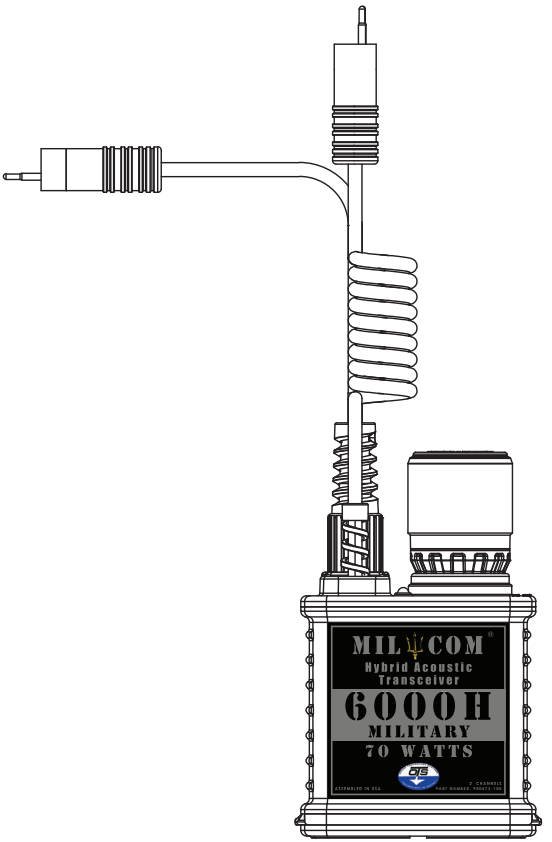
MIL COM

6000H
USER MANUAL



Ocean Technology Systems

- NOTICE -

All users are instructed to read and fully understand the MilCom manual before using this product. This manual and the information contained herein are provided for use as a maintenance and operation guide. No license or rights to manufacture, produce, 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 prior notice. We recommend that all users read and fully understand this manual before using a MilCom.

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, the user shall determine the suitability of the product for intended use, and the 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 from the use of or the inability to use the product. No statement or recommendation not contained herein shall have any force or effect unless it is 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 certified divers in good standing, properly trained, equipped, and fully understand this user's manual before attempting to use the MilCom. While the MilCom does provide the diver with the ability to communicate underwater, *it does not change or eliminate the potential hazards of diving.*

Refer to the User Manuals page of our Website at: www.oceantechnologysystems.com for a list of any changes made to this manual since its publication.

Date Published: April 10, 2025

Any defect of the product in workmanship or material discovered within one year from the date of purchase must be promptly communicated in writing to Ocean Technology Systems.

Ocean Technology Systems

3133 West Harvard St., Santa Ana, CA 92704 USA

Telephone: 714.754.7848 Fax: 714.966.1639

E-Mail: ots@otscomm.com

Web: www.otscomm.com

Warning Symbols

Caution:	Minor or moderate injury could occur.
Warning:	Serious Injury or death could occur.
DANGER	Imminently hazardous causing injury or death.

BATTERY DISPOSAL WARNING

Dispose of the Lithium-Ion battery and the Battery Charger in accordance with the local, state, and federal electronic waste recycling regulations. Do not discard them in the trash.

BATTERY WARNINGS

The MilCom 6000H contains Lithium-Ion battery pack. Proper handling should always be taken to ensure the battery will operate at its optimum level. Mishandling or misuse of the battery could potentially affect the performance and Safety of the battery.

⚠CAUTION

- Please read the manual before charging.
- Lithium-Ion batteries have a predefined number of charge cycles, if the batteries won't hold the charge or requires more frequent charging, the battery may need to be replaced.
- Battery contains a protection circuit to prevent damage to the battery during use. Care must be taken to ensure the battery is not damaged.
- If the battery will not take a charge (LED on the charger does not switch from Green to Red when connected to a unit with depleted battery)
- Discontinue charging. Please contact OTS for further instructions.
- If the battery is not fully charged after 12.5 hours, discontinue charging. Please contact OTS for further instructions.
- Battery must be charged at a temperature range between 0°C (32°F) and 45°C (113°F). Battery operation should be between –10°C (14°F) and 60°C (140°F).
- The battery must be stored away from children and pets.
- If the battery is completely drained, charging will be necessary to maintain the health of the battery. Do not leave a completely discharged battery in storage for a long period without charging. (Greater than 6 months)

The Milcom 6000H uses Lithium-Ion rechargeable batteries which can explode or cause fire if damaged or stored incorrectly.

DANGER

IF STORED INCORRECTLY OR DAMAGED

Read and follow the Battery Warnings, Cautions and Prohibitions below before using.

Failure to adhere to these guidelines could result in serious injury or death caused by fire or explosion.

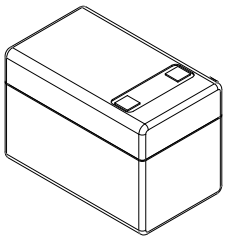
DANGER

Failure to adhere to these guidelines could result in serious injury or death.

- Do not place the battery in direct sunlight or in direct contact with a heat source.
- Do not use the battery in high static environment where the battery can be damaged due to static electricity.
- When storing two or more individual batteries in the same location, ensure the battery contacts are protected from coming into contact with another battery.

DANGER

In handling the battery, always place the battery with the contacts facing upwards as shown below. Placing the battery with the contacts facing down against a surface could potentially cause a short, causing fire or death.



Rechargeable Lithium-Ion battery

- Do not use this battery for other applications.
- Do not allow any conductive materials to come in contact with the battery terminals.
- Only use the battery charger provided by OTS to charge the battery. An unapproved charger could result in an over charge state and potentially damage the battery. Using an unapproved charger will void your warranty.
- If the battery contacts are corroded or if the battery emits an unusual odor, please contact OTS.
- Do not disassemble or reconstruct the battery.
- Do not throw, drop, or cause impact to the battery.
- Do not pierce a hole or puncture the battery with sharp objects.
- Do not use any other batteries or cells in this unit.
- Do not apply solder on the battery.
- Do not expose the battery to high temperature greater than 60°C (140°F).
- Do not put the battery into a microwave or high-pressure container.
- Do not connect positive (+) and negative (-) contacts with any conductive materials (such as metal or wire).
- Do not allow the battery to get wet or immerse in water.
- If you suspect that water has breached the unit, do not open the unit if the unit is hot to the touch. Move unit away from any structures and vehicles. Place it in a safe area. Let the unit cool completely before handling. Contact OTS.

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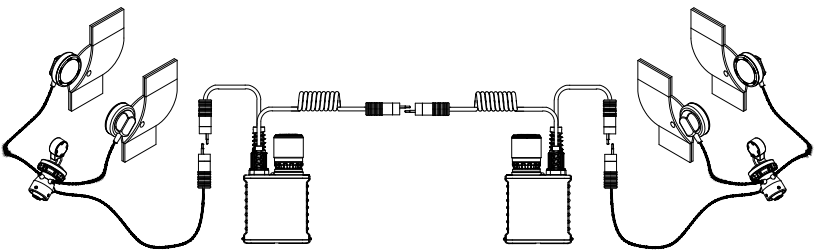
Introduction

Congratulations on purchasing one of the most advanced and powerful underwater communications available. The MilCom series of Hybrid communications systems mark a significant advancement in technology and power, providing unsurpassed voice communications to any dive operation. The MilCom Hybrid systems are single-sideband (SSB) ultrasonic transceivers for diver-to-diver and diver-to-surface wireless communications. It also allows secure hardwired intercom communications between two divers. With the optional Buddyline communication rope, up to six divers can plug in and communicate through a secure hardwire. These advanced systems have an improved voice menu for control and adjustment of channel selection, volume adjustments, and our newest feature, scrambler mode for more secure communications. We have also increased the modularity of the system that allows for ease of servicing, options for cable lengths and configurations and easily replaceable belt clips. Also integrated into the MilCom Hybrid is the latest in smart battery technology, using advanced microprocessor-controlled Lithium-Ion rechargeable batteries for maximum power and performance. The MilCom systems are backward compatible to our other wireless communications units.

General

This manual contains information regarding the details, operation, care and maintenance of the MilCom underwater communications systems including earphone/microphone assemblies and support equipment (not included).

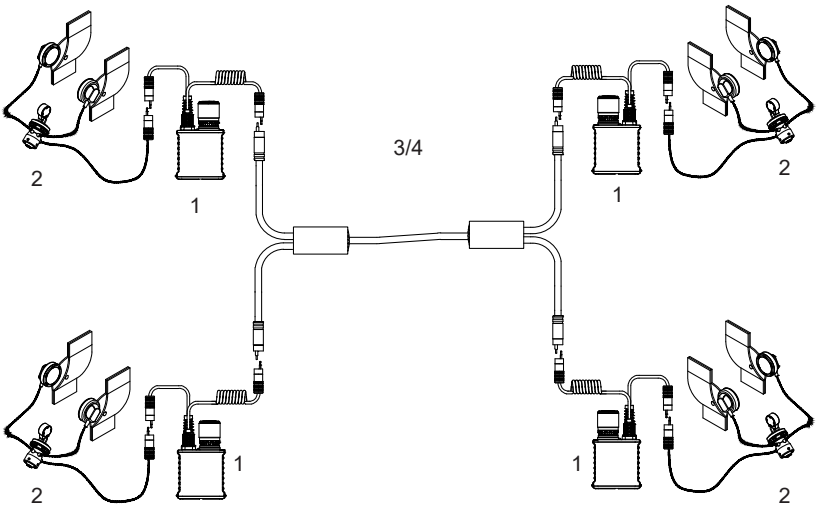


SPECIFICATIONS

Nominal Range:	Calm Sea: MilCom6000H: up to 6000 m Sea State 6: up to 200m
Acoustic Output Power:	MilCom 6000H: 70 W PEP
Audio Frequency Response:	300 Hz – 3.6 kHz
Receiver Sensitivity:	–110 dBv
Automatic Gain Control:	120 dB dynamic range
Transmitter Activation:	Manual activation Push-To-Talk (PTT)
Transmitter Band:	MilCom 6000H: 25–33 kHz 2 channel
Battery Type:	Rechargeable Lithium-Ion Battery
Housing:	Injection-molded polycarbonate
Maximum Depth:	300 ft (91.4 m)
Housing Dimensions:	Height: 7in (177.8 mm) with transducer; 5.30in (134.62 mm) without, Width: 4.2in (106.68 mm), Depth: 2.65” (67.31 mm)
Operating Temperature:	0°C to 60°C (32°F to 140°F)
Storage Temperature:	–20°C to 45°C (–4°F to 113°F)
Low Battery Indication:	Blinking Red LED on upper housing and audio notification on earphone.

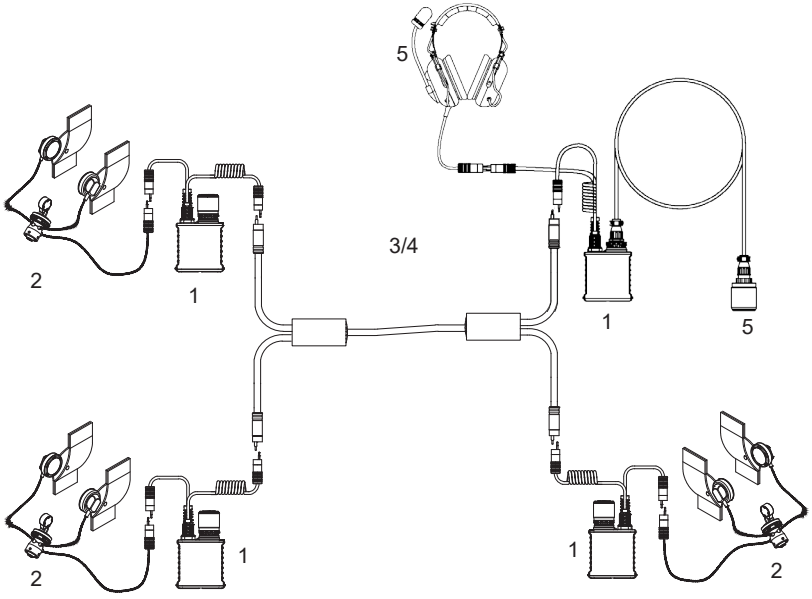
Supported configurations

Up to 6 Milcom 6000H units can be connected together using a Buddy Line. This allows the divers to talk to each other without sending signals outside of the system.



Item Number	Part Number	Description
1	900473-100	MILCOM 6000H, 2 CH, DIVER UNIT
2	900500-000	EMO-HU-1PTT-2EP4-ME150
3	900352-000	BL-20-4,BUDDYLINE,20 FEET,4 DIVER
4	900350-000	BL-30-6,BUDDYLINE,30 FEET,6-DIVER

Milcom 6000H units can also be converted man-portable surface stations using the CDK-6 conversion kit. The Surface converted unit can be connected to the Buddy Line for hardwire communication or the PTT can be keyed for wireless communication.



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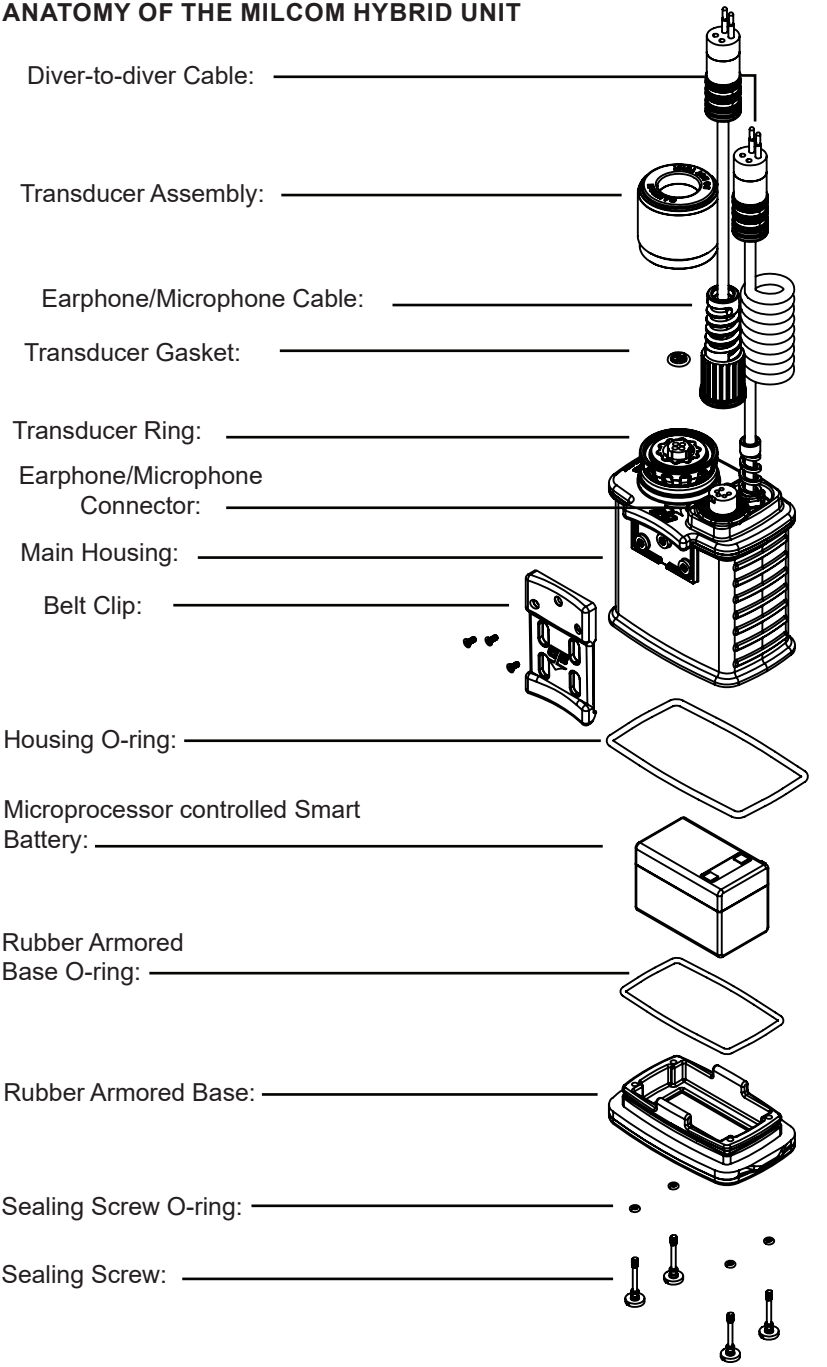
4	900350-000	BL-30-6,BUDDYLINE,30 FEET,6-DIVER
5	900015-007	CDK-6,SURFACE ACC. KIT (THB13/TC35S)

ANATOMY OF THE MILCOM HYBRID UNIT



DIVER-TO-DIVER CABLE:

The Diver-to-Diver Cable connects the Diver-to-Diver Connector to other Hardwire Intercom units. The cable is coiled to allow the distance between divers to vary.

EARPHONE/MICROPHONE (EM) CABLE

The EM cable connects the EM Connector to an EM assembly with an 5-pin connection. The threaded locking collar can be tightened to make a secure connection to the MilCom unit.

TRANSDUCER ASSEMBLY

The Transducer Assembly acts as the “antenna” of the unit. Transducers are replaceable.

TRANSDUCER RING

The Transducer Ring is a rotating locking ring that secures the Transducer or Transducer Cable (TCA-35S) when used with the CDK-6 Surface Conversion Kit.

EARPHONE/MICROPHONE (EM) CONNECTOR

The EM connector at the top the unit connects the MilCom to an EM assembly and to the battery charger. Modularity allows for easy replacement for repairs or optional cable assemblies.

DIVER-TO-DIVER CONNECTOR

The Diver-to-Diver connector at the top the unit connects the MilCom 6000H to other hardwire Intercom units. Modularity allows for easy replacement for repairs or optional cable assemblies.

MAIN HOUSING

The main housing of the unit contains the electronics and battery compartment of the system. The connectors to the Transducer and the Earphone/Microphone cables are user replaceable. The Belt Clip located at the back of the unit is also user replaceable. Do not disassembled the main housing beyond this point. Doing so could potentially void any warranties. The main housing should only be accessed by an authorized technician.

BELT CLIP

The belt clip can be mounted on a belt or on a BCD tank strap. For best range between divers and surface station, it is recommended to mount the unit as far back on the tank strap as possible.

RECHARGEABLE LITHIUM-ION BATTERY

The Lithium-Ion battery provides power to the MilCom unit. The battery is located on the lower cavity of the unit on a strip of Velcro inside the Rubber Armored Base. This battery does not require any maintenance other than charging.

RUBBER ARMORED BASE

The Rubber Armored Battery Base protects the unit from impact and reduces abrasion damage as well as sliding on smooth surfaces.

SEALING SCREWS

The Sealing Screws are captive to the Rubber Armored Base. The Sealing Screws remain connected to the Rubber Armored Base even when fully disengaged from the Main Housing. Each screw contains an O-ring to seal the Rubber Armored Base to the Main Housing. To prevent possible water intrusion into the unit, ensure the Sealing Screws are tightened properly before beginning the dive.

EARPHONE/MICROPHONE ASSEMBLIES

Earphone/Microphone Assemblies are available for most popular full face masks on the market:

Part Number	Description
900500-000	OTS Guardian FFM, ME-150, Dual Earphone, PTT Control, HiUse
900500-001	OTS Guardian FFM, Super Mic, Dual Earphone, PTT Control, HiUse
900502-000	Interspiro AGA FFM, ME-150, Dual Earphone, PTT Control, HiUse
900502-002	Interspiro AGA FFM, Super Mic, Dual Earphone, PTT Control, HiUse
900507-001	Kirby Morgan M-48, ME-150, Dual Earphones, PTT Control, HiUse
900507-000	Kirby Morgan M-48, Super Mic, Dual Earphones, PTT Control, HiUse

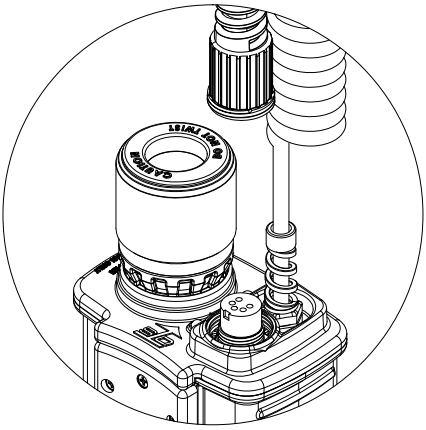
900504-001	Draeger Panorama FFM, Super Mic, Dual Earphones, PTT Control, HiUse
900502-006	EMA-SW-1SM,E/M,AGA,SUPR MIC,SW-1000-SC (Sleep mode units only)
900503-000	EMA-MK24-SM,E/M,PTT,SUPR MIC,SW-1000-SC (Sleep mode units only)

Note that the OTS Guardian and Spectrum Full Face Masks use the same Earphone/Microphone Assembly.

START-UP GUIDE

Before diving, ensure the Lithium-Ion battery is fully charged.

To charge the battery, remove the Earphone/Microphone (EM) cable by unscrewing the locking collar that retains the cable to the connector in a counter-clockwise direction on the top of the housing. With the collar free, grip the connector and pull straight up WITHOUT twisting to disconnect the cable. Then, connect the battery charger to the corresponding connector on the MilCom.



When connecting the Battery Charger Cable to the MilCom unit, take caution when mating the connectors. Carefully align the 5 connector pins to matching 5 sockets of the bulkhead connector. Do not force the connectors to mate. Connection should be smooth when the pins are aligned with the sockets. Excessive force could result in connector failure or breakage.

When the Battery Charger is connected to the unit, the LED on the Battery Charger will turn GREEN then switch to RED if the battery requires a charge. If not, the LED will remain GREEN to indicate the battery is full.

The LED on the MilCom unit is a single color LED. When lit, it indicates the unit is activated.

Disconnect the Battery Charger from the unit and connect your EM Cable

to the EM Assembly connector.
Also connect the Diver-to-Diver cable to the Diver-to-Diver connector before diving. If you are planning to communicate using the intercom features, connect the Diver-to-Diver cable's Hi-Use connector to a matching Diver-to-Diver Cable from another Hardwire unit.

Two divers can securely communicate with each other using the intercom feature. The diver-to-diver connectors of both radios need to be connected together and the intercom needs to be on. Intercom communications are an always open channel like a telephone line.

Your MilCom is now ready for use.

The unit was designed to automatically turn on when it comes in contact with water. The two metal posts between the transducer and the connector on top of the unit are the water switch. To check or adjust your settings prior to dive, the unit can be turned on by placing a metallic object (like a small screwdriver) onto the two metal posts. Remove the metallic object after you have confirmed your settings.
The unit will automatically shut off after 30-40 seconds. Do not leave the metallic object on the unit as doing so will drain the battery.

MAKING ADJUSTMENTS

The MilCom uses a voice menu system. This allows for adjustments of settings without the need for buttons or knobs penetrating the housing. Using a sequence of easily learned manipulations of the Push-To-Talk (PTT) button on the Earphone/Microphone Assembly allows you to control all of the features of the MilCom. It's recommended that you take a few minutes and learn how to use the voice menu and all of the features.

To change your settings, depress the PTT button of the Earphone/Microphone Assembly three times about ½ seconds apart, holding the button down on the third press for around one second. A "beep" tone will be heard. Press the PTT button three additional times within five seconds and hold on the third press for around one second. The MilCom will now enter an adjustment mode. You will hear a voice saying "Channel, Intercom, Intercom Volume, Number of Divers, Receive, Scrambler" This message will repeat a second time and exit if no selection is made. To select an option, press the PTT button once when you hear the setting you want to change. This will prompt a sub-menu that will read additional choices. A table of the complete menu is provided. Depress the PTT button again whenever you hear the option you want. Once a change has been made, the unit will repeat your choice then exit.

For example, to change the volume setting to “MEDIUM”, you will push the PTT control three times holding the third push for approximately one second, then release the PTT button. A “beep” tone will be heard. Press the PTT button three additional times within five seconds and hold on the third press for around one second. The Voice Menu will start reading your options and you will hear: “Channel, Receive, Scrambler”….When you hear “RECEIVE, you would depress the PTT button. This will trigger a sub menu giving you your choice of volume (see page 10 for explanation of VOLUME). If you want to hear the messages coming in at a MEDIUM volume, the unit will give you the option to choose Volume settings (i.e. Low, Medium, High, Extra High). Once the selection is made, the MilCom unit will read back a confirmation of the changed setting then exit.

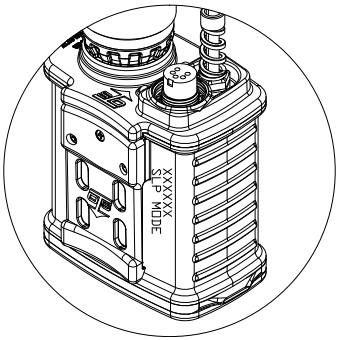
SLEEP MODE

Milcom 6000H units come in two versions: Sleep Mode units and standard.

With a Sleep Mode enabled unit, disconnecting the E/M harness (cable) from the transceiver, with the transceiver remaining under water, results in the transceiver entering “Sleep Mode.” During this mode of operation, battery consumption is dramatically reduced—allowing the swimmer to exit the water or perform other operations not requiring through-water communications. The transceiver “wakes up” upon re-connection of the e/m cable and returns to normal operation. The remaining amount of operational time depends on the state of charge before the Sleep Mode was activated and the length of time the transceiver had been in Sleep Mode before re-activation.

Sleep Mode enabled Milcom 6000H units require special Sleep Mode EM assemblies.

Sleep Mode units will be marked with a “SLP MODE” engraving on the back of the unit near the Belt Clip.



Main Menu	Sub Menu
Channel	A
	B
Intercom	On
	Off
Intercom Volume§	Low
	Medium
	High
	Extra High
Number of Divers§	2-3
	4-6
Receive	Low
	Medium
	High
	Extra High
Scrambler	On
	Off

*Settings indicated in Yellow are the factory default settings.

§Settings indicated in Green will only be selectable if the Intercom option is set to “On”

CHANNEL

In the channel selection menu, the transceiver will offer you channels A, and B. Depress the PTT button when you hear the channel you want. After you have made the selection, the transceiver will repeat your selection then exit.

Channel Number	Frequency
Channel A	28.500 kHz Lower Sideband
Channel B	33.0 kHz Upper Sideband

INTERCOM

Setting the intercom to “on” allows for hardwire connection between two or more divers. Intercom communications are an always open channel like a telephone line. Up to 6 diver intercom communication is possible.

A Buddy-line communications rope is needed to connect more than 2 divers together. Contact your OTS dealer for off the shelf or custom Buddy-line communications rope options.

INTERCOM VOLUME

Intercom Volume options allow you to control how loudly you hear incoming signals.

NUMBER OF DIVERS

Use this setting to set the “Load” that corresponds with how many divers are connected to the unit. A high number of divers with a low setting will cause low volume or lost transmissions, while a low number of divers with a higher setting will cause loud and blown out audio.

RECEIVE VOLUME

Volume options allow you to control how loudly you hear incoming signals. Setting receive volume to extra high can result in the voice menu transmitting to other divers connected to the intercom line.

SCRAMBLER

To turn on or off the “Scrambler” option, depress the PTT button once when “Scrambler” is heard. Your next choice will be “On” or “Off”. Press the PTT to make the selection you want. Scrambling enables the divers to have more secure communication while the option is on. Divers with this feature will be able to hear normal speech, while divers without will hear unintelligible transmissions; providing an additional layer of secure voice communications.

The Scrambler feature only affects Wireless transmissions; hardwire intercom transmissions will not be scrambled. Additionally, if one diver has their unit set to Scrambler “On” while the rest of the dive-team does not, the team will hear both the scrambled wireless transmissions and the un-scrambled intercom transmissions. Therefore, we recommend that all divers have the same scrambler settings in order to maintain clear communications.

BATTERY CHARGING

The MilCom is equipped with a high capacity rechargeable Lithium-Ion battery that is charged through the Earphone/Microphone connector located at the top of the unit. To charge the unit, disconnect the Earphone/Microphone Assembly and connect the provided smart charging device.
The Battery Charger will illuminate red, indicating that charging is in progress. When the battery is fully charged, the LED on the battery charger will illuminate green to show that the battery is finished charging.

LOW BATTERY INDICATOR

The red LED at the top of the unit will blink rapidly and a voice will prompt the diver by stating “Low Battery” every 5 minutes to indicate a low battery level. The unit will state “Diver shutting down” ten seconds before the unit shuts down due to low battery level.

BATTERY DISPOSAL

Dispose of the Lithium-Ion battery and the Battery Charger in accordance with the local, state, and federal electronic waste recycling regulations. Do not discard them in the trash.

MAINTENANCE

Routine maintenance of the MilCom units as with all dive gear is necessary to ensure an extended life of the equipment. Failure to properly care for and maintain the MilCom and ancillary components could lead to flooding of the units, damage to the connectors, transducers, housings and other failures. If any of this equipment is found to not be functioning as described in this manual, contact the Ocean Technology Systems service department or authorized retailer.

PRE-DIVE PROCEDURE FOR ESTABLISHING COMMUNICATIONS

1. Fully charged battery.
2. Perform visual inspection. Pay particular attention so that O-rings are in place and free of fibers or debris and Armored Battery Base screws are tightened fully.
3. Earphones in holder and are properly adjusted for your comfort.
4. Connectors lightly greased and properly mated.
5. The diver is dressed out such that the wires will not snag, and the transducer is not obstructed by any type of diving equipment.
6. In-water surface check:
    a. Recheck the location of the earphones.
    b. Submerge the transducer to activate unit. Establish communication with divers and/or surface station.
    c. Look your dive partner over to ensure his equipment is properly adjusted and the wires are dressed so as not to snag.
7. Ensure the unit is secured properly to where it is mounted.

POST DIVE PROCEDURE

1. Rinse the unit in freshwater for several minutes or until the unit is clean. A mild soap solution may be used to remove contaminants and after cleansing, rinse with freshwater.
2. Dry the transceiver with a clean towel, especially around the area of the activating water-contact screws. This will ensure the unit will shut off. Failure to do so will drain the battery *Note: The unit may take a few minutes to turn off; this is normal.*
3. Store in a dry, safe area.
4. Similar maintenance should be performed on all ancillary equipment
5. Routinely clean the water switch contacts with soft brush to remove any contaminants or oxidation in this area.

TROUBLESHOOTING GUIDE

Contact Ocean Technology Systems for any issues not listed below:

Issue	Step 1	Step 2
No/Low Transmit	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
	Move Mic closer to lips, touching is okay.	
	Ensure Transducer is not covered by equipment	
	Change Transducer	
No Receive Volume	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
	Ensure Transducer is not covered by equipment	
	Change Transducer	
	Reduce distance to divers	
Scrambler setting “stuck”	Contact OTS.	
Transmission setting “stuck” on PTT	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
No Side Volume	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
Charger LED illuminates green, but the unit will not activate when the water switch is activated	Battery is “dead”. Replace the battery.	Contact OTS.
Short Battery Life when fully charged	Replace the battery.	
Water in battery compartment	Replace the battery. (See page iv for safety warning on handling a flooded battery compartment)	

Issue	Step 1	Step 2
Water in electronics compartment	Do not attempt to power on the unit. Contact OTS.	
After activating the water switch, LED turns on, no start up menu and no transmit or receive.	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
After activating the water switch, voice menu is heard, then the unit transmits continuous static.	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	
Distorted side tone volume and/or receive volume	Change EM Assembly to isolate issue	Contact OTS.
	Change EM Cable	

MAINTENANCE INTERVALS

Follow the maintenance cycle outlined in the following page for Manufacturer Recommended Maintenance Schedule.

Part	Cycle
Battery	2 years or 300 Charge cycles
Sealing Screw O-rings	2 years
Battery Base, Housing O-rings and Transducer Gasket	2 years
Cables	As Required
Transducer	As Required

Note: If the unit is opened for any reason, be sure to inspect the O-rings for any damage or nicks. Clean and lubricate the O-rings with a non-silicone lubricant (like Krytox 204 or Tribolube 71) before closing the unit back up. If the O-rings are damaged, replace them before diving the MilCom.

BATTERY MAINTENANCE

Do not leave batteries unused for extended periods of time, either in the product or in storage. Lithium-Ion batteries continue to slowly discharge when not in use or while in storage. Storage temperature affects the rate of discharge. Routinely apply a maintenance charge based on the Battery Charging Schedule section.

The typical estimated life of a Lithium-Ion battery is about two to three years or 300 charge cycles, whichever occurs first. One charge cycle is a period of use from fully charged, to fully discharged, and fully recharged again. Use a two to three year life expectancy for batteries that do not run through complete charge cycles.

Rechargeable Lithium-Ion batteries have a limited life and will gradually lose their capacity to hold a charge. This loss of capacity is irreversible. As the battery loses capacity, the length of time it will power the product decreases.

Battery Charging Schedule

Battery Storage Temperature	Maintenance Charge Schedule
-20°C to 60°C	1 month
-20°C to 45°C	3 months
-20°C to 25°C	1 year

REPLACEMENT/SPARE PARTS

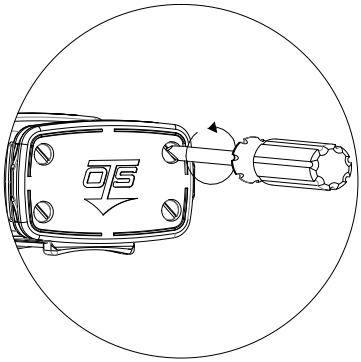
Most parts of the MilCom unit can be replaced by the end user. The Modularity of the system allows for easy replacement of the Battery, Belt Clip, Transducers and Earphone/Microphone Cables. Any electronic components of the housing and the Lid Assembly can only be replaced by Ocean Technology Systems or an authorized technician.

DO NOT use silicone grease on the silicone o-rings. This could cause swelling and damage of the o-ring resulting in a failure of the pressure housing. Use only non-silicone grease. Krytox 204 or Tribolube 71 are acceptable lubricants. Use of silicone based lubricants will void any warranties.

If you need spare parts contact us at: SALES@OTSCOMM.COM or (714) 754-7848

BATTERY REPLACEMENT

1. Using a large flat head screw driver, loosen the screws on the bottom of the unit as shown. Rotate the screws counter-clockwise until the screw comes free from the main housing.



2. Push on the finger tabs located on the Rubber Armored Base to separate the battery cover from the rest of the unit. If the screws were not loosened sufficiently, they may become stuck. Do not force the unit open. Loosen the screws until free from the threads. The cover should come free with gentle force.

3. After removing the cover, the battery is secured to the cover by a velcro strip. Simply pull the battery free from the cover and replace with the fresh battery.

4. Replace the Rubber Armored Base and tighten the screws to approximately 6 in-lbs.

O-RING REPLACEMENT

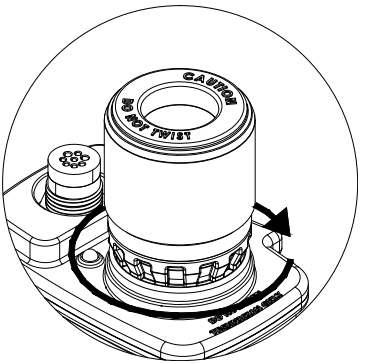
It is recommended that the o-rings are serviced per Manufacturer Recommended Maintenance Schedule. Anytime the Rubber Armored Base or Transducer is removed, the o-rings should be cleaned, inspected and lubricated.

Use only o-rings supplied by OTS for this purpose. Use of aftermarket or otherwise sourced o-rings will void any warranties. Clean, inspect and lubricate all o-rings even if new.

1. Remove the damaged O-Ring using a dull plastic tool. Ensure that no damage is done to the sealing surface of the unit.
2. Lightly grease O-Ring with grease included in the O-Ring replacement kit.
3. Place the O-Ring gently into the O-Ring grooves, taking extra care not to stretch the rubber of the O-Ring. Ensure the O-ring rests completely inside the groove.
4. To replace the Sealing Screw O-rings, there is a second set of threads in the Rubber Armored Base, continue to unscrew by pulling lightly on the Sealing Screw while unscrewing counter-clockwise. The Sealing Screw will extract exposing the Sealing Screw O-rings.

TRANSDUCER REMOVAL AND REPLACEMENT

To remove, service and replace the Transducer, follow these instructions:

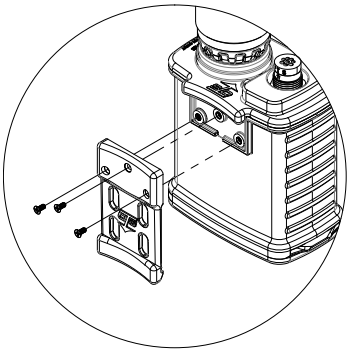


1. Locate the Transducer Ring underneath the transducer.
2. Turn the Transducer Ring clockwise to remove the transducer. DO NOT TO TWIST THE TRANSDUCER. Twisting the Transducer will damage the unit.
3. Pull the Transducer free by lifting straight up and replace with the undamaged module. Turn the Transducer Ring locking collar counterclockwise to secure the transducer to the unit.
4. The Transducer also needs to be removed for use with the CDK-6 Surface Conversion Kit (900015-007).

BELT CLIP REPLACEMENT

If the Belt Clip is damaged, follow these instructions to replace the Belt Clip:

1. Using a #4 Phillips screw driver, loosen the three screws that secure the Belt Clip to the unit and remove damaged Belt Clip
2. Replace the Belt Clip with the new Belt Clip and re-tighten the screws. Do not over torque the screws.

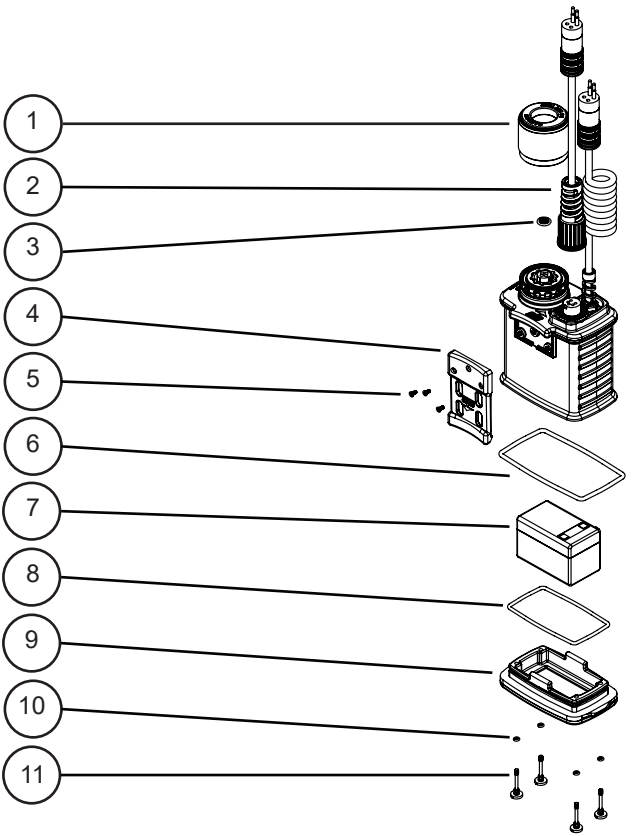


SPARE PART ORDERING INSTRUCTIONS

Spare parts are available to purchase from OTS.

To Purchase, contact OTS at: SALES@OTSCOMM.COM

Items Included	Part Number	Part Description
7	900474-000	RBLi-4, LITHIUM BATTERY KIT
2	900474-023	AD8PMHI17, 5-PIN TO HI-USE CABLE KIT
6, 8, 9, 10, 11	900474-002	RUBBER ARMORED BASE ASSEMBLY KIT
4, 5	900474-003	BELT CLIP KIT
1, 3	900474-004	TA-6 TRANSDUCER KIT
Not Shown	900474-025	RCLi-1 BATTERY CHARGER KIT,US
3, 6, 8, 10	900474-009	POWERCOM/MILCOM O-RING KIT
3	900474-016	TRANSDUCER GASKET KIT

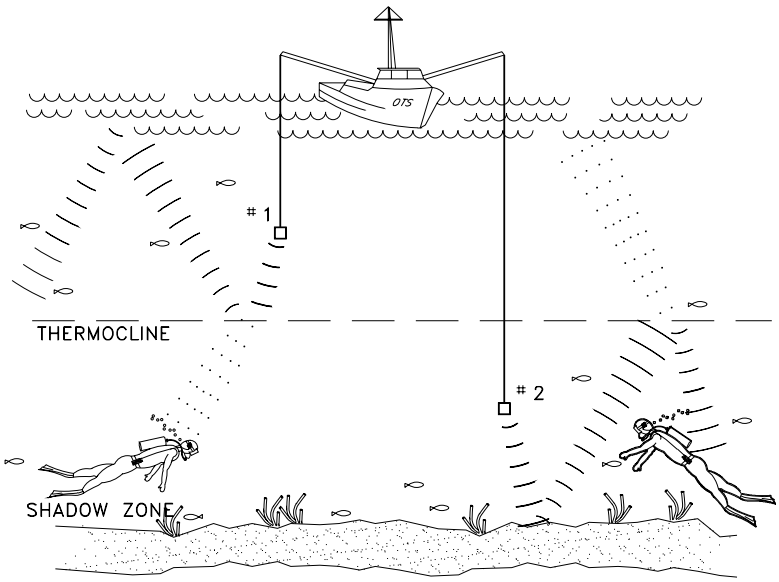


FACTORS THAT AFFECT WIRELESS COMMUNICATIONS

There are many factors that affect the propagation of sound in water. The net result is that communication in water can be affected by local conditions and the kind and depth of dive being conducted. The following sections explain some of the factors that can affect the operating range of underwater communication:

DISTANCE

The sound intensity from a source varies inversely with the distance from the source. As the sound passes through the water, some of the energy is converted to heat and some energy is scattered by fish, pilings, seaweed, bubbles, etc. In addition, both the surface and bottom may affect the sound intensity by either reflecting or diffusing sound waves. If the source is near the surface, there is a point beyond which sound is not received from the source. This point is said to be in a “Shadow Zone”. The distance from the source to the shadow zone is determined by Thermoclines in the water.



WATER TEMPERATURE

Variations in water temperature affects sound transmission most. In some areas of the ocean, the temperature changes at a fixed rate over large ranges of depth. If the temperature increases with depth, the velocity of sound increases and the sound waves will be refracted toward the surface. If, however, the temperature decreases with the depth, the velocity of sound decreases and the waves of sound are bent downward.

There are also areas in the sea where temperature changes rapidly over a small depth range called a thermocline. Thermoclines can to produce a sharp bending of sound waves and may serve as reflecting surfaces. The velocity of sound transmission changes only about one percent for a temperature change of l0°F. However, the bending of the sound path has great effect over a distance of several hundred yards.

If the temperature of the water decreases with depth at the rate of 1°F for each 30 feet (starting at the surface), most of the sound energy originating at the source near the surface will travel along paths that are bent downward. Therefore, the sound energy may not reach a shallow detector positioned l,000 yards from the source but may reach a deeper detector position further from the source. Greater temperature variations can cause these paths to bend more sharply. The best method to deal with thermoclines is to bring the divers and/or transducers as close to each other as possible.

If a diver enters a thermocline, the diver should report it to everyone (surface and divers) so they know the depth of the thermocline. All divers should stay within that depth, and the surface station should try to position the surface transducer below or above, whichever is the case.

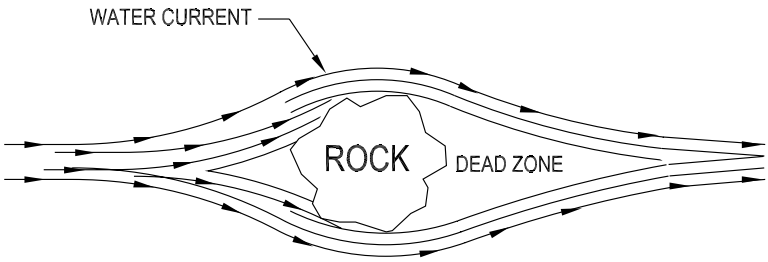
WATER DENSITY

Water density is important for the propagation of the sound. Because the density of sea water varies with temperature, salt content, and static pressure, the effect on sound of each of these three factors is usually considered separately.

BACKGROUND NOISE

Marine organisms play an important role in underwater acoustics. They are important primarily because of the effect they have on sound transmission, but they often serve as sources of underwater noise as well. High background noise can interfere with good communications. Such background noise can be mitigated with the squelch function.

ZONES OF SILENCE

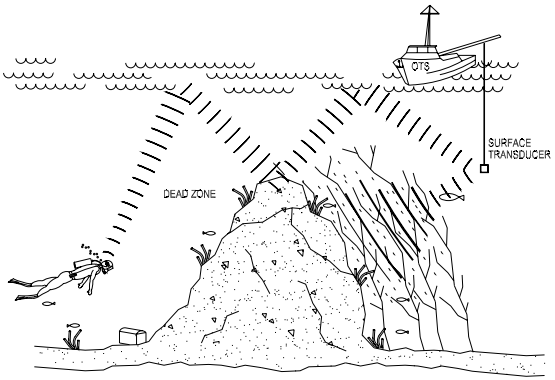


Large natural or man-made objects can block acoustical transmission under certain conditions, in much the same way that a rock blocks a fast-moving current of water. Close to the backside of the rock, in this example, the current is absent and the water seems still. A short distance away, the current is flowing again.

Similarly, acoustic energy in the water can be blocked if the transmitting source is close to a large object. On the backside of the blocking object, a “zone of silence” is formed in which reception of the transmitted signal is not possible. Divers can reduce “zones of silence” by moving away from, around, or above the blocking object until communication is reestablished.

Under some conditions, when your diving suit is directly between the transmitting source and your MilCom, a small zone of silence may be created that prevents reception. This effect can become greater at longer ranges. Turning approximately 45 degrees in any direction eliminates this zone of silence.

For more information on Wireless Communications, visit the Learning Center on our website at: WWW.OTSCOMM.COM



LIMITED WARRANTY

The MilCom is fully warranted against defects in materials and workmanship, including labor, for a period of one year from the time of purchase. Our obligation under this warranty is limited to the replacing of any part or parts which prove to our satisfaction to have been defective and which have not been misused or carelessly handled.

You must contact an official Ocean Technology Systems (OTS) Service Center or OTS directly to obtain service. If you elect to send the item(s) to OTS, you must request an RMA # by filling out the request form from the Service section of our website. The complete unit and/or damaged part shall be returned to our factory, transportation charges prepaid. We reserve the right to decline responsibility where repairs have been made or attempted by any party other than an OTS service factory trained center or properly trained personnel.

In no event shall OTS be liable for consequential damages related to our product/s.

Warranty registration is required. Any parts requiring replacement due to excessive wear or damage are not covered in this offer. Customer will be notified of any additional charges for worn or damaged components. The customer is responsible for shipping charges to the factory. OTS will pay return shipping limited to the continental United States via UPS Ground service or equivalent for repairs covered by this warranty only. Any other shipping requirements are the responsibility of the customer.

Undersea Systems International, Inc.
dba
Ocean Technology Systems
3133 West Harvard St., Santa Ana, CA 92704 USA
Telephone: 714.754.7848 Fax: 714.966.1639
E-Mail: ots@otscomm.com
Web: www.otscomm.com

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