

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

IT IS ABSOLUTELY ESSENTIAL THAT ALL DIVERS BE PROPERLY TRAINED AND EQUIPPED AND FULLY UNDERSTAND THE OWNER'S MANUAL BEFORE ATTEMPTING TO USE THE COMBOX SILVER BULLET.

WHILE THE COMBOX PROVIDES DIVERS WITH GOOD UNDERWATER COMMUNICATIONS, IT DOES NOT CHANGE OR ELIMINATE THE POTENTIAL HAZARDS OF DIVING.

- NOTE -

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. OCEAN TECHNOLOGY SYSTEMS RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

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Specifications are subject to change without prior notice.*

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- Notice -

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SECTION 1

INTRODUCTION

Congratulations! You have just purchased the finest, state-of-the-art hard-wire intercom in the world. Your new ComBox Silver Bullet One-Diver Air Intercom represents advanced technology and innovation--the choice of discriminating divers throughout the world. Please take the time to read this owner's manual. With proper care and use, your Ocean Technology Systems product will provide you with the ultimate in high-quality communications and reliability.

The ComBox is a compact, self-contained One-Diver Air Intercom providing two-wire communications between the operator and a diver. The package may be small, but the ComBox offers 20 watts of power!

This manual discusses Specifications, Functions, Two-Wire communications, Batteries, Helpful Hints, and Warranty information.

These guidelines and illustrations are presented to assist you. If you need additional information, do not hesitate to consult with your local OTS dealer or representative. If you need additional assistance, contact Ocean Technology Systems, 3133 W. Harvard Street, Santa Ana, California 92704. Toll-free (800) 550-1984, Telephone (714) 754-7848, Fax (714) 966-1639.

SECTION 2
SPECIFICATIONS

Power Output:	20 watts
Frequency Response:	600 to 12,000 Hz
Cabinet Material:	ABS plastic
Front Panel:	1/8" ABS plastic
Size:	Weight: 3.5 lbs. (with 16 AA alkaline batteries) Width: 9.0 inches Depth: 3.4 inches Height: 3.6 inches
Battery Life:	10 hours continuous use
Battery Type:	16 AA alkaline batteries or two RB-11 NiMH battery packs (user must modify foam battery holder)
Battery Chargers:	<i>RC-18</i> : 120 VAC, 60 Hz input; 14.7 VDC output; max. load 500 mA <i>RC-18i</i> : 90–264 VAC, 50–60 Hz input; 14.7 VDC output; max. load 1.25 A <i>RC-16</i> : 120 VAC, 60 Hz input; 14.7 VDC output; max. load 170 mA <i>RC-16i</i> : 90–264 VAC, 50–60 Hz input; 24 VDC output; max. load 170 mA



SECTION 3

FUNCTIONS

(See Figure 1)

- | | |
|---------------------------|--|
| 1) Panel Speaker | Heavy-duty panel speaker provides maximum audio power for overriding surrounding noise. |
| 2) Headset | Allows the use of a headset or headset with boom microphone. |
| 3) Remote PTT | Allows the use of a remote Push-to-Talk (PTT) control or headset PTT. |
| 4) Record Out | Permits Tender to record diving operations. |
| 5) Diver Umbilical | The Diver microphone/earphone communication cable is connected here. |
| 6) 12-Volt External Power | Allows Tender to use a 12-volt alternate source or charge the optional rechargeable batteries. Note: For charging, 14.7 to a maximum of 15 volts are needed. |
| 7) Diver-to-Tender Volume | Controls volume of Diver to Tender. |
| 8) Push-to-Talk | Button used for Tender to talk to Diver. |
| 9) Tender-to-Diver Volume | Turns unit <i>on</i> and controls Tender volume to Diver. |
| 10) Panel screw | One of four front panel screws. |

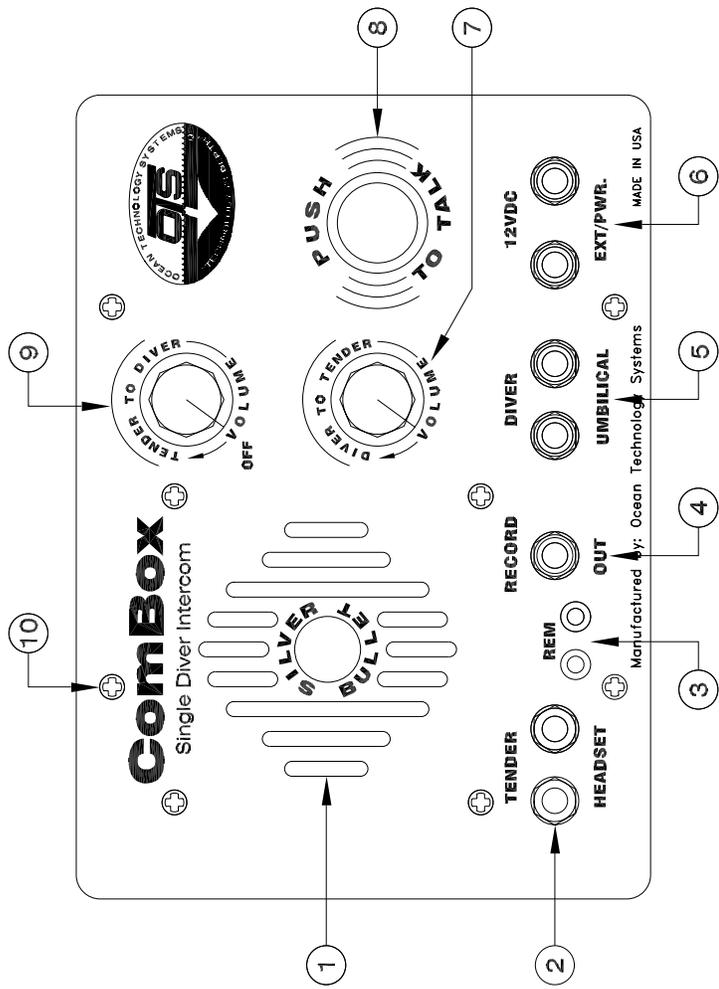


FIGURE 1



SECTION 4

TWO-WIRE MODE

In the two-wire mode, the two wires within the diver communication cable are connected to the Diver Umbilical binding post located on the front panel of the ComBox (Figure 2). If a cable with four wires is used, two wires (one mic and one ear) are normally twisted together for one side of the binding post and the remaining two for the other binding post.

This configuration allows the Tender to talk to the Diver or vice versa. The Diver's microphone and earphone and the surface unit speaker both function as speakers and microphones. If a speaker is located in a diving bell or recompression chamber, the ComBox can be used as the communication link between the personnel inside the chamber and the outside tenders. When the system is used where conditions are noisy, the ComBox operator can use a headset with boom microphone (THB-CBX2); however, when using a headset with boom mic, the Tender must still use the Push-to-Talk (PTT) switch, located on the side of the headset.

The Diver communication is the primary signal. When the ComBox is operating, you will constantly hear the Diver. However, when the Tender presses and holds the PTT button, the Tender's signal becomes the primary signal and the Diver will hear him. When the Tender releases the PTT button, the Diver again will become the primary signal. While the Tender is depressing the PTT button, the Diver cannot be heard.

Note: Four-wire mode of operation cannot be performed with the ComBox Silver Bullet.

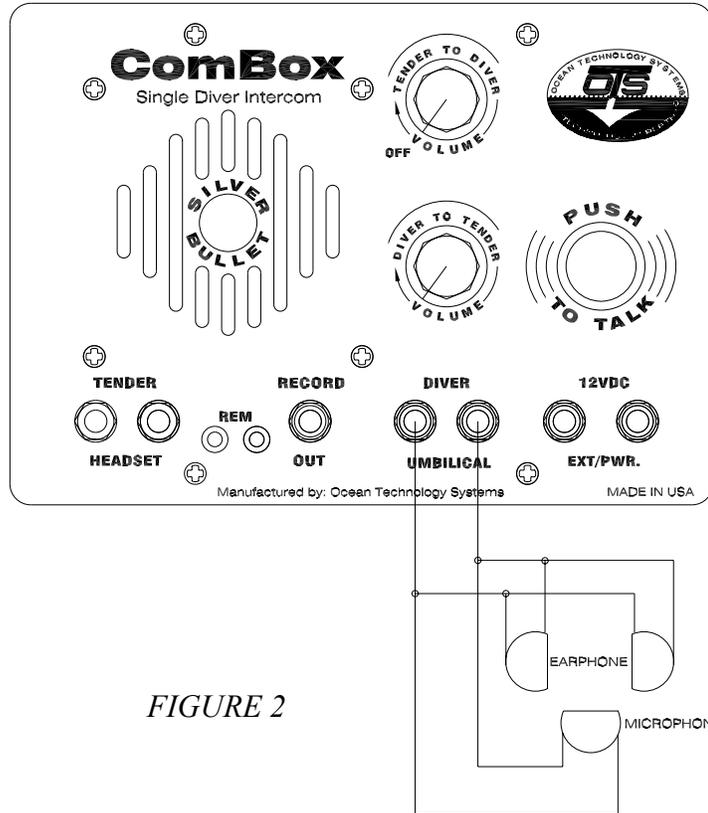


FIGURE 2

Note: A headset with or without a boom microphone can be used with the ComBox Silver Bullet. However, they are not necessary. When a headset is used, the Tender must still use a Push-to-Talk (PTT) button to talk.

SECTION 5

BATTERIES

The ComBox Silver Bullet One-Diver Air Intercom can be powered by either 16 AA alkaline batteries or 2 RB-11 rechargeable 12V nickel metal hydride (NiMH) battery packs.

1) Batteries: For best results, use 16 AA alkaline batteries. *We recommend the use of alkaline batteries.* You can use standard AA dry-cell batteries in a pinch, but battery life will be greatly reduced. Also available as an option are the RB-11 12-volt NiMH rechargeable batteries.

2) Installation (Figure 3): To install the batteries, first loosen the four screws found on the front panel (Figure 1, #6). Carefully remove the front panel. If using AA batteries, connect the battery snaps to each 8-cell battery pack and install the packs into the foam holders. The (optional) NiMH batteries (RB-11) are installed the same way, but the foam between the batteries must be removed. When finished installing the batteries, replace the front panel, ensuring you have not pinched any wires. Tighten the front panel screws.

3) Charging rechargeable batteries: When using the optional RB-11 NiMH rechargeable battery, you will attain the maximum performance of self-contained batteries. Although the use of two RB-11 batteries is recommended, the batteries are wired in parallel, and the system will operate for a limited period on one set. (However, to prevent a short-circuit, connect the battery snap to an 8-cell battery holder.)

The batteries are charged inside the ComBox. The (optional) RC-18 battery charger (or RC-18i for use outside

the U.S.) has black and red connectors on the ends of the wires. Attach these connectors to the 12VDC External Power connector on the front panel (Figure 1, #2). Connect the RC-18 charger to any 110-volt, 60-cycle power outlet and let it charge for no more than 14 hours. If using the RC-18i charger, use a 90-260-volt, 50/60-cycle outlet.

Note: While it has been OTS' experience that NiMH batteries rarely pose an off-gassing problem, there may be a rare exception. To be 100% safe, it is recommended that two or three panel screws be loosened during the charging process. If this step is not followed, ensure that the front panel is not bulging or the speaker's silver dome is not pressed toward the inside surface of the panel. This would be an indication of internal pressure. Wait at least 15 minutes after charging before you apply power, to allow any built-up gas to dissipate. Remember to retighten the panel screws before operation.

Another option is to charge the RB-11 rechargeable batteries outside the ComBox unit using the optional RC-16 (for use in the U.S.) or RC-16i (for use outside the U.S.) battery charger. This option is especially useful for charging spare batteries that can be quickly swapped with drained ones to extend the use of the ComBox. To remove drained batteries and install charged ones, follow the applicable instructions in Part 2 of this section. To charge the batteries using the RC-16 or RC-16i charger, connect the battery snap (on the adapter connected to the charger's 4-pin Amp connector) to the battery snap on the RB-11 battery. Then plug the charger's power cord into any 110-volt, 60-cycle power outlet (if the RC-16 is used) or a 90-260-volt, 50/60-cycle outlet (if the RC-16i is used), and let it charge for 4 hours for a full charge. (*Important*

note: Do not charge the batteries for more than 14 hours. Overcharging may cause excessive gas build-up. Before operating, allow a few minutes after charging for any gases caused by charging to dissipate.)

Note: When you receive your battery, it may have upgraded specifications from what is stated in this manual. Due to advancing battery technologies, we continually are upgrading our batteries and chargers. Contact OTS or your OTS dealer to find out the latest available battery and charger.

4) Alternate Power Source: The external receptacle (Figure 1, #2) provides an easy terminal for a marine or automotive 12-volt DC source. This terminal can also be used with any external power source providing 12 volts and a minimum of 3 amps capacity.

Important Note: Whenever the batteries are not being used (e.g., with connection of external power or during transportation or storage), be sure to connect the battery snaps to the battery holder (without the batteries). This will prevent the battery snaps from contacting the internal electronics and shorting the circuit.

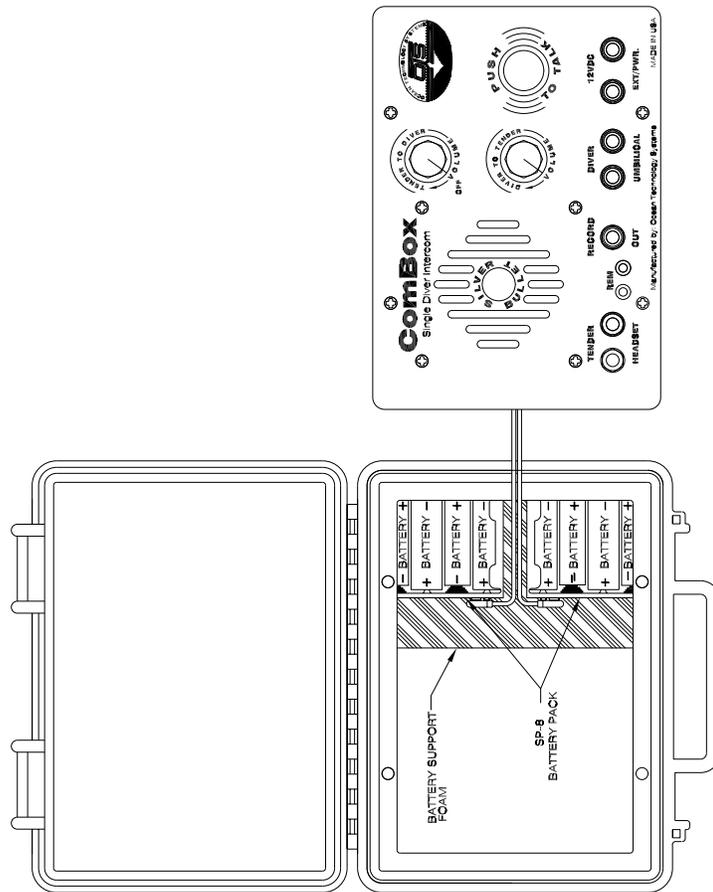


FIGURE 3



SECTION 6

HELPFUL HINTS

- 1) Before diving operations begin, check to verify Diver microphone, earphone(s), and wire connections are functioning properly. Verify that all top-side connections are properly and securely fastened. Verify that batteries are fresh or fully charged. Ninety percent of all problems in communications turn out to be a problem with one of the above.
- 2) Avoid excessive Tender-to-Diver volume. Most of the time, when there is too much volume, the diver will hear distortion and ask for more volume. Make sure the diver has his earphones directly over his ears.
- 3) If using a headset, make certain the headphone plugs are securely inserted into the jack.
- 4) Speak as close to the front panel speaker as possible. The further away you speak, the more distant you will sound to the diver.
- 5) Transport the ComBox Silver Bullet **without the batteries installed**. This will help prevent damage due to accidental dropping or vibrations.
- 6) During transportation and storage, loosen a couple of the panel screws to create a safety vent to equalize any pressure differentials due to temperature changes or altitude changes. Remember to retighten the panel screws before operation.



7) When using an optional headset with boom microphone, keep the boom microphone as close to your lips as possible.

8) When using NiMH rechargeable batteries, it is recommended that two or three panel screws be loosened during the charging process. If this step is not followed, ensure that the front panel is not bulging or the speaker's silver dome is not pressed toward the inside surface of the panel. This would be an indication of internal pressure. Wait at least 15 minutes after charging before you apply power, in order to allow any gas built up inside the unit to dissipate. Remember to retighten the panel screws before operation to protect the internal electronics from water damage.

9) When closing the lid of the ComBox housing, ensure that all binding posts are rotated completely clockwise. Otherwise, the posts interfere with the lid.

Undersea Systems International, Inc.

dba

Ocean Technology Systems

LIMITED WARRANTY

The ComBox Silver Bullet is fully warrantied against defects in materials and workmanship for a period of one year from the time of purchase. Our obligation under this warranty is limited to the replacement of any parts that prove to our satisfaction to have been defective and that have not been misused or carelessly handled. Labor is warrantied for one year from the time of purchase. The complete unit and/or part must be returned to our factory, transportation charges pre-paid. 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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