

# powerbass<sup>®</sup>

X T R E M E



**2XL-50C**

**2XL-60C**

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**2XL SPEAKER CONVERTABLES**

**Application Guide**





## Thank you and Congratulations

Congratulations on your purchase of Powerbass Xtreme speakers. You now own a speaker of uncompromising design and engineering from a factory that truly believes in the relentless pursuit of perfection. Incorporating the highest quality parts and state-of-the-art materials, these speakers display the ultimate balance between high fidelity, extreme performance and long-lasting reliability.



At PowerBass USA, Inc. we are confident you will have many years of outstanding enjoyment from this great SPEAKER investment. For maximum performance we recommend that you have your new PowerBass Xtreme product installed by an Authorized PowerBass Xtreme Dealer. Doing so will also automatically extend your warranty to a full THREE YEAR Period.

To learn more about PowerBass Xtreme, please visit us on the World Wide Web at  
<http://www.powerbassusa.com>

### Δ Warning Δ

Continuous exposure to sound pressure levels in excess of 100 dB can cause permanent hearing loss. PowerBass Xtreme Speakers are capable of producing sound pressure levels well over 170 dB. Please observe all local sound ordinances while listening to your PowerBass Xtreme system. PowerBass USA, Inc. accepts no liability for hearing loss, bodily injury, or property damage due to the result of use or misuse of this product. property damage due to the result of use or misuse of this product.

## 2 IN 1 CONVERTIBLE SPEAKER FEATURES

**Dual Gap Technology:** Proprietary neodymium magnet assembly with finned heat sink allows the speaker to play louder with less distortion.

**Stamped Basket (Stainless Steel Finish):** These rigid baskets are designed to give the moving parts of the speaker the solid, corrosion free platform that they need to perform for even the most discriminating listener.

**4-Layer Wool/Paper Composite Cone:** The premium grade cones on these speakers are coated fibrous paper cone with woven wool fibers for addition strength and rigidity. This results in an extremely stiff cone that is lightweight and will deliver a warm sound that you can listen to for hours.

**High Powered Multi-Layer 3-ohm Voice Coil:** Kapton is a high temperature voice coil former that is light weight and designed for greater efficiency and increased power handling that gives you that loud and clear sound you are looking for. These very large hand treated silk dome tweeters incorporate a neodymium motor structure and edge wound ribbon wire voice coil to provide an extremely wide bandwidth.

**High Powered 12dB Crossover Network:** These asymmetrical crossovers were designed using a sophisticated computer program LEAP to provide a smooth, flat frequency transition between the midrange and tweeter. High quality air cores, parallel stacked high stability metal film capacitors, low DC resistance inductors and current limit poly switch tweeter protection insure audiophile sound separation.

**Additional Features:** pbX tuner inspired custom grills professional mounting hardware and speaker wire adds further value to your investment.

## COMPONENT SEPARATES FEATURES

**Spun Aluminum Phase Plug:** Bullet design reduces phase cancellations.

**Tweeter Mounting Kit:** Flush, surface and angle-mounting cups allows multiple mounting options for custom tailored high frequency dispersion.

## COAXIAL FEATURES

**Balanced Pure Silk Soft Dome Pivoting Tweeter:** These very large 1-inch hand treated silk dome tweeters incorporate a neodymium motor structure and edge wound ribbon wire voice coil to provide an extremely wide bandwidth.

## SPECIFICATION FOR POWERBASS 2XL SPEAKERS

(due to Constant Improvement, Specification and Parameter are subject to change without notice)

Model	Size	Nominal Impedance	Frequency Response	Sensitivity 1W/1M	Magnet Size	Mounting Depth	Power RMS/Max
2XL-50C	5.25"	3 Ohm	62 Hz - 20 kHz	90 dB	12 oz.	2.2"	70 W / 140 W
2XL-60C	6.5"	3 Ohm	59 Hz - 20 kHz	91 dB	14 oz.	2.4"	90 W / 180 W



## INSTALLATION EXPERIENCE

Installation of PowerBass Xtreme Speakers requires experience with a variety of mechanical and electrical procedures. This manual only provides general installation and operation instructions. If you have any reservations about your installation skills or lack of the proper tools, please contact your local PowerBass Xtreme dealer for assistance.

## TIPS TO GET THE MOST OUT OF YOUR POWERBASS SYSTEM

Your PowerBass Xtreme speakers have been meticulous engineered and designed to handle high power musical reproduction. Despite their rugged construction, it is possible to damage your speaker if they are improperly used. In general, you will hear distortion as a so-called warning before any damage occurs. If you hear distortion in your system, immediately reduce the musical level to the point where the sound retains its clarity.

1. Be sure you supply the speakers with enough unclipped amplifier power to drive them properly. **(More damage can be done to a speaker by under-powering and clipping your amplifier than any other way!)**

2. Where possible, a separate amplifier just for your speaker should be used with an electro ic crossover to set the frequency range. One amplifier with passive crossovers will work (Tri-Way Setup), but the system will do more with less stress on the amplifier by using two amps.
3. To avoid any possible sound cancellation from the front of the speaker to that of the rear of the speaker, cut a panel of Masonite or MDF to firmly mount the speaker if the vehicle's original cutout is too big.
4. When connecting speaker wires from the amplifier or head unit to that of the speaker itself, pay attention to the polarity of the connection. This will insure optimum sound reproduction and performance.
5. For maximum dynamic performance use weather stripping to insure a tight seal.
6. Do not mount any speakers or external crossovers where they will get wet.
7. Remember the Golden Rule "Measure twice...cut once."

When installed properly, your PowerBass Xtreme component system will make a remarkable improvement in the quality of virtually any mobile audio sound system and give years of superior performance.

## **PREPARING FOR INSTALLATION**

**NOTE: The tools listed below may be required for proper installation.**

1. An electric drill with drill bits
2. Phillips-head and standard screwdrivers
3. Wire strippers
4. Crimping tool and needle-nose pliers
5. Silicone sealant or closed cell weather-stripping
6. Metal file
7. Hole saw

## **INSTALLATION PRECAUTIONS**

**NOTE: Proceed only if you are a qualified installer otherwise; let your dealer do it.**

- Always wear protective eyewear when using tools.
- Turn off all stereo and other electrical devices before you begin.
- Disconnect the (-) negative lead from your vehicle's battery.
- Keep the speakers in the package until final installation.
- Locate all fuel lines, brake lines, oil lines, and electrical cables when planning your installation.
- Check to see if there is enough clearance behind the mounting surface before installing the speakers.
- When running speaker wires through sheet metal, be sure to use grommets to properly insulate the wires from metal edges.

## **INSTALLATION PROCEDURES**

- Since these speakers utilize a unique low profile swivel tweeter housing that has minimal tweeter protrusion, original factory mounting cutouts can still be used with the factory grills in many cases.
- These PowerBass Xtreme speakers can be used above or below the mounting hole. Typically, your vehicle factory's speaker cutouts will accommodate these new speakers without any modifications. When the speaker has been correctly installed, there should be no air leaks between the front and back of the speaker.
- For door installations, check the clearance of the windows throughout the entire range of the window's travel.
- Check the available mounting depth before installing the speaker. Use care when removing factory grills, door panels and factory speakers.

### **2-WAY COMPONENT CONVERTIBLE SPEAKER SET**

These component speakers can also be used coaxial speakers; making them "convertibles". The mid range speaker will fit into many standard factory mounting holes in your vehicle.

To find the best suitable location, carefully remove the trim panels and inspect the installation area before you cut and drill any holes required to mount the speaker. Removing the panel will also make it much easier to route wiring inside the doors. Look for original equipment (OEM) speaker cutouts that can be used to install your speakers with little or no modifications. Use the supplied template to help you locate and mark the holes needed to install the speakers.

If you planning to install your speakers in the door panel, be sure the speaker will not interfere with the window lowering mechanism. Use care so the speaker wires will clear all moving parts inside the door.

Should you need to cut or drill in order to mount your speaker be sure to thoroughly clean the area of all filings and shavings before you mount the speaker.

### **COMPONENT SYSTEM INSTALLATION**

Your speakers have been assembled at the factory as components. This portion of the manual will cover component system installation.

#### **2XL Component Midrange**

The proper installation procedure for mounting these high performance midrange speakers is to secure the speaker to the vehicle's speaker mounting hole. The speaker should fit snug to the location without air gaps. Never force the a speaker into an area that is too small, this can cause damage to the speaker. Once the speaker is in place, determine if the supplied grill needs to be installed. If so, place the grill in place over the speaker and screw the speaker into the mounting hole.

## PowerBass Xtreme Component Tweeter

These high quality tweeters come complete with several mounting housings for installation versatility. Experiment with the tweeter positioned in several locations to determine the best imaging result before cutting out any panel. Typically tweeters should be mounted on axis and as close to ear level as possible. Once a suitable location has been found then you can evaluate your mounting options shown on the next page.



## 2XL COMPONENT TWEETER SPECIFICATIONS

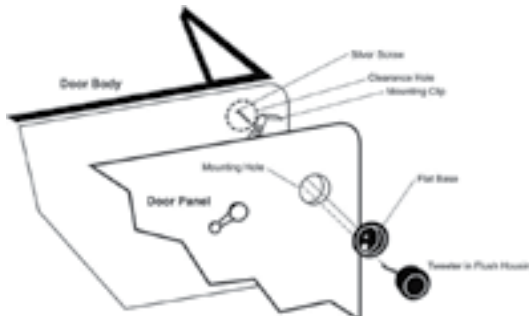
DOME SIZE (25mm)	MOUNTING (DIAMETER)	NOMINAL IMPEDANCE	FREQUENCY RESPONSE	SENSITIVITY (1M / 1M)	MOUNTING (DEPTH)	POWER (RMS/PEAK)
1.0" SILK	1 7/8"	4Ω	3.5K-21Khz	92 dB	7/8"	60/120

## INSTALLATION PROCEDURES

By mounting the tweeter separately from the woofer (or mid-range driver) the installer can choose the best location for sound quality and imaging. Optimum results are usually obtained by locating the tweeters and midrange speakers relatively close to each other, and by keeping the sound path lengths between the listener and the left and right speakers as equal as possible. Three mounting types are possible allowing more versatility for the tweeter location. These are flush mount, surface mount, and angle mount.

### Flush Mounting (Type A)

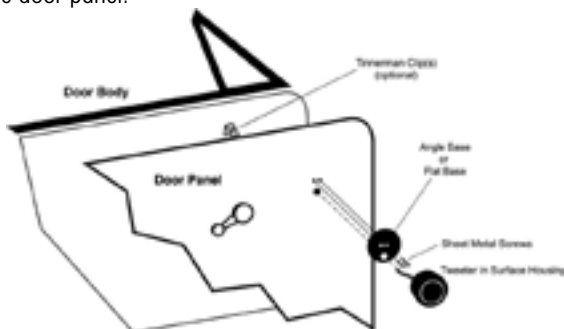
The best location for the tweeter is usually high up on the door and as far forward as possible without interference from the dashboard. If the desired location is flat and space behind the door panel allows the use of the flush mount housing, follow the drawing as shown below:



After checking for clearance, cut the mounting hole in the door panel (see Tweeter Specifications for hole size). Mount the Flat Base from the outside with the mounting clip on the inside of the door panel. Secure the mounting clip to the Flat Base with the long silver screw provided.

### Surface/Angle Mounting (Type B and C)

If mounting the tweeter on the surface works out best, refer to the following drawing to see how to best mount the tweeter. Black sheet metal screws have been provided to attach the surface base to the door panel.



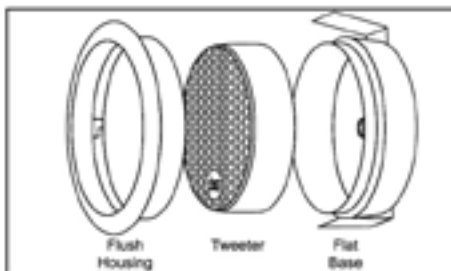
## POWERBASS XTREME COMPONENT TWEETERS

These high quality tweeters come complete with several mounting housings for installation versatility. After you have chosen the housing to be used, gently press the tweeter in the proper mounting base. Once the tweeter base is mounted, push and "twist" the housing until it locks to the base. Below are exploded views showing the possible types of tweeter mounting.

## EXAMPLE OF MOUNTING

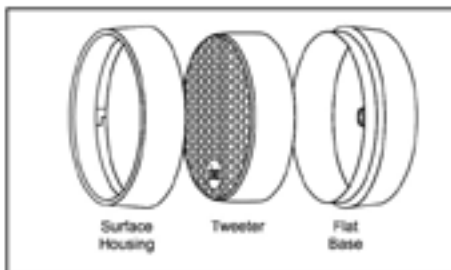
### Type A

Flush Mount Tweeter



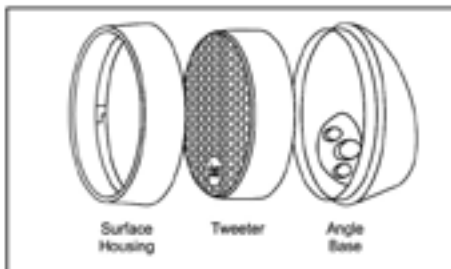
### Type B

Surface Mount Tweeter



### Type C

Angle Mount Tweeter



If the tweeter has to be removed from the mounting cup, insert a small screwdriver in the back of the tweeter and carefully push the tweeter from the mounting cup.

## COMPONENT SET CROSSOVER INSTALLATION AND WIRING

The 2XL Series component crossover network incorporates a variety of high quality components to insure proper sound separation between the midrange speaker and the tweeter.

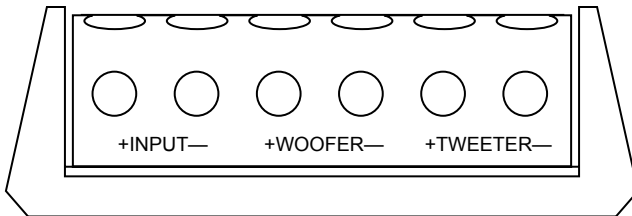
The most common place to install the crossover network is on a flat surface inside the door. However, the door is subject to constant vibration from repeated opening and closing which can over time damage the electronic parts found inside the crossover. If mounted inside the door, be sure to avoid locations that may expose the crossover to moisture. **Therefore, a better option is to install the crossover network inside the passenger compartment.**

It is advisable to keep the crossover network away from any auto electronics that could possibly induce noise into the system. Which ever area you select, choose your location carefully.

Mounting the crossover requires removing the top cover of its housing. This will expose the two mounting holes. You can use the crossover as a template for drilling the mounting holes.

**NOTE: IT MAY BE EASIER TO WIRE THE CROSSOVER PRIOR TO MOUNTING.**

Carefully route the wires from the midrange and tweeter to the crossover mounting location. Wiring the crossover network is pretty straightforward as shown in the diagram below:



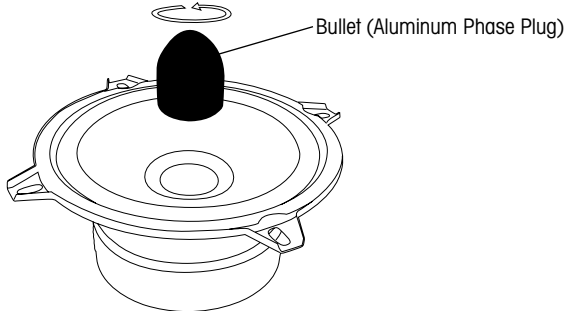
1. Connect the amplifier or head unit output to the crossover's input terminals.
2. Connect the terminals labeled woofer to the component midrange speaker.
3. Connect the terminals labeled tweeter to the component tweeter set.

**CAUTION: BE SURE TO OBSERVE PROPER POLARITY WHEN CONNECTING SPEAKER WIRES TO THE CROSSOVER NETWORK TERMINALS.**

**NOTE: It is highly recommended that a hand screw driver and NOT a power drill is used to tighten the speaker wires to the crossover network terminals.**

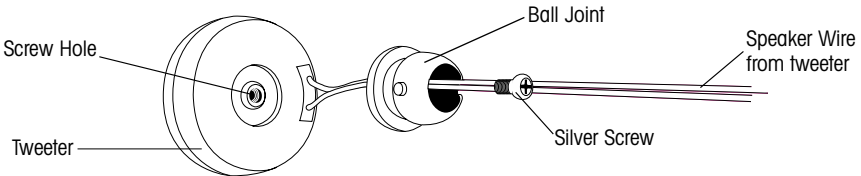
## COMPONENT TO COAXIAL ASSEMBLY

In a coaxial application, the tweeter is placed directly in the center of the woofer—replacing the aluminum phase plug. To do this, unscrew and remove the center **bullet** from the threaded base by turning the phase plug counter-clockwise as shown below. (We suggest you keep the phase bullet for future use).

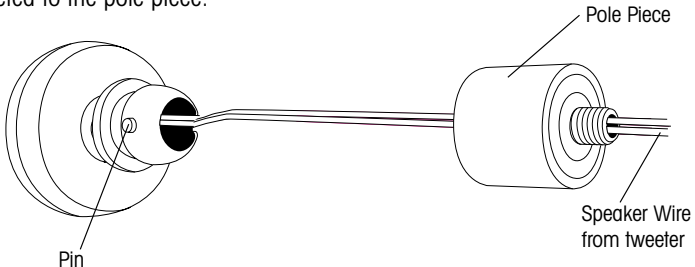


With the phase plug removed, you should be able to see through the hole in the magnet to where the bullet was previously located.

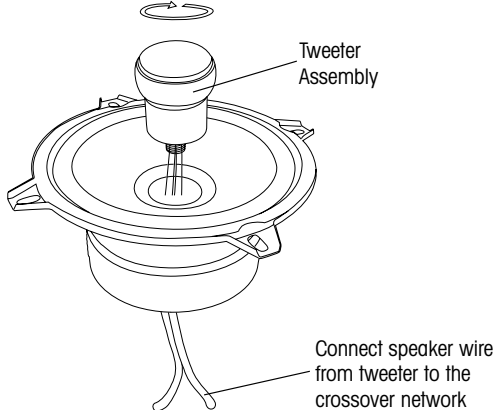
Next, screw the **ball joint** assembly to the back of the **tweeter**. Be sure to feed the wire coming from the tweeter through the flat base of the ball joint as shown in the drawing.



Now take the pole piece and feed the tweeter's speaker wire through the threaded opening at the base. Align the **pin** on the ball joint assembly with the slotted groove on the **pole piece** and gently "snap" the two pieces together. If done correctly, the tweeter should pivot while remaining connected to the pole piece.



Finally feed the tweeter's speaker wire from the **tweeter assembly** through the basket and magnet. Thread the pole piece to the basket (where the phase bullet was removed) by turning clockwise taking care not to damage the midrange voice coil assembly.



Once fully assembled, route the tweeter's speaker wire in the channel on the back of the magnet and down through the heat sink fin. Attach a new magnet label over the wire and the magnet to help keep the wire in place. This will prevent the speaker wire from interfering with any mechanisms behind the door panel.

The conversion from Component to Coaxial is now complete! It will still be necessary to use the crossover network just the same as with the component speaker. Please refer to the Component Set Crossover Installation and Wiring section of this manual for proper mounting and wiring instructions.

**NOTE: The midrange will wire to the crossover network in the same manner regardless if used as a component or coaxial.**

## **POWERBASS XTREME LIMITED WARRANTY POLICY**

PowerBass USA, Inc. offers limited warranty on PowerBass products under normal use on the following terms:

**PowerBass Xtreme Speakers are to be free of defects in material and workmanship for a period of one (1) year. The warranty is extended to three (3) years for parts and labor, if an Authorized PowerBass Xtreme Dealer completes the installation.**

This warranty applies only to PowerBass products sold to consumers by Authorized PowerBass Dealers in the United States of America. Products purchased by consumers from a PowerBass dealer in another country are covered only by that country's Distributor and not by PowerBass USA.

This warranty covers only the original purchaser of PowerBass product. In order to receive service, the purchaser must provide PowerBass with the receipt stating the consumer name, dealer, product and date of purchase.

Products found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at PowerBass's discretion and will not be liable for incidental or consequential damages. PowerBass will not warranty this product under the following situations:

- **Speakers received with bent frames or water damage**
- **Abuse such as holes in the cone, surround or ripped spider**
- **Voice coil damage due to amplifier clipping or distortion**
- **Product that has not been installed according to this owners manual**

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for PowerBass any other liability in connection with the sale of this product.

**Please call (909) 993-5399 for PowerBass Customer Service.** You must obtain an RA# (Return Authorization Number) to return any product to PowerBass. **The RA number must be prominently marked on the outside of the shipping carton or the delivery will be refused.** Please pack your return carefully; we are not responsible for items damaged in shipping. Return the defective product along with a copy of the original dated retail sales receipt, plus \$9.00 for handling and diagnostic evaluation to:

**PowerBass USA, Inc., Attn: Returns (RA# \_\_\_\_\_ )**  
**13936 Mountain Avenue, Chino, CA 91710**

Residents of HI, AK and US territories will be charged for return shipping. All inquires regarding service and warranty should be sent to the above address.

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