

# MAG-1001SBS

## OPERATION MANUAL: BOAT/DIVER COMM SYSTEM WITH REMOTE STATIONS



The OTS MAG-1001SBS is a compact, ultrasonic, single sideband transceiver designed to allow surface-to-diver and/or diver-to-surface through-water communications. It employs *digital signal processing* techniques that ensure the highest performance possible. The MAG-1001SBS utilizes multiple topside remote stations, auxiliary speakers, and the ability to use either a hull-mounted or remote transducer through the same system. It offers many useful features to ensure user-friendly performance, such as: front-panel squelch control, heavy-duty panel speakers with volume control on the supervisor unit as well as the remote units, a record-out connector (female RCA), a multi-channel selector, heavy-duty waterproof housings, and a high quality hand-held microphone (and/or headset with boom microphone).

Since the MAG-1001SBS is an ultrasonic through-water communication system, it must be operated using water as the transmitting medium. You will be able to talk to all other divers and/or surface stations on the same frequency and within range. When you speak, your voice is sent out in an omnidirectional pattern via the transducer to all other transceivers within range. The transducer is the antenna that both sends and receives signals.

The MAG-1001SBS produces a short tone burst each time one presses either the microphone or the push-to-talk (PTT) switch on a headset with boom microphone. This tone is transmitted through the water and is heard by all other communication systems—both diver units and surface stations. The tone burst alerts the diver or surface station operator that there is a transmission to follow. This tone may be used alone (without transmitting voice) for recall or Morse code messages.

## **SPECIFICATIONS**

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### **SUPERVISOR STATION:**

Transmitter output power: 70 watts (PEP)  
Audio output to speaker: 4 watts RMS  
Modulation: Single Sideband with suppressed carrier  
Standard operating channels: Channel A: 28.50 kHz LSB  
Channel B: 32.768 kHz USB

*Note: Custom frequencies may be ordered. Contact your local OTS representative or OTS direct for more information.*

Power: 12 volts DC at a minimum of 10 amps. Access via back panel with use of an MS connector.  
Transducer: Piezoelectric type, hull-mount w/ LED indicator  
Squelch: User adjustable from the front panel (supervisor unit)  
Volume: User adjustable from the front panel (supervisor and remote units)  
Microphone: Hand-held, dynamic, 200 ohm impedance (MS connector)  
Record output jack: Panel-mounted female RCA connector (line level)  
Activation (On/Off): Toggle switch on front panel  
Headset: Mic 150 ohm, earphone 600 ohm, panel-mounted through MS connector  
Control Panel: Stainless steel  
Receiver sensitivity: Greater than 100 dBv  
Automatic Gain Control: Greater than 100 dBv  
Xmit speech freq. bandwidth: 300 Hz to 3500 Hz

### **REMOTE STATION(S):**

Audio output to speaker: 15 watts RMS  
Power on/off: Volume control knob with 12 VDC power switch (knob is on/off switch)  
Transducer: Piezoelectric type, remote w/ LED indicator

### **AUXILLARY SPEAKER(S):**

Audio output to speaker: 10 watts RMS  
Power on/off: Volume control knob with 12 VDC power switch (knob is on/off switch)

## OPERATION

1. Power up the supervisor unit of the MAG-1001SBS. The hull-mounted transducer is connected to the supervisor station and will automatically be activated.
2. For the remote transducer, connect to the MAG-RSX remote station and lower the transducer into the water. **NOTE: Connecting the remote transducer will deactivate the hull transducer automatically. The supervisor system has a set of LEDs to signal which transducer is active.** Under no circumstances should the transducer lie on the bottom, or else most of the transmitting and receiving signals will be greatly reduced. *The result will be reduced range and weak or no communications.*

If a current exists in the water and you must have a weight on the remote transducer to keep it from flagging, tie the weight to a separate line and marry the transducer cable to the separate line. Lower the line with the weight and transducer into the water and tie it off. (CAUTION: Ensure the transducer is not free to float around and hit the weight, thus interfering with communications.)

3. Adjust the volume to a comfortable listening level.
4. Adjust the squelch from the supervisor station. The squelch will help suppress background noise, which is typically due to marine biological (e.g., snapping shrimp) or man-made (propellers, engines, equipment, etc.) causes. Note that the squelch adjustment will affect the range. The more squelch you apply, the less range you will have to work within.
5. Select the channel that all other divers and/or surface stations will be using.
6. Connect the hand-held microphone or a headset to the microphone receptacle.
7. If you would like to record, connect a male RCA plug into the RECORD OUT receptacle. Connect the other end of the record patch cable to the recorder's RECORD IN. Ensure the tape recorder is recording when the MAG-1001SBS is operated. *Note: The record output is a "line level" signal.*
8. Ensure the power source is capable of generating 12 volts DC at 10 amps minimum.

Upon completion of the above steps, the MAG-1001SBS is ready for use. The unit will already be in the receive mode and will be listening for incoming signals. To talk to a diver and/or another surface station, hold the hand-held microphone within a 1/4 inch of your lips, depress the PTT switch (located on the side of the hand-held microphone), and speak slowly. When you release the PTT button, the MAG-1001SBS will automatically go into the receive mode.

## MAINTENANCE

Although the MAG-1001SBS and remote boxes have a rugged design, they should be treated carefully like any quality electronic instrument. After use, wipe the units free of dirt, debris, and water. Use a clean, soft cloth. Warm water with a small amount of nonabrasive soap is the recommended cleaning solution.

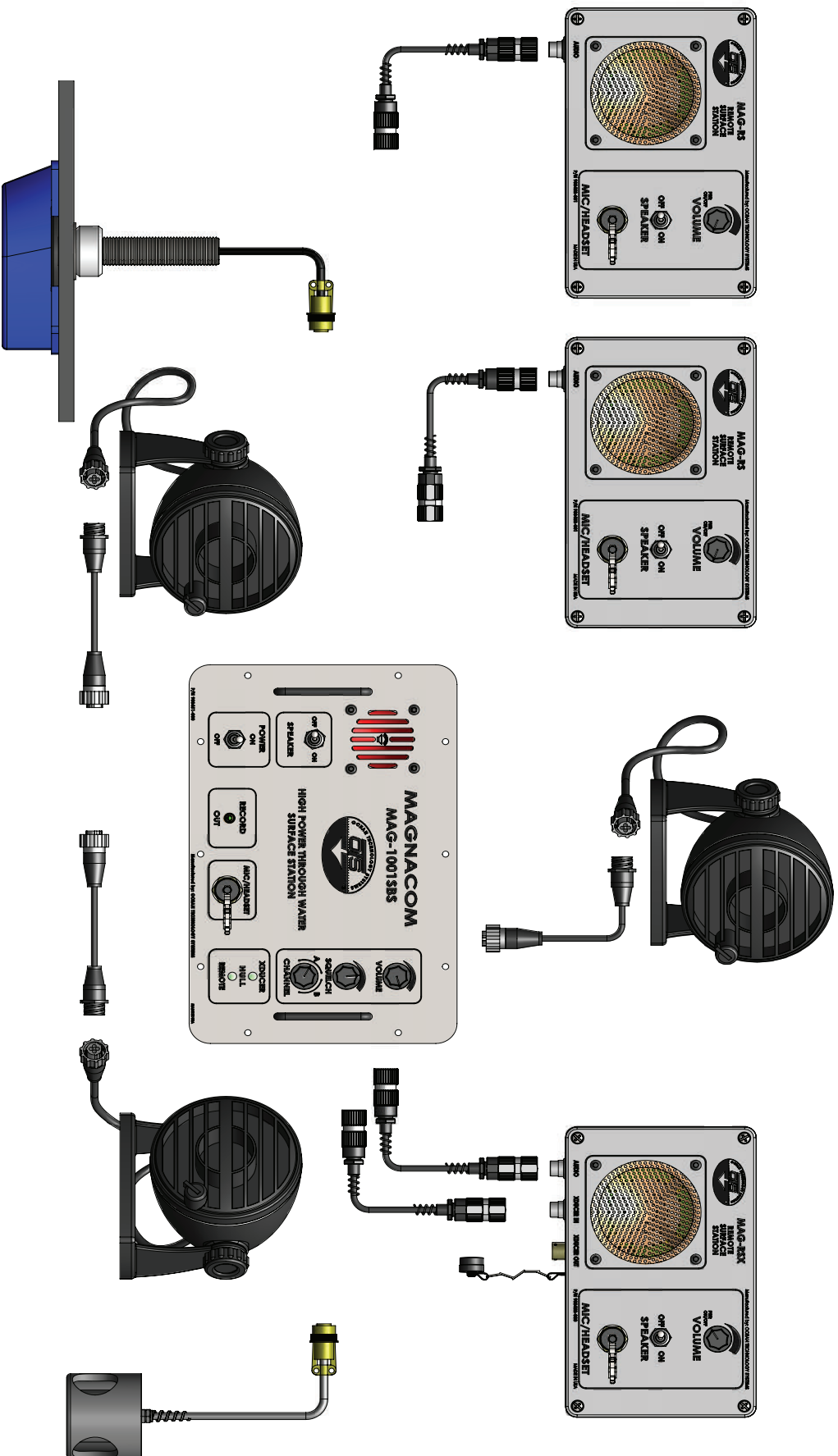
The transducers should be kept clean and free of oils. A transducer itself can be cleaned with denatured alcohol. If wet after a dive, the transducer assembly should be stored in a separate container (remote transducer).

Store the hand-held microphone and headset in a dry area. The microphones are merely water resistant, not waterproof. Keep them free of water and water spray. The preferred cleaning method is to use a mild soap solution followed by wiping the microphone dry.

When the MAG-RS/X remote boxes are not being used, it is a good idea to keep them covered and securely fastened.

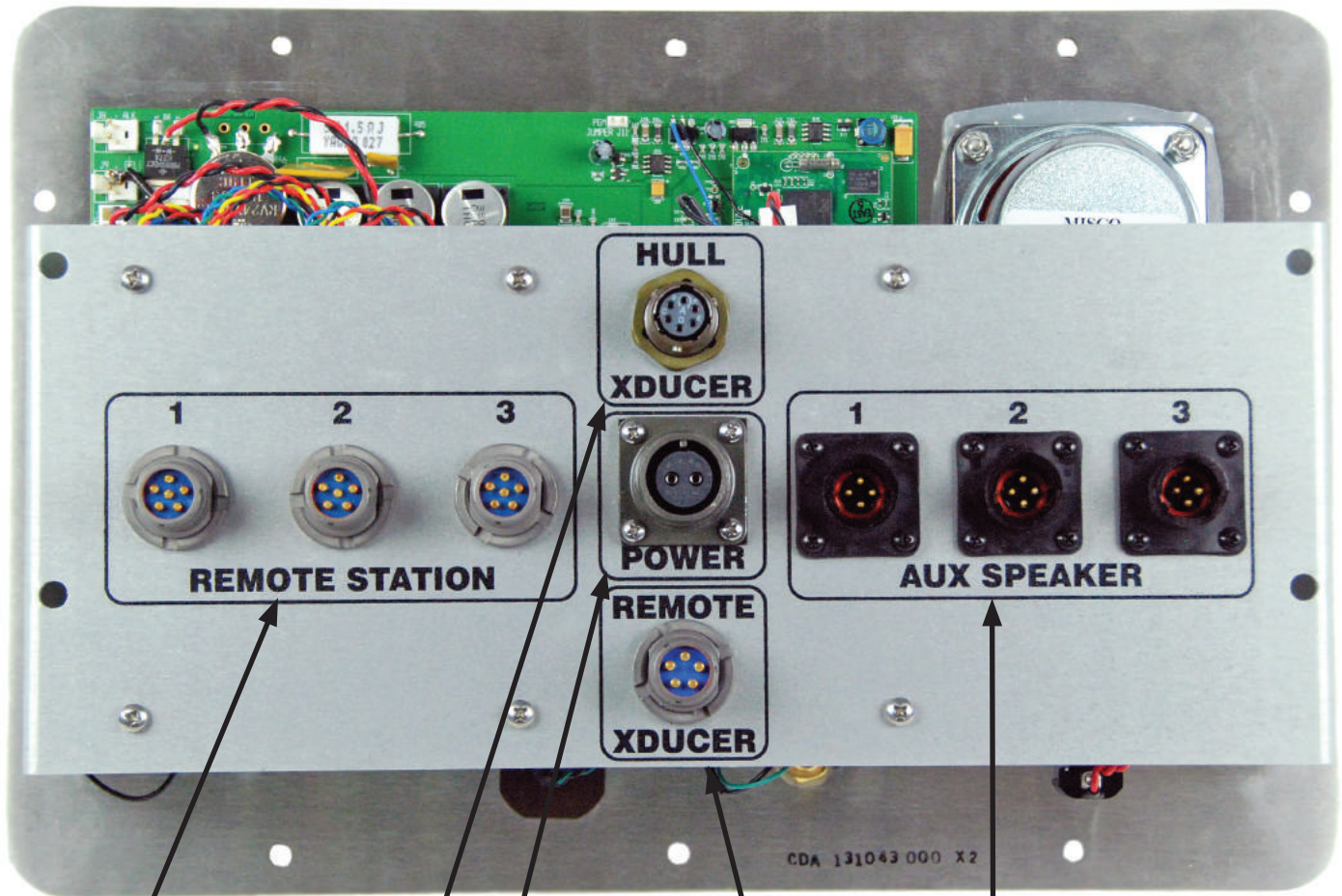
Remember, when the transducer assembly is connected to the remote box, the power is *on*. To conserve energy when securing or cleaning the MAG-RSX, disconnect the transducer connector from the unit.

# MAG 1001SBS // BOAT SYSTEM





## BACK VIEW OF SUPERVISOR SYSTEM



### REMOTE STATION

MS connectors to a remote mic/speaker w/ on/off, volume control and speaker on/off switch.

### POWER

Main power input; 12 VDC @ 12 amps.

### AUX SPEAKER

Connections to auxillary speakers; individual remote speakers with independent on/off controls.

### HULL XDUCER

Connects to hull xducer. Default ON when supervisor unit is turned on. OFF when REMOTE XDUCER is connected to remote station.

### REMOTE XDUCER

Connects to remote station; default OFF until REMOTE XDUCER is connected to remote station (automatically shuts OFF hull xducer).