AU9
121.5MHz
High Power
Personal
Locator Beacon

SEA MARSHALL®

OPERATING INSTRUCTIONS

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The Sea Marshall® brand derives its name from David Marshall, the man who invented the concept of the Personal Locator Beacon for commercial use back in the early 1970s. Marine Rescue Technologies Ltd. today retains its founding roots as a thriving familly owned enterprise manufacturing and selling the award winning Sea Marshall® Maritime Survivor Locating Devices into the following markets, world-wide.

Commercial
Commercial Marine and Commercial Fishing; the Sea Marshall® system has been adopted by the Spanish Fishing Fleets as part of legislation requiring all fishing vessels to carry a self managed man overboard system.

Renewable energy
Offshore windfarm operators are using the Sea Marshall® system on a daily basis as part of the HSE requirement for safety when working on offshore windfarms.

Yachting
The Sea Marshall® MOB system is used by a number of the world's superyachts and sport sailors.

Oil & Gas
The ATEX (Intrinsically Safe) version of the Sea Marshall® system is used extensively throughout the Oil & Gas industry worldwide.

Helicopter Transit
We are pleased to announce the launch of the helicopter specific Sea Marshall® AU9-HT high power personal locator beacon for use in passenger transit to offshore installations.
ED-14F environmentally tested (part), CAA.

Aquaculture
We are pleased to say that Marine Harvest are amongst the first of the global fish farm operators to be using the Sea Marshall® unmanned man overboard monitoring system.

Dive
Commercial and Leisure, a growing number of private divers and commercial dive boat operators are using the Sea Marshall® lost diver locating system on a daily basis.

Submariner
The pressure proof (300m) Sea Marshall® submarine PLB is in use with a growing number of the world's navies.

Contents

Declaration of Conformity

Name of Manufacturer/Eu importer	Marine Rescue Technologies ltd. Units 3 & 4, Front Street Court, Middleton On The Wolds, East Yorkshire, YO25 9TZ United Kingdom sos@seamarshall.com www.seamarshall.com
Declares that products:	AU9-HT, AU9-X and AU9 Personnel Locator Beacons

Conforms to the R&TTE Directive 1999/5/EC as attested by conformity with the following harmonized standards:

EN 300 152-2 V1.1.1:
Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime Emergency Position Indicating Radio Beacons (EPIRBs) intended for use on the frequency 121,5 MHz or the frequencies 121,5 MHz and 243 MHz for homing purposes only; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive. (Article 3.2)

EN 300 152-3 V1.1.1:
Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime Emergency Position Indicating Radio Beacons (EPIRBs) intended for use on the frequency 121,5 MHz or the frequencies 121,5 MHz and 243 MHz for homing purposes only; Part 3: Harmonized EN under article 3.3e of the R&TTE Directive. (Article 3.3)

Conform to the Low Voltage Directive 2006/95/EC as attested by conformity with the following harmonized standard:

EN60950-1:2006:
Information technology equipment — Safety — Part 1: General requirements.

Signed	
Name	David Marshall
Position	Chairman
Date	September 2009

FCC ID – YFGAU9

1.0 AU9 OVERVIEW

The Sea Marshall® AU9, Alerting Unit series 9, has been designed to fullfill the requirement of the Marine Industry for a long lasting, high quality, robust, high powered 121.5MHz locator beacon for Man Overboard/Lost Diver Alert & Locate. The AU9 is derived from the well known PLB8 series of Sea Marshall® personal locator beacon, it utilises the same format of operation so as to retain some consistency of user familiarity and function in the field. In all other respects the AU9 unit is a completely new and much more advanced unit. The AU9 is available in two power ouptuts, 100mW and 500mW by special order. (*The 500mW has approximately double the tracking range of the 100mW version).*

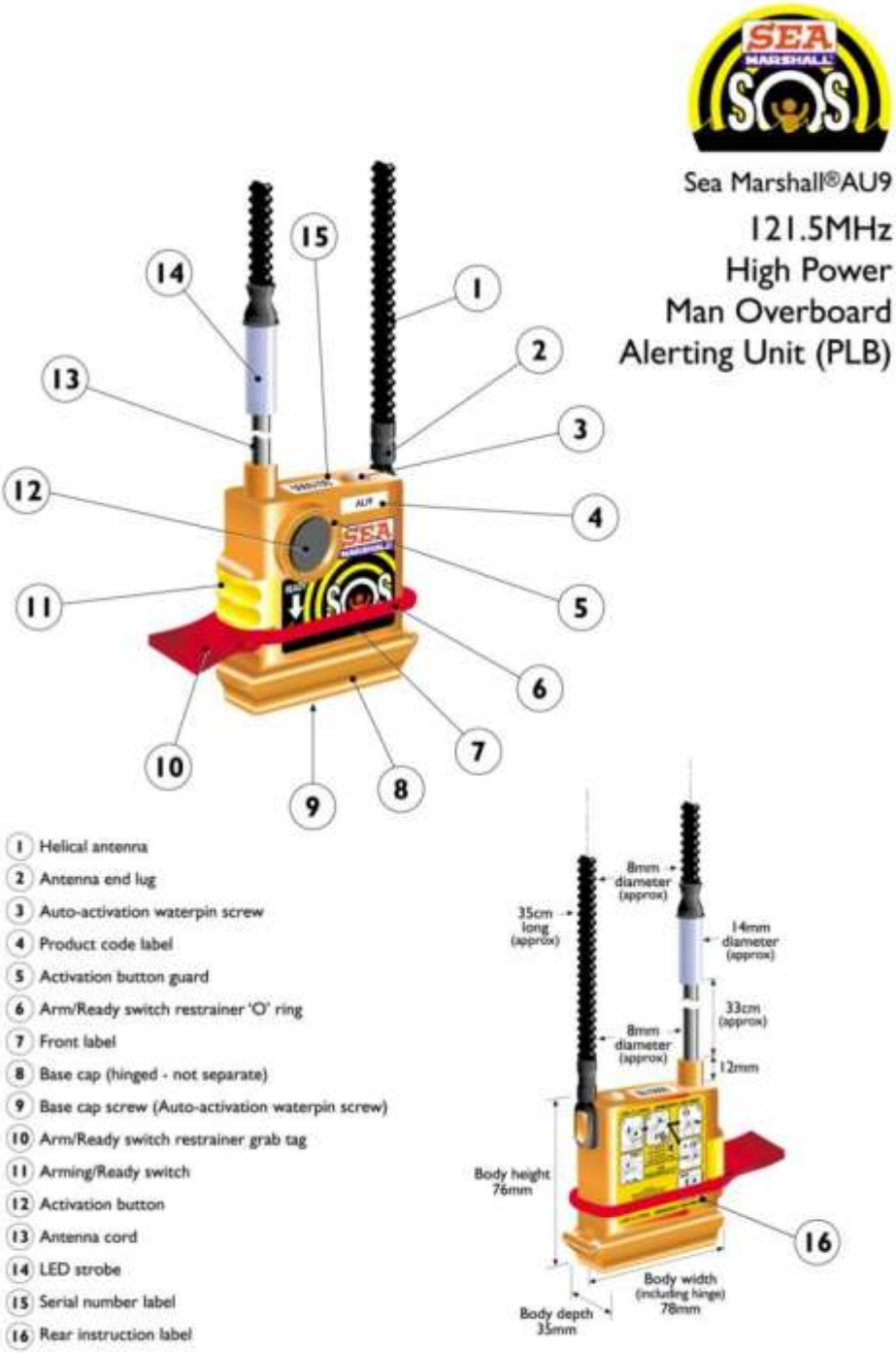


Fig. 1

1.1.1 BACKGROUND

Fig. 2 A (**NOTE – 100mW version of the AU9 has approximately half the tracking range of the 500mW unit)**

Fig. 2 B

NOTE – the tracking ranges listed are taken from tests where the receiver antenna has been correctly installed at the recommended height with the AU9 correctly installed in either an SMB for divers or lifejacket, with antenna clip for normal use. The SMB gave the maximum range listed as achieved during tests, the lifejacket AU9 installation gave the lower end of the ranges listed. Wearing the AU9 around the neck will reduce the tracking/alerting ranges to below the ranges listed here in.

1.1.2 AU9 SPECIFICATIONS

- Frequency: 121.5 MHz
- Bandwidth 25KHz (in alignmnet with ETSI)
- Battery: 2 × 3V lithium CR AA (K) pack, user replaceable.
- Battery 10 year full life (replace after 5 years or after use, which ever is sooner)
- Endurance: Average 100mW = 42hours, 500mW = 24 hours
  (60 months 'approx' on standby/armed)
- Dimensions : 90mm high × 70mm wide(body) 80mm hinge/base cap × 35mm deep
- Modulation: Continuous swept tone A3X
- Output power: 100mW or 500mmW
- Temp range (storage): -55°C to + 70°C;
- Approvals – CE
- Test Units: 121.65MHz and 121.775MHz
- Activation - Manual & Automatic with manual override (salt and fresh water)

NOTE: some units have a fail-safe over ride function installed to allow the unit to auto-activate in the vent the unit has been switched off.

- Diver pressure cap conversion kit available = pressure proof to 100m depth
- Antenna: 1m cable with flexible helical spring section, adaptable for lifejacket fitting
- Strobe: inbuilt LED strobe on antenna flashes 'SOS'.
- ILS: internal loudspeaker 80dB
- Weigth: 250gms (approx)
- Waterproofing – IP-68
- Environmental – the AU9 has passed the following environmental tests from Eurocae ED-14F
  - Temperature & altitude
  - Temperature variation
  - Humidity
  - Shock & crash safety
  - Explosive atmosphere
  - Waterproofness
  - Sand & Dust
  - Salt Fog
  - Magnetic Effect
  - RF – Susceptibility
  - Icing
  - ESD

1.2.0 OPERATING THE AU9 FOR MAN OVERBOARD SAFETY COVER

1.2.1 The following sections cover how to use your AU9 unit on a day to day basis for Man Overboard safety cover. Your AU9 can be used as part of a Sea Marshall® self managed Man Overboard Alert & Locate system known as a Maritime Survivor Locating Device; utilising one of the two Sea Marshall® Base Unit receiver options listed below:

1. **<u>'CREWGUARD' GPS PLOT MOB ALARM</u>** – MOB monitor/alarm which automatically plots the GPS position of the vessel at the time the person fell overboard. The person in the water can be tracked on the international SAR homing frequency of 121.5MHz by Coast Guard SAR. A low cost safety solution providing essential cover for your crew/passengers.

Fig. 3

Fig. 4

2. **SARfinder® GPS PLOT MOB ALARM AND LOCATE HOMING UNIT** – MOB monitor/alarm/homing unit which automatically plots the postion of the vessel at the time the person fell overboard, the SARfinder® also shows the direction of the 'SOS' signal and the approximate range of the target on it's easy to read compass style display.

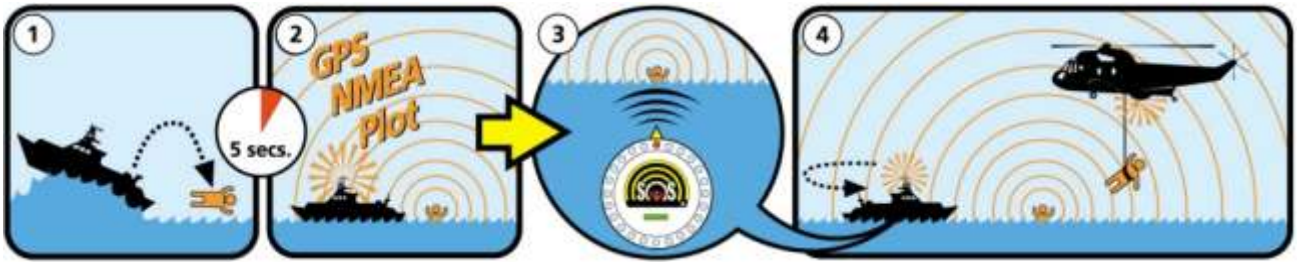


Fig. 5

Fig. 6

1.2.2 ARMING THE AU9 – making the unit ready for both manual and auto-activation. A quick reminder label is attached to the rear of your AU9 unit.

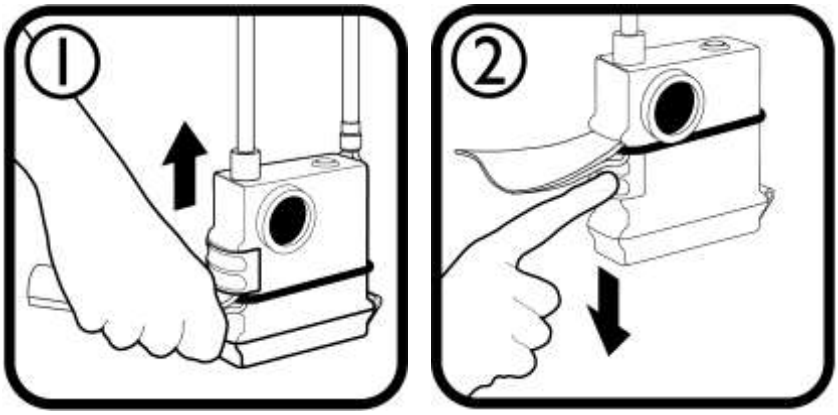


Fig. 7

Slide the side arming switch DOWN (no. 11, refer to Fig 1. on page 5). This is done by lifting the rubber restrainer 'O' ring (no. 6) up and over the side switch, manually pushing the side switch (no. 11) down until it positively clicks and then letting the 'O' ring sit back in the gap above the side switch. The unit will 'BEEP' 3 times to let you know it has been armed. THE UNIT IS NOW ARMED and the green LED will flash every 3 seconds (continuously) to show the unit is armed and the battery is engaged; it can now be activated for full power transmission by one of two methods:

1. **Manually by pressing the round rubber activation button on the front (12 on fig.1)**
2. **Automatically after 5 seconds of constant immersion in water, salt or fresh; water sensor pins 3 & 9 on fig.1.**

NOTE - For units fitted with 40 second override function the unit can also be automatically activated after 40 seconds of constant immersion in water, salt or fresh; water sensor pins 3 & 9 on fig.1.

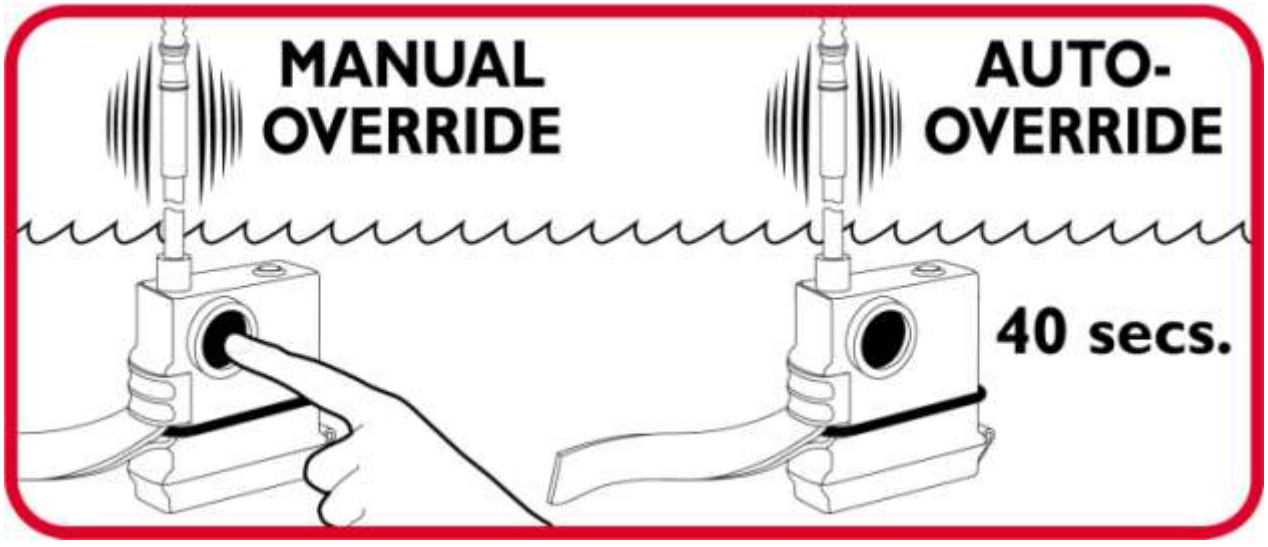


Fig. 8

1.3.0 HOW TO ACTIVATE THE AU9 WHEN IT IS ARMED-READY

To start full power transmission the following operations have to take place:

1.3.1 When the unit is ARMED the user firmly presses the round rubber button on the front of the unit (no 10). The unit will now transmit continuously until switched off by moving the side Arming Switch (no. 11) UP until it positively clicks.

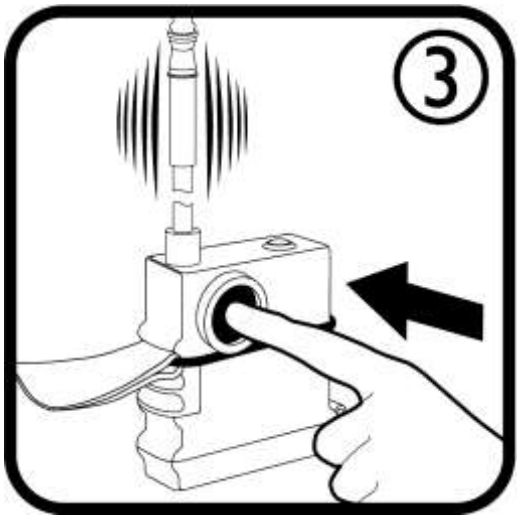


Fig. 9

1.3.2 Alternatively for automatic activation the user enters the water, after 5 seconds of continuous immersion the unit will self activate and transmit continuously until switched off by moving the side Arming Switch (no. 11) UP until it clicks, the unit will 'BEEP' and stop transmitting after a few seconds.

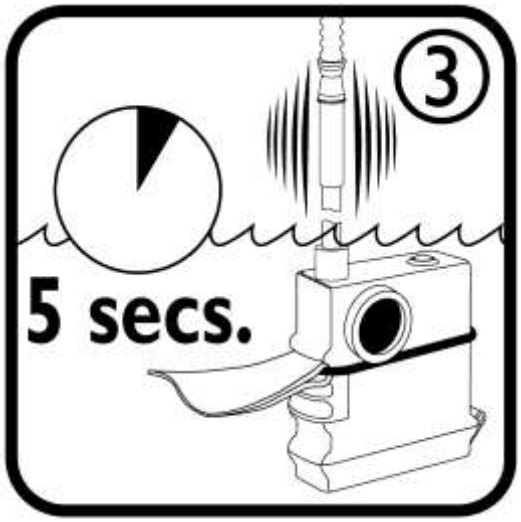


Fig. 10

NOTE – The unit has two waterpin sensors, (no. 3 & 9), both these sensors have to be continuously immersed for a period of not less than 5 seconds to allow the unit to wake up and auto-activate, this prevents inadvertent activation by spray, rain, splash.

1.3.3 What happens when the unit is transmitting on full power? The unit will make a BEEPING sound and the antenna LED section will flash **GREEN**, followed by flashing **RED** LEDs in an SOS pattern this will continuously cycle until the unit is switched off.

1.4.0 SWITCHING THE AU9 OFF – DISENGAGING THE BATTERY

Fig. 11

1.4.1 Lift the rubber 'O' ring (no. 6) out and down, slide the side switch (no. 11) UP until it clicks. The unit will stop transmitting within a few seconds, the unit will 'BEEP' once to indicate it has been switched OFF.

1.4.2 SWITCHING THE UNIT OFF FROM AUTOMATIC OVER RIDE ACTIVATION - The unit will continue to transmitt on full power until manually switched OFF by moving the side ARMING switch DOWN & then immedaitely back UP until it positively clicks. **Applies to units fitted with 40 second override function only, the instruction label on the rear of your unit will indicate if your unit has this function installed or not**

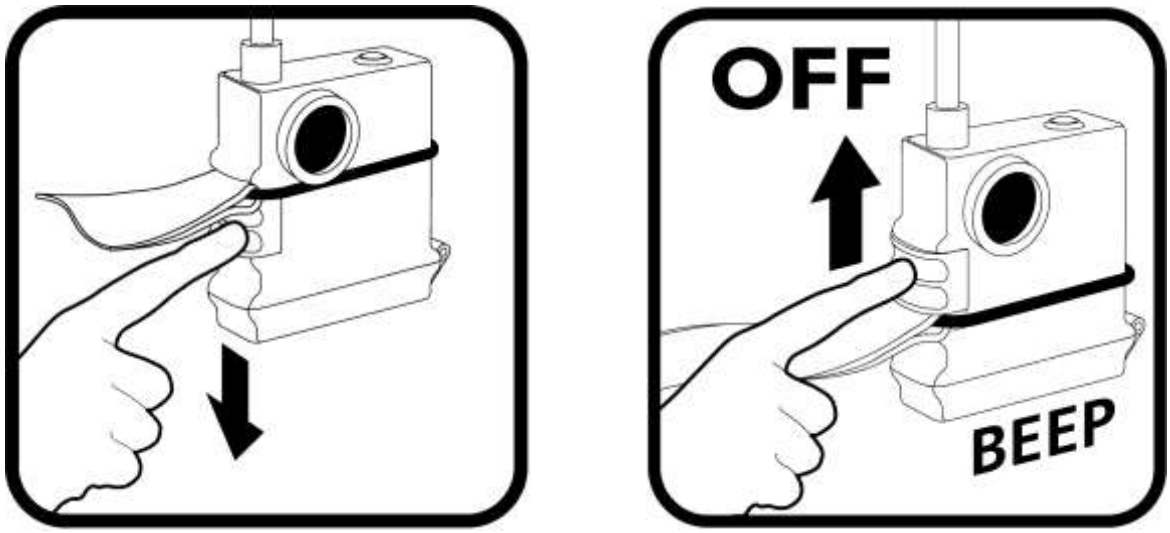


Fig. 12

1.5.0 TESTING THE AU9 – TRANSMISSION & BATTERY

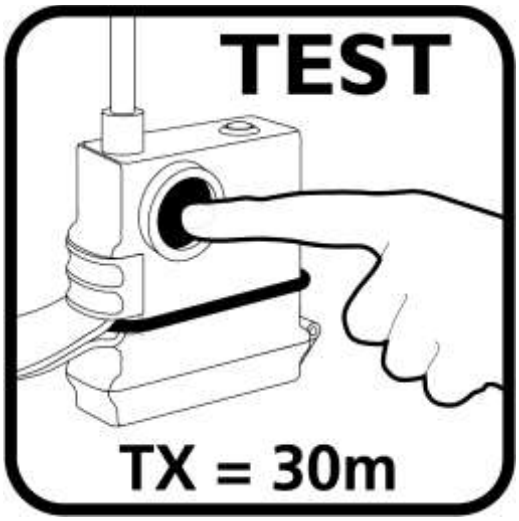


Fig. 13

1.5.1 Checking the battery

The unit can be tested to check the battery status and also to check correct signal transmission, this is achieved as follows:

Switch the unit OFF by sliding the side arming switch UP, the unit will 'BLEEP' once to indicate it is switched OFF. With the unit switched 'OFF' the unit can be tested by pressing and holding down the round rubber activation button on the front, the LEDs on the antenna will flash GREEN to indicate the battery is OK, RED if the battery needs replacing and RED/GREEN if the battery is starting to run low. At the same time the unit will transmit a low power signal on 121.5MHz which can be checked on a Sea Marshall® Crewguard MKII receiver. NOTE - this low power signal will radiate to approx 30m around you (tx = 30m on the label).

1.5.2 Low battery indicator

As well as the above manual check the unit has an automated battery status indicator. In the idle state, when the unit is not transmitting, the unit will automatically indicate it has a low powered battery through the medium of a short infrequent 'BEEP' (nominally every 15 seconds), also a flashing RED led. The battery should be replaced immediately. Manually check your batteries before and after every use 1.5.3

1.5.3 Battery change process

A complete service/battery change pack is available from your local stockist.

Battery types:

1. AU9, '100mW' = CR AA lithium, separate cells. NOTE – these are special batteries with reverse terminals, check you have the terminals correctly aligned when fitting. The manufacturer cannot be held responsible for damage caused by incorrect fitting of battery.

2. AU9, '500mW' = CR AA Manganese dioxide lithium, battery pack with connector fitted.

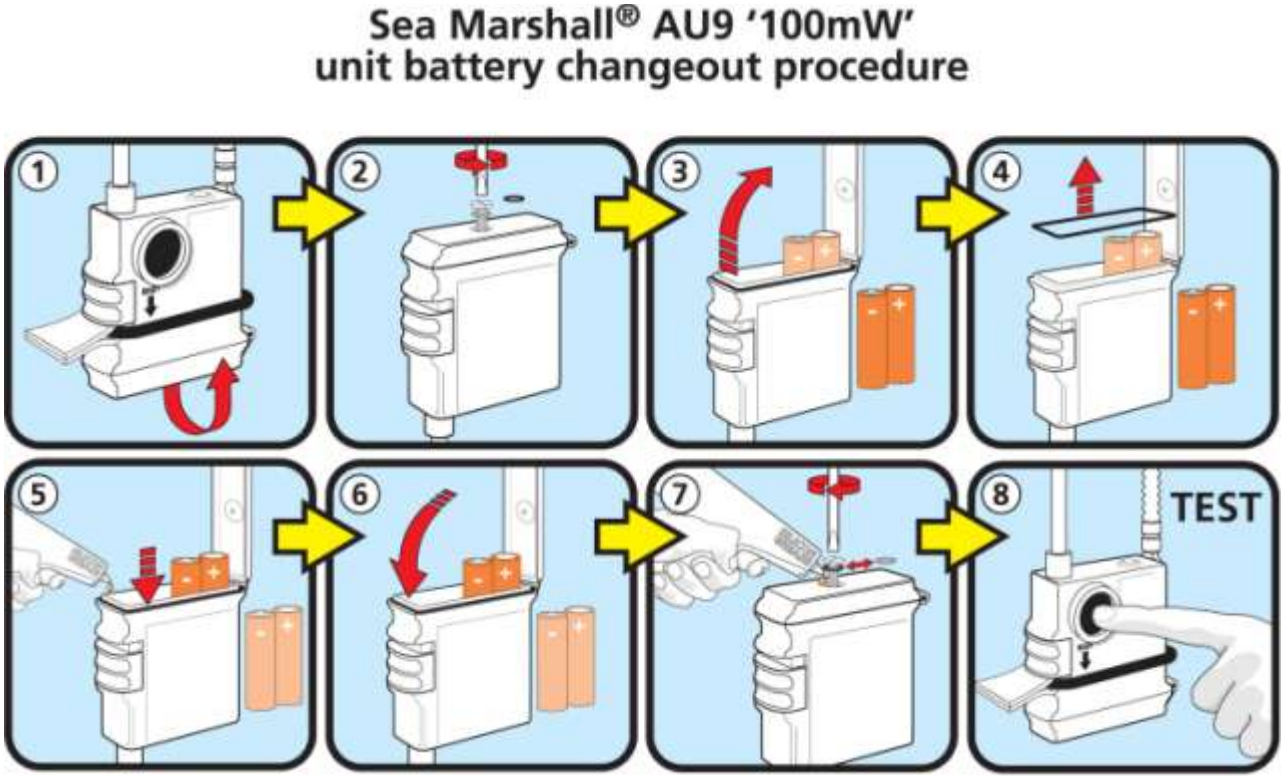


Fig. 14 A

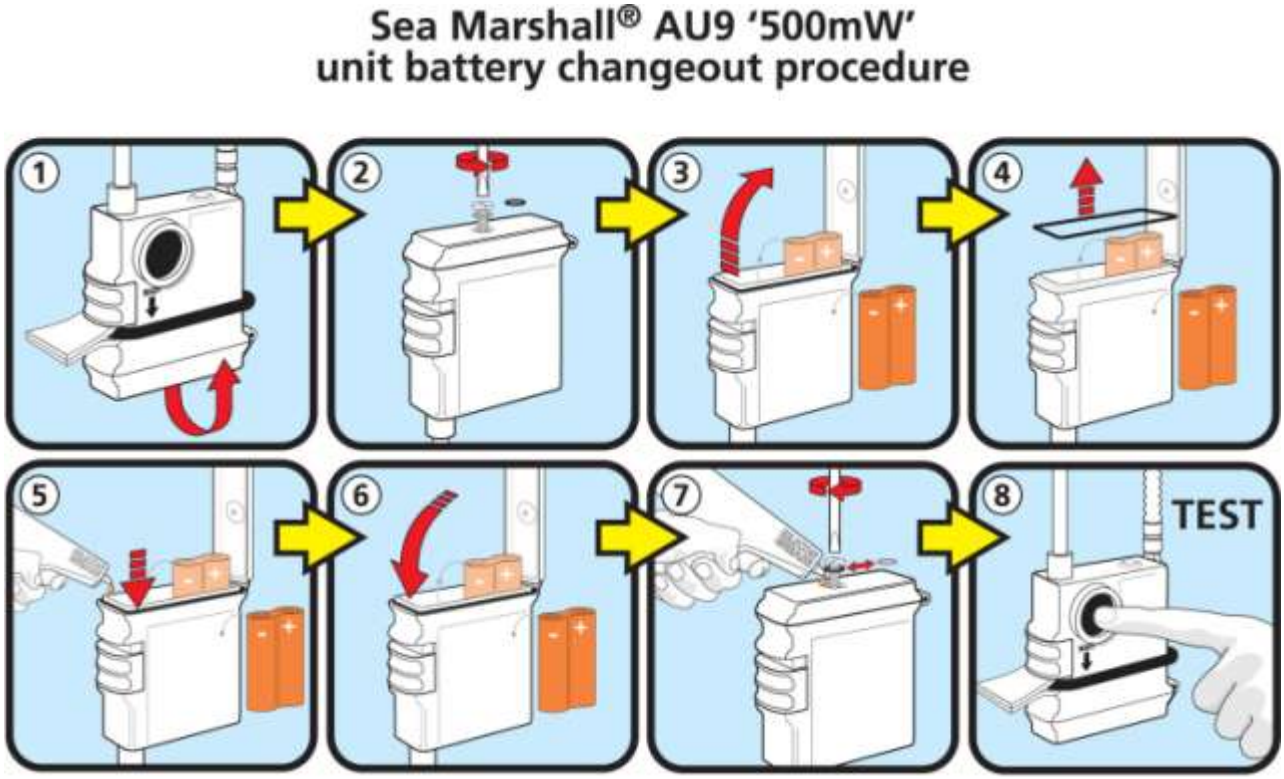


Fig. 14 B

Both battery types are available from the manufacturer or from your local stockist.

1. **At every battery change, replace the base cap 'O' ring seal and screw rubber gasket seal.**
2. **Apply a film of silicon grease to the base cap 'O' ring seal and the base cap screw recess and seal, every time the cap is opened up or the screw undone. Check the grease regularly.**
3. **Test your unit straight after changing the battery, or if the base cap screw has been undone or removed.**
4. **For 500mW versions only, use the sealed battery pack with connector cable.**

1.6.0 BASE CAP SCREW INSERTED INDICATOR

The unit is programmed with a 'BASE CAP SCREW NOT INSERTED' indicator which through a series of continuous 'BEEPS' shows:

1.6.1 The base cap has been closed (battery connection made) but the screw has not been inserted. The bleeping can be cancelled by pressing the round manual activation button firmly once, no. 12 , Fig. 1 on page 5.

NOTE: ensure the base cap is fully closed, the screw is fully tightened and the base cap is sealed with silicone grease before the unit is put into service.

1.7.0 WEARING THE AU9

The Sea Marshall® AU9 unit can be worn in a number of different ways, some of which will increase the tracking range by putting the antenna in a more suitable position for maximum signal propagation. Always ensure the body of the unit will be under the waterline on immersion to allow the auto-activation function to activate. Also the ground plane provided by the water serves to boost the signal giving a greater tracking range. The AU9 can be fitted to any 150 and 275N lifejacket. MRT offer a range of jackets with a pre-made internal PLB pockets and antenna loops ask your re-seller for details or look at our product catalogue for further details. The AU9 can also be fitted into an existing lifejacket by using a neoprene PLB pouch (Product Code – 07-006-S) which is designed to fit and hold the body of the AU9 onto the waistbelt of a lifejacket, the antenna is then fed up into the lifejacket cover and up onto the bladder as shown over the next few pages.

1.7.1 Fig. 13 is an overview of how the AU9 PLB can be worn, the larger the tick = greater the tracking range/'SOS' signal transmission

The manufacturer recomends fitting the AU9 to lifejacket with the antenna clip in place for the following reasons:

1. ENSURES YOUR ALERTING UNIT/PLB IS ALWAYS WITH YOU
2. PROTECTS YOUR PLB DURING DAY TO DAY USE
3. INCREASES TRACKING RANGE OF AU9, MAKING YOU MORE 'VISIBLE'

Wearing a lifejacket is a very good thing…but if they can't quickly locate you …what's the point?

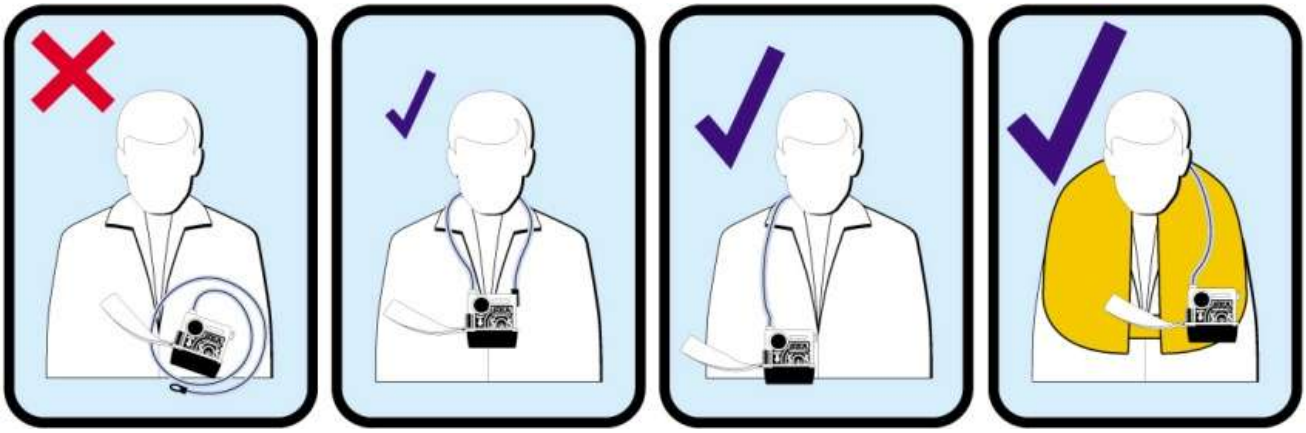


Fig. 15

NOTE – the tracking alarm activation range of the sytem is reduced when the transmitter is worn around the neck due to absorption of signal by the body and the reduced height of the antenna above the water line.

NOTE – the tracking ranges listed in this booklet are taken from tests where the receiver antenna has been correctly installed at the recommended height with the AU9 correctly installed in either an SMB for divers or lifejacket, with antenna clip for normal use. The SMB gave the maximum range listed as achieved during tests, the lifejacket AU9 installation gave the lower end of the ranges listed. Wearing the AU9 around the neck will reduce the tracking/alerting ranges to below the ranges listed here in.

The following pages show how the AU9 can be worn or fitted into a lifejacket.

1.7.2 AU9 worn around the neck – the unit can be worn underneath a jacket (ensure water can freely reach the body to allow automatic activation). NOTE – the tracking alarm activation range of the sytem is reduced when the transmitter is worn around the neck due to absorption of signal by the body and the reduced height of the antenna above the water line.

Fig. 16

1.7.3 AU9 unit fitted into a lifejacket with service window; Lifejacket model shown – Mullion Mariner ‘SOS’ 275N SOLAS twin chamber self righting.

Fig. 17

Fig. 18

Fig. 19

1.7.4 AU9 with'Antenna Clip fitted'. By fitting the antenna clip the 'SOS' signal of the AU9 is broadcast over a greater distance making it easier for SAR crews to quickly locate you.

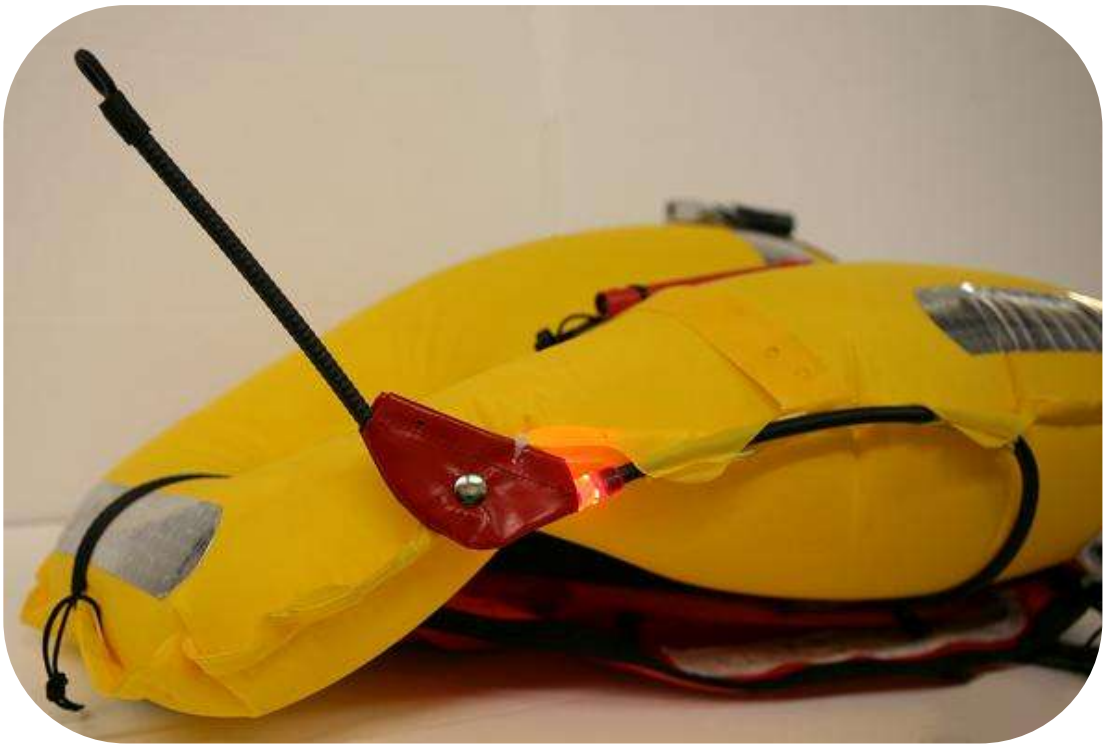


Fig. 20

Fig. 21

1.7.5 AU9 Antenna Lifejacket Clip Fitting Process

1. Thread the AU9 antenna through the guide loops on the jacket. (If you are using a jacket which does not have pre-made guide loops as shown in the photos, use instead medium sized cable ties affixed at two points on the side of the bladder. You will need to very carefully make two small holes in the spare fabric between the two halves of the bladder, ideally using a fabric hole punch, refer to Pages 20-23. To fit the clip follow stages 1, 2, 3 & 4 on this and the following page.)

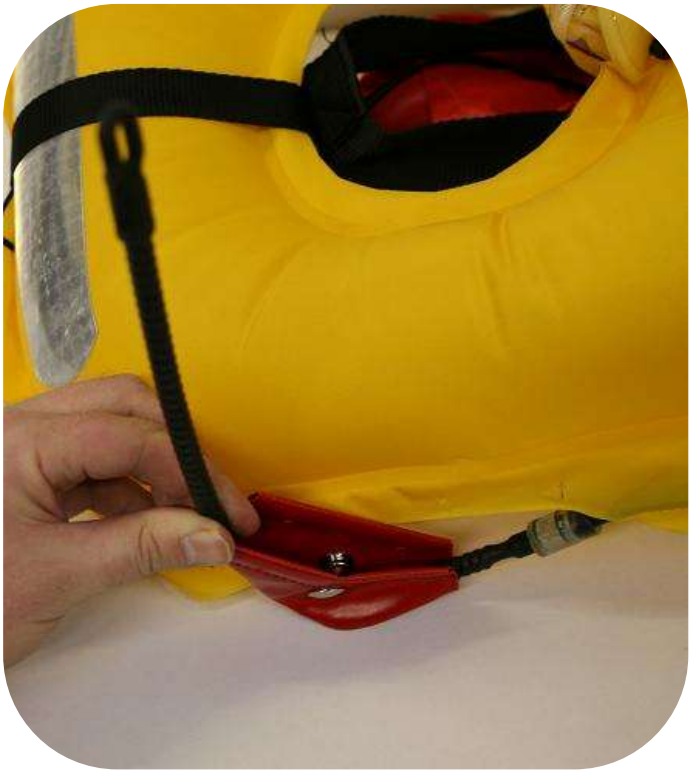


Fig. 22

2. Bend the antenna near the point where it connects to the LED Strobe, put the clip around the antenna as shown.

Fig. 23

3. Press the clip firmly together so it ‘snaps’ shut and stays closed on its own.

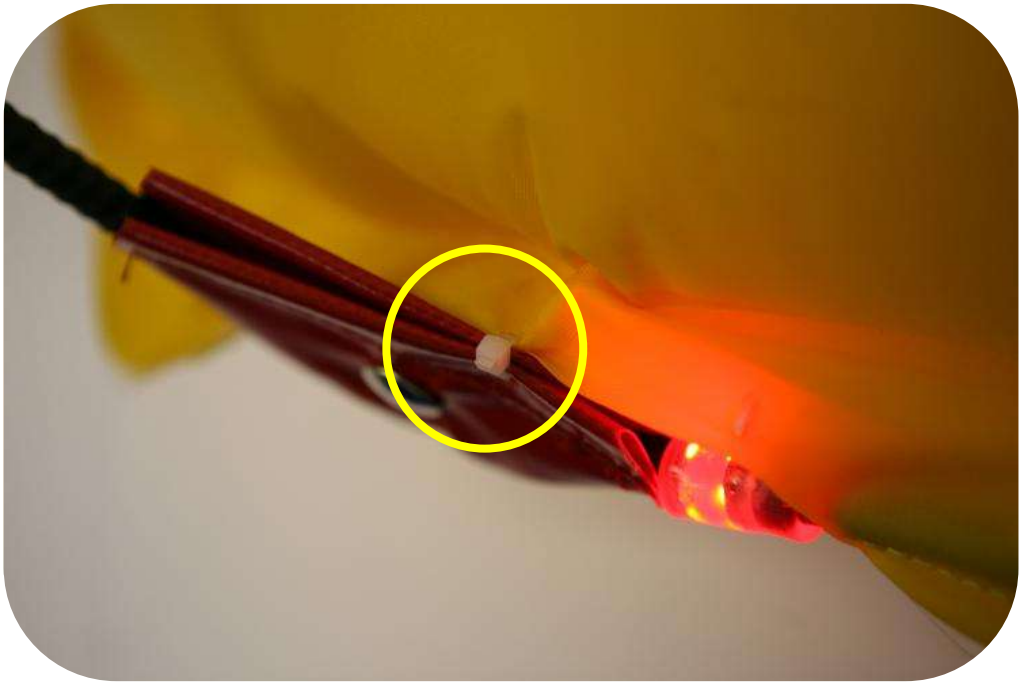


Fig. 24

4. **IMPORTANT -** Use the small cable tie provided to secure the clip to the spare material on the side of the Lifejacket Stole. To do this you will need to make a very small hole in the spare material running along the edge of the bladder and feed the cable/zip tie through this and through the hole on the clip as shown. THIS ENSURES THE ANTENNA REMAINS VERTICAL WHEN THE LIFEJACKET IS INFLATED

1.7.5 Fitting the AU9 to a lifejacket without using the antenna clip

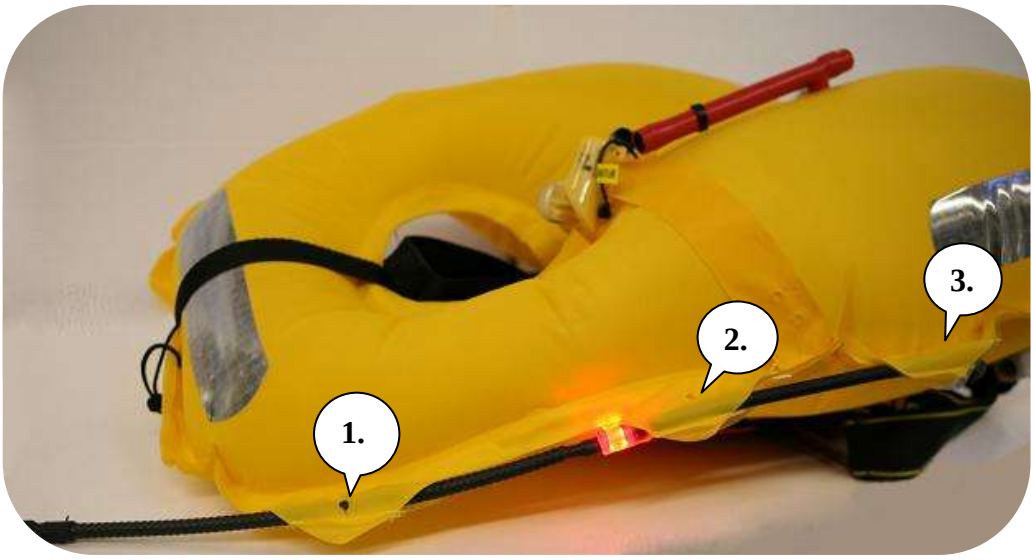


Fig. 25

The AU9 can be fitted to a lifejacket without using the antenna clip, the tracking range of the unit will be reduced as compared to fitting the antenna clip putting the antenna into a vertical position. When the AU9 is fitted in this manner the antenna will remain horizontal as shown in fig.23). Simply feed the antenna through the 3 side loops as shown in Fig. 23.

1.7.6 How can I fit my AU9 into my own lifejacket which doesn't have an internal PLB pocket or pre-made antenna guide loops?

If your lifejacket doesn't have ready made guide loops for holding the antenna, you can still fit your AU9 unit by making use of the neoprene PLB pouch; available from your local stockist.

Fig. 26 (AU9 model shown is a GREEN test frequency unit)

1.7.7 To fit the AU9 into an existing lifejacket you will need the following:

1. 3 of small to medium sized cable ties
2. Neoprene pouch (product code –07-006-S) available through your local Sea Marshall® stockist.

1.7.8 Fitting the AU9 into an existing lifejacket

Fig. 27

Fig. 28

1. Fit the Neoprene pouch onto the wiastband, you can add a stitch to hold the pouch in place if required. Create a hole in the back of your lifejacekt to feed the AU9 antenna through. This can be done either with a soldering iron, or by cutting a **+** shape into the fabric.

Fig. 29

2. Open the cover of your jacket and mark 4 points on the spare material between the bladder. Using a fabric hole cutter make 4 holes at these points; not too close to the edge to avoid a tear. Using Cable/Zip ties affix the antenna in place as shown. To achieve optimum tracking ranges use the antenna clip shown in Fig. 20, 21 and 22. For fitting the antenna clip refer to sections 1.7.4 and 1.7.5.

Fig. 30

Fig. 31

3. Fold the bladder and antenna into the cover, taking care not to crease the antenna, and close the cover fully. IMPORTANT - ARM your PLB ready for MOB use when inside the jacket. Check the battery status regularly.

1.8.0 ANTI-TAMPER BLANKING CAP

(Your cap may differ in appearance to the one shown)

The dive conversion pressure cap doubles as an anti-tamper cap and can be used to seal off the manual activation button in order to make the unit manual activation only. This can be useful to reduce the risk of acccidental 'manual' activation in areas where the AU9 plb is being issued to an inexperienced crew who are 'likely' to press the manual activation button or there is a risk of the button being pressed by leaning on a sharp object.

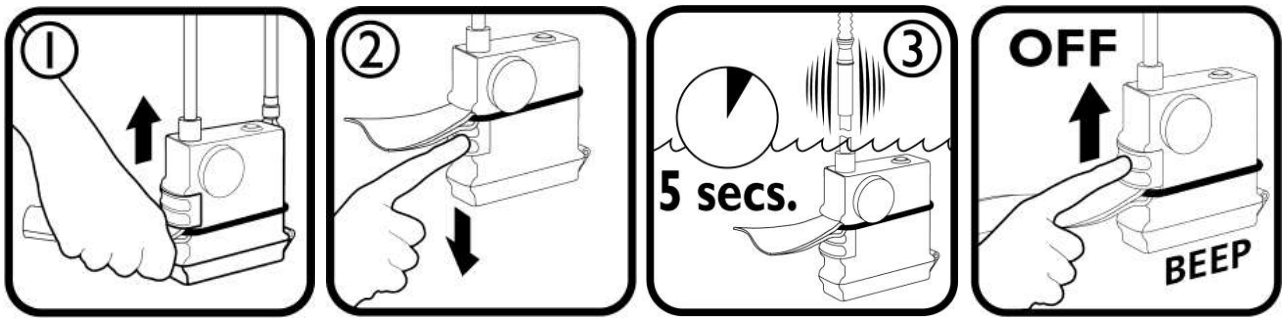


Fig.32

1.9.0 MAINTENANCE

Check your unit regularly for signs of wear and tear, state of waterproof seals, battery status etc. Do not use if any of these shows signs of wear and tear. If you damage your unit return it to the manufacturer or your local supplier. Check the battery status before and after use, keep your unit clean and stored safely and dry at all times. Wash with pure water and use a mild hand cleaner if required, dry thoroughly after use. This unit could save your life treat it with respect at all times.

2.0 AU9 'DIVE Pressure Proofing Kit – '*USING YOUR AU9 UNIT FOR DIVING*'

Fig. 33

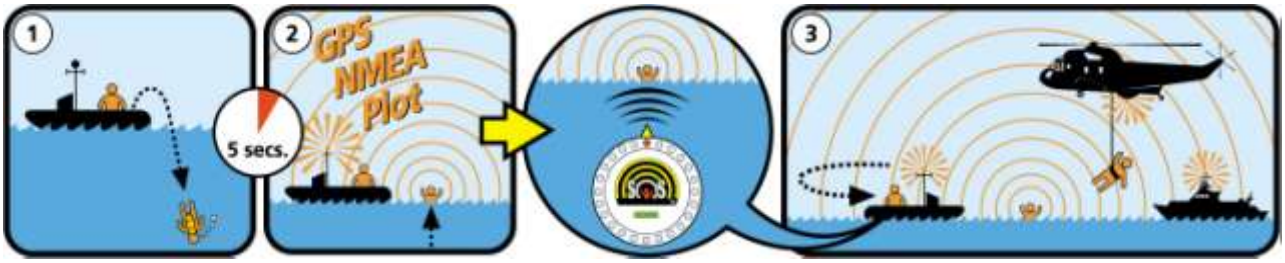


Fig. 34

2.1.0 The 'AU9 DIVE Pressure Proofing kit' can be purchased from your local stockist to convert your AU9 MOB personal locator beacon into a pressure proof unit (70m max depth rated) which can be used for both MOB alerting and for diving. (NOTE AU9 units with 40 second override function cannot be used for diving). The diver conversion kit consists of the following items & can be purcahsed from your local stockist. For battery replacement procedure, refer to page 11.

2.1.1 AU9 Dive Pressure Proofing Kit

- 2 × Pressure cap with 'O' ring fitted
- 2 × 'O' ring base cap seal
- 1 × Tube of Silicone grease
- 2 × Base cap screw gasket seal

Fig. 35

2.1.2 Fitting the pressure cap – converting the AU9 to auto-activation only

Fig. 36

NOTE – your pressure cap may look different from the version shown in the photos in this manual. The pressure cap sits over the round black manual activation/test button on the front of the PLB and prevents the water pressure from pushing directly against the unit's test/manual activation button. When the cap is fitted the AU9 becomes AUTO, or water activation only.

2.1.3 To start 'SOS' transmission with pressure cap fitted simply ARM the unit by sliding the side switch down and immerse the body of the AU9 in water continuoulsy for 5-10 seconds; the water sensors will cause the unit to start transmitting after 5 seconds.

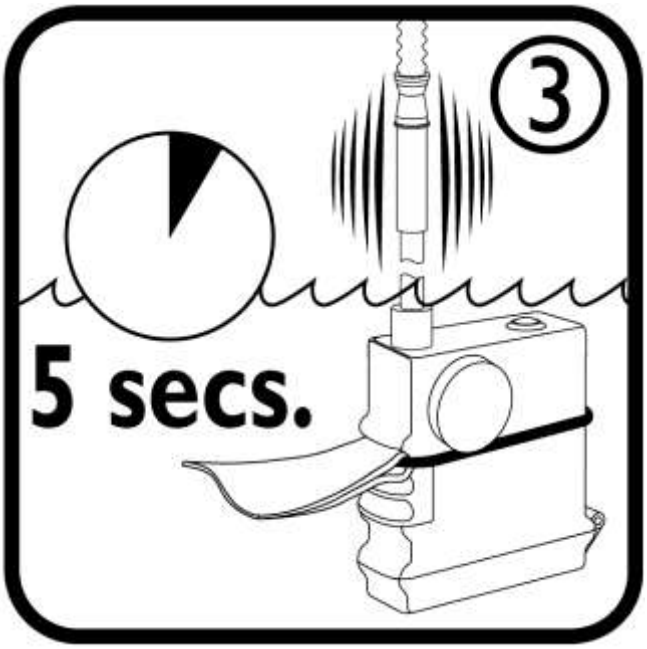


Fig. 37

2.1.4 Fitting the cap is an easy process

1. Apply a thin film of silicone grease under the edge/lip of the cap and over all of the ‘O’ ring seal all the way around.

Fig. 38

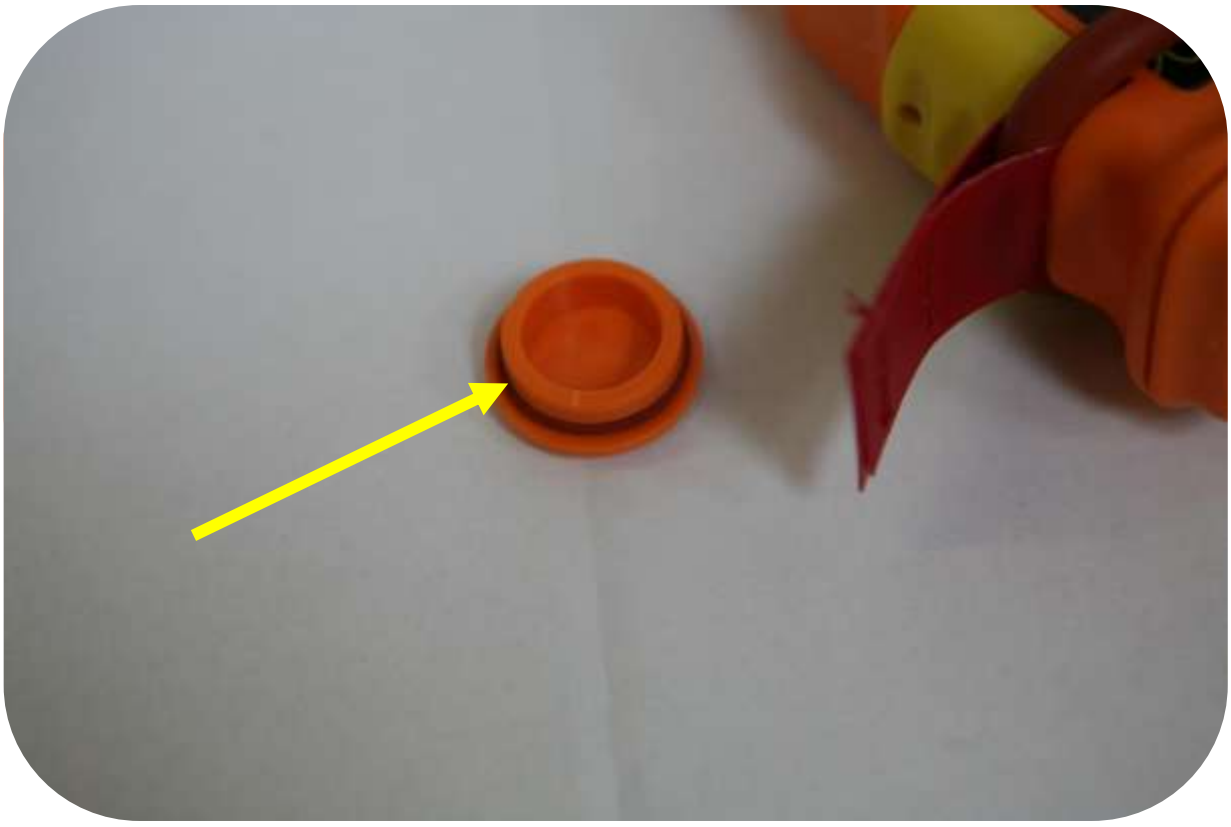


Fig. 39

2. Place the cap over the round activation button and press firmly and slowly until the cap begins to move into the recess, push it very firmly all the way in, use a hard flat surface to press against if necessary.

Fig. 40

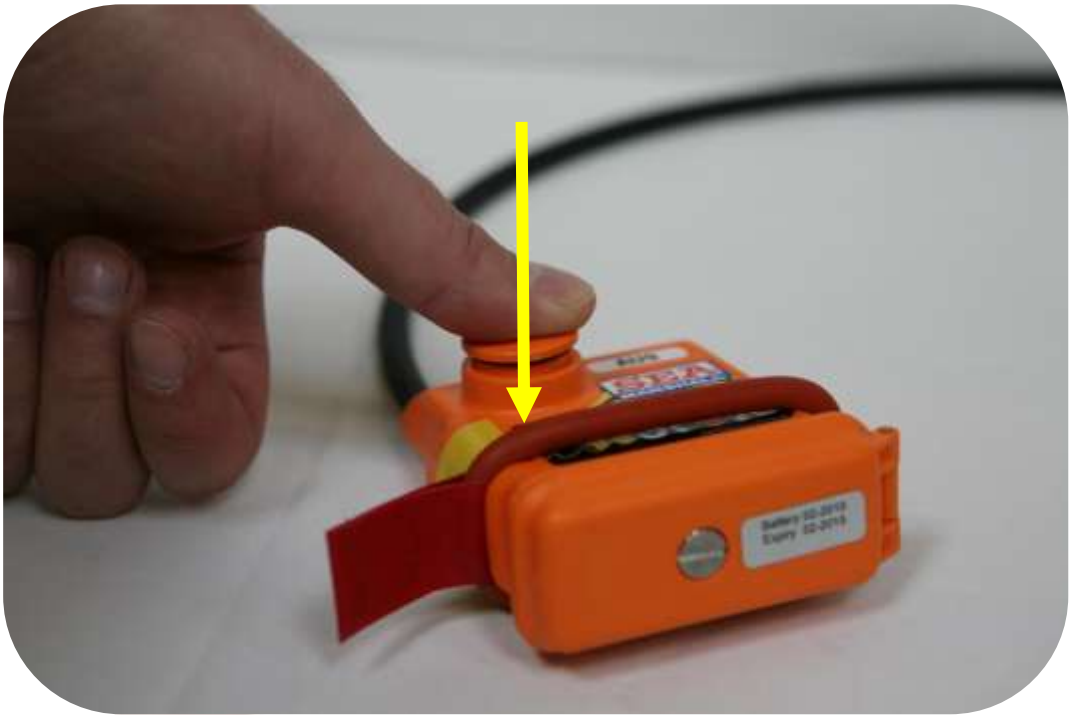


Fig. 41

3. To test your AU9 for battery status and low power transmission carefully remove the cap and test in accordance with the instructions laid out in section 1.5.0 of this manual and replace the cap.

2.1.7 How often should I replace the seals on my unit?

The frequency of re-sealing your unit depends upon how often you are diving with it; daily use requires more frequent checks and replacement of seals etc. Check the functionality of the unit before and after each dive, look specifically for signs of wear and tear or general deterioration of components. Regularly check for a general flattening effect on the 'O' rings. Replace and reseal if any of these signs are visible. Do not use a damaged unit, it is the responsibility of the owner/user to ensure their unit is correctly sealed and fully functional.

2.2.0 USING THE AU9 WITH THE 'DIVE' CONVERSION KIT FITTED

With the diver conversion kit fitted an AU9 plb can be used for both Man Overboard Alert/Locate and Lost Diver Alert/Locate.

2.2.1 For Man Overboard Alert/Locate – SURFACE USE

When using the AU9 (with the diver pressure conversion kit fitted) for MOB safety cover move the side switch down into the ARMED/READY position; your unit will now automatically activate 5 seconds after you fall overboard. Switch OFF after use.

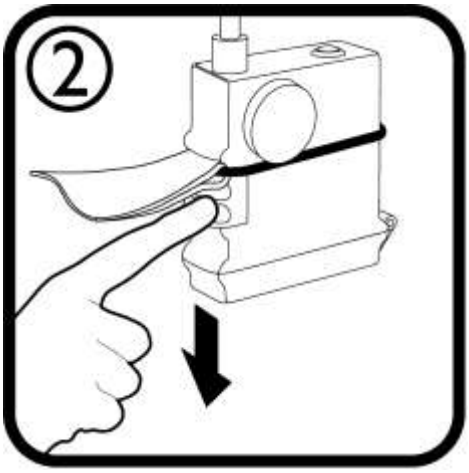


Fig. 42

2.2.2 For Lost Diver Alert/Locate – SUB-SEA USE

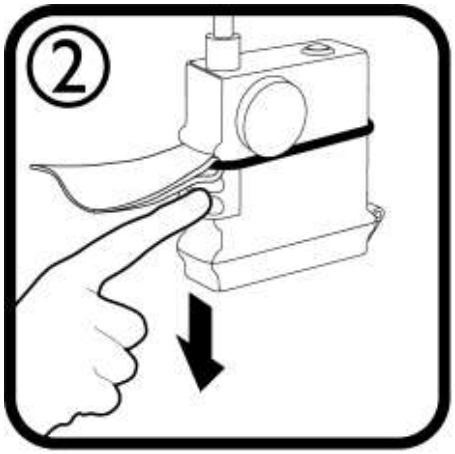
Before carrying the AU9 (with the diver pressure conversion kit) fitted on a, dive first switch the unit OFF; move the side switch up into the 'OFF' position by sliding it UP. This disengages the automatic water activation function. If you don't switch the unit OFF before entering the water your AU9 will automatically activate after 5 seconds immersion creating a false alarm. Switch OFF after use.

Fig. 43

INITIATING AN 'SOS' EMERGENCY TRANSMISSION WITH PRESSURE CAP FITTED

1. Arm the unit by lifting the 'grab tag' out and pushing the side switch down.

2. Click the side switch down firmly into place.



3. Immerse the unit continuously in water for not less than 5 to 10 seconds. The unit will start transmitting, LEDS will flash **RED** until switched OFF.

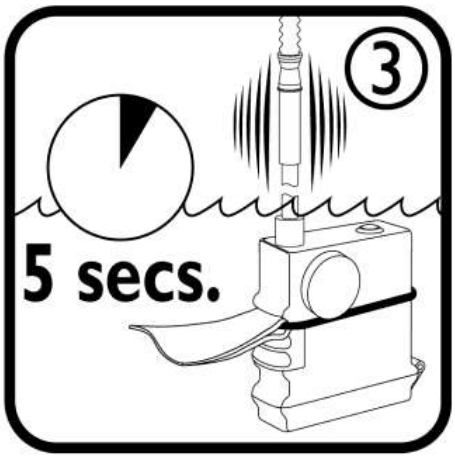


Fig. 44

2.2.3 The AU9 can be used either on it's own or it can be attached to a diver surface marker buoy/SMB (recommended); a special SMB with antenna guide loops and PLB pocket is available through your local stockist. By attaching your AU9 plb unit into an SMB and attaching a line to the SMB, the AU9 PLB can be used to raise the alarm from the sea bed in the event of difficulties.

2.2.4 How to use the AU9 when fitted to a surface market bouy.

1. **Diver descends.**
2. **Diver gets into difficulties at depth. Activate AU9 by sliding side switch DOWN, attach SMB to line and send AU9/SMB to surface.**
3. **AU9 will arrive on surface already transmitting, pull line tight to ensure SMB remains vertical.**
4. **SARfinder on dive boat within range will activate notifying crew of an 'SOS' emergency. SARfinder will display direction of SOS signal and approximate range.**

Fig. 45

Fig. 46

IMPORTANT – It is 'STRONGLY' advised that when using the AU9 plb for diving that it is fitted to an SMB in order to give the maximum possible transmission distance by extending the antenna up vertically. With the AU9 fitted to an SMB the unit can be deployed on a line from under the water, at depth, already transmitting when the AU9 hits the surface it will activate the alarm on the dive boat alerting them immediately of an emergncy. This combination means the dive boat will be already searching for you by the time you reach the surface after decompressing… saving valuable minutes in an emergency situation. Ity also provides a very visible marker for the final 0.5km of a search. Using the AU9 without the SMB will restrict the tracking range.

2.2.5 To test your unit refer to section 1.5.0 of this manual.

2.2.6 Your AU9 can be used on it's own to provide an 'SOS' homing signal for the Coastguard SAR to home into once they have been notified you are missing, or it can be used as part of a 'self managed lost diver locating system' which utilises a dedicated monitor/directional homing unit fitted to the dive boat, called a SARfinder®. The SARfinder will monitor for an 'SOS' signal from an AU9 plb and give the direction of the signal along with approximate range indication.

Fig. 47

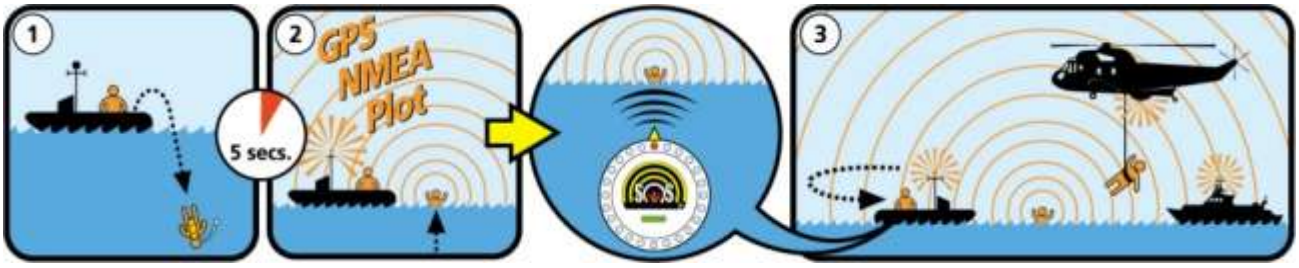


Fig. 48

2.2.7 The SARfinder® has an NMEA output which when connected to the boats GPS plotter will automatically plot the position of the boat at the time the 'SOS' transmission was received giving a starting point for the search, for more information refer to operator manual.

2.3.0 WEARING THE AU9 WITH DIVER CONVERSION KIT FITTED

During and after a dive the AU9 should be carried rolled up in the pouch provided or alternatively in a secure pocket, take care not to crease the antenna spring or to put too much strain on the led section. Ensure it is positioned in an easy to reach place should you need to deploy the unit quickly. In order to provide a strong 'SOS' signal for rescuers to home into, when activated, the antenna of your AU9 should be positioned out of the water (i.e. above the water line) as much as possible. The AU9 will not transmit a trackable signal with the antenna completely submerged. Fig. 13 indicates how the strongest 'SOS' signal can be achieved.

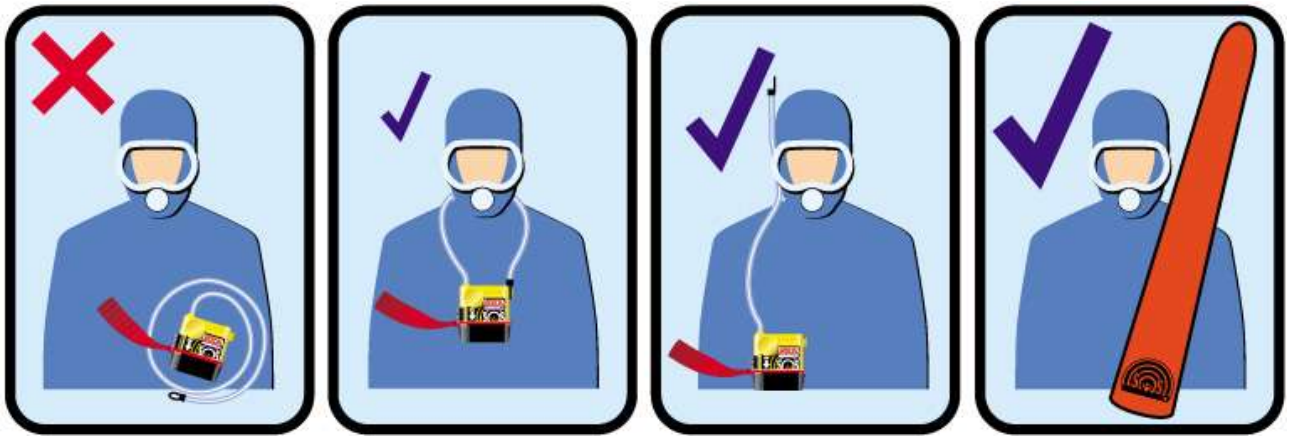


Fig. 49

2.4.0 MAINTENANCE

- Wash your AU9 with fresh water after each dive Keep your AU9 clean at all times (use a gentle hand wash to clean your unit)
- Check functionality/batteries before and after every dive.
- Do not dive with an unchecked/untested/damaged unit.
- Do not crease the antenna
- Regularly check the silicon grease/sealing of the following (before and after each dive)
    - Base cap
    - Pressure cap (and manual activation button)
    - Base cap screw

3.0 HIGH POWER '500 mW' VERSION OF AU9 FOR LONG RANGE TRACKING

A high power option of the AU9 is available for applications which require 'SOS' transmission over very long distances, typically more than 4 miles at sea level. The output power in this version of the AU9 is increased from 100mW to 500mW for a pre-determined period, which results in a much longer transmission/monitoring area/range; making it ideal for applications such as diving in areas with exceptionally strong currents or providing safety cover in areas where there is no Coast Guard or other emergency back up close by. This unit operates in exactly the same way as the standard 100mW unit which is described in this booklet, except that it uses a sealed battery pack with a cable connector. This version of the AU9 is available by special order.

Watch shown for scale purposes only

Fig. 50

500MW AU9 RECOMMENDED FOR DIVERS & LONG RANGE OFFSHORE WORKERS

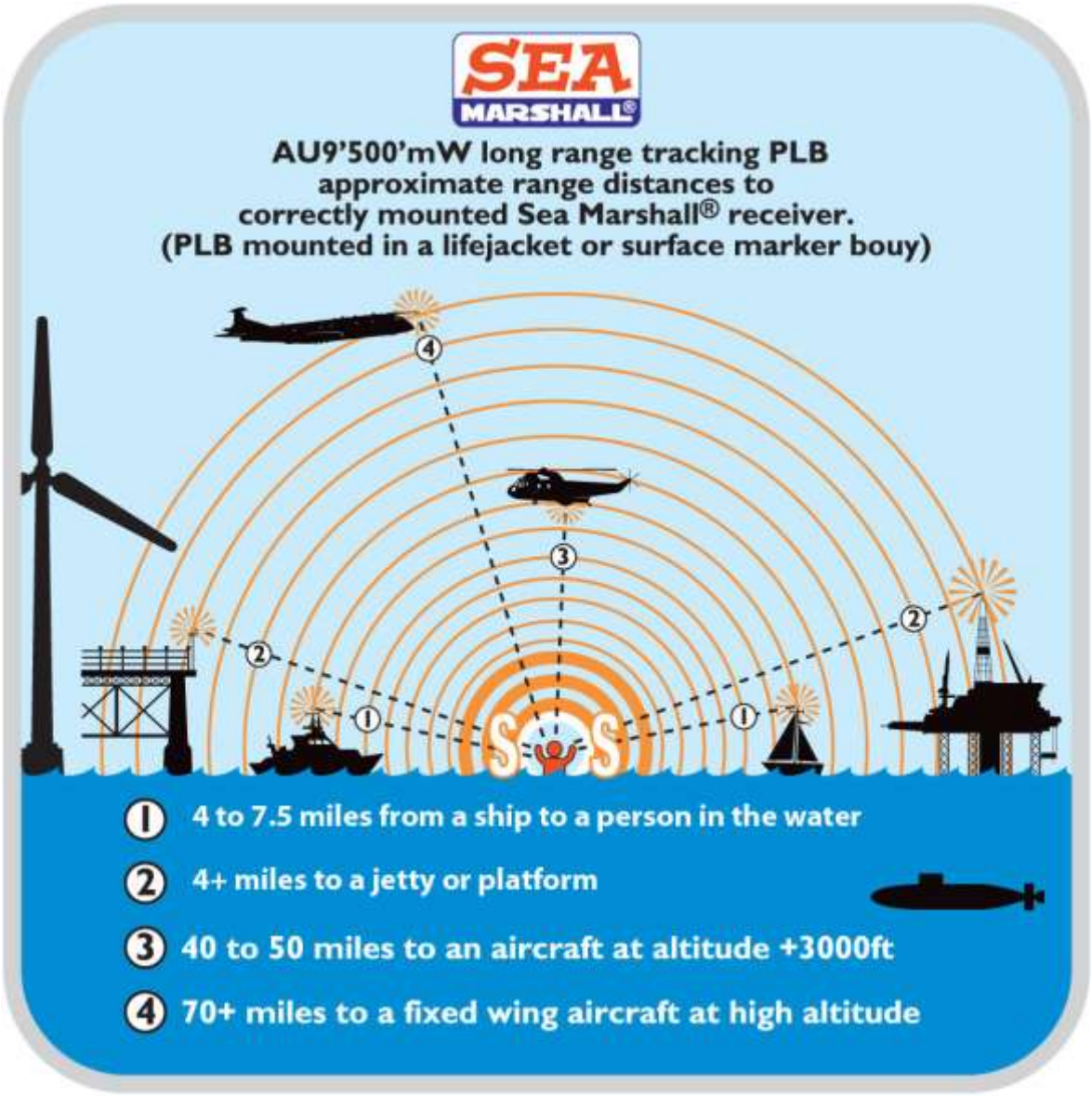


Fig. 51

4.0 Warranty

Your unit is covered by a 1 year parts and labour warranty. Marine Rescue Technologies Ltd (MRT) warrants to the purchaser that the products conform to manufacturers specifications and that the products are free of defects on materials and workmanship for a period of one year from the date delivered to the customer/end user. In the event of a defect, due to faulty material, design or construction, the customer will return to MRT at the business address were we, or the manufacturer will undertake, at our choice, a repair or replacement. Warranty covers all parts, materials and labour, provided that the product is returned to our works. Exclusions: damage caused by other than normal use and lack of basic, general care carried out in accordance with the instruction manuals. MRT Ltd. does not accept any responsibility or any claim for direct or indirect consequences of defects of the equipment, either during the guarantee period or at a later stage.

5.0 Disclaimer

The Sea Marshall® products are an aid to recovery only, it is the repsonsibility of the user/operator to ensure they are fully conversant with the operation of the equipment and the equipment is kept in full working order at all times combined with functionality and damage checks before and after each use. MRT Ltd. does not accept liability for loss of life or injury caused during any accident during which the equipment is being used, how so ever it arises.Sea Marshall® Alerting Units/MSLDs are an 'Aid to rescue only', they do not guarantee your safety. The Sea Marshall® MSLDs will dramatically increase the chances of detection and location of a Man Over Board. Personal safety remains at all times the sole responsibility of the individual. It is the responsibility of the individual to inform their local Coast Guard, their senior personnel/crew members and or family of their intended location/destination and estimated duration of journey. It is also the responsibility of the individual to notify these people of the type of safety equipment they will be carrying. In the case of accidental activation the user should de-activate the unit and notify the appropriate Search And Rescue Authority.