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Client: BriarTek, Inc.
Model: ORCA TX104
FCC ID: QJYORCA1
Standards: Part 80
Report #: 2008083

Appendix H: User Manual

Please refer to the following pages.



Overboard Recovery Communications Apparatus (ORCA®) TX-104 User's Guide



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Introduction

ORCA[®] is a personal saltwater or manual-activated man overboard (MOB) alarm system developed by BriarTek Inc. The system is utilized by the U.S. Navy and other mariners to aid in the rescue of an MOB victim. The ORCA[®] system operates on 121.5 MHz and includes a transmitter, receiver, and direction finder. When the transmitter is activated, it emits a signal from the victim to the receiver. The receiver emits an audible alarm and displays the ship type/hull # and serial number of the transmitter on the receiver LCD. The transmitter also emits a signal that is received by the direction finder and other standard search and rescue (SAR) equipment to locate the MOB.

Parts Overview (figure 1)

- A - Antenna
- B - Manual activation/deactivation recess
- C - Water sensors
- D - Distress marker light
- E - Battery door
- F - Antenna tip holder

Modes

The TX104 has three modes:

- ◆ ARMED - Each transmitter is ARMED after a 3 volt CR123 lithium battery is correctly installed.
- ◆ TRANSMIT - The transmitter goes from ARMED to TRANSMIT mode when it is automatically activated by submerging it in saltwater for a minimum of 3 seconds or when it is manually activated.

After the transmitter is activated, it emits an FM signal for approximately 1 minute. This sends the transmitter identification to the receiver. After approximately 1 minute, the transmitter emits an AM signal. This allows the DF to track the transmitter.

- ◆ DISABLED - The transmitter is DISABLED when the battery is removed or the battery runs out.

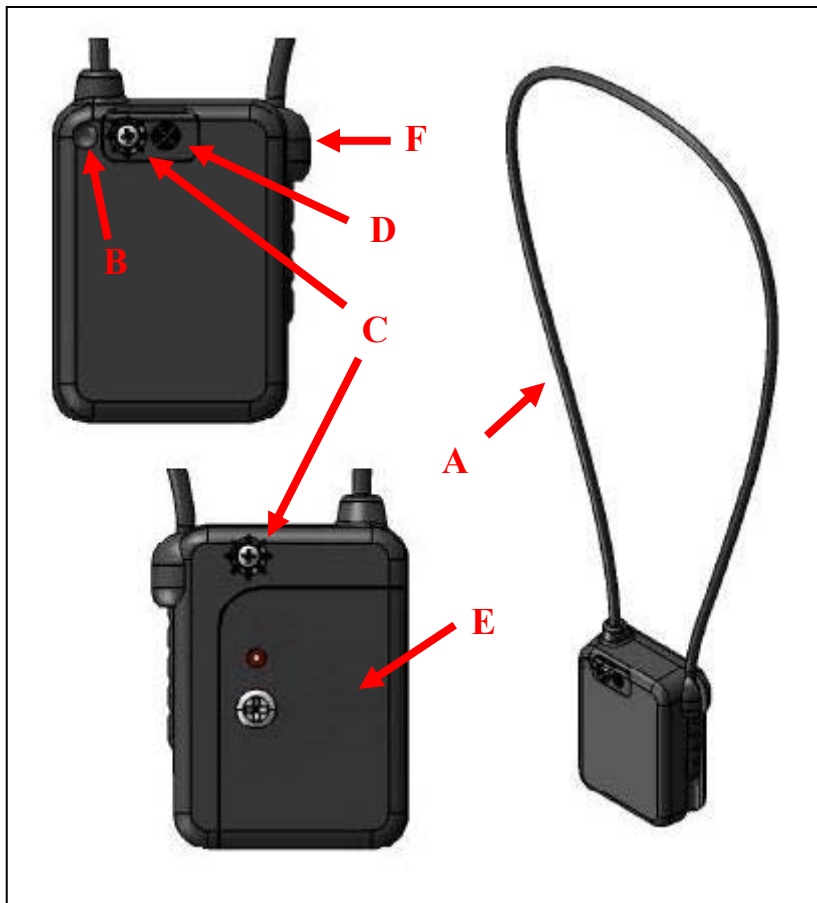


Figure 1: TX104 parts

Operating Instructions

Manual activation: Remove antenna tip (A) from holder and insert tip in manual activation/ deactivation recess (B). See figure 2. The distress marker light begins flashing to indicate activation. Approximately 3-5 seconds after distress marker light begins flashing, the transmitter will begin transmitting.

Automatic activation: The transmitter will activate when the water sensors are submerged in saltwater for at least 3 seconds.

All Clear (deactivate transmitter): When the MOB is recovered, remove antenna tip from holder and insert tip in manual activation/deactivation recess. This sends an ALL CLEAR message to the receiver and returns the transmitter to the ARMED mode.



Figure 2: Manual activation/deactivation

Wearing the transmitter

THE TRANSMITTER MUST BE WORN SO THAT THE WATER SENSORS ARE UNDER WATER AND WET AND THE ANTENNA IS ABOVE THE WATER SURFACE WHEN THE PERSON IS FLOATING. The transmitter can be attached to a PFD using the pouch provided by the manufacturer with the antenna attached to the collar using a lanyard clip. In addition, the transmitter has been designed to be worn around the neck. See figure 3. This affords the best opportunity for the signal to be received in a man overboard event if the MOB is not wearing a PFD.



Figure 3: TX104 worn around neck

Battery Information

Battery Lifespan—TX104 has very low current consumption. It is recommended that the battery should be replaced once a year and sooner if the TX104 has been activated for more than occasional testing. When the TX104 is in TRANSMIT mode, a new battery will last approximately 24 hours.

Use the following steps to test the battery strength:

1. Activate the unit by inserting the antenna tip in the manual activation/deactivation recess.

2. As soon as the distress light begins to flash rapidly, insert the antenna tip in the manual activation/deactivation recess once again.
3. If the light turns on and remains on solid for approximately 5 seconds, the battery is useable. If the light flashes on and off for 5 seconds, the battery is not useable and must be replaced

Use the following steps to replace battery:

1. Using a #1 size Phillips head screwdriver, unscrew the crosshead screw on the battery door. See figure 4.
2. Remove battery door.
3. Remove used battery.
4. Insert new 3 volt CR123 lithium battery according to polarity diagram on the inside of the battery door.
5. Replace battery door. Grasping screwdriver with thumb and forefinger, screw down the battery door to 45 in/oz.
6. Do not over tighten!



Figure 4: Remove battery door

Specifications

- ◆ Size: length = 2.4 inches (6.1 cm) x width = 1.7 inches (4.3 cm) x depth = 0.8 inches (2.0 cm)
- ◆ Weight: 2.5 oz. (70.9 g)
- ◆ Power: 100 mW
- ◆ Tracking Range: 2 NM from small craft, 5 NM from ship, 20 NM or greater from aircraft
- ◆ Alerting Range: 1 NM to receiver
- ◆ Power Source: One (1) 3 volt CR123 lithium battery
- ◆ Battery Life: One year (Armed mode); 24 hours continuous once activated (Transmit mode)
- ◆ Activation: manual or saltwater
- ◆ Current Draw: Armed 15 uA; Transmit (high power): 185mA; Transmit (low power): 80mA
- ◆ Modulation Frequency: 121.5 MHz
- ◆ 25.5 inch (64.75 cm) external antenna with strain relief (the length can be modified based on user needs)
- ◆ Operating Temperature -10° C (14° F) to +55° C (131° F)
- ◆ Storage Temperature -40° C (-40° F) to +60° C (140° F)



Figure 5: TX104 dimensions

Warranty

BriarTek will provide a one-year warranty on the ORCA[®] man overboard alarm system following the purchase date.

If a component fails to function properly during its warranty period (one year), the manufacturer will proceed according to its warranty as follows:

BriarTek Inc. guarantees each product it distributes to be free from defective materials and workmanship and agrees to remedy any such defect, or to furnish a new or equal part in exchange (at its option) for a period of one year from the date the component is purchased. For an exchange of the product, carefully pack the equipment and return to BriarTek Inc. at the following address:

BriarTek Inc.
112 E. Del Ray Ave
Suite A
Alexandria, VA 22301

This warranty is void if:

- ◆ any component has been subject to misuse or improper installation by a non-BriarTek employee, or has been repaired or altered by a non-BriarTek employee.
- ◆ any component fails to function properly after being put into service due to something other than defective materials or workmanship, i.e. excessive temperature, humidity or shock while component is in storage.