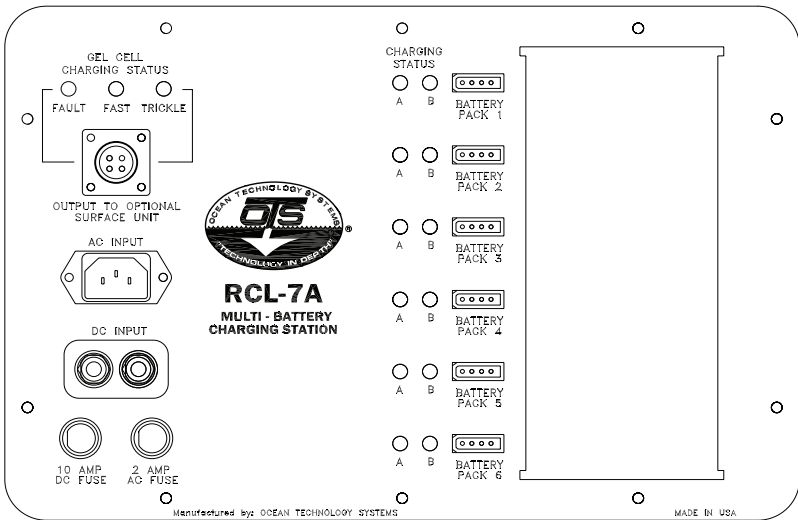




RCL-7A

Battery Charging Station

User's Guide



"Technology in Depth"

- NOTICE -

This manual and the information contained herein are provided for use as a maintenance and operation guide. No license or rights to manufacture, reproduce, and/or sell either the manual or articles described herein are given. Undersea Systems International, Inc., dba Ocean Technology Systems hereinafter referred to as OTS, reserves the right to change specifications without notice. We recommend that all users read and fully understand this manual before using the RCL-7A.

All statements, technical information, and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed; and the following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: Seller's and Manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Before using, user shall determine the suitability of the product for intended use, and user assumes all risk and liability whatsoever in connection therewith. Neither Seller nor Manufacturer shall be liable either in tort or in contract for any loss or damage, direct, incidental, or consequential, arising out of the use of or the inability to use the product. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of the Seller and Manufacturer.

- IMPORTANT SAFETY NOTICE -
(Please read before using product.)

It is absolutely essential that all users are properly trained and equipped and fully understand the owner's manual before attempting to use the RCL-7A.

Do not attempt to charge batteries before reading the operation instructions within this manual. Without following proper procedures, damage to the RCL-7A, an explosion, and/or injury may occur.

Refer to the Library page of our Web site, www.otscmm.com , for a list of any changes made to this manual since its publication.
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SECTION 1: INTRODUCTION

Congratulations! You have just purchased quality, state-of-the-art battery charging technology, the RCL-7A Battery Charging Station. With its powerful, rapid battery-charging capabilities in a compact, efficient design, the RCL-7A provides you the flexibility to charge an STX-101/M surface station as well as multiple battery packs—such as those used in OTS diver transceivers. Among its other applications, the RCL-7A is a great choice for military and search-and-rescue teams who need to ensure batteries are charged and ready to be used when a rapid response time is necessary.

Your new RCL-7A battery charger is the choice of discriminating divers around the world. Please take the time to read this owner’s manual. With proper care and use, your OTS product will provide you the ultimate in high quality and reliability.

The RCL-7A Battery Charging Station is designed to charge six double or single nickel-metal hydride battery packs and one STX or Magnacom® surface station.

This manual is a comprehensive handbook for the RCL-7A, with specifications, operating instructions, helpful hints for maintenance and use, a troubleshooting guide, and warranty information.

These guidelines and illustrations are presented to assist you to unlock the full functionality of the RCL-7A. If you need additional information, consult your local OTS dealer or representative. If your RCL-7A requires service, contact OTS:

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SECTION 2: SPECIFICATIONS

- Power Output: 50 watts
 Cabinet Material: Black ABS plastic
 Front Panel: 1/16" 6061 aluminum, chemically treated and coated with a tough, durable urethane finish to withstand the marine environment
 Size: Length: 14.0 inches
 Width: 10.6 inches
 Depth: 6.1 inches
 Weight: 6.5 lbs.

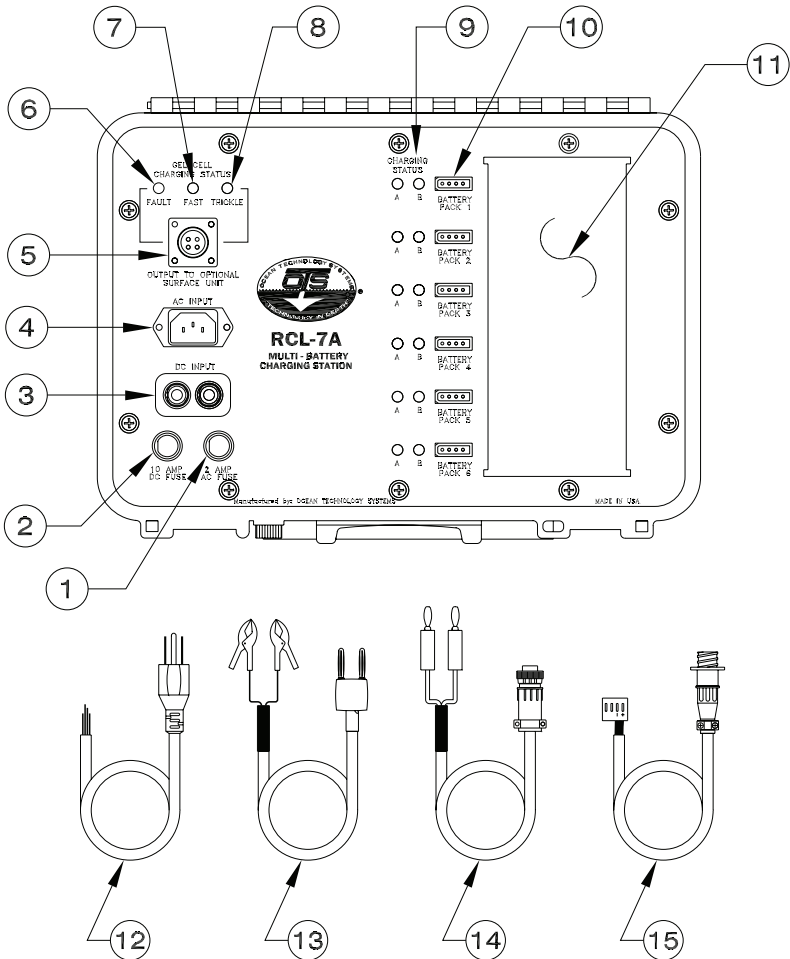


Figure 1. Components and Controls of the RCL-7A

SECTION 3: COMPONENTS AND CONTROLS

Refer to Figure 1 for a diagram of the components and controls of the RCL-7A:

- | | |
|------------------------------------|---|
| 1. 2-amp AC fuse | 10. Battery pack connectors |
| 2. 10-amp DC fuse | 11. Battery holding compartment |
| 3. DC input | 12. AC power cord (606003-000) |
| 4. AC input | 13. 24V/12V DC power cable, 10-foot
(914067-000) |
| 5. Output to optional surface unit | 14. Charging interface cable, surface units
(914066-000) |
| 6. Fault indicator | 15. Charging interface cable, diver units
(900094-001) |
| 7. Fast indicator | |
| 8. Trickle indicator | |
| 9. Charging status indicators | |

SECTION 4: OPERATING INSTRUCTIONS

4.1 SETTING UP BEFORE CHARGING

Connect either a 240- or 110-volt AC supply or a 12- or 24-volt DC supply to the RCL-7A Battery Charging Station using the appropriate cable and connector:

- For *DC power*, connect the DC power cable (Fig. 1, #13) to the DC input jacks (#3) on the RCL-7A. Be careful to observe the correct polarity (red to red, black to black) when connecting the DC cable to the RCL-7A. Connect the clamps on the other end of the cable to the DC battery terminals.
- For *AC power*, connect the AC power cable (Fig. 1, #12) to the AC input connector (#4). Plug the other end of the cable into the AC power source. (The AC power cable is provided without a plug, providing the flexibility for you to install the type of plug that your AC power source requires.)

Once the power supply is connected to the RCL-7A, the “Fault” light (#6) should illuminate, indicating that power is being supplied. (It will remain illuminated until a surface unit battery is connected.)

4.2 CHARGING THE STX OR MAGNACOM® SURFACE UNIT

1. Connect the surface unit charging interface cable (Fig. 1, #14) to the surface unit and the “Output to Optional Surface Unit” connector (#5) on the RCL-7A.
2. Observe the “Gel Cell Charging Status” on the RCL-7A panel:
 - (a) Once the surface unit charging cable is connected, the “Fault” light (#6) should turn off while the “Fast” light (#7) starts flashing. (If this does not happen, check the Troubleshooting Guide, p. 5.) The flashing “Fast” light means that the charger is in battery “testing” mode, confirming that the battery can take a charge.
 - (b) When the “Fast” light stops flashing and stays continuously illuminated, the charger is in “fast charge” mode, charging the surface unit battery.
 - (c) Charge time depends on battery depletion and varies from several minutes

to several hours. When the “Fast” light turns off and the “Trickle” light (#8) starts flickering, the charger is in “maintenance” mode: The battery is fully charged and ready to be used.

3. After the battery has finished charging, disconnect the connector cable, and unplug the RCL-7A power cord.

4.3 CHARGING DIVER UNITS

The RCL-7A should be used only to charge nickel-metal hydride batteries. Its use with nickel cadmium batteries could be hazardous due to the high charge output.

4.3.1 CHARGING “SINGLE BATTERY PACKS” (RB-11):

1. For each battery pack, connect a charger interface cable (#15) from the connector on the diver unit to a battery pack connector (#10) on the RCL-7A.
2. Observe the charging status lights (#9). Only light “A” should be illuminated, indicating that the single pack is being charged.
3. Charging will occur at a standard rate and constant current, with a typical charge time of 14 hours from depletion to full charge. When charging batteries that have not been fully depleted, adjust the charge time accordingly.
4. The charging status lights (#9) may start flickering* when the batteries have been fully charged. For maximum battery life, remove the battery as soon as it is fully charged. Do not charge it for longer than 14 hours.

4.3.2 CHARGING “DOUBLE BATTERY PACKS” (RBL-20B):

1. For each battery pack, connect the Molex® connector on the battery pack to a battery pack connector (#10) on the RCL-7A.
2. Observe the charging status lights (#9): Both lights A and B should be lit, indicating that both halves of the double pack are being charged.
3. Charging will occur at a standard rate and constant current, with a typical charge time of 14 hours from depletion to full charge. When charging batteries that have not been fully depleted, adjust the charge time accordingly.
4. The charging status lights (#9) may start flickering* when the batteries have been fully charged. For maximum battery life, remove the battery as soon as it is fully charged. Do not charge it for longer than 14 hours.

SECTION 5: HELPFUL HINTS

To ensure a full charge, charge the diver unit batteries for a full 14 hours. However, do not charge the batteries for longer than 14 hours. Observing this time limit will prevent overheating of the batteries, thereby extending battery life and reducing the risk of a safety hazard. The surface unit battery, on the other hand, can remain

* The battery’s internal temperature sensor turns off if the battery temperature rises above a set limit. Under certain thermal conditions, the safety switch turns on and off. As a result, the status lights turn on and off.

connected to the charger without risk of damage (after charging is done, the charger reverts to “maintenance mode”).

SECTION 6: IMPORTANT SAFETY PRECAUTIONS

1. Only charge nickel-metal hydride batteries with the RCL-7A, not nickel cadmium batteries (the charge output is too high, causing a safety hazard).
2. When charging diver unit batteries and the “charging status” lights (#9) begin flickering, the batteries are charged and should be disconnected from the charger.
3. The RCL-7A operates at a high voltage (110 V). Do not remove the panel while a power source is being supplied. Only experienced technicians should attempt repairs or otherwise handle the circuitry.
4. Place the RCL-7A in an open, well-ventilated environment during operation. Keep the external fan shroud unobstructed when power is supplied to the charger.

SECTION 7: TROUBLESHOOTING GUIDE

<i>Problem</i>	<i>Probable Cause</i>	<i>Remedy</i>
No power to charger	Power supply cable connections are loose. DC power supply exhausted. Fuse is burned out.	Check cable connections to assure they are secure. Replace power supply. If no power when the AC cord is plugged into the charger, replace the 2-amp fuse (Fig. 1, #2). If no power when the power supply is connected to the charger, replace the 10-amp fuse (Fig. 1, #1).
“Charging Status” LEDs unlit when diver unit	Bad connection at Molex® connector Bad connection or defective charger output Faulty battery	Check Molex® connector and related wiring, and correct. Connect the diver unit batteries to another “battery pack” charger output. Replace battery.
“Fault” light stays illuminated when surface unit charging cable is plugged in.	Charging cable connection is loose. Battery is damaged.	Check cable connections. Replace surface unit battery.

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LIMITED WARRANTY

The RCL-7A is fully warranted against defects in materials and workmanship for a period of one (1) year from the time of purchase. Our obligation under this warranty is limited to the replacement of any part of parts that prove to our satisfaction to have been defective and that have not been misused or carelessly handled. Labor is warranted for one (1) year from time of purchase. The complete unit and/or part must be returned to our factory, transportation charges prepaid. We reserve the right to decline responsibility where repairs have been made or attempted by other than an Ocean Technology Systems factory-trained service center or properly trained personnel. In no event shall Ocean Technology Systems be liable for consequential damages.

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You can now register your product online at the OTS Web site. Just visit
<http://www.otscomm.com/register1.html>.

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