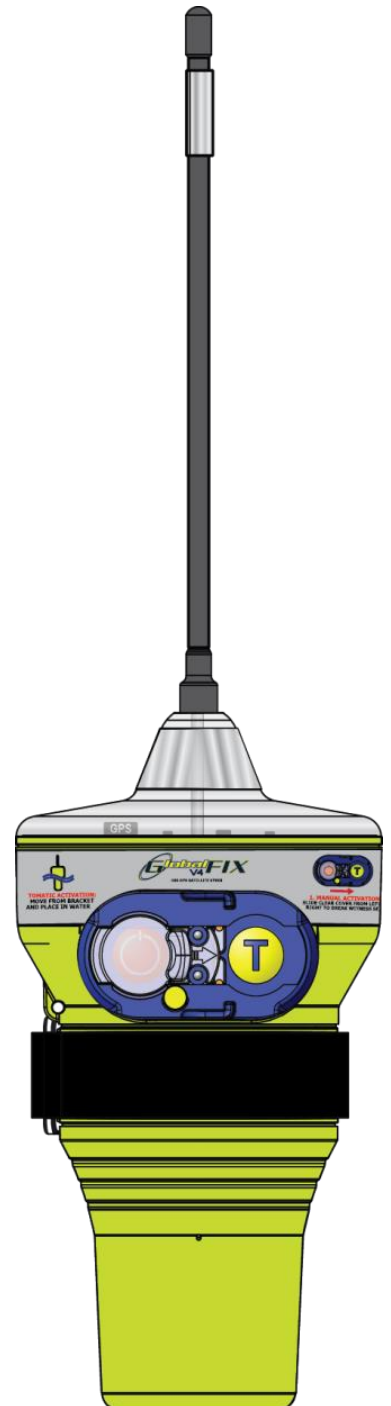


THE SCIENCE OF SURVIVAL

PRODUCT SUPPORT MANUAL

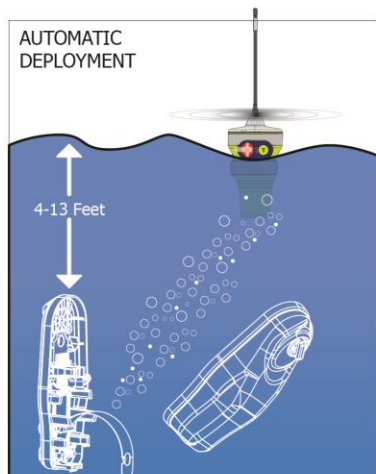
GLOBALFIX™ V4
406 MHz GPS EPIRB //



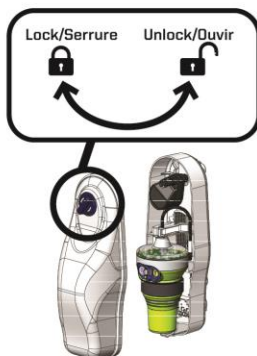
IN CASE OF EMERGENCY

1 DEPLOYING YOUR BEACON

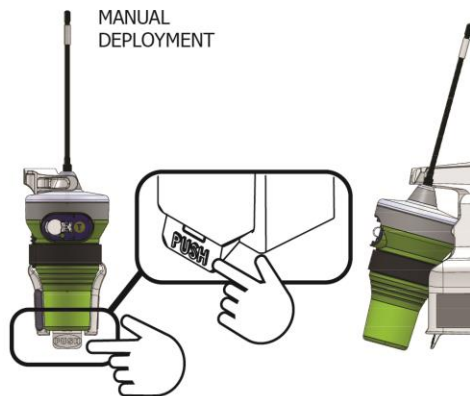
CATEGORY I (Automatic or Manual Deployment)



MANUAL DEPLOYMENT



CATEGORY II (Manual Deployment Only)

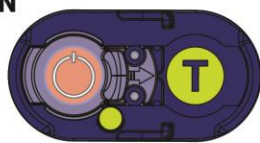


OR

IN A NON-EVACUATION EMERGENCY - THE BEACON CAN ALSO BE MANUALLY ACTIVATED IN THE BRACKET AS LONG AS IT HAS A CLEAR VIEW TO THE SKY

2 TWO ACTIVATION METHODS

MANUAL ACTIVATION

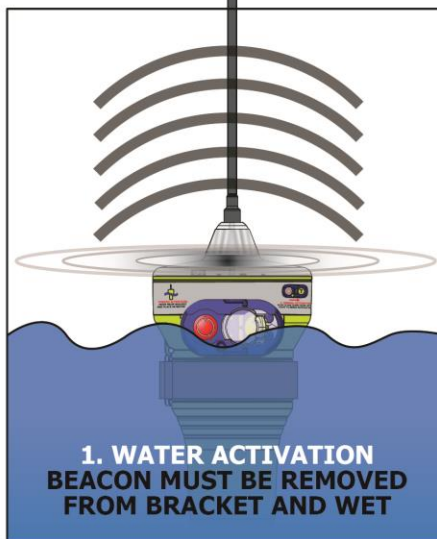


1. MANUAL ACTIVATION
SLIDE CLEAR COVER FROM LEFT TO RIGHT TO BREAK WITNESS SEAL







2. PRESS "ON" BUTTON FOR 1 SECOND (TO DEACTIVATE, PRESS AND HOLD "ON" BUTTON FOR 5 SECONDS)

WATER ACTIVATION



OR

Activation LED and Strobe Sequence

ON - Transmitting 406 MHz WITH GPS	 
ON - Transmitting 406 MHz Only	 

ATTACH BEACON WITH PROVIDED VELCRO WRIST STRAP OR SECURE TO WRIST, RAFT OR LIFE VEST WITH LANYARD. TRANSMISSION WILL BEGIN 50 SECONDS AFTER ACTIVATION AND WILL CONTINUE TO TRANSMIT EVERY 50 SECONDS FOR A MINIMUM OF 48 HOURS.

LEGEND:  Green LED Flash  Red LED Flash  Strobe Flash

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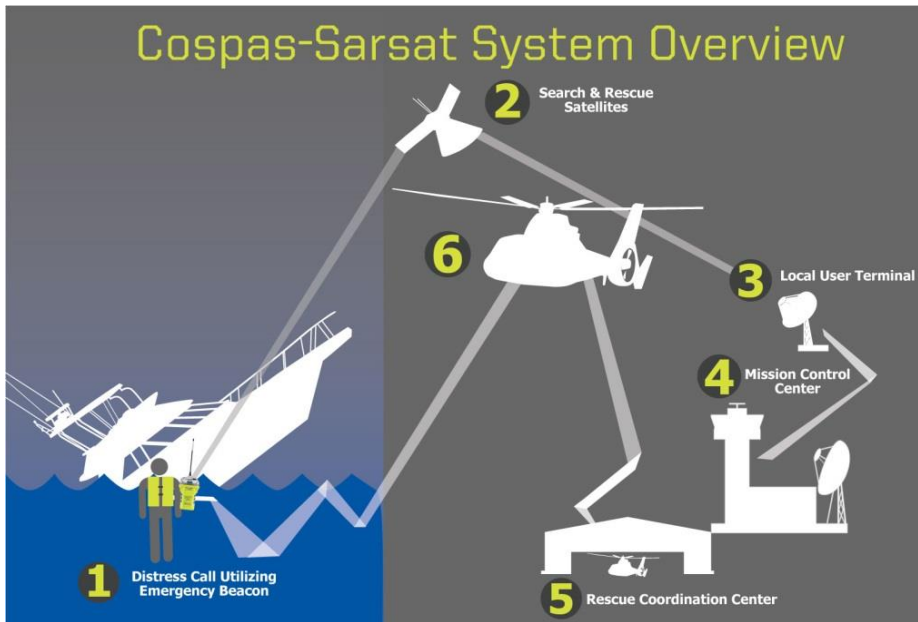


PLEASE READ ALL WARNINGS, CAUTIONS AND NOTES CAREFULLY.

NOTE Regarding Applicable Products

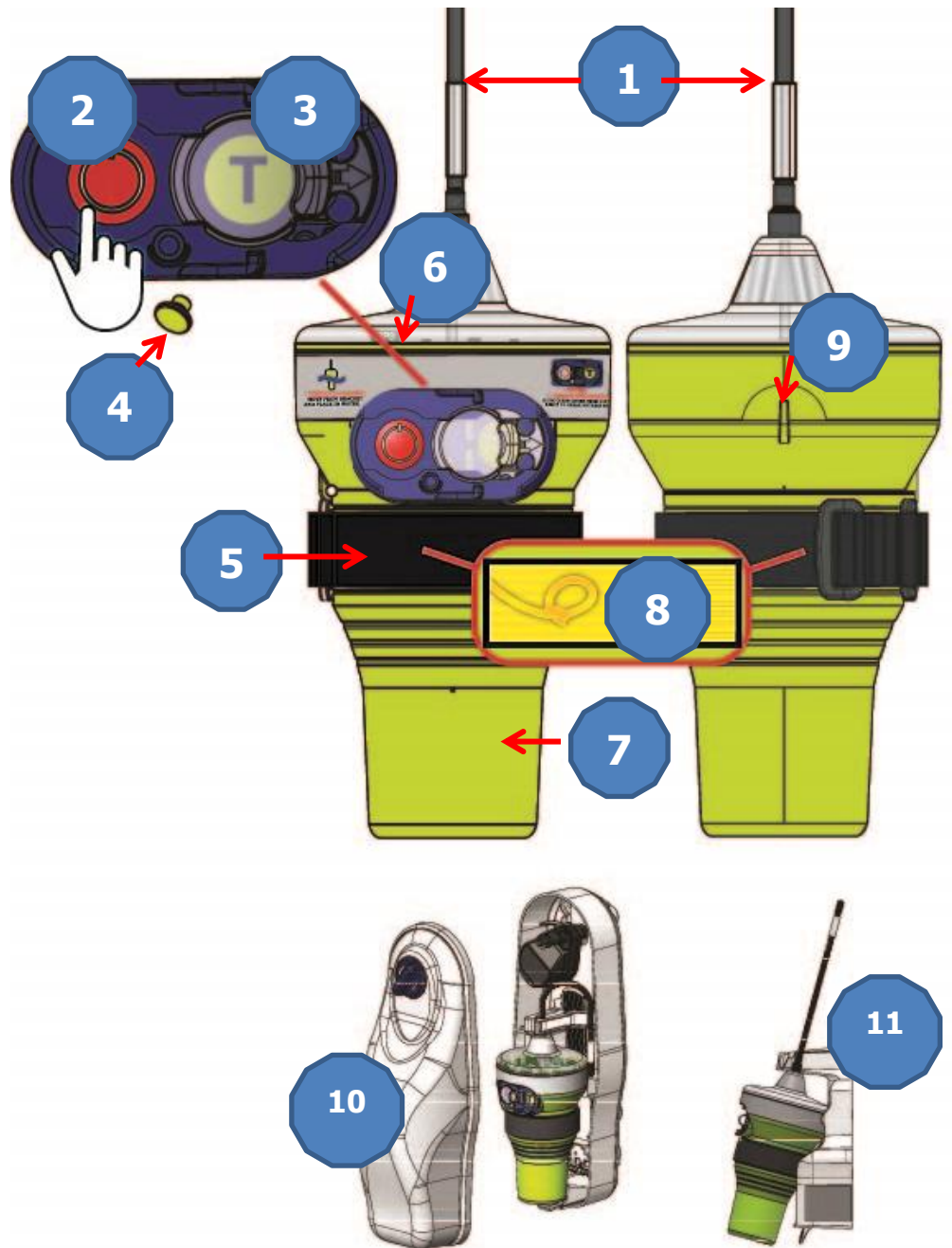
This manual supports all configurations of the GlobalFix™ V4 beacons. In addition to the part numbers listed on the cover page, other configurations of these products are available, thus you may have purchased a product configuration with a somewhat different part number. As long as the first four digits are the same as one of the two part numbers on the cover, this manual is applicable.

HOW RESCUE BEACONS WORK



ANATOMY OF YOUR BEACON

1. Antenna
2. Activation Button
3. Self-Test Button
4. Witness Tab
5. Wrist Strap
6. Internal GPS
7. User Replaceable battery
10-year service life (replacement battery part number 1104)
8. Lanyard Spool
For securing EPIRB when activated to prevent it from floating away
9. Locking Key Alignment –
Prevents mounting beacon from being installed backwards in the category I or II brackets.
10. Category 1 Bracket – Included with P/N 2830 (Automatic or Manual Deployment)
11. Category 2 Bracket – Included with P/N 2831 (Manual Deployment Only)



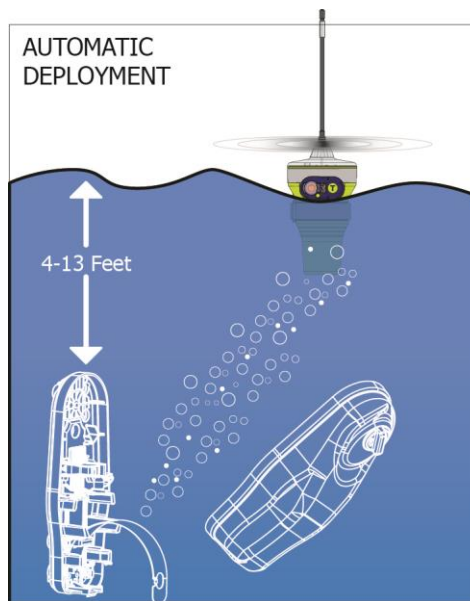
OPERATING YOUR BEACON

WARNING: This 406 MHz transmitter is authorized for use, only during situations of grave and imminent danger. Deliberate misuse may incur a severe penalty.

Category I Beacons:

Category I beacons are designed to be automatically deployed and activated in the event of a vessel sinking. A category I beacon may also be manually activated while in or out of its bracket.

Category I beacons deploy and activate automatically if the vessel (and the bracket) sinks to a depth between 4.9 ft (1.5 m) and 13 feet (4 m). At this depth, the HydroFix™ hydrostatic release unit (HRU) is activated and the beacon is released from the bracket, allowing it to float to the surface. Continuity is then created across the water-activation contacts and the beacon is activated.



Category II Beacons:

Category II beacons are designed to be manually deployed from the bracket and then activated manually or placed in the water to activate automatically.

Two conditions must be met for a Category II beacon to automatically activate:
It must be removed out of its bracket.
It must be wet (i.e. placed in the water)

Either condition, by itself, will not automatically activate the beacon.

NOTE: Upon activation, transmission of the 121.5 MHz and 406 MHz signals will not occur until 50 seconds after activation. After the first transmission, the 406 MHz signal will be continuously transmitted at 50-second intervals for a minimum of 48 hours.

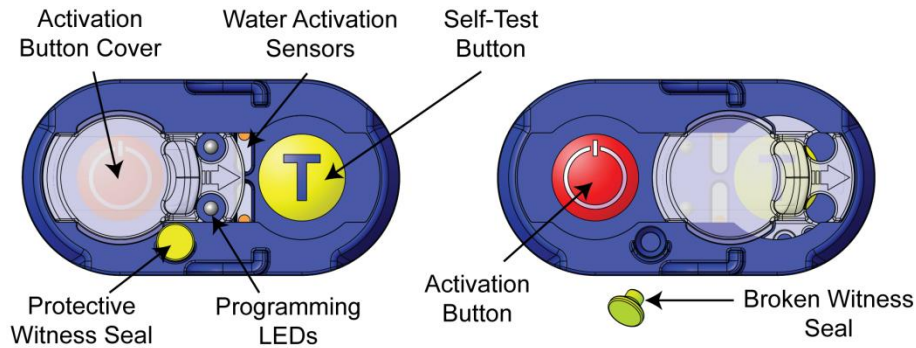
Manual Deployment and Activation

To manually deploy and activate a Category I or II beacon, you must do the following:

- 1.) Remove the beacon from its bracket.
- 2.) Activate the beacon by placing it in the water.

OR, slide the Activation Button Cover toward and over the self-test button, thus breaking the Protective Witness Seal. Then, press the Activation Button for a minimum of two seconds or until the red LED starts to flash.

NOTE: Once the protective activation witness seal has been broken, it can only be replaced by an ACR Battery Replacement Center.



Manual Activation without Deployment

A Category I or II beacon can also be manually activated while still in its bracket by pressing the activation button as described above. For proper beacon operation when activated in the bracket, ensure that the beacon has a clear view to the sky.

Turning Off the Beacon

If your beacon was manually activated and you wish to deactivate, push the activation button for 3 seconds or until the LEDs stop flashing.

If your beacon was automatically activated (water activated) and you wish to deactivate, remove the beacon from the water and dry the unit. The beacon normally takes up to 10 seconds to deactivate.

⚠ WARNING: If deactivation should fail, remove the bottom screw holding the battery to the unit, and separate the battery from the main body of the EPIRB to disable the unit. Return the beacon to ACR Electronics for service.

When activating and deploying your beacon in an emergency:

DO NOT activate the beacon if you have any other means of self-rescue

DO NOT operate the beacon while hand held, if at all possible

DO NOT cover the GPS receiver of the beacon with your hands

DO NOT hold or clutch the beacon by the antenna

DO NOT turn the beacon off for any reason, including to save power

DO NOT operate the beacon inside a life raft or under any other canopy or cover

DO NOT tether the beacon to the bracket or vessel

DO follow the activation steps as described on the beacon or in this manual

DO ensure a clear view to the sky for best GPS performance

DO keep the EPIRB upright for best signal transmission — either by floating it, resting it or holding it in this position

DO take the EPIRB with you if abandoning ship, whether it is a CAT I or II

DO tether the beacon, using the lanyard, to the life raft and let the beacon float

DO manually activate the beacon if it has not been automatically activated

DO leave EPIRB activated until rescued

On a routine basis aboard ship:

DO NOT hold or carry the beacon by its antenna

DO NOT mount the beacon in its bracket close to large structures or magnetic areas

DO NOT tie the lanyard to the EPIRB bracket or any other structure

DO NOT obscure the beacon by placing objects in front of it

DO NOT clean the beacon with anything other than a damp cloth or rubbing alcohol

DO Mount the beacon in its bracket in an obvious location, so that all can see it

DO Mount the beacon in its bracket with the keypad facing outward

DO Follow the recommended maintenance schedule

DO Perform a monthly self-test on the beacon

DO Follow up with beacon service if the self-test fails

LED indication of activation and GPS fix

When the beacon is activated and a good GPS fix is acquired, the data is included in the digital message of the next 406 MHz transmission. The RED flashing LED changes to a GREEN flashing LED when GPS coordinates have been successfully downloaded and are sent.



After the initial beep upon beacon activation, the beacon will continue to beep every 50 seconds to indicate each 406 MHz transmission. If 4 hours pass without the internal GPS receiver being able to update the last set of navigational coordinates, the message transmitted by the beacon will revert back to default data. At this point, the green LED will stop blinking and the red LED will flash. The internal GPS will continue to seek coordinates and, when successful, the green LED will flash. This new data will be transmitted in the next message burst and the green LED will continue to flash.

False Alarms

To prevent false alarms, it is important to be aware of how your beacon can be activated. Whether you have a Category I or Category II, these methods are the same:

1. When the beacon is out of its bracket and wet, the unit will start transmitting.
2. When the activation button is pushed, in or out of the bracket, the unit will start transmitting.

After the beacon is inadvertently activated for longer than 50 seconds, a live burst is transmitted. A self-test performed subsequent to the live burst transmission will fail due to the battery witness being violated (see section on "Maintaining the Beacon" for the audio-visual feedback provided by the beacon). A commercial vessel, which is inspected by maritime authorities on an annual basis, must have the beacon battery replaced if the battery witness has been violated.

To prevent false alarms, take these actions:

Do not store the beacon outside its bracket if it can get wet.
Do not clean the beacon with any liquid while out of its bracket.

Reporting

Should there be, for any reason, an inadvertent activation or false alarm, you must report the event to the nearest search and rescue authorities. Information that should be reported includes:

The 15-digit Unique Identifier Number (UIN) on the label on the side of the beacon.
Time and date of activation
Duration and cause of activation
Location of beacon at the time of activation

To report false alarms outside the USA, contact the national authority where your beacon is registered.


INSTALLING THE BEACON


Step 1: Determine a suitable mounting location

Locate the beacon in a readily accessible location that is protected from outside influences. The location selected must be sufficiently rigid to support the weight of the total installation.

Hazards to avoid when selecting a mounting location:

- Vibration
- Exposure to the elements, especially sun
- Possibility of impact from hatches, gear or personnel
- Harmful vapors
- Exhaust
- Harsh chemicals (i.e. paint removers)
- Locations that can be obscured by foreign articles on a temporary or permanent basis.

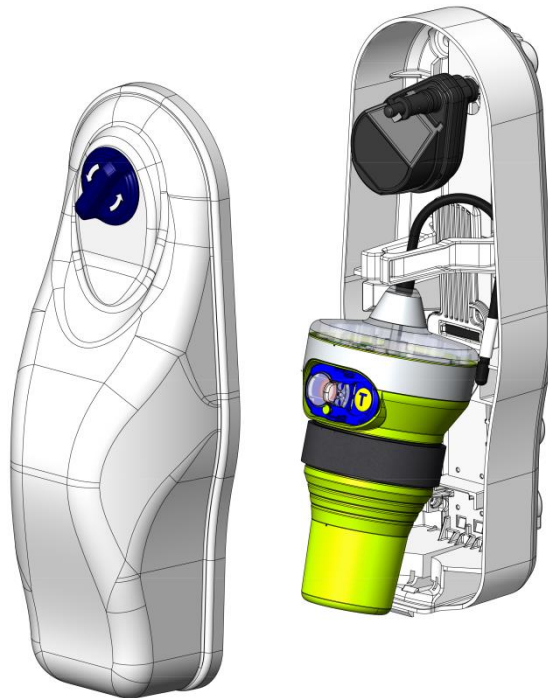
 CAUTION: Category I brackets must be mounted free from obstruction, to allow the beacon to automatically float free from the vessel. The Category I bracket can be mounted on a vertical surface with the beacon antenna pointing skyward or on a horizontal surface with the beacon facing up. Avoid mounting locations that subject the bracket to breaking waves. Avoid structures such as dodgers or cabin tops that could trap the beacon upon deployment.

 CAUTION: Category II brackets must be mounted in a protected location that is easily accessible. The CAT II bracket can be mounted on a vertical surface with the beacon antenna pointing skyward or on a horizontal surface with the beacon facing up. Avoid mounting locations that subject the bracket to breaking waves and locations that do not provide protection from harmful UV rays.

Step 2: Mount the bracket

Category I bracket mounting: To access the bracket's five pre-drilled mounting holes, remove the bracket's lid by turning the spring loaded knob on the lid 1/4 turn counterclockwise and pulling. The lid will lift away from the top of the base and disengage at the bottom of the base. The lid is tethered to the base to help prevent loss. (If this tether is somehow broken off, please have it replaced to prevent the inadvertent loss of the top cover.) Pull the beacon with steady pressure from the bracket. For normal use situations, four of the five holes can be used to mount the bracket. It is therefore not necessary to remove the HydroFix HRU to mount the bracket using all five holes. For extreme use situations, remove the HydroFix HRU and deploy the ejector spring for access to the fifth mounting hole. Hold the bracket in place to mark the screw holes or use the provided mounting template. The use of #10 pan head stainless steel fasteners [minimum of 1/2" (1.27 cm) long] and #10 1/2" (1.27 cm) washers is recommended.

NOTE: FASTENERS AND WASHERS NOT INCLUDED.



Category II bracket mounting: The mounting location must be easily accessible for manual deployment and performance of required maintenance and functionality tests. Typical locations include near the helm station or just inside the companionway door.

To use the bracket's three pre-drilled screw holes, first remove the beacon from the bracket by pressing the release and pulling the beacon bottom forward (see illustration below). The beacon will slide down and out of the bracket. Hold the bracket in place to mark the screw holes or use the provided mounting template. The use of #8 pan head stainless steel fasteners and #10 3/8" (0.95 cm) washers is recommended. Be sure to confirm that fasteners will not contact any wires or plumbing before drilling pilot holes.

NOTE: FASTENERS AND WASHERS NOT INCLUDED.



Step 3: Install The Beacon

To install the beacon in the Category I or Category II bracket, insert the top cap first at a slight angle and then press the bottom casing until the beacon clicks and is firmly supported. The beacon can only be mounted inside the bracket with the ON/Test buttons facing out (see Category I bracket illustration on page 11 and Category II bracket illustration above).

MAINTAINING THE BEACON

To function properly, your beacon requires regular inspection and maintenance.

1. Routine beacon maintenance

At least every 90 days, inspect the mounting bracket and beacon for deterioration and/or residue buildup. At the same time, check the antenna for tightness and check the battery expiration date. Wipe the beacon and mounting bracket with a damp cloth to remove any residue.

In addition to regular inspections by the owner, ACR recommends the beacon be professionally inspected and evaluated 5 years after the installation date and every 5 years thereafter. This inspection can be performed by any ACR Battery Replacement Center.

2. Battery replacement

The GlobalFix™ V4 has a user replaceable battery. A new battery can be acquired from any ACR dealer worldwide.

Battery replacement is due 10 years from the date of manufacture — unless it is on a vessel with a mandated service interval less than this (e.g., 5 years on SOLAS vessels) or by the expiry date on the beacon, whichever is first.

Note that the beacon may still pass the self-test at the time of battery expiration. Even though the unit is fully functional, the battery must still be replaced. The battery must also be replaced if the beacon has been activated for any use, other than the self-test.

NOTE: Certain vessels are subject to Shore Based Maintenance. In these instances, the battery must be replaced by a certified Shore Based Maintenance facility.



WARNING: Battery contains lithium.

To avoid possible fire, explosion, leakage or burn hazard, do not open, recharge, disassemble or heat beacon above +158°F (+70°C) or incinerate. If this beacon is kept above room temperature for prolonged periods of time, the battery capacity will be degraded. In tropical regions this could reduce the battery life by a year. In hot desert regions, this could be two years. This will require that the battery be replaced at a date earlier than stated on the beacon. The quoted operating life of the beacon (48 hours) may also be reduced. Note that storage in lower temperatures (below ambient) does not extend battery life longer than the replacement date on the unit. Dispose of a used battery in conjunction with local Waste Disposal Authorities.

3. Servicing the Category I Bracket and the HydroFix HRU

Brackets are a key part of the overall beacon system. They hold the beacon ready for deployment, and a strategically placed magnet helps prevent false alarms.

Category I brackets require replacement of the HydroFix HRU every two years. To open the bracket, turn the spring-loaded knob counterclockwise 1/4 of a turn and pull. The lid will lift away from the top of the base and disengage from the detent at the bottom of the base. The lid is tethered to the base to help prevent loss.

To remove the expired HydroFix HRU

When opening the lid of the Category 1 bracket, note that the beacon is installed with the buttons facing outward. Pull the beacon with steady pressure from the bracket. Do not get beacon wet while it is out of the bracket. The HydroFix HRU has a keying feature that locks it to the bracket. If you view the HydroFix HRU rod as the center of a clock, a properly installed HydroFix HRU will rest at the 7 o'clock position, as shown in the left-hand picture below.

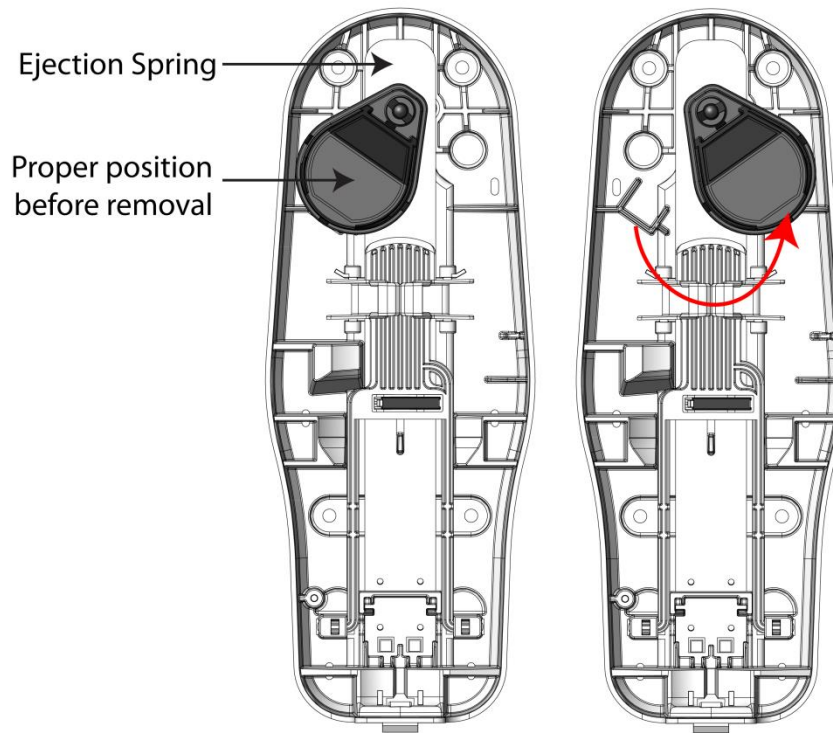


Figure 1 HydroFix HRU Removal

⚠ WARNING: The HydroFix HRU holds down an ejection spring. The spring must be firmly held in place during the removal and installation of the HydroFix HRU to prevent injury.

Depress the top of the ejection spring. This will relieve pressure on the HydroFix HRU and allow it to be rotated counterclockwise to the 5 o'clock position as shown in the right-hand picture above. The HydroFix HRU is now free to be removed. Slowly relieve pressure from the ejection spring and allow it to deploy.

⚠ WARNING: Discard the expired HydroFix HRU. Failure to replace the entire assembly may cause the bracket to malfunction.

⚠ WARNING: Be sure to use only ACR's HydroFix HRU (ACR P/N 9490.1) in the Category I bracket. Use of unauthorized replacement parts will void your warranty and may cause the bracket to malfunction.

Check the date of manufacture on the new HydroFix HRU. Follow the instructions that accompany the HydroFix HRU for marking the next expiry date and for selecting the correct rod adapter.

To install the new HydroFix HRU

Apply pressure to the ejection spring and hold it flat against the bracket. With your free hand place the new HydroFix HRU into the key way in the 5 o'clock position and rotate clockwise to the 7 o'clock position. Slowly remove pressure from the ejection spring. The HydroFix HRU should now be held in the 7 o'clock position with the pressure on the ejection spring.

Hydrostatic Release Expiration: Only applicable to Category I beacons. The HydroFix HRU has an expiration date of 2 years from the date of installation or 4 years from the date of manufacture, whichever comes first. When installing the new HydroFix HRU, it is the beacon owner's responsibility to permanently mark the new expiration date on the HydroFix HRU date calendar as seen below.


Patent No. 7,435,148

Model: HRU-100			Part No. 9490.1		
Expiry Date / Gebrauchszeit / Validdate / Validita					
2016		2017		2018	
JAN 1	FEB 2	MAR 3	APR 4	MAY 5	JUN 6
JUL 7	AUG 8	SEP 9	OCT 10	NOV 11	DEC 12

DISPOSE AFTER TWO YEARS FROM INSTALL DATE
OR 4 YEARS FROM DATE MANUFACTURED

Date of Installation Example:
Date of installation of New HRU or First
Installation of EPIRB including new HRU:
August 1, 2015.
This unit will need to be replaced in
August of 2017. Mark off "AUG 8" and
"2017" on the HRU date calendar

Reinstall the beacon with buttons facing out. The beacon should fit snugly in the bracket. Reinstall the lid by seating the bottom of the lid to the detent on the base. Close the upper portion of the lid so the HydroFix HRU rod lines up with the spring loaded knob. With gentle pressure, hold the lid while you turn the lock counterclockwise until it stops, then clockwise until it stops. This should capture the HydroFix HRU and snap the lid into a locked position. Confirm that the lid is attached to the bottom of the bracket and the HydroFix HRU.

 **CAUTION:** Do not force the lid closed. If the lid does not close easily, check to see that the beacon is properly installed in the bracket and the HydroFix HRU is properly seated.

4. Self-Testing the beacon

The beacon may be self-tested as is warranted, once a month or up to a recommended maximum of 120 times in the 10-year life of the battery. The self-test can be performed inside or outside a building or vessel.

The self-test is initiated by pressing the self-test button for one (1) second until a brief green LED flashes and then releasing the button. Do not press the button for longer than 4 seconds or the extended GPS test will start.

During self-test, a 406 MHz self-test message and 121.5 MHz signal are transmitted from the beacon. The self-test also checks battery capacity, beacon memory, GPS functionality and the circuit board. A long green LED flash and a long beep indicate a successful test. The strobe light will flash at the end of self-test and the self-test will be complete at that point.

Note that if any of the individual tests fail during self-test, there will be a long red LED flash and four (4) beeps.

See following page for light sequencing during the self-test.

NOTE: The "beeps" are a very high-pitched tone that some people may not be able to hear. When performing the self-test, you may count the green LED flashes.

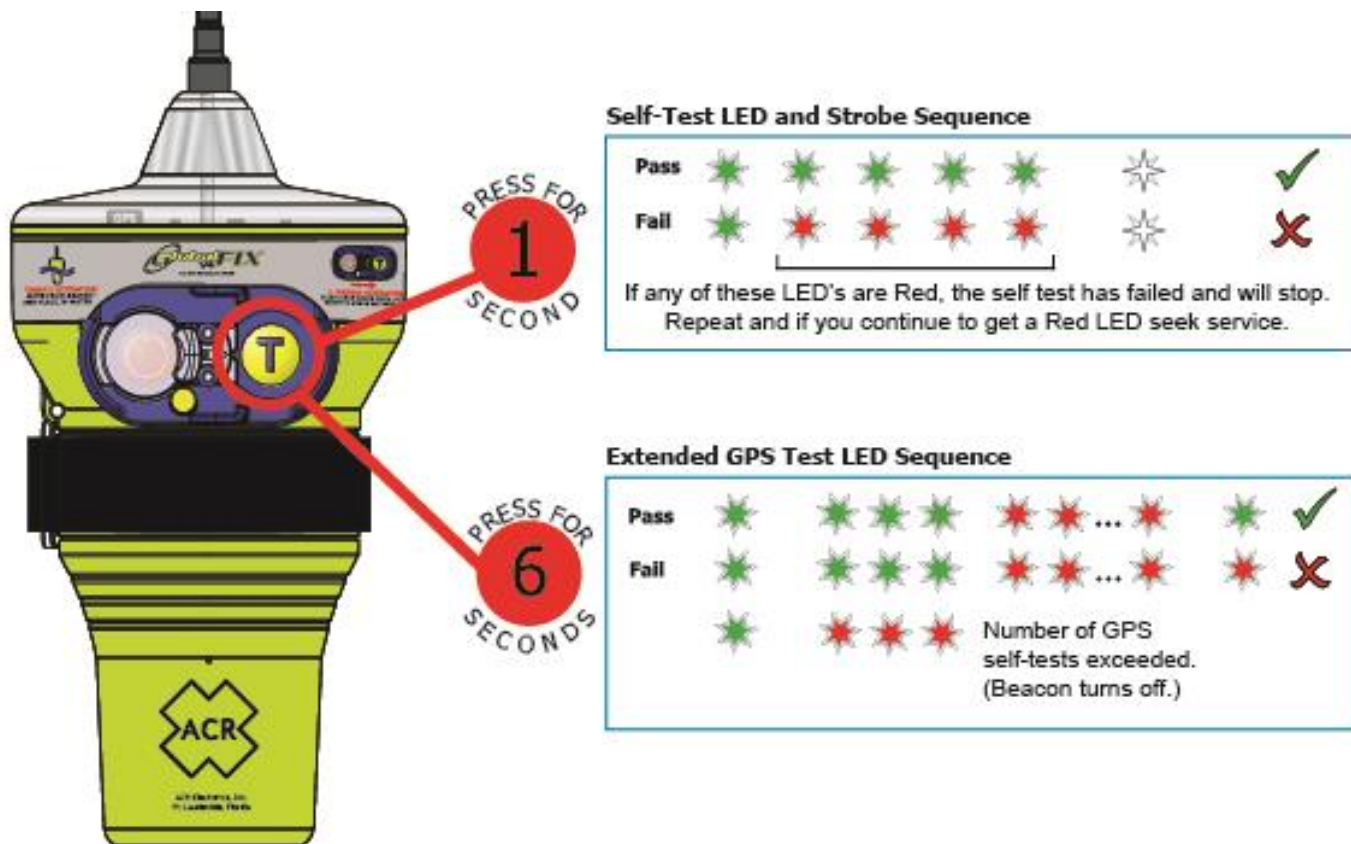
5. Extended GPS test

The beacon may be further tested for GPS functionality once every six weeks up to a maximum of 84 times in the 10 year lifetime of the battery. This test is not necessary at any time in the life of the beacon, but is made available in the event that the beacon owner wishes to verify internal GPS engine viability. To properly perform this test, **the beacon must be outside with a clear view to the sky.**

An extended GPS test is initiated by pressing the self-test button for six (6) seconds. There will be an initial brief green LED flash followed approximately five (5) seconds later by three (3) short green LED flashes and three (3) beeps to indicate that the extended GPS test has started. The self-test button should then be released.

During the extended GPS test, the red LED will blink to indicate that the beacon is searching for a good GPS fix. Upon completion of the test, a 406 MHz Self-test message with the GPS position will be transmitted, and then a long green LED and beep will indicate that the extended GPS test was successful. If the beacon is unsuccessful in acquiring a good GPS fix, a 406 MHz Self-test message with default position data will be transmitted, and there will be a long red LED flash and four (4) beeps.

After the maximum number of extended GPS tests has been reached, the beacon will no longer perform the extended GPS test. There will be a brief short green LED flash followed approximately five (5) seconds later by three (3) short red LED flashes and three (3) beeps to indicate that it is no longer possible to run the extended GPS test.



6. Annual testing for SOLAS vessels, IMO MSC/Circ. 1040

SOLAS regulation IV/15.9 requires annual testing of 406 MHz satellite EPIRBs. These tests can be performed by certified ACR Battery Replacement Centers.

7. Changing ownership or contact information

As the owner of the beacon, it is your responsibility to advise the national authority of any change in the information provided on your registration form. If you are transferring the beacon to a new owner, you are required to provide the national authority with the name and address of the new owner. You can do this by using their online database or by letter, fax or telephone.

The new owner of the beacon is required to provide the national authority with all of the information requested on the registration form.

8. Lost or stolen beacons

If your beacon is lost or stolen, do the following immediately:

Report to your local law enforcement authorities that the EPIRB has been lost or stolen.

- Police department's name
- Police department's phone number
- Police case number

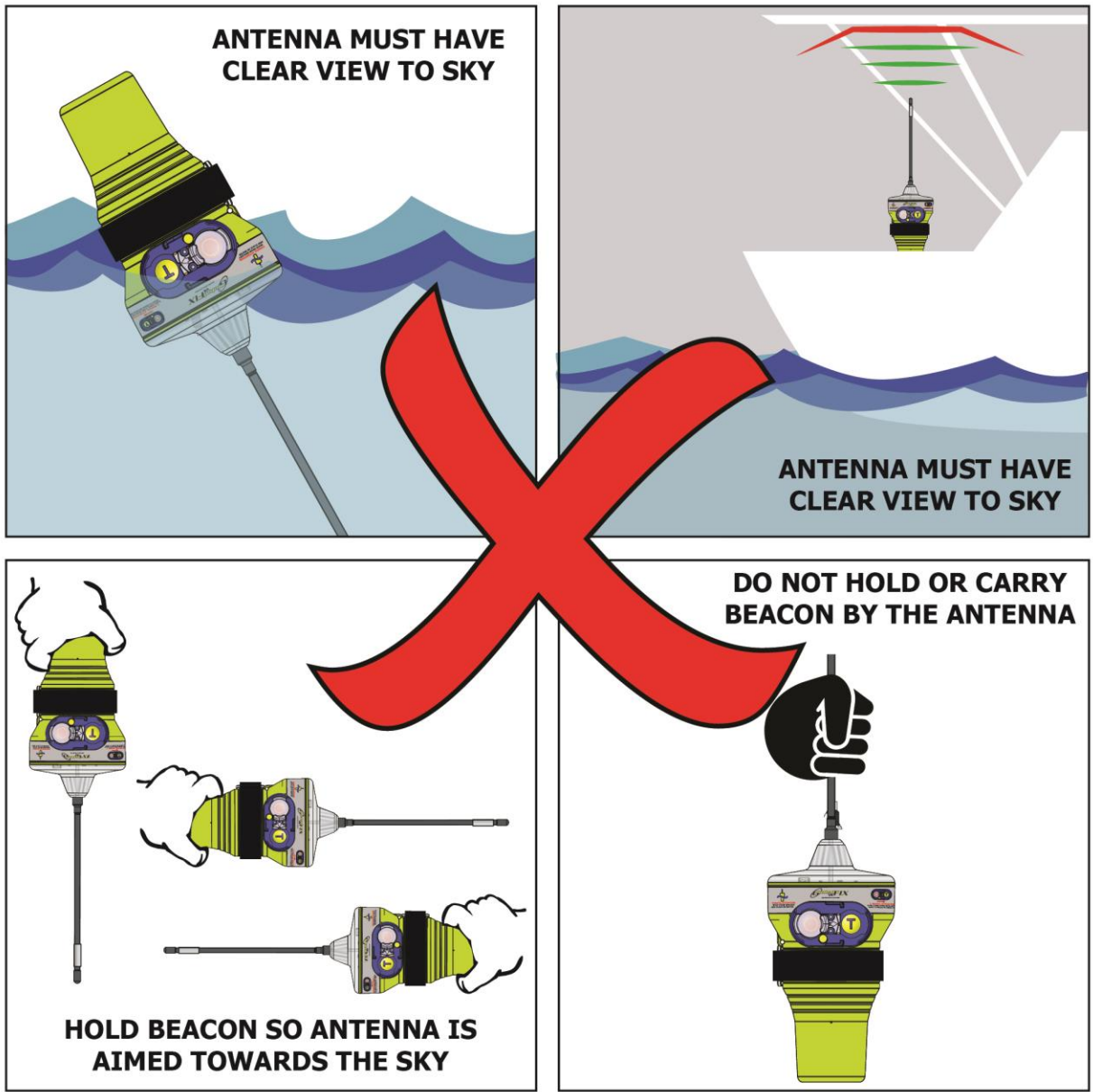
If someone attempts to register an EPIRB that has been reported as stolen, NOAA or your national authority will notify the appropriate police department.

APPENDIX A – TECHNICAL SPECIFICATIONS

GENERAL/ ENVIRONMENTAL	
Beacon size (without antenna)	8.13 in H x 4.28 in W (206 mm H x 109 mm W)
Beacon weight	27 oz (764 g)
Beacon material	High impact UV resistant polymer
Color	ACR-Treuse™ (high visibility yellow)
Waterproof	Tested to 33 ft (10 m) for 5 min
Buoyant	Yes
Deployment	Category I: Automatic hydrostatic release Category II: Manual release
BATTERY	
Operational life	48 hours minimum @-4°F (-20°C) (Class 2)
Battery type and replacement interval	USER REPLACEABLE. LiMnO ₂ 10 years from date of manufacture, or after use in an emergency. Not to exceed battery expiration date.
Operating & Storage temperatures	-4° F to +131° F (-20° C to +55° C) (Class 2) -22° F to +158° F (-30° C to +70° C) (Class 2)
406 MHz TRANSMITTER	
Frequency	406.040 MHz
Power output	5 W +/- 2dB
Digital message format	Standard location protocol (for the USA); The beacon can be reprogrammed at an Authorized Battery Replacement center to other countries' coded formats.
Modulation type	Phase (16K0G1D)
121.5 MHz TRANSMITTER	
Frequency	121.5 MHz
Power output	50 mW +/- 3 dB
Modulation type	AM (3K20A3X)
LED STROBE	

Light color	White
Output power	1 cd (effective candela)
Flash rate	20-30/ min
Range	360° visibility
GENERAL	
Accessories	<ul style="list-style-type: none"> • Category I Mounting bracket, P/N 2832 • Category II Mounting bracket, P/N 2833 • HydroFix™ universal hydrostatic release (HRU) kit, P/N 9490.1
Approvals	<ul style="list-style-type: none"> • FCC, COSPAS-SARSAT, USCG, & MED EC Type Examination (Module B) • Meets GMDSS, RTCM, IEC, and IMO standards
NOTE: For complete information regarding beacon type approvals or declarations of conformity.	

APPENDIX B – BEACON USAGE LIMITATIONS / OPERATIONAL SCENARIOS



IMO SHORE BASED MAINTENANCE STATEMENT

IMO Guidelines on Shore-Based Maintenance (SBM) of EPIRBs.

All new EPIRBs manufactured by ACR Electronics, Inc. shall be tested and approved as required by SOLAS reg.IV/15.9.2 as amended, in accordance with MSC/Circ.1039 "Guidelines for Shore-based maintenance (SBM) of satellite EPIRBs" within 5 years depending on ;

- National Requirements and/or;
- SOLAS requirements for Passenger ships (>12 passengers) and Cargo ships (>300GT) engaged in international voyages or;
- The expiration date on the battery label.

The Satellite EPIRBs affected by the above mentioned text and manufactured by ACR Electronics, Inc. are:

ACR Satellite₂ 406™ RLB-32 (Cat. I & Cat. II)
ACR RapidFix™ 406 RLB-33 (Cat. I & Cat. II)
ACR GlobalFix™ RLB-35 (Cat. I & Cat. II)
ACR Float Free 406 Memory Capsule RLB-35MC (Cat. I)
ACR GlobalFix™ iPRO RLB-36 (Cat. I & Cat. II)
ACR GlobalFix™ PRO RLB-37 (Cat. I & Cat. II)
ACR Satellite₃ 406™ RLB-38 (Cat. I & Cat. II)
ACR GlobalFix™ V4 RLB-41(Cat. I & Cat. II)

Manufacturer Serial Number & Programmed ID:

[View other marine safety made by ACR on our website.](#)