User Manual

Mobilarm Crewsafe V100

Model Number: V100_AU
Part Number: MOA-00200
Version 1.4 En
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1 Quick Start Guide

Mobilarm Crewsafe V100 Emergency Operation

1. Slide the **ARMING SWITCH** down from **[OFF]** to the **[READY]** position to enable automatic water activation in a man overboard emergency.

2. Press and slide the **ARMING SWITCH** to the **[ON]** position for immediate activation.

3. Release the **FLEXIBLE ANTENNA** when the device is active to maximise the alerting range of the Crewsafe V100 transmission. Position the antenna vertically in a high position above the water and do not handle it when unit is activated.

4. Do not cover or obscure the clear lens at the top of the unit.

Mobilarm Crewsafe V100 Operation using a Switch Lock

Your Mobilarm Crewsafe V100 is supplied with a **SWITCH LOCK**. This enables you to arm the device and lock the **ARMING SWITCH** in the correct position for automatic water activation. The **SWITCH LOCK** will also prevent any outside forces from inadvertently moving the switch to the **[OFF]** or **[ON]** position when in use.

Use the **SWITCH LOCK** when your Crewsafe V100 is integrated into a life jacket or PFD, carried in a life jacket pocket, or whenever there is a risk that the **ARMING SWITCH** may be dislodged from the **[READY]** position. The device will continue to operate as normal with the **SWITCH LOCK** in place, i.e. it will automatically activate if submerged in water for 5 seconds and commence full emergency transmissions after the initial warning period has passed.

WARNING: It is necessary to remove the **SWITCH LOCK** to either manually activate the device in an emergency, or to deactivate the device after it has been automatically activated.

Attaching the Switch Lock to the Mobilarm Crewsafe V100

1. Slide the **ARMING SWITCH** from **[OFF]** to **[READY]**.
2. Place the **SWITCH LOCK** over the **ARMING SWITCH** and press down firmly. Apply equal pressure at the top and bottom of the **SWITCH LOCK** until it snaps into place.

Removing the Switch Lock from the Mobilarm Crewsafe V100

1. Pull the top of the **SWITCH LOCK** away from the device.
2. The clips holding it in place will disengage and release the **SWITCH LOCK**.
   - Slide the **ARMING SWITCH** from **[READY]** to **[OFF]** to deactivate the device.
   - Press and slide the **ARMING SWITCH** from **[READY]** to **[ON]** to activate the device immediately.

WARNING: The Mobilarm Crewsafe V100 should only be used in an emergency. DELIBERATE MISUSE MAY INCUR A SEVERE PENALTY.

CAUTION

Before using the Mobilarm Crewsafe V100 for the first time:

1. Ensure the device is programmed with a User Maritime Mobile Service Identity (MMSI) number.
   - Press and hold the **TEST BUTTON** for 3 seconds
   - If you hear the words “MMSI Configuration” you must program a User MMSI number into the device. See Programming a User MMSI Number into the Mobilarm Crewsafe V100 for the First Time for instructions.
   - If you hear the words “Mobilarm V100, Test Menu” an MMSI number has already been assigned to the device. Check this number is correct and see Reprogramming the User MMSI into the Mobilarm Crewsafe V100 for reprogramming instructions if required.
2. Check the battery expiry date on the label and test that the battery has at least 12 hours of life remaining (see Testing).

2 Permitted Areas of Use

The Mobilarm Crewsafe V100 is a marine device only. It uses VHF marine band radio frequencies and in order to comply with different regulatory requirements of national maritime and/or telecommunication licensing authorities regarding its use, the Crewsafe V100 is configured with a specific regional operating profile, indicated by the model number. The regional operating profile for devices accompanied by this user manual is: **V100_AU.**

The regional operating profile addresses differences relating to channels and frequencies of operation, timing and destination of transmissions, and message type, category and content. Refer to the ‘Support’ section at www.mobilarm.com for an up-to-date list of where the Crewsafe V100 model number **V100_AU** is approved for sale and use. If you are using the Crewsafe V100 permanently in waters regulated by a different national

maritime authority than for the countries listed, you may need to have your device reconfigured with a different regional operating profile that complies with the regulatory authorities' requirements for that region. Check with your national maritime authority if you are unsure. For further advice, or to return your Crewsafe V100 for reconfiguration to a different regional profile, contact Mobilarm via email support@mobilarm.com, or call +61 (0)8 9315 3511 between 8:30am and 5:00pm WST (GMT + 08:00).

3 Introduction

This user manual provides all the information required to operate and test the Mobilarm Crewsafe V100. The following symbols and conventions are used to indicate important information. Always observe these instructions.

Warnings: Instructions that, if ignored, could result in death or serious personal injury caused by incorrect operation of the equipment. These must be observed for safe operation.

Cautions: Instructions that, if ignored, could result in personal injury or material damage caused by incorrect operation of the equipment. These must be observed for safe operation.

Important Note: Important instructions that should be adhered to during system operation.

Notes: Advisory instructions.

Typographic Conventions

1. Mobilarm Crewsafe V100 hardware features are displayed in bold uppercase letters, e.g. **ARMING SWITCH**.
2. Mobilarm Crewsafe V100 operation states are displayed in bold uppercase letters surrounded by square brackets, e.g. **[OFF]**.
3. Mobilarm Crewsafe V100 software menus are displayed in bold with each word capitalised, e.g. **MMSI Configuration.**

4 Warnings & Safety Information

WARNINGS:

- The Mobilarm Crewsafe V100 is not an EPIRB and its emergency transmission is not detected by orbiting satellites. The Crewsafe V100 is a short range beacon that transmits an emergency message via VHF marine radio only.
- The Mobilarm Crewsafe V100 should **ONLY** be used in an emergency. DELIBERATE MISUSE MAY INCUR A SEVERE PENALTY.
- Keep the unit away from strong magnetic fields (e.g. speakers) as this may inadvertently activate the device and cause a false alert.

- Do not dismantle the Mobilarm Crewsafe V100 as it contains no user-serviceable parts.
- The Mobilarm Crewsafe V100 emits radio frequency radiation when in use. Avoid handling the antenna when activated.
- The high intensity strobe light on the unit may cause discomfort if it is viewed for long periods so avoid staring directly at it when it is operational.

CAUTION:

- Do not paint your Mobilarm Crewsafe V100 or clean it with aggressive detergents or solvents. Some cleaning materials may damage the seals and affect the integrity of the device.
- If the device requires cleaning, ensure the arming switch is in the **[OFF]** position so that it cannot be activated by contact with water and wipe with a damp cloth only.

Global Positioning System (GPS).

The Mobilarm Crewsafe V100 uses positional data derived from an internal GPS antenna to define the location of a man overboard. Please note that the device is only as accurate as the positional data it receives. The GPS system is currently managed and maintained by the US Government who can from time-to-time alter its effective accuracy.

Using your Mobilarm Crewsafe V100 for the First Time

It is important to carry out the following before using the Mobilarm Crewsafe V100 for the first time:

1. Ensure the device has been assigned a User MMSI number.
2. Program a Destination MMSI number into the device for VHF DSC transmission testing.
3. Perform a full system test.

Mobilarm Crewsafe V100 Record of Ownership

Depending on your country of purchase, the Mobilarm Crewsafe V100 will either be pre-programmed with a User MMSI number, or will need to be programmed with a User MMSI number appropriate to the region where it is to be used. Registering your Crewsafe V100 with your national maritime authority is not required, but we highly recommend that you log your ownership of the device with Mobilarm as this will provide a record of ownership if the unit is lost, and may assist search and rescue authorities in the event of an emergency.

Regular Testing

The Mobilarm Crewsafe V100 battery should be tested once every 3 months and a full test performed once every 12 months. Testing the device more frequently is not recommended as additional tests may shorten the battery life. (See Testing for more information.)

5 Mobilarm Crewsafe V100 Overview

The Mobilarm Crewsafe V100 is a fully automated Maritime Survivor Locating Device (MSLD) designed specifically for the commercial marine environment to ensure a quick, effective rescue in a man overboard emergency. The Crewsafe V100 uses the marine VHF radio band to automatically transmit a man overboard distress alert and real-time coordinates of the person in the water to all VHF DSC or VHF radio equipped vessels within range, including the distressed mariner's vessel.

The design, size and weight of the Crewsafe V100 means it can be comfortably clipped onto webbing, a life jacket or harness, or carried in a pocket. For the device to transmit an emergency message its antenna must be out of the water, therefore the Crewsafe V100 should be worn at chest height, not at waist level.

Automatic Activation

The Mobilarm Crewsafe V100 is designed to be water-activated but it can also be manually activated. The design of the **ARMING SWITCH** prevents the device from being accidentally activated while being carried or in transit. If the device is inadvertently activated, the deliberate warning period after automatic activation enables the user to switch off the device before it begins to transmit the emergency distress call.

Automatic Distress Alert

When activated, the Mobilarm Crewsafe V100 automatically transmits a VHF DSC man overboard distress alert, which can be received by all vessels with a VHF radio within range.

The device acquires a GPS lock and repeats the distress alert with the man overboard's current position. The message is also broadcast on the emergency marine radio channel (e.g. channel 16) in a synthesised voice.

The distress alert is repeated at regular intervals to update rescue teams to track the man overboard in the water. The **STROBE** light on the device assists with visual homing at night or in poor weather conditions. When properly maintained, the Crewsafe V100 battery will support emergency transmissions for a minimum of 12 hours under normal operating conditions.

In-Water Tracking

Each Mobilarm Crewsafe V100 transmission includes the current latitude and longitude coordinates to provide up-to-date positioning information. This is usually accurate to within 10m.

Important Note: The Crewsafe V100 uses positional data derived from its internal **GPS ANTENNA** to define the location of the man overboard and is therefore only as accurate as the positional data it receives.

Some marine radios are able to output a waypoint of the coordinates received in the Crewsafe V100 distress alert to a compatible GPS or chart plotter. These waypoints can be used to log the casualty's first known position and update their postition with

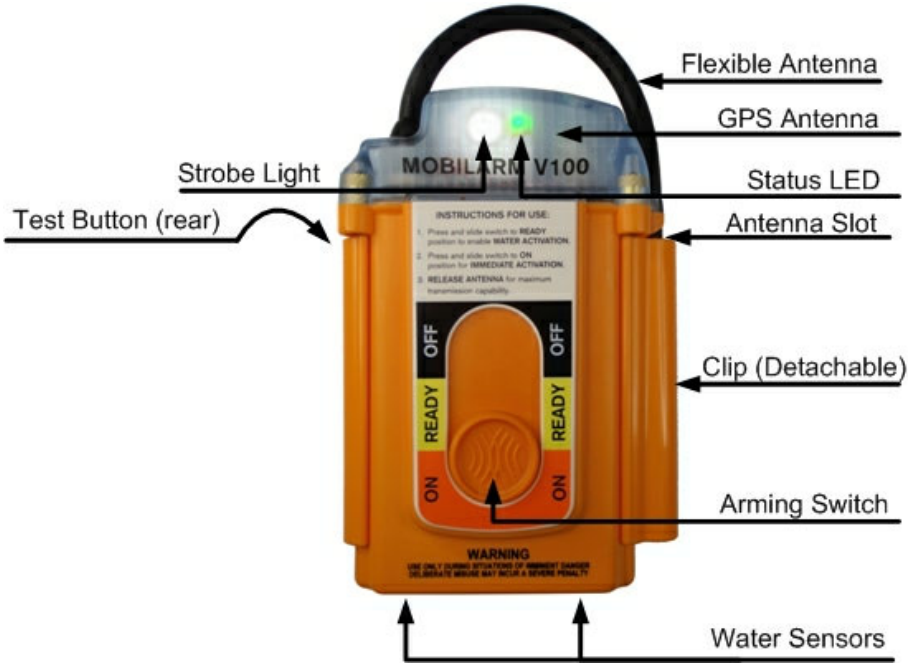
subsequent alerts over time. This provides a graphical track-back representation of the man overboard casualty's position in relation to the vessel receiving the alert, as well as distance and bearing information.

Refer to your radio owner's manual to determine whether your marine radio is capable of sending NMEA 0183-compatible data to your GPS or chart plotter and ensure that your GPS or chart plotter is correctly configured to accept this data protocol.

5.1 Mobilarm Crewsafe V100 Features

The Mobilarm Crewsafe V100 has the following features:

- Waterproof design with positive buoyancy.
- LED status indicator, strobe light and an audible alarm with voice-enunciated operation status.
- Rugged construction (IP68) protecting against impact, dust and moisture.
- A sliding activation switch to select automated or manual activation modes.
- Visual indication of operational status and GPS satellite lock.
- Visual and voice-enunciated indication of active VHF radio transmissions.
- A helix-style GPS antenna with an integrated 20 channel parallel GPS receiver, providing positioning information over VHF voice and VHF DSC data channels.
- A marine VHF transmitter package containing a narrow-band FM transmitter that accepts synthesized VHF speech audio and VHF DSC-formatted FSK data tones.
- Use of standard VHF channels for sending distress signals (e.g. VHF DSC marine band channel 70 and VHF marine voice band channel 16).
- Use of a unique identification number for identifying a man overboard to vessels in range as well as search and rescue personnel.
- A minimum of 12 hours battery life under normal operating conditions and a minimum 5 year service life.
- Optional **SWITCH LOCK** for locking the **ARMING SWITCH** in position for automatic activation.



Elements of the V100

Water Activation Sensors

The Mobilarm Crewsafe V100 features automatic **WATER SENSORS**. When the unit is submerged under water the sensors automatically detect that a man overboard incident has occurred and activate the device.

Test Button

The **TEST BUTTON** is located on the rear of the Mobilarm Crewsafe V100 and is used to activate the full and short tests. For more information see Testing.

6 First Use of the Mobilarm Crewsafe V100

Mobilarm Crewsafe V100s are programmed at the factory with a profile that provides for regional requirements relating to:

- Language and message types
- Channels and frequencies of operation
- Timing and destination of transmissions
- Message type and content

(See Permitted Areas of Use)

Different MMSI (Marine Mobile Service Identity) numbers are allocated for different regions and there are two MMSI numbers that can be programmed into the Crewsafe V100:

1. The User MMSI number used to register and identify the device.
2. Your vessel's Destination MMSI number that can be manually programmed into the device to test VHF DSC transmissions.

Before using the Crewsafe V100 for the first time:

1. Ensure the device has been assigned a User MMSI number.
2. Program the MMSI number of your vessel's VHF marine radio (the "Destination MMSI number") into your Crewsafe V100 for VHF DSC transmission testing.
3. Perform a full system test (see Testing).

Obtaining a User MMSI Number for your Mobilarm Crewsafe V100

If you purchased your Crewsafe V100 in Australia or New Zealand, it will already be programmed with a unique User MMSI number, which is stamped on the back of the unit. Make a note of your MMSI number and keep it in a safe place.

If you purchased your Crewsafe V100 outside of Australia or New Zealand, you will need to apply for a User MMSI number from your national maritime or telecommunications licensing authority and manually assign it to your device.

Important Note: If you move permanently to a new region of operation, you may need to apply for a new User MMSI number and have the device reconfigured to a different regional profile. Refer to the 'Support' section at www.mobilarm.com for further information.

Programming a User MMSI Number into the Mobilarm Crewsafe V100 for the First Time

If you purchased your Mobilarm Crewsafe V100 ***outside*** of Australia or New Zealand, you will need to manually program a User MMSI number into your device. **Do NOT reprogram the User MMSI number of a device purchased in Australia and New Zealand without prior consultation with Mobilarm.**

The User MMSI number only needs to be programmed once into your Crewsafe V100. Once the programming process is complete, the User MMSI number will be

permanently saved in the Crewsafe V100 memory.

Important Note: A User MMSI number can only be programmed into the device twice. If you need to change your User MMSI number more than this you will need to contact Mobilarm Support for advice. Therefore, take special care when programming your User MMSI number to ensure it is entered correctly.

If you attempt to program the device with a new User MMSI number after the maximum number of entries has been reached, the device will beep continuously and not permit this action. If this occurs contact Mobilarm Support for advice.

1. Have the User MMSI number to hand and a small amount of water.
2. Ensure the **ARMING SWITCH** is in the **[OFF]** position.
3. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and the device emits two short beeps.
4. Listen for the words "MMSI Configuration" followed by a beep.
5. Press and hold the **TEST BUTTON** until you hear the first digit of the new User MMSI number (the count starts at zero through nine) and release the button after the correct digit is enunciated.
6. Press and hold the **TEST BUTTON** again until you hear the next digit of the new User MMSI number you want to program, then release the button.
7. Repeat this process for each number in turn until all nine new MMSI digits have been programmed.
8. When all digits have been selected, the device will repeat back the entire User MMSI number for verification and ask, “Do you want to save?”
9. If the correct User MMSI digits are read back, briefly submerge the **WATER SENSORS.** You should hear "(Beep) Saving User MMSI" and the new User MMSI number will be permanently written to the Crewsafe V100 memory.
   - ➢ If you do not submerge the **WATER SENSORS** within 5 seconds, the device will time out and the User MMSI number will not be saved.
10. At the end of programming, write the new User MMSI number in the space provided on the label on the back of the Crewsafe V100.

Caution: If you make a mistake during User MMSI programming, release the **TEST BUTTON** and wait for the device to automatically time-out and exit the menu (5 seconds). Any digits already selected will not be stored. To continue, restart at step 1.

(See Testing for more information about unit testing and programming menus).

Reprogramming the User MMSI into the Mobilarm Crewsafe V100

Use the following instructions if you need to reprogram the User MMSI for your Mobilarm Crewsafe V100. **Do NOT reprogram the User MMSI number of a device purchased in Australia and New Zealand without prior consultation with Mobilarm.**

Important Note: A User MMSI number can only be programmed into the device twice only. If you need to change your User MMSI number more than this you will

need to contact Mobilarm Support for advice. Therefore, take special care when programming your User MMSI number to ensure it is entered correctly.

If you attempt to program the device with a new User MMSI number after the maximum number of entries has been reached, the device will beep continuously and not permit this action. If this occurs contact Mobilarm Support for advice.

1. Have the User MMSI number to hand and a small amount of water.
2. Ensure the **ARMING SWITCH** is in the **[OFF]** position.
3. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and the device emits two short beeps.
4. Listen for the words “Mobilarm V100 test menu” followed by a beep.
5. Press and hold the **TEST BUTTON**. The Crewsafe V100 will read out, “Battery test”, “Water test”, “GPS test”, "VHF radio voice test", “VHF radio DSC test” then “V100 status”. When you hear “V100 status” release the **TEST BUTTON**.
6. The Crewsafe V100 will read out “Model number...”, “Firmware version...”, "Emergency voice channel 16", “User MMSI...”. When you hear the current User MMSI number read out, briefly submerge the **WATER SENSORS** in water.
7. When you hear "User MMSI Configuration" remove the device from the water.
8. Press and hold the **TEST BUTTON** until you hear the first digit of the new User MMSI number (the count starts at zero through nine) and release the button after the correct digit is enunciated.
9. Press and hold the **TEST BUTTON** again until you hear the next digit of the new User MMSI number you want to program, then release the button.
10. Repeat this process for each number in turn until all nine new MMSI digits have been programmed.
11. When all digits have been selected, the device will repeat back the entire User MMSI number for verification and ask, “Do you want to save?”
12. If the correct User MMSI digits are read back, briefly submerge the **WATER SENSORS.** You should hear "(Beep) Saving User MMSI" and the new User MMSI number will be permanently written to the Crewsafe V100 memory.
    - ➢ If you do not submerge the **WATER SENSORS** within 5 seconds, the device will time out and the User MMSI number will not be saved.
13. At the end of programming, write the new User MMSI number in the space provided on the label on the back of the Crewsafe V100.

CAUTION: If you make a mistake during User MMSI programming, release the **TEST BUTTON** and wait for the device to automatically time-out and exit the menu (5 seconds). Any digits already selected will not be stored. To continue, restart at step 1. If you make a mistake while selecting the last digit of the new User MMSI number, press the Test button to exit the test menu and repeat the programming instructions from step 5.

(See Testing for more information about unit testing and programming menus).

Programming a Destination MMSI Number for VHF DSC Transmission Testing

In order to test the transmission and reception of the Mobilarm Crewsafe V100 distress call, it is recommended that you program the MMSI number of you vessel's VHF marine radio (the "Destination MMSI number") into the Crewsafe V100.

1. Have the Destination MMSI number to hand and a small amount of water.
2. Ensure the **ARMING SWITCH** of the Crewsafe V100 is in the **[OFF]** position.
3. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and the device emits two short beeps.
4. Listen for the words “Mobilarm 100 test menu” followed by a beep.
5. Press and hold the **TEST BUTTON**. The Crewsafe V100 will read out: “Battery test”, “Water test”, “GPS test”, “VHF radio voice test”, "VHF radio DSC test”, “V100 status” then “Destination MMSI test”. When you hear “Destination MMSI test” release the **TEST BUTTON**.
6. When you hear the current Destination MMSI number read out, briefly submerge the **WATER SENSORS** in water.
7. Wait for “Destination MMSI Configuration” then remove the device from the water.
8. Press and hold the **TEST BUTTON** until you hear the first digit of the new Destination MMSI number (the count starts from zero through nine) and release the button after the correct digit is spoken.
9. Press and hold the **TEST BUTTON** again until you hear the next digit of the new Destination MMSI number, then release the button.
10. Repeat this process for each number in turn until all nine new MMSI digits for the Destination MMSI number have been programmed in sequence.
11. When all nine numbers have been selected, the device will repeat back the entire Destination MMSI number for verification and ask, “Do you want to save?”
12. If the correct Destination MMSI digits are read back, briefly submerge the **WATER SENSORS**. You should hear “(Beep) Saving MMSI” and the Destination MMSI number will be permanently written to the Crewsafe V100.
    - ➢ If you do not submerge the **WATER SENSORS** within 5 seconds, the device will time out and the Destination MMSI number will not be saved.

Caution: If you make a mistake during User MMSI programming, release the **TEST BUTTON** and wait for the device to automatically time-out and exit the menu (5 seconds). Any digits already selected will not be stored. To continue, restart at step 1. If you make a mistake while selecting the last digit of the new Destination MMSI number, press the **TEST BUTTON** to exit the menu and repeat the programming instructions from step 5.

Checking MMSI Numbers Programmed into your Mobilarm Crewsafe V100

Ensure the **ARMING SWITCH** of the Mobilarm Crewsafe V100 is in the **[OFF]** position.

1. Press the **TEST BUTTON** on the back of the unit for 3 seconds.

➢ This activates the test sequence:
- The **STROBE** flashes quickly, then stops and the device emits two short beeps.

2. Listen for the words “Mobilarm V100 - test menu” followed by a beep.
3. Listen for “V100 Status” and then the Crewsafe V100 will read out “Model number...”, “Firmware version...”, “Emergency voice channel 16”, “VHF voice test channel 67” and then the User MMSI number and Destination MMSI number.
4. Confirm that the User MMSI number matches the stamp on the rear of the device (or the User MMSI number you previously programmed into the device) and the Destination MMSI matches the number of your vessel’s VHF marine radio.

6.1 Attaching the Mobilarm Crewsafe V100

If the Mobilarm Crewsafe V100 is not embedded into a life jacket, wet weather jacket or personal flotation device, it has a purpose-built clip for attaching the unit to webbing or straps on life jackets, harnesses or any other safety device. The clip also helps to secure the flexible antenna to the unit.

1. Slide the clip onto the unit until it locks firmly into place.
2. Place the **FLEXIBLE ANTENNA** into the antenna slot.
3. Thread the strap or webbing through the back of the clip.

Note: Attach the supplied lanyard to the Lanyard Ring and use it for additional securing to a harness, life jacket, clothing etc. This will prevent the unit from being lost if it becomes dislodged from the clip.

7 How to use the Mobilarm Crewsafe V100

WARNING: The Mobilarm Crewsafe V100 should only be used in an emergency. DELIBERATE MISUSE MAY INCUR A SEVERE PENALTY.

The Crewsafe V100 has two modes of operation:

1. Manual activation.
2. Water activation (automatic).

Arming the Mobilarm Crewsafe V100 for Water Activation

1. To arm the device, press and slide the **ARMING SWITCH** downwards from **[OFF]** to **[READY]**.

2. If appropriate, attach the **SWITCH LOCK** by placing it over the **ARMING SWITCH** and pressing down firmly. Apply equal pressure at the top and bottom of the **SWITCH LOCK** until it snaps into place.

The Crewsafe V100 is now ready for use and will automatically activate if submerged in water for 5 seconds.

When the device is water activated:

- The **STROBE** on the device begins to flash.
- The **STATUS LED** illuminates.
- Audio alerts (beeps and automated messages) warn the user that the device has been activated.

There is a short warning period before the first emergency transmission to allow the user to deactivate the device if it has been inadvertently activated. If the device is not deactivated during this time, the Crewsafe V100 commences full emergency transmissions:

- The **STROBE** and **STATUS LED** start flashing.
- Audio alerts (beeps and automated messages) notify the user that the device is transmitting.

When the device is active, release the **FLEXIBLE ANTENNA** to maximise the alerting range. Releasing the antenna increases the maximum effective range of the man overboard distress call. This is typically 2 nautical miles from a small boat, but larger vessels and shore stations with higher antennas will receive distress messages over longer distances.

Manually Activating the Mobilarm Crewsafe V100

This can be performed when the **ARMING SWITCH** is in the **[OFF]** or **[READY]** positions.

1. If fitted, pull the top of the **SWITCH LOCK** away from the device.
   - The clips holding it in place will disengage and release the **SWITCH LOCK**.
2. Press and slide the **ARMING SWITCH** down to **[ON]**.

- The **STROBE** on the device begins to flash.
- The **STATUS LED** illuminates.
- An automated message warns the user that the device has been activated.

There is a short warning period before the first emergency transmission to allow the user to deactivate the device if it has been inadvertently activated. If the device is not deactivated during this time, the Crewsafe V100 commences full emergency transmissions:

- The **STROBE** and **STATUS LED** start flashing.
- Audio alerts (beeps and automated messages) notify the user that the device is transmitting.

When the device is active, release the **FLEXIBLE ANTENNA** and extend it fully so that it is vertical. This maximises the effective alerting range of the device.

Important Notes:

- Once activated, ensure the top of the unit is not obscured from the sky or submerged under water, so that the **GPS ANTENNA** can acquire its position.
- Once a GPS lock is acquired, GPS positioning data is included in emergency messages.
- Depending on the region you are operating within, the operational profile programmed into the device determines the message content, interval and channels used to broadcast the emergency transmissions (see Device Indications).
- In some instances the Crewsafe V100 may be embedded into a life jacket or wet-weather jacket with a long-wire extension antenna and remote water sensor attached to the unit.

Deactivating the Mobilarm Crewsafe V100

1. If fitted, pull the top of the **SWITCH LOCK** away from the device.
   - The clips holding it in place will disengage and release the **SWITCH LOCK**.

2. Press and slide the **ARMING SWITCH** to **[OFF]**. This turns off the device and cancels any automatic repeats of the distress alert.

Important Note: If the Mobilarm Crewsafe V100 is inadvertently activated and transmits a distress alert, deactivate the device and then broadcast an "all stations" voice message using VHF radio to cancel the distress alert. (See False Alarms for more information)

Cancelling the Distress Alert after Recovery

Once the man overboard casualty has been recovered and the Crewsafe V100 has been deactivated, cancel the alert.

1. Use a VHF radio to broadcast an “all stations” voice message cancelling the alert over the emergency VHF marine channel in your region (channel 16 in most regions).

   Example of message to cancel the distress alert:
   ALL SHIPS ALL SHIPS ALL SHIPS
   THIS IS {vessel call sign repeated 3 times}
   CANCEL DISTRESS ALERT FROM {MMSI number}
   SURVIVOR RECOVERED

2. Contact the search and rescue authority in your region to advise that the casualty has been recovered.

Important Note: If you do not have access to a VHF marine radio, contact your search and rescue authority by telephone.

7.1 False Alarms

The design of the Mobilarm Crewsafe V100 reduces the possibility of a distress alert being accidentally transmitted.

When the device is activated, the **STROBE** flashes, the device beeps and an automated message warns the user that the device has been turned on. This deliberate delay before transmission enables the user to turn off the device if it was inadvertently activated.

To help prevent false alarms:

- Keep the unit away from strong magnetic fields (e.g. speakers).
- Test the device regularly in accordance with the instructions in this user manual.
- Keep the device away from young children.
- Educate older children in its use and the ramifications of false alarms.

Cancelling the Distress Alert after Inadvertent Activation

If the Crewsafe V100 is inadvertently activated and transmits a distress alert, immediately cancel the distress alert and notify the regional search and rescue authority as soon as possible that the alert was a false alarm.

1. If fitted, pull the top of the **SWITCH LOCK** away from the device.
   - The clips holding it in place will disengage and release the **SWITCH LOCK**.

2. Press and slide the **ARMING SWITCH** to **[OFF]**. This turns off the device and cancels any automatic repeats of the distress alert.

3. Use a VHF radio to broadcast an “all stations” voice message cancelling the alert over the emergency VHF marine channel in your region (channel 16 in most regions).

   Example of message to cancel the distress alert:
   ALL SHIPS ALL SHIPS ALL SHIPS
   THIS IS {vessel call sign repeated 3 times}
   CANCEL DISTRESS ALERT FROM {MMSI number}

4. Contact the search and rescue authority in your region to advise that you have cancelled the alert.

Important Notes:
1. If you do not have access to a VHF marine radio, contact your search and rescue authority by telephone.
2. There are no penalties for transmitting an accidental alert. You will not be prosecuted and search and rescue authorities will appreciate you contacting them to cancel it.

7.2 Device Indications

The Mobilarm Crewsafe V100 provides no visual or audio indications when it is armed, i. e. when the **ARMING SWITCH** is moved from **[OFF]** to **[READY]**.

When the device has been manually or water activated, the **STROBE**, **STATUS LED**

and audio alerts (beeps and automated messages) notify the user that the device is active and transmitting.

The audio alerts also serve as a reminder to the user to raise the device as high as possible for each transmission, in order to maximise the alerting range, and to reassure him or her that the device is transmitting.

Operation States

The colour of the **STATUS LED** indicates the following:

1. **Orange:** Device acquiring GPS position and battery good.
2. **Green:** GPS position acquired and battery good.
3. **Red:** Battery low, less than one hour of operation remaining.

The following table explains what happens to the device after water activation.

V100 Operation State	Audio Alert		Strobe Timing
	Automated Audio Message	Audio Message Interval	
Initial Water Activation Period	(Beep x 3 initially) "Water activation, Emergency, Emergency, Emergency" (Beep)	Once prior to VHF transmissions commencing	Fast orange/red **STATUS LED** flashes initially and then once every 2 seconds; **STROBE** flashes
Initial Manual Activation Period	(Beep x 3) "Emergency, Emergency, Emergency" (Beep)	Once prior to VHF transmissions commencing	Fast orange/red **STATUS LED** flashes initially and then once every 2 seconds; **STROBE** flashes
VHF-DSC Transmission Activated	(Beep) "V100 sending emergency DSC now" (Beep)	Before each VHF-DSC transmission	Solid Orange/Red **STATUS LED** during message transmission; no **STROBE** flashes during transmission
VHF Voice Transmission Activated	(Beep) "V100 Sending emergency voice message now" (Beep)	Before each VHF-Voice transmission	Solid Orange/Red **STATUS LED** during message transmission; no **STROBE** flashes during transmission
GPS Data Acquired	(Beep) “GPS position”	Repeated whenever GPS signal is lost for a short time and re-acquired	**STATUS LED** turns green when GPS data has been acquired

Important Note: When the device is not transmitting voice or DSC data the **STROBE** flashes 6 times every 6 seconds.

7.3 Testing

Regular testing of your Mobilarm Crewsafe V100 functions will reassure you it is operating normally. The Crewsafe V100 battery should be tested once every 3 months and a full test performed when the device is first put into service and once every 12 months thereafter. Testing the device more frequently is not recommended as additional tests may shorten the battery life. The testing process includes a comprehensive series of checks that may take several minutes to complete, depending on the length of time required to obtain a GPS lock.

WARNING:

1. If the Mobilarm Crewsafe V100 fails the initial self test or any other test then take it out of service immediately.
2. If the battery test indicates less than 12 hours of battery life remaining, return the device to Mobilarm for battery replacement.
3. DO NOT ignore a low battery warning as the device may not operate to full capacity in a man overboard emergency.

Note: Refer to the Troubleshooting section if any tests fail.

Test Button and Test Menus

The **TEST BUTTON** is located on the rear of the Mobilarm Crewsafe V100 and is used to activate both full and single tests, and to program MMSI numbers.

Mobilarm Crewsafe V100 Test Options

There are two ways to test operation of the Mobilarm Crewsafe V100.

1. Full System Test (checks all device functions in sequence).
2. Single test (tests a single device function like battery life, or a subset of all test phases available).

The full test requires access to water to test water activation. Release the **FLEXIBLE ANTENNA** before commencing GPS or VHF transmission tests and perform the test outdoors so that the Crewsafe V100 has a clear view of the sky and can complete the GPS test. The single test is used primarily to check the battery but can also be performed to check any single function of the device. E.g. If a new radio is installed on a vessel, perform the VHF transmission test to check the V100 is working correctly.

Testing VHF DSC and VHF Voice Test Transmissions

In order to test the transmission and reception of the Mobilarm Crewsafe V100 VHF

DSC distress call, it is recommended that you program the MMSI number of your vessel's VHF marine radio (the "Destination MMSI number") into your Crewsafe V100 (see Programming a Destination MMSI Number for VHF DSC Transmission Testing).

Confirmation that VHF DSC and VHF voice test transmissions have been sent and received can be checked by monitoring the appropriate channels on the vessel's VHF radio during testing, channel 70 (156.525 MHz) for DSC and channel 67 (156.375 MHz) for voice test transmissions.

Important Note: Channel 67 is an important working and safety channel. For this reason, only perform VHF voice transmission testing when out of range of other vessels to avoid any interference or disruption to other users.

Performing a Battery Test using the Single Test Function

The Mobilarm Crewsafe V100 battery should be tested once every 3 months. More frequent testing will consume additional battery capacity and shorten the product life.

WARNING: If the battery test indicates less than 12 hours of battery life remaining, take the device out of service and return it for battery replacement.

1. Ensure the **ARMING SWITCH** is in the **[OFF]** position.
2. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and stops and the device emits two short beeps.
3. Listen for the enunciated message "Mobilarm 100 test menu" followed by a beep.
4. Press the **TEST BUTTON** once within 2 seconds and listen for "Battery Test" followed by a beep.
5. The remaining battery life of the device is stated, i.e. "Battery One-Five hours", meaning that the device will transmit emergency messages for 15 hours.
6. At the end of the battery test the device will turn off.

Performing other Tests using the Single Test Function

There are six single tests that can be performed on the Mobilarm Crewsafe V100. A single test only checks the selected function i.e. water activation, and will cease testing once it is complete. The diagram following this procedure provides a list of the single tests available. The table following this outlines test progress, pass and fail indications. The short test menu can also be used to configure the unit MMSI number.

1. Ensure the **ARMING SWITCH** is in the **[OFF]** position.
2. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and stops and the device emits two short beeps.
3. Listen for the enunciated message "Mobilarm 100 test menu" followed by a beep.
4. Press and hold the **TEST BUTTON** within 2 seconds to navigate to the desired test phase.
   - ➢ Each test is read out in sequence; when you hear the test you want to perform let go of the **TEST BUTTON**.

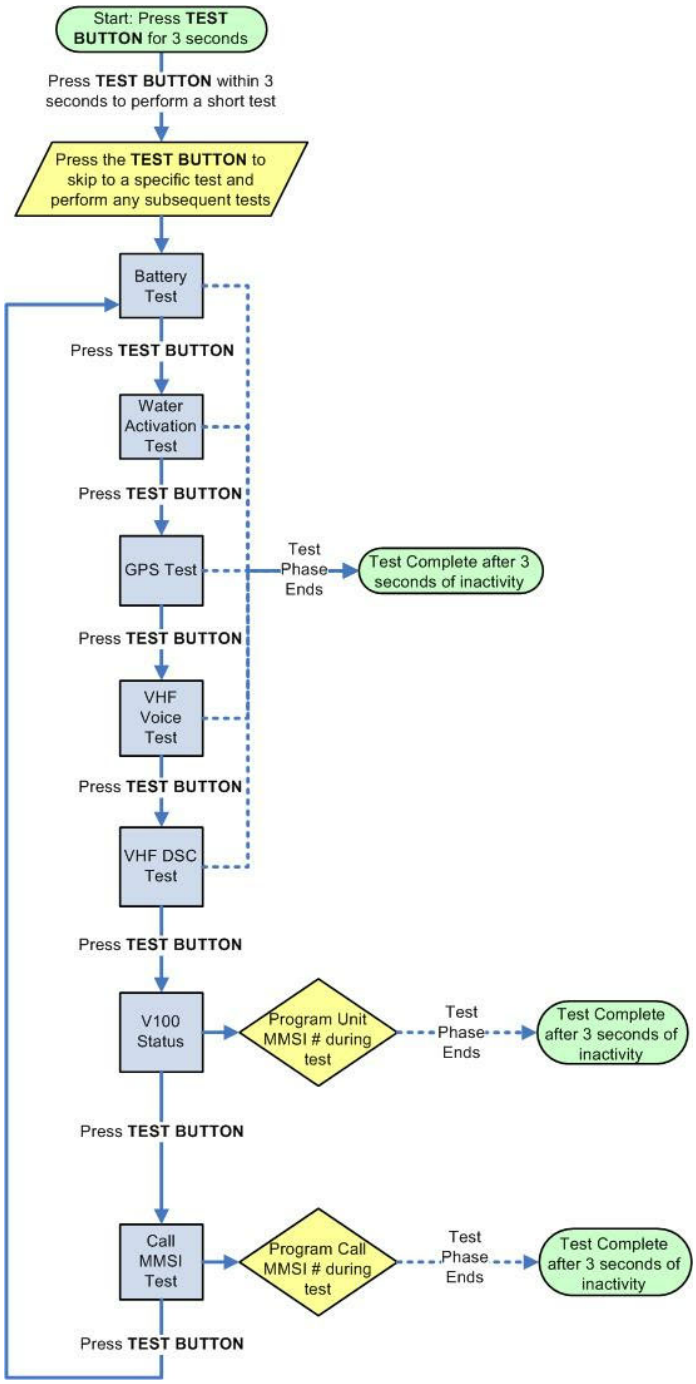
5. Check whether the test has passed or failed.
6. Test mode will timeout automatically within 3 seconds of a test phase being completed.

WARNING:

- Only performing single tests may compromise the operational status and safety of the device because not all functions are tested.
- Perform a full test every 12 months to ensure that all functions of the Crewsafe V100 are operating normally.

Mobilarm Crewsafe V100 Short Test Menu Structure

The following diagram provides a snapshot of the Mobilarm Crewsafe V100 test menu structure. See Appendix I for the complete Crewsafe V100 test menu structure.



Test Phase Indications for Short Tests

A list of all test phases and their indications are listed in the following table. If any of the test phases fail, please see the Troubleshooting section of this manual for advice on resolving any problems.

Test Phase	Progress Message	Pass Test Result	Fail Test Result	Time-out
1. "Battery Test"	“Battery ... hours”	More than 12 hours remaining.	Under 12 hours remaining.	None
2. "Water Test" (requires water sensors to be immersed in water)	“Water test armed” followed by “Water lost” until water detected.	“Water activation”	“Water test off”	1 minute
3. "GPS Test" (requires clear view of sky outdoors)	“GPS scanning” until GPS lock acquired. “GPS stopped” if test button pressed before timeout.	“GPS position ...”	“GPS test off”	3 minutes
4. "VHF Radio Voice Test" (listen for transmission on VHF radio)	Solid orange/red LED display during transmission (30 secs).	“Test test test. This is [User MMSI] V100 automated alarm, position to follow*, battery ... hours. Test test test.”	“V100 test mode off”	None
5. “VHF Radio DSC Test” (Watch for transmission on VHF DSC radio.)	Solid orange/red LED display during transmission (2 secs)	Valid position is indicated on VHF marine radio.	“V100 test mode off”	None
6. “V100 Status” (Provides device status information only.)	“Model number V100_AU; firmware version ...; emergency voice channel 16; VHF test voice channel 67; User MMSI ...”	All data heard.	“V100 test mode off”	None

* Positioning data included if available.

VHF Test Messages

VHF test messages are sent according to the profile programmed into the device. For example, if the device's profile is programmed to send both VHF voice and VHF-DSC messages in an emergency, then both types of messages will be sent during the VHF test phase. The content of messages is outlined in the following table.

Message Type	Message Content
Test without Positioning Data	TEST, TEST, TEST... this is xxxxx, V100 automated alarm... POSITION to follow... BATTERY xxxx, TEST, TEST, TEST...
Test with Positioning Data	TEST, TEST, TEST... this is xxxxx, POSITION xxxxx, BATTERY xxxx, TEST, TEST, TEST...

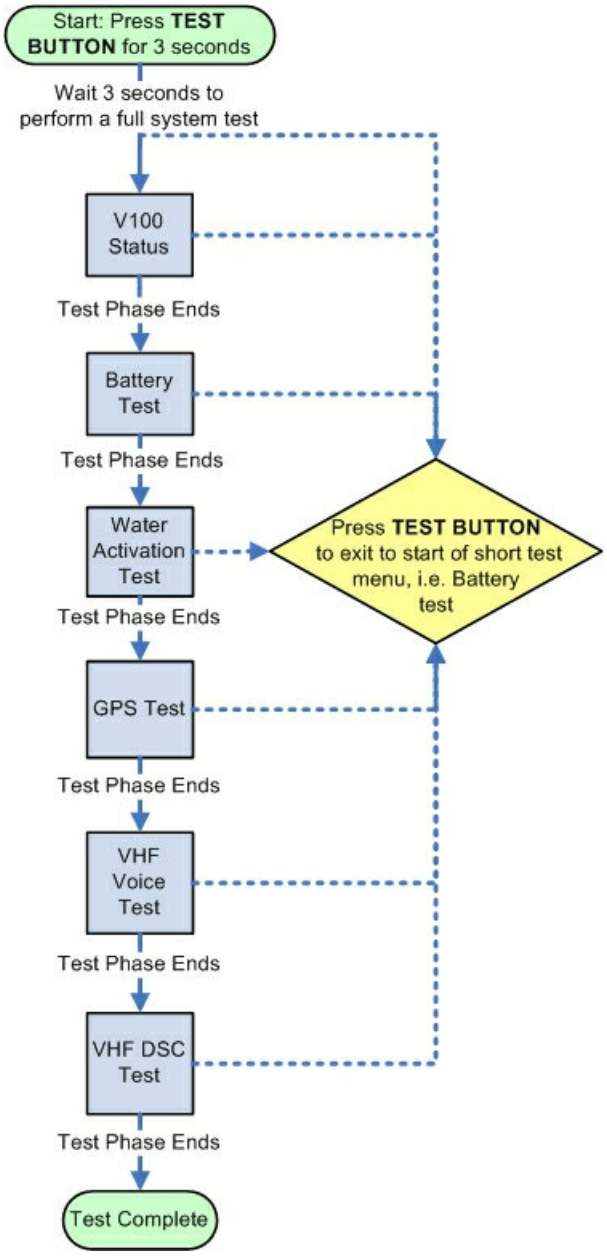
Performing a Full System Test

Important Note: If you have just purchased the Mobilarm Crewsafe V100 ensure that the unit MMSI and calling MMSI numbers have been programmed into the device before performing a full system test (see First Use of the Mobilarm Crewsafe V100)

1. Ensure the **ARMING SWITCH** is in the **[OFF]** position.
2. Press and hold the black **TEST BUTTON** on the rear of the unit for 3 seconds.
   - ➢ This activates the test sequence.
     - The **STROBE** flashes quickly and stops and the device emits two short beeps.
3. Listen for the automated message “Mobilarm V100 test menu” followed by a beep.
   - ➢ Listen for each test to be performed in turn and check whether the tests have passed or failed.
     - Audio alerts (beeps and automated messages) confirm when each new test has commenced.
4. When the Crewsafe V100 has completed all the tests, the device will turn off.

Important Note: Refer to the Troubleshooting section of this manual if any of the test phases fail.

Full System Test Menu Structure



Test Phase Indications for the Automated Full System Test

A list of all test phases and their indications are listed in the following table. If any of the test phases fail, please see the Troubleshooting section of this manual for advice on resolving any problems.

Test Phase	Progress Message	Pass Test Result	Fail Test Result	Time-out
1. "V100 Status" (Provides device status information only.)	"Model number V100_AU; firmware version ...; emergency voice channel 16; VHF test voice channel 67; User MMSI ...; destination MMSI..."	All data heard.	"V100 test mode off"	None
2. "Battery Test"	"Battery ... hours"	More than 12 hours remaining.	Under 12 hours remaining.	None
3. "Water Test" (requires water sensors to be immersed in water)	"Water test armed" followed by "Water lost" until water detected.	"Water activation"	"Water test off"	1 minute
4. "GPS Test" (requires clear view of sky outdoors)	"GPS scanning" until GPS lock acquired. "GPS stopped" if test button pressed before timeout.	"GPS position ..."	"GPS test off"	3 minutes
5. "VHF Radio Voice Test" (listen for transmission on VHF radio)	Solid orange/red LED display during transmission (30 secs).	"Test test test. This is [User MMSI] V100 automated alarm, position to follow*, battery ... hours. Test test test."	"V100 test mode off"	None
6. "VHF Radio DSC Test" (Watch for transmission on VHF DSC radio.)	Solid orange/red LED display during transmission (2 secs)	Valid position is indicated on VHF marine radio.	"V100 test mode off"	None

* Positioning data included if available.

8 Service and Maintenance

The Mobilarm Crewsafe V100 is a robust product designed to operate in harsh marine conditions. However, careful handling of the device will help to ensure it operates as intended in an emergency.

- Avoid dropping the unit.
- Avoid leaving the unit unnecessarily in full sun where it may be exposed to excessively high temperatures.
- Inspect your Crewsafe V100 periodically for signs of wear and tear, visible cracks or other damage.

WARNING:
Cracks in seals or housings could allow moisture inside the unit, rendering it unreliable or unusable.

If cracking is observed, or if it is possible that the unit has been damaged, please contact your authorised Mobilarm service agent for it to be assessed and replaced if required.

Mobilarm Crewsafe V100 Battery

The Mobilarm Crewsafe V100 has a service life of 5 years, at which point the battery should be replaced or a new unit purchased.

Performing a battery test every 3 months indicates how much battery life is remaining. If the battery test fails or the remaining battery life is less than 12 hours, immediately take the device out of service and return it to Mobilarm for servicing. It is possible to test the battery more frequently but this will consume additional battery capacity and shorten the product life to less than 5 years.

Mobilarm Annual Service Contract

Users in high demand environments should consider purchasing the Mobilarm Crewsafe V100 Annual Service Contract.

For a fixed annual fee per unit, Mobilarm will check and replace as necessary all serviceable parts, check the integrity of the watertight seals using a pressure test and fully recertify the device for a further 12 months. For full details go to www.mobilarm.com, or contact your Mobilarm agent.

Changing Contact Details or Ownership of the Unit

It is the owner's responsibility to advise Mobilarm of any change of contact details or ownership of a Crewsafe V100. If ownership is being transferred, this obligation transfers to the new owner of the device. If you are the new owner, you may need to assign a new Unit MMSI number to the device and assign your vessel's MMSI number (the "destination MMSI number") for VHF DSC transmission testing.

Using the Mobilarm Crewsafe V100 in a Different Region

If you move outside the region where your Mobilarm Crewsafe V100 was purchased, you may need to have the device reconfigured with a different regional profile to comply with regulatory authorities' requirements for that region. For further advice, or to return your Crewsafe V100 for reconfiguration to a different regional profile, contact

Mobilarm at support@mobilarm.com, or call +61 (0)8 9315 3511 between 8:30am and 5:00pm WST (GMT + 08:00).

Replacing Faulty or Damaged Units

If the Mobilarm Crewsafe V100 has failed a test phase, or the integrity of the device is in doubt, immediately take it out of service and contact Mobilarm for it to be assessed and replaced if required.

If you Lose your Mobilarm Crewsafe V100

If you lose your Mobilarm Crewsafe V100, or it is damaged beyond repair, contact Mobilarm at support@mobilarm.com, or call +61 (0)8 9315 3511 between 8:30am and 5:00pm WST (GMT + 08:00).

If your Mobilarm Crewsafe V100 is Stolen

1. Report the theft to your local police and give them the User MMSI number of your device.
2. Contact Mobilarm to advise that the unit has been stolen and provide them with the police report details.

These measures will make returning the device to you more likely if it is found, or if someone attempts to register ownership of the device with Mobilarm.

Further Support

Please consult the Troubleshooting and FAQ sections of this manual or contact Mobilarm for assistance with using and testing your Mobilarm Crewsafe V100. Refer to the 'Support' section online at www.mobilarm.com for further technical information regarding the Crewsafe V100 and other Mobilarm products and services. Alternatively, email Mobilarm at support@mobilarm.com, or call +61 (0)8 9315 3511 between 8:30am and 5:00pm WST (GMT + 08:00).

9 Troubleshooting

Issue	Possible Cause	Solution
STROBE, STATUS LED or **SPEAKER** not operating as expected	Fault	Take out of service immediately and contact your authorised Mobilarm service agent for assessment
Self test failure	Fault	Take out of service immediately and contact your authorised Mobilarm service agent for assessment.
Battery test failure	Remaining battery life has dropped below 12 hours	Take out of service immediately and contact your authorised Mobilarm service agent for replacement
Water activation test failure	Unit not immersed in water for long enough	Ensure base of unit is immersed in water for at least 5 seconds
	WATER SENSORS blocked	Check that water sensors are clear from salt, grease or other foreign materials If problem persists, contact your authorised Mobilarm service agent for assessment
GPS acquisition test failure (timed out because the device was unable to obtain a GPS lock)	Test performed indoors or in covered area	Re-test outdoors with clear view of sky
	FLEXIBLE ANTENNA not fully extended	Release the **FLEXIBLE ANTENNA** from the Antenna Slot and repeat the test
	Natural interference from electromagnetic radiation such as solar flares or geomagnetic storms (these are predominantly found near poles of the Earth's magnetic fields)	Re-test after 1 hour to determine whether test failure was due to temporary signal interference. If test failure persists and a second Crewsafe V100 is available, test the second device to confirm if failure is due to a fault with original device. If testing still fails, contact your authorised Mobilarm service agent for assessment
VHF voice transmission test failure (no voice transmission heard)	Receiving radio not turned on or tuned to incorrect channel	Ensure the radio is turned on and tuned to the correct channel. Perform the "V100 Status" test to confirm the radio setting matches the VHF test voice channel
	VHF voice transmitter fault	Take out of service immediately and contact Mobilarm for assessment

VHF DSC transmission test failure (no DSC message received)	Receiving radio not turned on or tuned to incorrect channel	Ensure the radio is turned on and tuned to the correct channel (channel 70)
	Incorrect Destination MMSI number (vessel's VHF marine radio MMSI number) programmed into device	Check the correct Destination MMSI number has been programmed into the device. Perform the "V100 Status" test to confirm the Destination MMSI number matches the vessel's VHF marine radio MMSI number
	VHF DSC transmitter fault	Take out of service immediately and contact Mobilarm for assessment
Device beeps continuously when trying to program a new User MMSI number	User MMSI numbers can be programmed into the Crewsafe V100 a maximum of two times - subsequent programming will be disallowed	If you attempt to program the device with a new User MMSI number after the maximum number of entries has been reached, the device will beep continuously and not permit this action. In this case, contact Mobilarm Support for advice.

Strobe, LED or Speaker Failure

If either the **STROBE, LED** or **SPEAKER** on the unit fail to operate as expected, please return it to your place of purchase, or your nearest Mobilarm dealer for assessment.

10 Frequently Asked Questions

Q: Where is the best place to wear a Mobilarm Crewsafe V100?

In order for the Crewsafe V100 to transmit VHF distress alerts successfully, the **FLEXIBLE ANTENNA** must be out of the water. This means that the unit is best positioned high on the front of a person's body, ideally at chest height. The **WATER SENSORS** on the base of the unit must be submerged for at least 5 seconds to automatically activate the device, otherwise it must be manually activated. A Remote Water-Sensing Extension Kit (part number MOA-00202) is also available to extend the water sensing capability of the device. This allows a Crewsafe V100 to be worn or mounted above sea level to achieve a wider alerting range, but still be water activated in an emergency.

The Crewsafe V100 is also available to purchase already embedded into a life jacket (see www.mobilarm.com for further details), which ensures that it is in the most effective position for water activation and emergency message transmission, while also assisting the casualty to remain afloat and face up in the water.

Q: Is the Mobilarm Crewsafe V100 compatible with other safety or man overboard devices such as a life jacket or Jon buoy?

Yes. The Crewsafe V100 clip allows it to be attached to any strap or harness that can be threaded through the loops. The Crewsafe V100 is also available to purchase already embedded into a life jacket (see www.mobilarm.com for further details).

Q: Can anyone replace the battery in a Mobilarm Crewsafe V100?

No. Battery servicing and/or replacement must only be carried out by an authorised Mobilarm service agent. Failure to do so may compromise the integrity of the product and will void the product warranty.

Q: Can a Mobilarm Crewsafe V100 be re-used once it has been activated?

Perform a full test to check the state of the battery and how much battery life is remaining in the device. If the battery test phase fails or the battery life is below the minimum accepted for safe use, immediately take the device out of service and contact your authorised Mobilarm service agent for a replacement.

If the device passes the full test, then the device may remain in service. Remember to perform a full system test every 3 months to check that all functions are in proper working order and that the remaining battery life has not dropped below the minimum accepted for safe use.

Q: Are there different antennae available to attach to the Mobilarm Crewsafe V100?

Yes. A Long Range Dipole Antenna (part number MOA-00203) can be used instead of the existing antenna when using the Crewsafe V100 with a life jacket or survival suit.

Q: What is the procedure if I change to a different vessel and want to continue using my Mobilarm Crewsafe V100?

Check whether the area of operation of the new vessel is governed by different maritime regulations to your current area of operation, because your Crewsafe V100 may need to be reprogrammed with a different operational profile in order to comply with those regulations.

If your Crewsafe V100 is programmed with the MMSI number of your current vessel then this must be reprogrammed to the MMSI number of the new vessel.

Contact your authorised Mobilarm service agent for assistance with reprogramming your device.

Q: Is there any set-up required before the Mobilarm Crewsafe V100 will transmit GPS coordinates?

No. The Crewsafe V100 has an in-built 20-channel GPS receiver that will automatically acquire a GPS lock and transmit position coordinates in the DSC and voice distress alert.

Performing a full system test every 3 months will reassure you that the **GPS ANTENNA** is operating properly and can acquire GPS coordinates. When in use, ensure the unit has a clear view of the sky.

Q: How do I configure my chart plotter so that an incoming Crewsafe V100 DSC distress alert logs a waypoint when a man overboard event occurs?

Some marine radios can output DSC and DSE messages via a NMEA connection. When the VHF DSC marine radio receives the distress alert it may be able to output a NMEA0183 sentence direct to a connected chart plotter and log a waypoint of the coordinates received in the distress alert. This will plot the casualty's first known position and track them in the water with every subsequent updated position received.

Refer to your radio owner's manual to determine whether your marine radio is capable of sending NMEA0183-compatible data to your GPS or chart plotter and if so, ensure that your GPS or chart plotter is correctly configured to accept this data protocol.

Q: How do I know that my Mobilarm Crewsafe V100 is transmitting emergency messages?

When the Mobilarm Crewsafe V100 has been activated, the **STROBE** flashes before and after transmission, the **STATUS LED** illuminates to indicate that the device is active and audio alerts (beeps and automated messages) warn the user that the device has been activated.

The device indicates it is transmitting a message with a long beep prior to each VHF voice or VHF DSC transmission. The **STROBE** flashes twice per second during transmission and two short beeps after the message confirm the transmission has been sent.

11 Technical Specifications

The following specifications are for Mobilarm Crewsafe V100 units programmed with the Australian regional profile (AS/NZS).

General	
Battery Type	3 x 3 Volt LiMnO2 (Non HAZMAT) CR2 batteries
Operating Time	Nominal 12 hours emergency operation at -10°C (14°F) and longer in warmer conditions
Battery Life at +20°C	10 years shelf life (5 years operational life)
Operating Temperature	-20° to +55°C (-4° to +131°F)
Stowage Temperature	-30° to +70°C (-22° to +158°F)
Dimensions	12 x 7.8 x 3cm (4.7 x 3 x 1.22in) excluding antenna and clip
Weight	153g (5.4oz) excluding antenna and clip
Case	Impact resistant and water resistant to 10m (33ft)
Durability	Tested as per IEC Standard 60945
Strobe Light	>180° at 5 candelas. Flash rate 1Hz.
Environmental Resistance	IP68 10 metres, 5 minutes
Mounting Options	Includes attachment for belt, harness, or personal floatation device
Compass Safe Distance	0.3 m (for minimal deflection)
Buoyancy	Positive buoyancy
Alerting Radius	2 to 10 nautical miles depending on sea state and height of antenna
Controls and Operation	
Activation Time:	
Automatic Activation	After 5 seconds of immersion in water using water sensing terminals, with a programmable transmission delay before full activation
Manual Activation	Switch activation with a programmable transmission delay
Operation Controls:	
Activation Switch	Three position: ON; READY; OFF
Self Test	Push button cycles through self-test phases with voice-enunciated indications for all phases.
V100 Warning State:	
Strobe	Fast flashes for 2.5 seconds then once per second
Voice Enunciation	"Warning, warning, warning V100 manually/water activated"
Bi-colour LED	Orange flash every 5 seconds = GPS acquiring position; red flash every five seconds = battery low
V100 Alert State:	
Strobe	Flashes once per second
Voice Enunciation	"Emergency voice/DSC message sent"
Bi-colour LED – Orange Flashes	Flashes every 5 seconds, indicating battery is good and acquiring GPS position. V100 can transmit VHF voice MAYDAY and DSC messages without location data (as per profile settings). Crewsafe V100 voice enunciation = “Emergency voice message sent” and “Emergency DSC message sent"

Bi-colour LED – Green Flash	Flashes every 5 seconds, indicating good battery and GPS position acquired. V100 transmits VHF voice MAYDAY and DSC messages with location data (as per profile settings). Crewsafe V100 voice enunciation = “Emergency voice message sent” and “Emergency DSC message sent"; "Position acquired, position is xxxx..." when GPS position is first acquired.
Bi-colour LED – Red Flash	Flashes every 5 seconds, indicating low battery and GPS position acquired. V100 is transmitting VHF voice MAYDAY and DSC messages with location data (as per profile settings). Crewsafe V100 voice enunciation = “Emergency voice message sent” and “Emergency DSC message sent"; "Position acquired, position is xxxx..." when GPS position is first acquired.

V100 Test State:	
Test Initiation	Press and hold test button for 3 seconds
Strobe	two fast flashes
Speaker	two beeps
Voice Enunciation	"V100 Test Menu”
Bi-colour LED	one second LED blinks cycling through green, orange and red indications during testing
V100 Test menu:	
Phase 1: Battery Test	Estimates remaining operation time for the device
Water Activation Test	Tests operation of the water sense circuitry
GPS Test	Activates the GPS subsystem and obtains a position
Voice Message Test	Transmits a low power test message on the programmed VHF channel
DSC Message Test	Transmits a low power DSC test message on the programmed VHF DSC channel
V100 status	Provides all information about how the device has been programmed
GPS Receiver	
Channels	20 channel parallel
TTFF (Time to First Fix)	Usually within 45 seconds
Antenna	Solid state quadrafilar helix
GPS Sensitivity	Better than -160dBM
Antenna Power Output	
Antenna Type (Standard)	Vertically polarised helix antenna
VHF DSC Tx Power Output	1 watt (100mW during testing)
VHF Voice Tx Power Output	1 watt (100mW during testing)
VHF Transmitter Package	
VHF DSC Channel Alerts:	
Initial DSC Alert	up to 20 seconds from water detection and/or system activation (as per profile settings)
First DSC GPS Data Alert Sent	Once GPS lock acquired

Subsequent DSC Alerts	Every five minutes for 30 minutes; every 10 minutes thereafter until the beacon is turned off or the batteries expire (or as per profile settings)
VHF Voice Channel Alerts:	
First VHF Voice GPS Data Alert Sent	Once GPS lock acquired and initial DSC GPS data alert sent
Subsequent VHF Voice Alerts	Every five minutes for 30 minutes; every 10 minutes thereafter until the beacon is turned off or the batteries expire (or as per profile settings)

12 FCC Compliance Information Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference; and
2. This device must accept any interference received, including interference that may cause undesired operation.

Note:

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
- This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
- If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

    1. Reorient or relocate the receiving antenna;
    2. Increase the separation between the equipment and receiver; or
    3. Contact your authorised Mobilarm service agent for help.

Do not make any changes or modifications to the equipment unless otherwise specified in this manual. If such changes or modifications should be made, you could be required to stop operation of the equipment. Any changes or modifications not expressly approved by Mobilarm Limited could void the user' authority to operate this equipment.

13 Declaration of Conformity

MOBILARM®
ALWAYS ON WATCH

MOBILARM LIMITED

DECLARATION OF CONFORMITY WITH R&TTE DIRECTIVE

The undersigned of this letter declares that the following equipment complies with the specifications of EC directive 1999/5/EC concerning Radio & Telecommunications Terminal Equipment (R&TTE).

Equipment included in this declaration

Name	Description	Part Number
MOBILARM V100	MARITIME SURVIVOR LOCATING DEVICE	100000100
V100 ACCESSORY	EMBEDDED ANTENNA	100000107
V100 ACCESSORY	EXTENSION KIT	100000108

Intended use of the product

MOBILARM V100 is a fully automated Maritime Survivor Locating Device (MSLD) that uses VHF radiotelephone with DSC for maritime communication of a man overboard event.

Declaration

MOBILARM V100 conforms to the R&TTE directive with respect to:

IEC 60945: 2002-08 Sections 8.1; 8.2; 8.3; 8.4; 8.6; 8.7; 8.9; 8.10
ETSI EN 300 698-1 v1.3.1 (2003-12)
ETSI EN 301 843-1 v1.2.1 (2004-06)
RTCM 11901.0: 2004 (Amdt 1 and Amdt 2)

Manufacturer

Mobilarm Limited 768 Canning Highway, Applecross 6153 Western Australia
PO Box 1533 Applecross WA 6953

Signed

Lindsay Neal Lyon
Chief Executive Officer

Applecross, 15 October 2010

CE

CMM82-0310.2

14 AS/NZS Compliances & Certifications

Certifications	AS/NZS1; C ; ACMA[1]; IEC[2]; AMSA; RoHS; ATEX (pending)
Compliances	VHF DSC: Designed according to ITU-R M. 493-11 and ITU-R M. 451-9; Strobe Light: USCG SOLAS Lifejacket Light Requirement; GPS:Complies with IEC Standard 61108-1; DSC Transmitter: ITU-R M. 493-11 and ITU-R M. 451-9; Radio-Telephone Voice Transmitter: IEC 60945

(1) AS/NZS 4415.2:2003; Standard 2004; Standards Australia Committee RC/4 MSLS DSC Standards

(2, 3) IEC Standard 61108-1 & 60945

15 Warranty

LIMITED WARRANTY

1. Mobilarm warrants, to the original purchaser only, each Marine Employee Safety Monitoring Product ("Product") manufactured and/or supplied by Mobilarm against defects in materials and workmanship under normal use and service, and against non-conformity to its factory specifications for a period of 24 months from the date of purchase. Software products are warranted as per the End User License Agreement applicable to that software.
2. Mobilarm warrants products against failure due to defects in materials and workmanship when properly installed and used on the hardware designated by Mobilarm. Mobilarm cannot be responsible in any way for ancillary equipment, hardware or software not furnished by Mobilarm which is attached to or used in connection with Mobilarm's Products, or for the operation of the Product with any ancillary equipment, hardware or software and all such equipment, hardware or software is expressly excluded from this warranty. Mobilarm further warrants that Mobilarm owned standard Firmware and Software will substantially conform to its factory specifications.
3. In the event of a defect, malfunction or failure of the Product during the warranty period, Mobilarm's liability for any breach of contract or any breach of express or implied warranties in connection with the sale of Products shall be limited solely to repair or replacement, at its option, of the Product or part(s) therein which, upon examination by Mobilarm, appear to be defective or not up to factory specifications. Mobilarm may, at its option, repair or replace parts or subassemblies with new or reconditioned parts and subassemblies. Parts thus repaired or replaced are warranted for the balance of the original applicable warranty.
4. Mobilarm will pay all labour to repair the product and replacement parts charges incurred in providing the warranty service except where purchaser abuse or other qualifying exceptions exist. The purchaser must pay any transportation expenses incurred in returning the Product to Mobilarm for service.
5. Mobilarm disclaims liability for range, coverage, or operation of the Product and ancillary equipment as a whole under this warranty. Mobilarm reserves the right to make changes or improvements in Products, during subsequent production, without incurring the obligation to install such changes or improvements on previously manufactured Products.
6. Mobilarm will not warrant installation, maintenance or service of the Products. In all instances, Mobilarm's liability for damages shall not exceed the purchase price of

the defective Product.

7. This limited warranty does not extend to any Product which has been subjected to misuse, neglect, accident, incorrect service repair or maintenance by anyone other than Mobilarm or its Authorised Service Agent(s), improper installation, unauthorised modification, loss or damage in transit, or subjected to use in violation of instructions furnished by Mobilarm, nor does this warranty extend to Products on which the serial number has been removed, defaced, or changed.
8. The implied warranties which the law imposes on the sale of this Product are expressly limited, in duration, to the time period specified above. Mobilarm shall not be liable under any circumstances for consequential damages resulting from the use and operation of this Product, or from the breach of this limited warranty, any implied warranties, or any contract with Mobilarm.
9. In connection with the sale of its products, Mobilarm makes no warranties, express or implied, as to the merchantability or fitness for a particular purpose or otherwise, except as expressly set forth herein.
10. Some states and territories do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply. This warranty gives specific legal rights, and there may be other rights which may vary from state to state, or between territories.

Warranty Period

The standard warranty on the Mobilarm Crewsafe V100 is 24 (twenty four) months.

Extended Warranty

An optional 3 year extended warranty (part number MOA-00201) can be purchased to extend the warranty period of a Mobilarm Crewsafe V100 to a total of 5 years. Contact your authorised Mobilarm service agent to purchase the extended warranty. Alternatively, email crewsafe@mobilarm.com to contact the Mobilarm sales team or call +61 (0)8 9315 3511 between 8:30am and 5:00pm WST (GMT + 08:00).

Warranty Registration

It is important to register your Mobilarm Crewsafe V100 by completing the enclosed warranty card or the online form. Failure to complete registration could delay any warranty claim. To register online, go to www.mobilarm.com and select 'Product Registration' from the Support menu.

16 Exclusions & Disclaimers

Exclusions

The law implies terms, conditions and warranties ('prescribed terms') into contracts for the supply of goods and services and prohibits the exclusion, restriction or modification of certain terms, conditions and warranties. Some prescribed terms permit a supplier to limit its liability for a breach of the prescribed terms, except as provided by prescribed terms:

1. The liability of the seller in respect of a breach of a prescribed term relating to the products or any part of the products is limited at the option of the seller to the replacement or repair of the products part thereof or payment of the cost of

repairing or replacing the products or any part of the products;
2. In these conditions the buyer does not have under any circumstances any cause of action against or right to claim or recover from the seller for, or in respect of, any loss or damage of any kind whatsoever, caused directly or indirectly by:
   a. Any defect in material or workmanship of, or any other defect whatsoever in, or unsuitability for, any purpose of the products or any part of the products; or
   b. By default or negligence on the part of the seller or of any employee, contractor or agent of the seller or of any person for whom the seller has legal responsibility relating to the supply of, or otherwise concerning products or any part of the products. Mobilarm is not liable to the buyer in contract or in tort arising out of, or in connection with, or relating to:
      i. The performance of the products or any breach of these conditions; or
      ii. Any fact, matter or thing relating to the products; or
      iii. Any error (whether negligent or in breach of contract or not) in information supplied to the buyer or a user before or after the date of the purchaser's or user's use of the products.
3. Mobilarm is not liable to the buyer in contract or in tort arising out of, or in connection with, or relating to:
   a. The performance of the products or any breach of these conditions; or
   b. Any fact, matter or thing relating to the products; or
   c. Any error (whether negligent or in breach of contract or not) in information supplied to the buyer or a user before or after the date of the purchaser's or user's use of the products.
4. The total liability of Mobilarm for loss or damage of every kind:
   a. Whether arising pursuant to this agreement; or
   b. Out of or in relation to the goods, their sale, delivery or the way they behave, in tort or contract or in any other cause of action;
   c. Or in any other way whatsoever, is limited to:
      i. The amount paid by the buyer to the seller under this agreement at the date when such liability arises; or
      ii. The buyer indemnifies on a continuing basis on a fully indemnity basis Mobilarm from and against any liability, loss, expense or demand for or arising from any false, misleading, deceptive or misdescriptive representation or statement made by the buyer in respect of the products, or their intended use to any person.
5. This indemnity survives termination of this agreement by either party for any reason.
6. The failure of any party to enforce the provisions of this agreement or to exercise any rights expressed in this agreement is not be a waiver of such provisions or rights and does not affect the enforcement of this agreement.

Disclaimer

The Mobilarm Crewsafe V100 is an emergency rescue transmission device that should only be activated as a last resort. Misuse or false activation is unlawful and irresponsible, and could result in prosecution or penalty.

The Crewsafe V100 should not be relied on as the only source of man overboard notification and the vessel owner, operator or master must exercise common prudence and good seamanship at all times. Use of the Crewsafe V100 in no way reduces liability of the vessel's master and crew who have the primary responsibility for safety on board.

No device is 100% fail safe nor can it guarantee safe rescue in an emergency. When activated, the Crewsafe V100 broadcasts a distress alert via the VHF radio band to all VHF DSC and VHF radio equipped vessels or stations within range but requires subsequent human interaction to acknowledge and respond to the distress alert.

Satellite GPS lock and in-water tracking is dependent on the extent of satellite system coverage and reception at the time and location of the emergency. The actual time and success of rescue is therefore dependent on all these contributing factors and as such, is outside the control of Mobilarm.

This user manual contains important information that must be adhered to for reliable use and operation of the product. It is the owner's sole responsibility to make the effort to read this manual and to ensure that the equipment's operation and limitations are understood.

Mobilarm reserves the right to change specifications, equipment, installation and maintenance instructions without notice as part of the company's policy of continuous product development and improvement.

17 Trademark Notice

The following names, and/or the logos and symbols associated with them, are trademarks:

- "Mobilarm" is a registered trademark of Mobilarm Limited in Australia and other countries.
- "Always on Watch" is a registered trademark of Mobilarm Limited in Australia and other countries.
- "Crewsafe" is a trademark of Mobilarm Limited in Australia and other countries.

The absence of a product or service name or logo from those listed does not constitute a waiver of Mobilarm's trademark or other intellectual property rights concerning that name or logo.

Other product names mentioned within this document may be trademarks or registered trademarks, or a trade name of their respective owner.
Contact Mobilarm Limited at info@mobilarm.com for a copy of our trademark policy before referencing or using any trademark or product name.

18 Mobilarm Product Range

Mobilarm is the world's leading brand in electronic marine safety equipment that protect and save lives in the commercial marine environment. Mobilarm delivers crew monitoring safety systems and personal locating devices for employee protection on vessels and in marine-based facilities, which generate automatic and immediate alerts in incidents such as man overboard.

Mobilarm Crewsafe V100 Product Range

Part Number	Description
MOA-00200	Mobilarm Crewsafe V100
MOA-00201	3-Year Extended Warranty
MOA-00202	Remote Water-Sensing Extension Kit
MOA-00203	Long Range Dipole Antenna
SUP-00420	Mobilarm Crewsafe V100 Annual Service Contract - Forward Exchange
SUP-00421	Mobilarm Crewsafe V100 Annual Service Contract - Premium
SUP-00422	Mobilarm Crewsafe V100 Annual Service Contract - Standard

19 Glossary of Terms & Acronyms

ACMA	Australian Communications and Media Authority
AMSA	Australian Maritime Safety Authority
DSC	Digital Selective Calling – technology used to automate calling on terrestrial marine radio systems.
EPIRB	Emergency Position Indicating Radio Beacon.
FCC	US Federal Communications Commission
GMDSS	Global Maritime Distress and Safety System.
GRT	Gross Registered Tons – statutory measurement of a vessel's size.
IEC	International Electrotechnical Commission
IMO	International Maritime Organisation.
ITU	International Telecommunications Union
kHz	Kilo Hertz – measurement unit of radio frequency (1 thousand Hertz).
MHz	Mega Hertz – measurement unit of radio frequency (1 million Hertz).
MAYDAY	Radio pro-word indicating a voice distress priority message
MID	Maritime Identification Digits
MMSI	Maritime Mobile Service Identity (DSC identity number)
MRCC	Maritime Rescue Coordination Centre.
MSLS	Marine Survivor Locating System
PFD	Personal Flotation Device
PLB	Personal Locator Beacon (a small personal radio locating beacon, normally operating through the COSPAS-SARSAT system on 121.5 and/or 406 MHz)
RCC	Rescue Coordination Centre
RTCM	Radio Technical Commission for Maritime Services
SAR	Search and Rescue
SOLAS	International Convention for the Safety of Life At Sea. Applies to vessels of 300 GRT and over, engaged on an international voyage.
USCG	US Coast Guard
VHF	Very High Frequency radio band – 30 to 300 MHz.

20 Further Support

This user manual should provide all the information required to test and operate the Mobilarm Crewsafe V100. If you are having problems please consult the troubleshooting or FAQ sections of this user manual, or contact your nearest Mobilarm service agent for advice.

If you require further technical information about this or other Mobilarm products, please visit www.mobilarm.com and go to the support section. Here you will find the latest software, troubleshooting and FAQ updates for all products. Downloadable manuals and materials are also available.

Please note: *If you cannot find the information you require in this manual, or on our web-site, please e-mail support@mobilarm.com*

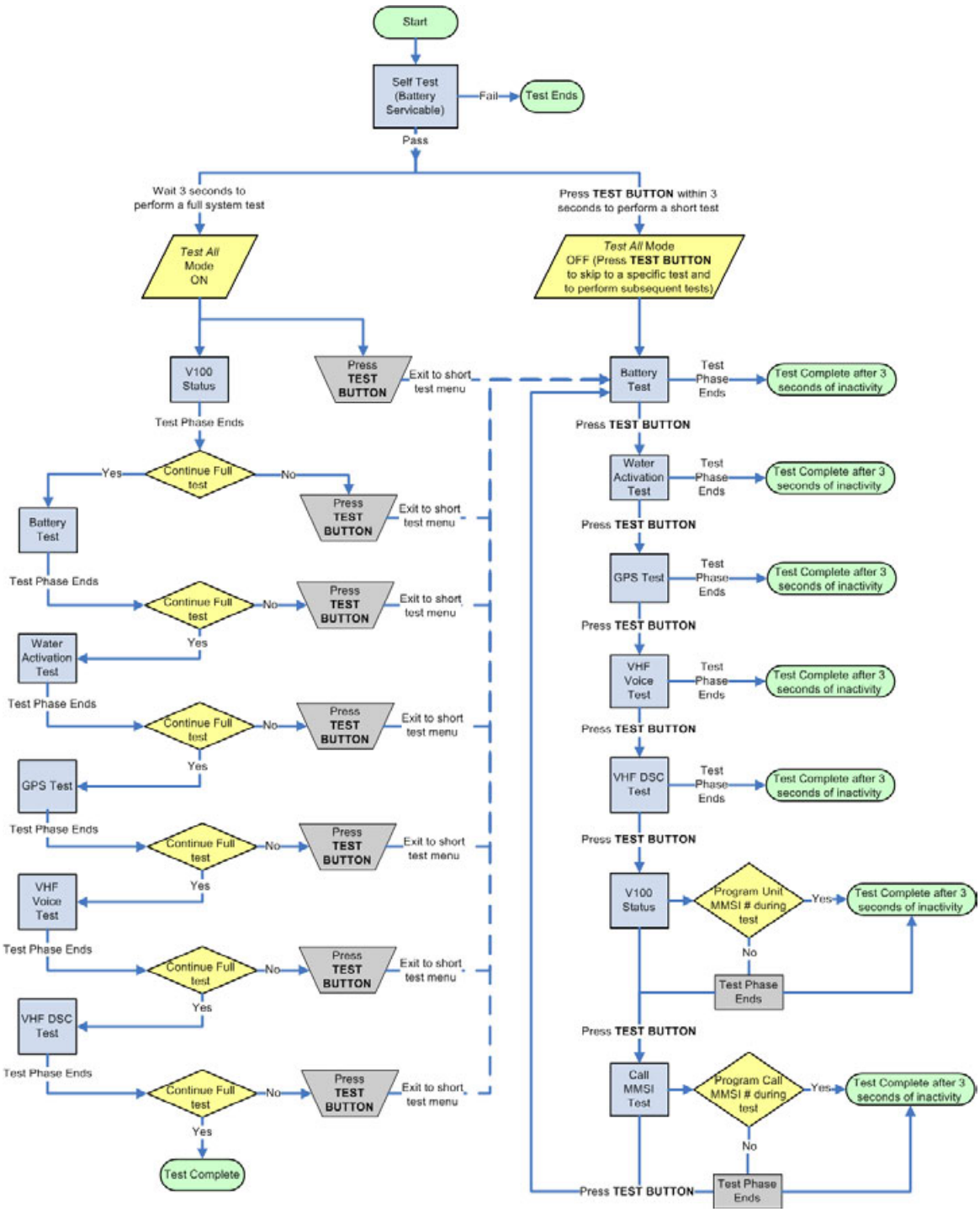
Replacing Faulty or Damaged Components

If you suspect your Mobilarm Crewsafe V100 has a fault or is damaged, please contact your place of purchase to arrange to have system components assessed and repaired, or replaced if required.

21 Appendix I

Complete Mobilarm Crewsafe V100 Test Menu Structure

The following diagram provides a snapshot of the complete Mobilarm Crewsafe V100 test menu structure.



22 Appendix II

Mobilarm Crewsafe V100 Remote Water Sensor

A remote water sensor extension kit can be screwed into the bottom of the Mobilarm Crewsafe V100 to allow it to be embedded within a life jacket, clothing or a personal flotation device:

1. The ability of the unit to obtain a GPS position.
2. The alerting range by exposing the antenna above the waterline as much as possible.

Mobilarm Crewsafe V100 Long Wire Antenna

A long-wire extension antenna can be attached to the Crewsafe V100 to maintain the effective range of the device when it is fitted to a life jacket, wet-weather jacket or similar item.

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