



## Instructions for use of 3400 U/W PA System

The Lubell 3400 system is designed for mobile 12 volt battery operation, and provides high quality reproduction of voice and music in pools, lake, and ocean. The system includes a TOA CA160 60 watt mobile mixer/amplifier modified with 7.5 ohm integral resistor, transformer isolated phone jack output dongle (8 ohms), and a 60 watt high-efficiency Lubell LL916C underwater speaker with 25' hardwired phone plug cable. The CA160 has two mic inputs with volume controls, and one aux input for connection to portable mono or stereo cassette/CD player having volume control. (Volume control of external device controls sound level of CA160 amplifier when using aux input.) The CA160 includes a microphone with a push-to-talk switch, and a U-bracket for dash mounting unit in watercraft. An optional resistive summing patch cord is available (SP2 @ \$20) allowing connection of portable stereo CD or mp3 player to mono CA160 aux input. Amplifier must be operated and stored in dry, well ventilated location only.

**Caution: The LL916C must be used only with the Lubell modified TOA CA160 amplifier, as the amplifier has required series resistor and isolation transformer.** If the need arises to use the LL916C with another amplifier, Lubell Labs can provide model AC202B transformer box which provides isolation transformer and internal series resistor in a die cast enclosure.

1. Securely attach a marine-grade rope of sufficient length to the cage on the underwater speaker for raising and lowering the speaker from the water. Use speaker at 6' minimum depth and 50' maximum depth. Do not lift speaker by the speaker cord as this will result in non-warranty damage.
2. In swimming pools, the LL916C underwater speaker may be lowered from pool side at midway or deep end position depending on desired coverage. Speaker may be tethered at 6' depth, or placed on bottom of pool. When used from dive boat, boat must be anchored to prevent damage to speaker. Lower speaker to required depth, and tether in place. Speaker must be used under adult supervision to prevent tampering and diving in vicinity of unit. Maintain 3' minimum distance from speaker during use.
3. Place the TOA CA160R amplifier on a sheltered equipment table at least 10' back from the waters edge. Do not allow splashing water or rain to contact unit as this will result in non-warranty damage.
4. Inspect speaker cable and speaker coating before each use; If damaged, discontinue use and return to factory for repair. Connect male phone plug on underwater speaker cable to the female phone jack on the TOA amplifier. If using detachable IE cable, apply silicone to pin connector and insert without bending; Strain relief cable to cage using provided hardware. Use a cord protector over the speaker cord to prevent traffic damage to cable and/or accidental trips. Do not operate the underwater speaker out of the water.
5. Use deep-cycle marine battery (12V) to power the TOA CA160R. Amplifier includes detachable power cord: connect RED wire to (+) 12 volt terminal, and BLUE wire to (-) negative terminal. Use battery in battery box only to prevent tampering, acid leakage on deck, accidental shorting of battery terminals, electrical shocks, etc. **Caution: Disconnect power cable from CA160R when not in use and when charging battery. Observing correct polarity, use trickle-charger for charging battery, but be sure to disconnect charger from battery when using the system.**
6. Connect mono headphone jack on portable device (digital recorder, CD, MP3) to the 0.250" AUX input jack on the TOA CA160R using appropriate patch cord. Use Lubell SP2 summing patch cord for portable stereo devices. Make sure volume control on the device is set to 0 to start with, and that any tone controls or bass boost switches are set to off (neutral) position.
7. Turn on the TOA CA160R amplifier -- the red LED above the power switch should glow. Turn up the volume on the attached device until the underwater speaker reaches desired undistorted sound level.
8. Towel dry the speaker after each use. Stretch out the cable on the pool deck and work out any kinks. Coil the cable neatly after each use. Store the speaker and amplifier in a dry location.
9. Always vacate the water at the first sign of an electrical storm.

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**712 S Yearling Road  
Columbus, Ohio 43213 U.S.A.  
(614) 725-2701 - (614) 725-2701 Fax  
<http://www.lubell.com> [sales@lubell.com](mailto:sales@lubell.com)**