

IMPORTANT WARNING AND SAFETY INSTRUCTIONS



SERIOUS BODILY INJURY OR DEATH CAN RESULT IF THIS SPEAKER IS NOT INSTALLED AND USED CORRECTLY. INSTALLERS, POOL OPERATORS, AND POOL OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING POOL SPEAKERS.

IMPORTANT: THIS GUIDE SUPPLIMENTS HAYWARD NICHE MANUAL AND BOSCH AMPLIFIER MANUAL

I. DESCRIPTION: The Lubell 9484 is a professional 37.5 watt 25V in-wall underwater speaker kit intended for contractor installation at 4' (1.22 m) to 6' (1.83 meter) depth during new concrete or gunite pool construction utilizing standard or saltwater chlorination systems. **DO NOT INSTALL** in vinyl liner pools or concrete pools having vinyl liner due to poor acoustics.

Per page 4 pictorial, the 9484 includes: A9000 (Hayward SP0604C4) stainless steel wet niche with 3/4" bronze conduit hub, A9002A stainless steel grille, LL916 underwater speaker, 21007 PVC/stainless steel speaker support, AC205B 25V audio transformer/resistor box). The LL916 speaker is fitted with choice of 50', 100', 150', or 200' 3-conductor cable that runs through conduit to above ground J-box. (Extra cable can be coiled inside the niche for future on-deck inspections.)

II. LOCATING THE SPEAKERS

Install one 9484 kit for each 20 foot x 20 foot (6.1 m x 6.1 m) section of pool. See last paragraph of online brochure <http://www.lubell.com/9484.html> for location diagrams of typical pools. Use two 9484 kits for **20' x 40' pools** and locate 10' from each end either in common wall or catty-corner in long axis walls at 5'-6' depth. Use three units for **20' x 60' pool** and locate one unit 10' from each end at 5'-6' depth in common 60' wall; Locate third unit in center of opposite wall at 5'-6' depth. For **25 yard Olympic pool**, locate two units in each 25 yard wall (4 total) 18.75' from each end at 6' depth. For **50 meter Olympic pool**, locate four units in each 50m wall (8 total) at 6' depth at following distance from ends: 6.25m, 18.75m, 31.25m, 43.75m. Installation at 5'-6' depth is recommended, but units in shallow end may be reduced to 4' depth with some loss of low frequency response and reduced sound level. Install in flat section of wall only, as grille must mount flush. For large municipal pools, the speakers should be located around the periphery of the pool for proper sound distribution.

III. INSTALLING THE A9000/2 NICHE/GRILLE (LICENSED POOL CONTRACTOR/ELECTRICIAN ONLY)



WARNING - EXTERNAL BONDING LUG ON ALL SPEAKER NICHES, LUMINARY NICHES, AND POOL FIXTURES MUST BE BONDED TO AN EQUIPOTENTIAL BONDING GRID WITH A SOLID COPPER CONDUCTOR NOT SMALLER THAN 8 AWG PER NATIONAL ELECTRIC CODE SECTION 680. FAILURE TO FOLLOW THIS CRITICAL PROCEDURE CAN RESULT IN ELECTRICAL SHOCK AND ELECTROLYSIS DAMAGE TO FIXTURES. FOLLOW ALL INSTRUCTIONS INCLUDED WITH WET-NICHE.

1) Rough in each A9000 wet-niche (Hayward SP0604C4) at 6' depth in positions recommended above in COVERAGE section, bonding external lug to **equipotential bonding grid** per NEC 680.26(B)(1). Run conduit to nearby above water J-box,; Run conduit from J-box to air conditioned equipment room. **WARNING: GROUNDING LUG INSIDE UNDERWATER SPEAKER NICHE MUST BE GROUNDED AND POTTED TO THE SAME COMMON GROUND AS ALL LIGHT NICHES, PUMPS, AND FIXTURES USING GREEN 8 AWG COPPER WIRE PER NEC 680.** If local code requires sealed conduit, then seal conduit opening inside niche with approved sealant. **2) IMPORTANT:** Observe diagram inside niche to insure that the very foremost edge of niche is finished flush with the final tiled or painted surface of the pool wall – area must be flat for grille to seat. **3) IMPORTANT:** Concrete structure around niche flange **must** be undercut and filled with sealing plaster to insure a proper watertight seal.

IV. INSTALLING THE LL916 U/W SPEAKER WITH 21007 SUPPORT

1) Insure that grounding lug inside speaker niche is grounded to common pool ground via green 8 AWG copper wire, and that termination is potted with UL potting compound to prevent deterioration. **2)** Insert the V-shaped 21007 speaker support *upright* into the A9000 niche with long stand-off's facing into niche. **3)** Draw LL916 underwater speaker cable through conduit leaving sufficient cable coiled inside niche for future on-deck inspections. **4)** If code calls for sealed conduit, then apply approved sealant around speaker cable and #8 grounding wire where it enters conduit hub, and let dry. **5) Gently tilt** the LL916 underwater speaker (cable side first) into the niche and place on 21007 stand. **6)** Install A9002 grille, being careful not to overtighten screws. **7)** Terminate the green U/W speaker ground wire along with the green niche ground wire (8 AWG copper) to the same common pool ground as all pool light niches and pumps. **8)** Splice the speaker's black and white wires to two-conductor speaker wire (Class 2 rated): 16 gauge for <100' run; 14 gauge for 100'-200' run; Use direct burial cable for non-conduit installations.

V. WIRING THE LL916 U/W SPEAKER, AC205B XFMR BOX, BOSCH PLENA AMPLIFIER

IMPORTANT!: Mount amplifier and audio equipment in a vented cabinet or equipment rack, located in a humidity free area. Connect AC powered audio equipment to audio-grade power strip and GFCI outlet as required under National Electric Code. Test GFCI before each use. Always vacate the water at the first sign of inclement weather and lightning storms. Avoid microphone feedback and/or excessive sound levels, which can be harmful to speakers and human hearing. **Caution: Do not exceed 25 volts rms to the input of the AC205B box. Exceeding this voltage will burn out the underwater speaker, which will not be covered under the warranty.** We highly recommend the Bosch Plena amplifiers listed in our literature -- meets all low voltage safety requirements (grounded power cord, UL commercial sound listing), has Class AB output stage for reactive speaker stability, AND provides speaker protection circuit to help prevent burnout.

Connection of speaker, amplifier, house system by certified audio contractor only.

1. For 1 to 3 speaker installations, use Bosch PLE-1P120-US amplifier and connect all AC205B transformers in parallel to the 25V speaker tap. (If using PLE-1ME120-US, use 4 ohm tap.) For 4 to 6 speaker installations, use Bosch PLE-1P240-US amplifier and connect all AC205B transformers in parallel to the 25V speaker tap. Amplifier meets all NEC & UL safety requirements including grounded power cord (for connection to GFCI outlet), UL Commercial Sound Listing (UL813), Class-2 wiring rating, and 25V and COMMON speaker connections with speaker protection circuit.
2. Using a short 18 gauge speaker cable, connect "25V" screw terminal on Lubell AC205B box to "25V" speaker terminal on amplifier, then connect "COM" screw terminal on Lubell AC205B box to "0" (common) speaker terminal on amplifier. Use one AC205B transformer box for each speaker installed, and connect (daisy-chain) multiple boxes in parallel/phase only. Make sure plastic terminal blocks are inserted fully and set screws tightened to hold firmly into place.
3. Connect black wire from LL916 underwater speaker to "B" screw terminal on Lubell AC205B box, then connect white wire from LL916 underwater speaker to "W" screw terminal on Lubell AC205B box. Green ground wire from LL916 underwater speaker may be connected to junction box / common pool ground per paragraph IV section 7 on previous page. Follow ALL local, national, and international electrical code regulations.
4. With power off, connect amplifier and any interconnected equipment to an audio grade surge protected power strip; connect outlet strip to GFCI outlet only; Test GFCI before each use.
5. Connect audio source (CD player, tuner, network device) to line input on Bosch Plena amplifier or mixer amplifier per Bosch Plena manual.
6. Observing front panel power level meter on the Bosch Plena amplifier, adjust volume of system (using outboard Crestron control and/or rear panel volume control on Bosch Plena) so loudest section of music brings power level meter up to -3dB maximum.

IMPORTANT: Use equipotential bonding grid only for all pool fixtures

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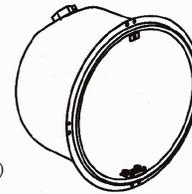
Stainless Steel Underwater Speaker Housing (Niche) FOR INSTALLATION AT 6' DEPTH DURING NEW POOL CONSTRUCTION

INSTALLATION INSTRUCTIONS

Hayward stainless steel niches come in 4 models for concrete/gunite pool and spas, having both side and rear conduit connections. Hayward SP0604C, SP0609C, SP0606C, and SP0610C niches are UL listed under file number E39338. The Lubell Labs 9484 underwater speaker kit includes the SP0604C wet niche.



FILE E39338

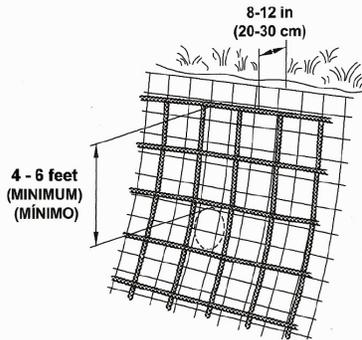


SP0604C

IMPORTANT INFORMATION:

1. All Hayward stainless steel luminaire housings (niches) are Underwriters Laboratories (UL) listed under File E39338 - Category WBDT, for fresh water applications, and comply with the 2002 National Electrical Code (NEC).
2. Hayward stainless steel luminaire housings are UL listed only for use with certain Hayward submersible luminaires.
3. All Hayward stainless steel luminaire housings must be installed in compliance with Article 680 of the National Electrical Code (NEC) or other applicable electrical codes and with any applicable building codes. Article 680 requires that the luminaires be installed with the top of the lens at least 18 inches below the normal water level of the pool; Lubell underwater speakers must be installed @ 4'-6" depth.
4. All Hayward stainless steel luminaire housings are provided with a combination bonding/grounding connector. The outside connection is the bonding connector as required by Article 680-22 of the NEC. The NEC requires that the bonding wire be 8 AWG or larger. Local codes may require a continuous loop and may require that the bonding point on the luminaire housing (niche) be encapsulated. The inside connection is the grounding connector as required by Article 680-22 (b) of the NEC. The NEC requires that when nonmetallic conduit is used, an 8 AWG insulated copper conductor be installed in this conduit. This connector is to be connected to the niche grounding connector. The connector and wire termination must be encapsulated with a listed potting compound* to a thickness of at least 1/8 inch (4 mm) in accordance with Article 680 of the NEC.

* 3M Inc. Scotch Cast Wet Niche Pottino Compound No. 2135 (UL File E130394) or equivalent.



1. PREPARE POOL/SPA WALL FOR NICHE INSTALLATION

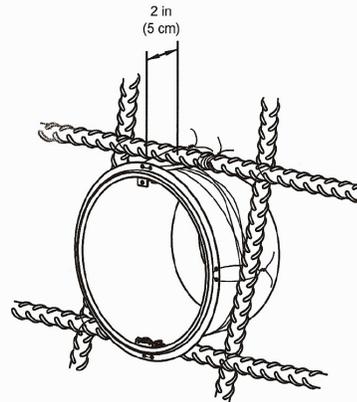
The Hayward stainless steel niches are intended for installation in pools or spas with floors and walls formed of gunite or concrete (shotcrete) with a concrete reinforcing bar (rebar) frame. Gunite is a mixture of Portland Cement and sand, while shotcrete is a high strength (4000 PSI) concrete utilizing Portland Cement and small size aggregate.

The outside shape of the pool or spa is formed from SteelTek or other suitable material. In some cases, the excavated dirt wall will serve as the outside form. The inside wall of the pool or spa is formed from rebar that is bent to the desired shape (see illustration). The distance between the outer and inner wall is called the beam and is typically 8 to 12 inches (20 to 30 cm). Rebar should be set at 10 inches (25 cm) for a 12 inch (30 cm) beam and 8 inches (20 cm) for a 10 inch (25 cm) beam. The distance between the niche flange and the outer wall should be the beam dimension. At all points where the rebar crosses, tie wire is used to connect the rebar securely.

2. INSTALL NICHE AND CONDUIT INTO POOL/SPA WALL

NOTE: For proper operation, the U/W speaker niche must be installed at least 4' - 6' below the water level. Be sure to position the niche so that you comply with this requirement.

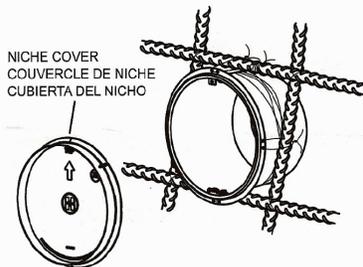
Position the niche between adjacent rebars such that the niche is held on four sides by sections of rebar. At the time the niche is installed, it may be necessary to add sections of rebar or move existing sections to one side or another in order to ensure that the niche is held securely (see illustration). Once the niche has been securely positioned (wedged) in the rebar, it must be tied to the rebar with tie wire. Before tying niche in place, make certain the niche is plumb (vertical), and square to the form and that the top of the niche (where retaining screw is located) is at the 12 o'clock position. The flanges of the niche are provided with holes through which tie wire may be routed. Once the niche is tied in place, confirm that it is still plumb and the distance from the outer wall to the niche flange is the correct beam dimension. The rebar should be approximately 2 inches (5 cm) from where the inside finished surface of the pool will be. You must be sure to leave approximately 2 inches (5 cm) between the niche flange and the rebar (see illustration).



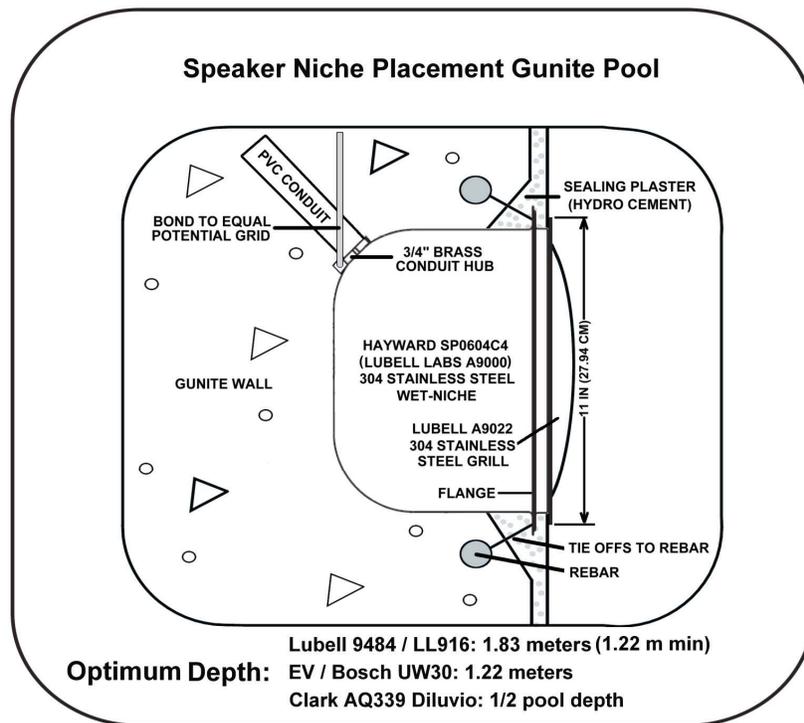
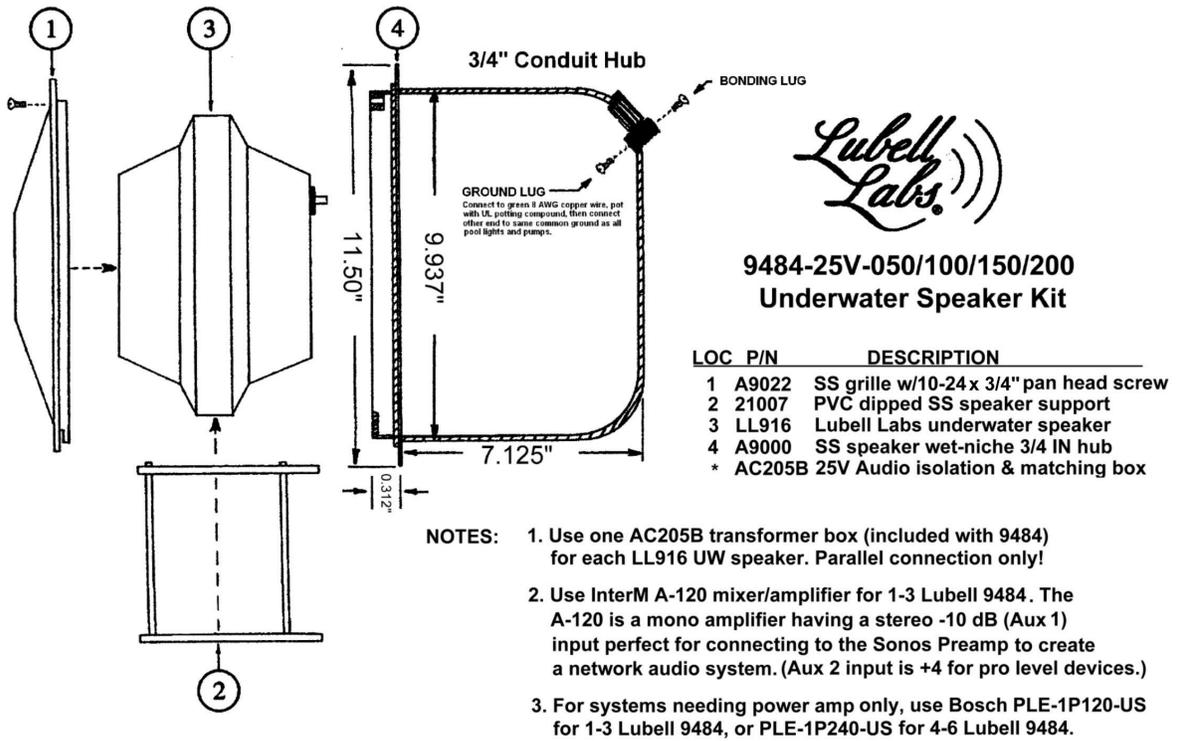
3. INSTALL CONCRETE/GUNITE AND PLASTER

After attaching the niche to the rebar of the pool/spa wall and attaching conduit and conduit fittings as necessary, install the plastic niche cover. The niche cover will prevent gunite or concrete from entering the inside of the niche during the pouring/shooting process. The outside bonding connection must be completed and inspected before the concrete/gunite pouring/shooting operation. Follow applicable codes. It is also necessary to prevent concrete or gunite from hardening on the outer edge and flange of the niche during pouring/shooting.

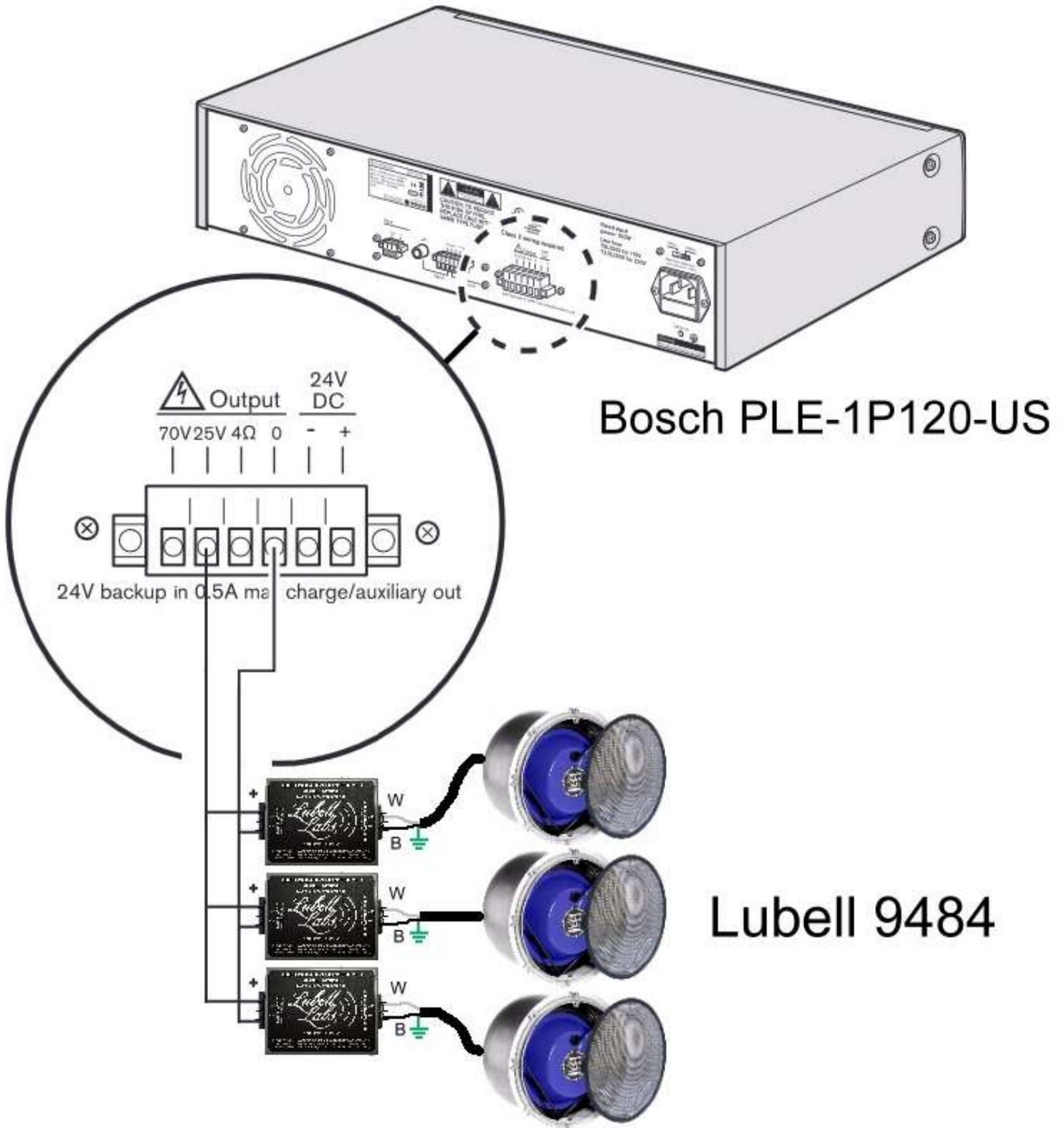
Once the concrete/gunite has completely dried, the niche is ready to be "plastered". Before applying plaster, the outer edge of the cover may be torn off to allow plastering up to the edge of the niche. REMOVE and discard the plastic cover when ready to install the luminaire. If the light is installed in the niche before pool/spa construction, the plastic cover may be reversed and taped to the edge of the light's face plate to protect it from concrete and plaster. The plaster is applied about 1 inch (2.5 cm) thick in the area surrounding the niche. The area between the front edge and the flange of the niche is also filled with plaster.



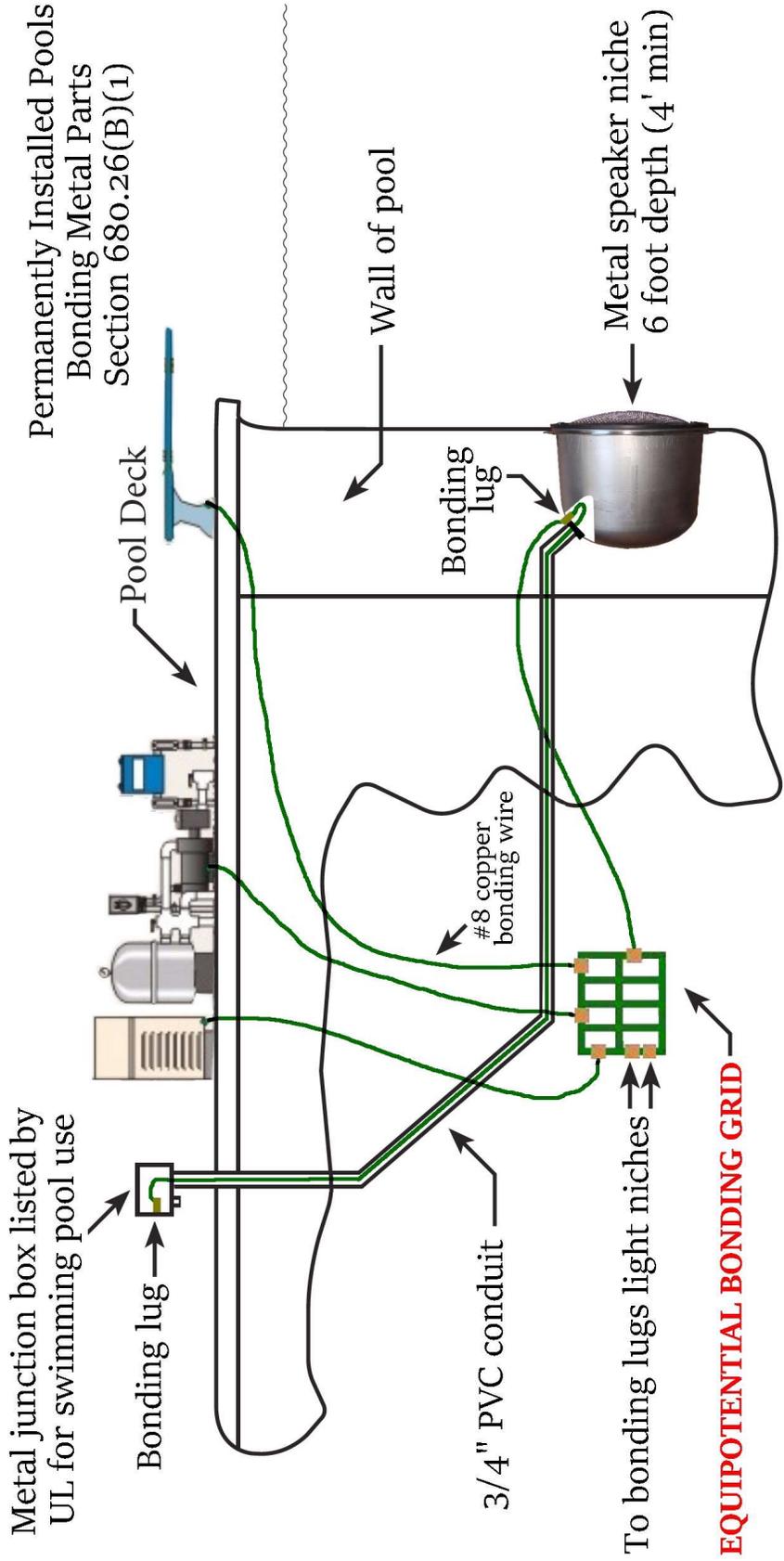
VI. 9484 UW SPEAKER KIT PICTORIAL



VII. Bosch Plena PLE-1P120-US and PLE-1P240-US Speaker Connection Diagram



Note: Use Bosch PLE-1P240-US for 4 to 6 Lubell 9484



All metal parts of pool structure must be bonded together. Nonconductive steel cannot be used because it does not eliminate voltage gradients.