.1.6; Regulation X/3; IMO Resolution MSC.36(63) 14.6.1.6 (1994 HSC Code); IMO Resolution MSC.97(73) 14.7.1.6 (2000 HSC Code); IMO Resolution A.662(16); IMO Resolution A.695(17); IMO Resolution A.810(19) as amended by IMO Resolution MSC.56(66) and IMO Resolution MSC.120(74); IMO Resolution A.694(17); ITU-R M633-2(05/00); ITU-R M.690-1(10/95); IMO MSC/Circ.862.



**Testing standards:**  
MSC/Circ.862; MSC/Circ.862  
IEC 61097-2 (2002-09); IEC 60945 (2002)

**Technical Construction File held by:**  
McMurdo Limited  
Silver Point, Airport Service Road, Portsmouth PO3 5PB UK

**ATTENTION**

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when the product is taken into service to maintain compliance with the above directive. Details of these special methods and limitations to use are available on request, and are also contained in the product owner manuals.

This Declaration complies with EN ISO/IEC 17050-1:2004

BS EN ISO 9001 and CAA approved  
 Registered in England No. 746603  
 Registered Office: 1650 Parkway, Whiteley, Fareham, Hampshire.  
 PO15 7AH  
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Page 2 of 2

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 www.mcmurdo.co.uk

# EC DECLARATION OF CONFORMITY

We declare that the following products comply with the essential requirements of Council Directive 96/98/EC on the approximation of the laws of the member States relating to Marine Equipment as amended by Commission Directives 98/85/EC, 2001/53/EC, 2002/75/EC and 2002/84/EC, as evidenced by a EC Type Examination Certificate as detailed overleaf.

**Products covered by this Declaration**

Product Type: 406 MHz GPS EPIRB  
 Annex A.1/5.6

Models: **McMurdo G5 SMARTFIND PLUS**

**Intended usage of products**

All vessels which must comply with IMO SOLAS regulations in coastal or international waters.

**Surveillance conformity assessment is undertaken in accordance with Production Quality Assurance Module D by:**


QinetiQ (No. 0191)  
 Cody Technology Park, Ively Road,  
 Farnborough GU14 0LX  
 United Kingdom

The product will carry this Conformity Marking:



XX = last two digits of year mark affixed

**Issued on behalf of McMurdo Limited**

Signed:   
 Name: R N Taylor  
 Title: Engineering manager  
 Date: 25 June 02

**EC Type Examination Certificate:**

Name of Notified Body: QinetiQ (No. 0191)  
 Address of Notified Body: Ively Road, Farnborough GU14 0LX, UK

Certificate: QQ-MED-1706-01 25 August 2006

**Regulations and Standards complied with:**

Regulation IV7.1.6; Regulation X/3; IMO Resolution MSC 36(63) 14.6.1.6 (1994 HSC Code); IMO Resolution MSC.97(73) 14.7.1.6 (2000 HSC Code); IMO Resolution A.662(16); IMO Resolution A.686(17); IMO Resolution A.810(19) as amended by IMO Resolution MSC.56(66) and IMO Resolution MSC.120(74); IMO Resolution A.694(17); ITU-R M633-2(05/00); ITU-R M.690-1(10/95); IMO MSC/Circ.862.

**Testing standards:**

MSC/Circ.862; MSC/Circ.862  
 IEC 61097-2 (2002-09); IEC 60945 (2002)

**Technical Construction File held by:**

McMurdo Limited  
 Silver Point, Airport Service Road, Portsmouth PO3 9PB UK

**ATTENTION**

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when the product is taken into service to maintain compliance with the above directive. Details of these special methods and limitations to use are available on request, and are also contained in the product owner manuals.

This Declaration complies with EN ISO/IEC 17050-1:2004



BS EN ISO 9001 and CMA approved  
 Registered in England No. 246803  
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# EC DECLARATION OF CONFORMITY

The following products comply with the EU Directive 1999/5/EC (Radio Equipment and Telecommunications Terminal Equipment) and satisfy all the technical regulations applicable. The assessment has been carried out in accordance with Annex IV of the above Directive.

**Products covered by this Declaration**

Product Type: 406MHz EPIRB  
 Models: **McMurdo E5 SMARTFIND**  
**Simrad EP50**  
**Sailor SE406-II**


**Intended usage of products**  
 For use in all member States aboard Recreational Craft, Workboats and Non-SOLAS Vessels in coastal/international waters

I certify that the products described above have been tested to the radio suite overleaf and comply with the essential requirements in Articles 3.1(e), 3.1(b), 3.2 and 3.3(e) of the R&TTE Directive.

The product will carry this Conformity Marking:

**CE 01910**

Issued on behalf of McMurdo Limited

Signed:   
 Name: **R N Taylor**  
 Title: **Engineering Manager**  
 Date: 30 August 2006

**Regulations and Standards complied with:**

Regulation IV/7.1.6; Regulation X/3; IMO Resolution MSC 36(63) 14.6.1.5 (1994 HSC Code); IMO Resolution MSC 97(73) 14.7.1.5 (2000 HSC Code); IMO Resolution A.699(17); IMO Resolution A.700(17); IMO Resolution A.806(19); IMO Resolution A.694(17); ITU-R M.491-1(07/88); ITU-R M.492-6(10/95); ITU-R M.540-2(06/90); ITU-R M.625-3(10/95); ITU-R M.688(06/90)

Testing standards:  
 MSC/Circ 882;  
 IEC 61097-2 (2002-09); IEC 60945 (2002)

**Technical Construction File**

Notified Body: **QinetiQ - No. 0191**  
 Address: **Ively Road, Farnborough GU14 0LX, UK**  
 Statement of Opinion: **QQ-RTTE-18/06-01**  
 Date: **30 August 2006**

If this product is to be incorporated into other appliances or systems then it must not be put into service until the apparatus into which it is incorporated has been declared in conformity with the provisions of the relevant Directive(s)



BS EN ISO 9001 and CAI approved  
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 VAT No: GB 421 1393 92



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www.mcmurdo.co.uk

## EC DECLARATION OF CONFORMITY

The following products comply with the EU Directive 1999/5/EC (Radio Equipment and Telecommunications Terminal Equipment) and satisfy all the technical regulations applicable. The assessment has been carried out in accordance with Annex IV of the above Directive.

### Products covered by this Declaration

Product Type: 406MHz EPIRB  
Models: **McMurdo G5 SMARTFIND PLUS**  
**Simrad EG50**  
**Sailor SGE406-II**

### Intended usage of products

For use in all member States aboard Recreational Craft, Workboats and Non-SOLAS Vessels in coastal/international waters

I certify that the products described above have been tested to the radio suite overleaf and comply with the essential requirements in Articles 3.1(a), 3.1(b), 3.2 and 3.3(e) of the R&TTE Directive.

The product will carry this Conformity Marking:

**CE 0191**

Issued on behalf of McMurdo Limited

Signed:   
Name: **R N Taylor**  
Title: **Engineering Manager**  
Date: **20 AUG 06**

See overleaf for technical information

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### Regulations and Standards complied with:

Regulation IV7.1.6; Regulation X/3; IMO Resolution MSC 36(63) 14.6.1.5 (1984 HSC Code); IMO Resolution MSC 97(73) 14.7.1.5 (2000 HSC Code); IMO Resolution A.699(17); IMO Resolution A.700(17); IMO Resolution A.806(19); IMO Resolution A.694(17); ITU-R M.494-1(07/88); ITU-R M.492-6(10/95); ITU-R M.540-2(06/90); ITU-R M.625-3(10/95); ITU-R M.688(06/90)

### Testing standards:

MSC/Circ 862;  
IEC 61097-2 (2002-09); IEC 60945 (2002)

### Technical Construction File

Notified Body: **CinetIQ – No. 0191**  
Address: **Ively Road, Farnborough GU14 0LX, UK**  
Statement of Opinion: **QQ-RTTE-17/06-01**  
Date: **30 August 2006**

If this product is to be incorporated into other appliances or systems then it must not be put into service until the apparatus into which it is incorporated has been declared in conformity with the provisions of the relevant Directive(s)



BS EN ISO 9001 and CAA approved  
Registered in England No. 748503  
Registered Office: 1050 Waterlooville, Hampshire, PO15 7AH  
VAT No. GB 427 133 92



82-883 Issue 1

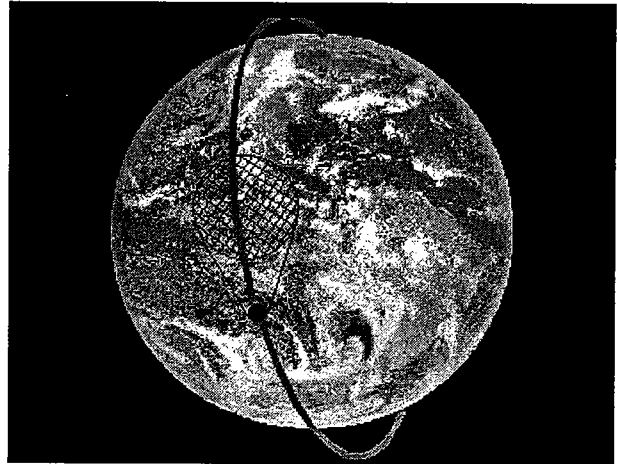
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# 13 APPENDIX – SATELLITE SYSTEMS

## COSPAS-SARSAT satellite system

The COSPAS-SARSAT system provides distress alert and location information to search and rescue authorities anywhere in the world for maritime, aviation and terrestrial users in distress.

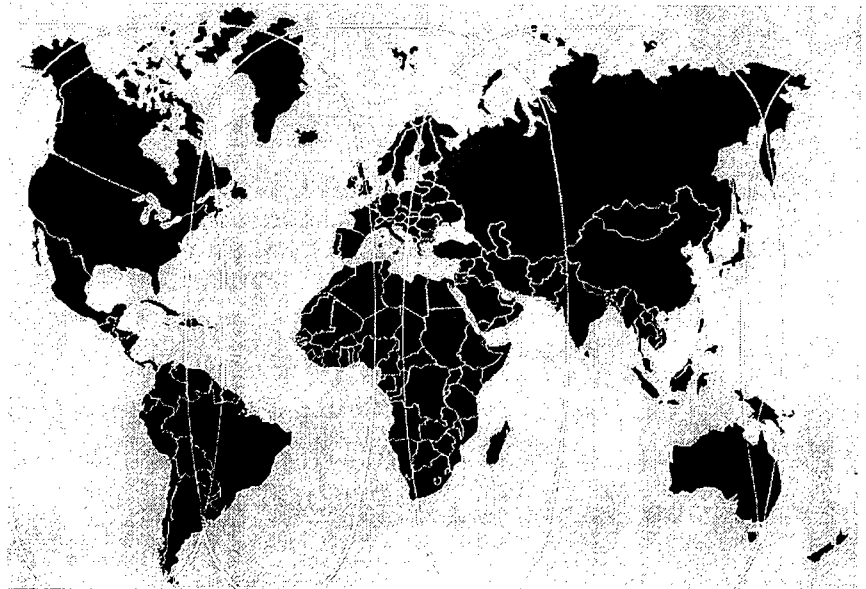
There are two satellite arrays carrying the COSPAS-SARSAT system. The principal array is LEOSAR (Low Earth Orbit Search and Rescue) which has seven satellites in polar and near-polar orbits. The orbits of these satellites are arranged to scan the entire surface of the Earth; on average, a satellite comes into view every 45 minutes.



*LEOSAR satellite path and scan footprint*

Distress transmissions from EPIRBs are picked up by the satellites and retransmitted to ground receiving stations, which then pass the message to the appropriate rescue organisation. On average, the total delay from activation of an EPIRB to the message being received by the rescue services is 90 minutes.

COSPAS-SARSAT is in an advanced stage of commissioning the second satellite array, GEOSAR (Geostationary Search and Rescue). This array uses geostationary satellites which are always in view (over their area of coverage), so that reception of the EPIRB signal is virtually instantaneous

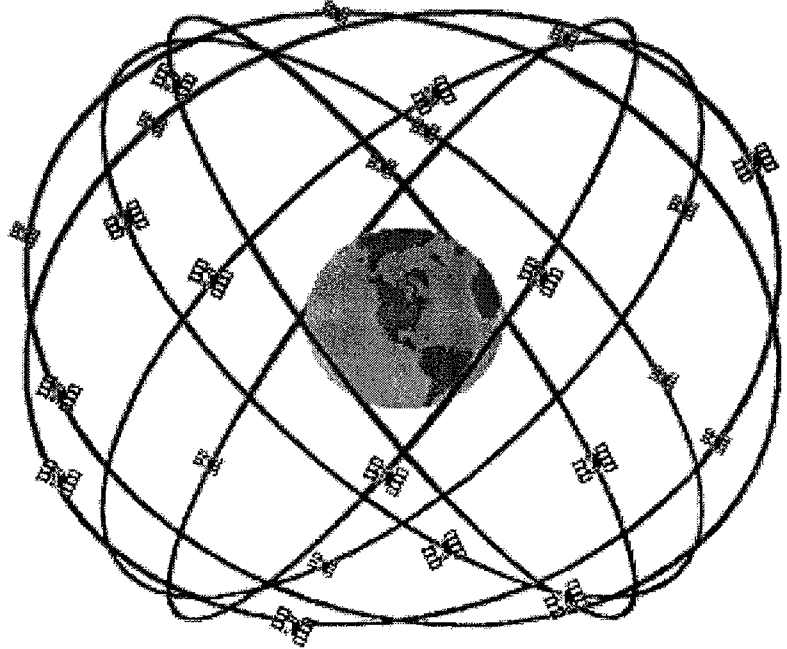


*GEOSAR coverage*

## Global Positioning System (GPS)

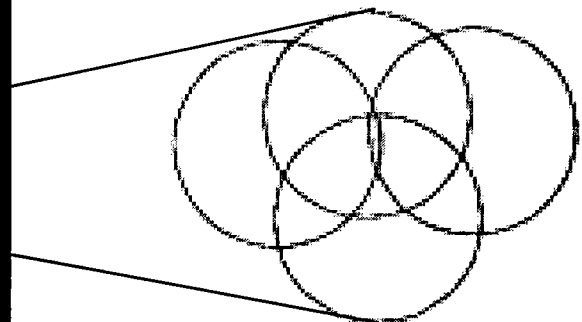
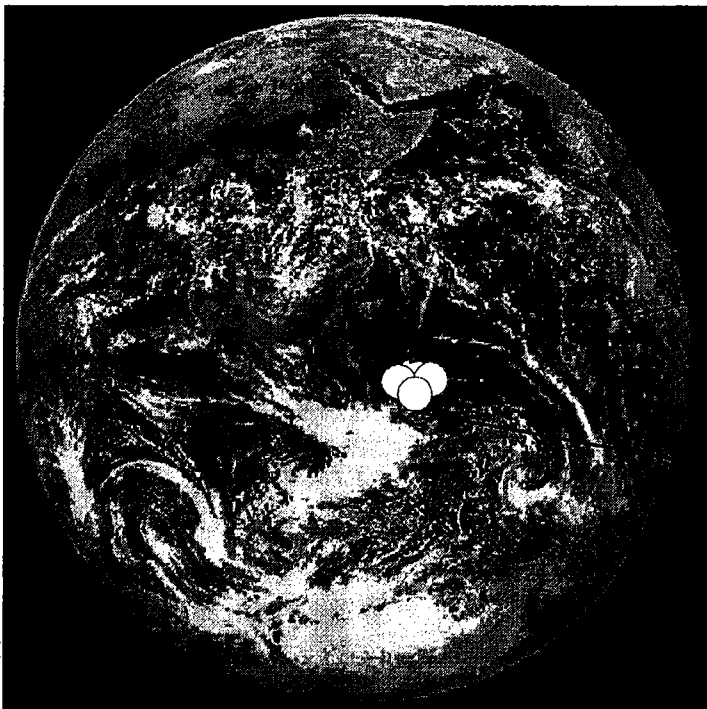
The GPS system is a satellite array which enables a receiver located anywhere on Earth to determine its position with high accuracy.

The array uses 24 satellites (plus spares) orbiting the Earth in six orbital planes, four satellites per plane, as shown below. These are arranged so that at least five satellites are within range of any receiver (which can be anywhere) at all times.



*GPS satellite orbital planes*

Each satellite transmits information which enables its position and distance from the receiver to be calculated. By combining these data for multiple satellites, the position of the receiver can be calculated.



*Operation of GPS receiver  
(size exaggerated for clarity)*

# UNITED STATES EPIRB REGISTRY SYSTEM

## Important information

Beacon registration is now available on-line.

This is the preferred method of registration; point your browser to

<http://www.beaconregistration.noaa.gov>

and follow the instructions on-screen.

## Use the EPIRB form.

## Other Information

At present, NOAA still accepts registration by mail or fax. The registration forms are pre-printed with the correct mailing address and fax number. A registration form may be downloaded from the website given above.

However you register the beacon, you will be sent a decal which must be attached to the beacon.

## Emergency Contact

It is VITAL that the Emergency Contact information is accurate, particularly regarding the telephone number, as this will be used to validate an alert. Only if the beacon registration and approximate location details can be confirmed will USCG (United States Coast Guard) launch an immediate rescue, otherwise there will be a delay whilst further alerts from the same source are received and verified.

## Registration address:

NOAA SARSAT Beacon Registration  
E/SP3, RM 3320, FB-4  
5200 Auth Road  
Suitland MD 20746-4304

FAX: 301-568-8649

**Helpline:** 301-457-5678 or toll-free: 1-888-212-SAVE (7283).

**This page contains no other data**

## **McMurdo Limited Product Warranty**

Subject to the provisions set out below McMurdo Limited warrants that this product will be free of defects in materials and workmanship for a period of 24 months from the date of purchase.

McMurdo Limited will not be liable to the buyer under the above warranty:-

- for any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow McMurdo Limited's instructions (whether oral or in writing) including a failure to install properly and/or to use batteries recommended and/or supplied by McMurdo Limited, misuse or alterations or repair of the product by persons other than McMurdo Limited or an Approved Service Agent;
- for parts, materials or equipment not manufactured by McMurdo Limited in respect of which the buyer shall only be entitled to the benefit of any warranty or guarantee given by the manufacturer to McMurdo Limited;
- for the battery storage life which is specifically excluded from this warranty;
- if the total price for the product has not been paid.

THE LIMITED WARRANTY STATED ABOVE IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. McMurdo will not be liable for indirect, special, incidental or consequential damages of any kind sustained from any cause. In no event shall McMurdo be liable for any breach of warranty or other claim in an amount exceeding the purchase price of the EPIRB. This warranty does not affect any statutory rights of the consumer.

In order to be valid, claims must be made under the above warranty in writing as soon as practicable after discovery of the defect or failure and within the warranty period referred to above. Proof of purchase will be required. The claim should be sent together with the product in question to the address set out below or to an Approved Service Agent.

Following a valid warranty claim McMurdo Limited shall be entitled to repair or replace the product (or part) in question free of charge, or at McMurdo Limited's sole discretion to refund to the buyer the price of the product (or a proportional part of the price). McMurdo Limited shall not be liable to a buyer who is not a consumer for any other loss or damage (whether indirect, special or consequential loss of profit or otherwise) costs, expenses or other claims for compensation which arise out of or in connection with this product. In the case of a consumer McMurdo Limited shall only be liable where other loss or damage is foreseeable.

Nothing shall limit McMurdo Limited's liability for death or personal injury caused by its negligence.

This warranty is to be interpreted under English law.

All enquiries relating to this warranty or Approved Service Agents should be sent to:

### **McMurdo Limited**

**Silver Point, Airport Service Road, Portsmouth, Hampshire, PO3 5PB UK**

**Telephone: Int + 44 (0) 23 9262 3900 Fax: Int + 44 (0) 23 9262 3998**

**Web: [www.mcmurdo.co.uk](http://www.mcmurdo.co.uk) Email: [customerservice@mcmurdo.co.uk](mailto:customerservice@mcmurdo.co.uk)**

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**82-810-001 Issue 1**