



The Meyer Sound USW-1 is a compact high-power subwoofer loudspeaker designed to extend the power bandwidth of Meyer Sound reinforcement systems to 40Hz. The system consists of two 15-inch cone drivers in a heavily braced 5 cu. ft. vented enclosure. The cabinet is fitted with handles and three rigging plates securely attached to steel rigging brackets integral to the cabinet.

The USW-1 is designed to be operated as a system with the Meyer Sound B-2A Control Electronics Unit.

The B-2A comprises electronic crossover, Meyer Sound exclusive SpeakerSense™ driver protection circuitry, and amplitude and phase response alignment circuitry optimized for the loudspeaker.

The B-2A also contains the Meyer Sound exclusive Bass Extender circuitry.

Amplifier Requirements

The USW-1 requires a professional quality two-channel power amplifier capable of delivering 200-300 watts per channel continuous into 8 ohms, or a single amplifier capable of 400 watts into 4 ohms (loudspeakers connected in parallel). Use of amplifiers of lower power will not allow the full power and headroom of the USW-1 system to be realized. Conversely, use of amplifiers rated at significantly more than

400 watts into 4 ohms may endanger the loudspeaker, and is **not recommended**.

For further information on power amplifiers, please refer to **Choosing a Power Amplifier**, a Meyer Sound Technical Note available from your dealer.

Connections

The connection terminals of each 15-inch driver appear on a single Cannon P-type 4-pin connector located on the rear of the USW-1 cabinet. The pin assignments for this connector are:

Pin 1—Driver 2, common

Pin 2—Driver 1, common

Pin 3—Driver 1, hot

Pin 4—Driver 2, hot

(When the cabinet is fitted with a Cannon EP-5 connector, Pin 5 is unconnected.)

It is recommended that these connections be brought back separately to the power amplifier and wired in parallel at the

amplifier output. The minimum wire size for connections between the USW-1 and the power amplifier should be 14 gauge.

Note. If you are using standard Meyer Sound loudspeaker cables and adapters, simply connect the female end of the loudspeaker cable to the USW-1, the male end of the cable to the Meyer Sound subwoofer pigtail adapter, and the banana connector of the adapter to your amplifier outputs.

For connections between the B-2A and the power amplifier, refer to the **B-2A Operating Instructions**.

Verifying System Phase

All Meyer Sound loudspeaker systems are thoroughly tested in all stages of manufacture and the correct polarity of individual cabinets is assured. However, polarity reversal is possible in large systems with multiple amplifier connections. A single cabinet or component that is 180 degrees out of phase with the rest of the system will cause cancellation, resulting in a noticeable decrease in SPL and possible component damage.

Because of the extensive signal processing circuitry of the B-2A Control Electronics Unit, the "phase-popper" type of speaker phase checkers cannot reliably be used to test for correct polarity of the USW-1. However, it is a simple matter to test individual cabinets with a 9 volt battery, and a spectrum analyzer can be used, with a pink noise source, to test for correct polarity between cabinets.

1. Single cabinets.

- First, verify polarity of one woofer by connecting a 9 volt battery at the end of the loudspeaker cable

Cannon connector	Battery
Pin 1	- terminal
Pin 4	+ terminal

- The woofer cone should move outward toward the listener
- Now repeat the process for the other woofer, connecting Pin 2 to the minus terminal, and Pin 3 to the plus terminal

2. Multiple cabinets

- Each cabinet should first be tested as above.
- Input the pink noise source to the B-2A
- Connect one cabinet and advance the pink noise to a convenient measuring level. Position the measuring microphone on the axis between two adjacent cabinets, and about 6 feet distant. Note the frequency response and overall level
- Leaving the first cabinet connected, connect the adjacent one and observe the analyzer display. The entire curve should jump up in level, indicating correct addition between the loudspeakers. A polarity reversal between the loudspeakers will show up as severe cancellation
- Similarly, connect the rest of the cabinets in the array one by one, looking for correct addition as each loudspeaker is connected. (It will be necessary to reposition the microphone.)

Note. A polarity reversal within the subwoofer system can result in severe damage to the woofers. It is strongly recommended that polarity testing be done at low levels and with the appropriate equipment.

Rigging

The USW-1 loudspeaker has three steel rigging brackets internally mounted as an integral part of the cabinet design and the cabinet is supplied with either aircraft pan fittings (ring and stud) or $\frac{3}{8}$ "-16 nut plates, according to user preference. A flat plate is supplied when no rigging hardware is specified. All plates are held in place by six Phillips-head machine screws and can be interchanged at any time. The handles on the USW-1 cabinet are provided solely for moving and carrying the loudspeaker and are **not** to be used for rigging purposes.

The rigging hardware is so designed that a single point can support the normal load for the cabinet. In the case of the USW-1, the recommended maximum load is 420 lbs. (186 kg). Any of the individual rigging points are capable of supporting this load with an adequate safety margin. However, Meyer Sound strongly recommends that safety lines be run to the other points. If the structural integrity of any cabinet has been compromised by damage or negligence, then the safety of the rigging cannot be assured. **All rigging should be done by competent professionals.**

Placement and Arraying

As with all sub-woofer systems, placement of the USW-1 is critical to the performance of the entire sound system. The wavelength of 100Hz is approximately eleven feet, so a physical displacement of the subwoofer system with respect to the main system of $5\frac{1}{2}$ feet or $16\frac{1}{2}$ feet will produce a severe dip in frequency response at 100Hz. This may be corrected by reversing the polarity of the sub-woofer system with respect to the main system.

The USW-1 adds very well in arrays, but because of the long wavelengths of low frequencies, a compact stack of USW-1s will act as an omni-directional source. In order to control the coverage pattern of the sub-woofer system, it is recommended that USW-1s be configured in one of two ways.

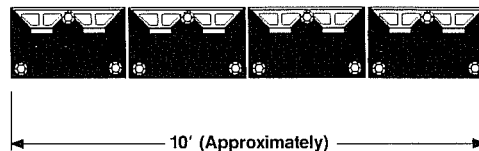
1. A straight line of USW-1s ten feet in length will produce the following coverage angles:

180 degrees at 50Hz

90 degrees at 100Hz

30 degrees at 200Hz

SPL will be attenuated at least 6dB outside the given coverage angles.



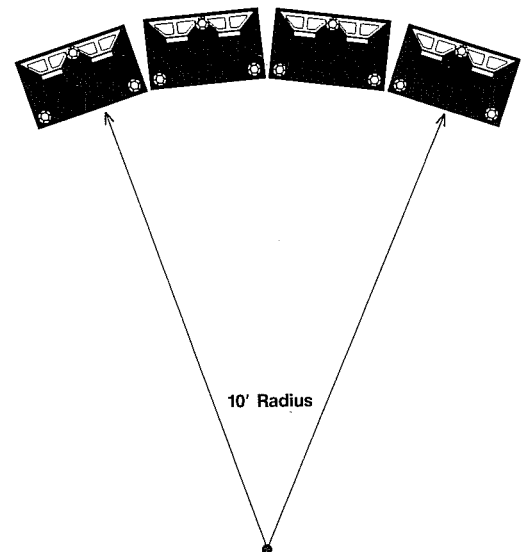
2. A curved array describing an arc of 60 degrees with a ten foot radius. This will form an array approximately ten feet in length which will produce the following coverage angles:

120 degrees at 50Hz

90 degrees at 100Hz

40 degrees at 200Hz

SPL will be attenuated 6dB outside the given coverage angles.



Specifications

Acoustical—USW-1/B-2A System

Frequency Response¹ 40-100Hz \pm 4dB

Maximum SPL²

Continuous

130 dB

Peak

135 dB

USW-1 Loudspeaker

Driver Complement

MS-15 (two)

Minimum Impedance

8 ohms per driver

Enclosure

5 cu. ft. vented, multi-ply
Finnish Birch plywood

Finish

Black textured

Physical Dimensions

21 $\frac{3}{8}$ "H x 31"W x 19 $\frac{1}{4}$ "D

Weight

115 lbs. (52 kg)

Protective Grill

Expanded metal screen, vinyl damped,
charcoal-grey foam covering

Connector

Cannon EP-4(male), EP-5 (male, Europe only)

Rigging (optional)

Aircraft pan fittings, or $\frac{3}{8}$ " nut plate

¹ Measured 1 meter on-axis, half-space conditions, pink noise input, in third-octave bands

² Loudspeaker driven by power amplifier rated at 400W into 4 ohms, weighted noise signal source