ORCA TX-103
IS AN
IDENTIFICATION
AND RECOVERY
SYSTEM FOR
SUBMARINE
FLEETS

MAN OVERBOARD ALARM

ORCA TX-103SE Owner's Manual

BriarTek
INCORPORATED

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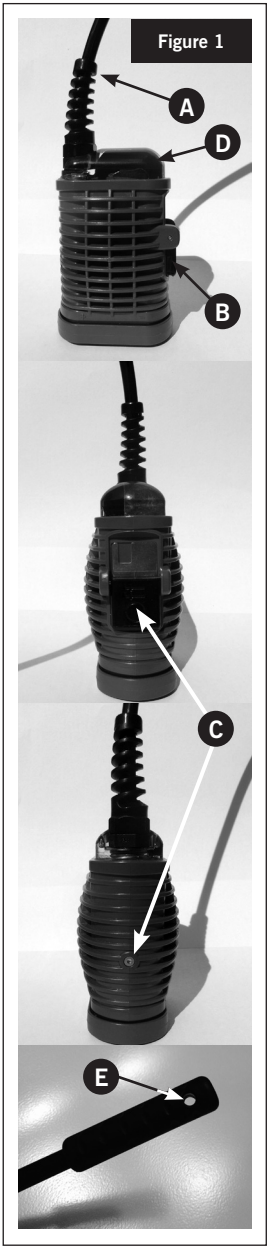
Introduction

The ORCA® TX-103SE (Submarine Escape) is a personal saltwater or manual-activated Submarine Escape beacon developed by BriarTek, Inc. A similar system, the ORCA® Man Overboard Alarm System, is utilized by the U.S. Navy for the detection and recovery of sailors who have fallen from a US Navy Ship. The ORCA® family of beacons operate on 121.5 MHz and includes a transmitter, receiver and direction finder. When the transmitter is activated either manually or during the ascent of the egress from the submarine, it emits a 121.5 MHz signal which is processed both by the ORCA® RX-103 Receiver or by Search and Rescue Assets capable of finding the 121.5 MHz signal.



Parts Overview (figure 1)

A - Antenna
B - Manual activation/deactivation switch
C - Water sensors
D - Distress marker light: 2.25 candela, daylight visible
E - Lanyard attachment

Operating Instructions

Manual Activation:
Flip switch (B) from “off” (down position) to “on” (up position) to manually activate. 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, flip the transmitter switch to the “OFF” (down) position. If the switch is already in the OFF position (automatic activation), flip switch to the ON position and then to the OFF position. This sends an ALL CLEAR message to the receiver and returns the transmitter to the ARMED mode.

Lanyard Attachment:
Thru-whole in antenna tip is utilized for affixing the antenna to Submarine Escape Suit utilizing mini-lanyard, zip tie or by other means.

Modes

The TX-103SE has three modes:

» **ARMED:** Each transmitter is **armed** after a 9-volt alkaline 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 a signal providing the transmitter identification to the receiver. After approximately one minute, the transmitter emits a signal which the DF processes to track the transmitter.

» **DISABLED**: The transmitter is disabled when the battery is removed or the battery is depleted.

Battery Information

Battery Lifespan:

The TX-103SE has very low current consumption. Although the battery life specification is 3 years on armed mode, we recommend that the battery is replaced during the regularly scheduled maintenance cycle or sooner if the transmitter has been activated for more than occasional testing. When the transmitter is in TRANSMIT mode, a new battery will last approximately 24 hours.

Testing battery strength:

1. Activate the unit by flipping the manual switch located on the side of the transmitter from the “Off” position to the “On” position.
2. As soon as the distress light begins to flash, flip the switch to the “Off” position.
3. If the light turns on and remains on for approximately 10 seconds, the battery is usable. If the light flashes on and off after flipping the switch to the “Off” position, the battery is not usable and must be replaced.

Replacing the battery:

1. Using a #1 size Phillips head screwdriver, unscrew the two screws on the bottom access panel of MOBI transmitter (see figure 2).
2. Open access panel.
3. Remove used battery.
4. Insert new 9-volt alkaline battery according to diagram on back of transmitter housing.
5. Close access panel by lining up reference points on panel and main housing. Grasping screwdriver with thumb and forefinger, screw down the battery door to a torque of .15 ft-lb or 2.07 cm-kg..

Figure 2

Caution: Do not over tighten screws when closing the access panel. Over tightening could strip threaded inserts, destroy gasket or crack battery door.

Specifications

» Weight: 5.1 oz. (144.6 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) 9V alkaline battery
» Battery Life: Three years (Armed mode); 24 hours continuous once activated (Transmit mode)
» Activation: manual or saltwater
» Current Draw: Armed 25 uA; Transmit 20mA
» Modulation Frequency: 121.5 MHz FM/AM
» External antenna with flexible strain relief
» Meets IP68 watertight standard
» Rated Depth: 300m salt water, equal to 439 psi (30.3 bar)
» Operating Temperature -10° C (-14° F) to +55° C (131° F)
» Storage Temperature -20° C (-4° F) to +60° C (140° F)

DIMENSIONS ARE IN INCHES
TOLERANCES: ± 0.005

Warranty

BriarTek provides a one-year warranty on all ORCA® man overboard alarm system effective from the date of purchase.

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 BriarTek's discretion) 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.
3129 Mount Vernon Avenue
Alexandria, VA 22305

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.

Notes

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