



RJE International, Inc.

YOUR SOURCE FOR DIVER NAVIGATION AND UNDERWATER RELOCATION EQUIPMENT



ULB-350

UNDERWATER LOCATOR BEACON USER MANUAL

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Forward

This manual is comprised of figures and text intended to provide descriptions and instructions for the deployment, operation, and maintenance of the RJE International ULB-350 Series Underwater Location Beacon. The information herein is arranged into chapters and sections as follows:

Chapter 1 – An overview of the ULB-350 series beacon. General notes including brief sections describing the applications and physical characteristics of the Beacon itself.

Chapter 2 – Specifications. Sections comprised of lists of both general and unique-to-the-unit specifications.

Chapter 3 – Operation and Deployment Notes. Sections detail the unpacking and predeployment checkout procedures for the ULB-350.

Chapter 4 - Maintenance. Sections detail periodic maintenance, battery replacement and calibration procedures.

Please forward comments, questions, suggestions, or problems with the text, figures, or equipment to RJE International.

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PROPRIETARY MATERIAL

The descriptions, procedural information, photos, figures, drawings, and illustrations in this manual are the property of RJE International, Inc. Materials may not be reproduced or disseminated without the prior written consent of RJE International.

RJE International reserves the right to make changes in design or specifications at any time without incurring any obligation to modify previously installed units.

This manual is provided for information and reference purposes only and is subject to change without notice.

LIMITED WARRANTY

RJE International, Inc. (RJE) guarantees its products to be free from defects in materials and workmanship for a period of one year from the date of shipment. In the event a product malfunctions during this period, RJE's obligation is limited to the repair or replacement, at RJE's option, of any product returned to the RJE factory. Products found defective should be returned to the factory freight prepaid and carefully packed, as the customer will be responsible for any damage during shipment.

Repairs or replacements, parts, labor, and return shipment under this warranty will be at no cost to the customer. This warranty is void if, in RJE's opinion, the product has been damaged by accident or mishandled, altered, or repaired by the customer, where such treatment has affected its performance or reliability. In the event of such mishandling, all costs for repair and return freight will be charged to the customer. All products supplied by RJE that are designed for use under hydrostatic loading have been certified by actual pressure testing prior to shipment. Any damage that occurs as a direct result of flooding is NOT covered by this warranty.

If a product is returned for warranty repair and no defect is found, the customer will be charged a diagnostic fee plus all shipping costs. Incidental or consequential damages or costs incurred as a result of a product's malfunction are not the responsibility of RJE.

All returned products must be accompanied by a CASE number issued by RJE International. Shipments without a CASE number will not be accepted.

LIABILITY

RJE shall not be liable for incidental or consequential damages, injuries, or losses as a result of the installation, testing, operation, or servicing of RJE products.

RETURN PROCEDURE

Before returning any equipment to RJE, you must contact RJE and obtain a Case number. The Case number assists RJE in identifying the origin and tracking the location of returned items.

When returning items to RJE from outside the United States, follow the checklist presented below to prevent any delays or additional costs.

- ✓ Include with all shipments two copies of your commercial invoice showing the value of the items and the reason you are returning them. Whenever possible, send copies of the original export shipping documents with the consignment.
- ✓ Route via courier (FedEx or UPS).
- ✓ If there is more than one item per consignment, include a packing list with the shipment. It is acceptable to combine the commercial invoice and packing list with the contents of each carton clearly numbered and identified on the commercial invoice.
- ✓ If it is necessary to ship via airfreight, contact RJE for specific freight forwarding instructions.
- ✓ You will be charged for customs clearance and inbound freight.
- ✓ Insure the items for their full value.
- ✓ Refer to the RJE issued Case number on all documents and correspondence.
- ✓ Prepay the freight.

TITLE

Title shall pass to buyer on delivery to carrier at Irvine, CA. Risk of damage or loss following such delivery shall be to the buyer and RJE International shall in no way be responsible for safe arrival of the shipment. Title shall so pass to buyer regardless of any provision for payment of freight or insurance by RJE International or of the form of shipping documents. If shipment is consigned to RJE International, it shall be for the purpose of securing buyer's obligations under the contract.

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Section 1

1.1 Overall Description

The RJE International ULB-350 Series Underwater Location Beacon is an underwater acoustic signaling device that works with acoustic pinger receivers for marking and relocation of underwater sites and equipment. The ULB-350 comes in standard frequencies of 27, 37, and 45kHz. It can also be ordered in additional factory set frequencies between 9 and 45kHz.

Activation of the ULB-350 is by immersion in water where it will continually send out an acoustic signal once a second until the battery is dead or the beacon is removed from the water. A factory set time delay option is also available.

The ULB-350 series beacon is battery operated and uses a 9-Volt Alkaline or Lithium battery that can power the beacon up to 40 days continually (Lithium battery). The beacon can be deployed to a depth of 4,000ft (1,216M).

1.1.1 ULB-350 Series Underwater Location Beacon



Fig 1-1: ULB-350/37 Underwater Location Beacon, Breakdown

2.1 ULB-350 Underwater Location Beacon Specifications

Table 2-1 ULB-350 Underwater Location Beacon

Frequency	27, 35, 45kHz
Acoustic Source Level	163 dB re 1 μ Pa @ 1 meter
Repetition Rate	Normal: 1.0 pulse per second
Pulse Length	10 ms
Activation	Water Activated Switch or Time Delay Option (Factory Set or by using the ULB-350 Programmer)
Battery	9 Volt Battery, Alkaline or Lithium
Operating Life	Alkaline: 20 days Lithium: 40 days
Operational Depth	1,261m (4,000ft)
Housing Material	HDPE Plastic
Dimensions	11.7cm x 5.0cm \odot (4.5" by 2.0" \odot)
Weight, with Battery	280g (9.9oz)

Specifications are subject to change without notice

OPERATIONS & INSTALLATION NOTES

3.1 Introduction

The ULB-350 series underwater location beacon is a small self-contained acoustic device that operates as a free running pinger. Using a water switch, the ULB-350 activates once it is placed in the water and shuts down when removed for the water. It operates in both fresh and salt-water environments. Once activated, it will send an acoustic signal once every second until the battery is depleted or the beacon is removed from the water. The frequency of this signal is factory set from 9 to 45kHz. Check the label on the beacon to determine what frequency the unit operates at. In addition, time delay can be part of the activation (set by the factory or by using the RJE's ULB-350 Programmer) and can be set from 5 seconds to 90 days. Once the beacon is immersed in water, the unit will send an acoustic signal for 10 seconds and then begin the program time delay. Once the delay has been completed, the beacon will send an acoustic signal until the battery is depleted or the unit is removed from the water.

3.2 Unpacking

When opening the shipping cartons, carefully inspect each ULB-350 as it is unpacked and report any damage to the freight carrier and to RJE International.

As with any sophisticated electronic equipment, RJE International products should be handled with a reasonable amount of care during unpacking, transporting and storing. Pay particular attention to make sure that:

- The end caps are properly secured and there is no damage to the housing.

3.3 Installation of ULB-350

The ULB-350 series beacon can be mounted using the mounting hole at the center of the end cap or strapped to the item to be marked. Always try to mount the ULB-350 vertically in the water column, with the end cap pointed down and the electronics module facing up. Insure that the electronics module is free of obstruction so that it has a clear path to send the acoustic signal through the water.

ULB-350 MAINTENANCE

4.1 Maintenance

Upon completion of each deployment, take these steps to assure continued reliable performance from the ULB-350 Beacon.

- Wash the exterior of the equipment with fresh water and mild detergent. Pay particular attention to cleaning film build-up from the transducer face (brass water contacts).
- Make sure the equipment has been thoroughly dried before storage.
- Inspect all o-rings for damage and wear. Replace o-rings every 12 to 18 months.

4.2 Replacing the ULB-350 battery

The battery in the ULB-350 transponder should be replaced after each use to insure maximum operational life. To change the ULB-350 battery follow this procedure:

- Remove the old battery and install the new battery as shown below:
 1. Loosen and remove the end cap assembly from the housing by turning counter clockwise.
 2. **Gently remove the 9v battery connector pad from the top of the 9v battery terminals by holding the battery with the thumb of one hand and lifting up the connector pad with the other hand. To prevent damage to the internal electronics assembly, hold the beacon as shown in Figure 4-1 below.**
 3. Slide the old battery out of the ULB-350 battery holder (p/n: 350-79207).
 4. To install the new battery simply slide it (terminals up) into the ULB-350 battery holder.
 5. *Note the battery terminal orientation before connecting the ULB-350 connector to the new installed battery. Insure the battery terminals are fully seated into the battery connector.



Figure 4-1: Remove the Connector



Figure 4-2: Remove the Battery

- Before installing the end cap assembly, make sure the O-rings and O-ring surfaces are clean and free of debris.



Fig 4-3: Battery Installed and O-rings

- Reassemble the unit by reversing the order of disassembly. DO NOT over tighten the end cap on to the electronics module.



Fig 4-4: Properly Assembled ULB-350